FCC Part 27 Subpart C&M
EMI TEST REPORT

of

E.U.T. : WiMAX Outdoor Modem
FCC ID. : D6XWM5030OD
MODEL : WM5030-OD-2G5
Working Frequency : 2502.5 – 2687.5 MHz

for

APPLICANT :TECOM CO., LTD.
ADDRESS :No.23 R&D ROAD 2, SCIENCE-BASED INDUSTRIAL PARK HSIN-CHU TAIWAN R.O.C.

Test Performed by

ELECTRONICS TESTING CENTER (ETC) , TAIWAN
NO. 34, LIN 5, DINGFU TSUEN, LINKOU SHIANG
TAIPEI COUNTY, TAIWAN, 24442, R.O.C.
TEL : (02)26023052 FAX : (02)26010910
http:// www.etc.org.tw ; e-mail:emc@etc.org.tw

Report Number : 10-03-RBF-121-01

TEST REPORT CERTIFICATION

Applicant : TECOM CO., LTD.
No.23 R&D ROAD 2, SCIENCE-BASED INDUSTRIAL PARK
HSIN-CHU TAIWAN R.O.C.

Manufacturer : TECOM CO., LTD.
No.23 R&D ROAD 2, SCIENCE-BASED INDUSTRIAL PARK
HSIN-CHU TAIWAN R.O.C.

Description of EUT :

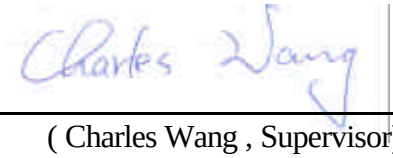
a) Type of EUT	:	WiMAX Outdoor Modem
b) Trade Name	:	WIN II
c) Model No.	:	WM5030-OD-2G5
d) FCC ID	:	D6XWM5030OD
e) Working Frequency	:	2502.5 – 2687.5 MHz
f) Power Supply	:	I/P: 100-240V, 50-60Hz, 0.6A O/P: +48V, 0.416A, 20W max

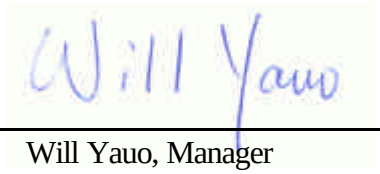
Regulation Applied : FCC Rules and Regulations Part 27 Subpart C and M (2009)

I HEREBY CERTIFY THAT; The data shown in this report were made in accordance with the procedures given in ANSI C63.4 and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Issued Date : May 13, 2010

Test Engineer : 
(Falcon Shi, Engineer)

Check By : 
(Charles Wang , Supervisor)

Approve & Authorized Signer : 
Will Yauo, Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

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1. GENERAL INFORMATION

1.1 Product Description

a) Type of EUT	:	WiMAX Outdoor Modem
b) Trade Name	:	WIN II
c) Model No.	:	WM5030-OD-2G5
d) FCC ID	:	D6XWM5030OD
e) Working Frequency	:	2502.5 – 2687.5 MHz
f) Power Supply	:	I/P: 100-240V, 50-60Hz, 0.6A O/P: +48V, 0.416A, 20W max

1.2 Test Methodology

Both conducted and radiated testing were performed according to the procedures in chapter 13 of ANSI C63.4 (2003). Test also follow "TIA/ELA 603-Land Mobile FM or PM Communications Equipment Measurement and Performance Standsrds" and section 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, and 2.1055 of Part 2 of CFR 47.

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at NO.34, LIN 5, DINGFU TSUEN, LINKOU SHIANG TAIPEI COUNTY, TAIWAN, 24442, R.O.C.

This site has been fully described in a report submitted to your office, and accepted in a letter dated Aug. 05, 2008.

2. REQUIREMENTS OF PROVISIONS

2.1 Requirements for Radio Equipment on Certification

(1) RF Output Power

(2) Modulation Characteristics

(3) Occupied Bandwidth

(4) Spurious Emissions at Antenna Terminals

(5) Field Strength of Spurious Emissions

(6) Frequencies Tolerance

2.2 Test Summary

Appendix	Test/Requirement Description	Deviations from:			Pass/Fail	Applicable Rule Parts
		Base Standard	Test Basis	NTS Procedure		
A	RF Power Output	No	No	No	PASS	CFR 47, Part 2, Para. 2.1046 CFR 47, Part 27, Para. 27.50(h)
B	Modulation Characteristics	No	No	No	PASS	CFR 47, Part 2, Para. 2.1047
C	Occupied Bandwidth	No	No	No	PASS	CFR 47, Part 2, Para. 2.1049 CFR 47, Part 27, Para. 27.53(I)
D	Spurious Emissions at Antenna Terminals	No	No	No	PASS	CFR 47, Part 2, Para. 2.1051 CFR 47, Part 27, Para. 27.53(I)
E	Field Strength of Spurious Radiation	No	No	No	PASS	CFR 47, Part 2, Para. 2.1053 CFR 47, Part 27, Para. 27.53(I)
F	Frequency Stability	No	No	No	PASS	CFR 47, Part 2, Para. 2.1055 CFR 47, Part 27, Para. 27.54

2.3 Labeling Requirement

Each equipment for which a type acceptance application is filed on or after May 1,1981, shall bear an identification plate or label pursuant to §2.925（Identification of equipment） and § 2.926（FCC identifier）.

3. OUTPUT POWER MEASUREMENT

3.1 Specifications

FCC 27.50 Power and antenna height requirements

(h) The following power limits shall apply in the BRS and EBS:

(1) Main, booster and base stations.
(i) The maximum EIRP of a main, booster or base station shall not exceed 33 dBW + 10log(X/Y) dBW, where X is the axtual channel with in MHz and Y is either 6 MHz if prior to transmition or the station is in the MBS following transmition or 5.5 MHz if the station is in the LBS and UBS following transition, except as provided in paragraph (h)(1)(ii) of this section.
(ii) If a main or booster staion sectorizes or otherwise uses one or more transmitting antennas with a non-omnidirectional horizontal plane radiation pattern, the maximum EIRP in dBW in a given direction shall be determined by the following formula: EIRP = 33 dBW + 10 log(X/Y) dBW + 10 log(360/beamuidth) dBW, where X is the actual channel width in MHz, Y is either (i) 6 MHz if prior to transmition or the station is in the MBS following transmition or (ii) 5.5MHz if the station is in the LBS and UBS following transmition, and beamwidth is the total orizontal plane beanwidth of the individual transmitting antenna for the staion or any sector measured at the half-power points.

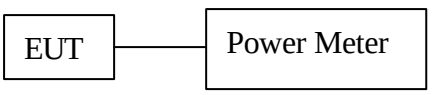
(2) Mobile and other user stations.
Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

(4)(i) Peak transmit power shall be measured over any interval of continuous transmission using instrumentation calibrated in terms of rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector reqponse times, limited resolution bandwidth capability when compared to the emission bandwidth etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

3.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 1 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz and VBW to 1 MHz.
4. Use channel power function and record the level displayed.
5. Repeat above procedures until all frequencies measured were complete.

Figure 1: Output power and measurement configuration.



3.3 Test Result

Applicable RF Power Limit:

The EUT is an outdoor modem which is classified as an "other user station" according to FCC 27.50(h)(2). All user stations are limited to 2.0 watts transmitter output power.

Operation Mode : Operation Mode(5M)

Test Date : Apr. 03, 2010 Temperature : 21 °C Humidity : 62 %

Transmitter Power (dBm)		
Low Channel 2502.5MHz	**Middle Channel 2595MHz**	**High Channel 2687.5MHz**
Conducted Power (AV)	Conducted Power (AV)	Conducted Power (AV)
24.8	25.0	25.1

Operation Mode : Operation Mode(10M)

Test Date : Apr. 03, 2010 Temperature : 21 °C Humidity : 62 %

Transmitter Power (dBm)		
Low Channel 2505MHz	**Middle Channel 2595MHz**	**High Channel 2685MHz**
Conducted Power (AV)	Conducted Power (AV)	Conducted Power (AV)
24.8	25.0	25.1

4 Modulation Characteristics

4.1 Specifications

2.1047 – Modulation Characteristics

(a) Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.

(b) Equipment which employs modulation limiting. A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed.

(c) Single sideband and independent sideband radiotelephone transmitters which employ a device or circuit to limit peak envelope power. A curve showing the peak envelope power output versus the modulation input voltage shall be supplied. The modulating signals shall be the same in frequency as specified in paragraph (c) of §2.1049 for the occupied bandwidth tests.

(d) Other types of equipment. A curve or equivalent data which shows that the equipment will meet the modulationrequirements of the rules under which the equipment is to be licensed.

4.2 Measurement Procedure

This device generates a complex digitally modulated waveform.

4.3 Test Result

Not applicable – The device does not produce an analogue modulated waveform.

Emission Designators

5M00F9W; 10M0F9W

5. OCCUPIED BANDWIDTH OF EMISSION

5.1 Sepecifications

According to §2.1049 (c)(1), For radiotelephone transmitter, other than single sideband or indenpent sideband transmitter, when modulateed by a 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation.

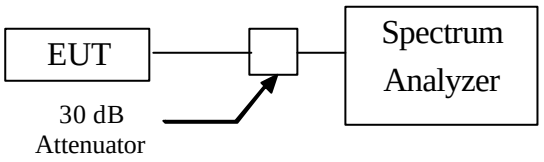
According to §27.53(I), (1) Prior to the transition, and thereafter, solely within the MBS, for analog operations with an EIRP in excess of .9 dBW, the signal shall be attenuated at the channel edges by at least 38 dB relative to the peak visual carrier, then linearly sloping from that level to at least 60 dB of attenuation at 1 MHz below the lower band edge and 0.5 MHz above the upper band edge, and attenuated at least 60 dB at all other frequencies.
(2) For fixed and temporary fixed digital stations, the attenuation shall be not less than 43 + 10 log (P) dB, unless a documented interference complaint is received from an adjacent channel licensee.Provided that the complaint cannot be mutually resolved between the parties, both licensees of existing and new systems shall reduce their out-of-band emissions by at least 67 + 10 log (P) dB measured at 3MHz from their channel's edges for distances between stations exceeding 1.5 km. For stations separated
by less than 1.5 km, the new licensee shall reduce attenuation at least 67 + 10 log (P) . 20 log(Dkm/1.5), or when colocated, limit the undesired signal level at the affected licensee's base station receiver(s) at the colocation site to no more than .107 dBm. Mobile Service Satellite licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS1 on the same terms and conditions as adjacent channel BRS or EBS licensees.
(3) Prior to transition and thereafter solely within the MBS, and notwithstanding paragraph (l)(2) of this section, the maximum out-of-band power of a digital transmitter operating on a single 6 MHz channel with an EIRP in excess of .9 dBW employing digital modulation for the primary purpose of transmitting video programming shall be attenuated at the 6 MHz channel edges at least 25 dB relative to the licensed average 6 MHz channel power level, then attenuated along a linear slope to at least 40 dB at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all other frequencies.
(4) For mobile digital stations, the attenuation factor shall be not less than 43 + 10 log (P) dB at the channel edge and 55 + 10 log (P) dB at 5.5 MHz from the channel edges. Mobile Service Satellite licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS1 on the same terms and conditions as adjacent channel BRS or EBS licensees.
(5) Notwithstanding the provisions of paragraphs (l)(2) and (l)(4) of this section, prior to transition, a licensee may continue to operate facilities deployed as of January 10, 2005 provided that such facilities operate in compliance with the emission mask applicable to those services prior to January 10, 2005.

(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). 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 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

5.2 Measurement Method

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 2 without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 26 dB from the reference level by setting "ndB dowm" to 26dB. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

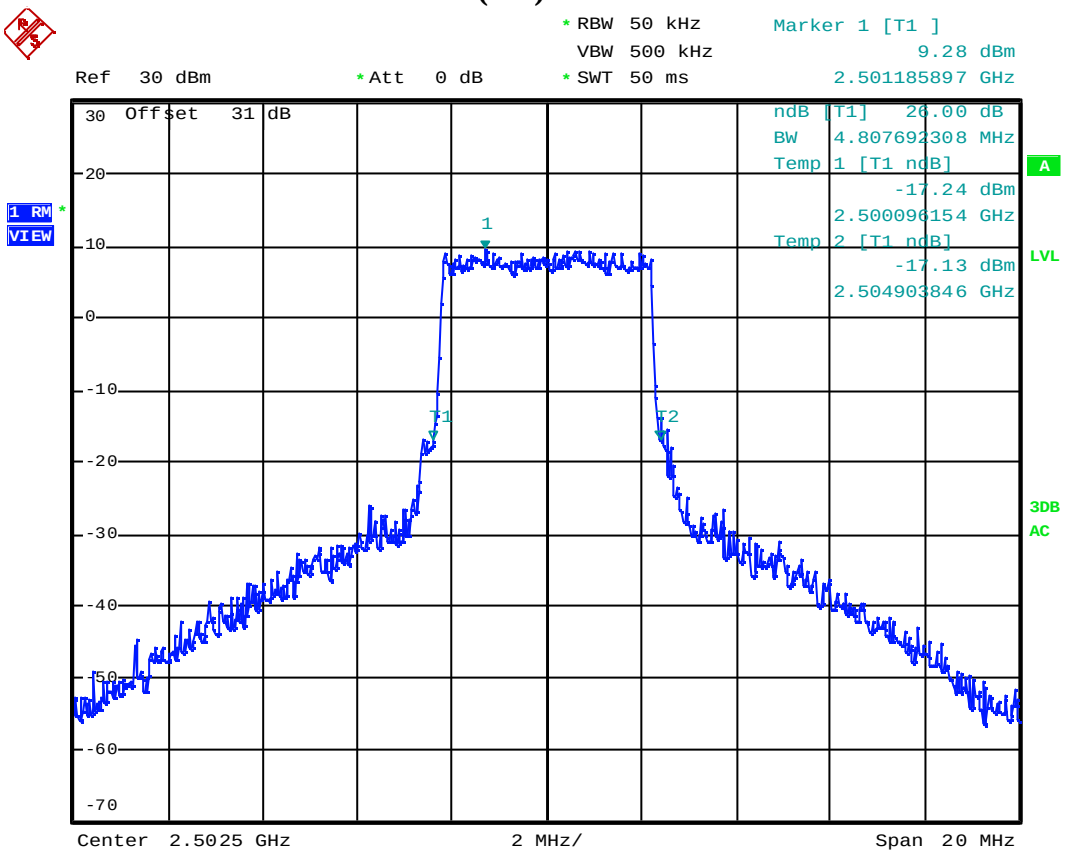
Figure 2 : Occupied bandwidth measurement configuration



5.3 Measured results

Please refer to the following pages of plotted data.

Mode: BANDWIDTH 2502.5MHz(5M)



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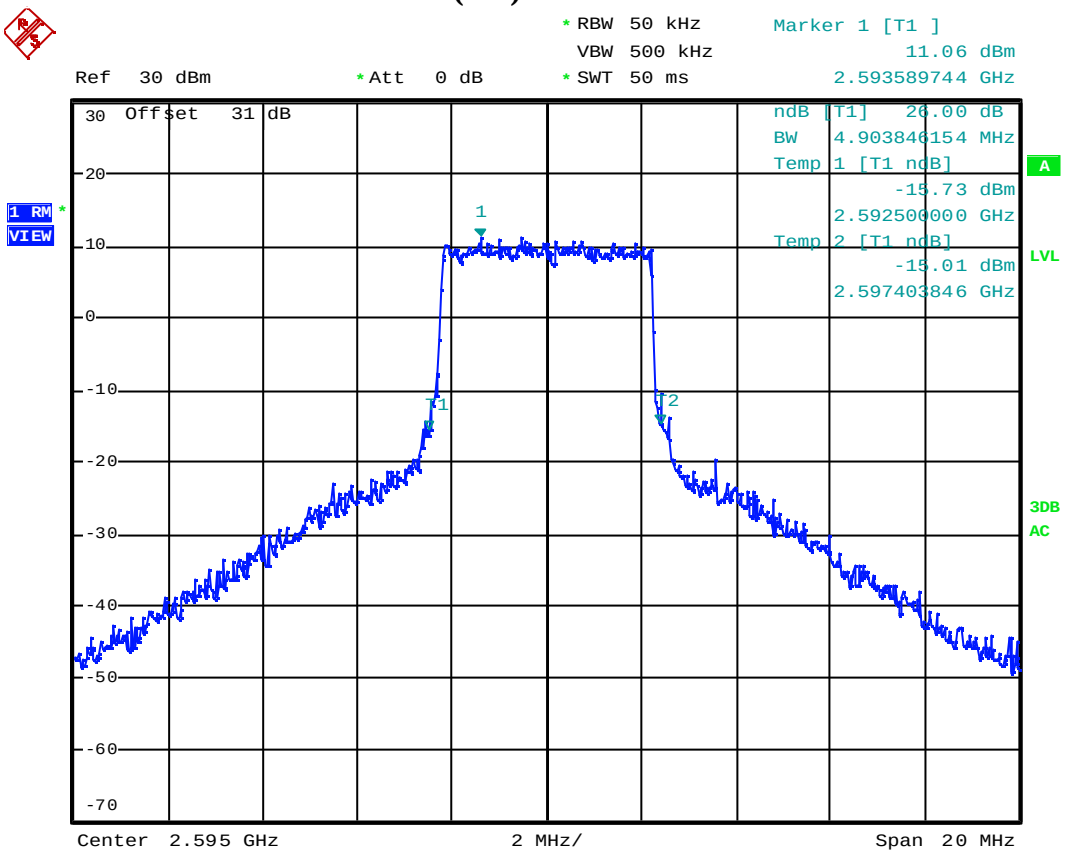

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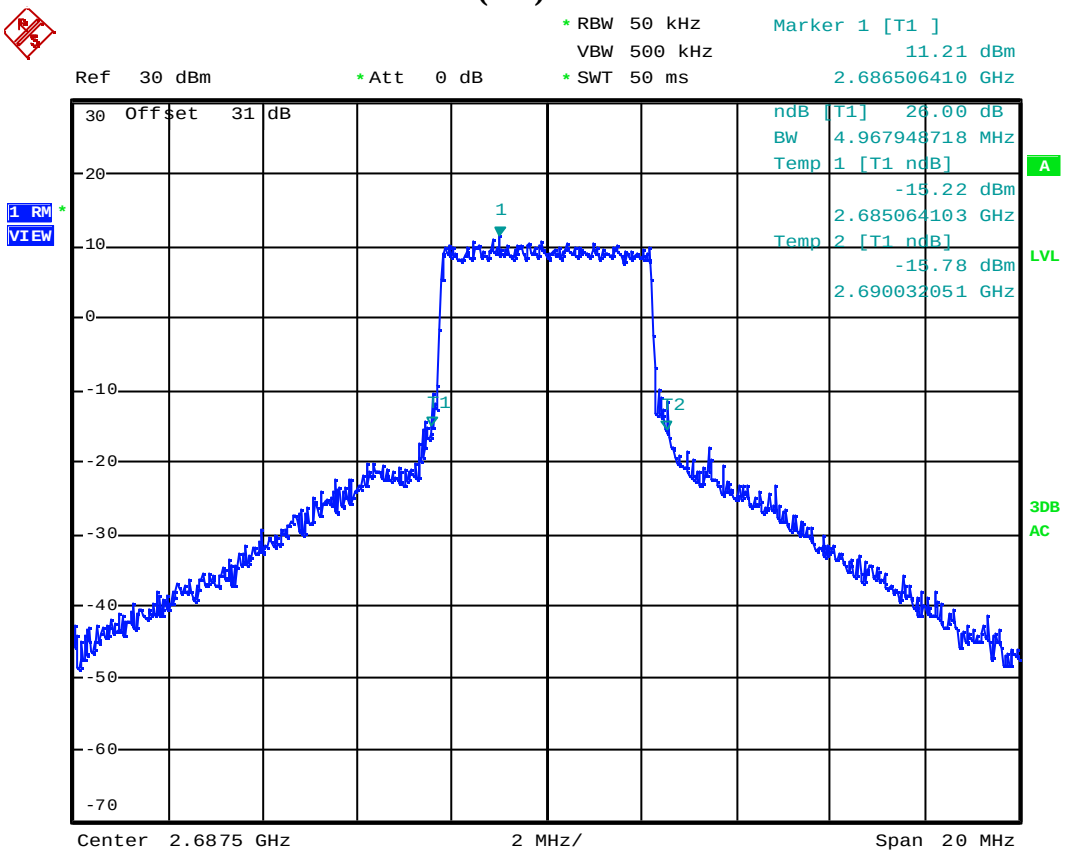
Mode: BANDWIDTH 2687.5MHz(5M)



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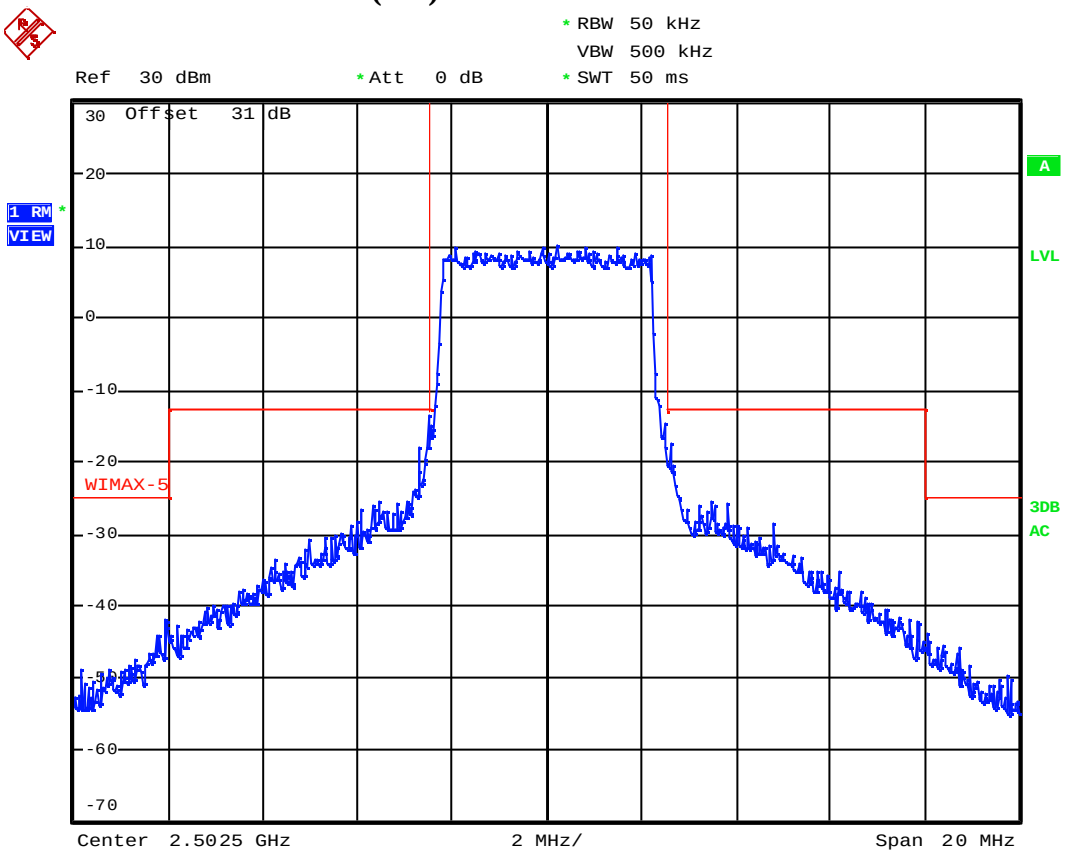
Mode: MASK 2502.5MHz(5M)



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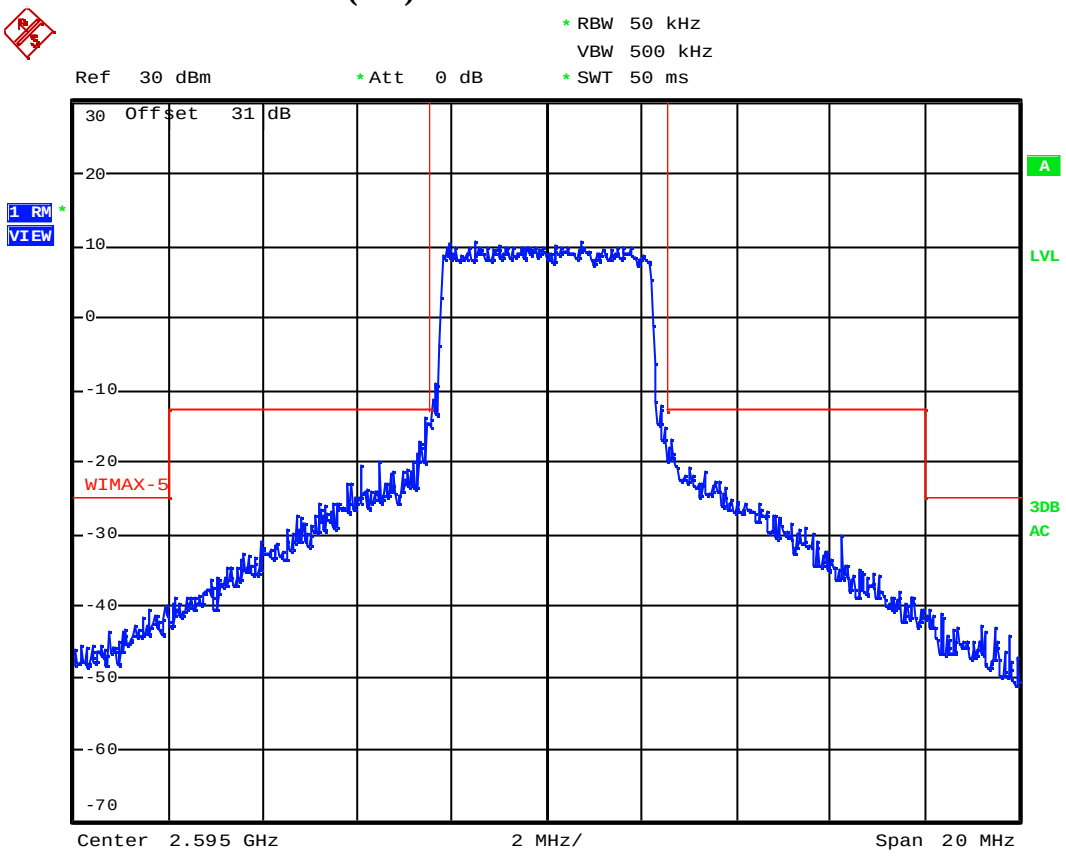
Mode: MASK 2595MHz(5M)



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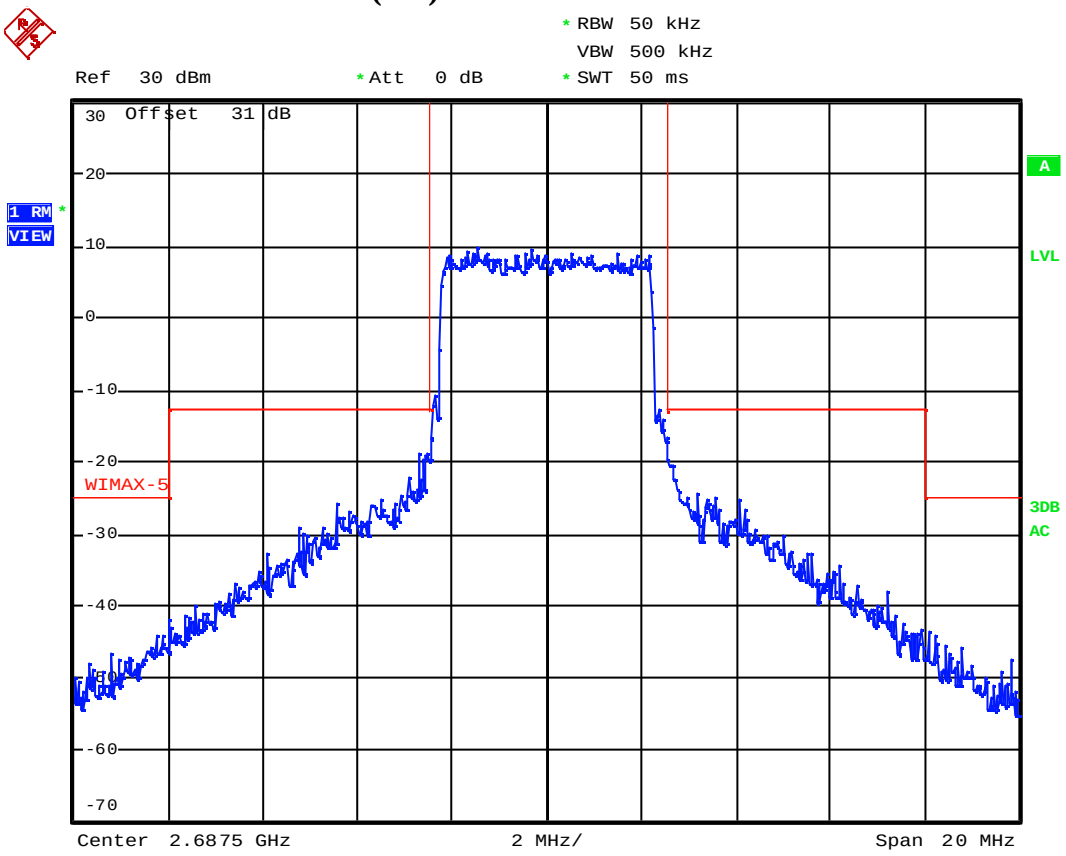
Mode: MASK 2687.5MHz(5M)



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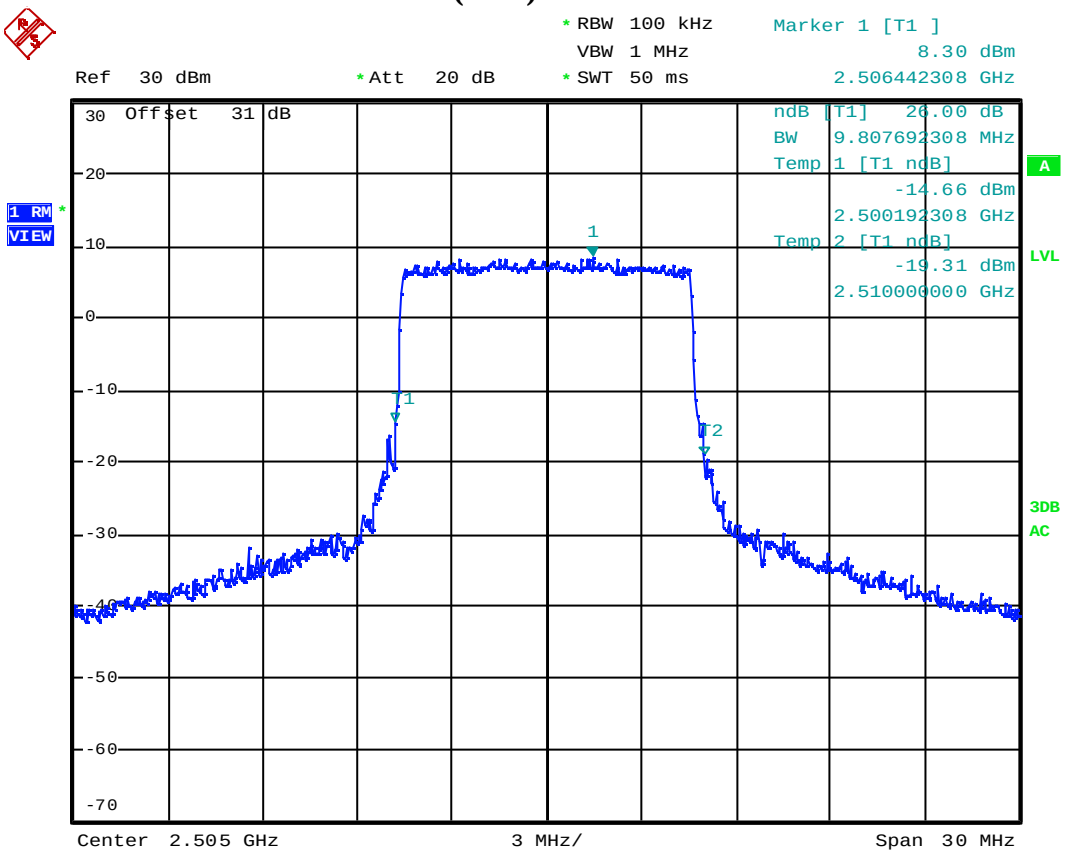

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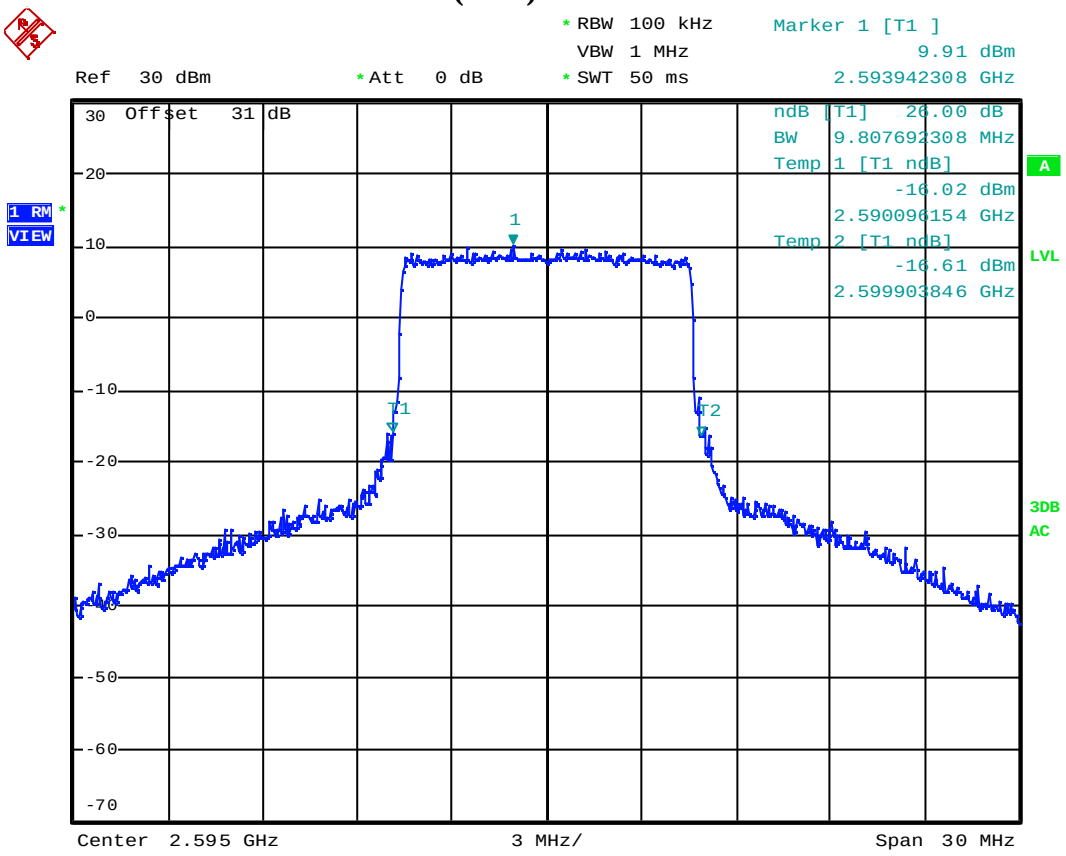

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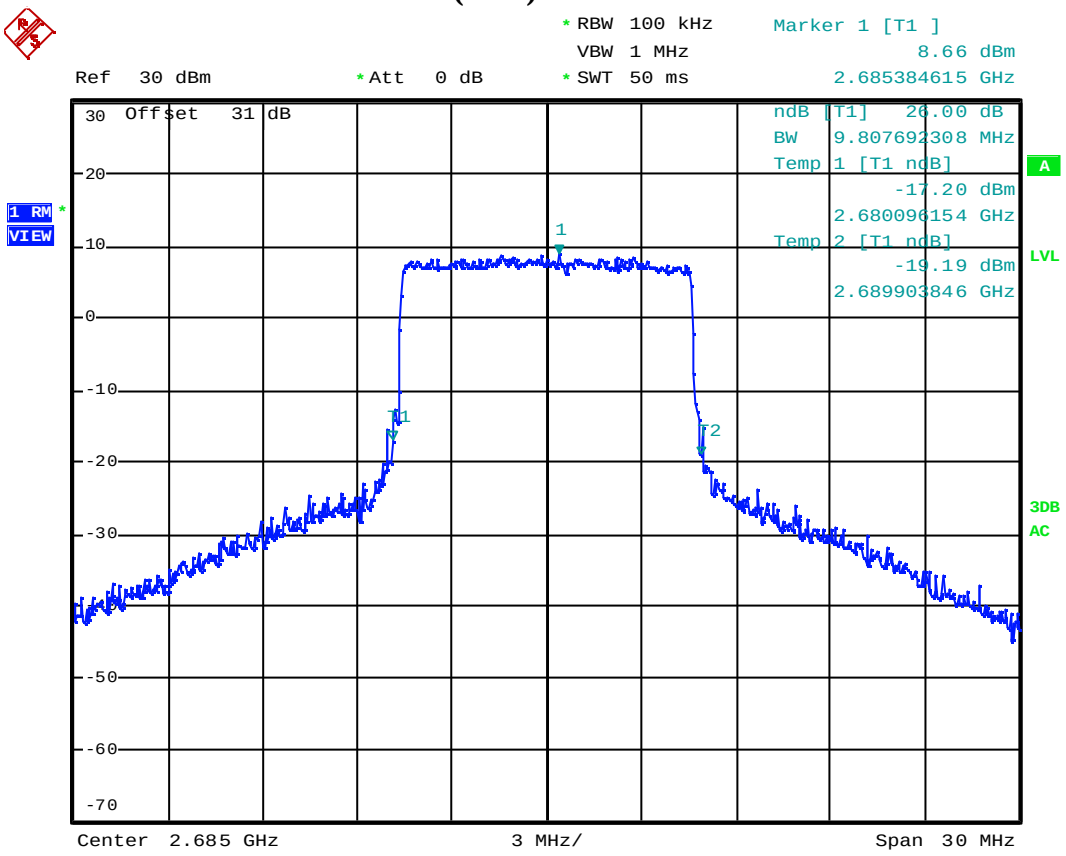

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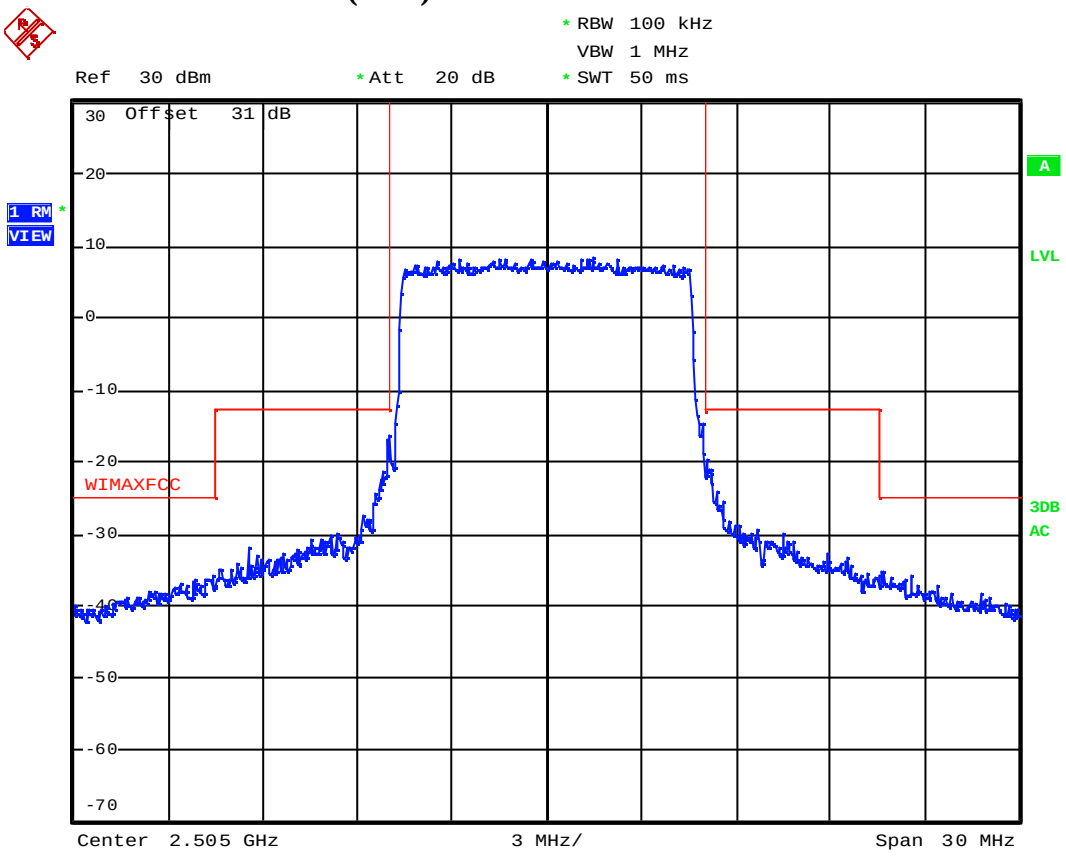

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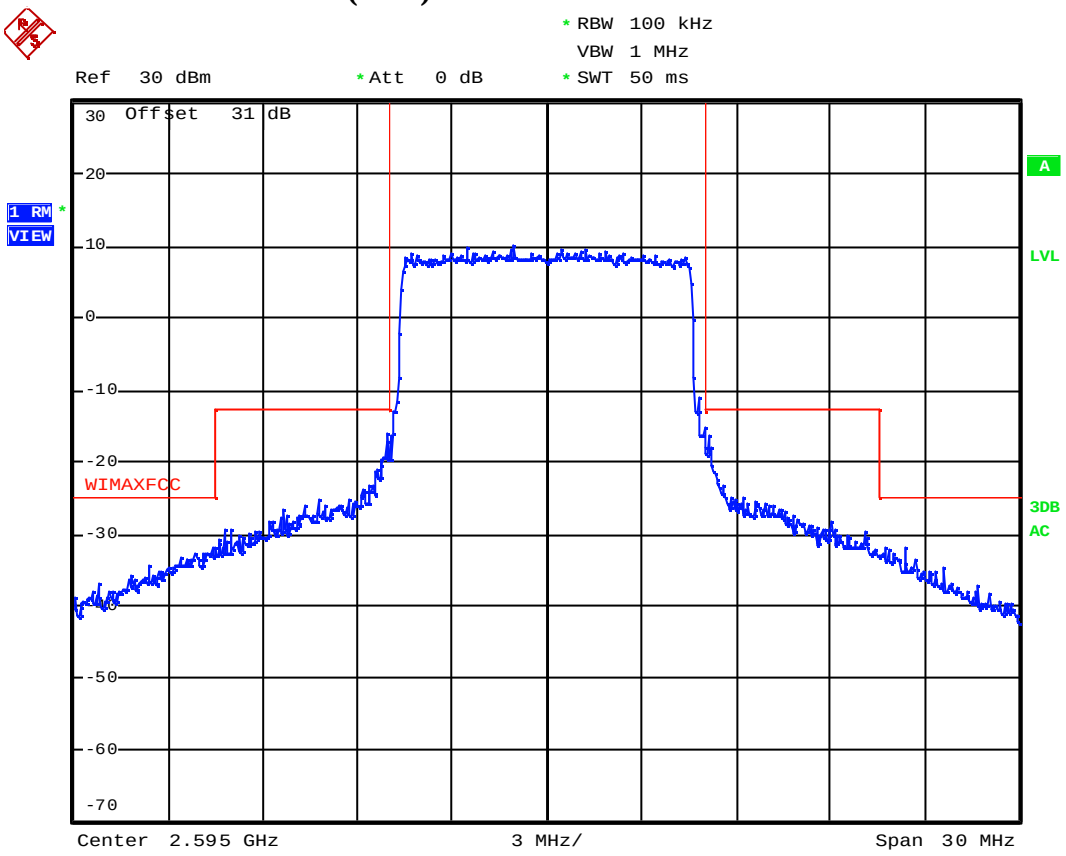

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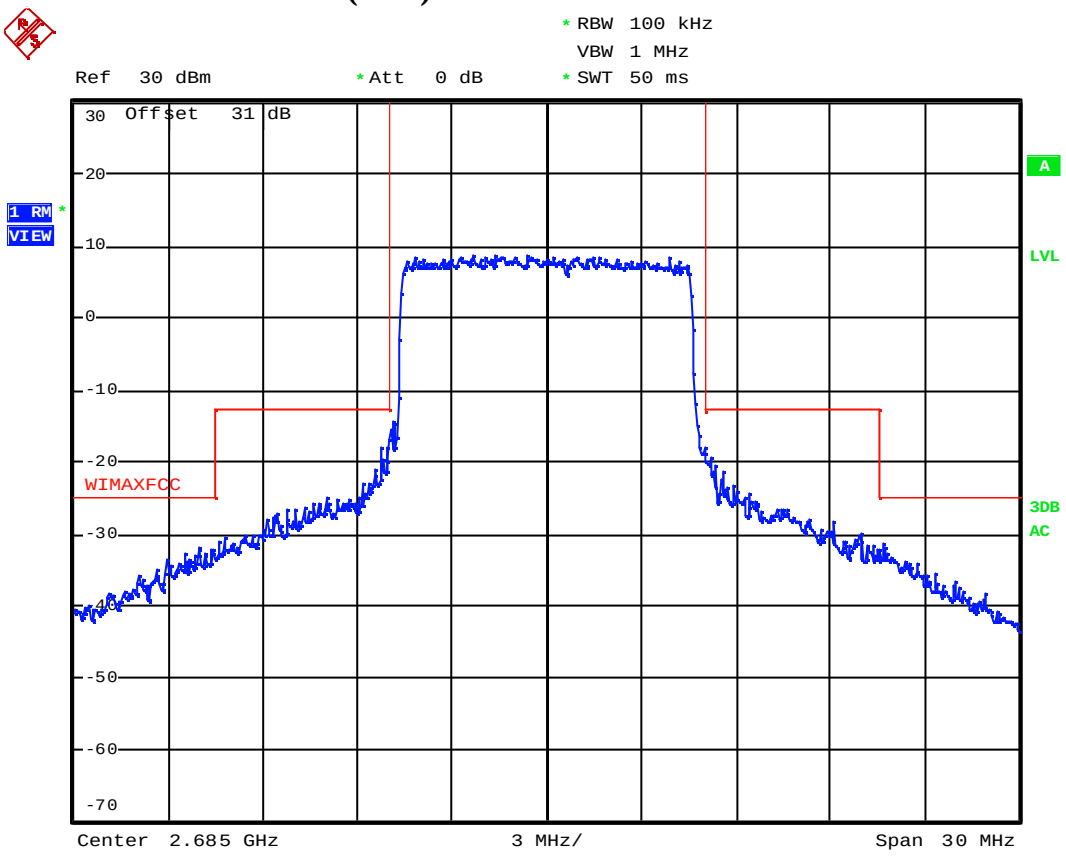
Mode: MASK 2685MHz(10M)



Date: 31.MAR.2010 12:04:07

6. SPURIOUS EMISSION at Antenna terminals

6.1 Specifications

FCC 27.53(l)

(1) Prior to the transition, and thereafter, solely within the MBS, for analog operations with an EIRP in excess of .9 dBW, the signal shall be attenuated at the channel edges by at least 38 dB relative to the peak visual carrier, then linearly sloping from that level to at least 60 dB of attenuation at 1 MHz below the lower band edge and 0.5 MHz above the upper band edge, and attenuated at least 60 dB at all other

(2) For fixed and temporary fixed digital stations, the attenuation shall be not less than 43 + 10 log (P) dB, unless a documented interference complaint is received from an adjacent channel licensee. Provided that the complaint cannot be mutually resolved between the parties, both licensees of existing and new systems shall reduce their out-of-band emissions by at least 67 + 10 log (P) dB measured at 3 MHz from their channel's edges for distances between stations exceeding 1.5 km. For stations separated by less than 1.5 km, the new licensee shall reduce attenuation at least 67 + 10 log (P) . 20 log(Dkm/1.5), or when colocated, limit the undesired signal level at the affected licensee's base station receiver(s) at the colocation site to no more than .107 dBm. Mobile Service Satellite licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

(3) Prior to transition and thereafter solely within the MBS, and notwithstanding paragraph (l)(2) of this section, the maximum out-of-band power of a digital transmitter operating on a single 6 MHz channel with an EIRP in excess of .9 dBW employing digital modulation for the primary purpose of transmitting video programming shall be attenuated at the 6 MHz channel edges at least 25 dB relative to the licensed average 6 MHz channel power level, then attenuated along a linear slope to at least 40 dB at 250 kHz beyond the nearest channel edge, then attenuated along a linear slope from that level to at least 60 dB at 3 MHz above the upper and below the lower licensed channel edges, and attenuated at least 60 dB at all

(4) For mobile digital stations, the attenuation factor shall be not less than 43 + 10 log (P) dB at the channel edge and 55 + 10 log (P) dB at 5.5 MHz from the channel edges. Mobile Service Satellite licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS1 on the same terms and conditions as

(5) Notwithstanding the provisions of paragraphs (l)(2) and (l)(4) of this section, prior to transition, a licensee may continue to operate facilities deployed as of January 10, 2005 provided that such facilities operate in compliance with the emission mask applicable to those services prior to January 10, 2005.

(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). 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 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

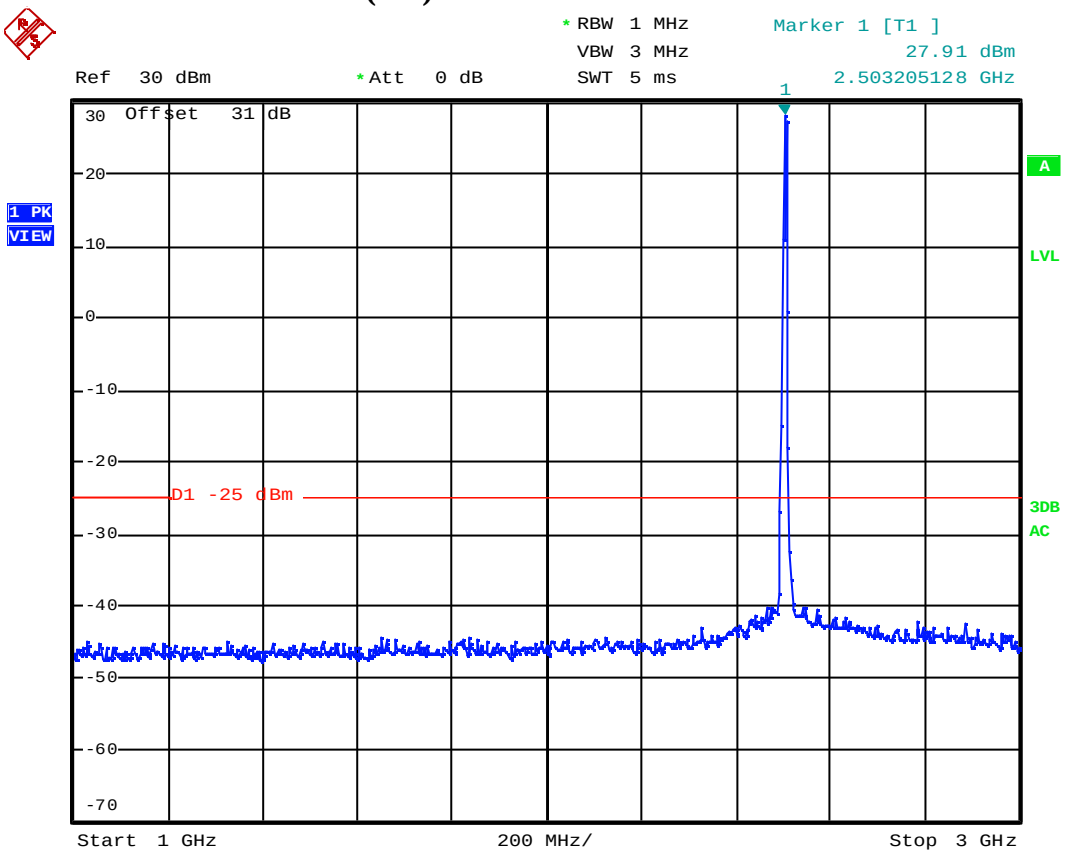
6.2 Measurement Method

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT as shown in figure 2 without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Use the following spectrum analyzer settings:
   Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.
   RBW = 1 MHz
   VBW ≥ RBW
   Sweep = auto
   Detector function = peak
   Trace = max hold.
4. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. Plot the result on the screen of spectrum analyzer.
5. Repeat above procedures until all measured frequencies were complete.

6.3 Measured results

Please refer to the following pages of plotted data.

Mode: 1G-3G 2502.5MHz(5M)



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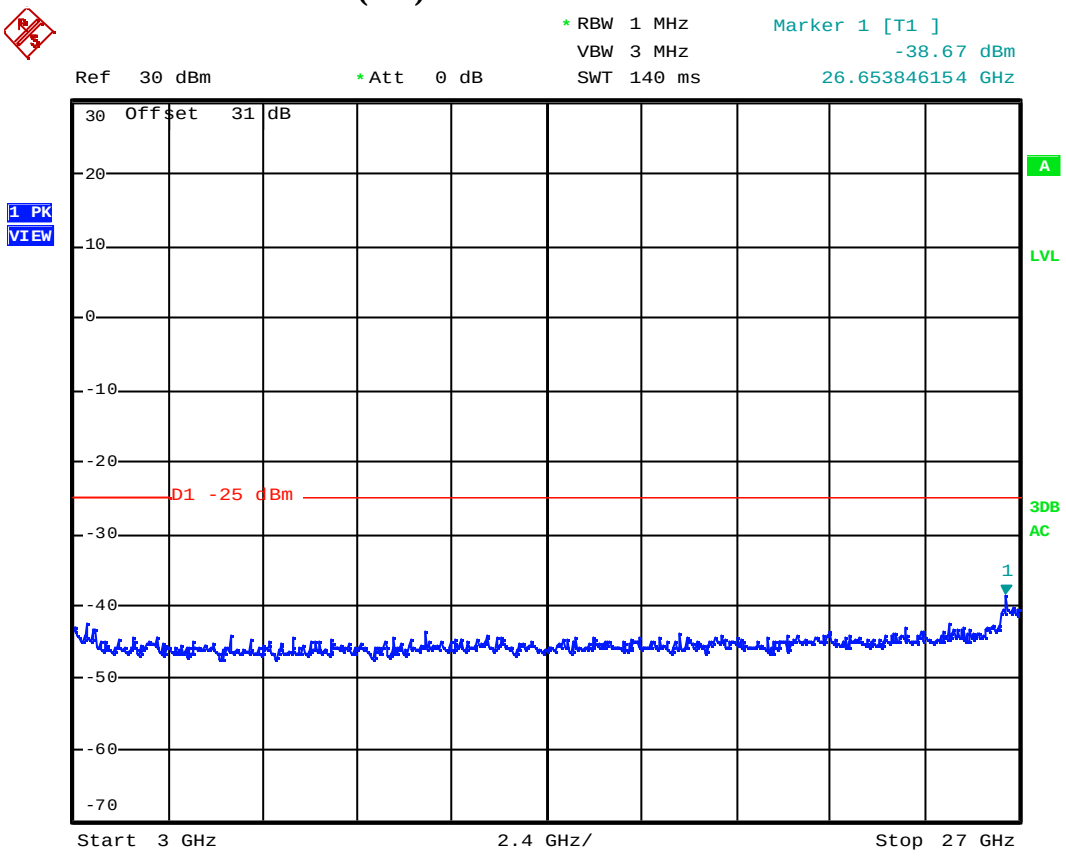

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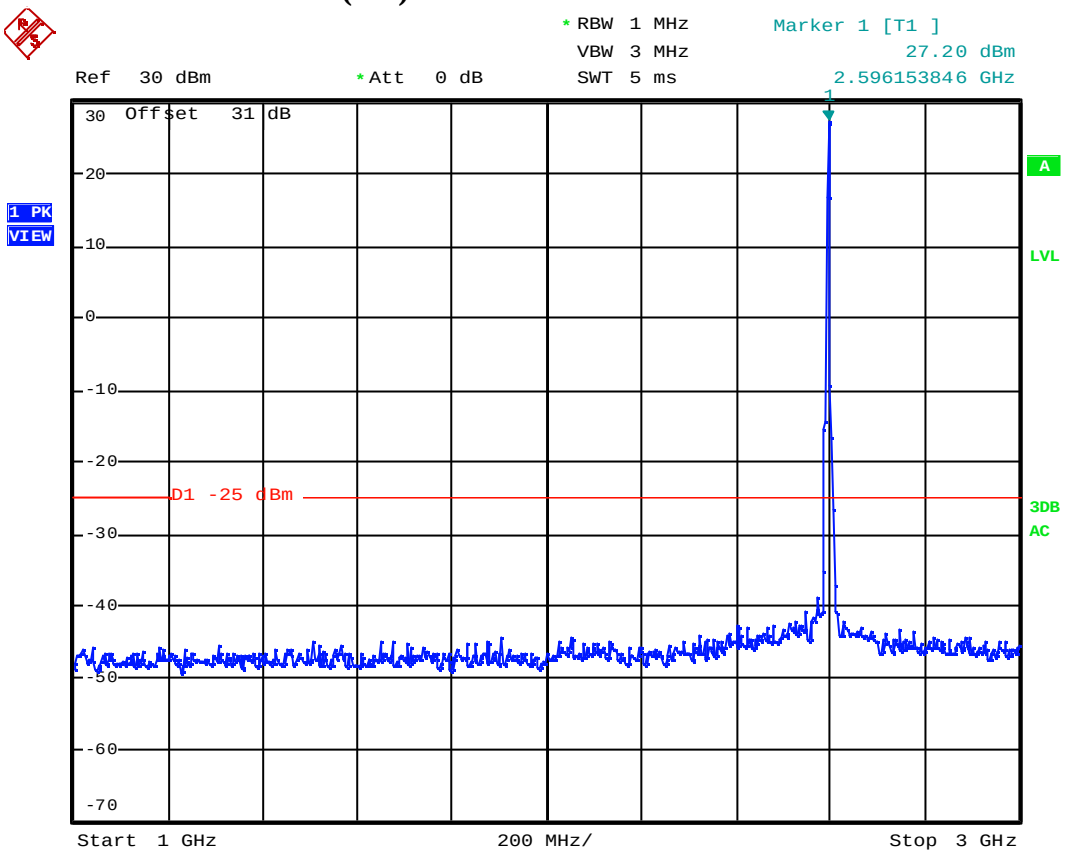

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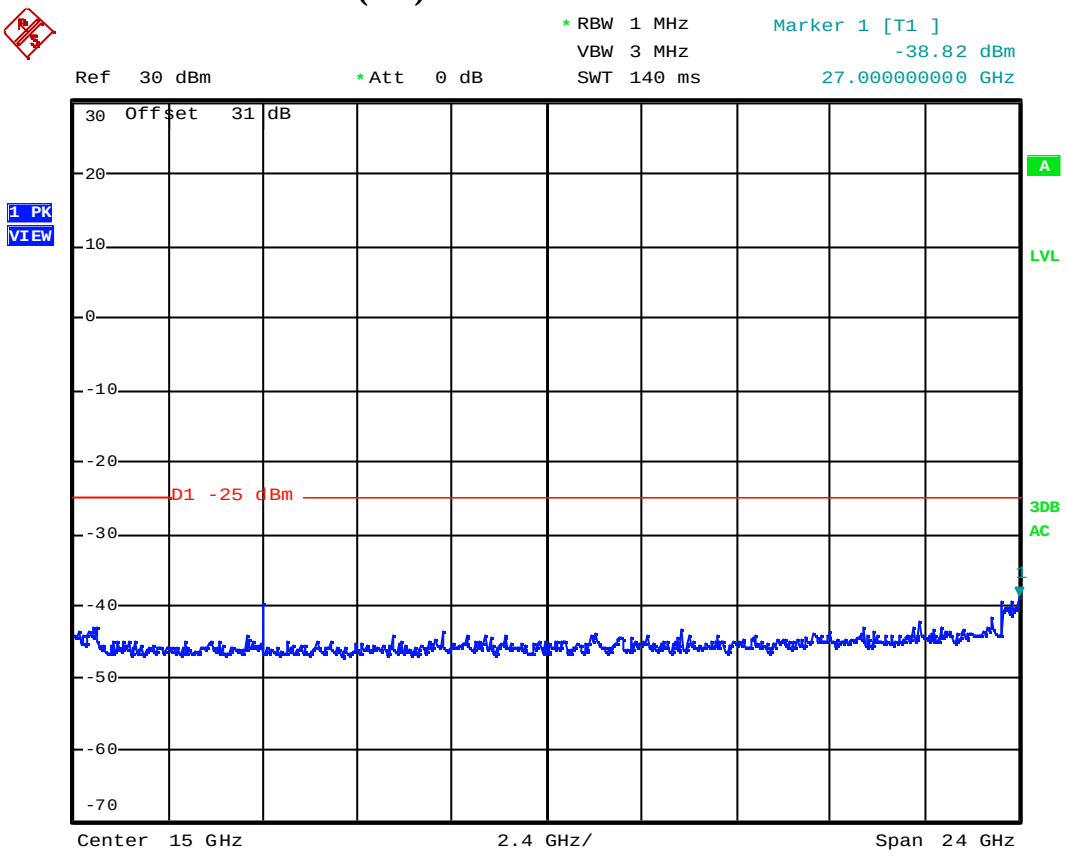

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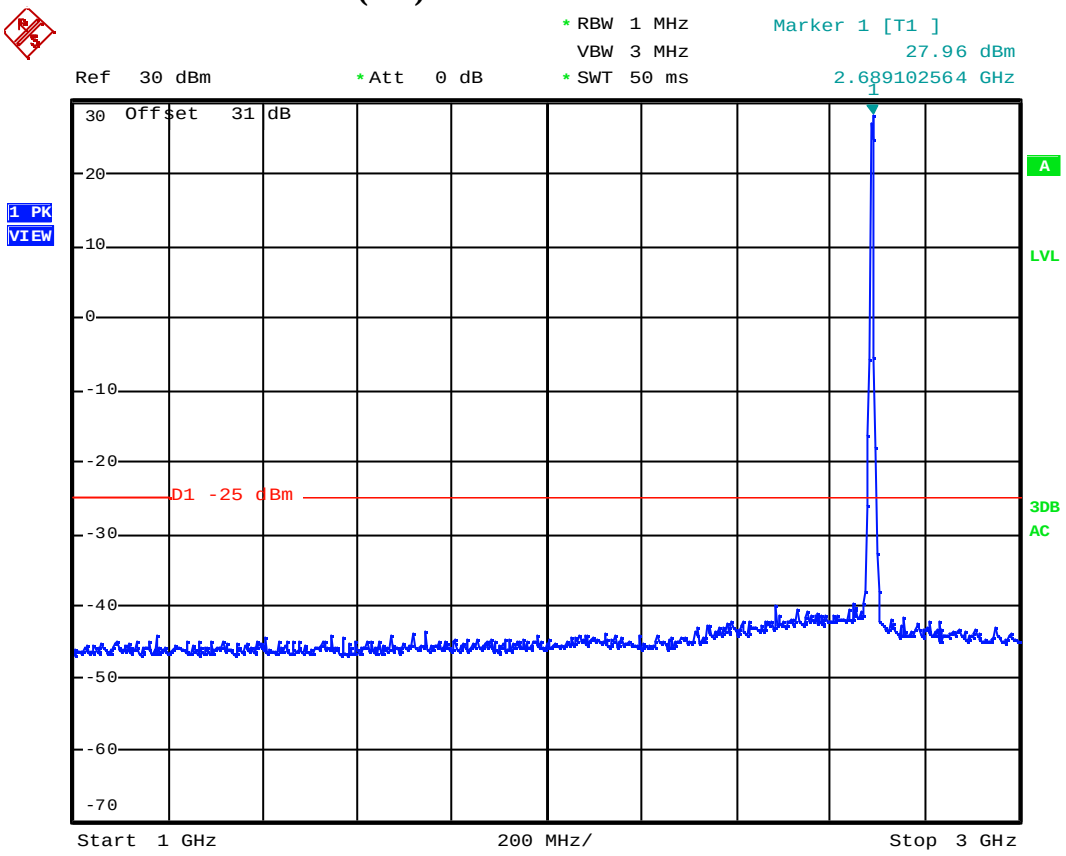
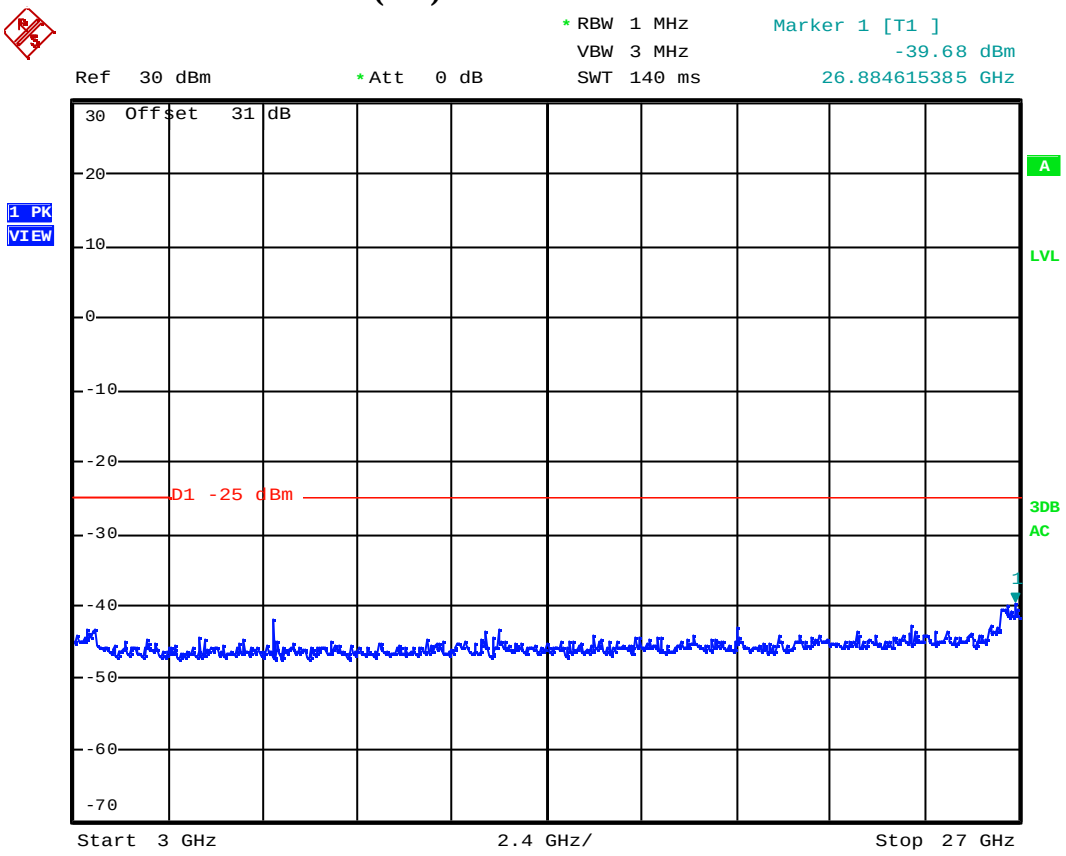


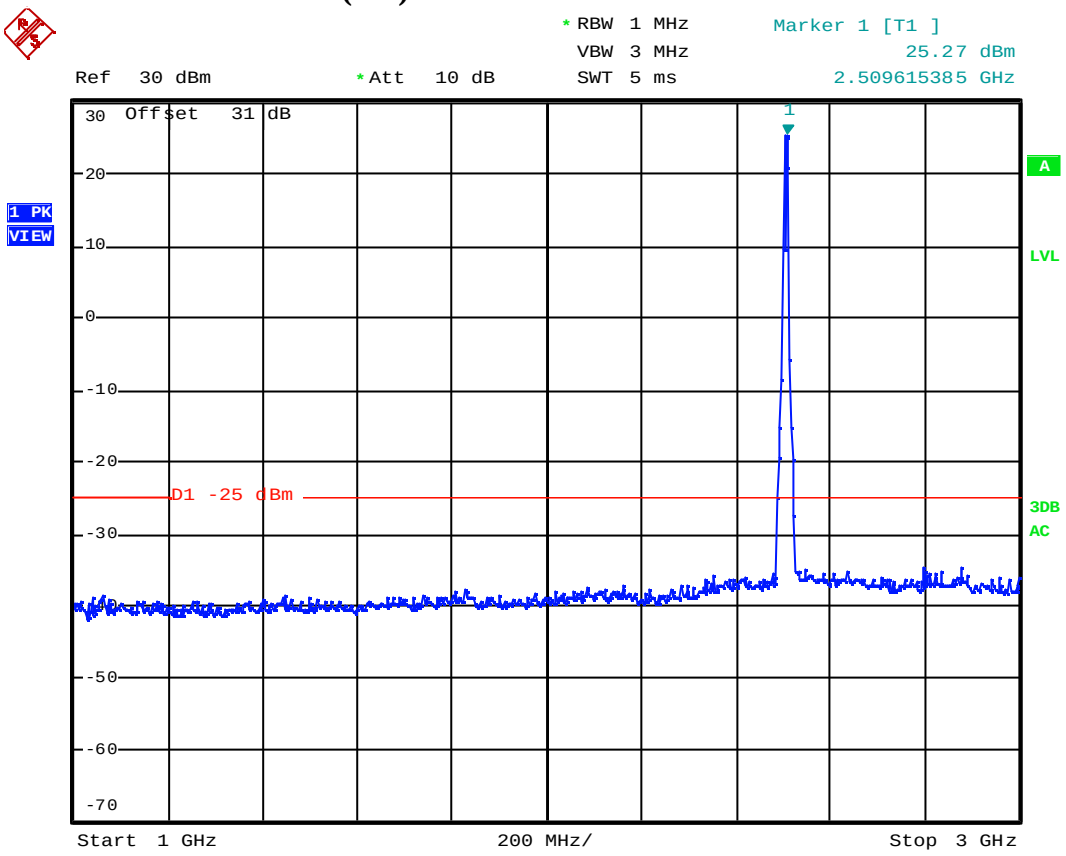
Date: 31.MAR.2010 16:06:16

Mode: 3G-27G 2687.5MHz(5M)



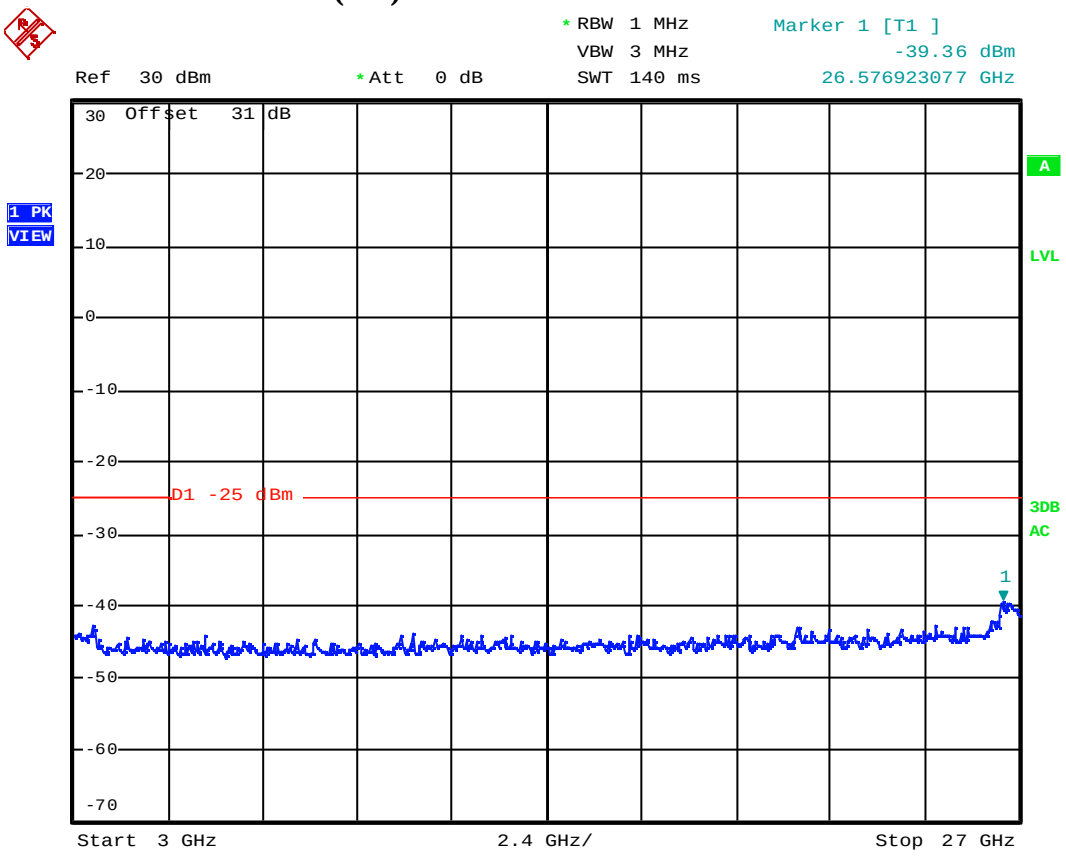
Date: 31.MAR.2010 16:06:35

Mode: 1G-3G 2505MHz(5M)



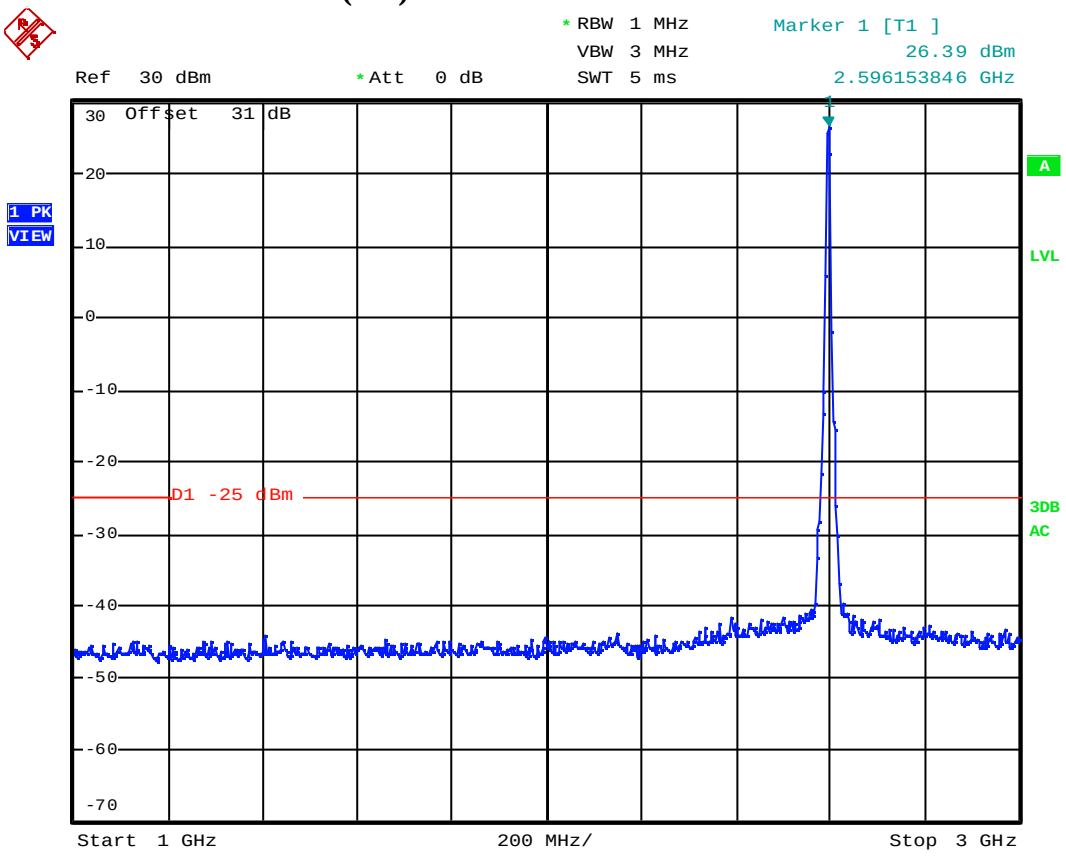
Date: 31.MAR.2010 11:13:30

Mode: 3G-27 2505MHz(5M)



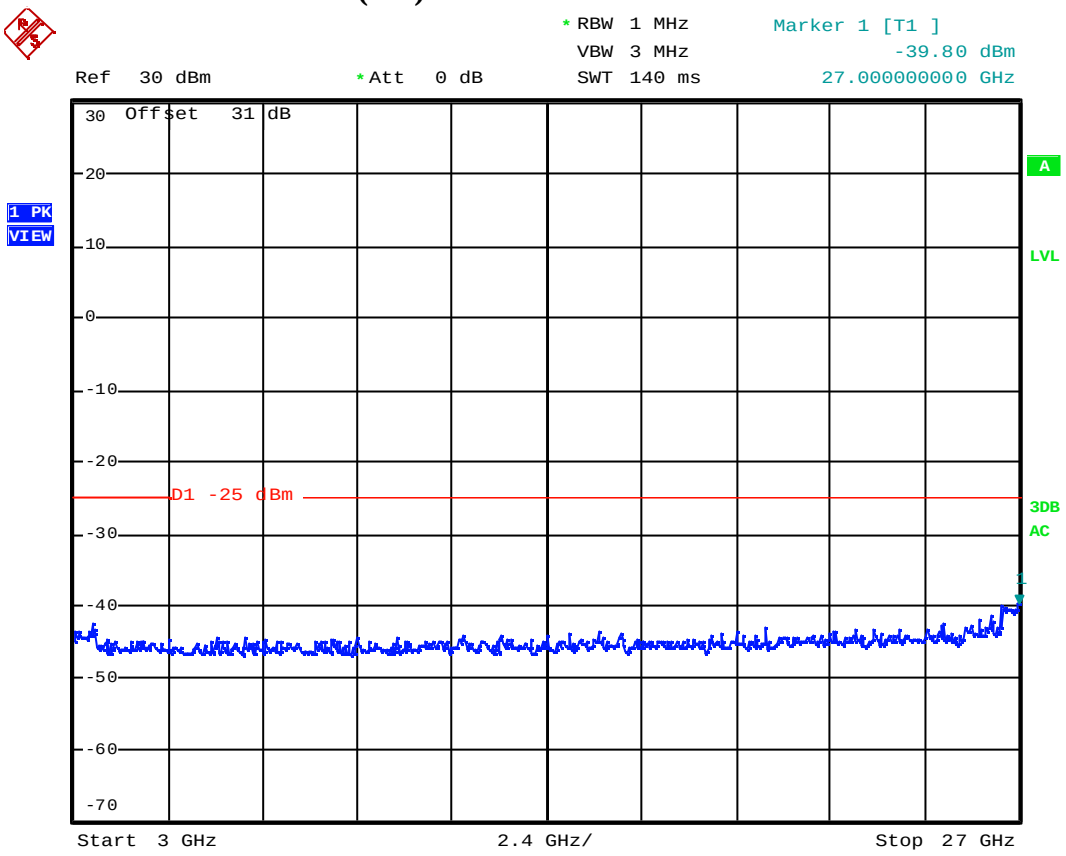
Date: 31.MAR.2010 11:14:45

Mode: 1G-3G 2595MHz(5M)



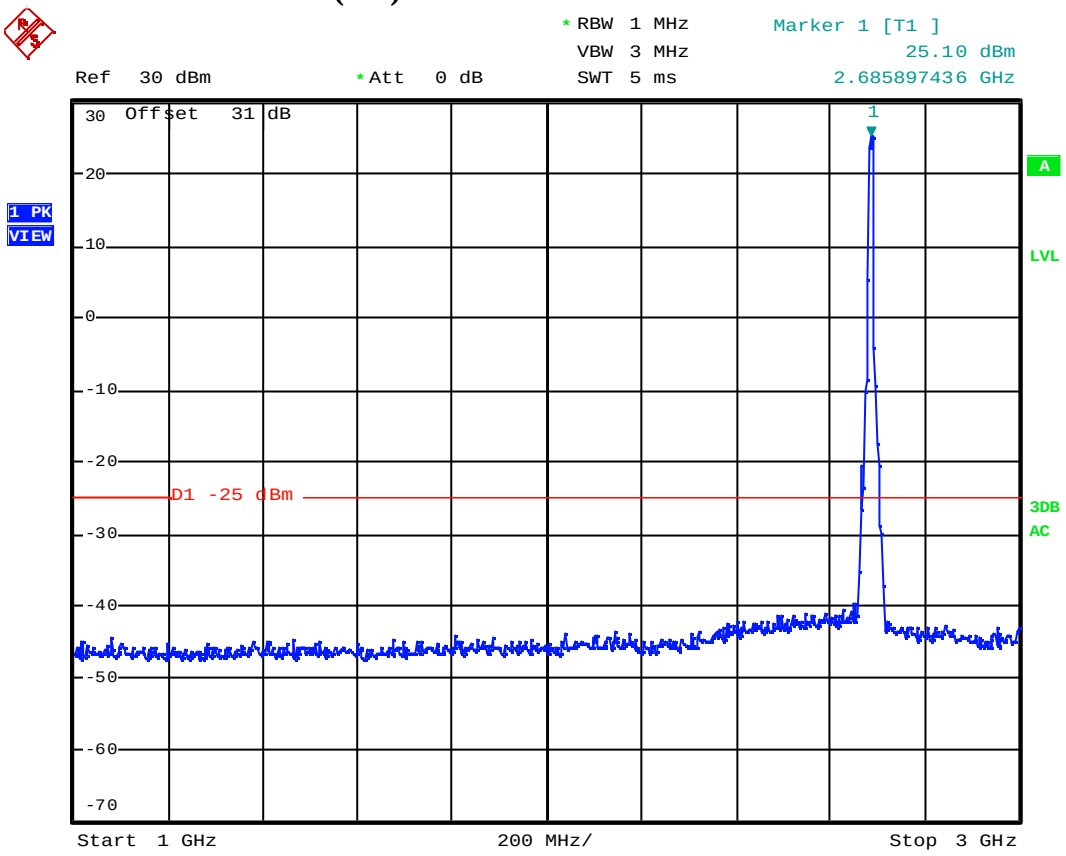
Date: 31.MAR.2010 11:57:28

Mode: 3G-27G 2595MHz(5M)



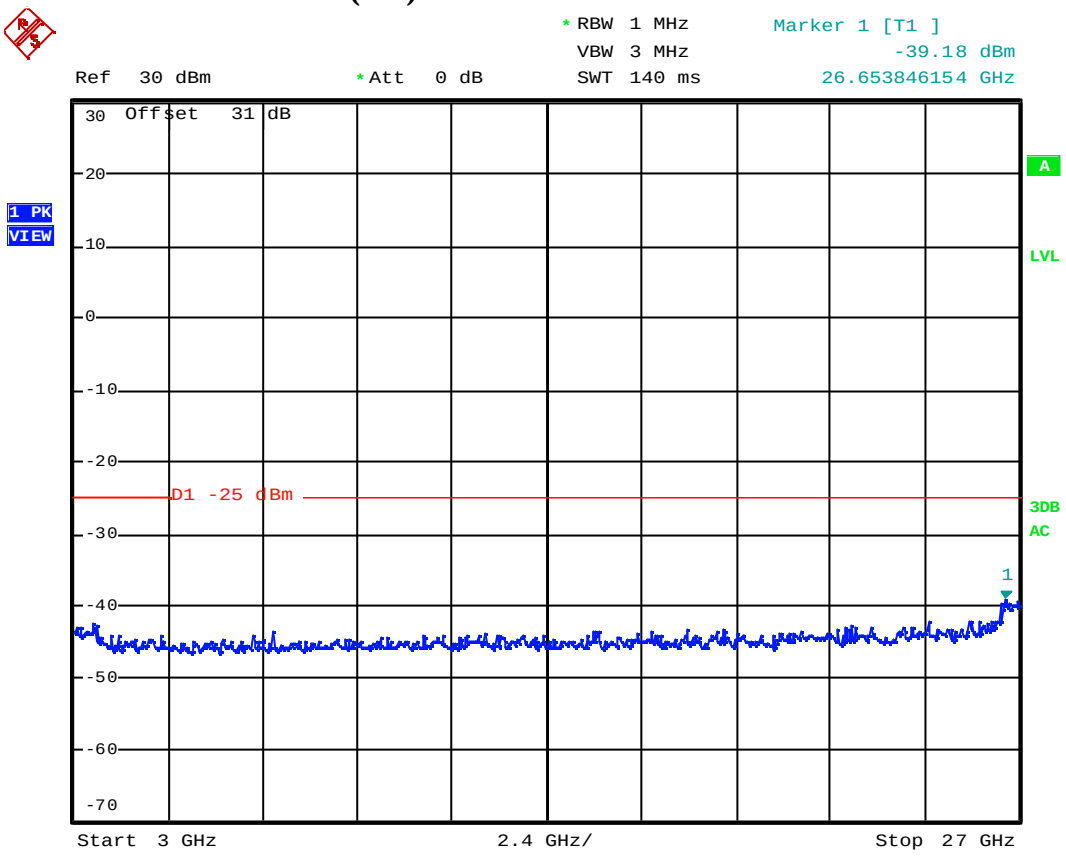
Date: 31.MAR.2010 11:57:08

Mode: 1G-3G 2685MHz(5M)



Date: 31.MAR.2010 12:07:35

Mode: 3G-27G 2685MHz(5M)



Date: 31.MAR.2010 12:06:49

7. FIELD STRENGTH OF EMISSION

7.1 Specifications

According to §2.1053, measurements shall be made to detect spurious emission that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal condition of installation and operation. Information submitted shall include the relative radiated power of spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from a halfwave dipole antenna.

FCC 27.53(m)
(2) For digital base stations, the attenuation shall be not less than 43 + 10 log (P) dB, unless a documented interference complaint is received from an adjacent channel licensee with an overlapping Geographic Service Area.

(2)(v) For all fixed digital user stations, the attenuation factor shall be not less than 43 + 10 log (P) dB at the channel edge.

(4) For mobile digital stations, the attenuation factor shall be not less than 43 + 10 log (P) dB at the channel edge and 55 + 10 log (P) dB at 5.5 MHz from the channel edges. Mobile Service Satellite licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). 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 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

7.2 Measurement Procedure

1. Setup the configuration per figure 3 and 4 for frequencies measured below and above 1 GHz respectively, adjusting the input voltage to produce the maximum power as measured in chapter 3.
2. Adjust the analyzer for each frequency measured in chapter 6 on a 1 MHz frequency span and 1MHz resolution bandwidth.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0◦ to 360◦ , and record the highest value indicated on spectrum analyzer as reference value.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Replace the EUT with a tuned dipole antenna (horn antenna for above 1 GHz) relative to each frequency in horizontally polarized orientation and as the same polarized orientation with search antenna. Connect the tuned dipole antenna to a standard signal generator (SG) via a low loss cable. Power on the SG and tune the right frequency in measuring as well as set SG at a appreciated output level. Rise and lower the search antenna to get the highest value on spectrum analyzer, and then hold this position. Adjust the SG output to get a identical value derived from step 3 on spectrum analyzer. Record this value for result calculated.
7. Repeat step 6 until all frequencies need to be measured were complete.
8. Repeat step 7 with both dipole antenna (horn antenna for above 1 GHz) and search antenna in vertical polarized orientations.

Figure 3 : Frequencies measured below 1 GHz configuration

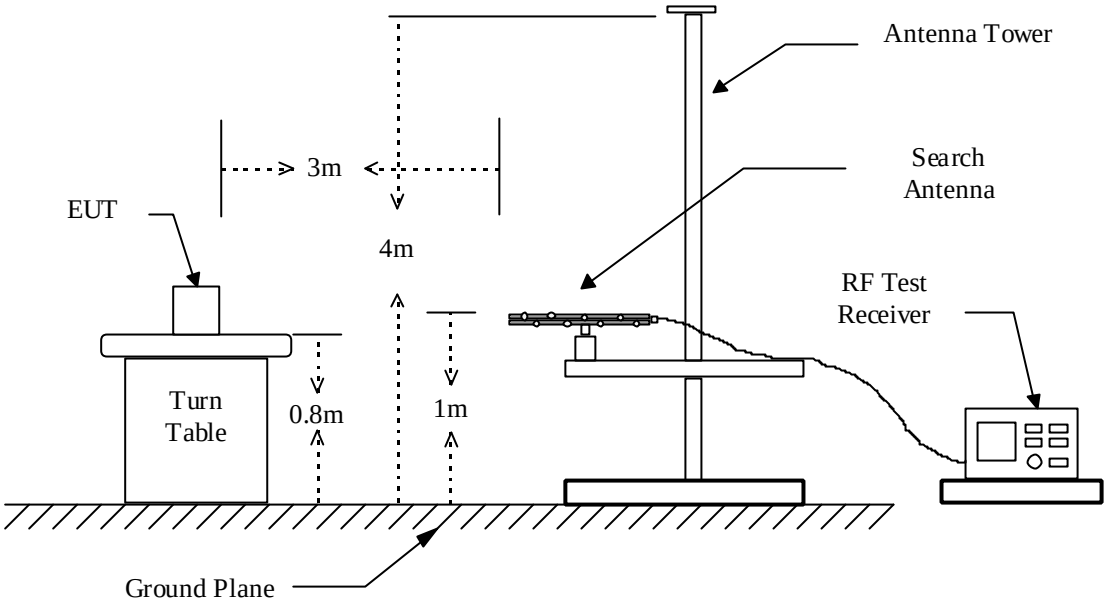
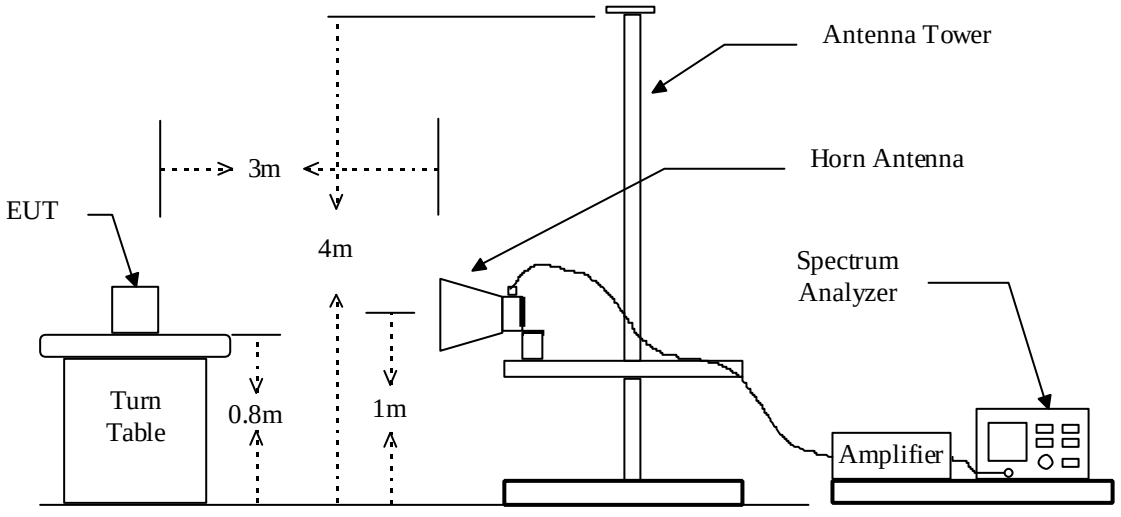


Figure 4 : Frequencies measured above 1 GHz configuration



7.3 Measuring instrument setup in frequency band measured is as following

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz

7.4 Result Data Calcuation

Result calculation is as following :

Result (dBm) ＝

SG Reading (dBm) - Cable Loss (dB) ＋Antenna Gain (dBi) -Amplifier Gain (dB) (if used)

Minimum attenuation limit (dB) = 43 + 10 log(P)

where P = Peak power of the carrier in watts.

The limit of spurious or harmonics is calculated as following :

P (dBm) - [43+10log(carrier output power in W)] = -13dBm

7.5 Measuring Data

Mode: 5M

a) Channel Low

Operation Mode : TX(5M)

Fundamental Frequency : 2502.5MHz

Test Date : Dec. 27, 2009 Temperature : 18 °C Humidity : 61 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dB)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
5006.218	48.4	52.3	-21.6	-16.9	37.0	11.0	3.0	-50.6	-45.9	-13.0	-32.9
7506.891	49.8	47.7	-18.2	-20.0	36.6	11.3	3.7	-47.2	-49.0	-13.0	-34.2
10007.564	---	---	---	---	---	---	---	---	---	-13.0	---
12508.237	---	---	---	---	---	---	---	---	---	-13.0	---
15008.910	---	---	---	---	---	---	---	---	---	-13.0	---
17509.583	---	---	---	---	---	---	---	---	---	-13.0	---
20010.256	---	---	---	---	---	---	---	---	---	-13.0	---
22510.929	---	---	---	---	---	---	---	---	---	-13.0	---
25011.602	---	---	---	---	---	---	---	---	---	-13.0	---

Operation Mode : RX(5M)

Fundamental Frequency : 2502.5MHz

Test Date : Dec. 27, 2009 Temperature : 18 °C Humidity : 61 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
2502.500	---	---	---	---	---	---	---	---	---	-13.0	---
5005.000	---	---	---	---	---	---	---	---	---	-13.0	---
7507.500	---	---	---	---	---	---	---	---	---	-13.0	---
10010.000	---	---	---	---	---	---	---	---	---	-13.0	---
12512.500	---	---	---	---	---	---	---	---	---	-13.0	---

Note :

1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :

   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected

   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.
4. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

b) Channel Middle

Operation Mode : TX(5M)

Fundamental Frequency : 2595MHz

Test Date : Dec. 27, 2009 Temperature : 18 °C Humidity : 61 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
5190.423	46.6	47.8	-23.5	-21.4	36.9	11.1	3.1	-52.4	-50.3	-13.0	-37.3
7784.487	59.1	50.6	-8.9	-16.8	36.5	11.4	3.9	-37.9	-45.8	-13.0	-24.9
10378.551	---	---	---	---	---	---	---	---	---	-13.0	---
12972.615	---	---	---	---	---	---	---	---	---	-13.0	---
15566.679	---	---	---	---	---	---	---	---	---	-13.0	---
18160.743	---	---	---	---	---	---	---	---	---	-13.0	---
20754.807	---	---	---	---	---	---	---	---	---	-13.0	---
23348.871	---	---	---	---	---	---	---	---	---	-13.0	---
25942.935	---	---	---	---	---	---	---	---	---	-13.0	---

Operation Mode : RX(5M)

Fundamental Frequency : 2595MHz

Test Date : Dec. 27, 2009 Temperature : 18 °C Humidity : 61 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
2595.000	---	---	---	---	---	---	---	---	---	-13.0	---
5190.000	---	---	---	---	---	---	---	---	---	-13.0	---
7785.000	---	---	---	---	---	---	---	---	---	-13.0	---
10380.000	---	---	---	---	---	---	---	---	---	-13.0	---
12975.000	---	---	---	---	---	---	---	---	---	-13.0	---

Note :

1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :

   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected

   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.
4. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

c) Channel High

Operation Mode : TX(5M)

Fundamental Frequency : 2687.5MHz

Test Date : Dec. 27, 2009 Temperature : 18 °C Humidity : 61 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
5376.827	50.7	51.7	-19.1	-17.1	36.9	11.1	3.2	-48.1	-46.1	-13.0	-33.1
8062.244	63.3	63.2	-4.9	-3.9	36.5	11.5	3.9	-33.8	-32.8	-13.0	-19.8
10747.661	---	---	---	---	---	---	---	---	---	-13.0	---
13433.078	---	---	---	---	---	---	---	---	---	-13.0	---
16118.495	---	---	---	---	---	---	---	---	---	-13.0	---
18803.912	---	---	---	---	---	---	---	---	---	-13.0	---
21489.329	---	---	---	---	---	---	---	---	---	-13.0	---
24174.746	---	---	---	---	---	---	---	---	---	-13.0	---
26860.163	---	---	---	---	---	---	---	---	---	-13.0	---

Operation Mode : RX(5M)

Fundamental Frequency : 2687.5MHz

Test Date : Dec. 27, 2009 Temperature : 18 °C Humidity : 61 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
2687.500	---	---	---	---	---	---	---	---	---	-13.0	---
5375.000	---	---	---	---	---	---	---	---	---	-13.0	---
8062.500	---	---	---	---	---	---	---	---	---	-13.0	---
10750.000	---	---	---	---	---	---	---	---	---	-13.0	---
13437.500	---	---	---	---	---	---	---	---	---	-13.0	---

Note :

1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :

   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected

   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.
4. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

Mode: 10M

a) Channel Low

Operation Mode : TX(10M)

Fundamental Frequency : 2505MHz

Test Date : Apr. 02, 2010 Temperature : 23 °C Humidity : 68 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
5011.026	49.0	52.2	-21.0	-17.0	37.0	11.0	3.0	-50.0	-46.0	-13.0	-33.0
7516.083	48.5	47.6	-19.5	-20.1	36.6	11.3	3.7	-48.5	-49.1	-13.0	-35.5
10021.140	---	---	---	---	---	---	---	---	---	-13.0	---
12526.197	---	---	---	---	---	---	---	---	---	-13.0	---
15031.254	---	---	---	---	---	---	---	---	---	-13.0	---
17536.311	---	---	---	---	---	---	---	---	---	-13.0	---
20041.368	---	---	---	---	---	---	---	---	---	-13.0	---
22546.425	---	---	---	---	---	---	---	---	---	-13.0	---
25051.482	---	---	---	---	---	---	---	---	---	-13.0	---

Operation Mode : RX(10M)

Fundamental Frequency : 2505MHz

Test Date : Apr. 02, 2010 Temperature : 23 °C Humidity : 68 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
2505.000	---	---	---	---	---	---	---	---	---	-13.0	---
5010.000	---	---	---	---	---	---	---	---	---	-13.0	---
7515.000	---	---	---	---	---	---	---	---	---	-13.0	---
10020.000	---	---	---	---	---	---	---	---	---	-13.0	---
12525.000	---	---	---	---	---	---	---	---	---	-13.0	---

Note :

1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :

   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected

   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.
4. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

b) Channel Middle

Operation Mode : TX(10M)

Fundamental Frequency : 2595MHz

Test Date : Apr. 02, 2010 Temperature : 23 °C Humidity : 68 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
5192.276	47.5	47.9	-22.6	-21.3	36.9	11.1	3.1	-51.5	-50.2	-13.0	-37.2
7785.789	52.3	47.9	-15.7	-19.5	36.5	11.4	3.9	-44.7	-48.5	-13.0	-31.7
10379.302	---	---	---	---	---	---	---	---	---	-13.0	---
12972.815	---	---	---	---	---	---	---	---	---	-13.0	---
15566.328	---	---	---	---	---	---	---	---	---	-13.0	---
18159.841	---	---	---	---	---	---	---	---	---	-13.0	---
20753.354	---	---	---	---	---	---	---	---	---	-13.0	---
23346.867	---	---	---	---	---	---	---	---	---	-13.0	---
25940.380	---	---	---	---	---	---	---	---	---	-13.0	---

Operation Mode : RX(10M)

Fundamental Frequency : 2595MHz

Test Date : Apr. 02, 2010 Temperature : 23 °C Humidity : 68 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
2595.000	---	---	---	---	---	---	---	---	---	-13.0	---
5190.000	---	---	---	---	---	---	---	---	---	-13.0	---
7785.000	---	---	---	---	---	---	---	---	---	-13.0	---
10380.000	---	---	---	---	---	---	---	---	---	-13.0	---
12975.000	---	---	---	---	---	---	---	---	---	-13.0	---

Note :

1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :

   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected

   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.
4. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

c) Channel High

Operation Mode : TX(10M)

Fundamental Frequency : 2685MHz

Test Date : Apr. 02, 2010 Temperature : 23 °C Humidity : 68 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
5371.186	50.7	53.8	-19.1	-15.0	36.9	11.1	3.2	-48.1	-44.0	-13.0	-31.0
8054.096	60.4	59.9	-7.8	-7.2	36.5	11.5	3.9	-36.7	-36.1	-13.0	-23.1
10737.006	---	---	---	---	---	---	---	---	---	-13.0	---
13419.916	---	---	---	---	---	---	---	---	---	-13.0	---
16102.826	---	---	---	---	---	---	---	---	---	-13.0	---
18785.736	---	---	---	---	---	---	---	---	---	-13.0	---
21468.646	---	---	---	---	---	---	---	---	---	-13.0	---
24151.556	---	---	---	---	---	---	---	---	---	-13.0	---
26834.466	---	---	---	---	---	---	---	---	---	-13.0	---

Operation Mode : RX(10M)

Fundamental Frequency : 2685MHz

Test Date : Apr. 02, 2010 Temperature : 23 °C Humidity : 68 %

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Cable Loss (dBm)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
2685.000	---	---	---	---	---	---	---	---	---	-13.0	---
5370.000	---	---	---	---	---	---	---	---	---	-13.0	---
8055.000	---	---	---	---	---	---	---	---	---	-13.0	---
10740.000	---	---	---	---	---	---	---	---	---	-13.0	---
13425.000	---	---	---	---	---	---	---	---	---	-13.0	---

Note :

1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :

   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected

   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.
4. Spurious or harmonics above 1 GHz is too low to be detected or attenuated more than 60 dB from limit value.

7.6 Other Emission

a) Emission frequencies below 1 GHz

Operation Mode : 5M

Test Date : Apr. 02, 2010 Temperature : 21 °C Humidity : 63 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
126.93	V	23.7	13.3	37.0	43.5	-6.5	45	1.0
172.02	V	21.1	15.2	36.3	43.5	-7.2	28	1.0
179.58	V	22.5	16.2	38.7	43.5	-4.8	78	1.4
374.20	V	24.8	18.4	43.2	46.0	-2.8	68	1.5
475.02	V	18.3	21.0	39.3	46.0	-6.7	17	1.5
725.01	H	14.8	25.6	40.4	46.0	-5.6	38	1.4

Operation Mode : 10M

Test Date : Apr. 02, 2010 Temperature : 21 °C Humidity : 63 %

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result @3m (dBuV/m)	Limit @3m (dBuV/m)	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
126.93	V	23.8	13.3	37.1	43.5	-6.4	49	1.0
172.02	V	21.2	15.2	36.4	43.5	-7.1	31	1.0
179.58	V	22.3	16.2	38.5	43.5	-5.0	68	1.4
374.20	V	24.7	18.4	43.1	46.0	-2.9	77	1.6
475.02	H	18.8	21.0	39.8	46.0	-6.2	55	1.8
725.01	H	14.5	25.6	40.1	46.0	-5.9	38	1.4

Note :

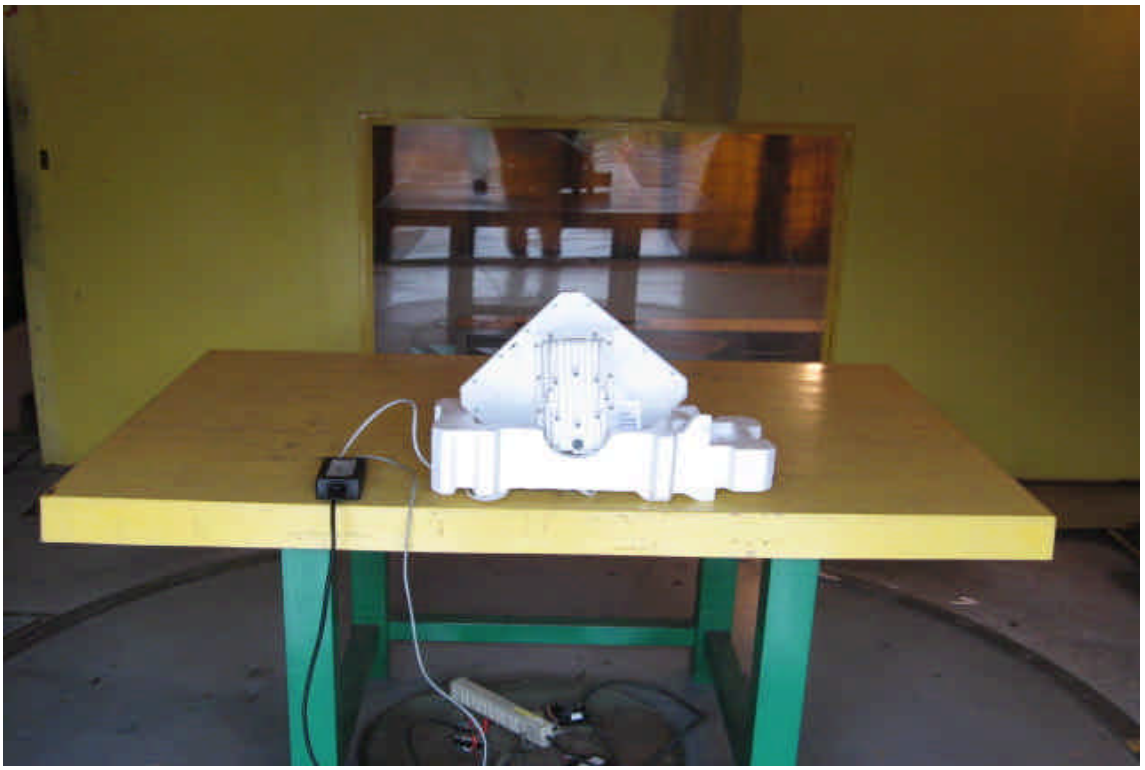
1. Remark "---" means that the emissions level is too low to be measured.

2. The expanded uncertainty of the radiated emission tests is 3.53 dB.

b) Emission frequencies above 1 GHz

Radiated emission frequencies above 1 GHz to 25 GHz were too low to be measured with a pre-amplifier of 35 dB.

7.6 Radiated Measurement Photos



8. FREQUENCY STABILITY MEASUREMENT

8.1 Specifications

According to §2.1055 (a)(1), the frequency stability shall be measured with variation of ambient temperature from -30? to +50? centigrade, and according to §2.1055 (d)(2), the frequency stability shall be measured with variation of primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

FCC 27.54 Frequency Stability

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

8.2 Measurement Procedure

A) Frequency stability versus environmental temperature

1. Setup the configuration per figure 5 for frequencies measured at ambient temperature if it is within 15? to 25? . Otherwise, an environmental chamber set for a temperature of 20? shall be used.

2. Turn on EUT and set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

3. Set the temperature of chamber to 50? . Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.

4. Repeat step 2 with a 10? decreased per stage until the lowest temperature -30? is measured, record all measurement frequencies.

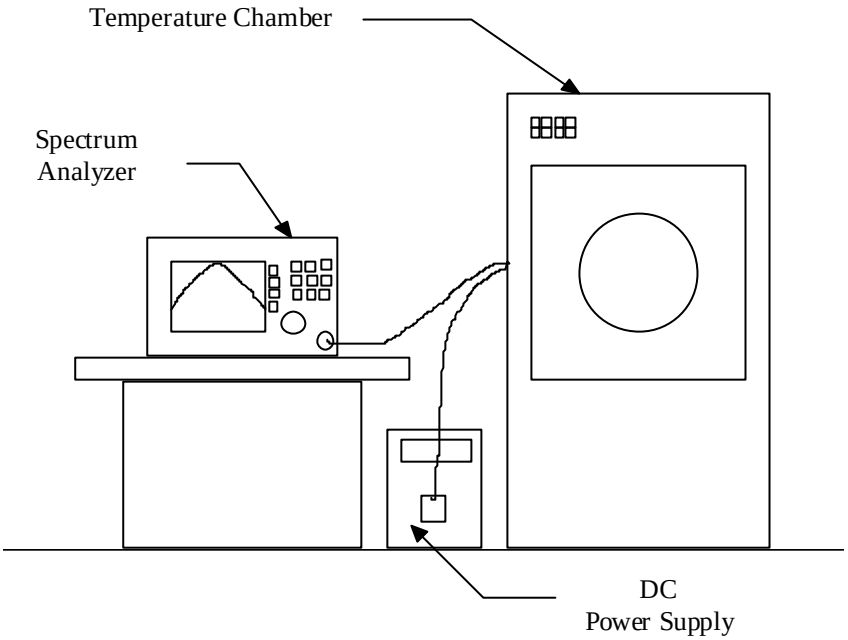
B) Frequency stability versus input voltage

1. Setup the configuration per figure 7 for frequencies measured at ambient temperature if it is within 15? to 25? . Otherwise, an environmental chamber set for a temperature of 20? shall be used. Install new batteries in the EUT.

2. Set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

3. For non hand carried, battery operated device, supply the EUT primary voltage with 85 and 115 percent of the nominal value and record the frequency.

Figure 5 : Frequency stability measurement configuration



8.3 Measurement Data

Mode: (5M)

A1. Frequency stability versus enviroment tempture

Reference Frequency : 2687.5 MHz							
Enviroment Tempture (℃)	Power Supplied (Vac)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	120	2687.4053	-0.00352	2687.4163	-0.00311	2687.4510	-0.00182
40		2687.4083	-0.00341	2687.5631	0.00235	2687.5321	0.00120
30		2687.5667	0.00248	2687.5115	0.00043	2687.4198	-0.00298
20		2687.4560	-0.00164	2687.5480	0.00179	2687.5220	0.00082
10		2687.5270	0.00100	2687.5583	0.00217	2687.4867	-0.00050
0		2687.5837	0.00311	2687.5848	0.00315	2687.5911	0.00339
-10		2687.5697	0.00259	2687.5277	0.00103	2687.4598	-0.00149
-20		2687.5330	0.00123	2687.5641	0.00239	2687.3990	-0.00376
-30		2687.5357	0.00133	2687.4502	-0.00185	2687.4831	-0.00063

A2. Frequency stability versus supplied voltage (85% - 115%)

Reference Frequency : 2687.5MHz							
Enviroment Tempture (℃)	Power Supplied (Vac)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
25	102	2687.5615	0.00229	2687.5919	0.00342	2687.4535	-0.00173
	120	2687.5746	0.00277	2687.5686	0.00255	2687.4558	-0.00164
	138	2687.5030	0.00011	2687.4141	-0.00320	2687.5510	0.00190

Mode: (10M)

B1. Frequency stability versus enviroment tempture

Reference Frequency : 2687.5 MHz							
Enviroment Tempture (℃)	Power Supplied (Vac)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	120	2687.4053	-0.00352	2687.4163	-0.00311	2687.4510	-0.00182
40		2687.4083	-0.00341	2687.5631	0.00235	2687.5321	0.00120
30		2687.5667	0.00248	2687.5115	0.00043	2687.4198	-0.00298
20		2687.4560	-0.00164	2687.5480	0.00179	2687.5220	0.00082
10		2687.5270	0.00100	2687.5583	0.00217	2687.4867	-0.00050
0		2687.5837	0.00311	2687.5848	0.00315	2687.5911	0.00339
-10		2687.5697	0.00259	2687.5277	0.00103	2687.4598	-0.00149
-20		2687.5330	0.00123	2687.5641	0.00239	2687.3990	-0.00376
-30		2687.5357	0.00133	2687.4502	-0.00185	2687.4831	-0.00063

B2. Frequency stability versus supplied voltage (85% - 115%)

Reference Frequency : 2687.5MHz							
Enviroment Tempture (℃)	Power Supplied (Vac)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
25	108	2687.5037	0.00014	2687.5570	0.00212	2687.5572	0.00213
	120	2687.5725	0.00270	2687.4206	-0.00295	2687.4094	-0.00337
	132	2687.5652	0.00243	2687.4768	-0.00086	2687.5425	0.00158

9 CONDUCTED EMISSION MEASUREMENT

9.1 Standard Applicable

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to § 15.107(a) and §15.207(a) respectively. Both Limits are identical specification.

9.2 Measurement Procedure

1. Setup the configuration per figure 6.

2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.

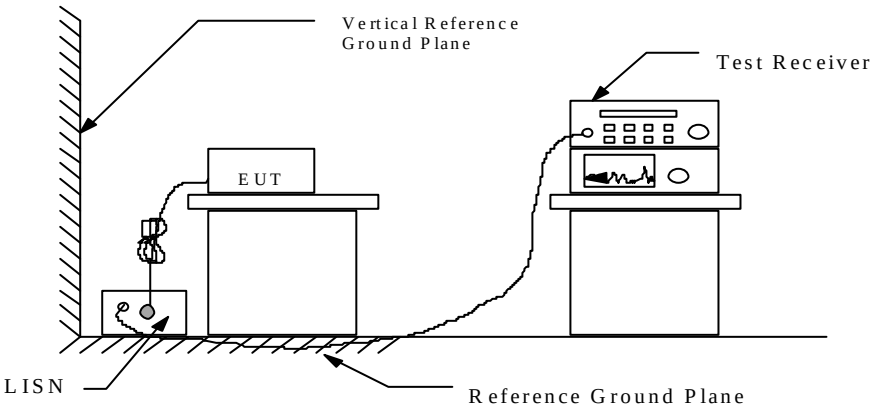
3. Record the 6 or 8 highest emissions relative to the limit.

4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.

5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.

6. Repeat all above procedures on measuring each operation mode of EUT.

Figure 6 : Conducted emissions measurement configuration



9.3 Conducted Emission Data

Operation Mode : Operation Mode(5M)

Test Date : Apr. 03, 2010 Temperature : 21 ℃ Humidity : 62 %

Mode: Operation Mode(5M) N1

Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.384	35.7	----	0.4	36.1	----	58.2	48.2	-22.1	----
0.396	35.0	----	0.4	35.4	----	57.9	47.9	-22.5	----
0.455	31.5	----	0.4	31.9	----	56.8	46.8	-24.9	----
0.466	32.4	----	0.4	32.8	----	56.6	46.6	-23.8	----
1.552	28.7	----	0.4	29.1	----	56.0	46.0	-26.9	----
2.150	27.1	----	0.5	27.6	----	56.0	46.0	-28.4	----

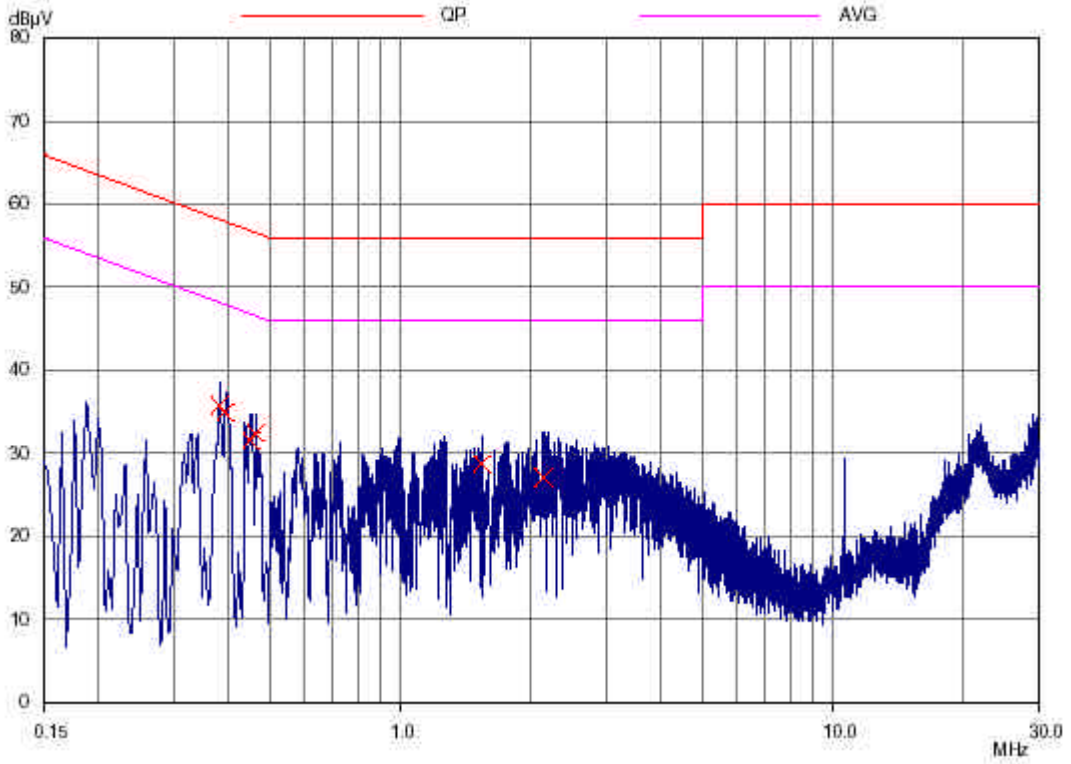
Mode: Operation Mode(5M) L1

Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.380	35.8	----	0.4	36.2	----	58.3	48.3	-22.1	----
0.392	34.4	----	0.4	34.8	----	58.0	48.0	-23.2	----
0.404	34.2	----	0.4	34.6	----	57.8	47.8	-23.2	----
0.447	31.7	----	0.4	32.1	----	56.9	46.9	-24.8	----
0.474	31.2	----	0.4	31.6	----	56.4	46.4	-24.8	----
22.008	30.0	----	1.2	31.2	----	60.0	50.0	-28.8	----

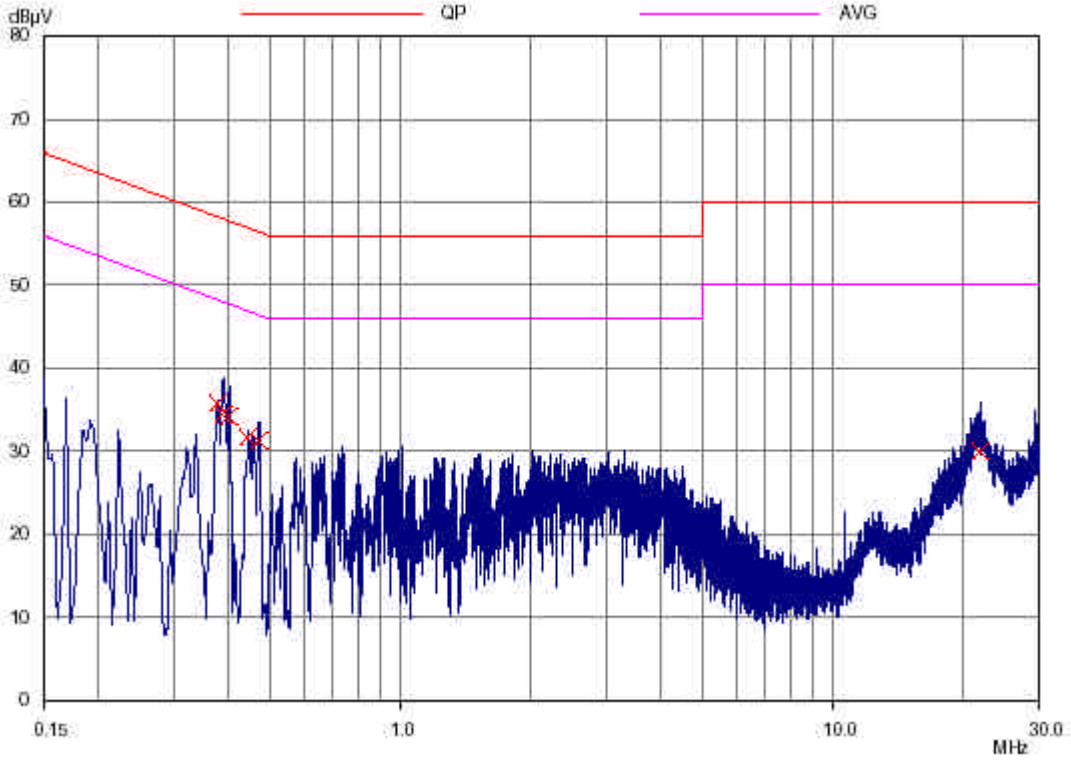
Note : The expanded uncertainty of the conducted emission tests is 2.45 dB

.

Mode: Operation Mode(5M) N1



Mode: Operation Mode(5M) L1



Operation Mode : Operation Mode(10M)

Test Date : Apr. 03, 2010 Temperature : 21 °C Humidity : 62 %

Mode: Operation Mode(5M) N1

Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.388	34.8	----	0.4	35.2	----	58.1	48.1	-22.9	----
0.400	34.4	----	0.4	34.8	----	57.9	47.9	-23.1	----
0.443	31.1	----	0.4	31.5	----	57.0	47.0	-25.5	----
0.470	32.2	----	0.4	32.6	----	56.5	46.5	-23.9	----
1.279	27.7	----	0.4	28.1	----	56.0	46.0	-27.9	----
2.298	27.5	----	0.5	28.0	----	56.0	46.0	-28.0	----

Mode: Operation Mode(10M) L1

Frequency (MHz)	Meter Reading (dBμV)		Factor (dB)	Result (dBμV)		Limit (dBμV)		Margin (dBμV)	
	Q.P	AVG		Q.P	AVG	Q.P	AVG	Q.P	AVG
0.380	28.6	----	0.4	29.0	----	58.3	48.3	-29.3	----
0.392	27.5	----	0.4	27.9	----	58.0	48.0	-30.1	----
0.463	23.5	----	0.4	23.9	----	56.6	46.6	-32.7	----
0.474	23.3	----	0.4	23.7	----	56.4	46.4	-32.7	----
22.805	20.1	----	1.2	21.3	----	60.0	50.0	-38.7	----
29.875	27.9	----	1.5	29.4	----	60.0	50.0	-30.6	----

Note : The expanded uncertainty of the conducted emission tests is 2.45 dB

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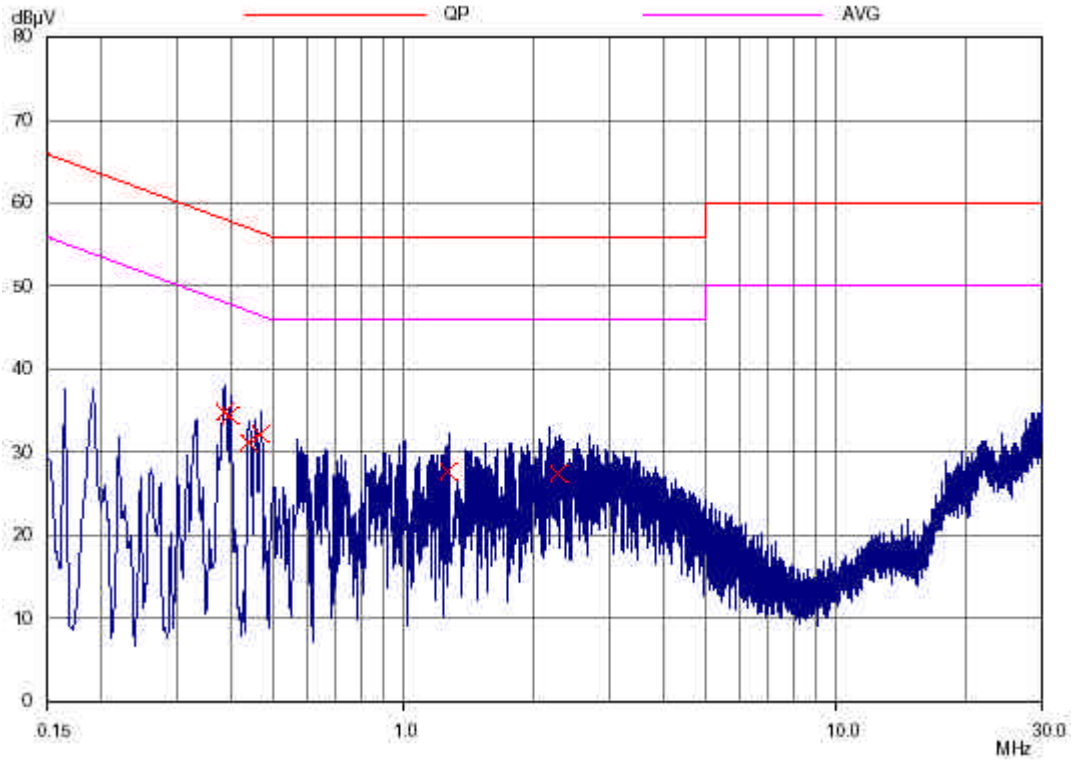
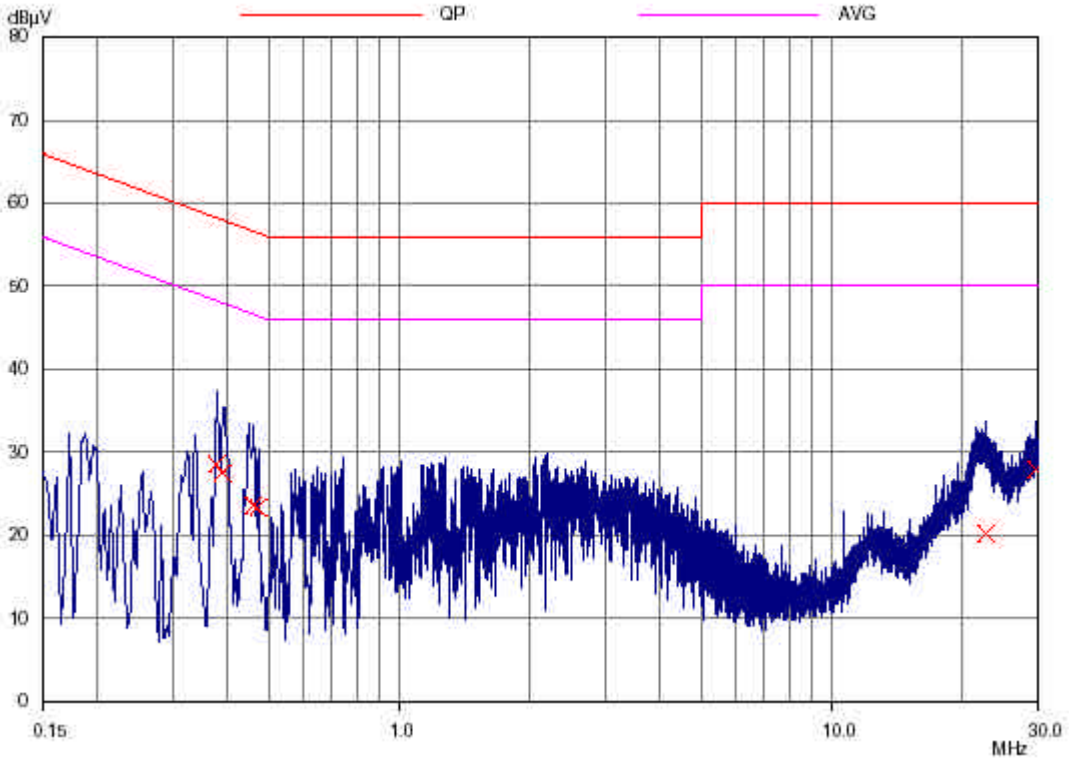
Mode: Operation Mode(10M) N1



Mode: Operation Mode(10M) L1



9.4 Result Data Calculation

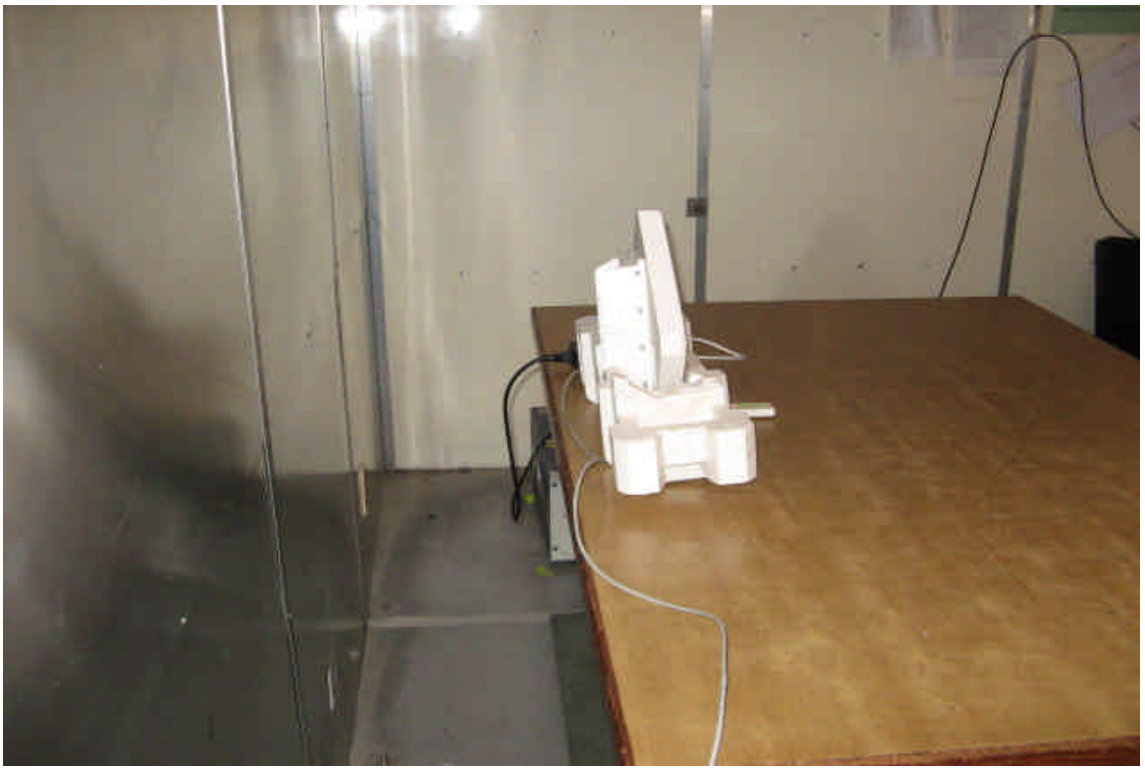
The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR

Assume a receiver reading of 22.5 dBμV is obtained, and LISN Factor is 0.1 dB, then the total of disturbance voltage is 22.6 dBμV.

RESULT = 22.5 + 0.1 = 22.6 dBμV
Level in μV = Common Antilogarithm[(22.6 dBμV)/20]
= 13.48 μV

9.6 Photos of Conduction Measuring Setup



10 Test Equipment List

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2010/02/03	2011/02/02
LISN	Rohde & Schwarz	ESH2-Z5	2009/07/16	2010/07/15
Spectrum	Rohde & Schwarz	FSP40	2009/09/10	2010/09/09
EMI Test Receiver	Rohde & Schwarz	ESCI	2010/02/03	2011/02/02
Test Receiver	Rohde & Schwarz	ESVS30	2009/05/07	2010/05/06
Horn Antenna	EMCO	3115	2009/05/12	2010/05/11
Log-periodic Antenna	EMCO	3146	2009/09/11	2010/09/10
Biconical Antenna	EMCO	3110B	2009/09/22	2010/09/21
Amplifier	HP	8449B	2009/12/16	2010/12/15
Amplifier	HP	8447D	2009/05/07	2010/05/06
Amplifier	HP	83051A	2009/05/11	2010/05/10
Horn Antenna	EMCO	3116	2009/09/21	2010/09/20
Signal Generator	HP	83732B	2009/08/06	2010/08/06
Hi-pass Filter	HP	84300-80038	2009/05/08	2010/05/07
Attenuator	Weinschel	1	2009/08/10	2010/08/09
Temperature Chamber	Mallier	MCT-2X-M	2009/12/03	2010/12/02
Vector Signal Generator	R&S	SMU200A	2009/05/10	2010/05/11
Wimax Communication Tester	R&S	CMW270	2009/12/15	2010/12/14
POWER METER+SENSOR	ANRITSU	ML2487A+ MA2491A	2009/12/15	2010/12/14
EMI Test Receiver	R&S	ESU 40	2009/02/25	2011/02/23