TEST REPORT

Application No.:	KSCR2312002273AT
FCC ID:	2A69E-RGHHDPBK-01
Applicant:	Rad Golf, Inc.
Address of Applicant:	4026 N. Miller road Suite 102, Scottsdale, Arizona 85251, US
Manufacturer:	GlobalSat WorldCom Corporation
Address of Manufacturer:	16F., No.186, Jian 1st Rd. Zhonghe Dist., New Taipei City 23553 Taiwan
Factory:	GlobalSat WorldCom Corporation
Address of Factory:	16F., No.186, Jian 1st Rd. Zhonghe Dist., New Taipei City 23553 Taiwan
Equipment Under Test (EUT):	
EUT Name:	HAND+
Model No.:	RGHHDPBK-01
Trade Mark:	Rad Golf
Standard(s) :	47 CFR Part 15, Subpart B
Date of Receipt:	2023-12-14
Date of Test:	2023-12-29 to 2023-12-30
Date of Issue:	2024-01-09
Test Result:	**Pass***

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

Revision Record			
Version	**Description**	***Date***	***Remark***
00	Original	2024-01-09	/

Authorized for issue by:				
Tested By				
		Eric_Liu/Project Engineer		
Approved By				
		Terry Hou /Reviewer		

2 Test Summary

Emission Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	15.107(a);Class B	Pass
Radiated Emissions (30MHz-1GHz)		ANSI C63.4:2014	15.109(a);Class B	Pass
Radiated Emissions (Above 1GHz)		ANSI C63.4:2014	15.109(g);Class B	Pass

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 5V by adapter

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
AC Adapter	DVE	DSA-12G-12FEU	/
Mobile Phone	ZTE	Z11MAX	/

4.3 Measurement Uncertainty & Decision Rule

Measurement Uncertainty:

No.	Item	Measurement Uncertainty (U_{LAB}) *	U_{CISPR}
1	Conducted Emission at mains port using AMN	2.4dB (9kHz to 150kHz)	3.8dB (9kHz to 150kHz)
		2.2dB (150kHz to 30MHz)	3.4dB (150kHz to 30MHz)
2	Conducted Emission at telecommunication port using AAN	4.0 dB (150kHz to 30MHz)	5.0dB (150kHz to 30MHz)
3	Radiated Power	3.2dB	4.5dB (30MHz to 300MHz)
4	Radiated Emission (10m)	4.1 dB	6.3dB (30MHz-1GHz)
5	Radiated Emission (3m)	4.6 dB (30MHz-1GHz)	6.3dB (30MHz-1GHz)
		5.0dB (1GHz-6GHz)	5.2dB (1GHz-6GHz)
		5.2dB (6GHz-18GHz)	5.5dB (6GHz-18GHz)
		5.3dB (18GHz-40GHz)	N/A

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

Decision Rule:

• CISPR 16-4-2 for emission measurements is as below described.

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

U_{LAB} less than U_{CISPR}, therefore:

– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit.

– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

• For immunity testing no decision rule is applicable.

4.4 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

3. Sample source: sent by customer.

4.5 Test Facility

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

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

5 Equipment List

Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
EMI TEST RECEIVER	R&S	ESCI	KS301101	02/03/2023	02/02/2024
TWO-LINE V-NETWORK	R&S	ENV216	KS301197	01/17/2023	01/16/2024
V (V-LISN)	SCHWARZBECK	NNLK 8129	KS301091	01/17/2023	01/16/2024
Pulse LIMITER	R&S	ESH3-Z2	KUS1902E001	01/17/2023	01/16/2024
Software	Faratronic	EZ_EMC-v 3A1	N/A	N/A	N/A

Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
EMI Test Receiver	R&S	ESCI	KS301196	08/24/2023	08/23/2024
Antenna	TESEQ	CBL 6112D	KUS1806E006	03/05/2022	03/04/2024
Spectrum Analyzer	R&S	FSU26	KS301206	03/16/2023	03/15/2024
Signal Analyzer	R&S	FSV40	KUS1806E003	08/24/2023	08/23/2024
Software	Faratronic	EZ_EMC v 3A1	N/A	N/A	N/A

Radiated Emissions (Above 1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Spectrum Analyzer	R&S	FSU26	KS301206	03/16/2023	03/15/2024
Preamplifier	PANSHAN TECHNOLOGY	LNA:1~18G	KSEM010-2	01/17/2023	01/16/2024
Horn-antenna	SCHWARZBECK	BBHA9120D	KS301079	04/02/2022	04/01/2024
Antenna	SCHAFFNER	CBL6143	CZ301091	10/25/2022	10/24/2024
Software	Faratronic	EZ_EMC-v 3A1	N/A	N/A	N/A

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Digital Pressure Meter	Mengde	DYM3	CZ750023	01/31/2023	01/30/2024
Temperature & Humidity Recorder	JDRK	RS-WS-N01-6J	KSEM024-1 KSEM024-2 KSEM024-3 KSEM024-6 KSEM024-7 KSEM024--8 KSEM024--9	03/22/2023	03/21/2024

6 Emission Test Results

6.1 Conducted Emissions at Mains Terminals (150kHz-30MHz)

Test Requirement: 47 CFR Part 15, Subpart B
Test Method: ANSI C63.4:2014

Limit:

0.15MHz-0.5MHz:	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5MHz-5MHz:	56dB(μV) quasi-peak, 46dB(μV) average
5MHz-30MHz:	60dB(μV) quasi-peak, 50dB(μV) average
Detector:	Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

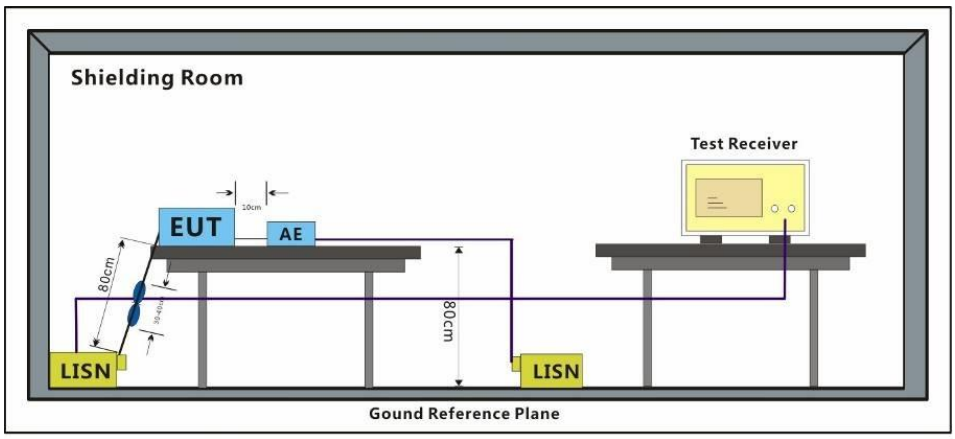
6.1.1 E.U.T. Operation

Operating Environment:
Temperature: 24.5 °C Humidity: 48.6 % RH Atmospheric Pressure: 1010 mbar

6.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	Normal working: Bluetooth + GNSS RX + Battery + Adapter.

6.1.3 Test Setup Diagram

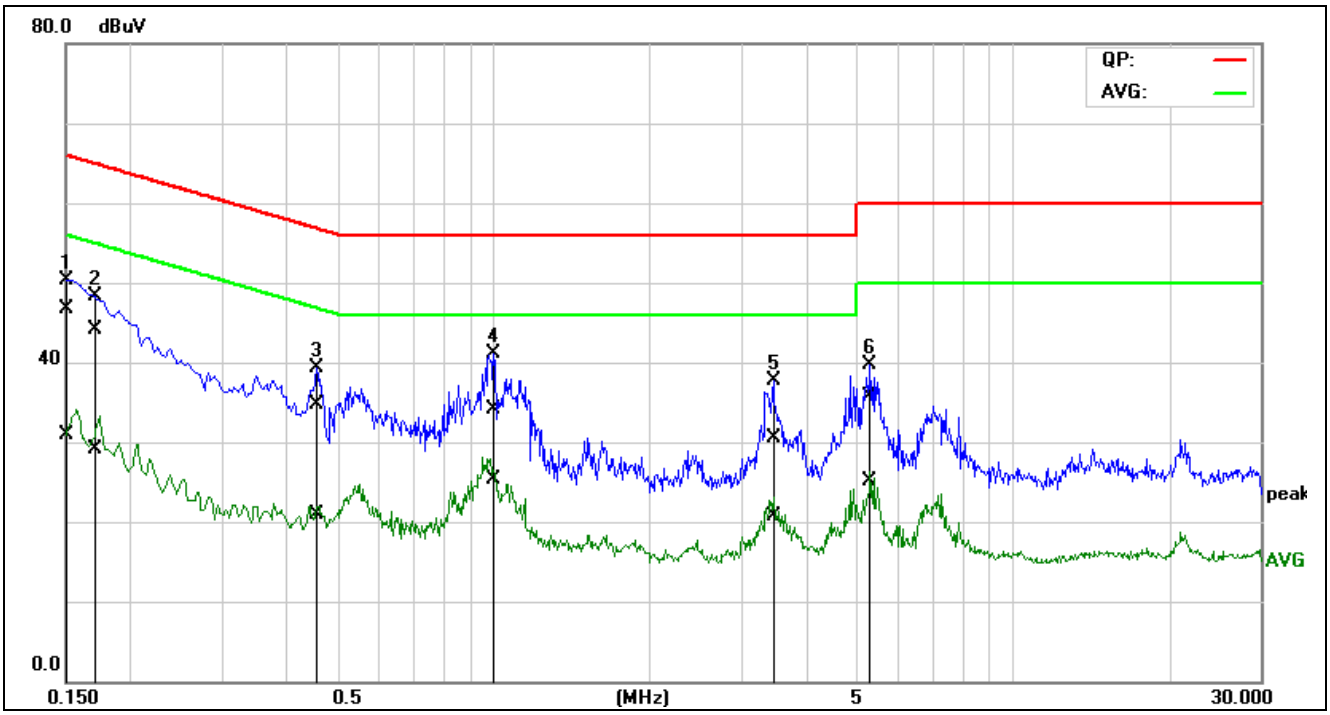


6.1.4 Measurement Procedure and Data

An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

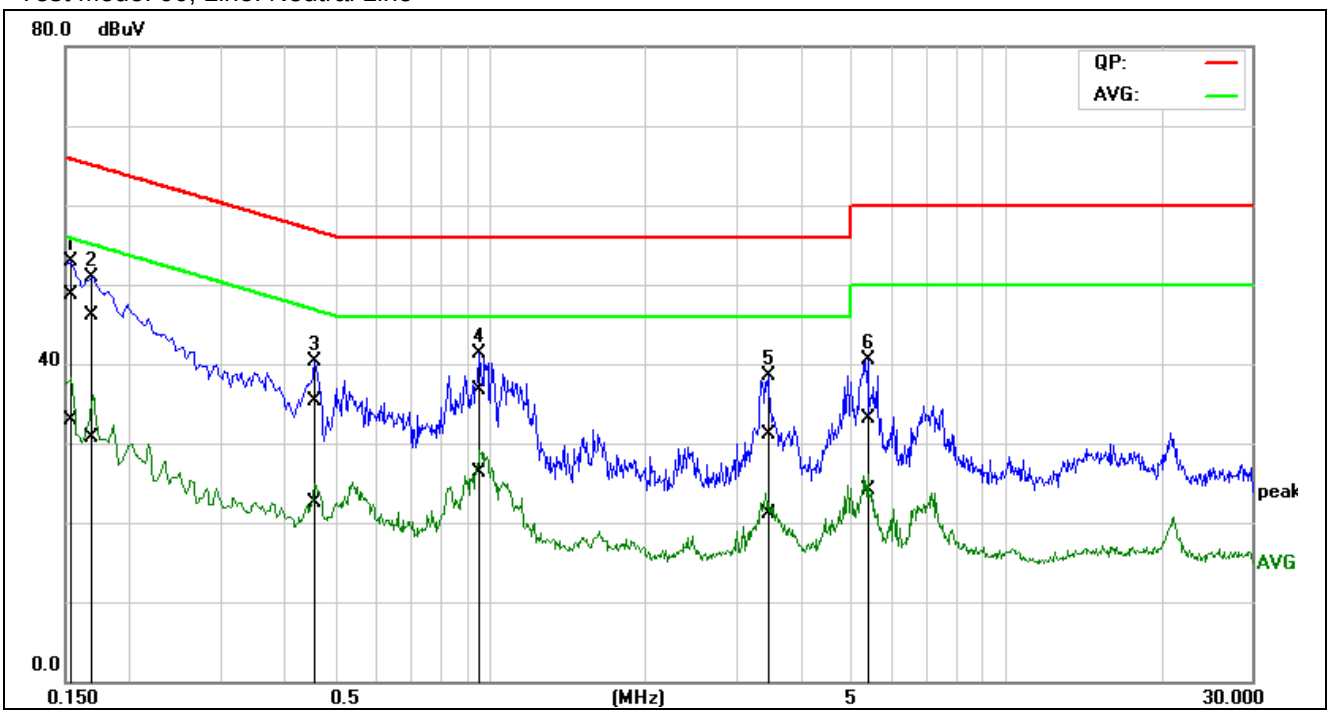
Remark: Level= Read Level+ Cable Loss+ LISN Factor

Test Mode: 00; Line: Live line



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1504	26.54	10.69	20.20	46.74	30.89	65.98	55.98	-19.24	-25.09	Pass
2	0.1719	24.07	8.99	20.12	44.19	29.11	64.87	54.87	-20.68	-25.76	Pass
3	0.4573	14.60	0.78	20.05	34.65	20.83	56.74	46.74	-22.09	-25.91	Pass
4	1.0044	14.27	5.31	19.91	34.18	25.22	56.00	46.00	-21.82	-20.78	Pass
5	3.4562	10.52	0.69	19.98	30.50	20.67	56.00	46.00	-25.50	-25.33	Pass
6	5.3172	15.66	5.12	19.97	35.63	25.09	60.00	50.00	-24.37	-24.91	Pass

Test Mode: 00; Line: Neutral Line



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1*	0.1523	28.42	12.74	20.25	48.67	32.99	65.87	55.87	-17.20	-22.88	Pass
2	0.1667	25.93	10.46	20.22	46.15	30.68	65.12	55.12	-18.97	-24.44	Pass
3	0.4583	15.18	2.37	20.08	35.26	22.45	56.72	46.72	-21.46	-24.27	Pass
4	0.9509	16.80	6.31	19.99	36.79	26.30	56.00	46.00	-19.21	-19.70	Pass
5	3.4676	11.09	1.10	19.98	31.07	21.08	56.00	46.00	-24.93	-24.92	Pass
6	5.3592	13.20	4.18	19.90	33.10	24.08	60.00	50.00	-26.90	-25.92	Pass

6.2 Radiated Emissions (30MHz-1GHz)

Test Requirement: 47 CFR Part 15, Subpart B
Test Method: ANSI C63.4:2014

Limit:

	Class B
Test Distance:	3m
30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54.0(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30MHz to1000MHz

	Class B
Test Distance:	10m
30MHz -88MHz	29.5(dBμV/m) quasi-peak
88MHz-216MHz	33.1(dBμV/m) quasi-peak
216MHz-960MHz	35.6(dBμV/m) quasi-peak
960MHz-1000MHz	43.5(dBμV/m) quasi-peak
Detector:	Peak for pre-scan (120kHz resolution bandwidth) 30MHz to1000MHz

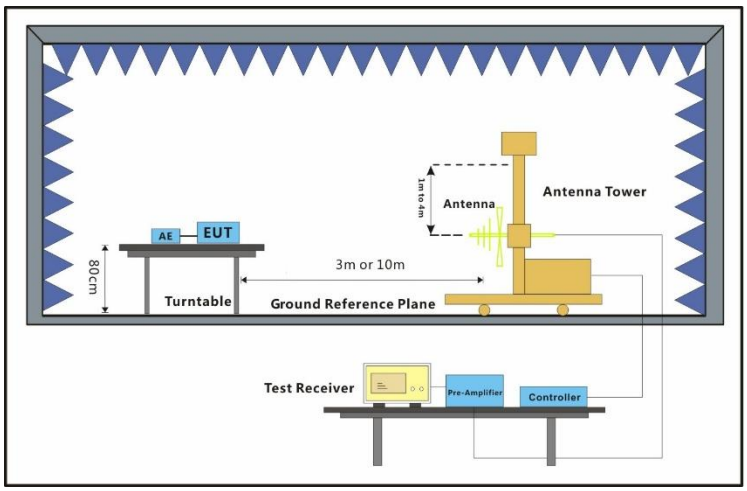
6.2.1 E.U.T. Operation

Operating Environment:
Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

6.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	00	Normal working: Bluetooth + GNSS RX + Battery + Adapter.
	01	Normal working: Bluetooth + GNSS RX + Battery + PC.
Final test	00	Normal working: Bluetooth + GNSS RX + Battery + Adapter.

6.2.3 Test Setup Diagram

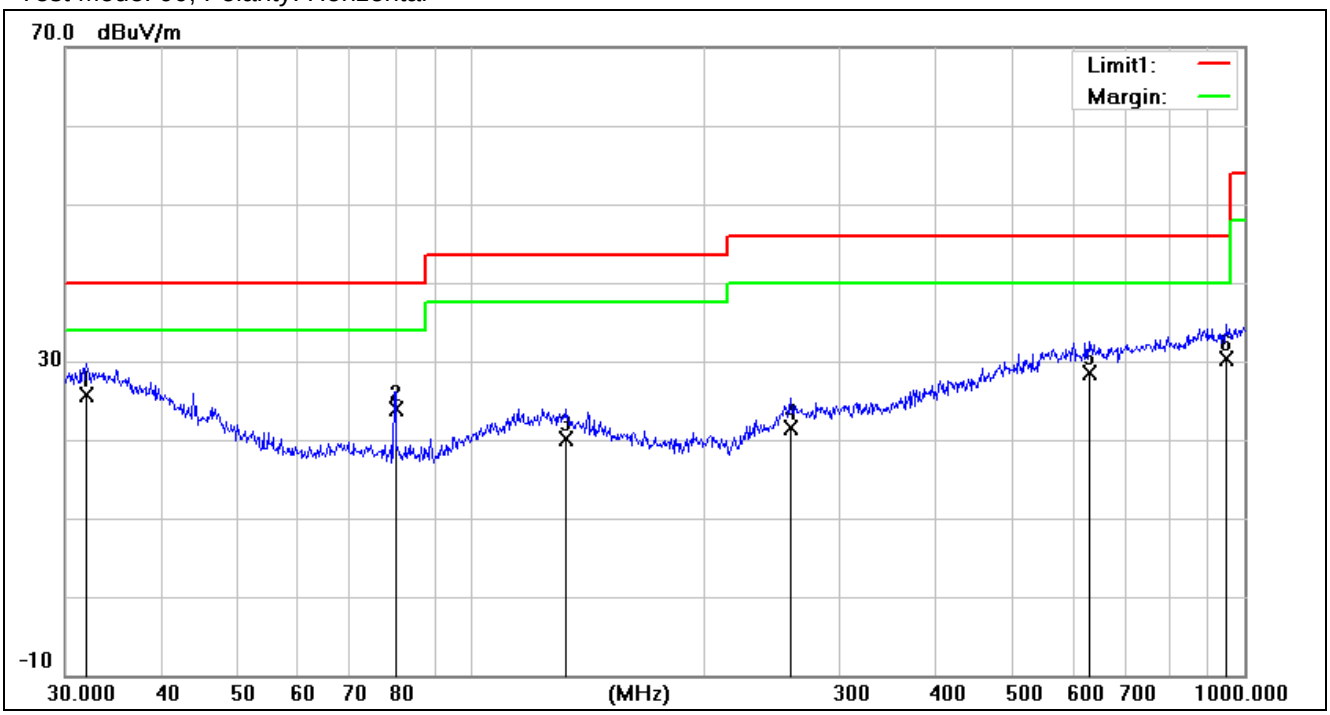


6.2.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

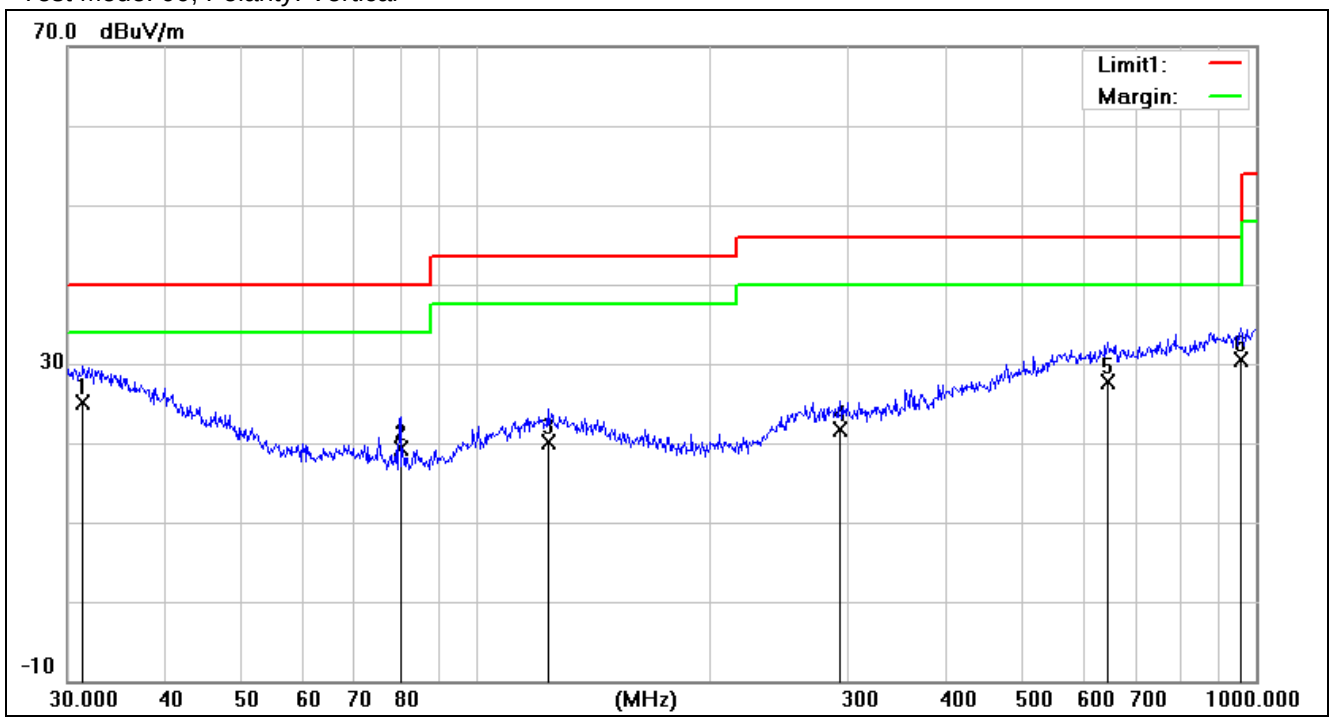
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Test Mode: 00; Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	31.9546	0.47	25.22	25.69	40.00	-14.31	100	223	QP
2	80.0006	9.83	14.17	24.00	40.00	-16.00	100	340	QP
3	132.6850	0.83	19.30	20.13	43.50	-23.37	100	3	QP
4	259.2338	0.70	20.77	21.47	46.00	-24.53	200	336	QP
5	629.4772	0.95	27.58	28.53	46.00	-17.47	100	114	QP
6	945.4400	27.67	2.55	30.22	46.00	-15.78	2000	244	QP

Test Mode: 00; Polarity: Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	31.3992	-0.06	25.20	25.14	40.00	-14.86	100	59	QP
2	80.0806	5.19	14.17	19.36	40.00	-20.64	200	256	QP
3	123.6985	0.64	19.47	20.11	43.50	-23.39	100	274	QP
4	293.0842	1.25	20.50	21.75	46.00	-24.25	100	194	QP
5	645.1195	-0.15	27.83	27.68	46.00	-18.32	100	76	QP
6	955.4381	27.86	2.56	30.42	46.00	-15.58	100	177	QP

6.3 Radiated Emissions (Above 1GHz)

Test Requirement: 47 CFR Part 15, Subpart B

Test Method: ANSI C63.4:2014

Limit:

	Class B
Above 1GHz	74(dBμV/m) peak, 54(dBμV/m) average
Detector:	Peak for pre-scan (1000kHz resolution bandwidth) 1000M to18000MHz

6.3.1 E.U.T. Operation

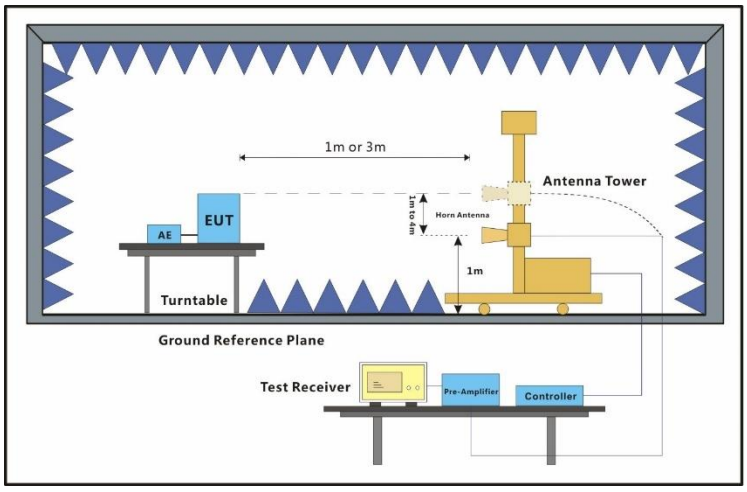
Operating Environment:

Temperature: 25 °C Humidity: 49 % RH Atmospheric Pressure: 1010 mbar

6.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	00	Normal working: Bluetooth + GNSS RX + Battery + Adapter.
	01	Normal working: Bluetooth + GNSS RX + Battery + PC.
Final test	00	Normal working: Bluetooth + GNSS RX + Battery + Adapter.

6.3.3 Test Setup Diagram



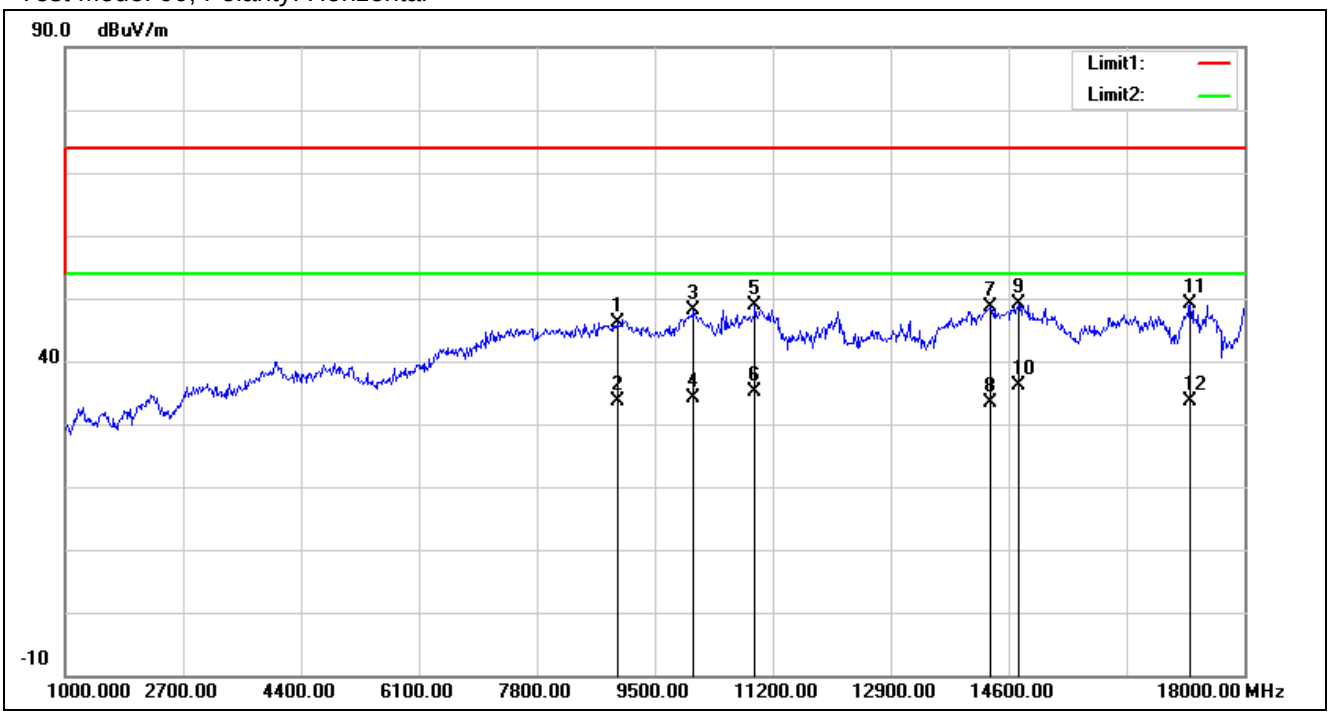
6.3.4 Measurement Procedure and Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

The red line show in graphic is the limit in standard used in this section.

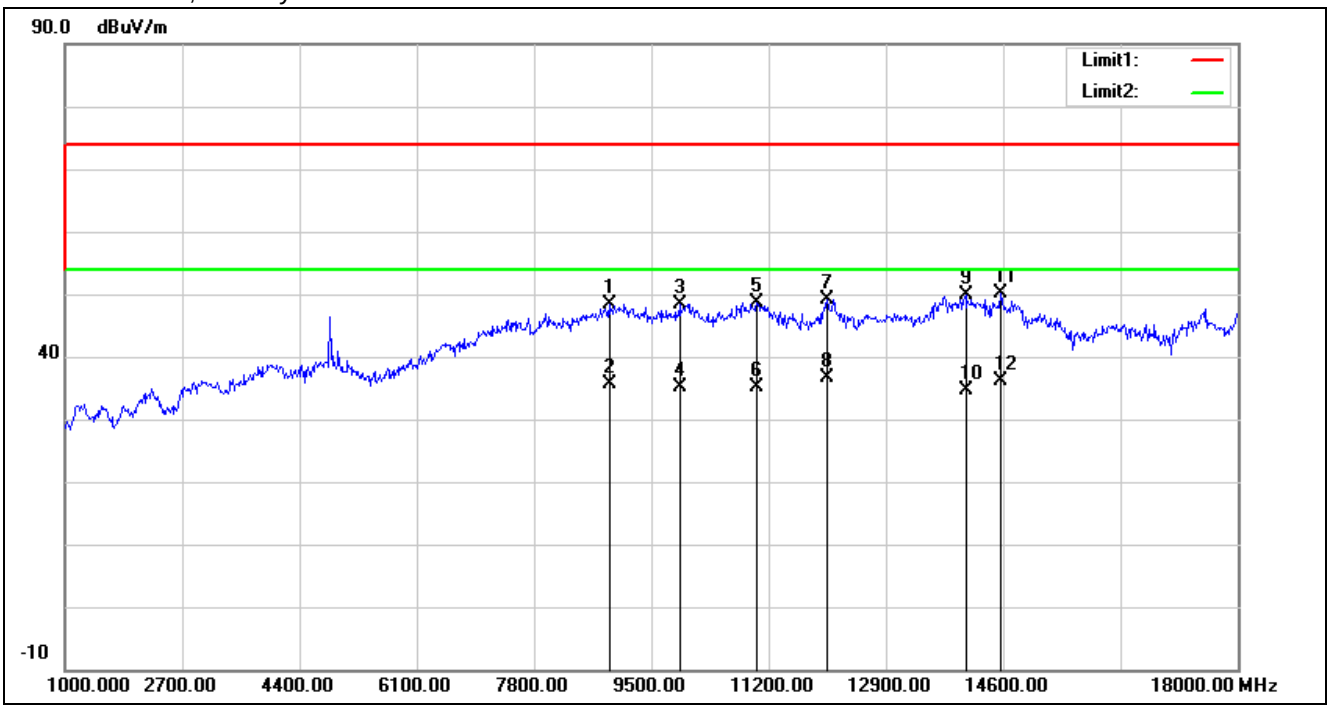
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Test Mode: 00; Polarity: Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	8956.000	50.54	-4.39	46.15	74.00	-27.85	100	326	peak
2	8956.000	37.91	-4.39	33.52	54.00	-20.48	100	326	AVG
3	10061.000	51.29	-3.17	48.12	74.00	-25.88	100	291	peak
4	10061.000	37.32	-3.17	34.15	54.00	-19.85	100	291	AVG
5	10945.000	50.14	-1.27	48.87	74.00	-25.13	100	122	peak
6	10945.000	36.49	-1.27	35.22	54.00	-18.78	100	122	AVG
7	14328.000	46.97	1.66	48.63	74.00	-25.37	200	17	peak
8	14328.000	31.82	1.66	33.48	54.00	-20.52	200	17	AVG
9	14753.000	47.20	1.85	49.05	74.00	-24.95	100	66	peak
10	14753.000	34.37	1.85	36.22	54.00	-17.78	100	66	AVG
11	17218.000	44.53	4.71	49.24	74.00	-24.76	100	312	peak
12	17218.000	28.81	4.71	33.52	54.00	-20.48	100	312	AVG

Test Mode: 00; Polarity: Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(deg.)	
1	8888.000	52.64	-4.32	48.32	74.00	-25.68	100	214	peak
2	8888.000	39.96	-4.32	35.64	54.00	-18.36	100	214	AVG
3	9908.000	51.59	-3.17	48.42	74.00	-25.58	100	1	peak
4	9908.000	38.32	-3.17	35.15	54.00	-18.85	100	1	AVG
5	11030.000	50.10	-1.35	48.75	74.00	-25.25	100	280	peak
6	11030.000	36.55	-1.35	35.20	54.00	-18.80	100	280	AVG
7	12050.000	51.57	-2.34	49.23	74.00	-24.77	100	350	peak
8	12050.000	38.86	-2.34	36.52	54.00	-17.48	100	350	AVG
9	14056.000	48.78	1.00	49.78	74.00	-24.22	100	117	peak
10	14056.000	33.52	1.00	34.52	54.00	-19.48	100	117	AVG
11	14566.000	48.47	1.61	50.08	74.00	-23.92	200	346	peak
12	14566.000	34.61	1.61	36.22	54.00	-17.78	200	346	AVG

7 Test Setup Photo

Refer to Appendix - Test Setup Photo for KSCR2312002273AT

8 EUT Constructional Details (EUT Photos)

Refer to Appendix - Photographs of EUT Constructional Details for KSCR2312002273AT

- End of the Report -