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FCC 15.247 & RSS-247
2.4GHz Test Report

for

FUTABA Corporation

1080 YabutsukaChosei-son Chosei-gun
Chiba, 299-4395 Japan.

Brand	**:**	**Futaba**
Product Name	**:**	**Radio Control**
Model Name	**:**	**T12K**
FCC ID	**:**	**AZPT12K-24G**
IC	**:**	**2914D-T12K**

Prepared by: **:** **AUDIX Technology Corporation,**
EMC Department

Testing Laboratory
1724

TESTING
NVLAP LAB CODE 200077-0

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TEST REPORT CERTIFICATION

Applicant	:	FUTABA Corporation
Manufacture	:	FUTABA Corporation
EUT Description		
(1) Product	:	Radio Control
(2) Model	:	T12K
(3) Brand	:	Futaba
(4) Power Rating	:	DC 6V

Applicable Standards:

47 CFR FCC Part 15 Subpart C
RSS-Gen (Issue 4), November 2014
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: 2017. 12. 11

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	2017. 12. 11	Original Report.	EM-F170776

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2. SUMMARY OF TEST RESULTS

Rule		Description	Results
FCC	**IC**		
15.207	RSS-Gen §8.8	Conducted Emission	**N/A, NOTE**
15.247(d)/15.205	RSS-Gen §8.9 RSS-247 §5.5	Radiated Band Edge and Radiated Spurious Emission	**PASS**
15.247(a)(1)	RSS-247 §5.1(a)	20dB Bandwidth	**PASS**
15.247(a)(1)	RSS-247 §5.1(B)	Carrier Frequency Separation	**PASS**
15.247(a)(1)(iii)	RSS-247 §5.1(d)	Time of Occupancy	**PASS**
15.247(a)(1)(iii)	RSS-247 §5.1(d)	Number of Hopping Channels	**PASS**
15.247(b)(1)	RSS-247 §5.1(b)	Maximum Peak Output Power	**PASS**
15.247(d)	RSS-247 §5.5	Conducted Band Edges and Conducted Spurious Emission	**PASS**
15.203	RSS-Gen §8.3	Antenna Requirement	**Compliance**
Note: The EUT only employs battery power for operation, so it is unnecessary to test.			

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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	T12K
Brand	Futaba

3.2. Description of Application

Test Model	T12K
Serial Number	N/A
Power Rating	DC 6V
Firmware Version	N/A
RF Features	FHSS (S-FHSS, T-FHSS)
Transmit Type	1T1R
Sample Status	Production
Date of Receipt	2017. 11. 09
Date of Test	2017. 11. 14 ~ 20
I/O Ports List	None
Accessories Supplied	Battery: Futaba, M/N HT5F1800B

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3.3. Antenna Information

No.	Antenna Part Number	Manufacture	Antenna Type	Frequency	Max Gain (dBi)
1	ANTB18-186A0	SANSEI ELECTRIC CO., LTD	1/2 λ Pencil type antenna	2.4GHz	2.14

3.4. EUT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (kbps)
FHSS	2403.250 to 2447.500	60	S-FHSS	128.14
FHSS	2407.500 to 2467.500	31	T-FHSS	128.14

Modulation: S-FHSS					
Channel List					
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	2403.25	21	2418.25	41	2433.25
2	2404.00	22	2419.00	42	2434.00
3	2404.75	23	2419.75	43	2434.75
4	2405.50	24	2420.50	44	2435.50
5	2406.25	25	2421.25	45	2436.25
6	2407.00	26	2422.00	46	2437.00
7	2407.75	27	2422.75	47	2437.75
8	2408.50	28	2423.50	48	2438.50
9	2409.25	29	2424.25	49	2439.25
10	2410.00	30	2425.00	50	2440.00
11	2410.75	31	2425.75	51	2440.75
12	2411.50	32	2426.50	52	2441.50
13	2412.25	33	2427.25	53	2442.25
14	2413.00	34	2428.00	54	2443.00
15	2413.75	35	2428.75	55	2443.75
16	2414.50	36	2429.50	56	2444.50
17	2415.25	37	2430.25	57	2445.25
18	2416.00	38	2431.00	58	2446.00
19	2416.75	39	2431.75	59	2446.75
20	2417.50	40	2432.50	60	2447.50

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Modulation: T-FHSS			
Channel List			
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	2407.5	17	2439.5
2	2409.5	18	2441.5
3	2411.5	19	2443.5
4	2413.5	20	2445.5
5	2415.5	21	2447.5
6	2417.5	22	2449.5
7	2419.5	23	2451.5
8	2421.5	24	2453.5
9	2423.5	25	2455.5
10	2425.5	26	2457.5
11	2427.5	27	2459.5
12	2429.5	28	2461.5
13	2431.5	29	2463.5
14	2433.5	30	2465.5
15	2435.5	31	2467.5
16	2437.5		

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3.5. Test Configuration

Modulation	T_{on} (ms)	Duty Cycle Correction Factor (dB)
S-FHSS	3.06	-30.29
T-FHSS	1.45	-36.77

Note: Duty Cycle Correction Factor (DCCF)= 20log (TX_{on}/100ms)

Item		Modulation	Test Channel
Radiated Test Case	Radiated Band Edge Note1	S-FHSS	1/60
		T-FHSS	1/31
	Radiated Spurious Emission Note1	S-FHSS	1/30/60
		T-FHSS	1/16/31
Conducted Test Case	20dB Bandwidth	S-FHSS	1/30/60
		T-FHSS	1/16/31
	Carrier Frequency Separation	S-FHSS	1/30/60
		T-FHSS	1/16/31
	Time of Occupancy	S-FHSS	1/30/60
		T-FHSS	1/16/31
	Number of Hopping Channels	S-FHSS	1/30/60
		T-FHSS	1/16/31
	Maximum Peak Output Power	S-FHSS	1/30/60
		T-FHSS	1/16/31
	Band Edges	S-FHSS	1/60
		T-FHSS	1/31
	Spurious Emission	S-FHSS	1/30/60
		T-FHSS	1/16/31

Note 1:

☐Mobile Device

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

■ Lie

☐ Side

☐ Stand

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3.6. Tested Supporting System List

No.	Product	Brand	Model No.	Serial No.	Approval
1.	DC Power Supply	TOP WARD	3303A	N/A	N/A

3.6.1. Cable Lists

No.	Cable Description Of The Above Support Units
1.	DC Power Cord*2: Unshielded, Detachable, 0.5m AC Power Cord: Unshielded, Undetachable, 1.8m

3.7. Setup Configuration

3.7.1. EUT Configuration for Radiated Emission

3.7.2. EUT Configuration for RF Conducted Test Items

3.8. Operating Condition of EUT

Test program “Futaba Term” is used for enabling EUT RF function under continues transmitting and choosing data rate/ channel.

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3.9. 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: sales@audixtech.com
Accreditations	The laboratory is accredited by following organizations under ISO/IEC 17025:2005 (1) NVLAP(USA) NVLAP Lab Code 200077-0 (2) TAF(Taiwan) No. 1724 (3) FCC OET Designation No. TW1004 & TW1090 & TW1724
Test Facilities	(1) Semi-Anechoic Chamber (IC Test Site Registration No.: 5183B-1)

3.10.Measurement Uncertainty

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

Remark：Uncertainty = $ku_c(y)$

Test Item	Uncertainty
20dB Bandwidth	±0.2kHz
Carrier Frequency Separation	±0.2kHz
Time of Occupancy	±0.03sec
Maximum peak Output power	± 0.52dB
Conducted Emission Limitations	± 0.13dB

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4. MEASUREMENT EQUIPMENTLIST

4.1. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2017. 09. 13	1 Year
2.	Test Receiver	R & S	ESCS30	100338	2017. 06. 19	1 Year
3.	Amplifier	HP	8447D	2944A06305	2017. 02. 16	1 Year
4.	Amplifier	HP	8449B	3008A00529	2017. 02. 08	1 Year
5.	Bilog Antenna	CHASE	CBL6112D	33821	2017. 01. 21	1 Year
6.	HornAntenna	EMCO	3115	9609-4927	2017. 06. 27	1 Year
7.	Horn Antenna	COM-POWER	AH-840	101092	2017. 05. 04	1 Year
8.	2.4GHz Notch Filter	K&L	7NSL10-2441 .5E130.5-0/0	1	2017. 07. 28	1 Year
9.	3GHz Notch Filter	Microwave	H3G018G1	484798	2017. 08. 25	1 Year
10.	Digital Thermo-Hygro Meter	IMax	HTC-1	No.1 3m A/C	N.C.R.	N.C.R.
11.	Test Software	Audix	e3	V.6.110601	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	N9010B-544	MY55460198	2017. 04. 18	1 Year
2.	Digital Thermo-Hygro Meter	Shenzhen Datronn Electronics	KT-905	RF	N.C.R.	N.C.R.

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5. CONDUCTED EMISSION MEASUREMET

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

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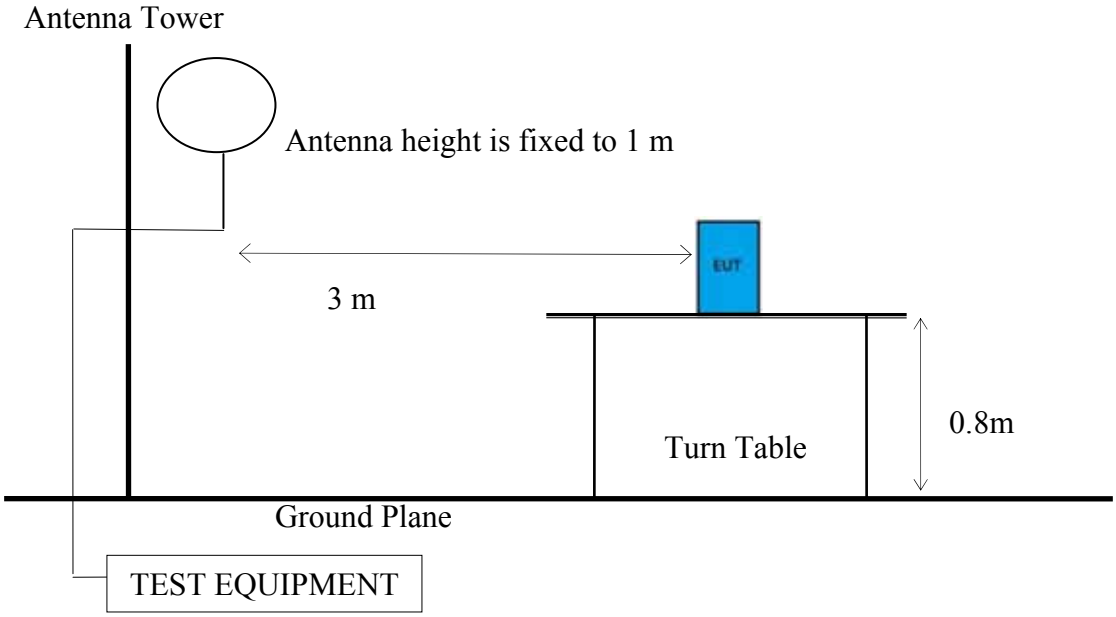
6. RADIATED EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup

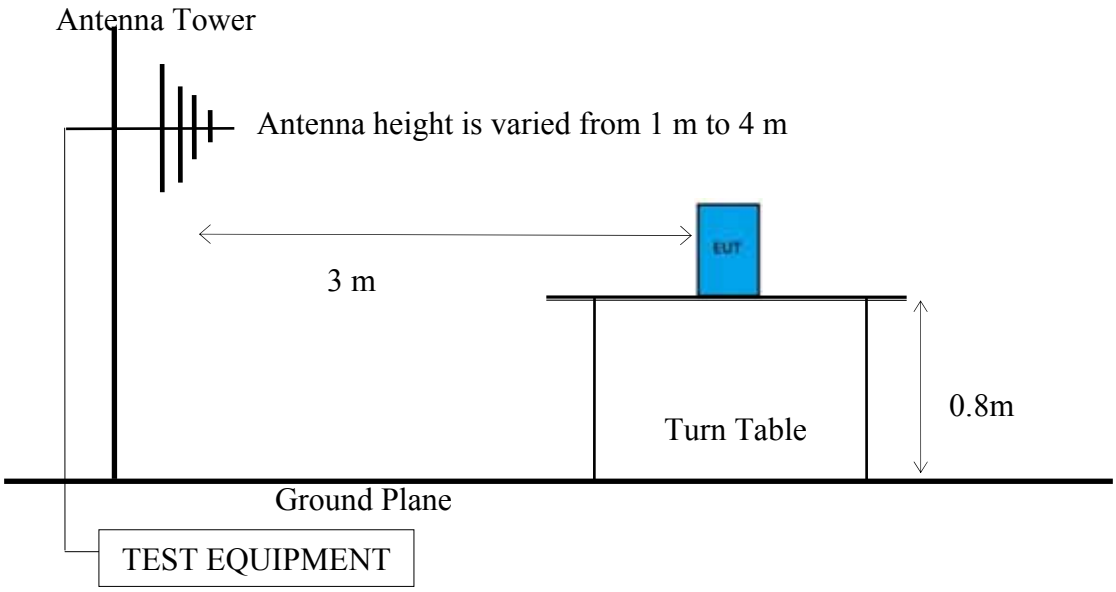
6.1.1. Block Diagram of connection between EUT and simulators

Indicated as section 3.7

6.1.2. Setup Diagram for 9kHz-30MHz



6.1.3. Setup Diagram for 30-1000 MHz



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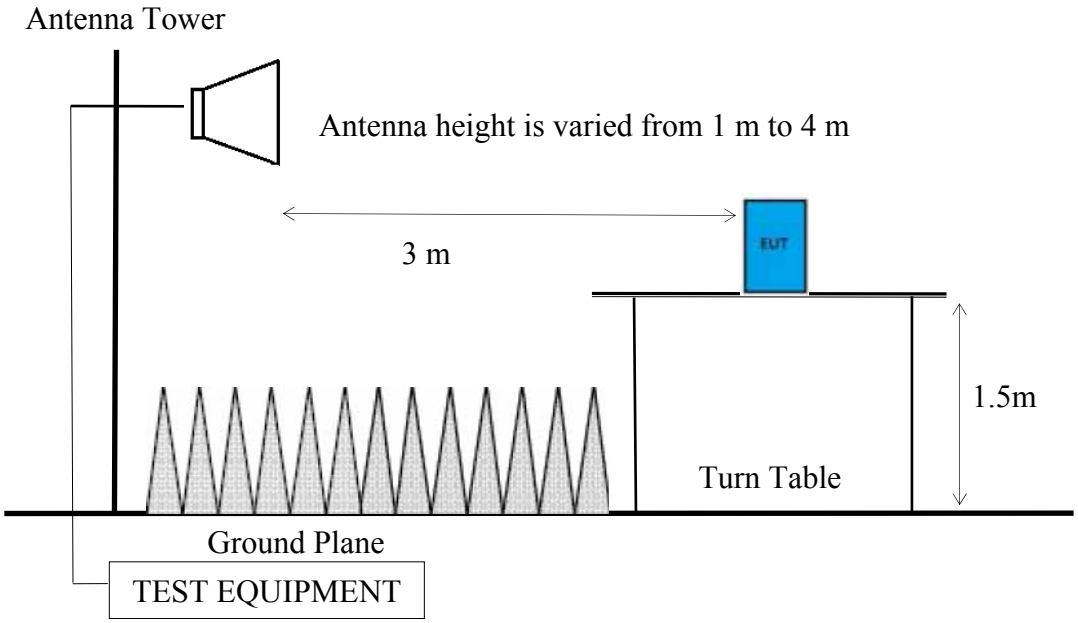
6.1.4. Setup Diagram for above 1GHz



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	2400/kHz
0.490 - 1.705	30	87.6	24000/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) dBμV/m = 20 log (μV/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

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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 find 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 1GHz:
Spectrum Analyzer is used for pre-testing with following setting:

(1) RBW = 120KHz
(2) VBW ≥ 3 x RBW.
(3) Detector = Peak.
(4) Sweep time = auto.
(5) Trace mode = max hold.
(6) Allow sweeps to continue until the trace stabilizes.
(7) When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required. Otherwise using Q.P. for finally measurement.

Frequency above 1GHz to 10th harmonic:

Peak Measurement:

(1) RBW = 1 MHz
(2) VBW ≥ 3 x RBW.
(3) Detector = Peak.
(4) Sweep time = auto.
(5) Trace mode = max hold.
(6) Allow sweeps to continue until the trace stabilizes.
(7) When peak-detected value is lower than limit that the measurement using the average detector is not required. Otherwise using average for finally measurement.

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Average Measurement:

■**Option 1:**

(1) RBW = 1 MHz
(2) VBW =1/T, where T is Tx-on presented in Appendix A.4.
(3) Detector = Peak.
(4) Sweep time = auto.
(5) Trace mode = max hold.
(6) 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 l=Antenna Factor + Cable Loss + Meter Reading
■Average Emission Level= Peak Emission Level+ DCCF
Duty Cycle Correction Factor (DCCF)= 20log (TX_{on}/100ms) presented in section 3.5
□ERP= Peak Emission Level-95.2dB-2.14dB

6.5. Test Results

Please refer to Appendix A.

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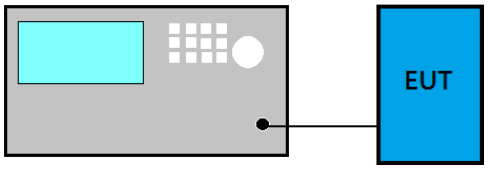
7. 20dB BANDWIDTH MEASUREMENT

7.1. Block Diagram of Test Setup



7.2. Specification Limits

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

7.3. Test Procedure

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

(1) Set RBW close to1 ~ 5% of OBW.
(2) Set VBW= 3 three 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 -20 dB to record the final bandwidth.

7.4. Test Results

Please refer to Appendix A

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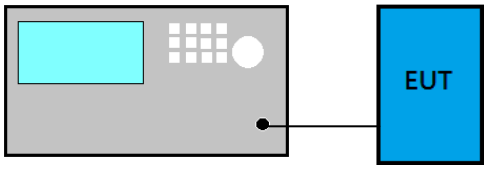
8. CARRIER FREQUENCY SEPARATION MEASUREMENT

8.1. Block Diagram of Test Setup



8.2. Specification Limits

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mW.

8.3. Test Procedure

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

(1) Span = Wide enough to capture the peaks of two adjacent channels.
(2) RBW = Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
(3) VBW≥ RBW
(4) Sweep = Auto
(5) Detector function = peak
(6) Trace = max hold
(7) Allow the trace to stabilize

8.4. Test Results

Please refer to Appendix A

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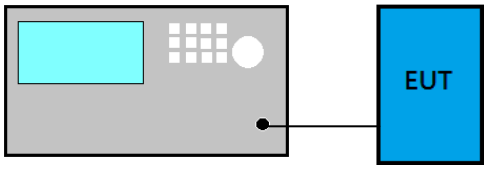
9. TIME OF OCCUPANCY MEASUREMENT

9.1. Block Diagram of Test Setup



9.2. Specification Limits

Frequency hopping systems in the 2400-2483.5MHz shall use at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by number of hopping channels employed.

9.3. Test Procedure

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

(1) Span = Zero span, centered on a hopping channel.
(2) RBW shall be ≤ channel spacing and where possible RBW should be set > 1/ T, where T is the expected dwell time per channel.
(3) Sweep= As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
(4) Detector function= Peak
(5) Trace = max hold

9.4. Test Results

Please refer to Appendix A

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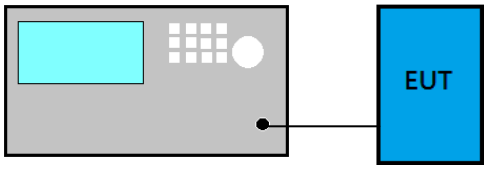
10. NUMBER OF HOPPING CHANNELS MEASUREMENT

10.1. Block Diagram of Test Setup



10.2. Specification Limits

Frequency hopping systems which use fewer than 20 hopping frequencies may employ intelligent hopping techniques to avoid interference to other transmissions. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 non-overlapping channels.

10.3. Test Procedure

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

(1) Span = The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
(2) RBW = To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
(3) VBW ≥ RBW
(4) Sweep = Auto
(5) Detector function = Peak
(6) Trace = max hold
(7) Allow the trace to stabilize.

10.4. Test Results

Please refer to Appendix A

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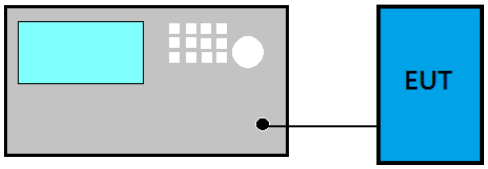
11. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

11.1. Block Diagram of Test Setup



11.2. Specification Limits

The Limits of maximum Peak Output Power for frequency hopping systems in 2400-2483.5MHz is: 0.125Watt. (21dBm)

11.3. Test Procedure

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

(1) Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
(2) RBW ≥ 1% of the span
(3) VBW ≥ RBW
(4) Sweep = auto
(5) Detector function = peak
(6) Trace = max hold

11.4. Test Results

Please refer to Appendix A

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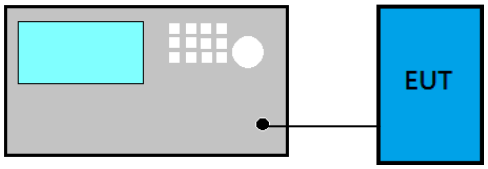
12. EMISSION LIMITATIONS MEASUREMENT

12.1. Block Diagram of Test Setup



12.2. 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 FCC Section 15.209(a) and 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) and RSS-Gen Section 8.10 table 6, must also comply with the radiated emission limits specified in Section 15.209(a) and RSS-Gen Section 8.9 table 4 (See Section 15.205(c)).

12.3. Test Procedure

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

(1) Set span wide enough to capture the peak level of the in-band emission and all spurious emissions; up to 10th harmonic.
(2) RBW = 100 kHz
(3) VBW ≥ RBW
(4) Sweep = auto
(5) Detector function = peak
(6) Trace = max hold

12.4. Test Results

Please refer to Appendix A

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13. DEVIATION TO TEST SPECIFICATIONS

【NONE】

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APPDNDIX A

TEST DATA AND PLOTS

(Model: T12K)

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Audix Technology Corp.
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A.1 RADIATED EMISSION

Test Date	2017/11/20	Temp./Hum.	24℃/53%
Test Voltage	DC 6V (Via DC Power Supply)		

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.

A.2.1.2 Frequency Below 1 GHz

Mode	S-FHSS	Frequency	TX 2425MHz

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
101.78	17.38	2.29	7.25	26.92	43.50	16.58	Peak
200.72	15.82	3.35	21.00	40.17	43.50	3.33	Peak
345.25	21.23	4.92	16.70	42.85	46.00	3.15	Peak
411.21	22.88	5.67	16.33	44.88	46.00	1.12	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
68.80	12.64	1.86	15.81	30.31	40.00	9.69	Peak
153.19	16.73	2.86	9.60	29.19	43.50	14.31	Peak
392.78	22.53	5.47	5.79	33.79	46.00	12.21	Peak
718.70	25.85	7.19	1.72	34.76	46.00	11.24	Peak

Remark: The TX 2425MHz is a worst mode of S-FHSS modulation.

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Mode	T-FHSS	Frequency	TX 2437.500MHz

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
68.80	12.64	1.86	11.94	26.44	40.00	13.56	Peak
206.54	16.21	3.41	20.77	40.39	43.50	3.11	Peak
345.25	21.23	4.92	11.76	37.91	46.00	8.09	Peak
417.03	22.94	5.72	16.59	45.25	46.00	0.75	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
68.80	12.64	1.86	19.38	33.88	40.00	6.12	Peak
164.83	16.00	2.98	9.94	28.92	43.50	14.58	Peak
375.32	22.10	5.29	4.93	32.32	46.00	13.68	Peak
614.91	24.88	6.80	2.91	34.59	46.00	11.41	Peak

Remark: The TX 2435.5MHz is a worst mode for T-FHSS modulation.

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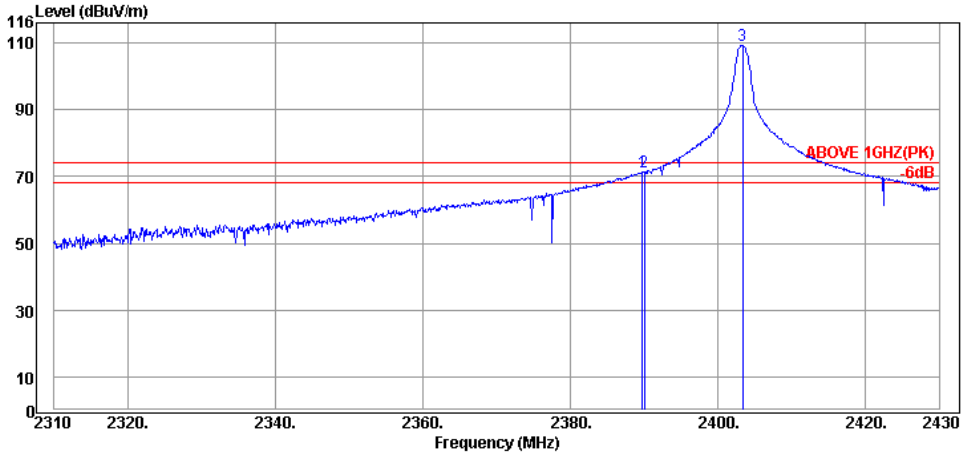
A.2.1.3 Frequency Above 1 GHz to 10th harmonics

Band Edge:

Mode	S-FHSS	Frequency	TX 2403.250MHz



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	28.17	5.24	37.87	71.28	74.00	2.72	Peak
2390.04	28.17	5.24	37.78	71.19	74.00	2.81	Peak
2403.36	28.14	5.25	75.88	109.27	---	---	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2389.80	71.28	-30.29	40.99	54.00	13.01	Average
2390.04	71.19	-30.29	40.90	54.00	13.10	Average

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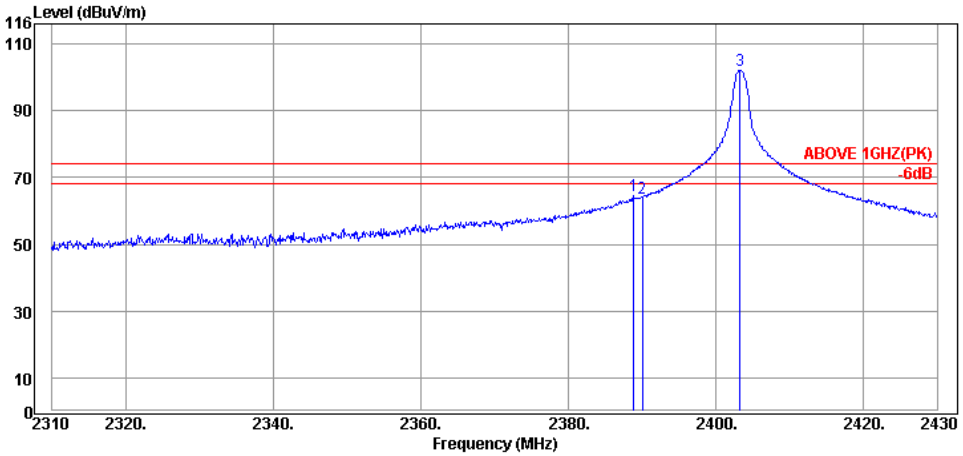
Mode	S-FHSS	Frequency	TX 2403.250MHz



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
2388.84	28.17	5.24	31.02	64.43	74.00	9.57	Peak
2390.04	28.17	5.24	30.57	63.98	74.00	10.02	Peak
2403.24	28.14	5.25	68.59	101.98	---	---	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2388.84	64.43	-30.29	34.14	54.00	19.86	Average
2390.04	63.98	-30.29	33.69	54.00	20.31	Average

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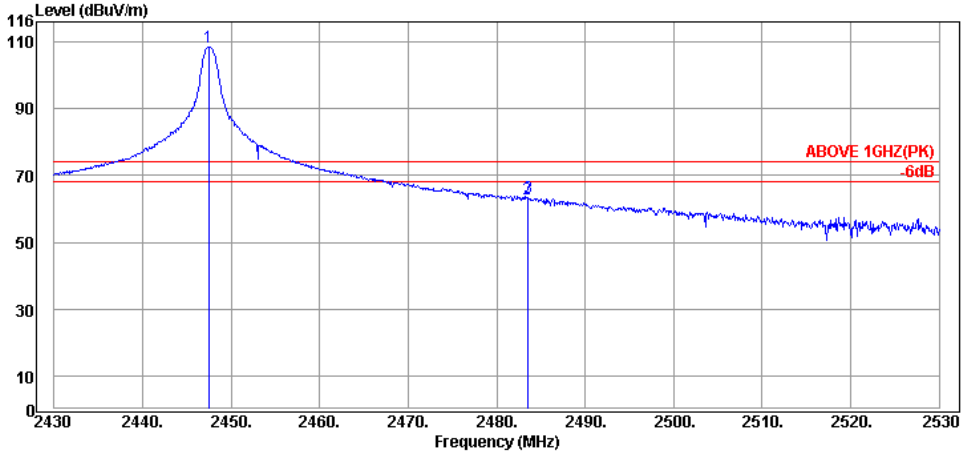
Mode	S-FHSS	Frequency	TX 2447.500MHz



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
2447.50	28.08	5.28	75.08	108.44	---	---	Peak
2483.50	28.03	5.31	29.48	62.82	74.00	11.18	Peak
2483.60	28.03	5.31	29.96	63.30	74.00	10.70	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2483.50	62.82	-30.29	32.53	54.00	21.47	Average
2483.60	63.30	-30.29	33.01	54.00	20.99	Average

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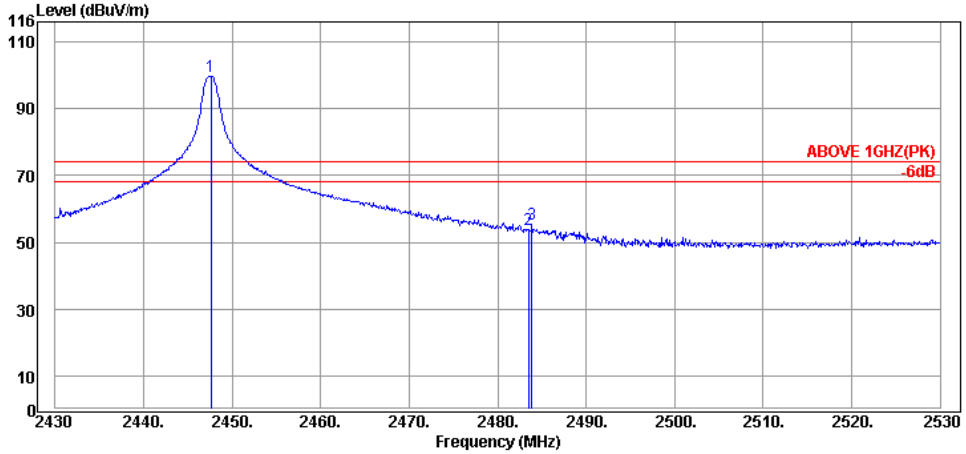
Mode	S-FHSS	Frequency	TX 2447.500MHz



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
2447.60	28.08	5.28	66.46	99.82	---	---	Peak
2483.50	28.03	5.31	20.28	53.62	74.00	20.38	Peak
2483.90	28.03	5.31	22.26	55.60	74.00	18.40	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2483.50	53.62	-30.29	23.33	54.00	30.67	Average
2483.90	55.60	-30.29	25.31	54.00	28.69	Average

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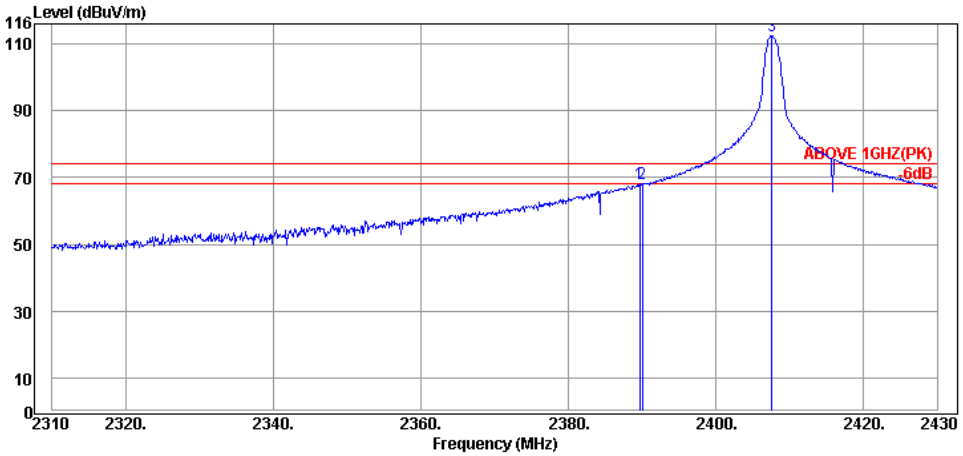
Mode	T-FHSS	Frequency	TX 2407.500MHz



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
2389.68	28.17	5.24	34.65	68.06	74.00	5.94	Peak
2390.04	28.17	5.24	34.83	68.24	74.00	5.76	Peak
2407.56	28.14	5.25	78.92	112.31	---	---	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2389.68	68.06	-36.77	31.29	54.00	22.71	Average
2390.04	68.24	-36.77	31.47	54.00	22.53	Average

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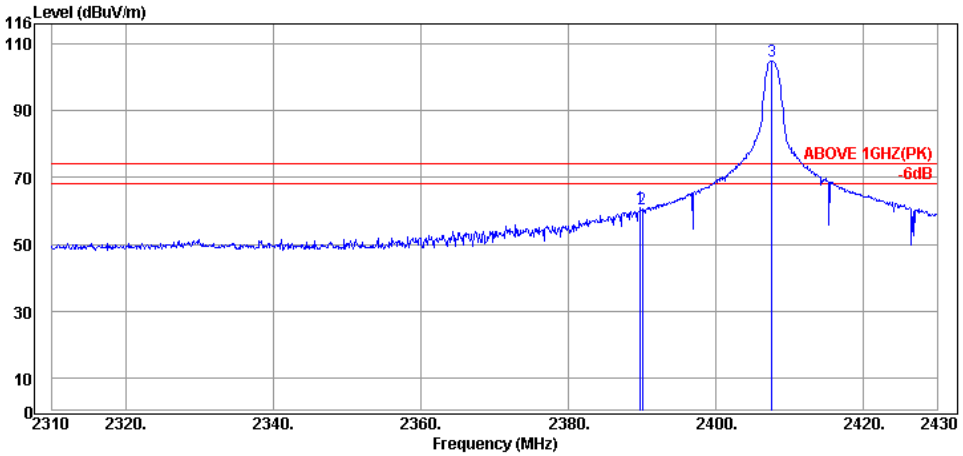
Mode	T-FHSS	Frequency	TX 2407.500MHz



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	28.17	5.24	27.38	60.79	74.00	13.21	Peak
2390.04	28.17	5.24	27.09	60.50	74.00	13.50	Peak
2407.56	28.14	5.25	71.54	104.93	---	---	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2389.80	60.79	-36.77	24.02	54.00	29.98	Average
2390.04	60.50	-36.77	23.73	54.00	30.27	Average

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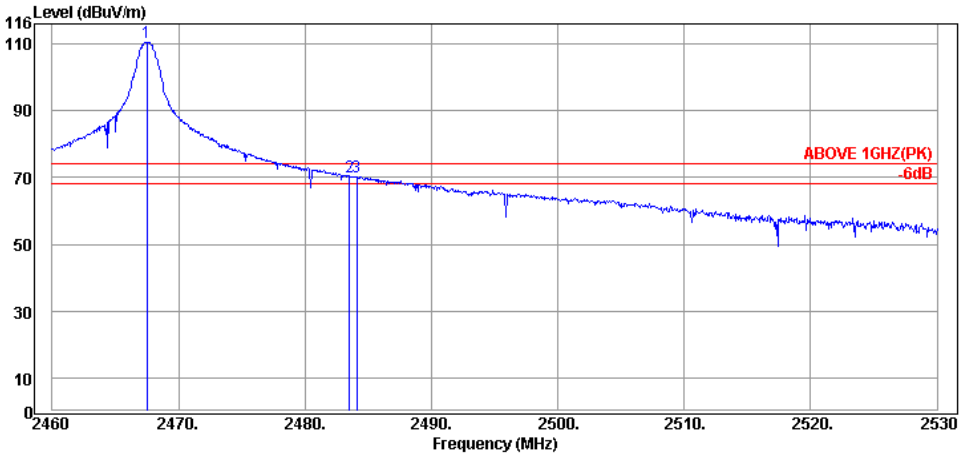
Mode	T-FHSS	Frequency	TX 2467.500MHz



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
2467.49	28.06	5.29	77.24	110.59	---	---	Peak
2483.52	28.03	5.31	36.76	70.10	74.00	3.90	Peak
2484.08	28.03	5.31	36.96	70.30	74.00	3.70	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2483.52	70.10	-36.77	33.33	54.00	20.67	Average
2484.08	70.30	-36.77	33.53	54.00	20.47	Average

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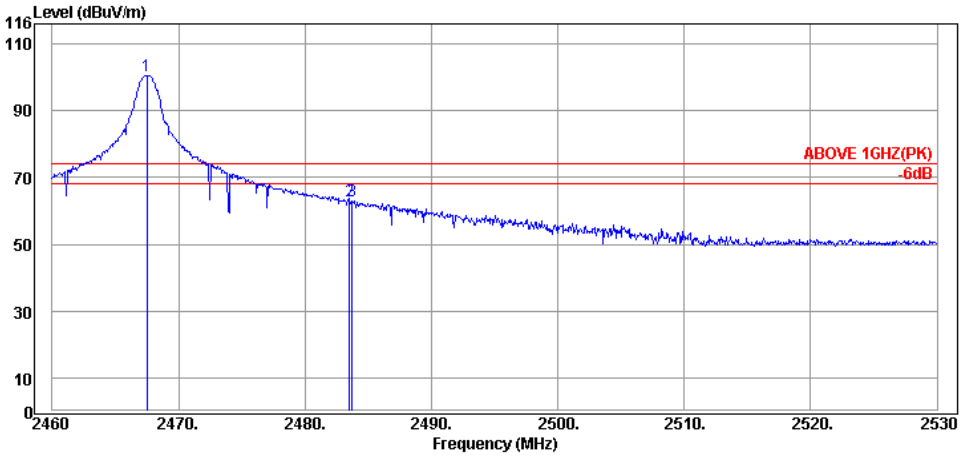
Mode	T-FHSS	Frequency	TX 2467.500MHz



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
2467.49	28.06	5.29	67.20	100.55	---	---	Peak
2483.52	28.03	5.31	29.63	62.97	74.00	11.03	Peak
2483.73	28.03	5.31	29.79	63.13	74.00	10.87	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2483.52	62.97	-36.77	26.20	54.00	27.80	Average
2483.73	63.13	-36.77	26.36	54.00	27.64	Average

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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	S-FHSS	Frequency	TX 2403.250MHz

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
4806.50	32.54	8.98	11.66	53.18	74.00	20.82	Peak
7209.75	36.69	10.44	6.61	53.74	74.00	20.26	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4806.50	53.18	-30.29	22.89	54.00	31.11	Average
7209.75	53.74	-30.29	23.45	54.00	30.55	Average

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
4806.50	32.54	8.98	18.77	60.29	74.00	13.71	Peak
7209.75	36.69	10.44	8.34	55.47	74.00	18.53	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4806.50	60.29	-30.29	30.00	54.00	24.00	Average
7209.75	55.47	-30.29	25.18	54.00	28.82	Average

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Mode	S-FHSS	Frequency	TX 2425.000MHz

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
4850.00	32.63	9.04	10.60	52.27	74.00	21.73	Peak
7275.00	36.79	10.51	6.25	53.55	74.00	20.45	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4850.00	52.27	-30.29	21.98	54.00	32.02	Average
7275.00	53.55	-30.29	23.26	54.00	30.74	Average

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
4850.00	32.63	9.04	17.06	58.73	74.00	15.27	Peak
7275.00	36.79	10.51	6.67	53.97	74.00	20.03	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4850.00	58.73	-30.29	28.44	54.00	25.56	Average
7275.00	53.97	-30.29	23.68	54.00	30.32	Average

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Mode	S-FHSS	Frequency	TX 2447.500MHz

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
4895.00	32.75	9.10	11.15	53.00	74.00	21.00	Peak
7342.50	36.88	10.61	5.56	53.05	74.00	20.95	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4895.00	53.00	-30.29	22.71	54.00	31.29	Average
7342.50	53.05	-30.29	22.76	54.00	31.24	Average

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
4895.00	32.75	9.10	16.04	57.89	74.00	16.11	Peak
7342.50	36.88	10.61	7.13	54.62	74.00	19.38	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4895.00	57.89	-30.29	27.60	54.00	26.40	Average
7342.50	54.62	-30.29	24.33	54.00	29.67	Average

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Mode	T-FHSS	Frequency	TX 2407.500MHz

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
4815.00	32.54	9.00	11.57	53.11	74.00	20.89	Peak
7222.50	36.71	10.46	5.37	52.54	74.00	21.46	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4815.00	53.11	-36.77	16.34	54.00	37.66	Average
7222.50	52.54	-36.77	15.77	54.00	38.23	Average

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
4815.00	32.54	9.00	19.86	61.40	74.00	12.60	Peak
7222.50	36.71	10.46	7.49	54.66	74.00	19.34	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4815.00	61.40	-36.77	24.63	54.00	29.37	Average
7222.50	54.66	-36.77	17.89	54.00	36.11	Average

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Mode	T-FHSS	Frequency	TX 2437.500MHz

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
4875.00	32.71	9.08	11.33	53.12	74.00	20.88	Peak
7312.50	36.83	10.56	5.31	52.70	74.00	21.30	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4875.00	53.12	-36.77	16.35	54.00	37.65	Average
7312.50	52.70	-36.77	15.93	54.00	38.07	Average

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
4875.00	32.71	9.08	17.59	59.38	74.00	14.62	Peak
7312.50	36.83	10.56	7.10	54.49	74.00	19.51	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4875.00	59.38	-36.77	22.61	54.00	31.39	Average
7312.50	54.49	-36.77	17.72	54.00	36.28	Average

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Mode	T-FHSS	Frequency	TX 2467.500MHz

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
4935.00	32.83	9.16	8.99	50.98	74.00	23.02	Peak
7402.50	36.98	10.66	6.77	54.41	74.00	19.59	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4935.00	50.98	-36.77	14.21	54.00	39.79	Average
7402.50	54.41	-36.77	17.64	54.00	36.36	Average

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
4935.00	32.83	9.16	15.93	57.92	74.00	16.08	Peak
7402.50	36.98	10.66	7.12	54.76	74.00	19.24	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
4935.00	57.92	-36.77	21.15	54.00	32.85	Average
7402.50	54.76	-36.77	17.99	54.00	36.01	Average

A.1.3 Emissions in Non-restricted Frequency Bands:

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

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A.2 20dB BANDWIDTH MEASUREMENT

Test Date	2017/11/14~15	Temp./Hum.	23℃/52%
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

A.2.1 20dB Bandwidth Result

Modulation	Centre Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit 2/3 (20dB Bandwidth)
S-FHSS	2403.250	0.2690	0.27941	0.179
	2425.000	0.2689	0.26622	0.179
	2447.500	0.2700	0.27296	0.180

Remark: The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.176MHz.

Modulation	Centre Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit 2/3 (20dB Bandwidth)
T-FHSS	2407.5	0.2740	0.26604	0.183
	2437.5	0.2757	0.27639	0.184
	2467.5	0.2676	0.26454	0.178

Remark: The maximum two-thirds of the 20dB bandwidth shall be at maximum 0.184MHz.

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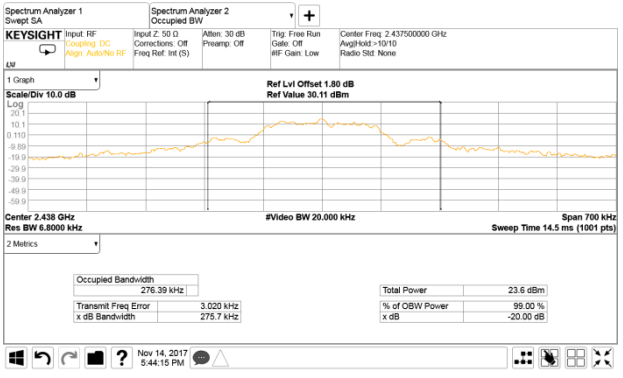
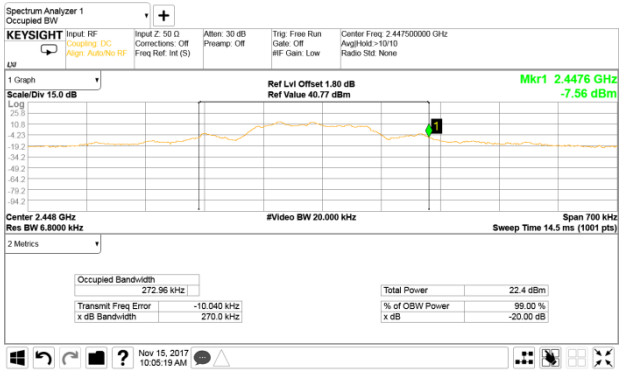
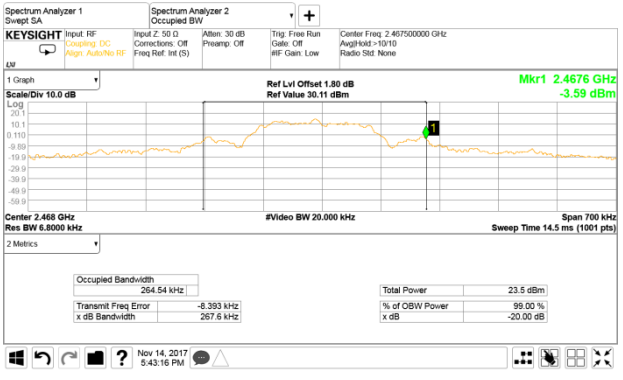
A.2.2 Measurement Plots

S-FHSS	T-FHSS
	
	
	

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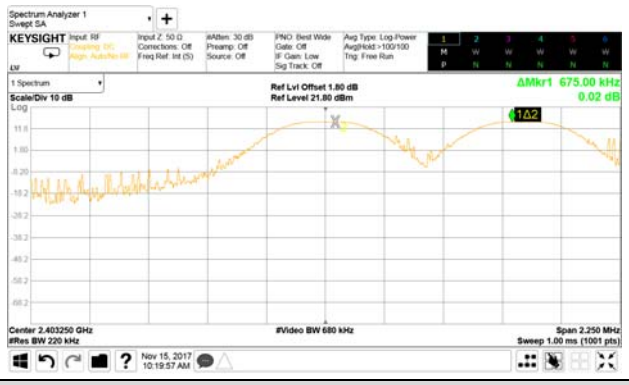
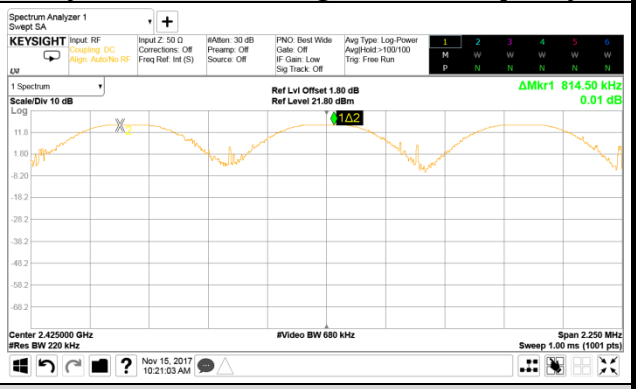
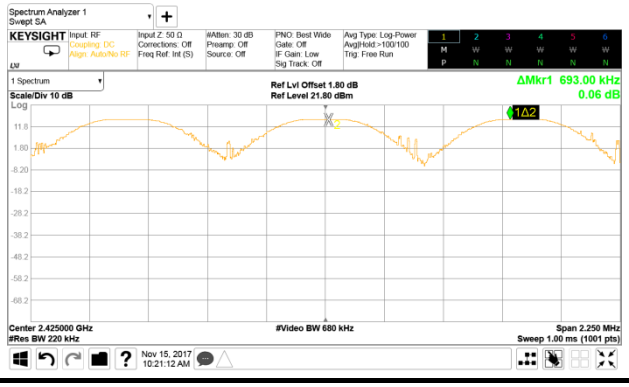
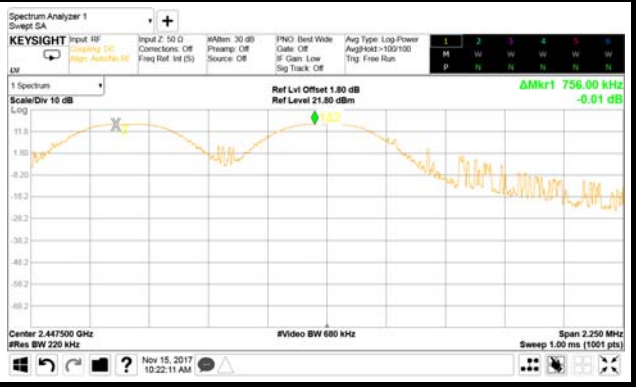
A.3 CARRIER FREQUENCY SEPARATION MEASUREMENT

Test Date	2017/11/14~15	Temp./Hum.	23℃/52%
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

A.3.1 Measurement Plots

<table>
<tr><th colspan="2">Modulation: S-FHSS</th></tr>
<tr><td>2403.250MHz</td><td>2425.000MHz
adjacent channel of right carrier frequency</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>2425.000MHz
adjacent channel of left carrier frequency</td><td>2447.500MHz</td></tr>
<tr><td> 
</td><td> 
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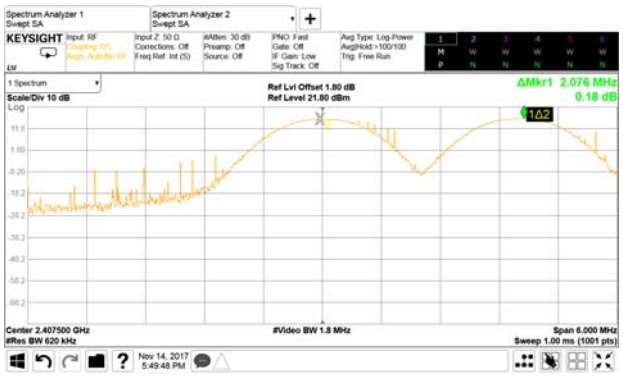
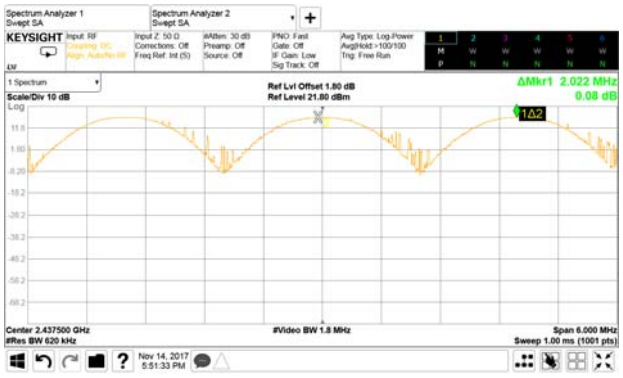
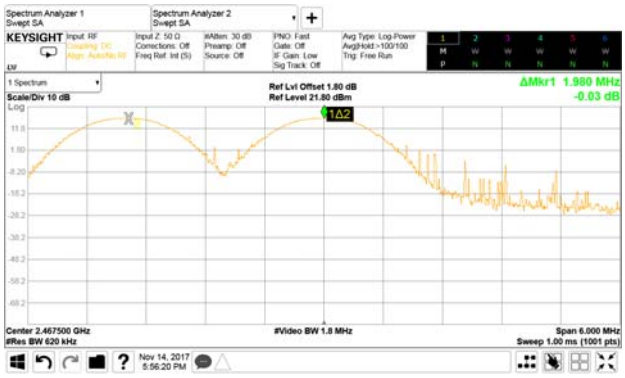
Modulation: T-FHSS	
2407.500MHz	2437.500MHz adjacent channel of right carrier frequency
	
2437.500MHz adjacent channel of left carrier frequency	2467.500MHz
	

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A.4 TIME OF OCCUPANCY MEASUREMENT

Test Date	2017/11/15	Temp./Hum.	23℃/52%
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

A.4.1 Time of Occupancy

Modulation	Centre Frequency (MHz)	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
S-FHSS	2403.250	3.050	366.00	<400
	2425.000	3.060	367.20	<400
	2447.500	3.060	367.20	<400

Duty cycle: 60 channels*0.4 seconds = 24 seconds

Test Frequency: 2403.250MHz

For each 1 second of 5 channel appearance, the longest time of occupancy for each of 24 seconds is:
5 channels*24 seconds/1* 3.050ms = 366.00ms

Test Frequency: 2425.000MHz

For each 1 second of 5 channel appearance, the longest time of occupancy for each of 24 seconds is:
5 channel*24 seconds/1* 3.060ms = 367.20ms

Test Frequency: 2447.500MHz

For each 1 second of 5 channel appearance, the longest time of occupancy for each of 24 seconds is:
5 channel*24 seconds/1* 3.060ms = 367.20ms

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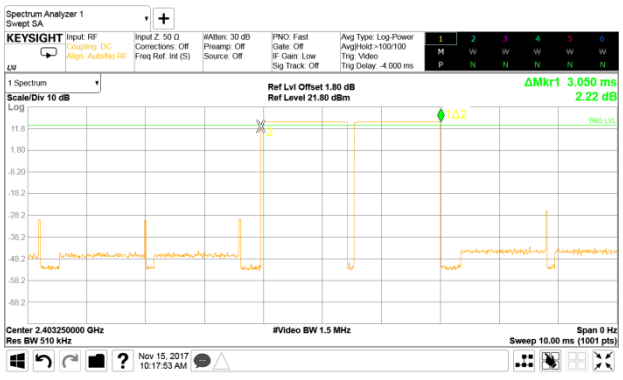
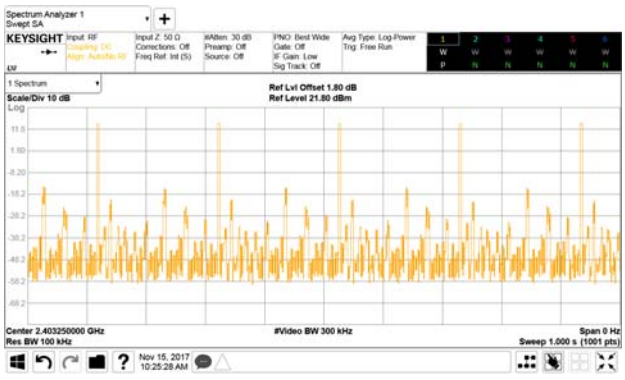
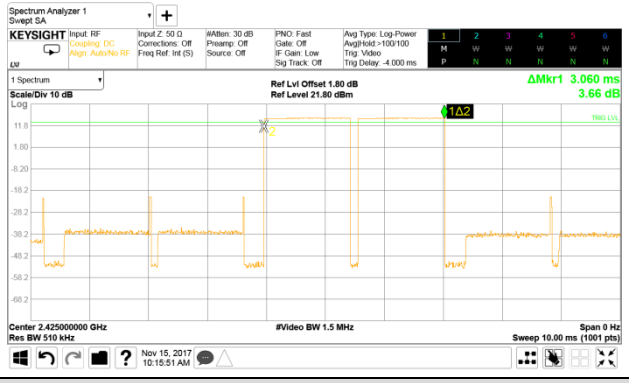
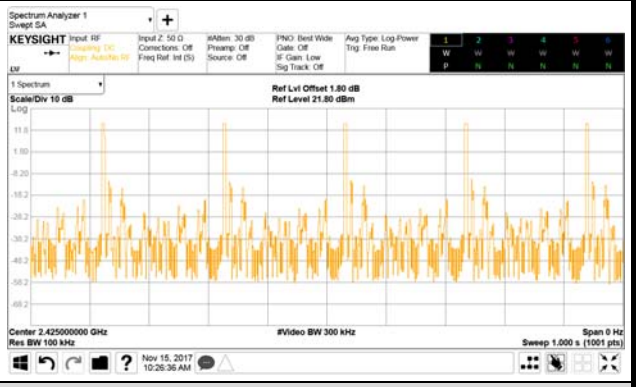
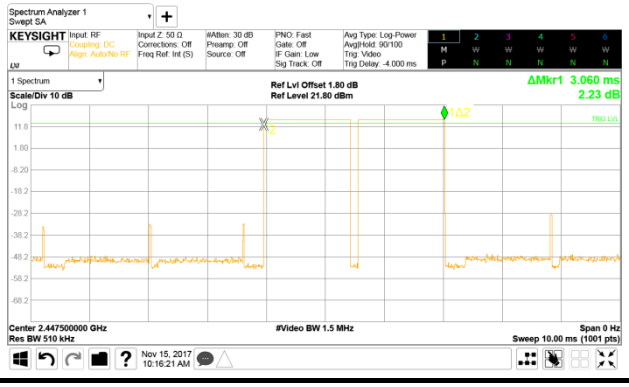
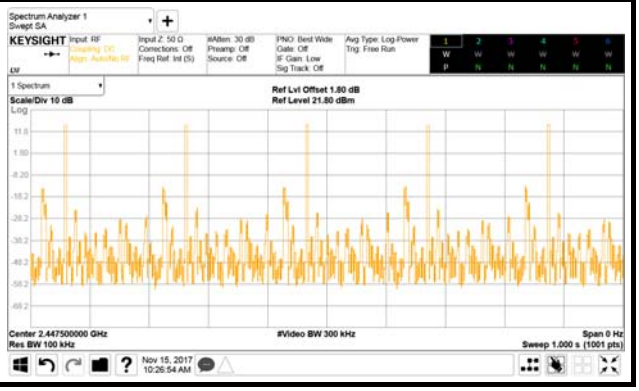
- Measurement Plots

Modulation: S-FHSS	
2403.250MHz	
	
2425.000MHz	
	
2447.500MHz	
	

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Modulation	Centre Frequency (MHz)	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
T-FHSS	2407.500	1.450	41.95	<400
	2437.500	1.450	35.96	<400
	2467.500	1.450	35.96	<400

Duty cycle: 31 channels*0.4 seconds = 12.4 seconds

Test Frequency: 2407.500MHz

For each 3 second of 7 channel appearance, the longest time of occupancy for each of 12.4 seconds is:

7 channels*12.4 seconds/3*1.450ms = 41.95ms

Test Frequency: 2437.500MHz

For each 3 second of 6 channel appearance, the longest time of occupancy for each of 12.4 seconds is:

6 channel*12.4 seconds/3* 1.450ms = 35.96ms

Test Frequency: 2467.500MHz

For each 3 second of 6 channel appearance, the longest time of occupancy for each of 12.4 seconds is:

6 channel*12.4 seconds/3* 1.450ms = 35.96ms

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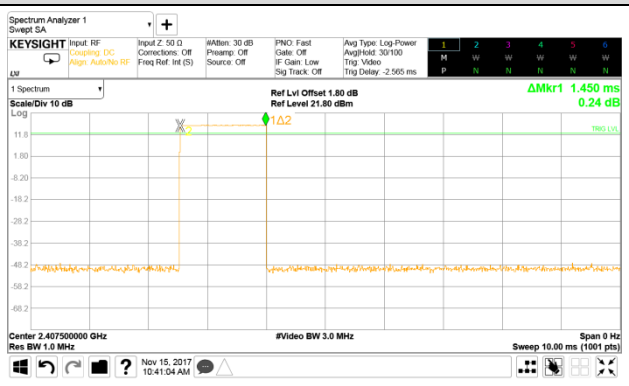
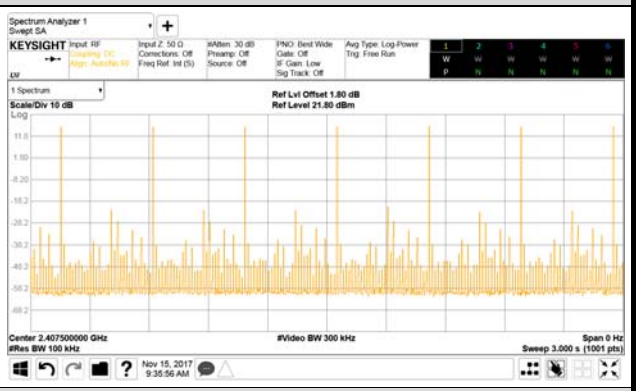
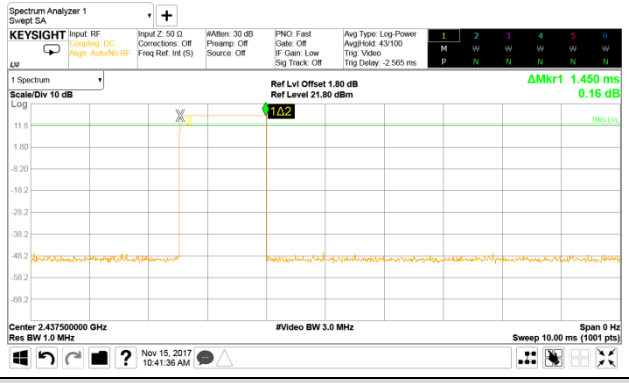
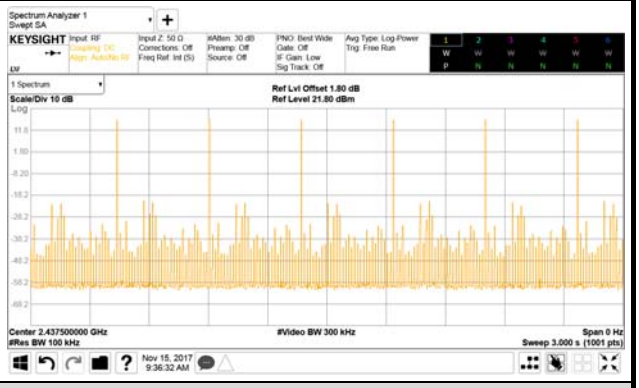
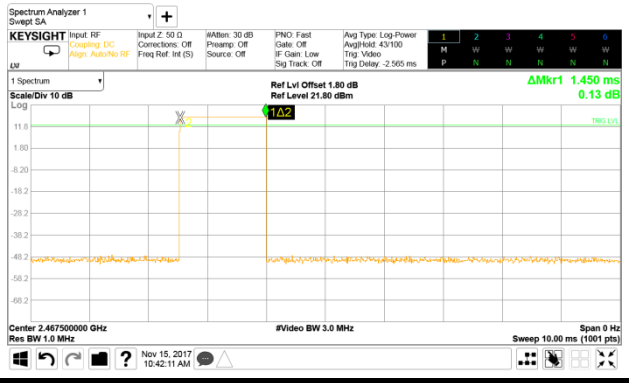
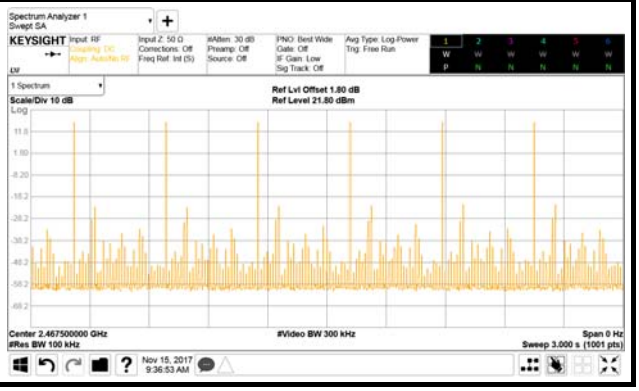
- Measurement Plots

Modulation: T-FHSS	
2407.500MHz	
	
2437.500MHz	
	
2467.500MHz	
	

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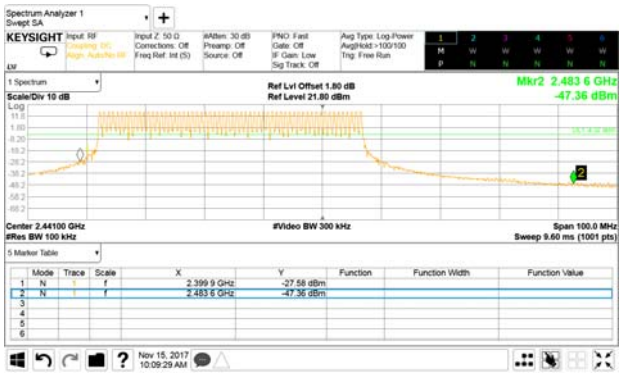
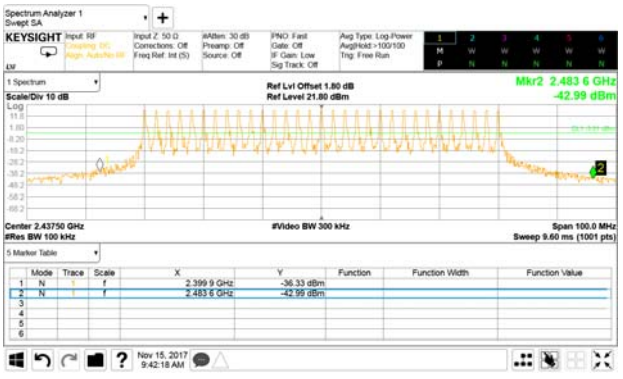
A.5 NUMBER OF HOPPING CHANNELS MEASUREMENT

Test Date	2017/11/15	Temp./Hum.	23℃/52%
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

A.5.1 Measurement Plots

Modulation: S-FHSS	Modulation: T-FHSS
	
The number hopping channel is 60.	The number hopping channel is 31.

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A.6 MAXIMUM PEAK OUTPUT POWER MEASUREMENT

Test Date	2017/11/15	Temp./Hum.	23℃/52%
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

Modulation	Centre Frequency (MHz)	Peak Output Power		Limit
		dBm	W	
S-FHSS	2403.250	15.00	0.031623	21dBm (0.125W)
	2425.000	15.29	0.033806	
	2447.500	15.15	0.032734	

Modulation	Centre Frequency (MHz)	Peak Output Power		Limit
		dBm	W	
T-FHSS	2407.50	16.27	0.042364	21dBm (0.125W)
	2437.50	16.52	0.044875	
	2467.50	16.31	0.042756	

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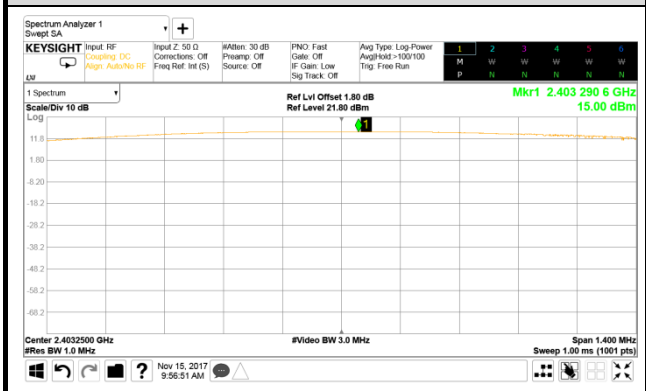
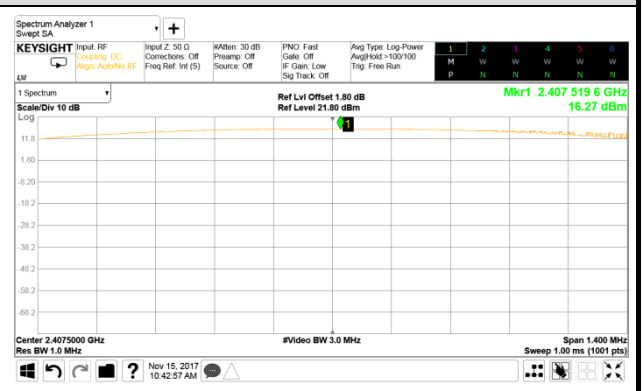
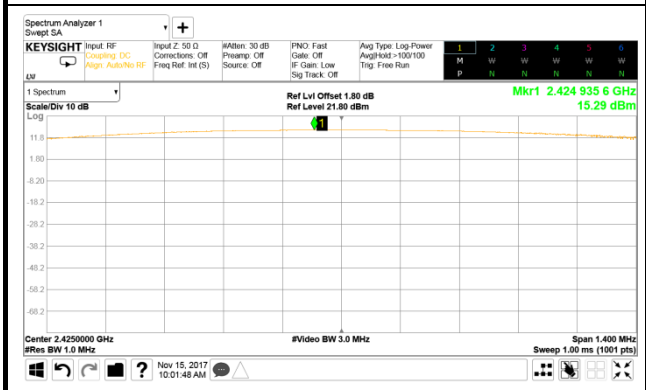
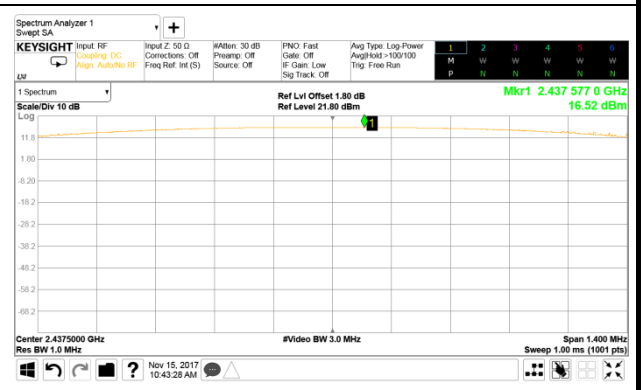
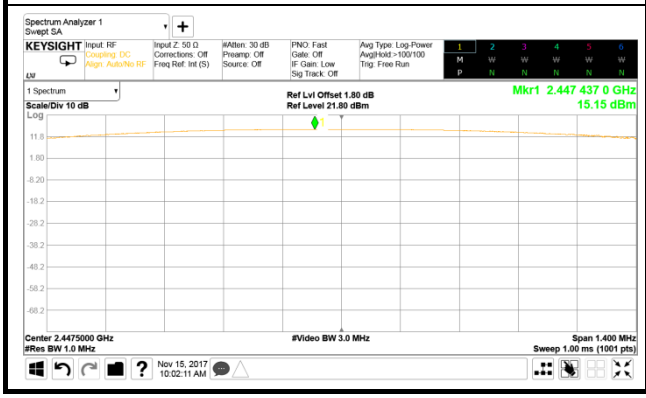
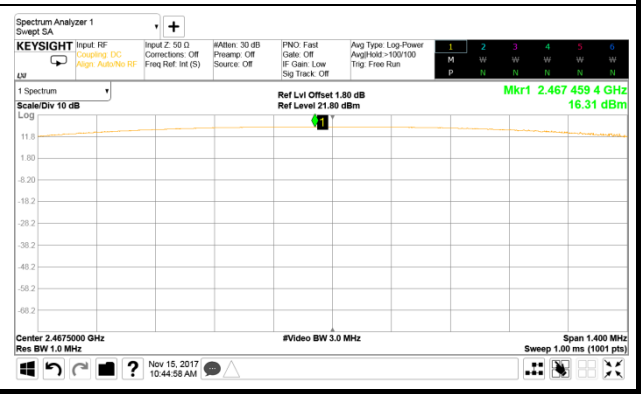
A.6.1 Measurement Plots

Modulation: S-FHSS	Modulation: T-FHSS
	
	
	

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A.7 EMISSION LIMITATIONS MEASUREMENT

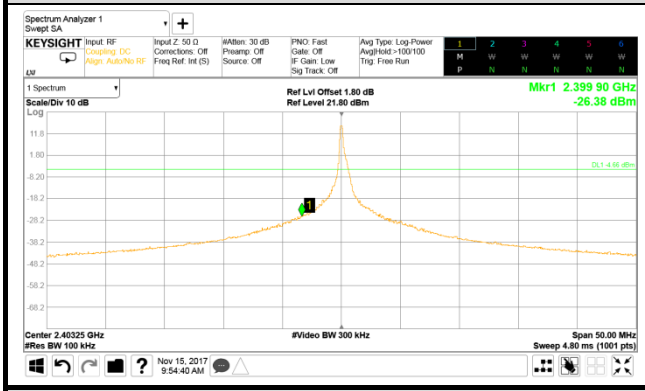
A.7.1 Band Edge

Test Date	2017/11/14~15	Temp./Hum.	23℃/52%
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

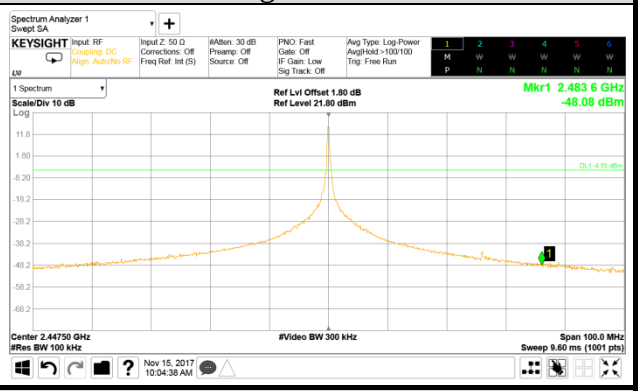
Modulation: S-FHSS

Single Channel

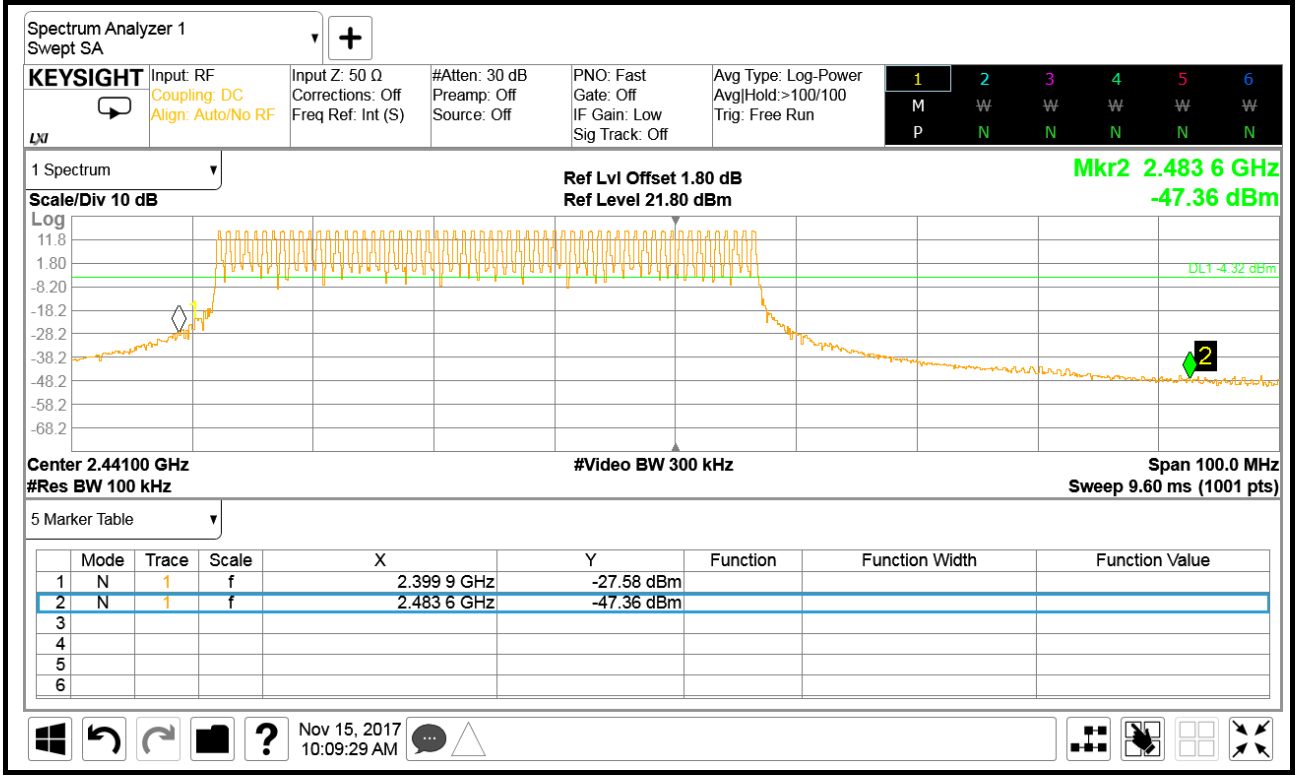
Low channel



High channel



Hopping Mode



	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.399 9 GHz	-27.58 dBm			
2	N	1	f	2.483 6 GHz	-47.36 dBm			
3								
4								
5								
6								

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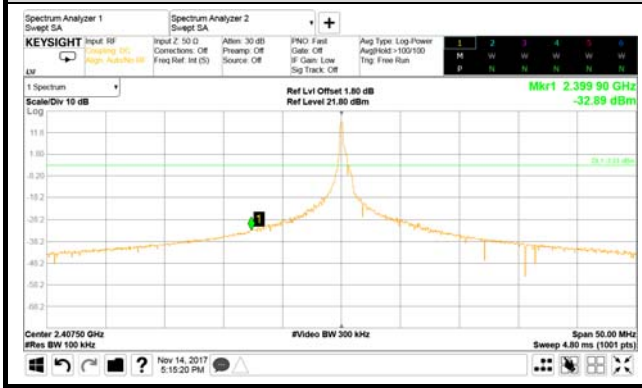
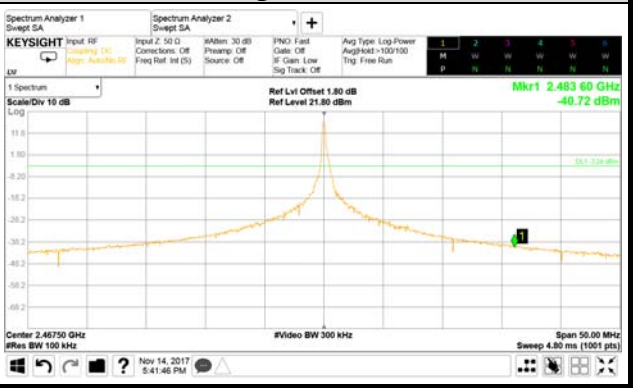
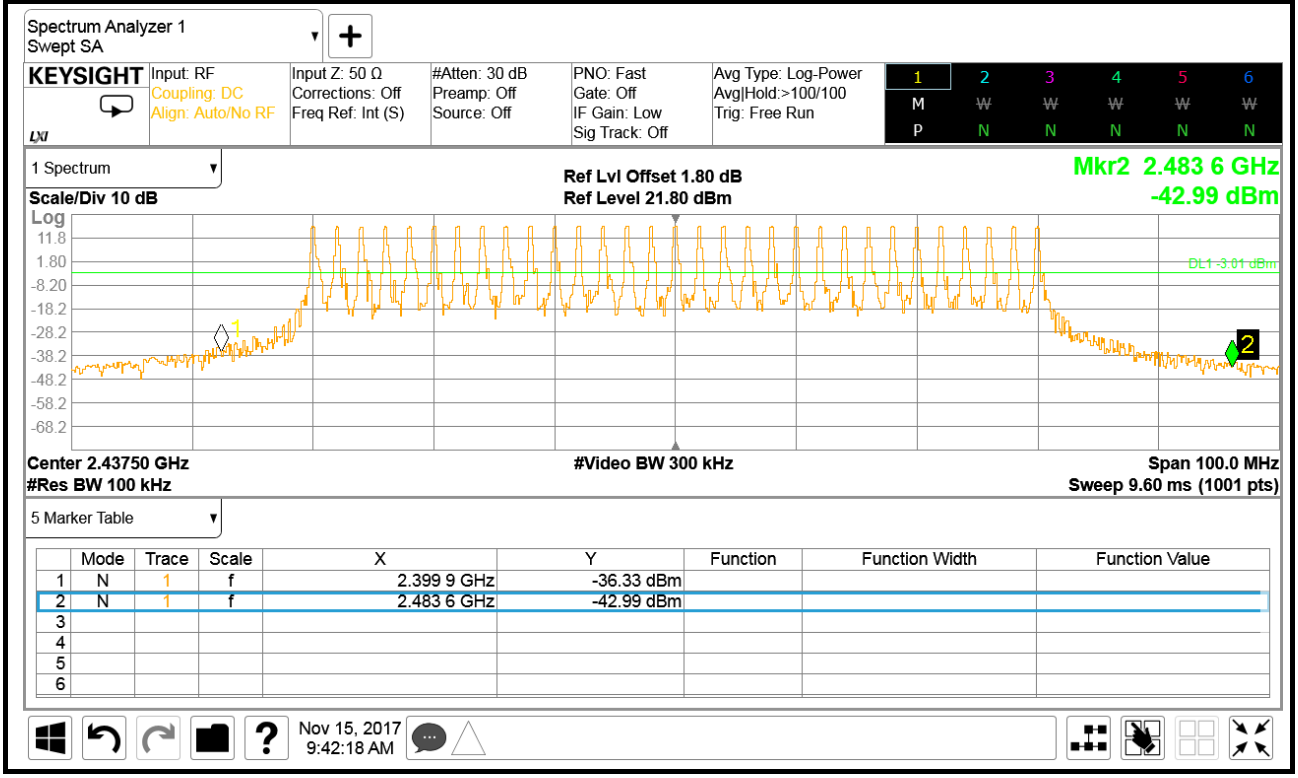
Modulation: T-FHSS

Single Channel

Low channel	High channel
	

Hopping Mode



	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	2.399 9 GHz	-36.33 dBm			
2	N	1	f	2.483 6 GHz	-42.99 dBm			
3								
4								
5								
6								

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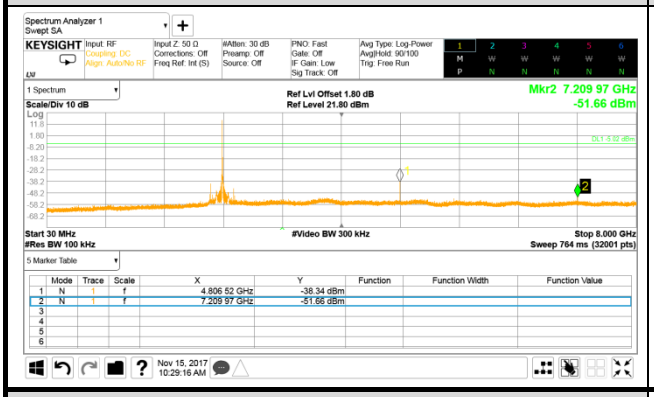
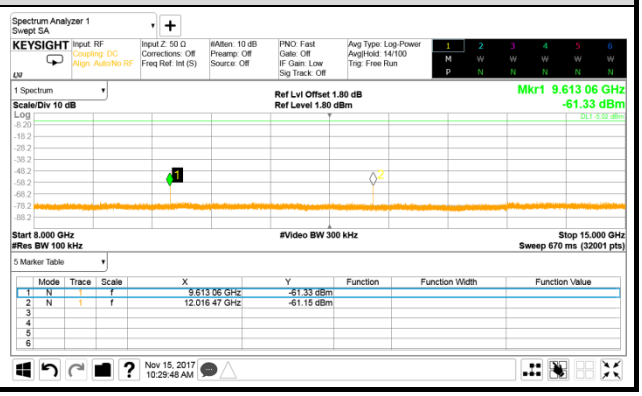
A.7.2 Spurious Emission

Test Date	2017/11/15	Temp./Hum.	23℃/52%
Mode	TX	Modulation	S-FHSS
		Frequency	2403.250MHz
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

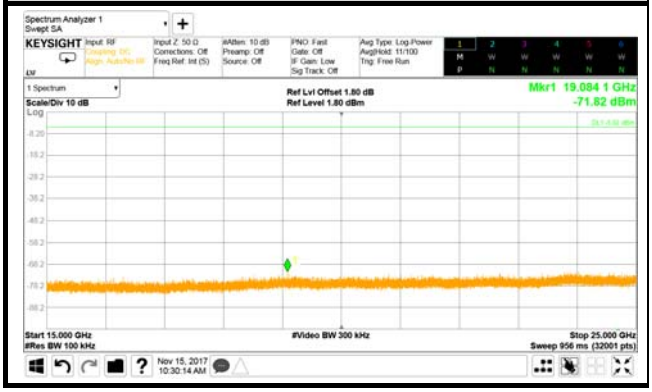
30MHz – 8GHz



8GHz – 15GHz



15GHz – 25GHz



Note: All results have been included cable loss and simultaneous factor.

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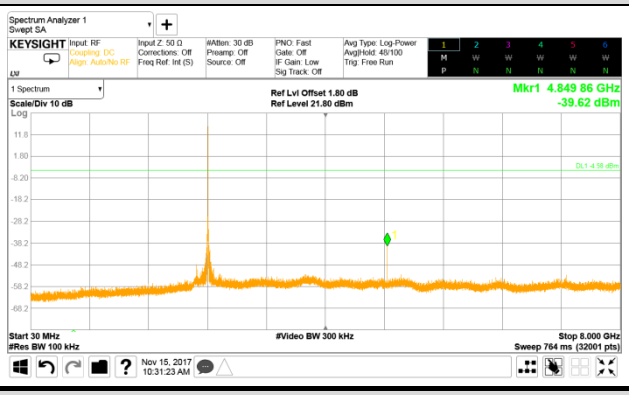
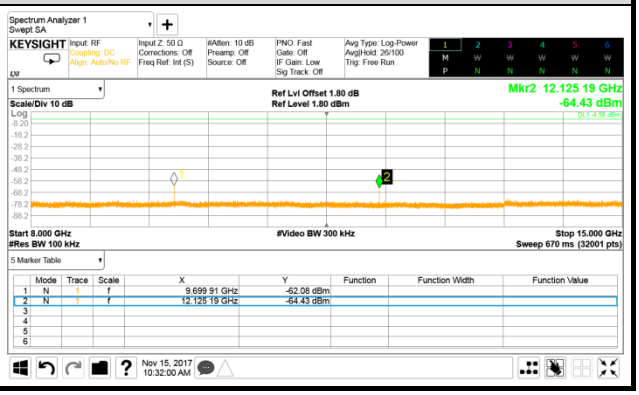
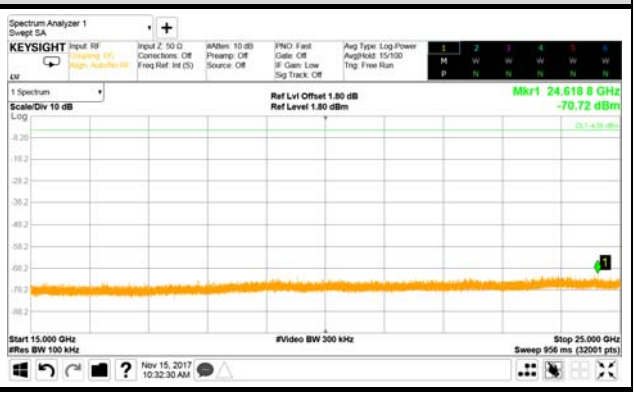
Test Date	2017/11/15	Temp./Hum.	23℃/52%
Mode	TX	Modulation	S-FHSS
		Frequency	2425.000MHz
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

30MHz – 8GHz	8GHz – 15GHz
	
15GHz – 25GHz	
	

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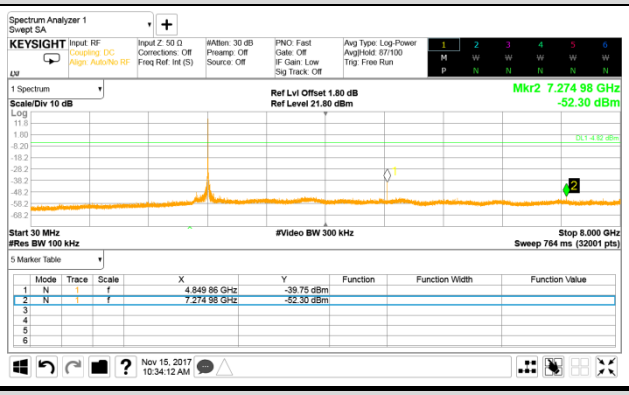
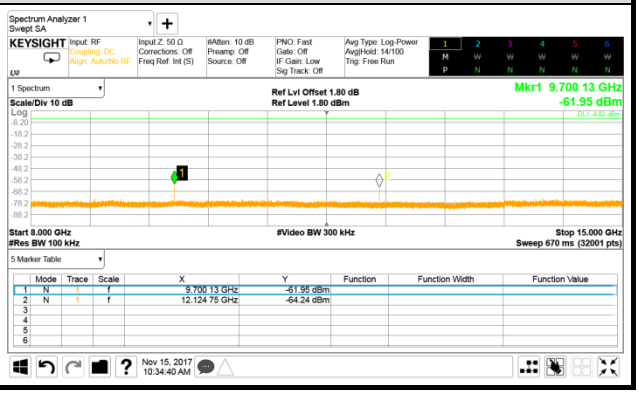
Test Date	2017/11/15	Temp./Hum.	23℃/52%
Mode	TX	Modulation	S-FHSS
		Frequency	2447.500MHz
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

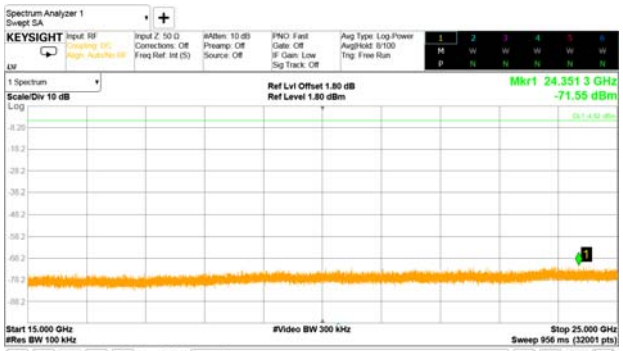
30MHz – 8GHz



8GHz – 15GHz



15GHz – 25GHz



Note: All results have been included cable loss and simultaneous factor.

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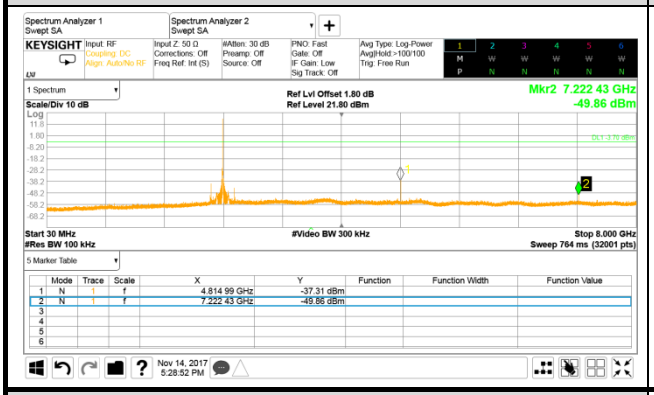
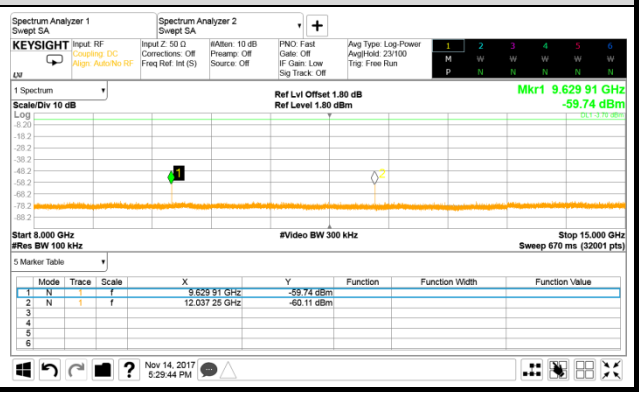
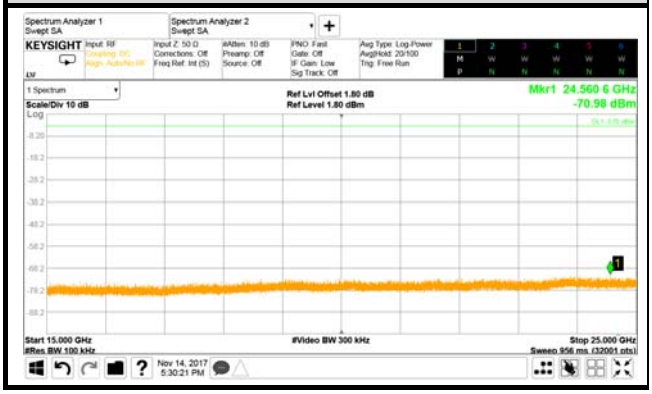
Test Date	2017/11/14	Temp./Hum.	23℃/52%
Mode	TX	Modulation	T-FHSS
		Frequency	2407.500MHz
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

30MHz – 8GHz	8GHz – 15GHz
	

15GHz – 25GHz



Note: All results have been included cable loss and simultaneous factor.

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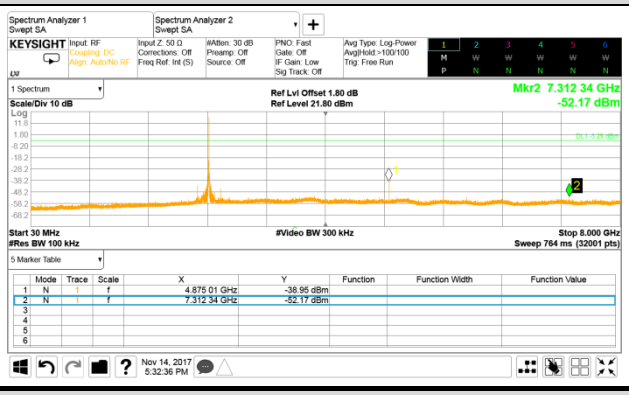
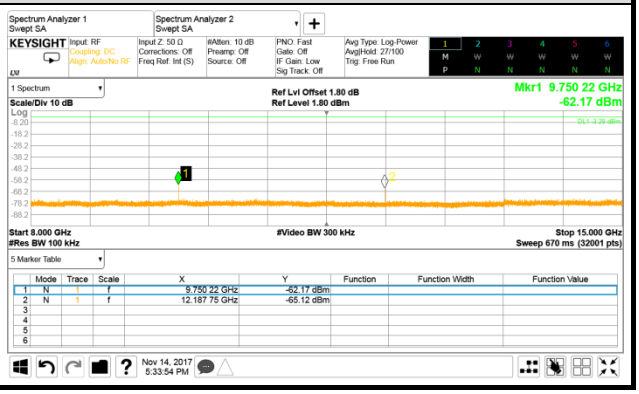
Test Date	2017/11/14	Temp./Hum.	23℃/52%
Mode	TX	Modulation	T-FHSS
		Frequency	2437.500MHz
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

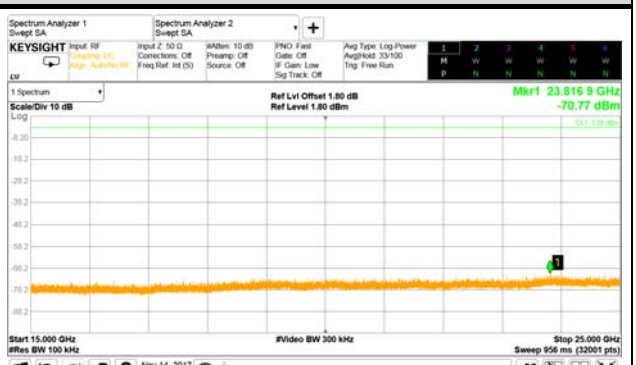
30MHz – 8GHz



8GHz – 15GHz



15GHz – 25GHz



Note: All results have been included cable loss and simultaneous factor.

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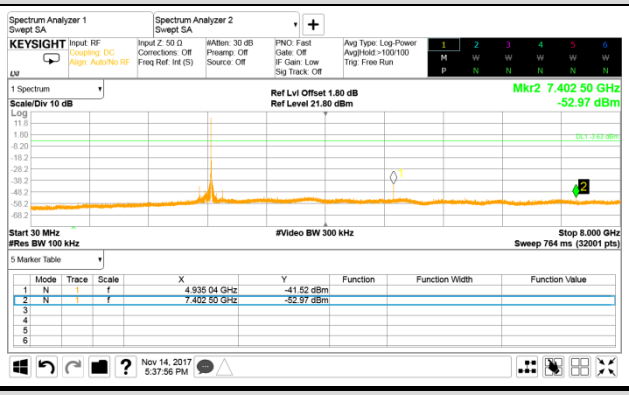
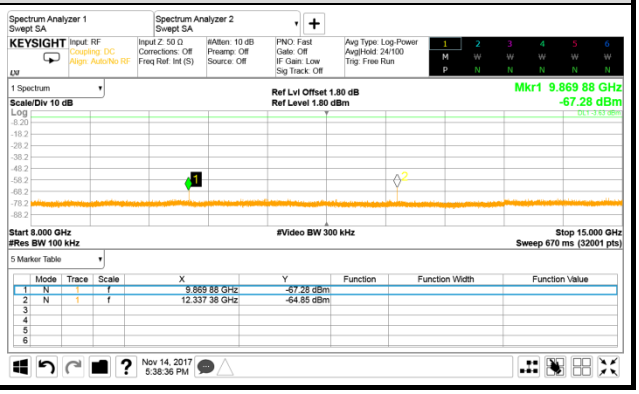
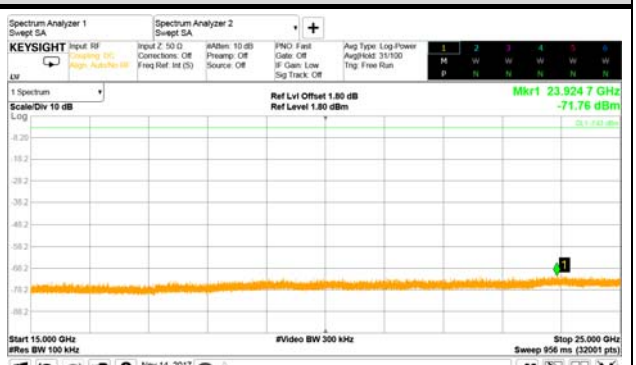
Test Date	2017/11/14	Temp./Hum.	23℃/52%
Mode	TX	Modulation	T-FHSS
		Frequency	2467.500MHz
Cable Loss	1.8dB	Test Voltage	DC 6V (Via DC Power Supply)

30MHz – 8GHz	8GHz – 15GHz
	

15GHz – 25GHz



Note: All results have been included cable loss and simultaneous factor.

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APPDNDIX B

TEST PHOTOGRAPHS

(Model: T12K)