

FCC PART 15.247

TEST REPORT

For

LifeWatch Technologies Ltd.

2 Pekeris Street, Rehovot, 7670202, Israel

FCC ID: SMTLWVGW

Report Type: Original Report	Product Type: GSM /WCDMA mobile phone
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *LifeWatch Technologies Ltd.*'s product, model *FGL-00005* (FCC ID: *SMTLWVGW*) (the "EUT") in this report is a *GSM /WCDMA mobile phone*, which measures approximately: 13.2 cm (L) x 7.0 cm (W) x 1.3 cm (H), input voltage: DC 3.7V from lithium battery or DC 5V from adapter.

Adapter Information:

Model: PA1005-050UIB070

Input: AC 100-240V, 50-60Hz 0.3A

Output: DC 5.0V, 0.7A

All measurement and test data in this report was gathered from production sample serial number: 131209002 (Assigned by BACL, Dongguan). The EUT was received on 2013-12-11.

Objective

This report is prepared on behalf of *LifeWatch Technologies Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A, B and C of the Federal Communications Commission's rules.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart C, section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: *SMTLWVGW*

FCC Part 15C DSS submissions with FCC ID: *SMTLWVGW for Bluetooth*

FCC Part 22H&24E PCE submissions with FCC ID: *SMTLWVGW*.

FCC Part 15C DXX submissions with FCC ID: *SMTLWVGW*

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, 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 Communications 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 testing mode, which was provided by manufacturer. For 2.4G band, 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

For 802.11b, 802.11g, and 802.11n20 modes were tested with Channel 1, 6 and 11.
For 802.11n40 mode were tested with Channel 3, 6 and 9.

The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations. The worst-case data rates as bellowing:

802.11b: 1Mbps
802.11g: 6Mbps
802.11n ht20: 6.5Mbps
802.11n ht40: 13.5Mbps

EUT Exercise Software

The test software was built in the equipment, and the maximum power configured by the system.

Equipment Modifications

No equipment modification was used.

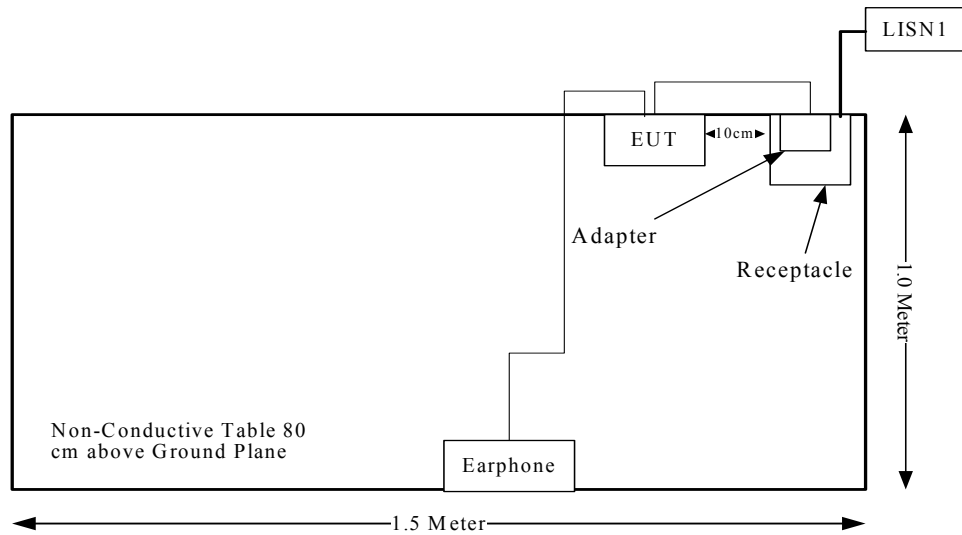
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
N/A	Earphone	N/A	N/A

External I/O Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB Cable	yes	no	1.75	Adapter	EUT
Earphone Cable	no	no	1.5	EUT	Earphone

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1093	RF EXPOSURE	Compliance
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247(d)	Spurious Emissions at Antenna Port	Compliance*
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance*
§15.247(b)(3)	Maximum Peak Output Power	Compliance*
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance*
§15.247(e)	Power Spectral Density	Compliance*

Note:

Compliance*: The EUT “FGL-00005” (FCC ID: SMTLWVGW) is indentical with the model “LifeWatch V” (FCC ID: SMTLWV), the only difference between them is that model FGL-00005 use the 2.4GHz RF module instead of the medical module of model LifeWatch V. other hardware and software were not changed.

According to the difference, there were no affect with the RF test result, so the data please refer to FCC ID: SMTLWV granted on 2013-11-27, report No.R2DG130916005-00D which was tested in Bay Area Compliance Laboratories Corp. (Dongguan).

FCC §15.247 (i) & §1.1310 & §2.1093- RF EXPOSURE

Applicable Standard

According to §15.247(i) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB 447498 D01 Mobile Portable RF Exposure V05 Appendix A, SAR can be exempted if the output power is less than the SAR exclusion threshold:

For $f=2450\text{MHz}$, the output power is less 10mW at distance of 5mm.

Measurement Result

Maximum conducted output power= 9.70dBm
SAR exclusion threshold 10 mW (10dBm) > 9.70dBm

So the stand-alone SAR evaluation is not necessary.

The simultaneous transmission SAR please refers to the SAR report: R1DG131209002-20.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

Antenna Connector Construction

The EUT has an internal antenna, which was permanently attached to the EUT, and the maximum gain is -1.0 dBi, please refer to the internal photos.

Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

Measurement Uncertainty

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cisp} of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cisp} of Table 1, then:

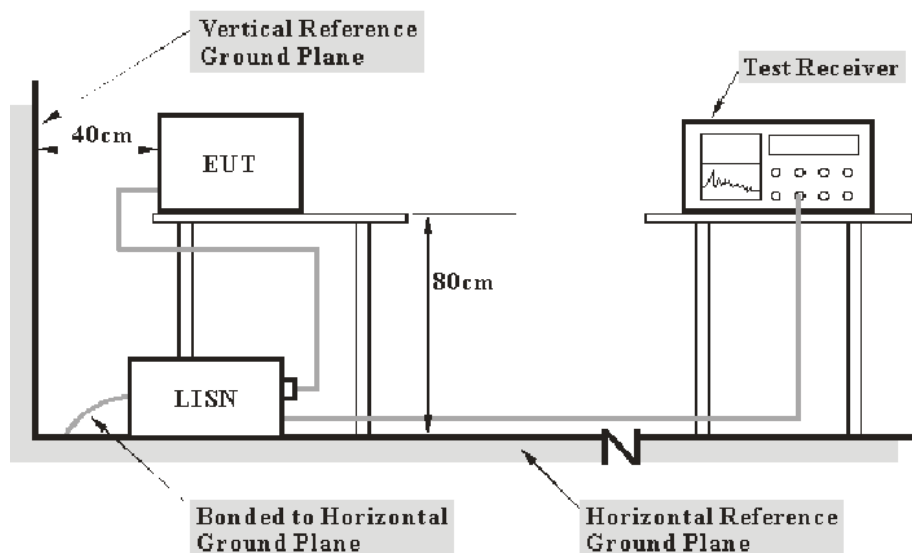
- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit.

Based on CISPR 16-4-2-2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Dongguan) is 3.46 dB (150 kHz to 30 MHz).

Table 1 – Values of U_{cisp}

Measurement	U_{cisp}
Conducted disturbance at mains port using AMN (150 kHz to 30 MHz)	3.4 dB

EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

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

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

V_C (cord. Reading): corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN

C_f : Correction Factor

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

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI TEST RECEIVER	ESCS 30	830245/006	2013-11-20	2014-11-19
R&S	Two-line V-network	ENV216	3560.6550.12	2013-2-18	2014-2-17
R&S	L.I.S.N	ESH3-Z5	100113	N/A	N/A
BACL	Test Software	BACL-EMC	V1.0-2010	N/A	N/A

* **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 Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207, with the worst margin reading of:

9.57 dB at 0.350 MHz in the **Neutral** conducted mode

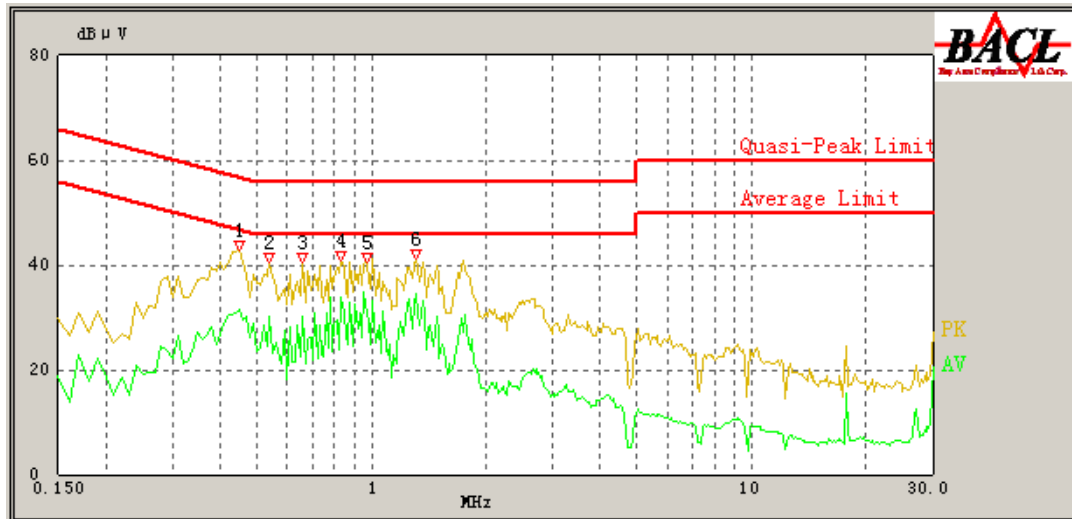
Test Data**Environmental Conditions**

Temperature:	19.8 ° C
Relative Humidity:	50 %
ATM Pressure:	101.1 kPa

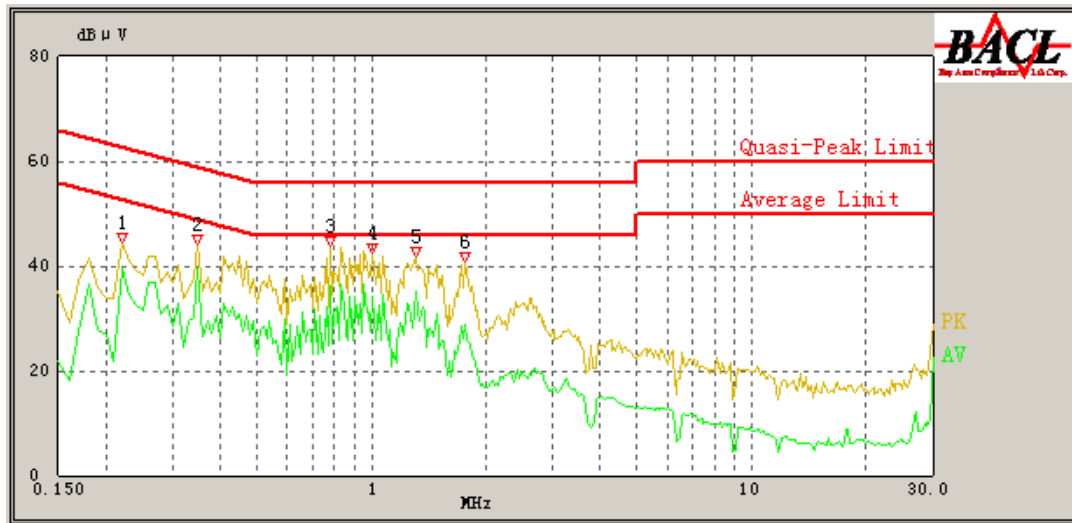
The testing was performed by Ares Liu on 2014-01-04.

Test Mode: Transmitting

120 V, 60 Hz, Line:



Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.450	39.55	9.67	56.88	17.33	QP
0.450	31.43	9.67	46.88	15.45	AV
0.540	36.27	9.66	56.00	19.73	QP
0.540	30.28	9.66	46.00	15.72	AV
0.660	35.50	9.67	56.00	20.50	QP
0.660	30.29	9.67	46.00	15.71	AV
0.830	38.79	9.67	56.00	17.21	QP
0.830	33.91	9.67	46.00	12.09	AV
0.970	37.58	9.68	56.00	18.42	QP
0.970	30.53	9.68	46.00	15.47	AV
1.310	39.67	9.68	56.00	16.33	QP
1.310	34.48	9.68	46.00	11.52	AV

120 V, 60 Hz, Neutral:

Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
0.220	42.20	9.68	62.82	20.62	QP
0.220	39.63	9.68	52.82	13.19	AV
0.350	42.61	9.68	58.96	16.39	QP
0.350	39.39	9.68	48.96	9.57	AV
0.780	40.69	9.68	56.00	15.31	QP
0.780	36.19	9.68	46.00	9.81	AV
1.000	40.21	9.69	56.00	15.79	QP
1.000	34.02	9.69	46.00	11.98	AV
1.310	40.43	9.69	56.00	15.57	QP
1.310	35.17	9.69	46.00	10.83	AV
1.770	35.19	9.68	56.00	20.81	QP
1.770	28.92	9.68	46.00	17.08	AV

FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

Measurement Uncertainty

Compliance or non-compliance with a disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cisp} of Table 2, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If U_{lab} is greater than U_{cisp} of Table 2, then:

- compliance is deemed to occur if no measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level, increased by $(U_{lab} - U_{cisp})$, exceeds the disturbance limit.

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

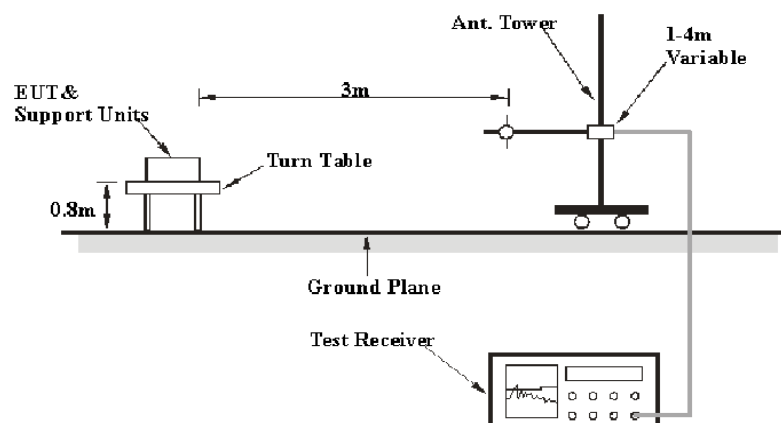
6G~18GHz: 5.23 dB

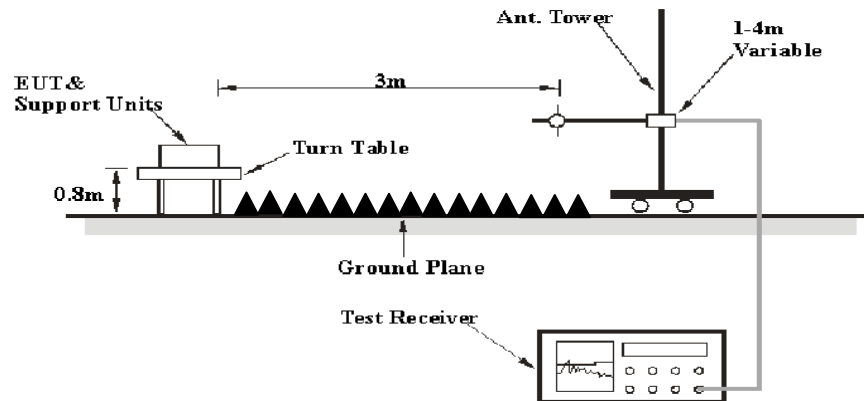
Table 2 – Values of U_{cisp}

Measurement	U_{cisp}
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

EUT Setup

Below 1GHz:



Above 1GHz:

The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209, and FCC 15.247 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 25 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	IF B/W	Detector
30MHz – 1000 MHz	120 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

Test Procedure

During the radiated emission test, the adapter was connected to the first 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-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Corrected Amplitude & Margin Calculation

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

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	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
Ducommun Technologies	horn antenna	ARH-4223-02	1007726-01 1304	2013-6-16	2014-6-15
HP	AMPLIFIER	8447E	2434A02181	N/A	N/A
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	N/A	N/A
Quinstar	Amplifier	QLW-18405536-JO	15964001001	N/A	N/A
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 Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Section 15.205, 15.209 and 15.247, with the worst margin reading of:

2.25 dB at 2483.5 MHz in the Horizontal polarization for 802.11n40 Mode

Test Data

Environmental Conditions

Temperature:	27.8° C
Relative Humidity:	57 %
ATM Pressure:	100.4 kPa

The testing was performed by Ares Liu on 2014-1-4.

Mode: Transmitting
802.11b Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	72.09	PK	H	25.67	3.93	0.00	101.69	N/A	N/A
2412	65.06	AV	H	25.67	3.93	0.00	94.66	N/A	N/A
2412	66.49	PK	V	25.67	3.93	0.00	96.09	N/A	N/A
2412	61.69	AV	V	25.67	3.93	0.00	91.29	N/A	N/A
2390	29.89	PK	H	25.61	3.84	0.00	59.34	74.00	14.66
2390	18.18	AV	H	25.61	3.84	0.00	47.63	54.00	6.37
4824	44.51	PK	H	30.64	4.73	27.26	52.62	74.00	21.38
4824	41.81	AV	H	30.64	4.73	27.26	49.92	54.00	4.08
7236	33.52	PK	H	34.17	6.56	26.36	47.89	74.00	26.11
7236	18.36	AV	H	34.17	6.56	26.36	32.73	54.00	21.27
9648	34.78	PK	H	36.06	8.70	26.06	53.48	74.00	20.52
9648	22.82	AV	H	36.06	8.70	26.06	41.52	54.00	12.48
3618	32.7	PK	H	29.06	5.01	27.43	39.34	74.00	34.66
3618	16.93	AV	H	29.06	5.01	27.43	23.57	54.00	30.43
273	30.2	QP	H	13.74	2.01	21.50	24.45	46.00	21.55
Middle Channel: 2437 MHz									
2437	71.41	PK	H	25.74	3.98	0.00	101.13	N/A	N/A
2437	65.06	AV	H	25.74	3.98	0.00	94.78	N/A	N/A
2437	67.12	PK	V	25.74	3.98	0.00	96.84	N/A	N/A
2437	62.46	AV	V	25.74	3.98	0.00	92.18	N/A	N/A
4874	44.91	PK	H	30.77	4.76	27.26	53.18	74.00	20.82
4874	41.29	AV	H	30.77	4.76	27.26	49.56	54.00	4.44 *
7311	33.95	PK	H	34.35	6.70	26.51	48.49	74.00	25.51
7311	18.94	AV	H	34.35	6.70	26.51	33.48	54.00	20.52
9748	34.39	PK	H	36.30	8.60	25.68	53.61	74.00	20.39
9748	22.44	AV	H	36.30	8.60	25.68	41.66	54.00	12.34
3250	32.32	PK	H	28.00	5.29	27.45	38.16	74.00	35.84
3250	17.12	AV	H	28.00	5.29	27.45	22.96	54.00	31.04
3618	30.45	PK	H	29.06	5.01	27.43	37.09	74.00	36.91
3618	17.47	AV	H	29.06	5.01	27.43	24.11	54.00	29.89
273	29.02	QP	H	13.74	2.01	21.50	23.27	46.00	22.73
High Channel: 2462 MHz									
2462	71.36	PK	H	25.80	3.93	0.00	101.09	N/A	N/A
2462	65	AV	H	25.80	3.93	0.00	94.73	N/A	N/A
2462	67.56	PK	V	25.80	3.93	0.00	97.29	N/A	N/A
2462	62.5	AV	V	25.80	3.93	0.00	92.23	N/A	N/A
2483.5	30.26	PK	H	25.86	3.80	0.00	59.92	74.00	14.08
2483.5	19.28	AV	H	25.86	3.80	0.00	48.94	54.00	5.06
4924	44.61	PK	H	30.90	4.70	27.27	52.94	74.00	21.06
4924	41.56	AV	H	30.90	4.70	27.27	49.89	54.00	4.11
7386	33.79	PK	H	34.53	6.84	26.66	48.50	74.00	25.50
7386	18.23	AV	H	34.53	6.84	26.66	32.94	54.00	21.06
9848	35.12	PK	H	36.54	8.49	25.49	54.66	74.00	19.34
9848	22.54	AV	H	36.54	8.49	25.49	42.08	54.00	11.92
3618	31.61	PK	H	29.06	5.01	27.43	38.25	74.00	35.75
3618	17.69	AV	H	29.06	5.01	27.43	24.33	54.00	29.67
273	29.82	QP	H	13.74	2.01	21.50	24.07	46.00	21.93

802.11g Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	70.42	PK	H	25.67	3.93	0.00	100.02	N/A	N/A
2412	64.30	AV	H	25.67	3.93	0.00	93.90	N/A	N/A
2412	66.30	PK	V	25.67	3.93	0.00	95.90	N/A	N/A
2412	61.39	AV	V	25.67	3.93	0.00	90.99	N/A	N/A
2390	29.02	PK	H	25.61	3.84	0.00	58.47	74.00	15.53
2390	17.59	AV	H	25.61	3.84	0.00	47.04	54.00	6.96
4824	42.82	PK	H	30.64	4.73	27.26	50.93	74.00	23.07
4824	36.13	AV	H	30.64	4.73	27.26	44.24	54.00	9.76
7236	31.76	PK	H	34.17	6.56	26.36	46.13	74.00	27.87
7236	18.54	AV	H	34.17	6.56	26.36	32.91	54.00	21.09
9648	33.81	PK	H	36.06	8.70	26.06	52.51	74.00	21.49
9648	21.36	AV	H	36.06	8.70	26.06	40.06	54.00	13.94
3618	31.41	PK	H	29.06	5.01	27.43	38.05	74.00	35.95
3618	17.66	AV	H	29.06	5.01	27.43	24.30	54.00	29.70
273	28.96	QP	H	13.74	2.01	21.50	23.21	46.00	22.79
Middle Channel: 2437 MHz									
2437	70.42	PK	H	25.74	3.98	0.00	100.14	N/A	N/A
2437	64.06	AV	H	25.74	3.98	0.00	93.77	N/A	N/A
2437	65.44	PK	V	25.74	3.98	0.00	95.16	N/A	N/A
2437	60.75	AV	V	25.74	3.98	0.00	90.47	N/A	N/A
4874	43.52	PK	H	30.77	4.76	27.26	51.79	74.00	22.21
4874	37.18	AV	H	30.77	4.76	27.26	45.45	54.00	8.55
7311	32.79	PK	H	34.35	6.70	26.51	47.33	74.00	26.67
7311	17.64	AV	H	34.35	6.70	26.51	32.18	54.00	21.82
9748	33.94	PK	H	36.30	8.60	25.68	53.16	74.00	20.84
9748	21.94	AV	H	36.30	8.60	25.68	41.16	54.00	12.84
3250	31.40	PK	H	28.00	5.29	27.45	37.24	74.00	36.76
3250	17.59	AV	H	28.00	5.29	27.45	23.43	54.00	30.57
3618	29.55	PK	H	29.06	5.01	27.43	36.19	74.00	37.81
3618	17.03	AV	H	29.06	5.01	27.43	23.67	54.00	30.33
273	28.38	QP	H	13.74	2.01	21.50	22.63	46.00	23.37
High Channel: 2462 MHz									
2462	70.89	PK	H	25.80	3.93	0.00	100.62	N/A	N/A
2462	64.43	AV	H	25.80	3.93	0.00	94.17	N/A	N/A
2462	66.66	PK	V	25.80	3.93	0.00	96.39	N/A	N/A
2462	61.41	AV	V	25.80	3.93	0.00	91.14	N/A	N/A
2483.5	29.07	PK	H	25.86	3.80	0.00	58.73	74.00	15.27
2483.5	17.42	AV	H	25.86	3.80	0.00	47.08	54.00	6.92
4924	43.34	PK	H	30.90	4.70	27.27	51.67	74.00	22.33
4924	37.98	AV	H	30.90	4.70	27.27	46.31	54.00	7.69
7386	31.88	PK	H	34.53	6.84	26.66	46.59	74.00	27.41
7386	17.25	AV	H	34.53	6.84	26.66	31.96	54.00	22.04
9848	34.00	PK	H	36.54	8.49	25.49	53.54	74.00	20.46
9848	21.75	AV	H	36.54	8.49	25.49	41.29	54.00	12.71
3618	30.83	PK	H	29.06	5.01	27.43	37.47	74.00	36.53
3618	17.15	AV	H	29.06	5.01	27.43	23.79	54.00	30.21
273	28.58	QP	H	13.74	2.01	21.50	22.83	46.00	23.17

802.11 n20 Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2412 MHz									
2412	68.90	PK	H	25.67	3.93	0.00	98.50	N/A	N/A
2412	61.61	AV	H	25.67	3.93	0.00	91.21	N/A	N/A
2412	62.66	PK	V	25.67	3.93	0.00	92.26	N/A	N/A
2412	56.07	AV	V	25.67	3.93	0.00	85.67	N/A	N/A
2390	26.67	PK	H	25.61	3.84	0.00	56.12	74.00	17.88
2390	14.49	AV	H	25.61	3.84	0.00	43.94	54.00	10.07
4824	40.55	PK	H	30.64	4.73	27.26	48.66	74.00	25.34
4824	32.09	AV	H	30.64	4.73	27.26	40.20	54.00	13.80
7236	29.46	PK	H	34.17	6.56	26.36	43.83	74.00	30.18
7236	18.42	AV	H	34.17	6.56	26.36	32.79	54.00	21.21
9648	33.41	PK	H	36.06	8.70	26.06	52.11	74.00	21.90
9648	18.20	AV	H	36.06	8.70	26.06	36.90	54.00	17.10
3618	29.90	PK	H	29.06	5.01	27.43	36.54	74.00	37.46
3618	16.89	AV	H	29.06	5.01	27.43	23.53	54.00	30.48
273	28.31	QP	H	13.74	2.01	21.50	22.56	46.00	23.45
Middle Channel: 2437 MHz									
2437	69.10	PK	H	25.74	3.98	0.00	98.81	N/A	N/A
2437	61.15	AV	H	25.74	3.98	0.00	90.86	N/A	N/A
2437	63.95	PK	V	25.74	3.98	0.00	93.67	N/A	N/A
2437	56.05	AV	V	25.74	3.98	0.00	85.76	N/A	N/A
4874	41.46	PK	H	30.77	4.76	27.26	49.73	74.00	24.28
4874	31.14	AV	H	30.77	4.76	27.26	39.41	54.00	14.60
7311	29.55	PK	H	34.35	6.70	26.51	44.09	74.00	29.92
7311	18.06	AV	H	34.35	6.70	26.51	32.60	54.00	21.41
9748	32.12	PK	H	36.30	8.60	25.68	51.34	74.00	22.67
9748	19.71	AV	H	36.30	8.60	25.68	38.93	54.00	15.07
3250	29.76	PK	H	28.00	5.29	27.45	35.60	74.00	38.41
3250	17.74	AV	H	28.00	5.29	27.45	23.58	54.00	30.42
3618	26.16	PK	H	29.06	5.01	27.43	32.80	74.00	41.21
3618	16.83	AV	H	29.06	5.01	27.43	23.47	54.00	30.53
273	25.89	QP	H	13.74	2.01	21.50	20.14	46.00	25.86
High Channel: 2462 MHz									
2462	70.63	PK	H	25.80	3.93	0.00	100.36	N/A	N/A
2462	62.64	AV	H	25.80	3.93	0.00	92.37	N/A	N/A
2462	63.44	PK	V	25.80	3.93	0.00	93.17	N/A	N/A
2462	58.37	AV	V	25.80	3.93	0.00	88.10	N/A	N/A
2483.5	27.54	PK	H	25.86	3.80	0.00	57.20	74.00	16.81
2483.5	16.29	AV	H	25.86	3.80	0.00	45.95	54.00	8.05
4924	42.65	PK	H	30.90	4.70	27.27	50.98	74.00	23.02
4924	34.20	AV	H	30.90	4.70	27.27	42.53	54.00	11.47
7386	31.07	PK	H	34.53	6.84	26.66	45.78	74.00	28.23
7386	18.37	AV	H	34.53	6.84	26.66	33.08	54.00	20.93
9848	31.65	PK	H	36.54	8.49	25.49	51.19	74.00	22.82
9848	21.46	AV	H	36.54	8.49	25.49	41.00	54.00	13.01
3618	27.56	PK	H	29.06	5.01	27.43	34.20	74.00	39.80
3618	16.81	AV	H	29.06	5.01	27.43	23.45	54.00	30.56
273	28.94	QP	H	13.74	2.01	21.50	23.19	46.00	22.82

802.11 n40 Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	FCC 15.247	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)
Low Channel: 2422 MHz									
2422	67.40	PK	H	25.70	3.95	0.00	97.05	N/A	N/A
2422	55.21	AV	H	25.70	3.95	0.00	84.86	N/A	N/A
2422	61.04	PK	V	25.70	3.95	0.00	90.69	N/A	N/A
2422	50.96	AV	V	25.70	3.95	0.00	80.61	N/A	N/A
2390	39.65	PK	H	25.61	3.84	0.00	69.10	74.00	4.91
2390	20.15	AV	H	25.61	3.84	0.00	49.60	54.00	4.40 *
4844	42.08	PK	H	30.69	4.78	27.26	50.29	74.00	23.71
4844	28.71	AV	H	30.69	4.78	27.26	36.92	54.00	17.08
7266	30.13	PK	H	34.24	6.62	26.42	44.57	74.00	29.43
7266	18.26	AV	H	34.24	6.62	26.42	32.70	54.00	21.30
9688	31.66	PK	H	36.15	8.66	25.91	50.56	74.00	23.45
9688	18.77	AV	H	36.15	8.66	25.91	37.67	54.00	16.34
3618	30.19	PK	H	29.06	5.01	27.43	36.83	74.00	37.17
3618	17.87	AV	H	29.06	5.01	27.43	24.51	54.00	29.50
273	27.85	QP	H	13.74	2.01	21.50	22.10	46.00	23.90
Middle Channel: 2437 MHz									
2437	66.95	PK	H	25.74	3.98	0.00	96.66	N/A	N/A
2437	55.18	AV	H	25.74	3.98	0.00	84.89	N/A	N/A
2437	61.57	PK	V	25.74	3.98	0.00	91.28	N/A	N/A
2437	50.79	AV	V	25.74	3.98	0.00	80.51	N/A	N/A
4874	41.85	PK	H	30.77	4.76	27.26	50.12	74.00	23.88
4874	28.40	AV	H	30.77	4.76	27.26	36.67	54.00	17.33
7311	31.27	PK	H	34.35	6.70	26.51	45.81	74.00	28.19
7311	18.37	AV	H	34.35	6.70	26.51	32.91	54.00	21.10
9748	31.67	PK	H	36.30	8.60	25.68	50.89	74.00	23.11
9748	18.90	AV	H	36.30	8.60	25.68	38.12	54.00	15.88
3250	32.60	PK	H	28.00	5.29	27.45	38.44	74.00	35.56
3250	17.61	AV	H	28.00	5.29	27.45	23.45	54.00	30.56
3618	31.51	PK	H	29.06	5.01	27.43	38.15	74.00	35.85
3618	17.94	AV	H	29.06	5.01	27.43	24.58	54.00	29.42
273	28.41	QP	H	13.74	2.01	21.50	22.66	46.00	23.34
High Channel: 2452 MHz									
2452	67.48	PK	H	25.78	4.00	0.00	97.25	N/A	N/A
2452	56.30	AV	H	25.78	4.00	0.00	86.07	N/A	N/A
2452	61.92	PK	V	25.78	4.00	0.00	91.69	N/A	N/A
2452	51.20	AV	V	25.78	4.00	0.00	80.97	N/A	N/A
2483.5	41.85	PK	H	25.86	3.80	0.00	71.51	74.00	2.50 *
2483.5	22.09	AV	H	25.86	3.80	0.00	51.75	54.00	2.25 *
4904	42.00	PK	H	30.85	4.72	27.27	50.30	74.00	23.71
4904	29.06	AV	H	30.85	4.72	27.27	37.36	54.00	16.64
7356	31.47	PK	H	34.45	6.79	26.60	46.11	74.00	27.89
7356	18.18	AV	H	34.45	6.79	26.60	32.82	54.00	21.18
9808	32.84	PK	H	36.44	8.53	25.48	52.33	74.00	21.67
9808	19.05	AV	H	36.44	8.53	25.48	38.54	54.00	15.46
3618	30.76	PK	H	29.06	5.01	27.43	37.40	74.00	36.61
3618	17.67	AV	H	29.06	5.01	27.43	24.31	54.00	29.70
273	28.12	QP	H	13.74	2.01	21.50	22.37	46.00	23.64

*Within measurement uncertainty!

Conducted Spurious Emissions at Antenna Port

Test Data

The date is refer to FCC ID: SMTLWV granted on 2013-11-27, report No.R2DG130916005-00D which was tested in Bay Area Compliance Laboratories Corp. (Dongguan).

FCC §15.247(a) (2) – 6 dB EMISSION BANDWIDTH

Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Data

The date is refer to FCC ID: SMTLWV granted on 2013-11-04, report No.R2DG130916005-00D which was tested in Bay Area Compliance Laboratories Corp. (Dongguan).

FCC §15.247(b) (3) - MAXIMUM OUTPUT POWER

Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Data

The date is refer to FCC ID: SMTLWV granted on 2013-11-27, report No.R2DG130916005-00D which was tested in Bay Area Compliance Laboratories Corp. (Dongguan).

FCC §15.247(d) – 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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 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 to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
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 Data

The date is refer to FCC ID: SMTLWV granted on 2013-11-27, report No.R2DG130916005-00D which was tested in Bay Area Compliance Laboratories Corp. (Dongguan).

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Data

The date is refer to FCC ID: SMTLWV granted on 2013-11-27, report No.R2DG130916005-00D which was tested in Bay Area Compliance Laboratories Corp. (Dongguan).

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