FCC PART 15.407

TEST REPORT

For

Amimon Ltd.

2 Maskit St. Herzlia, Israel

FCC ID: VQSAMN3622301

Report Type:	**Product Type:**
Class II Permissive Change	RxGrizzlyPro

Test Engineer:	Ares Liu
Report Number:	R1DG121224006-00A1
Report Date:	2013-03-08
Reviewed By:	Ivan Cao RF Leader
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Amimon Ltd.*'s product, model number: *AMN36223 (FCC ID: VQSAMN3622301)* ("EUT") in this report is a transmitter of RxGrizzlyPro, which was measured approximately:8.5cm (L) x 5.1cm (W) x1.0cm (H).This device is master device,the operating frequency is 5150~5250MHz , 5250MHz~5350MHz,5470MHz ~5725MHz, 5725 ~5825MHz ,rated input voltage: DC 5V from USB port.

** All measurement and test data in this report was gathered from production sample serial number: 121224006 (Assigned by BACL, Dongguan). The EUT was received on 2012-12-24.*

Objective

This type approval report is prepared on behalf of *Amimon Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

This is the C2PC application of the device. The difference between the original device and the current one is as follows:

Part	Original	New
Operating frequency	5150~5250MHz 5725~5825MHz	5150~5250MHz 5250~5350MHz 5470~5725MHz 5725~5825MHz

For the changes made to the device, all item testing were performed except Antenna Requirement and Conducted Emissions, the test results of 5150~5250MHz and 5725 ~5825MHz please refer to the test report No.: R1DG121224005-00.

Related Submittal(s)/Grant(s)

Original submission with FCC ID: VQSAMN3622301 which is granted on 2013-02-06.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacture.
For the operating frequency range 5250MHz~5350MHz,5470MHz ~5725MHz, the test frequencies are 5270MHz, 5310MHz, 5510MHz, 5550MHz, 5670MHz, those are requested by the applicant.

EUT Exercise Software

Control software: AppCom_V 4.0.3.1;

Equipment Modifications

Added a piece of copper foil on the bottom of pcb, please refer the internal photo, the modification was made to the EUT by manufacture.

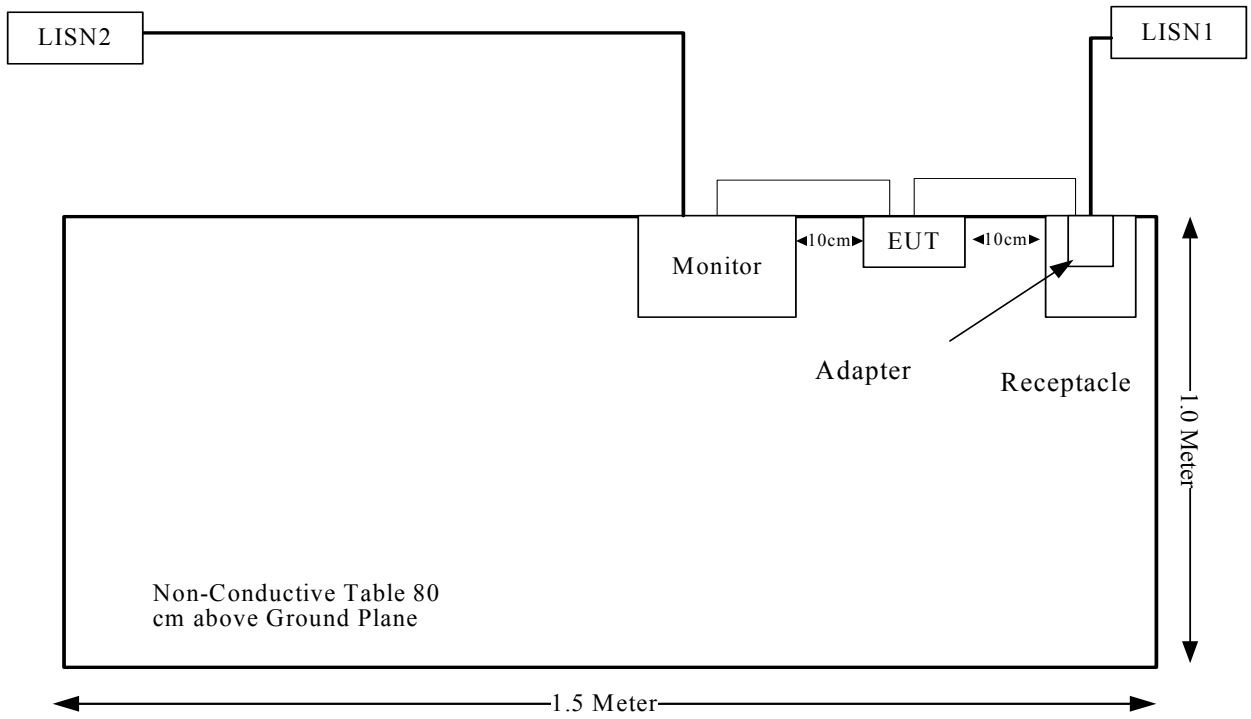
Local Support Equipment

Manufacturer	Description	Model	Serial Number
DELL	Monitor	U3011t	CN-OPH5NY-74445-16T-290L

External Cable

Cable Description	Length (m)	From/Port	To
shielded detachable HDMI cable	2.5	EUT	Monitor

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.407 (f), §2.1091, §1.1307(b)(1)	RF Exposure Evaluation	Compliance
§15.203	Antenna Requirement	Compliance*
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance*
§15.205& §15.209 &§15.407(b) (1),(6),(7)	Undesirable Emission& Restricted Bands	Compliance**
§15.407(a) (1)	26 dB Bandwidth	Compliance**
§15.407(a)(1),	Conducted Transmitter Output Power	Compliance**
§15.407 (a)(1),(5)	Power Spectral Density	Compliance**
§15.407(a)(6)	Peak Excursion Ratio	Compliance**
§15.407(h)(2)	Dynamic Frequency Selection	Compliance***

*Note: The test result is compliance, please refer to the test report No.: R1DG121224005-00

**Note: The test results of 5150~5250MHz and 5725 ~5825MHz please refer to the test report No.: R1DG121224005-00.

***Note: Please refer to the DFS test report.

FCC §15.407 (f), §2.1091, §1.1307(b) (1) – RF EXPOSURE EVALUATION

Applicable Standard

According to subpart 15.407(f)and subpart §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary:

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Calculated Data:

Frequency	**Antenna Gain**		**Conducted Power**		**Evaluation Distance**	**Power Density**	**MPE Limit**
(MHz)	**(dBi)**	**(numeric)**	**(dBm)**	**(mW)**	**(cm)**	**(mW/cm2)**	**(mW/cm2)**
5270	2	1.58	15.62	36.4754	20.00	0.01151	1.0

Result: The device meet FCC MPE at 20cm distance

FCC §15.209, §15.205 & §15.407(b) (1) (6) (7) – UNDESIRABLE EMISSION & RESTRICTED BANDS

Applicable Standard

FCC §15.407 (b) (1),(2), (3), (6), (7); §15.209; §15.205;

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

For transmitters operating in the 5.725–5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of –17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of –27 dBm/MHz。

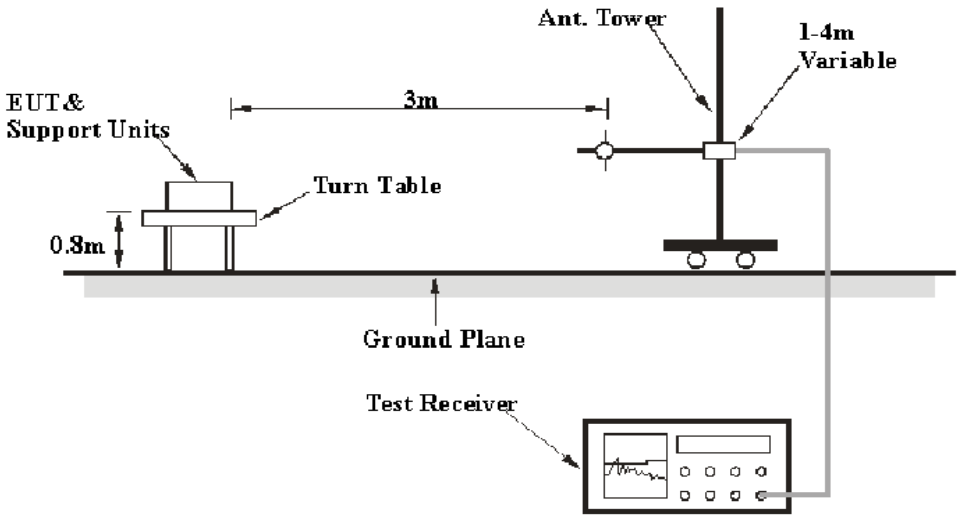
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2-2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:
30M~200MHz: 5.0 dB
200M~1GHz: 6.2 dB
1G~6GHz: 4.45 dB
6G~18GHz: 5.23 dB
and the uncertainty will not be taken into consideration for all the test data recorded in the report.

EUT Setup



The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC 15.209, and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to a 120 VAC/60 Hz power source,

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	***RBW***	***Video B/W***	***Detector***
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 40 GHz	1 MHz	3 MHz	PK
1000 MHz – 40 GHz	1 MHz	10 Hz	Ave.

Test Procedure

During the radiated emission test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2012-05-14	2013-05-13
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2013-09-05
HP	Pre-amplifier	8447E	2434A02181	2012-10-08	2013-10-07
R&S	Spectrum Analyzer	FSEM 30	DE31388	2012-03-15	2013-03-14
ETS-LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2014-09-05
PICOSECOND	Amplifier	5828	2708	N/A	N/A
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, Section 15.205, 15.209 and 15.407, with the worst margin reading of:

2.11 dB at **11100 MHz** in the **Vertical** polarization

Test Data

Environmental Conditions

Temperature:	19.0 ~20.9 ° C
Relative Humidity:	56 ~60 %
ATM Pressure:	100.8 ~101.8 kPa

The testing was performed by Ares Liu from 2012-12-31 to 2013-01-09.

Mode: Transmitting

5250MHz~5350MHz

Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	15.407/15.209	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Channel: 5270 MHz									
5270	64.39	AV	H	26.64	4.94	8.38	87.59	N/A	N/A
5270	85.47	PK	H	26.64	4.94	8.38	108.67	N/A	N/A
5270	65.61	AV	V	26.64	4.94	8.38	88.81	N/A	N/A
5270	88.83	PK	V	26.64	4.94	8.38	112.03	N/A	N/A
5148	26.92	AV	V	26.39	5.46	7.87	50.90	54.00	3.10 *
10540	33.47	PK	V	32.03	8.41	9.20	64.71	68.20	3.49 *
5148	36.51	PK	V	26.39	5.46	7.87	60.49	68.20	7.71
10540	14.91	AV	V	32.03	8.41	9.20	46.15	54.00	7.85
371.55	38.25	QP	V	15.69	2.34	21.70	34.58	46.00	11.42
Channel: 5310 MHz									
5310	63.63	AV	H	26.72	4.81	8.54	86.62	N/A	N/A
5310	85.31	PK	H	26.72	4.81	8.54	108.30	N/A	N/A
5310	65.79	AV	V	26.72	4.81	8.54	88.78	N/A	N/A
5310	89.44	PK	V	26.72	4.81	8.54	112.43	N/A	N/A
10620	34.55	PK	V	32.10	8.56	9.19	66.02	68.20	2.18 *
10620	15.13	AV	V	32.10	8.56	9.19	46.60	54.00	7.40
5144	36.54	PK	V	26.39	5.47	7.85	60.55	68.20	7.65
5350	36.69	PK	V	26.89	4.58	8.70	59.46	68.20	8.74
371.46	37.49	QP	V	15.68	2.34	21.70	33.81	46.00	12.19
5144	16.72	AV	V	26.39	5.47	7.85	40.73	54.00	13.27
5350	16.28	AV	V	26.89	4.58	8.70	39.05	54.00	14.95

*Within measurement uncertainty!

5470MHz~5725MHz

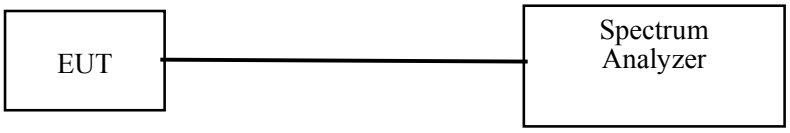
Frequency	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	15.407/15.209	
(MHz)	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Channel: 5510 MHz									
5510	64.47	AV	H	27.10	4.60	9.45	86.72	N/A	N/A
5510	84.29	PK	H	27.10	4.60	9.45	106.54	N/A	N/A
5510	66.01	AV	V	27.10	4.60	9.45	88.26	N/A	N/A
5510	89.58	PK	V	27.10	4.60	9.45	111.83	N/A	N/A
5145	36.31	PK	V	26.39	5.47	7.85	60.32	68.20	7.88
11020	33.51	PK	V	27.04	9.18	9.59	60.14	68.20	8.06
5470	35.71	PK	V	27.04	4.47	9.25	57.97	68.20	10.23
372.33	39.05	QP	V	15.69	2.34	21.70	35.38	46.00	10.62
11020	15.28	AV	V	27.04	9.18	9.59	41.91	54.00	12.09
5145	16.44	AV	V	26.39	5.47	7.85	40.45	54.00	13.55
5470	16.69	AV	V	27.04	4.47	9.25	38.95	54.00	15.05
Channel: 5550 MHz									
5550	63.58	AV	H	27.11	4.70	9.65	85.74	N/A	N/A
5550	84.22	PK	H	27.11	4.70	9.65	106.38	N/A	N/A
5550	64.88	AV	V	27.11	4.70	9.65	87.04	N/A	N/A
5550	89.39	PK	V	27.11	4.70	9.65	111.55	N/A	N/A
11100	34.18	PK	V	32.50	8.96	9.55	66.09	68.20	2.11 *
11100	15.49	AV	V	32.50	8.96	9.55	47.40	54.00	6.60
5142	35.51	PK	V	26.39	5.48	7.84	59.54	68.20	8.66
5570	35.82	PK	V	27.11	4.46	9.75	57.64	68.20	10.56
372.15	38.71	QP	V	15.69	2.34	21.70	35.04	46.00	10.96
5142	16.39	AV	V	26.39	5.48	7.84	40.42	54.00	13.58
5570	16.19	AV	V	27.11	4.46	9.75	38.01	54.00	15.99
Channel: 5670 MHz									
5670	63.58	AV	H	27.13	4.85	9.80	85.76	N/A	N/A
5670	84.23	PK	H	27.13	4.85	9.80	106.41	N/A	N/A
5670	66.51	AV	V	27.13	4.85	9.80	88.69	N/A	N/A
5670	89.15	PK	V	27.13	4.85	9.80	111.33	N/A	N/A
11340	32.51	PK	V	32.74	8.27	8.66	64.86	68.20	3.34 *
11340	15.82	AV	V	32.74	8.27	8.66	48.17	54.00	5.83
5144	36.54	PK	V	26.39	5.47	7.85	60.55	68.20	7.65
5388	36.66	PK	V	26.88	4.96	8.85	59.65	68.20	8.55
371.44	38.46	QP	V	15.68	2.34	21.70	34.78	46.00	11.22
5144	16.41	AV	V	26.39	5.47	7.85	40.42	54.00	13.58
5388	16.53	AV	V	26.88	4.96	8.85	39.52	54.00	14.48

*Within measurement uncertainty!

Conducted Spurious Emission at Antenna Port

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The Resolution bandwidth is set to 1MHz, The Video bandwidth is set to ≥ 1MHz, report the peak value out of the oprating band.
3. Repeat above procedures until all frequencies measured were complete.



Test Data

Environmental Conditions

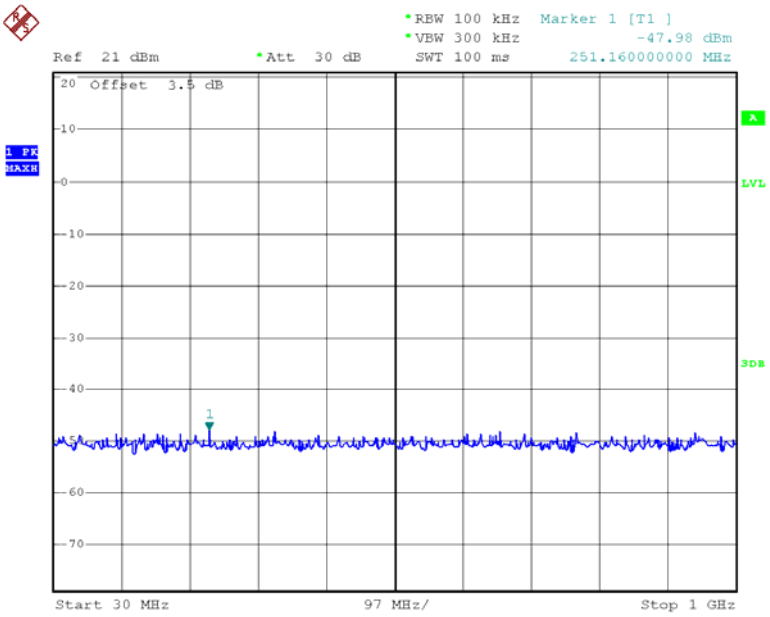
Temperature:	19.3 ~20.3° C
Relative Humidity:	30 ~43 %
ATM Pressure:	100.8 ~101.8 kPa

The testing was performed by Ares Liu from 2012-12-31 to 2013-01-09.

Please refer to the following table and plots.

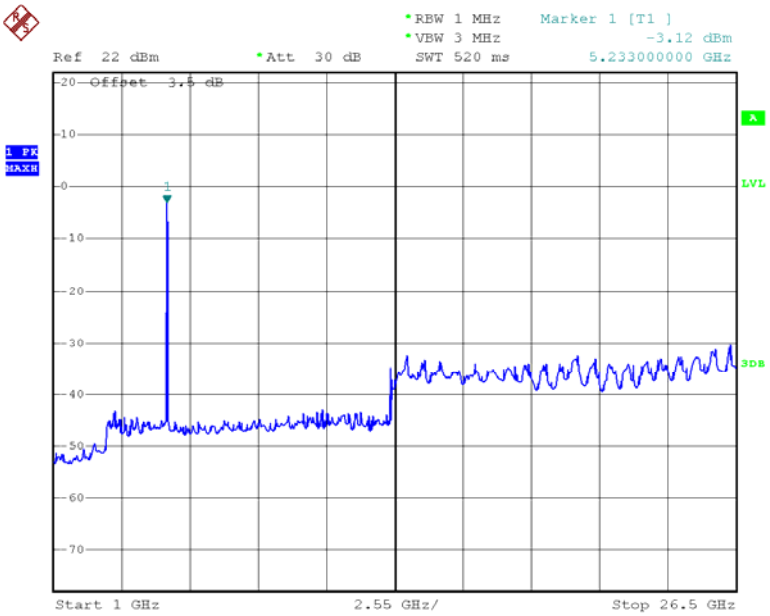
Frequency (MHz)	Worst Reading Level (dBm)	Limit (dBm)	Result
5270	-30.74	-27	PASS
5310	-31.07	-27	PASS
5510	-30.00	-27	PASS
5550	-30.00	-27	PASS
5670	-30.91	-27	PASS

5270MHz(30MHz-1GHz)



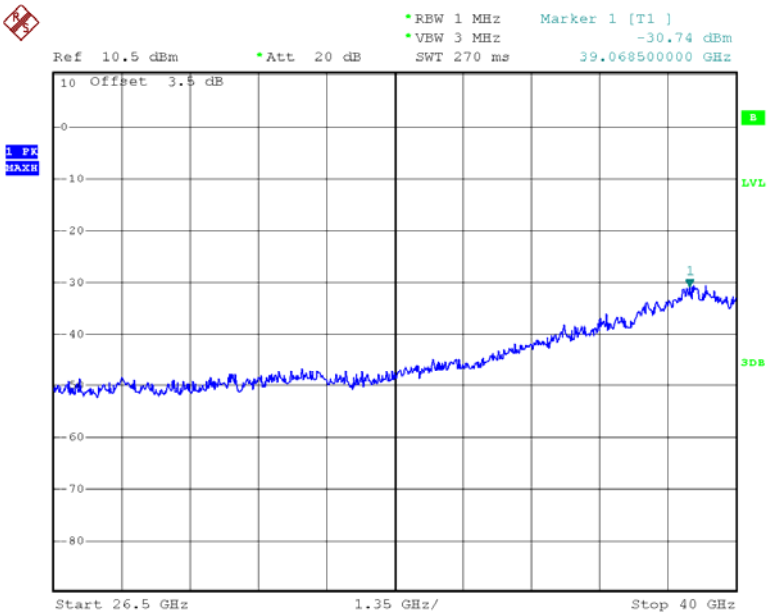
Date: 9.JAN.2013 13:28:59

5270MHz(1GHz-26.5GHz)



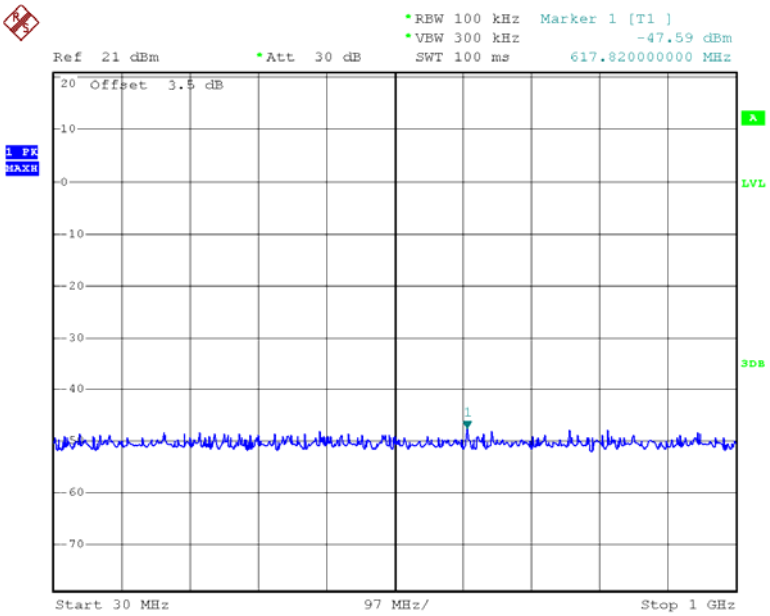
Date: 8.JAN.2013 17:10:43

5270MHz(26.5GHz-40GHz)



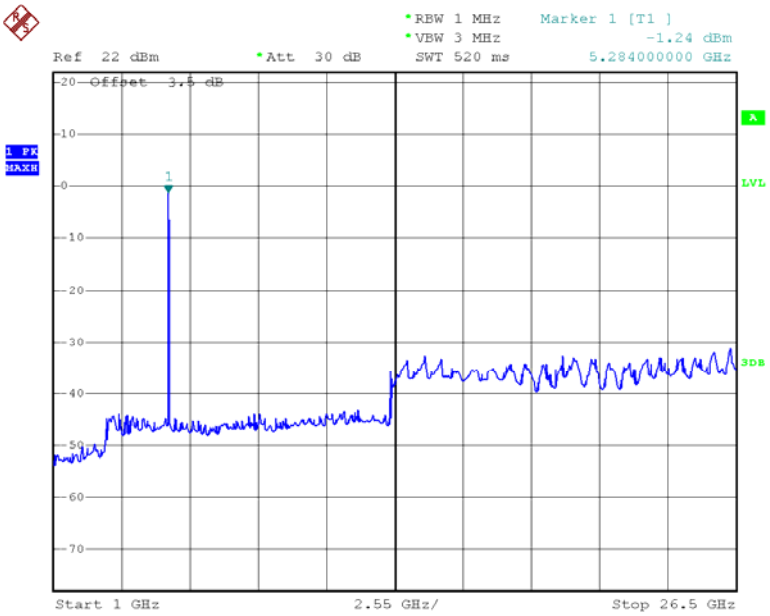
Date: 31.DEC.2012 14:28:22

5310MHz(30MHz-1GHz)



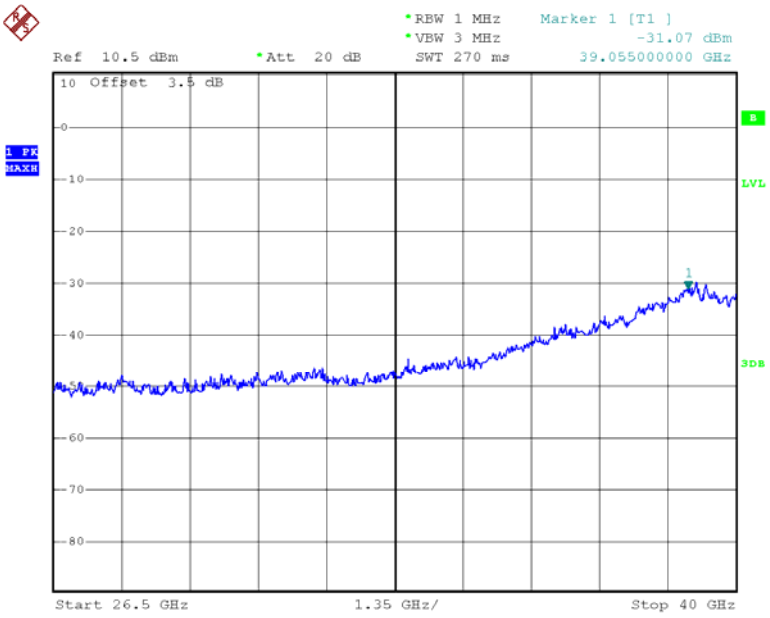
Date: 9.JAN.2013 13:28:37

5310MHz(1GHz-26.5GHz)



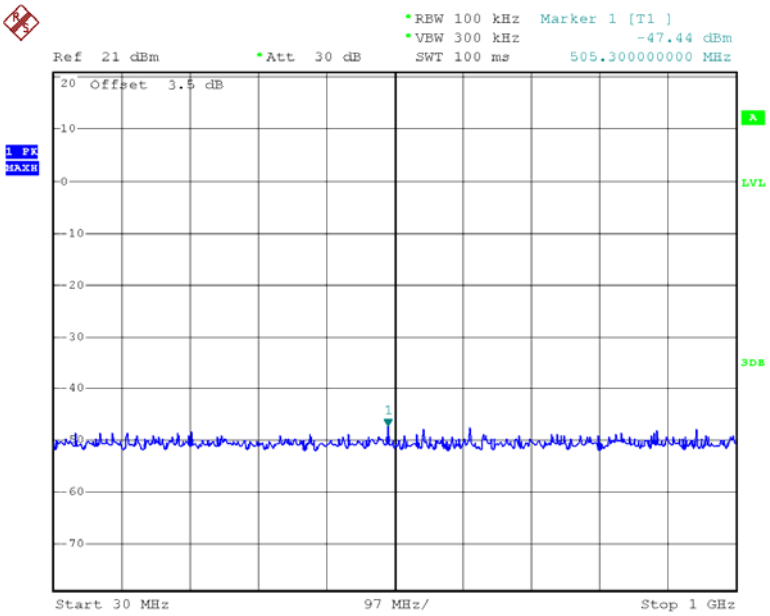
Date: 8.JAN.2013 17:12:21

5310MHz(26.5GHz-40GHz)



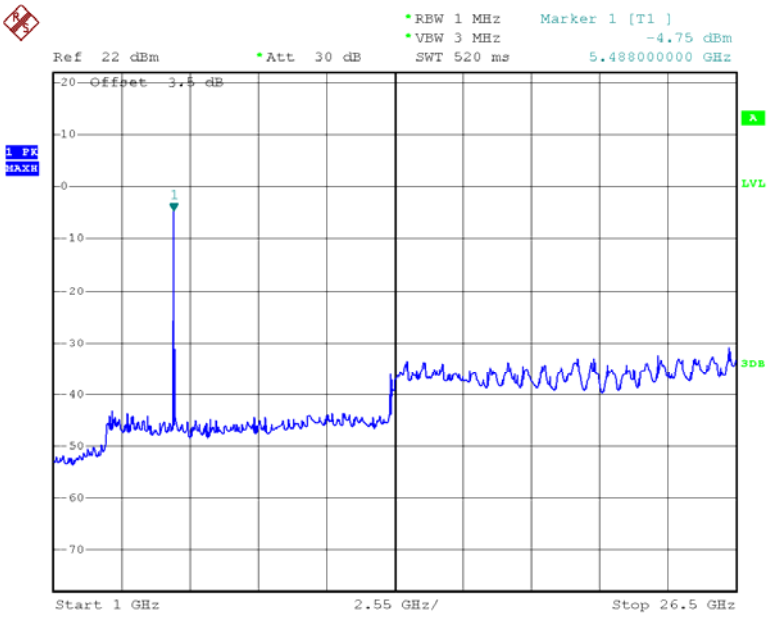
Date: 31.DEC.2012 14:29:19

5510MHz(30MHz-1GHz)



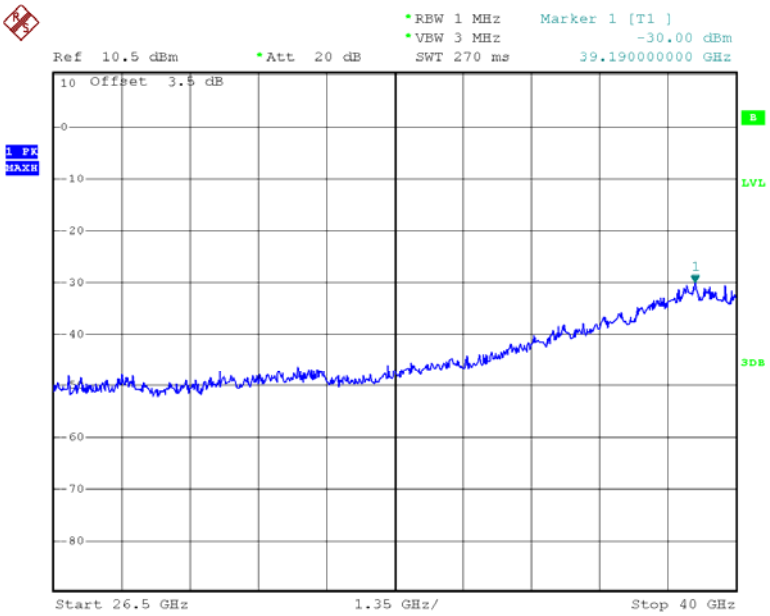
Date: 9.JAN.2013 13:28:44

5510MHz(1GHz-26.5GHz)



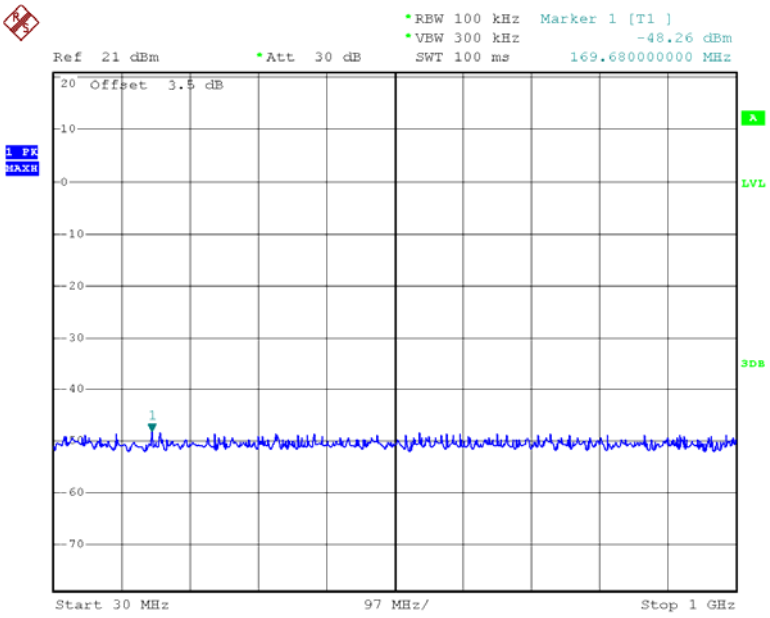
Date: 8.JAN.2013 17:13:40

5510MHz(26.5GHz-40GHz)



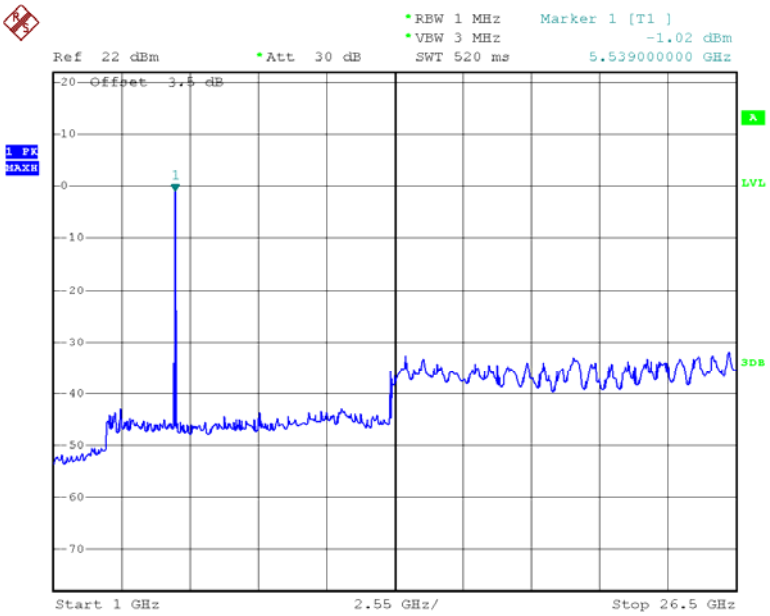
Date: 4.JAN.2013 13:33:59

5550MHz(30MHz-1GHz)



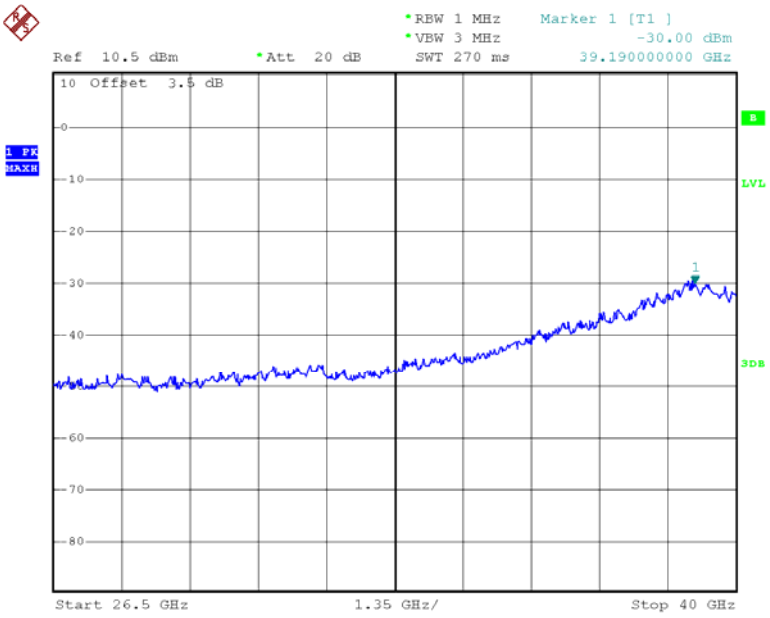
Date: 9.JAN.2013 13:28:51

5550MHz(1GHz-26.5GHz)



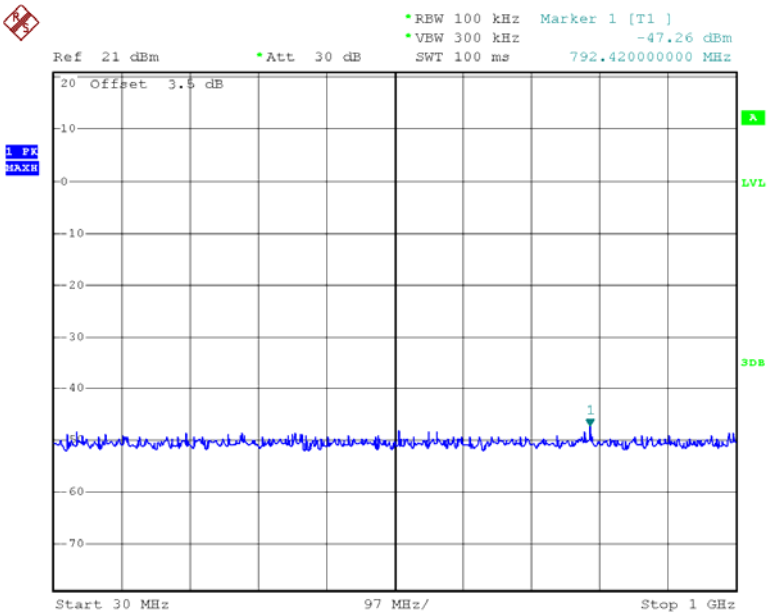
Date: 8.JAN.2013 17:15:12

5550MHz(26.5GHz-40GHz)



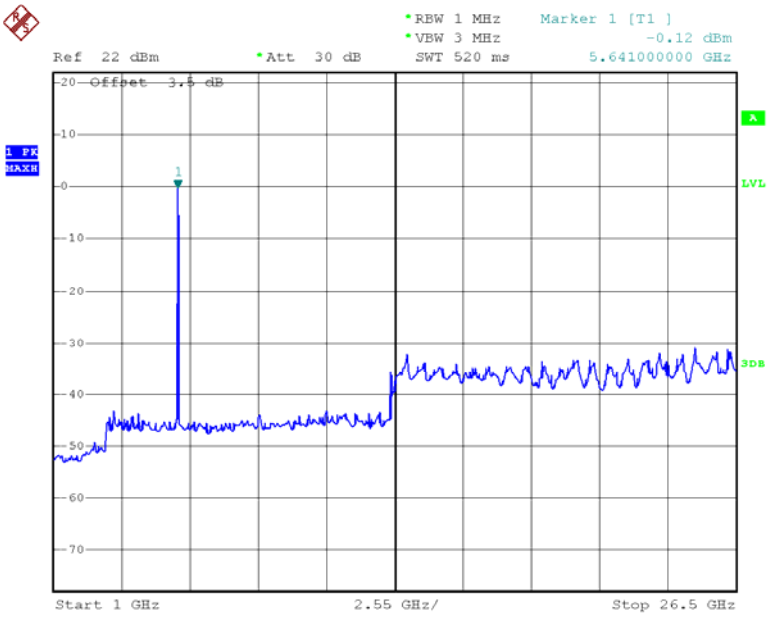
Date: 4.JAN.2013 13:35:06

5670MHz(30MHz-1GHz)



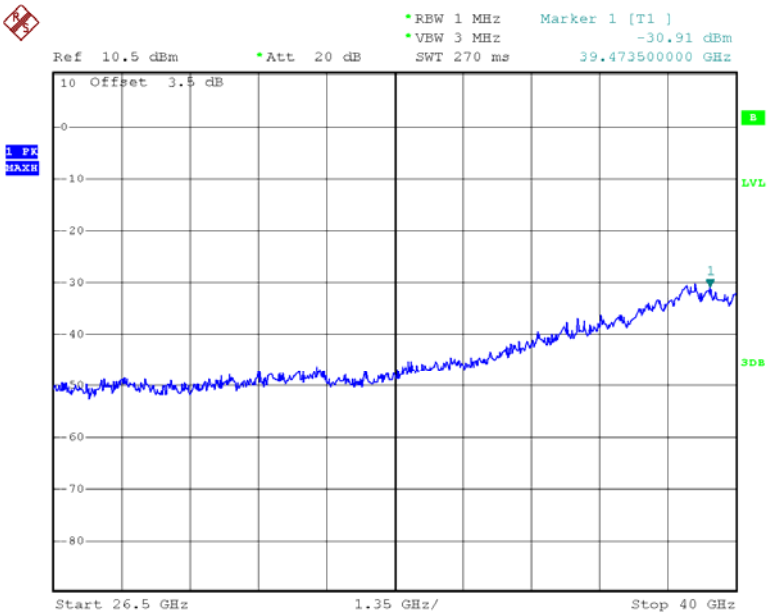
Date: 9.JAN.2013 13:29:07

5670MHz(1GHz-26.5GHz)



Date: 8.JAN.2013 17:05:42

5670MHz(26.5GHz-40GHz)



Date: 31.DEC.2012 14:40:44

FCC §15.407(b) (1) (2) (3) (4) – OUT OF BAND EMISSIONS

Applicable Standard

FCC §15.407 (b) (1),(2), (3), (4),;

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz.

For transmitters operating in the 5.25–5.35 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz. Devices operating in the 5.25–5.35 GHz band that generate emissions in the 5.15–5.25 GHz band must meet all applicable technical requirements for operation in the 5.15–5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of –27 dBm/MHz in the 5.15–5.25 GHz band.

For transmitters operating in the 5.47–5.725 GHz band: all emissions outside of the 5.47–5.725 GHz band shall not exceed an EIRP of −27 dBm/MHz.

For transmitters operating in the 5.725–5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of –17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of –27 dBm/MHz.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibration or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measuremen 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 to 1 MHz and VBW to 3MHz of spectrum analyzer.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

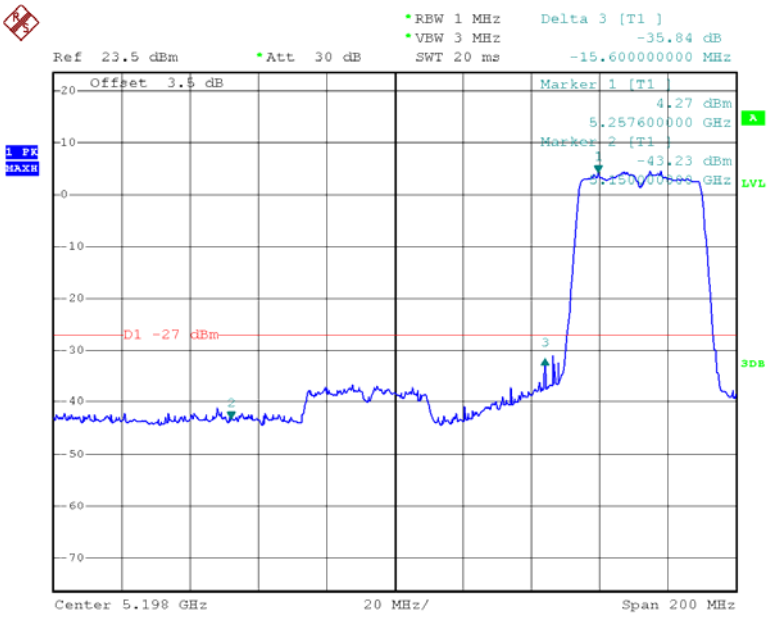
Temperature:	19.3 ~20.3° C
Relative Humidity:	30 ~43 %
ATM Pressure:	100.8 ~101.8 kPa

The testing was performed by Ares Liu on 2012-03-08.

Test mode: transmitting

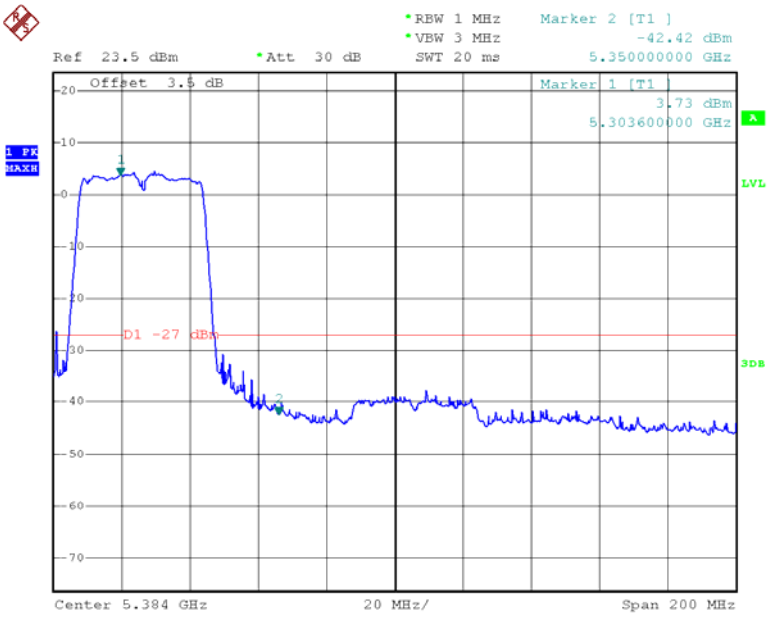
5250-5350MHz band:

5270 MHz



Date: 8.MAR.2013 10:47:11

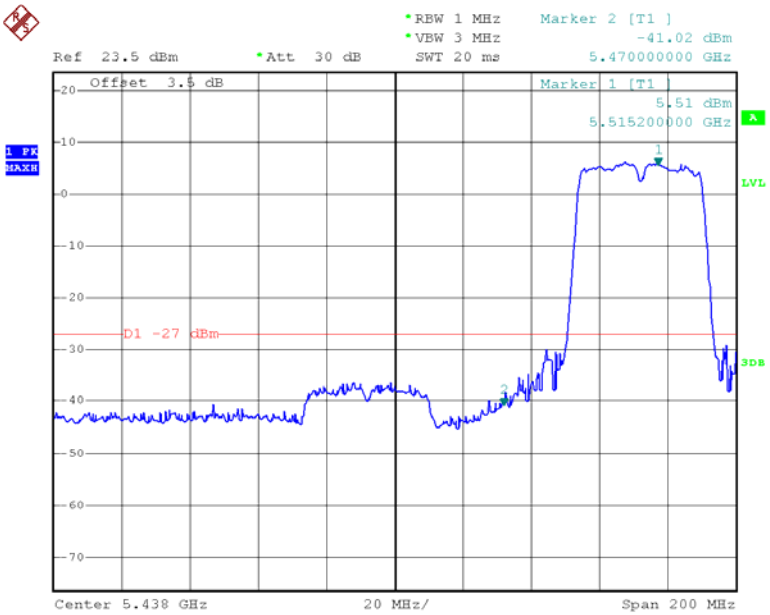
5310 MHz



Date: 8.MAR.2013 10:49:44

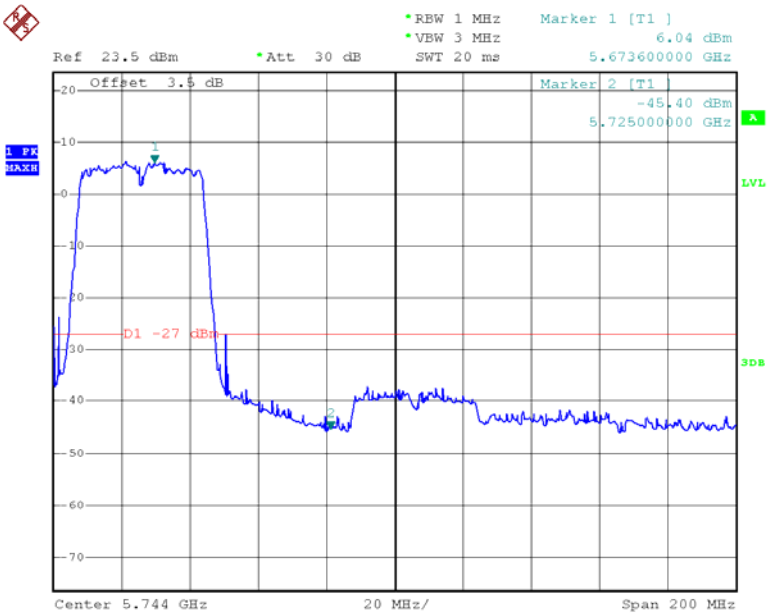
5470-5725MHz Band:

5510MHz



Date: 8.MAR.2013 10:51:35

5670 MHz



Date: 8.MAR.2013 10:53:35

FCC §15.407(a) (1) – 26 dB OCCUPIED BANDWIDTH

Applicable Standard

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

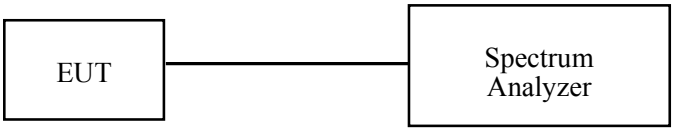
For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Procedure

6. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
7. Position the EUT 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.
8. Use a RBW = approximately 1% of the emission bandwidth.Set the VBW > RBW. Use a peak detector.Do not use the Max Hold function. Rather, use the view button to capture the emission. Measure maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat, measurement as needed until the RBW/EBW ratio is approximately 1%.
9. Repeat above procedures until all frequencies measured were complete.



Test Data

Environmental Conditions

Temperature:	19.8~19.9 °C
Relative Humidity:	30~41 %
ATM Pressure:	100.8~101.5 kPa

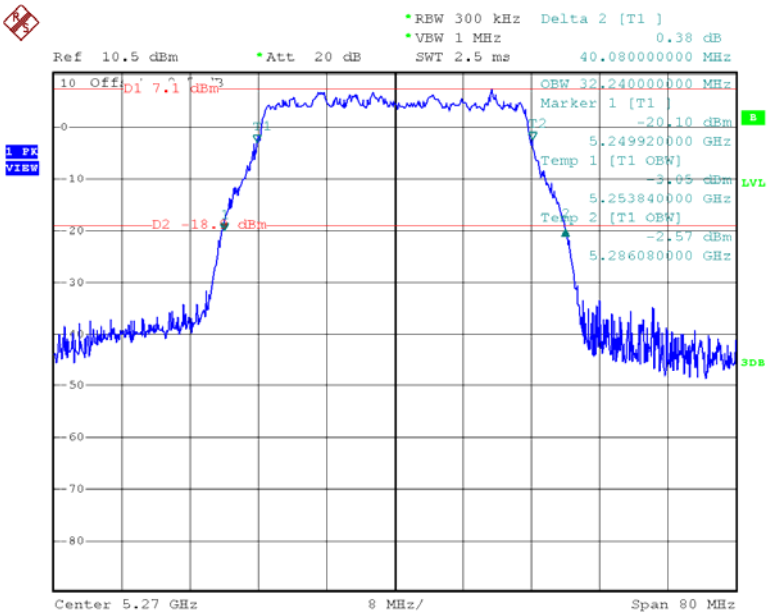
The testing was performed by Ares Liu from 2012-12-31 to 2013-01-04.

Test Result: Pass.

Please refer to the following tables and plots.

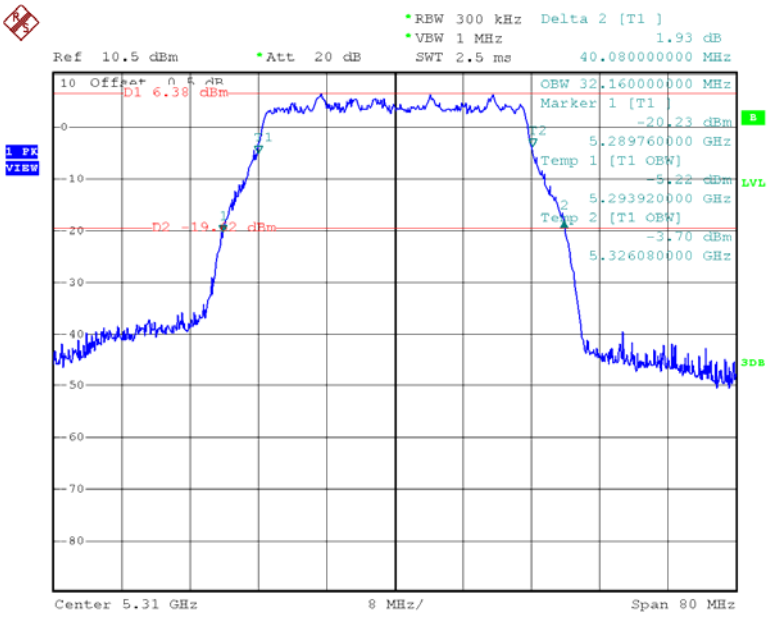
Frequency	26 dB Bandwidth
(MHz)	(MHz)
5270	40.08
5310	40.08
5510	40.48
5550	40.48
5670	40.08

5270 MHz



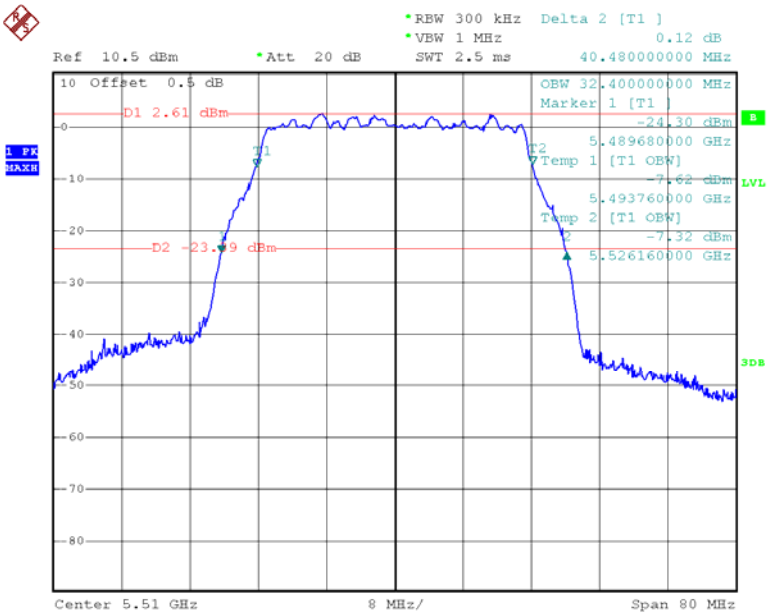
Date: 31.DEC.2012 14:23:05

5310 MHz



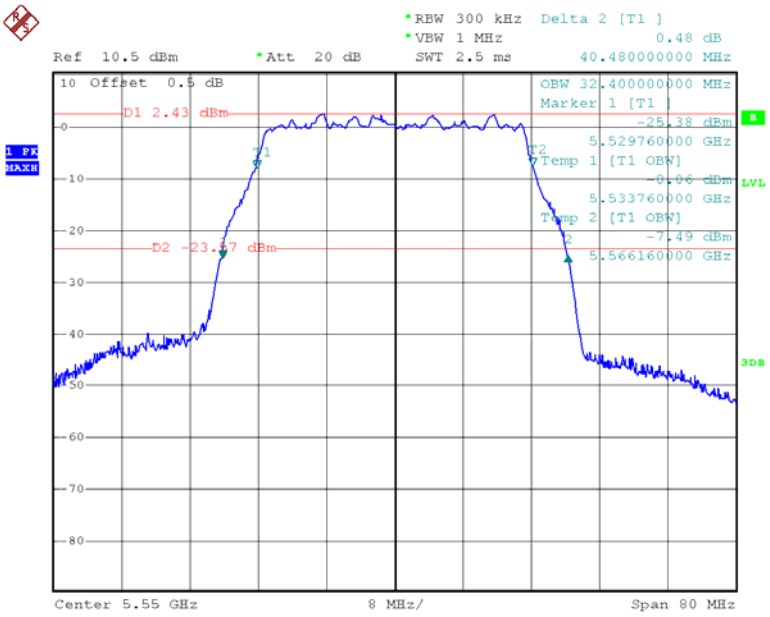
Date: 31.DEC.2012 14:31:22

5510 MHz



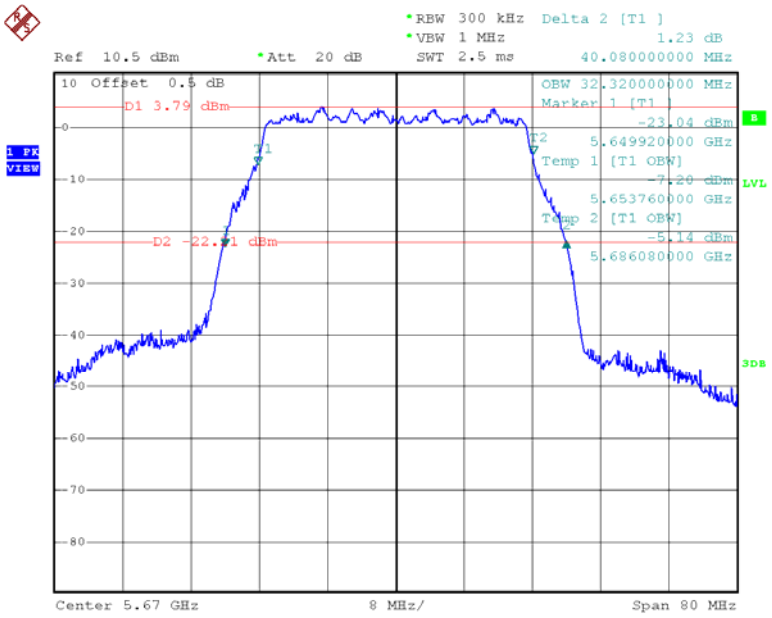
Date: 4.JAN.2013 13:23:12

5550 MHz



Date: 4.JAN.2013 13:38:41

5670 MHz



Date: 31.DEC.2012 14:36:24

FCC §15.407(a) (1) – CONDUCTED TRANSMITTER OUTPUT POWER

Applicable Standard

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test 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 was set 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 span to encompass the entire emission bandwidth (EBW) of the signal. Set RBW = 1 MHz.Set VBW ≥ 3 MHz. Use sample detector mode Use a video trigger with the trigger level set to enable triggering only on full power pulses.Transmitter must operate at full control power for entire sweep of every sweep.If the device transmits continuously, with no off intervals or reduced power intervals, the trigger may be set to “free run”. Trace average 100 traces in power averaging mode.Compute power by integrating the spectrum across the 26 dB EBW of the signal. The integration can be performed using the spectrum analyzer’s band power measurement function with band limits set equal to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms.

4. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.
5. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

Temperature:	19.8~19.9 °C
Relative Humidity:	30~41 %
ATM Pressure:	100.8~101.5 kPa

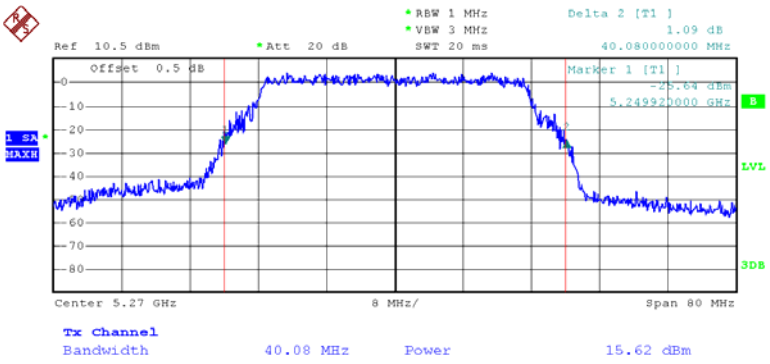
The testing was performed by from 2012-12-31 to 2013-01-04.

Test Mode: Transmitting
Test Result: Pass
Please refer to the following tables and plots.

Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Result
5270	15.62	24	PASS
5310	15.62	24	PASS
5510	15.21	24	PASS
5550	15.23	24	PASS
5670	15.12	24	PASS

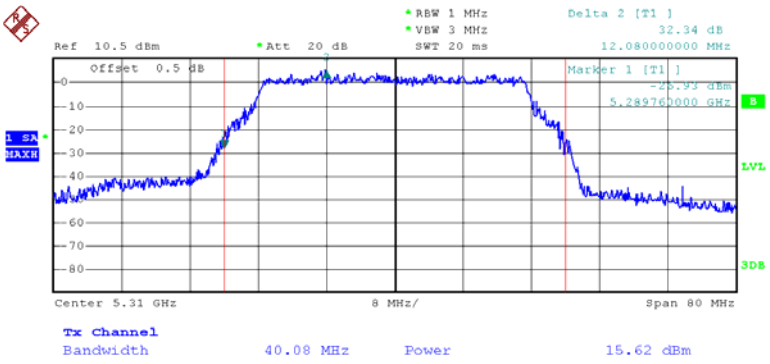
*Note: The antenna Gain is 2.0dBi.

RF Output Power, 5270 MHz



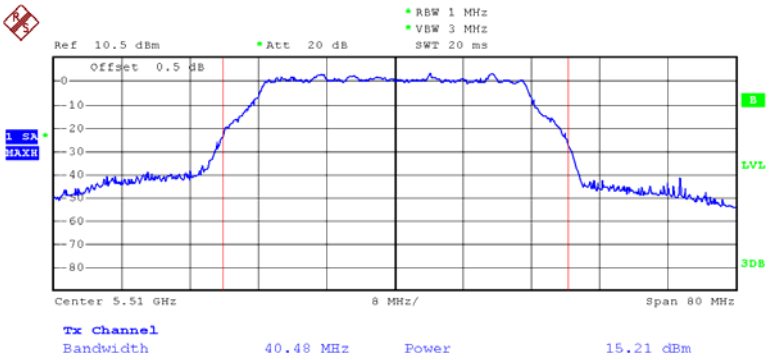
Date: 31.DEC.2012 14:24:38

RF Output Power, 5310 MHz



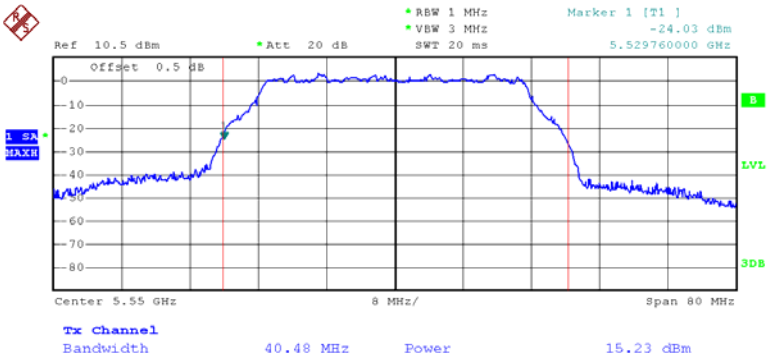
Date: 31.DEC.2012 14:31:46

RF Output Power, 5510 MHz



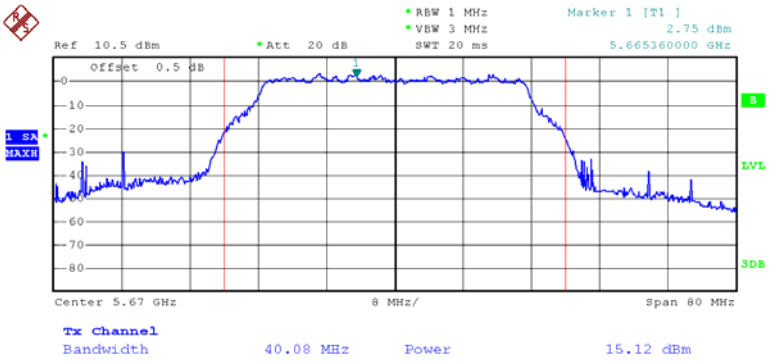
Date: 4.JAN.2013 13:29:30

RF Output Power, 5550 MHz



Date: 4.JAN.2013 13:44:01

RF Output Power, 5670 MHz



Date: 31.DEC.2012 14:38:43

FCC §15.407(a) (1) (5) - POWER SPECTRAL DENSITY

Applicable Standard

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10 log B, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725–5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or 17 dBm + 10 log B, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test 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 was set 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 sample detector and power averaging (not video averaging) mode. Set RBW= 1 MHz*, VBW > 1 MHz. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging. This method is permitted only if the transmission pulse or sequence of pulses remains at maximum transmits power throughout each of the 100 sweeps of averaging and that the interval between pulses is not included in any of the sweeps.
4. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	19.8~19.9 °C
Relative Humidity:	30~41 %
ATM Pressure:	100.8~101.5 kPa

The testing was performed by from 2012-12-31 to 2013-01-04.

Test Mode: Transmitting

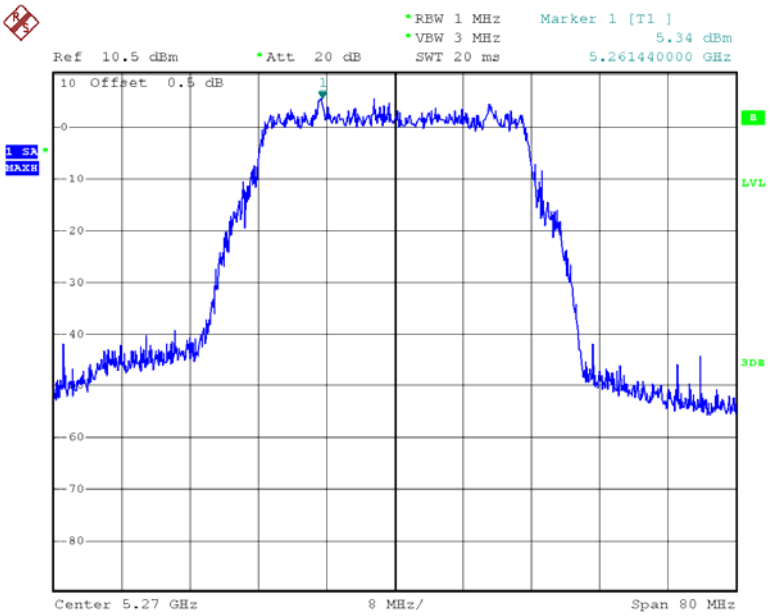
Test Result: Pass

Please refer to the following tables and plots.

Frequency (MHz)	Power Spectral Density (dBm/MHz)	Limit (dBm/MHz)
5270	5.34	11
5310	4.38	11
5510	2.65	11
5550	3.7	11
5670	1.82	11

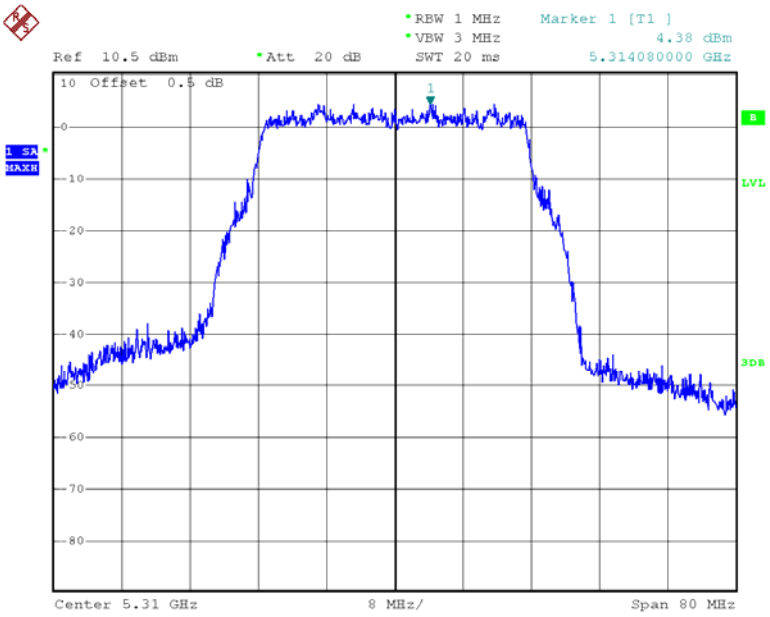
*Note: The antenna Gain is 2.0dBi.

5270 MHz



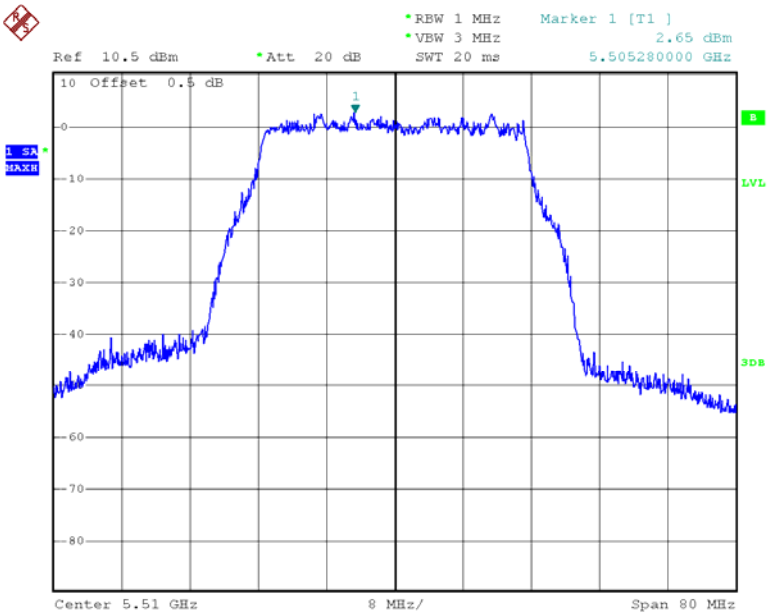
Date: 31.DEC.2012 14:24:53

5310 MHz



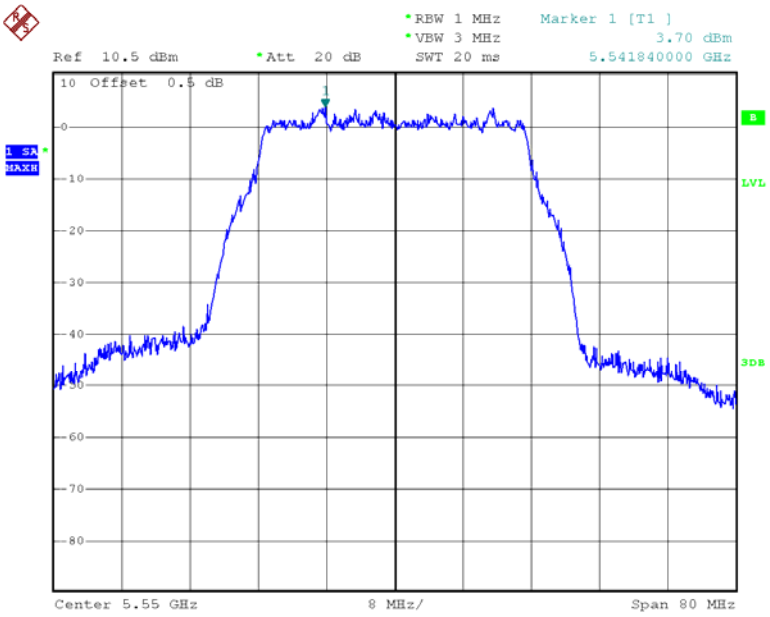
Date: 31.DEC.2012 14:32:07

5510 MHz



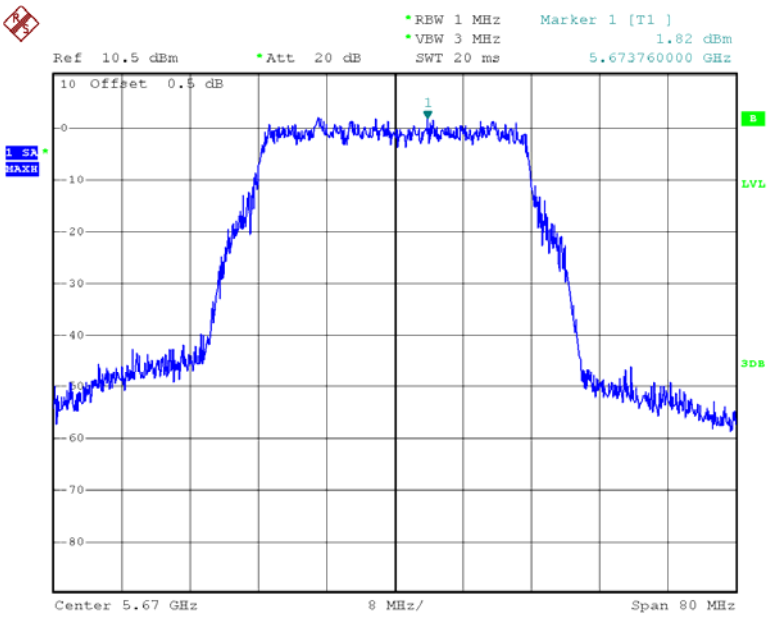
Date: 4.JAN.2013 13:30:13

5550 MHz



Date: 4.JAN.2013 13:44:58

5670 MHz



Date: 31.DEC.2012 14:38:59

FCC §15.407(a) (6) – PEAK EXCURSION RATIO

Applicable Standard

According to §15.407(a) (6), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

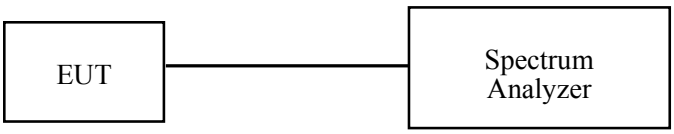
Test Procedure

Set the spectrum analyzer span to view the entire emission bandwidth.
The largest difference between the following two traces must be ≤ 13 dB for all frequencies across the emission bandwidth. Submit a plot.
1st Trace:

• Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.
2nd Trace:

• create the 2nd trace using the settings described in the setion "FCC §15.407(a)(1)(2) – CONDUCTED TRANSMITTER OUTPUT POWER".

.



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Spectrum Analyzer	FSP38	100478	2012-5-14	2013-5-13

Test Data

Environmental Conditions

Temperature:	19.8~19.9 °C
Relative Humidity:	30~41 %
ATM Pressure:	100.8~101.5 kPa

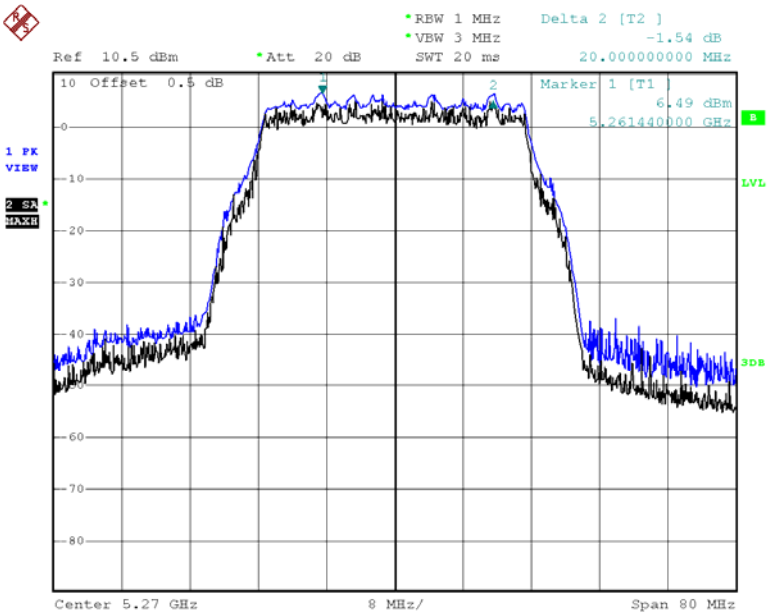
The testing was performed by from 2012-12-31 to 2013-01-04.

Test Mode: Transmitting

Please refer to the following tables and plots.

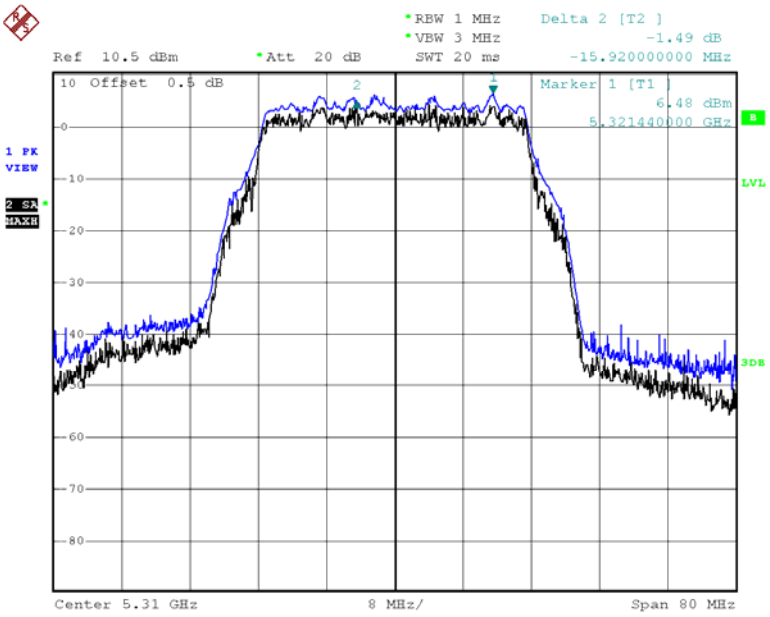
Channel Frequency MHz	Peak Excursion Ratio (dB)	Limit (dB)
5270	1.54	13
5310	1.49	13
5510	1.80	13
5550	0.14	13
5670	0.45	13

5270 MHz



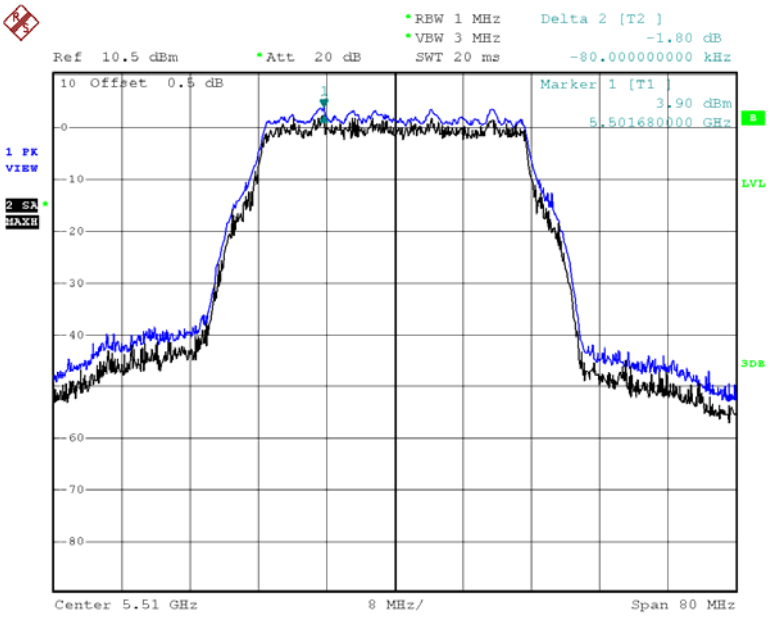
Date: 31.DEC.2012 14:25:30

5310 MHz



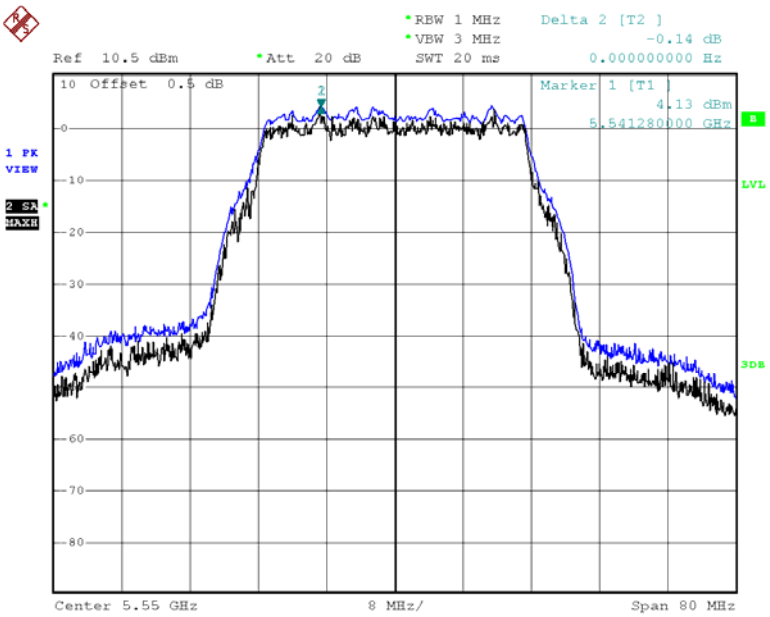
Date: 31.DEC.2012 14:32:41

5510 MHz



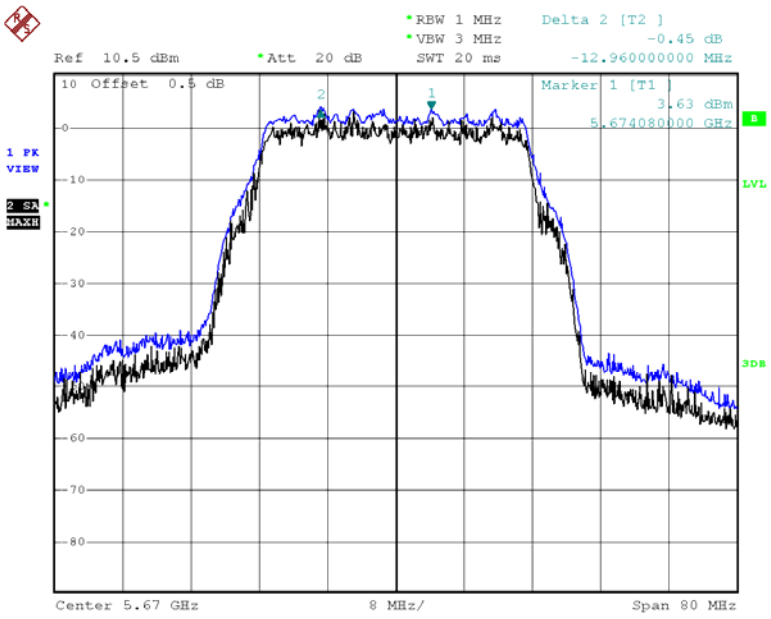
Date: 4.JAN.2013 13:31:04

5550 MHz



Date: 4.JAN.2013 13:45:51

5670 MHz



Date: 31.DEC.2012 14:39:53

******* END OF REPORT *******