TEST REPORT

of

FCC Part 2, 27
FCC ID : VAW-SWT225

Equipment Under Test	:	WiMAX CPE
Model Name	:	SWT 225
Applicant	:	SK Telesys Co.,Ltd.
Manufacturer	:	SK Telesys Co.,Ltd.
Date of Test(s)	:	2011.06.09 ~ 2011.06.29
Date of Issue	:	2011.07.19

In the configuration tested, the EUT complied with the standards specified above.

Tested By: Wonsuk Kim **Date** 2011.07.19

Approved By: Charles Kim **Date** 2011.07.19

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1. General Information

1-1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)
- 705, Dongchun-Dong Sooji-Gu, Yongin-Shi, Kyungki-Do, South Korea.
www.kr.sgs.com/ee
Telephone : +82 +31 428 5700
FAX : +82 +31 427 2371

1-2. Details of Applicant

Applicant : SK Telesys Co.,Ltd.
Address : Euljiro-2Ga, Jung-Gu, Seoul 100-844, South Korea
Contact Person : Woo, Dong-Moon
Phone No. : +82 +31 786 5706

1-3. Description of EUT

Kind of Product	WiMAX CPE
Model Name	SWT 225
Serial Number	N/A
Operating Frequency	2 505.25 ~ 2 686.75 ㎒(5 ㎒ bandwidth) 2 508.5 ~ 2 683.5 ㎒(10 ㎒ bandwidth)
Frequency Band	*AB/BC/CD/EF/FH/HG
Power	Up Link: 25 ㏈m
Power Rating	AC 100 ~ 240 V
Modulation Technique	OFDMA
Type of Emission	4M49W7D 9M12W7D
Tx antenna Gain	5.839 ㏈i(Whip Antenna)

*The EUT has two WiMAX port that can transmit WiMAX individually.

***Frequency points (channels)**

- 5 ㎒ Bandwidth

Band	Low Frequency (㎒)	Middle Frequency (㎒)	High Frequency (㎒)
A	2 505.25	2 510.25	2 515.25
B	2 521.75	2 526.75	2 531.75
C	2 538.25	2 543.25	2 548.25
D	2 554.75	2 559.75	2 564.75
E	2 627.25	2 632.25	2 637.25
F	2 643.75	2 648.75	2 653.75
H	2 660.25	2 665.25	2 670.25
G	2 676.75	2 681.75	2 686.75

- 10 ㎒ Bandwidth

Band	Low Frequency (㎒)	Middle Frequency (㎒)	High Frequency (㎒)
AB	2 508.5	2 518.5	2 528.5
BC	2 525.0	2 535.0	2 545.0
CD	2 541.5	2 551.5	2 561.5
EF	2 630.5	2 640.5	2 650.5
FH	2 647.0	2 657.0	2 667.0
HG	2 663.5	2 673.5	2 683.5

1-4. Test Modes

Test modes are summarized in Table 2, Table per technical descriptions of the EUT. Tests within the present test report were performed under various test modes.

Table 2 Test modes list

Test Mode	Description
QPSK 1/2	The modulation and coding scheme (MCS) of this test mode is QPSK 1/2 according to IEEE 802.16e, Wave2
QPSK 3/4	The modulation and coding scheme (MCS) of this test mode is QPSK 3/4 according to IEEE 802.16e, Wave2
16QAM 1/2	The modulation and coding scheme (MCS) of this test mode is 16QAM 1/2 according to IEEE 802.16e, Wave2
16QAM 3/4	The modulation and coding scheme (MCS) of this test mode is 16QAM 3/4 according to IEEE 802.16e, Wave2

Table 3 Test modes data rate(MISO mode)

MCS	SM(Matrix B)
QPSK 1/2	3 M
QPSK 3/4	4.5 M
16QAM 1/2	6 M
16QAM 3/4	9.2 M

1-5. Test Equipment List

EQUIPMENT	MANUFACTURER	MODEL	S/N	CAL DUE.
Spectrum Analyzer	R & S	FSV30	100768	Mar. 31, 2012
Spectrum Analyzer	R & S	FSP40	100007	Jul. 15, 2011
Attenuator	Agilent	8494B	MY42141937	Apr. 01, 2012
AC Power Supply	KIKUSUI	PCR 500M	QC002962	Mar. 16, 2012
Preamplifier	H.P	8447F	2944A03909	Jul. 05, 2011
Preamplifier	Agilent	8449B	3008A01932	Mar. 31, 2012
High Pass Filter	Wainwright	WHK3.0/18G-10SS	344	Sep. 29, 2011
Dipole Antenna	SCHWARZBECK MESSELEKTRONIK	UHA 9105/ VHA 9103	9105-2514/9103-2 817	May. 24, 2013
Bilog Antenna	CHASE	CBL6111B	2093	Jul. 27, 2011
Bilog Antenna	SCHWARZBECK MESSELEKTRONIK	VULB9163	396	Jul. 22, 2011
Horn Antenna	R & S	HF 906	100326	Oct. 08, 2011
Horn Antenna	SCHWARZBECK	BBH 9120D	BBHA9170431	Mar. 17, 2012
Anechoic Chamber	SY Corporation	L × W × H (9.6 m×6.4 m×6.6 m)	N.C.R.	N.C.R.

1-6. Summary of Test Results

APPLIED STANDARD: FCC Part 2,27		
Section in FCC Part 2,27	**Test Item**	**Result**
§2.1046 §27.50(h)(1)	Maximum Channel Power	Complied
§27.53(l)(2)	Field Strength of Spurious Radiation	Complied
§2.1049	Occupied Bandwidth 26dB	Complied
§2.1051 §27.53(l)(6)	Spurious Emission at Antenna Terminal	Complied
§2.1055 §27.54	Frequency Stability	Complied
§27.53(l)(2) Band	Edge	Complied
§1.1307(b)(1)	Maximum Permissible Exposure (Exposure of Humans to RF Fields)	Complied

1-7. Test Report Revision

Revision	Report number	Description
0 F690	501/RF-RTL004796	Initial
1	F690501/RF-RTL004796-1	Revised RF Exposure

1.8 Worst-Case Configuration and Mode

Chain1 and chain2 measured by comparing the worse-case chain1.
Pre-test was performed on antenna terminal port to determine the worst-case mode.

Chain 1
- 5 ㎒ Bandwidth

Test mode	Band	Frequency (㎒)	Measured channel Power	
			dB m	㎽
QPSK 1/2	E	2 627.25	**24.79**	**301.30**
QPSK 3/4		2 627.25	24.76	299.23
16QAM 1/2		2 627.25	24.74	297.85
16QAM 3/4		2 627.25	24.77	299.92

- 10 ㎒ Bandwidth

Test mode	Band	Frequency (㎒)	Measured channel Power	
			dB m	㎽
QPSK 1/2	EF	2 630.5	**25.13**	**325.84**
QPSK 3/4		2 630.5	25.06	320.63
16QAM 1/2		2 630.5	25.07	321.37
16QAM 3/4		2 630.5	25.11	324.34

Chain 2
- 5 ㎒ Bandwidth

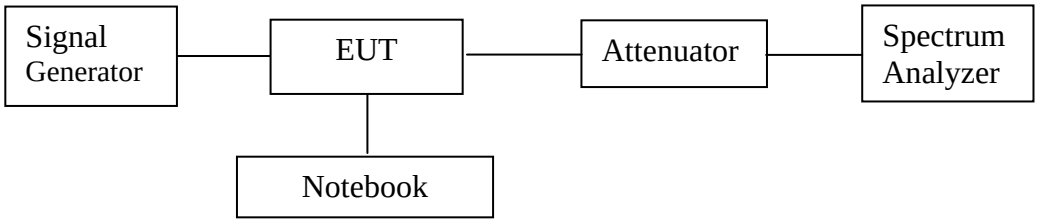
Test mode	Band	Frequency (㎒)	Measured channel Power	
			dB m	㎽
QPSK 1/2	E	2 627.25	**24.60**	**288.40**

- 10 ㎒ Bandwidth

Test mode	Band	Frequency (㎒)	Measured channel Power	
			dB m	㎽
QPSK 1/2	EF	2 630.5	**25.02**	**317.69**

2. Maximum Channel Power

2.1. Set up



2.2. Limit

According to 47 CFR Part 2 section § 2.1046 and Part 27 section § 27.50(h)(2), Mobile and other user stations. Mobile stations are limited to 2.0watts(33 ㏈m) EIRP. All user stations are limited to 2.0 watts(33 ㏈m) transmitter output power.

2.3. Test Procedure

1. The transmitter was tested while in a continuous transmit mode.
2. The EUT was tuned to a low, middle, and high channel in uplink (mobile to base) directions.
3. RF power output was measured.

2.4. Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

- 5 ㎒ Bandwidth

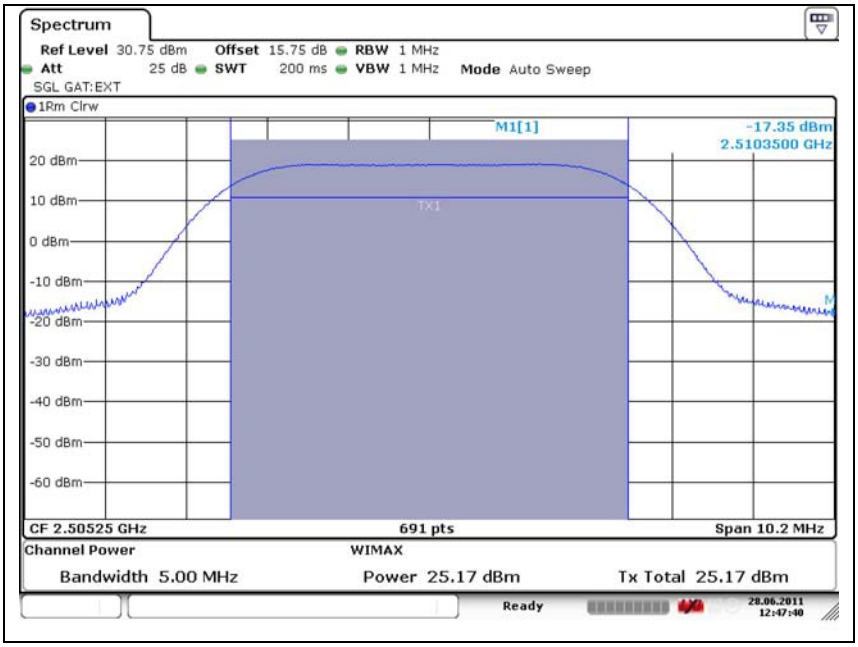
Test mode	Channel	Frequency (㎒)	Measured Channel Power	
			dB m	㎽
QPSK 1/2	Low	2 505.25	25.17	328.85
QPSK 1/2	Middle	2 627.25	24.79	301.30
QPSK 1/2	High	2 686.75	24.92	310.46

- 10 ㎒ Bandwidth

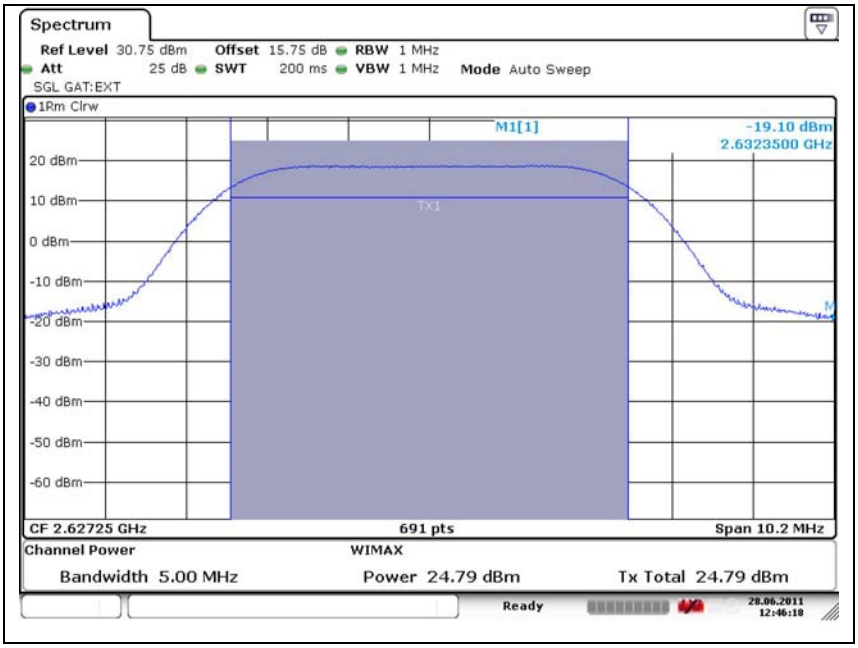
Test mode	Channel	Frequency (㎒)	Measured Channel Power	
			dB m	㎽
QPSK 1/2	Low	2 508.5	25.21	331.89
QPSK 1/2	Middle	2 630.5	25.13	325.84
QPSK 1/2	High	2 683.5	24.95	312.61

- 5 ㎒ Bandwidth

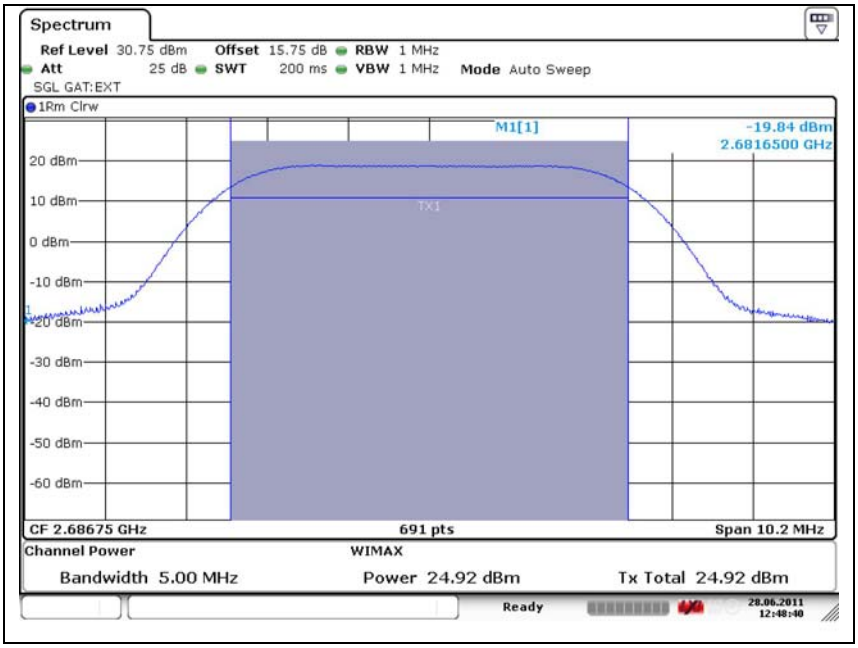
Low Channel



Middle Channel

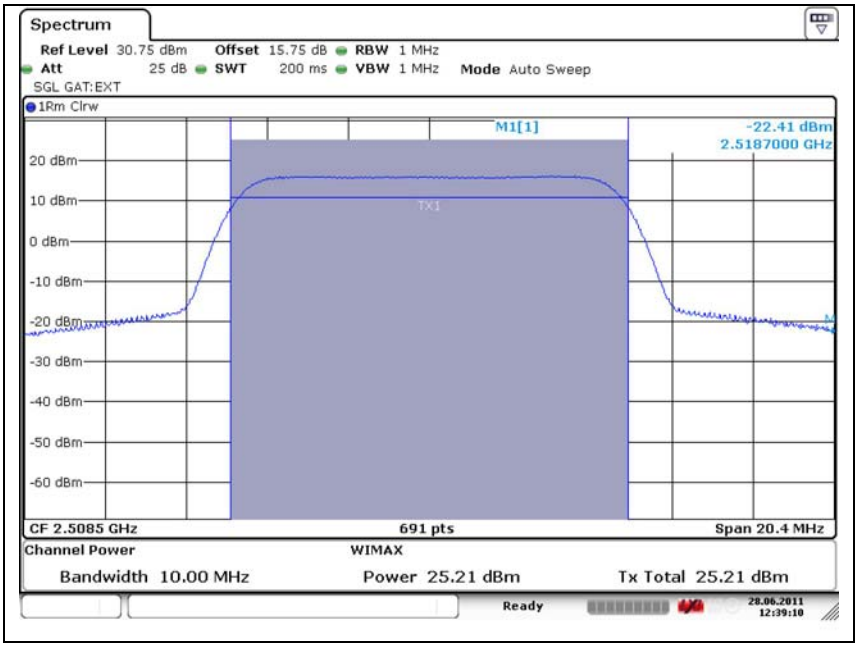


High Channel

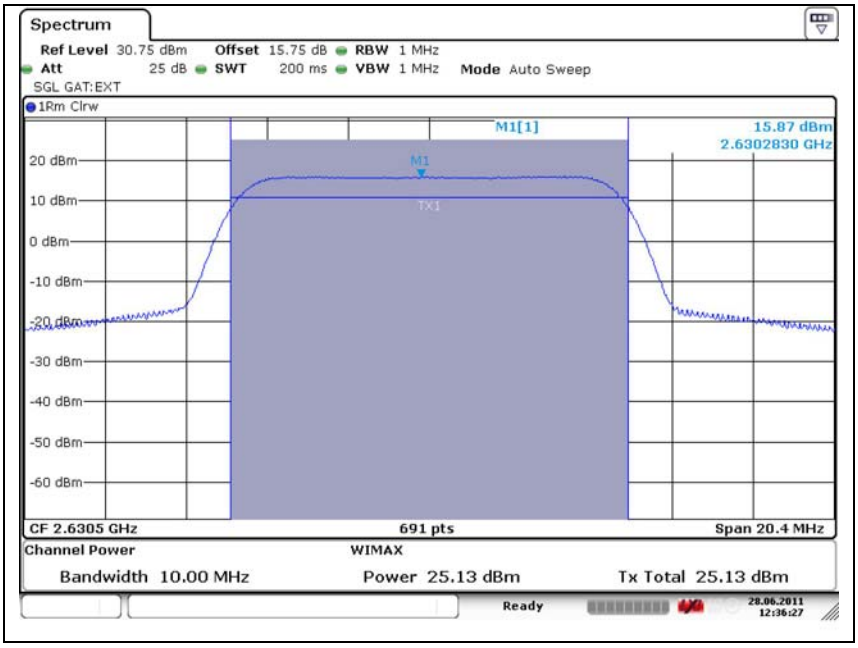


- 10 ㎒ Bandwidth

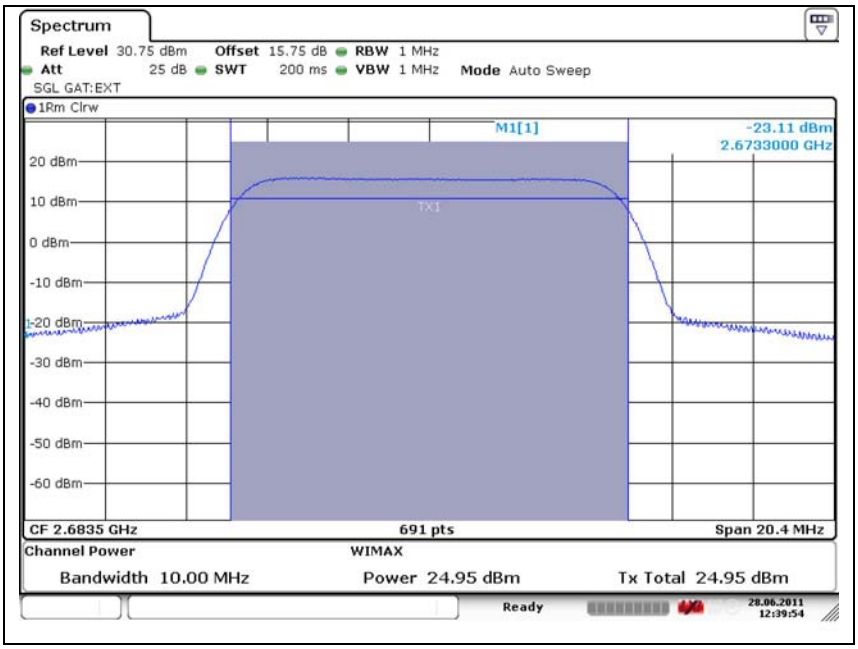
Low Channel



Middle Channel



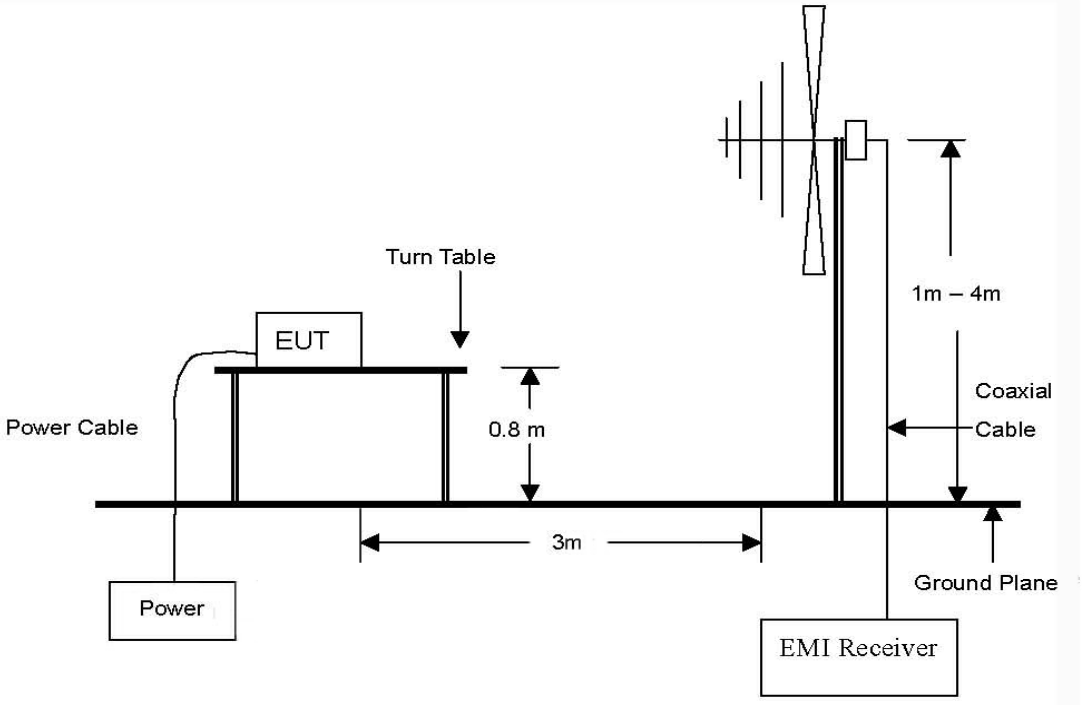
High Channel



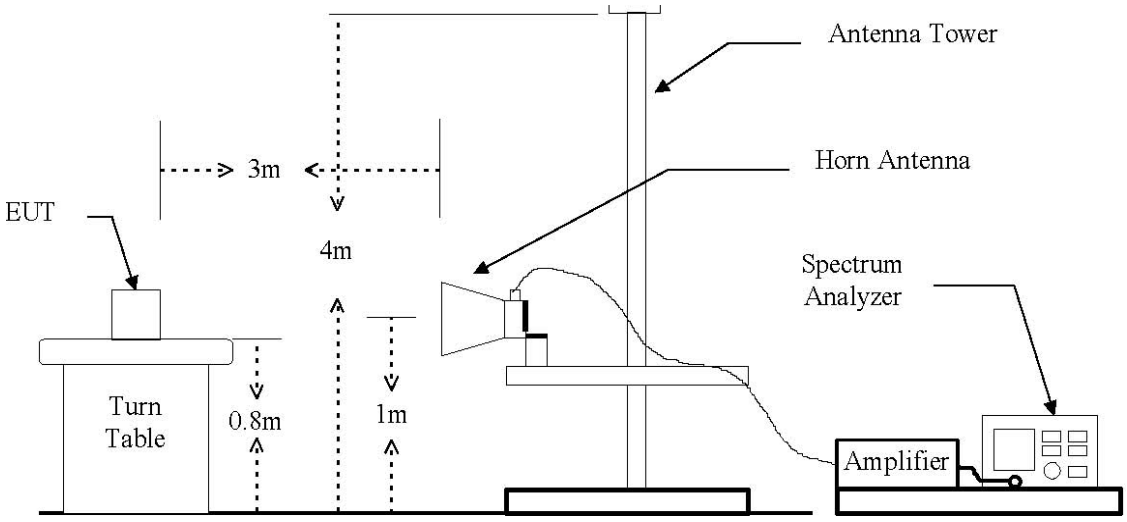
3. Field Strength of Spurious Radiation

3.1. Set up

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ Em issions.



The diagram below shows the test setup that is utilized to make the measurements for emission from 1 ㎓ t o 18 ㎓ Em issions.



3.2. Limit

According to 47 CFR Part 2 section § 2.1053 and Part 27 section § 27.53(a)(3), the power of any emissions outside the licensee's frequency bands of operation must be attenuated below the transmitter power (P in watts) by at least 43 +10 log (P) ㏈. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 ㎒ or greater.

The limit is calculated to be P (W) - {43 dB + 10 log [P (W)]} = 10 log [1000 P (W)] (㏈m) - 43 ㏈ - 10 log [P (W)) = 30 ㏈m - 43 dB = -13 ㏈m.

3.3. Test Procedure

1. On a test site, the EUT shall be placed at 0.8cm height on a turn table, and in the position closest to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3m from EUT to correspond to the frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
5. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
6. The transmitter shall then the rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
7. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
8. The maximum signal level detected by the measuring receiver shall be noted.
9. The transmitter shall be replaced by a horn (substitution antenna).
10. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
11. The substitution antenna shall be connected to a calibrated signal generator.
12. In necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase he sensitivity of the measuring receiver.
13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring received, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
15. The input level to the substitution antenna shall be recorded as power level in ㏈m, corrected for any change of input attenuator setting of the measuring receiver.
16. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
17. The measure of the effective radiated power is the large of the two levels recorded, at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary

3.4. Test Result

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

- 5 ㎒ Bandwidth

Frequency (㎒)	Ant.Pol. (H/V)	S.G. reading (dB m)	CL (dB)	Gain (dB i)	Gain (dB d)	EIRP (dB m)	Limit (dB m)	Margin (dB)
Low Channel (2 505.25 ㎒)								
249.988 V		-47.20	2.57	-1.65	-3.79	-51.42	-13.00	38.42
539.978 V		-42.10	4.30	-3.41	-5.55	-49.81	-13.00	36.81
2 409.250	H	-40.54	5.59	5.75	7.89	-40.38	-13.00	27.38
5 010.000	V	-28.20	8.62	7.16	9.30	-29.66	-13.00	16.66
Middle Channel (2 627.25 ㎒)								
249.988 V		-47.20	2.57	-1.65	-3.79	-51.42	-13.00	38.42
539.978 V		-42.30	4.30	-3.41	-5.55	-50.01	-13.00	37.01
2 414.417	H	-40.33	5.60	5.76	7.90	-40.17	-13.00	27.17
5 253.125	V	-28.80	8.91	7.51	9.65	-30.20	-13.00	17.20
High Channel (2 686.75 ㎒)								
249.988 V		-47.00	2.57	-1.65	-3.79	-51.22	-13.00	38.22
539.978 V		-42.50	4.30	-3.41	-5.55	-50.21	-13.00	37.21
2 414.750	H	-38.88	5.60	5.76	7.90	-38.72	-13.00	25.72
5 372.500	V	-22.39	9.03	7.68	9.82	-23.74	-13.00	10.74

Remake: 1. No more spurious emissions above 5 400 ㎒ for all channel.
2. EIRP= SG Reading –Cable Loss +Gain

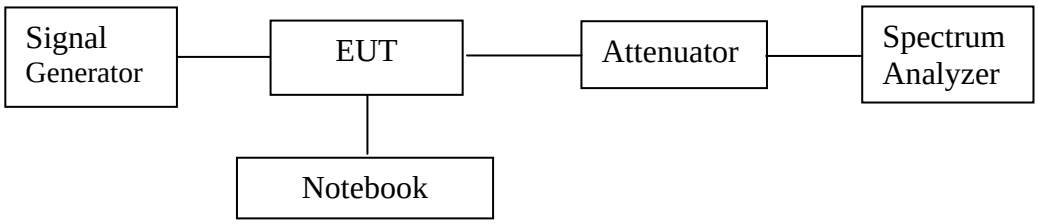
- 10 ㎒ Bandwidth

Frequency (㎒)	Ant.Pol. (H/V)	S.G. reading (dB m)	CL (dB)	Gain (dB i)	Gain (dB d)	EIRP (dB m)	Limit (dB m)	Margin (dB)
Low Channel (2 508.5 ㎒)								
249.988 V		-42.30	2.57	-1.65	-3.79	-46.52	-13.00	33.52
539.978 V		-41.90	4.30	-3.41	-5.55	-49.61	-13.00	36.61
2 409.333	H	-41.17	5.59	5.75	7.89	-41.01	-13.00	28.01
5 021.875	V	-32.80	8.84	7.18	9.32	-34.46	-13.00	21.46
Middle Channel (2 630.5 ㎒)								
139.570 V		-59.20	1.91	1.05	-1.09	-60.06	-13.00	47.06
249.988 V		-46.50	2.57	-1.65	-3.79	-50.72	-13.00	37.72
2 409.333	H	-40.39	5.59	5.75	7.89	-40.23	-13.00	27.23
5 262.500	V	-30.79	8.94	7.52	9.66	-32.21	-13.00	19.21
High Channel (2 683.5 ㎒)								
162.890 V		-49.80	2.35	0.26	-1.88	-51.89	-13.00	38.89
249.988 V		-43.20	2.57	-1.65	-3.79	-47.42	-13.00	34.42
2 414.833	H	-39.34	5.60	5.76	7.90	-39.50	-13.00	26.50
5 366.250	V	-26.31	9.03	7.67	9.81	-27.67	-13.00	14.67

Remake: 1. No more spurious emissions above 5 400 ㎒ for all channel.
2. EIRP= SG Reading –Cable Loss +Gain

4. Occupied Bandwidth 26 dB

4.1. Set up



4.2. Limit

According to 47 CFR Part 2 section § 2.1049 and Part 27, no specific modulation characteristics requirement limits is applicable.

The occupied bandwidth is defined in section § 2.1049: the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The occupied bandwidth is normally called 99% bandwidth.

According to section § 27.53(l)(6), the emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 ㏈ below the transmitter power. The emission bandwidth is normally called 26 ㏈ ba ndwidth.

4.3. Test Procedure

1. The transmitter was tested while in a continuous transmit mode.
2. The EUT was tuned to a low, middle, and high channel in the uplink (mobile to base) directions.
3. The resolution bandwidth of the spectrum analyzer was set at 100 ㎑.

4.4 Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

- 5 ㎒ Bandwidth

Test mode	Channel	Frequency (㎒)	Measured Occupied Bandwidth	
			99%	26 dB
QPSK 1/2	Low	2 505.25	4.49	5.03
QPSK 1/2	Middle	2 627.25	4.49	4.96
QPSK 1/2	High	2 686.75	4.49	4.99

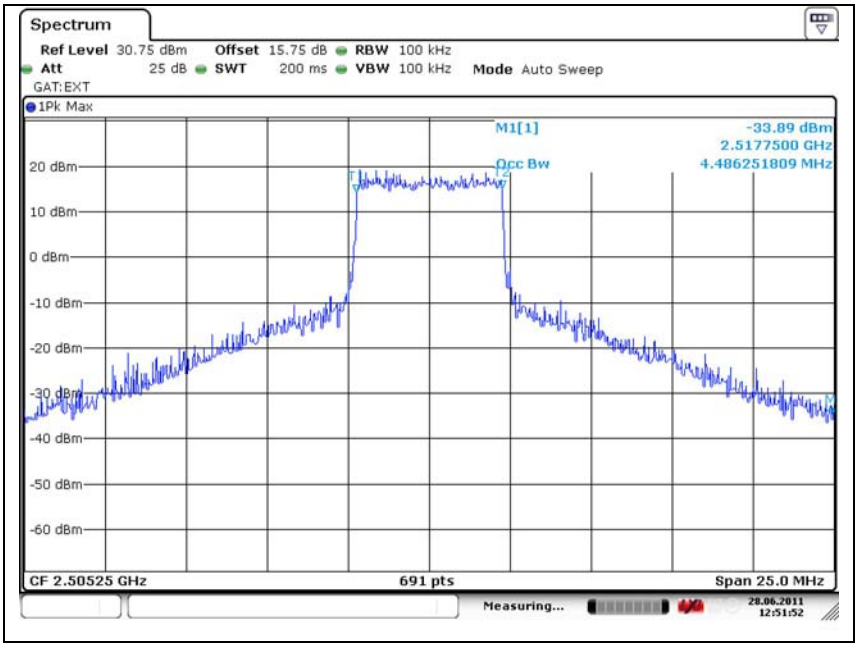
- 10 ㎒ Bandwidth

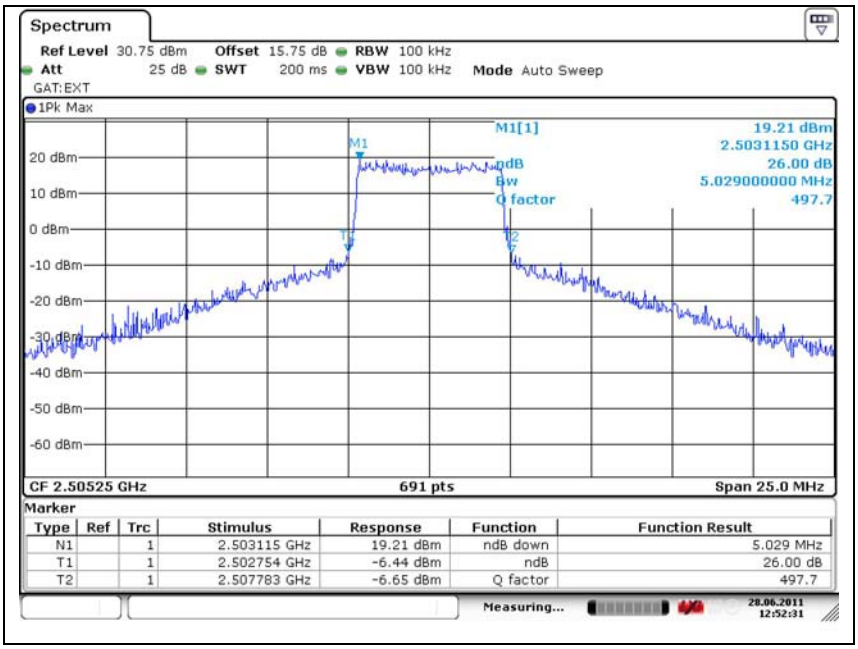
Test mode	Channel	Frequency (MHz)	Measured Occupied Bandwidth	
			99%	26dB
QPSK 1/2	Low	2 508.5	9.12	9.62
QPSK 1/2	Middle	2 630.5	9.12	9.70
QPSK 1/2	High	2 683.5	9.12	9.70

Please refer to the following plots.

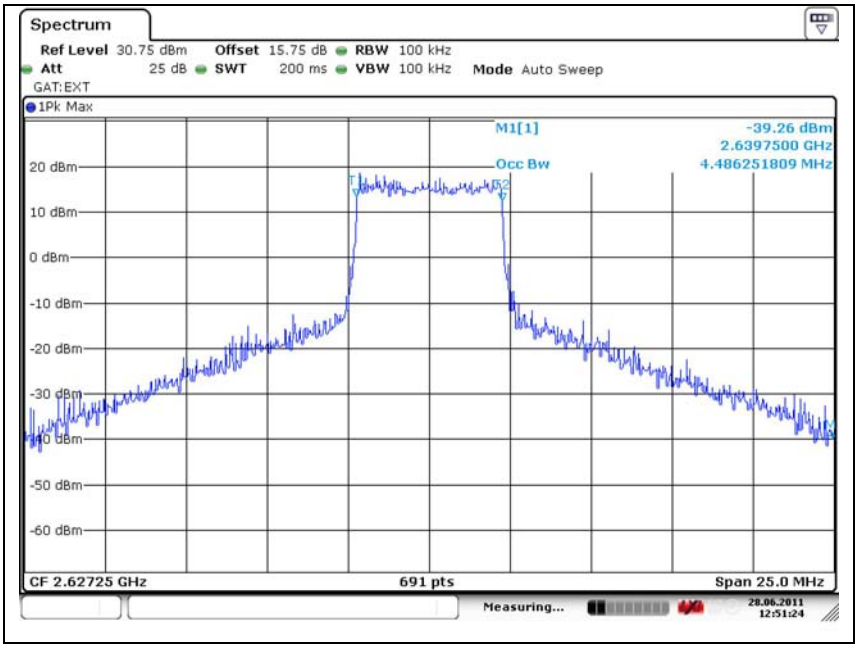
- **5 ㎒** Bandwidth

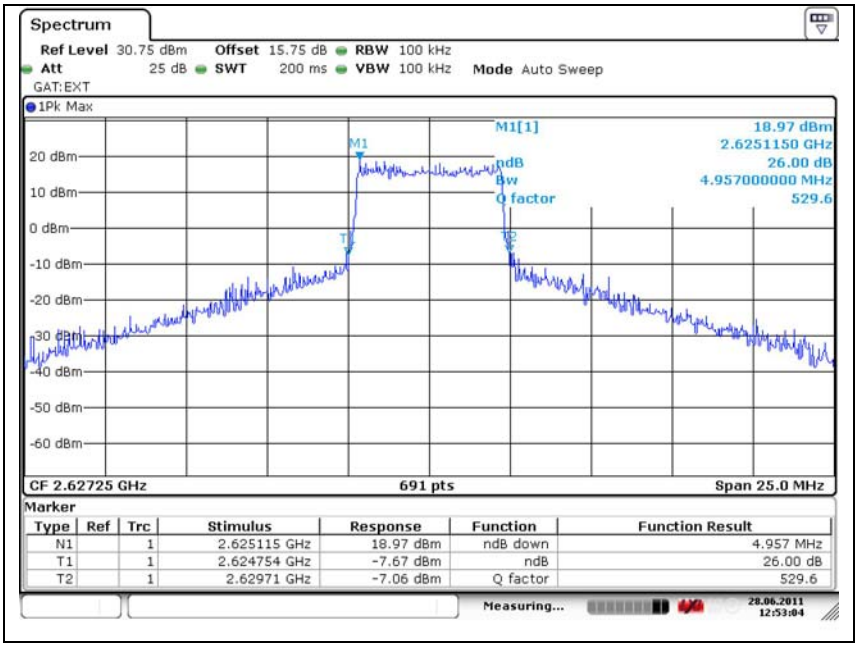
Low Channel



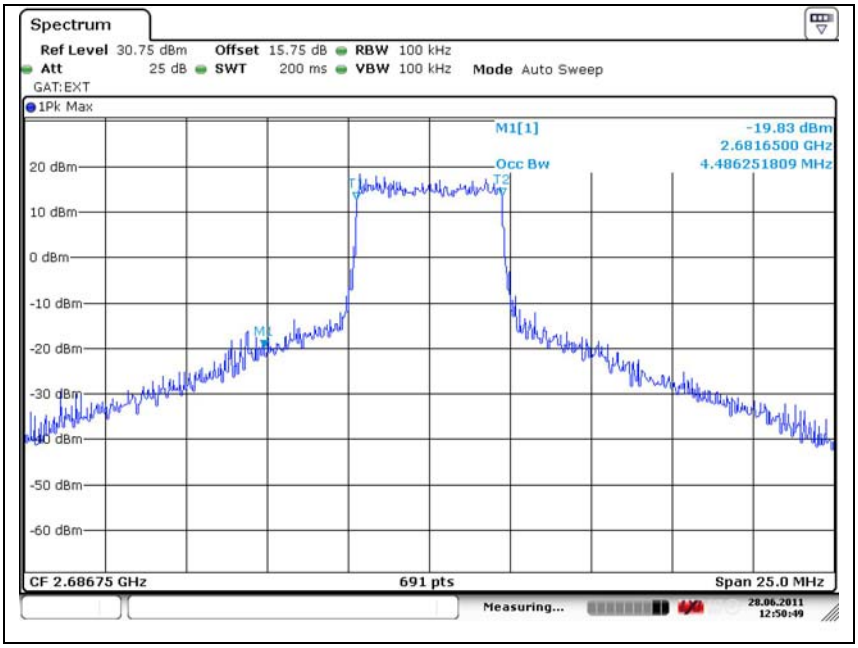


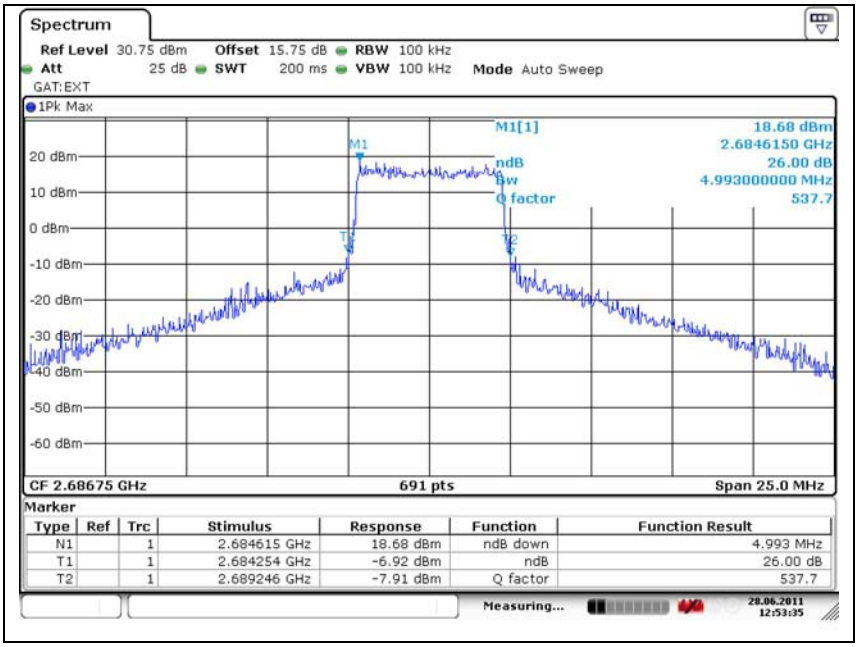
Middle Channel





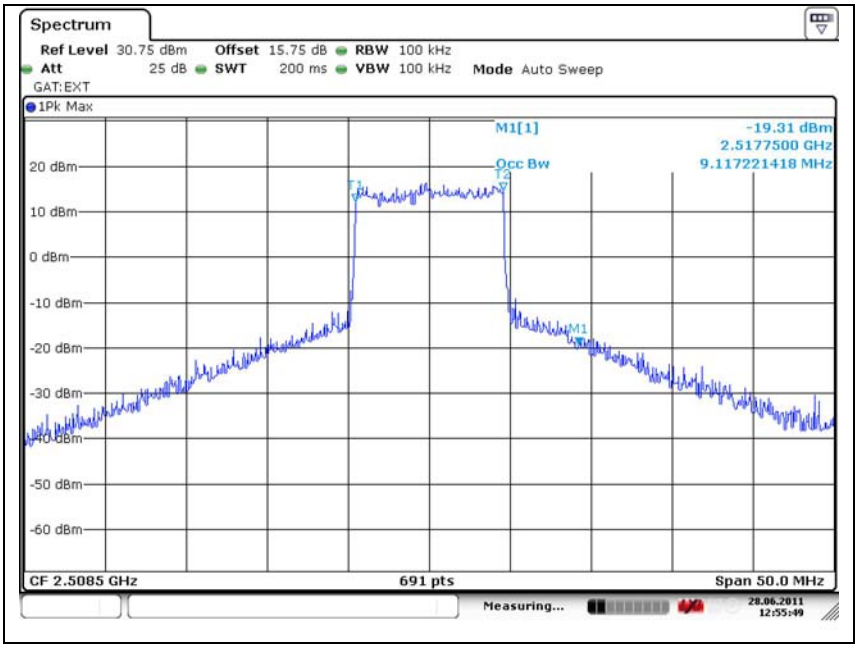
High Channel

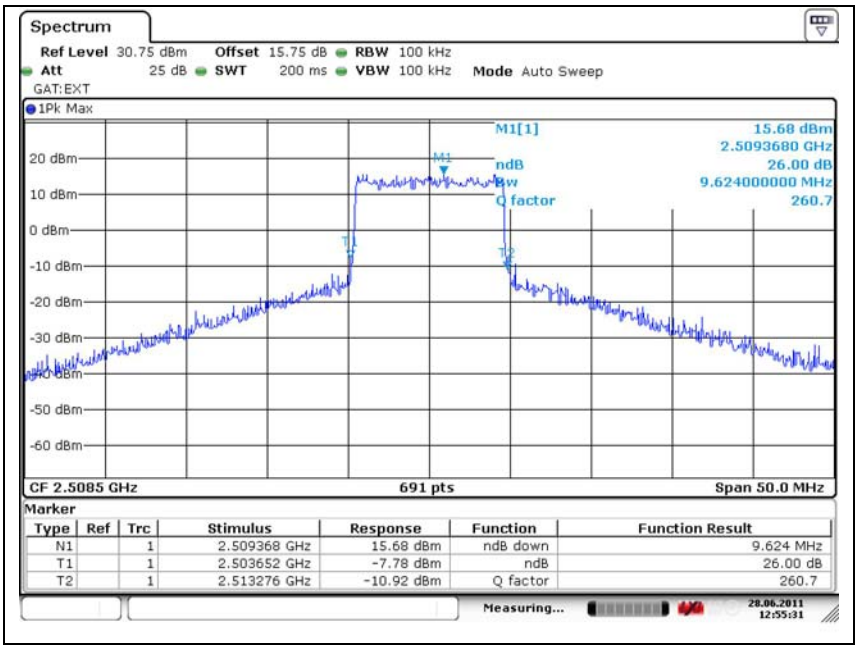




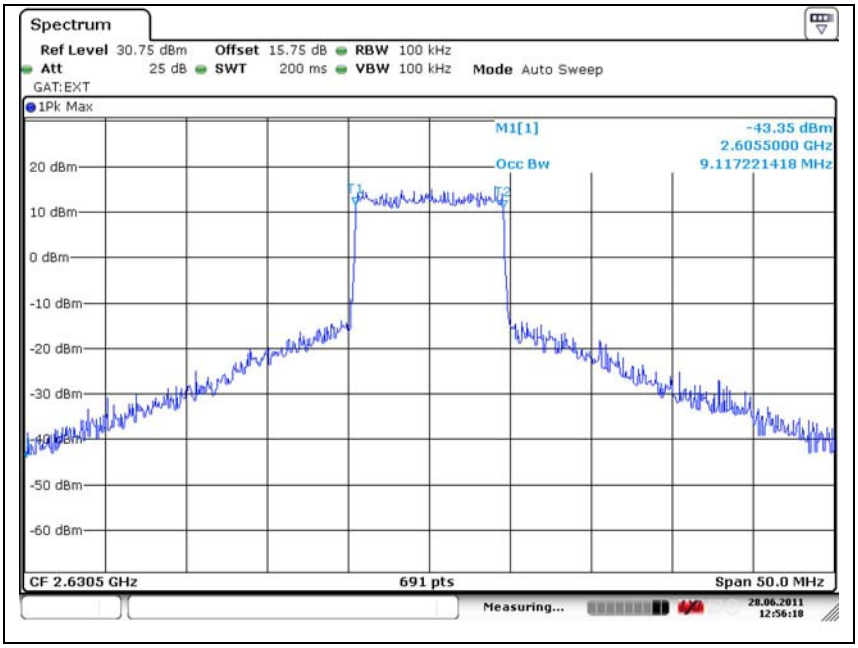
- **10 ㎒** Bandwidth

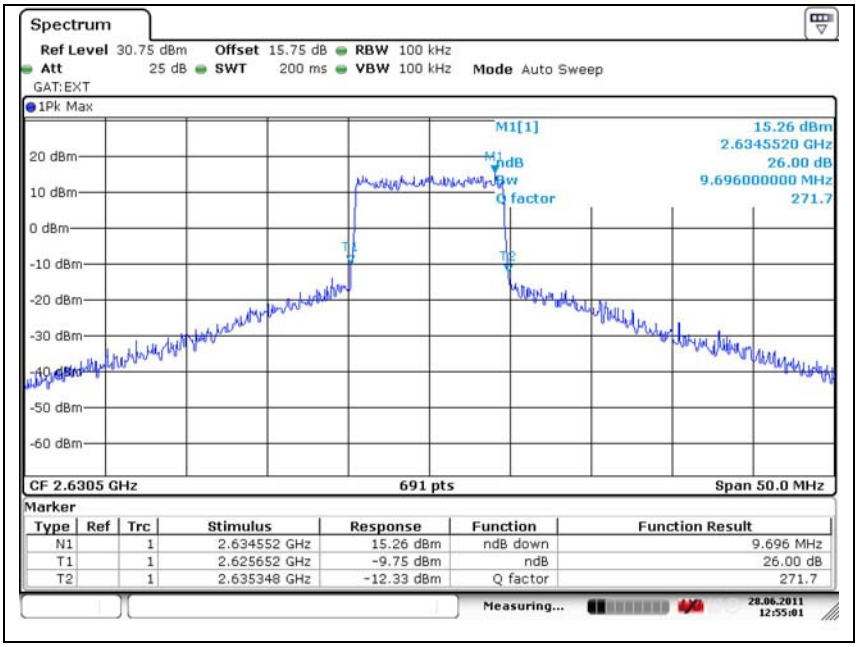
Low Channel



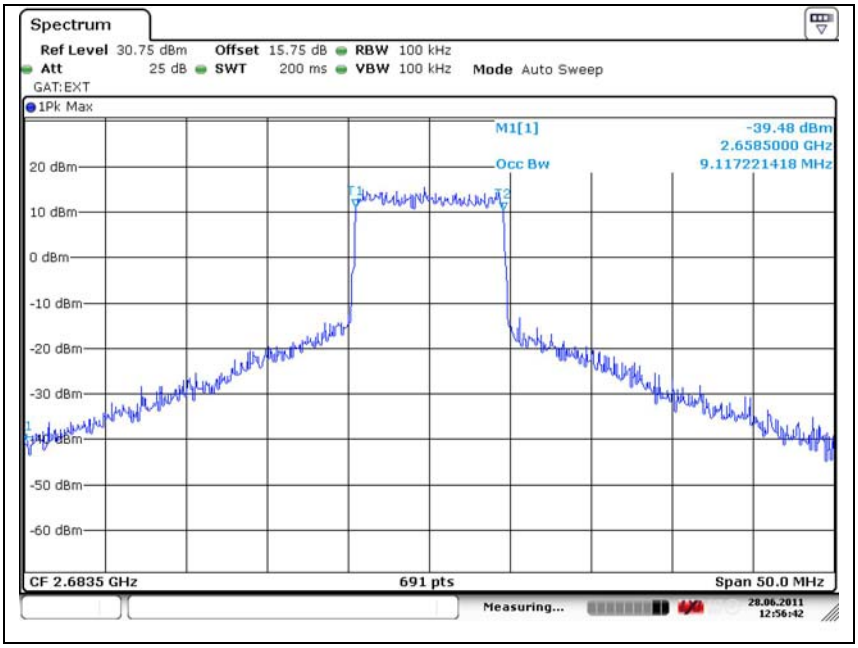


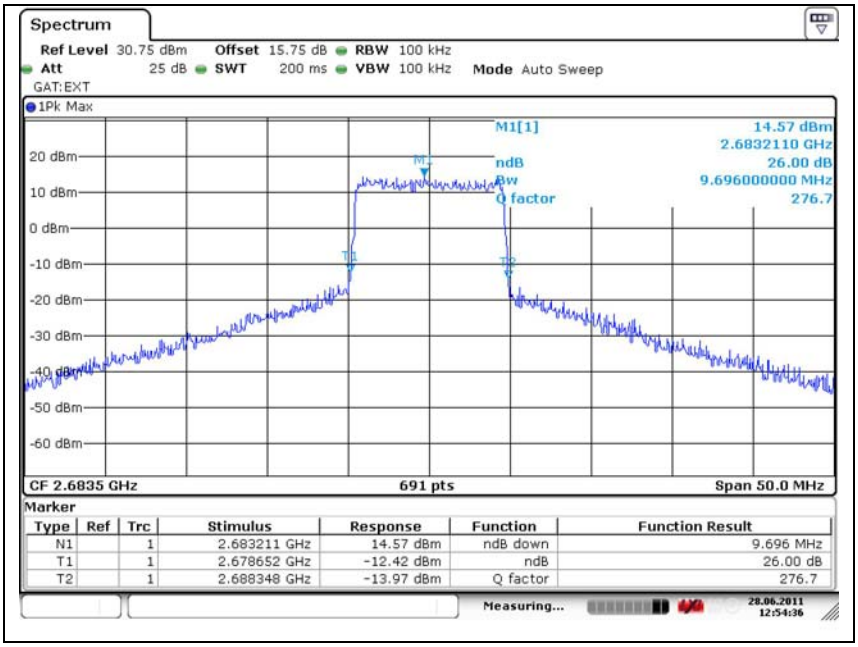
Middle Channel





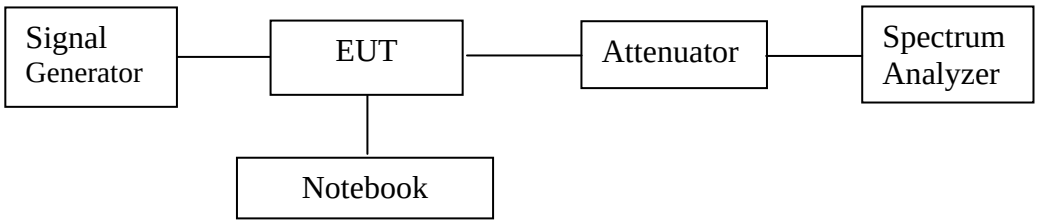
High Channel





5. Spurious Emissions at Antenna Terminal

5.1. Set up



5.2. Limit

According to 47 CFR Part 2 section § 2.1053 and Part 27 section § 27.53(a)(3), the power of any emissions outside the licensee's frequency bands of operation must be attenuated below the transmitter power (P in watts) by at least 43 +10 log (P) ㏈. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 ㎒ or greater.

The limit is calculated to be P (W) - {43 dB + 10 log [P (W)]} = 10 log [1000 P (W)] (㏈m) - 43 ㏈ - 10 log [P (W)) = 30 ㏈m - 43 dB = -13 ㏈m.

5.3. Test Procedure

1. The transmitter was tested while in a continuous transmit mode.
2. The EUT was tuned to a low, middle, and high channel in the uplink (mobile to base) directions.
3. The resolution bandwidth of the spectrum analyzer was set at 1 ㎒.

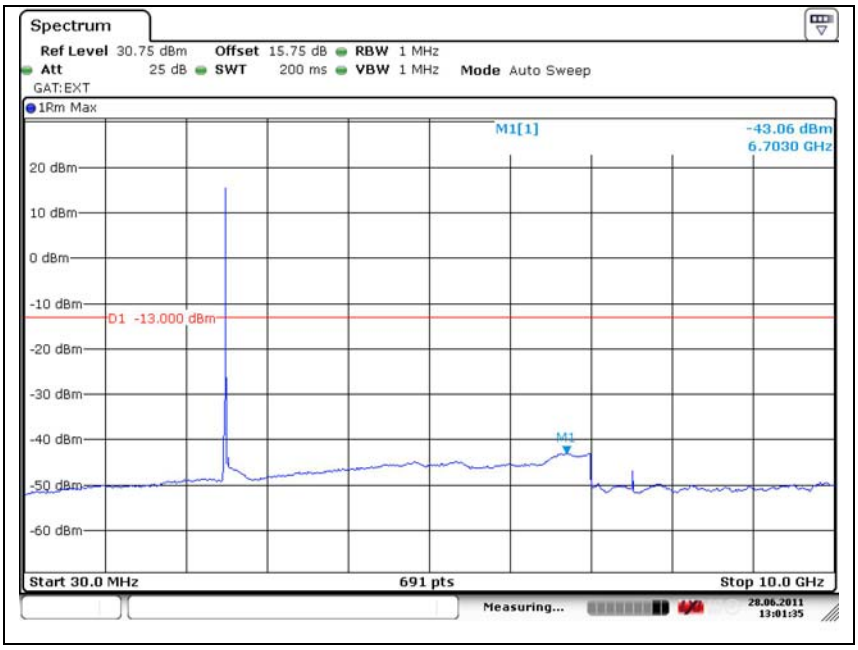
5.4. Test Results

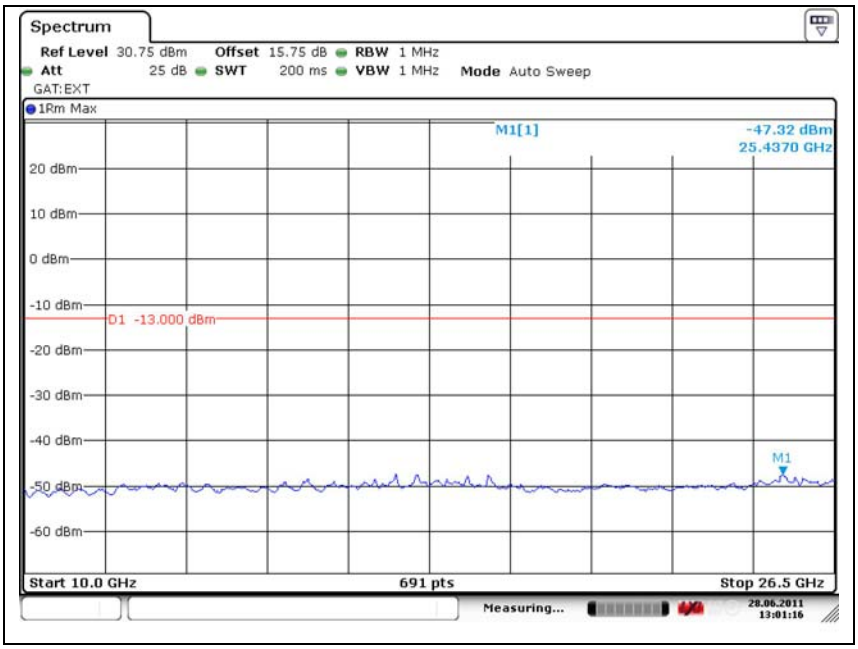
Ambient temperature	:	(24 ± 2) ℃
Relative humidity	:	47 % R.H.

Please refer to the following plots.

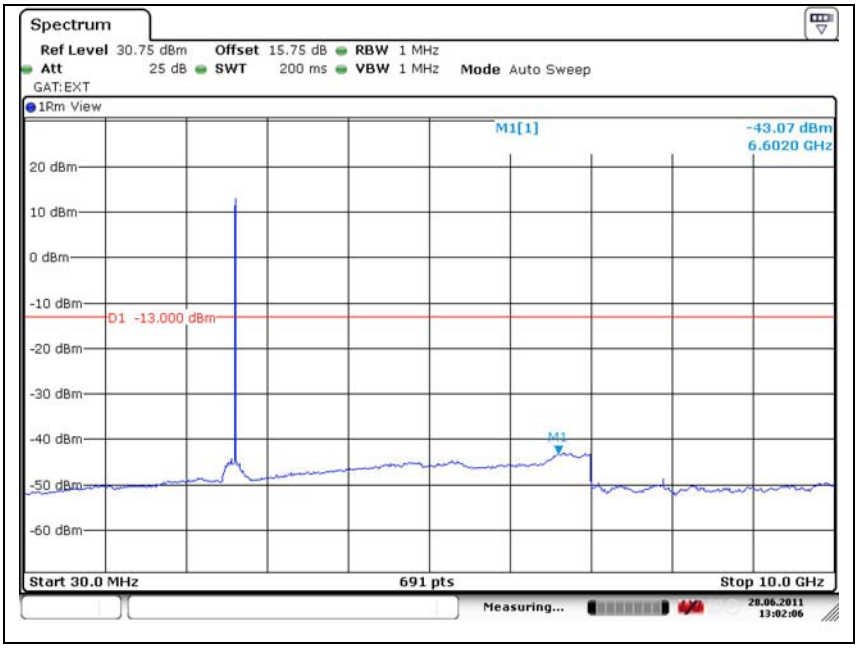
- 5 ㎒ Bandwidth

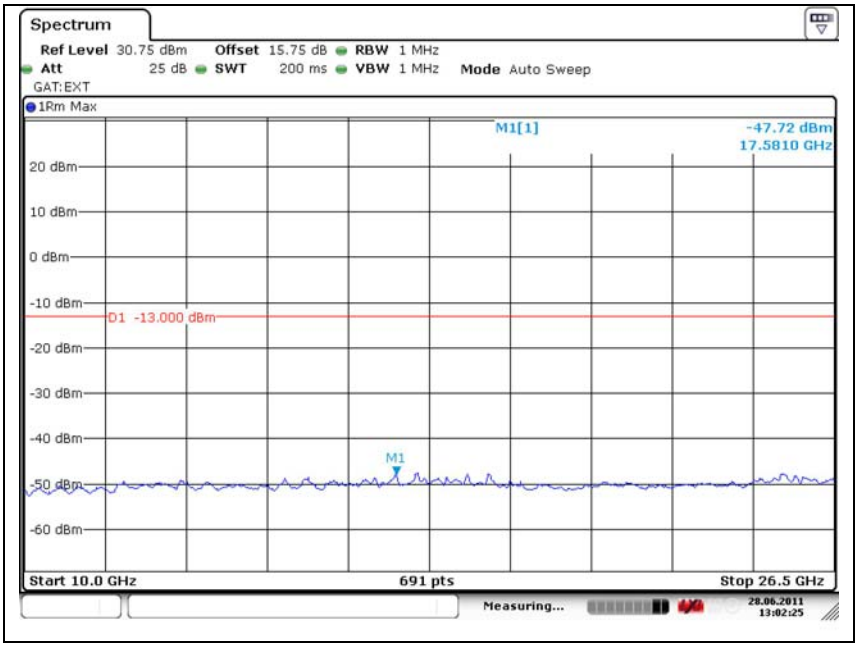
Low Channel



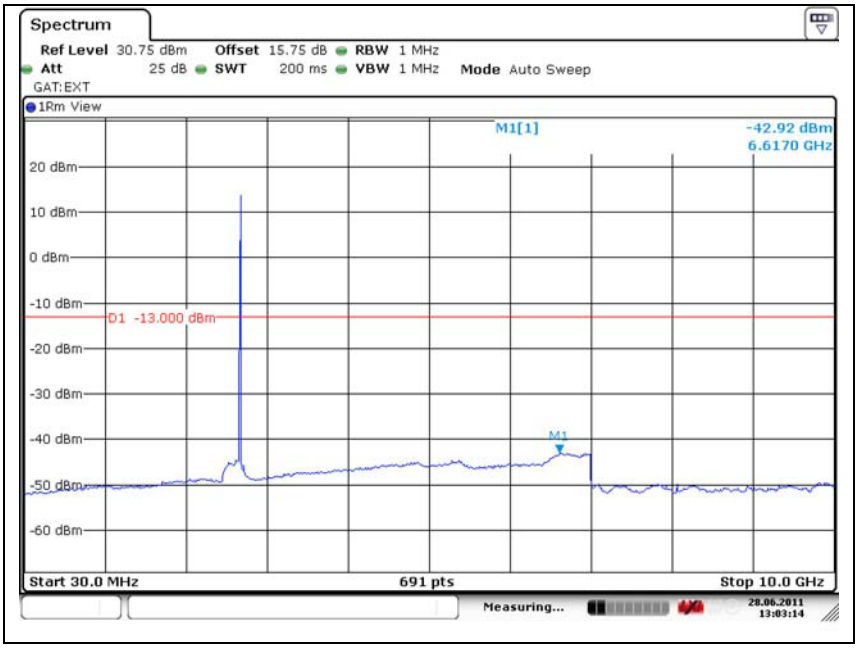


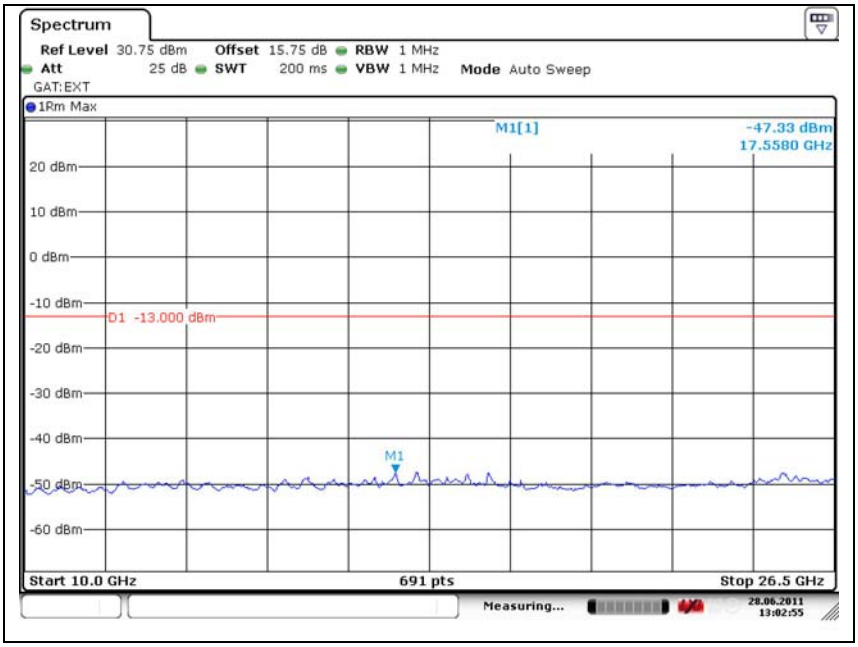
Middle Channel





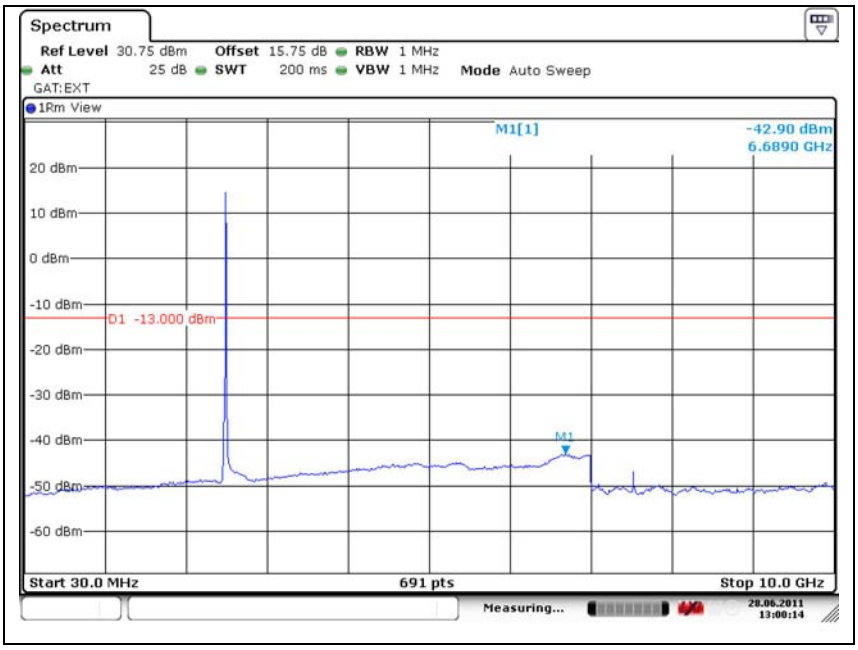
High Channel

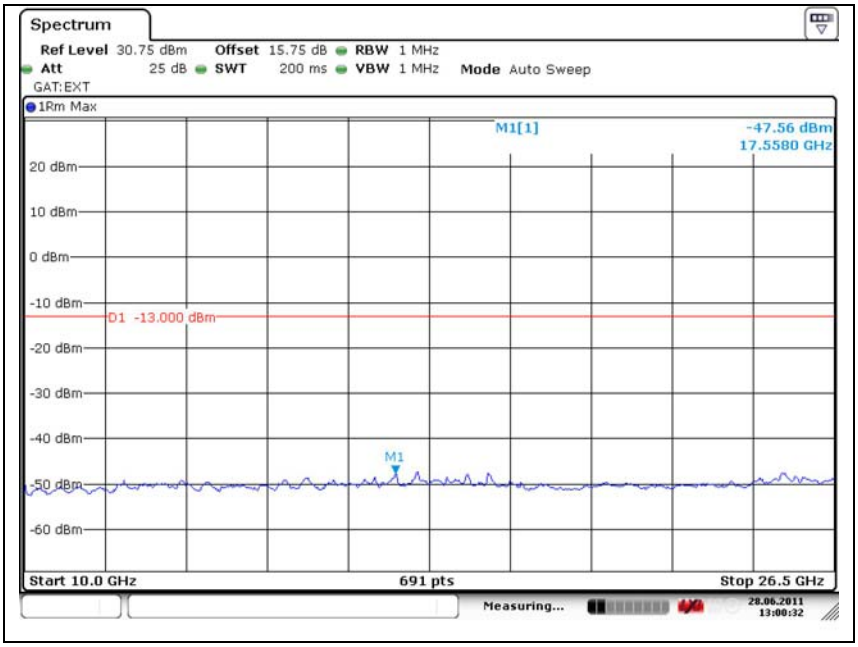




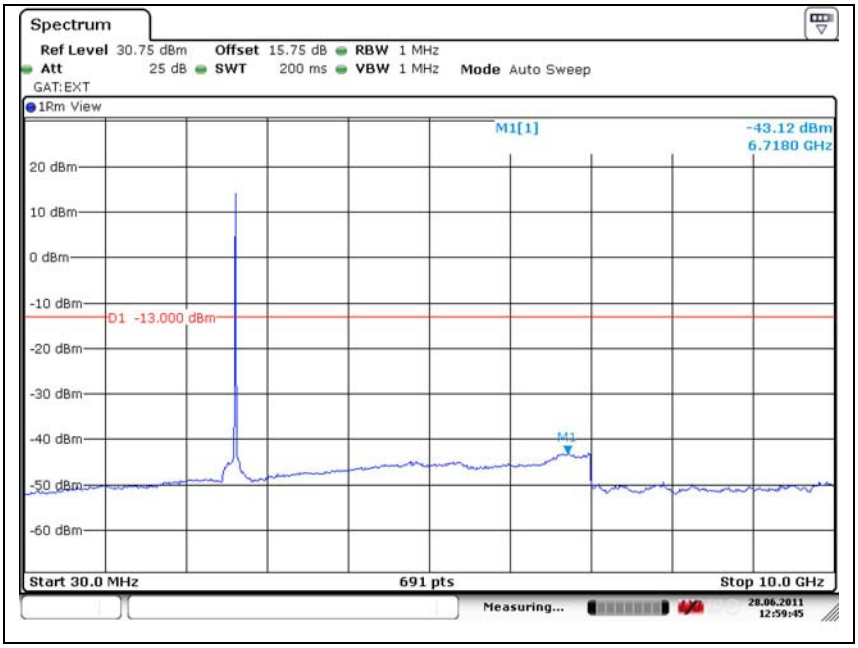
- 10 ㎒ Bandwidth

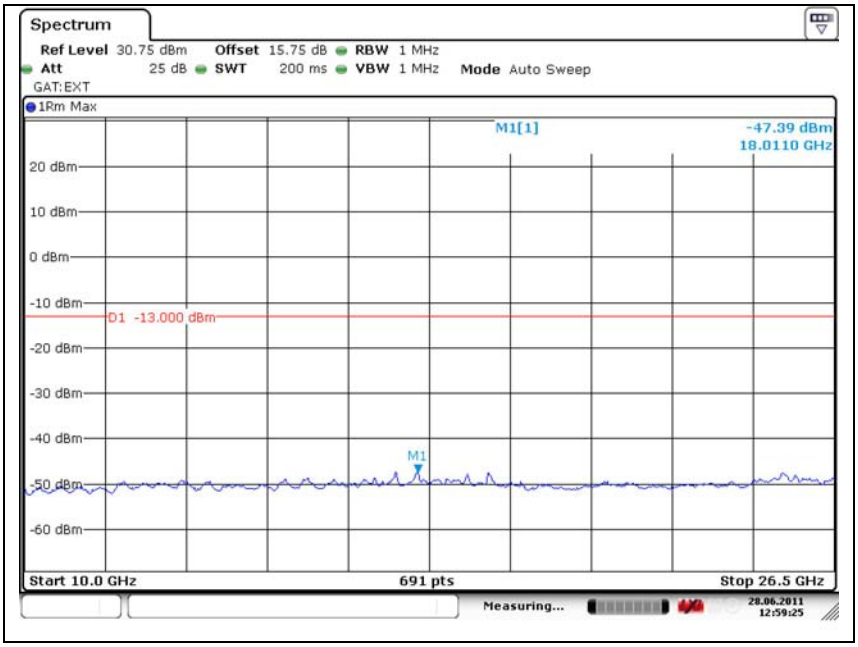
Low Channel



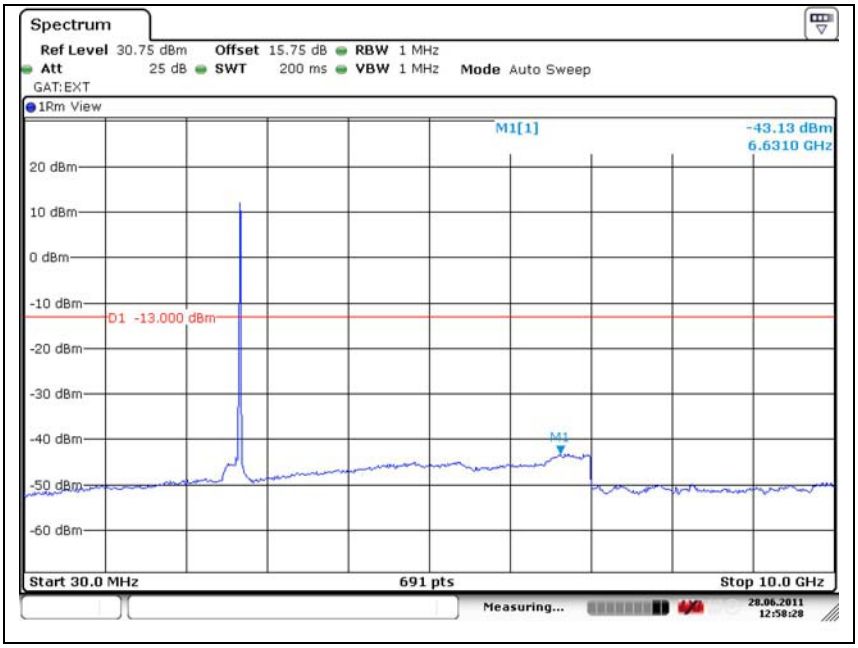


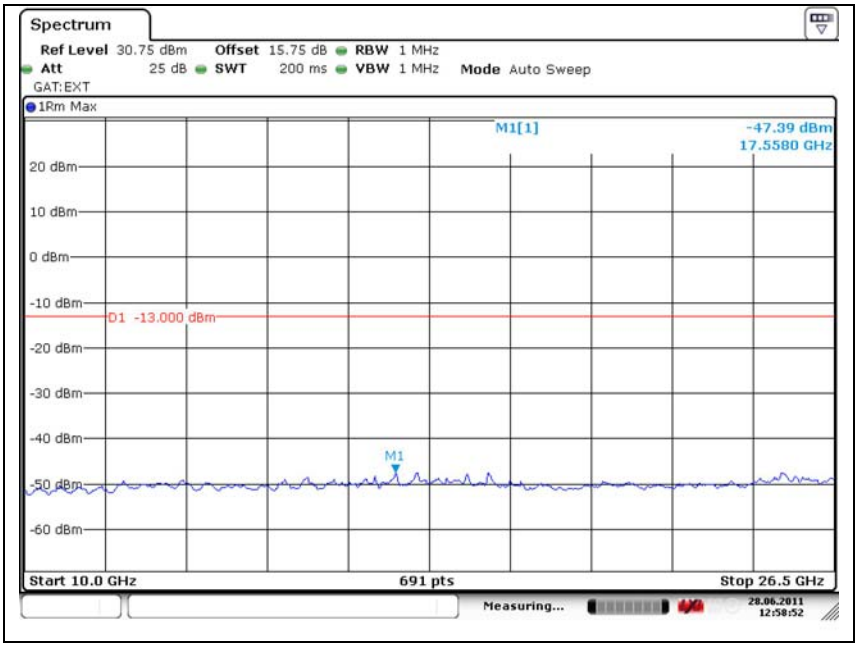
Middle Channel





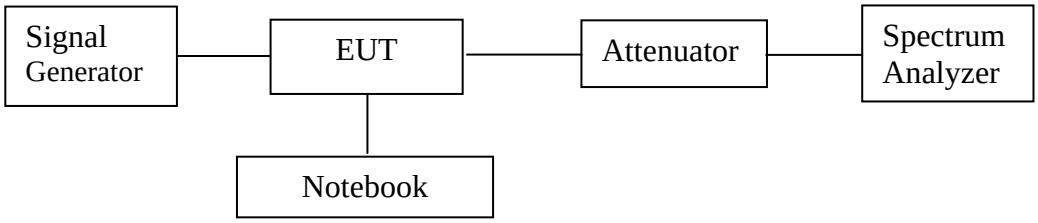
High Channel





6. Band Edge

6.1. Set up



6.2. Limit

According to 47 CFR Part 2 section § 2.1053 and Part 27 section § 27.53(a)(3), the power of any emissions outside the licensee's frequency bands of operation must be attenuated below the transmitter power (P in watts) by at least 43 +10 log (P) ㏈. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 ㎒ or greater.

The limit is calculated to be P (W) - {43 dB + 10 log [P (W)]} = 10 log [1000 P (W)] (㏈m) - 43 ㏈ - 10 log [P (W)) = 30 ㏈m - 43 dB = -13 ㏈m.

6.3. Test Procedure

1. The transmitter was tested while in a continuous transmit mode.
2. The EUT was tuned to a low, middle, and high channel in the uplink (mobile to base) directions.
3. The resolution bandwidth of the spectrum analyzer was set at 100 kHz.

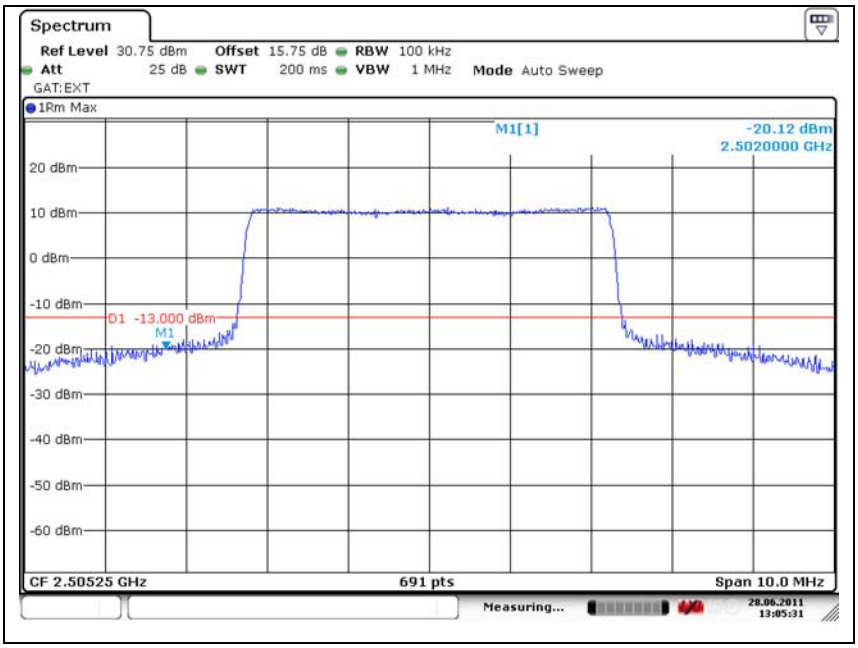
6.4. Test Results

Ambient temperature	:	(24 ± 2) ℃
Relative humidity	:	47 % R.H.

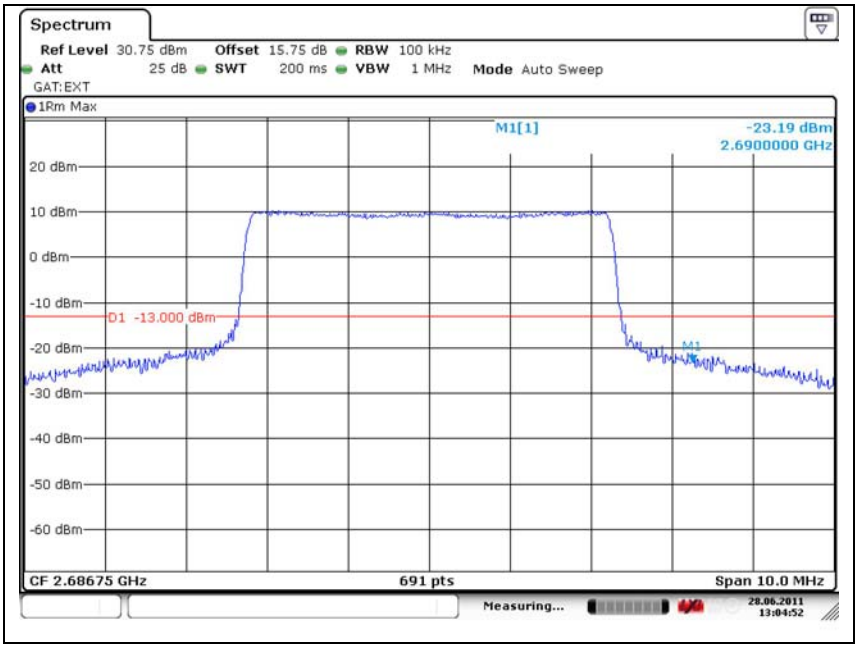
Please refer to the following plots.

- 5 ㎒ Bandwidth

Low Channel

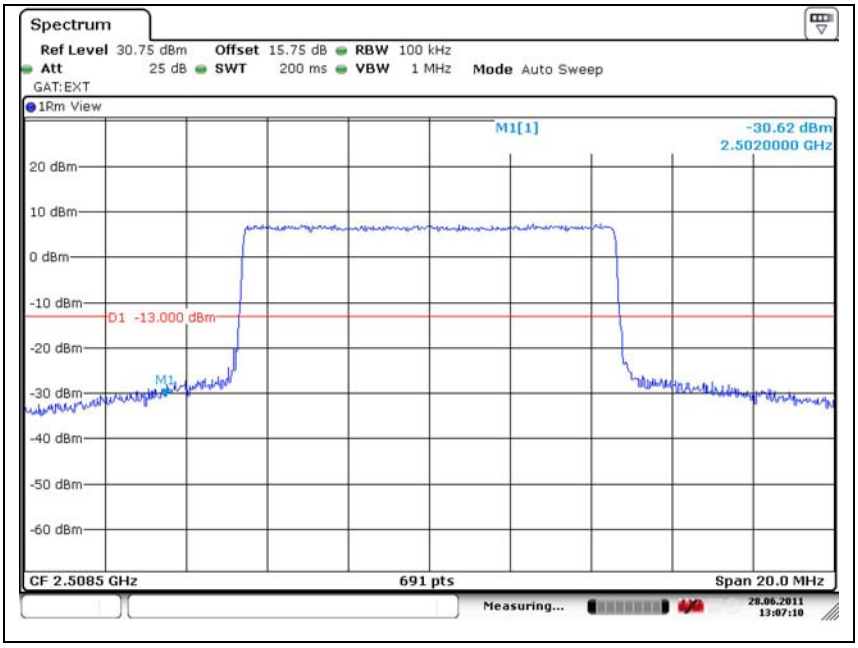


High Channel

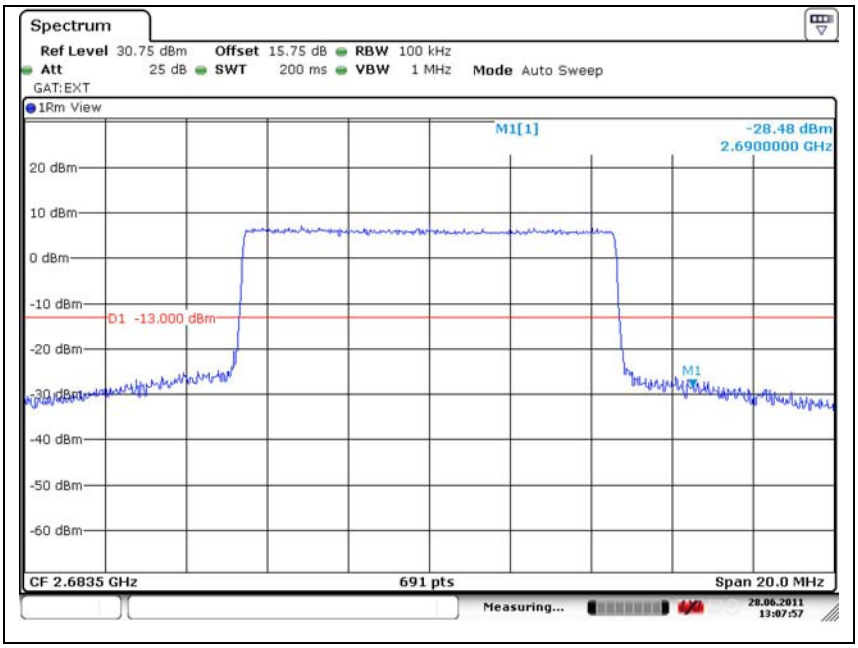


- 10 ㎒ Bandwidth

Low Channel

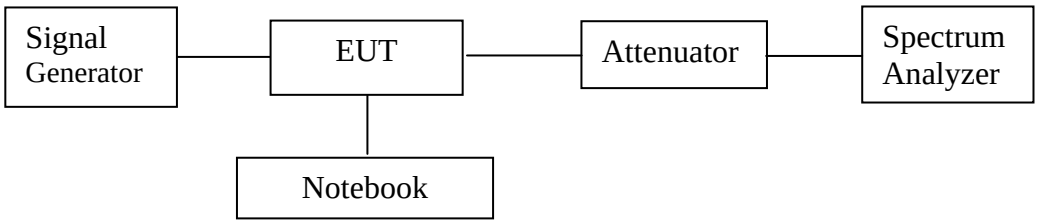


High Channel



7. Frequency Stability

7.1. set up



7.2. Limit

According to 47 CFR Part 2 section § 2.1055 and Part 27 section § 27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to WiMAX MRCT, the frequency tolerance is limited to ±2ppm.

7.3. Test Procedure

1. Frequency Stability vs. Temperature: The eq uipment under test wa s connected to an exter nal AC power supply and the RF output was con nected to a frequency counter via feed-through attenuators.
2. The EUT was placed inside the temperature chamber. The AC leads and RF output cable exited the chamber through an opening made for the purpose.
3. After the temperature stabilized for approximately 20 minutes, the frequency output wa s recorded from the counter.
4. Frequency Stability vs. Voltage: An external variable AC power su pply was connected to t he battery terminals of the equipment under test. The voltage was set to 115% of the nominal value and was then decrease d until the transmitter lig ht no longer illuminated; i.e., the AC end point. The output frequency was recorded for each AC.

7.4. Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

Frequency Stability versus Temperature

- 5 ㎒ Bandwidth

Reference Frequency: 2 627.25 ㎒, Limit: ±2 ppm			
Environment Temperature (℃)	Power Supplied (Vac)	Frequency Measure with Time Elapse	
		Frequency Error (㎐)	ppm
24(Ref.)	120	-24	-0.000 9
50	120	-28	-0.001 0
40	120	-26	-0.001 0
30	120	-30	-0.001 0
10	120	-21	-0.000 8
0	120	-30	-0.001 0
-10	120	-22	-0.000 8
-20	120	-33	-0.001 0
-30	120	-24	-0.000 9

- 10 ㎒ Bandwidth

Reference Frequency: 2 630.5 ㎒, Limit: ±2 ppm			
Environment Temperature (℃)	Power Supplied (Vac)	Frequency Measure with Time Elapse	
		Frequency Error (㎐)	ppm
24(Ref.)	120	-27	-0.000 9
50	120	-22	-0.000 8
40	120	-29	-0.001 0
30	120	-28	-0.001 0
10	120	-24	-0.000 9
0	120	-30	-0.001 0
-10	120	-28	-0.001 0
-20	120	-24	-0.000 9
-30	120	-21	-0.000 8

Frequency Stability versus AC

- 5 ㎒ Bandwidth

Reference Frequency: 2 627.25 ㎒, Limit: ±2 ppm			
Power Supplied (Vac)	**Environment Temperature (℃)**	**Frequency Error (㎐)**	**ppm**
102 24		-24	-0.000 9
138 24		-24	-0.000 9

- 10 ㎒ Bandwidth

Reference Frequency: 2 630.5 ㎒, Limit: ±2 ppm			
Power Supplied (Vac)	**Environment Temperature (℃)**	**Frequency Error (㎐)**	**ppm**
102 24		-27	-0.000 9
138 24		-27	-0.000 9

8. RF Exposure Evaluation

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in § 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength(V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time
(A) Limits for Occupational /Control Exposures				
300 – 1 500	--	--	F/300	6
1 500 – 100 000	-- --		5 6	
(B) Limits for General Population/Uncontrol Exposures				
300 – 1 500	--	--	F/1 500	6
1500 – 100 000	-- --		1 30	

8.1 Friis transmission formula : Pd = (Pout*G)/(4*pi*R^2)

Where

Pd = power density in ㎽/cm^2

Pout = output power to antenna in ㎽

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd the limit of MPE, 1 mW/cm^2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

8.2 Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data
Test Mode : Normal Operation

8.2.1 Output Power into Antenna & RF Exposure Evaluation Distance

Antenna: 5.839 dBi (Whip Antenna)

- 5 MHz Bandwidth

Test Mode: QPSK 1/2

Channel	Frequency (MHz)	Peak output power (dBm)	Antenna gain (dBi)	Power density at 20cm (mW/cm²)	Limit (mW/cm²)
Low	2 505.25	25.17	5.839	0.250 97	1
Middle	2 627.25	24.79	5.839	0.229 95	
High	2 686.75	24.92	5.839	0.236 94	

- 10 MHz Bandwidth

Test Mode: QPSK 1/2

Channel	Frequency (MHz)	Peak output power (dBm)	Antenna gain (dBi)	Power density at 20cm (mW/cm²)	Limit (mW/cm²)
Low	2 508.5	25.21	5.839	0.253 30	1
Middle	2 630.5	25.13	5.839	0.248 67	
High	2 683.5	24.95	5.839	0.238 58	

Simultaneous Multiple band RF Exposure results

Band	Mode	Output Average Power to Antenna (dB m)	Antenna Gain (dB i)	Power Density at 20cm (㎽/㎠)	LIMITS (㎽/㎠)
2.4 GHz	WLAN	15.48	5.250	0.023 54	1
2.5 GHz	WiMax	25.21	5.839	0.253 30	1
Combined 0.276				84	1