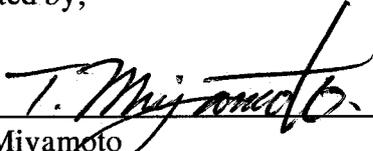


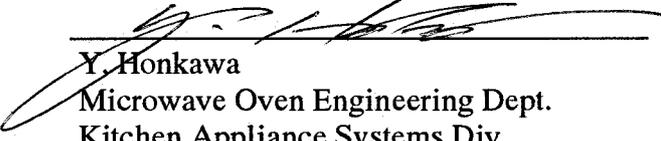
**ENGINEERING TEST RECORD**  
**REPORT OF MEASUREMENTS (MICROWAVE OVEN TEST DATA SHEET)**

FCC ID : APYDMR0131  
Tested Product : Household Microwave Oven, OTR9 Chassis  
Input Power Rating : 120 V ac, 60 Hz  
Output Power Rating : 1100 W (IEC method)  
Nominal Frequency : 2450 MHz  
Magnetron Type No. : 2M268E(L), mfd by Toshiba  
Test Date : June 13 - 16, 2000

Tested by;

Tested/Reviewed by;

  
\_\_\_\_\_  
T. Miyamoto  
Microwave Oven Engineering Dept.  
Kitchen Appliance Systems Div.  
Sharp Corp. (Yao Factory)

  
\_\_\_\_\_  
Y. Honkawa  
Microwave Oven Engineering Dept.  
Kitchen Appliance Systems Div.  
Sharp Corp. (Yao Factory)

**DATA SUMMARY (FCC Measurement Procedure MP-5)**

1. Frequency Measurements : See attached data sheet.
  2. Radiated Field Strength : See attached data sheet.
- Measurement Test Site : Sharp Corporation  
Kitchen Appliance Systems Div.  
Yao Factory, EMI Anechoic Chamber

Note: For further details of Test Site, refer to the attached "Description of Measurement Facilities".

Total Power Input to Oven : 1538 W  
Power Developed in Dummy Load : 807.3 W  
(by calorimetric method with 1500 ml water load,  
well heated microwave oven.)  
Supply Voltage : 120 V ac, 60 Hz  
**PERMISSIBLE** : **31.7 uV/m at 300 m**

## 1. FREQUENCY MEASUREMENTS

FCC ID : APYDMR0131  
 Tested Unit : Microwave Oven, OTR9 Chassis  
 Magnetron Type No. : 2M268E(L), mfd by Toshiba  
 Tested : June 13, 2000

### (1-1) Frequency VS Line Voltage Variation Test

Test Result (Room Temperature: 20 degC)

Load: 1500 cc water in the glass beaker

(Note: Since the RF output power is rated 1100 watts (more than 1000 watts), the load was increased 50%)

Line Voltage Variation (V)	Frequency	Allowed Tolerance for the ISM Band (2450 MHz)
96 (80%)	Lower: 2422 MHz Upper: 2470 MHz	Lower: 2400 MHz Upper: 2500 MHz
108 (90%)	Lower: 2424 MHz Upper: 2470 MHz	
120 (Nominal)	Lower: 2424 MHz Upper: 2470 MHz	
132 (110%)	Lower: 2428 MHz Upper: 2471 MHz	
150 (125%)	Lower: 2424 MHz Upper: 2472 MHz	

### (1-2) Frequency VS Load Variation Test

Test Results (room temperature: 20 degC)

Initial Load: 1500 cc water in the glass beaker

(Note: Since the RF output power is rated 1100 watts (more than 1000 watts), the load was increased 50%)

Volume of Water (cc)	Frequency	Allowed Tolerance for the ISM Band (2450 MHz)
1500	Lower: 2424 MHz Upper: 2470 MHz	Lower: 2400 MHz Upper: 2500 MHz
1200	Lower: 2423 MHz Upper: 2471 MHz	
900	Lower: 2435 MHz Upper: 2470 MHz	
600	Lower: 2430 MHz Upper: 2469 MHz	
300	Lower: 2424 MHz Upper: 2470 MHz	

**2. RADIATED FIELD STRENGTH**

**DATA SHEET (FCC Measurement Procedure MP-5)**

**FCC ID: APYDMR0131**

**Tested Model: OTR9 Chassis**

**Magnetron: 2M268E(L), mfd by Toshiba**

**Date: June 14-16, 2000**

	Frequency (MHz)	Load (ml)	Place of the load	Antenna Factor (dB)	Cable Loss (dB)	Reading Data (dBuV @:3m)		Radiated Field Strength (uV/m @:300m)	
						Vertical	Horizen	Vertical	Horizen
Fundamental	2452	1500	Center	20.70	1.03	79	77	689.25	547.49
2nd Harmonic	4902	1050	Center	20.50	1.58	28	24	3.19	2.01
	4903	1050	R.F.Corner	20.50	1.58	26	26	2.54	2.54
	4908	450	Center	20.50	1.58	31	28	4.51	3.19
	4904	450	R.F.Corner	20.50	1.58	27	26	2.84	2.54
3rd Harmonic	7354	1050	Center	19.20	2.10	11	11	0.41	0.41
	7354	1050	R.F.Corner	19.20	2.10	12	11	0.46	0.41
	7358	450	Center	19.20	2.10	14	12	0.58	0.46
	7357	450	R.F.Corner	19.20	2.10	13	12	0.52	0.46
4th Harmonic	9837	1050	Center	20.00	2.62	Noise<15	Noise<15	Noise<0.76	Noise<0.76
Spurious : 1000<F<4575	2382	1050	Center	20.70	1.01	40	44	7.51	11.90
	2562	1050	Center	20.80	1.05	28	30	2.05	2.58
	6829	1050	Center	21.60	2.00	21	16	1.70	0.96
	8333	1050	Center	19.80	2.30	15	13	0.72	0.57
	14611	1050	Center	19.20	3.71	13	15	0.62	0.79
Emission Sideband	2400	1500	Center	20.70	1.01	46	42	15.08	9.52
	2415	1500	Center	20.70	1.02	48	47	19.13	17.05
	2485	1500	Center	20.70	1.03	23	21	1.11	0.88
	2500	1500	Center	20.80	1.04	21	18	0.89	0.63

Emission observed from 100 MHz through 18 GHz by spectrum analyzer. No significant emission was detected except for above data.

Microwave Leakage at 5 cm on fundamental : 0.15 mW/cm<sup>2</sup>

Since the RF output power rating is more than 1000W (rated output power is 1100W), the water load used for the testing was increased 50%.

DESCRIPTION OF THE MEASUREMENT FACILITIES

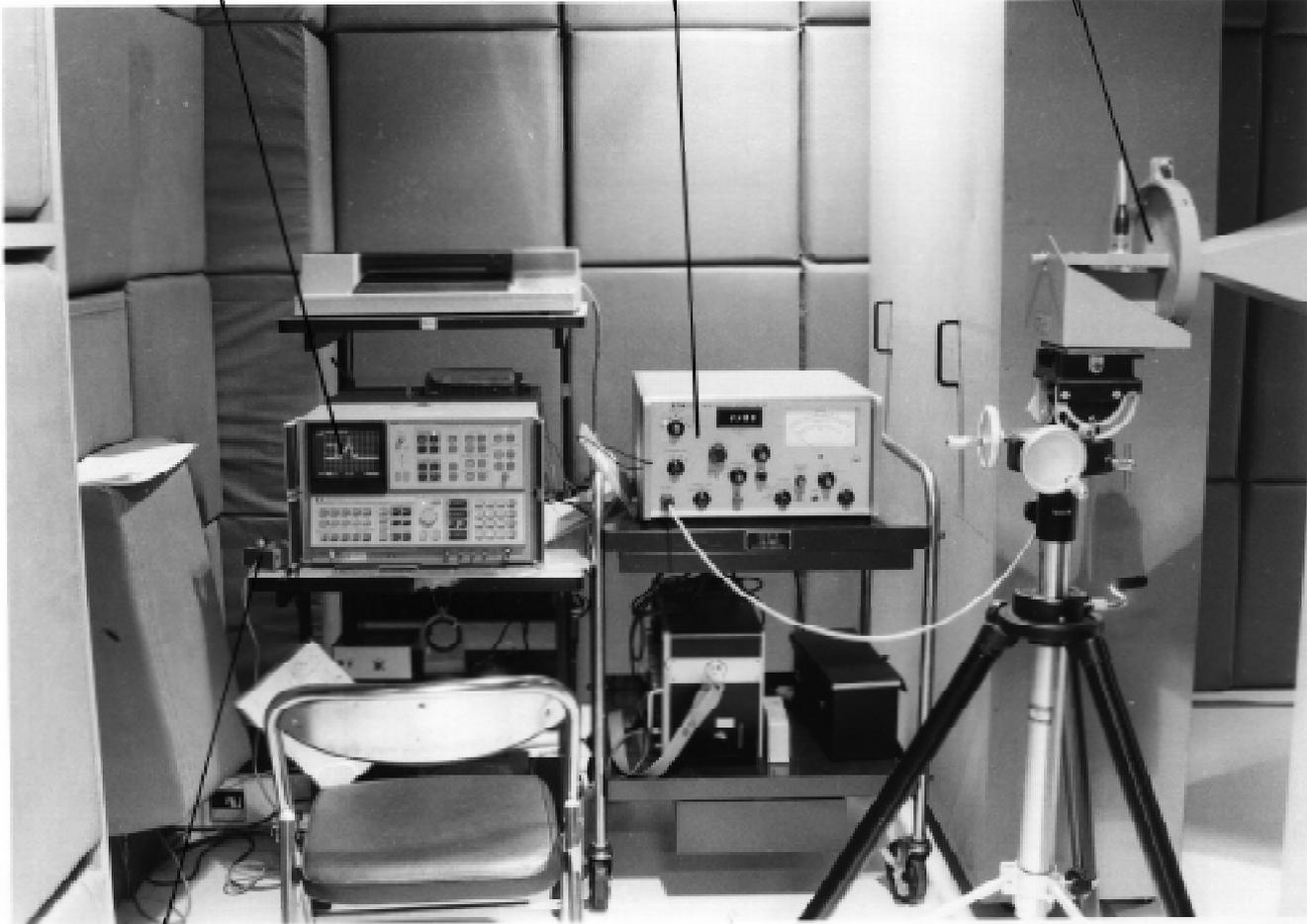
SHARP CORPORATION, KITCHEN APPLIANCE SYSTEMS DIVISION  
EMI ANECHOIC CHAMBER

PHOTOGRAPH OF TEST EQUIPMENT #1

Spectrum Analyzer  
8566B

Field Strength Meter  
NM-67

Horn Antenna



Turn Table Controller

PHOTOGRAPH OF TEST EQUIPMENT #2

Horn Antenna

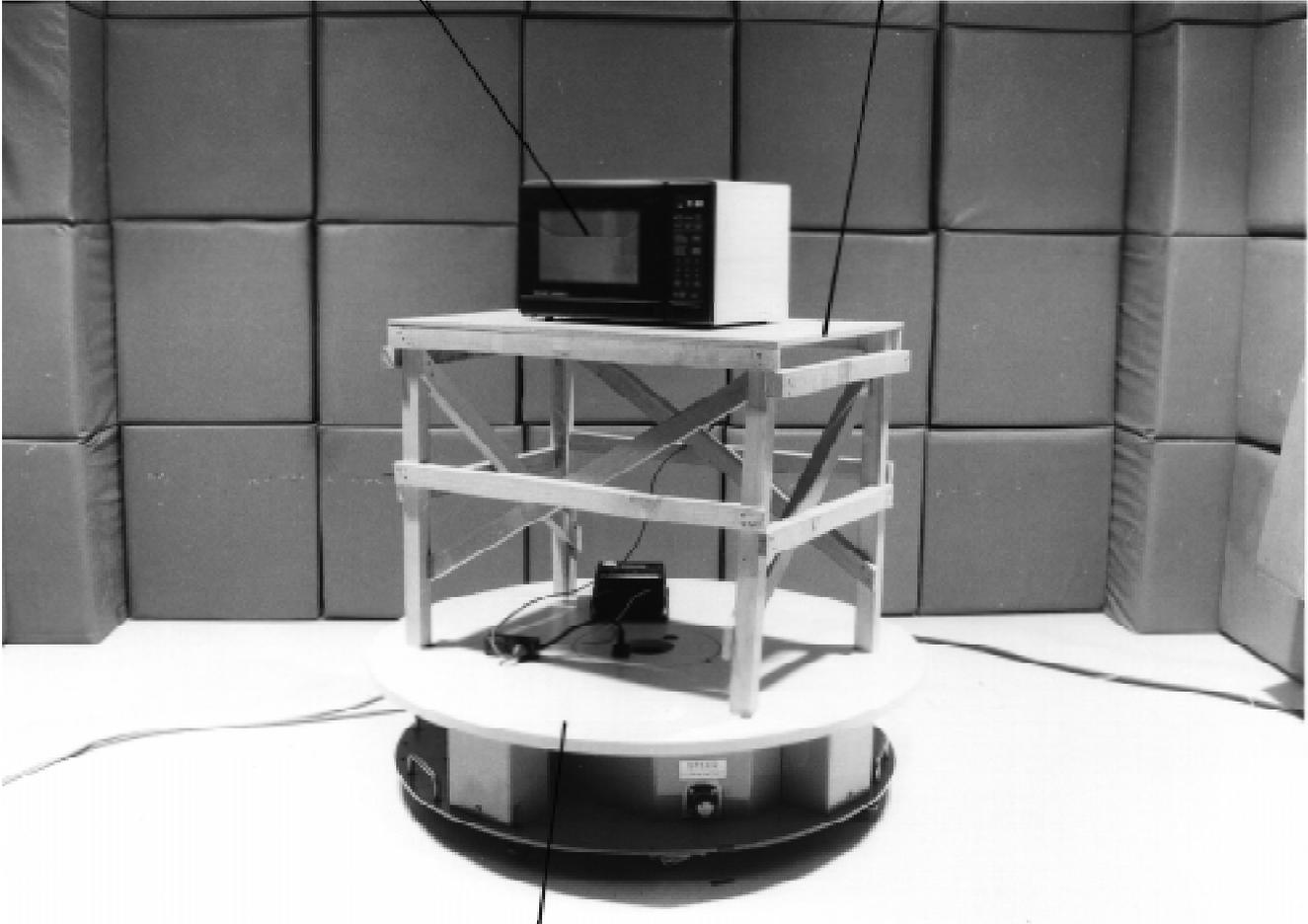


Field Strength Meter  
NM-67

PHOTOGRAPH OF TEST EQUIPMENT #3

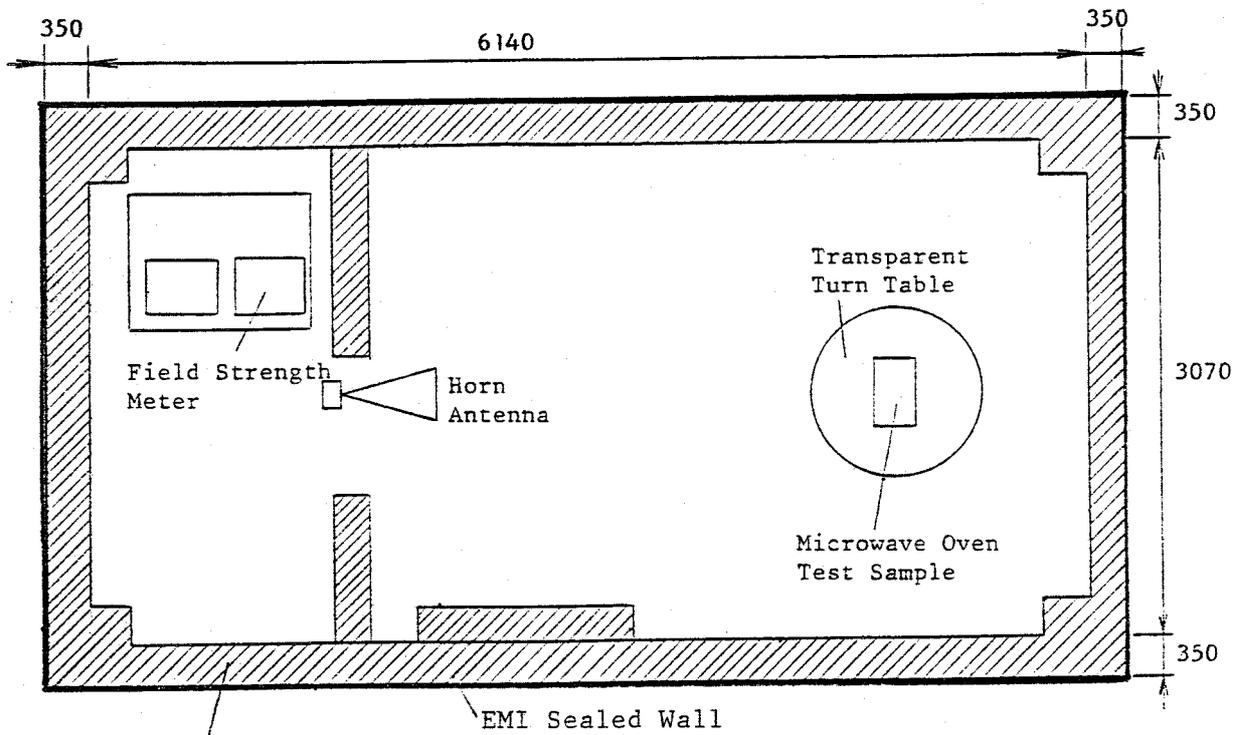
Microwave Oven  
Test Sample

Wooden Table

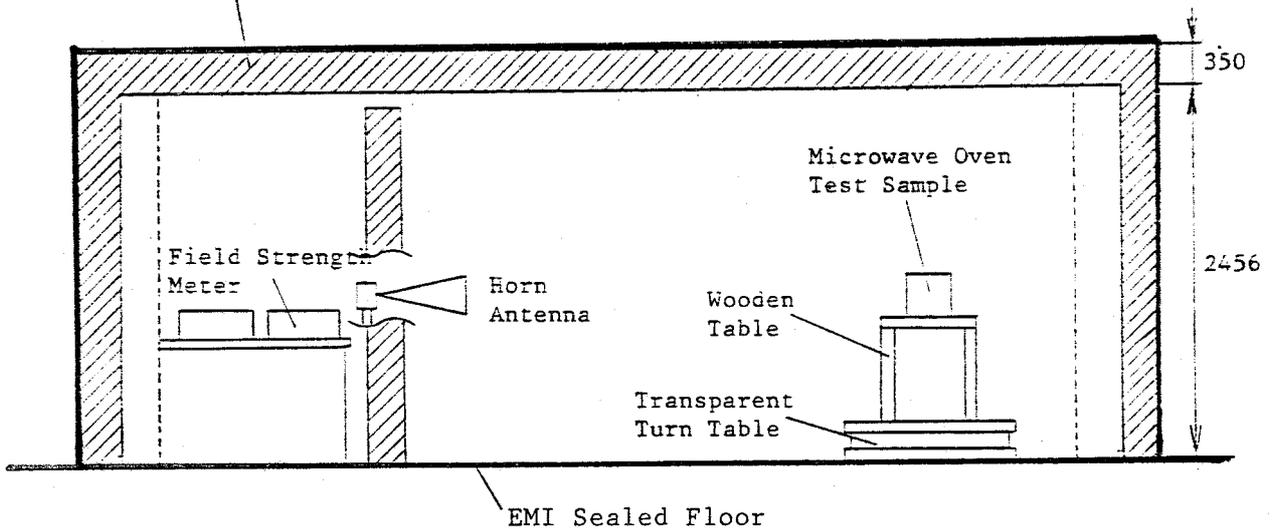


Transparent Turn Table

4. DIMENSIONS OF TEST SITE



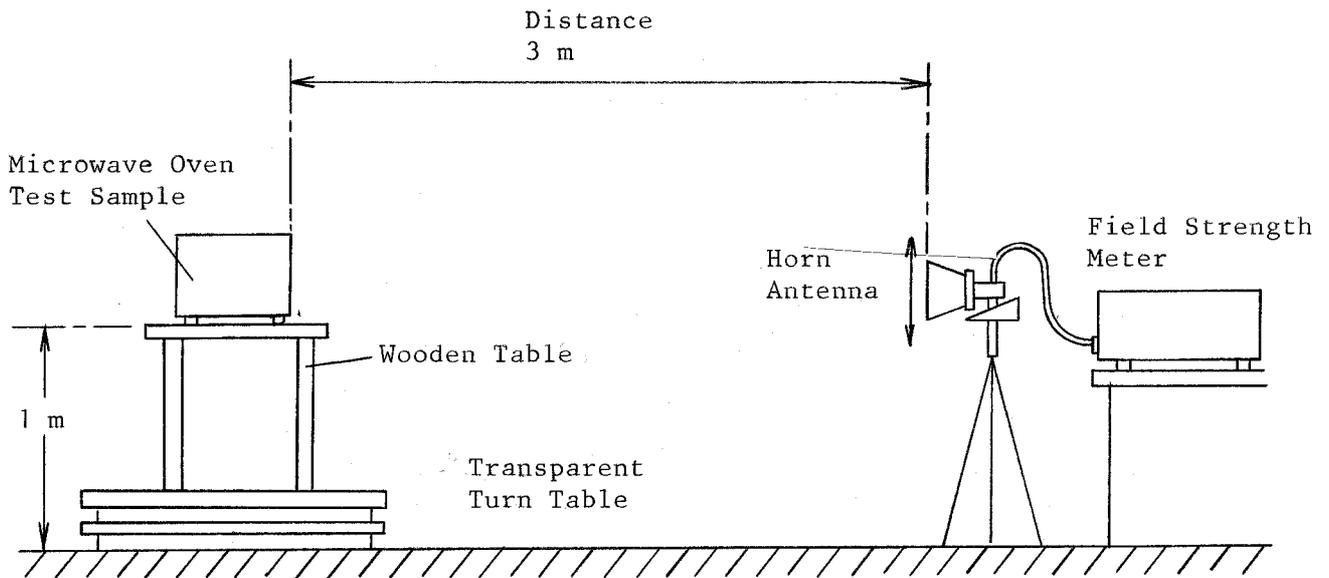
Electric Magnetic Wave Absorber: Cat. No. AEP-12EM WP  
Mfd by Advanced ElectroMagnetic, Inc.



(mm)

EMI Anechoic Chamber equipped by Akzo Kashima Ltd.

## 5. ARRANGEMENT OF INSTRUMENTATION



## 6. DESCRIPTION OF MEASUREMENT EQUIPMENTS

### 6-1. FIELD STRENGTH METER

a) #UHR4000, Mfd by CHASE (100 MHz through 1.0 GHz)

BANDWIDTH 120 kHz  
DETECTOR FUNCTION Linear average value;  
AVERAGE 1: 1 ms averaging  
AVERAGE 2: 600 ms averaging  
CALIBRATION DATE July 21, 1999

b) #NM-67, Mfd by EATON (1.0 GHz through 18 GHz)

BANDWIDTH 1 MHz  
DETECTOR FUNCTION Linear average value; Field Intensity  
CALIBRATION DATE October 20, 1999

### 6-2. RADIATED FREQUENCY OBSERVATION SUB-EQUIPMENT

SPECTRUM ANALYZER #8566B, Mfd by HEWLETT. PACKARD

### 6-3. ANTENNA

<u>RANGE FOR FREQUENCY</u>	<u>ANTENNA</u>
From 100 MHz to 140 MHz	#DM-105A-T1, Mfd by SINGER
From 140 MHz to 400 MHz	#DM-105A-T2, Mfd by SINGER
From 400 MHz to 1.0 GHz	#DM-105A-T3, Mfd by SINGER
From 1.0 GHz to 2.0 GHz	#91888-2, Mfd by EATON
From 2.0 GHz to 3.6 GHz	#91889-2, Mfd by EATON
From 3.6 GHz to 7.3 GHz	#94613-1 with Reflector #91892-1 Mfd by EATON
From 7.3 GHz to 12.0 GHz	#91891-2 with Reflector #91892-1 Mfd by EATON
From 12.0 GHz to 18.0 GHz	#94614-1 with Reflector #91892-1 Mfd by EATON

### 6-4. CABLE

<u>RANGE FOR FREQUENCY</u>	<u>CABLE</u>
From 100 MHz to 1.0 GHz	#RG-55/U
From 1.0 GHz to 18.0 GHz	#94615-1

### 6.5. PERTINENT DETAILS

a) Calculation Formula (See Attachment 1)  
b) Antenna Correction Factor (See Attachment 2)  
c) Cable Loss (See Attachment 3)  
d) Calibration Curve (See Attachment 4)

### 6-6. TEST CONDITION

a) Antenna height variation From 1.1 m to 2.1 m  
b) Antenna to test unit distance 3 m

CALCULATION OF RADIATED FIELD STRENGTH (uV/m)

$$E_f = 10^{\left(\frac{F_a + F_c + D}{20}\right)} * K$$

$E_f$  : Radiated Field Strength at 300 m (uV/m)  
 $F_a$  : Antenna Factor (dB)  
 $F_c$  : Cable Factor (dB)  
 $D$  : Reading Data of the Field Strength Meter (dBuV at 3 m)  
 $K$  : Conversion Factor

$$K = 0.0137 * \log F - 0.0401 \quad (\text{if } F < 4575 \text{ MHz})$$

$$K = 0.01 \quad (\text{if } F \geq 4574 \text{ MHz})$$

$F$  : Emission Frequency

Emission Frequency (MHz)	K
1830	0.0046
2745	0.0070
3660	0.0090
4575 and above	0.0100

In case of emission frequency less than 1.0 GHz, conversion factor  $K=0.01$  is used for the measurement of 3 m distance.

ANTENNA FACTOR (dB)

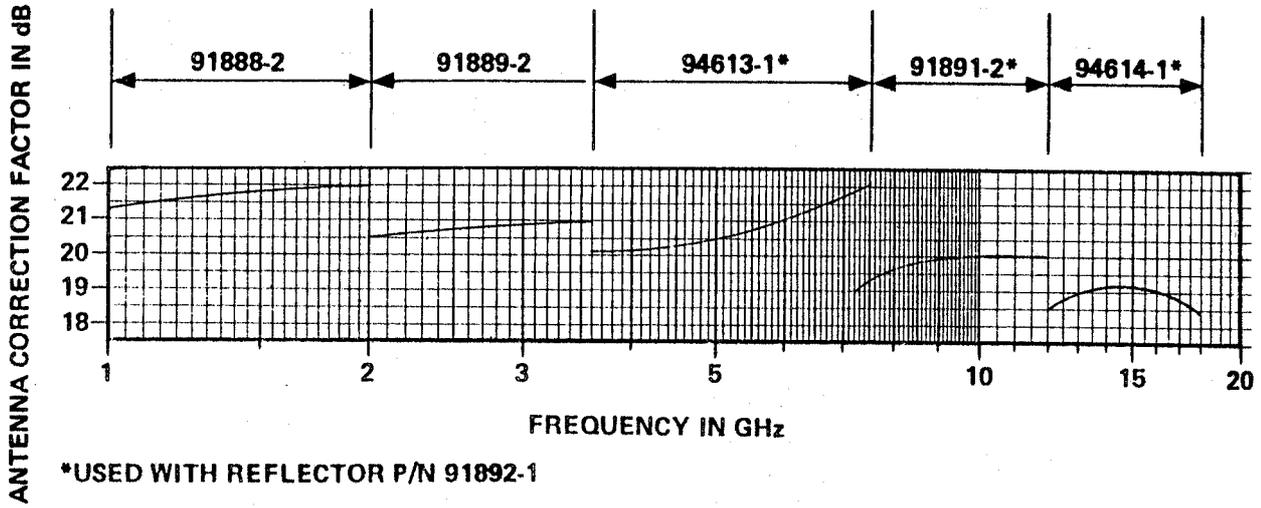


Figure 5-3. Antenna Correction Factors, 1-18 GHz Horn Antennas

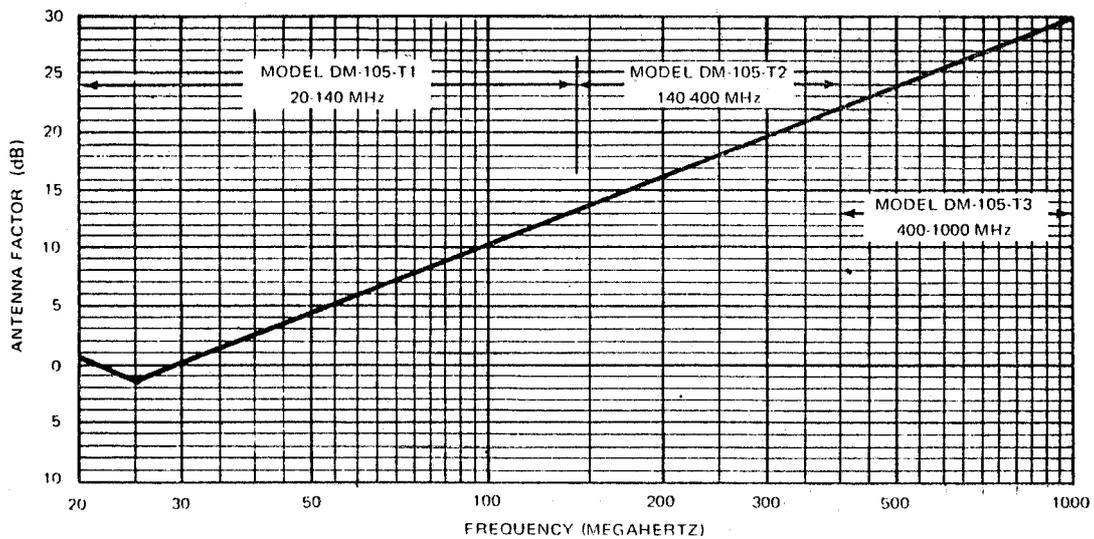


Figure 2-18. Antenna Factor Versus Frequency Characteristics, Models DM-105-T1, DM-105-T2 and DM-105-T3 Dipole Antennas

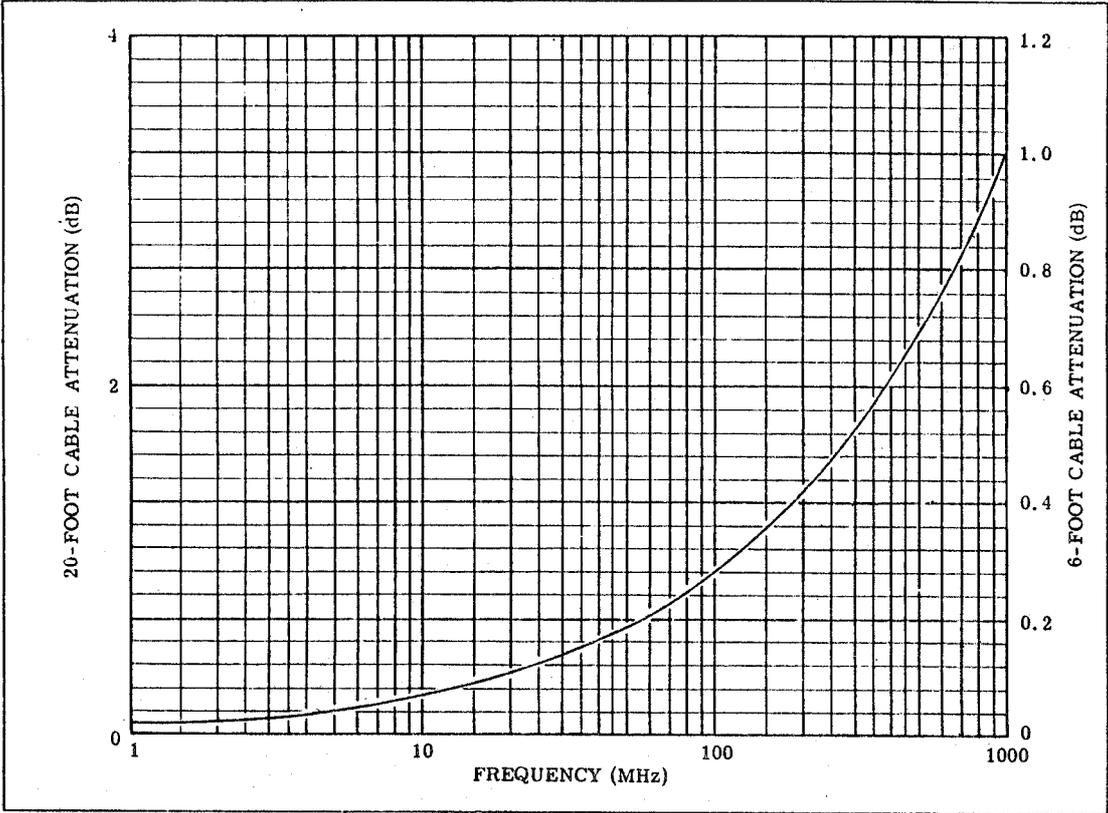


Figure 2-10. Attenuation Vs. Frequency for RG-55/U Coaxial Cable

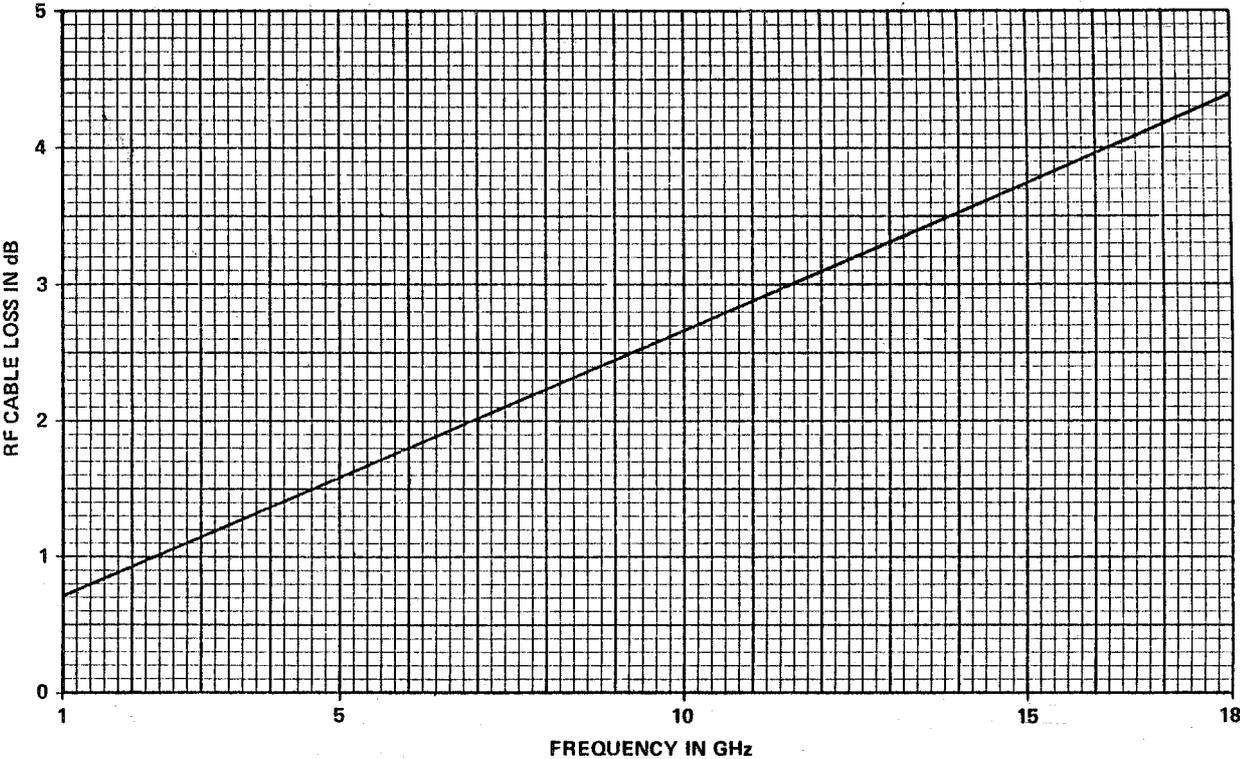


Figure 5-1. Model 94615-1 RF Cable Loss Chart

### CALIBRATION CURVE

For Model NM-67

