

TEST REPORT

Report No. CISRR25022815406

Project No. CISR250228154

FCC ID 2BFTE-GT12

Applicant Dongguan Haiyou Electronic Technology Co., Ltd.

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Manufacturer Dongguan Haiyou Electronic Technology Co., Ltd.

Address Room 301, Building 2, No. 6, Shangxiawei Industrial Road, Zhutang,

Fenggang Town, Dongguan City, Guangdong Province, China

Product Name GT12

Trade Mark N/A

Model/Type reference GT12

Listed Model(s) S9, S18, Y12

Standard 47 CFR Part 15.247

Test date February 28, 2025 to March 8, 2025

Issue date March 10, 2025

Test result Complied

Prepared by: Rory Huang

Rory Auan'

GenryLong

Approved by: Genry Long

The test results relate only to the tested samples.

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Contents

1. REPORT VERSION	3
2. TEST DESCRIPTION	4
3. SUMMARY	5
3.1. Product Description *	5
3.2. Radio Specification Description *	
3.3. Modification of EUT	
3.4. Deviation from standards	
4. TEST CONFIGURATION	7
4.1. Test frequency list	
4.2. Descriptions of test mode	
4.3. Support unit used in test configuration	
4.4. Test sample information	
4.6. Equipment Used during the Test	
5. TEST RESULTS	10
5.1. Evaluation Results (Evaluation)	10
5.1.1. Antenna Requirement	10
5.2. Radio Spectrum Matter Test Results (RF)	
5.2.1. Conducted Emission at AC power line	
5.2.2. 6dB Bandwidth	
5.2.3. Maximum Conducted Output Power	
5.2.4. Power Spectral Density	
5.2.5. Conducted band edge and spurious emission	
5.2.6. Radiated band edge emission	
5.2.7. Radiated Spurious Emission (below 1GHz)	
5.2.8. Radiated Spurious Emission (Above 1GHz)	34
6. TEST SETUP PHOTOS	48
7. EXTERNAL AND INTERNAL PHOTOS	50
7.1. External Photos	
7.2. Internal Photos	51



1. REPORT VERSION

Version No.	Issue date	Description
00	March 10, 2025	Original



2. TEST DESCRIPTION

No.	Test Item	Standard Requirement	Result
1	Antenna Requirement	47 CFR 15.203	Pass
2	Conducted Emission at AC power line	47 CFR 15.207(a)	Pass
3	6dB Bandwidth	47 CFR 15.247(a)(2)	Pass
4	Maximum Conducted Output Power	47 CFR 15.247(b)(3)	Pass
5	Power Spectral Density	47 CFR 15.247(e)	Pass
6	Conducted band edge and spurious emission	47 CFR 15.247(d), 15.209, 15.205	Pass
7	Radiated band edge emission	47 CFR 15.247(d), 15.209, 15.205	Pass
8	Radiated Spurious Emission (below 1GHz)	47 CFR 15.247(d), 15.209, 15.205	Pass
9	Radiated Spurious Emission (Above 1GHz)	47 CFR 15.247(d), 15.209, 15.205	Pass

Note:

The measurement uncertainty is not included in the test result.



3. **SUMMARY**

3.1. Product Description *

Main unit information:	
Product Name:	GT12
Trade Mark:	N/A
Model No.:	GT12
Listed Model(s):	S9, S18, Y12
Model difference:	The difference between different models is that in this application, due to different sales channels and different model names.
Power supply:	input: DC 5V
Hardware version:	N/A
Software version:	N/A
Accessory unit (AU) information:	
Battery:	DC 3.7V

3.2. Radio Specification Description *

Modulation type:	GFSK
Operation frequency:	2402MHz to 2480MHz
Channel number:	40
Channel separation:	2MHz
Antenna type:	Chip
Antenna gain:	2.78dBi

Note:

1) *: Since the above information is provided by the applicant relevant results or conclusions of this report are only made for these information, Bangce is not responsible for the authenticity, integrity and results of the information and/or the validity of the conclusion.

2) Operation frequency list as follow:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474



7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

3.3. Modification of EUT

No modifications are made to the EUT during all test items.

3.4. Deviation from standards

None

3.5. Testing Site

Laboratory Name	Shenzhen Bangce Testing Technology Co., Ltd.	
Laboratory Location	101, building 10, Yunli Intelligent Park, Shutianpu community, Matian Street, Guangming District, Shenzhen, Guangdong, China	
Contact information	Tel: 86-755-2319 6848, email: service@cis-cn.net Website: http://www.cis-cn.net/	
FCC registration number	736346	
FCC designation number	CN1372	



4. TEST CONFIGURATION

4.1. Test frequency list

Lowest Channel (LCH)	Middle Channel (MCH)	Highest Channel (HCH)
(MHz)	(MHz)	(MHz)
2402	2440	2480

4.2. Descriptions of test mode

No	Test mode	Description
TM1	TX mode	Keep the EUT in continuously transmitting mode with GFSK modulation at lowest, middle and highest channel.
TM2	Link mode	Keep the EUT in Bluetooth linking mode with AE.
TM3	Charging mode	Keep the EUT in charging status.

4.3. Support unit used in test configuration

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The following peripheral devices and interface cables were connected during the measurement:

Item	Equipment name	Trade Name	Model No.
1	Phone	Huawei	NZONE S7
2	Adapter	Guangdong Sangu Technology Co. ltd	SG-0501000AU

4.4. Test sample information

Туре	Sample No.
Engineer sample	CISR250228154-S01
Normal sample	CISR250228154-S02

4.5. Environmental conditions

Туре	Requirement
Temperature:	15~35°C
Relative Humidity:	25~75%
Air Pressure:	860~1060mbar



4.6. Equipment Used during the Test

Conducted Emission at AC power line

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI7	100853	2025-01-08	2026-01-07
2	Artificial power network	Schwarzbeck	NSLK812 7	8127-01096	2025-01-08	2026-01-07
3	8-wire Impedance Stabilization Network	Schwarzbeck	NTFM 8158	8158-00337	2025-01-08	2026-01-07
4	Artificial power network	Schwarzbeck	ENV216	1	2025-01-08	2026-01-07

Power Spectral Density

Emissions in non-restricted frequency bands

6dB Bandwidth

Maximum Conducted Output Power

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	MXG RF Signal Generator	Agilent	N5181A	MY50145362	2025-01-08	2026-01-07
2	Spectrum analyzer	R&S	FSV-40N	102130	2025-01-08	2026-01-07
3	Vector Signal Generator	Agilent	N5182A	MY50142364	2025-01-08	2026-01-07
4	Power Meter	WCS	WCS-PM	WCSPM23040 5A	2025-01-08	2026-01-07

Emissions in frequency bands (above 1GHz)

Band edge emissions (Radiated)

Emissions in frequency bands (below 1GHz)

Item	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	EMI Test Receiver	Rohde&schwarz	ESCI7	100853	2025-01-08	2026-01-07
2	Amplifier	Tonscend	TAP9K3G 40	AP23A806027 0	2025-01-08	2026-01-07
3	Prime amplifier	Tonscend	TAP0101 8050	AP23A806028 0	2025-01-08	2026-01-07
4	9*6*6 anechoic chamber	SKET	9.3*6.3*6	N/A	2024-09-02	2027-09-01
5	Spectrum analyzer	Agilent	N9020A	MY50530263	2025-01-08	2026-01-07
6	Spectrum analyzer	R&S	FSV-40N	102130	2025-01-08	2026-01-07
7	Bilog Antenna	Schwarzbeck	VULB 9163	1463	2023-01-09	2026-01-08
8	Horn Antenna	SCHWARZBECK	BBHA 9120 D	2487	2023-01-09	2026-01-08
9	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	1	2023-01-09	2026-01-08



10	RF Cable	Tonscend	Cable 1	1	2025-01-08	2026-01-07
11	RF Cable	Tonscend	Cable 2	1	2025-01-08	2026-01-07
12	RF Cable	SKET	Cable 3	1	2025-01-08	2026-01-07
13	L.I.S.N.#1	Schwarzbeck	NSLK812 7	1	2025-01-08	2026-01-07
14	L.I.S.N.#2	ROHDE&SCHWA RZ	ENV216	1	2025-01-08	2026-01-07
15	Horn Antenna	SCHWARZBECK	BBHA917 0	1130	2023-01-09	2026-01-08
16	Preamplifier	Tonscend	TAP1804 0048	AP21C806126	2025-01-08	2026-01-07
17	Variable-frequency power source	Pinhong	PH1110	1	2025-01-08	2026-01-07
18	6dB Attenuator	SKET	DC-6G	1	2025-01-08	2026-01-07
19	Antenna tower	SKT	Bk-4AT- BS	AT202104010 1-V1	2025-01-08	2026-01-07



5. TEST RESULTS

5.1. Evaluation Results (Evaluation)

5.1.1. Antenna Requirement

Test Requirement:

Refer to 47 CFR Part 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.

5.1.1.1. Test Result

Pass

5.1.1.2. Conclusion:

The EUT antenna is Chip(2.78dBi), the directional gain of the antenna less than 6dBi. It comply with the standard requirement. In case of replacement of broken antenna the same antenna type must be used. Antenna structure please refer to the EUT internal photographs antenna photo.

5.2. Radio Spectrum Matter Test Results (RF)

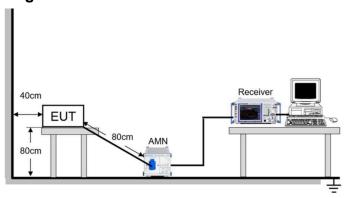
5.2.1. Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b)and (c)of this section, 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 µH/50 ohms line impedance stabilization network (LISN).					
	Frequency of emission (MHz)	Conducted limit (dBµV)				
		Quasi-peak	Average			
Test Limit:	0.15-0.5	66 to 56*	56 to 46*			
rest Limit.	0.5-5	56	46			
	5-30	60	50			
	*Decreases with the logarithm of the frequency.					
Test Method:	ANSI C63.10-2020 section 6.2					
Procedure:	1. The EUT was setup according to 2. The EUT was placed on a platformabove the conducting ground planed on the rear of the EUT. All other so other grounded conducting surface. 3. The EUT and simulators are consimpedances stabilization network (Loupling impedance for the measured. The peripheral devices are also of (Refer to the block diagram of the test. Each current-carrying conductor (safety) conductor, was individually source. 6. The excess length of the power of were folded back and forth at the cest. The excess length of the power of the conducted emissions were invested 30MHz using a receiver bandwides. During the above scans, the emissions.	m of nominal size, 1 m by 1. The vertical conducting placeurfaces of EUT were at least nected to the main power the ISN). The LISN provides a ng equipment. onnected to the main powerst setup and photographs) of the EUT power cord, except connected through a LISN ord between the EUT and the enter of the lead to form a buttigated over the frequency the first setup.	1.5 m, raised 80 cm ane was located 40 ast 80 cm from any arough a line 50 ohm /50uH ar through a LISN. The the ground to the input power the LISN receptacle undle not exceeding arange from 0.15MHz			

5.2.1.1. E.U.T. Operation

Operating Environment:						
Temperature:	perature: 22.6 °C		Humidity:	55.6 %	Atmospheric Pressure:	102 kPa
Pre test mode:		TM′	1, TM2, TM3			
Final test mode:		TM′	1, TM2, TM3			

5.2.1.2. Test Setup Diagram



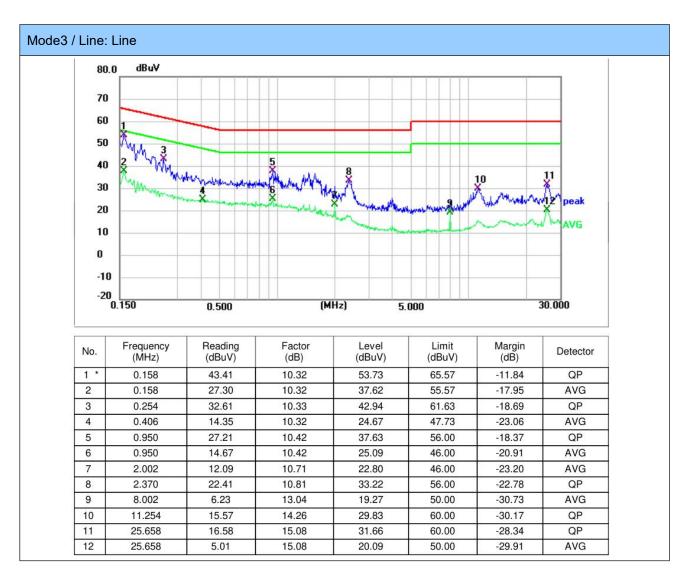
5.2.1.3. Test Result

Pass

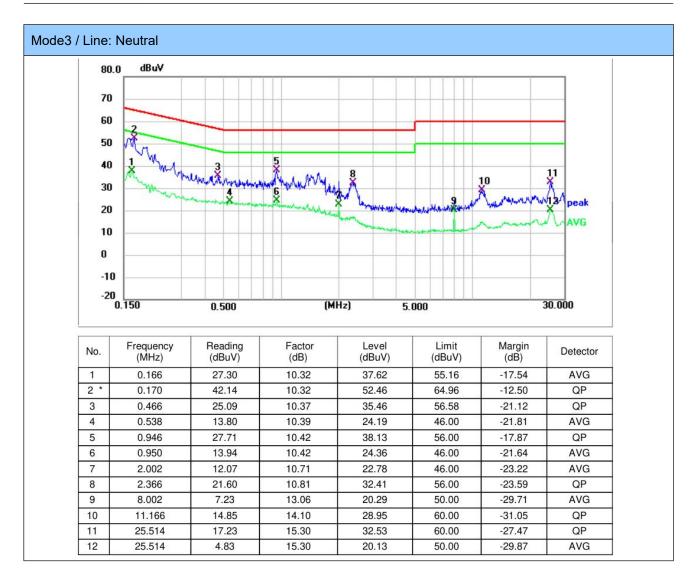
5.2.1.4. Test Data

Note:

The BT function of this product does not work in charging mode, so only the charging mode(TM3) is tested







Note:

- 1). Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor)
- 2). Margin = Result Limit



5.2.2. 6dB Bandwidth

Test Requirement:	47 CFR 15.247(a)(2)
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Test Method:	ANSI C63.10-2020, section 11.8
Procedure:	11.8.1 Option 1 The steps for the first option are as follows: a) Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz. b) Set the VBW ≥ [3 × RBW]. c) Detector = peak. d) Trace mode = max-hold. e) Sweep = No faster than coupled (auto) time. f) Allow the trace to stabilize. g) Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "-6 dB down amplitude". If a marker is below this "-6 dB down amplitude" value, then it shall be as close as possible to this value. 11.8.2 Option 2 The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW ≥ 3 × RBW, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement
	is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

5.2.2.1. E.U.T. Operation

Operating Environment:						
Temperature:	23 °C		Humidity:	56.5 %	Atmospheric Pressure:	103 kPa
Pre test mode:		TM	1			
Final test mode:		TM	1			

5.2.2.2. Test Setup Diagram



5.2.2.3. Test Result

Pass

5.2.2.4. Test Data

5.2.3. Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Test Method:	ANSI C63.10-2020 section 11.9.1
Procedure:	ANSI C63.10-2020, section 11.9.1 Maximum peak conducted output power

5.2.3.1. E.U.T. Operation

Operating Environment:						
Temperature: 23 °C		Humidity	56.5 %	Atmospheric Pressure:	103 kPa	
Pre test mode:		TM1				
Final test mode	e:	TM1				

5.2.3.2. Test Setup Diagram



5.2.3.3. Test Result

Pass

5.2.3.4. Test Data

5.2.4. Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Test Method:	ANSI C63.10-2020, section 11.10
Procedure:	ANSI C63.10-2020, section 11.10, Maximum power spectral density level in the fundamental emission

5.2.4.1. E.U.T. Operation

Operating Environment:										
Temperature:	23 °C		Humidity:	56.5 %	Atmospheric Pressure:	103 kPa				
Pre test mode:		TM1								
Final test mode	TM1									

5.2.4.2. Test Setup Diagram



5.2.4.3. Test Result

Pass

5.2.4.4. Test Data

5.2.5. Conducted band edge and spurious emission

Test Requirement:	47 CFR 15.247(d), 15.209, 15.205
Test Limit:	Refer to 47 CFR 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 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Test Method:	ANSI C63.10-2020 section 11.11
Procedure:	ANSI C63.10-2020 Section 11.11.1, Section 11.11.2, Section 11.11.3

5.2.5.1. E.U.T. Operation

Operating Environment:										
Temperature:	23 °C		Humidity:	56.5 %	Atmospheric Pressure:	103 kPa				
Pre test mode:	Pre test mode:									
Final test mode	TM1	1								

5.2.5.2. Test Setup Diagram



5.2.5.3. Test Result

Pass

5.2.5.4. Test Data

5.2.6. Radiated band edge emission

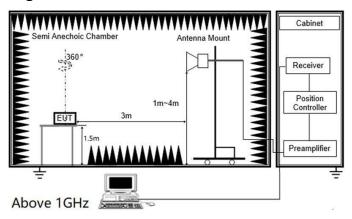
Test Requirement:	restricted bands, as defined	In addition, radiated emissions what in § 15.205(a), must also comply § 15.209(a)(see § 15.205(c)).`					
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)				
	0.009-0.490	2400/F(kHz)	300				
	0.490-1.705	24000/F(kHz)	30				
	1.705-30.0	30	30				
	30-88	100 **	3				
	88-216	150 **	3				
Took I insite	216-960	200 **	3				
Test Limit:	Above 960	500	3				
	15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.						
Test Method:	ANSI C63.10-2020 section	6.10					
Procedure:	ANSI C63.10-2020 section 6.10 1. EUT was setup and tested according to ANSI C63.10. 2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. 3. The EUT waspositioned such that the distance from antenna to the EUT was 3 meters. 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. Thisis repeated for both horizontal and vertical polarization of the antenna. In order to find themaximum emission, all of the interface cables were manipulated according to ANSI C63.10 on radiated measurement. 5. Use the following spectrum analyzer settings: a) Span shall wide enough to fully capture the emission being measured b) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement For average measurement: use duty cycle correction factor method (DCCF),						

5.2.6.1. E.U.T. Operation

Operating Environment:											
Temperature:	Temperature: 22 °C		idity:	56.2 %	Atmospheric Pressure:	102 kPa					
Pre test mode:		TM1, TM2	TM3								
Final test mode	TM1, TM2	TM3									



5.2.6.2. Test Setup Diagram



5.2.6.3. Test Result

Pass



5.2.6.4. Test Data

Note:

- 1) Level= Reading + Factor; Factor = Antenna Factor+ Cable Loss- Preamp Factor
- 2) Margin = Limit Level
- 3) Average measurement was not performed if peak level is lower than average limit
- 4) The other emission levels were very low against the limit.

Have pre-scan all test mode, found TM1 mode which it was worst case, so only show the worst case's data on this report.

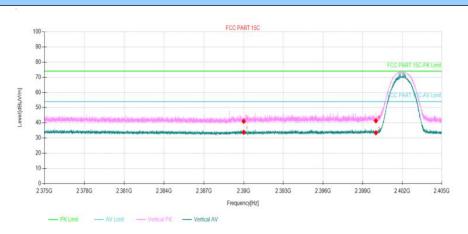
RIGHT:



Suspected Data List											
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict			
1	2390	26.74	33.30	6.56	54.00	20.70	Horizontal	PASS			
2	2400.00	27.13	33.74	6.61	54.00	20.26	Horizontal	PASS			
3	2390	34.41	40.97	6.56	74.00	33.03	Horizontal	PASS			
4	2400.00	35.01	41.62	6.61	74.00	32.38	Horizontal	PASS			



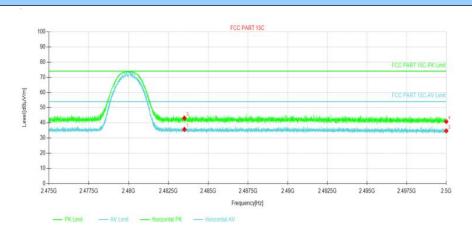
Mode1 / Polarization: Vertical / CH: L



Suspe	Suspected Data List										
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict			
1	2390	27.25	33.81	6.56	54.00	20.19	Vertical	PASS			
2	2400.00	26.84	33.45	6.61	54.00	20.55	Vertical	PASS			
3	2390	34.45	41.01	6.56	74.00	32.99	Vertical	PASS			
4	2400.00	34.73	41.34	6.61	74.00	32.66	Vertical	PASS			



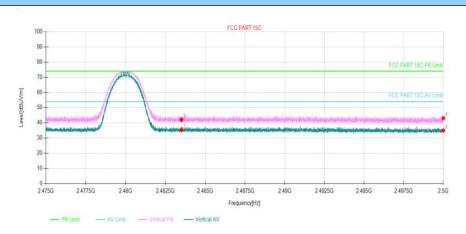
Mode1 / Polarization: Horizontal / CH: L



Suspected Data List											
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict			
1	2483.5	29.13	35.69	6.56	54.00	18.31	Horizontal	PASS			
2	2500	28.17	34.72	6.55	54.00	19.28	Horizontal	PASS			
3	2483.5	36.50	43.06	6.56	74.00	30.94	Horizontal	PASS			
4	2500	34 27	40.82	6.55	74.00	33 18	Horizontal	PASS			



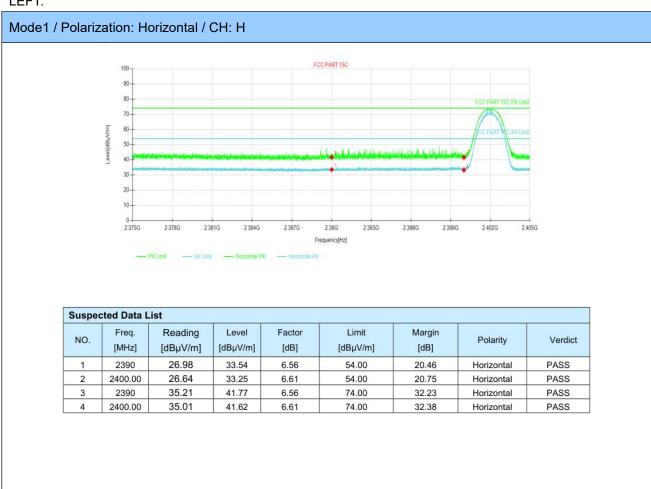
Mode1 / Polarization: Vertical / CH: L



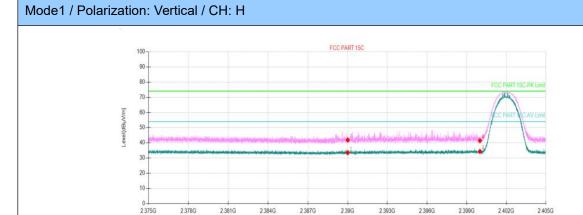
Suspe	Suspected Data List											
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict				
1	2483.5	28.80	35.36	6.56	54.00	18.64	Vertical	PASS				
2	2500	28.41	34.96	6.55	54.00	19.04	Vertical	PASS				
3	2483.5	35.53	42.09	6.56	74.00	31.91	Vertical	PASS				
4	2500	36.54	43.09	6.55	74.00	30.91	Vertical	PASS				



LEFT:





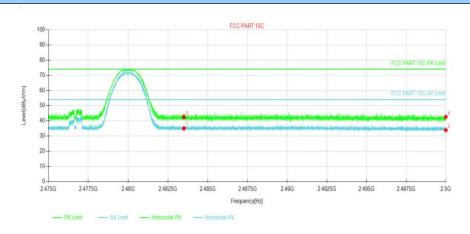


— PK Limit — AV Limit — Vertical PK — Vertical AV

Suspected Data List											
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict			
1	2390	26.85	33.41	6.56	54.00	20.59	Vertical	PASS			
2	2400.00	27.78	34.39	6.61	54.00	19.61	Vertical	PASS			
3	2390	35.30	41.86	6.56	74.00	32.14	Vertical	PASS			
4	2400.00	34.78	41.39	6.61	74.00	32.61	Vertical	PASS			



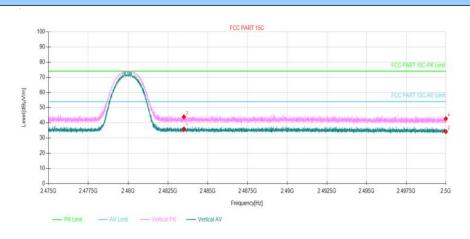
Mode1 / Polarization: Horizontal / CH: H



Suspected Data List											
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict			
1	2483.5	28.49	35.05	6.56	54.00	18.95	Horizontal	PASS			
2	2500	27.32	33.87	6.55	54.00	20.13	Horizontal	PASS			
3	2483.5	35.94	42.50	6.56	74.00	31.50	Horizontal	PASS			
4	2500	36.05	42.60	6.55	74.00	31.40	Horizontal	PASS			



Mode1 / Polarization: Vertical / CH: H



Suspected Data List											
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict			
1	2483.5	29.31	35.87	6.56	54.00	18.13	Vertical	PASS			
2	2500	27.68	34.23	6.55	54.00	19.77	Vertical	PASS			
3	2483.5	37.33	43.89	6.56	74.00	30.11	Vertical	PASS			
4	2500	36.17	42.72	6.55	74.00	31.28	Vertical	PASS			

5.2.7. Radiated Spurious Emission (below 1GHz)

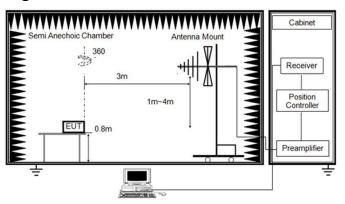
Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).`					
	Frequency (MHz)	Field strength (microvolts/meter)	Measurement 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			
T. (412)-9	216-960	200 **	3			
Test Limit:	Above 960	500	3			
	54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.					
Test Method:	ANSI C63.10-2020 section 6.6.4					
Procedure:	 The EUT was setup and tested according to ANSI C63.10. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines. Set to the maximum power setting and enable the EUT transmit continuously. Use the following spectrum analyzer settings Span shall wide enough to fully capture the emission being measured; RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold; If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 					

5.2.7.1. E.U.T. Operation

Operating Environment:						
Temperature:	22 °C		Humidity:	56.2 %	Atmospheric Pressure:	102 kPa
Pre test mode:		TM ²	1, TM2, TM3			
Final test mode:		TM ²	1, TM2, TM3			



5.2.7.2. Test Setup Diagram



Below 1 GHz and above 30 MHz

5.2.7.3. Test Result

Pass

5.2.7.4. Test Data

Note:

- 1) Level= Reading + Factor/Transd; Factor/Transd = Antenna Factor+ Cable Loss- Preamp Factor
- 2) Margin = Limit Level
- 3) Average measurement was not performed if peak level is lower than average limit(54 dBuV/m) for above
- 4) The other emission levels were very low against the limit.
- 5) This test was performed with EUT in X, Y, Z position and the worse case was found when EUT in X position.

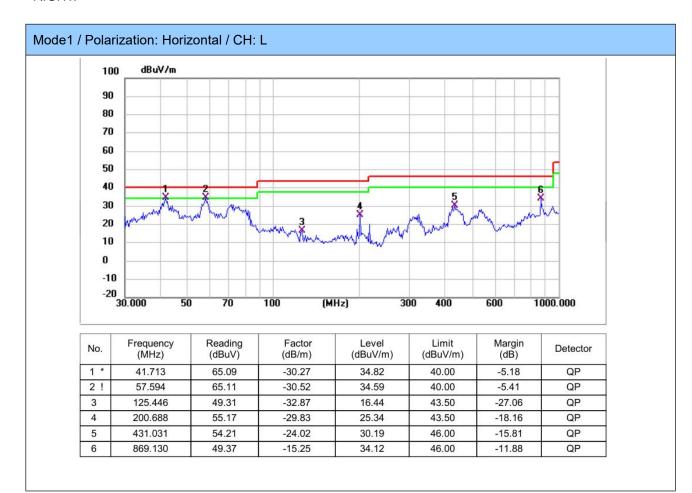
For 9 kHz ~ 30 MHz

The EUT was pre-scanned this frequency band, found the radiated level 20dB lower than the limit, so don't show data on this report.

For 30 MHz ~ 1000 MHz

Have pre-scan all test mode, found TM1 mode which it was worst case, so only show the worst case's data on this report.

RIGHT:





-20 30.000

50

70

100

Mode1 / Polarization: Vertical / CH: L 100 dBuV/m 90 80 70 60 50 40 30 20 10 0 -10

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	43.506	50.33	-29.76	20.57	40.00	-19.43	QP
2	75.711	57.85	-34.05	23.80	40.00	-16.20	QP
3	113.714	61.91	-31.26	30.65	43.50	-12.85	QP
4	200.688	53.61	-29.83	23.78	43.50	-19.72	QP
5	407.514	50.13	-24.85	25.28	46.00	-20.72	QP
6 *	958.794	47.53	-13.97	33.56	46.00	-12.44	QP

(MHz)

300

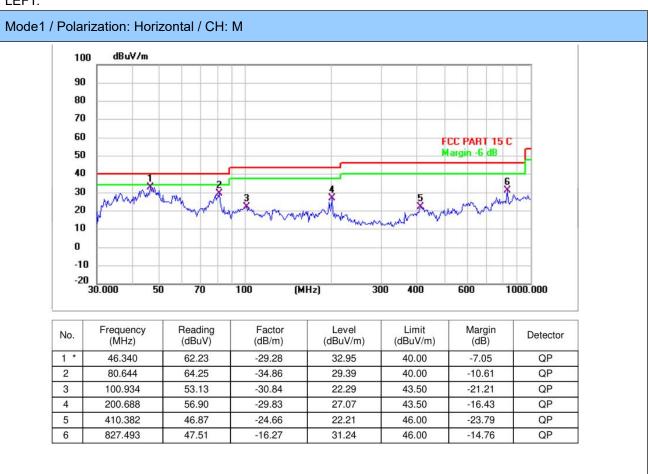
400

600

1000.000



LEFT:



Mode1 / Polarization: Vertical / CH: M dBuV/m 100 90 80 70 60 FCC PART 15 C Margin -6 dB 50 40 30 20 10 0 -10 -20 30.000 (MHz) 1000.000 50 70 100 300 400 600 Reading Factor Limit Margin Frequency Level Detector No. (MHz) (dBuV) (dB/m) (dBuV/m) (dBuV/m) (dB) 56.792 -30.44 40.00 QP 57.31 26.87 -13.13 1 * -34.86 40.00 2 80.644 60.03 25.17 -14.83 QP 3 100.228 49.37 -30.85 18.52 43.50 -24.98 QP 4 200.688 52.70 -29.83 22.87 43.50 -20.63 QP 5 361.714 44.27 -25.55 18.72 46.00 -27.28 QP 952.094 41.54 -13.99 27.55 46.00 -18.45 QP 6

Note:

1) For 9 kHz ~ 30 MHz Measurement

The EUT was pre-scanned this frequency band, found the radiated level 20dB lower than the limit, so don't show data on this report.

- 2) Level= Reading + Factor; Factor = Antenna Factor+ Cable Loss- Preamp Factor
- 3) Margin = Limit Level

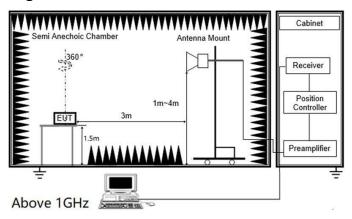
5.2.8. Radiated Spurious Emission (Above 1GHz)

Test Requirement:	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)).`					
	Frequency (MHz)	Field strength (microvolts/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			
T (1) "	216-960	200 **	3			
Test Limit:	Above 960	500	3			
	54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.					
Test Method:	ANSI C63.10-2020 section 6.6.4					
Procedure:	1. The EUT was setup and tested according to ANSI C63.10. 2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level. 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower. 4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines. 5. Set to the maximum power setting and enable the EUT transmit continuously. 6. Use the following spectrum analyzer settings a) Span shall wide enough to fully capture the emission being measured; b) Set RBW=1MHz, VBW=3MHz for >1GHz, Sweep time=auto, Detector=peak, Trace=max hold for Peak measurement For average measurement: use duty cycle correction factor method (DCCF)Averager level = Peak level + DCCF					

5.2.8.1. E.U.T. Operation

Operating Environment:							
Temperature:	22 °C		Humidity:	56.2 %	Atmospheric Pressure:	102 kPa	
Pre test mode:		TM1	1, TM2, TM3				
Final test mode:		TM1	1, TM2, TM3				

5.2.8.2. Test Setup Diagram



5.2.8.3. Test Result

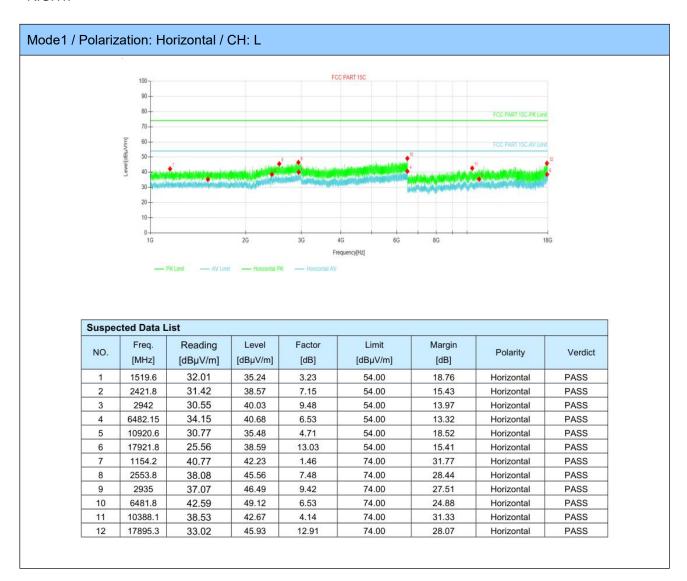
Pass

5.2.8.4. Test Data

For 1 GHz ~ 25 GHz

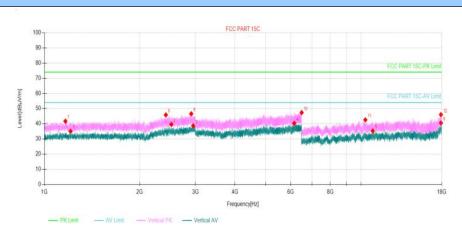
Have pre-scan all test mode, found TM1 mode which it was worst case, so only show the worst case's data on this report.

RIGHT:





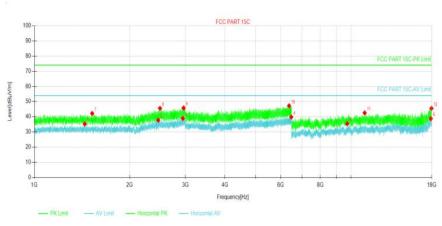
Mode1 / Polarization: Vertical / CH: L



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1210	33.25	35.08	1.83	54.00	18.92	Vertical	PASS
2	2518	31.96	39.61	7.65	54.00	14.39	Vertical	PASS
3	2952.6	29.18	38.75	9.57	54.00	15.25	Vertical	PASS
4	6152.45	34.78	40.30	5.52	54.00	13.70	Vertical	PASS
5	10902.2	30.52	35.27	4.75	54.00	18.73	Vertical	PASS
6	17899.9	27.65	40.55	12.90	54.00	13.45	Vertical	PASS
7	1165.6	40.14	41.68	1.54	74.00	32.32	Vertical	PASS
8	2420	38.69	45.83	7.14	74.00	28.17	Vertical	PASS
9	2910.8	37.38	46.59	9.21	74.00	27.41	Vertical	PASS
10	6495.45	40.86	47.39	6.53	74.00	26.61	Vertical	PASS
11	10322.6	38.36	42.58	4.22	74.00	31.42	Vertical	PASS
12	17898.8	33.14	46.04	12.90	74.00	27.96	Vertical	PASS



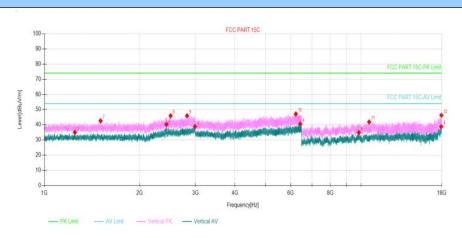
Mode1 / Polarization: Horizontal / CH: M



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1443	32.14	35.20	3.06	54.00	18.80	Horizontal	PASS
2	2462.4	30.29	37.75	7.46	54.00	16.25	Horizontal	PASS
3	2944.8	29.41	38.91	9.50	54.00	15.09	Horizontal	PASS
4	6478.65	33.28	39.81	6.53	54.00	14.19	Horizontal	PASS
5	9733.8	32.30	35.46	3.16	54.00	18.54	Horizontal	PASS
6	17881.5	25.84	38.78	12.94	54.00	15.22	Horizontal	PASS
7	1522.8	38.93	42.16	3.23	74.00	31.84	Horizontal	PASS
8	2493.4	37.89	45.58	7.69	74.00	28.42	Horizontal	PASS
9	2961.2	36.17	45.81	9.64	74.00	28.19	Horizontal	PASS
10	6377.15	40.83	47.21	6.38	74.00	26.79	Horizontal	PASS
11	11048.2	37.88	42.55	4.67	74.00	31.45	Horizontal	PASS
12	17965.5	32.25	45.56	13.31	74.00	28.44	Horizontal	PASS



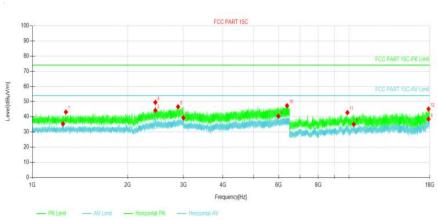
Mode1 / Polarization: Vertical / CH: M



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1248.6	32.87	34.95	2.08	54.00	19.05	Vertical	PASS
2	2431	33.10	40.32	7.22	54.00	13.68	Vertical	PASS
3	2989	28.91	38.79	9.88	54.00	15.21	Vertical	PASS
4	6430.7	33.96	40.49	6.53	54.00	13.51	Vertical	PASS
5	9848.8	31.52	34.87	3.35	54.00	19.13	Vertical	PASS
6	17937.9	25.66	38.80	13.14	54.00	15.20	Vertical	PASS
7	1505.2	39.32	42.55	3.23	74.00	31.45	Vertical	PASS
8	2505.2	38.20	45.92	7.72	74.00	28.08	Vertical	PASS
9	2823.6	37.31	45.90	8.59	74.00	28.10	Vertical	PASS
10	6228.75	41.42	47.13	5.71	74.00	26.87	Vertical	PASS
11	10614.7	37.52	41.85	4.33	74.00	32.15	Vertical	PASS
12	17956.3	33.01	46.26	13.25	74.00	27.74	Vertical	PASS



Mode1 / Polarization: Horizontal / CH: H



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1249.4	33.21	35.29	2.08	54.00	18.71	Horizontal	PASS
2	2446.6	36.86	44.20	7.34	54.00	9.80	Horizontal	PASS
3	2998	29.36	39.31	9.95	54.00	14.69	Horizontal	PASS
4	5982.7	35.25	40.45	5.20	54.00	13.55	Horizontal	PASS
5	10351.3	30.87	35.05	4.18	54.00	18.95	Horizontal	PASS
6	17845.9	25.49	38.51	13.02	54.00	15.49	Horizontal	PASS
7	1276.6	40.88	43.14	2.26	74.00	30.86	Horizontal	PASS
8	2446.6	42.18	49.52	7.34	74.00	24.48	Horizontal	PASS
9	2886	37.60	46.62	9.02	74.00	27.38	Horizontal	PASS
10	6375.05	40.95	47.32	6.37	74.00	26.68	Horizontal	PASS
11	9889.05	39.35	42.79	3.44	74.00	31.21	Horizontal	PASS
12	17843.6	32.10	45.13	13.03	74.00	28.87	Horizontal	PASS



Mode1 / Polarization: Vertical / CH: H

3G

— PK Limit — AV Limit — Vertical PK — Vertical AV

2G

NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1417.8	32.18	35.16	2.98	54.00	18.84	Vertical	PASS
2	2420	31.38	38.52	7.14	54.00	15.48	Vertical	PASS
3	2969.4	29.53	39.24	9.71	54.00	14.76	Vertical	PASS
4	6377.15	33.85	40.23	6.38	54.00	13.77	Vertical	PASS
5	10849.3	30.10	34.93	4.83	54.00	19.07	Vertical	PASS
6	17844.7	26.30	39.33	13.03	54.00	14.67	Vertical	PASS
7	1336.6	40.36	42.96	2.60	74.00	31.04	Vertical	PASS
8	2520.4	37.67	45.31	7.64	74.00	28.69	Vertical	PASS
9	2632	38.48	45.91	7.43	74.00	28.09	Vertical	PASS
10	6311.7	41.71	47.67	5.96	74.00	26.33	Vertical	PASS
11	11094.2	37.64	42.45	4.81	74.00	31.55	Vertical	PASS
12	17949.4	32.57	45.78	13.21	74.00	28.22	Vertical	PASS

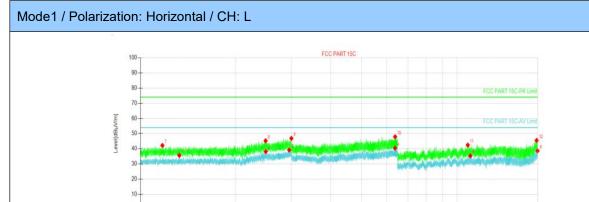
4G

6G

8G



LEFT:

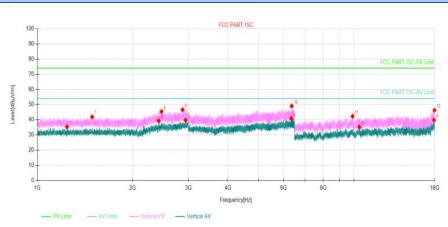


NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1327.8	33.09	35.64	2.55	54.00	18.36	Horizontal	PASS
2	2489	30.47	38.13	7.66	54.00	15.87	Horizontal	PASS
3	2952.4	29.60	39.17	9.57	54.00	14.83	Horizontal	PASS
4	6374.35	34.01	40.37	6.36	54.00	13.63	Horizontal	PASS
5	11019.5	30.78	35.37	4.59	54.00	18.63	Horizontal	PASS
6	17975.8	25.28	38.66	13.38	54.00	15.34	Horizontal	PASS
7	1174.2	40.59	42.18	1.59	74.00	31.82	Horizontal	PASS
8	2486.8	37.63	45.27	7.64	74.00	28.73	Horizontal	PASS
9	2999.4	36.91	46.87	9.96	74.00	27.13	Horizontal	PASS
10	6378.9	41.49	47.88	6.39	74.00	26.12	Horizontal	PASS
11	10819.4	37.56	42.42	4.86	74.00	31.58	Horizontal	PASS
12	17858.5	32.53	45.52	12.99	74.00	28.48	Horizontal	PASS

Frequency[Hz]



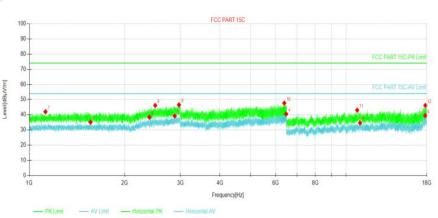
Mode1 / Polarization: Vertical / CH: L



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1240.4	33.25	35.28	2.03	54.00	18.72	Vertical	PASS
2	2417.8	32.18	39.30	7.12	54.00	14.70	Vertical	PASS
3	2939.8	30.24	39.70	9.46	54.00	14.30	Vertical	PASS
4	6336.55	34.63	40.75	6.12	54.00	13.25	Vertical	PASS
5	10396.2	31.03	35.16	4.13	54.00	18.84	Vertical	PASS
6	17909.1	26.85	39.80	12.95	54.00	14.20	Vertical	PASS
7	1490	38.71	41.91	3.20	74.00	32.09	Vertical	PASS
8	2467	37.97	45.46	7.49	74.00	28.54	Vertical	PASS
9	2876.8	37.61	46.57	8.96	74.00	27.43	Vertical	PASS
10	6361.05	42.75	49.03	6.28	74.00	24.97	Vertical	PASS
11	9902.85	38.82	42.28	3.46	74.00	31.72	Vertical	PASS
12	17964.3	33.02	46.32	13.30	74.00	27.68	Vertical	PASS



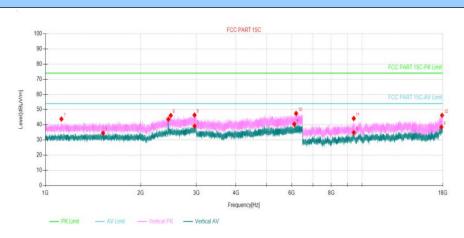
Mode1 / Polarization: Horizontal / CH: M



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1559.8	31.93	35.16	3.23	54.00	18.84	Horizontal	PASS
2	2393.6	31.45	38.41	6.96	54.00	15.59	Horizontal	PASS
3	2879	30.18	39.16	8.98	54.00	14.84	Horizontal	PASS
4	6472.35	34.00	40.53	6.53	54.00	13.47	Horizontal	PASS
5	11078.1	29.89	34.65	4.76	54.00	19.35	Horizontal	PASS
6	17796.4	26.41	39.49	13.08	54.00	14.51	Horizontal	PASS
7	1124.4	40.71	41.97	1.26	74.00	32.03	Horizontal	PASS
8	2497.4	38.41	46.13	7.72	74.00	27.87	Horizontal	PASS
9	2969.8	36.86	46.57	9.71	74.00	27.43	Horizontal	PASS
10	6386.95	41.23	47.68	6.45	74.00	26.32	Horizontal	PASS
11	10852.7	38.24	43.06	4.82	74.00	30.94	Horizontal	PASS
12	17813.7	33.07	46.17	13.10	74.00	27.83	Horizontal	PASS



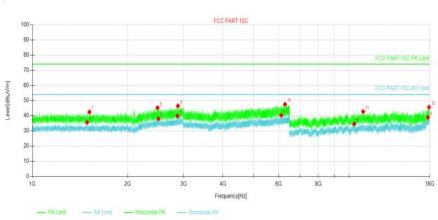
Mode1 / Polarization: Vertical / CH: M



	Freq.	Reading	Level	Factor	Limit	Margin		
NO.	[MHz]	[dBµV/m]	[dBµV/m]	[dB]	[dBµV/m]	[dB]	Polarity	Verdict
1	1521.6	31.21	34.44	3.23	54.00	19.56	Vertical	PASS
2	2446.2	36.35	43.69	7.34	54.00	10.31	Vertical	PASS
3	2962	29.51	39.16	9.65	54.00	14.84	Vertical	PASS
4	6112.9	35.02	40.44	5.42	54.00	13.56	Vertical	PASS
5	9422.15	31.74	34.81	3.07	54.00	19.19	Vertical	PASS
6	17830.9	25.45	38.51	13.06	54.00	15.49	Vertical	PASS
7	1124	42.54	43.79	1.25	74.00	30.21	Vertical	PASS
8	2488.6	38.44	46.09	7.65	74.00	27.91	Vertical	PASS
9	2959	36.80	46.42	9.62	74.00	27.58	Vertical	PASS
10	6194.45	41.82	47.45	5.63	74.00	26.55	Vertical	PASS
11	9421	41.10	44.17	3.07	74.00	29.83	Vertical	PASS
12	17911.4	33.27	46.24	12.97	74.00	27.76	Vertical	PASS



Mode1 / Polarization: Horizontal / CH: H



NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1489	32.45	35.65	3.20	54.00	18.35	Horizontal	PASS
2	2499.6	30.38	38.12	7.74	54.00	15.88	Horizontal	PASS
3	2872.6	30.92	39.85	8.93	54.00	14.15	Horizontal	PASS
4	6113.6	34.88	40.30	5.42	54.00	13.70	Horizontal	PASS
5	10376.6	30.45	34.60	4.15	54.00	19.40	Horizontal	PASS
6	17764.2	26.32	38.97	12.65	54.00	15.03	Horizontal	PASS
7	1514.8	39.26	42.49	3.23	74.00	31.51	Horizontal	PASS
8	2485.8	37.63	45.26	7.63	74.00	28.74	Horizontal	PASS
9	2883.4	37.46	46.47	9.01	74.00	27.53	Horizontal	PASS
10	6282.3	41.71	47.55	5.84	74.00	26.45	Horizontal	PASS
11	11086.2	37.94	42.72	4.78	74.00	31.28	Horizontal	PASS
12	17903.4	32.75	45.67	12.92	74.00	28.33	Horizontal	PASS

Report No.: CISRR25022815406

Mode 1 / Polarization: Vertical / CH: H

Suspe	cted Data L	.ist					A:	
NO.	Freq. [MHz]	Reading [dBµV/m]	Level [dBµV/m]	Factor [dB]	Limit [dBµV/m]	Margin [dB]	Polarity	Verdict
1	1424.8	31.98	34.99	3.01	54.00	19.01	Vertical	PASS
2	2486.2	30.54	38.18	7.64	54.00	15.82	Vertical	PASS
3	2983	29.90	39.73	9.83	54.00	14.27	Vertical	PASS
4	6234.7	34.42	40.14	5.72	54.00	13.86	Vertical	PASS
5	10841.2	30.08	34.92	4.84	54.00	19.08	Vertical	PASS
6	17974.7	25.60	38.97	13.37	54.00	15.03	Vertical	PASS
7	1374.2	40.02	42.81	2.79	74.00	31.19	Vertical	PASS
8	2503.2	39.06	46.78	7.72	74.00	27.22	Vertical	PASS
9	2934.2	37.64	47.05	9.41	74.00	26.95	Vertical	PASS
10	6132.15	42.64	48.11	5.47	74.00	25.89	Vertical	PASS
11	9013.9	40.43	42.31	1.88	74.00	31.69	Vertical	PASS
12	17780.3	32.53	45.40	12.87	74.00	28.60	Vertical	PASS

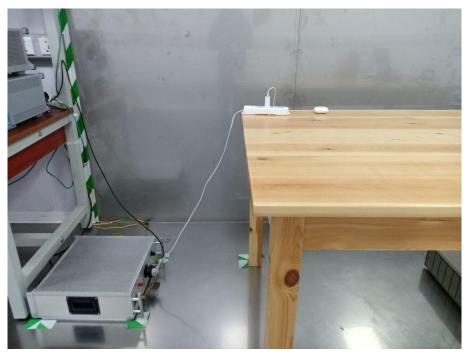
Note:

- 1) Level= Reading + Factor; Factor =Antenna Factor+ Cable Loss- Preamp Factor
- 2) Margin = Limit Level
- 3) Average measurement was not performed if peak level is lower than average limit (54dBuV/m) for above 1GHz.



6. TEST SETUP PHOTOS





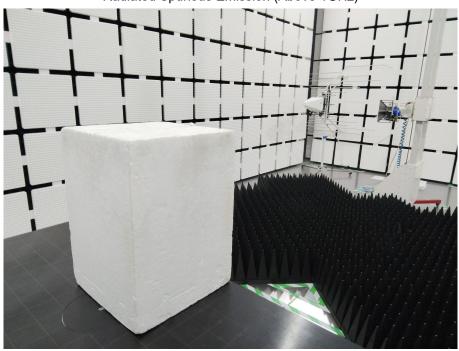
6dB Bandwidth

Maximum Conducted Output Power

Power Spectral Density

Conducted band edge and spurious emission

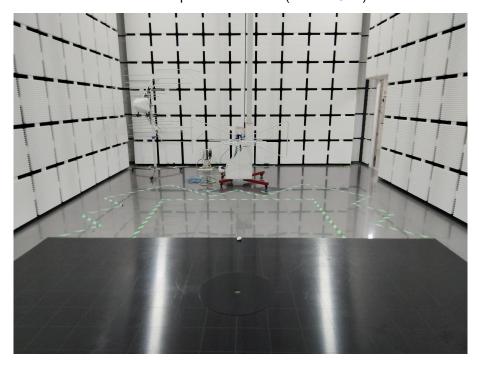
Radiated band edge emission Radiated Spurious Emission (Above 1GHz)







Radiated Spurious Emission (below 1GHz)







7. EXTERNAL AND INTERNAL PHOTOS

7.1. External Photos





7.2. Internal Photos

8. Appendix Report