

TEST REPORT

Application No.: GZCR2507001065AT
Applicant: Geosolution i Goteborg AB
Address of Applicant: Stora Avagen 21, 436 34 ASKIM, Sweden
Manufacturer: Geosolution i Goteborg AB
Address of Manufacturer: Stora Avagen 21, 436 34 ASKIM, Sweden
Factory: Geosolution i Goteborg AB
Address of Factory: Stora Avagen 21, 436 34 ASKIM, Sweden
Product Name: Wi-Fi & Bluetooth Module
Model No.: FCS866R
Trade Mark: 
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2025-07-15
Date of Test: 2025-07-16 to 2025-08-15
Date of Issue: 2025-08-27

Test Result:

Pass*

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



Revision Record			
Version	Report No.	Date	Remark
01	GZCR250700106503	2025-08-15	Original

Authorized for issue by:			
Tested By		Key Liang	
		Key Liang/Project Engineer	
Approved By		Vico Cui	
		Vico Cui/Reviewer	



2 Test Summary

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Radiated Spurious Emissions Below 1GHz	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2020) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2020) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2020) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	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.

Remark:

This report is based on original modular (FCC ID: AJY2023FCS866R) C2PC change the modular antenna.

With following changes:

1.Replacing new Integral Antenna with different gain than the antenna previously authorized under the certification FCC ID: AJY2023FCS866R.

For verify the Antenna Requirement, Radiated Spurious Emissions Below 1GHz, Radiated Spurious Emissions Above 1GHz and Radiated Emissions which fall in the restricted bands were performed with new antenna.

Therefore, the new test data was kept in this report GZCR250700106503. For original data please refer to FCC ID: AJY2023FCS866R for more details.



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4 General Information

4.1 Details of E.U.T.

Power supply: DC 3.3V
Test voltage: AC 120V, 60Hz powered by Note Book Computer refer to section 4.2
Cable(s): N/A
Operation Frequency: 2402MHz to 2480MHz
Modulation Type: GFSK, $\pi/4$ DQPSK, 8DPSK
Channel Spacing: 1MHz
Number of Channels: 79
Antenna Type: Integral Antenna
Antenna Number: 1
Antenna Gain: 0.5 dBi(Declared by antenna specification)
Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Mobile Phone	SAMSUNG	SM-G9810	RFCN309Q9QF
Note Book Computer	LENOVO	ThinkPad T490	PF1D1MVJ

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emissions which fall in the restricted bands	$\pm 5.14\text{dB}$ (3m); $\pm 4.90\text{dB}$ (10m); $\pm 4.88\text{dB}$ (1GHz-6GHz); $\pm 5.06\text{dB}$ (6GHz-18GHz); $\pm 5.30\text{dB}$ (18GHz-40GHz)
Radiated Spurious Emissions Below 1GHz	$\pm 3.08\text{dB}$ (9kHz to 150kHz); $\pm 3.19\text{dB}$ (150kHz to 30MHz); $\pm 5.14\text{dB}$ (30MHz-1GHz) (3m); $\pm 4.90\text{dB}$ (30MHz-1GHz) (10m)
Radiated Spurious Emissions Above 1GHz	$\pm 4.88\text{dB}$ (1GHz-6GHz); $\pm 5.06\text{dB}$ (6GHz-18GHz); $\pm 5.30\text{dB}$ (18GHz-40GHz)
Remark: The U_{lab} (lab Uncertainty) is less than U_{CISPR} (CISPR Uncertainty) or U_{ETSI} (ETSI Uncertainty). Emission decision rule: – Compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit, marked as Pass in the report. – Non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit, marked as Fail in the report.	

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
No.198, Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou,
Guangdong, China 510663

Tel: +86 20 82155555

No tests were sub-contracted.

4.5 Test Facility

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

● 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.

● 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



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5 Equipment List

Radiated Spurious Emissions Below 1GHz					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
966 Anechoic Chamber	Shenzhen C.R.T	CRTSGSSAC966	EMC2230	2025-03-22	2028-03-21
EMI Test Receiver(1Hz-8GHz)	Rohde & Schwarz	ESW8	EMC2229	2024-12-03	2025-12-02
Amplifier(9k-1000MHz)	SONOMA	310	EMC2237	2024-12-03	2025-12-02
Trilog Broadband Antenna (25MHz-2GHz)	Schwarzbeck Mess-Elektronik	VULB 9168	EMC2238	2025-03-24	2027-03-23
Coaxial Cable	Mirco-COAX UTIFLEX ve	LA2-C125-8000	EMC2239	2024-12-04	2026-12-03
Test Software E3	Audix	Ver.6.191211	GZE100-81	N/A	N/A
Active Loop Antenna-RED	ETS-Lindgren	6502	EMC2190	2024-04-08	2026-04-07

Radiated Spurious Emissions Above 1GHz					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
1-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2024-10-14	2025-10-13
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2024-09-02	2025-09-01
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2024-08-19	2026-08-18
Horn Antenna (1-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2025-05-13	2027-05-12
Horn Antenna (14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2023-06-18	2026-06-17
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2024-10-14	2025-10-13
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2024-08-19	2025-08-18
MXE EMI Receiver (10Hz-8.4GHz)	Keysight	N9038A	EMC2139	2024-10-14	2025-10-13
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2023-12-20	2026-12-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A



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Radiated Emissions which fall in the restricted bands

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
1-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2025-08-11	2026-08-10
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2025-08-11	2026-08-10
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2024-08-19	2026-08-18
Horn Antenna (1-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2025-05-13	2027-05-12
Horn Antenna (14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2023-06-18	2026-06-17
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2025-08-12	2026-08-11
MXE EMI Receiver (10Hz-8.4GHz)	Keysight	N9038A	EMC2139	2025-08-11	2026-08-10
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2023-12-23	2026-12-22
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2025-06-03	2026-06-02



6 Radio Spectrum Matter Test Results

6.1 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.4,6.5

Test Engineer: Jarry Li

Limit:

Test Distance: 3 m

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
216-960	200	3
960-1000	500	3

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.5 °C

Humidity: 59.3 % RH

Atmospheric Pressure: 1006 mbar

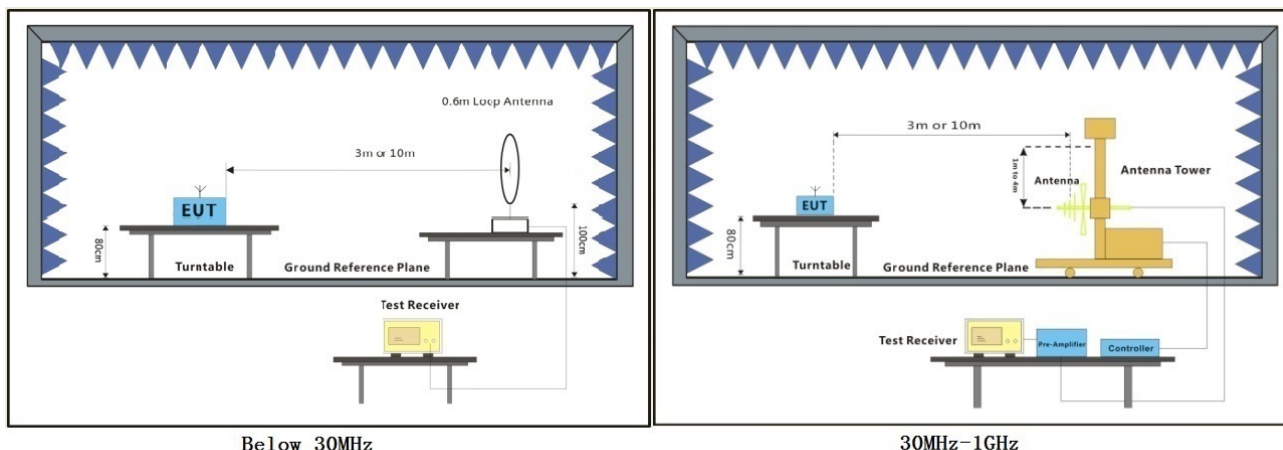
6.1.2 Test Mode Description

Pre-scan / Mode
Final test Code Description

Final test 01 TX_non-Hop mode_Keep the EUT in continuously transmitting mode with GFSK modulation, Pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.



6.1.3 Test Setup Diagram



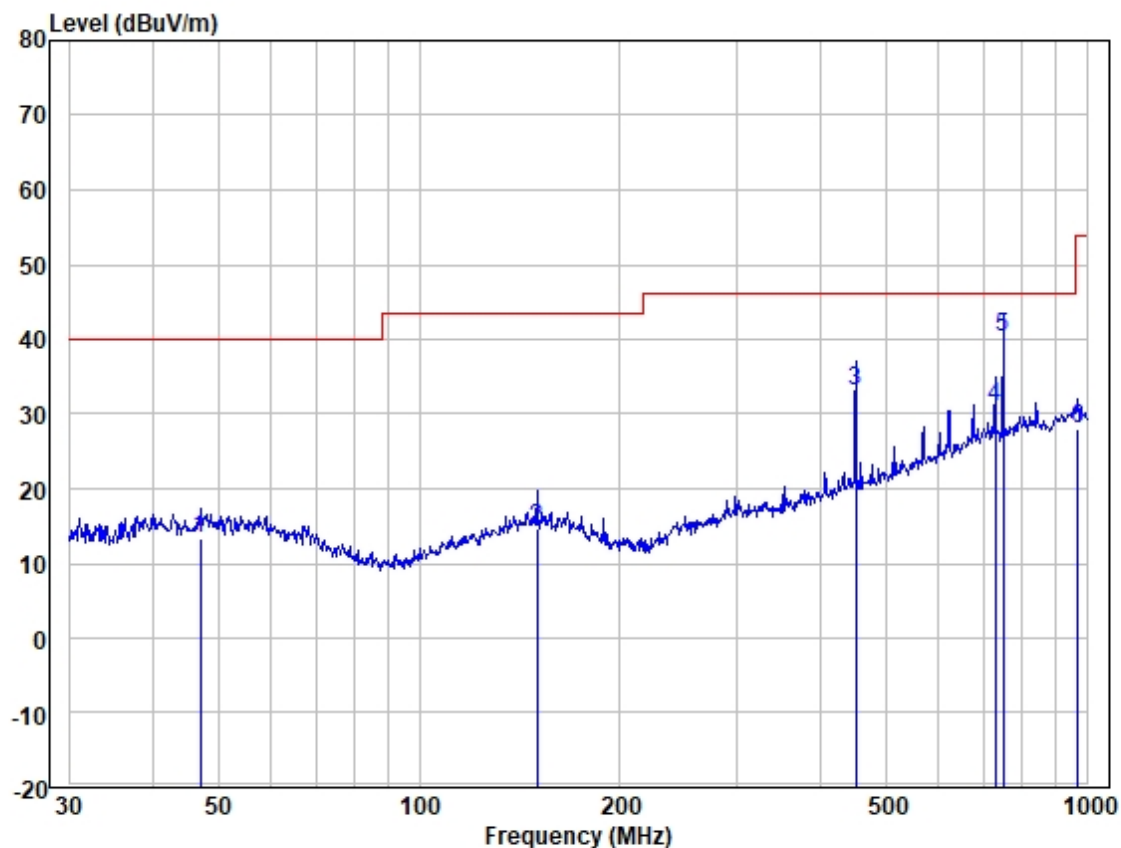
6.1.4 Measurement Procedure and Data

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 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.
- 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.
- 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.
- 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 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 quasi-peak method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- 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.
- Repeat above procedures until all frequencies measured was complete.

Remark:

- Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

Test Mode: 01; Polarity: Horizontal

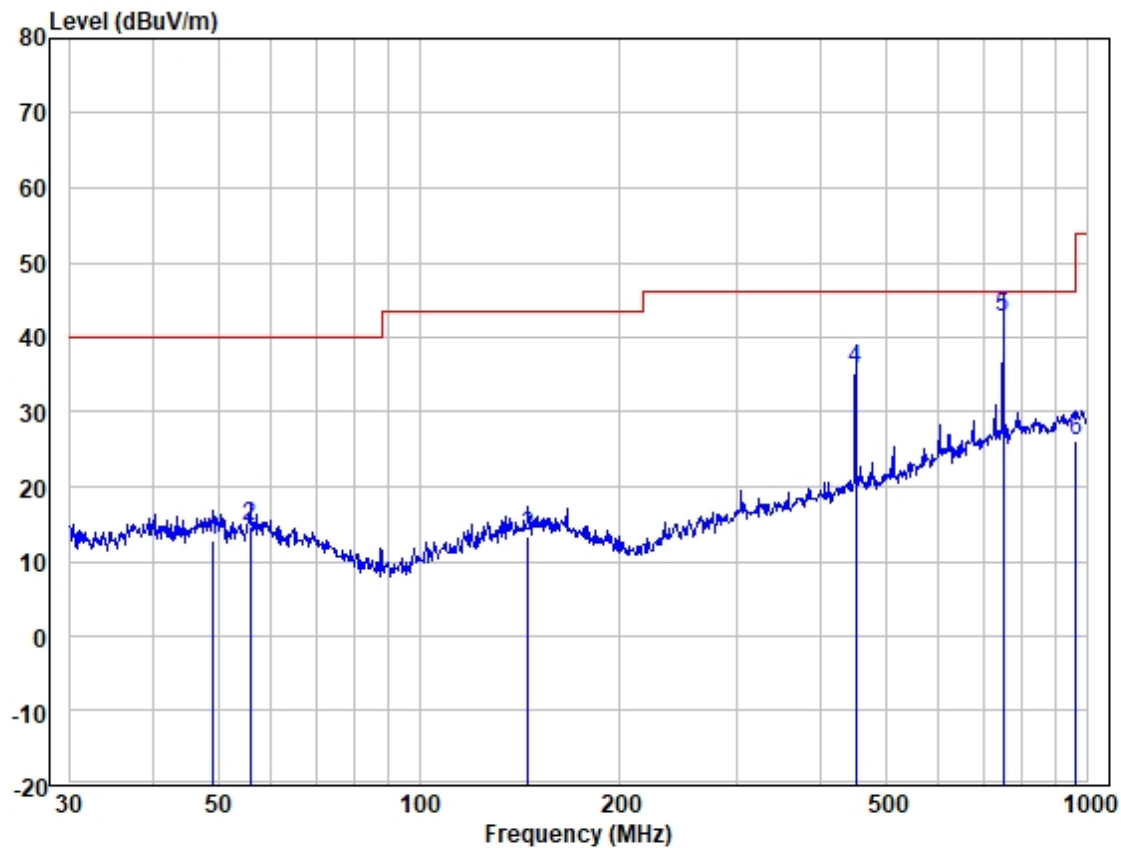


Site : 966 Chamber
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Measured Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	46.995	26.21	19.62	0.38	32.79	13.42	40.00	-26.58	HORIZONTAL	QP
2	150.011	27.55	19.15	0.67	32.76	14.61	43.52	-28.91	HORIZONTAL	QP
3	451.135	41.89	22.82	1.23	32.93	33.01	46.02	-13.01	HORIZONTAL	QP
4	729.358	33.73	27.41	1.56	31.75	30.95	46.02	-15.07	HORIZONTAL	QP
5	750.108	42.63	27.77	1.60	31.70	40.30	46.02	-5.72	HORIZONTAL	QP
6	968.934	26.80	30.12	1.82	30.71	28.03	53.98	-25.95	HORIZONTAL	QP



Test Mode: 01; Polarity: Vertical



Site : 966 Chamber
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Measured Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	49.187	25.60	19.65	0.39	32.79	12.85	40.00	-27.15	VERTICAL	QP
2	55.805	27.73	19.30	0.40	32.78	14.65	40.00	-25.35	VERTICAL	QP
3	145.861	26.33	18.97	0.66	32.74	13.22	43.52	-30.30	VERTICAL	QP
4	451.135	44.71	22.82	1.23	32.93	35.83	46.02	-10.19	VERTICAL	QP
5	750.108	45.00	27.77	1.60	31.70	42.67	46.02	-3.35	VERTICAL	QP
6	962.162	24.93	30.12	1.82	30.73	26.14	53.98	-27.84	VERTICAL	QP



6.2 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.6

Test Engineer: Lin Liao

Limit:

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.2 °C

Humidity: 56.8 % RH

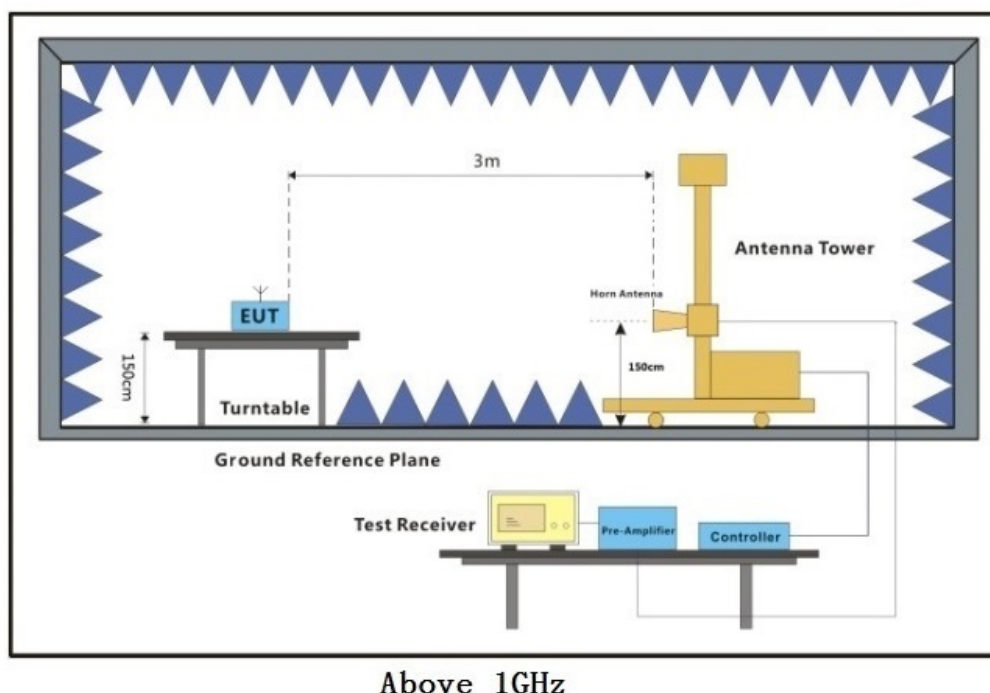
Atmospheric Pressure: 1006 mbar

6.2.2 Test Mode Description

Pre-scan / Mode
Final test Code Description

Final test 01 TX_non-Hop mode Keep the EUT in continuously transmitting mode with GFSK modulation, Pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

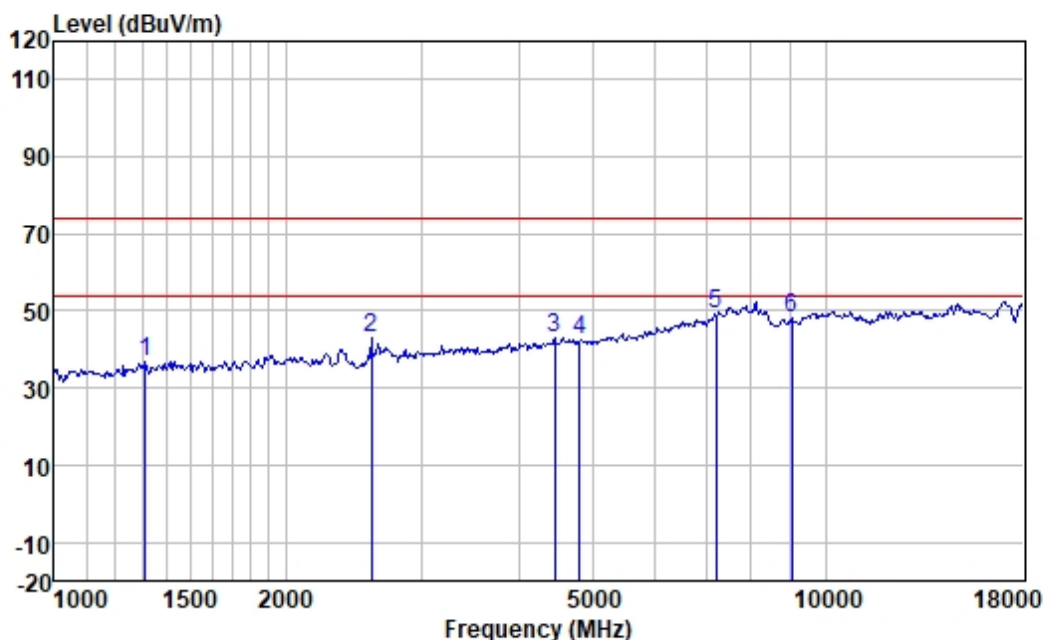
- a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.
- 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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 or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. 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.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
- 4: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.
- 5:For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $\leq 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.



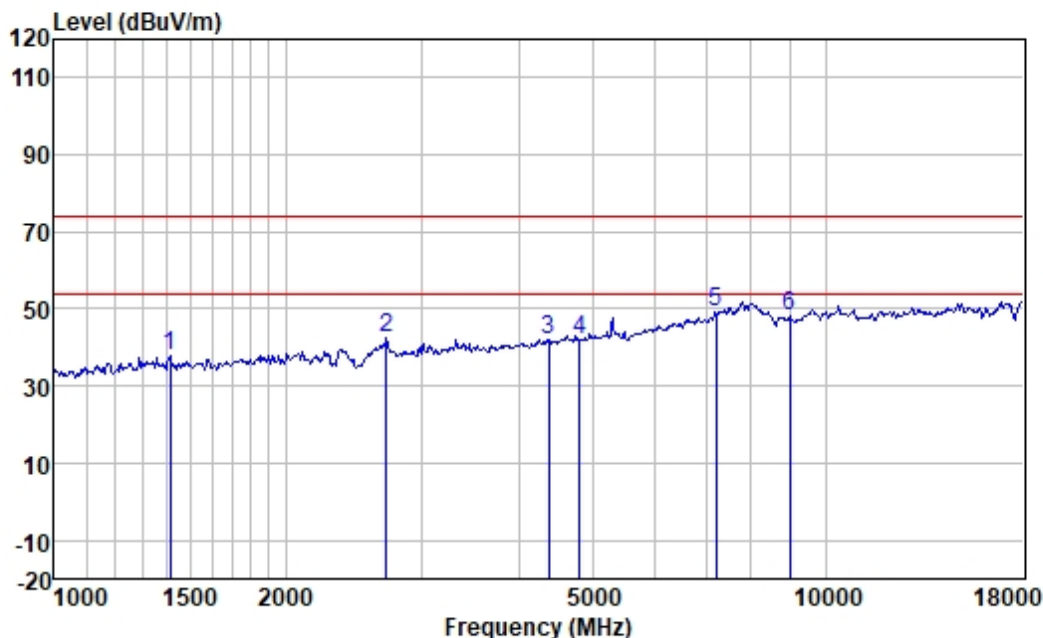
Test Mode: 01; Polarity: Vertical; Modulation: GFSK; Channel:Low



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1312.187	47.27	25.63	2.60	38.58	36.92	74.00	-37.08	VERTICAL	peak
2	2580.652	49.44	27.87	3.53	37.75	43.09	74.00	-30.91	VERTICAL	peak
3	4456.315	44.87	30.87	4.61	37.45	42.90	74.00	-31.10	VERTICAL	peak
4	4804.000	43.38	31.51	4.81	37.38	42.32	74.00	-31.68	VERTICAL	peak
5	7206.000	44.54	35.80	5.93	37.17	49.10	74.00	-24.90	VERTICAL	peak
6	9047.272	44.91	37.68	6.60	41.22	47.97	74.00	-26.03	VERTICAL	peak



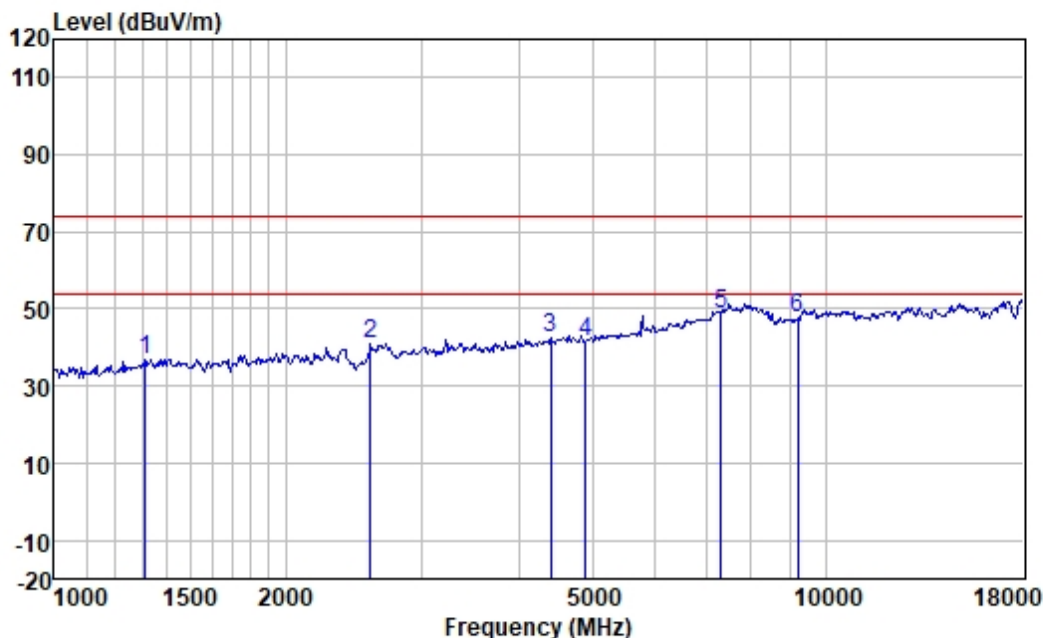
Test Mode: 01; Polarity: Horizontal; Modulation: GFSK; Channel:Low



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1414.597	48.01	25.82	2.67	38.47	38.03	74.00	-35.97	HORIZONTAL	peak
2	2694.998	48.49	28.10	3.60	37.73	42.46	74.00	-31.54	HORIZONTAL	peak
3	4379.699	44.08	30.76	4.60	37.46	41.98	74.00	-32.02	HORIZONTAL	peak
4	4804.000	43.05	31.51	4.81	37.38	41.99	74.00	-32.01	HORIZONTAL	peak
5	7206.000	44.92	35.80	5.93	37.17	49.48	74.00	-24.52	HORIZONTAL	peak
6	8995.123	44.93	37.60	6.57	41.16	47.94	74.00	-26.06	HORIZONTAL	peak



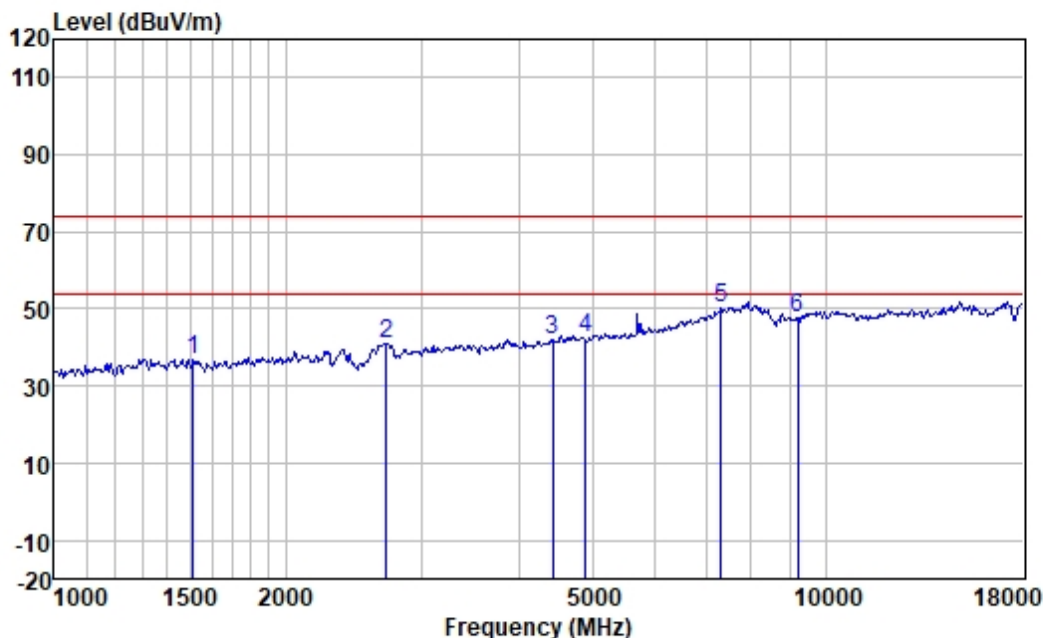
Test Mode: 01; Polarity: Vertical; Modulation: GFSK; Channel:middle



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1312.187	47.40	25.63	2.60	38.58	37.05	74.00	-36.95	VERTICAL	peak
2	2573.203	47.34	27.86	3.52	37.75	40.97	74.00	-33.03	VERTICAL	peak
3	4405.090	44.43	30.80	4.61	37.46	42.38	74.00	-31.62	VERTICAL	peak
4	4882.000	42.54	31.65	4.86	37.35	41.70	74.00	-32.30	VERTICAL	peak
5	7323.000	43.81	36.29	5.98	37.18	48.90	74.00	-25.10	VERTICAL	peak
6	9205.540	44.12	37.97	6.73	41.34	47.48	74.00	-26.52	VERTICAL	peak



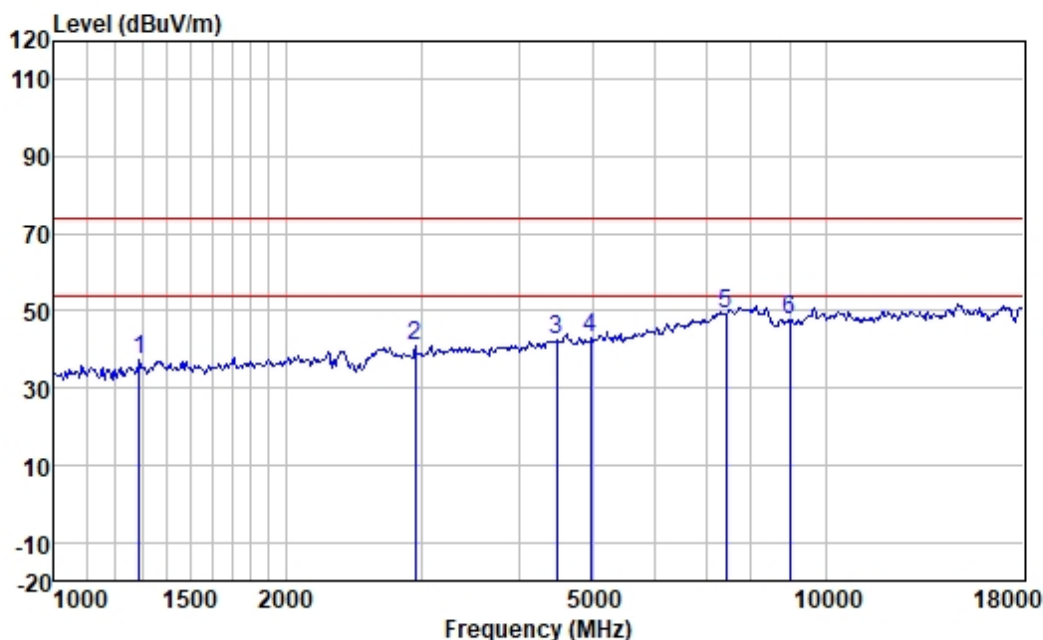
Test Mode: 01; Polarity: Horizontal; Modulation: GFSK; Channel:middle



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1516.210	46.71	25.92	2.71	38.30	37.04	74.00	-36.96	HORIZONTAL	peak
2	2694.998	47.09	28.10	3.60	37.73	41.06	74.00	-32.94	HORIZONTAL	peak
3	4430.628	44.23	30.83	4.61	37.45	42.22	74.00	-31.78	HORIZONTAL	peak
4	4882.000	43.12	31.65	4.86	37.35	42.28	74.00	-31.72	HORIZONTAL	peak
5	7323.000	44.98	36.29	5.98	37.18	50.07	74.00	-23.93	HORIZONTAL	peak
6	9205.540	44.48	37.97	6.73	41.34	47.84	74.00	-26.16	HORIZONTAL	peak



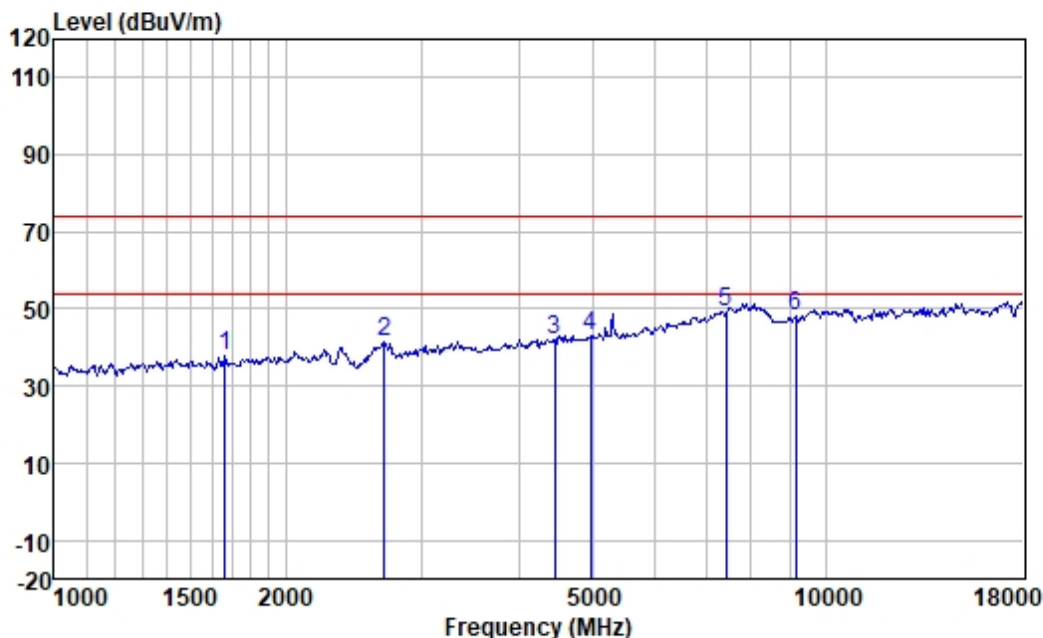
Test Mode: 01; Polarity: Vertical; Modulation: GFSK; Channel: High



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1289.627	47.89	25.56	2.58	38.60	37.43	74.00	-36.57	VERTICAL	peak
2	2939.115	46.21	28.63	3.79	37.68	40.95	74.00	-33.05	VERTICAL	peak
3	4482.150	44.21	30.90	4.62	37.44	42.29	74.00	-31.71	VERTICAL	peak
4	4960.000	43.62	31.74	4.89	37.32	42.93	74.00	-31.07	VERTICAL	peak
5	7440.000	43.81	36.57	6.02	37.18	49.22	74.00	-24.78	VERTICAL	peak
6	8995.123	44.76	37.60	6.57	41.16	47.77	74.00	-26.23	VERTICAL	peak



Test Mode: 01; Polarity: Horizontal; Modulation: GFSK; Channel: High



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1663.137	46.79	26.10	2.81	38.06	37.64	74.00	-36.36	HORIZONTAL	peak
2	2679.464	47.32	28.06	3.59	37.73	41.24	74.00	-32.76	HORIZONTAL	peak
3	4456.315	44.08	30.87	4.61	37.45	42.11	74.00	-31.89	HORIZONTAL	peak
4	4960.000	43.94	31.74	4.89	37.32	43.25	74.00	-30.75	HORIZONTAL	peak
5	7440.000	43.94	36.57	6.02	37.18	49.35	74.00	-24.65	HORIZONTAL	peak
6	9152.479	44.96	37.86	6.68	41.30	48.20	74.00	-25.80	HORIZONTAL	peak



6.3 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2020) Section 6.10.5

Test Engineer: Lin Liao

Limit:

Test Distance: 3 m

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
216-960	200	3
Above 960	500	3

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C

Humidity: 53.1 % RH

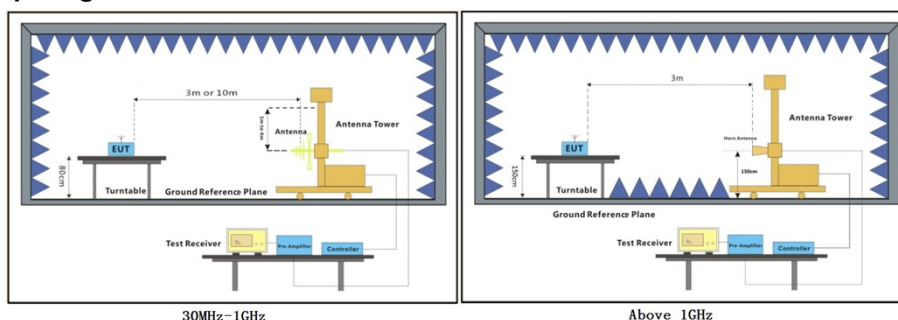
Atmospheric Pressure: 1020 mbar

6.3.2 Test Mode Description

Pre-scan / Mode Description
Final test Code

Final test 01 TX_non-Hop mode_Keep the EUT in continuously transmitting mode with GFSK modulation, Pi/4DQPSK modulation, 8DPSK modulation. All modes have been tested and only the data of worst case is recorded in the report.

6.3.3 Test Setup Diagram



6.3.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 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.
- b. 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.
- c. 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.
- d. 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.
- e. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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 average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. 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.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

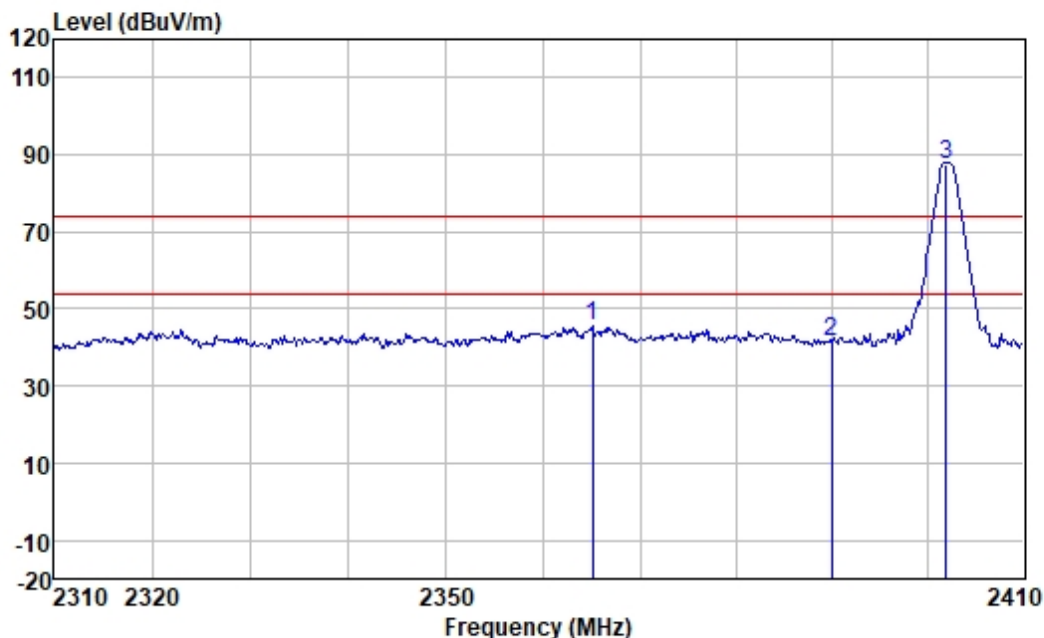
Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Remark 3: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for Peak detection (PK) and Average detection (AV) at frequency above 1GHz.

Remark 4: For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.



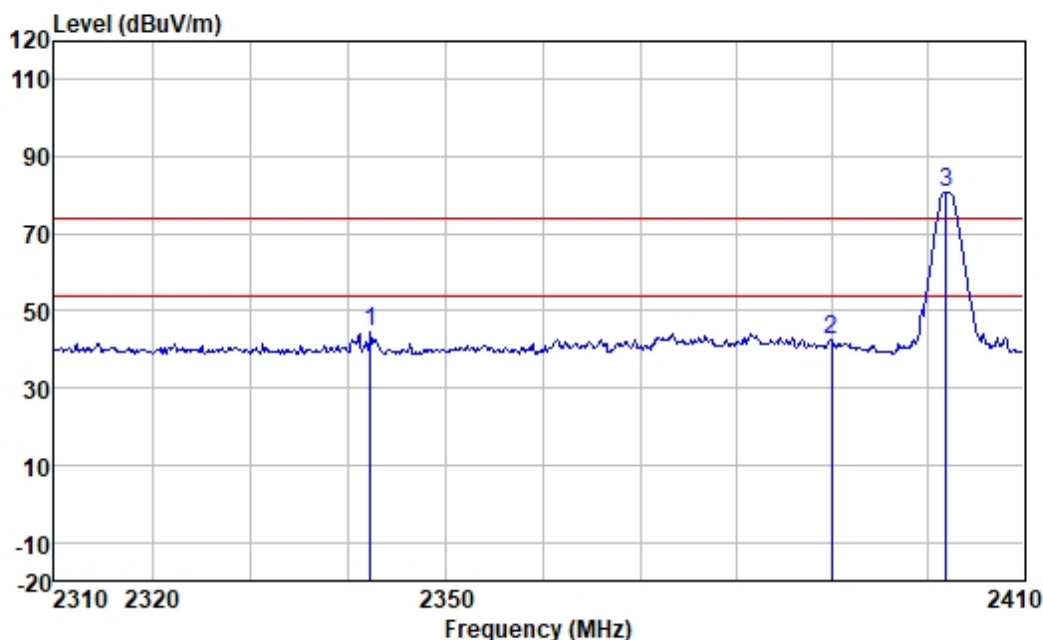
Test Mode: 01; Polarity: Vertical; Modulation: GFSK; Channel: Low



	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2365.076	52.53	27.60	3.43	37.77	45.79	74.00	-28.21	VERTICAL peak
2	2390.000	48.20	27.63	3.44	37.77	41.50	74.00	-32.50	VERTICAL peak
3 *	2402.000	94.04	27.65	3.45	37.77	87.37	74.00	13.37	VERTICAL peak



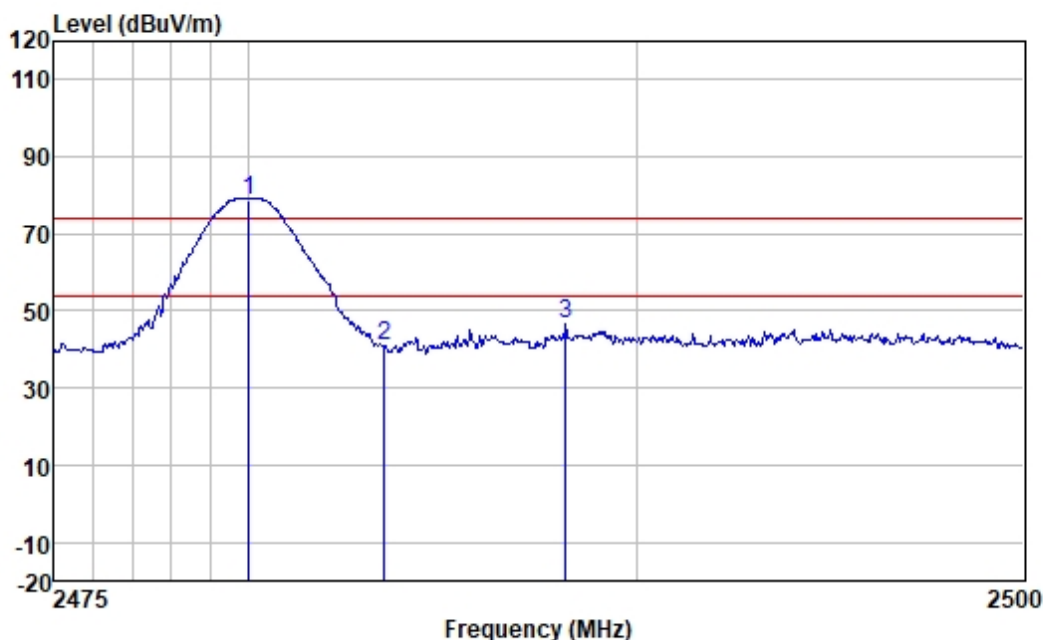
Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:Low



		ReadAntenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2342.235	51.39	27.55	3.42	37.77	44.59	74.00	-29.41	HORIZONTAL peak
2	2390.000	49.26	27.63	3.44	37.77	42.56	74.00	-31.44	HORIZONTAL peak
3 *	2402.000	87.34	27.65	3.45	37.77	80.67	74.00	6.67	HORIZONTAL peak



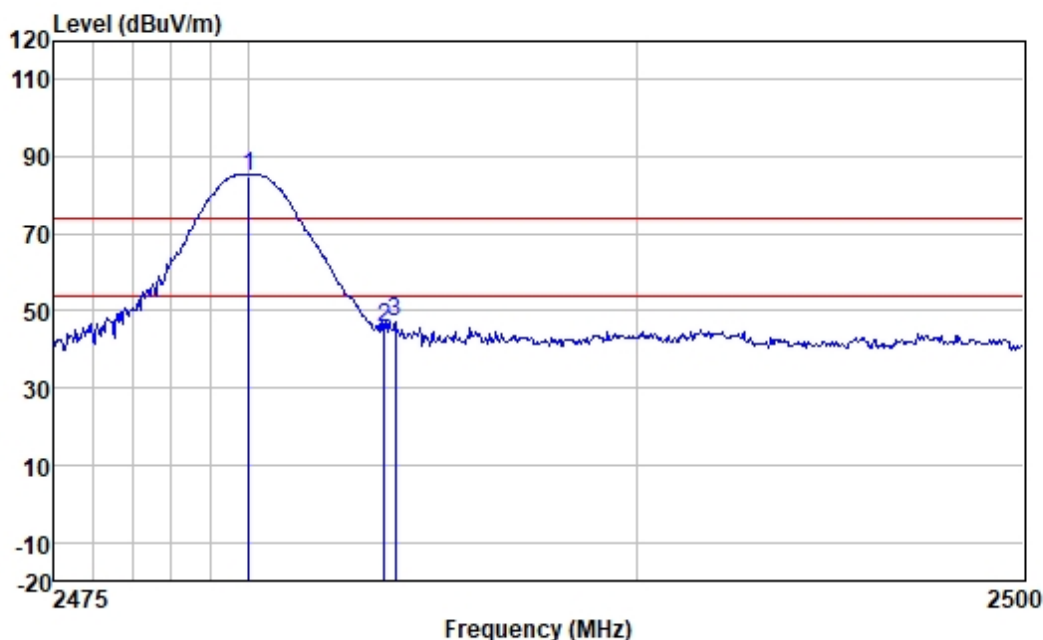
Test Mode: 01; Polarity: Vertical; Modulation:GFSK; Channel:High



	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
		Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 *	2480.000	85.44	27.75	3.48	37.76	78.91	74.00	4.91	VERTICAL	peak
2	2483.500	47.42	27.76	3.49	37.76	40.91	74.00	-33.09	VERTICAL	peak
3	2488.169	53.13	27.76	3.49	37.76	46.62	74.00	-27.38	VERTICAL	peak



Test Mode: 01; Polarity: Horizontal; Modulation:GFSK; Channel:High



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 *	2480.000	91.62	27.75	3.48	37.76	85.09	74.00	11.09	HORIZONTAL	peak
2	2483.500	52.18	27.76	3.49	37.76	45.67	74.00	-28.33	HORIZONTAL	peak
3	2483.771	53.52	27.76	3.49	37.76	47.01	74.00	-26.99	HORIZONTAL	peak



7 Test Setup Photo

Refer to Appendix - Test Setup Photos for GZCR250700106503.



8 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2507001065AT(For Module FCS866R).

- End of the Report -

