



TEST REPORT NUMBER: (8521)217-0054

TEST REPORT

Applicant:	QUARTO PUBLISHING GROUP USA INC.	Fax:	01915
		E-mail:	Vincent.li@quarto.com
Address:	100 CUMMINGS CENTER, SUITE 265D, BEVERLY, MA 01915, USA		
Test Date:	Aug 07, 2021 ----- Sep 02, 2021		

Manufacturer or Supplier:	QUARTO PUBLISHING GROUP USA INC.
Address:	100 CUMMINGS CENTER, SUITE 265D, BEVERLY, MA 01915, USA
Sample Description:	ULTIMATE SQUISHY HUMAN BODY
Model Number:	322427
Additional Model:	/
Rated Voltage:	DC 4.5V (AAA*3)
FCC ID	2A26Q248575
IC	27672-248575
The submitted sample of the above equipment has been tested according to following standard(s)	
FCC Part 15, Subpart C, Section 15.249: Operation within the band 13.110-14.010 MHz RSS-210 Issue 10 (December 2019) — Licence-Exempt Radio Apparatus: Category I Equipment ANSI C63,10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	
CONCLUSION: The submitted sample was found to COMPLY with the test requirement	

Assistant Manager

Name: Nick Lung
Date: SEP 24,2021



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1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C/ RSS-210			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	N/A	
15.225 (a)&(b)&(c)	The field strength of any emissions within the band	PASS	
RSS-210 Clause B.6 (a)&(b)&(c)			
15.225 (d)	The field strength of any emissions appearing outside of the 13.110-14.010 MHz band	PASS	
RSS-210 Clause B.6 (d)			
15.225 (e)	Frequency tolerance	PASS	
RSS-210 Clause B.6 (d)			
15.215 (c)	20dB Bandwidth	PASS	
RSS-Gen, Clause 6.7	Occupied bandwidth (99 %)	PASS	
15.203	Antenna Requirement	PASS	

2 Test Environment

2.1 ADDRESS OF THE TEST LABORATORY

Test Laboratory:	AJT Testing Services Limited
Test Site:	1-2/F., NO.1, WENHUA SOUTH ROAD, CHENGHUA INDUSTRIAL ZONE, CHENGHAI DISTRICT, SHANTOU, GUANGDONG, CHINA
Tel:	86-754-85860999
Fax:	86-754-86984098



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2.2 TEST FACILITY

The test facility is recognized, certified, or accredited by the following organizations:	
CNAS Accreditation NO.:	L4735
A2LA Accreditation NO.:	5443.01
Designation Number:	CN1263
Test Firm Registration Number:	127385
Industry Canada Site Registration Number:	25345
CAB NO.:	CN0089

2.3 STATEMENT OF THE MEASUREMENT UNCERTAINTY

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the AJT quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Test Item	Frequency Range	Uncertainty	Note
Continuous conducted disturbance voltage	150kHz~30MHz	±2.14dB	(1)
Power disturbance	30MHz~300MHz	±3.85dB	(1)
Radiation emission (3m)	30MHz~1000MHz	±4.44dB	(1)
Radiation emission (3m)	1GHz~18GHz	±5.26dB	(1)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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3 General Information

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	ULTIMATE SQUISHY HUMAN BODY
MODEL NO.	322427
FCC ID	2A26Q248575
IC ID	27672-248575
POWER SUPPLY	DC 4.5V (AAA*3)
MODULATION TECHNOLOGY	NFC
MODULATION TYPE	ASK
OPERATING FREQUENCY	13.56MHz
NUMBER OF CHANNEL	1
ANTENNA TYPE	PCB Antenna
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. Please refer to the EUT photo document for detailed product photo.
4. The EUT is wireless module, it no any accessories.

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3.2 DESCRIPTION OF TEST MODES

The EUT only have one channel.

CHANNEL	FREQUENCY (MHz)
1	13.56

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photograph of the test configuration for reference.

3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports The worst case was found when positioned on X axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE	FT	PLC	BW	
A	√	√	-	√	Powered by Fully Battery

Where RE: Radiated Emission FT: Frequency tolerance
PLC: Power Line Conducted Emission BW: 20dB Bandwidth

RADIATED EMISSION TEST:

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture) and packet type.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	TESTED FREQUENCY (MHZ)	MODULATION TYPE
A	1	13.56	ASK

FREQUENCY TOLERANCE:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	TESTED FREQUENCY (MHZ)	MODULATION TYPE
A	1	13.56	ASK

POWER LINE CONDUCTED EMISSION TEST:

- ☐ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☐ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- ☐ Following channel(s) was (were) selected for the final test as listed below.

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EUT CONFIGURE MODE	TESTED CHANNEL	TESTED FREQUENCY (MHZ)	MODULATION TYPE
-	-	-	-

20dB BANDWIDTH:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, antenna ports (if EUT with antenna diversity architecture), and packet types.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	TESTED CHANNEL	TESTED FREQUENCY (MHZ)	MODULATION TYPE
A	1	13.56	ASK

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C. Section 15.225

RSS-210 Issue 10

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

NOTE: 1. All test items have been performed and recorded as per the above standards.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	N/A	N/A	N/A	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

NOTE: The EUT Powered by Fully Battery.

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4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5~5	56	46
5 ~ 30	60	50

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

For test instruments and accessories used see section 5.

4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

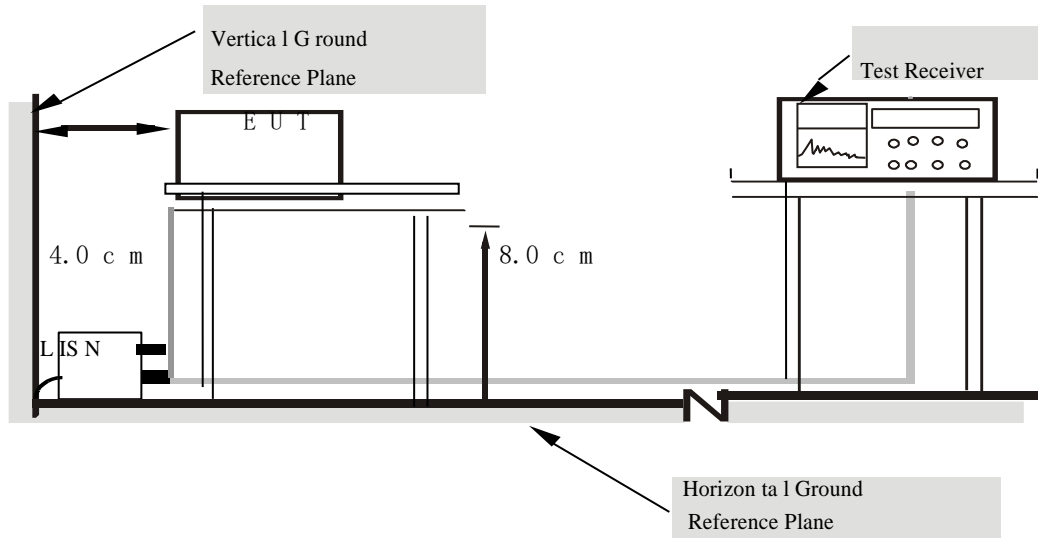
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

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4.1.5 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISN s (A M N) are 8 0 c m from EUT and at least 8 0 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

- Turned on the power and connected of all equipment.
- EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

4.1.7 TEST RESULTS

Not Applicable.

Note: The device is a DC power supply and does not apply to conducted emissions.

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4.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

The field strength of any emissions shall not exceed the following limits:

- (a) 15.848mV/m(84dBuV/m) at 30m, within the band 13.553-13.567 MHz;
- (b) 334uV/m(50.5dBuV/m) at 30m, within the band 13.410-13.553 MHz and 13.567-13.710MHz;
- (c) 106uV/m(40.5dBuV/m) at 30m, within the band 13.110-13.410 MHz and 13.710-14.010MHz;

The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209.

FREQUENCIES (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
216 ~ 960	200	3
Above 960	500	3

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBμV/m) = 20 log Emission level (μV/m).
- As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
- The measured field strength was extrapolated to distance 30 meters, using the formula that the limit of field strength varies as the inverse distance square (40dB per decade of distance).

Example:

$$\begin{aligned}
 13.56\text{MHz} &= 15848\text{uV/m} & 30\text{m} \\
 &= 84\text{dBuV/m} & 30\text{m} \\
 &= 84+40 \log 30/3 & 3\text{m} \\
 &= 124\text{dBuV/m}
 \end{aligned}$$

4.2.2 TEST INSTRUMENTS

For test instruments and accessories used see section 5.

4.2.3 TEST PROCEDURES

- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3&10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.



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- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be perform using fresh batteries. The turntable was rotated to maximize the emission level.
- f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1m above the ground.

NOTE:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3. All modes of operation were investigated, and the worst-case emissions are reported.

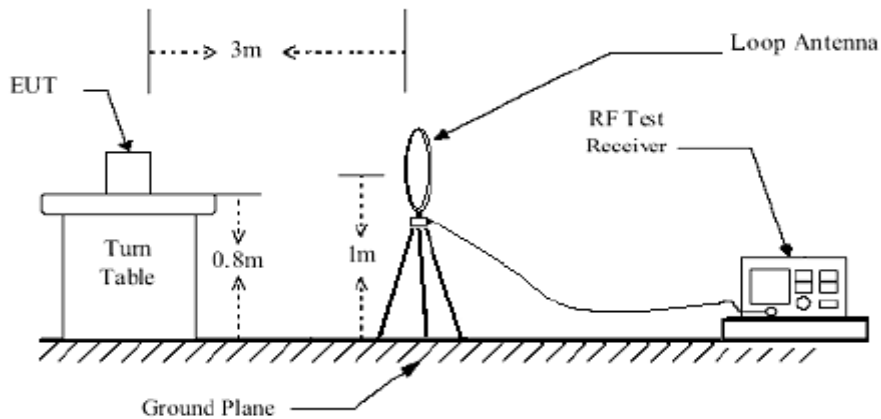
4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

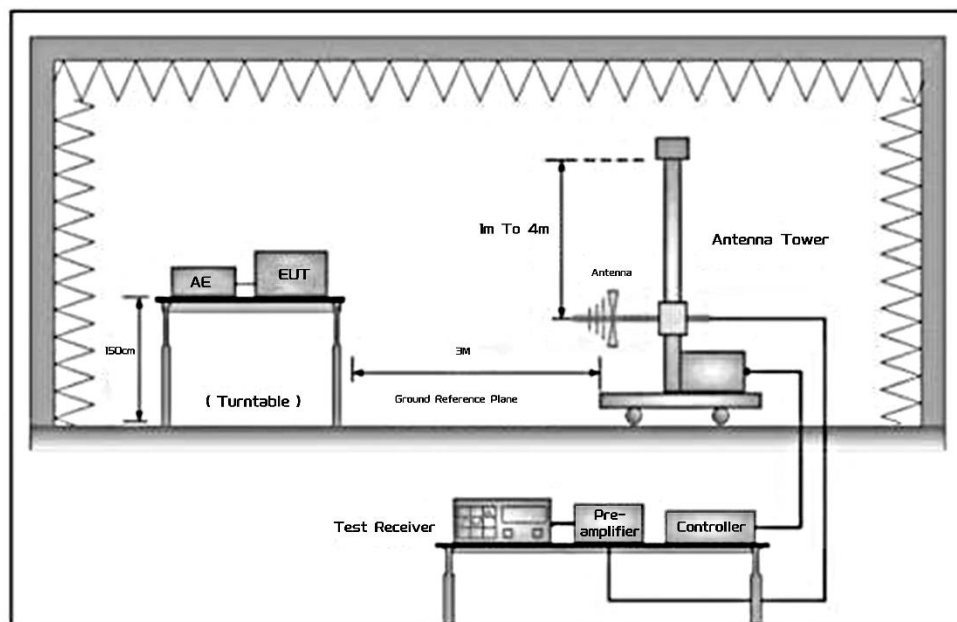
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4.2.5 TEST SETUP

Below 30MHz



30MHz~1GHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

Set the EUT under transmission condition continuously at specific channel frequency.



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4.2.7 TEST RESULTS

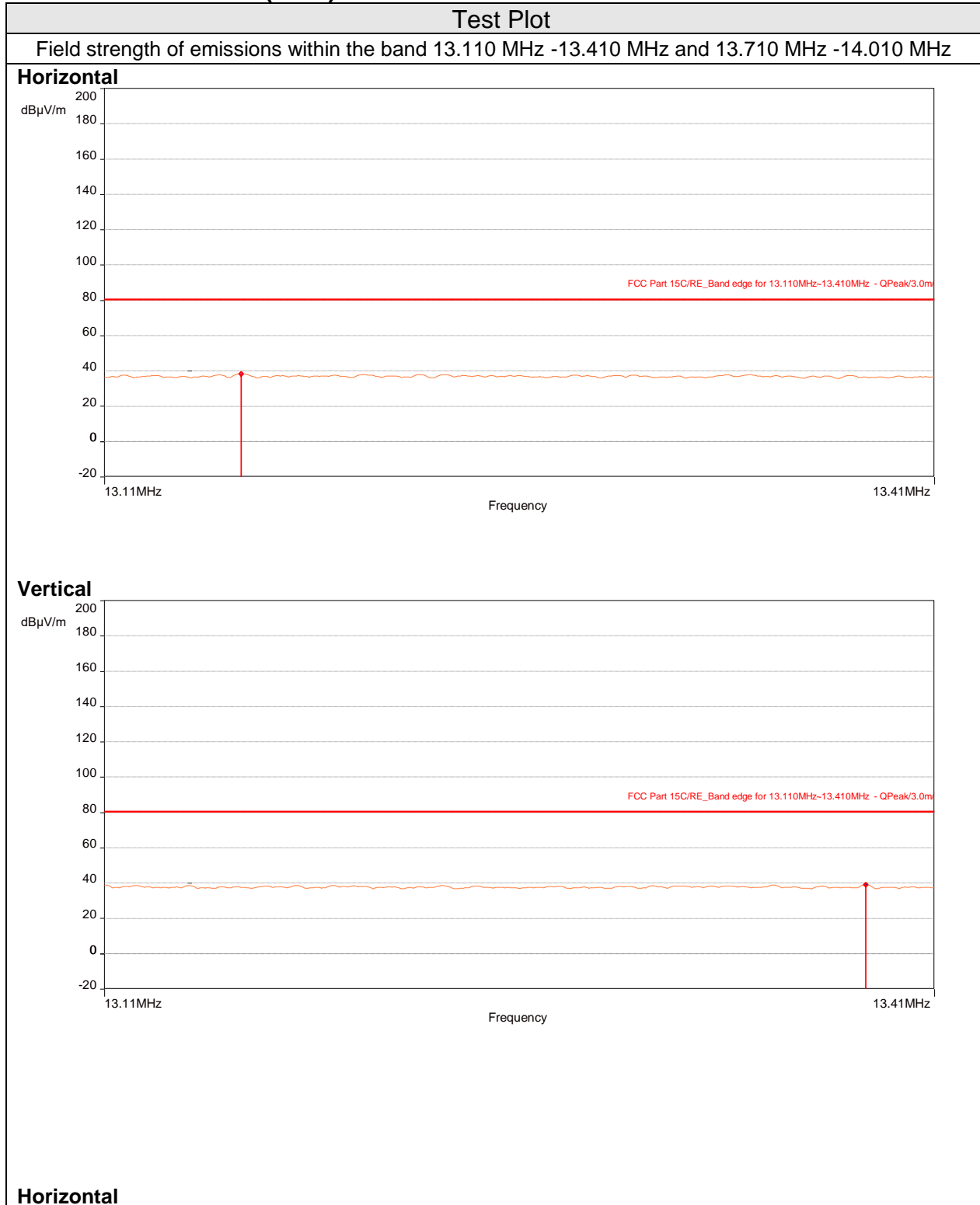
FIELD STRENGTH OF EMISSIONS WITHIN THE BAND

Frequency (MHz)	Emission Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (m)	Angle (°)	Polarization	Correction (dB)	Detector
13.15902	38.40	80.51	-42.11	1.00	339.00	Horizontal	23.63	Peak
13.52011	38.37	90.47	-52.10	1.00	28.00	Horizontal	23.68	Peak
*13.5610584	41.07	124.00	-82.93	1.00	265.00	Horizontal	23.68	Peak
13.5844174	38.31	90.47	-52.16	1.00	105.00	Horizontal	23.68	Peak
14.00397	38.33	80.51	-42.18	1.00	322.00	Horizontal	23.73	Peak
13.38492	39.04	80.51	-41.47	1.00	332.00	Vertical	23.66	Peak
13.4288188	39.48	90.47	-50.99	1.00	53.00	Vertical	23.67	Peak
*13.559909	39.72	124.00	-84.28	1.00	113.00	Vertical	23.68	Peak
13.6593923	39.86	90.47	-50.61	1.00	359.00	Vertical	23.69	Peak
13.86132	39.92	80.51	-40.59	1.00	75.00	Vertical	23.72	Peak

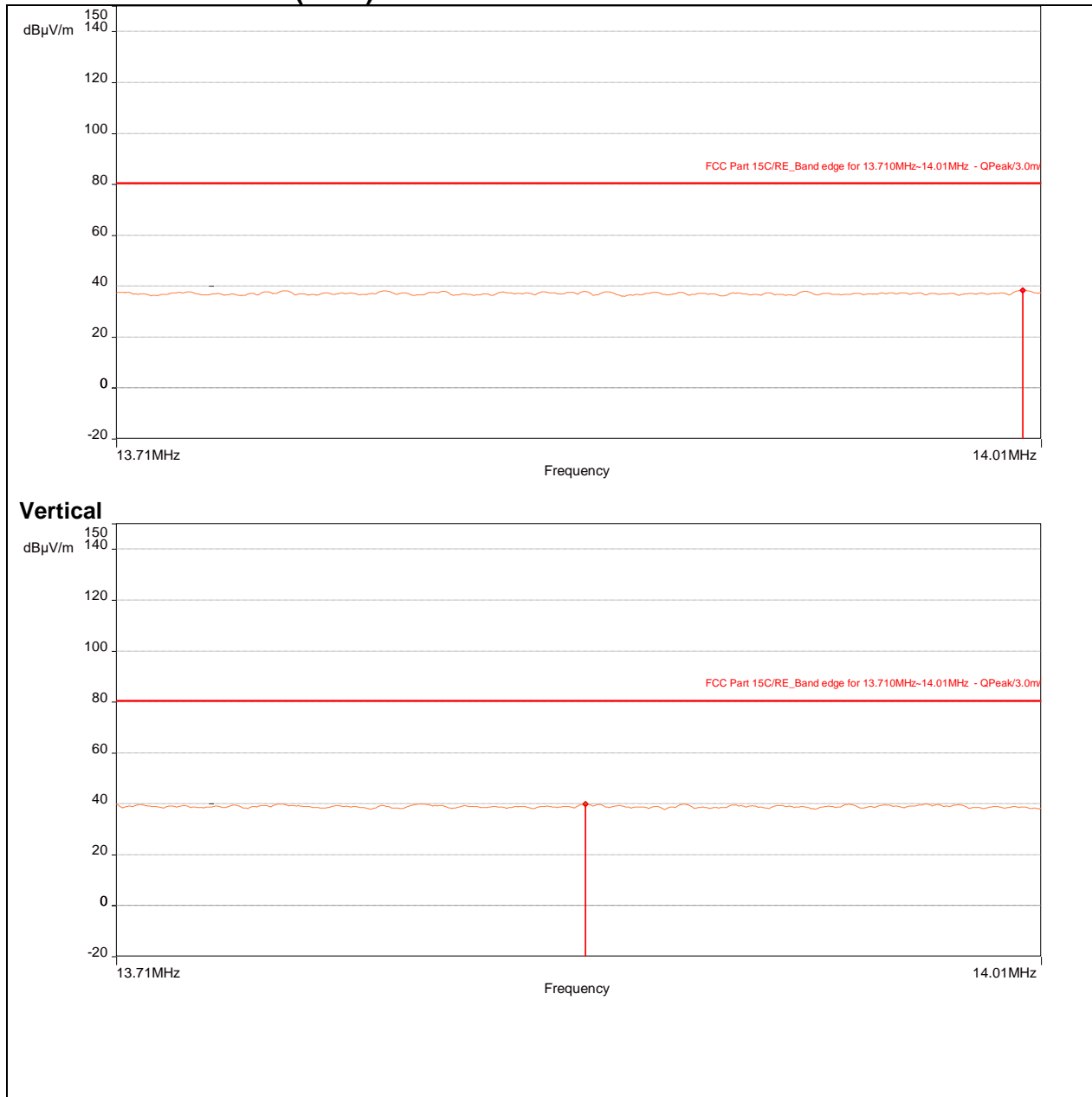
Remarks:

1. Emission level (dB μ V/m) = Raw Value (dB μ V) + Correction Factor (dB/m)
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)
3. The emission levels of other frequencies were more than 20dB margin against the limit.
4. Margin = Emission level - Limit value
5. " * ": Fundamental frequency.

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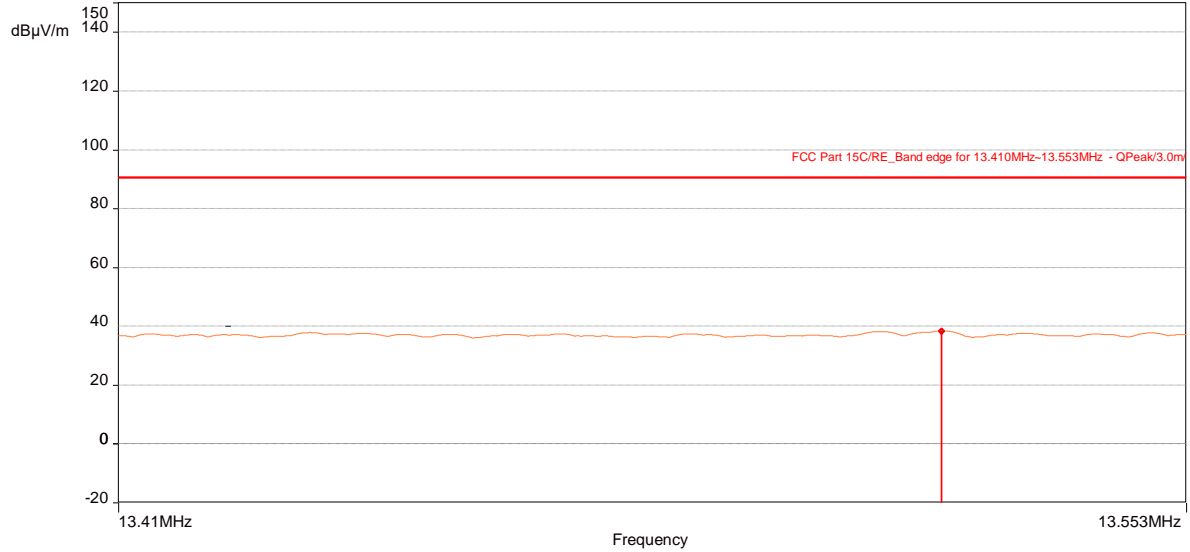
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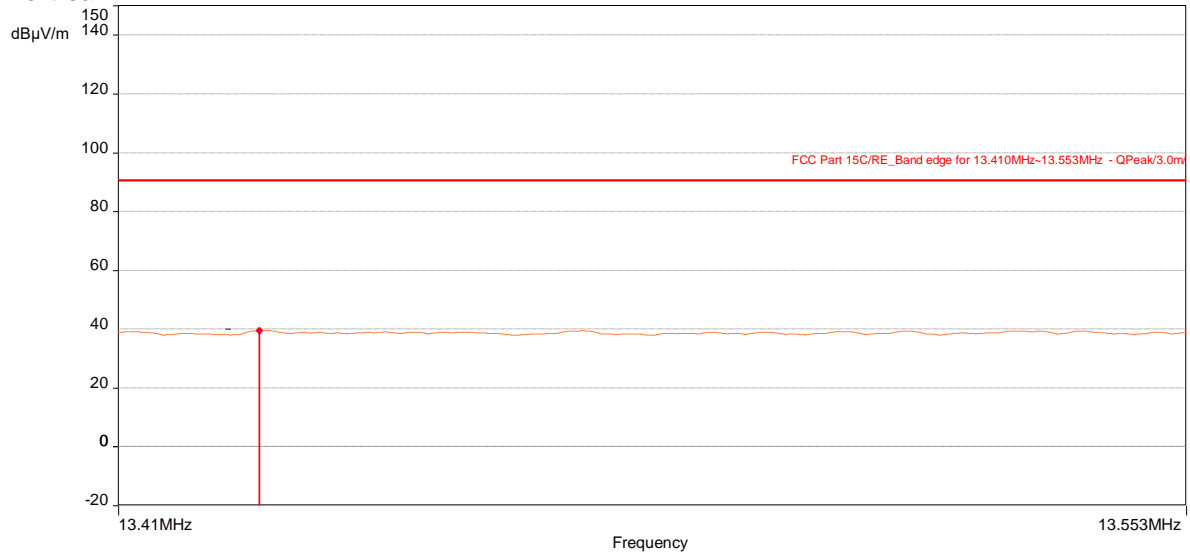
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Field strength of emissions within the band 13.410 MHz -13.553 MHz and 13.567 MHz -13.710 MHz

Horizontal

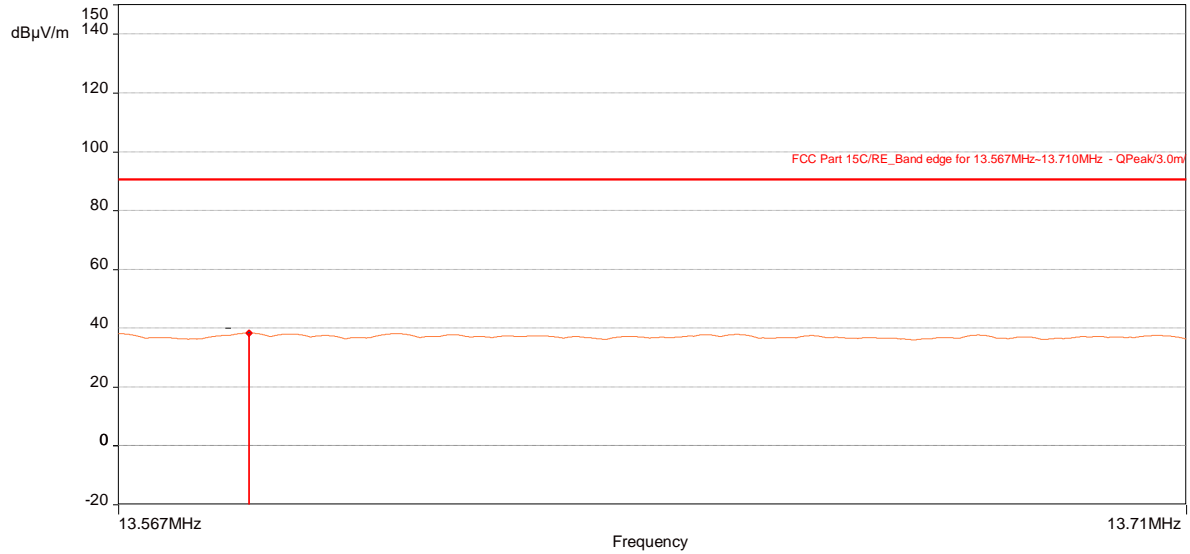


Vertical

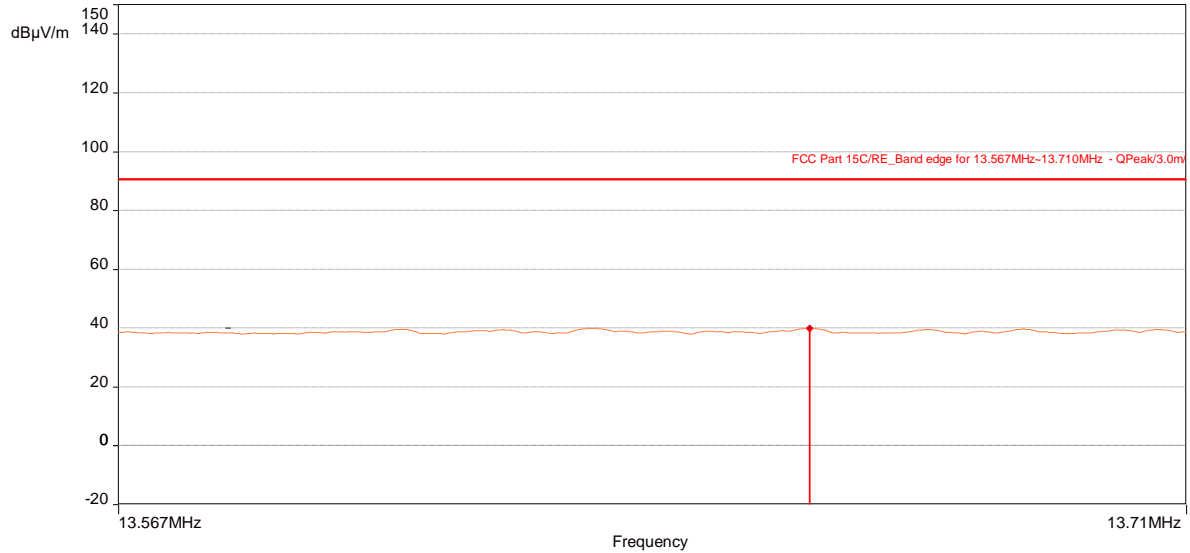


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Horizontal



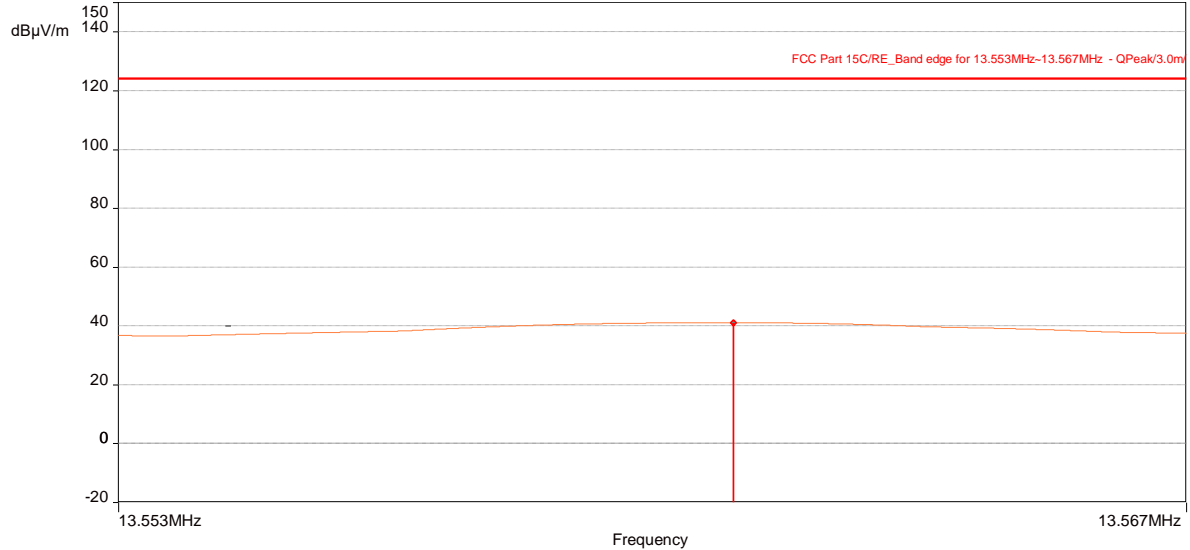
Vertical



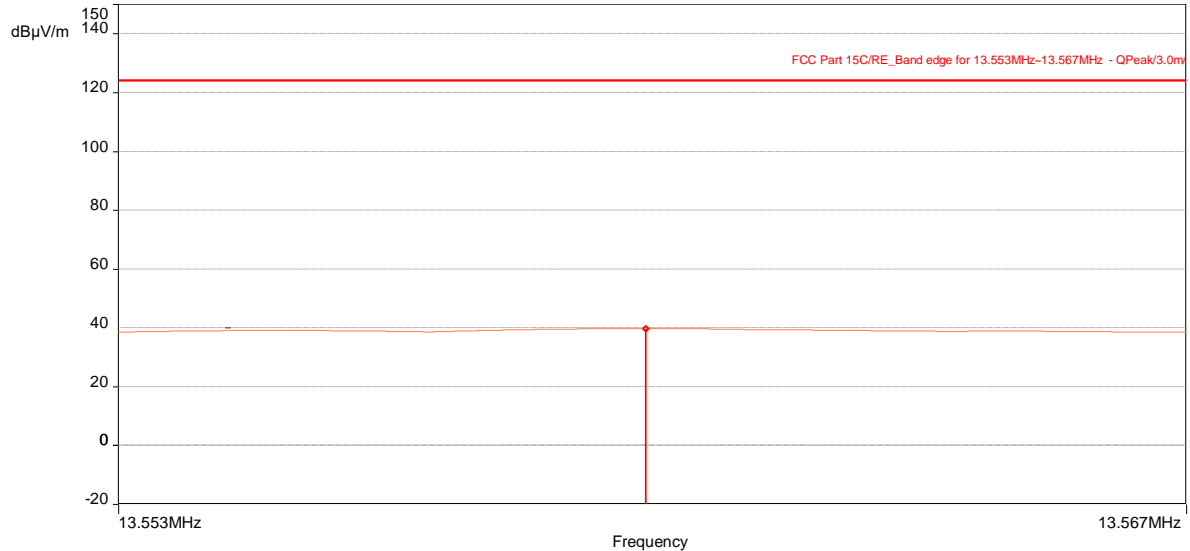
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Field strength of emissions within the band 13.553 MHz -13.567 MHz

Horizontal



Vertical





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Field strength of emissions outside of the band 13.110 MHz -14.010 MHz

Channel		Channel 1 (13.56MHz)			Detector Function		Quasi-Peak (QP)
Frequency Range		9kHz ~ 30MHz			Result		PASS
Antenna Polarity & Test Distance: Horizontal At 3m							
Frequency (MHz)	Peak (dBµV/m)	QP (dBµV/m)	QP Lim. (dBµV/m)	Margin (dB)	Angle (°)	Height (m)	Polarization
0.0114111	43.37	/	126.44	-83.07	293.00	1.00	Horizontal
0.0348171	38.72	/	116.76	-78.03	293.00	1.00	Horizontal
0.1290192	40.31	/	105.38	-65.08	179.00	1.00	Horizontal
0.28134	39.50	/	98.62	-59.12	14.00	1.00	Horizontal
1.06938	39.05	/	67.04	-27.99	204.00	1.00	Horizontal
3.96483	39.59	/	69.50	-29.91	298.00	1.00	Horizontal
Antenna Polarity & Test Distance: Vertical At 3m							
Frequency (MHz)	Peak (dBµV/m)	QP (dBµV/m)	QP Lim. (dBµV/m)	Margin (dB)	Angle (°)	Height (m)	Polarization
0.0111291	41.24	/	126.66	-85.42	16.00	1.00	Vertical
0.0444897	38.96	/	114.63	-75.67	108.00	1.00	Vertical
0.1170906	39.09	/	106.23	-67.14	192.00	1.00	Vertical
0.224625	42.17	/	100.57	-58.41	115.00	1.00	Vertical
1.17684	40.38	/	66.21	-25.83	163.00	1.00	Vertical
3.149925	40.92	/	69.50	-28.58	111.00	1.00	Vertical
1.QP is abbreviation of Quasi-Peak 2.Margin = Emission Level - Limit Value 3.The emission levels of other frequencies were more than 20dB margin against the limit							



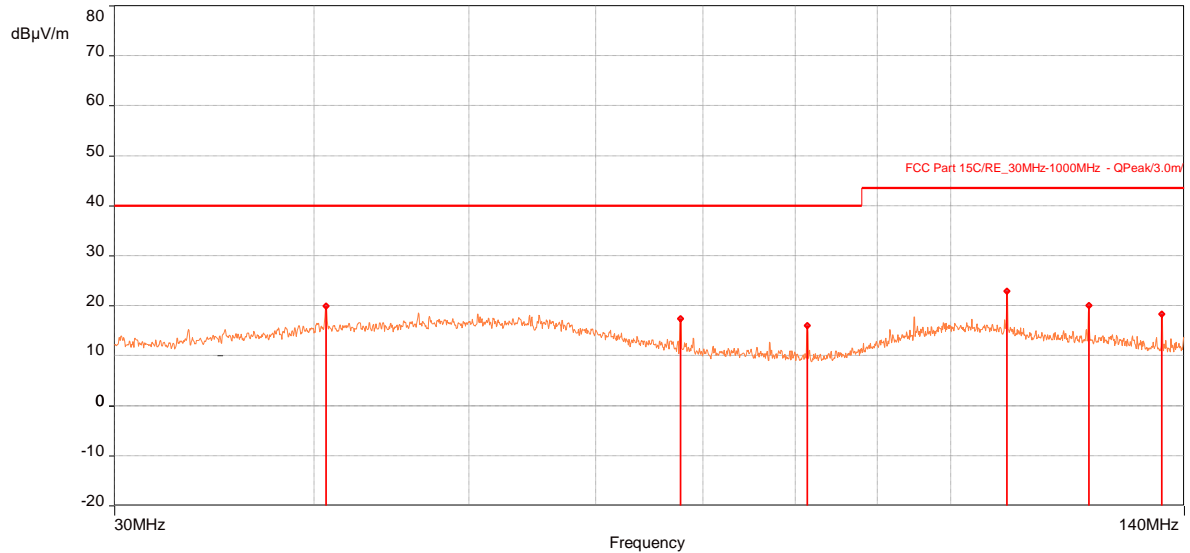
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Channel		Channel 1 (13.56MHz)		Detector Function		Peak (PK)	
Frequency Range		30MHz ~ 1GHz		Result		PASS	
Antenna Polarity & Test Distance: Horizontal At 3m							
Frequency (MHz)	Peak (dBμV/m)	QP (dBμV/m)	QP Lim. (dBμV/m)	Margin (dB)	Angle (°)	Height (m)	Polarization
40.692	19.97	/	40.00	-20.03	347.00	1.00	Horizontal
67.807	17.34	/	40.00	-22.66	36.00	1.00	Horizontal
81.359	15.98	/	40.00	-24.02	78.00	1.00	Horizontal
108.496	22.93	/	43.50	-20.57	62.00	1.99	Horizontal
122.059	19.98	/	43.50	-23.52	172.00	1.00	Horizontal
135.611	18.30	/	43.50	-25.20	123.00	1.00	Horizontal
Antenna Polarity & Test Distance: Vertical At 3m							
Frequency (MHz)	Peak (dBμV/m)	QP (dBμV/m)	QP Lim. (dBμV/m)	Margin (dB)	Angle (°)	Height (m)	Polarization
40.67	26.56	/	40.00	-13.44	2.00	1.00	Vertical
56.246	18.47	/	40.00	-21.53	282.00	1.00	Vertical
67.807	18.49	/	40.00	-21.51	355.00	1.00	Vertical
94.922	17.14	/	43.50	-26.36	337.00	1.00	Vertical
103.392	17.86	/	43.50	-25.64	136.00	1.00	Vertical
135.622	15.70	/	43.50	-27.80	228.00	1.00	Vertical
1.QP is abbreviation of Quasi-Peak 2.Margin = Emission Level - Limit Value 3.The emission levels of other frequencies were more than 20dB margin against the limit							

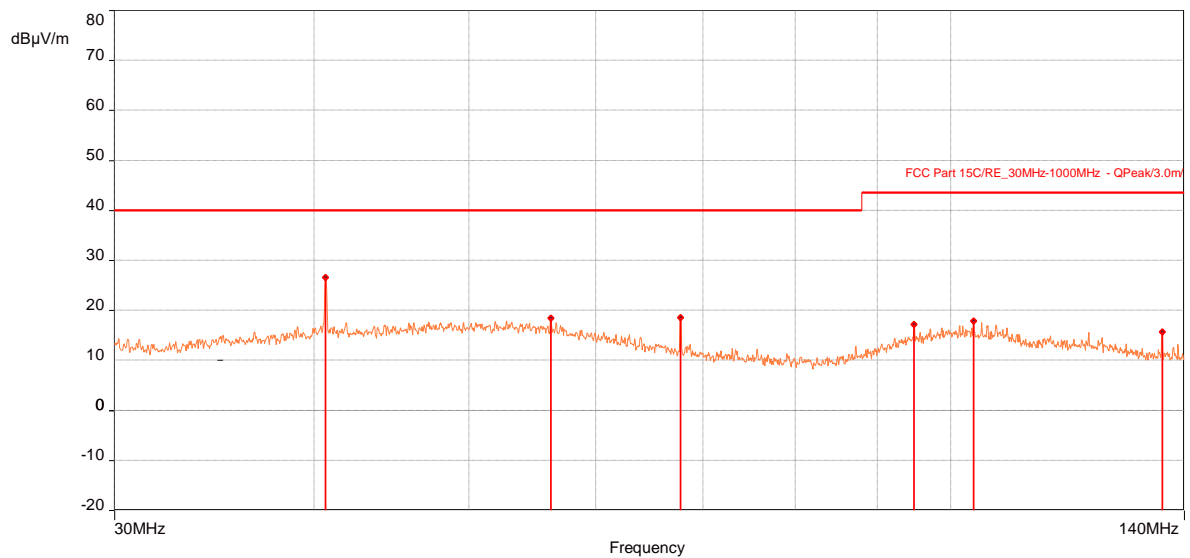
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Test Plot

Horizontal



Vertical



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4.3. FREQUENCY TOLERANCE

4.3.1. LIMIT OF FREQUENCY TOLERANCE

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency over a temperature variation of -20 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.3.2. TEST INSTRUMENTS

For test instruments and accessories used see section 5.

4.3.3. TEST PROCEDURES

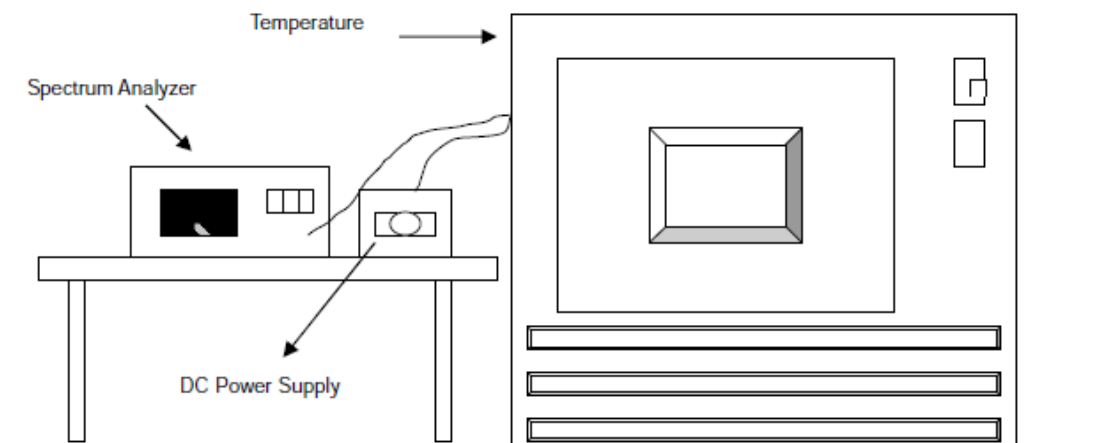
- The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- Repeat step c) and d) with the temperature chamber set to the lowest temperature.
- The test chamber was allowed to stabilize at $+20$ degree C for a minimum of 30 minutes.

The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.3.4. DEVIATION FROM TEST STANDARD

No deviation.

4.3.5. TEST SETUP



4.3.6. EUT OPERATING CONDITIONS

Set the EUT under transmission condition continuously at specific channel frequency.



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4.3.7. TEST RESULTS`

Test Results: PASS

Note: this EUT was tested for all models and the worst case model data was reported.

Voltage (Vdc)	Temperature (°C)	Frequency (MHz)	Deviation (%)	Limit (%)
4.5V	+50	13.561017	0.0075	0.01
	+40	13.560867	0.0064	
	+30	13.560800	0.0059	
	+20	13.561067	0.0079	
	+10	13.561233	0.0091	
	0	13.560900	0.0066	
	-10	13.560833	0.0061	
	-20	13.561283	0.0095	



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4.4. BANDWIDTH MEASUREMENTS

4.4.1 LIMITS

- a. According to §15.215(c), intentional radiators operating under the alternative provisions to the general emission limits must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.
- b. According to RSS-Gen, section 6.7, the occupied bandwidth or the “99% emission bandwidth” has to be reported for all equipment in addition to the specified bandwidth required in RSS-247.

4.4.2 TEST INSTRUMENTS

For test instruments and accessories used see section 5.

4.4.3 TEST PROCEDURE

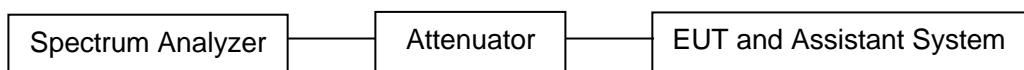
The occupied bandwidth is measured using the test procedure as described in clause 6.9.2 and 6.9.3 of ANSI C63.10-2013.

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- d. Repeat above procedures until all frequencies measured were complete.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

4.4.5 TEST SETUP

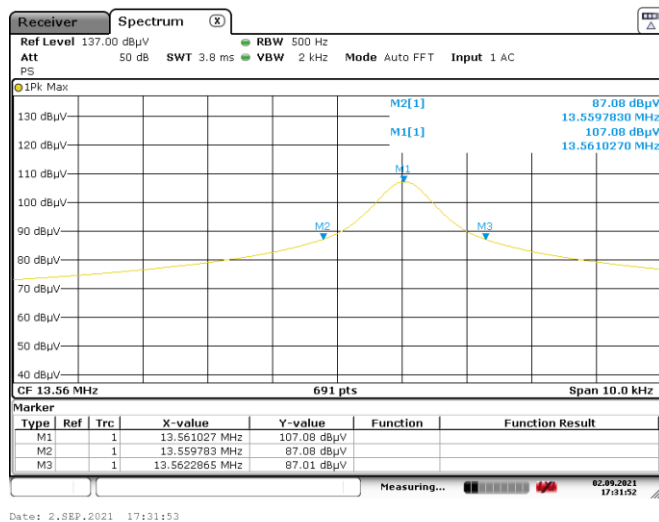


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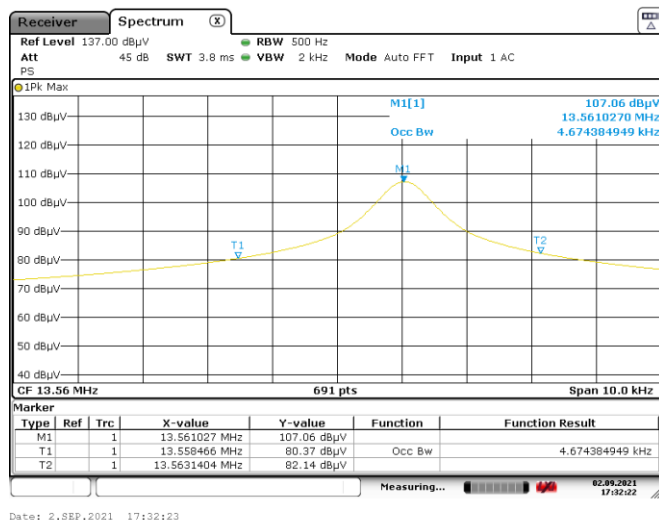
4.4.7 TEST RESULTS

20dB Bandwidth				
Channel	Frequency (MHz)	F _L (MHz)	F _H (MHz)	20dB Bandwidth (kHz)
13.56	13.561027	13.559783	13.5622865	2.504

99% Occupied bandwidth				
Channel	Frequency (MHz)	F _L (MHz)	F _H (MHz)	Occupied bandwidth (kHz)
13.56	13.561027	13.558466	13.5631404	4.674



20dB Bandwidth



99% Occupied bandwidth



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4.5. ANTENNA REQUIREMENTS

4.5.1 Test Standard

FCC Part 15, Subpart C 15.203

4.5.2 Standard Requirement

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user. but the use of a standard antenna jack or electrical connector is prohibited.

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropic ally radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

4.5.3 EUT Antenna

The antenna is PCB Antenna and no consideration of replacement. Antenna location: Refer to (8521)217-0054(B)_Internal Photos.



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5 Test Equipment

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1	Spectrum Analyzer	Keysight	N9010A	MY51120099	2020/06/22	2022/06/22
2	JS0806-2 RF Control Unit	Tonscend	JS0806-2	188060124	2020/12/18	2021/12/17
3	Broadband Preamplifier	SCHWARZBECK	BBV 9743B	00067	2021/03/28	2022/03/28
4	Broadband Preamplifier	SCHWARZBECK	BBV 9718B	00002	2021/03/28	2022/03/28
5	EMI Test Receiver	ROHDE & SCHWARZ	ESR3	102452	2021/07/16	2022/07/16
6	Trilog Broadband Antenna	SCHWARZBECK	VULB 9163	9163-1127	2021/07/12	2022/07/12
7	Horn Antenna	SCHWARZBECK	BBHA 9120D	01829	2021/07/16	2022/07/16
8	DC Power Supply	SIGLENT	SPD1168X	SPD1XEAD3 R 0167	2021/07/16	2022/07/16
9	Vector Signal Generator	Keysight	N5172B	MY53052255	2021/07/16	2022/07/16
10	Analog Signal Generator	Keysight	N5171B	MY53051692	2021/07/16	2022/07/16
11	Temperature Humidity Chamber	Yiheng	BPS-50CB	191005684	2020/12/07	2021/12/06
12	Temperature and Humidity Indicator	JianDaRenKe	Cos-03	612058	2021/06/29	2022/06/29
13	BAT-EMC Testing (Test Software)	NEXIO	BAT-EMC	Version: 3.16.0.74	N/A	N/A
14	JS1120-3 Test System (Test Software)	Tonscend	JS1120-3	Version: 2.5.77.0418	N/A	N/A
15	Double Ridge Guide Horn Antennas	A.H.Systems	SAS-574	588	2021/07/16	2022/07/16
16	Active Loop Antenna	BeiJing DaZe technology co. LTD	ZN30900C	15015	2021/04/08	2022/04/08



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6. Test Photographs

Referring to – “(8521)217-0054(C)”.

7. Photos of the EUT

Referring to – “(8521)217-0054(A)” and “(8521)217-0054(B)”.

END OF TEST REPORT