

5.3 Radiated Emission Measurement

5.3.1 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.

5.3.2 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 2nd to 10th 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.

5.3.3 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)	3MHz

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

5.3.4 Test Data (30MHz – 1GHz):**30M – 1GHz Open Field Radiated Emissions (Horizontal) Channel 00, 39, 78**

Operator: Jerry Chiou

Temperature(C): 23

06:07:06PM, Friday, August 12, 2005

Humidity(%): 54

Frequency MHz	RxAmp. (dBuV)	AntFact (dB/m)	CableLoss (dB)	PreAmpGain (dB)	Corrct.Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos. (cm)	TablePos (deg)
332.64	13.41	16.10	3.95	0.00	33.46	46.00	-12.54	103.00	337.00
366.59	13.73	16.10	4.22	0.00	34.04	46.00	-11.96	103.00	337.00
466.5	9.33	16.60	4.96	0.00	30.89	46.00	-15.11	196.00	285.00
499.48	8.85	17.39	5.28	0.00	31.52	46.00	-14.48	103.00	184.00
666.32	17.98	19.00	6.41	0.00	43.39	46.00	-2.61	103.00	337.00
733.25	8.66	19.80	6.89	0.00	35.35	46.00	-10.65	196.00	351.00
866.14	3.35	20.60	7.97	0.00	31.92	46.00	-14.08	196.00	39.00
999.03	10.84	21.30	8.84	0.00	40.99	54.00	-13.01	103.00	337.00

30M – 1GHz Open Field Radiated Emissions (Vertical) Channel 00, 39, 78

Operator: Jerry Chiou

Temperature(C): 23

06:07:06PM, Friday, August 12, 2005

Humidity(%): 54

Frequency MHz	RxAmp. (dBuV)	AntFact (dB/m)	CableLoss (dB)	PreAmpGain (dB)	Corrct.Emi. (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos. (cm)	TablePo. (deg)
455.83	11.12	16.34	4.90	0.00	32.36	46.00	-13.64	103.00	337.00
466.5	10.49	16.60	4.96	0.00	32.05	46.00	-13.95	196.00	285.00
499.48	10.06	17.39	5.28	0.00	32.73	46.00	-13.27	103.00	184.00
599.39	9.38	18.70	5.85	0.00	33.93	46.00	-12.07	103.00	304.00
666.32	16.87	19.00	6.41	0.00	42.28	46.00	-3.72	103.00	337.00
733.25	10.93	19.80	6.89	0.00	37.62	46.00	-8.38	196.00	351.00
833.16	3.86	20.43	7.71	0.00	32.00	46.00	-14.00	196.00	104.00
933.07	3.77	21.06	8.31	0.00	33.14	46.00	-12.86	103.00	151.00
999.03	10.96	21.30	8.84	0.00	41.10	54.00	-12.90	103.00	337.00

NOTE:

- During the Pre-test, the EUT has been tested for Channel 00, 39, 78 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 + Antenna 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

5.3.5 Test Data (1GHz – 25 GHz) .

1GHz~ 25 GHz (Horizontal), Channel 00: 2402 MHz

Operator:JerryChiou

RBW:1MHz

Humidity(%):41

Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1064.94	46.95pk	24.80	2.18	33.97	39.96pk	54.00av	-14.04	102	108
1167.33	46.27pk	25.27	2.19	34.02	39.71pk	54.00av	-14.29	102	100
1232.27	47.09pk	25.57	2.20	34.06	40.80pk	54.00av	-13.20	102	96
1264.74	45.82pk	25.72	2.20	34.07	39.67pk	54.00av	-14.33	101	94
1332.17	45.98pk	26.03	2.21	34.11	40.11pk	54.00av	-13.89	101	89
1806.69	43.73pk	29.38	2.46	34.80	40.77pk	54.00av	-13.23	100	56
1841.66	44.84pk	29.67	2.48	34.87	42.12pk	54.00av	-11.88	100	54
1846.65	43.77pk	29.71	2.49	34.88	41.08pk	54.00av	-12.92	100	54
4803.9	48.38pk	34.85	2.12	37.69	47.66pk	54.00av	-6.34	100.00	150.00
7207.06	47.62pk	39.43	2.74	36.88	52.91pk	54.00av	-1.09	100.00	159.00
9607.32	43.55pk	40.66	3.23	34.32	53.12pk	54.00av	-0.88	100.00	167.00

1GHz~ 25 GHz (Vertical), Channel 00: 2402 MHz

Operator:JerryChiou

RBW:1MHz

Humidity(%):41

Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1064.94	46.88pk	24.80	2.18	33.97	39.89pk	54.00av	-14.11	102	108
1169.83	48.53pk	25.28	2.19	34.02	41.98pk	54.00av	-12.02	102	100
1264.74	47.55pk	25.72	2.20	34.07	41.40pk	54.00av	-12.60	101	94
1299.7	46.12pk	25.88	2.21	34.09	40.11pk	54.00av	-13.89	101	91
1499.5	45.21pk	26.80	2.23	34.20	40.04pk	54.00av	-13.96	101	78
1626.87	45.24pk	27.87	2.32	34.45	40.98pk	54.00av	-13.02	101	69
1691.81	44.23pk	28.41	2.37	34.58	40.43pk	54.00av	-13.57	101	64
1799.2	42.93pk	29.31	2.45	34.79	39.91pk	54.00av	-14.09	100	57
2151.35	41.94pk	30.97	2.14	35.19	39.86pk	54.00av	-14.14	100	91
4803.8	49.13pk	34.85	2.12	37.69	48.41pk	54.00av	-5.59	100.00	354.00
7206	48.57pk	39.43	2.74	36.88	53.85pk	54.00av	-0.15	100.00	199.00
9608.17	43.30pk	40.66	3.23	34.32	52.87pk	54.00av	-1.13	100.00	272.00

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ * ”: Fundamental Frequency
- “***”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- 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.**International Standards Laboratory****Report Number: 05LR022FC**

HC LAB:NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178

LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

1GHz~ 25 GHz (Horizontal) , Channel 39 : 2441 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):41
Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1064.94	47.31pk	24.80	2.18	33.97	40.32pk	54.00av	-13.68	102	108
1199.8	45.55pk	25.42	2.19	34.04	39.13pk	54.00av	-14.87	102	98
1232.27	46.63pk	25.57	2.20	34.06	40.34pk	54.00av	-13.66	102	96
1299.7	45.09pk	25.88	2.21	34.09	39.08pk	54.00av	-14.92	101	91
1332.17	46.46pk	26.03	2.21	34.11	40.59pk	54.00av	-13.41	101	89
1806.69	43.17pk	29.38	2.46	34.80	40.20pk	54.00av	-13.80	100	56
1841.66	43.75pk	29.67	2.48	34.87	41.03pk	54.00av	-12.97	100	54
2408.59	45.69pk	30.92	1.53	35.20	42.94pk	54.00av	-11.06	101	171
4882.06	48.07pk	35.15	2.14	37.78	47.58pk	54.00av	-6.42	100.00	231.00
7321.82	45.89pk	39.61	2.53	36.68	51.36pk	54.00av	-2.64	100.00	146.00
9764.57	43.80pk	40.32	3.31	34.38	53.05pk	54.00av	-0.95	100.00	226.00

1GHz~ 25 GHz (Vertical), Channel 39 : 2441 MHz

Operator:JerryChiou

RBW:1MHz
Humidity(%):41
Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1064.94	47.49pk	24.80	2.18	33.97	40.50pk	54.00av	-13.50	102	108
1264.74	47.84pk	25.72	2.20	34.07	41.69pk	54.00av	-12.31	101	94
1299.7	46.87pk	25.88	2.21	34.09	40.86pk	54.00av	-13.14	101	91
1629.37	45.73pk	27.89	2.33	34.45	41.49pk	54.00av	-12.51	101	69
1691.81	44.91pk	28.41	2.37	34.58	41.11pk	54.00av	-12.89	101	64
1799.2	44.77pk	29.31	2.45	34.79	41.75pk	54.00av	-12.25	100	57
2083.92	42.38pk	30.98	2.34	35.18	40.52pk	54.00av	-13.48	100	69
2408.59	45.52pk	30.92	1.53	35.20	42.77pk	54.00av	-11.23	101	171
4881.71	48.88pk	35.15	2.14	37.78	48.39pk	54.00av	-5.61	100.00	146.00
7322.77	45.46pk	39.62	2.53	36.68	50.93pk	54.00av	-3.07	100.00	232.00
9763.94	43.53pk	40.32	3.31	34.38	52.78pk	54.00av	-1.22	100.00	243.00

Note:

- According to the standards used:Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ * ”: Fundamental Frequency
- “**”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- 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 78: 2480 MHz

Operator:JerryChiou

RBW:1MHz

Humidity(%):41

Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1067.43	47.19pk	24.81	2.18	33.97	40.21pk	54.00av	-13.79	102	107
1232.27	47.86pk	25.57	2.20	34.06	41.57pk	54.00av	-12.43	102	96
1299.7	46.17pk	25.88	2.21	34.09	40.16pk	54.00av	-13.84	101	91
1332.17	47.16pk	26.03	2.21	34.11	41.29pk	54.00av	-12.71	101	89
1754.25	49.02pk	28.94	2.42	34.70	45.67pk	54.00av	-8.33	100	60
1806.69	43.53pk	29.38	2.46	34.80	40.56pk	54.00av	-13.44	100	56
1829.17	43.52pk	29.57	2.47	34.85	40.72pk	54.00av	-13.28	100	55
1841.66	45.24pk	29.67	2.48	34.87	42.53pk	54.00av	-11.47	100	54
1846.65	43.70pk	29.71	2.49	34.88	41.01pk	54.00av	-12.99	100	54
4959.94	47.55pk	35.45	2.16	37.87	47.29pk	54.00av	-6.71	100.00	221.00
7442.41	43.65pk	39.81	2.32	36.46	49.32pk	54.00av	-4.68	100.00	121.00
9919.6	43.09pk	39.98	3.39	34.43	52.02pk	54.00av	-1.98	100.00	288.00

1GHz~ 25 GHz (Vertical), Channel 78 : 2480 MHz

Operator:JerryChiou

RBW:1MHz

Humidity(%):41

Temperature(C):27

Frequency	Rx_R.	Ant_F.	Cab_L.	PreAmpl	Emission	Limit	Margin	A.Tower	T.Table
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	cm	deg
1064.94	48.81pk	24.80	2.18	33.97	41.82pk	54.00av	-12.18	102	108
1164.84	49.55pk	25.26	2.19	34.02	42.98pk	54.00av	-11.02	102	101
1237.26	47.46pk	25.59	2.20	34.06	41.19pk	54.00av	-12.81	102	96
1264.74	47.73pk	25.72	2.20	34.07	41.57pk	54.00av	-12.43	101	94
1299.7	47.45pk	25.88	2.21	34.09	41.45pk	54.00av	-12.55	101	91
1499.5	45.95pk	26.80	2.23	34.20	40.77pk	54.00av	-13.23	101	78
1626.87	45.34pk	27.87	2.32	34.45	41.08pk	54.00av	-12.92	101	69
1691.81	45.04pk	28.41	2.37	34.58	41.25pk	54.00av	-12.75	101	64
2151.35	43.73pk	30.97	2.14	35.19	41.66pk	54.00av	-12.34	100	91
4959.78	48.78pk	35.45	2.16	37.87	48.52pk	54.00av	-5.48	100.00	154.00
7440.07	44.60pk	39.80	2.33	36.47	50.26pk	54.00av	-3.74	100.00	229.00
9920.17	42.48pk	39.98	3.39	34.43	51.41pk	54.00av	-2.59	100.00	286.00

Note:

- According to the standards used, Where limits are specified by agencies for both average and peak (or quasi-peak) detection , if the peak (or quasi-peak) measured value complies with the average limit , it is unnecessary to perform an average measurement.
- “ * ”: Fundamental Frequency
- “***”: Not in the restricted band, Limit level=Fundamental Emission-20dB
- “ pk”: peak mode
- “av”: average mode
- “---”: No meter reading data due to the emission level is smaller than spectrum noise level.
- 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.**International Standards Laboratory****Report Number: 05LR022FC**

HC LAB:NVLAP:200234-0;VCCI: R-341,C-354;NEMKO:ELA 113a,113c;BSMI:SL2-IN-E-0037;SL2-R1-E-0037;CNLA:1178

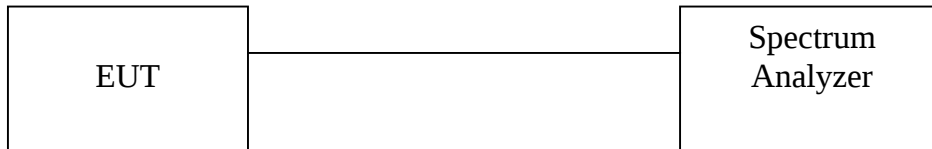
LT LAB:NVLAP:200234-0;VCCI: R-1435,C-1440;NEMKO:ELA 113b,113d;BSMI:SL2-IN-E-0013;CNLA:0997

5.4 Band Edge Measurement

5.4.1 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

5.4.2 Test Setup (Conducted)



5.4.3 Test Data:

Table: Band Edge measurement (Conducted)

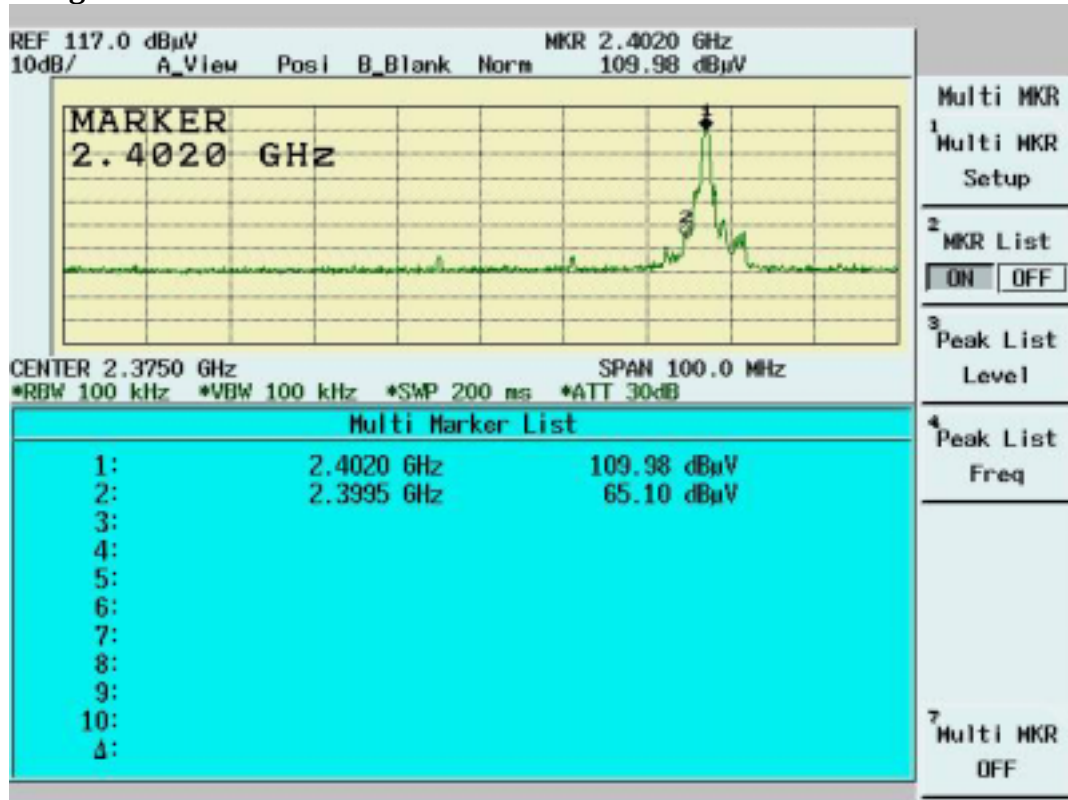
Temperature ():25

Test Engineer:Jerry Chiou

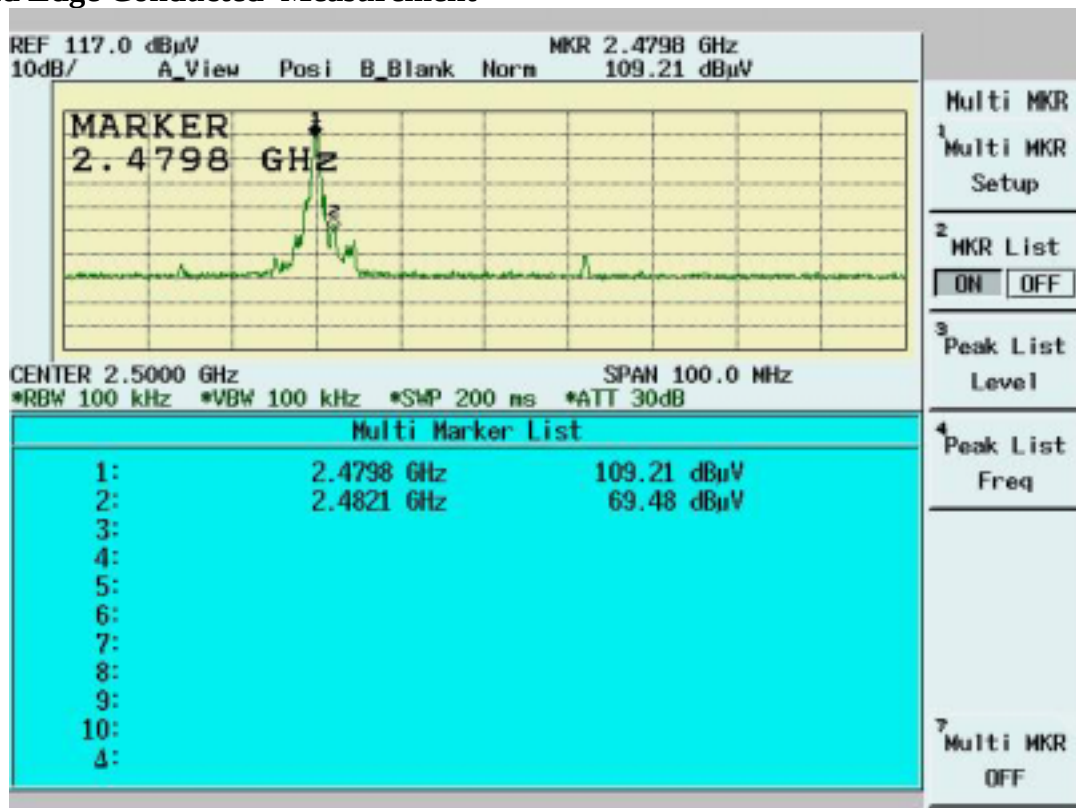
Humidity (%):55

Channel	Frequency (MHz)	Spectrum Reading (dBuV)	Carrier - Outsideband Limit: >20dB (dB)	Pass/Fail
00	2402.0	110.0	---	---
Outside band	2399.5	65.1	44.9	Pass
78	2479.8	109.2	---	---
Outside band	2482.1	69.5	39.7	Pass

Band Edge Conducted measurement



Band Edge Conducted Measurement



5.4.4 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: 3MHz
Center frequency: 2.375GHz, 2.500GHz.
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.

5.4.5 Test Setup (Radiated)

Same as *Radiated Emission Measurement*

5.4.6 Test Data

Table Band Edge measurement (Radiated)

Test Engineer: Jerry Chiou

Temperature (): 27

Data Rate

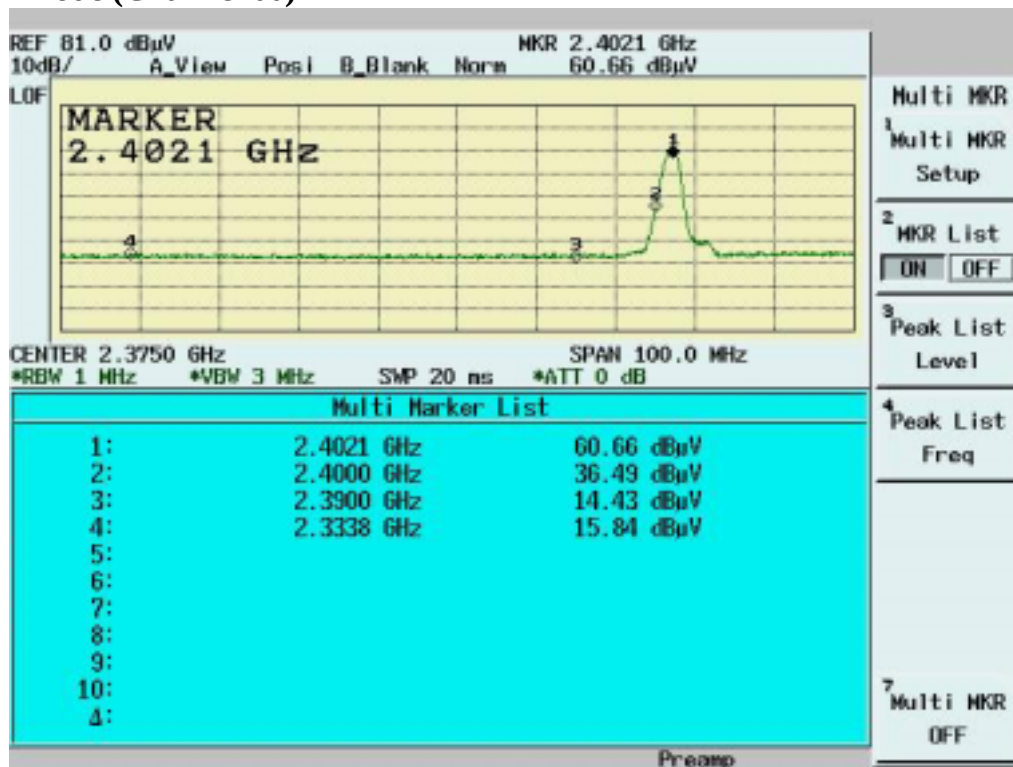
Humidity (%): 40

Description	Frequency (MHz)	Spectrum Reading (dBuV)	Correction Factor (dB/m)	Emission Level (dBuV/m)	dBc (Limit: > 20dBc)	Limit (dBuV/m)	Equip. Setup VBW	Pass or Fail
Channel_00 (average mode)	2402.30	25.73	35.48	61.21	---	---	10Hz	---
Channel_00 (peak mode)	2402.10	60.66	35.48	96.14	---	---	3MHz	---
Outside band (peak mode)	2400.00	36.49	35.48	71.97	24.17	---	3MHz	Pass
Channel_78 (average mode)	2480.10	25.34	35.51	60.85	---	---	10Hz	---
Channel_78 (peak mode)	2480.10	59.13	35.51	94.64	---	---	3MHz	---
Outside band (peak mode)	2482.00	29.45	35.51	64.96	29.68	---	3MHz	Pass
Channel_00 Restricted band (peak mode)	2333.80	15.84	35.47	51.31	---	74	3MHz	Pass
Restricted band (average mode)	2329.10	4.99	35.47	40.46	---	54	10Hz	Pass
Channel_78 Restricted band (peak mode)	2484.60	18.98	35.51	54.49	---	74	3MHz	Pass
Restricted band (average mode)	2484.00	6.77	35.51	42.28	---	54	10Hz	Pass

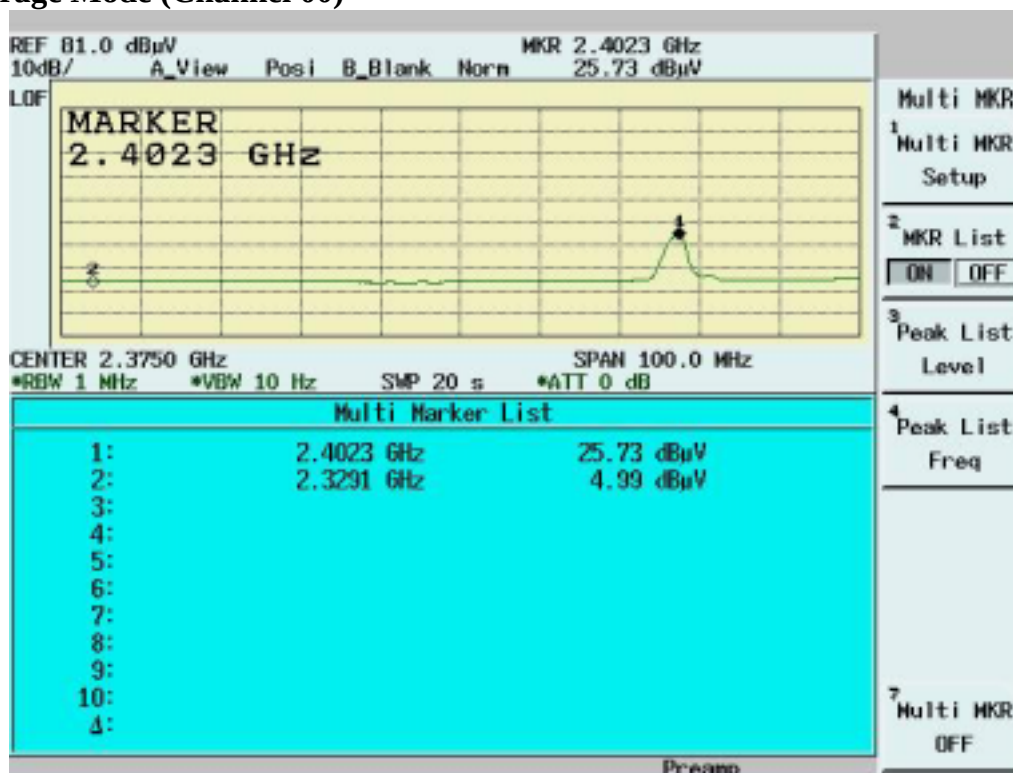
Note:

- 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 polarizaion have been tested and the worst data is listed above.

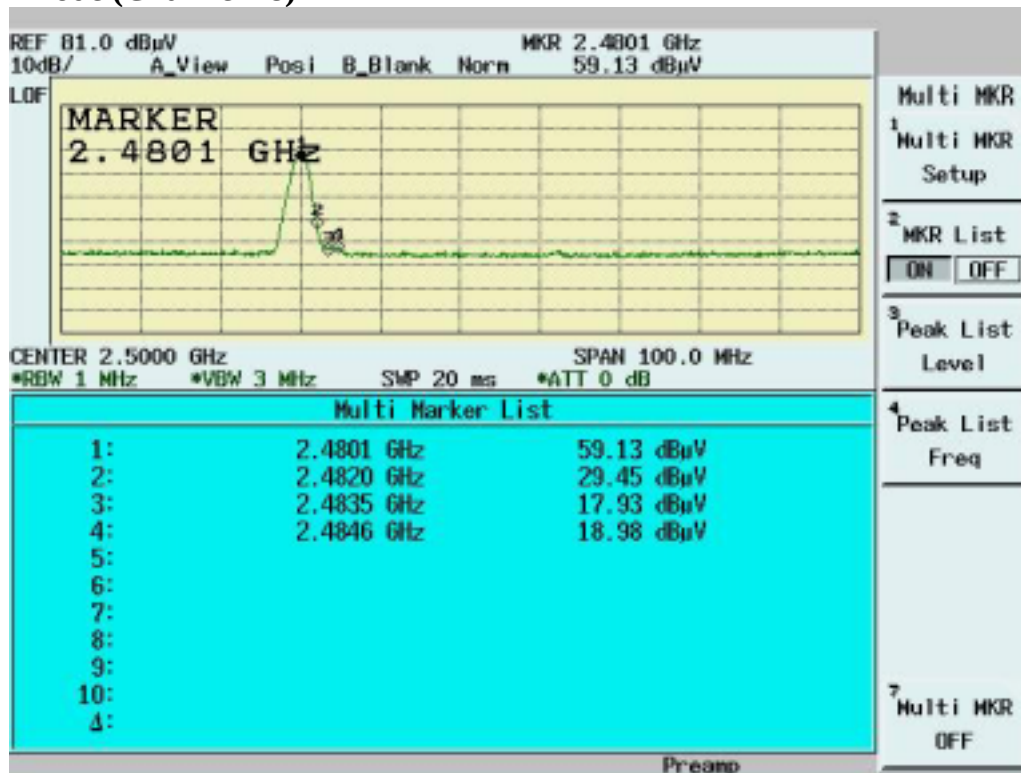
**Band Edge measurement for radiated emission in Restricted Band(Radiated)
Peak Mode (Channel 00)**



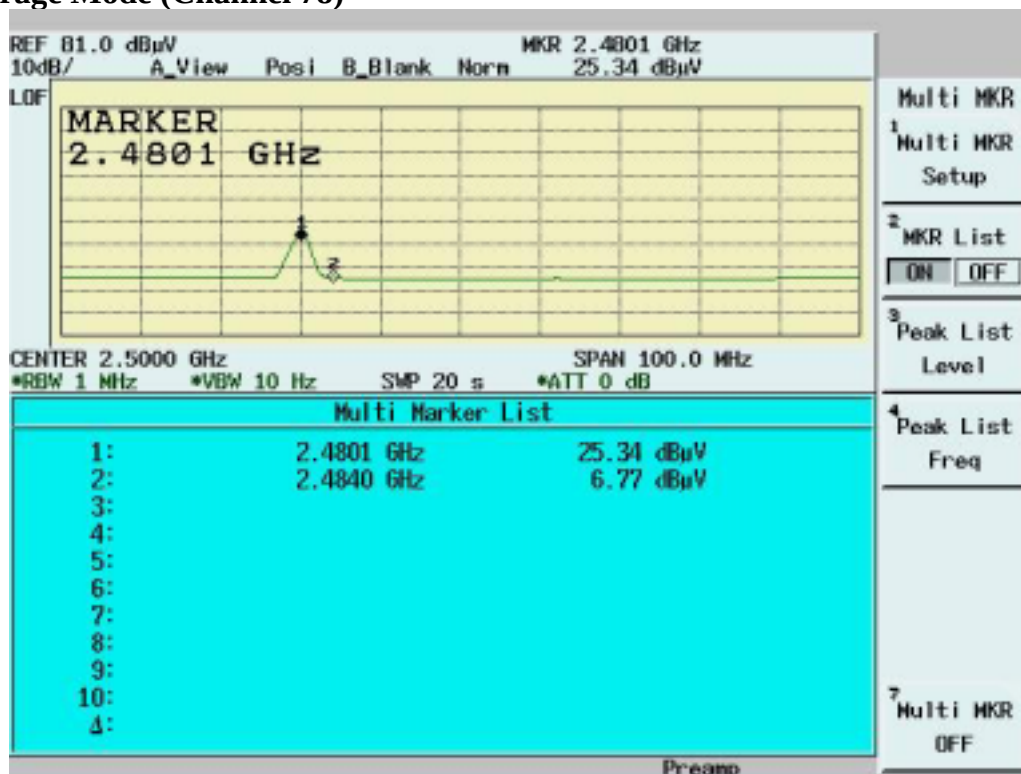
**Band Edge measurement for radiated emission in Restricted Band(Radiated)
Average Mode (Channel 00)**



Band Edge measurement for radiated emission in Restricted Band(Radiated) Peak Mode (Channel 78)



Band Edge measurement for radiated emission in Restricted Band(Radiated) Average Mode (Channel 78)



5.5 Bandwidth & Hopping Channel Separation

5.5.1 Standard Applicable

According to §15.247(a)(1), frequency hopping system shall have, hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies.

5.5.2 Test Procedure

■ Bandwidth Test Procedure

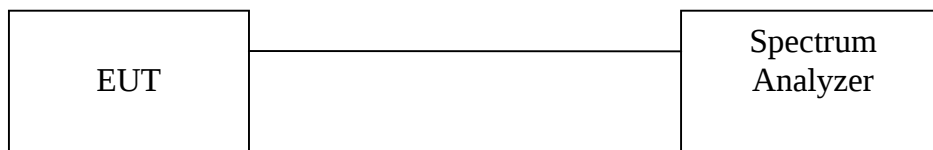
The Transmitter output of EUT was connected to the spectrum analyzer. The 20 dB bandwidth of the fundamental frequency was measured. The setting of spectrum analyzer is as follows

Equipment mode	Spectrum analyzer
Detector function	Peak mode
RBW	30KHz
VBW	100KHz

■ Hopping Channel Separation Test Procedure

1. Connect EUT antenna terminal to the spectrum analyzer with a low loss cable.
Equipment mode: Spectrum analyzer
RBW: 100KHz
VBW: 300KHz
SPAN:3MHz
2. By using the Max-Hold function record the separation of two adjacent channels.
3. Measure the frequency difference of these two adjacent channels by spectrum analyzer Marker function.
4. Repeat above procedures until all frequencies measured were complete.

5.5.3 Test Setup



5.5.4 Test Data

20dB Bandwidth

Temperature ():25

Test Engineer:Jerry Chiou

Humidity (%):55

Channel	Frequency (MHz)	20dB Bandwidth (KHz)	Limit (KHz)	Pass/Fail
00	2402	848	1000	Pass
39	2441	844	1000	Pass
78	2480	828	1000	Pass

Hopping Channel Separation

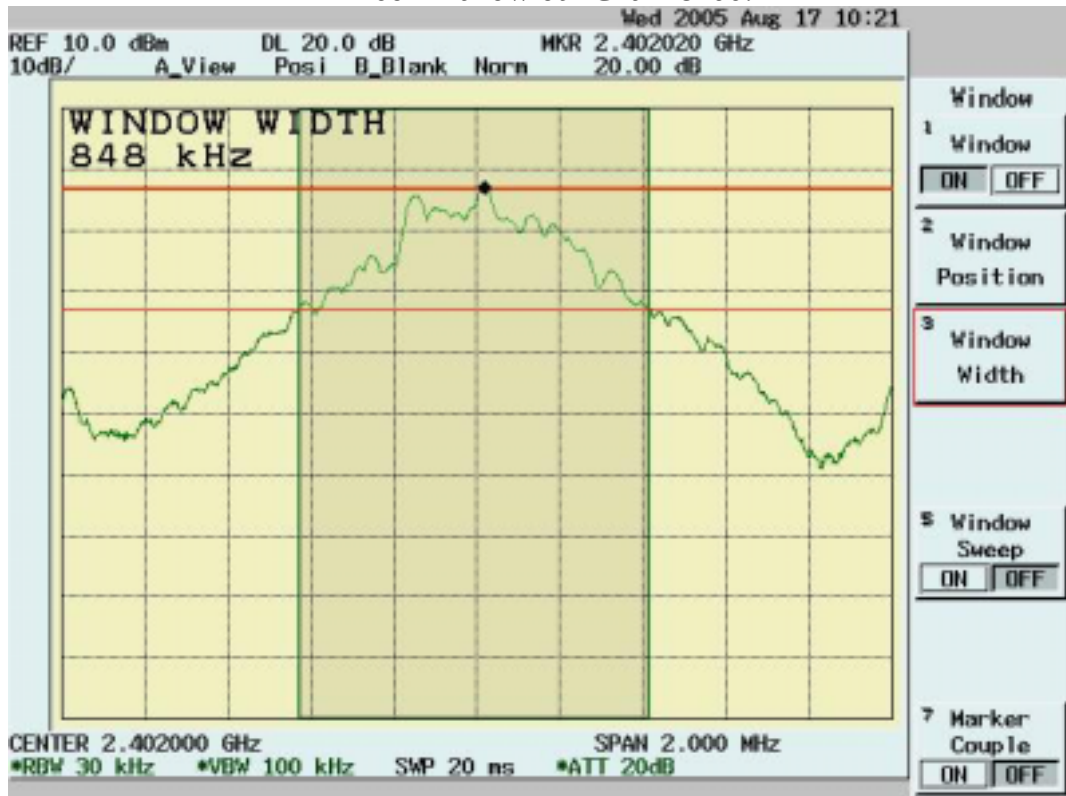
Temperature ():22

Test Engineer:Mailes
Hsieh

Humidity (%):25

Channel	Frequency (MHz)	Separation (KHz)	Limit (KHz)	Pass/Fail
00	2402	999	848	Pass
39	2441	1002	844	Pass
78	2480	996	828	Pass

20dB Bandwidth Channel 00:



20dB Bandwidth Channel 39:



20dB Bandwidth Channel 78:



Hopping Channel Separation Channel 00



Hopping Channel Separation Channel 39



Hopping Channel Separation Channel 78



5.6 Number of Hopping Frequency Used

1.1.1 Test Procedure

1. Connect EUT antenna terminal to the spectrum analyzer with a low loss cable.
Equipment mode: Spectrum analyzer
RBW: 300KHz
VBW: 1MHz
2. Set the spectrum analyzer on Max-Hold Mode, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been recorded.
3. Repeat above procedures until all frequencies measured were complete.

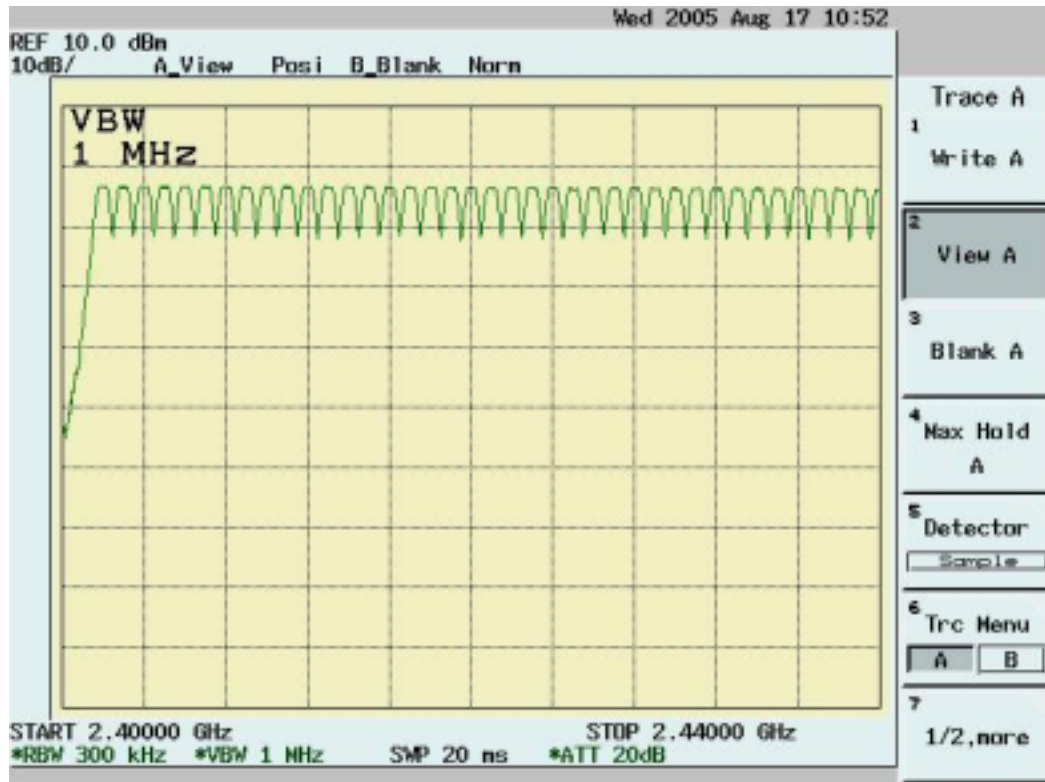
5.6.1 Test Setup



5.6.2 Test Data

Number of Hopping Frequency Used		
Test result	Limit (KHz)	Pass/Fail
79	>75	Pass

2400~2405MHz



2405~2482MHz



5.7 Dwell Time

5.7.1 Test Procedure

1. Connect EUT antenna terminal to the spectrum analyzer with a low loss cable.
Equipment mode: Spectrum analyzer
RBW: 1MHz
VBW: 1MHz
SPAN: Zero Span
2. Adjust the center frequency of spectrum analyzer on any frequency be measured.
3. Measure the Dwell Time by spectrum analyzer Marker function.
4. Repeat above procedures until all frequencies measured were complete.

5.7.2 Test Setup



5.7.3 Test Data

Dwell Time

Temperature ():25

Test Engineer:Jerry
Chiou

Humidity (%):55

Mode	Frequency (MHz)	Spectrum Reading (μs)	Test Result (ms)	Limit (ms)	Pass/Fail
DH1	2402	414	264.96	< 400	Pass
DH3	2402	1668	355.84	< 400	Pass
DH5	2402	2912	372.74	< 400	Pass

Mode	Frequency (MHz)	Spectrum Reading (μs)	Test Result (ms)	Limit (ms)	Pass/Fail
DH1	2441	414	264.96	< 400	Pass
DH3	2441	1668	355.84	< 400	Pass
DH5	2441	2912	372.74	< 400	Pass

Mode	Frequency (MHz)	Spectrum Reading (μ s)	Test Result (ms)	Limit (ms)	Pass/Fail
DH1	2480	416	266.24	< 400	Pass
DH3	2480	1672	356.69	< 400	Pass
DH5	2480	2912	372.74	< 400	Pass

Note:

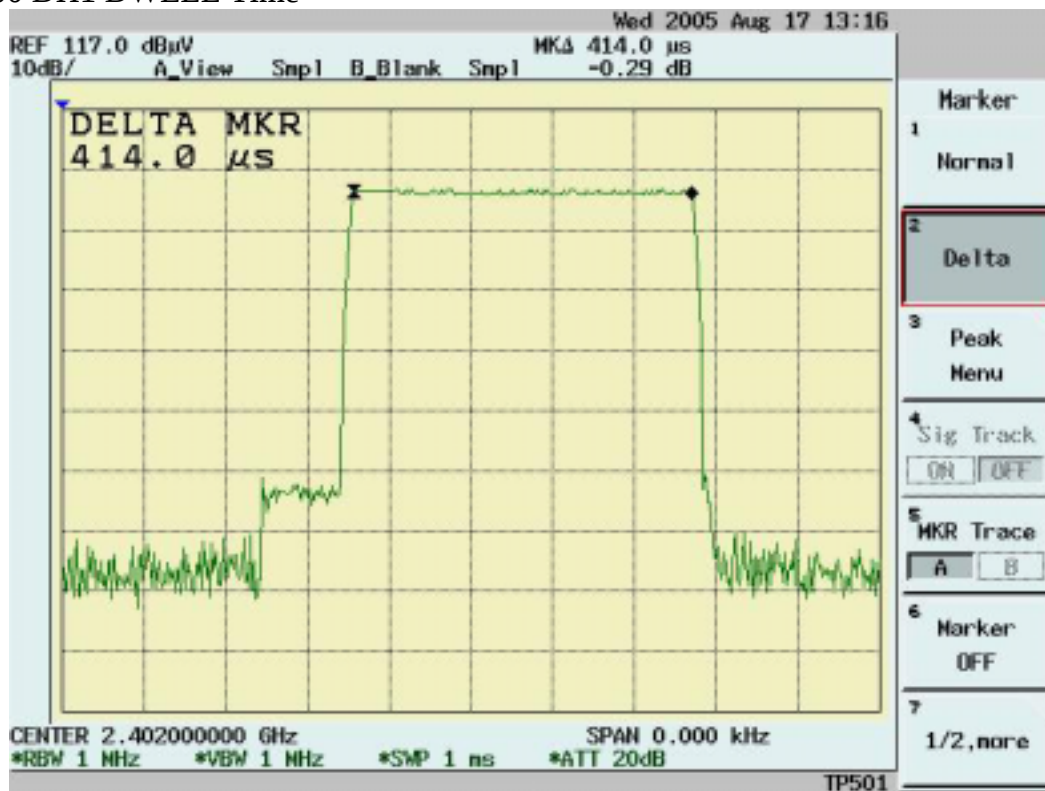
A period time=79x0.4(s)=31.6(s)

CH00 DH1 time slot= 414 (μ s)*(1600/(1*79))*31.6= 264.96 (ms)
 DH3 time slot= 1668 (μ s)*(1600/(3*79))*31.6= 355.84 (ms)
 DH5 time slot= 2912 (μ s)*(1600/(5*79))*31.6= 372.74 (ms)

CH39 DH1 time slot= 414 (μ s)*(1600/(1*79))*31.6= 264.96 (ms)
 DH3 time slot= 1668 (μ s)*(1600/(3*79))*31.6= 355.84 (ms)
 DH5 time slot= 2912 (μ s)*(1600/(5*79))*31.6= 372.74 (ms)

CH78 DH1 time slot= 416 (μ s)*(1600/(1*79))*31.6= 266.24 (ms)
 DH3 time slot= 1672 (μ s)*(1600/(3*79))*31.6= 356.69 (ms)
 DH5 time slot= 2912 (μ s)*(1600/(5*79))*31.6= 372.74 (ms)

CH00 DH1 DWELL Time



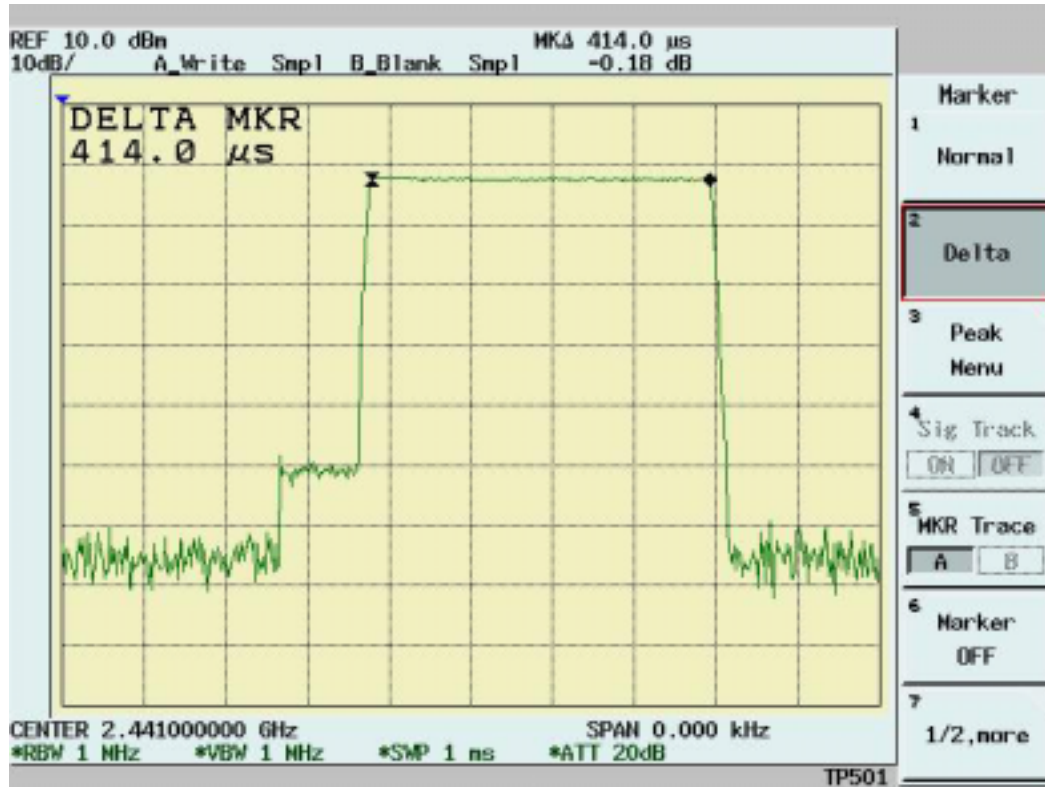
CH00 DH3 DWELL Time



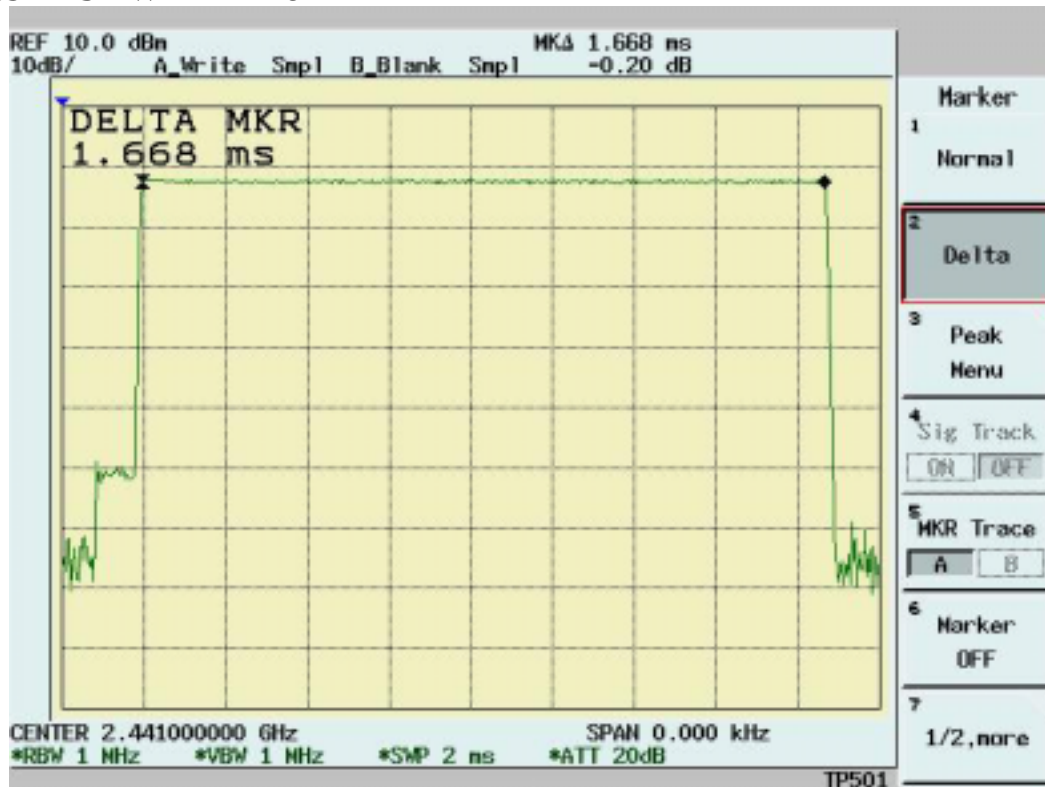
CH00 DH5 DWELL Time



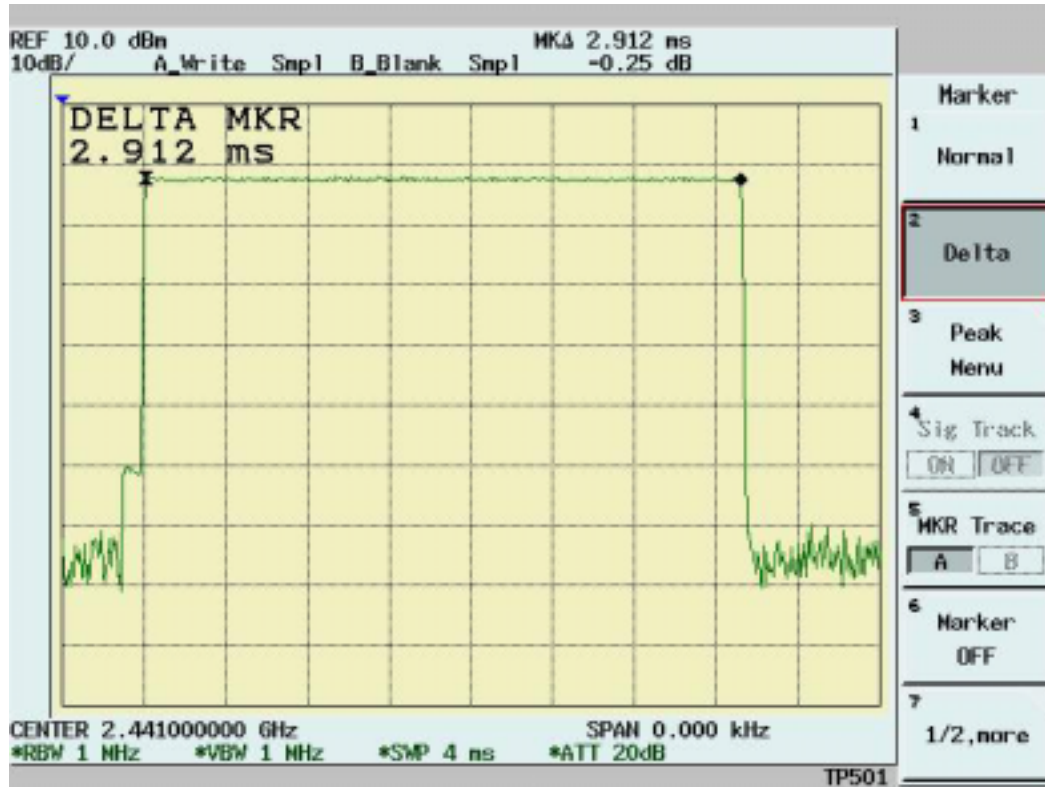
CH39 DH1 DWELL Time



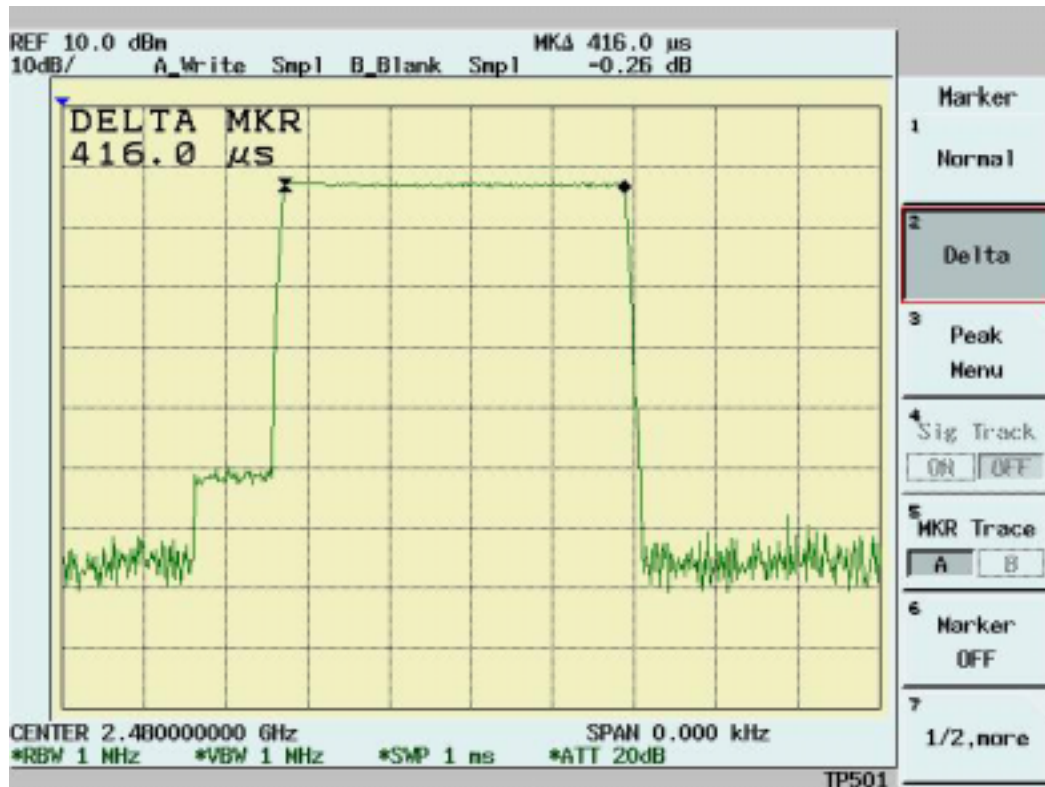
CH39 DH3 DWELL Time



CH39 DH5 DWELL Time



CH78 DH1 DWELL Time



CH78 DH3 DWELL Time



CH78 DH5 DWELL Time



5.8 Appendix G: Photographs of EUT Configuration Test Set Up

The Front View of Highest Conducted Set-up For EUT



The Back 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



5.9 Appendix H: Antenna Spec.

Please refer to the attached file.