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TESTING LABORATORY
CERTIFICATE # 4821.01

BACL
Bay Area Compliance Labs Corp.

FCC PART 15.407

TEST REPORT

For

Winner Wave Limited

Unit 1615 Peninsula Tower,538 Castle Peak Road, Lai Chi Kok Kowloon, Hong Kong

FCC ID: 2ADFS-B10-R01-LR01

Report Type:	**Product Type:**
Original Report	EZCast Pro/QuattroPod

Report Number:	RSZ201210001-00C
Report Date:	2021-03-12
Reviewed By:	Jimmy Xiao RF Engineer
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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 an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	EZCast Pro/QuattroPod
Tested Model	R01
Multiple Model	LR01, B10
Frequency Range	5G Wi-Fi: 5150-5250 MHz; 5725-5850 MHz
Maximum conducted output power	Wi-Fi: 5150-5250 MHz: 11.37dBm (802.11a), 11.44dBm(802.11n20), 11.87 dBm(802.11n40) 11.44dBm (802.11ac20), 11.89dBm(802.11 ac40), 11.41dBm(802.11ac80) 5725-5850 MHz: 11.70dBm (802.11a), 11.66dBm(802.11n20), 12.20dBm(802.11n40) 11.69dBm (802.11ac20), 12.23dBm(802.11 ac40), 11.89dBm(802.11ac80)
Modulation Technique	OFDM
Antenna Specification	4.42 dBi
Voltage Range	DC 5.0V from adapter
Date of Test	2020-12-20 to 2021-02-07
Sample serial number	RSZ201210001-RF-S1 (Assigned by BACL, Shenzhen)
Received date	2020-12-10
Sample/EUT Status	Good condition
Adapter information	Model: ICP12-050-2000B Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5.0V, 2.0A, 10.0W

Note: According to the test data in the part 15B report, the worst case is model R01, so model R01 was chosen for the test.

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB789033D02 General U-NII Test Procedures New Rules v02r01.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF Output Power with Power meter		±0.73dB
RF conducted test with spectrum		±1.6dB
AC Power Lines Conducted Emissions		±1.95dB
Emissions, Radiated	Below 1GHz	±4.75dB
	Above 1GHz	±4.88dB
Temperature		±1℃
Humidity		±6%
Supply voltages		±0.4%

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

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F., West Wing, Third Phase of Wanli Industrial Building, Shihua Road, Futian Free Trade Zone, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 342867, the FCC Designation No.: CN1221.

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The device supports Beamforming and non-beamforming mode for 5G Wi-Fi. And these two modes share the same power declared by the applicant.

The EUT has two antennas for 5G Wi-Fi, it can operate in 802.11a/n20/n40/ac20/ac40/ac80 modes.

For 5150-5250MHz Band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
42	5210	/	/

For 802.11a, 802.11n20, 802.11ac20 channel 36, 40, 48 were tested; For 802.11n40, 802.11ac40 channel 38,

46 were tested; For 802.11ac80, channel 42 was tested.

For 5725-5850MHz Band, 8 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785
151	5755	159	5795
153	5765	161	5805
155	5775	165	5825

For 802.11a, 802.11n20, 802.11ac20 channel 149, 157, 165 were tested; For 802.11n40, 802.11ac40 channel 151, 159 were tested; For 802.11ac80, channel 155 was tested.

EUT Exercise Software

"REALTEK 11ac 8821CU USB WLAN NIC Massproduction Kit"* exercise software was used.

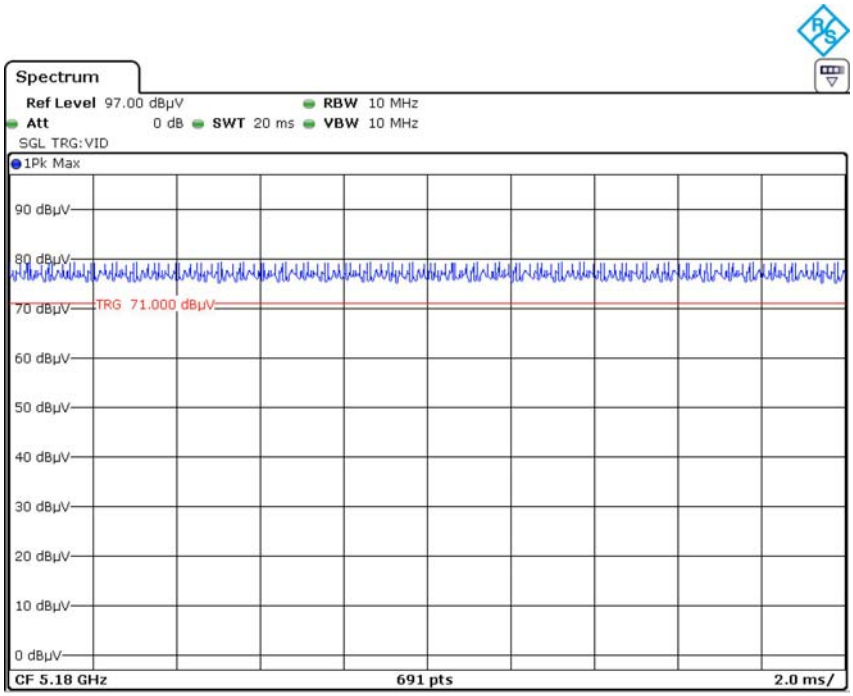
Test frequencies and power level were configured as below:

U-NII	Mode	Frequency (MHz)	Rate (Mbps)	Power Level*
5150 – 5250MHz	802.11 a	5180	6	30
		5200	6	30
		5240	6	30
	802.11 n20	5180	MCS0	30
		5200	MCS0	30
		5240	MCS0	30
	802.11 n40	5190	MCS0	30
		5230	MCS0	30
	802.11 ac20	5180	MCS0	30
		5200	MCS0	30
		5240	MCS0	30
	802.11 ac40	5190	MCS0	30
		5230	MCS0	30
	802.11 ac8	5210	MCS0	30
5725 – 5850MHz	802.11 a	5745	6	30
		5785	6	30
		5825	6	30
	802.11 n20	5745	MCS0	30
		5785	MCS0	30
		5825	MCS0	30
	802.11 n40	5755	MCS0	30
		5795	MCS0	30
	802.11 ac20	5745	MCS0	30
		5785	MCS0	30
		5825	MCS0	30
	802.11 ac40	5755	MCS0	30
		5795	MCS0	30
	802.11 ac80	5775	MCS0	30

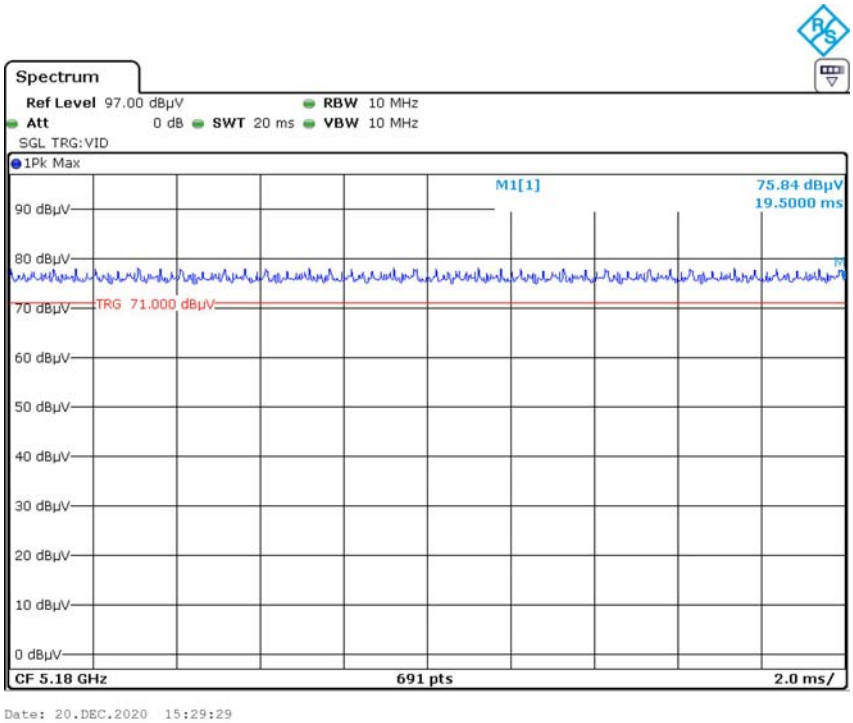
Note 1: The two antenna ports share the same power level.
Note 2: The worse-case data rates are determined to be as follows for each mode based upon investigations by measuring the output power and PSD across all data rated bandwidths, and modulations. The device supports SISO and MIMO in all modes, per pretest, the MIMO mode was the worst mode for all the modes.
Note 3: The software and power level is provided by the applicant.

Duty cycle

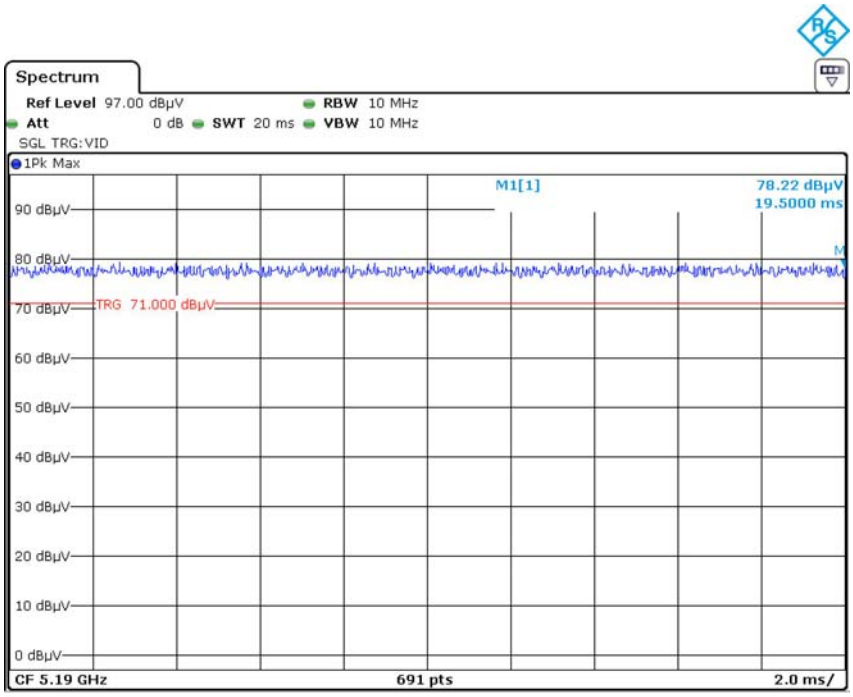
802.11a mode



802.11n20 mode



802.11n40 mode



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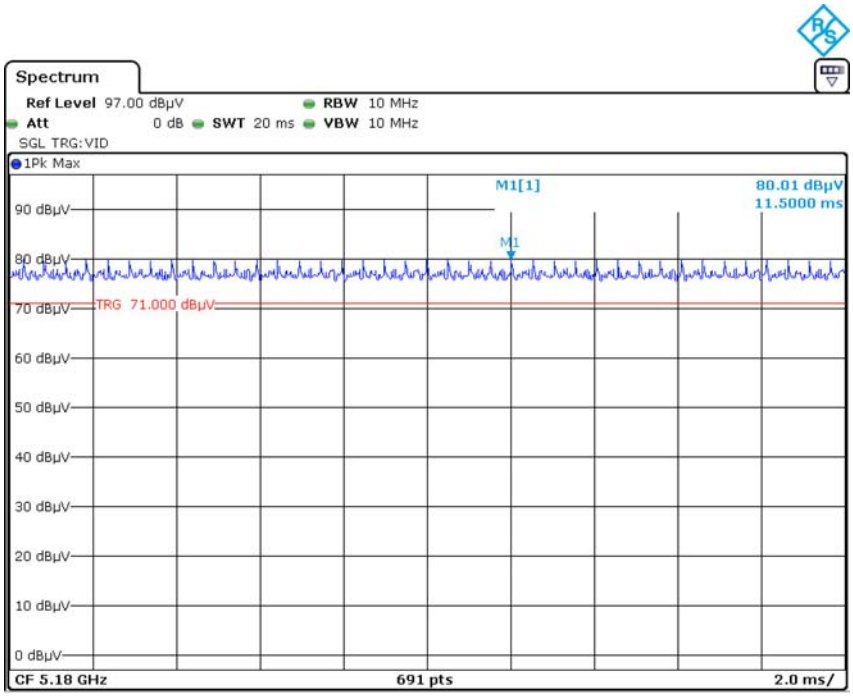
802.11ac20 Mode



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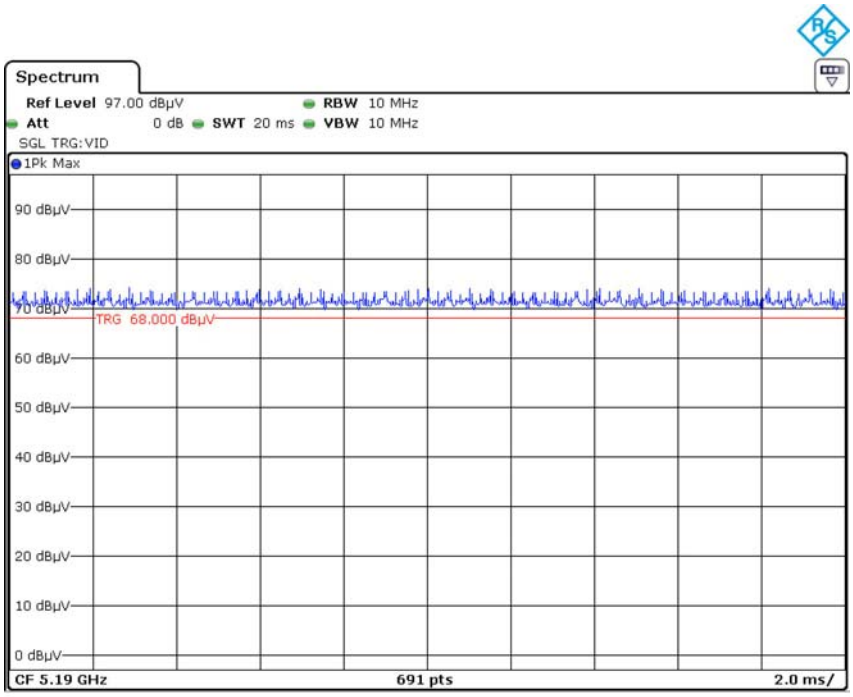
802.11ac40 Mode



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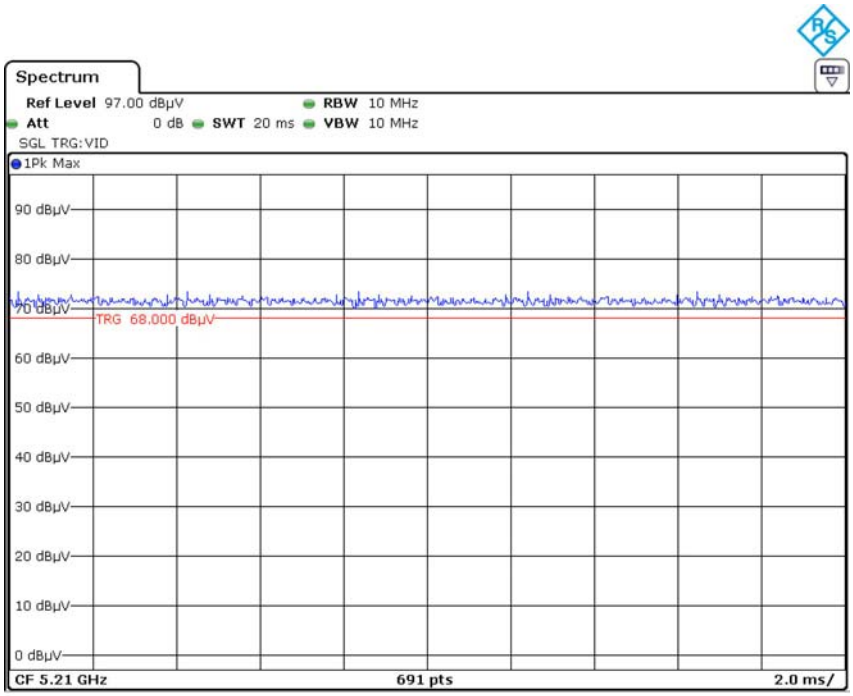
802.11ac80 Mode



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Band	Duty Cycle (%)	T(ms)	1/T(kHz)	VBW Setting	10log(1/x)
802.11a	100	-	-	10Hz	-
802.11n20	100	-	-	10Hz	-
802.11n40	100	-	-	10Hz	-
802.11ac20	100	-	-	10Hz	-
802.11ac40	100	-	-	10Hz	-
802.11ac80	100	-	-	10Hz	-

Equipment Modifications

No modification was made to the EUT tested.

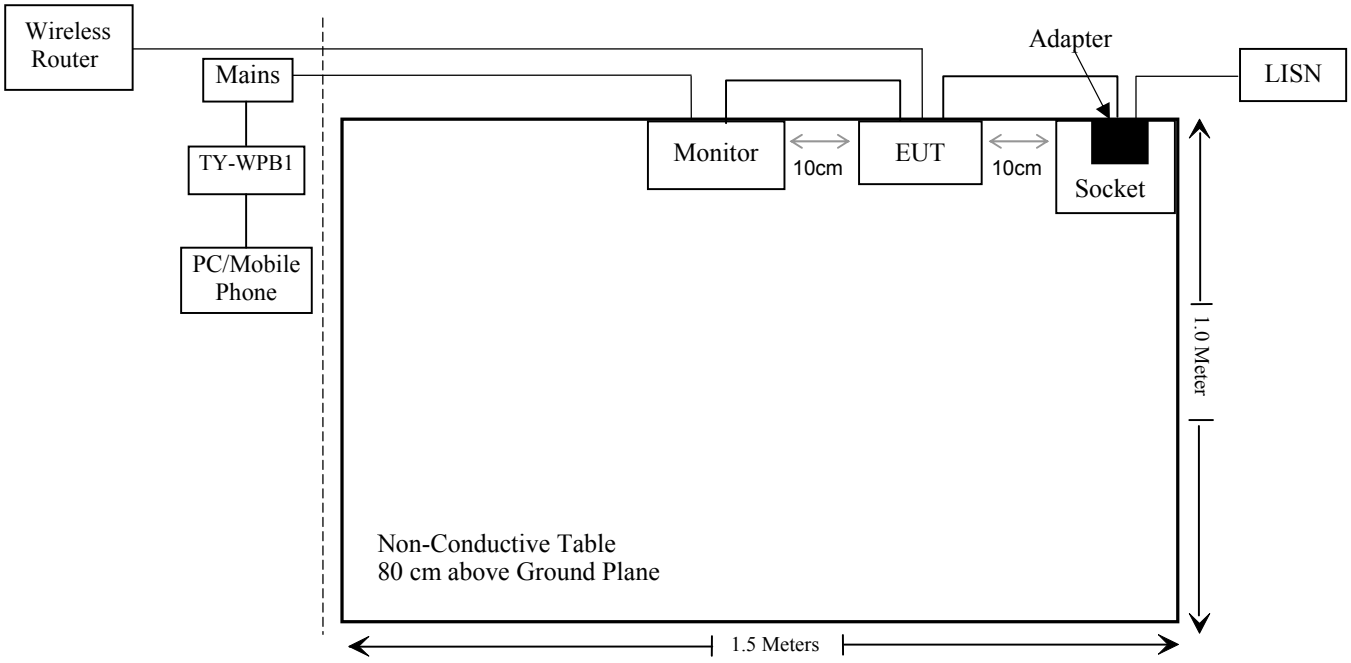
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
BULL	Socket	GN-212	A37209315081183
SAMSUNG	Monitor	S24E390HL	ZZFRH4ZMB01718J
DELL	PC	Latitude E5430	JG3NLV1
Apple	Mobile Phone	ML6N2CH/A	ML6N2CH/A
Panasonic Corporation	EZCast Pro	TY-WPB1	TY-WPB1
SAGEM	Wireless Router	SAGEM F@ST™ 2604 White	2604

External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Un-detachable AC Cable	1.0	Socket	LISN
Unshielded Detachable DC Cable	1.0	Adapter	EUT
Unshielded Detachable AC Cable	1.0	Monitor	Mains
Unshielded Detachable HDMI Cable	1.0	Monitor	EUT
Unshielded Detachable RJ45 Cable	10.0	EUT	Router

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) (1) & §2.1091	MaximuM Permissible exposure (MPE)	Compliance
§15.203	Antenna Requirement	Compliance
§15.407(b)(6)& §15.207(a)	Conducted Emissions	Compliance
§15.205& §15.209 &§15.407(b) (1), (4),(7)	Undesirable Emission& Restricted Bands	Compliance
§15.407(a) (1), (5),(e)	26 dB Emission Bandwidth & 6dB Bandwidth	Compliance*
§15.407(a)(1),(3)	Conducted Transmitter Output Power	Compliance*
§15.407 (a)(1),(3)	Power Spectral Density	Compliance*

Compliance*: The EUT has the same Bluetooth and Wi-Fi modular with the device (FCC ID: 2ADFSTYWPR1). Please refer to the declaration letter for the details. So the conducted test was refer to the report RSZ200717003-00C which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen) on 2020-09-11.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2020/7/9	2021/7/8
Rohde & Schwarz	LISN	ENV216	101613	2020/1/22	2021/1/21
Rohde & Schwarz	Transient Limitor	ESH3Z2	DE25985	2020/11/29	2021/11/28
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2020/11/29	2021/11/28
Rohde & Schwarz	CE Test software	EMC 32	V8.53.0	NCR	NCR
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2020/08/04	2021/08/03
Sonoma instrument	Pre-amplifier	310 N	186238	2020/08/04	2021/08/03
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2020/12/22	2023/12/21
Unknown	Cable 2	RF Cable 2	F-03-EM197	2020/11/29	2021/11/28
Unknown	Cable	Chamber Cable 1	F-03-EM236	2020/11/29	2021/11/28
Rohde & Schwarz	Auto test software	EMC 32	V9.10	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40-N	102259	2020/7/22	2021/7/21
COM-POWER	Pre-amplifier	PA-122	181919	2020/11/29	2021/11/28
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2020/11/29	2021/11/28
Sunol Sciences	Horn Antenna	DRH-118	A052604	2017/12/22	2020/12/21
Insulted Wire Inc.	RF Cable	SPS-2503-3150	02222010	2020/11/29	2021/11/28
Unknown	RF Cable	W1101-EQ1 OUT	F-19-EM005	2020/11/29	2021/11/28
Ducommun technologies	RF Cable	RG-214	1	2020/11/12	2021/11/12
Ducommun technologies	RF Cable	RG-214	2	2020/11/12	2021/11/12
SNSD	Band Reject filter	BSF5150-5850MN-0899-004	5G filter	2020/04/20	2021/04/20
Ducommun Technolagies	Horn antenna	ARH-4223-02	1007726-02 1304	2020/12/06	2023/12/05
Ducommun Technolagies	Horn antenna	ARH-2823-02	1007726-02 1302	2020/12/06	2023/12/05

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

§1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart 15.247 (i) and subpart 1.1307 (b)(1), 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

Limits for General Population/Uncontrolled Exposure

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

Result

Calculated Formulary:

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

S = 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)

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \le 1$$

Frequency (MHz)	Antenna Gain		Maximum Tune Up Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm^2)	MPE Limit (mW/cm^2)
	(dBi)	(numeric)	(dBm)	(mW)			
2402-2480(BT)	3.05	2.02	6.5	4.47	20	0.002	1
2402-2480(BLE)	3.05	2.02	4.5	2.82	20	0.001	1
5150-5250	4.42	2.77	12.0	15.85	20	0.009	1
5725-5850	4.42	2.77	12.5	17.78	20	0.010	1

Note:

1) To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

2) Bluetooth and 5GHz Wi-Fi can transmit simultaneously for this device.

3) Simultaneous transmitting consideration:

The ratio=MPE_{DSS}/limit+MPE_{NII}/limit=0.002+0.010=0.012＜1.0, so simultaneous exposure is not required.

Result: Pass

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has two external antennas for 5G Wi-Fi, which was permanently attached and the antenna gain is 4.42dBi, fulfill the requirement of this section. Please refer to the EUT photos.

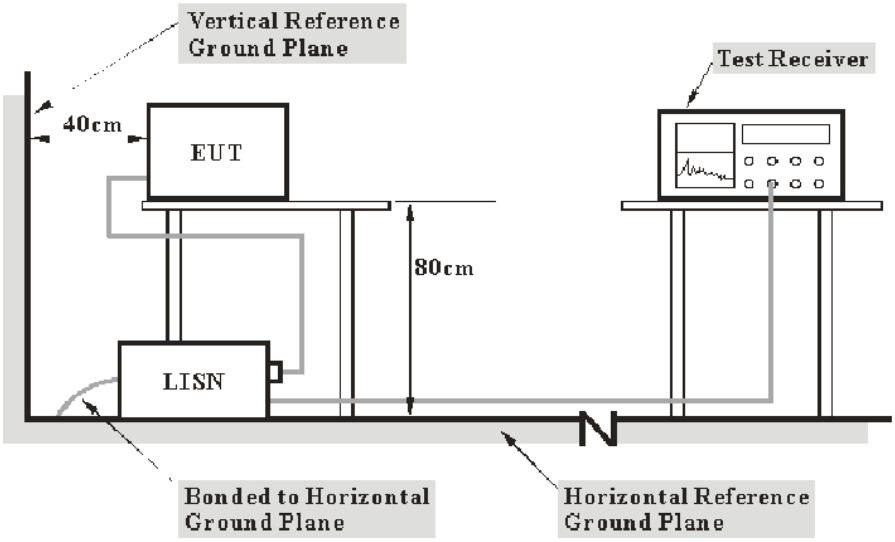
Result: Pass

FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207, §15.407(b) (6)

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.

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 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.

Test Data

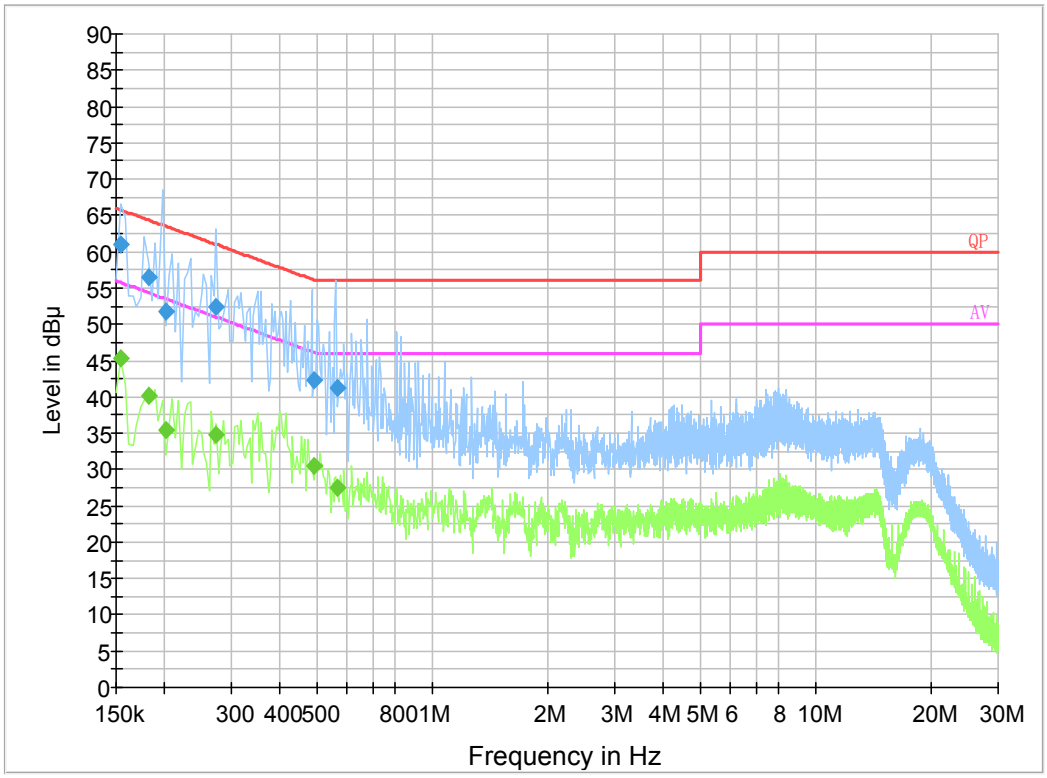
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	65 %
ATM Pressure:	101.0 kPa

The testing was performed by Haiguo Li on 2020-12-30.

EUT operation mode: Transmitting

AC 120V/60 Hz, Line:



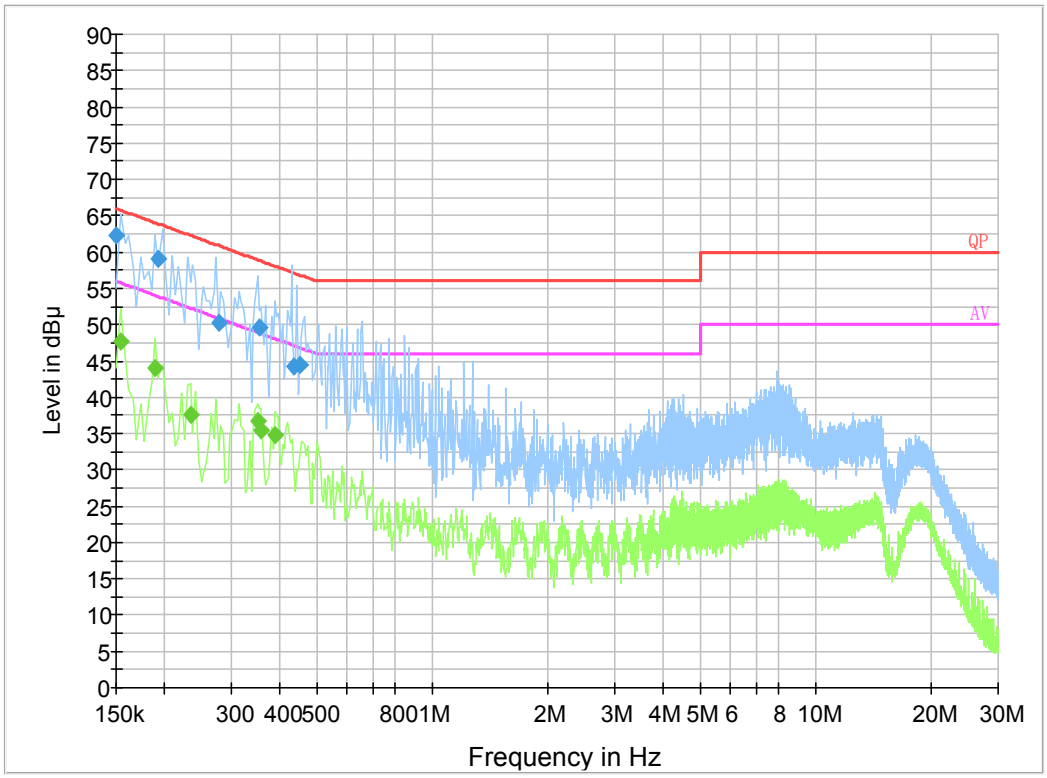
Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.154000	60.9	9.000	L1	19.8	4.9	65.8
0.182500	56.6	9.000	L1	19.8	7.8	64.4
0.202500	51.7	9.000	L1	19.8	11.8	63.5
0.273500	52.5	9.000	L1	19.8	8.5	61.0
0.490710	42.3	9.000	L1	19.8	13.9	56.2
0.565570	41.3	9.000	L1	19.8	14.7	56.0

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.154000	45.4	9.000	L1	19.8	10.4	55.8
0.182500	40.2	9.000	L1	19.8	14.2	54.4
0.202500	35.4	9.000	L1	19.8	18.1	53.5
0.273500	34.9	9.000	L1	19.8	16.1	51.0
0.490710	30.6	9.000	L1	19.8	15.6	46.2
0.565570	27.5	9.000	L1	19.8	18.5	46.0

AC120V, 60 Hz, Neutral:



Final Result 1

Frequency (MHz)	QuasiPeak (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.150000	62.3	0.200	N	19.8	3.7	66.0
0.193500	59.1	9.000	N	19.8	4.8	63.9
0.278501	50.3	9.000	N	19.7	10.6	60.9
0.355250	49.7	9.000	N	19.9	9.2	58.8
0.436450	44.3	9.000	N	19.8	12.9	57.1
0.452690	44.5	9.000	N	19.8	12.3	56.8

Final Result 2

Frequency (MHz)	Average (dB µ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB µ V)
0.154000	47.7	9.000	N	19.8	8.1	55.8
0.190000	44.1	9.000	N	19.8	10.0	54.0
0.234000	37.6	9.000	N	19.8	14.7	52.3
0.350000	36.7	9.000	N	19.9	12.3	49.0
0.358000	35.5	9.000	N	19.9	13.3	48.8
0.390000	34.7	9.000	N	19.8	13.4	48.1

§15.205 & §15.209 & §15.407(B) (1), (4), (6), (7) – UNDESIRABLE EMISSION

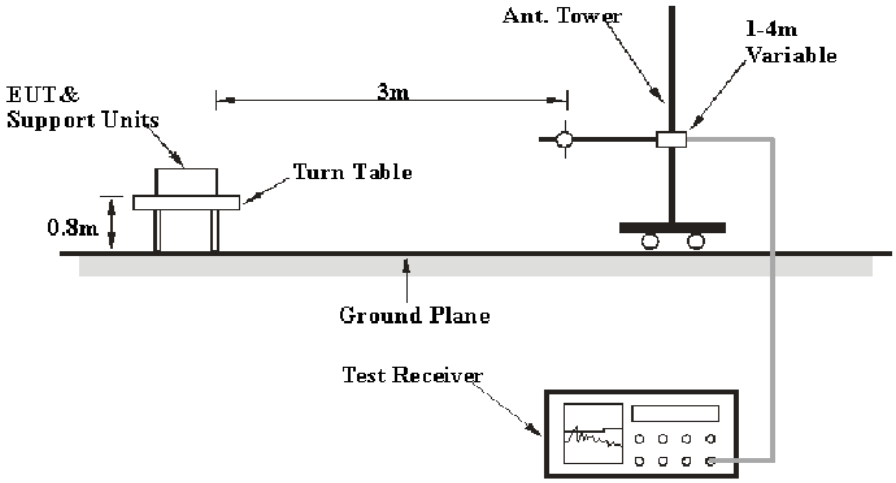
Applicable Standard

FCC §15.407 (b) (1), (4), (6), (7); §15.209; §15.205;

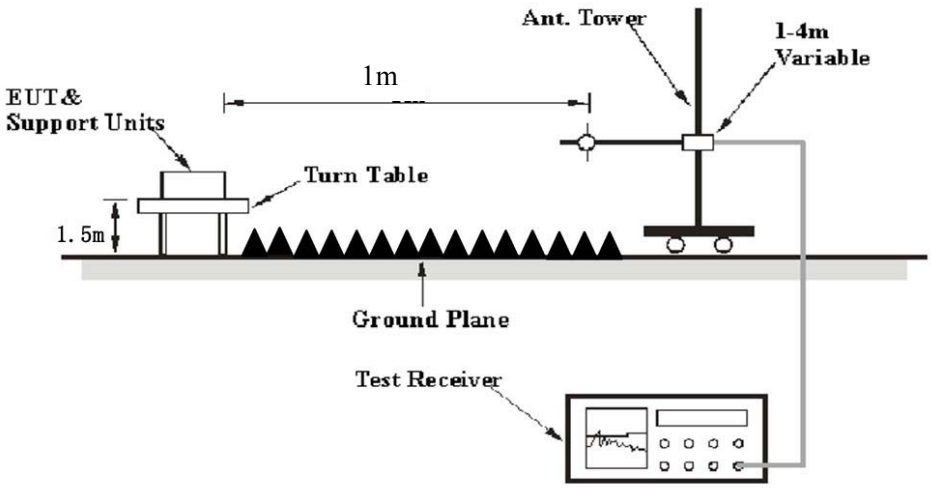
(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:
(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

EUT Setup

Below 1 GHz:



Above 1 GHz:



The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 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 & Spectrum Analyzer 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	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1MHz	10 Hz Note 1	/	Average
	1MHz	＞1/T Note 2	/	Average

Note 1: when duty cycle is no less than 98%
Note 2: when duty cycle is less than 98%

Test Procedure

Radiated Spurious Emission

During the radiated emission test, the adapter was connected to the AC floor outlet.

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

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to ANSI C63.10-2013,9.4: For field strength measurements made at other than the distance at which the applicable limit is specified,extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance). In some cases, a different distance correction factor may be required;

$$E_{\mathrm{SpecLimit}} = E_{\mathrm{Meas}} + 20\log\left(\frac{d_{\mathrm{Meas}}}{d_{\mathrm{SpecLimit}}}\right)$$

where

$E_{\mathrm{SpecLimit}}$	is the field strength of the emission at the distance specified by the limit, in dBµV/m
E_{Meas}	is the field strength of the emission at the measurement distance, in dBµV/m
d_{Meas}	is the measurement distance, in m
$d_{\mathrm{SpecLimit}}$	is the distance specified by the limit, in m

So the extrapolation factor of 1m is 20*log(1/3)= -9.5 dB

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 Data

Environmental Conditions

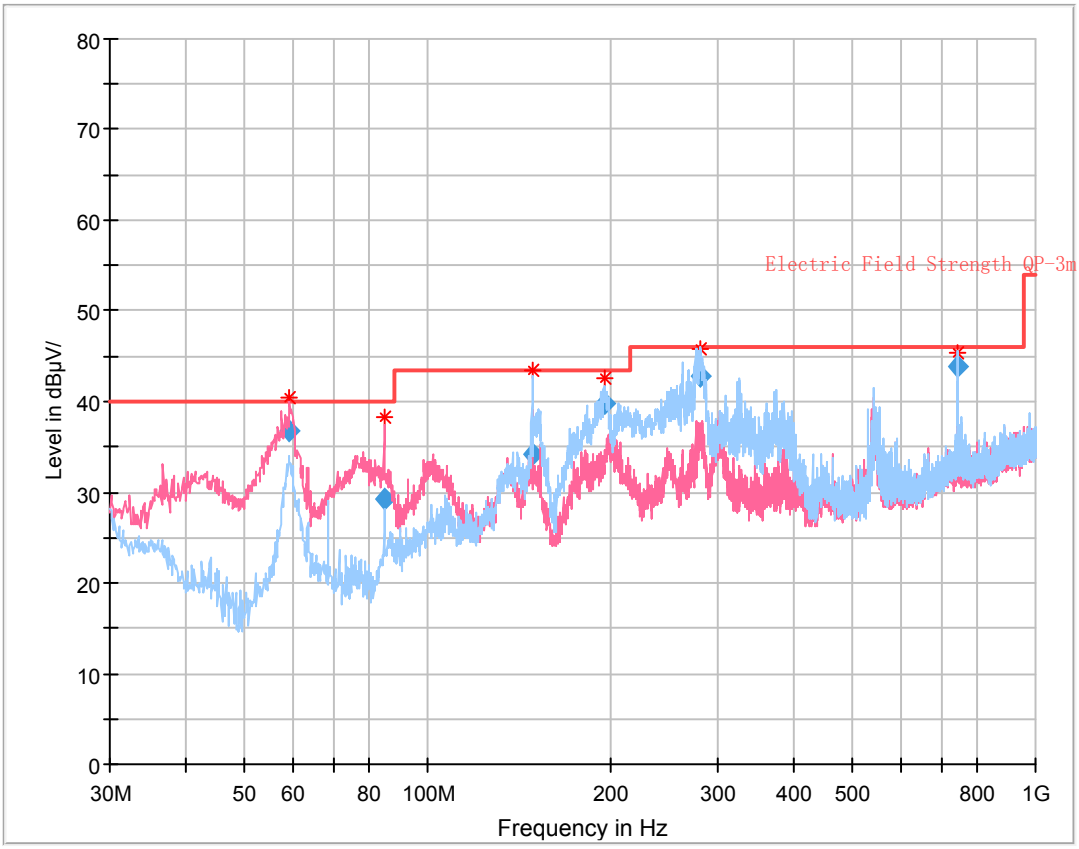
Temperature:	21 ℃
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Kilroy Deng on 2021-02-07 for below 1GHz and by Leven Gan on 2020-12-20 for above 1GHz.

EUT operation mode: Transmitting

30 MHz~1 GHz:

(*The worst case is 5.2G Wi-Fi 802.11n-HT20 Mode, Middle Channel +Bluetooth 8DPSK, high channel***)**



Final_Result

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
59.362500	36.88	40.00	3.12	117.0	V	307.0	-10.5
84.845750	29.34	40.00	10.66	106.0	V	0.0	-10.6
148.505750	34.28	43.50	9.22	222.0	H	334.0	-5.3
195.372000	39.75	43.50	3.75	198.0	H	255.0	-5.6
280.747875	42.89	46.00	3.11	126.0	H	0.0	-4.6
742.479625	43.78	46.00	2.22	113.0	H	61.0	5.3

1 ~ 40 GHz:

Note: The test distance is 1m, so the correct factor from 3m to 1m is 20log(3/1)=9.5dB which was added into the final limit.

5150-5250 MHz:

Frequency (MHz)	Receiver		Turntable	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBµV/m)	FCC Part 15.407/205/209	
	Reading (dBµV)	PK/QP/Ave.	Degree	Height (m)	Polar (H / V)			Limit (dBµV/m)	Margin (dB)
802.11a									
5180 MHz									
5145.65	31.98	PK	94	2.3	V	38.36	70.34	83.5	13.16
5145.65	17.29	Ave.	94	2.3	V	38.36	55.65	63.5	7.85
5352.27	32.01	PK	253	1.4	V	39.09	71.10	83.5	12.40
5352.27	17.31	Ave.	253	1.4	V	39.09	56.40	63.5	7.10
10360.00	43.15	PK	176	2.3	V	17.42	60.57	77.7	17.13
5200 MHz									
10400.00	42.37	PK	150	2.1	V	17.52	59.89	77.7	17.81
5240 MHz									
5147.86	32.05	PK	281	1.6	V	38.36	70.41	83.5	13.09
5147.86	17.29	Ave.	281	1.6	V	38.36	55.65	63.5	7.85
5351.11	32.11	PK	96	1.2	V	39.09	71.20	83.5	12.30
5351.11	17.32	Ave.	96	1.2	V	39.09	56.41	63.5	7.09
10480.00	42.68	PK	180	2.3	V	17.25	59.93	77.7	17.77
802.11n20									
5180 MHz									
5149.47	31.66	PK	230	1.3	V	38.36	70.02	83.5	13.48
5149.47	17.28	Ave.	230	1.3	V	38.36	55.64	63.5	7.86
5352.55	31.79	PK	102	1.7	V	39.09	70.88	83.5	12.62
5352.55	17.31	Ave.	102	1.7	V	39.09	56.40	63.5	7.10
10360.00	42.75	PK	23	1.6	V	17.42	60.17	77.7	17.53
5200 MHz									
10400.00	42.51	PK	5	1.1	V	17.52	60.03	77.7	17.67
5240 MHz									
5147.85	31.69	PK	200	1.8	V	38.36	70.05	83.5	13.45
5147.85	17.27	Ave.	200	1.8	V	38.36	55.63	63.5	7.87
5354.17	32.23	PK	250	1.5	V	39.09	71.32	83.5	12.18
5354.17	17.32	Ave.	250	1.5	V	39.09	56.41	63.5	7.09
10480.00	42.61	PK	285	1.6	V	17.25	59.86	77.7	17.84

Frequency (MHz)	Receiver		Turntable	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBµV/m)	FCC Part 15.407/205/209	
	Reading (dBµV)	PK/QP/Ave.	Degree	Height (m)	Polar (H / V)			Limit (dBµV/m)	Margin (dB)
802.11n40									
5190 MHz									
5146.29	32.02	PK	345	1.4	V	38.36	70.38	83.5	13.12
5146.29	18.24	Ave.	345	1.4	V	38.36	56.60	63.5	6.90
5351.18	31.96	PK	311	1.2	V	39.09	71.05	83.5	12.45
5351.18	18.21	Ave.	311	1.2	V	39.09	57.30	63.5	6.20
10380.00	43.13	PK	214	1.8	V	17.42	60.55	77.7	17.15
5230 MHz									
5148.71	32.12	PK	35	1.1	V	38.36	70.48	83.5	13.02
5148.71	18.22	Ave.	35	1.1	V	38.36	56.58	63.5	6.92
5352.44	32.03	PK	125	1.8	V	39.09	71.12	83.5	12.38
5352.44	18.21	Ave.	125	1.8	V	39.09	57.30	63.5	6.20
10460.00	42.81	PK	339	2.0	V	17.15	59.96	77.7	17.74
802.11ac20									
5180 MHz									
5145.83	31.96	PK	293	2.2	V	38.36	70.32	83.5	13.18
5145.83	17.51	Ave.	293	2.2	V	38.36	55.87	63.5	7.63
5351.71	31.84	PK	16	2.0	V	39.09	70.93	83.5	12.57
5351.71	17.43	Ave.	16	2.0	V	39.09	56.52	63.5	6.98
10360.00	42.77	PK	286	2.0	V	17.42	60.19	77.7	17.51
5200 MHz									
10400.00	42.47	PK	297	1.3	V	17.52	59.99	77.7	17.71
5240 MHz									
5148.75	31.90	PK	60	1.6	V	38.36	70.26	83.5	13.24
5148.75	17.41	Ave.	60	1.6	V	38.36	55.77	63.5	7.73
5352.22	32.31	PK	77	1.7	V	39.09	71.40	83.5	12.10
5352.22	17.49	Ave.	77	1.7	V	39.09	56.58	63.5	6.92
10480.00	42.52	PK	20	2.0	V	17.25	59.77	77.7	17.93
802.11ac40									
5190 MHz									
5149.66	32.39	PK	207	2.4	V	38.36	70.75	83.5	12.75
5149.66	18.27	Ave.	207	2.4	V	38.36	56.63	63.5	6.87
5351.71	32.01	PK	319	2.0	V	39.09	71.10	83.5	12.40
5351.71	18.23	Ave.	319	2.0	V	39.09	57.32	63.5	6.18
10380.00	43.01	PK	347	2.0	V	17.42	60.43	77.7	17.27
5230 MHz									
5148.12	32.47	PK	213	1.5	V	38.36	70.83	83.5	12.67
5148.12	18.25	Ave.	213	1.5	V	38.36	56.61	63.5	6.89
5350.97	31.94	PK	13	2.4	V	39.09	71.03	83.5	12.47
5350.97	18.23	Ave.	13	2.4	V	39.09	57.32	63.5	6.18
10460.00	42.73	PK	69	2.3	V	17.15	59.88	77.7	17.82

Frequency (MHz)	Receiver		Turntable	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBµV/m)	FCC Part 15.407/205/209	
	Reading (dBµV)	PK/QP/Ave.	Degree	Height (m)	Polar (H / V)			Limit (dBµV/m)	Margin (dB)
802.11ac80									
5210 MHz									
5148.12	32.47	PK	213	1.5	V	38.36	70.12	83.5	13.38
5148.12	18.25	Ave.	213	1.5	V	38.36	56.19	63.5	7.31
5350.97	31.94	PK	13	2.4	V	39.09	70.91	83.5	12.59
5350.97	18.23	Ave.	13	2.4	V	39.09	56.90	63.5	6.60
10420.00	42.73	PK	69	2.3	V	17.52	60.09	77.7	17.61

5725-5850 MHz:

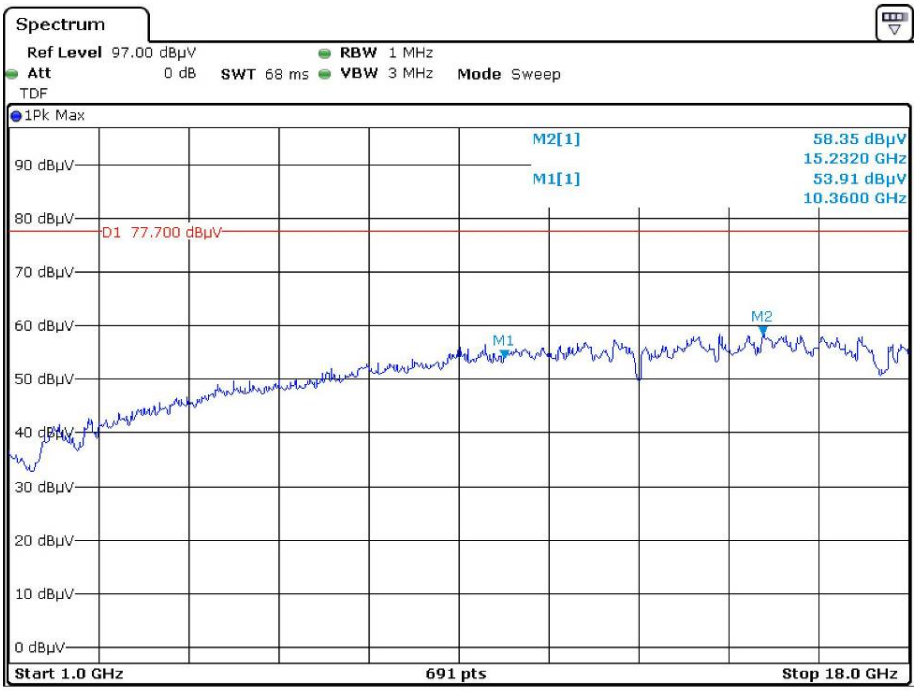
Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	PK/QP/Ave.		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
802.11a									
5745 MHz									
5620.94	32.40	PK	275	2.2	V	39.46	71.86	77.7	5.84
5652.49	32.44	PK	237	1.2	V	39.49	71.93	79.54	7.61
5714.46	33.16	PK	278	1.6	V	39.49	72.65	118.75	46.10
5724.19	36.75	PK	120	1.6	V	39.49	76.24	129.85	53.61
11490.00	43.12	PK	137	1.6	V	17.47	60.59	83.5	22.91
11490.00	28.60	Ave.	137	1.6	V	17.47	46.07	63.5	17.43
5785 MHz									
11570.00	42.97	PK	236	1.8	V	17.51	60.48	83.5	23.02
11570.00	28.59	Ave.	236	1.8	V	17.51	46.10	63.5	17.40
5825 MHz									
5854.76	34.24	PK	244	2.4	V	39.87	74.11	120.85	46.74
5874.49	33.30	PK	126	1.2	V	39.87	73.17	114.84	41.67
5909.26	33.67	PK	133	1.2	V	39.87	73.54	89.35	15.81
5930.42	34.20	PK	235	1.6	V	39.97	74.17	77.7	3.53
11650.00	42.89	PK	253	1.2	V	16.18	59.07	83.5	24.43
11650.00	28.53	Ave.	253	1.2	V	16.18	44.71	63.5	18.79
802.11n20									
5745 MHz									
5647.21	32.85	PK	254	2.1	V	39.46	72.31	77.7	5.39
5691.79	33.32	PK	153	2.3	V	39.49	72.81	108.62	35.81
5703.75	32.32	PK	169	2.1	V	39.49	71.81	115.75	43.94
5723.67	36.79	PK	78	2.3	V	39.49	76.28	128.67	52.39
11490.00	43.08	PK	210	1.1	V	17.47	60.55	83.5	22.95
11490.00	28.58	Ave.	210	1.1	V	17.47	46.05	63.5	17.45
5785 MHz									
11570.00	42.73	PK	152	1.9	V	17.51	60.24	83.5	23.26
11570.00	28.54	Ave.	152	1.9	V	17.51	46.05	63.5	17.45
5825 MHz									
5850.94	34.06	PK	294	1.9	V	39.87	73.93	129.56	55.63
5873.89	34.78	PK	11	2.0	V	39.87	74.65	115.01	40.36
5887.63	33.51	PK	122	2.2	V	39.87	73.38	105.35	31.97
5937.05	33.47	PK	198	2.4	V	39.97	73.44	77.7	4.26
11650.00	42.96	PK	189	1.9	V	16.18	59.14	83.5	24.36
11650.00	28.55	Ave.	189	1.9	V	16.18	44.73	63.5	18.77

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	PK/QP/Ave.		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
802.11n40									
5755 MHz									
5619.65	31.44	PK	315	2.4	V	39.46	70.90	77.7	6.80
5693.52	32.53	PK	155	1.5	V	39.49	72.02	109.9	37.88
5715.90	33.53	PK	285	1.6	V	39.49	73.02	119.15	46.13
5723.69	36.56	PK	81	1.2	V	39.49	76.05	128.71	52.66
11510.00	42.76	PK	169	1.1	V	17.47	60.23	83.5	23.27
11510.00	28.47	Ave.	169	1.1	V	17.47	45.94	63.5	17.56
5795 MHz									
5852.29	33.39	PK	79	1.4	V	39.87	73.26	126.46	53.20
5867.78	36.71	PK	62	1.3	V	39.87	76.58	116.72	40.14
5904.20	33.37	PK	292	2.3	V	39.87	73.24	93.09	19.85
5956.08	34.58	PK	313	2.3	V	39.84	74.42	77.7	3.28
11590.00	42.93	PK	4	1.3	V	17.51	60.44	83.5	23.06
11590.00	28.41	Ave.	4	1.3	V	17.51	45.92	63.5	17.58
802.11ac20									
5745 MHz									
5646.13	32.55	PK	252	1.1	V	39.46	72.01	77.7	5.69
5857.21	33.07	PK	274	1.7	V	39.87	72.94	119.68	46.74
5713.33	32.18	PK	173	1.6	V	39.49	71.67	118.43	46.76
5724.14	35.90	PK	260	1.4	V	39.49	75.39	129.74	54.35
11490.00	43.12	PK	31	1.2	V	17.47	60.59	83.5	22.91
11490.00	28.57	Ave.	31	1.2	V	17.47	46.04	63.5	17.46
5785 MHz									
11570.00	42.77	PK	78	1.4	V	17.51	60.28	83.5	23.22
11570.00	28.52	Ave.	78	1.4	V	17.51	46.03	63.5	17.47
5825 MHz									
5854.31	34.62	PK	328	2.4	V	39.87	74.49	121.87	47.38
5874.26	34.61	PK	134	1.5	V	39.87	74.48	114.91	40.43
5924.10	33.20	PK	314	1.2	V	39.97	73.17	78.37	5.20
5932.20	33.52	PK	199	2.3	V	39.97	73.49	77.7	4.21
11650.00	42.67	PK	129	1.1	V	16.18	58.85	83.5	24.65
11650.00	28.52	Ave.	129	1.1	V	16.18	44.70	63.5	18.80

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	FCC Part 15.407/205/209	
	Reading (dBμV)	PK/QP/Ave.		Height (m)	Polar (H/V)			Limit (dBμV/m)	Margin (dB)
802.11ac40									
5755 MHz									
5621.38	31.89	PK	128	1.2	V	39.46	71.35	77.7	6.35
5684.19	33.23	PK	78	1.2	V	39.49	72.72	103	30.28
5713.68	33.83	PK	357	1.4	V	39.49	73.32	118.53	45.21
5724.08	37.96	PK	47	1.1	V	39.49	77.45	129.6	52.15
11510.00	42.81	PK	115	1.3	V	17.47	60.28	83.5	23.22
11510.00	28.49	Ave.	115	1.3	V	17.47	45.96	63.5	17.54
5795 MHz									
5853.88	34.31	PK	266	1.8	V	39.87	74.18	122.85	48.67
5862.77	34.50	PK	211	1.8	V	39.87	74.37	118.12	43.75
5900.71	33.03	PK	27	1.4	V	39.87	72.90	95.67	22.77
5970.98	34.82	PK	4	1.6	V	39.84	74.66	77.7	3.04
11590.00	42.77	PK	71	1.1	V	17.51	60.28	83.5	23.22
11590.00	28.34	Ave.	71	1.1	V	17.51	45.85	63.5	17.65
802.11ac80									
5775 MHz									
5641.35	32.40	PK	314	1.5	V	39.46	71.86	77.7	5.84
5695.41	33.36	PK	153	1.0	V	39.49	72.85	111.3	38.45
5711.39	32.77	PK	163	1.8	V	39.49	72.26	117.89	45.63
5723.90	37.52	PK	85	1.5	V	39.49	77.01	129.19	52.18
5854.54	33.39	PK	173	1.2	V	39.87	73.26	121.35	48.09
5874.01	35.02	PK	307	1.9	V	39.87	74.89	114.98	40.09
5893.56	34.17	PK	133	1.4	V	39.87	74.04	100.97	26.93
5960.20	33.26	PK	152	1.5	V	39.84	73.10	77.7	4.60
11550.00	42.86	PK	58	1.1	V	17.51	60.37	83.5	23.13
11550.00	28.45	Ave.	58	1.1	V	17.51	45.96	63.5	17.54

Note:
Corrected Amplitude = Corrected Factor + Reading
Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor
Margin = Limit- Corr. Amplitude
All other spurious emissions are 20 dB below the limit or are on the system noise floor level.

Peak
Pre-scan with 802.11n20 5180MHz
Horizontal



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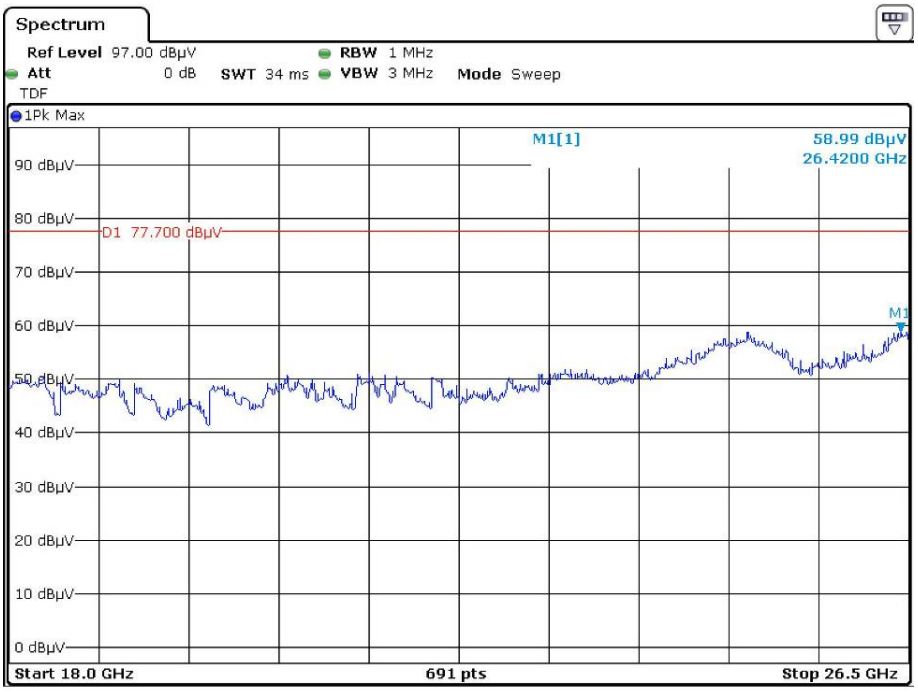

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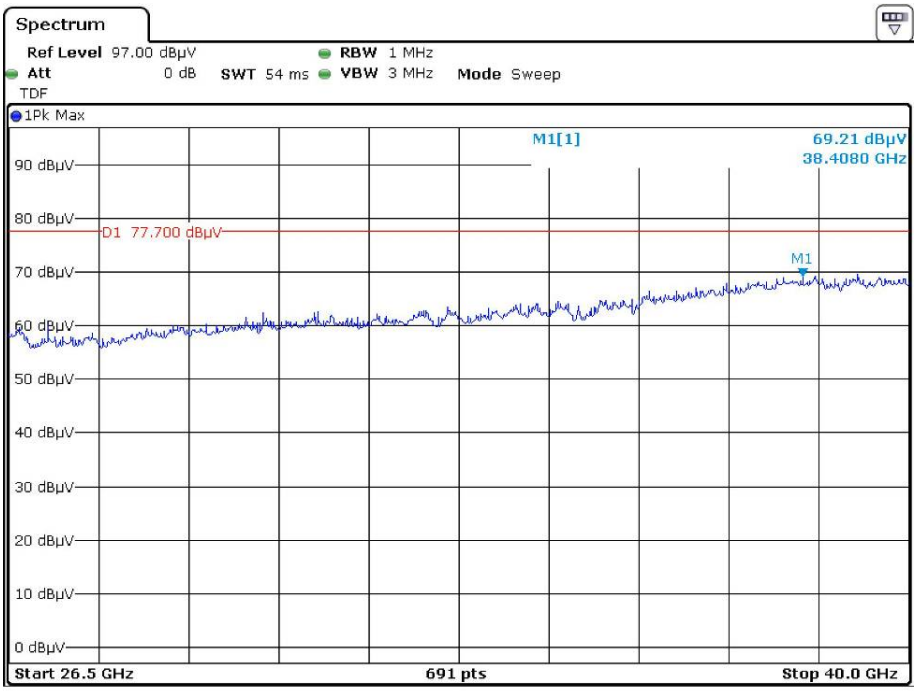

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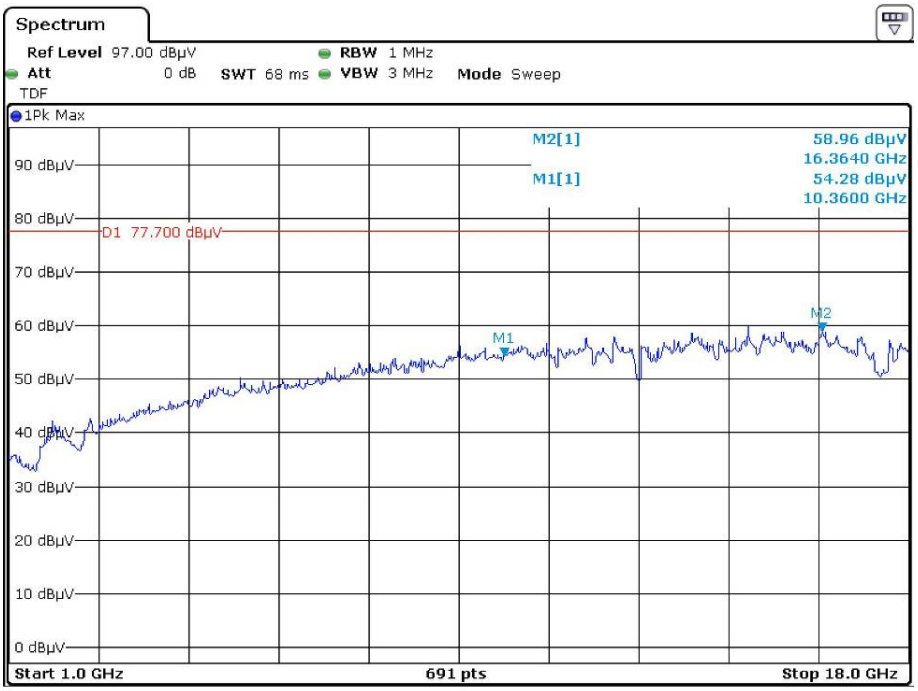
Vertical



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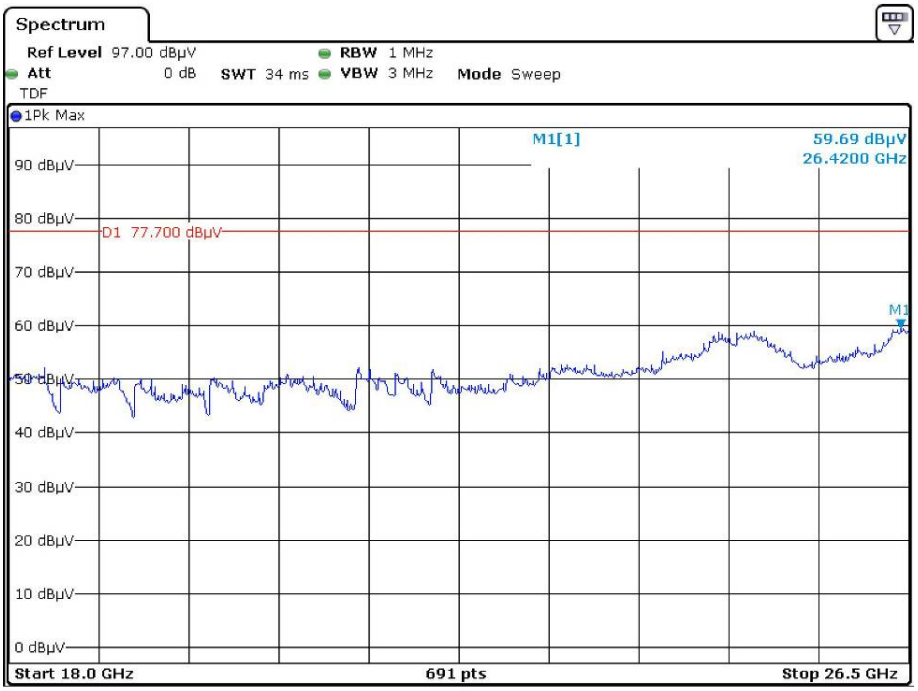

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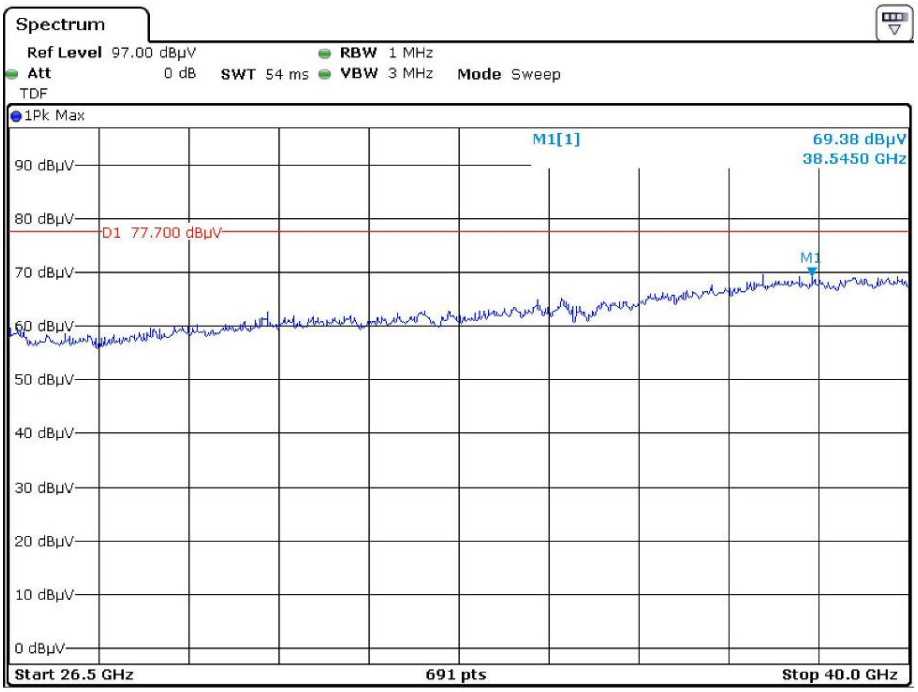

Date: 20.DEC.2020 18:12:54

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