TEST REPORT

Application No.:	GZCR2108020796AT
Applicant:	Enping Misha Electronic Co., Ltd
Address of Applicant:	Pingshi Development Area, Enping City, Guangdong Province, China
Manufacturer:	Enping Misha Electronic Co., Ltd
Address of Manufacturer:	Pingshi Development Area, Enping City, Guangdong Province, China
Factory:	Enping Misha Electronic Co., Ltd
Address of Factory:	Pingshi Development Area, Enping City, Guangdong Province, China
Equipment Under Test (EUT):	
EUT Name:	Wireless Microphone
Model No.:	MIC200
Trade Mark:	Singsation
Standard(s) :	47 CFR Part 15, Subpart C 15.236
Date of Receipt:	2021-06-04
Date of Test:	2021-08-20 to 2021-08-24
Date of Issue:	2021-08-25
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Kobe Jian
EMC Laboratory Manager

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2021-08-25		Original

Authorized for issue by:				
		Curry Wu/Project Engineer		
		Ricky Liu/Reviewer		

2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart C 15. 236	N/A	47 CFR Part 15, Subpart C 15.203	Pass

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Occupied Bandwidth	47 CFR Part 15, Subpart C 15.236	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.236f(2)	Pass
Frequency Tolerance		ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.236f(3)	Pass
RF Output Power		ANSI C63.10 (2013) Section 11.9.2	47 CFR Part 15, Subpart C 15.236(d)(1)	Pass
Necessary Bandwidth		EN 300 422-1 V1.4.2 8.3.2	47 CFR Part 15, Subpart C 15.236(g)	Pass
Radiated Spurious Emissions Below 1GHz		EN 300 422-1 V1.4.2 8.4.2	47 CFR Part 15, Subpart C 15.236(g)	Pass
Radiated Spurious Emissions Above 1GHz		EN 300 422-1 V1.4.2 8.4.2	47 CFR Part 15, Subpart C 15.236(g)	Pass

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power Supply:	Transmitter: DC 3V 2*AA Batteries.
Operation Frequency:	202.2MHz
Modulation Type:	FM Modulation
Number of Channels:	1
Antenna Type:	PCB Antenna
Antenna Gain:	0dBi

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
The EUT has been tested as an independent unit.			

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radio Frequency	±5.5 x 10^{-8}
Occupied Bandwidth	± 3%
Necessary Bandwidth	± 3%
RF Output Power	± 0.75dB
Frequency Tolerance	± 7.25 x 10^{-8}
Radiated Spurious Emissions Below 1GHz	±5.06dB (3m); ±4.46dB (10m)
Radiated Spurious Emissions Above 1GHz	±5.08dB (1GHz-6GHz); ±5.14dB (above 6GHz)

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO**

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **FCC Recognized Accredited Test Firm(Registration No.: 486818)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

- **ISED (Registration No.: 4620B, CAB identifier: CN0052)**

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

- **VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)**

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

- **CBTL (Lab Code: TL129)**

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Occupied Bandwidth					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer (10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2020-09-17	2021-09-16
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01

RF Output Power					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer (10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2020-09-17	2021-09-16
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01

Necessary Bandwidth					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer (10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2020-09-17	2021-09-16
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01

Frequency Tolerance					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer (10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2020-09-17	2021-09-16
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01

Radiated Spurious Emissions (Above 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Chamber cable(Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2020-09-09	2022-09-08

Horn Antenna(1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2019-09-25	2022-09-24
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
High Pass Filter (915MHz)	FSY MICROWAVE	HM1465-9SS	EMC2079	2021-01-08	2022-01-07
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-08	2022-01-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19
MXE EMI Receiver(10Hz-8.4GHz)	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer(10Hz-44GHz)	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
Horn Antenna(14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2020-06-28	2023-06-27

Radiated Spurious Emissions Below 1GHz					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Chamber cable	HangTianXing	N/A	EMC0542	2020-09-09	2022-09-08
Trilog Broadband Antenna(25MHz-1GHz)-Lab	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Amplifier(9kHz-1.3GHz)	HP	8447F	EMC2065	2021-05-19	2022-05-18
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
EXA Signal Analyzer(10Hz-44GHz)	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2021-07-05	2022-07-05
DMM	Fluke	73	EMC0007	2021-07-05	2022-07-05

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

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.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.

Antenna location: Refer to internal photo.

7 Radio Spectrum Matter Test Results

7.1 Occupied Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.236f(2)
Test Method: ANSI C63.10 (2013) Section 6.9

Limit: <200 kHz

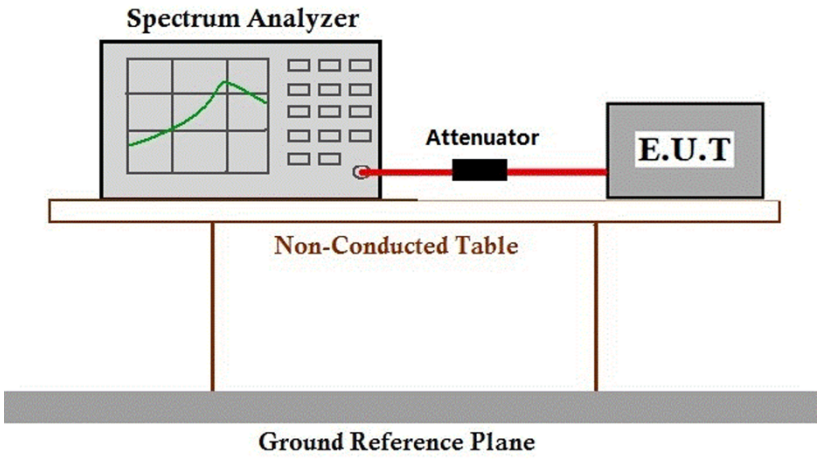
7.1.1 E.U.T. Operation

Operating Environment:
Temperature: 23.6 °C Humidity: 58.5 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with FM modulation.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.2 RF Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.236d(1)
Test Method: ANSI C63.10 (2013) Section 11.9.2

Limit: 50mW EIRP

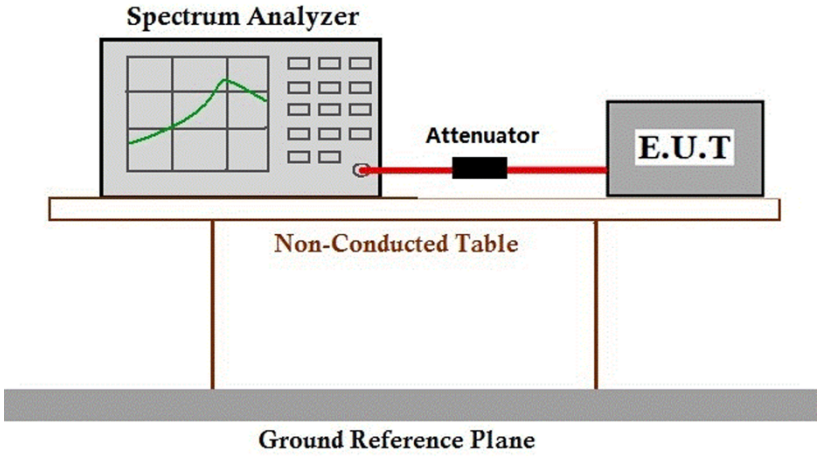
7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 23.6 °C Humidity: 58.5 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with FM modulation.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.3 Frequency Tolerance

Test Requirement 47 CFR Part 15, Subpart C 15.236f(3)

Test Method: ANSI C63.10 (2013) Section 6.8

Limit:

The frequency tolerance of the carrier signal shall be maintained within ±0.005% 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. Battery operated equipment shall be tested using a new battery.

7.3.1 E.U.T. Operation

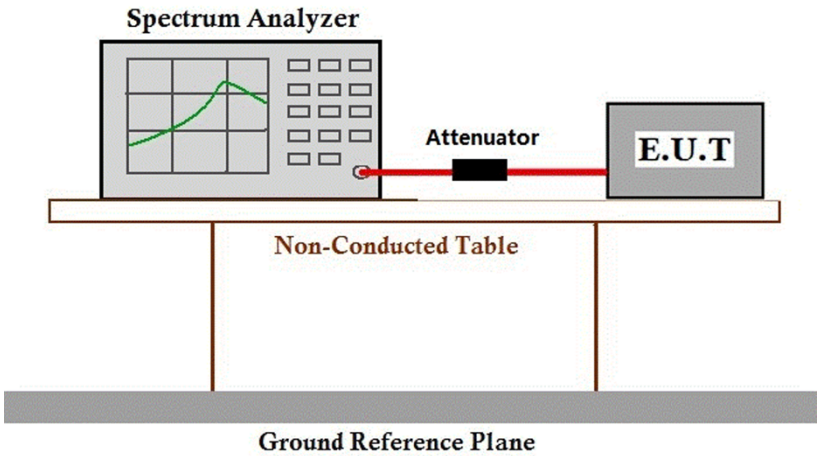
Operating Environment:

Temperature: 23.6 °C Humidity: 58.5 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with FM modulation.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

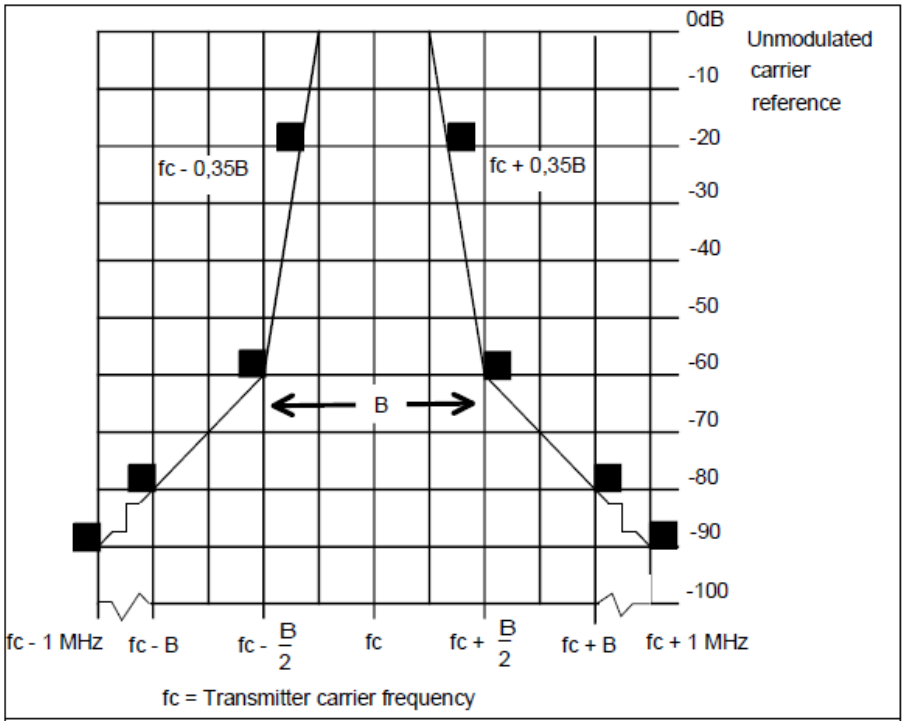
Please Refer to Appendix for Details

7.4 Necessary Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.236(g)

Test Method: EN 300 422-1 V1.4.2 8.3.2

Limit:



7.4.1 E.U.T. Operation

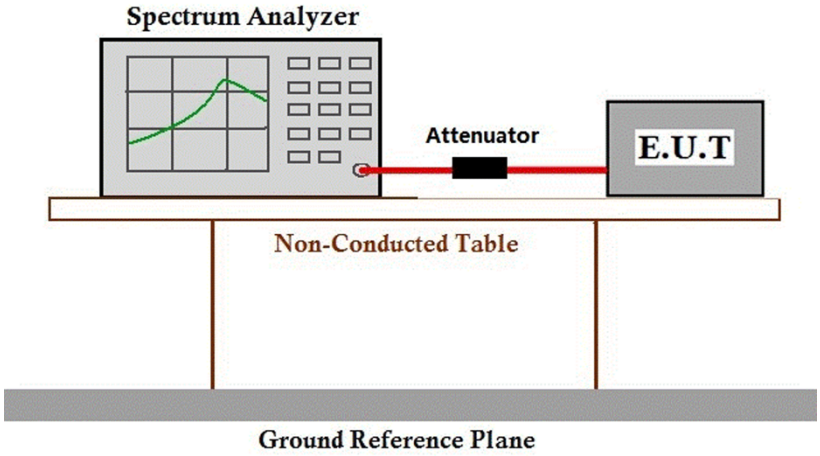
Operating Environment:

Temperature: 23.6 °C Humidity: 55.2 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with FM modulation.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.5 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.236(g), EN 300 422-1 V1.4.2 8.4.3
Test Method: EN 300 422-1 V1.4.2 8.4.2
Measurement Distance: 3m

Limit:

State	Frequency		
	47 MHz to 74 MHz 87,5 MHz to 137 MHz 174 MHz to 230 MHz 470 MHz to 862 MHz	Other Frequencies below 1 000 MHz	Frequencies above 1 000 MHz
Operation	4 nW	250 nW	1 µW
Standby	2 nW	2 nW	20 nW

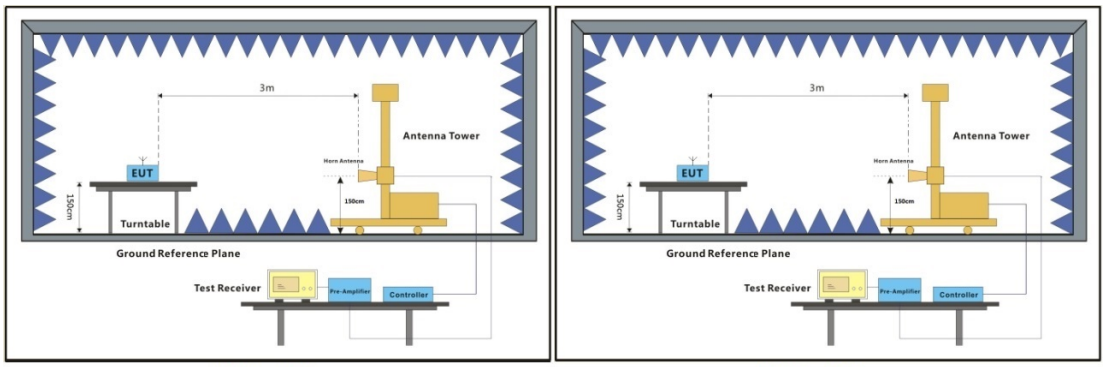
7.5.1 E.U.T. Operation

Operating Environment:
Temperature: 23.6 °C Humidity: 58.5 % RH Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with FM modulation.

7.5.3 Test Setup Diagram



30MHz-1GHz Above 1GHz

7.5.4 Measurement Procedure and Data

a.The technique used to find the Spurious Emissions of the transmitter was a pre-calibration method which is measure the path loss from the measurement antenna to the substitution antenna and subtract this from the signal generator level to reach the measurement result. The method was performed to determine the actual ERP/EIRP emission levels of the EUT.

b. For below 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

d. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

e. The antenna 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.

f. 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.

g. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

h. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or RMS average method as specified and then reported in a data sheet.

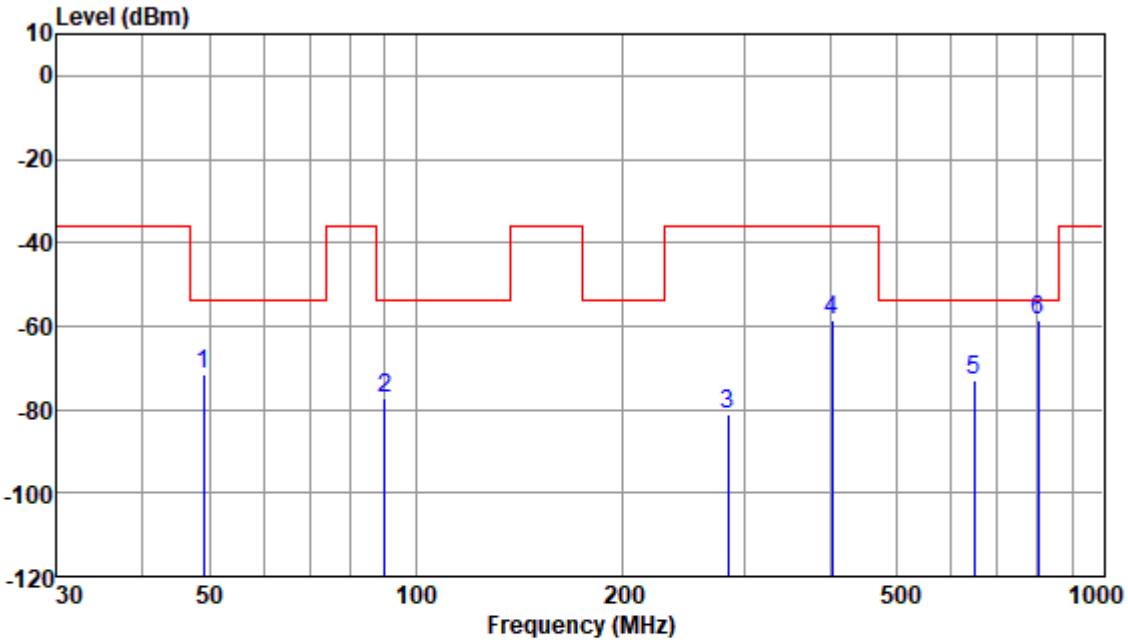
i. Test the EUT in the lowest channel, the middle channel, the Highest channel.

j. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

k. Repeat above procedures until all frequencies measured was complete.

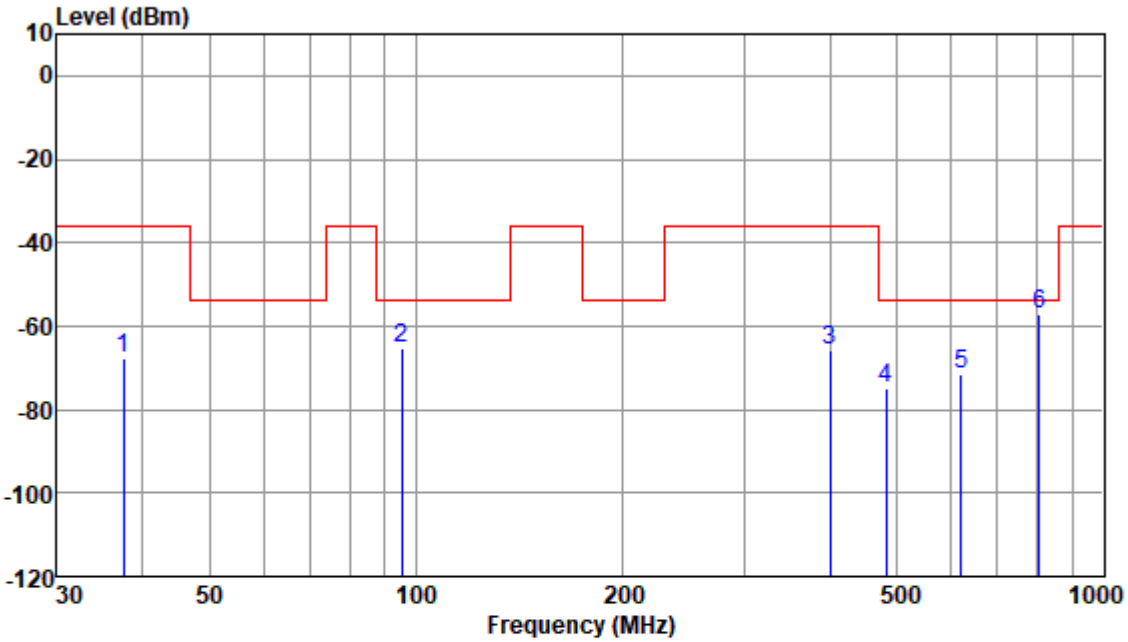
Below 1GHz

Test Mode: 00; Polarity: Horizontal



	Freq	Read Level	Correction Factor	Level	Limit Line	Over Limit	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB	
1	49.01	-69.54	-1.77	-71.31	-54.00	-17.31	HORIZONTAL
2	89.90	-67.64	-9.80	-77.44	-54.00	-23.44	HORIZONTAL
3	283.98	-78.48	-2.52	-81.00	-36.00	-45.00	HORIZONTAL
4	401.84	-57.80	-0.98	-58.78	-36.00	-22.78	HORIZONTAL
5	647.39	-76.79	3.77	-73.02	-54.00	-19.02	HORIZONTAL
6	801.79	-65.19	6.79	-58.40	-54.00	-4.40	HORIZONTAL

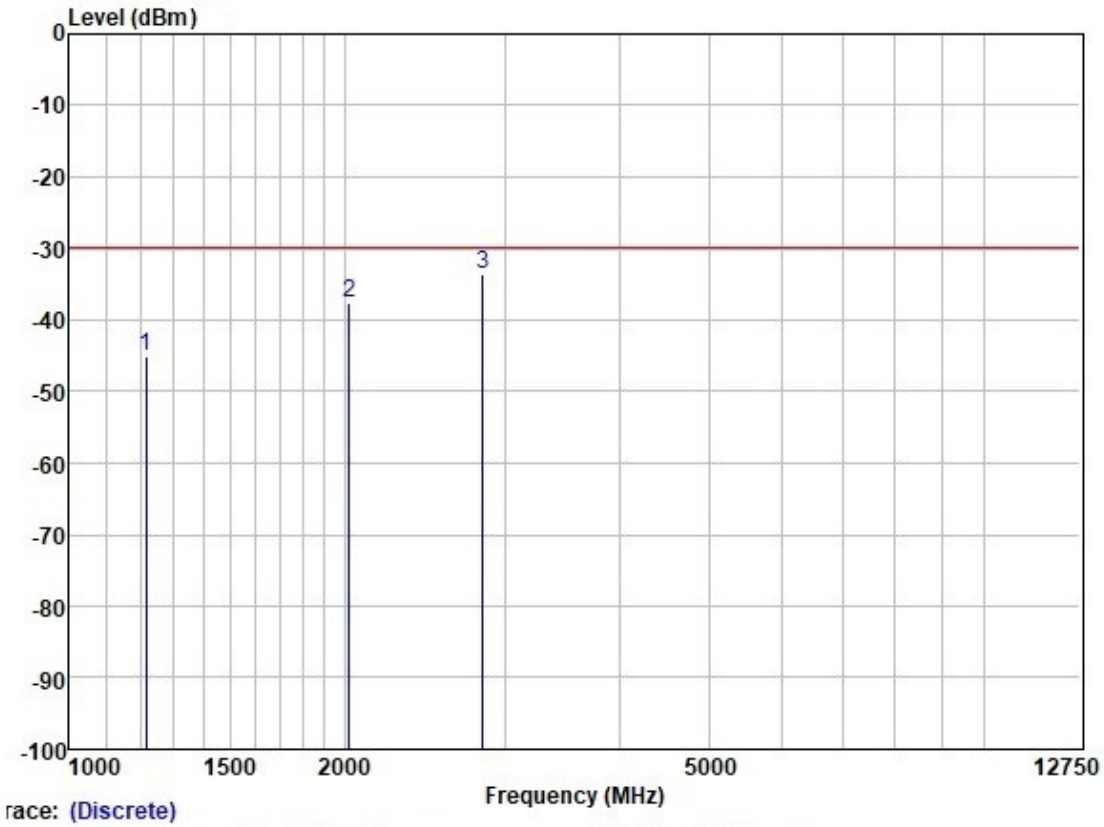
Test Mode: 00; Polarity: Vertical



	Freq	Read Level	Correction Factor	Level	Limit Line	Over Limit	Pol/Phase
	MHz	dBm	dB	dBm	dBm	dB	
1	37.55	-60.09	-7.83	-67.92	-36.00	-31.92	VERTICAL
2	95.09	-59.33	-5.91	-65.24	-54.00	-11.24	VERTICAL
3	400.43	-65.39	-0.25	-65.64	-36.00	-29.64	VERTICAL
4	482.22	-76.99	1.94	-75.05	-54.00	-21.05	VERTICAL
5	620.71	-76.18	4.39	-71.79	-54.00	-17.79	VERTICAL
6	804.60	-64.64	7.46	-57.18	-54.00	-3.18	VERTICAL

Above 1GHz

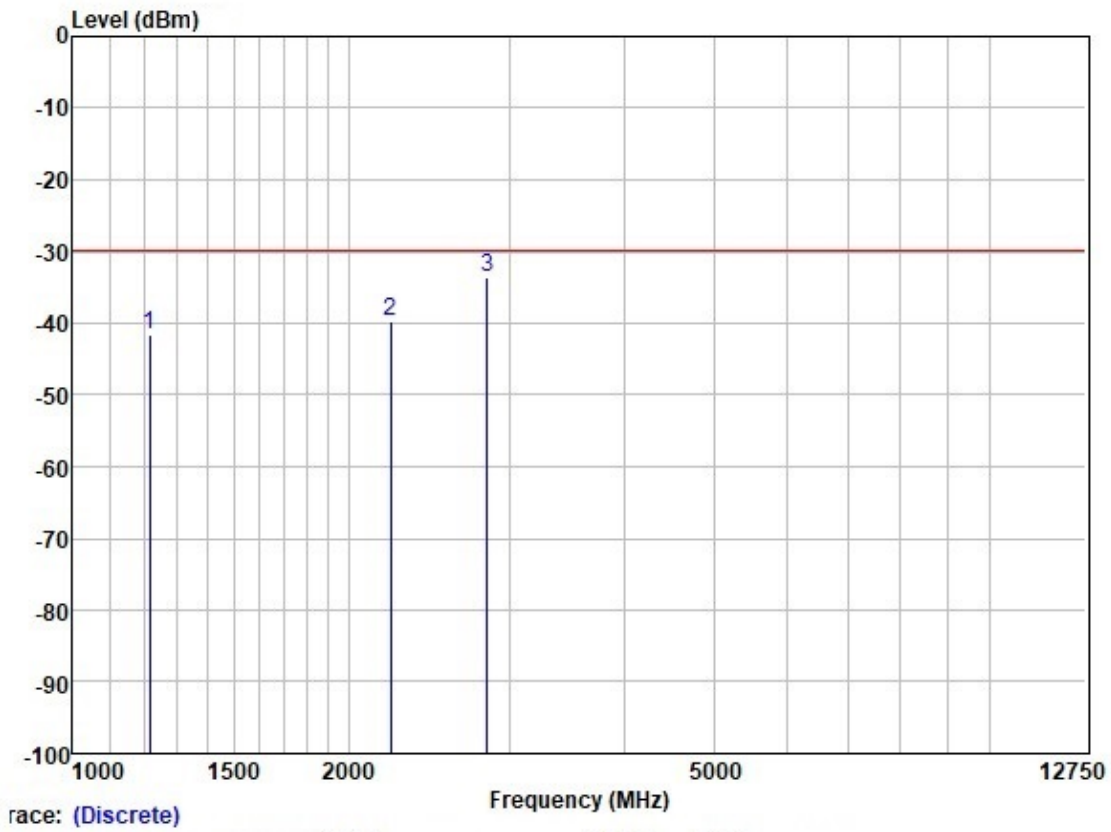
Test Mode: 00; Polarity: Horizontal



race: (Discrete)

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBm	dB/m	dBm/m	dBm/m	dB		
1	1214.221	-48.35	3.20	-45.15	-30.00	-15.15	HORIZONTAL	Peak
2	2024.074	-47.34	9.82	-37.52	-30.00	-7.52	HORIZONTAL	Peak
3	2832.392	-37.53	3.83	-33.70	-30.00	-3.70	HORIZONTAL	Peak

Test Mode: 00; Polarity: Vertical

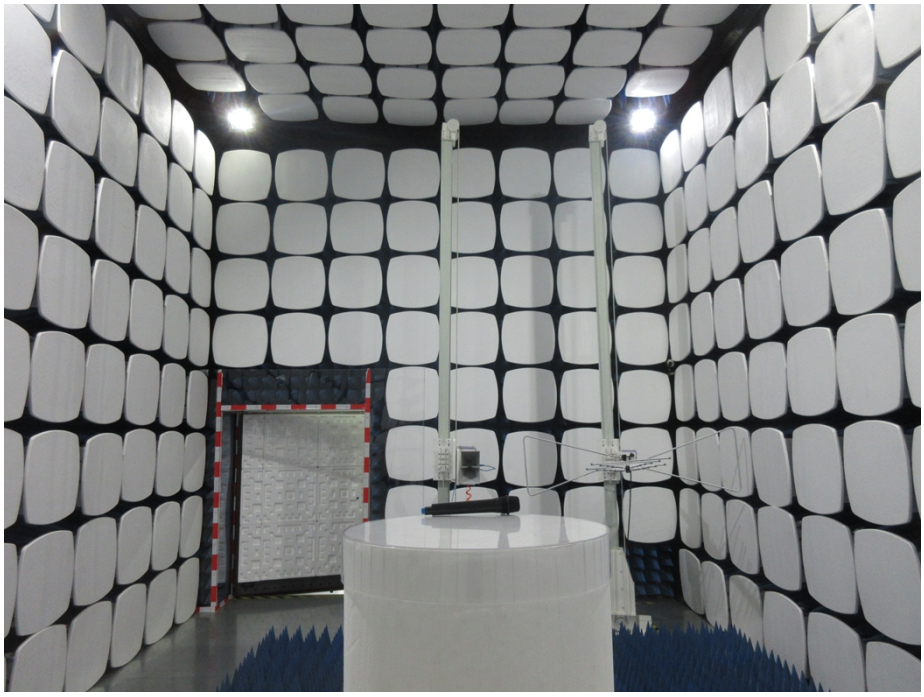


race: (Discrete)

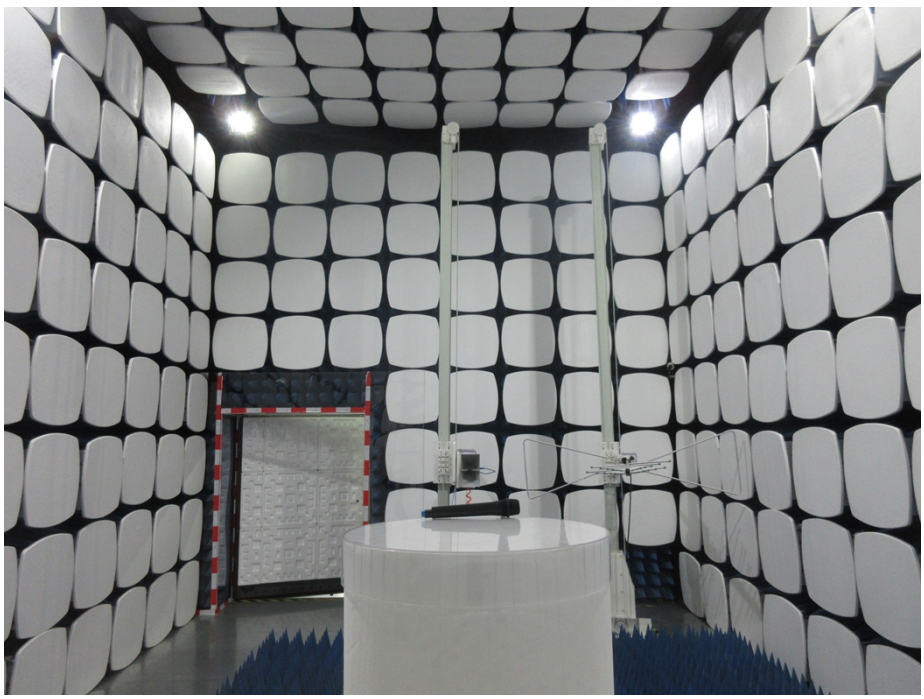
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBm	dB/m	dBm/m	dBm/m	dB		
1	1213.221	-44.75	3.20	-41.55	-30.00	-11.55	VERTICAL	Peak
2	2223.977	-49.01	9.32	-39.69	-30.00	-9.69	VERTICAL	Peak
3	2832.394	-37.41	3.83	-33.58	-30.00	-3.58	VERTICAL	Peak

8 Test Setup Photo

Radiated Spurious Emissions Below 1GHz



Radiated Spurious Emissions Above 1GHz



9 EUT Constructional Details (EUT Photos)

Refer to Appendix – External and Internal Photos for GZCR2108020796AT.

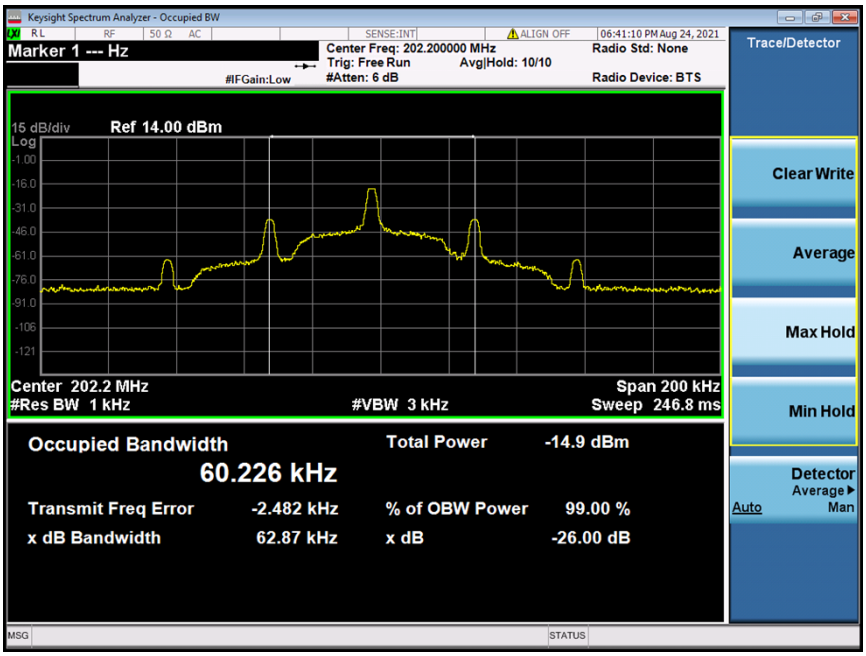
10 Appendix

1. Occupied Bandwidth

1.1 Test Result

Test Mode	Frequency (MHz)	TX Type	ANT No.	99% Bandwidth		Verdict
				Test Result (KHz)	Limits (KHz)	
Tx	202.200	SISO	1	60.226	<200	PASS

2.2 Test Graph – 99% Bandwidth

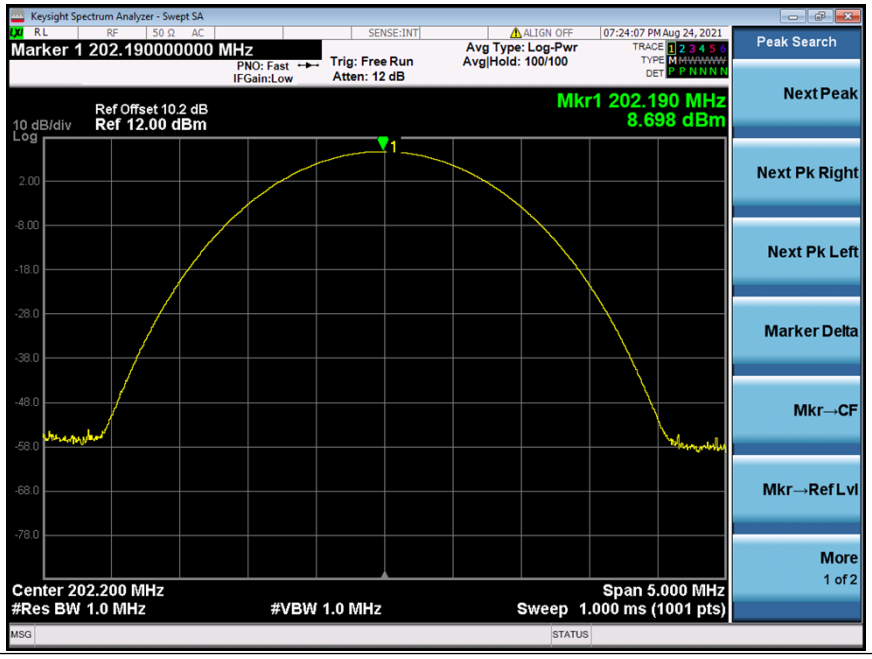


2. RF Output Power

2.1 Test Result

Test Mode	Frequency (MHz)	Tx Type	Measured Peak Output Power (dBm)	Measured Peak Output Power (mW)	Limits (mW)	Verdict
			Ant 1			
Tx	202.200	SISO	8.698	7.41	50.0	PASS

2.2 Test Graph



3. Frequency Tolerance

3.1 Test Result

Voltage (%)	Power (VDC)	Temp (℃)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Deviation (%)	Limit (%)	Result
115%	3.45	20	202.200	202.1952	-0.0024	±0.005	PASS
85%	2.55	20	202.200	202.1945	-0.0027	±0.005	PASS
100%	3.0	-20	202.200	202.1914	-0.0043	±0.005	PASS
		-10	202.200	202.1932	-0.0034	±0.005	PASS
		-0	202.200	202.1966	-0.0017	±0.005	PASS
		10	202.200	202.1973	-0.0013	±0.005	PASS
		20	202.200	202.1975	-0.0012	±0.005	PASS
		30	202.200	202.1978	-0.0011	±0.005	PASS
		40	202.200	202.1980	-0.0010	±0.005	PASS
		50	202.200	202.1982	-0.0009	±0.005	PASS

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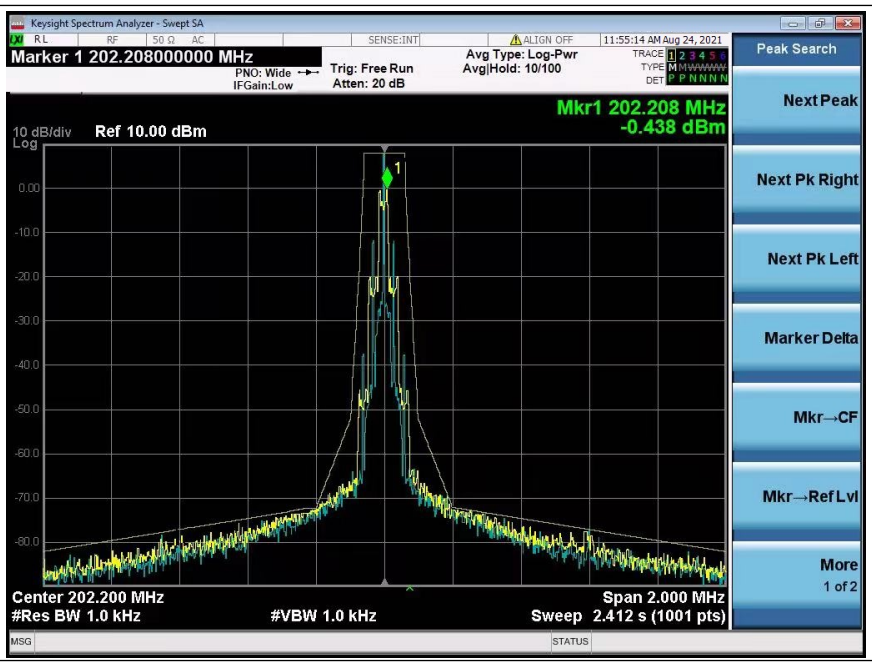
4. Necessary Bandwidth

4.1 Test Result

Test Mode	Frequency (MHz)	TX Type	ANT No.	Test Result	Verdict
Tx	202.200	SISO	1	Refer to test graph	PASS

4.2 Test Graph



- End of the Report -