

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

FCC ID CODE: APYDMR0111

TEST DATE: July 1 - 6, 1998

TESTED MODEL: R-330BK

NOMINAL FREQUENCY: 2450 MHz

TESTED BY: _____

Y. Honkawa

Microwave Oven Engineering Dept.
Kitchen Appliance Systems Div.
Sharp Corp. (Yao Factory)

DESCRIPTION OF THE MICROWAVE OVEN

UNIT BODY DIMENSIONS : 520 mm wide, 301 mm high, 403 mm deep
(Include feet)

DOOR DIMENSIONS : 421 mm wide, 277 mm high
(Viewing Area: 284 mm by 140 mm)

OVEN CAVITY DIMENSIONS : 348 mm wide, 234 mm high, 378 mm deep
(without tray)

FEED TYPE AND LOCATION : Supplied by waveguide located side of oven

DOOR SEAL TYPE : Choke and Capacitive Seals

MAGNETRON TYPE : 2M253H(L2), mfd by Toshiba

DATA SUMMARY (FCC Measurement Procedure MP-5)

RADIATED FIELD STRENGTH : See attached data sheet

FREQUENCY VARIATION : See attached data sheet

MEASUREMENT TEST SITE : Sharp Corporation
Kitchen Appliance Systems Division
Yao Factory, EMI Anechoic Chamber

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

TOTAL POWER INPUT TO OVEN : 1650 W

POWER DEVELOPED IN DUMMY LOAD : 909 W (by calorimetric method with water
load under well heated microwave oven)

PERMISSIBLE : 33.7 uV/m at 300 m

SUPPLY VOLTAGE : 120 V ac

DATA SHEET (FCC Measurement Procedure MP-5)
Model R-330BK

FCC ID: APYDMR0111

Magnetron: 2M253H(L2), mfd by Toshiba

Date: July 1-6, 1998

	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	2462	1500	Center	20.7	1.03	83	83	1096.57	1096.57
2nd Harmonic	4925	1050	Center	20.5	1.58	39	37	11.32	9.00
	4930	1050	R.F.Corner	20.5	1.58	40	38	12.71	10.09
	4907	450	Center	20.5	1.58	43	40	17.95	12.71
	4933	450	R.F.Corner	20.5	1.58	41	40	14.26	12.71
3rd Harmonic	7384	1050	Center	22.0	2.10	28	27	4.03	3.59
	7422	1050	R.F.Corner	22.0	2.10	26	28	3.20	4.03
	7357	450	Center	22.0	2.10	32	34	6.38	8.04
	7403	450	R.F.Corner	22.0	2.10	27	30	3.59	5.07
4th Harmonic	9834	1050	Center	20.0	2.63	37	40	9.58	13.54
Spurious F<1000, 4575<F	14744	1050	Center	19.2	3.70	41	41	15.67	15.67
	17227	1050	Center	18.8	4.22	31	33	5.02	6.32
Spurious 1000<F<4575	-	-	Center	-	-	-	-	-	-
	-	-	Center	-	-	-	-	-	-
Emission Sideband	2400	1500	Center	20.7	1.01	40	39	7.56	6.74
	2415	1500	Center	20.7	1.02	48	46	19.13	15.19
	2485	1500	Center	20.7	1.03	23	23	1.11	1.11
	2500	1500	Center	20.8	1.04	23	23	1.13	1.13

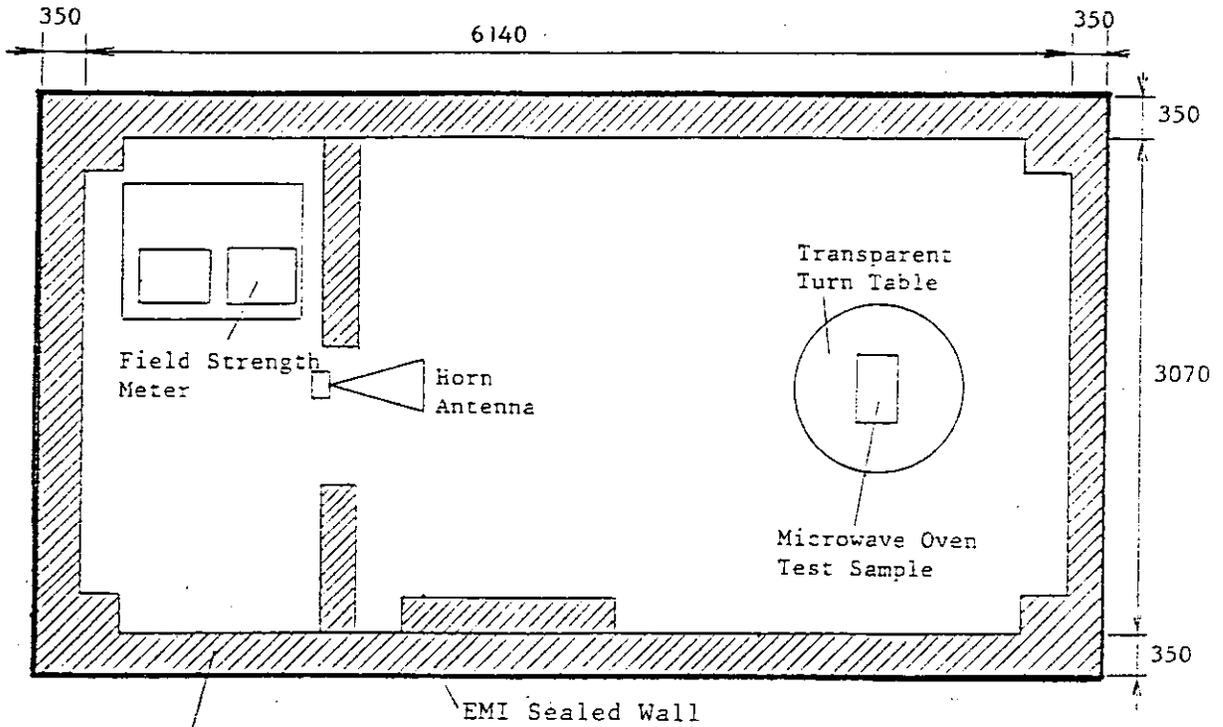
Emission observed from 100MHz through 18GHz by spectrum analyzer. No significant emission was detected except for above data.
 Microwave Leakage at 5 cm on fundamental : 0.01 mW/cm2

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

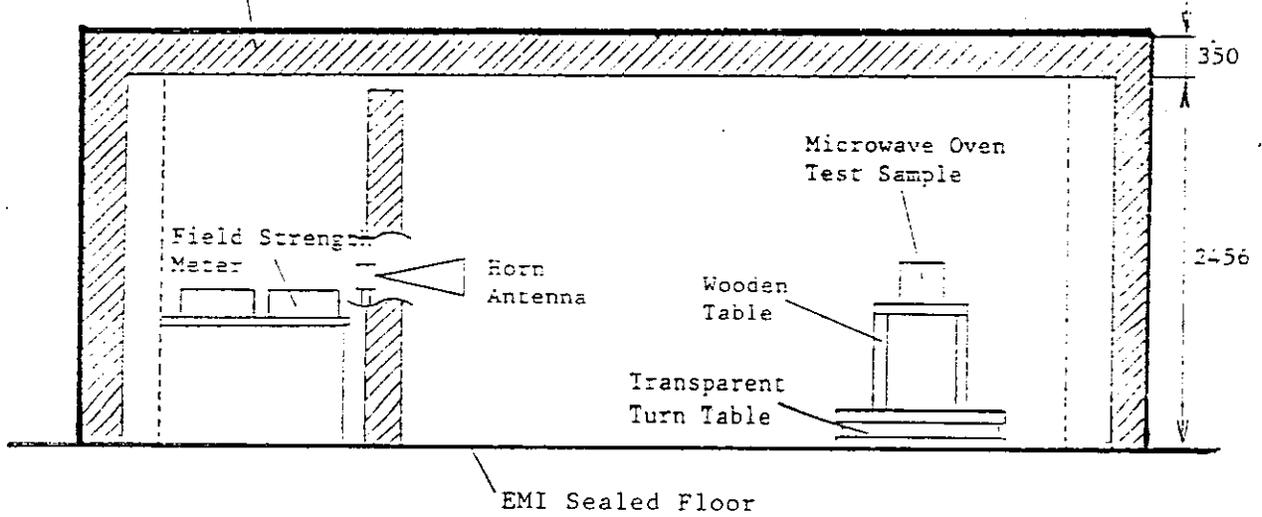
DESCRIPTION OF THE MEASUREMENT FACILITIES

SHARP CORPORATION, KITCHEN APPLIANCE SYSTEMS DIVISION
EMI ANECHOIC CHAMBER

4. DIMENSIONS OF TEST SITE



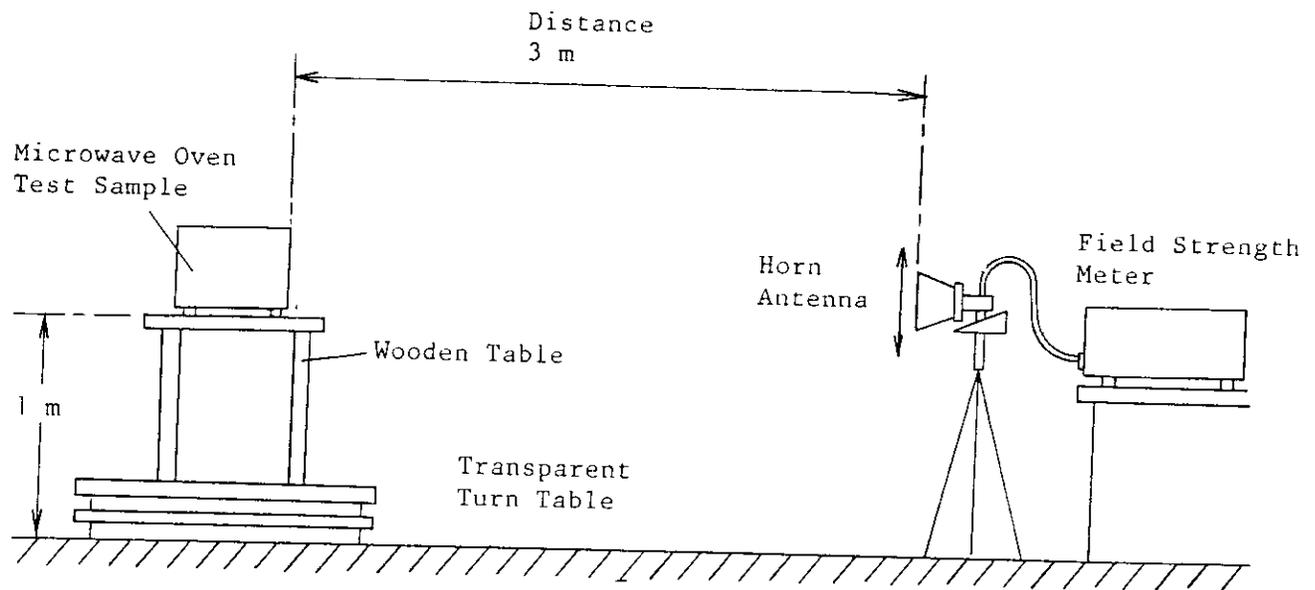
Electric Magnetic Wave Absorber: Cat. No. AEP-12EM WP
Mfd by Advanced ElectroMagnetic, Inc.



(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 *September 10, 1997*

b) #NM-67, Mfd by EATON (1.0 GHz through 10.0 GHz)

BANDWIDTH 10 MHz
DETECTOR FUNCTION Linear average value; Field Intensity
CALIBRATION DATE *August 6, 1997*

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 10.0 GHz	#91891-2 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 10.0 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

$K = 0.0137 * \log F - 0.0401$ (if $F < 4575$ MHz)
 $K = 0.01$ (if $F \geq 4574$ 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)

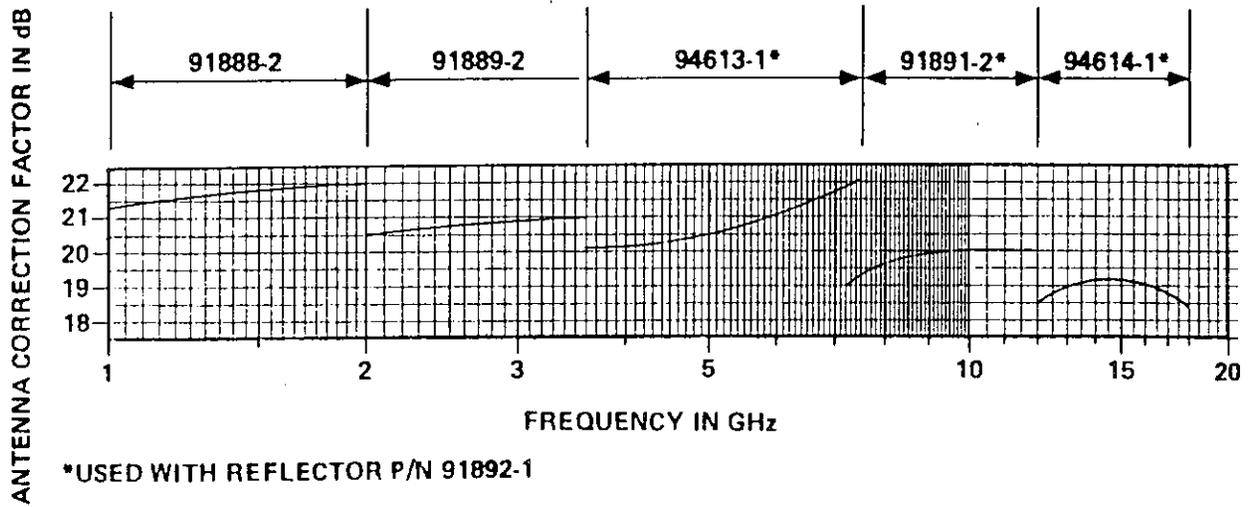


Figure 5-3. Antenna Correction Factors, 1-18 GHz Horn Antennas

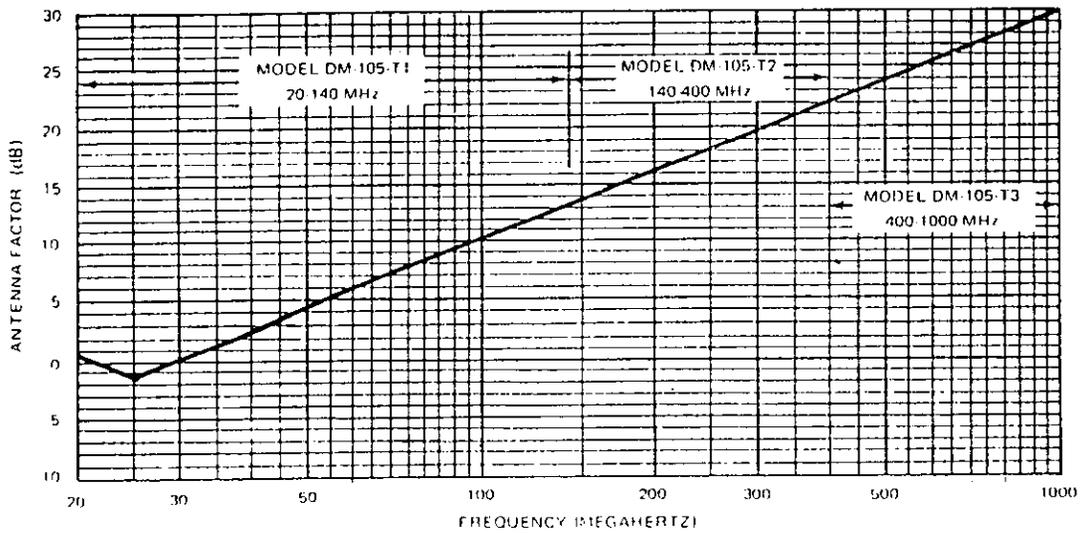


Figure 2-18. Antenna Factor Versus Frequency Characteristics, Models DM-105-T1, DM-105-T2 and DM-105-T3 Dipole Antennas

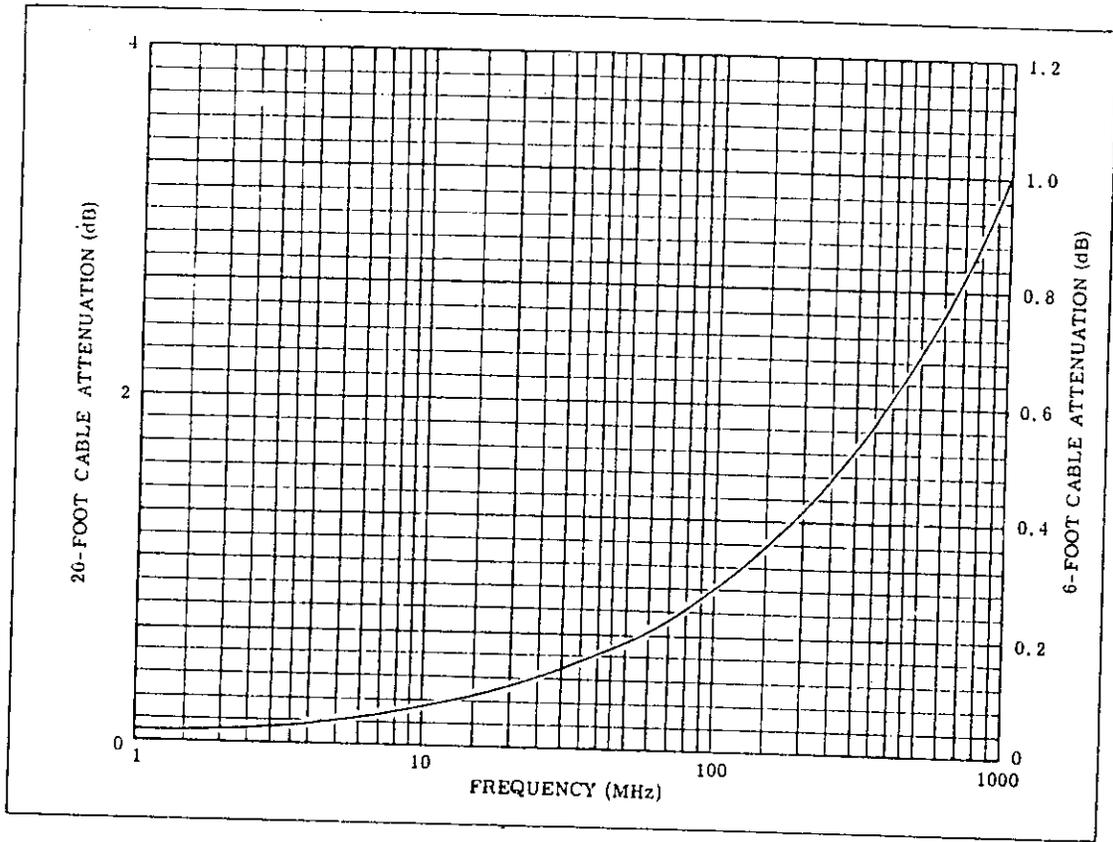


Figure 2-10. Attenuation Vs. Frequency for RG-55/U Coaxial Cable

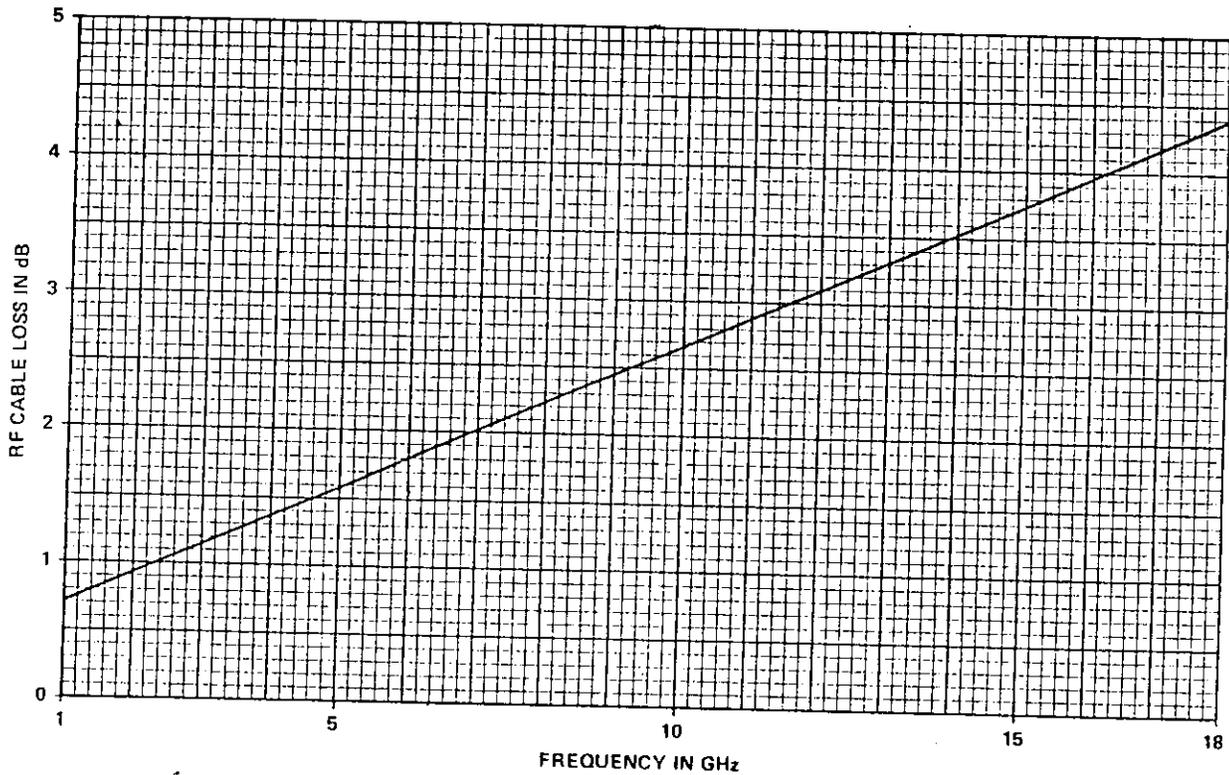


Figure 5-1. Model 94615-1 RF Cable Loss Chart

CALIBRATION CURVE

For Model NM-67

