

**FCC 15.247 DSS
2.4GHz Report**

for

FUTABA Corporation

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

Brand : Futaba
Product Name : Radio Control
Model Name : T18MZ-WC
FCC ID : AZPT18MZWC-24G

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APPENDIX A TEST PLOTS

APPENDIX B TEST PHOTOGRAPHS

TEST REPORT CERTIFICATION

Applicant : FUTABA Corporation
Manufacture : FUTABA Corporation
Product Name : Radio Control
Model No. : T18MZ-WC
Serial No. : N/A
Brand : Futaba

Rules of Compliance and Measurement Standards:

FCC CFR 47 Part 15 Subpart C/Oct. 2014
ANSI C63.10:2013
FCC Public Notice DA 00-705

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 Test: 2015. 12. 16 ~ 2016. 01. 27

Date of Report: 2016. 01. 27

Producer: Sabrina Wang
(Sabrina Wang/Administrator)

Signatory: Ben Cheng
(Ben Cheng/Manager)

1. REPORT HISTORY

Revision	Date	Revision Summary	Report Number
0	2016. 01. 22	Original Report.	EM-F160048

2. SUMMARY OF TEST RESULTS

Rule	Description	Results
15.207	Conducted Emission	N/A, Note
15.247(d)/15.209	Radiated Band Edge and Radiated Spurious Emission	PASS
15.247(a)(1)	20dB Bandwidth	PASS
15.247(a)(1)	Carrier Frequency Separation	PASS
15.247(a)(1)(iii)	Time of Occupancy	PASS
15.247(a)(1)(iii)	Number of Hopping Channels	PASS
15.247(b)(1)	Maximum Peak Output Power	PASS
15.247(d)/15.205	Conducted Band Edges and Conducted Spurious Emission	PASS
15.203	Antenna Requirement	PASS
Note: The EUT only employs battery power for operation, so it is unnecessary to test.		

3. GENERAL INFORMATION

3.1. Description of EUT

Product	Radio Control
Model Number	T18MZ-WC
Serial Number	N/A
Brand Name	Futaba
Applicant	FUTABA Corporation 1080 YabutsukaChosei-son Chosei-gun Chiba, 299-4395 Japan.
Manufacture	FUTABA Corporation 1080 YabutsukaChosei-son Chosei-gun Chiba, 299-4395 Japan.
Transmit Type	1T1R
Date of Receipt of Sample	2015. 12. 08

3.2. EUT Specifications Assessed in Current Report

Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (kbps)
2407.5-2467.5	31	T-FHSS	128
2403.25-2447.50	60	S-FHSS	128

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		

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

3.3. Antenna Information

Manufacture	Antenna Type	Frequency	Max Gain (dBi)
Laird TECHNOLOGIES	1/2λ Pencil type antenna	2.4GHz	1.5

3.4. Test Configuration

Modulation	Duty Cycle (x)	T (ms)	Duty Cycle Factor (dB)
T-FHSS	0.09	N/A	N/A
S-FHSS	0.8757	N/A	N/A

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

Item		Modulation	Test Channel
Radiated Test Case	Radiated Band Edge ^{Note1}	T-FHSS	1/31
		S-FHSS	1/60
	Radiated Spurious Emission ^{Note1}	T-FHSS	1/16/31
		S-FHSS	1/30/60
Conducted Test Case	20dB Bandwidth	T-FHSS	1/16/31
		S-FHSS	1/30/60
	Carrier Frequency Separation	T-FHSS	1/16/31
		S-FHSS	1/30/60
	Time of Occupancy	T-FHSS	1/16/31
		S-FHSS	1/30/60
	Number of Hopping Channels	T-FHSS	15
		S-FHSS	30
	Maximum Peak Output Power	T-FHSS	1/16/31
		S-FHSS	1/30/60
	Band Edges	T-FHSS	1/31
		S-FHSS	1/60
	Spurious Emission	T-FHSS	1/16/31
		S-FHSS	1/30/60

Note 1:

☐ Mobile Device

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

☒ Lie

☐ Side

☐ Stand

3.5. Setup Configuration

3.5.1. EUT Configuration for Power Line Emission



3.5.2. EUT Configuration for Conducted Test Items



3.6. Operating Condition of EUT

The EUT was set to continuously transmit and chooses data rate/ channel.

3.7. Description of Test Facility

Test Firm Name : **AUDIX Technology Corporation**
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan

Test Location & Facility : No. 53-11, Dingfu, Linkou Dist.,
New Taipei City 244, Taiwan

NVLAP Lab. Code : 200077-0

TAF Accreditation No : 1724

3.8. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Radiation Test (Distance: 3m)	30MHz~300MHz	± 3.64dB
	300MHz~1000MHz	± 4.70dB
	Above 1GHz	± 1.60dB

Remark : Uncertainty = $k_{uc}(y)$

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

4. MEASUREMENT EQUIPMENT LIST

4.1. Radiated Emission Measurement

4.1.1. Frequency Range 30MHz~1000MHz

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2015. 09. 14	1 Year
2	Test Receiver	R & S	ESCS30	100338	2015. 06. 24	1 Year
3	Amplifier	HP	8447D	2944A06305	2015. 02. 12	1 Year
4	Bilog Antenna	CHASE	CBL6112D	33821	2015. 02. 27	1 Year

4.1.2. Frequency Range 30MHz~1000MHz

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	2015. 08. 20	1 Year
2.	Amplifier	Sonoma	310N	187161	2015. 06. 17	1 Year
3.	Horn Antenna	ETS-Lindgren	3117	00135902	2015. 03. 06	1 Year
4.	2.4GHz Notch Filter	K&L	7NSL10-2441.5 E130.5-00	1	2015. 07. 22	1 Year

4.2. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1	Spectrum Analyzer	Agilent	N9030A-544	US51350140	2015. 06. 10	1 Year

5. CONDUCTED EMISSION MEASUREMENT

【The EUT only employs battery power for operation, no conductive emission limits are required according to FCC Part 15 Section §15.207】

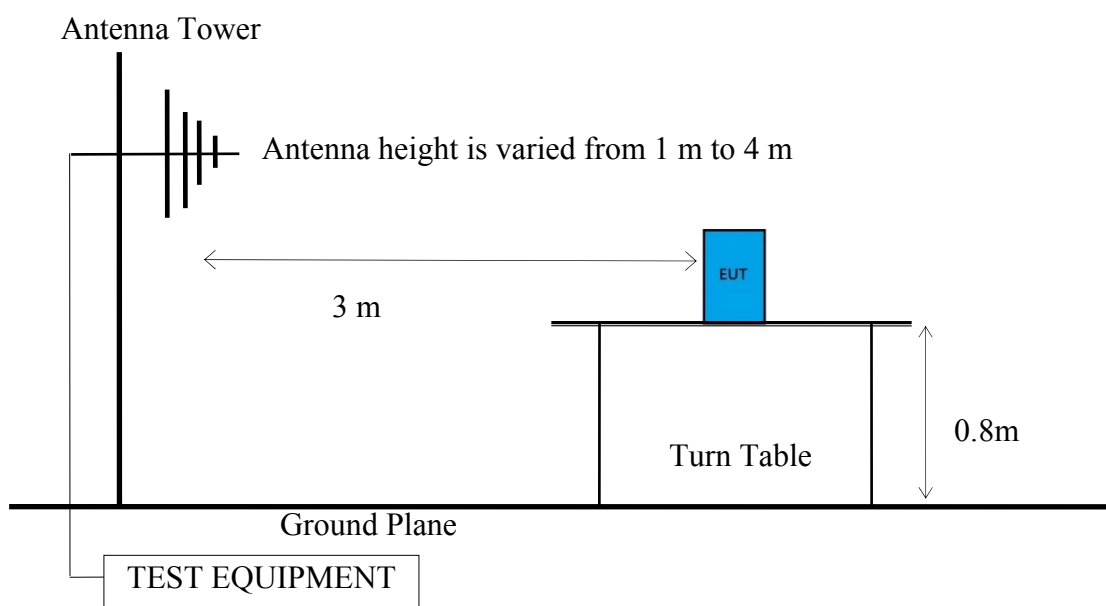
6. RADIATED EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup

6.1.1. Block Diagram of connection between EUT and simulators

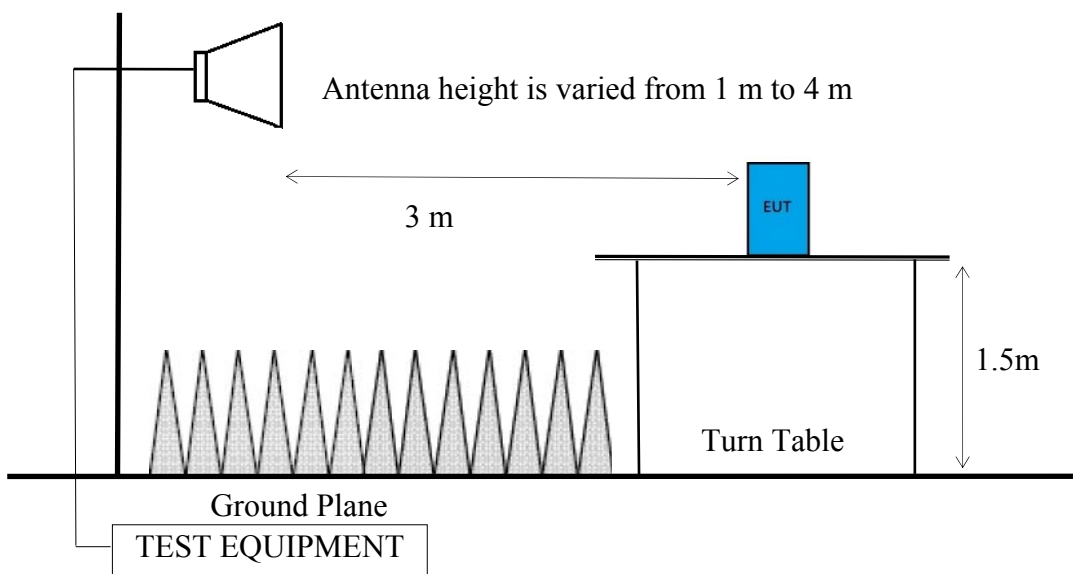
Indicated as section 3.6

6.1.2. Setup Diagram for 30-1000MHz



6.1.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz

Antenna Tower



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, must also comply with the radiated emission limits specified as below.

Frequency (MHz)	Distance(m)	Field Strengths Limits	
		$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 $\text{dB}\mu\text{V/m}$ (Peak) 54.0 $\text{dB}\mu\text{V/m}$ (Average)	

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

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

6.3. Test Procedure

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

Frequency below 1GHz:

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

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

Average Measurement:

☐ **Option 1:**

- (1) RBW = 1 MHz
- (2) VBW = $1/T$, where T is Tx-on presented in Appendix A.3.
- (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 = Antenna Factor + Cable Loss + Meter Reading

☐ Average Emission Level = Peak Emission Level + DCCF

Duty Cycle Correction Factor (DCCF) = $20\log(TX_{on}/100ms)$ presented in section 3.4

☐ EPR = Peak Emission Level - 95.2dB - 2.14dBi

6.5. Test Results

PASSED.

Test Date	2015/12/18, 2015/12/31	Temp./Hum.	23°C/53%, 22°C/47%
Test Voltage	DC 7.4V		

6.5.1. Emissions within Restricted Frequency Bands

6.5.1.1. Frequency Below 1GHz

Modulation	T-FHSS	Frequency	TX 2407.5MHz
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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
119.24	12.27	3.37	7.75	23.39	43.50	20.11	Peak
256.01	12.48	4.37	10.39	27.24	46.00	18.76	Peak
396.66	15.47	5.62	17.04	38.13	46.00	7.87	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
75.59	7.10	2.95	21.56	31.61	40.00	8.39	Peak
194.90	9.24	3.94	10.61	23.79	43.50	19.71	Peak
428.67	15.98	5.90	18.06	39.94	46.00	6.06	Peak

Modulation	T-FHSS	Frequency	TX 2437.5MHz
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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
93.05	9.67	3.17	9.41	22.25	43.50	21.25	Peak
402.48	15.58	5.67	16.63	37.88	46.00	8.12	Peak
855.47	20.33	7.37	4.70	32.40	46.00	13.60	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
75.59	7.10	2.95	21.25	31.30	40.00	8.70	Peak
428.67	15.98	5.90	18.11	39.99	46.00	6.01	Peak
688.63	18.69	6.70	7.56	32.95	46.00	13.05	Peak

Modulation	T-FHSS	Frequency	TX 2467.5MHz
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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
119.24	12.27	3.37	8.00	23.64	43.50	19.86	Peak
256.01	12.48	4.37	9.08	25.93	46.00	20.07	Peak
402.48	15.58	5.67	16.62	37.87	46.00	8.13	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
67.83	6.56	2.86	23.37	32.79	40.00	7.21	Peak
197.81	9.26	3.96	11.06	24.28	43.50	19.22	Peak
428.67	15.98	5.90	18.03	39.91	46.00	6.09	Peak

Modulation	S-FHSS	Frequency	TX 2403.25MHz
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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
348.16	14.37	5.17	20.70	40.24	46.00	5.76	Peak
519.85	17.24	6.45	10.18	33.87	46.00	12.13	Peak
858.38	20.35	7.38	6.05	33.78	46.00	12.22	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
88.20	8.81	3.12	18.76	30.69	43.50	12.81	Peak
428.67	15.98	5.90	16.77	38.65	46.00	7.35	Peak
543.13	17.58	6.47	13.80	37.85	46.00	8.15	Peak

Modulation	S-FHSS	Frequency	TX 2425.0MHz
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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
361.74	14.70	5.31	20.97	40.98	46.00	5.02	Peak
519.85	17.24	6.45	9.08	32.77	46.00	13.23	Peak
663.41	18.59	6.64	7.87	33.10	46.00	12.90	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
101.78	11.03	3.23	15.48	29.74	43.50	13.76	Peak
428.67	15.98	5.90	17.77	39.65	46.00	6.35	Peak
543.13	17.58	6.47	12.33	36.38	46.00	9.62	Peak

Modulation	S-FHSS	Frequency	TX 2447.5MHz
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Antenna at Horizontal Polarization

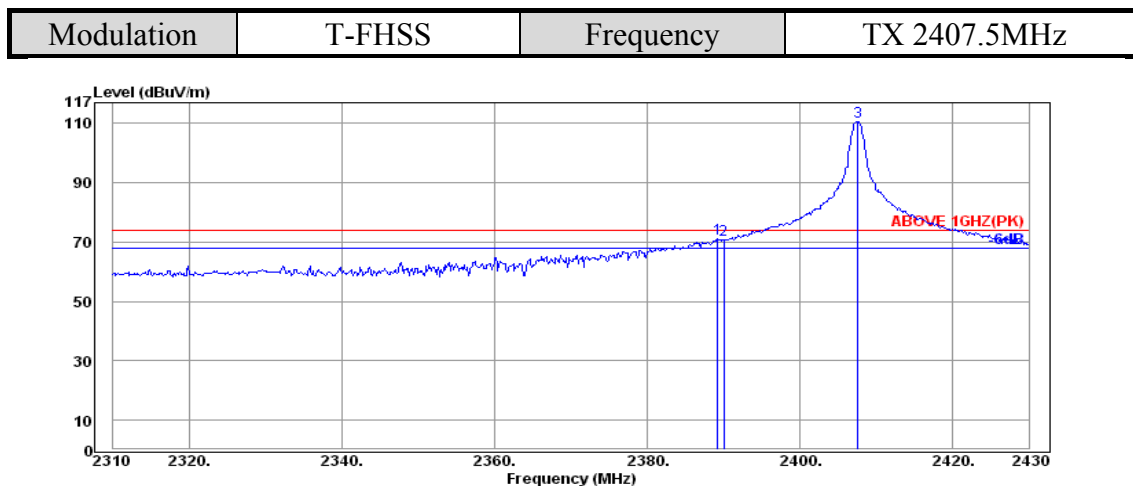
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
348.16	14.37	5.17	20.77	40.31	46.00	5.69	Peak
519.85	17.24	6.45	10.55	34.24	46.00	11.76	Peak
688.63	18.69	6.70	7.66	33.05	46.00	12.95	Peak

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
75.59	7.10	2.95	19.73	29.78	40.00	10.22	Peak
428.67	15.98	5.90	16.94	38.82	46.00	7.18	Peak
543.13	17.58	6.47	12.96	37.01	46.00	8.99	Peak

6.5.1.2. Frequency Above 1 GHz to 10th harmonics

Band Edge:

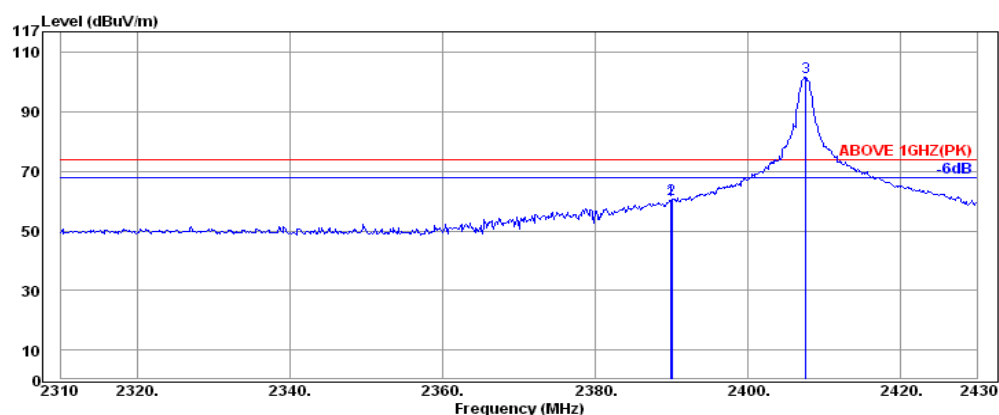


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.20	32.16	5.72	33.15	71.03	74.00	2.97	Peak
2390.04	32.16	5.72	32.96	70.84	74.00	3.16	Peak
2407.56	32.18	5.74	72.79	110.71	---	---	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2389.20	71.03	-36.77	34.26	54.00	19.74	Average
2390.04	70.84	-36.77	34.07	54.00	19.93	Average

Modulation	T-FHSS	Frequency	TX 2407.5MHz
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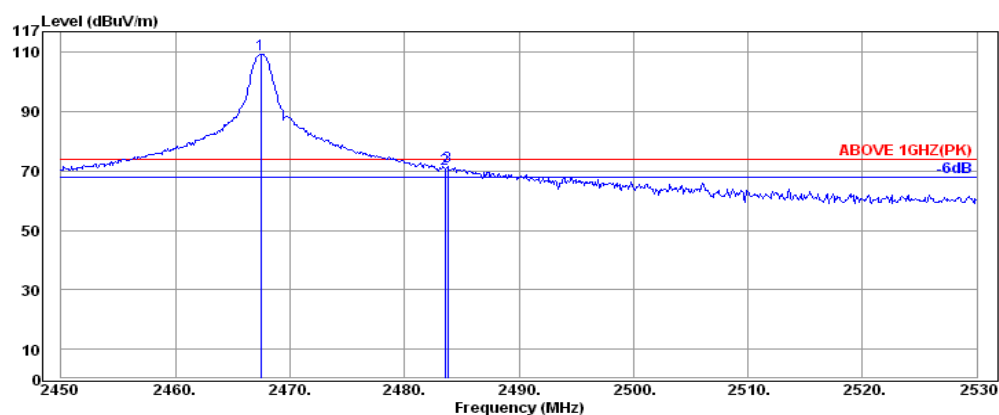


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2389.92	32.16	5.72	22.52	60.40	74.00	13.60	Peak
2390.04	32.16	5.72	22.75	60.63	74.00	13.37	Peak
2407.56	32.18	5.74	63.68	101.60	---	---	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2389.92	60.40	-36.77	23.63	54.00	30.37	Average
2390.04	60.63	-36.77	23.86	54.00	30.14	Average

Modulation	T-FHSS	Frequency	TX 2467.5MHz
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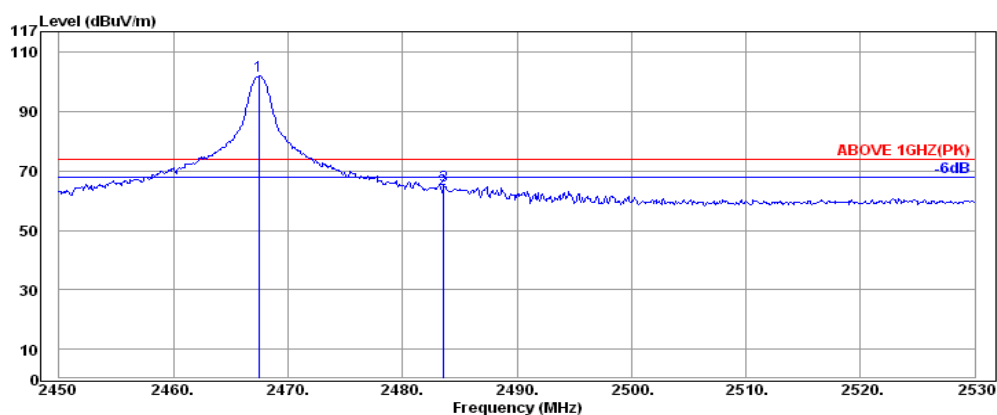


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2467.44	32.25	5.80	71.42	109.47	---	---	Peak
2483.52	32.28	5.82	32.82	70.92	74.00	3.08	Peak
2483.76	32.28	5.82	33.42	71.52	74.00	2.48	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2483.52	70.92	-36.77	34.15	54.00	19.85	Average
2483.76	71.52	-36.77	34.75	54.00	19.25	Average

Modulation	T-FHSS	Frequency	TX 2467.5MHz
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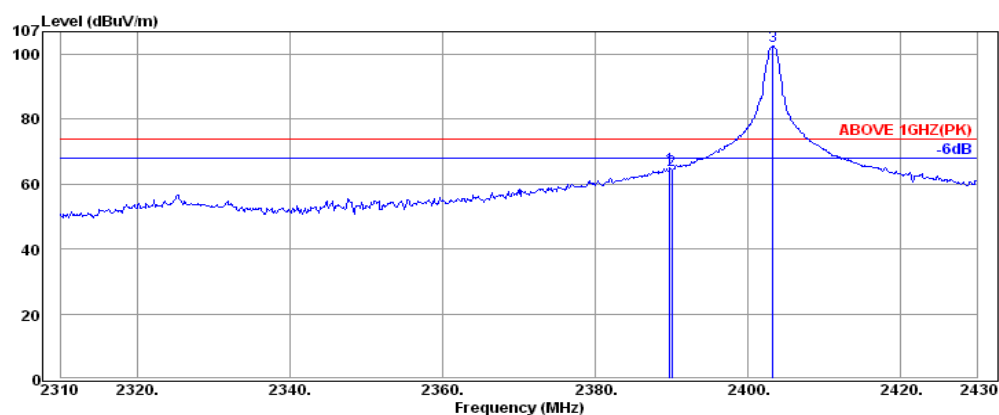


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2467.44	32.25	5.80	63.95	102.00	---	---	Peak
2483.52	32.28	5.82	25.70	63.80	74.00	10.20	Peak
2483.60	32.28	5.82	26.95	65.05	74.00	8.95	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2483.52	63.80	-36.77	27.03	54.00	26.97	Average
2483.60	65.05	-36.77	28.28	54.00	25.72	Average

Modulation	S-FHSS	Frequency	TX 2403.25MHz
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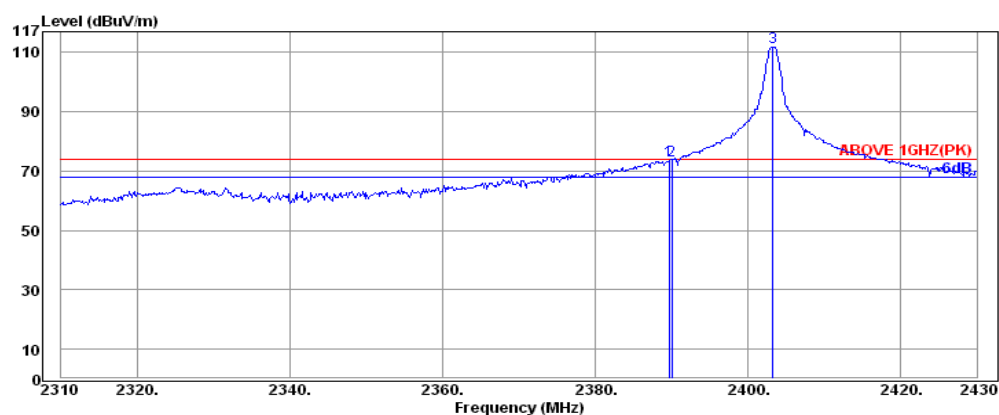


Antenna at Horizontal Polarization

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	31.68	6.08	27.21	64.97	74.00	9.03	Peak
2390.04	31.68	6.08	26.63	64.39	74.00	9.61	Peak
2403.24	31.69	6.10	64.78	102.57	---	---	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2389.80	64.97	-36.80	28.17	54.00	25.83	Average
2390.04	64.39	-36.80	27.59	54.00	26.41	Average

Modulation	S-FHSS	Frequency	TX 2403.25MHz
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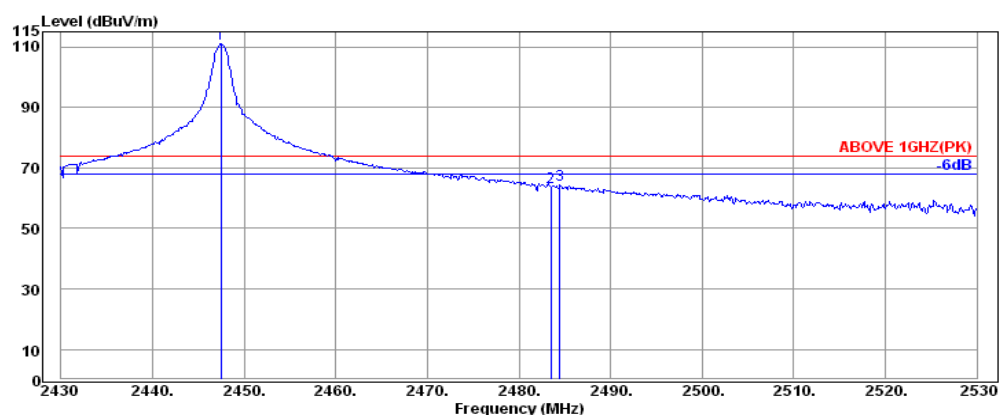


Antenna at Vertical Polarization

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	31.68	6.08	35.85	73.61	74.00	0.39	Peak
2390.04	31.68	6.08	35.97	73.73	74.00	0.27	Peak
2403.24	31.69	6.10	74.12	111.91	---	---	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2389.68	73.61	-36.80	36.81	54.00	17.19	Average
2390.04	73.73	-36.80	36.93	54.00	17.07	Average

Modulation	S-FHSS	Frequency	TX 2447.5MHz
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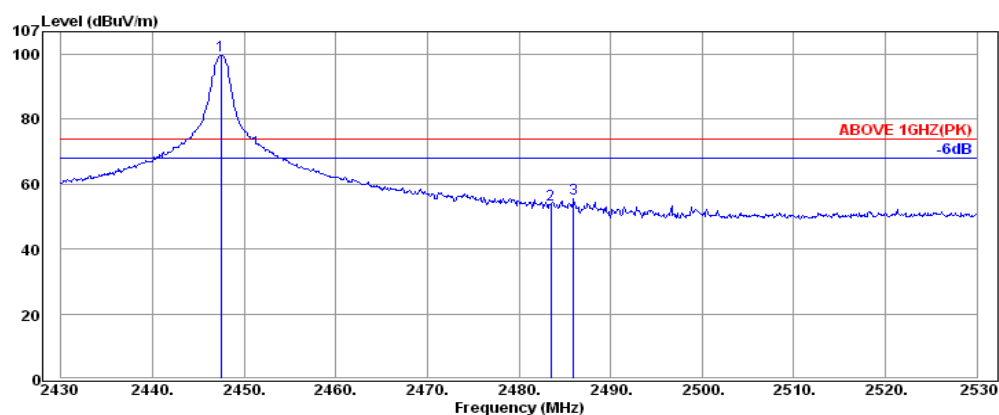


Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2447.50	31.75	6.14	73.00	110.89	---	---	Peak
2483.50	31.78	6.19	25.48	63.45	74.00	10.55	Peak
2484.50	31.78	6.19	26.27	64.24	74.00	9.76	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2483.50	63.45	-36.80	26.65	54.00	27.35	Average
2484.50	64.24	-36.80	27.44	54.00	26.56	Average

Modulation	S-FHSS	Frequency	TX 2447.5MHz
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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
2447.50	31.75	6.14	61.81	99.70	---	---	Peak
2483.50	31.78	6.19	15.76	53.73	74.00	20.27	Peak
2486.00	31.78	6.19	17.66	55.63	74.00	18.37	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2483.50	53.73	-36.80	16.93	54.00	37.07	Average
2486.00	55.63	-36.80	18.83	54.00	35.17	Average

6.5.2. Emissions outside the frequency band:

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

Modulation	T-FHSS	Frequency	TX 2407.5MHz
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Antenna at Horizontal Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2250.00	31.96	5.61	14.27	51.84	74.00	22.16	Peak
2564.00	32.38	5.95	17.09	55.42	74.00	18.58	Peak
4814.00	34.22	7.86	18.86	60.94	74.00	13.06	Peak

Emission Frequency	Peak Emission Level	DCCF	Average Emission Level	Limits	Margin	Remark
(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2250.00	51.84	-36.77	15.07	54.00	38.93	Average
2564.00	55.42	-36.77	18.65	54.00	35.35	Average
4814.00	60.94	-36.77	24.17	54.00	29.83	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
2250.00	31.96	5.61	5.18	42.75	74.00	31.25	Peak
2564.00	32.38	5.95	8.31	46.64	74.00	27.36	Peak
4816.00	34.22	7.86	16.38	58.46	74.00	15.54	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2250.00	42.75	-36.77	5.98	54.00	48.02	Average
2564.00	46.64	-36.77	9.87	54.00	44.13	Average
4816.00	58.46	-36.77	21.69	54.00	32.31	Average

Modulation	T-FHSS	Frequency	TX 2437.5MHz
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Antenna at Horizontal Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2280.00	31.99	5.62	14.14	51.75	74.00	22.25	Peak
2594.00	32.42	6.00	13.11	51.53	74.00	22.47	Peak
4876.00	34.25	8.35	16.92	59.52	74.00	14.48	Peak

Emission Frequency	Peak Emission Level	DCCF	Average Emission Level	Limits	Margin	Remark
(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2280.00	51.75	-36.77	14.98	54.00	39.02	Average
2594.00	51.53	-36.77	14.76	54.00	39.24	Average
4876.00	59.52	-36.77	22.75	54.00	31.25	Average

Antenna at Vertical Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2594.00	32.42	6.00	4.86	43.28	74.00	30.72	Peak
4876.00	34.25	8.35	14.76	57.36	74.00	16.64	Peak
Emission Frequency	Peak Emission Level		DCCF	Average Emission Level	Limits	Margin	Remark
(MHz)	(dBμV/m)		(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2594.00	43.28		-36.77	6.51	54.00	47.49	Average
4876.00	57.36		-36.77	20.59	54.00	33.41	Average

Modulation	T-FHSS	Frequency	TX 2467.5MHz
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Antenna at a Horizontal Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	32.03	5.65	15.04	52.72	74.00	21.28	Peak
2624.00	32.46	6.03	11.91	50.40	74.00	23.60	Peak
4934.00	34.27	8.57	12.50	55.34	74.00	18.66	Peak

Emission Frequency	Peak Emission Level	DCCF	Average Emission Level	Limits	Margin	Remark
(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2310.00	52.72	-36.77	15.95	54.00	38.05	Average
2624.00	50.40	-36.77	13.63	54.00	40.37	Average
4934.00	55.34	-36.77	18.57	54.00	35.43	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
2310.00	32.03	5.65	4.75	42.43	74.00	31.57	Peak
2624.00	32.46	6.03	6.39	44.88	74.00	29.12	Peak
4936.00	34.28	8.62	12.92	55.82	74.00	18.18	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
2310.00	42.43	-36.77	5.66	54.00	48.34	Average
2624.00	44.88	-36.77	8.11	54.00	45.89	Average
4936.00	55.82	-36.77	19.05	54.00	34.95	Average

Modulation	S-FHSS	Frequency	TX 2403.25MHz
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Antenna at Horizontal Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2326.00	31.61	6.00	9.38	46.99	74.00	27.01	Peak
2366.00	31.65	6.05	11.80	49.50	74.00	24.50	Peak
4808.00	33.82	8.87	7.10	49.79	74.00	24.21	Peak
17230.00	41.30	17.41	1.74	60.45	74.00	24.21	Peak

Emission Frequency	Peak Emission Level	DCCF	Average Emission Level	Limits	Margin	Remark
(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2326.00	46.99	-36.80	10.19	54.00	43.81	Average
2366.00	49.50	-36.80	12.70	54.00	41.30	Average
4808.00	49.79	-36.80	12.99	54.00	41.01	Average
17230.00	60.45	-36.80	23.65	54.00	30.35	Average

Antenna at Vertical Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2246.00	31.94	5.90	16.95	54.79	74.00	19.21	Peak
2326.00	32.06	6.00	22.73	60.79	74.00	13.21	Peak
2364.00	32.11	6.05	23.03	61.19	74.00	12.81	Peak
2560.00	32.38	6.29	18.06	56.73	74.00	12.81	Peak
4808.00	33.82	8.87	10.52	53.21	74.00	17.27	Peak
Emission Frequency	Peak Emission Level	DCCF	Average Emission Level	Limits	Margin	Remark	
(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
2246.00	54.79	-36.80	17.99	54.00	36.01	Average	
2326.00	60.79	-36.80	23.99	54.00	30.01	Average	
2364.00	61.19	-36.80	24.39	54.00	29.61	Average	
2560.00	56.73	-36.80	19.93	54.00	34.07	Average	
4808.00	53.21	-36.80	16.41	54.00	37.59	Average	

Modulation	S-FHSS	Frequency	TX 2425.0MHz
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Antenna at Horizontal Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2366.00	31.65	6.05	10.34	48.04	74.00	25.96	Peak
4848.00	33.84	9.03	6.35	49.22	74.00	24.78	Peak
Emission Frequency	Peak Emission Level		DCCF	Average Emission Level	Limits	Margin	Remark
(MHz)	(dBμV/m)		(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2366.00	49.22		48.04	97.26	54.00	-43.26	Average
4848.00	48.04		49.22	97.26	54.00	-43.26	Average

Antenna at Vertical Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2270.00	31.54	5.93	12.53	50.00	74.00	24.00	Peak
2350.00	32.08	6.03	18.04	56.15	74.00	17.85	Peak
2366.00	32.11	6.05	18.97	57.13	74.00	16.87	Peak
2526.00	31.83	6.25	13.91	51.99	74.00	16.87	Peak
2580.00	31.89	6.32	12.70	50.91	74.00	22.01	Peak
4852.00	33.84	9.03	10.30	53.17	74.00	23.09	Peak
Emission Frequency	Peak Emission Level	DCCF	Average Emission Level	Limits	Margin	Remark	
(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
2270.00	50.00	-36.80	13.20	54.00	40.80	Average	
2350.00	56.15	-36.80	19.35	54.00	34.65	Average	
2366.00	57.13	-36.80	20.33	54.00	33.67	Average	
2526.00	51.99	-36.80	15.19	54.00	38.81	Average	
2580.00	50.91	-36.80	14.11	54.00	39.89	Average	
4852.00	53.17	-36.80	16.37	54.00	37.63	Average	

Modulation	S-FHSS	Frequency	TX 2447.5MHz
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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
2290.00	31.57	5.96	9.23	46.76	74.00	27.24	Peak
2604.00	31.91	6.35	6.96	45.22	74.00	28.78	Peak
4892.00	33.86	9.14	5.08	48.08	74.00	25.92	Peak
Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	DCCF (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	
2290.00	46.76	-36.80	9.96	54.00	44.04	Average	
2604.00	45.22	-36.80	8.42	54.00	45.58	Average	
4892.00	48.08	-36.80	11.28	54.00	42.72	Average	

Antenna at Vertical Polarization

Emission Frequency	Antenna Factor	Cable Loss	Meter Reading	Emission Level	Limits	Margin	Detector
(MHz)	(dB/m)	(dB)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	
2294.00	32.01	5.96	20.17	58.14	74.00	15.86	Peak
2370.00	32.13	6.05	20.41	58.59	74.00	15.41	Peak
2526.00	32.34	6.25	16.83	55.42	74.00	18.58	Peak
2604.00	32.42	6.35	17.47	56.24	74.00	18.58	Peak
4892.00	33.86	9.14	9.46	52.46	74.00	17.76	Peak

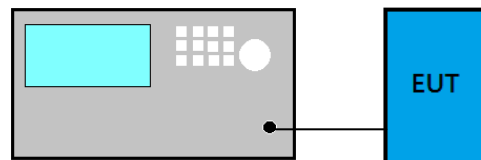
Emission Frequency	Peak Emission Level	DCCF	Average Emission Level	Limits	Margin	Remark
(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2294.00	58.14	-36.80	21.34	54.00	32.66	Average
2370.00	58.59	-36.80	21.79	54.00	32.21	Average
2526.00	55.42	-36.80	18.62	54.00	35.38	Average
2604.00	56.24	-36.80	19.44	54.00	34.56	Average
4892.00	52.46	-36.80	15.66	54.00	38.34	Average

6.5.3. Emissions in Non-restricted Frequency Bands

All emission levels below the 15.209 general radiated emissions limits is not required.

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 DA00-705:

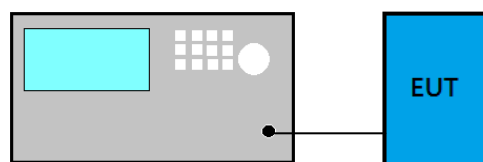
- (1) Set RBW close to 1% of OBW.
- (2) Set $VBW \geq RBW$.
- (3) Detector = Peak.
- (4) Trace mode = max hold.
- (5) Sweep = auto couple.
- (6) Allow the trace to stabilize.
- (7) Setting channel bandwidth function x dB to -20 dB to record the final bandwidth.

7.4. Test Results

Please refer to Appendix A

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 no greater than 125mW.

8.3. Test Procedure

Following measurement procedure is reference to DA00-705:

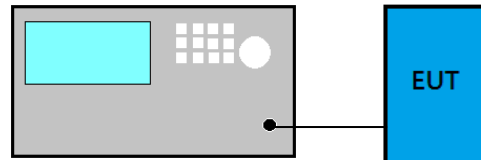
- (1) Span = wide enough to capture the peaks of two adjacent channels
- (2) RBW $\geq$ 1% of the span
- (3) VBW $\geq$ RBW
- (4) Sweep = auto
- (5) Detector function = peak
- (6) Trace = max hold

8.4. Test Results

Please refer to Appendix A

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 DA00-705:

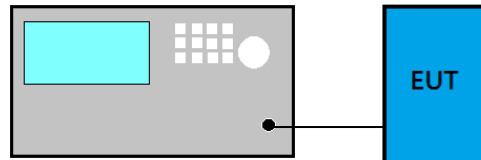
- (1) Span = zero span, centered on a hopping channel
- (2) RBW = 1 MHz
- (3) VBW $\geq$ RBW
- (4) Sweep = as necessary to capture the entire dwell time per hopping channel
- (5) Detector function = peak
- (6) Trace = max hold

9.4. Test Results

Please refer to Appendix A

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 DA00-705:

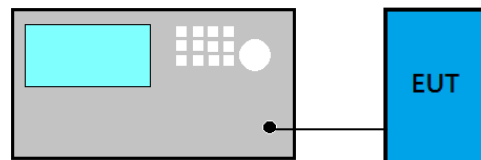
- (1) Span = the frequency band of operation
- (2) RBW $\geq$ 1% of the span
- (3) VBW $\geq$ RBW
- (4) Sweep = auto
- (5) Detector function = peak
- (6) Trace = max hold

10.4. Test Results

Please refer to Appendix A

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 DA00-705:

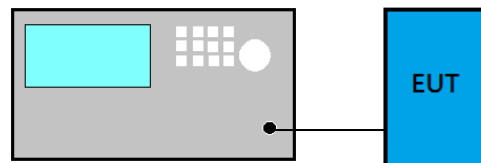
- (1) Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
- (2) $RBW \geq OBW$
- (3) $VBW \geq RBW$
- (4) Sweep = auto
- (5) Detector function = peak
- (6) Trace = max hold

11.4. Test Results

Please refer to Appendix A

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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)). (※ This test result attaching to §3.6.3)

12.3. Test Procedure

Following measurement procedure is reference to DA00-705:

- (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

13.DEVIATION TO TEST SPECIFICATIONS

【NONE】



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APPENDIX A

TEST PLOTS

(Model: T18MZ-WC)

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A.1 20DB BANDWIDTH MEASUREMENT

Test Date	2015/12/16, 2016/01/18	Temp./Hum.	23°C/53%, 22°C/58%
Cable Loss	1.5dB, 1.3dB	Test Voltage	DC 7.4V

A.1.1 20dB Bandwidth Result

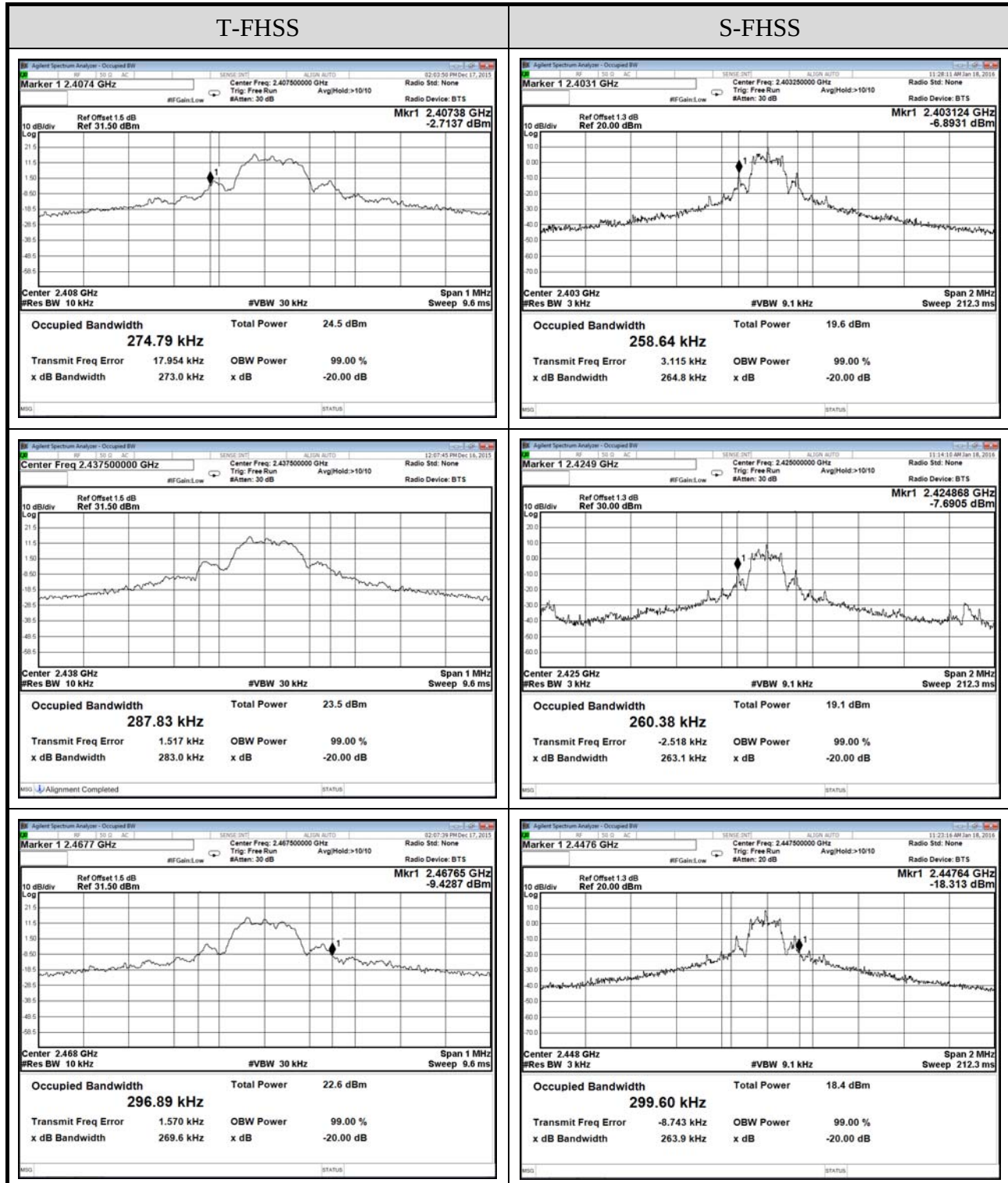
Modulation	Centre Frequency (MHz)	20 dB Bandwidth (MHz)	2/3 (20dB Bandwidth)
T-FHSS	2407.50	0.2730	0.182
	2437.50	0.2830	0.189
	2467.50	0.2696	0.180

Remark: The maximum two-thirds of the 20dB bandwidth is the limit for carrier frequency separation presented.

Modulation	Centre Frequency (MHz)	20 dB Bandwidth (MHz)	2/3 (20dB Bandwidth)
S-FHSS	2403.25	0.2648	0.177
	2425.00	0.2631	0.175
	2447.50	0.2639	0.176

Remark: The maximum two-thirds of the 20dB bandwidth is the limit for carrier frequency separation presented.

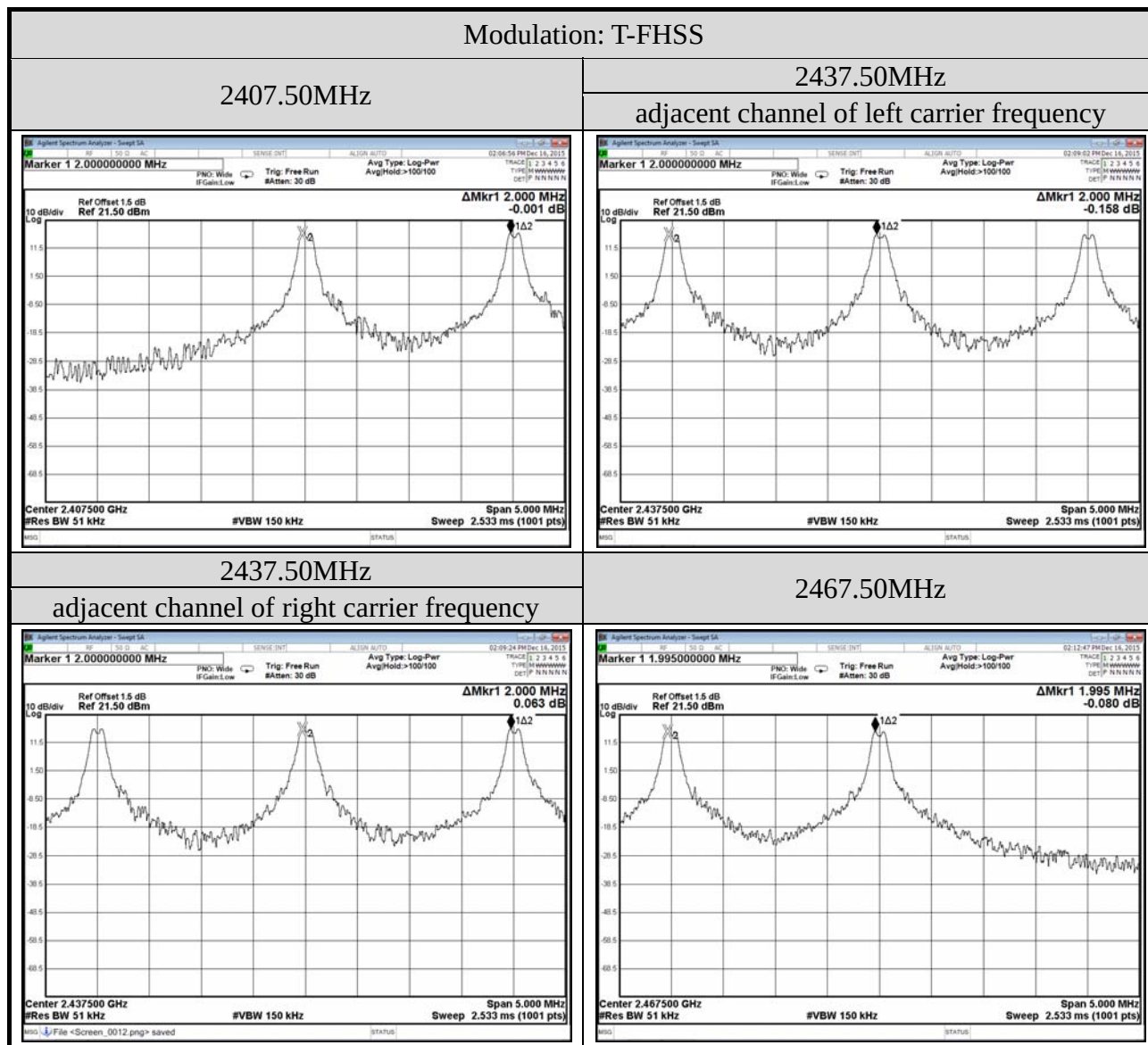
A.1.2 Measurement Plots

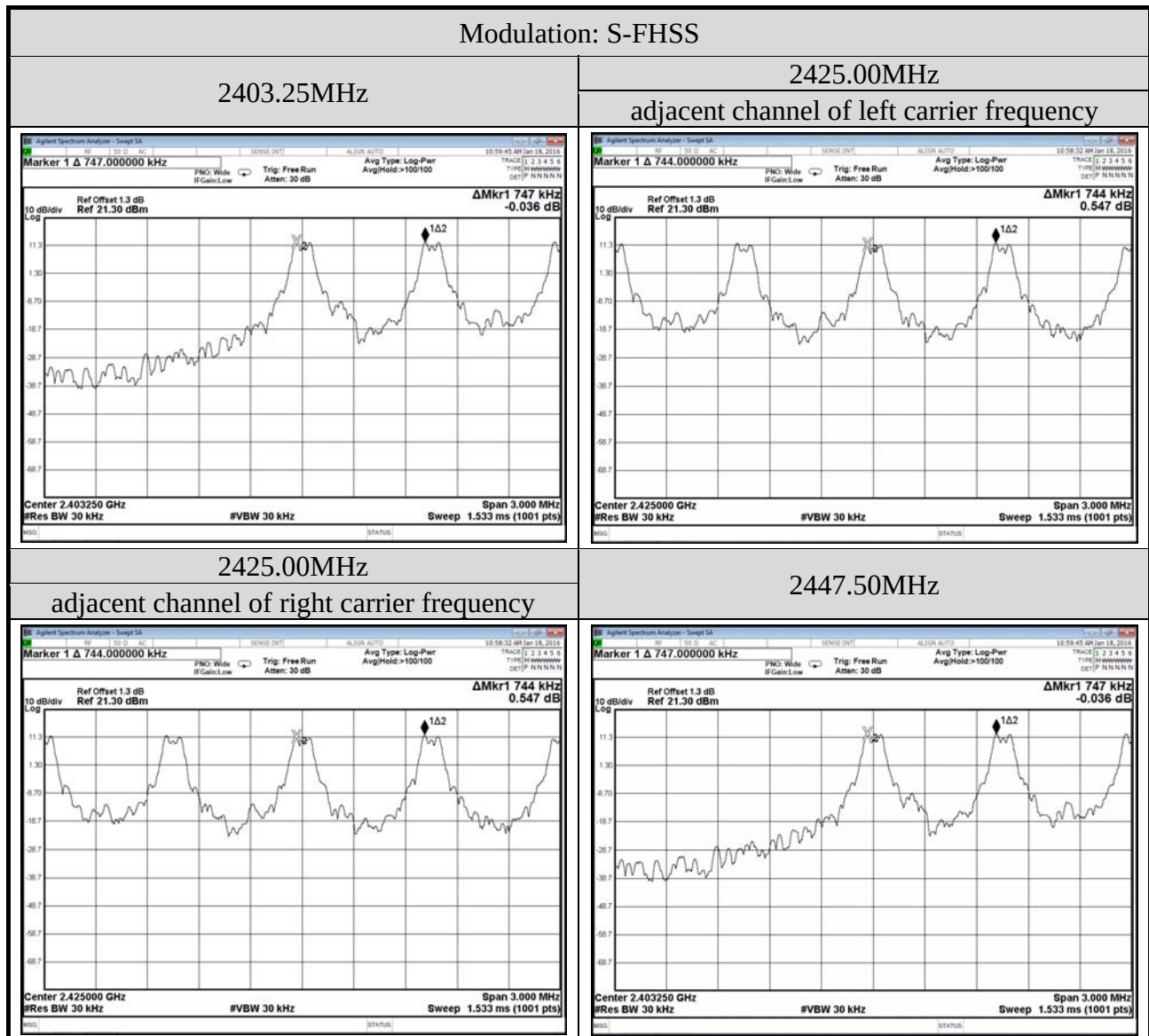


A.2 CARRIER FREQUENCY SEPARATION MEASUREMENT

Test Date	2015/12/16, 2016/01/18	Temp./Hum.	23°C/53%, 22°C/58%
Cable Loss	1.5dB, 1.3dB	Test Voltage	DC 7.4V

A.2.1 Measurement Plots





A.3 TIME OF OCCUPANCY MEASUREMENT

Test Date	2015/12/16, 2016/01/18	Temp./Hum.	23°C/53%, 22°C/58%
Cable Loss	1.5dB, 1.3dB	Test Voltage	DC 7.4V

A.3.1 Time of Occupancy

Modulation	Centre Frequency (MHz)	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
T-FHSS	2407.500	1.450	35.960	<400
	2437.500	1.450	35.960	<400
	2467.500	1.450	35.960	<400

Duty cycle: 31 channels*0.4 seconds = 12.4 seconds

Test Frequency: 2407.500MHz

For each second of 2 channel appearance, the longest time of occupancy for each of 12.4 seconds is:

$$2 \text{ channels} * 12.4 \text{ seconds} * 1.450 \text{ ms} = 35.960 \text{ ms}$$

Test Frequency: 2437.500MHz

For each second of 2 channel appearance, the longest time of occupancy for each of 12.4 seconds is:

$$2 \text{ channels} * 12.4 \text{ seconds} * 1.450 \text{ ms} = 35.960 \text{ ms}$$

Test Frequency: 2467.500MHz

For each second of 2 channel appearance, the longest time of occupancy for each of 12.4 seconds is:

$$2 \text{ channels} * 12.4 \text{ seconds} * 1.450 \text{ ms} = 35.960 \text{ ms}$$

Modulation	Centre Frequency (MHz)	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
S-FHSS	2403.25	1.445	173.400	<400
	2425.00	1.445	173.400	<400
	2447.50	1.440	172.800	<400

Duty cycle: 60 channels*0.4 seconds = 24 seconds

Test Frequency: 2403.250MHz

For each second of 5 channel appearance, the longest time of occupancy for each of 24 seconds is:

5 channels*24 seconds* **1.445** ms= **173.400** ms

Test Frequency: 2425.00MHz

For each second of 5 channel appearance, the longest time of occupancy for each of 24 seconds is:

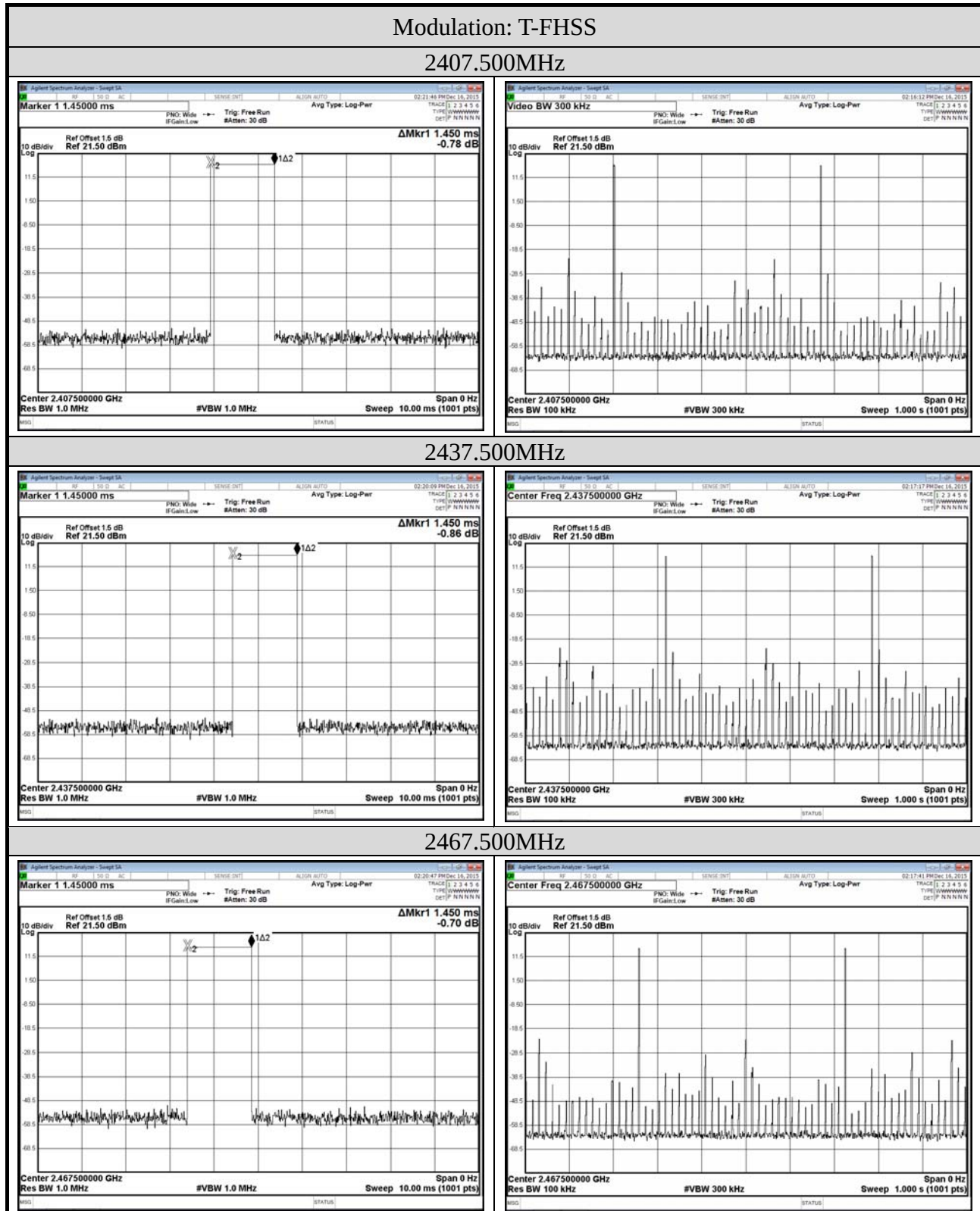
5 channels*24 seconds* **1.445** ms= **173.400** ms

Test Frequency: 2447.50MHz

For each second of 5 channel appearance, the longest time of occupancy for each of 24 seconds is:

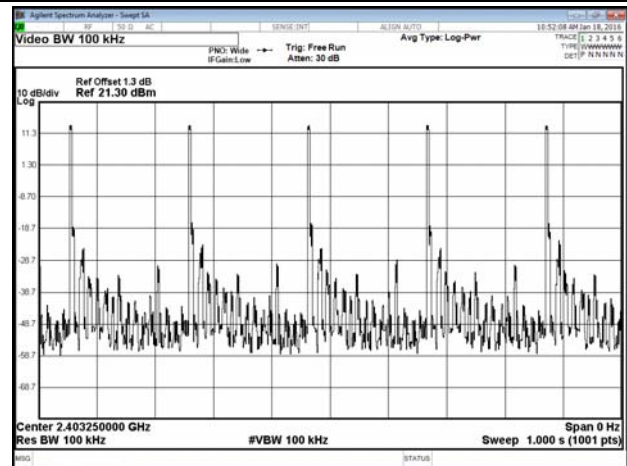
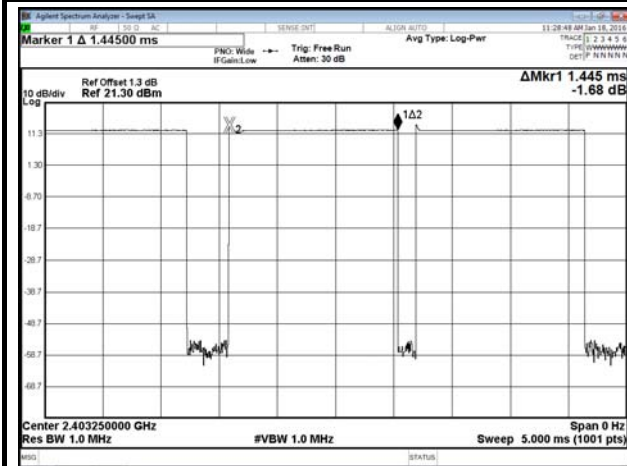
5 channels*24 seconds* **1.440** ms= **172.800** ms

A.3.2 Measurement Plots

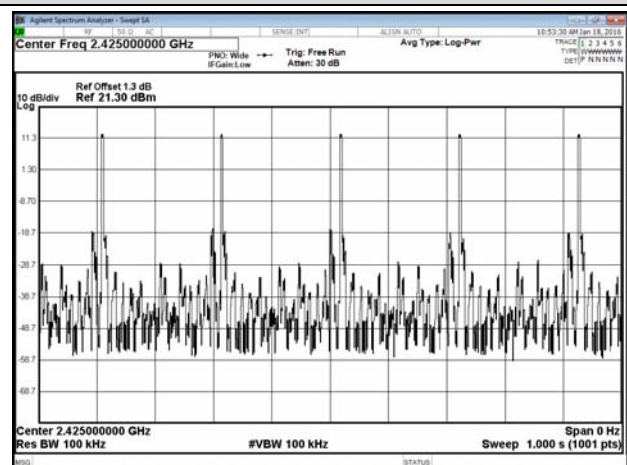
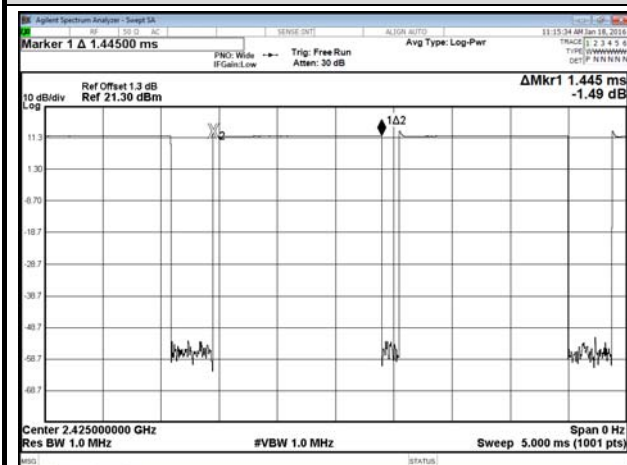


Modulation: S-FHSS

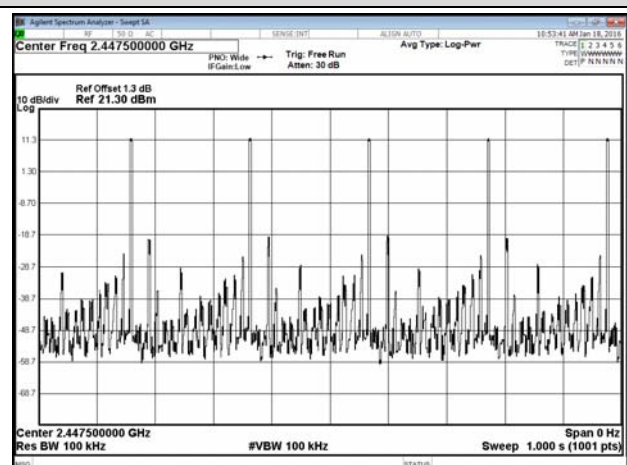
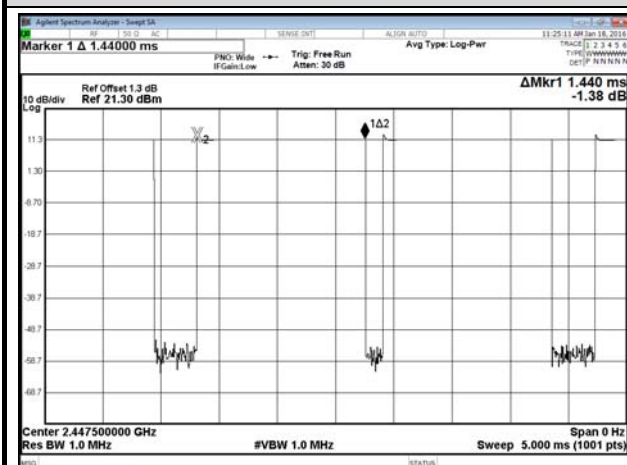
2403.25MHz



2425.00MHz



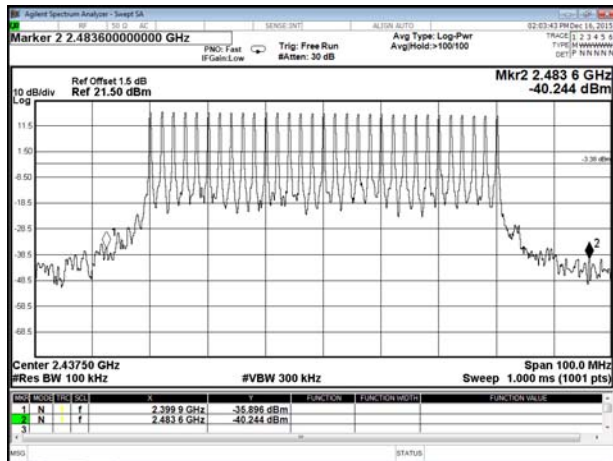
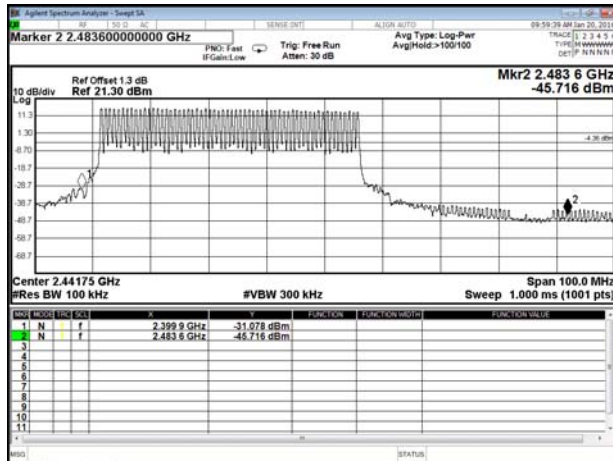
2447.50MHz



A.4 NUMBER OF HOPPING CHANNELS MEASUREMENT

Test Date	2015/12/16, 2016/01/18	Temp./Hum.	23°C/53%, 22°C/58%
Cable Loss	1.5dB, 1.3dB	Test Voltage	DC 7.4V

A.4.1 Measurement Plots

Modulation: T-FHSS	Modulation: S-FHSS
 The plot shows a hopping signal with a marker at 2.4836 GHz and -40.244 dBm. The x-axis is frequency in GHz, and the y-axis is power in dBm. The signal is centered at 2.43750 GHz with a span of 100.0 MHz and a resolution bandwidth of 100 kHz.	 The plot shows a hopping signal with a marker at 2.4836 GHz and -45.716 dBm. The x-axis is frequency in GHz, and the y-axis is power in dBm. The signal is centered at 2.44175 GHz with a span of 100.0 MHz and a resolution bandwidth of 100 kHz.
The number hopping channel is 31.	The number hopping channel is 60.

A.5 MAXIMUM PEAK OUTPUT POWER MEASUREMENT

Test Date	2015/12/16, 2016/01/27	Temp./Hum.	23°C/53%
Cable Loss	1.3dB	Test Voltage	DC 7.4V

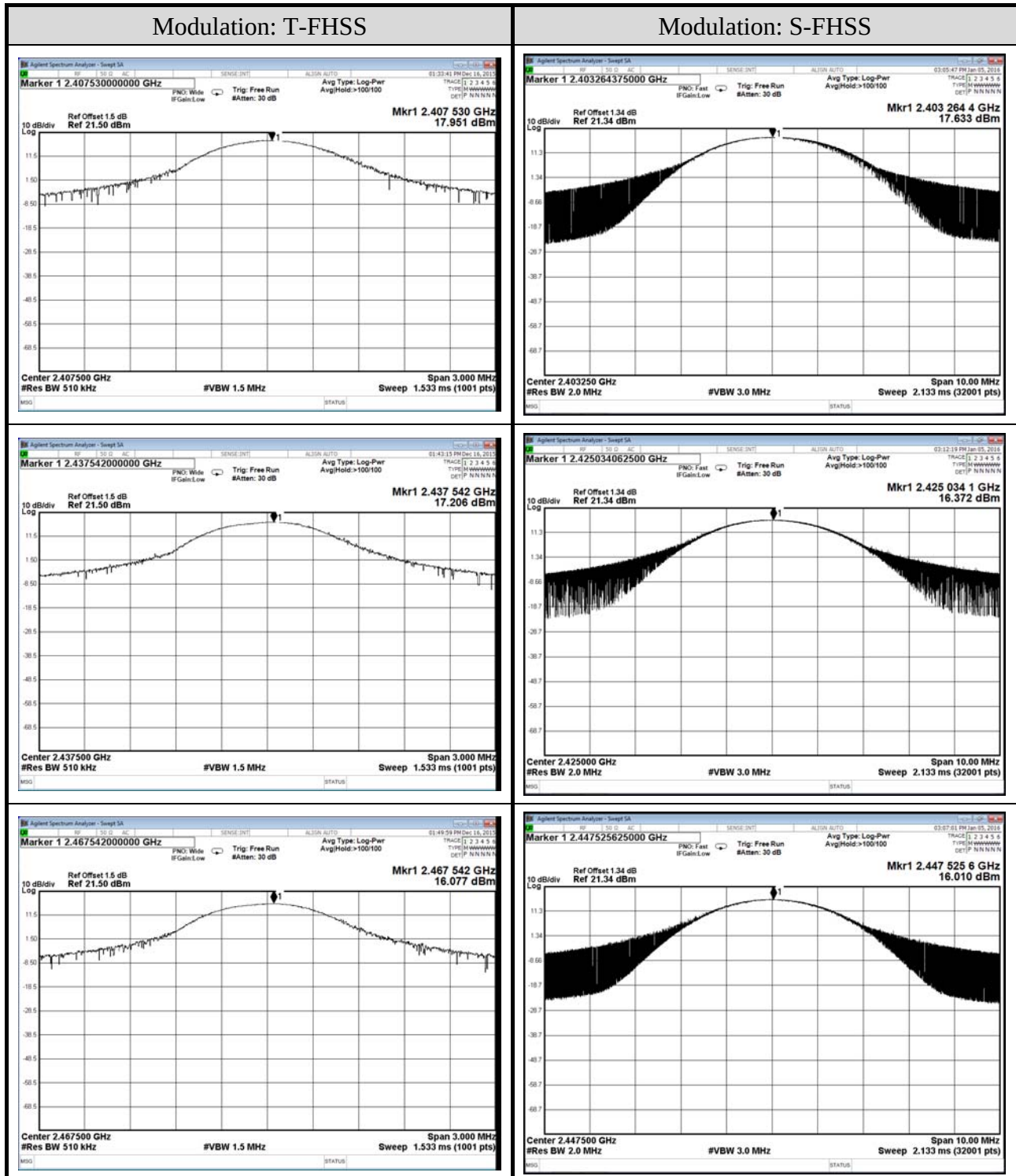
A.5.1 Peak Output Power

Modulation	Centre Frequency (MHz)	Peak Output Power		Limit
		dBm	W	
T-FHSS	2407.50	17.951	0.062388	21dBm (0.125W)
	2437.50	17.206	0.052553	
	2467.50	16.077	0.040523	
S-FHSS	2403.25	17.633	0.057983	21dBm (0.125W)
	2425.00	16.372	0.043371	
	2447.50	16.010	0.039902	

A.5.2 Average Output Power (Reporting only)

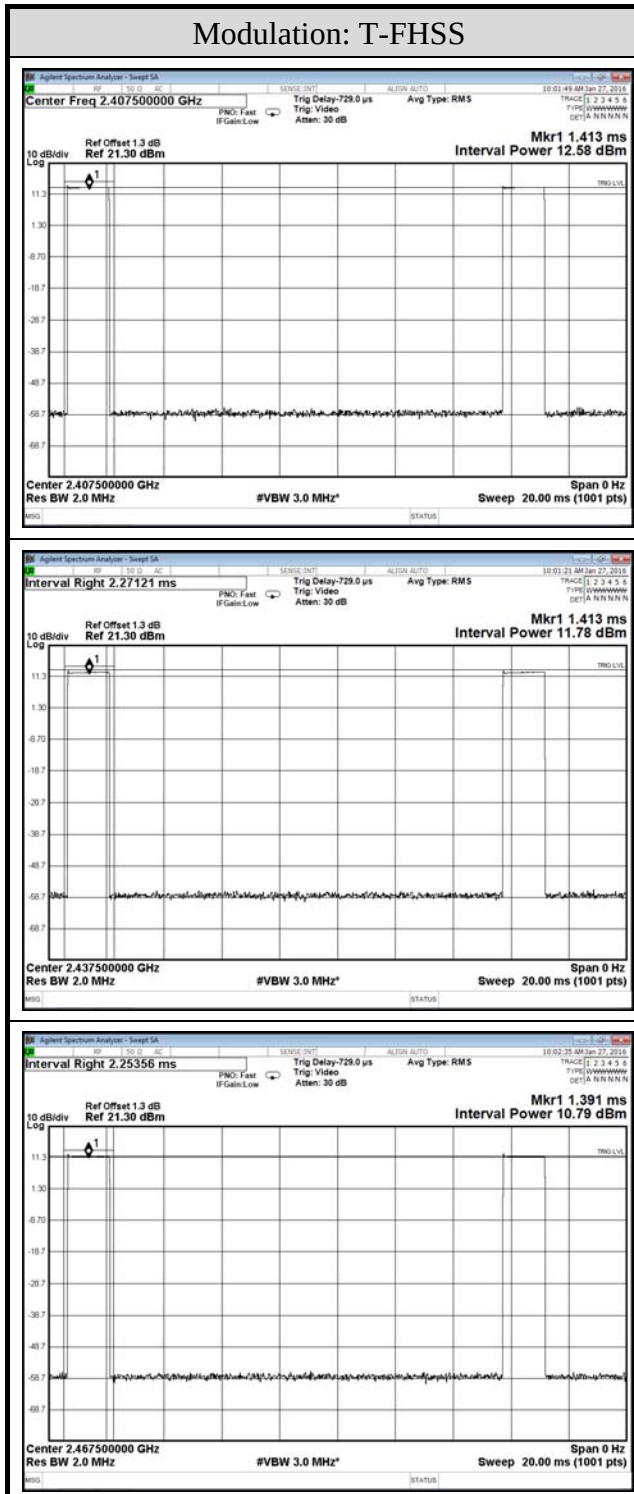
Modulation	Centre Frequency (MHz)	Peak Output Power		Limit
		dBm	W	
T-FHSS	2407.50	12.58	0.018113	21dBm (0.125W)
	2437.50	11.78	0.015066	
	2467.50	10.79	0.011995	
S-FHSS	2403.25	12.51	0.017824	21dBm (0.125W)
	2425.00	12.01	0.015885	
	2447.50	11.30	0.013490	

A.5.3 Peak Output Power Measurement Plots

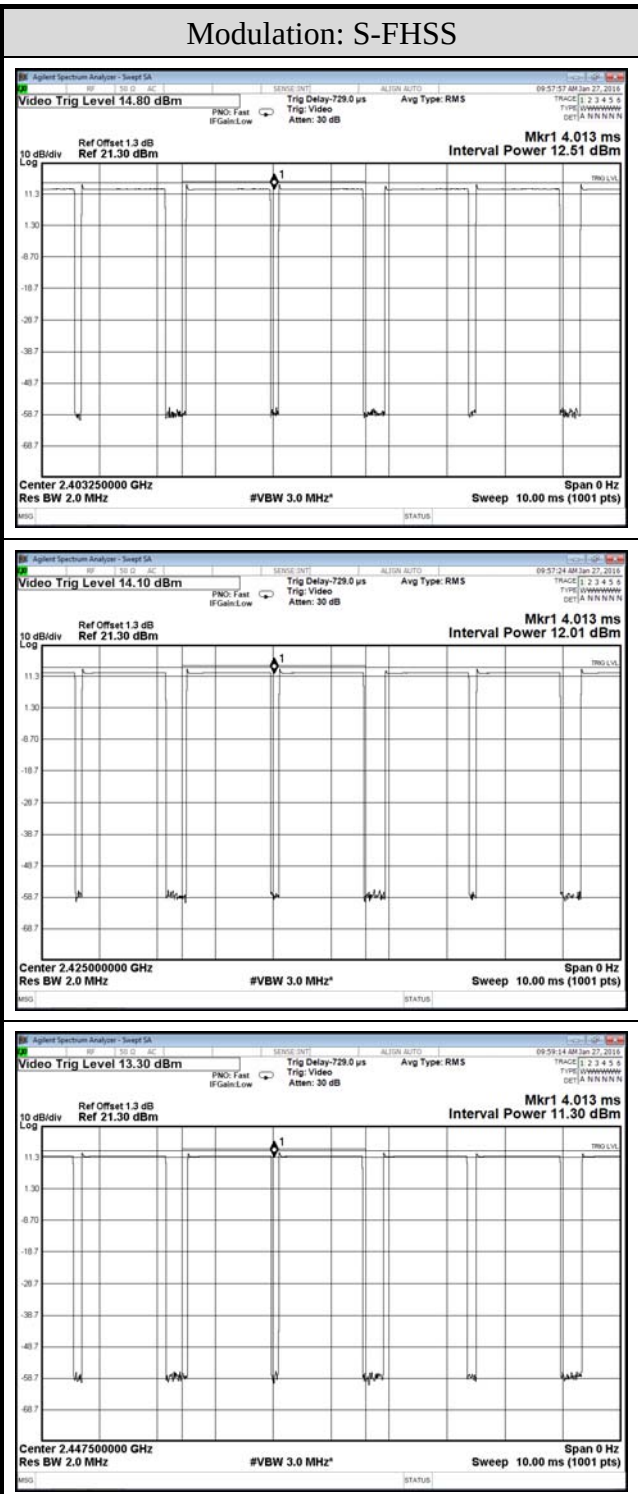


A.5.4 Average Output Power Measurement Plots (Reporting only)

Modulation: T-FHSS



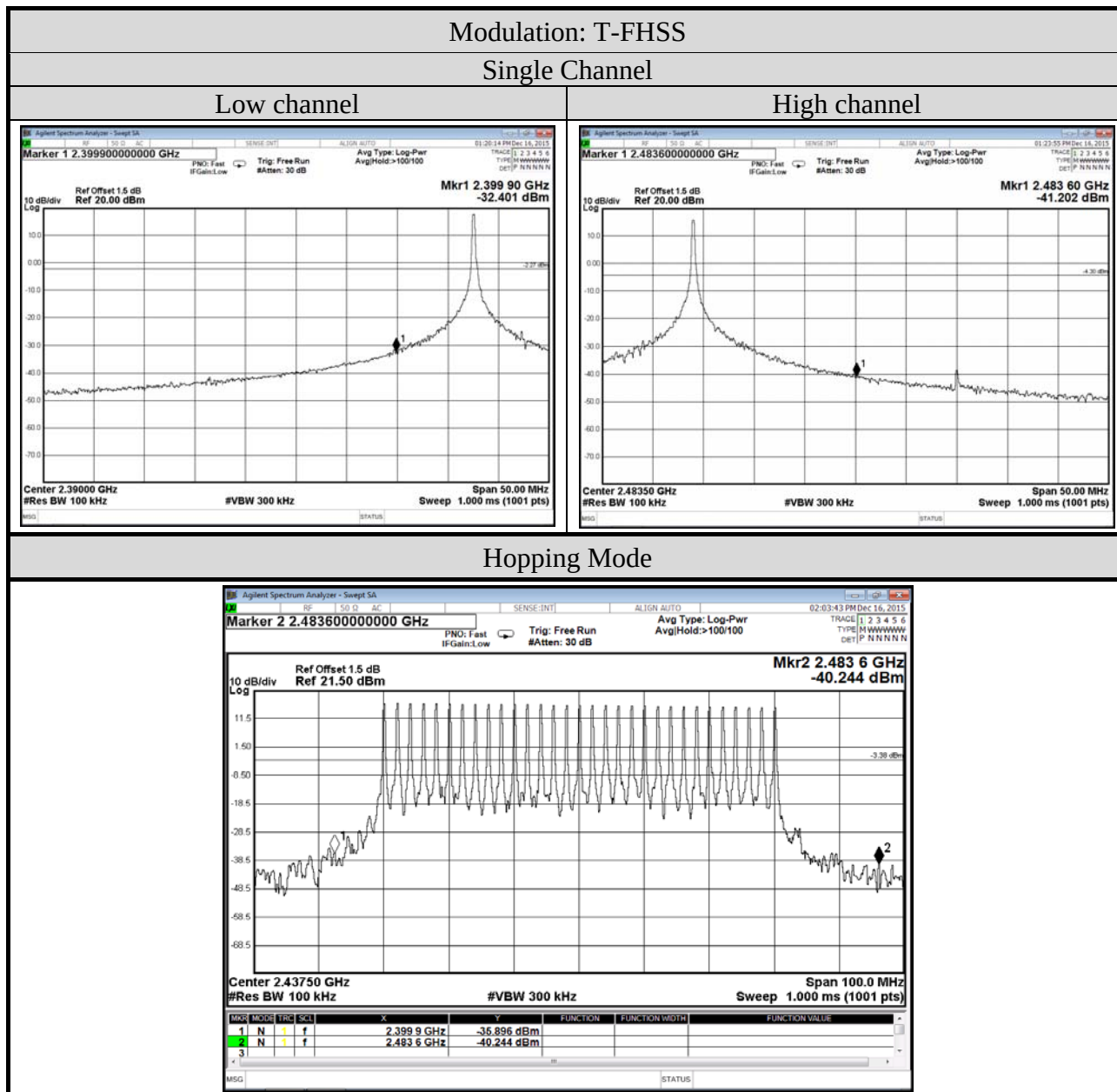
Modulation: S-FHSS



A.6 EMISSION LIMITATIONS MEASUREMENT

A.6.1 Band Edge

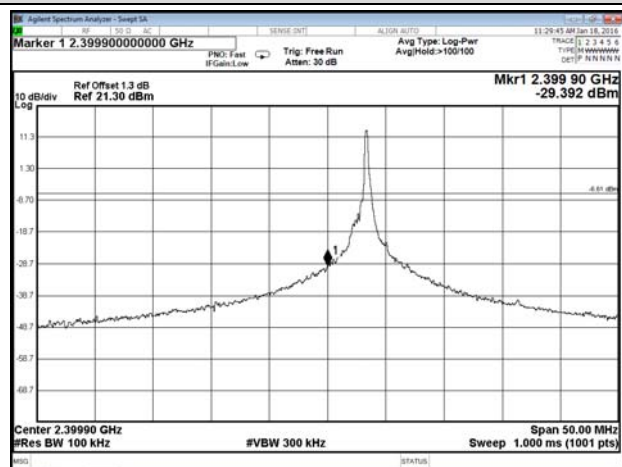
Test Date	2015/12/16, 2016/01/20	Temp./Hum.	18~25°C/58~60%
Cable Loss	1.5dB, 1.3dB	Test Voltage	DC 7.4V



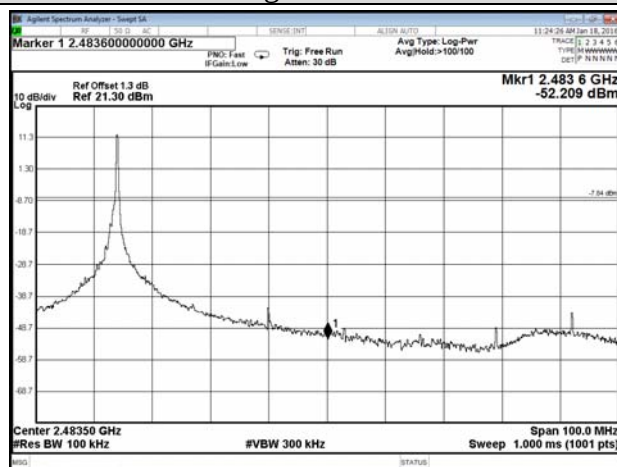
Modulation: S-FHSS

Single Channel

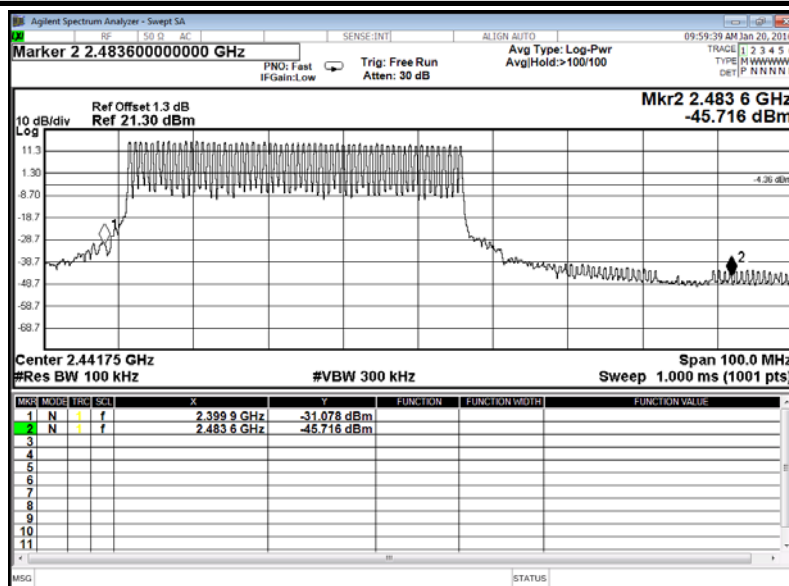
Low channel



High channel

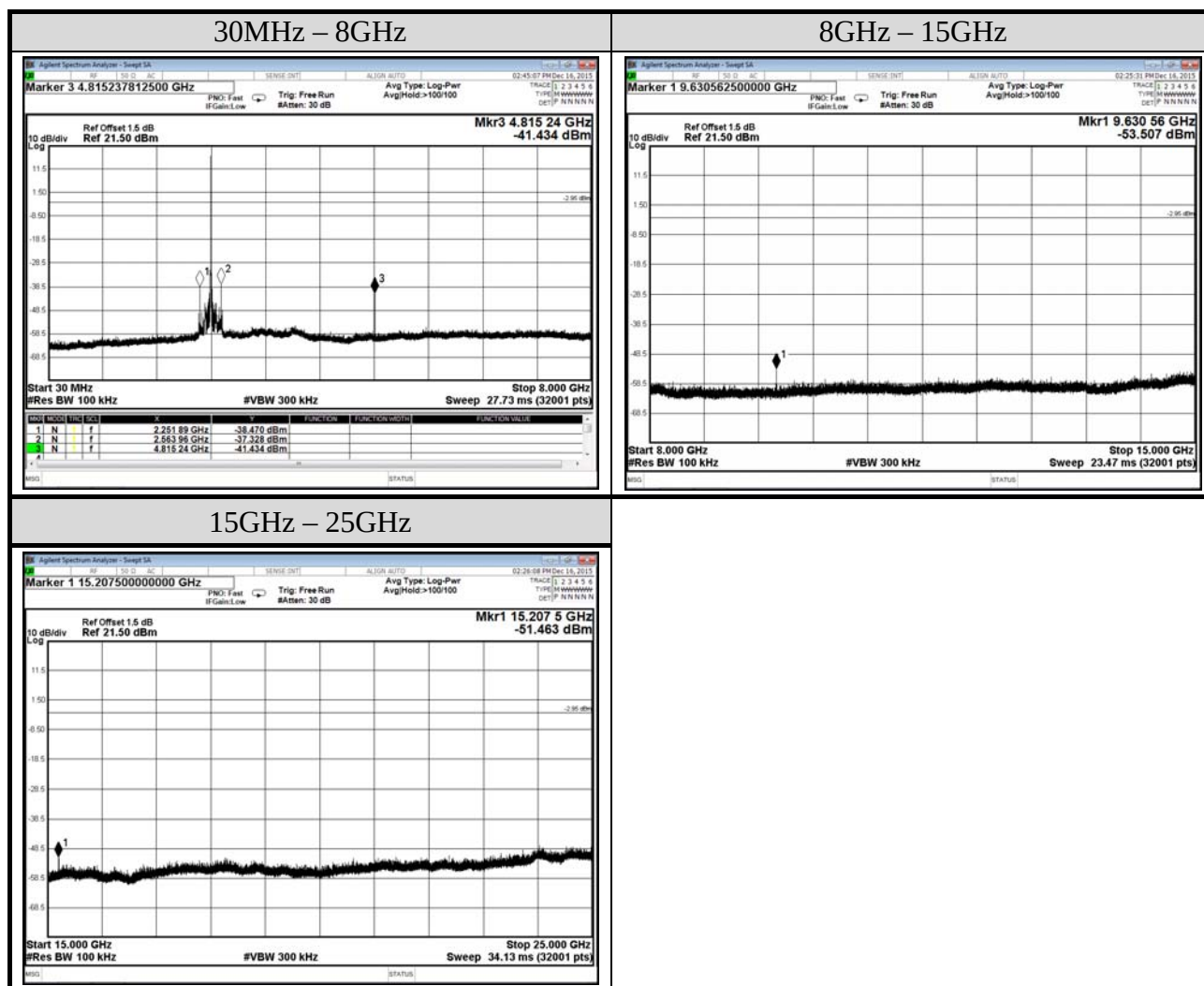


Hopping Mode

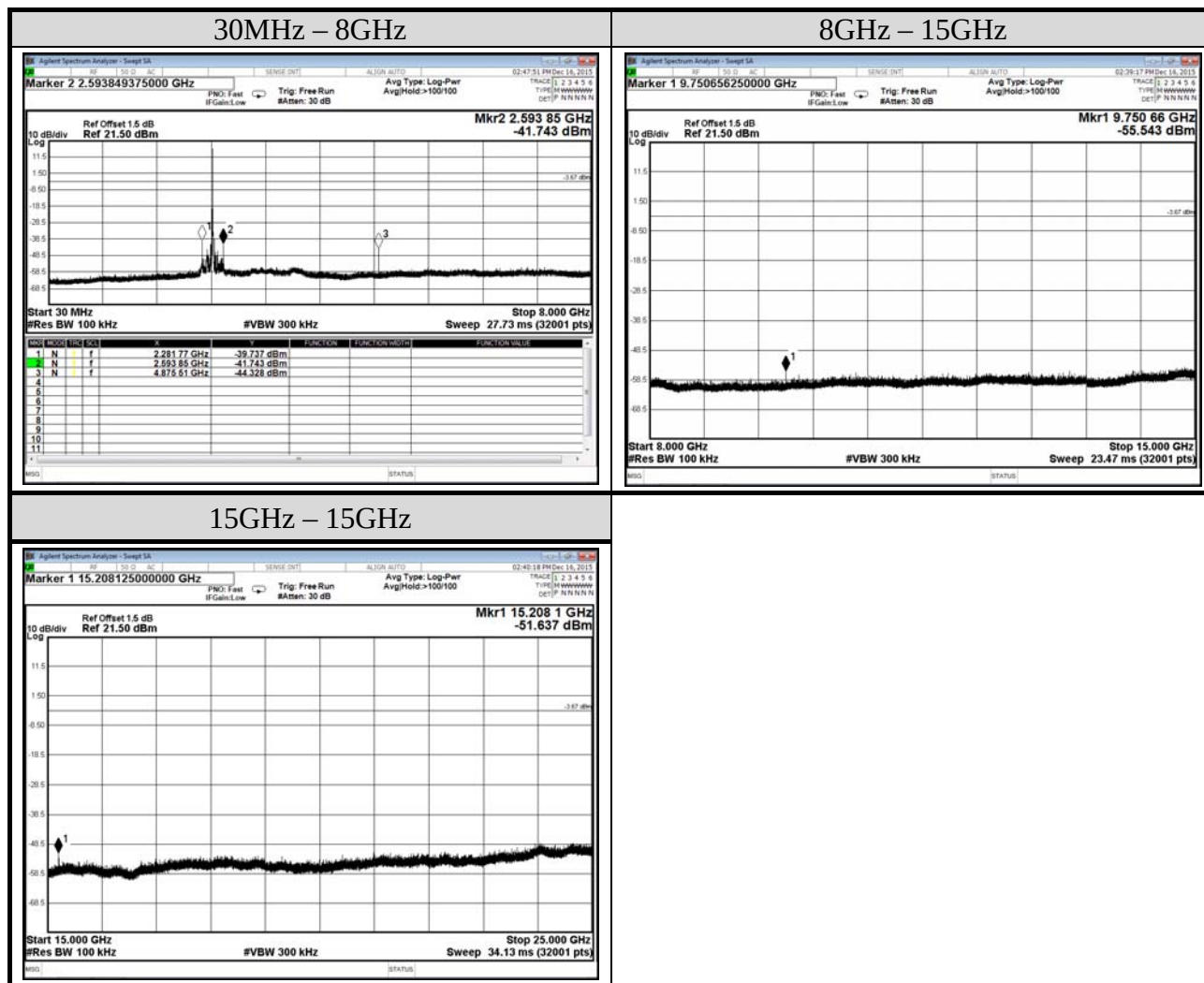


A.6.2 Spurious Emission

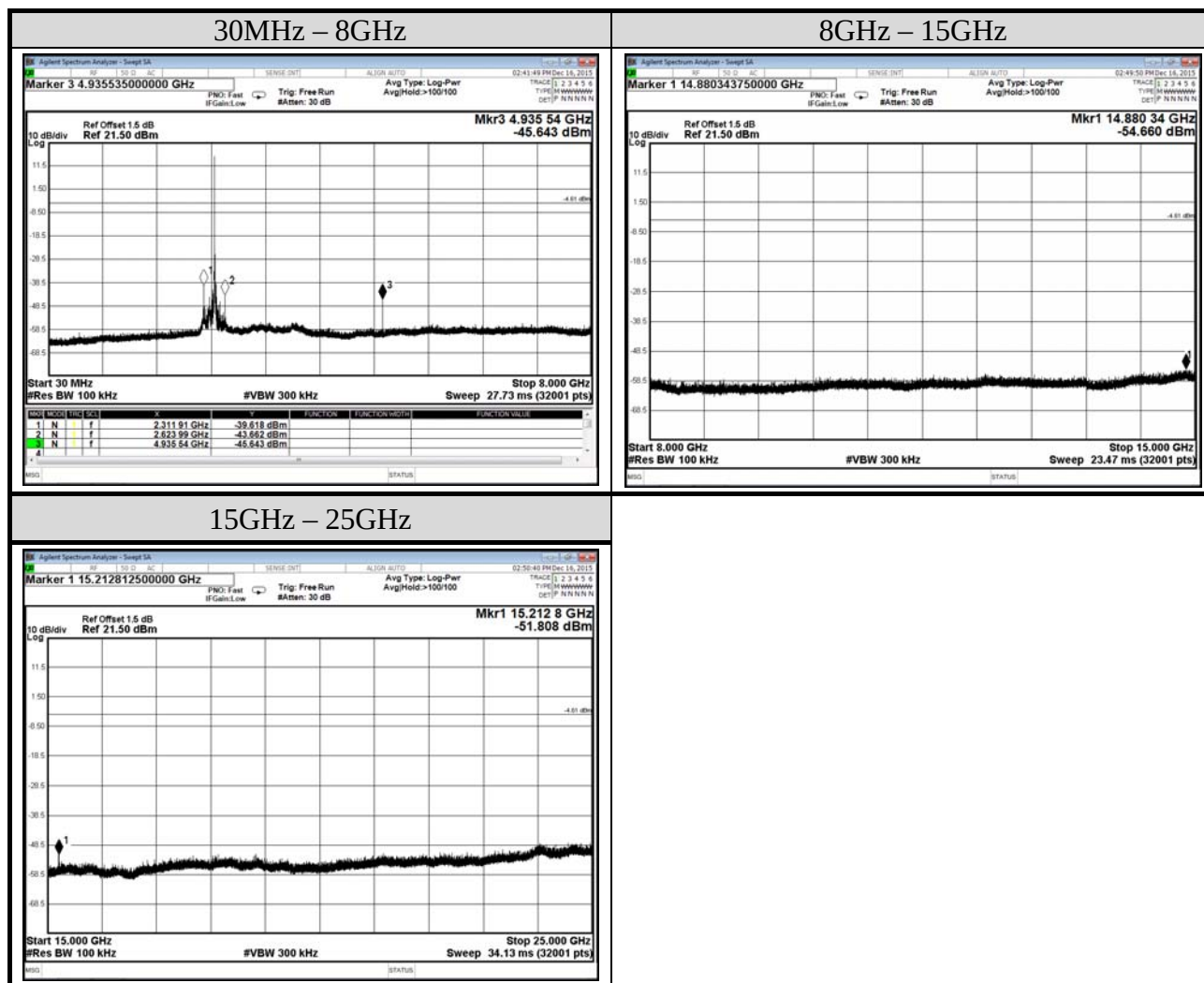
Test Date	2015/12/16	Temp./Hum.	18°C/58%
Mode	TX	Modulation	T-FHSS
		Frequency	2407.50MHz
Cable Loss	1.5dB	Test Voltage	DC 7.4V



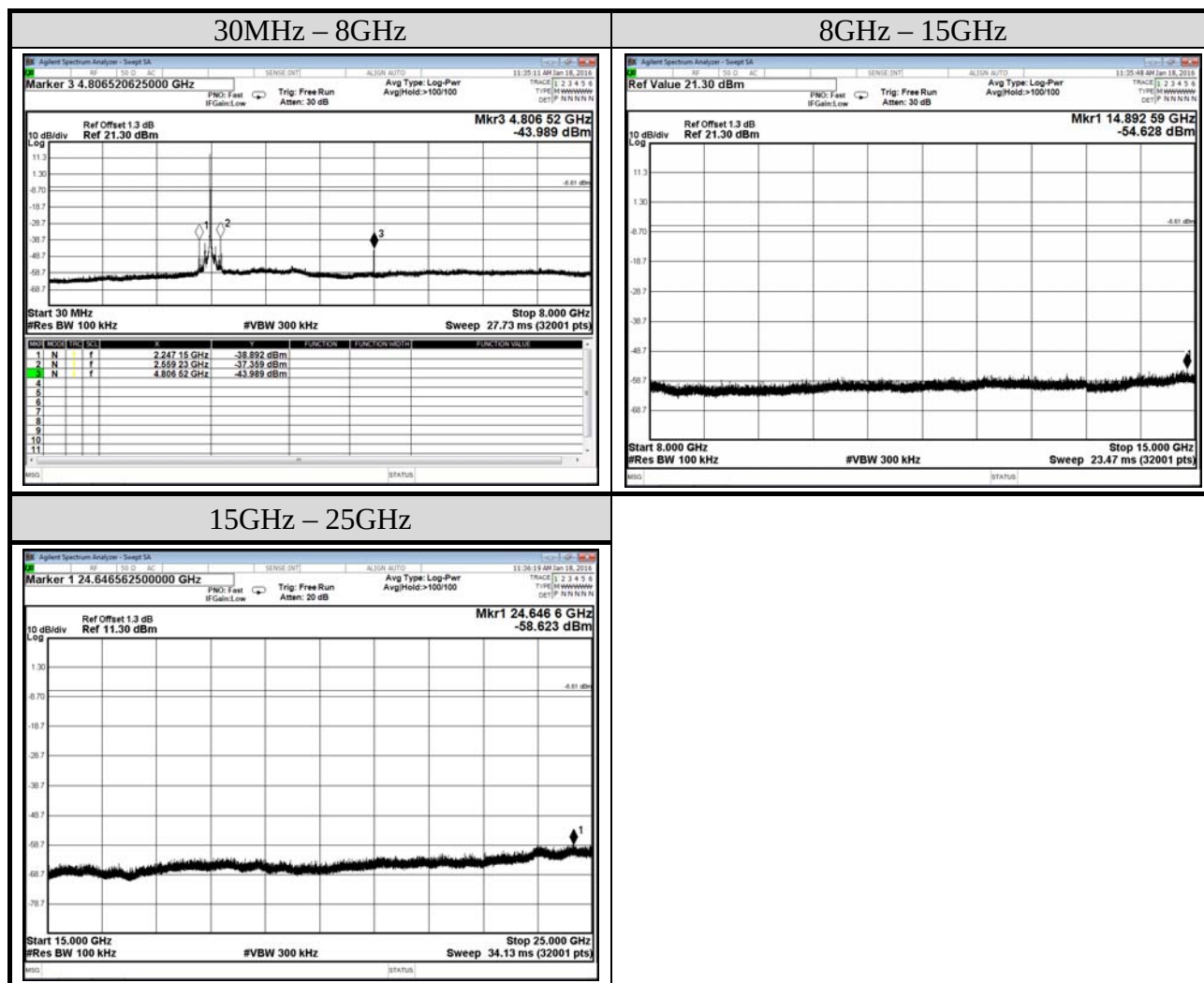
Test Date	2015/12/16	Temp./Hum.	18°C/58%
Mode	TX	Modulation	T-FHSS
		Frequency	2437.50MHz
Cable Loss	1.5dB	Test Voltage	DC 7.4V



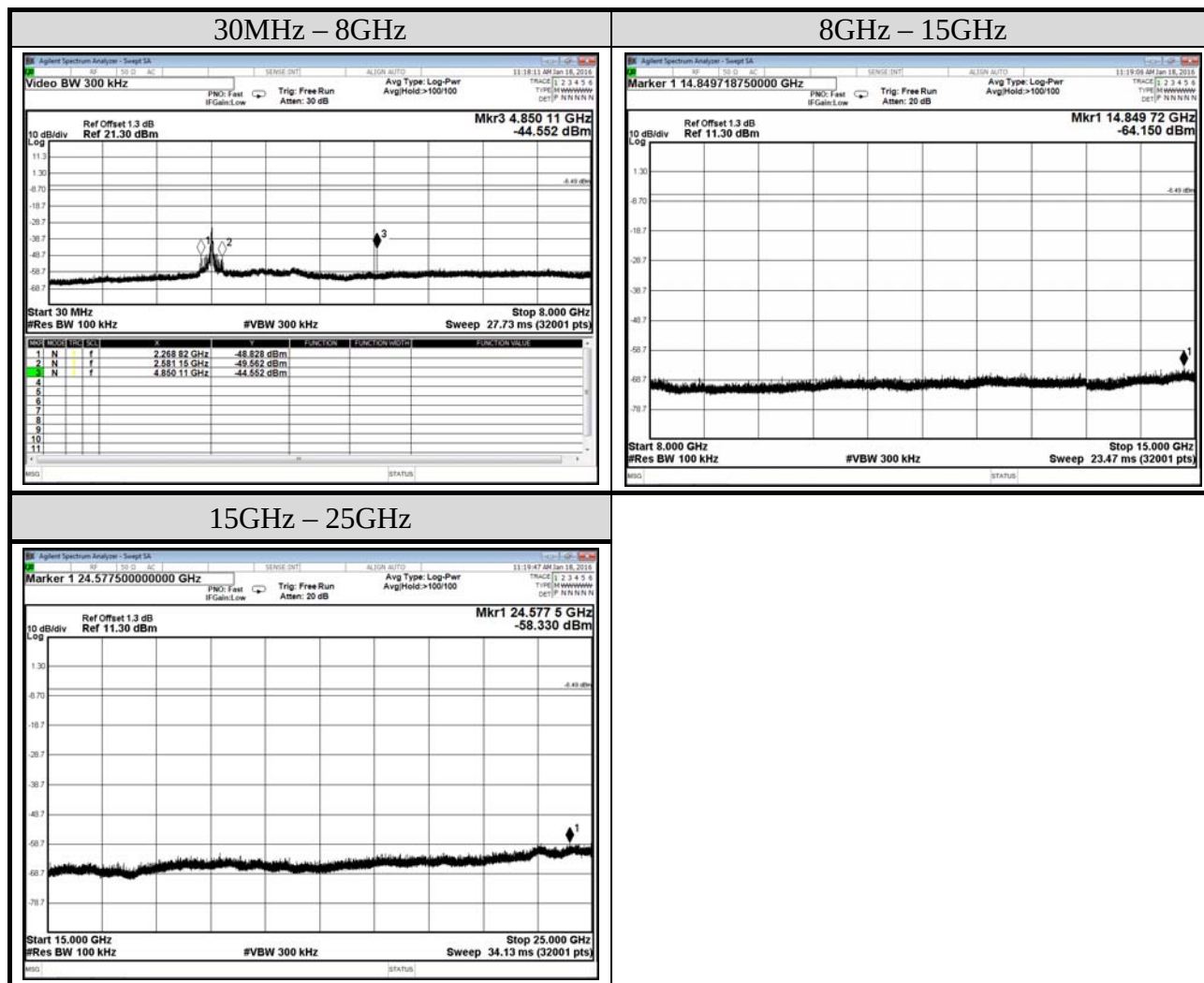
Test Date	2015/12/16	Temp./Hum.	18°C/58%
Mode	TX	Modulation	T-FHSS
		Frequency	2467.50MHz
Cable Loss	1.5dB	Test Voltage	DC 7.4V



Test Date	2016/01/18	Temp./Hum.	18°C/58%
Mode	TX	Modulation	S-FHSS
		Frequency	2403.25MHz
Cable Loss	1.3dB	Test Voltage	DC 7.4V



Test Date	2016/01/18	Temp./Hum.	18°C/58%
Mode	TX	Modulation	S-FHSS
		Frequency	2425.00MHz
Cable Loss	1.3dB	Test Voltage	DC 7.4V



Test Date	2016/01/18	Temp./Hum.	18°C/58%
Mode	TX	Modulation	S-FHSS
		Frequency	2447.50MHz
Cable Loss	1.3dB	Test Voltage	DC 7.4V

