

## **FCC 15.247 & RSS-247 900 MHz Test Report**

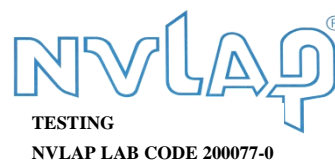
**for**

**FUTABA Corporation**

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

**Product Name : RECEIVER**  
**Model Name : R9001SB**  
**Brand Futaba**  
**FCC ID : AZPR9001SB**  
**IC : 2914D-R9001SB**

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



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

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

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## TEST REPORT

Applicant : FUTABA Corporation  
Manufacturer : FUTABA Corporation  
EUT Description  
(1) Product : RECEIVER  
(2) Model : R9001SB  
(3) Brand : Futaba  
(4) Power Supply: DC 4.0V-8.4V

### Applicable Standards:

Title 47 CFR FCC Part 15 Subpart C  
RSS-Gen (Issue 5), Amendment 2, February 2021  
RSS-247 (Issue 3), August 2023

**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.

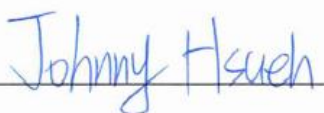
Date of Report: 2024. 01. 17

Reviewed by:



(Annie Yu/Administrator)

Approved by:



(Johnny Hsueh/Section Manager)



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## 1. REVISION RECORD OF TEST REPORT

Edition No	Issued Date	Revision Summary	Report Number
0	2024. 01. 17	Original Report	EM-F230632

## 2. SUMMARY OF TEST RESULTS

Rule		Description	Results
FCC	IC		
15.207	RSS-Gen §8.8	Conducted Emission	N/A, Note 3
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)(i)	RSS-247 §5.1(C)	20dB Bandwidth	PASS
15.247(a)(1)(i)	RSS-247 §5.1(C)	Carrier Frequency Separation	PASS
15.247(a)(1)(i)	RSS-247 §5.1(C)	Time of Occupancy	PASS
15.247(a)(1)(i)	RSS-247 §5.1(C)	Number of Hopping Channels	PASS
15.247(b)(2)	RSS-247 §5.4(a)	Maximum Peak Output Power	PASS
15.247(d)	RSS-247 §5.5	Conducted Band Edges and Conducted Spurious Emission	PASS
15.203	---	Antenna Requirement	Compliance

Note: 1. Decision rule according to the limit of the test standard chapter, the test value is lower than the limit specified in the test chapter, and it is judged as Pass.  
2. The uncertainties value is not used in determining the result.  
3. 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	RECEIVER
Model	R9001SB
Brand	Futaba

### 3.2. Description of EUT

Test Model	R9001SB		
Serial Number	N/A		
Power Rating	DC 4.0V-8.4V		
Software Version	N/A		
RF Features	2GFSK (FHSS)		
Transmit Type	2T2R (Diversity)		
Test Sample	Sample No.	Test Item	Firmware
	01	RSE, RF Conducted	N/A
Sample Status	Trial sample		
Date of Receipt	2023. 10. 16		
Date of Test	2023. 11. 30 ~ 2024. 01. 17		
Interface Ports of EUT	None		
Accessories Supplied	None		

Pursuant ISO 17025:2017 section 7.8.2, **Audix Technology Corp.** does not assume responsibility for all EUT's information including RF features, transmit type, antenna information...etc are provided by customer.

### 3.3. Reference Test Guidance

ANSI C63.10:2013

### 3.4. Antenna Information

No.	Antenna Type		Manufacture	Antenna Part Number	Frequency (MHz)	Max Gain (dBi)
1.	ANT A	Flex type	Molex	2111400100	902-928	1.0
	ANT B	Flex type	Molex	2111400100	902-928	1.0



### 3.5. EUT Specifications Assessed in Current Report

Mode	Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (kbps)
FHSS	904.6-925.4	53	2GFSK	140

Channel List							
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
1	904.6	16	910.6	31	916.6	46	922.6
2	905.0	17	911.0	32	917.0	47	923.0
3	905.4	18	911.4	33	917.4	48	923.4
4	905.8	19	911.8	34	917.8	49	923.8
5	906.2	20	912.2	35	918.2	50	924.2
6	906.6	21	912.6	36	918.6	51	924.6
7	907.0	22	913.0	37	919.0	52	925.0
8	907.4	23	913.4	38	919.4	53	925.4
9	907.8	24	913.8	39	919.8		
10	908.2	25	914.2	40	920.2		
11	908.6	26	914.6	41	920.6		
12	909.0	27	915.0	42	921.0		
13	909.4	28	915.4	43	921.4		
14	909.8	29	915.8	44	921.8		
15	910.2	30	916.2	45	922.2		

### 3.6. Description of Key Components

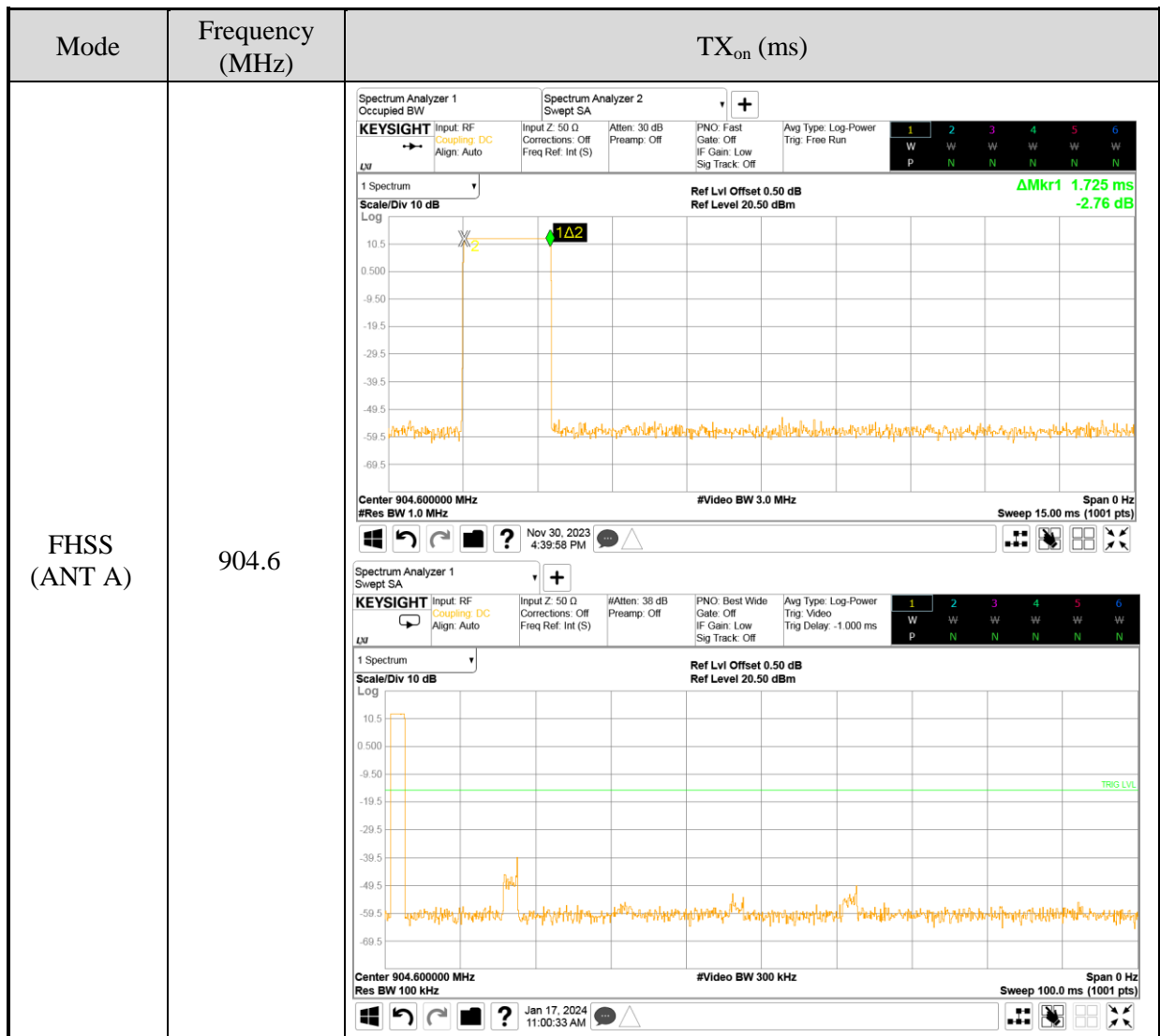
None

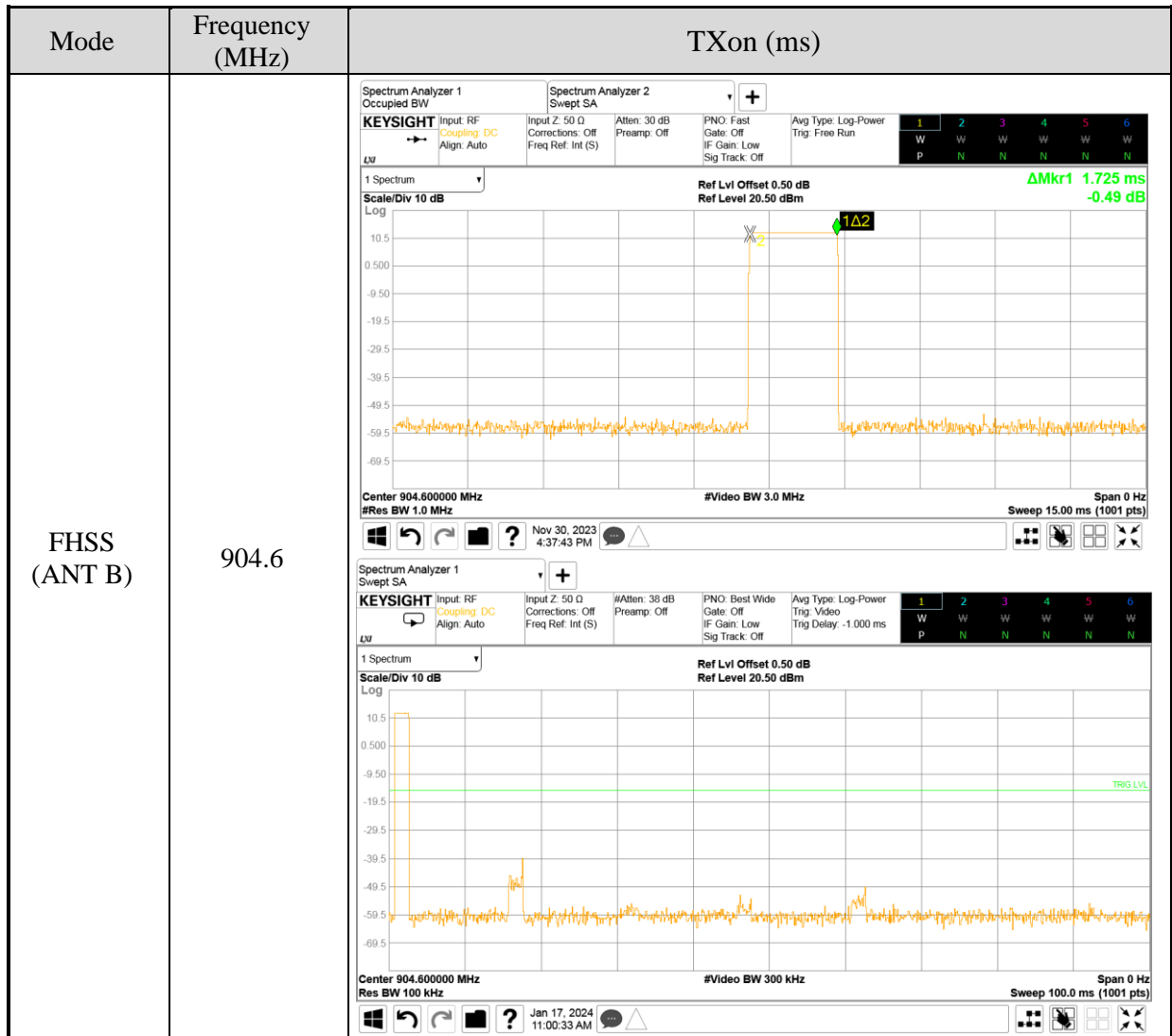
### 3.7. Test Configuration

Mode	Frequency (MHz)	TX <sub>on</sub> (ms)	TX <sub>on+off</sub> (ms)	Duty Cycle Correction Factor (dB)
FHSS (ANT A)	904.6	1.725	100	-35.26
FHSS (ANT B)	904.6	1.725	100	-35.26

Note: Duty Cycle Correction Factor (DCCF) = 20log (TX<sub>on</sub>/TX<sub>on+off</sub>).

“TX on + off” means the period of the pulse train or 100ms if the pulse train length is greater than 100ms.





Item		ANT Port	Test Channel
Radiated Test Case	Radiated Spurious Emission (30MHz~1GHz)	ANT A	1
		ANT B	1

Item		ANT Port	Test Channel
Radiated Test Case	Radiated Band Edge <sup>Note</sup>	ANT A	1/53
		ANT B	1/53
	Radiated Spurious Emission <sup>Note</sup>	ANT A	1/27/53
		ANT B	1/27/53
Conducted Test Case	20dB Bandwidth	ANT A	1/27/53
		ANT B	1/27/53
	Carrier Frequency Separation	ANT A	1/27/53
		ANT B	1/27/53
	Time of Occupancy	ANT A	1/27/53
		ANT B	1/27/53
	Number of Hopping Channels	ANT A	27
		ANT B	27
	Maximum Peak Output Power	ANT A	1/27/53
		ANT B	1/27/53
	Band Edges	ANT A	1/53
		ANT B	1/53
	Spurious Emission	ANT A	1/27/53
		ANT B	1/27/53

Note 1:  Mobile Device  Portable Device  
 and 3 axis were assessed. The worst scenario for Radiated Spurious Emission as follow:  Lie  Side  Stand

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

### 3.8. Output Power Setting

Mode	Centre Frequency (MHz)	Power Setting
2GFSK	904.6	Default
	915.0	Default
	925.4	Default

### 3.9. Tested Supporting System List

#### 3.9.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	Approval
1.	Battery (DC 6.0V)	Futaba	HT5F1800B	N/A	N/A
2.	Test Jig	Futaba	CIU-3	N/A	N/A
3.	Notebook PC	Dynabook	CS40L-HB	51144079H	N/A

#### 3.9.2. Cable Lists

No.	Cable Description Of The Above Support Units
1.	Power Wire: Unshielded, Detachable, 0.1m*2
2.	Signal Cable: Unshielded, Detachable, 0.2m
3.	Adapter: BSY, M/N BSY065T1902103 D, DC Cord : Shielded, Undetachable, 1.8m, Bonded a ferrite core AC Power Cord : Unshielded, Detachable, 1.5m

### 3.10. Setup Configuration

#### 3.10.1. EUT Configuration for Radiated Emission



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



### 3.11. Operating Condition of EUT

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

### 3.12. Description of Test Facility

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

### 3.13. Measurement Uncertainty

The measurement uncertainty levels have been estimated as specified in ETSI TR 100 028-2001

Test Items/Facilities		Frequency Range	Uncertainty		
Conduction Test	<input type="checkbox"/>	No. 7 Shielded Room	9kHz-150kHz	±3.7dB	
			150kHz-30MHz	±3.4dB	
	<input type="checkbox"/>	No. 8 Shielded Room	9kHz-150kHz	±3.7dB	
			150kHz-30MHz	±3.5dB	
Radiation Test	<input checked="" type="checkbox"/>	No.1 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±3.6dB	
			200MHz-1000MHz, 3m, Horizontal	±4.3dB	
			30MHz-200MHz, 3m, Vertical	±4.4dB	
			200MHz-1000MHz, 3m, Vertical	±4.8dB	
			1GHz-6GHz, 3m	±4.8dB	
			6GHz-18GHz, 3m	±4.5dB	
	<input type="checkbox"/>	No.3 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.0dB	
			200MHz-1000MHz, 3m, Horizontal	±4.4dB	
			30MHz-200MHz, 3m, Vertical	±4.7dB	
			200MHz-1000MHz, 3m, Vertical	±4.5dB	
			1GHz-6GHz, 3m	±4.8dB	
			6GHz-18GHz, 3m	±4.5dB	
		<input type="checkbox"/>	No.4 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.3dB
				200MHz-1000MHz, 3m, Horizontal	±4.2dB
				30MHz-200MHz, 3m, Vertical	±4.8dB
				200MHz-1000MHz, 3m, Vertical	±4.7dB
				1GHz-6GHz, 3m	±4.6dB
				6GHz-18GHz, 3m	±4.4dB
	<input type="checkbox"/>	No.5 3m Semi Anechoic Chamber	30MHz-200MHz, 3m, Horizontal	±4.6dB	
			200MHz-1000MHz, 3m, Horizontal	±4.4dB	
			30MHz-200MHz, 3m, Vertical	±4.5dB	
			200MHz-1000MHz, 3m, Vertical	±4.9dB	
			1GHz-6GHz, 3m	±4.9dB	
			6GHz-18GHz, 3m	±4.6dB	
		Radiated emissions (18GHz-40GHz)	18GHz-40GHz, 3m	±3.4dB	

Remark : Uncertainty =  $ku_c(y)$



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Test Item	Uncertainty
20dB Bandwidth	$\pm 0.2\text{kHz}$
99% Occupied Bandwidth	$\pm 0.38\%$
Carrier Frequency Separation	$\pm 0.2\text{kHz}$
Time of Occupancy	$\pm 0.03\text{sec}$
Maximum peak Output power	$\pm 0.52\text{dB}$
Conducted Emission Limitations	$\pm 0.13\text{dB}$



## 4. MEASUREMENT EQUIPMENT LIST

### 4.1. Radiated Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2023.08.16	1 Year
2.	Test Receiver	R&S	ESCS30	100338	2023.06.20	1 Year
3.	Amplifier	HP	8447D	2944A06305	2022.12.29	1 Year
4.	Microwave Preamplifier	HP	8449B	3008A01284	2023.06.06	1 Year
5.	Bilog Antenna	TESEQ	CBL6112D	33821	2023.09.30	1 Year
6.	Double-Ridged Waveguide Horn	EMCO	3115	9112-3775	2023.05.04	1 Year
7.	High-Pass Filter	Woken	WFIL-H1200-12000F	WRG19WC2B4	2023.05.03	1 Year
8.	Coaxial Cable	MIYAZAKI	5D2W	RE-11	2023.01.07	1 Year
9.	Coaxial Cable	HUBER+SUHNER	SUCOFLEX 106	RE-14	2023.01.07	1 Year
10.	Digital Thermo-Hygro Meter	iMax	HTC-1	No.1 3m A/C	2023.04.13	1 Year
11.	Test Software	Audix	e3	V9 18621a	N.C.R.	N.C.R.

### 4.2. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9020B	MY57120357	2023.02.22	1 Year
2.	Digital Thermo-Hygro Meter	iMax	HTC-1	RF-03	2023.04.13	1 Year



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## 5. CONDUCTED EMISSION

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

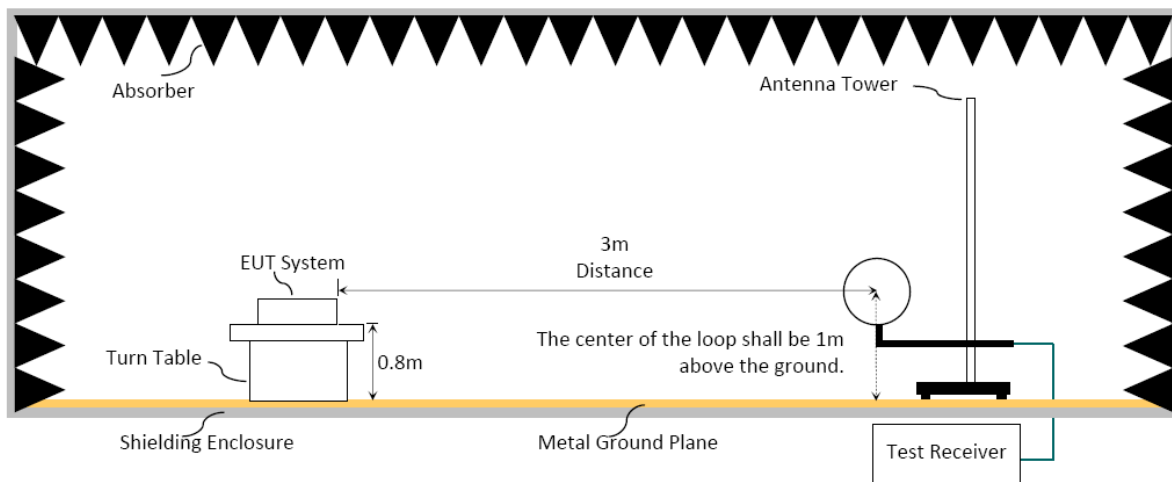
## 6. RADIATED EMISSION

### 6.1. Block Diagram of Test Setup

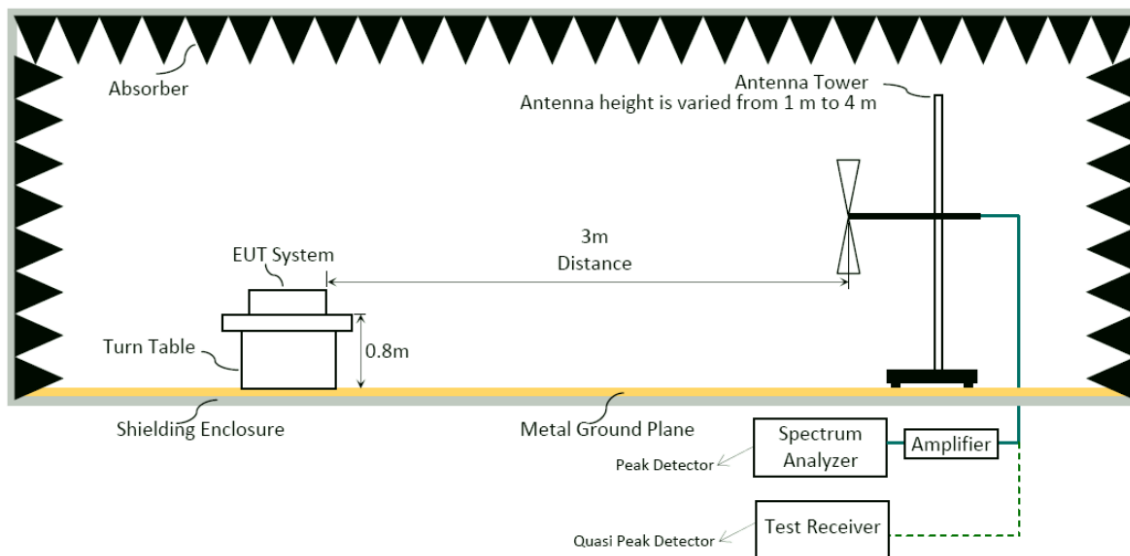
#### 6.1.1. Block Diagram of EUT

Indicated as section 3.10

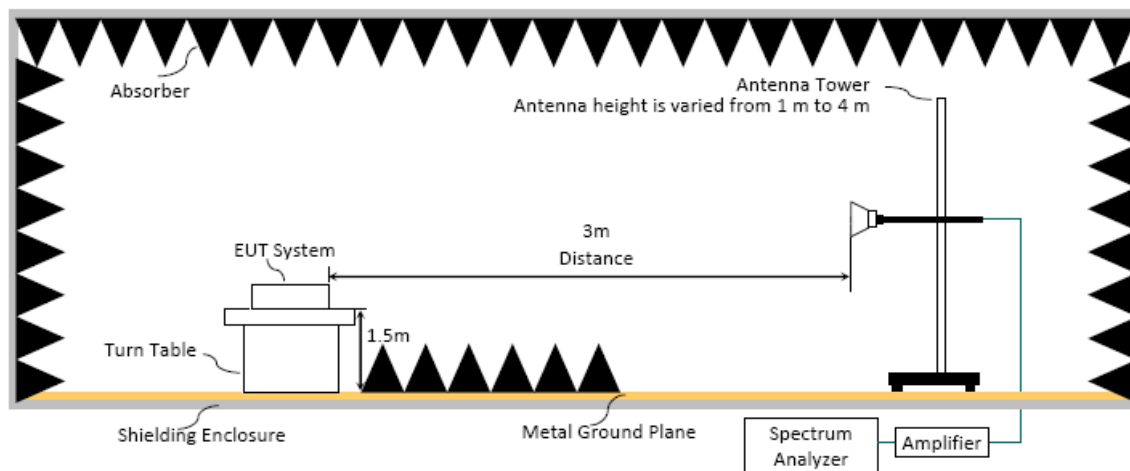
#### 6.1.2. Setup Diagram for 9kHz-30MHz



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



### 6.1.4. Setup Diagram for above 1GHz



## 6.2. Radiated Emission Limits

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

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

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

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

### 6.3. Test Procedure

#### Frequency Range 9kHz~30MHz:

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

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

#### Frequency Range 30MHz to 10th harmonic (up to 10 GHz):

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

#### Frequency below 1GHz:

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

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

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

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

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

##### Peak Detector:

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

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

**Average Detector:** **Option 1:**

- (1) RBW = 1MHz
- (2) VBW  $\geq 1/T$
- (3) 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 (dB $\mu$ V/m) = Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) + Reading (dB $\mu$ V).

Average Emission Level (dB $\mu$ V/m) = Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB) + Reading (dB $\mu$ V).

Average Emission Level (dB $\mu$ V/m) = Peak Emission Level (dB $\mu$ V/m) + DCCF (dB)  
Duty Cycle Correction Factor (DCCF) (dB) =  $20\log(TX_{on}/TX_{on+off})$  presented in section 3.7.

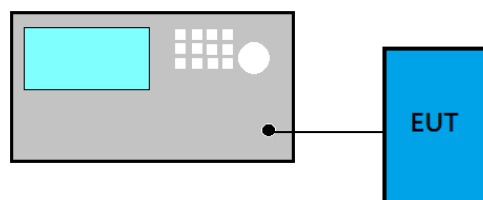
ERP (dBm) = Peak Emission Level (dB $\mu$ V/m) - 95.2 dB - 2.14 dB

#### 6.5. Test Results

Please refer to Appendix A.

## 7. 20dB/OCCUPIED BANDWIDTH

### 7.1. Block Diagram of Test Setup



### 7.2. Specification Limits

For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

### 7.3. Test Procedure

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

#### For 20dB Bandwidth

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

#### For 99% Occupied Bandwidth

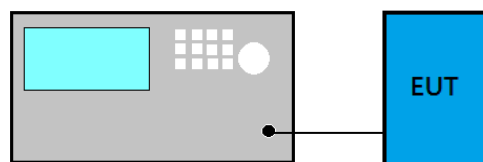
- (9) Set Span range 1.5~5 times the OBW
- (10) Set  $RBW = 1\%$  to 5% of OBW.
- (11) Set  $VBW \geq 3 \times RBW$ .
- (12) Detector = Peak.
- (13) Trace mode = Max hold
- (14) Sweep = Auto couple.
- (15) Allow the trace to stabilize.

### 7.4. Test Results

Please refer to Appendix A

## 8. CARRIER FREQUENCY SEPARATION

### 8.1. Block Diagram of Test Setup



### 8.2. Specification Limits

For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

### 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  $\geq$  RBW
- (4) Sweep = Auto
- (5) Detector function = Peak
- (6) Trace = Max hold
- (7) Allow the trace to stabilize.

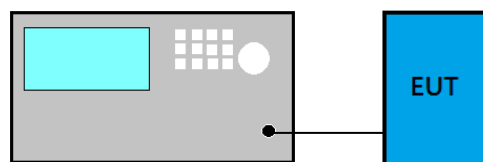
### 8.4. Test Results

Please refer to Appendix A



## 9. TIME OF OCCUPANCY

### 9.1. Block Diagram of Test Setup



### 9.2. Specification Limits

For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

### 9.3. Test Procedure

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

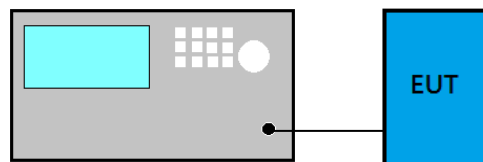
- (1) Span: Zero span, centered on a hopping channel.
- (2) RBW shall be  $\leq$  channel spacing and where possible RBW should be set  $\gg 1/T$ , where T is the expected dwell time per channel.
- (3) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video 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

## 10. NUMBER OF HOPPING CHANNELS

### 10.1. Block Diagram of Test Setup



### 10.2. Specification Limits

For frequency hopping systems operating in the 902–928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

### 10.3. Test Procedure

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

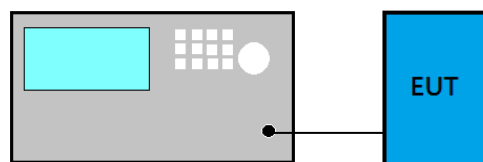
- (1) Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
- (2) RBW: To identify clearly the individual channels, set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

### 10.4. Test Results

Please refer to Appendix A

## 11. MAXIMUM PEAK OUTPUT POWER

### 11.1. Block Diagram of Test Setup



### 11.2. Specification Limits

The Limits of maximum Peak Output Power for frequency hopping systems in 902–928 MHz is: 1 watt for systems employing at least 50 hopping channels; and 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels, as permitted under paragraph (a)(1)(i) of 15.247.

### 11.3. Test Procedure

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

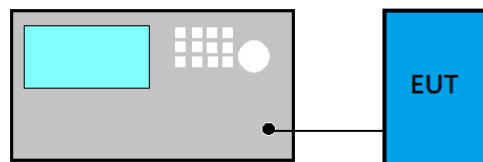
- (a) Use the following spectrum analyzer settings
  - (1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.
  - (2) RBW > 20 dB bandwidth of the emission being measured.
  - (3) VBW  $\geq$  RBW
  - (4) Sweep: Auto
  - (5) Detector function: Peak
  - (6) Trace: Max hold
- (b) Allow trace to stabilize.
- (c) Use the marker-to-peak function to set the marker to the peak of the emission.

### 11.4. Test Results

Please refer to Appendix A

## 12. EMISSION LIMITATIONS

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

### 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 10<sup>th</sup> harmonic.
- (2) RBW = 100 kHz
- (3) VBW  $\geq$  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*

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# APPENDIX A

## TEST DATA AND PLOTS

(Model: R9001SB)

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## A.1 RADIATED EMISSION

Test Date	2023/12/05	Temp./Hum.	22°C /54%
Test Voltage	DC 6.0V (Via Battery)	Tested By	Hua Wu

### 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

### ANT A

Mode	FHSS	Frequency	TX 904.6MHz
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#### Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.000	23.95	1.20	26.52	30.28	28.91	40.00	11.09	Peak
101.942	16.84	2.32	26.30	34.10	26.96	43.50	16.54	Peak
301.600	18.96	4.38	25.68	30.80	28.46	46.00	17.54	Peak
378.392	21.05	5.29	26.35	32.15	32.14	46.00	13.86	Peak
487.517	22.96	6.30	27.09	32.26	34.43	46.00	11.57	Peak
612.000	24.38	6.83	27.41	31.78	35.58	46.00	10.42	Peak

#### Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
34.850	22.21	1.30	26.51	34.26	31.25	40.00	8.75	Peak
128.617	17.56	2.63	26.13	32.72	26.78	43.50	16.72	Peak
333.933	19.89	4.79	25.98	31.60	30.30	46.00	15.70	Peak
408.300	21.71	5.59	26.57	32.30	33.03	46.00	12.97	Peak
510.958	23.27	6.44	27.19	32.05	34.58	46.00	11.42	Peak
604.725	24.35	6.79	27.41	32.34	36.06	46.00	9.94	Peak



**ANT B**

Mode	FHSS	Frequency	TX 904.6MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
33.233	22.77	1.27	26.52	33.11	30.62	40.00	9.38	Peak
101.942	16.84	2.32	26.30	34.21	27.08	43.50	16.42	Peak
296.750	18.87	4.33	25.66	30.73	28.26	46.00	17.74	Peak
378.392	21.05	5.29	26.35	31.87	31.86	46.00	14.14	Peak
462.458	22.59	6.09	26.93	31.97	33.71	46.00	12.29	Peak
546.525	23.72	6.58	27.28	32.08	35.09	46.00	10.91	Peak

Antenna at Vertical Polarization

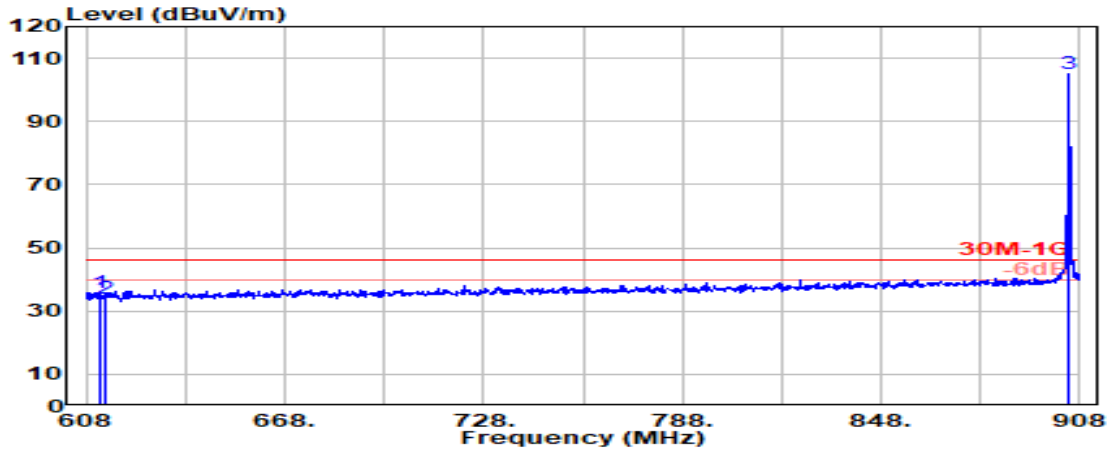
Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
34.850	22.21	1.30	26.51	35.23	32.22	40.00	7.78	Peak
101.942	16.84	2.32	26.30	33.11	25.98	43.50	17.52	Peak
293.517	18.82	4.30	25.67	31.60	29.05	46.00	16.95	Peak
409.108	21.72	5.60	26.58	32.13	32.87	46.00	13.13	Peak
478.625	22.83	6.23	27.03	32.10	34.12	46.00	11.88	Peak
536.825	23.60	6.54	27.26	32.68	35.57	46.00	10.43	Peak

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

**Band Edge:**

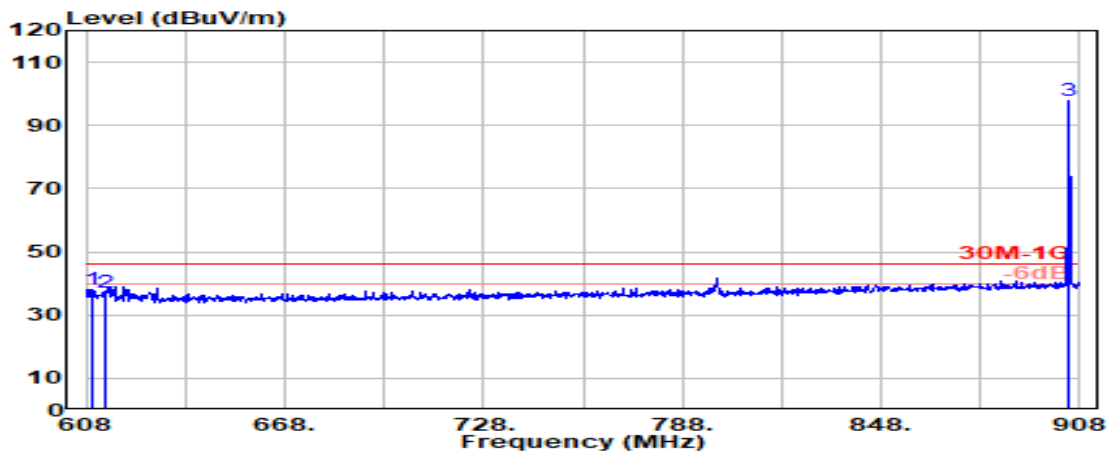
**ANT A**

Mode	FHSS	Frequency	TX 904.6MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
612.250	24.38	6.83	27.41	32.16	35.96	46.00	10.04	Peak
614.000	24.39	6.84	27.41	30.33	34.15	46.00	11.85	Peak
@ 904.500	26.28	8.75	27.03	96.88	104.87	---	---	Peak

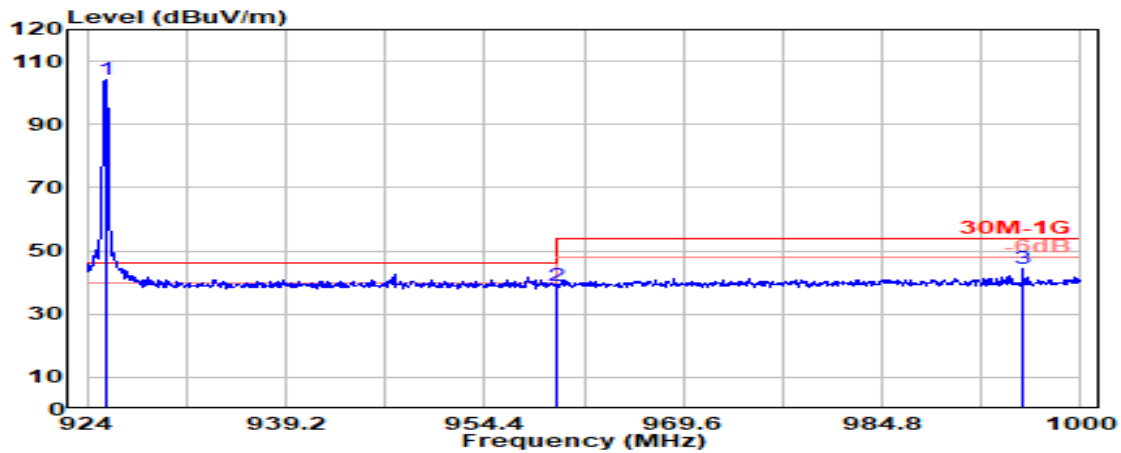


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
610.250	24.37	6.82	27.41	34.35	38.13	46.00	7.87	Peak
614.000	24.39	6.84	27.41	33.13	36.95	46.00	9.05	Peak
@ 904.500	26.28	8.75	27.03	89.86	97.85	---	---	Peak

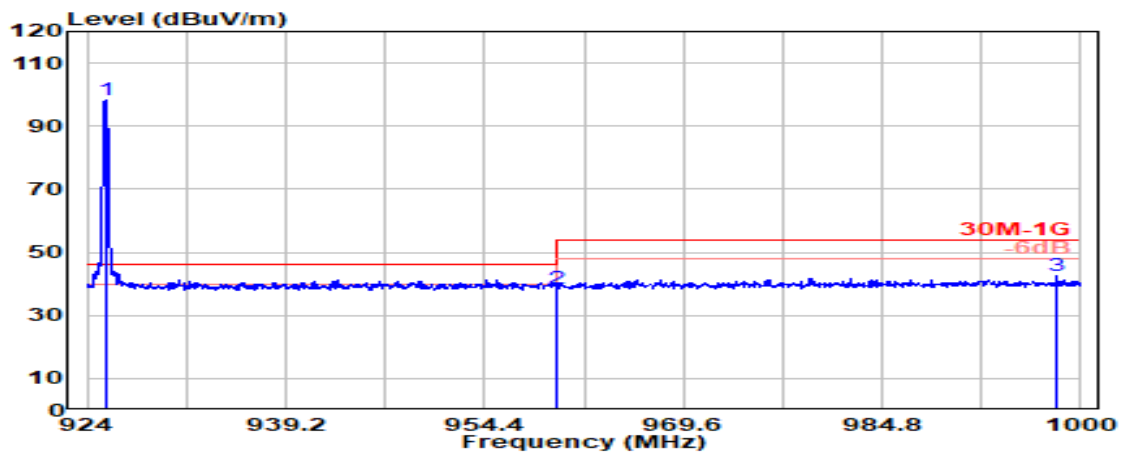
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	FHSS	Frequency	TX 925.4MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 925.393	26.42	8.87	26.97	95.96	104.28	---	---	Peak
960.000	26.66	9.06	26.87	30.13	38.97	46.00	7.03	Peak
995.567	26.93	9.25	26.77	35.05	44.46	46.00	1.54	Peak



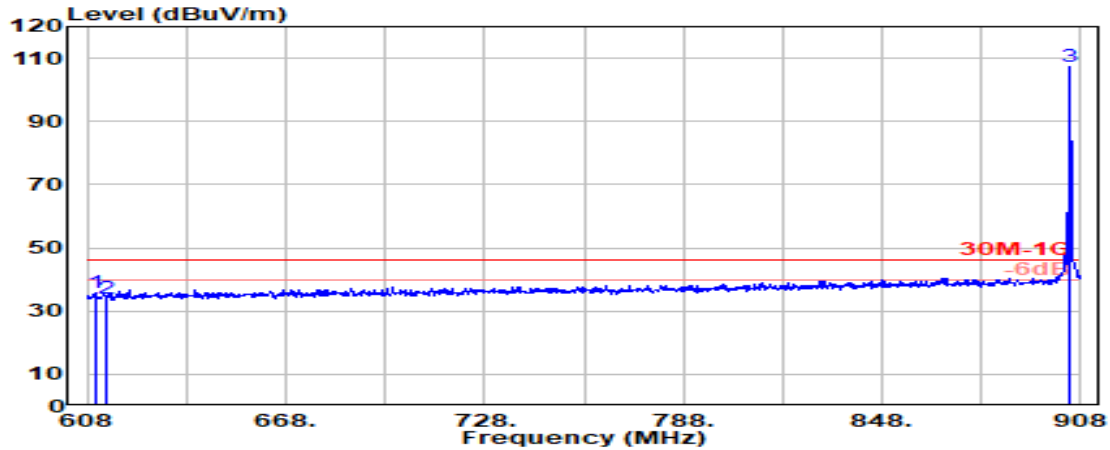
Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 925.393	26.42	8.87	26.97	89.91	98.23	---	---	Peak
960.000	26.66	9.06	26.87	29.87	38.72	46.00	7.28	Peak
998.163	26.94	9.26	26.76	33.23	42.67	46.00	3.33	Peak

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

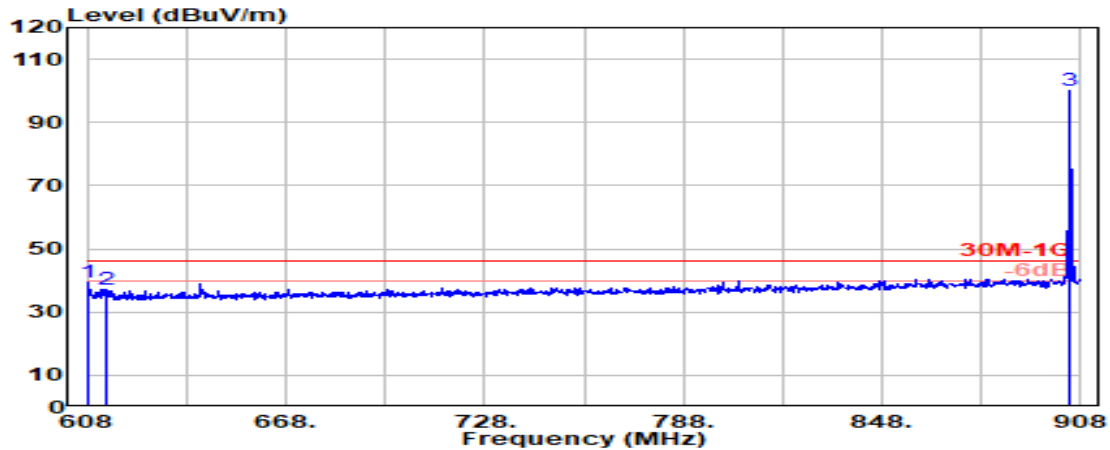
**ANT B**

Mode	FHSS	Frequency	TX 904.6MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
610.750	24.37	6.82	27.41	31.83	35.62	46.00	10.38	Peak
614.000	24.39	6.84	27.41	30.17	33.99	46.00	12.01	Peak
@ 904.500	26.28	8.75	27.03	99.16	107.15	---	---	Peak

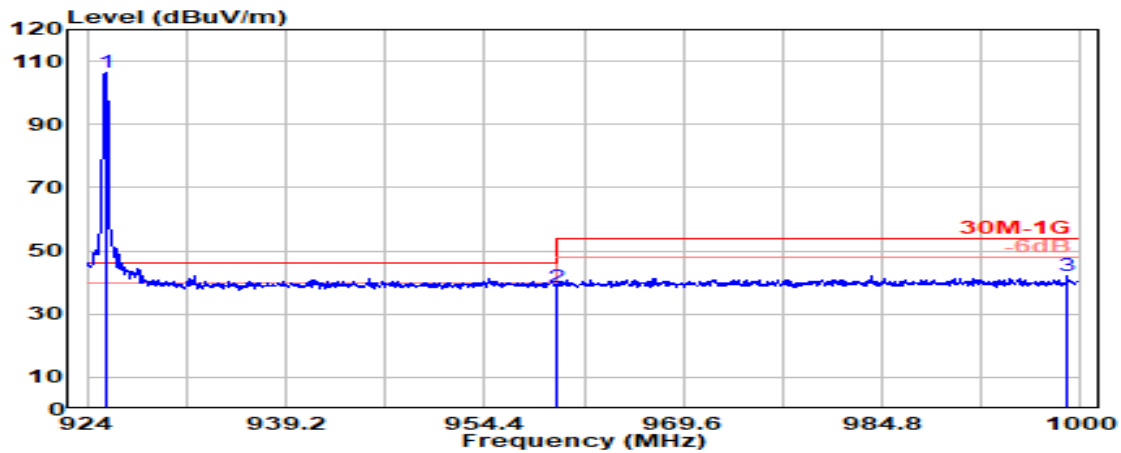


Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
608.250	24.36	6.81	27.41	35.74	39.50	46.00	6.50	Peak
614.000	24.39	6.84	27.41	33.31	37.13	46.00	8.87	Peak
@ 904.750	26.28	8.75	27.03	92.00	99.99	---	---	Peak

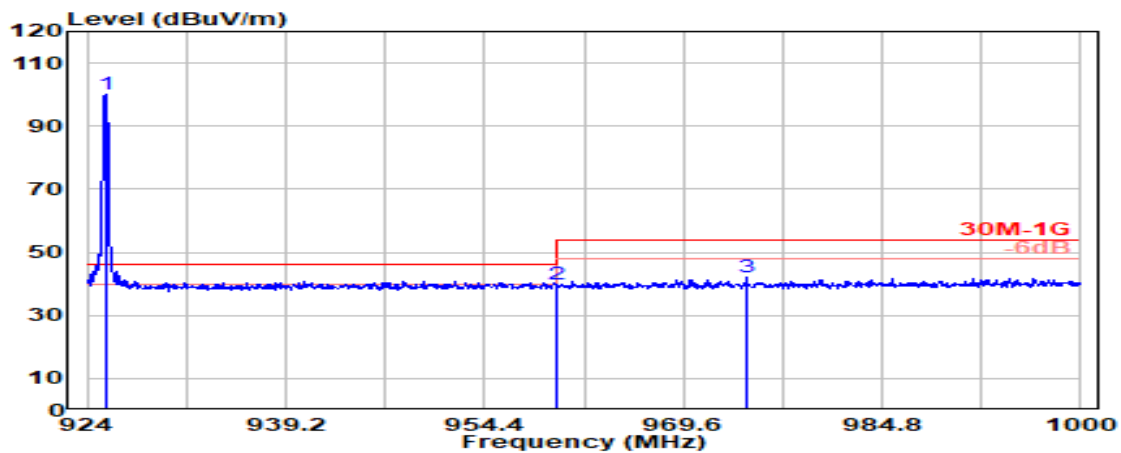
Remark: The “@” means fundamental frequency, it is ignored in this section.

Mode	FHSS	Frequency	TX 925.4MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 925.393	26.42	8.87	26.97	97.98	106.30	---	---	Peak
960.000	26.66	9.06	26.87	29.58	38.43	46.00	7.57	Peak
998.987	26.95	9.26	26.76	32.80	42.24	46.00	3.76	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
@ 925.393	26.42	8.87	26.97	91.55	99.87	---	---	Peak
960.000	26.66	9.06	26.87	31.11	39.95	46.00	6.05	Peak
974.477	26.77	9.14	26.83	32.84	41.92	46.00	4.08	Peak

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

A.1.2 Emissions outside the frequency band:

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

**ANT A**

Mode	FHSS	Frequency	TX 904.6MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1809.200	26.54	4.77	40.03	57.89	49.17	74.00	24.83	Peak
2713.800	28.88	6.38	39.98	59.33	54.61	74.00	19.39	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1809.200	49.17	-35.26	13.91	54.00	40.09	Average
2713.800	54.61	-35.26	19.35	54.00	34.65	Average

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1809.200	26.54	4.77	40.03	53.45	44.73	74.00	29.27	Peak
2713.800	28.88	6.38	39.98	55.14	50.42	74.00	23.58	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1809.200	44.73	-35.26	9.47	54.00	44.53	Average
2713.800	50.42	-35.26	15.16	54.00	38.84	Average

Mode	FHSS	Frequency	TX 915.0MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1830.000	26.79	4.80	40.03	56.88	48.45	74.00	25.55	Peak
2745.000	28.81	6.46	39.99	59.96	55.23	74.00	18.77	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1830.000	48.45	-35.26	13.19	54.00	40.81	Average
2745.000	55.23	-35.26	19.97	54.00	34.03	Average

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1830.000	26.79	4.80	40.03	57.25	48.82	74.00	25.18	Peak
2745.000	28.81	6.46	39.99	57.84	53.12	74.00	20.88	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1830.000	48.82	-35.26	13.56	54.00	40.44	Average
2745.000	53.12	-35.26	17.86	54.00	36.14	Average

Mode	FHSS	Frequency	TX 925.4MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1850.800	27.10	4.84	40.02	52.84	44.77	74.00	29.23	Peak
2776.200	28.89	6.52	40.00	61.18	56.59	74.00	17.41	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1850.800	44.77	-35.26	9.51	54.00	44.49	Average
2776.200	56.59	-35.26	21.33	54.00	32.67	Average

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1850.800	27.10	4.84	40.02	54.29	46.22	74.00	27.78	Peak
2776.200	28.89	6.52	40.00	58.56	53.97	74.00	20.03	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1850.800	46.22	-35.26	10.96	54.00	43.04	Average
2776.200	53.97	-35.26	18.71	54.00	35.29	Average



**ANT B**

Mode	FHSS				Frequency	TX 904.6MHz		
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1809.200	26.54	4.77	40.03	61.46	52.74	74.00	21.26	Peak
2713.800	28.88	6.38	39.98	58.89	54.17	74.00	19.83	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1809.200	52.74	-35.26	17.48	54.00	36.52	Average
2713.800	54.17	-35.26	18.91	54.00	35.09	Average

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1809.200	26.54	4.77	40.03	56.76	48.05	74.00	25.95	Peak
2713.800	28.88	6.38	39.98	54.22	49.50	74.00	24.50	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1809.200	48.05	-35.26	12.79	54.00	41.21	Average
2713.800	49.50	-35.26	14.24	54.00	39.76	Average

Mode	FHSS	Frequency	TX 915.0MHz
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**Antenna at Horizontal Polarization**

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1830.000	26.79	4.80	40.03	59.76	51.33	74.00	22.67	Peak
2745.000	28.81	6.46	39.99	60.00	55.28	74.00	18.72	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1830.000	51.33	-35.26	16.07	54.00	37.93	Average
2745.000	55.28	-35.26	20.02	54.00	33.98	Average

**Antenna at Vertical Polarization**

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1830.000	26.79	4.80	40.03	56.88	48.45	74.00	25.55	Peak
2745.000	28.81	6.46	39.99	57.37	52.65	74.00	21.35	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1830.000	48.45	-35.26	13.19	54.00	40.81	Average
2745.000	52.65	-35.26	17.39	54.00	36.61	Average

Mode	FHSS	Frequency	TX 925.4MHz
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Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1850.800	27.10	4.84	40.02	55.79	47.72	74.00	26.28	Peak
2776.200	28.89	6.52	40.00	61.89	57.30	74.00	16.70	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1850.800	47.72	-35.26	12.46	54.00	41.54	Average
2776.200	57.30	-35.26	22.04	54.00	31.96	Average

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Gain (dB)	Read Level (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1850.800	27.10	4.84	40.02	55.83	47.75	74.00	26.25	Peak
2776.200	28.89	6.52	40.00	58.69	54.11	74.00	19.89	Peak

Emission Frequency (MHz)	Peak Emission Level (dBμV/m)	Duty Cycle Correction Factor (dB)	Average Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1850.800	47.75	-35.26	12.49	54.00	41.51	Average
2776.200	54.11	-35.26	18.85	54.00	35.15	Average

A.1.3 Emissions in Non-restricted Frequency Bands:

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

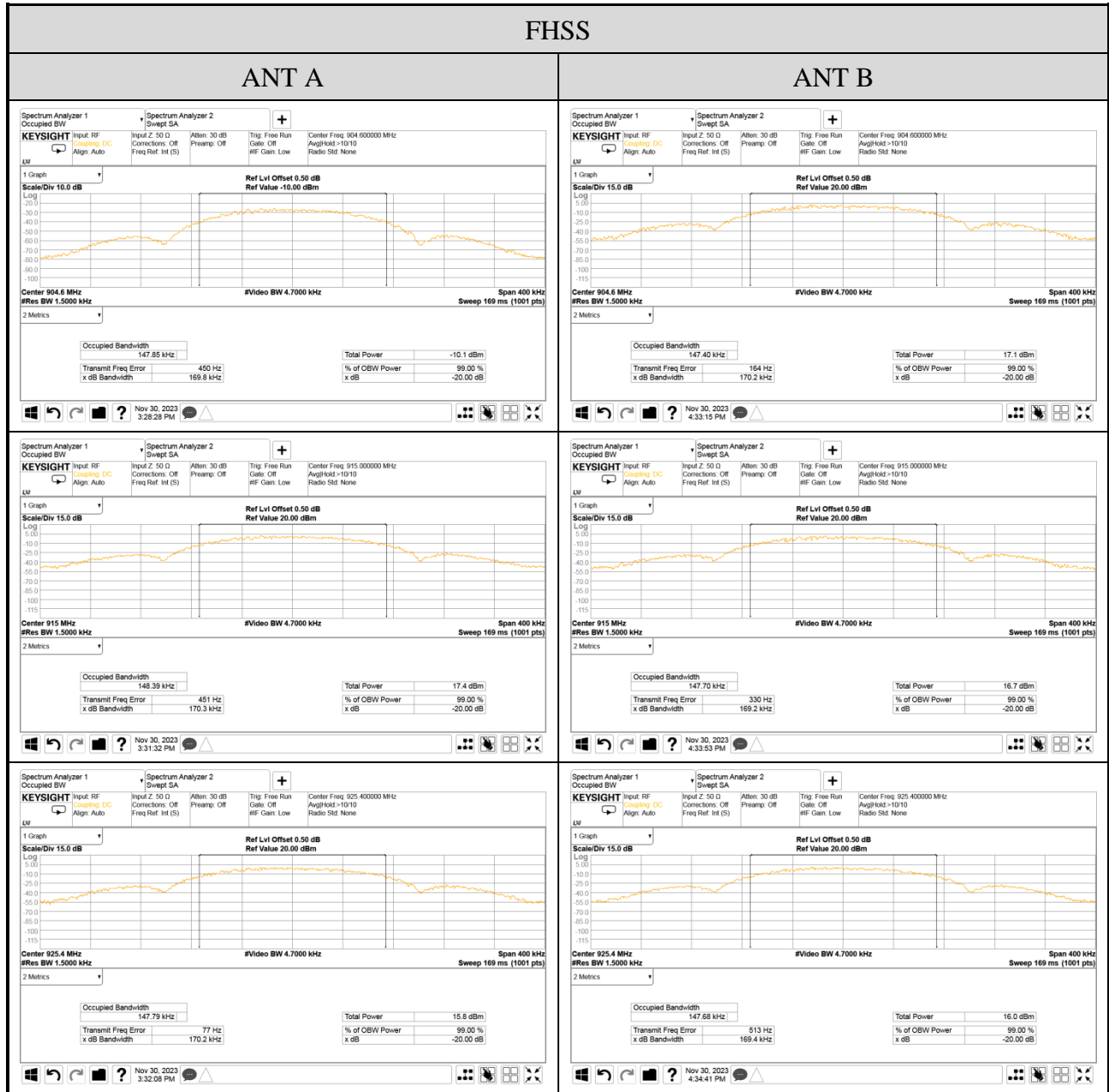
## A.2 20dB/OCCUPIED BANDWIDTH

Test Date	2023/11/30	Temp./Hum.	25°C/52%
Cable Loss	0.50dB	Tested By	Hua Wu
Test Voltage	DC 6.0V (Via Battery)		

### A.2.1 Emission Bandwidth Result

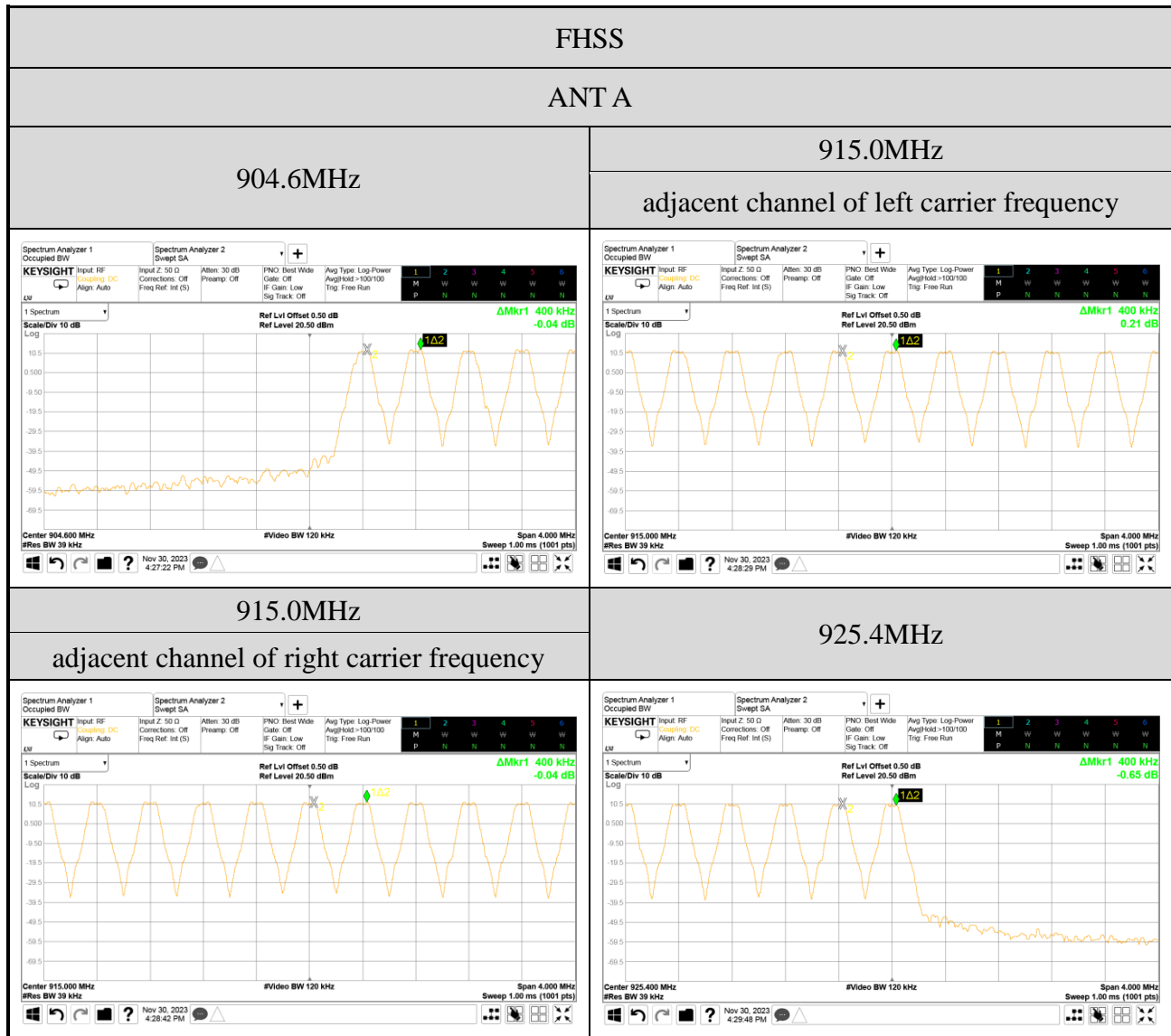
Mode	ANT	Centre Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)
FHSS	ANT A	904.6	0.1698	0.14785
		915.0	0.1703	0.14839
		925.4	0.1702	0.14779
FHSS	ANT B	904.6	0.1702	0.14740
		915.0	0.1692	0.14770
		925.4	0.1694	0.14768

## A.2.2 Measurement Plots

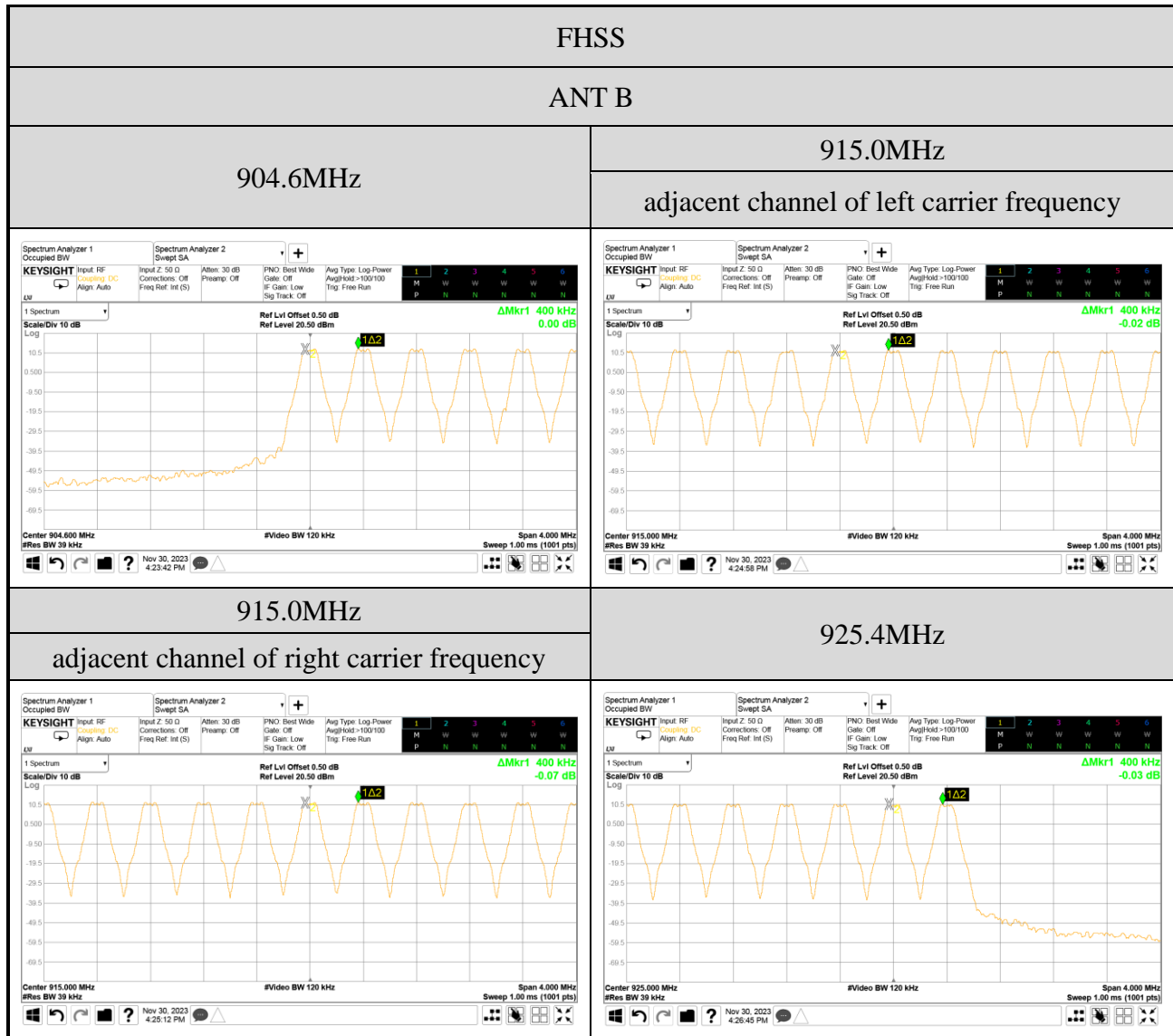


### A.3 CARRIER FREQUENCY SEPARATION

Test Date	2023/11/30	Temp./Hum.	25°C/52%
Cable Loss	0.50dB	Tested By	Hua Wu
Test Voltage	DC 6.0V (Via Battery)		



Limit: The max 20 dB Bandwidth: 0.1703MHz



Limit: The max 20 dB Bandwidth: 0.1702MHz

## A.4 TIME OF OCCUPANCY

Test Date	2023/11/30	Temp./Hum.	25°C/52%
Cable Loss	0.50dB	Tested By	Hua Wu
Test Voltage	DC 6.0V (Via Battery)		

### A.4.1 Time of Occupancy

#### ANT A

Mode	Centre Frequency (MHz)	Each second appearance transmission	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
2GFSK	904.60	1	1.725	34.500	<400
	915.00	1	1.725	34.500	<400
	925.40	1	1.725	34.500	<400

Observation Period: 20

**Centre Frequency: 2403.25MHz**

For each second of 1 transmission appearance, the longest time of occupancy is  
 1 channels \* 20 \* 1.725 ms = 34.500 ms (<400ms)

**Centre Frequency: 2425.00MHz**

For each second of 1 transmission appearance, the longest time of occupancy is  
 1 channels \* 20 \* 1.725 ms = 34.500 ms (<400ms)

**Centre Frequency: 2447.50MHz**

For each second of 1 transmission appearance, the longest time of occupancy is  
 1 channels \* 20 \* 1.725 ms = 34.500 ms (<400ms)

#### ANT B

Mode	Centre Frequency (MHz)	Each second appearance transmission	Time of Occupancy (ms)	Maximum accumulated Time of Occupancy (ms)	Limit (ms)
2GFSK	904.60	1	1.725	34.500	<400
	915.00	1	1.725	34.500	<400
	925.40	1	1.725	34.500	<400

Observation Period: 20

**Centre Frequency: 2403.25MHz**

For each second of 1 transmission appearance, the longest time of occupancy is  
 1 channels \* 20 \* 1.725 ms = 34.500 ms (<400ms)

**Centre Frequency: 2425.00MHz**

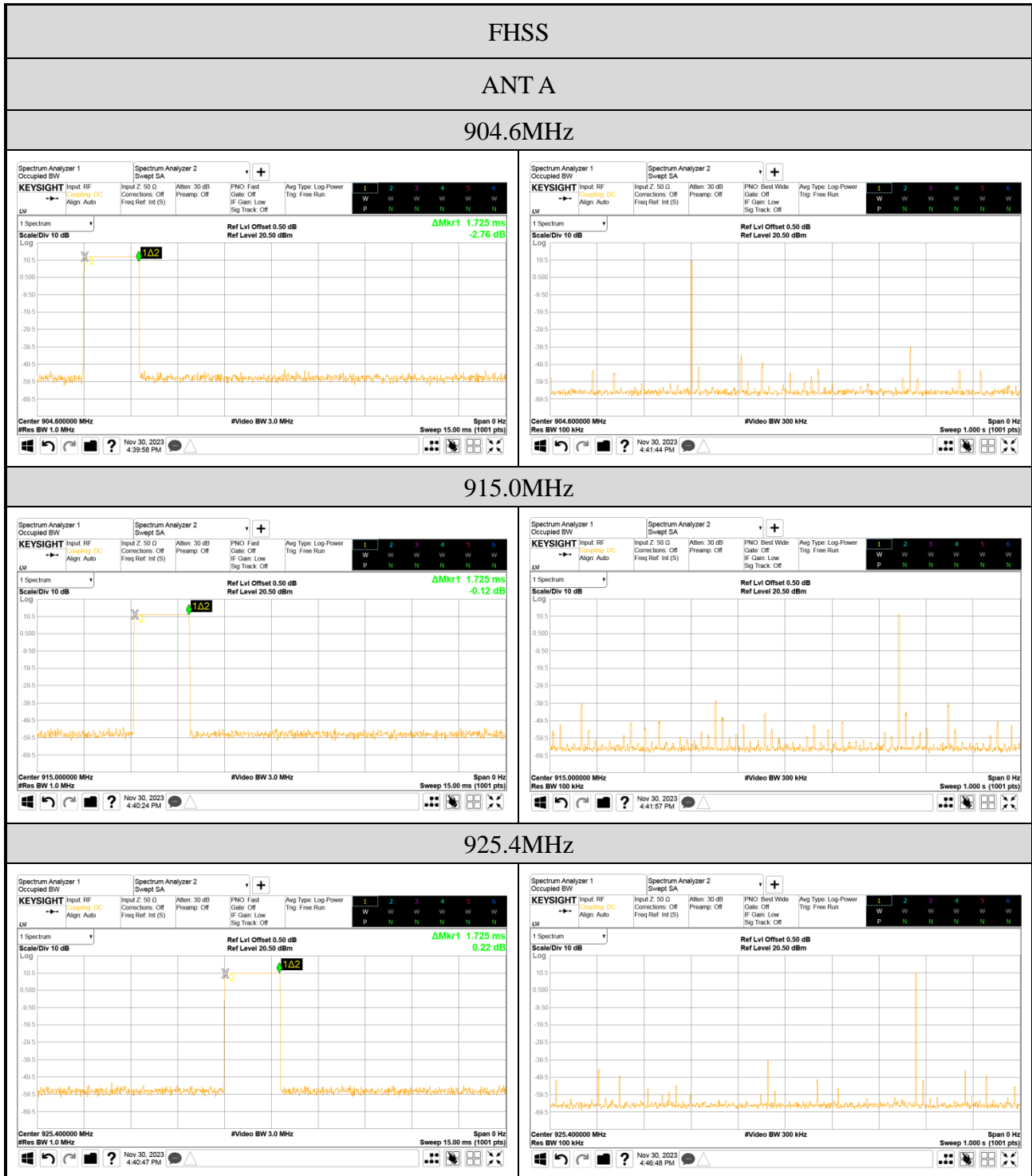
For each second of 1 transmission appearance, the longest time of occupancy is  
 1 channels \* 20 \* 1.725 ms = 34.500 ms (<400ms)

**Centre Frequency: 2447.50MHz**

For each second of 1 transmission appearance, the longest time of occupancy is  
 1 channels \* 20 \* 1.725 ms = 34.500 ms (<400ms)



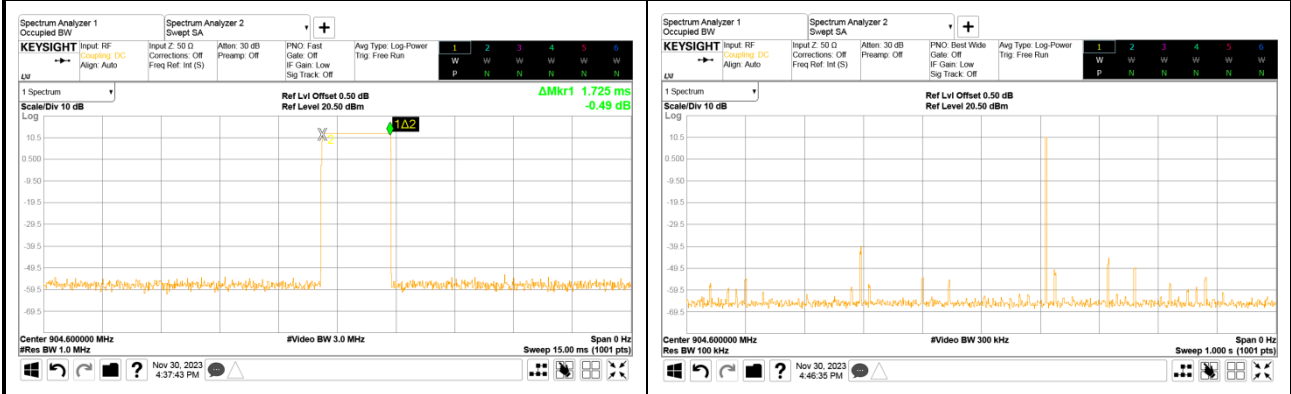
A.4.2 Measurement Plots



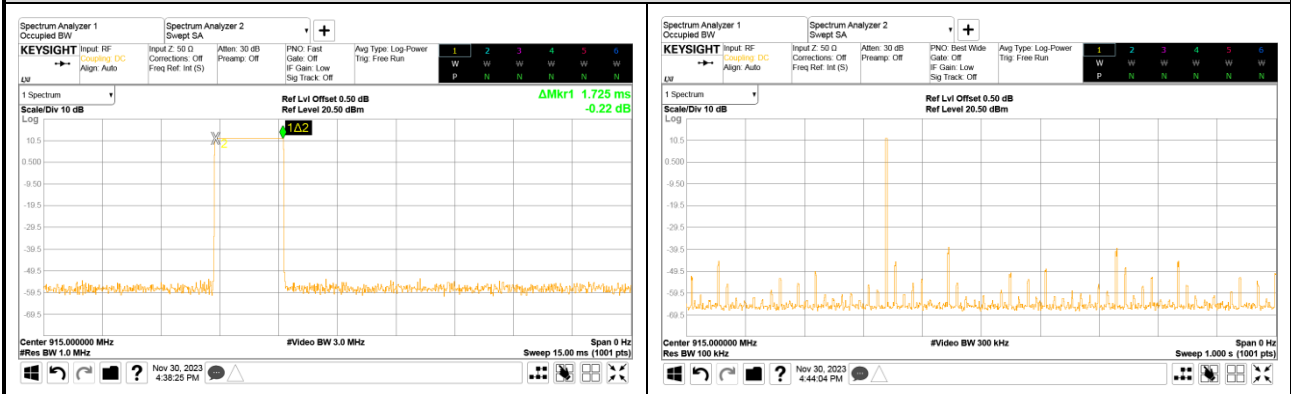
FHSS

ANT B

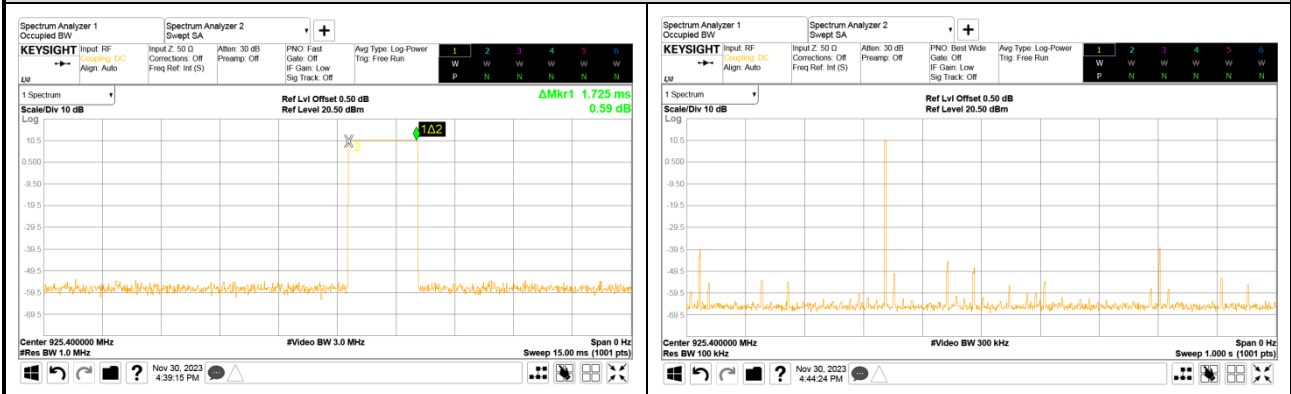
904.6MHz



915.0MHz

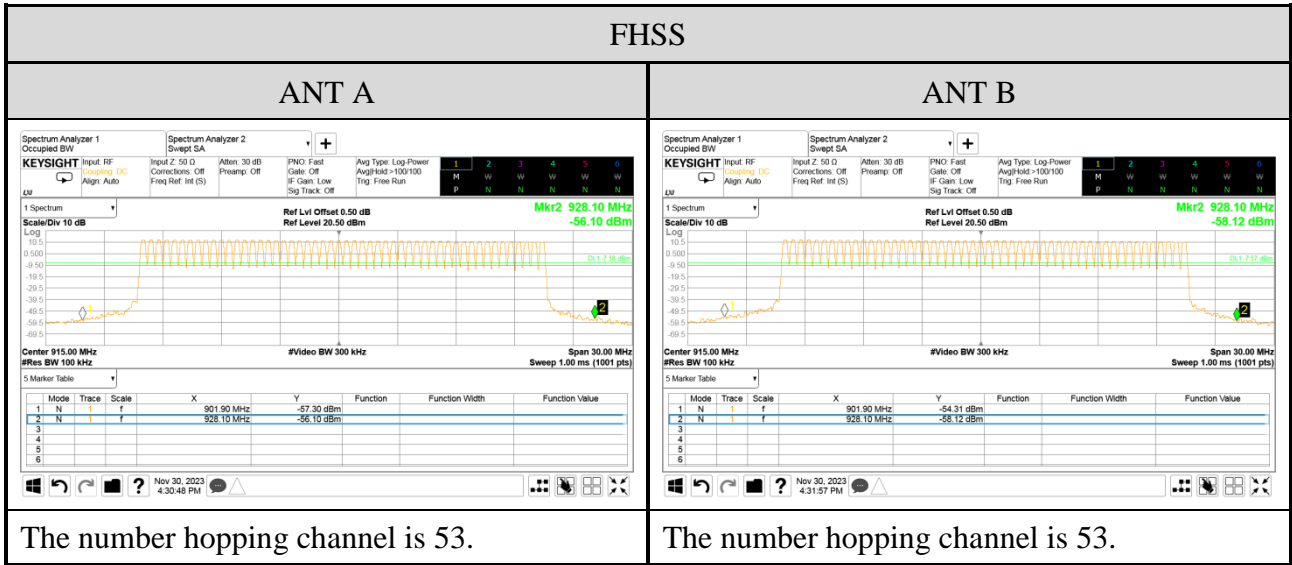


925.4MHz



## A.5 NUMBER OF HOPPING CHANNELS

Test Date	2023/11/30	Temp./Hum.	25°C/52%
Cable Loss	0.50dB	Tested By	Hua Wu
Test Voltage	DC 6.0V (Via Battery)		



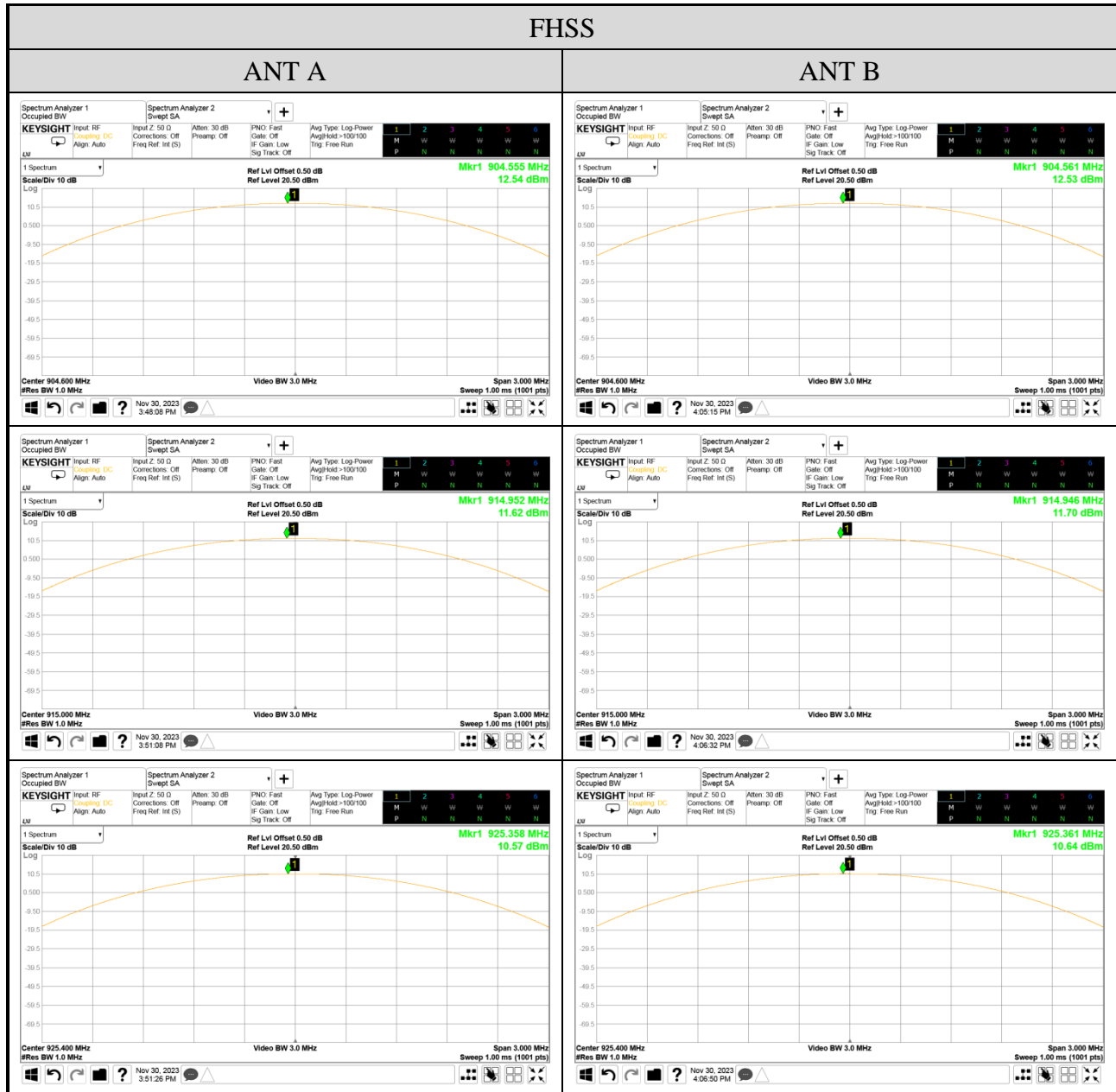
## A.6 MAXIMUM PEAK OUTPUT POWER

Test Date	2023/11/30	Temp./Hum.	25°C/52%
Cable Loss	0.50dB	Tested By	Hua Wu
Test Voltage	DC 6.0V (Via Battery)		

### A.6.1 Maximum Peak Output Power

Mode	ANT	Centre Frequency (MHz)	Peak Output Power		Limit
			dBm	W	
FHSS	ANT A	904.6	12.54	0.017947	30dBm (1.0W)
		915.0	11.62	0.014521	
		925.4	10.57	0.011402	
	ANT B	904.6	12.53	0.017906	30dBm (1.0W)
		915.0	11.70	0.014791	
		925.4	10.64	0.011588	

A.6.2 Measurement Plots

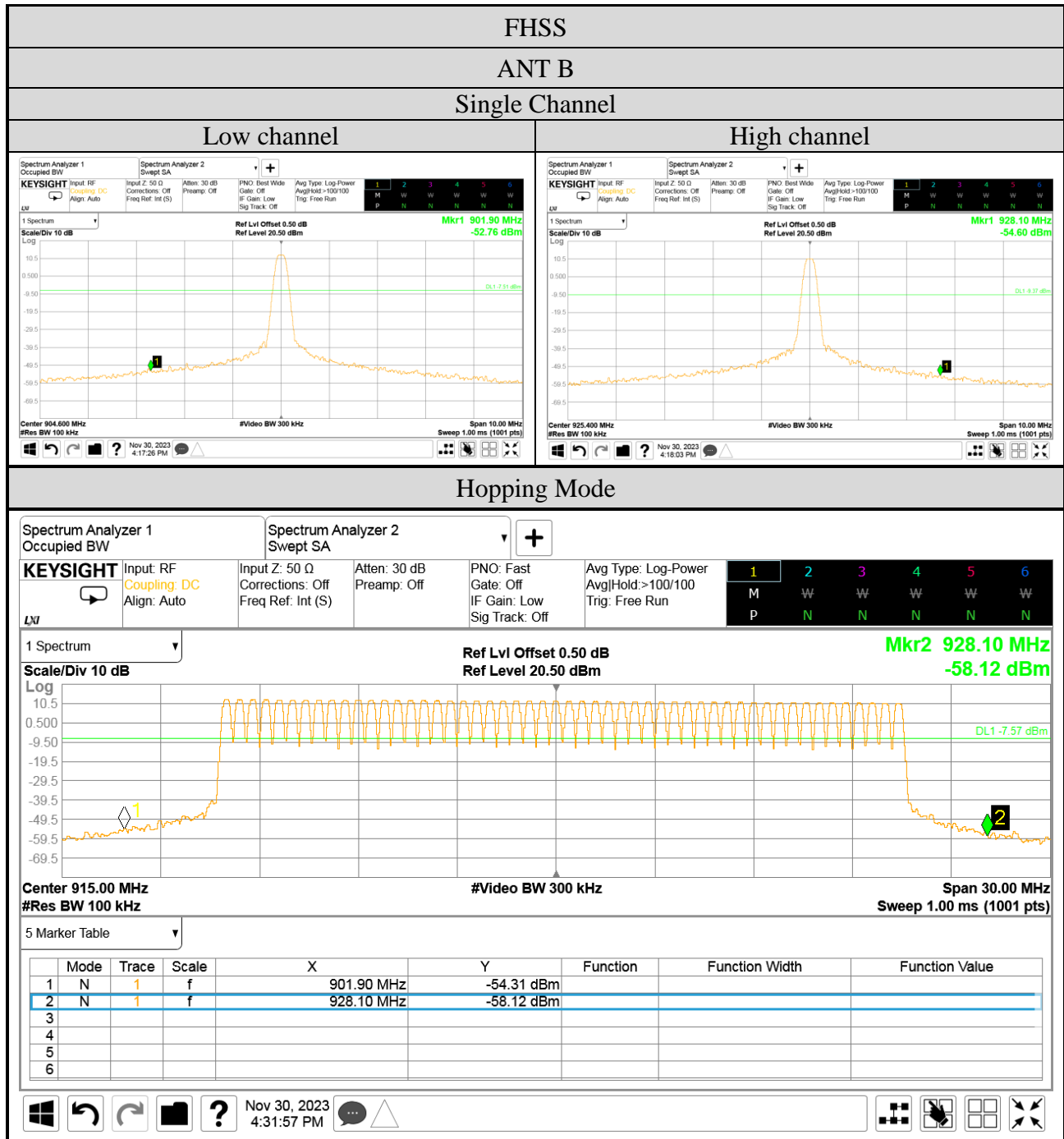


## A.7 EMISSION LIMITATIONS MEASUREMENT

### A.7.1 Band Edge

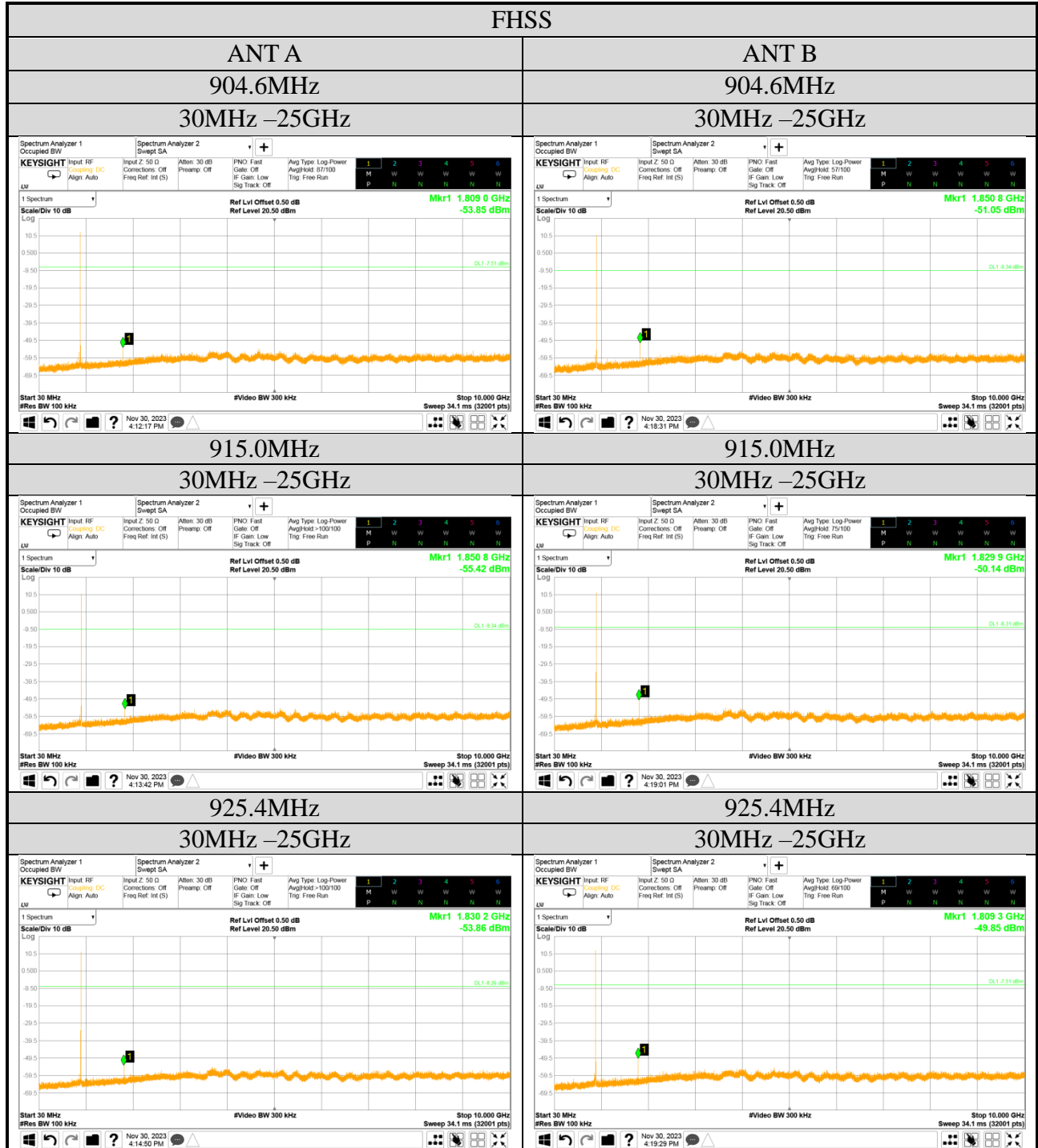
Test Date	2023/11/30	Temp./Hum.	25°C/52%
Cable Loss	0.50dB	Tested By	Hua Wu
Test Voltage	DC 6.0V (Via Battery)		





A.7.2 Spurious Emission

Test Date	2023/11/30	Temp./Hum.	25°C/52%
Cable Loss	0.50dB	Tested By	Hua Wu
Test Voltage	DC 6.0V (Via Battery)		







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**APPENDIX B**

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# APPENDIX B

## TEST PHOTOGRAPHS

(Model: R9001SB)