

### III. RADIATED EMISSION MEASUREMENT (Section 15.109)

#### I. Test Procedure

##### 1.1 Preliminary Testing for Reference

Preliminary testing was performed in a KAITECH absorber-lined room to determine the emission characteristics of the EUT. The EUT was placed on the wooden table which has dimensions of 0.8 meters in height, 1 meter in length and 1.5 meters in width. Receiving antenna(Biconical antenna : 30 to 300MHz, Log-periodic antenna : 200 to 1000MHz or Horn Antenna : 1 to 18GHz) was placed at the distance of 1 meter from the EUT.

In order to cohere the individual components of the characteristic broadband emission from the receiver(EUT), a RF generator(CW signal) and a log-periodic antenna were used. The frequency and output level of the generator were adjusted for highest observed coherent receiver emissions on the spectrum analyzer with RF Amplifier.

An attempt was made to maximize the emission level with the various configurations of the test sample. The effect of changing the position of the cable was observed to find the worst case configuration while rotating the table and varying antenna height and its polarization.

Radiated and spurious emissions were checked from 25 MHz to 3000 MHz according to section 15.33.

##### 1.2 Final Radiated Emission Test at a Absorber-Lined Room

The final measurement of radiated field strength was carried out in a KAITECH Absorber-Lined Room that was listed up at FCC according to the "Radiated Emissions Testing" procedure specified by ANSI C63.4.

Based on the test results in preliminary test, measurement was made in same test set up and configuration which produced maximum emission level. Receiving antenna was installed at 3-meter distance from the EUT, and was connected to an EMI receiver or spectrum analyzer with RF amplifier.

Turntable was rotated through 360 degrees and receiving antenna height was varied from 1 to 4 meters above the ground plane to read maximum level.

Maximum emission occurred at the configuration as shown in the following photograph.

## 4. Measurement Data

- Resolution Bandwidth : Peak (3dB Bandwidth : 100kHz for 1GHz below)  
Peak (3dB Bandwidth : 300kHz for 1GHz over)
- Measurement Distance : 3 Meter

Frequency (MHz)	* D.M.	* A.P.	Measured Value (dB $\mu$ V)	* A.F. + C.L. (dB)	* A.G. (dB)	* D.C.F. (dB)	Emission Level (dB $\mu$ V/m)    ( $\mu$ V/m)		Limit ( $\mu$ V/m)	** Margin (dB)
300.5	P	H	50.2	21.2	-30.0	-	41.4	117.5	200	-4.6
601.0	P	H/V	*** <32.0	29.5	-30.0	-	<31.5	<37.6	200	<-14.5
901.5	P	H/V	*** <32.0	34.8	-30.0	-	<36.8	<69.2	200	<-9.2
1202.0	P	H/V	*** <32.0	31.6	-30.0	-	<33.6	<47.9	500	<-20.4
1502.5	P	H/V	*** <32.0	33.4	-30.0	-	<35.4	<58.9	500	<-18.6
-	-	-	-	-	-	-	-	-	-	-

## Note

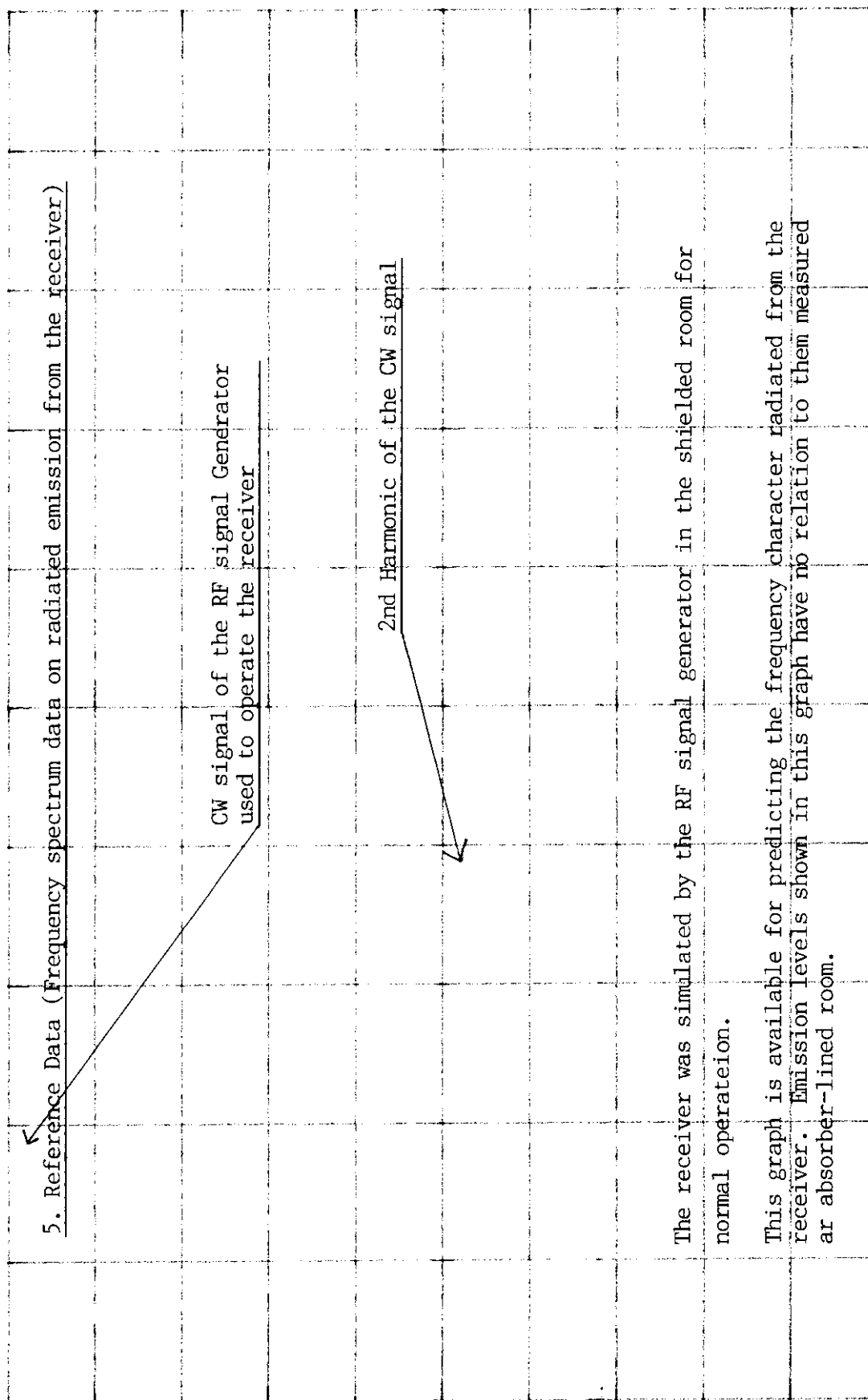
- \* D.M. : Detect Mode (P : Peak, Q : Quasi-Peak, A : Average)  
 A.P. : Antenna Polarization (H : Horizontal, V : Vertical)  
 A.F. : Antenna Factor  
 C.L. : Cable Loss  
 A.G. : Amplifier Gain  
 D.C.F. : Distance Correction Factor

\*\* Margin (dB) = Emission Level (dB) - Limit (dB)

\*\*\* < means less than. The observed spectrum analyzer noise floor levels with RF preamplifier were 32.0 dB $\mu$ V/m. And Refer to frequency spectrum data on radiated emission from the receiver in next page.

\*ATTEN 10dB

RL 107.00dBμV 10dB/



START 30MHZ

STOP 1.500GHZ

\*RBW 100KHZ

\*VBW 300KHZ

\*SWP 5.0sec

**IV. TEST EQUIPMENT USED FOR MEASUREMENTS**

<u>Equipment</u>	<u>Model No.</u>	<u>Manufacturer</u>	<u>Serial No.</u>	<u>Effective Cal. Duration</u>
[x] EMI Receiver (20MHz-1GHz)	ESVS30	R & S	830516/002	06/29/98-06/29/99
[x] Spectrum Analyzer (9kHz-26.5GHz)	8563A	H. P.	3222A02069	01/30/98-01/30/99
[ ] Spectrum Analyzer (100Hz-22GHz)	8566B	H. P.	3014A07057	05/29/98-05/29/99
[ ] Quasi-Peak Adapter (10kHz-1GHz)	85650A	H. P.	3107A01511	05/29/98-05/29/99
[ ] RF-Preselector (20Hz-2GHz)	85685A	H. P.	3010A01181	05/29/98-05/29/99
[ ] Test Receiver (9kHz-30MHz)	ESH3	R & S	860905/001	06/29/98-06/29/99
[x] Pre-Amplifier (0.1-3000MHz, 30dB)	8347A	H. P.	2834A00543	05/29/98-05/29/99
[x] Pre-Amplifier (1-26.5GHz, 35dB)	8449B	H. P.	3008A00302	06/29/98-06/29/99
[ ] LISN(50Ω, 50μH) (10kHz-100MHz)	3825/2	EMCO	9010-1710	-
[ ] LISN(50Ω, 50μH) (10kHz-100MHz)	3825/2	EMCO	9011-1720	-
[x] Plotter	7470A	H. P.	3104A21292	-
[x] Tuned Dipole Ant. (30MHz-300MHz)	VHA 9103	Schwarzbeck	-	*
[x] Tuned Dipole Ant. (300MHz-1GHz)	UHA 9105	Schwarzbeck	-	*
[x] Biconical Ant. (20MHz-200MHz)	BBA9106	Schwarzbeck	-	*
[x] Log Periodic Ant. (200MHz-1GHz)	3146	EMCO	-	*
[x] Horn Ant. (1GHz-18GHz)	3115	EMCO	-	*
[x] RF Signal Generator (10MHz-20GHz)	83620A	H. P.	3250A01653	06/29/98-06/29/99
[x] DC Power Supply	6260B	H. P.	1145A04822	-
[x] Shielded Room (5.0m x 4.5m)	SIN-MYUNG		-	-

\* Each set of antennas has been calibrated to ensure correlation with ANSI C63.5 standard.  
The calibration of antennas is traceable to Korea Standard Research Institute(KSRI).