

NCC Test Report

Equipment : Wireless Belt Pack
Brand Name : Clear-Com
Model Name : 1403
Applicant/ Manufacturer : Clear-Com LLC
1301 Marina Village Pkwy, Suite 105 Alameda,
California, 94501 United States
Standard : LP0002 Section 3.10 (2018-01-10)

The product was received on Apr. 16, 2018, and testing was started from Jun.02, 2018 and completed on Jun. 05, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

HISTORY OF THIS TEST REPORT	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Information.....	5
1.2 Testing Applied Standards	6
1.3 Testing Location Information	6
1.4 Measurement Uncertainty	6
2 TEST CONFIGURATION OF EUT.....	7
2.1 Test Condition	7
2.2 Test Channel Mode	7
2.3 The Worst Case Measurement Configuration.....	8
2.4 Accessories	9
2.5 Support Equipment.....	9
2.6 Test Setup Diagram	10
3 TRANSMITTER TEST RESULT	11
3.1 AC Power-line Conducted Emissions	11
3.2 20dB Bandwidth and Carrier Frequency Separation.....	13
3.3 Maximum Conducted Output Power	14
3.4 Number of Hopping Frequencies and Hopping Bandedge	15
3.5 Time of Occupancy (Dwell Time)	16
3.6 Emissions in Non-restricted Frequency Bands	17
3.7 Emissions in Restricted Frequency Bands.....	18
3.8 Receiver Radiated Spurious Emissions	21
4 TEST EQUIPMENT AND CALIBRATION DATA.....	24
APPENDIX A. TEST RESULTS OF 20DB BANDWIDTH AND CARRIER FREQUENCY SEPARATION	
APPENDIX B. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER	
APPENDIX C. TEST RESULTS OF NUMBER OF HOPPING FREQUENCIES AND HOPPING BANDEDGE	
APPENDIX D. TEST RESULTS OF TIME OF OCCUPANCY (DWELL TIME)	
APPENDIX E. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS	
APPENDIX F. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS	
APPENDIX G. TEST RESULTS OF RECEIVER RADIATED UNWANTED EMISSIONS	
APPENDIX H TEST PHOTOS	
PHOTOGRAPHS OF EUT V01	

[illegible]

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	3.10.1.4	Antenna Requirement	PASS	LP0002-2.2
3.1	2.3	AC Power-line Conducted Emissions	PASS	LP0002-2.3
3.2	3.10.1.6	20dB Bandwidth	PASS	3.10.1.6
3.2	3.10.1.6	Carrier Frequency Separation	PASS	3.10.1.6
3.3	3.10.1.2	Maximum Conducted Output Power	PASS	3.10.1.2
3.4	3.10.1.6	Number of Hopping Frequencies and Hopping Bandedge	PASS	3.10.1.6
3.5	3.10.1.6	Time of Occupancy (Dwell Time)	PASS	3.10.1.6
3.6	3.10.1.5	Emissions in Non-restricted Frequency Bands	PASS	3.10.1.5
3.7	3.10.1.5	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: LP0002-2.8
3.8	2.11	Receiver Radiated Unwanted Emissions	PASS	Restricted Bands: LP0002-2.8

Reviewed by: Jeremy Lin

Report Producer: Amber Chiu

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Mode	Ch. Frequency (MHz)	Channel Number
2400-2483.5	Wireless devices	2401.92-2479.68	0-46 [47]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	FHSS	1.7	1TX

Note:

- ♦ System using FHSS modulation.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	Clear-Com, an HME Company.	1403	PCB	fixed on board	0
2	2	Clear-Com, an HME Company.	1403	PCB	fixed on board	0

Note 1: The EUT has two antennas.

For Wireless devices mode (1TX/1RX)

Ant. 1 (port 1) can be used as transmitting antenna alone.

Ant. 2 (port 2) can be used as receiving antenna alone.

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From Battery
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device)
☐	Combined Equipment - Brand Name / Model No.: ...
☐	Plug-in radio (EUT intended for a variety of host systems)
☐	Host System - Brand Name / Model No.: ...
☐	Other:

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
FHSS	0.042	13.768	421.875u	3k

1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ LP0002 (2018-01-10)
- ♦ Public Notice DA 00-705
- ♦ ANSI C63.10-2013
- ♦ ANSI C63.4-2014

1.3 Testing Location Information

Testing Location					
☒	HWA YA	ADD	:	No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL	:	886-3-327-3456	FAX : 886-3-327-0973
☐	JHUBEI	ADD	:	No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL	:	886-3-656-9065	FAX : 886-3-656-9085

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Andy	23.5°C / 65%	05/Jun/2018
Radiated	03CH02-HY	Streak	23.9°C / 66%	02/Jun/2018

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	3.7V

2.2 Test Channel Mode

Test Software	DOS
---------------	-----

Mode	PowerSetting
FHSS_Nss1_1TX	-
2401.92MHz	default
2441.664MHz	default
2479.68MHz	default

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	20dB Bandwidth Carrier Frequency Separation Maximum Conducted Output Power Number of Hopping Frequencies Hopping Bandedge Time of Occupancy (Dwell Time) Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands Receiver Radiated Unwanted Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX & CRX		
1	Battery mode		
Operating Mode > 1GHz	CTX & CRX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	

2.4 Accessories

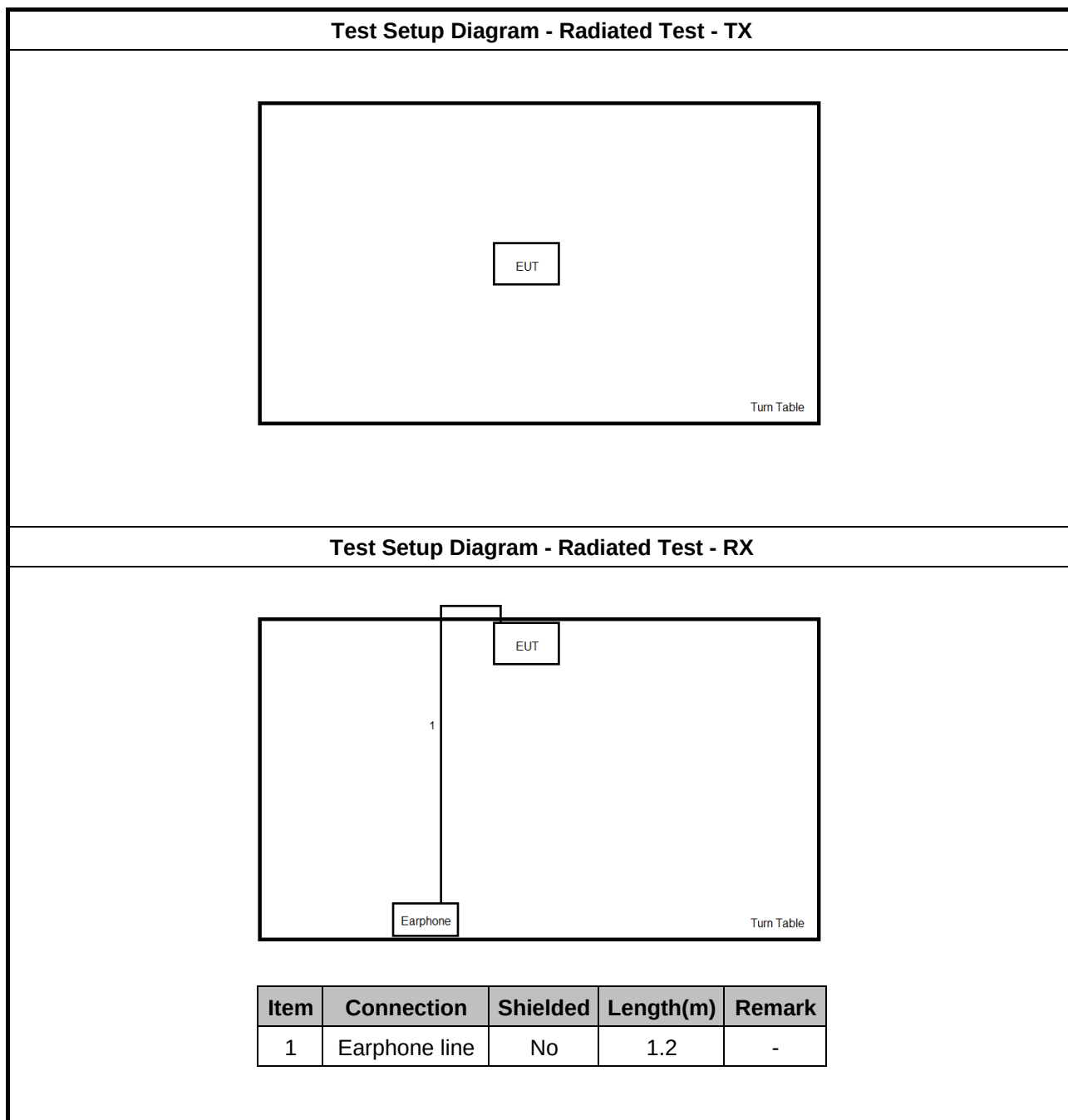
Accessories				
Battery	Brand Name	HME	Model Name	BAT50
	Manufacturer	HM Electronics Inc.	SN	-
	Power Rating	3.7Vdc, 720 mAh	Type	Li-ion, Y
Earphone (Headphones) MIC wire control	Brand Name	HME	Model Name	HS-15
	Manufacturer	HM Electronics Inc.		
	Signal Line	1.2 meter, Non-Shielded cable, w/o ferrite core		

2.5 Support Equipment

Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	R33002 / DOC
2	Adapter for NB	DELL	HA65NM130	R35737 / DOC
3	Fixture	-	-	-
4	Base Station	Clear-Com	DX410	-

Note: Support equipment No.3, 4 was provided by customer.

2.6 Test Setup Diagram



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

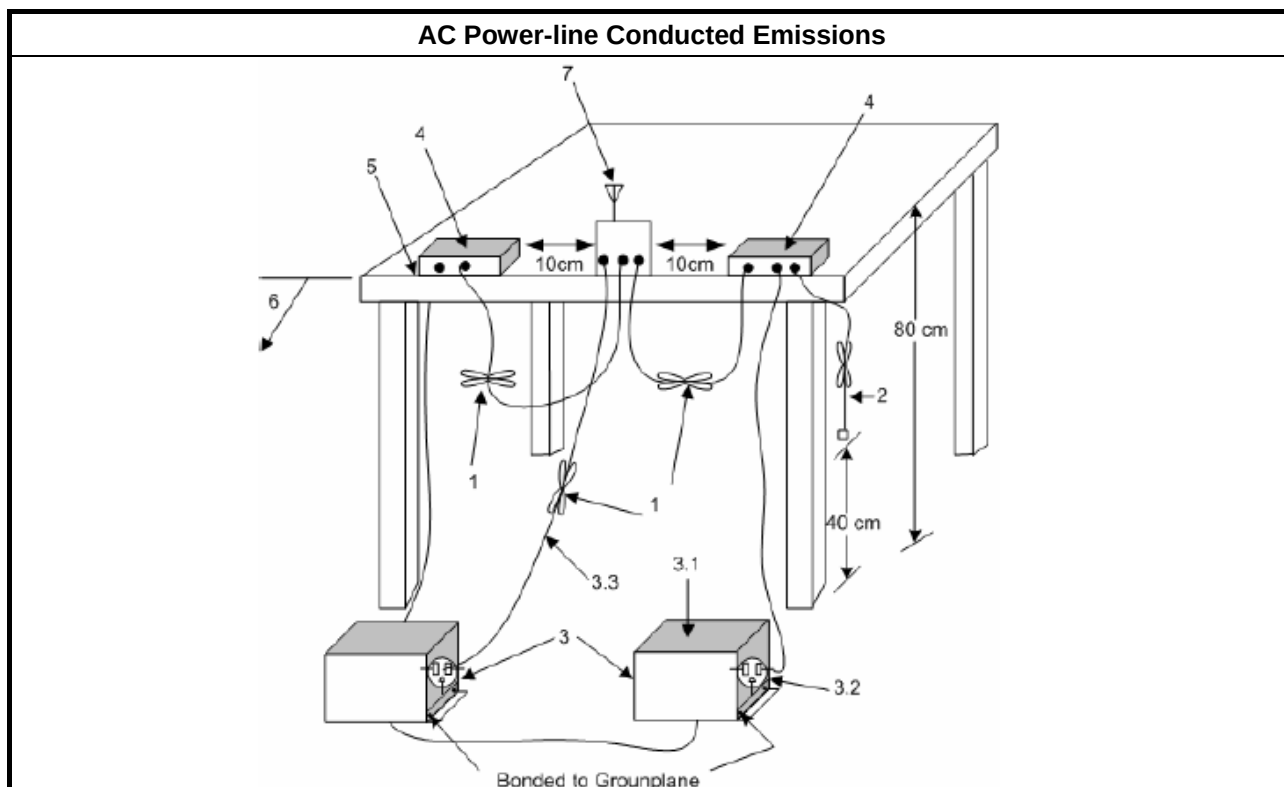
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Test Setup





3.1.5 Test Result of AC Power-line Conducted Emissions

Please refer to LP0002-2.3 which states, "Measurements to demonstrate compliance with the conducted limits are not required for devices employ Battery for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines".

Therefore, for this device, AC Power Line Conducted Emissions investigation is not required.

3.2 20dB Bandwidth and Carrier Frequency Separation

3.2.1 20dB Bandwidth and Carrier Frequency Separation Limit

20dB Bandwidth and Carrier Frequency Separation Limit for Frequency Hopping Systems	
2400-2483.5 MHz Band:	
	$N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz).
	$75 > N \geq 15$ and $ChS \geq MAX$ (20 dB bandwidth 2/3, 25 kHz).
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

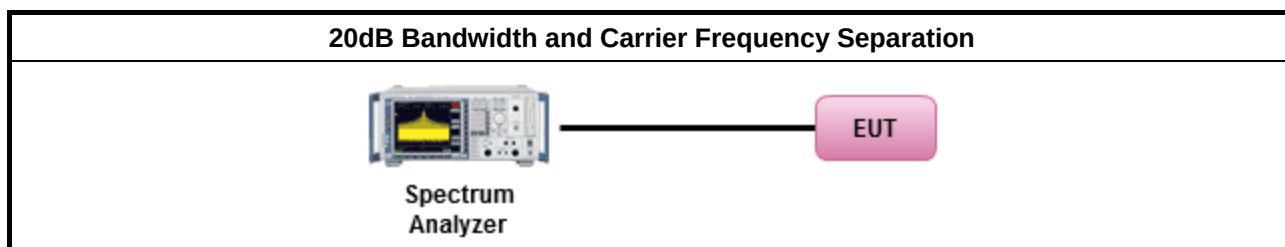
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 6.9.2 for 20 dB bandwidth measurement.
Refer as ANSI C63.10-2013, clause 7.8.2 for carrier frequency separation measurement.

3.2.4 Test Setup



3.2.5 Test Result of 20dB Bandwidth

Refer as Appendix A

3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix A

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
2400-2483.5 MHz Band:	
	$N \geq 75$; Power 30dBm; EIRP 36dBm
	$75 > N \geq 15$; Power 21dBm; EIRP 27dBm
N: Number of Hopping Frequencies	

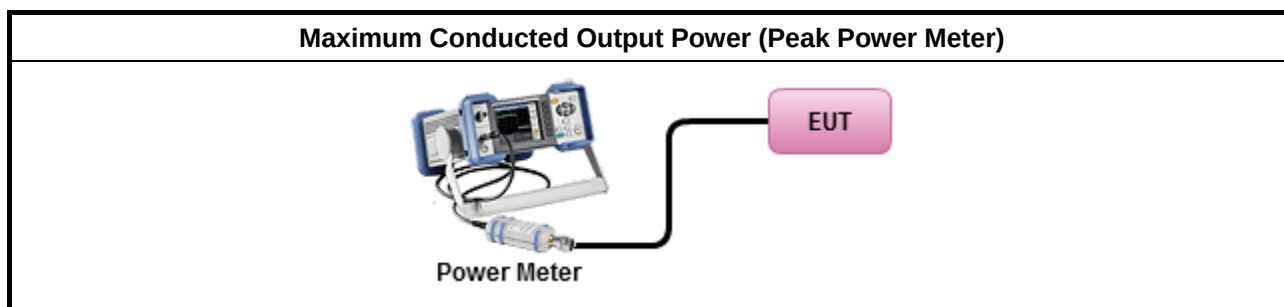
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 7.8.5 for output power measurement.

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B

3.4 Number of Hopping Frequencies and Hopping Bandedge

3.4.1 Number of Hopping Frequencies Limit

Number of Hopping Frequencies Limit	
2400-2483.5 MHz Band:	
	$N \geq 75$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz).
	$75 > N \geq 15$ and $ChS \geq MAX$ (20 dB bandwidth 2/3, 25 kHz).
N: Number of Hopping Frequencies; ChS : Hopping Channel Separation	

3.4.2 Hopping Bandedge Limit

Refer clause 3.6.1 and clause 3.7.1

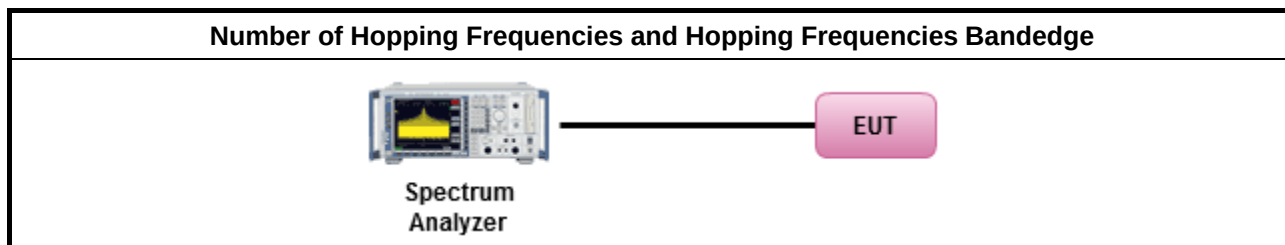
3.4.3 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.4 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 7.8.3 for number of hopping frequencies measurement.
Refer as ANSI C63.10-2013, clause 7.8.6 for hopping frequencies Bandedge measurement.

3.4.5 Test Setup



3.4.6 Test Result of Number of Hopping Frequencies

Refer as Appendix C

3.4.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix C

3.5 Time of Occupancy (Dwell Time)

3.5.1 Time of Occupancy (Dwell Time) Limit

Time of Occupancy (Dwell Time) Limit for Frequency Hopping Systems	
2400-2483.5 MHz Band:	
	$N \geq 75$; 0.4s in $N \times 0.4$ period
	$75 > N \geq 15$; 0.4s in $N \times 0.4$ period
N: Number of Hopping Frequencies	

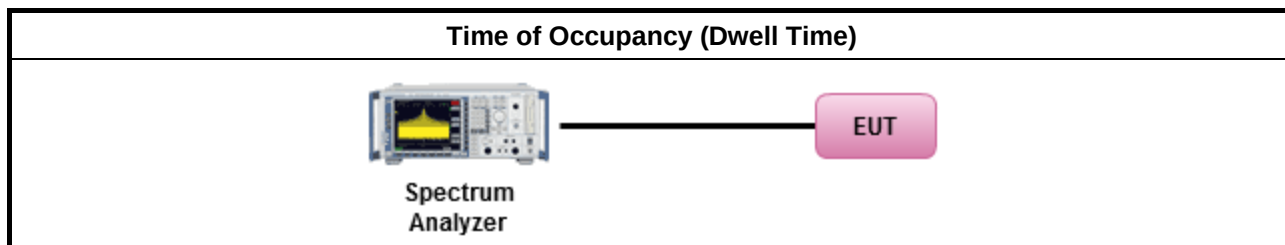
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
Refer as ANSI C63.10-2013, clause 7.8.4 for dwell time measurement.	
Bluetooth ACL packets can be 1, 3, or 5 time slots. Following as dwell time. Operate DH5 at maximum dwell time and maximum duty cycle.	
	The DH5 packet can cover up to 5 time slots. Operate DH5 at maximum dwell time and maximum duty cycle. A maximum length packet has duration of 5 time slots. The hopping rate is 1600 hops/second so the maximum dwell time is $5/1600$ seconds, or 3.125ms. DH5 Packet permit maximum $1600 / 79 / 6 = 3.37$ hops per second in each channel.

3.5.4 Test Setup



3.5.5 Test Result of Time of Occupancy (Dwell Time)

Refer as Appendix D

3.6 Emissions in Non-restricted Frequency Bands

3.6.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.	

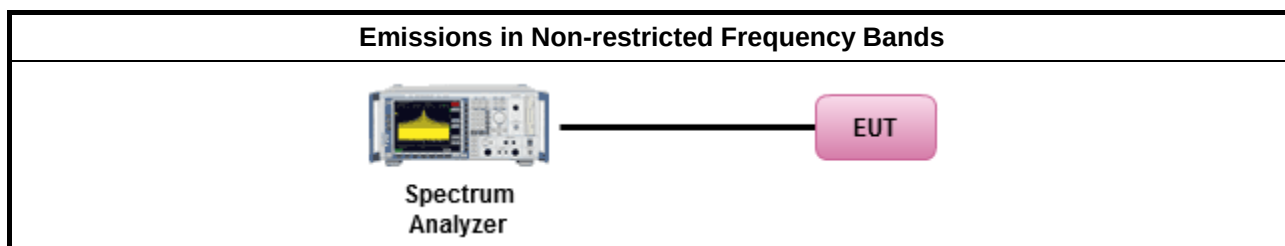
3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method
Refer as ANSI C63.10-2013, clause 7.8.8 for unwanted emissions into non-restricted bands.

3.6.4 Test Setup



3.6.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.7 Emissions in Restricted Frequency Bands

3.7.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

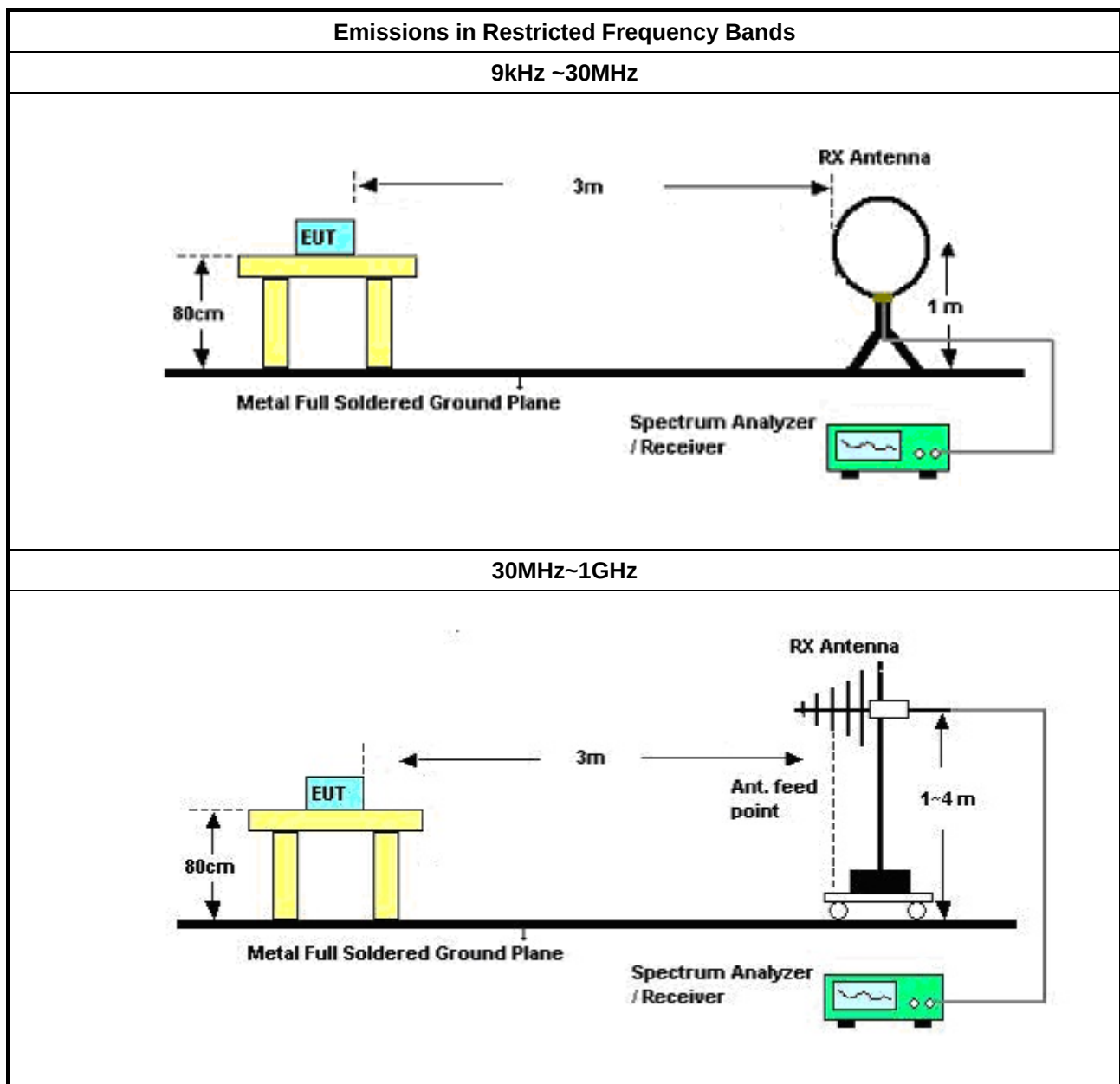
3.7.2 Measuring Instruments

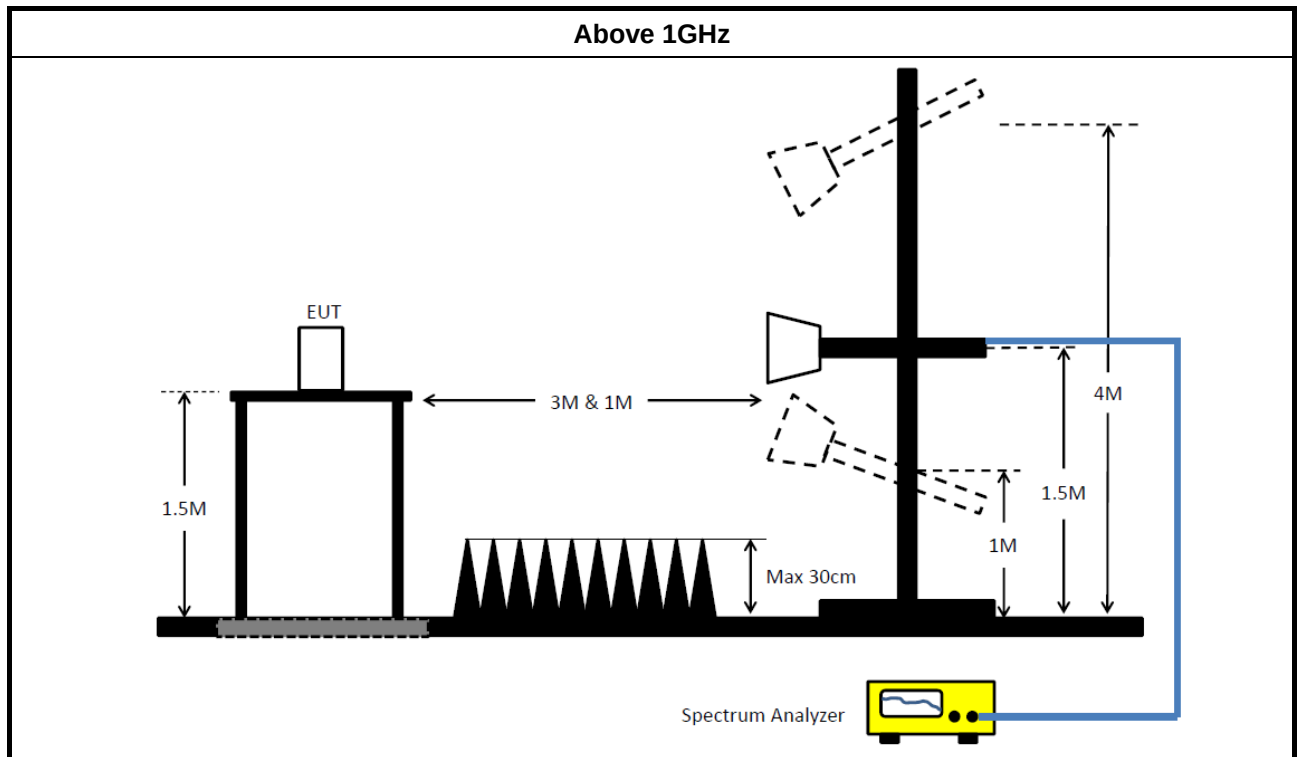
Refer a test equipment and calibration data table in this test report.

3.7.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [hopping duty factor].	
▪ Refer as ANSI C63.10; clause 6.9.2.2 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
▪ For the transmitter unwanted emissions shall be measured using following options below:	
	▪ Refer as ANSI C63.10, clause 4.1.4.2.1 QP value. ▪ Refer as ANSI C63.10, clause 4.1.4.2.2 measurement procedure peak. ▪ Refer as ANSI C63.10, clause 4.1.4.2.4 average value of hopping pulsed emissions.

3.7.4 Test Setup





3.7.5 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

3.7.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

3.8 Receiver Radiated Spurious Emissions

3.8.1 Receiver in Radiated Spurious Emissions Limit

Restricted Spurious Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

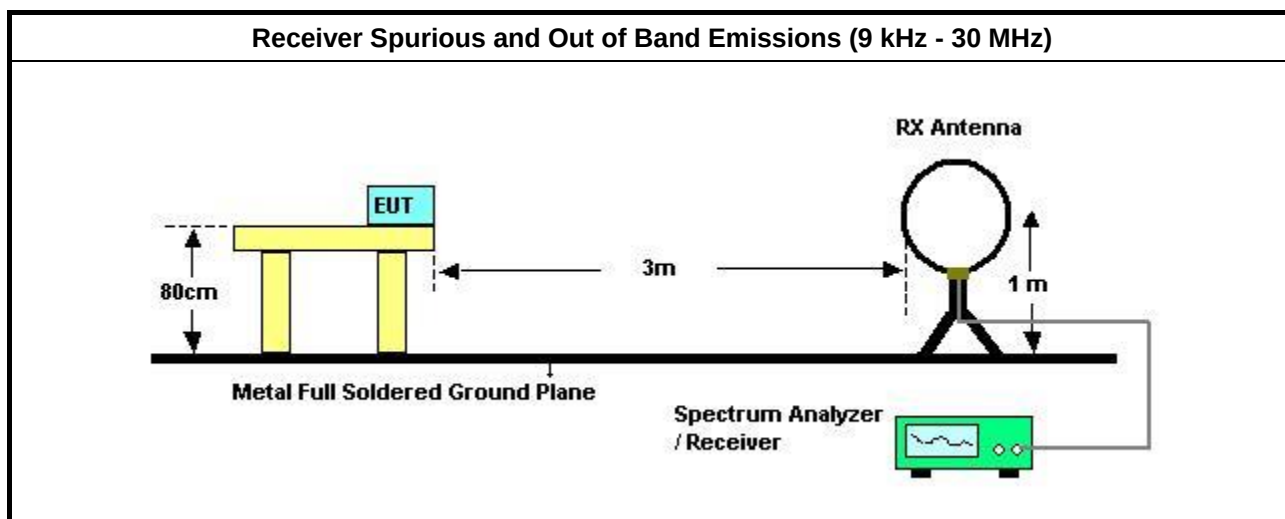
3.8.2 Measuring Instruments

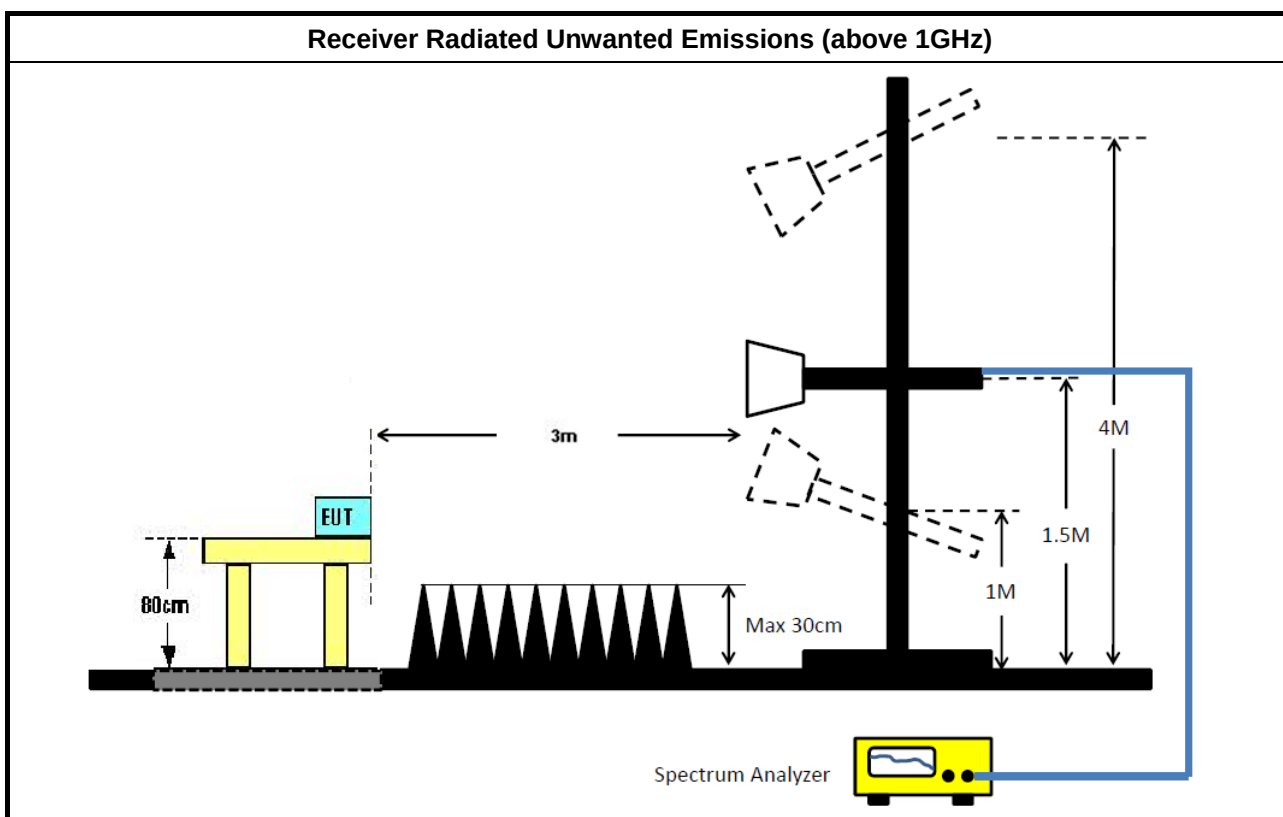
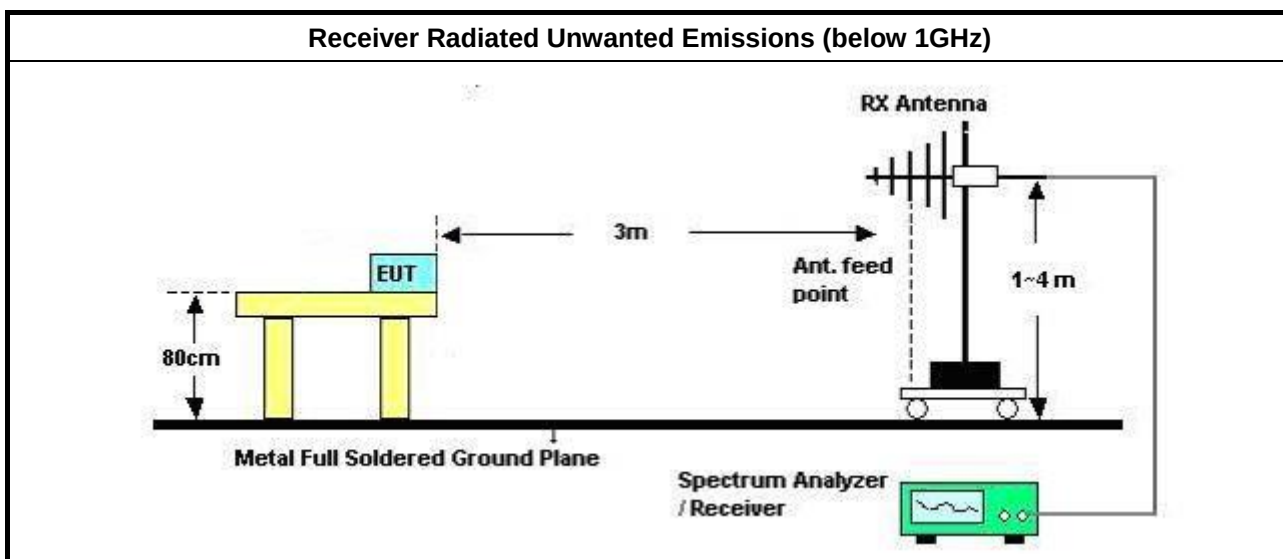
Refer a test equipment and calibration data table in this test report.

3.8.3 Test Procedures

Test Method	
☒	The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is higher, without exceeding 40 GHz.
☒	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
☒	For radiated measurement, refer as ANSI C63.4, clause 8.3.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from below 30 MHz.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from 30 MHz-1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the QP-Limit so that the QP level does not need to be reported in addition.
☒	Refer as ANSI C63.4, clause 8.3.1.2 and 8.3.2.2 for radiated emissions from above 1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
☒	All amplitude of spurious emissions that are attenuated by more than 30 dB below the permissible value has no need to be reported.

3.8.4 Test Setup





3.8.5 Receiver Radiated Unwanted Emissions (Below 30MHz)

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

3.8.6 Test Result of Receiver Radiated Unwanted Emissions

Refer as Appendix G

4 Test Equipment and Calibration Data

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101515	9kHz~40GHz	08/Dec/2017	07/Dec/2018
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-1m	HUBER+SUHNER	SUCOFLEX_104	MY37332/4	30MHz ~ 26.5GHz	26/Jan/2018	25/Jan/2019
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	20/Oct/2017	19/Oct/2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz ~ 18GHz 3m	27/Oct/2017	26/Oct/2018
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	29Jun/2017	28/Jun/2018
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	28/Sep/2017	27/Sep/2018
Spectrum Analyzer	Rohde & Schwarz	FSP40	100593	9KHz - 40GHz	12/Dec/2017	11/Dec/2018
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100354	9kHz ~ 2.75GHz	08/Dec/2017	07/Dec/2018
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	19/Jan/2018	18/Jan/2019
RF Cable-high	SUHNER	SUCOFLEX104	MY34918/4	1GHz ~ 40GHz	19/Jan/2018	18/Jan/2019
Bilog Antenna	SCHAFFNER	CBL 6112B	2723	30MHz ~ 1GHz	09/Sep/2017	08/Sep/2018
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz ~ 40GHz	06/Feb/2018	05/Feb/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA 9120 D 1543	1GHz ~ 18GHz	11/May/ 2018	10/May/2019
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	31/Aug/2017	30/Aug/2018
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
FHSS_Nss1_1TX	1.205M	1.177M	1M18D1D	1.201M	1.17M

Max-N dB = Maximum 20dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

Min-N dB = Minimum 20dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

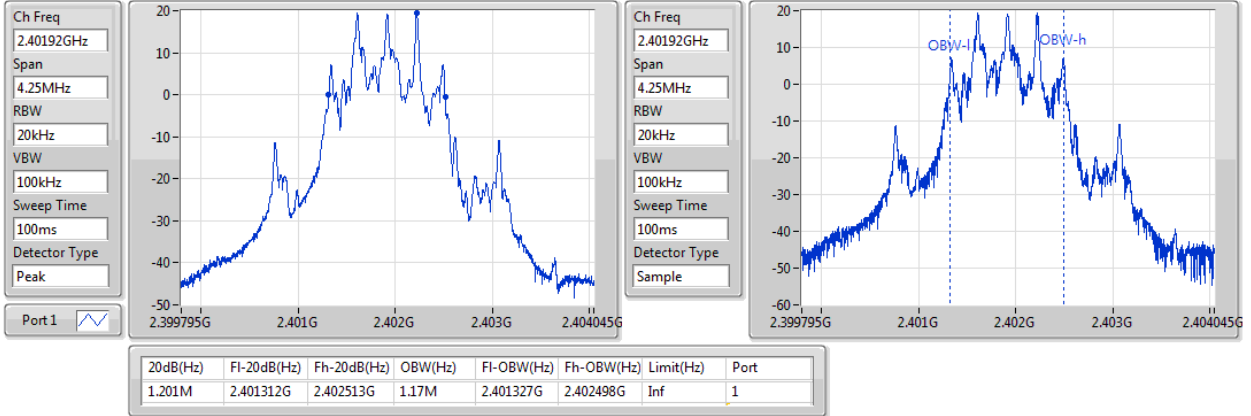
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
FHSS_Nss1_1TX	-	-	-	-
2401.92MHz_TnomVnom	Pass	Inf	1.201M	1.17M
2441.664MHz_TnomVnom	Pass	Inf	1.201M	1.177M
2479.68MHz_TnomVnom	Pass	Inf	1.205M	1.175M

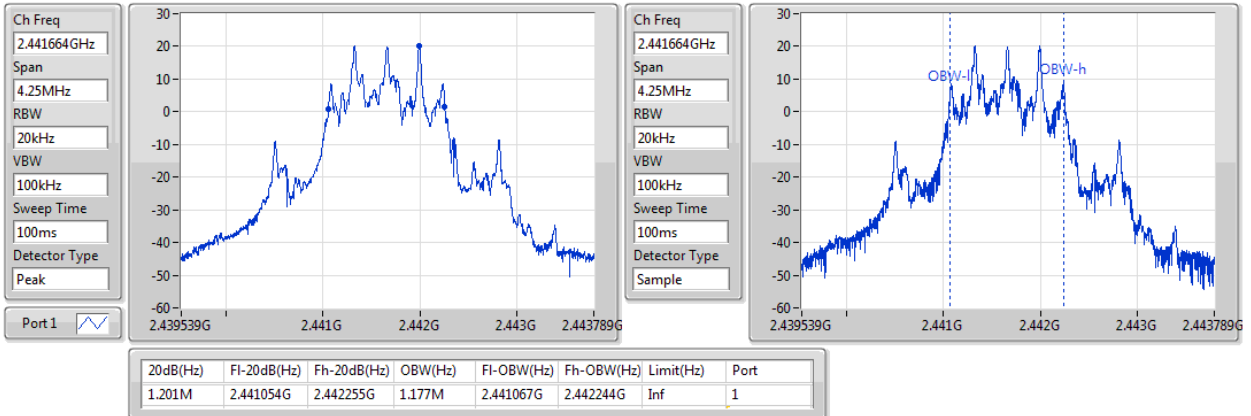
Port X-N dB = Port X 20dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

FHSS_Nss1_1TX
EBW
2401.92MHz

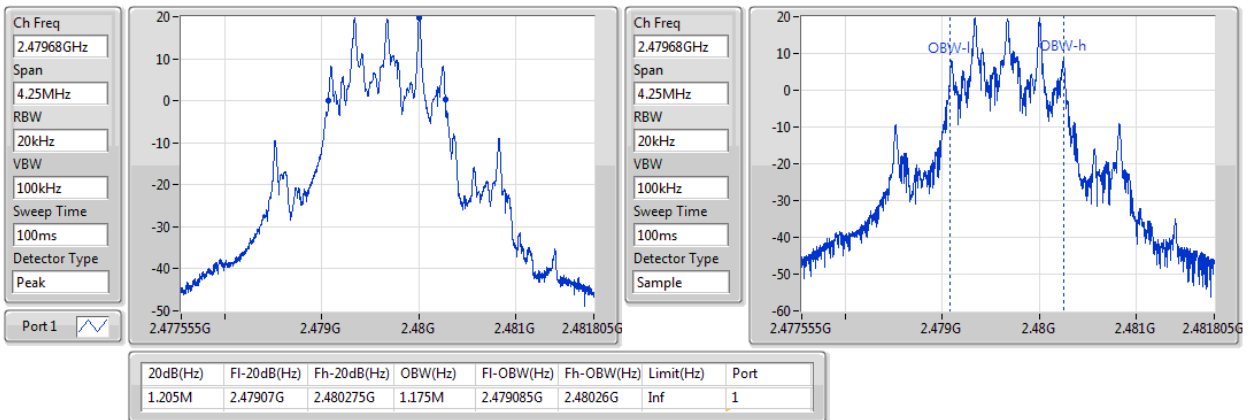
05/06/2018


FHSS_Nss1_1TX
EBW
2441.664MHz

05/06/2018


FHSS_Nss1_1TX
EBW
2479.68MHz

05/06/2018



Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
2.4-2.4835GHz	-	-
FHSS_Nss1_1TX	1.73145M	1.7073M

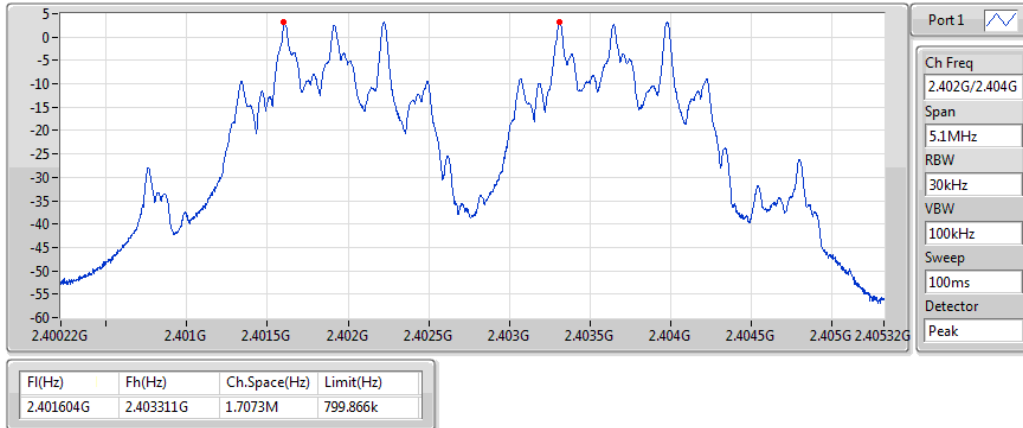
Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
FHSS_Nss1_1TX	-	-	-	-	-
2401.92MHz_TnomVnom	Pass	2.401604G	2.403311G	1.7073M	799.866k
2441.664MHz_TnomVnom	Pass	2.441989G	2.44372G	1.73145M	799.866k
2479.68MHz_TnomVnom	Pass	2.477614G	2.479343G	1.7289M	802.53k

FHSS_Nss1_1TX

Channel Separation

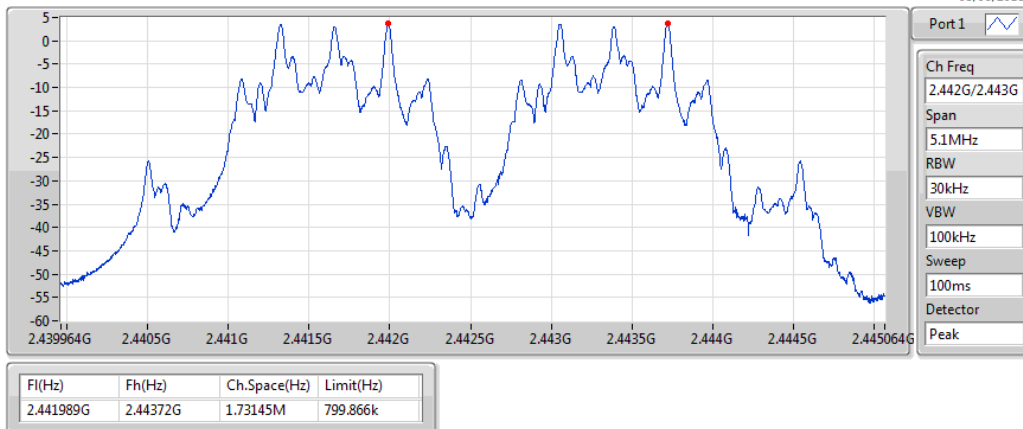
2.402G/2.404GHz



FHSS_Nss1_1TX

Channel Separation

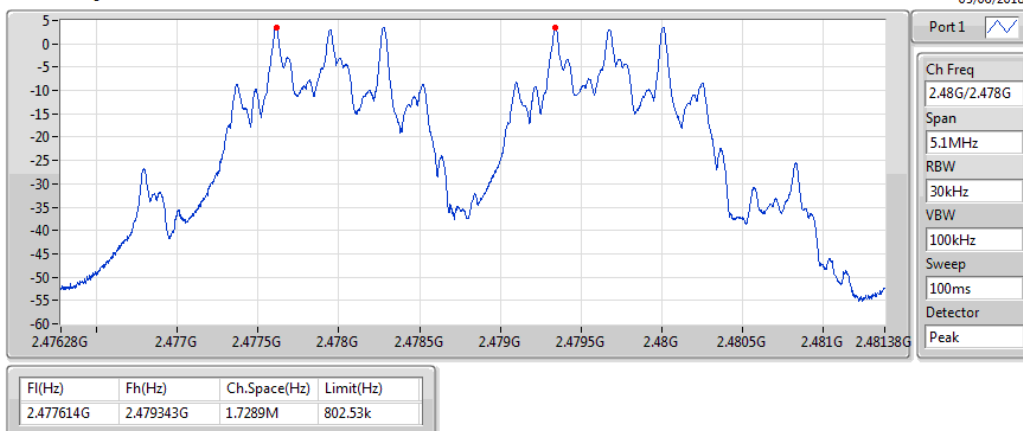
2.442G/2.443GHz



FHSS_Nss1_1TX

Channel Separation

2.48G/2.478GHz



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
FHSS_Nss1_1TX	20.76	0.11912

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
FHSS_Nss1_1TX	-	-	-	-
2401.92MHz_TnomVnom	Pass	0.00	20.56	21.00
2441.664MHz_TnomVnom	Pass	0.00	20.76	21.00
2479.68MHz_TnomVnom	Pass	0.00	20.62	21.00

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
FHSS_Nss1_1TX	19.87	0.09705

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
FHSS_Nss1_1TX	-	-	-	-
2401.92MHz_TnomVnom	Pass	0.00	19.04	21.00
2441.664MHz_TnomVnom	Pass	0.00	19.87	21.00
2479.68MHz_TnomVnom	Pass	0.00	19.68	21.00

Summary

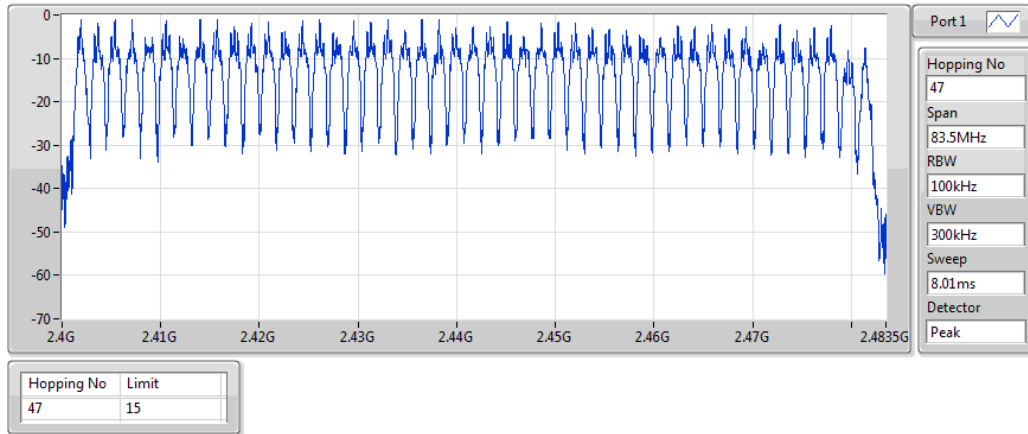
Mode	Max-Hop No
2.4-2.4835GHz	-
FHSS_Nss1_1TX	47

Result

Mode	Result	Hopping No	Limit
FHSS_Nss1_1TX	-	-	-
2441.664MHz_TnomVnom	Pass	47	15

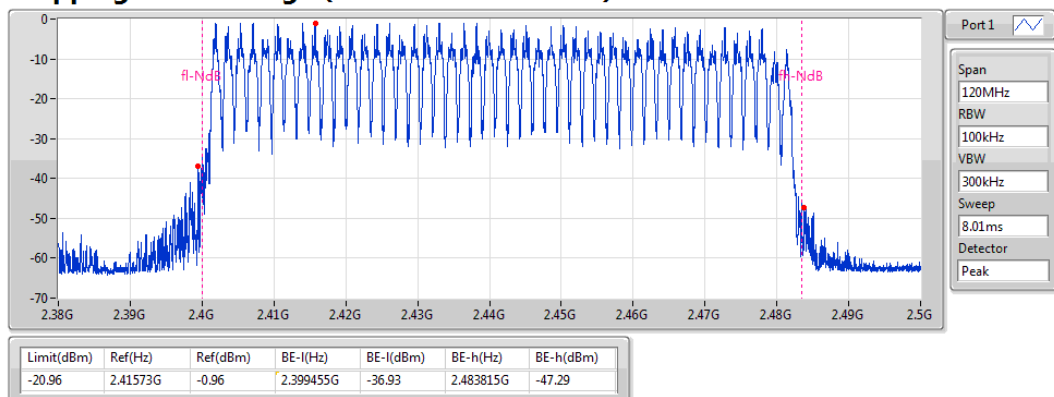
FHSS_Nss1_1TX 2441.664MHz

Hopping Ch



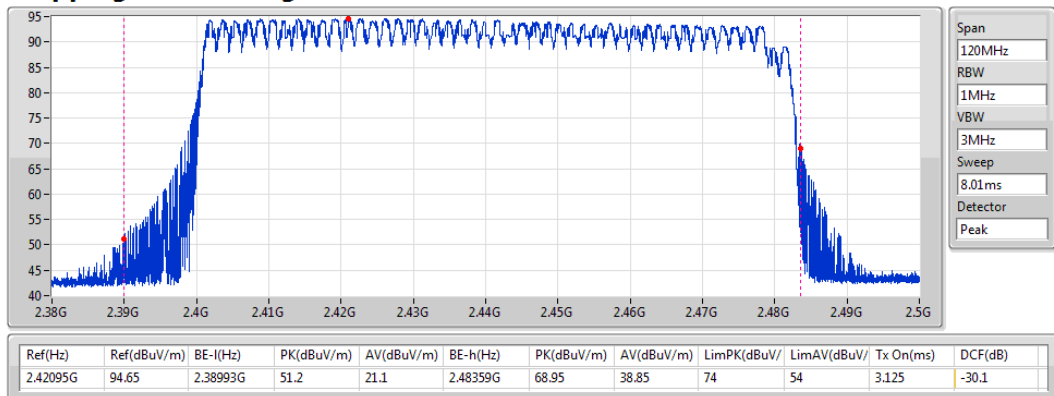
FHSS_Nss1_1TX 2441.664MHz

Hopping Ch Bandedge (Non-restricted Band)



FHSS_Nss1_1TX 2441.664MHz

Hopping Ch Bandedge (Restricted Band)



Summary

Mode	Max-Dwell (s)
2.4-2.4835GHz	-
FHSS_Nss1_1TX	81.028m

Result

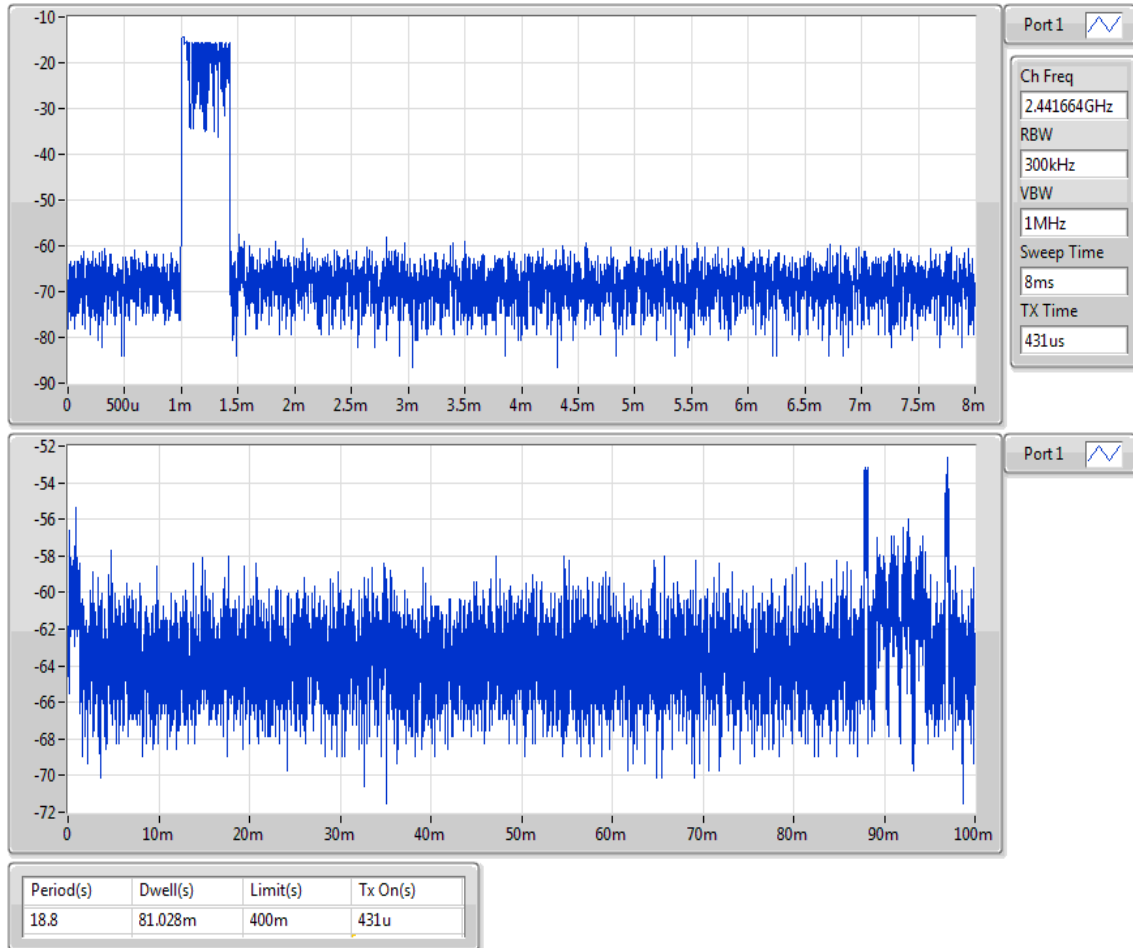
Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
FHSS_Nss1_1TX	-	-	-	-	-
2441.664MHz_TnomVnom	Pass	18.8	81.028m	400m	431u

FHSS_Nss1_1TX

2441.664MHz

Dwell

05/06/2018



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
FHSS_Nss1_1TX	Pass	2.401503G	14.36	-15.64	147.1467M	-39.95	2.399714G	-32.02	2.484894G	-58.36	15.080165G	-52.59	1

Result

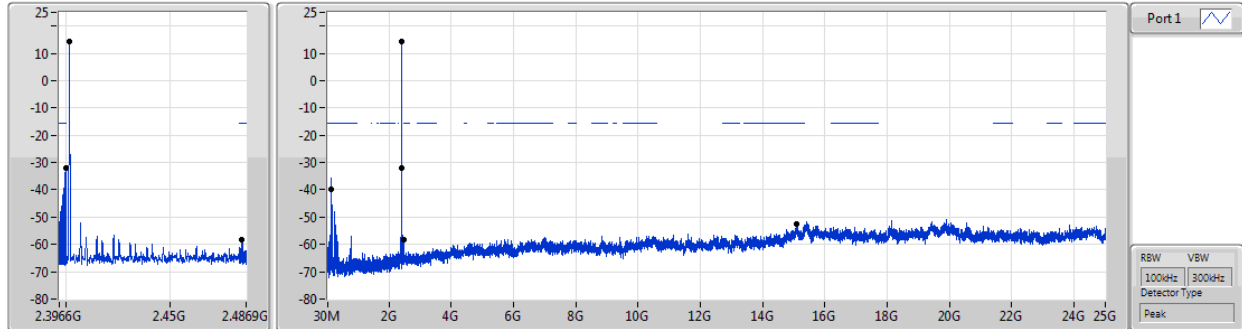
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
FHSS_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-	-
2401.92MHz_TnomVnom	Pass	2.401503G	14.36	-15.64	147.1467M	-39.95	2.399714G	-32.02	2.484894G	-58.36	15.080165G	-52.59	1
2441.664MHz_TnomVnom	Pass	2.44175G	17.25	-12.75	147.1467M	-39.87	2.39983G	-56.65	2.483888G	-57.60	15.068909G	-52.60	1
2479.68MHz_TnomVnom	Pass	2.479325G	17.12	-12.88	147.1467M	-40.02	2.3966G	-58.76	2.483554G	-47.29	15.099864G	-52.08	1

FHSS_Nss1_1TX

2401.92MHz

CSE NdB

05/06/2018



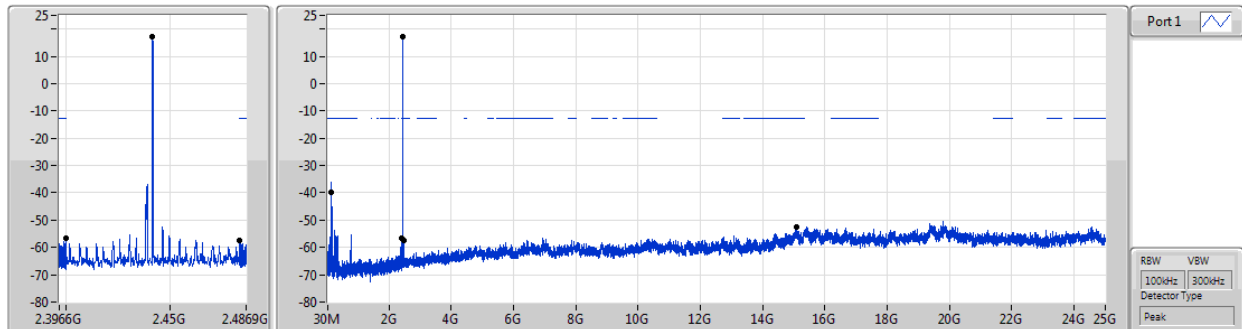
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.401503G	14.36	-15.64	147.1467M	-39.95	2.399714G	-32.02	2.484894G	-58.36	15.080165G	-52.59	1

FHSS_Nss1_1TX

2441.664MHz

CSE NdB

05/06/2018



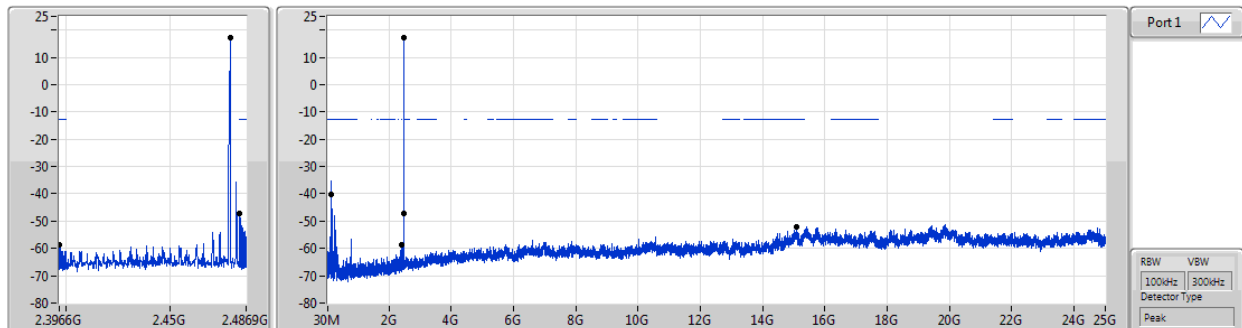
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44175G	17.25	-12.75	147.1467M	-39.87	2.39983G	-56.65	2.483888G	-57.60	15.068909G	-52.60	1

FHSS_Nss1_1TX

2479.68MHz

CSE NdB

05/06/2018



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.479325G	17.12	-12.88	147.1467M	-40.02	2.3966G	-58.76	2.483554G	-47.29	15.09864G	-52.08	1

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
FHSS_Nss1_1TX	Pass	PK	840.92M	33.45	46.00	-12.55	1.96	3	Vertical	360	1.00	-

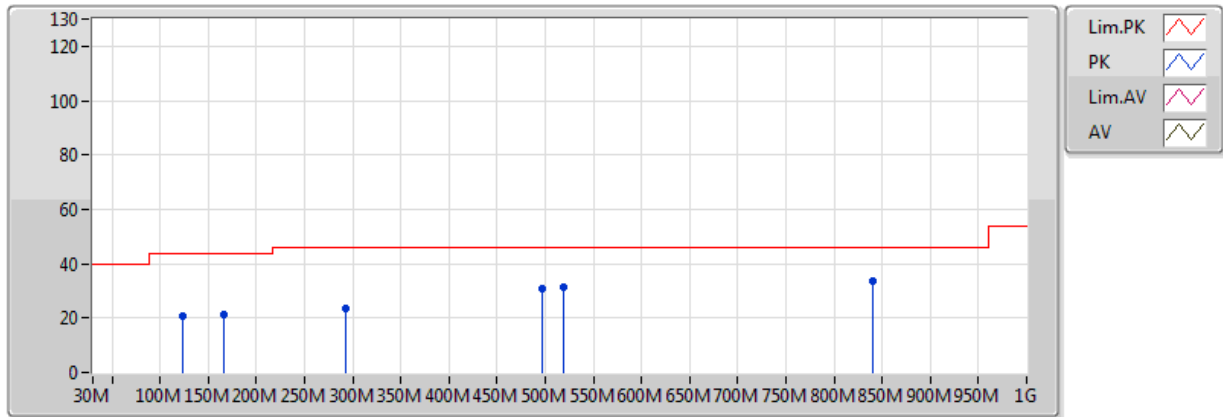
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
FHSS_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2441.664MHz	Pass	PK	123.12M	20.83	43.50	-22.67	-8.86	3	Vertical	360	1.00	-
2441.664MHz	Pass	PK	165.8M	21.45	43.50	-22.05	-10.54	3	Vertical	360	1.00	-
2441.664MHz	Pass	PK	291.9M	23.64	46.00	-22.36	-5.96	3	Vertical	360	1.00	-
2441.664MHz	Pass	PK	497.54M	30.94	46.00	-15.06	-2.43	3	Vertical	360	1.00	-
2441.664MHz	Pass	PK	518.88M	31.38	46.00	-14.62	-2.36	3	Vertical	360	1.00	-
2441.664MHz	Pass	PK	840.92M	33.45	46.00	-12.55	1.96	3	Vertical	360	1.00	-
2441.664MHz	Pass	PK	165.8M	22.24	43.50	-21.26	-10.54	3	Horizontal	0	1.00	-
2441.664MHz	Pass	PK	227.88M	21.78	46.00	-24.22	-9.66	3	Horizontal	0	1.00	-
2441.664MHz	Pass	PK	274.44M	23.26	46.00	-22.74	-6.33	3	Horizontal	0	1.00	-
2441.664MHz	Pass	PK	311.3M	26.88	46.00	-19.12	-5.49	3	Horizontal	0	1.00	-
2441.664MHz	Pass	PK	842.86M	32.67	46.00	-13.33	1.97	3	Horizontal	0	1.00	-
2441.664MHz	Pass	PK	910.76M	33.03	46.00	-12.97	2.73	3	Horizontal	0	1.00	-

FHSS_Nss1_1TX

2441.664MHz_Battery

02/06/2018

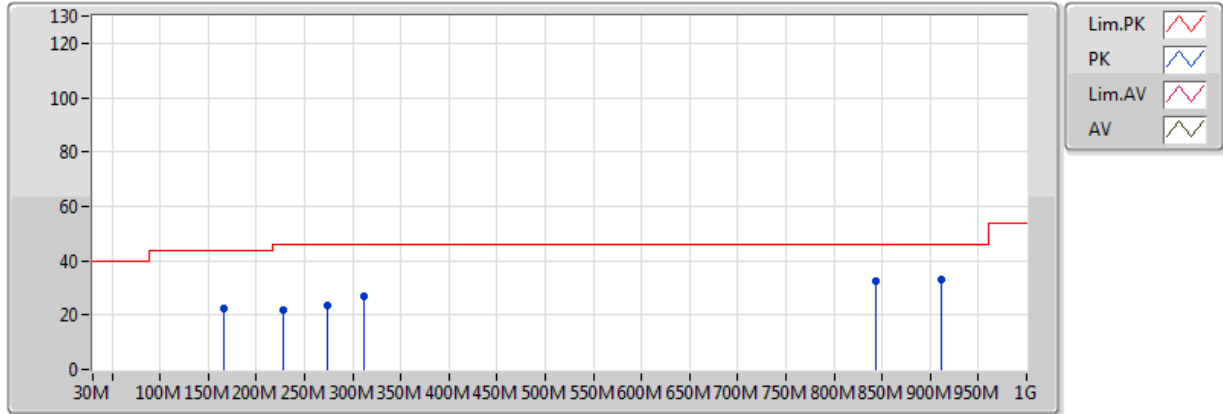


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	123.12M	20.83	43.50	-22.67	-8.86	3	Vertical	360	1.00	-
PK	165.8M	21.45	43.50	-22.05	-10.54	3	Vertical	360	1.00	-
PK	291.9M	23.64	46.00	-22.36	-5.96	3	Vertical	360	1.00	-
PK	497.54M	30.94	46.00	-15.06	-2.43	3	Vertical	360	1.00	-
PK	518.88M	31.38	46.00	-14.62	-2.36	3	Vertical	360	1.00	-
PK	840.92M	33.45	46.00	-12.55	1.96	3	Vertical	360	1.00	-

FHSS_Nss1_1TX

2441.664MHz_Battery

02/06/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	165.8M	22.24	43.50	-21.26	-10.54	3	Horizontal	0	1.00	-
PK	227.88M	21.78	46.00	-24.22	-9.66	3	Horizontal	0	1.00	-
PK	274.44M	23.26	46.00	-22.74	-6.33	3	Horizontal	0	1.00	-
PK	311.3M	26.88	46.00	-19.12	-5.49	3	Horizontal	0	1.00	-
PK	842.86M	32.67	46.00	-13.33	1.97	3	Horizontal	0	1.00	-
PK	910.76M	33.03	46.00	-12.97	2.73	3	Horizontal	0	1.00	-

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
FHSS_Nss1_1TX	Pass	PK	2.483502G	61.00	74.00	-13.00	32.61	3	Vertical	357	1.41	-

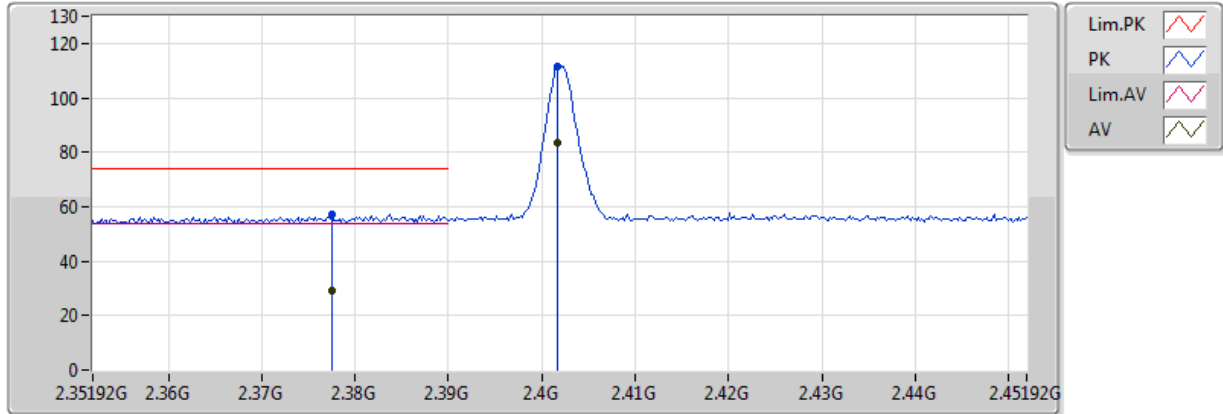
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
FHSS_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2401.92MHz	Pass	AV	2.37752G	29.26	54.00	-24.74	32.23	3	Vertical	339	1.00	-
2401.92MHz	Pass	AV	2.40172G	83.63	Inf	-Inf	32.32	3	Vertical	339	1.00	-
2401.92MHz	Pass	PK	2.37752G	57.22	74.00	-16.78	32.23	3	Vertical	339	1.00	-
2401.92MHz	Pass	PK	2.40172G	111.59	Inf	-Inf	32.32	3	Vertical	339	1.00	-
2401.92MHz	Pass	AV	2.37252G	28.60	54.00	-25.40	32.21	3	Horizontal	329	2.11	-
2401.92MHz	Pass	AV	2.40172G	75.11	Inf	-Inf	32.32	3	Horizontal	329	2.11	-
2401.92MHz	Pass	PK	2.37252G	56.56	74.00	-17.44	32.21	3	Horizontal	329	2.11	-
2401.92MHz	Pass	PK	2.40172G	103.07	Inf	-Inf	32.32	3	Horizontal	329	2.11	-
2401.92MHz	Pass	AV	4.80354G	20.59	54.00	-33.41	2.99	3	Vertical	192	1.01	-
2401.92MHz	Pass	PK	4.80354G	48.55	74.00	-25.45	2.99	3	Vertical	192	1.01	-
2401.92MHz	Pass	AV	4.80396G	19.05	54.00	-34.95	2.99	3	Horizontal	47	2.33	-
2401.92MHz	Pass	PK	4.80396G	47.01	74.00	-26.99	2.99	3	Horizontal	47	2.33	-
2441.664MHz	Pass	AV	2.372464G	28.01	54.00	-25.99	32.21	3	Vertical	353	1.75	-
2441.664MHz	Pass	AV	2.441264G	83.88	Inf	-Inf	32.46	3	Vertical	353	1.75	-
2441.664MHz	Pass	AV	2.499998G	28.35	54.00	-25.65	32.67	3	Vertical	353	1.75	-
2441.664MHz	Pass	PK	2.372464G	55.97	74.00	-18.03	32.21	3	Vertical	353	1.75	-
2441.664MHz	Pass	PK	2.441264G	111.84	Inf	-Inf	32.46	3	Vertical	353	1.75	-
2441.664MHz	Pass	PK	2.499998G	56.31	74.00	-17.69	32.67	3	Vertical	353	1.75	-
2441.664MHz	Pass	AV	2.359664G	28.39	54.00	-25.61	32.16	3	Horizontal	56	1.26	-
2441.664MHz	Pass	AV	2.442064G	76.48	Inf	-Inf	32.46	3	Horizontal	56	1.26	-
2441.664MHz	Pass	AV	2.496464G	29.69	54.00	-24.31	32.66	3	Horizontal	56	1.26	-
2441.664MHz	Pass	PK	2.359664G	56.35	74.00	-17.65	32.16	3	Horizontal	56	1.26	-
2441.664MHz	Pass	PK	2.442064G	104.44	Inf	-Inf	32.46	3	Horizontal	56	1.26	-
2441.664MHz	Pass	PK	2.496464G	57.65	74.00	-16.35	32.66	3	Horizontal	56	1.26	-
2441.664MHz	Pass	AV	4.884072G	20.34	54.00	-33.66	3.16	3	Vertical	174	1.11	-
2441.664MHz	Pass	PK	4.884072G	48.30	74.00	-25.70	3.16	3	Vertical	174	1.11	-
2441.664MHz	Pass	AV	4.882632G	19.55	54.00	-34.45	3.16	3	Horizontal	72	1.03	-
2441.664MHz	Pass	PK	4.882632G	47.51	74.00	-26.49	3.16	3	Horizontal	72	1.03	-
2479.68MHz	Pass	AV	2.47948G	83.91	Inf	-Inf	32.60	3	Vertical	357	1.41	-
2479.68MHz	Pass	AV	2.483502G	33.04	54.00	-20.96	32.61	3	Vertical	357	1.41	-
2479.68MHz	Pass	PK	2.47948G	111.87	Inf	-Inf	32.60	3	Vertical	357	1.41	-
2479.68MHz	Pass	PK	2.483502G	61.00	74.00	-13.00	32.61	3	Vertical	357	1.41	-
2479.68MHz	Pass	AV	2.47948G	79.30	Inf	-Inf	32.60	3	Horizontal	61	1.50	-
2479.68MHz	Pass	AV	2.48368G	30.52	54.00	-23.48	32.61	3	Horizontal	61	1.50	-
2479.68MHz	Pass	PK	2.47948G	107.26	Inf	-Inf	32.60	3	Horizontal	61	1.50	-
2479.68MHz	Pass	PK	2.48368G	58.48	74.00	-15.52	32.61	3	Horizontal	61	1.50	-
2479.68MHz	Pass	AV	4.95974G	18.52	54.00	-35.48	3.33	3	Vertical	169	1.01	-
2479.68MHz	Pass	PK	4.95974G	46.48	74.00	-27.52	3.33	3	Vertical	169	1.01	-
2479.68MHz	Pass	AV	4.9572G	17.32	54.00	-36.68	3.32	3	Horizontal	37	1.01	-
2479.68MHz	Pass	PK	4.9572G	45.28	74.00	-28.72	3.32	3	Horizontal	37	1.01	-

FHSS_Nss1_1TX

2401.92MHz_TX

02/06/2018

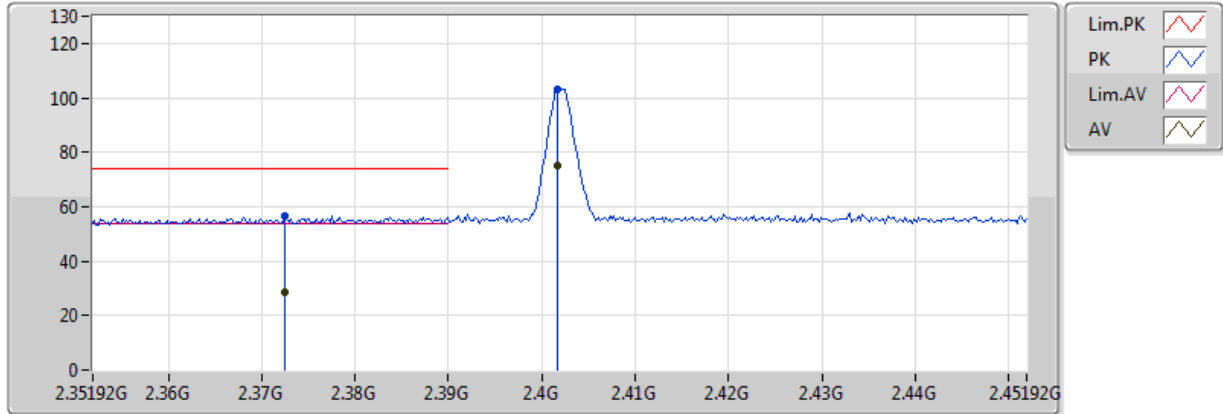


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.37752G	29.26	54.00	-24.74	32.23	3	Vertical	339	1.00	-
AV	2.40172G	83.63	Inf	-Inf	32.32	3	Vertical	339	1.00	-
PK	2.37752G	57.22	74.00	-16.78	32.23	3	Vertical	339	1.00	-
PK	2.40172G	111.59	Inf	-Inf	32.32	3	Vertical	339	1.00	-

FHSS_Nss1_1TX

2401.92MHz_TX

02/06/2018

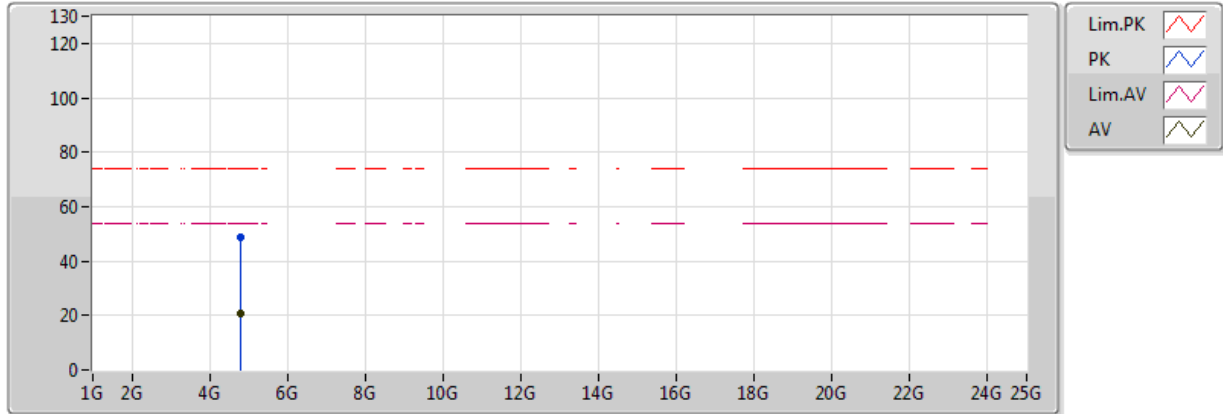


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.37252G	28.60	54.00	-25.40	32.21	3	Horizontal	329	2.11	-
AV	2.40172G	75.11	Inf	-Inf	32.32	3	Horizontal	329	2.11	-
PK	2.37252G	56.56	74.00	-17.44	32.21	3	Horizontal	329	2.11	-
PK	2.40172G	103.07	Inf	-Inf	32.32	3	Horizontal	329	2.11	-

FHSS_Nss1_1TX

2401.92MHz_TX

02/06/2018

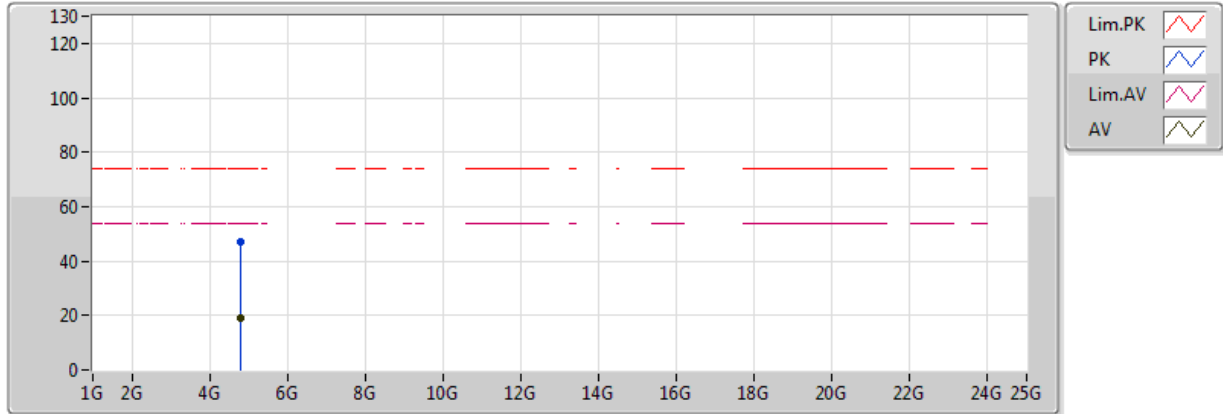


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80354G	20.59	54.00	-33.41	2.99	3	Vertical	192	1.01	-
PK	4.80354G	48.55	74.00	-25.45	2.99	3	Vertical	192	1.01	-

FHSS_Nss1_1TX

2401.92MHz_TX

02/06/2018

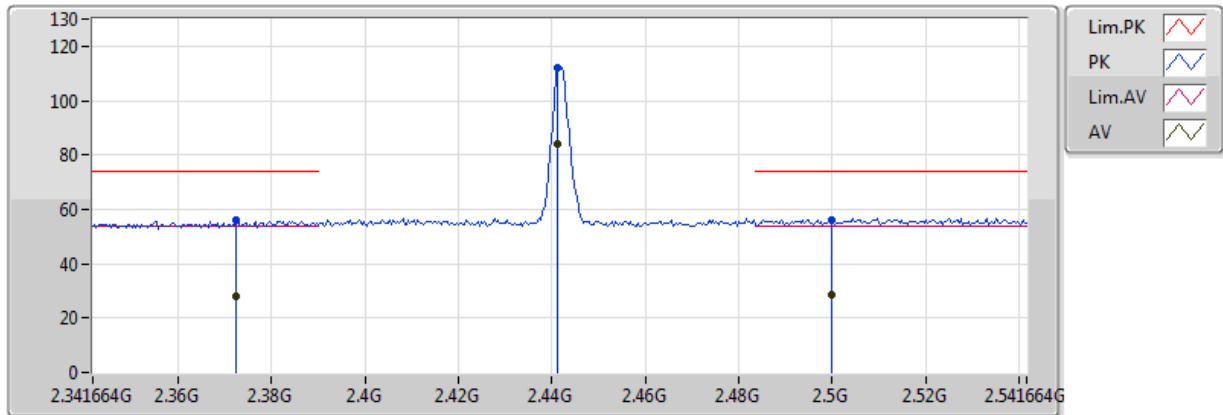


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80396G	19.05	54.00	-34.95	2.99	3	Horizontal	47	2.33	-
PK	4.80396G	47.01	74.00	-26.99	2.99	3	Horizontal	47	2.33	-

FHSS_Nss1_1TX

2441.664MHz_TX

02/06/2018

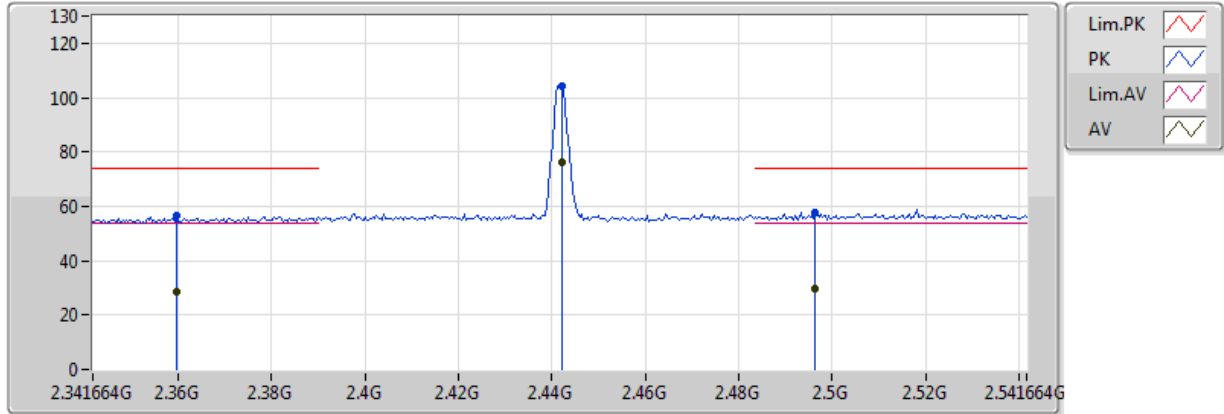


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.372464G	28.01	54.00	-25.99	32.21	3	Vertical	353	1.75	-
AV	2.441264G	83.88	Inf	-Inf	32.46	3	Vertical	353	1.75	-
AV	2.499998G	28.35	54.00	-25.65	32.67	3	Vertical	353	1.75	-
PK	2.372464G	55.97	74.00	-18.03	32.21	3	Vertical	353	1.75	-
PK	2.441264G	111.84	Inf	-Inf	32.46	3	Vertical	353	1.75	-
PK	2.499998G	56.31	74.00	-17.69	32.67	3	Vertical	353	1.75	-

FHSS_Nss1_1TX

2441.664MHz_TX

02/06/2018

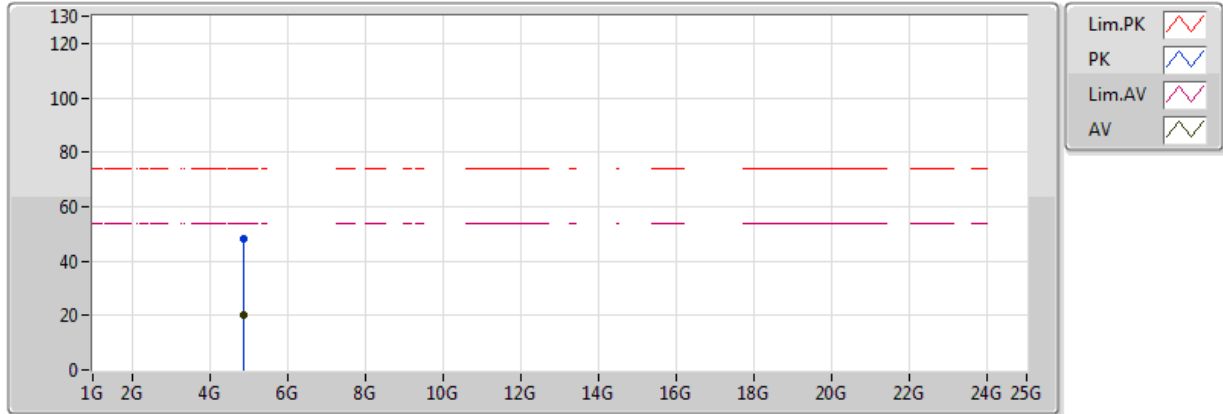


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.359664G	28.39	54.00	-25.61	32.16	3	Horizontal	56	1.26	-
AV	2.442064G	76.48	Inf	-Inf	32.46	3	Horizontal	56	1.26	-
AV	2.496464G	29.69	54.00	-24.31	32.66	3	Horizontal	56	1.26	-
PK	2.359664G	56.35	74.00	-17.65	32.16	3	Horizontal	56	1.26	-
PK	2.442064G	104.44	Inf	-Inf	32.46	3	Horizontal	56	1.26	-
PK	2.496464G	57.65	74.00	-16.35	32.66	3	Horizontal	56	1.26	-

FHSS_Nss1_1TX

2441.664MHz_TX

02/06/2018

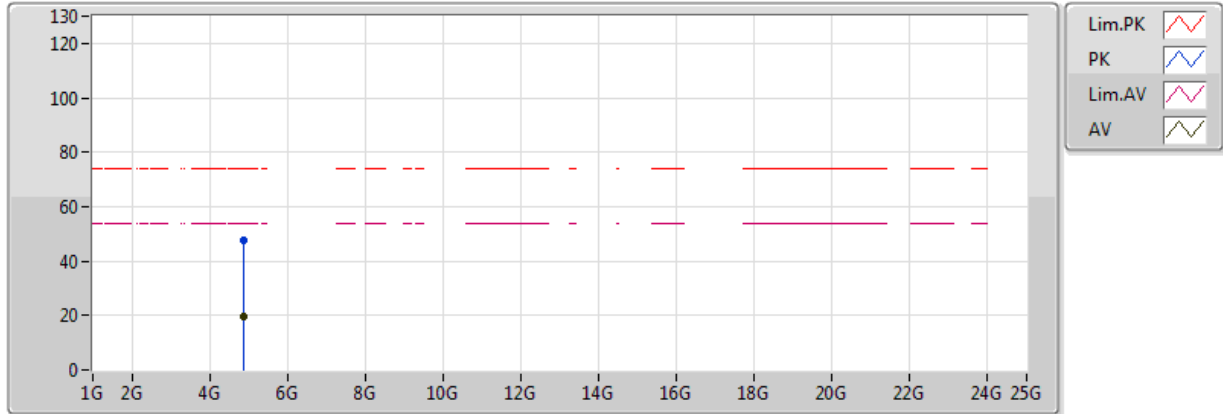


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.884072G	20.34	54.00	-33.66	3.16	3	Vertical	174	1.11	-
PK	4.884072G	48.30	74.00	-25.70	3.16	3	Vertical	174	1.11	-

FHSS_Nss1_1TX

2441.664MHz_TX

02/06/2018

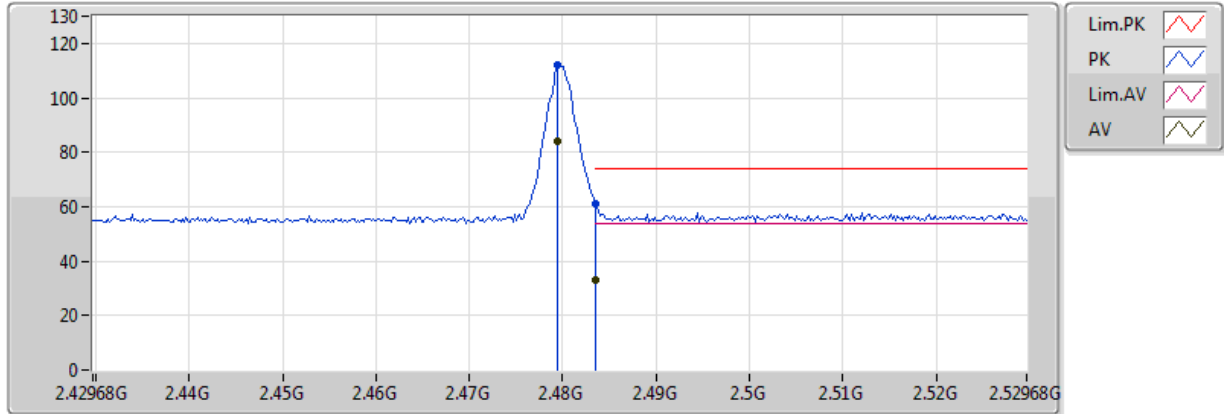


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.882632G	19.55	54.00	-34.45	3.16	3	Horizontal	72	1.03	-
PK	4.882632G	47.51	74.00	-26.49	3.16	3	Horizontal	72	1.03	-

FHSS_Nss1_1TX

2479.68MHz_TX

02/06/2018

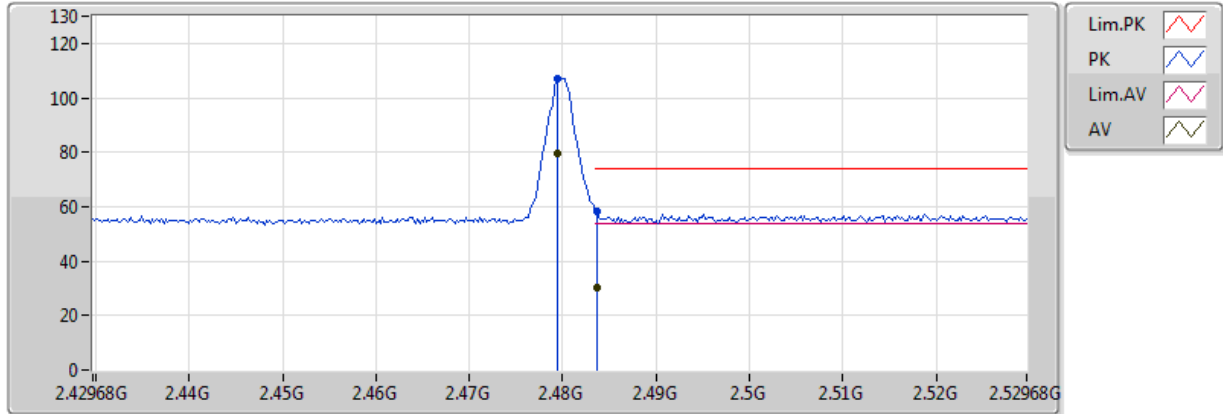


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.47948G	83.91	Inf	-Inf	32.60	3	Vertical	357	1.41	-
AV	2.483502G	33.04	54.00	-20.96	32.61	3	Vertical	357	1.41	-
PK	2.47948G	111.87	Inf	-Inf	32.60	3	Vertical	357	1.41	-
PK	2.483502G	61.00	74.00	-13.00	32.61	3	Vertical	357	1.41	-

FHSS_Nss1_1TX

2479.68MHz_TX

02/06/2018

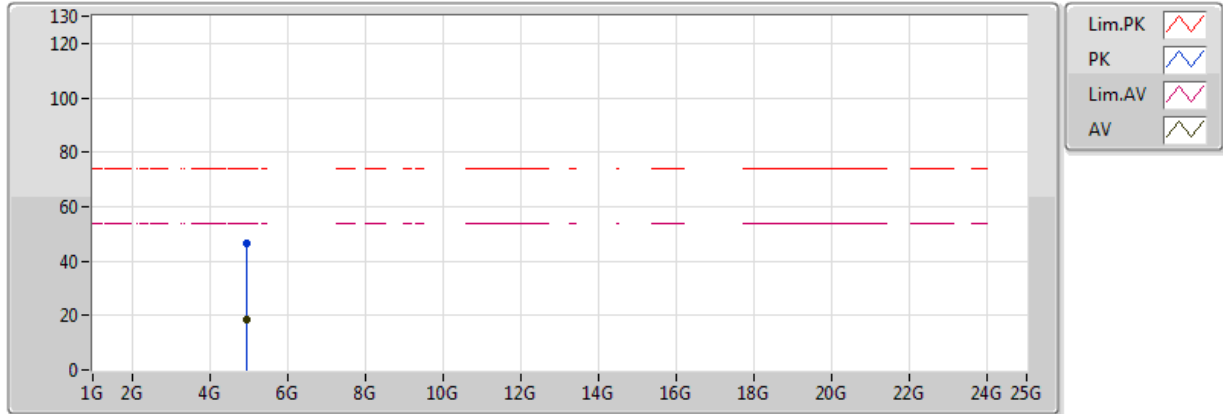


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.47948G	79.30	Inf	-Inf	32.60	3	Horizontal	61	1.50	-
AV	2.48368G	30.52	54.00	-23.48	32.61	3	Horizontal	61	1.50	-
PK	2.47948G	107.26	Inf	-Inf	32.60	3	Horizontal	61	1.50	-
PK	2.48368G	58.48	74.00	-15.52	32.61	3	Horizontal	61	1.50	-

FHSS_Nss1_1TX

2479.68MHz_TX

02/06/2018

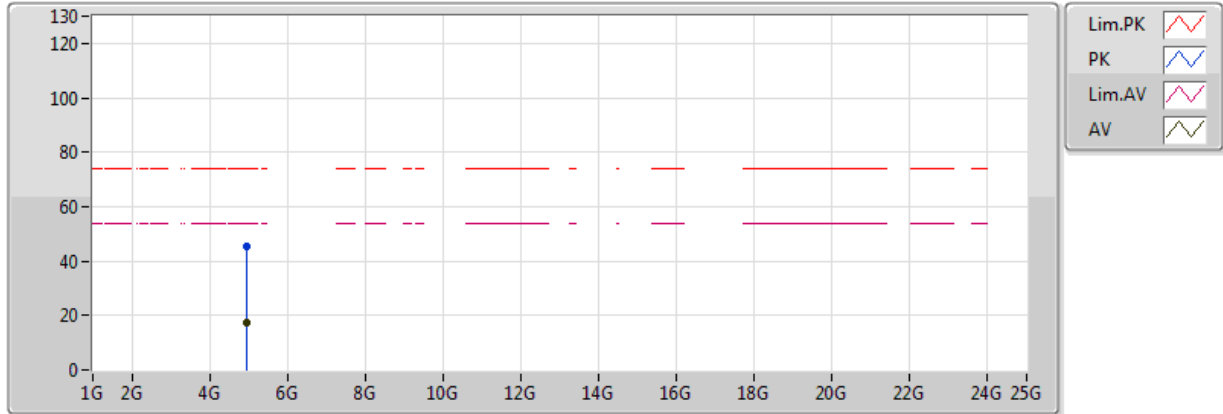


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.95974G	18.52	54.00	-35.48	3.33	3	Vertical	169	1.01	-
PK	4.95974G	46.48	74.00	-27.52	3.33	3	Vertical	169	1.01	-

FHSS_Nss1_1TX

2479.68MHz_TX

02/06/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.9572G	17.32	54.00	-36.68	3.32	3	Horizontal	37	1.01	-
PK	4.9572G	45.28	74.00	-28.72	3.32	3	Horizontal	37	1.01	-

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
FHSS_Nss1_1TX	Pass	PK	873.9M	33.42	46.00	-12.58	2.27	3	Horizontal	360	1.00	-

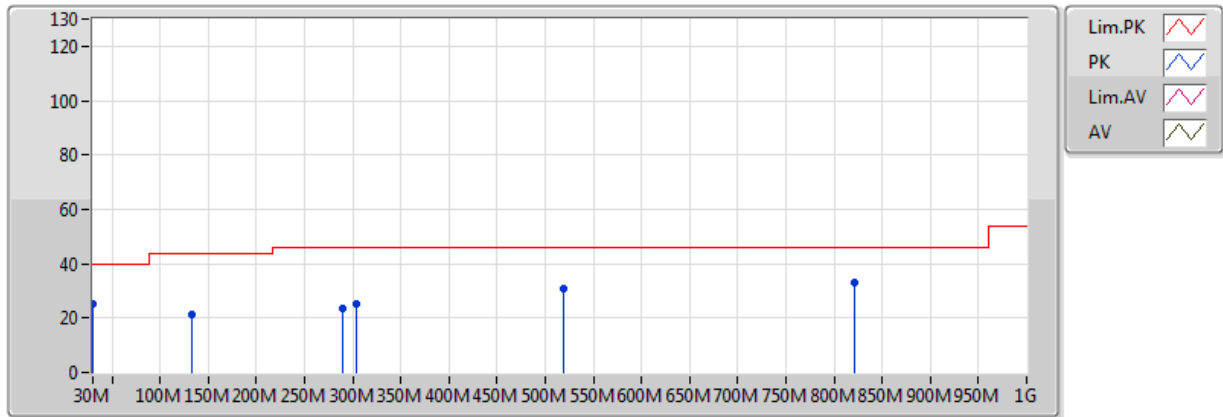
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
FHSS_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2441.664MHz	Pass	PK	30M	25.22	40.00	-14.78	-4.45	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	132.82M	21.30	43.50	-22.20	-9.22	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	289.96M	23.80	46.00	-22.20	-6.00	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	303.54M	25.19	46.00	-20.81	-5.67	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	518.88M	31.08	46.00	-14.92	-2.36	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	821.52M	33.19	46.00	-12.81	1.59	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	113.42M	22.39	43.50	-21.11	-9.00	3	Horizontal	360	1.00	-
2441.664MHz	Pass	PK	165.8M	21.49	43.50	-22.01	-10.54	3	Horizontal	360	1.00	-
2441.664MHz	Pass	PK	256.98M	23.27	46.00	-22.73	-6.04	3	Horizontal	360	1.00	-
2441.664MHz	Pass	PK	311.3M	27.10	46.00	-18.90	-5.49	3	Horizontal	360	1.00	-
2441.664MHz	Pass	PK	456.8M	29.23	46.00	-16.77	-2.82	3	Horizontal	360	1.00	-
2441.664MHz	Pass	PK	873.9M	33.42	46.00	-12.58	2.27	3	Horizontal	360	1.00	-

FHSS_Nss1_1RX

2441.664MHz_Battery

02/06/2018

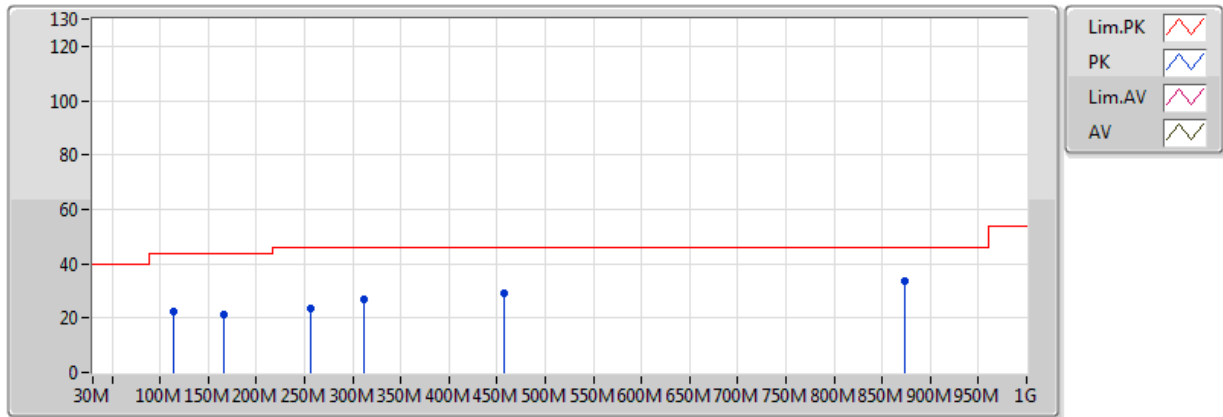


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	30M	25.22	40.00	-14.78	-4.45	3	Vertical	0	1.00	-
PK	132.82M	21.30	43.50	-22.20	-9.22	3	Vertical	0	1.00	-
PK	289.96M	23.80	46.00	-22.20	-6.00	3	Vertical	0	1.00	-
PK	303.54M	25.19	46.00	-20.81	-5.67	3	Vertical	0	1.00	-
PK	518.88M	31.08	46.00	-14.92	-2.36	3	Vertical	0	1.00	-
PK	821.52M	33.19	46.00	-12.81	1.59	3	Vertical	0	1.00	-

FHSS_Nss1_1RX

2441.664MHz_Battery

02/06/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	113.42M	22.39	43.50	-21.11	-9.00	3	Horizontal	360	1.00	-
PK	165.8M	21.49	43.50	-22.01	-10.54	3	Horizontal	360	1.00	-
PK	256.98M	23.27	46.00	-22.73	-6.04	3	Horizontal	360	1.00	-
PK	311.3M	27.10	46.00	-18.90	-5.49	3	Horizontal	360	1.00	-
PK	456.8M	29.23	46.00	-16.77	-2.82	3	Horizontal	360	1.00	-
PK	873.9M	33.42	46.00	-12.58	2.27	3	Horizontal	360	1.00	-



RSE RX above 1GHz Result

Appendix G.2

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
FHSS_Nss1_1TX	Pass	PK	6.9G	49.16	74.00	-24.84	7.71	3	Vertical	0	1.00	-

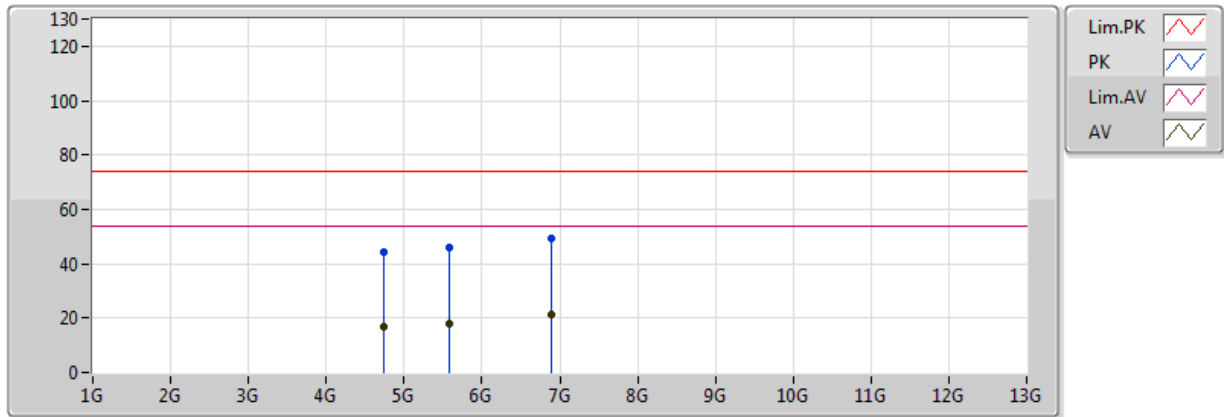
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
FHSS_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-
2441.664MHz	Pass	AV	4.74G	16.57	54.00	-37.43	2.85	3	Vertical	0	1.00	-
2441.664MHz	Pass	AV	5.58G	18.04	54.00	-35.96	4.44	3	Vertical	0	1.00	-
2441.664MHz	Pass	AV	6.9G	21.20	54.00	-32.80	7.71	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	4.74G	44.53	74.00	-29.47	2.85	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	5.58G	46.00	74.00	-28.00	4.44	3	Vertical	0	1.00	-
2441.664MHz	Pass	PK	6.9G	49.16	74.00	-24.84	7.71	3	Vertical	0	1.00	-
2441.664MHz	Pass	AV	3.18G	14.16	54.00	-39.84	-0.28	3	Horizontal	360	1.00	-
2441.664MHz	Pass	AV	4.35G	16.43	54.00	-37.57	1.96	3	Horizontal	360	1.00	-
2441.664MHz	Pass	AV	5.459995G	17.68	54.00	-36.32	4.25	3	Horizontal	360	1.00	-
2441.664MHz	Pass	PK	3.18G	42.12	74.00	-31.88	-0.28	3	Horizontal	360	1.00	-
2441.664MHz	Pass	PK	4.35G	44.39	74.00	-29.61	1.96	3	Horizontal	360	1.00	-
2441.664MHz	Pass	PK	5.459995G	45.64	74.00	-28.36	4.25	3	Horizontal	360	1.00	-

FHSS_Nss1_1RX

2441.664MHz_RX

02/06/2018

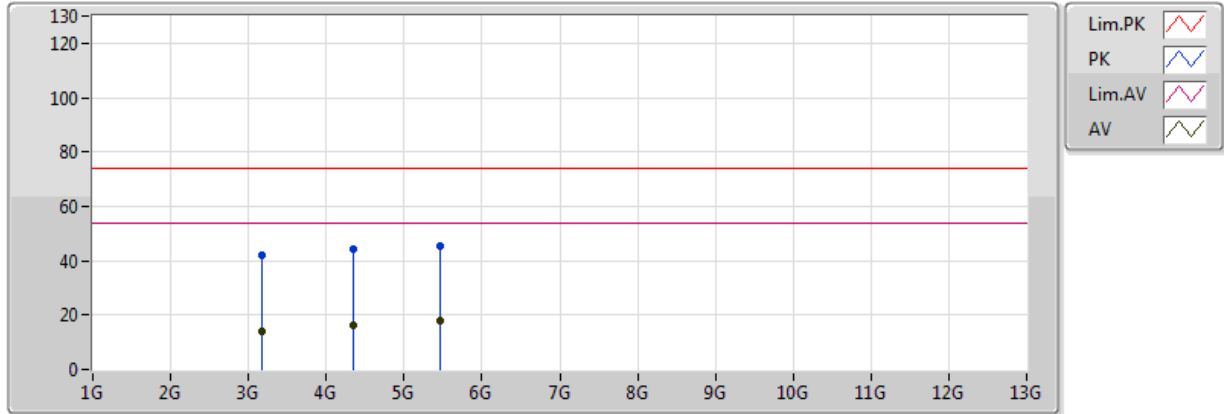


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.74G	16.57	54.00	-37.43	2.85	3	Vertical	0	1.00	-
AV	5.58G	18.04	54.00	-35.96	4.44	3	Vertical	0	1.00	-
AV	6.9G	21.20	54.00	-32.80	7.71	3	Vertical	0	1.00	-
PK	4.74G	44.53	74.00	-29.47	2.85	3	Vertical	0	1.00	-
PK	5.58G	46.00	74.00	-28.00	4.44	3	Vertical	0	1.00	-
PK	6.9G	49.16	74.00	-24.84	7.71	3	Vertical	0	1.00	-

FHSS_Nss1_1RX

2441.664MHz_RX

02/06/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	3.18G	14.16	54.00	-39.84	-0.28	3	Horizontal	360	1.00	-
AV	4.35G	16.43	54.00	-37.57	1.96	3	Horizontal	360	1.00	-
AV	5.459995G	17.68	54.00	-36.32	4.25	3	Horizontal	360	1.00	-
PK	3.18G	42.12	74.00	-31.88	-0.28	3	Horizontal	360	1.00	-
PK	4.35G	44.39	74.00	-29.61	1.96	3	Horizontal	360	1.00	-
PK	5.459995G	45.64	74.00	-28.36	4.25	3	Horizontal	360	1.00	-