RADIO PERFORMANCE TEST REPORT (CLASS II Permissive Change)

Test Report No. : **OT-265-RWD-030**

Reception No. : **2602000717**

Applicant : **bitsensing Inc.**

Address : **4,5F, 4, Godeung-ro, Sujeong-gu, Seongnam-si, Gyeonggi-do, South Korea**

Manufacturer : **bitsensing Inc.**

Address : **4,5F, 4, Godeung-ro, Sujeong-gu, Seongnam-si, Gyeonggi-do, South Korea**

Type of Equipment : **Imaging Radar Sensor**

FCC ID. : **2AVBK-AFI920**

Model Name : **AFI920**

Multiple Model Name : **N/A**

Serial number : **N/A**

Total page of Report : **29 pages (including this page)**

Date of Incoming : **April 23, 2026**

Date of issue : **May 21, 2026**

SUMMARY

The equipment complies with the regulation; **FCC PART 95 SUBPART M**

This test report only contains the result of a single test of the sample supplied for the examination.

It is not a generally valid assessment of the features of the respective products of the mass-production.

This test report is not associated with the accreditation granted by the Korean Laboratory Accreditation Scheme (KOLAS).

Tested by	Reviewed by	Approved by
Yun-Bok, Wi / Project Engineer	Tae-Ho, Kim / Chief Engineer	Jae-Ho, Lee / Director
ONETECH Corp.	ONETECH Corp.	ONETECH Corp.

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

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ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

Revision History

Rev. No.	Issue Report No.	Issued Date	Revisions	Section Affected
0	OT-263-RWD-020	March 18, 2026	Initial Release	All
1	OT-265-RWD-030	May 21, 2026	RF Mode Added / PCIE Interface Part Layout Removed (Class II permissive change)	All

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1. VERIFICATION OF COMPLIANCE

Applicant : bitsensing Inc.
Address : 4,5F, 4, Godeung-ro, Sujeong-gu, Seongnam-si, Gyeonggi-do, South Korea
Contact Person : Suhan Kim / Principal Research Engineer
Telephone No. : +82-10-7400-2819
FCC ID : 2AVBK-AFI920
Model Name : AFI920
Brand Name : -
Serial Number : N/A
Date : May 21, 2026

EQUIPMENT CLASS	Vehicle Radar Device(VRD)
E.U.T. DESCRIPTION	Imaging Radar Sensor
THIS REPORT CONCERNS	Class II permissive change
MEASUREMENT PROCEDURES	ANSI C63.26:2015, ANSI/TIA-603-E-2016, KDB653005 D01v01r01
TYPE OF EQUIPMENT TESTED	Pre-Production
KIND OF EQUIPMENT AUTHORIZATION REQUESTED	Certification
EQUIPMENT WILL BE OPERATED UNDER FCC RULES PART(S)	FCC PART 95 SUBPART M
Modifications on the Equipment to Achieve Compliance	None
Final Test was Conducted On	3 m, Semi Anechoic Chamber

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

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2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
2.1049	Occupied Bandwidth	PASS
95.3367(a)	Maximum Power(EIRP)	Met the Limit / PASS
95.3367(b)	Maximum Peak Power(EIRP)	Met the Limit / PASS
2.1053, 95.3379(a)	Unwanted Spurious Emissions	Met the Limit / PASS
2.1055, 95.3379(b)	Frequency stability	Met the Limit / PASS

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

-. Class II permissive change

The EUT was granted on April 01, 2026 but only following modifications and/or changed items are implemented into the device.

Change point	RF Mode Added, PCIE Interface Part Layout Removed.

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 95 SUBPART M.

2.5 Measuring Instrument calibration

The measuring equipment used to perform the tests described in this document was calibrated in accordance with the manufacturer's recommendations for the use of calibration equipment traceable to recognized national standards.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea

-. Site Filing:

VCCI (Voluntary Control Council for Interference) – Registration No. R-20122/ C-14617/ G-10666/ T-11842

-. Lab Accreditation:

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) – Designation No. KR0013

3. GENERAL INFORMATION

3.1 Product Description

The bitsensing Inc., Model AFI920 (referred to as the EUT in this report) is a Imaging Radar Sensor. The product specification described herein was obtained from product data sheet or user's manual.

DEVICE TYPE	Imaging Radar Sensor	
Temperature Range	-40 °C ~ 85 °C	
Frequency Range	76 GHz ~ 81 GHz	
Modulation Type	FMCW	
EIRP	Peak	55.0 dBm
	Average	50.0 dBm
Antenna Specification	Antenna Type	Patch antenna
	Gain(dBi)	11.0 dBi
Power Supply	DC 12 V	

3.2 EUT MODIFICATIONS

-. None

3.3 Alternative type(s)/model(s); also covered by this test report.

-. None

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4. TEST METHODOLOGY

The test procedures were performed in accordance with ANSI C63.10:2020, ANSI C63.26:2015, and KDB653005.

4.1 EUT Description

-. The Equipment Under Test(EUT) supports 76 GHz ~ 81 GHz vehicular radar.

-. FMCW Chirp Information

This device operates using FMCW that sweeps within the 77 GHz ~ 80 GHz range. The chirp bandwidth is about 1.95 GHz and the Chirp time is about 55.25 us.

-. FMCW Chirp

Mode	Frequency Range (GHz)	Chirp Time(T_c) [us]	Chirp Frame	
			Chirp Number(N)	Frame Time(ms)
FMCW Chirp Method 1	77.0 ~ 80.0	55.25	512	28.288

-. Thes EUT is consisted of four radar IC Chip and four radar IC Chip are not transmit at the same time.

Mode	Description	FMCW Chirp Method	Frequency Range (GHz)
Dual Mode	Radar IC Chip #1	FMCW Chirp Method 1	78.687
	Radar IC Chip #2	FMCW Chirp Method 1	78.687
	Radar IC Chip #3	FMCW Chirp Method 1	78.687
	Radar IC Chip #4	FMCW Chirp Method 1	78.687
LR Mode	Radar IC Chip #1	FMCW Chirp Method 1	78.595
	Radar IC Chip #2	FMCW Chirp Method 1	78.595
	Radar IC Chip #3	FMCW Chirp Method 1	78.595
	Radar IC Chip #4	FMCW Chirp Method 1	78.595
MR Mode	Radar IC Chip #1	FMCW Chirp Method 1	78.595
	Radar IC Chip #2	FMCW Chirp Method 1	78.595
	Radar IC Chip #3	FMCW Chirp Method 1	78.595
	Radar IC Chip #4	FMCW Chirp Method 1	78.595
SR Mode	Radar IC Chip #1	FMCW Chirp Method 1	78.687
	Radar IC Chip #2	FMCW Chirp Method 1	78.687
	Radar IC Chip #3	FMCW Chirp Method 1	78.687
	Radar IC Chip #4	FMCW Chirp Method 1	78.687

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4.2 EUT Test mode

-. For the test, the output power were measured according to the FMCW Chirp method and then tested in the worst mode.

-. Maximum Output Power

Mode	Description	Detector Mode	EIRP (dBm)	EIRP (W)
Dual Mode	Radar IC Chip #1	Peak	**35.18**	3.30
		Average	**10.40**	0.01
	Radar IC Chip #2	Peak	28.59	0.72
		Average	4.88	0.01
	Radar IC Chip #3	Peak	27.75	0.60
		Average	7.29	0.01
	Radar IC Chip #4	Peak	28.11	0.65
		Average	2.49	0.01
LR Mode	Radar IC Chip #1	Peak	32.46	1.76
		Average	9.51	0.01
	Radar IC Chip #2	Peak	29.90	0.98
		Average	8.53	0.01
	Radar IC Chip #3	Peak	29.73	0.94
		Average	9.13	0.01
	Radar IC Chip #4	Peak	28.80	0.76
		Average	4.64	0.01
MR Mode	Radar IC Chip #1	Peak	34.81	3.03
		Average	9.84	0.01
	Radar IC Chip #2	Peak	28.43	0.70
		Average	8.40	0.01
	Radar IC Chip #3	Peak	32.74	1.88
		Average	9.34	0.01
	Radar IC Chip #4	Peak	29.39	0.87
		Average	4.58	0.01
SR Mode	Radar IC Chip #1	Peak	33.91	2.46
		Average	9.77	0.01
	Radar IC Chip #2	Peak	33.55	2.27
		Average	8.24	0.01
	Radar IC Chip #3	Peak	29.77	0.95
		Average	8.68	0.01
	Radar IC Chip #4	Peak	25.75	0.38
		Average	4.23	0.01

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4.3 Worst case configuration and mode

1. All modes of operation were investigated and the worst case configuration results are reported.
2. EUT Axis
   - Radiated Spurious Emissions : Y
   - Radiated Output Power : Y
3. All data operation were investigated and the worst case data rate results are reported.
   - All measurements were performed in worst-case Dual Mode(Radar IC Chip #1).

4.4 Configuration of Test System

Radiated Emission Test:

Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10: 2020 to determine the worse operating conditions. Final radiated emission tests were conducted at 3 meter Semi Anechoic Chamber.

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1 GHz. Above 1 GHz with 1.5 m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

In order to find out the max. emission, the relative positions of this EUT was rotated through three orthogonal axes according to the requirements in Section 6.6.5 of ANSI C63.10: 2020

4.5 Antenna Requirement

For intentional device, according to section 15.203, 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.

Antenna Construction:

The EUT's antennas are a Micro-strip Patch Antenna, which are permanently attached to the EUT and cannot be replaced by the user.

5. FAR FIELD DISTANCE(R_m)

The measurements were performed in the far field, with the boundary distance calculated as follows:

$$R_{(Far\ Field)} = \frac{2L^2}{\lambda}$$

Where

L is the largest dimension of the transmit antenna

λ is the *w*avelength

1) Measurement Antenna

Frequency rage	Frequency	D	λ	Rm	Measurement Distance
(GHz)	(GHz)	(m)	(m)	(m)	(m)
40 ~ 60	60	0.058 2	0.005 0	1.35	1.50
60 ~ 94	94	0.037 8	0.003 2	0.89	1.00
94 ~ 140	140	0.024 8	0.002 1	0.57	0.70
140 ~ 220	220	0.015 8	0.001 4	0.36	0.50
220 ~ 243	243	0.010 5	0.001 2	0.17	0.30

2) EUT Antenna

Mode	Frequency rage	Frequency	D	λ	Rm	Measurement Distance
	(GHz)	(GHz)	(m)	(m)	(m)	(m)
Mode1	76 ~ 81	81	0.036 0	0.003 7	0.69	1.00
Mode2	76 ~ 81	81	0.036 0	0.003 7	0.69	1.00
Mode3	76 ~ 81	81	0.036 0	0.003 7	0.69	1.00
Mode4	76 ~ 81	81	0.036 0	0.003 7	0.69	1.00

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6. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2020.

All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Power Spectral Density	1.22
Radiated Disturbance (9 kHz ~ 30 MHz)	3.28
Radiated Disturbance (30 MHz ~ 1 GHz)	4.42
Radiated Disturbance (1 GHz ~ 18 GHz)	5.12
Radiated Disturbance (18 GHz ~ 40 GHz)	4.62
Radiated Disturbance (40 GHz ~ 60 GHz)	2.73
Radiated Disturbance (60 GHz ~ 94 GHz)	2.76
Radiated Disturbance (94 GHz ~ 140 GHz)	2.80
Radiated Disturbance (140 GHz ~ 220 GHz)	3.04
Radiated Disturbance (220 GHz ~ 325 GHz)	3.46

7. LIST OF TEST EQUIPMENT

Model Number	Manufacturer	Description	Serial Number	Last Cal.(Interval)
FSW43	Rohde & Schwarz	Signal & Spectrum Analyzer	104544	Jul. 02, 2025 (1Y)
FSV40-N	Rohde & Schwarz	Spectrum Analyzer	101651	Feb. 09, 2026 (1Y)
ESCI7	Rohde & Schwarz	EMI Test Receiver	100895	Sep. 24, 2025 (1Y)
ZUP36-6	TDK-LAMBDA	DC Power Supply	205214-2021	Jan. 12, 2026 (1Y)
GP-4303D	LG Precision Co.,Ltd	DC Power Supply	5071069	Jan. 04, 2026 (1Y)
SMB100A	Rohde & Schwarz	SIGNAL GENERATOR	177648	Jan 14, 2026 (1Y)
PSL-2KP	ESPEC	Environmental Test Chamber	14009407	Jan. 12, 2026 (1Y)
FMZB 1519-60D	Schwarzbeck	Active Magnetic Loop Antenna	00113	Jan. 07, 2025 (2Y)
CBL6112B	SCHAFFNER	BILOG ANTENNA	2867	Dec. 17, 2025 (2Y)
BBHA9120D	Schwarzbeck	Horn Antenna	9120D-1366	Jun. 19, 2025 (1Y)
BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Jan. 04, 2026 (1Y)
M19RH	OML, Inc.	Millimeter Wave Horn Antenna	180912-2	Jun. 21, 2025 (1Y)
M12RH	OML, Inc.	Millimeter Wave Horn Antenna	180912-1	Jun. 21, 2025 (1Y)
M08RH	OML, Inc.	Millimeter Wave Horn Antenna	180912-2	Jun. 21, 2025 (1Y)
M05RH	OML, Inc.	Millimeter Wave Horn Antenna	180912-2	Jun. 23, 2025 (1Y)
M03RH	OML, Inc.	Millimeter Wave Horn Antenna	180912-2	Jun. 21, 2025 (1Y)
DC4060-FS1	C&K Technologies, Inc.	WR-19 mmWave Down Converter Module	241202-1	Jan. 15, 2026 (1Y)
DC6090-FS1	C&K Technologies, Inc.	WR-12 mmWave Down Converter Module	241202-2	Jan. 15, 2026 (1Y)
DC90140-FS1	C&K Technologies, Inc.	WR-08 mmWave Down Converter Module	241202-3	Jan. 15, 2026 (1Y)
DC140220-FS1	C&K Technologies, Inc.	WR-05 mmWave Down Converter Module	241202-4	Jan. 15, 2026 (1Y)
DC220325-FS1	C&K Technologies, Inc.	WR-03 mmWave Down Converter Module	241202-5	Jan. 15, 2026 (1Y)
310N	Sonoma Instrument	Pre-Amplifier	312544	Mar. 11, 2026 (1Y)
ELNA18	EXYNOD	RF Pre Amplifier	27594	Jan. 14, 2026 (1Y)
ELNA40	EXYNOD	RF Pre Amplifier	25339-27648	Jan. 15, 2026 (1Y)
DT3000	Innco System	Turn Table	DT3000/093	N/A
MA-4000XPET	Innco System	Antenna Master	MA4000/509	N/A
CO3000	Innco System	Controller	CO3000/904	N/A

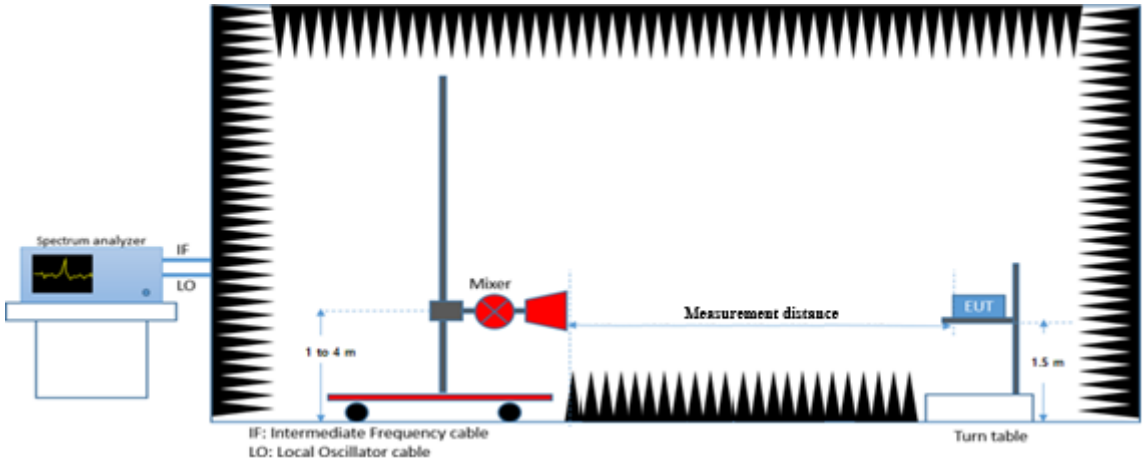
8. DESCRIPTION OF TESTS

8.1 Occupied Bandwidth

1) Limit

Within the designated 76 GHz ~ 81 GHz frequency band

2) Test Configuration



2) Test Procedure

We tested according to Procedure ANSI C63.26:2015 Section 5.4.4.

1. RBW = 1 ~ 5 % of the expected OBW
2. VBW ≥ 3*RBW
3. Measurement Type = Peak
4. Trace mode = Max Hold
5. The trace was allowed to stabilize

8.2 Maximum Power (EIRP)

1) Limit

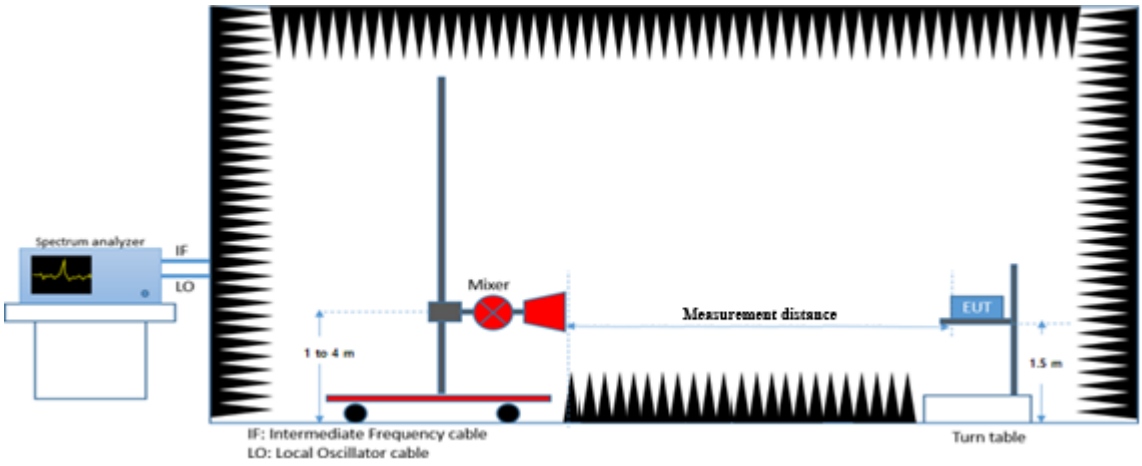
§ 95.3367 76-81 GHz Band Radar Service radiated power limits.

The fundamental radiated emission limits within the 76-81 GHz band are expressed in terms of Equivalent Isotropically Radiated Power (EIRP) and are as follows:

(a) The maximum power (EIRP) within the 76-81 GHz band shall not exceed 50 dBm based on measurements employing a power averaging detector with a 1 MHz Resolution Bandwidth (RBW).

(b) The maximum peak power (EIRP) within the 76-81 GHz band shall not exceed 55 dBm based on measurements employing a peak detector with a 1 MHz RBW.

2) Test Configuration



3) Test Procedure

-. Maximum Power(EIRP) Average

We tested according to Procedure ANSI C63.26:2015 Section 5.2.4.4

1. RBW = 1 ~ 5 % of the expected OBW, not to exceed 1 MHz
2. VBW ≥ 3 x RBW
3. Span = 2 to 3 X the OBW
4. Detector = Power averaging (RMS)
5. The integration bandwidth was roughly set equal to the measured OBW of the signal for signal with continuous operation.
6. Sweep time = 403 S

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-. Maximum Power(EIRP) Peak

We tested according to Procedure ANSI C63.26:2015 Section 5.2.3.5

1. RBW = 1 MHz
2. VBW ≥ 3 x RBW
3. Span = 2 to 3 X the OBW
4. Detector = Peak
5. Sweep time = 403 S
6. The Peak search function of the spectrum analyzer was used to find the peak of the spectrum.

-. Radiated Power Calculation.

The calculation formula was used according to the procedure in ANSI C63.26:2015 Section 5.2.7.

1. E(dBuV/m) = Measured Level(dBm) + 107 + Correction Factor(dB)
   where, Correction Factor(dB) = Ant Factor (dB) + Cable Loss(dB) + Conversion Loss(dB)
2. E.I.R.P (dBm) = E(dBuV/m) + 20log(D) -104.8
   Where, D is measurement distance (in the far field region) in m

-. FMCW Desensitization factor

The peak power measurement results was applied to the desensitization correction factor in accordance with ANSI C63.10:2020, Annex L, Corrigendum 1.

The desensitization factor was calculated using the following equation :

$$\alpha = \frac{1}{\sqrt{1+\left(\frac{2\ln(2)}{\pi}\right)^2\left(\frac{BW_{Chirp}}{T_{Chirp}B^2}\right)^2}}$$

where

α	is the reduction in amplitude
BW_{Chirp}	is the FMCW Chirp Bandwidth
T_{Chirp}	is the FMCW Chirp Time
B	is the 3 dB IF Bandwidth = RBW

FMCW desensitization factor:

where the BW_{Chirp} = 1 953.29 MHz, T_{chirp} = 55.25 us, B = 1 MHz, α = 11.94 dB

8.3 Unwanted Spurious Emissions

1) Limit

§ 95.3379 76-81 GHz Band Radar Service unwanted emissions limits.

(a) The power density of any emissions outside the 76-81 GHz band shall consist solely of spurious emissions and shall not exceed the following:

(1) Radiated emissions below 40 GHz shall not exceed the field strength as shown in the following emissions table.

Frequency Range (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

(i) In the emissions table in paragraph (a)(1) of this section, the tighter limit applies at the band edges.

(ii) The limits in the table in paragraph (a)(1) of this section 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 in paragraph (a)(1) of this section are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9.0-90.0 kHz, 110.0-490.0 kHz, and above 1000 MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector with a 1 MHz RBW.

(2) The power density of radiated emissions outside the 76-81 GHz band above 40.0 GHz shall not exceed the following, based on measurements employing an average detector with a 1 MHz RBW:

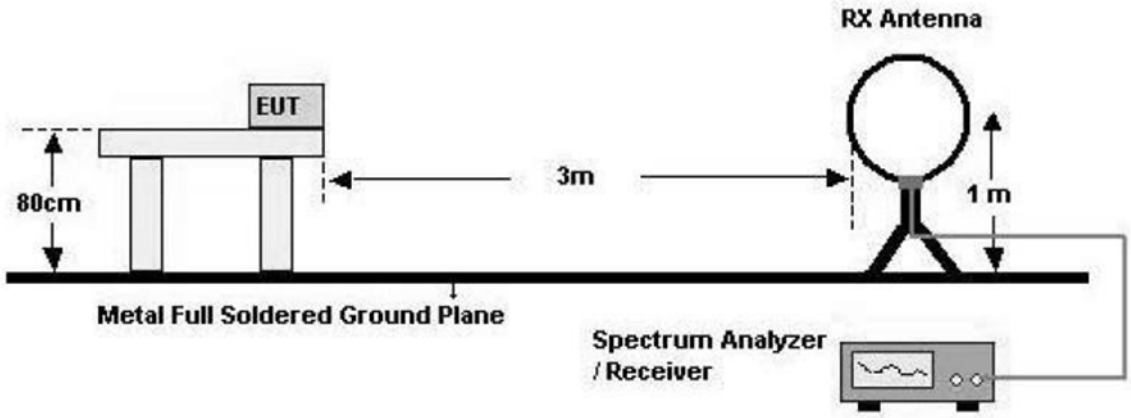
(i) For radiated emissions outside the 76-81 GHz band between 40 GHz and 200 GHz from field disturbance sensors and radar systems operating in the 76-81 GHz band: 600 pW/cm^2 at a distance of 3 meters from the exterior surface of the radiating structure.

(ii) For radiated emissions above 200 GHz from field disturbance sensors and radar systems operating in the 76-81 GHz band: 1000 pW/cm^2 at a distance of 3 meters from the exterior surface of the radiating structure.

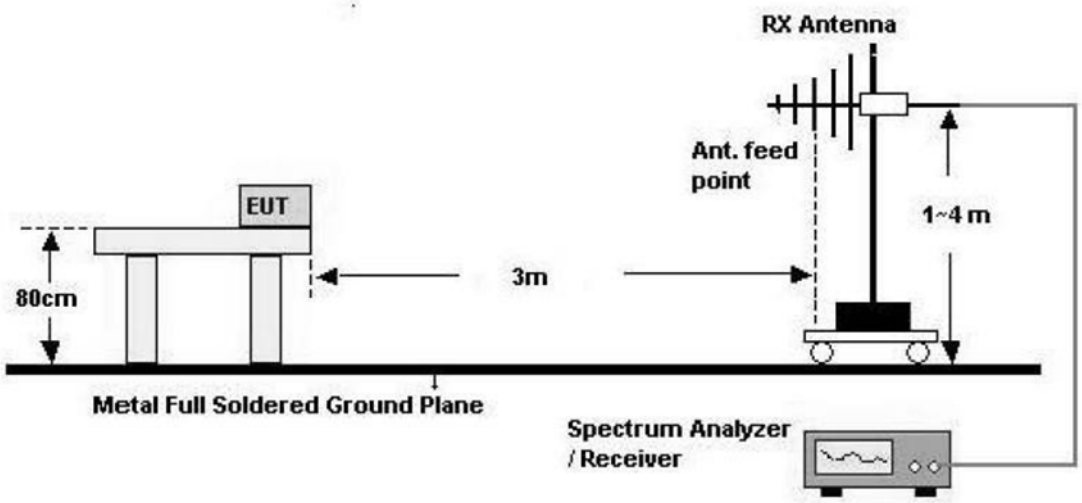
(3) For field disturbance sensors and radar systems operating in the 76-81 GHz band, the spectrum shall be investigated up to 231.0 GHz.

2) Test Configuration

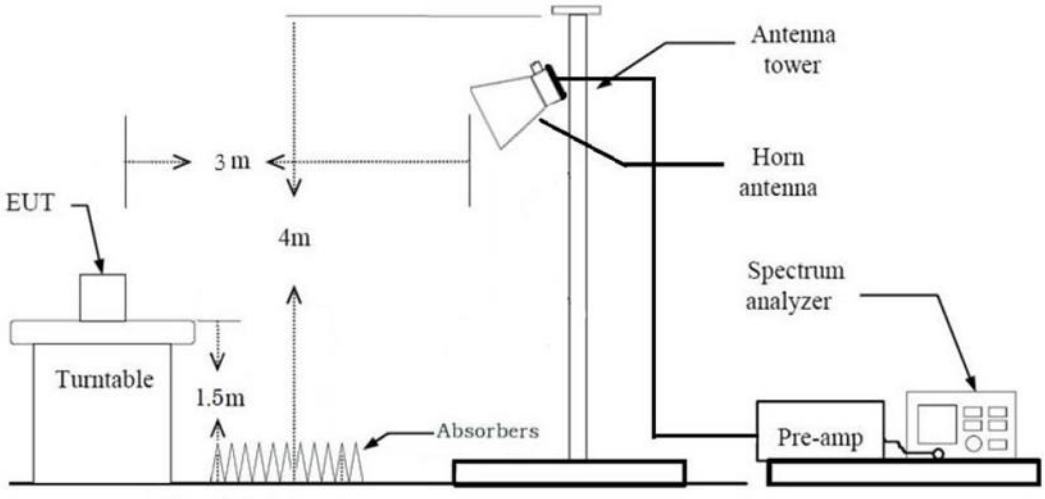
Below 30 MHz



30 MHz ~ 1 GHz



Above 1 GHz ~ 40 GHz



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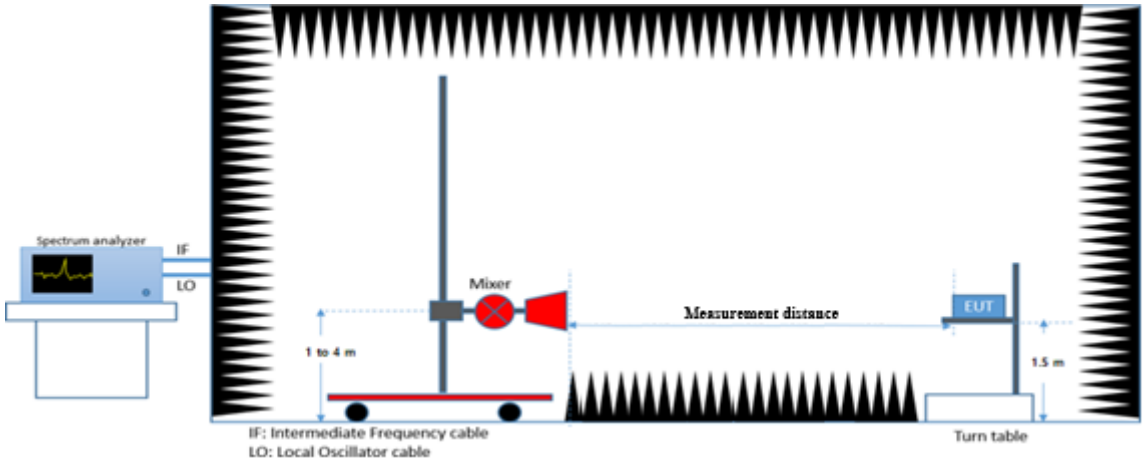
Above 40 GHz


Spectrum analyzer
IF
LO
Mixer
Measurement distance
EUT
1 to 4 m
1.5 m
IF: Intermediate Frequency cable
LO: Local Oscillator cable
Turn table

3) Test Procedure

Radiated Spurious Emissions(Below 30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3 m from the EUT
3. The EUT is placed on a turntable, which is 0.8m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz ~ 0.490 MHz) = 40*log(3 m/300 m) = - 80 dB
   Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz ~ 30 MHz) =40*log(3 m/30 m) = - 40 dB
   Measurement Distance : 3 m
8. Spectrum Setting
   - Frequency Range = 9 kHz ~ 30 MHz
   - Detector = Peak
   - Trace = Max Hold
   - RBW = 9 kHz
   - VBW ≥ 3 x RBW
9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Radiated Spurious Emissions(Below 1 GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m above ground plane.
3. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting
   1) Measurement Type(Peak) :
      - Measured Frequency Range : 30 MHz ~ 1 GHz
      - Detector = Peak
      - Trace = Max Hold
      - RBW = 100 kHz
      - VBW ≥ 3 x RBW
   2) Measurement Type(Quasi-peak) :
      - Measured Frequency Range : 30 MHz ~ 1 GHz
      - Detector = Quasi-Peak
      - RBW = 120 kHz
7. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

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Radiated Spurious Emissions(1 GHz ~ 40 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Spectrum Setting
   1) Measurement Type(Peak)
      - Measured Frequency Range : Center frequency was set to the frequency of the Radiated Spurious emission of interest
      - Detector = Peak
      - Trace = Max Hold
      - RBW = 1 MHz
      - VBW = 3 MHz
      - Sweep time = Auto
   2) Measurement Type(Average)
      - Measured Frequency Range : Center frequency was set to the frequency of the Radiated Spurious emission of interest
      - Detector = RMS
      - Trace mode : Averaging or Max hold
      - RBW = 1 MHz
      - VBW = 3 MHz
      - Sweep time = Auto

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Radiated Spurious Emissions(above 40 GHz)

1. Connect the test antenna covering the appropriate frequency range to a spectrum analyzer via an external mixer to the spectrum analyzer.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The antenna distance is subject to the Farfield conditions below:

Frequency rage	Frequency	D	λ	Rm	Measurement Distance
(GHz)	(GHz)	(m)	(m)	(m)	(m)
40 ~ 60	60	0.058 2	0.005 0	1.35	1.40
60 ~ 94	94	0.037 8	0.003 2	0.89	1.00
94 ~ 140	140	0.024 8	0.002 1	0.57	0.70
140 ~ 220	220	0.015 8	0.001 4	0.36	0.50
220 ~ 243	243	0.010 5	0.001 2	0.17	0.30

4. Spectrum Setting
   1) Measurement Type(Average)
      - Measured Frequency Range : Center frequency was set to the frequency of the Radiated Spurious emission of interest
      - Detector = RMS
      - Trace mode : Averaging or Max hold
      - RBW = 1 MHz
      - VBW = 3 MHz
      - Sweep time = 403 s
5. Calculate correction
   1) Power density formula as follows :
      - Power Density(mW/m^2) = EIRP / (4 * Pi * r^2)
   2) EIRP (dBm) formula as follows :
      - EIRP(dBm) = $10*\log_{10}((4 * Pi * r^2*S) / 1 mW)$

      Where,
      - r is the standard distance at 3 meter
      - S = 600 pW/cm^2 = 6 * 10^{-9} W/m^2

   Limits:

Frequency Range	Power Density	EIRP
(GHz)	pW/cm^2	dBm
40 ~ 200	600	-1.7
Above 200	1000	0.5

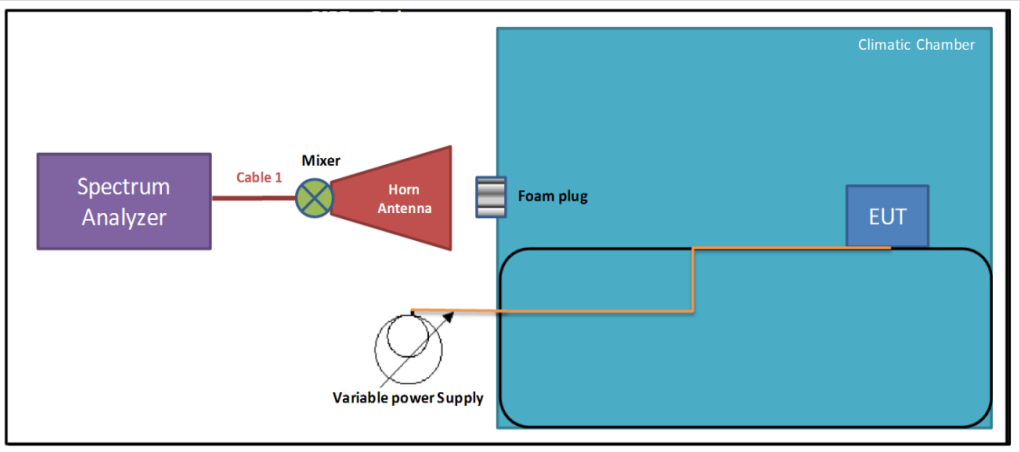
8.5 Frequency Stability

1) Limit

§ 95.3379 (b) Fundamental emissions must be contained within the frequency bands specified in this section during all conditions of operation. Equipment is presumed to operate over the temperature range −20 to +50 degrees Celsius with an input voltage variation of 85% to 115% of rated input voltage, unless justification is presented to demonstrate otherwise.

Frequency Range	
F_{Lowest}	> 76.0 GHz
$F_{Highest}$	< 81.0 GHz

2) Test Configuration



3) Test Procedure

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -20 ℃ and 50 ℃.
2. The temperature was incremented by 10 ℃ intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85% to 115% of the nominal value for non hand carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battety operating end point which shall be specified by the manufacturer.
4. While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

9. TEST RESULT

9.1 Operating environment

Temperature : 24 °C

Relative humidity : 51 % R.H.

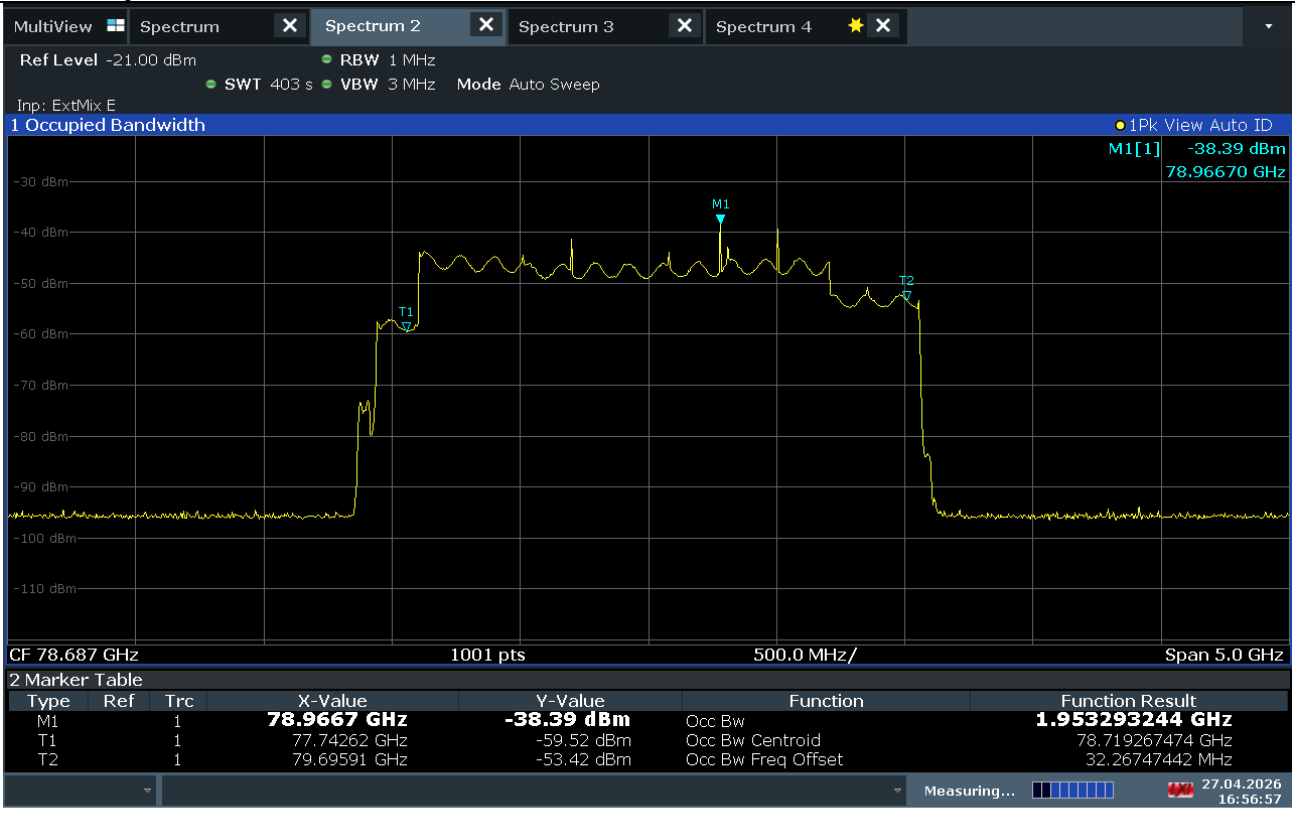
Test date : April 27, 2026 ~ May 14, 2026

9.2 OCCUPIED BANDWIDTH

9.2.1 Test data

Test Frequency (GHz)	Occupied Bandwidth (MHz)
78.687	1 953.29

Plot of Occupied Bandwidth



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9.3 Maximum Power(Peak & Average)

9.3.1 Test data

Measurement Distance (D)	Frequency (GHz)	Detector	Measured Level (dBm)	DCF (dB)	E (dBuv/m)	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)
1.0 m	78.687	Peak	-35.86	11.94	139.98	35.18	55.00	19.82
1.0 m	78.687	Average	-48.70	N/A	115.20	10.40	50.00	39.60

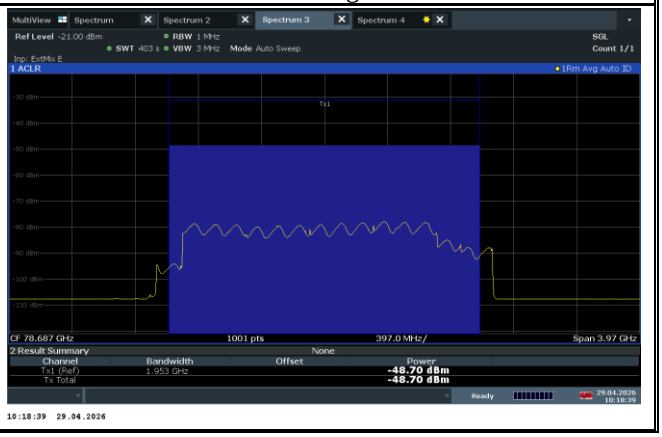
Note :

1. The EIRP was measured in each axis EUT positions and the worst case data was reported.
2. E(dBuV/m) = Measured Level(dBm) + 107 + Correction Factor(dB) + DCF(dB)
   where, Correction Factor(dB) = Ant Factor (dB) + Cable Loss(dB) + Conversion Loss(dB)
   DCF(dB) = FMCW Desensitization factor
3. E.I.R.P (dBm) = E(dBuV/m) + 20log(D) -104.8
   Where, D is measurement distance (in the far field region) in m
4. For Peak power measurement, a FMCW Desensitization factor was applied to the measurement result.

Maximum Power

Peak

Average



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9.4 Uwanted Spurious Emissions

9.4.1 Test Data

9.4.1.1 Frequency Range: Below 30 MHz

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
No Critical peaks found									

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

Note:

1. The Measured Value of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = 40log (specific distance / test distance) (dB)
3. Limit line = specific Limits (dBμV) + Distance extrapolation factor

9.4.1.2 Frequency Range: Below 1 GHz

Frequency (MHz)	Reading (dBμV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBμV/m)	Limits (dBμV/m)	Margin (dB)
No Critical peaks found									

-. Resolution bandwidth(Peak) : 100 kHz

-. Resolution bandwidth(Quasi-peak) : 120 kHz

-. Frequency range : 30 MHz ~ 1 GHz

-. Measurement distance : 3 m

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1 GHz were made with an instrument using Quasi Peak detector mode
2. The Measured Value of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Limit line = specific Limits (dBμV)

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9.4.1.3 Frequency Range 1 GHz ~ 40 GHz

- Remark: “H”: Horizontal, “V”: Vertical
- Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)
- D.F (dB) = Duty Factor(dB)

Frequency (MHz)	Reading (dBμV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	AMP Gain	Total (dBμV/m)	Limits (dBμV/m)	Margin (dB)
No Critical peaks found									

Note:

1. The Measured Value of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.

9.4.1.4 Frequency Range Above 40 GHz

Measurement Distance (D)	Frequency Range (GHz)	Measured Level (dBm)	Correction Factor (dB)	E (dBuv/m)	E.I.R.P (dBm)	Limit (dBm)	Margin (dB)
1.4 m	40.509	-107.59	51.00	50.41	-51.47	-1.70	49.77
1.0 m	67.504	-102.96	56.49	60.53	-44.27	-1.70	42.57
0.7 m	94.528	-105.17	61.02	62.85	-45.05	-1.70	43.35
0.5 m	149.710	-106.30	66.90	67.60	-43.22	-1.70	41.52
0.3 m	223.803	-104.44	69.66	72.22	-43.04	0.50	43.54

1. The EIRP was measured in each axis EUT positions and the worst case data was reported.
2. E(dBuV/m) = Measured Level(dBm) + 107 + Correction Factor(dB)
   where, Correction Factor(dB) = Ant Factor (dB) + Cable Loss(dB) + Conversion Loss(dB)
3. E.I.R.P (dBm) = E(dBuV/m) + 20log(D) -104.8
   Where, D is measurement distance (in the far field region) in m

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9.5 Frequency Stability

9.5.1 Test Data

Temperature (°C)	Voltage(V)	F_L (GHz)	F_H (GHz)	Limit (GHz)
50	12.00	77.661	79.725	76 ~ 81
40		77.658	79.723	
30		77.667	79.720	
20		77.682	79.717	
10		77.679	79.717	
0		77.663	79.723	
-10		77.648	79.721	
-20		77.643	79.723	
20 (Ref)	13.80 (115%)	77.673	79.723	
	10.20 (85%)	77.676	79.719	