TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 15B

TEST REPORT

For

HENAN ESHOW ELECTRONIC COMMERCE CO., LTD.

Room 722, Sanjiang Building,No.170 Nanyang Road, Huiji District, Zhengzhou, Henan,China

FCC ID: 2AAR8RT21

Report Type:	**Product Type:**
Original Report	Two Way Radio
Report Number:	RDG201109014-00B
Report Date:	2020-11-11
Reviewed By:	Ivan Cao Assistant 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)

EUT Name:	Two Way Radio
EUT Model:	RT21
Highest Operation Frequency:	462.7250 MHz
Rated Input Voltage:	DC 3.7V from battery
Serial Number:	RDG201109014-RF-S9
EUT Received Date:	2020.11.09
EUT Received Status:	Good

Objective

This report is prepared on behalf of ***HENAN ESHOW ELECTRONIC COMMERCE CO., LTD.*** in accordance with Part 2, Subpart J, and Part 15-Subparts A and B of the Federal Communications Commission's rules.

The objective is to determine the compliance of EUT with: FCC Part 15B Class B.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, 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 radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
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
Temperature	±1℃
Humidity	±5%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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 lab has been recognized as the FCC accredited lab 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 lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "△". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in Charging&Receiving mode.

Equipment Modifications

No modification was made to the EUT.

EUT Exercise Software

No Software was used in test.

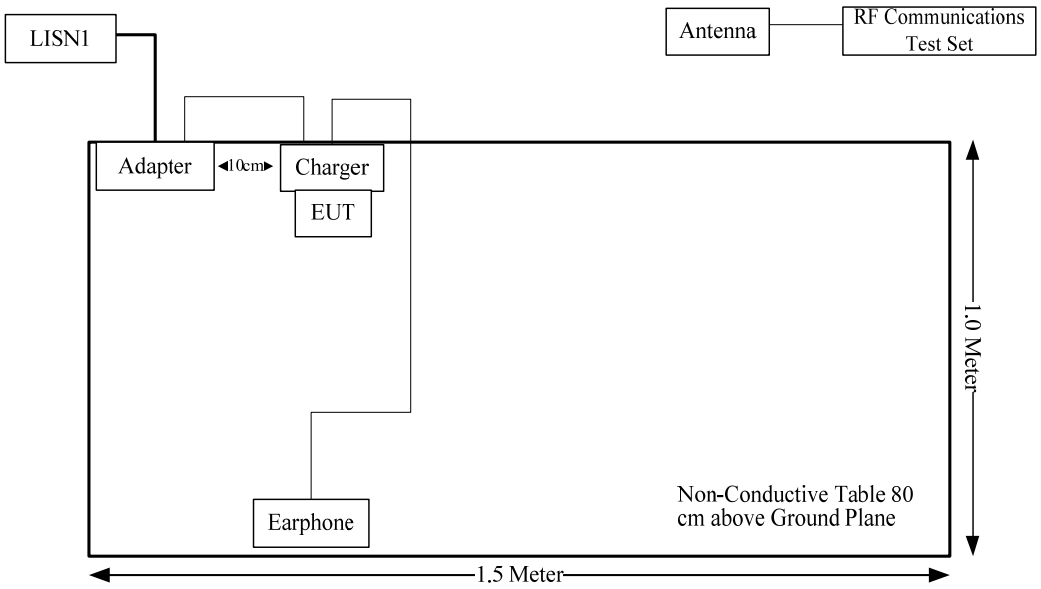
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
HP	RF Communications Test Set	8920A	3438A05201
Unknown	Antenna	Unknown	Antenna-2

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RF Cable	Yes	No	5.0	RF Communications Test Set	Antenna
Earphone	No	No	1.5	EUT	Earphone
DC Cable	No	No	1.2	Adapter	Charger Base

Block Diagram of Test Setup



Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
AC Line Conducted emission					
R&S	LISN	ENV 216	101614	2020-09-12	2021-09-12
R&S	EMI Test Receiver	ESCI	101121	2020-07-07	2021-07-07
MICRO-COAX	Coaxial Cable	C-NJNJ-50	C-0200-01	2020-09-05	2021-09-05
R&S	Test Software	EMC32	Version 9.10.00	N/A	N/A
Radiated Emission					
Sunol Sciences	Antenna	JB3	A060611-2	2020-08-25	2023-08-25
R&S	EMI Test Receiver	ESCI	100224	2020-09-12	2021-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-02	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0530-01	2020-09-24	2021-09-24
Sonoma	Amplifier	310N	185914	2020-10-13	2021-10-13
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Agilent	Spectrum Analyzer	E4440A	SG43360054	2020-07-07	2021-07-07
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2020-09-05	2021-09-05
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	2020-09-05	2021-09-05

* 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).

Environmental Conditions

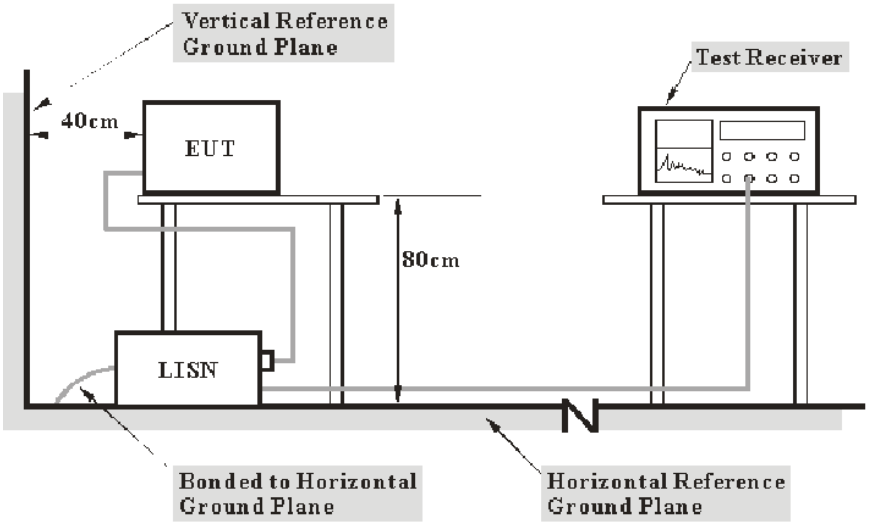
Test Item:	Conducted emissions	Radiated emissions (Below 1GHz)	Radiated emissions (Above 1GHz)
Temperature:	24.6℃	28.6°C	24.1°C
Relative Humidity:	43 %	46%	40 %
ATM Pressure:	101.6 kPa	101 kPa	101 kPa
Tester:	Barry Yang	Leo Long	Bond Qin
Test Date:	2020-11-11	2020-11-10	2020-11-10

SUMMARY OF TEST RESULTS

Rule and Clause	Description of Test	Test Result
FCC §15.107	Conducted emissions	Compliance
FCC §15.109	Radiated emissions	Compliance

CONDUCTED EMISSIONS

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 C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

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 outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result (QuasiPeak or Average) = Meter Reading + Corr.

Note:
Corr. = Cable loss + Factor of coupling device

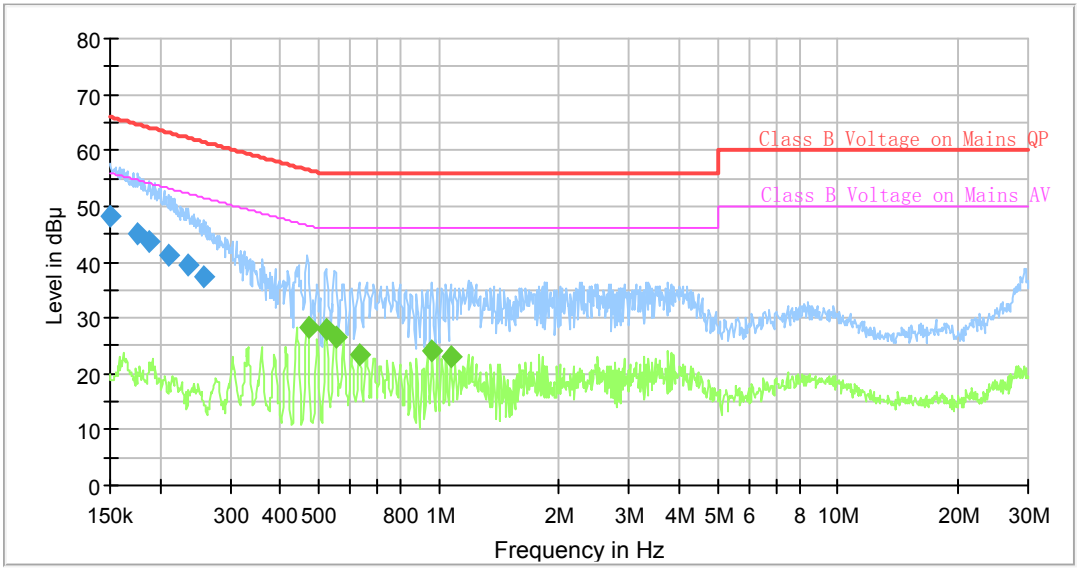
The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the maximum limit. The equation for margin calculation is as follows:

Margin = Limit – Result

Test Data

Please refer to following table and plots:

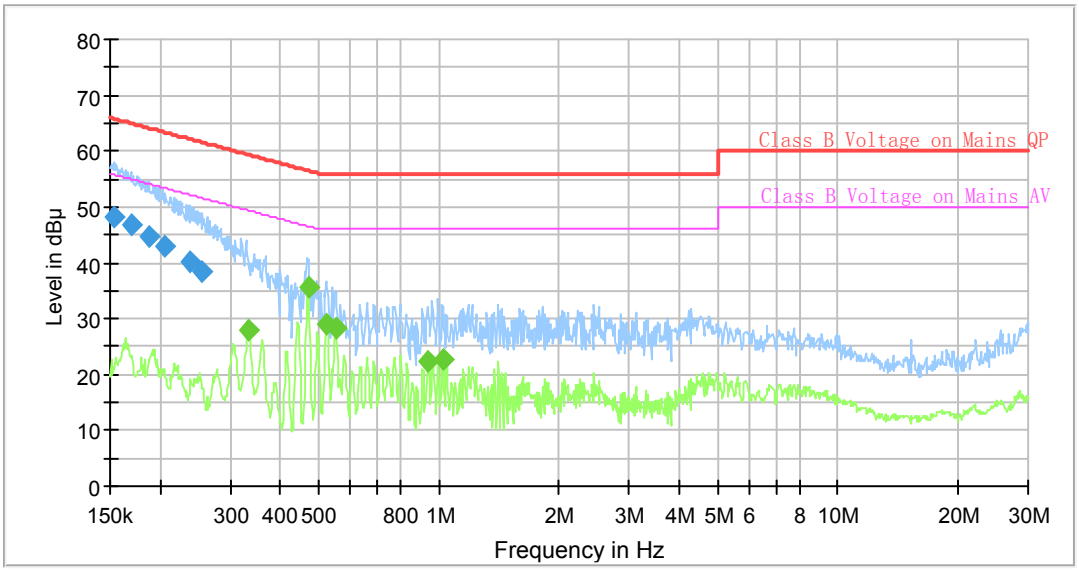
Port:	L
Test Mode:	Charging&Receiving
Power Source:	AC 120V/60Hz



Final_Result

Frequency (MHz)	QuasiPeak (dB µ V)	Average (dB µ V)	Limit (dB µ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	48.13	---	66.00	17.87	9.000	L1	9.6
0.175956	45.00	---	64.67	19.67	9.000	L1	9.6
0.188682	43.72	---	64.09	20.37	9.000	L1	9.6
0.210564	41.31	---	63.18	21.87	9.000	L1	9.6
0.236158	39.45	---	62.23	22.78	9.000	L1	9.6
0.257055	37.53	---	61.53	24.00	9.000	L1	9.6
0.470023	---	28.45	46.51	18.06	9.000	L1	9.6
0.521923	---	27.91	46.00	18.09	9.000	L1	9.6
0.551358	---	26.48	46.00	19.52	9.000	L1	9.6
0.630837	---	23.30	46.00	22.70	9.000	L1	9.6
0.963901	---	24.04	46.00	21.96	9.000	L1	9.7
1.070335	---	23.07	46.00	22.93	9.000	L1	9.7

Port: N
Test Mode: Charging&Receiving
Power Source: AC 120V/60Hz



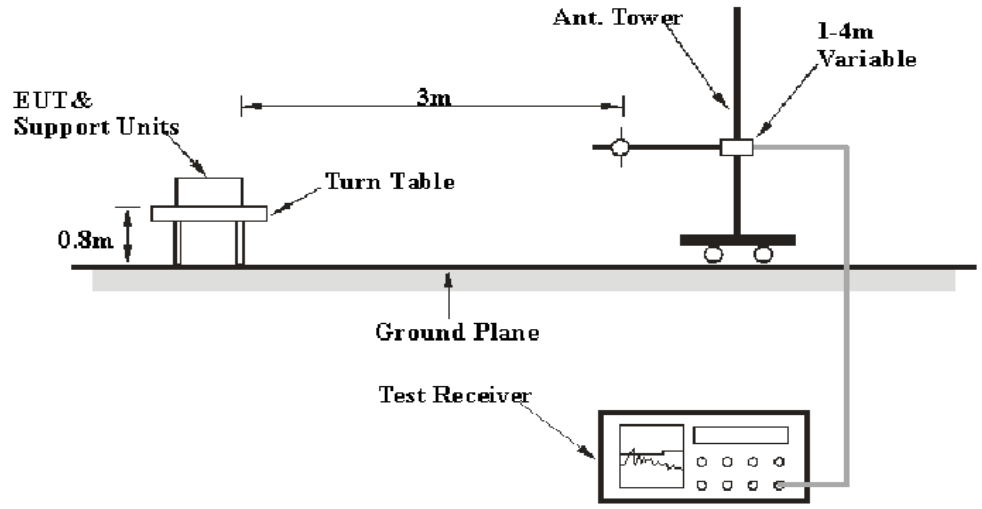
Final_Result

Frequency (MHz)	QuasiPeak (dB µ V)	Average (dB µ V)	Limit (dB µ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.153788	48.24	---	65.79	17.55	9.000	N	9.6
0.169074	46.67	---	65.01	18.34	9.000	N	9.6
0.187743	44.78	---	64.14	19.36	9.000	N	9.6
0.206405	42.93	---	63.35	20.42	9.000	N	9.6
0.238526	40.05	---	62.15	22.10	9.000	N	9.6
0.255776	38.43	---	61.57	23.14	9.000	N	9.6
0.333166	---	27.92	49.37	21.45	9.000	N	9.6
0.470023	---	35.80	46.51	10.87	9.000	N	9.6
0.524533	---	28.85	46.00	17.15	9.000	N	9.6
0.551358	---	28.30	46.00	17.70	9.000	N	9.6
0.940160	---	22.53	46.00	23.47	9.000	N	9.6
1.023352	---	22.73	46.00	23.27	9.000	N	9.6

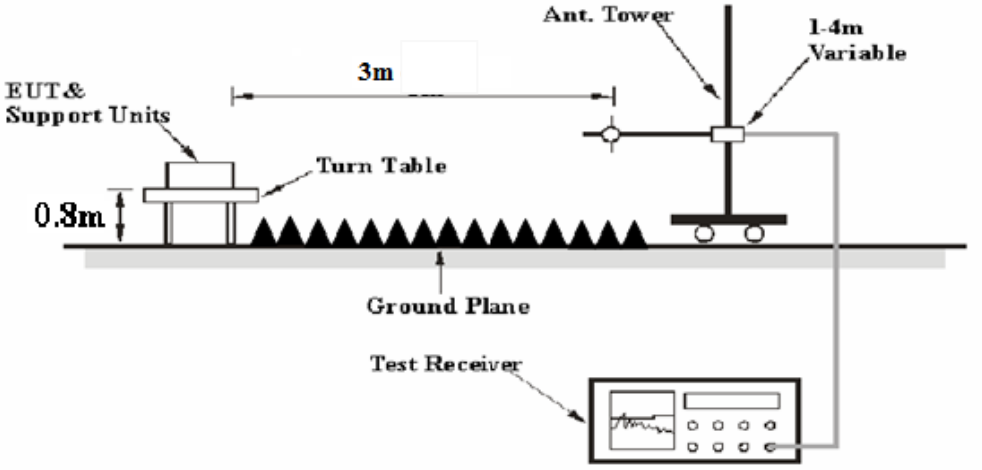
RADIATED EMISSIONS

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission below 1GHz tests were performed in the 10 meters chamber test site, above 1GHz tests were performed in the 3 meters chamber test site B, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 2 GHz.

During the radiated emission test, the EMI test receiver was 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	1 MHz	3 MHz	/	Peak
	1 MHz	10Hz	/	AVG

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

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

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

All emissions under the average limit and under the noise floor have not recorded in the report.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:
Corrected = Antenna Factor + Cable Loss - Amplifier Gain
or
Corrected = Antenna Factor + Cable Loss + Insertion loss of attenuator - Amplifier Gain

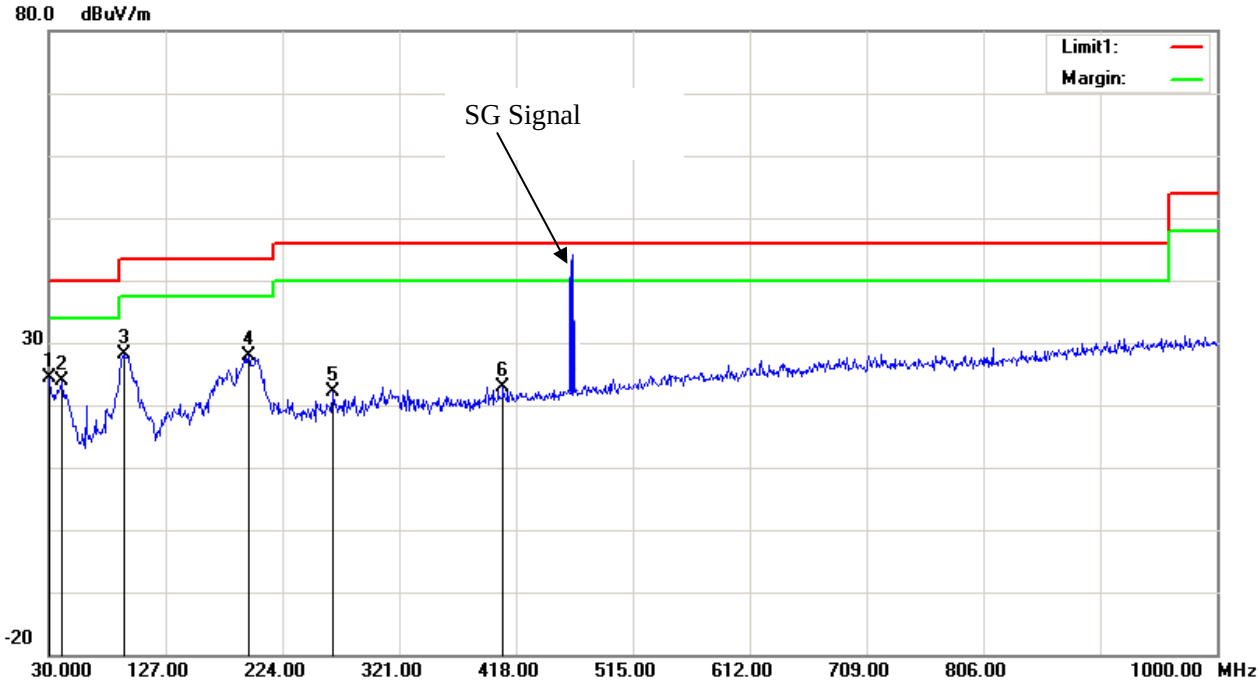
The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation
is as follows:

Margin = Limit – Result

Test Data

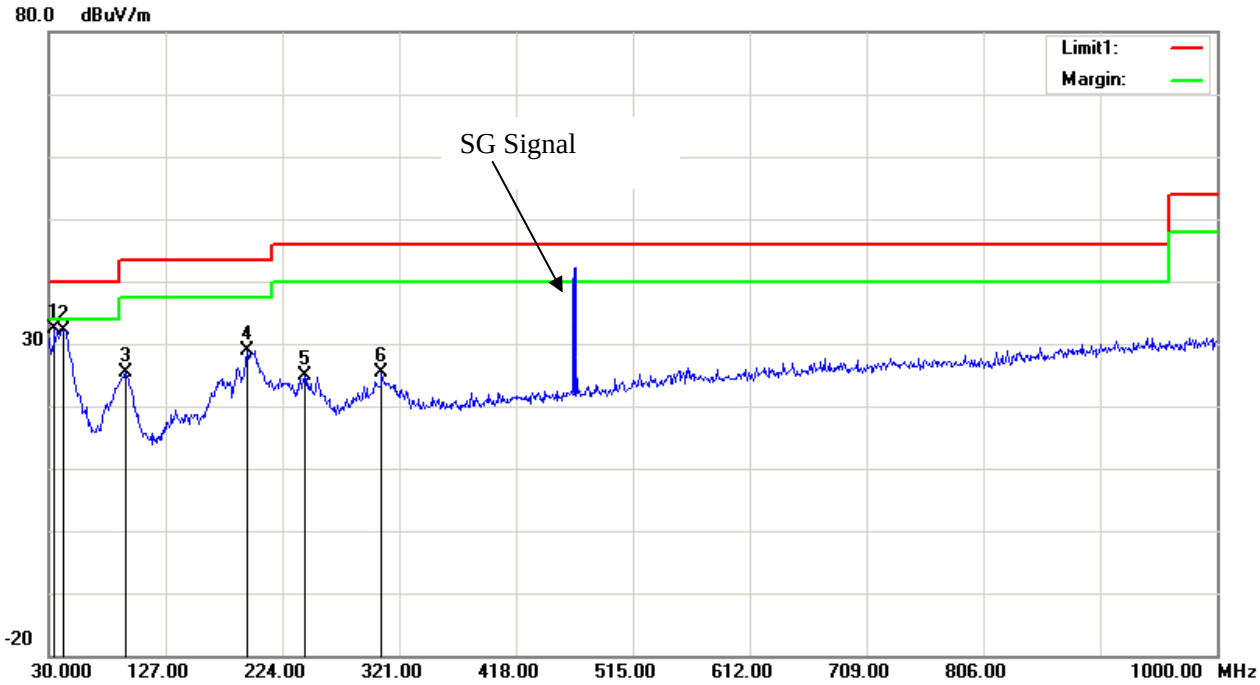
Please refer to following table and plots:

Condition: FCC Part 15B Class B
Test Mode: Charging&Receiving
Polarization: Horizontal
Power: AC 120V/60Hz
Distance: 3m



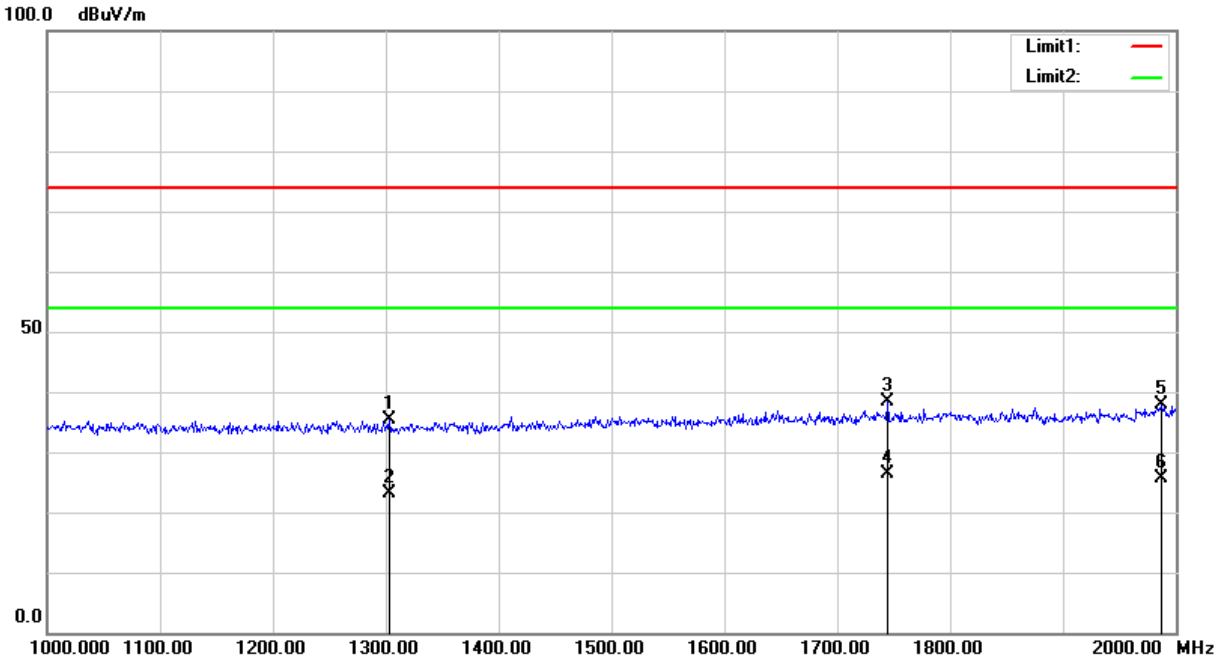
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	30.9700	29.02	peak	-4.66	24.36	40.00	15.64
2	40.6700	33.60	peak	-9.67	23.93	40.00	16.07
3	92.0800	42.91	peak	-14.90	28.01	43.50	15.49
4	195.8700	37.58	peak	-9.73	27.85	43.50	15.65
5	265.7100	31.09	peak	-8.91	22.18	46.00	23.82
6	407.3300	27.75	peak	-4.92	22.83	46.00	23.17

Condition:	FCC Part 15B Class B	**Polarization:**	Vertical
Test Mode:	Charging&Receiving	**Power:**	AC 120V/60Hz
		Distance:	3m



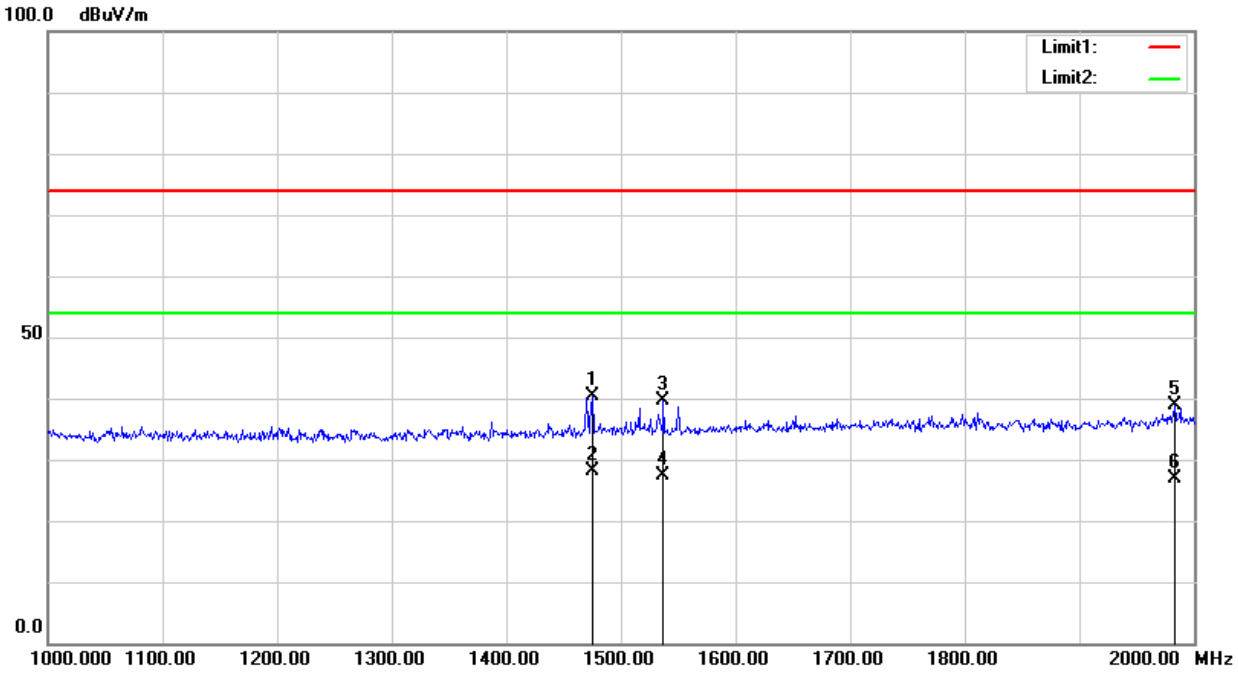
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	34.8500	39.05	peak	-6.63	32.42	40.00	7.58
2	42.6100	43.29	peak	-11.05	32.24	40.00	7.76
3	94.0200	40.00	peak	-14.71	25.29	43.50	18.21
4	194.9000	38.77	peak	-9.93	28.84	43.50	14.66
5	242.4300	34.80	peak	-9.87	24.93	46.00	21.07
6	306.4500	32.57	peak	-7.12	25.45	46.00	20.55

Condition: FCC Part 15B Class B
Test Mode: Charging&Receiving
Polarization: Horizontal
Power: AC 120V/60Hz
Distance: 3m



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	1303.000	35.44	peak	-0.05	35.39	74.00	38.61
2	1303.000	23.25	AVG	-0.05	23.20	54.00	30.80
3	1745.000	36.38	peak	2.07	38.45	74.00	35.55
4	1745.000	24.20	AVG	2.07	26.27	54.00	27.73
5	1987.500	34.28	peak	3.52	37.80	74.00	36.20
6	1987.500	22.02	AVG	3.52	25.54	54.00	28.46

Condition:	FCC Part 15B Class B	**Polarization:**	Vertical
Test Mode:	Charging&Receiving	**Power:**	AC 120V/60Hz
		Distance:	3m



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	1475.500	39.45	peak	1.00	40.45	74.00	33.55
2	1475.500	27.25	AVG	1.00	28.25	54.00	25.75
3	1537.000	38.28	peak	1.31	39.59	74.00	34.41
4	1537.000	26.02	AVG	1.31	27.33	54.00	26.67
5	1983.500	35.46	peak	3.47	38.93	74.00	35.07
6	1983.500	23.32	AVG	3.47	26.79	54.00	27.21

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