TEST REPORT

Product	:	Rear Radar
Trade mark	:	N/A
Model/Type reference	:	P0
Serial Number	:	N/A
Report Number	:	EED32Q80387801
FCC ID	:	2BFO8P9-EBXN10QIOF7
Date of Issue	:	Apr. 19, 2024
Test Standards	:	47 CFR Part 2 47 CFR Part 95, Subpart M
Test result	:	PASS

Prepared for:

Mindcruise Technology Co., ltd
Room 502-503, Building 1, Hongqiao International Exhibition Hall,
2377 Shenkun Road, Minhang District, Shanghai

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
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	Frazer Li		Tom Chen
Approved by:	Aaron Ma	Date:	Apr. 19, 2024
	Aaron Ma		

Check No.:2429270324

1 Content

2 Version

Version No.	Date	Description
00	Apr. 19, 2024	Original

3 Test Summary

Test Item	Test Requirement	Result
EIRP	47 CFR Part 95, Subpart M Section 95.3367 47 CFR Part 2, Subpart J Section 2.1046	PASS
Occupied bandwidth	47 CFR Part 2, Subpart J Section 2.1049	PASS
Field strength of spurious radiation	47 CFR Part 95, Subpart M Section 95.3379 (a) 47 CFR Part 2, Subpart J Section 2.1053	PASS
Frequency stability	47 CFR Part 95, Subpart M Section 95.3379 (b) 47 CFR Part 2, Subpart J Section 2.1055	PASS
Remark: Company Name and Address shown on Report, the sample(s) and sample Information were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.		

4 General Information

4.1 Client Information

Applicant:	Mindcruise Technology Co., ltd
Address of Applicant:	Room 502-503, Building 1, Hongqiao International Exhibition Hall, 2377 Shenkun Road, Minhang District, Shanghai
Manufacturer:	Mindcruise Technology Co., ltd
Address of Manufacturer:	Room 502-503, Building 1, Hongqiao International Exhibition Hall, 2377 Shenkun Road, Minhang District, Shanghai
Factory:	Mindcruise Technology Co., ltd
Address of Factory:	1-4 Floors(D) North of No.3 Factory Building ,High-tech Industrial Park, High Tech Zone, Yandu District, Yancheng City, Jiangsu

4.2 General Description of EUT

Product Name:	Rear Radar
Model No.:	P0
Trade mark:	N/A
Product Type:	☒ Mobile ☐ Portable ☐ Fix Location
Type of Modulation:	FMCW(Frequency Modulated Continuous Wave)
Operating Frequency	76.50GHz
Test Power Grade:	Default
Test Software of EUT:	N/A
Antenna Type:	Chip Antenna
Antenna Gain:	15.9dBi
Power Supply:	DC 12V
Test Voltage:	DC 12V
Sample Received Date:	Mar. 28, 2024
Sample tested Date:	Mar. 28, 2024 to Apr. 17, 2024

4.3 Test Environment

Operating Environment:	
Temperature:	22~25.0 °C
Humidity:	50~55 % RH
Atmospheric Pressure:	1010mbar

4.4 Description of Support Units

The EUT has been tested with associated equipment below.

1） support equipment

Description	Manufacturer	Model No.	Supplied by
/	/	/	/

4.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd
Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China
Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385
No tests were sub-contracted.
FCC Designation No.: CN1164

4.6 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	3.3dB (9kHz-30MHz)
		4.3dB (30MHz-1GHz)
		4.5dB (1GHz-18GHz)
		3.4dB (18GHz-40GHz)
		4.62dB (40GHz-60GHz)
		4.80dB (60GHz-90GHz)
		4.90dB (90GHz-140GHz)
		5.11dB (140GHz-220GHz)
		5.14dB (220GHz-325GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

5 Equipment List

3M Semi-anechoic Chamber (2)					
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05-22-2022	05-21-2025
Receiver	R&S	ESCI7	100938-003	09-22-2023	09-21-2024
Spectrum Analyzer	R&S	FSV40	101200	07-25-2023	07-24-2024
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-15-2021 04-16-2024	04-14-2024 04-15-2025
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-618	05-21-2023	05-20-2024
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1869	04-17-2021 04-16-2024	04-16-2024 04-15-2025
Horn Antenna	A.H.SYSTEMS	SAS-574	374	05-29-2021	05-28-2024
Preamplifier	Agilent	11909A	12-1	03-22-2024	03-21-2025
Preamplifier	EMCI	EMC051845SE	980380	12-14-2023	12-13-2024
Preamplifier	CD	PAP-1840-60	6041.6042	07-04-2023	07-03-2024
Spectrum Analyzer	R&S	FSV3044	100509	05-23-2023	05-22-2024
Receive unit	R&S	TC-RSE60	100729	N/A	N/A
Receive unit	R&S	TC-RSE90	100721	N/A	N/A
Receive unit	R&S	TC-RSE140	101254	N/A	N/A
Receive unit	R&S	TC-RSE220	100716	N/A	N/A
Receive unit	R&S	TC-RSE325	100638	N/A	N/A

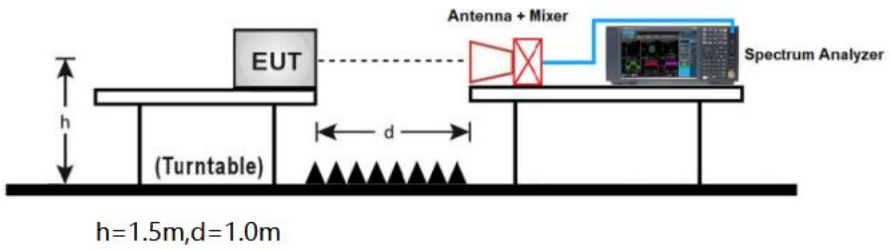
Note:
N/A:Calibrated by the equipment manufacturer.

3M full-anechoic Chamber (3)					
Equipment	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. Date (mm-dd-yyyy)**	**Cal. Due date (mm-dd-yyyy)**
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	---	---
Receiver	Keysight	N9038A	MY57290136	01-09-2024	01-08-2025
Spectrum Analyzer	Keysight	N9020B	MY57111112	01-19-2024	01-18-2025
Spectrum Analyzer	Keysight	N9030B	MY57140871	01-13-2024	01-12-2025
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-28-2021	04-27-2024
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-17-2021 04-16-2024	04-16-2024 04-15-2025
Horn Antenna	ETS-LINDGREN	3117	57407	07-04-2021	07-03-2024
Preamplifier	EMCI	EMC184055SE	980597	04-13-2023 04-12-2024	04-12-2024 04-11-2025
Preamplifier	EMCI	EMC001330	980563	03-28-2023 03-08-2024	03-27-2024 03-07-2025
Preamplifier	JS Tonscend	TAP-011858	AP21B806112	07-25-2023	07-24-2024
Communication test set	R&S	CMW500	102898	12-14-2023	12-13-2024
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	04-11-2023 04-07-2024	04-10-2024 04-06-2025
Fully Anechoic Chamber	TDK	FAC-3	---	01-09-2024	01-08-2027
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	---	---
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	---	---
Cable line	Times	EMC104-NMNM-1000	SN160710	---	---
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	---	---
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	---	---
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	---	---
Cable line	Times	HF160-KMKM-3.00M	393493-0001	---	---
Spectrum Analyzer	R&S	FSV3044	100509	05-23-2023	05-22-2024
Receive unit	R&S	TC-RSE60	100729	N/A	N/A
Receive unit	R&S	TC-RSE90	100721	N/A	N/A
Receive unit	R&S	TC-RSE140	101254	N/A	N/A
Receive unit	R&S	TC-RSE220	100716	N/A	N/A
Receive unit	R&S	TC-RSE325	100638	N/A	N/A

Note:
N/A:Calibrated by the equipment manufacturer.

6 Test results and Measurement Data

6.1 EIRP

Test Requirement:	47 CFR Part 95, Subpart M Section 95.3367
Test Method:	ANSI C63.26:2015 Section 5.2
Limit:	Peak EIRP <55dBm/MHz; Average EIRP <50dBm/MHz;
Test Setup:	 h=1.5m,d=1.0m
Test Procedure:	(1)Maximum peak power(EIRP) – Peak detector 1. Set RBW = 1MHz; 2. Set VBW ≥ 3*RBW; 3. span to 2~3*OBW; 4. Detector = Peak; 5. Set number of points in sweep ≥ 2*Span/RBW; 6. Sweep time=Auto couple; 7. Trace = Max hold; (2)Maximum power(EIRP) – Averaging detector Note: The maximum power(averaging detector) measurements are performed using the “channel power” measurement capability and integrated over the 99% OBW to obtain the result. 1. Measurement capability of instrument = Channel power; 2. Set RBW = 1MHz; 3. Set VBW ≥ 3*RBW; 4. span to 2~3*OBW; 5. Channel bandwidth setting of instrument ≥ OBW; 6. Detector = Power averaging (rms); 7. Set number of points in sweep ≥ 2*Span/RBW; 8. Sweep time = Auto couple; 9. Trace = Averaging;
Test Mode:	TX mode_Make EUT continuously emit radar signals.

Test data:

Frequency (GHz)	Distance (m)	EIRP (dBm/MHz)	FMCW Chirps Correction Factor (dB)	Corrected EIRP (dBm/MHz)	EIRP Limit (dBm/MHz)	Result	Remark
76.50	1.0	22.82	10.10	32.92	55.0	Pass	Peak
	1.0	-11.04	10.10	-0.94	50.0	Pass	AVG

Remark:
①This is a radiated test,and test distance of 1.0m was used for the fundamental emissions measurement.
②EIRP(dBm/MHz) has added free space loss of 1.0m distance.
③The FMCW Chirps Correction Factor was calculated using the formula:

$$\mathbf{CF_{chirp} = 5 * \log\left(1 + K * \left(\frac{Span}{t * RBW^2}\right)^2\right)}$$

With t being the length of the chirp and K a correction factor for the setting process of the gaussian shaped filter (~0.1947).

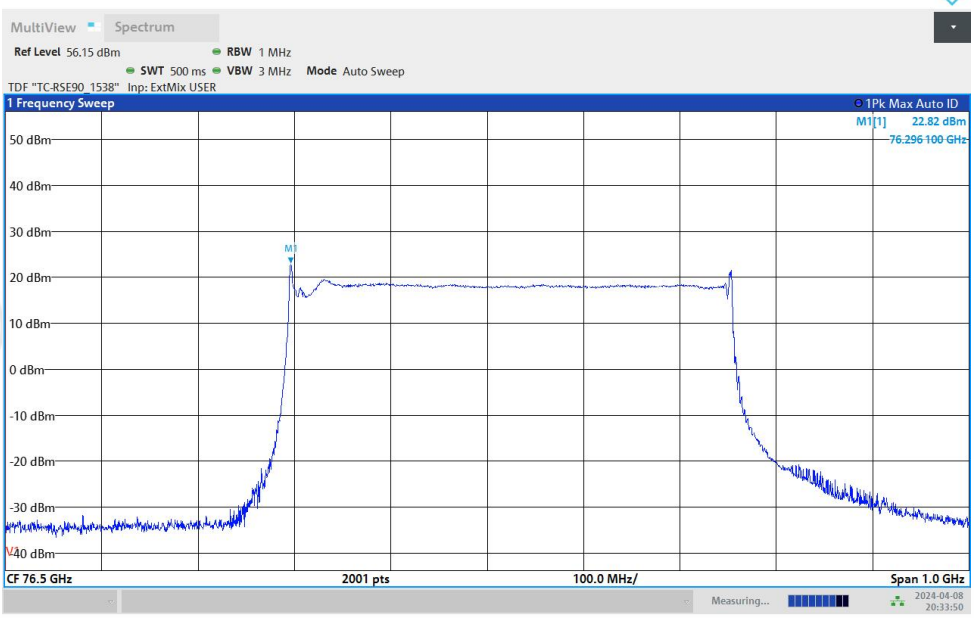
Sample calculation for FMCW chirps correction factor:

$$CF_{chirp}=5*\log_{10}(1+0.1947*(461MHz/(20\mu s*1MHz^2))^2=10.10dB$$

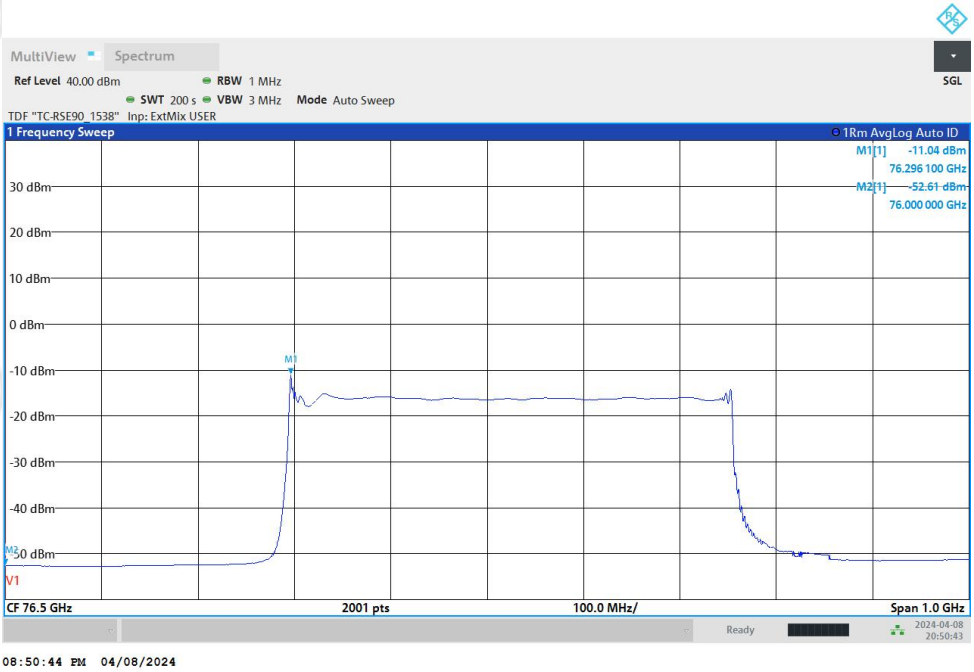
Note:Span is the measured maximum occupied bandwidth,refer to the section of 6.3,t claimed by the customer.
④Guidance for calculating the correction factor is from Application Note 1EF107-1E Rohde & Schwarz Peak and Mean Power measurements on wideband FMCW radar signals.
⑤Corrected EIRP(dBm/MHz)=EIRP(dBm/MHz)+FMCW Chirps Correction Factor(dB).
⑥Only the worst case data of vertical was recorded in the report.

Test graph:

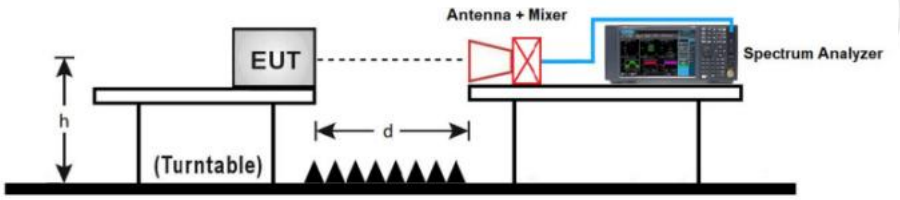
Peak EIRP



Average EIRP



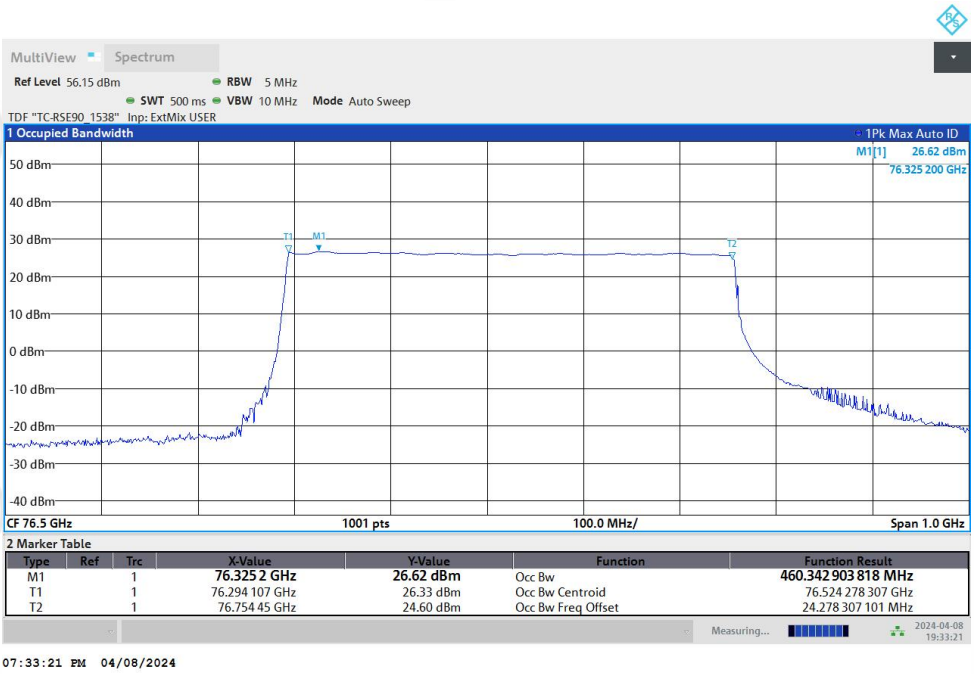
6.2 Occupied bandwidth

Test Requirement:	47 CFR Part 2, Subpart J Section 2.1049
Test Method:	ANSI C63.26:2015 Section 5.4
Limit:	Within the designated 76~81GHz frequency band
Test Setup:	 h=1.5m,d=1.0m
Test Procedure:	1.The signal analyzer`s automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediatepower nulls in the fundamental emission. 2.RBW, prefer 1% to 5% of OBW, or a minimum of 1MHz if this is not possible due to a large OBW. 3.VBW approximately 3*RBW. 4.Detector = Peak. 5.Trance mode = Max hold. 6.Sweep = Auto couple. 7.The trace was allowed to stabilize. 8.If necessary, step 2~6 were repeated after changing the RBW such that it would be within 1%~5 % of the 99% occupied bandwidth observed in step 6. Note: The RBW and VBW were setting up to the limitations of the test equipment.
Test Mode:	TX mode_Make EUT continuously emit radar signals.

Test data:

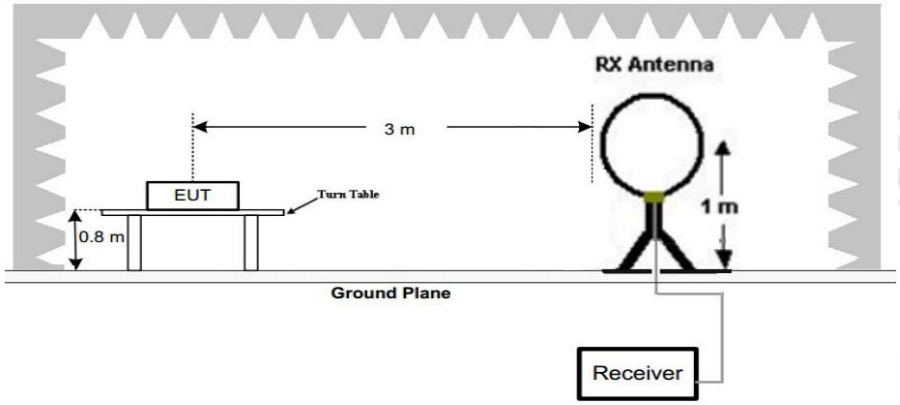
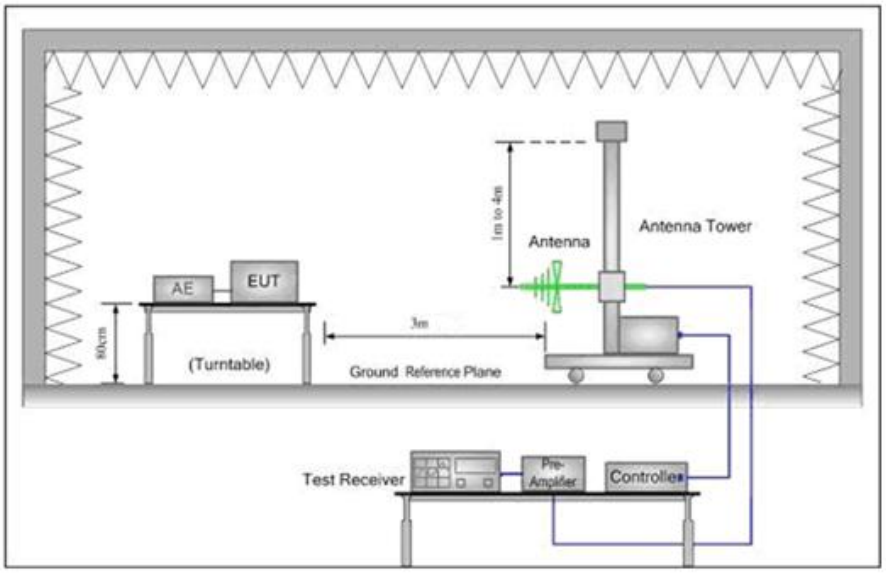
99% emission bandwidth (MHz)	Lowest Frequency (GHz)	Highest Frequency (GHz)	Limit (GHz)	Result
460.342903818	76.294107	76.75445	76 to 81	Pass

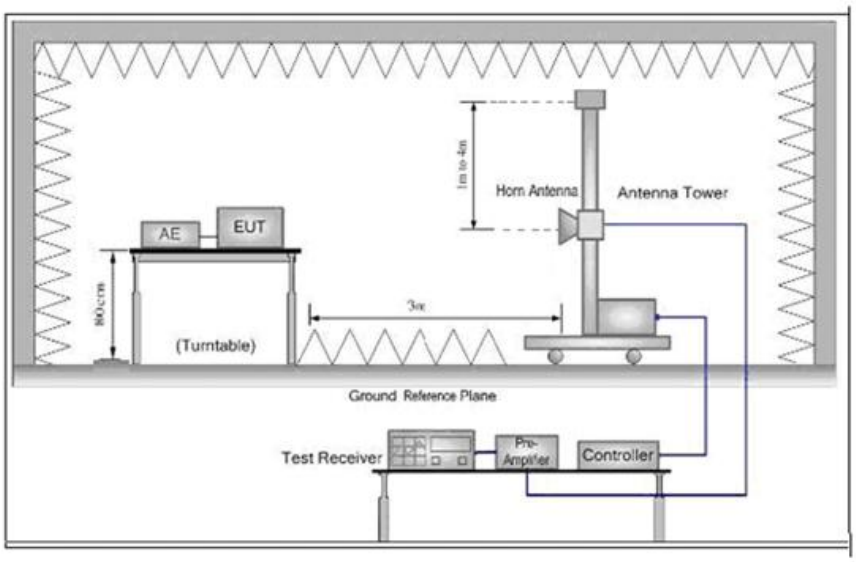
Test graph:



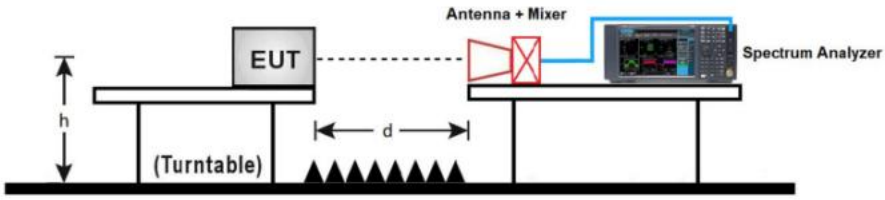
6.3 Field strength of spurious radiation

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 95, Subpart M Section 95.3379 (a)</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.26:2015 Section 5.5</td></tr>
<tr><td>Limit:</td><td>The power density of any emissions outside the 76GHz-81GHz band shall consist solely of spurious emissions and shall not exceed the following:
(1) Radiated emissions below 40GHz shall not exceed the field strength as shown in the following emissions table.
<table>
<tr><th>Frequency (MHz)</th><th>Field Strength (uV/m)</th><th>Measurement Distance (m)</th></tr>
<tr><td>0.009 ~ 0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490 ~ 1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705 ~ 30.0</td><td>30</td><td>30</td></tr>
<tr><td>30 ~ 88</td><td>100</td><td>3</td></tr>
<tr><td>88 ~ 216</td><td>150</td><td>3</td></tr>
<tr><td>216 ~ 960</td><td>200</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
(i) The tighter limit applies at the band edges.
(ii)The limits in the table are based on the frequency of the unwanted emissions and not the fundamental frequency. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
(iii)The emissions limits shown in the table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9kHz-90kHz,110kHz-490kHz,and above 1000MHz.Radiated emissions limits in these three bands are based on measurements employing an average detector with a 1MHz RBW.
(2) The power density of radiated emissions outside the 76GHz-81GHz band above 40GHz shall not exceed the following,based on measurements employing an average detector with a 1MHz
(i) For radiated emissions between 40GHz and 200GHz: 600pW/cm^2 at a distance of 3 meters from the exterior surface of the radiating structure.
(ii) For radiated emissions above 200GHz: 1000pW/cm^2 at a distance of 3 meters from the exterior surface of the radiating structure.
(2) For field disturbance sensors and radar systems operating in the 76GHz-81GHz band, the spectrum shall be investigated up to 231GHz.</td></tr>
</table>

Test Setup:	Below 30MHz:  30MHz-1GHz:  1GHz-40GHz:



Above 40GHz:



h=1.5m,d=1.0m

Test Procedure:

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

	The measurement frequency range form 9kHz - 231GHz was investigated.
Test Mode:	TX mode_Make EUT continuously emit radar signals

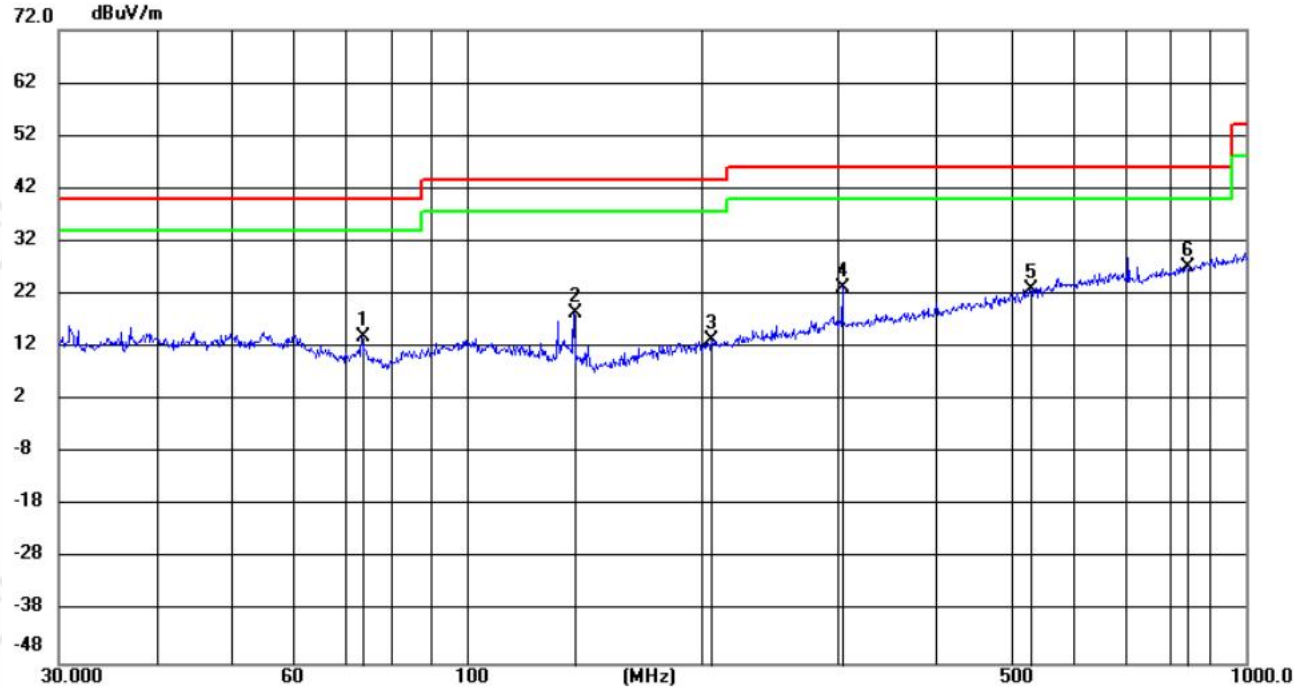
Radiated Spurious Emission below 30MHz:

9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement
The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

Radiated Spurious Emission 30MHz-1GHz:

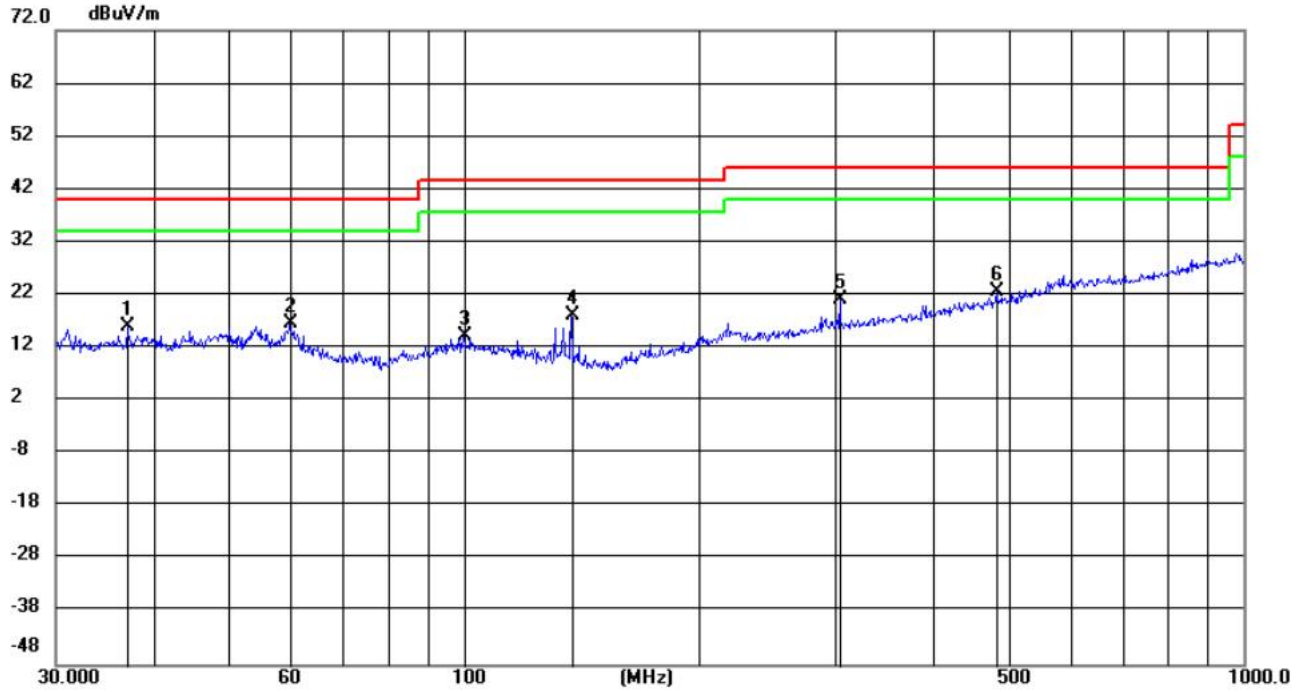
Test data:

Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		73.5654	3.50	10.38	13.88	40.00	-26.12	QP	100	227	
2		137.5166	8.86	9.71	18.57	43.50	-24.93	QP	199	352	
3		206.3975	0.27	12.96	13.23	43.50	-30.27	QP	100	111	
4		304.2363	6.65	16.75	23.40	46.00	-22.60	QP	100	90	
5		529.5440	1.27	21.68	22.95	46.00	-23.05	QP	199	352	
6	*	840.3596	0.73	26.46	27.19	46.00	-18.81	QP	199	352	

Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		37.1418	2.47	13.61	16.08	40.00	-23.92	QP	200	90	
2	*	60.0375	3.47	13.26	16.73	40.00	-23.27	QP	100	352	
3		100.0003	0.61	13.55	14.16	43.50	-29.34	QP	200	195	
4		137.4924	8.30	9.71	18.01	43.50	-25.49	QP	200	258	
5		304.1830	4.36	16.75	21.11	46.00	-24.89	QP	100	352	
6		483.5701	2.07	20.54	22.61	46.00	-23.39	QP	100	14	

Radiated Spurious Emission 1GHz-18GHz:

Test data:

NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	1266.0177	-25.56	56.86	31.30	74.00	42.70	PASS	Horizontal	PK
2	2698.7799	-20.33	55.19	34.86	74.00	39.14	PASS	Horizontal	PK
3	5034.6023	-13.65	51.07	37.42	74.00	36.58	PASS	Horizontal	PK
4	8575.3717	-3.62	47.53	43.91	74.00	30.09	PASS	Horizontal	PK
5	14234.1489	6.88	43.99	50.87	74.00	23.13	PASS	Horizontal	PK
6	17943.9963	14.41	42.14	56.55	74.00	17.45	PASS	Horizontal	PK
7	17997.5998	15.77	24.99	40.76	54.00	13.24	PASS	Horizontal	AV
8	1384.6923	-25.16	57.45	32.29	74.00	41.71	PASS	Vertical	PK
9	2554.437	-20.67	55.97	35.30	74.00	38.70	PASS	Vertical	PK
10	4251.2167	-15.61	51.94	36.33	74.00	37.67	PASS	Vertical	PK
11	7816.1211	-3.96	47.65	43.69	74.00	30.31	PASS	Vertical	PK
12	15204.6136	8.46	42.10	50.56	74.00	23.44	PASS	Vertical	PK
13	17750.3834	11.76	44.23	55.99	74.00	18.01	PASS	Vertical	PK
14	17939.1959	14.29	25.21	39.50	54.00	14.50	PASS	Vertical	AV

Radiated Spurious Emission 18GHz-40GHz:

Test data:

NO	Freq. [MHz]	Factor [dB]	Reading [dBμV]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Result	Polarity	Remark
1	18806.8723	-24.87	64.46	39.59	74.00	34.41	PASS	Horizontal	PK
2	20435.3374	-24.16	62.32	38.16	74.00	35.84	PASS	Horizontal	PK
3	24034.5214	-20.46	58.99	38.53	74.00	35.47	PASS	Horizontal	PK
4	29772.7909	-19.54	58.25	38.71	74.00	35.29	PASS	Horizontal	PK
5	32561.4225	-16.27	55.57	39.30	74.00	34.70	PASS	Horizontal	PK
6	36650.066	-14.46	52.16	37.70	74.00	36.30	PASS	Horizontal	PK
7	18601.7041	-25.63	65.01	39.38	74.00	34.62	PASS	Vertical	PK
8	20053.5221	-23.31	61.70	38.39	74.00	35.61	PASS	Vertical	PK
9	24349.174	-20.09	58.83	38.74	74.00	35.26	PASS	Vertical	PK
10	28926.3571	-20.25	58.81	38.56	74.00	35.44	PASS	Vertical	PK
11	33057.3223	-16.40	55.66	39.26	74.00	34.74	PASS	Vertical	PK
12	35905.7562	-15.17	53.46	38.29	74.00	35.71	PASS	Vertical	PK

Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

Radiated Spurious Emission 40GHz-231GHz:

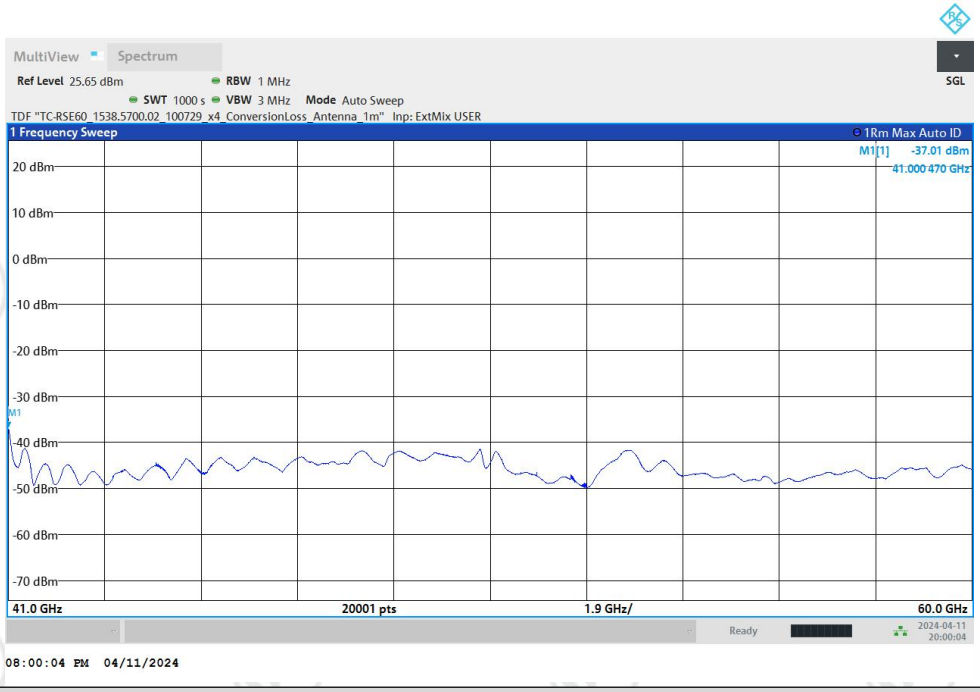
Test data:

Test Frequency (GHz)	EIRP/1MHz (dBm)@1m distance	Limit of Power density@3m distance	Limit of Power density / EIRP@1m distance	Result
41.000470	-37.01	600pW/cm^2 / -1.686dBm	-6.457dBm	Pass
69.618200	-36.52	600pW/cm^2 / -1.686dBm	-6.457dBm	Pass
99.304300	-13.94	600pW/cm^2 / -1.686dBm	-6.457dBm	Pass
130.849100	-16.11	600pW/cm^2 / -1.686dBm	-6.457dBm	Pass
139.145290	-15.78	600pW/cm^2 / -1.686dBm	-6.457dBm	Pass
140.602500	-41.00	600pW/cm^2 / -1.686dBm	-6.457dBm	Pass
220.583400	-44.31	1000pW/cm^2 / 0.532dBm	-4.239dBm	Pass

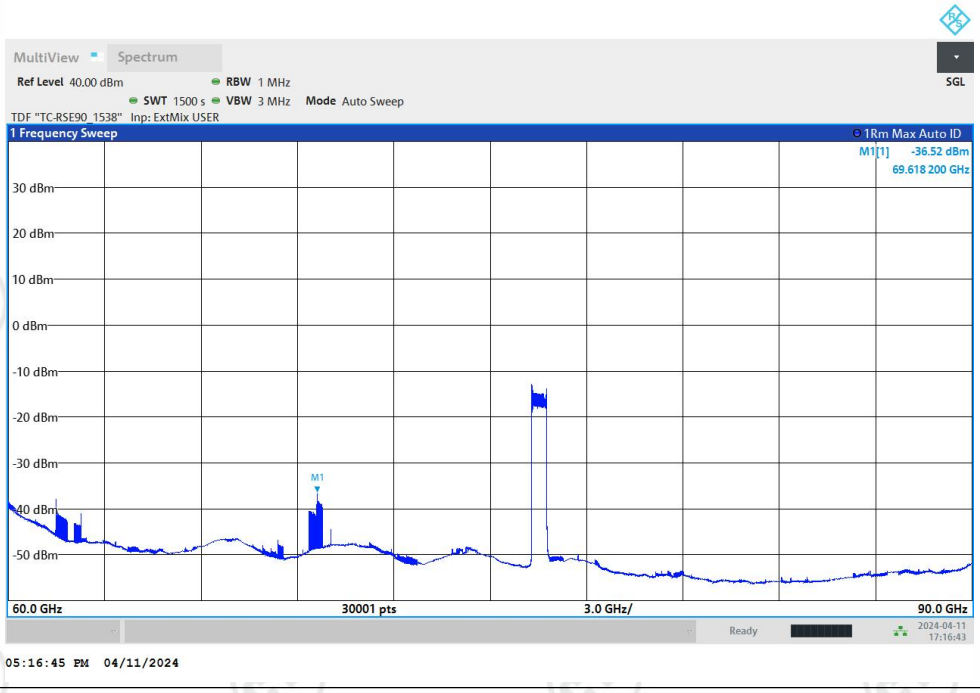
Note:
①EIRP(dBm/MHz) has added free space loss of 1.0m distance.
②Only the worst case data of vertical was recorded in the report.

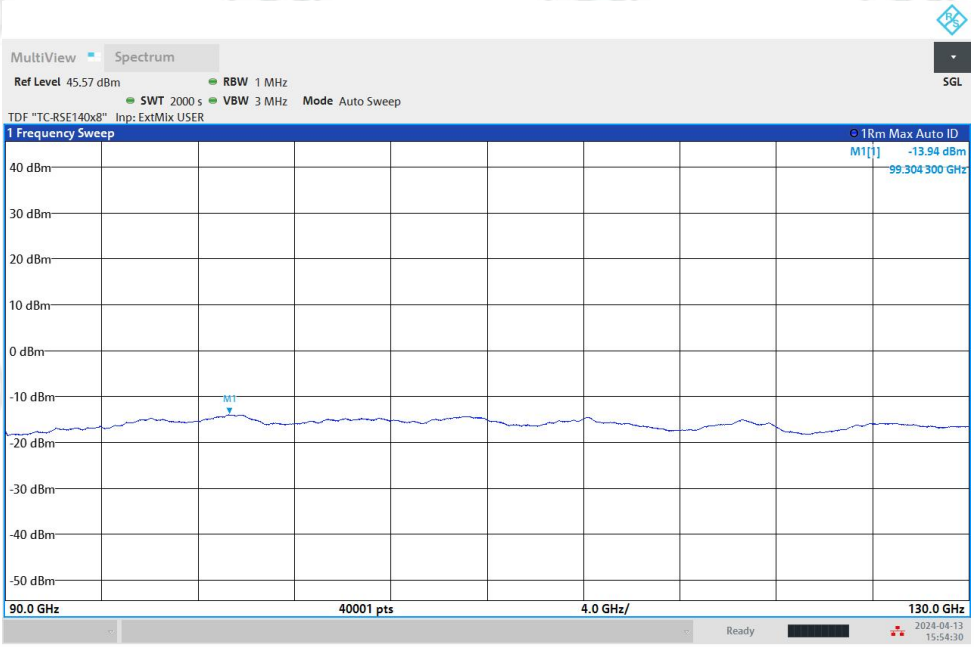
Test graph:

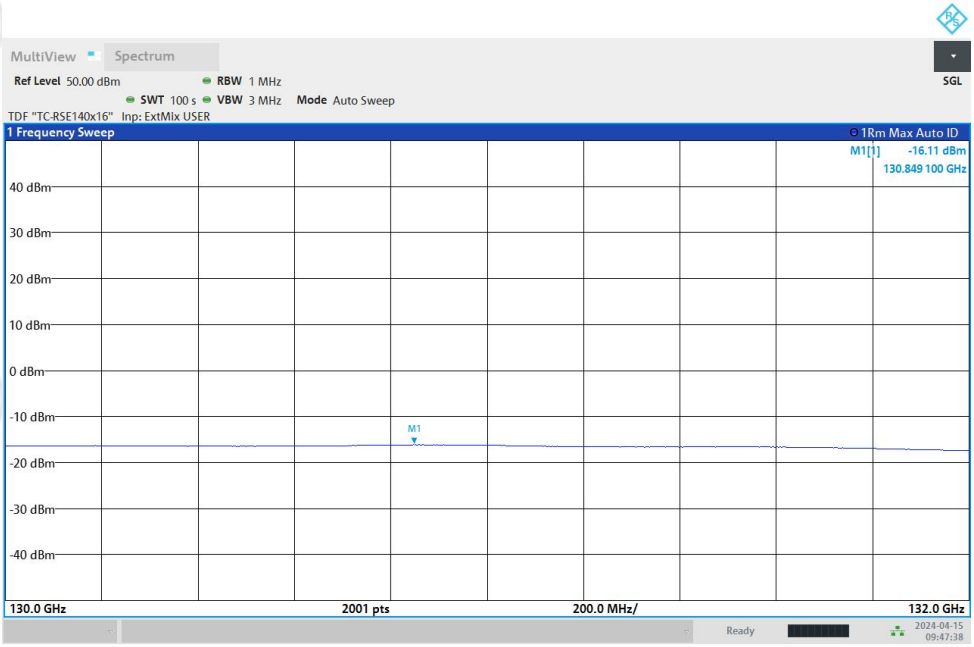
40GHz-60GHz



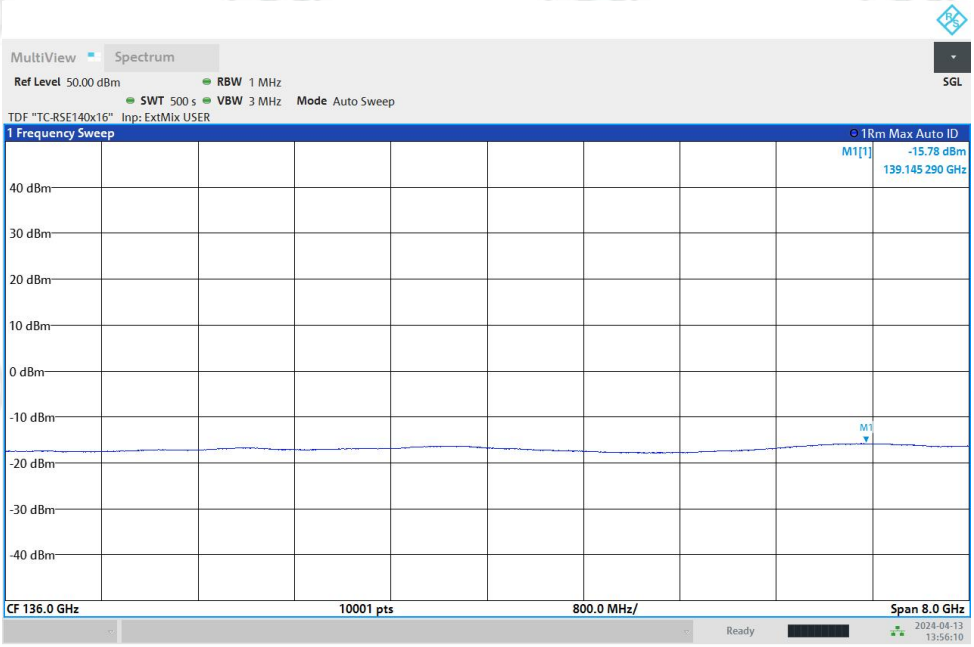
60GHz-90GHz



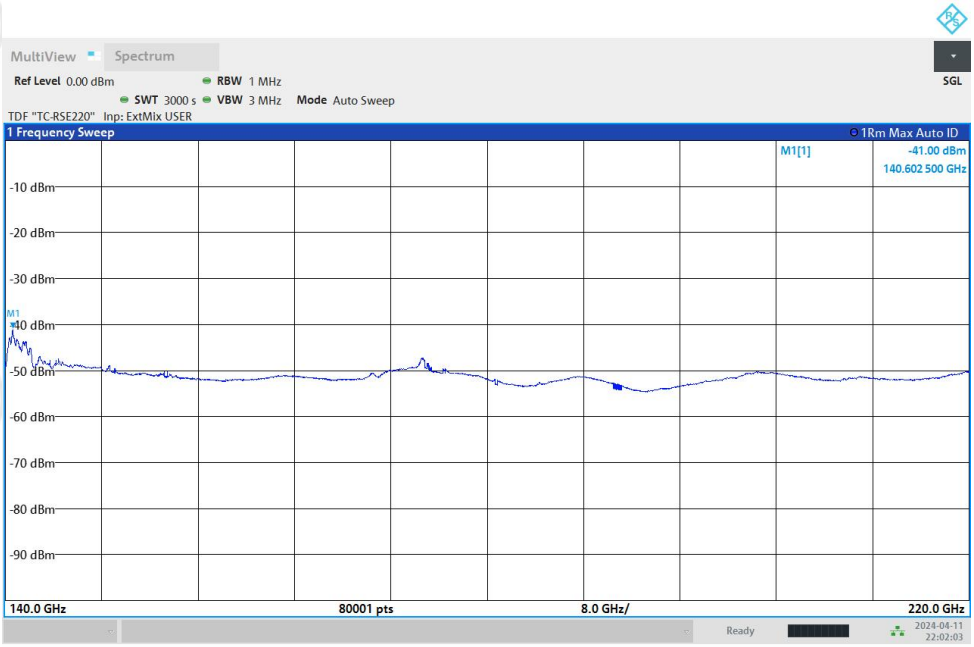
90GHz-130GHz


130GHz-132GHz


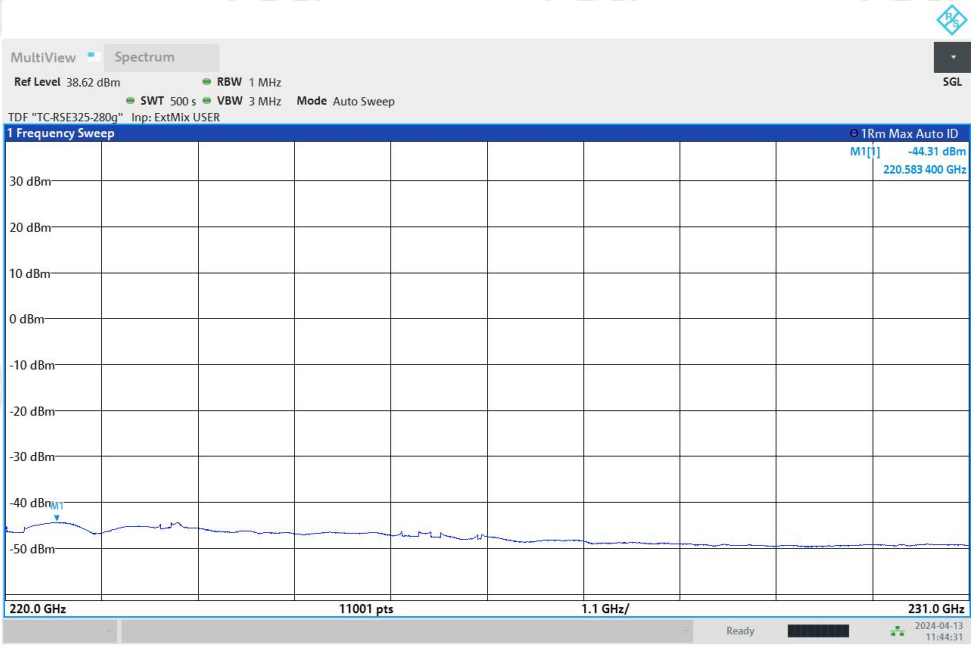
132GHz-140GHz



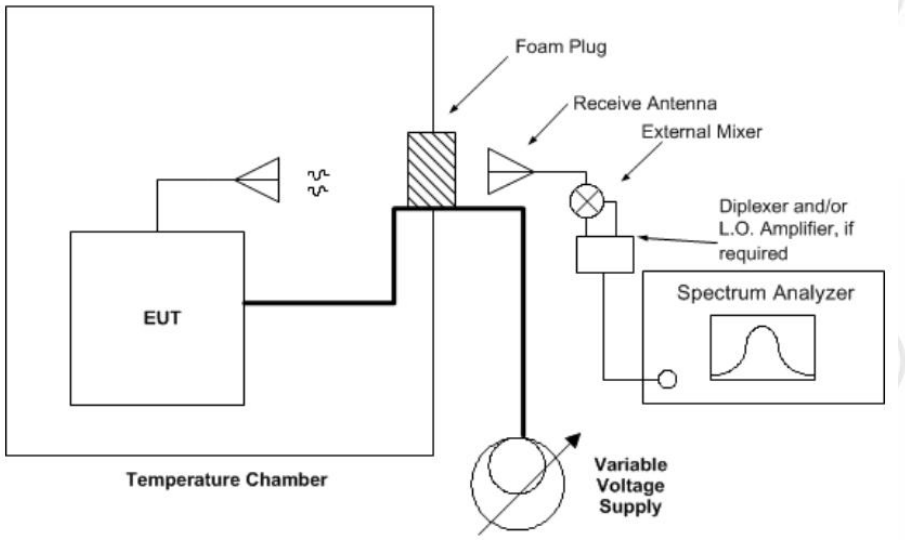
140GHz-220GHz



220GHz-231GHz



6.4 Frequency stability

Test Requirement:	47 CFR Part 95, Subpart M Section 95.3379 (b)
Test Method:	ANSI C63.26:2015 Section 5.6
Limit:	Fundamental emissions must be contained within the frequency bands specified in this section during all conditions of operation.
Test Setup:	
Test Procedure:	The carrier frequency of the transmitter is measured at room temperature. (20℃ to provide a reference) At 10℃ intervals of temperatures between -30℃ and +50℃ at the manufacturer's rated supply voltage, and At +20℃ temperature and ±15% supply voltage variations. If a product is specified to operate over a range of input voltage then the -15% variation is applied to the lowermost voltage and the +15% is applied to the uppermost voltage. Measurement data showing variation in transmitter output frequency from a cold start and the elapsed time necessary for the frequency to stabilize within the applicable tolerance. Tests shall be made after temperature stabilization at each of the ambient temperature levels; the lower temperature limit, 0℃ and + 30℃ with no primary power applied. Beginning at each temperature level , the frequency shall be measured within one minute after application of primary power to the transmitter and at intervals of no more than one minute thereafter until ten minutes have elapsed or until sufficient measurements are obtained to indicate clearly that the frequency has stabilized within the applicable tolerance, whichever time period is greater. During each test, the ambient temperature shall not be allowed to rise more than 10℃ above the respective beginning ambient temperature level.
Test Mode:	TX mode_Make EUT continuously emit radar signals. Note:The product is powered by DC 9.0V to DC 16V,classic working voltage is DC 12.0V,and declared by client.

Test data:

Voltage (%)	Power (V/DC)	Temperature (℃)	Frequency Left (GHz)	Frequency Right (GHz)	Limit (GHz)	Result
100	12.0	-30	76.2842	76.7647	76 to 81	Pass
		-20	76.2842	76.7647	76 to 81	Pass
		-10	76.2842	76.7637	76 to 81	Pass
		0	76.2842	76.7647	76 to 81	Pass
		+10	76.2842	76.7637	76 to 81	Pass
		+20	76.2842	76.7647	76 to 81	Pass
		+30	76.2842	76.7647	76 to 81	Pass
		+40	76.2842	76.7637	76 to 81	Pass
		+50	76.2852	76.7637	76 to 81	Pass
		+60	76.2842	76.7647	76 to 81	Pass
		+70	76.2842	76.7637	76 to 81	Pass
115	16.0	+20	76.2842	76.7637	76 to 81	Pass
85	9.0	+20	76.2842	76.7647	76 to 81	Pass