



RF Test Report

FCC ID: GDDJD-420R

Report No.	:	TBR-C-202512-0376-2
Applicant	:	Cherry Europe GmbH
Equipment Under Test (EUT)		
EUT Name	:	Wireless Receiver
Model No.	:	JD-420R
Series Model No.	:	N/A
Brand Name	:	CHERRY
Sample ID	:	HC-C-202512-0376-01-01&HC-C-202512-0376-01-02
Receipt Date	:	2025-12-30
Test Date	:	2025-12-30 to 2026-03-13
Issue Date	:	2026-03-13
Standards	:	FCC Part 15 Subpart F
Test Method	:	ANSI C63.10: 2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a -2024
Conclusions	:	PASS
In the configuration tested, the EUT complied with the standards specified above.		

Test By	:	Gold . zhang	Gold-zhang
Reviewed By	:	Henry huang	Henry huang
Approved By	:	IVAN SU	Ivan Su



This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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Revision History

Report No.	Version	Description	Issued Date
TBR-C-202512-0376-2	Rev.01	Initial issue of report	2026-03-13



1. General Information about EUT

1.1 Client Information

Applicant	:	Cherry Europe GmbH
Address	:	Cherry street 2,91275 Auerbach i.d. OPf. Germany
Manufacturer	:	Cherry Europe GmbH
Address	:	Cherry street 2,91275 Auerbach i.d. OPf. Germany

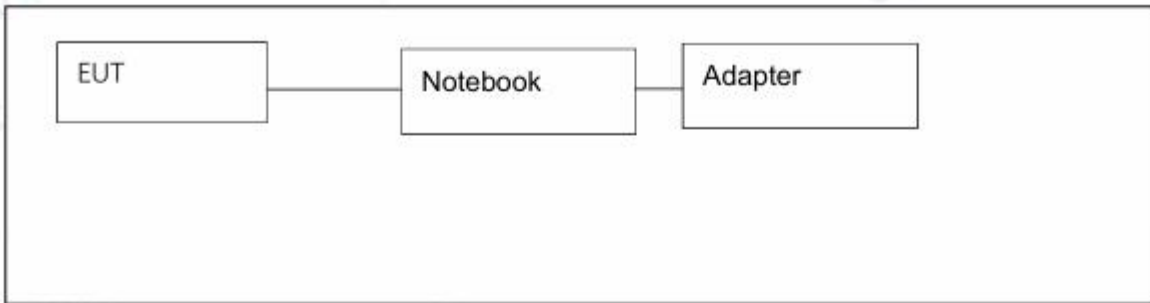
1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Wireless Receiver	
Models No.	:	JD-420R	
Model Different	:	N/A	
Product Description		Operation Frequency:	7372.8MHz
	:	Antenna Gain:	1.84dBi PCB Antenna
		Modulation Type:	FSK
Power Rating	:	DC 5V	
Software Version	:	N/A	
Hardware Version	:	N/A	
Remark:			
(1)The antenna gain provided by the applicant, the verified for the RF conduction test provided by TOBY test lab.			
(2)The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.			
(3)For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.			

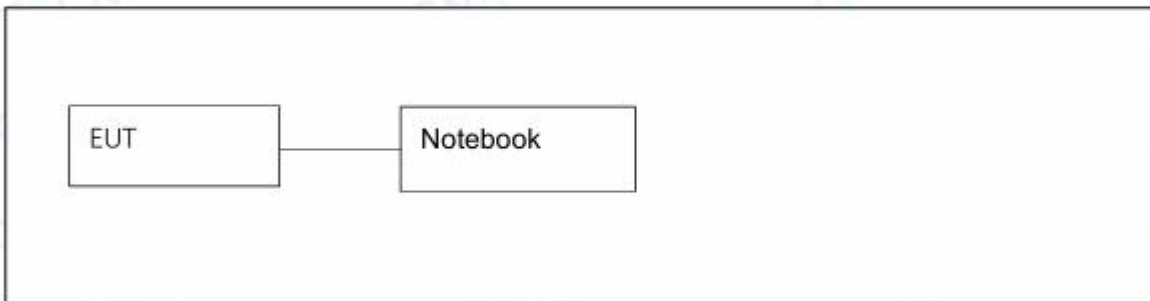


1.3 Block Diagram Showing the Configuration of System Tested

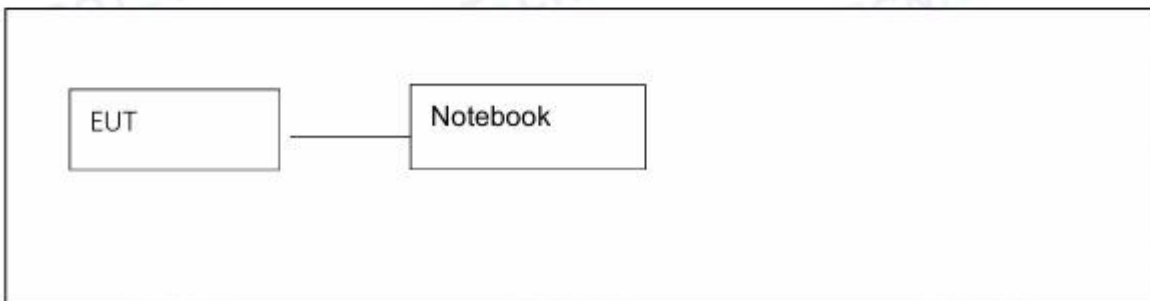
Conducted Test



Radiated Test



Conducted Measurements Test



1.4 Description of Support Units

Equipment Information				
Name	Model	S/N	Manufacturer	Used “√”
Notebook	HYLR-WFQ9	AAMFPM1418000165	honor	√
Adapter	/	/	honor	√



1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test (AC POWER)	
Final Test Mode	Description
Mode 1	TX Mode
For Radiated and RF Conducted Test	
Final Test Mode	Description
Mode 1	TX Mode

Note:

- (1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.
According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:
UWB Mode: FSK Modulation Transmitting mode.
- (2) During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.
- (3) The EUT is considered a indoor UWB systems; in normal use it was positioned on X-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.



1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF setting.

Test Software Version	Power-on default transmission
Frequency	7372.8MHz
UWB	DEF

1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	± 3.50 dB ± 3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	± 4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.20 dB
Occupied Bandwidth	/	$\pm 3.8\%$
Temperature	/	$\pm 0.6^{\circ}\text{C}$
Humidity	/	$\pm 4\%$
Supply voltages	/	$\pm 2\%$
Time	/	$\pm 4\%$



1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.



2. Test Summary

Standard Section		Test Item	Test Sample(s)	Judgment	Remark
FCC	/				
FCC 15.505(a) FCC 15.521(i) FCC 15.207(a)	/	Conducted Emission	HC-C-202512-0376-01-02	PASS	N/A
FCC 15.503 FCC 15.517(b)	/	-10dB Bandwidth	HC-C-202512-0376-01-01	PASS	N/A
/	/	Occupied Bandwidth (99%)	HC-C-202512-0376-01-01	N/A	N/A
FCC 15.517(c) FCC 15.521(c) FCC 15.521(d) FCC 15.521(h) FCC 15.209	/	Radiated Unwanted Emissions (at or below 960 MHz)	HC-C-202512-0376-01-02	PASS	N/A
FCC 15.517(c)(d) FCC 15.521(c) FCC 15.521(d) FCC 15.521(h)	/	Radiated Unwanted Emissions (Above 960 MHz)	HC-C-202512-0376-01-02	PASS	N/A
FCC 15.517(e) FCC 15.521(e) FCC 15.521(g)	/	Peak level of the Emission	HC-C-202512-0376-01-02	PASS	N/A
FCC 15.203	/	Antenna Requirement	HC-C-202512-0376-01-01	PASS	N/A
Note: N/A is an abbreviation for Not Applicable.					

3. Test Software

Test Item	Test Software	Manufacturer	Version No.
Conducted Emission	EZ-EMC	EZ	CDI-03A2
Radiation Emission	EZ-EMC	EZ	Ver.GARAD-3A1.1+
Radiation Emission	EZ-EMC	EZ	Ver.GARAD-3A1.1+
Radiation Emission	TS+	Tonscend	5.0.5
RF Conducted Measurement	MTS-8310	MWRFTtest	V2.0.0.0
RF Test System	JS1120	Tonscend	V3.6.21



4. Test Equipment and Test Site

Test Site				
No.	Test Site	Manufacturer	Specification	Used
TB-EMCSR001	Shielding Chamber #1	YIHENG	7.5*4.0*3.0 (m)	√
TB-EMCSR002	Shielding Chamber #2	YIHENG	8.0*4.0*3.0 (m)	X
TB-EMCCA001	3m Anechoic Chamber #A	ETS	9.0*6.0*6.0 (m)	X
TB-EMCCB002	3m Anechoic Chamber #B	YIHENG	9.0*6.0*6.0 (m)	√

Conducted Emission Test					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jun. 16, 2025	Jun. 15, 2026
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Jun. 16, 2025	Jun. 15, 2026
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jun. 16, 2025	Jun. 15, 2026
LISN	Rohde & Schwarz	ENV216	101131	Jun. 16, 2025	Jun. 15, 2026

Radiation Emission Test(B Site)					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100060	Aug. 27, 2025	Aug. 26, 2026
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 16, 2025	Jun. 15, 2026
EMI Test Receiver	Rohde & Schwarz	ESU-8	100472/008	Feb. 20, 2025	Feb.19, 2026
Bilog Antenna	SCHWARZBECK	VULB 9168	1225	Oct. 18, 2025	Oct. 17, 2027
Horn Antenna	SCHWARZBECK	BBHA 9120 D	2463	Jun. 14, 2024	Jun. 13, 2026
Horn Antenna	SCHWARZBECK	BBHA 9170	1118	Feb. 27, 2024	Feb.26, 2026
Loop Antenna	SCHWARZBECK	FMZB 1519 B	1519B-059	Jun. 14, 2024	Jun. 13, 2026
HF Amplifier	Tonscend	TAP9E6343	AP21C806117	Aug. 27, 2025	Aug. 26, 2026
HF Amplifier	Tonscend	TAP051845	AP21C806141	Aug. 27, 2025	Aug. 26, 2026
HF Amplifier	Tonscend	TAP0184050	AP21C806129	Aug. 27, 2025	Aug. 26, 2026
Pre-amplifier	HP	8449B	3008A00849	Jun. 16, 2025	Jun. 15, 2026
Highpass Filter	CD	HPM-6.4/18G	---	N/A	N/A
Highpass Filter	CD	HPM-2.8/18G	---	N/A	N/A
Highpass Filter	XINBO	XBLBQ-HTA67(8-25G)	22052702-1	N/A	N/A

Antenna Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102197	Jun. 16, 2025	Jun. 15, 2026
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Aug. 27, 2025	Aug. 26, 2026
Spectrum Analyzer	KEYSIGHT	N9020B	MY60110172	Aug. 27, 2025	Aug. 26, 2026
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO26	Aug. 27, 2025	Aug. 26, 2026
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO29	Aug. 27, 2025	Aug. 26, 2026
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO31	Aug. 27, 2025	Aug. 26, 2026
	DARE!! Instruments	RadiPowerRPR3006W	17I00015SNO33	Aug. 27, 2025	Aug. 26, 2026
RF Control Unit	Tonsced	JS0806-2	21F8060439	Aug. 27, 2025	Aug. 26, 2026
Power Control Box	Tonsced	JS0806-4ADC	21C8060387	N/A	N/A
Attenuator	XQY	10dB	N/A	N/A	N/A
Attenuator	XQY	10dB	N/A	N/A	N/A
Attenuator	XQY	10dB	N/A	N/A	N/A
Attenuator	XQY	10dB	N/A	N/A	N/A



5. Conducted Emission

5.1 Test Standard and Limit

5.1.1 Test Standard

FCC 15.505(a)&FCC 15.521(i)&FCC 15.207(a)

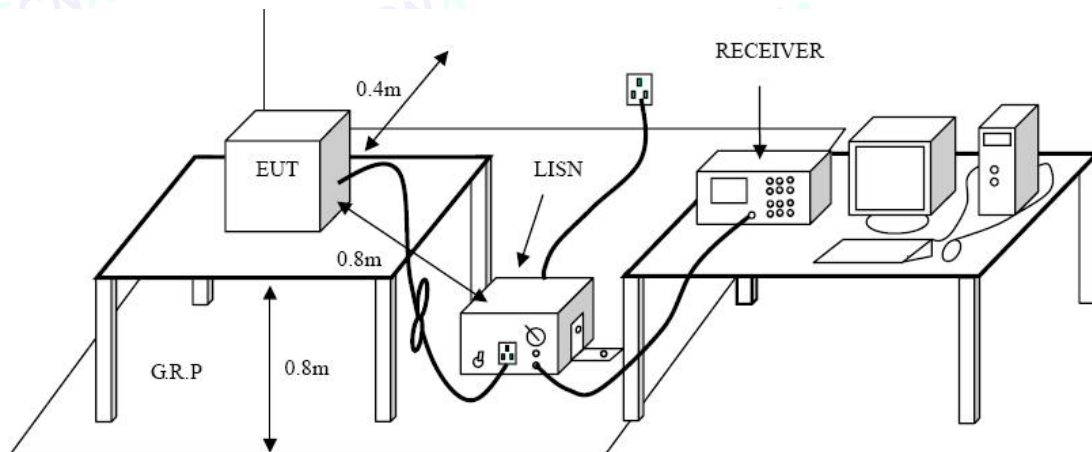
5.1.2 Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

5.2 Test Setup



5.3 Test Procedure

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- The bandwidth of EMI test receiver is set at 9 kHz, and the test frequency band is from 0.15MHz to 30MHz.



5.4 Deviation From Test Standard

No deviation

5.5 EUT Operating Mode

Please refer to the description of test mode.

5.6 Test Data

Please refer to the Attachment A inside test report.



6. -10dB Bandwidth Test

6.1 Test Standard and Limit

6.1.1 Test Standard

FCC 15.503&FCC 15.517(b)

6.1.2 Test Limit

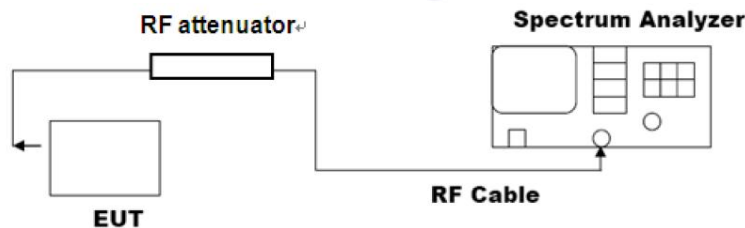
Part 15.503(d): Ultra-wideband (UWB) transmitter. An intentional radiator that, at any point in time, has a fractional bandwidth equal to or greater than 0.20 or has a UWB bandwidth equal to or greater than 500 MHz, regardless of the fractional bandwidth.

Part 15.517(b): The UWB bandwidth of a UWB system operating under the provisions of this section must be contained between 3100 MHz and 10600 MHz.

RSS-220(2): A UWB device is an intentional radiator that has either a -10 dB bandwidth of at least 500 MHz or a -10 dB fractional bandwidth greater than 0.2. There are eight distinct subclasses of UWB device.

RSS-220(5.1) (a): The -10 dB bandwidth of the device shall be totally contained in the band 3.1-10.6 GHz.

6.2 Test Setup



6.3 Test Procedure

The frequency at which the maximum power level is measured with the peak detector is designated f_M . The peak power measurements shall be made using a spectrum analyzer or EMI receiver with a 1MHz resolution bandwidth and a video bandwidth of 1MHz or greater. The instrument shall be set to peak detection using the maximum-hold trace mode. The outermost 1MHz segments above and below f_M , where the peak power falls by 10dB relative to the level at f_M , are designated as f_H and f_L , respectively:

a) For the lowest frequency bound f_L , the emission is searched from a frequency lower than f_M that has, by inspection, a peak power much lower than 10dB less than the power at f_M and increased toward f_M until the peak power indicates 10dB less than the power at f_M . The frequency of that segment is recorded.

b) This process is repeated for the highest frequency bound f_H , beginning at a frequency higher than f_M that has, by inspection, a peak power much lower than 10dB below the power at f_M . The frequency of that segment is recorded.

c) The two recorded frequencies represent the highest (f_H) and lowest (f_L) bounds of the UWB transmission, and the -10dB bandwidth (B-10) is defined as $(f_H - f_L)$. The center frequency (f_C) is calculated from $(f_H + f_L)/2$.

d) The fractional bandwidth is defined as $2(f_H - f_L)/(f_H + f_L)$.

e) Determine whether the -10dB bandwidth $(f_H - f_L)$ is ≥ 500 MHz, or whether the fractional bandwidth $2(f_H - f_L) / (f_H + f_L)$ is ≥ 0.2 .



6.4 Deviation From Test Standard

No deviation

6.5 EUT Operating Mode

Please refer to the description of test mode.

6.6 Test Data

Please refer to the Attachment B inside test report.



7. 99% Occupied Bandwidth Test

7.1 Test Standard and Limit

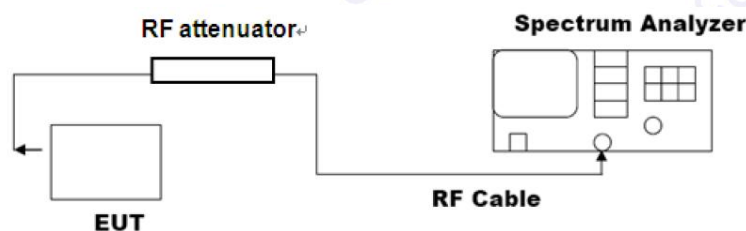
7.1.1 Test Standard

/

7.1.2 Test Limit

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

7.2 Test Setup



7.3 Test Procedure

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

7.4 Deviation From Test Standard

No deviation

7.5 EUT Operating Mode

Please refer to the description of test mode.

7.6 Test Data

N/A



8. Radiated Unwanted Emissions(Below 960 MHz)

8.1 Test Standard and Limit

8.1.1 Test Standard

FCC 15.517(c)&FCC 15.521(c)&FCC 15.521(d)&FCC 15.521(h)&FCC 15.209

8.1.2 Test Limit

Part 15.517(c): The radiated emissions at or below 960 MHz from a device operating under the provisions of this section shall not exceed the emission levels in §15.209.

Part 15.521(c): Emissions from digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in § 15.209, rather than the limits specified in this subpart, provided it can be clearly demonstrated that those emissions from the UWB device are due solely to emissions from digital circuitry contained within the transmitter and that the emissions are not intended to be radiated from the transmitter's antenna. Emissions from associated digital devices, as defined in § 15.3(k), e.g., emissions from digital circuitry used to control additional functions or capabilities other than the UWB transmission, are subject to the limits contained in Subpart B of this part.

Part 15.521(d): Within the tables in §§ 15.509, 15.511, 15.513, 15.515, 15.517, and 15.519, the tighter emission limit applies at the band edges. Radiated emission levels at and below 960 MHz are based on measurements employing a CISPR quasi peak detector. Radiated emission levels above 960 MHz are based on RMS average measurements over a 1 MHz resolution bandwidth. The RMS average measurement is based on the use of a spectrum analyzer with a resolution bandwidth of 1 MHz, an RMS detector, and a 1 millisecond or less averaging time. Unless otherwise stated, if pulse gating is employed where the transmitter is quiescent for intervals that are long compared to the nominal pulse repetition interval, measurements shall be made with the pulse train gated on. Alternative measurement procedures may be considered by the Commission.

Part 15.521(h): The highest frequency employed in § 15.33 to determine the frequency range over which radiated measurements are made shall be based on the center frequency, f_c , unless a higher frequency is generated within the UWB device. For measuring emission levels, the spectrum shall be investigated from the lowest frequency generated in the UWB transmitter, without going below 9 kHz, up to the frequency range shown in § 15.33(a) or up to $f_c + 3/(\text{pulse width in seconds})$, whichever is higher. There is no requirement to measure emissions beyond 40 GHz provided f_c is less than 10 GHz; beyond 100 GHz if f_c is at or above 10 GHz and below 30 GHz; or beyond 200 GHz if f_c is at or above 30 GHz.

Part 15.209 Part 15.209(a): Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	FCC Limit (uV/m)	Measurement Distance (m)
0.009 - 0.490	2 400 / F (kHz)	300
0.490 - 1.705	24 000 / F (kHz)	30
1.705 - 30.0	30	30

Frequency (MHz)	FCC Limit (uV/m)	Measurement Distance (m)
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §15.231 and 15.241.



RSS-220[5.2.1](c): Radiated emissions at or below 960 MHz from a device shall not exceed the limits in section 3.4.

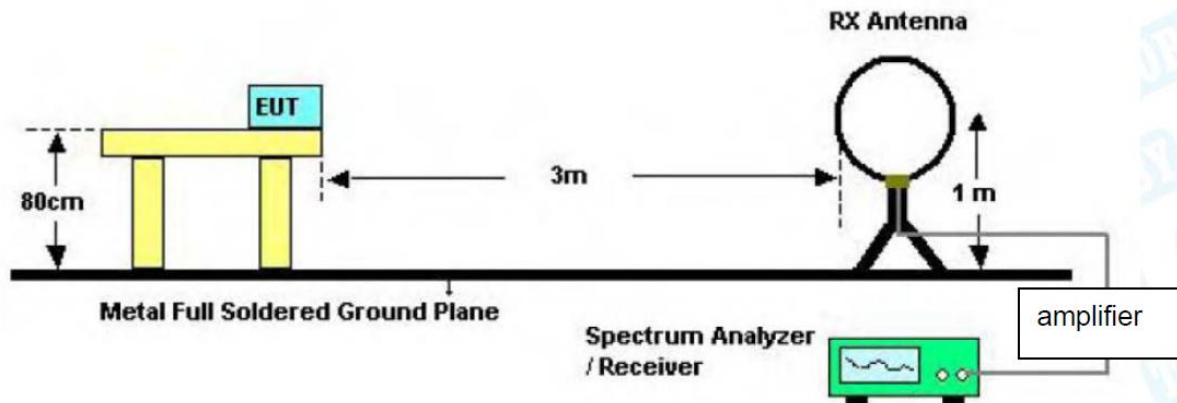
RSS-220[3.4]: Radiated emissions at or below 960 MHz for all subclasses of UWB device shall not exceed the following limits. Measurements of radiated emissions at and below 960 MHz are to be made using a CISPR quasi-peak detector. CISPR measurement bandwidth specifications are to be used.

Frequency (MHz)	Field Strength Limit (uV/m)	Measurement Distance (m)	E.i.r.p. Limit (dBmW)
0.009 - 0.490	$2\,400 / F \text{ (kHz)}$	300	$10 \log (17.28 / F^2)$ (F in kHz)
0.490 - 1.705	$24\,000 / F \text{ (kHz)}$	30	$10 \log (17.28 / F^2)$ (F in kHz)
1.705 - 30.0	30	30	-45.7
30 - 88	100	3	-55.2
88 - 216	150	3	-51.7
216 - 960	200	3	-49.2

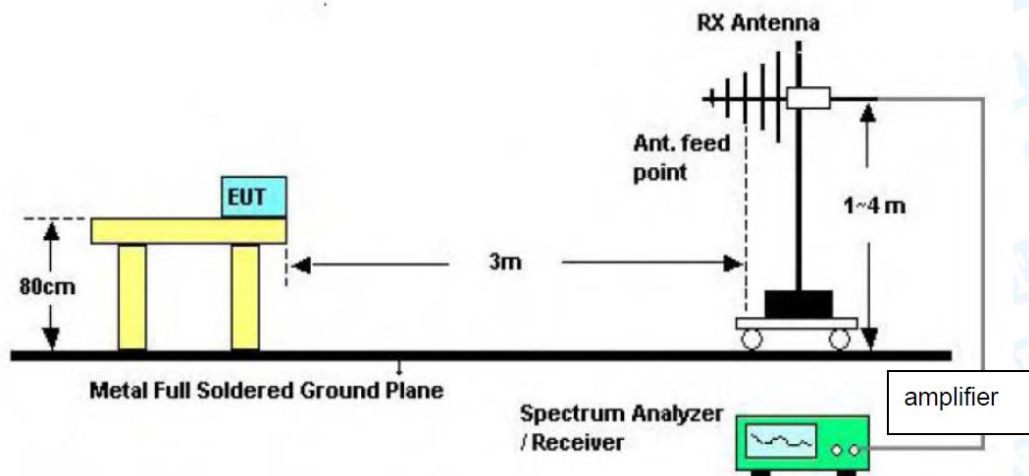
Note: The emission limits for the bands 9-90 kHz and 110-490 kHz are based on measurements employing an average emissions detector.

8.2 Test Setup

Radiated measurement



Below 30MHz Test Setup



Below 1000MHz Test Setup



8.3 Test Procedure

---Radiated measurement

- 1) These measurements were performed at 3 m test site.
- 2) The equipment under test is placed on a non-conductive table 0.8 meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna.
- 3) The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.

Instrument setting: RBW = As specified in below table, VBW $\geq 3 \times$ RBW, Sweep = Auto, Detector = Peak or quasi-peak (Note: Measurements were performed using the peak detector. The data measured using the peak detector of a spectrum analyzer or EMI receiver will represent the worst-case results.) Trace mode = Max Hold until the trace stabilizes.

Frequency	RBW
9 - 150 kHz	200 – 300 Hz
0.15- 30 MHz	9 – 10 kHz
30 – 1 000 MHz	100 – 120 kHz
> 1000 MHz	1 MHz

8.4 Deviation From Test Standard

No deviation

8.5 EUT Operating Mode

Please refer to the description of test mode.

8.6 Test Data

Please refer to the Attachment C inside test report.



9. Radiated Unwanted Emissions(Above 960 MHz)

9.1 Test Standard and Limit

9.1.1 Test Standard

FCC 15.517(c)(d)&FCC 15.521(c)&FCC 15.521(d)&FCC 15.521(h)

9.1.2 Test Limit

Part 15.517(c): The radiated emissions above 960 MHz from a device operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz:

Frequency in MHz	EIRP in dBm
960 – 1 610	-75.3
1 610 – 1 990	-53.3
1 990 – 3 100	-51.3
3 100 – 10 600	-41.3
Above 10 600	-51.3

Part 15.517(d): In addition to the radiated emission limits specified in the table in paragraph (c) of this section, UWB transmitters operating under the provisions of this section shall not exceed the following average limits when measured using a resolution bandwidth of no less than 1 kHz:

Frequency in MHz	EIRP in dBm
1 164 - 1 240	-85.3
1 559 - 1 610	-85.3

Part 15.521(c): Emissions from digital circuitry used to enable the operation of the UWB transmitter shall comply with the limits in § 15.209, rather than the limits specified in this subpart, provided it can be clearly demonstrated that those emissions from the UWB device are due solely to emissions from digital circuitry contained within the transmitter and that the emissions are not intended to be radiated from the transmitter's antenna. Emissions from associated digital devices, as defined in § 15.3(k), e.g., emissions from digital circuitry used to control additional functions or capabilities other than the UWB transmission, are subject to the limits contained in Subpart B of this part.

Part 15.521(d): Within the tables in §§ 15.509, 15.511, 15.513, 15.515, 15.517, and 15.519, the tighter emission limit applies at the band edges. Radiated emission levels at and below 960 MHz are based on measurements employing a CISPR quasi peak detector. Radiated emission levels above 960 MHz are based on RMS average measurements over a 1 MHz resolution bandwidth. The RMS average measurement is based on the use of a spectrum analyzer with a resolution bandwidth of 1 MHz, an RMS detector, and a 1 millisecond or less averaging time. Unless otherwise stated, if pulse gating is employed where the transmitter is quiescent for intervals that are long compared to the nominal pulse repetition interval, measurements shall be made with the pulse train gated on. Alternative measurement procedures may be considered by the Commission.

Part 15.521(h): The highest frequency employed in § 15.33 to determine the frequency range over which radiated measurements are made shall be based on the center frequency, f_c , unless a higher frequency is generated within the UWB device. For measuring emission levels, the spectrum shall be investigated from the lowest frequency generated in the UWB transmitter, without going below 9 kHz, up to the frequency range shown in § 15.33(a) or up to $f_c + 3/(\text{pulse width in seconds})$, whichever is higher. There is no requirement to measure emissions beyond 40 GHz provided f_c is less than 10 GHz; beyond 100 GHz if f_c is at or above 10 GHz and below 30 GHz; or beyond 200 GHz if f_c is at or above 30 GHz.



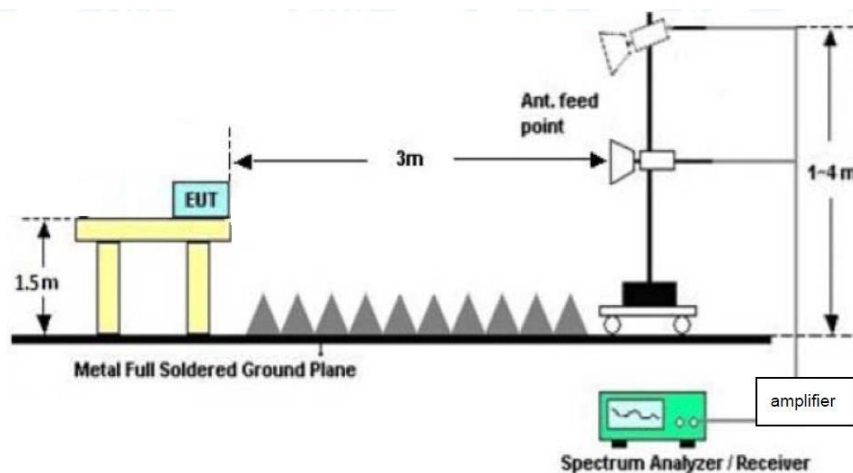
RSS-220[5.2.1](d): Radiated emissions above 960 MHz from a device shall not exceed the following average limits when measured using a resolution bandwidth of 1 MHz.

Indoor Communication, Measurement, Location Sensing and Tracking Devices	
Frequency	E.i.r.p. in a Resolution Bandwidth of 1 MHz
960-1 610 MHz	-75.3 dBm
1.61-4.75 GHz	-70.0 dBm
4.75-10.6 GHz	-41.3 dBm
Above 10.6 GHz	-51.3 dBm

RSS-220[5.2.1](e): In addition to the limits specified in paragraph (d) of this section, radiated emissions shall not exceed the following average limits when measured using a resolution bandwidth greater than or equal to 1 kHz. The measurements shall demonstrate compliance with the stated limits at whatever resolution bandwidth is used.

Frequency	E.i.r.p. in a Resolution Bandwidth of no less than 1 kHz
1 164-1 240 MHz	-85.3 dBm
1 559-1 610 MHz	-85.3 dBm

9.2 Test Setup



Above 1GHz Test Setup

9.3 Test Procedure

- 1) These measurements were performed at 3 m test site.
- 2) The equipment under test is placed on a non-conductive table 1.5 meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna.
- 3) For measurements above 1GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections.
- 4) The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 5) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to



find the maximum reading.

Instrument setting:

1. Set the RBW = 1 MHz
 2. Set VBW $\geq$ 1 MHz (a VBW of 3MHz is desirable)
 3. Detector = RMS (power averaging)
 4. Sweet time $\leq$ Sweep point x 1 ms
 5. Trace mode = max hold
 6. Allow trace to fully stabilize
- Unwanted emissions in 1164-1240MHz and 1559-1610MHz**

1. Set the RBW = 1 kHz
2. Set VBW $\geq$ 3 kHz
3. Detector = RMS (power averaging)
4. Sweet time $\leq$ Sweep point x 1 ms
5. Trace mode = max hold
6. Allow trace to fully stabilize

9.4 Deviation From Test Standard

No deviation

9.5 EUT Operating Mode

Please refer to the description of test mode.

9.6 Test Data

Please refer to the Attachment D inside test report.



10. Peak level of the Emission

10.1 Test Standard and Limit

10.1.1 Test Standard

FCC 15.517(e)&FCC 15.521(e)&FCC 15.521(g)

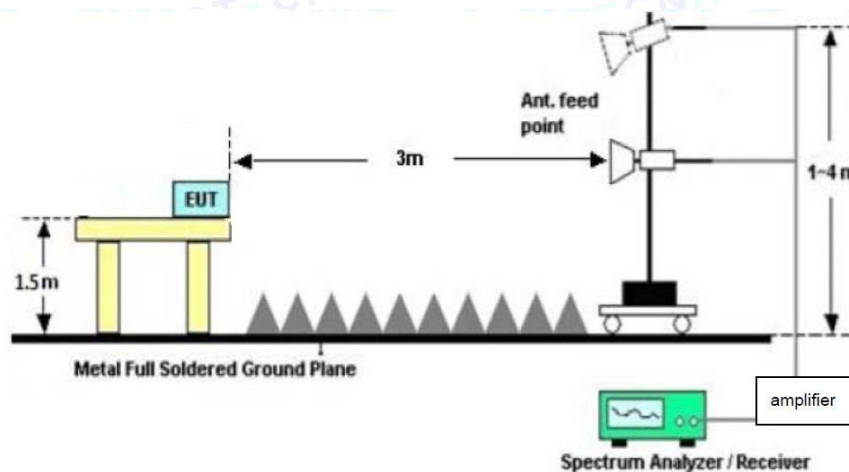
10.1.2 Test Limit

Part 15.517(e): There is a limit on the peak level of the emissions contained within a 50 MHz bandwidth centered on the frequency at which the highest radiated emission occurs, f_M . That limit is 0 dBm EIRP. It is acceptable to employ a different resolution bandwidth, and a correspondingly different peak emission limit, following the procedures described in §15.521. Part 15.521(e) The frequency at which the highest radiated emission occurs, f_M , must be contained within the UWB bandwidth.

Part 15.521(g): When a peak measurement is required, it is acceptable to use a resolution bandwidth other than the 50 MHz specified in this subpart. This resolution bandwidth shall not be lower than 1 MHz or greater than 50 MHz, and the measurement shall be centered on the frequency at which the highest radiated emission occurs, f_M . If a resolution bandwidth other than 50 MHz is employed, the peak EIRP limit shall be $20 \log (RBW/50)$ dBm where RBW is the resolution bandwidth in megahertz that is employed. This may be converted to a peak field strength level at 3 meters using $E(\text{dBuV/m}) = P(\text{dBm EIRP}) + 95.2$. If RBW is greater than 3 MHz, the application for certification filed with the Commission must contain a detailed description of the test procedure, calibration of the test setup, and the instrumentation employed in the testing.

RSS-220[5.2.1](g): The peak level of the transmissions shall not exceed the peak equivalent of the average limit contained within any 50 MHz bandwidth, as defined in section 4 of the Annex.

10.2 Test Setup



10.3 Test Procedure

- 1) These measurements were performed at 3 m test site.
- 2) The equipment under test is placed on a non-conductive table 1.5-meters above a turntable which is flush with the ground plane and 3 meters from the receive antenna.
- 3) For measurements above 1GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections.
- 4) The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical



polarizations of the antenna are set to make the measurement.

5) For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.

Instrument setting For peak eirp measurement

1. Set the RBW $\geq 1 \sim 50$ MHz (Actual: 10 MHz)
2. Set VBW $\geq$ RBW
3. Detector = peak
4. Trace mode = max hold
5. Allow trace to fully stabilize

10.4 Deviation From Test Standard

No deviation

10.5 Antenna Connected Construction

Please refer to the description of test mode.

10.6 Test Data

Please refer to the Attachment E inside test report.



11. Antenna Requirement

11.1 Test Standard and Limit

11.1.1 Test Standard

RSS 247 6.8

FCC Part 15.203

11.1.2 Requirement

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

11.2 Deviation From Test Standard

No deviation

11.3 Antenna Connected Construction

The gains of the antenna used for transmitting is 1.84dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

11.4 Test Data

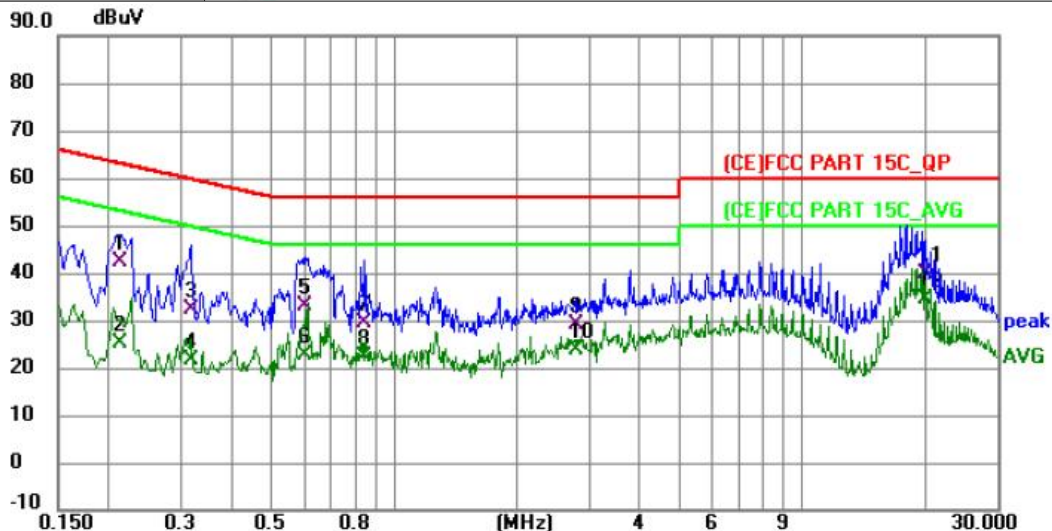
The EUT antenna is a PCB Antenna. It complies with the standard requirement.

Antenna Type
☒ Permanent attached antenna
☐ Unique connector antenna
☐ Professional installation antenna



Attachment A--Conducted Emission Test Data

Test Voltage:	AC 120V/60 Hz
Terminal:	Line
Test Mode:	Mode 1
Remark:	Only showed test data of the worst mode



Temperature: 22.8 °C

Humidity: 46 %RH

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector
1		0.213	32.89	9.50	42.39	63.09	-20.70	QP
2		0.213	15.55	9.50	25.05	53.09	-28.04	AVG
3		0.317	22.71	9.57	32.28	59.79	-27.51	QP
4		0.317	11.88	9.57	21.45	49.79	-28.34	AVG
5		0.600	23.64	9.48	33.12	56.00	-22.88	QP
6		0.600	13.05	9.48	22.53	46.00	-23.47	AVG
7		0.848	20.09	9.47	29.56	56.00	-26.44	QP
8		0.848	12.72	9.47	22.19	46.00	-23.81	AVG
9		2.787	19.56	9.49	29.05	56.00	-26.95	QP
10		2.787	14.43	9.49	23.92	46.00	-22.08	AVG
11		20.094	29.89	10.07	39.96	60.00	-20.04	QP
12	*	20.094	24.44	10.07	34.51	50.00	-15.49	AVG

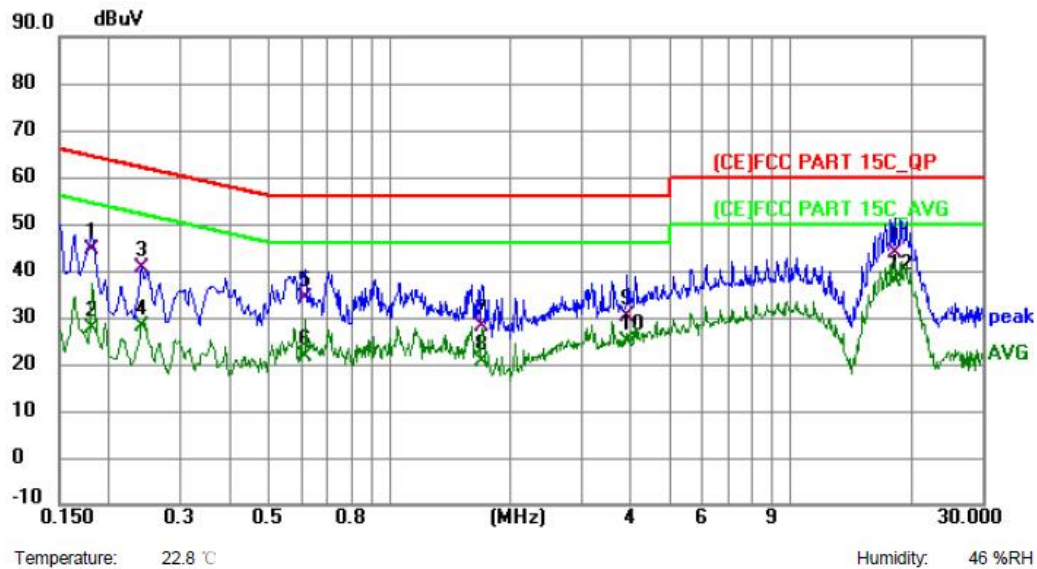
Remark:

1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)

2. Margin (dB) = QuasiPeak/Average (dBuV) - Limit (dBuV)



Test Voltage:	AC 120V/60 Hz
Terminal:	Neutral
Test Mode:	Mode 1
Remark:	Only showed test data of the worst mode



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	
		MHz	Level	Factor	ment			Detector
			dBuV	dB	dBuV	dBuV	dB	
1		0.181	34.99	9.57	44.56	64.44	-19.88	QP
2		0.181	18.24	9.57	27.81	54.44	-26.63	AVG
3		0.240	31.02	9.58	40.60	62.10	-21.50	QP
4		0.240	18.45	9.58	28.03	52.10	-24.07	AVG
5		0.618	24.61	9.53	34.14	56.00	-21.86	QP
6		0.618	12.16	9.53	21.69	46.00	-24.31	AVG
7		1.694	18.44	9.44	27.88	56.00	-28.12	QP
8		1.694	11.23	9.44	20.67	46.00	-25.33	AVG
9		3.912	20.93	9.37	30.30	56.00	-25.70	QP
10		3.912	15.40	9.37	24.77	46.00	-21.23	AVG
11		18.290	33.67	10.09	43.76	60.00	-16.24	QP
12	*	18.290	27.61	10.09	37.70	50.00	-12.30	AVG

Remark:

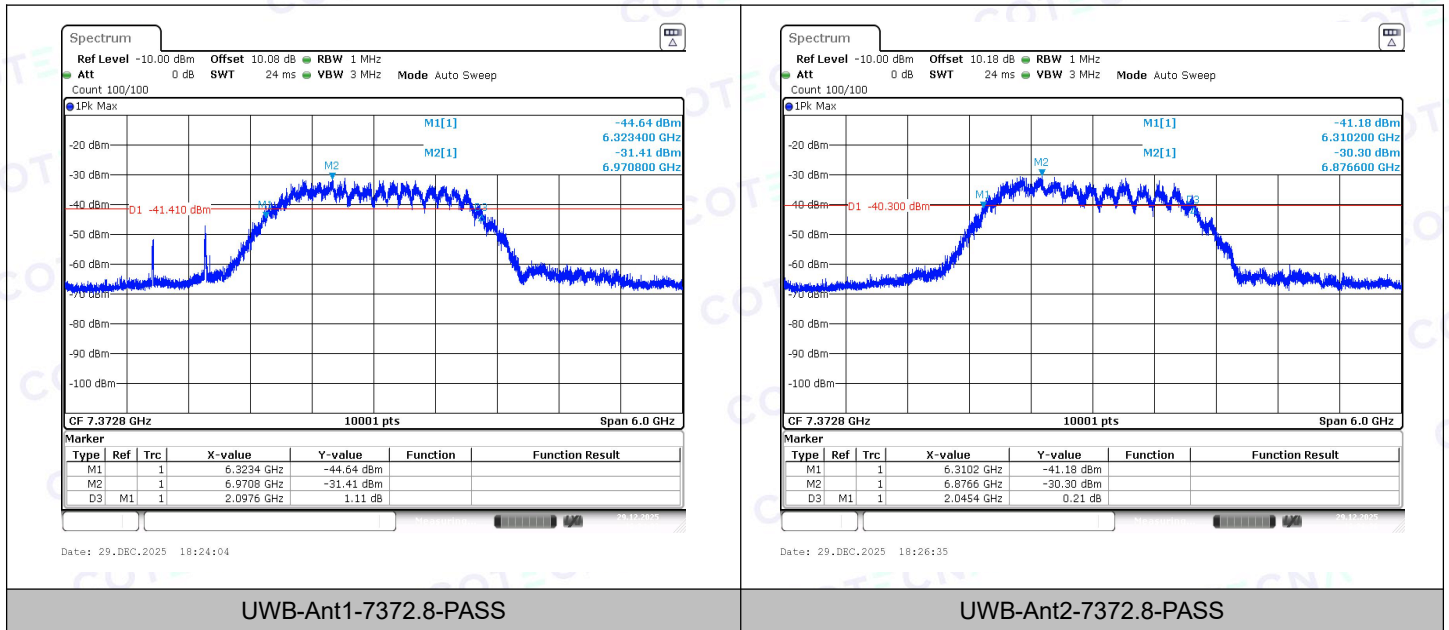
1. Corr. Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = QuasiPeak/Average (dBuV) - Limit (dBuV)



Attachment B----10dB Bandwidth Data

Test Mode	Ant.	Test Frequency [MHz]	10dB EBW [MHz]	10dB EBW Limit [MHz]	FL [MHz]	FH [MHz]	FM [MHz]	Operating Frequency [MHz]	Verdict
UWB	Ant1	7372.8	2097.60	≥500	6323.40	8421.00	7372.2	3100-10600	PASS
UWB	Ant2	7372.8	2045.40	≥500	6310.20	8355.60	7332.9	3100-10600	PASS

Note: $F_M = (F_H - F_L) / 2$; $FL = M1$; $FH = M1 + D1$



Attachment C--Unwanted Emissions Data(Below 960MHz)

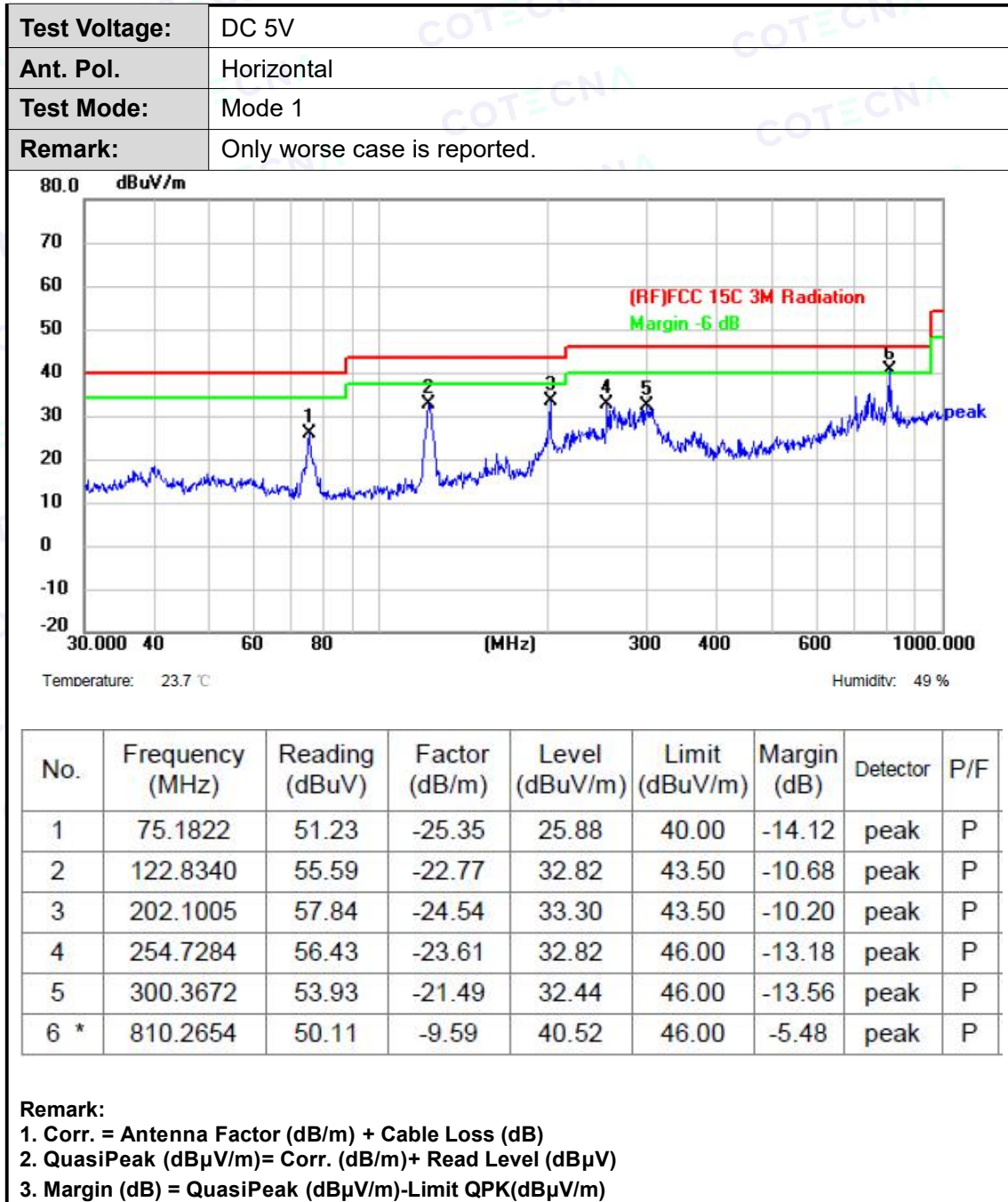
---Radiated Unwanted Emissions

9 KHz~30 MHz

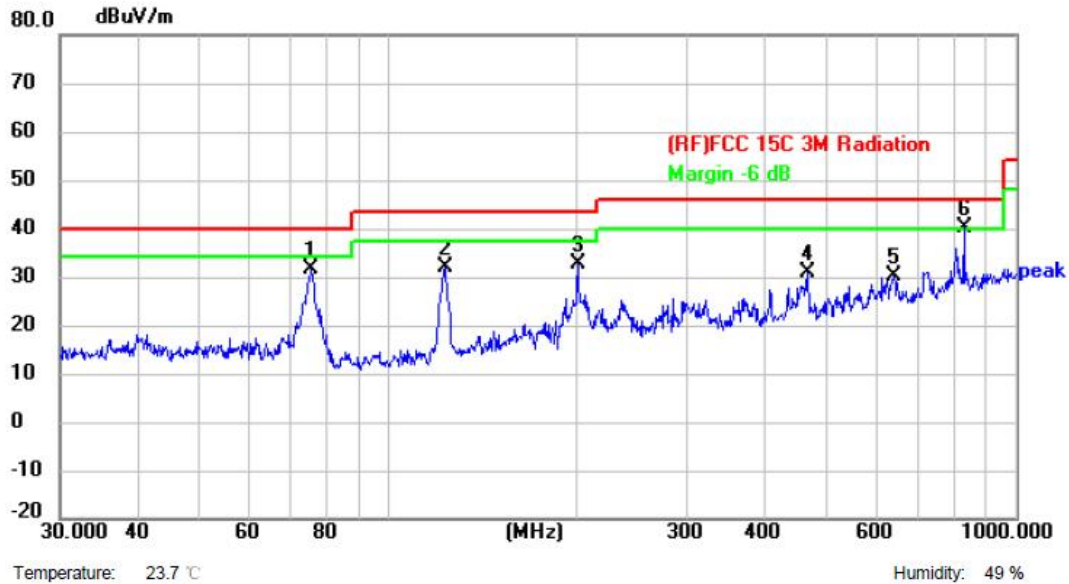
From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB
Below the permissible value has no need to be reported.

30MHz~1GHz



Test Voltage:	DC 5V
Ant. Pol.	Vertical
Test Mode:	Mode 1
Remark:	Only worse case is reported.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	75.1822	56.94	-25.35	31.59	40.00	-8.41	peak	P
2	123.2655	54.66	-22.85	31.81	43.50	-11.69	peak	P
3	200.6881	57.32	-24.75	32.57	43.50	-10.93	peak	P
4	467.2349	48.50	-17.47	31.03	46.00	-14.97	peak	P
5	638.3686	43.35	-13.01	30.34	46.00	-15.66	peak	P
6 *	827.4934	50.01	-9.74	40.27	46.00	-5.73	peak	P

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBuV/m) = Corr. (dB/m) + Read Level (dBuV)
3. Margin (dB) = QuasiPeak (dBuV/m) - Limit QPK (dBuV/m)



Attachment D--Unwanted Emissions Data(Above 960MHz)

Peak EIRP										
Tested Range (MHz)	Measurement Distance(m)	Frequency (MHz)	ANT Pol	Measured Level (dBuV)	TF (dB/m)	E (dBuV/m)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Vertical
960-1000	0.5	970.2	H	44.99	-13.93	31.06	-79.64	-75.3	4.34	PASS
1000-1610	0.5	1331.84	H	55.34	-24.05	31.29	-79.41	-75.3	4.11	PASS
1610-1990	1	1729.7	H	67.832	-24.69	43.142	-61.558	-53.3	8.258	PASS
1990-3100	1	2493.9	H	66.769	-20.12	46.649	-58.051	-51.3	6.751	PASS
3100-10600	1	3197.5	H	53.792	-17.87	35.922	-68.778	-41.3	27.478	PASS
10600-18000	1	10910.8	H	33.577	-0.90	32.677	-72.023	-51.3	20.723	PASS
18000-40000	1	35396.0	H	43.08	-0.72	42.360	-62.340	-51.3	11.04	PASS
1164-1240	3	1200.024	H	5.147	-24.61	-19.463	-114.623	-85.3	29.323	PASS
1559-1610	3	1562.519	H	5.342	-24.45	-19.108	-114.268	-85.3	28.968	PASS

Note:

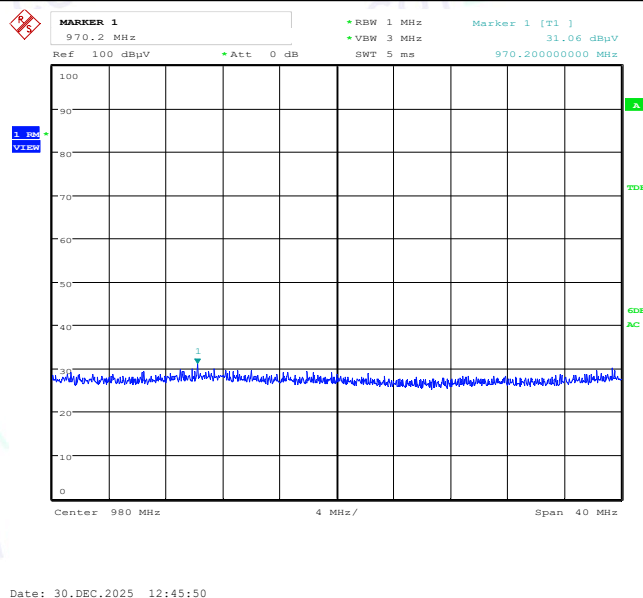
EIRP (dBm) = E (dBuV/m)+20log(D)-104.7; where D is the measurement distance in m.

E(dBuV/m) = Measured level (dBuV) + TF(dB/m)

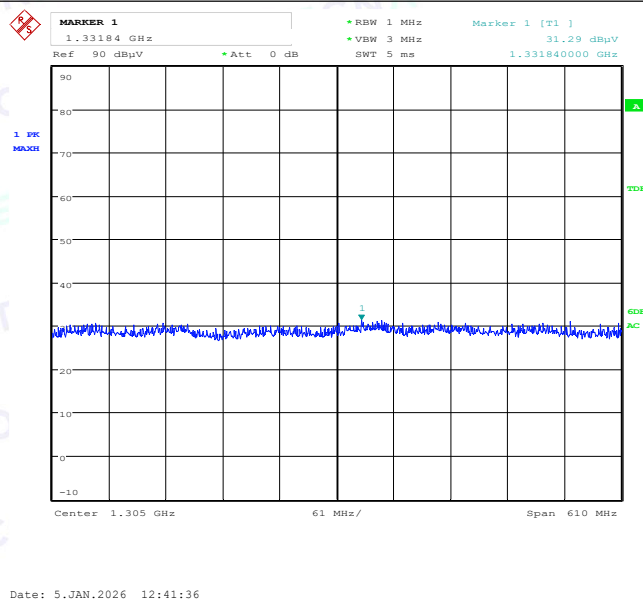
where, E=field strength, TF=Total Factor, TF= Antenna Factor(dB/m)+Cable Loss(dB)-Amplifier Gain(dB)

Worst case-Plot (Measured Level)

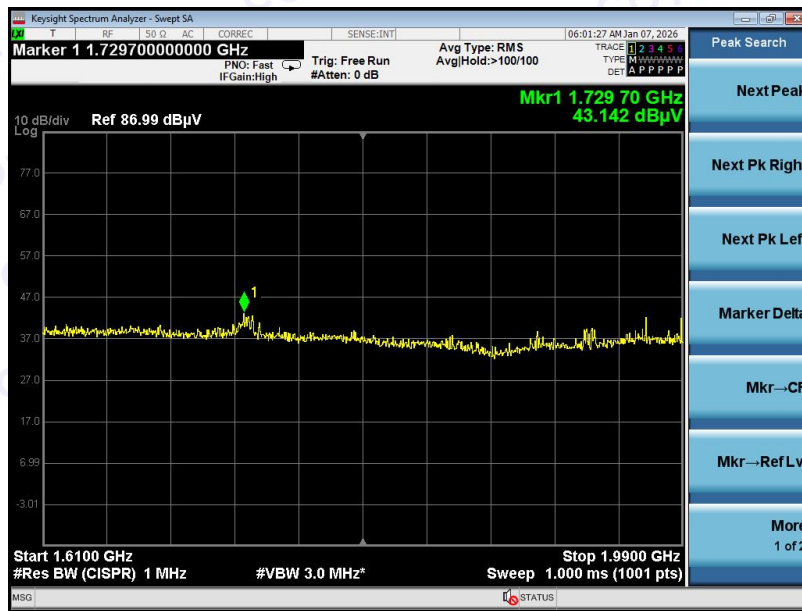
960-1000MHz



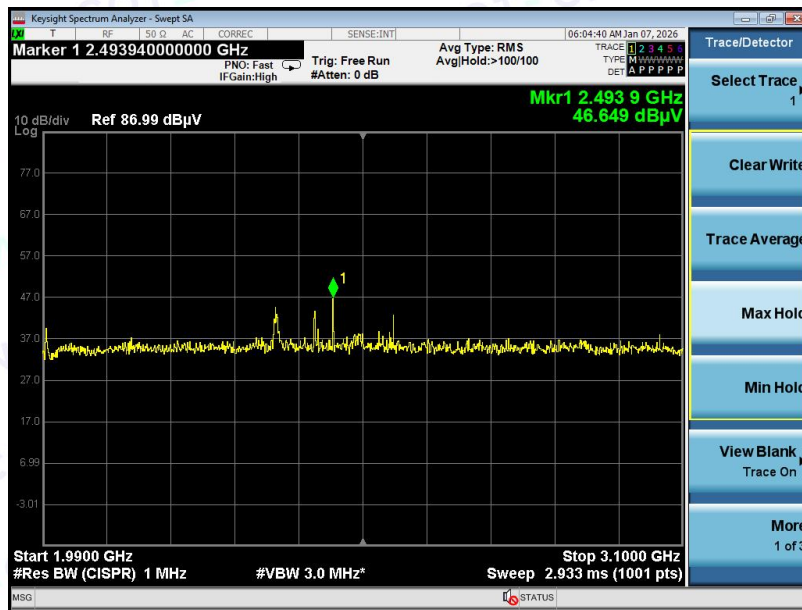
1000-1610MHz



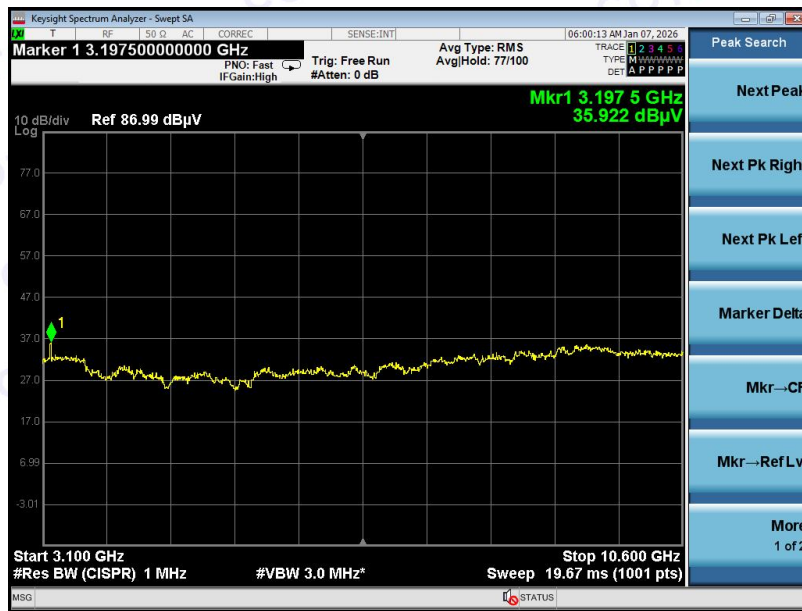
1610-1990MHz



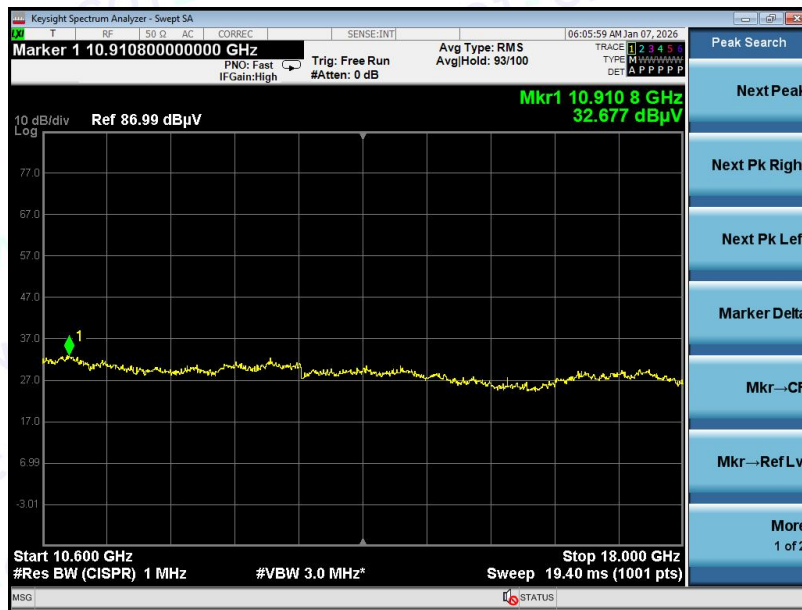
1990-3100MHz

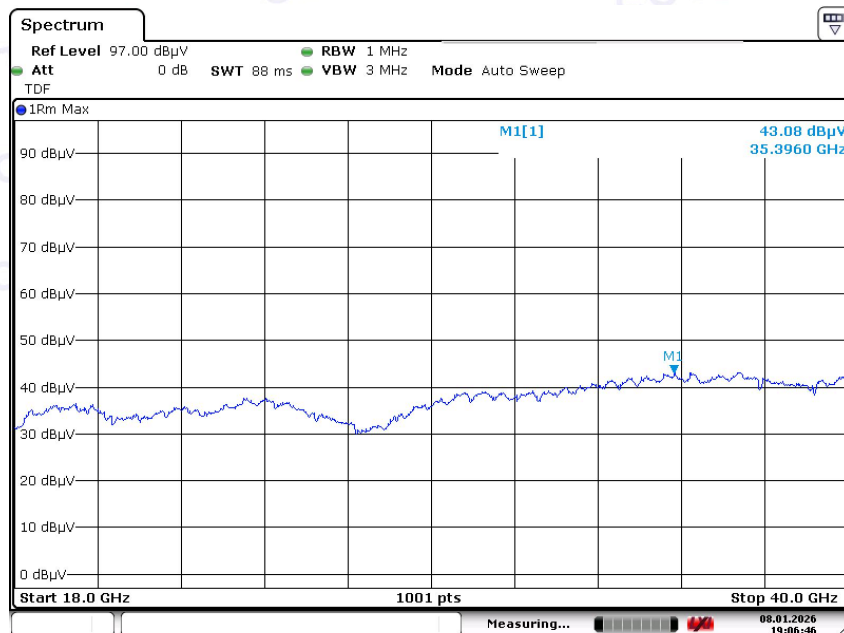


3100-10600MHz



10600-18000MHz







Attachment E---Peak Level of the Emission Data

- Test Notes

1. Sample Calculation:

EIRP (dBm) = E (dBμV/m)+20log(D)-104.7; where D is the measurement distance in m.

E(dBuV/m) = Measured level (dBuV) + TF(dB/m)

where, E=field strength, TF=Total Factor, TF= Antenna Factor(dB/m)+Cable Loss(dB)-Amplifier Gain(dB)

2. Peak eirp limit = $20 \times \log_{10}(\text{RBW}/50) = 20 \times \log_{10}(10/50) = -13.98\text{dBm}$

Peak EIRP									
Tested frequency (MHz)	Frequency (MHz)	ANT Pol	Measured Level(dBuV)	TF (dB/m)	E (dBuV/m)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Vertical
7372.8	8065.0	H	77.799	-7.70	70.099	-25.101	-13.98	11.121	PASS
7372.8	8085.0	V	74.423	-7.70	66.723	-28.477	-13.98	14.497	PASS

Measurement Distance 3M-Worst case-Plot (Measured Level)

Horizontal



Vertical



Measurement Distance 3M-Worst case-Plot (Measured Level)

Keysight Spectrum Analyzer - Swept SA

Marker 1 8.004800000000 GHz

PNO: Fast Trig: Free Run Avg Type: RMS

IFGain: High #Atten: 0 dB Avg|Hold: >100/100

07:04:15 PM Jan 06, 2026

10 dB/div Ref 86.99 dBμV

Log

Center 7.373 GHz Span 4.000 GHz

#Res BW (CISPR) 1 MHz Sweep 10.47 ms (1001 pts)

#VBW 3.0 MHz*

Mkr1 8.005 GHz 50.174 dBμV

Trace/Detector

Select Trace

Detector

Average

Auto

Preset Detectors

Clear Trace

Clear All Traces

Preset All Traces

More

2 of 3

Keysight Spectrum Analyzer - Swept SA

Marker 1 7.988800000000 GHz

PNO: Fast Trig: Free Run Avg Type: RMS

IFGain: High #Atten: 0 dB Avg|Hold: >100/100

07:05:24 PM Jan 06, 2026

TRACE 1 2 3 4 5

TYPE M W W W W W W W W W

DET A P P P P P

10 dB/div Log Ref 86.99 dBμV

Center 7.373 GHz Span 4.000 GHz

#Res BW (CISPR) 1 MHz #VBW 3.0 MHz* Sweep 10.47 ms (1001 pts)

Mkr1 7.989 GHz 49.714 dBμV

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

Mkr→Ref Lvl

More

1 of 2

MSG STATUS

-----END OF THE REPORT-----

