

TEST REPORT

Application No.: GZCR2507001064AT
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: GNSS RTK Receiver
Model No.: SL8
Trade Mark: 
Standard(s) : 47 CFR Part 2
 47 CFR Part 90
Date of Receipt: 2025-07-15
Date of Test: 2025-08-12 to 2025-08-15
Date of Issue: 2025-08-16

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Revision Record			
Version	Report No.	Date	Remark
01	GZCR250700106407	2025-08-16	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		
Test Item	FCC Rule No.	Verdict
Effective Radiated Power (ERP) Output Data	§2.1046 §90.205	PASS
Modulation Characteristics	§2.1047 §90.207	N/A ^{Note1}
Occupied Bandwidth & Emission Mask	§2.1049 §90.209 §90.210	PASS
Transient Frequency Behavior	§90.214	PASS
Spurious emissions at antenna terminals	§2.1053 §90.210	PASS
Field strength of spurious radiation	§2.1053 §90.210	PASS
Frequency stability	§2.1055 §90.213	PASS
Adjacent Channel Power(ACP)	§90.221	N/A ^{Note2}

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.

N/A^{Note1}: The EUT is used in digital modulation.

N/A^{Note2}: Authorized bandwidth (kHz) < 20 kHz.

3 Contents

	Page
1 Cover Page	1
2 Test Summary	3
3 Contents	4
4 General Information	6
4.1 Details of E.U.T.	6
4.2 Description of Support Units	6
4.3 Test Frequency	6
4.4 Test Environment	7
4.5 Measurement Uncertainty	7
4.6 Test Location	7
4.7 Test Facility	8
4.8 Deviation from Standards	8
4.9 Abnormalities from Standard Conditions	8
5 Equipment List	9
6 Radio Spectrum Matter Test Results	10
6.1 Effective Radiated Power (ERP) Output Data	10
6.1.1 E.U.T. Operation	10
6.1.2 Test Mode Description	10
6.1.3 Test Setup Diagram	10
6.1.4 Measurement Procedure and Data	10
6.2 Occupied Bandwidth & Emission Mask	11
6.2.1 E.U.T. Operation	11
6.2.2 Test Mode Description	11
6.2.3 Test Setup Diagram	11
6.2.4 Measurement Procedure and Data	11
6.3 Transient Frequency Behavior	12
6.3.1 E.U.T. Operation	12
6.3.2 Test Mode Description	13
6.3.3 Test Setup Diagram	13
6.3.4 Measurement Procedure and Data	13
6.4 Spurious emissions at antenna terminals	14
6.4.1 E.U.T. Operation	14
6.4.2 Test Mode Description	14
6.4.3 Test Setup Diagram	15
6.4.4 Measurement Procedure and Data	15
6.5 Field strength of spurious radiation	16
6.5.1 E.U.T. Operation	16
6.5.2 Test Mode Description	16
6.5.3 Test Setup Diagram	16
6.5.4 Measurement Procedure and Data	17
6.6 Frequency stability	19
6.6.1 E.U.T. Operation	19



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EMC-TRF-01 Rev 2.0

Report No.: GZCR250700106407

Page: 5 of 20

6.6.2	Test Mode Description	19
6.6.3	Test Setup Diagram	19
6.6.4	Measurement Procedure and Data.....	19
7	Test Setup Photo	20
8	EUT Constructional Details (EUT Photos)	20
9	Appendix.....	20



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4 General Information

4.1 Details of E.U.T.

Power supply: AC/DC adapter:
Model: HAD-0530B-EU
Input: AC 100-240V 50/60Hz 0.5A
Output: USB1: DC 5.3V 2.8A, USB2: 5.3V 2.8A,
USB1+USB2: DC 5.3V 2.8A, 14.84W
For GNSS RTK Receiver:
Input: 5.0 VDC, 2.8A MAX
Battery operation:
Capacity: 7.26V/4.753Ah 34.52Wh, 7.26V/4.9Ah (Typical)

Test voltage: AC 120V & DC 7.2V
Cable(s): 0.9m unscreened USB C to C charging cable.
Frequency Range: 410 MHz to 470 MHz
Number of Channels: The equipment is able to operate on any designated channel within the specified frequency range.
Modulation Type: CSS; GFSK; 4FSK
Channel Separation: 12.5KHz, 25KHz
Antenna Type: External Antenna
Antenna Gain: 3 dBi declared by applicant.

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

4.3 Test Frequency

Test Channel	Channel Separation (kHz)	Frequency (MHz)
Low (L)	12.5	410.05
	25	410.05
Middle (M)	12.5	440
	25	440
High (H)	12.5	469.95
	25	469.95

4.4 Test Environment

Environment Parameter	Selected Values During Tests	
Relative Humidity	54.3%	
Atmospheric Pressure:	1004 mbar	
Temperature:	TL	-30°C
	TN	+25°C
	TH	+50°C
Test Voltage:	VL	AC 102 V, DC 6.534 V
	VN	AC 120 V, DC 7.26 V
	VH	AC 138 V, DC 7.986 V
NOTE: VL= Lower extreme test voltage VN= Nominal voltage VH= Upper extreme test voltage TL= Lower extreme test temperature TN= Normal temperature TH= Upper extreme test temperature		

4.5 Measurement Uncertainty

Test Item	Measurement Uncertainty
Effective (Isotropic) Radiated Power Output Data	±0.75dB
Modulation Characteristics	±0.274%
Occupied Bandwidth & Emission Mask	±0.274%
Transient Frequency Behavior	±0.274%
Spurious emissions at antenna terminals	±0.75dB
Field strength of spurious radiation	±3.87dB (30MHz-1GHz)
	±4.82dB (Above 1GHz)
Frequency stability	±7.25 x 10 ⁻⁸
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.	

4.6 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.



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4.7 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.

4.8 Deviation from Standards

None

4.9 Abnormalities from Standard Conditions

None



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5 Equipment List

RF Conducted Test					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2023-11-02	2025-11-01
MXA Signal Analyzer (10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2024-12-03	2025-12-02
4X4 Power sensor Unit	TST	TSPS2023R	EMC2257	2024-08-19	2025-08-18
Test Software	TST	V2.0	GZE100-82	N/A	N/A
Temperature Chamber	GZ GongWen Co.Ltd.	GDJW-100	EMC0039	2024-12-03	2025-12-02

Field strength of spurious radiation					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Signal Generator (9kHz-6GHz)	Rohde & Schwarz	SMB100A	EMC2093	2024-10-14	2025-10-13
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
Chamber Cable (Below 1GHz)	Scoflex	KMKM-8.0m	EMC0546	2024-08-19	2026-08-18
Trilog Broadband Antenna (25MHz-1GHz)	SCHWARZBECK	VULB 9160	EMC2025	2025-05-12	2027-05-11
Horn Antenna (1-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2025-05-13	2027-05-12
Pre-Amplifier MH648A (100kHz-1.2GHz)	ANRITSU CORP	MH648A	EMC2086	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

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



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6 Radio Spectrum Matter Test Results

6.1 Effective Radiated Power (ERP) Output Data

Test Requirement	§2.1046, §90.205
Test Method:	ANSI C63.26-2015 Section 5.2.3.3.
Limit:	§90.205

6.1.1 E.U.T. Operation

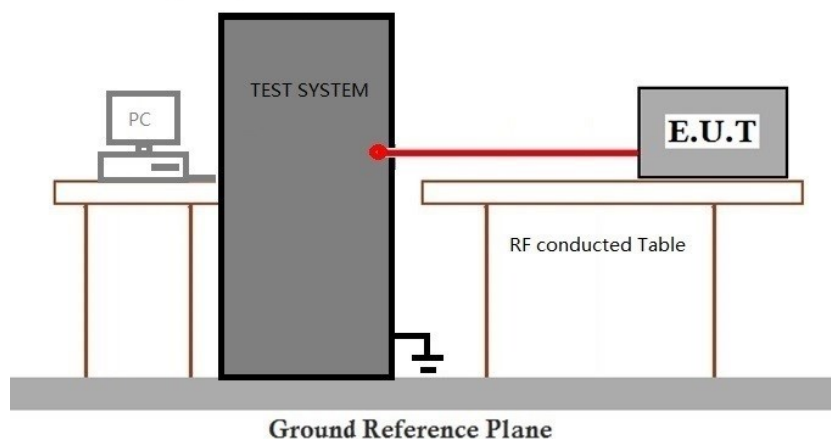
Operating Environment:

Temperature: 22.3 °C Humidity: 54.3 % RH Atmospheric Pressure: 1004 mbar

6.1.2 Test Mode Description

Pre-scan /	Mode	Description
Final test	Code	
Final test	09	TX mode_Keep the EUT in transmitting mode

6.1.3 Test Setup Diagram



6.1.4 Measurement Procedure and Data

Please Refer to Appendix for Details

6.2 Occupied Bandwidth & Emission Mask

Test Requirement §2.1049, §90.209, §90.210
 Test Method: ANSI C63.26-2015 Section 5.4.
 Limit: §90.209, §90.210

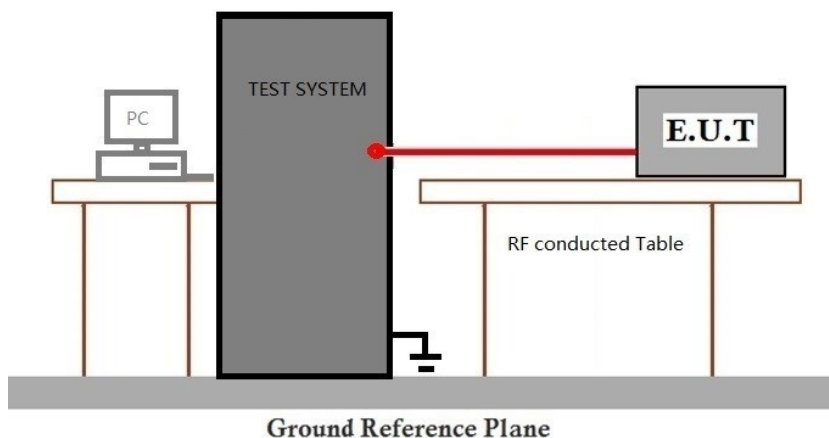
6.2.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.3 °C Humidity: 54.3 % RH Atmospheric Pressure: 1004 mbar

6.2.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 09	TX mode_Keep the EUT in transmitting mode

6.2.3 Test Setup Diagram



6.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details

6.3 Transient Frequency Behavior

Test Requirement §90.214

Test Method: ANSI C63.26-2015 Section 6.5.2.2

Limit:

Time intervals ^{1 2}	Maximum frequency difference ³	All equipment	
		150 to 174 MHz	421 to 512 MHz
Transient Frequency Behavior for Equipment Designed to Operate on 25 kHz Channels			
t ₁ ⁴	±25.0 kHz	5.0 ms	10.0 ms
t ₂	±12.5 kHz	20.0 ms	25.0 ms
t ₃ ⁴	±25.0 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 12.5 kHz Channels			
t ₁ ⁴	±12.5 kHz	5.0 ms	10.0 ms
t ₂	±6.25 kHz	20.0 ms	25.0 ms
t ₃ ⁴	±12.5 kHz	5.0 ms	10.0 ms
Transient Frequency Behavior for Equipment Designed to Operate on 6.25 kHz Channels			
t ₁ ⁴	±6.25 kHz	5.0 ms	10.0 ms
t ₂	±3.125 kHz	20.0 ms	25.0 ms
t ₃ ⁴	±6.25 kHz	5.0 ms	10.0 ms

t_{on} is the instant when a 1 kHz test signal is completely suppressed, including any capture time due to phasing.

t_1 is the time period immediately following t_{on} .

t_2 is the time period immediately following t_1 .

t_3 is the time period from the instant when the transmitter is turned off until t_{off} .

t_{off} is the instant when the 1 kHz test signal starts to rise.

² During the time from the end of t_2 to the beginning of t_3 , the frequency difference must not exceed the limits specified in § 90.213.

³ Difference between the actual transmitter frequency and the assigned transmitter frequency.

⁴ If the transmitter carrier output power rating is 6 watts or less, the frequency difference during this time period may exceed the maximum frequency difference for this time period.

6.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22.3 °C

Humidity: 54.3 % RH

Atmospheric Pressure: 1004 mbar



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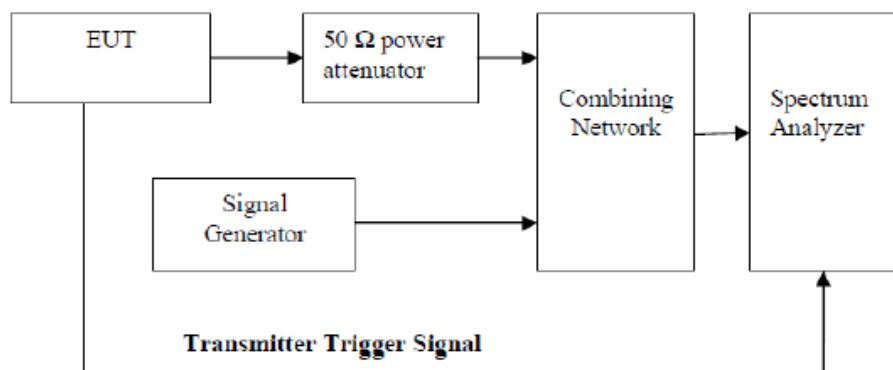
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6.3.2 Test Mode Description

Pre-scan /	Mode	
Final test	Code	Description
Final test	09	TX mode_Keep the EUT in transmitting mode

6.3.3 Test Setup Diagram



6.3.4 Measurement Procedure and Data

Please Refer to Appendix for Details

6.4 Spurious emissions at antenna terminals

Test Requirement §2.1051, §90.210

Test Method: ANSI C63.26-2015 Section 5.7

Limit: For 12.5 bandwidth:

On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 12.5 kHz at least:

$$50 + 10 \log (P_{\text{watts}}) = 50 + 10 \log (1.0) = 50.00 \text{ dB}$$

Note: In general, the worst case attenuation requirement shown above was applied.

$$\text{Calculation: Limit (dBm)} = \text{EL} - 50 - 10 \log 10 (\text{TP})$$

Notes: EL is the emission level of the Output Power expressed in dBm,

In this application, the EL is 30 dBm for High rated power.

$$\text{Limit (dBm)} = 30.00 - 50 - 10 \log (1.0) = -20 \text{ dBm}$$

For 25 kHz bandwidth:

On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of more than 62.5 kHz at least:

$$43 + 10 \log (P_{\text{watts}}) = 43 + 10 \log (1.0) = 43.00 \text{ dB}$$

Note: In general, the worst case attenuation requirement shown above was applied.

$$\text{Calculation: Limit (dBm)} = \text{EL} - 43 - 10 \log 10 (\text{TP})$$

In this application, the EL is 30 dBm for High rated power.

$$\text{Limit (dBm)} = 30.00 - 43 - 10 \log (1.0) = -13 \text{ dBm}$$

Note: 1. In general, the worst case attenuation requirement shown above was applied.

For emission inside from the center of the authorized bandwidth by a displacement frequency (fd in kHz) of channel spacing, emission mask limit should be compliant.

2. The measurement frequency range from 9 KHz to 5 GHz.

3. For 9kHz to 30MHz, the emission level is too low to be measured or at least 20 dB down than the limit.

6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22.3 °C

Humidity: 54.3 % RH

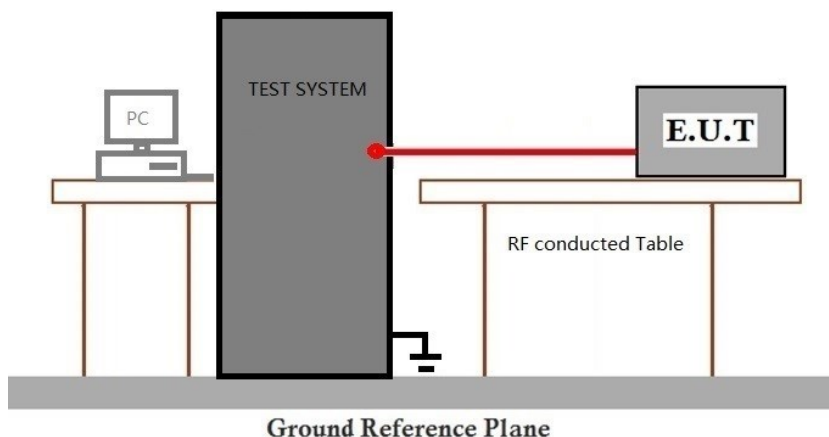
Atmospheric Pressure: 1004 mbar

6.4.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 09	TX mode_Keep the EUT in transmitting mode



6.4.3 Test Setup Diagram



6.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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6.5 Field strength of spurious radiation

Test Requirement §2.1053, §90.210

Test Method: ANSI C63.26-2015 Section 5.5

Limit:

For equipment using 25 kHz channel spacing, on any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth: At least $43 + 10\log(P)$ dB.

For equipment using 12.5 kHz channel spacing, on any frequency removed from the center of The authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5 kHz: At least $50 + 10\log(P)$ dB or 70 dB, whichever is the lesser attenuation.

6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24.7 °C

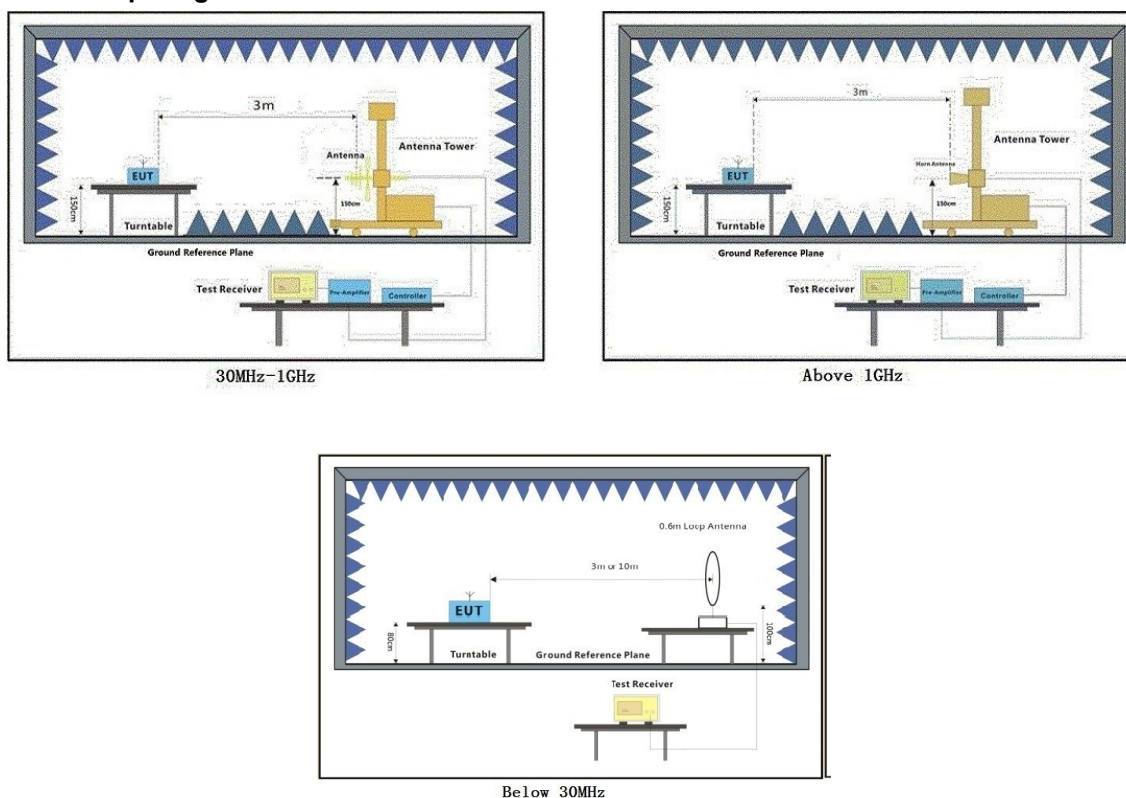
Humidity: 54.3 % RH

Atmospheric Pressure: 1005 mbar

6.5.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 09	TX mode_Keep the EUT in transmitting mode

6.5.3 Test Setup Diagram



6.5.4 Measurement Procedure and Data

Test Mode: 09, Channel Spacing: 25kHz

Low channel								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-48.87	-13	-35.87	-51.09	6.99	9.21	Horizontal	Pass
5553	-49.02	-13	-36.02	-51.34	8.27	10.59	Horizontal	Pass
7404	-46.22	-13	-33.22	-49.76	8.19	11.73	Horizontal	Pass
3702	-50.16	-13	-37.16	-52.38	6.99	9.21	Vertical	Pass
5553	-46.39	-13	-33.39	-48.71	8.27	10.59	Vertical	Pass
7404	-46.17	-13	-33.17	-49.71	8.19	11.73	Vertical	Pass

Middle channel								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3742	-49.59	-13	-36.59	-51.81	6.99	9.21	Horizontal	Pass
5613	-48.05	-13	-35.05	-50.37	8.27	10.59	Horizontal	Pass
7484	-50.08	-13	-37.08	-53.62	8.19	11.73	Horizontal	Pass
3742	-47.4	-13	-34.4	-49.62	6.99	9.21	Vertical	Pass
5613	-47.46	-13	-34.46	-49.78	8.27	10.59	Vertical	Pass
7484	-44.89	-13	-31.89	-48.43	8.19	11.73	Vertical	Pass

High channel								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3782	-49.71	-13	-36.71	-51.93	6.99	9.21	Horizontal	Pass
5673	-48.07	-13	-35.07	-50.39	8.27	10.59	Horizontal	Pass
7564	-45.52	-13	-32.52	-49.35	8.43	12.26	Horizontal	Pass
3782	-49.63	-13	-36.63	-51.85	6.99	9.21	Vertical	Pass
5673	-48.51	-13	-35.51	-50.83	8.27	10.59	Vertical	Pass
7564	-43.89	-13	-30.89	-47.72	8.43	12.26	Vertical	Pass



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Test Mode: 09, Channel Spacing: 12.5kHz

Low channel								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3702	-50.68	-20	-30.68	-53.26	5.72	8.3	Horizontal	Pass
5553	-49.89	-20	-29.89	-51.89	8.3	10.3	Horizontal	Pass
7404	-46.18	-20	-26.18	-49.73	7.7	11.25	Horizontal	Pass
3702	-46.16	-20	-26.16	-48.74	5.72	8.3	Vertical	Pass
5553	-51.25	-20	-31.25	-53.25	8.3	10.3	Vertical	Pass
7404	-43.98	-20	-23.98	-47.53	7.7	11.25	Vertical	Pass

Middle channel								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3742	-50.31	-20	-30.31	-52.89	5.72	8.3	Horizontal	Pass
5613	-47.52	-20	-27.52	-49.52	8.3	10.3	Horizontal	Pass
7484	-48.13	-20	-28.13	-51.68	7.7	11.25	Horizontal	Pass
3742	-48.24	-20	-28.24	-50.82	5.72	8.3	Vertical	Pass
5613	-49.18	-20	-29.18	-51.18	8.3	10.3	Vertical	Pass
7484	-46.43	-20	-26.43	-49.98	7.7	11.25	Vertical	Pass

High channel								
Frequency (MHz)	EIRP (dBm)	Limit(dBm)	Over Limit (dB)	S.G. Power (dBm)	Cable loss (dB)	Antenna Gain (dBi)	Polarization (H/V)	Result
3782	-49.14	-20	-29.14	-51.72	5.72	8.3	Horizontal	Pass
5673	-48.59	-20	-28.59	-50.59	8.3	10.3	Horizontal	Pass
7564	-46.22	-20	-26.22	-49.77	7.7	11.25	Horizontal	Pass
3782	-48.68	-20	-28.68	-51.26	5.72	8.3	Vertical	Pass
5673	-50.89	-20	-30.89	-52.89	8.3	10.3	Vertical	Pass
7564	-46.96	-20	-26.96	-50.51	7.7	11.25	Vertical	Pass

Note: Only record the worst test results at high power level.

EIRP= S.G. Power- Cable loss+ Antenna Gain

Remark:

The spurious emissions 9kHz to 1GHz were very low and not displayed in this report.



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6.6 Frequency stability

Test Requirement §2.1055, §90.213
 Test Method: ANSI C63.26-2015 Section 5.6.
 Limit: 12.5 kHz channel bandwidth: $\leq \pm 2.5$ ppm
 25 kHz channel bandwidth: $\leq \pm 5$ ppm

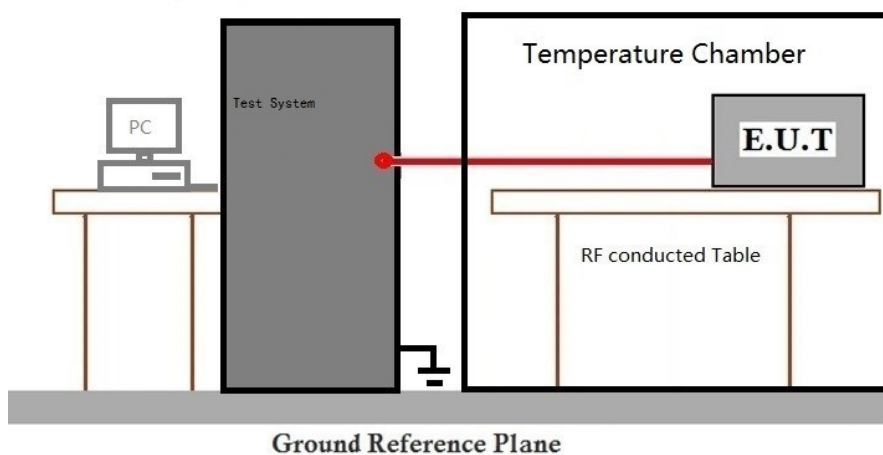
6.6.1 E.U.T. Operation

Operating Environment:
 Temperature: 22.3 °C Humidity: 54.3 % RH Atmospheric Pressure: 1004 mbar

6.6.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 09	TX mode_Keep the EUT in transmitting mode

6.6.3 Test Setup Diagram



6.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7 Test Setup Photo

Refer to Appendix -Test Setup Photos for GZCR250700106407.

8 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2507001064AT.

9 Appendix

Refer to Appendix _Test Data for report GZCR250700106407.

- End of the Report -