

FCC 15.247 & RSS-247 2.4GHz Test Report

for

FUTABA Corporation
1080 Yabutsuka Chosei-mura Chosei-gun Chiba-ken
229-4395 JAPAN

Product Name : RECEIVER
Model Name : (1)R7208SB (2)R7308SB
Brand : Futaba
FCC ID : AZP-R7208SB-24G
IC : 2914D-R7208SB

Prepared by: : AUDIX Technology Corporation,
EMC Department



The test report is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

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TEST REPORT

Applicant : FUTABA Corporation
Manufacturer : FUTABA Corporation
EUT Description
(1) Product : RECEIVER
(2) Model : (1)R7208SB (2)R7308SB
(3) Brand : Futaba
(4) Power Supply : DC 3.5 ~ 8.4V

Applicable Standards:

Title 47 CFR FCC Part 15 Subpart C
RSS-Gen (Issue 5), Amendment 2, February 2021
RSS-247 (Issue 2), February 2017

Audix Technology Corp. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Audix Technology Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Report: 2022. 10. 31

Reviewed by: Sabrina Wang (Sabrina Wang/Administrator)

Approved by: Johnny Hsueh (Johnny Hsueh/Section Manager)



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1. REVISION RECORD OF TEST REPORT

Edition No	Issued Date	Revision Summary	Report Number
0	2022. 10. 31	Original Report	EM-F220718

2. SUMMARY OF TEST RESULTS

Rule		Description	Results
FCC	IC		
15.207	RSS-Gen §8.8	Conducted Emission	N/A ^{Note 2}
15.247(d)/ 15.205	RSS-Gen §8.9 RSS-247 §5.5	Radiated Band Edge and Radiated Spurious Emission	PASS
15.247(a)(2)	RSS-247 §5.2(1)	DTS/Occupied Bandwidth	PASS
15.247(b)(3)	RSS-247 §5.4(4)	Maximum Peak Output Power	PASS
15.247(d)	RSS-247 §5.5	Conducted Band Edges and Conducted Spurious Emission	PASS
15.247 (e)	RSS-247 §5.2(2)	Peak Power Spectral Density	PASS
15.203	---	Antenna Requirement	Compliance
Note: 1. The uncertainties value is not used in determining the result.			
2. The EUT only employs uses DC power for operation, so it is unnecessary to test.			

3. GENERAL INFORMATION

3.1. Description of Application

Applicant	FUTABA Corporation 1080 Yabutsuka Chosei-mura Chosei-gun Chiba-ken 229-4395 JAPAN
Manufacturer	FUTABA Corporation 1080 Yabutsuka Chosei-mura Chosei-gun Chiba-ken 229-4395 JAPAN
Product	RECEIVER
Model	(1)R7208SB (2)R7308SB The difference between all models is different in the sales customers and name plate.
Brand	Futaba

3.2. Description of EUT

Test Model	R7208SB		
Serial Number	N/A		
Firmware	1.0		
Hardware Version	1.0		
Software Version	1.0		
Power Rating	DC 3.5 ~ 8.4V		
RF Features	DSSS (FASSTest)		
Transmit Type	1T1R		
Test Sample	Sample No.	Test Item	Firmware
	01 (Ant 1-Black (ANTB24-104A0))	RSE, Conducted Tests	1.0
	02 (Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D))	RSE, Conducted Tests	1.0
Sample Status	Trial sample		
Date of Receipt	2022. 09. 06		
Date of Test	2022. 10. 20 ~ 25		
Interface Ports of EUT	• None		
Accessories Supplied	• Antenna x2 (Please refer to section 3.4)		

3.3. Reference Test Guidance

ANSI C63.10:2013

3.4. Antenna Information

No.	Antenna Type		Manufacturer	Antenna Part Number	Frequency (MHz)	Max Gain (dBi)
1.	ANT (A)	1/2λ Antenna (174mm)	SANSEI ELECTRIC CO., LTD	ANTB24-104A0	2400-2500	2.10
	ANT (B)	1/2λ Antenna (174mm)	SANSEI ELECTRIC CO., LTD	ANTB24-104A0	2400-2500	2.10
2.	ANT (A)	1/4λ Antenna (153mm)	HIROSE ELECTRIC CO., LTD	UFL-LP6-068N1T-A11-T-153D	2400-2500	-5.16
	ANT (B)	1/4λ Antenna (153mm)	HIROSE ELECTRIC CO., LTD	UFL-LP6-068N1T-A11-T-153D	2400-2500	-5.16

3.5. EUT Specifications Assessed in Current Report

Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (kbps)
2405.376 to 2472.960	23	DSSS (FASSTest)	Up to 136

Channel List							
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
0	2405.376	6	2423.808	12	2442.240	18	2460.672
1	2408.448	7	2426.880	13	2445.312	19	2463.744
2	2411.520	8	2429.952	14	2448.384	20	2466.816
3	2414.592	9	2433.024	15	2451.456	21	2469.888
4	2417.664	10	2436.096	16	2454.528	22	2472.960
5	2420.736	11	2439.168	17	2457.600		

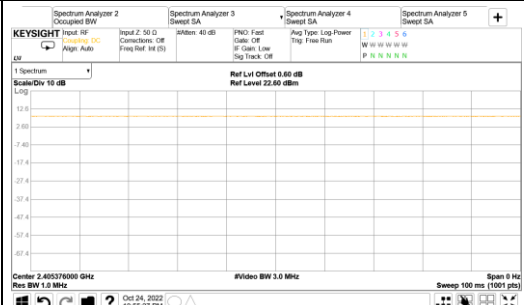
3.6. Descriptions of Key Components

None

3.7. Test Configuration

Mode	TX _{on} (ms)	1/ TX _{on} (kHz)	Duty Cycle (x)	Duty Cycle Factor [10log(1/x)] (dB)
DSSS: FASSTest	1.000	1.000	1.000	N/A

Note: When duty cycle is less than 98% (0.98) that duty cycle factor 10log(1/x) is needed to add in conducted test items measured in average detector.

Mode	TX _{on} (ms)	T _{on} +T _{off} (ms)
FASSTest (DSSS)		---

Item	Mode	ANT Port	Ant	Test Channel
Radiated Test Case	DSSS (FASSTest)	ANT (Port A)	Ant 1-Black (ANTB24-104A0)	22
			Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)	22
	DSSS (FASSTest)	ANT (Port A)	Ant 1-Black (ANTB24-104A0)	0/22
			Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)	0/22
Conducted Test Case	DTS/occupied Bandwidth	ANT (Port A)	N/A	0/12/22 0/12/22
	Peak Output Power	ANT (Port A)	Ant 1-Black (ANTB24-104A0)	0/12/22
			Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)	0/12/22
		ANT (Port B)	Ant 1-Black (ANTB24-104A0)	0/12/22
			Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)	0/12/22
	Band Edge	ANT (Port A)	N/A	0/12/22
	Spurious Emission	ANT (Port A)	N/A	0/12/22
	Peak Power Spectral Density	ANT (Port A)	N/A	0/12/22

Note 1 : ☒ Mobile Device ☐ Portable Device,

and 3 axis were assessed. The worst scenario for Radiated Spurious Emission as follow: ☒ Lie ☐ Side ☐ Stand

Note 2: Low, mid, and high channels were measured, only the worst channel of each modulation was presented in this report.

Note 3: We presented worst case (ANT (Port A)) in the report.

3.8. Output Power Setting

Centre Frequency (MHz)	Power Setting	
	ANT (Port A)	ANT (Port B)
2405.376	Default	Default
2442.240	Default	Default
2472.960	Default	Default

3.9. Tested Supporting System List

3.9.1. Support Peripheral Unit

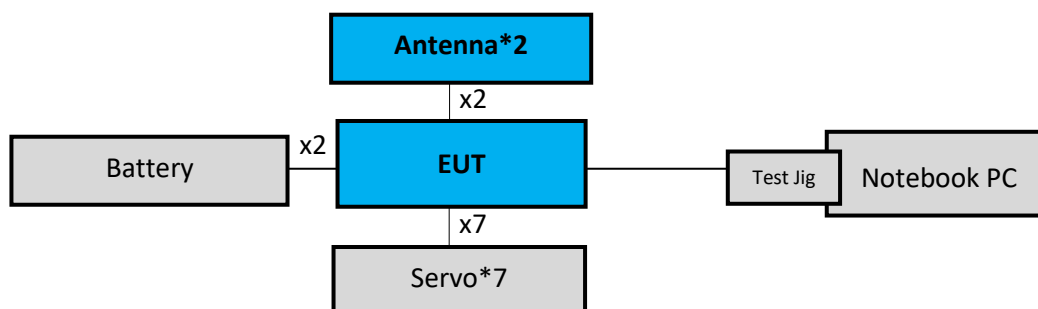
No.	Product	Brand	Model No.	Serial No.	Approval
1.	Battery (DC 6.6V)	Futaba	FT2F2100BV2	N/A	N/A
2.	Digital Servo #1 ~ #7	Futaba	S3003	N/A	N/A
3.	Test Jig	Futaba	CIU-3	N/A	N/A
4.	Notebook Computer	HP	P7Q52PA	N/A	FCC ID: PD98260NG

3.9.2. Cable Lists

No.	Cable Description Of The Above Support Units
1.	DC Power Cable: Shielded, Detachable, 0.08m
2.	Data Cable: Shielded, Detachable, 0.30m
3.	Data Cable: Shielded, Detachable, 0.62m
4.	Adapter: HP, M/N HSTNN-CA40, DC Cord: Shielded, Undetachable, 1.8m, Bonded a ferrite core AC Power Cord: Unshielded, Detachable, 1.8m

3.10.Setup Configuration

3.10.1. EUT Configuration for Radiated Emission



3.10.2. EUT Configuration for RF Conducted Test Items



3.11. Operating Condition of EUT

Test program “Futaba Term” is used for enabling EUT RF function under continue transmitting and choosing channel.

3.12. Description of Test Facility

Name of Test Firm	Audix Technology Corporation / EMC Department No. 491, Zhongfu Rd., Linkou Dist., New Taipei City 244, Taiwan Tel: +886-2-26092133 Fax: +886-2-26099303 Website : www.audixtech.com Contact e-mail: attemc_report@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2017 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724
Test Facilities	FCC OET Designation Number under APEC MRA by NCC is : TW1724 ISED CAB Identifier Number under APEC TEL MRA by NCC is TW1724 (1) No.1 3m Semi Anechoic Chamber

3.13.Measurement Uncertainty

Test Items/Facilities			Frequency Range	Uncertainty
Conduction Test	☐	No. 7 Shielded Room	9kHz-150kHz	±3.7dB
			150kHz-30MHz	±3.4dB
	☐	No. 8 Shielded Room	9kHz-150kHz	±3.7dB
			150kHz-30MHz	±3.5dB
Radiation Test	☒	No.1 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±3.8dB
			200MHz-1000MHz, 3m, Horizontal	±4.4dB
			30MHz-200MHz, 3m, Vertical	±4.5dB
			200MHz-1000MHz, 3m, Vertical	±4.7dB
			1GHz-6GHz, 3m	±4.9dB
			6GHz-18GHz, 3m	±4.5dB
			18GHz-40GHz, 3m	±3.4dB
	☐	No.3 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.0dB
			200MHz-1000MHz, 3m, Horizontal	±4.3dB
			30MHz-200MHz, 3m, Vertical	±4.6dB
			200MHz-1000MHz, 3m, Vertical	±4.7dB
			1GHz-6GHz, 3m	±4.8dB
			6GHz-18GHz, 3m	±4.5dB
			18GHz-40GHz, 3m	±3.4dB
	☐	No.4 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.3dB
			200MHz-1000MHz, 3m, Horizontal	±4.3dB
			30MHz-200MHz, 3m, Vertical	±4.6dB
			200MHz-1000MHz, 3m, Vertical	±4.7dB
			1GHz-6GHz, 3m	±4.8dB
			6GHz-18GHz, 3m	±4.4dB
			18GHz-40GHz, 3m	±3.4dB
	☐	No.5 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.3dB
			200MHz-1000MHz, 3m, Horizontal	±4.3dB
			30MHz-200MHz, 3m, Vertical	±4.5dB
			200MHz-1000MHz, 3m, Vertical	±4.6dB
			1GHz-6GHz, 3m	±4.9dB
			6GHz-18GHz, 3m	±4.1dB
			18GHz-40GHz, 3m	±3.4dB

Remark : Uncertainty = $kuc(y)$

Test Item	Uncertainty
Bandwidth	± 0.05kHz
Maximum peak output power	± 0.33dB
Power spectral density	± 0.13dB
Conducted Emission Limitations	± 0.13dB

4. MEASUREMENT EQUIPMENT LIST

4.1. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9010B-526	MY57410128	2021.12.29	1 Year
2.	Test Receiver	R&S	ESCS30	100039	2022.06.01	1 Year
3.	Amplifier	HP	8447D	2944A06305	2022.01.05	1 Year
4.	Microwave Preamplifier	HP	8449B	3008A01284	2022.06.01	1 Year
5.	Microwave Amplifier	EMCI	EMC184045	980175	2022.09.03	1 Year
6.	Loop Antenna	TESEQ	HLA 6121	60478	2022.02.17	1 Year
7.	Bilog Antenna	TESEQ	CBL6112D	33821	2022.07.01	1 Year
8.	Double-Ridged Waveguide Horn	EMCO	3115	9112-3775	2022.05.18	1 Year
9.	Horn Antenna	COM-POWER	AH-840	101092	2022.01.06	1 Year
10.	2.4GHz Notch Filter	K&L Microwave	7NSL10-2441.5/E 130.5-O/O	2	2022.07.23	1 Year
11.	3GHz Notch Filter	Microwave	H3G018G1	484796	2022.07.23	1 Year
12.	Coaxial Cable	MIYAZAKI	5D2W	RE-11	2022.01.20	1 Year
13.	Coaxial Cable	HUBER+SUHNER	SUCOFLEX 106	RE-14	2022.01.20	1 Year
14.	Coaxial Cable	HUBER+SUHNER	SUCOFLEX 102	RE-30	2022.01.20	1 Year
15.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.1 3m A/C	2022.04.14	1 Year
16.	Test Software	Audix	e3	V9 18621a	N.C.R.	N.C.R.

4.2. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9030B	MY61330403	2021.12.21	1 Year
2.	Digital Thermo-Hygro Meter	iMax	HTC-1	RF-03	2022.04.14	1 Year



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5. CONDUCTED EMISSION

【The EUT only employs uses DC power for operation, no conductive emission limits are required according to FCC Part 15 Section §15.207 and RSS-Gen §8.8】

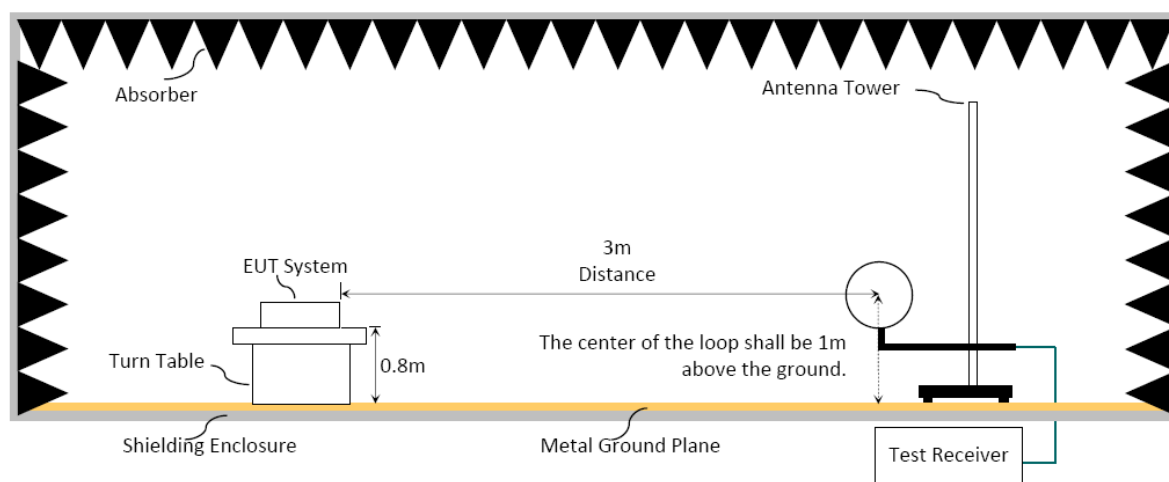
6. RADIATED EMISSION

6.1. Block Diagram of Test Setup

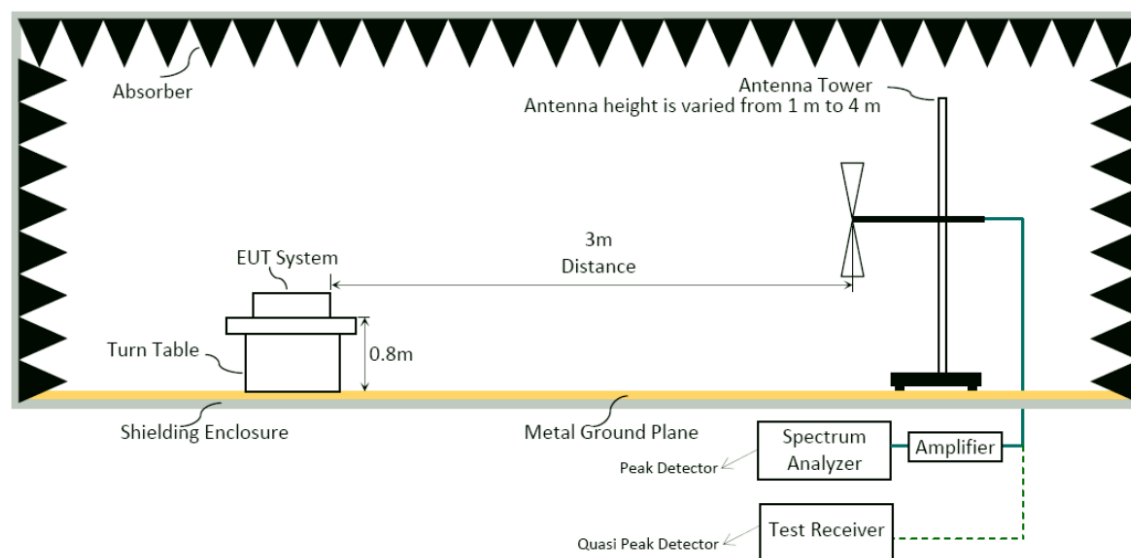
6.1.1. Block Diagram of EUT

Indicated as section 3.10

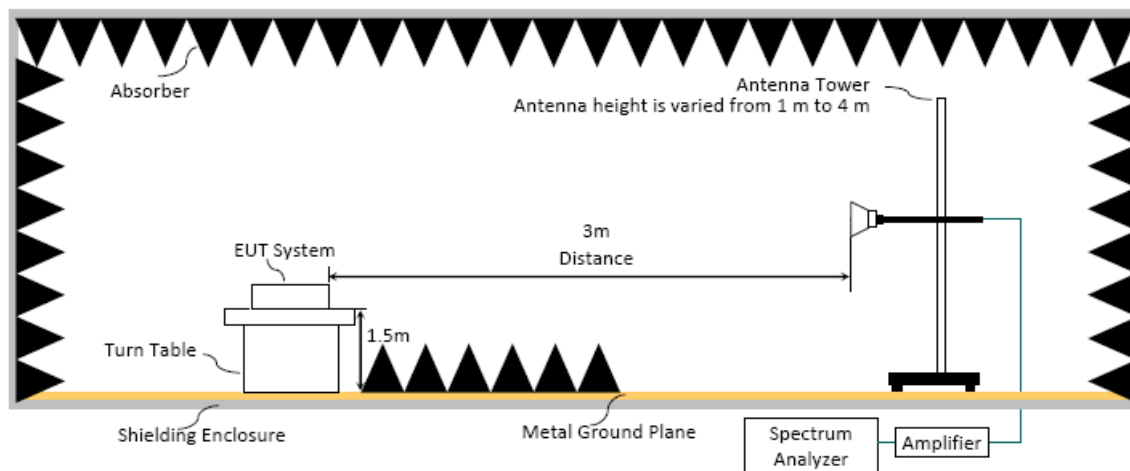
6.1.2. Setup Diagram for 9kHz-30MHz



6.1.3. Setup Diagram for 30-1000MHz



6.1.4. Setup Diagram for above 1GHz



6.2. Radiated Emission Limits

In any 100kHz bandwidth outside the frequency band, the radio frequency power produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205/RSS-Gen Section 8.10 table 6, must also comply with the radiated emission limits specified as below.

Frequency (MHz)	Distance(m)	Limits	
		dBμV/m	μV/m
0.009 - 0.490	300	67.6-20 log f(kHz)	2400/f kHz
0.490 - 1.705	30	87.6-20 log f(kHz)	24000/f kHz
1.705 - 30	30	29.5	30
30 - 88	3	40.0	100
88- 216	3	43.5	150
216- 960	3	46.0	200
Above 960	3	54.0	500
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark : (1) $\text{dB}\mu\text{V/m} = 20 \log (\mu\text{V/m})$

- (2) The tighter limit applies to the edge between two frequency bands.
- (3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
- (4) Fundamental and emission fall within operation band are exempted from this section.
- (5) Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

6.3. Test Procedure

Frequency Range 9kHz~30MHz:

The EUT setup on the turntable which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

- (1) RBW = 9kHz with peak and average detector.
- (2) Detector: average and peak (9kHz-490kHz)
Q.P. (490kHz-30MHz)

Frequency Range 30MHz ~ 25GHz:

The EUT setup on the turn table which has 80cm (for 30-1000MHz) and 1.5m (for above 1GHz) height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

Frequency below 1GHz:

Spectrum Analyzer is used for pre-testing with following setting:

- (1) RBW = 120KHz
- (2) VBW $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.

Note 1: When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required, otherwise using Q.P. for final measurement.

Note 2: When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.

Frequency above 1GHz to 10th harmonic (up to 25 GHz):

Peak Detector:

- (1) RBW = 1MHz
- (2) VBW $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Sweep time = auto.
- (5) Trace mode = max hold.
- (6) Allow sweeps to continue until the trace stabilizes.

Note: When peak-detected value is lower than limit that the measurement using the average detector is not required, otherwise using average detector for final measurement.

Average Detector:**■ Option 1:**

(1) RBW = 1MHz

(2) VBW $\geq 1/T$.(3) VBW = 10Hz (Duty Cycle $\geq 98\%$, when duty cycle presented in section 3.7)

Modulation Type	VBW Setting
DSSS (FASSTest)	10Hz

(4) Detector = Peak.

(5) Sweep time = auto.

(6) Trace mode = max hold.

(7) Allow sweeps to continue until the trace stabilizes.

□ Option 2:

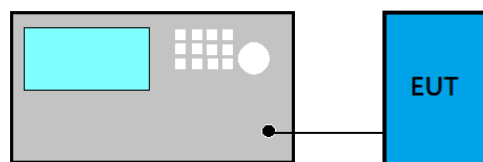
Average Emission Level = Peak Emission Level + D.C.C.F.

6.4. Measurement Result Explanation**■** Peak Emission Level = Antenna Factor + Cable Loss + Meter Reading (including Preamp factor if test used)**■** Average Emission Level = Antenna Factor + Cable Loss + Meter Reading (including Preamp factor if test used)**□** Average Emission Level = Peak Emission Level + DCCFDuty Cycle Correction Factor (DCCF) = $20\log(TX_{on}/TX_{on+off})$ presented in section 3.7**□** ERP = Peak Emission Level - 95.2dB - 2.14dB**6.5. Test Results**

Please refer to Appendix A.

7. DTS/OCCUPIED BANDWIDTH

7.1. Block Diagram of Test Setup



7.2. Specification Limits

The minimum bandwidth shall be at least 500kHz.

7.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10:2013:

For DTS Bandwidth

- (1) Set RBW = 100 kHz.
- (2) Set the video bandwidth (VBW) $\geq 3 \times \text{RBW}$.
- (3) Detector = Peak.
- (4) Trace mode = max hold.
- (5) Sweep = auto couple.
- (6) Allow the trace to stabilize.
- (7) Setting channel bandwidth function x to -6dB power to record the final bandwidth..

For 99% Occupied Bandwidth

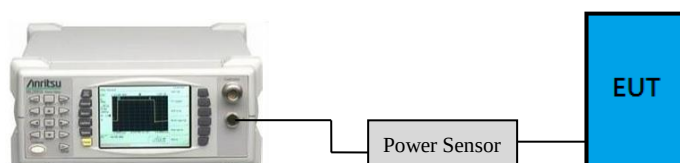
- (1) Set Span range 1.5~5 times the OBW
- (2) Set RBW close to 1% to 5% of OBW.
- (3) Set $\text{VBW} \geq 3 \times \text{RBW}$.
- (4) Detector = Peak.
- (5) Trace mode = Max hold
- (6) Sweep = Auto couple.
- (7) Allow the trace to stabilize.

7.4. Test Results

Please refer to Appendix A

8. MAXIMUM PEAK OUTPUT POWER

8.1. Block Diagram of Test Setup



8.2. Specification Limits

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is : 1Watt. (30dBm), and E.I.R.P.: 4Watt (36dBm)

8.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10:2013:

☒ **PKPM1 Peak power meter method:**

EUT is connected to power sensor and record the maximum output power.

☐ **Maximum peak conducted output power method:**

- (1) Set the RBW $\geq$ DTS bandwidth
- (2) Set VBW $\geq 3 \times$ RBW
- (3) Set span $\geq 3 \times$ RBW.
- (4) Sweep time = auto couple
- (5) Detector = peak.
- (6) Trace mode = max hold.
- (7) Allow trace to fully stabilize.
- (8) Use peak marker function to determine the peak amplitude level.

☒ **Method AVGPM (Measurement using an RF average power meter):**

EUT is connected to power sensor and record the maximum average output power and duty cycle factor is added when duty cycle presented in section 3.7 is $< 98\%$.

☐ **Method AVGSA-2 (Spectrum channel power)**

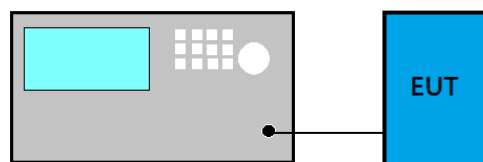
- (1) Set span to at least 1.5 times the OBW
- (2) Set RBW = 1 -5% of OBW
- (3) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- (4) Detector = RMS.
- (5) Trace mode = trace average at least 100 traces
- (6) Sweep = auto couple.
- (7) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges.
- (8) Duty cycle factor is added when duty cycle presented in section 3.7 is $< 98\%$.

8.4. Test Results

Please refer to Appendix A

9. EMISSION LIMITATIONS

9.1. Block Diagram of Test Setup



9.2. Specification Limits

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, that the required attenuation shall be 30 dB instead of 20 dB.

Attenuation below the general limits specified in Section 15.209(a)/RSS-Gen Section 8.9 table 4 is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a)/RSS-Gen Section 8.10 table 6, must also comply with the radiated emission limits specified in Section 15.209(a)/RSS-Gen Section 8.9 table 4 (See Section 15.205(c)).

9.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10:2013:

■ Reference Level

- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: 100 kHz.
- (4) Set the VBW $\geq 3 \times$ RBW.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize to find the max PSD as reference level.

■ Emission Level Measurement

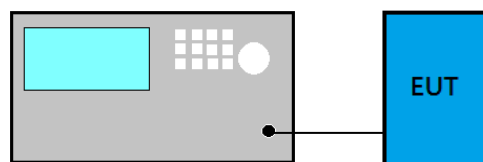
- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: 100 kHz.
- (4) Set the VBW $\geq 3 \times$ RBW.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize to find the max level.

9.4. Test Results

Please refer to Appendix A

10. POWER SPECTRAL DENSITY

10.1. Block Diagram of Test Setup



10.2. Specification Limits

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

10.3. Test Procedure

Following measurement procedure is reference to ANSI C63.10:2013:

☒ Method PKPSD (peak PSD)

- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth.
- (3) Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- (4) Set the VBW $\geq 3 \times \text{RBW}$.
- (5) Detector = peak.
- (6) Sweep time = auto couple.
- (7) Trace mode = max hold.
- (8) Allow trace to fully stabilize.
- (9) Use the peak marker function to determine the maximum amplitude level.
- (10) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

☐ Method AVGPSD-2

- (1) Using peak PSD procedure step 1 to step 4.
- (2) Detector = RMS detector
- (3) Sweep time = auto couple
- (4) Trace mode = trace averaging over a minimum of 100 traces
- (5) Use the peak marker function to determine the maximum amplitude level.
- (6) Duty cycle factor is added when duty cycle presented in section 3.7 < 98%.
- (7) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

10.4. Test Results

Please refer to Appendix A



11.DEVIATION TO TEST SPECIFICATIONS

【NONE】



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APPENDIX A

TEST DATA AND PLOTS

(Model: R7208SB)

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A.1 RADIATED EMISSION

Test Date	2022/10/20~25	Temp./Hum.	24~26°C/50~52%
Test Voltage	DC 6.6V (Via Battery)	Tested By	Sam Chang

A.1.1 Emissions within Restricted Frequency Bands

A.2.1.1 Frequency 9kHz~30MHz

The emissions (9kHz~30MHz) not reported for there is no emission be found.

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A.2.1.2 Frequency Below 1GHz

Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2472.960MHz	Ant	Ant 1-Black (ANTB24-104A0)

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
164.830	15.51	3.36	25.93	40.78	33.72	43.50	9.78	Peak
226.910	16.85	4.02	25.73	41.27	36.41	46.00	9.59	Peak
256.980	18.34	4.33	25.68	42.38	39.37	46.00	6.63	Peak
485.900	22.89	6.65	27.04	34.93	37.43	46.00	8.57	Peak
540.220	23.61	6.90	27.24	35.51	38.78	46.00	7.22	Peak
677.960	24.68	7.52	27.42	34.79	39.57	46.00	6.43	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
79.470	12.86	2.35	26.35	39.98	28.84	40.00	11.16	Peak
97.900	16.15	2.58	26.29	36.76	29.20	43.50	14.30	Peak
199.750	15.10	3.70	25.79	35.79	28.80	43.50	14.70	Peak
272.500	18.61	4.46	25.65	36.08	33.50	46.00	12.50	Peak
378.230	20.95	5.69	26.28	37.61	37.97	46.00	8.03	Peak
485.900	22.89	6.65	27.04	35.19	37.69	46.00	8.31	Peak

Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2472.960MHz	Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
167.740	15.40	3.39	25.91	42.48	35.36	43.50	8.14	Peak
255.040	18.29	4.30	25.68	41.75	38.66	46.00	7.34	Peak
360.770	20.55	5.48	26.15	39.50	39.38	46.00	6.62	Peak
485.900	22.89	6.65	27.04	34.85	37.35	46.00	8.65	Peak
540.220	23.61	6.90	27.24	34.51	37.78	46.00	8.22	Peak
713.850	24.96	7.72	27.41	34.04	39.31	46.00	6.69	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
53.280	13.34	1.89	26.44	43.64	32.43	40.00	7.57	Peak
198.780	15.09	3.69	25.79	38.39	31.38	43.50	12.12	Peak
270.560	18.57	4.44	25.66	36.06	33.41	46.00	12.59	Peak
378.230	20.95	5.69	26.28	36.76	37.12	46.00	8.88	Peak
414.120	21.67	6.06	26.53	37.64	38.84	46.00	7.16	Peak
678.930	24.69	7.53	27.42	34.65	39.45	46.00	6.55	Peak

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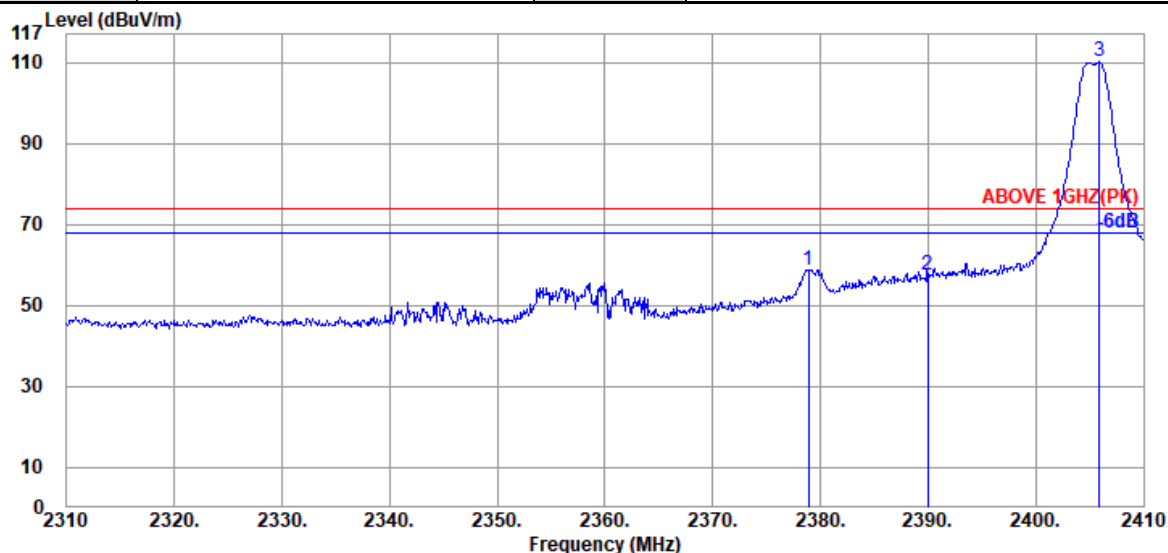
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A.2.1.3 Frequency Above 1 GHz to 10th harmonics

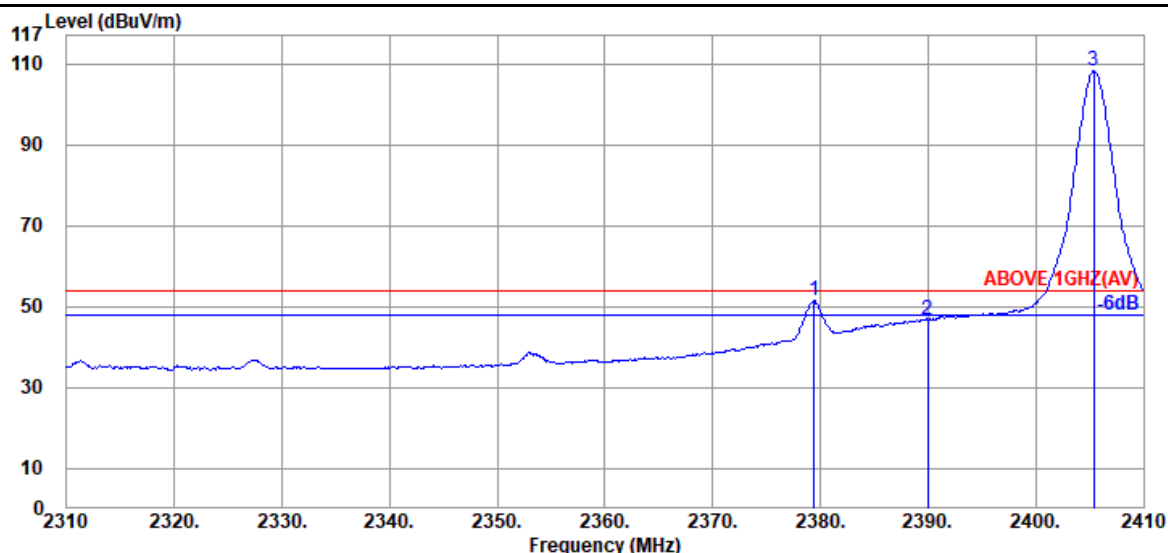
Band Edge:

Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2405.376MHz	Ant	Ant 1-Black (ANTB24-104A0)



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2378.900	28.20	5.71	39.93	64.91	58.89	74.00	15.11	Peak
2390.000	28.20	5.72	39.93	63.56	57.55	74.00	16.45	Peak
@ 2405.900	28.23	5.75	39.93	115.97	110.02	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2379.400	28.20	5.71	39.93	57.43	51.41	54.00	2.59	Average
2390.000	28.20	5.72	39.93	52.93	46.92	54.00	7.08	Average
@ 2405.400	28.23	5.75	39.93	114.03	108.08	---	---	Average

Remark: The “@” means fundamental frequency, it is ignored in this section.

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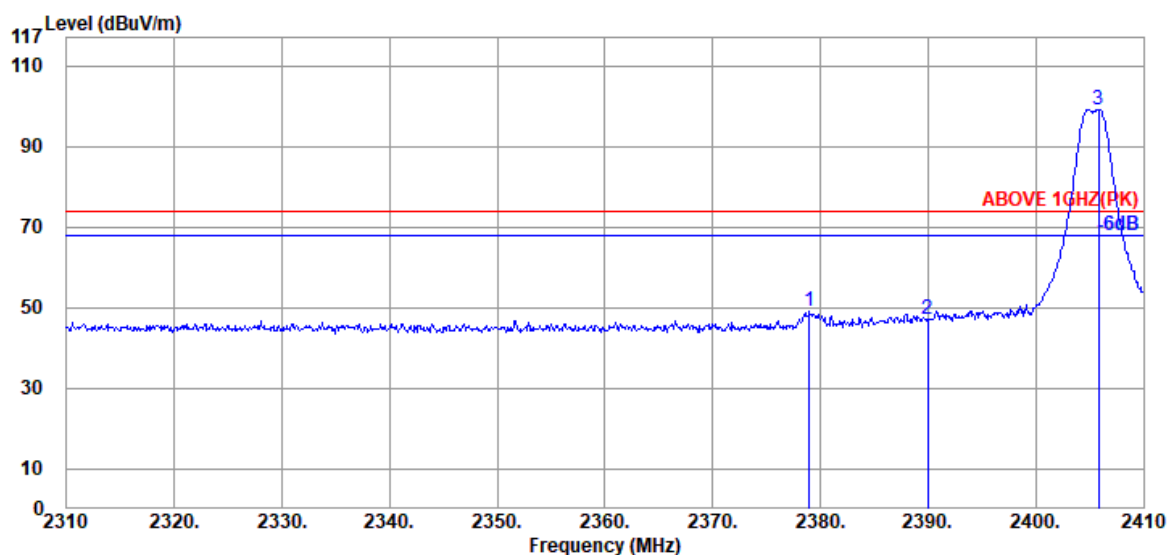
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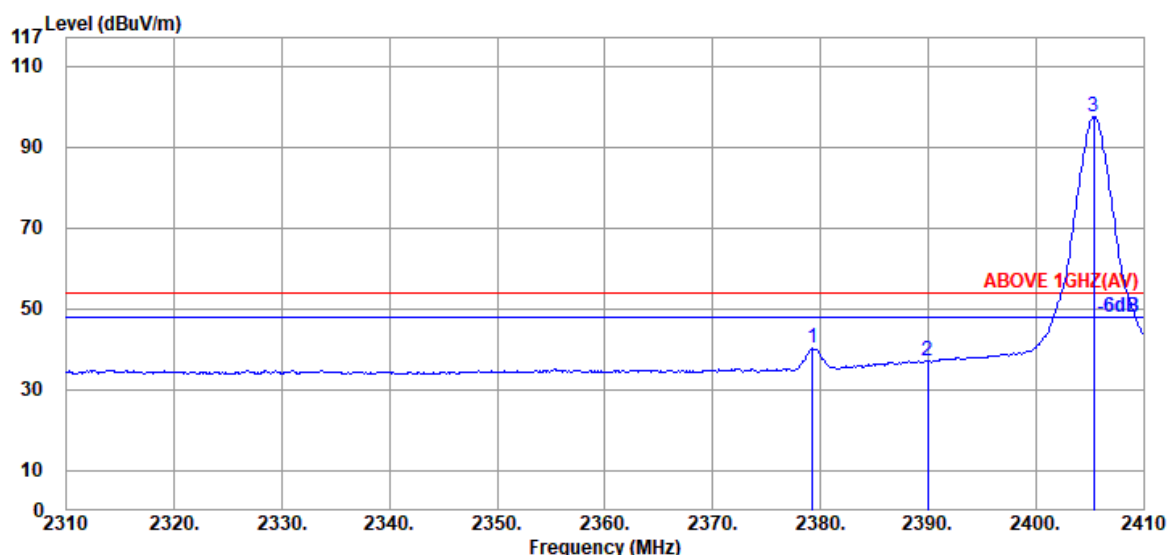
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Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2405.376MHz	Ant	Ant 1-Black (ANTB24-104A0)



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
2379.000	28.20	5.71	39.93	55.06	49.04	74.00	24.96	Peak
2390.000	28.20	5.72	39.93	53.09	47.08	74.00	26.92	Peak
@ 2405.800	28.23	5.75	39.93	105.05	99.10	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
2379.300	28.20	5.71	39.93	46.19	40.17	54.00	13.83	Average
2390.000	28.20	5.72	39.93	43.20	37.19	54.00	16.81	Average
@ 2405.400	28.23	5.75	39.93	103.40	97.45	---	---	Average

Remark: The “@” means fundamental frequency, it is ignored in this section.

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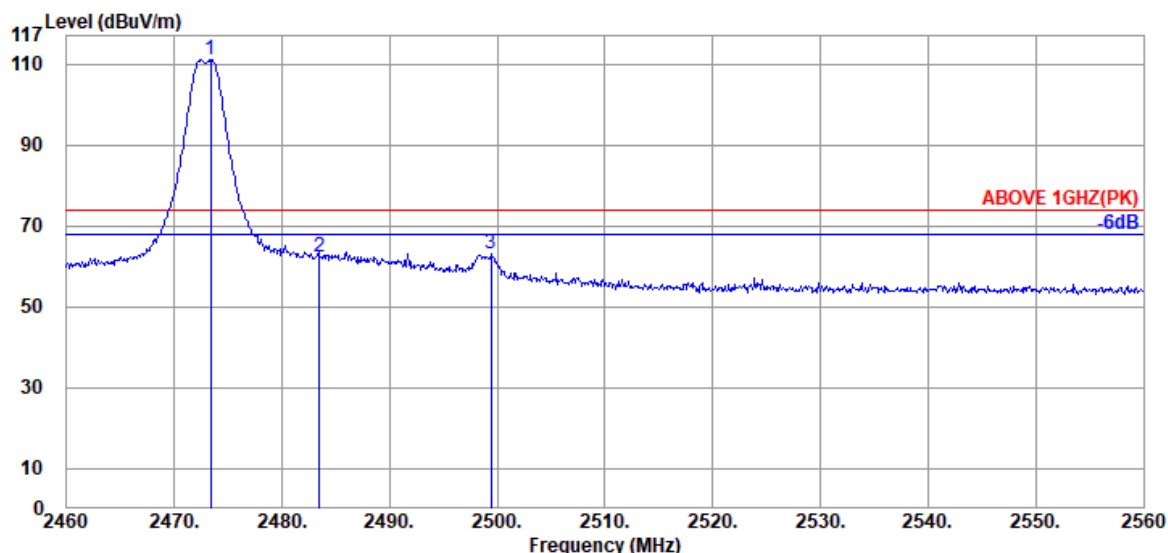
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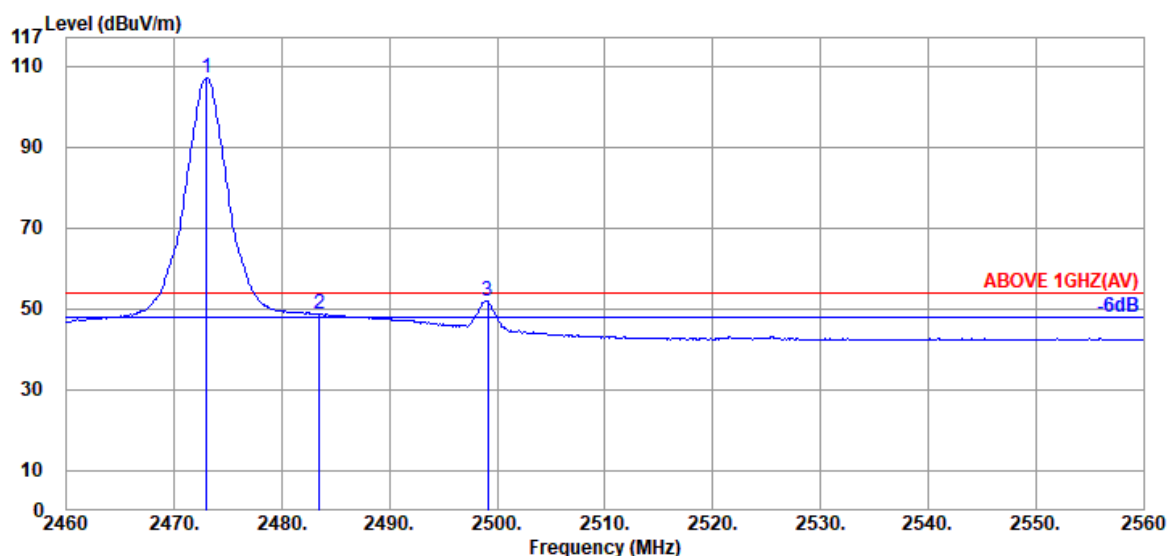
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Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2472.960MHz	Ant	Ant 1-Black (ANTB24-104A0)



Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@	2473.400	28.44	5.85	39.92	116.53	110.90	---	---	Peak
	2483.500	28.47	5.87	39.92	67.97	62.39	74.00	11.61	Peak
	2499.400	28.50	5.89	39.92	68.59	63.06	74.00	10.94	Peak



Antenna at Horizontal Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@	2473.000	28.44	5.85	39.92	112.62	106.99	---	---	Average
	2483.500	28.47	5.87	39.92	54.25	48.67	54.00	5.33	Average
	2499.100	28.50	5.89	39.92	57.42	51.89	54.00	2.11	Average

Remark: The “@” means fundamental frequency, it is ignored in this section.

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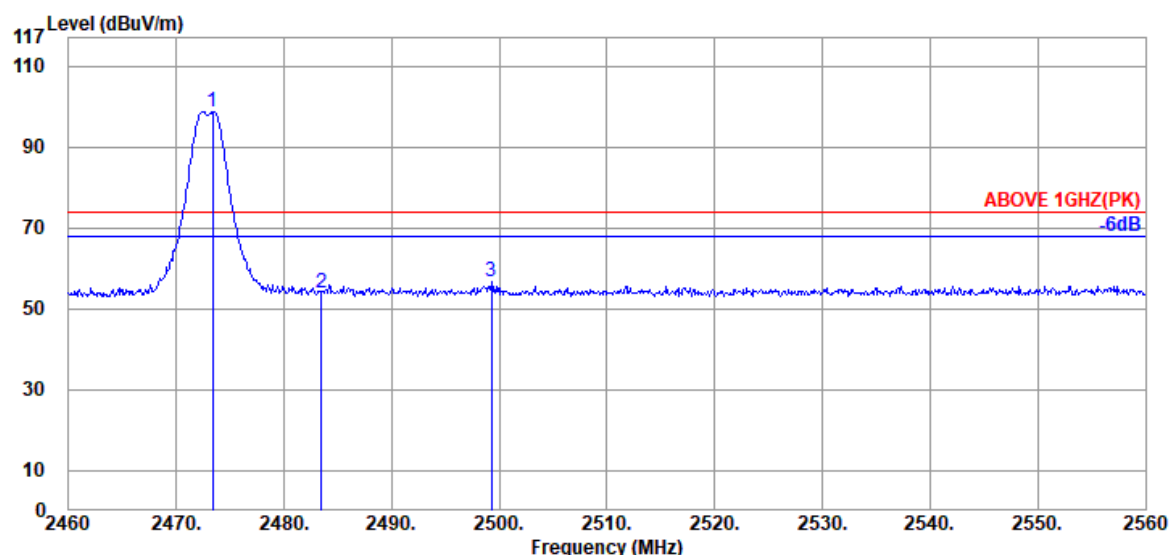
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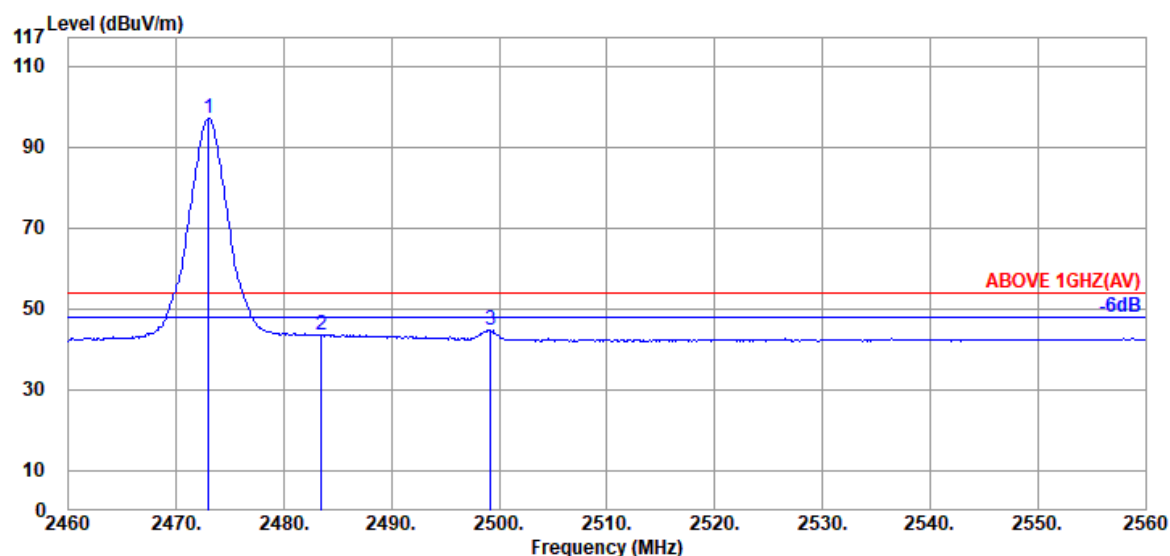
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Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2472.960MHz	Ant	Ant 1-Black (ANTB24-104A0)



Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2473.400	28.44	5.85	39.92	104.29	98.66	---	---	Peak
	2483.500	28.47	5.87	39.92	59.39	53.81	74.00	20.19	Peak
	2499.300	28.50	5.89	39.92	62.09	56.56	74.00	17.44	Peak



Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@	2473.000	28.44	5.85	39.92	102.58	96.95	---	---	Average
	2483.500	28.47	5.87	39.92	48.98	43.40	54.00	10.60	Average
	2499.200	28.50	5.89	39.92	50.42	44.89	54.00	9.11	Average

Remark: The “@” means fundamental frequency, it is ignored in this section.

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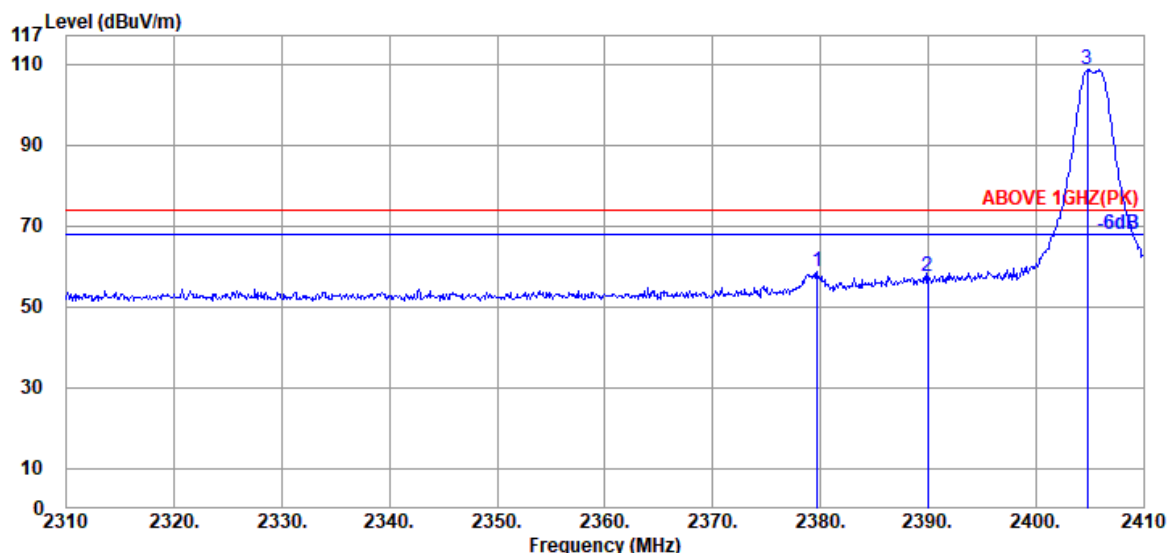
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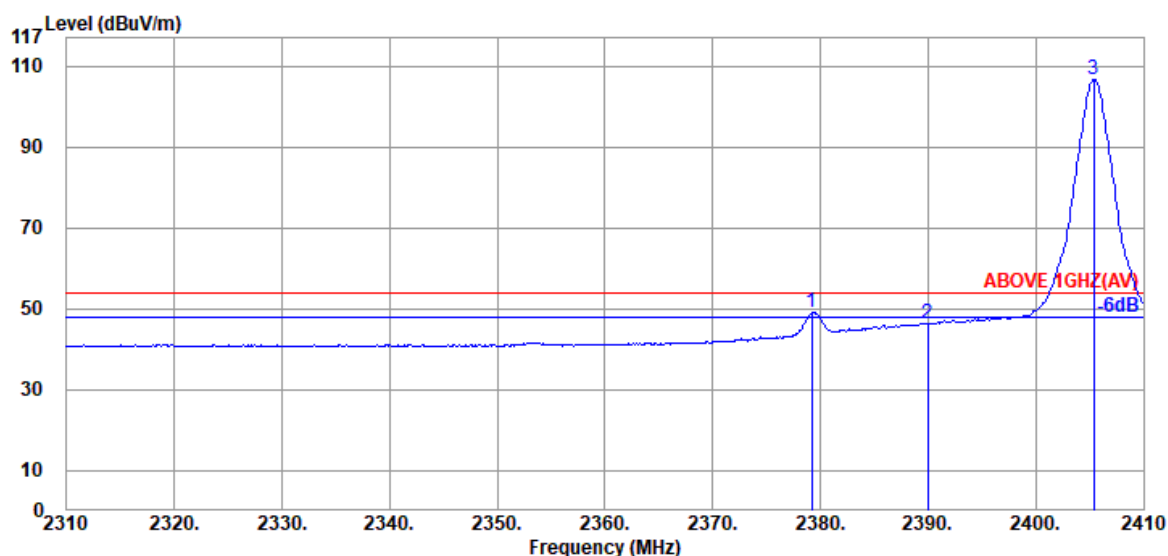
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Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2405.376MHz	Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2379.700	28.20	5.71	39.93	64.60	58.58	74.00	15.42	Peak
2390.000	28.20	5.72	39.93	63.48	57.47	74.00	16.53	Peak
@ 2404.800	28.23	5.75	39.93	114.38	108.43	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2379.200	28.20	5.71	39.93	55.11	49.09	54.00	4.91	Average
2390.000	28.20	5.72	39.93	52.44	46.43	54.00	7.57	Average
@ 2405.400	28.23	5.75	39.93	112.48	106.53	---	---	Average

Remark: The “@” means fundamental frequency, it is ignored in this section.

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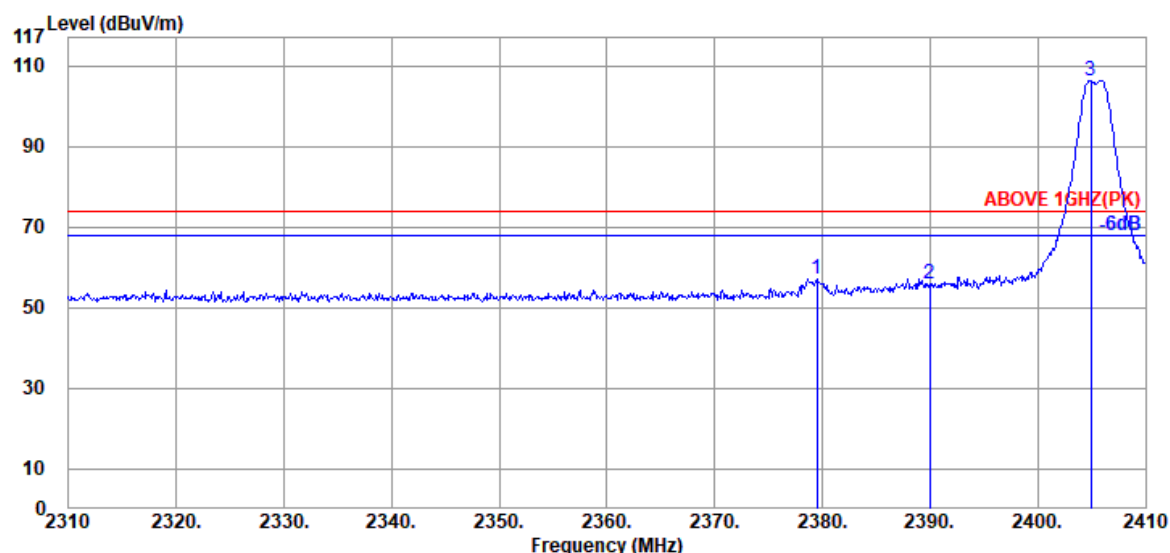
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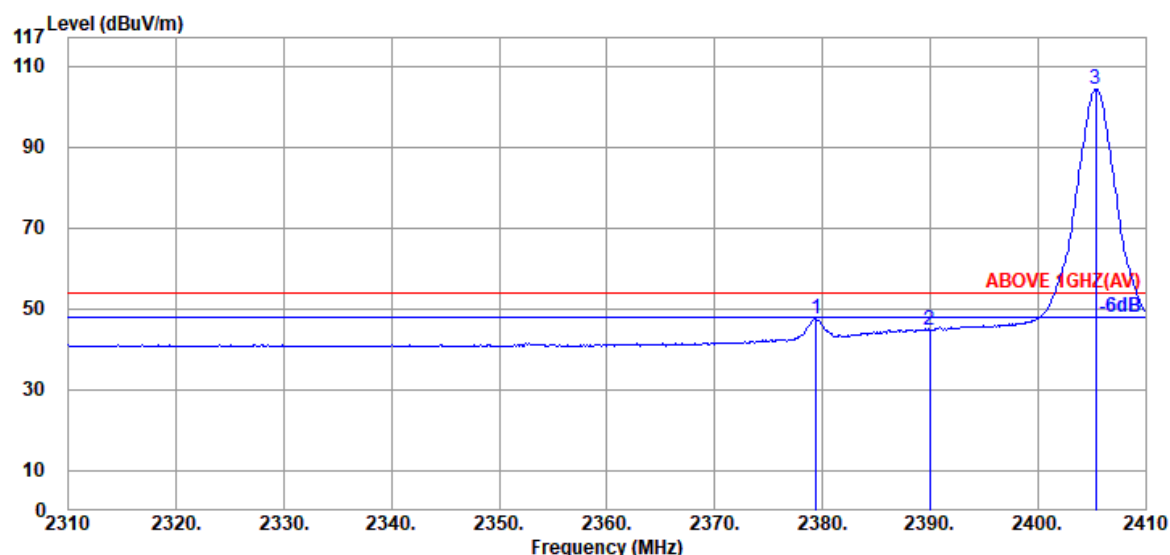
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Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2405.376MHz	Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2379.500	28.20	5.71	39.93	63.13	57.11	74.00	16.89	Peak
2390.000	28.20	5.72	39.93	61.86	55.85	74.00	18.15	Peak
@ 2404.900	28.23	5.75	39.93	112.17	106.22	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2379.400	28.20	5.71	39.93	53.47	47.45	54.00	6.55	Average
2390.000	28.20	5.72	39.93	50.86	44.85	54.00	9.15	Average
@ 2405.400	28.23	5.75	39.93	110.07	104.12	---	---	Average

Remark: The “@” means fundamental frequency, it is ignored in this section.

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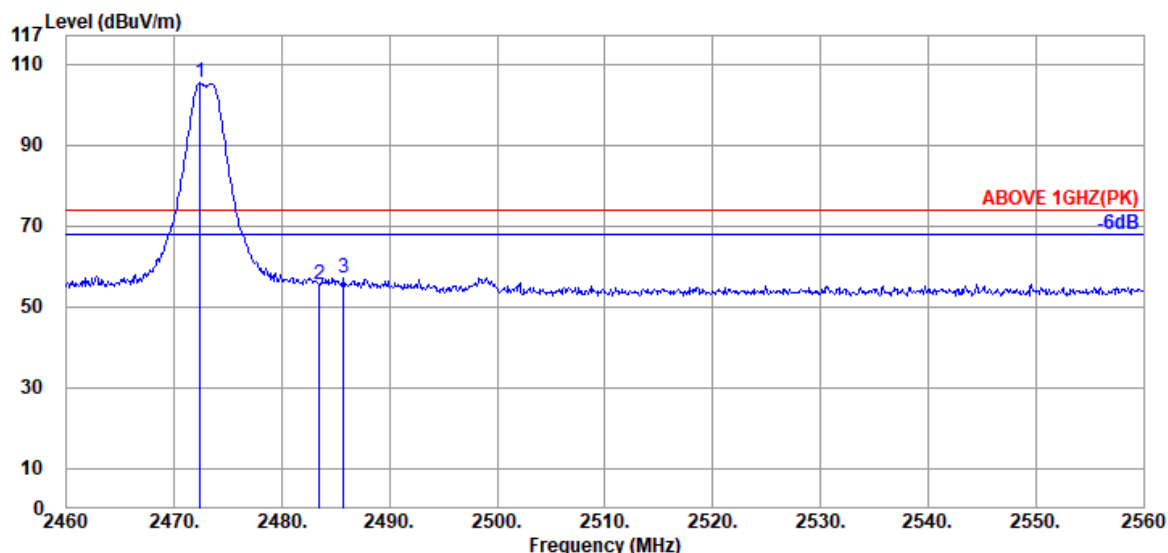
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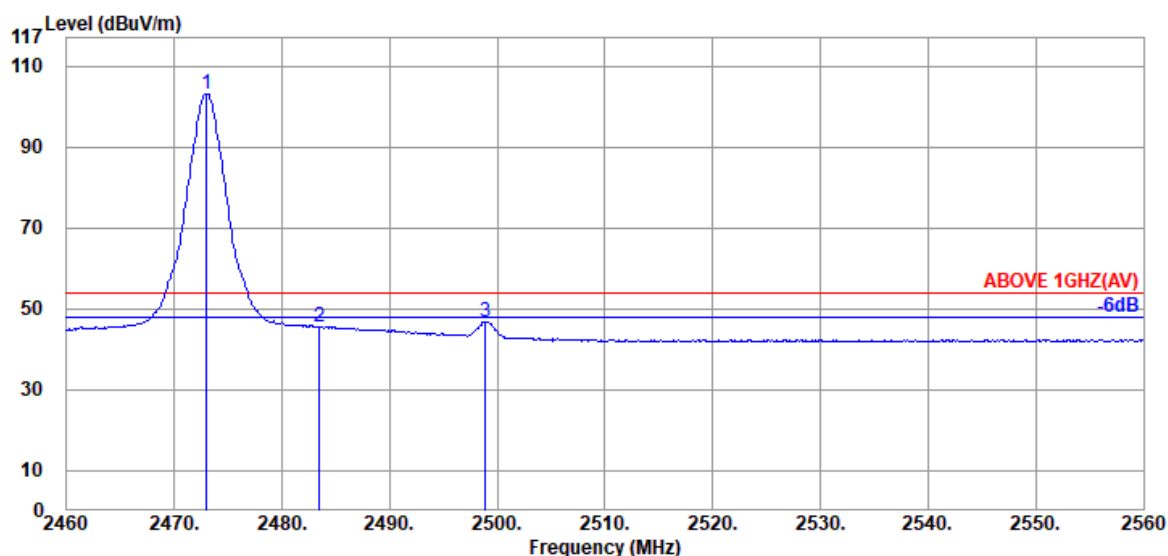
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Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2472.960MHz	Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@ 2472.400	28.44	5.85	39.92	110.86	105.23	---	---	Peak
2483.500	28.47	5.87	39.92	61.12	55.54	74.00	18.46	Peak
2485.700	28.47	5.87	39.92	62.79	57.21	74.00	16.79	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@ 2473.000	28.44	5.85	39.92	108.82	103.19	---	---	Average
2483.500	28.47	5.87	39.92	51.02	45.44	54.00	8.56	Average
2498.900	28.50	5.89	39.92	52.41	46.88	54.00	7.12	Average

Remark: The “@” means fundamental frequency, it is ignored in this section.

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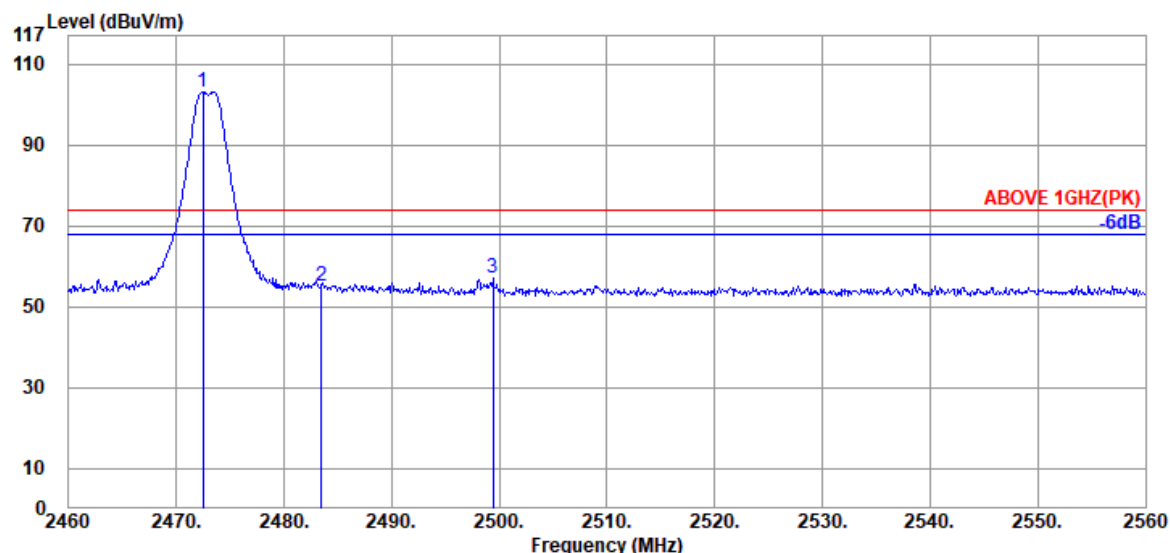
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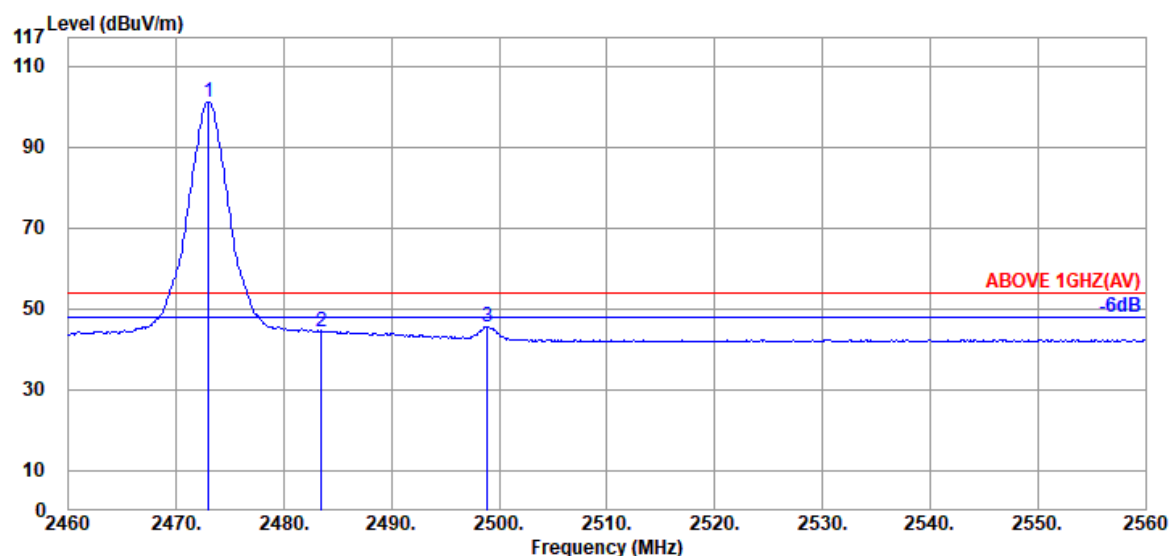
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Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2472.960MHz	Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)



Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@	2472.500	28.44	5.85	39.92	108.75	103.12	---	---	Peak
	2483.500	28.47	5.87	39.92	60.50	54.92	74.00	19.08	Peak
	2499.400	28.50	5.89	39.92	62.65	57.12	74.00	16.88	Peak



Antenna at Vertical Polarization

	Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBUV)	Emission Level (dBUV/m)	Limits (dBUV/m)	Margin (dB)	Detector
@	2473.000	28.44	5.85	39.92	106.76	101.13	---	---	Average
	2483.500	28.47	5.87	39.92	49.79	44.21	54.00	9.79	Average
	2498.900	28.50	5.89	39.92	51.21	45.68	54.00	8.32	Average

Remark: The “@” means fundamental frequency, it is ignored in this section.

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Report Number: EM-F220718

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A.1.2 Emissions outside the frequency band:

The emissions (up to 25GHz) not reported for there is no emission be found.

Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2405.376MHz	Ant	Ant 1-Black (ANTB24-104A0)

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4812.000	33.13	8.55	39.39	42.61	44.90	54.00	9.10	Average
4812.000	33.13	8.55	39.39	49.61	51.90	74.00	22.10	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4810.000	33.10	8.53	39.39	41.89	44.13	54.00	9.87	Average
4810.000	33.10	8.53	39.39	47.32	49.56	74.00	24.44	Peak

Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2442.240MHz	Ant	Ant 1-Black (ANTB24-104A0)

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4886.000	33.20	8.64	39.35	43.02	45.51	54.00	8.49	Average
4886.000	33.20	8.64	39.35	49.15	51.64	74.00	22.36	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4886.000	33.20	8.64	39.35	41.85	44.34	54.00	9.66	Average
4886.000	33.20	8.64	39.35	46.90	49.39	74.00	24.61	Peak

Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2472.960MHz	Ant	Ant 1-Black (ANTB24-104A0)

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4946.000	33.30	8.72	39.32	43.17	45.87	54.00	8.13	Average
4946.000	33.30	8.72	39.32	51.82	54.52	74.00	19.48	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4944.000	33.30	8.72	39.32	43.45	46.15	54.00	7.85	Average
4944.000	33.30	8.72	39.32	49.73	52.43	74.00	21.57	Peak

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Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2405.376MHz	Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4810.000	33.10	8.53	39.39	43.11	45.35	54.00	8.65	Average
4810.000	33.10	8.53	39.39	49.68	51.92	74.00	22.08	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4810.000	33.10	8.53	39.39	42.73	44.97	54.00	9.03	Average
4810.000	33.10	8.53	39.39	48.53	50.77	74.00	23.23	Peak

Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2442.240MHz	Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4884.000	33.20	8.64	39.35	42.21	44.70	54.00	9.30	Average
4884.000	33.20	8.64	39.35	45.17	47.66	74.00	26.34	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4886.000	33.20	8.64	39.35	41.47	43.96	54.00	10.04	Average
4886.000	33.20	8.64	39.35	44.42	46.91	74.00	27.09	Peak

Mode	DSSS (FASSTest)	ANT Port	ANT (Port A)
Frequency	TX 2472.960MHz	Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4946.000	33.30	8.72	39.32	42.80	45.50	54.00	8.50	Average
4946.000	33.30	8.72	39.32	47.90	50.60	74.00	23.40	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
4946.000	33.30	8.72	39.32	43.72	46.42	54.00	7.58	Average
4946.000	33.30	8.72	39.32	48.40	51.10	74.00	22.90	Peak

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A.1.3 Emissions in Non-restricted Frequency Bands:

Pursuant to ANSI C63.10:2013 that emission levels below the FCC 15.209(a)/RSS-Gen Section 8.9 table 4 general radiated emissions limits is not required.

A.2 DTS/OCCUPIED BANDWIDTH

Test Date	2022/10/24	Temp./Hum.	23°C/61%
Cable Loss	0.60dB	Tested By	Sam Chang
Test Voltage	DC 6.6V (Via Battery)		

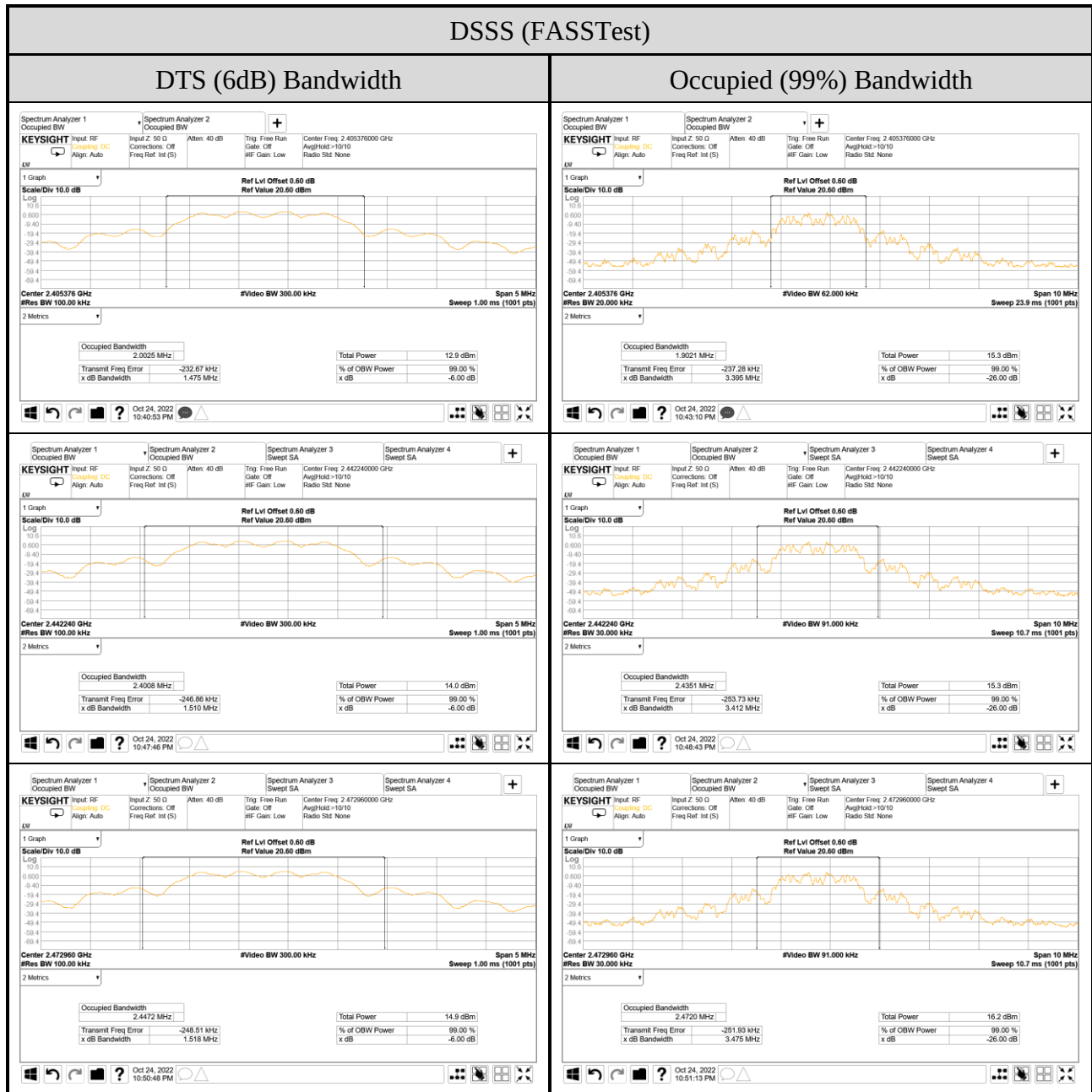
A.2.1 Emission Bandwidth Result

Mode	Centre Frequency (MHz)	DTS (6dB) Bandwidth (MHz)	Occupied (99%) Bandwidth (MHz)	Limit
DSSS (FASSTest)	2405.376	1.475	1.9021	>500kHz
	2442.240	1.510	2.4351	
	2472.960	1.518	2.4720	

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A.2.2 Measurement Plots



A.3 MAXIMUM PEAK OUTPUT POWER

Test Date	2022/10/24	Temp./Hum.	23°C/61%
Cable Loss	0.60dB	Tested By	Sam Chang
Test Voltage	DC 6.6V (Via Battery)		

A.3.1 Peak Output Power

ANT Port	ANT (Port A)		Ant	Ant 1-Black (ANTB24-104A0)			
Mode	Centre Frequency (MHz)	Peak Output Power (dBm)		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit
		(dBm)	(W)		(dBm)	(W)	
DSSS (FASSTest)	2405.376	9.21	0.008	2.10	11.31	0.014	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2442.240	10.18	0.010		12.28	0.017	
	2472.960	11.08	0.013		13.18	0.021	

ANT Port	ANT (Port B)			Ant	Ant 1-Black (ANTB24-104A0)		
Mode	Centre Frequency (MHz)	Peak Output Power (dBm)		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit
		(dBm)	(W)		(dBm)	(W)	
DSSS (FASSTest)	2405.376	8.89	0.008	2.10	10.99	0.013	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2442.240	10.02	0.010		12.12	0.016	
	2472.960	10.95	0.012		13.05	0.020	

ANT Port	ANT (Port A)		Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)			
Mode	Centre Frequency (MHz)	Peak Output Power (dBm)		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit
		(dBm)	(W)		(dBm)	(W)	
DSSS (FASSTest)	2405.376	9.21	0.008	-5.16	4.05	0.003	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2442.240	10.18	0.010		5.02	0.003	
	2472.960	11.08	0.013		5.92	0.004	

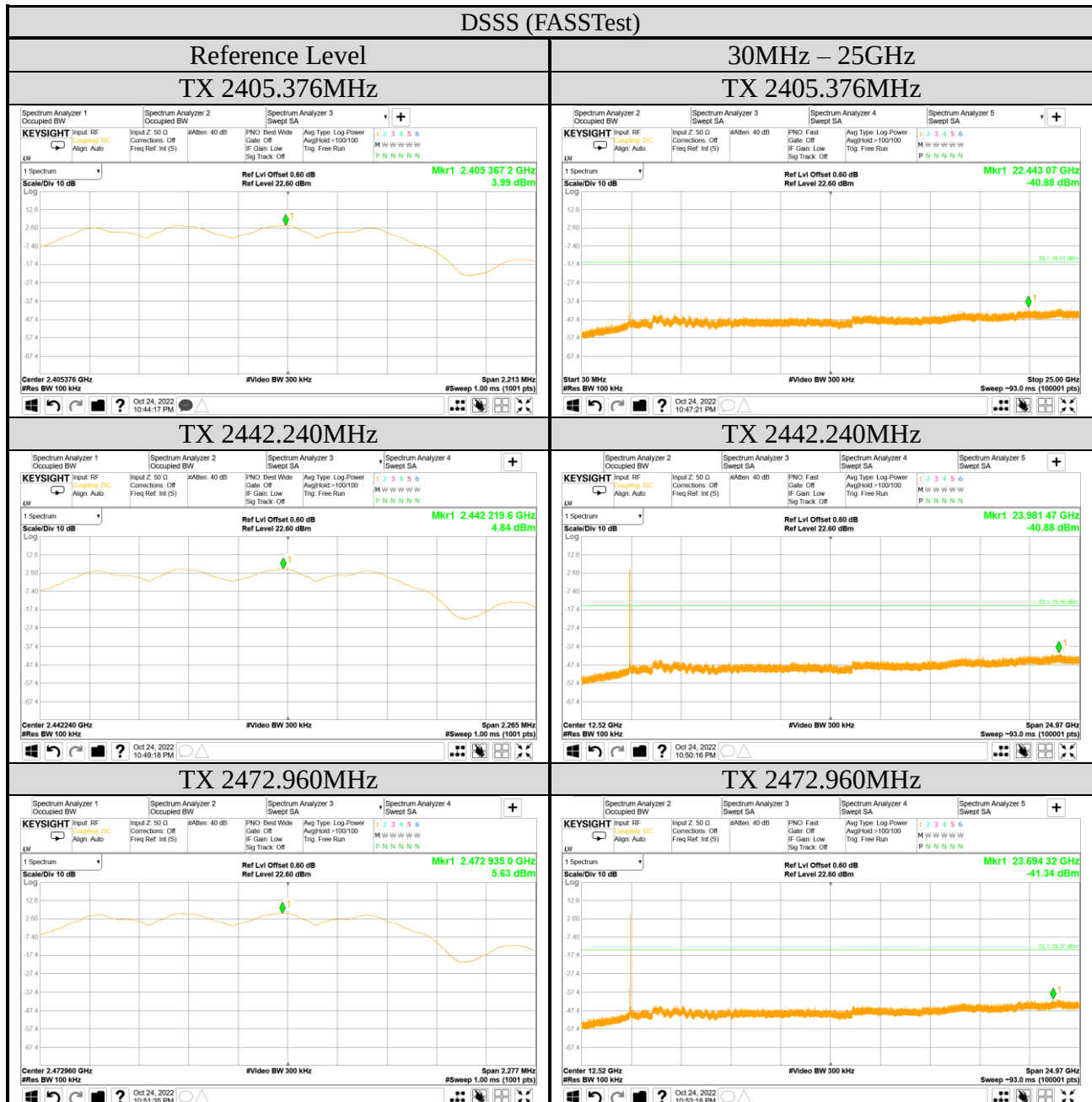
ANT Port	ANT (Port B)		Ant	Ant 2-Gray (UFL-LP6-068N1T-A11-T-153D)			
Mode	Centre Frequency (MHz)	Peak Output Power (dBm)		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit
		(dBm)	(W)		(dBm)	(W)	
DSSS (FASSTest)	2405.376	8.89	0.008	-5.16	3.73	0.002	<30dBm (1W) (Maximum Peak Output Power) <36dBm (4W) (E.I.R.P)
	2442.240	10.02	0.010		4.86	0.003	
	2472.960	10.95	0.012		5.79	0.004	

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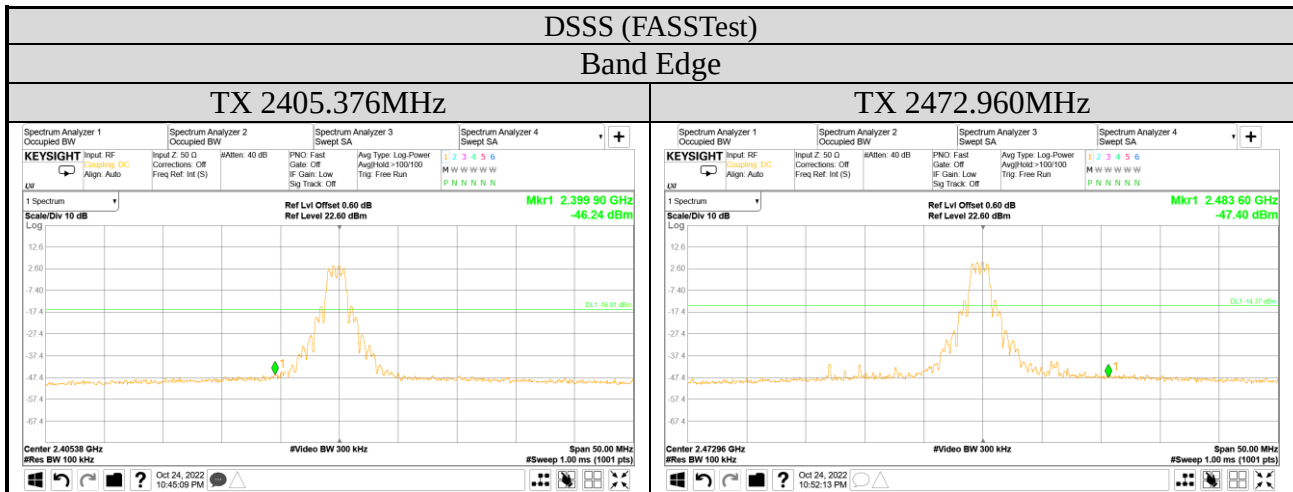
A.4 EMISSION LIMITATIONS

Test Date	2022/10/24	Temp./Hum.	23°C/61%
Cable Loss	0.60dB	Tested By	Sam Chang
Test Voltage	DC 6.6V (Via Battery)		



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A.5 POWER SPECTRAL DENSITY

Test Date	2022/10/24	Temp./Hum.	23°C/61%
Cable Loss	0.60dB	Tested By	Sam Chang
Test Voltage	DC 6.6V (Via Battery)		

A.5.1 Power Spectral Density Result

Mode	Centre Frequency (MHz)	Power Spectral Density (dBm)	Limit
DSSS (FASSTest)	2405.376	3.99	<8 dBm/3kHz
	2442.240	4.84	
	2472.960	5.63	

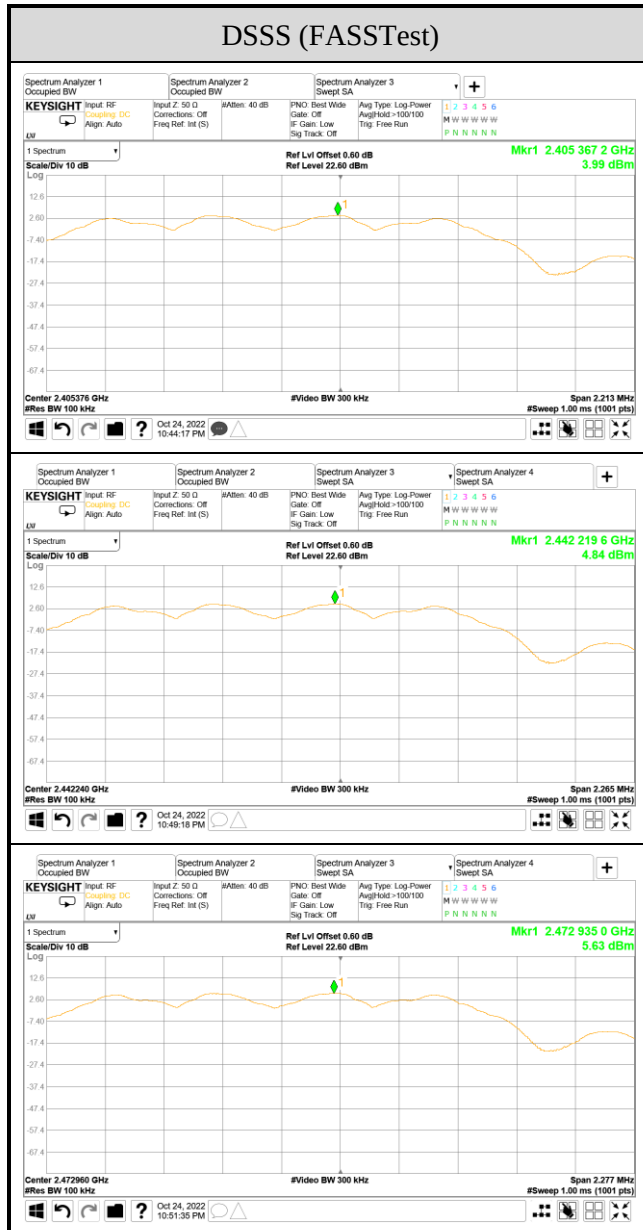
Note: 1. All results have been included cable loss and Simultaneous Factor.

2. For KDB558074 D01V04, in the test result, when RBW set at 100kHz is stricter than 3kHz.

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A.5.2 Measurement Plots



Note: All results have been included cable loss and Simultaneous Factor.