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## TEST EQUIPMENT LIST

EQUIPMENT	MODEL	MANUFACTURE	SERIAL NO	CAL DUE DAT
SPECTRUM ANALYZER	R3261C	Adventest		04/25/2004
SPECTRUM ANALYZER	8566B	Hewlett Packard	2311A02394	03/17/2004
SPECTRUM DISPLAY	85662A	Hewlett Packard	2542A12429	03/17/2004
QUASI-PEAK ADAPTER	85650A	Hewlett Packard	2512A00887	03/17/2004
RF PRESELECTOR	85685A	Hewlett Packard	2648A00504	03/17/2004
ANTENNA	94455-1	EATON	0977	04/25/2004
ANTENNA	3146	EMCO	2051	04/25/2004
HORN ANTENNA	SAS-571	AH SYSTEMS	414	04/25/2004
DC Power Supplier	HYP-3010D	Han Young		N/A
Environment Chamber	MC-711	Tabai Espec Corp.		Internal cal. before use

## TEST PROCEDURE

GENERAL: This report shall NOT be reproduced except in full without the written approval of THRULAB & ENGINEERING. The UUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-1992 using a HEWLETT PACKARD spectrum analyzer with a preselector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the UUT was 69oF with a humidity of 23%.

### TEST PROCEDURE CONTINUED

**FORMULA OF CONVERSION FACTORS :** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of Db. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

Example:

Freq (MHz)	METER READING + ACF = FS
33	20 dBuV + 10.36 Db = 30.36 dBuV/m @ 3m

**POWER LINE CONDUCTED INTERFERENCE :** The procedure used was ANSI STANDARD C63.4-1992 using a 50Uh LISN. Both lines were observed.

The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed.

The ambient temperature of the UUT was 77 oF with a humidity of 52% .

**ANSI STANDARD C 63.4-1992 10.1.7 MEASUREMENT PROCEDURES :** The UUT was placed on a table 80 high and with dimensions of 1m by 1.5m. The UUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

Then situation was similar for the conducted measurement except that the table did not rotate. The EUT was setup as described in ANSIC63.4-1992 with the EUT 40m from the vertical ground wall.

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# NAME OF TEST : RADIATION INTERFERENCE

RULES PART NUMBER : 15.249, 15.209

## REQUIPEMENTS :

FIELD STRENGTH	FIELD STRENGTH	S15.209
of Fundamental :	of Harmon	30-88 MHz 40 dBuV/m @3m
902-928 MHz		88-216 MHz 43.5
2.4-2.4835 GHz		216-960 MHz 46
94 dBuV/m	54 dBuV/m @3m	ABOVE 960 MHz 54 dBuV/m

EMISSIONS RADIATED OUTSIDE OF THE SPECIFIED FREQUENCY BANDS, EXCEPT FOR HARMONICS, SHALL BE ATTENUATED BY AT LEAST 50dB BELOW THE LEVEEL OF THE FUNDAMENTAL OR TO THE GENERAL RADIATED EMISSION LIMITS IN 15.209, WHICHEVER IS THE LESSER ATTENUATION.

TEST RESULTS : This unit DOES meet the FCC requirements.

## Test DATA:

EMISSION	METER	COAX	ANTENNA	FIELD		
FREQUENCY	READING	AT 3	LOSS	CORRECTION	STRENGTH	MARGIN
						ANT
MHz	dBuV	dB	FACTOR dB	dBuV/m@3m	dB	POL
2403.900	57.3	3.25	27.4	87.6	-6.4	V
4807.801	10.8	4.5	33.6	48.9	-5.1	V
7211.701	2.1	5.5				V
9615.601	3.5	6.4				V
2404.500	53.9	3.25	27.4	84.5	-9.5	V
4809.000	10.3	4.5	33.6	48.4	-5.6	V
7213.500	2.3	5.5				V
9618.000	3.6	6.4				V

TEST PROCEDURE : ANSI STANDARD C63.4-1992 using a Hewlett Packard Model 8566B spectrum analyzer, a Hewlett Packard Model 85685A Preselector, a Hewlett Packard Model 85650A Quasi-Peak adapter, and an appropriate antenna – see test equipment list. The band-width of spectrum analyzer was 100kHz with an appropriate sweep speed. When an emission was found, the table was rotated to prodece the manimum signal

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 FCC ID: PE3IP-240T

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EMC LAB: 389 JeArm-Rhi, HyangNam-Myun, HwaSungGun, KyungKi-Do, Korea

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strength. Then antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spect rum was searched to at lease the tenth(10) harmonic of thefundamental.

PERFORMED BY :Kyoung Moon Choi

DATE :10/06/2003

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**NAME OF TEST:** Occupied Bandwidth

**RULES PART NO.:** 15.249

**REQUIREMENTS:** The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

THE PLOT ON THE NEXT PAGE REPRESENTS THE EMISSIONS TAKEN FOR THIS DEVICE.

**METHOD OF MEASUREMENT:** A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dBm per division. The horizontal scale is set to 5 kHz per division.

**TEST RESULTS:** The unit DOES meet the FCC requirements.

**PERFORMED BY:** JOSEPH SCOGLIO

**DATE:** 10/15/2003

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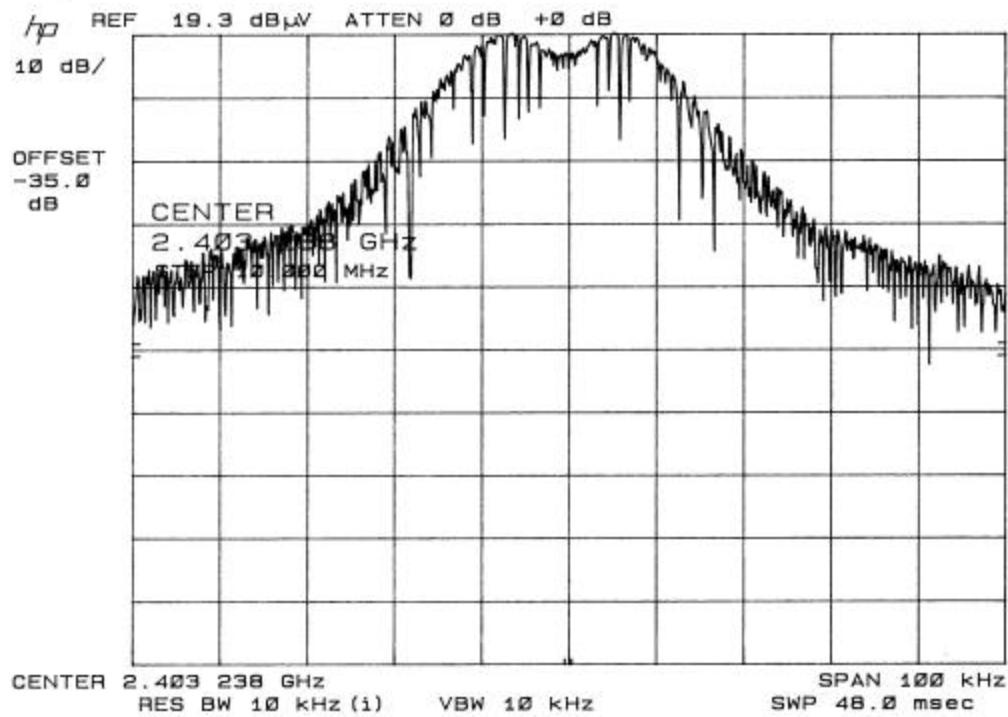
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# OCCUPIED BANDWIDTH PLOT



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