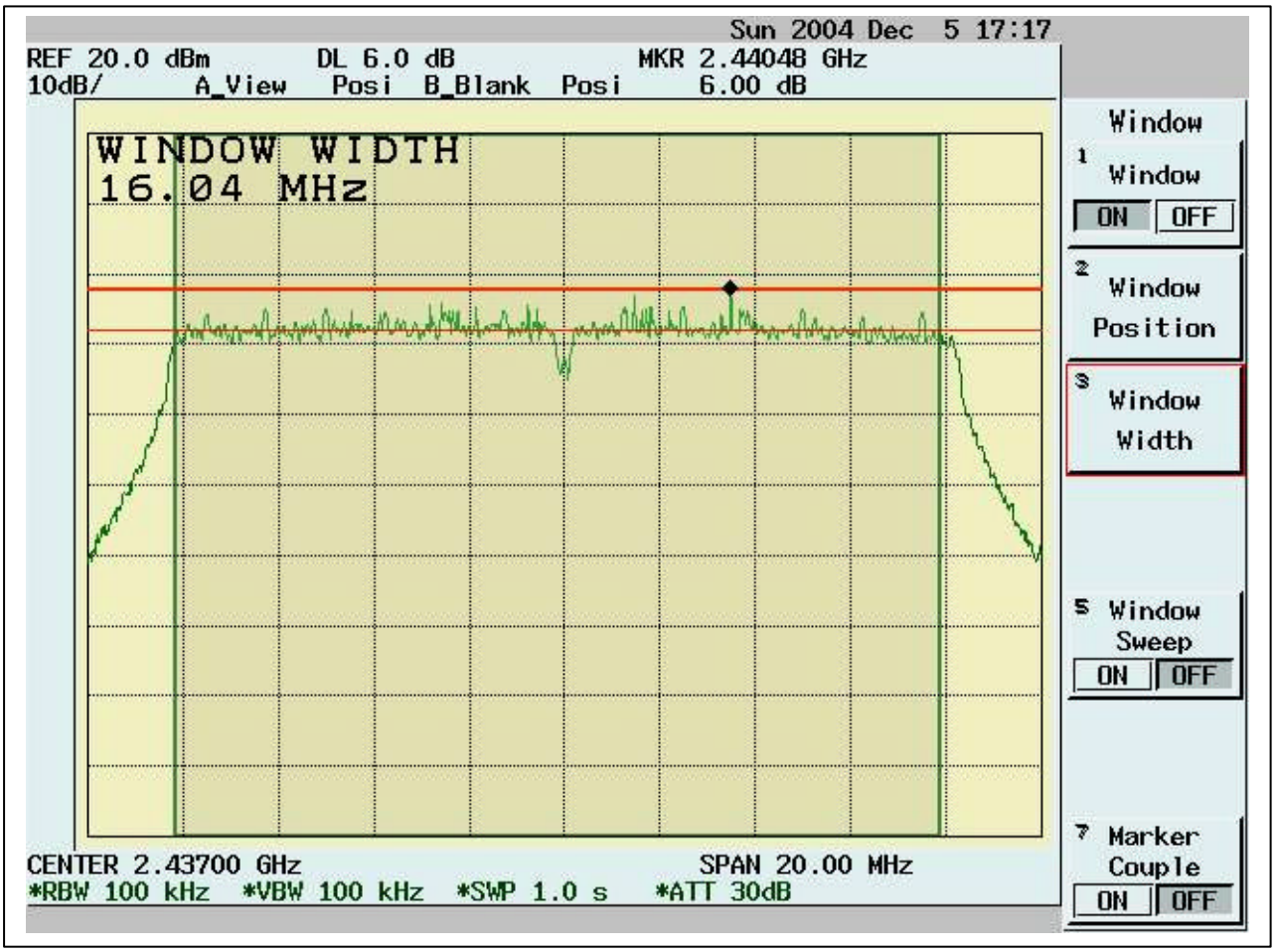
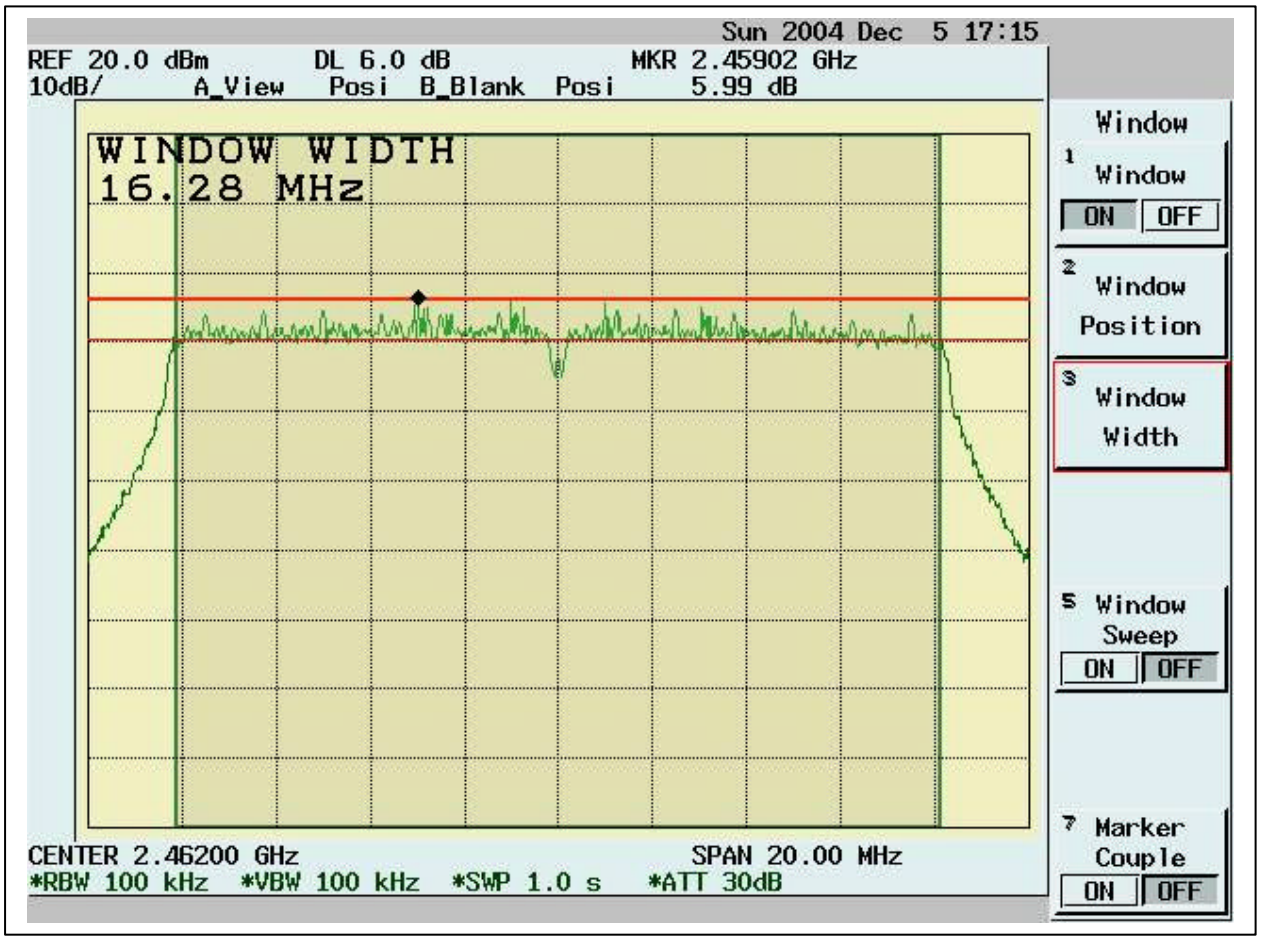

Sun 2004 Dec 5 17:17
REF 20.0 dBm
10dB/
A_View
DL 6.0 dB
Posi B_Blank Posi
MKR 2.44048 GHz
6.00 dB
WINDOW WIDTH
16.04 MHz
CENTER 2.43700 GHz
SPAN 20.00 MHz
*RBW 100 kHz *VBW 100 kHz *SWP 1.0 s *ATT 30dB
Window
1 Window
ON OFF
2 Window Position
3 Window Width
5 Window Sweep
ON OFF
7 Marker Couple
ON OFF


Sun 2004 Dec 5 17:15
REF 20.0 dBm
10dB/
DL 6.0 dB
A_View Posi
B_Blank Posi
MKR 2.45902 GHz
5.99 dB
WINDOW WIDTH
16.28 MHz
CENTER 2.46200 GHz
SPAN 20.00 MHz
*RBW 100 kHz
*VBW 100 kHz
*SWP 1.0 s
*ATT 30dB
Window
1 Window
ON OFF
2 Window Position
3 Window Width
5 Window Sweep
ON OFF
7 Marker Couple
ON OFF

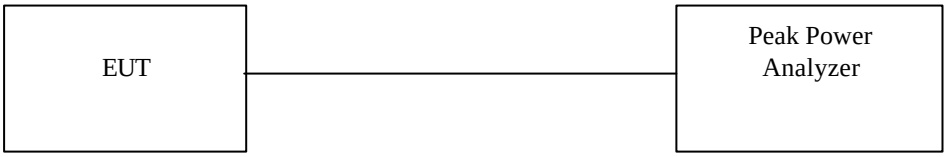
5.4 DSSS Maximum Peak Output Power [Section 15.247 (b)(1)]

5.4.1 Test Procedure

5.5

1.The Transmitter output of EUT was connected to the peak power analyzer .

5.5.1 Test Setup



5.5.2 Test Data:

Maximum Peak Output Power

Chennel	Frequency (MHz)	Analyzer Reading (dBm)	Cable Loss (dB)	Peak Power Output (mW)	Peak Power Output (dBm)	Limit (dBm)	Pass/Fail
1	2412	17.229	1.02	66.81	18.249	30	Pass
6	2437	17.230	1.02	66.83	18.250	30	Pass
11	2462	17.386	1.02	69.27	18.406	30	Pass

5.6 Radiated Emission Measurement [Section [15.247(c)(4)]

5.6.1 EUT Configuration

The equipment under test was set up on the 10 meter chamber with measurement distance of 3 meters. The EUT was placed on a non-conductive table 80cm above ground.

Any changes made to the configuration, or modifications made to the EUT, during testing are noted in the following test record.

5.6.2 Test Procedure

The system was set up as described above, with the EMI diagnostic software running. We found the maximum readings by varying the height of antenna and then rotating the turntable. Both polarization of antenna, horizontal and vertical, are measured.

30M to 1GHz: The highest emissions between 30 MHz to 1000 MHz were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission.

1GHz – 25GHz: The highest emissions were also analyzed in details by operating the spectrum analyzer and/or EMI receiver in peak mode to determine the precise amplitude of the emission. While doing so, the interconnecting cables and major parts of the system were moved around, the antenna height was varied between one and four meters, its polarization was varied between vertical and horizontal, and the turntable was slowly rotated, to maximize the emission. During test the EMI receiver and spectrum was setup according to *EMI Receiver/Spectrum Analyzer Configuration*.
For the test of 2^{nd} to 10^{th} harmonics frequencies , the equipment setup was also refer to *EMI Receiver/Spectrum Analyzer Configuration*. The frequencies were tested using Peak mode first, if the test data is higher than the emissions limit, an additional measurement using Average mode will be performed and the average reading will be compared to the limit and record in test report.

5.6.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range Tested:	30MHz~1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth (RBW):	120KHz
Video Bandwidth (VBW)	1MHz

Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Peak Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	1MHz

Frequency Range Tested:	1GHz – 25 GHz
Detector Function:	Average Mode
Resolution Bandwidth (RBW):	1MHz
Video Bandwidth (VBW)	10 Hz

5.6.4 Test Data (30MHz – 1GHz) :.

30M – 1GHz Open Field Radiated Emissions (Horizontal) Channel 1, 6, 11

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin* (dB)	Height (cm)	Position (°)
232.71	23.60	9.87	4.09	0.00	37.56	46.00	-8.44	200.00	216.00
269.62	20.43	12.40	4.33	0.00	37.16	46.00	-8.84	100.00	119.00
365.60	17.60	14.50	5.01	0.00	37.11	46.00	-8.95	100.00	313.00
472.31	20.10	16.49	5.61	0.00	42.21	46.00	-3.79	200.00	152.00
675.07	12.95	18.80	6.66	0.00	38.41	46.00	-7.59	100.00	248.00
708.05	12.63	19.01	6.82	0.00	38.46	46.00	-7.54	100.00	345.00
730.30	10.10	19.32	6.90	0.00	36.33	46.00	-9.67	100.00	248.00
741.95	10.53	19.49	6.95	0.00	36.97	46.00	-9.03	150.00	168.00
830.21	10.09	19.92	7.39	0.00	37.41	46.00	-8.59	100.00	281.00
944.69	14.11	20.47	7.83	0.00	42.41	46.00	-3.59	100.00	281.00

30M – 1GHz Open Field Radiated Emissions (Vertical) Channel 1, 6, 11

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m)	Margin* (dB)	Height (cm)	Position (°)
42.61	22.77	11.04	1.76	0.00	35.57	40.00	-4.43	150.00	30.00
472.32	20.53	16.49	5.61	0.00	42.64	46.00	-3.36	100.00	321.00
493.66	15.92	16.96	5.75	0.00	38.63	46.00	-7.37	150.00	175.00
498.51	18.81	17.07	5.78	0.00	41.66	46.00	-4.34	100.00	111.00
539.25	15.17	18.04	6.01	0.00	39.22	46.00	-6.78	100.00	111.00
596.48	13.95	18.30	6.30	0.00	38.55	46.00	-7.45	100.00	305.00
708.03	12.18	19.01	6.82	0.00	38.01	46.00	-7.99	150.00	272.00
741.98	12.44	19.49	6.95	0.00	38.88	46.00	-7.12	100.00	305.00
898.15	11.20	20.19	7.66	0.00	39.05	46.00	-6.95	100.00	143.00
944.71	14.53	20.47	7.83	0.00	42.83	46.00	-3.17	100.00	159.00

* NOTE:
During the Pre-test, the EUT has been tested for Channel 1 , 6, 11 transmit from Main and Aux antenna respectively to get all the critical emission frequencies. In the final test all the critical emission frequencies has been tested and the test data are listed above.
Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + A ntenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 30MHz to 1GHz have been tested

5.6.5 Test Data (1GHz – 25 GHz, Transmitting from Main antenna) .

1GHz~ 25 GHz (Horizontal), Channel 1 : 2412 MHz (RBW=1MHz VBW=1MHz)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV) (pk)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m) (av)	Margin (dB)	Height (cm)	Position (°)
3207.79	48.07	31.05	1.42	46.61	33.93	54.00	-20.07	101	326
7215.78	51.67	39.74	2.36	46.22	47.56	54.00	-6.44	101	248
8931.07	26.95	40.48	2.67	42.80	27.30	54.00	-26.70	100	284
11461.5	25.34	42.25	3.02	41.51	29.10	54.00	-24.90	102	118
12378.6	25.50	41.72	3.14	42.88	27.48	54.00	-26.52	101	276
14688.3	30.21	44.22	3.43	42.34	35.53	54.00	-18.47	100	131

‘ pk’ ---- peak, ‘ av’ ----average

1GHz~ 25 GHz (Vertical), Channel 1 : 2412 MHz (RBW=1MHz VBW=1MHz)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV) (pk)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m) (av)	Margin (dB)	Height (cm)	Position (°)
3207.79	49.41	31.05	1.42	46.61	35.26	54.00	-18.74	102	110
7215.78	48.34	39.74	2.36	46.22	44.22	54.00	-9.78	101	307
11376.6	24.98	41.93	3.01	41.32	28.59	54.00	-25.41	100	18
13686.3	25.20	42.27	3.32	42.17	28.63	54.00	-25.37	102	191
14688.3	28.65	44.22	3.43	42.34	33.97	54.00	-20.03	101	345
15248.8	25.61	43.20	3.49	43.38	28.92	54.00	-25.08	106	339

‘ pk’ ---- peak, ‘ av’ ----average

Note:

The Spectrum noise level + Correction Factor < Limit - 6 dB
Margin = Corrected Amplitude – Limit
Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit
All frequencies from 1GHz to 25 GHz have been tested.

1GHz~ 25 GHz (Horizontal), Channel 6 : 2437 MHz (RBW=1MHz VBW=1MHz)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV) (pk)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m) (av)	Margin (dB)	Height (cm)	Position (°)
3241.76	48.09	31.09	1.43	46.61	33.99	54.00	-20.01	100	322
7028.97	31.15	39.97	2.32	46.30	27.14	54.00	-26.86	100	359
7130.87	41.91	39.84	2.34	46.25	37.85	54.00	-16.15	100	158
11427.6	25.59	42.12	3.02	41.43	29.30	54.00	-24.70	101	222
12905.1	25.58	41.28	3.21	42.26	27.81	54.00	-26.19	102	208
14688.3	29.71	44.22	3.43	42.34	35.03	54.00	-18.97	101	332

‘ pk’ ---- peak, ‘ av’ ----average

1GHz~ 25 GHz (Vertical), Channel 6 : 2437 MHz (RBW=1MHz VBW=1MHz)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV) (pk)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m) (av)	Margin (dB)	Height (cm)	Position (°)
3241.76	50.82	31.09	1.43	46.61	36.72	54.00	-17.28	100	284
7130.87	39.99	39.84	2.34	46.25	35.93	54.00	-18.07	100	186
7572.43	33.02	39.66	2.42	45.75	29.35	54.00	-24.65	100	167
11478.5	25.41	42.32	3.02	41.54	29.20	54.00	-24.80	100	109
14688.3	29.01	44.22	3.43	42.34	34.33	54.00	-19.67	107	133
15673.3	27.07	43.35	3.54	42.21	31.75	54.00	-22.25	102	239

‘ pk’ ---- peak, ‘ av’ ----average

Note:

The Spectrum noise level + Correction Factor < Limit - 6 dB

Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 25 GHz have been tested.

1GHz~ 25 GHz (Horizontal), Channel 11: 2462 MHz (RBW=1MHz VBW=1MHz)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV) (pk)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m) (av)	Margin (dB)	Height (cm)	Position (°)
3275.72	45.71	31.13	1.44	46.62	31.66	54.00	-22.34	101	266
7130.87	42.15	39.84	2.34	46.25	38.08	54.00	-15.92	101	203
7368.63	41.08	39.56	2.39	46.15	36.87	54.00	-17.13	100	293
11461.5	25.65	42.25	3.02	41.51	29.42	54.00	-24.58	100	291
14688.3	29.34	44.22	3.43	42.34	34.66	54.00	-19.34	100	230
15248.8	26.17	43.20	3.49	43.38	29.48	54.00	-24.52	106	359

‘ pk’ ---- peak, ‘ av’ ----average

1GHz~ 25 GHz (Vertical), Channel 11 : 2462 MHz (RBW=1MHz VBW=1MHz)

Meter Reading		Correction Factor			Corrected Emissions			Antenna	Turntable
Freq. (MHz)	Ampl. (dBuV) (pk)	Ant. (dB/m)	Cable (dB)	Pre-Ampl. (dB)	Ampl. (dBuV/m)	Limit (dBuV/m) (av)	Margin (dB)	Height (cm)	Position (°)
3275.72	47.71	31.13	1.44	46.62	33.66	54.00	-20.34	101	88
7130.87	40.27	39.84	2.34	46.25	36.20	54.00	-17.80	100	319
7368.63	41.68	39.56	2.39	46.15	37.48	54.00	-16.52	100	158
14688.3	28.44	44.22	3.43	42.34	33.76	54.00	-20.24	101	92
15979.0	24.68	44.33	3.57	41.20	31.38	54.00	-22.62	102	208
16369.6	25.58	44.55	3.61	41.92	31.82	54.00	-22.18	102	132

‘ pk’ ---- peak, ‘ av’ ----averag

Note:

The Spectrum noise level + Correction Factor < Limit - 6 dB

Margin = Corrected Amplitude – Limit

Corrected Amplitude = Radiated Amplitude + Antenna Correction Factor + Cable Loss - Pre-Amplifier Gain

A margin of -8dB means that the emission is 8dB below the limit

All frequencies from 1GHz to 25 GHz have been tested.

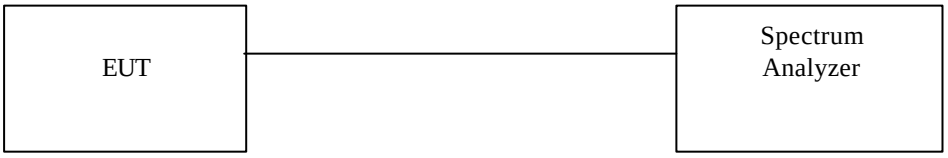
5.7 Band Edge Measurement

5.7.1 Test Procedure (Conducted)

1. The Transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN: 100MHz
   RBW: 100KHz
   VBW: 100KHz
   Center frequency: 2.4GHz, 2.4835GHz.

2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band.

5.7.2 Test Setup (Conducted)



5.7.3 Test Data:

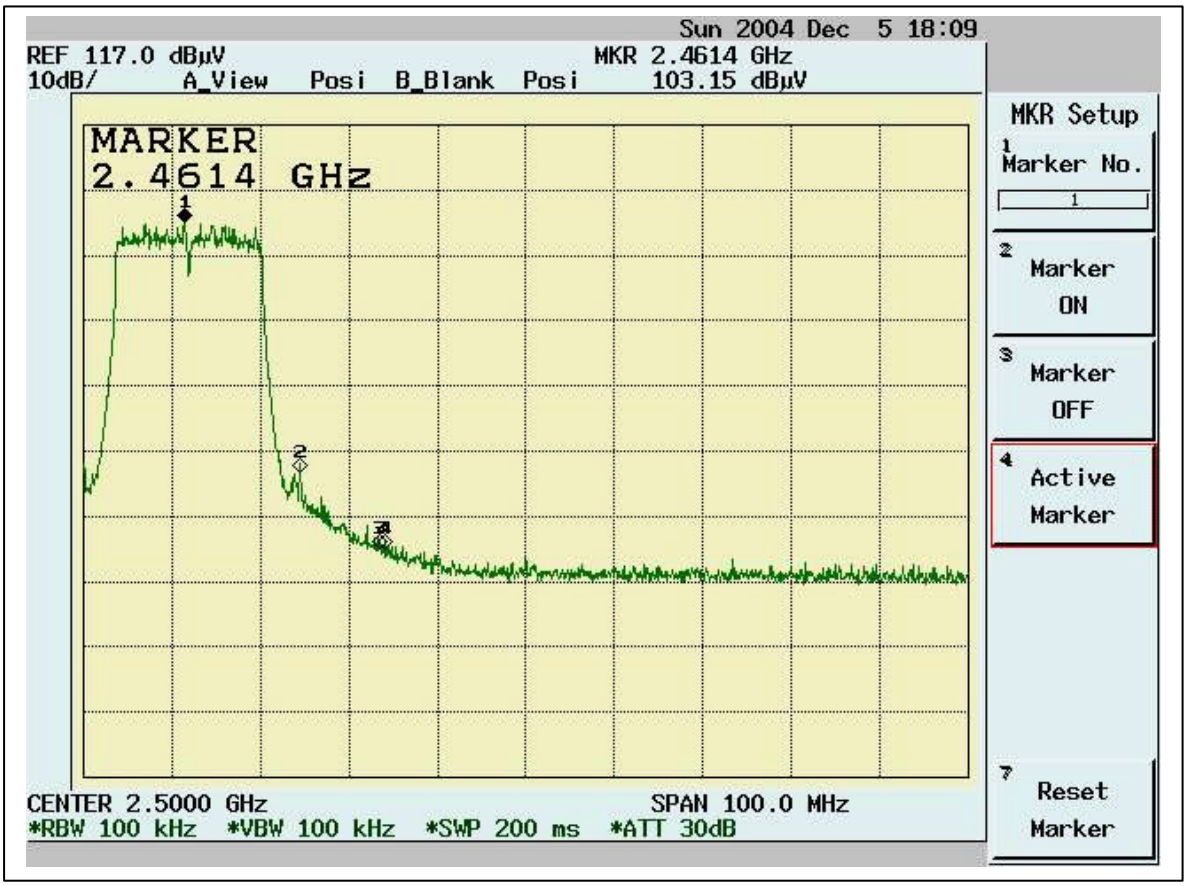
Band Edge measurement (Conducted)

Channel	Frequency (MHz)	Spectrum Reading (dBuV)	Carrier - Outsideband Limit: > 20dB (dB)	Pass/Fail
1	2413.5	104.68	---	---
Outside band	2400	64.88	39.8	Pass
11	2461.4	103.15	---	---
Outside band	2474.4	64.90	38.25	Pass

.

Band Edge Conducted measurement

Band Edge Conducted Measurement



5.7.4 Test Procedure (Radiated)

1. Antenna and Turntable test procedure same as Radiated Emission Measurement.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN: 100MHz
   RBW: 1MHz
   VBW: 1MHz
   Center frequency: 2.395GHz, 2.48 GHz.

2. Using Peak Search to read the peak power of Carrier frequencies after Maximum Hold function is completed.
3. Find the next peak frequency outside the operation frequency band.

4. For peak frequency emission level measurement in Restricted Band ,
   Change RBW: 1MHz ,
   VBW: 10Hz,
   Span: 100MHz.
5. Get the spectrum reading after Maximum Hold function is completed.

5.7.5 Test Setup (Radiated)

Same as *Radiated Emission Measurement*

5.7.6 Test Data:

Table Band Edge measurement (Radiated)

Channel	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit: > 20dB (dBC)	Limit (dBuV/m)	Equip. Setup VBW	Pass or Fail
1(peak mode)	2406.7	57.95	31.67	89.62	---	-----	1MHz	-----
Outside band	2399.8	26.19	31.67	57.86	31.76	-----	1MHz	Pass
1(average mode)	2408.7	40.52	31.67	72.19	---	-----	10Hz	-----
Restricted band	2389.8	5.33	31.67	37	-----	54	10Hz	Pass
11(peak mode)	2456.7	51.60	31.64	83.24	----	-----	1MHz	-----
Outside band	2477.4	17.48	31.64	49.12	34.12	-----	1MHz	Pass
11(average mode)	2463.9	35.63	31.64	67.27	----	-----	10Hz	-----
Restricted band	2483.8	4.53	31.64	36.17	-----	54	10Hz	Pass

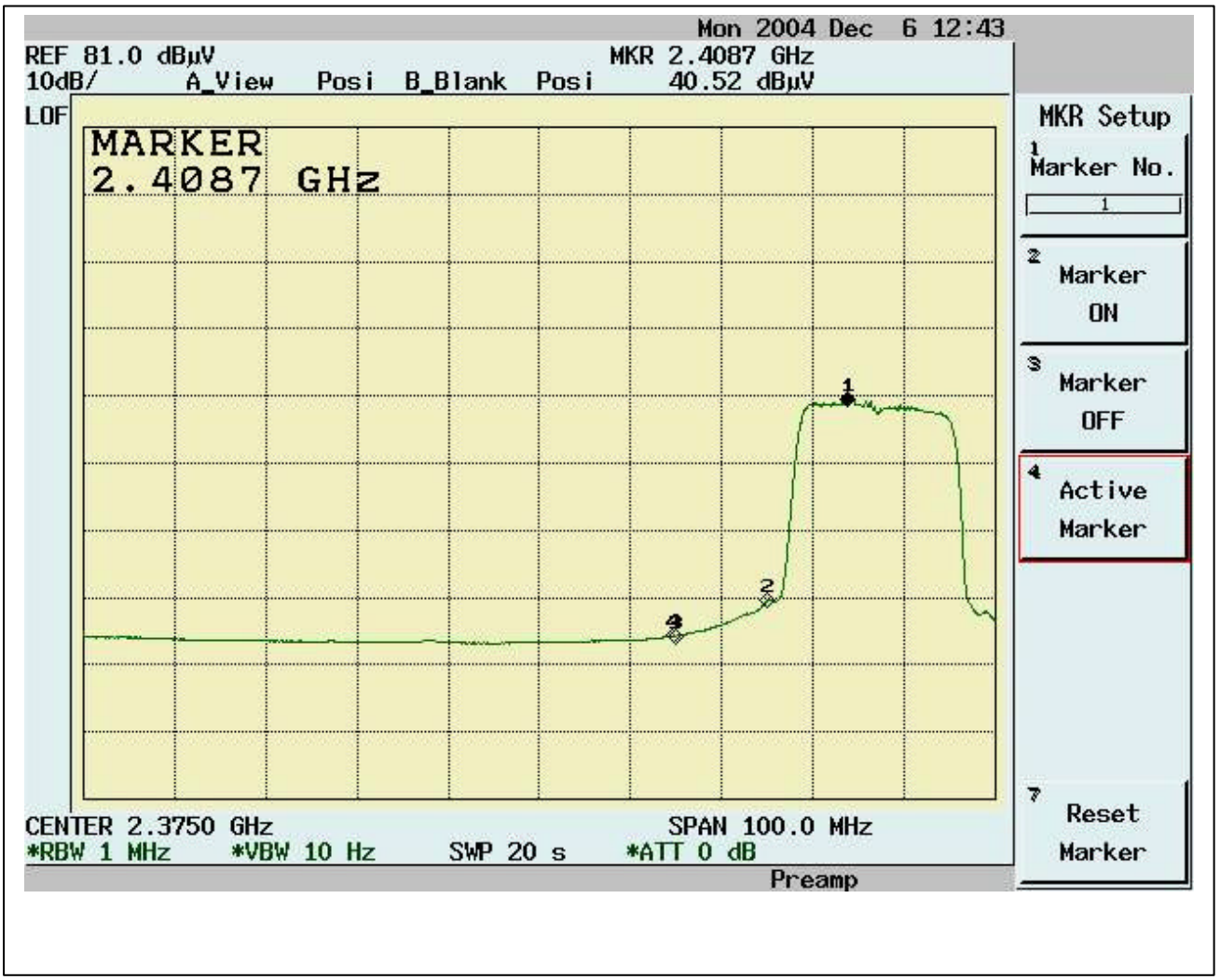
Note: The Spectrum plot of emission level measurement in Restricted band is attached.
Emission Level = Spectrum Reading + Correction Factor
Correction Factor = Antenna Factor + cable loss – amplifier gain
Both Horizontal and Vertical polarization have been tested and
the worst data is listed above.

Band Edge measurement for radiated emission in Restricted Band(Radiated)

Peak Mode (Channel 1)

Band Edge measurement for radiated emission in Restricted Band(Radiated)

Average Mode (Channel 1)



Band Edge measurement for radiated emission in Restricted Band(Radiated)

Peak Mode (Channel 11)

Band Edge measurement for radiated emission in Restricted Band(Radiated)

Average Mode (Channel 11)

5.8 RF Exposure Measurement [Section 15.247(b)(4) & 1.1307(b)]

5.8.1 Applied Standards

FCC PART 1.1307, 1.1310, 2.1091, 2.1093 RF EXPOSURE

5.8.2 Calculation for Maximum Permissible Exposure (MPE)

From FCC 1.1310 Table 1B, the maximum permissible RF exposure for an uncontrolled environment is 1 mW/cm2 .The actual power density for the EUT with the antenna is calculated as shown below. The EUT is a professionally installed, fixed, point-to-point operating system.

$$S = (P \times G)/(4 \times \pi \times d^2)$$

where:
S = power density
P = transmitter conducted power in (W)
G = antenna numeric gain
d = distance to radiation center (m)

Antenna Manufacturer	Antenna Type	Gain (dBi)	Numeric Gain	Power (dBm)	Power (mW)	Separation Distance (cm)	Power Density (W/m2)	Power Density (mW/cm2)
FOXCONN NWInG	PIFA	1.4	1.38	18.406	69.27	20	0.190	0.019

WARNING:
It is the responsibility of the professional installer to ensure that when using the outdoor antenna kits in the United States (or where FCC rules apply), only the antenna specified above may be used. The use of any other antenna is expressly forbidden in accordance with FCC rules CFR 47 part 15.204.
NOTICE:
FCC Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits for an uncontrolled environment when installed as directed. This equipment should be installed and operated with FOXCONN NWInG PIFA antenna in a fixed-mount configuration, installed with a maximum of 18.406 dBm of radiated output power during normal operation

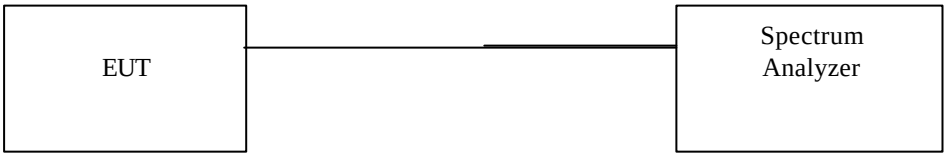
5.9 DSSS Peak Power Spectral Density [Section 15.247(d)]

5.9.1 Test Procedure

1. The Transmitter output of EUT was connected to the spectrum analyzer.
   Equipment mode: Spectrum analyzer
   Detector function: Peak mode
   SPAN:1.5MHz
   RBW: 3KHz
   VBW: 30KHz
   Center frequency: fundamental frequency tested.
   Sweep time= 500 sec.

2. Using Peak Search to read the peak power after Maximum Hold function is completed.

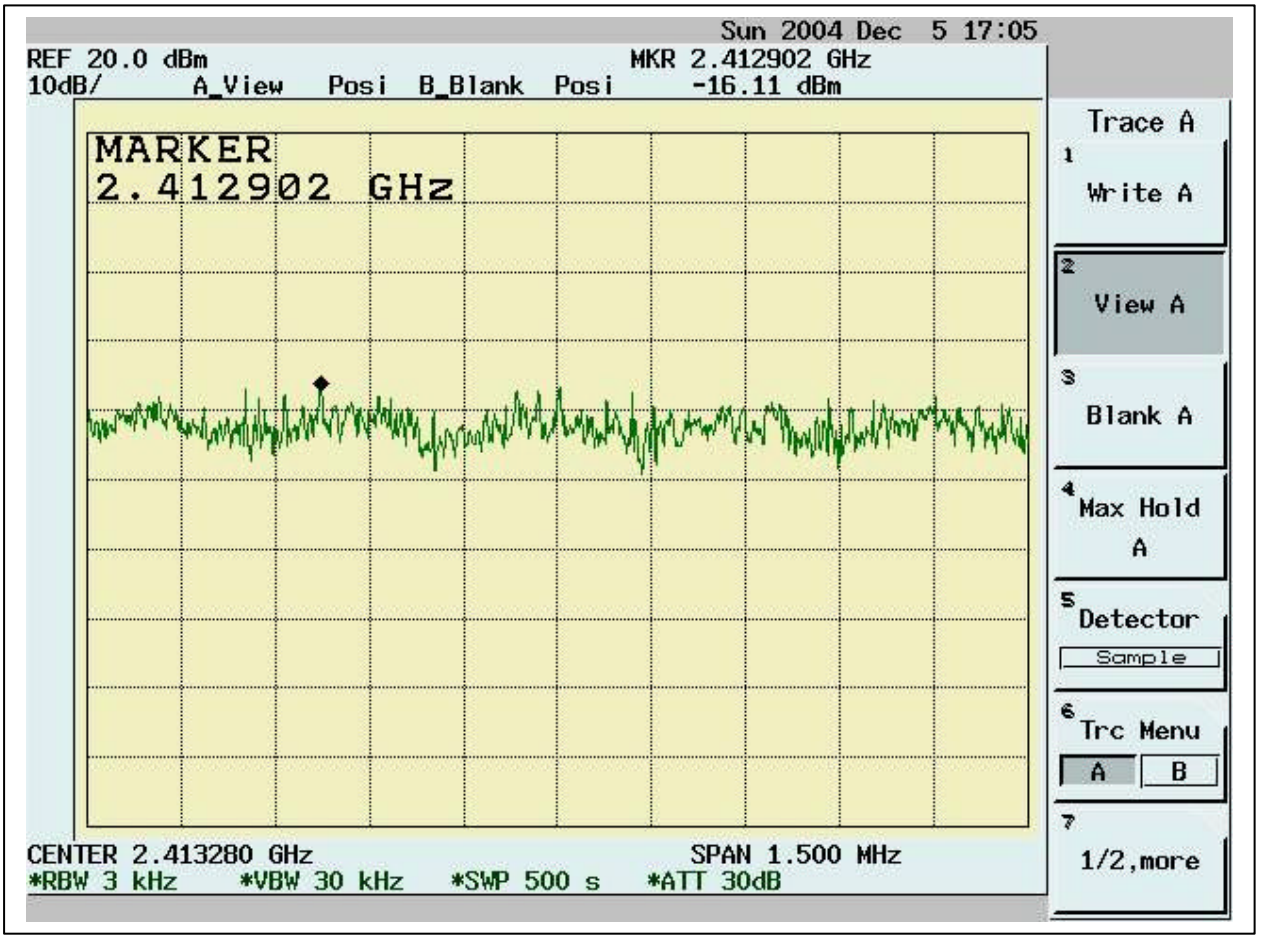
5.9.2 Test Setup

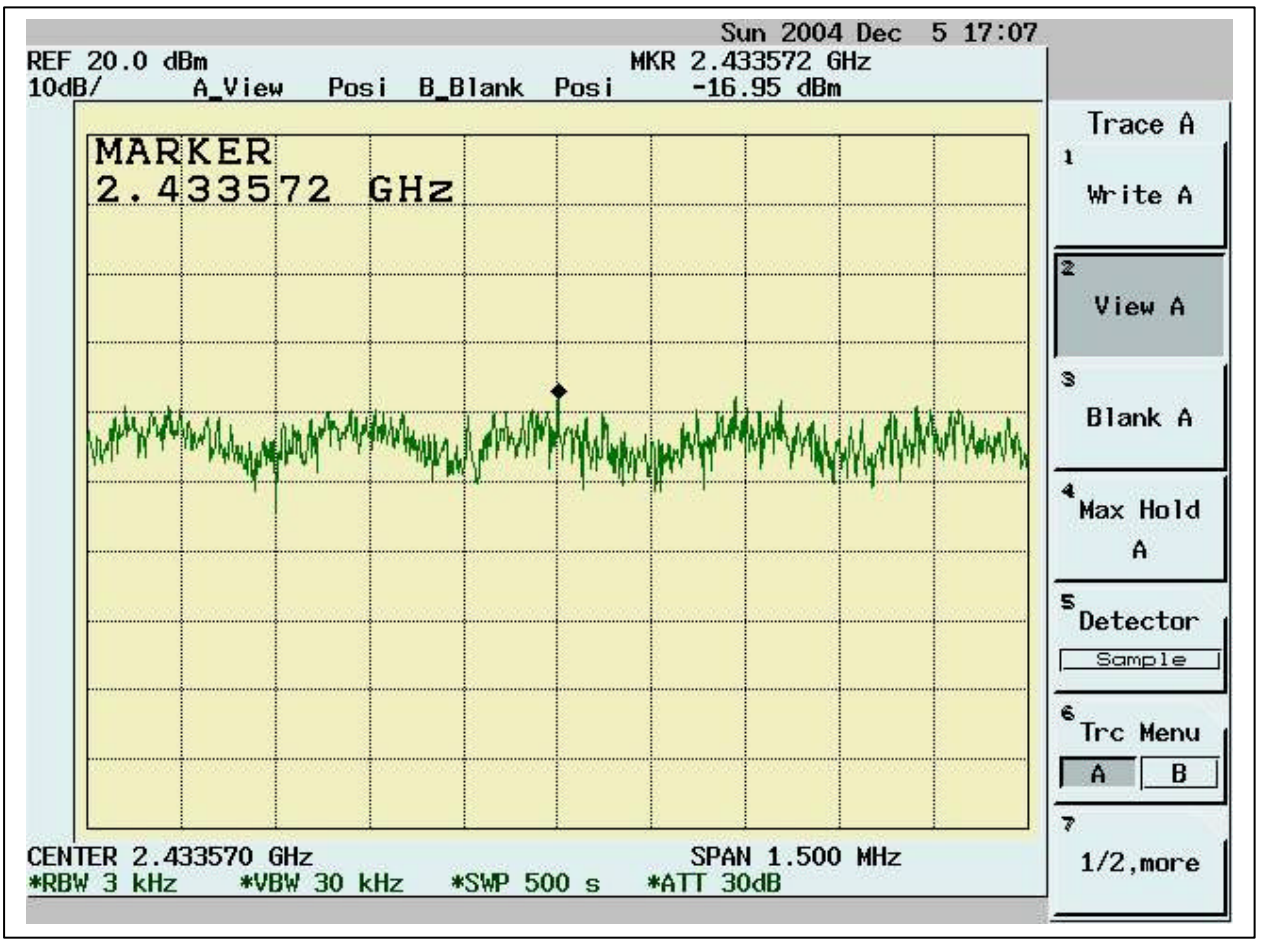


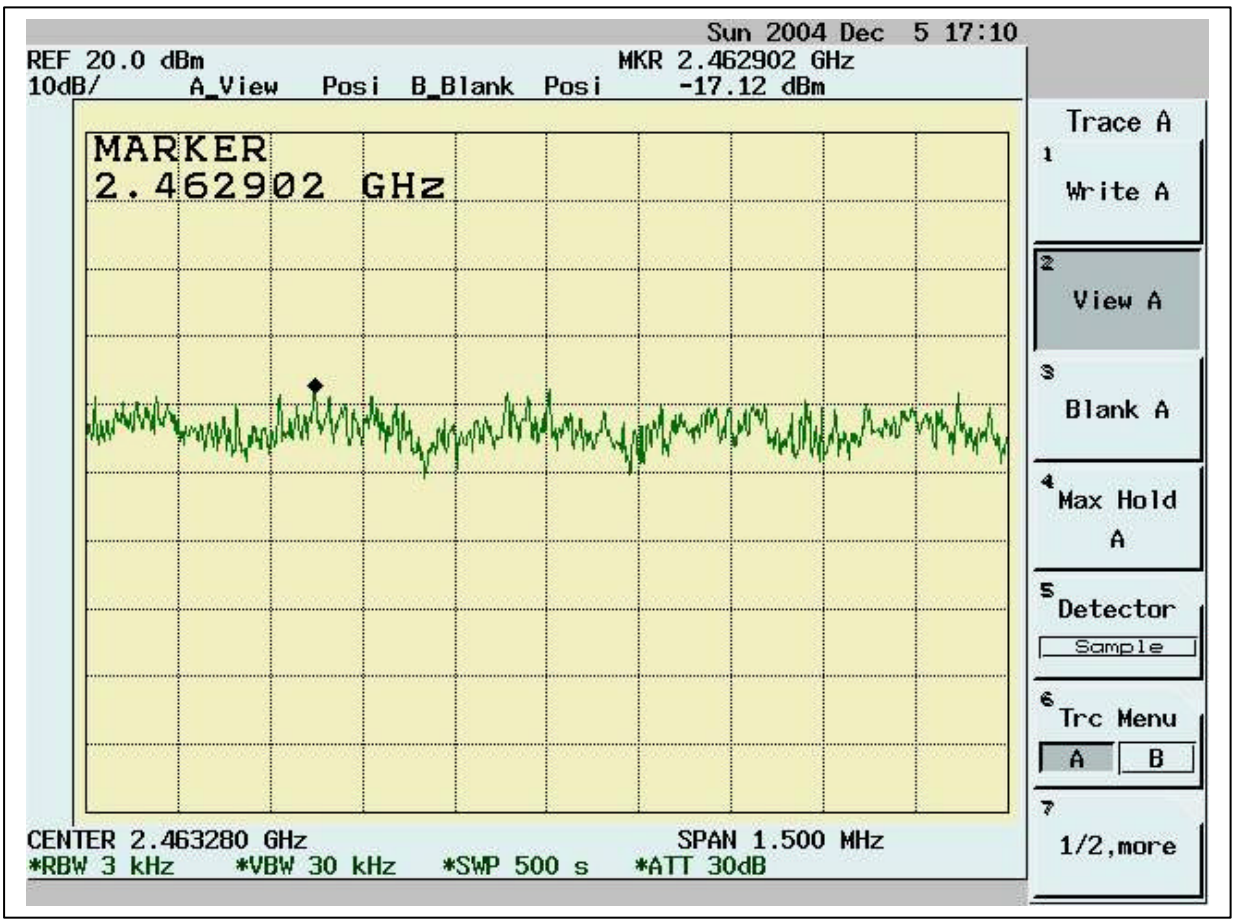
5.9.3 Test Data:

Table Maximum Peak Output Power Density

Chennel	Spectrum Reading (dBm/3KHz)	Cable Loss (dB)	Peak Power Output (dBm/3KHz)	Limit (dBm/3KHz)	Pass/Fail
1	-16.11	1.02	-15.09	8	Pass
6	-16.95	1.02	-15.93	8	Pass
11	-17.12	1.02	-16.10	8	Pass


Sun 2004 Dec 5 17:05
REF 20.0 dBm
10dB/
A_View Posi B_Blank Posi
MKR 2.412902 GHz
-16.11 dBm
MARKER
2.412902 GHz
CENTER 2.413280 GHz
SPAN 1.500 MHz
*RBW 3 kHz
*VBW 30 kHz
*SWP 500 s
*ATT 30dB
Trace A
1 Write A
2 View A
3 Blank A
4 Max Hold A
5 Detector
Sample
6 Trc Menu
A B
7 1/2,more


Sun 2004 Dec 5 17:07
REF 20.0 dBm
10dB/
A_View Posi B_Blank Posi
MKR 2.433572 GHz
-16.95 dBm
MARKER
2.433572 GHz
Trace A
1 Write A
2 View A
3 Blank A
4 Max Hold A
5 Detector
Sample
6 Trc Menu
A B
7 1/2,more
CENTER 2.433570 GHz
SPAN 1.500 MHz
*RBW 3 kHz
*VBW 30 kHz
*SWP 500 s
*ATT 30dB


Sun 2004 Dec 5 17:10
REF 20.0 dBm
10dB/ A_View Posi B_Blank Posi
MKR 2.462902 GHz
-17.12 dBm
MARKER
2.462902 GHz
Trace A
1 Write A
2 View A
3 Blank A
4 Max Hold A
5 Detector
Sample
6 Trc Menu
A B
7 1/2,more
CENTER 2.463280 GHz
SPAN 1.500 MHz
*RBW 3 kHz *VBW 30 kHz *SWP 500 s *ATT 30dB

6. Appendix

6.1 Appendix A: Measurement Procedure for Powerline Conducted Emissions

The EUT is set up in accordance with the suggested configuration given in ANSI C63.4-2001, CFR 47 Part 15 Subpart B; or EN55022:1994/ A1:1995/A2:1997; CISPR 22:1993/A1:1995/A2:1996. The measurements are performed in a 3.5m x 3.4m x 2.5m shielded room, which referred as Conduction 01 test site, or a 3m x 3m x 2.3m test site, which referred as Conduction 02 test site. The EUT was placed on non-conduction 1.0m x 1.5m table, which is 0.8 meters above an earth-grounded.

Power to the EUT was provided through the LISN which has the Impedance (50ohm/50uH) vs. Frequency Characteristic in accordance with the Figure 1 of the ANSI C63.4-2001 or CISPR16. Power to the LISNs were filtered to eliminate ambient signal interference and these filters were bonded to the ground plane. Peripheral equipment required to provide a functional system (support equipment) for EUT testing was powered from the second LISN through a ganged, metal power outlet box which is bonded to the ground plane at the LISN.

If the EUT is supplied with a flexible power cord, the power cord length in excess of the distance separating the EUT from the LISN shall be folded back and forth at the center of the lead so as to form a bundle not exceeding 40cm in length. If the EUT is provided with a permanently coiled power cord, bundling of the cord is not required. If the EUT is supplied without a power cord, the EUT shall be connected to the LISN by a power cord of the type specified by the manufacturer which shall not be longer than 1 meter. The excess power cord shall be bundled as described above. If a non-flexible power cord is provided with the EUT, it shall be cut to the length necessary to attach the EUT to the LISN and shall not be bundled.

The interconnecting cables were arranged and moved to get the maximum according to ANSI C63.4-2001, CFR 47 Part 15 Subpart B; or EN55022:1994/ A1:1995/A2:1997; CISPR 22:1993/A1:1995/A2:1996. Both the line of power cord, hot and neutral, were measured.

The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

6.2 Appendix B: Test Procedure for Radiated Emissions

Preliminary Measurements in the Anechoic Chamber

The radiated emissions are initially measured in the anechoic chamber at a measurement distance of 3 meters. Desktop EUT are placed on a wooden stand 0.8 meter in height. The measurement antenna is 3 meters from the EUT. The test setup in anechoic chamber is the same as open site. The turntable rotated 360°C. The antenna height is varied from 1-2.5m. The primary objective of the radiated measurements in the anechoic chamber is to identify the frequency spectrum in the absence of the electromagnetic environment existing on the open test site. The frequencies can then be pre-selected on the open test site to obtain the corresponding amplitude. The initial scan is made with the spectrum analyzer in automatic sweep mode. The spectrum peaks are then measured manually to determine the exact frequencies.

Measurements on the Open Site or 10m EMC Chamber

The radiated emissions test will then be repeated on the open site or 10m EMC chamber to measure the amplitudes accurately and without the multiple reflections existing in the shielded room. The EUT and support equipment are set up on the turntable of one of the 3 or 10 meter open field sites. Desktop EUT are set up on a wooden stand 0.8 meter above the ground.

For the initial measurements, the receiving antenna is varied from 1-4 meter height and is changed in the vertical plane from vertical to horizontal polarization at each frequency. Both reading are recorded with the quasi-peak detector with 120KHz bandwidth. For frequency between 30 MHz and 1000MHz, the reading is recorded with peak detector or quasi-peak detector. For frequency above 1 GHz, the reading is recorded with peak detector or average detector with 1 MHz bandwidth.

At the highest amplitudes observed, the EUT is rotated in the horizontal plane while changing the antenna polarization in the vertical plane to maximize the reading. The interconnecting cables were arranged and moved to get the maximum according to ANSI C63.4-2001, CFR 47 Part 15 Subpart B; or EN55022:1994/ A1:1995/A2:1997; CISPR 22:1993/A1:1995/A2:1996. Once the maximum reading is obtained, the antenna elevation and polarization will be varied between specified limits to maximize the readings.

6.3 Appendix C: Test Equipment

6.3.1 Test Equipment List

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conduction	50 Ohms Load Conduction 02	EMCO	N/A	ISL-50ohms conduction 02	11/21/2003	11/21/2004
Conduction	Coaxial Cable 1F-C2	Harbourindustries	RG400	1F-C2	06/03/2003	06/03/2004
Conduction	Digital Hygro-Thermometer Conduct	MicroLife	HT-2126G	ISL-Conduction02	12/16/2003	12/16/2004
Conduction	EMI Receiver 02	HP	85460A	3448A00183	08/21/2003	08/21/2004
Conduction	ISN T4	Schaffner	ISN T400	16593	08/20/2002	08/20/2004
Conduction	LISN 01	R&S	ESH2-Z5	890485/013	05/07/2003	05/07/2004
Conduction	LISN 03	R&S	ESH3-Z5 831.5518.52	828874/D10	10/31/2003	10/31/2004
Radiation	Spectrum Analyzer 06	Advantest	R3162	91700295	09/25/2003	09/24/2004
Radiation	EMI Receiver 05	AFJ	ER 55CR	55390143234	11/07/2003	11/07/2004
Radiation	BILOG Antenna 08	Schaffner	CBL6112B	2756	06/04/2003	06/04/2004
Radiation	Microwave Cable Chmb 02 3M	HUBER+SUHNER AG.	Sucoflex 103	42731/3 & 42729/3	03/21/2003	03/21/2004
Radiation	Coaxial Cable Chmb 02-10M	Belden	RG-8/U	Chmb 02-10M	01/14/2003	01/14/2004
Radiation	Digital Hygro-Thermometer Chmb 02	MicroLife	HT-2126G	Chmb 02	02/07/2003	02/07/2004
Rad. Above 1Ghz	Horn Antenna 02	Com-Power	AH-118	10088	02/25/2003	02/25/2004
Rad. Above 1Ghz	Horn Antenna 04	Com-Power	AH-826	081-001	10/17/2003	10/17/2004
Rad. above 1Ghz	Horn Antenna 05	Com-Power	AH-640	100A	09/13/2003	09/13/2004
Rad. above 1Ghz	Microwave Cable Chmb 05	HUBER+SUHNER AG.	Sucoflex 103	42726/3 & 42727/3	09/11/2003	09/11/2004
Rad. Above 1Ghz	Preamplifier 02	MITEQ	AFS44-00102650-40-10P-44	728229	05/07/2003	05/07/2004
Rad. Above 1Ghz	Preamplifier 09	MITEQ	AFS44-00102650-40-10P-44	858687	02/28/2003	02/28/2004

Location	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
RF	Peak Power Analyzer	HP	8990A	3621A01269	09/12/2003	09/12/2004
Rad. Above 1Ghz	Preamplifier 10	MITEQ	JS-26004000-27-5A	818471	02/28/2003	02/28/2004
Rad. Above 1Ghz	Signal Generator 03	Anritsu	MG3642A	6200162550	02/05/2003	02/05/2004
Rad. Above 1Ghz	Signal Generator 04	Anritsu	MG3692A	020311	02/06/2002	02/06/2004
Rad. Above 1Ghz	Spectrum Analyzer 07	Advantest	R3182	110600649	10/17/2003	10/17/2004

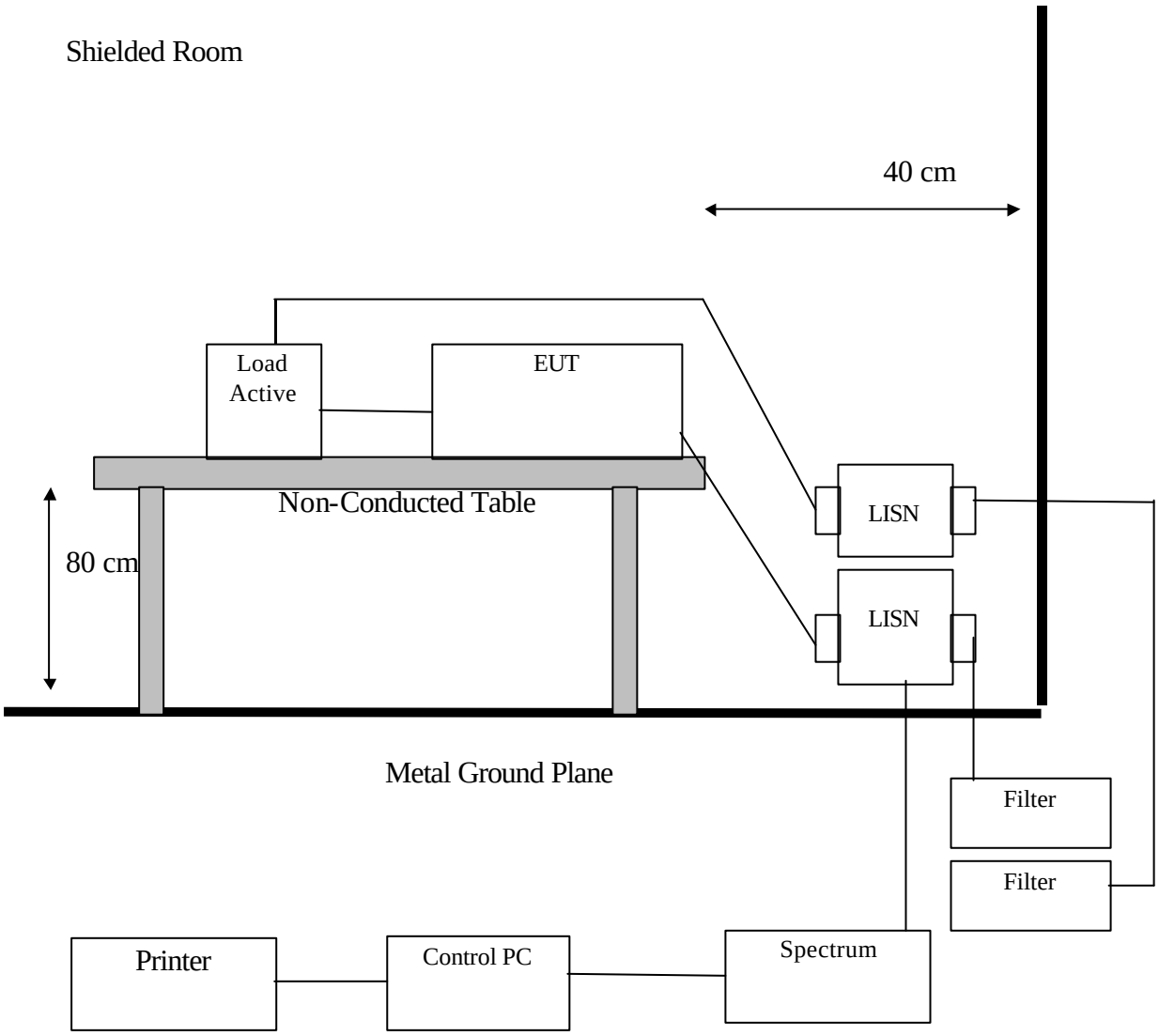
Note: Calibration traceable to NIST or national or international standards.

6.3.2 Software for Controlling Spectrum/Receiver and Calculating Test Data

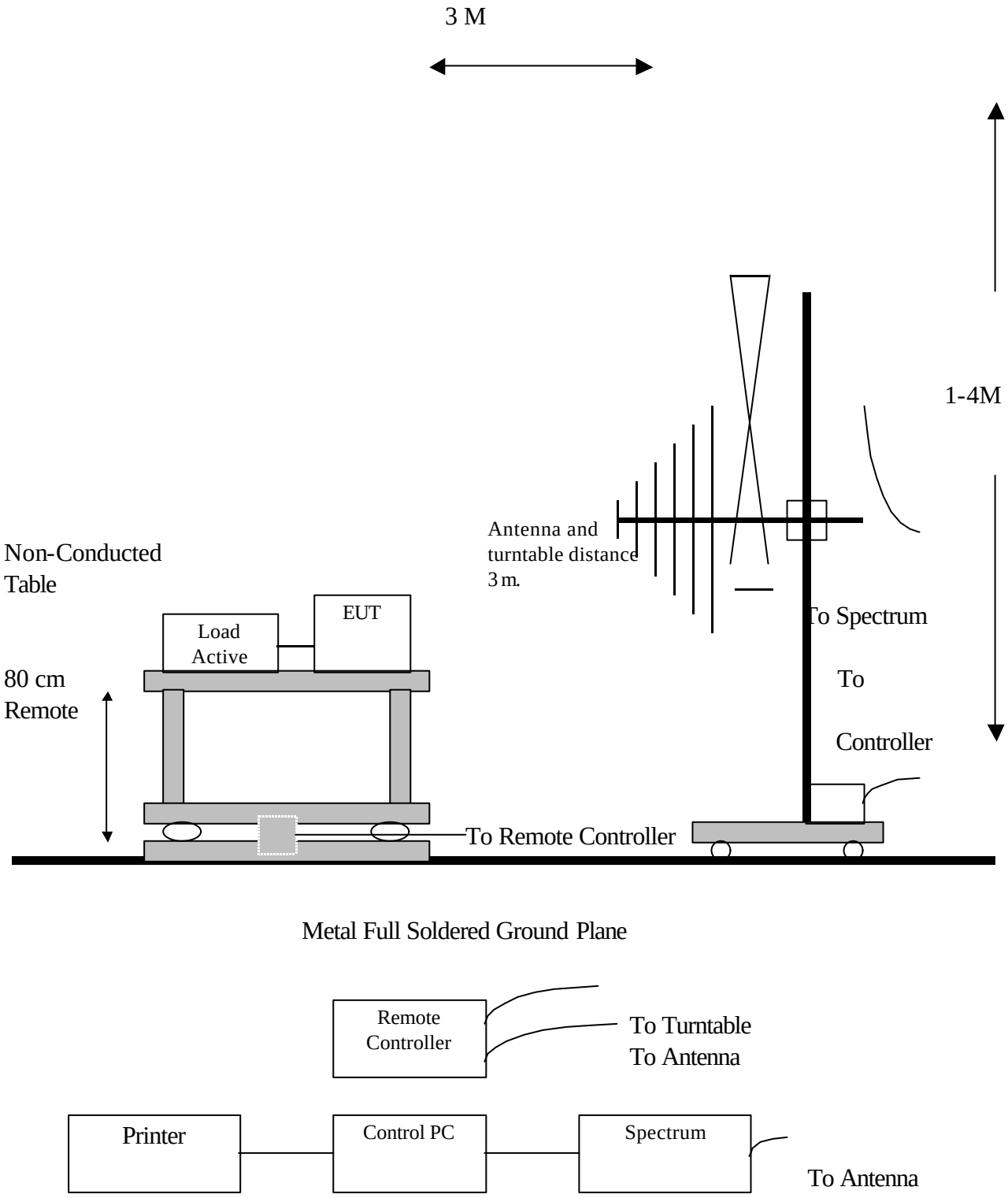
Radiation/Conduction	Filename	Version	Issued Date
Conduction	Tile.exe	1.12E	7/7/2000
Radiation	Tile.exe	1.12C	6/16/2000

6.4 Appendix D: Layout of EUT and Support Equipment

6.4.1 General Conducted Test Configuration



6.4.2 General Radiation Test Configuration



6.5 Appendix E: Description of Support Equipment

6.5.1 Description of Support Equipment

Support Unit 1.

Description:	Acer Monitor
Model:	G781
Serial Number:	999007101214400445T7AA31T
Power Cord:	Non-shielded, Detachable
FCC ID:	(Comply with FCC Standards)

Support Unit 2.

Description:	Logitech USB Mouse
Model Number:	930978-1000
Serial Number:	N/A
Power Supply Type:	N/A
Power Cord:	N/A
FCC ID:	N/A (comply with FCC DOC)

6.5.2 Software for Controlling Support Unit

A test program which generates a complete line of continuously repeating "H" pattern is used as the software test program. The program was executed as follows:

A. Read and write to the disk drives.
B. Send H pattern to the video port device (Monitor).
C. Repeat the above steps.

	Filename	Issued Date
Monitor	HH.bat	8/20/1991

6.5.3 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type	Connector Type
AC Power Cord	110V (~240V) to AC Power Cord Inlet (3-pin)	1.8M	Nonshielded, Detachable	Plastic Head
Mouse Data Cable	Mouse to PC USB port	1.8M	Shielded, Undetachable	Metal Head
Monitor Data Cable	Monitor to PC VGA port	1.6M	Shielded, Un-detachable	Metal Head

6.6 Appendix F: Accuracy of Measurement

Test Site: Conduction 02

Item	Source of Uncertainty	Probability Distribution	Total Uncertainties (dB)		Standard Uncertainty (dB)	
1	Systematic Effects: (Assessment from 20 repeat observation; 1 reading on EUT)	Normal	k=2	0.104	k=1	0.052
2	Random Effects: (Assessment from 20 random observations; 1 reading on EUT)	Normal	k=2	0.330	k=1	0.165
3	Receiver Calibration	Rectangular	k=1.73	1.000	k=1	0.577
4	LISN Factor Calibration	Normal	k=2	1.200	k=1	0.600
5	Cable Loss Calibration	Normal	k=2	1.000	k=1	0.500
6	Combined Standard Uncertainty Uc(y)	Normal			k=1	0.850
7	**Total Uncertainty @95% mim. Confidence Level**	**Normal**	**k=2**	**1.701**		

Measurement Uncertainty Calculations:

Uc (y) = square root (u_1 (y)^2 + u_2 (y)^2 + ...+u_n (y)^2)
U = 2 * Uc (y)

Note: The measurement Uncertainties mentioned above also refer to NIS 81-1994 of NAMAS : The treatment of Uncertainty in EMC Measurement.

Test Site: Chamber 02-3M

Item	Source of Uncertainty	Probability Distribution	Total Uncertainties (dB)		Standard Uncertainty (dB)	
1	Systematic Effects: (Assessment from 20 repeat observation; 1 reading on EUT)	Normal	k=2	0.067	k=1	0.034
2	Random Effects: (Assessment from 20 random observations; 1 reading on EUT)	Normal	k=2	0.103	k=1	0.052
3	Receiver Calibration	Rectangular	k=1.73	1.000	k=1	0.577
4	Antenna Factor Calibration	Normal	k=2	1.700	k=1	0.850
5	Cable Loss Calibration	Normal	k=2	1.000	k=1	0.500
6	Combined Standard Uncertainty Uc(y)	Normal			k=1	1.029
7	**Total Uncertainty @95% mim. Confidence Level**	**Normal**	**k=2**	**2.059**		

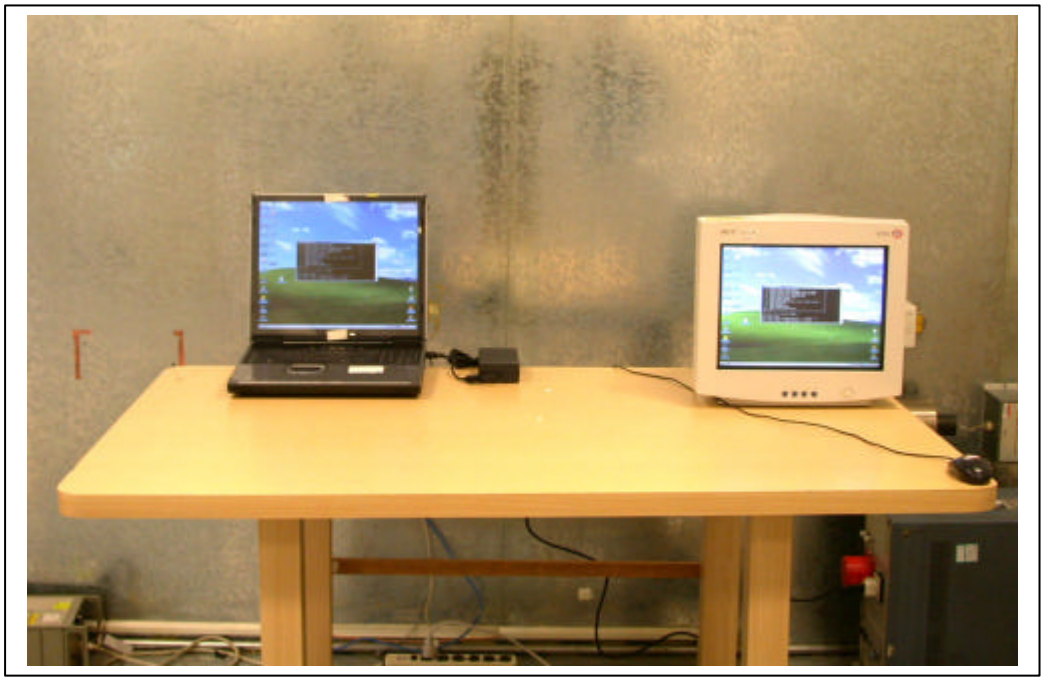
Measurement Uncertainty Calculations:

Uc (y) = square root (u_1 (y)^2 + u_2 (y)^2 + ...+u_n (y)^2)
U = 2 * Uc (y)

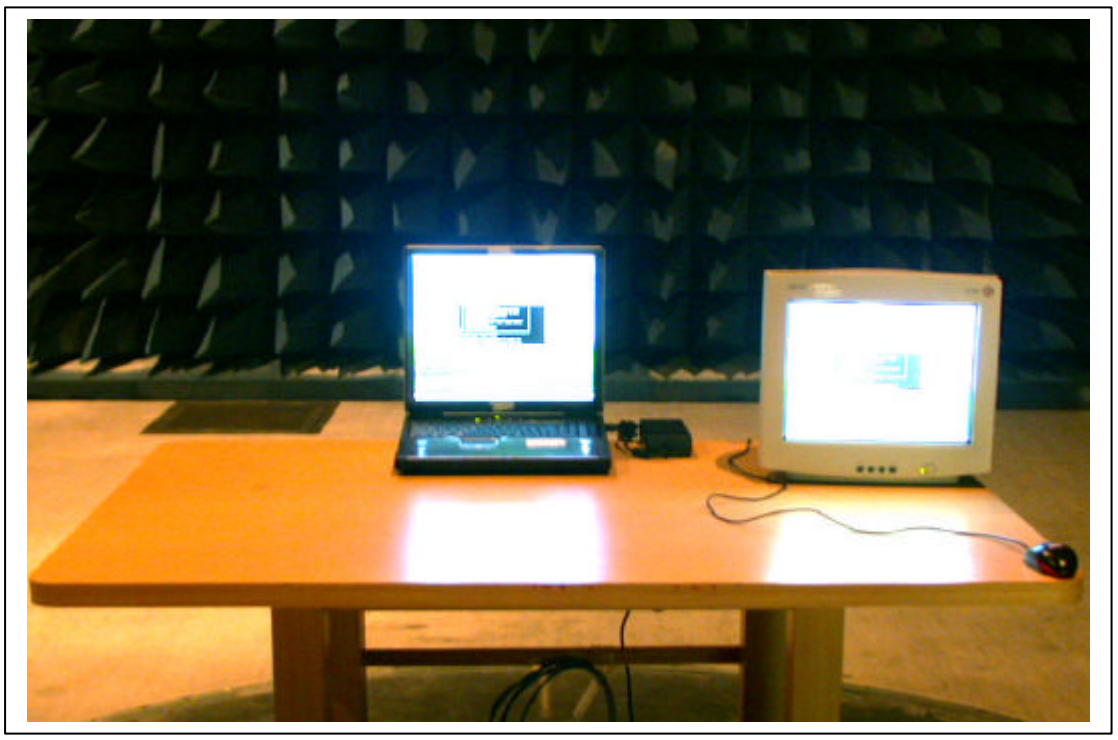
Note: The measurement Uncertainties mentioned above also refer to NIS 81-1994 of NAMAS : The treatment of Uncertainty in EMC Measurement.

6.7 Appendix G: Photographs of EUT Configuration Test Set Up

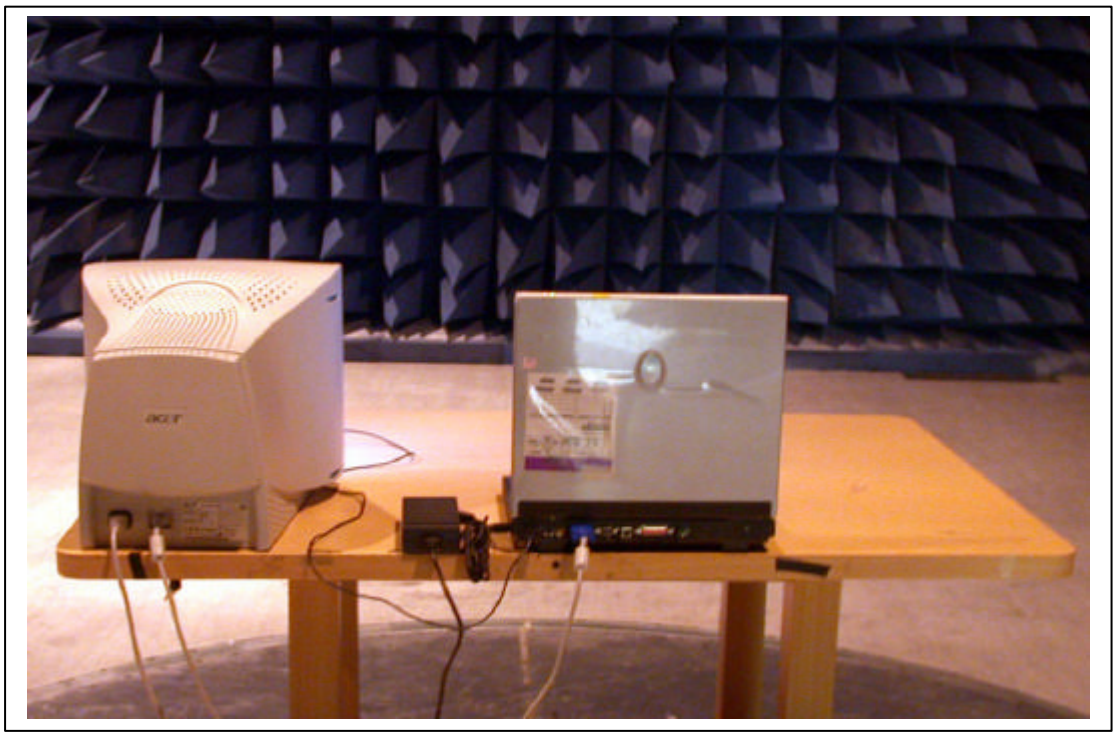
The Front View of Highest Conducted Set-up For EUT



The Front View of Highest Radiated Set-up For EUT



The Back View of Highest Radiated Set-up For EUT



6.8 Appendix H: Antenna Spec.

Please refer to the attached file.