FCC PART 15.249

TEST REPORT

For

Zopoise Technology (Zhuzhou) Co., Ltd

Xinma Industrial Park, Tianyuan District, Zhuzhou City, Hunan Province, China

FCC ID: 2AMPGHIBAY1A-SENSOR

Report Type:	**Product Name:**
Original Report	Highbay Light

Report Number:	RDG170623054-00
Report Date:	2017-08-14
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

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The ***Zopoise Technology (Zhuzhou) Co., Ltd***'s product, model number: ***HIBAY1A/300UNVD840/GR/D_HIBAY1A/20ALH5, (FCC ID: 2AMPGHIBAY1A-SENSOR)*** (the "EUT") in this report was a ***Highbay Light****, rated input voltage: AC 100～277V*

Note: The series product, model HIBAY1A/300UNVD840/GR/D_HIBAY1A/20ALH5, HIBAY1A/100UNVD840/GR/D_HIBAY1A/20ALH5, HIBAY1A/200UNVD840/GR/D_HIBAY1A/20ALH5, HIBAY1A/100UNVD840/GR/D_HIBAY1A/16H5, HIBAY1A/200UNVD840/GR/D_HIBAY1A/16H5, HIBAY1A/300UNVD840/GR/D_HIBAY1A/16H5, HIBAY1A/100UNVD850/GR/D_HIBAY1A/16H5, HIBAY1A/100UNVD850GR/D_HIBAY1A/20ALH5, HIBAY1A/200UNVD850/GR/D_HIBAY1A/16H5, HIBAY1A/200UNVD850/GR/D_HIBAY1A/20ALH5, HIBAY1A/300UNVD850/GR/D_HIBAY1A/16H5, HIBAY1A/300UNVD850/GR/D_HIBAY1A/20ALH5 are electrically identical, the difference between them was explained in the declaration letter.

All measurement and test data in this report was gathered from production sample serial number: 170623054 (Assigned by BACL, Dongguan). The EUT was received on 2017-07-20.

Objective

This type approval report is prepared on behalf of ***Zopoise Technology (Zhuzhou) Co., Ltd*** in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Rules Part 15, Subpart C, and section 15.203, 15.205, 15.209 and 15.249 rules.

Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s).

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.

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

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
Unwanted Emissions, radiated	30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical 1G~6GHz: 4.45 dB, 6G~40GHz: 5.23 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

Bay Area Compliance Laboratories Corp. (Dongguan) has been accredited to ISO 17025 by CNAS(Lab code: L5662). And accredited to ISO 17025 by NVLAP(Test Laboratory Accreditation Certificate Number 500069-0), the FCC Designation No. CN5002 under the KDB 974614 D01.

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.

Bay Area Compliance Laboratories Corp. (Dongguan) was registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in Engineering Mode, which was provided by the manufacturer, the device was operated on 5806MHz.

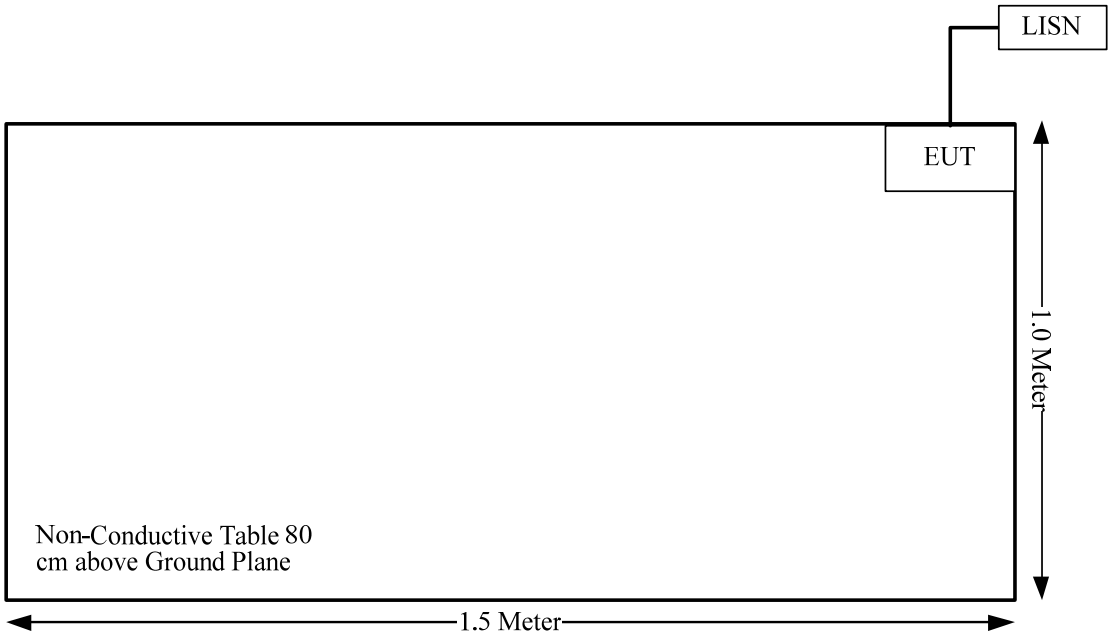
EUT Exercise Software

No software was used during testing.

Equipment Modifications

No modifications were made to the EUT.

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	Conduction Emissions	Compliance
15.205, §15.209, §15.249	Radiated Emissions	Compliance
§15.215 (c)	20 dB Bandwidth	Compliance

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

For intentional device, 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.

Antenna Connector Construction

The EUT has an internal antenna, the antenna gain is 0 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

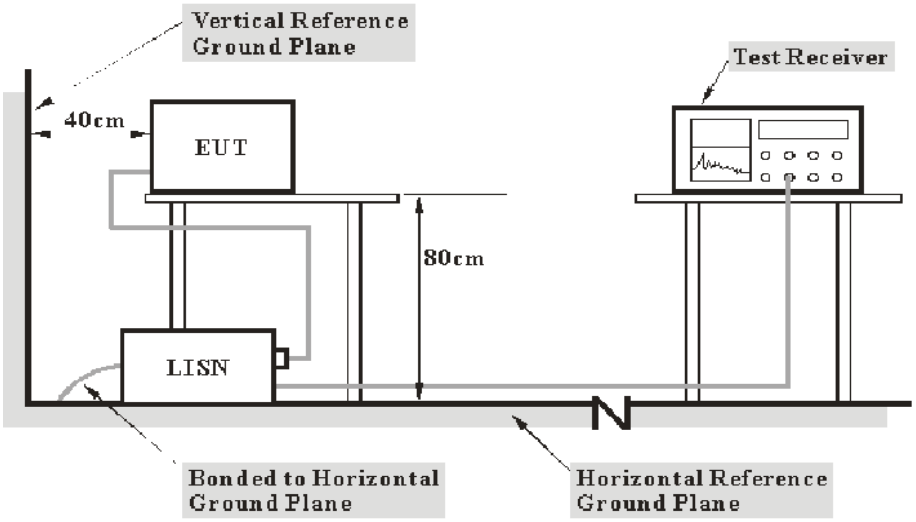
Result: Compliant.

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 120V/60 Hz or 277V/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:

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	2016-12-08	2017-12-08
R&S	L.I.S.N	ESH2-Z5	892107/021	2016-09-01	2017-09-01
R&S	Two-line V-network	ENV 216	3560.6550.12	2016-12-08	2017-12-08
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
N/A	Coaxial Cable	2m	N/A	2016-09-01	2017-09-01
EVERFINE	TRIPLE-LOOP antenna	LLA-2	903002	2015-07-16	2018-07-16
N/A	Capacitive Voltage Probe	CVP	150603	2016-09-01	2017-09-01

*** 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

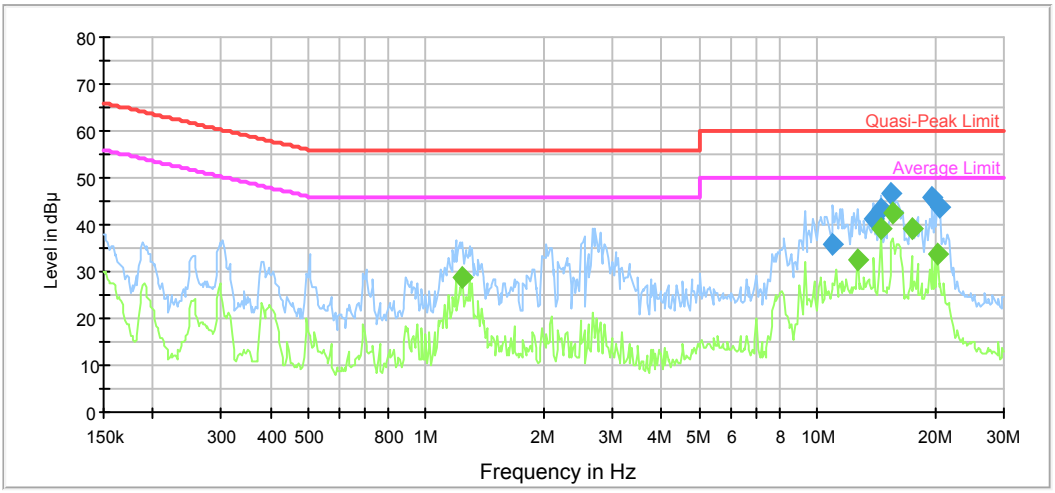
Temperature:	25.8 °C
Relative Humidity:	55 %
ATM Pressure:	100.2 kPa

The testing was performed by Sun Zhong on 2017-07-22.

Test Mode: Transmitting

Model: HIBAY1A/300UNVD840/GR/D_HIBAY1A/20ALH5

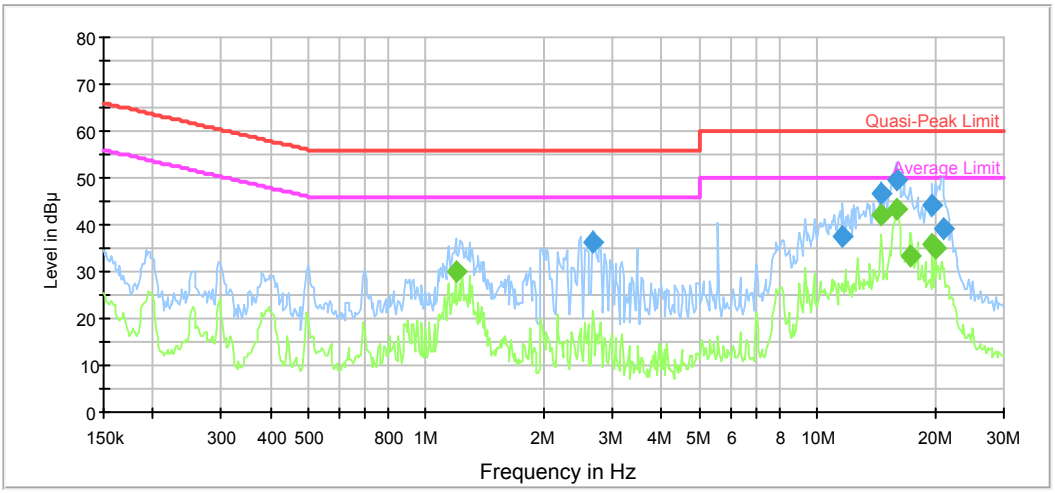
AC120 V, 60 Hz, Line:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
10.998118	35.9	9.000	L1	9.9	24.1	60.0	Compliance
13.968003	41.0	9.000	L1	9.9	19.0	60.0	Compliance
14.535734	43.4	9.000	L1	9.9	16.6	60.0	Compliance
15.492490	46.7	9.000	L1	9.9	13.3	60.0	Compliance
19.676017	45.8	9.000	L1	10.0	14.2	60.0	Compliance
20.639558	43.6	9.000	L1	10.0	16.4	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
1.239175	28.6	9.000	L1	9.7	17.4	46.0	Compliance
12.694276	32.5	9.000	L1	9.9	17.5	50.0	Compliance
14.535734	39.2	9.000	L1	9.9	10.8	50.0	Compliance
15.616430	42.4	9.000	L1	9.9	7.6	50.0	Compliance
17.459396	39.3	9.000	L1	10.0	10.7	50.0	Compliance
20.313246	33.8	9.000	L1	10.0	16.2	50.0	Compliance

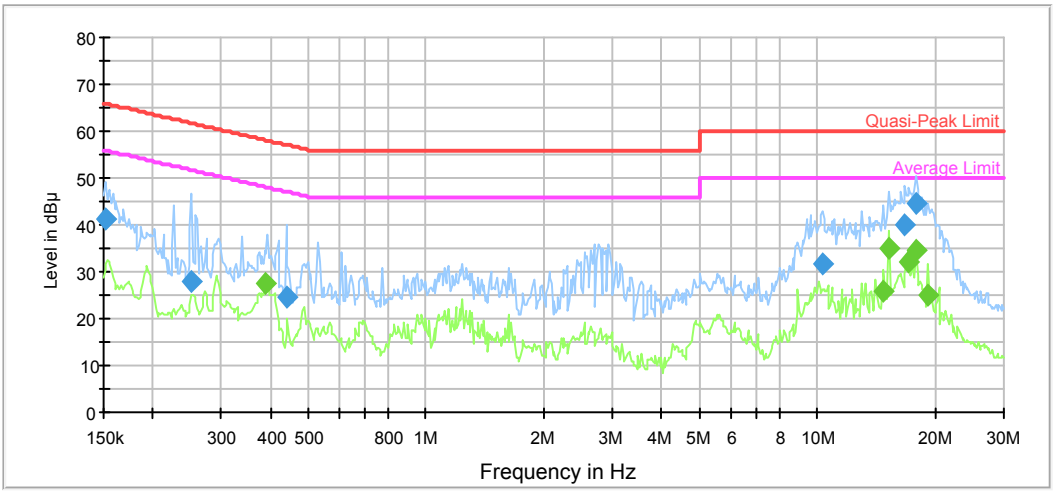
AC120V, 60 Hz, Neutral:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
2.662831	36.3	9.000	N	9.8	19.7	56.0	Compliance
11.628992	37.7	9.000	N	9.9	22.3	60.0	Compliance
14.535734	46.8	9.000	N	9.9	13.2	60.0	Compliance
15.994231	49.5	9.000	N	9.9	10.5	60.0	Compliance
19.676017	44.2	9.000	N	10.0	15.8	60.0	Compliance
20.971112	39.0	9.000	N	10.0	21.0	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
1.190776	30.0	9.000	N	9.7	16.0	46.0	Compliance
14.535734	42.0	9.000	N	9.9	8.0	50.0	Compliance
15.994231	43.4	9.000	N	9.9	6.6	50.0	Compliance
17.320829	33.1	9.000	N	10.0	16.9	50.0	Compliance
19.676017	35.9	9.000	N	10.0	14.1	50.0	Compliance
19.992093	34.9	9.000	N	10.0	15.1	50.0	Compliance

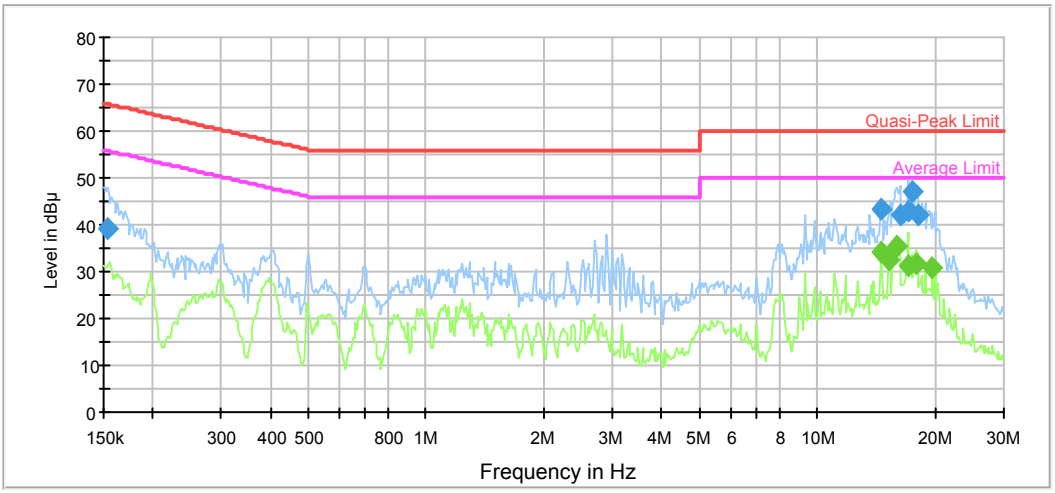
AC277 V, 60 Hz, Line:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.151200	41.3	9.000	L1	11.2	24.6	65.9	Compliance
0.251783	28.1	9.000	L1	10.3	33.6	61.7	Compliance
0.439808	24.8	9.000	L1	9.9	32.3	57.1	Compliance
10.318917	31.8	9.000	L1	9.9	28.2	60.0	Compliance
16.777473	40.2	9.000	L1	10.0	19.8	60.0	Compliance
17.881783	44.6	9.000	L1	10.0	15.4	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.390261	27.4	9.000	L1	10.0	20.7	48.1	Compliance
14.769236	25.8	9.000	L1	9.9	24.2	50.0	Compliance
15.247554	35.0	9.000	L1	9.9	15.0	50.0	Compliance
17.183363	32.3	9.000	L1	10.0	17.7	50.0	Compliance
17.881783	34.6	9.000	L1	10.0	15.4	50.0	Compliance
19.211249	24.9	9.000	L1	10.0	25.1	50.0	Compliance

AC277V, 60 Hz, Neutral:

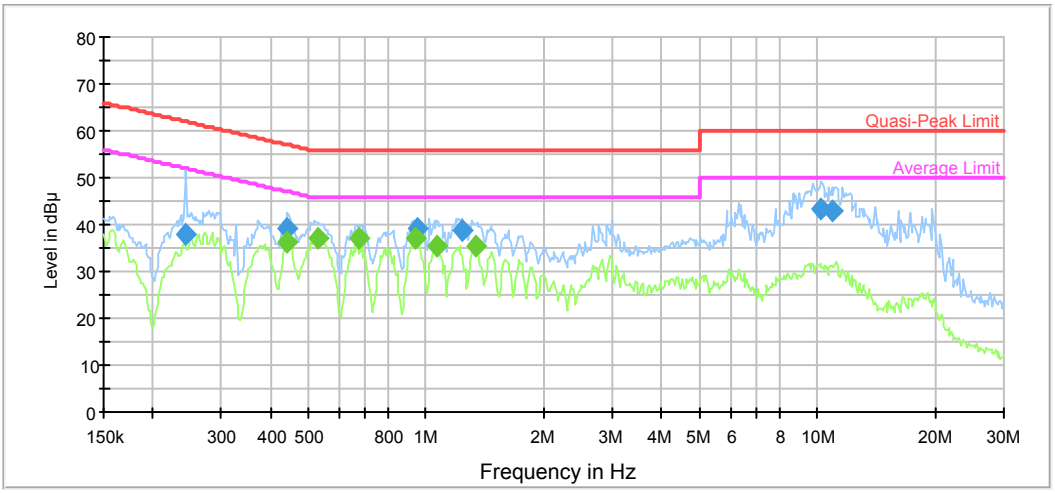


Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.153629	39.1	9.000	N	11.1	26.7	65.8	Compliance
14.535734	43.5	9.000	N	9.9	16.5	60.0	Compliance
16.251162	42.1	9.000	N	9.9	17.9	60.0	Compliance
17.046987	42.7	9.000	N	10.0	17.3	60.0	Compliance
17.459396	47.0	9.000	N	10.0	13.0	60.0	Compliance
18.024837	42.2	9.000	N	10.0	17.8	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
14.535734	34.1	9.000	N	9.9	15.9	50.0	Compliance
15.247554	32.5	9.000	N	9.9	17.5	50.0	Compliance
15.994231	35.6	9.000	N	9.9	14.4	50.0	Compliance
17.046987	31.1	9.000	N	10.0	18.9	50.0	Compliance
17.881783	31.7	9.000	N	10.0	18.3	50.0	Compliance
19.676017	30.8	9.000	N	10.0	19.2	50.0	Compliance

Model: HIBAY1A/100UNVD840/GR/D_HIBAY1A/20ALH5

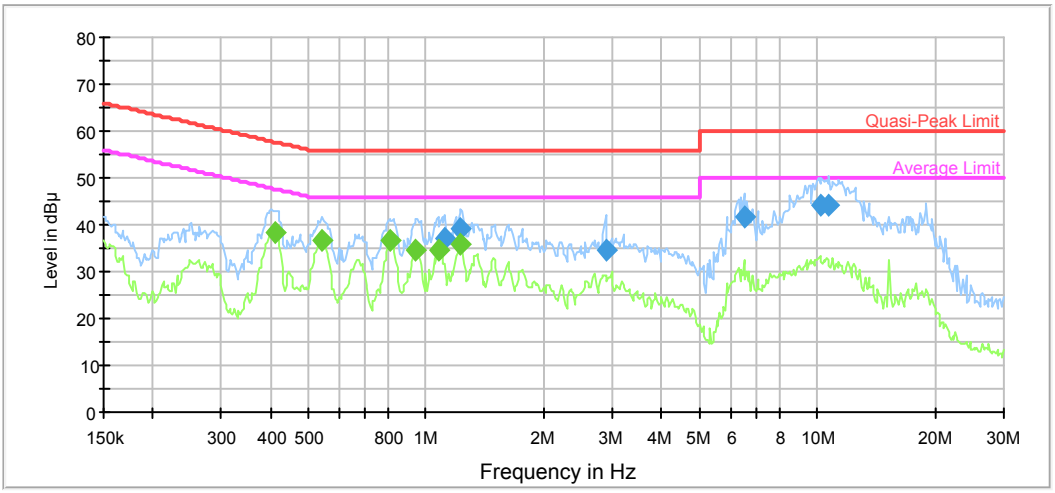
AC120 V, 60 Hz, Line:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.243884	37.9	9.000	L1	10.3	24.1	62.0	Compliance
0.443327	39.2	9.000	L1	9.9	17.8	57.0	Compliance
0.952654	39.0	9.000	L1	9.8	17.0	56.0	Compliance
1.239175	38.9	9.000	L1	9.7	17.1	56.0	Compliance
10.237020	43.3	9.000	L1	9.9	16.7	60.0	Compliance
10.910831	42.9	9.000	L1	9.9	17.1	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.443327	36.3	9.000	L1	9.9	10.7	47.0	Compliance
0.528270	37.0	9.000	L1	9.9	9.0	46.0	Compliance
0.676289	36.9	9.000	L1	9.8	9.1	46.0	Compliance
0.937592	37.0	9.000	L1	9.8	9.0	46.0	Compliance
1.065081	35.3	9.000	L1	9.8	10.7	46.0	Compliance
1.341955	35.5	9.000	L1	9.7	10.5	46.0	Compliance

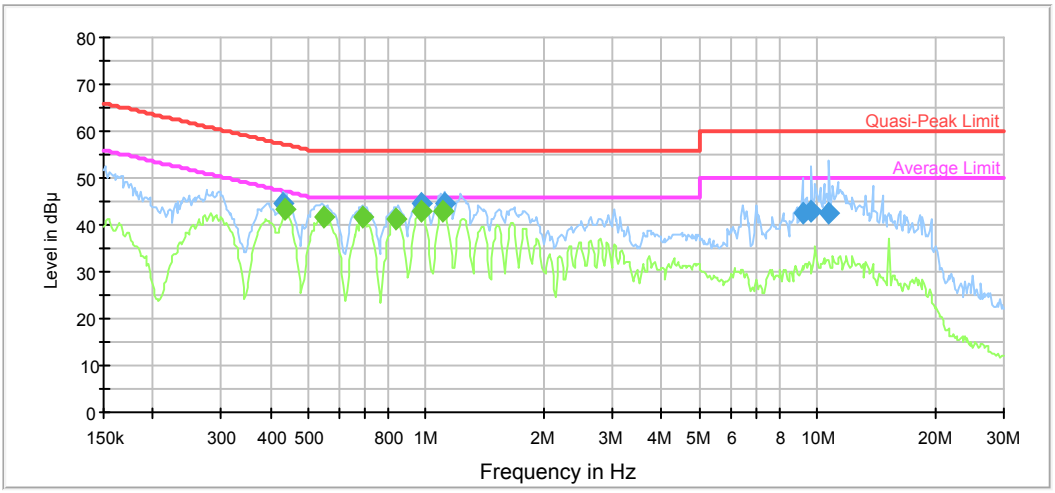
AC120V, 60 Hz, Neutral:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
1.117238	36.9	9.000	N	9.7	19.1	56.0	Compliance
1.229340	39.3	9.000	N	9.7	16.7	56.0	Compliance
2.883693	34.5	9.000	N	9.8	21.5	56.0	Compliance
6.500148	41.8	9.000	N	9.8	18.2	60.0	Compliance
10.237020	44.3	9.000	N	9.9	15.7	60.0	Compliance
10.738330	44.3	9.000	N	9.9	15.7	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.409372	38.5	9.000	N	10.0	9.2	47.7	Compliance
0.541050	36.8	9.000	N	9.8	9.2	46.0	Compliance
0.812315	36.8	9.000	N	9.8	9.2	46.0	Compliance
0.937592	34.5	9.000	N	9.8	11.5	46.0	Compliance
1.073601	34.6	9.000	N	9.7	11.4	46.0	Compliance
1.219583	35.9	9.000	N	9.7	10.1	46.0	Compliance

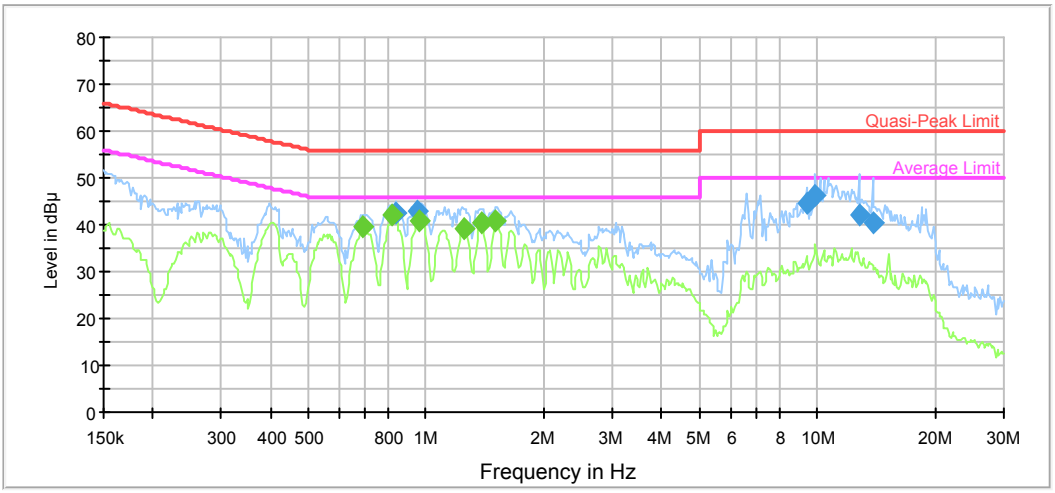
AC277 V, 60 Hz, Line:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.432855	44.5	9.000	L1	9.9	12.7	57.2	Compliance
0.975701	44.4	9.000	L1	9.8	11.6	56.0	Compliance
1.117238	44.6	9.000	L1	9.8	11.4	56.0	Compliance
9.156429	42.6	9.000	L1	9.8	17.4	60.0	Compliance
9.681660	42.8	9.000	L1	9.9	17.2	60.0	Compliance
10.738330	42.6	9.000	L1	9.9	17.4	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.436318	43.1	9.000	L1	9.9	4.0	47.1	Compliance
0.549741	41.8	9.000	L1	9.9	4.2	46.0	Compliance
0.692650	41.6	9.000	L1	9.8	4.4	46.0	Compliance
0.838622	41.4	9.000	L1	9.8	4.6	46.0	Compliance
0.975701	42.8	9.000	L1	9.8	3.2	46.0	Compliance
1.108371	43.0	9.000	L1	9.8	3.0	46.0	Compliance

AC277V, 60 Hz, Neutral:

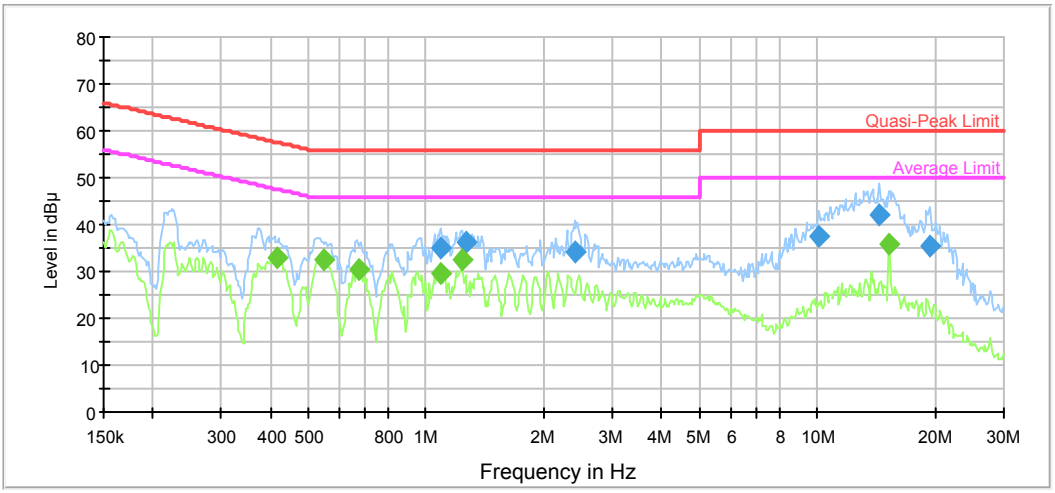


Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.838622	42.6	9.000	N	9.8	13.4	56.0	Compliance
0.952654	43.0	9.000	N	9.8	13.0	56.0	Compliance
9.377946	44.5	9.000	N	9.8	15.5	60.0	Compliance
9.915884	46.1	9.000	N	9.8	13.9	60.0	Compliance
12.795830	42.2	9.000	N	9.9	17.8	60.0	Compliance
13.857146	40.4	9.000	N	9.9	19.6	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.692650	39.7	9.000	N	9.8	6.3	46.0	Compliance
0.818813	42.0	9.000	N	9.8	4.0	46.0	Compliance
0.960275	40.7	9.000	N	9.8	5.3	46.0	Compliance
1.249088	39.1	9.000	N	9.7	6.9	46.0	Compliance
1.385415	40.4	9.000	N	9.7	5.6	46.0	Compliance
1.512328	40.9	9.000	N	9.7	5.1	46.0	Compliance

Model: HIBAY1A/200UNVD840/GR/D_HIBAY1A/20ALH5

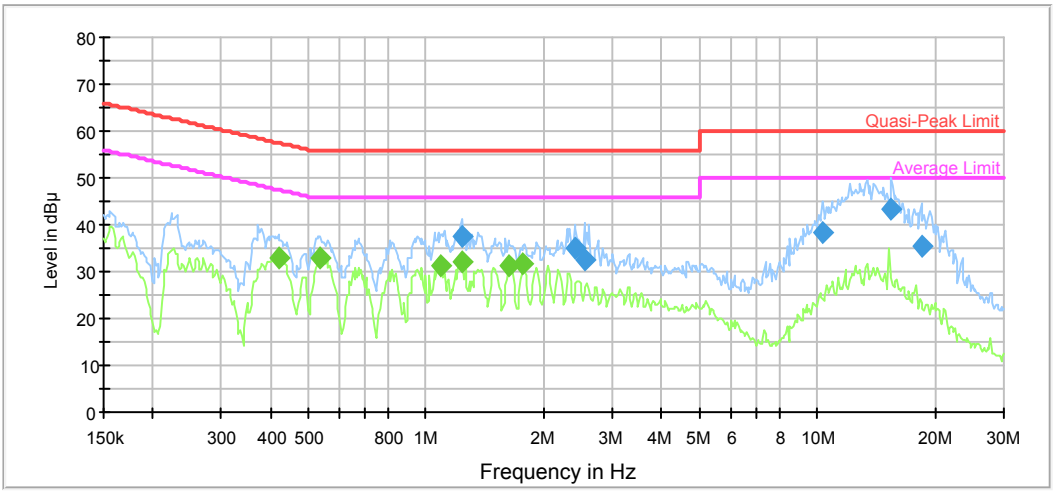
AC120 V, 60 Hz, Line:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
1.090848	35.1	9.000	L1	9.8	20.9	56.0	Compliance
1.259081	36.3	9.000	L1	9.7	19.7	56.0	Compliance
2.400804	34.1	9.000	L1	9.8	21.9	56.0	Compliance
10.075173	37.5	9.000	L1	9.9	22.5	60.0	Compliance
14.420371	42.1	9.000	L1	9.9	17.9	60.0	Compliance
19.364939	35.3	9.000	L1	10.0	24.7	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.415949	32.7	9.000	L1	9.9	14.8	47.5	Compliance
0.545378	32.5	9.000	L1	9.9	13.5	46.0	Compliance
0.670921	30.3	9.000	L1	9.8	15.7	46.0	Compliance
1.090848	29.8	9.000	L1	9.8	16.2	46.0	Compliance
1.239175	32.7	9.000	L1	9.7	13.3	46.0	Compliance
15.247554	35.7	9.000	L1	9.9	14.3	50.0	Compliance

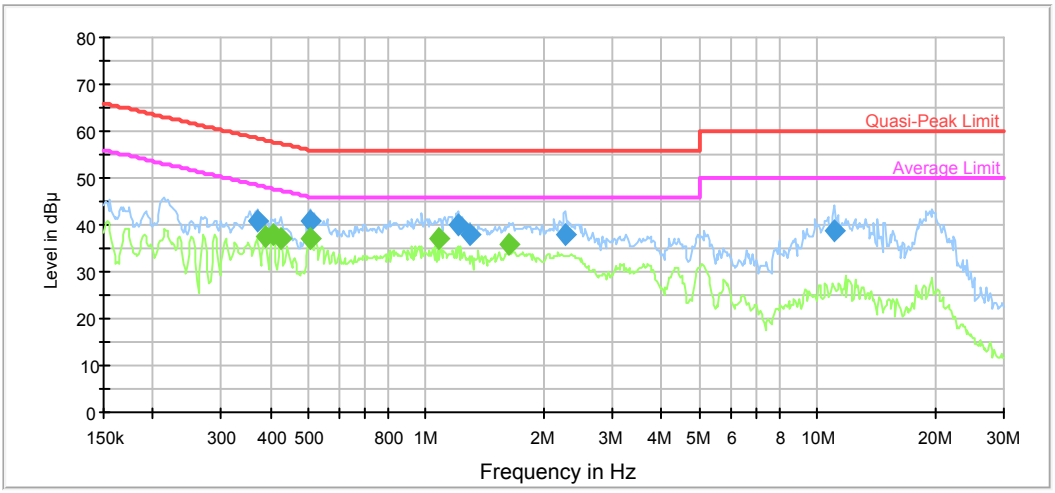
AC120V, 60 Hz, Neutral:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
1.239175	37.3	9.000	N	9.7	18.7	56.0	Compliance
2.400804	34.8	9.000	N	9.8	21.2	56.0	Compliance
2.538519	32.4	9.000	N	9.8	23.6	56.0	Compliance
10.318917	38.2	9.000	N	9.9	21.8	60.0	Compliance
15.492490	43.4	9.000	N	9.9	16.6	60.0	Compliance
18.460903	35.6	9.000	N	10.0	24.4	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.419276	33.0	9.000	N	9.9	14.5	47.5	Compliance
0.536756	32.9	9.000	N	9.9	13.1	46.0	Compliance
1.090848	31.1	9.000	N	9.7	14.9	46.0	Compliance
1.239175	32.1	9.000	N	9.7	13.9	46.0	Compliance
1.637763	31.3	9.000	N	9.7	14.7	46.0	Compliance
1.773603	31.5	9.000	N	9.7	14.5	46.0	Compliance

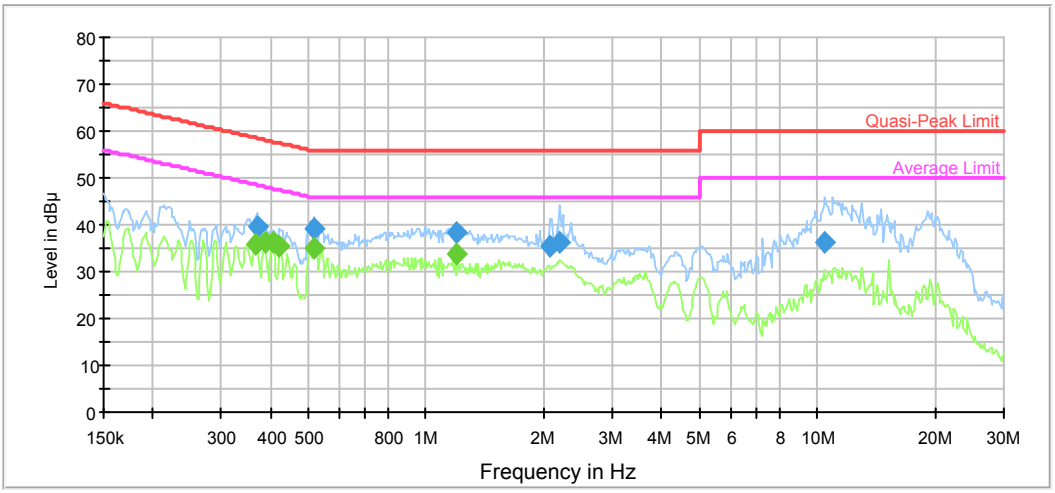
AC277 V, 60 Hz, Line:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.372042	40.7	9.000	L1	10.0	17.8	58.5	Compliance
0.507637	40.7	9.000	L1	9.9	15.3	56.0	Compliance
1.209904	40.0	9.000	L1	9.7	16.0	56.0	Compliance
1.289541	37.8	9.000	L1	9.7	18.2	56.0	Compliance
2.270560	37.8	9.000	L1	9.8	18.2	56.0	Compliance
11.086102	38.7	9.000	L1	9.9	21.3	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.387164	37.6	9.000	L1	10.0	10.5	48.1	Compliance
0.406123	38.0	9.000	L1	10.0	9.7	47.7	Compliance
0.426011	37.2	9.000	L1	9.9	10.1	47.3	Compliance
0.503608	37.0	9.000	L1	9.9	9.0	46.0	Compliance
1.073601	37.3	9.000	L1	9.8	8.7	46.0	Compliance
1.637763	36.0	9.000	L1	9.7	10.0	46.0	Compliance

AC277V, 60 Hz, Neutral:



Frequency (MHz)	Quasi Peak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.369089	39.5	9.000	N	10.0	19.0	58.5	Compliance
0.519918	39.1	9.000	N	9.9	16.9	56.0	Compliance
1.190776	38.3	9.000	N	9.7	17.7	56.0	Compliance
2.080018	35.4	9.000	N	9.8	20.6	56.0	Compliance
2.199332	36.2	9.000	N	9.8	19.8	56.0	Compliance
10.484680	36.2	9.000	N	9.9	23.8	60.0	Compliance

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.366160	35.9	9.000	N	10.0	12.7	48.6	Compliance
0.387164	36.3	9.000	N	10.0	11.8	48.1	Compliance
0.406123	36.1	9.000	N	10.0	11.6	47.7	Compliance
0.422630	35.5	9.000	N	9.9	11.9	47.4	Compliance
0.519918	35.1	9.000	N	9.9	10.9	46.0	Compliance
1.190776	33.7	9.000	N	9.7	12.3	46.0	Compliance

FCC§15.205, §15.209&§15.249- RADIATED EMISSIONS

Applicable Standard

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

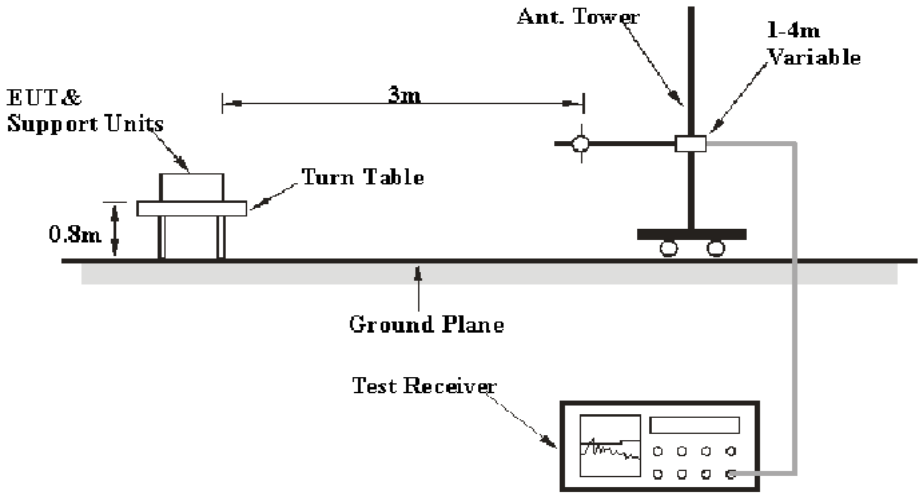
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

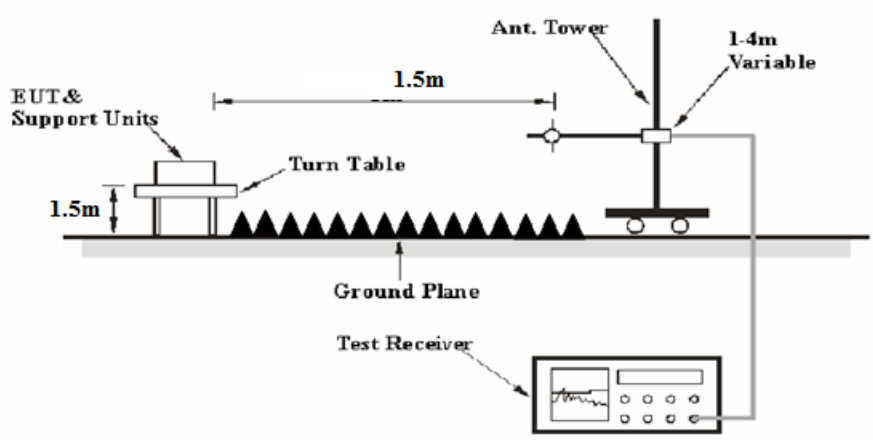
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission tests were performed in the 3 meters chamber test site for above 1GHz test and 3 meters chamber test site for below 1GHz test, using the setup accordance with the ANSI C63.10-2013 The specification used was the FCC 15.209/15.205 and FCC 15.249 limits.

Test Equipment Setup

The system was investigated from 30 MHz to 40 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	AV

Test Procedure

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

All data was recorded in the Quasi-peak detection mode from 30 MHz to 1GHz, peak and average detection mode above 1 GHz.

According to C63.10, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m
Distance extrapolation factor =20 log (specific distance [3m]/test distance [1.5m]) dB
Extrapolation result = Corrected Amplitude (dBμV/m) - distance extrapolation factor (6dB)

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
R&S	EMI Test Receiver	ESCI	100224	2016-09-01	2017-08-31
Sunol Sciences	Antenna	JB3	A060611-1	2014-11-06	2017-11-05
HP	Amplifier	8447E	2434A02181	2016-09-01	2017-09-01
R&S	Spectrum Analyzer	FSU 26	200256	2016-12-08	2017-12-08
R&S	Spectrum Analyzer	FSP 38	100478	2016-12-08	2017-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-06-16	2020-06-15
Ducommun Technolagies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2016-09-05	2017-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2016-09-06	2017-09-06
Unknown	Coaxial Cable	Chamber A-1	4m	2016-09-01	2017-09-01
Unknown	Coaxial Cable	Chamber B-1	0.75m	2016-09-01	2017-09-01
Unknown	Coaxial Cable	Chamber A-2	10m	2016-09-01	2017-09-01
Unknown	Coaxial Cable	Chamber B-2	8m	2016-09-01	2017-09-01
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

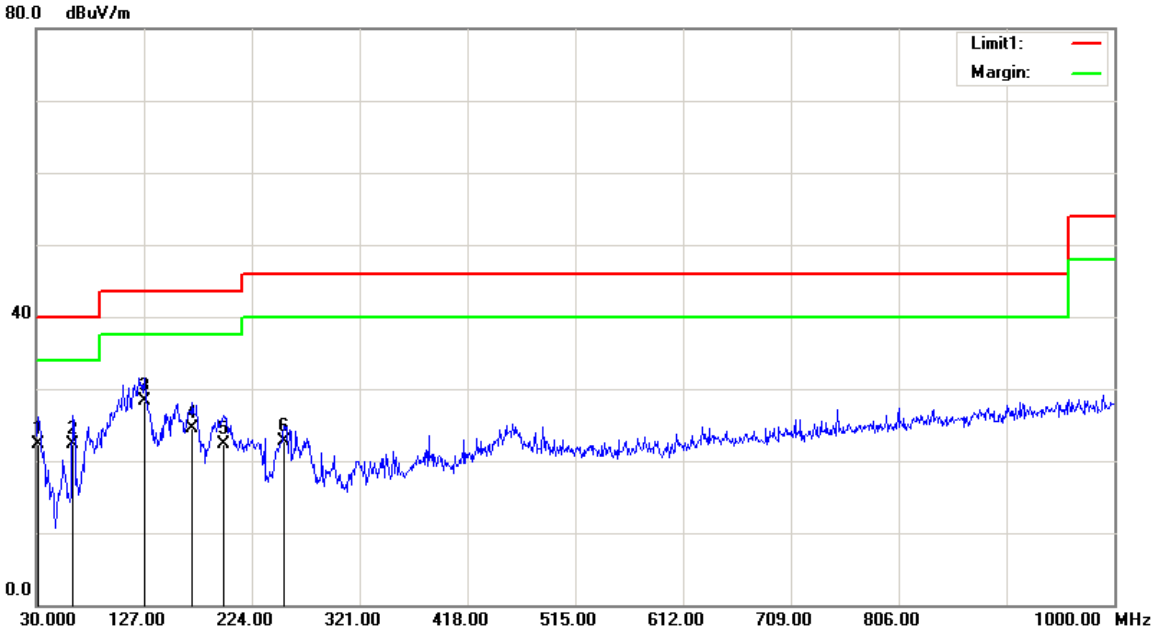
Temperature:	27.4 °C
Relative Humidity:	47 %
ATM Pressure:	99.8 kPa

The testing was performed by Sun Zhong on 2017-08-09.

Test Mode: Transmitting

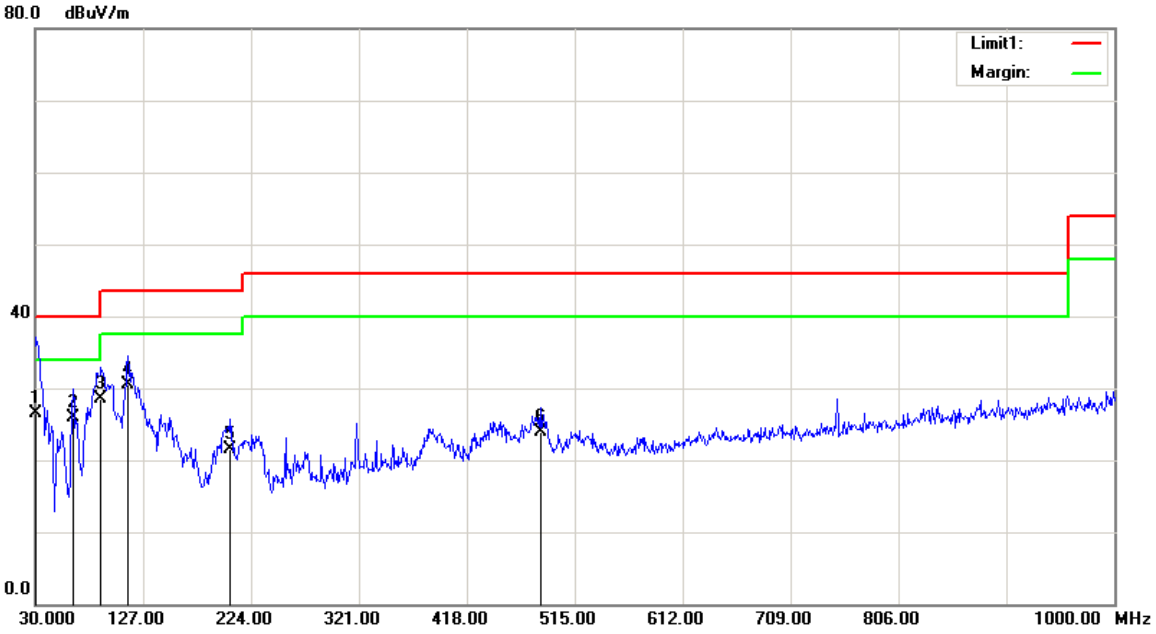
1) 30MHz-1GHz(*HIBAY1A/300UNVD840/GR/D_HIBAY1A/20ALH5* AC 277V/60Hz test mode was the worst)**:**

AC 277V/60Hz - Horizontal:



Frequency (MHz)	Receiver Reading (dBuV)	Measurement	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
31.9400	22.00	QP	0.30	22.30	40.00	17.70
62.9800	34.40	QP	-12.10	22.30	40.00	17.70
127.0000	33.43	QP	-5.03	28.40	43.50	15.10
170.6500	31.77	QP	-7.27	24.50	43.50	19.00
198.7800	28.77	QP	-6.47	22.30	43.50	21.20
253.1000	29.97	QP	-7.17	22.80	46.00	23.20

AC 277V/60Hz - Vertical:



Frequency (MHz)	Receiver Reading (dBuV)	Measurement	Correction Factor (dB/m)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.0000	24.90	QP	1.60	26.50	40.00	13.50
63.9500	37.91	QP	-12.01	25.90	40.00	14.10
89.1700	40.30	QP	-11.70	28.60	43.50	14.90
113.4200	36.27	QP	-5.67	30.60	43.50	12.90
205.5700	29.80	QP	-8.20	21.60	43.50	21.90
483.9600	24.68	QP	-0.78	23.90	46.00	22.10

1GHz-40GHz(*HIBAY1A/300UNVD840/GR/D_HIBAY1A/20ALH5* AC 277V/60Hz test mode was the worst)

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	Extrapolation Result dBμV/m	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Measurement (PK/QP/AV)	Polar (H/V)	Factor (dB)						
Channel:5806 MHz										
5806	55.94	PK	H	34.22	4.71	0.00	94.87	88.87	114.00	25.13
5806	36.57	AV	H	34.22	4.71	0.00	75.50	69.50	94.00	24.50
5806	61.98	PK	V	34.22	4.71	0.00	100.91	94.91	114.00	19.09
5806	40.26	AV	V	34.22	4.71	0.00	79.19	73.19	94.00	20.81
5725	29.47	PK	V	34.19	4.67	0.00	68.33	62.33	74.00	11.67
5725	15.23	AV	V	34.19	4.67	0.00	54.09	48.09	54.00	5.91
5875	29.37	PK	V	34.25	4.64	0.00	68.26	62.26	74.00	11.74
5875	15.16	AV	V	34.25	4.64	0.00	54.05	48.05	54.00	5.95
11612	62.78	PK	V	39.00	6.88	36.62	72.04	66.04	74.00	7.96
11612	46.48	AV	V	39.00	6.88	36.62	55.74	49.74	54.00	4.26
17418	47.29	PK	V	42.62	8.66	36.70	61.87	55.87	74.00	18.13
17418	33.27	AV	V	42.62	8.66	36.70	47.85	41.85	54.00	12.15
8669	46.58	PK	V	37.50	6.02	36.11	53.99	47.99	74.00	26.01
8669	33.46	AV	V	37.50	6.02	36.11	40.87	34.87	54.00	19.13

FCC §15.215(c) – 20 dB BANDWIDTH TESTING

Applicable Standard

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
3. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Spectrum Analyzer	E4440A	SG43360054	2016-12-08	2017-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Mini-Circuit	Amplifier	ZVA-213-S+	SN054201245	2017-02-19	2018-02-19
Unknown	Coaxial Cable	Chamber B-1	0.75m	2016-09-01	2017-09-01
Unknown	Coaxial Cable	Chamber B-2	8m	2016-09-01	2017-09-01

*** 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:	26.5 °C
Relative Humidity:	56 %
ATM Pressure:	99.8 kPa

The testing was performed by Sun Zhong on 2017-08-09.

Test Result: Compliant.

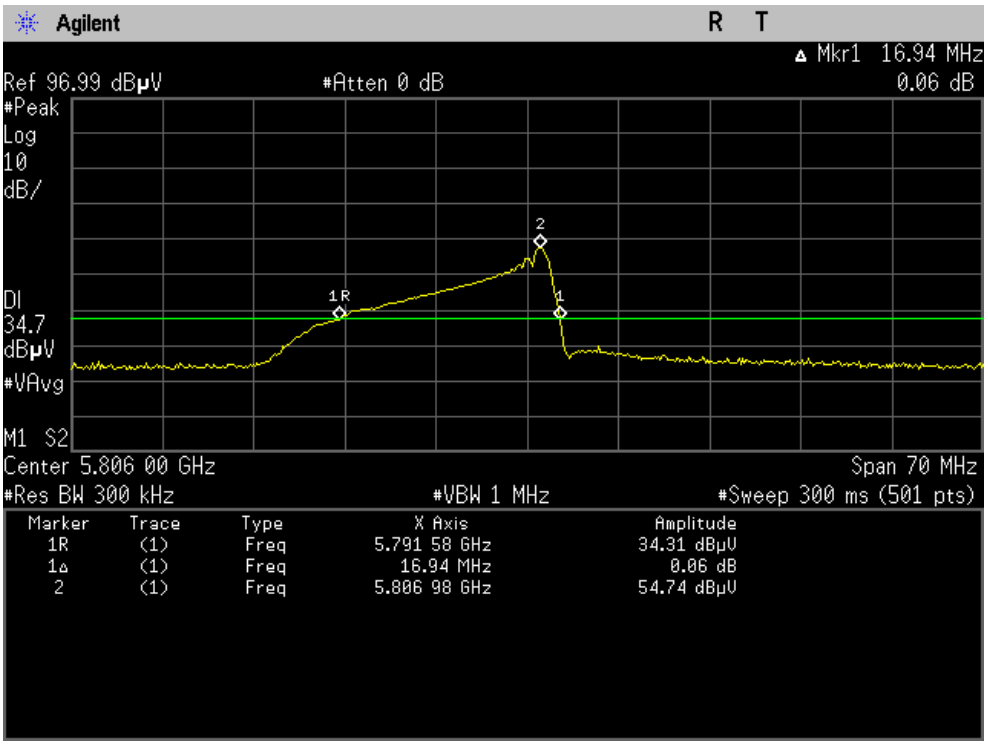
Please refer to following tables and plots

Test Mode: Transmitting

Model: HIBAY1A/300UNVD840/GR/D_HIBAY1A/20ALH5

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)
Middle	5806	16.94

5806MHz



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