LABCODE: 500069-0

FCC PART 90
TEST REPORT

For

Hytera Communications Corporation Ltd.

Hytera Tower, Hi-Tech Industrial Park North, Nanshan District, Shenzhen, Guangdong, China

FCC ID: YAMDS-6210U5C4

Report Type:	**Product Type:**
Original Report	DMR Trunking Base Station

Test Engineer:	Leon Chen
Report Number:	R2DG131112003-00B
Report Date:	2013-12-14
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 *Hytera Communications Corporation Ltd.*'s product, model: *DS-6210U5C4* (*FCC ID: YAMDS-6210U5C4)* (the "EUT") in this report is a *DMR Trunking base station*, which was measured approximately: 48.5 cm (L) x 31.0 cm (H) x 44.0 cm (T), rated input voltage: DC 48V or AC 120V/60Hz.

Note: The EUT has two kinds of power supply modules (PSU). One (DS-6210 PSU623 (DC) using DC power supply, the other (DS-6210 PSU622 (AC) using AC power supply. we selected DC power supply module for fully testing for this mode is the worst-case.

** All measurement and test data in this report was gathered from production sample serial number: 131112003 (Assigned by BACL.Dongguan). The EUT was received on 2013-11-13.*

Objective

This test report is prepared on behalf of *Hytera Communications Corporation Ltd.* in accordance with Part 2, and Part 90 of the Federal Communication Commissions rules.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following individual parts:

Part 90 – Private Land Mobile Radio Service

Applicable Standards: TIA 603-D and ANSI 63.4-2003.

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 C63.4-2003.

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.

Additionally, Bay Area Compliance Laboratories Corp. (Dongguan) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 500069-0).

The current scope of accreditations can be found at http://ts.nist.gov/standards/scopes/5000690.htm

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a test mode.

EUT Specification:

Operating Frequency Band	TX: 851-869 MHz, 935-940 MHz RX: 806-824 MHz, 896-901 MHz
Modulation Mode	4FSK
Channel Separation	12.5 kHz
Transmitter Power	Highest power level: 45.4 dBm±1.5 dB (851-869 MHz) 44.7 dBm±1.5 dB (935-940 MHz) Lowest power level: 30 dBm±1.5 dB

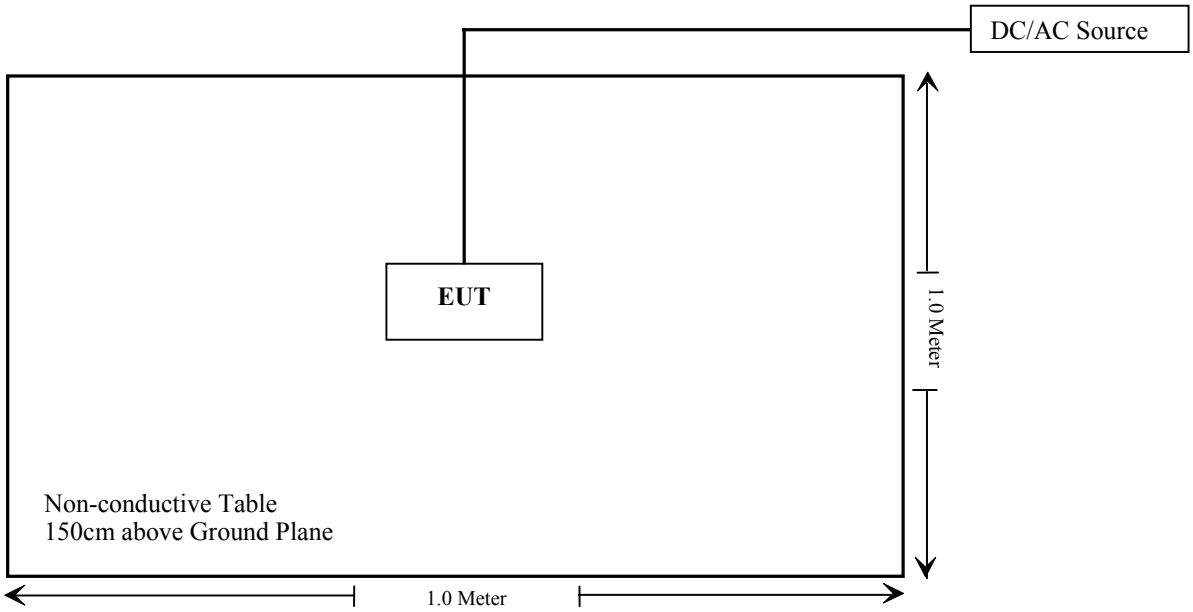
Equipment Modifications

No modifications were made to the unit tested.

Configuration of Test Setup

CHU	CHU	CHU	CHU	BSCU	BSCU	PSU	PSU
01	02	03	04	05	06	07	08

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§1.1307 (b) (1) & §2.1091	MAXIMUM PERMISSIBLE EXPOSURE (MPE)	Compliance
§2.1046; §90.205	RF Output Power	Compliance
§2.1047; §90.207	Modulation Characteristic	Not Applicable*
§2.1049; §90.209; §90.210	Occupied Bandwidth & Emission Mask	Compliance
§2.1051; §90.210	Spurious Emission at Antenna Terminal	Compliance
§2.1053; §90.210	Spurious Radiated Emissions	Compliance
§2.1055; §90.213	Frequency Stability	Compliance
§90.214	Transient Frequency Behavior	Not Applicable*

FCC §1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for Occupational/Controlled Exposure

Limits for Occupational/Controlled Exposure				
Frequency Range (MHz)	**Electric Field Strength (E) (V/m)**	**Magnetic Field Strength (H) (A/m)**	**Power Density (S) (mW/cm^2)**	**Averaging Time |E|, |H| or S (minutes)**
0.3- 3.0	614	1.63	(100)*	6
3.0 - 30	1842/f	4.89/f	($900/f^2$)*	6
30-300	61.4	0.163	1.0	6
300-1500	/	/	f/300	6
1500-100,000	/	/	5	6

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

MPE Calculation

Predication of MPE limit at a given distance

$$S = PG/4\pi R^2$$

Where: S = 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
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Frequency (MHz)	**Input Power of Antenna**		**Typical Antenna Gain (dBi)**	**Typical Antenna Gain (numeric)**	**Distance (cm)**	**Power Density Seq (mW/cm^2)**	**Power Density Limit (mW/cm^2)**
	(dBm)	**(mW)**					
851.0125	45.37	34435	12.1	16.218	250	0.711	2.837
860.5	45.43	34914	12.1	16.218	250	0.721	2.868
868.9875	45.47	35237	12.1	16.218	250	0.728	2.900
935.0125	44.68	29376	12.1	16.218	250	0.607	3.117
937.5	44.71	29580	12.1	16.218	250	0.611	3.125
939.9875	44.62	28973	12.1	16.218	250	0.599	3.133

Result: Pass

FCC §2.1046 & §90.205- RF OUTPUT POWER

Applicable Standard

FCC §2.1046 and §90.205.

Test Procedure

Conducted RF Output Power:

TIA-603-D section 2.2.1

Radiated method:

TIA 603-D section 2.2.17

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Spectrum Analyzer setting:

RBW	Video B/W
100 kHz	*300 kHz*

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	FSEM	DE31388	2013-5-7	2014-5-6

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	25.6 °C
Relative Humidity:	46 %
ATM Pressure:	101.4 kPa

The testing was performed by Leon Chen on 2013-11-22.

Test Mode: Transmitting

Test Result: Compliance.

Please refer to following table.

Modulation Mode	Channel Separation	f_c	Highest Power Level		Lowest Power Level	
		MHz	dBm	W	dBm	W
4FSK	12.5 kHz	851.0125	45.37	34.43	30.04	1.01
4FSK	12.5 kHz	860.5000	45.43	34.91	30.15	1.04
4FSK	12.5 kHz	868.9875	45.47	35.24	30.28	1.07
4FSK	12.5 kHz	935.0125	44.68	29.38	30.10	1.02
4FSK	12.5 kHz	937.5000	44.71	29.58	30.15	1.04
4FSK	12.5 kHz	939.9875	44.62	28.97	29.79	0.95

FCC §2.1049, §90.209 & §90.210 – OCCUPIED BANDWIDTH & EMISSION MASK

Applicable Standard

FCC §2.1049, §90.209 and §90.210

Applicable Emission Masks

Frequency band (MHz)	Mask for equipment with audio low pass filter	Mask for equipment without audio low pass filter
Below 25	A or B	A or C
25-50	B	C
72-76	B	C
150-174	B, D, or E	C, D or E
150 paging only	B	C
220-222	F	F
421-512	B, D, or E	C, D, or E
450 paging only	B	G
806-809/851-854	B	H
809-824/854-869	B	G
896-901/935-940	I	J
902-928	K	K
929-930	B	G
4940-4990 MHz	L or M	L or M
5850-5925		
All other bands	B	C

(a) Emission Mask G. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 10 kHz, but no more than 250 percent of the authorized bandwidth: At least 116 log (f_d/6.1) dB, or 50 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation;

(2) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

(b) Emission Mask H. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of 4 kHz or less: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 4 kHz, but no more than 8.5 kHz: At least 107 log (f_d/4) dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 8.5 kHz, but no more than 15 kHz: At least 40.5 log (f_d/1.16) dB;

(4) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 15 kHz, but no more than 25 kHz: At least 116 log (f_d/6.1) dB;

(5) On any frequency removed from the center of the authorized bandwidth by more than 25 kHz: At least 43 + log (P) dB.

(c) Emission Mask J. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2.5 kHz, but no more than 6.25 kHz: At least 53 log (f_d/2.5) dB;

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 6.25 kHz, but no more than 9.5 kHz: At least 103 log (f_d/3.9) dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 9.5 kHz: At least 157 log (f_d/5.3) dB, or 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	FSP 38	100478	2013-6-16	2014-6-15

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 100 Hz.

Test Data

Environmental Conditions

Temperature:	22.4~25.6 °C
Relative Humidity:	31~46 %
ATM Pressure:	101.1~102.1 kPa

The testing was performed by Leon Chen from 2013-12-16 to 2013-12-17.

Test Mode: Transmitting

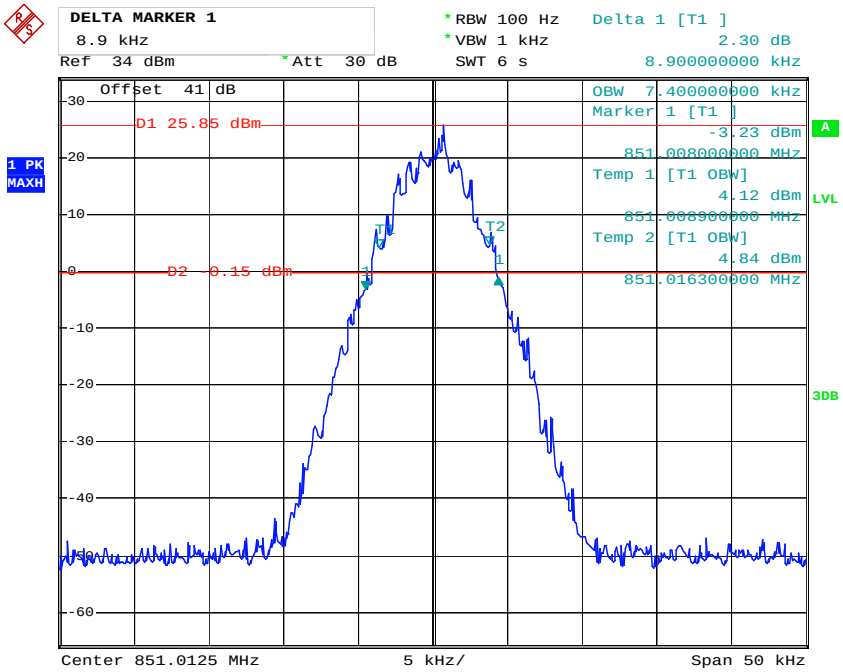
Test Result: Compliance.

Please refer to following table.

Emission Power	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)
Lowest Power Level	851.0125	7.4	8.9
Highest Power Level	851.0125	7.4	8.9
Lowest Power Level	860.5	7.3	8.9
Highest Power Level	860.5	7.3	8.6
Lowest Power Level	937.5	7.3	8.7
Highest Power Level	937.5	7.4	8.4

Please refer to the emission mask hereinafter plots.

Occupied Bandwidth – 851.0125 MHz (Lowest Power Level)



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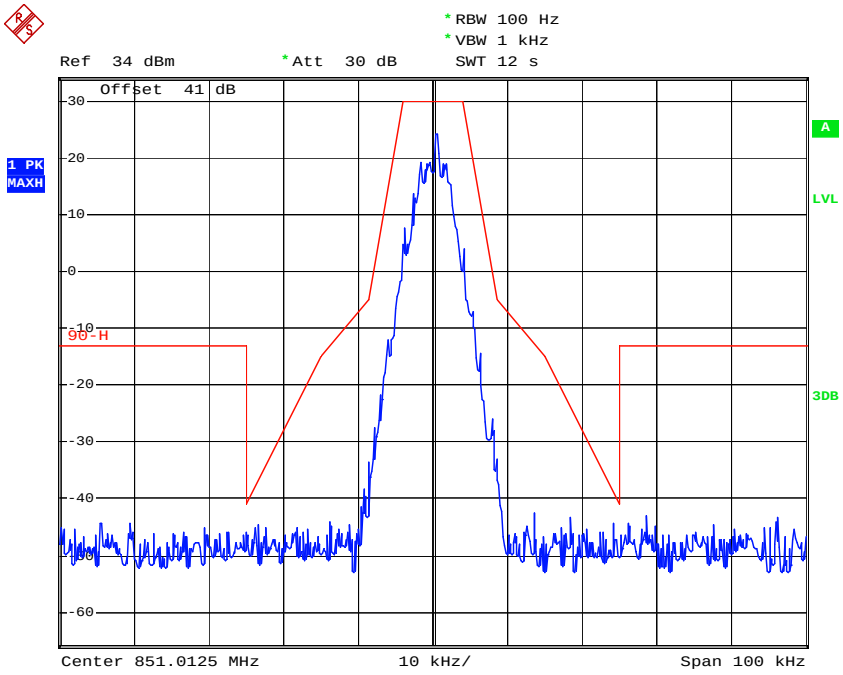
Emission Mask - Type H



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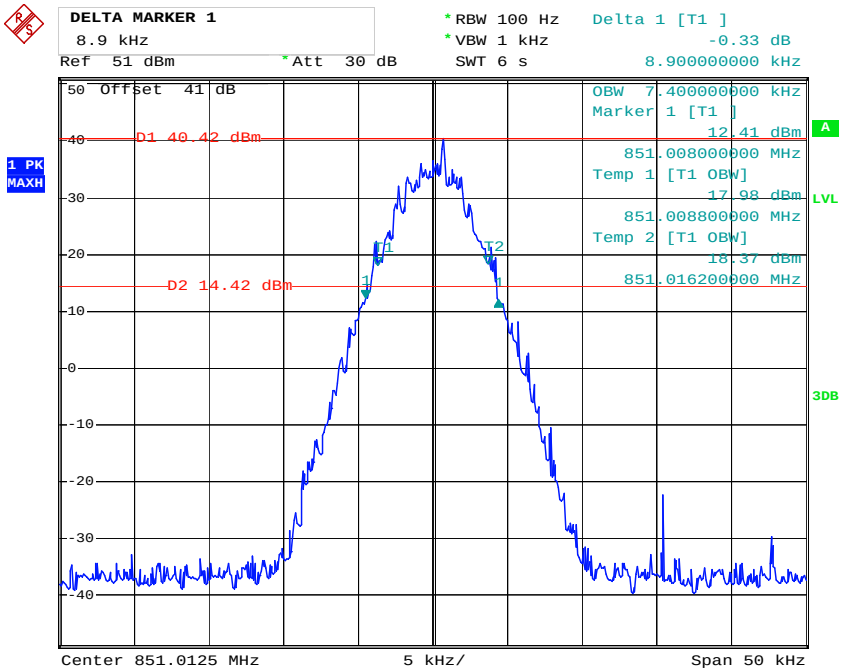
Occupied Bandwidth – 851.0125 MHz (Highest Power Level)



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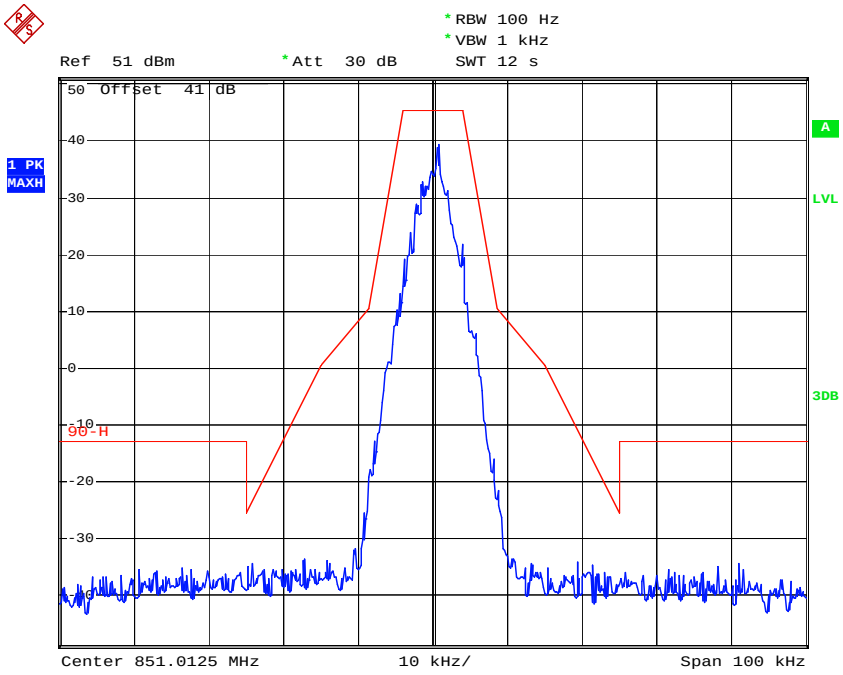
Emission Mask - Type H



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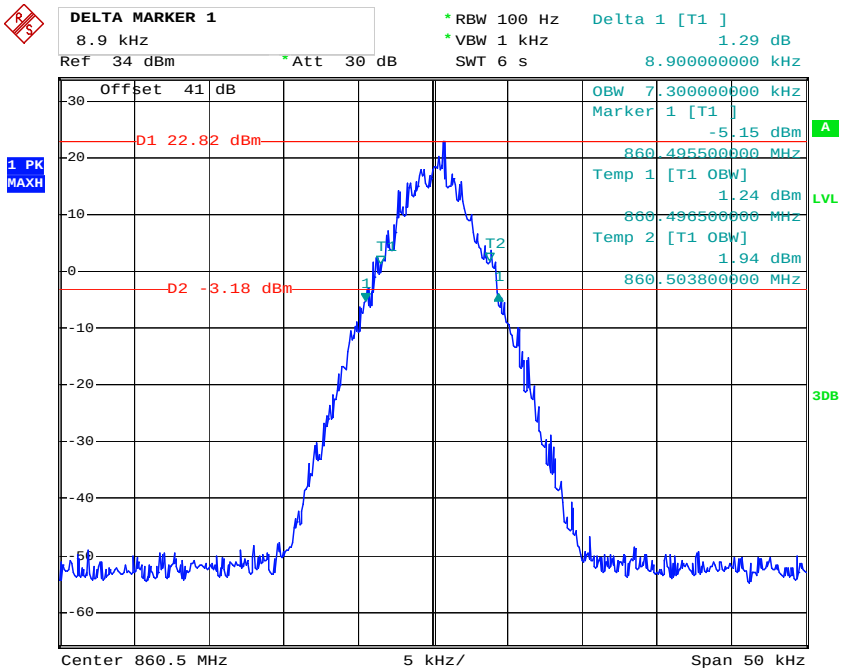
Occupied Bandwidth – 860.5 MHz (Lowest Power Level)



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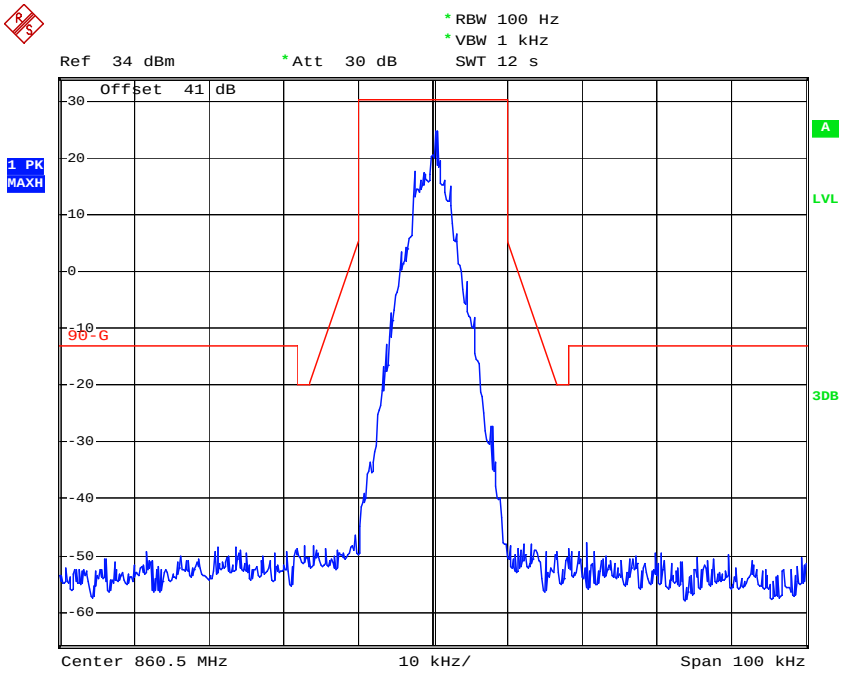
Emission Mask - Type G



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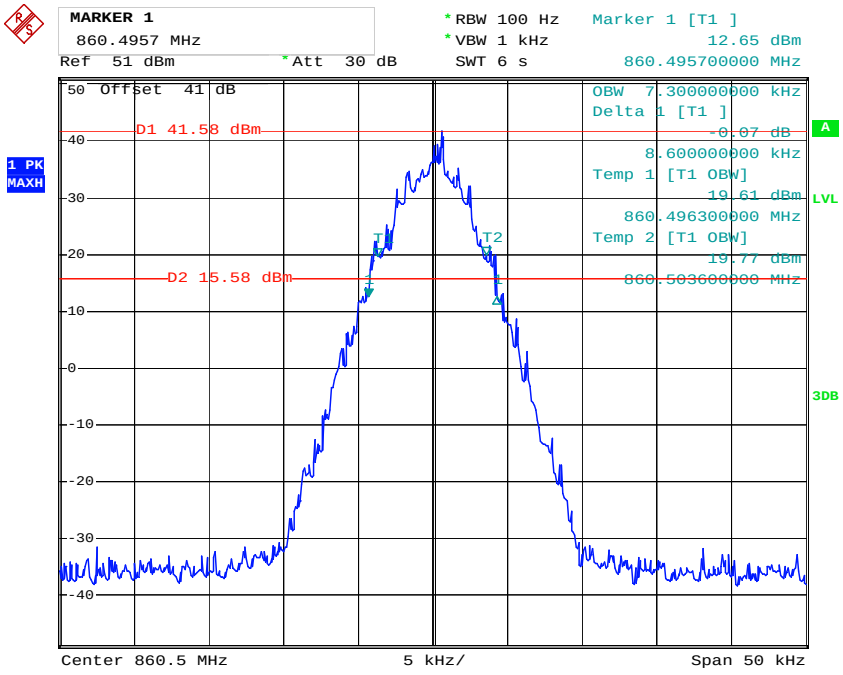
Occupied Bandwidth – 860.5 MHz (Highest Power Level)



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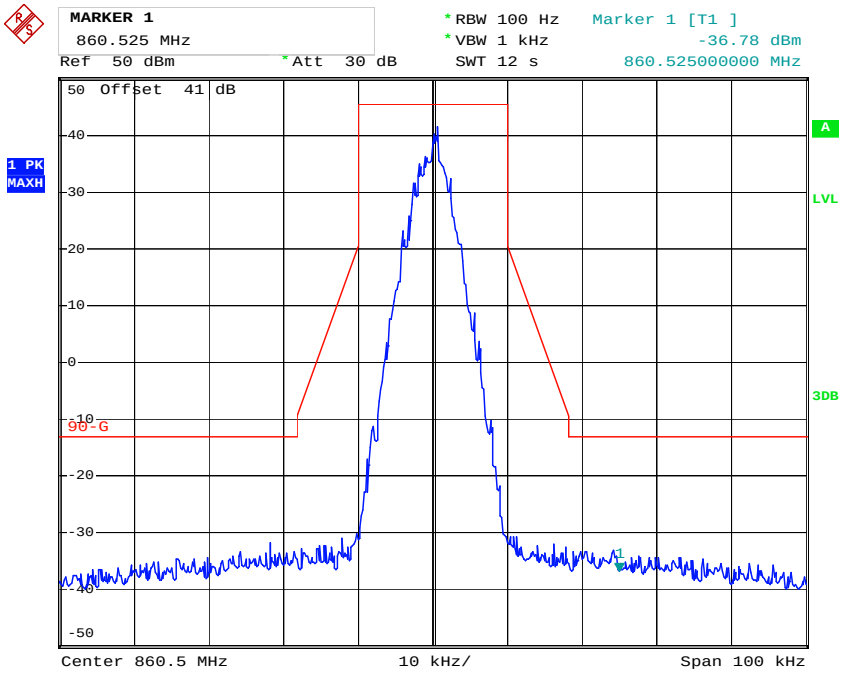
Emission Mask - Type G



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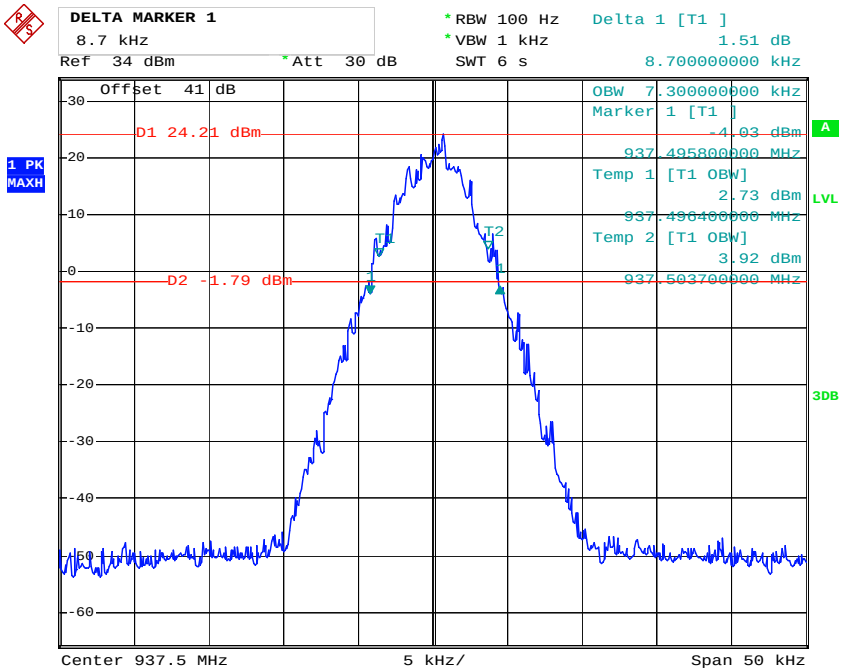
Occupied Bandwidth – 937.5 MHz (Lowest Power Level)



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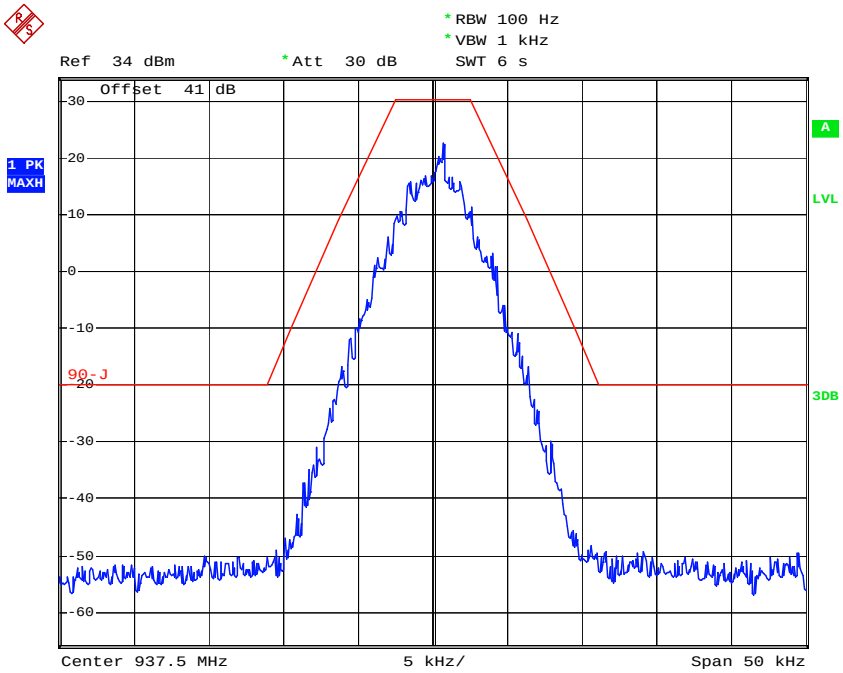
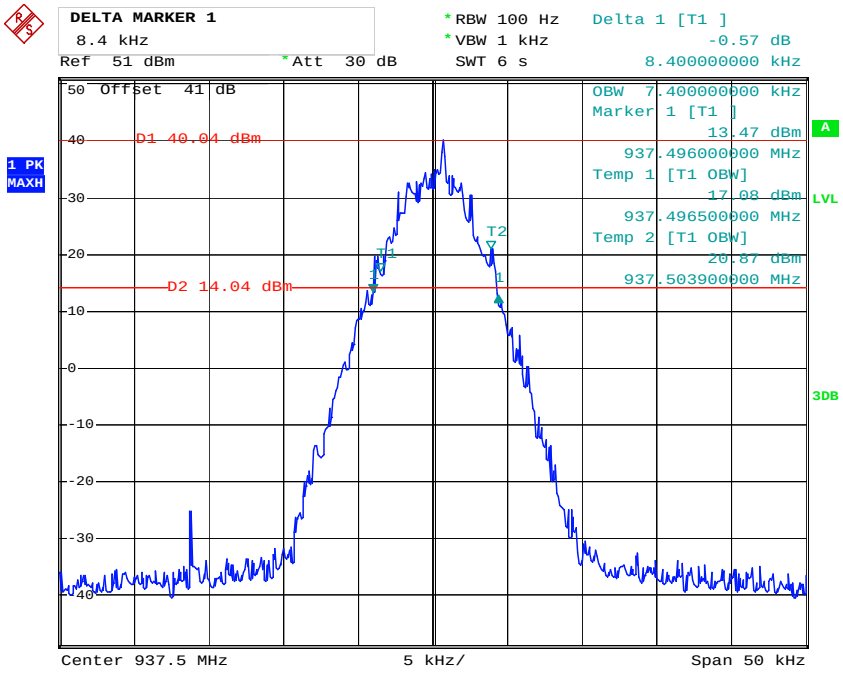
Emission Mask - Type J



Date: 16.DEC.2013 17:05:42

Occupied Bandwidth – 937.5 MHz (Highest Power Level)



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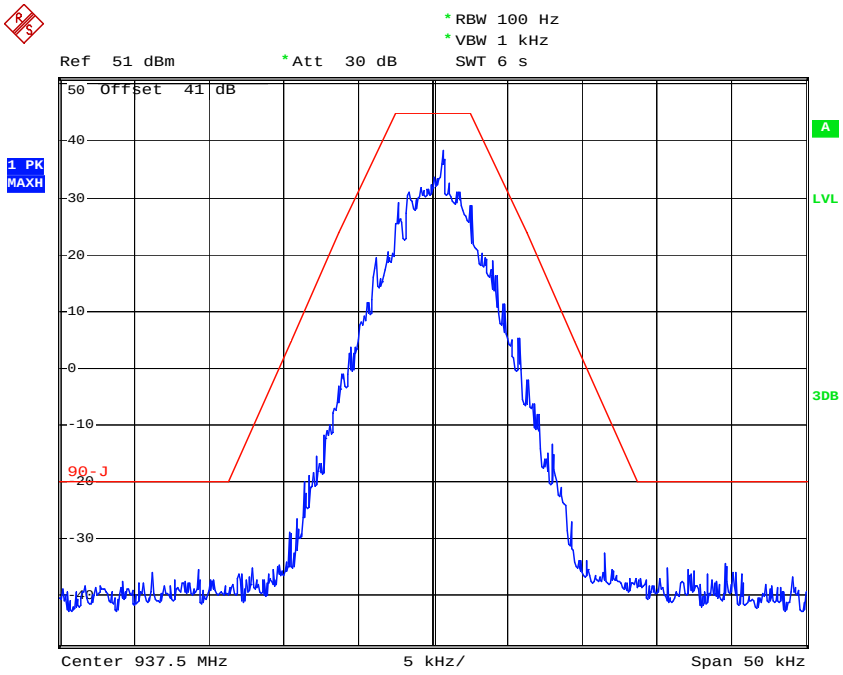
Emission Mask - Type J



Date: 16.DEC.2013 17:03:47

FCC §2.1051 & §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

(a) Emission Mask G. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 10 kHz, but no more than 250 percent of the authorized bandwidth: At least 116 log (f_d/6.1) dB, or 50 + 10 log (P) dB, or 70 dB, whichever is the lesser attenuation;

(2) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: At least 43 + 10 log (P) dB.

(b) Emission Mask H. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of 4 kHz or less: Zero dB.

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 4 kHz, but no more than 8.5 kHz: At least 107 log (f_d/4) dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 8.5 kHz, but no more than 15 kHz: At least 40.5 log (f_d/1.16) dB;

(4) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 15 kHz, but no more than 25 kHz: At least 116 log (f_d/6.1) dB;

(5) On any frequency removed from the center of the authorized bandwidth by more than 25 kHz: At least 43 + log (P) dB.

(c) Emission Mask J. For transmitters that are not equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) as follows:

(1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 2.5 kHz, but no more than 6.25 kHz: At least 53 log (f_d/2.5) dB;

(2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 6.25 kHz, but no more than 9.5 kHz: At least 103 log (f_d/3.9) dB;

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 9.5 kHz: At least 157 log (f_d/5.3) dB, or 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	FSEM	DE31388	2013-5-7	2014-5-6

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

Adjust the spectrum analyzer for the following settings:
1) Resolution Bandwidth = 10 kHz for spurious emissions below 1 GHz, and 1 MHz for spurious emissions above 1 GHz.
2) Video Bandwidth ≥3 times the resolution bandwidth.
3) Sweep Speed ≤2000 Hz per second.
4) Detector Mode = mean or average power.

Test Data

Environmental Conditions

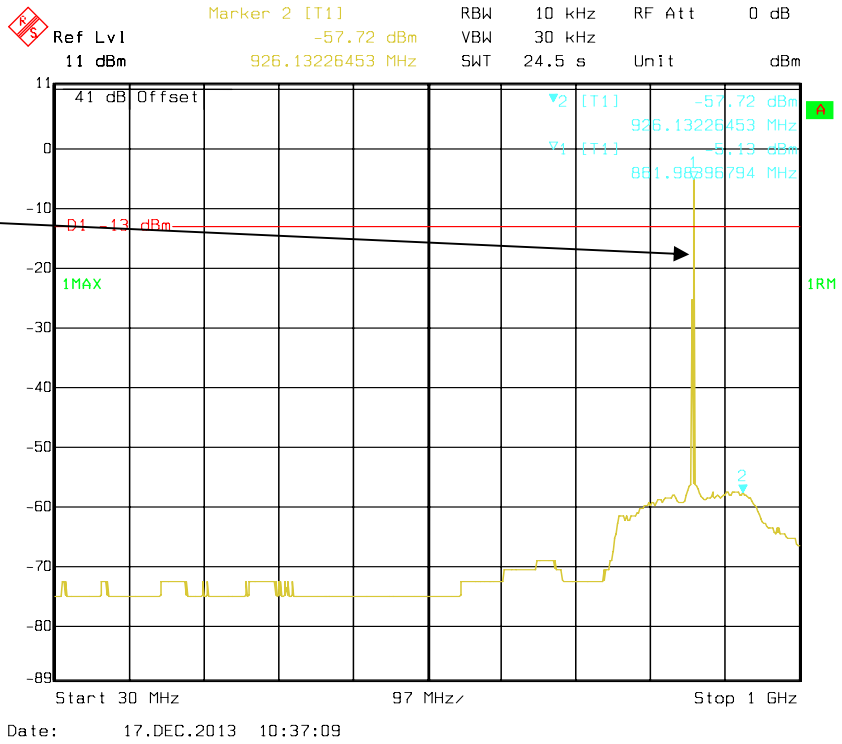
Temperature:	22.4 °C
Relative Humidity:	40 %
ATM Pressure:	101.5 kPa

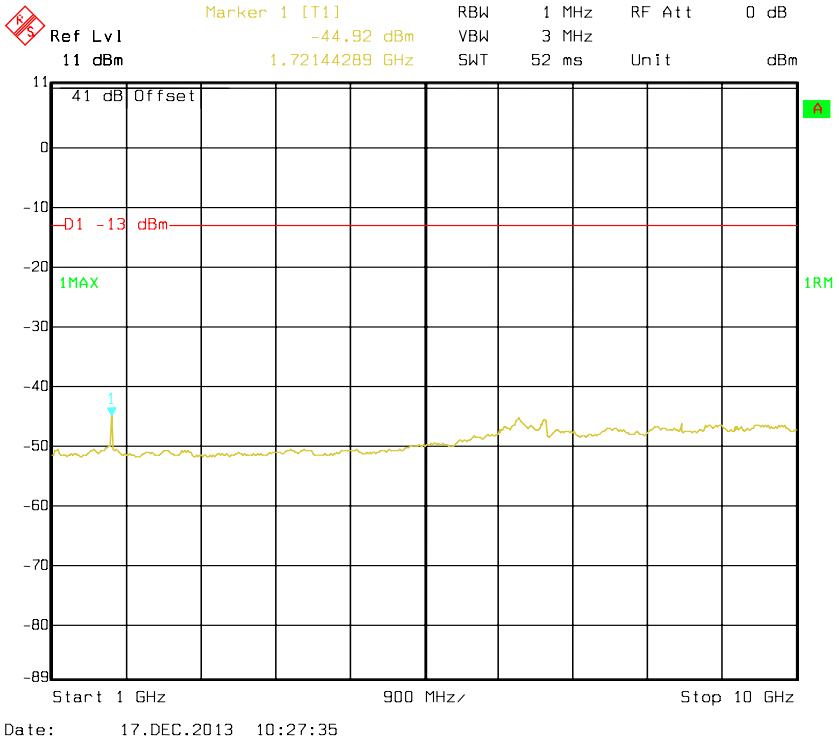
The testing was performed by Leon Chen on 2013-12-03~2013-12-17.

Please refer to the following plots.

860.5 MHz – Highest power level

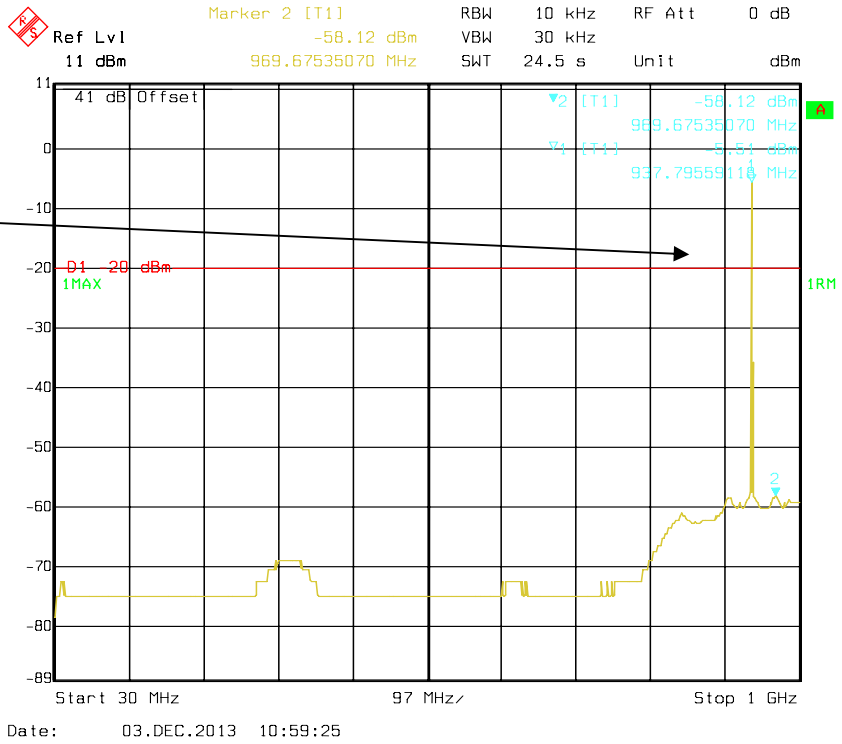
Fundamental test with Band Reject Filter

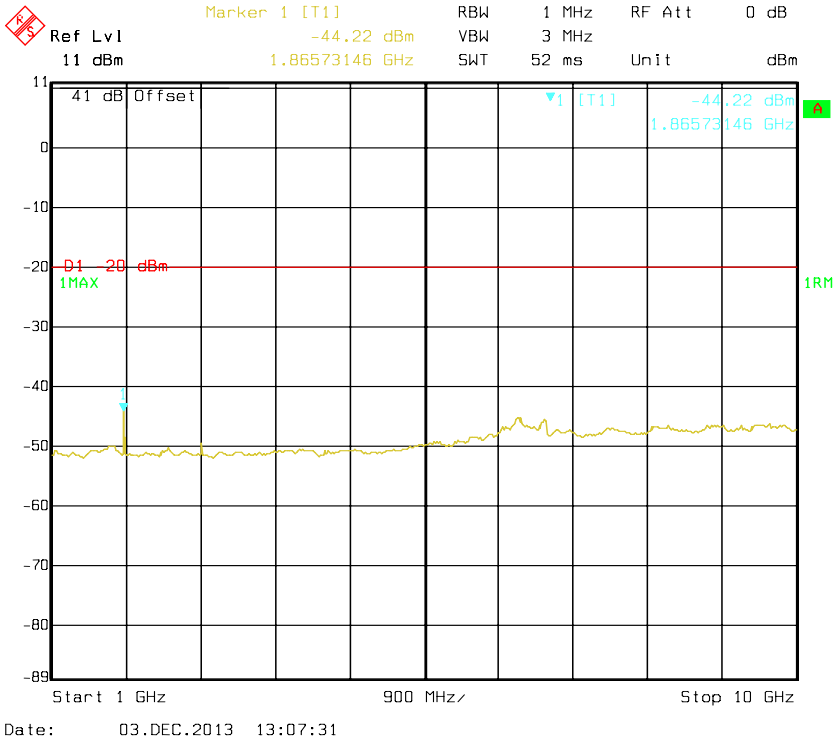




937.5 MHz – Highest power level

Fundamental test with Band Reject Filter





FCC §2.1053 & §90.210 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §2.1053 and §90.210

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	EMI TEST RECEIVER	ESCI	100224	2013-5-6	2014-5-5
R&S	Spectrum analyzer	FSEM	DE31388	2013-5-7	2014-5-6
Sunol Sciences	Antenna	JB3	A060611-1	2011-9-6	2014-9-5
ETS LINDGREN	horn antenna	3115	000 527 35	2012-9-6	2015-9-5
HP	AMPLIFIER	8447E	2434A02181	N/A	N/A
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	N/A	N/A
Giga	Signal Generator	1026	320408	2013-5-9	2014-5-8
EMCO	Adjustable dipole antenna	3121C	9109-753	N/A	N/A
TDK RF	horn antenna	HRN-0118	130 084	2012-9-6	2015-9-5

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT .The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Test Data

Environmental Conditions

Temperature:	22.3 °C
Relative Humidity:	51 %
ATM Pressure:	101.2 kPa

The testing was performed by Leon Chen on 2013-12-11.

Test Mode: Transmitting

Band 851 MHz-870MHz:

Frequency	Polar	S.A. Reading	S.G. Level	Antenna Gain	Cable Loss	Absolute Level	Limit	Margin
MHz	H/V	dBµV	dBm	dBd/dBi	dB	dBm	dBm	dB
f_c = 851.0125 MHz								
500.450	H	48.68	-39.7	0.0	0.7	-40.4	-20.0	20.4
620.730	H	52.02	-40.3	0.0	0.8	-41.1	-20.0	21.1
780.780	H	50.38	-40.9	0.0	0.9	-41.8	-20.0	21.8
3306.810	H	45.61	-51.7	13.7	1.7	-39.7	-20.0	19.7
5787.570	H	44.74	-47	14.1	2.3	-35.2	-20.0	15.2
500.450	V	47.89	-39.1	0.0	0.7	-39.8	-20.0	19.8
620.730	V	43.32	-45	0.0	0.8	-45.8	-20.0	25.8
780.780	V	46.91	-42	0.0	0.9	-42.9	-20.0	22.9
3306.810	V	40.64	-56.3	13.7	1.7	-44.3	-20.0	24.3
5787.570	V	36.90	-54.8	14.1	2.3	-43.0	-20.0	23.0
f_c = 860.500 MHz								
500.450	H	49.34	-39	0.0	0.7	-39.7	-20.0	19.7
620.730	H	52.73	-39.5	0.0	0.8	-40.3	-20.0	20.3
780.780	H	49.48	-41.8	0.0	0.9	-42.7	-20.0	22.7
3306.810	H	46.46	-50.8	13.7	1.7	-38.8	-20.0	18.8
5787.570	H	45.03	-46.7	14.1	2.3	-34.9	-20.0	14.9
500.450	V	47.10	-39.9	0.0	0.7	-40.6	-20.0	20.6
620.730	V	43.91	-44.4	0.0	0.8	-45.2	-20.0	25.2
780.780	V	46.63	-42.3	0.0	0.9	-43.2	-20.0	23.2
3306.810	V	41.64	-55.3	13.7	1.7	-43.3	-20.0	23.3
5787.570	V	37.67	-54	14.1	2.3	-42.2	-20.0	22.2
f_c = 868.9875 MHz								
500.450	H	48.41	-39.9	0.0	0.7	-40.6	-20.0	20.6
620.730	H	53.08	-39.2	0.0	0.8	-40.0	-20.0	20.0
780.780	H	50.09	-41.2	0.0	0.9	-42.1	-20.0	22.1
3306.810	H	45.71	-51.6	13.7	1.7	-39.6	-20.0	19.6
5787.570	H	44.05	-47.7	14.1	2.3	-35.9	-20.0	15.9
500.450	V	46.47	-40.5	0.0	0.7	-41.2	-20.0	21.2
620.730	V	43.80	-44.5	0.0	0.8	-45.3	-20.0	25.3
780.780	V	46.63	-42.3	0.0	0.9	-43.2	-20.0	23.2
3306.810	V	42.40	-54.5	13.7	1.7	-42.5	-20.0	22.5
5787.570	V	38.14	-53.5	14.1	2.3	-41.7	-20.0	21.7

Band 935 MHz-940MHz:

Frequency	Polar	S.A. Reading	S.G. Level	Antenna Gain	Cable Loss	Absolute Level	Limit	Margin
MHz	H/V	dBµV	dBm	dBd/dBi	dB	dBm	dBm	dB
f_c = 935.0125 MHz								
500.450	H	49.08	-39.3	0.0	0.7	-40.0	-20.0	20.0
620.730	H	52.87	-39.4	0.0	0.8	-40.2	-20.0	20.2
780.780	H	50.68	-40.6	0.0	0.9	-41.5	-20.0	21.5
3306.810	H	43.98	-53.3	13.7	1.7	-41.3	-20.0	21.3
5787.570	H	44.37	-47.4	14.1	2.3	-35.6	-20.0	15.6
500.450	V	47.06	-39.9	0.0	0.7	-40.6	-20.0	20.6
620.730	V	44.60	-43.7	0.0	0.8	-44.5	-20.0	24.5
780.780	V	45.88	-43.1	0.0	0.9	-44.0	-20.0	24.0
3306.810	V	39.29	-57.6	13.7	1.7	-45.6	-20.0	25.6
5787.570	V	37.99	-53.7	14.1	2.3	-41.9	-20.0	21.9
f_c = 937.500 MHz								
500.450	H	48.72	-39.6	0.0	0.7	-40.3	-20.0	20.3
620.730	H	51.98	-40.3	0.0	0.8	-41.1	-20.0	21.1
780.780	H	50.86	-40.4	0.0	0.9	-41.3	-20.0	21.3
3306.810	H	44.30	-53	13.7	1.7	-41.0	-20.0	21.0
5787.570	H	44.39	-47.4	14.1	2.3	-35.6	-20.0	15.6
500.450	V	47.68	-39.3	0.0	0.7	-40.0	-20.0	20.0
620.730	V	44.74	-43.6	0.0	0.8	-44.4	-20.0	24.4
780.780	V	46.87	-42.1	0.0	0.9	-43.0	-20.0	23.0
3306.810	V	40.26	-56.7	13.7	1.7	-44.7	-20.0	24.7
5787.570	V	37.40	-54.3	14.1	2.3	-42.5	-20.0	22.5
f_c = 939.9875 MHz								
500.450	H	48.18	-40.2	0.0	0.7	-40.9	-20.0	20.9
620.730	H	52.06	-40.2	0.0	0.8	-41.0	-20.0	21.0
780.780	H	50.75	-40.5	0.0	0.9	-41.4	-20.0	21.4
3306.810	H	45.25	-52.1	13.7	1.7	-40.1	-20.0	20.1
5787.570	H	44.83	-46.9	14.1	2.3	-35.1	-20.0	15.1
500.450	V	47.72	-39.3	0.0	0.7	-40.0	-20.0	20.0
620.730	V	43.92	-44.4	0.0	0.8	-45.2	-20.0	25.2
780.780	V	47.22	-41.7	0.0	0.9	-42.6	-20.0	22.6
3306.810	V	41.24	-55.7	13.7	1.7	-43.7	-20.0	23.7
5787.570	V	37.44	-54.2	14.1	2.3	-42.4	-20.0	22.4

Note:
1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
2) Absolute Level = SG Level - Cable loss + Antenna Gain
3) Margin = Limit-Absolute Level
4) The unit of antenna gain is dBd for frequency below 1GHz and dBi for frequency above 1GHz.
5) The substituted antenna (dipole antenna) was the same as 80 MHz half wave length, therefor the antenna gain is negative blew 80 MHz

FCC §2.1055 & §90.213- FREQUENCY STABILITY

Applicable Standard

FCC §2.1055 & §90.213

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
R&S	Spectrum analyzer	FSEM	DE31388	2013-5-7	2014-5-6
Qualmark	Temperature & Humidity Chamber	Typhoon 3.0	20021115	2013-06-04	2014-06-03

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external AC power supply and the RF output was connected to a frequency counter via feed-through attenuators. The EUT was placed inside the temperature chamber. The AC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.

The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value.

Test Data

Environmental Conditions

Temperature:	22.4 °C
Relative Humidity:	40 %
ATM Pressure:	101.5 kPa

The testing was performed by Leon Chen on 2013-12-03.

Test Mode: Transmitting

Reference Frequency: 851.0125 MHz				
Temperature	**Voltage**	**Reading**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**MHz**	**ppm**	**ppm**
-30	48	851.012432	-0.08	1.0
-20	48	851.012450	-0.06	
-10	48	851.012447	-0.06	
0	48	851.012451	-0.06	
10	48	851.012453	-0.06	
20	48	851.012451	-0.06	
30	48	851.012450	-0.06	
40	48	851.012461	-0.05	
50	48	851.012446	-0.06	
60	48	851.012443	-0.07	
25	40	851.012459	-0.05	
25	60	851.012447	-0.06	

Reference Frequency: 860.5 MHz				
Temperature	**Voltage**	**Reading**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**MHz**	**ppm**	**ppm**
-30	48	860.499942	-0.07	1.5
-20	48	860.499944	-0.07	
-10	48	860.499955	-0.05	
0	48	860.499947	-0.06	
10	48	860.499954	-0.05	
20	48	860.499955	-0.05	
30	48	860.499962	-0.04	
40	48	860.499958	-0.05	
50	48	860.499956	-0.05	
60	48	860.499953	-0.05	
25	40	860.499954	-0.05	
25	60	860.499963	-0.04	

Reference Frequency: 937.5 MHz				
Temperature	**Voltage**	**Reading**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**MHz**	**ppm**	**ppm**
-30	48	937.50006	0.06	0.1
-20	48	937.500045	0.05	
-10	48	937.500067	0.07	
0	48	937.500056	0.06	
10	48	937.500047	0.05	
20	48	937.500055	0.06	
30	48	937.500046	0.05	
40	48	937.500059	0.06	
50	48	937.500052	0.06	
60	48	937.500057	0.06	
25	40	937.500058	0.06	
25	60	937.500055	0.06	

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