



FCC Part 15.247

RSS-247 Issue 2, Feb 2017; RSS-Gen Issue 5, Mar 2019

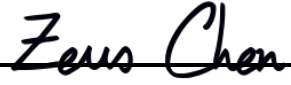
TEST REPORT

For

Redpine Signals Inc

2107 N First Street, Suite 540, San Jose, CA 95131-2019, USA

FCC ID: XF6-M7DB7
IC: 8407A-M7DB7

Report Type	Original Report
Product Name:	Dual Band 802.11 a/b/g/n, Bluetooth 5.0 SIP Module
Model Name:	M7DB
Report Number :	RLK200203002-00C
Report Date :	2020/05/18
Reviewed By :	Zeus Chen 
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Linkou Laboratory)

Revision History

Revision	Report Number	Issue Date	Description
1.0	RLK200203002-00C	2020/05/18	Original Report


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1 General Information

1.1 Product Description for Equipment under Test (EUT)

Applicant	Redpine Signals Inc 2107 N First Street, Suite 540, San Jose, CA 95131-2019, USA
Manufacturer	Redpine Signals Inc 2107 N First Street, Suite 540, San Jose, CA 95131-2019, USA
Brand Name	 REDPINE SIGNALS® DRIVING WIRELESS CONVERGENCE®
Product (Equipment)	Dual Band 802.11 a/b/g/n, Bluetooth 5.0 SIP Module
Model Name	M7DB
Frequency Range	2402 - 2480 MHz
Number of Channels	79 Channels
Output Power	<p>< Dipole antenna (TAOGLAS GW.71.5153)> BR-1Mbps: 17.41 dBm (0.0551 W) EDR-2Mbps: 18.95 dBm (0.0785 W) EDR-3Mbps: 18.73 dBm (0.0746 W)</p> <p>< Dipole antenna (Inside WLAN PRO-IS-299)> BR-1Mbps: 20.66 dBm (0.1164 W) EDR-2Mbps: 20.98 dBm (0.1253 W) EDR-3Mbps: 19.93 dBm (0.0984 W)</p> <p>< PCB Antenna (Redpine Signals RSIA7)> BR-1Mbps: 17.49 dBm (0.0561 W) EDR-2Mbps: 19.68 dBm (0.0929 W) EDR-3Mbps: 20.14 dBm (0.1033 W)</p> <p>< PIFA Antenna (SMARTEQ 4211613980)> BR-1Mbps: 20.57 dBm (0.1140 W) EDR-2Mbps: 20.08 dBm (0.1019 W) EDR-3Mbps: 19.81 dBm (0.0957 W)</p>
Modulation Type	BR-1Mbps: GFSK EDR-2Mbps: $\pi/4$ -DQPSK EDR-3Mbps: 8-DPSK
Related Submittal(s)/Grant(s)	FCC Part 15.247 DTS with FCC ID: XF6-M7DB7 FCC Part 15.247 NII with FCC ID: XF6-M7DB7 IC RSS-247 DTS with IC: 8407A-M7DB7 IC RSS-247 LE-LAN with IC: 8407A-M7DB7
Received Date	2020-02-03
Date of Test	2020-02-10 to 2020-04-30

*All measurement and test data in this report was gathered from production sample serial number: 191029005(Assigned by BACL, Linkou Laboratory).

1.2 Operation Condition of EUT

Power Operation (Voltage Range)	<input type="checkbox"/> AC 120 V/60 Hz <input type="checkbox"/> Adapter <input type="checkbox"/> By Power Cord.
	<input checked="" type="checkbox"/> DC Type <input checked="" type="checkbox"/> DC Power Supply: 3.3V <input type="checkbox"/> Battery: <input type="checkbox"/> External from USB Cable <input type="checkbox"/> External DC Adapter
	<input type="checkbox"/> Host System

1.3 Objective and Test Methodology

The Objective of this Test Report was to document the compliance of the Redpine Signals Inc. Appliance (Model: M7DB7) to the requirements of the following Standards:

- Part 2, Subpart J, Part 15, Subparts A and C, section 15.247 of the Federal Communication Commission's rules.
- ANSI C63.10-2013 of the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
- RSS-Gen Issue 5, Mar 2019— General Requirements for Compliance of Radio Apparatus
- RSS-247 Issue 2, Feb 2017— Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

1.4 Measurement Uncertainty

Parameter	Expanded Measurement uncertainty
RF output power	± 1.488 dB
Occupied Channel Bandwidth	± 453.927 Hz
RF Conducted Emission test	± 2.77 dB
AC Power Line Conducted Emission	± 2.66 dB
Radiated Below 1G	± 3.57 dB
Radiated Above 1G	± 5.32 dB

The test results with statement of conformity, the decision rules are based on the specifications and standards. The test results will not take the measurement uncertainty into account.

1.5 Environmental Conditions and Test Date

Test Site	Test Date	Temperature (°C)	Relative Humidity (% RH)	Test Engineer
Conduction (CON-01)	2020-02-07	22.3	53	Blake Wang
Radiated (966A)	2020-02-10 to 2020-03-23	19.5-22.9	58-62	Leo Cheng
Conducted (TH-02)	2020-02-18 to 2020-04-30	16.9-19.5	50-55	Blake Wang

1.6 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Linkou Laboratory) to collect test data is located on

☒ No.6, Wende 2Rd., Guishan Dist., Taoyuan City 33382, Taiwan (R.O.C.).

Bay Area Compliance Laboratories Corp. (Linkou Laboratory) Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3546) by Mutual Recognition Agreement (MRA). 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. The FCC Registration No.: 0027578244. Designation No.: TW3546. The Test Firm Registration No.: 181430.

2 System Test Configuration

2.1 Description of Test Configuration

The system was configured for testing in testing mode which was provided by manufacturer.

No special accessory, No modification was made to the EUT and No special equipment used during test.

For BT (BR/EDR), there are totally 79 channels.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	39	2441
1	2403	--	--
2	2404	--	--
3	2405	76	2478
--	--	77	2479
38	2440	78	2480

For BLE: Channel 0, 39 and 78 were tested.

Radiated below 1G were tested worst output power.

For Radiated Emission, Conducted Power, Conducted Band Edge had test for four antenna because the power setting is different, the result will be different. For Bandwidth, Conducted Emission, Separation, Dwell Time, Hopping Channel Test only test one result that because the power not affect the result.

Worst Case of Power Setting				
EUT Exercise Software		FCC_PER_TEST_GUI.py		
Dipole antenna (TAOGLAS GW.71.5153)				
Configuration	NTX	Low CH	Mid CH	High CH
BR-1Mbps	1	16	16	16
EDR-2Mbps	1	16	17	22
EDR-3Mbps	1	18	18	22
Dipole antenna (Inside WLAN PRO-IS-299)				
Configuration	NTX	Low CH	Mid CH	High CH
BR-1Mbps	1	20	20	20
EDR-2Mbps	1	22	22	22
EDR-3Mbps	1	22	22	22

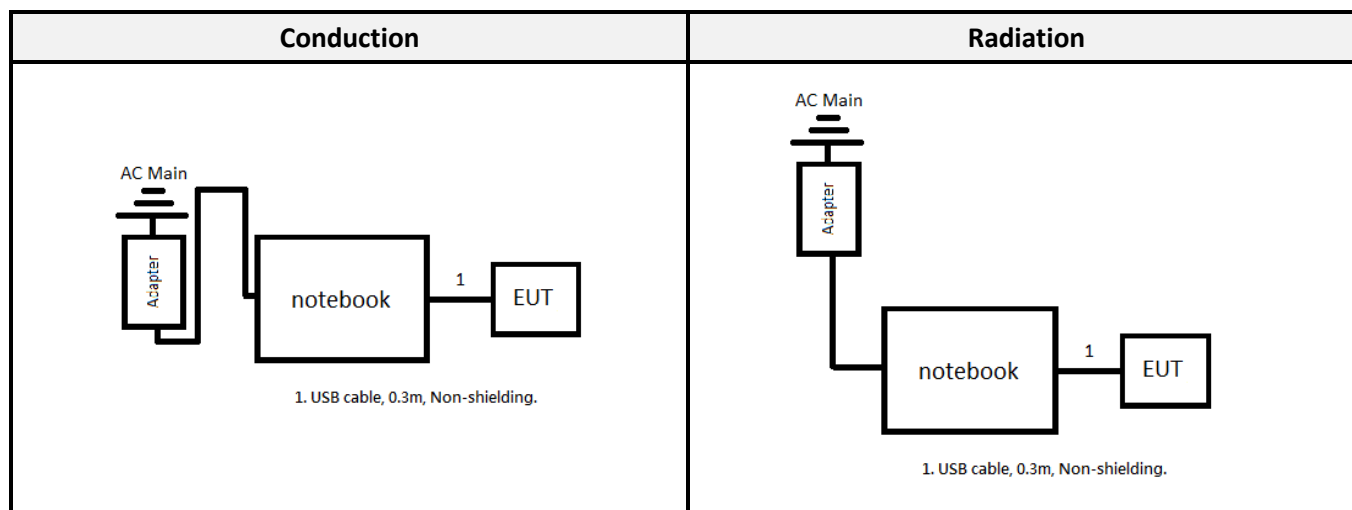
Worst Case of Power Setting				
EUT Exercise Software		FCC_PER_TEST_GUI.py		
PCB Antenna (Redpine Signals RSIA7)				
Configuration	NTX	Low CH	Mid CH	High CH
BR-1Mbps	1	15	16	17
EDR-2Mbps	1	20	18	22
EDR-3Mbps	1	20	20	21
PIFA Antenna (SMARTEQ 4211613980)				
Configuration	NTX	Low CH	Mid CH	High CH
BR-1Mbps	1	19	17	17
EDR-2Mbps	1	18	17	17
EDR-3Mbps	1	19	18	19

2.2 Support Equipment List and Details

No.	Description	Manufacturer	Model Number
A	Notebook	DELL	Inspiron 15
B	Adapter	Chicony Power	HA65NS5-00 (DELL)

No.	Cable Description	Shielding Type	Length (m)	From	To
1	USB Cable	Non-Shielded	1	EUT	NB

2.3 Block Diagram of Test Setup



3 Summary of Test Results

FCC Rules	Description of Test	Result
§15.247(i), §1.1310, §2.1091	Maximum Permissible Exposure (MPE)	Compliance
ISED RSS-102 Sec 2.5.2	Exemption Limits for Routine Evaluation – RF Exposure Evaluation	Compliance
§15.203 ISED RSS-Gen Sec 6.8	Antenna Requirement	Compliance
§15.207(a) ISED RSS-Gen Sec 8.8	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.247(d) ISED RSS-247 Sec 5.5 ISED RSS-Gen Sec 8.9 and 8.10	Spurious Emissions	Compliance
§15.247(a)(1) ISED RSS-247 Sec 5.1 ISED RSS-Gen Sec 6.7	20 dB Emission Bandwidth and Occupied Bandwidth	Compliance
§15.247(a)(1) ISED RSS-247 Sec 5.1(b)	Channel Separation Test	Compliance
§15.247(a)(1)(iii) ISED RSS-247 Sec 5.1(d)	Time of Occupancy (Dwell Time)	Compliance
§15.247(a)(1)(iii) ISED RSS-247 Sec 5.1(b)	Quantity of hopping channel Test	Compliance
§15.247(b)(3) ISED RSS-247 Sec 5.1(b) ISED RSS-247 Sec 5.4(b)	Maximum Output Power	Compliance
§15.247(d) ISED RSS-247 Sec 5.5	100 kHz Bandwidth of Frequency Band Edge	Compliance

4 FCC §15.247(i), § 1.1310, § 2.1091 – RF Exposure

4.1 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.

Calculated Formulary: Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = 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);

4.2 RF Exposure Evaluation Result

Mode	Frequency Range (MHz)	Antenna Gain		Target Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
BLE	2402-2480	3.80	2.3988	19.00	79.4328	20	0.0379	1
BR/EDR	2402-2480	3.80	2.3988	21.00	125.8925	20	0.0601	1
Wi-Fi 2.4G	2412-2472	3.80	2.3988	25.00	316.2278	20	0.1510	1
Wi-Fi 5G	5150-5850	5.50	3.5481	14.50	28.1838	20	0.0199	1

Note: Wi-Fi and BT can't simultaneously.

Result: MPE evaluation meet 20 cm the requirement of standard.

5 RSS-102 Sec 2.5.2 - Exemption Limits for Routine Evaluation – RF Exposure Evaluation

5.1 Applicable Standard

According to subpart RSS-102 Sec 2.5.2,

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz⁶ and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

5.2 RF Exposure Evaluation Result

BLE Max tune-up conducted output power is 19.00 dBm (79.4328 mW) at 2402 MHz, Antenna Gain = 3.80 dBi, EIRP = 22.80 dBm (0.1906 W), so the maximum conducted and E.I.R.P. source-based, time-averaged output is less than 2.68 W for general public use.

BR/EDR Max tune-up conducted output power is 21.00 dBm (125.8925 mW) at 2402 MHz, Antenna Gain = 3.80 dBi, EIRP = 24.80 dBm (0.3020 W), so the maximum conducted and E.I.R.P. source-based, time-averaged output is less than 2.68 W for general public use.

Wi-Fi 2.4G Max tune-up conducted output power is 25.00 dBm (316.2278 mW) at 2437 MHz, Antenna Gain = 3.80 dBi, EIRP = 28.80 dBm (0.7586 W), so the maximum conducted and E.I.R.P. source-based, time-averaged output is less than 2.70 W for general public use.

Wi-Fi 5G Max tune-up conducted output power is 14.50. dBm (28.1839 mW) at 5825 MHz, Antenna Gain = 5.50 dBi, EIRP = 20.00 dBm (0.1000 W), so the maximum conducted and E.I.R.P. source-based, time-averaged output is less than 4.90 W for general public use.

Note: Wi-Fi and BT can't simultaneously.

Result: MPE test exempted.

6 FCC §15.203 and RSS-Gen Sec 6.8– Antenna Requirements

6.1 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.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna does not exceed 6dBi

According to RSS-Gen 6.8: Transmitter Antenna for Licence-Exempt Radio Apparatus

The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the licence-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna.

Licence-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power (e.i.r.p.) limits specified in the applicable standard (RSS) for the licence-exempt apparatus.

Testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level. Footnote8 When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

This radio transmitter (identify the device by certification number) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi).

6.2 Antenna List and Details

Brand	Model	Antenna Type	Antenna Gain (dBi)	Result
TAOGLAS	GW.71.5153	Dipole	3.80	Compliance
SMARTEQ	4211613980	PIFA	0.00	Compliance
Inside WLAN	PRO-IS-299	Dipole	2.50	Compliance
Redpine Signals	RSIA7	PCB Antenna	0.71	Compliance

The EUT has an internal antenna arrangement, which was permanently attached, fulfill the requirement of this section.

7 FCC §15.207 and RSS-Gen Sec 8.8- AC Line Conducted Emissions

7.1 Applicable Standard

According to FCC §15.207,

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

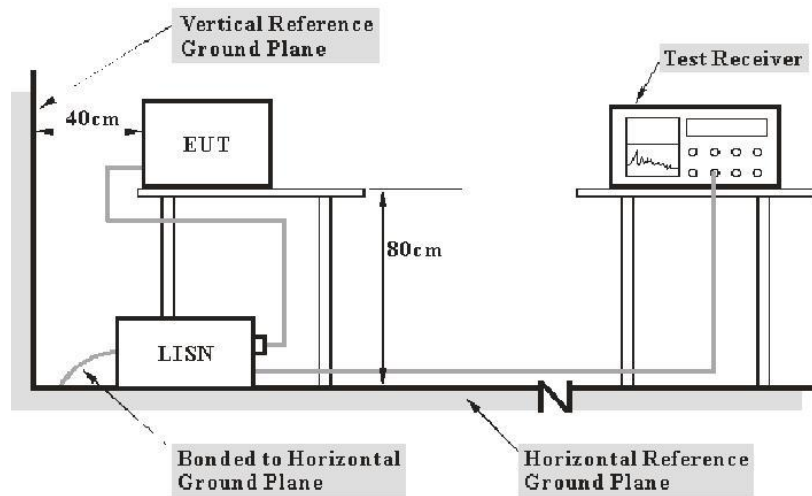
According to RSS-Gen Sec 8.8,

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 ^{Note 1}	56 to 46 ^{Note 2}
0.5-5	56	46
5-30	60	50

Note 1: Decreases with the logarithm of the frequency. Note 2: A linear average detector is required

7.2 EUT Setup and Test Procedure



- 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 and RSS-Gen limits. 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	Receiver RBW
150 kHz - 30 MHz	9 kHz

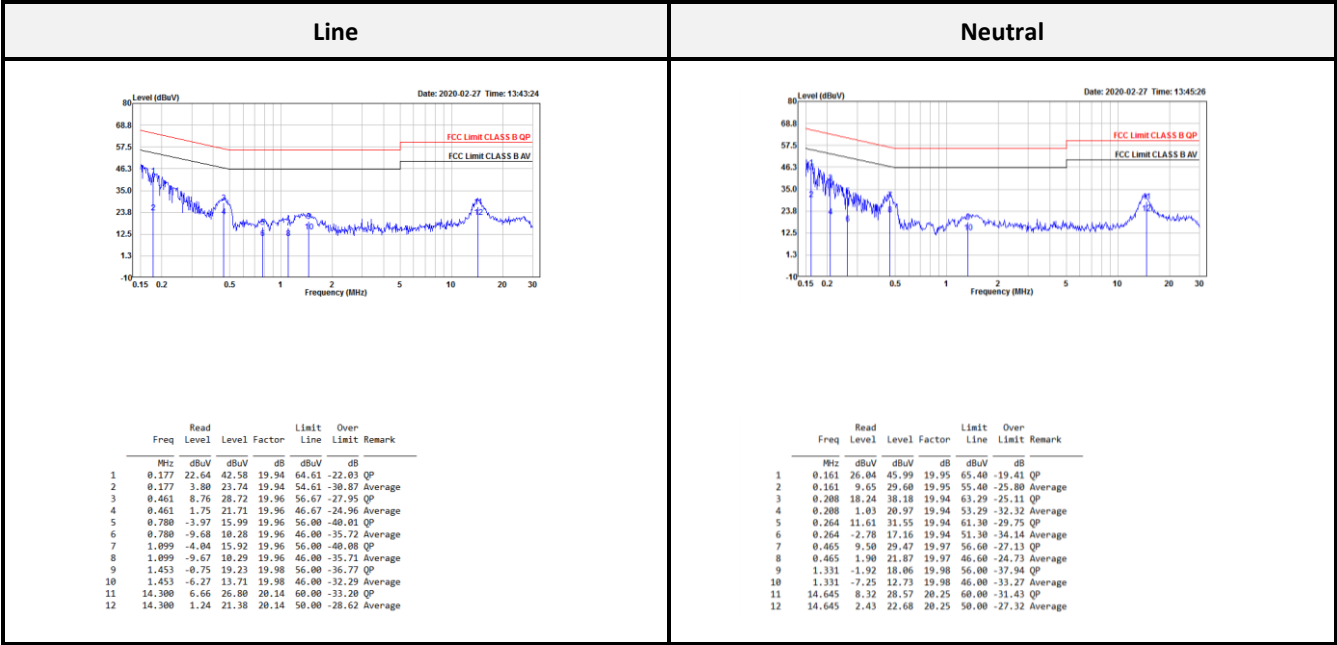
During the conducted emission test, the adapter was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

7.3 Test Equipment List and Details

Description	Manufacture	Model	Serial No.	Cal. Date.	Cal. Due.
AC Line Conduction Room (CON-01)					
Two-Line V-Network	Rohde & Schwarz	ENV216	100010	2019/09/02	2020/09/01
Pulse Limiter	SCHWARZBECK	VSTD 9561-F	00432	2019/08/28	2020/08/27
EMI Test Receiver	Rohde & Schwarz	ESR3	102448	2019/06/27	2020/06/23
RF Cable	EMCI	EMCCFD300-BM-BM-8000	180526	2019/08/08	2020/08/07
Software	Audix	e3 v9	E3LK-03	N.C.R	N.C.R

***Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

7.4 Test Data and Test Plot



Note1: Transmit Mode

Note2:

Level = Reading Level + Correct Factor

Over Limit = Level – Limit

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

8 FCC §15.209, §15.205, §15.247(d), RSS-Gen Sec 8.9, 8.10 and RSS-247 Sec 5.5 – Spurious Emissions

8.1 Applicable Standard

As per FCC §15.35(d): Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1MHz.

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	13.36-13.41	399.9-410	4.5-5.15
0.495-0.505	16.42-16.423	608-614	5.35-5.46
2.1735-2.1905	16.69475-16.69525	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6

As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As per FCC §15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c).

As per RSS-Gen 8.9,

Except when the requirements applicable to a given device state otherwise, emissions from licence-exempt transmitters shall comply with the field strength limits shown in Table 4 and Table 5 below. Additionally, the level of any transmitter emission shall not exceed the level of the transmitter's fundamental emission.

Table 4 – General Field Strength Limits for Licence-Exempt Transmitters at Frequencies Above 30 MHz

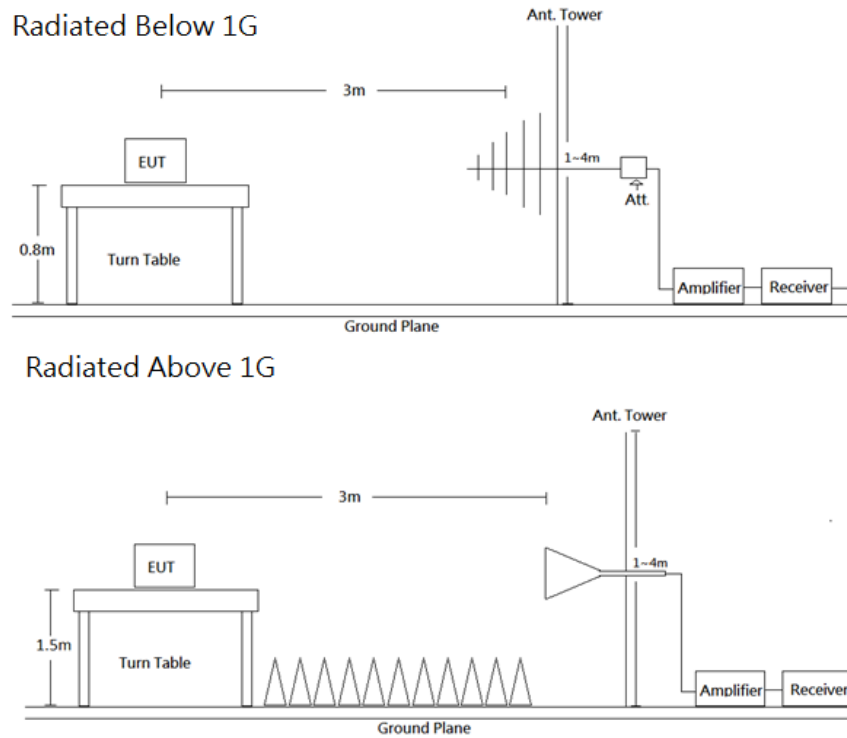
Frequency (MHz)	Field Strength (µV/m at 3 metres)
30-88	100
88-216	150
216-960	200
Above 960*	500

* Unless otherwise specified, for all frequencies greater than 1 GHz, the radiated emission limits for licence-exempt radio apparatus stated in applicable RSSs (including RSS-Gen) are based on measurements using a linear average detector function having a minimum resolution bandwidth of 1 MHz. If an average limit is specified for the EUT, then the peak emission shall also be measured with instrumentation properly adjusted for such factors as pulse desensitization to ensure the peak emission is less than 20 dB above the average limit.

Note: Transmitting devices are not permitted in restricted frequency bands unless stated otherwise in the specific RSS.

As per RSS-247 §5.5, in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under Section 5.4(4), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

8.2 EUT Setup and Test Procedure



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 Part 15.209, FCC 15.247, RSS-Gen and RSS-247 Limits.

The system was investigated from 30 MHz to 26.5 GHz. During the radiated emission test, the EMI test receiver was set with the following configurations measurement method 6.3 in ANSI C63.10.

Frequency Range	RBW	VBW	Detector	Measurement method
30-1000 MHz	120 kHz	/	QP	QP
Above 1 GHz	1 MHz	3 MHz	PK	PK
	1 MHz	10 Hz	RMS	Ave

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 detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

8.3 Test Equipment List and Details

Description	Manufacture	Model	Serial No.	Cal. Date.	Cal. Due.
Radiation 3M Room (966A)					
Active Loop	EMCO	6502	0001-3322	2020/03/16	2021/03/15
Bilog Antenna/6 dB Attenuator	SUNOL SCIENCES & EMEC /EMCI	JB3/N-6-06	A111513/AT-N0668	2020/03/19	2021/03/18
Horn Antenna	ETS-Lindgren	3115	00109141	2019/07/05	2020/07/04
Horn Antenna	ETS-Lindgren	3160-09	00123852	2019/07/11	2020/07/10
Preamplifier	A.H. Systems	PAM-0118	470	2020/03/16	2021/03/15
Preamplifier	A.H. Systems	PAM-1840VH	174	2020/03/25	2021/03/24
Signal and Spectrum Analyzer	Rohde & Schwarz	FSV40	101456	2019/07/12	2020/07/11
Microflex Cable (1m)	EMCI	EMC106-SM-SM-2000	180515	2019/08/07	2020/08/06
Microflex Cable (2m)	MTJ	H0919	00000-MT28A-100	2019/08/07	2020/08/06
Microflex Cable (8m)	UTIFLEX	UFA210A-1-3149-300300	MFR 64639 232490-001	2019/08/07	2020/08/06
Turn Table	Chaintek	T-200-S-1	003501	N.C.R	N.C.R
Antenna Tower	Chaintek	MBD-400-1	003504	N.C.R	N.C.R
Controller	Chaintek	3000-1	003507	N.C.R	N.C.R
Software	Audix	e3 v9	E3LK-01	N.C.R	N.C.R
Conducted Room(TH-02)					
Signal Analyzer 40GHZ	Rohde & Schwarz	FSV40-N	102248	2019/09/11	2020/09/10
RF Cable	MTJ	MT40S	MT40S-001	Each Use	/

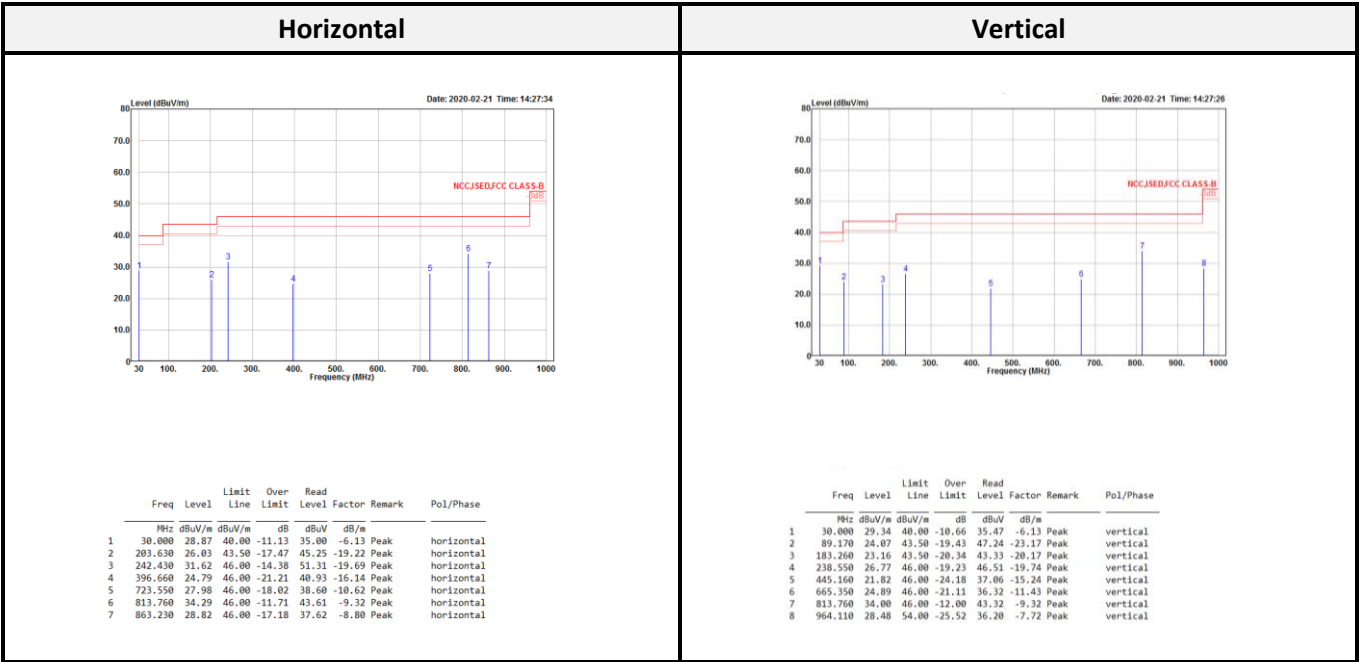
***Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

8.4 Radiated Emission Test Plot and Data

<Dipole Antenna: TAOGLAS/GW.71.5153>

Transmitting mode (Pre-scan with three orthogonal axis, and worse case as Z axis)

Below 1G (30 MHz-1 GHz) test the worst mode



Note:

Level = Read Level + Factor, Over Limit = Level – Limit, Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported

Above 1G (1 GHz-26.5 GHz)**BR-1Mbps mode:**

Low CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2361.800	38.46	54.00	-15.54	46.16	-7.70	Average	2362.200	42.61	54.00	-11.39	50.31	-7.70	Average
2361.800	51.53	74.00	-22.47	59.23	-7.70	Peak	2362.200	54.81	74.00	-19.19	62.51	-7.70	Peak
2402.200	91.12			98.74	-7.62	Average	2402.300	95.80			103.42	-7.62	Average
2402.200	107.07			114.69	-7.62	Peak	2402.300	113.81			121.43	-7.62	Peak
3202.700	35.91	54.00	-18.09	40.17	-4.26	Average	3202.700	39.20	54.00	-14.80	43.46	-4.26	Average
3202.700	42.33	74.00	-31.67	46.59	-4.26	Peak	3202.700	44.38	74.00	-29.62	48.68	-4.30	Peak
4804.000	48.20	54.00	-5.80	47.58	0.62	Average	4804.000	52.17	54.00	-1.83	51.55	0.62	Average
4804.000	56.01	74.00	-17.99	55.39	0.62	Peak	4804.000	60.93	74.00	-13.07	60.31	0.62	Peak
7206.000	48.71	54.00	-5.29	43.46	5.25	Average	7206.000	53.22	54.00	-0.78	47.97	5.25	Average
7206.000	55.18	74.00	-18.82	49.92	5.26	Peak	7206.000	64.36	74.00	-9.64	59.11	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2330.570	36.01	54.00	-17.99	43.81	-7.80	Average	2369.774	37.53	54.00	-16.47	45.21	-7.68	Average
2330.570	50.56	74.00	-23.44	58.36	-7.80	Peak	2369.774	51.82	74.00	-22.18	59.50	-7.68	Peak
2440.922	90.34			97.86	-7.52	Average	2440.922	95.94	54.00			-7.52	Average
2440.922	105.99			113.51	-7.52	Peak	2440.922	113.15	74.00			-7.52	Peak
2540.626	37.17	54.00	-16.83	44.35	-7.18	Average	2521.024	37.64	54.00	-16.36	44.90	-7.26	Average
2540.626	51.71	74.00	-22.29	58.89	-7.18	Peak	2521.024	51.91	74.00	-22.09	59.17	-7.26	Peak
3254.700	37.22	54.00	-16.78	41.29	-4.07	Average	3254.700	41.09	54.00	-12.91	45.16	-4.07	Average
3254.700	43.88	74.00	-30.12	47.91	-4.03	Peak	3254.700	47.31	74.00	-26.69	51.38	-4.07	Peak
4882.000	48.34	54.00	-5.66	47.52	0.82	Average	4882.000	51.56	54.00	-2.44	50.74	0.82	Average
4882.000	56.68	74.00	-17.32	55.86	0.82	Peak	4882.000	61.28	74.00	-12.72	60.46	0.82	Peak
7323.000	47.47	54.00	-6.53	41.75	5.72	Average	7323.000	53.07	54.00	-0.93	47.35	5.72	Average
7323.000	58.16	74.00	-15.84	52.44	5.72	Peak	7323.000	63.98	74.00	-10.02	58.26	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.086	89.49			96.84	-7.35	Average	2480.086	95.25			102.60	-7.35	Average
2480.086	104.86			112.21	-7.35	Peak	2480.086	111.59			118.94	-7.35	Peak
2483.500	39.70	54.00	-14.30	47.04	-7.34	Average	2483.500	44.98	54.00	-9.02	52.32	-7.34	Average
2483.500	54.57	74.00	-19.43	61.91	-7.34	Peak	2483.500	59.75	74.00	-14.25	67.09	-7.34	Peak
3306.700	37.49	54.00	-16.51	41.42	-3.93	Average	3306.700	41.74	54.00	-12.26	45.67	-3.93	Average
3306.700	44.64	74.00	-29.36	48.57	-3.93	Peak	3306.700	47.13	74.00	-26.87	51.06	-3.93	Peak
4960.000	49.43	54.00	-4.57	48.62	0.81	Average	4960.000	52.09	54.00	-1.91	51.28	0.81	Average
4960.000	58.48	74.00	-15.52	57.67	0.81	Peak	4960.000	61.18	74.00	-12.82	60.37	0.81	Peak
7440.000	46.85	54.00	-7.15	40.79	6.06	Average	7440.000	52.96	54.00	-1.04	46.90	6.06	Average
7440.000	56.67	74.00	-17.33	50.61	6.06	Peak	7440.000	61.96	74.00	-12.04	55.90	6.06	Peak

EDR-2Mbps mode:

Low CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2362.000	38.01	54.00	-15.99	45.71	-7.70	Average	2362.400	42.21	54.00	-11.79	49.91	-7.70	Average
2362.000	51.30	74.00	-22.70	59.00	-7.70	Peak	2362.400	55.07	74.00	-18.93	62.77	-7.70	Peak
2401.900	89.95			97.57	-7.62	Average	2402.300	94.89			102.51	-7.62	Average
2401.900	108.54			116.16	-7.62	Peak	2402.300	114.70			122.32	-7.62	Peak
3202.700	37.45	54.00	-16.55	41.71	-4.26	Average	3202.700	42.89	54.00	-11.11	47.19	-4.30	Average
3202.700	42.85	74.00	-31.15	47.11	-4.26	Peak	3202.700	47.75	74.00	-26.25	52.05	-4.30	Peak
4804.000	45.43	54.00	-8.57	44.81	0.62	Average	4804.000	50.11	54.00	-3.89	49.49	0.62	Average
4804.000	57.12	74.00	-16.88	56.50	0.62	Peak	4804.000	61.23	74.00	-12.77	60.61	0.62	Peak
7206.000	45.22	54.00	-8.78	39.97	5.25	Average	7206.000	53.18	54.00	-0.82	47.93	5.25	Average
7206.000	56.75	74.00	-17.25	51.49	5.26	Peak	7206.000	65.49	74.00	-8.51	60.24	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2356.948	36.44	54.00	-17.56	44.16	-7.72	Average	2384.294	38.14	54.00	-15.86	45.78	-7.64	Average
2356.948	50.98	74.00	-23.02	58.70	-7.72	Peak	2384.294	53.68	74.00	-20.32	61.32	-7.64	Peak
2441.164	89.99			97.51	-7.52	Average	2441.164	94.81			102.33	-7.52	Average
2441.164	108.46			115.98	-7.52	Peak	2441.164	114.57			122.09	-7.52	Peak
2516.910	36.94	54.00	-17.06	44.20	-7.26	Average	2536.996	38.16	54.00	-15.84	45.36	-7.20	Average
2516.910	51.26	74.00	-22.74	58.52	-7.26	Peak	2536.996	51.51	74.00	-22.49	58.71	-7.20	Peak
3254.700	37.09	54.00	-16.91	41.12	-4.03	Average	3254.700	42.82	54.00	-11.18	46.89	-4.07	Average
3254.700	44.11	74.00	-29.89	48.18	-4.07	Peak	3254.700	47.52	74.00	-26.48	51.59	-4.07	Peak
4882.000	47.12	54.00	-6.88	46.30	0.82	Average	4882.000	51.19	54.00	-2.81	50.37	0.82	Average
4882.000	57.52	74.00	-16.48	56.70	0.82	Peak	4882.000	62.93	74.00	-11.07	62.11	0.82	Peak
7323.000	48.56	54.00	-5.44	42.84	5.72	Average	7323.000	53.45	54.00	-0.55	47.73	5.72	Average
7323.000	62.03	74.00	-11.97	56.31	5.72	Peak	7323.000	66.41	74.00	-7.59	60.69	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.086	89.61			96.96	-7.35	Average	2479.840	95.30			102.65	-7.35	Average
2480.086	107.86			115.21	-7.35	Peak	2479.840	114.33			121.68	-7.35	Peak
2483.500	44.08	54.00	-9.92	51.42	-7.34	Average	2483.500	47.51	54.00	-6.49	54.85	-7.34	Average
2483.500	61.38	74.00	-12.62	68.72	-7.34	Peak	2483.500	67.28	74.00	-6.72	74.62	-7.34	Peak
3306.700	36.76	54.00	-17.24	40.69	-3.93	Average	3306.700	41.21	54.00	-12.79	45.14	-3.93	Average
3306.700	44.89	74.00	-29.11	48.82	-3.93	Peak	3306.700	47.11	74.00	-26.89	51.04	-3.93	Peak
4960.000	48.81	54.00	-5.19	48.00	0.81	Average	4960.000	51.46	54.00	-2.54	50.65	0.81	Average
4960.000	59.93	74.00	-14.07	59.12	0.81	Peak	4960.000	63.71	74.00	-10.29	62.90	0.81	Peak
7440.000	49.84	54.00	-4.16	43.79	6.05	Average	7440.000	53.53	54.00	-0.47	47.47	6.06	Average
7440.000	60.94	74.00	-13.06	54.88	6.06	Peak	7440.000	66.51	74.00	-7.49	60.45	6.06	Peak

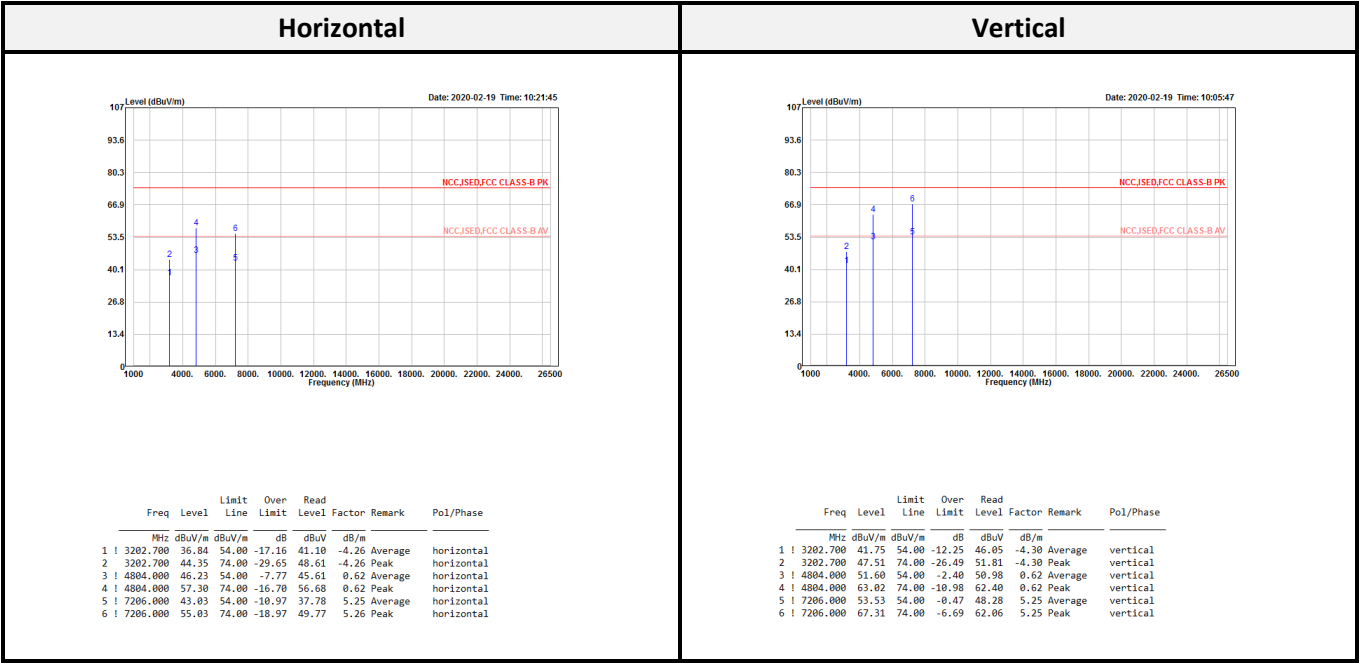
EDR-3Mbps mode:

Low CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2361.700	38.92	54.00	-15.08	46.62	-7.70	Average	2361.700	43.50	54.00	-10.50	51.20	-7.70	Average
2361.700	52.09	74.00	-21.91	59.79	-7.70	Peak	2361.700	55.93	74.00	-18.07	63.63	-7.70	Peak
2402.000	90.48			98.10	-7.62	Average	2402.100	95.31			102.93	-7.62	Average
2402.000	109.22			116.84	-7.62	Peak	2402.100	115.31			122.93	-7.62	Peak
3202.700	36.84	54.00	-17.16	41.10	-4.26	Average	3202.700	41.75	54.00	-12.25	46.05	-4.30	Average
3202.700	44.35	74.00	-29.65	48.61	-4.26	Peak	3202.700	47.51	74.00	-26.49	51.81	-4.30	Peak
4804.000	46.23	54.00	-7.77	45.61	0.62	Average	4804.000	51.60	54.00	-2.40	50.98	0.62	Average
4804.000	57.30	74.00	-16.70	56.68	0.62	Peak	4804.000	63.02	74.00	-10.98	62.40	0.62	Peak
7206.000	43.03	54.00	-10.97	37.78	5.25	Average	7206.000	53.53	54.00	-0.47	48.28	5.25	Average
7206.000	55.03	74.00	-18.97	49.77	5.26	Peak	7206.000	67.31	74.00	-6.69	62.06	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2335.410	36.15	54.00	-17.85	43.93	-7.78	Average	2377.760	38.11	54.00	-15.89	45.75	-7.64	Average
2335.410	50.72	74.00	-23.28	58.50	-7.78	Peak	2377.760	52.71	74.00	-21.29	60.35	-7.64	Peak
2441.164	89.26			96.78	-7.52	Average	2441.164	95.07			102.59	-7.52	Average
2441.164	107.75			115.27	-7.52	Peak	2441.164	114.89			122.41	-7.52	Peak
2492.468	37.25	54.00	-16.75	44.58	-7.33	Average	2486.176	37.94	54.00	-16.06	45.28	-7.34	Average
2492.468	50.92	74.00	-23.08	58.25	-7.33	Peak	2486.176	52.66	74.00	-21.34	60.00	-7.34	Peak
3254.700	36.69	54.00	-17.31	40.72	-4.03	Average	3254.700	42.11	54.00	-11.89	46.14	-4.03	Average
3254.700	44.20	74.00	-29.80	48.23	-4.03	Peak	3254.700	47.19	74.00	-26.81	51.26	-4.07	Peak
4882.000	46.67	54.00	-7.33	45.85	0.82	Average	4882.000	51.47	54.00	-2.53	50.65	0.82	Average
4882.000	57.48	74.00	-16.52	56.66	0.82	Peak	4882.000	63.45	74.00	-10.55	62.63	0.82	Peak
7323.000	48.36	54.00	-5.64	42.64	5.72	Average	7323.000	53.06	54.00	-0.94	47.34	5.72	Average
7323.000	61.01	74.00	-12.99	55.29	5.72	Peak	7323.000	66.36	74.00	-7.64	60.64	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.004	89.13			96.48	-7.35	Average	2480.004	94.60			101.95	-7.35	Average
2480.004	107.56			114.91	-7.35	Peak	2480.004	114.15			121.50	-7.35	Peak
2483.500	42.59	54.00	-11.41	49.93	-7.34	Average	2483.500	49.53	54.00	-4.47	56.87	-7.34	Average
2483.500	60.50	74.00	-13.50	67.84	-7.34	Peak	2483.500	70.17	74.00	-3.83	77.51	-7.34	Peak
3306.700	37.31	54.00	-16.69	41.24	-3.93	Average	3306.700	41.92	54.00	-12.08	45.85	-3.93	Average
3306.700	44.69	74.00	-29.31	48.62	-3.93	Peak	3306.700	47.18	74.00	-26.82	51.11	-3.93	Peak
4960.000	48.64	54.00	-5.36	47.83	0.81	Average	4960.000	52.12	54.00	-1.88	51.31	0.81	Average
4960.000	59.43	74.00	-14.57	58.62	0.81	Peak	4960.000	62.67	74.00	-11.33	61.86	0.81	Peak
7440.000	52.56	54.00	-1.44	46.50	6.06	Average	7440.000	52.35	54.00	-1.65	46.30	6.05	Average
7440.000	62.81	74.00	-11.19	56.76	6.05	Peak	7440.000	64.97	74.00	-9.03	58.91	6.06	Peak

Above 1G (1 GHz-26.5 GHz): The worst mode: EDR-3Mbps Low CH.



Level = Read Level + Factor

Over Limit = Level – Limit

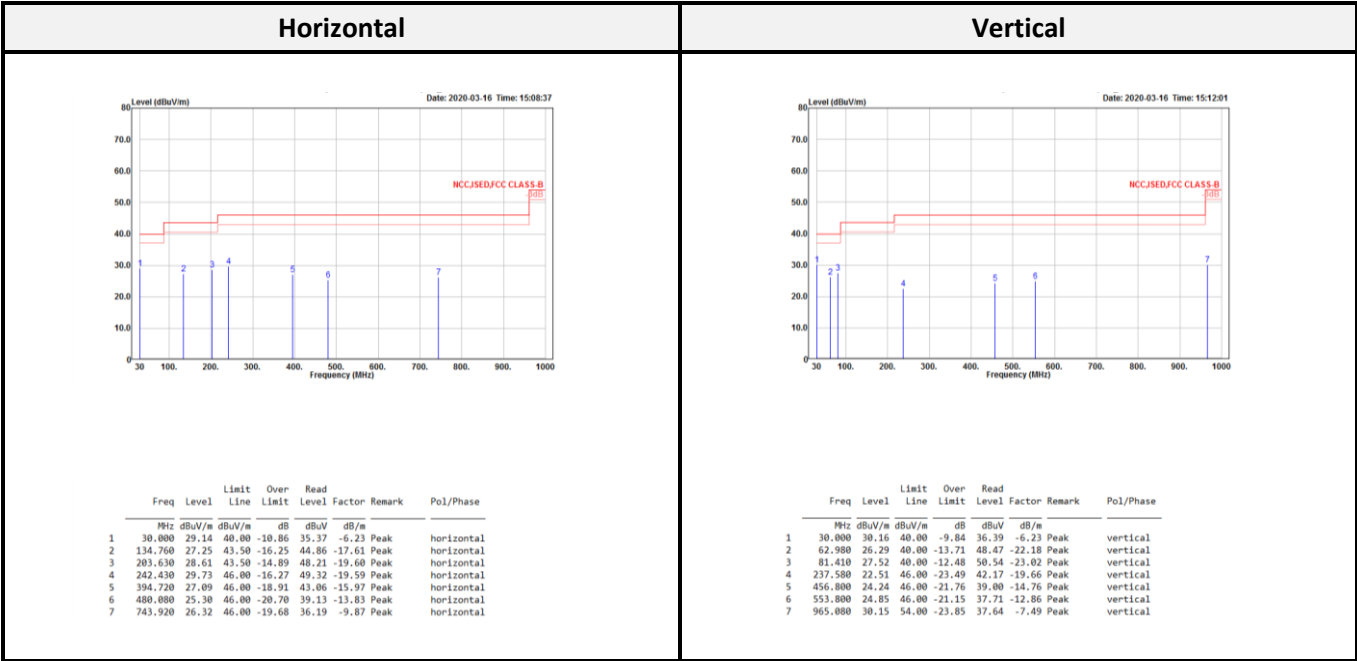
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported

< Dipole antenna (Inside WLAN PRO-IS-299)>

Transmitting mode (Pre-scan with three orthogonal axis, and worse case as Y axis)

Below 1G (30 MHz-1 GHz) test the worst mode



Note:

Level = Read Level + Factor, Over Limit = Level – Limit, Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported

Above 1G (1 GHz-26.5 GHz)**BR-1Mbps mode:**

Low CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read			Freq	Level	Limit	Over	Read		
		Line	Limit	Level	Factor	Remark			Line	Limit	Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2337.500	35.74	54.00	-18.26	43.53	-7.79	Average	2372.300	36.03	54.00	-17.97	43.70	-7.67	Average
2337.500	50.82	74.00	-23.18	58.61	-7.79	Peak	2372.300	50.72	74.00	-23.28	58.39	-7.67	Peak
2402.200	76.14			83.76	-7.62	Average	2402.000	86.73			94.35	-7.62	Average
2402.200	88.14			95.76	-7.62	Peak	2402.000	101.64			109.26	-7.62	Peak
3202.700	35.60	54.00	-18.40	39.86	-4.26	Average	3202.700	38.44	54.00	-15.56	42.70	-4.26	Average
3202.700	43.56	74.00	-30.44	47.82	-4.26	Peak	3202.700	45.12	74.00	-28.88	49.38	-4.26	Peak
4804.000	51.16	54.00	-2.84	50.54	0.62	Average	4804.000	53.41	54.00	-0.59	52.79	0.62	Average
4804.000	59.93	74.00	-14.07	59.32	0.61	Peak	4804.000	63.72	74.00	-10.28	63.11	0.61	Peak
7206.000	49.91	54.00	-4.09	44.66	5.25	Average	7206.000	47.86	54.00	-6.14	42.61	5.25	Average
7206.000	59.91	74.00	-14.09	54.66	5.25	Peak	7206.000	58.07	74.00	-15.93	52.82	5.25	Peak
							9608.000	44.45	54.00	-9.55	36.11	8.34	Average
							9608.000	57.00	74.00	-17.00	48.66	8.34	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read			Freq	Level	Limit	Over	Read		
		Line	Limit	Level	Factor	Remark			Line	Limit	Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2371.952	35.84	54.00	-18.16	43.51	-7.67	Average	2363.482	36.18	54.00	-17.82	43.87	-7.69	Average
2371.952	50.37	74.00	-23.63	58.04	-7.67	Peak	2363.482	50.95	74.00	-23.05	58.64	-7.69	Peak
2441.164	77.77			85.29	-7.52	Average	2441.164	87.65			95.17	-7.52	Average
2441.164	90.38			97.90	-7.52	Peak	2441.164	102.84			110.36	-7.52	Peak
2546.918	37.16	54.00	-16.84	44.30	-7.14	Average	2500.212	37.11	54.00	-16.89	44.43	-7.32	Average
2546.918	52.81	74.00	-21.19	59.95	-7.14	Peak	2500.212	51.63	74.00	-22.37	58.95	-7.32	Peak
3254.700	35.90	54.00	-18.10	39.93	-4.03	Average	3254.700	37.55	54.00	-16.45	41.58	-4.03	Average
3254.700	44.92	74.00	-29.08	48.95	-4.03	Peak	3254.700	44.83	74.00	-29.17	48.86	-4.03	Peak
4882.000	49.49	54.00	-4.51	48.69	0.80	Average	4882.000	53.51	54.00	-0.49	52.69	0.82	Average
4882.000	58.62	74.00	-15.38	57.80	0.82	Peak	4882.000	64.02	74.00	-9.98	63.22	0.80	Peak
7323.000	48.24	54.00	-5.76	42.52	5.72	Average	7323.000	50.82	54.00	-3.18	45.10	5.72	Average
7323.000	58.55	74.00	-15.45	52.83	5.72	Peak	7323.000	61.32	74.00	-12.68	55.60	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read			Freq	Level	Limit	Over	Read		
		Line	Limit	Level	Factor	Remark			Line	Limit	Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.168	81.08			88.43	-7.35	Average	2480.168	89.10			96.45	-7.35	Average
2480.168	94.34			101.69	-7.35	Peak	2480.168	104.55			111.90	-7.35	Peak
2519.938	39.04	54.00	-14.96	46.30	-7.26	Average	2520.266	43.69	54.00	-10.31	50.95	-7.26	Average
2519.938	51.59	74.00	-22.41	58.85	-7.26	Peak	2520.266	54.02	74.00	-19.98	61.28	-7.26	Peak
3306.700	36.28	54.00	-17.72	40.21	-3.93	Average	3306.700	38.44	54.00	-15.56	42.37	-3.93	Average
3306.700	43.88	74.00	-30.12	47.81	-3.93	Peak	3306.700	44.57	74.00	-29.43	48.50	-3.93	Peak
4960.000	48.63	54.00	-5.37	47.82	0.81	Average	4960.000	53.48	54.00	-0.52	52.65	0.83	Average
4960.000	56.97	74.00	-17.03	56.14	0.83	Peak	4960.000	62.51	74.00	-11.49	61.70	0.81	Peak
7440.000	47.45	54.00	-6.55	41.39	6.06	Average	7440.000	51.24	54.00	-2.76	45.18	6.06	Average
7440.000	56.86	74.00	-17.14	50.80	6.06	Peak	7440.000	62.37	74.00	-11.63	56.31	6.06	Peak

EDR-2Mbps mode:

Low CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2322.500	36.29	54.00	-17.71	44.10	-7.81	Average	2377.200	36.65	54.00	-17.35	44.31	-7.66	Average
2322.500	50.56	74.00	-23.44	58.37	-7.81	Peak	2377.200	50.63	74.00	-23.37	58.29	-7.66	Peak
2402.000	74.20			81.82	-7.62	Average	2401.900	84.68			92.30	-7.62	Average
2402.000	88.24			95.86	-7.62	Peak	2401.900	101.61			109.23	-7.62	Peak
3202.700	35.15	54.00	-18.85	39.41	-4.26	Average	3202.700	38.11	54.00	-15.89	42.37	-4.26	Average
3202.700	42.52	74.00	-31.48	46.78	-4.26	Peak	3202.700	44.90	74.00	-29.10	49.16	-4.26	Peak
4804.000	47.15	54.00	-6.85	46.54	0.61	Average	4804.000	51.17	54.00	-2.83	50.55	0.62	Average
4804.000	57.60	74.00	-16.40	56.98	0.62	Peak	4804.000	62.25	74.00	-11.75	61.64	0.61	Peak
7206.000	48.07	54.00	-5.93	42.82	5.25	Average	7206.000	50.78	54.00	-3.22	45.53	5.25	Average
7206.000	58.96	74.00	-15.04	53.71	5.25	Peak	7206.000	62.13	74.00	-11.87	56.88	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2369.774	35.87	54.00	-18.13	43.55	-7.68	Average	2354.528	35.93	54.00	-18.07	43.66	-7.73	Average
2369.774	50.43	74.00	-23.57	58.11	-7.68	Peak	2354.528	50.71	74.00	-23.29	58.44	-7.73	Peak
2440.922	76.59			84.11	-7.52	Average	2441.164	85.69			93.21	-7.52	Average
2440.922	91.20			98.72	-7.52	Peak	2441.164	102.98			110.50	-7.52	Peak
2535.544	36.65	54.00	-17.35	43.85	-7.20	Average	2543.772	36.95	54.00	-17.05	44.11	-7.16	Average
2535.544	51.11	74.00	-22.89	58.31	-7.20	Peak	2543.772	51.30	74.00	-22.70	58.46	-7.16	Peak
3254.700	35.42	54.00	-18.58	39.45	-4.03	Average	3254.700	38.27	54.00	-15.73	42.30	-4.03	Average
3254.700	43.71	74.00	-30.29	47.74	-4.03	Peak	3254.700	44.66	74.00	-29.34	48.69	-4.03	Peak
4882.000	45.49	54.00	-8.51	44.67	0.82	Average	4882.000	50.62	54.00	-3.38	49.82	0.80	Average
4882.000	56.66	74.00	-17.34	55.86	0.80	Peak	4882.000	61.92	74.00	-12.08	61.10	0.82	Peak
7323.000	46.59	54.00	-7.41	40.87	5.72	Average	7323.000	50.04	54.00	-3.96	44.32	5.72	Average
7323.000	57.61	74.00	-16.39	51.89	5.72	Peak	7323.000	61.49	74.00	-12.51	55.77	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.168	79.14			86.49	-7.35	Average	2480.168	86.94			94.29	-7.35	Average
2480.168	94.52			101.87	-7.35	Peak	2480.168	104.45			111.80	-7.35	Peak
2537.732	38.20	54.00	-15.80	45.40	-7.20	Average	2483.500	41.02	54.00	-12.98	48.36	-7.34	Average
2537.732	51.32	74.00	-22.68	58.52	-7.20	Peak	2483.500	58.25	74.00	-15.75	65.59	-7.34	Peak
3306.700	35.39	54.00	-18.61	39.32	-3.93	Average	3306.700	37.80	54.00	-16.20	41.73	-3.93	Average
3306.700	44.25	74.00	-29.75	48.18	-3.93	Peak	3306.700	45.32	74.00	-28.68	49.25	-3.93	Peak
4960.000	49.34	54.00	-4.66	48.53	0.81	Average	4960.000	49.66	54.00	-4.34	48.85	0.81	Average
4960.000	55.01	74.00	-18.99	54.18	0.83	Peak	4960.000	60.95	74.00	-13.05	60.12	0.83	Peak
7440.000	46.70	54.00	-7.30	40.64	6.06	Average	7440.000	50.95	54.00	-3.05	44.89	6.06	Average
7440.000	58.57	74.00	-15.43	52.51	6.06	Peak	7440.000	62.57	74.00	-11.43	56.51	6.06	Peak

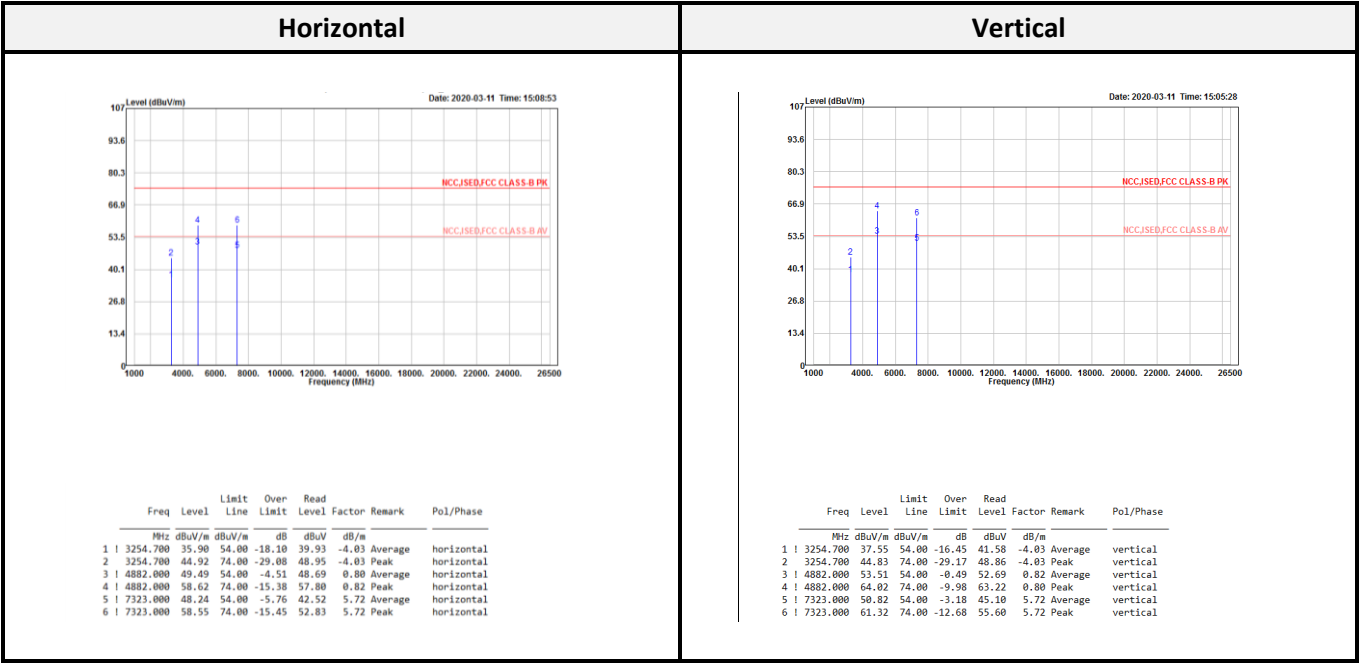
EDR-3Mbps mode:

Low CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2320.400	36.05	54.00	-17.95	43.86	-7.81	Average	2378.000	36.53	54.00	-17.47	44.17	-7.64	Average
2320.400	50.03	74.00	-23.97	57.84	-7.81	Peak	2378.000	51.76	74.00	-22.24	59.40	-7.64	Peak
2402.200	73.63			81.25	-7.62	Average	2402.100	84.29			91.91	-7.62	Average
2402.200	87.68			95.30	-7.62	Peak	2402.100	101.32			108.94	-7.62	Peak
3202.700	35.24	54.00	-18.76	39.50	-4.26	Average	3202.700	37.66	54.00	-16.34	41.92	-4.26	Average
3202.700	44.39	74.00	-29.61	48.65	-4.26	Peak	3202.700	45.36	74.00	-28.64	49.62	-4.26	Peak
4804.000	46.42	54.00	-7.58	45.80	0.62	Average	4804.000	50.62	54.00	-3.38	50.00	0.62	Average
4804.000	57.32	74.00	-16.68	56.71	0.61	Peak	4804.000	62.19	74.00	-11.81	61.58	0.61	Peak
7206.000	47.84	54.00	-6.16	42.59	5.25	Average	7206.000	48.82	54.00	-5.18	43.57	5.25	Average
7206.000	60.16	74.00	-13.84	54.91	5.25	Peak	7206.000	62.07	74.00	-11.93	56.82	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2365.418	35.76	54.00	-18.24	43.46	-7.70	Average	2350.414	35.81	54.00	-18.19	43.55	-7.74	Average
2365.418	49.70	74.00	-24.30	57.40	-7.70	Peak	2350.414	49.56	74.00	-24.44	57.30	-7.74	Peak
2441.164	46.05			53.57	-7.52	Average	2441.164	85.46			92.98	-7.52	Average
2441.164	90.77			98.29	-7.52	Peak	2441.164	102.58			110.10	-7.52	Peak
2527.074	36.73	54.00	-17.27	43.97	-7.24	Average	2549.338	37.03	54.00	-16.97	44.16	-7.13	Average
2527.074	51.29	74.00	-22.71	58.53	-7.24	Peak	2549.338	51.39	74.00	-22.61	58.52	-7.13	Peak
3254.700	35.27	54.00	-18.73	39.30	-4.03	Average	3254.700	37.42	54.00	-16.58	41.45	-4.03	Average
3254.700	44.27	74.00	-29.73	48.30	-4.03	Peak	3254.700	44.61	74.00	-29.39	48.64	-4.03	Peak
4882.000	45.32	54.00	-8.68	44.52	0.80	Average	4882.000	50.57	54.00	-3.43	49.75	0.82	Average
4882.000	55.67	74.00	-18.33	54.85	0.82	Peak	4882.000	62.16	74.00	-11.84	61.36	0.80	Peak
7323.000	45.51	54.00	-8.49	39.79	5.72	Average	7323.000	48.66	54.00	-5.34	42.94	5.72	Average
7323.000	58.41	74.00	-15.59	52.69	5.72	Peak	7323.000	61.25	74.00	-12.75	55.53	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.004	78.37			85.72	-7.35	Average	2480.004	86.63			93.98	-7.35	Average
2480.004	93.83			101.18	-7.35	Peak	2480.004	104.17			111.52	-7.35	Peak
2493.124	37.46	54.00	-16.54	44.79	-7.33	Average	2483.500	41.00	54.00	-13.00	48.34	-7.34	Average
2493.124	52.03	74.00	-21.97	59.36	-7.33	Peak	2483.500	57.44	74.00	-16.56	64.78	-7.34	Peak
3306.700	35.55	54.00	-18.45	39.48	-3.93	Average	3306.700	37.67	54.00	-16.33	41.60	-3.93	Average
3306.700	44.09	74.00	-29.91	48.02	-3.93	Peak	3306.700	44.02	74.00	-29.98	47.95	-3.93	Peak
4960.000	48.50	54.00	-5.50	47.67	0.83	Average	4960.000	50.30	54.00	-3.70	49.49	0.81	Average
4960.000	54.40	74.00	-19.60	53.59	0.81	Peak	4960.000	60.92	74.00	-13.08	60.09	0.83	Peak
7440.000	44.46	54.00	-9.54	38.40	6.06	Average	7440.000	46.66	54.00	-7.34	40.60	6.06	Average
7440.000	57.36	74.00	-16.64	51.30	6.06	Peak	7440.000	59.46	74.00	-14.54	53.40	6.06	Peak

Above 1G (1 GHz-26.5 GHz): The worst mode: BR-1Mbps Middle CH.



Level = Read Level + Factor

Over Limit = Level – Limit

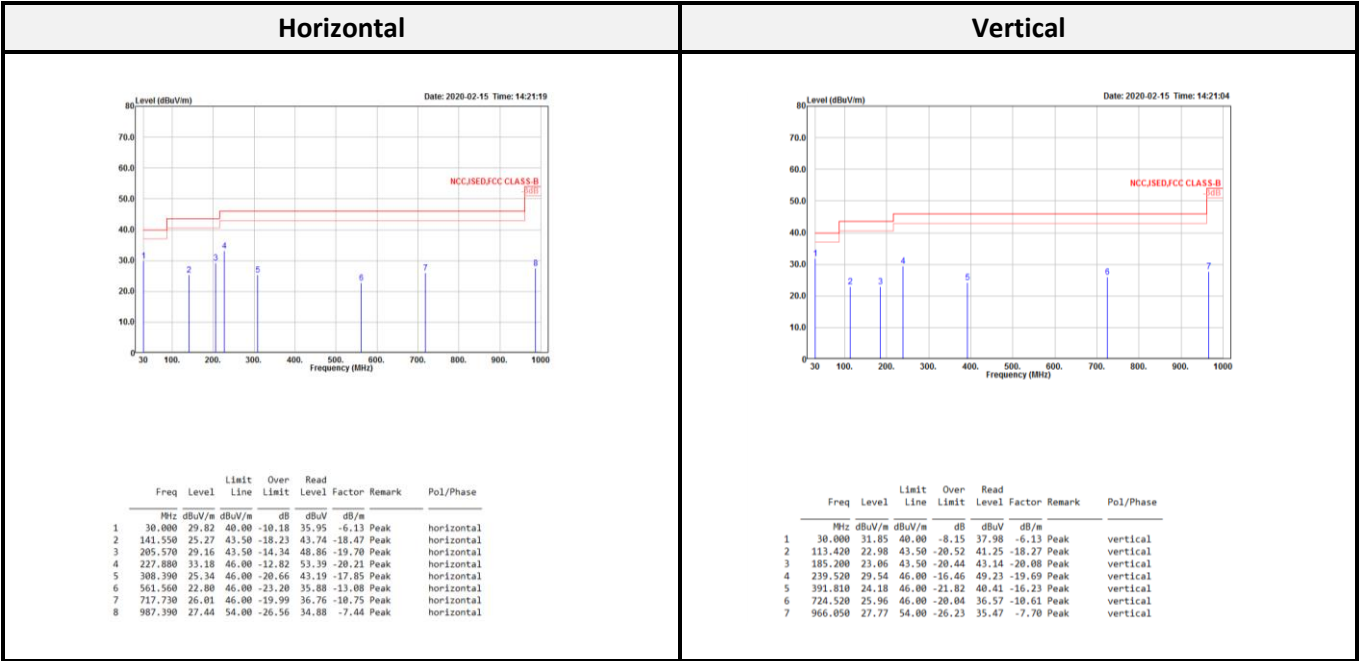
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported

< PCB Antenna (Redpine Signals RS1A7)>

Transmitting mode (Pre-scan with three orthogonal axis, and worse case as Z axis)

Below 1G (30 MHz-1 GHz) test the worst mode



Note:

Level = Read Level + Factor, Over Limit = Level – Limit, Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported

Above 1G (1 GHz-26.5 GHz)**BR-1Mbps mode:**

Low CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV			MHz	dBuV/m	dBuV/m	dB	dBuV		
2388.744	40.81	54.00	-13.19	48.44	-7.63	Average	2362.122	37.60	54.00	-16.40	45.30	-7.70	Average
2388.744	53.37	74.00	-20.63	61.00	-7.63	Peak	2362.122	51.71	74.00	-22.29	59.41	-7.70	Peak
2402.310	95.64			103.26	-7.62	Average	2402.310	88.09			95.71	-7.62	Average
2402.310	112.60			120.22	-7.62	Peak	2402.310	103.13			110.75	-7.62	Peak
3202.700	41.77	54.00	-12.23	46.07	-4.30	Average	3202.700	39.27	54.00	-14.73	43.57	-4.30	Average
3202.700	45.73	74.00	-28.27	50.03	-4.30	Peak	3202.700	43.95	74.00	-30.05	48.25	-4.30	Peak
4804.000	46.68	54.00	-7.32	46.06	0.62	Average	4804.000	53.56	54.00	-0.44	52.94	0.62	Average
4804.000	55.23	74.00	-18.77	54.61	0.62	Peak	4804.000	62.38	74.00	-11.62	61.76	0.62	Peak
7206.000	42.43	54.00	-11.57	37.18	5.25	Average	7206.000	50.90	54.00	-3.10	45.65	5.25	Average
7206.000	52.88	74.00	-21.12	47.63	5.25	Peak	7206.000	59.09	74.00	-14.91	53.84	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV			MHz	dBuV/m	dBuV/m	dB	dBuV		
2382.600	37.49	54.00	-16.51	45.13	-7.64	Average	2348.236	36.41	54.00	-17.59	44.15	-7.74	Average
2382.600	51.66	74.00	-22.34	59.30	-7.64	Peak	2348.236	51.02	74.00	-22.98	58.76	-7.74	Peak
2440.922	97.36			104.88	-7.52	Average	2441.164	90.90			98.42	-7.52	Average
2440.922	114.86			122.38	-7.52	Peak	2441.164	106.65			114.17	-7.52	Peak
2483.756	39.42	54.00	-14.58	46.76	-7.34	Average	2513.764	37.32	54.00	-16.68	44.59	-7.27	Average
2483.756	54.57	74.00	-19.43	61.91	-7.34	Peak	2513.764	52.05	74.00	-21.95	59.32	-7.27	Peak
3254.700	41.83	54.00	-12.17	45.90	-4.07	Average	3254.700	40.16	54.00	-13.84	44.23	-4.07	Average
3254.700	45.76	74.00	-28.24	49.83	-4.07	Peak	3254.700	44.86	74.00	-29.14	48.93	-4.07	Peak
4882.000	46.59	54.00	-7.41	45.77	0.82	Average	4882.000	53.52	54.00	-0.48	52.70	0.82	Average
4882.000	55.15	74.00	-18.85	54.33	0.82	Peak	4882.000	62.43	74.00	-11.57	61.61	0.82	Peak
7323.000	45.13	54.00	-8.87	39.41	5.72	Average	7323.000	48.54	54.00	-5.46	42.82	5.72	Average
7323.000	54.85	74.00	-19.15	49.13	5.72	Peak	7323.000	62.11	74.00	-11.89	56.39	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV			MHz	dBuV/m	dBuV/m	dB	dBuV		
2480.086	98.93			106.28	-7.35	Average	2480.086	91.76			99.11	-7.35	Average
2480.086	116.74			124.09	-7.35	Peak	2480.086	107.73			115.08	-7.35	Peak
2483.500	49.78	54.00	-4.22	57.12	-7.34	Average	2483.500	42.22	54.00	-11.78	49.56	-7.34	Average
2483.500	63.60	74.00	-10.40	70.94	-7.34	Peak	2483.500	55.98	74.00	-18.02	63.32	-7.34	Peak
3306.700	42.36	54.00	-11.64	46.29	-3.93	Average	3306.700	39.82	54.00	-14.18	43.75	-3.93	Average
3306.700	46.98	74.00	-27.02	50.91	-3.93	Peak	3306.700	44.91	74.00	-29.09	48.84	-3.93	Peak
4960.000	47.72	54.00	-6.28	46.91	0.81	Average	4960.000	53.25	54.00	-0.75	52.44	0.81	Average
4960.000	56.22	74.00	-17.78	55.41	0.81	Peak	4960.000	61.92	74.00	-12.08	61.11	0.81	Peak
7440.000	46.38	54.00	-7.62	40.32	6.06	Average	7440.000	51.22	54.00	-2.78	45.16	6.06	Average
7440.000	56.39	74.00	-17.61	50.33	6.06	Peak	7440.000	62.23	74.00	-11.77	56.17	6.06	Peak

EDR-2Mbps mode:

Low CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV			MHz	dBuV/m	dBuV/m	dB	dBuV		
2388.540	42.37	54.00	-11.63	50.00	-7.63	Average	2380.992	37.90	54.00	-16.10	45.55	-7.65	Average
2388.540	54.77	74.00	-19.23	62.40	-7.63	Peak	2380.992	50.87	74.00	-23.13	58.52	-7.65	Peak
2402.310	96.48			104.10	-7.62	Average	2401.902	89.31			96.93	-7.62	Average
2402.310	116.19			123.81	-7.62	Peak	2401.902	107.44			115.06	-7.62	Peak
3202.700	42.10	54.00	-11.90	46.40	-4.30	Average	3202.700	39.82	54.00	-14.18	44.05	-4.23	Average
3202.700	47.13	74.00	-26.87	51.43	-4.30	Peak	3202.700	44.49	74.00	-29.51	48.72	-4.23	Peak
4804.000	47.81	54.00	-6.19	47.19	0.62	Average	4804.000	52.93	54.00	-1.07	52.31	0.62	Average
4804.000	58.74	74.00	-15.26	58.12	0.62	Peak	4804.000	65.33	74.00	-8.67	64.71	0.62	Peak
7206.000	47.21	54.00	-6.79	41.96	5.25	Average	7206.000	53.27	54.00	-0.73	48.02	5.25	Average
7206.000	58.63	74.00	-15.37	53.38	5.25	Peak	7206.000	65.01	74.00	-8.99	59.76	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV			MHz	dBuV/m	dBuV/m	dB	dBuV		
2395.426	38.24	54.00	-15.76	45.87	-7.63	Average	2379.938	36.59	54.00	-17.41	44.24	-7.65	Average
2395.426	53.01	74.00	-20.99	60.64	-7.63	Peak	2379.938	50.09	74.00	-23.91	57.74	-7.65	Peak
2440.922	97.34			104.86	-7.52	Average	2440.922	90.41			97.93	-7.52	Average
2440.922	117.20			124.72	-7.52	Peak	2440.922	108.71			116.23	-7.52	Peak
2487.386	39.91	54.00	-14.09	47.25	-7.34	Average	2486.660	37.47	54.00	-16.53	44.81	-7.34	Average
2487.386	55.84	74.00	-18.16	63.18	-7.34	Peak	2486.660	52.03	74.00	-21.97	59.37	-7.34	Peak
3254.700	42.83	54.00	-11.17	46.90	-4.07	Average	3254.700	39.37	54.00	-14.63	43.44	-4.07	Average
3254.700	47.60	74.00	-26.40	51.67	-4.07	Peak	3254.700	44.32	74.00	-29.68	48.39	-4.07	Peak
4882.000	46.14	54.00	-7.86	45.32	0.82	Average	4882.000	51.16	54.00	-2.84	50.34	0.82	Average
4882.000	56.69	74.00	-17.31	55.87	0.82	Peak	4882.000	62.63	74.00	-11.37	61.81	0.82	Peak
7323.000	46.59	54.00	-7.41	40.87	5.72	Average	7323.000	53.65	54.00	-0.35	47.93	5.72	Average
7323.000	58.11	74.00	-15.89	52.39	5.72	Peak	7323.000	65.67	74.00	-8.33	59.95	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV			MHz	dBuV/m	dBuV/m	dB	dBuV		
2479.840	98.18			105.53	-7.35	Average	2480.168	91.25			98.60	-7.35	Average
2479.840	117.85			125.20	-7.35	Peak	2480.168	109.57			116.92	-7.35	Peak
2483.530	50.80	54.00	-3.20	58.14	-7.34	Average	2483.500	44.31	54.00	-9.69	51.65	-7.34	Average
2483.530	71.95	74.00	-2.05	79.29	-7.34	Peak	2483.500	61.67	74.00	-12.33	69.01	-7.34	Peak
3306.700	43.63	54.00	-10.37	47.56	-3.93	Average	3306.700	40.32	54.00	-13.68	44.25	-3.93	Average
3306.700	52.60	74.00	-21.40	56.53	-3.93	Peak	3306.700	45.29	74.00	-28.71	49.22	-3.93	Peak
4960.000	46.57	54.00	-7.43	45.76	0.81	Average	4960.000	51.46	54.00	-2.54	50.65	0.81	Average
4960.000	57.09	74.00	-16.91	56.28	0.81	Peak	4960.000	62.69	74.00	-11.31	61.88	0.81	Peak
7440.000	47.67	54.00	-6.33	41.61	6.06	Average	7440.000	53.52	54.00	-0.48	47.46	6.06	Average
7440.000	58.44	74.00	-15.56	52.38	6.06	Peak	7440.000	65.38	74.00	-8.62	59.32	6.06	Peak

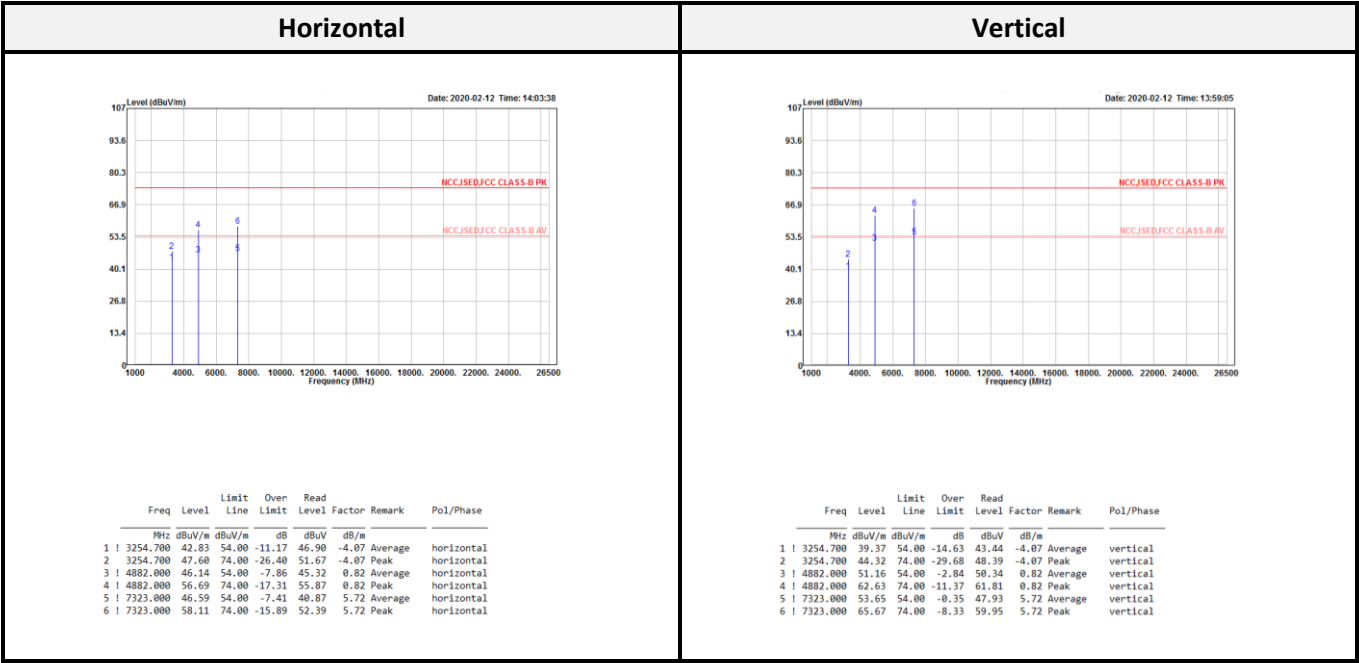
EDR-3Mbps mode:

Low CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2387.418	41.76	54.00	-12.24	49.40	-7.64	Average	2380.482	37.85	54.00	-16.15	45.50	-7.65	Average
2387.418	55.40	74.00	-18.60	63.04	-7.64	Peak	2380.482	51.28	74.00	-22.72	58.93	-7.65	Peak
2402.106	96.14			103.76	-7.62	Average	2402.004	88.86			96.48	-7.62	Average
2402.106	116.27			123.89	-7.62	Peak	2402.004	107.04			114.66	-7.62	Peak
3202.700	43.78	54.00	-10.22	48.08	-4.30	Average	3202.700	39.75	54.00	-14.25	44.05	-4.30	Average
3202.700	47.05	74.00	-26.95	51.35	-4.30	Peak	3202.700	43.60	74.00	-30.40	47.90	-4.30	Peak
4804.000	46.94	54.00	-7.06	46.32	0.62	Average	4804.000	53.02	54.00	-0.98	52.40	0.62	Average
4804.000	57.72	74.00	-16.28	57.10	0.62	Peak	4804.000	64.72	74.00	-9.28	64.10	0.62	Peak
7206.000	45.93	54.00	-8.07	40.68	5.25	Average	7206.000	51.57	54.00	-2.43	46.32	5.25	Average
7206.000	57.57	74.00	-16.43	52.32	5.25	Peak	7206.000	64.95	74.00	-9.05	59.70	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2386.230	38.22	54.00	-15.78	45.86	-7.64	Average	2383.326	36.57	54.00	-17.43	44.21	-7.64	Average
2386.230	52.49	74.00	-21.51	60.13	-7.64	Peak	2383.326	50.29	74.00	-23.71	57.93	-7.64	Peak
2441.164	97.36			104.88	-7.52	Average	2441.164	89.99			97.51	-7.52	Average
2441.164	117.15			124.67	-7.52	Peak	2441.164	108.37			115.89	-7.52	Peak
2501.422	39.86	54.00	-14.14	47.17	-7.31	Average	2495.856	37.55	54.00	-16.45	44.88	-7.33	Average
2501.422	55.77	74.00	-18.23	63.08	-7.31	Peak	2495.856	51.72	74.00	-22.28	59.05	-7.33	Peak
3254.700	43.20	54.00	-10.80	47.27	-4.07	Average	3254.700	41.24	54.00	-12.76	45.31	-4.07	Average
3254.700	48.58	74.00	-25.42	52.65	-4.07	Peak	3254.700	45.07	74.00	-28.93	49.14	-4.07	Peak
4882.000	46.42	54.00	-7.58	45.60	0.82	Average	4882.000	52.55	54.00	-1.45	51.73	0.82	Average
4882.000	57.02	74.00	-16.98	56.20	0.82	Peak	4882.000	62.44	74.00	-11.56	61.62	0.82	Peak
7323.000	46.24	54.00	-7.76	40.52	5.72	Average	7323.000	53.07	54.00	-0.93	47.35	5.72	Average
7323.000	59.34	74.00	-14.66	53.62	5.72	Peak	7323.000	66.17	74.00	-7.83	60.45	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit	Over	Read	Factor	Remark	Freq	Level	Limit	Over	Read	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.168	97.89			105.24	-7.35	Average	2480.004	91.04			98.39	-7.35	Average
2480.168	117.58			124.93	-7.35	Peak	2480.004	109.55			116.90	-7.35	Peak
2483.500	51.00	54.00	-3.00	58.34	-7.34	Average	2483.500	44.01	54.00	-9.99	51.35	-7.34	Average
2483.500	72.93	74.00	-1.07	80.27	-7.34	Peak	2483.500	61.65	74.00	-12.35	68.99	-7.34	Peak
3306.700	43.50	54.00	-10.50	47.43	-3.93	Average	3306.700	41.41	54.00	-12.59	45.34	-3.93	Average
3306.700	51.31	74.00	-22.69	55.24	-3.93	Peak	3306.700	45.58	74.00	-28.42	49.51	-3.93	Peak
4960.000	46.23	54.00	-7.77	45.42	0.81	Average	4960.000	51.47	54.00	-2.53	50.66	0.81	Average
4960.000	56.67	74.00	-17.33	55.86	0.81	Peak	4960.000	62.57	74.00	-11.43	61.76	0.81	Peak
7440.000	44.58	54.00	-9.42	38.52	6.06	Average	7440.000	52.94	54.00	-1.06	46.88	6.06	Average
7440.000	56.49	74.00	-17.51	50.43	6.06	Peak	7440.000	65.94	74.00	-8.06	59.88	6.06	Peak

Above 1G (1 GHz-26.5 GHz): The worst mode: EDR-2Mbps Middle CH.



Level = Read Level + Factor

Over Limit = Level – Limit

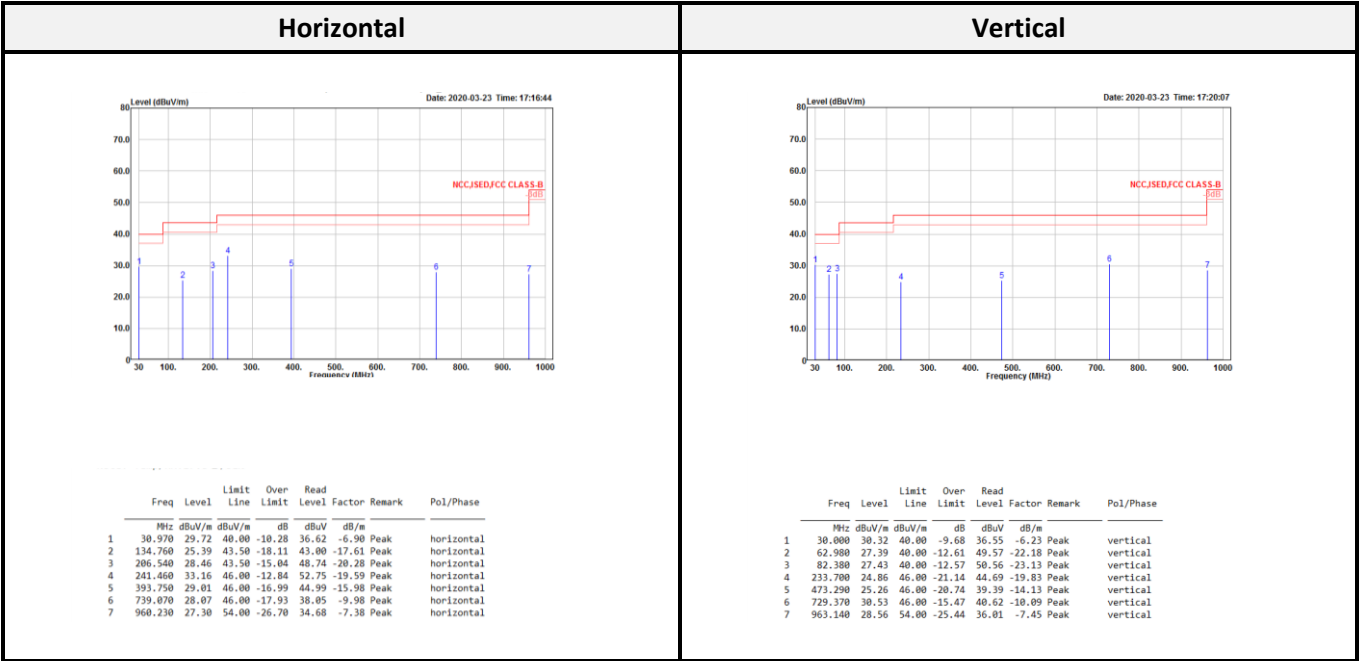
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported

< PIFA Antenna (SMARTEQ 4211613980)>

Transmitting mode (Pre-scan with three orthogonal axis, and worse case as Z axis)

Below 1G (30 MHz-1 GHz) test the worst mode



Note:

Level = Read Level + Factor, Over Limit = Level – Limit, Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported

Above 1G (1 GHz-26.5 GHz)**BR-1Mbps mode:**

Low CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2386.500	37.39	54.00	-16.61	45.03	-7.64	Average	2327.300	37.67	54.00	-16.33	45.48	-7.81	Average
2386.500	51.57	74.00	-22.43	59.21	-7.64	Peak	2327.300	51.32	74.00	-22.68	59.13	-7.81	Peak
2402.200	88.33			95.95	-7.62	Average	2402.200	89.61			97.23	-7.62	Average
2402.200	103.75			111.37	-7.62	Peak	2402.200	105.31			112.93	-7.62	Peak
3202.700	38.92	54.00	-15.08	43.18	-4.26	Average	3202.700	43.84	54.00	-10.16	48.10	-4.26	Average
3202.700	45.59	74.00	-28.41	49.85	-4.26	Peak	3202.700	49.55	74.00	-24.45	53.81	-4.26	Peak
4804.000	48.52	54.00	-5.48	47.90	0.62	Average	4804.000	53.29	54.00	-0.71	52.67	0.62	Average
4804.000	57.36	74.00	-16.64	56.74	0.62	Peak	4804.000	62.17	74.00	-11.83	61.55	0.62	Peak
7206.000	52.86	54.00	-1.14	47.61	5.25	Average	7206.000	53.17	54.00	-0.83	47.92	5.25	Average
7206.000	64.36	74.00	-9.64	59.11	5.25	Peak	7206.000	64.14	74.00	-9.86	58.89	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2318.228	35.85	54.00	-18.15	43.66	-7.81	Average	2340.976	36.04	54.00	-17.96	43.81	-7.77	Average
2318.228	49.92	74.00	-24.08	57.73	-7.81	Peak	2340.976	50.63	74.00	-23.37	58.40	-7.77	Peak
2441.164	87.39			94.91	-7.52	Average	2441.164	88.70			96.22	-7.52	Average
2441.164	102.31			109.83	-7.52	Peak	2441.164	103.92			111.44	-7.52	Peak
2494.404	36.77	54.00	-17.23	44.10	-7.33	Average	2546.918	37.01	54.00	-16.99	44.15	-7.14	Average
2494.404	51.53	74.00	-22.47	58.86	-7.33	Peak	2546.918	51.45	74.00	-22.55	58.59	-7.14	Peak
3254.700	38.38	54.00	-15.62	42.41	-4.03	Average	3254.700	42.42	54.00	-11.58	46.45	-4.03	Average
3254.700	45.46	74.00	-28.54	49.49	-4.03	Peak	3254.700	48.46	74.00	-25.54	52.49	-4.03	Peak
4882.000	45.14	54.00	-8.86	44.32	0.82	Average	4882.000	51.13	54.00	-2.87	50.31	0.82	Average
4882.000	53.43	74.00	-20.57	52.61	0.82	Peak	4882.000	59.60	74.00	-14.40	58.78	0.82	Peak
7323.000	53.56	54.00	-0.44	47.84	5.72	Average	7323.000	53.03	54.00	-0.97	47.31	5.72	Average
7323.000	64.36	74.00	-9.64	58.64	5.72	Peak	7323.000	63.52	74.00	-10.48	57.80	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2479.922	88.08			95.43	-7.35	Average	2479.840	88.86			96.21	-7.35	Average
2479.922	102.88			110.23	-7.35	Peak	2479.840	104.60			111.95	-7.35	Peak
2483.530	38.86	54.00	-15.14	46.20	-7.34	Average	2483.500	39.57	54.00	-14.43	46.91	-7.34	Average
2483.530	52.74	74.00	-21.26	60.08	-7.34	Peak	2483.500	53.76	74.00	-20.24	61.10	-7.34	Peak
3306.700	38.19	54.00	-15.81	42.12	-3.93	Average	3306.700	39.73	54.00	-14.27	43.66	-3.93	Average
3306.700	45.93	74.00	-28.07	49.86	-3.93	Peak	3306.700	47.73	74.00	-26.27	51.66	-3.93	Peak
4960.000	44.72	54.00	-9.28	43.91	0.81	Average	4960.000	50.27	54.00	-3.73	49.46	0.81	Average
4960.000	53.33	74.00	-20.67	52.52	0.81	Peak	4960.000	58.72	74.00	-15.28	57.91	0.81	Peak
7440.000	53.44	54.00	-0.56	47.38	6.06	Average	7440.000	52.64	54.00	-1.36	46.58	6.06	Average
7440.000	64.56	74.00	-9.44	58.50	6.06	Peak	7440.000	63.04	74.00	-10.96	56.98	6.06	Peak

EDR-2Mbps mode:

Low CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2361.800	36.64	54.00	-17.36	44.34	-7.70	Average	2380.100	37.21	54.00	-16.79	44.86	-7.65	Average
2361.800	52.02	74.00	-21.98	59.72	-7.70	Peak	2380.100	51.50	74.00	-22.50	59.15	-7.65	Peak
2401.900	85.86			93.48	-7.62	Average	2401.900	87.71			95.33	-7.62	Average
2401.900	103.30			110.92	-7.62	Peak	2401.900	105.58			113.20	-7.62	Peak
3202.700	38.05	54.00	-15.95	42.31	-4.26	Average	3202.700	40.06	54.00	-13.94	44.32	-4.26	Average
3202.700	45.45	74.00	-28.55	49.71	-4.26	Peak	3202.700	47.14	74.00	-26.86	51.40	-4.26	Peak
4804.000	44.98	54.00	-9.02	44.36	0.62	Average	4804.000	50.23	54.00	-3.77	49.61	0.62	Average
4804.000	56.00	74.00	-18.00	55.38	0.62	Peak	4804.000	61.33	74.00	-12.67	60.71	0.62	Peak
7206.000	53.25	54.00	-0.75	48.00	5.25	Average	7206.000	51.75	54.00	-2.25	46.50	5.25	Average
7206.000	65.72	74.00	-8.28	60.47	5.25	Peak	7206.000	64.66	74.00	-9.34	59.41	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2315.566	35.92	54.00	-18.08	43.74	-7.82	Average	2311.452	36.04	54.00	-17.96	43.87	-7.83	Average
2315.566	50.88	74.00	-23.12	58.70	-7.82	Peak	2311.452	50.58	74.00	-23.42	58.41	-7.83	Peak
2441.406	86.03			93.54	-7.51	Average	2441.164	86.37			93.89	-7.52	Average
2441.406	103.54			111.05	-7.51	Peak	2441.164	103.99			111.51	-7.52	Peak
2540.868	36.92	54.00	-17.08	44.10	-7.18	Average	2544.740	37.08	54.00	-16.92	44.24	-7.16	Average
2540.868	52.15	74.00	-21.85	59.33	-7.18	Peak	2544.740	51.81	74.00	-22.19	58.97	-7.16	Peak
3254.700	37.83	54.00	-16.17	41.86	-4.03	Average	3254.700	40.00	54.00	-14.00	44.03	-4.03	Average
3254.700	46.81	74.00	-27.19	50.84	-4.03	Peak	3254.700	48.65	74.00	-25.35	52.68	-4.03	Peak
4882.000	43.60	54.00	-10.40	42.78	0.82	Average	4882.000	49.19	54.00	-4.81	48.37	0.82	Average
4882.000	54.46	74.00	-19.54	53.64	0.82	Peak	4882.000	60.15	74.00	-13.85	59.33	0.82	Peak
7323.000	53.09	54.00	-0.91	47.37	5.72	Average	7323.000	51.69	54.00	-2.31	45.97	5.72	Average
7323.000	65.94	74.00	-8.06	60.22	5.72	Peak	7323.000	64.58	74.00	-9.42	58.86	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.168	86.34			93.69	-7.35	Average	2480.168	87.90			95.25	-7.35	Average
2480.168	103.92			111.27	-7.35	Peak	2480.168	105.64			112.99	-7.35	Peak
2483.500	40.40	54.00	-13.60	47.74	-7.34	Average	2483.500	41.21	54.00	-12.79	48.55	-7.34	Average
2483.500	55.56	74.00	-18.44	62.90	-7.34	Peak	2483.500	57.10	74.00	-16.90	64.44	-7.34	Peak
3306.700	36.63	54.00	-17.37	40.56	-3.93	Average	3306.700	38.38	54.00	-15.62	42.31	-3.93	Average
3306.700	44.03	74.00	-29.97	47.96	-3.93	Peak	3306.700	48.96	74.00	-25.04	52.89	-3.93	Peak
4960.000	43.33	54.00	-10.67	42.52	0.81	Average	4960.000	47.80	54.00	-6.20	46.99	0.81	Average
4960.000	53.77	74.00	-20.23	52.96	0.81	Peak	4960.000	59.28	74.00	-14.72	58.47	0.81	Peak
7440.000	52.95	54.00	-1.05	46.89	6.06	Average	7440.000	52.51	54.00	-1.49	46.45	6.06	Average
7440.000	65.14	74.00	-8.86	59.08	6.06	Peak	7440.000	64.71	74.00	-9.29	58.65	6.06	Peak

EDR-3Mbps mode:

Low CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2378.700	36.89	54.00	-17.11	44.54	-7.65	Average	2373.300	37.14	54.00	-16.86	44.80	-7.66	Average
2378.700	51.26	74.00	-22.74	58.91	-7.65	Peak	2373.300	51.50	74.00	-22.50	59.16	-7.66	Peak
2402.000	85.88			93.50	-7.62	Average	2402.100	87.91			95.53	-7.62	Average
2402.000	103.44			111.06	-7.62	Peak	2402.100	106.04			113.66	-7.62	Peak
3202.700	37.39	54.00	-16.61	41.65	-4.26	Average	3202.700	38.42	54.00	-15.58	42.68	-4.26	Average
3202.700	44.30	74.00	-29.70	48.56	-4.26	Peak	3202.700	47.42	74.00	-26.58	51.68	-4.26	Peak
4804.000	45.07	54.00	-8.93	44.45	0.62	Average	4804.000	50.05	54.00	-3.95	49.43	0.62	Average
4804.000	55.91	74.00	-18.09	55.29	0.62	Peak	4804.000	61.91	74.00	-12.09	61.29	0.62	Peak
7206.000	53.15	54.00	-0.85	47.90	5.25	Average	7206.000	51.85	54.00	-2.15	46.60	5.25	Average
7206.000	66.54	74.00	-7.46	61.29	5.25	Peak	7206.000	65.11	74.00	-8.89	59.86	5.25	Peak

Middle CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2385.504	36.13	54.00	-17.87	43.77	-7.64	Average	2383.084	36.19	54.00	-17.81	43.83	-7.64	Average
2385.504	50.11	74.00	-23.89	57.75	-7.64	Peak	2383.084	50.49	74.00	-23.51	58.13	-7.64	Peak
2441.164	86.37			93.89	-7.52	Average	2441.164	87.51			95.03	-7.52	Average
2441.164	104.10			111.62	-7.52	Peak	2441.164	105.64			113.16	-7.52	Peak
2537.722	36.97	54.00	-17.03	44.17	-7.20	Average	2506.262	37.00	54.00	-17.00	44.29	-7.29	Average
2537.722	50.93	74.00	-23.07	58.13	-7.20	Peak	2506.262	51.00	74.00	-23.00	58.29	-7.29	Peak
3254.700	36.65	54.00	-17.35	40.68	-4.03	Average	3254.700	40.82	54.00	-13.18	44.85	-4.03	Average
3254.700	46.83	74.00	-27.17	50.86	-4.03	Peak	3254.700	48.20	74.00	-25.80	52.23	-4.03	Peak
4882.000	43.63	54.00	-10.37	42.81	0.82	Average	4882.000	49.47	54.00	-4.53	48.65	0.82	Average
4882.000	54.30	74.00	-19.70	53.48	0.82	Peak	4882.000	61.40	74.00	-12.60	60.58	0.82	Peak
7323.000	53.35	54.00	-0.65	47.63	5.72	Average	7323.000	51.10	54.00	-2.90	45.38	5.72	Average
7323.000	66.82	74.00	-7.18	61.10	5.72	Peak	7323.000	65.21	74.00	-8.79	59.49	5.72	Peak

High CH													
Horizontal							Vertical						
Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark	Freq	Level	Limit Line	Over Limit	Read Level	Factor	Remark
MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	
2480.004	87.16			94.51	-7.35	Average	2480.004	88.86			96.21	-7.35	Average
2480.004	104.99			112.34	-7.35	Peak	2480.004	107.01			114.36	-7.35	Peak
2483.500	41.61	54.00	-12.39	48.95	-7.34	Average	2483.500	43.69	54.00	-10.31	51.03	-7.34	Average
2483.500	58.77	74.00	-15.23	66.11	-7.34	Peak	2483.500	61.71	74.00	-12.29	69.05	-7.34	Peak
3306.700	38.23	54.00	-15.77	42.16	-3.93	Average	3306.700	40.72	54.00	-13.28	44.65	-3.93	Average
3306.700	47.64	74.00	-26.36	51.57	-3.93	Peak	3306.700	48.51	74.00	-25.49	52.44	-3.93	Peak
4960.000	44.43	54.00	-9.57	43.62	0.81	Average	4960.000	48.78	54.00	-5.22	47.97	0.81	Average
4960.000	54.49	74.00	-19.51	53.68	0.81	Peak	4960.000	60.52	74.00	-13.48	59.71	0.81	Peak
7440.000	53.24	54.00	-0.76	47.18	6.06	Average	7440.000	52.35	54.00	-1.65	46.29	6.06	Average
7440.000	66.56	74.00	-7.44	60.50	6.06	Peak	7440.000	66.19	74.00	-7.81	60.13	6.06	Peak