



FCC PART 15.247

TEST REPORT

For

Beijing Hailin Energy Saving Technology Inc

Huilongguan International Information Industry Base, Changping District, Beijing, China

FCC ID: 2AJ5K10709990180

Report Type: Original Report	Product Name: Thermostat
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Report Number: <u>RBJ161102050</u>	
Report Date: <u>2017-07-10</u>	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The **Beijing Hailin Energy Saving Technology Inc's** product, model number: **Lake (FCC ID: 2AJ5K10709990180)** (the "EUT") in this report was a **Thermostat**, which was measured approximately: 154.74 mm (L) × 105.58 mm (W) × 32.75mm (H), rated input voltage: AC24V.

**All measurement and test data in this report was gathered from final production sample, serial number: 161102050 (assigned by the BACL, Chengdu). It may have deviation from any other sample. The EUT supplied by the applicant was received on 2016-11-02, and EUT conformed to test requirement.*

Objective

This report is prepared on behalf of **Beijing Hailin Energy Saving Technology Inc** in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

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

Related Submittal(s)/Grant(s)

No related submittal(s)/grant(s).

Test Methodology

All measurements detailed in this Test Report were performed in accordance with ANSI C63.10-2013 "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices".

All of the measurements detailed in this Test Report were performed by Bay Area Compliance Laboratories Corp. (Chengdu).

The Bay Area Compliance Laboratories Corp. Chengdu's measurement Uncertainties (calculated for a k=2 Coverage Factor corresponding to approximately 95% Coverage) were as follows:

-For all of the AC Line Conducted Emissions Tests reported herein: ± 3.17 dB.

-For of all of the Direct Antenna Conducted Emissions Tests reported herein: ± 0.56 dB.

-For of all of the direct Radiated Emissions Tests reported herein are:

30 MHz to 200 MHz: ± 4.7 dB;

200 MHz to 1 GHz: ± 6.0 dB;

1 GHz to 6 GHz: ± 5.13 dB; and,

6 GHz to 40 GHz: ± 5.47 dB.

And the uncertainty will not be taken into consideration for all test data recorded in the report.

Test Facility

The test site used by BACL to collect test data is located in the No.5040, Huilongwan Plaza, No.1, Shawan Road, Jinniu District, Chengdu, Sichuan, China.

Test site at BACL 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 April 24, 2015. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2014.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 560332. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.247 (i) & §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliance
FCC§15.203	Antenna Requirement	Compliance
FCC§15.207 (a)	AC Line Conducted Emissions	Compliance
FCC§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliance
FCC§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance*
FCC§15.247(b)(3)	Maximum conducted output power	Compliance*
FCC§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliance*
FCC§15.247(e)	Power Spectral Density	Compliance*

Note:

Compliance*: the EUT built in a certified module, Model: HF-LPT200, FCC ID: AZY-HF-LPT200, certified on 2014-05-13, the manufacturer have not modified any RF parameter of this module, the antenna port test items please refer to the module's report: 201403892F, issued by Shenzhen Anbotek Compliance Laboratory Limited on 2014-04-10.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in testing mode, which was provided by manufacturer. For 2.4GHz 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, 802.11 n20 were tested with channel 1, 6 and 11.
For 802.11 n40 was 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.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

The worst condition (maximum power) was setting configured by system default setting, and the software: 'WiFi Config Tools' used in test only used for channel the test modes, data rate and test channel, which was provided by the manufacturer. The worst data rate as below:

802.11b: 1Mbps
802.11g: 6Mbps
802.11 n20: MCS0
802.11 n40: MCS0

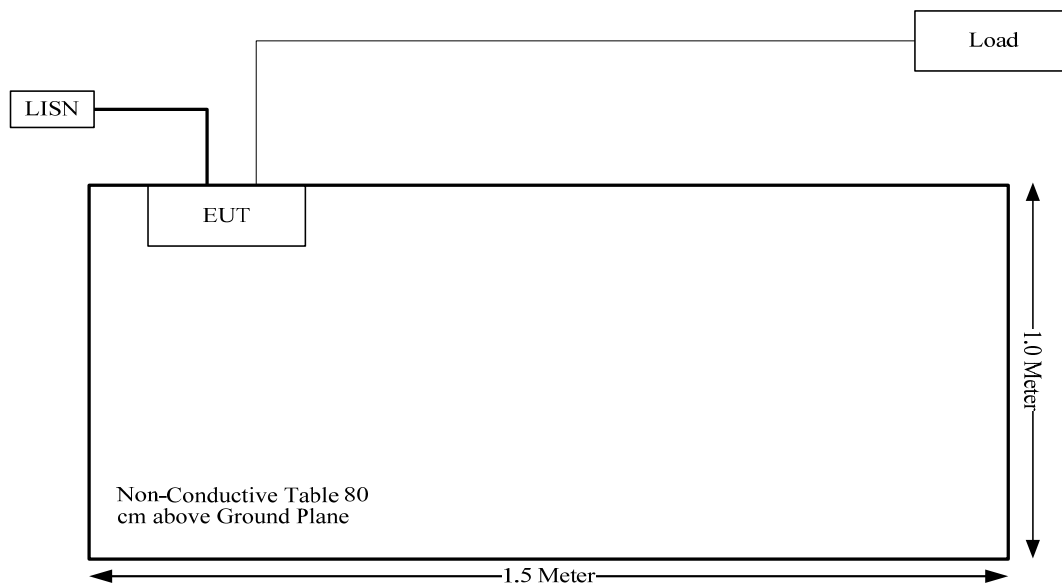
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Delta	Switching power supply	FY2405000	N/A
Hailin	Load	N/A	N/A

External Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Serial Cable	Yes	No	10	EUT	Load

Block Diagram of Test Setup



FCC §15.247 (i) , §1.1310 , §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247(i) and subpart §1.1310, 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.

Calculation Formula:

Prediction of power density at the distance of the applicable MPE limit:

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

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 (MHz)	Antenna Gain		Conducted Output Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
	(dBi)	(numeric)	(dBm)	(mW)			
2412-2462	2	1.58	21.76	149.97	20.00	0.0473	1.0

Result: Compliance, The device meets MPE requirement for Devices Used by the General Public (Uncontrolled Environment) at distance ≥20 cm.

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 one internal antenna arrangement, and the antenna gain is 2dBi, fulfill the requirement of this section. Please refer to the EUT photos.

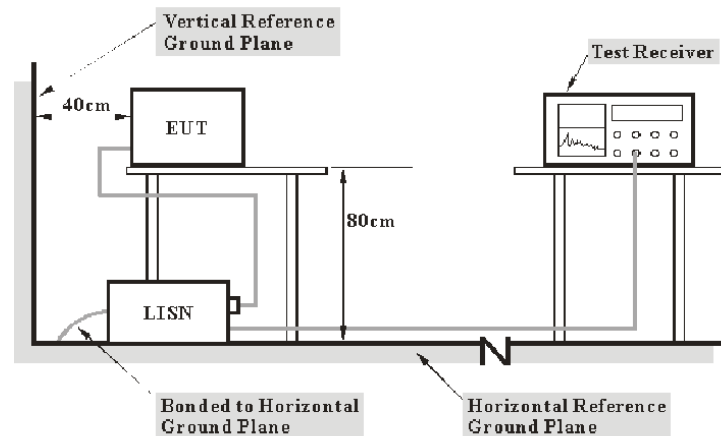
Result: Compliance.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207(a)

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 C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The EUT was connected to the main lisn with a 24 V/60 Hz AC 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 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 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
Rohde & Schwarz	EMI Test Receiver	ESCS 30	836858/0016	2016-12-02	2017-12-01
Rohde & Schwarz	L.I.S.N.	ENV216	100018	2016-12-02	2017-12-01
Rohde & Schwarz	PULSE LIMITER	ESH3Z2	DE14781	2016-10-31	2017-10-30
Unknown	Conducted Cable	Unknown	NO.5	2016-11-10	2017-11-09
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

* **Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B “Implementation of traceability policy in accredited laboratories”.

Test Data

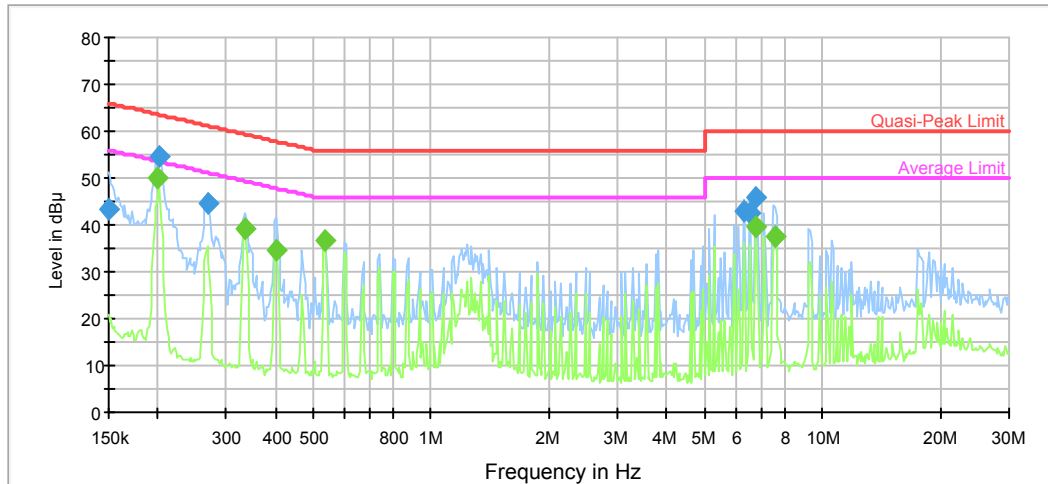
Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	52 %
ATM Pressure:	99.9 kPa

The testing was performed by Kevin Hu on 2017-06-30.

Test Mode: Transmitting (Wi-Fi b mode was the worst)

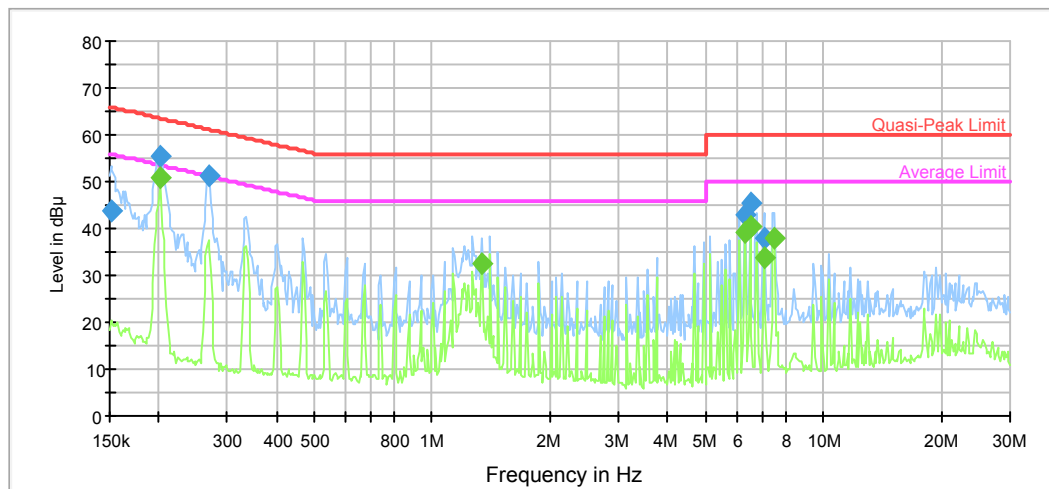
AC 24 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	43.3	9.000	L1	19.7	22.7	66.0	Compliance
0.201433	54.5	9.000	L1	19.7	9.1	63.6	Compliance
0.268355	44.6	9.000	L1	19.7	16.6	61.2	Compliance
6.296238	42.9	9.000	L1	19.8	17.1	60.0	Compliance
6.500148	42.7	9.000	L1	19.8	17.3	60.0	Compliance
6.764347	46.0	9.000	L1	19.8	14.0	60.0	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.199835	50.0	9.000	L1	19.7	3.6	53.6	Compliance
0.335433	39.2	9.000	L1	19.7	10.1	49.3	Compliance
0.402900	34.7	9.000	L1	19.8	13.1	47.8	Compliance
0.536756	36.5	9.000	L1	19.7	9.5	46.0	Compliance
6.764347	39.5	9.000	L1	19.8	10.5	50.0	Compliance
7.562639	37.4	9.000	L1	19.8	12.6	50.0	Compliance

AC24 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.151200	44.0	9.000	N	19.7	21.9	65.9	Compliance
0.201433	55.5	9.000	N	19.6	8.1	63.6	Compliance
0.268355	51.2	9.000	N	19.6	10.0	61.2	Compliance
6.296238	42.9	9.000	N	19.8	17.1	60.0	Compliance
6.500148	45.4	9.000	N	19.8	14.6	60.0	Compliance
7.039285	38.0	9.000	N	19.8	22.0	60.0	Compliance

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.203045	50.6	9.000	N	19.6	2.9	53.5	Compliance
1.341955	32.6	9.000	N	19.6	13.4	46.0	Compliance
6.296238	39.0	9.000	N	19.8	11.0	50.0	Compliance
6.500148	40.6	9.000	N	19.8	9.4	50.0	Compliance
7.039285	33.7	9.000	N	19.8	16.3	50.0	Compliance
7.502618	38.1	9.000	N	19.8	11.9	50.0	Compliance

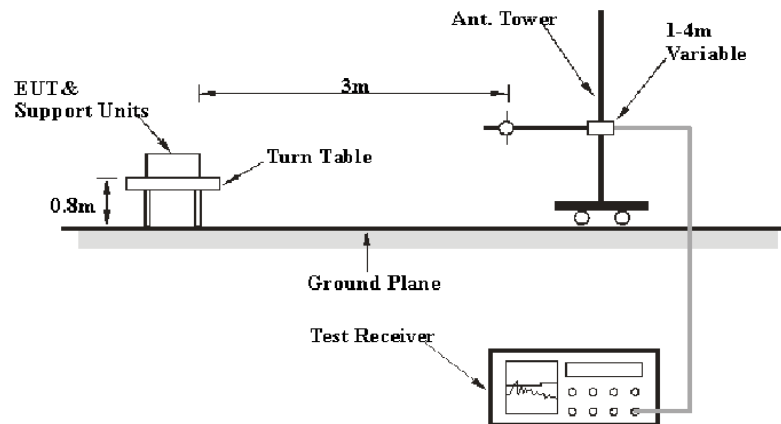
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

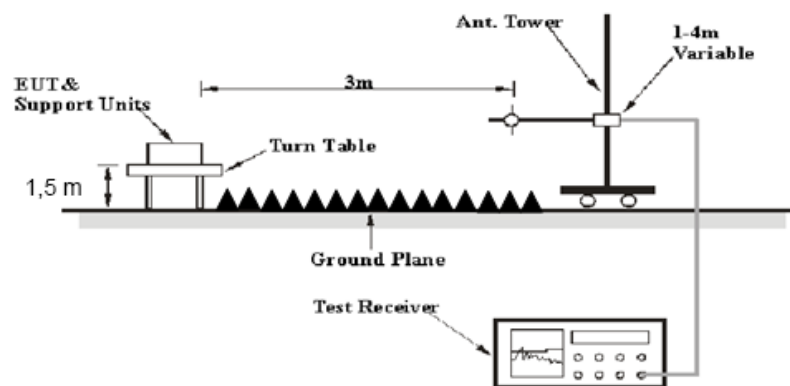
FCC §15.247 (d); §15.209; §15.205;

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 C63.10-2013. 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.

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:

30MHz-1000MHz:

Detector	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 25GHz:

Detector	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

Note: T is minimum transmission duration

Test Procedure

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 Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

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

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
Agilent	Amplifier	8447D	2944A10442	2016-12-02	2017-12-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2016-12-02	2017-12-01
Sunol Sciences	Broadband Antenna	JB3	A121808	2016-04-10	2019-04-09
Rohde & Schwarz	Spectrum Analyzer	FSEM30	100018	2016-12-02	2017-12-01
ETS	Horn Antenna	3115	003-6076	2016-12-02	2017-12-01
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-0113024	2017-06-16	2020-06-15
Mini-circuits	Amplifier	ZVA-183-S+	771001215	2017-05-20	2018-05-19
HP	Amplifier	8449B	3008A00277	2016-12-02	2017-12-01
EMCT	Semi-Anechoic Chamber	966	966-1	2015-04-24	2018-04-23
Unknown	RF Cable (below 1GHz)	Unknown	NO.1	2016-11-10	2017-11-09
Unknown	RF Cable (below 1GHz)	Unknown	NO.4	2016-11-10	2017-11-09
Unknown	RF Cable (above 1GHz)	Unknown	NO.2	2016-11-10	2017-11-09

* **Statement of Traceability:** BACL(Chengdu) attests that all of the calibrations on the equipment items listed above were traceable to NIM or to another internationally recognized National Metrology Institute (NMI), and were compliant with the NIST HB 150-2016 Normative Annex B "Implementation of traceability policy in accredited laboratories".

Test Data

Environmental Conditions

Temperature:	26.3 °C
Relative Humidity:	52 %
ATM Pressure:	99.9 kPa

The testing was performed by Kevin Hu on 2017-06-30

Test Mode: Transmitting

30MHz-25GHz:

802.11b Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	80.51	PK	H	23.50	3.00	0.00	107.01	N/A	N/A
2412	77.37	AV	H	23.50	3.00	0.00	103.87	N/A	N/A
2412	78.01	PK	V	23.50	3.00	0.00	104.51	N/A	N/A
2412	74.15	AV	V	23.50	3.00	0.00	100.65	N/A	N/A
2390	27.66	PK	H	23.57	3.00	0.00	54.23	74	19.77
2390	16.28	AV	H	23.57	3.00	0.00	42.85	54	11.15
4824	42.04	PK	H	30.84	5.11	26.87	51.12	74	22.88
4824	33.43	AV	H	30.84	5.11	26.87	42.51	54	11.49
7236	34.17	PK	H	34.77	6.18	26.36	48.76	74	25.24
7236	25.55	AV	H	34.77	6.18	26.36	40.14	54	13.86
1360	41.84	PK	H	23.74	2.48	26.46	41.6	74	32.4
1360	34.09	AV	H	23.74	2.48	26.46	33.85	54	20.15
364.65	43.71	QP	H	15.70	1.47	27.95	32.93	46.00	13.07
496.57	42.13	QP	H	18.12	1.62	28.80	33.07	46.00	12.93
Middle Channel: 2437 MHz									
2437	81.10	PK	H	23.41	3.00	0.00	107.51	N/A	N/A
2437	77.21	AV	H	23.41	3.00	0.00	103.62	N/A	N/A
2437	78.35	PK	V	23.41	3.00	0.00	104.76	N/A	N/A
2437	74.67	AV	V	23.41	3.00	0.00	101.08	N/A	N/A
4874	42.26	PK	H	31.00	5.09	26.87	51.48	74	22.52
4874	33.46	AV	H	31.00	5.09	26.87	42.68	54	11.32
7311	34.01	PK	H	34.92	6.21	26.40	48.74	74	25.26
7311	25.36	AV	H	34.92	6.21	26.40	40.09	54	13.91
1275	34.76	PK	H	23.52	2.36	26.55	34.09	74	39.91
1275	27.24	AV	H	23.52	2.36	26.55	26.57	54	27.43
1648	40.66	PK	H	24.34	2.78	26.48	41.3	74	32.7
1648	32.50	AV	H	24.34	2.78	26.48	33.14	54	20.86
364.65	43.98	QP	H	15.70	1.47	27.95	33.20	46.00	12.80
496.57	42.27	QP	H	18.12	1.62	28.80	33.21	46.00	12.79
High Channel: 2462 MHz									
2462	80.27	PK	H	23.33	2.99	0.00	106.59	N/A	N/A
2462	77.07	AV	H	23.33	2.99	0.00	103.39	N/A	N/A
2462	75.77	PK	V	23.33	2.99	0.00	102.09	N/A	N/A
2462	72.28	AV	V	23.33	2.99	0.00	98.6	N/A	N/A
2483.5	29.07	PK	H	23.26	2.99	0.00	55.32	74	18.68
2483.5	17.45	AV	H	23.26	2.99	0.00	43.7	54	10.3
4924	42.18	PK	H	31.16	5.07	26.88	51.53	74	22.47
4924	34.09	AV	H	31.16	5.07	26.88	43.44	54	10.56
7386	34.43	PK	H	35.07	6.25	26.43	49.32	74	24.68
7386	25.60	AV	H	35.07	6.25	26.43	40.49	54	13.51
1325	33.27	PK	H	23.65	2.43	26.50	32.85	74	41.15
1325	26.08	AV	H	23.65	2.43	26.50	25.66	54	28.34
364.65	44.82	QP	H	15.70	1.47	27.95	34.04	46.00	11.96
496.57	42.69	QP	H	18.12	1.62	28.80	33.63	46.00	12.37

802.11g Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	79.73	PK	H	23.50	3.00	0.00	106.23	N/A	N/A
2412	67.73	AV	H	23.50	3.00	0.00	94.23	N/A	N/A
2412	77.36	PK	V	23.50	3.00	0.00	103.86	N/A	N/A
2412	65.66	AV	V	23.50	3.00	0.00	92.16	N/A	N/A
2390	33.60	PK	H	23.57	3.00	0.00	60.17	74	13.83
2390	16.42	AV	H	23.57	3.00	0.00	42.99	54	11.01
4824	36.39	PK	H	30.84	5.11	26.87	45.47	74	28.53
4824	25.03	AV	H	30.84	5.11	26.87	34.11	54	19.89
7236	34.35	PK	H	34.77	6.18	26.36	48.94	74	25.06
7236	23.60	AV	H	34.77	6.18	26.36	38.19	54	15.81
1260	34.63	PK	H	23.48	2.34	26.56	33.89	74	40.11
1260	22.80	AV	H	23.48	2.34	26.56	22.06	54	31.94
364.65	44.35	QP	H	15.70	1.47	27.95	33.57	46.00	12.43
496.57	43.13	QP	H	18.12	1.62	28.80	34.07	46.00	11.93
Middle Channel: 2437 MHz									
2437	79.94	PK	H	23.41	3.00	0.00	106.35	N/A	N/A
2437	67.88	AV	H	23.41	3.00	0.00	94.29	N/A	N/A
2437	76.87	PK	V	23.41	3.00	0.00	103.28	N/A	N/A
2437	66.90	AV	V	23.41	3.00	0.00	93.31	N/A	N/A
4874	36.75	PK	H	31.00	5.09	26.87	45.97	74	28.03
4874	25.24	AV	H	31.00	5.09	26.87	34.46	54	19.54
7311	34.80	PK	H	34.92	6.21	26.40	49.53	74	24.47
7311	23.75	AV	H	34.92	6.21	26.40	38.48	54	15.52
1260	32.89	PK	H	23.48	2.34	26.56	32.15	74	41.85
1260	21.28	AV	H	23.48	2.34	26.56	20.54	54	33.46
2046	39.33	PK	H	24.74	3.04	26.83	40.28	74	33.72
2046	27.03	AV	H	24.74	3.04	26.83	27.98	54	26.02
364.65	43.88	QP	H	15.70	1.47	27.95	33.10	46.00	12.90
496.57	43.57	QP	H	18.12	1.62	28.80	34.51	46.00	11.49
High Channel: 2462 MHz									
2462	80.47	PK	H	23.33	2.99	0.00	106.79	N/A	N/A
2462	69.18	AV	H	23.33	2.99	0.00	95.5	N/A	N/A
2462	76.87	PK	V	23.33	2.99	0.00	103.19	N/A	N/A
2462	65.55	AV	V	23.33	2.99	0.00	91.87	N/A	N/A
2483.5	37.79	PK	H	23.26	2.99	0.00	64.04	74	9.96
2483.5	18.74	AV	H	23.26	2.99	0.00	44.99	54	9.01
4924	37.03	PK	H	31.16	5.07	26.88	46.38	74	27.62
4924	25.70	AV	H	31.16	5.07	26.88	35.05	54	18.95
7386	34.21	PK	H	35.07	6.25	26.43	49.1	74	24.9
7386	23.74	AV	H	35.07	6.25	26.43	38.63	54	15.37
1342	34.96	PK	H	23.69	2.45	26.48	34.62	74	39.38
1342	23.29	AV	H	23.69	2.45	26.48	22.95	54	31.05
364.65	43.87	QP	H	15.70	1.47	27.95	33.09	46.00	12.91
496.57	42.45	QP	H	18.12	1.62	28.80	33.39	46.00	12.61

802.11 n20 Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB)					
Low Channel: 2412 MHz									
2412	80.67	PK	H	23.50	3.00	0.00	107.17	N/A	N/A
2412	68.72	AV	H	23.50	3.00	0.00	95.22	N/A	N/A
2412	78.44	PK	V	23.50	3.00	0.00	104.94	N/A	N/A
2412	66.36	AV	V	23.50	3.00	0.00	92.86	N/A	N/A
2390	33.04	PK	H	23.57	3.00	0.00	59.61	74	14.39
2390	16.68	AV	H	23.57	3.00	0.00	43.25	54	10.75
4824	36.41	PK	H	30.84	5.11	26.87	45.49	74	28.51
4824	24.65	AV	H	30.84	5.11	26.87	33.73	54	20.27
7236	33.98	PK	H	34.77	6.18	26.36	48.57	74	25.43
7236	21.92	AV	H	34.77	6.18	26.36	36.51	54	17.49
1342	32.67	PK	H	23.69	2.45	26.48	32.33	74	41.67
1342	20.76	AV	H	23.69	2.45	26.48	20.42	54	33.58
364.65	44.14	QP	H	15.70	1.47	27.95	33.36	46.00	12.64
496.57	42.59	QP	H	18.12	1.62	28.80	33.53	46.00	12.47
Middle Channel: 2437 MHz									
2437	81.37	PK	H	23.41	3.00	0.00	107.78	N/A	N/A
2437	68.78	AV	H	23.41	3.00	0.00	95.19	N/A	N/A
2437	78.64	PK	V	23.41	3.00	0.00	105.05	N/A	N/A
2437	66.84	AV	V	23.41	3.00	0.00	93.25	N/A	N/A
4874	36.65	PK	H	31.00	5.09	26.87	45.87	74	28.13
4874	25.23	AV	H	31.00	5.09	26.87	34.45	54	19.55
7311	34.53	PK	H	34.92	6.21	26.40	49.26	74	24.74
7311	21.71	AV	H	34.92	6.21	26.40	36.44	54	17.56
1345	33.57	PK	H	23.70	2.46	26.48	33.25	74	40.75
1345	21.97	AV	H	23.70	2.46	26.48	21.65	54	32.35
1657	38.96	PK	H	24.35	2.79	26.48	39.62	74	34.38
1657	27.15	AV	H	24.35	2.79	26.48	27.81	54	26.19
364.65	44.98	QP	H	15.70	1.47	27.95	34.20	46.00	11.80
496.57	43.01	QP	H	18.12	1.62	28.80	33.95	46.00	12.05
High Channel: 2462 MHz									
2462	80.64	PK	H	23.33	2.99	0.00	106.96	N/A	N/A
2462	69.31	AV	H	23.33	2.99	0.00	95.63	N/A	N/A
2462	79.94	PK	V	23.33	2.99	0.00	106.26	N/A	N/A
2462	67.43	AV	V	23.33	2.99	0.00	93.75	N/A	N/A
2483.5	37.16	PK	H	23.26	2.99	0.00	63.41	74	10.59
2483.5	18.97	AV	H	23.26	2.99	0.00	45.22	54	8.78
4924	36.85	PK	H	31.16	5.07	26.88	46.2	74	27.8
4924	24.93	AV	H	31.16	5.07	26.88	34.28	54	19.72
7386	34.15	PK	H	35.07	6.25	26.43	49.04	74	24.96
7386	21.95	AV	H	35.07	6.25	26.43	36.84	54	17.16
1345	32.32	PK	H	23.70	2.46	26.48	32	74	42
1345	21.14	AV	H	23.70	2.46	26.48	20.82	54	33.18
364.65	44.51	QP	H	15.70	1.47	27.95	33.73	46.00	12.27
496.57	43.45	QP	H	18.12	1.62	28.80	34.39	46.00	11.61

802.11 n40 Mode

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB)					
Low Channel: 2422 MHz									
2422	76.29	PK	H	23.47	3.00	0.00	102.76	N/A	N/A
2422	61.40	AV	H	23.47	3.00	0.00	87.87	N/A	N/A
2422	73.43	PK	V	23.47	3.00	0.00	99.9	N/A	N/A
2422	59.32	AV	V	23.47	3.00	0.00	85.79	N/A	N/A
2390	39.37	PK	H	23.57	3.00	0.00	65.94	74	8.06
2390	18.08	AV	H	23.57	3.00	0.00	44.65	54	9.35
4844	34.99	PK	H	30.90	5.10	26.87	44.12	74	29.88
4844	22.76	AV	H	30.90	5.10	26.87	31.89	54	22.11
7266	31.93	PK	H	34.83	6.19	26.38	46.57	74	27.43
7266	20.11	AV	H	34.83	6.19	26.38	34.75	54	19.25
1285	33.34	PK	H	23.54	2.37	26.54	32.71	74	41.29
1285	19.66	AV	H	23.54	2.37	26.54	19.03	54	34.97
364.65	44.04	QP	H	15.70	1.47	27.95	33.26	46.00	12.74
496.57	43.89	QP	H	18.12	1.62	28.80	34.83	46.00	11.17
Middle Channel: 2437 MHz									
2437	77.05	PK	H	23.41	3.00	0.00	103.46	N/A	N/A
2437	63.40	AV	H	23.41	3.00	0.00	89.81	N/A	N/A
2437	74.35	PK	V	23.41	3.00	0.00	100.76	N/A	N/A
2437	60.09	AV	V	23.41	3.00	0.00	86.5	N/A	N/A
4874	35.24	PK	H	31.00	5.09	26.87	44.46	74	29.54
4874	22.63	AV	H	31.00	5.09	26.87	31.85	54	22.15
7311	31.65	PK	H	34.92	6.21	26.40	46.38	74	27.62
7311	20.26	AV	H	34.92	6.21	26.40	34.99	54	19.01
1285	33.24	PK	H	23.54	2.37	26.54	32.61	74	41.39
1285	20.37	AV	H	23.54	2.37	26.54	19.74	54	34.26
1549	34.01	PK	H	24.18	2.71	26.38	34.52	74	39.48
1549	22.27	AV	H	24.18	2.71	26.38	22.78	54	31.22
364.65	43.21	QP	H	15.70	1.47	27.95	32.43	46.00	13.57
496.57	42.33	QP	H	18.12	1.62	28.80	33.27	46.00	12.73
High Channel: 2452 MHz									
2452	77.61	PK	H	23.36	3.00	0.00	103.97	N/A	N/A
2452	62.93	AV	H	23.36	3.00	0.00	89.29	N/A	N/A
2452	74.06	PK	V	23.36	3.00	0.00	100.42	N/A	N/A
2452	60.38	AV	V	23.36	3.00	0.00	86.74	N/A	N/A
2483.5	41.20	PK	H	23.26	2.99	0.00	67.45	74	6.55
2483.5	19.60	AV	H	23.26	2.99	0.00	45.85	54	8.15
4904	35.60	PK	H	31.09	5.08	26.87	44.9	74	29.1
4904	23.15	AV	H	31.09	5.08	26.87	32.45	54	21.55
7356	31.81	PK	H	35.01	6.23	26.42	46.63	74	27.37
7356	20.03	AV	H	35.01	6.23	26.42	34.85	54	19.15
1285	33.65	PK	H	23.54	2.37	26.54	33.02	74	40.98
1285	20.53	AV	H	23.54	2.37	26.54	19.9	54	34.1
364.65	43.48	QP	H	15.70	1.47	27.95	32.70	46.00	13.30
496.57	42.47	QP	H	18.12	1.62	28.80	33.41	46.00	12.59

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