

NCC Test Report

Equipment : Wireless RF Module
Brand Name : Clear-Com
Model Name : XCVR2G4A
Applicant/ : CLEAR-COM LLC
Manufacturer : 1301 Marina Village Pkwy, Suite 105 Alameda,
California, 94501 United States
Standard : LP0002 Section 3.10 (2018-01-10)

The product was received on Mar. 01, 2018, and testing was started from Apr. 24, 2018 and completed on May 08, 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.)

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APPENDIX I. TEST PHOTOS

PHOTOGRAPHS OF EUT V01



History of this test report

[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: Sam Tsai

Report Producer: Jenny Yang

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	2403.648-2479.68	1-45 [45]

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	XCVR2G4A RFP	PCB	fixed on board	3
2	2	Clear-Com, an HME Company	XCVR2G4A RFP	PCB	fixed on board	3

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 AC Adapter
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
AC Conduction	CO04-HY	Daniel	22.6°C / 57%	24/Apr/2018
RF Conducted	TH07-HY	Andy	23.5°C / 65%	08/May/2018
Radiated	03CH03-HY	Daniel	22.1°C / 57%	08/May/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	110V

2.2 Test Channel Mode

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

Mode	Power Setting
FHSS_Nss1_1TX	-
2403.65MHz	Default
2438.20MHz	Default
2479.68MHz	Default

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX & CRX
1	Adapter mode

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	Adapter mode		
Operating Mode > 1GHz	CTX & CRX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

2.4 Support Equipment

Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Adapter for EUT	eUrasia	ATS050T-P240	-

Note: Support equipment No.1 was provided by customer.

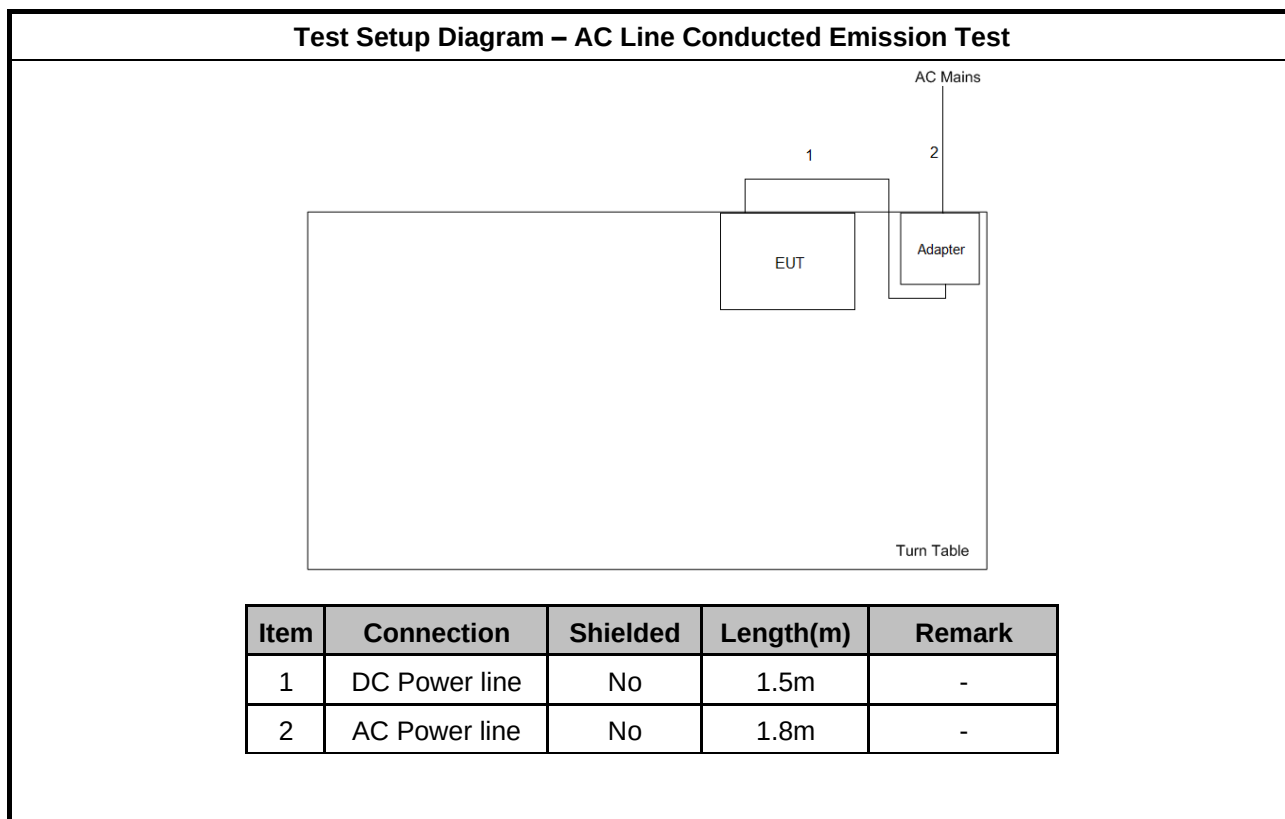
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	R33002
2	Adapter for NB	DELL	HA65NM130	R35737
3	Adapter for EUT	eUrasia	ATS050T-P240	-

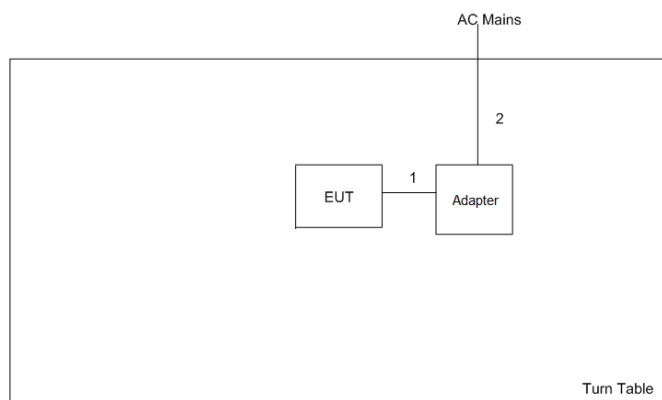
Note: Support equipment No.3 was provided by customer.

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Adapter for EUT	eUrasia	ATS050T-P240	-

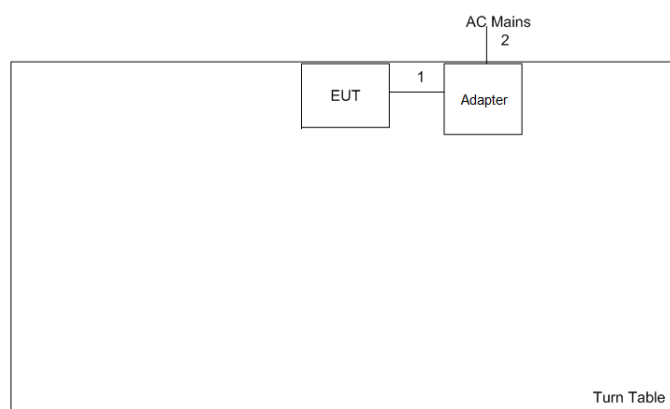
Note: Support equipment No.1 was provided by customer.

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test - TX


Item	Connection	Shielded	Length(m)	Remark
1	DC Power line	No	1.5m	-
2	AC Power line	No	1.8m	-

Test Setup Diagram - Radiated Test - RX


Item	Connection	Shielded	Length(m)	Remark
1	DC Power line	No	1.5m	-
2	AC Power line	No	1.8m	-

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.

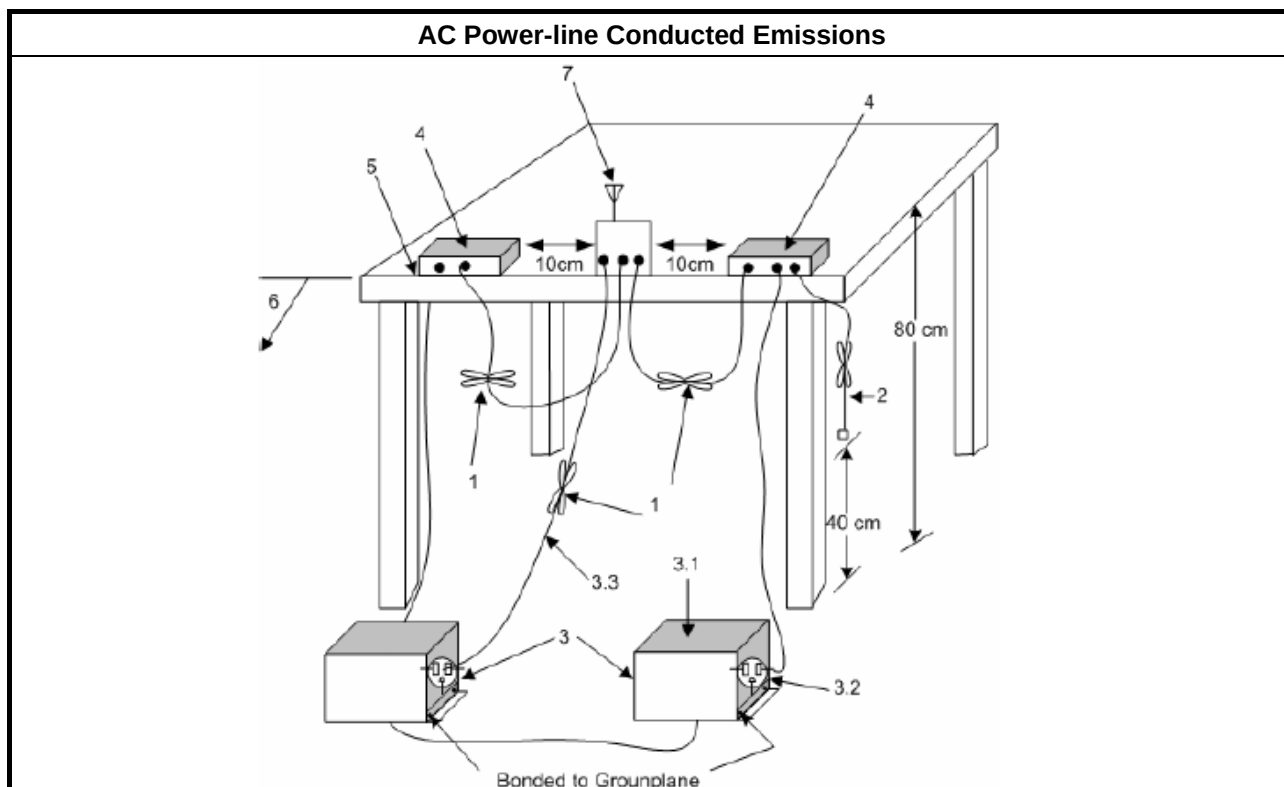
3.1.2 Measuring Instruments

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

Refer as Appendix A

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	

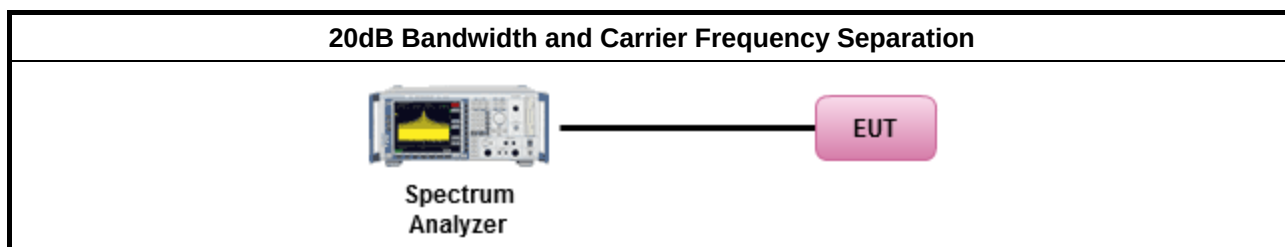
3.2.2 Measuring Instruments

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 B

3.2.6 Test Result of Carrier Frequency Separation

Refer as Appendix B

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	

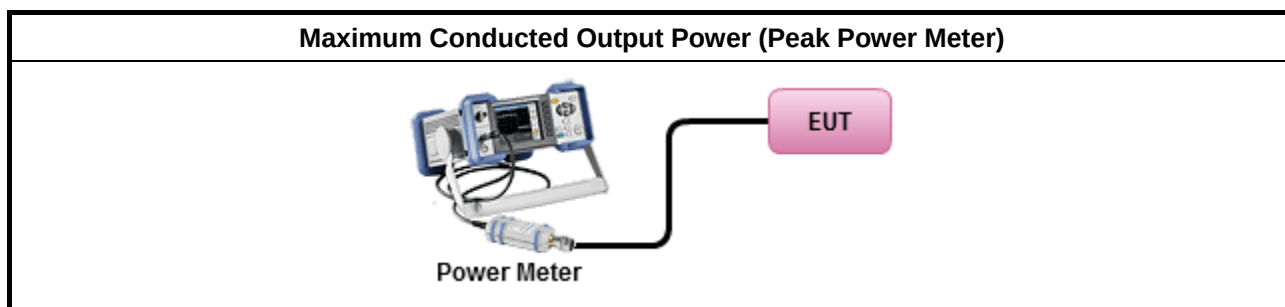
3.3.2 Measuring Instruments

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 C

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

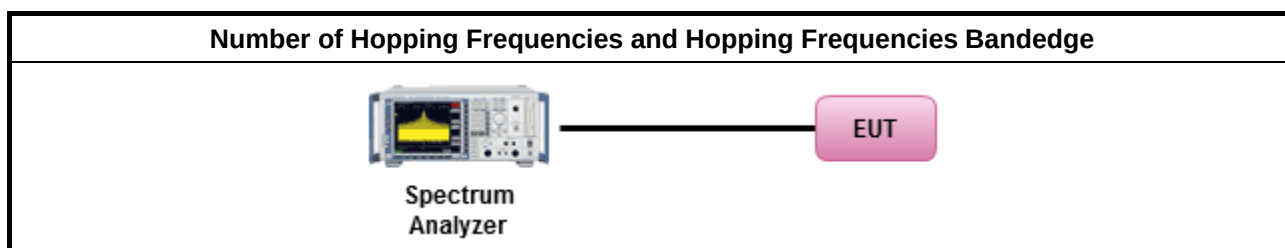
3.4.3 Measuring Instruments

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 D

3.4.7 Test Result of Number of Hopping Frequencies Bandedge

Refer as Appendix D

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	

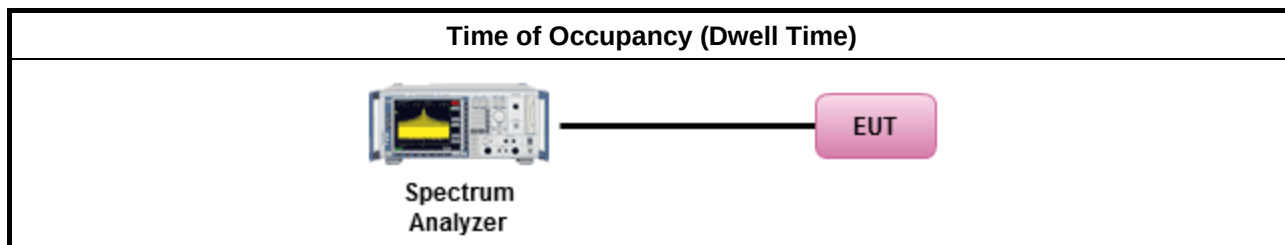
3.5.2 Measuring Instruments

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 E

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.	

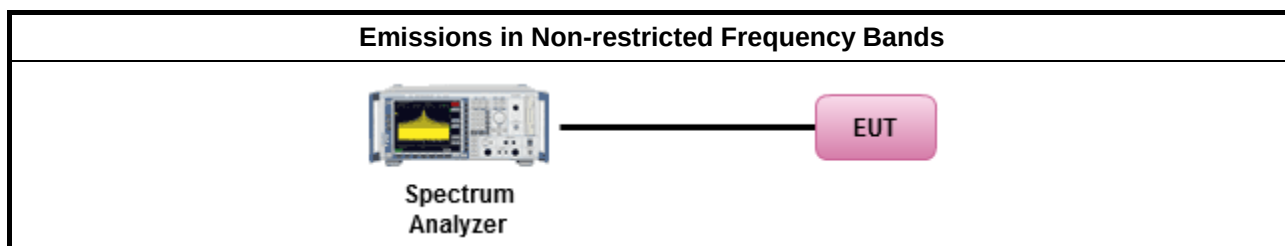
3.6.2 Measuring Instruments

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 F

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.

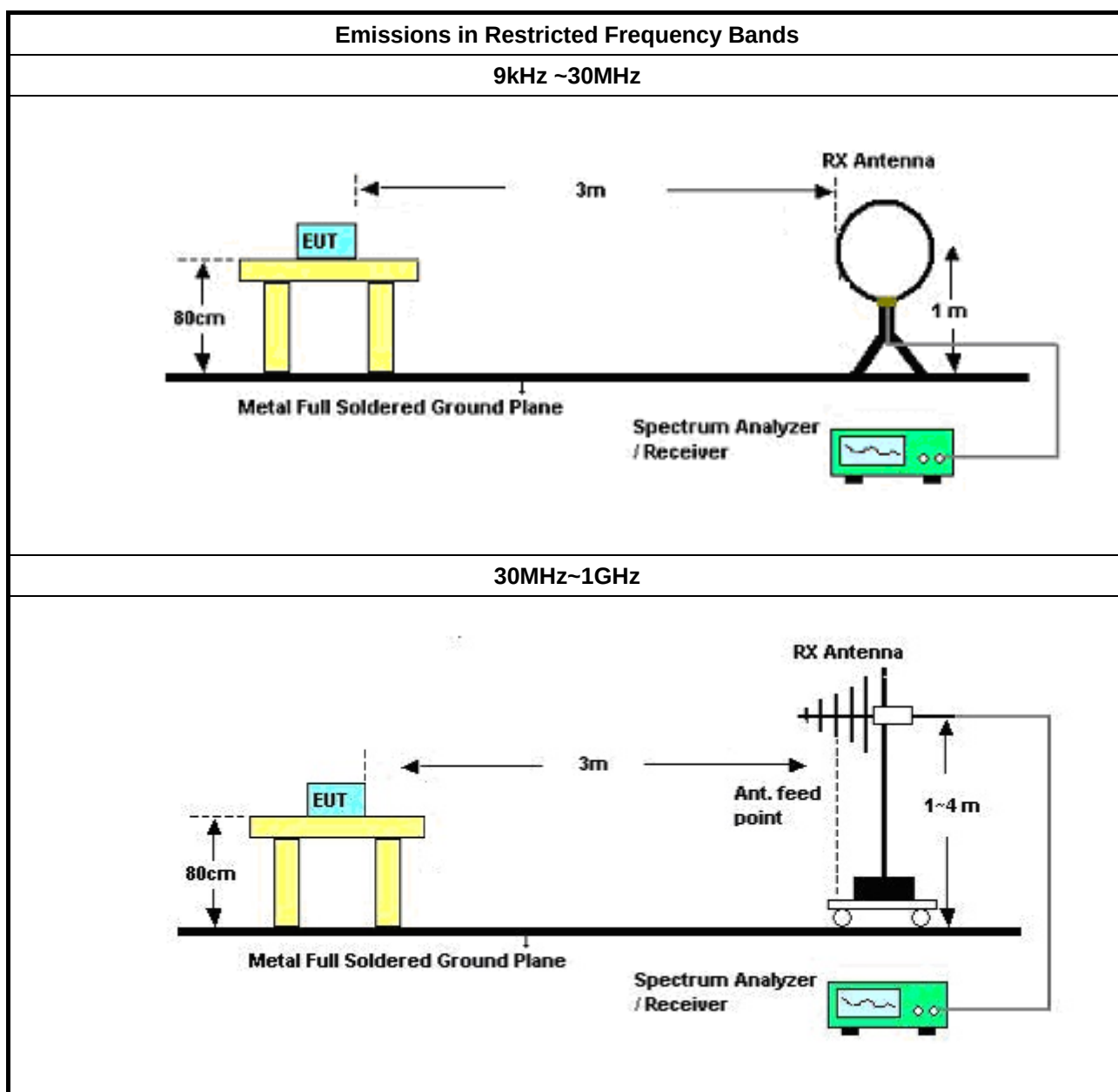
3.7.2 Measuring Instruments

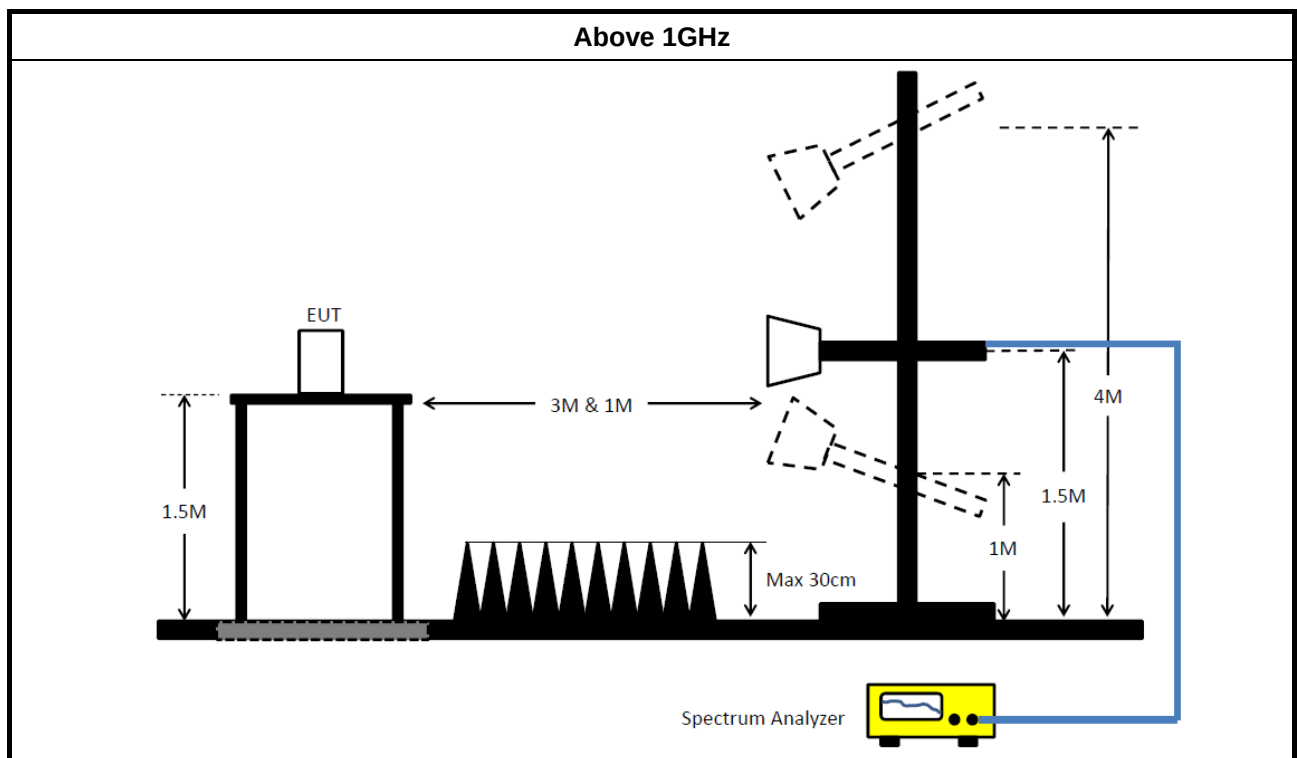
Refer a test equipment and calibration data table in this test report.

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 G

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.

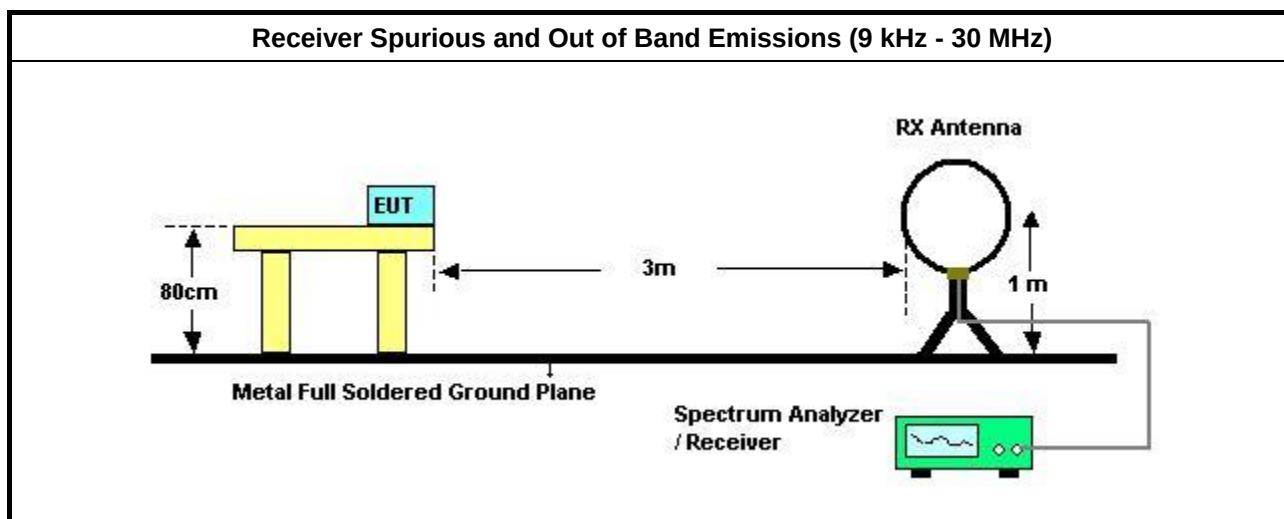
3.8.2 Measuring Instruments

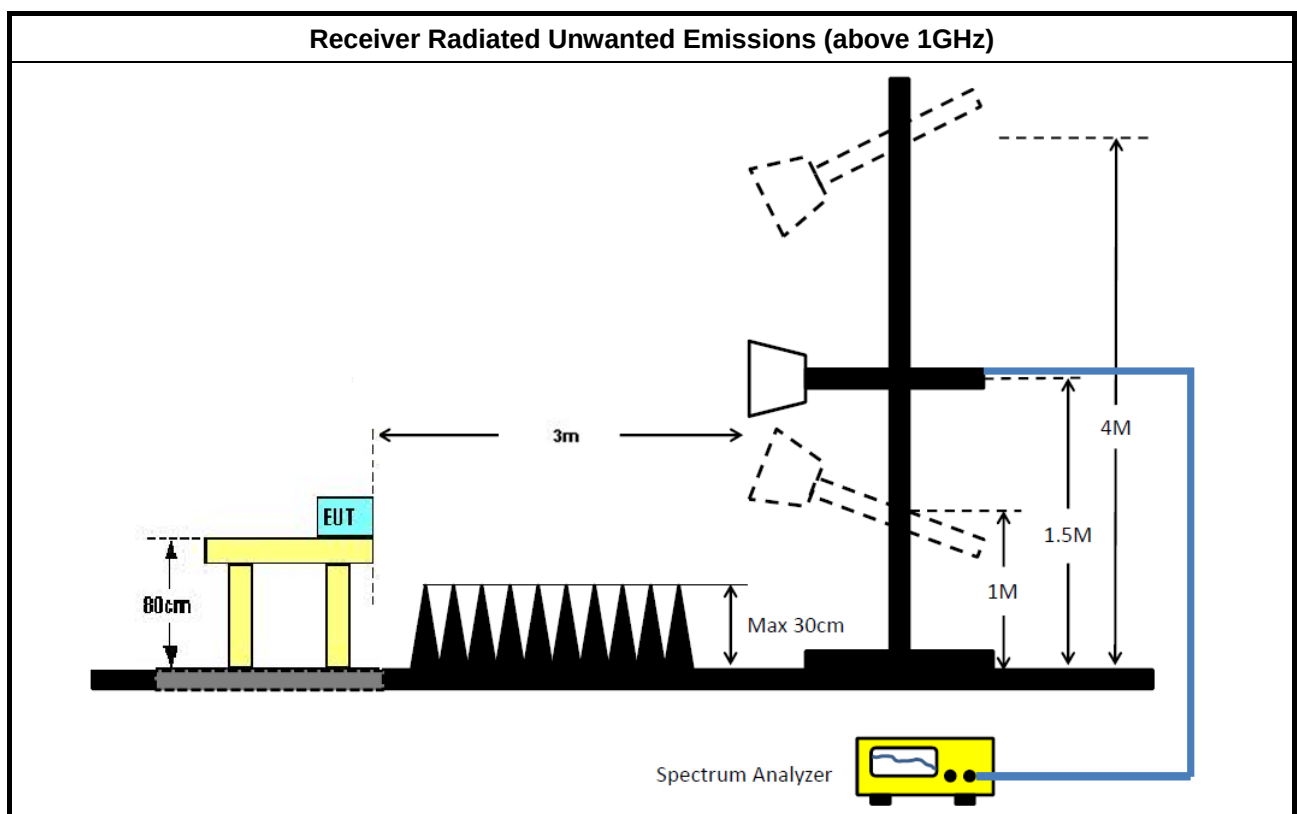
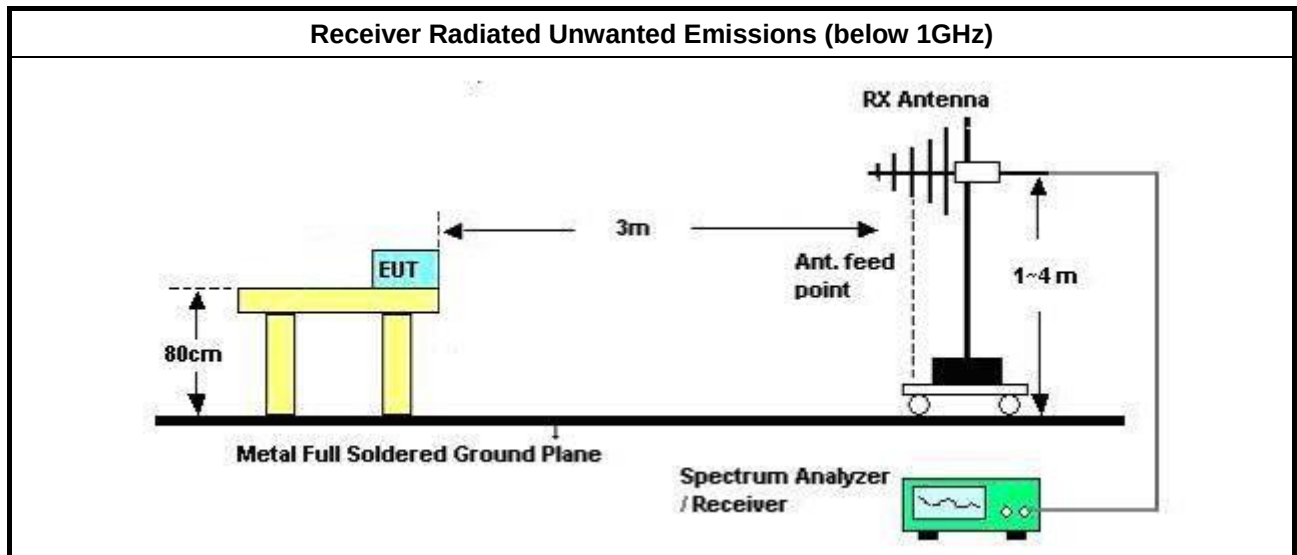
Refer a test equipment and calibration data table in this test report.

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 H

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9KHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/2018
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require

Instrument for Conducted Test

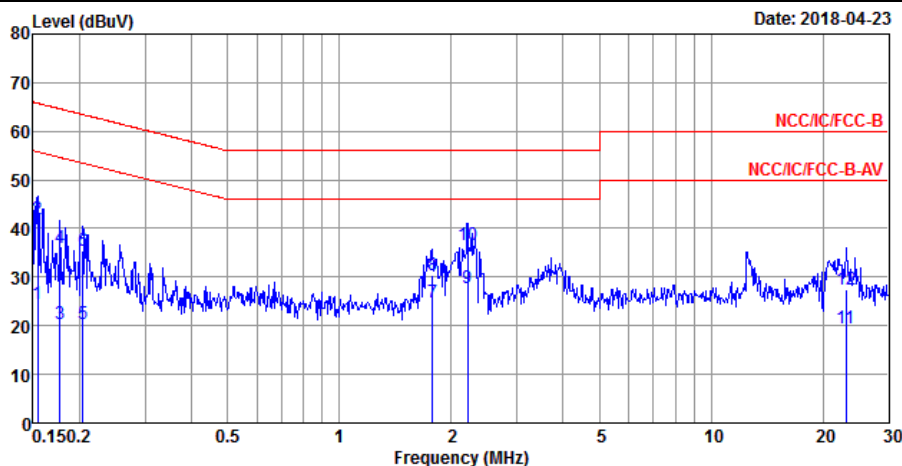
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101515	9kHz~40GHz	08/Dec/2017	07/Dec/2018
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	10/May/2017	09/May/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
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-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10713/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
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	03CH03-HY	30MHz ~ 1GHz 3m	31/Oct/2017	30/Oct/2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	01/Nov/2017	31/Oct/2018
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	29Jun/2017	28/Jun/2018
Amplifier	Keysight	83017A	MY53270196	1GHz ~ 26.5GHz	31/Aug/2017	30/Aug/2018
Spectrum	R&S	FSV40	101500	9kHz ~ 40GHz	28/Jun/2017	27/Jun/2018
Receiver	R&S	ESCS 30	100354	9kHz ~ 2.75GHz	08/Dec/2017	07/Dec/2018
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	26/Jan/2018	25/Jan/2019
RF Cable-high	SUHNER	SUCOFLEX106	CB222	1GHz ~ 40GHz	26/Jan/2018	25/Jan/2019
Bilog Antenna	SCHAFFNER	CBL 6112B	22237	30MHz ~ 1GHz	08/Jul/2017	07/Jul/2018
Horn Antenna	SCHWARZBECK	BBHA9120D	1531	1GHz ~ 18GHz	18/Apr/ 2018	17/Apr/2019
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz~30 MHz	16/Mar/2018	15/Mar/2019

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Adapter Mode -TX		

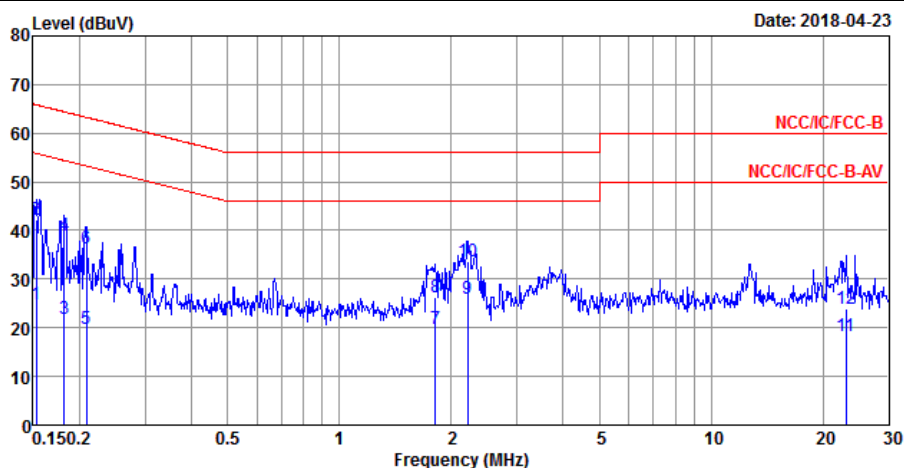


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	24.44	-31.34	55.78	14.77	9.63	0.04	Average
2	0.15	41.83	-23.95	65.78	32.16	9.63	0.04	QP
3	0.18	20.29	-34.35	54.64	10.65	9.62	0.02	Average
4	0.18	36.09	-28.55	64.64	26.45	9.62	0.02	QP
5	0.20	20.30	-33.15	53.45	10.68	9.62	0.00	Average
6	0.20	35.46	-27.99	63.45	25.84	9.62	0.00	QP
7	1.78	24.69	-21.31	46.00	15.06	9.63	0.00	Average
8	1.78	30.55	-25.45	56.00	20.92	9.63	0.00	QP
9 MAX	2.21	27.66	-18.34	46.00	18.02	9.63	0.01	Average
10	2.21	36.72	-19.28	56.00	27.08	9.63	0.01	QP
11	23.02	19.52	-30.48	50.00	9.75	9.70	0.07	Average
12	23.02	27.46	-32.54	60.00	17.69	9.70	0.07	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Adapter Mode -TX		

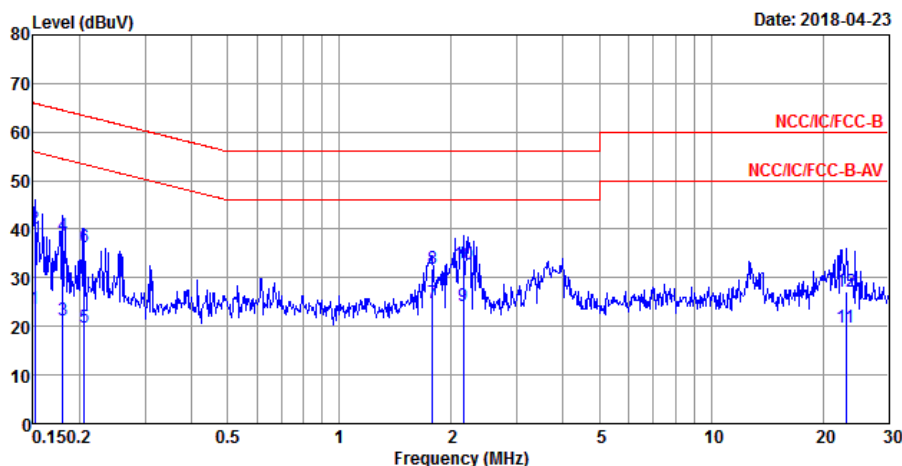


	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.15	24.82	-31.00	55.82	15.16	9.62	0.04	Average
2	0.15	42.08	-23.74	65.82	32.42	9.62	0.04	QP
3	0.18	21.75	-32.67	54.42	12.12	9.62	0.01	Average
4	0.18	39.07	-25.35	64.42	29.44	9.62	0.01	QP
5	0.21	19.80	-33.47	53.27	10.17	9.62	0.01	Average
6	0.21	36.17	-27.10	63.27	26.54	9.62	0.01	QP
7	1.81	19.88	-26.12	46.00	10.26	9.62	0.00	Average
8	1.81	26.15	-29.85	56.00	16.53	9.62	0.00	QP
9 MAX	2.21	25.91	-20.09	46.00	16.28	9.62	0.01	Average
10	2.21	33.60	-22.40	56.00	23.97	9.62	0.01	QP
11	23.02	18.27	-31.73	50.00	8.62	9.58	0.07	Average
12	23.02	23.89	-36.11	60.00	14.24	9.58	0.07	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Adapter Mode -RX		

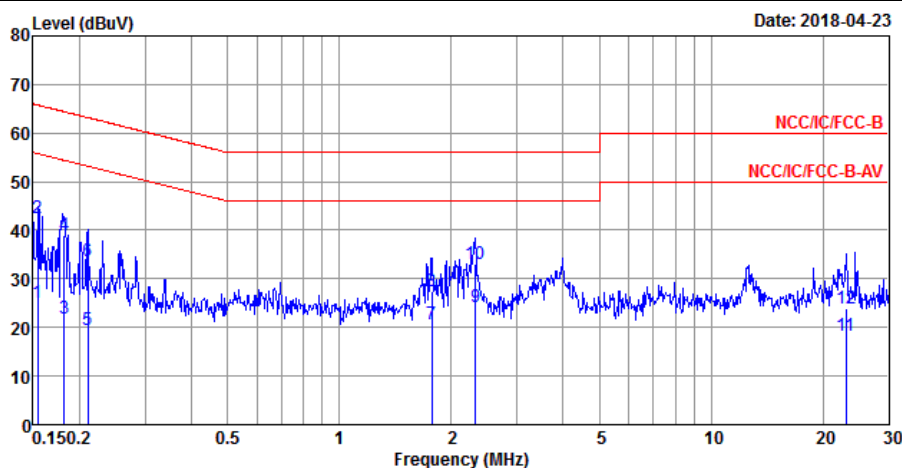


	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	23.49	-32.42	55.91	13.82	9.63	0.04	Average
2	0.15	40.19	-25.72	65.91	30.52	9.63	0.04	QP
3	0.18	21.34	-33.12	54.46	11.71	9.62	0.01	Average
4	0.18	38.78	-25.68	64.46	29.15	9.62	0.01	QP
5	0.21	19.70	-33.66	53.36	10.08	9.62	0.00	Average
6	0.21	36.35	-27.01	63.36	26.73	9.62	0.00	QP
7 MAX	1.78	24.88	-21.12	46.00	15.25	9.63	0.00	Average
8	1.78	31.95	-24.05	56.00	22.32	9.63	0.00	QP
9	2.16	24.23	-21.77	46.00	14.59	9.63	0.01	Average
10	2.16	32.85	-23.15	56.00	23.21	9.63	0.01	QP
11	23.02	19.74	-30.26	50.00	9.97	9.70	0.07	Average
12	23.02	27.14	-32.86	60.00	17.37	9.70	0.07	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Adapter Mode -RX		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	24.95	-30.83	55.78	15.29	9.62	0.04	Average
2	0.15	42.37	-23.41	65.78	32.71	9.62	0.04	QP
3	0.18	21.75	-32.67	54.42	12.12	9.62	0.01	Average
4	0.18	39.03	-25.39	64.42	29.40	9.62	0.01	QP
5	0.21	19.54	-33.64	53.18	9.91	9.62	0.01	Average
6	0.21	33.67	-29.51	63.18	24.04	9.62	0.01	QP
7	1.77	20.54	-25.46	46.00	10.92	9.62	0.00	Average
8	1.77	27.47	-28.53	56.00	17.85	9.62	0.00	QP
9 MAX	2.32	24.32	-21.68	46.00	14.68	9.62	0.02	Average
10	2.32	32.98	-23.02	56.00	23.34	9.62	0.02	QP
11	23.02	18.42	-31.58	50.00	8.77	9.58	0.07	Average
12	23.02	23.93	-36.07	60.00	14.28	9.58	0.07	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

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	1.207M	1.209M	1M21D1D	1.205M	1.196M

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;

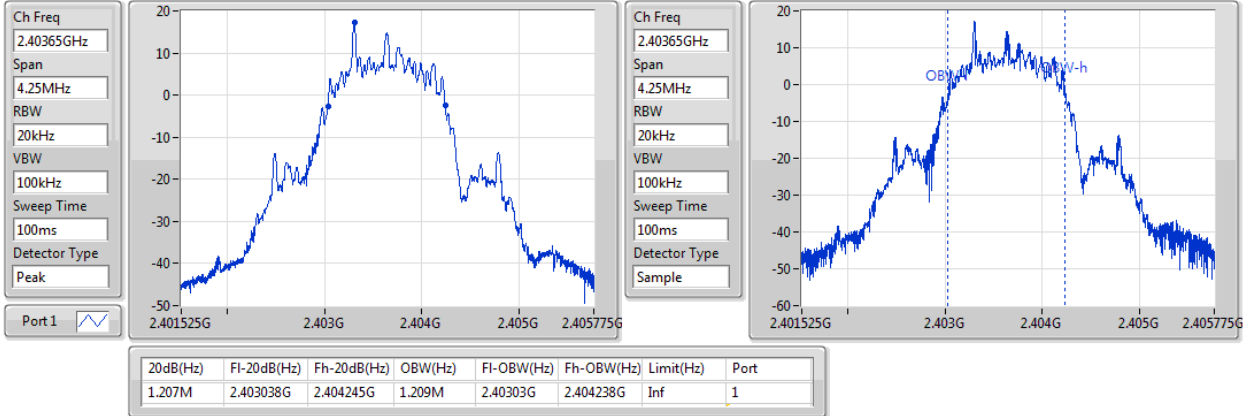
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
FHSS_Nss1_1TX	-	-	-	-
2403.65MHz_TnomVnom	Pass	Inf	1.207M	1.209M
2438.20MHz_TnomVnom	Pass	Inf	1.205M	1.202M
2479.68MHz_TnomVnom	Pass	Inf	1.207M	1.196M

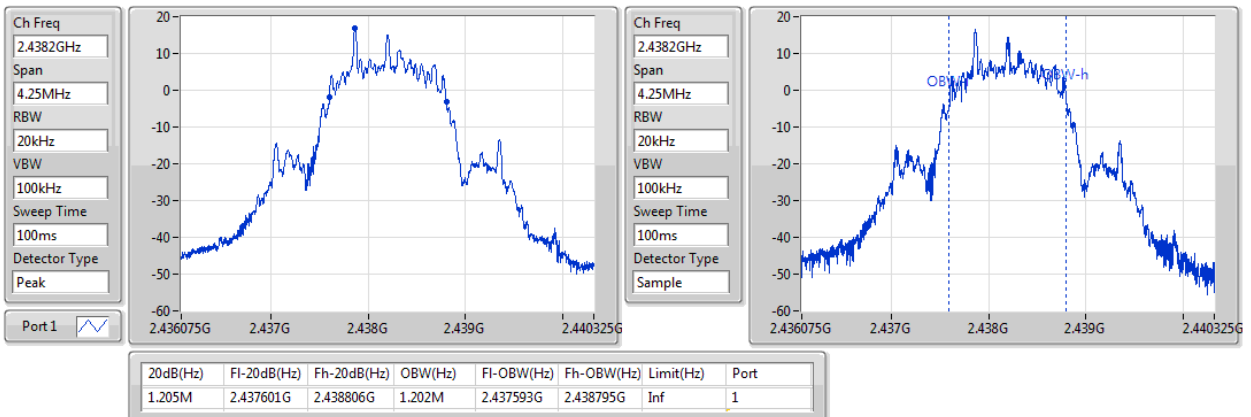
Port X-N dB = Port X 20dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

FHSS_Nss1_1TX
EBW
2403.65MHz

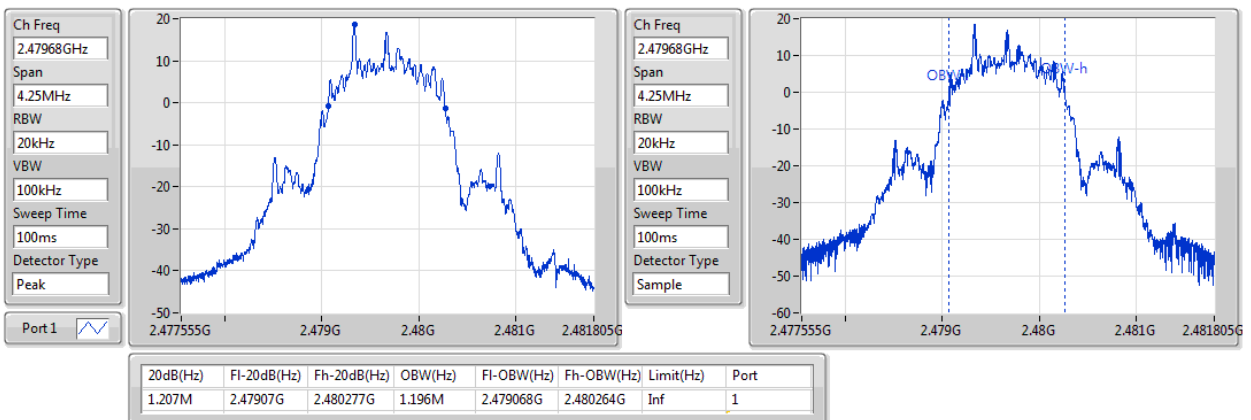
08/05/2018


FHSS_Nss1_1TX
EBW
2438.20MHz

08/05/2018


FHSS_Nss1_1TX
EBW
2479.68MHz

08/05/2018



Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
2.4-2.4835GHz	-	-
FHSS_Nss1_1TX	1.73145M	1.72635M

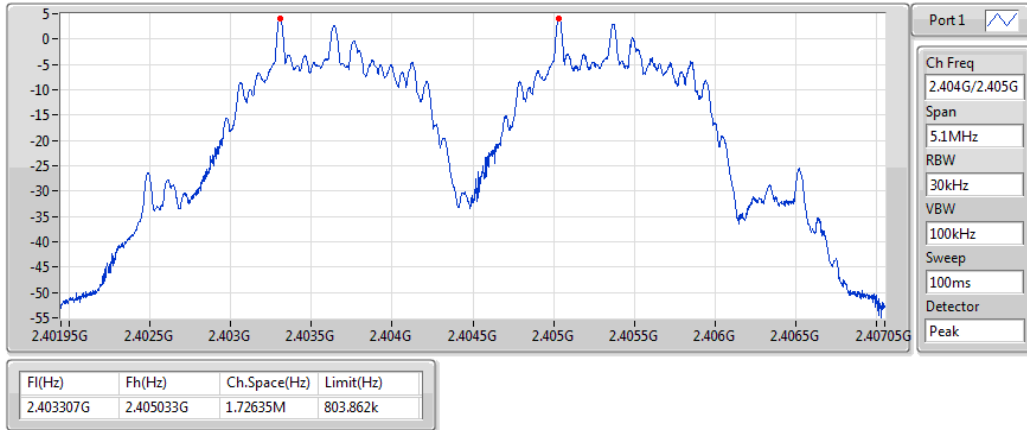
Result

Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
FHSS_Nss1_1TX	-	-	-	-	-
2403.65MHz_TnomVnom	Pass	2.403307G	2.405033G	1.72635M	803.862k
2438.20MHz_TnomVnom	Pass	2.437864G	2.439596G	1.73145M	802.53k
2479.68MHz_TnomVnom	Pass	2.477609G	2.479337G	1.7289M	803.862k

FHSS_Nss1_1TX

Channel Separation

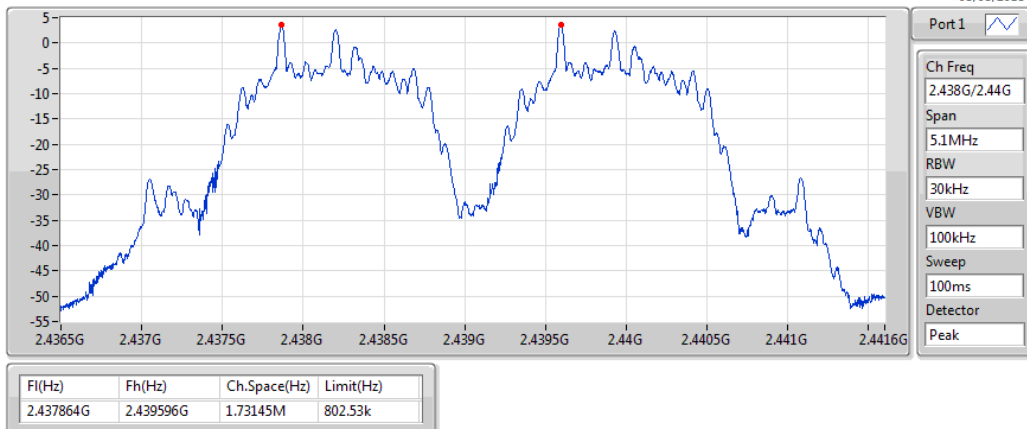
2.404G/2.405GHz



FHSS_Nss1_1TX

Channel Separation

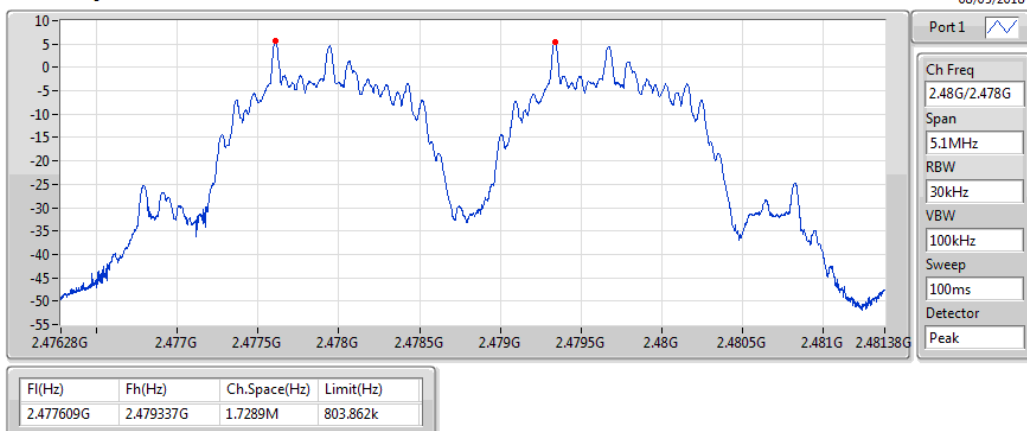
2.438G/2.44GHz



FHSS_Nss1_1TX

Channel Separation

2.48G/2.478GHz



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
FHSS_Nss1_1TX	20.34	0.10814

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
FHSS_Nss1_1TX	-	-	-	-
2403.65MHz_TnomVnom	Pass	3.00	19.04	21.00
2438.20MHz_TnomVnom	Pass	3.00	20.19	21.00
2479.68MHz_TnomVnom	Pass	3.00	20.34	21.00

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
FHSS_Nss1_1TX	19.93	0.09840

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
FHSS_Nss1_1TX	-	-	-	-
2403.65MHz_TnomVnom	Pass	3.00	18.35	21.00
2438.20MHz_TnomVnom	Pass	3.00	19.76	21.00
2479.68MHz_TnomVnom	Pass	3.00	19.93	21.00

Summary

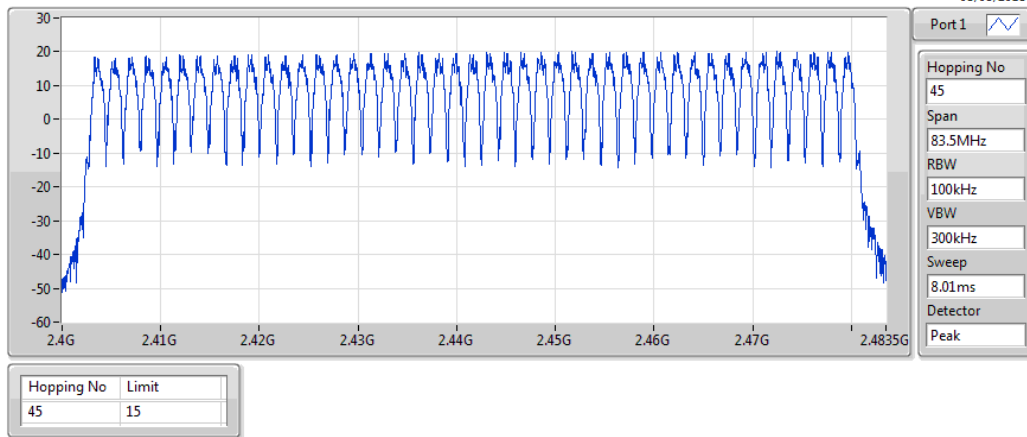
Mode	Max-Hop No
2.4-2.4835GHz	-
FHSS_Nss1_1TX	45

Result

Mode	Result	Hopping No	Limit
FHSS_Nss1_1TX	-	-	-
2438.20MHz_TnomVnom	Pass	45	15

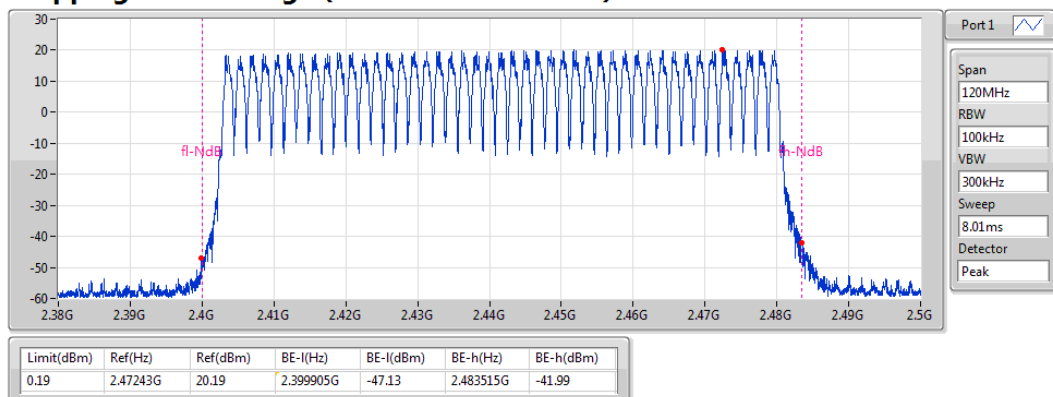
FHSS_Nss1_1TX 2438.20MHz

Hopping Ch



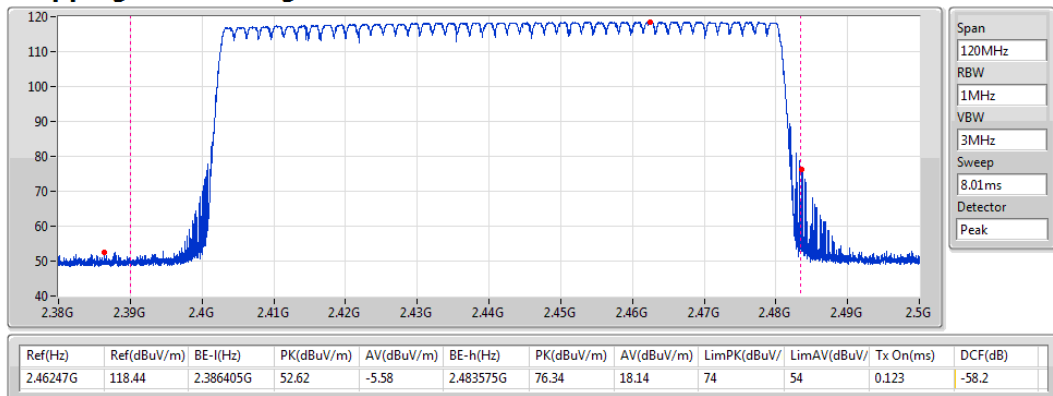
FHSS_Nss1_1TX 2438.20MHz

Hopping Ch Bandedge (Non-restricted Band)



FHSS_Nss1_1TX 2438.20MHz

Hopping Ch Bandedge (Restricted Band)



Summary

Mode	Max-Dwell (s)
2.4-2.4835GHz	-
FHSS_Nss1_1TX	22.14m

Result

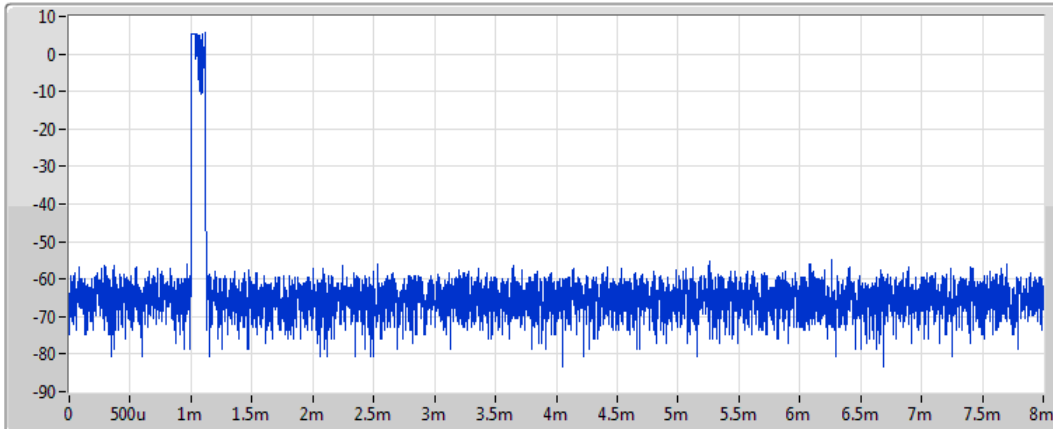
Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
FHSS_Nss1_1TX	-	-	-	-	-
2438.20MHz_TnomVnom	Pass	18	22.14m	400m	123u

FHSS_Nss1_1TX

2438.20MHz

Dwell

08/05/2018



Port 1 

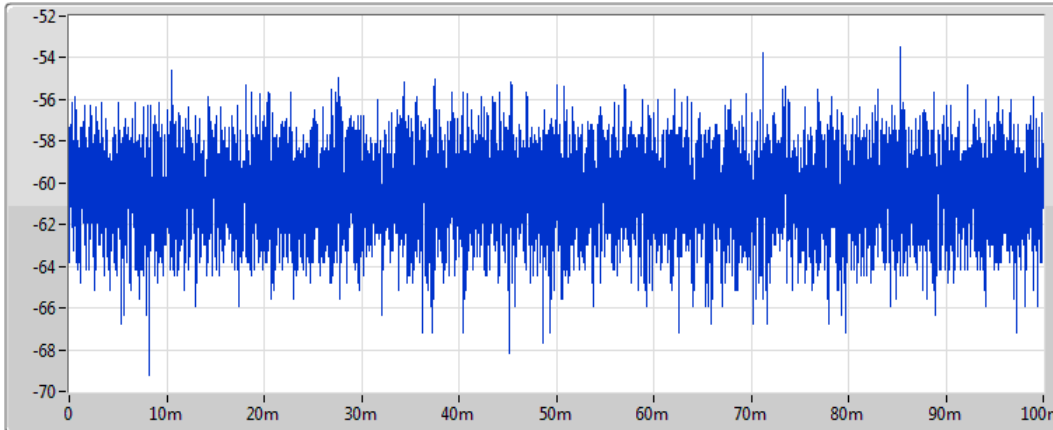
Ch Freq
2.4382GHz

RBW
300kHz

VBW
1MHz

Sweep Time
8ms

TX Time
123us



Port 1 

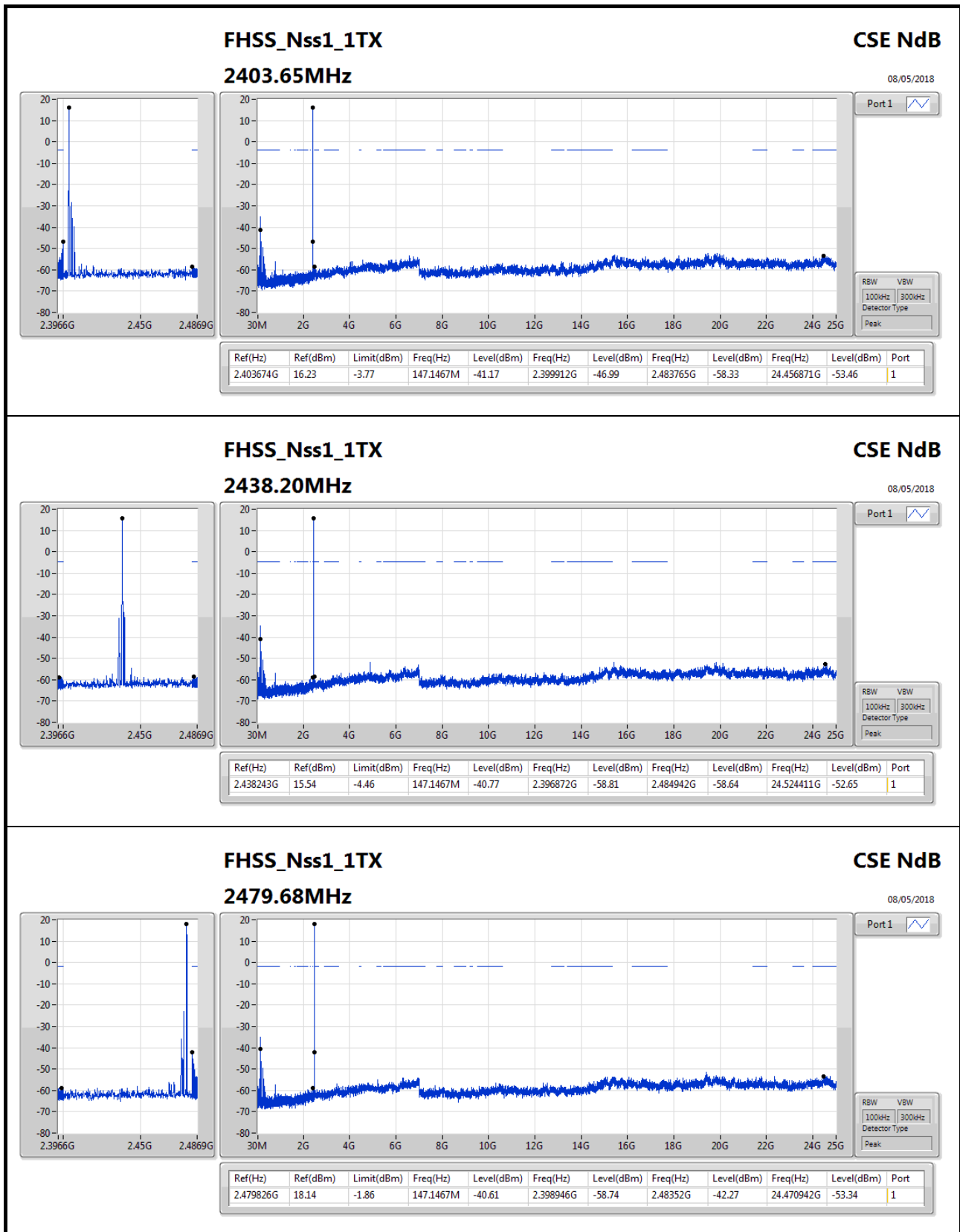
Period(s)	Dwell(s)	Limit(s)	Tx On(s)
18	22.14m	400m	123u

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	2.438243G	15.54	-4.46	147.1467M	-40.77	2.396872G	-58.81	2.484942G	-58.64	24.524411G	-52.65	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	-	-	-	-	-	-	-	-	-	-	-	-	-
2403.65MHz_TnomVnom	Pass	2.403674G	16.23	-3.77	147.1467M	-41.17	2.399912G	-46.99	2.483765G	-58.33	24.456871G	-53.46	1
2438.20MHz_TnomVnom	Pass	2.438243G	15.54	-4.46	147.1467M	-40.77	2.396872G	-58.81	2.484942G	-58.64	24.524411G	-52.65	1
2479.68MHz_TnomVnom	Pass	2.479826G	18.14	-1.86	147.1467M	-40.61	2.398946G	-58.74	2.48352G	-42.27	24.470942G	-53.34	1





RSE TX below 1GHz Result

Appendix G.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	245.34M	39.12	46.00	-6.88	-17.83	3	Horizontal	360	1.00	-

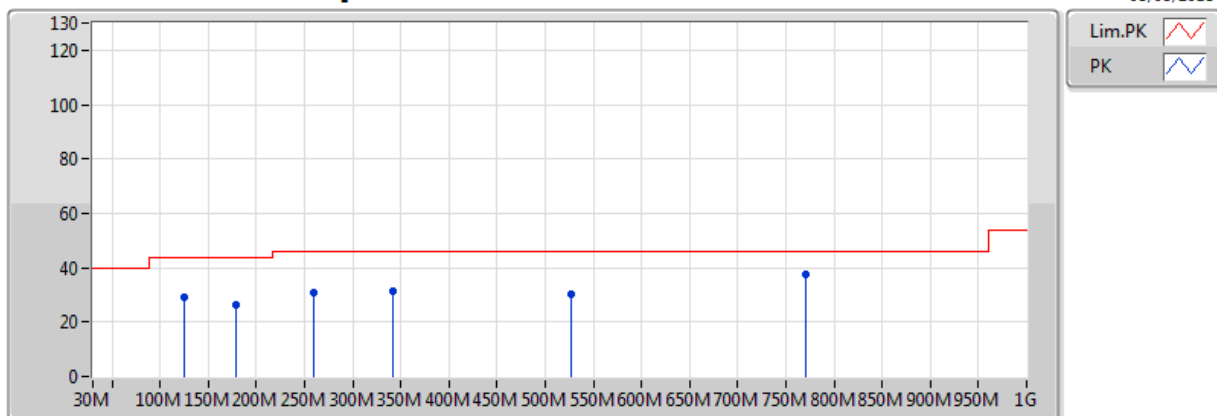
Result

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	-	-	-	-	-	-	-	-	-	-	-	-
2438.20MHz	Pass	PK	41.64M	32.15	40.00	-7.85	-19.20	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	68.8M	27.90	40.00	-12.10	-25.22	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	181.32M	31.94	43.50	-11.56	-21.35	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	245.34M	39.12	46.00	-6.88	-17.83	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	520.82M	30.14	46.00	-15.86	-12.12	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	769.14M	37.08	46.00	-8.92	-8.18	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	125.06M	28.95	43.50	-14.55	-19.24	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	179.38M	26.61	43.50	-16.89	-21.30	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	258.92M	31.08	46.00	-14.92	-15.80	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	342.34M	31.25	46.00	-14.75	-15.65	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	526.64M	30.13	46.00	-15.87	-12.09	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	771.08M	37.61	46.00	-8.39	-8.16	3	Vertical	0	1.00	-

FHSS_Nss1_1TX

2438.20MHz_Adapter

08/05/2018

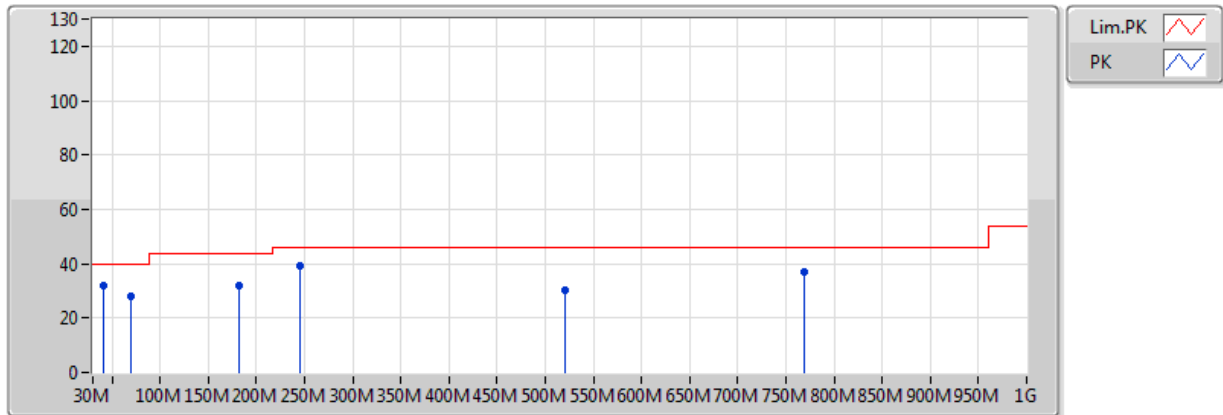


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	125.06M	28.95	43.50	-14.55	-19.24	3	Vertical	0	1.00	-	48.19	16.76	0.70	36.69
PK	179.38M	26.61	43.50	-16.89	-21.30	3	Vertical	0	1.00	-	47.91	14.15	1.01	36.46
PK	258.92M	31.08	46.00	-14.92	-15.80	3	Vertical	0	1.00	-	46.88	19.34	1.28	36.42
PK	342.34M	31.25	46.00	-14.75	-15.65	3	Vertical	0	1.00	-	46.90	19.39	1.47	36.51
PK	526.64M	30.13	46.00	-15.87	-12.09	3	Vertical	0	1.00	-	42.22	23.29	1.61	36.99
PK	771.08M	37.61	46.00	-8.39	-8.16	3	Vertical	0	1.00	-	45.77	27.32	1.96	37.44

FHSS_Nss1_1TX

2438.20MHz_Adapter

08/05/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	41.64M	32.15	40.00	-7.85	-19.20	3	Horizontal	360	1.00	-	51.35	17.63	0.40	37.22
PK	68.8M	27.90	40.00	-12.10	-25.22	3	Horizontal	360	1.00	-	53.12	11.33	0.48	37.02
PK	181.32M	31.94	43.50	-11.56	-21.35	3	Horizontal	360	1.00	-	53.29	14.09	1.02	36.45
PK	245.34M	39.12	46.00	-6.88	-17.83	3	Horizontal	360	1.00	-	56.95	17.33	1.25	36.41
PK	520.82M	30.14	46.00	-15.86	-12.12	3	Horizontal	360	1.00	-	42.26	23.25	1.61	36.97
PK	769.14M	37.08	46.00	-8.92	-8.18	3	Horizontal	360	1.00	-	45.26	27.30	1.96	37.44

**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	72.74	74.00	-1.26	30.91	3	Horizontal	40	1.03	-

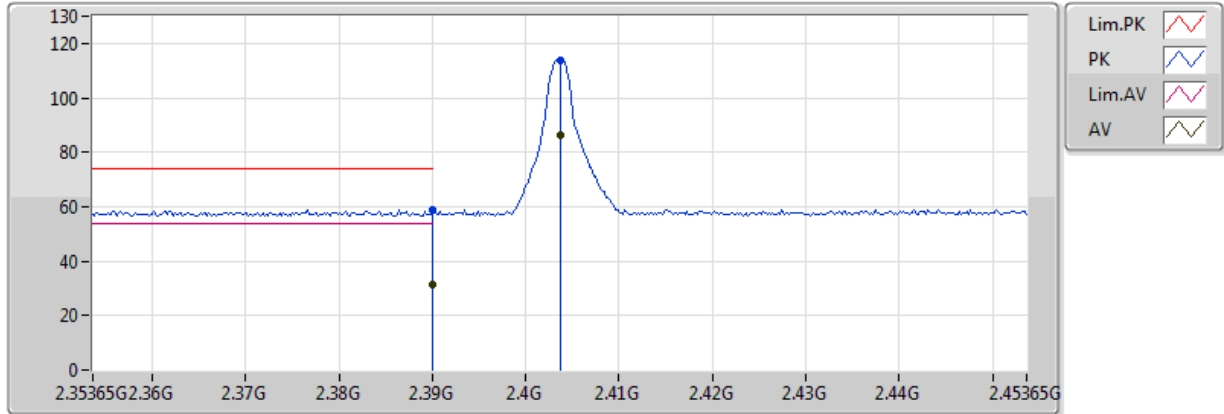
Result

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	-	-	-	-	-	-	-	-	-	-	-	-
2403.65MHz	Pass	AV	2.38965G	31.43	54.00	-22.57	30.91	3	Horizontal	167	2.62	-
2403.65MHz	Pass	AV	2.40365G	90.57	Inf	-Inf	30.95	3	Horizontal	167	2.62	-
2403.65MHz	Pass	PK	2.38965G	58.94	74.00	-15.06	30.91	3	Horizontal	167	2.62	-
2403.65MHz	Pass	PK	2.40365G	118.08	Inf	-Inf	30.95	3	Horizontal	167	2.62	-
2403.65MHz	Pass	AV	2.389998G	31.43	54.00	-22.57	30.91	3	Vertical	88	2.95	-
2403.65MHz	Pass	AV	2.40365G	86.44	Inf	-Inf	30.95	3	Vertical	88	2.95	-
2403.65MHz	Pass	PK	2.389998G	58.94	74.00	-15.06	30.91	3	Vertical	88	2.95	-
2403.65MHz	Pass	PK	2.40365G	113.95	Inf	-Inf	30.95	3	Vertical	88	2.95	-
2403.65MHz	Pass	AV	4.8067G	19.95	54.00	-34.05	1.88	3	Horizontal	49	1.05	-
2403.65MHz	Pass	PK	4.80707G	47.46	74.00	-26.54	1.88	3	Horizontal	49	1.05	-
2403.65MHz	Pass	AV	4.80662G	20.37	54.00	-33.61	1.87	3	Vertical	115	2.68	-
2403.65MHz	Pass	PK	4.807764G	47.91	74.00	-26.09	1.88	3	Vertical	115	2.68	-
2438.20MHz	Pass	AV	2.339G	30.86	54.00	-23.14	30.75	3	Horizontal	167	2.62	-
2438.20MHz	Pass	AV	2.4378G	90.78	Inf	-Inf	31.06	3	Horizontal	167	2.62	-
2438.20MHz	Pass	AV	2.4842G	31.68	54.00	-22.32	31.21	3	Horizontal	167	2.62	-
2438.20MHz	Pass	PK	2.339G	58.37	74.00	-15.63	30.75	3	Horizontal	55	1.24	-
2438.20MHz	Pass	PK	2.4378G	118.29	Inf	-Inf	31.06	3	Horizontal	55	1.24	-
2438.20MHz	Pass	PK	2.4842G	59.19	74.00	-14.81	31.21	3	Horizontal	55	1.24	-
2438.20MHz	Pass	AV	2.3518G	31.31	54.00	-22.69	30.79	3	Vertical	167	2.62	-
2438.20MHz	Pass	AV	2.4382G	85.49	Inf	-Inf	31.06	3	Vertical	167	2.62	-
2438.20MHz	Pass	AV	2.4986G	31.93	54.00	-22.07	31.26	3	Vertical	167	2.62	-
2438.20MHz	Pass	PK	2.3518G	58.82	74.00	-15.18	30.79	3	Vertical	167	2.62	-
2438.20MHz	Pass	PK	2.4382G	113.00	Inf	-Inf	31.06	3	Vertical	167	2.62	-
2438.20MHz	Pass	PK	2.4986G	59.44	74.00	-14.56	31.26	3	Vertical	167	2.62	-
2438.20MHz	Pass	AV	4.87577G	19.99	54.00	-34.01	2.03	3	Horizontal	297	1.05	-
2438.20MHz	Pass	PK	4.87578G	47.50	74.00	-26.50	2.03	3	Horizontal	297	1.05	-
2438.20MHz	Pass	AV	4.87574G	20.94	54.00	-33.06	2.03	3	Vertical	70	1.11	-
2438.20MHz	Pass	PK	4.87569G	48.45	74.00	-25.55	2.03	3	Vertical	70	1.11	-
2479.68MHz	Pass	AV	2.47928G	91.05	Inf	-Inf	30.90	3	Horizontal	40	1.03	-
2479.68MHz	Pass	AV	2.483502G	45.23	54.00	-8.77	30.91	3	Horizontal	40	1.03	-
2479.68MHz	Pass	PK	2.47928G	118.56	Inf	-Inf	30.90	3	Horizontal	40	1.03	-
2479.68MHz	Pass	PK	2.483502G	72.74	74.00	-1.26	30.91	3	Horizontal	40	1.03	-
2479.68MHz	Pass	AV	2.47928G	88.33	Inf	-Inf	30.90	3	Vertical	135	2.83	-
2479.68MHz	Pass	AV	2.483502G	42.42	54.00	-11.58	30.91	3	Vertical	135	2.83	-
2479.68MHz	Pass	PK	2.47928G	115.84	Inf	-Inf	30.90	3	Vertical	135	2.83	-
2479.68MHz	Pass	PK	2.483502G	69.93	74.00	-4.07	30.91	3	Vertical	135	2.83	-
2479.68MHz	Pass	AV	4.95984G	16.55	54.00	-37.45	1.52	3	Horizontal	2	1.01	-
2479.68MHz	Pass	PK	4.95984G	44.06	74.00	-29.94	1.52	3	Horizontal	2	1.01	-
2479.68MHz	Pass	AV	4.95978G	18.66	54.00	-35.34	1.52	3	Vertical	49	1.00	-
2479.68MHz	Pass	PK	4.95978G	46.17	74.00	-27.83	1.52	3	Vertical	49	1.00	-

FHSS_Nss1_1TX

2403.65MHz_TX

07/05/2018

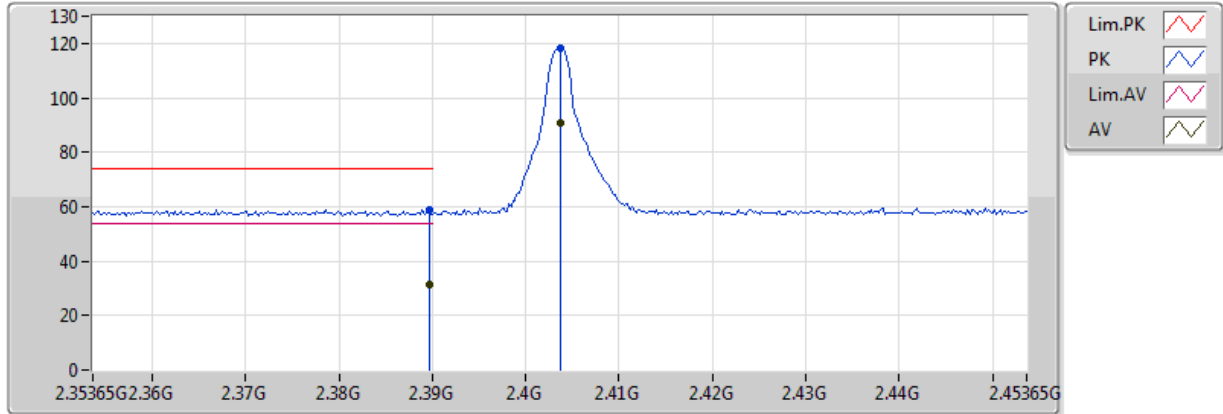


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.389998G	31.43	54.00	-22.57	30.91	3	Vertical	88	2.95	-	0.52	27.05	3.86	-
AV	2.40365G	86.44	Inf	-Inf	30.95	3	Vertical	88	2.95	-	55.49	27.08	3.87	-
PK	2.389998G	58.94	74.00	-15.06	30.91	3	Vertical	88	2.95	-	28.03	27.05	3.86	-
PK	2.40365G	113.95	Inf	-Inf	30.95	3	Vertical	88	2.95	-	83.00	27.08	3.87	-

FHSS_Nss1_1TX

2403.65MHz_TX

07/05/2018

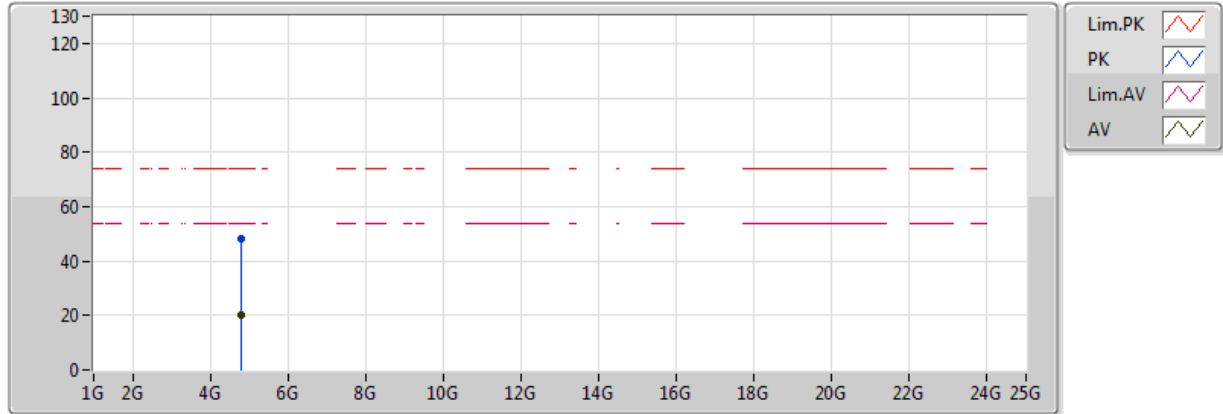


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.38965G	31.43	54.00	-22.57	30.91	3	Horizontal	167	2.62	-	0.52	27.05	3.86	-
AV	2.40365G	90.57	Inf	-Inf	30.95	3	Horizontal	167	2.62	-	59.62	27.08	3.87	-
PK	2.38965G	58.94	74.00	-15.06	30.91	3	Horizontal	167	2.62	-	28.03	27.05	3.86	-
PK	2.40365G	118.08	Inf	-Inf	30.95	3	Horizontal	167	2.62	-	87.13	27.08	3.87	-

FHSS_Nss1_1TX

2403.65MHz_TX

08/05/2018

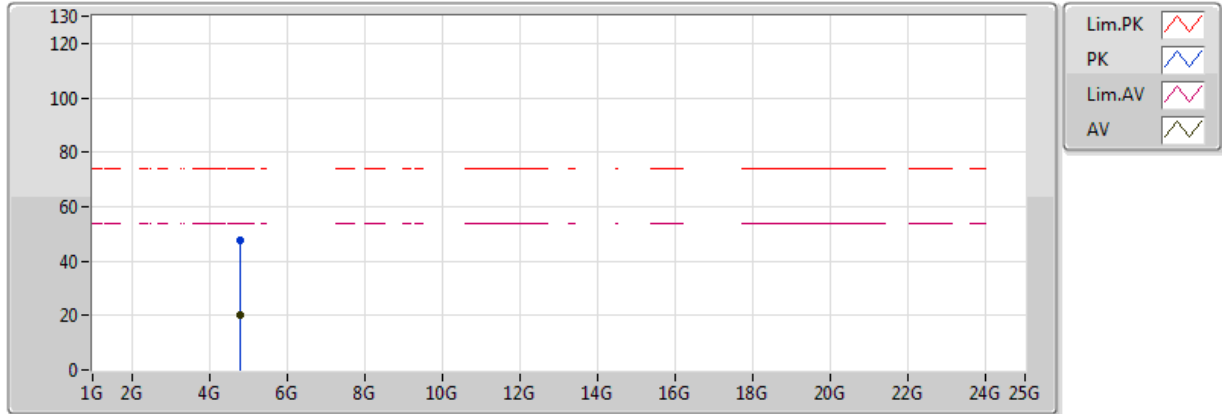


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80662G	20.39	54.00	-33.61	1.87	3	Vertical	115	2.68	-	18.52	31.21	5.54	34.88
PK	4.807764G	47.91	74.00	-26.09	1.88	3	Vertical	115	2.68	-	46.03	31.21	5.55	34.88

FHSS_Nss1_1TX

2403.65MHz_TX

08/05/2018

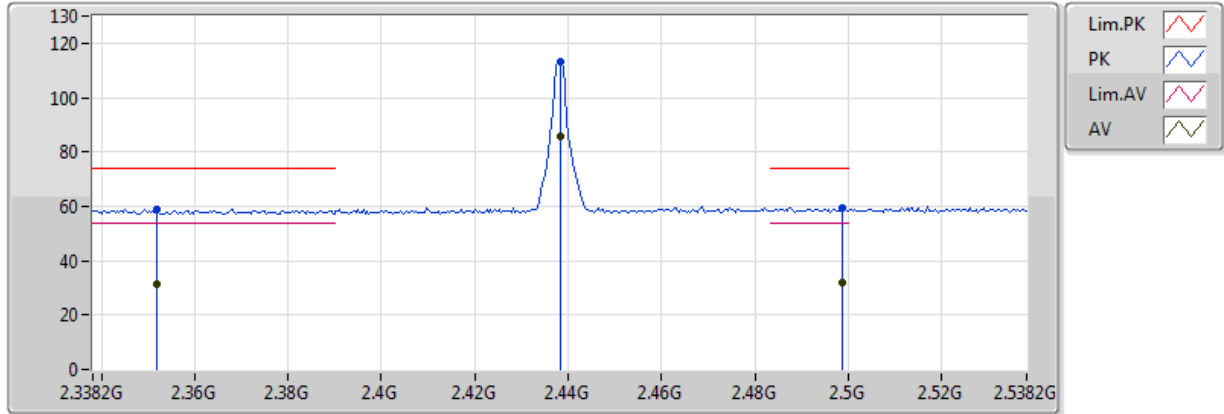


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.8067G	19.95	54.00	-34.05	1.88	3	Horizontal	49	1.05	-	18.07	31.21	5.54	34.88
PK	4.80707G	47.46	74.00	-26.54	1.88	3	Horizontal	49	1.05	-	45.58	31.21	5.54	34.88

FHSS_Nss1_1TX

2438.20MHz_TX

07/05/2018

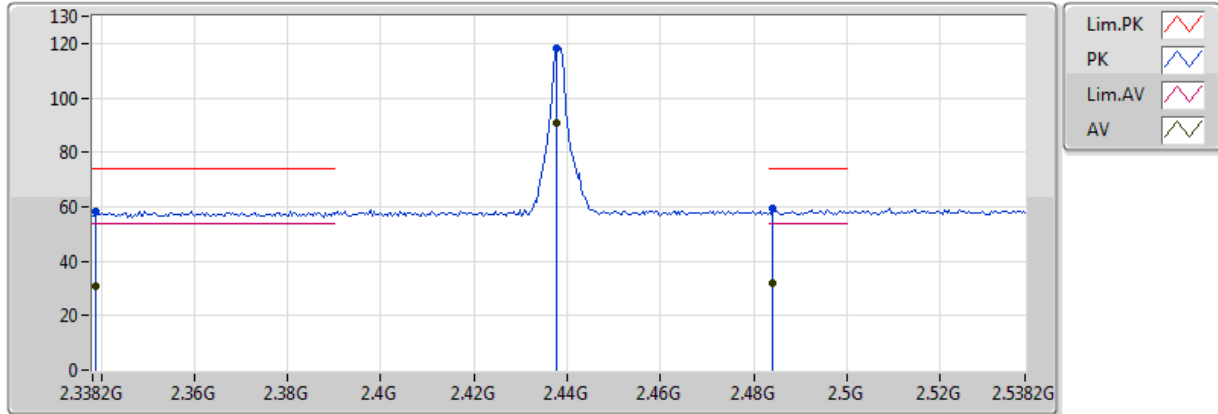


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3518G	31.31	54.00	-22.69	30.79	3	Vertical	167	2.62	-	0.52	26.96	3.83	-
AV	2.4382G	85.49	Inf	-Inf	31.06	3	Vertical	167	2.62	-	54.43	27.16	3.90	-
AV	2.4986G	31.93	54.00	-22.07	31.26	3	Vertical	167	2.62	-	0.67	27.30	3.96	-
PK	2.3518G	58.82	74.00	-15.18	30.79	3	Vertical	167	2.62	-	28.03	26.96	3.83	-
PK	2.4382G	113.00	Inf	-Inf	31.06	3	Vertical	167	2.62	-	81.94	27.16	3.90	-
PK	2.4986G	59.44	74.00	-14.56	31.26	3	Vertical	167	2.62	-	28.18	27.30	3.96	-

FHSS_Nss1_1TX

2438.20MHz_TX

08/05/2018

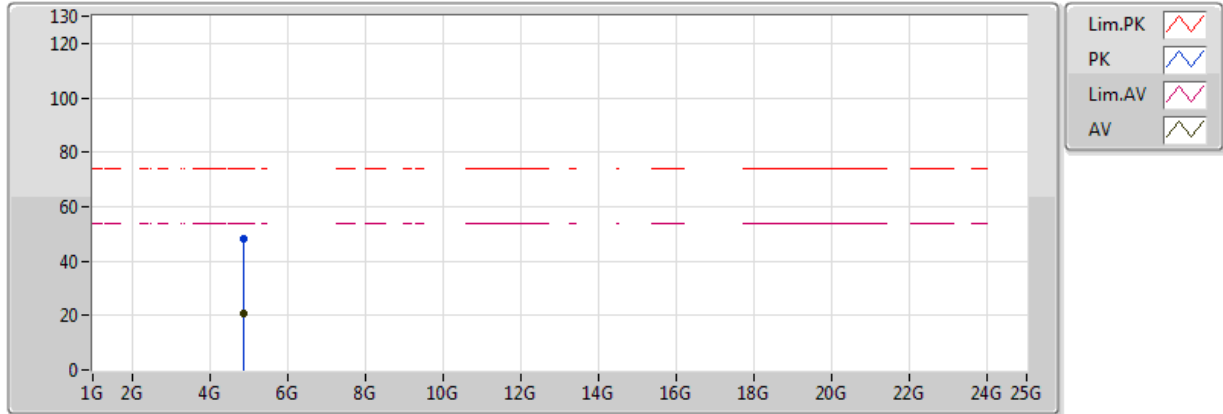


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.339G	30.86	54.00	-23.14	30.75	3	Horizontal	167	2.62	-	0.11	26.93	3.82	-
AV	2.4378G	90.78	Inf	-Inf	31.06	3	Horizontal	167	2.62	-	59.72	27.16	3.90	-
AV	2.4842G	31.68	54.00	-22.32	31.21	3	Horizontal	167	2.62	-	0.47	27.26	3.95	-
PK	2.339G	58.37	74.00	-15.63	30.75	3	Horizontal	55	1.24	-	27.62	26.93	3.82	-
PK	2.4378G	118.29	Inf	-Inf	31.06	3	Horizontal	55	1.24	-	87.23	27.16	3.90	-
PK	2.4842G	59.19	74.00	-14.81	31.21	3	Horizontal	55	1.24	-	27.98	27.26	3.95	-

FHSS_Nss1_1TX

2438.20MHz_TX

07/05/2018

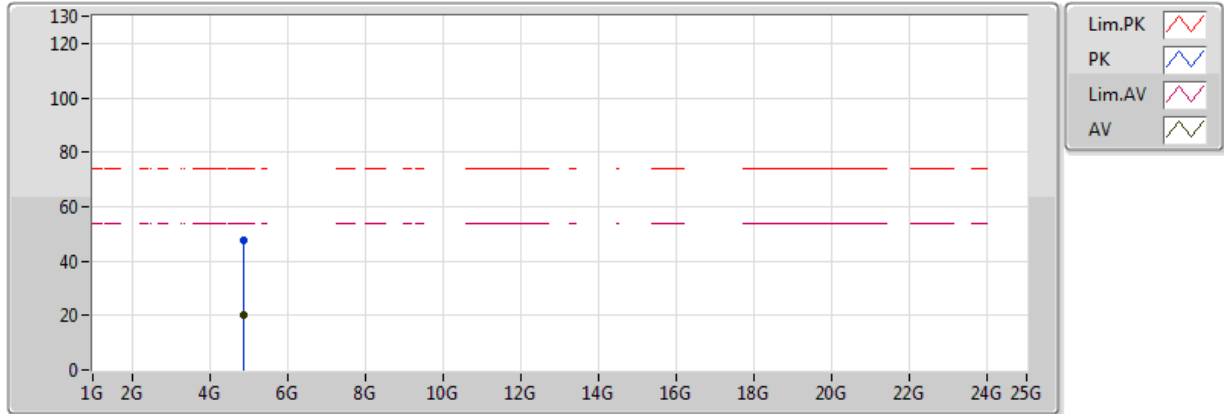


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87574G	20.94	54.00	-33.06	2.03	3	Vertical	70	1.11	-	18.91	31.30	5.59	34.86
PK	4.87569G	48.45	74.00	-25.55	2.03	3	Vertical	70	1.11	-	46.42	31.30	5.59	34.86

FHSS_Nss1_1TX

2438.20MHz_TX

07/05/2018

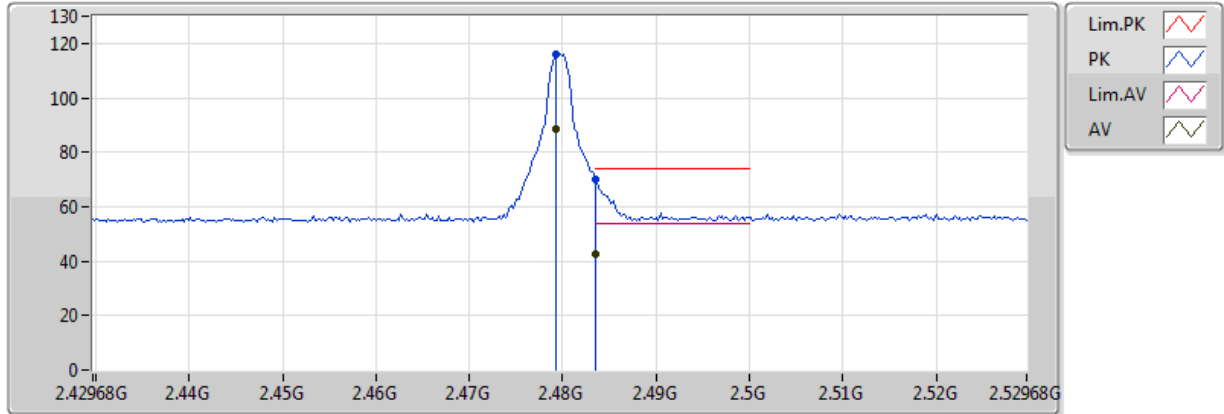


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87577G	19.99	54.00	-34.01	2.03	3	Horizontal	297	1.05	-	17.96	31.30	5.59	34.86
PK	4.87578G	47.50	74.00	-26.50	2.03	3	Horizontal	297	1.05	-	45.47	31.30	5.59	34.86

FHSS_Nss1_1TX

2479.68MHz_TX

21/04/2018

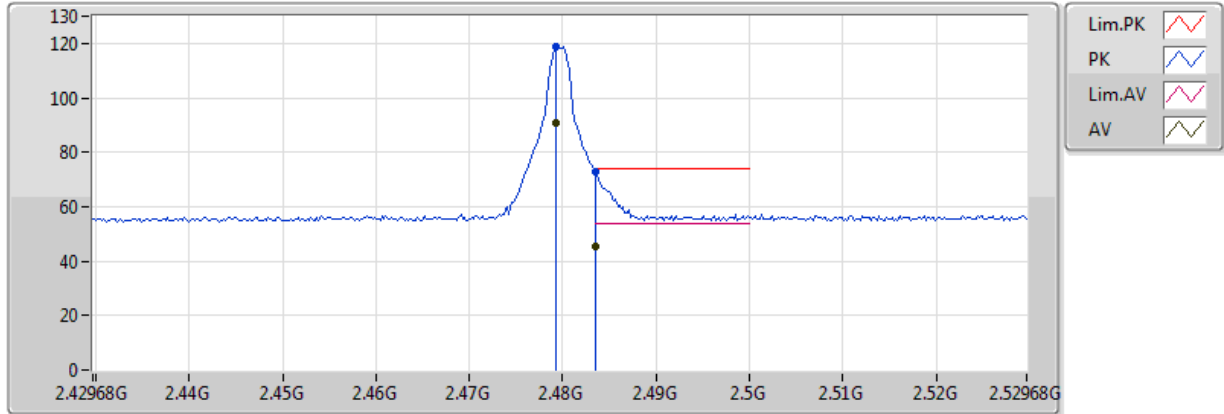


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.47928G	88.33	Inf	-Inf	30.90	3	Vertical	135	2.83	-	57.43	27.24	3.65	-
AV	2.483502G	42.42	54.00	-11.58	30.91	3	Vertical	135	2.83	-	11.51	27.25	3.66	-
PK	2.47928G	115.84	Inf	-Inf	30.90	3	Vertical	135	2.83	-	84.94	27.24	3.65	-
PK	2.483502G	69.93	74.00	-4.07	30.91	3	Vertical	135	2.83	-	39.02	27.25	3.66	-

FHSS_Nss1_1TX

2479.68MHz_TX

21/04/2018

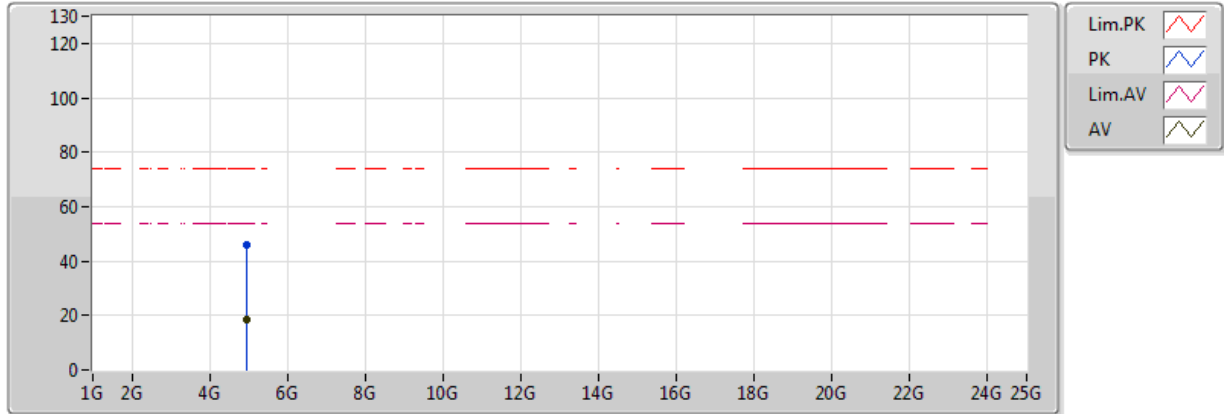


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.47928G	91.05	Inf	-Inf	30.90	3	Horizontal	40	1.03	-	60.15	27.24	3.65	-
AV	2.483502G	45.23	54.00	-8.77	30.91	3	Horizontal	40	1.03	-	14.32	27.25	3.66	-
PK	2.47928G	118.56	Inf	-Inf	30.90	3	Horizontal	40	1.03	-	87.66	27.24	3.65	-
PK	2.483502G	72.74	74.00	-1.26	30.91	3	Horizontal	40	1.03	-	41.83	27.25	3.66	-

FHSS_Nss1_1TX

2479.68MHz_TX

21/04/2018

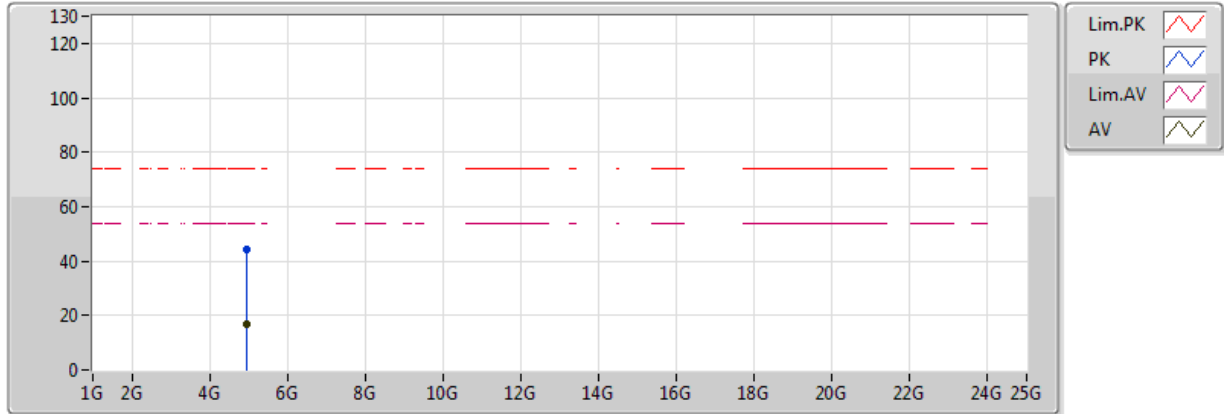


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95978G	18.66	54.00	-35.34	1.52	3	Vertical	49	1.00	-	17.14	31.44	5.29	35.21
PK	4.95978G	46.17	74.00	-27.83	1.52	3	Vertical	49	1.00	-	44.65	31.44	5.29	35.21

FHSS_Nss1_1TX

2479.68MHz_TX

21/04/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95984G	16.55	54.00	-37.45	1.52	3	Horizontal	2	1.01	-	15.03	31.44	5.29	35.21
PK	4.95984G	44.06	74.00	-29.94	1.52	3	Horizontal	2	1.01	-	42.54	31.44	5.29	35.21



RSE RX below 1GHz Result

Appendix H.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	771.08M	40.12	46.00	-5.88	-8.16	3	Vertical	0	1.00	-

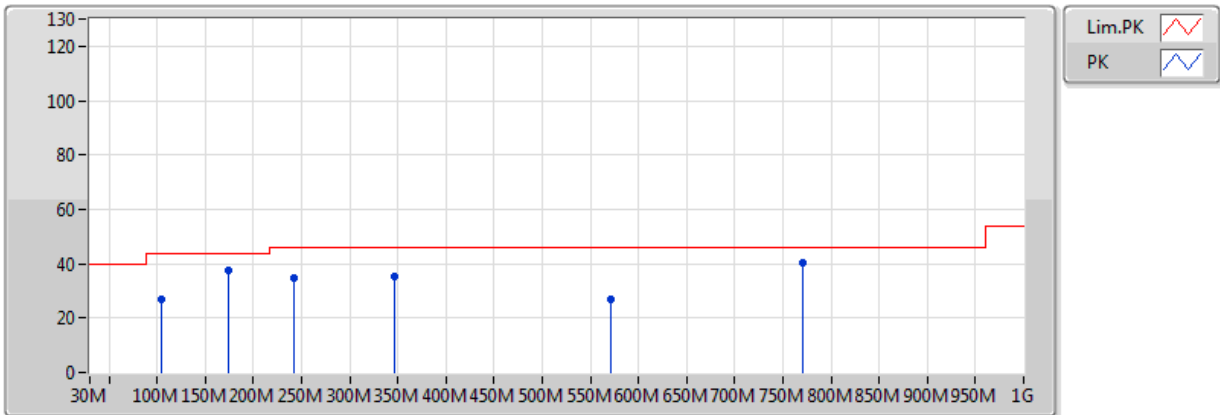
Result

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	-	-	-	-	-	-	-	-	-	-	-	-
2438.20MHz	Pass	PK	58.15M	32.58	40.00	-7.42	-25.47	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	143.10M	22.85	43.50	-20.65	-19.35	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	172.24M	31.98	43.50	-11.52	-20.86	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	289.96M	22.69	46.00	-23.31	-16.85	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	567.38M	27.81	46.00	-18.19	-10.53	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	774.12M	39.10	46.00	-6.90	-8.13	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	103.72M	27.02	43.50	-16.48	-20.69	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	173.56M	37.30	43.50	-6.20	-20.94	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	241.56M	34.58	46.00	-11.42	-18.40	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	346.20M	35.12	46.00	-10.88	-15.55	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	571.26M	26.91	46.00	-19.09	-10.67	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	771.08M	40.12	46.00	-5.88	-8.16	3	Vertical	0	1.00	-

FHSS_Nss1_1RX

2438.20MHz_Adapter

08/05/2018

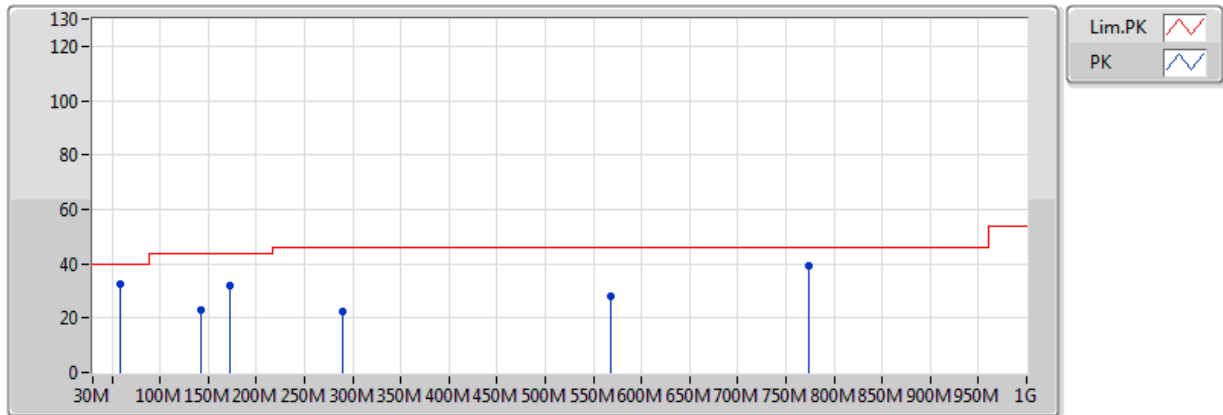


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	103.72M	27.02	43.50	-16.48	-20.69	3	Vertical	0	1.00	-	47.71	15.52	0.57	36.79
PK	173.56M	37.30	43.50	-6.20	-20.94	3	Vertical	0	1.00	-	58.24	14.55	1.00	36.49
PK	241.56M	34.58	46.00	-11.42	-18.40	3	Vertical	0	1.00	-	52.98	16.77	1.23	36.40
PK	346.20M	35.12	46.00	-10.88	-15.55	3	Vertical	0	1.00	-	50.67	19.49	1.48	36.52
PK	571.26M	26.91	46.00	-19.09	-10.67	3	Vertical	0	1.00	-	37.58	24.82	1.63	37.11
PK	771.08M	40.12	46.00	-5.88	-8.16	3	Vertical	0	1.00	-	48.28	27.32	1.96	37.44

FHSS_Nss1_1RX

2438.20MHz_Adapter

08/05/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	58.15M	32.58	40.00	-7.42	-25.47	3	Horizontal	360	1.00	-	58.05	11.18	0.44	37.09
PK	143.10M	22.85	43.50	-20.65	-19.35	3	Horizontal	360	1.00	-	42.20	16.51	0.77	36.62
PK	172.24M	31.98	43.50	-11.52	-20.86	3	Horizontal	360	1.00	-	52.84	14.64	1.00	36.50
PK	289.96M	22.69	46.00	-23.31	-16.85	3	Horizontal	360	1.00	-	39.54	18.20	1.38	36.43
PK	567.38M	27.81	46.00	-18.19	-10.53	3	Horizontal	360	1.00	-	38.34	24.95	1.63	37.10
PK	774.12M	39.10	46.00	-6.90	-8.13	3	Horizontal	360	1.00	-	47.23	27.34	1.98	37.44



RSE RX above 1GHz Result

Appendix H.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	AV	3.8G	30.15	54.00	-23.85	-0.91	3	Vertical	0	1.00	-

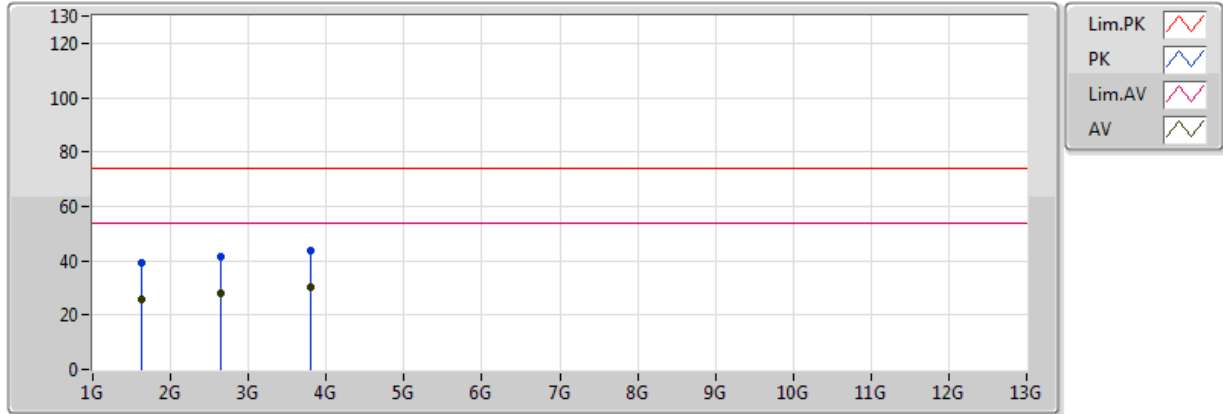
Result

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	-	-	-	-	-	-	-	-	-	-	-	-
2438.20MHz	Pass	AV	1.7G	26.19	54.00	-27.81	-6.25	3	Horizontal	360	1.00	-
2438.20MHz	Pass	AV	2.43G	27.59	54.00	-26.41	-4.23	3	Horizontal	360	1.00	-
2438.20MHz	Pass	AV	3.78G	30.03	54.00	-23.97	-0.96	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	1.7G	38.80	74.00	-35.20	-6.25	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	2.43G	41.33	74.00	-32.67	-4.23	3	Horizontal	360	1.00	-
2438.20MHz	Pass	PK	3.78G	42.57	74.00	-31.43	-0.96	3	Horizontal	360	1.00	-
2438.20MHz	Pass	AV	1.626498G	26.03	54.00	-27.97	-6.43	3	Vertical	0	1.00	-
2438.20MHz	Pass	AV	2.65G	28.11	54.00	-25.89	-3.66	3	Vertical	0	1.00	-
2438.20MHz	Pass	AV	3.8G	30.15	54.00	-23.85	-0.91	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	1.626498G	39.14	74.00	-34.86	-6.43	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	2.65G	41.25	74.00	-32.75	-3.66	3	Vertical	0	1.00	-
2438.20MHz	Pass	PK	3.8G	43.63	74.00	-30.37	-0.91	3	Vertical	0	1.00	-

FHSS_Nss1_1RX

2438.20MHz_RX

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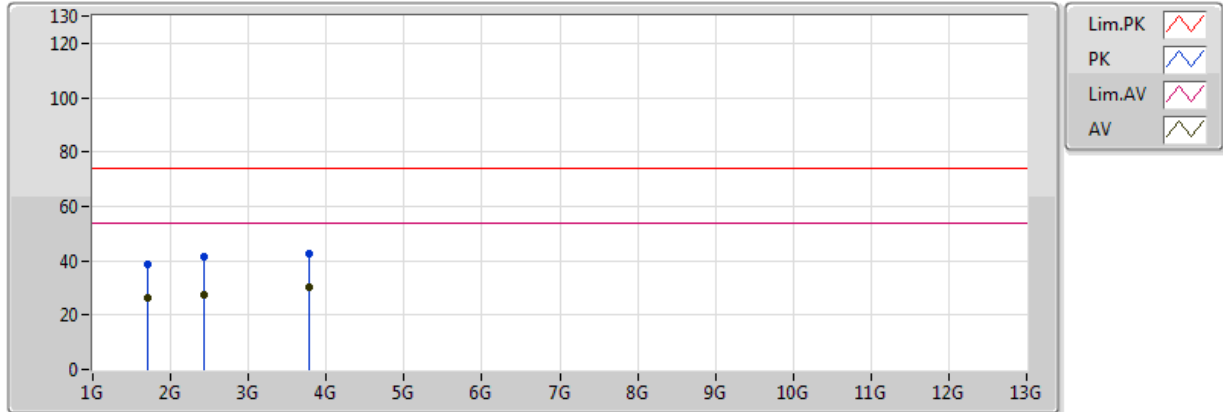


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	1.626498G	26.03	54.00	-27.97	-6.43	3	Vertical	0	1.00	-	32.46	25.83	3.16	35.42
AV	2.65G	28.11	54.00	-25.89	-3.66	3	Vertical	0	1.00	-	31.76	27.60	4.05	35.31
AV	3.8G	30.15	54.00	-23.85	-0.91	3	Vertical	0	1.00	-	31.06	29.36	4.84	35.11
PK	1.626498G	39.14	74.00	-34.86	-6.43	3	Vertical	0	1.00	-	45.57	25.83	3.16	35.42
PK	2.65G	41.25	74.00	-32.75	-3.66	3	Vertical	0	1.00	-	44.91	27.60	4.05	35.31
PK	3.8G	43.63	74.00	-30.37	-0.91	3	Vertical	0	1.00	-	44.54	29.36	4.84	35.11

FHSS_Nss1_1RX

2438.20MHz_RX

08/05/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	1.7G	26.19	54.00	-27.81	-6.25	3	Horizontal	360	1.00	-	32.44	25.90	3.23	35.38
AV	2.43G	27.59	54.00	-26.41	-4.23	3	Horizontal	360	1.00	-	31.82	27.14	3.90	35.27
AV	3.78G	30.03	54.00	-23.97	-0.96	3	Horizontal	360	1.00	-	30.99	29.32	4.83	35.11
PK	1.7G	38.80	74.00	-35.20	-6.25	3	Horizontal	360	1.00	-	45.05	25.90	3.23	35.38
PK	2.43G	41.33	74.00	-32.67	-4.23	3	Horizontal	360	1.00	-	45.56	27.14	3.90	35.27
PK	3.78G	42.57	74.00	-31.43	-0.96	3	Horizontal	360	1.00	-	43.53	29.32	4.83	35.11