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東濃鉾山岩石コアの比誘電率計測

(核燃料サイクル開発機構 契約業務報告書)

平成16年3月

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〒319-1184 茨城県那珂郡東海村村松4番地49
核燃料サイクル開発機構
技術展開部 技術協力課
電話：029-282-1122（代表）
ファックス：029-282-7980
電子メール：jserv@jnc.go.jp

Inquiries about copyright and reproduction should be addressed to:
Technical Cooperation Section,
Technology Management Division,
Japan Nuclear Cycle Development Institute
4-49 Muramatsu, Tokai-mura, Naka-gun, Ibaraki 319-1184, Japan

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(核燃料サイクル開発機構 契約業務報告書)

戸井田 克* 渥美 博行* 名見耶 薫* 須山 泰宏*

要 旨

東濃地科学センターでは、坑道周辺に生じる不飽和領域を把握する技術を確立するため、坑道近傍の間隙水圧計測、TDR法による計測、連続波レーダーといった異なる手法の原位置における適用性確認試験を実施し、結果を総合的に評価することを進めている。

地質情報が豊富な NATM 坑道において、昨年度においては、NATM 坑道壁面で地表連続波レーダー計測を実施し、また本年度は、岩盤の含水量分布を比誘電率から推定する TDR 法の適用性確認試験を実施した。本件は、これらの電磁波を用いた原位置計測結果を評価する基礎データを得るため、NATM 坑道の壁面に掘削した試錐孔のコアを用いて室内比誘電率計測を行ったものである。この結果、原位置計測を行った堆積岩の誘電率は、40MHz の周波数において乾燥状態では 4 程度、自然状態では 10~40 程度であることがわかった。また、岩石の間隙率を仮定することにより飽和度と比誘電率の関係を求め、これを基に坑道近傍の飽和度分布を推定することができた。

本報告書は、鹿島建設株式会社が核燃料サイクル開発機構との契約により実施した業務成果に関するものである。

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機構担当課室：東濃地科学センター 地質環境研究グループ

* 鹿島建設（株）技術研究所

March, 2004

The laboratory test of dielectric constant of the rock core piece in Tono mine

Masaru Toida*, Hiroyuki Atsumi *, Kaoru Nagoya *, Yasuhiro Suyama

Abstract

In order to establish the technical method for estimating the unsaturated zone around the galley, JNC Tono Geoscience Center totally has been developing in-situ methods such as the pore water pressure measurement, TDR method (Time Domain Reflectometry), and electromagnetic wave tomography.

In this year, in-situ TDR measurements were carried out at the NATM galley to verify the applicability of the TDR method, which can estimate the rock water content from the dielectric constant. In the last year, the ground penetrating radar survey was conducted at the same NATM galley wall to compare the results from the TDR method. This report shows the results of laboratory test of dielectric constant using the core pieces of the boreholes drilled at the NATM galley wall to evaluate the results of ground penetrating radar survey. The results indicated that the dielectric constant was measured as about 4 in the dry condition and 10 to 40 in the natural condition under the frequency of 40MHz, and the distribution of saturation ratio around the NATM gallery could be estimated based on the relationship between the saturation ratio and the dielectric constant measured at the laboratory test.

This work was performed by Kajima Corporation under contract with Japan Nuclear Cycle Development Institute.

JNC Liaison : Geoscience Research Group, Tono Geoscience Center

* : Kajima Technical Research Institute, Kajima Corporation

東濃鉾山岩石コアの比誘電率計測

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1. 業務概要

1. 1 業務件名

東濃鉱山岩石コアの比誘電率計測

1. 2 目的

東濃地科学センターでは、坑道周辺に生じる不飽和領域を把握する技術を確立するため、坑道近傍の間隙水圧計測、TDR法による計測、連続波レーダーといった異なる手法の原位置における適用性確認試験を実施し、結果を総合的に評価することを進めている。

昨年度、NATM坑道壁面で地表連続波レーダー計測を実施し、また本年度は、岩盤の含水量分布を比誘電率から推定するTDR法の適用性確認試験を地質情報が豊富なNATM坑道において実施した。本件は、連続波レーダーの結果を評価し、TDR法の原位置計測結果と比較する基礎データを得るため、NATM坑道の壁面に掘削した試錐孔のコアを用いて室内比誘電率計測を行うものである。

1. 3 実施期間

平成16年3月12日まで

1. 4 実施数量

岩石電気的特性（比誘電率及び導電率）計測：28供試体×2状態

1. 5 実施機関

鹿島建設株式会社 技術研究所 材料・LCEグループ

2. 計測方法

2. 1 計測機器

物質の比誘電率及び導電率を求めるには、そのインピーダンスを計測し、インピーダンスの値から比誘電率及び導電率を求める方法がある。ここでは供試体のインピーダンスを直接計測するためにHP製のインピーダンス/ゲイン・フェーズ・アナライザ (HP4194A) 及びテスト・フィクスチャ (HP16034E) を使用し、比誘電率及び導電率を算出した。計測方法は、HPアプリケーションノート(339-13)に準ずる。写真2. 1-1に試験機器、表2. 1-1にHP4194Aの仕様をそれぞれ示す。

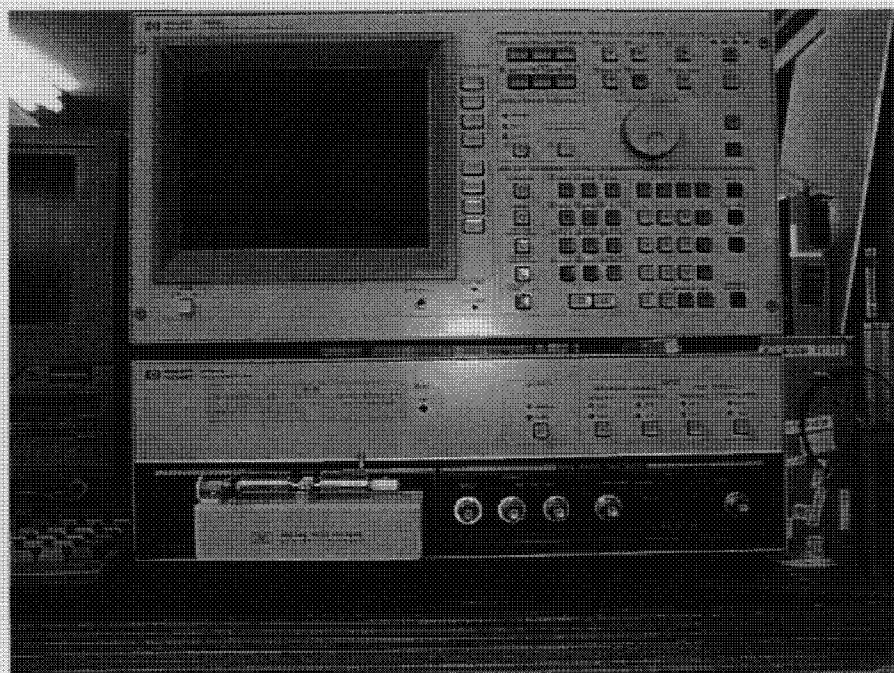


写真2. 1-1 試験機器 (HP4194A及びHP16034E)

表 2. 1-1 HP4194Aの仕様

インピーダンス計測		
計測パラメータ	Z , Y , θ , R, X, G, B, L, C, D, Q 2つのパラメータの組み合わせが20通りある。	
計測周波数	100Hz~40MHz(計測ケーブル 0m), 100Hz~15MHz(計測ケーブル 1m), 1mHz 分解能	
計測信号レベル	10mV~1Vrms(≤ 10 MHz), 10mV~0.5Vrms(>10MHz) (開放時), 3桁分解能	
DC バイアス	0~ ± 40 V, 10mV 分解能	
計測端子	4 端子対構成	
計測範囲, 最高分解能		
パラメータ	範囲	最高分解能
Z , R, X	10m Ω ~ 100M Ω	100 $\mu\Omega$
Y , G, B	10nS ~ 100S	1nS
θ	$\pm 180^\circ$	0.01 $^\circ$
L	1nH ~ 100kH	10pH
C	10fF ~ 0.1F	0.1fF
D	0.001 ~ 10	0.0001
Q	0.1 ~ 1000	0.1

(基本確度：0.17%)

2. 2 供試体の採取

計測に使用した供試体は東濃鉱山 NATM 坑道の 2 箇所のボーリングコアから採取した。試験に使用した供試体は各コアからそれぞれ 3 個を基本とした。ただし、ボーリングコアは乾燥と湿潤を繰り返すと破壊する恐れがあったため、できるだけ多くの供試体を採取し、28 個の供試体を得、今回の計測対象とした (表 2. 2-1)。

表 2. 2 - 1 供試体の採取深度

番号	供試体名	深度(m)	コアの岩種	
1	SI17-	1	0.1~0.21	細粒砂岩
2		2-1		
3		2-2		
4		3		
5	SI18-	1	2.02~2.14	中粒砂岩
6		2-1		
7		2-2		
8		3		
9	4	2.90~3.08	細粒砂岩	
10	5-1			
11	5-2			
12	6			
13	7	3.08~3.32	粗粒砂岩	
14	8-1			
15	8-2			
16	9			
17	10	4.1~4.3	細粒砂岩	
18	11-1			
19	11-2			
20	12			
21	13	4.86~5.1	中粒砂岩	
22	14-1			
23	14-2			
24	15			
25	16	5.1~5.25	細粒砂岩	
26	17-1			
27	17-2			
28	18			
		合 計	28 個	

2. 3 計測手順

計測は以下に示す手順に従って行った。

- ① 供試体の表面の微細亀裂などをスケッチする。
- ② 直径及び厚みをそれぞれ3回計測し、その平均を算出する。
- ③ 供試体の両面に電極となる銀ペーストを塗布し、自然乾燥させる。
- ④ 自然状態の空中重量を計測する。
- ⑤ 自然状態の並列容量及び並列抵抗を計測する。
- ⑥ 供試体を強制乾燥状態にする。(100℃前後, 24時間以上)
- ⑦ 強制乾燥状態の空中重量を計測する。
- ⑧ 強制乾燥状態の並列容量及び並列抵抗を計測する。
- ⑨ 供試体を24時間以上水に水浸して含水飽和状態にする。
- ⑩ 得られたデータから比誘電率及び導電率の計算を行いグラフ化する。

供試体は、図2. 3-1に示すように、直径 $d(mm)$ 、厚さ $t(mm)$ の円盤状に整形した後、銀ペースト(Dotite)を両面に塗布し、自然乾燥し、これを電極とした。

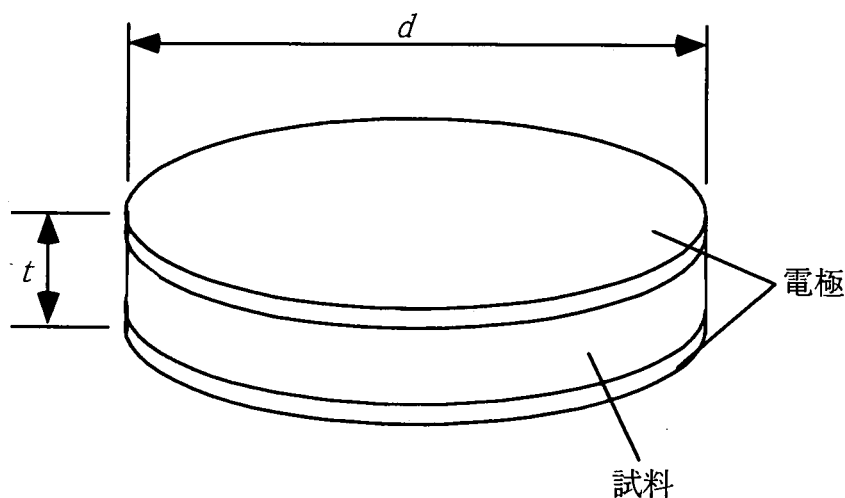


図2. 3-1 コアの成形および電極設置方法

HP4194A による計測時の設定値を以下に示す。

- ・スタッキング回数：8回
- ・掃引時間：2秒
- ・周波数：1~40MHz (1MHz ステップ)

写真2. 3-1及び図2. 3-2に示すように、HP16034E テスト・フィクスチャのコンタクトピンに供試体を挟んで計測を実施した。なお、各計測の前にコンタクトピンをオープン/ショートの状態ですテストフィクスチャの校正を行った。

写真 2. 3-1 供試体の計測状況

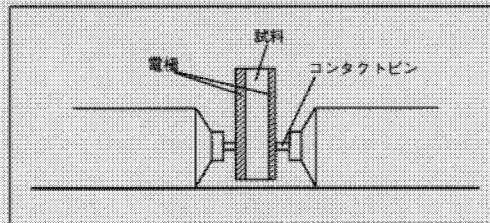
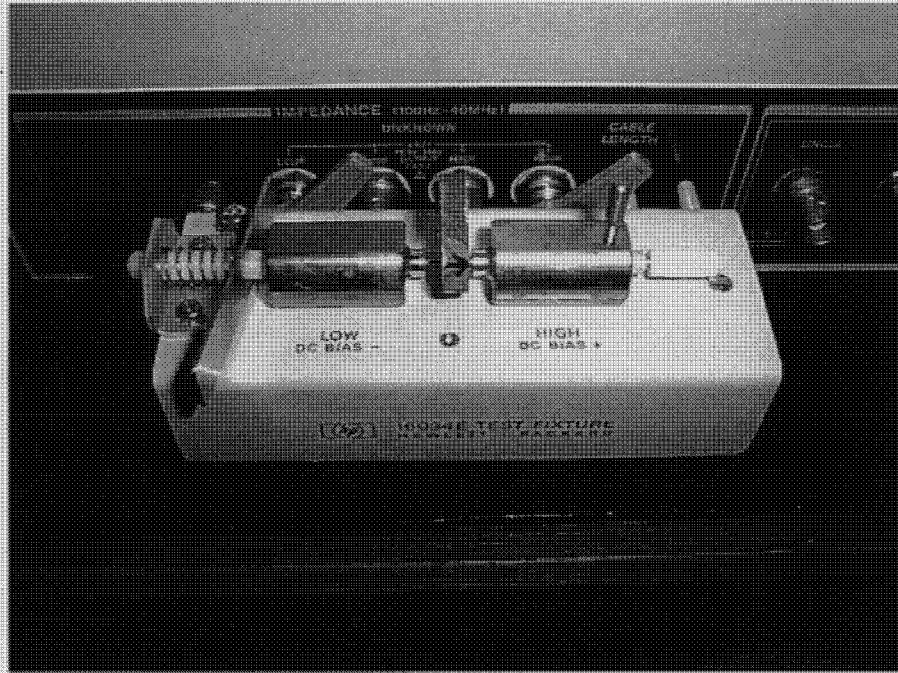


図 2. 3-2 供試体の計測状況

2. 4 供試体の物性値計測

それぞれの供試体について、各状態における空中重量からそれぞれの含水比（重量，体積）を以下の式により算出した。

自然状態の重量含水比： w_n

$$w_n = \frac{W_n - W_d}{W_d} \times 100(\%) \quad (2.4-1)$$

自然状態の体積含水率： w_v

$$w_v = \frac{(W_n - W_d) / \rho}{V_d} \times 100(\%) \quad (2.4-2)$$

$$V_d = \frac{\pi \times d^2}{4 \times t} \times 10^3 \quad (\text{g/cm}^3) \quad (2.4-3)$$

ここで、

W_n : 自然状態の空中重量

W_d : 強制乾燥状態の空中重量

V_d : 供試体の体積

ρ : 水の密度 (=1.0g/cm³)

である。

強制乾燥とは「供試体を 100℃前後の乾燥炉に 24 時間以上放置して乾燥し、デシケータ（密閉容器、乾燥機付）に入れて室温まで冷却した状態」のことである。

2. 5 比誘電率及び導電率の計算

(1) 比誘電率の計算

電極として理想的な平行無限平板を仮定し、この電極間に底面の直径が $d(\text{mm})$ 、厚さ $t(\text{mm})$ である円柱形の供試体（誘電体）が挟まれている場合、この供試体の比誘電率 ϵ_r は次式で表される。

$$\epsilon_r = \frac{4 \times t \times C_p}{\pi \times d^2 \times \epsilon} \times 10^{-9} \quad (2.5-1)$$

ただし、

C_p : 並列容量(pF)

ϵ_0 : 真空の誘電率 (=8.854×10⁻¹²(F/m))

である。

(2) 導電率の計算

ここでは、電極間をオームの法則に従って電流が一様に流れるものと仮定する。このような仮定のもとでは、計測した等価並列抵抗を $R_p(\text{k}\Omega)$ とすれば、供試体の導電率 σ (S/m) は次式で与えられる。

$$\sigma = \frac{4 \times t}{\pi \times d^2 \times R_p} \quad (2.5-2)$$

(3) 電磁波速度及び減衰率の計算

電磁波の伝搬は、電磁気学の Maxwell の方程式から導かれる次式で記述される。

$$\nabla \times \nabla \times E = -\sigma\mu \frac{\partial E}{\partial t} - \epsilon\mu \frac{\partial^2 E}{\partial t^2} \quad (2.5-3)$$

ここで、 E は電界強度、 ϵ は誘電率、 σ は導電率、 μ は透磁率である。上式から、

$$E \propto \exp(j\alpha t) \quad (2.5-4)$$

として、次の波動方程式が導かれる (j は虚数単位、 ω は角周波数、 t は時間)。

$$\nabla^2 E + k^2 E = 0 \quad (2.5-5)$$

ただし、

$$k^2 = \omega^2 \epsilon\mu - j\omega\sigma\mu \quad (2.5-6)$$

である。

$$k = \alpha - j\beta \quad (2.5-7)$$

とおけば、

$$\alpha = \sqrt{\frac{\omega^2 \epsilon\mu}{2}} \sqrt{1 + \sqrt{1 + \frac{\sigma^2}{\omega^2 \epsilon^2}}} \quad (2.5-8)$$

$$\beta = \sqrt{\frac{\omega^2 \epsilon\mu}{2}} \sqrt{-1 + \sqrt{1 + \frac{\sigma^2}{\omega^2 \epsilon^2}}} \quad (2.5-9)$$

が導かれる。通常、地中を構成する物質の透磁率 μ は真空中の値 μ_0 に近いと仮定し、レーダ探査に使用される周波数帯では、 $(\sigma/\omega\epsilon)^2 \ll 1$ と仮定し、電磁波の速度 V 及び減衰率 a を次式で近似する。

$$V = \frac{C}{\sqrt{\epsilon_r}} \quad (2.5-10)$$

及び、

$$a = 60\pi \frac{\sigma}{\sqrt{\epsilon_r}} (1/m) \approx 521\pi \frac{\sigma}{\sqrt{\epsilon_r}} (dB/m) \quad (2.5-11)$$

である。本計測では上の2式を用いて電磁波速度及び減衰率を算出した。

3. 計測結果

3. 1 供試体の計測状況

今回整形した供試体のスケッチ及び物性値の測定結果を巻末に示す。

今回の供試体を、強制湿潤状態を測定するために水に浸したところ、スレーキングにより全ての供試体が崩壊したため、自然状態および強制乾燥状態のみ計測が可能であった。整形した供試体の計測状況を表3. 1-1に示す。なお、供試体はコアよりサイズが小さいため、表2. 2-1で示したコアサイズでの岩種と供試体サイズにおける岩種は異なる場合がある。

表3. 1-1 整形した供試体の計測状況

番号	供試体名	深度(m)	供試体の岩種	自然状態	強制乾燥状態	強制湿潤状態
1	SI17-	0.1~0.21	シルト岩	○	○	×
2	2-1		細粒砂岩	○	○	×
3	2-2		細粒砂岩	○	○	×
4	3		細粒砂岩	○	○	×
5	SI18-	2.02~2.14	中粒砂岩	○	○	×
6	2-1		中粒砂岩	○	○	×
7	2-2		中粒砂岩	○	○	×
8	3		中粒砂岩	○	○	×
9	4	2.90~3.08	シルト岩	○	○	×
10	5-1		シルト岩	○	○	×
11	5-2		シルト岩	○	○	×
12	6		細粒砂岩	○	○	×
13	7	3.08~3.32	粗粒砂岩	○	○	×
14	8-1		粗粒砂岩	○	○	×
15	8-2		粗粒砂岩	○	○	×
16	9		粗粒砂岩	○	○	×
17	10	4.1~4.3	シルト岩	○	○	×
18	11-1		細粒砂岩	○	○	×
19	11-2		シルト岩	○	○	×
20	12		シルト岩	○	○	×
21	13	4.86~5.1	中粒砂岩	○	○	×
22	14-1		粗粒砂岩	○	○	×
23	14-2		中粒砂岩	○	○	×
24	15		中粒砂岩	○	○	×
25	16	5.1~5.25	細粒砂岩	○	○	×
26	17-1		シルト岩	○	○	×
27	17-2		細粒砂岩	○	○	×
28	18		シルト岩	○	○	×
		合計		28個	28個	0個

○:測定可
×:測定不可

3. 2 比誘電率計測結果

各状態における比誘電率，導電率，電磁波伝搬速度および減衰率のそれぞれの計測結果を巻末に示す。以下に結果についてまとめたものを示す。なお，今回の報告書では，周波数 1～10MHz を低周波数側，10～40MHz を高周波数側と呼ぶ。

(1) 自然状態

比誘電率：低周波数側で 50 以上，1MHz で 200 を超えるものがある。高周波数側で 20～40 程度の値を示す。周波数が小さくなるに従い指数関数的に増加する周波数依存性がある。

導電率：概ね $10^{-2} \sim 10^{-1} \text{S/m}$ の範囲を示す。周波数が小さくなるに従い減少する傾向がある。

伝搬速度：ほぼ $0.2 \sim 0.5 \times 10^8 \text{m/s}$ の範囲にある。低周波数側で減少する。

減衰率：最大 30dB/m 程度である。周波数が大きくなるにつれて減衰が大きくなる。

(2) 強制乾燥状態

比誘電率：概ね全ての周波数帯において 4 前後であり，自然状態に比べ小さい値を示す。周波数依存性はほとんどない。

導電率：概ね $10^{-5} \sim 10^{-3} \text{S/m}$ の範囲にある。周波数が小さくなるに従い減少する傾向がある。

伝搬速度：ほぼ $1.4 \sim 1.5 \times 10^8 \text{m/s}$ の範囲にある。周波数依存性は自然状態に比べ小さく，10MHz 前後からほぼ一定値となる。

減衰率：最大 0.3dB/m 程度である。周波数が大きくなるにつれて減衰が大きくなるのは自然状態と同様であるが，周波数依存性は自然状態に比べて小さい。

以上の計測結果を表 3. 2 - 1 に示す。

表 3. 2 - 1 比誘電率計測結果まとめ

状態	比誘電率		導電率		電磁波伝搬速度		減衰率	
	数値	周波数依存	数値(S/m)	周波数依存	数値($\times 10^8 \text{m/s}$)	周波数依存	数値(dB/m)	周波数依存
強制乾燥	4 前後	小	$10^{-5} \sim 10^{-3}$	小	1.4～1.5	小	最大 0.3	小
自然	低周波数側 50 以上 (最大 200 以上) 高周波数側 20～40	大	$10^{-2} \sim 10^{-1}$	大	低周波数側 0.42 以下 (最低 0.2) 高周波数側 0.47～0.67	大	最大 30	大

比誘電率は通常の鉱物では4～5であり、水の比誘電率は80付近である。岩石を鉱物粒子、空気及び水の混合物と考え、岩石の比誘電率はそれぞれの含有量及び比誘電率の積和により決定される（横山，1980）。ただし、この結果のように低周波側において水の比誘電率を超える大きな値が岩石の比誘電率として計測されることがある。その原因は、イオン電導をする構成鉱物粒子と、その結晶格子上に吸着している電解液の水分子との電気化学的相互作用によるものと考えられている（中島ほか，1998）。

今回計測で得られた岩質と比誘電率の相関を図3. 2-1に示す。

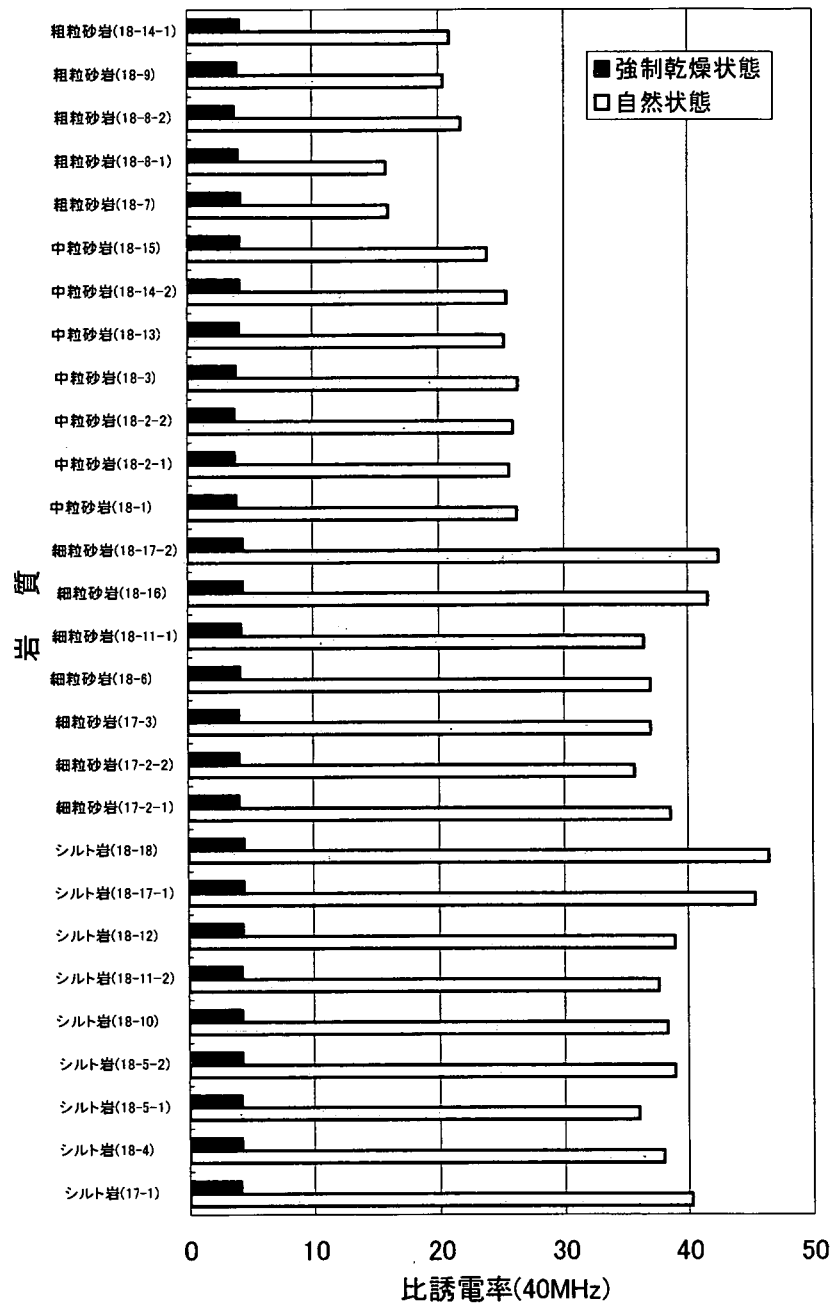


図3. 2-1 岩質と比誘電率の相関

3.3 体積含水率と比誘電率の関係

図3.3-1に自然状態40MHzにおける体積含水率と比誘電率の関係を示す。同図から、体積含水率15%を境に比誘電率の分布傾向が異なる。含水比が大きく比誘電率が大きいグループは、ボーリングデータからシルト、細粒砂岩と分類でき、含水比が小さく比誘電率が小さいグループは中粒、粗粒砂岩であることがわかる。ここでは、前者を「泥質岩」、後者を「砂質岩」とまとめて議論する。

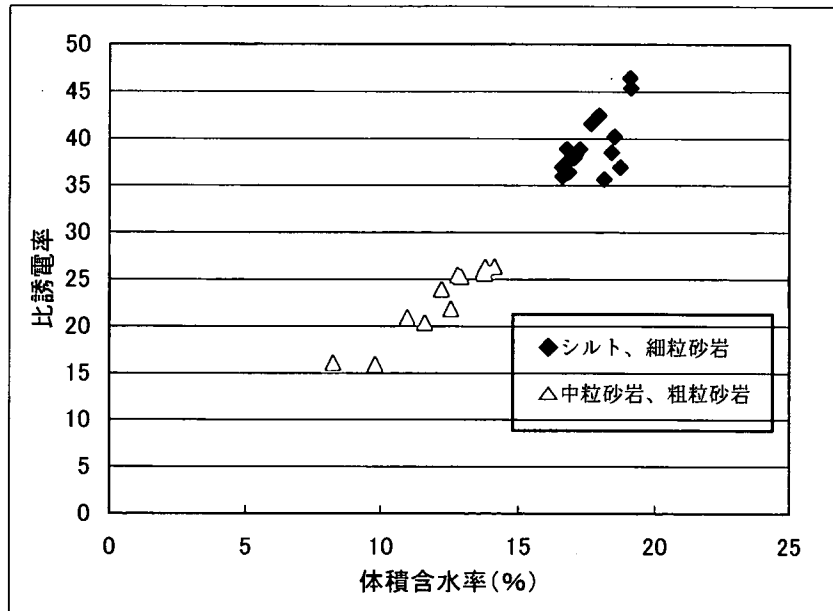


図3.3-1 体積含水率と比誘電率の関係 (全供試体)

今回の計測では強制湿潤時にコアがスレーキングにより崩壊してしまったため、各供試体における間隙率を求めることができなかった。そのため、鈴木(1999)によるNATM坑道近傍の同質岩石の測定結果により平均的な間隙率を仮定し、自然状態における飽和度を推定することとした。鈴木(1999)の結果では、泥質岩の間隙率は39~45%、砂質岩の間隙率は29~33%であることから、泥質岩および砂質岩の間隙率をそれぞれ35-45%、25-35%と仮定した。飽和度は、間隙率 V_v と体積含水率 w_v とを用いて次式(3.3-1)で表すことができることから、各供試体の自然状態における飽和度を計算した。

$$S_r = \frac{w_v}{V_v} \times 100(\%) \quad (3.3-1)$$

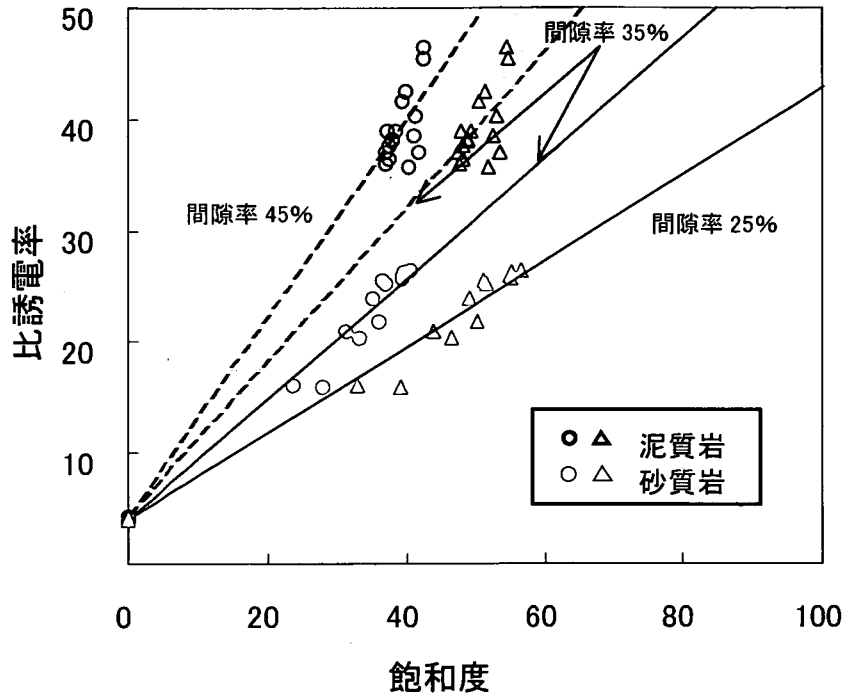


図 3. 3-2 飽和度に対する比誘電率の関係

図 3. 3-2 には、計算により得られた飽和度に対する比誘電率の関係に対し、直線近似を行った結果を示す。各岩種の間隙率に幅を持たせたため、直線近似にも幅が生じている。

この結果から、自然状態の飽和度は 20~60% に分布することになる。砂質岩については、40 以上の比誘電率であれば飽和していると概ね推測できる。また泥質岩については、砂質岩の比誘電率よりもっと大きな値（少なくとも自然状態で計測されている 50 以上）でなければ飽和していないと言える。このことからいずれの岩質においても、比誘電率が 40 以下のときは不飽和であることがわかる。

今年度実施した比誘電率計測結果から導き出される、砂質岩・泥質岩の飽和状態と電磁波伝播速度および比誘電率の関係を表 3. 3-1 に示す。

表 3. 3-1 試験結果まとめ

実施項目 状態	コア試験結果 (周波数 40MHz 時)			
	砂質岩		泥質岩	
	伝搬速度 (m/nsec)	比誘電率	伝搬速度 (m/nsec)	比誘電率
乾燥	0.15 以上	4 以下	0.15 以上	4 以下
不飽和	0.047~0.15	4~40	0.042~0.15	4~50
飽和	0.047 以下	40 以上	0.042 以下	50 以上

4. 連続波レーダー結果の評価

前章での結果を元に、昨年度実施した連続波レーダー結果の評価を行う。レーダーの周波数帯域は 50-500MHz とコアの誘電率測定で実施した周波数帯域より大きい領域であるが、40MHz 以上では周波数分散が小さいと考え、表 3. 3-1 の結果を適用する。

泥質岩が見られるのは、ワイドアングル中心位置 WR-4, WR-5 付近の 2m 範囲内と、全ての範囲で 4m 以深である (図 4-1)。連続波レーダーで評価したのは深度 4m までであるため、泥質岩の影響は WR-4, WR-5 付近の 2m 以内の範囲とし、それ以外は砂質岩で評価すればよい。WR-4, WR-5 付近の 2m 以内は 0.11~0.05m/nsec の電磁波速度を示す。この電磁波速度から (2.5-10) 式を用いて換算した比誘電率の値は 7~36 であり、前章で検討した 50 より比誘電率が小さいので泥質岩部は全て不飽和であると言える。また、それ以外の砂質岩部においては、比誘電率 40 以下の時に不飽和であるため、(2.5-10) 式から電磁波速度では 0.047m/nsec 以上を示す領域が不飽和領域と評価できる。図 4-1 を見ると、ほとんどの領域で不飽和であるが、WR-1 の 1.4m 以深で 0.04m/nsec を示しており、この部分は飽和している可能性がある。

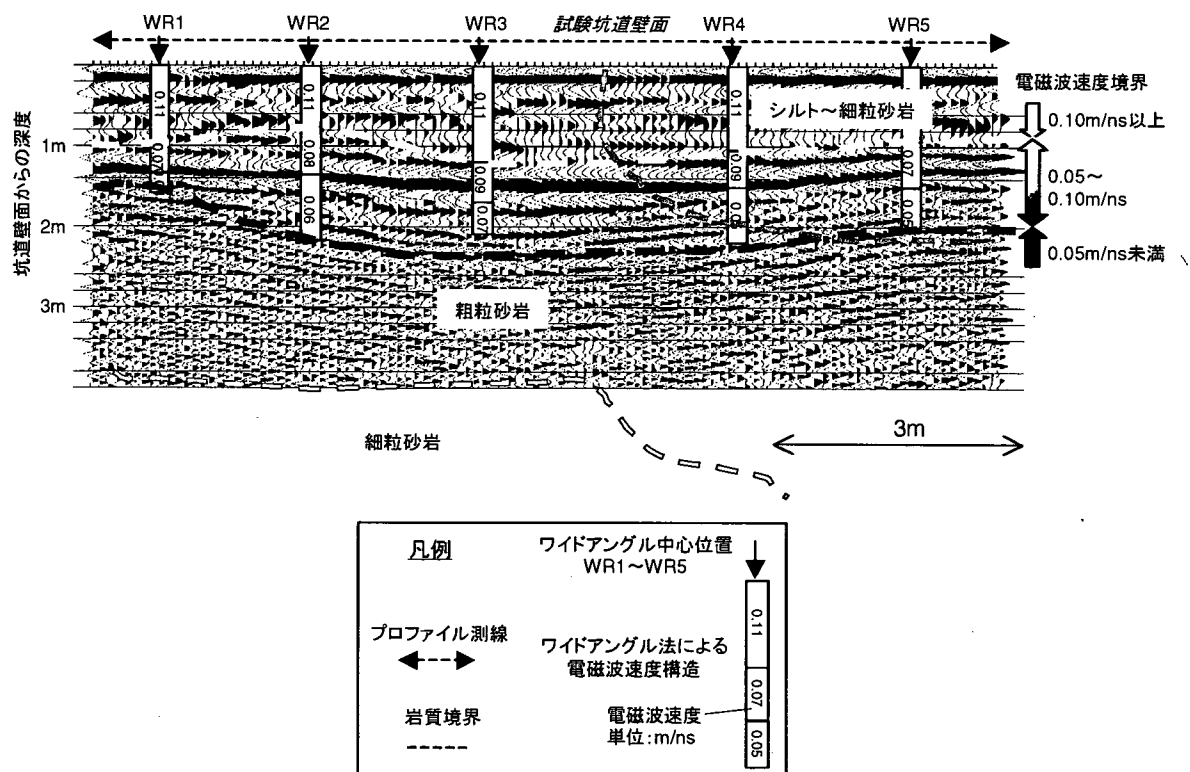


図 4-1 連続波レーダー結果の評価

5. スレーキングに対する対策

5. 1 スレーキング試験の目的、経緯

供試体は乾燥/湿潤を繰り返すと破壊する恐れがあったため、仕様書に定められた最低限の個数（10個）を上回る28個の供試体をボーリングコアから採取していたが、強制湿潤状態にするため供試体を水浸させたところ、全ての供試体が崩壊溶出した。そこで、強制湿潤状態の計測の可能性を探るため、残りのコアを用いてスレーキング試験を実施した。

5. 2 スレーキングの状況

前述のように、強制乾燥状態から強制湿潤状態にするために、汲み置きした水に湿潤させたところ短時間で崩壊した（写真5. 1-1, 写真5. 1-2）。



写真5. 1-1 コア崩壊状況（湿潤1~2分後）



写真5. 1-2 コア崩壊状況（湿潤4~5分後）

この現象は、軟岩に特有なスレーキング（乾燥と湿潤を繰り返すことにより粒子間の結合がなくなる現象）と考えられる。

今回の測定では、電極（銀ペースト）塗布後、自然乾燥させるが、このとき既にスレーキングが生じてしまう。ボーリングコアは、ポリエチレン・ラップにくるまれていた（写真5. 1-3）が、自然乾燥で既にスレーキングが生じる（写真5. 1-4）。

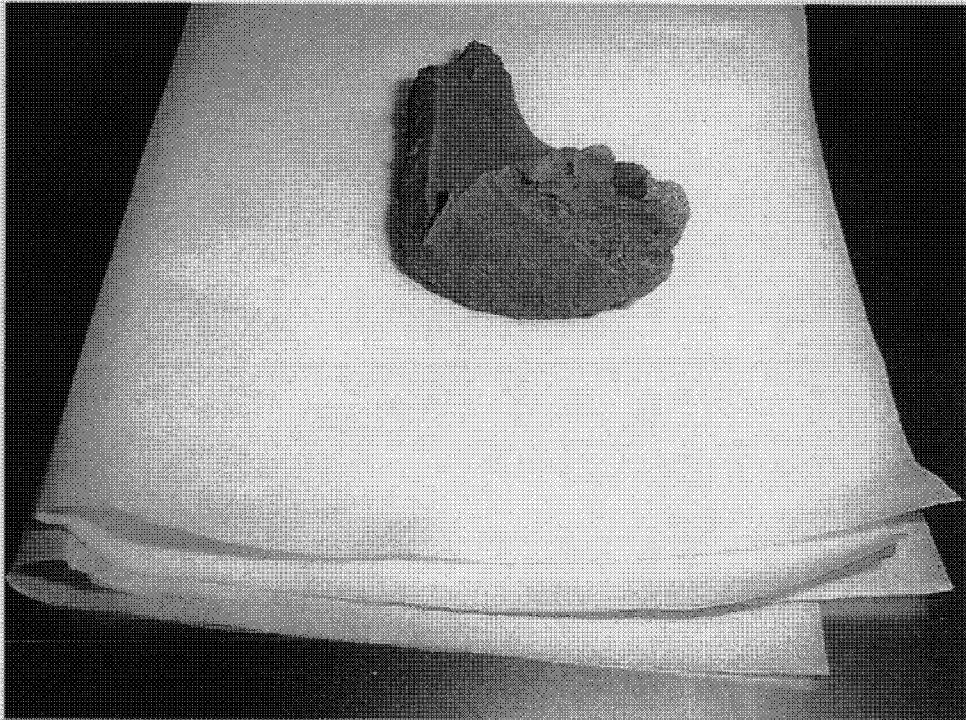


写真5. 1-3 ラップ取り出し直後

これを湿潤させると短時間で崩壊する（写真5. 1-5, 写真5. 1-6）。しかし、ポリエチレン・ラップから取り出し直後に湿潤させれば、ほとんど崩壊しない。ただし、若干の粒子が溶け出している（写真5. 1-7）。

このことから、スレーキングを可能な限り避けるには、ボーリングコア採取直後から測定するまで完全に湿潤させておく必要がある。また、測定方法としては、初めに湿潤状態で計測し、その後、乾燥状態で計測するといった方法が望ましいが、スレーキングによる崩壊は完全には避けられないと考えられる。

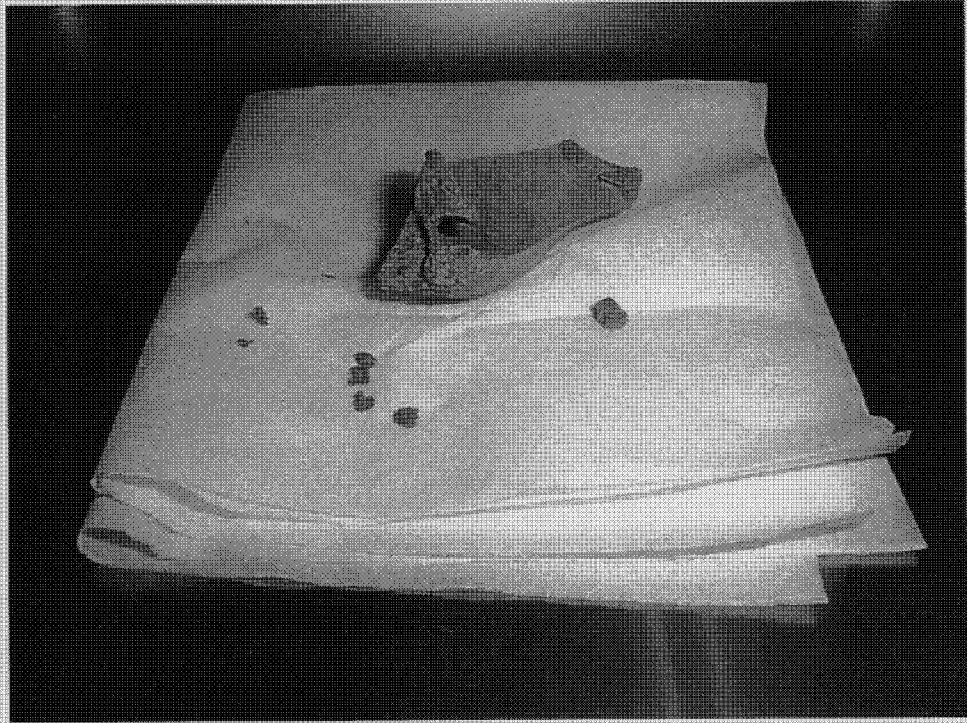


写真5. 1-4 ラップ取り出し48時間後
(既に細かいクラックが入り、一部破損している)

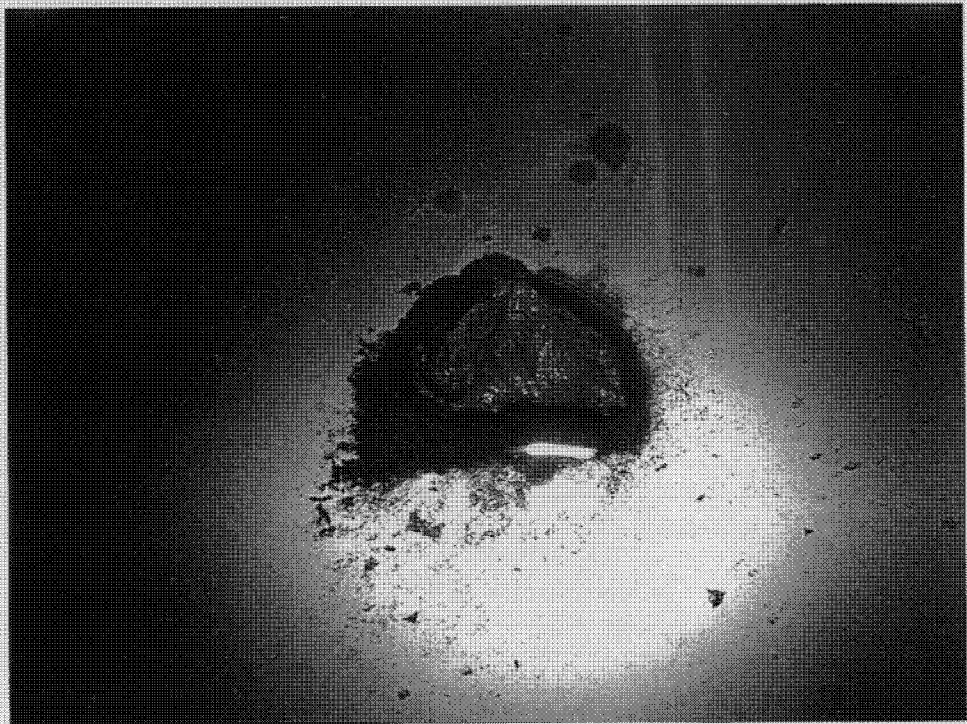


写真5. 1-5 湿潤後1分
(下部から自然に崩壊が始まる)



写真5. 1-6 湿潤後3分
(ほとんど原形をとどめないほど崩壊)

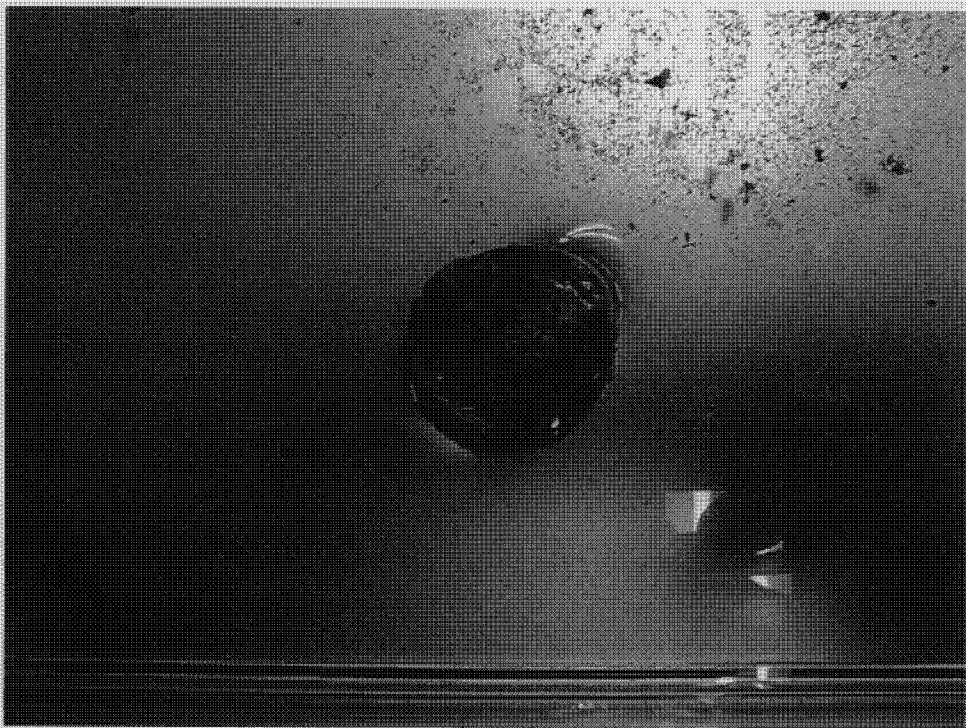


写真5. 1-7 近傍の供試体かけら (ラップ取り出し直後に湿潤)
(崩壊はしないが、細かい粒子が溶け出している)

5. 3 測定方法の提案

岩石供試体の比誘電率を測定する方法として、今回実施した円盤状に加工した供試体の両面に電極を塗布して、その間の抵抗値と静電容量を測定する方法では、スレーキングを生じる供試体に対しては適用することができない。

そのため、ここではネットワークアナライザと同軸サンプルホルダーを用いて、反射係数から、インピーダンスを測定する方法を提案する。

同軸線路は図5. 2-1に示すように半径 a の内導体と、半径 b の外導体の断面が同心円状になるように、その間を比誘電率 ϵ_r の誘電体（絶縁体）で満たしたものである。同軸線路には、 a 、 b 、 ϵ_r によって特性インピーダンス Z_0 が決まる。

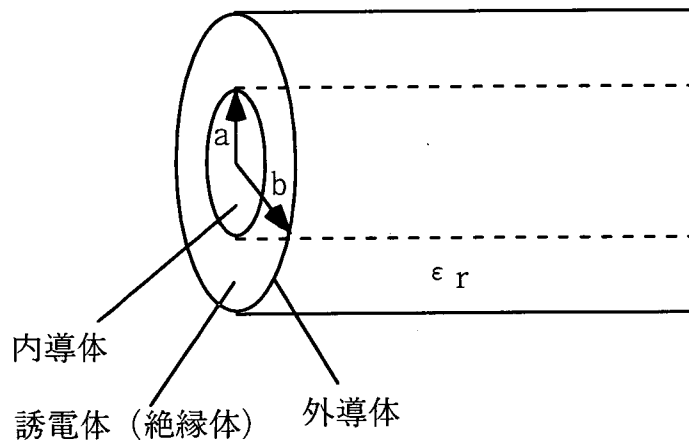


図5. 2-1 同軸線路

同軸線路に高周波の交流電流を流したとき、内導体と外導体の間には磁束 Φ が生じる。いま、距離 r 点における磁界 H は、電流を I としてアンペールの法則より、 $H = I / 2\pi r$ とあらわされる。従って、同軸線路の単位長さあたりの全磁束は、

$$\Phi = \int_a^b \mu_0 H dr = \mu_0 \int_a^b \left(\frac{1}{2\pi r} \right) dr = \frac{\mu_0 I}{2\pi} \log\left(\frac{b}{a}\right) \quad (5.2-1)$$

となる ($a \leq r \leq b$)。従って、インダクタンス L は、 $L = d\Phi / dI$ であるから、

$$L = \frac{\mu_0}{2\pi} \log\left(\frac{b}{a}\right) \quad (\text{H/m}) \quad (5.2-2)$$

である。一方、導体表面に単位長さあたりに電荷 Q があるとき、内導体と外導体の間には静電容量 C を生じる。両者の電位差を V とすれば $Q = CV$ であり、 r 点における電界は、 $E = Q / 2\pi \epsilon r$ とあらわされる。 V は、 E を積分して求められるから、

$$V = -\int_a^b E dr = -\int_a^b \left(\frac{Q}{2\pi \epsilon r} \right) dr = \frac{Q}{2\pi \epsilon} \log\left(\frac{b}{a}\right) \quad (5.2-3)$$

従って、

$$C = \frac{2\pi\epsilon}{\log\left(\frac{b}{a}\right)} \quad (\text{F/m}) \quad (5.2-4)$$

が得られる。同軸線路の特性インピーダンス Z_0 は、(5.2-2)式及び (5.2-4) 式より、

$$Z_0 = \sqrt{\frac{L}{C}} = \frac{1}{2\pi} \sqrt{\frac{\mu_0}{\epsilon_0}} \cdot \frac{1}{\sqrt{\epsilon_r}} \log\left(\frac{b}{a}\right) \cong \frac{138}{\sqrt{\epsilon_r}} \log_{10}\left(\frac{b}{a}\right) \quad (\Omega) \quad (5.2-5)$$

とあらわされる。ただし、 ϵ_0 は真空の誘電率、 μ_0 は真空の透磁率である。すなわち、内導体と外導体の比誘電率 ϵ_r が同じであれば、 b/a を一定に保つことにより、特性インピーダンスを一定にすることができる (図5. 2-2)。この性質を利用して、同軸線路のインピーダンスを一定に保ち、供試体表面まで反射波が生じないようにして、供試体表面まで電磁波を伝送することができれば、ネットワークアナライザにより、反射係数からインピーダンスを求めることができる (図5. 2-3)。

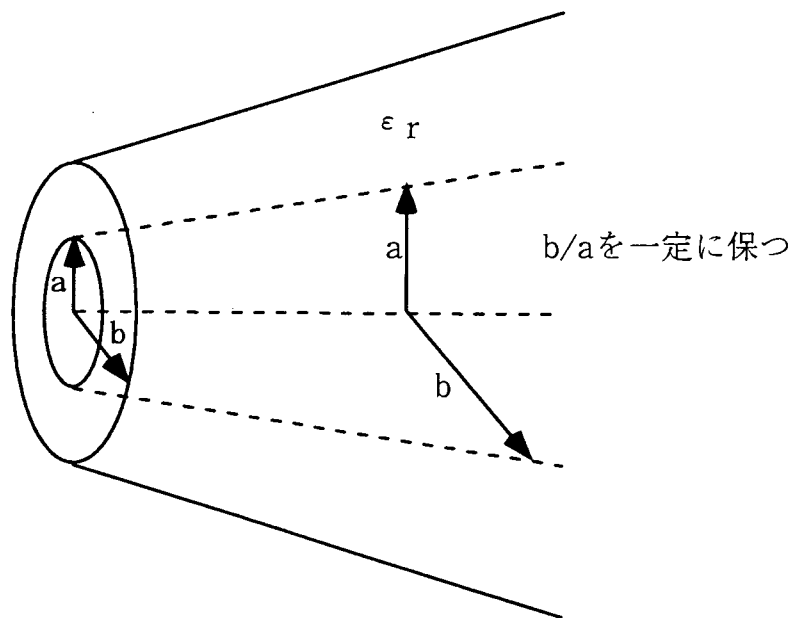


図5. 2-2 同軸ケーブルのインピーダンス

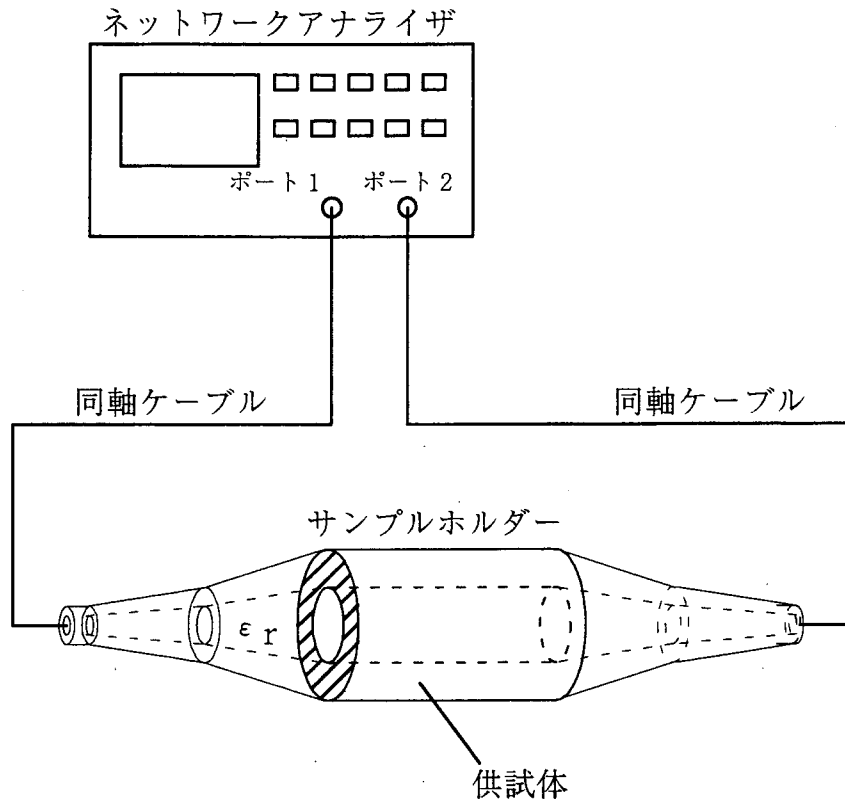


図5. 2-3 同軸サンプルホルダーとネットワークアナライザによる測定方法

ネットワークアナライザによりSパラメータ (S_{11} および S_{22}) を測定すると、複素反射係数の実数部 Γ_r 及び虚数部 Γ_i を求めることができる。反射係数 ($\Gamma = \Gamma_r + i \Gamma_i$) とインピーダンス Z の関係は次式で表される。

$$Z = \frac{1+\Gamma}{1-\Gamma} Z_0 = \frac{1+(\Gamma_r + i\Gamma_i)}{1-(\Gamma_r + i\Gamma_i)} \quad Z_0 = \left[\frac{1-\Gamma_r^2 - \Gamma_i^2}{(1-\Gamma_r)^2 + \Gamma_i^2} + i \frac{2\Gamma_i}{(1-\Gamma_r)^2 + \Gamma_i^2} \right] Z_0$$

$$= Z_r + iZ_i \quad (5.2-6)$$

ここで、 Z_0 はネットワークアナライザ及び同軸線路の特性インピーダンスである。 Z_r は反射係数から求めたインピーダンス実数部、 Z_i は反射係数から求めたインピーダンス虚数部である。 Z_r からは抵抗値、 Z_i からは静電容量を求めることができ、これから導電率及び比誘電率を計算することができる。Sパラメータ及び反射係数の測定方法は、JNC TJ7420 2000-007 を参照のこと。

ボーリングコアは、コア採取後湿潤状態に置き、湿潤状態にしたまま整形する。これを「強制湿潤状態」→「自然状態」→「強制乾燥状態」の順に測定することにより、全ての状態の測定を行うことができる。また、同軸サンプルホルダーを用いることにより、

- ・途中の自然状態の測定を含水比の異なる状態で複数回測定することができる

- ・未固結の供試体を測定することができる
- ・水などの液体も測定することができる

などの利点もある。また、ネットワークアナライザはインピーダンス／ゲイン・フェーズ・アナライザより広帯域であるため、地中レーダー探査で使用されているほとんどの周波数帯域の測定が可能である。

6. まとめ

東濃鉦山 NATM 坑道のボーリングコア (03SI-17 及び 03SI-18) を整形し、比誘電率及び導電率を 1~40MHz の周波数帯で計測した。計測器はインピーダンス/ゲイン・フェーズ・アナライザ (HP4194A) 及びテスト・フィクスチャ (HP16034E) である。

ボーリングコアがスレーキングにより崩壊したため、強制乾燥状態の計測を実施することができなかったが、自然状態及び強制乾燥状態の計測を実施することができた。その結果、40MHz の周波数において乾燥状態の比誘電率は 4 程度、自然状態では 10~40 程度であることがわかった。岩石の間隙率を仮定することにより飽和度と比誘電率の関係を求め、これを基に昨年度実施した地表連続波レーダーの速度解析結果の評価を行った。その結果、坑道近傍の飽和度分布を推定することができた。

地中レーダー探査は、他の物理探査に比べると歴史が浅く、電気的物性について不明な点も多い。しかし、岩石の含水状態により電磁波の伝搬速度 (比誘電率) や導電率が大きく異なることが本計測で明らかとなった。

また、原位置での地中レーダー探査結果に対し今回のような室内試験結果を適用することにより、地中レーダー探査の解析結果の調査精度を向上させることができるものと考えられる。

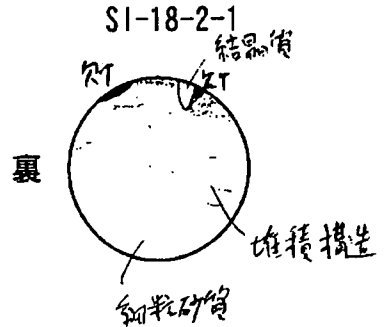
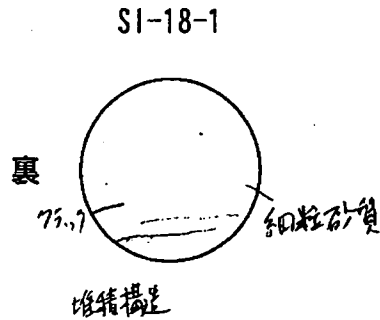
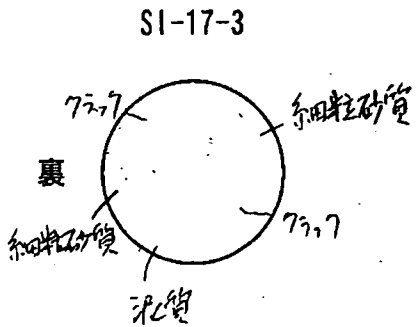
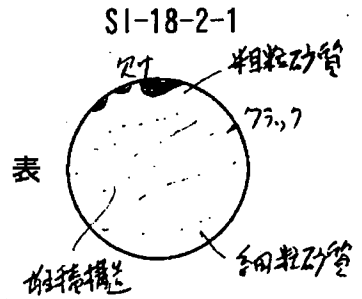
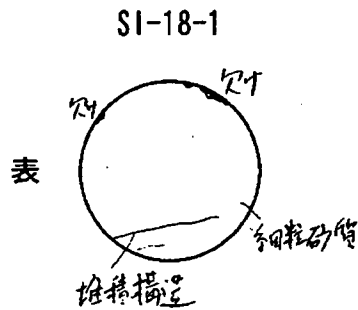
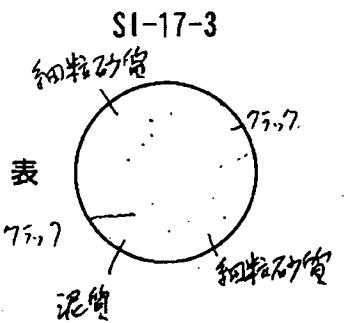
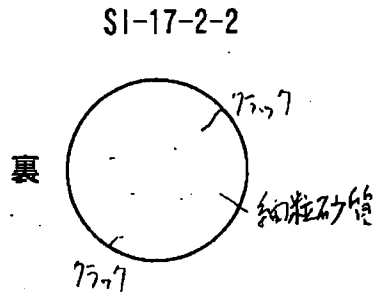
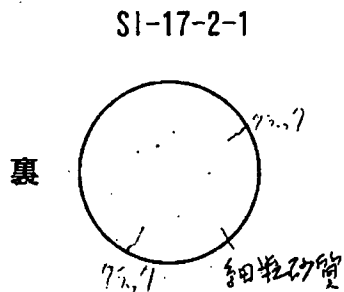
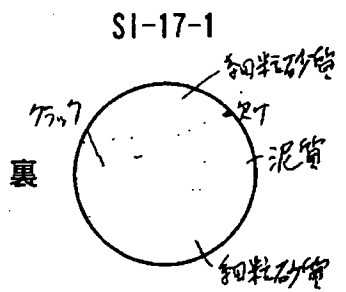
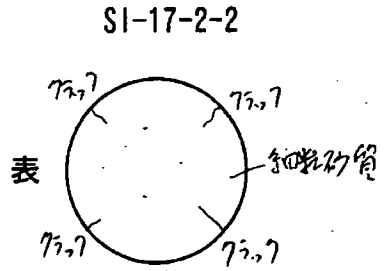
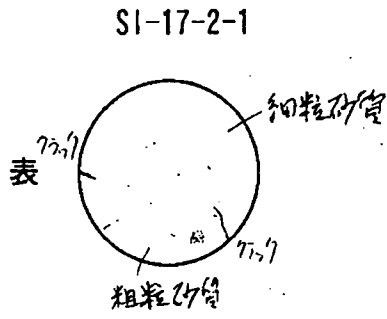
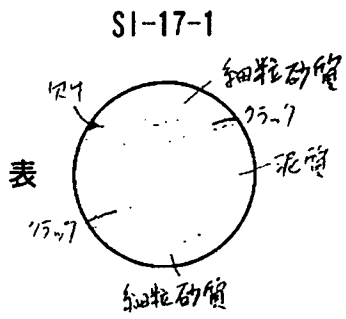
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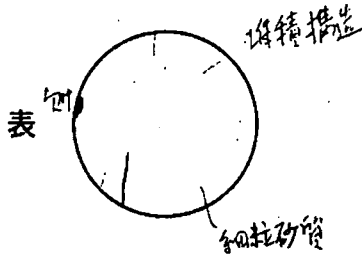
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データ集

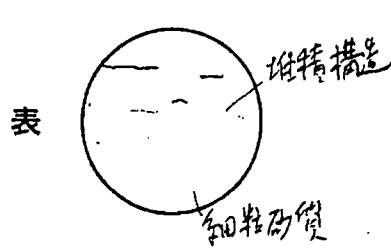
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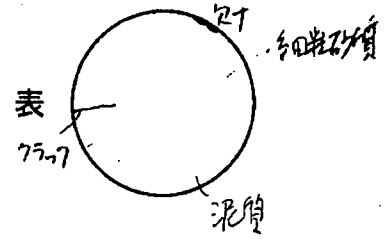
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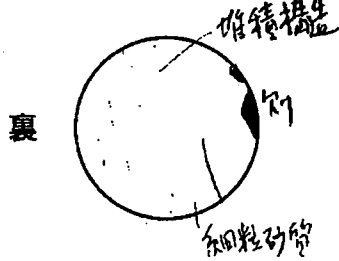
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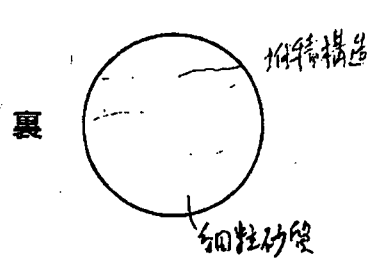
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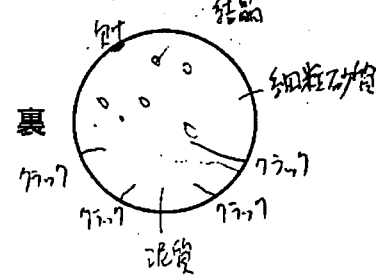
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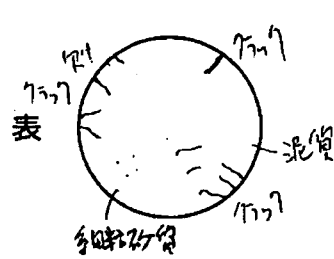
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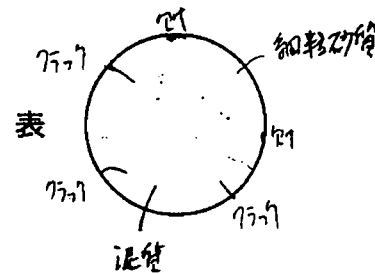
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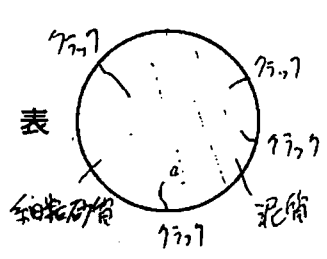
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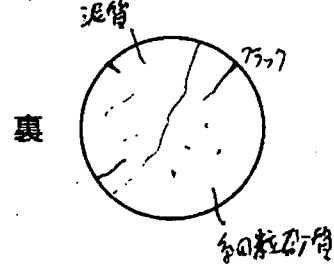
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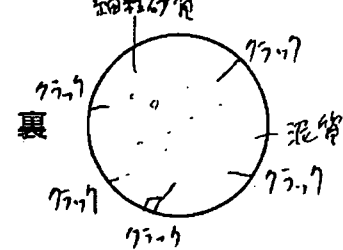
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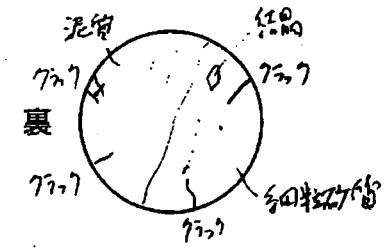
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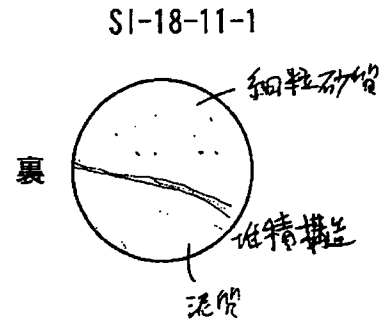
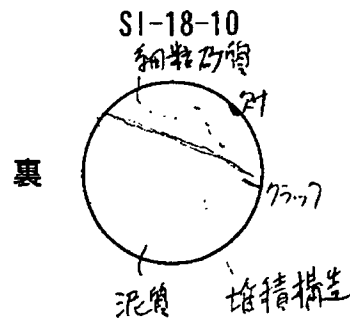
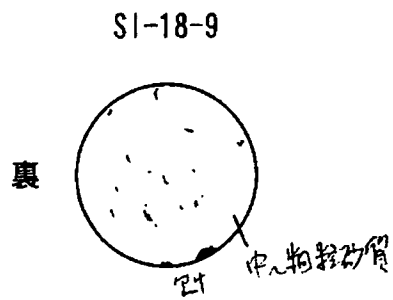
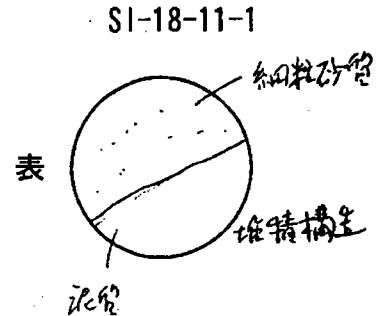
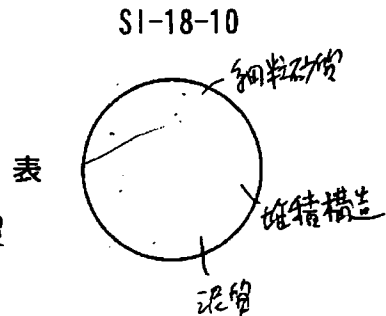
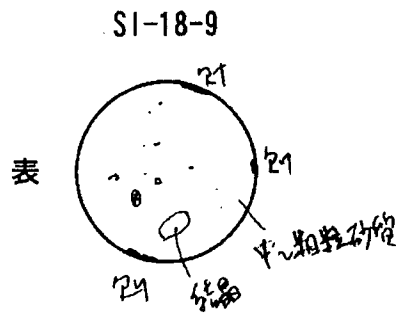
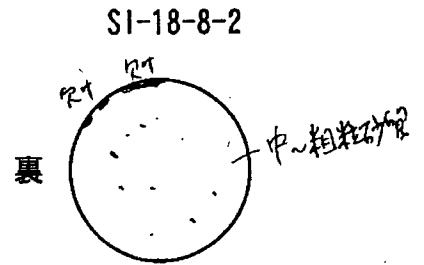
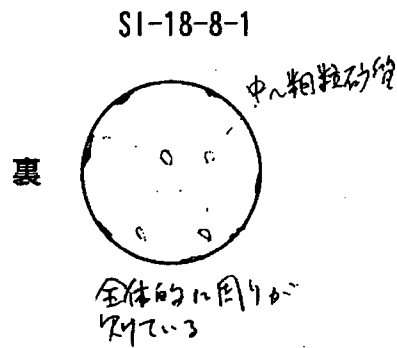
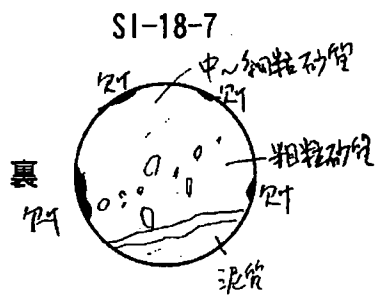
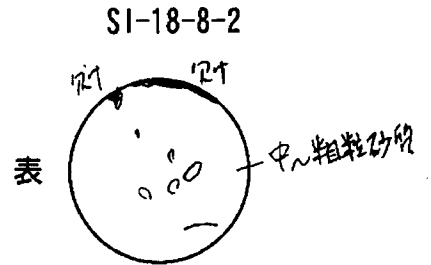
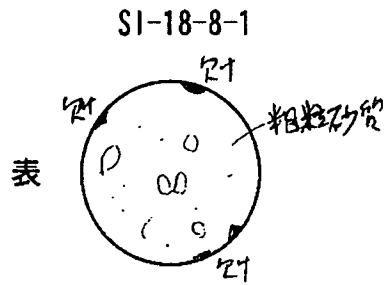
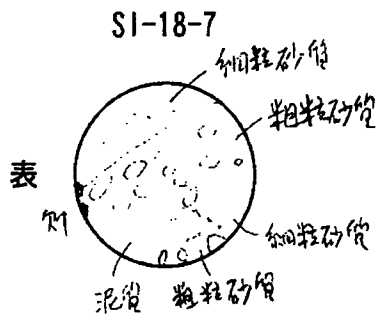


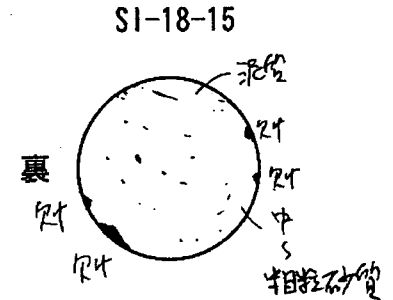
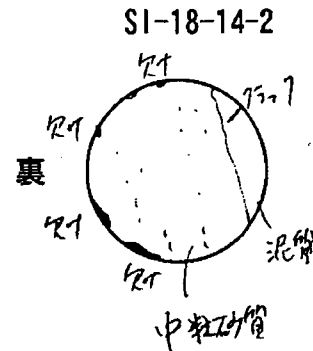
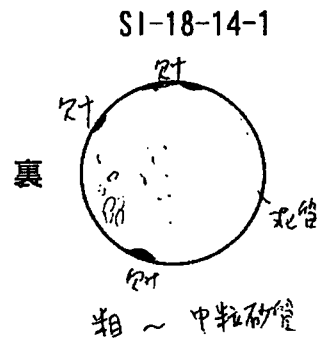
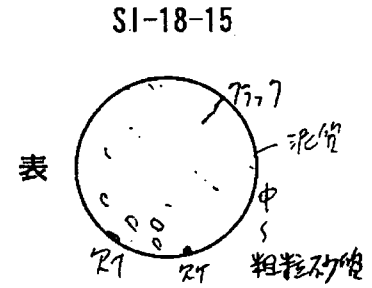
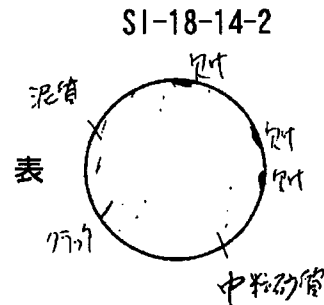
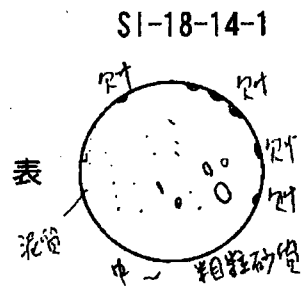
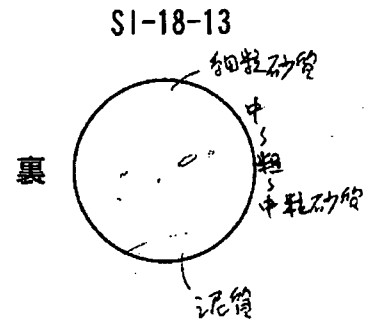
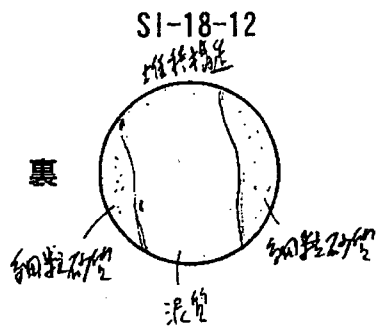
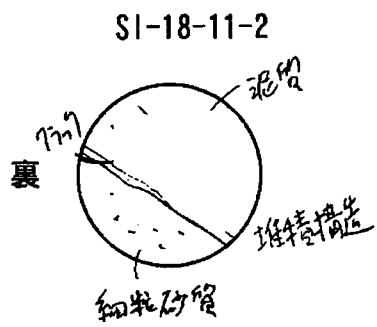
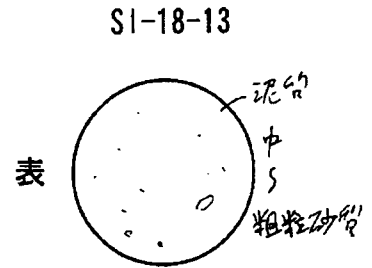
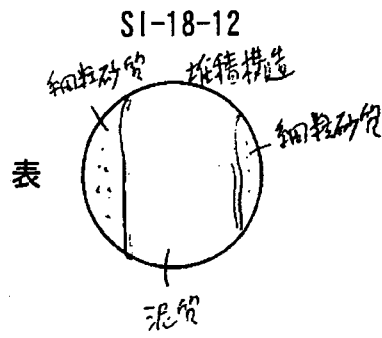
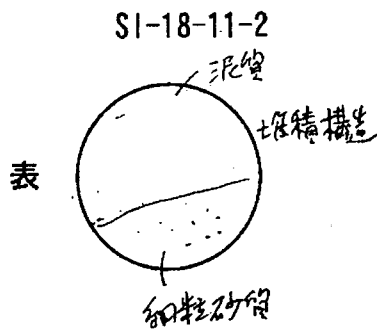
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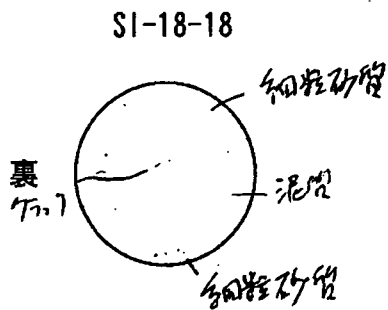
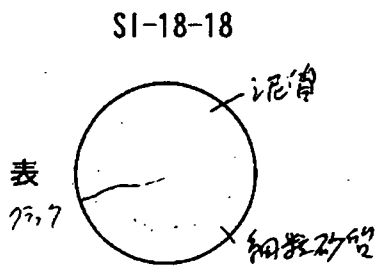
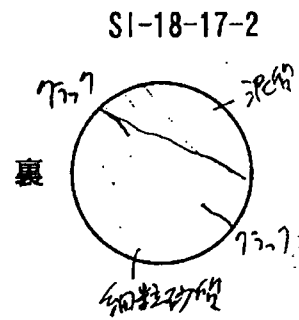
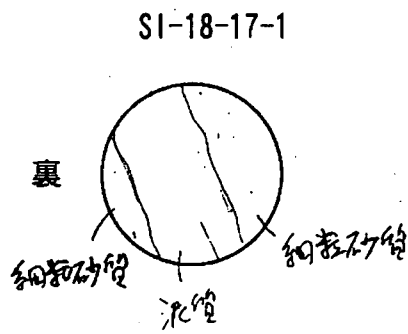
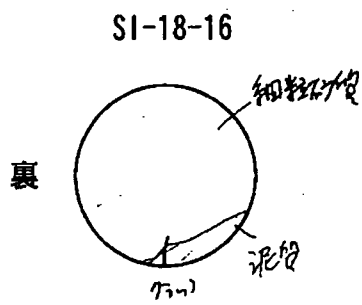
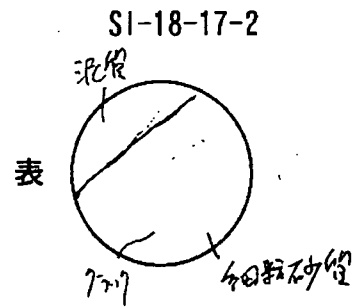
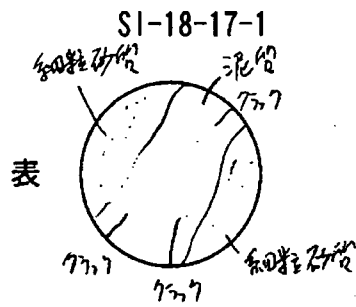
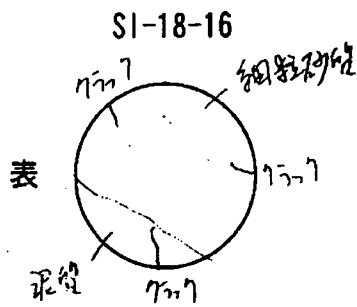


SI-18-6









採取コア測定結果(直径, 厚さ, 重量, 含水比)一覧表

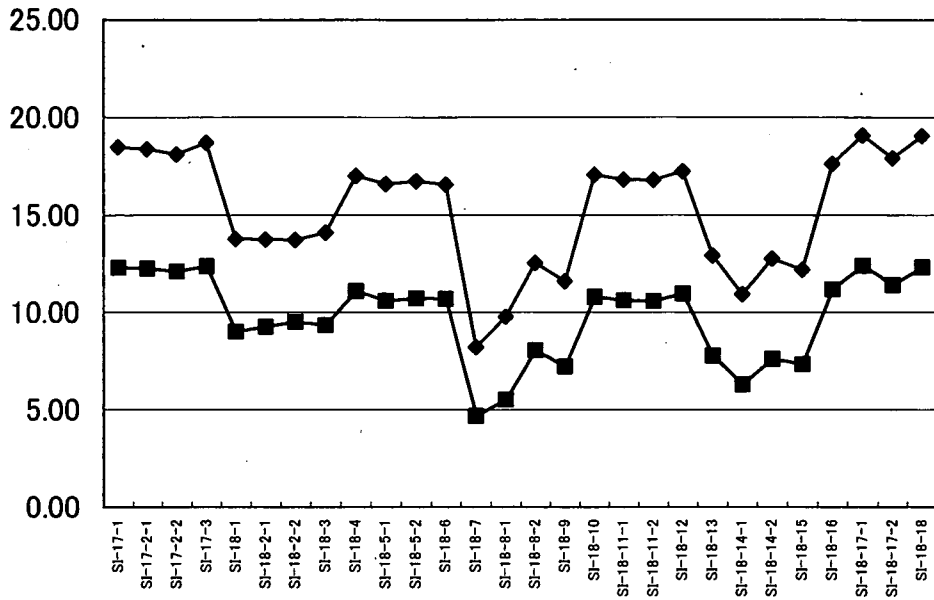
供試体 番号	直径測定値 (mm)	厚さ測定値 (mm)	直径平均値 (mm)	厚さ平均値 (mm)	空中重量(g)		重量含水比 (%)	体積含水比 (%)自然
					自然	強制乾燥		
SI-17-1	24.30	4.887	24.32	4.880	3.8258	3.4065	12.31	18.50
	24.35	4.847						
	24.30	4.907						
SI-17-2-1	24.30	4.858	24.32	4.912	3.8418	3.4224	12.25	18.38
	24.30	4.939						
	24.35	4.940						
SI-17-2-2	24.35	4.904	24.33	4.865	3.7956	3.3858	12.10	18.11
	24.30	4.832						
	24.35	4.860						
SI-17-3	24.35	4.842	24.32	4.853	3.8239	3.4024	12.39	18.70
	24.25	4.892						
	24.35	4.824						
SI-18-1	24.30	4.911	24.30	4.914	3.7892	3.4752	9.04	13.78
	24.30	4.923						
	24.30	4.908						
SI-18-2-1	24.30	4.960	24.30	4.945	3.7182	3.4026	9.28	13.76
	24.30	4.986						
	24.30	4.888						
SI-18-2-2	24.20	4.953	24.18	4.927	3.5737	3.2629	9.53	13.73
	24.15	4.888						
	24.20	4.939						
SI-18-3	24.15	4.863	24.18	4.867	3.6876	3.3721	9.36	14.11
	24.15	4.802						
	24.25	4.936						
SI-18-4	24.10	4.957	24.15	4.907	3.8262	3.4438	11.10	17.01
	24.20	4.827						
	24.15	4.936						
SI-18-5-1	24.15	4.901	24.15	4.899	3.8807	3.5084	10.61	16.59
	24.10	4.934						
	24.20	4.862						
SI-18-5-2	24.25	4.948	24.17	4.915	3.8973	3.5198	10.73	16.74
	24.10	4.863						
	24.15	4.934						
SI-18-6	24.15	4.946	24.03	4.932	3.8399	3.4690	10.69	16.58
	23.80	4.919						
	24.15	4.930						
SI-18-7	24.30	4.971	24.37	4.985	4.2859	4.0945	4.67	8.23
	24.45	5.016						
	24.35	4.969						
SI-18-8-1	24.30	4.946	24.27	4.930	4.2530	4.0301	5.53	9.78
	24.30	4.950						
	24.20	4.894						
SI-18-8-2	24.15	4.891	24.17	4.849	3.7355	3.4565	8.07	12.54
	24.15	4.827						
	24.20	4.829						
SI-18-9	24.20	4.880	24.18	4.883	3.8611	3.6009	7.23	11.60
	24.15	4.887						
	24.20	4.881						
SI-18-10	24.20	4.955	24.15	4.944	3.9650	3.5784	10.80	17.07
	24.05	4.903						
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SI-18-11-1	24.15	4.984	24.17	4.947	3.9782	3.5964	10.62	16.83
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SI-18-11-2	24.10	4.894	24.15	4.875	3.9160	3.5413	10.58	16.78
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	24.10	4.842						
SI-18-12	24.05	4.951	24.10	4.917	3.9105	3.5242	10.96	17.22
	24.25	4.868						
	24.00	4.932						
SI-18-13	24.15	4.916	24.15	4.908	4.0114	3.7211	7.80	12.91
	24.15	4.943						
	24.15	4.866						
SI-18-14-1	24.20	4.983	24.15	4.947	4.1790	3.9308	6.31	10.95
	24.05	4.890						
	24.20	4.967						
SI-18-14-2	24.05	4.878	24.12	4.863	4.0133	3.7295	7.61	12.78
	24.30	4.903						
	24.00	4.808						
SI-18-15	23.95	4.900	24.07	4.921	3.9975	3.7243	7.34	12.20
	24.15	4.903						
	24.10	4.959						
SI-18-16	24.20	4.934	24.13	4.885	3.9128	3.5188	11.20	17.63
	24.05	4.818						
	24.15	4.903						
SI-18-17-1	23.90	4.870	24.07	4.883	3.8452	3.4211	12.40	19.09
	24.20	4.859						
	24.10	4.921						
SI-18-17-2	24.20	4.896	24.10	4.871	3.8832	3.4850	11.43	17.92
	24.05	4.884						
	24.05	4.832						
SI-18-18	24.00	4.914	24.10	4.906	3.8868	3.4601	12.33	19.07
	24.15	4.876						
	24.15	4.927						

採取コア測定結果一覧表

(直径,厚さ,重量,含水比)

含水比

■ 重量含水比
◆ 体積含水比



試 験 デ ー タ

試料名 SI17-1 状態 自然

試料直径(mm) 24.32 試料厚(mm) 4.880

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	197.700	195.040	195.070	195.937	232.48
2.0	139.680	137.640	137.670	138.330	164.13
3.0	115.680	113.830	113.900	114.470	135.82
4.0	101.360	99.639	99.709	100.236	118.93
5.0	91.503	89.869	89.900	90.424	107.29
6.0	84.142	82.563	82.668	83.124	98.63
7.0	78.315	76.842	76.962	77.373	91.80
8.0	73.549	72.166	72.290	72.668	86.22
9.0	69.621	68.266	68.409	68.765	81.59
10.0	66.280	64.951	65.099	65.443	77.65
11.0	63.351	62.064	62.208	62.541	74.20
12.0	60.772	59.533	59.685	59.997	71.19
13.0	58.487	57.294	57.433	57.738	68.51
14.0	56.445	55.286	55.432	55.721	66.11
15.0	54.716	53.490	53.653	53.953	64.01
16.0	52.965	51.859	52.018	52.281	62.03
17.0	51.560	50.373	50.531	50.821	60.30
18.0	50.456	49.019	49.174	49.550	58.79
19.0	49.620	47.773	47.933	48.442	57.48
20.0	48.398	46.611	46.889	47.299	56.12
21.0	46.966	45.537	45.816	46.106	54.70
22.0	45.805	44.536	44.772	45.038	53.44
23.0	44.838	43.598	43.826	44.087	52.31
24.0	43.907	42.713	42.936	43.185	51.24
25.0	43.133	41.881	42.091	42.368	50.27
26.0	42.237	41.103	41.232	41.524	49.27
27.0	41.488	40.368	40.472	40.776	48.38
28.0	40.780	39.670	39.780	40.077	47.55
29.0	40.110	39.004	39.104	39.406	46.75
30.0	39.455	38.367	38.466	38.763	45.99
31.0	38.849	37.782	37.886	38.172	45.29
32.0	38.281	37.215	37.320	37.605	44.62
33.0	37.746	36.678	36.788	37.071	43.98
34.0	37.239	36.165	36.279	36.561	43.38
35.0	36.761	35.683	35.812	36.085	42.81
36.0	36.290	35.213	35.341	35.615	42.26
37.0	35.845	34.767	34.888	35.167	41.72
38.0	35.417	34.340	34.453	34.737	41.21
39.0	34.968	33.928	34.041	34.312	40.71
40.0	34.615	33.534	33.644	33.931	40.26

試料名 SI17-1 状態 強制乾燥

試料直径(mm) 24.32 試料厚(mm) 4.880

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.568	3.657	3.907	3.711	4.40
2.0	3.506	3.586	3.799	3.630	4.31
3.0	3.471	3.545	3.740	3.585	4.25
4.0	3.447	3.518	3.700	3.555	4.22
5.0	3.430	3.498	3.671	3.533	4.19
6.0	3.416	3.482	3.648	3.515	4.17
7.0	3.405	3.468	3.629	3.501	4.15
8.0	3.395	3.457	3.613	3.488	4.14
9.0	3.387	3.448	3.600	3.478	4.13
10.0	3.381	3.440	3.588	3.470	4.12
11.0	3.375	3.434	3.580	3.463	4.11
12.0	3.370	3.428	3.570	3.456	4.10
13.0	3.366	3.423	3.563	3.451	4.09
14.0	3.362	3.419	3.557	3.446	4.09
15.0	3.359	3.415	3.550	3.441	4.08
16.0	3.357	3.412	3.546	3.438	4.08
17.0	3.357	3.411	3.542	3.437	4.08
18.0	3.355	3.408	3.538	3.434	4.07
19.0	3.354	3.408	3.537	3.433	4.07
20.0	3.355	3.408	3.535	3.433	4.07
21.0	3.356	3.408	3.535	3.433	4.07
22.0	3.357	3.409	3.535	3.434	4.07
23.0	3.359	3.410	3.535	3.435	4.07
24.0	3.360	3.411	3.535	3.435	4.08
25.0	3.361	3.413	3.535	3.436	4.08
26.0	3.362	3.413	3.534	3.436	4.08
27.0	3.364	3.414	3.534	3.437	4.08
28.0	3.364	3.414	3.534	3.437	4.08
29.0	3.366	3.415	3.534	3.438	4.08
30.0	3.366	3.416	3.534	3.439	4.08
31.0	3.369	3.417	3.534	3.440	4.08
32.0	3.370	3.418	3.535	3.441	4.08
33.0	3.371	3.420	3.536	3.442	4.08
34.0	3.373	3.421	3.537	3.444	4.09
35.0	3.376	3.424	3.538	3.446	4.09
36.0	3.377	3.425	3.539	3.447	4.09
37.0	3.380	3.427	3.541	3.449	4.09
38.0	3.382	3.429	3.543	3.451	4.10
39.0	3.385	3.432	3.545	3.454	4.10
40.0	3.387	3.434	3.547	3.456	4.10

試料名 SI17-1 状態 自然

試料直径(mm) 24.32 試料厚(mm) 4.880

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.232	0.233	0.234	0.233	45.02	-1.347
2.0	0.210	0.211	0.212	0.211	49.81	-1.303
3.0	0.195	0.196	0.196	0.196	53.69	-1.270
4.0	0.183	0.184	0.185	0.184	57.07	-1.244
5.0	0.174	0.175	0.175	0.175	60.12	-1.221
6.0	0.166	0.167	0.168	0.167	62.95	-1.201
7.0	0.160	0.160	0.161	0.160	65.58	-1.183
8.0	0.154	0.154	0.155	0.154	68.05	-1.167
9.0	0.149	0.149	0.150	0.149	70.41	-1.152
10.0	0.144	0.145	0.145	0.145	72.66	-1.139
11.0	0.140	0.141	0.141	0.140	74.81	-1.126
12.0	0.136	0.137	0.137	0.137	76.88	-1.114
13.0	0.133	0.133	0.134	0.133	78.89	-1.103
14.0	0.130	0.130	0.130	0.130	80.81	-1.093
15.0	0.127	0.127	0.127	0.127	82.72	-1.082
16.0	0.124	0.124	0.125	0.124	84.52	-1.073
17.0	0.121	0.122	0.122	0.122	86.31	-1.064
18.0	0.119	0.119	0.120	0.119	88.10	-1.055
19.0	0.116	0.117	0.117	0.117	89.88	-1.046
20.0	0.114	0.115	0.115	0.115	91.58	-1.038
21.0	0.112	0.113	0.113	0.113	93.17	-1.031
22.0	0.110	0.111	0.111	0.111	94.76	-1.023
23.0	0.109	0.109	0.109	0.109	96.36	-1.016
24.0	0.107	0.107	0.108	0.107	97.93	-1.009
25.0	0.105	0.106	0.106	0.106	99.50	-1.002
26.0	0.104	0.104	0.104	0.104	100.99	-0.996
27.0	0.102	0.102	0.103	0.102	102.50	-0.989
28.0	0.101	0.101	0.101	0.101	103.99	-0.983
29.0	0.099	0.100	0.100	0.100	105.46	-0.977
30.0	0.098	0.098	0.099	0.098	106.91	-0.971
31.0	0.097	0.097	0.097	0.097	108.36	-0.965
32.0	0.095	0.096	0.096	0.096	109.78	-0.959
33.0	0.094	0.094	0.095	0.094	111.19	-0.954
34.0	0.093	0.093	0.094	0.093	112.59	-0.948
35.0	0.092	0.092	0.092	0.092	113.97	-0.943
36.0	0.091	0.091	0.091	0.091	115.34	-0.938
37.0	0.090	0.090	0.090	0.090	116.70	-0.933
38.0	0.089	0.089	0.089	0.089	118.03	-0.928
39.0	0.088	0.088	0.088	0.088	119.35	-0.923
40.0	0.087	0.087	0.087	0.087	120.66	-0.918

試料名 SI17-1 状態 強制乾燥

試料直径(mm) 24.32 試料厚(mm) 4.880

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1025.7000	893.7500	582.4100	833.953	0.01	-4.900
2.0	561.4900	489.7600	327.2900	459.513	0.02	-4.641
3.0	390.7600	341.5000	231.9300	321.397	0.03	-4.486
4.0	302.0100	264.3900	181.2500	249.217	0.04	-4.375
5.0	246.1400	215.6700	149.9000	203.903	0.05	-4.288
6.0	208.6400	183.3300	127.8000	173.257	0.06	-4.217
7.0	180.9600	159.2400	111.7800	150.660	0.07	-4.157
8.0	159.8200	140.8400	99.4070	133.356	0.08	-4.104
9.0	143.0000	126.2200	89.6140	119.611	0.09	-4.056
10.0	129.5500	114.4100	81.6180	108.526	0.10	-4.014
11.0	123.0100	108.5600	77.2780	102.949	0.10	-3.991
12.0	114.2200	100.5800	71.8550	95.552	0.11	-3.959
13.0	105.3200	93.4820	66.5500	88.451	0.12	-3.925
14.0	97.4680	87.6990	63.0810	82.749	0.13	-3.896
15.0	92.3820	82.0080	59.1260	77.839	0.13	-3.870
16.0	87.6490	77.3450	55.8510	73.615	0.14	-3.846
17.0	83.4030	73.7810	53.3910	70.192	0.15	-3.825
18.0	79.5490	70.5270	50.9400	67.005	0.16	-3.805
19.0	75.9370	67.4300	48.9340	64.100	0.16	-3.785
20.0	72.1670	64.3680	46.7640	61.100	0.17	-3.765
21.0	69.4300	61.7430	44.8570	58.677	0.18	-3.747
22.0	66.1880	58.9480	42.9650	56.034	0.19	-3.727
23.0	63.1300	56.4160	41.1330	53.560	0.20	-3.707
24.0	60.1550	53.7550	39.3620	51.091	0.21	-3.687
25.0	57.4100	51.3560	37.8050	48.857	0.22	-3.668
26.0	54.9170	49.3480	36.3760	46.880	0.22	-3.650
27.0	52.7940	47.3760	35.1030	45.091	0.23	-3.633
28.0	50.8830	45.6280	33.8990	43.470	0.24	-3.617
29.0	48.9680	44.0670	32.8000	41.945	0.25	-3.601
30.0	47.6520	42.5070	31.7080	40.622	0.26	-3.587
31.0	45.7610	41.2670	30.8680	39.299	0.27	-3.573
32.0	44.2380	39.9400	29.9870	38.055	0.28	-3.559
33.0	42.9340	38.7550	29.1450	36.945	0.28	-3.546
34.0	41.5820	37.6270	28.3830	35.864	0.29	-3.533
35.0	40.5820	36.3760	27.7220	34.893	0.30	-3.521
36.0	39.2600	35.5200	26.8670	33.882	0.31	-3.509
37.0	38.0620	34.5660	26.2040	32.944	0.32	-3.496
38.0	37.0790	33.6010	25.5520	32.077	0.33	-3.485
39.0	36.0170	32.6860	24.9470	31.217	0.34	-3.473
40.0	35.0810	31.9010	24.3710	30.451	0.34	-3.462

試料名
状態

SI17-1
自然

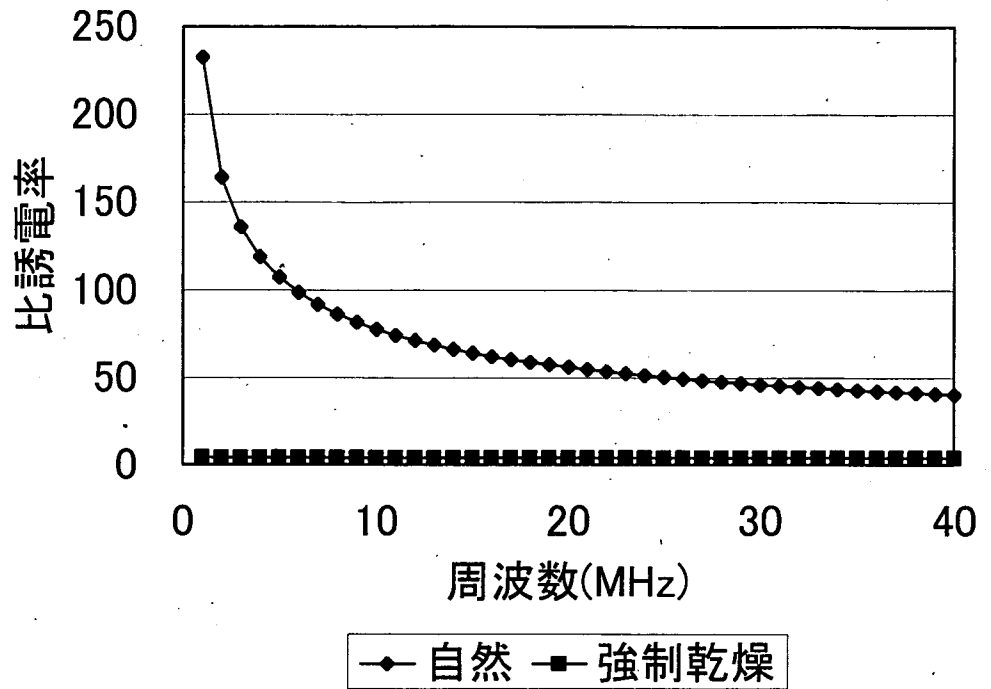
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	232.48	45.02	0.197	4.83
2.0	164.13	49.81	0.234	6.37
3.0	135.82	53.69	0.257	7.54
4.0	118.93	57.07	0.275	8.57
5.0	107.29	60.12	0.289	9.50
6.0	98.63	62.95	0.302	10.38
7.0	91.80	65.58	0.313	11.21
8.0	86.22	68.05	0.323	12.00
9.0	81.59	70.41	0.332	12.76
10.0	77.65	72.66	0.340	13.50
11.0	74.20	74.81	0.348	14.22
12.0	71.19	76.88	0.355	14.92
13.0	68.51	78.89	0.362	15.60
14.0	66.11	80.81	0.369	16.27
15.0	64.01	82.72	0.375	16.93
16.0	62.03	84.52	0.381	17.57
17.0	60.30	86.31	0.386	18.20
18.0	58.79	88.10	0.391	18.81
19.0	57.48	89.88	0.395	19.41
20.0	56.12	91.58	0.400	20.02
21.0	54.70	93.17	0.405	20.62
22.0	53.44	94.76	0.410	21.22
23.0	52.31	96.36	0.415	21.81
24.0	51.24	97.93	0.419	22.40
25.0	50.27	99.50	0.423	22.98
26.0	49.27	100.99	0.427	23.56
27.0	48.38	102.50	0.431	24.13
28.0	47.55	103.99	0.435	24.69
29.0	46.75	105.46	0.438	25.25
30.0	45.99	106.91	0.442	25.81
31.0	45.29	108.36	0.445	26.36
32.0	44.62	109.78	0.449	26.91
33.0	43.98	111.19	0.452	27.45
34.0	43.38	112.59	0.455	27.99
35.0	42.81	113.97	0.458	28.52
36.0	42.26	115.34	0.461	29.05
37.0	41.72	116.70	0.464	29.58
38.0	41.21	118.03	0.467	30.10
39.0	40.71	119.35	0.470	30.63
40.0	40.26	120.66	0.472	31.14

試料名
状態

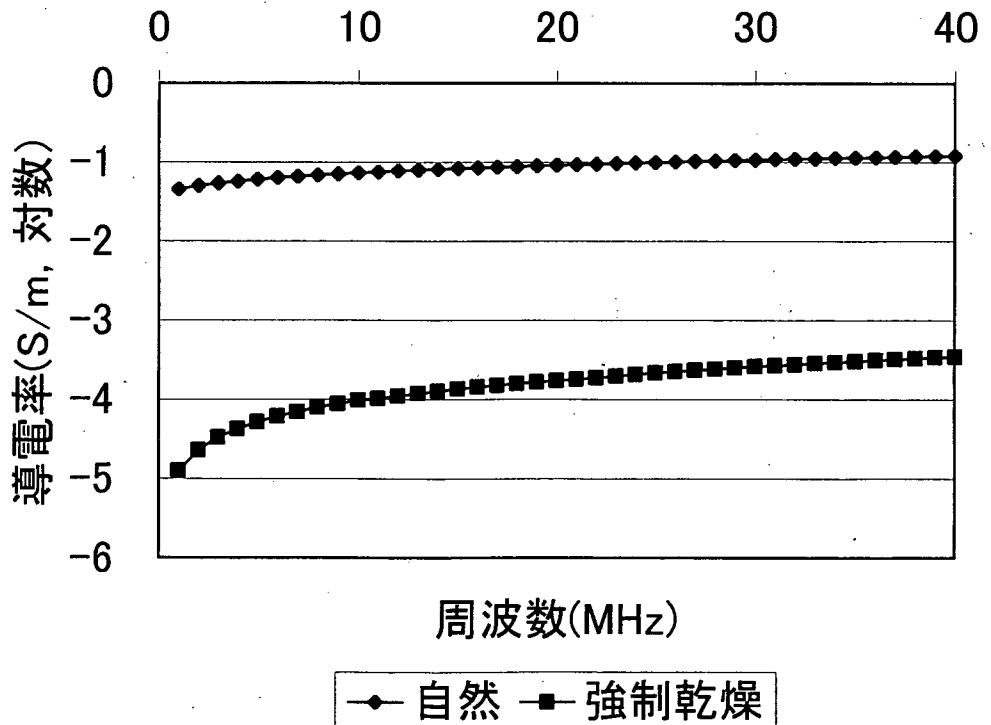
SI17-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.40	0.01	1.429	0.01
2.0	4.31	0.02	1.445	0.02
3.0	4.25	0.03	1.454	0.03
4.0	4.22	0.04	1.460	0.03
5.0	4.19	0.05	1.464	0.04
6.0	4.17	0.06	1.468	0.05
7.0	4.15	0.07	1.471	0.06
8.0	4.14	0.08	1.474	0.06
9.0	4.13	0.09	1.476	0.07
10.0	4.12	0.10	1.478	0.08
11.0	4.11	0.10	1.479	0.08
12.0	4.10	0.11	1.480	0.09
13.0	4.09	0.12	1.482	0.10
14.0	4.09	0.13	1.483	0.10
15.0	4.08	0.13	1.484	0.11
16.0	4.08	0.14	1.484	0.12
17.0	4.08	0.15	1.485	0.12
18.0	4.07	0.16	1.485	0.13
19.0	4.07	0.16	1.485	0.13
20.0	4.07	0.17	1.486	0.14
21.0	4.07	0.18	1.485	0.15
22.0	4.07	0.19	1.485	0.15
23.0	4.07	0.20	1.485	0.16
24.0	4.08	0.21	1.485	0.17
25.0	4.08	0.22	1.485	0.17
26.0	4.08	0.22	1.485	0.18
27.0	4.08	0.23	1.485	0.19
28.0	4.08	0.24	1.485	0.20
29.0	4.08	0.25	1.484	0.20
30.0	4.08	0.26	1.484	0.21
31.0	4.08	0.27	1.484	0.22
32.0	4.08	0.28	1.484	0.22
33.0	4.08	0.28	1.483	0.23
34.0	4.09	0.29	1.483	0.24
35.0	4.09	0.30	1.483	0.24
36.0	4.09	0.31	1.482	0.25
37.0	4.09	0.32	1.482	0.26
38.0	4.10	0.33	1.482	0.26
39.0	4.10	0.34	1.481	0.27
40.0	4.10	0.34	1.480	0.28

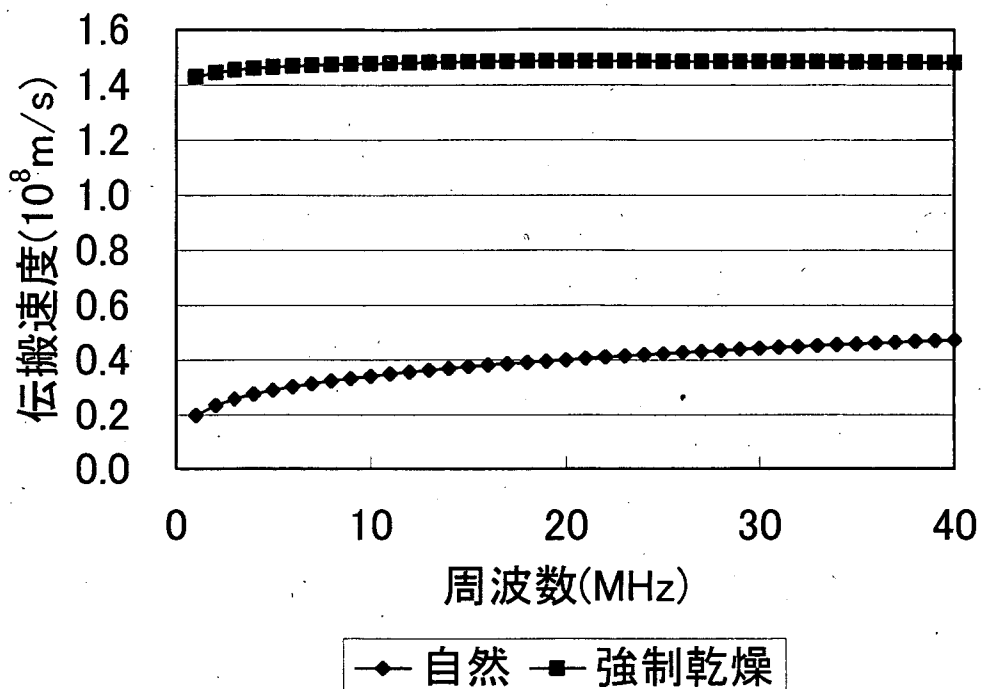
比誘電率
SI17-1



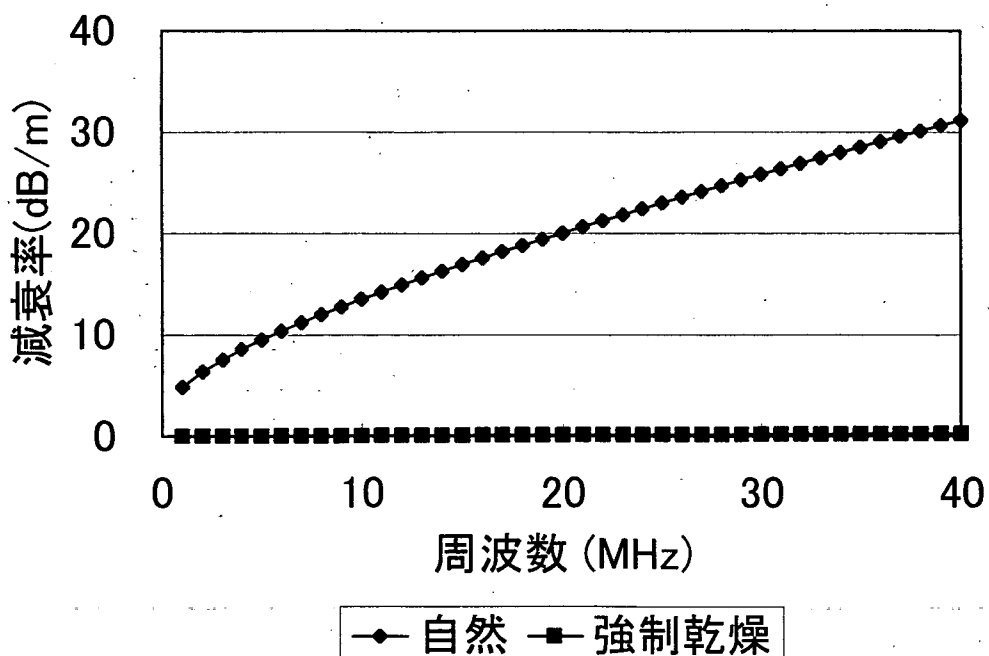
導電率
SI17-1



電磁波伝搬速度
SI17-1



減衰率
SI17-1



試料名 SI17-2-1 状態 自然

試料直径(mm) 24.32 試料厚(mm) 4.912

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	178.270	179.570	178.610	178.817	213.56
2.0	127.490	128.320	127.480	127.763	152.58
3.0	105.890	106.630	105.870	106.130	126.75
4.0	92.904	93.609	92.879	93.131	111.22
5.0	83.907	84.608	83.883	84.133	100.48
6.0	77.248	77.882	77.190	77.440	92.48
7.0	71.995	72.596	71.922	72.171	86.19
8.0	67.698	68.273	67.615	67.862	81.05
9.0	64.118	64.673	64.034	64.275	76.76
10.0	61.071	61.610	60.986	61.222	73.12
11.0	58.462	58.950	58.344	58.585	69.97
12.0	56.169	56.620	56.027	56.272	67.20
13.0	54.108	54.546	53.971	54.208	64.74
14.0	52.207	52.696	52.133	52.345	62.51
15.0	50.530	51.038	50.479	50.682	60.53
16.0	49.050	49.529	48.982	49.187	58.74
17.0	47.689	48.166	47.616	47.824	57.11
18.0	46.421	46.912	46.362	46.565	55.61
19.0	45.258	45.757	45.218	45.411	54.23
20.0	44.176	44.686	44.154	44.339	52.95
21.0	43.169	43.696	43.174	43.346	51.77
22.0	42.323	42.773	42.259	42.452	50.70
23.0	41.414	41.907	41.407	41.576	49.65
24.0	40.570	41.093	40.602	40.755	48.67
25.0	39.774	40.324	39.836	39.978	47.74
26.0	39.066	39.602	39.115	39.261	46.89
27.0	38.388	38.919	38.434	38.580	46.08
28.0	37.723	38.276	37.794	37.931	45.30
29.0	37.117	37.668	37.189	37.325	44.58
30.0	36.617	37.092	36.609	36.773	43.92
31.0	36.063	36.544	36.066	36.224	43.26
32.0	35.501	36.025	35.550	35.692	42.63
33.0	35.010	35.528	35.059	35.199	42.04
34.0	34.535	35.057	34.587	34.726	41.47
35.0	34.127	34.610	34.143	34.293	40.96
36.0	33.678	34.178	33.713	33.856	40.43
37.0	33.264	33.766	33.303	33.444	39.94
38.0	32.834	33.372	32.917	33.041	39.46
39.0	32.419	32.994	32.542	32.652	38.99
40.0	32.054	32.631	32.184	32.290	38.56

試料名 SI17-2-1 状態 強制乾燥

試料直径(mm) 24.32 試料厚(mm) 4.912

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.561	3.603	3.643	3.602	4.30
2.0	3.503	3.537	3.569	3.537	4.22
3.0	3.471	3.500	3.528	3.499	4.18
4.0	3.449	3.475	3.500	3.474	4.15
5.0	3.432	3.456	3.478	3.455	4.13
6.0	3.419	3.441	3.462	3.441	4.11
7.0	3.409	3.429	3.448	3.429	4.09
8.0	3.400	3.419	3.437	3.419	4.08
9.0	3.392	3.411	3.427	3.410	4.07
10.0	3.386	3.403	3.419	3.403	4.06
11.0	3.382	3.398	3.413	3.398	4.06
12.0	3.377	3.393	3.407	3.393	4.05
13.0	3.373	3.389	3.402	3.388	4.05
14.0	3.369	3.384	3.397	3.383	4.04
15.0	3.368	3.383	3.394	3.381	4.04
16.0	3.365	3.378	3.390	3.378	4.03
17.0	3.362	3.375	3.386	3.374	4.03
18.0	3.363	3.376	3.386	3.375	4.03
19.0	3.363	3.375	3.385	3.374	4.03
20.0	3.363	3.375	3.385	3.375	4.03
21.0	3.365	3.376	3.386	3.376	4.03
22.0	3.366	3.377	3.387	3.377	4.03
23.0	3.368	3.379	3.388	3.378	4.03
24.0	3.369	3.380	3.388	3.379	4.04
25.0	3.371	3.381	3.389	3.381	4.04
26.0	3.372	3.382	3.390	3.381	4.04
27.0	3.373	3.383	3.391	3.382	4.04
28.0	3.374	3.384	3.392	3.383	4.04
29.0	3.376	3.385	3.393	3.384	4.04
30.0	3.378	3.387	3.392	3.386	4.04
31.0	3.378	3.387	3.395	3.387	4.04
32.0	3.380	3.389	3.396	3.388	4.05
33.0	3.382	3.391	3.398	3.390	4.05
34.0	3.384	3.393	3.399	3.392	4.05
35.0	3.386	3.395	3.401	3.394	4.05
36.0	3.389	3.397	3.403	3.396	4.06
37.0	3.391	3.399	3.405	3.398	4.06
38.0	3.394	3.401	3.407	3.401	4.06
39.0	3.396	3.404	3.410	3.403	4.06
40.0	3.399	3.407	3.413	3.406	4.07

試料名 SI17-2-1 状態 自然

試料直径(mm) 24.32 試料厚(mm) 4.912

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.262	0.259	0.259	0.260	40.67	-1.391
2.0	0.236	0.234	0.233	0.234	45.13	-1.346
3.0	0.219	0.216	0.216	0.217	48.72	-1.312
4.0	0.205	0.203	0.203	0.204	51.85	-1.285
5.0	0.195	0.193	0.193	0.193	54.68	-1.262
6.0	0.186	0.184	0.184	0.185	57.30	-1.242
7.0	0.178	0.176	0.176	0.177	59.74	-1.224
8.0	0.172	0.170	0.170	0.170	62.04	-1.207
9.0	0.166	0.164	0.164	0.165	64.23	-1.192
10.0	0.161	0.159	0.159	0.159	66.32	-1.178
11.0	0.156	0.154	0.154	0.155	68.33	-1.165
12.0	0.151	0.150	0.150	0.151	70.25	-1.153
13.0	0.148	0.146	0.146	0.147	72.13	-1.142
14.0	0.144	0.143	0.143	0.143	73.92	-1.131
15.0	0.141	0.139	0.139	0.140	75.67	-1.121
16.0	0.138	0.136	0.136	0.137	77.36	-1.111
17.0	0.135	0.133	0.133	0.134	79.02	-1.102
18.0	0.132	0.131	0.131	0.131	80.64	-1.093
19.0	0.129	0.128	0.128	0.129	82.23	-1.085
20.0	0.127	0.126	0.126	0.126	83.79	-1.077
21.0	0.125	0.124	0.124	0.124	85.32	-1.069
22.0	0.122	0.121	0.121	0.122	86.86	-1.061
23.0	0.120	0.119	0.119	0.120	88.34	-1.054
24.0	0.118	0.117	0.117	0.118	89.81	-1.047
25.0	0.117	0.115	0.116	0.116	91.27	-1.040
26.0	0.115	0.114	0.114	0.114	92.69	-1.033
27.0	0.113	0.112	0.112	0.112	94.11	-1.026
28.0	0.111	0.110	0.110	0.111	95.50	-1.020
29.0	0.110	0.109	0.109	0.109	96.87	-1.014
30.0	0.108	0.107	0.107	0.108	98.25	-1.008
31.0	0.107	0.106	0.106	0.106	99.60	-1.002
32.0	0.105	0.104	0.104	0.105	100.92	-0.996
33.0	0.104	0.103	0.103	0.103	102.24	-0.990
34.0	0.103	0.102	0.102	0.102	103.55	-0.985
35.0	0.101	0.101	0.101	0.101	104.84	-0.979
36.0	0.100	0.099	0.099	0.100	106.12	-0.974
37.0	0.099	0.098	0.098	0.098	107.38	-0.969
38.0	0.098	0.097	0.097	0.097	108.63	-0.964
39.0	0.097	0.096	0.096	0.096	109.87	-0.959
40.0	0.096	0.095	0.095	0.095	111.08	-0.954

試料名 SI17-2-1 状態 強制乾燥

試料直径(mm) 24.32 試料厚(mm) 4.912

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1100.0000	973.1300	863.7500	978.960	0.01	-4.967
2.0	600.7700	531.2200	473.8500	535.280	0.02	-4.704
3.0	418.0300	369.8000	330.6200	372.817	0.03	-4.547
4.0	322.6600	285.8500	256.2900	288.267	0.04	-4.436
5.0	262.6000	234.1200	210.2400	235.653	0.04	-4.348
6.0	222.3500	197.6400	177.7700	199.253	0.05	-4.275
7.0	192.5800	171.3700	154.4600	172.803	0.06	-4.213
8.0	169.8400	151.3500	136.6400	152.610	0.07	-4.159
9.0	151.6700	135.4800	122.6700	136.607	0.08	-4.111
10.0	137.2200	122.6300	111.2600	123.703	0.09	-4.068
11.0	130.9100	117.2600	105.6300	117.933	0.09	-4.047
12.0	120.5000	107.6300	97.3500	108.493	0.10	-4.011
13.0	111.8400	100.0700	90.2910	100.734	0.10	-3.979
14.0	103.1300	92.5440	84.6640	93.446	0.11	-3.946
15.0	98.2190	88.3940	79.8430	88.819	0.12	-3.924
16.0	92.9000	82.8070	75.2990	83.669	0.13	-3.898
17.0	87.6520	78.7290	71.8590	79.413	0.13	-3.876
18.0	84.2040	75.2890	68.5900	76.028	0.14	-3.857
19.0	80.3620	72.1580	65.4950	72.672	0.15	-3.837
20.0	76.9440	68.9350	62.6800	69.520	0.15	-3.818
21.0	73.3720	65.8630	59.9910	66.409	0.16	-3.798
22.0	70.1300	62.9690	57.4400	63.513	0.17	-3.779
23.0	66.6540	60.1040	54.7160	60.491	0.17	-3.757
24.0	63.4820	57.3130	52.3000	57.698	0.18	-3.737
25.0	60.8300	55.0120	49.9550	55.266	0.19	-3.718
26.0	57.9320	52.4790	48.0150	52.809	0.20	-3.698
27.0	55.5960	50.3140	46.1200	50.677	0.21	-3.681
28.0	53.4500	48.4910	44.5060	48.816	0.22	-3.664
29.0	51.4580	46.7650	42.8800	47.034	0.22	-3.648
30.0	49.4840	45.0210	41.6170	45.374	0.23	-3.633
31.0	48.0430	43.7480	40.2040	43.998	0.24	-3.619
32.0	46.4900	42.3170	38.9630	42.590	0.25	-3.605
33.0	45.0630	41.0490	37.8440	41.319	0.26	-3.592
34.0	43.7050	39.8250	36.6970	40.076	0.26	-3.579
35.0	42.7890	38.7670	35.8780	39.145	0.27	-3.568
36.0	41.1460	37.5540	34.6340	37.778	0.28	-3.553
37.0	40.0560	36.5560	33.6550	36.756	0.29	-3.541
38.0	38.9170	35.5960	32.8000	35.771	0.30	-3.529
39.0	37.8060	34.6280	31.9730	34.802	0.30	-3.517
40.0	36.9110	33.6930	31.1570	33.920	0.31	-3.506

試料名
状態

SI17-2-1
自然

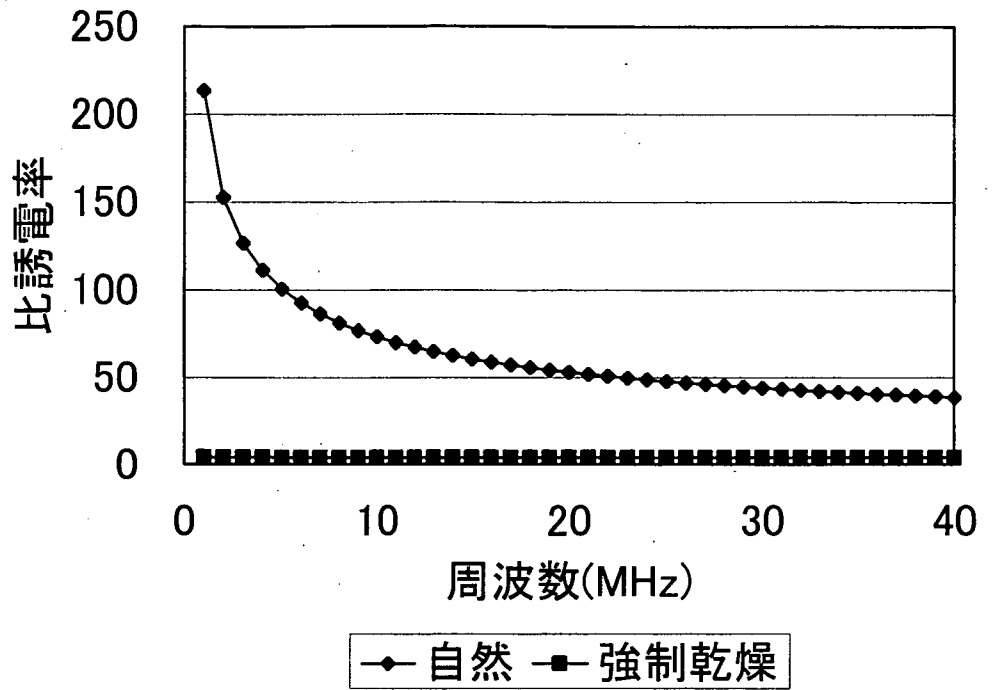
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	213.56	40.67	0.205	4.56
2.0	152.58	45.13	0.243	5.98
3.0	126.75	48.72	0.266	7.08
4.0	111.22	51.85	0.284	8.05
5.0	100.48	54.68	0.299	8.93
6.0	92.48	57.30	0.312	9.75
7.0	86.19	59.74	0.323	10.54
8.0	81.05	62.04	0.333	11.28
9.0	76.76	64.23	0.342	12.00
10.0	73.12	66.32	0.351	12.70
11.0	69.97	68.33	0.358	13.37
12.0	67.20	70.25	0.366	14.03
13.0	64.74	72.13	0.373	14.68
14.0	62.51	73.92	0.379	15.31
15.0	60.53	75.67	0.385	15.92
16.0	58.74	77.36	0.391	16.53
17.0	57.11	79.02	0.397	17.12
18.0	55.61	80.64	0.402	17.70
19.0	54.23	82.23	0.407	18.28
20.0	52.95	83.79	0.412	18.85
21.0	51.77	85.32	0.417	19.42
22.0	50.70	86.86	0.421	19.97
23.0	49.65	88.34	0.425	20.53
24.0	48.67	89.81	0.430	21.08
25.0	47.74	91.27	0.434	21.63
26.0	46.89	92.69	0.438	22.16
27.0	46.08	94.11	0.442	22.70
28.0	45.30	95.50	0.445	23.23
29.0	44.58	96.87	0.449	23.76
30.0	43.92	98.25	0.452	24.27
31.0	43.26	99.60	0.456	24.79
32.0	42.63	100.92	0.459	25.31
33.0	42.04	102.24	0.462	25.82
34.0	41.47	103.55	0.466	26.33
35.0	40.96	104.84	0.468	26.82
36.0	40.43	106.12	0.471	27.32
37.0	39.94	107.38	0.474	27.82
38.0	39.46	108.63	0.477	28.31
39.0	38.99	109.87	0.480	28.81
40.0	38.56	111.08	0.483	29.29

試料名
状態

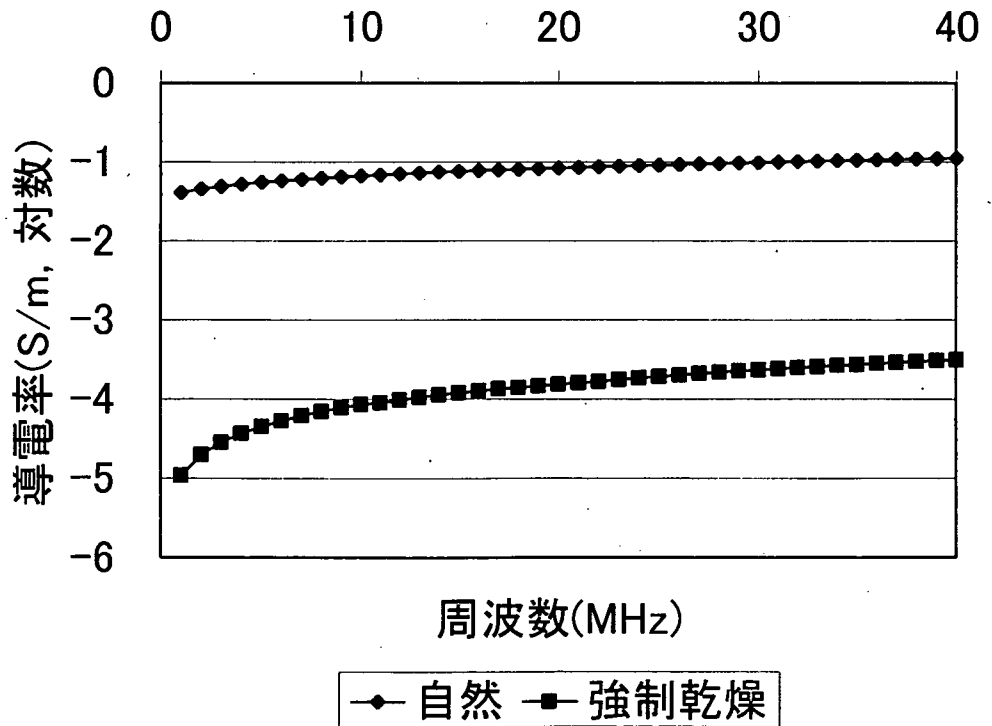
SI17-2-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.30	0.01	1.445	0.01
2.0	4.22	0.02	1.459	0.02
3.0	4.18	0.03	1.466	0.02
4.0	4.15	0.04	1.472	0.03
5.0	4.13	0.04	1.476	0.04
6.0	4.11	0.05	1.479	0.04
7.0	4.09	0.06	1.482	0.05
8.0	4.08	0.07	1.484	0.06
9.0	4.07	0.08	1.486	0.06
10.0	4.06	0.09	1.487	0.07
11.0	4.06	0.09	1.488	0.07
12.0	4.05	0.10	1.489	0.08
13.0	4.05	0.10	1.490	0.09
14.0	4.04	0.11	1.491	0.09
15.0	4.04	0.12	1.492	0.10
16.0	4.03	0.13	1.493	0.10
17.0	4.03	0.13	1.493	0.11
18.0	4.03	0.14	1.493	0.11
19.0	4.03	0.15	1.493	0.12
20.0	4.03	0.15	1.493	0.12
21.0	4.03	0.16	1.493	0.13
22.0	4.03	0.17	1.493	0.14
23.0	4.03	0.17	1.493	0.14
24.0	4.04	0.18	1.492	0.15
25.0	4.04	0.19	1.492	0.16
26.0	4.04	0.20	1.492	0.16
27.0	4.04	0.21	1.492	0.17
28.0	4.04	0.22	1.491	0.18
29.0	4.04	0.22	1.491	0.18
30.0	4.04	0.23	1.491	0.19
31.0	4.04	0.24	1.491	0.20
32.0	4.05	0.25	1.490	0.20
33.0	4.05	0.26	1.490	0.21
34.0	4.05	0.26	1.490	0.21
35.0	4.05	0.27	1.489	0.22
36.0	4.06	0.28	1.489	0.23
37.0	4.06	0.29	1.488	0.23
38.0	4.06	0.30	1.488	0.24
39.0	4.06	0.30	1.487	0.25
40.0	4.07	0.31	1.486	0.25

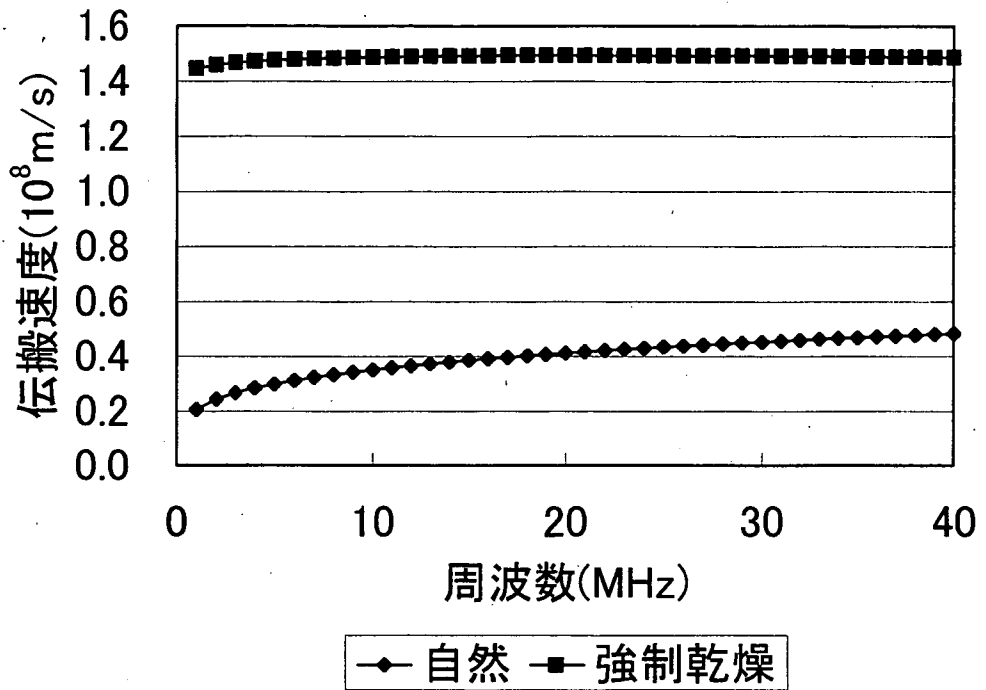
比誘電率
SI17-2-1



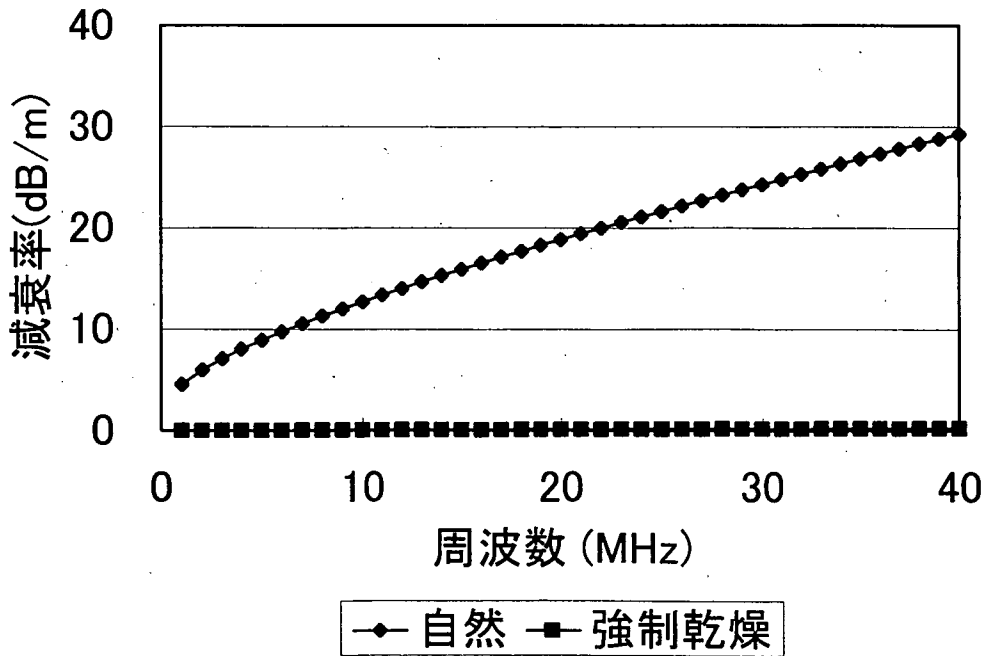
導電率
SI17-2-1



電磁波伝搬速度
SI17-2-1



減衰率
SI17-2-1



試料名 SI17-2-2 状態 自然

試料直径(mm) 24.33 試料厚(mm) 4.865

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	172.040	174.300	178.440	174.927	206.74
2.0	123.450	125.070	128.190	125.570	148.41
3.0	102.330	103.730	106.470	104.177	123.12
4.0	89.530	90.780	93.309	91.206	107.79
5.0	80.652	81.813	84.150	82.205	97.16
6.0	73.985	75.101	77.366	75.484	89.21
7.0	68.755	69.811	72.001	70.189	82.95
8.0	64.470	65.493	67.614	65.859	77.84
9.0	60.899	61.887	63.949	62.245	73.57
10.0	57.869	58.821	60.837	59.176	69.94
11.0	55.230	56.154	58.135	56.506	66.78
12.0	52.918	53.825	55.761	54.168	64.02
13.0	50.878	51.767	53.659	52.101	61.58
14.0	49.051	49.918	51.785	50.251	59.39
15.0	47.410	48.263	50.100	48.591	57.43
16.0	45.925	46.761	48.568	47.085	55.65
17.0	44.577	45.402	47.184	45.721	54.04
18.0	43.342	44.149	45.907	44.466	52.55
19.0	42.207	42.999	44.739	43.315	51.19
20.0	41.151	41.938	43.657	42.249	49.93
21.0	40.174	40.944	42.651	41.256	48.76
22.0	39.262	40.018	41.710	40.330	47.66
23.0	38.404	39.153	40.828	39.462	46.64
24.0	37.601	38.339	40.004	38.648	45.68
25.0	36.840	37.570	39.220	37.877	44.77
26.0	36.125	36.845	38.489	37.153	43.91
27.0	35.449	36.164	37.796	36.470	43.10
28.0	34.813	35.520	37.141	35.825	42.34
29.0	34.210	34.911	36.523	35.215	41.62
30.0	33.634	34.324	35.937	34.632	40.93
31.0	33.098	33.786	35.382	34.089	40.29
32.0	32.585	33.265	34.853	33.568	39.67
33.0	32.096	32.767	34.350	33.071	39.09
34.0	31.631	32.296	33.872	32.600	38.53
35.0	31.196	31.858	33.422	32.159	38.01
36.0	30.762	31.419	32.979	31.720	37.49
37.0	30.356	31.005	32.560	31.307	37.00
38.0	29.981	30.615	32.164	30.920	36.54
39.0	29.617	30.237	31.778	30.544	36.10
40.0	29.264	29.869	31.409	30.181	35.67

試料名 SI17-2-2 状態 強制乾燥

試料直径(mm) 24.33 試料厚(mm) 4.865

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.631	3.678	3.741	3.684	4.35
2.0	3.564	3.604	3.656	3.608	4.26
3.0	3.527	3.562	3.608	3.566	4.21
4.0	3.501	3.534	3.576	3.537	4.18
5.0	3.482	3.513	3.551	3.515	4.15
6.0	3.467	3.496	3.532	3.499	4.13
7.0	3.455	3.482	3.517	3.485	4.12
8.0	3.445	3.471	3.503	3.473	4.10
9.0	3.436	3.461	3.492	3.463	4.09
10.0	3.429	3.453	3.483	3.455	4.08
11.0	3.424	3.447	3.476	3.449	4.08
12.0	3.417	3.442	3.469	3.443	4.07
13.0	3.413	3.435	3.462	3.437	4.06
14.0	3.410	3.430	3.457	3.432	4.06
15.0	3.406	3.426	3.452	3.428	4.05
16.0	3.403	3.423	3.447	3.424	4.05
17.0	3.401	3.422	3.443	3.422	4.04
18.0	3.400	3.419	3.442	3.420	4.04
19.0	3.399	3.419	3.441	3.420	4.04
20.0	3.400	3.419	3.440	3.420	4.04
21.0	3.401	3.419	3.440	3.420	4.04
22.0	3.402	3.420	3.441	3.421	4.04
23.0	3.403	3.420	3.441	3.422	4.04
24.0	3.404	3.421	3.442	3.422	4.04
25.0	3.406	3.422	3.441	3.423	4.05
26.0	3.407	3.422	3.442	3.424	4.05
27.0	3.407	3.423	3.443	3.424	4.05
28.0	3.408	3.424	3.443	3.425	4.05
29.0	3.409	3.425	3.443	3.426	4.05
30.0	3.410	3.425	3.445	3.427	4.05
31.0	3.412	3.427	3.445	3.428	4.05
32.0	3.413	3.428	3.446	3.429	4.05
33.0	3.415	3.429	3.447	3.430	4.05
34.0	3.417	3.431	3.448	3.432	4.06
35.0	3.419	3.432	3.450	3.434	4.06
36.0	3.421	3.435	3.451	3.436	4.06
37.0	3.423	3.437	3.454	3.438	4.06
38.0	3.425	3.439	3.456	3.440	4.07
39.0	3.428	3.441	3.458	3.442	4.07
40.0	3.431	3.443	3.460	3.445	4.07

試料名
状態

SI17-2-2
自然

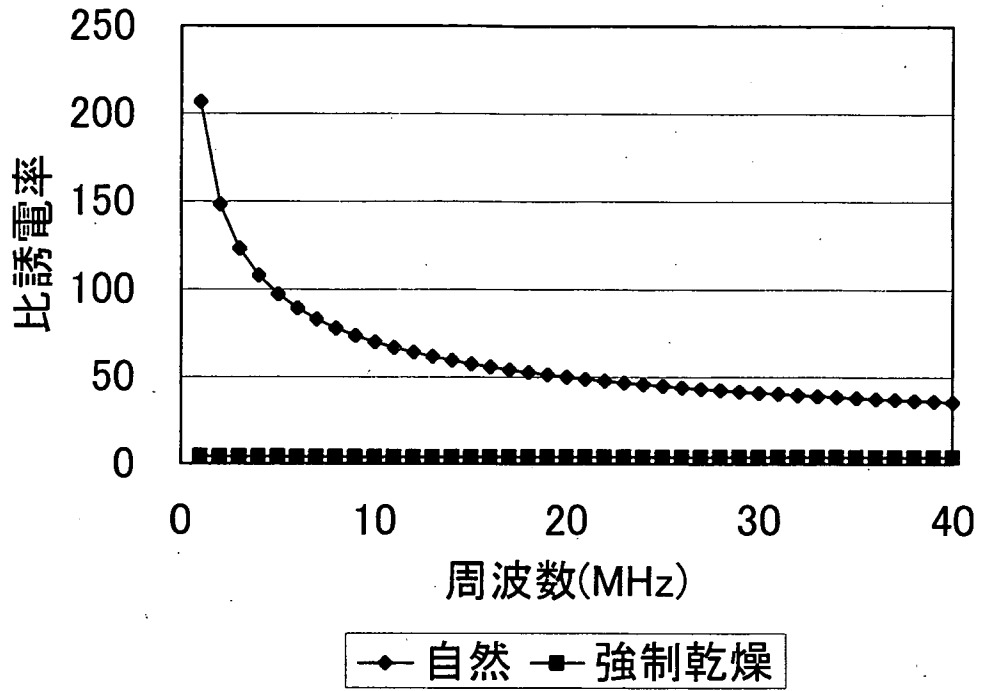
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	206.74	36.69	0.209	4.18
2.0	148.41	41.11	0.246	5.53
3.0	123.12	44.70	0.270	6.60
4.0	107.79	47.82	0.289	7.54
5.0	97.16	50.65	0.304	8.41
6.0	89.21	53.26	0.317	9.23
7.0	82.95	55.69	0.329	10.01
8.0	77.84	57.98	0.340	10.76
9.0	73.57	60.16	0.350	11.48
10.0	69.94	62.23	0.358	12.18
11.0	66.78	64.22	0.367	12.87
12.0	64.02	66.13	0.375	13.53
13.0	61.58	67.98	0.382	14.18
14.0	59.39	69.76	0.389	14.82
15.0	57.43	71.49	0.396	15.45
16.0	55.65	73.17	0.402	16.06
17.0	54.04	74.80	0.408	16.66
18.0	52.55	76.41	0.414	17.26
19.0	51.19	77.98	0.419	17.84
20.0	49.93	79.52	0.424	18.43
21.0	48.76	81.04	0.429	19.00
22.0	47.66	82.53	0.434	19.57
23.0	46.64	84.00	0.439	20.14
24.0	45.68	85.45	0.444	20.70
25.0	44.77	86.87	0.448	21.26
26.0	43.91	88.28	0.452	21.81
27.0	43.10	89.66	0.457	22.36
28.0	42.34	91.03	0.461	22.90
29.0	41.62	92.38	0.465	23.44
30.0	40.93	93.70	0.469	23.98
31.0	40.29	95.03	0.472	24.51
32.0	39.67	96.32	0.476	25.04
33.0	39.09	97.61	0.480	25.56
34.0	38.53	98.89	0.483	26.08
35.0	38.01	100.15	0.486	26.60
36.0	37.49	101.39	0.490	27.11
37.0	37.00	102.62	0.493	27.62
38.0	36.54	103.85	0.496	28.13
39.0	36.10	105.06	0.499	28.63
40.0	35.67	106.25	0.502	29.13

試料名
状態

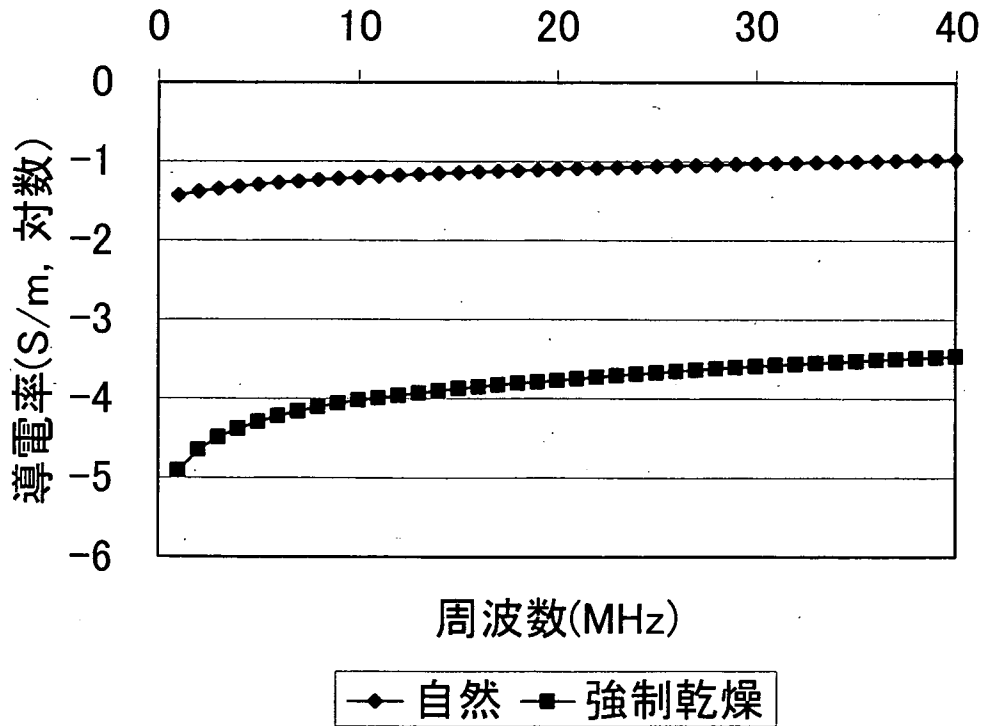
SI17-2-2
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.35	0.01	1.437	0.01
2.0	4.26	0.02	1.452	0.02
3.0	4.21	0.03	1.460	0.03
4.0	4.18	0.04	1.466	0.03
5.0	4.15	0.05	1.471	0.04
6.0	4.13	0.06	1.474	0.05
7.0	4.12	0.07	1.477	0.06
8.0	4.10	0.08	1.480	0.06
9.0	4.09	0.09	1.482	0.07
10.0	4.08	0.10	1.484	0.08
11.0	4.08	0.10	1.485	0.08
12.0	4.07	0.11	1.486	0.09
13.0	4.06	0.12	1.488	0.10
14.0	4.06	0.13	1.489	0.10
15.0	4.05	0.13	1.489	0.11
16.0	4.05	0.14	1.490	0.11
17.0	4.04	0.15	1.491	0.12
18.0	4.04	0.15	1.491	0.13
19.0	4.04	0.16	1.491	0.13
20.0	4.04	0.17	1.491	0.14
21.0	4.04	0.18	1.491	0.14
22.0	4.04	0.19	1.491	0.15
23.0	4.04	0.19	1.491	0.16
24.0	4.04	0.20	1.491	0.17
25.0	4.05	0.21	1.491	0.17
26.0	4.05	0.22	1.490	0.18
27.0	4.05	0.23	1.490	0.19
28.0	4.05	0.24	1.490	0.19
29.0	4.05	0.25	1.490	0.20
30.0	4.05	0.26	1.490	0.21
31.0	4.05	0.26	1.490	0.21
32.0	4.05	0.27	1.489	0.22
33.0	4.05	0.28	1.489	0.23
34.0	4.06	0.29	1.489	0.24
35.0	4.06	0.30	1.488	0.24
36.0	4.06	0.31	1.488	0.25
37.0	4.06	0.31	1.487	0.26
38.0	4.07	0.32	1.487	0.26
39.0	4.07	0.33	1.486	0.27
40.0	4.07	0.34	1.486	0.28

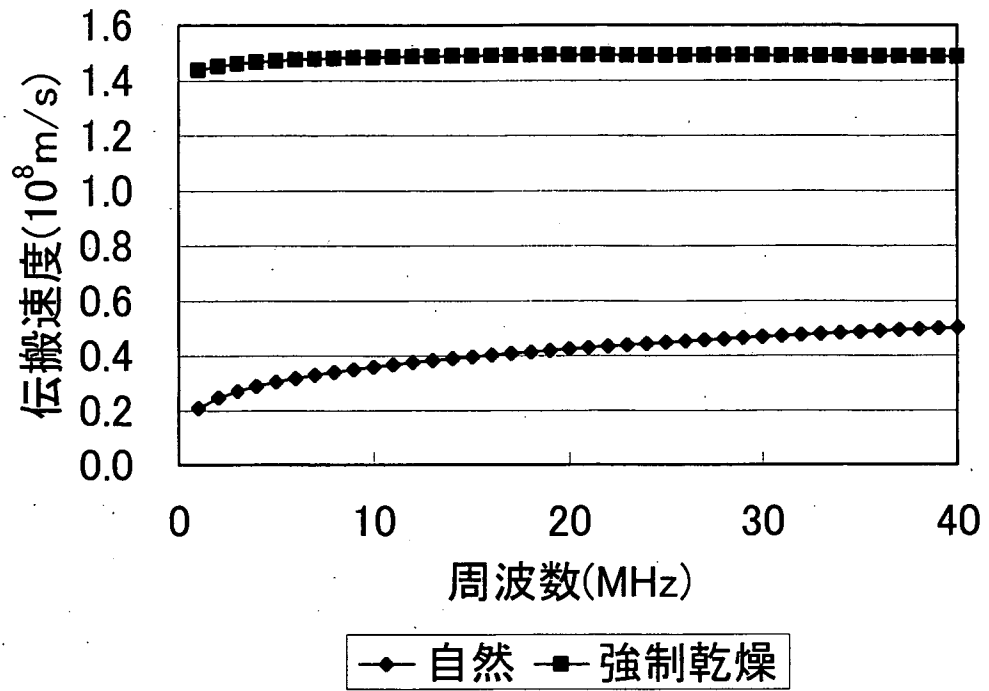
比誘電率
SI17-2-2



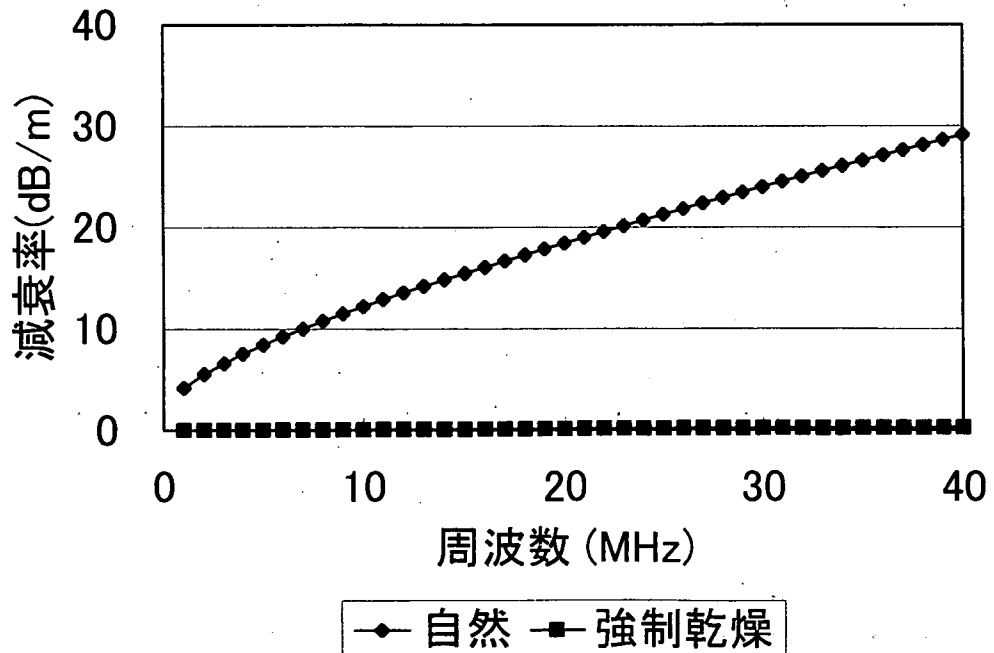
導電率
SI17-2-2



電磁波伝搬速度 SI17-2-2



減衰率 SI17-2-2



試料名 SI17-3 状態 自然

試料直径(mm) 24.32 試料厚(mm) 4.853

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	178.840	176.740	180.720	178.767	210.93
2.0	127.810	126.140	128.960	127.637	150.60
3.0	106.080	104.520	107.040	105.880	124.93
4.0	92.970	91.413	93.876	92.753	109.44
5.0	83.891	82.407	84.731	83.676	98.73
6.0	77.091	75.694	77.918	76.901	90.74
7.0	71.760	70.396	72.580	71.579	84.46
8.0	67.409	65.967	68.161	67.179	79.27
9.0	63.761	62.394	64.489	63.548	74.98
10.0	60.645	59.246	61.368	60.420	71.29
11.0	57.970	56.590	58.681	57.747	68.14
12.0	55.622	54.309	56.326	55.419	65.39
13.0	53.546	52.394	54.218	53.386	62.99
14.0	51.693	50.472	52.340	51.502	60.77
15.0	50.037	48.770	50.657	49.821	58.79
16.0	48.521	47.298	49.135	48.318	57.01
17.0	47.160	45.964	47.737	46.954	55.40
18.0	45.903	44.776	46.475	45.718	53.94
19.0	44.753	43.687	45.298	44.579	52.60
20.0	43.675	42.626	44.251	43.517	51.35
21.0	42.679	41.642	43.227	42.516	50.17
22.0	41.758	40.726	42.296	41.593	49.08
23.0	40.877	39.862	41.406	40.715	48.04
24.0	40.048	39.053	40.595	39.899	47.08
25.0	39.272	38.292	39.840	39.135	46.18
26.0	38.549	37.565	39.102	38.405	45.32
27.0	37.867	36.880	38.403	37.717	44.50
28.0	37.232	36.235	37.744	37.070	43.74
29.0	36.621	35.629	37.122	36.457	43.02
30.0	36.035	35.040	36.533	35.869	42.32
31.0	35.494	34.495	35.982	35.324	41.68
32.0	34.970	33.969	35.450	34.796	41.06
33.0	34.472	33.467	34.956	34.298	40.47
34.0	33.998	32.993	34.478	33.823	39.91
35.0	33.545	32.545	34.006	33.365	39.37
36.0	33.105	32.106	33.538	32.916	38.84
37.0	32.684	31.698	33.101	32.494	38.34
38.0	32.296	31.302	32.685	32.094	37.87
39.0	31.900	30.915	32.293	31.703	37.41
40.0	31.525	30.554	31.913	31.331	36.97

試料名 SI17-3 状態 強制乾燥

試料直径(mm) 24.32 試料厚(mm) 4.853

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.641	3.669	3.744	3.684	4.35
2.0	3.568	3.590	3.658	3.606	4.25
3.0	3.528	3.547	3.610	3.562	4.20
4.0	3.500	3.517	3.578	3.532	4.17
5.0	3.479	3.494	3.553	3.509	4.14
6.0	3.464	3.477	3.535	3.492	4.12
7.0	3.451	3.463	3.519	3.478	4.10
8.0	3.440	3.451	3.506	3.466	4.09
9.0	3.431	3.441	3.495	3.455	4.08
10.0	3.423	3.432	3.485	3.447	4.07
11.0	3.417	3.426	3.478	3.440	4.06
12.0	3.411	3.420	3.472	3.434	4.05
13.0	3.406	3.414	3.465	3.428	4.05
14.0	3.402	3.409	3.458	3.423	4.04
15.0	3.398	3.405	3.454	3.419	4.03
16.0	3.395	3.402	3.450	3.416	4.03
17.0	3.392	3.400	3.447	3.413	4.03
18.0	3.391	3.398	3.446	3.412	4.03
19.0	3.391	3.396	3.444	3.410	4.02
20.0	3.391	3.396	3.443	3.410	4.02
21.0	3.392	3.396	3.443	3.410	4.02
22.0	3.393	3.397	3.444	3.411	4.02
23.0	3.393	3.398	3.444	3.412	4.03
24.0	3.395	3.399	3.445	3.413	4.03
25.0	3.395	3.399	3.445	3.413	4.03
26.0	3.396	3.400	3.445	3.414	4.03
27.0	3.397	3.401	3.446	3.414	4.03
28.0	3.398	3.401	3.446	3.415	4.03
29.0	3.399	3.402	3.446	3.416	4.03
30.0	3.400	3.404	3.447	3.417	4.03
31.0	3.401	3.404	3.448	3.418	4.03
32.0	3.402	3.405	3.449	3.419	4.03
33.0	3.404	3.406	3.450	3.420	4.04
34.0	3.405	3.408	3.451	3.422	4.04
35.0	3.407	3.410	3.454	3.423	4.04
36.0	3.409	3.411	3.455	3.425	4.04
37.0	3.411	3.414	3.457	3.427	4.04
38.0	3.414	3.416	3.459	3.429	4.05
39.0	3.416	3.418	3.461	3.432	4.05
40.0	3.419	3.421	3.463	3.434	4.05

試料名 SI17-3 状態 自然

試料直径(mm) 24.32 試料厚(mm) 4.853

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.265	0.263	0.259	0.262	39.85	-1.400
2.0	0.238	0.237	0.233	0.236	44.31	-1.354
3.0	0.220	0.219	0.216	0.218	47.91	-1.320
4.0	0.206	0.205	0.202	0.205	51.05	-1.292
5.0	0.195	0.195	0.192	0.194	53.88	-1.269
6.0	0.186	0.186	0.183	0.185	56.51	-1.248
7.0	0.178	0.178	0.175	0.177	58.96	-1.229
8.0	0.172	0.171	0.169	0.171	61.25	-1.213
9.0	0.166	0.165	0.163	0.165	63.45	-1.198
10.0	0.160	0.160	0.158	0.159	65.52	-1.184
11.0	0.156	0.155	0.153	0.155	67.53	-1.171
12.0	0.151	0.151	0.149	0.150	69.47	-1.158
13.0	0.147	0.147	0.145	0.146	71.36	-1.147
14.0	0.144	0.143	0.141	0.143	73.14	-1.136
15.0	0.140	0.140	0.138	0.140	74.89	-1.126
16.0	0.137	0.137	0.135	0.136	76.59	-1.116
17.0	0.134	0.134	0.132	0.134	78.25	-1.107
18.0	0.132	0.131	0.129	0.131	79.88	-1.098
19.0	0.129	0.129	0.127	0.128	81.48	-1.089
20.0	0.127	0.126	0.125	0.126	83.05	-1.081
21.0	0.124	0.124	0.122	0.124	84.58	-1.073
22.0	0.122	0.122	0.120	0.121	86.10	-1.065
23.0	0.120	0.120	0.118	0.119	87.59	-1.058
24.0	0.118	0.118	0.116	0.117	89.05	-1.050
25.0	0.116	0.116	0.114	0.115	90.51	-1.043
26.0	0.114	0.114	0.113	0.114	91.92	-1.037
27.0	0.113	0.112	0.111	0.112	93.33	-1.030
28.0	0.111	0.111	0.109	0.110	94.71	-1.024
29.0	0.109	0.109	0.108	0.109	96.09	-1.017
30.0	0.108	0.108	0.106	0.107	97.44	-1.011
31.0	0.106	0.106	0.105	0.106	98.77	-1.005
32.0	0.105	0.105	0.103	0.104	100.09	-1.000
33.0	0.104	0.103	0.102	0.103	101.39	-0.994
34.0	0.102	0.102	0.101	0.102	102.69	-0.988
35.0	0.101	0.101	0.100	0.100	103.97	-0.983
36.0	0.100	0.100	0.098	0.099	105.22	-0.978
37.0	0.099	0.099	0.097	0.098	106.46	-0.973
38.0	0.097	0.097	0.096	0.097	107.70	-0.968
39.0	0.096	0.096	0.095	0.096	108.92	-0.963
40.0	0.095	0.095	0.094	0.095	110.12	-0.958

試料名 SI17-3 状態 強制乾燥

試料直径(mm) 24.32 試料厚(mm) 4.853

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	874.9000	810.5700	743.3400	809.603	0.01	-4.889
2.0	483.2800	446.6300	409.3800	446.430	0.02	-4.631
3.0	338.6100	312.7100	286.4200	312.580	0.03	-4.476
4.0	263.0100	242.5000	222.2400	242.583	0.04	-4.366
5.0	214.8600	199.2900	182.9100	199.020	0.05	-4.280
6.0	183.0100	168.8400	154.8800	168.910	0.06	-4.209
7.0	159.1300	146.8200	134.8100	146.920	0.07	-4.148
8.0	140.8000	129.9900	119.4400	130.077	0.08	-4.095
9.0	126.3400	116.7700	107.3400	116.817	0.09	-4.049
10.0	114.5900	106.0100	97.5920	106.064	0.10	-4.007
11.0	109.2500	100.5100	92.4960	100.752	0.10	-3.984
12.0	100.2200	92.0030	85.3580	92.527	0.11	-3.947
13.0	92.9270	86.4170	79.2360	86.193	0.12	-3.916
14.0	87.6340	79.8210	73.4680	80.308	0.13	-3.886
15.0	82.2270	75.7800	69.5680	75.858	0.14	-3.861
16.0	78.1650	71.9490	66.1340	72.083	0.14	-3.839
17.0	74.5660	68.4000	63.1700	68.712	0.15	-3.818
18.0	70.8440	65.5430	60.4020	65.596	0.16	-3.798
19.0	67.7150	62.6080	57.7120	62.678	0.17	-3.778
20.0	64.6160	59.6830	55.2690	59.856	0.17	-3.758
21.0	61.9440	57.2510	52.8820	57.359	0.18	-3.740
22.0	59.1980	54.8600	50.6290	54.896	0.19	-3.721
23.0	56.5550	52.5090	48.3420	52.469	0.20	-3.701
24.0	54.0720	50.0290	46.2410	50.114	0.21	-3.681
25.0	51.6500	47.5850	44.1800	47.805	0.22	-3.660
26.0	49.5100	45.9790	42.5870	46.025	0.23	-3.644
27.0	47.5760	44.2890	40.9840	44.283	0.24	-3.627
28.0	45.8560	42.6370	39.5280	42.674	0.24	-3.611
29.0	44.2860	41.2130	38.2480	41.249	0.25	-3.596
30.0	42.4360	39.6900	36.9850	39.704	0.26	-3.580
31.0	41.3990	38.6000	35.8240	38.608	0.27	-3.568
32.0	40.1280	37.3920	34.8090	37.443	0.28	-3.554
33.0	38.9720	36.3460	33.7740	36.364	0.29	-3.542
34.0	37.7560	35.2970	32.8390	35.297	0.30	-3.529
35.0	36.6920	34.2320	31.9770	34.300	0.30	-3.516
36.0	35.7240	33.2940	31.0700	33.363	0.31	-3.504
37.0	34.6570	32.4570	30.2020	32.439	0.32	-3.492
38.0	33.7680	31.6020	29.4750	31.615	0.33	-3.481
39.0	32.8850	30.7470	28.6800	30.771	0.34	-3.469
40.0	32.0850	29.9400	27.9600	29.995	0.35	-3.458

試料名
状態

SI17-3
自然

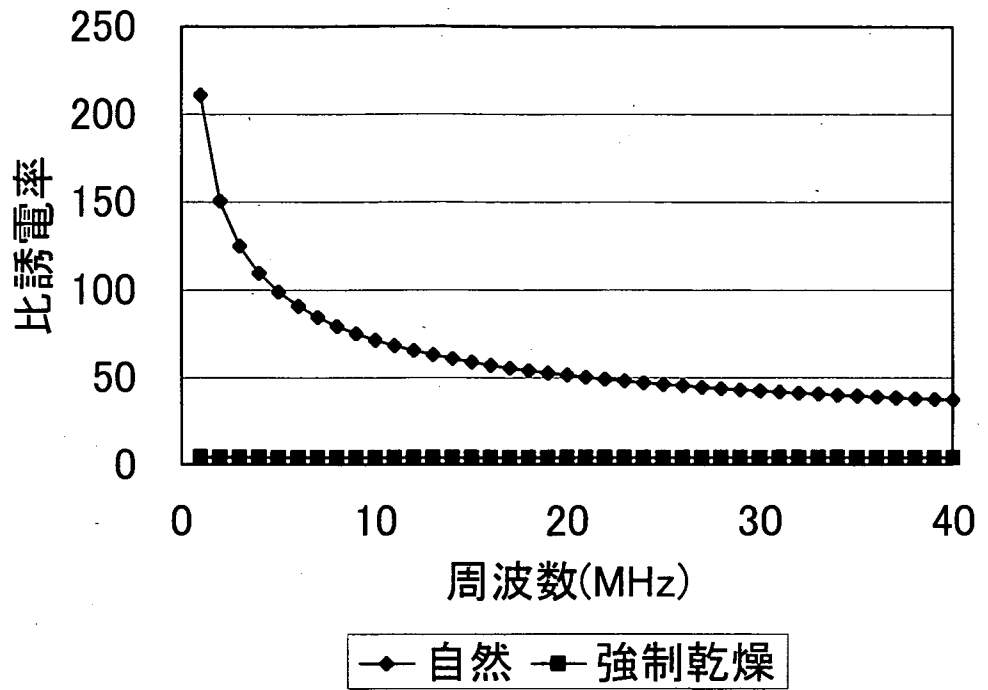
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	210.93	39.85	0.206	4.49
2.0	150.60	44.31	0.244	5.91
3.0	124.93	47.91	0.268	7.02
4.0	109.44	51.05	0.287	7.99
5.0	98.73	53.88	0.302	8.88
6.0	90.74	56.51	0.315	9.71
7.0	84.46	58.96	0.326	10.50
8.0	79.27	61.25	0.337	11.26
9.0	74.98	63.45	0.346	12.00
10.0	71.29	65.52	0.355	12.71
11.0	68.14	67.53	0.363	13.39
12.0	65.39	69.47	0.371	14.07
13.0	62.99	71.36	0.378	14.72
14.0	60.77	73.14	0.385	15.36
15.0	58.79	74.89	0.391	15.99
16.0	57.01	76.59	0.397	16.61
17.0	55.40	78.25	0.403	17.21
18.0	53.94	79.88	0.408	17.81
19.0	52.60	81.48	0.413	18.39
20.0	51.35	83.05	0.418	18.98
21.0	50.17	84.58	0.423	19.55
22.0	49.08	86.10	0.428	20.12
23.0	48.04	87.59	0.433	20.69
24.0	47.08	89.05	0.437	21.25
25.0	46.18	90.51	0.441	21.81
26.0	45.32	91.92	0.445	22.36
27.0	44.50	93.33	0.449	22.91
28.0	43.74	94.71	0.453	23.45
29.0	43.02	96.09	0.457	23.99
30.0	42.32	97.44	0.461	24.52
31.0	41.68	98.77	0.464	25.05
32.0	41.06	100.09	0.468	25.58
33.0	40.47	101.39	0.471	26.10
34.0	39.91	102.69	0.475	26.61
35.0	39.37	103.97	0.478	27.13
36.0	38.84	105.22	0.481	27.64
37.0	38.34	106.46	0.484	28.15
38.0	37.87	107.70	0.487	28.65
39.0	37.41	108.92	0.490	29.16
40.0	36.97	110.12	0.493	29.65

試料名
状態

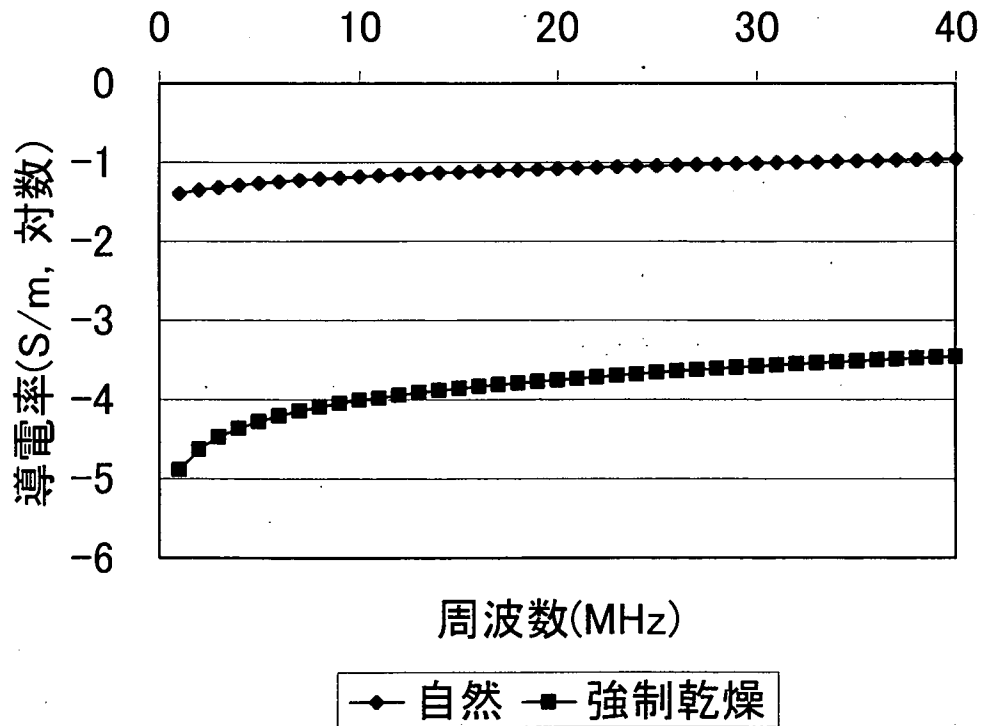
SI17-3
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.35	0.01	1.438	0.01
2.0	4.25	0.02	1.454	0.02
3.0	4.20	0.03	1.462	0.03
4.0	4.17	0.04	1.469	0.03
5.0	4.14	0.05	1.473	0.04
6.0	4.12	0.06	1.477	0.05
7.0	4.10	0.07	1.480	0.06
8.0	4.09	0.08	1.483	0.07
9.0	4.08	0.09	1.485	0.07
10.0	4.07	0.10	1.487	0.08
11.0	4.06	0.10	1.488	0.08
12.0	4.05	0.11	1.489	0.09
13.0	4.05	0.12	1.491	0.10
14.0	4.04	0.13	1.492	0.11
15.0	4.03	0.14	1.493	0.11
16.0	4.03	0.14	1.493	0.12
17.0	4.03	0.15	1.494	0.12
18.0	4.03	0.16	1.494	0.13
19.0	4.02	0.17	1.495	0.14
20.0	4.02	0.17	1.495	0.14
21.0	4.02	0.18	1.495	0.15
22.0	4.02	0.19	1.494	0.16
23.0	4.03	0.20	1.494	0.16
24.0	4.03	0.21	1.494	0.17
25.0	4.03	0.22	1.494	0.18
26.0	4.03	0.23	1.494	0.19
27.0	4.03	0.24	1.494	0.19
28.0	4.03	0.24	1.493	0.20
29.0	4.03	0.25	1.493	0.21
30.0	4.03	0.26	1.493	0.21
31.0	4.03	0.27	1.493	0.22
32.0	4.03	0.28	1.493	0.23
33.0	4.04	0.29	1.492	0.23
34.0	4.04	0.30	1.492	0.24
35.0	4.04	0.30	1.492	0.25
36.0	4.04	0.31	1.491	0.26
37.0	4.04	0.32	1.491	0.26
38.0	4.05	0.33	1.490	0.27
39.0	4.05	0.34	1.490	0.28
40.0	4.05	0.35	1.489	0.28

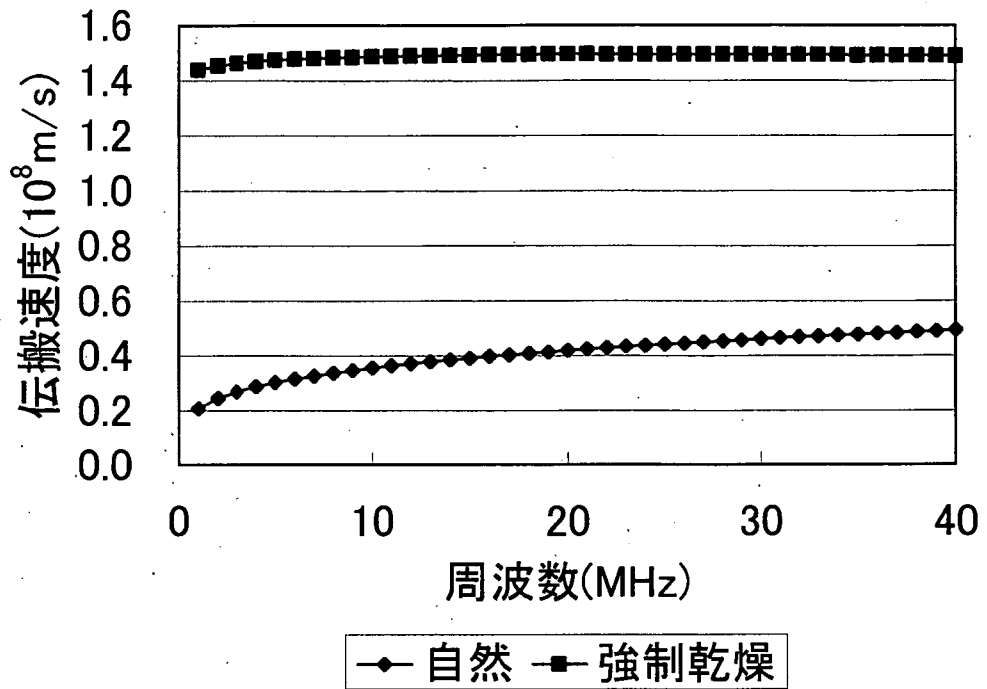
比誘電率
SI17-3



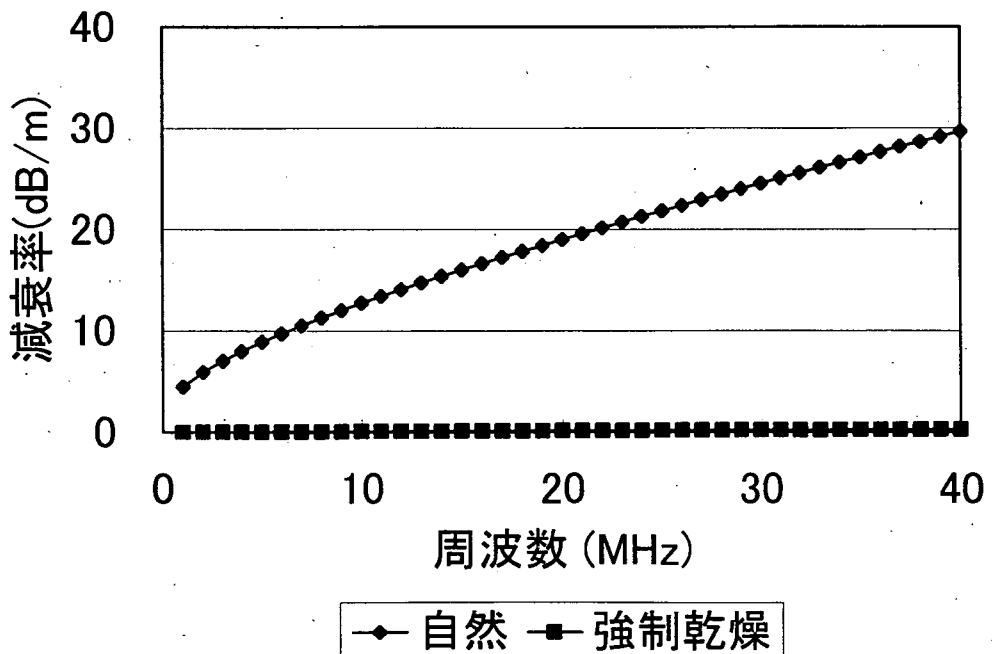
導電率
SI17-3



電磁波伝搬速度 SI17-3



減衰率 SI17-3



試料名 SI18-1 状態 自然

試料直径(mm) 24.30 試料厚(mm) 4.914

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	105.460	105.850	106.310	105.873	126.70
2.0	77.599	77.825	78.126	77.850	93.16
3.0	65.266	65.436	65.682	65.461	78.34
4.0	57.751	57.893	58.099	57.914	69.31
5.0	52.520	52.642	52.826	52.663	63.02
6.0	48.609	48.712	48.871	48.731	58.32
7.0	45.531	45.624	45.765	45.640	54.62
8.0	43.008	43.100	43.220	43.109	51.59
9.0	40.907	40.994	41.103	41.001	49.07
10.0	39.121	39.203	39.304	39.209	46.92
11.0	37.577	37.653	37.744	37.658	45.07
12.0	36.040	36.110	36.186	36.112	43.22
13.0	34.824	34.885	34.967	34.892	41.76
14.0	33.734	33.794	33.875	33.801	40.45
15.0	32.761	32.822	32.890	32.824	39.28
16.0	31.882	31.930	32.002	31.938	38.22
17.0	31.084	31.120	31.200	31.135	37.26
18.0	30.348	30.388	30.454	30.397	36.38
19.0	29.674	29.715	29.775	29.721	35.57
20.0	29.049	29.084	29.145	29.093	34.82
21.0	28.471	28.504	28.561	28.512	34.12
22.0	27.930	27.961	28.011	27.967	33.47
23.0	27.419	27.446	27.497	27.454	32.85
24.0	26.938	26.962	27.013	26.971	32.28
25.0	26.482	26.504	26.548	26.511	31.73
26.0	26.055	26.075	26.118	26.083	31.21
27.0	25.649	25.669	25.709	25.676	30.73
28.0	25.267	25.284	25.321	25.291	30.27
29.0	24.905	24.922	24.955	24.927	29.83
30.0	24.565	24.582	24.612	24.586	29.42
31.0	24.239	24.258	24.282	24.260	29.03
32.0	23.932	23.951	23.971	23.951	28.66
33.0	23.640	23.657	23.676	23.658	28.31
34.0	23.361	23.379	23.399	23.380	27.98
35.0	23.097	23.120	23.132	23.116	27.66
36.0	22.843	22.862	22.874	22.860	27.36
37.0	22.600	22.621	22.630	22.617	27.07
38.0	22.370	22.389	22.398	22.386	26.79
39.0	22.147	22.167	22.172	22.162	26.52
40.0	21.936	21.955	21.959	21.950	26.27

試料名 SI18-1 状態 強制乾燥

試料直径(mm) 24.30 試料厚(mm) 4.914

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.432	3.401	3.494	3.442	4.12
2.0	3.373	3.339	3.425	3.379	4.04
3.0	3.340	3.305	3.387	3.344	4.00
4.0	3.318	3.282	3.361	3.320	3.97
5.0	3.301	3.263	3.341	3.302	3.95
6.0	3.289	3.251	3.326	3.289	3.94
7.0	3.278	3.240	3.314	3.277	3.92
8.0	3.269	3.230	3.303	3.268	3.91
9.0	3.262	3.223	3.295	3.260	3.90
10.0	3.256	3.216	3.287	3.253	3.89
11.0	3.251	3.212	3.282	3.248	3.89
12.0	3.247	3.207	3.276	3.243	3.88
13.0	3.243	3.203	3.272	3.239	3.88
14.0	3.239	3.200	3.266	3.235	3.87
15.0	3.237	3.197	3.265	3.233	3.87
16.0	3.234	3.194	3.261	3.229	3.86
17.0	3.233	3.191	3.259	3.228	3.86
18.0	3.233	3.191	3.258	3.227	3.86
19.0	3.232	3.192	3.257	3.227	3.86
20.0	3.233	3.192	3.257	3.227	3.86
21.0	3.234	3.193	3.258	3.228	3.86
22.0	3.235	3.195	3.259	3.230	3.86
23.0	3.237	3.196	3.260	3.231	3.87
24.0	3.239	3.197	3.261	3.232	3.87
25.0	3.240	3.198	3.261	3.233	3.87
26.0	3.241	3.200	3.263	3.234	3.87
27.0	3.242	3.200	3.263	3.235	3.87
28.0	3.243	3.202	3.264	3.236	3.87
29.0	3.244	3.203	3.265	3.237	3.87
30.0	3.246	3.203	3.266	3.238	3.88
31.0	3.247	3.205	3.267	3.240	3.88
32.0	3.249	3.207	3.269	3.242	3.88
33.0	3.250	3.209	3.270	3.243	3.88
34.0	3.252	3.211	3.272	3.245	3.88
35.0	3.255	3.214	3.274	3.247	3.89
36.0	3.257	3.215	3.276	3.249	3.89
37.0	3.259	3.218	3.278	3.252	3.89
38.0	3.262	3.220	3.280	3.254	3.89
39.0	3.264	3.223	3.283	3.257	3.90
40.0	3.267	3.226	3.285	3.259	3.90

試料名 SI18-1 状態 自然

試料直径(mm) 24.30 試料厚(mm) 4.914

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.461	0.455	0.450	0.455	23.27	-1.633
2.0	0.414	0.409	0.405	0.409	25.89	-1.587
3.0	0.382	0.378	0.374	0.378	28.02	-1.553
4.0	0.358	0.354	0.351	0.355	29.88	-1.525
5.0	0.339	0.336	0.333	0.336	31.56	-1.501
6.0	0.323	0.320	0.317	0.320	33.12	-1.480
7.0	0.310	0.306	0.304	0.307	34.56	-1.461
8.0	0.298	0.295	0.292	0.295	35.93	-1.445
9.0	0.287	0.284	0.282	0.285	37.23	-1.429
10.0	0.278	0.275	0.273	0.275	38.47	-1.415
11.0	0.270	0.267	0.265	0.267	39.66	-1.402
12.0	0.262	0.259	0.257	0.259	40.89	-1.388
13.0	0.255	0.252	0.250	0.252	42.01	-1.377
14.0	0.248	0.246	0.244	0.246	43.08	-1.366
15.0	0.242	0.240	0.238	0.240	44.13	-1.355
16.0	0.237	0.235	0.233	0.235	45.15	-1.345
17.0	0.232	0.230	0.228	0.230	46.13	-1.336
18.0	0.227	0.225	0.223	0.225	47.11	-1.327
19.0	0.222	0.220	0.219	0.220	48.07	-1.318
20.0	0.218	0.216	0.214	0.216	49.01	-1.310
21.0	0.214	0.212	0.210	0.212	49.94	-1.302
22.0	0.210	0.208	0.207	0.208	50.86	-1.294
23.0	0.207	0.205	0.203	0.205	51.77	-1.286
24.0	0.203	0.201	0.200	0.201	52.66	-1.279
25.0	0.200	0.198	0.196	0.198	53.54	-1.271
26.0	0.196	0.195	0.193	0.195	54.41	-1.264
27.0	0.193	0.192	0.190	0.192	55.27	-1.258
28.0	0.191	0.189	0.187	0.189	56.11	-1.251
29.0	0.188	0.186	0.185	0.186	56.94	-1.245
30.0	0.185	0.183	0.182	0.183	57.76	-1.238
31.0	0.183	0.181	0.179	0.181	58.58	-1.232
32.0	0.180	0.178	0.177	0.178	59.38	-1.226
33.0	0.178	0.176	0.175	0.176	60.18	-1.221
34.0	0.175	0.174	0.172	0.174	60.96	-1.215
35.0	0.173	0.172	0.170	0.172	61.75	-1.209
36.0	0.171	0.169	0.168	0.169	62.52	-1.204
37.0	0.169	0.167	0.166	0.167	63.28	-1.199
38.0	0.167	0.165	0.164	0.165	64.04	-1.194
39.0	0.165	0.163	0.162	0.164	64.78	-1.189
40.0	0.163	0.162	0.160	0.162	65.51	-1.184

試料名 SI18-1 状態 強制乾燥

試料直径(mm) 24.30 試料厚(mm) 4.914

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1096.7000	1051.6000	940.8700	1029.723	0.01	-4.988
2.0	600.7000	574.4900	515.2900	563.493	0.02	-4.726
3.0	418.9300	400.0800	359.3900	392.800	0.03	-4.569
4.0	324.4100	309.6400	278.1800	304.077	0.03	-4.458
5.0	266.7400	253.4200	227.0800	249.080	0.04	-4.371
6.0	225.0200	214.7700	193.3300	211.040	0.05	-4.299
7.0	195.4700	186.3800	168.1200	183.323	0.06	-4.238
8.0	172.6300	164.9300	148.7200	162.093	0.07	-4.185
9.0	154.8300	147.8700	133.5300	145.410	0.07	-4.137
10.0	140.3900	134.0400	121.1600	131.863	0.08	-4.095
11.0	134.2700	127.9800	115.6700	125.973	0.08	-4.075
12.0	124.0700	118.2300	106.6500	116.317	0.09	-4.041
13.0	113.7700	109.2200	99.1250	107.372	0.10	-4.006
14.0	107.4600	104.0300	91.1880	100.893	0.11	-3.979
15.0	101.1500	96.8640	87.2340	95.083	0.11	-3.953
16.0	95.2310	91.5930	82.7440	89.856	0.12	-3.928
17.0	92.0710	87.1900	78.5950	85.952	0.12	-3.909
18.0	86.9160	83.3080	75.5630	81.929	0.13	-3.888
19.0	83.3430	79.5620	72.1640	78.356	0.14	-3.869
20.0	79.9140	76.2230	68.9990	75.045	0.14	-3.850
21.0	76.3290	72.8460	66.1520	71.776	0.15	-3.831
22.0	72.9770	69.6750	63.1500	68.601	0.15	-3.811
23.0	69.4650	66.6490	60.2630	65.459	0.16	-3.791
24.0	66.3620	63.4340	57.6440	62.480	0.17	-3.771
25.0	62.9100	60.4730	54.6980	59.360	0.18	-3.748
26.0	60.7410	58.2980	52.9670	57.335	0.18	-3.733
27.0	58.2130	55.8590	50.8410	54.971	0.19	-3.715
28.0	56.0710	53.8410	49.0040	52.972	0.20	-3.699
29.0	54.0030	52.0350	47.3820	51.140	0.21	-3.684
30.0	51.9120	50.2890	45.4520	49.218	0.22	-3.667
31.0	50.5380	48.5840	44.3880	47.837	0.22	-3.655
32.0	48.9620	47.2050	43.0200	46.396	0.23	-3.641
33.0	47.5730	45.7530	41.7690	45.032	0.24	-3.628
34.0	46.1360	44.4340	40.6010	43.724	0.24	-3.616
35.0	44.7430	43.0100	39.5760	42.443	0.25	-3.603
36.0	43.5090	41.9560	38.3380	41.268	0.26	-3.590
37.0	42.2180	40.8300	37.3810	40.143	0.26	-3.578
38.0	41.2000	39.6670	36.3680	39.078	0.27	-3.567
39.0	40.0380	38.7170	35.4450	38.067	0.28	-3.555
40.0	38.9870	37.8980	34.7230	37.203	0.28	-3.545

試料名
状態

SI18-1
自然

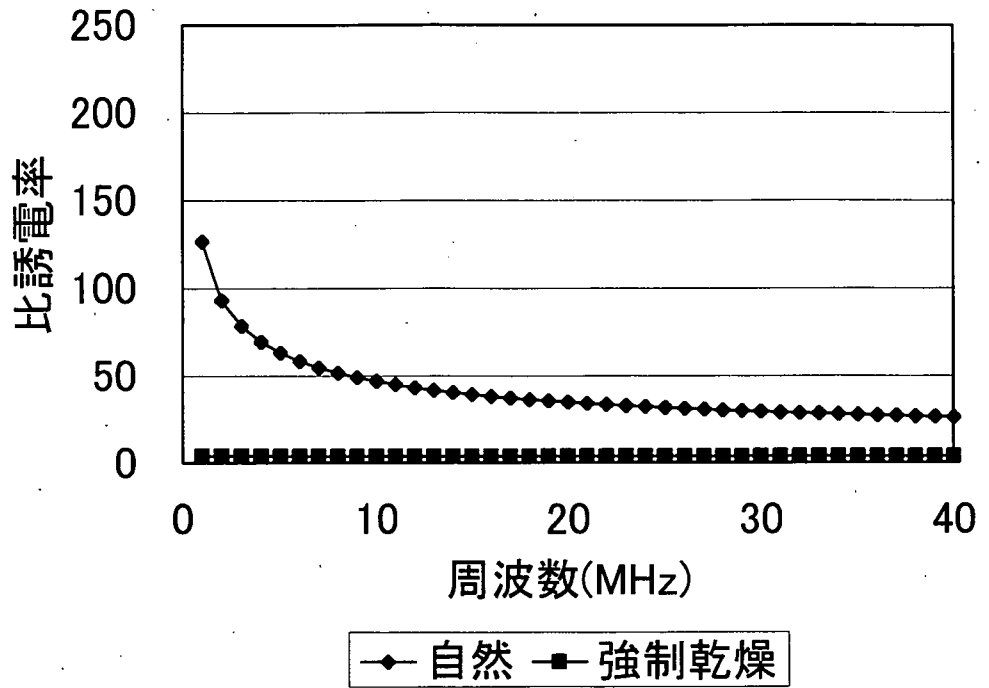
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	126.70	23.27	0.266	3.38
2.0	93.16	25.89	0.311	4.39
3.0	78.34	28.02	0.339	5.18
4.0	69.31	29.88	0.360	5.88
5.0	63.02	31.56	0.378	6.51
6.0	58.32	33.12	0.393	7.10
7.0	54.62	34.56	0.406	7.66
8.0	51.59	35.93	0.417	8.19
9.0	49.07	37.23	0.428	8.70
10.0	46.92	38.47	0.438	9.19
11.0	45.07	39.66	0.447	9.67
12.0	43.22	40.89	0.456	10.18
13.0	41.76	42.01	0.464	10.64
14.0	40.45	43.08	0.471	11.09
15.0	39.28	44.13	0.478	11.53
16.0	38.22	45.15	0.485	11.96
17.0	37.26	46.13	0.491	12.37
18.0	36.38	47.11	0.497	12.79
19.0	35.57	48.07	0.503	13.20
20.0	34.82	49.01	0.508	13.60
21.0	34.12	49.94	0.513	14.00
22.0	33.47	50.86	0.518	14.39
23.0	32.85	51.77	0.523	14.79
24.0	32.28	52.66	0.528	15.18
25.0	31.73	53.54	0.532	15.56
26.0	31.21	54.41	0.537	15.94
27.0	30.73	55.27	0.541	16.32
28.0	30.27	56.11	0.545	16.70
29.0	29.83	56.94	0.549	17.07
30.0	29.42	57.76	0.553	17.43
31.0	29.03	58.58	0.556	17.80
32.0	28.66	59.38	0.560	18.16
33.0	28.31	60.18	0.563	18.52
34.0	27.98	60.96	0.567	18.87
35.0	27.66	61.75	0.570	19.22
36.0	27.36	62.52	0.573	19.57
37.0	27.07	63.28	0.576	19.92
38.0	26.79	64.04	0.579	20.26
39.0	26.52	64.78	0.582	20.60
40.0	26.27	65.51	0.585	20.93

試料名
状態

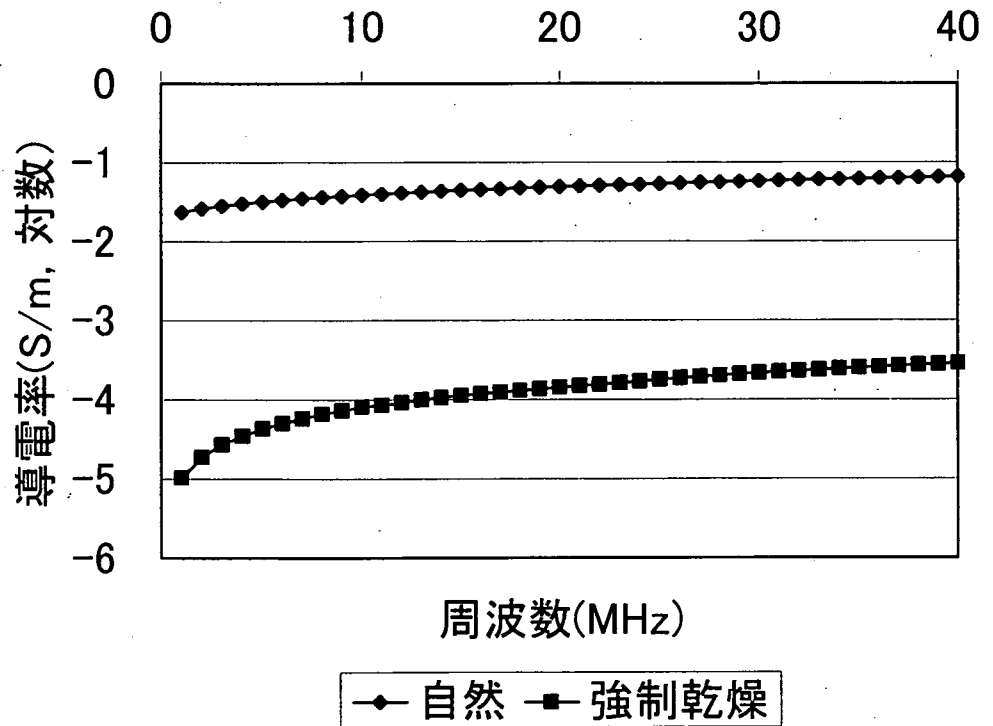
SI18-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.12	0.01	1.477	0.01
2.0	4.04	0.02	1.491	0.02
3.0	4.00	0.03	1.499	0.02
4.0	3.97	0.03	1.504	0.03
5.0	3.95	0.04	1.508	0.04
6.0	3.94	0.05	1.511	0.04
7.0	3.92	0.06	1.514	0.05
8.0	3.91	0.07	1.516	0.05
9.0	3.90	0.07	1.518	0.06
10.0	3.89	0.08	1.519	0.07
11.0	3.89	0.08	1.521	0.07
12.0	3.88	0.09	1.522	0.08
13.0	3.88	0.10	1.523	0.08
14.0	3.87	0.11	1.524	0.09
15.0	3.87	0.11	1.524	0.09
16.0	3.86	0.12	1.525	0.10
17.0	3.86	0.12	1.525	0.10
18.0	3.86	0.13	1.526	0.11
19.0	3.86	0.14	1.526	0.11
20.0	3.86	0.14	1.526	0.12
21.0	3.86	0.15	1.525	0.12
22.0	3.86	0.15	1.525	0.13
23.0	3.87	0.16	1.525	0.13
24.0	3.87	0.17	1.524	0.14
25.0	3.87	0.18	1.524	0.15
26.0	3.87	0.18	1.524	0.15
27.0	3.87	0.19	1.524	0.16
28.0	3.87	0.20	1.523	0.17
29.0	3.87	0.21	1.523	0.17
30.0	3.88	0.22	1.523	0.18
31.0	3.88	0.22	1.523	0.18
32.0	3.88	0.23	1.522	0.19
33.0	3.88	0.24	1.522	0.20
34.0	3.88	0.24	1.521	0.20
35.0	3.89	0.25	1.521	0.21
36.0	3.89	0.26	1.520	0.21
37.0	3.89	0.26	1.520	0.22
38.0	3.89	0.27	1.519	0.22
39.0	3.90	0.28	1.519	0.23
40.0	3.90	0.28	1.518	0.24

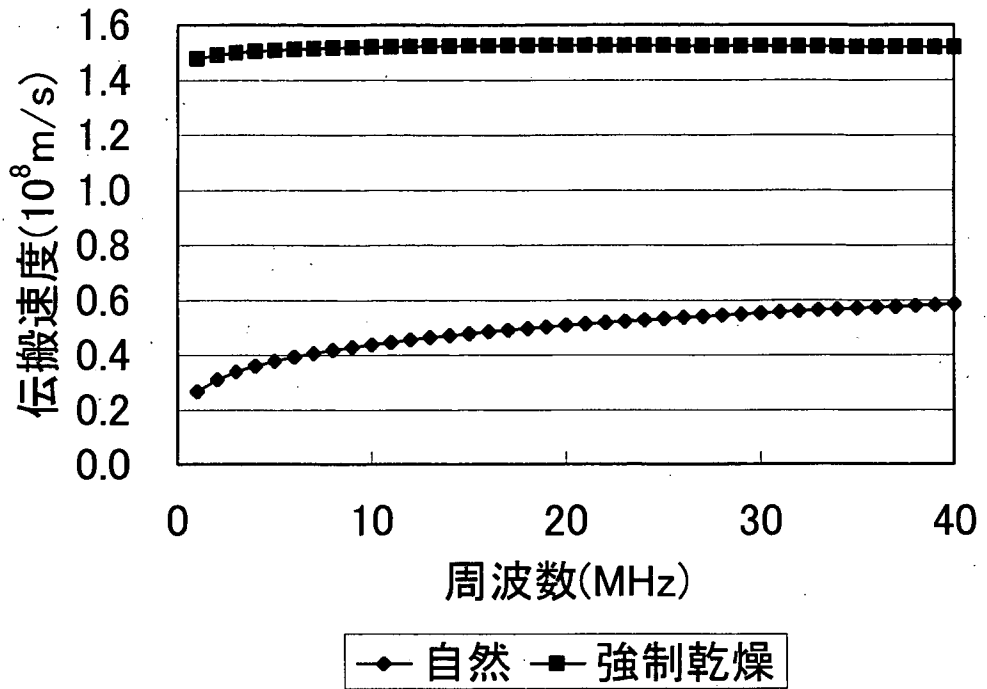
比誘電率
SI18-1



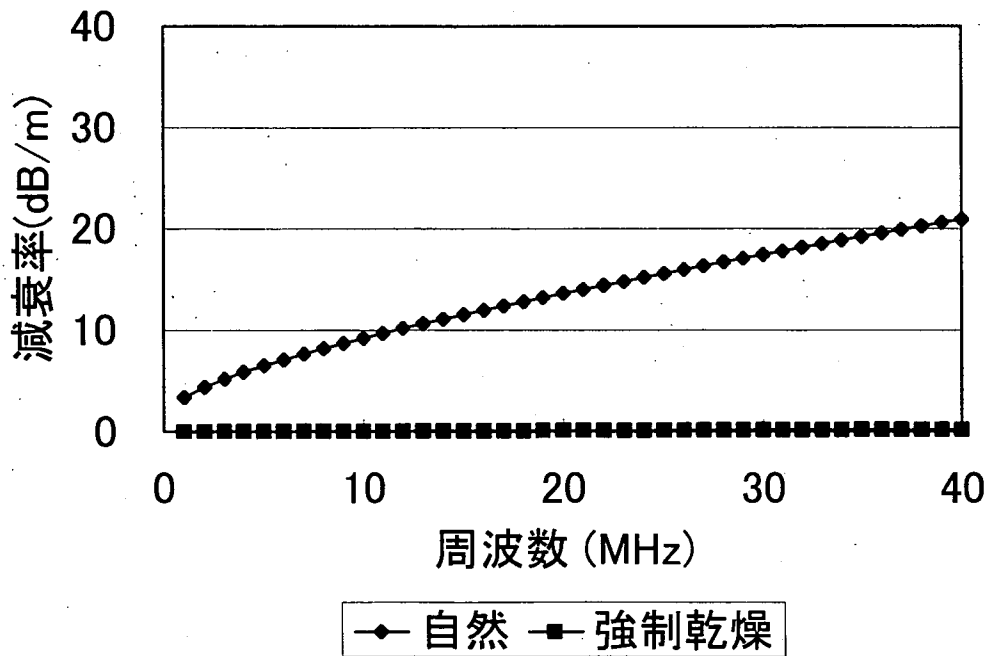
導電率
SI18-1



電磁波伝搬速度 SI18-1



減衰率 SI18-1



試料名 SI18-10 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.944

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	178.650	178.920	180.770	179.447	218.76
2.0	128.150	128.190	129.520	128.620	156.80
3.0	106.280	106.250	107.410	106.647	130.01
4.0	93.065	92.987	94.048	93.367	113.82
5.0	83.850	83.760	84.798	84.136	102.57
6.0	77.053	76.949	77.863	77.288	94.22
7.0	71.680	71.558	72.436	71.891	87.64
8.0	67.283	67.164	67.998	67.482	82.27
9.0	63.623	63.491	64.295	63.803	77.78
10.0	60.523	60.365	61.162	60.683	73.98
11.0	57.819	57.663	58.438	57.973	70.68
12.0	55.455	55.293	56.054	55.601	67.78
13.0	53.367	53.200	53.938	53.502	65.22
14.0	51.500	51.330	52.055	51.628	62.94
15.0	49.819	49.640	50.356	49.938	60.88
16.0	48.305	48.125	48.825	48.418	59.03
17.0	46.926	46.750	47.439	47.038	57.34
18.0	45.665	45.478	46.158	45.767	55.79
19.0	44.507	44.315	44.988	44.603	54.38
20.0	43.433	43.235	43.902	43.523	53.06
21.0	42.439	42.230	42.896	42.522	51.84
22.0	41.508	41.300	41.955	41.588	50.70
23.0	40.639	40.432	41.073	40.715	49.64
24.0	39.823	39.616	40.250	39.896	48.64
25.0	39.050	38.847	39.466	39.121	47.69
26.0	38.326	38.125	38.738	38.396	46.81
27.0	37.643	37.446	38.047	37.712	45.97
28.0	36.996	36.798	37.394	37.063	45.18
29.0	36.386	36.185	36.778	36.450	44.44
30.0	35.803	35.600	36.194	35.866	43.72
31.0	35.260	35.053	35.639	35.317	43.06
32.0	34.739	34.533	35.112	34.795	42.42
33.0	34.246	34.038	34.612	34.299	41.81
34.0	33.776	33.566	34.137	33.826	41.24
35.0	33.334	33.125	33.686	33.382	40.70
36.0	32.895	32.683	33.248	32.942	40.16
37.0	32.486	32.271	32.833	32.530	39.66
38.0	32.093	31.881	32.439	32.138	39.18
39.0	31.711	31.503	32.054	31.756	38.71
40.0	31.349	31.142	31.689	31.393	38.27

試料名 SI18-10 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.944

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.643	3.699	3.751	3.698	4.51
2.0	3.576	3.626	3.669	3.624	4.42
3.0	3.539	3.586	3.623	3.583	4.37
4.0	3.514	3.558	3.592	3.555	4.33
5.0	3.496	3.537	3.569	3.534	4.31
6.0	3.481	3.522	3.551	3.518	4.29
7.0	3.469	3.509	3.536	3.505	4.27
8.0	3.459	3.498	3.524	3.494	4.26
9.0	3.451	3.489	3.513	3.484	4.25
10.0	3.444	3.481	3.505	3.477	4.24
11.0	3.439	3.475	3.498	3.471	4.23
12.0	3.434	3.470	3.491	3.465	4.22
13.0	3.430	3.465	3.486	3.460	4.22
14.0	3.426	3.461	3.482	3.456	4.21
15.0	3.423	3.456	3.477	3.452	4.21
16.0	3.420	3.454	3.473	3.449	4.20
17.0	3.419	3.454	3.469	3.447	4.20
18.0	3.417	3.451	3.468	3.445	4.20
19.0	3.417	3.450	3.467	3.445	4.20
20.0	3.417	3.450	3.467	3.445	4.20
21.0	3.419	3.451	3.467	3.446	4.20
22.0	3.420	3.452	3.468	3.447	4.20
23.0	3.421	3.453	3.469	3.448	4.20
24.0	3.423	3.454	3.469	3.449	4.20
25.0	3.424	3.455	3.470	3.449	4.21
26.0	3.425	3.456	3.470	3.450	4.21
27.0	3.426	3.457	3.471	3.451	4.21
28.0	3.427	3.458	3.472	3.452	4.21
29.0	3.428	3.459	3.472	3.453	4.21
30.0	3.429	3.460	3.473	3.454	4.21
31.0	3.431	3.461	3.474	3.455	4.21
32.0	3.432	3.462	3.475	3.457	4.21
33.0	3.434	3.464	3.476	3.458	4.22
34.0	3.436	3.466	3.478	3.460	4.22
35.0	3.438	3.468	3.480	3.462	4.22
36.0	3.440	3.470	3.482	3.464	4.22
37.0	3.443	3.472	3.484	3.466	4.23
38.0	3.445	3.475	3.486	3.468	4.23
39.0	3.448	3.477	3.488	3.471	4.23
40.0	3.451	3.480	3.490	3.474	4.23

試料名 SI18-10 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.944

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.275	0.272	0.269	0.272	39.68	-1.401
2.0	0.246	0.244	0.241	0.243	44.34	-1.353
3.0	0.227	0.225	0.222	0.224	48.11	-1.318
4.0	0.212	0.210	0.208	0.210	51.39	-1.289
5.0	0.200	0.199	0.197	0.199	54.35	-1.265
6.0	0.191	0.189	0.187	0.189	57.08	-1.243
7.0	0.183	0.181	0.179	0.181	59.62	-1.225
8.0	0.176	0.174	0.172	0.174	62.01	-1.208
9.0	0.169	0.168	0.166	0.168	64.27	-1.192
10.0	0.164	0.163	0.161	0.163	66.42	-1.178
11.0	0.159	0.158	0.156	0.158	68.49	-1.164
12.0	0.154	0.153	0.152	0.153	70.48	-1.152
13.0	0.150	0.149	0.148	0.149	72.40	-1.140
14.0	0.146	0.146	0.144	0.145	74.24	-1.129
15.0	0.143	0.142	0.141	0.142	76.04	-1.119
16.0	0.140	0.139	0.138	0.139	77.78	-1.109
17.0	0.137	0.136	0.135	0.136	79.47	-1.100
18.0	0.134	0.133	0.132	0.133	81.14	-1.091
19.0	0.131	0.131	0.129	0.130	82.76	-1.082
20.0	0.129	0.128	0.127	0.128	84.36	-1.074
21.0	0.126	0.126	0.124	0.126	85.93	-1.066
22.0	0.124	0.124	0.122	0.123	87.48	-1.058
23.0	0.122	0.122	0.120	0.121	89.00	-1.051
24.0	0.120	0.120	0.118	0.119	90.51	-1.043
25.0	0.118	0.118	0.116	0.117	91.99	-1.036
26.0	0.116	0.116	0.114	0.116	93.44	-1.029
27.0	0.115	0.114	0.113	0.114	94.88	-1.023
28.0	0.113	0.112	0.111	0.112	96.30	-1.016
29.0	0.111	0.111	0.109	0.110	97.69	-1.010
30.0	0.110	0.109	0.108	0.109	99.08	-1.004
31.0	0.108	0.108	0.106	0.107	100.45	-0.998
32.0	0.107	0.106	0.105	0.106	101.80	-0.992
33.0	0.105	0.105	0.104	0.105	103.15	-0.987
34.0	0.104	0.104	0.102	0.103	104.47	-0.981
35.0	0.103	0.102	0.101	0.102	105.80	-0.976
36.0	0.101	0.101	0.100	0.101	107.09	-0.970
37.0	0.100	0.100	0.099	0.100	108.38	-0.965
38.0	0.099	0.099	0.098	0.098	109.65	-0.960
39.0	0.098	0.098	0.096	0.097	110.92	-0.955
40.0	0.097	0.097	0.095	0.096	112.16	-0.950

試料名 SI18-10 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.944

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	942.6500	866.7800	767.5200	858.983	0.01	-4.901
2.0	523.2100	480.6800	425.9900	476.627	0.02	-4.645
3.0	367.0100	337.0700	299.4000	334.493	0.03	-4.491
4.0	285.1300	261.8600	232.9100	259.967	0.04	-4.382
5.0	234.1500	215.0100	191.8200	213.660	0.05	-4.297
6.0	198.2000	182.4100	162.5900	181.067	0.06	-4.225
7.0	172.3300	158.7200	141.7100	157.587	0.07	-4.164
8.0	152.5000	140.3500	125.6400	139.497	0.08	-4.111
9.0	136.5600	125.9800	112.8000	125.113	0.09	-4.064
10.0	123.6600	114.2300	102.4300	113.440	0.10	-4.022
11.0	118.3600	108.6000	97.2190	108.060	0.10	-4.000
12.0	108.3300	100.1700	90.2420	99.581	0.11	-3.965
13.0	100.8300	93.5290	83.6810	92.680	0.12	-3.934
14.0	94.8190	87.3200	79.6140	87.251	0.12	-3.908
15.0	88.7310	82.3570	73.6700	81.586	0.13	-3.878
16.0	84.9180	78.0820	69.8140	77.605	0.14	-3.857
17.0	80.5940	74.5600	66.6020	73.919	0.15	-3.836
18.0	76.6780	70.8120	63.5560	70.349	0.15	-3.814
19.0	73.4090	67.8290	60.9780	67.405	0.16	-3.796
20.0	70.0520	64.8050	58.3780	64.412	0.17	-3.776
21.0	67.0600	62.1160	55.7670	61.648	0.18	-3.757
22.0	63.9600	59.3250	53.4090	58.898	0.18	-3.737
23.0	61.0420	56.4570	51.0450	56.181	0.19	-3.716
24.0	58.2160	54.0500	48.8480	53.705	0.20	-3.697
25.0	56.1250	51.4820	46.8270	51.478	0.21	-3.678
26.0	53.3520	49.5070	44.8140	49.224	0.22	-3.659
27.0	51.2020	47.7060	43.2500	47.386	0.23	-3.642
28.0	49.4460	45.8590	41.6750	45.660	0.24	-3.626
29.0	47.6010	44.2640	40.3030	44.056	0.25	-3.611
30.0	45.5960	42.9600	38.9190	42.492	0.25	-3.595
31.0	44.6260	41.4870	37.8200	41.311	0.26	-3.583
32.0	43.1960	40.2430	36.6910	40.043	0.27	-3.569
33.0	41.8870	39.1140	35.6180	38.873	0.28	-3.556
34.0	40.6840	37.9940	34.6370	37.772	0.29	-3.544
35.0	39.4980	37.1650	33.6440	36.769	0.29	-3.532
36.0	38.3810	35.8330	32.7600	35.658	0.30	-3.519
37.0	37.2510	34.8300	31.9460	34.676	0.31	-3.507
38.0	36.3050	33.9950	31.0590	33.786	0.32	-3.496
39.0	35.3710	33.0640	30.3060	32.914	0.33	-3.484
40.0	34.4220	32.2810	29.6380	32.114	0.34	-3.474

試料名
状態

SI18-10
自然

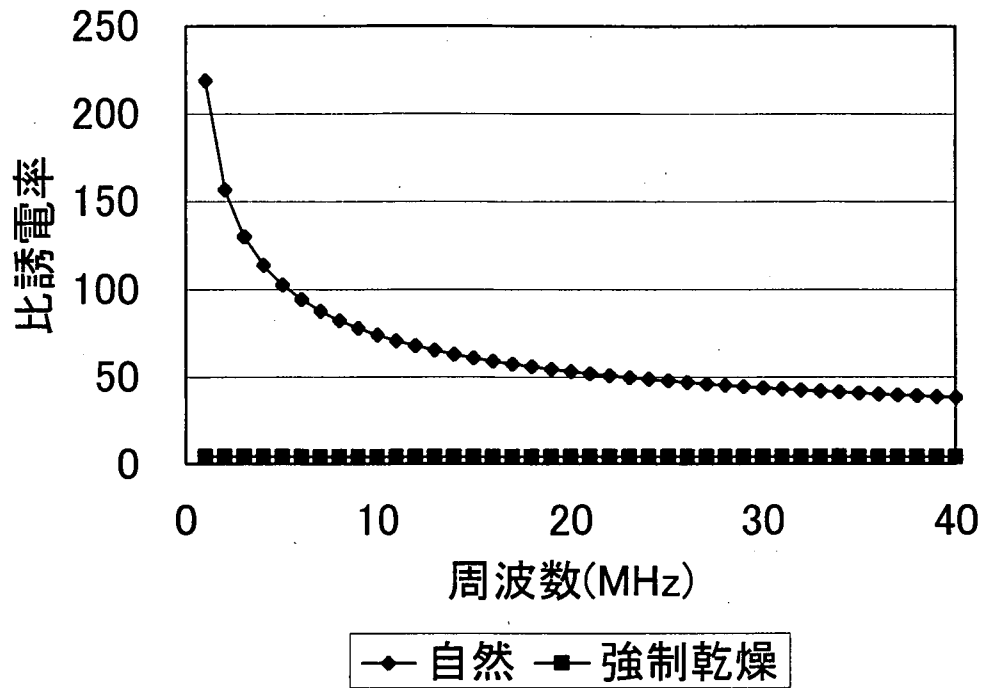
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	218.76	39.68	0.203	4.39
2.0	156.80	44.34	0.239	5.80
3.0	130.01	48.11	0.263	6.91
4.0	113.82	51.39	0.281	7.89
5.0	102.57	54.35	0.296	8.79
6.0	94.22	57.08	0.309	9.63
7.0	87.64	59.62	0.320	10.43
8.0	82.27	62.01	0.331	11.19
9.0	77.78	64.27	0.340	11.93
10.0	73.98	66.42	0.349	12.64
11.0	70.68	68.49	0.357	13.34
12.0	67.78	70.48	0.364	14.02
13.0	65.22	72.40	0.371	14.68
14.0	62.94	74.24	0.378	15.32
15.0	60.88	76.04	0.384	15.96
16.0	59.03	77.78	0.390	16.57
17.0	57.34	79.47	0.396	17.18
18.0	55.79	81.14	0.401	17.78
19.0	54.38	82.76	0.407	18.38
20.0	53.06	84.36	0.412	18.96
21.0	51.84	85.93	0.416	19.54
22.0	50.70	87.48	0.421	20.11
23.0	49.64	89.00	0.426	20.68
24.0	48.64	90.51	0.430	21.25
25.0	47.69	91.99	0.434	21.81
26.0	46.81	93.44	0.438	22.36
27.0	45.97	94.88	0.442	22.91
28.0	45.18	96.30	0.446	23.46
29.0	44.44	97.69	0.450	24.00
30.0	43.72	99.08	0.453	24.53
31.0	43.06	100.45	0.457	25.06
32.0	42.42	101.80	0.460	25.59
33.0	41.81	103.15	0.464	26.12
34.0	41.24	104.47	0.467	26.64
35.0	40.70	105.80	0.470	27.15
36.0	40.16	107.09	0.473	27.67
37.0	39.66	108.38	0.476	28.18
38.0	39.18	109.65	0.479	28.68
39.0	38.71	110.92	0.482	29.19
40.0	38.27	112.16	0.485	29.68

試料名
状態

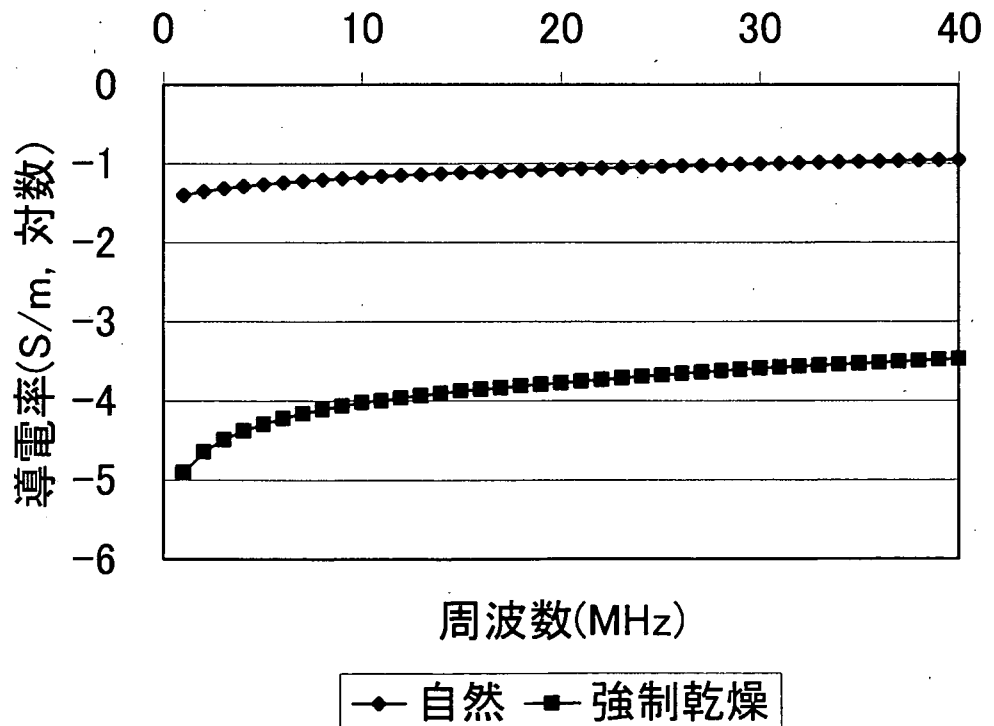
SI18-10
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.51	0.01	1.412	0.01
2.0	4.42	0.02	1.426	0.02
3.0	4.37	0.03	1.435	0.03
4.0	4.33	0.04	1.440	0.03
5.0	4.31	0.05	1.444	0.04
6.0	4.29	0.06	1.448	0.05
7.0	4.27	0.07	1.450	0.05
8.0	4.26	0.08	1.453	0.06
9.0	4.25	0.09	1.455	0.07
10.0	4.24	0.10	1.456	0.08
11.0	4.23	0.10	1.457	0.08
12.0	4.22	0.11	1.459	0.09
13.0	4.22	0.12	1.460	0.09
14.0	4.21	0.12	1.461	0.10
15.0	4.21	0.13	1.461	0.11
16.0	4.20	0.14	1.462	0.11
17.0	4.20	0.15	1.462	0.12
18.0	4.20	0.15	1.463	0.12
19.0	4.20	0.16	1.463	0.13
20.0	4.20	0.17	1.463	0.13
21.0	4.20	0.18	1.463	0.14
22.0	4.20	0.18	1.463	0.15
23.0	4.20	0.19	1.462	0.15
24.0	4.20	0.20	1.462	0.16
25.0	4.21	0.21	1.462	0.17
26.0	4.21	0.22	1.462	0.18
27.0	4.21	0.23	1.462	0.18
28.0	4.21	0.24	1.461	0.19
29.0	4.21	0.25	1.461	0.20
30.0	4.21	0.25	1.461	0.20
31.0	4.21	0.26	1.461	0.21
32.0	4.21	0.27	1.460	0.21
33.0	4.22	0.28	1.460	0.22
34.0	4.22	0.29	1.460	0.23
35.0	4.22	0.29	1.459	0.23
36.0	4.22	0.30	1.459	0.24
37.0	4.23	0.31	1.458	0.25
38.0	4.23	0.32	1.458	0.25
39.0	4.23	0.33	1.457	0.26
40.0	4.23	0.34	1.457	0.27

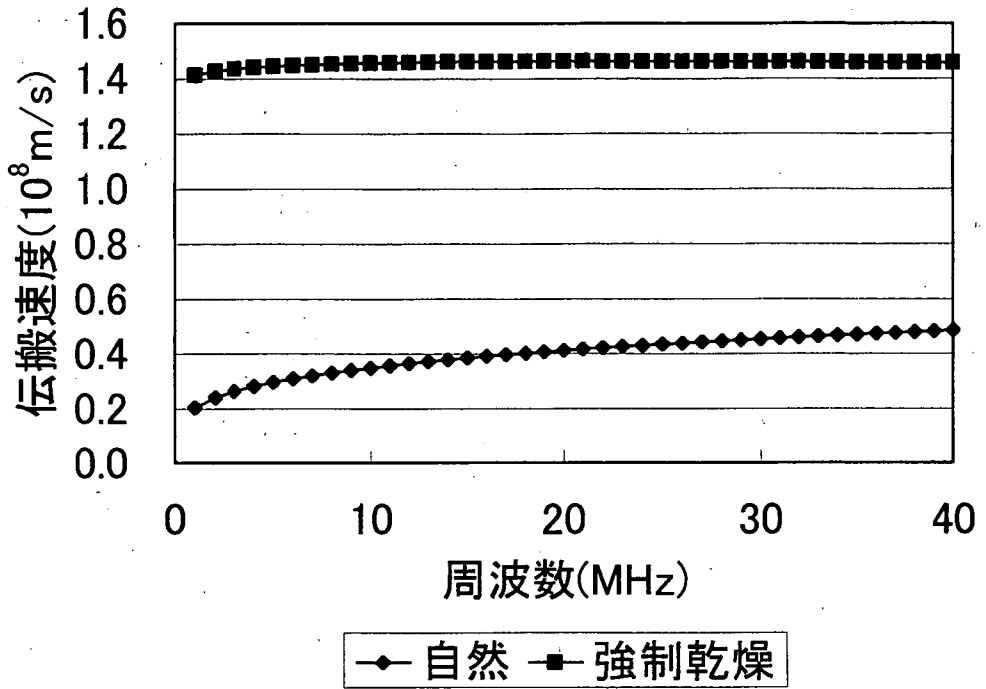
比誘電率
SI18-10



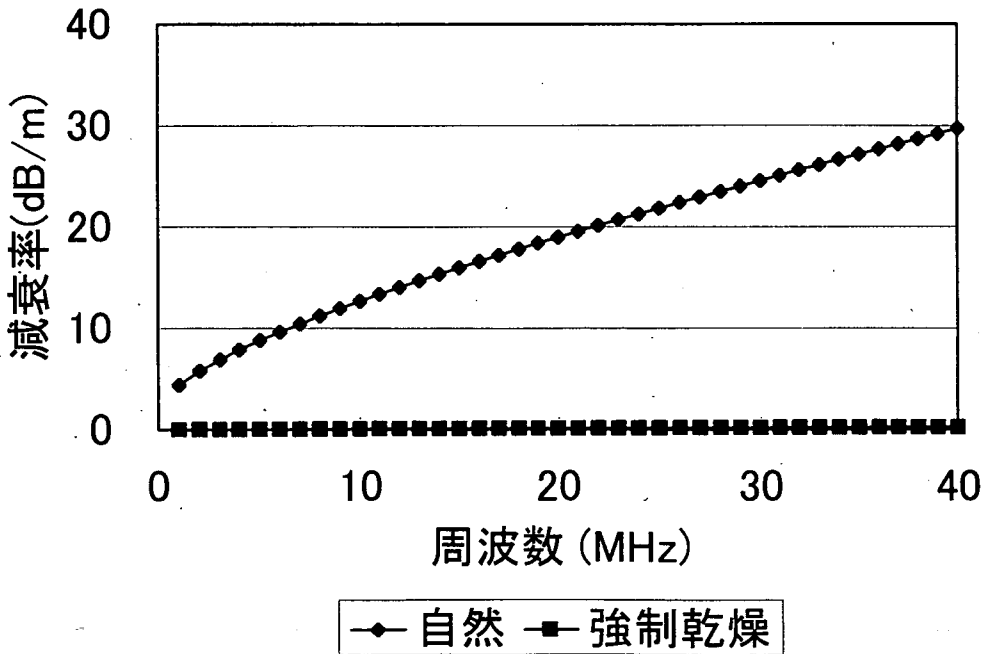
導電率
SI18-10



電磁波伝搬速度 SI18-10



減衰率 SI18-10



試料名 SI18-11-1 状態 自然

試料直径(mm) 24.17 試料厚(mm) 4.947

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	164.280	164.120	166.640	165.013	200.95
2.0	118.480	118.130	119.980	118.863	144.75
3.0	98.611	98.213	99.796	98.873	120.40
4.0	86.445	86.030	87.597	86.691	105.57
5.0	78.069	77.637	79.084	78.263	95.31
6.0	71.844	71.407	72.815	72.022	87.71
7.0	66.937	66.484	67.843	67.088	81.70
8.0	62.921	62.457	63.778	63.052	76.78
9.0	59.576	59.104	60.389	59.690	72.69
10.0	56.732	56.248	57.512	56.831	69.21
11.0	54.261	53.775	55.013	54.350	66.18
12.0	52.104	51.602	52.816	52.174	63.54
13.0	50.187	49.688	50.878	50.251	61.19
14.0	48.475	47.966	49.147	48.529	59.10
15.0	46.932	46.426	47.591	46.983	57.21
16.0	45.546	45.040	46.180	45.589	55.52
17.0	44.276	43.770	44.896	44.314	53.96
18.0	43.125	42.604	43.730	43.153	52.55
19.0	42.061	41.542	42.651	42.085	51.25
20.0	41.081	40.555	41.657	41.098	50.05
21.0	40.165	39.635	40.727	40.176	48.92
22.0	39.312	38.780	39.861	39.318	47.88
23.0	38.513	37.978	39.049	38.513	46.90
24.0	37.763	37.226	38.289	37.759	45.98
25.0	37.051	36.511	37.570	37.044	45.11
26.0	36.386	35.847	36.894	36.376	44.30
27.0	35.759	35.215	36.256	35.743	43.53
28.0	35.163	34.616	35.654	35.144	42.80
29.0	34.603	34.053	35.085	34.580	42.11
30.0	34.065	33.518	34.535	34.039	41.45
31.0	33.568	33.011	34.032	33.537	40.84
32.0	33.089	32.529	33.547	33.055	40.25
33.0	32.634	32.074	33.086	32.598	39.70
34.0	32.201	31.638	32.646	32.162	39.16
35.0	31.792	31.229	32.235	31.752	38.67
36.0	31.394	30.826	31.825	31.348	38.17
37.0	31.016	30.445	31.441	30.967	37.71
38.0	30.657	30.082	31.075	30.605	37.27
39.0	30.306	29.731	30.720	30.252	36.84
40.0	29.972	29.393	30.378	29.914	36.43

試料名 SI18-11-1 状態 強制乾燥

試料直径(mm) 24.17 試料厚(mm) 4.947

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.658	3.702	3.764	3.708	4.52
2.0	3.590	3.627	3.682	3.633	4.42
3.0	3.553	3.585	3.636	3.591	4.37
4.0	3.527	3.557	3.605	3.563	4.34
5.0	3.508	3.535	3.582	3.542	4.31
6.0	3.494	3.519	3.564	3.526	4.29
7.0	3.482	3.506	3.549	3.512	4.28
8.0	3.471	3.495	3.536	3.501	4.26
9.0	3.463	3.485	3.526	3.491	4.25
10.0	3.455	3.477	3.517	3.483	4.24
11.0	3.450	3.471	3.510	3.477	4.23
12.0	3.445	3.464	3.503	3.471	4.23
13.0	3.441	3.460	3.498	3.466	4.22
14.0	3.437	3.456	3.493	3.462	4.22
15.0	3.433	3.452	3.488	3.458	4.21
16.0	3.431	3.448	3.485	3.455	4.21
17.0	3.428	3.446	3.482	3.452	4.20
18.0	3.429	3.445	3.480	3.451	4.20
19.0	3.428	3.444	3.479	3.450	4.20
20.0	3.428	3.444	3.479	3.450	4.20
21.0	3.429	3.445	3.479	3.451	4.20
22.0	3.430	3.446	3.480	3.452	4.20
23.0	3.432	3.447	3.480	3.453	4.20
24.0	3.433	3.448	3.481	3.454	4.21
25.0	3.434	3.448	3.482	3.455	4.21
26.0	3.435	3.449	3.482	3.455	4.21
27.0	3.436	3.450	3.482	3.456	4.21
28.0	3.437	3.451	3.483	3.457	4.21
29.0	3.438	3.452	3.483	3.458	4.21
30.0	3.439	3.451	3.484	3.458	4.21
31.0	3.441	3.454	3.485	3.460	4.21
32.0	3.442	3.455	3.486	3.461	4.21
33.0	3.444	3.457	3.487	3.463	4.22
34.0	3.446	3.458	3.489	3.464	4.22
35.0	3.448	3.460	3.490	3.466	4.22
36.0	3.450	3.462	3.492	3.468	4.22
37.0	3.452	3.465	3.494	3.470	4.23
38.0	3.455	3.467	3.497	3.473	4.23
39.0	3.457	3.469	3.499	3.475	4.23
40.0	3.460	3.472	3.501	3.478	4.23

試料名 SI18-11-1 状態 自然

試料直径(mm) 24.17 試料厚(mm) 4.947

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.299	0.295	0.291	0.295	36.58	-1.437
2.0	0.268	0.264	0.260	0.264	40.82	-1.389
3.0	0.247	0.244	0.240	0.244	44.26	-1.354
4.0	0.231	0.228	0.225	0.228	47.28	-1.325
5.0	0.218	0.216	0.213	0.216	50.00	-1.301
6.0	0.208	0.206	0.203	0.205	52.49	-1.280
7.0	0.199	0.197	0.194	0.197	54.82	-1.261
8.0	0.191	0.189	0.187	0.189	57.01	-1.244
9.0	0.184	0.183	0.180	0.182	59.09	-1.228
10.0	0.178	0.177	0.175	0.177	61.07	-1.214
11.0	0.173	0.171	0.169	0.171	62.98	-1.201
12.0	0.168	0.167	0.165	0.166	64.81	-1.188
13.0	0.164	0.162	0.160	0.162	66.58	-1.177
14.0	0.159	0.158	0.156	0.158	68.28	-1.166
15.0	0.156	0.154	0.153	0.154	69.93	-1.155
16.0	0.152	0.151	0.149	0.151	71.54	-1.145
17.0	0.149	0.148	0.146	0.147	73.10	-1.136
18.0	0.146	0.145	0.143	0.144	74.64	-1.127
19.0	0.143	0.142	0.140	0.142	76.15	-1.118
20.0	0.140	0.139	0.137	0.139	77.63	-1.110
21.0	0.138	0.136	0.135	0.136	79.09	-1.102
22.0	0.135	0.134	0.132	0.134	80.52	-1.094
23.0	0.133	0.132	0.130	0.132	81.94	-1.087
24.0	0.131	0.130	0.128	0.129	83.33	-1.079
25.0	0.128	0.127	0.126	0.127	84.71	-1.072
26.0	0.126	0.125	0.124	0.125	86.06	-1.065
27.0	0.125	0.123	0.122	0.123	87.40	-1.058
28.0	0.123	0.122	0.120	0.122	88.71	-1.052
29.0	0.121	0.120	0.119	0.120	90.02	-1.046
30.0	0.119	0.118	0.117	0.118	91.31	-1.039
31.0	0.118	0.117	0.115	0.116	92.58	-1.033
32.0	0.116	0.115	0.114	0.115	93.85	-1.028
33.0	0.114	0.113	0.112	0.113	95.09	-1.022
34.0	0.113	0.112	0.111	0.112	96.34	-1.016
35.0	0.112	0.111	0.109	0.111	97.57	-1.011
36.0	0.110	0.109	0.108	0.109	98.77	-1.005
37.0	0.109	0.108	0.107	0.108	99.97	-1.000
38.0	0.108	0.107	0.106	0.107	101.16	-0.995
39.0	0.106	0.105	0.104	0.105	102.34	-0.990
40.0	0.105	0.104	0.103	0.104	103.50	-0.985

試料名 SI18-11-1 状態 強制乾燥

試料直径(mm) 24.17 試料厚(mm) 4.947

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	933.0700	845.7600	775.3500	851.393	0.01	-4.897
2.0	516.6500	467.9200	428.5500	471.040	0.02	-4.640
3.0	361.5500	327.5500	300.5300	329.877	0.03	-4.486
4.0	280.7000	254.1500	233.1900	256.013	0.04	-4.376
5.0	229.0700	208.0800	191.2500	209.467	0.05	-4.288
6.0	194.8600	176.8600	162.4000	178.040	0.06	-4.218
7.0	169.2600	153.8400	141.3400	154.813	0.07	-4.157
8.0	149.6600	136.1800	125.2100	137.017	0.08	-4.104
9.0	134.0700	122.1600	112.4100	122.880	0.09	-4.057
10.0	121.3600	110.9700	101.9300	111.420	0.10	-4.014
11.0	115.7400	105.2600	96.9840	105.995	0.10	-3.993
12.0	106.7000	97.6100	89.2950	97.868	0.11	-3.958
13.0	98.6920	90.3560	83.4210	90.823	0.12	-3.925
14.0	92.1090	85.1400	78.0490	85.099	0.13	-3.897
15.0	87.0180	79.4870	73.6790	80.061	0.13	-3.871
16.0	82.4180	75.3980	69.3230	75.713	0.14	-3.846
17.0	79.2580	71.6860	66.2840	72.409	0.15	-3.827
18.0	75.1560	68.7500	63.1150	69.007	0.16	-3.806
19.0	71.9930	65.6230	60.5900	66.069	0.16	-3.787
20.0	68.4200	62.3510	57.8440	62.872	0.17	-3.766
21.0	65.7910	59.9760	55.5080	60.425	0.18	-3.749
22.0	62.8950	57.2930	53.0620	57.750	0.19	-3.729
23.0	59.9110	54.8560	50.6700	55.146	0.20	-3.709
24.0	57.1400	52.2840	48.4910	52.638	0.20	-3.689
25.0	54.6580	50.0430	46.4130	50.371	0.21	-3.669
26.0	52.3710	47.9830	44.5900	48.315	0.22	-3.651
27.0	50.3180	46.1800	42.9060	46.468	0.23	-3.634
28.0	48.5400	44.5100	41.3700	44.807	0.24	-3.619
29.0	46.7650	42.9680	39.9600	43.231	0.25	-3.603
30.0	44.8930	41.7830	38.4880	41.721	0.26	-3.588
31.0	43.7820	40.3290	37.5000	40.537	0.27	-3.575
32.0	42.5200	39.1370	36.3920	39.350	0.27	-3.562
33.0	41.1450	37.9360	35.3350	38.139	0.28	-3.549
34.0	39.9880	36.8610	34.3530	37.067	0.29	-3.536
35.0	38.8360	35.9520	33.6160	36.135	0.30	-3.525
36.0	37.7200	34.8730	32.4340	35.009	0.31	-3.511
37.0	36.6700	33.8680	31.6130	34.050	0.32	-3.499
38.0	35.7730	32.9530	30.8150	33.180	0.32	-3.488
39.0	34.7720	32.1570	30.0340	32.321	0.33	-3.477
40.0	33.7740	31.2750	29.3200	31.456	0.34	-3.465

試料名
状態

SI18-11-1
自然

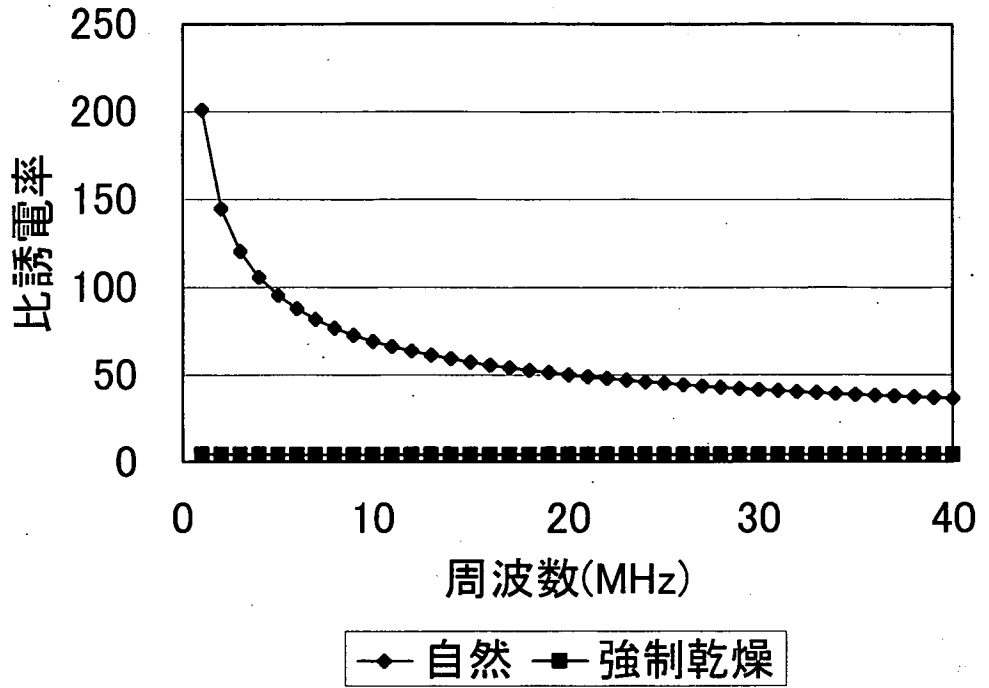
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	200.95	36.58	0.211	4.23
2.0	144.75	40.82	0.249	5.56
3.0	120.40	44.26	0.273	6.60
4.0	105.57	47.28	0.292	7.53
5.0	95.31	50.00	0.307	8.38
6.0	87.71	52.49	0.320	9.18
7.0	81.70	54.82	0.332	9.93
8.0	76.78	57.01	0.342	10.65
9.0	72.69	59.09	0.352	11.35
10.0	69.21	61.07	0.360	12.02
11.0	66.18	62.98	0.369	12.67
12.0	63.54	64.81	0.376	13.31
13.0	61.19	66.58	0.383	13.93
14.0	59.10	68.28	0.390	14.54
15.0	57.21	69.93	0.396	15.14
16.0	55.52	71.54	0.402	15.72
17.0	53.96	73.10	0.408	16.29
18.0	52.55	74.64	0.414	16.86
19.0	51.25	76.15	0.419	17.42
20.0	50.05	77.63	0.424	17.97
21.0	48.92	79.09	0.429	18.51
22.0	47.88	80.52	0.433	19.05
23.0	46.90	81.94	0.438	19.59
24.0	45.98	83.33	0.442	20.12
25.0	45.11	84.71	0.446	20.65
26.0	44.30	86.06	0.450	21.17
27.0	43.53	87.40	0.454	21.69
28.0	42.80	88.71	0.458	22.20
29.0	42.11	90.02	0.462	22.71
30.0	41.45	91.31	0.466	23.22
31.0	40.84	92.58	0.469	23.72
32.0	40.25	93.85	0.473	24.22
33.0	39.70	95.09	0.476	24.71
34.0	39.16	96.34	0.479	25.20
35.0	38.67	97.57	0.482	25.69
36.0	38.17	98.77	0.485	26.17
37.0	37.71	99.97	0.488	26.65
38.0	37.27	101.16	0.491	27.13
39.0	36.84	102.34	0.494	27.61
40.0	36.43	103.50	0.497	28.08

試料名
状態

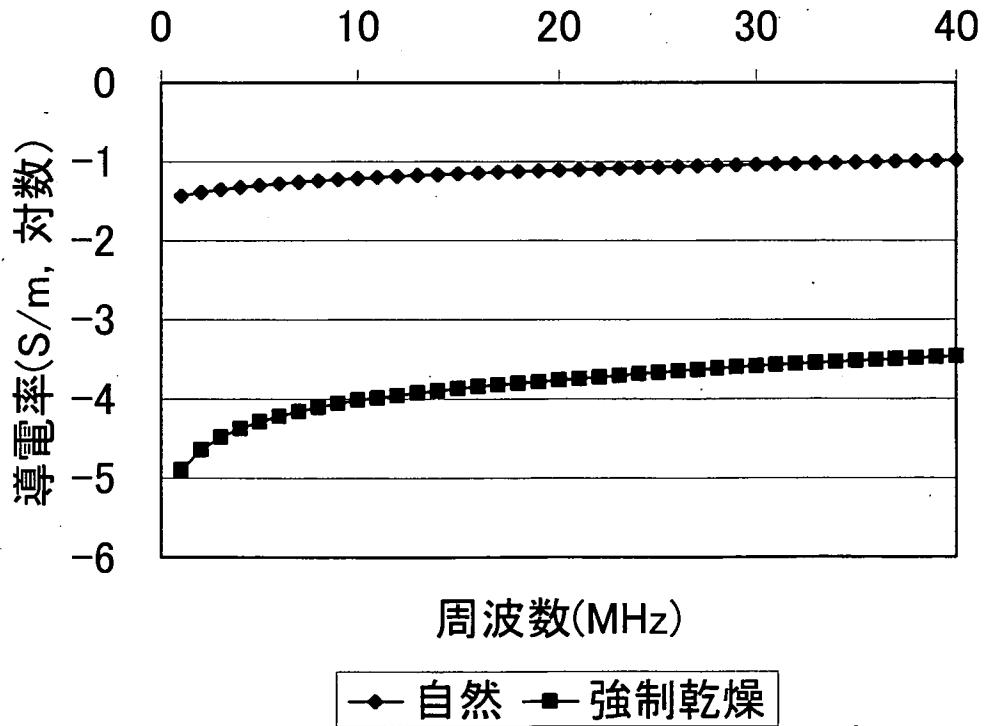
SI18-11-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	4.52	0.01	1.411	0.01
2.0	4.42	0.02	1.425	0.02
3.0	4.37	0.03	1.434	0.03
4.0	4.34	0.04	1.439	0.03
5.0	4.31	0.05	1.444	0.04
6.0	4.29	0.06	1.447	0.05
7.0	4.28	0.07	1.450	0.06
8.0	4.26	0.08	1.452	0.06
9.0	4.25	0.09	1.454	0.07
10.0	4.24	0.10	1.456	0.08
11.0	4.23	0.10	1.457	0.08
12.0	4.23	0.11	1.458	0.09
13.0	4.22	0.12	1.459	0.09
14.0	4.22	0.13	1.460	0.10
15.0	4.21	0.13	1.461	0.11
16.0	4.21	0.14	1.462	0.11
17.0	4.20	0.15	1.462	0.12
18.0	4.20	0.16	1.462	0.12
19.0	4.20	0.16	1.463	0.13
20.0	4.20	0.17	1.463	0.14
21.0	4.20	0.18	1.462	0.14
22.0	4.20	0.19	1.462	0.15
23.0	4.20	0.20	1.462	0.16
24.0	4.21	0.20	1.462	0.16
25.0	4.21	0.21	1.462	0.17
26.0	4.21	0.22	1.462	0.18
27.0	4.21	0.23	1.461	0.19
28.0	4.21	0.24	1.461	0.19
29.0	4.21	0.25	1.461	0.20
30.0	4.21	0.26	1.461	0.21
31.0	4.21	0.27	1.461	0.21
32.0	4.21	0.27	1.460	0.22
33.0	4.22	0.28	1.460	0.23
34.0	4.22	0.29	1.460	0.23
35.0	4.22	0.30	1.459	0.24
36.0	4.22	0.31	1.459	0.25
37.0	4.23	0.32	1.458	0.25
38.0	4.23	0.32	1.458	0.26
39.0	4.23	0.33	1.457	0.27
40.0	4.23	0.34	1.457	0.27

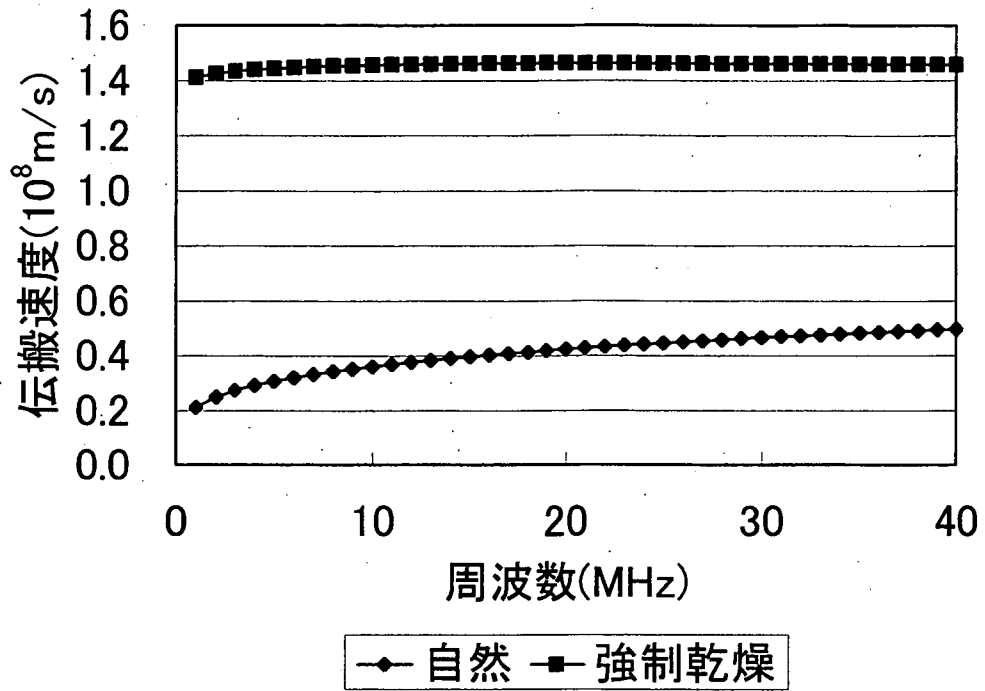
比誘電率
SI18-11-1



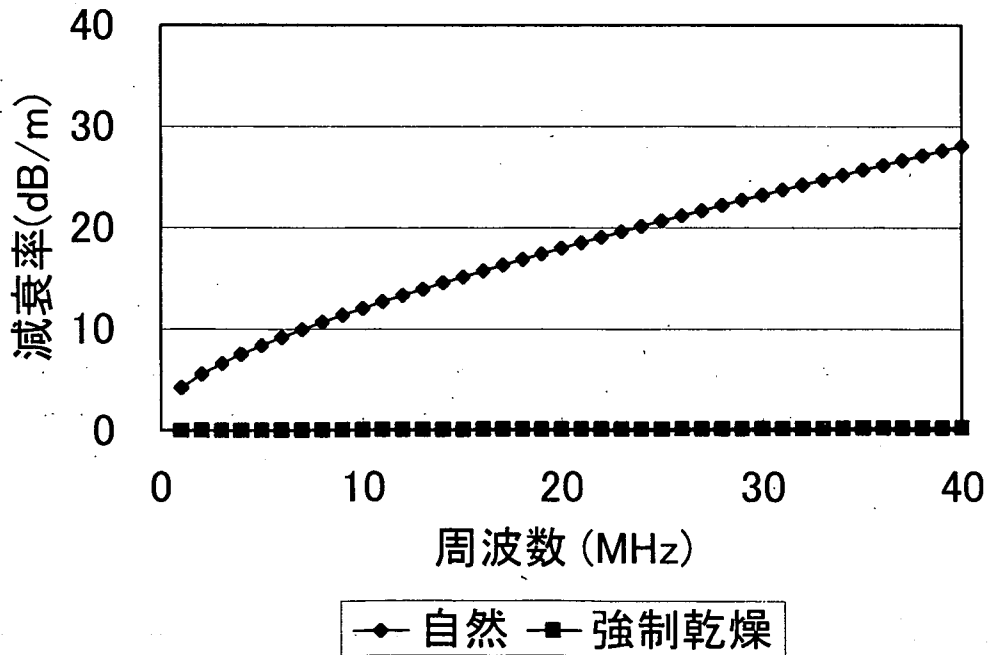
導電率
SI18-11-1



電磁波伝搬速度 SI18-11-1



減衰率 SI18-11-1



試料名 SI18-11-2 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.875

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	171.080	172.290	173.260	172.210	207.00
2.0	124.600	125.380	126.040	125.340	150.66
3.0	103.710	104.420	104.990	104.373	125.46
4.0	90.996	91.620	92.114	91.577	110.08
5.0	82.145	82.681	83.151	82.659	99.36
6.0	75.509	76.031	76.459	76.000	91.35
7.0	70.293	70.779	71.177	70.750	85.04
8.0	66.023	66.485	66.857	66.455	79.88
9.0	62.467	62.904	63.260	62.877	75.58
10.0	59.438	59.856	60.202	59.832	71.92
11.0	56.818	57.221	57.548	57.196	68.75
12.0	54.527	54.906	55.217	54.883	65.97
13.0	52.490	52.857	53.159	52.835	63.51
14.0	50.665	51.020	51.313	50.999	61.30
15.0	49.038	49.381	49.666	49.362	59.33
16.0	47.562	47.893	48.168	47.874	57.55
17.0	46.220	46.543	46.805	46.523	55.92
18.0	44.999	45.305	45.564	45.289	54.44
19.0	43.870	44.172	44.423	44.155	53.08
20.0	42.825	43.119	43.363	43.102	51.81
21.0	41.857	42.142	42.379	42.126	50.64
22.0	40.954	41.234	41.464	41.217	49.54
23.0	40.105	40.379	40.603	40.362	48.52
24.0	39.314	39.578	39.797	39.563	47.56
25.0	38.565	38.823	39.033	38.807	46.65
26.0	37.861	38.115	38.322	38.099	45.80
27.0	37.195	37.443	37.646	37.428	44.99
28.0	36.568	36.811	37.009	36.796	44.23
29.0	35.976	36.214	36.407	36.199	43.51
30.0	35.409	35.641	35.826	35.625	42.82
31.0	34.882	35.111	35.298	35.097	42.19
32.0	34.377	34.601	34.785	34.588	41.57
33.0	33.896	34.118	34.296	34.103	40.99
34.0	33.439	33.658	33.832	33.643	40.44
35.0	33.005	33.223	33.394	33.207	39.92
36.0	32.587	32.798	32.966	32.784	39.41
37.0	32.187	32.396	32.560	32.381	38.92
38.0	31.805	32.014	32.171	31.997	38.46
39.0	31.437	31.643	31.799	31.626	38.02
40.0	31.086	31.288	31.438	31.271	37.59

試料名 SI18-11-2 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.875

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.745	3.791	3.804	3.780	4.54
2.0	3.673	3.710	3.719	3.701	4.45
3.0	3.634	3.665	3.672	3.657	4.40
4.0	3.607	3.635	3.640	3.628	4.36
5.0	3.587	3.612	3.617	3.605	4.33
6.0	3.572	3.595	3.598	3.588	4.31
7.0	3.559	3.581	3.583	3.574	4.30
8.0	3.549	3.569	3.570	3.562	4.28
9.0	3.540	3.558	3.559	3.552	4.27
10.0	3.532	3.550	3.550	3.544	4.26
11.0	3.527	3.543	3.543	3.538	4.25
12.0	3.522	3.537	3.536	3.532	4.25
13.0	3.516	3.531	3.530	3.526	4.24
14.0	3.512	3.526	3.526	3.521	4.23
15.0	3.510	3.522	3.521	3.518	4.23
16.0	3.506	3.519	3.517	3.514	4.22
17.0	3.504	3.516	3.513	3.511	4.22
18.0	3.504	3.515	3.512	3.510	4.22
19.0	3.503	3.514	3.511	3.509	4.22
20.0	3.503	3.514	3.511	3.509	4.22
21.0	3.504	3.514	3.511	3.510	4.22
22.0	3.505	3.515	3.512	3.511	4.22
23.0	3.507	3.516	3.513	3.512	4.22
24.0	3.508	3.517	3.513	3.512	4.22
25.0	3.509	3.516	3.513	3.513	4.22
26.0	3.510	3.518	3.514	3.514	4.22
27.0	3.511	3.519	3.514	3.515	4.22
28.0	3.512	3.520	3.515	3.515	4.23
29.0	3.513	3.520	3.516	3.516	4.23
30.0	3.514	3.520	3.516	3.517	4.23
31.0	3.515	3.522	3.517	3.518	4.23
32.0	3.517	3.523	3.519	3.519	4.23
33.0	3.518	3.525	3.520	3.521	4.23
34.0	3.520	3.527	3.521	3.523	4.23
35.0	3.522	3.529	3.523	3.525	4.24
36.0	3.524	3.530	3.525	3.527	4.24
37.0	3.527	3.533	3.527	3.529	4.24
38.0	3.529	3.535	3.529	3.531	4.24
39.0	3.532	3.537	3.532	3.534	4.25
40.0	3.534	3.540	3.534	3.536	4.25

試料名 SI18-11-2 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.875

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.297	0.293	0.290	0.293	36.28	-1.440
2.0	0.264	0.261	0.258	0.261	40.75	-1.390
3.0	0.243	0.240	0.237	0.240	44.39	-1.353
4.0	0.226	0.224	0.222	0.224	47.55	-1.323
5.0	0.213	0.211	0.209	0.211	50.41	-1.297
6.0	0.203	0.201	0.199	0.201	53.03	-1.276
7.0	0.194	0.192	0.190	0.192	55.47	-1.256
8.0	0.186	0.184	0.182	0.184	57.77	-1.238
9.0	0.179	0.177	0.176	0.178	59.95	-1.222
10.0	0.173	0.171	0.170	0.172	62.02	-1.207
11.0	0.168	0.166	0.165	0.166	64.01	-1.194
12.0	0.163	0.161	0.160	0.161	65.92	-1.181
13.0	0.159	0.157	0.156	0.157	67.77	-1.169
14.0	0.155	0.153	0.152	0.153	69.54	-1.158
15.0	0.151	0.149	0.148	0.149	71.27	-1.147
16.0	0.147	0.146	0.145	0.146	72.94	-1.137
17.0	0.144	0.143	0.141	0.143	74.56	-1.127
18.0	0.141	0.140	0.138	0.140	76.16	-1.118
19.0	0.138	0.137	0.136	0.137	77.73	-1.109
20.0	0.136	0.134	0.133	0.134	79.27	-1.101
21.0	0.133	0.132	0.131	0.132	80.77	-1.093
22.0	0.131	0.129	0.128	0.129	82.26	-1.085
23.0	0.128	0.127	0.126	0.127	83.72	-1.077
24.0	0.126	0.125	0.124	0.125	85.16	-1.070
25.0	0.124	0.123	0.122	0.123	86.59	-1.063
26.0	0.122	0.121	0.120	0.121	87.98	-1.056
27.0	0.120	0.119	0.118	0.119	89.36	-1.049
28.0	0.119	0.117	0.116	0.117	90.72	-1.042
29.0	0.117	0.115	0.115	0.116	92.07	-1.036
30.0	0.115	0.114	0.113	0.114	93.39	-1.030
31.0	0.114	0.112	0.111	0.112	94.70	-1.024
32.0	0.112	0.111	0.110	0.111	96.01	-1.018
33.0	0.111	0.109	0.108	0.109	97.29	-1.012
34.0	0.109	0.108	0.107	0.108	98.56	-1.006
35.0	0.108	0.106	0.106	0.107	99.83	-1.001
36.0	0.106	0.105	0.104	0.105	101.07	-0.995
37.0	0.105	0.104	0.103	0.104	102.30	-0.990
38.0	0.104	0.103	0.102	0.103	103.53	-0.985
39.0	0.103	0.101	0.101	0.102	104.74	-0.980
40.0	0.102	0.100	0.100	0.100	105.93	-0.975

試料名 SI18-11-2 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.875

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	885.3300	786.6500	747.0900	806.357	0.01	-4.879
2.0	492.1000	436.2900	413.9000	447.430	0.02	-4.624
3.0	345.1700	306.3300	290.5400	314.013	0.03	-4.470
4.0	268.2500	238.1100	225.9200	244.093	0.04	-4.361
5.0	219.6400	195.0200	186.0000	200.220	0.05	-4.274
6.0	186.9100	166.3100	157.7300	170.317	0.06	-4.204
7.0	162.4400	144.8400	137.3200	148.200	0.07	-4.144
8.0	143.8000	128.2900	121.7500	131.280	0.08	-4.091
9.0	129.1100	115.3200	109.4000	117.943	0.09	-4.045
10.0	117.0300	104.7500	99.3330	107.038	0.10	-4.002
11.0	111.6200	99.8280	94.3230	101.924	0.10	-3.981
12.0	103.4100	92.0080	86.9250	94.114	0.11	-3.947
13.0	95.7130	85.6810	80.9030	87.432	0.12	-3.915
14.0	88.6160	79.8720	76.5260	81.671	0.13	-3.885
15.0	84.6630	75.2450	71.5320	77.147	0.14	-3.860
16.0	79.4070	71.5470	67.7720	72.909	0.15	-3.836
17.0	76.1600	68.1120	64.6240	69.632	0.15	-3.816
18.0	72.7150	65.1070	61.8070	66.543	0.16	-3.796
19.0	69.6270	62.3740	59.1690	63.723	0.17	-3.777
20.0	66.5950	59.6330	56.5380	60.922	0.17	-3.758
21.0	63.7140	57.0750	54.0960	58.295	0.18	-3.739
22.0	60.8510	54.6670	51.8370	55.785	0.19	-3.719
23.0	57.9650	52.1640	49.4830	53.204	0.20	-3.699
24.0	55.3710	49.7960	47.4430	50.870	0.21	-3.679
25.0	52.9680	47.8920	45.3580	48.739	0.22	-3.661
26.0	50.8540	45.9460	43.6140	46.805	0.23	-3.643
27.0	48.8650	44.1620	41.9450	44.991	0.24	-3.626
28.0	47.0450	42.5590	40.5640	43.389	0.25	-3.610
29.0	45.4440	41.2060	39.1600	41.937	0.25	-3.596
30.0	43.6380	39.9970	37.9860	40.540	0.26	-3.581
31.0	42.6410	38.6470	36.7360	39.341	0.27	-3.568
32.0	41.2790	37.5060	35.7280	38.171	0.28	-3.555
33.0	40.0980	36.4070	34.6430	37.049	0.29	-3.542
34.0	38.9410	35.3650	33.6910	35.999	0.30	-3.529
35.0	38.0970	34.4650	32.9260	35.163	0.30	-3.519
36.0	36.6980	33.4390	31.8840	34.007	0.31	-3.505
37.0	35.7760	32.5500	31.0650	33.130	0.32	-3.493
38.0	34.8620	31.7240	30.2620	32.283	0.33	-3.482
39.0	33.9760	30.9350	29.5310	31.481	0.34	-3.471
40.0	33.1200	30.1970	28.7990	30.705	0.35	-3.460

試料名
状態

SI18-11-2
自然

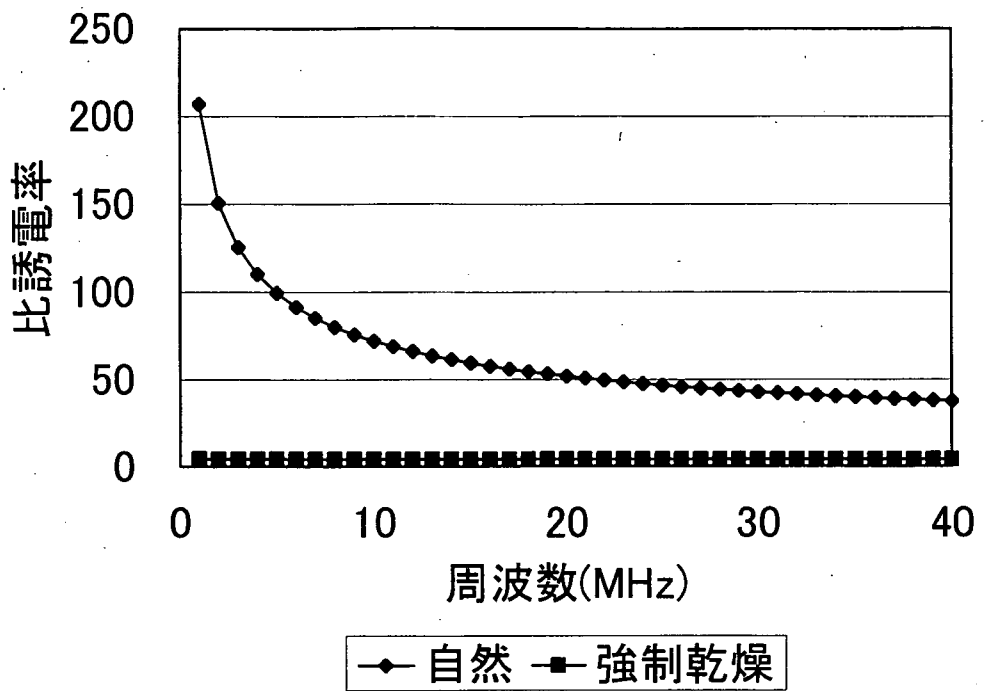
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	207.00	36.28	0.208	4.13
2.0	150.66	40.75	0.244	5.44
3.0	125.46	44.39	0.268	6.49
4.0	110.08	47.55	0.286	7.42
5.0	99.36	50.41	0.301	8.28
6.0	91.35	53.03	0.314	9.08
7.0	85.04	55.47	0.325	9.85
8.0	79.88	57.77	0.335	10.58
9.0	75.58	59.95	0.345	11.29
10.0	71.92	62.02	0.354	11.97
11.0	68.75	64.01	0.362	12.64
12.0	65.97	65.92	0.369	13.29
13.0	63.51	67.77	0.376	13.92
14.0	61.30	69.54	0.383	14.54
15.0	59.33	71.27	0.389	15.15
16.0	57.55	72.94	0.395	15.74
17.0	55.92	74.56	0.401	16.32
18.0	54.44	76.16	0.406	16.90
19.0	53.08	77.73	0.412	17.47
20.0	51.81	79.27	0.417	18.03
21.0	50.64	80.77	0.421	18.58
22.0	49.54	82.26	0.426	19.13
23.0	48.52	83.72	0.430	19.68
24.0	47.56	85.16	0.435	20.22
25.0	46.65	86.59	0.439	20.76
26.0	45.80	87.98	0.443	21.29
27.0	44.99	89.36	0.447	21.81
28.0	44.23	90.72	0.451	22.33
29.0	43.51	92.07	0.454	22.85
30.0	42.82	93.39	0.458	23.37
31.0	42.19	94.70	0.462	23.87
32.0	41.57	96.01	0.465	24.38
33.0	40.99	97.29	0.468	24.88
34.0	40.44	98.56	0.471	25.38
35.0	39.92	99.83	0.475	25.87
36.0	39.41	101.07	0.478	26.36
37.0	38.92	102.30	0.481	26.85
38.0	38.46	103.53	0.483	27.33
39.0	38.02	104.74	0.486	27.81
40.0	37.59	105.93	0.489	28.29

試料名
状態

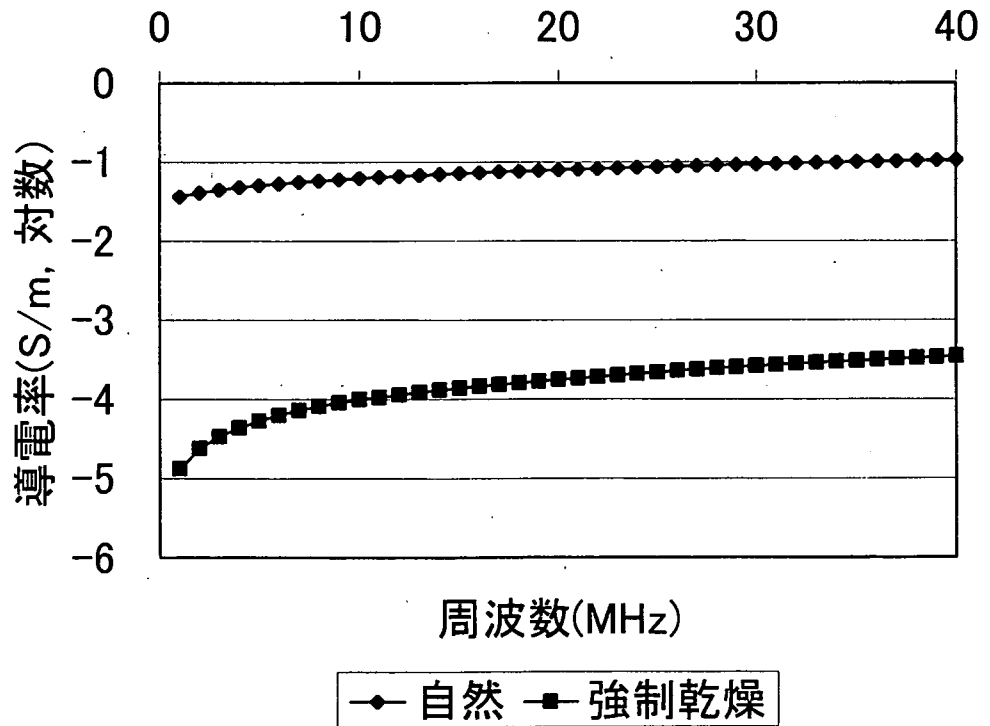
SI18-11-2
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.54	0.01	1.406	0.01
2.0	4.45	0.02	1.421	0.02
3.0	4.40	0.03	1.430	0.03
4.0	4.36	0.04	1.436	0.03
5.0	4.33	0.05	1.440	0.04
6.0	4.31	0.06	1.444	0.05
7.0	4.30	0.07	1.446	0.06
8.0	4.28	0.08	1.449	0.06
9.0	4.27	0.09	1.451	0.07
10.0	4.26	0.10	1.453	0.08
11.0	4.25	0.10	1.454	0.08
12.0	4.25	0.11	1.455	0.09
13.0	4.24	0.12	1.456	0.10
14.0	4.23	0.13	1.457	0.10
15.0	4.23	0.14	1.458	0.11
16.0	4.22	0.15	1.459	0.12
17.0	4.22	0.15	1.459	0.12
18.0	4.22	0.16	1.460	0.13
19.0	4.22	0.17	1.460	0.13
20.0	4.22	0.17	1.460	0.14
21.0	4.22	0.18	1.460	0.15
22.0	4.22	0.19	1.459	0.15
23.0	4.22	0.20	1.459	0.16
24.0	4.22	0.21	1.459	0.17
25.0	4.22	0.22	1.459	0.17
26.0	4.22	0.23	1.459	0.18
27.0	4.22	0.24	1.459	0.19
28.0	4.23	0.25	1.458	0.20
29.0	4.23	0.25	1.458	0.20
30.0	4.23	0.26	1.458	0.21
31.0	4.23	0.27	1.458	0.22
32.0	4.23	0.28	1.458	0.22
33.0	4.23	0.29	1.457	0.23
34.0	4.23	0.30	1.457	0.24
35.0	4.24	0.30	1.457	0.24
36.0	4.24	0.31	1.456	0.25
37.0	4.24	0.32	1.456	0.26
38.0	4.24	0.33	1.455	0.26
39.0	4.25	0.34	1.455	0.27
40.0	4.25	0.35	1.454	0.28

比誘電率
SI18-11-2

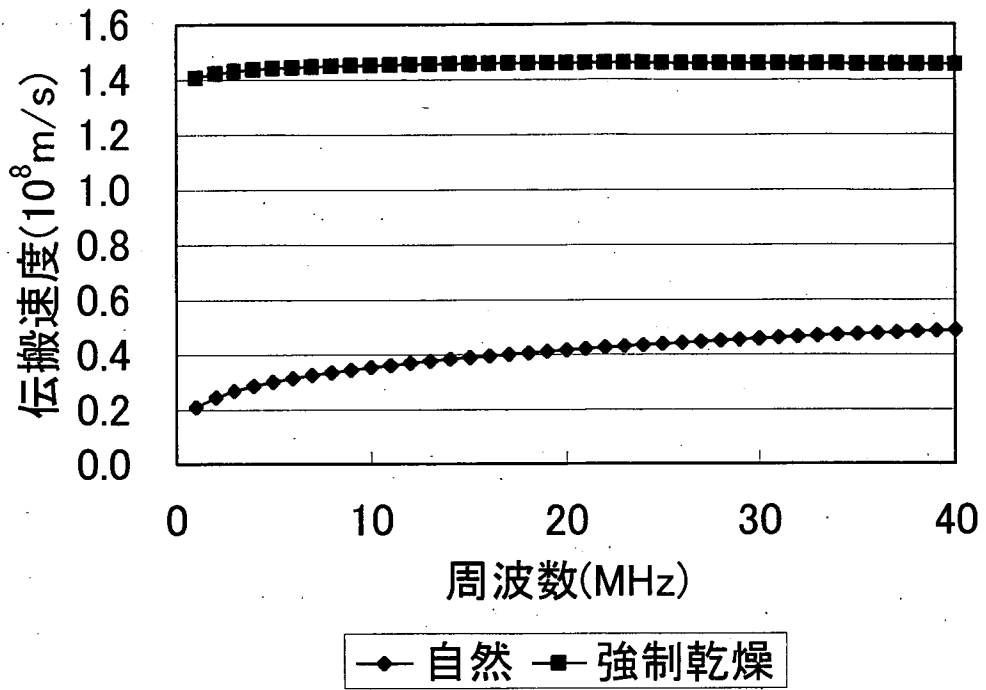


導電率
SI18-11-2



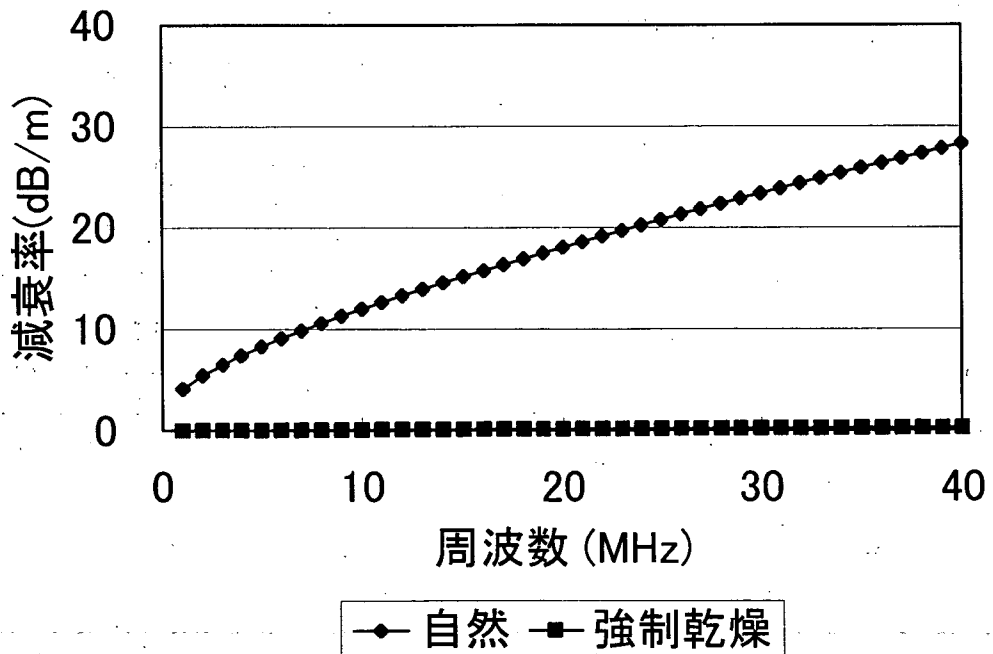
電磁波伝搬速度

SI18-11-2



減衰率

SI18-11-2



試料名 SI18-12 状態 自然

試料直径(mm) 24.10 試料厚(mm) 4.917

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	176.110	177.870	178.900	177.627	216.24
2.0	128.110	129.340	130.030	129.160	157.24
3.0	106.620	107.690	108.280	107.530	130.91
4.0	93.511	94.454	94.985	94.317	114.82
5.0	84.349	85.243	85.696	85.096	103.60
6.0	77.523	78.332	78.793	78.216	95.22
7.0	72.144	72.901	73.336	72.794	88.62
8.0	67.738	68.459	68.872	68.356	83.22
9.0	64.064	64.753	65.152	64.656	78.71
10.0	60.945	61.611	61.988	61.515	74.89
11.0	58.238	58.877	59.248	58.788	71.57
12.0	55.863	56.482	56.847	56.397	68.66
13.0	53.764	54.363	54.713	54.280	66.08
14.0	51.884	52.465	52.804	52.384	63.77
15.0	50.204	50.765	51.095	50.688	61.71
16.0	48.675	49.224	49.552	49.150	59.84
17.0	47.286	47.825	48.148	47.753	58.13
18.0	46.025	46.546	46.858	46.476	56.58
19.0	44.860	45.370	45.676	45.302	55.15
20.0	43.781	44.277	44.577	44.212	53.82
21.0	42.776	43.268	43.562	43.202	52.59
22.0	41.843	42.324	42.615	42.261	51.45
23.0	40.966	41.440	41.725	41.377	50.37
24.0	40.145	40.611	40.891	40.549	49.36
25.0	39.372	39.825	40.104	39.767	48.41
26.0	38.643	39.091	39.366	39.033	47.52
27.0	37.956	38.398	38.667	38.340	46.68
28.0	37.307	37.741	38.008	37.685	45.88
29.0	36.695	37.122	37.387	37.068	45.13
30.0	36.104	36.527	36.794	36.475	44.41
31.0	35.562	35.978	36.235	35.925	43.74
32.0	35.040	35.451	35.703	35.398	43.09
33.0	34.543	34.947	35.197	34.896	42.48
34.0	34.069	34.469	34.717	34.418	41.90
35.0	33.628	34.015	34.259	33.967	41.35
36.0	33.187	33.577	33.816	33.527	40.82
37.0	32.773	33.158	33.394	33.108	40.31
38.0	32.378	32.760	32.995	32.711	39.82
39.0	31.997	32.375	32.606	32.326	39.35
40.0	31.631	32.008	32.237	31.959	38.91

試料名 SI18-12 状態 強制乾燥

試料直径(mm) 24.10 試料厚(mm) 4.917

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.787	3.837	3.871	3.832	4.66
2.0	3.706	3.748	3.777	3.744	4.56
3.0	3.660	3.698	3.725	3.694	4.50
4.0	3.629	3.664	3.690	3.661	4.46
5.0	3.607	3.639	3.663	3.636	4.43
6.0	3.589	3.620	3.644	3.617	4.40
7.0	3.574	3.603	3.627	3.602	4.38
8.0	3.562	3.590	3.613	3.588	4.37
9.0	3.552	3.578	3.601	3.577	4.35
10.0	3.543	3.569	3.591	3.567	4.34
11.0	3.536	3.561	3.583	3.560	4.33
12.0	3.530	3.555	3.575	3.554	4.33
13.0	3.524	3.548	3.568	3.547	4.32
14.0	3.519	3.542	3.563	3.541	4.31
15.0	3.514	3.538	3.558	3.537	4.31
16.0	3.512	3.533	3.554	3.533	4.30
17.0	3.509	3.530	3.549	3.529	4.30
18.0	3.507	3.529	3.547	3.528	4.29
19.0	3.507	3.527	3.546	3.527	4.29
20.0	3.506	3.527	3.545	3.526	4.29
21.0	3.507	3.527	3.545	3.526	4.29
22.0	3.508	3.527	3.546	3.527	4.29
23.0	3.509	3.528	3.546	3.527	4.29
24.0	3.509	3.528	3.546	3.528	4.29
25.0	3.510	3.527	3.545	3.527	4.29
26.0	3.510	3.528	3.547	3.528	4.30
27.0	3.511	3.529	3.547	3.529	4.30
28.0	3.511	3.529	3.547	3.529	4.30
29.0	3.512	3.529	3.547	3.530	4.30
30.0	3.513	3.532	3.548	3.531	4.30
31.0	3.514	3.531	3.549	3.531	4.30
32.0	3.515	3.532	3.549	3.532	4.30
33.0	3.517	3.533	3.551	3.533	4.30
34.0	3.518	3.535	3.552	3.535	4.30
35.0	3.520	3.537	3.553	3.537	4.31
36.0	3.522	3.538	3.555	3.538	4.31
37.0	3.524	3.540	3.557	3.540	4.31
38.0	3.526	3.542	3.559	3.542	4.31
39.0	3.529	3.544	3.561	3.545	4.32
40.0	3.531	3.547	3.563	3.547	4.32

試料名 SI18-12 状態 自然

試料直径(mm) 24.10 試料厚(mm) 4.917

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.275	0.270	0.268	0.271	39.75	-1.401
2.0	0.246	0.242	0.240	0.243	44.42	-1.352
3.0	0.227	0.223	0.221	0.224	48.22	-1.317
4.0	0.212	0.209	0.207	0.209	51.53	-1.288
5.0	0.200	0.197	0.196	0.198	54.51	-1.263
6.0	0.191	0.188	0.186	0.188	57.27	-1.242
7.0	0.182	0.180	0.178	0.180	59.83	-1.223
8.0	0.175	0.173	0.171	0.173	62.24	-1.206
9.0	0.169	0.167	0.165	0.167	64.52	-1.190
10.0	0.164	0.161	0.160	0.162	66.70	-1.176
11.0	0.159	0.156	0.155	0.157	68.79	-1.163
12.0	0.154	0.152	0.151	0.152	70.79	-1.150
13.0	0.150	0.148	0.147	0.148	72.73	-1.138
14.0	0.146	0.144	0.143	0.145	74.59	-1.127
15.0	0.143	0.141	0.140	0.141	76.40	-1.117
16.0	0.139	0.138	0.137	0.138	78.16	-1.107
17.0	0.136	0.135	0.134	0.135	79.87	-1.098
18.0	0.134	0.132	0.131	0.132	81.55	-1.089
19.0	0.131	0.129	0.128	0.130	83.20	-1.080
20.0	0.129	0.127	0.126	0.127	84.82	-1.072
21.0	0.126	0.125	0.124	0.125	86.40	-1.063
22.0	0.124	0.122	0.121	0.123	87.96	-1.056
23.0	0.122	0.120	0.119	0.120	89.50	-1.048
24.0	0.120	0.118	0.117	0.118	91.02	-1.041
25.0	0.118	0.116	0.115	0.117	92.52	-1.034
26.0	0.116	0.114	0.114	0.115	93.99	-1.027
27.0	0.114	0.113	0.112	0.113	95.44	-1.020
28.0	0.112	0.111	0.110	0.111	96.87	-1.014
29.0	0.111	0.109	0.109	0.110	98.29	-1.007
30.0	0.109	0.108	0.107	0.108	99.69	-1.001
31.0	0.108	0.106	0.106	0.107	101.08	-0.995
32.0	0.106	0.105	0.104	0.105	102.45	-0.989
33.0	0.105	0.104	0.103	0.104	103.81	-0.984
34.0	0.104	0.102	0.102	0.103	105.16	-0.978
35.0	0.102	0.101	0.100	0.101	106.49	-0.973
36.0	0.101	0.100	0.099	0.100	107.82	-0.967
37.0	0.100	0.099	0.098	0.099	109.12	-0.962
38.0	0.099	0.097	0.097	0.098	110.41	-0.957
39.0	0.098	0.096	0.096	0.097	111.70	-0.952
40.0	0.096	0.095	0.095	0.095	112.95	-0.947

試料名 SI18-12 状態 強制乾燥

試料直径(mm) 24.10 試料厚(mm) 4.917

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	771.1400	706.7600	678.4300	718.777	0.01	-4.824
2.0	428.7100	392.3200	376.2600	399.097	0.03	-4.569
3.0	301.3900	275.7000	264.2500	280.447	0.04	-4.415
4.0	234.6000	214.4900	205.5100	218.200	0.05	-4.306
5.0	192.6400	175.9200	168.7400	179.100	0.06	-4.221
6.0	163.8400	150.0300	143.7500	152.540	0.07	-4.151
7.0	142.6700	130.7900	125.2500	132.903	0.08	-4.091
8.0	126.4600	116.0000	111.0900	117.850	0.09	-4.039
9.0	113.6200	104.2800	99.9010	105.934	0.10	-3.992
10.0	103.1900	94.7620	90.8210	96.258	0.11	-3.951
11.0	97.9020	89.8950	85.9770	91.258	0.12	-3.928
12.0	90.4910	83.3040	79.3960	84.397	0.13	-3.894
13.0	84.3870	77.2630	73.9600	78.537	0.14	-3.862
14.0	78.4790	71.8460	69.5430	73.289	0.15	-3.832
15.0	74.0000	68.1810	65.2870	69.156	0.16	-3.807
16.0	70.3500	64.7370	61.7480	65.612	0.16	-3.784
17.0	67.0600	61.9360	58.9760	62.657	0.17	-3.764
18.0	64.1500	58.8900	56.3720	59.804	0.18	-3.744
19.0	61.1590	56.2250	53.9460	57.110	0.19	-3.724
20.0	58.7550	53.6990	51.6170	54.690	0.20	-3.705
21.0	56.1160	51.6070	49.4090	52.377	0.21	-3.687
22.0	53.6130	49.4350	47.3050	50.118	0.22	-3.667
23.0	51.2050	47.2080	45.2320	47.882	0.23	-3.648
24.0	49.0460	45.1520	43.2430	45.814	0.24	-3.628
25.0	46.6050	43.6930	41.6240	43.974	0.25	-3.611
26.0	45.0040	41.6110	39.8840	42.166	0.26	-3.592
27.0	43.3430	40.0550	38.4300	40.609	0.27	-3.576
28.0	41.8600	38.6890	37.0890	39.213	0.27	-3.561
29.0	40.3860	37.3510	35.8740	37.870	0.28	-3.546
30.0	38.9710	36.0890	34.5710	36.544	0.29	-3.530
31.0	37.8940	35.1050	33.6910	35.563	0.30	-3.518
32.0	36.7510	34.0870	32.7220	34.520	0.31	-3.505
33.0	35.6850	33.1300	31.8010	33.539	0.32	-3.493
34.0	34.6610	32.2280	30.9070	32.599	0.33	-3.481
35.0	33.8430	31.3530	30.0310	31.742	0.34	-3.469
36.0	32.8130	30.4800	29.2490	30.847	0.35	-3.457
37.0	31.9080	29.6400	28.4940	30.014	0.36	-3.445
38.0	31.0930	28.9480	27.7630	29.268	0.37	-3.434
39.0	30.3040	28.1960	27.1190	28.540	0.38	-3.423
40.0	29.6270	27.4770	26.5160	27.873	0.39	-3.413

試料名
状態

SI18-12
自然

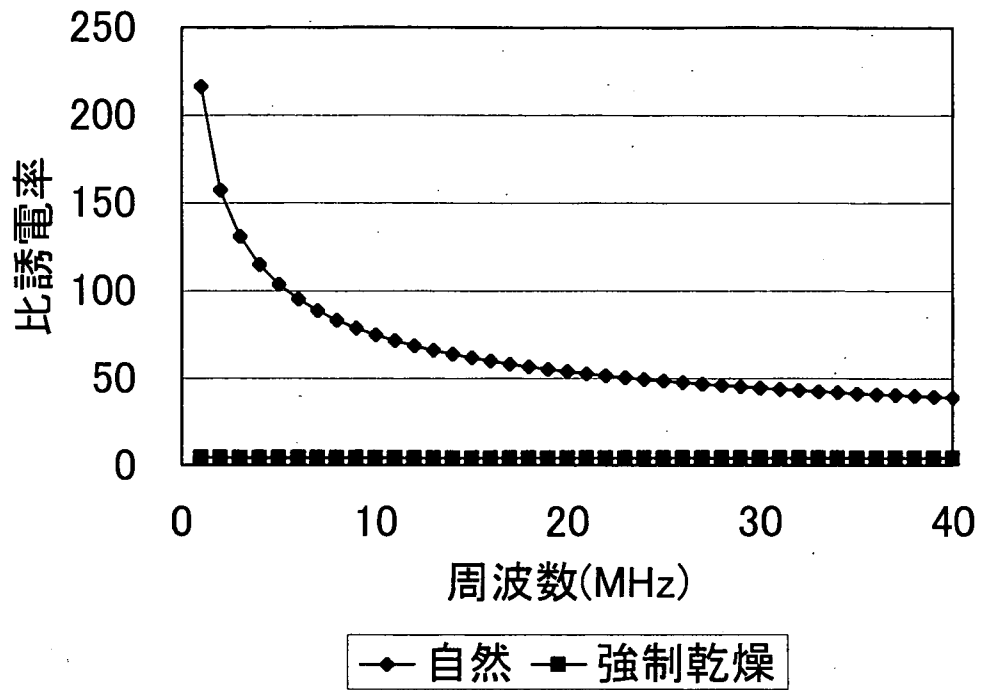
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	216.24	39.75	0.204	4.43
2.0	157.24	44.42	0.239	5.80
3.0	130.91	48.22	0.262	6.90
4.0	114.82	51.53	0.280	7.87
5.0	103.60	54.51	0.295	8.77
6.0	95.22	57.27	0.307	9.61
7.0	88.62	59.83	0.318	10.41
8.0	83.22	62.24	0.329	11.17
9.0	78.71	64.52	0.338	11.91
10.0	74.89	66.70	0.346	12.62
11.0	71.57	68.79	0.354	13.31
12.0	68.66	70.79	0.362	13.99
13.0	66.08	72.73	0.369	14.65
14.0	63.77	74.59	0.375	15.29
15.0	61.71	76.40	0.382	15.92
16.0	59.84	78.16	0.388	16.54
17.0	58.13	79.87	0.393	17.15
18.0	56.58	81.55	0.399	17.75
19.0	55.15	83.20	0.404	18.34
20.0	53.82	84.82	0.409	18.93
21.0	52.59	86.40	0.413	19.51
22.0	51.45	87.96	0.418	20.08
23.0	50.37	89.50	0.422	20.65
24.0	49.36	91.02	0.427	21.21
25.0	48.41	92.52	0.431	21.77
26.0	47.52	93.99	0.435	22.32
27.0	46.68	95.44	0.439	22.87
28.0	45.88	96.87	0.443	23.42
29.0	45.13	98.29	0.446	23.96
30.0	44.41	99.69	0.450	24.49
31.0	43.74	101.08	0.453	25.02
32.0	43.09	102.45	0.457	25.55
33.0	42.48	103.81	0.460	26.08
34.0	41.90	105.16	0.463	26.60
35.0	41.35	106.49	0.466	27.11
36.0	40.82	107.82	0.469	27.63
37.0	40.31	109.12	0.472	28.14
38.0	39.82	110.41	0.475	28.65
39.0	39.35	111.70	0.478	29.15
40.0	38.91	112.95	0.481	29.65

試料名
状態

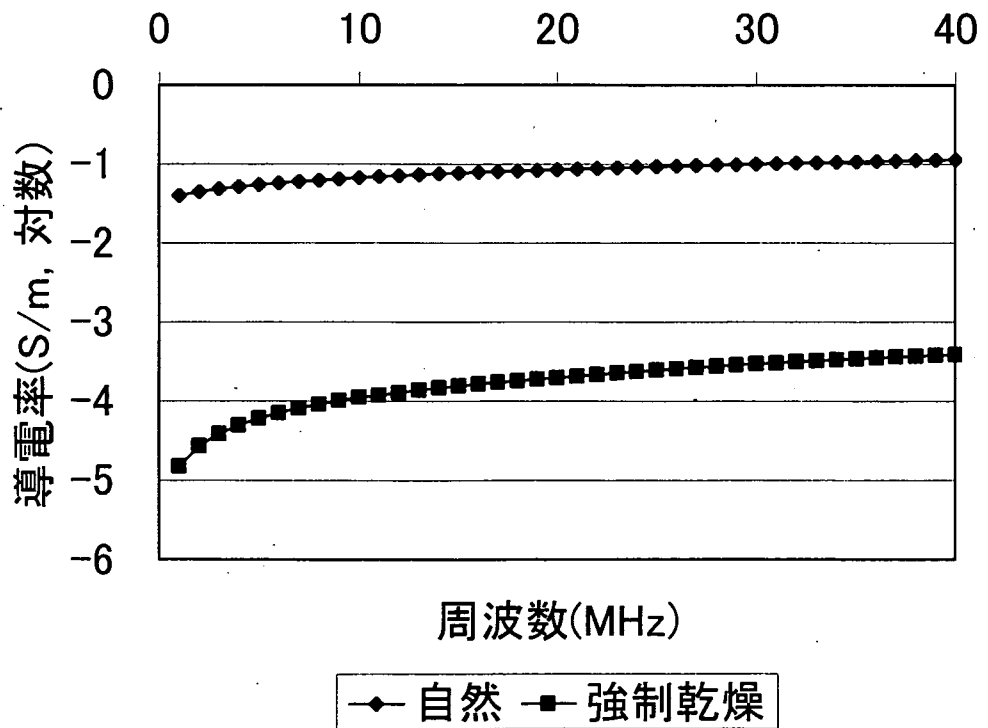
SI18-12
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	4.66	0.01	1.388	0.01
2.0	4.56	0.03	1.404	0.02
3.0	4.50	0.04	1.414	0.03
4.0	4.46	0.05	1.420	0.04
5.0	4.43	0.06	1.425	0.05
6.0	4.40	0.07	1.429	0.06
7.0	4.38	0.08	1.432	0.06
8.0	4.37	0.09	1.434	0.07
9.0	4.35	0.10	1.437	0.08
10.0	4.34	0.11	1.439	0.09
11.0	4.33	0.12	1.440	0.09
12.0	4.33	0.13	1.441	0.10
13.0	4.32	0.14	1.443	0.11
14.0	4.31	0.15	1.444	0.12
15.0	4.31	0.16	1.445	0.12
16.0	4.30	0.16	1.446	0.13
17.0	4.30	0.17	1.446	0.14
18.0	4.29	0.18	1.447	0.14
19.0	4.29	0.19	1.447	0.15
20.0	4.29	0.20	1.447	0.16
21.0	4.29	0.21	1.447	0.16
22.0	4.29	0.22	1.447	0.17
23.0	4.29	0.23	1.447	0.18
24.0	4.29	0.24	1.447	0.19
25.0	4.29	0.25	1.447	0.19
26.0	4.30	0.26	1.447	0.20
27.0	4.30	0.27	1.446	0.21
28.0	4.30	0.27	1.446	0.22
29.0	4.30	0.28	1.446	0.22
30.0	4.30	0.29	1.446	0.23
31.0	4.30	0.30	1.446	0.24
32.0	4.30	0.31	1.446	0.25
33.0	4.30	0.32	1.445	0.25
34.0	4.30	0.33	1.445	0.26
35.0	4.31	0.34	1.445	0.27
36.0	4.31	0.35	1.444	0.28
37.0	4.31	0.36	1.444	0.28
38.0	4.31	0.37	1.444	0.29
39.0	4.32	0.38	1.443	0.30
40.0	4.32	0.39	1.443	0.30

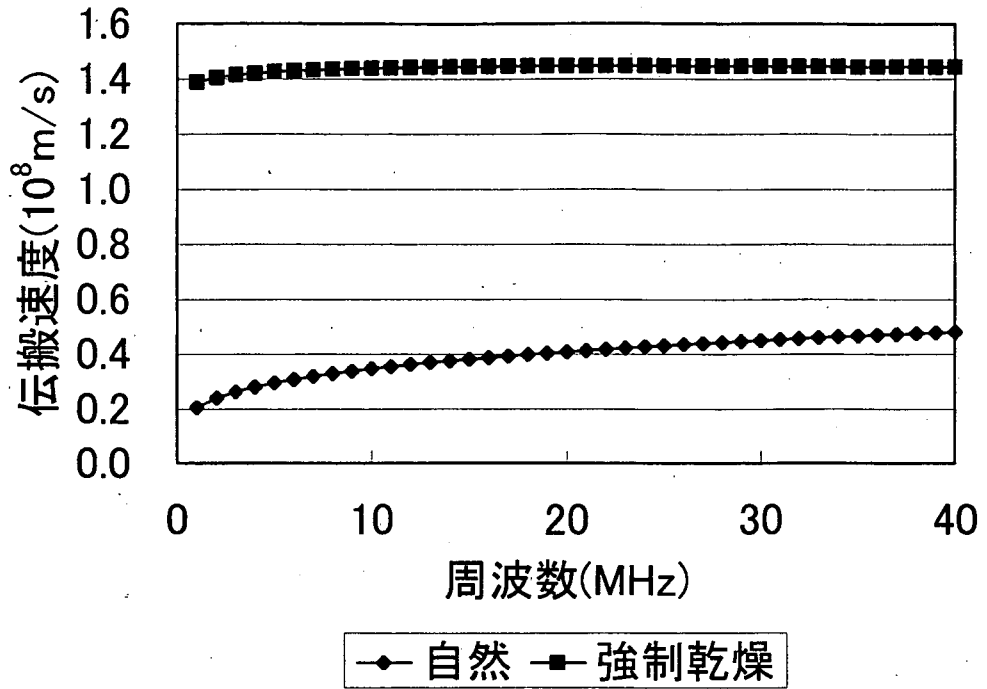
比誘電率
SI18-12



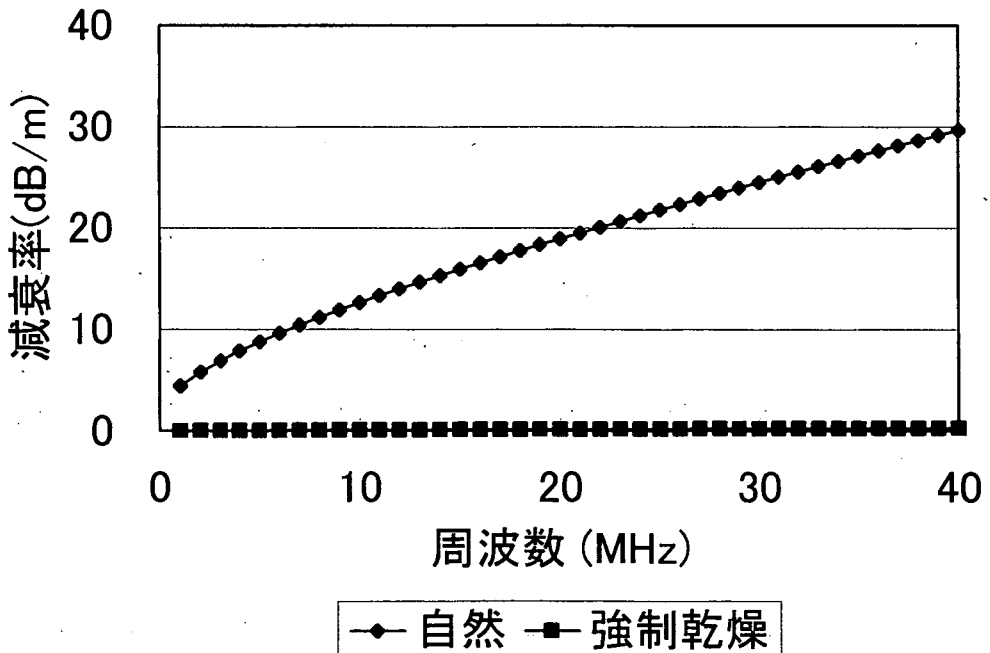
導電率
SI18-12



電磁波伝搬速度 SI-18-12



減衰率 SI18-12



試料名 SI18-13 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.908

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	95.316	96.164	96.733	96.071	116.26
2.0	71.410	72.008	72.430	71.949	87.07
3.0	60.404	60.904	61.265	60.858	73.65
4.0	53.603	54.045	54.382	54.010	65.36
5.0	48.839	49.237	49.549	49.208	59.55
6.0	45.267	45.639	45.922	45.609	55.19
7.0	42.444	42.792	43.060	42.765	51.75
8.0	40.128	40.456	40.710	40.431	48.93
9.0	38.196	38.508	38.752	38.485	46.57
10.0	36.552	36.850	37.082	36.828	44.57
11.0	35.127	35.414	35.637	35.393	42.83
12.0	33.876	34.152	34.370	34.133	41.31
13.0	32.766	33.033	33.242	33.014	39.95
14.0	31.773	32.033	32.234	32.013	38.74
15.0	30.874	31.126	31.323	31.108	37.65
16.0	30.058	30.303	30.325	30.229	36.58
17.0	29.157	29.395	29.572	29.375	35.55
18.0	28.481	28.711	28.891	28.694	34.72
19.0	27.856	28.083	28.260	28.066	33.96
20.0	27.282	27.504	27.673	27.486	33.26
21.0	26.746	26.964	27.130	26.947	32.61
22.0	26.246	26.461	26.622	26.443	32.00
23.0	25.775	25.984	26.143	25.967	31.42
24.0	25.330	25.538	25.693	25.520	30.88
25.0	24.906	25.112	25.263	25.094	30.37
26.0	24.513	24.715	24.862	24.697	29.89
27.0	24.140	24.337	24.483	24.320	29.43
28.0	23.786	23.980	24.123	23.963	29.00
29.0	23.451	23.644	23.783	23.626	28.59
30.0	23.130	23.321	23.459	23.303	28.20
31.0	22.835	23.024	23.157	23.005	27.84
32.0	22.550	22.739	22.868	22.719	27.49
33.0	22.280	22.466	22.593	22.446	27.16
34.0	22.023	22.208	22.332	22.188	26.85
35.0	21.782	21.965	22.086	21.944	26.56
36.0	21.544	21.725	21.844	21.704	26.27
37.0	21.319	21.499	21.615	21.478	25.99
38.0	21.106	21.284	21.398	21.263	25.73
39.0	20.899	21.077	21.189	21.055	25.48
40.0	20.703	20.880	20.989	20.857	25.24

試料名 SI18-13 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.908

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.585	3.654	3.677	3.638	4.40
2.0	3.517	3.581	3.599	3.566	4.31
3.0	3.479	3.540	3.555	3.525	4.27
4.0	3.454	3.512	3.525	3.497	4.23
5.0	3.435	3.490	3.502	3.476	4.21
6.0	3.420	3.475	3.486	3.460	4.19
7.0	3.408	3.461	3.471	3.447	4.17
8.0	3.398	3.450	3.459	3.436	4.16
9.0	3.389	3.441	3.449	3.426	4.15
10.0	3.382	3.433	3.441	3.418	4.14
11.0	3.376	3.427	3.434	3.412	4.13
12.0	3.371	3.420	3.428	3.406	4.12
13.0	3.367	3.416	3.422	3.401	4.12
14.0	3.364	3.410	3.418	3.397	4.11
15.0	3.360	3.407	3.413	3.393	4.11
16.0	3.357	3.405	3.410	3.391	4.10
17.0	3.356	3.403	3.407	3.389	4.10
18.0	3.353	3.402	3.406	3.387	4.10
19.0	3.354	3.400	3.405	3.386	4.10
20.0	3.354	3.400	3.404	3.386	4.10
21.0	3.355	3.401	3.406	3.387	4.10
22.0	3.356	3.402	3.406	3.388	4.10
23.0	3.357	3.403	3.407	3.389	4.10
24.0	3.358	3.404	3.407	3.390	4.10
25.0	3.359	3.405	3.408	3.391	4.10
26.0	3.361	3.406	3.409	3.392	4.10
27.0	3.362	3.406	3.409	3.392	4.11
28.0	3.363	3.407	3.410	3.393	4.11
29.0	3.364	3.408	3.411	3.394	4.11
30.0	3.365	3.408	3.412	3.395	4.11
31.0	3.366	3.410	3.413	3.396	4.11
32.0	3.368	3.412	3.414	3.398	4.11
33.0	3.370	3.413	3.415	3.399	4.11
34.0	3.372	3.415	3.417	3.401	4.12
35.0	3.374	3.417	3.419	3.403	4.12
36.0	3.376	3.419	3.421	3.405	4.12
37.0	3.378	3.421	3.423	3.407	4.12
38.0	3.381	3.423	3.425	3.409	4.13
39.0	3.383	3.426	3.427	3.412	4.13
40.0	3.386	3.428	3.430	3.415	4.13

試料名 SI18-13 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.908

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.658	0.645	0.637	0.647	16.57	-1.781
2.0	0.573	0.563	0.556	0.564	19.00	-1.721
3.0	0.519	0.509	0.504	0.511	20.99	-1.678
4.0	0.479	0.470	0.465	0.471	22.73	-1.643
5.0	0.447	0.440	0.435	0.441	24.30	-1.614
6.0	0.422	0.415	0.411	0.416	25.76	-1.589
7.0	0.401	0.394	0.391	0.395	27.11	-1.567
8.0	0.382	0.377	0.373	0.377	28.39	-1.547
9.0	0.367	0.361	0.358	0.362	29.61	-1.529
10.0	0.353	0.348	0.344	0.348	30.77	-1.512
11.0	0.340	0.335	0.332	0.336	31.89	-1.496
12.0	0.329	0.324	0.321	0.325	32.97	-1.482
13.0	0.319	0.315	0.312	0.315	34.01	-1.468
14.0	0.310	0.305	0.303	0.306	35.03	-1.456
15.0	0.301	0.297	0.294	0.298	36.01	-1.444
16.0	0.293	0.289	0.286	0.290	36.99	-1.432
17.0	0.286	0.282	0.279	0.282	37.97	-1.421
18.0	0.279	0.275	0.273	0.276	38.88	-1.410
19.0	0.273	0.269	0.267	0.269	39.78	-1.400
20.0	0.267	0.263	0.261	0.263	40.67	-1.391
21.0	0.261	0.258	0.255	0.258	41.55	-1.381
22.0	0.256	0.252	0.250	0.253	42.41	-1.373
23.0	0.250	0.247	0.245	0.248	43.26	-1.364
24.0	0.246	0.243	0.240	0.243	44.11	-1.356
25.0	0.241	0.238	0.236	0.238	44.94	-1.347
26.0	0.237	0.234	0.232	0.234	45.75	-1.340
27.0	0.233	0.230	0.228	0.230	46.56	-1.332
28.0	0.229	0.226	0.224	0.226	47.36	-1.325
29.0	0.225	0.222	0.220	0.223	48.14	-1.317
30.0	0.221	0.219	0.217	0.219	48.92	-1.311
31.0	0.218	0.215	0.214	0.216	49.69	-1.304
32.0	0.215	0.212	0.210	0.212	50.45	-1.297
33.0	0.212	0.209	0.207	0.209	51.20	-1.291
34.0	0.208	0.206	0.204	0.206	51.95	-1.284
35.0	0.205	0.203	0.201	0.203	52.70	-1.278
36.0	0.203	0.200	0.199	0.201	53.43	-1.272
37.0	0.200	0.198	0.196	0.198	54.15	-1.266
38.0	0.197	0.195	0.193	0.195	54.87	-1.261
39.0	0.195	0.193	0.191	0.193	55.59	-1.255
40.0	0.192	0.190	0.189	0.190	56.29	-1.250

試料名 SI18-13 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.908

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	930.2900	860.9300	809.1100	866.777	0.01	-4.908
2.0	516.3000	476.1200	447.2100	479.877	0.02	-4.651
3.0	361.8300	333.4400	313.2800	336.183	0.03	-4.497
4.0	280.5200	258.3700	243.0400	260.643	0.04	-4.386
5.0	229.6100	210.8600	198.6700	213.047	0.05	-4.298
6.0	195.3600	179.8300	169.3800	181.523	0.06	-4.229
7.0	169.7300	156.3400	147.3100	157.793	0.07	-4.168
8.0	150.2900	138.4300	130.4500	139.723	0.08	-4.115
9.0	134.7200	124.2800	117.1400	125.380	0.09	-4.068
10.0	122.2400	112.8500	106.5300	113.873	0.09	-4.026
11.0	116.9000	107.3400	101.3300	108.523	0.10	-4.006
12.0	107.9400	99.2670	93.0800	100.096	0.11	-3.970
13.0	100.4800	91.9590	86.8830	93.107	0.12	-3.939
14.0	95.1700	85.0330	81.9320	87.378	0.12	-3.911
15.0	88.8170	81.4280	76.8220	82.356	0.13	-3.886
16.0	83.6320	77.2230	72.8120	77.889	0.14	-3.861
17.0	79.3600	73.9390	69.6010	74.300	0.14	-3.841
18.0	76.1230	70.0940	66.3090	70.842	0.15	-3.820
19.0	73.0790	67.0880	63.5530	67.907	0.16	-3.802
20.0	69.8010	64.4070	60.5460	64.918	0.17	-3.782
21.0	66.8130	61.5330	58.2020	62.183	0.17	-3.764
22.0	63.8090	58.8410	55.6030	59.418	0.18	-3.744
23.0	61.0330	56.1170	53.1950	56.782	0.19	-3.724
24.0	58.1220	53.6390	50.8450	54.202	0.20	-3.704
25.0	55.6410	51.3360	48.5580	51.845	0.21	-3.685
26.0	53.2790	49.2360	46.7690	49.761	0.22	-3.667
27.0	51.1970	47.4080	45.1220	47.909	0.22	-3.650
28.0	49.6070	45.7510	43.5280	46.295	0.23	-3.636
29.0	47.7900	44.1420	42.0350	44.656	0.24	-3.620
30.0	46.2690	42.8420	40.5560	43.222	0.25	-3.606
31.0	44.7670	41.4370	39.5140	41.906	0.26	-3.592
32.0	43.3880	40.2320	38.3270	40.649	0.26	-3.579
33.0	42.2980	39.1170	37.2680	39.561	0.27	-3.567
34.0	40.9590	37.9980	36.2240	38.394	0.28	-3.554
35.0	39.9870	36.8890	35.0940	37.323	0.29	-3.542
36.0	38.7000	35.9680	34.2410	36.303	0.30	-3.530
37.0	37.6930	34.9210	33.3740	35.329	0.30	-3.518
38.0	36.6540	34.1330	32.5300	34.439	0.31	-3.507
39.0	35.7650	33.2040	31.7140	33.561	0.32	-3.496
40.0	34.8880	32.6140	30.8810	32.794	0.33	-3.486

試料名
状態

SI18-13
自然

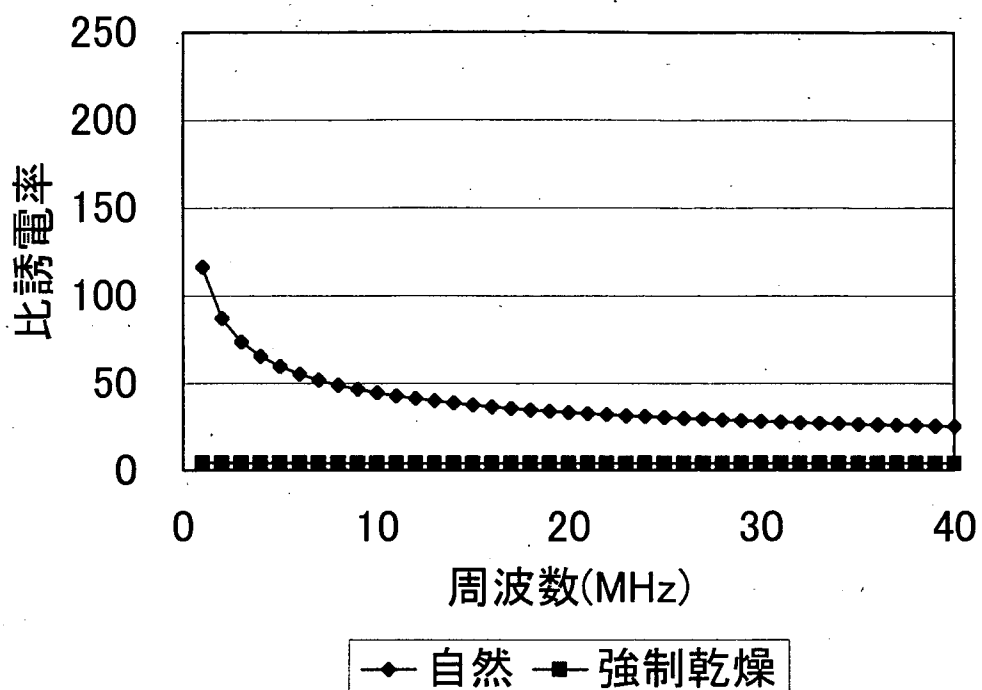
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	116.26	16.57	0.278	2.52
2.0	87.07	19.00	0.321	3.33
3.0	73.65	20.99	0.349	4.00
4.0	65.36	22.73	0.371	4.60
5.0	59.55	24.30	0.389	5.16
6.0	55.19	25.76	0.404	5.68
7.0	51.75	27.11	0.417	6.17
8.0	48.93	28.39	0.429	6.65
9.0	46.57	29.61	0.439	7.10
10.0	44.57	30.77	0.449	7.55
11.0	42.83	31.89	0.458	7.98
12.0	41.31	32.97	0.466	8.40
13.0	39.95	34.01	0.474	8.81
14.0	38.74	35.03	0.482	9.21
15.0	37.65	36.01	0.489	9.61
16.0	36.58	36.99	0.496	10.01
17.0	35.55	37.97	0.503	10.43
18.0	34.72	38.88	0.509	10.80
19.0	33.96	39.78	0.514	11.18
20.0	33.26	40.67	0.520	11.55
21.0	32.61	41.55	0.525	11.91
22.0	32.00	42.41	0.530	12.27
23.0	31.42	43.26	0.535	12.64
24.0	30.88	44.11	0.539	12.99
25.0	30.37	44.94	0.544	13.35
26.0	29.89	45.75	0.548	13.70
27.0	29.43	46.56	0.553	14.05
28.0	29.00	47.36	0.557	14.40
29.0	28.59	48.14	0.561	14.74
30.0	28.20	48.92	0.565	15.08
31.0	27.84	49.69	0.568	15.42
32.0	27.49	50.45	0.572	15.75
33.0	27.16	51.20	0.575	16.09
34.0	26.85	51.95	0.579	16.42
35.0	26.56	52.70	0.582	16.74
36.0	26.27	53.43	0.585	17.07
37.0	25.99	54.15	0.588	17.39
38.0	25.73	54.87	0.591	17.71
39.0	25.48	55.59	0.594	18.03
40.0	25.24	56.29	0.597	18.34

試料名
状態

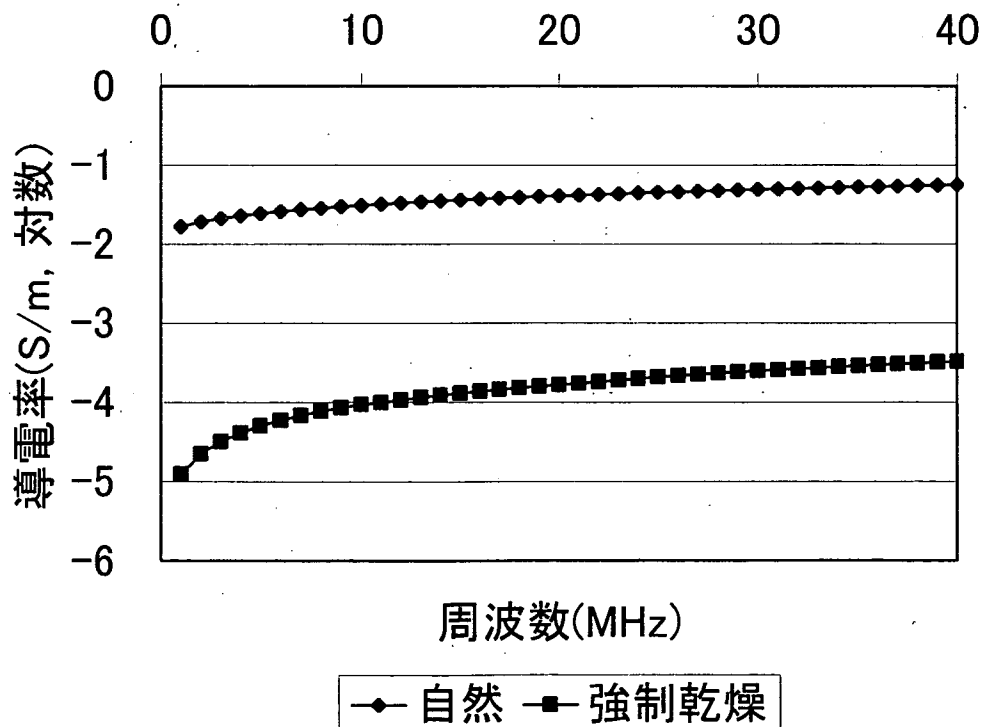
SI18-13
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	4.40	0.01	1.429	0.01
2.0	4.31	0.02	1.443	0.02
3.0	4.27	0.03	1.452	0.03
4.0	4.23	0.04	1.457	0.03
5.0	4.21	0.05	1.462	0.04
6.0	4.19	0.06	1.465	0.05
7.0	4.17	0.07	1.468	0.05
8.0	4.16	0.08	1.470	0.06
9.0	4.15	0.09	1.472	0.07
10.0	4.14	0.09	1.474	0.08
11.0	4.13	0.10	1.475	0.08
12.0	4.12	0.11	1.477	0.09
13.0	4.12	0.12	1.478	0.09
14.0	4.11	0.12	1.479	0.10
15.0	4.11	0.13	1.479	0.11
16.0	4.10	0.14	1.480	0.11
17.0	4.10	0.14	1.480	0.12
18.0	4.10	0.15	1.481	0.12
19.0	4.10	0.16	1.481	0.13
20.0	4.10	0.17	1.481	0.13
21.0	4.10	0.17	1.481	0.14
22.0	4.10	0.18	1.481	0.15
23.0	4.10	0.19	1.480	0.15
24.0	4.10	0.20	1.480	0.16
25.0	4.10	0.21	1.480	0.17
26.0	4.10	0.22	1.480	0.17
27.0	4.11	0.22	1.480	0.18
28.0	4.11	0.23	1.479	0.19
29.0	4.11	0.24	1.479	0.19
30.0	4.11	0.25	1.479	0.20
31.0	4.11	0.26	1.479	0.21
32.0	4.11	0.26	1.478	0.21
33.0	4.11	0.27	1.478	0.22
34.0	4.12	0.28	1.478	0.23
35.0	4.12	0.29	1.477	0.23
36.0	4.12	0.30	1.477	0.24
37.0	4.12	0.30	1.476	0.24
38.0	4.13	0.31	1.476	0.25
39.0	4.13	0.32	1.475	0.26
40.0	4.13	0.33	1.475	0.26

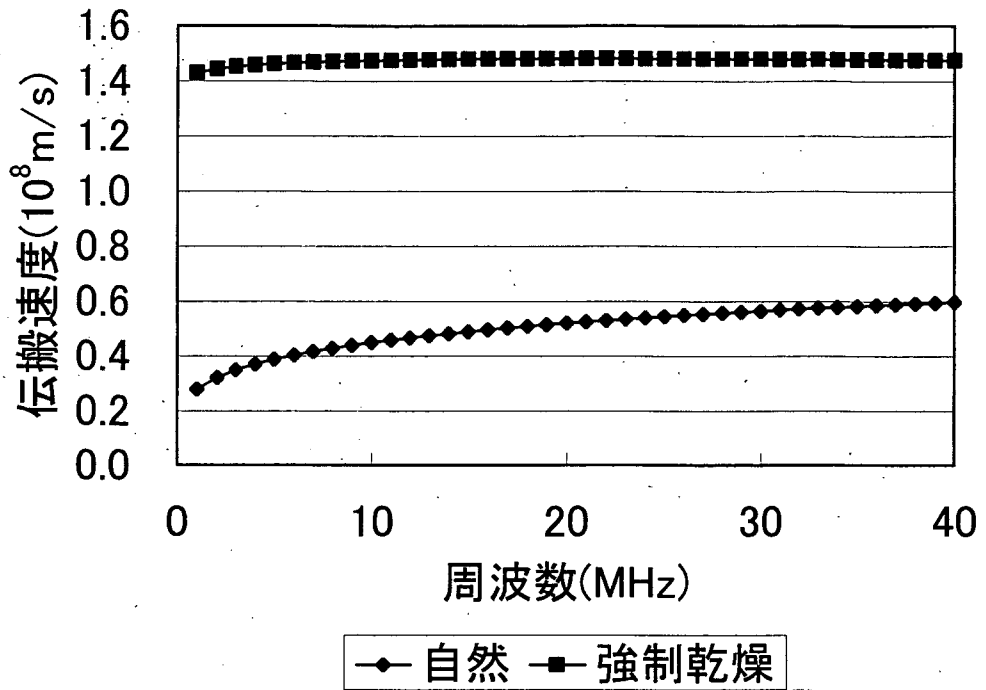
比誘電率
SI18-13



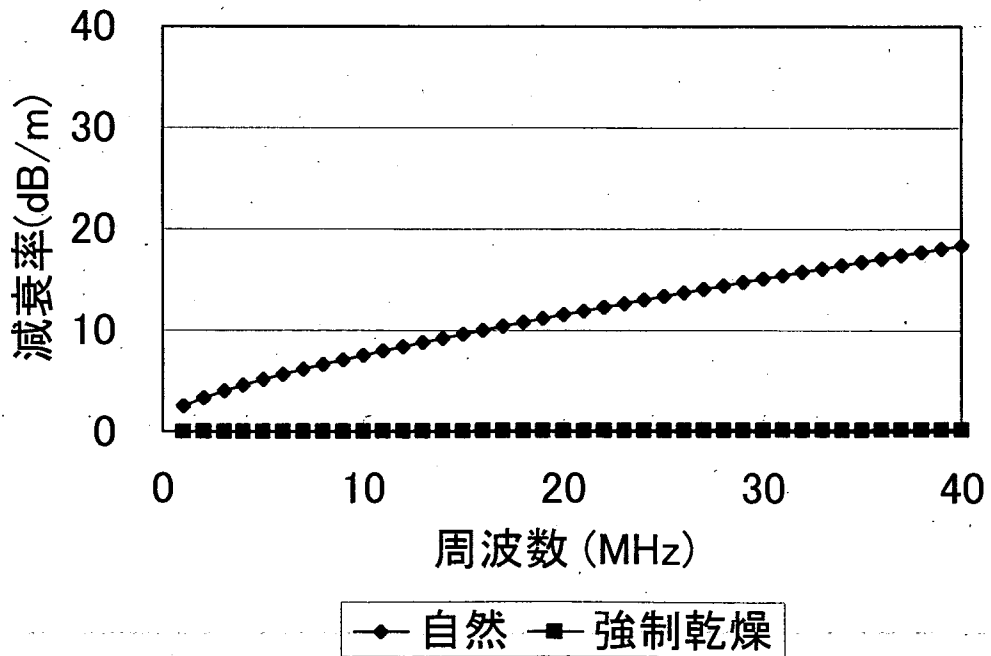
導電率
SI18-13



電磁波伝搬速度 SI18-13



減衰率 SI18-13



試料名 SI18-14-1 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.947

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	73.243	73.897	74.401	73.847	90.08
2.0	55.303	55.762	56.148	55.738	67.99
3.0	47.009	47.387	47.726	47.374	57.79
4.0	41.882	42.209	42.522	42.204	51.48
5.0	38.278	38.580	38.869	38.576	47.05
6.0	35.587	35.855	36.131	35.858	43.74
7.0	33.454	33.703	33.967	33.708	41.12
8.0	31.704	31.937	32.188	31.943	38.96
9.0	30.243	30.460	30.704	30.469	37.17
10.0	28.998	29.204	29.438	29.213	35.63
11.0	27.919	28.114	28.345	28.126	34.31
12.0	26.974	27.159	27.384	27.172	33.14
13.0	26.132	26.309	26.528	26.323	32.11
14.0	25.380	25.550	25.766	25.565	31.18
15.0	24.702	24.866	25.075	24.881	30.35
16.0	24.085	24.242	24.448	24.258	29.59
17.0	23.523	23.676	23.877	23.692	28.90
18.0	23.004	23.151	23.351	23.169	28.26
19.0	22.527	22.668	22.863	22.686	27.67
20.0	22.080	22.216	22.408	22.235	27.12
21.0	21.668	21.800	21.990	21.819	26.61
22.0	21.285	21.413	21.600	21.433	26.14
23.0	20.927	21.050	21.235	21.071	25.70
24.0	20.592	20.712	20.895	20.733	25.29
25.0	20.278	20.396	20.498	20.391	24.87
26.0	19.903	20.016	20.195	20.038	24.44
27.0	19.620	19.729	19.905	19.751	24.09
28.0	19.351	19.457	19.632	19.480	23.76
29.0	19.098	19.203	19.374	19.225	23.45
30.0	18.859	18.956	19.125	18.980	23.15
31.0	18.631	18.729	18.898	18.753	22.87
32.0	18.415	18.513	18.678	18.535	22.61
33.0	18.211	18.306	18.470	18.329	22.36
34.0	18.016	18.109	18.271	18.132	22.12
35.0	17.835	17.925	18.086	17.949	21.89
36.0	17.654	17.743	17.902	17.766	21.67
37.0	17.484	17.570	17.729	17.594	21.46
38.0	17.323	17.409	17.565	17.432	21.26
39.0	17.167	17.250	17.406	17.274	21.07
40.0	17.018	17.100	17.255	17.124	20.89

試料名 SI18-14-1 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.947

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.626	3.655	3.677	3.653	4.46
2.0	3.560	3.584	3.600	3.581	4.37
3.0	3.523	3.543	3.556	3.541	4.32
4.0	3.497	3.516	3.527	3.513	4.29
5.0	3.477	3.495	3.505	3.492	4.26
6.0	3.463	3.479	3.488	3.477	4.24
7.0	3.451	3.466	3.473	3.463	4.22
8.0	3.441	3.455	3.461	3.452	4.21
9.0	3.432	3.445	3.451	3.443	4.20
10.0	3.425	3.438	3.443	3.435	4.19
11.0	3.420	3.431	3.436	3.429	4.18
12.0	3.414	3.427	3.431	3.424	4.18
13.0	3.410	3.421	3.424	3.418	4.17
14.0	3.407	3.417	3.420	3.415	4.17
15.0	3.402	3.412	3.416	3.410	4.16
16.0	3.400	3.410	3.412	3.407	4.16
17.0	3.398	3.409	3.409	3.405	4.15
18.0	3.396	3.407	3.408	3.403	4.15
19.0	3.397	3.406	3.407	3.403	4.15
20.0	3.398	3.406	3.407	3.403	4.15
21.0	3.398	3.407	3.408	3.404	4.15
22.0	3.400	3.408	3.408	3.405	4.15
23.0	3.401	3.409	3.409	3.406	4.15
24.0	3.402	3.410	3.410	3.407	4.16
25.0	3.403	3.411	3.411	3.408	4.16
26.0	3.404	3.412	3.411	3.409	4.16
27.0	3.405	3.413	3.412	3.410	4.16
28.0	3.406	3.413	3.412	3.411	4.16
29.0	3.407	3.414	3.413	3.412	4.16
30.0	3.408	3.415	3.414	3.412	4.16
31.0	3.409	3.417	3.415	3.414	4.16
32.0	3.411	3.418	3.417	3.415	4.17
33.0	3.413	3.420	3.418	3.417	4.17
34.0	3.415	3.422	3.420	3.419	4.17
35.0	3.417	3.424	3.421	3.421	4.17
36.0	3.419	3.426	3.424	3.423	4.17
37.0	3.421	3.428	3.426	3.425	4.18
38.0	3.424	3.430	3.428	3.427	4.18
39.0	3.426	3.433	3.431	3.430	4.18
40.0	3.429	3.436	3.433	3.432	4.19

試料名 SI18-14-1 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.947

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.900	0.880	0.869	0.883	12.23	-1.912
2.0	0.780	0.765	0.755	0.767	14.08	-1.851
3.0	0.704	0.691	0.683	0.692	15.60	-1.807
4.0	0.648	0.636	0.629	0.638	16.93	-1.771
5.0	0.605	0.594	0.588	0.596	18.13	-1.742
6.0	0.570	0.560	0.554	0.561	19.24	-1.716
7.0	0.540	0.531	0.526	0.533	20.28	-1.693
8.0	0.515	0.507	0.502	0.508	21.26	-1.672
9.0	0.494	0.485	0.481	0.487	22.19	-1.654
10.0	0.474	0.467	0.463	0.468	23.08	-1.637
11.0	0.457	0.450	0.446	0.451	23.94	-1.621
12.0	0.442	0.435	0.431	0.436	24.76	-1.606
13.0	0.428	0.421	0.418	0.422	25.56	-1.592
14.0	0.415	0.409	0.406	0.410	26.34	-1.579
15.0	0.404	0.398	0.394	0.399	27.10	-1.567
16.0	0.393	0.387	0.384	0.388	27.83	-1.555
17.0	0.383	0.377	0.374	0.378	28.55	-1.544
18.0	0.374	0.368	0.365	0.369	29.25	-1.534
19.0	0.365	0.360	0.357	0.361	29.94	-1.524
20.0	0.357	0.352	0.349	0.353	30.61	-1.514
21.0	0.350	0.344	0.342	0.345	31.27	-1.505
22.0	0.343	0.337	0.335	0.338	31.92	-1.496
23.0	0.336	0.331	0.329	0.332	32.55	-1.487
24.0	0.330	0.325	0.323	0.326	33.17	-1.479
25.0	0.324	0.319	0.315	0.319	33.85	-1.470
26.0	0.316	0.311	0.309	0.312	34.61	-1.461
27.0	0.310	0.306	0.304	0.306	35.24	-1.453
28.0	0.305	0.300	0.299	0.301	35.85	-1.445
29.0	0.300	0.295	0.294	0.296	36.46	-1.438
30.0	0.295	0.290	0.289	0.291	37.07	-1.431
31.0	0.290	0.286	0.284	0.287	37.66	-1.424
32.0	0.286	0.281	0.280	0.282	38.25	-1.417
33.0	0.281	0.277	0.276	0.278	38.83	-1.411
34.0	0.277	0.273	0.272	0.274	39.41	-1.404
35.0	0.273	0.269	0.268	0.270	39.99	-1.398
36.0	0.269	0.265	0.264	0.266	40.55	-1.392
37.0	0.266	0.262	0.261	0.263	41.12	-1.386
38.0	0.262	0.258	0.257	0.259	41.67	-1.380
39.0	0.259	0.255	0.254	0.256	42.23	-1.374
40.0	0.255	0.251	0.251	0.253	42.77	-1.369

試料名 SI18-14-1 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.947

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	947.8800	880.5100	821.5700	883.320	0.01	-4.913
2.0	522.9700	485.6300	452.1300	486.910	0.02	-4.654
3.0	365.2100	338.8000	315.4500	339.820	0.03	-4.498
4.0	282.2000	262.0500	244.1000	262.783	0.04	-4.386
5.0	230.4500	215.3100	200.7300	215.497	0.05	-4.300
6.0	195.9000	182.0700	169.9400	182.637	0.06	-4.228
7.0	170.2300	158.3500	147.7700	158.783	0.07	-4.167
8.0	150.4000	140.1800	130.8800	140.487	0.08	-4.114
9.0	134.9300	125.7500	117.5500	126.077	0.09	-4.067
10.0	122.5700	114.1800	106.6600	114.470	0.09	-4.025
11.0	117.0000	108.8300	101.5000	109.110	0.10	-4.004
12.0	107.7700	100.4900	93.7860	100.682	0.11	-3.970
13.0	100.3300	93.3370	87.5840	93.750	0.12	-3.939
14.0	95.7960	87.5570	82.0500	88.468	0.12	-3.913
15.0	88.3110	82.6000	77.5040	82.805	0.13	-3.885
16.0	83.9100	78.0560	72.7990	78.255	0.14	-3.860
17.0	80.0820	74.8050	69.5740	74.820	0.14	-3.841
18.0	76.3570	71.2170	66.6420	71.405	0.15	-3.820
19.0	73.1580	68.2270	63.8050	68.397	0.16	-3.802
20.0	69.8680	65.3100	61.1860	65.455	0.16	-3.783
21.0	66.9540	62.5210	58.5140	62.663	0.17	-3.764
22.0	63.9800	59.8540	55.9740	59.936	0.18	-3.744
23.0	61.2030	56.9820	53.4880	57.224	0.19	-3.724
24.0	58.2870	54.4590	51.1400	54.629	0.20	-3.704
25.0	55.1960	52.1180	48.7210	52.012	0.21	-3.683
26.0	53.5560	50.1650	47.0870	50.269	0.21	-3.668
27.0	51.4100	48.2740	45.3500	48.345	0.22	-3.651
28.0	49.6200	46.5240	43.7310	46.625	0.23	-3.635
29.0	47.9820	44.9880	42.3140	45.095	0.24	-3.621
30.0	46.1650	43.3180	40.8230	43.435	0.25	-3.604
31.0	44.9350	42.2060	39.7770	42.306	0.26	-3.593
32.0	43.5660	40.9800	38.5540	41.033	0.26	-3.580
33.0	42.3640	39.7980	37.4950	39.886	0.27	-3.567
34.0	41.1730	38.6600	36.4360	38.756	0.28	-3.555
35.0	39.9560	37.5970	35.5960	37.716	0.29	-3.543
36.0	38.8310	36.5510	34.4200	36.601	0.30	-3.530
37.0	37.8890	35.5630	33.6120	35.688	0.30	-3.519
38.0	36.8340	34.7140	32.7170	34.755	0.31	-3.508
39.0	35.9610	33.8040	31.9200	33.895	0.32	-3.497
40.0	35.0630	33.1800	31.2760	33.173	0.33	-3.487

試料名
状態

SI18-14-1
自然

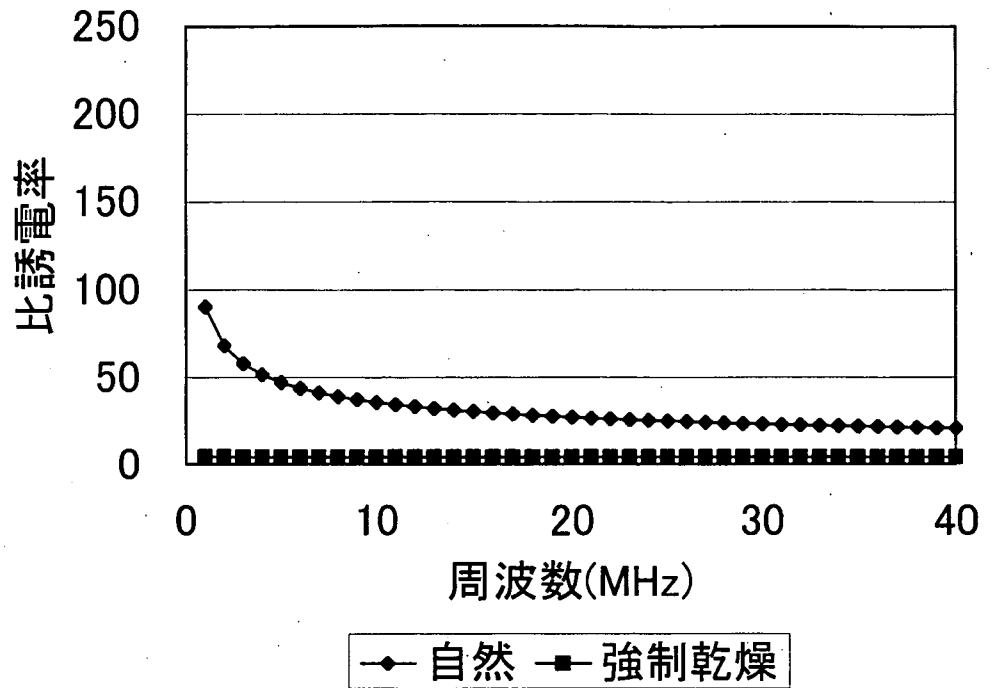
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	90.08	12.23	0.316	2.11
2.0	67.99	14.08	0.364	2.80
3.0	57.79	15.60	0.394	3.36
4.0	51.48	16.93	0.418	3.86
5.0	47.05	18.13	0.437	4.33
6.0	43.74	19.24	0.453	4.76
7.0	41.12	20.28	0.468	5.18
8.0	38.96	21.26	0.480	5.58
9.0	37.17	22.19	0.492	5.96
10.0	35.63	23.08	0.502	6.33
11.0	34.31	23.94	0.512	6.69
12.0	33.14	24.76	0.521	7.04
13.0	32.11	25.56	0.529	7.39
14.0	31.18	26.34	0.537	7.72
15.0	30.35	27.10	0.544	8.05
16.0	29.59	27.83	0.551	8.38
17.0	28.90	28.55	0.558	8.69
18.0	28.26	29.25	0.564	9.01
19.0	27.67	29.94	0.570	9.32
20.0	27.12	30.61	0.576	9.62
21.0	26.61	31.27	0.581	9.92
22.0	26.14	31.92	0.586	10.22
23.0	25.70	32.55	0.591	10.51
24.0	25.29	33.17	0.596	10.80
25.0	24.87	33.85	0.601	11.11
26.0	24.44	34.61	0.606	11.46
27.0	24.09	35.24	0.611	11.75
28.0	23.76	35.85	0.615	12.04
29.0	23.45	36.46	0.619	12.33
30.0	23.15	37.07	0.623	12.61
31.0	22.87	37.66	0.627	12.89
32.0	22.61	38.25	0.631	13.17
33.0	22.36	38.83	0.634	13.45
34.0	22.12	39.41	0.637	13.72
35.0	21.89	39.99	0.641	13.99
36.0	21.67	40.55	0.644	14.26
37.0	21.46	41.12	0.647	14.53
38.0	21.26	41.67	0.650	14.80
39.0	21.07	42.23	0.653	15.06
40.0	20.89	42.77	0.656	15.32

試料名
状態

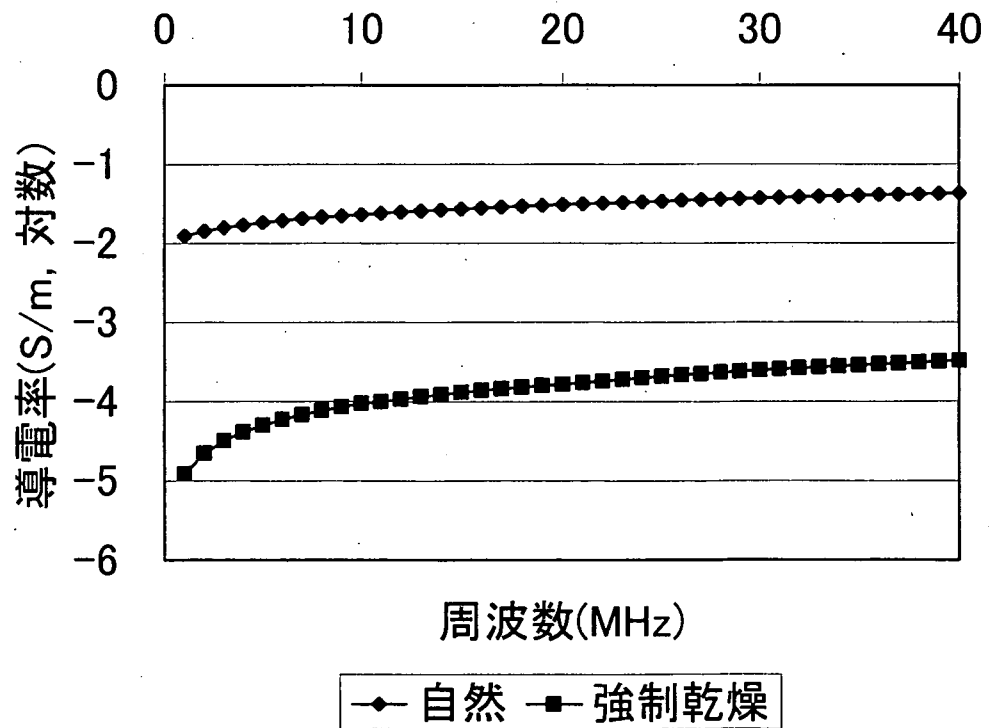
SI18-14-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	4.46	0.01	1.420	0.01
2.0	4.37	0.02	1.434	0.02
3.0	4.32	0.03	1.443	0.03
4.0	4.29	0.04	1.448	0.03
5.0	4.26	0.05	1.453	0.04
6.0	4.24	0.06	1.456	0.05
7.0	4.22	0.07	1.459	0.05
8.0	4.21	0.08	1.461	0.06
9.0	4.20	0.09	1.463	0.07
10.0	4.19	0.09	1.465	0.08
11.0	4.18	0.10	1.466	0.08
12.0	4.18	0.11	1.467	0.09
13.0	4.17	0.12	1.468	0.09
14.0	4.17	0.12	1.469	0.10
15.0	4.16	0.13	1.470	0.10
16.0	4.16	0.14	1.471	0.11
17.0	4.15	0.14	1.471	0.12
18.0	4.15	0.15	1.471	0.12
19.0	4.15	0.16	1.471	0.13
20.0	4.15	0.16	1.471	0.13
21.0	4.15	0.17	1.471	0.14
22.0	4.15	0.18	1.471	0.14
23.0	4.15	0.19	1.471	0.15
24.0	4.16	0.20	1.471	0.16
25.0	4.16	0.21	1.470	0.17
26.0	4.16	0.21	1.470	0.17
27.0	4.16	0.22	1.470	0.18
28.0	4.16	0.23	1.470	0.19
29.0	4.16	0.24	1.470	0.19
30.0	4.16	0.25	1.470	0.20
31.0	4.16	0.26	1.469	0.20
32.0	4.17	0.26	1.469	0.21
33.0	4.17	0.27	1.469	0.22
34.0	4.17	0.28	1.468	0.22
35.0	4.17	0.29	1.468	0.23
36.0	4.17	0.30	1.467	0.24
37.0	4.18	0.30	1.467	0.24
38.0	4.18	0.31	1.466	0.25
39.0	4.18	0.32	1.466	0.26
40.0	4.19	0.33	1.465	0.26

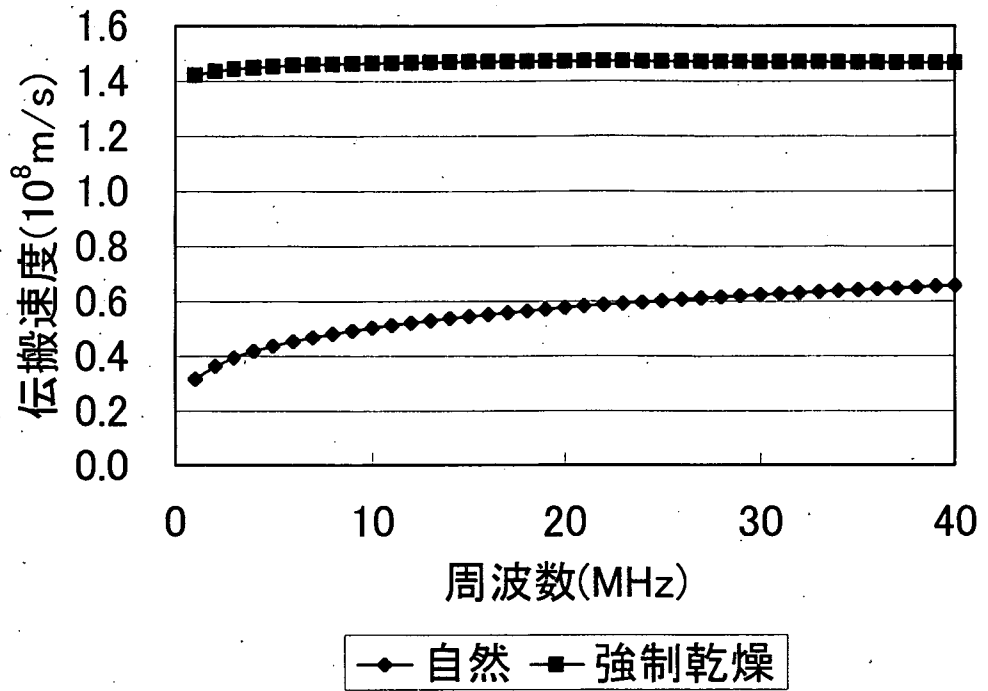
比誘電率
SI18-14-1



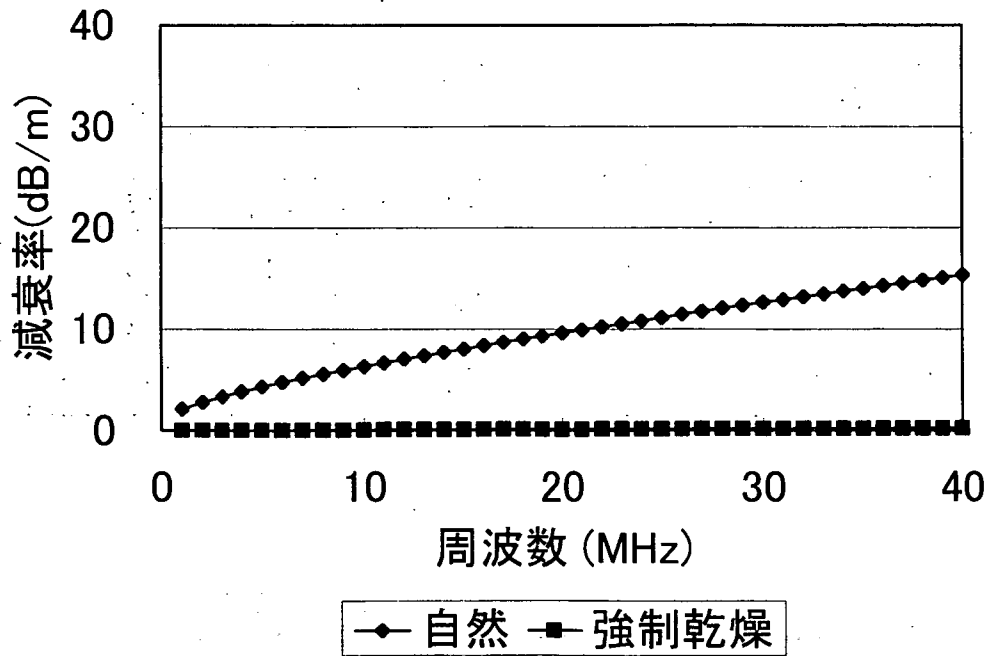
導電率
SI18-14-1



電磁波伝搬速度
SI18-14-1



減衰率
SI18-14-1



試料名 SI18-14-2 状態 自然

試料直径(mm) 24.12 試料厚(mm) 4.863

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	97.195	97.913	98.498	97.869	117.64
2.0	72.797	73.319	73.743	73.286	88.09
3.0	61.545	61.990	62.343	61.959	74.48
4.0	54.593	54.995	55.308	54.965	66.07
5.0	49.733	50.092	50.388	50.071	60.19
6.0	46.075	46.420	46.681	46.392	55.77
7.0	43.194	43.519	43.762	43.492	52.28
8.0	40.826	41.139	41.366	41.110	49.42
9.0	38.855	39.154	39.370	39.126	47.03
10.0	37.175	37.463	37.668	37.435	45.00
11.0	35.721	36.000	36.197	35.973	43.24
12.0	34.448	34.716	34.906	34.690	41.70
13.0	33.313	33.575	33.756	33.548	40.33
14.0	32.299	32.555	32.730	32.528	39.10
15.0	31.384	31.633	31.803	31.607	37.99
16.0	30.385	30.626	30.786	30.599	36.78
17.0	29.630	29.868	30.023	29.840	35.87
18.0	28.939	29.173	29.325	29.146	35.03
19.0	28.308	28.536	28.683	28.509	34.27
20.0	27.723	27.942	28.088	27.918	33.56
21.0	27.175	27.393	27.535	27.368	32.90
22.0	26.664	26.881	27.018	26.854	32.28
23.0	26.185	26.396	26.529	26.370	31.70
24.0	25.732	25.940	26.071	25.914	31.15
25.0	25.304	25.507	25.637	25.483	30.63
26.0	24.900	25.103	25.229	25.077	30.14
27.0	24.519	24.718	24.841	24.693	29.68
28.0	24.159	24.355	24.477	24.330	29.25
29.0	23.818	24.013	24.131	23.987	28.83
30.0	23.498	23.689	23.800	23.662	28.44
31.0	23.190	23.381	23.495	23.355	28.07
32.0	22.900	23.090	23.201	23.064	27.72
33.0	22.625	22.812	22.923	22.787	27.39
34.0	22.365	22.548	22.657	22.523	27.07
35.0	22.119	22.302	22.409	22.277	26.78
36.0	21.875	22.056	22.162	22.031	26.48
37.0	21.648	21.826	21.930	21.801	26.21
38.0	21.430	21.608	21.710	21.583	25.94
39.0	21.220	21.396	21.497	21.371	25.69
40.0	21.018	21.196	21.293	21.169	25.45

試料名 SI18-14-2 状態 強制乾燥

試料直径(mm) 24.12 試料厚(mm) 4.863

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.689	3.744	3.778	3.737	4.49
2.0	3.616	3.664	3.693	3.658	4.40
3.0	3.575	3.619	3.646	3.613	4.34
4.0	3.548	3.589	3.614	3.583	4.31
5.0	3.527	3.566	3.590	3.561	4.28
6.0	3.511	3.549	3.571	3.544	4.26
7.0	3.498	3.534	3.556	3.529	4.24
8.0	3.487	3.522	3.543	3.517	4.23
9.0	3.478	3.511	3.532	3.507	4.22
10.0	3.470	3.503	3.523	3.498	4.21
11.0	3.464	3.496	3.516	3.492	4.20
12.0	3.459	3.491	3.509	3.486	4.19
13.0	3.454	3.484	3.502	3.480	4.18
14.0	3.450	3.480	3.497	3.476	4.18
15.0	3.446	3.475	3.493	3.471	4.17
16.0	3.442	3.471	3.489	3.468	4.17
17.0	3.439	3.468	3.486	3.464	4.16
18.0	3.439	3.466	3.484	3.463	4.16
19.0	3.439	3.466	3.483	3.463	4.16
20.0	3.439	3.465	3.483	3.462	4.16
21.0	3.440	3.466	3.483	3.463	4.16
22.0	3.441	3.467	3.484	3.464	4.16
23.0	3.442	3.468	3.484	3.464	4.16
24.0	3.443	3.469	3.484	3.465	4.17
25.0	3.444	3.469	3.485	3.466	4.17
26.0	3.445	3.469	3.485	3.467	4.17
27.0	3.445	3.470	3.486	3.467	4.17
28.0	3.446	3.471	3.486	3.468	4.17
29.0	3.448	3.472	3.487	3.469	4.17
30.0	3.448	3.473	3.487	3.469	4.17
31.0	3.450	3.473	3.489	3.471	4.17
32.0	3.451	3.474	3.490	3.472	4.17
33.0	3.453	3.476	3.491	3.473	4.18
34.0	3.455	3.477	3.493	3.475	4.18
35.0	3.457	3.479	3.495	3.477	4.18
36.0	3.459	3.481	3.496	3.479	4.18
37.0	3.462	3.484	3.498	3.481	4.18
38.0	3.464	3.486	3.501	3.483	4.19
39.0	3.467	3.488	3.503	3.486	4.19
40.0	3.469	3.491	3.505	3.488	4.19

試料名 SI18-14-2 状態 自然

試料直径(mm) 24.12 試料厚(mm) 4.863

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.636	0.625	0.617	0.626	17.00	-1.770
2.0	0.555	0.546	0.539	0.547	19.46	-1.711
3.0	0.502	0.495	0.489	0.496	21.48	-1.668
4.0	0.464	0.457	0.452	0.458	23.24	-1.634
5.0	0.434	0.428	0.423	0.428	24.84	-1.605
6.0	0.410	0.404	0.400	0.405	26.31	-1.580
7.0	0.389	0.384	0.380	0.384	27.68	-1.558
8.0	0.372	0.367	0.363	0.367	28.98	-1.538
9.0	0.356	0.352	0.348	0.352	30.21	-1.520
10.0	0.343	0.339	0.335	0.339	31.39	-1.503
11.0	0.331	0.327	0.324	0.327	32.52	-1.488
12.0	0.320	0.316	0.313	0.317	33.61	-1.474
13.0	0.310	0.307	0.304	0.307	34.67	-1.460
14.0	0.302	0.298	0.295	0.298	35.69	-1.447
15.0	0.293	0.290	0.287	0.290	36.69	-1.435
16.0	0.285	0.282	0.279	0.282	37.72	-1.423
17.0	0.278	0.275	0.272	0.275	38.66	-1.413
18.0	0.272	0.269	0.266	0.269	39.59	-1.402
19.0	0.266	0.263	0.260	0.263	40.50	-1.393
20.0	0.260	0.257	0.254	0.257	41.40	-1.383
21.0	0.254	0.252	0.249	0.252	42.28	-1.374
22.0	0.249	0.247	0.244	0.247	43.15	-1.365
23.0	0.244	0.242	0.239	0.242	44.02	-1.356
24.0	0.240	0.237	0.235	0.237	44.87	-1.348
25.0	0.235	0.233	0.230	0.233	45.71	-1.340
26.0	0.231	0.229	0.226	0.229	46.53	-1.332
27.0	0.227	0.225	0.223	0.225	47.34	-1.325
28.0	0.223	0.221	0.219	0.221	48.15	-1.317
29.0	0.220	0.217	0.215	0.217	48.94	-1.310
30.0	0.216	0.214	0.212	0.214	49.73	-1.303
31.0	0.213	0.211	0.209	0.211	50.50	-1.297
32.0	0.210	0.208	0.205	0.208	51.27	-1.290
33.0	0.207	0.205	0.202	0.205	52.03	-1.284
34.0	0.204	0.202	0.200	0.202	52.79	-1.277
35.0	0.201	0.199	0.197	0.199	53.53	-1.271
36.0	0.198	0.196	0.194	0.196	54.28	-1.265
37.0	0.195	0.194	0.192	0.193	55.01	-1.260
38.0	0.193	0.191	0.189	0.191	55.74	-1.254
39.0	0.190	0.189	0.187	0.189	56.46	-1.248
40.0	0.188	0.186	0.184	0.186	57.17	-1.243

試料名 SI18-14-2 状態 強制乾燥

試料直径(mm) 24.12 試料厚(mm) 4.863

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	865.8500	793.5600	750.8300	803.413	0.01	-4.878
2.0	479.6300	438.6200	414.5800	444.277	0.02	-4.621
3.0	336.0700	307.2000	290.4500	311.240	0.03	-4.466
4.0	260.6200	238.1900	225.2800	241.363	0.04	-4.356
5.0	213.2300	194.7500	184.2200	197.400	0.05	-4.268
6.0	181.3200	165.9100	156.9700	168.067	0.06	-4.198
7.0	157.7300	144.3800	136.6300	146.247	0.07	-4.138
8.0	139.5700	127.8900	121.0900	129.517	0.08	-4.085
9.0	125.3000	114.9000	108.8800	116.360	0.09	-4.039
10.0	113.6600	104.3700	98.9610	105.664	0.10	-3.997
11.0	108.6100	99.0430	93.7080	100.454	0.11	-3.975
12.0	100.1100	91.9160	86.3840	92.803	0.11	-3.941
13.0	92.8690	84.9250	80.6320	86.142	0.12	-3.908
14.0	87.9310	80.7590	75.6230	81.438	0.13	-3.884
15.0	82.0600	74.6850	71.1380	75.961	0.14	-3.854
16.0	77.2880	71.1200	67.2330	71.880	0.15	-3.830
17.0	73.8960	67.7680	64.4910	68.718	0.15	-3.810
18.0	70.6390	64.8640	61.4810	65.661	0.16	-3.790
19.0	67.8300	62.0350	58.9460	62.937	0.17	-3.772
20.0	64.9330	59.3720	56.3420	60.216	0.18	-3.753
21.0	62.0150	56.8510	54.0930	57.653	0.18	-3.734
22.0	59.3260	54.3810	51.7160	55.141	0.19	-3.714
23.0	56.5500	51.8740	49.4650	52.630	0.20	-3.694
24.0	54.0770	49.7270	47.3690	50.391	0.21	-3.675
25.0	51.5060	47.7120	45.3400	48.186	0.22	-3.656
26.0	49.7030	45.7240	43.6870	46.371	0.23	-3.639
27.0	47.7160	43.9780	41.9880	44.561	0.24	-3.622
28.0	46.0700	42.4700	40.5360	43.025	0.25	-3.607
29.0	44.5180	41.0730	39.2620	41.618	0.26	-3.592
30.0	43.1340	39.6330	38.2020	40.323	0.26	-3.578
31.0	41.6720	38.5350	36.8830	39.030	0.27	-3.564
32.0	40.4470	37.4340	35.7670	37.883	0.28	-3.551
33.0	39.2200	36.3280	34.7920	36.780	0.29	-3.539
34.0	38.1670	35.2930	33.8430	35.768	0.30	-3.526
35.0	37.1220	34.2520	32.8570	34.744	0.31	-3.514
36.0	36.0780	33.4000	31.9860	33.821	0.31	-3.502
37.0	35.0980	32.4990	31.1730	32.923	0.32	-3.490
38.0	34.1740	31.6240	30.4350	32.078	0.33	-3.479
39.0	33.3170	30.8730	29.6530	31.281	0.34	-3.468
40.0	32.6800	30.1100	28.9050	30.565	0.35	-3.458

試料名
状態

SI18-14-2
自然

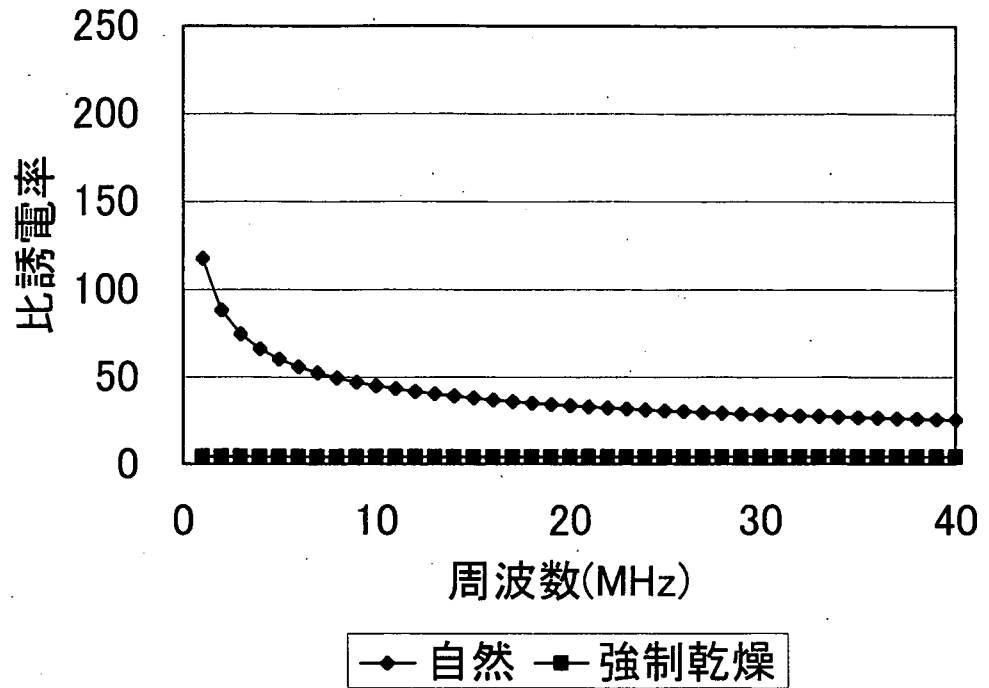
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	117.64	17.00	0.276	2.57
2.0	88.09	19.46	0.319	3.40
3.0	74.48	21.48	0.347	4.07
4.0	66.07	23.24	0.369	4.68
5.0	60.19	24.84	0.386	5.24
6.0	55.77	26.31	0.401	5.77
7.0	52.28	27.68	0.415	6.27
8.0	49.42	28.98	0.426	6.75
9.0	47.03	30.21	0.437	7.21
10.0	45.00	31.39	0.447	7.66
11.0	43.24	32.52	0.456	8.10
12.0	41.70	33.61	0.464	8.52
13.0	40.33	34.67	0.472	8.94
14.0	39.10	35.69	0.479	9.35
15.0	37.99	36.69	0.486	9.75
16.0	36.78	37.72	0.494	10.18
17.0	35.87	38.66	0.501	10.57
18.0	35.03	39.59	0.507	10.95
19.0	34.27	40.50	0.512	11.33
20.0	33.56	41.40	0.518	11.70
21.0	32.90	42.28	0.523	12.07
22.0	32.28	43.15	0.528	12.44
23.0	31.70	44.02	0.532	12.80
24.0	31.15	44.87	0.537	13.16
25.0	30.63	45.71	0.542	13.52
26.0	30.14	46.53	0.546	13.88
27.0	29.68	47.34	0.550	14.23
28.0	29.25	48.15	0.554	14.58
29.0	28.83	48.94	0.558	14.92
30.0	28.44	49.73	0.562	15.27
31.0	28.07	50.50	0.566	15.61
32.0	27.72	51.27	0.569	15.94
33.0	27.39	52.03	0.573	16.28
34.0	27.07	52.79	0.576	16.61
35.0	26.78	53.53	0.579	16.94
36.0	26.48	54.28	0.583	17.27
37.0	26.21	55.01	0.586	17.59
38.0	25.94	55.74	0.589	17.92
39.0	25.69	56.46	0.592	18.24
40.0	25.45	57.17	0.594	18.55

試料名
状態

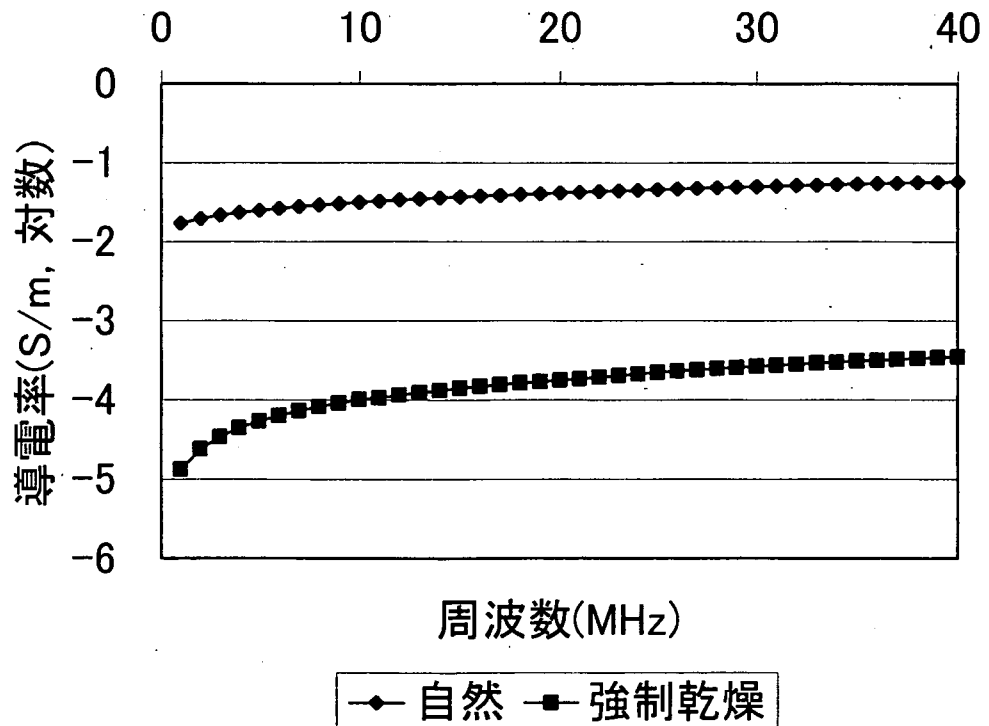
SI18-14-2
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.49	0.01	1.415	0.01
2.0	4.40	0.02	1.430	0.02
3.0	4.34	0.03	1.439	0.03
4.0	4.31	0.04	1.445	0.03
5.0	4.28	0.05	1.449	0.04
6.0	4.26	0.06	1.453	0.05
7.0	4.24	0.07	1.456	0.06
8.0	4.23	0.08	1.458	0.07
9.0	4.22	0.09	1.460	0.07
10.0	4.21	0.10	1.462	0.08
11.0	4.20	0.11	1.463	0.08
12.0	4.19	0.11	1.465	0.09
13.0	4.18	0.12	1.466	0.10
14.0	4.18	0.13	1.467	0.10
15.0	4.17	0.14	1.468	0.11
16.0	4.17	0.15	1.468	0.12
17.0	4.16	0.15	1.469	0.12
18.0	4.16	0.16	1.469	0.13
19.0	4.16	0.17	1.469	0.14
20.0	4.16	0.18	1.470	0.14
21.0	4.16	0.18	1.469	0.15
22.0	4.16	0.19	1.469	0.15
23.0	4.16	0.20	1.469	0.16
24.0	4.17	0.21	1.469	0.17
25.0	4.17	0.22	1.469	0.18
26.0	4.17	0.23	1.469	0.18
27.0	4.17	0.24	1.469	0.19
28.0	4.17	0.25	1.468	0.20
29.0	4.17	0.26	1.468	0.21
30.0	4.17	0.26	1.468	0.21
31.0	4.17	0.27	1.468	0.22
32.0	4.17	0.28	1.468	0.23
33.0	4.18	0.29	1.467	0.23
34.0	4.18	0.30	1.467	0.24
35.0	4.18	0.31	1.466	0.25
36.0	4.18	0.31	1.466	0.25
37.0	4.18	0.32	1.466	0.26
38.0	4.19	0.33	1.465	0.27
39.0	4.19	0.34	1.465	0.27
40.0	4.19	0.35	1.464	0.28

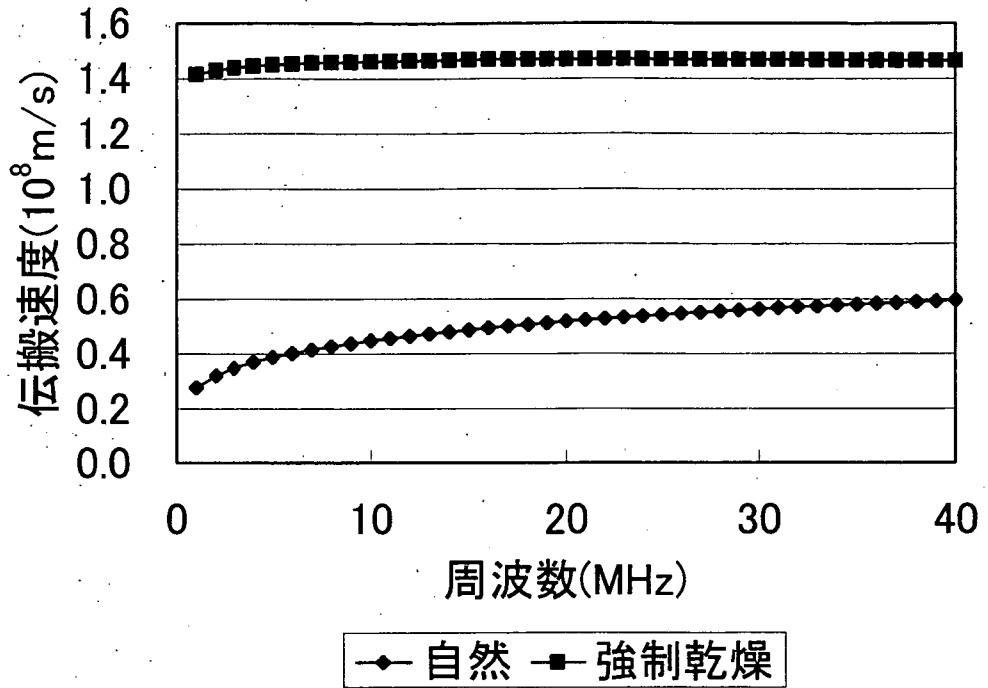
比誘電率
SI18-14-2



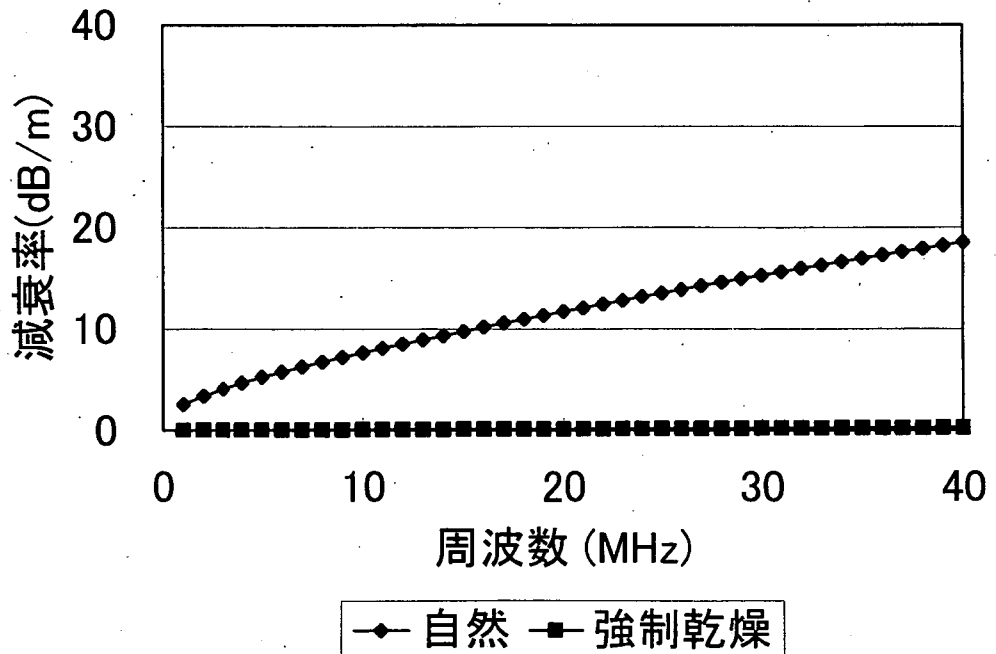
導電率
SI18-14-2



電磁波伝搬速度 SI18-14-2



減衰率 SI18-14-2



試料名 SI18-15 状態 自然

試料直径(mm) 24.07 試料厚(mm) 4.921

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	87.921	88.570	89.058	88.516	108.12
2.0	66.167	66.644	66.990	66.600	81.35
3.0	56.057	56.458	56.747	56.421	68.91
4.0	49.797	50.151	50.406	50.118	61.22
5.0	45.413	45.736	45.954	45.701	55.82
6.0	42.108	42.407	42.616	42.377	51.76
7.0	39.505	39.786	39.978	39.756	48.56
8.0	37.366	37.631	37.814	37.604	45.93
9.0	35.585	35.835	36.007	35.809	43.74
10.0	34.067	34.307	34.468	34.281	41.87
11.0	32.752	32.981	33.135	32.956	40.25
12.0	31.598	31.818	31.967	31.794	38.83
13.0	30.573	30.786	30.927	30.762	37.57
14.0	29.658	29.864	29.999	29.840	36.45
15.0	28.829	29.030	29.160	29.006	35.43
16.0	28.077	28.270	28.395	28.247	34.50
17.0	27.392	27.579	27.700	27.557	33.66
18.0	26.759	26.942	27.060	26.920	32.88
19.0	26.174	26.232	26.344	26.250	32.06
20.0	25.527	25.697	25.808	25.677	31.36
21.0	25.032	25.201	25.307	25.180	30.76
22.0	24.571	24.736	24.840	24.716	30.19
23.0	24.136	24.297	24.398	24.277	29.65
24.0	23.727	23.886	23.983	23.865	29.15
25.0	23.342	23.497	23.590	23.476	28.67
26.0	22.975	23.127	23.220	23.107	28.22
27.0	22.630	22.780	22.870	22.760	27.80
28.0	22.304	22.451	22.538	22.431	27.40
29.0	21.996	22.141	22.227	22.121	27.02
30.0	21.703	21.843	21.925	21.824	26.66
31.0	21.427	21.567	21.651	21.548	26.32
32.0	21.165	21.304	21.386	21.285	26.00
33.0	20.916	21.053	21.133	21.034	25.69
34.0	20.680	20.814	20.893	20.796	25.40
35.0	20.454	20.587	20.668	20.570	25.12
36.0	20.238	20.369	20.446	20.351	24.86
37.0	20.032	20.161	20.237	20.143	24.60
38.0	19.836	19.963	20.038	19.946	24.36
39.0	19.646	19.772	19.846	19.755	24.13
40.0	19.462	19.590	19.660	19.571	23.90

試料名 SI18-15 状態 強制乾燥

試料直径(mm) 24.07 試料厚(mm) 4.921

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.626	3.719	3.756	3.700	4.52
2.0	3.549	3.635	3.667	3.617	4.42
3.0	3.506	3.589	3.618	3.571	4.36
4.0	3.477	3.558	3.585	3.540	4.32
5.0	3.455	3.534	3.559	3.516	4.29
6.0	3.439	3.515	3.540	3.498	4.27
7.0	3.426	3.500	3.524	3.483	4.25
8.0	3.414	3.488	3.511	3.471	4.24
9.0	3.404	3.477	3.500	3.460	4.23
10.0	3.396	3.468	3.490	3.451	4.22
11.0	3.390	3.461	3.483	3.445	4.21
12.0	3.383	3.454	3.475	3.437	4.20
13.0	3.378	3.448	3.469	3.432	4.19
14.0	3.374	3.443	3.464	3.427	4.19
15.0	3.370	3.439	3.459	3.423	4.18
16.0	3.367	3.435	3.455	3.419	4.18
17.0	3.365	3.431	3.451	3.416	4.17
18.0	3.364	3.431	3.449	3.415	4.17
19.0	3.363	3.429	3.448	3.414	4.17
20.0	3.363	3.429	3.448	3.413	4.17
21.0	3.364	3.430	3.448	3.414	4.17
22.0	3.365	3.430	3.448	3.414	4.17
23.0	3.365	3.431	3.448	3.415	4.17
24.0	3.367	3.431	3.449	3.416	4.17
25.0	3.368	3.432	3.449	3.416	4.17
26.0	3.368	3.432	3.449	3.416	4.17
27.0	3.369	3.433	3.450	3.417	4.17
28.0	3.370	3.433	3.450	3.418	4.17
29.0	3.370	3.434	3.450	3.418	4.18
30.0	3.372	3.435	3.451	3.419	4.18
31.0	3.373	3.436	3.452	3.420	4.18
32.0	3.374	3.437	3.453	3.421	4.18
33.0	3.376	3.438	3.454	3.423	4.18
34.0	3.378	3.440	3.455	3.424	4.18
35.0	3.379	3.442	3.457	3.426	4.18
36.0	3.382	3.443	3.459	3.428	4.19
37.0	3.384	3.445	3.461	3.430	4.19
38.0	3.386	3.448	3.463	3.432	4.19
39.0	3.389	3.450	3.465	3.435	4.20
40.0	3.392	3.452	3.467	3.437	4.20

試料名 SI18-15 状態 自然

試料直径(mm) 24.07 試料厚(mm) 4.921

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.731	0.719	0.710	0.720	15.02	-1.823
2.0	0.635	0.625	0.617	0.626	17.28	-1.762
3.0	0.573	0.565	0.558	0.565	19.14	-1.718
4.0	0.528	0.521	0.515	0.521	20.76	-1.683
5.0	0.493	0.486	0.481	0.487	22.22	-1.653
6.0	0.464	0.458	0.453	0.459	23.58	-1.628
7.0	0.441	0.435	0.431	0.435	24.84	-1.605
8.0	0.420	0.415	0.411	0.415	26.03	-1.585
9.0	0.403	0.398	0.394	0.398	27.16	-1.566
10.0	0.387	0.383	0.379	0.383	28.24	-1.549
11.0	0.373	0.369	0.365	0.369	29.28	-1.533
12.0	0.361	0.357	0.353	0.357	30.28	-1.519
13.0	0.350	0.346	0.342	0.346	31.25	-1.505
14.0	0.340	0.336	0.333	0.336	32.20	-1.492
15.0	0.330	0.326	0.323	0.327	33.11	-1.480
16.0	0.321	0.318	0.315	0.318	34.00	-1.469
17.0	0.313	0.310	0.307	0.310	34.87	-1.458
18.0	0.306	0.303	0.300	0.303	35.72	-1.447
19.0	0.299	0.295	0.293	0.296	36.59	-1.437
20.0	0.292	0.289	0.286	0.289	37.44	-1.427
21.0	0.286	0.283	0.280	0.283	38.25	-1.417
22.0	0.280	0.277	0.274	0.277	39.05	-1.408
23.0	0.274	0.271	0.269	0.271	39.85	-1.400
24.0	0.269	0.266	0.264	0.266	40.63	-1.391
25.0	0.264	0.261	0.259	0.261	41.40	-1.383
26.0	0.259	0.256	0.254	0.257	42.16	-1.375
27.0	0.255	0.252	0.250	0.252	42.91	-1.367
28.0	0.250	0.248	0.246	0.248	43.65	-1.360
29.0	0.246	0.244	0.242	0.244	44.38	-1.353
30.0	0.242	0.240	0.238	0.240	45.10	-1.346
31.0	0.238	0.236	0.234	0.236	45.81	-1.339
32.0	0.235	0.232	0.230	0.232	46.52	-1.332
33.0	0.231	0.229	0.227	0.229	47.22	-1.326
34.0	0.228	0.226	0.224	0.226	47.91	-1.320
35.0	0.225	0.222	0.221	0.223	48.60	-1.313
36.0	0.222	0.219	0.218	0.219	49.28	-1.307
37.0	0.219	0.216	0.215	0.217	49.95	-1.301
38.0	0.216	0.214	0.212	0.214	50.62	-1.296
39.0	0.213	0.211	0.209	0.211	51.28	-1.290
40.0	0.210	0.208	0.206	0.208	51.93	-1.285

試料名 SI18-15 状態 強制乾燥

試料直径(mm) 24.07 試料厚(mm) 4.921

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	822.8500	759.6200	720.6500	767.707	0.01	-4.851
2.0	456.6800	420.5200	398.2100	425.137	0.03	-4.595
3.0	320.4100	294.8600	279.3900	298.220	0.04	-4.441
4.0	249.3100	229.1100	217.0900	231.837	0.05	-4.331
5.0	204.6700	187.9100	178.1000	190.227	0.06	-4.245
6.0	174.0500	160.0100	151.6300	161.897	0.07	-4.175
7.0	151.5600	139.4700	132.1300	141.053	0.08	-4.115
8.0	134.2900	123.7200	117.1800	125.063	0.09	-4.063
9.0	120.6300	111.2300	105.4000	112.420	0.10	-4.017
10.0	109.5700	101.1100	95.7350	102.138	0.11	-3.975
11.0	104.5600	95.9940	91.2010	97.252	0.11	-3.954
12.0	96.1620	88.8170	84.3210	89.767	0.12	-3.919
13.0	89.0920	82.1740	77.6640	82.977	0.13	-3.885
14.0	83.0650	76.4910	73.3650	77.640	0.14	-3.856
15.0	79.1240	73.3560	69.3390	73.940	0.15	-3.835
16.0	75.5130	69.2440	65.5480	70.102	0.15	-3.812
17.0	72.1420	66.1540	62.8290	67.042	0.16	-3.792
18.0	68.4490	63.0970	59.7610	63.769	0.17	-3.771
19.0	65.6660	60.4710	57.2510	61.129	0.18	-3.752
20.0	62.6380	57.7810	54.8600	58.426	0.19	-3.733
21.0	60.1020	55.5030	52.4540	56.020	0.19	-3.714
22.0	57.5260	52.9850	50.2520	53.588	0.20	-3.695
23.0	55.0830	50.7540	48.0640	51.300	0.21	-3.676
24.0	52.5570	48.5910	46.0040	49.051	0.22	-3.657
25.0	50.3770	46.3830	44.2310	46.997	0.23	-3.638
26.0	48.3770	44.6870	42.4310	45.165	0.24	-3.621
27.0	46.4990	43.0770	40.8530	43.476	0.25	-3.604
28.0	44.9130	41.5890	39.4360	41.979	0.26	-3.589
29.0	43.4580	40.1860	38.1460	40.597	0.27	-3.574
30.0	42.0800	38.8360	36.6920	39.203	0.28	-3.559
31.0	40.7800	37.8020	35.8840	38.155	0.28	-3.548
32.0	39.6030	36.6590	34.8850	37.049	0.29	-3.535
33.0	38.4920	35.6660	33.9070	36.022	0.30	-3.523
34.0	37.3850	34.7040	32.9620	35.017	0.31	-3.510
35.0	36.5980	33.5800	32.1970	34.125	0.32	-3.499
36.0	35.4260	32.8280	31.2300	33.161	0.33	-3.487
37.0	34.3950	31.9710	30.3790	32.248	0.34	-3.474
38.0	33.6200	31.2070	29.6540	31.494	0.34	-3.464
39.0	32.7680	30.3920	28.9490	30.703	0.35	-3.453
40.0	31.9470	29.6220	28.3520	29.974	0.36	-3.443

試料名 SI18-15 状態 自然

試料直径(mm) 24.07 試料厚(mm) 4.921

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.731	0.719	0.710	0.720	15.02	-1.823
2.0	0.635	0.625	0.617	0.626	17.28	-1.762
3.0	0.573	0.565	0.558	0.565	19.14	-1.718
4.0	0.528	0.521	0.515	0.521	20.76	-1.683
5.0	0.493	0.486	0.481	0.487	22.22	-1.653
6.0	0.464	0.458	0.453	0.459	23.58	-1.628
7.0	0.441	0.435	0.431	0.435	24.84	-1.605
8.0	0.420	0.415	0.411	0.415	26.03	-1.585
9.0	0.403	0.398	0.394	0.398	27.16	-1.566
10.0	0.387	0.383	0.379	0.383	28.24	-1.549
11.0	0.373	0.369	0.365	0.369	29.28	-1.533
12.0	0.361	0.357	0.353	0.357	30.28	-1.519
13.0	0.350	0.346	0.342	0.346	31.25	-1.505
14.0	0.340	0.336	0.333	0.336	32.20	-1.492
15.0	0.330	0.326	0.323	0.327	33.11	-1.480
16.0	0.321	0.318	0.315	0.318	34.00	-1.469
17.0	0.313	0.310	0.307	0.310	34.87	-1.458
18.0	0.306	0.303	0.300	0.303	35.72	-1.447
19.0	0.299	0.295	0.293	0.296	36.59	-1.437
20.0	0.292	0.289	0.286	0.289	37.44	-1.427
21.0	0.286	0.283	0.280	0.283	38.25	-1.417
22.0	0.280	0.277	0.274	0.277	39.05	-1.408
23.0	0.274	0.271	0.269	0.271	39.85	-1.400
24.0	0.269	0.266	0.264	0.266	40.63	-1.391
25.0	0.264	0.261	0.259	0.261	41.40	-1.383
26.0	0.259	0.256	0.254	0.257	42.16	-1.375
27.0	0.255	0.252	0.250	0.252	42.91	-1.367
28.0	0.250	0.248	0.246	0.248	43.65	-1.360
29.0	0.246	0.244	0.242	0.244	44.38	-1.353
30.0	0.242	0.240	0.238	0.240	45.10	-1.346
31.0	0.238	0.236	0.234	0.236	45.81	-1.339
32.0	0.235	0.232	0.230	0.232	46.52	-1.332
33.0	0.231	0.229	0.227	0.229	47.22	-1.326
34.0	0.228	0.226	0.224	0.226	47.91	-1.320
35.0	0.225	0.222	0.221	0.223	48.60	-1.313
36.0	0.222	0.219	0.218	0.219	49.28	-1.307
37.0	0.219	0.216	0.215	0.217	49.95	-1.301
38.0	0.216	0.214	0.212	0.214	50.62	-1.296
39.0	0.213	0.211	0.209	0.211	51.28	-1.290
40.0	0.210	0.208	0.206	0.208	51.93	-1.285

試料名 SI18-15 状態 強制乾燥

試料直径(mm) 24.07 試料厚(mm) 4.921

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	822.8500	759.6200	720.6500	767.707	0.01	-4.851
2.0	456.6800	420.5200	398.2100	425.137	0.03	-4.595
3.0	320.4100	294.8600	279.3900	298.220	0.04	-4.441
4.0	249.3100	229.1100	217.0900	231.837	0.05	-4.331
5.0	204.6700	187.9100	178.1000	190.227	0.06	-4.245
6.0	174.0500	160.0100	151.6300	161.897	0.07	-4.175
7.0	151.5600	139.4700	132.1300	141.053	0.08	-4.115
8.0	134.2900	123.7200	117.1800	125.063	0.09	-4.063
9.0	120.6300	111.2300	105.4000	112.420	0.10	-4.017
10.0	109.5700	101.1100	95.7350	102.138	0.11	-3.975
11.0	104.5600	95.9940	91.2010	97.252	0.11	-3.954
12.0	96.1620	88.8170	84.3210	89.767	0.12	-3.919
13.0	89.0920	82.1740	77.6640	82.977	0.13	-3.885
14.0	83.0650	76.4910	73.3650	77.640	0.14	-3.856
15.0	79.1240	73.3560	69.3390	73.940	0.15	-3.835
16.0	75.5130	69.2440	65.5480	70.102	0.15	-3.812
17.0	72.1420	66.1540	62.8290	67.042	0.16	-3.792
18.0	68.4490	63.0970	59.7610	63.769	0.17	-3.771
19.0	65.6660	60.4710	57.2510	61.129	0.18	-3.752
20.0	62.6380	57.7810	54.8600	58.426	0.19	-3.733
21.0	60.1020	55.5030	52.4540	56.020	0.19	-3.714
22.0	57.5260	52.9850	50.2520	53.588	0.20	-3.695
23.0	55.0830	50.7540	48.0640	51.300	0.21	-3.676
24.0	52.5570	48.5910	46.0040	49.051	0.22	-3.657
25.0	50.3770	46.3830	44.2310	46.997	0.23	-3.638
26.0	48.3770	44.6870	42.4310	45.165	0.24	-3.621
27.0	46.4990	43.0770	40.8530	43.476	0.25	-3.604
28.0	44.9130	41.5890	39.4360	41.979	0.26	-3.589
29.0	43.4580	40.1860	38.1460	40.597	0.27	-3.574
30.0	42.0800	38.8360	36.6920	39.203	0.28	-3.559
31.0	40.7800	37.8020	35.8840	38.155	0.28	-3.548
32.0	39.6030	36.6590	34.8850	37.049	0.29	-3.535
33.0	38.4920	35.6660	33.9070	36.022	0.30	-3.523
34.0	37.3850	34.7040	32.9620	35.017	0.31	-3.510
35.0	36.5980	33.5800	32.1970	34.125	0.32	-3.499
36.0	35.4260	32.8280	31.2300	33.161	0.33	-3.487
37.0	34.3950	31.9710	30.3790	32.248	0.34	-3.474
38.0	33.6200	31.2070	29.6540	31.494	0.34	-3.464
39.0	32.7680	30.3920	28.9490	30.703	0.35	-3.453
40.0	31.9470	29.6220	28.3520	29.974	0.36	-3.443

試料名
状態

SI18-15
自然

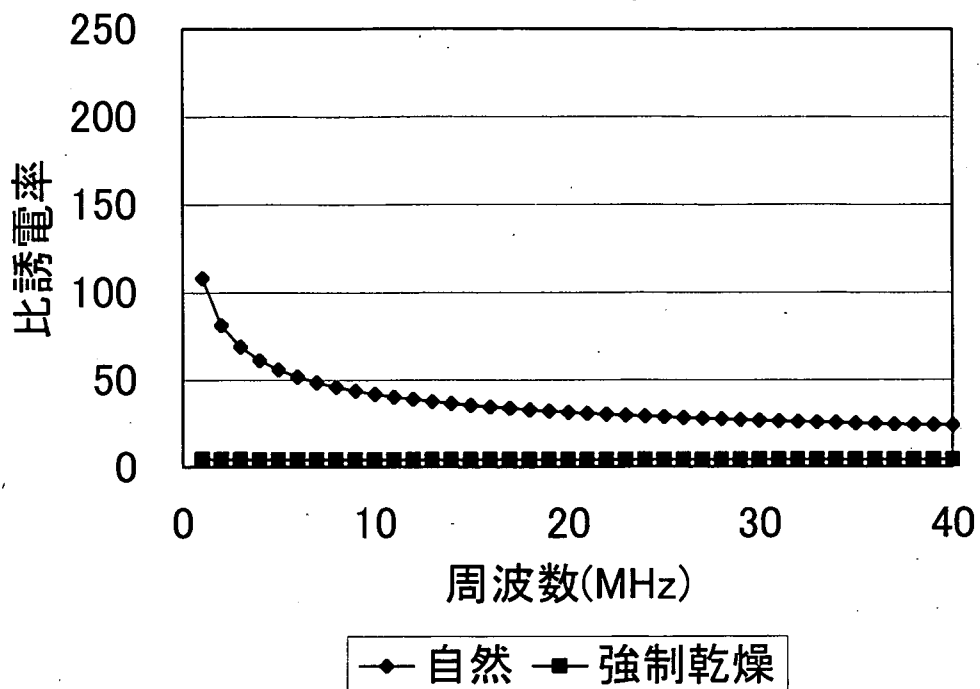
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	108.12	15.02	0.288	2.36
2.0	81.35	17.28	0.332	3.14
3.0	68.91	19.14	0.361	3.77
4.0	61.22	20.76	0.383	4.34
5.0	55.82	22.22	0.401	4.87
6.0	51.76	23.58	0.417	5.37
7.0	48.56	24.84	0.430	5.84
8.0	45.93	26.03	0.442	6.29
9.0	43.74	27.16	0.453	6.72
10.0	41.87	28.24	0.463	7.15
11.0	40.25	29.28	0.473	7.56
12.0	38.83	30.28	0.481	7.96
13.0	37.57	31.25	0.489	8.35
14.0	36.45	32.20	0.497	8.73
15.0	35.43	33.11	0.504	9.11
16.0	34.50	34.00	0.510	9.48
17.0	33.66	34.87	0.517	9.84
18.0	32.88	35.72	0.523	10.20
19.0	32.06	36.59	0.529	10.58
20.0	31.36	37.44	0.535	10.95
21.0	30.76	38.25	0.541	11.29
22.0	30.19	39.05	0.546	11.64
23.0	29.65	39.85	0.551	11.98
24.0	29.15	40.63	0.555	12.32
25.0	28.67	41.40	0.560	12.66
26.0	28.22	42.16	0.564	12.99
27.0	27.80	42.91	0.569	13.32
28.0	27.40	43.65	0.573	13.65
29.0	27.02	44.38	0.577	13.98
30.0	26.66	45.10	0.581	14.30
31.0	26.32	45.81	0.584	14.62
32.0	26.00	46.52	0.588	14.94
33.0	25.69	47.22	0.591	15.25
34.0	25.40	47.91	0.595	15.56
35.0	25.12	48.60	0.598	15.87
36.0	24.86	49.28	0.601	16.18
37.0	24.60	49.95	0.604	16.49
38.0	24.36	50.62	0.607	16.79
39.0	24.13	51.28	0.610	17.09
40.0	23.90	51.93	0.613	17.39

試料名
状態

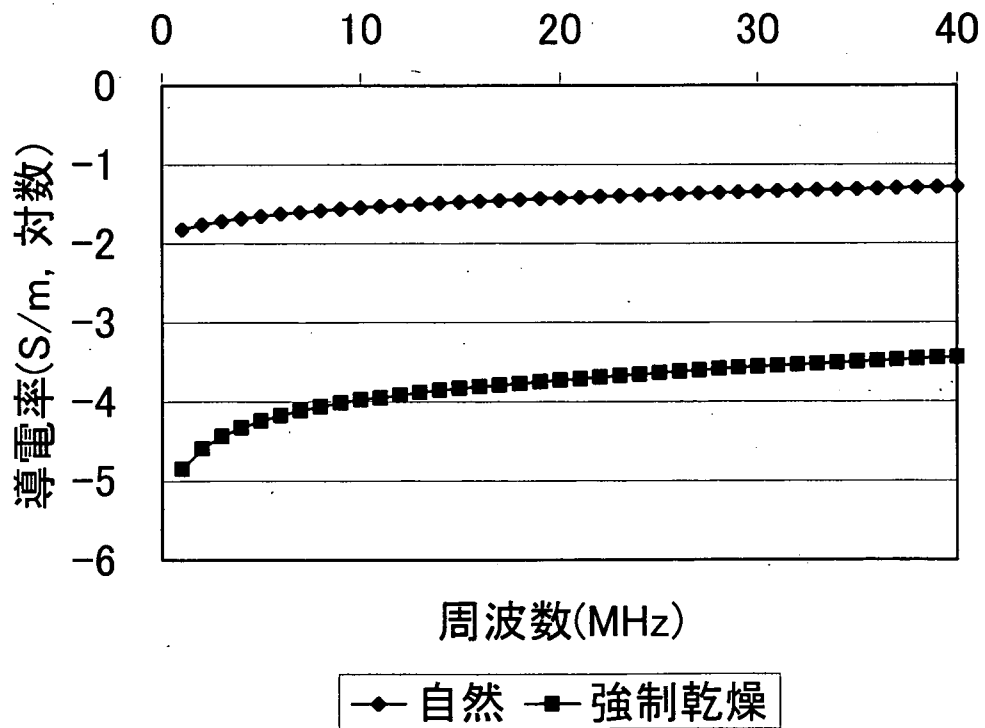
SI18-15
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.52	0.01	1.410	0.01
2.0	4.42	0.03	1.426	0.02
3.0	4.36	0.04	1.435	0.03
4.0	4.32	0.05	1.442	0.04
5.0	4.29	0.06	1.447	0.04
6.0	4.27	0.07	1.450	0.05
7.0	4.25	0.08	1.453	0.06
8.0	4.24	0.09	1.456	0.07
9.0	4.23	0.10	1.458	0.08
10.0	4.22	0.11	1.460	0.08
11.0	4.21	0.11	1.462	0.09
12.0	4.20	0.12	1.463	0.10
13.0	4.19	0.13	1.464	0.10
14.0	4.19	0.14	1.465	0.11
15.0	4.18	0.15	1.466	0.12
16.0	4.18	0.15	1.467	0.12
17.0	4.17	0.16	1.468	0.13
18.0	4.17	0.17	1.468	0.14
19.0	4.17	0.18	1.468	0.14
20.0	4.17	0.19	1.468	0.15
21.0	4.17	0.19	1.468	0.15
22.0	4.17	0.20	1.468	0.16
23.0	4.17	0.21	1.468	0.17
24.0	4.17	0.22	1.468	0.18
25.0	4.17	0.23	1.468	0.18
26.0	4.17	0.24	1.468	0.19
27.0	4.17	0.25	1.467	0.20
28.0	4.17	0.26	1.467	0.21
29.0	4.18	0.27	1.467	0.21
30.0	4.18	0.28	1.467	0.22
31.0	4.18	0.28	1.467	0.23
32.0	4.18	0.29	1.467	0.23
33.0	4.18	0.30	1.466	0.24
34.0	4.18	0.31	1.466	0.25
35.0	4.18	0.32	1.466	0.25
36.0	4.19	0.33	1.465	0.26
37.0	4.19	0.34	1.465	0.27
38.0	4.19	0.34	1.464	0.27
39.0	4.20	0.35	1.464	0.28
40.0	4.20	0.36	1.463	0.29

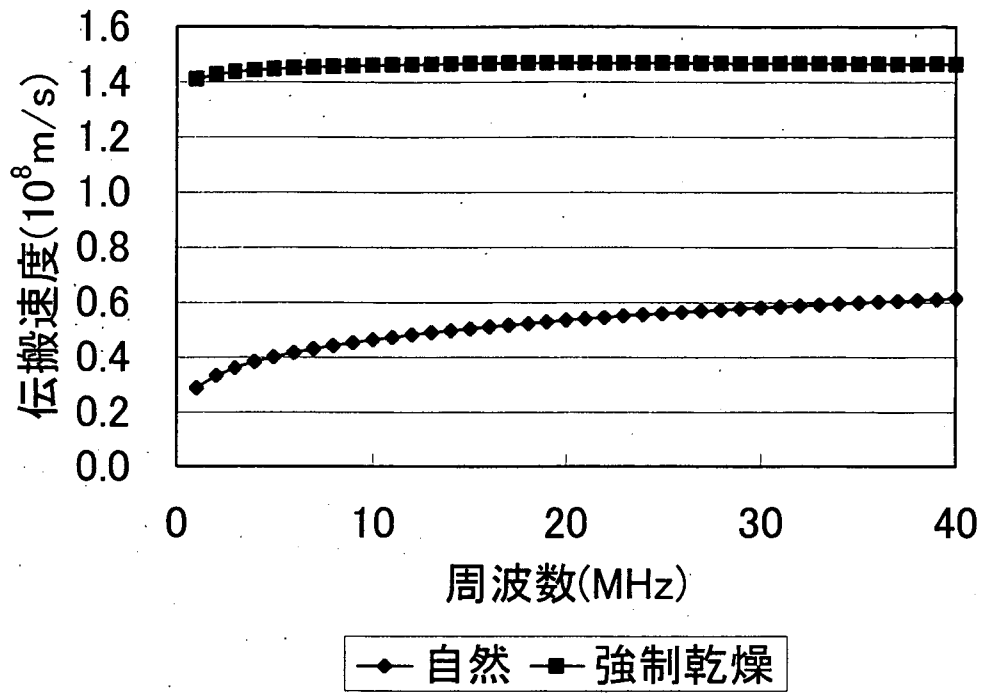
比誘電率
SI18-15



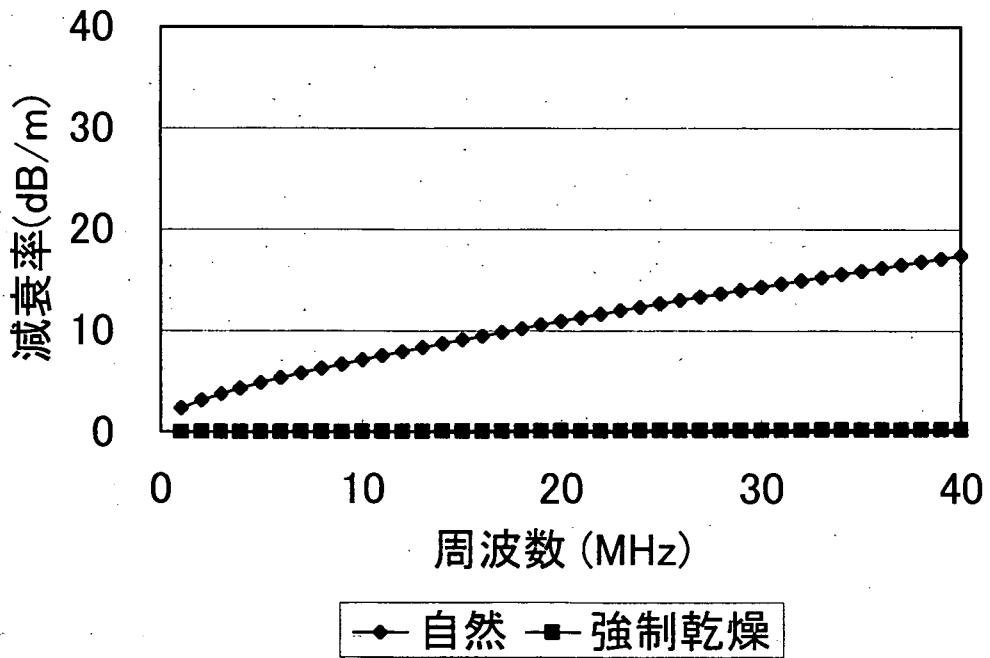
導電率
SI18-15



電磁波伝搬速度 SI18-15



減衰率 SI18-15



試料名 SI18-16 状態 自然

試料直径(mm) 24.13 試料厚(mm) 4.885

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	196.150	197.530	199.100	197.593	238.39
2.0	142.170	143.080	144.160	143.137	172.69
3.0	118.070	118.830	119.730	118.877	143.42
4.0	103.360	104.030	104.800	104.063	125.55
5.0	93.094	93.735	94.412	93.747	113.10
6.0	85.446	86.002	86.653	86.034	103.80
7.0	79.424	79.932	80.545	79.967	96.48
8.0	74.497	74.970	75.545	75.004	90.49
9.0	70.383	70.836	71.389	70.869	85.50
10.0	66.893	67.322	67.844	67.353	81.26
11.0	63.870	64.278	64.779	64.309	77.59
12.0	61.218	61.608	62.084	61.637	74.36
13.0	58.872	59.251	59.712	59.278	71.52
14.0	56.776	57.138	57.581	57.165	68.97
15.0	54.900	55.246	55.680	55.275	66.69
16.0	53.194	53.538	53.948	53.560	64.62
17.0	51.652	51.979	52.376	52.002	62.74
18.0	50.233	50.559	50.943	50.578	61.02
19.0	48.935	49.251	49.623	49.270	59.44
20.0	47.732	48.044	48.400	48.059	57.98
21.0	46.615	46.919	47.270	46.935	56.63
22.0	45.576	45.873	46.212	45.887	55.36
23.0	44.602	44.895	45.224	44.907	54.18
24.0	43.688	43.981	44.301	43.990	53.07
25.0	42.828	43.114	43.425	43.122	52.03
26.0	42.024	42.303	42.607	42.311	51.05
27.0	41.262	41.540	41.836	41.546	50.12
28.0	40.541	40.815	41.105	40.820	49.25
29.0	39.862	40.134	40.414	40.137	48.42
30.0	39.212	39.483	39.760	39.485	47.64
31.0	38.607	38.878	39.145	38.877	46.90
32.0	38.029	38.297	38.555	38.294	46.20
33.0	37.478	37.746	37.997	37.740	45.53
34.0	36.953	37.222	37.466	37.214	44.90
35.0	36.465	36.730	36.968	36.721	44.30
36.0	35.978	36.242	36.474	36.231	43.71
37.0	35.519	35.786	36.012	35.772	43.16
38.0	35.085	35.350	35.568	35.334	42.63
39.0	34.663	34.928	35.140	34.910	42.12
40.0	34.259	34.525	34.733	34.506	41.63

試料名 SI18-16 状態 強制乾燥

試料直径(mm) 24.13 試料厚(mm) 4.885

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	4.067	4.142	4.157	4.122	4.97
2.0	3.946	4.005	4.019	3.990	4.81
3.0	3.880	3.931	3.944	3.918	4.73
4.0	3.836	3.881	3.893	3.870	4.67
5.0	3.803	3.844	3.856	3.834	4.63
6.0	3.778	3.814	3.826	3.806	4.59
7.0	3.757	3.791	3.802	3.783	4.56
8.0	3.739	3.771	3.782	3.764	4.54
9.0	3.724	3.754	3.765	3.748	4.52
10.0	3.712	3.739	3.750	3.733	4.50
11.0	3.702	3.727	3.738	3.722	4.49
12.0	3.692	3.716	3.727	3.712	4.48
13.0	3.684	3.707	3.717	3.703	4.47
14.0	3.675	3.698	3.708	3.694	4.46
15.0	3.671	3.690	3.700	3.687	4.45
16.0	3.664	3.684	3.694	3.681	4.44
17.0	3.660	3.677	3.687	3.675	4.43
18.0	3.656	3.674	3.684	3.671	4.43
19.0	3.654	3.671	3.681	3.669	4.43
20.0	3.653	3.668	3.678	3.666	4.42
21.0	3.651	3.667	3.676	3.665	4.42
22.0	3.650	3.666	3.675	3.664	4.42
23.0	3.650	3.665	3.674	3.663	4.42
24.0	3.650	3.664	3.673	3.662	4.42
25.0	3.649	3.663	3.671	3.661	4.42
26.0	3.649	3.661	3.670	3.660	4.42
27.0	3.648	3.660	3.669	3.659	4.41
28.0	3.648	3.660	3.668	3.659	4.41
29.0	3.648	3.659	3.668	3.658	4.41
30.0	3.647	3.658	3.667	3.657	4.41
31.0	3.648	3.658	3.667	3.658	4.41
32.0	3.648	3.658	3.667	3.658	4.41
33.0	3.649	3.659	3.667	3.658	4.41
34.0	3.650	3.659	3.667	3.659	4.41
35.0	3.651	3.661	3.669	3.660	4.42
36.0	3.652	3.661	3.669	3.661	4.42
37.0	3.654	3.662	3.670	3.662	4.42
38.0	3.656	3.664	3.672	3.664	4.42
39.0	3.658	3.665	3.673	3.665	4.42
40.0	3.659	3.667	3.675	3.667	4.42

試料名 SI18-16 状態 自然

試料直径(mm) 24.13 試料厚(mm) 4.885

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.248	0.244	0.241	0.244	43.69	-1.360
2.0	0.222	0.219	0.215	0.219	48.88	-1.311
3.0	0.204	0.201	0.198	0.201	53.09	-1.275
4.0	0.191	0.188	0.186	0.188	56.75	-1.246
5.0	0.180	0.178	0.176	0.178	60.06	-1.221
6.0	0.171	0.169	0.167	0.169	63.10	-1.200
7.0	0.164	0.162	0.160	0.162	65.93	-1.181
8.0	0.158	0.156	0.154	0.156	68.58	-1.164
9.0	0.152	0.150	0.148	0.150	71.11	-1.148
10.0	0.147	0.145	0.144	0.145	73.50	-1.134
11.0	0.143	0.141	0.139	0.141	75.80	-1.120
12.0	0.139	0.137	0.135	0.137	78.00	-1.108
13.0	0.135	0.133	0.132	0.133	80.13	-1.096
14.0	0.132	0.130	0.128	0.130	82.17	-1.085
15.0	0.128	0.127	0.125	0.127	84.17	-1.075
16.0	0.126	0.124	0.123	0.124	86.09	-1.065
17.0	0.123	0.121	0.120	0.121	87.97	-1.056
18.0	0.120	0.119	0.118	0.119	89.81	-1.047
19.0	0.118	0.117	0.115	0.117	91.60	-1.038
20.0	0.116	0.114	0.113	0.114	93.38	-1.030
21.0	0.114	0.112	0.111	0.112	95.10	-1.022
22.0	0.112	0.110	0.109	0.110	96.81	-1.014
23.0	0.110	0.108	0.107	0.108	98.49	-1.007
24.0	0.108	0.107	0.106	0.107	100.14	-0.999
25.0	0.106	0.105	0.104	0.105	101.77	-0.992
26.0	0.105	0.103	0.102	0.103	103.37	-0.986
27.0	0.103	0.102	0.101	0.102	104.96	-0.979
28.0	0.101	0.100	0.099	0.100	106.52	-0.973
29.0	0.100	0.099	0.098	0.099	108.06	-0.966
30.0	0.099	0.097	0.096	0.097	109.59	-0.960
31.0	0.097	0.096	0.095	0.096	111.10	-0.954
32.0	0.096	0.095	0.094	0.095	112.59	-0.948
33.0	0.095	0.094	0.093	0.094	114.07	-0.943
34.0	0.094	0.092	0.091	0.092	115.54	-0.937
35.0	0.092	0.091	0.090	0.091	116.99	-0.932
36.0	0.091	0.090	0.089	0.090	118.42	-0.927
37.0	0.090	0.089	0.088	0.089	119.84	-0.921
38.0	0.089	0.088	0.087	0.088	121.24	-0.916
39.0	0.088	0.087	0.086	0.087	122.63	-0.911
40.0	0.087	0.086	0.085	0.086	124.00	-0.907

試料名 SI18-16 状態 強制乾燥

試料直径(mm) 24.13 試料厚(mm) 4.885

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	516.6400	458.1600	457.9000	477.567	0.02	-4.650
2.0	292.5500	258.9600	257.6300	269.713	0.04	-4.402
3.0	208.0300	184.1300	182.8500	191.670	0.06	-4.254
4.0	163.2100	144.5300	143.3100	150.350	0.07	-4.148
5.0	134.8400	119.8500	118.4600	124.383	0.09	-4.066
6.0	115.6100	102.4400	101.4600	106.503	0.10	-3.999
7.0	101.2300	89.7940	88.8930	93.306	0.11	-3.941
8.0	90.1920	80.0540	79.1810	83.142	0.13	-3.891
9.0	81.4140	72.3240	71.5600	75.099	0.14	-3.847
10.0	74.2880	65.9940	65.2990	68.527	0.16	-3.807
11.0	70.2060	62.3310	61.6800	64.739	0.17	-3.783
12.0	65.3370	57.6530	57.2420	60.077	0.18	-3.750
13.0	60.9820	53.9330	53.0870	56.001	0.19	-3.720
14.0	56.3340	50.8780	50.0410	52.418	0.20	-3.691
15.0	53.8420	47.8080	47.2970	49.649	0.22	-3.667
16.0	51.0860	45.4730	44.8870	47.149	0.23	-3.645
17.0	48.5880	43.4770	42.9750	45.013	0.24	-3.625
18.0	46.7300	41.4320	40.9910	43.051	0.25	-3.605
19.0	44.6990	39.7710	39.2730	41.248	0.26	-3.587
20.0	42.7150	38.0900	37.5900	39.465	0.27	-3.568
21.0	41.0000	36.5590	36.1050	37.888	0.28	-3.550
22.0	39.2690	35.0900	34.5950	36.318	0.29	-3.531
23.0	37.6910	33.6730	33.2700	34.878	0.31	-3.514
24.0	36.1240	32.3640	31.9270	33.472	0.32	-3.496
25.0	34.6490	30.9850	30.5150	32.050	0.33	-3.477
26.0	33.4850	29.9760	29.5890	31.017	0.34	-3.463
27.0	32.2730	28.9680	28.5690	29.937	0.36	-3.448
28.0	31.1780	28.0430	27.6190	28.947	0.37	-3.433
29.0	30.2390	27.1420	26.8010	28.061	0.38	-3.419
30.0	29.2710	26.3390	25.9600	27.190	0.39	-3.406
31.0	28.4270	25.6240	25.2680	26.440	0.40	-3.394
32.0	27.6940	24.9420	24.5490	25.728	0.42	-3.382
33.0	26.9210	24.2720	23.9170	25.037	0.43	-3.370
34.0	26.2080	23.6450	23.3100	24.388	0.44	-3.359
35.0	25.4860	23.0210	22.6810	23.729	0.45	-3.347
36.0	24.8490	22.4300	22.1270	23.135	0.46	-3.336
37.0	24.2380	21.9040	21.5640	22.569	0.47	-3.325
38.0	23.6440	21.3870	21.0750	22.035	0.48	-3.314
39.0	23.0890	20.9030	20.5940	21.529	0.50	-3.304
40.0	22.5760	20.4330	20.1260	21.045	0.51	-3.294

試料名
状態

SI18-16
自然

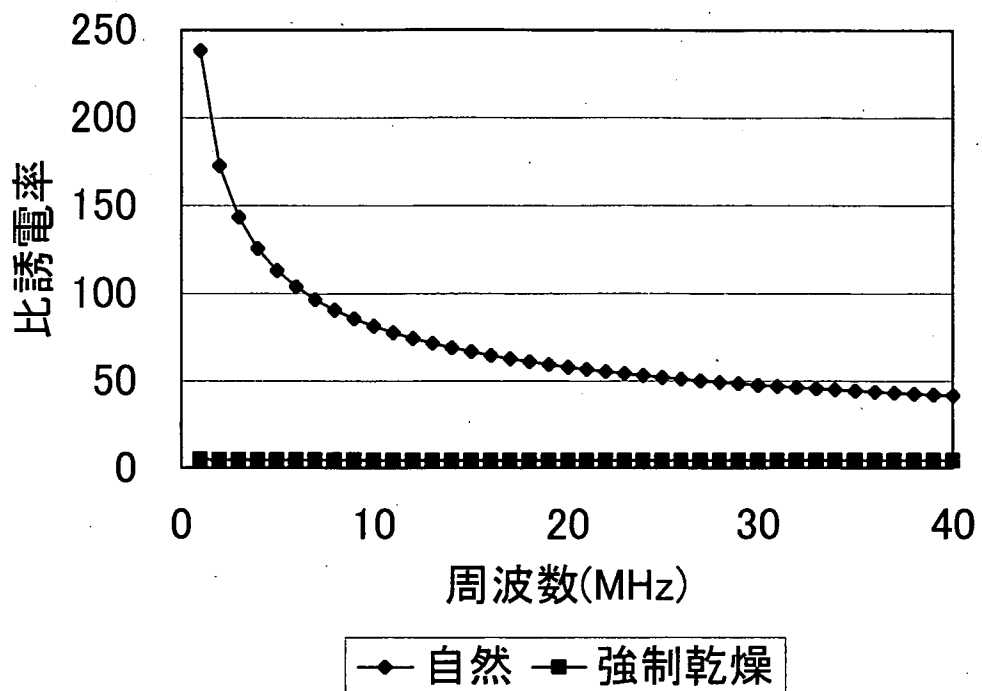
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	238.39	43.69	0.194	4.63
2.0	172.69	48.88	0.228	6.09
3.0	143.42	53.09	0.250	7.26
4.0	125.55	56.75	0.268	8.29
5.0	113.10	60.06	0.282	9.25
6.0	103.80	63.10	0.294	10.14
7.0	96.48	65.93	0.305	10.99
8.0	90.49	68.58	0.315	11.80
9.0	85.50	71.11	0.324	12.59
10.0	81.26	73.50	0.333	13.35
11.0	77.59	75.80	0.340	14.09
12.0	74.36	78.00	0.348	14.81
13.0	71.52	80.13	0.355	15.51
14.0	68.97	82.17	0.361	16.20
15.0	66.69	84.17	0.367	16.87
16.0	64.62	86.09	0.373	17.54
17.0	62.74	87.97	0.378	18.18
18.0	61.02	89.81	0.384	18.82
19.0	59.44	91.60	0.389	19.45
20.0	57.98	93.38	0.394	20.08
21.0	56.63	95.10	0.398	20.69
22.0	55.36	96.81	0.403	21.30
23.0	54.18	98.49	0.407	21.91
24.0	53.07	100.14	0.412	22.51
25.0	52.03	101.77	0.416	23.10
26.0	51.05	103.37	0.420	23.69
27.0	50.12	104.96	0.423	24.27
28.0	49.25	106.52	0.427	24.85
29.0	48.42	108.06	0.431	25.43
30.0	47.64	109.59	0.434	26.00
31.0	46.90	111.10	0.438	26.56
32.0	46.20	112.59	0.441	27.12
33.0	45.53	114.07	0.444	27.68
34.0	44.90	115.54	0.447	28.23
35.0	44.30	116.99	0.450	28.78
36.0	43.71	118.42	0.453	29.32
37.0	43.16	119.84	0.456	29.87
38.0	42.63	121.24	0.459	30.40
39.0	42.12	122.63	0.462	30.94
40.0	41.63	124.00	0.465	31.47

試料名
状態

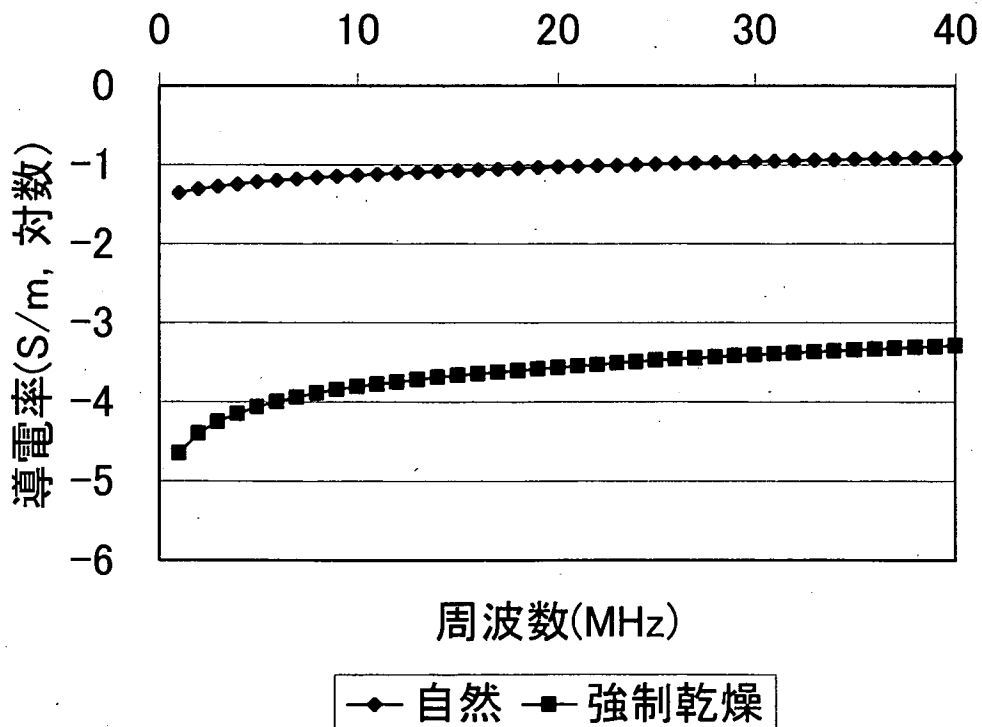
SI18-16
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.97	0.02	1.344	0.02
2.0	4.81	0.04	1.366	0.03
3.0	4.73	0.06	1.379	0.04
4.0	4.67	0.07	1.387	0.05
5.0	4.63	0.09	1.394	0.07
6.0	4.59	0.10	1.399	0.08
7.0	4.56	0.11	1.403	0.09
8.0	4.54	0.13	1.407	0.10
9.0	4.52	0.14	1.410	0.11
10.0	4.50	0.16	1.413	0.12
11.0	4.49	0.17	1.415	0.13
12.0	4.48	0.18	1.417	0.14
13.0	4.47	0.19	1.418	0.15
14.0	4.46	0.20	1.420	0.16
15.0	4.45	0.22	1.421	0.17
16.0	4.44	0.23	1.423	0.18
17.0	4.43	0.24	1.424	0.18
18.0	4.43	0.25	1.424	0.19
19.0	4.43	0.26	1.425	0.20
20.0	4.42	0.27	1.426	0.21
21.0	4.42	0.28	1.426	0.22
22.0	4.42	0.29	1.426	0.23
23.0	4.42	0.31	1.426	0.24
24.0	4.42	0.32	1.426	0.25
25.0	4.42	0.33	1.427	0.26
26.0	4.42	0.34	1.427	0.27
27.0	4.41	0.36	1.427	0.28
28.0	4.41	0.37	1.427	0.29
29.0	4.41	0.38	1.427	0.30
30.0	4.41	0.39	1.427	0.31
31.0	4.41	0.40	1.427	0.31
32.0	4.41	0.42	1.427	0.32
33.0	4.41	0.43	1.427	0.33
34.0	4.41	0.44	1.427	0.34
35.0	4.42	0.45	1.427	0.35
36.0	4.42	0.46	1.427	0.36
37.0	4.42	0.47	1.426	0.37
38.0	4.42	0.48	1.426	0.38
39.0	4.42	0.50	1.426	0.39
40.0	4.42	0.51	1.425	0.40

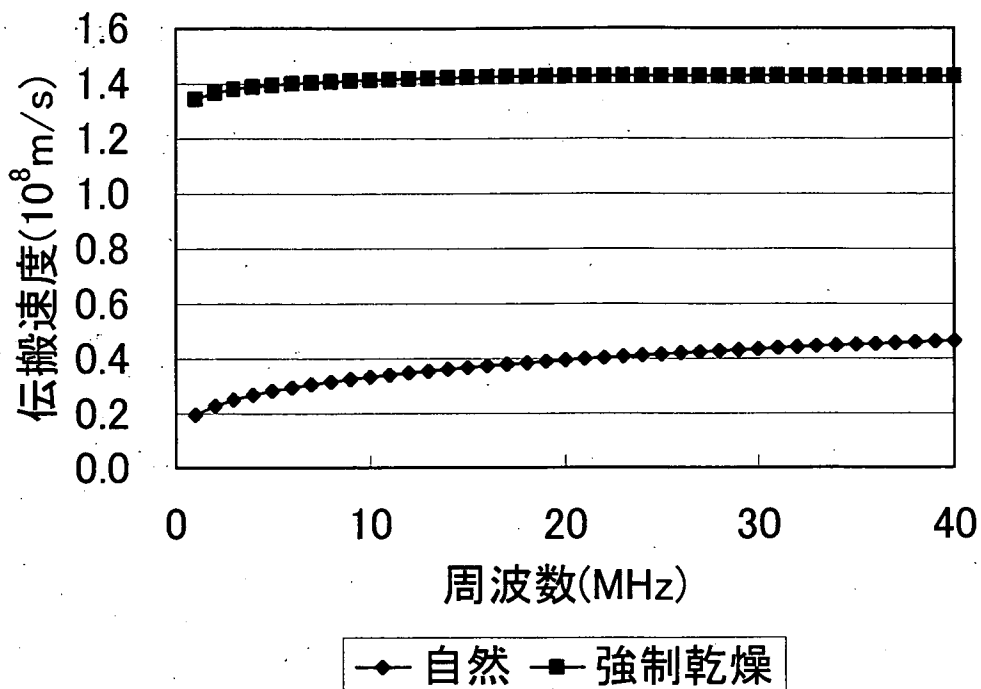
比誘電率
SI18-16



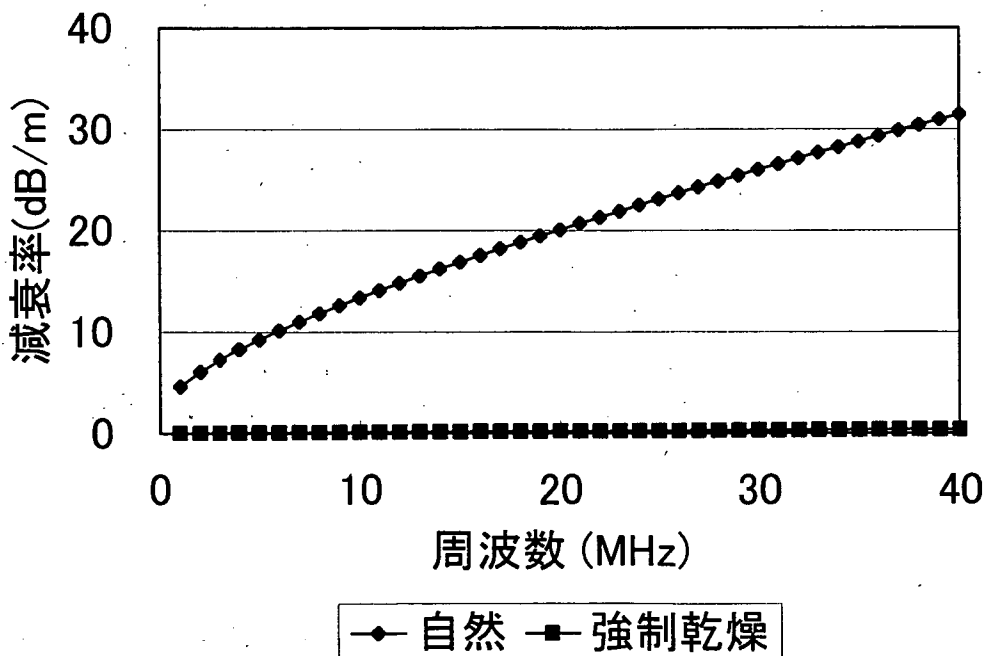
導電率
SI18-16



電磁波伝搬速度 SI18-16



減衰率 SI18-16



試料名 SI18-17-1 状態 自然

試料直径(mm) 24.07 試料厚(mm) 4.883

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	220.970	223.710	223.240	222.640	269.84
2.0	158.270	160.100	159.450	159.273	193.04
3.0	131.070	132.560	131.910	131.847	159.80
4.0	114.570	115.880	115.220	115.223	139.65
5.0	103.150	104.300	103.620	103.690	125.67
6.0	94.593	95.663	95.018	95.091	115.25
7.0	87.873	88.880	88.225	88.326	107.05
8.0	82.382	83.327	82.670	82.793	100.35
9.0	77.809	78.698	78.039	78.182	94.76
10.0	73.920	74.773	74.102	74.265	90.01
11.0	70.541	71.360	70.689	70.863	85.89
12.0	67.597	68.368	67.700	67.888	82.28
13.0	64.978	65.723	65.052	65.251	79.08
14.0	62.635	63.362	62.678	62.892	76.23
15.0	60.540	61.235	60.552	60.776	73.66
16.0	58.639	59.312	58.628	58.860	71.34
17.0	56.909	57.560	56.879	57.116	69.22
18.0	55.330	55.962	55.271	55.521	67.29
19.0	53.876	54.489	53.794	54.053	65.51
20.0	52.530	53.120	52.427	52.692	63.86
21.0	51.278	51.860	51.160	51.433	62.34
22.0	50.111	50.681	49.974	50.255	60.91
23.0	49.023	49.577	48.872	49.157	59.58
24.0	48.004	48.546	47.836	48.129	58.33
25.0	47.041	47.570	46.853	47.155	57.15
26.0	46.139	46.658	45.939	46.245	56.05
27.0	45.289	45.796	45.076	45.387	55.01
28.0	44.482	44.981	44.256	44.573	54.02
29.0	43.721	44.210	43.482	43.804	53.09
30.0	42.991	43.471	42.744	43.069	52.20
31.0	42.316	42.788	42.054	42.386	51.37
32.0	41.665	42.131	41.393	41.730	50.58
33.0	41.048	41.505	40.765	41.106	49.82
34.0	40.460	40.909	40.166	40.512	49.10
35.0	39.912	40.349	39.603	39.955	48.43
36.0	39.363	39.796	39.046	39.402	47.76
37.0	38.849	39.275	38.521	38.882	47.12
38.0	38.357	38.778	38.021	38.385	46.52
39.0	37.884	38.296	37.537	37.906	45.94
40.0	37.427	37.838	37.075	37.447	45.39

試料名 SI18-17-1 状態 強制乾燥

試料直径(mm) 24.07 試料厚(mm) 4.883

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	4.014	4.104	4.177	4.098	4.97
2.0	3.894	3.964	4.028	3.962	4.80
3.0	3.828	3.887	3.947	3.887	4.71
4.0	3.784	3.836	3.892	3.837	4.65
5.0	3.751	3.797	3.851	3.800	4.61
6.0	3.726	3.768	3.819	3.771	4.57
7.0	3.705	3.743	3.793	3.747	4.54
8.0	3.688	3.722	3.772	3.727	4.52
9.0	3.673	3.705	3.753	3.710	4.50
10.0	3.660	3.690	3.737	3.696	4.48
11.0	3.650	3.678	3.724	3.684	4.46
12.0	3.641	3.667	3.711	3.673	4.45
13.0	3.633	3.656	3.701	3.663	4.44
14.0	3.625	3.648	3.691	3.655	4.43
15.0	3.617	3.639	3.682	3.646	4.42
16.0	3.613	3.632	3.675	3.640	4.41
17.0	3.608	3.628	3.669	3.635	4.41
18.0	3.605	3.622	3.664	3.630	4.40
19.0	3.602	3.619	3.660	3.627	4.40
20.0	3.601	3.616	3.657	3.625	4.39
21.0	3.599	3.614	3.654	3.623	4.39
22.0	3.599	3.613	3.653	3.621	4.39
23.0	3.599	3.611	3.651	3.620	4.39
24.0	3.598	3.610	3.649	3.619	4.39
25.0	3.596	3.609	3.649	3.618	4.38
26.0	3.597	3.608	3.647	3.617	4.38
27.0	3.596	3.606	3.645	3.616	4.38
28.0	3.596	3.605	3.644	3.615	4.38
29.0	3.596	3.605	3.643	3.614	4.38
30.0	3.595	3.604	3.643	3.614	4.38
31.0	3.596	3.604	3.641	3.614	4.38
32.0	3.596	3.604	3.641	3.613	4.38
33.0	3.597	3.604	3.641	3.614	4.38
34.0	3.598	3.604	3.641	3.614	4.38
35.0	3.599	3.605	3.642	3.615	4.38
36.0	3.600	3.605	3.642	3.616	4.38
37.0	3.601	3.607	3.643	3.617	4.38
38.0	3.603	3.608	3.644	3.618	4.39
39.0	3.605	3.609	3.645	3.620	4.39
40.0	3.607	3.611	3.646	3.621	4.39

試料名 SI18-17-1 状態 自然

試料直径(mm) 24.07 試料厚(mm) 4.883

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.222	0.216	0.214	0.217	49.41	-1.306
2.0	0.198	0.193	0.192	0.194	55.20	-1.258
3.0	0.182	0.178	0.177	0.179	59.90	-1.223
4.0	0.171	0.167	0.166	0.168	63.99	-1.194
5.0	0.161	0.158	0.157	0.159	67.69	-1.169
6.0	0.153	0.150	0.149	0.151	71.09	-1.148
7.0	0.147	0.144	0.143	0.145	74.26	-1.129
8.0	0.141	0.138	0.137	0.139	77.24	-1.112
9.0	0.136	0.133	0.133	0.134	80.07	-1.097
10.0	0.132	0.129	0.128	0.130	82.76	-1.082
11.0	0.128	0.125	0.124	0.126	85.34	-1.069
12.0	0.124	0.122	0.121	0.122	87.82	-1.056
13.0	0.121	0.118	0.118	0.119	90.22	-1.045
14.0	0.118	0.116	0.115	0.116	92.53	-1.034
15.0	0.115	0.113	0.112	0.113	94.78	-1.023
16.0	0.112	0.110	0.110	0.111	96.95	-1.013
17.0	0.110	0.108	0.107	0.108	99.07	-1.004
18.0	0.108	0.106	0.105	0.106	101.15	-0.995
19.0	0.105	0.104	0.103	0.104	103.18	-0.986
20.0	0.103	0.102	0.101	0.102	105.19	-0.978
21.0	0.102	0.100	0.099	0.100	107.13	-0.970
22.0	0.100	0.098	0.097	0.098	109.06	-0.962
23.0	0.098	0.096	0.096	0.097	110.96	-0.955
24.0	0.096	0.095	0.094	0.095	112.82	-0.948
25.0	0.095	0.093	0.093	0.094	114.67	-0.941
26.0	0.093	0.092	0.091	0.092	116.48	-0.934
27.0	0.092	0.090	0.090	0.091	118.28	-0.927
28.0	0.091	0.089	0.089	0.089	120.05	-0.921
29.0	0.089	0.088	0.087	0.088	121.80	-0.914
30.0	0.088	0.087	0.086	0.087	123.53	-0.908
31.0	0.087	0.085	0.085	0.086	125.24	-0.902
32.0	0.086	0.084	0.084	0.085	126.94	-0.896
33.0	0.085	0.083	0.083	0.083	128.62	-0.891
34.0	0.083	0.082	0.082	0.082	130.28	-0.885
35.0	0.082	0.081	0.081	0.081	131.93	-0.880
36.0	0.081	0.080	0.080	0.080	133.55	-0.874
37.0	0.080	0.079	0.079	0.079	135.16	-0.869
38.0	0.080	0.078	0.078	0.078	136.76	-0.864
39.0	0.079	0.077	0.077	0.078	138.34	-0.859
40.0	0.078	0.076	0.076	0.077	139.91	-0.854

試料名 SI18-17-1 状態 強制乾燥

試料直径(mm) 24.07 試料厚(mm) 4.883

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	521.2600	448.1100	422.6000	463.990	0.02	-4.636
2.0	294.9200	252.9300	238.7000	262.183	0.04	-4.388
3.0	209.6300	179.7400	169.5900	186.320	0.06	-4.240
4.0	164.4600	140.9600	133.0800	146.167	0.07	-4.134
5.0	135.7800	116.4400	110.2400	120.820	0.09	-4.051
6.0	116.3300	99.7900	94.2410	103.454	0.10	-3.984
7.0	101.8400	87.4330	82.6370	90.637	0.12	-3.927
8.0	90.7000	77.9180	73.7280	80.782	0.13	-3.877
9.0	81.8460	70.3670	66.6010	72.938	0.15	-3.832
10.0	74.6050	64.2800	60.8350	66.573	0.16	-3.793
11.0	70.4860	60.5030	57.3670	62.785	0.17	-3.767
12.0	65.4380	56.0830	53.0960	58.206	0.18	-3.734
13.0	60.8590	52.3470	49.8120	54.339	0.20	-3.704
14.0	57.0840	49.4500	46.5100	51.015	0.21	-3.677
15.0	53.8280	46.4210	44.0610	48.103	0.22	-3.652
16.0	51.1400	44.0930	41.8650	45.699	0.23	-3.629
17.0	48.9560	42.2660	39.7800	43.667	0.25	-3.610
18.0	46.6770	40.2820	38.2030	41.721	0.26	-3.590
19.0	44.7510	38.5560	36.5690	39.959	0.27	-3.571
20.0	42.9210	36.9160	34.9910	38.276	0.28	-3.552
21.0	41.0770	35.4490	33.6060	36.711	0.29	-3.534
22.0	39.3550	34.0310	32.2350	35.207	0.30	-3.516
23.0	37.7130	32.6100	30.9430	33.755	0.32	-3.498
24.0	36.1730	31.3020	29.7440	32.406	0.33	-3.480
25.0	34.7780	30.1300	28.7160	31.208	0.34	-3.464
26.0	33.4590	29.0160	27.5730	30.016	0.36	-3.447
27.0	32.2580	28.0340	26.6460	28.979	0.37	-3.431
28.0	31.1850	27.1240	25.7640	28.024	0.38	-3.417
29.0	30.2030	26.2840	24.9900	27.159	0.40	-3.403
30.0	29.2060	25.5450	24.1490	26.300	0.41	-3.389
31.0	28.4450	24.8000	23.5610	25.602	0.42	-3.378
32.0	27.6490	24.1170	22.9000	24.889	0.43	-3.365
33.0	26.8690	23.4640	22.3030	24.212	0.44	-3.353
34.0	26.1470	22.8380	21.7200	23.568	0.46	-3.342
35.0	25.5130	22.2220	21.1850	22.973	0.47	-3.331
36.0	24.7700	21.6760	20.6140	22.353	0.48	-3.319
37.0	24.1480	21.1380	20.1560	21.814	0.49	-3.308
38.0	23.6050	20.6370	19.6390	21.294	0.50	-3.298
39.0	23.0090	20.1600	19.1960	20.788	0.52	-3.287
40.0	22.5350	19.6750	18.7700	20.327	0.53	-3.277

試料名
状態

SI18-17-1
自然

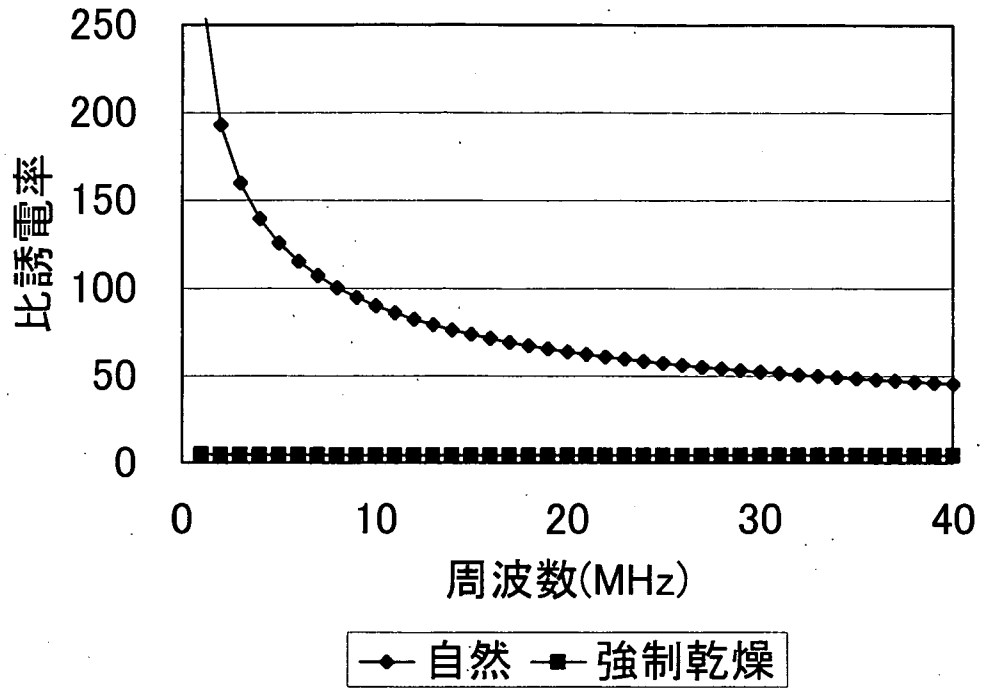
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	269.84	49.41	0.183	4.92
2.0	193.04	55.20	0.216	6.50
3.0	159.80	59.90	0.237	7.76
4.0	139.65	63.99	0.254	8.87
5.0	125.67	67.69	0.267	9.89
6.0	115.25	71.09	0.279	10.84
7.0	107.05	74.26	0.290	11.75
8.0	100.35	77.24	0.299	12.62
9.0	94.76	80.07	0.308	13.47
10.0	90.01	82.76	0.316	14.28
11.0	85.89	85.34	0.323	15.08
12.0	82.28	87.82	0.331	15.85
13.0	79.08	90.22	0.337	16.61
14.0	76.23	92.53	0.343	17.35
15.0	73.66	94.78	0.349	18.08
16.0	71.34	96.95	0.355	18.79
17.0	69.22	99.07	0.360	19.50
18.0	67.29	101.15	0.365	20.19
19.0	65.51	103.18	0.370	20.87
20.0	63.86	105.19	0.375	21.55
21.0	62.34	107.13	0.380	22.22
22.0	60.91	109.06	0.384	22.88
23.0	59.58	110.96	0.388	23.54
24.0	58.33	112.82	0.393	24.19
25.0	57.15	114.67	0.397	24.83
26.0	56.05	116.48	0.400	25.47
27.0	55.01	118.28	0.404	26.11
28.0	54.02	120.05	0.408	26.74
29.0	53.09	121.80	0.411	27.37
30.0	52.20	123.53	0.415	27.99
31.0	51.37	125.24	0.418	28.61
32.0	50.58	126.94	0.422	29.22
33.0	49.82	128.62	0.425	29.83
34.0	49.10	130.28	0.428	30.44
35.0	48.43	131.93	0.431	31.04
36.0	47.76	133.55	0.434	31.64
37.0	47.12	135.16	0.437	32.24
38.0	46.52	136.76	0.440	32.83
39.0	45.94	138.34	0.442	33.42
40.0	45.39	139.91	0.445	34.00

試料名
状態

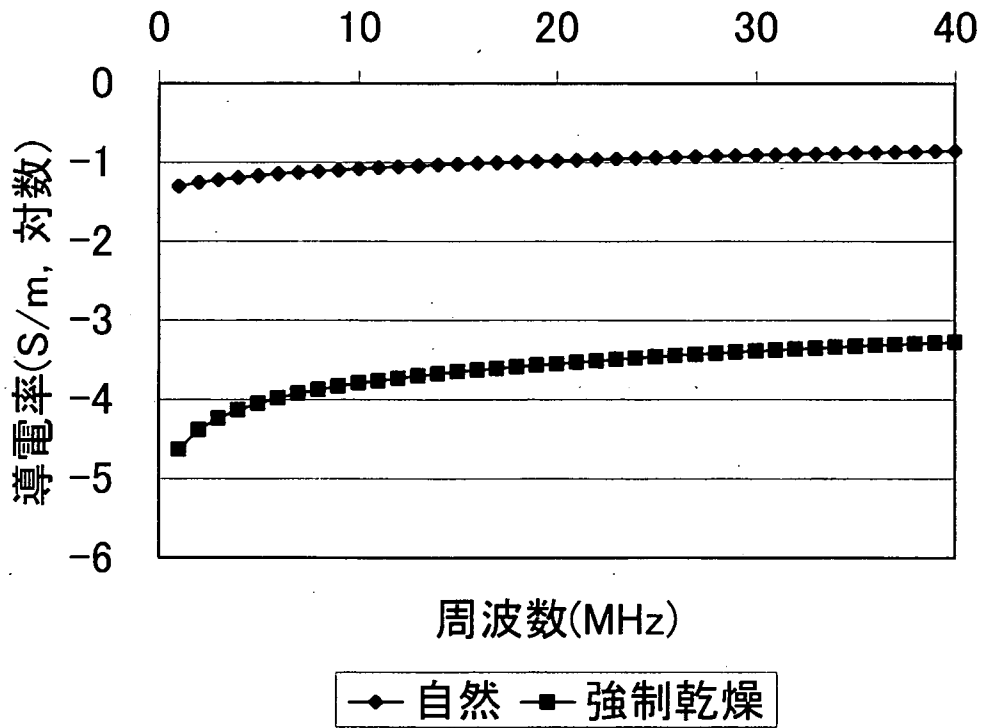
SI18-17-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.97	0.02	1.345	0.02
2.0	4.80	0.04	1.368	0.03
3.0	4.71	0.06	1.381	0.04
4.0	4.65	0.07	1.390	0.06
5.0	4.61	0.09	1.397	0.07
6.0	4.57	0.10	1.402	0.08
7.0	4.54	0.12	1.407	0.09
8.0	4.52	0.13	1.411	0.10
9.0	4.50	0.15	1.414	0.11
10.0	4.48	0.16	1.417	0.12
11.0	4.46	0.17	1.419	0.13
12.0	4.45	0.18	1.421	0.14
13.0	4.44	0.20	1.423	0.15
14.0	4.43	0.21	1.425	0.16
15.0	4.42	0.22	1.426	0.17
16.0	4.41	0.23	1.427	0.18
17.0	4.41	0.25	1.428	0.19
18.0	4.40	0.26	1.429	0.20
19.0	4.40	0.27	1.430	0.21
20.0	4.39	0.28	1.430	0.22
21.0	4.39	0.29	1.431	0.23
22.0	4.39	0.30	1.431	0.24
23.0	4.39	0.32	1.431	0.25
24.0	4.39	0.33	1.431	0.26
25.0	4.38	0.34	1.432	0.27
26.0	4.38	0.36	1.432	0.28
27.0	4.38	0.37	1.432	0.29
28.0	4.38	0.38	1.432	0.30
29.0	4.38	0.40	1.432	0.31
30.0	4.38	0.41	1.432	0.32
31.0	4.38	0.42	1.433	0.33
32.0	4.38	0.43	1.433	0.34
33.0	4.38	0.44	1.433	0.35
34.0	4.38	0.46	1.432	0.36
35.0	4.38	0.47	1.432	0.37
36.0	4.38	0.48	1.432	0.38
37.0	4.38	0.49	1.432	0.38
38.0	4.39	0.50	1.432	0.39
39.0	4.39	0.52	1.431	0.40
40.0	4.39	0.53	1.431	0.41

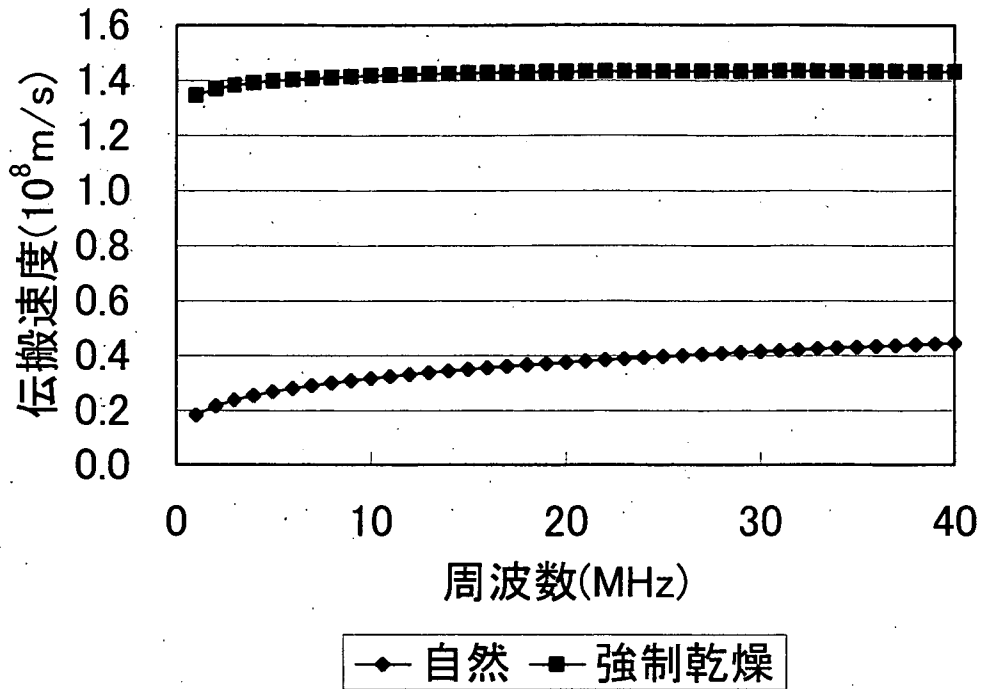
比誘電率
SI18-17-1



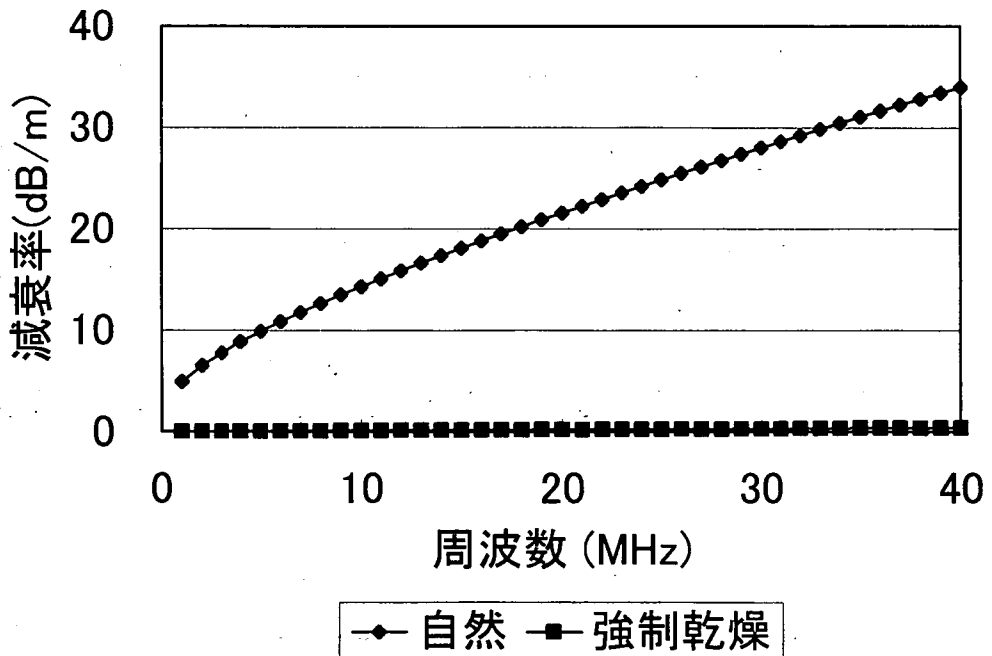
導電率
SI18-17-1



電磁波伝搬速度 SI18-17-1



減衰率 SI18-17-1



試料名 SI18-17-2 状態 自然

試料直径(mm) 24.10 試料厚(mm) 4.871

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	203.340	204.970	206.270	204.860	247.07
2.0	146.820	147.900	148.730	147.817	178.27
3.0	121.790	122.680	123.340	122.603	147.86
4.0	106.530	107.330	107.900	107.253	129.35
5.0	95.929	96.652	97.144	96.575	116.47
6.0	87.994	88.656	89.112	88.587	106.84
7.0	81.757	82.366	82.790	82.304	99.26
8.0	76.655	77.234	77.617	77.169	93.07
9.0	72.406	72.957	73.312	72.892	87.91
10.0	68.793	69.319	69.651	69.254	83.52
11.0	65.665	66.169	66.483	66.106	79.72
12.0	62.930	63.412	63.704	63.349	76.40
13.0	60.498	60.958	61.242	60.899	73.45
14.0	58.328	58.774	59.043	58.715	70.81
15.0	56.390	56.818	57.071	56.760	68.45
16.0	54.625	55.042	55.282	54.983	66.31
17.0	53.020	53.431	53.666	53.372	64.37
18.0	51.558	51.957	52.174	51.896	62.59
19.0	50.216	50.598	50.811	50.542	60.95
20.0	48.970	49.341	49.547	49.286	59.44
21.0	47.813	48.177	48.372	48.121	58.03
22.0	46.737	47.094	47.277	47.036	56.73
23.0	45.731	46.078	46.255	46.021	55.50
24.0	44.785	45.125	45.298	45.069	54.35
25.0	43.896	44.231	44.391	44.173	53.27
26.0	43.061	43.386	43.543	43.330	52.26
27.0	42.273	42.591	42.743	42.536	51.30
28.0	41.527	41.840	41.986	41.784	50.39
29.0	40.824	41.132	41.272	41.076	49.54
30.0	40.156	40.457	40.592	40.402	48.73
31.0	39.528	39.823	39.953	39.768	47.96
32.0	38.928	39.220	39.343	39.164	47.23
33.0	38.358	38.646	38.763	38.589	46.54
34.0	37.816	38.097	38.212	38.042	45.88
35.0	37.299	37.584	37.693	37.525	45.26
36.0	36.802	37.077	37.180	37.020	44.65
37.0	36.329	36.598	36.697	36.541	44.07
38.0	35.878	36.142	36.239	36.086	43.52
39.0	35.442	35.703	35.794	35.646	42.99
40.0	35.020	35.281	35.365	35.222	42.48

試料名 SI18-17-2 状態 強制乾燥

試料直径(mm) 24.10 試料厚(mm) 4.871

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	4.047	4.119	4.219	4.128	4.98
2.0	3.921	3.983	4.066	3.990	4.81
3.0	3.853	3.909	3.983	3.915	4.72
4.0	3.807	3.860	3.928	3.865	4.66
5.0	3.773	3.822	3.886	3.827	4.62
6.0	3.746	3.794	3.854	3.798	4.58
7.0	3.725	3.770	3.827	3.774	4.55
8.0	3.706	3.750	3.805	3.754	4.53
9.0	3.691	3.734	3.786	3.737	4.51
10.0	3.678	3.719	3.769	3.722	4.49
11.0	3.667	3.708	3.756	3.710	4.47
12.0	3.657	3.697	3.744	3.699	4.46
13.0	3.648	3.687	3.733	3.689	4.45
14.0	3.641	3.679	3.723	3.681	4.44
15.0	3.632	3.670	3.714	3.672	4.43
16.0	3.628	3.664	3.707	3.666	4.42
17.0	3.623	3.659	3.701	3.661	4.42
18.0	3.619	3.654	3.696	3.656	4.41
19.0	3.617	3.652	3.692	3.653	4.41
20.0	3.615	3.649	3.689	3.651	4.40
21.0	3.613	3.648	3.686	3.649	4.40
22.0	3.613	3.646	3.685	3.648	4.40
23.0	3.612	3.645	3.683	3.647	4.40
24.0	3.611	3.644	3.682	3.646	4.40
25.0	3.611	3.642	3.679	3.644	4.39
26.0	3.610	3.642	3.679	3.644	4.39
27.0	3.609	3.641	3.677	3.642	4.39
28.0	3.609	3.640	3.676	3.642	4.39
29.0	3.608	3.640	3.675	3.641	4.39
30.0	3.609	3.639	3.674	3.641	4.39
31.0	3.608	3.639	3.673	3.640	4.39
32.0	3.608	3.639	3.673	3.640	4.39
33.0	3.609	3.639	3.673	3.640	4.39
34.0	3.610	3.640	3.673	3.641	4.39
35.0	3.611	3.641	3.674	3.642	4.39
36.0	3.612	3.642	3.674	3.643	4.39
37.0	3.613	3.643	3.675	3.644	4.39
38.0	3.615	3.644	3.676	3.645	4.40
39.0	3.616	3.646	3.677	3.647	4.40
40.0	3.618	3.647	3.679	3.648	4.40

試料名 SI18-17-2 状態 自然

試料直径(mm) 24.10 試料厚(mm) 4.871

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.248	0.244	0.240	0.244	43.71	-1.359
2.0	0.221	0.218	0.214	0.218	49.07	-1.309
3.0	0.203	0.200	0.197	0.200	53.42	-1.272
4.0	0.189	0.187	0.184	0.187	57.20	-1.243
5.0	0.179	0.176	0.174	0.176	60.61	-1.217
6.0	0.170	0.167	0.165	0.167	63.76	-1.195
7.0	0.162	0.160	0.158	0.160	66.68	-1.176
8.0	0.156	0.154	0.152	0.154	69.42	-1.159
9.0	0.150	0.148	0.146	0.148	72.03	-1.143
10.0	0.145	0.143	0.142	0.143	74.50	-1.128
11.0	0.141	0.139	0.137	0.139	76.87	-1.114
12.0	0.137	0.135	0.133	0.135	79.14	-1.102
13.0	0.133	0.131	0.130	0.131	81.34	-1.090
14.0	0.129	0.128	0.127	0.128	83.46	-1.079
15.0	0.126	0.125	0.124	0.125	85.51	-1.068
16.0	0.123	0.122	0.121	0.122	87.50	-1.058
17.0	0.121	0.119	0.118	0.119	89.43	-1.048
18.0	0.118	0.117	0.116	0.117	91.33	-1.039
19.0	0.116	0.114	0.113	0.115	93.19	-1.031
20.0	0.114	0.112	0.111	0.112	95.01	-1.022
21.0	0.112	0.110	0.109	0.110	96.79	-1.014
22.0	0.110	0.108	0.107	0.108	98.55	-1.006
23.0	0.108	0.106	0.105	0.106	100.28	-0.999
24.0	0.106	0.105	0.104	0.105	101.98	-0.991
25.0	0.104	0.103	0.102	0.103	103.66	-0.984
26.0	0.102	0.101	0.100	0.101	105.31	-0.978
27.0	0.101	0.100	0.099	0.100	106.94	-0.971
28.0	0.099	0.098	0.097	0.098	108.55	-0.964
29.0	0.098	0.097	0.096	0.097	110.14	-0.958
30.0	0.097	0.095	0.095	0.096	111.71	-0.952
31.0	0.095	0.094	0.093	0.094	113.26	-0.946
32.0	0.094	0.093	0.092	0.093	114.80	-0.940
33.0	0.093	0.092	0.091	0.092	116.32	-0.934
34.0	0.092	0.090	0.090	0.091	117.83	-0.929
35.0	0.090	0.089	0.089	0.089	119.31	-0.923
36.0	0.089	0.088	0.088	0.088	120.79	-0.918
37.0	0.088	0.087	0.087	0.087	122.25	-0.913
38.0	0.087	0.086	0.086	0.086	123.69	-0.908
39.0	0.086	0.085	0.085	0.085	125.12	-0.903
40.0	0.085	0.084	0.084	0.084	126.53	-0.898

試料名 SI18-17-2 状態 強制乾燥

試料直径(mm) 24.10 試料厚(mm) 4.871

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	496.9300	462.3100	411.9100	457.050	0.02	-4.631
2.0	280.8600	260.8700	232.7200	258.150	0.04	-4.383
3.0	199.9800	185.3400	165.6800	183.667	0.06	-4.236
4.0	156.9000	145.2800	130.1000	144.093	0.07	-4.130
5.0	129.6300	120.0300	107.6900	119.117	0.09	-4.047
6.0	111.0200	102.8900	92.3840	102.098	0.10	-3.981
7.0	97.2690	90.1590	81.0140	89.481	0.12	-3.923
8.0	86.6430	80.3530	72.3000	79.765	0.13	-3.873
9.0	78.2410	72.5750	65.3610	72.059	0.15	-3.829
10.0	71.4190	66.2220	59.6780	65.773	0.16	-3.790
11.0	67.3810	62.4640	56.1850	62.010	0.17	-3.764
12.0	62.3680	58.0840	52.1650	57.539	0.19	-3.731
13.0	58.3570	53.9280	48.9300	53.738	0.20	-3.702
14.0	55.1020	51.1780	45.8910	50.724	0.21	-3.677
15.0	51.6240	47.9400	43.2510	47.605	0.22	-3.649
16.0	49.0780	45.4020	40.9780	45.153	0.24	-3.626
17.0	46.7830	43.5540	39.1050	43.147	0.25	-3.606
18.0	44.7260	41.4760	37.5140	41.239	0.26	-3.587
19.0	42.7980	39.7330	35.9410	39.491	0.27	-3.568
20.0	41.0480	38.0270	34.4940	37.856	0.28	-3.550
21.0	39.3350	36.5430	33.1110	36.330	0.29	-3.532
22.0	37.7170	35.0010	31.7070	34.808	0.31	-3.513
23.0	36.1570	33.5760	30.4380	33.390	0.32	-3.495
24.0	34.6950	32.1950	29.2370	32.042	0.33	-3.477
25.0	33.3030	31.0640	28.3080	30.892	0.35	-3.461
26.0	32.0560	29.8530	27.1500	29.686	0.36	-3.444
27.0	30.9440	28.8040	26.2270	28.658	0.37	-3.429
28.0	29.9340	27.8620	25.3880	27.728	0.39	-3.414
29.0	28.9800	26.9810	24.6020	26.854	0.40	-3.401
30.0	28.1050	26.2230	23.7890	26.039	0.41	-3.387
31.0	27.3120	25.4720	23.2200	25.335	0.42	-3.375
32.0	26.5180	24.7750	22.5960	24.630	0.43	-3.363
33.0	25.8110	24.0920	21.9870	23.963	0.45	-3.351
34.0	25.1260	23.4440	21.4290	23.333	0.46	-3.339
35.0	24.6120	22.7650	20.8890	22.755	0.47	-3.329
36.0	23.8460	22.2400	20.3570	22.148	0.48	-3.317
37.0	23.2370	21.6670	19.8910	21.598	0.49	-3.306
38.0	22.6750	21.1700	19.4010	21.082	0.51	-3.295
39.0	22.1190	20.6680	18.9620	20.583	0.52	-3.285
40.0	21.6300	20.1590	18.5750	20.121	0.53	-3.275

試料名
状態

SI18-17-2
自然

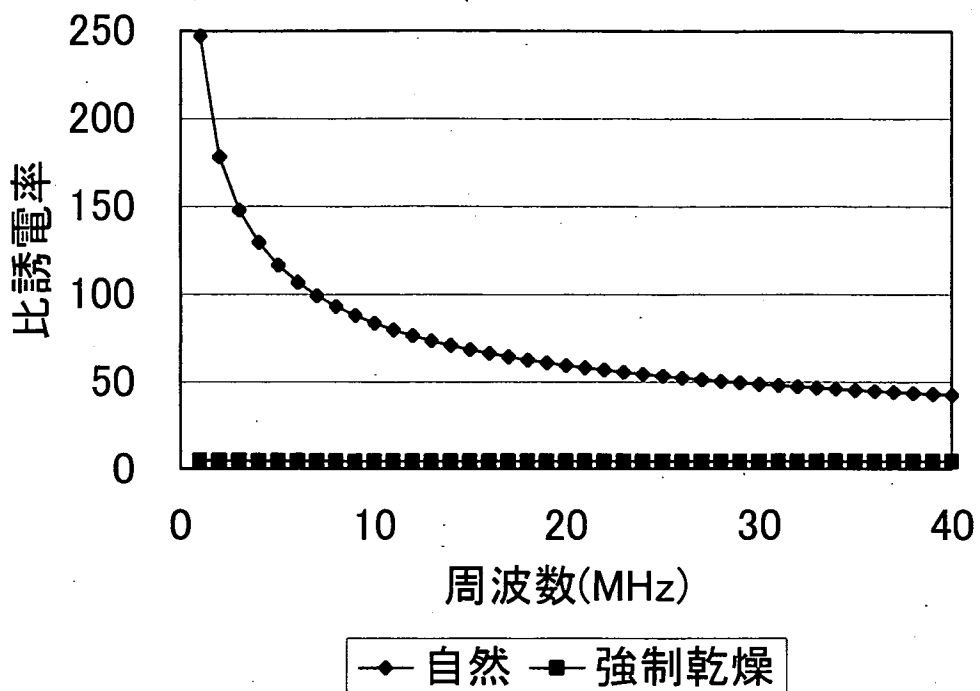
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	247.07	43.71	0.191	4.55
2.0	178.27	49.07	0.225	6.02
3.0	147.86	53.42	0.247	7.19
4.0	129.35	57.20	0.264	8.23
5.0	116.47	60.61	0.278	9.20
6.0	106.84	63.76	0.290	10.10
7.0	99.26	66.68	0.301	10.96
8.0	93.07	69.42	0.311	11.78
9.0	87.91	72.03	0.320	12.58
10.0	83.52	74.50	0.328	13.35
11.0	79.72	76.87	0.336	14.10
12.0	76.40	79.14	0.343	14.82
13.0	73.45	81.34	0.350	15.54
14.0	70.81	83.46	0.356	16.24
15.0	68.45	85.51	0.362	16.92
16.0	66.31	87.50	0.368	17.59
17.0	64.37	89.43	0.374	18.25
18.0	62.59	91.33	0.379	18.90
19.0	60.95	93.19	0.384	19.54
20.0	59.44	95.01	0.389	20.18
21.0	58.03	96.79	0.394	20.80
22.0	56.73	98.55	0.398	21.42
23.0	55.50	100.28	0.402	22.04
24.0	54.35	101.98	0.407	22.65
25.0	53.27	103.66	0.411	23.25
26.0	52.26	105.31	0.415	23.85
27.0	51.30	106.94	0.419	24.45
28.0	50.39	108.55	0.422	25.04
29.0	49.54	110.14	0.426	25.62
30.0	48.73	111.71	0.429	26.20
31.0	47.96	113.26	0.433	26.78
32.0	47.23	114.80	0.436	27.35
33.0	46.54	116.32	0.439	27.92
34.0	45.88	117.83	0.443	28.48
35.0	45.26	119.31	0.446	29.04
36.0	44.65	120.79	0.449	29.60
37.0	44.07	122.25	0.452	30.15
38.0	43.52	123.69	0.454	30.70
39.0	42.99	125.12	0.457	31.24
40.0	42.48	126.53	0.460	31.79

試料名
状態

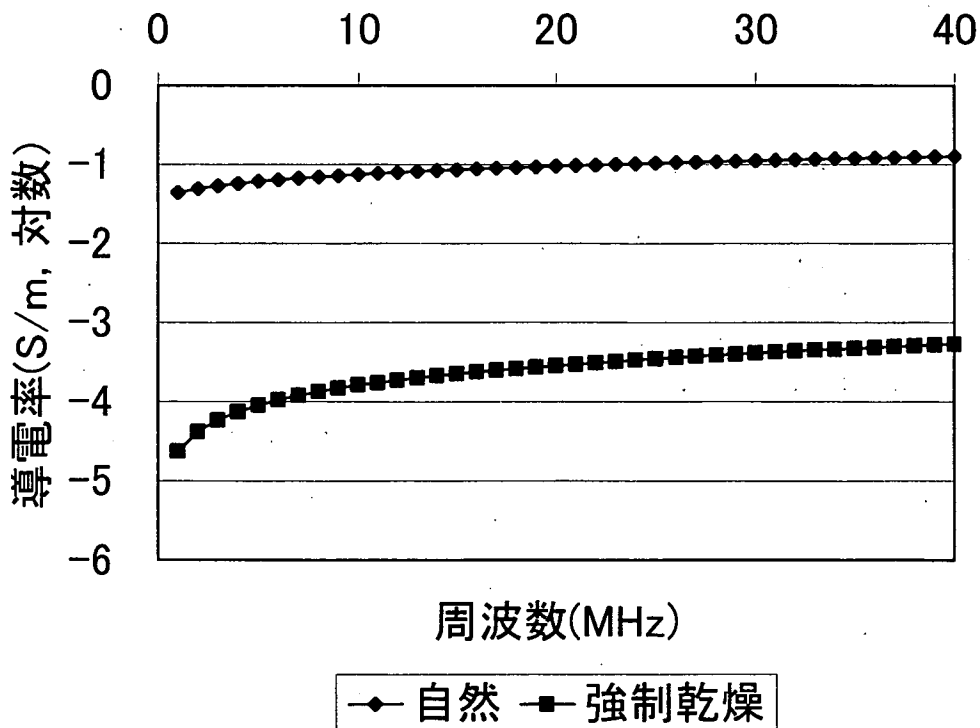
SI18-17-2
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.98	0.02	1.344	0.02
2.0	4.81	0.04	1.367	0.03
3.0	4.72	0.06	1.380	0.04
4.0	4.66	0.07	1.389	0.06
5.0	4.62	0.09	1.395	0.07
6.0	4.58	0.10	1.401	0.08
7.0	4.55	0.12	1.405	0.09
8.0	4.53	0.13	1.409	0.10
9.0	4.51	0.15	1.412	0.11
10.0	4.49	0.16	1.415	0.13
11.0	4.47	0.17	1.417	0.13
12.0	4.46	0.19	1.419	0.14
13.0	4.45	0.20	1.421	0.15
14.0	4.44	0.21	1.423	0.16
15.0	4.43	0.22	1.425	0.17
16.0	4.42	0.24	1.426	0.18
17.0	4.42	0.25	1.427	0.19
18.0	4.41	0.26	1.428	0.20
19.0	4.41	0.27	1.428	0.21
20.0	4.40	0.28	1.429	0.22
21.0	4.40	0.29	1.429	0.23
22.0	4.40	0.31	1.429	0.24
23.0	4.40	0.32	1.430	0.25
24.0	4.40	0.33	1.430	0.26
25.0	4.39	0.35	1.430	0.27
26.0	4.39	0.36	1.430	0.28
27.0	4.39	0.37	1.430	0.29
28.0	4.39	0.39	1.431	0.30
29.0	4.39	0.40	1.431	0.31
30.0	4.39	0.41	1.431	0.32
31.0	4.39	0.42	1.431	0.33
32.0	4.39	0.43	1.431	0.34
33.0	4.39	0.45	1.431	0.35
34.0	4.39	0.46	1.431	0.36
35.0	4.39	0.47	1.431	0.37
36.0	4.39	0.48	1.430	0.38
37.0	4.39	0.49	1.430	0.39
38.0	4.40	0.51	1.430	0.40
39.0	4.40	0.52	1.430	0.41
40.0	4.40	0.53	1.429	0.41

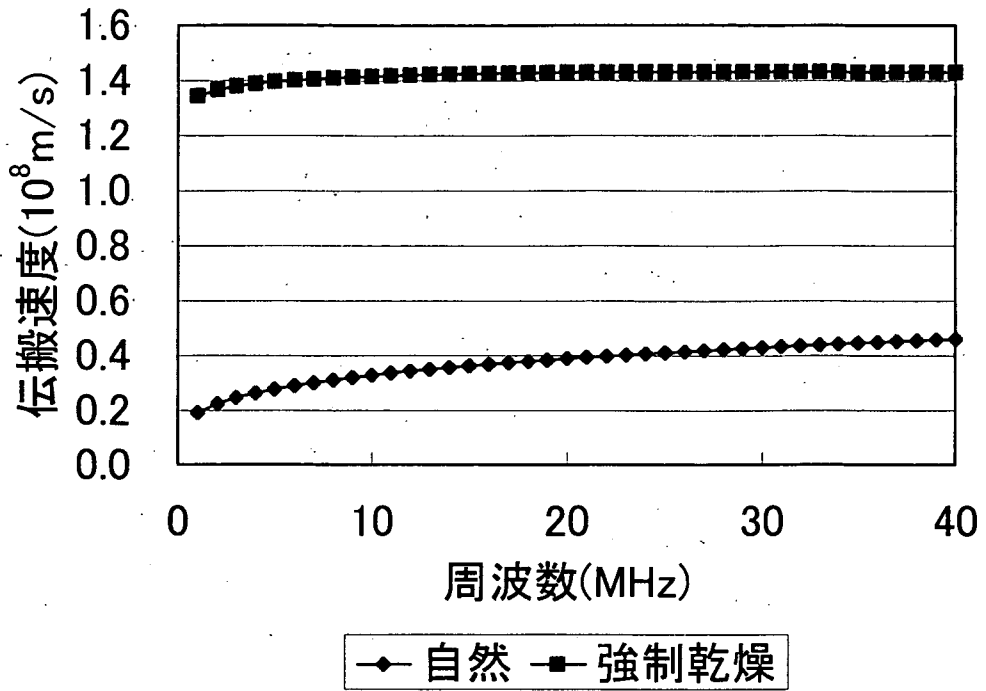
比誘電率
SI18-17-2



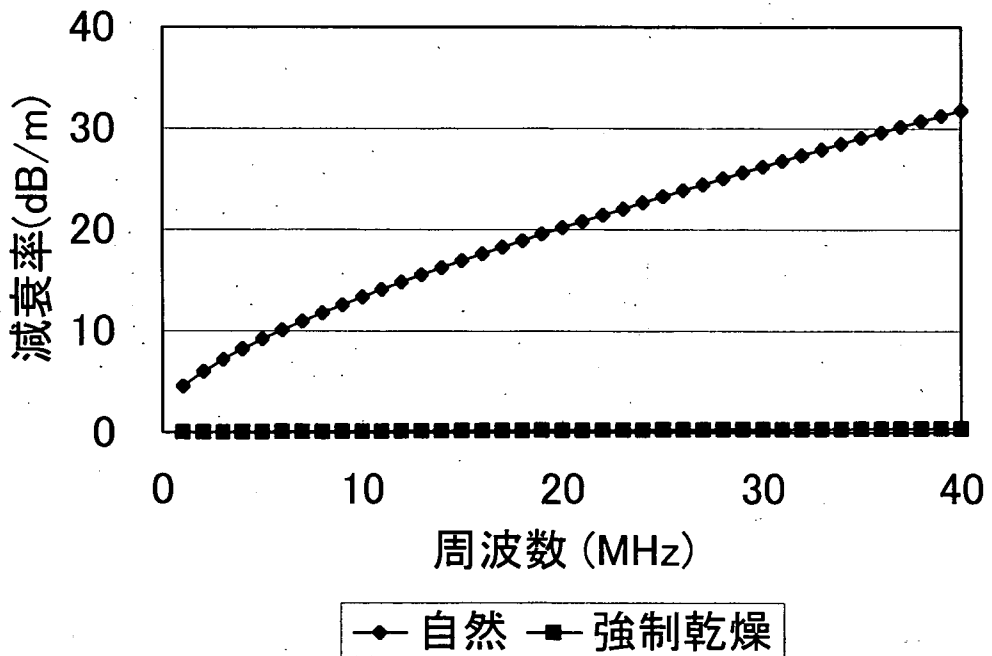
導電率
SI18-17-2



電磁波伝搬速度
SI18-17-2



減衰率
SI18-17-2



試料名 SI18-18 状態 自然

試料直径(mm) 24.10 試料厚(mm) 4.906

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	222.120	223.750	224.940	223.603	271.61
2.0	159.660	160.770	161.490	160.640	195.13
3.0	132.360	133.300	133.850	133.170	161.76
4.0	115.780	116.610	117.090	116.493	141.50
5.0	104.240	105.000	105.430	104.890	127.41
6.0	95.674	96.379	96.746	96.266	116.93
7.0	88.910	89.573	89.903	89.462	108.67
8.0	83.373	83.995	84.298	83.889	101.90
9.0	78.760	79.361	79.636	79.252	96.27
10.0	74.847	75.415	75.672	75.311	91.48
11.0	71.446	72.001	72.237	71.895	87.33
12.0	68.469	68.998	69.223	68.897	83.69
13.0	65.830	66.349	66.546	66.242	80.46
14.0	63.468	63.973	64.163	63.868	77.58
15.0	61.360	61.845	62.021	61.742	75.00
16.0	59.436	59.920	60.077	59.811	72.65
17.0	57.697	58.165	58.313	58.058	70.52
18.0	56.097	56.557	56.696	56.450	68.57
19.0	54.630	55.079	55.206	54.972	66.77
20.0	53.266	53.708	53.827	53.600	65.11
21.0	52.006	52.444	52.552	52.334	63.57
22.0	50.834	51.262	51.362	51.153	62.13
23.0	49.736	50.155	50.247	50.046	60.79
24.0	48.705	49.120	49.206	49.010	59.53
25.0	47.732	48.144	48.222	48.033	58.34
26.0	46.827	47.227	47.298	47.117	57.23
27.0	45.965	46.363	46.427	46.252	56.18
28.0	45.153	45.546	45.602	45.434	55.19
29.0	44.387	44.775	44.821	44.661	54.25
30.0	43.649	44.039	44.080	43.923	53.35
31.0	42.969	43.349	43.378	43.232	52.51
32.0	42.314	42.691	42.712	42.572	51.71
33.0	41.692	42.064	42.079	41.945	50.95
34.0	41.097	41.466	41.476	41.346	50.22
35.0	40.539	40.900	40.911	40.783	49.54
36.0	39.991	40.354	40.349	40.231	48.87
37.0	39.470	39.829	39.820	39.706	48.23
38.0	38.974	39.331	39.318	39.208	47.63
39.0	38.496	38.851	38.832	38.726	47.04
40.0	38.039	38.390	38.365	38.265	46.48

試料名 SI18-18 状態 強制乾燥

試料直径(mm) 24.10 試料厚(mm) 4.906

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	4.097	4.127	4.199	4.141	5.03
2.0	3.970	3.994	4.052	4.005	4.87
3.0	3.900	3.922	3.972	3.931	4.78
4.0	3.854	3.873	3.919	3.882	4.72
5.0	3.819	3.837	3.878	3.845	4.67
6.0	3.792	3.809	3.848	3.816	4.64
7.0	3.770	3.786	3.822	3.793	4.61
8.0	3.751	3.767	3.801	3.773	4.58
9.0	3.735	3.750	3.782	3.756	4.56
10.0	3.722	3.736	3.767	3.741	4.54
11.0	3.711	3.725	3.754	3.730	4.53
12.0	3.700	3.715	3.742	3.719	4.52
13.0	3.692	3.704	3.732	3.709	4.51
14.0	3.684	3.697	3.722	3.701	4.50
15.0	3.676	3.689	3.714	3.693	4.49
16.0	3.671	3.682	3.707	3.686	4.48
17.0	3.666	3.677	3.700	3.681	4.47
18.0	3.662	3.673	3.697	3.677	4.47
19.0	3.659	3.670	3.692	3.674	4.46
20.0	3.657	3.668	3.690	3.671	4.46
21.0	3.656	3.666	3.687	3.670	4.46
22.0	3.655	3.665	3.686	3.669	4.46
23.0	3.654	3.664	3.684	3.668	4.45
24.0	3.654	3.664	3.683	3.667	4.45
25.0	3.653	3.662	3.681	3.666	4.45
26.0	3.652	3.662	3.680	3.665	4.45
27.0	3.651	3.661	3.679	3.664	4.45
28.0	3.650	3.660	3.678	3.663	4.45
29.0	3.650	3.660	3.677	3.662	4.45
30.0	3.649	3.659	3.676	3.661	4.45
31.0	3.650	3.659	3.676	3.662	4.45
32.0	3.650	3.659	3.676	3.662	4.45
33.0	3.651	3.660	3.676	3.662	4.45
34.0	3.651	3.661	3.676	3.663	4.45
35.0	3.652	3.662	3.677	3.664	4.45
36.0	3.653	3.662	3.678	3.664	4.45
37.0	3.655	3.664	3.679	3.666	4.45
38.0	3.656	3.665	3.680	3.667	4.45
39.0	3.658	3.667	3.681	3.669	4.46
40.0	3.660	3.668	3.683	3.670	4.46

試料名 SI18-18 状態 自然

試料直径(mm) 24.10 試料厚(mm) 4.906

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.217	0.214	0.212	0.215	50.14	-1.300
2.0	0.195	0.192	0.190	0.192	55.98	-1.252
3.0	0.179	0.177	0.175	0.177	60.72	-1.217
4.0	0.168	0.166	0.164	0.166	64.85	-1.188
5.0	0.159	0.157	0.155	0.157	68.57	-1.164
6.0	0.151	0.149	0.148	0.149	72.01	-1.143
7.0	0.145	0.143	0.141	0.143	75.21	-1.124
8.0	0.139	0.138	0.136	0.138	78.21	-1.107
9.0	0.134	0.133	0.131	0.133	81.06	-1.091
10.0	0.130	0.128	0.127	0.128	83.77	-1.077
11.0	0.126	0.125	0.123	0.125	86.37	-1.064
12.0	0.122	0.121	0.120	0.121	88.87	-1.051
13.0	0.119	0.118	0.117	0.118	91.29	-1.040
14.0	0.116	0.115	0.114	0.115	93.60	-1.029
15.0	0.113	0.112	0.111	0.112	95.87	-1.018
16.0	0.111	0.110	0.109	0.110	98.05	-1.009
17.0	0.108	0.107	0.106	0.107	100.18	-0.999
18.0	0.106	0.105	0.104	0.105	102.27	-0.990
19.0	0.104	0.103	0.102	0.103	104.31	-0.982
20.0	0.102	0.101	0.100	0.101	106.32	-0.973
21.0	0.100	0.099	0.098	0.099	108.28	-0.965
22.0	0.098	0.098	0.097	0.098	110.21	-0.958
23.0	0.097	0.096	0.095	0.096	112.11	-0.950
24.0	0.095	0.094	0.093	0.094	113.98	-0.943
25.0	0.094	0.093	0.092	0.093	115.84	-0.936
26.0	0.092	0.092	0.091	0.091	117.65	-0.929
27.0	0.091	0.090	0.089	0.090	119.44	-0.923
28.0	0.089	0.089	0.088	0.089	121.22	-0.916
29.0	0.088	0.088	0.087	0.087	122.98	-0.910
30.0	0.087	0.086	0.085	0.086	124.71	-0.904
31.0	0.086	0.085	0.084	0.085	126.43	-0.898
32.0	0.085	0.084	0.083	0.084	128.13	-0.892
33.0	0.083	0.083	0.082	0.083	129.81	-0.887
34.0	0.082	0.082	0.081	0.082	131.47	-0.881
35.0	0.081	0.081	0.080	0.081	133.12	-0.876
36.0	0.080	0.080	0.079	0.080	134.74	-0.871
37.0	0.079	0.079	0.078	0.079	136.35	-0.865
38.0	0.079	0.078	0.077	0.078	137.94	-0.860
39.0	0.078	0.077	0.076	0.077	139.53	-0.855
40.0	0.077	0.076	0.076	0.076	141.08	-0.851

試料名 SI18-18 状態 強制乾燥

試料直径(mm) 24.10 試料厚(mm) 4.906

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	492.6300	474.2900	427.3200	464.747	0.02	-4.636
2.0	278.1300	267.1000	241.5100	262.247	0.04	-4.387
3.0	197.8700	189.4900	171.9600	186.440	0.06	-4.239
4.0	155.0200	148.4100	134.9500	146.127	0.07	-4.133
5.0	128.1000	122.4300	111.8000	120.777	0.09	-4.050
6.0	109.6600	104.8900	95.6700	103.407	0.10	-3.983
7.0	95.9940	91.8110	83.8830	90.563	0.12	-3.925
8.0	85.5070	81.7670	74.8000	80.691	0.13	-3.875
9.0	77.1500	73.7720	67.5630	72.828	0.15	-3.831
10.0	70.3600	67.2570	61.6800	66.432	0.16	-3.791
11.0	66.3970	63.4520	58.0960	62.648	0.17	-3.765
12.0	61.7330	58.9670	53.9720	58.224	0.18	-3.733
13.0	57.5320	54.8670	50.5220	54.307	0.20	-3.703
14.0	53.8570	52.0100	47.1110	50.993	0.21	-3.676
15.0	50.9300	48.6700	44.8650	48.155	0.22	-3.651
16.0	48.1550	46.0220	42.4330	45.537	0.24	-3.627
17.0	46.0480	43.9300	40.3840	43.454	0.25	-3.606
18.0	43.9420	41.9630	38.6560	41.520	0.26	-3.587
19.0	42.0760	40.2020	37.0470	39.775	0.27	-3.568
20.0	40.1900	38.5240	35.5940	38.103	0.28	-3.549
21.0	38.6310	36.9170	34.0340	36.527	0.29	-3.531
22.0	37.0480	35.3260	32.6900	35.021	0.31	-3.513
23.0	35.4750	33.9570	31.3490	33.594	0.32	-3.495
24.0	34.0290	32.5210	30.0820	32.211	0.33	-3.476
25.0	32.7300	31.2930	28.9340	30.986	0.35	-3.460
26.0	31.4740	30.1160	27.9270	29.839	0.36	-3.443
27.0	30.4090	29.0580	26.9650	28.811	0.37	-3.428
28.0	29.3690	28.0900	26.0880	27.849	0.39	-3.413
29.0	28.4450	27.2110	25.2790	26.978	0.40	-3.399
30.0	27.6080	26.4670	24.4280	26.168	0.41	-3.386
31.0	26.7980	25.6360	23.8540	25.429	0.42	-3.374
32.0	26.0410	24.9230	23.1980	24.721	0.44	-3.361
33.0	25.3090	24.2300	22.5520	24.030	0.45	-3.349
34.0	24.6510	23.5830	21.9740	23.403	0.46	-3.338
35.0	24.1490	23.0070	21.4540	22.870	0.47	-3.328
36.0	23.3700	22.3680	20.8560	22.198	0.48	-3.315
37.0	22.7870	21.8150	20.3590	21.654	0.50	-3.304
38.0	22.2490	21.2750	19.8930	21.139	0.51	-3.293
39.0	21.6890	20.7810	19.4060	20.625	0.52	-3.283
40.0	21.1610	20.3720	19.0320	20.188	0.53	-3.273

試料名
状態

SI18-18
自然

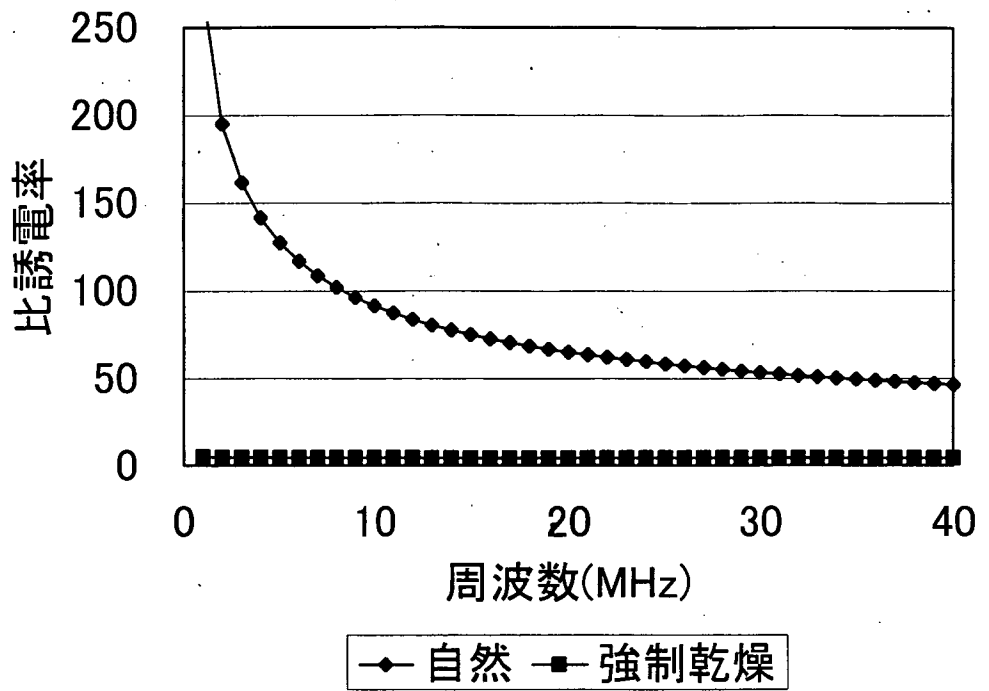
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	271.61	50.14	0.182	4.98
2.0	195.13	55.98	0.215	6.56
3.0	161.76	60.72	0.236	7.82
4.0	141.50	64.85	0.252	8.93
5.0	127.41	68.57	0.266	9.95
6.0	116.93	72.01	0.277	10.90
7.0	108.67	75.21	0.288	11.81
8.0	101.90	78.21	0.297	12.68
9.0	96.27	81.06	0.306	13.53
10.0	91.48	83.77	0.313	14.34
11.0	87.33	86.37	0.321	15.13
12.0	83.69	88.87	0.328	15.90
13.0	80.46	91.29	0.334	16.66
14.0	77.58	93.60	0.340	17.40
15.0	75.00	95.87	0.346	18.12
16.0	72.65	98.05	0.352	18.83
17.0	70.52	100.18	0.357	19.53
18.0	68.57	102.27	0.362	20.22
19.0	66.77	104.31	0.367	20.90
20.0	65.11	106.32	0.372	21.57
21.0	63.57	108.28	0.376	22.24
22.0	62.13	110.21	0.380	22.89
23.0	60.79	112.11	0.385	23.54
24.0	59.53	113.98	0.389	24.19
25.0	58.34	115.84	0.392	24.83
26.0	57.23	117.65	0.396	25.46
27.0	56.18	119.44	0.400	26.09
28.0	55.19	121.22	0.404	26.72
29.0	54.25	122.98	0.407	27.34
30.0	53.35	124.71	0.410	27.95
31.0	52.51	126.43	0.414	28.56
32.0	51.71	128.13	0.417	29.17
33.0	50.95	129.81	0.420	29.77
34.0	50.22	131.47	0.423	30.37
35.0	49.54	133.12	0.426	30.97
36.0	48.87	134.74	0.429	31.56
37.0	48.23	136.35	0.432	32.14
38.0	47.63	137.94	0.434	32.73
39.0	47.04	139.53	0.437	33.31
40.0	46.48	141.08	0.440	33.88

試料名
状態

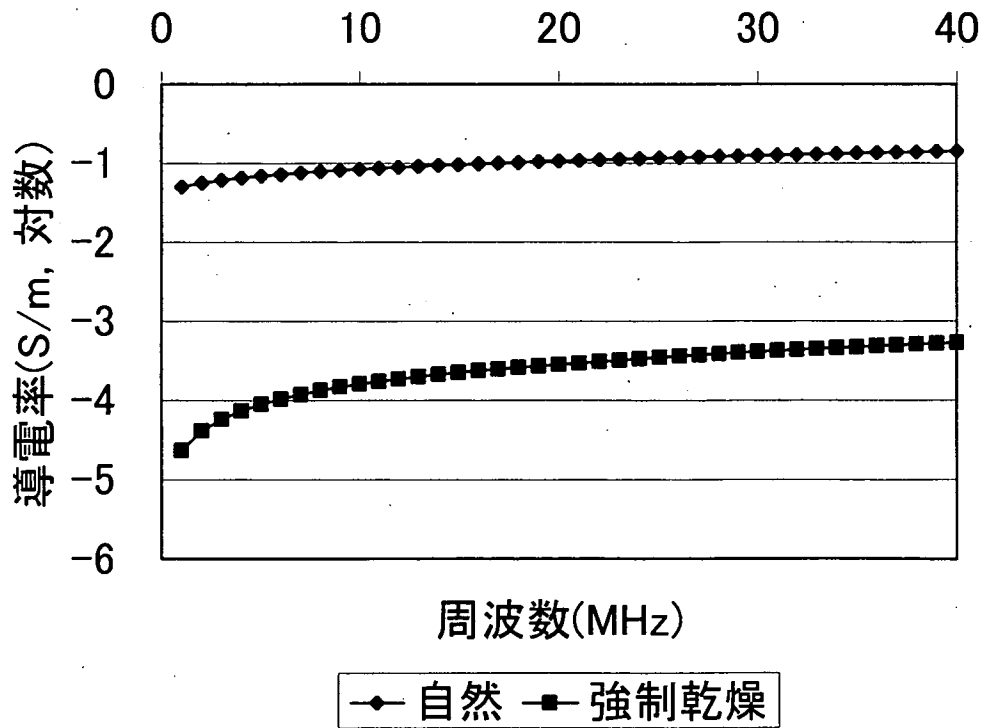
SI18-18
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	5.03	0.02	1.337	0.02
2.0	4.87	0.04	1.359	0.03
3.0	4.78	0.06	1.372	0.04
4.0	4.72	0.07	1.381	0.06
5.0	4.67	0.09	1.387	0.07
6.0	4.64	0.10	1.392	0.08
7.0	4.61	0.12	1.397	0.09
8.0	4.58	0.13	1.400	0.10
9.0	4.56	0.15	1.404	0.11
10.0	4.54	0.16	1.406	0.12
11.0	4.53	0.17	1.408	0.13
12.0	4.52	0.18	1.411	0.14
13.0	4.51	0.20	1.412	0.15
14.0	4.50	0.21	1.414	0.16
15.0	4.49	0.22	1.415	0.17
16.0	4.48	0.24	1.417	0.18
17.0	4.47	0.25	1.418	0.19
18.0	4.47	0.26	1.419	0.20
19.0	4.46	0.27	1.419	0.21
20.0	4.46	0.28	1.420	0.22
21.0	4.46	0.29	1.420	0.23
22.0	4.46	0.31	1.420	0.24
23.0	4.45	0.32	1.420	0.25
24.0	4.45	0.33	1.421	0.26
25.0	4.45	0.35	1.421	0.27
26.0	4.45	0.36	1.421	0.28
27.0	4.45	0.37	1.421	0.29
28.0	4.45	0.39	1.421	0.30
29.0	4.45	0.40	1.421	0.31
30.0	4.45	0.41	1.422	0.32
31.0	4.45	0.42	1.422	0.33
32.0	4.45	0.44	1.422	0.34
33.0	4.45	0.45	1.421	0.35
34.0	4.45	0.46	1.421	0.36
35.0	4.45	0.47	1.421	0.36
36.0	4.45	0.48	1.421	0.38
37.0	4.45	0.50	1.421	0.39
38.0	4.45	0.51	1.421	0.39
39.0	4.46	0.52	1.420	0.40
40.0	4.46	0.53	1.420	0.41

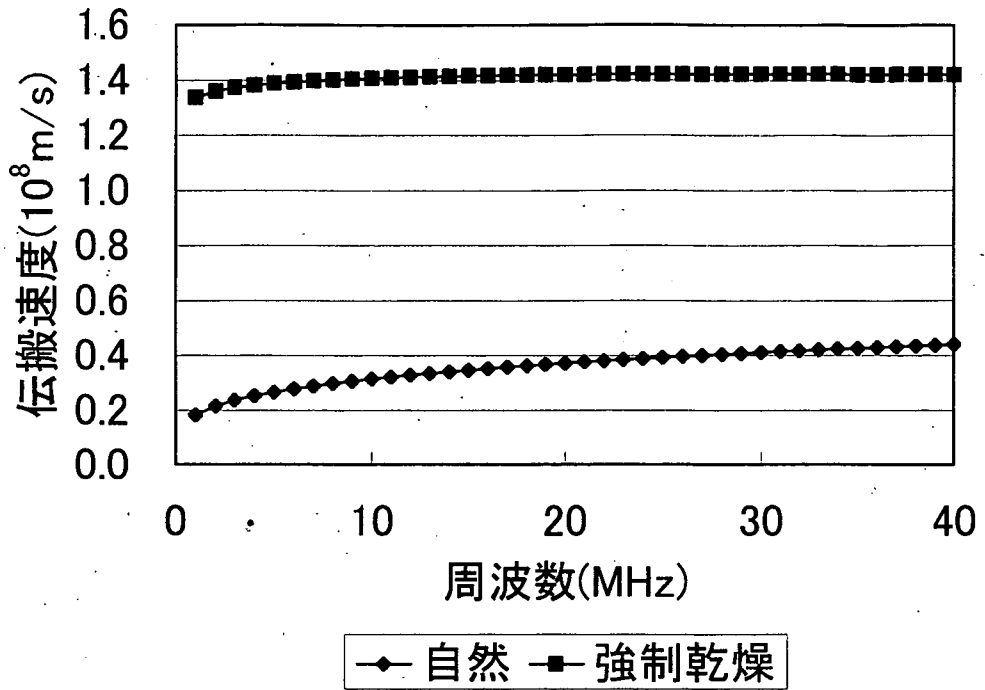
比誘電率
SI18-18



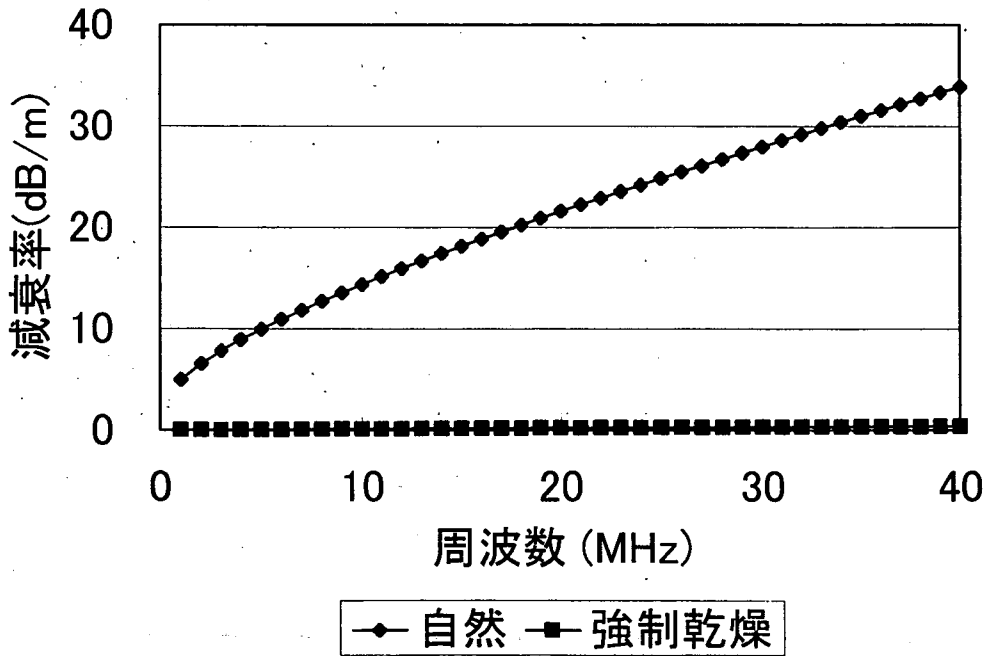
導電率
SI18-18



電磁波伝搬速度 SI18-18



減衰率 SI18-18



試料名 SI18-2-1 状態 自然

試料直径(mm) 24.30 試料厚(mm) 4.949

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	98.058	98.837	98.700	98.532	118.75
2.0	72.587	73.131	73.000	72.906	87.87
3.0	61.293	61.746	61.600	61.546	74.18
4.0	54.389	54.798	54.600	54.596	65.80
5.0	49.577	49.954	49.800	49.777	59.99
6.0	45.973	46.329	46.100	46.134	55.60
7.0	43.131	43.470	43.300	43.300	52.19
8.0	40.799	41.120	40.900	40.940	49.34
9.0	38.859	39.165	38.900	38.975	46.97
10.0	37.201	37.497	37.300	37.333	45.00
11.0	35.765	36.053	35.900	35.906	43.28
12.0	34.506	34.789	34.600	34.632	41.74
13.0	33.384	33.659	33.400	33.481	40.35
14.0	32.198	32.463	32.200	32.287	38.91
15.0	31.286	31.551	31.300	31.379	37.82
16.0	30.464	30.725	30.500	30.563	36.84
17.0	29.715	29.968	29.800	29.828	35.95
18.0	29.031	29.287	29.100	29.139	35.12
19.0	28.403	28.654	28.400	28.486	34.33
20.0	27.821	28.070	27.900	27.930	33.66
21.0	27.279	27.525	27.300	27.368	32.99
22.0	26.771	27.016	26.800	26.862	32.38
23.0	26.294	26.537	26.300	26.377	31.79
24.0	25.843	26.087	25.900	25.943	31.27
25.0	25.414	25.656	25.500	25.523	30.76
26.0	25.015	25.256	25.100	25.124	30.28
27.0	24.636	24.876	24.700	24.737	29.81
28.0	24.275	24.516	24.300	24.364	29.36
29.0	23.936	24.179	24.000	24.038	28.97
30.0	23.615	23.859	23.600	23.691	28.55
31.0	23.310	23.556	23.300	23.389	28.19
32.0	23.021	23.269	23.100	23.130	27.88
33.0	22.747	22.996	22.800	22.848	27.54
34.0	22.486	22.737	22.500	22.574	27.21
35.0	22.237	22.495	22.300	22.344	26.93
36.0	21.998	22.255	22.000	22.084	26.62
37.0	21.771	22.031	21.800	21.867	26.36
38.0	21.553	21.816	21.600	21.656	26.10
39.0	21.344	21.610	21.400	21.451	25.85
40.0	21.144	21.411	21.200	21.252	25.61

試料名 SI18-2-1 状態 強制乾燥

試料直径(mm) 24.30 試料厚(mm) 4.949

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.299	3.294	3.348	3.314	3.99
2.0	3.247	3.235	3.284	3.256	3.92
3.0	3.218	3.203	3.249	3.223	3.88
4.0	3.198	3.180	3.224	3.201	3.86
5.0	3.183	3.164	3.205	3.184	3.84
6.0	3.171	3.151	3.192	3.171	3.82
7.0	3.162	3.140	3.180	3.161	3.81
8.0	3.153	3.131	3.170	3.152	3.80
9.0	3.147	3.124	3.162	3.144	3.79
10.0	3.141	3.117	3.155	3.138	3.78
11.0	3.137	3.113	3.150	3.133	3.78
12.0	3.133	3.109	3.144	3.129	3.77
13.0	3.130	3.104	3.140	3.125	3.77
14.0	3.126	3.101	3.137	3.121	3.76
15.0	3.124	3.099	3.133	3.119	3.76
16.0	3.122	3.096	3.131	3.116	3.76
17.0	3.120	3.094	3.128	3.114	3.75
18.0	3.121	3.094	3.127	3.114	3.75
19.0	3.121	3.093	3.127	3.114	3.75
20.0	3.122	3.094	3.127	3.114	3.75
21.0	3.123	3.095	3.128	3.115	3.75
22.0	3.124	3.096	3.129	3.116	3.76
23.0	3.126	3.097	3.130	3.118	3.76
24.0	3.127	3.098	3.131	3.119	3.76
25.0	3.128	3.099	3.132	3.119	3.76
26.0	3.130	3.101	3.133	3.121	3.76
27.0	3.131	3.102	3.133	3.122	3.76
28.0	3.132	3.103	3.134	3.123	3.76
29.0	3.133	3.104	3.135	3.124	3.77
30.0	3.133	3.104	3.135	3.124	3.77
31.0	3.136	3.106	3.137	3.127	3.77
32.0	3.138	3.108	3.139	3.128	3.77
33.0	3.139	3.110	3.140	3.130	3.77
34.0	3.141	3.112	3.142	3.132	3.77
35.0	3.144	3.114	3.144	3.134	3.78
36.0	3.146	3.116	3.145	3.135	3.78
37.0	3.148	3.118	3.148	3.138	3.78
38.0	3.150	3.120	3.150	3.140	3.78
39.0	3.153	3.123	3.152	3.143	3.79
40.0	3.155	3.125	3.154	3.145	3.79

試料名 SI18-2-1 状態 自然

試料直径(mm) 24.30 試料厚(mm) 4.949

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.505	0.496	0.493	0.498	21.43	-1.669
2.0	0.453	0.446	0.443	0.447	23.86	-1.622
3.0	0.418	0.412	0.409	0.413	25.85	-1.588
4.0	0.392	0.386	0.384	0.387	27.57	-1.560
5.0	0.370	0.365	0.363	0.366	29.15	-1.535
6.0	0.353	0.348	0.346	0.349	30.60	-1.514
7.0	0.337	0.333	0.331	0.334	31.97	-1.495
8.0	0.324	0.320	0.318	0.321	33.27	-1.478
9.0	0.313	0.309	0.307	0.309	34.48	-1.462
10.0	0.302	0.299	0.297	0.299	35.65	-1.448
11.0	0.293	0.289	0.288	0.290	36.77	-1.434
12.0	0.285	0.281	0.280	0.282	37.85	-1.422
13.0	0.277	0.274	0.272	0.274	38.93	-1.410
14.0	0.269	0.266	0.265	0.267	40.00	-1.398
15.0	0.263	0.260	0.258	0.260	41.02	-1.387
16.0	0.257	0.254	0.252	0.254	41.99	-1.377
17.0	0.251	0.248	0.247	0.249	42.90	-1.367
18.0	0.246	0.243	0.242	0.244	43.82	-1.358
19.0	0.241	0.238	0.237	0.239	44.73	-1.349
20.0	0.236	0.233	0.232	0.234	45.65	-1.341
21.0	0.231	0.229	0.228	0.229	46.51	-1.332
22.0	0.227	0.225	0.223	0.225	47.44	-1.324
23.0	0.223	0.221	0.219	0.221	48.31	-1.316
24.0	0.219	0.217	0.216	0.217	49.10	-1.309
25.0	0.215	0.213	0.212	0.214	49.97	-1.301
26.0	0.212	0.210	0.209	0.210	50.76	-1.295
27.0	0.208	0.207	0.205	0.207	51.63	-1.287
28.0	0.205	0.204	0.202	0.204	52.42	-1.280
29.0	0.202	0.201	0.199	0.201	53.21	-1.274
30.0	0.199	0.198	0.196	0.198	54.01	-1.268
31.0	0.196	0.195	0.193	0.195	54.81	-1.261
32.0	0.194	0.192	0.191	0.192	55.51	-1.256
33.0	0.191	0.190	0.188	0.190	56.31	-1.249
34.0	0.188	0.187	0.186	0.187	57.02	-1.244
35.0	0.186	0.185	0.183	0.185	57.82	-1.238
36.0	0.184	0.182	0.181	0.182	58.53	-1.233
37.0	0.181	0.180	0.179	0.180	59.23	-1.227
38.0	0.179	0.178	0.177	0.178	59.93	-1.222
39.0	0.177	0.176	0.174	0.176	60.75	-1.216
40.0	0.175	0.174	0.173	0.174	61.34	-1.212

試料名 SI18-2-1 状態 強制乾燥

試料直径(mm) 24.30 試料厚(mm) 4.949

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1232.9000	1112.3000	1018.1000	1121.100	0.01	-5.021
2.0	670.6200	604.4700	553.8200	609.637	0.02	-4.757
3.0	465.2300	419.7400	385.4400	423.470	0.03	-4.599
4.0	358.3500	324.2800	298.0100	326.880	0.03	-4.486
5.0	293.7500	265.3400	242.5300	267.207	0.04	-4.399
6.0	247.5000	224.1900	206.5000	226.063	0.05	-4.326
7.0	214.2500	194.5600	179.2300	196.013	0.05	-4.264
8.0	188.9400	171.7100	158.4000	173.017	0.06	-4.210
9.0	169.0000	153.9100	142.0600	154.990	0.07	-4.162
10.0	152.6800	139.3000	128.8400	140.273	0.08	-4.119
11.0	146.6100	133.2200	122.9800	134.270	0.08	-4.100
12.0	134.7000	122.7600	112.0400	123.167	0.09	-4.062
13.0	125.6000	113.6500	105.0700	114.773	0.09	-4.032
14.0	114.8400	105.2700	99.3270	106.479	0.10	-3.999
15.0	109.4600	100.7800	92.3190	100.853	0.11	-3.975
16.0	103.8500	94.2090	87.6300	95.230	0.11	-3.951
17.0	98.6810	90.3590	83.9970	91.012	0.12	-3.931
18.0	94.9370	86.2820	79.9460	87.055	0.12	-3.912
19.0	90.4730	82.5560	76.4450	83.158	0.13	-3.892
20.0	86.2870	78.5790	72.9360	79.267	0.13	-3.871
21.0	82.5340	75.6420	69.7180	75.965	0.14	-3.852
22.0	79.0400	72.1300	66.8110	72.660	0.15	-3.833
23.0	75.1370	68.8240	63.8070	69.256	0.15	-3.812
24.0	71.6460	65.6100	60.8610	66.039	0.16	-3.792
25.0	67.7290	62.4610	58.5410	62.910	0.17	-3.771
26.0	65.2150	60.1120	55.6750	60.334	0.18	-3.752
27.0	62.6020	57.7030	53.6080	57.971	0.18	-3.735
28.0	60.1980	55.4250	51.6510	55.758	0.19	-3.718
29.0	57.9980	53.5500	49.7730	53.774	0.20	-3.702
30.0	56.3390	51.4600	48.1950	51.998	0.21	-3.688
31.0	54.1910	50.1730	46.6310	50.332	0.21	-3.674
32.0	52.5090	48.5930	45.2190	48.774	0.22	-3.660
33.0	50.9330	47.2040	43.9790	47.372	0.23	-3.647
34.0	49.3840	45.7770	42.6390	45.933	0.23	-3.634
35.0	48.2210	44.5720	41.4510	44.748	0.24	-3.623
36.0	46.4620	43.0690	40.1910	43.241	0.25	-3.608
37.0	45.2590	41.9250	39.1180	42.101	0.25	-3.596
38.0	43.9310	40.8950	38.0390	40.955	0.26	-3.584
39.0	42.6970	39.8270	37.1080	39.877	0.27	-3.573
40.0	41.6870	38.6200	36.2380	38.848	0.27	-3.561

試料名
状態

SI18-2-1
自然

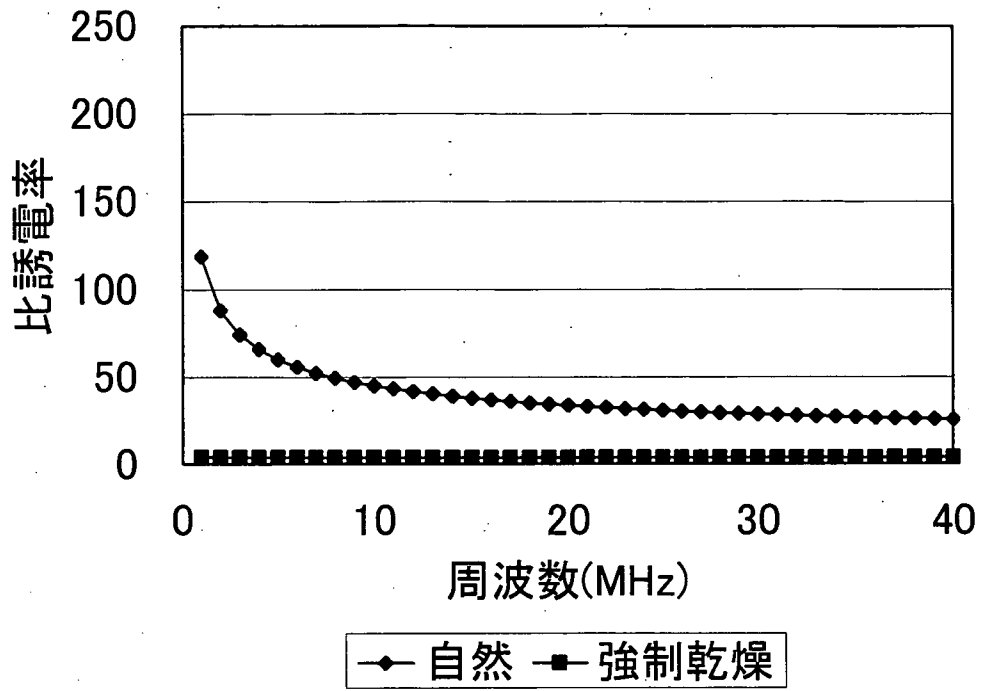
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	118.75	21.43	0.275	3.22
2.0	87.87	23.86	0.320	4.17
3.0	74.18	25.85	0.348	4.91
4.0	65.80	27.57	0.370	5.56
5.0	59.99	29.15	0.387	6.16
6.0	55.60	30.60	0.402	6.72
7.0	52.19	31.97	0.415	7.25
8.0	49.34	33.27	0.427	7.75
9.0	46.97	34.48	0.437	8.24
10.0	45.00	35.65	0.447	8.70
11.0	43.28	36.77	0.456	9.15
12.0	41.74	37.85	0.464	9.59
13.0	40.35	38.93	0.472	10.03
14.0	38.91	40.00	0.481	10.50
15.0	37.82	41.02	0.487	10.92
16.0	36.84	41.99	0.494	11.33
17.0	35.95	42.90	0.500	11.72
18.0	35.12	43.82	0.506	12.11
19.0	34.33	44.73	0.512	12.50
20.0	33.66	45.65	0.517	12.88
21.0	32.99	46.51	0.522	13.26
22.0	32.38	47.44	0.527	13.65
23.0	31.79	48.31	0.532	14.03
24.0	31.27	49.10	0.536	14.38
25.0	30.76	49.97	0.541	14.75
26.0	30.28	50.76	0.545	15.10
27.0	29.81	51.63	0.549	15.48
28.0	29.36	52.42	0.553	15.84
29.0	28.97	53.21	0.557	16.19
30.0	28.55	54.01	0.561	16.55
31.0	28.19	54.81	0.565	16.90
32.0	27.88	55.51	0.568	17.21
33.0	27.54	56.31	0.571	17.57
34.0	27.21	57.02	0.575	17.90
35.0	26.93	57.82	0.578	18.24
36.0	26.62	58.53	0.581	18.57
37.0	26.36	59.23	0.584	18.89
38.0	26.10	59.93	0.587	19.21
39.0	25.85	60.75	0.590	19.56
40.0	25.61	61.34	0.592	19.84

試料名
状態

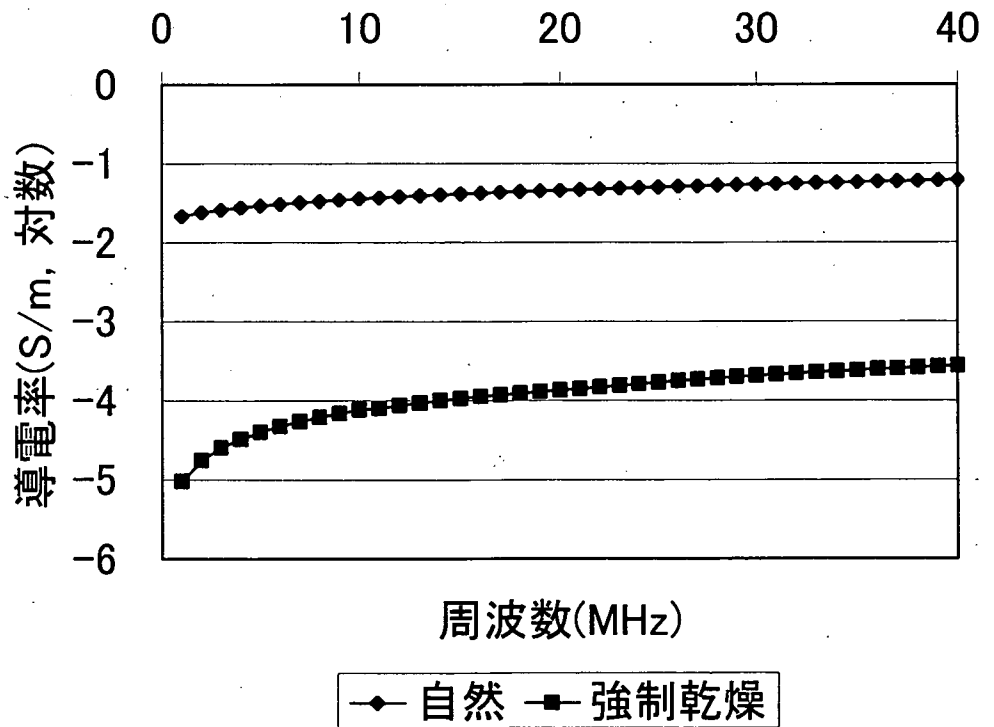
SI18-2-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	3.99	0.01	1.500	0.01
2.0	3.92	0.02	1.513	0.01
3.0	3.88	0.03	1.521	0.02
4.0	3.86	0.03	1.526	0.03
5.0	3.84	0.04	1.530	0.03
6.0	3.82	0.05	1.533	0.04
7.0	3.81	0.05	1.536	0.05
8.0	3.80	0.06	1.538	0.05
9.0	3.79	0.07	1.540	0.06
10.0	3.78	0.08	1.542	0.06
11.0	3.78	0.08	1.543	0.07
12.0	3.77	0.09	1.544	0.07
13.0	3.77	0.09	1.545	0.08
14.0	3.76	0.10	1.546	0.08
15.0	3.76	0.11	1.546	0.09
16.0	3.76	0.11	1.547	0.09
17.0	3.75	0.12	1.547	0.10
18.0	3.75	0.12	1.548	0.10
19.0	3.75	0.13	1.548	0.11
20.0	3.75	0.13	1.548	0.11
21.0	3.75	0.14	1.547	0.12
22.0	3.76	0.15	1.547	0.12
23.0	3.76	0.15	1.547	0.13
24.0	3.76	0.16	1.546	0.14
25.0	3.76	0.17	1.546	0.14
26.0	3.76	0.18	1.546	0.15
27.0	3.76	0.18	1.546	0.16
28.0	3.76	0.19	1.545	0.16
29.0	3.77	0.20	1.545	0.17
30.0	3.77	0.21	1.545	0.17
31.0	3.77	0.21	1.544	0.18
32.0	3.77	0.22	1.544	0.18
33.0	3.77	0.23	1.544	0.19
34.0	3.77	0.23	1.543	0.20
35.0	3.78	0.24	1.543	0.20
36.0	3.78	0.25	1.542	0.21
37.0	3.78	0.25	1.542	0.21
38.0	3.78	0.26	1.541	0.22
39.0	3.79	0.27	1.540	0.23
40.0	3.79	0.27	1.540	0.23

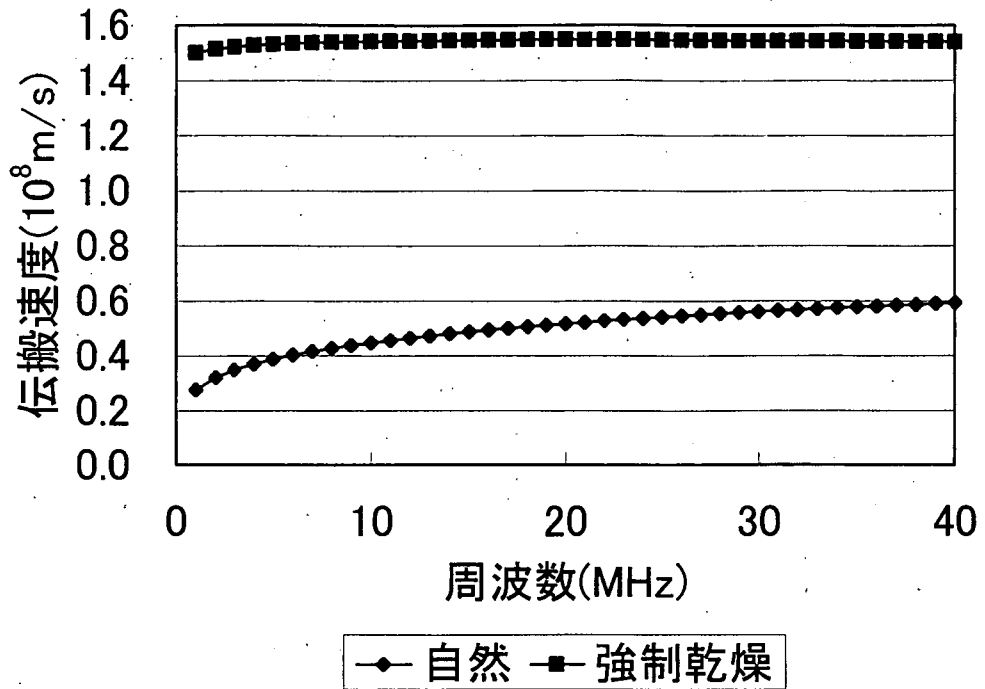
比誘電率
SI18-2-1



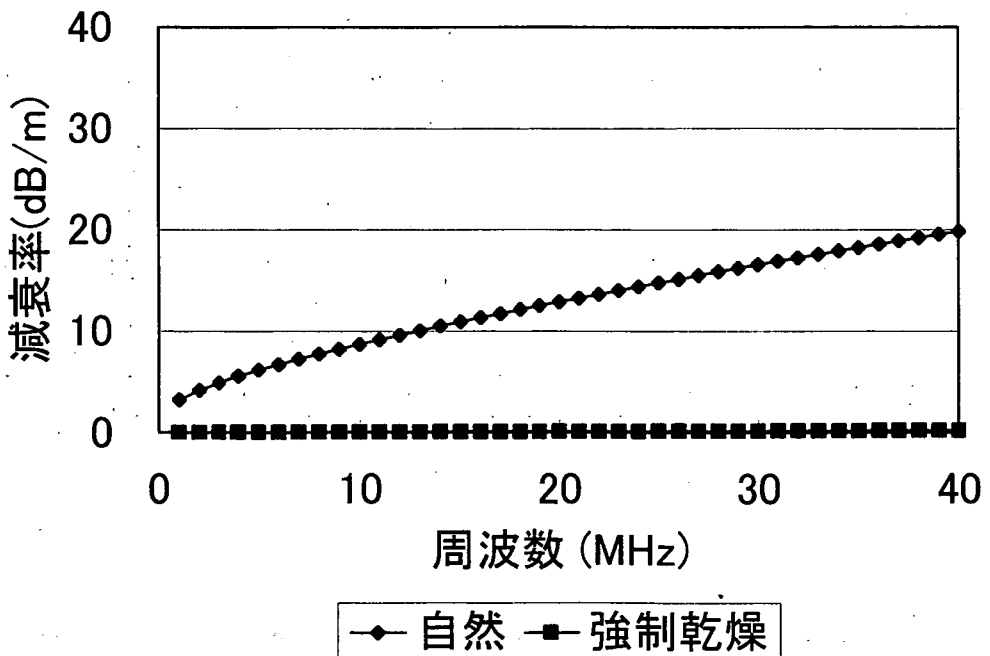
導電率
SI18-2-1



電磁波伝搬速度 SI18-2-1



減衰率 SI18-2-1



試料名 SI18-2-2 状態 自然

試料直径(mm) 24.18 試料厚(mm) 4.927

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	100.920	101.610	102.440	101.657	123.19
2.0	74.767	75.270	75.891	75.309	91.26
3.0	63.011	63.436	63.974	63.474	76.92
4.0	55.804	56.188	56.677	56.223	68.13
5.0	50.764	51.136	51.580	51.160	62.00
6.0	46.999	47.344	47.768	47.370	57.40
7.0	44.032	44.353	44.760	44.382	53.78
8.0	41.607	41.892	42.293	41.931	50.81
9.0	39.585	39.851	40.238	39.891	48.34
10.0	37.862	38.116	38.488	38.155	46.24
11.0	36.368	36.610	36.974	36.651	44.41
12.0	35.057	35.294	35.647	35.333	42.82
13.0	33.891	34.121	34.463	34.158	41.39
14.0	32.657	32.881	33.217	32.918	39.89
15.0	31.714	31.931	32.258	31.968	38.74
16.0	30.862	31.073	31.394	31.110	37.70
17.0	30.077	30.285	30.601	30.321	36.74
18.0	29.373	29.564	29.887	29.608	35.88
19.0	28.719	28.908	29.227	28.951	35.08
20.0	28.114	28.293	28.615	28.341	34.34
21.0	27.550	27.726	28.044	27.773	33.66
22.0	27.024	27.192	27.511	27.242	33.01
23.0	26.531	26.691	27.008	26.743	32.41
24.0	26.063	26.223	26.536	26.274	31.84
25.0	25.623	25.776	26.090	25.830	31.30
26.0	25.204	25.354	25.669	25.409	30.79
27.0	24.811	24.961	25.269	25.014	30.31
28.0	24.439	24.587	24.893	24.640	29.86
29.0	24.090	24.234	24.538	24.287	29.43
30.0	23.754	23.898	24.200	23.951	29.02
31.0	23.444	23.580	23.886	23.637	28.64
32.0	23.145	23.278	23.585	23.336	28.28
33.0	22.861	22.993	23.298	23.051	27.93
34.0	22.592	22.721	23.023	22.779	27.60
35.0	22.339	22.461	22.765	22.522	27.29
36.0	22.088	22.212	22.516	22.272	26.99
37.0	21.854	21.973	22.279	22.035	26.70
38.0	21.630	21.749	22.055	21.811	26.43
39.0	21.415	21.532	21.837	21.595	26.17
40.0	21.207	21.325	21.628	21.387	25.92

試料名 SI18-2-2 状態 強制乾燥

試料直径(mm) 24.18 試料厚(mm) 4.927

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.303	3.348	3.403	3.351	4.06
2.0	3.245	3.279	3.327	3.284	3.98
3.0	3.212	3.240	3.285	3.245	3.93
4.0	3.189	3.214	3.256	3.220	3.90
5.0	3.173	3.193	3.234	3.200	3.88
6.0	3.160	3.179	3.218	3.185	3.86
7.0	3.149	3.166	3.204	3.173	3.85
8.0	3.140	3.155	3.192	3.163	3.83
9.0	3.133	3.146	3.182	3.154	3.82
10.0	3.127	3.139	3.174	3.146	3.81
11.0	3.122	3.133	3.168	3.141	3.81
12.0	3.117	3.127	3.162	3.135	3.80
13.0	3.114	3.123	3.156	3.131	3.79
14.0	3.111	3.119	3.151	3.127	3.79
15.0	3.107	3.114	3.148	3.123	3.78
16.0	3.105	3.112	3.144	3.120	3.78
17.0	3.103	3.110	3.140	3.117	3.78
18.0	3.102	3.108	3.139	3.116	3.78
19.0	3.102	3.107	3.138	3.116	3.78
20.0	3.103	3.107	3.138	3.116	3.78
21.0	3.104	3.108	3.138	3.117	3.78
22.0	3.105	3.109	3.138	3.117	3.78
23.0	3.106	3.110	3.139	3.118	3.78
24.0	3.108	3.111	3.139	3.119	3.78
25.0	3.109	3.111	3.140	3.120	3.78
26.0	3.110	3.112	3.140	3.120	3.78
27.0	3.111	3.113	3.140	3.121	3.78
28.0	3.112	3.113	3.141	3.122	3.78
29.0	3.113	3.114	3.141	3.123	3.78
30.0	3.115	3.113	3.143	3.124	3.79
31.0	3.115	3.115	3.143	3.124	3.79
32.0	3.117	3.117	3.144	3.126	3.79
33.0	3.118	3.118	3.145	3.127	3.79
34.0	3.120	3.119	3.146	3.128	3.79
35.0	3.122	3.121	3.148	3.130	3.79
36.0	3.124	3.123	3.149	3.132	3.80
37.0	3.126	3.125	3.151	3.134	3.80
38.0	3.128	3.127	3.153	3.136	3.80
39.0	3.131	3.129	3.155	3.138	3.80
40.0	3.133	3.131	3.157	3.140	3.81

試料名 SI18-2-2 状態 自然

試料直径(mm) 24.18 試料厚(mm) 4.927

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.524	0.518	0.511	0.518	20.73	-1.683
2.0	0.466	0.461	0.455	0.461	23.29	-1.633
3.0	0.428	0.423	0.418	0.423	25.38	-1.596
4.0	0.399	0.394	0.390	0.394	27.20	-1.565
5.0	0.376	0.372	0.368	0.372	28.86	-1.540
6.0	0.357	0.353	0.350	0.353	30.39	-1.517
7.0	0.341	0.337	0.334	0.337	31.81	-1.497
8.0	0.327	0.324	0.320	0.324	33.16	-1.479
9.0	0.315	0.311	0.309	0.312	34.44	-1.463
10.0	0.304	0.301	0.298	0.301	35.66	-1.448
11.0	0.294	0.291	0.289	0.291	36.84	-1.434
12.0	0.285	0.282	0.280	0.283	37.97	-1.421
13.0	0.277	0.275	0.272	0.275	39.07	-1.408
14.0	0.269	0.267	0.264	0.267	40.21	-1.396
15.0	0.263	0.260	0.258	0.260	41.25	-1.385
16.0	0.256	0.254	0.252	0.254	42.25	-1.374
17.0	0.251	0.248	0.246	0.248	43.23	-1.364
18.0	0.245	0.243	0.241	0.243	44.19	-1.355
19.0	0.240	0.238	0.236	0.238	45.14	-1.345
20.0	0.235	0.233	0.231	0.233	46.07	-1.337
21.0	0.230	0.228	0.226	0.228	46.99	-1.328
22.0	0.226	0.224	0.222	0.224	47.90	-1.320
23.0	0.222	0.220	0.218	0.220	48.79	-1.312
24.0	0.218	0.216	0.214	0.216	49.68	-1.304
25.0	0.214	0.212	0.210	0.212	50.56	-1.296
26.0	0.211	0.209	0.207	0.209	51.41	-1.289
27.0	0.207	0.205	0.204	0.205	52.26	-1.282
28.0	0.204	0.202	0.200	0.202	53.09	-1.275
29.0	0.201	0.199	0.197	0.199	53.92	-1.268
30.0	0.198	0.196	0.194	0.196	54.73	-1.262
31.0	0.195	0.193	0.192	0.193	55.54	-1.255
32.0	0.192	0.190	0.189	0.190	56.34	-1.249
33.0	0.190	0.188	0.186	0.188	57.13	-1.243
34.0	0.187	0.185	0.184	0.185	57.91	-1.237
35.0	0.184	0.183	0.181	0.183	58.69	-1.231
36.0	0.182	0.180	0.179	0.180	59.45	-1.226
37.0	0.180	0.178	0.177	0.178	60.21	-1.220
38.0	0.178	0.176	0.175	0.176	60.96	-1.215
39.0	0.175	0.174	0.172	0.174	61.70	-1.210
40.0	0.173	0.172	0.170	0.172	62.44	-1.205

試料名 SI18-2-2 状態 強制乾燥

試料直径(mm) 24.18 試料厚(mm) 4.927

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1093.3000	932.9000	853.3800	959.860	0.01	-4.952
2.0	596.7600	509.6900	466.6200	524.357	0.02	-4.689
3.0	416.6100	355.7800	325.4100	365.933	0.03	-4.533
4.0	322.1700	275.8500	252.0700	283.363	0.04	-4.422
5.0	263.0900	225.9400	205.8600	231.630	0.05	-4.334
6.0	222.9900	191.7800	175.3800	196.717	0.05	-4.263
7.0	193.6200	166.7900	152.5400	170.983	0.06	-4.202
8.0	170.8900	147.4800	135.0400	151.137	0.07	-4.149
9.0	153.2100	132.3800	121.2300	135.607	0.08	-4.102
10.0	138.8500	120.2800	110.0200	123.050	0.09	-4.060
11.0	132.2300	114.2100	104.5400	116.993	0.09	-4.038
12.0	120.9800	105.0000	96.7890	107.590	0.10	-4.001
13.0	113.6900	98.4910	89.4410	100.541	0.11	-3.972
14.0	106.2400	92.7190	83.9940	94.318	0.11	-3.944
15.0	99.5920	86.4970	79.1600	88.416	0.12	-3.916
16.0	94.8300	81.9350	74.8140	83.860	0.13	-3.893
17.0	89.5190	78.4160	71.5830	79.839	0.13	-3.872
18.0	85.8220	75.1010	68.2480	76.390	0.14	-3.852
19.0	82.1050	72.3030	65.3210	73.243	0.15	-3.834
20.0	78.5840	68.6120	62.5970	69.931	0.15	-3.814
21.0	75.0600	66.5950	59.8030	67.153	0.16	-3.796
22.0	71.5530	64.2100	57.1400	64.301	0.17	-3.778
23.0	68.2690	61.7860	54.6400	61.565	0.17	-3.759
24.0	65.1960	59.2680	52.3190	58.928	0.18	-3.740
25.0	62.1460	56.7890	49.8820	56.272	0.19	-3.720
26.0	59.5380	54.3430	48.0510	53.977	0.20	-3.702
27.0	57.2780	52.9300	46.2920	52.167	0.21	-3.687
28.0	55.1230	50.1010	44.6120	49.945	0.21	-3.668
29.0	53.1330	47.6430	43.0510	47.942	0.22	-3.650
30.0	50.9790	46.0480	41.4350	46.154	0.23	-3.634
31.0	49.6930	44.7140	40.4070	44.938	0.24	-3.622
32.0	48.1000	43.3040	39.2340	43.546	0.25	-3.608
33.0	46.7200	42.3170	38.0750	42.371	0.25	-3.596
34.0	45.3470	40.9310	36.9880	41.089	0.26	-3.583
35.0	44.3660	40.3260	36.0680	40.253	0.27	-3.574
36.0	42.6870	39.4040	34.9180	39.003	0.28	-3.561
37.0	41.5970	38.0580	34.0270	37.894	0.28	-3.548
38.0	40.3610	36.9200	33.1490	36.810	0.29	-3.535
39.0	39.2480	36.2160	32.3040	35.923	0.30	-3.525
40.0	38.3310	35.4390	31.6490	35.140	0.31	-3.515

試料名
状態

SI18-2-2
自然

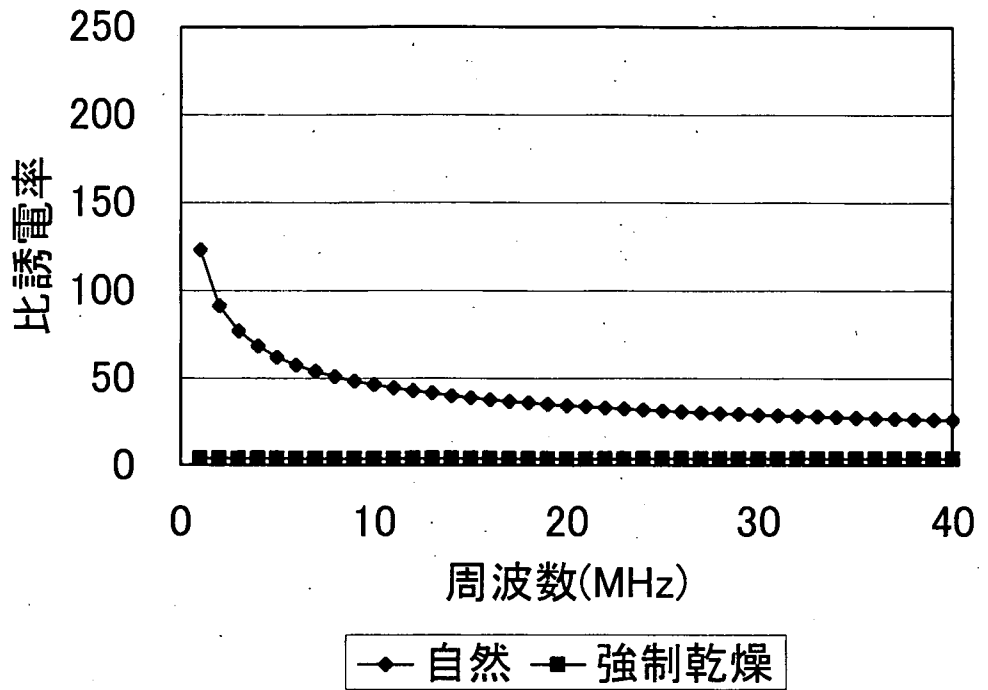
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	123.19	20.73	0.270	3.06
2.0	91.26	23.29	0.314	3.99
3.0	76.92	25.38	0.342	4.74
4.0	68.13	27.20	0.363	5.40
5.0	62.00	28.86	0.381	6.00
6.0	57.40	30.39	0.396	6.57
7.0	53.78	31.81	0.409	7.10
8.0	50.81	33.16	0.421	7.62
9.0	48.34	34.44	0.431	8.11
10.0	46.24	35.66	0.441	8.59
11.0	44.41	36.84	0.450	9.05
12.0	42.82	37.97	0.458	9.50
13.0	41.39	39.07	0.466	9.94
14.0	39.89	40.21	0.475	10.42
15.0	38.74	41.25	0.482	10.85
16.0	37.70	42.25	0.488	11.27
17.0	36.74	43.23	0.495	11.68
18.0	35.88	44.19	0.501	12.08
19.0	35.08	45.14	0.506	12.48
20.0	34.34	46.07	0.512	12.87
21.0	33.66	46.99	0.517	13.26
22.0	33.01	47.90	0.522	13.65
23.0	32.41	48.79	0.527	14.03
24.0	31.84	49.68	0.531	14.41
25.0	31.30	50.56	0.536	14.79
26.0	30.79	51.41	0.540	15.17
27.0	30.31	52.26	0.545	15.54
28.0	29.86	53.09	0.549	15.91
29.0	29.43	53.92	0.553	16.27
30.0	29.02	54.73	0.556	16.63
31.0	28.64	55.54	0.560	16.99
32.0	28.28	56.34	0.564	17.34
33.0	27.93	57.13	0.567	17.70
34.0	27.60	57.91	0.571	18.04
35.0	27.29	58.69	0.574	18.39
36.0	26.99	59.45	0.577	18.74
37.0	26.70	60.21	0.580	19.08
38.0	26.43	60.96	0.583	19.41
39.0	26.17	61.70	0.586	19.75
40.0	25.92	62.44	0.589	20.08

試料名
状態

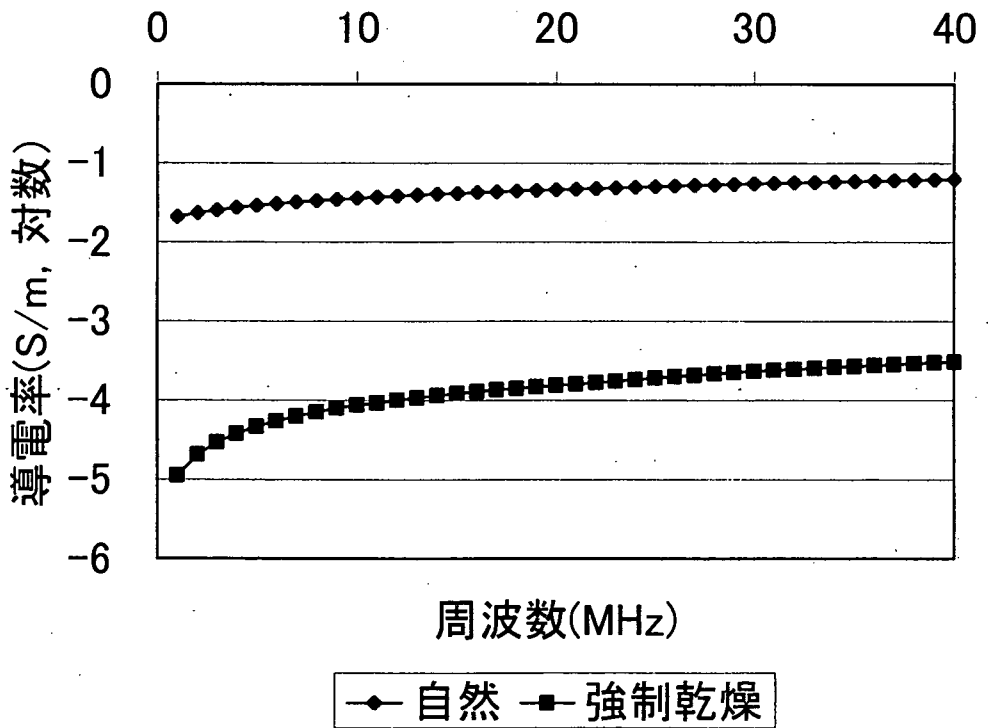
SI18-2-2
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	4.06	0.01	1.488	0.01
2.0	3.98	0.02	1.503	0.02
3.0	3.93	0.03	1.512	0.02
4.0	3.90	0.04	1.518	0.03
5.0	3.88	0.05	1.522	0.04
6.0	3.86	0.05	1.526	0.05
7.0	3.85	0.06	1.529	0.05
8.0	3.83	0.07	1.531	0.06
9.0	3.82	0.08	1.534	0.07
10.0	3.81	0.09	1.535	0.07
11.0	3.81	0.09	1.537	0.08
12.0	3.80	0.10	1.538	0.08
13.0	3.79	0.11	1.539	0.09
14.0	3.79	0.11	1.540	0.10
15.0	3.78	0.12	1.541	0.10
16.0	3.78	0.13	1.542	0.11
17.0	3.78	0.13	1.542	0.11
18.0	3.78	0.14	1.543	0.12
19.0	3.78	0.15	1.543	0.12
20.0	3.78	0.15	1.543	0.13
21.0	3.78	0.16	1.543	0.13
22.0	3.78	0.17	1.542	0.14
23.0	3.78	0.17	1.542	0.15
24.0	3.78	0.18	1.542	0.15
25.0	3.78	0.19	1.542	0.16
26.0	3.78	0.20	1.542	0.17
27.0	3.78	0.21	1.542	0.17
28.0	3.78	0.21	1.541	0.18
29.0	3.78	0.22	1.541	0.19
30.0	3.79	0.23	1.541	0.20
31.0	3.79	0.24	1.541	0.20
32.0	3.79	0.25	1.540	0.21
33.0	3.79	0.25	1.540	0.21
34.0	3.79	0.26	1.540	0.22
35.0	3.79	0.27	1.539	0.22
36.0	3.80	0.28	1.539	0.23
37.0	3.80	0.28	1.538	0.24
38.0	3.80	0.29	1.538	0.24
39.0	3.80	0.30	1.537	0.25
40.0	3.81	0.31	1.537	0.26

比誘電率
SI18-2-2

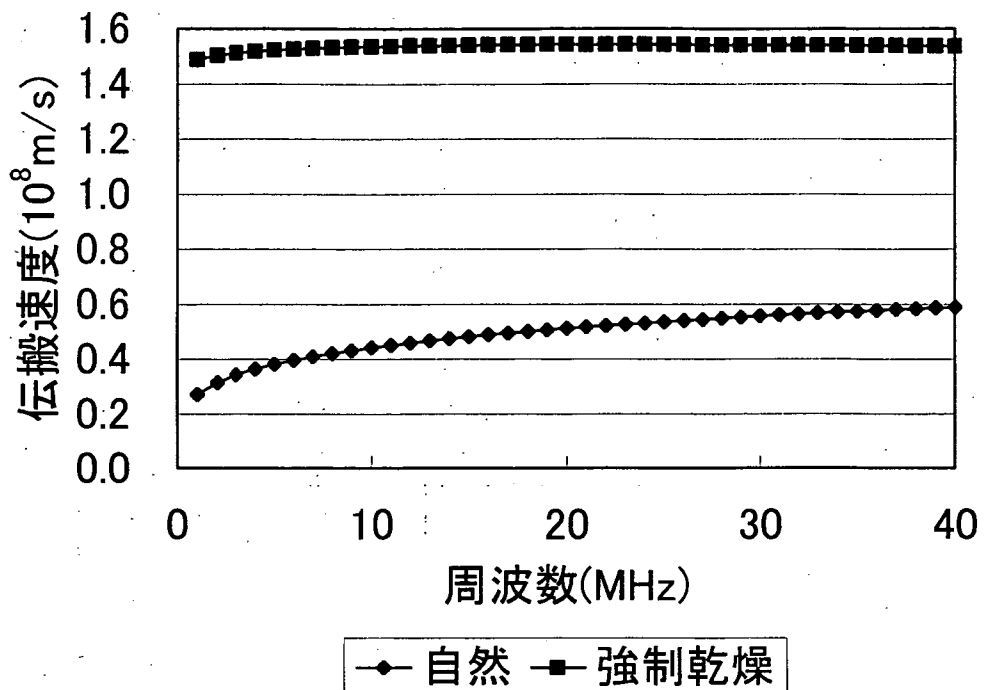


導電率
SI18-2-2



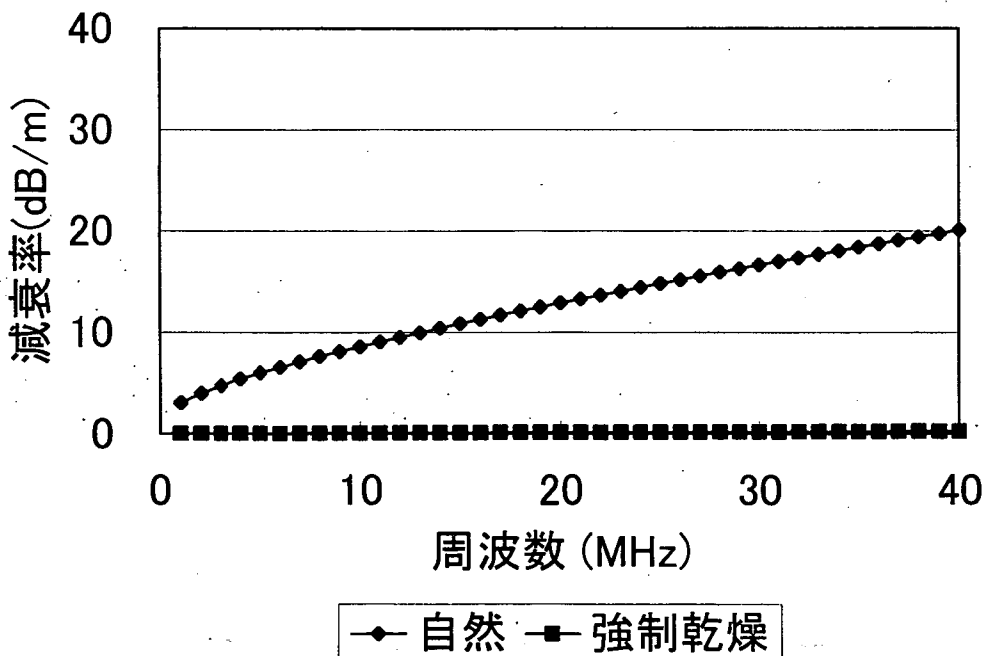
電磁波伝搬速度

SI18-2-2



減衰率

SI18-2-2



試料名 SI18-3 状態 自然

試料直径(mm) 24.18 試料厚(mm) 4.867

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	106.370	106.970	107.440	106.927	128.00
2.0	78.290	78.671	79.006	78.656	94.16
3.0	65.822	66.134	66.416	66.124	79.16
4.0	58.220	58.484	58.742	58.482	70.01
5.0	52.916	53.164	53.391	53.157	63.63
6.0	48.969	49.178	49.406	49.184	58.88
7.0	45.855	46.043	46.262	46.053	55.13
8.0	43.300	43.473	43.682	43.485	52.05
9.0	41.177	41.334	41.538	41.350	49.50
10.0	39.367	39.512	39.713	39.531	47.32
11.0	37.802	37.935	38.132	37.956	45.44
12.0	36.432	36.372	36.565	36.456	43.64
13.0	35.021	35.132	35.323	35.159	42.09
14.0	33.922	34.017	34.208	34.049	40.76
15.0	32.933	33.025	33.217	33.058	39.57
16.0	32.039	32.124	32.315	32.159	38.50
17.0	31.227	31.305	31.486	31.339	37.52
18.0	30.482	30.560	30.739	30.594	36.62
19.0	29.802	29.871	30.052	29.908	35.80
20.0	29.170	29.236	29.411	29.272	35.04
21.0	28.581	28.641	28.817	28.680	34.33
22.0	28.034	28.087	28.262	28.128	33.67
23.0	27.516	27.567	27.739	27.607	33.05
24.0	27.028	27.074	27.247	27.116	32.46
25.0	26.568	26.606	26.780	26.651	31.90
26.0	26.133	26.172	26.343	26.216	31.38
27.0	25.721	25.759	25.927	25.802	30.89
28.0	25.334	25.367	25.535	25.412	30.42
29.0	24.967	24.999	25.165	25.044	29.98
30.0	24.623	24.651	24.816	24.697	29.56
31.0	24.292	24.318	24.483	24.364	29.17
32.0	23.980	24.002	24.167	24.050	28.79
33.0	23.684	23.703	23.868	23.752	28.43
34.0	23.401	23.418	23.583	23.467	28.09
35.0	23.140	23.151	23.315	23.202	27.77
36.0	22.876	22.885	23.049	22.937	27.46
37.0	22.629	22.637	22.801	22.689	27.16
38.0	22.396	22.399	22.564	22.453	26.88
39.0	22.168	22.170	22.334	22.224	26.60
40.0	21.955	21.950	22.117	22.007	26.34

試料名 SI18-3 状態 強制乾燥

試料直径(mm) 24.18 試料厚(mm) 4.867

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.469	3.504	3.497	3.490	4.18
2.0	3.401	3.430	3.419	3.417	4.09
3.0	3.363	3.388	3.376	3.375	4.04
4.0	3.337	3.359	3.346	3.347	4.01
5.0	3.318	3.339	3.324	3.327	3.98
6.0	3.303	3.322	3.307	3.310	3.96
7.0	3.290	3.308	3.293	3.297	3.95
8.0	3.280	3.297	3.281	3.286	3.93
9.0	3.271	3.287	3.271	3.276	3.92
10.0	3.264	3.279	3.263	3.269	3.91
11.0	3.258	3.273	3.256	3.262	3.91
12.0	3.253	3.268	3.250	3.257	3.90
13.0	3.248	3.261	3.245	3.251	3.89
14.0	3.245	3.257	3.240	3.247	3.89
15.0	3.241	3.254	3.235	3.243	3.88
16.0	3.238	3.249	3.232	3.240	3.88
17.0	3.236	3.249	3.229	3.238	3.88
18.0	3.234	3.245	3.227	3.236	3.87
19.0	3.234	3.245	3.227	3.235	3.87
20.0	3.234	3.245	3.226	3.235	3.87
21.0	3.235	3.245	3.227	3.236	3.87
22.0	3.236	3.246	3.227	3.236	3.87
23.0	3.237	3.247	3.228	3.237	3.88
24.0	3.238	3.247	3.229	3.238	3.88
25.0	3.239	3.248	3.228	3.238	3.88
26.0	3.240	3.248	3.230	3.239	3.88
27.0	3.241	3.249	3.230	3.240	3.88
28.0	3.242	3.250	3.231	3.241	3.88
29.0	3.242	3.250	3.231	3.241	3.88
30.0	3.242	3.251	3.233	3.242	3.88
31.0	3.244	3.252	3.233	3.243	3.88
32.0	3.246	3.253	3.234	3.244	3.88
33.0	3.247	3.255	3.236	3.246	3.89
34.0	3.249	3.256	3.237	3.247	3.89
35.0	3.251	3.258	3.239	3.249	3.89
36.0	3.253	3.260	3.241	3.251	3.89
37.0	3.255	3.261	3.243	3.253	3.89
38.0	3.257	3.263	3.245	3.255	3.90
39.0	3.260	3.266	3.247	3.258	3.90
40.0	3.262	3.268	3.249	3.260	3.90

試料名 SI18-3 状態 自然

試料直径(mm) 24.18 試料厚(mm) 4.867

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.485	0.478	0.475	0.479	22.12	-1.655
2.0	0.432	0.427	0.424	0.428	24.78	-1.606
3.0	0.397	0.393	0.390	0.393	26.94	-1.570
4.0	0.371	0.367	0.365	0.368	28.83	-1.540
5.0	0.351	0.346	0.344	0.347	30.54	-1.515
6.0	0.333	0.329	0.328	0.330	32.11	-1.493
7.0	0.319	0.315	0.313	0.316	33.58	-1.474
8.0	0.306	0.303	0.301	0.303	34.96	-1.456
9.0	0.295	0.292	0.290	0.292	36.28	-1.440
10.0	0.285	0.282	0.280	0.282	37.54	-1.426
11.0	0.276	0.273	0.272	0.274	38.75	-1.412
12.0	0.268	0.264	0.263	0.265	39.97	-1.398
13.0	0.260	0.257	0.256	0.258	41.13	-1.386
14.0	0.253	0.251	0.249	0.251	42.22	-1.374
15.0	0.247	0.244	0.243	0.245	43.29	-1.364
16.0	0.241	0.239	0.237	0.239	44.32	-1.353
17.0	0.236	0.233	0.232	0.234	45.33	-1.344
18.0	0.231	0.228	0.227	0.229	46.32	-1.334
19.0	0.226	0.224	0.223	0.224	47.30	-1.325
20.0	0.222	0.219	0.218	0.220	48.26	-1.316
21.0	0.217	0.215	0.214	0.215	49.20	-1.308
22.0	0.213	0.211	0.210	0.211	50.14	-1.300
23.0	0.209	0.207	0.206	0.208	51.07	-1.292
24.0	0.206	0.203	0.203	0.204	51.98	-1.284
25.0	0.202	0.200	0.199	0.200	52.88	-1.277
26.0	0.199	0.197	0.196	0.197	53.76	-1.270
27.0	0.196	0.194	0.193	0.194	54.63	-1.263
28.0	0.193	0.191	0.190	0.191	55.49	-1.256
29.0	0.190	0.188	0.187	0.188	56.35	-1.249
30.0	0.187	0.185	0.184	0.185	57.19	-1.243
31.0	0.184	0.182	0.181	0.183	58.02	-1.236
32.0	0.182	0.180	0.179	0.180	58.84	-1.230
33.0	0.179	0.177	0.176	0.178	59.66	-1.224
34.0	0.177	0.175	0.174	0.175	60.47	-1.218
35.0	0.175	0.173	0.172	0.173	61.27	-1.213
36.0	0.172	0.170	0.170	0.171	62.06	-1.207
37.0	0.170	0.168	0.167	0.169	62.85	-1.202
38.0	0.168	0.166	0.165	0.167	63.62	-1.196
39.0	0.166	0.164	0.163	0.165	64.39	-1.191
40.0	0.164	0.162	0.162	0.163	65.15	-1.186

試料名 SI18-3 状態 強制乾燥

試料直径(mm) 24.18 試料厚(mm) 4.867

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	941.5800	866.8600	830.5100	879.650	0.01	-4.919
2.0	516.9900	474.4600	453.7900	481.747	0.02	-4.658
3.0	361.2500	331.2900	317.2200	336.587	0.03	-4.502
4.0	279.9500	256.5000	246.0600	260.837	0.04	-4.391
5.0	229.6700	210.6000	201.9500	214.073	0.05	-4.305
6.0	194.6900	178.4600	171.2200	181.457	0.06	-4.234
7.0	169.4000	155.3600	149.0900	157.950	0.07	-4.173
8.0	149.8700	137.5900	132.0100	139.823	0.08	-4.120
9.0	134.5800	123.5300	118.5900	125.567	0.08	-4.074
10.0	122.1300	112.1500	107.7600	114.013	0.09	-4.032
11.0	116.2500	106.6900	101.9900	108.310	0.10	-4.009
12.0	107.3900	98.8920	94.6710	100.318	0.11	-3.976
13.0	99.7890	91.6360	88.3250	93.250	0.11	-3.944
14.0	94.0440	85.9840	82.6940	87.574	0.12	-3.917
15.0	87.8710	80.8160	77.4910	82.059	0.13	-3.889
16.0	83.1290	76.9880	73.0650	77.727	0.14	-3.865
17.0	79.2520	73.5380	69.4490	74.080	0.14	-3.844
18.0	75.6790	69.5100	66.9500	70.713	0.15	-3.824
19.0	72.6140	66.6940	64.1370	67.815	0.16	-3.806
20.0	69.2140	63.8120	61.2300	64.752	0.16	-3.786
21.0	66.6140	61.1010	58.5610	62.092	0.17	-3.768
22.0	63.4890	58.5090	56.0630	59.354	0.18	-3.748
23.0	60.7140	55.9100	53.6440	56.756	0.19	-3.729
24.0	57.9550	53.4910	51.3140	54.253	0.20	-3.709
25.0	55.6040	51.3150	49.5800	52.166	0.20	-3.692
26.0	53.1480	49.0870	47.1880	49.808	0.21	-3.672
27.0	51.0390	47.3310	45.3700	47.913	0.22	-3.655
28.0	49.1440	45.5910	43.7880	46.174	0.23	-3.639
29.0	47.5870	43.9980	42.3120	44.632	0.24	-3.624
30.0	46.0070	42.4790	40.7330	43.073	0.25	-3.609
31.0	44.4830	41.3280	39.6990	41.837	0.25	-3.596
32.0	43.1490	40.0010	38.5120	40.554	0.26	-3.583
33.0	41.8720	38.9290	37.4190	39.407	0.27	-3.570
34.0	40.7220	37.8320	36.3410	38.298	0.28	-3.558
35.0	39.5580	36.7270	35.2980	37.194	0.28	-3.545
36.0	38.3800	35.7240	34.3020	36.135	0.29	-3.533
37.0	37.3680	34.7000	33.5100	35.193	0.30	-3.521
38.0	36.3560	33.9090	32.5640	34.276	0.31	-3.510
39.0	35.4430	33.0550	31.7760	33.425	0.32	-3.499
40.0	34.4650	32.2380	30.9680	32.557	0.33	-3.487

試料名
状態

SI18-3
自然

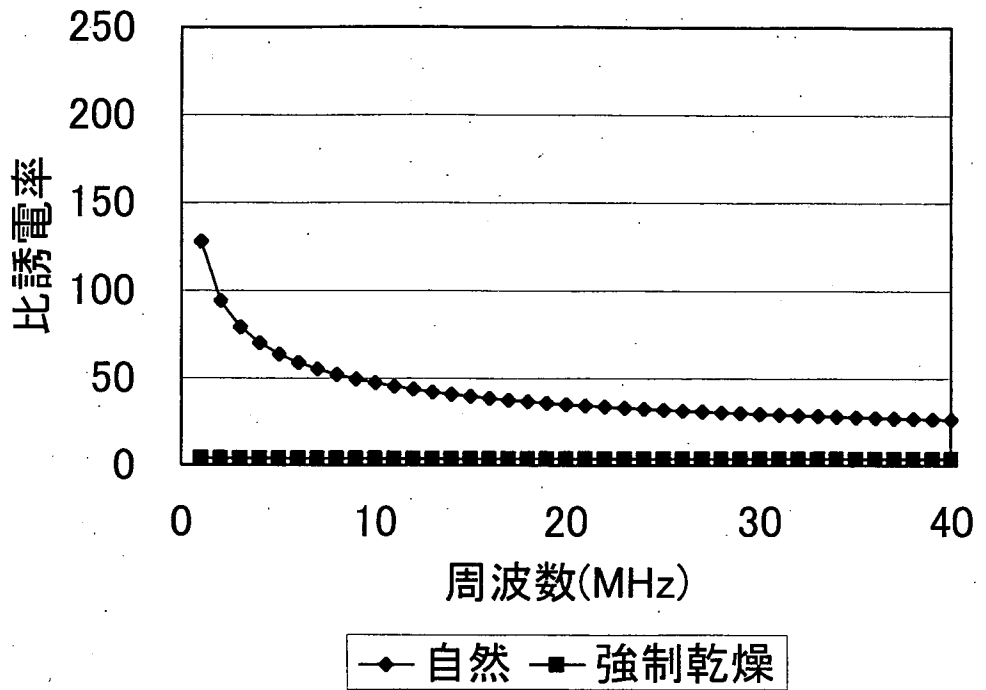
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	128.00	22.12	0.265	3.20
2.0	94.16	24.78	0.309	4.18
3.0	79.16	26.94	0.337	4.96
4.0	70.01	28.83	0.358	5.64
5.0	63.63	30.54	0.376	6.27
6.0	58.88	32.11	0.391	6.85
7.0	55.13	33.58	0.404	7.40
8.0	52.05	34.96	0.416	7.93
9.0	49.50	36.28	0.426	8.44
10.0	47.32	37.54	0.436	8.93
11.0	45.44	38.75	0.445	9.41
12.0	43.64	39.97	0.454	9.91
13.0	42.09	41.13	0.462	10.38
14.0	40.76	42.22	0.470	10.83
15.0	39.57	43.29	0.477	11.27
16.0	38.50	44.32	0.483	11.70
17.0	37.52	45.33	0.489	12.12
18.0	36.62	46.32	0.495	12.53
19.0	35.80	47.30	0.501	12.94
20.0	35.04	48.26	0.506	13.35
21.0	34.33	49.20	0.512	13.75
22.0	33.67	50.14	0.517	14.15
23.0	33.05	51.07	0.522	14.54
24.0	32.46	51.98	0.526	14.94
25.0	31.90	52.88	0.531	15.33
26.0	31.38	53.76	0.535	15.71
27.0	30.89	54.63	0.539	16.10
28.0	30.42	55.49	0.544	16.47
29.0	29.98	56.35	0.548	16.85
30.0	29.56	57.19	0.551	17.22
31.0	29.17	58.02	0.555	17.59
32.0	28.79	58.84	0.559	17.96
33.0	28.43	59.66	0.562	18.32
34.0	28.09	60.47	0.566	18.68
35.0	27.77	61.27	0.569	19.04
36.0	27.46	62.06	0.572	19.39
37.0	27.16	62.85	0.575	19.74
38.0	26.88	63.62	0.578	20.09
39.0	26.60	64.39	0.581	20.44
40.0	26.34	65.15	0.584	20.78

試料名
状態

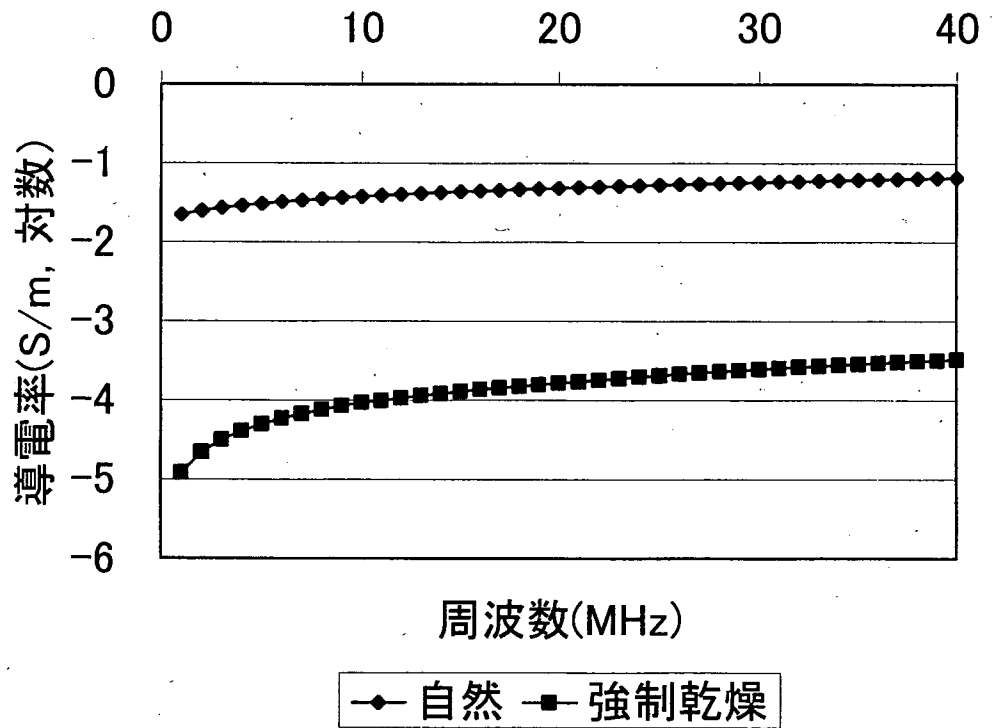
SI18-3
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.18	0.01	1.467	0.01
2.0	4.09	0.02	1.482	0.02
3.0	4.04	0.03	1.491	0.03
4.0	4.01	0.04	1.498	0.03
5.0	3.98	0.05	1.502	0.04
6.0	3.96	0.06	1.506	0.05
7.0	3.95	0.07	1.509	0.06
8.0	3.93	0.08	1.512	0.06
9.0	3.92	0.08	1.514	0.07
10.0	3.91	0.09	1.516	0.08
11.0	3.91	0.10	1.517	0.08
12.0	3.90	0.11	1.518	0.09
13.0	3.89	0.11	1.520	0.09
14.0	3.89	0.12	1.521	0.10
15.0	3.88	0.13	1.522	0.11
16.0	3.88	0.14	1.522	0.11
17.0	3.88	0.14	1.523	0.12
18.0	3.87	0.15	1.523	0.12
19.0	3.87	0.16	1.523	0.13
20.0	3.87	0.16	1.523	0.14
21.0	3.87	0.17	1.523	0.14
22.0	3.87	0.18	1.523	0.15
23.0	3.88	0.19	1.523	0.16
24.0	3.88	0.20	1.523	0.16
25.0	3.88	0.20	1.523	0.17
26.0	3.88	0.21	1.522	0.18
27.0	3.88	0.22	1.522	0.18
28.0	3.88	0.23	1.522	0.19
29.0	3.88	0.24	1.522	0.20
30.0	3.88	0.25	1.522	0.20
31.0	3.88	0.25	1.522	0.21
32.0	3.88	0.26	1.521	0.22
33.0	3.89	0.27	1.521	0.22
34.0	3.89	0.28	1.521	0.23
35.0	3.89	0.28	1.520	0.24
36.0	3.89	0.29	1.520	0.24
37.0	3.89	0.30	1.519	0.25
38.0	3.90	0.31	1.519	0.26
39.0	3.90	0.32	1.518	0.26
40.0	3.90	0.33	1.518	0.27

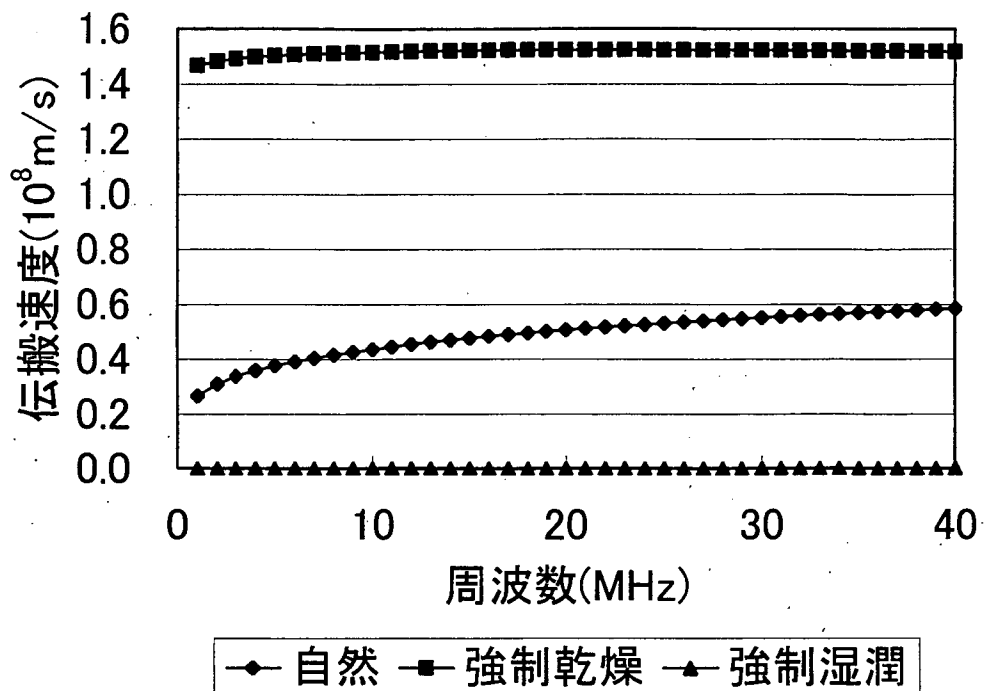
比誘電率
SI18-3



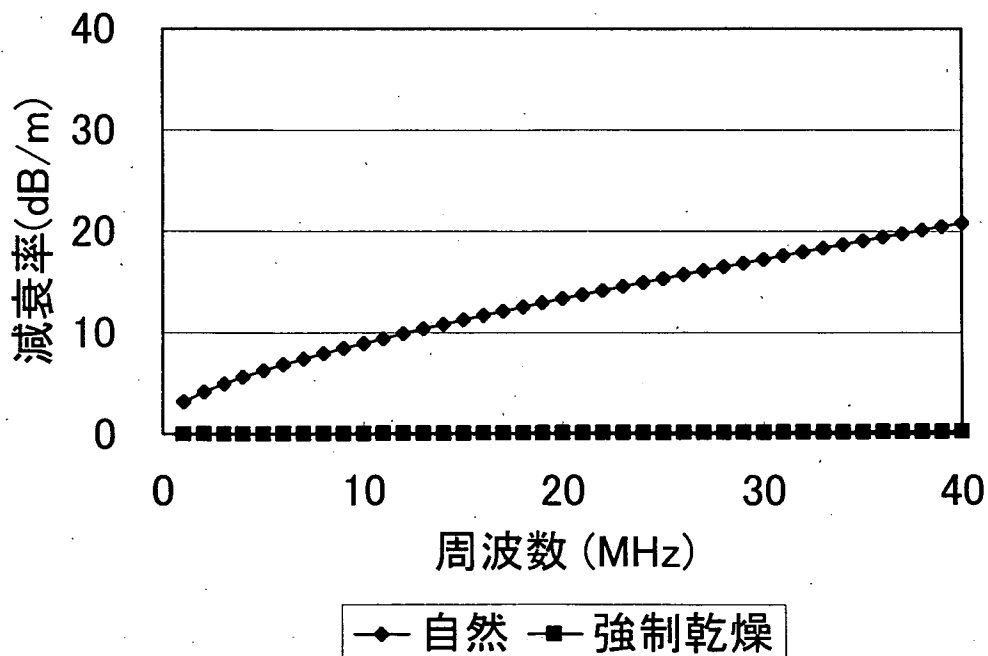
導電率
SI18-3



電磁波伝搬速度 SI18-3



減衰率 SI18-3



試料名 SI18-4 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.907

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	181.800	184.290	184.040	183.377	221.87
2.0	130.130	131.820	131.380	131.110	158.63
3.0	107.780	109.320	108.840	108.647	131.45
4.0	94.286	95.695	95.223	95.068	115.02
5.0	84.888	86.228	85.765	85.627	103.60
6.0	77.986	79.205	78.726	78.639	95.15
7.0	72.494	73.652	73.170	73.105	88.45
8.0	67.969	69.097	68.629	68.565	82.96
9.0	64.258	65.298	64.840	64.799	78.40
10.0	61.078	62.071	61.607	61.585	74.51
11.0	58.347	59.279	58.811	58.812	71.16
12.0	55.913	56.832	56.362	56.369	68.20
13.0	53.745	54.654	54.183	54.194	65.57
14.0	51.788	52.721	52.234	52.248	63.21
15.0	50.088	50.968	50.491	50.516	61.12
16.0	48.586	49.385	48.910	48.960	59.24
17.0	47.162	47.950	47.468	47.527	57.50
18.0	45.880	46.629	46.152	46.220	55.92
19.0	44.759	45.423	44.947	45.043	54.50
20.0	43.636	44.306	43.826	43.923	53.14
21.0	42.603	43.273	42.793	42.890	51.89
22.0	41.662	42.305	41.826	41.931	50.73
23.0	40.784	41.391	40.919	41.031	49.64
24.0	39.961	40.541	40.067	40.190	48.63
25.0	39.179	39.728	39.257	39.388	47.66
26.0	38.400	38.975	38.505	38.627	46.73
27.0	37.692	38.265	37.793	37.917	45.88
28.0	37.003	37.593	37.119	37.238	45.05
29.0	36.351	36.957	36.484	36.597	44.28
30.0	35.735	36.345	35.877	35.986	43.54
31.0	35.156	35.777	35.309	35.414	42.85
32.0	34.636	35.233	34.766	34.878	42.20
33.0	34.089	34.718	34.250	34.352	41.56
34.0	33.614	34.228	33.757	33.866	40.98
35.0	33.172	33.767	33.293	33.411	40.42
36.0	32.734	33.317	32.839	32.963	39.88
37.0	32.260	32.885	32.411	32.519	39.34
38.0	31.968	32.476	32.005	32.150	38.90
39.0	31.636	32.076	31.606	31.773	38.44
40.0	31.273	31.696	31.221	31.397	37.99

試料名 SI18-4 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.907

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.648	3.690	3.737	3.691	4.47
2.0	3.583	3.614	3.654	3.617	4.38
3.0	3.546	3.572	3.608	3.575	4.33
4.0	3.521	3.543	3.577	3.547	4.29
5.0	3.502	3.522	3.553	3.526	4.27
6.0	3.489	3.505	3.536	3.510	4.25
7.0	3.477	3.491	3.521	3.496	4.23
8.0	3.467	3.480	3.508	3.485	4.22
9.0	3.458	3.470	3.498	3.475	4.20
10.0	3.451	3.462	3.489	3.467	4.20
11.0	3.446	3.455	3.482	3.461	4.19
12.0	3.441	3.449	3.476	3.455	4.18
13.0	3.437	3.444	3.469	3.450	4.17
14.0	3.434	3.440	3.465	3.446	4.17
15.0	3.430	3.434	3.459	3.441	4.16
16.0	3.427	3.432	3.456	3.438	4.16
17.0	3.426	3.431	3.455	3.437	4.16
18.0	3.424	3.428	3.451	3.434	4.16
19.0	3.424	3.427	3.450	3.434	4.15
20.0	3.425	3.427	3.450	3.434	4.15
21.0	3.426	3.428	3.450	3.435	4.16
22.0	3.427	3.429	3.451	3.436	4.16
23.0	3.428	3.430	3.452	3.437	4.16
24.0	3.430	3.431	3.453	3.438	4.16
25.0	3.432	3.431	3.453	3.439	4.16
26.0	3.432	3.432	3.453	3.439	4.16
27.0	3.433	3.433	3.454	3.440	4.16
28.0	3.434	3.434	3.454	3.441	4.16
29.0	3.435	3.434	3.455	3.441	4.16
30.0	3.437	3.435	3.456	3.443	4.17
31.0	3.438	3.437	3.457	3.444	4.17
32.0	3.439	3.438	3.458	3.445	4.17
33.0	3.441	3.439	3.459	3.447	4.17
34.0	3.443	3.441	3.461	3.448	4.17
35.0	3.445	3.443	3.463	3.450	4.17
36.0	3.447	3.445	3.464	3.452	4.18
37.0	3.450	3.447	3.466	3.454	4.18
38.0	3.452	3.449	3.469	3.457	4.18
39.0	3.455	3.452	3.471	3.459	4.19
40.0	3.457	3.454	3.473	3.462	4.19

試料名 SI18-4 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.907

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.264	0.259	0.257	0.260	41.20	-1.385
2.0	0.237	0.233	0.231	0.233	45.90	-1.338
3.0	0.218	0.215	0.213	0.215	49.72	-1.303
4.0	0.205	0.201	0.200	0.202	53.06	-1.275
5.0	0.194	0.190	0.189	0.191	56.09	-1.251
6.0	0.184	0.181	0.180	0.182	58.88	-1.230
7.0	0.176	0.174	0.173	0.174	61.48	-1.211
8.0	0.170	0.167	0.166	0.168	63.92	-1.194
9.0	0.164	0.161	0.160	0.162	66.25	-1.179
10.0	0.158	0.156	0.155	0.156	68.46	-1.165
11.0	0.154	0.151	0.150	0.152	70.59	-1.151
12.0	0.149	0.147	0.146	0.148	72.63	-1.139
13.0	0.145	0.143	0.142	0.144	74.59	-1.127
14.0	0.142	0.140	0.139	0.140	76.49	-1.116
15.0	0.138	0.136	0.136	0.137	78.33	-1.106
16.0	0.135	0.133	0.133	0.134	80.13	-1.096
17.0	0.132	0.130	0.130	0.131	81.87	-1.087
18.0	0.130	0.128	0.127	0.128	83.58	-1.078
19.0	0.127	0.125	0.125	0.126	85.26	-1.069
20.0	0.125	0.123	0.122	0.123	86.91	-1.061
21.0	0.122	0.121	0.120	0.121	88.52	-1.053
22.0	0.120	0.119	0.118	0.119	90.11	-1.045
23.0	0.118	0.116	0.116	0.117	91.68	-1.038
24.0	0.116	0.115	0.114	0.115	93.23	-1.030
25.0	0.114	0.113	0.112	0.113	94.74	-1.023
26.0	0.113	0.111	0.110	0.111	96.23	-1.017
27.0	0.111	0.109	0.109	0.110	97.71	-1.010
28.0	0.109	0.108	0.107	0.108	99.16	-1.004
29.0	0.108	0.106	0.106	0.106	100.59	-0.997
30.0	0.106	0.105	0.104	0.105	102.01	-0.991
31.0	0.105	0.103	0.103	0.104	103.41	-0.985
32.0	0.103	0.102	0.101	0.102	104.80	-0.980
33.0	0.102	0.101	0.100	0.101	106.17	-0.974
34.0	0.101	0.099	0.099	0.100	107.54	-0.968
35.0	0.099	0.098	0.098	0.098	108.89	-0.963
36.0	0.098	0.097	0.096	0.097	110.22	-0.958
37.0	0.097	0.096	0.095	0.096	111.53	-0.953
38.0	0.096	0.095	0.094	0.095	112.86	-0.947
39.0	0.095	0.094	0.093	0.094	114.16	-0.942
40.0	0.094	0.093	0.092	0.093	115.43	-0.938

試料名 SI18-4 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.907

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	970.3700	837.9200	767.5400	858.610	0.01	-4.904
2.0	535.4700	462.7400	425.5100	474.573	0.02	-4.646
3.0	373.8900	323.9100	298.2500	332.017	0.03	-4.491
4.0	289.2400	251.3400	231.5800	257.387	0.04	-4.381
5.0	235.8100	205.9400	190.5400	210.763	0.05	-4.294
6.0	200.2300	174.7400	161.5600	178.843	0.06	-4.223
7.0	173.8000	151.9800	140.7000	155.493	0.07	-4.162
8.0	153.4800	134.5900	124.6900	137.587	0.08	-4.109
9.0	137.5400	120.7800	112.0200	123.447	0.09	-4.062
10.0	124.3700	109.6100	101.7900	111.923	0.10	-4.019
11.0	118.8200	104.0700	96.5870	106.492	0.10	-3.997
12.0	108.6900	96.3310	89.2080	98.076	0.11	-3.962
13.0	101.1000	89.2020	82.7270	91.010	0.12	-3.929
14.0	95.3930	84.0930	78.4710	85.986	0.12	-3.905
15.0	89.3770	78.2430	72.9440	80.188	0.13	-3.874
16.0	84.1030	74.5950	69.1620	75.953	0.14	-3.851
17.0	80.6640	71.0680	66.2390	72.657	0.15	-3.831
18.0	76.6190	67.7600	62.9040	69.094	0.16	-3.810
19.0	73.1870	64.7860	60.1620	66.045	0.16	-3.790
20.0	70.1530	61.6890	57.6930	63.178	0.17	-3.771
21.0	66.8300	59.2700	55.2050	60.435	0.18	-3.751
22.0	63.8310	56.5850	52.7880	57.735	0.19	-3.732
23.0	60.8910	54.1490	50.4850	55.175	0.19	-3.712
24.0	57.8600	51.6120	48.1900	52.554	0.20	-3.691
25.0	54.8980	49.6060	46.0750	50.193	0.21	-3.671
26.0	52.9950	47.3960	44.3360	48.242	0.22	-3.654
27.0	50.9230	45.5740	42.6250	46.374	0.23	-3.636
28.0	48.9810	43.9400	41.1310	44.684	0.24	-3.620
29.0	47.2060	42.4100	39.7300	43.115	0.25	-3.605
30.0	45.1210	41.0090	38.3650	41.498	0.26	-3.588
31.0	44.2320	39.7590	37.2600	40.417	0.27	-3.577
32.0	42.7410	38.6060	36.1610	39.169	0.27	-3.563
33.0	41.4400	37.4570	35.1360	38.011	0.28	-3.550
34.0	40.2570	36.3210	34.0930	36.890	0.29	-3.537
35.0	39.3520	35.3070	33.1960	35.952	0.30	-3.526
36.0	37.8810	34.3670	32.2080	34.819	0.31	-3.512
37.0	36.7690	33.3460	31.3200	33.812	0.32	-3.499
38.0	35.8020	32.4280	30.4810	32.904	0.33	-3.487
39.0	34.8440	31.5940	29.7280	32.055	0.33	-3.476
40.0	34.0390	30.7630	29.0340	31.279	0.34	-3.465

試料名
状態

SI18-4
自然

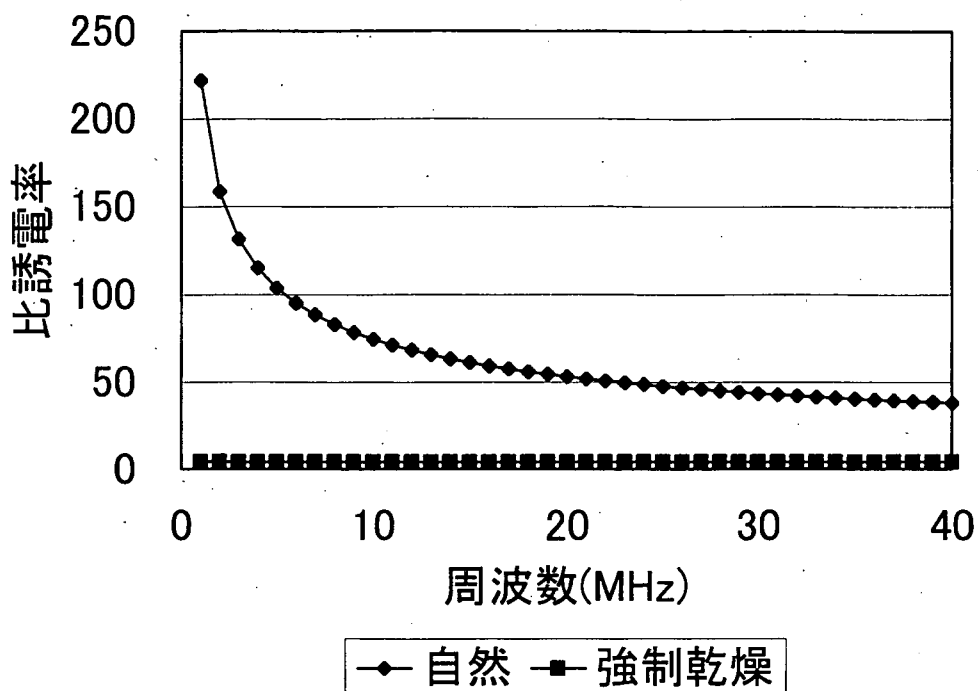
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	221.87	41.20	0.201	4.53
2.0	158.63	45.90	0.238	5.97
3.0	131.45	49.72	0.261	7.10
4.0	115.02	53.06	0.280	8.10
5.0	103.60	56.09	0.295	9.02
6.0	95.15	58.88	0.307	9.88
7.0	88.45	61.48	0.319	10.70
8.0	82.96	63.92	0.329	11.49
9.0	78.40	66.25	0.339	12.25
10.0	74.51	68.46	0.347	12.99
11.0	71.16	70.59	0.355	13.70
12.0	68.20	72.63	0.363	14.40
13.0	65.57	74.59	0.370	15.08
14.0	63.21	76.49	0.377	15.75
15.0	61.12	78.33	0.383	16.41
16.0	59.24	80.13	0.390	17.05
17.0	57.50	81.87	0.395	17.68
18.0	55.92	83.58	0.401	18.30
19.0	54.50	85.26	0.406	18.91
20.0	53.14	86.91	0.411	19.52
21.0	51.89	88.52	0.416	20.12
22.0	50.73	90.11	0.421	20.71
23.0	49.64	91.68	0.425	21.30
24.0	48.63	93.23	0.430	21.89
25.0	47.66	94.74	0.434	22.47
26.0	46.73	96.23	0.439	23.05
27.0	45.88	97.71	0.443	23.62
28.0	45.05	99.16	0.447	24.19
29.0	44.28	100.59	0.451	24.75
30.0	43.54	102.01	0.454	25.31
31.0	42.85	103.41	0.458	25.87
32.0	42.20	104.80	0.462	26.41
33.0	41.56	106.17	0.465	26.96
34.0	40.98	107.54	0.468	27.51
35.0	40.42	108.89	0.472	28.04
36.0	39.88	110.22	0.475	28.58
37.0	39.34	111.53	0.478	29.11
38.0	38.90	112.86	0.481	29.63
39.0	38.44	114.16	0.484	30.15
40.0	37.99	115.43	0.486	30.66

試料名
状態

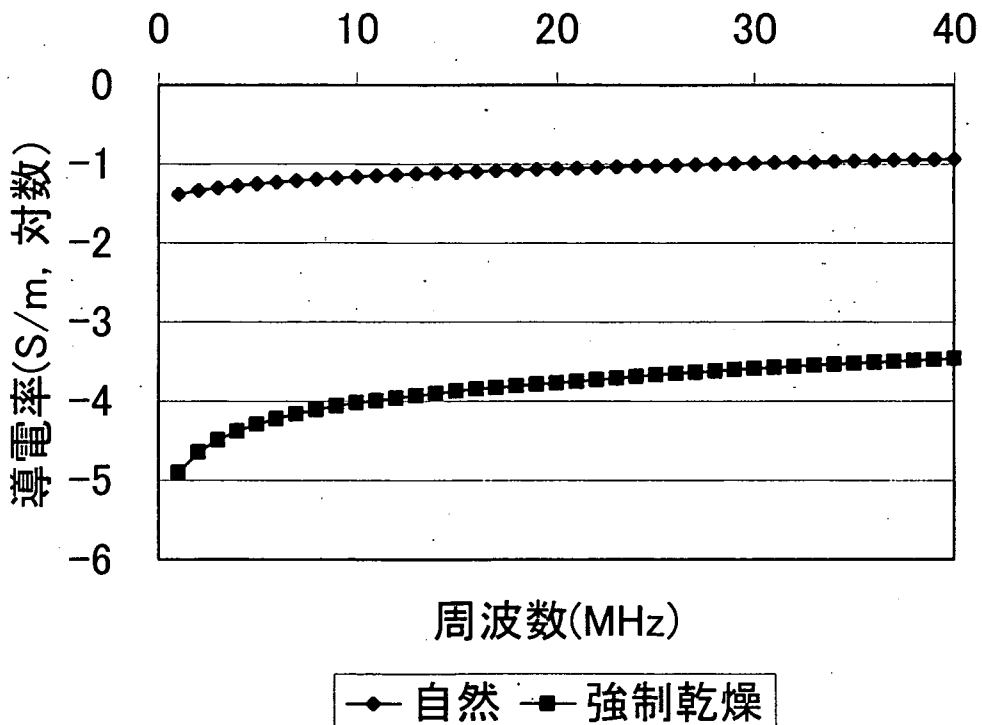
SI18-4
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.47	0.01	1.419	0.01
2.0	4.38	0.02	1.433	0.02
3.0	4.33	0.03	1.441	0.03
4.0	4.29	0.04	1.447	0.03
5.0	4.27	0.05	1.452	0.04
6.0	4.25	0.06	1.455	0.05
7.0	4.23	0.07	1.458	0.05
8.0	4.22	0.08	1.460	0.06
9.0	4.20	0.09	1.462	0.07
10.0	4.20	0.10	1.464	0.08
11.0	4.19	0.10	1.465	0.08
12.0	4.18	0.11	1.466	0.09
13.0	4.17	0.12	1.467	0.09
14.0	4.17	0.12	1.468	0.10
15.0	4.16	0.13	1.469	0.11
16.0	4.16	0.14	1.470	0.11
17.0	4.16	0.15	1.470	0.12
18.0	4.16	0.16	1.471	0.12
19.0	4.15	0.16	1.471	0.13
20.0	4.15	0.17	1.471	0.14
21.0	4.16	0.18	1.471	0.14
22.0	4.16	0.19	1.470	0.15
23.0	4.16	0.19	1.470	0.16
24.0	4.16	0.20	1.470	0.16
25.0	4.16	0.21	1.470	0.17
26.0	4.16	0.22	1.470	0.18
27.0	4.16	0.23	1.470	0.19
28.0	4.16	0.24	1.469	0.19
29.0	4.16	0.25	1.469	0.20
30.0	4.17	0.26	1.469	0.21
31.0	4.17	0.27	1.469	0.21
32.0	4.17	0.27	1.468	0.22
33.0	4.17	0.28	1.468	0.23
34.0	4.17	0.29	1.468	0.23
35.0	4.17	0.30	1.467	0.24
36.0	4.18	0.31	1.467	0.25
37.0	4.18	0.32	1.467	0.25
38.0	4.18	0.33	1.466	0.26
39.0	4.19	0.33	1.465	0.27
40.0	4.19	0.34	1.465	0.27

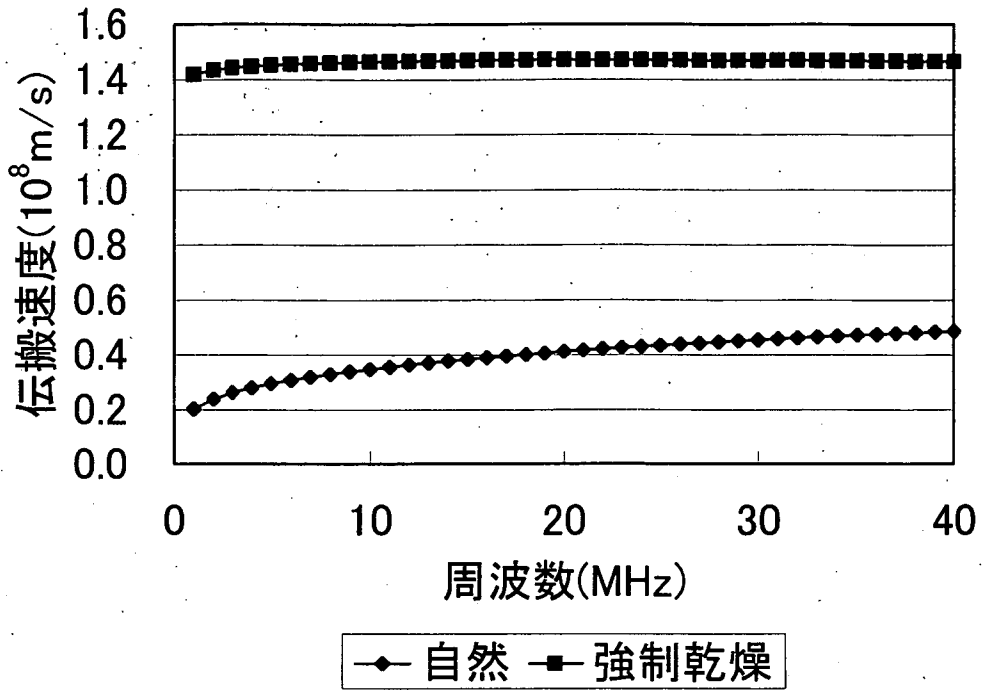
比誘電率
SI18-4



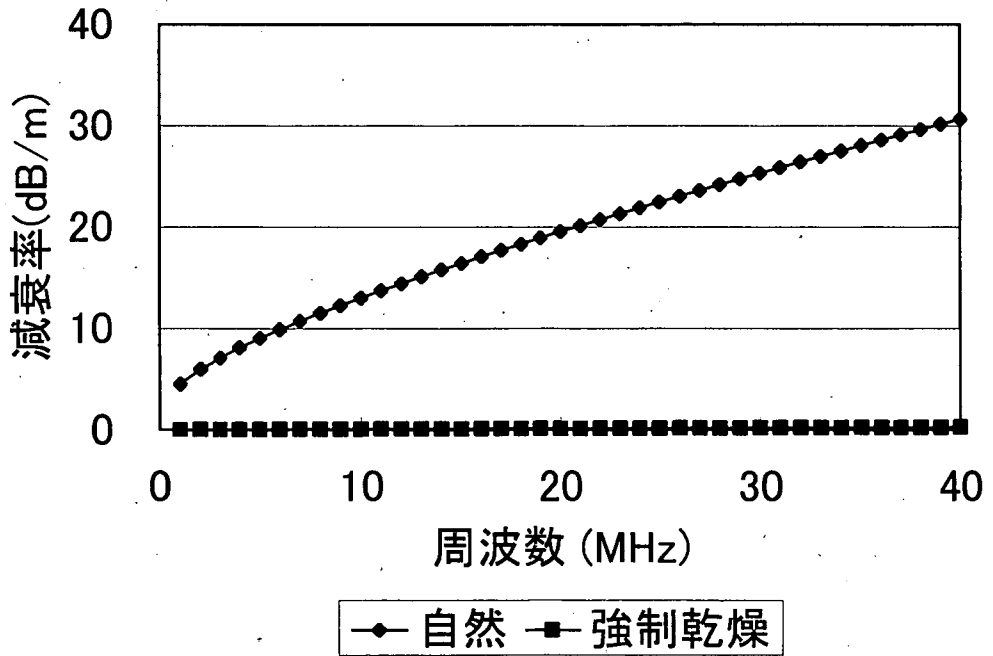
導電率
SI18-4



電磁波伝搬速度 SI18-4



減衰率 SI18-4



試料名 SI18-5-1 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.899

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	166.040	166.630	168.640	167.103	201.85
2.0	118.890	119.080	120.600	119.523	144.38
3.0	98.800	98.894	100.220	99.305	119.95
4.0	86.675	86.726	87.952	87.118	105.23
5.0	78.270	78.293	79.460	78.674	95.03
6.0	72.029	71.979	73.097	72.368	87.42
7.0	67.091	67.011	68.099	67.400	81.42
8.0	63.061	62.953	63.999	63.338	76.51
9.0	59.693	59.561	60.575	59.943	72.41
10.0	56.833	56.680	57.679	57.064	68.93
11.0	54.358	54.181	55.155	54.565	65.91
12.0	52.180	51.988	52.933	52.367	63.26
13.0	50.247	50.044	50.974	50.422	60.91
14.0	48.515	48.301	49.226	48.681	58.80
15.0	46.970	46.747	47.656	47.124	56.92
16.0	45.561	45.327	46.215	45.701	55.20
17.0	44.275	44.042	44.918	44.412	53.65
18.0	43.103	42.860	43.736	43.233	52.22
19.0	42.023	41.773	42.645	42.147	50.91
20.0	41.025	40.772	41.636	41.144	49.70
21.0	40.102	39.839	40.690	40.210	48.57
22.0	39.236	38.969	39.815	39.340	47.52
23.0	38.419	38.152	38.990	38.520	46.53
24.0	37.654	37.387	38.213	37.751	45.60
25.0	36.937	36.659	37.478	37.025	44.72
26.0	36.261	35.982	36.789	36.344	43.90
27.0	35.622	35.346	36.137	35.702	43.13
28.0	35.019	34.742	35.527	35.096	42.39
29.0	34.452	34.171	34.945	34.523	41.70
30.0	33.906	33.624	34.382	33.971	41.03
31.0	33.400	33.119	33.872	33.464	40.42
32.0	32.916	32.631	33.381	32.976	39.83
33.0	32.457	32.162	32.910	32.510	39.27
34.0	32.021	31.715	32.462	32.066	38.73
35.0	31.604	31.292	32.042	31.646	38.23
36.0	31.204	30.892	31.623	31.240	37.74
37.0	30.820	30.513	31.232	30.855	37.27
38.0	30.454	30.151	30.861	30.489	36.83
39.0	30.100	29.800	30.503	30.134	36.40
40.0	29.762	29.459	30.156	29.792	35.99

試料名 SI18-5-1 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.899

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.647	3.694	3.749	3.697	4.47
2.0	3.583	3.624	3.669	3.625	4.38
3.0	3.548	3.585	3.625	3.586	4.33
4.0	3.523	3.558	3.594	3.558	4.30
5.0	3.505	3.538	3.571	3.538	4.27
6.0	3.491	3.522	3.554	3.522	4.25
7.0	3.479	3.510	3.539	3.509	4.24
8.0	3.470	3.499	3.527	3.498	4.23
9.0	3.462	3.490	3.517	3.489	4.21
10.0	3.455	3.482	3.508	3.481	4.21
11.0	3.449	3.477	3.501	3.476	4.20
12.0	3.445	3.472	3.494	3.470	4.19
13.0	3.440	3.466	3.489	3.465	4.19
14.0	3.437	3.462	3.484	3.461	4.18
15.0	3.433	3.459	3.479	3.457	4.18
16.0	3.431	3.455	3.476	3.454	4.17
17.0	3.429	3.451	3.474	3.451	4.17
18.0	3.428	3.451	3.471	3.450	4.17
19.0	3.428	3.451	3.471	3.450	4.17
20.0	3.428	3.451	3.470	3.450	4.17
21.0	3.429	3.452	3.471	3.451	4.17
22.0	3.431	3.453	3.472	3.452	4.17
23.0	3.432	3.454	3.472	3.453	4.17
24.0	3.434	3.455	3.473	3.454	4.17
25.0	3.436	3.457	3.474	3.455	4.17
26.0	3.436	3.457	3.474	3.456	4.17
27.0	3.437	3.458	3.475	3.456	4.18
28.0	3.438	3.459	3.475	3.457	4.18
29.0	3.439	3.459	3.476	3.458	4.18
30.0	3.440	3.460	3.477	3.459	4.18
31.0	3.442	3.462	3.478	3.460	4.18
32.0	3.443	3.463	3.479	3.462	4.18
33.0	3.445	3.464	3.480	3.463	4.18
34.0	3.447	3.466	3.482	3.465	4.19
35.0	3.450	3.468	3.483	3.467	4.19
36.0	3.451	3.470	3.486	3.469	4.19
37.0	3.454	3.472	3.488	3.471	4.19
38.0	3.456	3.475	3.490	3.473	4.20
39.0	3.459	3.477	3.492	3.476	4.20
40.0	3.462	3.480	3.494	3.479	4.20

試料名 SI18-5-1 状態 自然

試料直径(mm) 24.15 試料厚(mm) 4.899

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.281	0.277	0.274	0.277	38.57	-1.414
2.0	0.253	0.250	0.247	0.250	42.77	-1.369
3.0	0.234	0.231	0.229	0.232	46.19	-1.335
4.0	0.220	0.217	0.215	0.217	49.18	-1.308
5.0	0.208	0.206	0.204	0.206	51.90	-1.285
6.0	0.199	0.196	0.194	0.197	54.41	-1.264
7.0	0.191	0.188	0.186	0.188	56.75	-1.246
8.0	0.183	0.181	0.180	0.181	58.95	-1.230
9.0	0.177	0.175	0.173	0.175	61.04	-1.214
10.0	0.171	0.170	0.168	0.170	63.04	-1.200
11.0	0.166	0.165	0.163	0.165	64.96	-1.187
12.0	0.162	0.160	0.158	0.160	66.80	-1.175
13.0	0.157	0.156	0.154	0.156	68.59	-1.164
14.0	0.154	0.152	0.151	0.152	70.30	-1.153
15.0	0.150	0.149	0.147	0.149	71.98	-1.143
16.0	0.147	0.145	0.144	0.145	73.60	-1.133
17.0	0.144	0.142	0.141	0.142	75.17	-1.124
18.0	0.141	0.139	0.138	0.139	76.73	-1.115
19.0	0.138	0.137	0.135	0.137	78.25	-1.107
20.0	0.135	0.134	0.133	0.134	79.75	-1.098
21.0	0.133	0.132	0.130	0.132	81.21	-1.090
22.0	0.131	0.129	0.128	0.129	82.66	-1.083
23.0	0.128	0.127	0.126	0.127	84.09	-1.075
24.0	0.126	0.125	0.124	0.125	85.49	-1.068
25.0	0.124	0.123	0.122	0.123	86.88	-1.061
26.0	0.122	0.121	0.120	0.121	88.24	-1.054
27.0	0.120	0.120	0.118	0.119	89.59	-1.048
28.0	0.119	0.118	0.116	0.118	90.92	-1.041
29.0	0.117	0.116	0.115	0.116	92.23	-1.035
30.0	0.115	0.114	0.113	0.114	93.53	-1.029
31.0	0.114	0.113	0.112	0.113	94.81	-1.023
32.0	0.112	0.111	0.110	0.111	96.09	-1.017
33.0	0.111	0.110	0.109	0.110	97.34	-1.012
34.0	0.109	0.109	0.107	0.108	98.58	-1.006
35.0	0.108	0.107	0.106	0.107	99.82	-1.001
36.0	0.107	0.106	0.105	0.106	101.04	-0.996
37.0	0.106	0.105	0.103	0.105	102.24	-0.990
38.0	0.104	0.104	0.102	0.103	103.44	-0.985
39.0	0.103	0.102	0.101	0.102	104.62	-0.980
40.0	0.102	0.101	0.100	0.101	105.79	-0.976

試料名 SI18-5-1 状態 強制乾燥

試料直径(mm) 24.15 試料厚(mm) 4.899

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	990.5200	904.8900	793.7300	896.380	0.01	-4.923
2.0	545.4600	497.2900	438.7400	493.830	0.02	-4.664
3.0	379.9300	347.1000	306.8200	344.617	0.03	-4.508
4.0	294.1000	268.5800	238.0700	266.917	0.04	-4.397
5.0	241.1200	219.2000	195.3900	218.570	0.05	-4.310
6.0	203.4100	186.3600	165.7900	185.187	0.06	-4.238
7.0	176.4100	161.7800	144.3100	160.833	0.07	-4.177
8.0	155.7900	143.0000	127.8200	142.203	0.08	-4.124
9.0	139.5000	128.1100	114.8000	127.470	0.08	-4.076
10.0	126.3000	115.9800	104.2300	115.503	0.09	-4.033
11.0	120.2300	110.4600	98.6560	109.782	0.10	-4.011
12.0	110.9300	102.3400	91.7880	101.686	0.11	-3.978
13.0	102.5700	94.8840	84.7830	94.079	0.11	-3.944
14.0	96.0160	88.7630	80.0490	88.276	0.12	-3.917
15.0	90.4940	83.7280	74.5680	82.930	0.13	-3.890
16.0	85.3710	78.7460	71.0710	78.396	0.14	-3.865
17.0	81.9110	74.6230	67.6380	74.724	0.14	-3.844
18.0	77.8310	71.3910	64.6060	71.276	0.15	-3.824
19.0	74.3270	68.4990	61.6370	68.154	0.16	-3.804
20.0	71.1520	65.3540	59.0130	65.173	0.16	-3.785
21.0	67.8860	62.5500	56.4980	62.311	0.17	-3.765
22.0	64.7760	59.8160	53.9990	59.530	0.18	-3.746
23.0	61.7040	57.0610	51.5370	56.767	0.19	-3.725
24.0	58.7770	54.4300	49.3510	54.186	0.20	-3.705
25.0	55.8880	52.1120	47.4750	51.825	0.21	-3.685
26.0	53.8770	49.9410	45.3080	49.709	0.22	-3.667
27.0	51.7100	47.9180	43.6310	47.753	0.22	-3.650
28.0	49.6960	46.1390	42.0960	45.977	0.23	-3.633
29.0	47.9630	44.5680	40.6390	44.390	0.24	-3.618
30.0	46.0900	42.8350	39.3840	42.770	0.25	-3.602
31.0	44.8660	41.7410	38.1210	41.576	0.26	-3.590
32.0	43.4380	40.4410	36.9650	40.281	0.27	-3.576
33.0	42.1800	39.2340	35.8670	39.094	0.27	-3.563
34.0	40.8880	38.0580	34.8400	37.929	0.28	-3.550
35.0	39.8510	37.2970	33.9630	37.037	0.29	-3.539
36.0	38.6030	35.9610	32.9060	35.823	0.30	-3.525
37.0	37.4140	34.9760	32.0260	34.805	0.31	-3.512
38.0	36.4480	34.0120	31.1470	33.869	0.32	-3.501
39.0	35.4250	33.1700	30.3720	32.989	0.32	-3.489
40.0	34.5580	32.3160	29.6740	32.183	0.33	-3.478

試料名
状態

SI18-5-1
自然

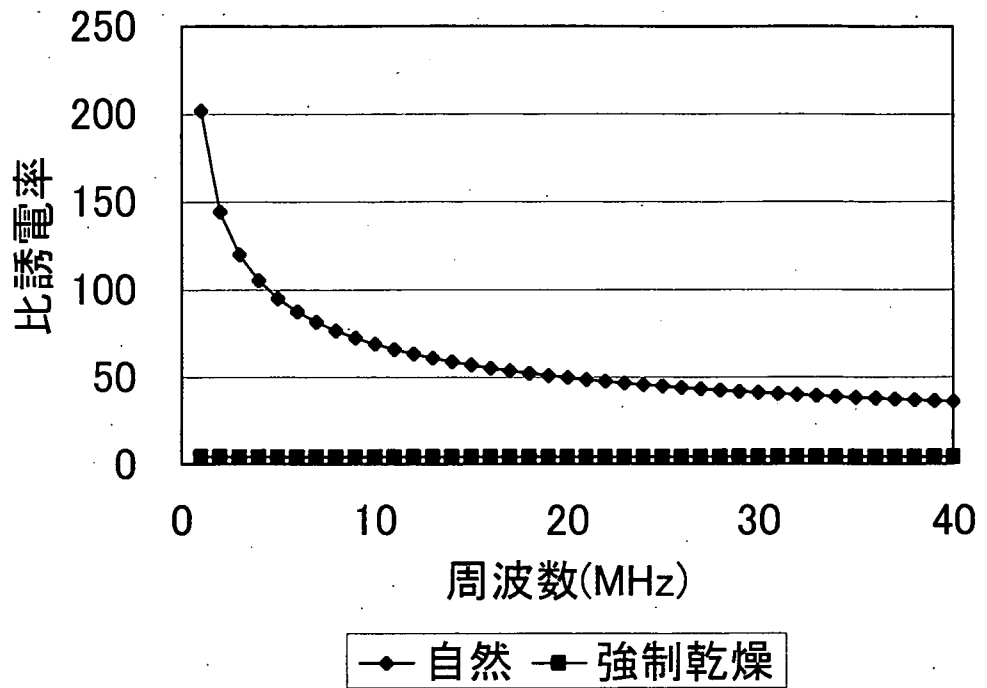
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	201.85	38.57	0.211	4.44
2.0	144.38	42.77	0.250	5.83
3.0	119.95	46.19	0.274	6.91
4.0	105.23	49.18	0.292	7.85
5.0	95.03	51.90	0.308	8.72
6.0	87.42	54.41	0.321	9.53
7.0	81.42	56.75	0.332	10.30
8.0	76.51	58.95	0.343	11.03
9.0	72.41	61.04	0.352	11.75
10.0	68.93	63.04	0.361	12.43
11.0	65.91	64.96	0.369	13.10
12.0	63.26	66.80	0.377	13.75
13.0	60.91	68.59	0.384	14.39
14.0	58.80	70.30	0.391	15.01
15.0	56.92	71.98	0.397	15.62
16.0	55.20	73.60	0.404	16.22
17.0	53.65	75.17	0.409	16.80
18.0	52.22	76.73	0.415	17.38
19.0	50.91	78.25	0.420	17.95
20.0	49.70	79.75	0.425	18.52
21.0	48.57	81.21	0.430	19.08
22.0	47.52	82.66	0.435	19.63
23.0	46.53	84.09	0.440	20.18
24.0	45.60	85.49	0.444	20.73
25.0	44.72	86.88	0.448	21.27
26.0	43.90	88.24	0.452	21.80
27.0	43.13	89.59	0.457	22.34
28.0	42.39	90.92	0.460	22.86
29.0	41.70	92.23	0.464	23.38
30.0	41.03	93.53	0.468	23.91
31.0	40.42	94.81	0.472	24.42
32.0	39.83	96.09	0.475	24.93
33.0	39.27	97.34	0.478	25.43
34.0	38.73	98.58	0.482	25.93
35.0	38.23	99.82	0.485	26.43
36.0	37.74	101.04	0.488	26.93
37.0	37.27	102.24	0.491	27.42
38.0	36.83	103.44	0.494	27.91
39.0	36.40	104.62	0.497	28.39
40.0	35.99	105.79	0.500	28.87

試料名
状態

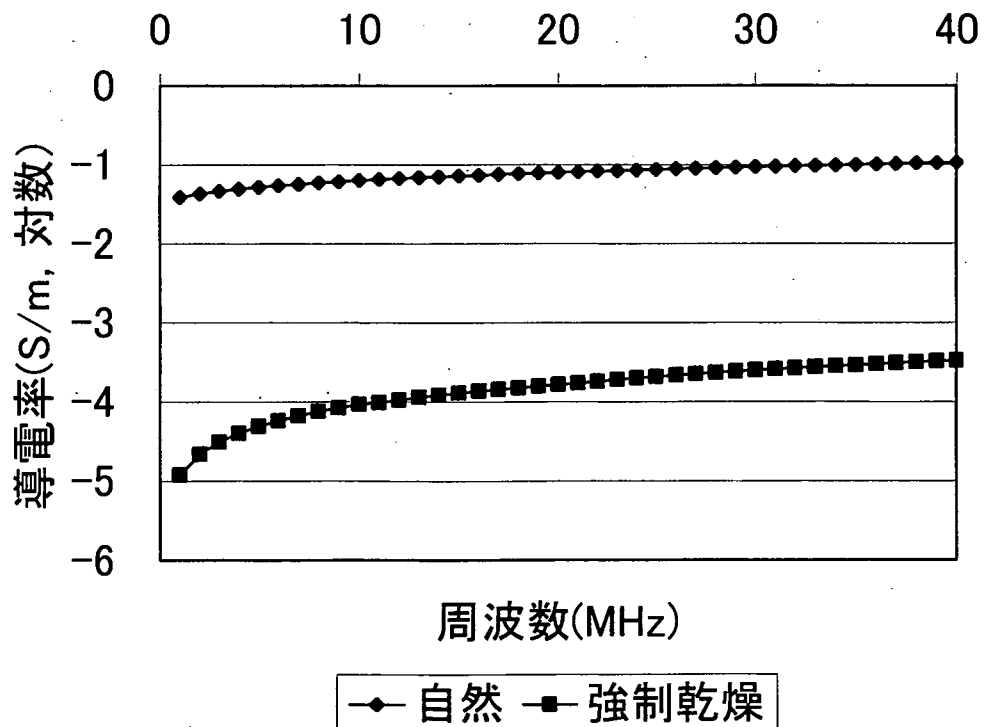
SI18-5-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.47	0.01	1.419	0.01
2.0	4.38	0.02	1.433	0.02
3.0	4.33	0.03	1.441	0.02
4.0	4.30	0.04	1.446	0.03
5.0	4.27	0.05	1.450	0.04
6.0	4.25	0.06	1.453	0.05
7.0	4.24	0.07	1.456	0.05
8.0	4.23	0.08	1.458	0.06
9.0	4.21	0.08	1.460	0.07
10.0	4.21	0.09	1.462	0.07
11.0	4.20	0.10	1.463	0.08
12.0	4.19	0.11	1.464	0.08
13.0	4.19	0.11	1.465	0.09
14.0	4.18	0.12	1.466	0.10
15.0	4.18	0.13	1.467	0.10
16.0	4.17	0.14	1.468	0.11
17.0	4.17	0.14	1.468	0.11
18.0	4.17	0.15	1.469	0.12
19.0	4.17	0.16	1.469	0.13
20.0	4.17	0.16	1.469	0.13
21.0	4.17	0.17	1.468	0.14
22.0	4.17	0.18	1.468	0.14
23.0	4.17	0.19	1.468	0.15
24.0	4.17	0.20	1.468	0.16
25.0	4.17	0.21	1.467	0.17
26.0	4.17	0.22	1.467	0.17
27.0	4.18	0.22	1.467	0.18
28.0	4.18	0.23	1.467	0.19
29.0	4.18	0.24	1.467	0.19
30.0	4.18	0.25	1.467	0.20
31.0	4.18	0.26	1.466	0.21
32.0	4.18	0.27	1.466	0.21
33.0	4.18	0.27	1.466	0.22
34.0	4.19	0.28	1.465	0.23
35.0	4.19	0.29	1.465	0.23
36.0	4.19	0.30	1.465	0.24
37.0	4.19	0.31	1.464	0.25
38.0	4.20	0.32	1.464	0.25
39.0	4.20	0.32	1.463	0.26
40.0	4.20	0.33	1.463	0.27

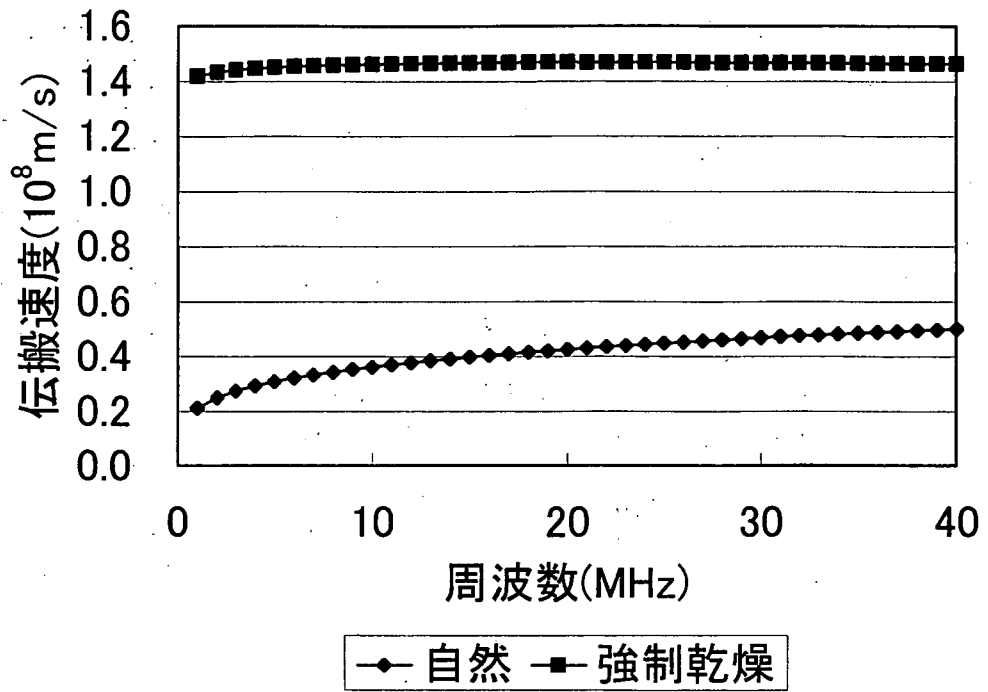
比誘電率
SI18-5-1



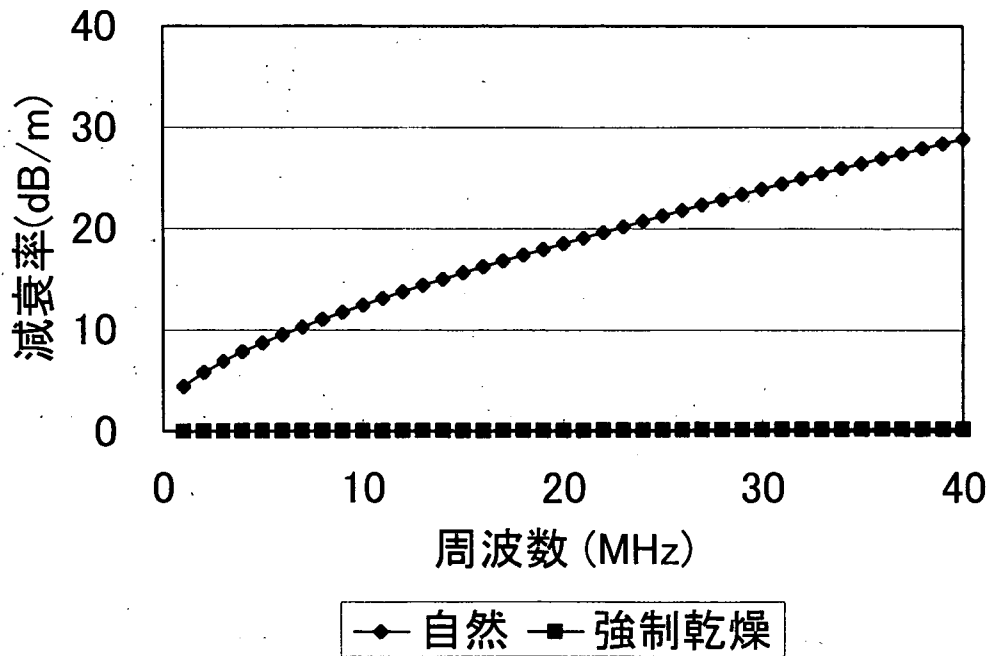
導電率
SI18-5-1



電磁波伝搬速度 SI18-5-1



減衰率 SI18-5-1



試料名 SI18-5-2 状態 自然

試料直径(mm) 24.17 試料厚(mm) 4.915

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	182.010	183.820	185.210	183.680	222.23
2.0	129.680	130.890	131.700	130.757	158.20
3.0	107.580	108.540	109.210	108.443	131.20
4.0	94.260	95.117	95.703	95.027	114.97
5.0	85.068	85.788	86.310	85.722	103.71
6.0	78.165	78.887	79.373	78.808	95.35
7.0	72.748	73.433	73.879	73.353	88.75
8.0	68.318	68.974	69.391	68.894	83.35
9.0	64.623	65.253	65.653	65.176	78.86
10.0	61.486	62.083	62.468	62.012	75.03
11.0	58.767	59.338	59.705	59.270	71.71
12.0	56.380	56.940	57.283	56.868	68.80
13.0	54.267	54.804	55.137	54.736	66.22
14.0	52.370	52.892	53.214	52.825	63.91
15.0	50.675	51.174	51.490	51.113	61.84
16.0	49.133	49.629	49.931	49.564	59.97
17.0	47.741	48.212	48.510	48.154	58.26
18.0	46.457	46.922	47.206	46.862	56.70
19.0	45.284	45.738	46.012	45.678	55.26
20.0	44.186	44.636	44.901	44.574	53.93
21.0	43.171	43.616	43.870	43.552	52.69
22.0	42.229	42.660	42.909	42.599	51.54
23.0	41.340	41.768	42.009	41.706	50.46
24.0	40.509	40.930	41.164	40.868	49.44
25.0	39.722	40.132	40.367	40.074	48.48
26.0	38.989	39.393	39.620	39.334	47.59
27.0	38.294	38.689	38.913	38.632	46.74
28.0	37.636	38.024	38.246	37.969	45.94
29.0	37.017	37.398	37.616	37.344	45.18
30.0	36.425	36.793	37.010	36.743	44.45
31.0	35.868	36.238	36.450	36.185	43.78
32.0	35.340	35.701	35.909	35.650	43.13
33.0	34.836	35.192	35.397	35.142	42.52
34.0	34.356	34.707	34.908	34.657	41.93
35.0	33.907	34.255	34.450	34.204	41.38
36.0	33.461	33.801	33.994	33.752	40.84
37.0	33.041	33.378	33.570	33.330	40.32
38.0	32.640	32.973	33.162	32.925	39.84
39.0	32.254	32.581	32.767	32.534	39.36
40.0	31.883	32.203	32.391	32.159	38.91

試料名 SI18-5-2 状態 強制乾燥

試料直径(mm) 24.17 試料厚(mm) 4.915

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.675	3.707	3.790	3.724	4.51
2.0	3.610	3.634	3.709	3.651	4.42
3.0	3.573	3.594	3.664	3.610	4.37
4.0	3.548	3.566	3.633	3.582	4.33
5.0	3.528	3.545	3.609	3.561	4.31
6.0	3.515	3.529	3.592	3.545	4.29
7.0	3.503	3.516	3.577	3.532	4.27
8.0	3.493	3.505	3.565	3.521	4.26
9.0	3.485	3.495	3.554	3.511	4.25
10.0	3.477	3.487	3.546	3.503	4.24
11.0	3.472	3.482	3.539	3.498	4.23
12.0	3.467	3.476	3.532	3.492	4.22
13.0	3.463	3.471	3.527	3.487	4.22
14.0	3.459	3.467	3.521	3.482	4.21
15.0	3.456	3.462	3.518	3.478	4.21
16.0	3.453	3.460	3.513	3.475	4.20
17.0	3.451	3.457	3.511	3.473	4.20
18.0	3.451	3.456	3.509	3.472	4.20
19.0	3.451	3.456	3.508	3.472	4.20
20.0	3.451	3.456	3.508	3.472	4.20
21.0	3.452	3.457	3.508	3.472	4.20
22.0	3.454	3.458	3.509	3.473	4.20
23.0	3.455	3.459	3.510	3.475	4.20
24.0	3.456	3.460	3.511	3.476	4.21
25.0	3.457	3.460	3.511	3.476	4.21
26.0	3.458	3.462	3.512	3.477	4.21
27.0	3.459	3.463	3.512	3.478	4.21
28.0	3.461	3.464	3.513	3.479	4.21
29.0	3.462	3.465	3.513	3.480	4.21
30.0	3.464	3.465	3.514	3.481	4.21
31.0	3.464	3.467	3.516	3.482	4.21
32.0	3.466	3.468	3.517	3.484	4.21
33.0	3.467	3.470	3.518	3.485	4.22
34.0	3.470	3.472	3.520	3.487	4.22
35.0	3.472	3.475	3.522	3.489	4.22
36.0	3.474	3.476	3.523	3.491	4.22
37.0	3.477	3.478	3.525	3.493	4.23
38.0	3.479	3.481	3.528	3.496	4.23
39.0	3.482	3.484	3.530	3.499	4.23
40.0	3.485	3.487	3.533	3.501	4.24

試料名 SI18-5-2 状態 自然

試料直径(mm) 24.17 試料厚(mm) 4.915

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.258	0.254	0.250	0.254	42.20	-1.375
2.0	0.232	0.229	0.226	0.229	46.82	-1.330
3.0	0.215	0.212	0.209	0.212	50.58	-1.296
4.0	0.202	0.199	0.196	0.199	53.86	-1.269
5.0	0.191	0.188	0.186	0.188	56.84	-1.245
6.0	0.182	0.180	0.178	0.180	59.58	-1.225
7.0	0.175	0.172	0.170	0.172	62.13	-1.207
8.0	0.168	0.166	0.164	0.166	64.54	-1.190
9.0	0.162	0.160	0.158	0.160	66.83	-1.175
10.0	0.157	0.155	0.153	0.155	69.01	-1.161
11.0	0.152	0.151	0.149	0.151	71.11	-1.148
12.0	0.148	0.146	0.145	0.147	73.12	-1.136
13.0	0.144	0.143	0.141	0.143	75.07	-1.125
14.0	0.141	0.139	0.138	0.139	76.94	-1.114
15.0	0.138	0.136	0.134	0.136	78.77	-1.104
16.0	0.135	0.133	0.132	0.133	80.53	-1.094
17.0	0.132	0.130	0.129	0.130	82.25	-1.085
18.0	0.129	0.128	0.126	0.128	83.95	-1.076
19.0	0.127	0.125	0.124	0.125	85.60	-1.068
20.0	0.124	0.123	0.121	0.123	87.23	-1.059
21.0	0.122	0.121	0.119	0.121	88.82	-1.051
22.0	0.120	0.119	0.117	0.119	90.40	-1.044
23.0	0.118	0.117	0.115	0.117	91.95	-1.036
24.0	0.116	0.115	0.113	0.115	93.48	-1.029
25.0	0.114	0.113	0.112	0.113	94.98	-1.022
26.0	0.112	0.111	0.110	0.111	96.46	-1.016
27.0	0.111	0.109	0.108	0.109	97.93	-1.009
28.0	0.109	0.108	0.107	0.108	99.37	-1.003
29.0	0.107	0.106	0.105	0.106	100.80	-0.997
30.0	0.106	0.105	0.104	0.105	102.22	-0.990
31.0	0.105	0.103	0.102	0.103	103.61	-0.985
32.0	0.103	0.102	0.101	0.102	104.99	-0.979
33.0	0.102	0.101	0.100	0.101	106.35	-0.973
34.0	0.101	0.100	0.098	0.099	107.71	-0.968
35.0	0.099	0.098	0.097	0.098	109.05	-0.962
36.0	0.098	0.097	0.096	0.097	110.37	-0.957
37.0	0.097	0.096	0.095	0.096	111.68	-0.952
38.0	0.096	0.095	0.094	0.095	112.98	-0.947
39.0	0.095	0.094	0.093	0.094	114.27	-0.942
40.0	0.094	0.093	0.092	0.093	115.52	-0.937

試料名 SI18-5-2 状態 強制乾燥

試料直径(mm) 24.17 試料厚(mm) 4.915

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	959.9300	869.2200	784.0200	871.057	0.01	-4.910
2.0	529.5700	479.8300	432.7900	480.730	0.02	-4.652
3.0	369.9100	335.5200	303.0300	336.153	0.03	-4.497
4.0	286.0600	259.6700	235.0600	260.263	0.04	-4.386
5.0	234.0300	213.0700	192.6700	213.257	0.05	-4.299
6.0	198.4000	180.6900	163.6900	180.927	0.06	-4.228
7.0	172.2500	157.1100	142.5200	157.293	0.07	-4.167
8.0	152.3100	138.9000	126.1700	139.127	0.08	-4.114
9.0	136.2900	124.5800	113.2800	124.717	0.09	-4.066
10.0	123.2800	112.8500	102.7900	112.973	0.09	-4.023
11.0	117.5600	107.3400	97.5810	107.494	0.10	-4.002
12.0	109.5500	100.1200	90.2490	99.973	0.11	-3.970
13.0	100.6500	91.6130	83.3870	91.883	0.12	-3.933
14.0	93.7870	86.6350	78.3130	86.245	0.12	-3.906
15.0	88.1440	81.0350	73.9560	81.045	0.13	-3.879
16.0	83.9000	76.8220	69.8050	76.842	0.14	-3.856
17.0	79.6770	73.1880	67.0590	73.308	0.15	-3.835
18.0	75.9060	69.6980	63.4540	69.686	0.15	-3.813
19.0	72.7810	66.8150	60.9020	66.833	0.16	-3.795
20.0	69.0520	63.4790	58.3660	63.632	0.17	-3.774
21.0	66.4030	61.1380	55.7490	61.097	0.18	-3.756
22.0	63.3910	58.3130	53.3870	58.364	0.18	-3.736
23.0	60.4210	55.7180	50.9210	55.687	0.19	-3.716
24.0	57.4770	53.1690	48.6960	53.114	0.20	-3.695
25.0	55.1180	50.5210	46.8110	50.817	0.21	-3.676
26.0	52.8060	48.8020	44.7670	48.792	0.22	-3.658
27.0	50.6020	46.8570	43.0740	46.844	0.23	-3.641
28.0	48.7680	45.1270	41.5530	45.149	0.24	-3.625
29.0	47.0190	43.5900	40.1320	43.580	0.25	-3.609
30.0	45.0710	41.9300	38.8350	41.945	0.26	-3.593
31.0	43.9860	40.8200	37.6480	40.818	0.26	-3.581
32.0	42.5860	39.5670	36.4940	39.549	0.27	-3.567
33.0	41.2740	38.3930	35.4770	38.381	0.28	-3.554
34.0	40.0120	37.2870	34.4190	37.239	0.29	-3.541
35.0	39.1280	36.2080	33.3380	36.225	0.30	-3.529
36.0	37.7760	35.2060	32.5240	35.169	0.30	-3.516
37.0	36.6860	34.2420	31.5810	34.170	0.31	-3.504
38.0	35.7400	33.3340	30.8600	33.311	0.32	-3.493
39.0	34.7400	32.4380	30.0530	32.410	0.33	-3.481
40.0	33.8280	31.5380	29.2770	31.548	0.34	-3.469

試料名
状態

SI18-5-2
自然

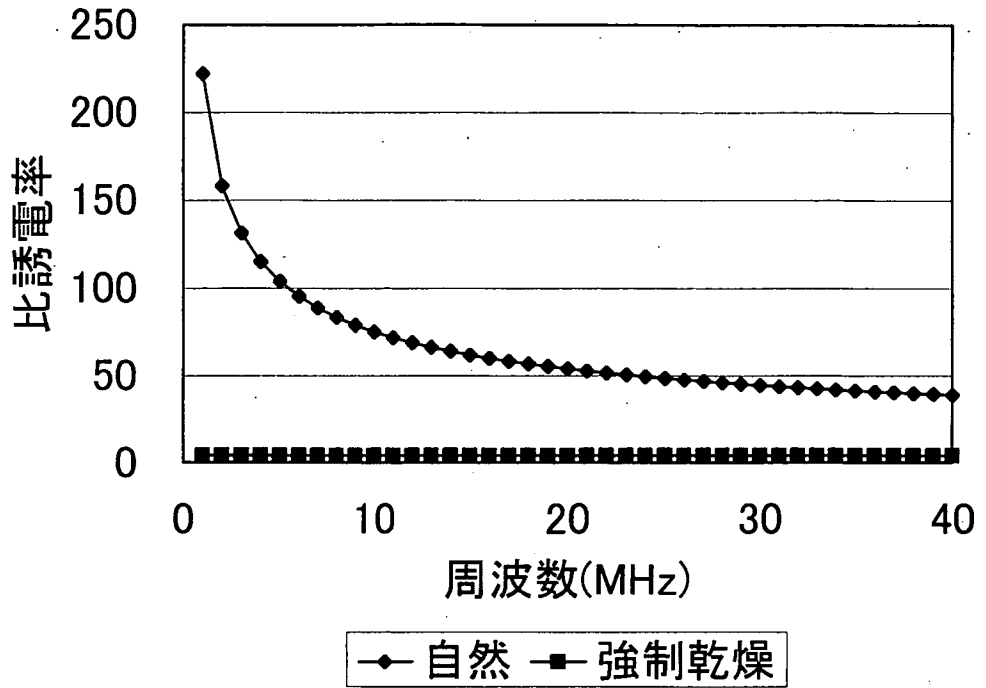
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	222.23	42.20	0.201	4.63
2.0	158.20	46.82	0.238	6.09
3.0	131.20	50.58	0.262	7.23
4.0	114.97	53.86	0.280	8.22
5.0	103.71	56.84	0.294	9.14
6.0	95.35	59.58	0.307	9.99
7.0	88.75	62.13	0.318	10.80
8.0	83.35	64.54	0.328	11.57
9.0	78.86	66.83	0.338	12.32
10.0	75.03	69.01	0.346	13.04
11.0	71.71	71.11	0.354	13.75
12.0	68.80	73.12	0.361	14.43
13.0	66.22	75.07	0.368	15.10
14.0	63.91	76.94	0.375	15.76
15.0	61.84	78.77	0.381	16.40
16.0	59.97	80.53	0.387	17.03
17.0	58.26	82.25	0.393	17.64
18.0	56.70	83.95	0.398	18.25
19.0	55.26	85.60	0.403	18.85
20.0	53.93	87.23	0.408	19.45
21.0	52.69	88.82	0.413	20.03
22.0	51.54	90.40	0.418	20.62
23.0	50.46	91.95	0.422	21.19
24.0	49.44	93.48	0.426	21.77
25.0	48.48	94.98	0.431	22.33
26.0	47.59	96.46	0.435	22.89
27.0	46.74	97.93	0.439	23.45
28.0	45.94	99.37	0.442	24.00
29.0	45.18	100.80	0.446	24.55
30.0	44.45	102.22	0.450	25.10
31.0	43.78	103.61	0.453	25.64
32.0	43.13	104.99	0.456	26.17
33.0	42.52	106.35	0.460	26.70
34.0	41.93	107.71	0.463	27.23
35.0	41.38	109.05	0.466	27.75
36.0	40.84	110.37	0.469	28.28
37.0	40.32	111.68	0.472	28.80
38.0	39.84	112.98	0.475	29.31
39.0	39.36	114.27	0.478	29.82
40.0	38.91	115.52	0.481	30.32

試料名
状態

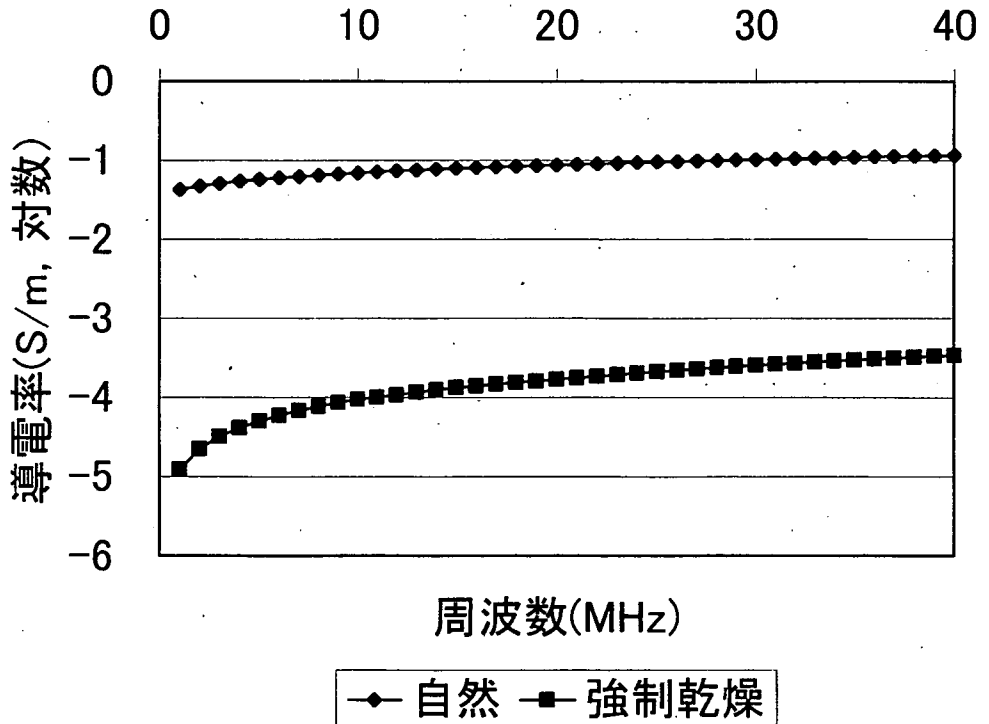
SI18-5-2
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.51	0.01	1.412	0.01
2.0	4.42	0.02	1.426	0.02
3.0	4.37	0.03	1.435	0.02
4.0	4.33	0.04	1.440	0.03
5.0	4.31	0.05	1.444	0.04
6.0	4.29	0.06	1.448	0.05
7.0	4.27	0.07	1.450	0.05
8.0	4.26	0.08	1.453	0.06
9.0	4.25	0.09	1.455	0.07
10.0	4.24	0.09	1.456	0.08
11.0	4.23	0.10	1.457	0.08
12.0	4.22	0.11	1.459	0.09
13.0	4.22	0.12	1.460	0.09
14.0	4.21	0.12	1.461	0.10
15.0	4.21	0.13	1.461	0.11
16.0	4.20	0.14	1.462	0.11
17.0	4.20	0.15	1.463	0.12
18.0	4.20	0.15	1.463	0.12
19.0	4.20	0.16	1.463	0.13
20.0	4.20	0.17	1.463	0.13
21.0	4.20	0.18	1.463	0.14
22.0	4.20	0.18	1.462	0.15
23.0	4.20	0.19	1.462	0.15
24.0	4.21	0.20	1.462	0.16
25.0	4.21	0.21	1.462	0.17
26.0	4.21	0.22	1.462	0.18
27.0	4.21	0.23	1.461	0.18
28.0	4.21	0.24	1.461	0.19
29.0	4.21	0.25	1.461	0.20
30.0	4.21	0.26	1.461	0.20
31.0	4.21	0.26	1.461	0.21
32.0	4.21	0.27	1.460	0.22
33.0	4.22	0.28	1.460	0.22
34.0	4.22	0.29	1.460	0.23
35.0	4.22	0.30	1.459	0.24
36.0	4.22	0.30	1.459	0.24
37.0	4.23	0.31	1.458	0.25
38.0	4.23	0.32	1.458	0.26
39.0	4.23	0.33	1.457	0.26
40.0	4.24	0.34	1.457	0.27

比誘電率
SI18-5-2

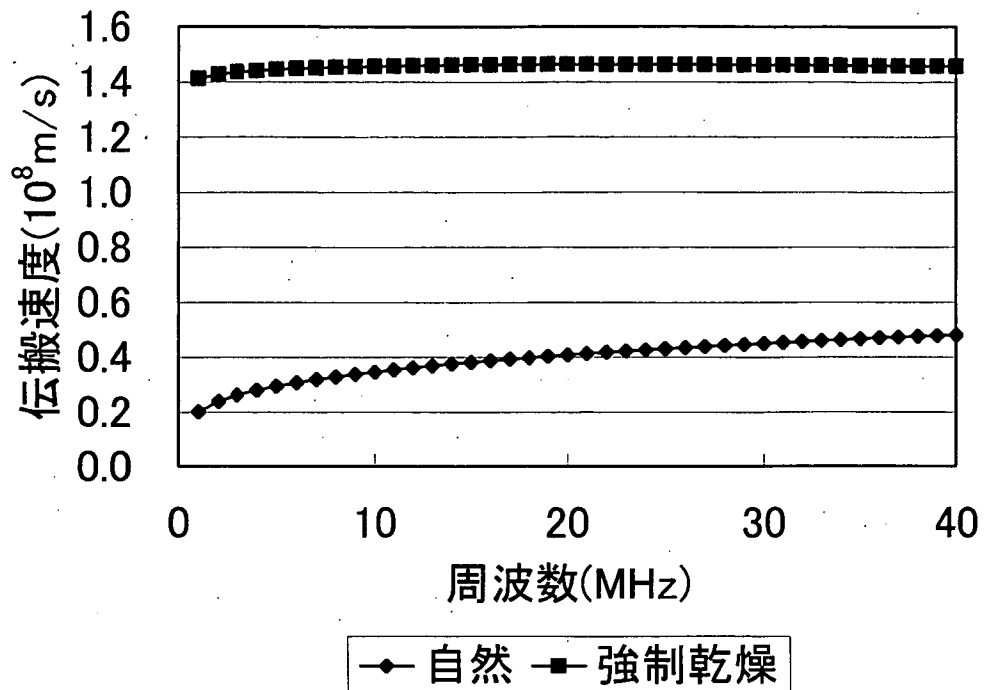


導電率
SI18-5-2



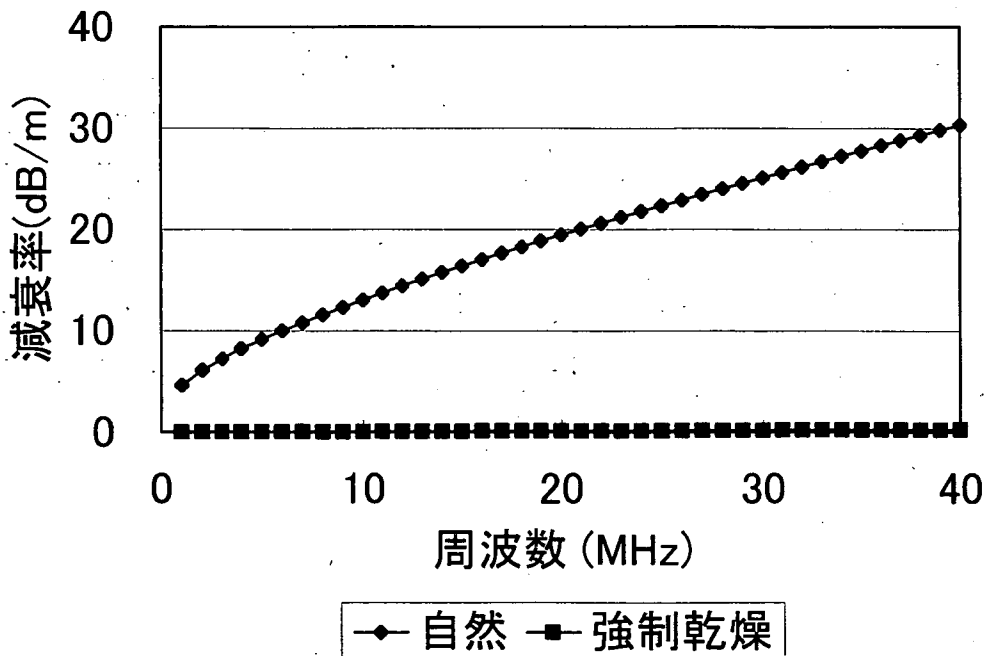
電磁波伝搬速度

SI18-5-2



減衰率

SI18-5-2



試料名 SI18-6 状態 自然

試料直径(mm) 24.03 試料厚(mm) 4.932

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	168.110	168.420	170.670	169.067	207.66
2.0	120.550	120.490	122.090	121.043	148.67
3.0	100.210	100.050	101.440	100.567	123.52
4.0	87.919	87.719	88.977	88.205	108.34
5.0	79.424	79.191	80.377	79.664	97.85
6.0	73.023	72.796	73.893	73.237	89.95
7.0	68.015	67.792	68.825	68.211	83.78
8.0	63.912	63.673	64.672	64.086	78.71
9.0	60.495	60.238	61.209	60.647	74.49
10.0	57.585	57.316	58.264	57.722	70.90
11.0	55.057	54.790	55.709	55.185	67.78
12.0	52.854	52.568	53.471	52.964	65.05
13.0	50.884	50.610	51.481	50.992	62.63
14.0	49.133	48.853	49.704	49.230	60.47
15.0	47.556	47.273	48.107	47.645	58.52
16.0	46.131	45.842	46.658	46.210	56.76
17.0	44.839	44.545	45.349	44.911	55.16
18.0	43.647	43.356	44.136	43.713	53.69
19.0	42.559	42.259	43.028	42.615	52.34
20.0	41.549	41.238	42.003	41.597	51.09
21.0	40.610	40.288	41.049	40.649	49.93
22.0	39.735	39.414	40.160	39.770	48.85
23.0	38.914	38.595	39.325	38.945	47.83
24.0	38.141	37.824	38.542	38.169	46.88
25.0	37.410	37.091	37.801	37.434	45.98
26.0	36.729	36.393	37.106	36.743	45.13
27.0	36.083	35.736	36.450	36.090	44.33
28.0	35.469	35.126	35.828	35.474	43.57
29.0	34.893	34.544	35.241	34.893	42.86
30.0	34.342	33.998	34.680	34.340	42.18
31.0	33.826	33.493	34.158	33.826	41.55
32.0	33.334	33.026	33.657	33.339	40.95
33.0	32.867	32.563	33.180	32.870	40.37
34.0	32.421	32.119	32.727	32.422	39.82
35.0	32.000	31.701	32.302	32.001	39.31
36.0	31.588	31.290	31.880	31.586	38.80
37.0	31.196	30.904	31.480	31.193	38.31
38.0	30.825	30.533	31.104	30.821	37.86
39.0	30.464	30.171	30.736	30.457	37.41
40.0	30.119	29.821	30.383	30.108	36.98

試料名 SI18-6 状態 強制乾燥

試料直径(mm) 24.03 試料厚(mm) 4.932

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.604	3.648	3.688	3.647	4.48
2.0	3.538	3.573	3.605	3.572	4.39
3.0	3.501	3.531	3.559	3.531	4.34
4.0	3.476	3.503	3.528	3.503	4.30
5.0	3.458	3.482	3.504	3.481	4.28
6.0	3.444	3.466	3.487	3.465	4.26
7.0	3.432	3.452	3.472	3.452	4.24
8.0	3.422	3.441	3.460	3.441	4.23
9.0	3.413	3.431	3.449	3.431	4.21
10.0	3.406	3.423	3.440	3.423	4.20
11.0	3.401	3.417	3.433	3.417	4.20
12.0	3.397	3.411	3.427	3.411	4.19
13.0	3.391	3.406	3.421	3.406	4.18
14.0	3.388	3.401	3.416	3.401	4.18
15.0	3.385	3.397	3.412	3.398	4.17
16.0	3.382	3.394	3.407	3.394	4.17
17.0	3.380	3.390	3.404	3.391	4.17
18.0	3.379	3.391	3.403	3.391	4.16
19.0	3.379	3.390	3.402	3.390	4.16
20.0	3.379	3.390	3.401	3.390	4.16
21.0	3.380	3.390	3.402	3.391	4.16
22.0	3.381	3.391	3.402	3.392	4.17
23.0	3.383	3.392	3.403	3.392	4.17
24.0	3.384	3.393	3.404	3.393	4.17
25.0	3.385	3.395	3.404	3.394	4.17
26.0	3.386	3.395	3.405	3.395	4.17
27.0	3.387	3.395	3.405	3.396	4.17
28.0	3.388	3.396	3.406	3.396	4.17
29.0	3.389	3.397	3.406	3.397	4.17
30.0	3.391	3.398	3.408	3.399	4.17
31.0	3.392	3.399	3.408	3.399	4.18
32.0	3.393	3.400	3.409	3.401	4.18
33.0	3.395	3.401	3.411	3.402	4.18
34.0	3.397	3.403	3.412	3.404	4.18
35.0	3.399	3.405	3.414	3.406	4.18
36.0	3.401	3.407	3.416	3.408	4.19
37.0	3.403	3.409	3.418	3.410	4.19
38.0	3.406	3.411	3.420	3.412	4.19
39.0	3.408	3.414	3.422	3.415	4.19
40.0	3.411	3.416	3.425	3.417	4.20

試料名 SI18-6 状態 自然

試料直径(mm) 24.03 試料厚(mm) 4.932

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.282	0.278	0.274	0.278	39.14	-1.407
2.0	0.254	0.250	0.246	0.250	43.48	-1.362
3.0	0.234	0.231	0.228	0.231	47.01	-1.328
4.0	0.220	0.217	0.214	0.217	50.10	-1.300
5.0	0.208	0.206	0.203	0.206	52.89	-1.277
6.0	0.198	0.196	0.194	0.196	55.48	-1.256
7.0	0.190	0.188	0.186	0.188	57.89	-1.237
8.0	0.183	0.181	0.179	0.181	60.15	-1.221
9.0	0.177	0.175	0.172	0.175	62.31	-1.205
10.0	0.171	0.169	0.167	0.169	64.36	-1.191
11.0	0.166	0.164	0.162	0.164	66.33	-1.178
12.0	0.161	0.159	0.158	0.159	68.22	-1.166
13.0	0.157	0.155	0.153	0.155	70.06	-1.155
14.0	0.153	0.152	0.150	0.151	71.82	-1.144
15.0	0.149	0.148	0.146	0.148	73.55	-1.133
16.0	0.146	0.145	0.143	0.145	75.21	-1.124
17.0	0.143	0.142	0.140	0.142	76.83	-1.114
18.0	0.140	0.139	0.137	0.139	78.43	-1.106
19.0	0.137	0.136	0.134	0.136	79.99	-1.097
20.0	0.135	0.133	0.132	0.133	81.53	-1.089
21.0	0.132	0.131	0.130	0.131	83.04	-1.081
22.0	0.130	0.129	0.127	0.129	84.53	-1.073
23.0	0.128	0.127	0.125	0.126	86.00	-1.066
24.0	0.126	0.124	0.123	0.124	87.45	-1.058
25.0	0.124	0.122	0.121	0.122	88.87	-1.051
26.0	0.122	0.121	0.119	0.120	90.27	-1.044
27.0	0.120	0.119	0.117	0.119	91.66	-1.038
28.0	0.118	0.117	0.116	0.117	93.02	-1.031
29.0	0.116	0.115	0.114	0.115	94.38	-1.025
30.0	0.115	0.114	0.112	0.114	95.71	-1.019
31.0	0.113	0.112	0.111	0.112	97.04	-1.013
32.0	0.112	0.111	0.109	0.111	98.35	-1.007
33.0	0.110	0.109	0.108	0.109	99.65	-1.002
34.0	0.109	0.108	0.107	0.108	100.93	-0.996
35.0	0.107	0.106	0.105	0.106	102.20	-0.991
36.0	0.106	0.105	0.104	0.105	103.46	-0.985
37.0	0.105	0.104	0.103	0.104	104.71	-0.980
38.0	0.104	0.103	0.102	0.103	105.95	-0.975
39.0	0.103	0.102	0.100	0.101	107.16	-0.970
40.0	0.101	0.100	0.099	0.100	108.37	-0.965

試料名 SI18-6 状態 強制乾燥

試料直径(mm) 24.03 試料厚(mm) 4.932

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	958.2000	846.2900	767.5400	857.343	0.01	-4.897
2.0	529.8400	467.6500	425.4200	474.303	0.02	-4.640
3.0	370.4900	327.3000	298.1900	331.993	0.03	-4.485
4.0	287.3000	253.9200	231.7800	257.667	0.04	-4.375
5.0	236.1800	207.7700	189.9600	211.303	0.05	-4.288
6.0	199.3900	176.8600	161.8400	179.363	0.06	-4.217
7.0	173.1600	153.7600	140.9000	155.940	0.07	-4.157
8.0	153.0100	136.1400	124.8700	138.007	0.08	-4.103
9.0	137.2100	122.1400	112.2500	123.867	0.09	-4.057
10.0	124.2000	110.8900	101.9500	112.347	0.10	-4.014
11.0	119.0900	105.6900	96.6580	107.146	0.10	-3.994
12.0	109.1600	97.1390	89.1200	98.473	0.11	-3.957
13.0	100.8700	90.2870	83.4790	91.545	0.12	-3.925
14.0	94.5470	84.3610	77.8520	85.587	0.13	-3.896
15.0	89.5370	79.5440	73.5020	80.861	0.13	-3.871
16.0	84.4830	75.7830	69.6670	76.644	0.14	-3.848
17.0	81.1380	71.5470	65.7280	72.804	0.15	-3.826
18.0	77.0420	68.6200	63.3380	69.667	0.16	-3.807
19.0	73.5090	65.6400	60.5800	66.576	0.16	-3.787
20.0	70.3940	63.0810	58.1830	63.886	0.17	-3.769
21.0	67.1120	60.2290	55.5150	60.952	0.18	-3.749
22.0	64.1640	57.4650	53.1090	58.246	0.19	-3.729
23.0	61.0910	54.9070	50.7350	55.578	0.20	-3.708
24.0	58.3360	52.4160	48.4170	53.056	0.20	-3.688
25.0	55.7380	50.1470	46.6740	50.853	0.21	-3.670
26.0	53.3570	48.1970	44.6030	48.719	0.22	-3.651
27.0	51.3060	46.3540	42.9050	46.855	0.23	-3.634
28.0	49.4460	44.6890	41.4480	45.194	0.24	-3.619
29.0	47.6080	43.1030	39.9960	43.569	0.25	-3.603
30.0	45.7730	41.7320	38.5760	42.027	0.26	-3.587
31.0	44.5710	40.4040	37.5770	40.851	0.27	-3.575
32.0	43.2440	39.2250	36.4070	39.625	0.27	-3.562
33.0	41.9700	38.0500	35.3510	38.457	0.28	-3.549
34.0	40.6900	36.9450	34.3440	37.326	0.29	-3.536
35.0	39.4500	36.0620	33.5890	36.367	0.30	-3.524
36.0	38.3830	34.8910	32.5020	35.259	0.31	-3.511
37.0	37.2750	34.0650	31.6910	34.344	0.32	-3.499
38.0	36.2500	33.1200	30.7950	33.388	0.33	-3.487
39.0	35.4260	32.2190	30.0380	32.561	0.33	-3.476
40.0	34.6610	31.5700	29.3860	31.872	0.34	-3.467

試料名
状態

SI18-6
自然

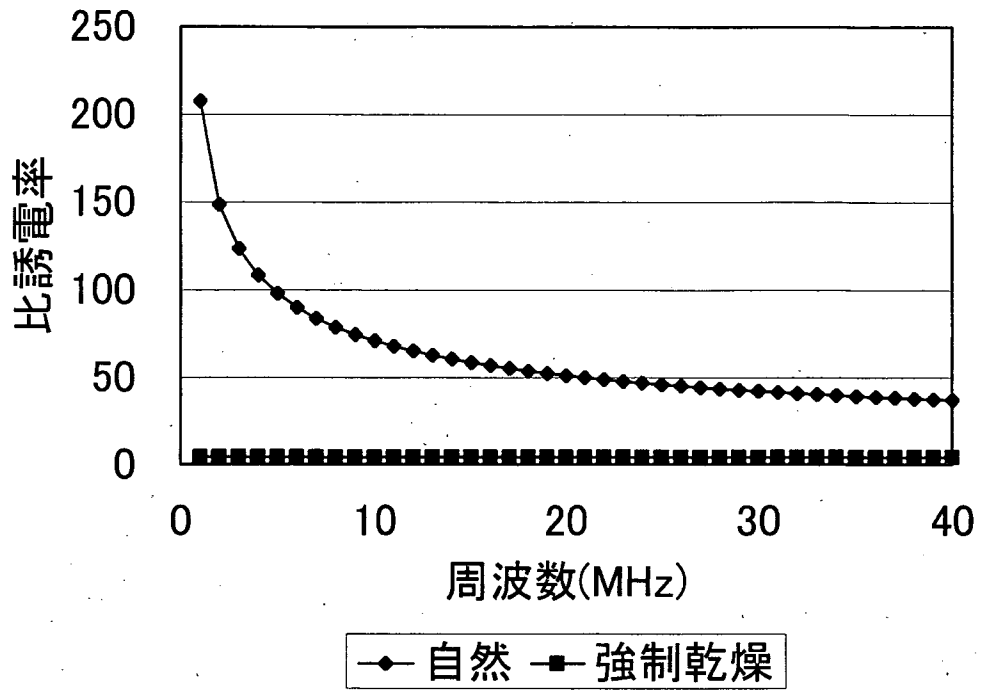
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	207.66	39.14	0.208	4.45
2.0	148.67	43.48	0.246	5.84
3.0	123.52	47.01	0.270	6.93
4.0	108.34	50.10	0.288	7.88
5.0	97.85	52.89	0.303	8.75
6.0	89.95	55.48	0.316	9.58
7.0	83.78	57.89	0.328	10.35
8.0	78.71	60.15	0.338	11.10
9.0	74.49	62.31	0.347	11.82
10.0	70.90	64.36	0.356	12.51
11.0	67.78	66.33	0.364	13.19
12.0	65.05	68.22	0.372	13.85
13.0	62.63	70.06	0.379	14.49
14.0	60.47	71.82	0.386	15.12
15.0	58.52	73.55	0.392	15.74
16.0	56.76	75.21	0.398	16.35
17.0	55.16	76.83	0.404	16.94
18.0	53.69	78.43	0.409	17.53
19.0	52.34	79.99	0.414	18.10
20.0	51.09	81.53	0.419	18.68
21.0	49.93	83.04	0.424	19.24
22.0	48.85	84.53	0.429	19.80
23.0	47.83	86.00	0.433	20.36
24.0	46.88	87.45	0.438	20.91
25.0	45.98	88.87	0.442	21.46
26.0	45.13	90.27	0.446	22.00
27.0	44.33	91.66	0.450	22.54
28.0	43.57	93.02	0.454	23.07
29.0	42.86	94.38	0.458	23.60
30.0	42.18	95.71	0.462	24.13
31.0	41.55	97.04	0.465	24.65
32.0	40.95	98.35	0.469	25.16
33.0	40.37	99.65	0.472	25.68
34.0	39.82	100.93	0.475	26.19
35.0	39.31	102.20	0.478	26.69
36.0	38.80	103.46	0.481	27.20
37.0	38.31	104.71	0.484	27.70
38.0	37.86	105.95	0.487	28.19
39.0	37.41	107.16	0.490	28.69
40.0	36.98	108.37	0.493	29.18

試料名
状態

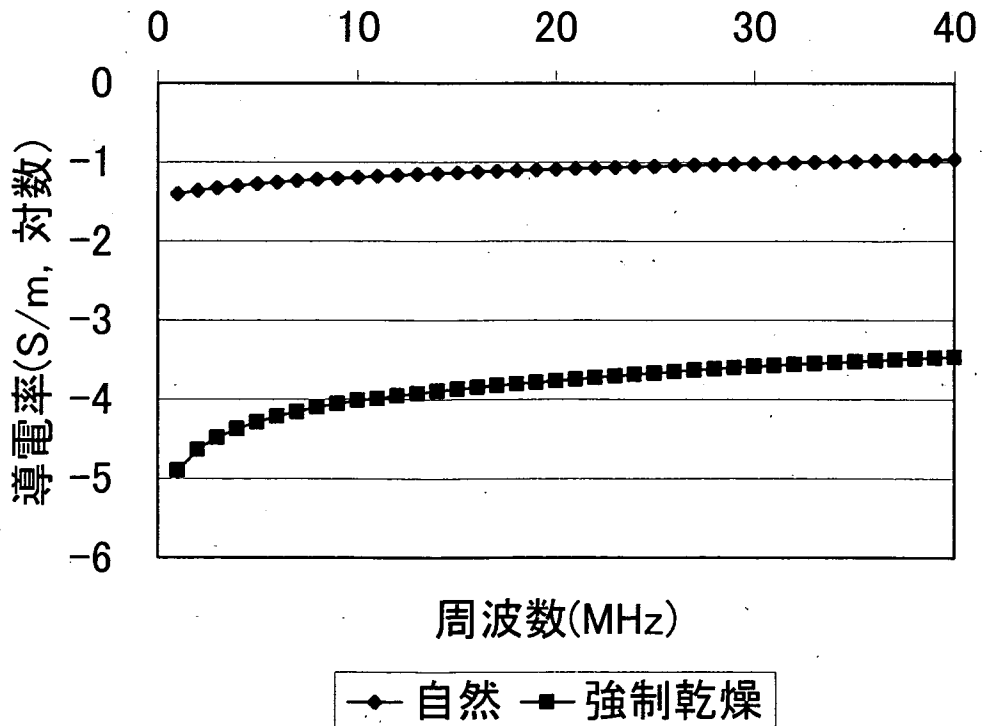
SI18-6
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.48	0.01	1.417	0.01
2.0	4.39	0.02	1.431	0.02
3.0	4.34	0.03	1.440	0.03
4.0	4.30	0.04	1.445	0.03
5.0	4.28	0.05	1.450	0.04
6.0	4.26	0.06	1.453	0.05
7.0	4.24	0.07	1.456	0.06
8.0	4.23	0.08	1.458	0.06
9.0	4.21	0.09	1.460	0.07
10.0	4.20	0.10	1.462	0.08
11.0	4.20	0.10	1.463	0.08
12.0	4.19	0.11	1.465	0.09
13.0	4.18	0.12	1.466	0.10
14.0	4.18	0.13	1.467	0.10
15.0	4.17	0.13	1.467	0.11
16.0	4.17	0.14	1.468	0.11
17.0	4.17	0.15	1.469	0.12
18.0	4.16	0.16	1.469	0.13
19.0	4.16	0.16	1.469	0.13
20.0	4.16	0.17	1.469	0.14
21.0	4.16	0.18	1.469	0.14
22.0	4.17	0.19	1.469	0.15
23.0	4.17	0.20	1.469	0.16
24.0	4.17	0.20	1.468	0.16
25.0	4.17	0.21	1.468	0.17
26.0	4.17	0.22	1.468	0.18
27.0	4.17	0.23	1.468	0.19
28.0	4.17	0.24	1.468	0.19
29.0	4.17	0.25	1.468	0.20
30.0	4.17	0.26	1.467	0.21
31.0	4.18	0.27	1.467	0.21
32.0	4.18	0.27	1.467	0.22
33.0	4.18	0.28	1.467	0.23
34.0	4.18	0.29	1.466	0.23
35.0	4.18	0.30	1.466	0.24
36.0	4.19	0.31	1.465	0.25
37.0	4.19	0.32	1.465	0.25
38.0	4.19	0.33	1.464	0.26
39.0	4.19	0.33	1.464	0.27
40.0	4.20	0.34	1.463	0.27

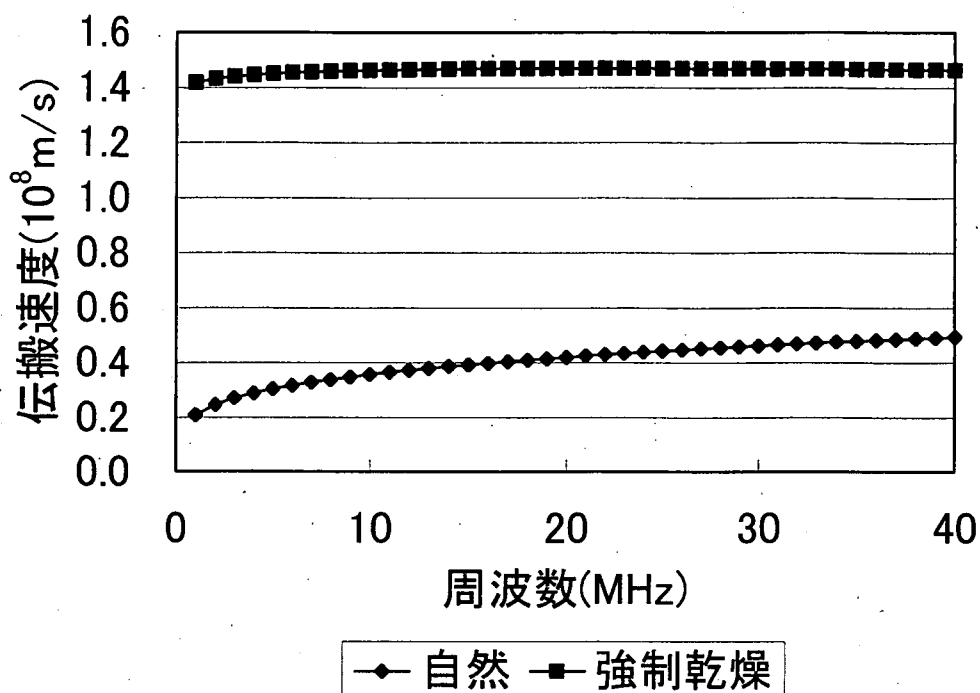
比誘電率
SI18-6



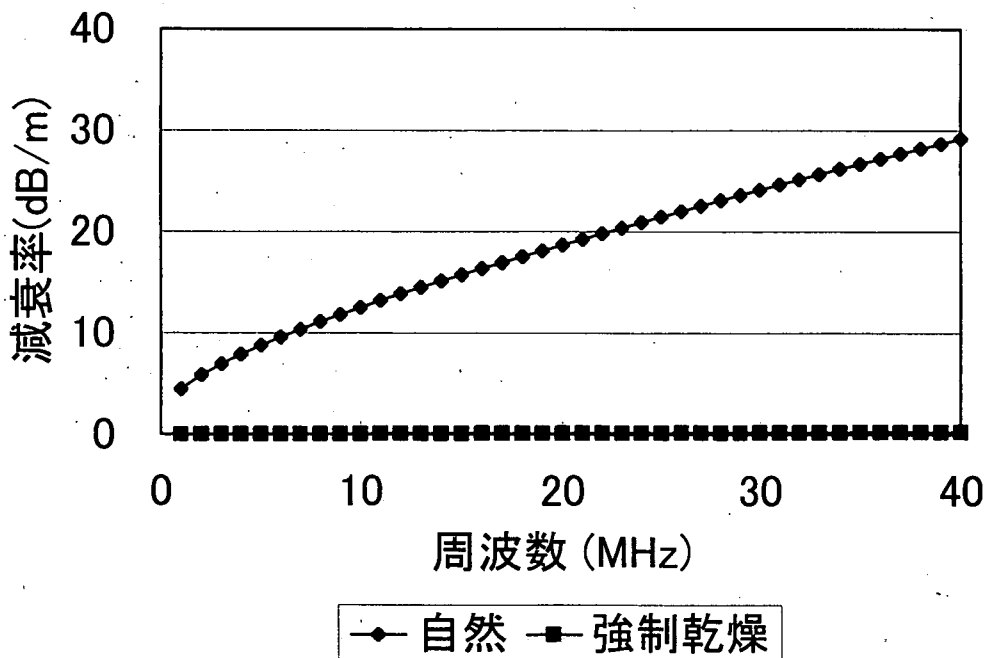
導電率
SI18-6



電磁波伝搬速度 SI18-6



減衰率 SI18-6



試料名 SI18-7 状態 自然

試料直径(mm) 24.37 試料厚(mm) 4.985

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	49.539	49.902	50.234	49.892	60.22
2.0	38.162	38.421	38.674	38.419	46.37
3.0	32.818	33.032	33.251	33.034	39.87
4.0	29.492	29.680	29.877	29.683	35.83
5.0	27.157	27.312	27.495	27.321	32.98
6.0	25.388	25.542	25.710	25.547	30.84
7.0	23.991	24.134	24.292	24.139	29.14
8.0	22.843	22.974	23.125	22.981	27.74
9.0	21.880	22.003	22.150	22.011	26.57
10.0	21.061	21.175	21.315	21.184	25.57
11.0	20.348	20.459	20.594	20.467	24.70
12.0	19.722	19.828	19.959	19.836	23.94
13.0	19.166	19.266	19.394	19.275	23.27
14.0	18.669	18.765	18.888	18.774	22.66
15.0	18.219	18.311	18.432	18.321	22.11
16.0	17.812	17.899	18.019	17.910	21.62
17.0	17.443	17.524	17.642	17.536	21.17
18.0	17.099	17.181	17.294	17.191	20.75
19.0	16.783	16.861	16.973	16.872	20.37
20.0	16.490	16.564	16.675	16.576	20.01
21.0	16.217	16.290	16.398	16.302	19.68
22.0	15.964	16.034	16.140	16.046	19.37
23.0	15.726	15.794	15.899	15.806	19.08
24.0	15.504	15.569	15.674	15.582	18.81
25.0	15.295	15.360	15.462	15.372	18.56
26.0	15.102	15.162	15.264	15.176	18.32
27.0	14.917	14.976	15.078	14.990	18.09
28.0	14.745	14.801	14.902	14.816	17.88
29.0	14.581	14.635	14.736	14.651	17.68
30.0	14.424	14.478	14.577	14.493	17.49
31.0	14.280	14.332	14.431	14.348	17.32
32.0	14.141	14.191	14.289	14.207	17.15
33.0	14.009	14.057	14.156	14.074	16.99
34.0	13.883	13.930	14.028	13.947	16.83
35.0	13.764	13.812	13.908	13.828	16.69
36.0	13.649	13.694	13.790	13.711	16.55
37.0	13.540	13.584	13.680	13.601	16.42
38.0	13.435	13.479	13.574	13.496	16.29
39.0	13.335	13.377	13.472	13.395	16.17
40.0	13.238	13.279	13.374	13.297	16.05

試料名 SI18-7 状態 強制乾燥

試料直径(mm) 24.37 試料厚(mm) 4.985

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.683	3.732	3.749	3.721	4.49
2.0	3.625	3.668	3.680	3.657	4.41
3.0	3.592	3.631	3.640	3.621	4.37
4.0	3.569	3.606	3.613	3.596	4.34
5.0	3.551	3.586	3.592	3.577	4.32
6.0	3.539	3.572	3.577	3.563	4.30
7.0	3.528	3.560	3.564	3.551	4.29
8.0	3.519	3.550	3.553	3.541	4.27
9.0	3.511	3.541	3.543	3.532	4.26
10.0	3.505	3.534	3.536	3.525	4.25
11.0	3.501	3.529	3.530	3.520	4.25
12.0	3.496	3.523	3.524	3.515	4.24
13.0	3.492	3.519	3.520	3.510	4.24
14.0	3.489	3.515	3.515	3.506	4.23
15.0	3.486	3.512	3.513	3.503	4.23
16.0	3.484	3.509	3.508	3.500	4.22
17.0	3.482	3.507	3.507	3.499	4.22
18.0	3.482	3.507	3.505	3.498	4.22
19.0	3.482	3.506	3.505	3.498	4.22
20.0	3.483	3.507	3.505	3.498	4.22
21.0	3.484	3.508	3.506	3.499	4.22
22.0	3.486	3.510	3.507	3.501	4.23
23.0	3.488	3.511	3.509	3.502	4.23
24.0	3.489	3.512	3.509	3.503	4.23
25.0	3.491	3.513	3.510	3.505	4.23
26.0	3.492	3.514	3.511	3.506	4.23
27.0	3.493	3.515	3.512	3.507	4.23
28.0	3.495	3.517	3.513	3.508	4.23
29.0	3.496	3.518	3.514	3.509	4.24
30.0	3.498	3.519	3.516	3.511	4.24
31.0	3.499	3.521	3.517	3.512	4.24
32.0	3.501	3.522	3.518	3.514	4.24
33.0	3.503	3.524	3.520	3.515	4.24
34.0	3.505	3.526	3.522	3.518	4.25
35.0	3.507	3.528	3.524	3.520	4.25
36.0	3.510	3.530	3.526	3.522	4.25
37.0	3.512	3.533	3.529	3.525	4.25
38.0	3.515	3.535	3.531	3.527	4.26
39.0	3.518	3.538	3.534	3.530	4.26
40.0	3.521	3.541	3.536	3.533	4.26

試料名 SI18-7 状態 自然

試料直径(mm) 24.37 試料厚(mm) 4.985

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1.722	1.691	1.665	1.693	6.31	-2.200
2.0	1.446	1.422	1.403	1.424	7.51	-2.125
3.0	1.277	1.258	1.242	1.259	8.49	-2.071
4.0	1.159	1.142	1.128	1.143	9.35	-2.029
5.0	1.069	1.053	1.041	1.054	10.14	-1.994
6.0	0.996	0.982	0.971	0.983	10.87	-1.964
7.0	0.937	0.924	0.914	0.925	11.55	-1.937
8.0	0.888	0.875	0.866	0.876	12.19	-1.914
9.0	0.845	0.833	0.825	0.834	12.81	-1.892
10.0	0.808	0.797	0.789	0.798	13.40	-1.873
11.0	0.775	0.765	0.757	0.765	13.96	-1.855
12.0	0.745	0.736	0.728	0.737	14.51	-1.838
13.0	0.719	0.710	0.703	0.711	15.04	-1.823
14.0	0.695	0.686	0.680	0.687	15.55	-1.808
15.0	0.674	0.665	0.659	0.666	16.05	-1.794
16.0	0.654	0.645	0.639	0.646	16.54	-1.781
17.0	0.635	0.627	0.622	0.628	17.02	-1.769
18.0	0.618	0.611	0.605	0.611	17.48	-1.757
19.0	0.603	0.595	0.590	0.596	17.94	-1.746
20.0	0.588	0.580	0.575	0.581	18.39	-1.735
21.0	0.574	0.567	0.562	0.568	18.83	-1.725
22.0	0.561	0.554	0.549	0.555	19.26	-1.715
23.0	0.549	0.542	0.537	0.543	19.69	-1.706
24.0	0.537	0.531	0.526	0.531	20.11	-1.697
25.0	0.527	0.520	0.516	0.521	20.52	-1.688
26.0	0.516	0.510	0.505	0.511	20.93	-1.679
27.0	0.507	0.500	0.496	0.501	21.34	-1.671
28.0	0.497	0.491	0.487	0.492	21.74	-1.663
29.0	0.488	0.482	0.478	0.483	22.14	-1.655
30.0	0.480	0.474	0.470	0.474	22.53	-1.647
31.0	0.471	0.466	0.462	0.466	22.93	-1.640
32.0	0.463	0.458	0.454	0.458	23.32	-1.632
33.0	0.456	0.450	0.446	0.451	23.71	-1.625
34.0	0.448	0.443	0.439	0.444	24.10	-1.618
35.0	0.441	0.436	0.432	0.437	24.48	-1.611
36.0	0.435	0.429	0.426	0.430	24.87	-1.604
37.0	0.428	0.423	0.419	0.423	25.25	-1.598
38.0	0.422	0.417	0.413	0.417	25.62	-1.591
39.0	0.416	0.410	0.407	0.411	26.00	-1.585
40.0	0.410	0.405	0.401	0.405	26.37	-1.579

試料名 SI18-7 状態 強制乾燥

試料直径(mm) 24.37 試料厚(mm) 4.985

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1077.4000	972.3100	908.9300	986.213	0.01	-4.965
2.0	593.3100	534.6700	499.0000	542.327	0.02	-4.705
3.0	412.9000	371.5900	346.9300	377.140	0.03	-4.548
4.0	317.5700	286.3400	267.2300	290.380	0.04	-4.434
5.0	259.4700	234.4100	218.9700	237.617	0.04	-4.347
6.0	219.1900	197.8500	184.9400	200.660	0.05	-4.274
7.0	190.1200	171.7200	160.5900	174.143	0.06	-4.212
8.0	167.7000	151.7000	142.0300	153.810	0.07	-4.158
9.0	150.0900	135.9400	127.2700	137.767	0.08	-4.110
10.0	135.8500	123.0700	115.4100	124.777	0.09	-4.067
11.0	130.1100	117.4900	110.0100	119.203	0.09	-4.047
12.0	120.3000	108.9600	101.4500	110.237	0.10	-4.013
13.0	111.1000	100.0600	94.2940	101.818	0.10	-3.979
14.0	103.7100	93.2920	87.3020	94.768	0.11	-3.948
15.0	97.2670	88.4220	83.2000	89.630	0.12	-3.924
16.0	92.5490	83.5380	78.7410	84.943	0.13	-3.900
17.0	88.2290	80.1790	74.7350	81.048	0.13	-3.880
18.0	84.2880	76.4160	71.4230	77.376	0.14	-3.860
19.0	80.3870	73.0980	68.3680	73.951	0.14	-3.840
20.0	76.9530	69.7470	65.1690	70.623	0.15	-3.820
21.0	73.6020	66.8490	62.4850	67.645	0.16	-3.801
22.0	70.2260	63.9220	59.7830	64.644	0.17	-3.782
23.0	66.8750	60.8030	56.9470	61.542	0.17	-3.760
24.0	63.8030	58.1020	54.3960	58.767	0.18	-3.740
25.0	60.0550	55.7330	52.1450	55.978	0.19	-3.719
26.0	58.3900	53.2710	49.9270	53.863	0.20	-3.702
27.0	55.9830	51.1420	48.0100	51.712	0.21	-3.685
28.0	53.8420	49.2300	46.2370	49.770	0.21	-3.668
29.0	51.9370	47.5250	44.6820	48.048	0.22	-3.653
30.0	50.3650	45.7380	42.9740	46.359	0.23	-3.637
31.0	48.5580	44.5650	41.8460	44.990	0.24	-3.624
32.0	47.0760	43.1740	40.5740	43.608	0.25	-3.611
33.0	45.6470	41.8290	39.3890	42.288	0.25	-3.597
34.0	44.2890	40.6620	38.2910	41.081	0.26	-3.585
35.0	42.9180	39.5290	37.0260	39.824	0.27	-3.571
36.0	41.7480	38.3360	36.1180	38.734	0.28	-3.559
37.0	40.5490	37.2560	35.1270	37.644	0.28	-3.547
38.0	39.4560	36.3330	34.2260	36.672	0.29	-3.535
39.0	38.4190	35.3930	33.3410	35.718	0.30	-3.524
40.0	37.4730	34.5550	32.3680	34.799	0.31	-3.513

試料名
状態

SI18-7
自然

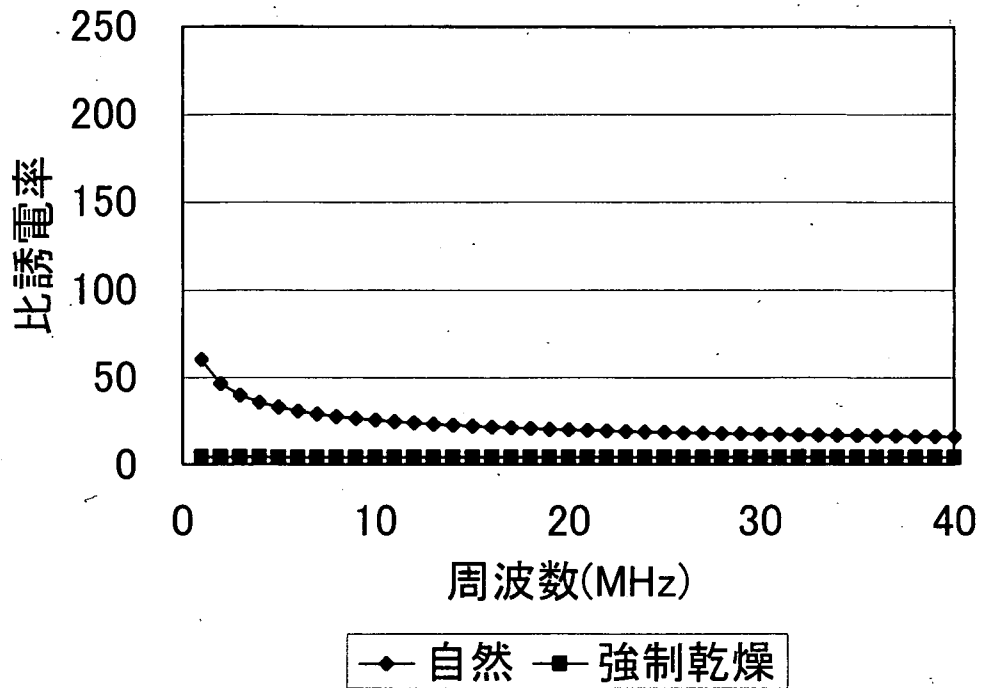
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	60.22	6.31	0.386	1.33
2.0	46.37	7.51	0.440	1.80
3.0	39.87	8.49	0.475	2.20
4.0	35.83	9.35	0.501	2.56
5.0	32.98	10.14	0.522	2.89
6.0	30.84	10.87	0.540	3.20
7.0	29.14	11.55	0.555	3.50
8.0	27.74	12.19	0.569	3.79
9.0	26.57	12.81	0.582	4.07
10.0	25.57	13.40	0.593	4.34
11.0	24.70	13.96	0.603	4.60
12.0	23.94	14.51	0.613	4.86
13.0	23.27	15.04	0.622	5.10
14.0	22.66	15.55	0.630	5.35
15.0	22.11	16.05	0.638	5.59
16.0	21.62	16.54	0.645	5.82
17.0	21.17	17.02	0.652	6.06
18.0	20.75	17.48	0.658	6.28
19.0	20.37	17.94	0.664	6.51
20.0	20.01	18.39	0.670	6.73
21.0	19.68	18.83	0.676	6.95
22.0	19.37	19.26	0.681	7.17
23.0	19.08	19.69	0.686	7.38
24.0	18.81	20.11	0.691	7.59
25.0	18.56	20.52	0.696	7.80
26.0	18.32	20.93	0.700	8.01
27.0	18.09	21.34	0.705	8.21
28.0	17.88	21.74	0.709	8.42
29.0	17.68	22.14	0.713	8.62
30.0	17.49	22.53	0.717	8.82
31.0	17.32	22.93	0.720	9.02
32.0	17.15	23.32	0.724	9.22
33.0	16.99	23.71	0.727	9.42
34.0	16.83	24.10	0.731	9.62
35.0	16.69	24.48	0.734	9.81
36.0	16.55	24.87	0.737	10.01
37.0	16.42	25.25	0.740	10.20
38.0	16.29	25.62	0.743	10.39
39.0	16.17	26.00	0.746	10.59
40.0	16.05	26.37	0.748	10.78

試料名
状態

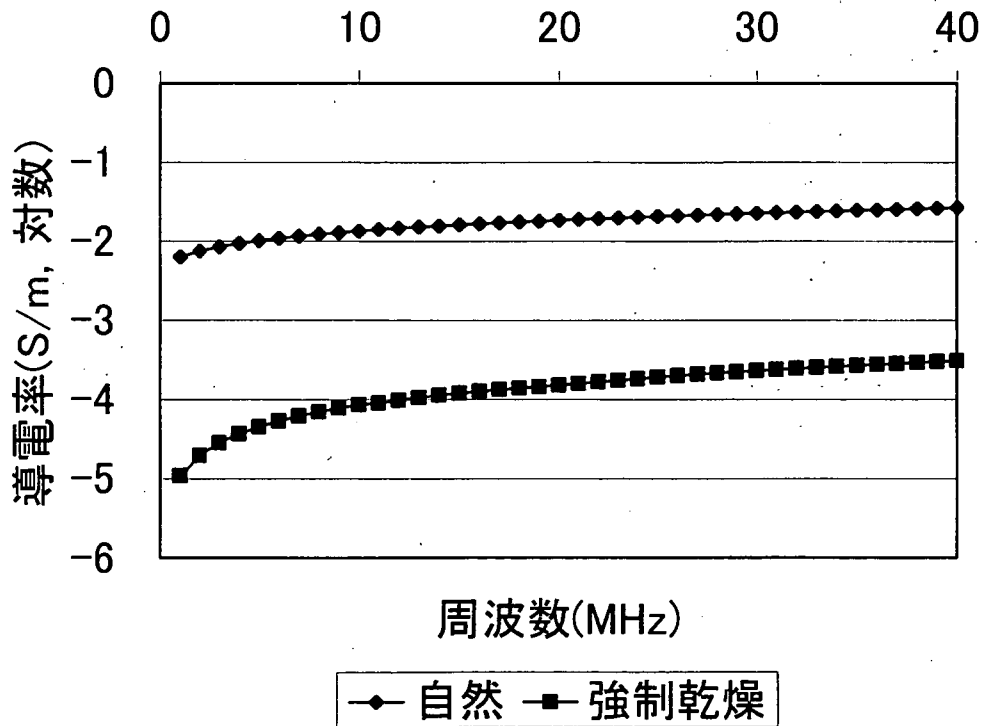
SI18-7
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10^8 m/s]	減衰率[dB/m]
1.0	4.49	0.01	1.415	0.01
2.0	4.41	0.02	1.427	0.02
3.0	4.37	0.03	1.434	0.02
4.0	4.34	0.04	1.439	0.03
5.0	4.32	0.04	1.443	0.04
6.0	4.30	0.05	1.446	0.04
7.0	4.29	0.06	1.448	0.05
8.0	4.27	0.07	1.450	0.06
9.0	4.26	0.08	1.452	0.06
10.0	4.25	0.09	1.453	0.07
11.0	4.25	0.09	1.454	0.07
12.0	4.24	0.10	1.456	0.08
13.0	4.24	0.10	1.457	0.08
14.0	4.23	0.11	1.457	0.09
15.0	4.23	0.12	1.458	0.09
16.0	4.22	0.13	1.459	0.10
17.0	4.22	0.13	1.459	0.11
18.0	4.22	0.14	1.459	0.11
19.0	4.22	0.14	1.459	0.12
20.0	4.22	0.15	1.459	0.12
21.0	4.22	0.16	1.459	0.13
22.0	4.23	0.17	1.458	0.13
23.0	4.23	0.17	1.458	0.14
24.0	4.23	0.18	1.458	0.14
25.0	4.23	0.19	1.458	0.15
26.0	4.23	0.20	1.457	0.16
27.0	4.23	0.21	1.457	0.16
28.0	4.23	0.21	1.457	0.17
29.0	4.24	0.22	1.457	0.18
30.0	4.24	0.23	1.456	0.18
31.0	4.24	0.24	1.456	0.19
32.0	4.24	0.25	1.456	0.19
33.0	4.24	0.25	1.455	0.20
34.0	4.25	0.26	1.455	0.21
35.0	4.25	0.27	1.454	0.21
36.0	4.25	0.28	1.454	0.22
37.0	4.25	0.28	1.454	0.23
38.0	4.26	0.29	1.453	0.23
39.0	4.26	0.30	1.452	0.24
40.0	4.26	0.31	1.452	0.24

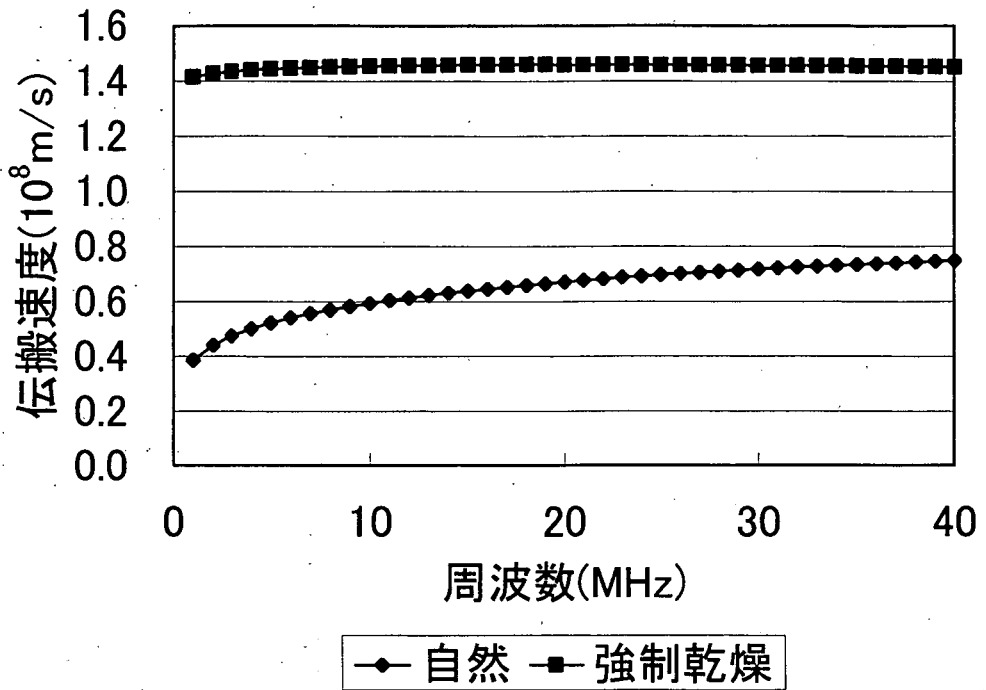
比誘電率
SI18-7



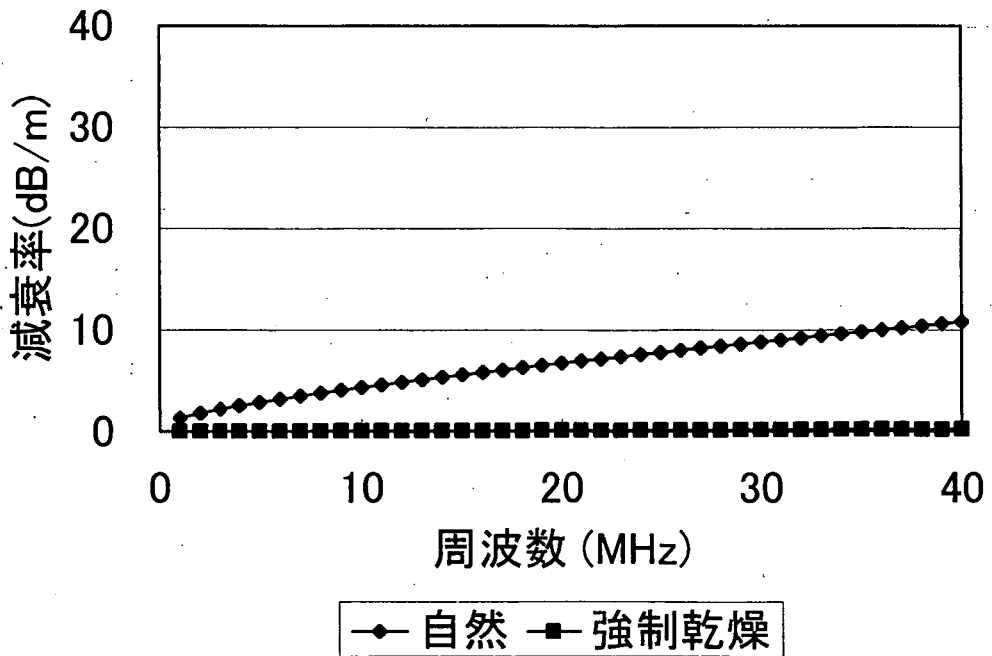
導電率
SI18-7



電磁波伝搬速度 SI18-7



減衰率 SI18-7



試料名 SI18-8-1 状態 自然

試料直径(mm) 24.27 試料厚(mm) 4.930

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	46.523	46.895	47.070	46.829	56.36
2.0	36.265	36.558	36.695	36.506	43.94
3.0	31.386	31.644	31.762	31.597	38.03
4.0	28.327	28.564	28.671	28.521	34.33
5.0	26.174	26.393	26.492	26.353	31.72
6.0	24.531	24.740	24.832	24.701	29.73
7.0	23.234	23.433	23.520	23.396	28.16
8.0	22.163	22.355	22.437	22.318	26.86
9.0	21.266	21.451	21.530	21.416	25.78
10.0	20.499	20.678	20.754	20.644	24.85
11.0	19.834	20.006	20.080	19.973	24.04
12.0	19.246	19.414	19.486	19.382	23.33
13.0	18.722	18.888	18.956	18.855	22.69
14.0	18.256	18.416	18.484	18.385	22.13
15.0	17.832	17.990	18.055	17.959	21.62
16.0	17.449	17.603	17.666	17.573	21.15
17.0	17.100	17.249	17.312	17.220	20.73
18.0	16.777	16.923	16.985	16.895	20.33
19.0	16.479	16.623	16.682	16.595	19.97
20.0	16.199	16.342	16.400	16.314	19.63
21.0	15.943	16.082	16.140	16.055	19.32
22.0	15.703	15.839	15.895	15.812	19.03
23.0	15.478	15.612	15.667	15.586	18.76
24.0	15.267	15.400	15.454	15.374	18.50
25.0	15.069	15.199	15.252	15.173	18.26
26.0	14.884	15.013	15.064	14.987	18.04
27.0	14.709	14.835	14.887	14.810	17.83
28.0	14.544	14.669	14.720	14.644	17.63
29.0	14.389	14.512	14.561	14.487	17.44
30.0	14.240	14.362	14.410	14.337	17.26
31.0	14.103	14.222	14.270	14.198	17.09
32.0	13.970	14.088	14.136	14.065	16.93
33.0	13.844	13.961	14.007	13.937	16.77
34.0	13.724	13.840	13.886	13.817	16.63
35.0	13.610	13.725	13.769	13.701	16.49
36.0	13.501	13.613	13.658	13.591	16.36
37.0	13.396	13.508	13.552	13.485	16.23
38.0	13.297	13.407	13.451	13.385	16.11
39.0	13.201	13.310	13.353	13.288	15.99
40.0	13.109	13.216	13.258	13.194	15.88

試料名 SI18-8-1 状態 強制乾燥

試料直径(mm) 24.27 試料厚(mm) 4.930

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.519	3.573	3.592	3.561	4.29
2.0	3.462	3.508	3.525	3.498	4.21
3.0	3.430	3.470	3.486	3.462	4.17
4.0	3.407	3.444	3.459	3.437	4.14
5.0	3.390	3.425	3.439	3.418	4.11
6.0	3.378	3.410	3.424	3.404	4.10
7.0	3.367	3.398	3.411	3.392	4.08
8.0	3.358	3.387	3.400	3.382	4.07
9.0	3.350	3.379	3.391	3.373	4.06
10.0	3.344	3.371	3.383	3.366	4.05
11.0	3.339	3.365	3.377	3.361	4.04
12.0	3.336	3.360	3.371	3.356	4.04
13.0	3.331	3.356	3.367	3.351	4.03
14.0	3.327	3.352	3.363	3.347	4.03
15.0	3.325	3.348	3.359	3.344	4.02
16.0	3.322	3.345	3.355	3.341	4.02
17.0	3.321	3.343	3.354	3.339	4.02
18.0	3.321	3.342	3.353	3.339	4.02
19.0	3.320	3.342	3.352	3.338	4.02
20.0	3.321	3.342	3.353	3.339	4.02
21.0	3.323	3.343	3.353	3.340	4.02
22.0	3.324	3.344	3.354	3.341	4.02
23.0	3.325	3.345	3.355	3.342	4.02
24.0	3.327	3.346	3.357	3.343	4.02
25.0	3.328	3.347	3.356	3.344	4.02
26.0	3.330	3.348	3.356	3.345	4.03
27.0	3.331	3.349	3.359	3.346	4.03
28.0	3.332	3.350	3.360	3.347	4.03
29.0	3.333	3.351	3.361	3.349	4.03
30.0	3.334	3.353	3.362	3.350	4.03
31.0	3.336	3.354	3.363	3.351	4.03
32.0	3.338	3.355	3.364	3.353	4.04
33.0	3.340	3.357	3.366	3.354	4.04
34.0	3.342	3.359	3.368	3.356	4.04
35.0	3.344	3.361	3.370	3.358	4.04
36.0	3.346	3.363	3.372	3.360	4.04
37.0	3.349	3.365	3.374	3.363	4.05
38.0	3.351	3.368	3.376	3.365	4.05
39.0	3.354	3.370	3.379	3.368	4.05
40.0	3.357	3.373	3.381	3.370	4.06

試料名 SI18-8-1 状態 自然

試料直径(mm) 24.27 試料厚(mm) 4.930

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1.857	1.824	1.808	1.830	5.82	-2.235
2.0	1.561	1.536	1.524	1.541	6.92	-2.160
3.0	1.379	1.359	1.348	1.362	7.83	-2.106
4.0	1.250	1.232	1.223	1.235	8.63	-2.064
5.0	1.151	1.136	1.128	1.138	9.36	-2.029
6.0	1.073	1.059	1.051	1.061	10.05	-1.998
7.0	1.008	0.995	0.989	0.997	10.69	-1.971
8.0	0.954	0.942	0.936	0.944	11.29	-1.947
9.0	0.907	0.896	0.890	0.897	11.88	-1.925
10.0	0.866	0.855	0.850	0.857	12.43	-1.905
11.0	0.830	0.820	0.815	0.822	12.97	-1.887
12.0	0.798	0.788	0.784	0.790	13.49	-1.870
13.0	0.769	0.760	0.756	0.762	13.99	-1.854
14.0	0.743	0.734	0.730	0.736	14.48	-1.839
15.0	0.719	0.711	0.707	0.712	14.96	-1.825
16.0	0.697	0.689	0.685	0.691	15.43	-1.812
17.0	0.677	0.670	0.666	0.671	15.88	-1.799
18.0	0.659	0.651	0.648	0.653	16.33	-1.787
19.0	0.641	0.634	0.631	0.635	16.77	-1.775
20.0	0.625	0.618	0.615	0.619	17.21	-1.764
21.0	0.610	0.603	0.600	0.604	17.63	-1.754
22.0	0.596	0.589	0.586	0.590	18.05	-1.744
23.0	0.583	0.576	0.573	0.577	18.46	-1.734
24.0	0.570	0.564	0.561	0.565	18.87	-1.724
25.0	0.558	0.552	0.549	0.553	19.27	-1.715
26.0	0.547	0.541	0.538	0.542	19.66	-1.706
27.0	0.536	0.530	0.528	0.531	20.06	-1.698
28.0	0.526	0.520	0.517	0.521	20.45	-1.689
29.0	0.516	0.511	0.508	0.512	20.83	-1.681
30.0	0.507	0.501	0.499	0.502	21.22	-1.673
31.0	0.498	0.492	0.490	0.493	21.60	-1.665
32.0	0.489	0.484	0.481	0.485	21.98	-1.658
33.0	0.481	0.476	0.473	0.477	22.36	-1.650
34.0	0.473	0.468	0.465	0.469	22.74	-1.643
35.0	0.465	0.460	0.458	0.461	23.11	-1.636
36.0	0.458	0.453	0.450	0.454	23.49	-1.629
37.0	0.451	0.446	0.443	0.447	23.86	-1.622
38.0	0.444	0.439	0.437	0.440	24.23	-1.616
39.0	0.437	0.433	0.430	0.433	24.60	-1.609
40.0	0.431	0.426	0.424	0.427	24.96	-1.603

試料名 SI18-8-1 状態 強制乾燥

試料直径(mm) 24.27 試料厚(mm) 4.930

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1116.0000	972.4100	943.5400	1010.650	0.01	-4.977
2.0	607.7100	529.3400	512.2500	549.767	0.02	-4.713
3.0	419.9500	367.2100	354.5600	380.573	0.03	-4.553
4.0	322.7100	283.1300	273.2400	293.027	0.04	-4.439
5.0	262.5500	230.5000	223.4600	238.837	0.04	-4.350
6.0	222.7800	196.1100	189.0500	202.647	0.05	-4.279
7.0	192.8700	169.9600	164.0400	175.623	0.06	-4.217
8.0	170.1800	150.2600	144.9600	155.133	0.07	-4.163
9.0	152.1900	134.6700	129.9500	138.937	0.08	-4.115
10.0	137.8200	122.1700	117.8200	125.937	0.08	-4.073
11.0	131.8300	116.4400	112.1400	120.137	0.09	-4.052
12.0	122.4500	108.3900	104.3000	111.713	0.10	-4.020
13.0	112.6400	100.3100	95.9250	102.958	0.10	-3.985
14.0	104.2000	93.5670	89.7290	95.832	0.11	-3.954
15.0	99.1320	88.1030	84.8530	90.696	0.12	-3.930
16.0	93.8920	82.8490	80.5490	85.763	0.12	-3.906
17.0	90.0880	79.1370	76.5440	81.923	0.13	-3.886
18.0	85.4740	76.0660	73.0680	78.203	0.14	-3.866
19.0	81.6930	72.7500	70.1130	74.852	0.14	-3.847
20.0	78.1640	69.4500	67.0480	71.554	0.15	-3.827
21.0	74.6600	66.5920	64.0700	68.441	0.16	-3.808
22.0	71.2960	63.5740	61.2150	65.362	0.16	-3.788
23.0	68.0410	60.6800	58.5250	62.415	0.17	-3.768
24.0	64.7430	57.8810	55.9200	59.515	0.18	-3.747
25.0	61.8920	55.5110	53.9040	57.102	0.19	-3.729
26.0	59.1760	52.9880	51.4270	54.530	0.20	-3.709
27.0	56.8040	51.1660	49.3120	52.427	0.20	-3.692
28.0	54.7610	49.3030	47.5590	50.541	0.21	-3.676
29.0	52.7430	47.6640	46.0000	48.802	0.22	-3.661
30.0	51.2710	46.1680	44.2940	47.244	0.23	-3.647
31.0	49.4860	44.6750	43.1200	45.760	0.23	-3.633
32.0	47.9290	43.3030	41.7470	44.326	0.24	-3.619
33.0	46.4490	42.0640	40.6230	43.045	0.25	-3.606
34.0	45.1650	40.8470	39.5000	41.837	0.25	-3.594
35.0	43.8420	39.6700	38.2930	40.602	0.26	-3.581
36.0	42.5600	38.5860	37.3320	39.493	0.27	-3.569
37.0	41.3640	37.6170	36.3090	38.430	0.28	-3.557
38.0	40.3070	36.5860	35.4430	37.445	0.28	-3.546
39.0	39.1960	35.6460	34.4620	36.435	0.29	-3.534
40.0	38.2660	34.8500	33.7520	35.623	0.30	-3.524

試料名
状態

SI18-8-1
自然

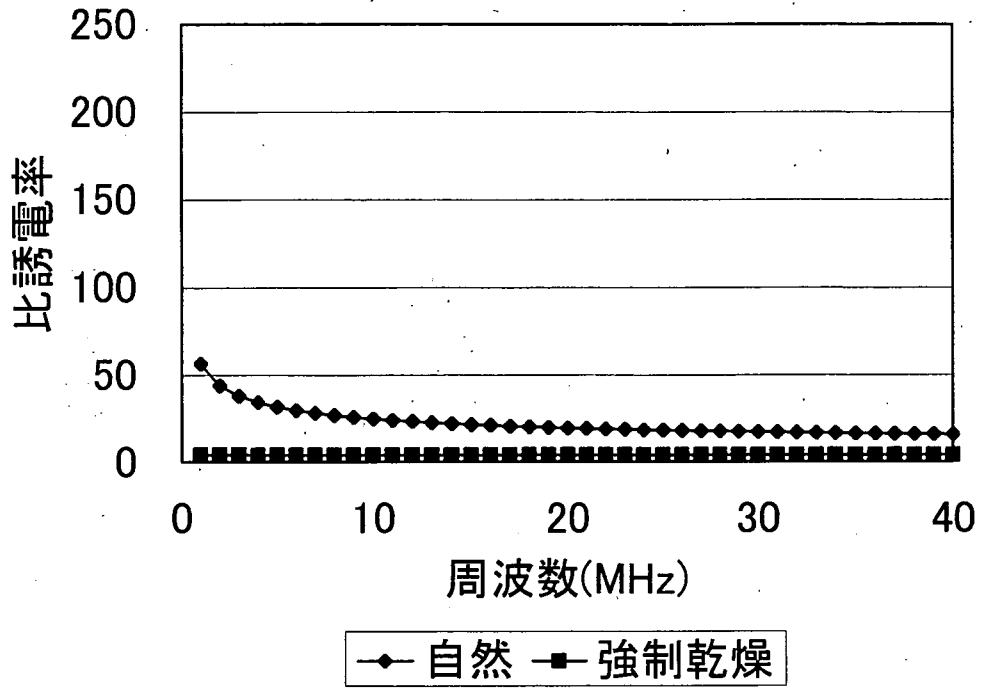
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	56.36	5.82	0.399	1.27
2.0	43.94	6.92	0.452	1.71
3.0	38.03	7.83	0.486	2.08
4.0	34.33	8.63	0.512	2.41
5.0	31.72	9.36	0.532	2.72
6.0	29.73	10.05	0.550	3.02
7.0	28.16	10.69	0.565	3.30
8.0	26.86	11.29	0.578	3.57
9.0	25.78	11.88	0.591	3.83
10.0	24.85	12.43	0.601	4.08
11.0	24.04	12.97	0.611	4.33
12.0	23.33	13.49	0.621	4.57
13.0	22.69	13.99	0.629	4.81
14.0	22.13	14.48	0.637	5.04
15.0	21.62	14.96	0.645	5.27
16.0	21.15	15.43	0.652	5.49
17.0	20.73	15.88	0.659	5.71
18.0	20.33	16.33	0.665	5.93
19.0	19.97	16.77	0.671	6.14
20.0	19.63	17.21	0.677	6.36
21.0	19.32	17.63	0.682	6.57
22.0	19.03	18.05	0.687	6.77
23.0	18.76	18.46	0.692	6.98
24.0	18.50	18.87	0.697	7.18
25.0	18.26	19.27	0.702	7.38
26.0	18.04	19.66	0.706	7.58
27.0	17.83	20.06	0.710	7.78
28.0	17.63	20.45	0.714	7.97
29.0	17.44	20.83	0.718	8.17
30.0	17.26	21.22	0.722	8.36
31.0	17.09	21.60	0.725	8.56
32.0	16.93	21.98	0.729	8.75
33.0	16.77	22.36	0.732	8.94
34.0	16.63	22.74	0.735	9.13
35.0	16.49	23.11	0.738	9.32
36.0	16.36	23.49	0.741	9.51
37.0	16.23	23.86	0.744	9.70
38.0	16.11	24.23	0.747	9.88
39.0	15.99	24.60	0.750	10.07
40.0	15.88	24.96	0.752	10.25

試料名
状態

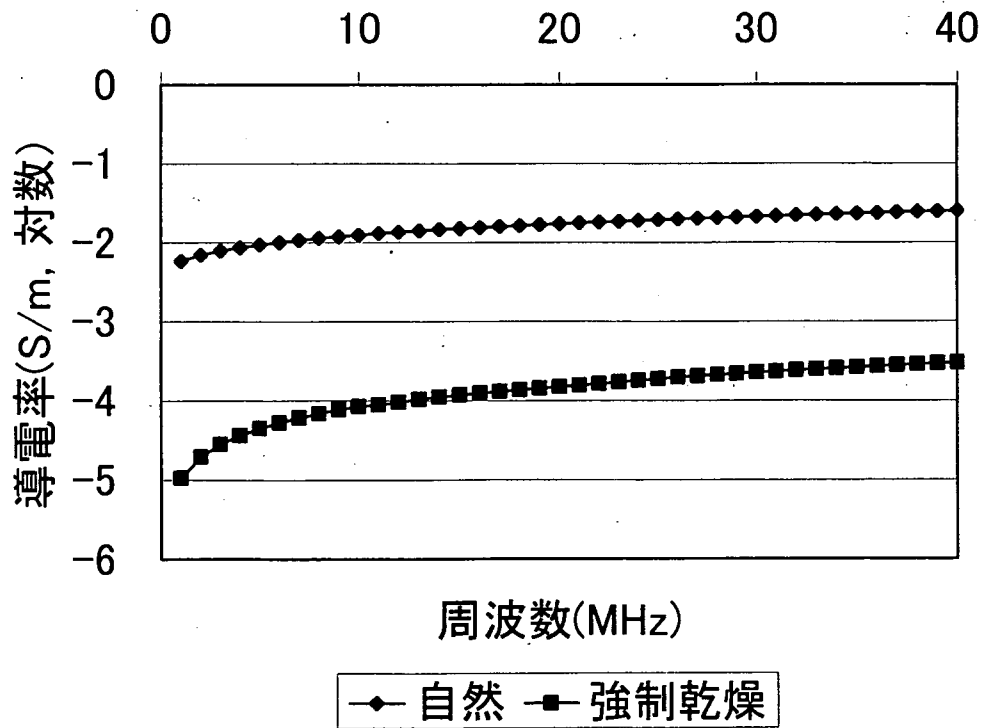
SI18-8-1
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.29	0.01	1.448	0.01
2.0	4.21	0.02	1.461	0.02
3.0	4.17	0.03	1.469	0.02
4.0	4.14	0.04	1.474	0.03
5.0	4.11	0.04	1.478	0.04
6.0	4.10	0.05	1.481	0.04
7.0	4.08	0.06	1.484	0.05
8.0	4.07	0.07	1.486	0.06
9.0	4.06	0.08	1.488	0.06
10.0	4.05	0.08	1.489	0.07
11.0	4.04	0.09	1.491	0.07
12.0	4.04	0.10	1.492	0.08
13.0	4.03	0.10	1.493	0.08
14.0	4.03	0.11	1.494	0.09
15.0	4.02	0.12	1.494	0.10
16.0	4.02	0.12	1.495	0.10
17.0	4.02	0.13	1.495	0.11
18.0	4.02	0.14	1.496	0.11
19.0	4.02	0.14	1.496	0.12
20.0	4.02	0.15	1.496	0.12
21.0	4.02	0.16	1.495	0.13
22.0	4.02	0.16	1.495	0.13
23.0	4.02	0.17	1.495	0.14
24.0	4.02	0.18	1.495	0.15
25.0	4.02	0.19	1.494	0.15
26.0	4.03	0.20	1.494	0.16
27.0	4.03	0.20	1.494	0.17
28.0	4.03	0.21	1.494	0.17
29.0	4.03	0.22	1.493	0.18
30.0	4.03	0.23	1.493	0.18
31.0	4.03	0.23	1.493	0.19
32.0	4.04	0.24	1.492	0.20
33.0	4.04	0.25	1.492	0.20
34.0	4.04	0.25	1.492	0.21
35.0	4.04	0.26	1.491	0.21
36.0	4.04	0.27	1.491	0.22
37.0	4.05	0.28	1.490	0.23
38.0	4.05	0.28	1.490	0.23
39.0	4.05	0.29	1.489	0.24
40.0	4.06	0.30	1.489	0.24

比誘電率
SI18-8-1

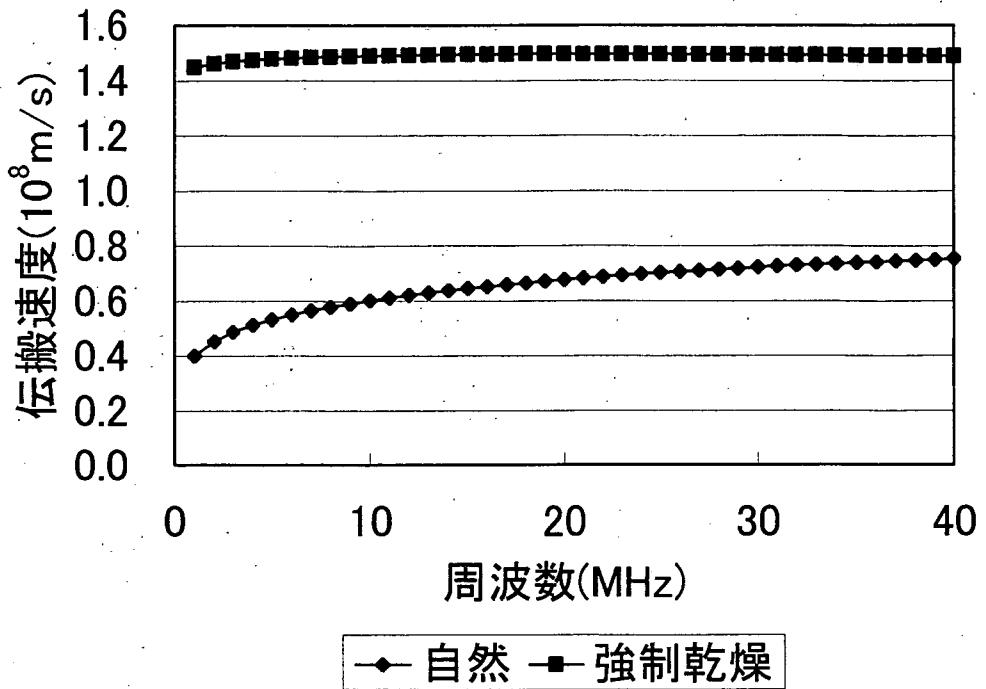


導電率
SI18-8-1



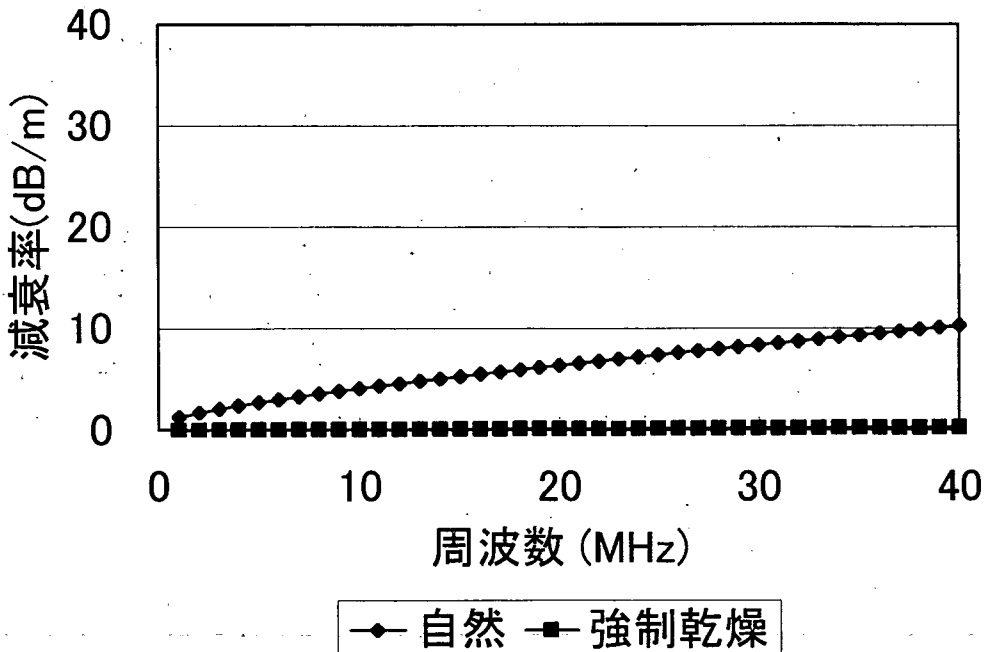
電磁波伝搬速度

SI18-8-1



減衰率

SI18-8-1



試料名 SI18-8-2 状態 自然

試料直径(mm) 24.17 試料厚(mm) 4.849

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	74.121	74.700	74.967	74.596	89.04
2.0	56.617	57.052	57.231	56.967	68.00
3.0	48.500	48.869	49.018	48.796	58.24
4.0	43.443	43.773	43.903	43.706	52.17
5.0	39.874	40.184	40.291	40.116	47.88
6.0	37.181	37.466	37.575	37.407	44.65
7.0	35.045	35.312	35.416	35.258	42.08
8.0	33.283	33.537	33.634	33.485	39.97
9.0	31.809	32.052	32.143	32.001	38.20
10.0	30.549	30.784	30.869	30.734	36.69
11.0	29.456	29.679	29.762	29.632	35.37
12.0	28.492	28.709	28.790	28.664	34.21
13.0	27.634	27.845	27.922	27.800	33.18
14.0	26.867	27.071	27.144	27.027	32.26
15.0	26.172	26.369	26.441	26.327	31.43
16.0	25.538	25.733	25.801	25.691	30.67
17.0	24.962	25.149	25.217	25.109	29.97
18.0	24.427	24.611	24.675	24.571	29.33
19.0	23.932	24.112	24.175	24.073	28.73
20.0	23.470	23.647	23.708	23.608	28.18
21.0	23.044	23.217	23.275	23.179	27.67
22.0	22.645	22.814	22.872	22.777	27.19
23.0	22.200	22.365	22.420	22.328	26.65
24.0	21.852	22.014	22.066	21.977	26.23
25.0	21.520	21.677	21.731	21.643	25.83
26.0	21.205	21.364	21.413	21.327	25.46
27.0	20.911	21.065	21.114	21.030	25.10
28.0	20.630	20.782	20.828	20.747	24.76
29.0	20.365	20.515	20.560	20.480	24.45
30.0	20.114	20.263	20.303	20.227	24.14
31.0	19.876	20.021	20.064	19.987	23.86
32.0	19.649	19.794	19.835	19.759	23.59
33.0	19.433	19.577	19.619	19.543	23.33
34.0	19.229	19.370	19.410	19.336	23.08
35.0	19.037	19.178	19.217	19.144	22.85
36.0	18.847	18.985	19.024	18.952	22.62
37.0	18.667	18.806	18.843	18.772	22.41
38.0	18.497	18.633	18.669	18.600	22.20
39.0	18.333	18.467	18.503	18.434	22.00
40.0	18.175	18.308	18.342	18.275	21.81

試料名 SI18-8-2 状態 強制乾燥

試料直径(mm) 24.17 試料厚(mm) 4.849

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.298	3.376	3.417	3.364	4.02
2.0	3.239	3.310	3.347	3.298	3.94
3.0	3.204	3.273	3.307	3.261	3.89
4.0	3.181	3.248	3.280	3.236	3.86
5.0	3.164	3.228	3.260	3.218	3.84
6.0	3.151	3.214	3.244	3.203	3.82
7.0	3.140	3.202	3.231	3.191	3.81
8.0	3.131	3.192	3.220	3.181	3.80
9.0	3.123	3.183	3.211	3.172	3.79
10.0	3.116	3.176	3.203	3.165	3.78
11.0	3.112	3.171	3.197	3.160	3.77
12.0	3.107	3.166	3.191	3.154	3.77
13.0	3.103	3.161	3.186	3.150	3.76
14.0	3.100	3.157	3.182	3.146	3.76
15.0	3.096	3.154	3.179	3.143	3.75
16.0	3.093	3.150	3.175	3.139	3.75
17.0	3.092	3.150	3.173	3.138	3.75
18.0	3.091	3.147	3.171	3.136	3.74
19.0	3.091	3.147	3.170	3.136	3.74
20.0	3.092	3.147	3.170	3.136	3.74
21.0	3.092	3.148	3.171	3.137	3.74
22.0	3.094	3.148	3.171	3.138	3.75
23.0	3.095	3.150	3.172	3.139	3.75
24.0	3.096	3.151	3.173	3.140	3.75
25.0	3.098	3.151	3.173	3.141	3.75
26.0	3.099	3.145	3.174	3.139	3.75
27.0	3.099	3.153	3.174	3.142	3.75
28.0	3.100	3.154	3.175	3.143	3.75
29.0	3.101	3.154	3.176	3.144	3.75
30.0	3.103	3.156	3.176	3.145	3.75
31.0	3.104	3.156	3.177	3.146	3.75
32.0	3.105	3.158	3.179	3.147	3.76
33.0	3.107	3.159	3.180	3.149	3.76
34.0	3.109	3.161	3.181	3.150	3.76
35.0	3.111	3.162	3.183	3.152	3.76
36.0	3.113	3.165	3.185	3.154	3.76
37.0	3.115	3.167	3.187	3.156	3.77
38.0	3.118	3.169	3.189	3.158	3.77
39.0	3.120	3.171	3.191	3.161	3.77
40.0	3.123	3.173	3.193	3.163	3.78

試料名 SI18-8-2 状態 自然

試料直径(mm) 24.17 試料厚(mm) 4.849

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.781	0.767	0.759	0.769	13.75	-1.862
2.0	0.691	0.679	0.673	0.681	15.52	-1.809
3.0	0.630	0.620	0.615	0.622	17.00	-1.770
4.0	0.585	0.576	0.571	0.577	18.31	-1.737
5.0	0.549	0.541	0.536	0.542	19.50	-1.710
6.0	0.519	0.512	0.508	0.513	20.61	-1.686
7.0	0.494	0.487	0.483	0.488	21.65	-1.665
8.0	0.472	0.466	0.462	0.467	22.64	-1.645
9.0	0.453	0.447	0.444	0.448	23.58	-1.627
10.0	0.437	0.431	0.428	0.432	24.48	-1.611
11.0	0.422	0.416	0.413	0.417	25.35	-1.596
12.0	0.408	0.403	0.400	0.403	26.20	-1.582
13.0	0.395	0.390	0.388	0.391	27.02	-1.568
14.0	0.384	0.379	0.377	0.380	27.81	-1.556
15.0	0.374	0.369	0.366	0.370	28.59	-1.544
16.0	0.364	0.359	0.357	0.360	29.35	-1.532
17.0	0.355	0.351	0.348	0.351	30.09	-1.522
18.0	0.347	0.342	0.340	0.343	30.81	-1.511
19.0	0.339	0.335	0.332	0.335	31.52	-1.501
20.0	0.331	0.327	0.325	0.328	32.22	-1.492
21.0	0.324	0.321	0.318	0.321	32.90	-1.483
22.0	0.318	0.314	0.312	0.315	33.57	-1.474
23.0	0.311	0.307	0.305	0.307	34.37	-1.464
24.0	0.305	0.301	0.299	0.302	35.05	-1.455
25.0	0.299	0.295	0.293	0.296	35.72	-1.447
26.0	0.293	0.290	0.288	0.290	36.38	-1.439
27.0	0.288	0.285	0.283	0.285	37.03	-1.431
28.0	0.283	0.280	0.278	0.281	37.68	-1.424
29.0	0.279	0.275	0.274	0.276	38.31	-1.417
30.0	0.274	0.271	0.269	0.271	38.95	-1.410
31.0	0.270	0.267	0.265	0.267	39.57	-1.403
32.0	0.266	0.263	0.261	0.263	40.18	-1.396
33.0	0.262	0.259	0.257	0.259	40.80	-1.389
34.0	0.258	0.255	0.253	0.255	41.41	-1.383
35.0	0.254	0.251	0.250	0.252	42.01	-1.377
36.0	0.250	0.248	0.246	0.248	42.61	-1.371
37.0	0.247	0.244	0.243	0.245	43.20	-1.365
38.0	0.244	0.241	0.239	0.241	43.78	-1.359
39.0	0.240	0.238	0.236	0.238	44.37	-1.353
40.0	0.237	0.235	0.233	0.235	44.94	-1.347

試料名 SI18-8-2 状態 強制乾燥

試料直径(mm) 24.17 試料厚(mm) 4.849

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	1050.3000	963.3200	901.8100	971.810	0.01	-4.964
2.0	578.2900	529.0300	495.7300	534.350	0.02	-4.704
3.0	403.3800	369.3500	345.5300	372.753	0.03	-4.547
4.0	312.2200	286.1000	267.4500	288.590	0.04	-4.436
5.0	256.6600	233.2300	219.2100	236.367	0.04	-4.350
6.0	216.5700	198.3300	185.8100	200.237	0.05	-4.278
7.0	188.1500	172.2700	161.4800	173.967	0.06	-4.216
8.0	166.2700	152.3500	142.8900	153.837	0.07	-4.163
9.0	148.8900	136.5600	128.1800	137.877	0.08	-4.115
10.0	134.9800	123.7500	116.3300	125.020	0.08	-4.073
11.0	128.5100	117.9300	110.3500	118.930	0.09	-4.051
12.0	119.4100	107.8500	100.9900	109.417	0.10	-4.015
13.0	110.4200	101.6900	95.4370	102.516	0.10	-3.987
14.0	104.0700	94.9350	88.9970	96.001	0.11	-3.958
15.0	97.0120	89.4240	83.3820	89.939	0.12	-3.930
16.0	92.0790	84.7190	79.5500	85.449	0.12	-3.908
17.0	87.0740	80.2350	75.2400	80.850	0.13	-3.884
18.0	83.4970	76.8350	72.1530	77.495	0.14	-3.865
19.0	80.0470	73.4680	68.9610	74.159	0.14	-3.846
20.0	76.5940	70.3190	65.7090	70.874	0.15	-3.826
21.0	73.1280	67.2930	63.2060	67.876	0.16	-3.808
22.0	69.7830	64.2710	60.3900	64.815	0.16	-3.788
23.0	66.6670	61.3380	57.5490	61.851	0.17	-3.767
24.0	63.6530	56.2600	55.0630	58.325	0.18	-3.742
25.0	60.0580	56.4110	53.0340	56.501	0.19	-3.728
26.0	58.2200	51.6530	50.6590	53.511	0.20	-3.704
27.0	55.9440	51.6100	48.6440	52.066	0.20	-3.693
28.0	53.8160	49.8530	46.9810	50.217	0.21	-3.677
29.0	52.0050	48.0690	45.3030	48.459	0.22	-3.661
30.0	50.3340	46.5810	43.8560	46.924	0.23	-3.647
31.0	48.6630	45.0130	42.5440	45.407	0.23	-3.633
32.0	47.0900	43.6820	41.2210	43.998	0.24	-3.619
33.0	45.7970	42.4170	40.0370	42.750	0.25	-3.607
34.0	44.4850	41.1900	38.9530	41.543	0.25	-3.594
35.0	43.4060	40.3450	37.9880	40.580	0.26	-3.584
36.0	41.9010	38.9490	36.8310	39.227	0.27	-3.570
37.0	40.8980	37.8960	35.8830	38.226	0.28	-3.558
38.0	39.6640	36.8720	34.9020	37.146	0.28	-3.546
39.0	38.6130	35.9360	34.0520	36.200	0.29	-3.535
40.0	37.6960	35.1960	33.1610	35.351	0.30	-3.524

試料名
状態

SI18-8-2
自然

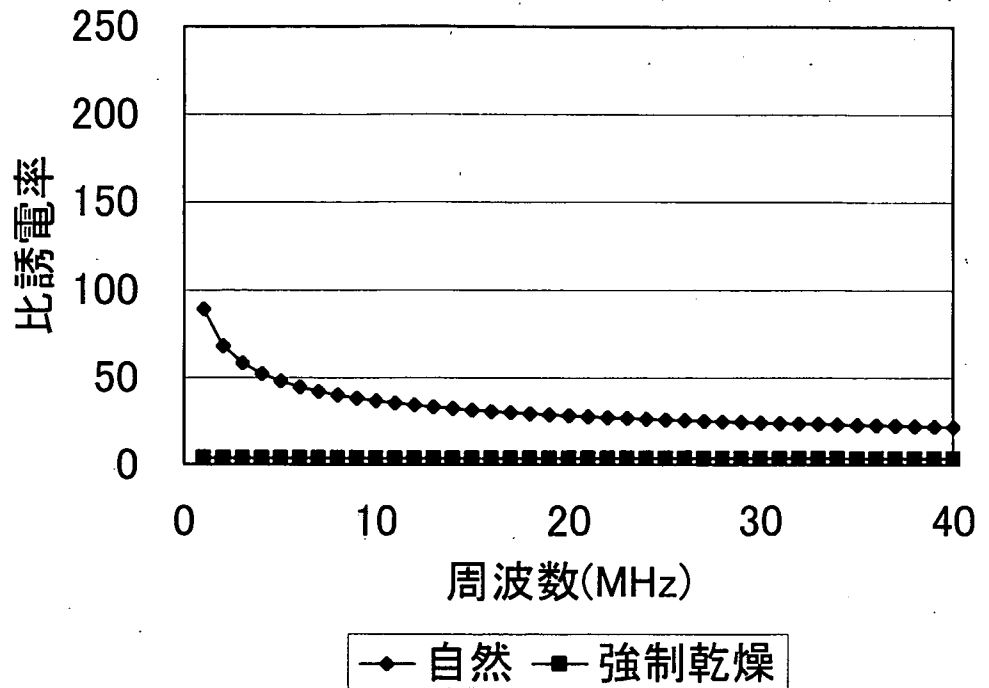
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	89.04	13.75	0.318	2.39
2.0	68.00	15.52	0.364	3.08
3.0	58.24	17.00	0.393	3.65
4.0	52.17	18.31	0.415	4.15
5.0	47.88	19.50	0.433	4.61
6.0	44.65	20.61	0.449	5.05
7.0	42.08	21.65	0.462	5.46
8.0	39.97	22.64	0.474	5.86
9.0	38.20	23.58	0.485	6.25
10.0	36.69	24.48	0.495	6.62
11.0	35.37	25.35	0.504	6.98
12.0	34.21	26.20	0.513	7.33
13.0	33.18	27.02	0.520	7.68
14.0	32.26	27.81	0.528	8.02
15.0	31.43	28.59	0.535	8.35
16.0	30.67	29.35	0.541	8.68
17.0	29.97	30.09	0.548	9.00
18.0	29.33	30.81	0.554	9.32
19.0	28.73	31.52	0.559	9.63
20.0	28.18	32.22	0.565	9.94
21.0	27.67	32.90	0.570	10.24
22.0	27.19	33.57	0.575	10.54
23.0	26.65	34.37	0.581	10.90
24.0	26.23	35.05	0.585	11.20
25.0	25.83	35.72	0.590	11.51
26.0	25.46	36.38	0.594	11.81
27.0	25.10	37.03	0.598	12.10
28.0	24.76	37.68	0.602	12.40
29.0	24.45	38.31	0.606	12.69
30.0	24.14	38.95	0.610	12.98
31.0	23.86	39.57	0.614	13.26
32.0	23.59	40.18	0.617	13.55
33.0	23.33	40.80	0.621	13.83
34.0	23.08	41.41	0.624	14.11
35.0	22.85	42.01	0.627	14.39
36.0	22.62	42.61	0.630	14.67
37.0	22.41	43.20	0.633	14.94
38.0	22.20	43.78	0.636	15.21
39.0	22.00	44.37	0.639	15.49
40.0	21.81	44.94	0.642	15.75

試料名
状態

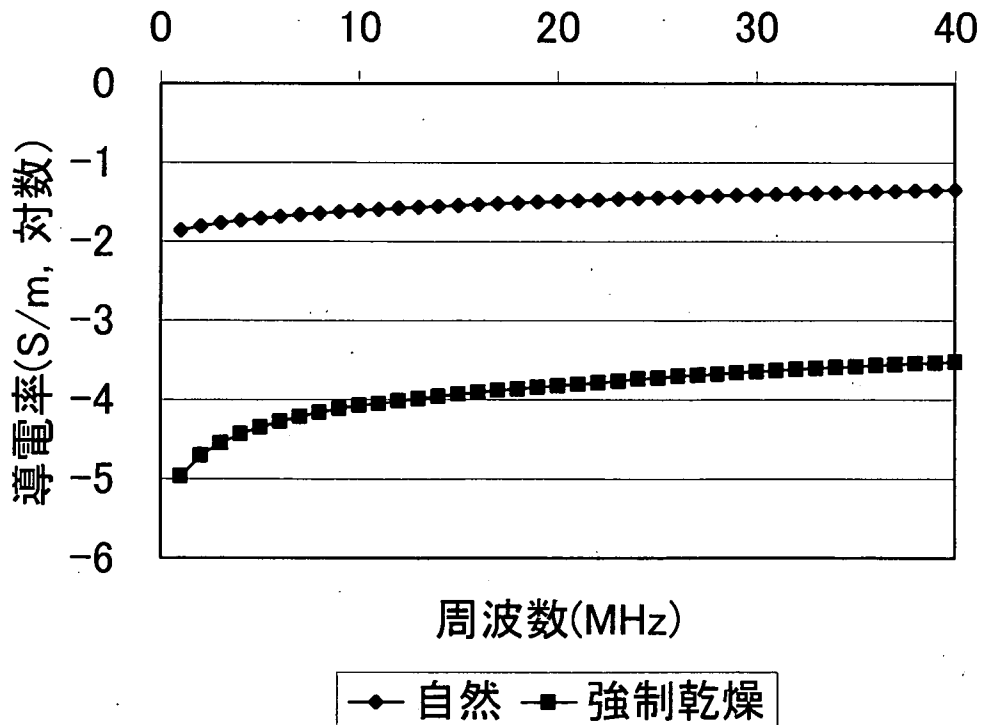
SI18-8-2
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.02	0.01	1.496	0.01
2.0	3.94	0.02	1.511	0.02
3.0	3.89	0.03	1.520	0.02
4.0	3.86	0.04	1.525	0.03
5.0	3.84	0.04	1.530	0.04
6.0	3.82	0.05	1.533	0.04
7.0	3.81	0.06	1.536	0.05
8.0	3.80	0.07	1.539	0.06
9.0	3.79	0.08	1.541	0.06
10.0	3.78	0.08	1.542	0.07
11.0	3.77	0.09	1.544	0.07
12.0	3.77	0.10	1.545	0.08
13.0	3.76	0.10	1.546	0.09
14.0	3.76	0.11	1.547	0.09
15.0	3.75	0.12	1.548	0.10
16.0	3.75	0.12	1.549	0.10
17.0	3.75	0.13	1.549	0.11
18.0	3.74	0.14	1.549	0.12
19.0	3.74	0.14	1.550	0.12
20.0	3.74	0.15	1.549	0.13
21.0	3.74	0.16	1.549	0.13
22.0	3.75	0.16	1.549	0.14
23.0	3.75	0.17	1.549	0.14
24.0	3.75	0.18	1.549	0.15
25.0	3.75	0.19	1.548	0.16
26.0	3.75	0.20	1.549	0.17
27.0	3.75	0.20	1.548	0.17
28.0	3.75	0.21	1.548	0.18
29.0	3.75	0.22	1.548	0.18
30.0	3.75	0.23	1.547	0.19
31.0	3.75	0.23	1.547	0.20
32.0	3.76	0.24	1.547	0.20
33.0	3.76	0.25	1.546	0.21
34.0	3.76	0.25	1.546	0.21
35.0	3.76	0.26	1.546	0.22
36.0	3.76	0.27	1.545	0.23
37.0	3.77	0.28	1.545	0.23
38.0	3.77	0.28	1.544	0.24
39.0	3.77	0.29	1.543	0.25
40.0	3.78	0.30	1.543	0.25

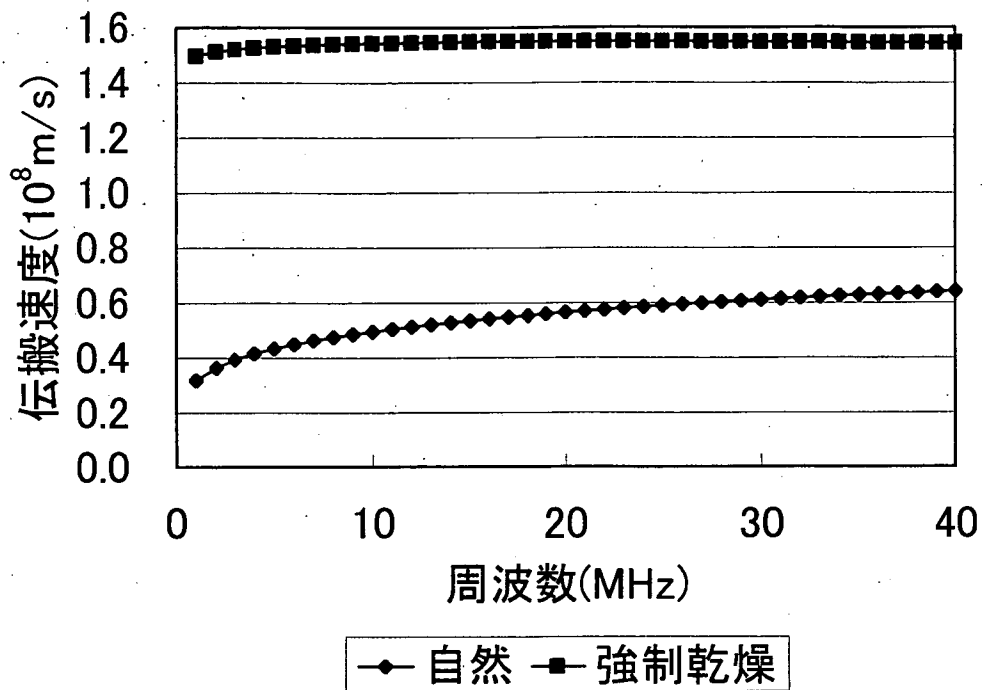
比誘電率
SI18-8-2



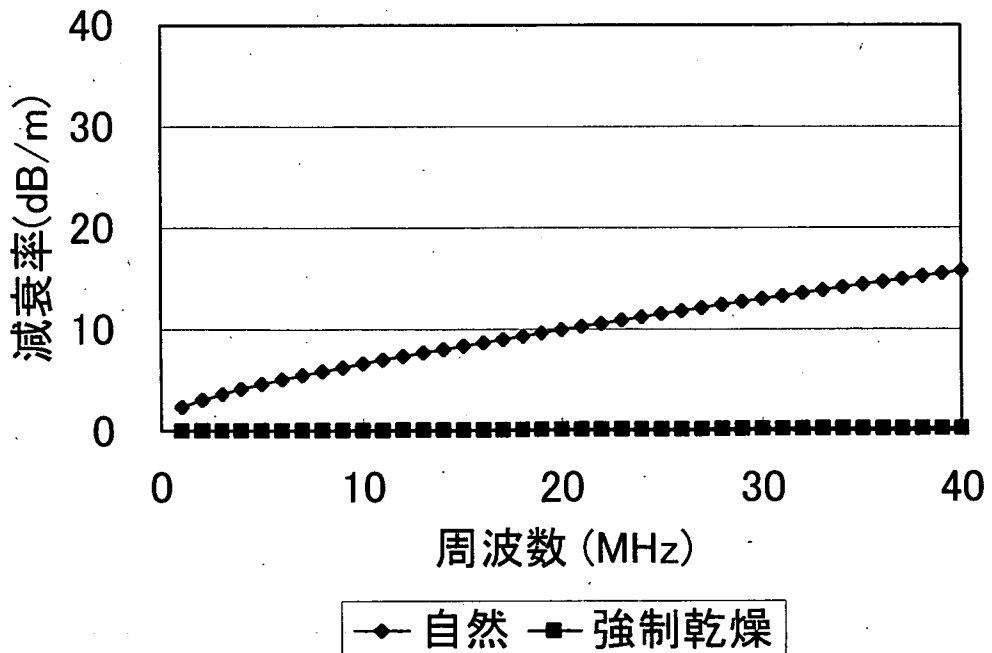
導電率
SI18-8-2



電磁波伝搬速度 SI18-8-2



減衰率 SI18-8-2



試料名 SI18-9 状態 自然

試料直径(mm) 24.18 試料厚(mm) 4.883

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	67.197	67.455	67.757	67.470	81.03
2.0	51.634	51.800	52.035	51.823	62.24
3.0	44.340	44.466	44.678	44.495	53.44
4.0	39.782	39.885	40.083	39.917	47.94
5.0	36.566	36.641	36.837	36.681	44.05
6.0	34.136	34.203	34.384	34.241	41.12
7.0	32.206	32.261	32.437	32.301	38.79
8.0	30.612	30.660	30.831	30.701	36.87
9.0	29.280	29.320	29.486	29.362	35.26
10.0	28.141	28.173	28.336	28.217	33.89
11.0	27.150	27.175	27.335	27.220	32.69
12.0	26.279	26.300	26.456	26.345	31.64
13.0	25.502	25.518	25.674	25.565	30.70
14.0	24.807	24.817	24.971	24.865	29.86
15.0	24.177	24.185	24.335	24.232	29.10
16.0	23.606	23.609	23.759	23.658	28.41
17.0	23.084	23.084	23.232	23.133	27.78
18.0	22.600	22.598	22.744	22.647	27.20
19.0	22.152	22.151	22.292	22.198	26.66
20.0	21.735	21.733	21.870	21.779	26.16
21.0	21.350	21.343	21.481	21.391	25.69
22.0	20.988	20.980	21.115	21.028	25.25
23.0	20.652	20.642	20.775	20.690	24.85
24.0	20.338	20.326	20.458	20.374	24.47
25.0	20.041	20.028	20.160	20.076	24.11
26.0	19.766	19.751	19.881	19.799	23.78
27.0	19.506	19.488	19.532	19.509	23.43
28.0	19.168	19.148	19.276	19.197	23.06
29.0	18.928	18.908	19.034	18.957	22.77
30.0	18.694	18.675	18.800	18.723	22.49
31.0	18.485	18.461	18.586	18.511	22.23
32.0	18.279	18.255	18.378	18.304	21.98
33.0	18.085	18.061	18.180	18.109	21.75
34.0	17.900	17.873	17.993	17.922	21.52
35.0	17.727	17.699	17.815	17.747	21.31
36.0	17.554	17.525	17.643	17.574	21.11
37.0	17.392	17.364	17.478	17.411	20.91
38.0	17.237	17.210	17.322	17.256	20.72
39.0	17.089	17.058	17.172	17.106	20.54
40.0	16.947	16.913	17.030	16.963	20.37

試料名 SI18-9 状態 強制乾燥

試料直径(mm) 24.18 試料厚(mm) 4.883

Freq.[MHz]	Cp[pF](1)	Cp[pF](2)	Cp[pF](3)	Cp[pF](平均)	比誘電率
1.0	3.543	3.580	3.595	3.573	4.29
2.0	3.470	3.501	3.512	3.494	4.20
3.0	3.428	3.456	3.466	3.450	4.14
4.0	3.400	3.426	3.434	3.420	4.11
5.0	3.378	3.403	3.409	3.397	4.08
6.0	3.362	3.385	3.392	3.380	4.06
7.0	3.348	3.371	3.376	3.365	4.04
8.0	3.337	3.358	3.363	3.353	4.03
9.0	3.327	3.348	3.352	3.342	4.01
10.0	3.319	3.339	3.343	3.334	4.00
11.0	3.313	3.332	3.336	3.327	4.00
12.0	3.307	3.325	3.328	3.320	3.99
13.0	3.301	3.319	3.323	3.315	3.98
14.0	3.297	3.314	3.318	3.310	3.98
15.0	3.292	3.310	3.311	3.304	3.97
16.0	3.290	3.307	3.309	3.302	3.97
17.0	3.289	3.305	3.304	3.299	3.96
18.0	3.286	3.302	3.303	3.297	3.96
19.0	3.285	3.301	3.302	3.296	3.96
20.0	3.285	3.301	3.302	3.296	3.96
21.0	3.285	3.301	3.302	3.296	3.96
22.0	3.286	3.301	3.302	3.296	3.96
23.0	3.287	3.302	3.303	3.297	3.96
24.0	3.288	3.302	3.303	3.298	3.96
25.0	3.287	3.303	3.304	3.298	3.96
26.0	3.288	3.303	3.303	3.298	3.96
27.0	3.289	3.303	3.303	3.299	3.96
28.0	3.290	3.303	3.304	3.299	3.96
29.0	3.291	3.304	3.304	3.300	3.96
30.0	3.292	3.303	3.305	3.300	3.96
31.0	3.292	3.306	3.306	3.301	3.96
32.0	3.293	3.306	3.307	3.302	3.97
33.0	3.295	3.307	3.307	3.303	3.97
34.0	3.296	3.309	3.309	3.305	3.97
35.0	3.298	3.311	3.310	3.306	3.97
36.0	3.300	3.312	3.312	3.308	3.97
37.0	3.302	3.314	3.314	3.310	3.97
38.0	3.304	3.316	3.316	3.312	3.98
39.0	3.306	3.318	3.318	3.314	3.98
40.0	3.309	3.320	3.320	3.316	3.98

試料名 SI18-9 状態 自然

試料直径(mm) 24.18 試料厚(mm) 4.883

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	0.992	0.978	0.970	0.980	10.85	-1.965
2.0	0.863	0.852	0.845	0.853	12.46	-1.904
3.0	0.778	0.769	0.764	0.770	13.80	-1.860
4.0	0.716	0.708	0.703	0.709	14.99	-1.824
5.0	0.668	0.660	0.656	0.661	16.08	-1.794
6.0	0.628	0.621	0.617	0.622	17.09	-1.767
7.0	0.595	0.589	0.585	0.590	18.03	-1.744
8.0	0.567	0.561	0.557	0.562	18.93	-1.723
9.0	0.542	0.537	0.533	0.537	19.79	-1.704
10.0	0.520	0.515	0.512	0.516	20.61	-1.686
11.0	0.501	0.496	0.493	0.497	21.40	-1.670
12.0	0.484	0.479	0.476	0.480	22.17	-1.654
13.0	0.468	0.463	0.461	0.464	22.92	-1.640
14.0	0.454	0.449	0.447	0.450	23.64	-1.626
15.0	0.440	0.436	0.434	0.437	24.35	-1.614
16.0	0.428	0.424	0.422	0.425	25.04	-1.601
17.0	0.417	0.413	0.411	0.414	25.71	-1.590
18.0	0.407	0.403	0.401	0.403	26.37	-1.579
19.0	0.397	0.393	0.391	0.394	27.02	-1.568
20.0	0.388	0.384	0.382	0.384	27.66	-1.558
21.0	0.379	0.375	0.374	0.376	28.28	-1.549
22.0	0.371	0.367	0.366	0.368	28.89	-1.539
23.0	0.364	0.360	0.358	0.361	29.49	-1.530
24.0	0.356	0.353	0.351	0.353	30.09	-1.522
25.0	0.350	0.346	0.344	0.347	30.67	-1.513
26.0	0.343	0.340	0.338	0.340	31.25	-1.505
27.0	0.337	0.333	0.330	0.333	31.90	-1.496
28.0	0.329	0.325	0.324	0.326	32.64	-1.486
29.0	0.323	0.319	0.318	0.320	33.22	-1.479
30.0	0.317	0.314	0.313	0.315	33.80	-1.471
31.0	0.312	0.309	0.307	0.309	34.37	-1.464
32.0	0.307	0.304	0.302	0.304	34.94	-1.457
33.0	0.302	0.299	0.298	0.300	35.50	-1.450
34.0	0.297	0.294	0.293	0.295	36.05	-1.443
35.0	0.293	0.290	0.289	0.291	36.60	-1.436
36.0	0.289	0.286	0.284	0.286	37.15	-1.430
37.0	0.285	0.281	0.280	0.282	37.69	-1.424
38.0	0.281	0.277	0.276	0.278	38.23	-1.418
39.0	0.277	0.274	0.273	0.274	38.76	-1.412
40.0	0.273	0.270	0.269	0.271	39.28	-1.406

試料名 SI18-9 状態 強制乾燥

試料直径(mm) 24.18 試料厚(mm) 4.883

Freq.[MHz]	Rp[Kohm](1)	Rp[Kohm](2)	Rp[Kohm](3)	Rp[Kohm](平均)	導電率[mS/m]	log(導電率)
1.0	861.8200	803.7800	772.0100	812.537	0.01	-4.883
2.0	473.2500	440.2800	422.5100	445.347	0.02	-4.622
3.0	329.7400	306.6600	294.1900	310.197	0.03	-4.465
4.0	255.5500	237.3300	227.7100	240.197	0.04	-4.354
5.0	209.1500	193.8500	185.9800	196.327	0.05	-4.266
6.0	177.0700	164.8700	158.3200	166.753	0.06	-4.195
7.0	153.9400	143.2300	137.6200	144.930	0.07	-4.134
8.0	136.2000	126.7900	121.8400	128.277	0.08	-4.081
9.0	122.1500	113.7700	109.4500	115.123	0.09	-4.034
10.0	110.8500	103.2500	99.4120	104.504	0.10	-3.992
11.0	105.4300	97.6770	93.8880	98.998	0.11	-3.969
12.0	97.2220	90.7880	87.2320	91.747	0.12	-3.936
13.0	90.8650	84.2860	80.4920	85.214	0.12	-3.904
14.0	84.6310	78.4060	76.0080	79.682	0.13	-3.875
15.0	79.0230	74.3320	71.0160	74.790	0.14	-3.847
16.0	74.8720	69.9170	67.3960	70.728	0.15	-3.823
17.0	71.5440	66.7670	64.3880	67.566	0.16	-3.803
18.0	68.3910	63.6880	61.4090	64.496	0.16	-3.783
19.0	65.5340	60.9980	58.6910	61.741	0.17	-3.764
20.0	62.7600	58.3790	56.1020	59.080	0.18	-3.745
21.0	60.0120	55.9230	53.7160	56.550	0.19	-3.726
22.0	57.3800	53.4230	51.3730	54.059	0.20	-3.706
23.0	54.7630	50.9300	49.1260	51.606	0.21	-3.686
24.0	52.4200	48.8540	46.9630	49.412	0.22	-3.667
25.0	50.2310	46.7730	45.2760	47.427	0.22	-3.649
26.0	48.0770	44.8980	43.2730	45.416	0.23	-3.631
27.0	46.3600	43.1790	41.6720	43.737	0.24	-3.614
28.0	44.5290	41.6200	40.1720	42.107	0.25	-3.598
29.0	43.1170	40.2200	38.8680	40.735	0.26	-3.583
30.0	41.5130	38.9900	37.5920	39.365	0.27	-3.568
31.0	40.4280	37.7890	36.4900	38.236	0.28	-3.556
32.0	39.2440	36.6430	35.3980	37.095	0.29	-3.543
33.0	38.1090	35.6200	34.3990	36.043	0.30	-3.530
34.0	36.9870	34.6320	33.4100	35.010	0.30	-3.518
35.0	35.9150	33.4780	32.5380	33.977	0.31	-3.505
36.0	34.9050	32.6850	31.5910	33.060	0.32	-3.493
37.0	34.0230	31.8320	30.7580	32.204	0.33	-3.481
38.0	33.1470	31.0360	29.9560	31.380	0.34	-3.470
39.0	32.2280	30.1890	29.2060	30.541	0.35	-3.458
40.0	31.4940	29.5780	28.5590	29.877	0.36	-3.449

試料名
状態

SI18-9
自然

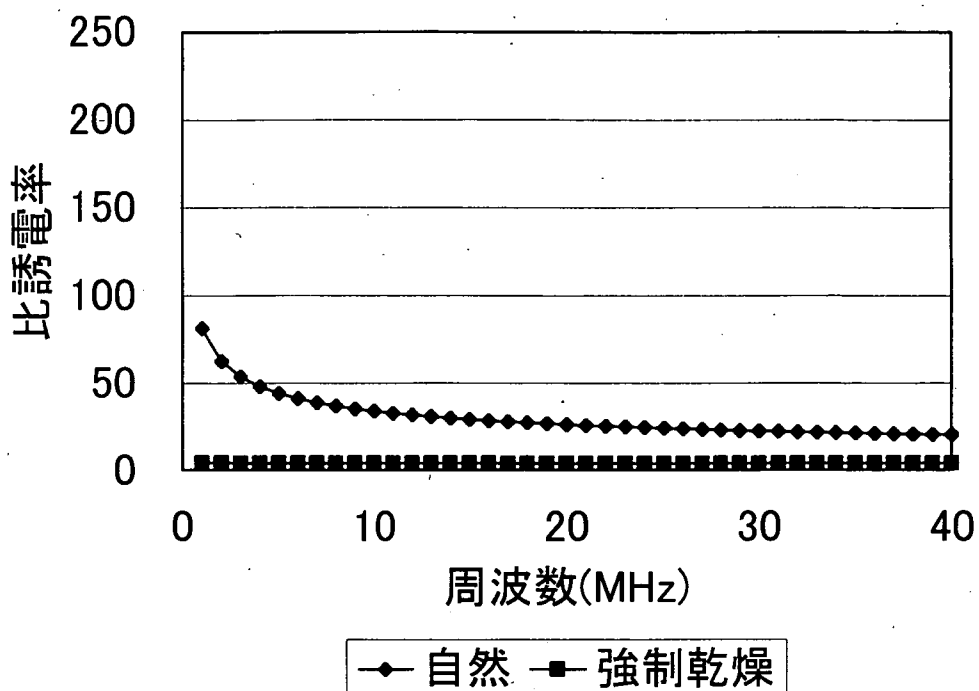
周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	81.03	10.85	0.333	1.97
2.0	62.24	12.46	0.380	2.59
3.0	53.44	13.80	0.410	3.09
4.0	47.94	14.99	0.433	3.55
5.0	44.05	16.08	0.452	3.97
6.0	41.12	17.09	0.468	4.36
7.0	38.79	18.03	0.481	4.74
8.0	36.87	18.93	0.494	5.10
9.0	35.26	19.79	0.505	5.46
10.0	33.89	20.61	0.515	5.80
11.0	32.69	21.40	0.524	6.13
12.0	31.64	22.17	0.533	6.45
13.0	30.70	22.92	0.541	6.77
14.0	29.86	23.64	0.549	7.08
15.0	29.10	24.35	0.556	7.39
16.0	28.41	25.04	0.562	7.69
17.0	27.78	25.71	0.569	7.99
18.0	27.20	26.37	0.575	8.28
19.0	26.66	27.02	0.581	8.57
20.0	26.16	27.66	0.586	8.85
21.0	25.69	28.28	0.591	9.13
22.0	25.25	28.89	0.597	9.41
23.0	24.85	29.49	0.601	9.69
24.0	24.47	30.09	0.606	9.96
25.0	24.11	30.67	0.611	10.23
26.0	23.78	31.25	0.615	10.49
27.0	23.43	31.90	0.619	10.79
28.0	23.06	32.64	0.624	11.13
29.0	22.77	33.22	0.628	11.40
30.0	22.49	33.80	0.632	11.67
31.0	22.23	34.37	0.636	11.94
32.0	21.98	34.94	0.639	12.20
33.0	21.75	35.50	0.643	12.46
34.0	21.52	36.05	0.646	12.72
35.0	21.31	36.60	0.649	12.98
36.0	21.11	37.15	0.653	13.24
37.0	20.91	37.69	0.656	13.50
38.0	20.72	38.23	0.659	13.75
39.0	20.54	38.76	0.661	14.00
40.0	20.37	39.28	0.664	14.25

試料名
状態

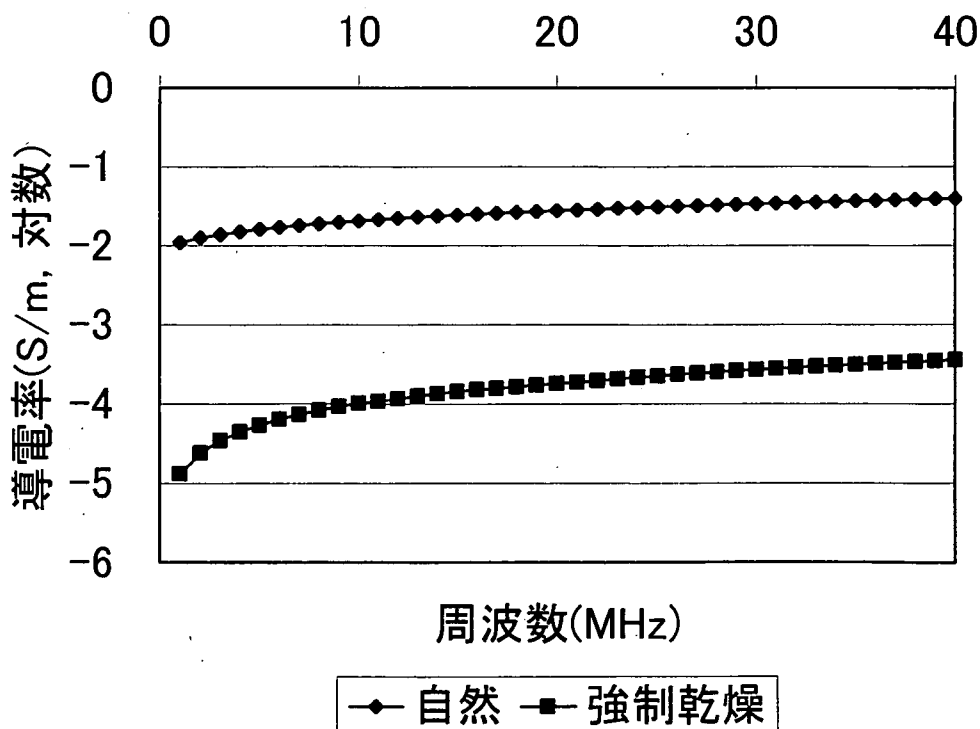
SI18-9
強制乾燥

周波数[MHz]	比誘電率	導電率[mS/m]	電磁波伝搬速度[10 ⁸ m/s]	減衰率[dB/m]
1.0	4.29	0.01	1.447	0.01
2.0	4.20	0.02	1.463	0.02
3.0	4.14	0.03	1.473	0.03
4.0	4.11	0.04	1.479	0.04
5.0	4.08	0.05	1.484	0.04
6.0	4.06	0.06	1.488	0.05
7.0	4.04	0.07	1.491	0.06
8.0	4.03	0.08	1.494	0.07
9.0	4.01	0.09	1.496	0.08
10.0	4.00	0.10	1.498	0.08
11.0	4.00	0.11	1.500	0.09
12.0	3.99	0.12	1.501	0.10
13.0	3.98	0.12	1.503	0.10
14.0	3.98	0.13	1.504	0.11
15.0	3.97	0.14	1.505	0.12
16.0	3.97	0.15	1.505	0.12
17.0	3.96	0.16	1.506	0.13
18.0	3.96	0.16	1.507	0.14
19.0	3.96	0.17	1.507	0.14
20.0	3.96	0.18	1.507	0.15
21.0	3.96	0.19	1.507	0.15
22.0	3.96	0.20	1.507	0.16
23.0	3.96	0.21	1.507	0.17
24.0	3.96	0.22	1.506	0.18
25.0	3.96	0.22	1.506	0.18
26.0	3.96	0.23	1.506	0.19
27.0	3.96	0.24	1.506	0.20
28.0	3.96	0.25	1.506	0.21
29.0	3.96	0.26	1.506	0.21
30.0	3.96	0.27	1.506	0.22
31.0	3.96	0.28	1.506	0.23
32.0	3.97	0.29	1.505	0.24
33.0	3.97	0.30	1.505	0.24
34.0	3.97	0.30	1.505	0.25
35.0	3.97	0.31	1.504	0.26
36.0	3.97	0.32	1.504	0.26
37.0	3.97	0.33	1.504	0.27
38.0	3.98	0.34	1.503	0.28
39.0	3.98	0.35	1.503	0.29
40.0	3.98	0.36	1.502	0.29

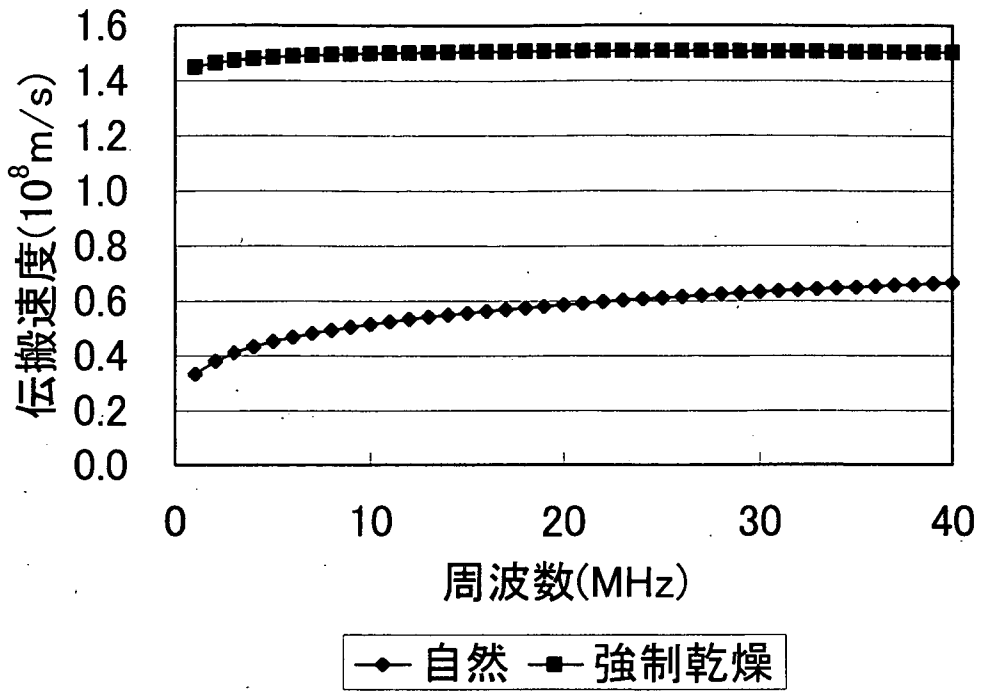
比誘電率
SI18-9



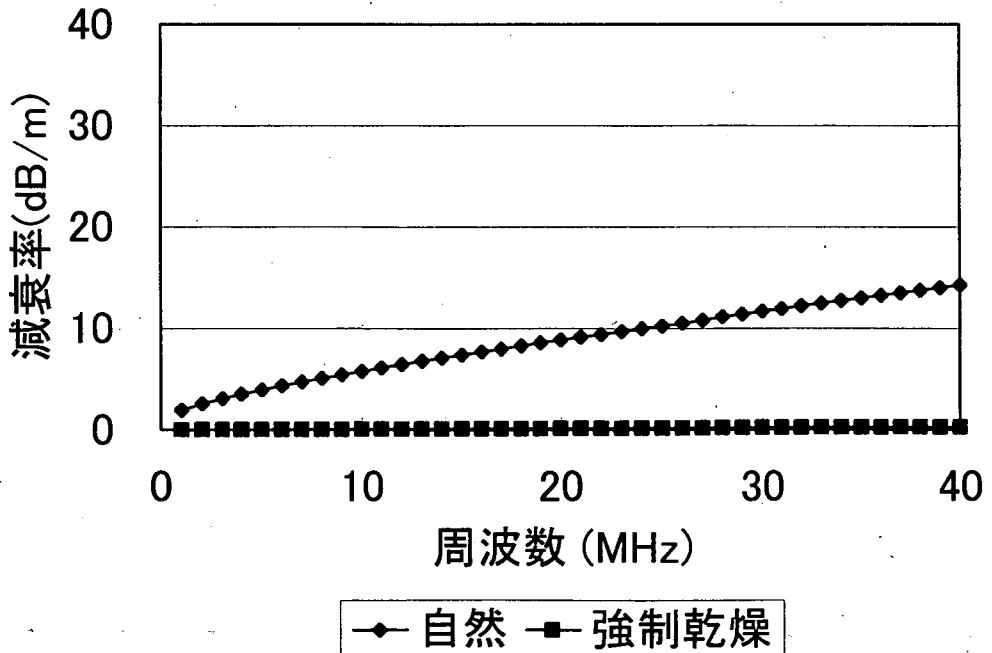
導電率
SI18-9



電磁波伝搬速度 SI18-9



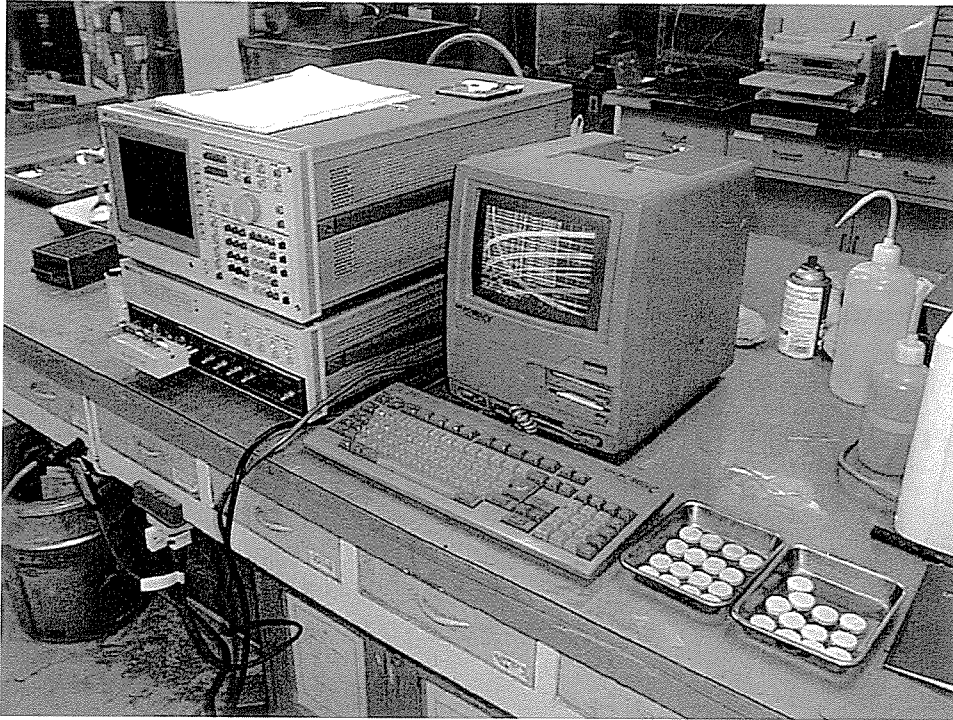
減衰率 SI18-9



作 業 写 真 集

作業写真集

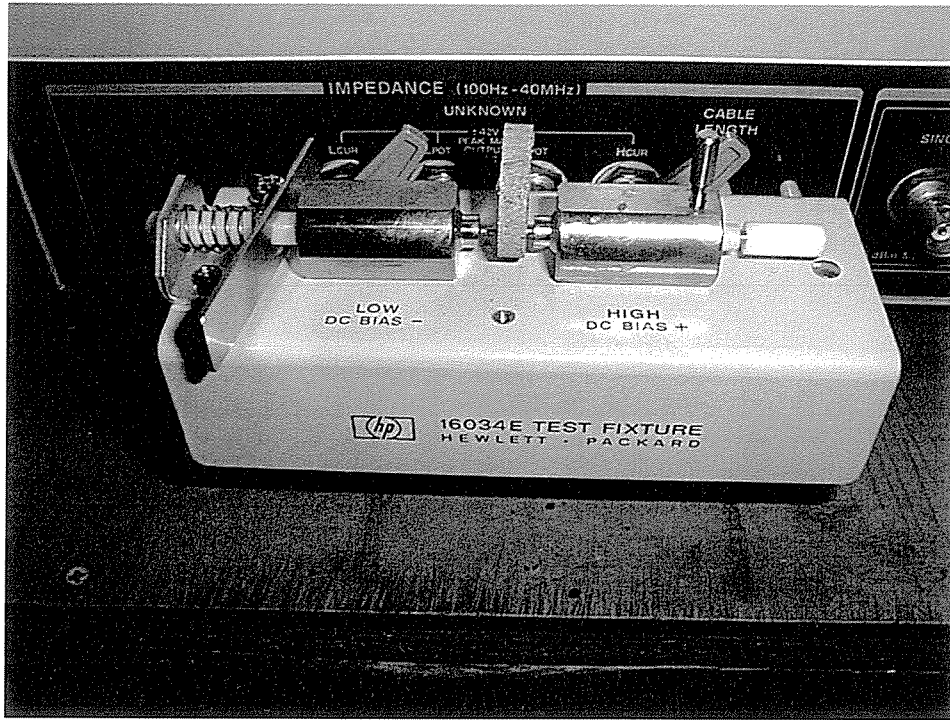
試験装置



測定装置一式



インピーダンス/ゲインフェーズ・アナライザ (HP4194A)



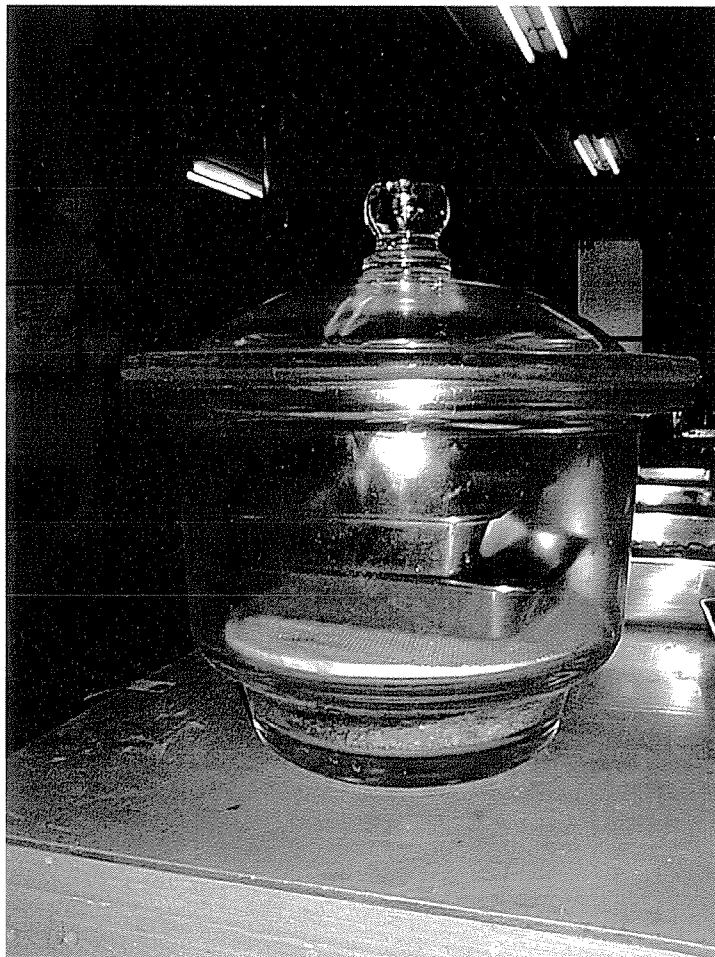
テストフィクスチャ (HP16034E) による測定状況



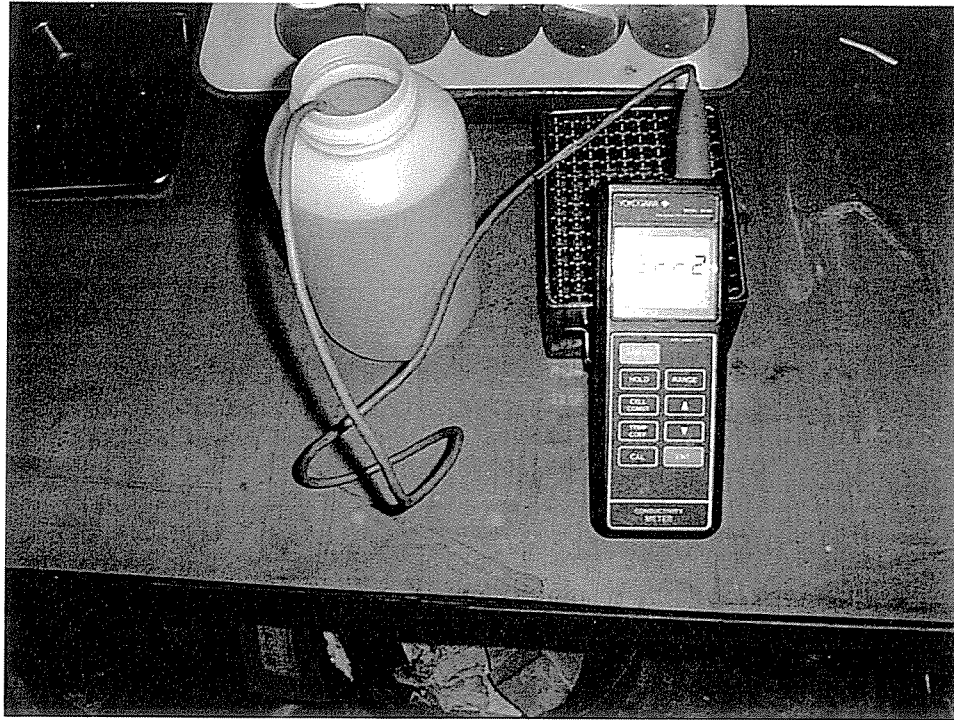
空中重量測定状況



強制乾燥状況



冷却状況（デシケーター下部に乾燥剤を設置）



水道水の導電率測定状況

作業写真集

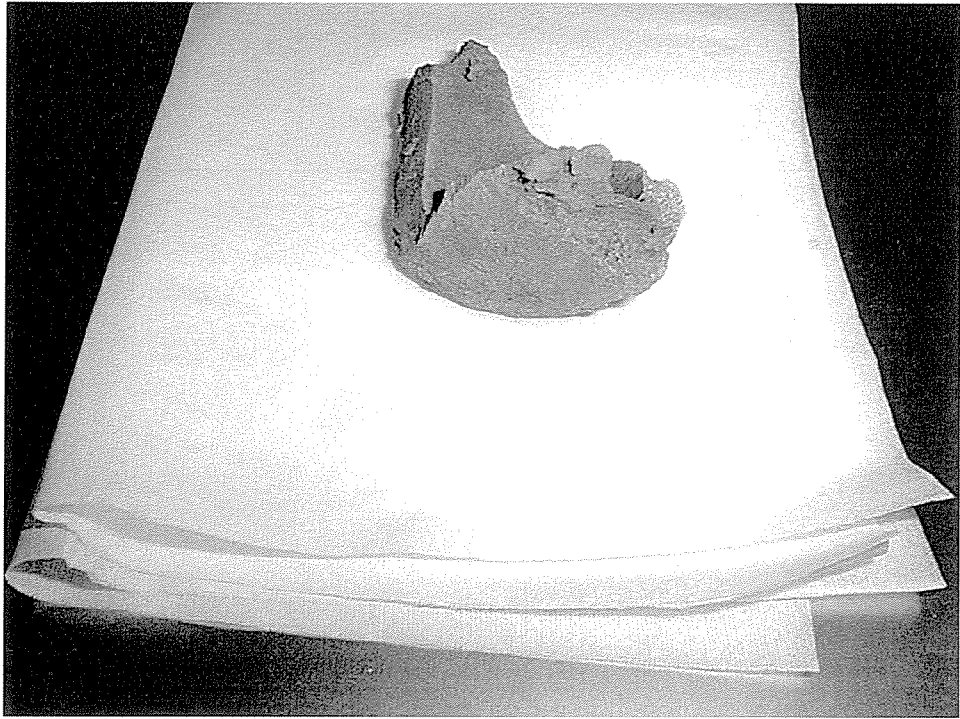
スレーキング試験



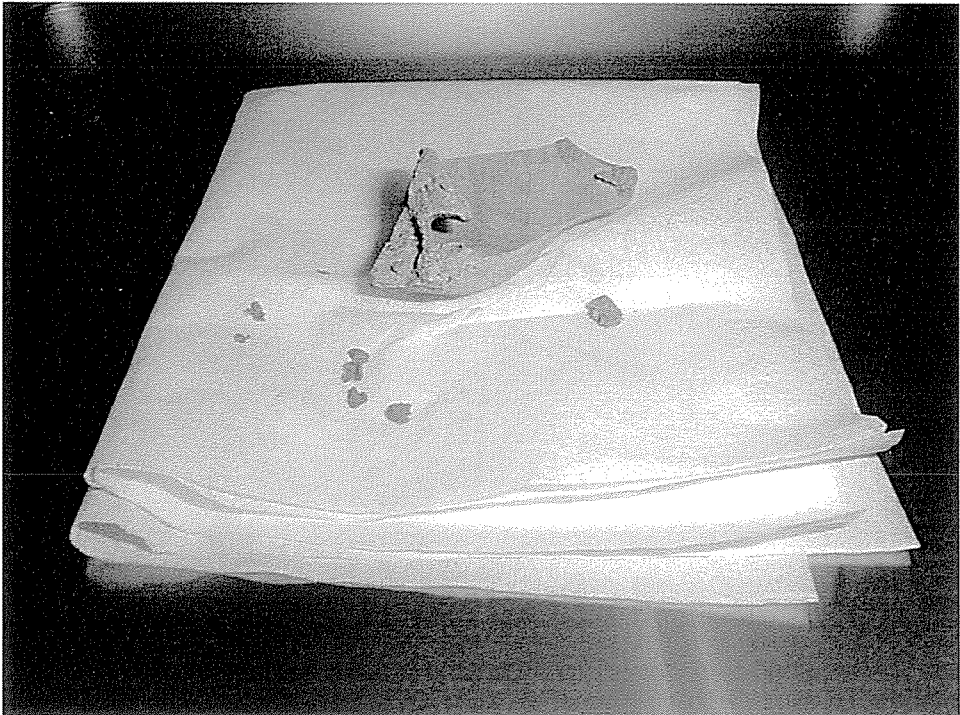
コア崩壊状況（湿潤 1～2 分後）



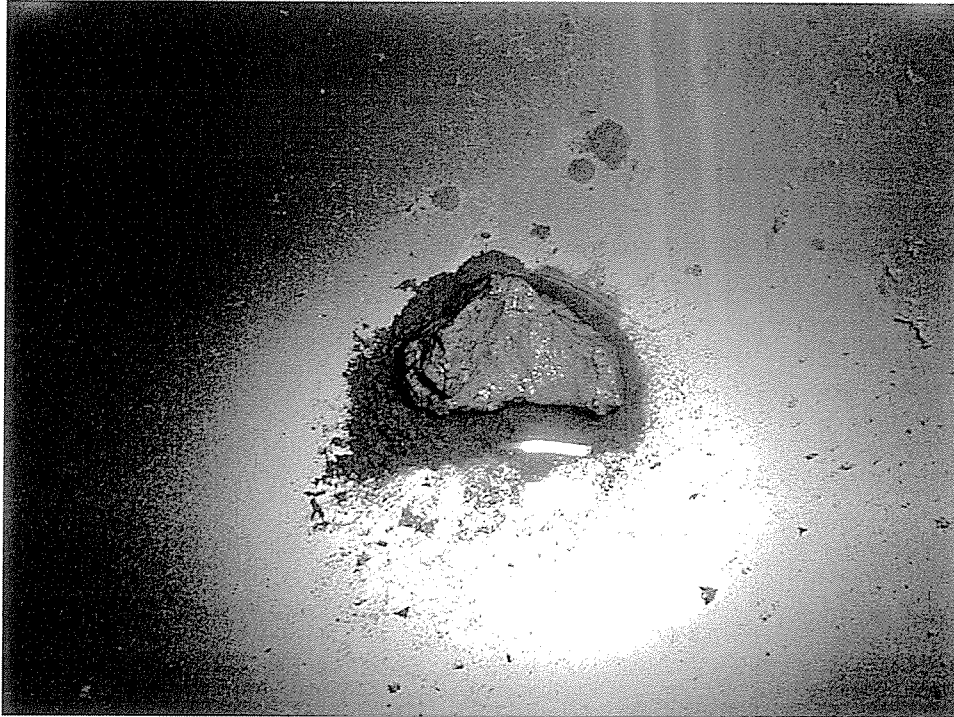
コア崩壊状況（湿潤 4～5 分後）



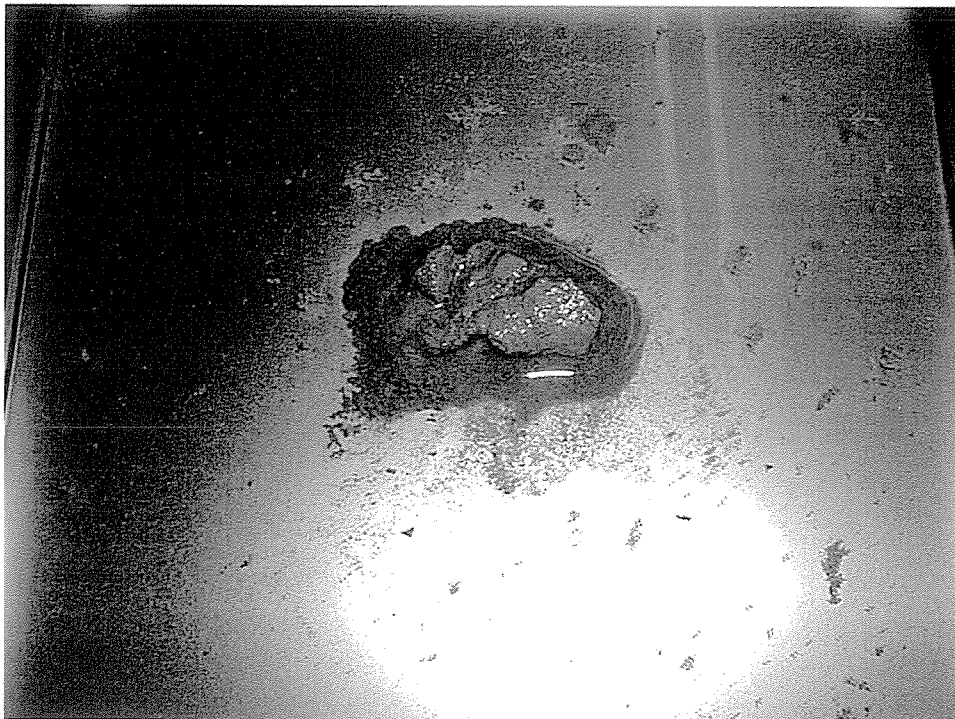
ラップ取り出し直後



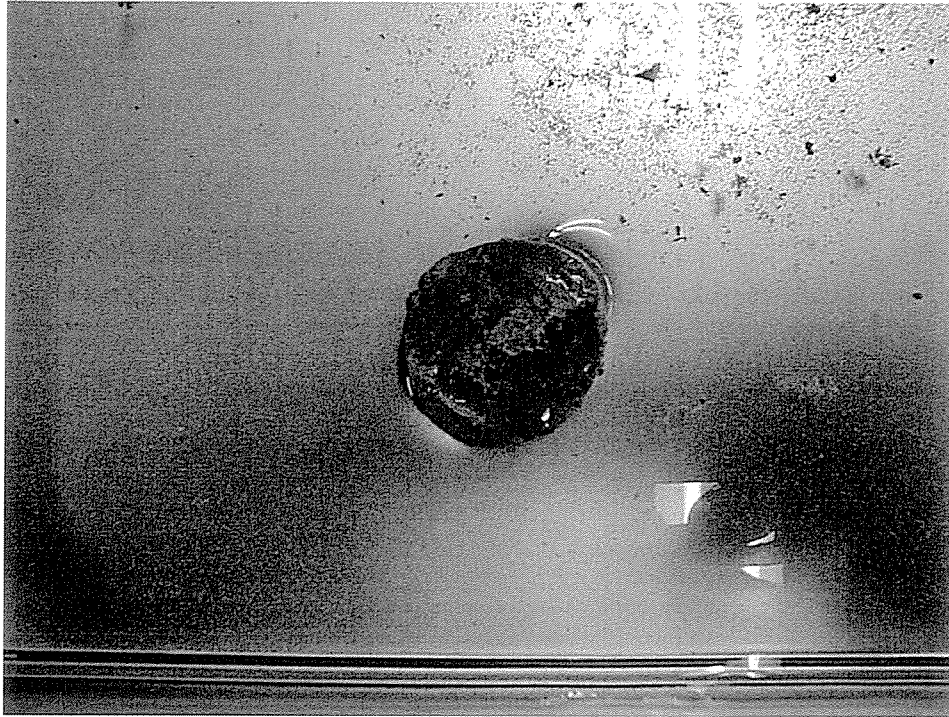
ラップ取り出し 48 時間後
(既に細かいクラックが入り，一部破損している)



湿潤後 1 分
(下部から自然に崩壊が始まる)



湿潤後 3 分
(ほとんど原形をとどめないほど崩壊)



近傍の試料かけら（ラップ取り出し直後に湿潤）
（崩壊はしないが、細かい粒子が溶け出している）