

## FCC 15.247 & RSS-247 2.4 GHz Test Report

for

**FUTABA Corporation**

**1080 Yabutsuka Chosei-mura Chosei-gun  
Chiba-ken, 299-4395 Japan.**

**Product Name : Radio Control**  
**Model Name : T32MZ**  
**Brand : Futaba**  
**FCC ID : AZP-T32MZ-24G**  
**IC : 2914D-T32MZ**

**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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

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## TEST REPORT CERTIFICATION

Applicant : FUTABA Corporation  
Manufacture : FUTABA Corporation  
EUT Description  
(1) Product : Radio Control  
(2) Model : T32MZ  
(3) Brand : Futaba  
(4) Power Rating : (1)DC 5V (USB)  
(2)DC 3.6 ~ 4.2V (Battery)

### Applicable Standards:

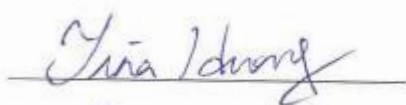
47 CFR FCC Part 15 Subpart C  
RSS-Gen (Issue 5), April 2018  
RSS-247 (Issue 2), February 2017  
ANSI C63.10:2013

**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: 2019. 08. 13

Reviewed by:



(Tina Huang/Administrator)

Approved by:



(Ben Cheng/Manager)



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## 1. REVISION RECORD OF TEST REPORT

Edition No	Issued Data	Revision Summary	Report Number
0	2019. 08. 13	Original Report	EM-F190259

## 2. SUMMARY OF TEST RESULTS

Rule		Description	Results
FCC	IC		
15.207	RSS-Gen §8.8	Conducted Emission	<b>PASS</b>
15.247(d)/ 15.205	RSS-Gen §8.9 RSS-247 §5.5	Radiated Band Edge and Radiated Spurious Emission	<b>PASS</b>
15.247(a)(2)	RSS-247 §5.2(a)	6dB/Occupied Bandwidth	<b>PASS</b>
15.247(b)(3)	RSS-247 §5.4(d)	Maximum Peak Output	<b>PASS</b>
15.247(d)	RSS-247 §5.5	Conducted Band Edges and Conducted Spurious Emission	<b>PASS</b>
15.247 (e)	RSS-247 §5.2(b)	Peak Power Spectral Density	<b>PASS</b>
15.203	RSS-Gen §6.8	Antenna Requirement	<b>Compliance</b>
Note: The uncertainties value is not used in determining the result.			

### 3. GENERAL INFORMATION

#### 3.1. Description of Application

Applicant	FUTABA Corporation 1080 Yabutsuka Chosei-mura Chosei-gun Chiba-ken, 299-4395 Japan.
Manufacturer	FUTABA Corporation 1080 Yabutsuka Chosei-mura Chosei-gun Chiba-ken, 299-4395 Japan.
Product	Radio Control
Model	T32MZ
Brand	Futaba

#### 3.2. Description of EUT

Test Model	T32MZ
Serial Number	N/A
Power Rating	(1)DC 5V (USB) (2)DC 3.6 ~ 4.2V (Battery)
Firmware Version	N/A
RF Features	DSSS: FASSTest, FASST FHSS: S-FHSS, T-FHSS, BT
Transmit Type	1T1R
Sample Status	Production
Date of Receipt	2019. 06. 04
Date of Test	2019. 07. 26 ~ 08. 12
Interface Ports of EUT	<ul style="list-style-type: none"><li>• Connector for trainer function (TRAINER) x1</li><li>• S.BUS Connector (S.I/F) x2</li><li>• Connector for Battery Charger (CHG) x1</li><li>• Audio Plug (PHONE) x1</li><li>• Micro SD Card Slot x1</li></ul>
Accessories Supplied	AC Adapter (Wall-mount, 2C)

### 3.3. Antenna Information

No.	Antenna Part Number	Manufacture/Brand	Antenna Type	Frequency	Max Gain
For FASSTest, FASST, S-FHSS, T-FHSS Mode					
1	ANTB24-094A0	SANSEI ELECTRIC CO., LTD	1/2λ Pencil type antenna	2400 ~ 2500MHz	1.48dBi
For BT Mode					
2.	ANT016008LCD 2442MA1	TDK	built-in chip	2400 ~ 2484MHz	2.3dBi

### 3.4. EUT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (kbps)
FASSTest	2405.376 to 2472.960	23	DSSS	136
FASST	2405.376 to 2477.056	36	DSSS	136

FASSTest			
Channel List			
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
02	2405.376	38	2442.240
05	2408.448	41	2445.312
08	2411.520	44	2448.384
11	2414.592	47	2451.456
14	2417.664	50	2454.528
17	2420.736	53	2457.600
20	2423.808	56	2460.672
23	2426.880	59	2463.744
26	2429.952	62	2466.816
29	2433.024	65	2469.888
32	2436.096	68	2472.960
35	2439.168		



FASST			
Channel List			
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
02	2405.376	38	2442.240
04	2407.424	40	2444.288
06	2409.472	42	2446.336
08	2411.520	44	2448.384
10	2413.568	46	2450.432
12	2415.616	48	2452.480
14	2417.664	50	2454.528
16	2419.712	52	2456.576
18	2421.760	54	2458.624
20	2423.808	56	2460.672
22	2425.856	58	2462.720
24	2427.904	60	2464.768
26	2429.952	62	2466.816
28	2432.000	64	2468.864
30	2434.048	66	2470.912
32	2436.096	68	2472.960
34	2438.144	70	2475.008
36	2440.192	72	2477.056

### 3.5. Descriptions of Key Components

Item	Supplier/Brand	Model	Specification
GPS Module	Position	GPS-86A-093	GPS
Wireless Module	Texas Instruments	WL18MODGB	BT FCC ID: Z64-WL18SBMOD IC: 451I-WL18SBMOD
Wireless Module	Futaba	TC23A	FASSTest, FASST, S-FHSS, T-FHSS
Lithium-polymer Battery	Futaba	LT1F6600B	DC 3.8A, 6600mA, 25.08Wh
AC Adapter (Wall-mount, 2C)	APD	WB-10G05R	I/P: 100-240Vac, 50-60Hz, 0.4A Max. O/P: 5Vdc, 2A DC(USB) Cable: Shielded, Detachable, 1.1m

### 3.6. Test Configuration

Mode	TX <sub>on</sub> (ms)	1/ TX <sub>on</sub> (kHz)	Duty Cycle (x)	Duty Cycle Factor [10log(1/x)] (dB)
FASSTest	---	---	1.00	0
FASST	---	---	1.00	0

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 <sub>on</sub> (ms)	T <sub>on</sub> +T <sub>off</sub> (ms)
FASSTest		---
FASST		---

AC Conduction	
Test Case	Charge Mode

	Item	Mode	Test Channel
Radiated Test Case	Radiated Spurious Emission	Charge	---
	Radiated Band Edge <sup>Note1</sup>	FASSTest	2/68
		FASST	2/72
	Radiated Spurious Emission <sup>Note1</sup>	FASSTest	2/35/68
FASST		2/36/72	
Conducted Test Case	6dB Bandwidth	FASSTest	2/35/68
		FASST	2/36/72
	Peak Power Spectral Density	FASSTest	2/35/68
		FASST	2/36/72
	Peak Output Power	FASSTest	2/35/68
		FASST	2/36/72
	Band Edge	FASSTest	2/68
		FASST	2/72
	Spurious Emission	FASSTest	2/35/68
		FASST	2/36/72

Note 1:  Mobile Device

Portable Device, and 3 axis were assessed. The worst scenario for Radiated Spurious Emission as follow:  Lie  Side  Stand

### 3.7. Tested Supporting System List

#### 3.7.1. Support Peripheral Unit

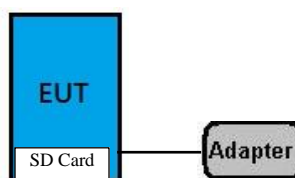
No.	Product	Brand	Model No.	Serial No.	Approval
1.	Micro SD Card (4GB)	Transcend	N/A	N/A	N/A
2.	Power Socket	N/A	N/A	N/A	N/A

#### 3.7.2. Cable Lists

No.	Cable Description Of The Above Support Units
1.	----
2.	AC Power Cord: Unshielded, Detachable, 1.0m

### 3.8. Setup Configuration

#### 3.8.1. EUT Configuration for Power Line & Radiated Emission (Charge mode)



#### 3.8.2. EUT Configuration for Radiated Emission



#### 3.8.3. EUT Configuration for RF Conducted Test Items



### 3.9. Operating Condition of EUT

- Charge Mode: The EUT connects the AC adapter on charge mode.
- Transmit Mode: Press the button of the EUT is used for enabling EUT RF function under continues transmitting and choosing mode/channel. (The test program was installed in SD card)

### 3.10. Description of Test Facility

Name of Test Firm	Audix Technology Corporation / EMC Department No. 53-11, Dingfu, 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.7 Shielded Room (2) No.1 3m Semi Anechoic Chamber

### 3.11. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.50dB
Radiation Test (Distance: 3m)	30MHz~1000MHz	± 3.68dB
	Above 1GHz	±5.82dB

Remark : Uncertainty =  $ku_c(y)$

Test Item	Uncertainty
6dB 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. Conducted Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESR	101774	2019. 01. 23	1 Year
2.	A.M.N.	R&S	ENV4200	100169	2018. 11. 14	1 Year
3.	Pulse Limiter	R&S	ESH3-Z2	100354	2019. 01. 12	1 Year
4.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.8 S/R	2019. 04. 20	1 Year
5.	Test Software	Audix	e3	V6.120619c	N.C.R.	N.C.R.

### 4.2. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2018. 09. 12	1 Year
2.	Test Receiver	R & S	ESCS30	100338	2019. 06. 12	1 Year
3.	Amplifier	HP	8447D	2944A06305	2019. 01. 30	1 Year
4.	Amplifier	HP	8449B	3008A00529	2019. 01. 23	1 Year
5.	Bilog Antenna	CHASE	CBL6112D	33821	2019. 01. 19	1 Year
6.	HornAntenna	EMCO	3115	9609-4927	2019. 06. 24	1 Year
7.	Horn Antenna	COM-POWER	AH-840	101092	2019. 05. 14	1 Year
8.	Notch Filter	K&L	7NSL10-244 1.5/E130.5-O /O	1	2019. 07. 24	1 Year
9.	High-Pass Filter	Microwave	H3G018G1	484796	2018. 08. 22	1 Year
10.	Coaxial Cable	MIYAZAKI	5D2W	RE-11	2019. 02. 01	1 Year
11.	Coaxial Cable	HUBER+ SUHNER	SUCOFLEX 106	54602/6	2019. 02. 01	1 Year
12.	Digital Thermo-Hygro Meter	IMax	HTC-1	No.1 3m A/C	2019. 04. 20	1 Year
13.	Test Software	Audix	e3	V6.120619c	N.C.R.	N.C.R.

### 4.3. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9010B-544	MY55460198	2019. 05. 06	1 Year
2.	Digital Thermo-Hygro Meter	Shenzhen Datronn Electronics	KT-905	RF	2019. 04. 20	1 Year

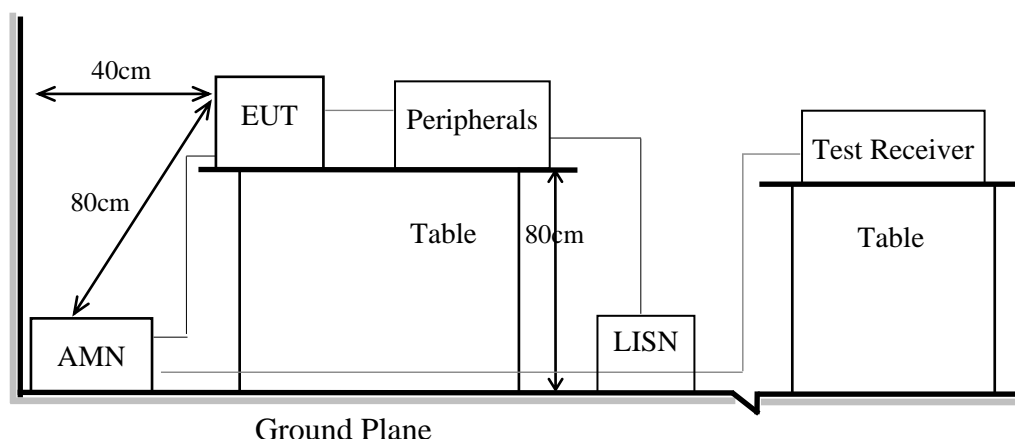
## 5. CONDUCTED EMISSION

### 5.1. Block Diagram of Test Setup

#### 5.1.1. Block Diagram of EUT

Indicated as section 3.8.

#### 5.1.2. Shielded Room Setup Diagram



### 5.2. Conducted Emission Limit

Frequency	Conducted Limit	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB $\mu$ V	56 ~ 46 dB $\mu$ V
500kHz ~ 5MHz	56 dB $\mu$ V	46 dB $\mu$ V
5MHz ~ 30MHz	60 dB $\mu$ V	50 dB $\mu$ V

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the measurement using the average detector is not required.

2.: The lower limit applies to the band edges.

### 5.3. Test Procedure

- 5.3.1. To set up the EUT as indicated in ANSI C 63.10. The EUT was placed on the table which has 80 cm height to the ground and 40 cm distance to the conducting wall.
- 5.3.2. Power supplier of the EUT was connected to the AC mains through an Artificial Mains Network (A.M.N.).
- 5.3.3. The AC power supplies to all peripheral devices must be provided through line impedance stabilization network (L.I.S.N.)
- 5.3.4. Checking frequency range from 150kHz to 30 MHz and record the emission which does not have 20 dB below limit.

### 5.4. Test Results

Please refer to Appendix A.

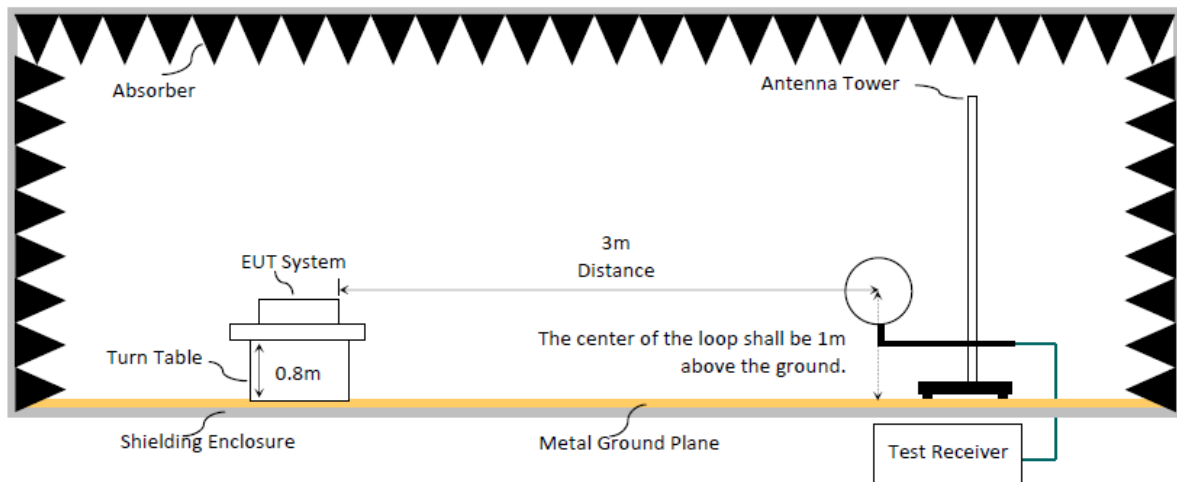
## 6. RADIATED EMISSION

### 6.1. Block Diagram of Test Setup

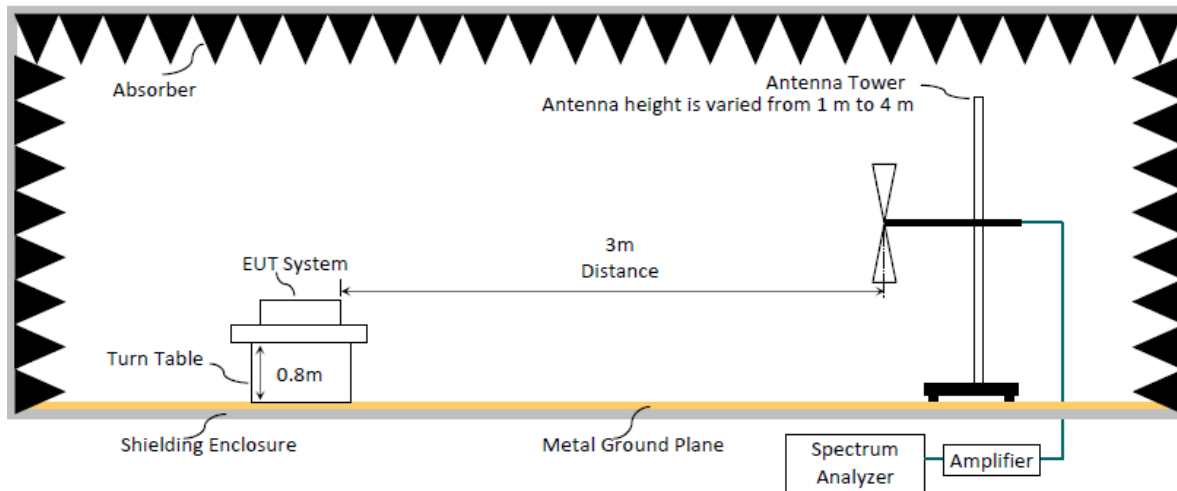
#### 6.1.1. Block Diagram of EUT

Indicated as section 3.8

#### 6.1.2. Setup Diagram for 9kHz-30MHz

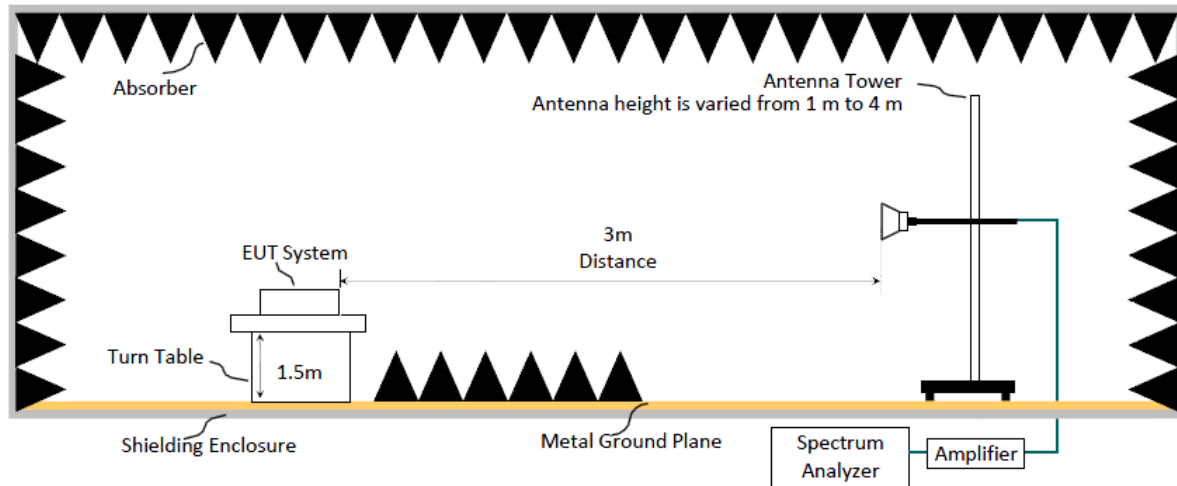


#### 6.1.3. Setup Diagram for 30-1000 MHz





### 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	
		dB $\mu$ V/m	$\mu$ V/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 dB $\mu$ V/m (Peak) 54.0 dB $\mu$ V/m (Average)	

Remark : (1) dB $\mu$ V/m = 20 log ( $\mu$ 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 turn table 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 80 cm (for 30-1000 MHz) 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 1 GHz:

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.

Mode	T (ms)	1/ T (kHz)	VBW Setting (Hz)
FASSTest	---	---	10
FASST	---	---	10

N/A: 1/ T is not implemented when duty cycle presented in section 3.6 is  $\geq$ 98 %.

(1) Detector = Peak.

(2) Sweep time = auto.

(3) Trace mode = max hold.

(4) 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

Average Emission Level = Antenna Factor + Cable Loss + Meter Reading

Average Emission Level = Peak Emission Level + DCCF

Duty Cycle Correction Factor (DCCF) =  $20\log(TX_{on}/TX_{on+off})$  presented in section 3.6

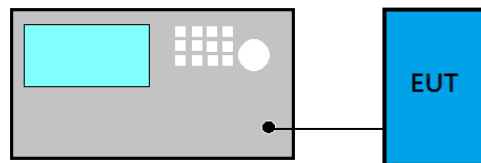
ERP = Peak Emission Level - 95.2dB - 2.14dB

## 6.5. Test Results

Please refer to Appendix A.

## 7. 6dB BANDWIDTH

### 7.1. Block Diagram of Test Setup



### 7.2. Specification Limits

The minimum 6dB bandwidth shall be at least 500kHz.

### 7.3. Test Procedure

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

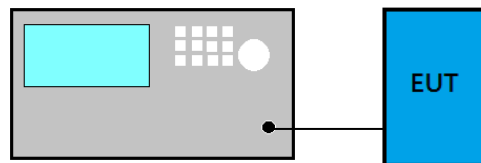
- (1) Set RBW = 100 kHz.
- (2) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- (3) Detector = Peak.
- (4) Trace mode = max hold.
- (5) Sweep = auto couple.
- (6) Allow the trace to stabilize.
- (7) Setting channel bandwidth function x dB to -6 dB to record the final bandwidth.

### 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)

### 8.3. Test Procedure

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

**Method PKPM Peak power meter method:**

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

**Method PKSA (Spectrum Analyzer):**

- (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 3.6 is  $< 98\%$ .

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

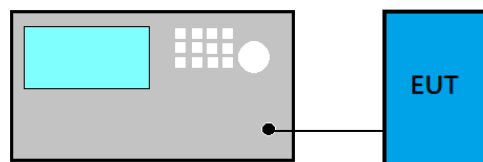
- (1) Set span to at least 1.5 times the OBW
- (2) Set RBW = 1 -5% of OBW
- (3) Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
- (4) Detector = RMS.
- (5) Trace mode = trace average at least 100 traces
- (6) Sweep = auto couple.
- (7) Compute power by integrating the spectrum across the OBW of 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 3.6 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.

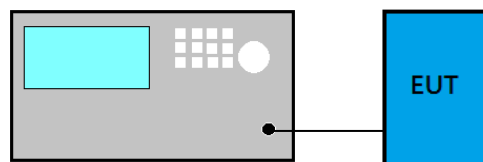
### 9.4. Test Results

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 3.6 < 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



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## **11.DEVIATION TO TEST SPECIFICATIONS**

**【NONE】**



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# APPENDIX A

## TEST DATA AND PLOTS

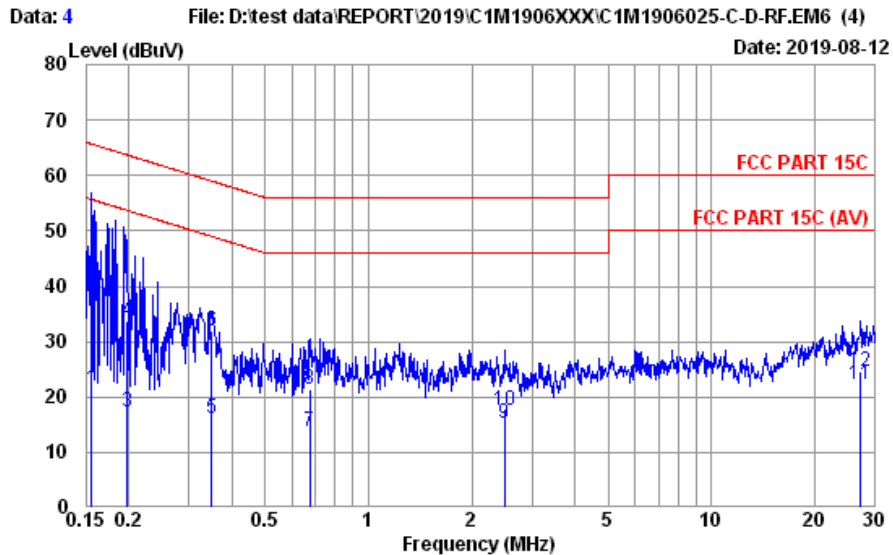
(Model: T32MZ)

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## A.1 CONDUCTED EMISSION

Test Date	2019/08/12	Temp./Hum.	26°C/62%
Test Voltage	AC 120V 60Hz (Via AC Adapter)	Mode	Charge

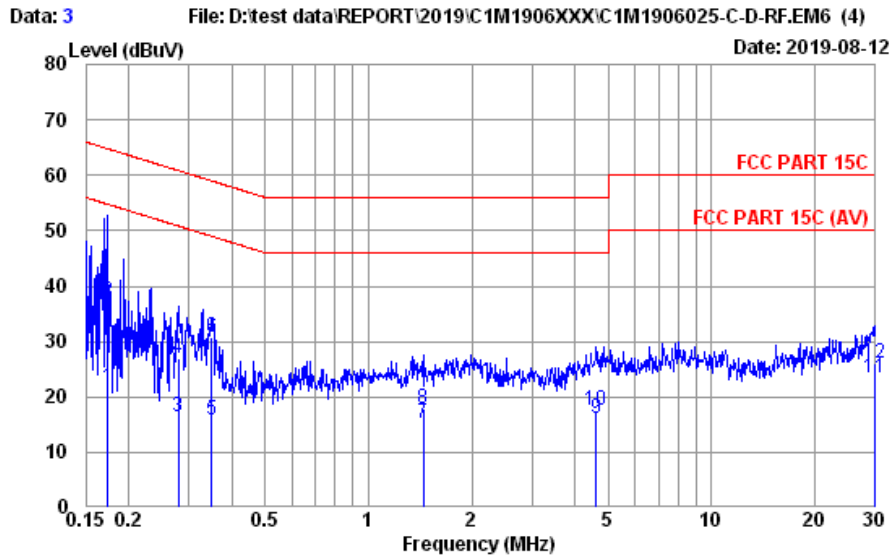


Site no. : No.8 Shielded Room Data no. : 4  
 Condition : ENV4200 100169 LISN Phase : NEUTRAL  
 Limit : FCC PART 15C  
 Env. / Ins. : 26°C / 62% ESR3 (1774) Engineer : Chucky Chiu  
 EUT : T32MZ  
 Power Rating : 120Vac/60Hz  
 Test Mode : Charge

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
1	0.156	10.69	0.03	9.86	0.84	21.42	55.69	34.27	Average
2	0.156	10.69	0.03	9.86	20.53	41.11	65.69	24.58	QP
3	0.198	10.62	0.03	9.86	-3.10	17.41	53.71	36.30	Average
4	0.198	10.62	0.03	9.86	13.32	33.83	63.71	29.88	QP
5	0.348	10.52	0.04	9.86	-4.30	16.12	49.00	32.88	Average
6	0.348	10.52	0.04	9.86	11.43	31.85	59.00	27.15	QP
7	0.675	10.48	0.05	9.86	-6.49	13.90	46.00	32.10	Average
8	0.675	10.48	0.05	9.86	0.98	21.37	56.00	34.63	QP
9	2.487	10.55	0.09	9.87	-5.29	15.22	46.00	30.78	Average
10	2.487	10.55	0.09	9.87	-2.81	17.70	56.00	38.30	QP
11	27.127	15.58	0.32	9.99	-3.58	22.31	50.00	27.69	Average
12	27.127	15.58	0.32	9.99	-1.25	24.64	60.00	35.36	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

Test Date	2019/08/12	Temp./Hum.	26°C/62%
Test Voltage	AC 120V 60Hz (Via AC Adapter)	Mode	Operating



Site no. : No.8 Shielded Room Data no. : 3  
 Condition : ENV4200 100169 LISN Phase : LINE  
 Limit : FCC PART 15C  
 Env. / Ins. : 26°C / 62% ESR3 (1774) Engineer : Chucky Chiu  
 EUT : T32MZ  
 Power Rating : 120Vac/60Hz  
 Test Mode : Charge

	AMN	Cable	Pulse	Emission			Margin	Remark	
12	Freq. (MHz)	Factor (dB)	Loss (dB)	Att. (dB)	Reading (dBµV)	Level (dBµV)	Limits (dBµV)	(dB)	
1	0.174	10.58	0.03	9.86	1.12	21.59	54.77	33.18	Average
2	0.174	10.58	0.03	9.86	16.72	37.19	64.77	27.58	QP
3	0.279	10.50	0.03	9.86	-4.00	16.39	50.85	34.46	Average
4	0.279	10.50	0.03	9.86	6.60	26.99	60.85	33.86	QP
5	0.348	10.47	0.04	9.86	-4.51	15.86	49.00	33.14	Average
6	0.348	10.47	0.04	9.86	10.26	30.63	59.00	28.37	QP
7	1.449	10.44	0.06	9.86	-5.10	15.26	46.00	30.74	Average
8	1.449	10.44	0.06	9.86	-2.40	17.96	56.00	38.04	QP
9	4.598	10.64	0.12	9.87	-4.45	16.18	46.00	29.82	Average
10	4.598	10.64	0.12	9.87	-3.17	17.46	56.00	38.54	QP
11	29.841	15.74	0.34	10.01	-2.67	23.42	50.00	26.58	Average
12	29.841	15.74	0.34	10.01	0.07	26.16	60.00	33.84	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

## A.2 RADIATED EMISSION

Test Date	2019/08/01~05	Temp./Hum.	22~24°C/50~54%
Test Voltage	(1) Charge Mode: AC 120V 60Hz (Via AC Adapter) (2) TX Mode: DC 3.8V (Via Battery)		

### A.2.1 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.**

#### A.2.1.2 Frequency Below 1 GHz

Mode	Charge	Frequency	----
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#### Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
71.71	12.67	1.91	20.72	35.30	40.00	4.70	Peak
127.00	18.24	2.62	17.49	38.35	43.50	5.15	Peak
163.86	16.27	3.05	18.24	37.56	43.50	5.94	QP
391.81	22.20	5.77	6.63	34.60	46.00	11.40	Peak
521.79	23.94	6.78	2.56	33.28	46.00	12.72	Peak
984.48	27.97	8.95	1.00	37.92	54.00	16.08	Peak

#### Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
58.13	12.87	1.70	18.67	33.24	40.00	6.76	Peak
127.97	18.19	2.63	18.89	39.71	43.50	3.79	QP
185.20	15.63	3.28	20.34	39.25	43.50	4.25	QP
195.87	16.10	3.38	20.38	39.86	43.50	3.64	QP
818.61	26.65	8.01	3.31	37.97	46.00	8.03	Peak
971.87	27.87	8.88	1.73	38.48	54.00	15.52	Peak

Mode	FASSTest	Frequency	TX 2439.168MHz
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## Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
35.82	21.86	1.31	1.37	24.54	40.00	15.46	Peak
116.33	18.43	2.49	8.59	29.51	43.50	13.99	Peak
264.74	19.09	4.09	2.28	25.46	46.00	20.54	Peak
339.43	20.86	5.05	2.76	28.67	46.00	17.33	Peak
871.96	27.09	8.30	1.93	37.32	46.00	8.68	Peak
986.42	27.97	8.96	1.29	38.22	54.00	15.78	Peak

## Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
100.81	17.45	2.30	4.64	24.39	43.50	19.11	Peak
370.47	21.68	5.49	2.34	29.51	46.00	16.49	Peak
467.47	23.31	6.48	2.31	32.10	46.00	13.90	Peak
612.97	24.85	6.95	1.78	33.58	46.00	12.42	Peak
856.44	26.97	8.22	1.85	37.04	46.00	8.96	Peak
980.60	27.92	8.93	1.47	38.32	54.00	15.68	Peak

Remark: The TX 2439.168MHz is a worst mode of FASSTest mode.



Mode	FASST	Frequency	TX 2440.192MHz
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## Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
37.76	20.81	1.35	4.95	27.11	40.00	12.89	Peak
103.72	17.65	2.34	9.37	29.36	43.50	14.14	Peak
290.93	19.56	4.35	5.99	29.90	46.00	16.10	Peak
709.00	25.55	7.41	1.89	34.85	46.00	11.15	Peak
955.38	27.74	8.78	1.72	38.24	46.00	7.76	Peak
995.15	28.04	9.01	1.36	38.41	54.00	15.59	Peak

## Antenna at Vertical Polarization

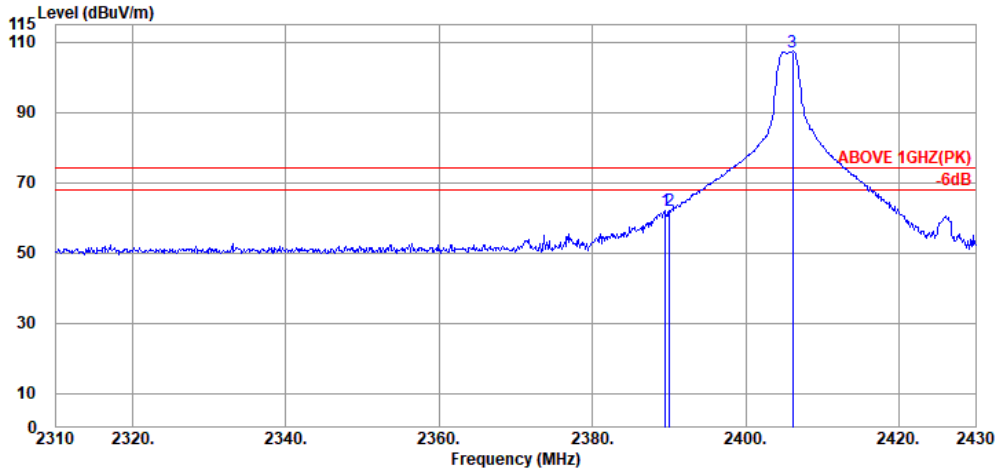
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
45.52	16.80	1.49	12.25	30.54	40.00	9.46	Peak
127.97	18.19	2.63	8.13	28.95	43.50	14.55	Peak
311.30	20.04	4.62	4.27	28.93	46.00	17.07	Peak
857.41	26.97	8.22	2.01	37.20	46.00	8.80	Peak
953.44	27.72	8.77	1.13	37.62	46.00	8.38	Peak
990.30	27.99	8.99	0.93	37.91	54.00	16.09	Peak

Remark: The TX 2440.192MHz is a worst mode of FASST mode.

A.2.1.3 Frequency Above 1 GHz to 10<sup>th</sup> harmonics

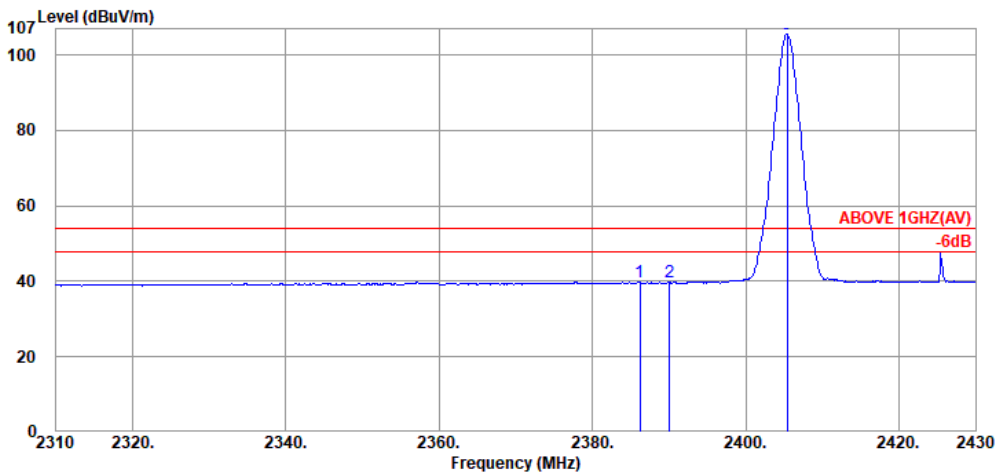
**Band Edge:**

Mode	FASSTest	Frequency	TX 2405.376MHz
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Antenna at Horizontal Polarization

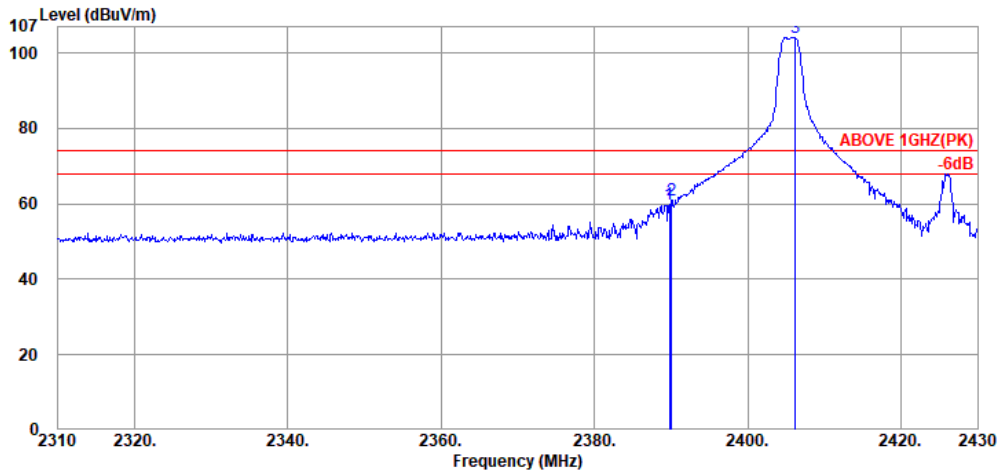
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.56	28.28	6.01	27.70	61.99	74.00	12.01	Peak
2390.04	28.28	6.01	27.59	61.88	74.00	12.12	Peak
2406.12	28.30	6.03	73.02	107.35	---	---	Peak



Antenna at Horizontal Polarization

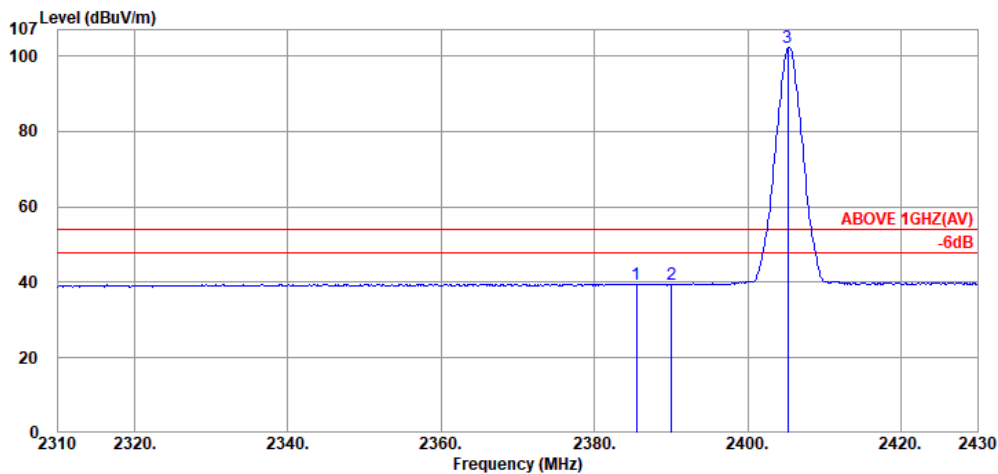
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2386.20	28.28	6.01	5.44	39.73	54.00	14.27	Average
2390.04	28.28	6.01	5.43	39.72	54.00	14.28	Average
2405.40	28.30	6.03	71.22	105.55	---	---	Average

Mode	FASSTest	Frequency	TX 2405.376MHz
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Antenna at Vertical Polarization

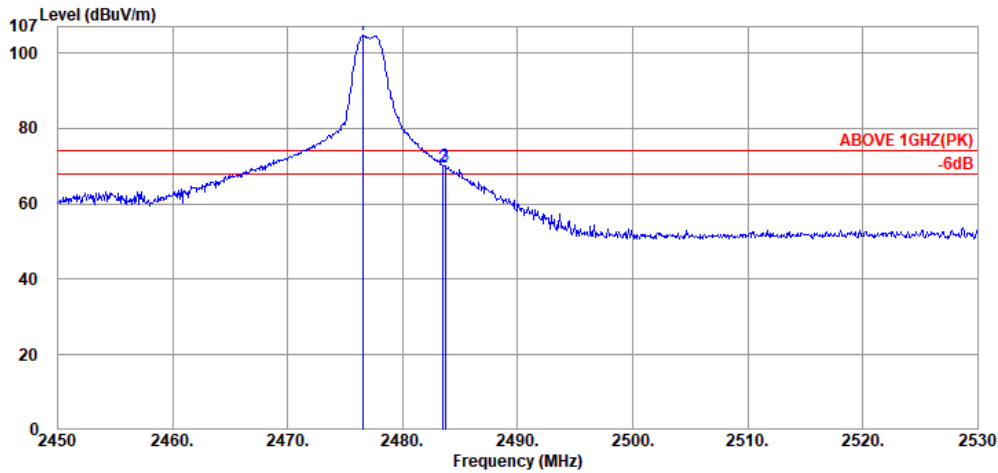
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.80	28.28	6.01	25.55	59.84	74.00	14.16	Peak
2390.04	28.28	6.01	26.68	60.97	74.00	13.03	Peak
2406.24	28.30	6.03	69.71	104.04	---	---	Peak



Antenna at Vertical Polarization

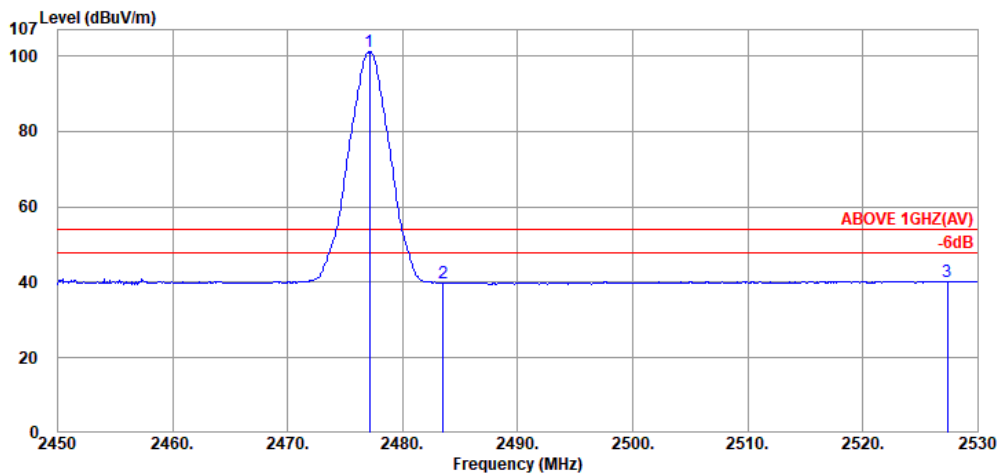
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2385.48	28.28	6.01	5.29	39.58	54.00	14.42	Average
2390.04	28.28	6.01	5.24	39.53	54.00	14.47	Average
2405.28	28.30	6.03	67.78	102.11	---	---	Average

Mode	FASSTest	Frequency	TX 2472.960MHz
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Antenna at Horizontal Polarization

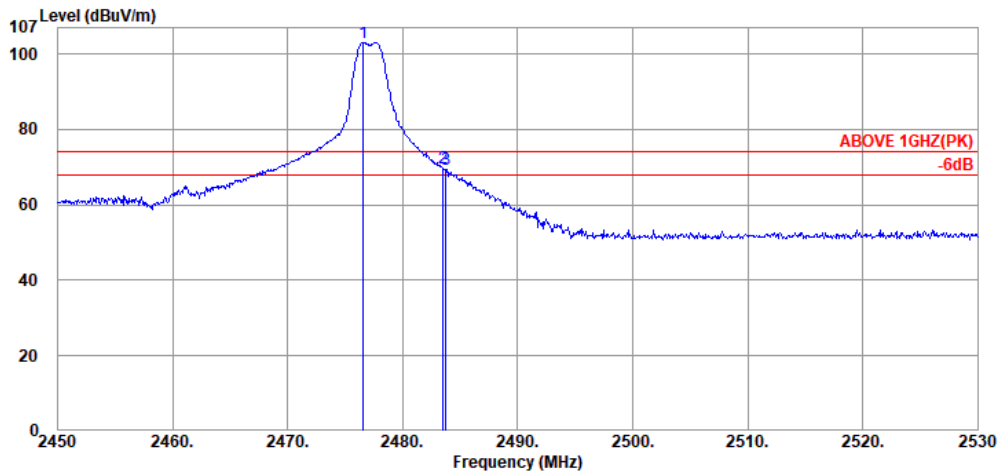
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2476.48	28.38	6.13	70.13	104.64	---	---	Peak
2483.52	28.38	6.13	35.41	69.92	74.00	4.08	Peak
2483.68	28.38	6.13	35.48	69.99	74.00	4.01	Peak



Antenna at Horizontal Polarization

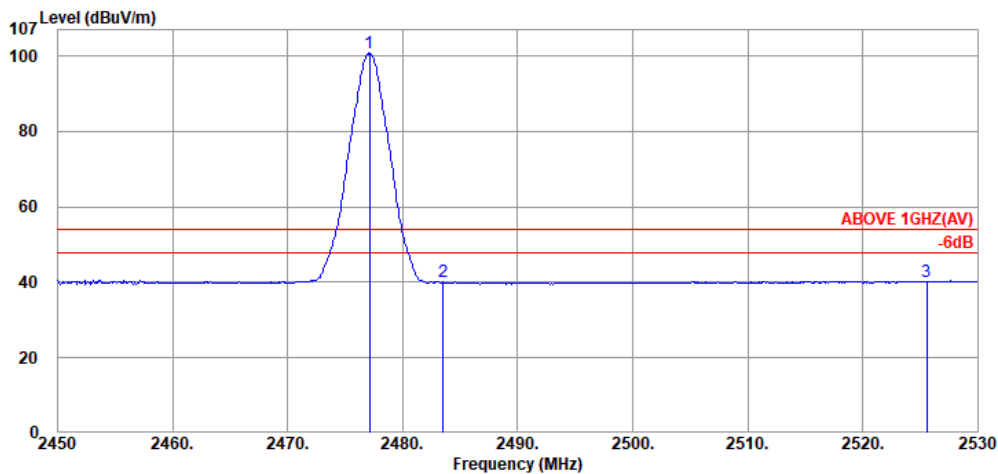
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2477.12	28.38	6.13	66.52	101.03	---	---	Average
2483.52	28.38	6.13	5.29	39.80	54.00	14.20	Average
2527.36	28.51	6.17	5.65	40.33	54.00	13.67	Average

Mode	FASSTest	Frequency	TX 2472.960MHz
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Antenna at Vertical Polarization

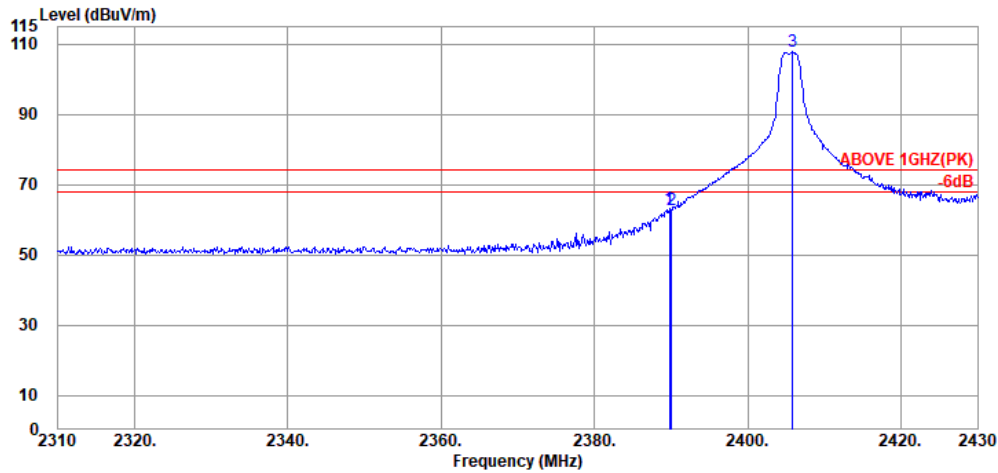
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2476.56	28.38	6.13	68.64	103.15	---	---	Peak
2483.52	28.38	6.13	35.20	69.71	74.00	4.29	Peak
2483.76	28.38	6.13	35.01	69.52	74.00	4.48	Peak



Antenna at Vertical Polarization

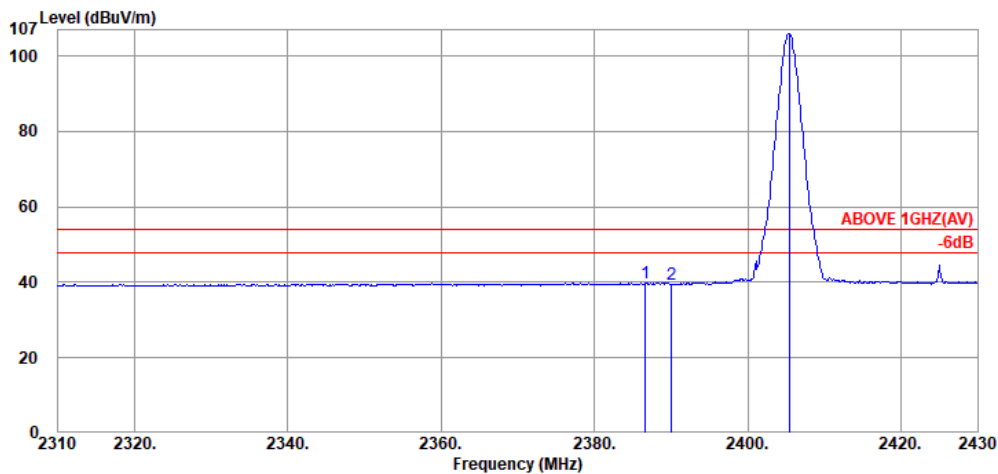
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2477.12	28.38	6.13	66.15	100.66	---	---	Average
2483.52	28.38	6.13	5.49	40.00	54.00	14.00	Average
2525.60	28.51	6.17	5.59	40.27	54.00	13.73	Average

Mode	FASST	Frequency	TX 2405.376MHz
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Antenna at Horizontal Polarization

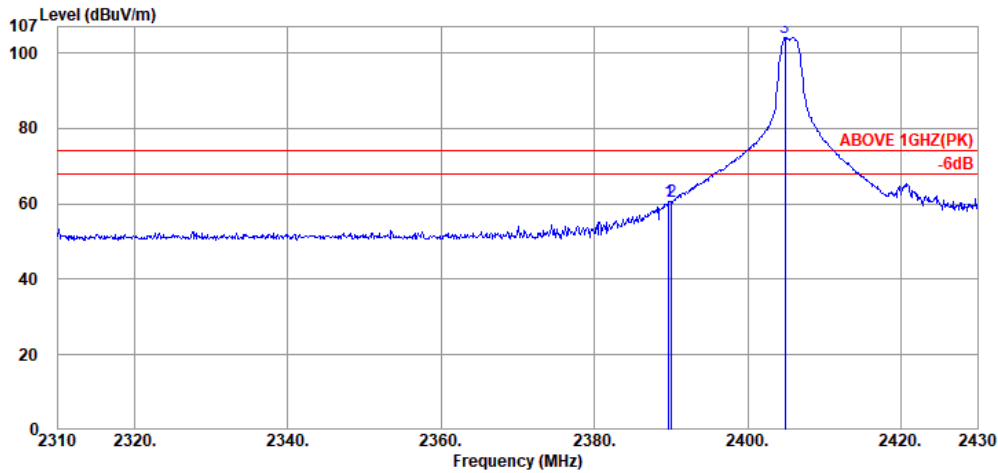
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.80	28.28	6.01	28.83	63.12	74.00	10.88	Peak
2390.04	28.28	6.01	28.56	62.85	74.00	11.15	Peak
2405.88	28.30	6.03	73.43	107.76	---	---	Peak



Antenna at Horizontal Polarization

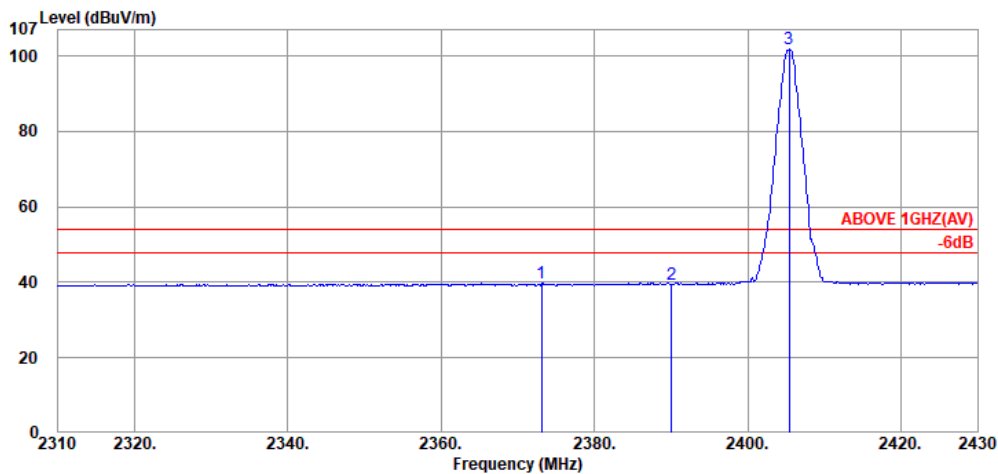
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2386.68	28.28	6.01	5.64	39.93	54.00	14.07	Average
2390.04	28.28	6.01	5.33	39.62	54.00	14.38	Average
2405.40	28.30	6.03	71.69	106.02	---	---	Average

Mode	FASST	Frequency	TX 2405.376MHz
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Antenna at Vertical Polarization

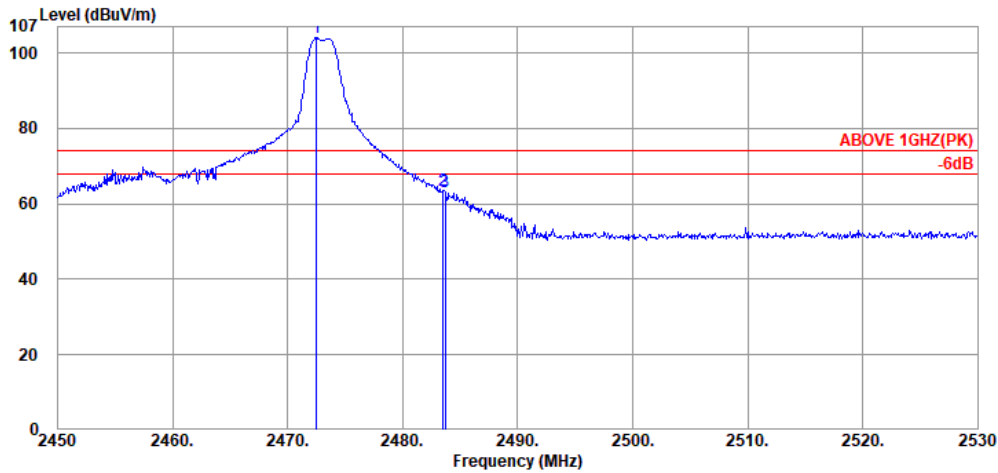
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.68	28.28	6.01	26.32	60.61	74.00	13.39	Peak
2390.04	28.28	6.01	26.18	60.47	74.00	13.53	Peak
2404.92	28.30	6.03	69.79	104.12	---	---	Peak



Antenna at Vertical Polarization

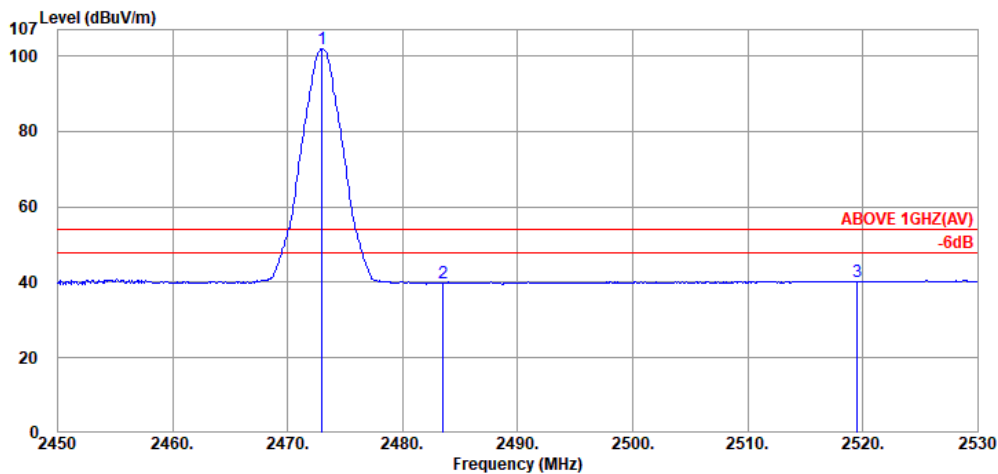
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2373.12	28.26	5.98	5.56	39.80	54.00	14.20	Average
2390.04	28.28	6.01	5.13	39.42	54.00	14.58	Average
2405.40	28.30	6.03	67.53	101.86	---	---	Average

Mode	FASST	Frequency	TX 2477.056MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2472.48	28.37	6.10	69.53	104.00	---	---	Peak
2483.52	28.38	6.13	29.14	63.65	74.00	10.35	Peak
2483.68	28.38	6.13	28.57	63.08	74.00	10.92	Peak

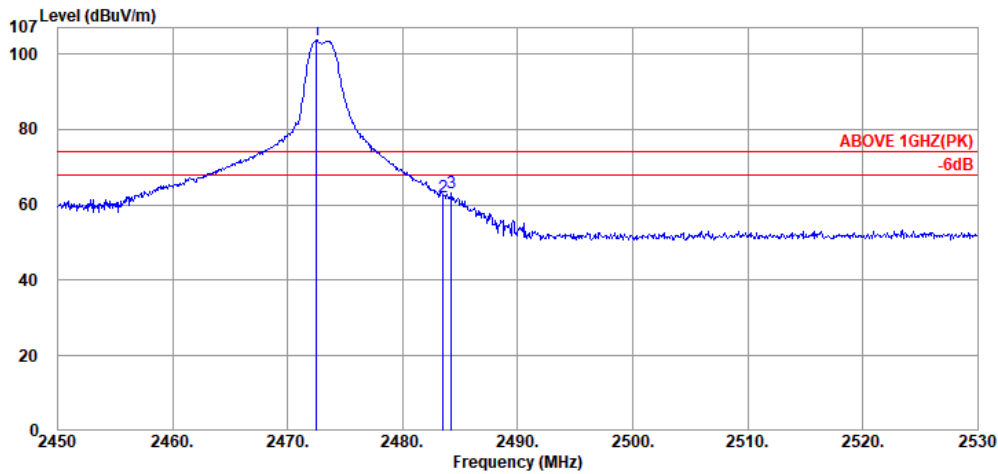


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2472.96	28.37	6.13	67.47	101.97	---	---	Average
2483.52	28.38	6.13	5.33	39.84	54.00	14.16	Average
2519.52	28.48	6.17	5.70	40.35	54.00	13.65	Average

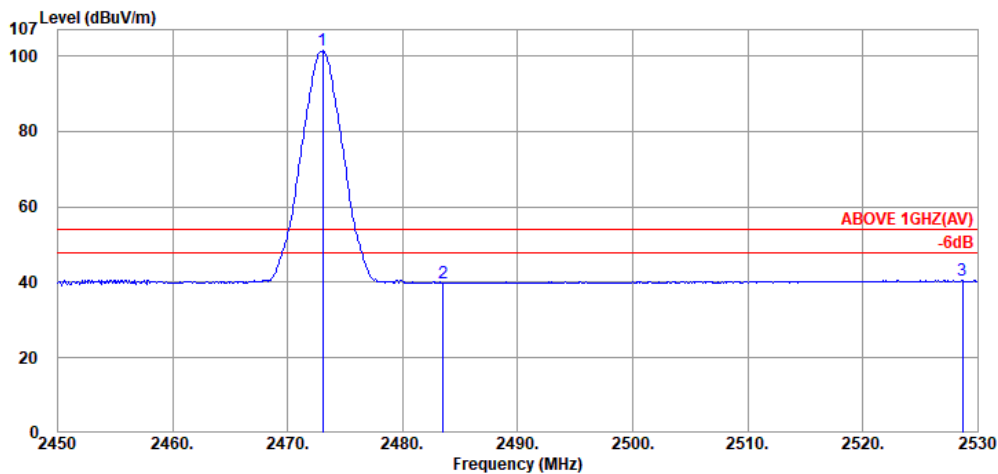


Mode	FASST	Frequency	TX 2477.056MHz
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Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2472.48	28.37	6.10	69.10	103.57	---	---	Peak
2483.52	28.38	6.13	27.44	61.95	74.00	12.05	Peak
2484.24	28.38	6.13	28.62	63.13	74.00	10.87	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2473.04	28.37	6.13	66.87	101.37	---	---	Average
2483.52	28.38	6.13	5.37	39.88	54.00	14.12	Average
2528.72	28.51	6.17	5.81	40.49	54.00	13.51	Average

A.2.2 Emissions outside the frequency band:

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

Mode	FASSTest	Frequency	TX 2405.376MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4812.00	32.85	8.44	5.98	47.27	54.00	6.73	Average
4812.00	32.85	8.44	14.37	55.66	74.00	18.34	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4812.00	32.85	8.44	7.49	48.78	54.00	5.22	Average
4812.00	32.85	8.44	14.58	55.87	74.00	18.13	Peak

Mode	FASSTest	Frequency	TX 2439.168MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4878.00	32.96	8.50	6.96	48.42	54.00	5.58	Average
4878.00	32.96	8.50	13.21	54.67	74.00	19.33	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4880.00	32.96	8.50	5.78	47.24	54.00	6.76	Average
4880.00	32.96	8.50	14.09	55.55	74.00	18.45	Peak

Mode	FASSTest	Frequency	TX 2472.960MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4946.00	33.09	8.58	6.56	48.23	54.00	5.77	Average
4946.00	33.09	8.58	13.83	55.50	74.00	18.50	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4946.00	33.09	8.58	7.23	48.90	54.00	5.10	Average
4946.00	33.09	8.58	14.68	56.35	74.00	17.65	Peak

Mode	FASST	Frequency	TX 2405.376MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4810.00	32.82	8.44	7.53	48.79	54.00	5.21	Average
4810.00	32.82	8.44	14.90	56.16	74.00	17.84	Peak
7214.00	35.80	9.44	0.64	45.88	54.00	8.12	Average
7214.00	35.80	9.44	6.56	51.80	74.00	22.20	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4812.00	32.85	8.44	6.80	48.09	54.00	5.91	Average
4812.00	32.85	8.44	13.98	55.27	74.00	18.73	Peak
7214.00	35.80	9.42	1.64	46.86	54.00	7.14	Average
7214.00	35.80	9.42	10.12	55.34	74.00	18.66	Peak

Mode	FASST	Frequency	TX 2440.192MHz				
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4880.00	32.96	8.50	9.52	50.98	54.00	3.02	Average
4880.00	32.96	8.50	16.51	57.97	74.00	16.03	Peak
7319.00	36.07	9.59	4.97	50.63	54.00	3.37	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4880.00	32.96	8.50	8.09	49.55	54.00	4.45	Average
4880.00	32.96	8.50	14.70	56.16	74.00	17.84	Peak
7319.00	36.07	9.59	2.49	48.15	54.00	5.85	Average
7319.00	36.07	9.59	9.52	55.18	74.00	18.82	Peak

Mode	FASST	Frequency	TX 2477.056MHz				
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4956.00	33.12	8.58	8.13	49.83	54.00	4.17	Average
4956.00	33.12	8.58	15.60	57.30	74.00	16.70	Peak
7430.00	36.34	9.73	1.93	48.00	54.00	6.00	Average
7430.00	36.34	9.73	7.59	53.66	74.00	20.34	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dB $\mu$ V)	Emission Level (dB $\mu$ V/m)	Limits (dB $\mu$ V/m)	Margin (dB)	Detector
4954.00	33.12	8.58	7.01	48.71	54.00	5.29	Average
4954.00	33.12	8.58	14.51	56.21	74.00	17.79	Peak
7430.00	36.34	9.73	1.48	47.55	54.00	6.45	Average
7430.00	36.34	9.73	9.77	55.84	74.00	18.16	Peak

### A.2.3 Emissions in Non-restricted Frequency Bands:

All emission levels below the FCC 15.209(a)/RSS-Gen Section 8.9 table 4 general radiated emissions limits is not required.

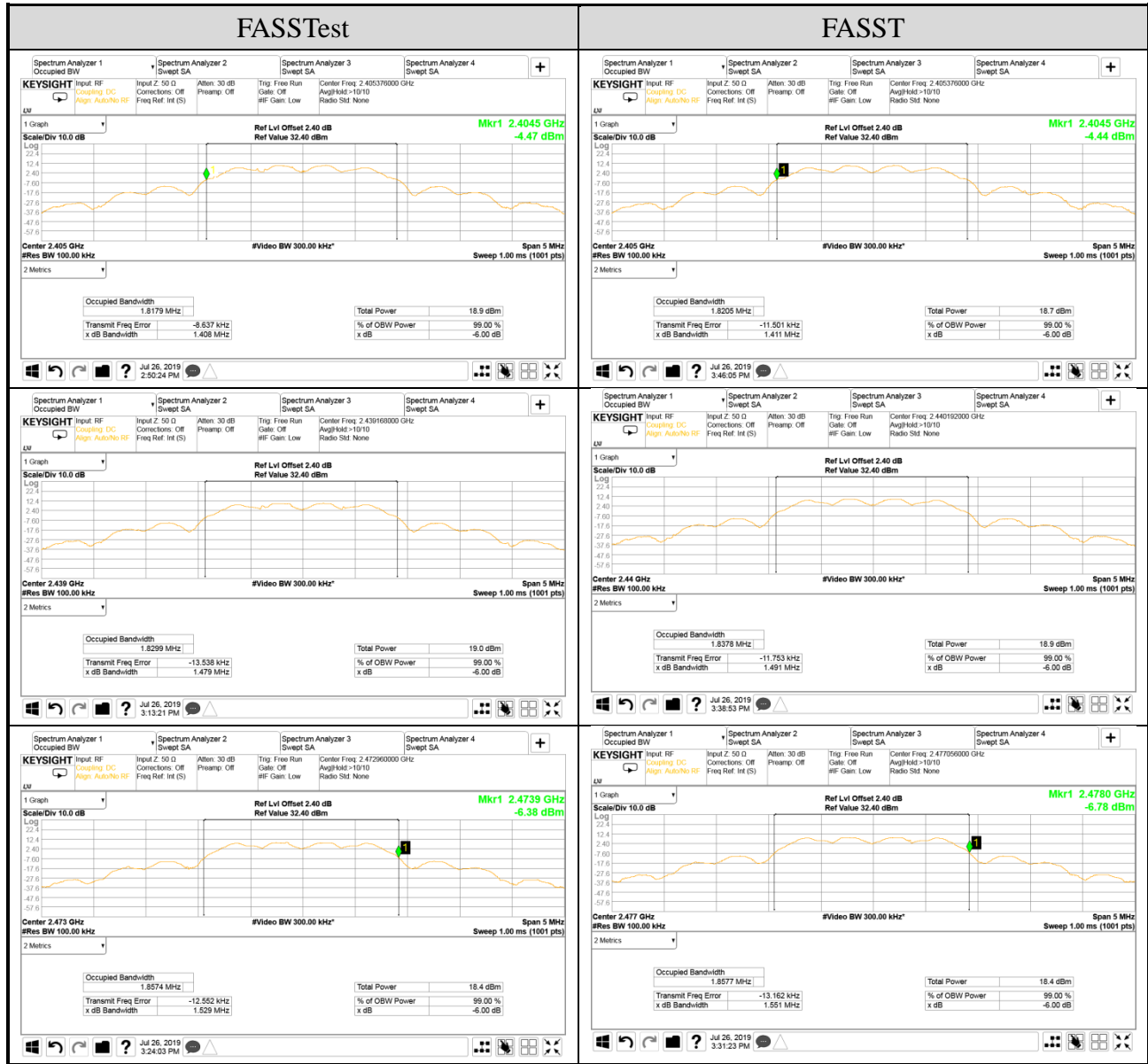
### A.3 6dB/OCCUPIED BANDWIDTH

Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)

#### A.3.1 6dB Bandwidth Result

Mode	Centre Frequency (MHz)	6dB Bandwidth (MHz)	Occupied (99%) Bandwidth (MHz)	Limit
FASSTest	2405.376	1.408	1.8179	>500kHz
	2439.168	1.479	1.8299	
	2472.960	1.529	1.8574	
FASST	2405.376	1.411	1.8205	>500kHz
	2440.192	1.491	1.8378	
	2477.056	1.551	1.8577	

A.3.2 Measurement Plots



## A.4 MAXIMUM PEAK OUTPUT POWER

Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)

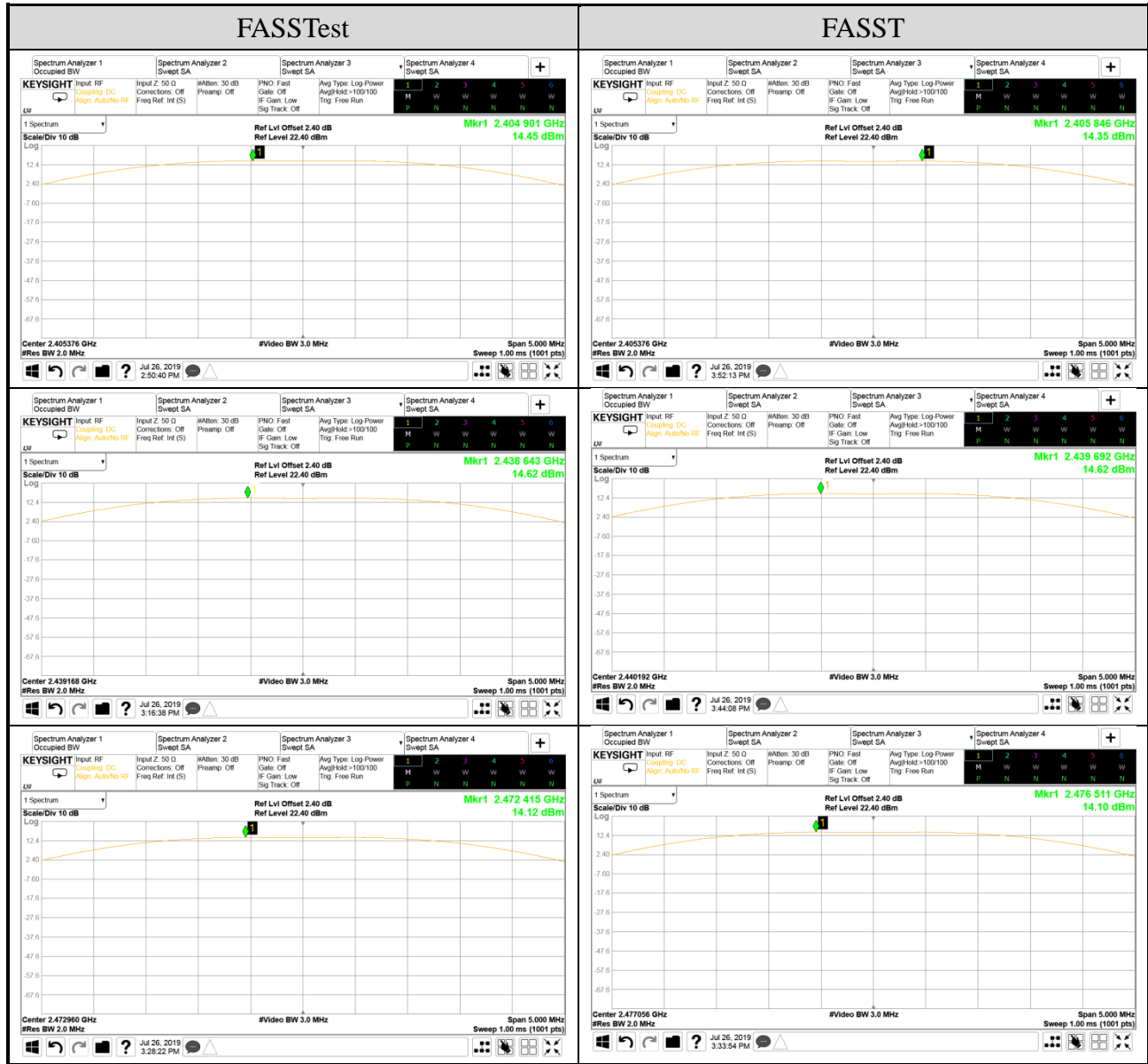
### A.4.1 Peak Output Power

Mode	Centre Frequency (MHz)	Peak Output Power		Antenna Gain (dBi)	Output Power (E.I.R.P.)		Limit	
		(dBm)	(W)		(dBm)	(W)		
FASSTest	2405.376	14.45	0.028	1.48	15.93	0.039	< 30dBm (1W) (Maximum Peak Output Power)	
	2439.168	14.62	0.029		16.10	0.041		
	2472.960	14.12	0.026		15.60	0.036		
FASST	2405.376	14.35	0.028		15.83	0.039		< 36dBm (4W) (E.I.R.P)
	2440.192	14.62	0.029		16.10	0.041		
	2477.056	14.10	0.026		15.58	0.036		

Note: The results have been included cable loss.

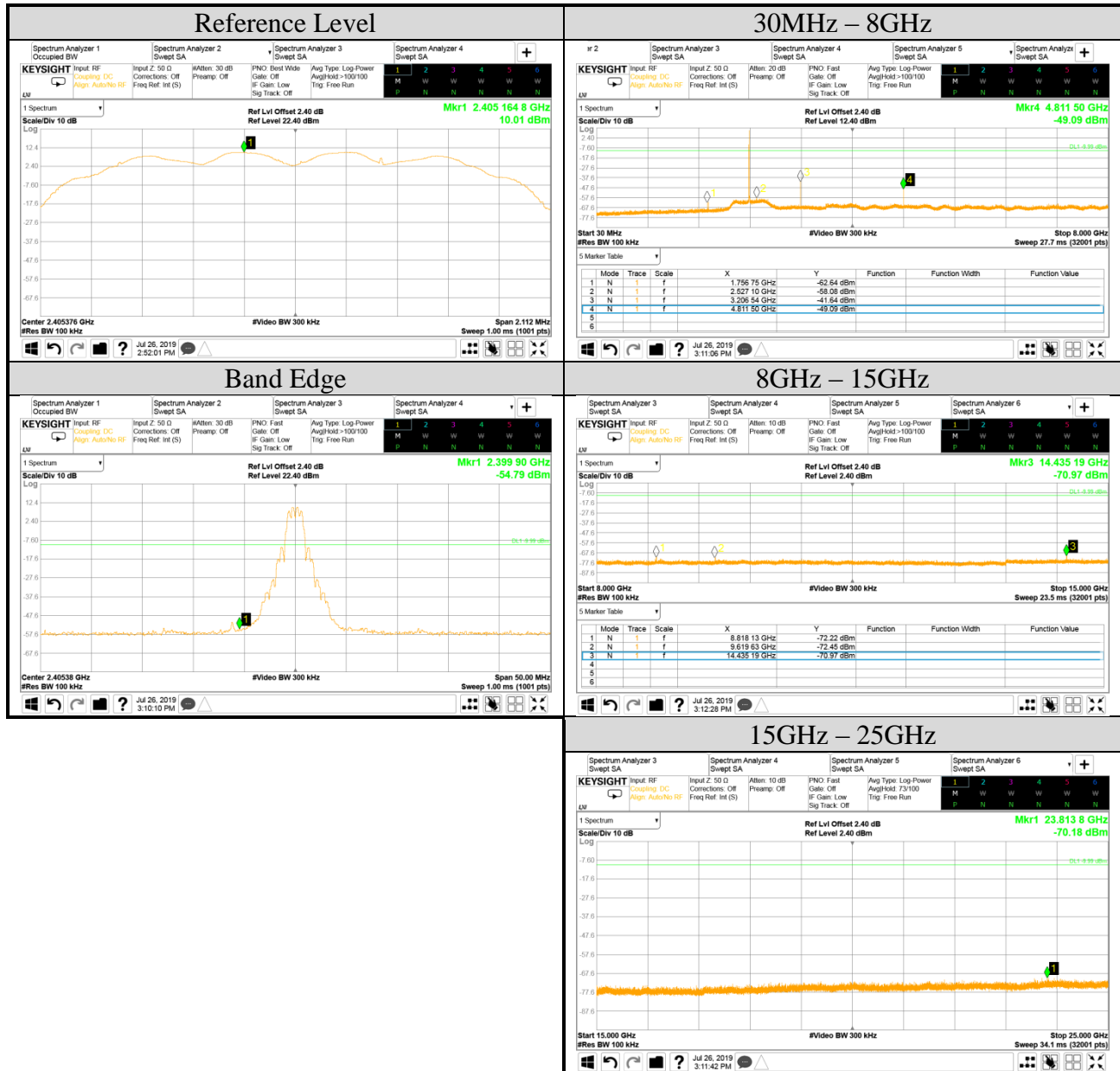


A.4.2 Measurement Plots



## A.6 EMISSION LIMITATIONS

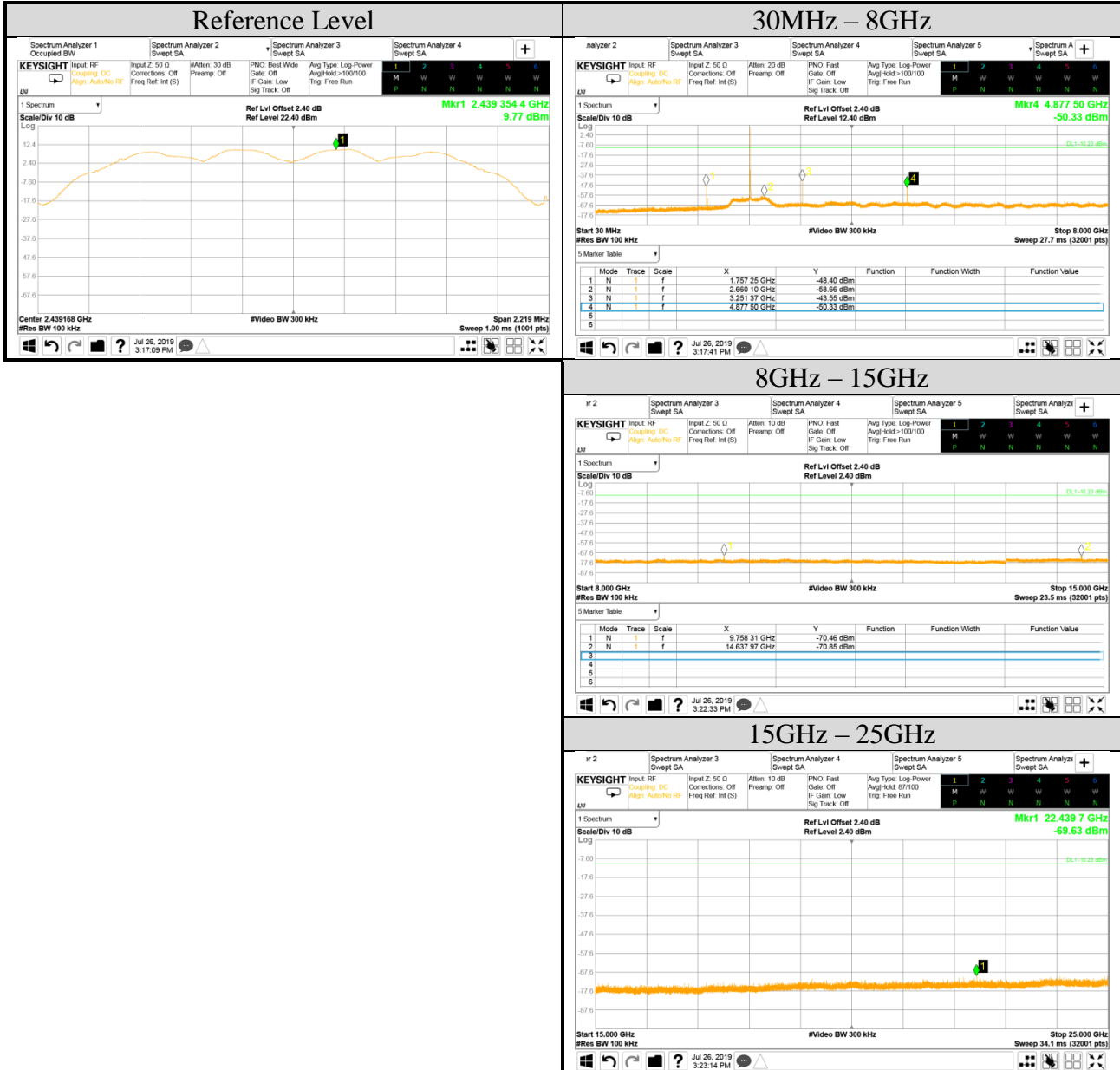
Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)
Mode	FASSTest	Frequency	TX 2405.376MHz
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0



Audix Technology Corp.  
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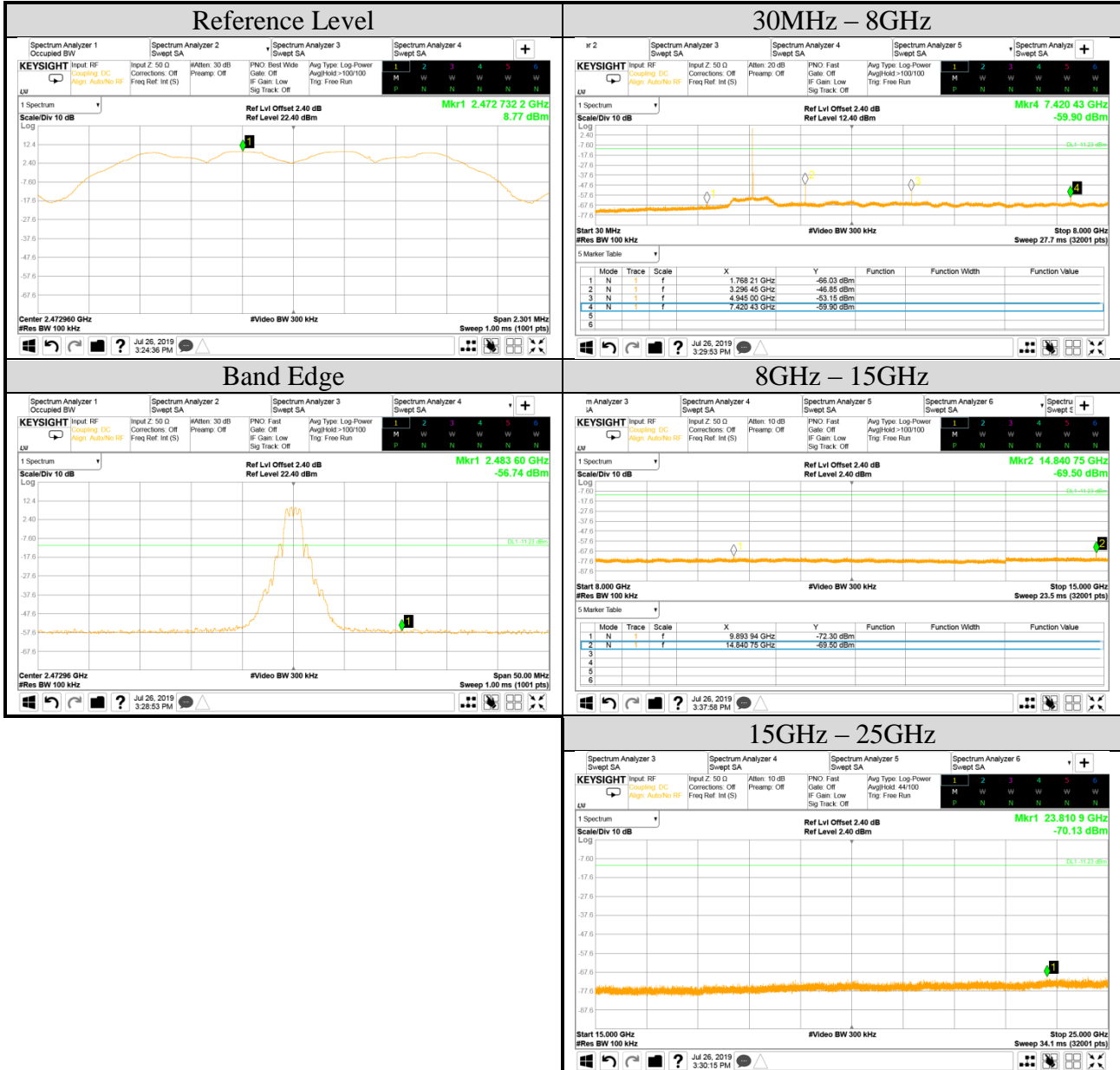
Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)
Mode	FASSTest	Frequency	TX 2439.168MHz
Simultaneous Factor10 log(n) (Note: "n" is antenna number)			0



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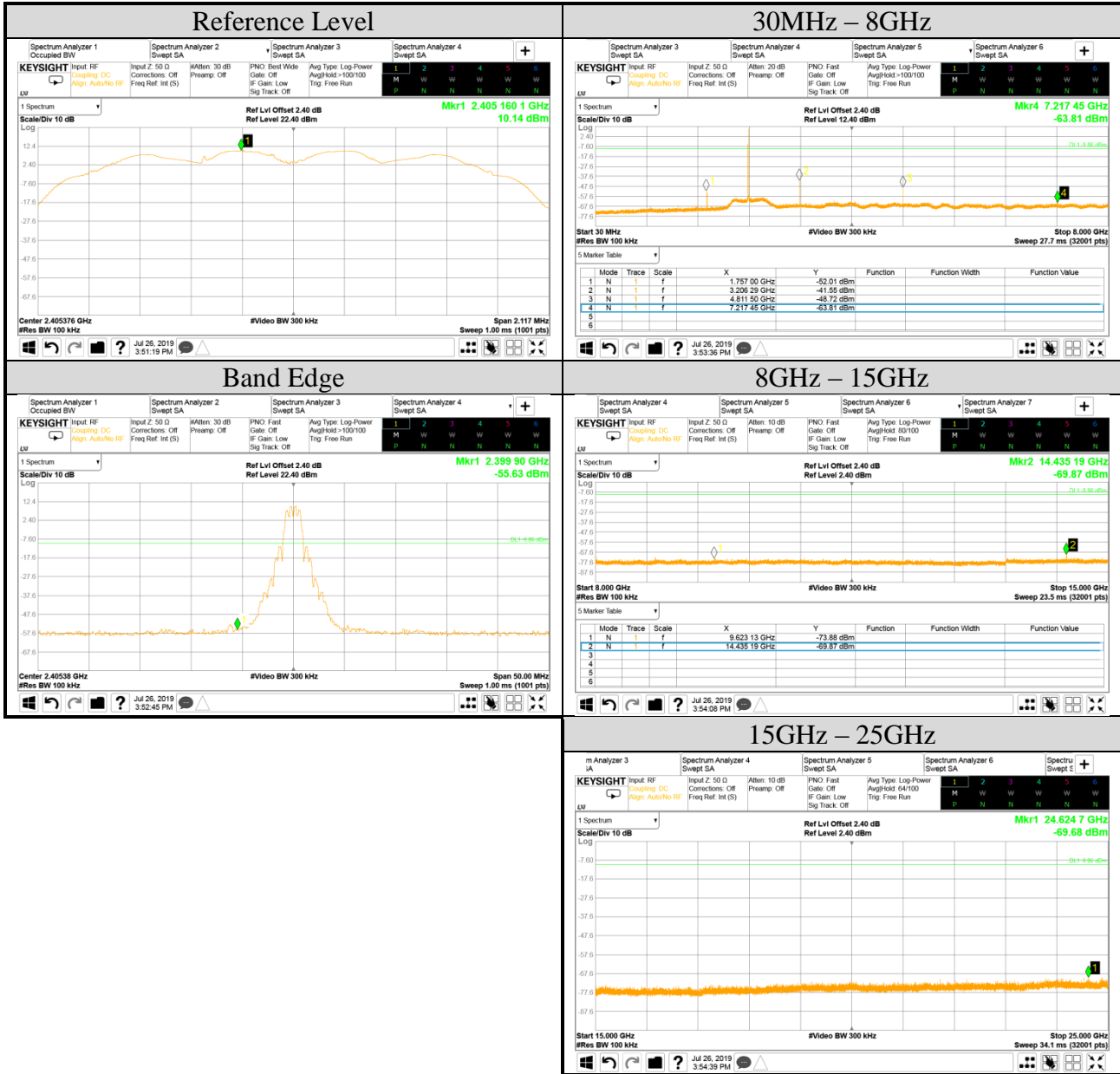
Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)
Mode	FASSTest	Frequency	TX 2472.960MHz
Simultaneous Factor10 log(n) (Note: "n" is antenna number)			0



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Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)
Mode	FASST	Frequency	TX 2405.376MHz
Simultaneous Factor 10 log(n) (Note: "n" is antenna number)			0



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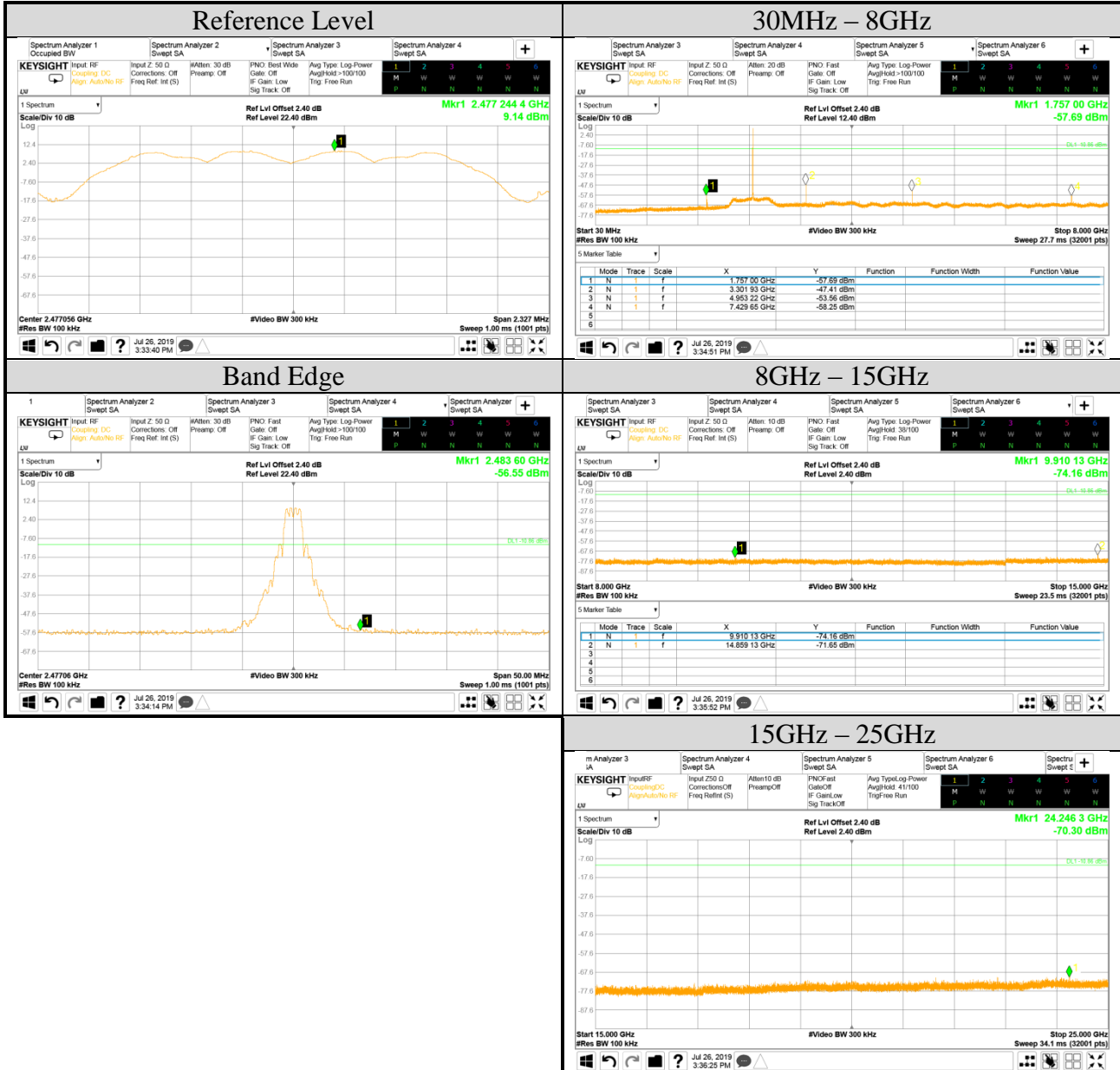
Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)
Mode	FASST	Frequency	TX 2440.192MHz
Simultaneous Factor10 log(n) (Note: "n" is antenna number)			0



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Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)
Mode	FASST	Frequency	TX 2477.056MHz
Simultaneous Factor10 log(n) (Note: “n” is antenna number)			0



## A.8 POWER SPECTRAL DENSITY

Test Date	2019/07/26	Temp./Hum.	22°C/54%
Cable Loss	2.4dB	Test Voltage	DC 3.8V (Via Battery)
Simultaneous Factor $10 \log(n)$ (Note: "n" is antenna number)			0

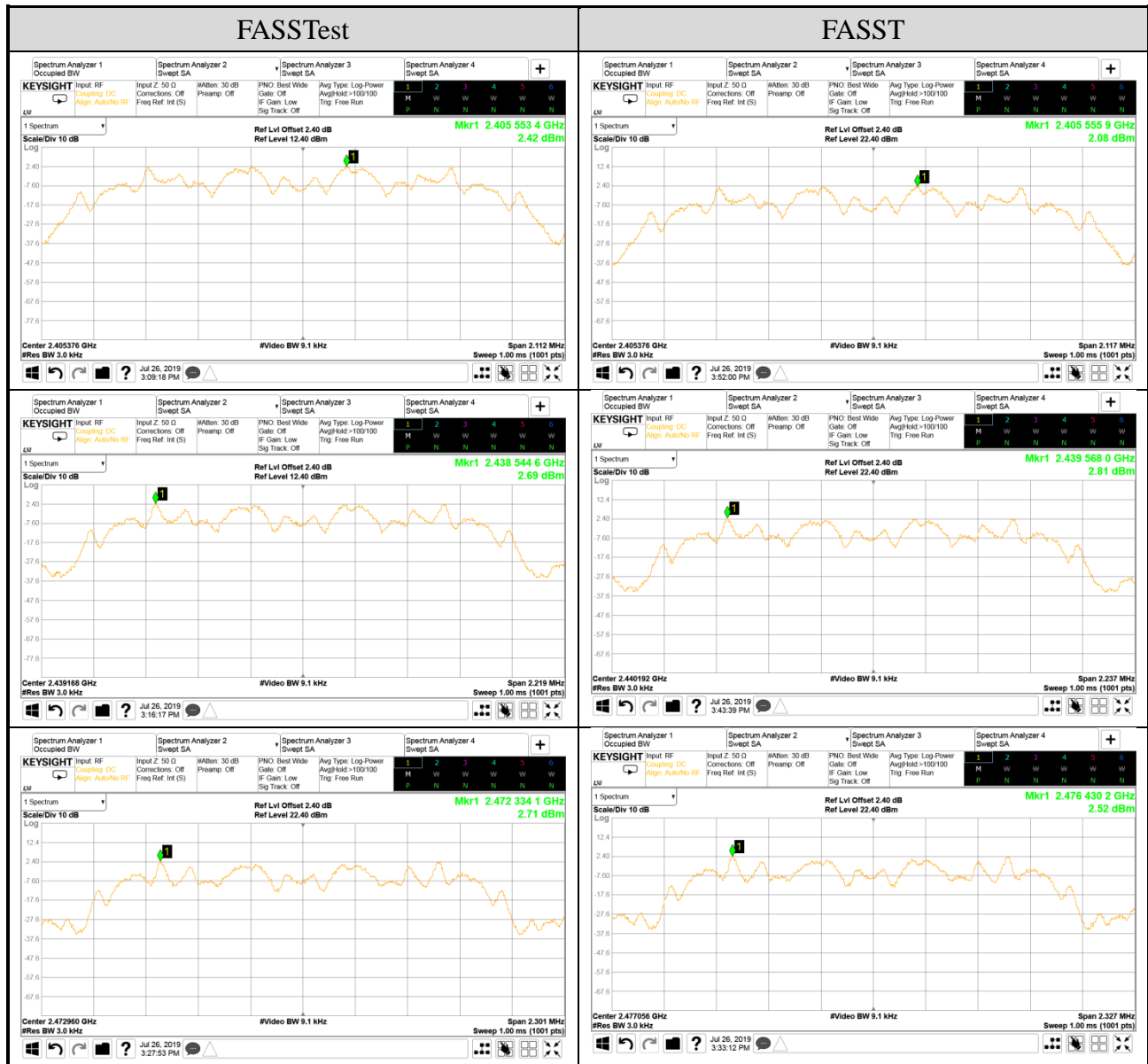
### A.8.1 Power Spectral Density Result

Mode	Centre Frequency (MHz)	Power Spectral Density (dBm)	Limit
FASSTest	2405.376	2.42	< 8 dBm/3kHz
	2439.168	2.69	
	2472.960	2.71	
FASST	2405.376	2.08	
	2440.192	2.81	
	2477.056	2.52	

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



A.8.2 Measurement Plots



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



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**APPENDIX B**

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# APPENDIX B

## TEST PHOTOGRAPHS

(Model: T32MZ)