TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 15.247

TEST REPORT

For

Beijing Hailin Energy Saving Technology Inc

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

FCC ID: 2AJ5K10809990057

Report Type:	**Product Name:**
Original Report	Thermostat

Report Number:	RBJ161019050-00
Report Date:	2018-04-20
Reviewed By:	Jerry Zhang EMC Manager
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, 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)

EUT Name:	Thermostat
EUT Model:	Lake Plus
FCC ID:	2AJ5K10809990057
Rated Input Voltage:	AC 24V/60Hz
External Dimension:	Length (15.8 cm)*Width (10.9 cm)*High (2.7 cm)
Serial Number:	161019050
EUT Received Date:	2016.10.19

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)

N/A

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and KDB 558074 D01 DTS Meas Guidance v04.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB,200M~1GHz: 5.92 dB,1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

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 Industry Area, Tangxia, Dongguan, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218,the FCC Designation No. : CN1220.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in Engineering Mode, which was provided by the manufacturer.

For 2.4GHz band, total 11 channels are provided:

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 802.11n ht20 modes were test with channel 1,6,11.
For 802.11n ht40 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.

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
802.11n ht20: MCS0
802.11n ht40: MCS0

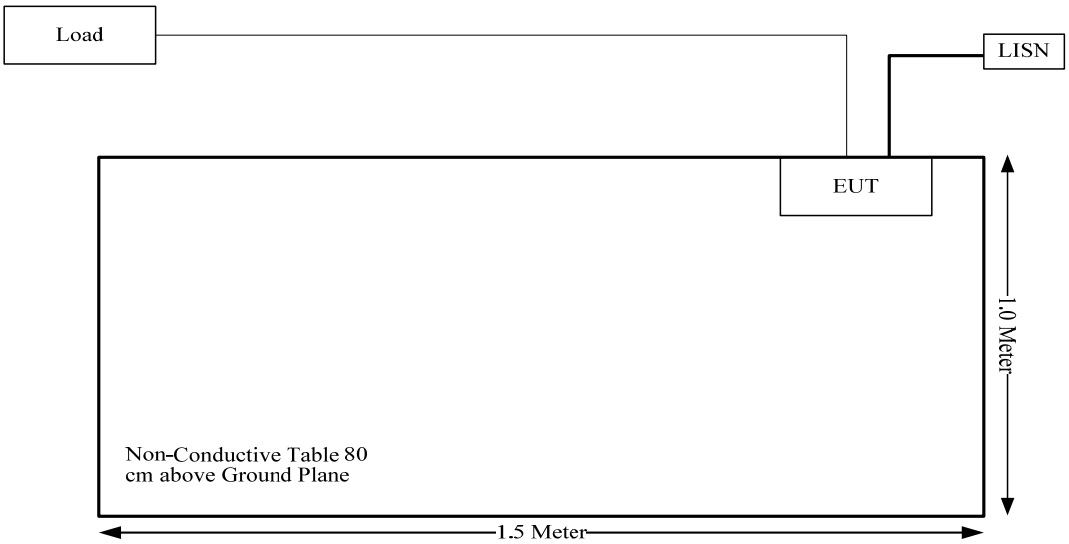
Equipment Modifications

No modification was made to the EUT.

Support Cable List and Details

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

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

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

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.

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/f²)	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/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 (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	1.59	21.76	149.97	20.00	0.0475	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.
c. 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 for Wifi, and the antenna gain is 2.0 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

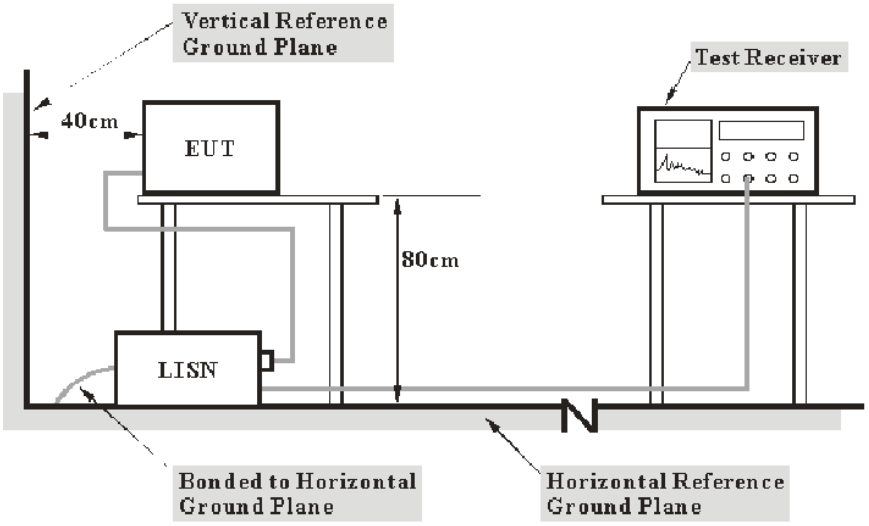
Result: Compliance.

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.

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 adapter 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:

Margin = Limit – 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	2016-12-11	2017-12-11
R&S	Two-line V-network	ENV 216	101614	2016-12-08	2017-12-08
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2017-09-05	2018-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

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

Test Data

Environmental Conditions

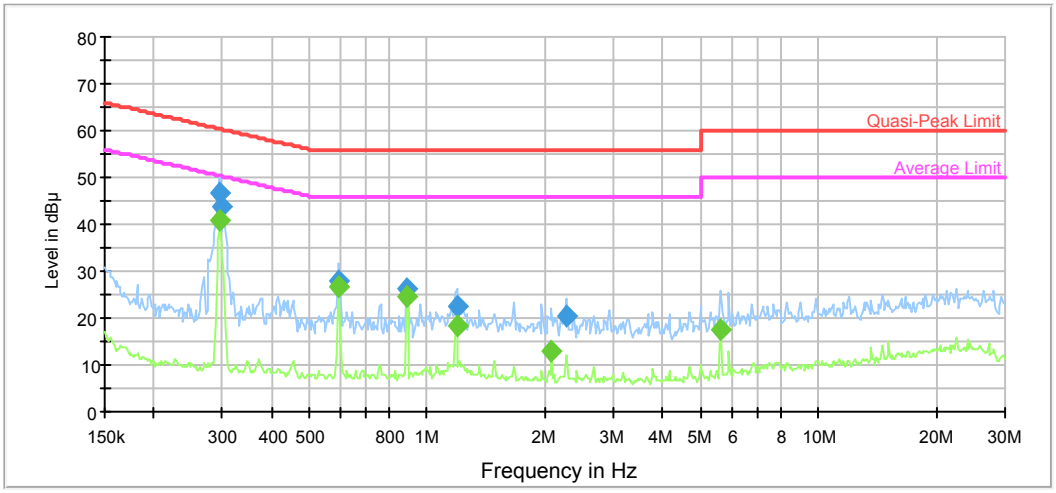
Temperature:	26.3 °C
Relative Humidity:	52 %
ATM Pressure:	99.9 kPa

The testing was performed by Blake Yang on 2017-12-04.

Test Result: Compliance

*Test Mode: Transmitting(*802.11 b mode middle channel was the worst*)*

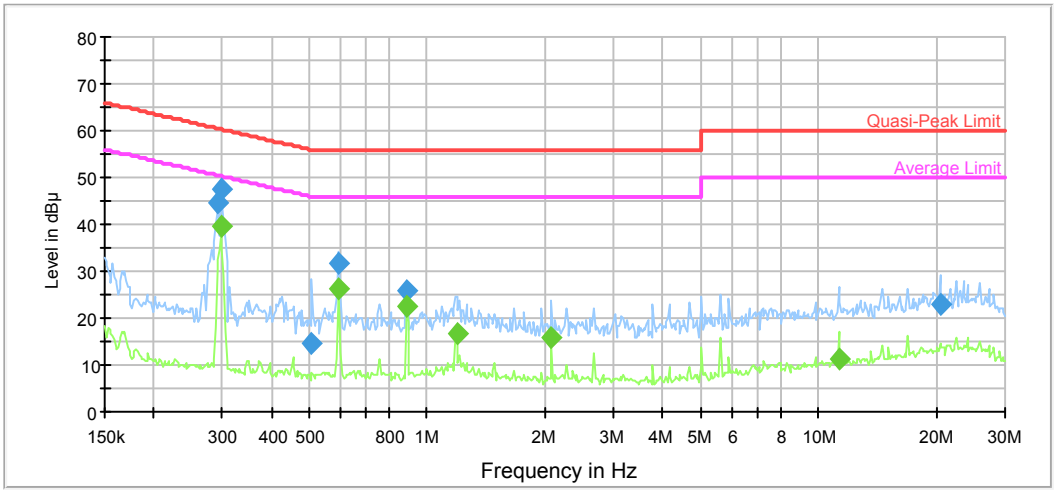
AC24 V, 60 Hz, Line:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.295282	46.8	9.000	L1	10.2	13.6	60.4	Compliance
0.300025	43.6	9.000	L1	10.2	16.6	60.2	Compliance
0.595338	27.7	9.000	L1	9.8	28.3	56.0	Compliance
0.886728	26.1	9.000	L1	9.8	29.9	56.0	Compliance
1.190776	22.4	9.000	L1	9.8	33.6	56.0	Compliance
2.270560	20.5	9.000	L1	9.8	35.5	56.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.295282	40.8	9.000	L1	10.2	9.6	50.4	Compliance
0.595338	26.7	9.000	L1	9.8	19.3	46.0	Compliance
0.886728	24.8	9.000	L1	9.8	21.2	46.0	Compliance
1.190776	18.2	9.000	L1	9.8	27.8	46.0	Compliance
2.080018	13.0	9.000	L1	9.7	33.0	46.0	Compliance
5.631624	17.6	9.000	L1	9.8	32.4	50.0	Compliance

AC24 V, 60 Hz, Neutral:



Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.292938	44.6	9.000	N	10.2	15.8	60.4	Compliance
0.297644	47.4	9.000	N	10.2	12.9	60.3	Compliance
0.507637	14.5	9.000	N	9.9	41.5	56.0	Compliance
0.595338	31.7	9.000	N	9.8	24.3	56.0	Compliance
0.886728	25.7	9.000	N	9.8	30.3	56.0	Compliance
20.475752	22.9	9.000	N	10.1	37.1	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.297644	39.6	9.000	N	10.2	10.7	50.3	Compliance
0.595338	26.2	9.000	N	9.8	19.8	46.0	Compliance
0.886728	22.3	9.000	N	9.8	23.7	46.0	Compliance
1.190776	16.6	9.000	N	9.8	29.4	46.0	Compliance
2.080018	15.6	9.000	N	9.7	30.4	46.0	Compliance
11.264190	11.5	9.000	N	9.9	38.5	50.0	Compliance

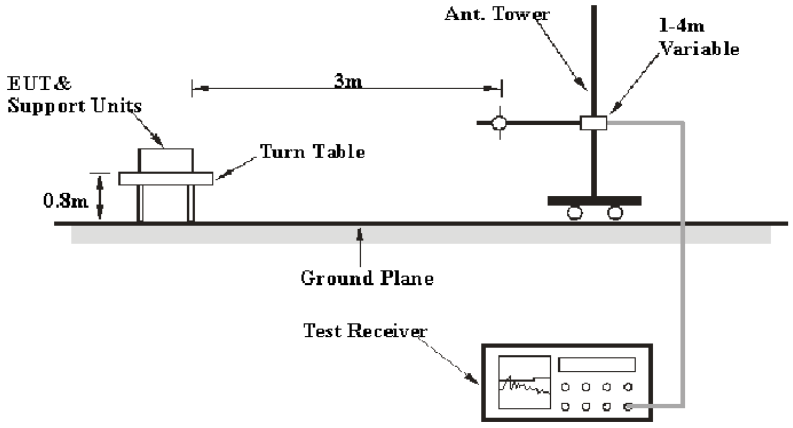
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

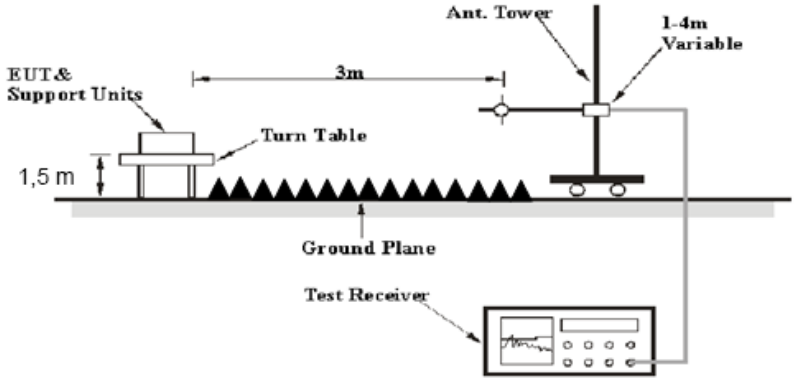
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site, above 1GHz 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 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:

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

1GHz- 25GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
AV	>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:

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
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2017-09-05	2018-09-05
Ducommun Technolagies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27
Chengdu Ouli	Band Rejection Filter	2400-2483.5	002	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2017-06-27	2018-06-27
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A

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

Test Data

Environmental Conditions

Temperature:	23.7 °C
Relative Humidity:	33 %
ATM Pressure:	101 kPa

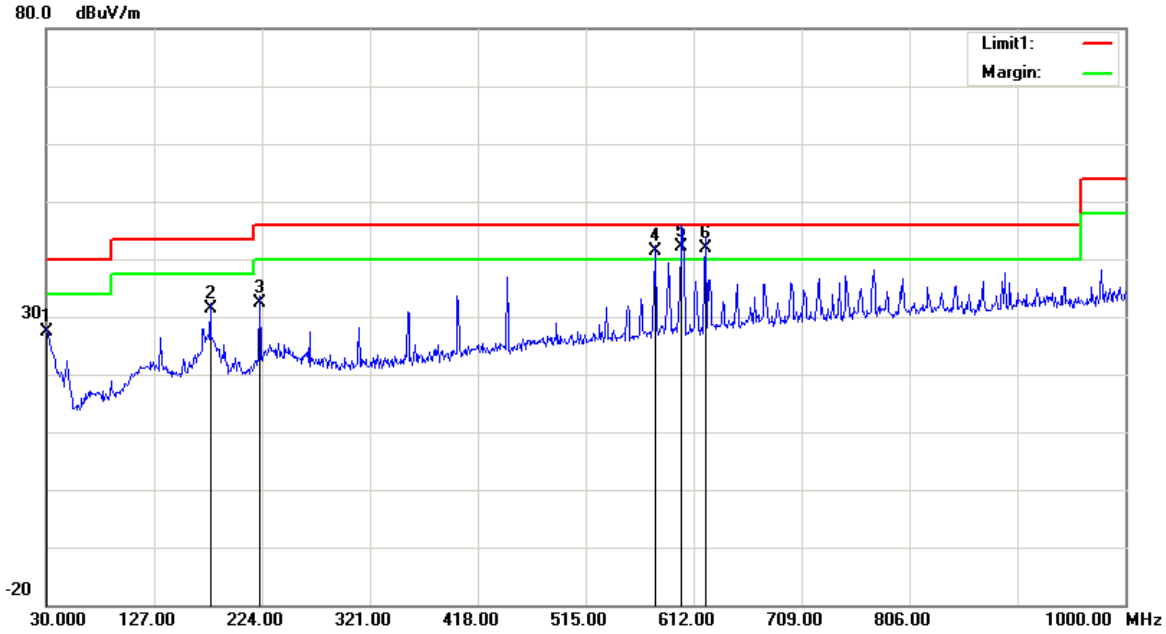
** The testing was performed by Blake Yang&Steven Zuo on 2018-04-10.*

Test Result: Compliance, please Refer to the following data

Test Mode: Transmitting (802.11 b mode middle channel was the worst)

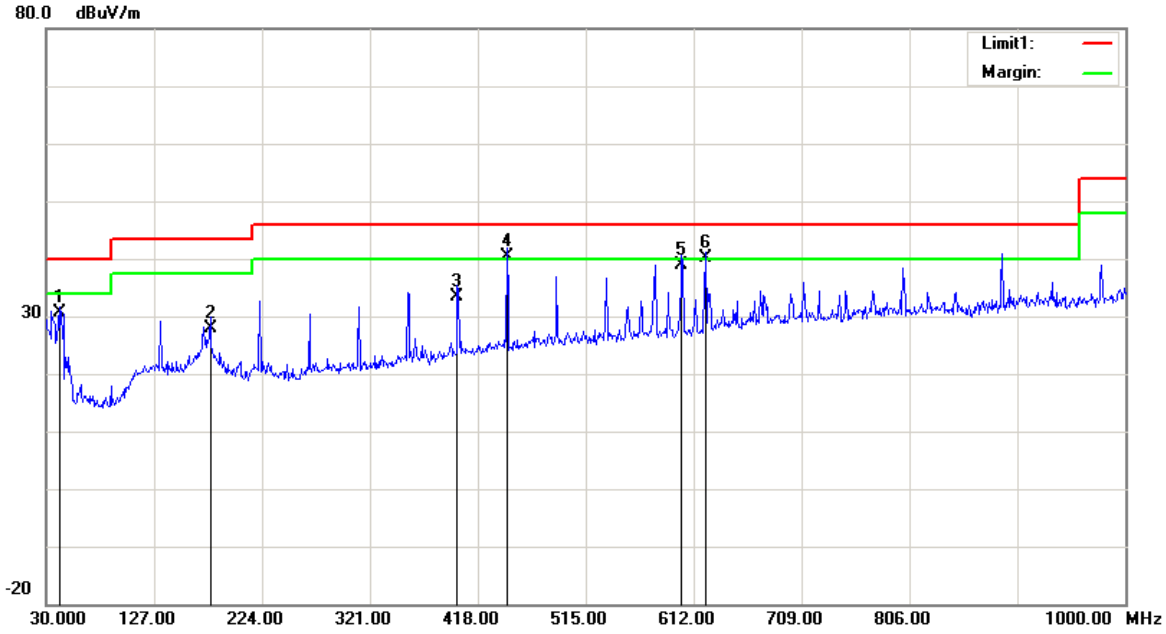
1) 30MHz-1GHz

Horizontal:



Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.9700	26.49	QP	0.81	27.30	40.00	12.70
177.4400	38.79	QP	-7.29	31.50	43.50	12.00
222.0600	39.26	QP	-6.86	32.40	46.00	13.60
578.0500	40.51	QP	0.99	41.50	46.00	4.50
601.3300	41.30	QP	0.90	42.20	46.00	3.80
622.6700	40.24	QP	1.56	41.80	46.00	4.20

Vertical:



Frequency (MHz)	Receiver Reading (dBuV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
41.6400	37.70	QP	-7.00	30.70	40.00	9.30
177.4400	35.09	QP	-7.29	27.80	43.50	15.70
399.5700	35.43	QP	-2.03	33.40	46.00	12.60
444.1900	41.57	QP	-1.27	40.30	46.00	5.70
601.3300	38.00	QP	0.90	38.90	46.00	7.10
622.6700	38.54	QP	1.56	40.10	46.00	5.90

2) 1-25GHz:

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/m)					
Low Channel: 2412 MHz									
2412.00	77.80	PK	H	28.12	1.81	0.00	107.73	N/A	N/A
2412.00	64.51	AV	H	28.12	1.81	0.00	94.44	N/A	N/A
2412.00	73.81	PK	V	28.12	1.81	0.00	103.74	N/A	N/A
2412.00	62.10	AV	V	28.12	1.81	0.00	92.03	N/A	N/A
2390.00	27.05	PK	H	28.08	1.80	0.00	56.93	74.00	17.07
2390.00	14.72	AV	H	28.08	1.80	0.00	44.60	54.00	9.40
4824.00	56.47	PK	H	32.95	3.19	37.20	55.41	74.00	18.59
4824.00	44.54	AV	H	32.95	3.19	37.20	43.48	54.00	10.52
7236.00	47.62	PK	H	35.81	4.77	37.27	50.93	74.00	23.07
7236.00	36.46	AV	H	35.81	4.77	37.27	39.77	54.00	14.23
Middle Channel: 2437 MHz									
2437.00	78.91	PK	H	28.17	1.82	0.00	108.90	N/A	N/A
2437.00	66.25	AV	H	28.17	1.82	0.00	96.24	N/A	N/A
2437.00	72.51	PK	V	28.17	1.82	0.00	102.50	N/A	N/A
2437.00	61.07	AV	V	28.17	1.82	0.00	91.06	N/A	N/A
4874.00	57.15	PK	H	33.05	3.26	37.21	56.25	74.00	17.75
4874.00	45.16	AV	H	33.05	3.26	37.21	44.26	54.00	9.74
7311.00	48.09	PK	H	36.01	4.64	37.36	51.38	74.00	22.62
7311.00	37.35	AV	H	36.01	4.64	37.36	40.64	54.00	13.36
High Channel: 2462 MHz									
2462.00	78.40	PK	H	28.22	1.83	0.00	108.45	N/A	N/A
2462.00	64.42	AV	H	28.22	1.83	0.00	94.47	N/A	N/A
2462.00	72.72	PK	V	28.22	1.83	0.00	102.77	N/A	N/A
2462.00	59.19	AV	V	28.22	1.83	0.00	89.24	N/A	N/A
2483.50	28.90	PK	H	28.27	1.84	0.00	59.01	74.00	14.99
2483.50	18.46	AV	H	28.27	1.84	0.00	48.57	54.00	5.43
4924.00	57.40	PK	H	33.15	3.27	37.22	56.60	74.00	17.40
4924.00	45.21	AV	H	33.15	3.27	37.22	44.41	54.00	9.59
7386.00	48.52	PK	H	36.20	4.51	37.46	51.77	74.00	22.23
7386.00	36.99	AV	H	36.20	4.51	37.46	40.24	54.00	13.76

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/m)					
Low Channel: 2412 MHz									
2412.00	76.27	PK	H	28.12	1.81	0.00	106.20	N/A	N/A
2412.00	64.89	AV	H	28.12	1.81	0.00	94.82	N/A	N/A
2412.00	72.83	PK	V	28.12	1.81	0.00	102.76	N/A	N/A
2412.00	62.66	AV	V	28.12	1.81	0.00	92.59	N/A	N/A
2390.00	41.09	PK	H	28.08	1.80	0.00	70.97	74.00	3.03
2390.00	19.09	AV	H	28.08	1.80	0.00	48.97	54.00	5.03
4824.00	62.18	PK	H	32.95	3.19	37.20	61.12	74.00	12.88
4824.00	49.57	AV	H	32.95	3.19	37.20	48.51	54.00	5.49
7236.00	45.83	PK	H	35.81	4.77	37.27	49.14	74.00	24.86
7236.00	34.19	AV	H	35.81	4.77	37.27	37.50	54.00	16.50
Middle Channel: 2437 MHz									
2437.00	75.93	PK	H	28.17	1.82	0.00	105.92	N/A	N/A
2437.00	64.94	AV	H	28.17	1.82	0.00	94.93	N/A	N/A
2437.00	72.79	PK	V	28.17	1.82	0.00	102.78	N/A	N/A
2437.00	62.25	AV	V	28.17	1.82	0.00	92.24	N/A	N/A
4874.00	62.13	PK	H	33.05	3.26	37.21	61.23	74.00	12.77
4874.00	49.82	AV	H	33.05	3.26	37.21	48.92	54.00	5.08
7311.00	46.35	PK	H	36.01	4.64	37.36	49.64	74.00	24.36
7311.00	34.53	AV	H	36.01	4.64	37.36	37.82	54.00	16.18
High Channel: 2462 MHz									
2462.00	76.43	PK	H	28.22	1.83	0.00	106.48	N/A	N/A
2462.00	65.22	AV	H	28.22	1.83	0.00	95.27	N/A	N/A
2462.00	72.74	PK	V	28.22	1.83	0.00	102.79	N/A	N/A
2462.00	61.81	AV	V	28.22	1.83	0.00	91.86	N/A	N/A
2483.50	35.27	PK	H	28.27	1.84	0.00	65.38	74.00	8.62
2483.50	20.76	AV	H	28.27	1.84	0.00	50.87	54.00	3.13
4924.00	56.83	PK	H	33.15	3.27	37.22	56.03	74.00	17.97
4924.00	46.56	AV	H	33.15	3.27	37.22	45.76	54.00	8.24
7386.00	46.51	PK	H	36.20	4.51	37.46	49.76	74.00	24.24
7386.00	34.84	AV	H	36.20	4.51	37.46	38.09	54.00	15.91

802.11n ht20 Mode:

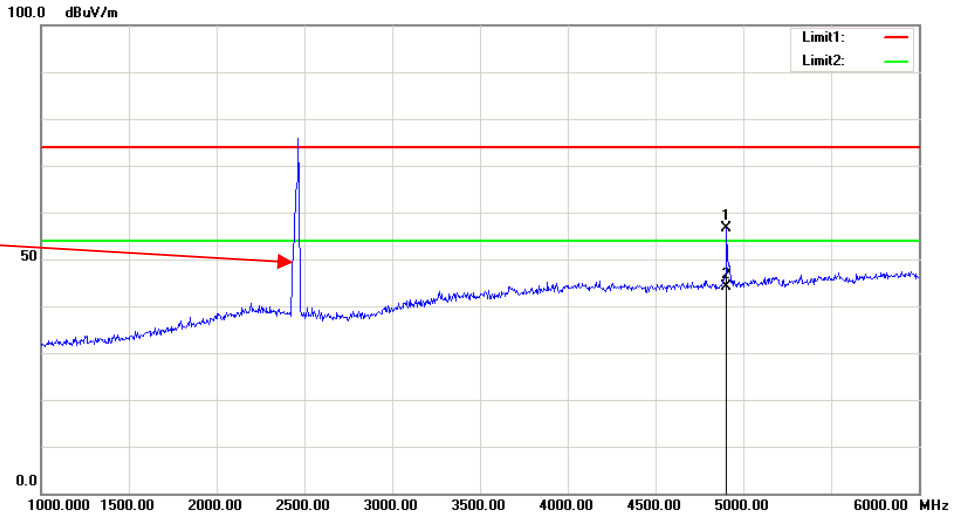
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2412 MHz									
2412.00	76.73	PK	H	28.12	1.81	0.00	106.66	N/A	N/A
2412.00	64.96	AV	H	28.12	1.81	0.00	94.89	N/A	N/A
2412.00	71.46	PK	V	28.12	1.81	0.00	101.39	N/A	N/A
2412.00	59.41	AV	V	28.12	1.81	0.00	89.34	N/A	N/A
2390.00	40.06	PK	H	28.08	1.80	0.00	69.94	74.00	4.06
2390.00	18.40	AV	H	28.08	1.80	0.00	48.28	54.00	5.72
4824.00	56.36	PK	H	32.95	3.19	37.20	55.30	74.00	18.70
4824.00	43.92	AV	H	32.95	3.19	37.20	42.86	54.00	11.14
7236.00	47.20	PK	H	35.81	4.77	37.27	50.51	74.00	23.49
7236.00	37.05	AV	H	35.81	4.77	37.27	40.36	54.00	13.64
Middle Channel: 2437 MHz									
2437.00	76.68	PK	H	28.17	1.82	0.00	106.67	N/A	N/A
2437.00	65.18	AV	H	28.17	1.82	0.00	95.17	N/A	N/A
2437.00	71.62	PK	V	28.17	1.82	0.00	101.61	N/A	N/A
2437.00	60.12	AV	V	28.17	1.82	0.00	90.11	N/A	N/A
4874.00	57.21	PK	H	33.05	3.26	37.21	56.31	74.00	17.69
4874.00	43.89	AV	H	33.05	3.26	37.21	42.99	54.00	11.01
7311.00	47.25	PK	H	36.01	4.64	37.36	50.54	74.00	23.46
7311.00	36.74	AV	H	36.01	4.64	37.36	40.03	54.00	13.97
High Channel: 2462 MHz									
2462.00	77.08	PK	H	28.22	1.83	0.00	107.13	N/A	N/A
2462.00	64.73	AV	H	28.22	1.83	0.00	94.78	N/A	N/A
2462.00	72.23	PK	V	28.22	1.83	0.00	102.28	N/A	N/A
2462.00	60.52	AV	V	28.22	1.83	0.00	90.57	N/A	N/A
2483.50	41.59	PK	H	28.27	1.84	0.00	71.70	74.00	2.30
2483.50	21.74	AV	H	28.27	1.84	0.00	51.85	54.00	2.15
4924.00	57.21	PK	H	33.15	3.27	37.22	56.41	74.00	17.59
4924.00	44.71	AV	H	33.15	3.27	37.22	43.91	54.00	10.09
7386.00	47.87	PK	H	36.20	4.51	37.46	51.12	74.00	22.88
7386.00	36.71	AV	H	36.20	4.51	37.46	39.96	54.00	14.04

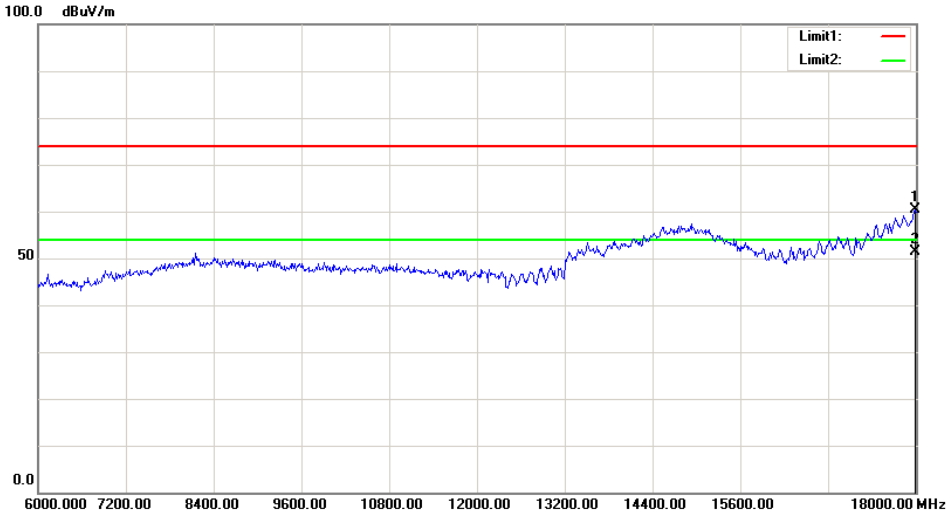
802.11n ht40 Mode:

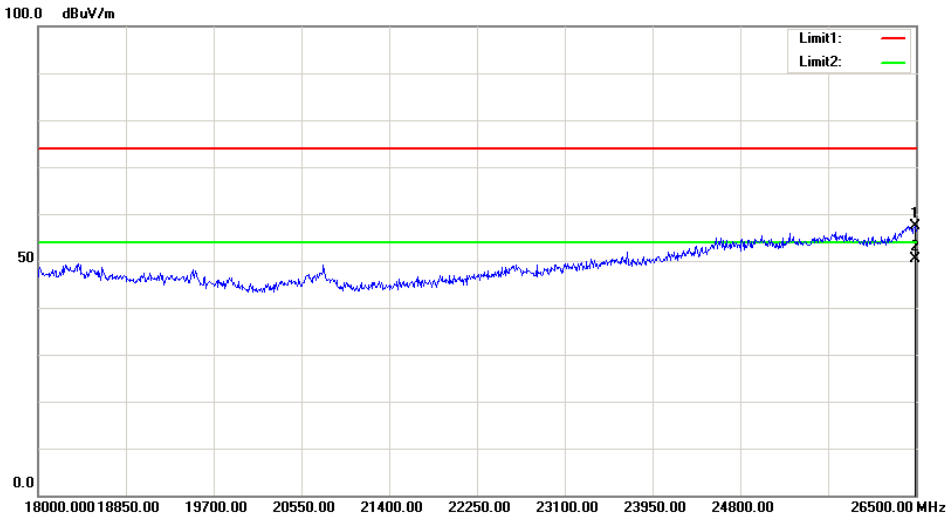
Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector	Polar (H/V)	Factor (dB/m)					
Low Channel: 2422 MHz									
2422.00	73.54	PK	H	28.14	1.81	0.00	103.49	N/A	N/A
2422.00	60.25	AV	H	28.14	1.81	0.00	90.20	N/A	N/A
2422.00	69.55	PK	V	28.14	1.81	0.00	99.50	N/A	N/A
2422.00	57.84	AV	V	28.14	1.81	0.00	87.79	N/A	N/A
2390.00	41.60	PK	H	28.08	1.80	0.00	71.48	74.00	2.52
2390.00	19.29	AV	H	28.08	1.80	0.00	49.17	54.00	4.83
4844.00	56.83	PK	H	32.99	3.22	37.20	55.84	74.00	18.16
4844.00	44.60	AV	H	32.99	3.22	37.20	43.61	54.00	10.39
7266.00	46.70	PK	H	35.89	4.72	37.31	50.00	74.00	24.00
7266.00	36.65	AV	H	35.89	4.72	37.31	39.95	54.00	14.05
Middle Channel: 2437 MHz									
2437.00	74.61	PK	H	28.17	1.82	0.00	104.60	N/A	N/A
2437.00	61.95	AV	H	28.17	1.82	0.00	91.94	N/A	N/A
2437.00	68.21	PK	V	28.17	1.82	0.00	98.20	N/A	N/A
2437.00	56.77	AV	V	28.17	1.82	0.00	86.76	N/A	N/A
4874.00	57.61	PK	H	33.05	3.26	37.21	56.71	74.00	17.29
4874.00	45.02	AV	H	33.05	3.26	37.21	44.12	54.00	9.88
7311.00	47.47	PK	H	36.01	4.64	37.36	50.76	74.00	23.24
7311.00	37.01	AV	H	36.01	4.64	37.36	40.30	54.00	13.70
High Channel: 2452 MHz									
2452.00	74.13	PK	H	28.20	1.83	0.00	104.16	N/A	N/A
2452.00	60.15	AV	H	28.20	1.83	0.00	90.18	N/A	N/A
2452.00	68.45	PK	V	28.20	1.83	0.00	98.48	N/A	N/A
2452.00	54.92	AV	V	28.20	1.83	0.00	84.95	N/A	N/A
2483.50	42.74	PK	H	28.27	1.84	0.00	72.85	74.00	1.15
2483.50	22.22	AV	H	28.27	1.84	0.00	52.33	54.00	1.67
4904.00	57.78	PK	H	33.11	3.30	37.21	56.98	74.00	17.02
4904.00	44.89	AV	H	33.11	3.30	37.21	44.09	54.00	9.91
7356.00	47.12	PK	H	36.13	4.56	37.42	50.39	74.00	23.61
7356.00	37.13	AV	H	36.13	4.56	37.42	40.40	54.00	13.60

Test plots(802.11 b mode middle channel was the worst)
Horizontal:

Fundamental
Test with Band
Rejection Filter

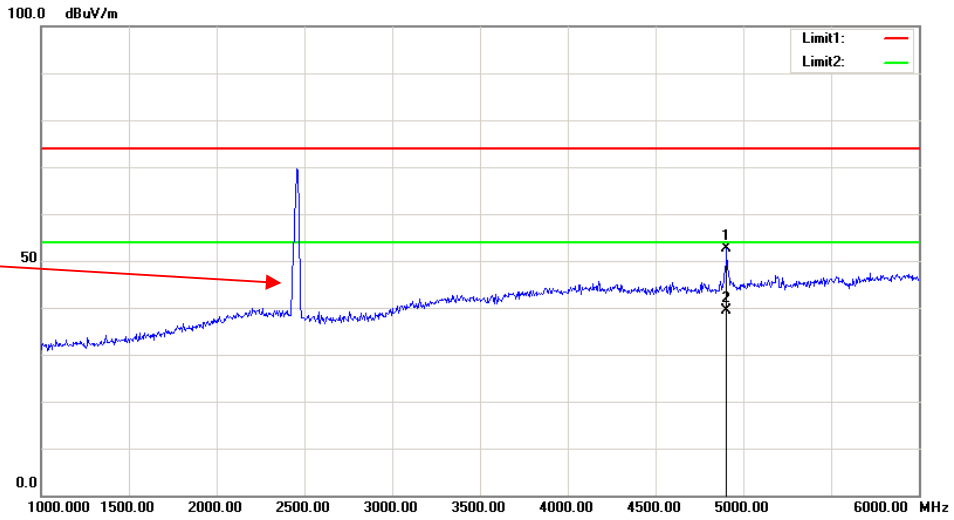


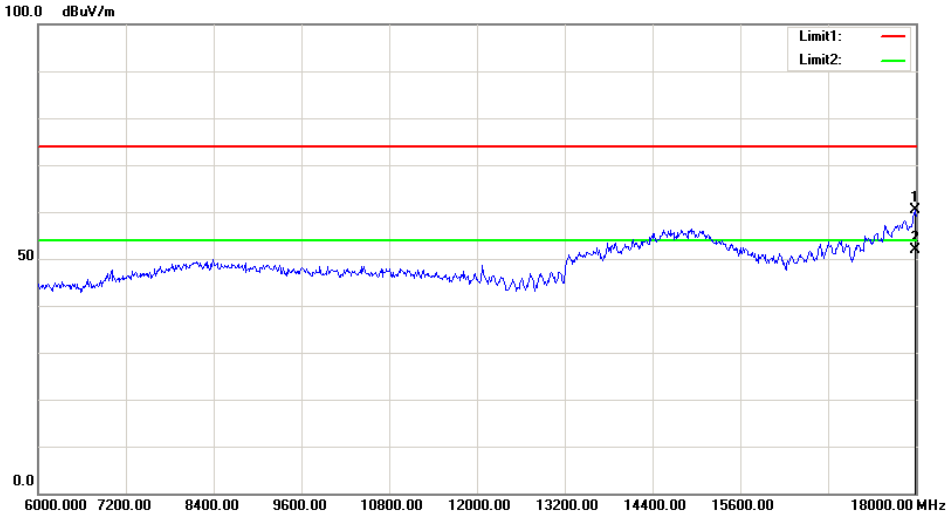


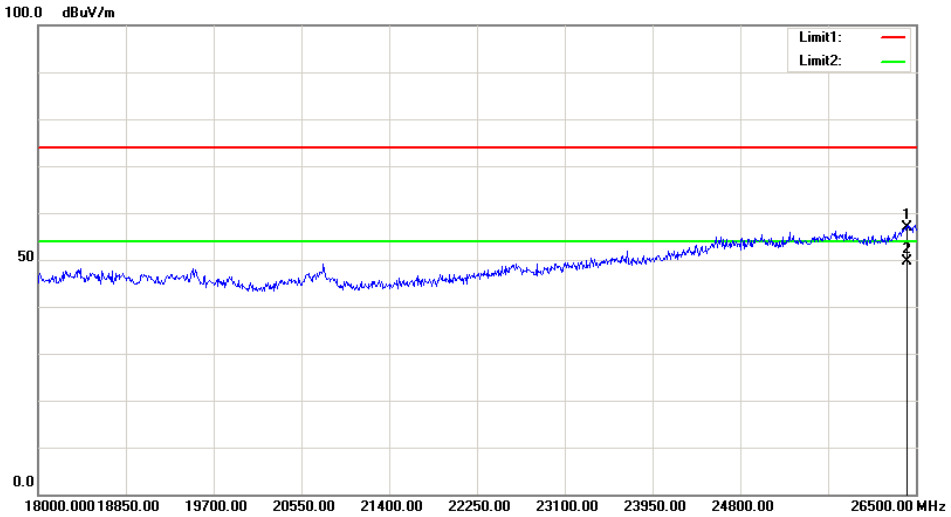


Vertical:

Fundamental Test with Band Rejection Filter







ATTACHMENT