



FCC Test Report

FCC ID : PPQ-WSG300S
Equipment : Sigfox Module
Brand Name : LITE-ON
Model Name : WSG300S
Applicant : LITE-ON Technology Corp.
Bldg. C, 90, Chien 1 Road, Chung Ho, New
Taipei City 23585, Taiwan, R.O.C
Manufacturer : LITE-ON TECHNOLOGY (Changzhou) CO., LTD
A9 Building, No. 88 Yanghu Road, Wujin Hi-Tech
Industrial Development Zone, Changzhou City,
Jiangsu Province 213100 China
Standard : 47 CFR FCC Part 15.247

The product was received on Mar. 22, 2019, and testing was started from Apr. 02, 2019 and completed on Apr. 08, 2019. 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

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 Support Equipment.....	9
2.5 Test Setup Diagram	9
3 TRANSMITTER TEST RESULT	11
3.1 AC Power-line Conducted Emissions	11
3.2 20dB Bandwidth and Carrier Frequency Separation.....	12
3.3 Maximum Conducted Output Power	13
3.4 Number of Hopping Frequencies and Hopping Bandedge	14
3.5 Time of Occupancy (Dwell Time)	15
3.6 Emissions in Non-restricted Frequency Bands	16
3.7 Emissions in Restricted Frequency Bands.....	17
4 TEST EQUIPMENT AND CALIBRATION DATA	20
APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS	
APPENDIX B. TEST RESULTS OF 20DB BANDWIDTH AND CARRIER FREQUENCY SEPARATION	
APPENDIX C. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER	
APPENDIX D. TEST RESULTS OF NUMBER OF HOPPING FREQUENCIES AND HOPPING BANDEDGE	
APPENDIX E. TEST RESULTS OF TIME OF OCCUPANCY (DWELL TIME)	
APPENDIX F. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS	
APPENDIX G. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS	
APPENDIX H. 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	15.203	Antenna Requirement	PASS	FCC 15.203
3.1	15.207	AC Power-line Conducted Emissions	PASS	FCC 15.207
3.2	15.247(a)	20dB Bandwidth	PASS	15.247(a)
3.2	15.247(a)	Carrier Frequency Separation	PASS	15.247(a)
3.3	15.247(b)	Maximum Conducted Output Power	PASS	15.247(b)
3.4	15.247(a)	Number of Hopping Frequencies and Hopping Bandedge	PASS	15.247(a)
3.5	15.247(a)	Time of Occupancy (Dwell Time)	PASS	15.247(a)
3.6	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	15.247(d)
3.7	15.247(d)	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: FCC 15.209

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

None.

Reviewed by: Sam Tsai

Report Producer: Ann Hou

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Modulation	Ch. Frequency (MHz)	Channel Number
902 ~ 904.8 MHz	DBPSK	902.1375 - 904.6625	54

Band	Mode	BWch (MHz)	Nant
902 ~ 904.8 MHz	DBPSK	0.025	1TX

Note:

- ♦ DBPSK uses as a system using FHSS modulation.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	Walsin	RFDPA131015IMRB301	Dipole	I-PEX
2	UnaBiz	swra496	PCB Helical	N/A

Ant.	Port	Gain (dBi)
1	1	3.01
2	2	-1.0

Note 1: EUT supports two types of antenna.

Note 2: EUT can match with above antennas for using. Higher gain in each type of antenna was used to perform the worst configuration and result of that was recorded as the final test result.

Note 3: The antenna 1 will not be sold with the EUT in the market.

For DBPSK function:

For DBPSK mode (1TX/1RX)

Ant. 1 (port 1) could transmit/receive simultaneously.

1.1.3 Type of EUT

Operational Condition	
EUT Power Type	From Host System
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 Test Signal Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
DBPSK	0.947	0.24	8.175m	300

1.2 Testing Applied Standards

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

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- KDB 558074 D01 v05v02

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	
Test site Designation No. TW1190 with FCC.				
☐	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 site Designation No. TW0006 with FCC.				

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Lego	21.2~23.9°C / 56.2~59.1%	02/Apr/2019
RF Conducted	TH01-HY	Barry	21.6~22.5°C / 58.9~66.4%	03/Apr/2019 ~ 08/Apr/2019
Radiated (Dipole)	03CH02-HY	Patrick	24.1~26.3°C / 54.5~57.8%	04/Apr/2019
Radiated (PCB)	03CH02-HY	Patrick	24.6~25.8°C / 55.2~58.2%	04/Apr/2019

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)	3.54 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	1.6 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	3.3V

2.2 Test Channel Mode

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

Mode	Power Setting
DBPSK	-
902.1375MHz	-23
904.6625MHz	-23

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 Test Voltage: 120Vac / 60Hz
Operating Mode	CTX
1	USB mode

The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power, 20dB Bandwidth, Carrier Frequency Separation (ChS) Number of Hopping Frequencies (N), 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		
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		
1	USB mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT	V		

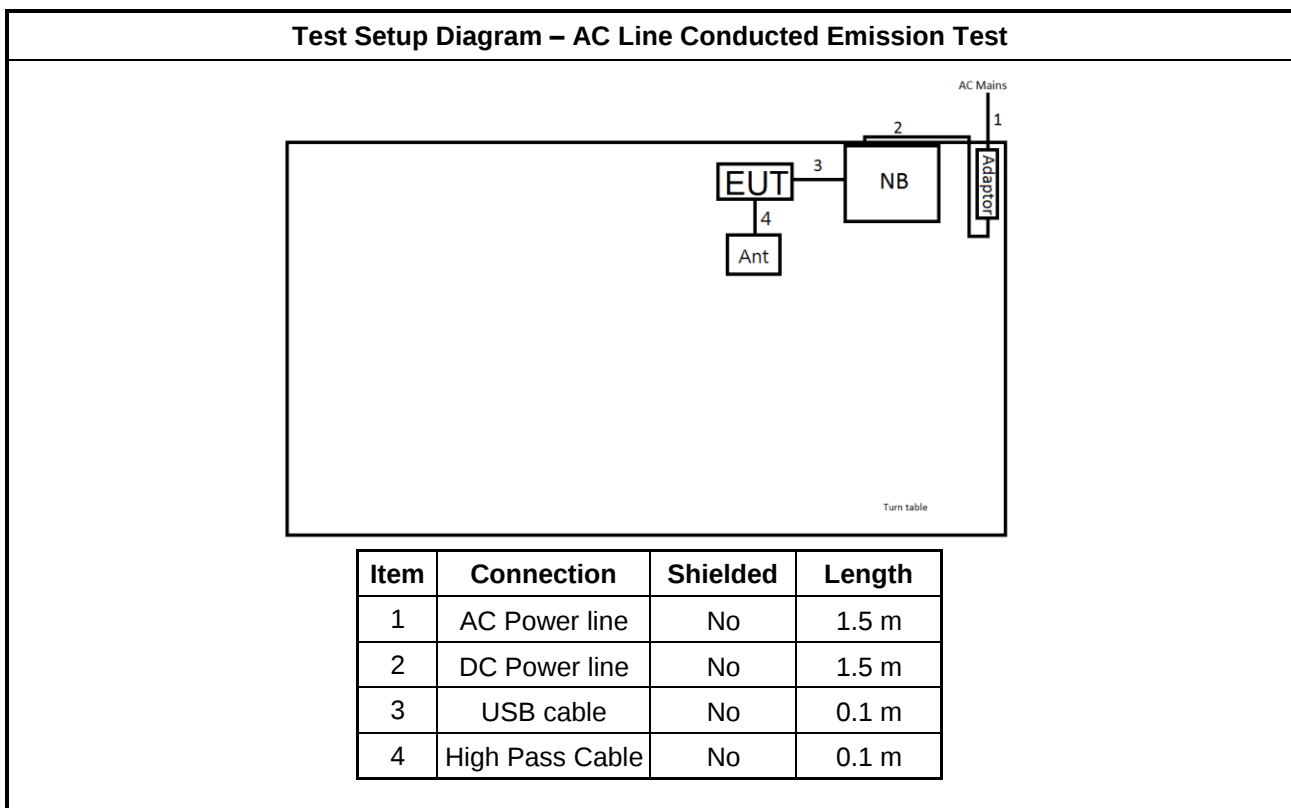
2.4 Support Equipment

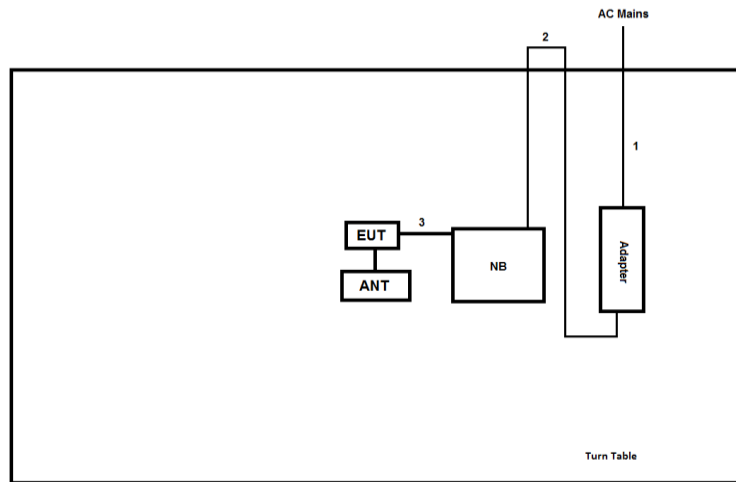
Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5540	DoC
2	Adapter for Notebook	DELL	LA90PS0-00	DoC

Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for Notebook	DELL	HA65NM130	DoC

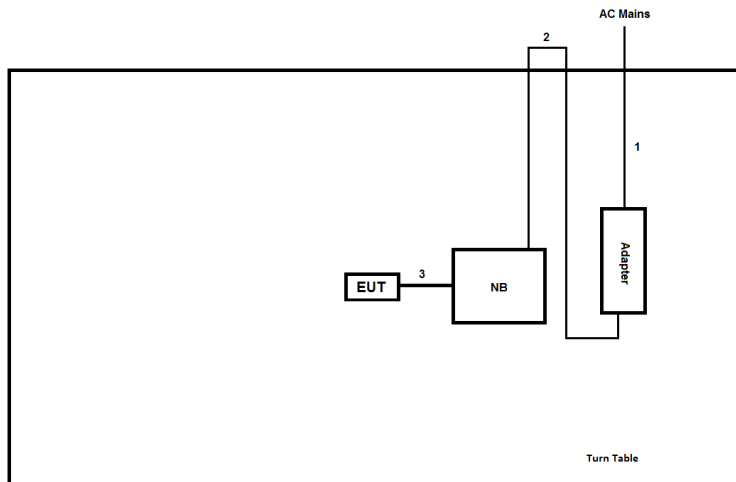
Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5540	DoC
2	Adapter for Notebook	DELL	LA90PS0-00	DoC

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test (Dipole)


Item	Connection	Shielded	Length
1	AC Power line	No	1.5m
2	DC Power line	No	1.5 m
3	USB cable	No	0.1m

Test Setup Diagram - Radiated Test (PCB)


Item	Connection	Shielded	Length
1	AC Power line	No	1.5m
2	DC Power line	No	1.5 m
3	USB cable	No	0.1m

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.

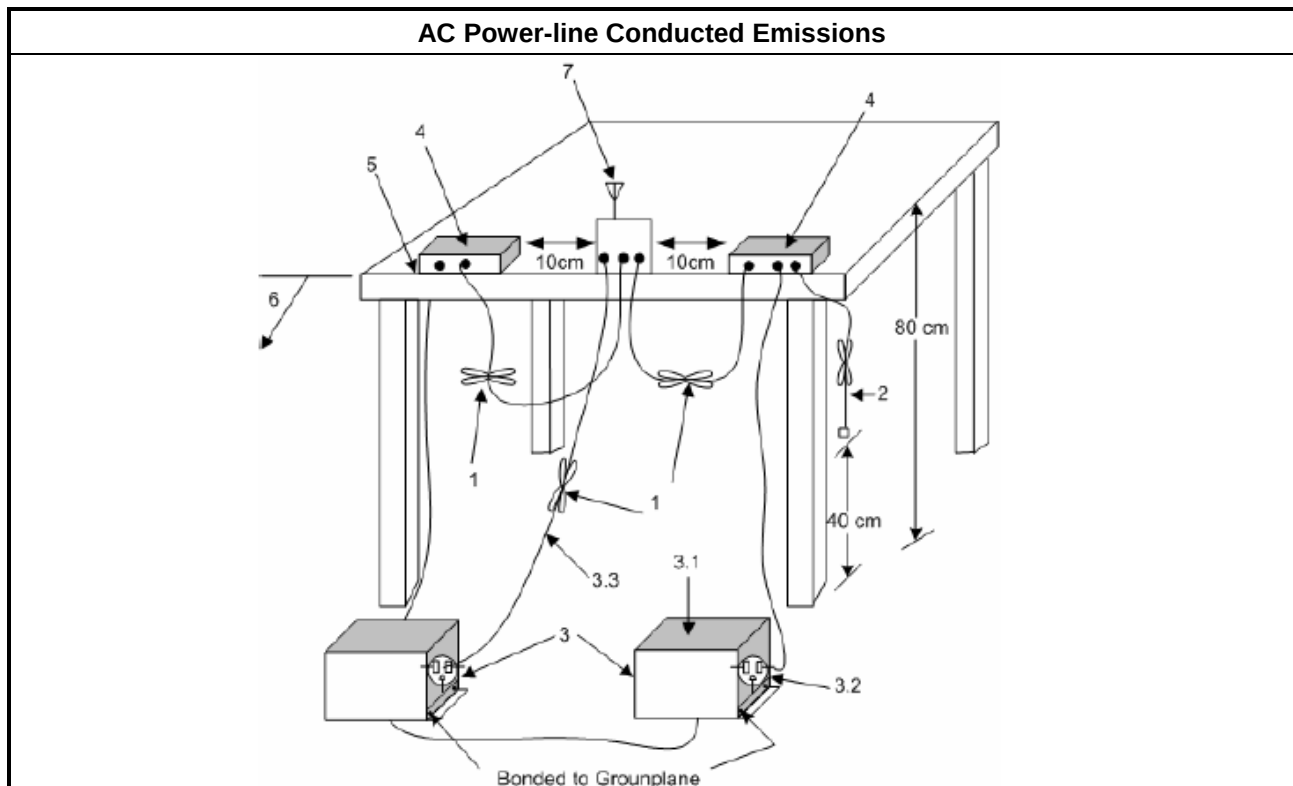
3.1.2 Measuring Instruments

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 for AC power-line conducted emissions.

3.1.4 Test Setup



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	
▪ 902-928 MHz Band:	
	▪ $N \geq 50$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 250 kHz.
	▪ $50 > N \geq 25$ and $ChS \geq \text{MAX}$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz.
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

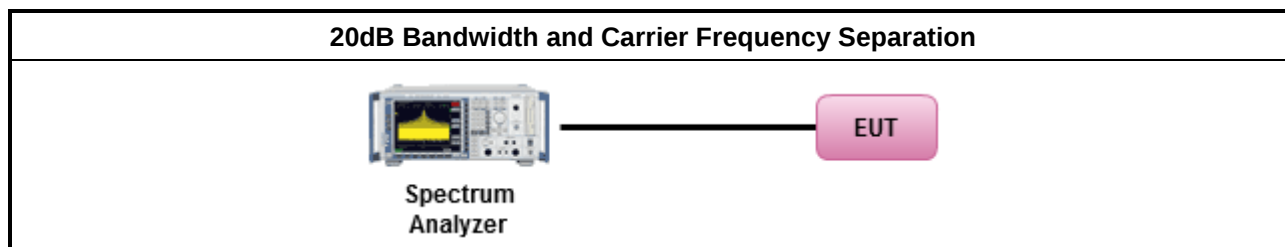
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10, clause 6.9.2 for 20 dB bandwidth measurement.
☒ Refer as ANSI C63.10, 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	
902-928 MHz Band:	
	$N \geq 50$; Power 30dBm; EIRP 36dBm
	$50 > N \geq 25$; Power 24dBm; EIRP 30dBm
N: Number of Hopping Frequencies	

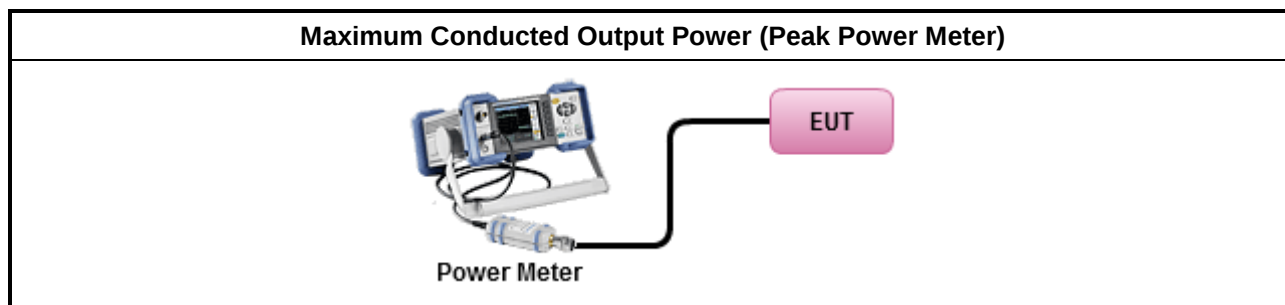
3.3.2 Measuring Instruments

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 for Frequency Hopping Systems	
902-928 MHz Band:	
	$N \geq 50$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $\leq$ 250 kHz.
	$50 > N \geq 25$ and $ChS \geq MAX$ (20 dB bandwidth, 25 kHz); 20 dB bandwidth $>$ 250 kHz.
N: Number of Hopping Frequencies; ChS: Hopping Channel Separation	

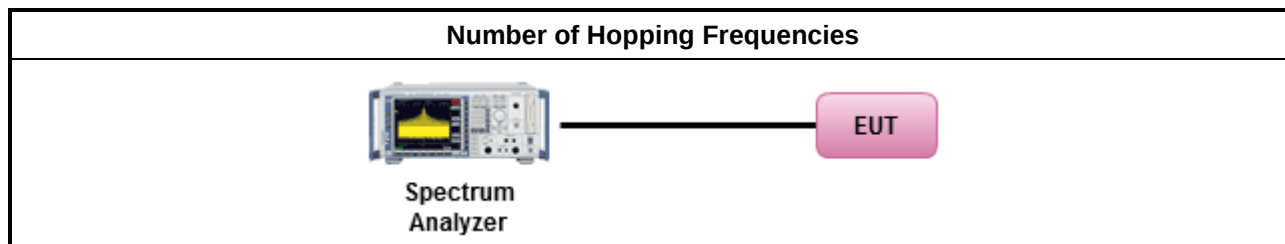
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



3.4.5 Test Result of Number of Hopping Frequencies

Refer as Appendix D

3.4.6 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	
902-928 MHz Band:	
	$N \geq 50$; 0.4s in 20s period
	$50 > N \geq 25$; 0.4s in 10s period
N: Number of Hopping Frequencies	

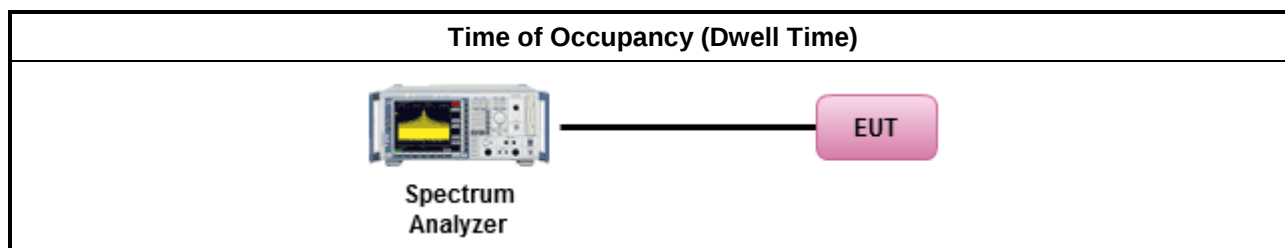
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as ANSI C63.10, clause 7.8.4 for dwell time measurement.

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.	

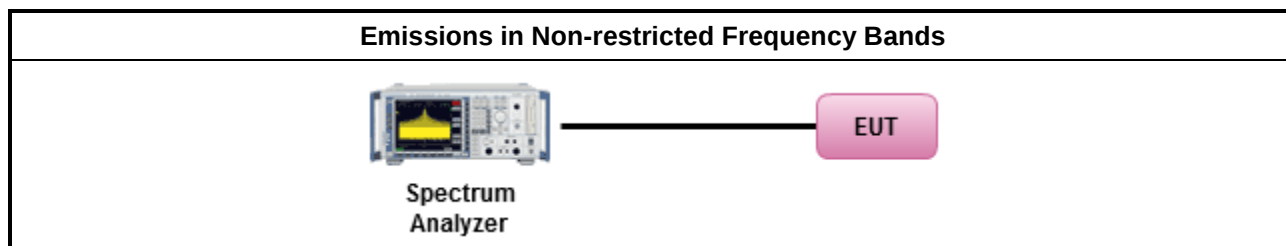
3.6.2 Measuring Instruments

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 Transmitter Radiated Bandedge Emissions

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.

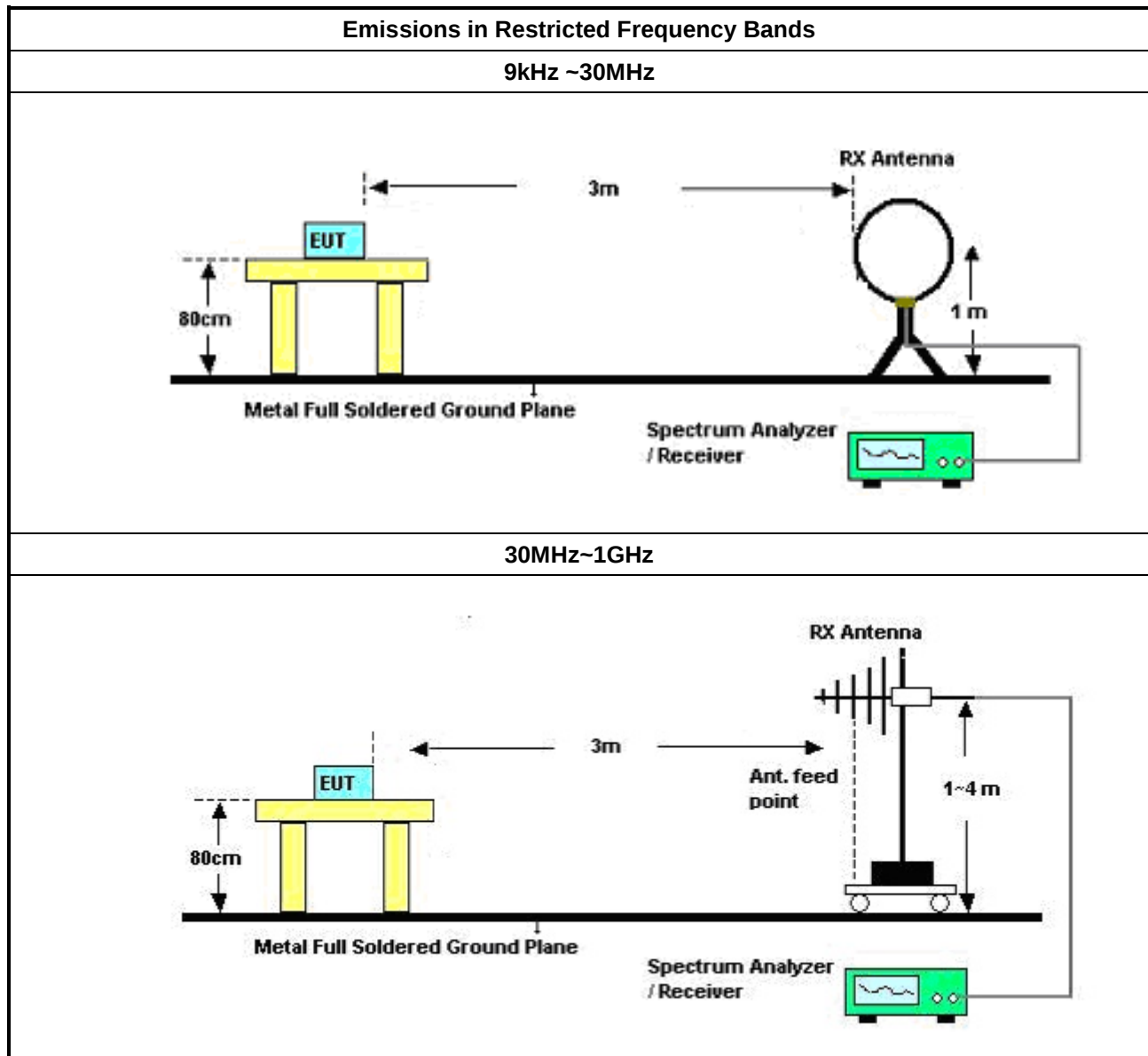
3.7.2 Measuring Instruments

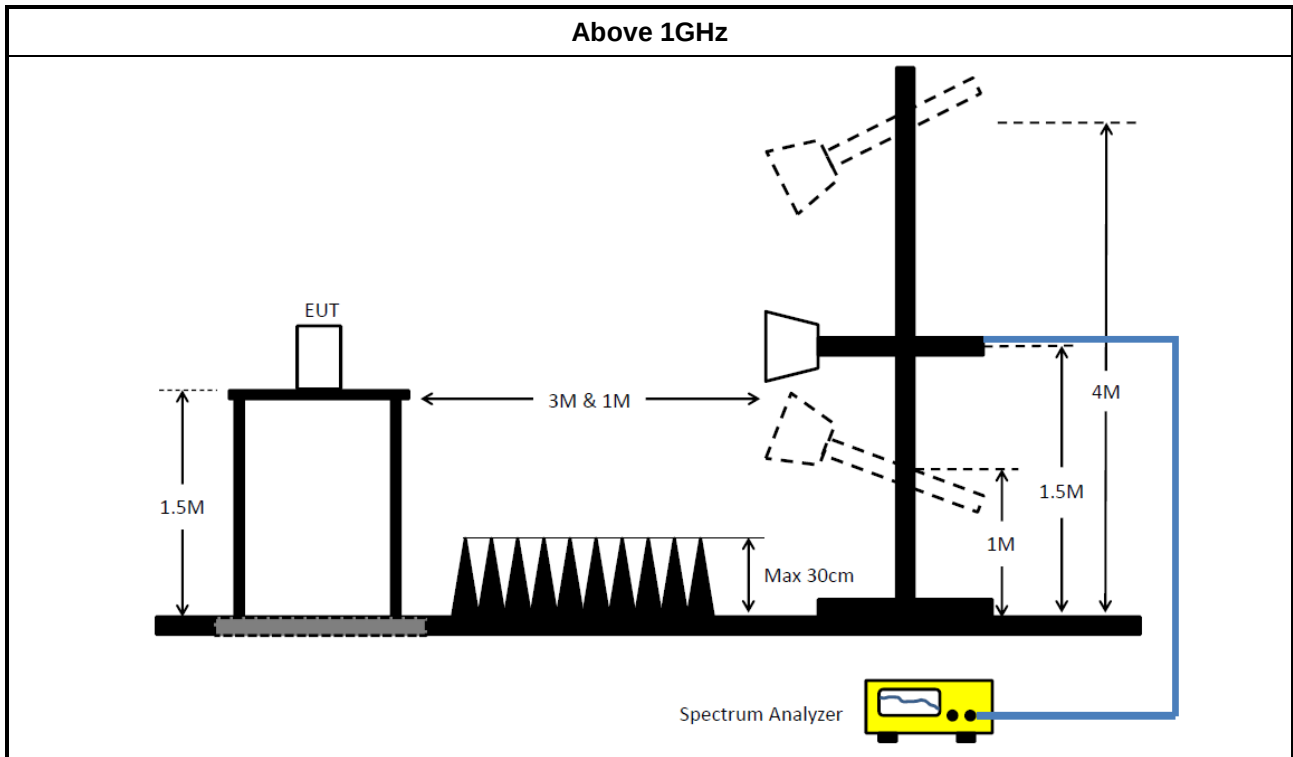
Refer a test equipment and calibration data table in this test report.

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)

All amplitude of spurious emissions that are attenuated by more than 20 dB 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

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	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	08/Nov/2018	07/Nov/2019
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	17/Sep/2018	16/Sep/2019
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Puls e Limiter	SCHWARZBEC K	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2018	11/Oct/2019

NCR : Non-Calibration Require

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	19/Oct/2018	18/Oct/2019
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz ~ 18GHz 3m	17/Oct/2018	16/Oct/2019
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	27Jul/2018	02/Jul/2019
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	23/Oct/2018	22/Oct/2019
Signal Analyzer	R&S	FSV40	101500	10Hz ~ 40GHz	18/Jul/2018	17/Jul/2019
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	18/Jan/2019	17/Jan/2020
RF Cable-high	SUHNER	SUCOFLEX104	MY34918/4	1GHz ~ 40GHz	18/Jan/2019	17/Jan/2020
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723 / 2	30MHz ~ 1GHz	08/Sep/2018	07/Sep/2019
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	10/Apr/2018	09/Apr/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	15/Mar/2019	14/Mar/2020
Double Ridged Guide Horn Antenna	SCHWARZBEC K	BBHA 9120 D	BBHA 9120 D 01543	1GHz ~ 18GHz	11/May/2018	10/May/2019

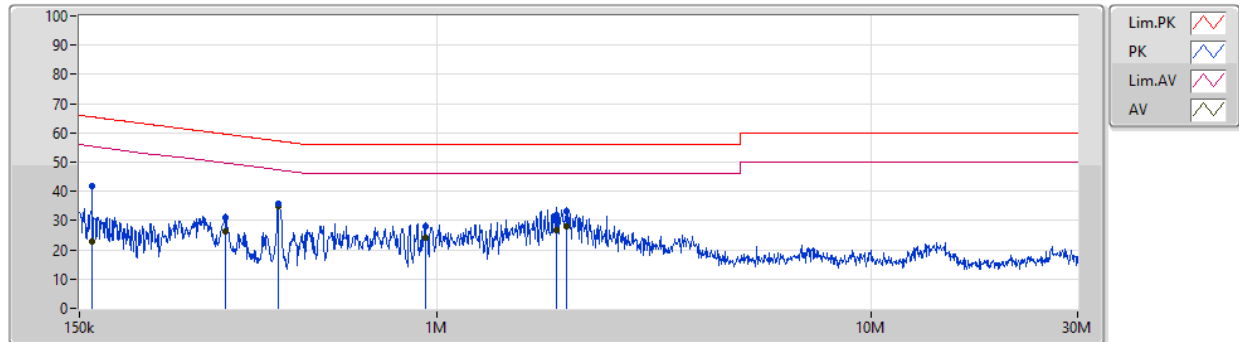
Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101500	10Hz~40GHz	18/Jul/2018	17/Jul/2019
Cable 0.2m	HUBER	MY10710/4	RF Cable - 01	30MHz ~18G	10/Jan/2019	09/Jan/2020
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	12/Nov/2018	10/Nov/2020

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	USB mode		

02/04/2019

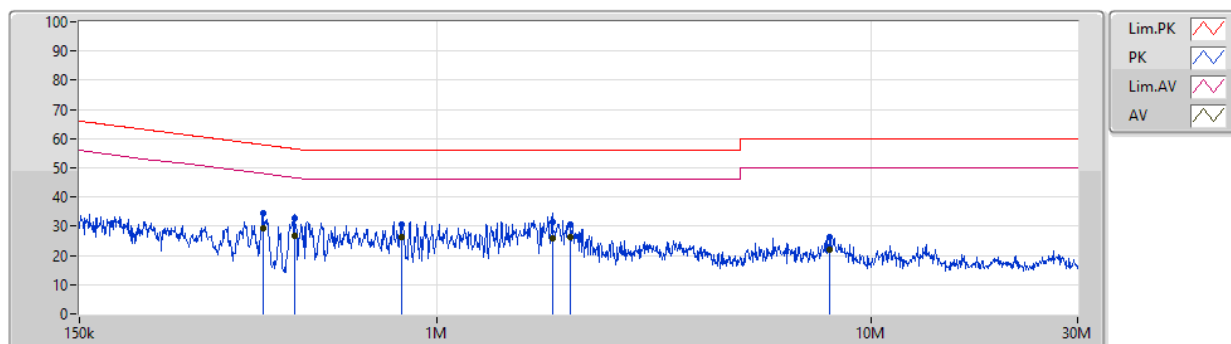


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	159.893k	41.64	65.46	-23.82	19.48	Neutral	-	22.16	9.60	0.01	9.87			
AV	159.893k	22.96	55.46	-32.50	19.48	Neutral	-	3.48	9.60	0.01	9.87			
QP	325.41k	31.01	59.58	-28.57	19.48	Neutral	-	11.53	9.59	0.01	9.88			
AV	325.41k	26.28	49.58	-23.30	19.48	Neutral	-	6.80	9.59	0.01	9.88			
QP	432.041k	35.68	57.20	-21.52	19.48	Neutral	-	16.20	9.59	0.01	9.88			
AV	432.041k	35.07	47.20	-12.13	19.48	Neutral	"Worst"	15.59	9.59	0.01	9.88			
QP	941.021k	28.01	56.00	-27.99	19.49	Neutral	-	8.52	9.59	0.02	9.88			
AV	941.021k	23.94	46.00	-22.06	19.49	Neutral	-	4.45	9.59	0.02	9.88			
QP	1.885M	31.80	56.00	-24.20	19.53	Neutral	-	12.27	9.61	0.03	9.89			
AV	1.885M	26.89	46.00	-19.11	19.53	Neutral	-	7.36	9.61	0.03	9.89			
QP	1.993M	33.33	56.00	-22.67	19.53	Neutral	-	13.80	9.61	0.03	9.89			
AV	1.993M	27.84	46.00	-18.16	19.53	Neutral	-	8.31	9.61	0.03	9.89			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	USB mode		

02/04/2019



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	397.299k	34.41	57.91	-23.50	19.48	Line	-	14.93	9.59	0.01	9.88			
AV	397.299k	29.19	47.91	-18.72	19.48	Line	"Worst"	9.71	9.59	0.01	9.88			
QP	469.822k	32.90	56.52	-23.62	19.48	Line	-	13.42	9.59	0.01	9.88			
AV	469.822k	26.74	46.52	-19.78	19.48	Line	-	7.26	9.59	0.01	9.88			
QP	831.484k	30.71	56.00	-25.29	19.50	Line	-	11.21	9.60	0.02	9.88			
AV	831.484k	26.40	46.00	-19.60	19.50	Line	-	6.90	9.60	0.02	9.88			
QP	1.848M	31.32	56.00	-24.68	19.54	Line	-	11.78	9.62	0.03	9.89			
AV	1.848M	25.69	46.00	-20.31	19.54	Line	-	6.15	9.62	0.03	9.89			
QP	2.025M	30.81	56.00	-25.19	19.54	Line	-	11.27	9.62	0.03	9.89			
AV	2.025M	26.24	46.00	-19.76	19.54	Line	-	6.70	9.62	0.03	9.89			
QP	8.06M	26.42	60.00	-33.58	19.61	Line	-	6.81	9.66	0.06	9.89			
AV	8.06M	22.00	50.00	-28.00	19.61	Line	-	2.39	9.66	0.06	9.89			

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
902-904.8MHz	-	-	-	-	-
DBPSK	7.969k	6.84k	6K84G1D	7.906k	6.778k

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;



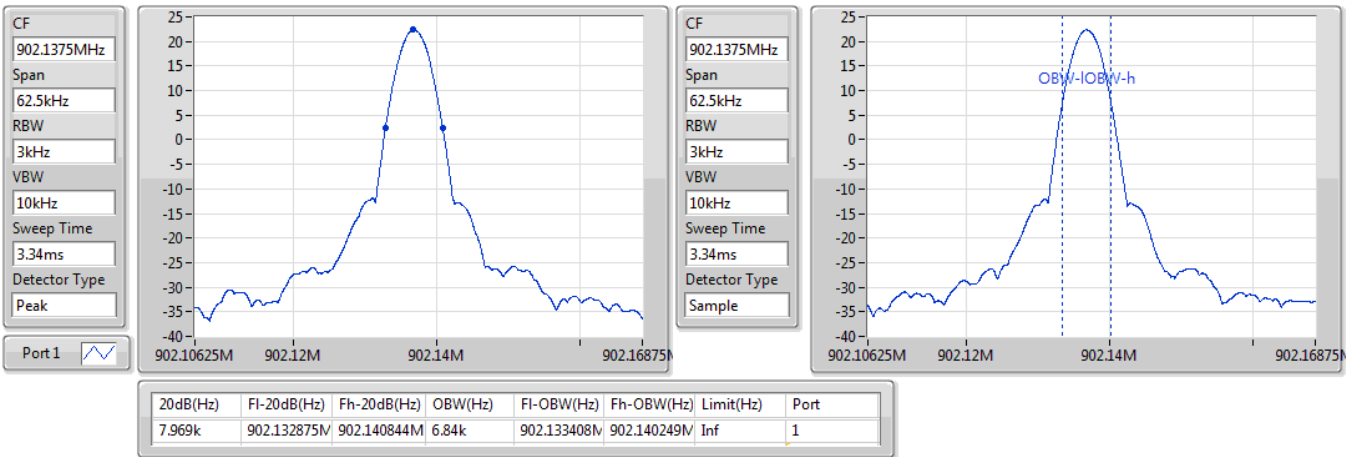
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
DBPSK	-	-	-	-
902.1375MHz	Pass	Inf	7.969k	6.84k
904.6625MHz	Pass	Inf	7.906k	6.778k

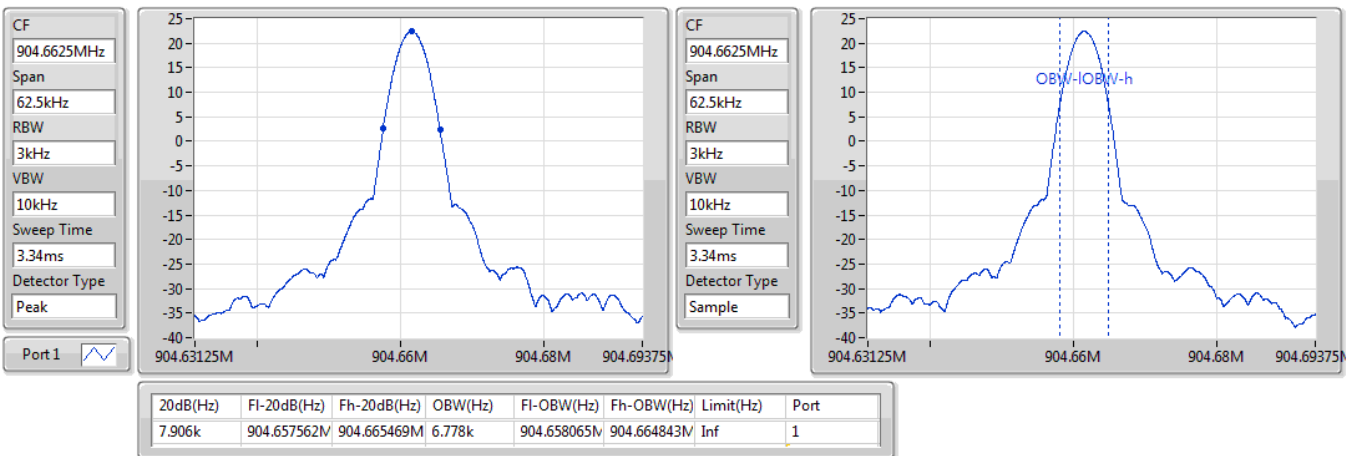
Port X-N dB = Port X 20dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

DBPSK
902.1375MHz

03/04/2019


DBPSK
904.6625MHz

03/04/2019





Summary

Mode	Max-Space (Hz)	Min-Space (Hz)
902-904.8MHz	-	-
DBPSK	25.3875k	25.05k

Result

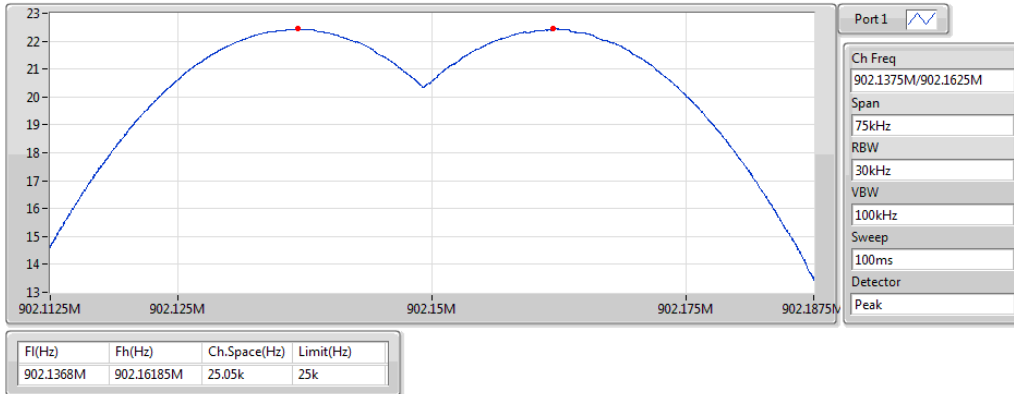
Mode	Result	Fl (Hz)	Fh (Hz)	Ch.Space (Hz)	Limit (Hz)
DBPSK	-	-	-	-	-
902.1375MHz	Pass	902.1368M	902.16185M	25.05k	25k
904.6625MHz	Pass	904.63605M	904.661438M	25.3875k	25k

DBPSK

Channel Separation

902.1375M/902.1625MHz

03/04/2019

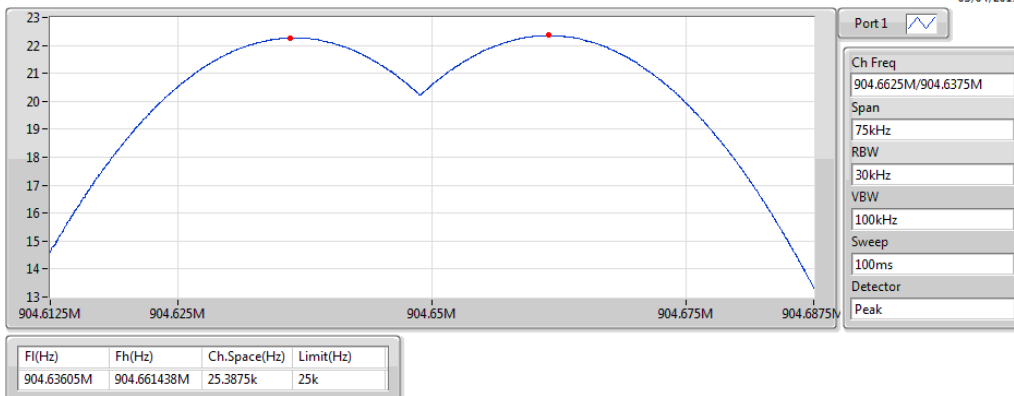


DBPSK

Channel Separation

904.6625M/904.6375MHz

03/04/2019





Summary

Mode	Power (dBm)	Power (W)
902-904.8MHz	-	-
DBPSK	23.37	0.21727



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
DBPSK	-	-	-	-
902.1375MHz	Pass	3.01	23.36	30.00
904.6625MHz	Pass	3.01	22.87	30.00

DG = Directional Gain; **Port X** = Port X output power



Summary

Mode	Power (dBm)	Power (W)
902-904.8MHz	-	-
DBPSK	22.22	0.16672



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
DBPSK	-	-	-	-
902.1375MHz	Pass	3.01	22.21	30.00
904.6625MHz	Pass	3.01	21.72	30.00

DG = Directional Gain; **Port X** = Port X output power



Summary

Mode	Max-Hop No
902-904.8MHz	-
DBPSK	54



Result

Mode	Result	Hopping No	Limit
DBPSK	-	-	-
Hopping	Pass	54	50

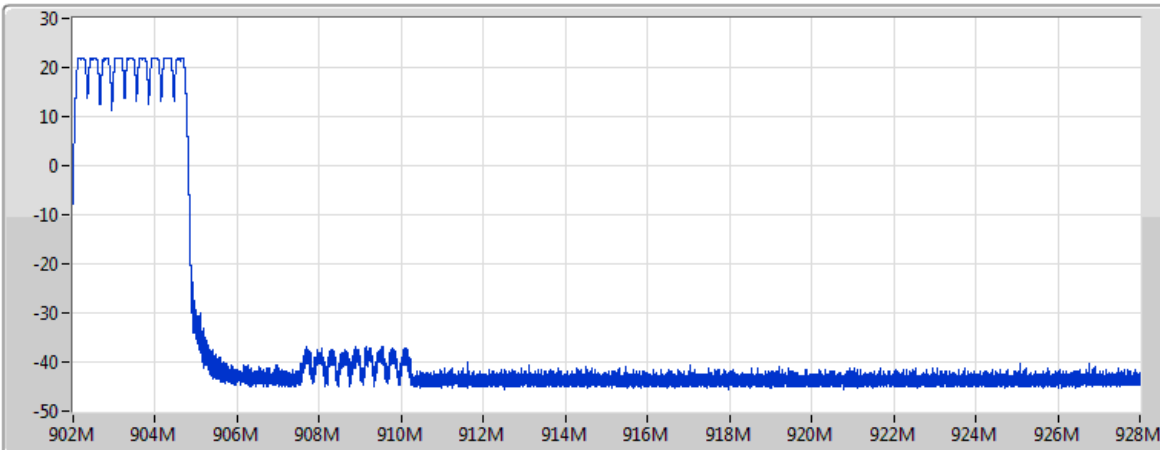
DBPSK Hopping

Hopping Ch

08/04/2019

Port 1 

Hopping No
54
Span
26MHz
RBW
100kHz
VBW
300kHz
Sweep
200ms
Detector
Peak



Hopping No	Limit
54	50

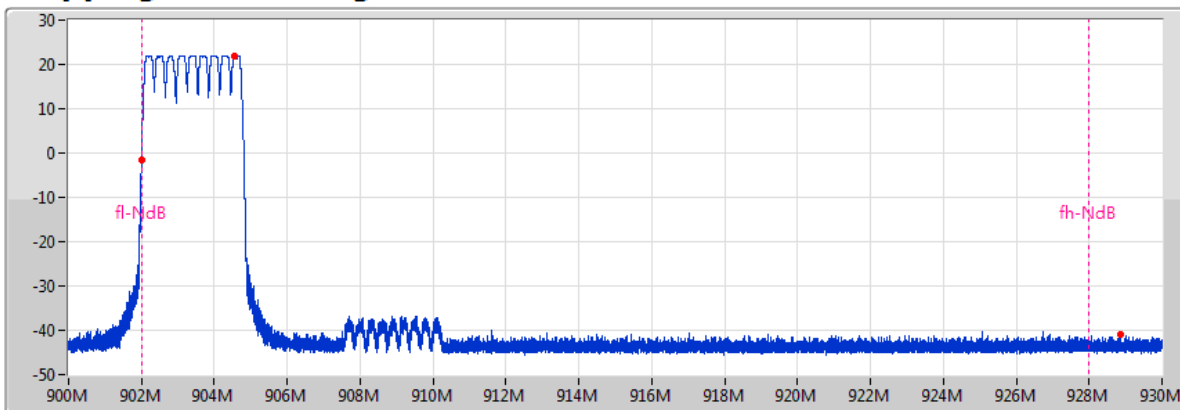
DBPSK Hopping

Hopping Ch Bandedge (Non-restricted Band)

08/04/2019

Port 1 

Span
30MHz
RBW
100kHz
VBW
300kHz
Sweep
200ms
Detector
Peak



Limit(dBm)	Ref(Hz)	Ref(dBm)	BE-l(Hz)	BE-l(dBm)	BE-h(Hz)	BE-h(dBm)
2.01	904.553438M	22.01	901.999688M	-1.58	928.87875M	-41



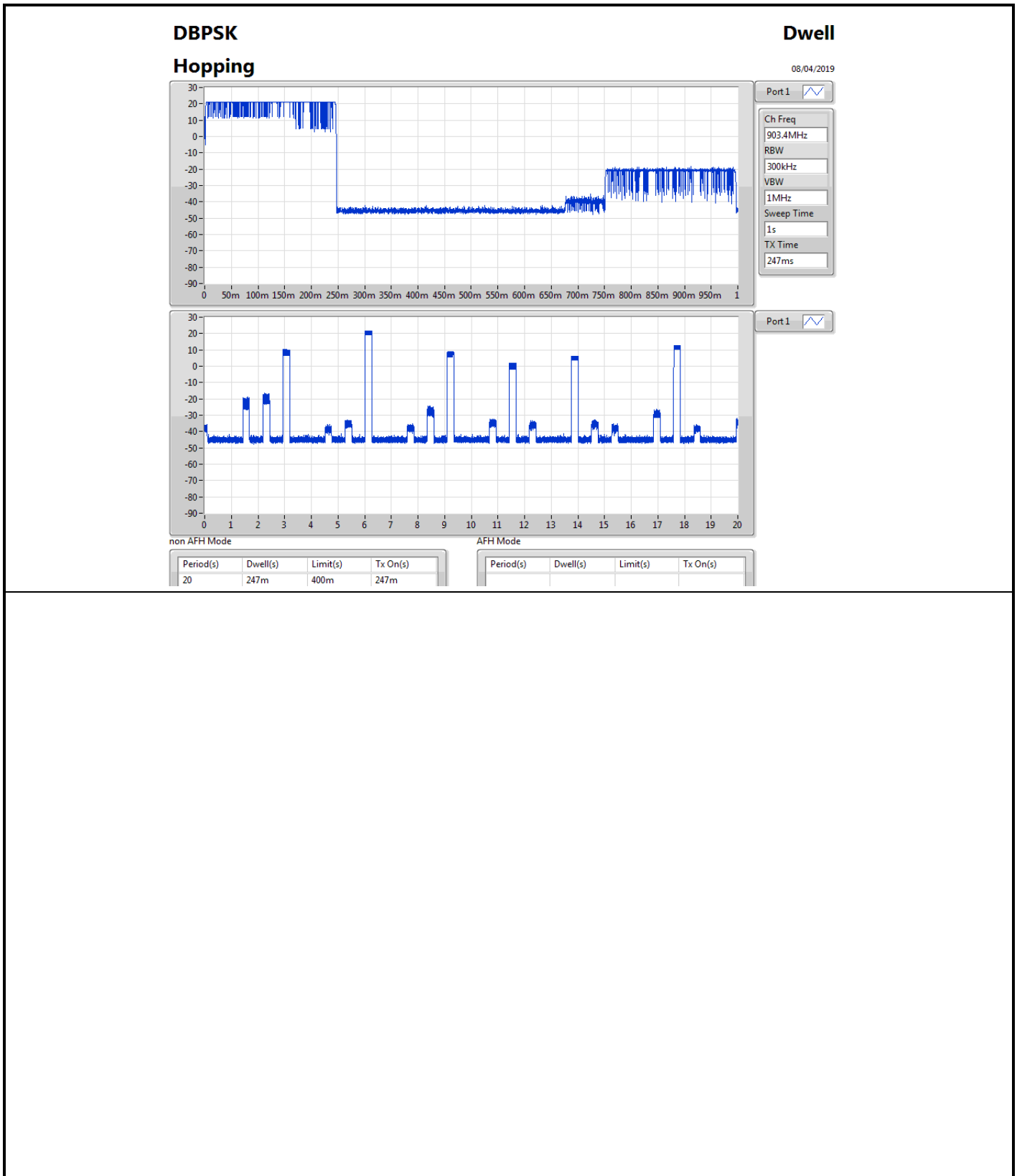
Summary

Mode	Max-Dwell (s)
902-904.8MHz	-
DBPSK	247m



Result

Mode	Result	Period (s)	Dwell (s)	Limit (s)	Tx On (s)
DBPSK	-	-	-	-	-
Hopping	Pass	20	247m	400m	247m





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
902-904.8MHz	-	-	-	-	-	-	-	-	-	-	-	-	-
DBPSK	Pass	902.1M	20.50	0.50	898.24M	-17.68	902M	-0.38	928M	-56.72	1.80349G	-18.90	1

Result

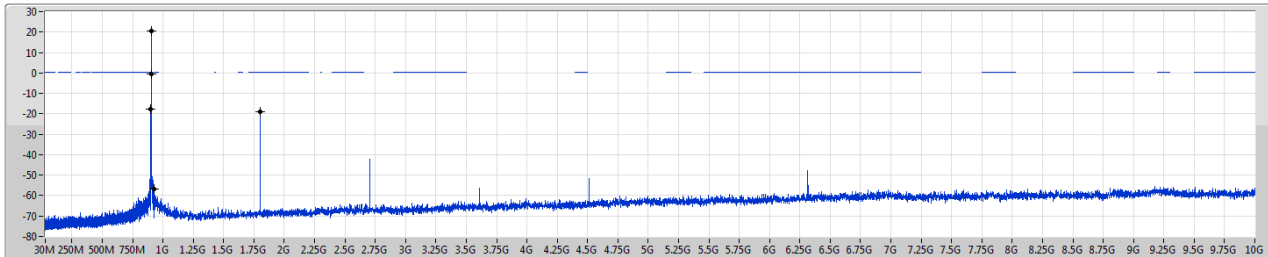
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
DBPSK	-	-	-	-	-	-	-	-	-	-	-	-	-
902.1375MHz	Pass	902.1M	20.50	0.50	898.24M	-17.68	902M	-0.38	928M	-56.72	1.80349G	-18.90	1
904.6625MHz	Pass	904.63M	20.51	0.51	900.75M	-17.08	901.99M	-29.00	928.04M	-56.72	1.80916G	-19.20	1

DBPSK

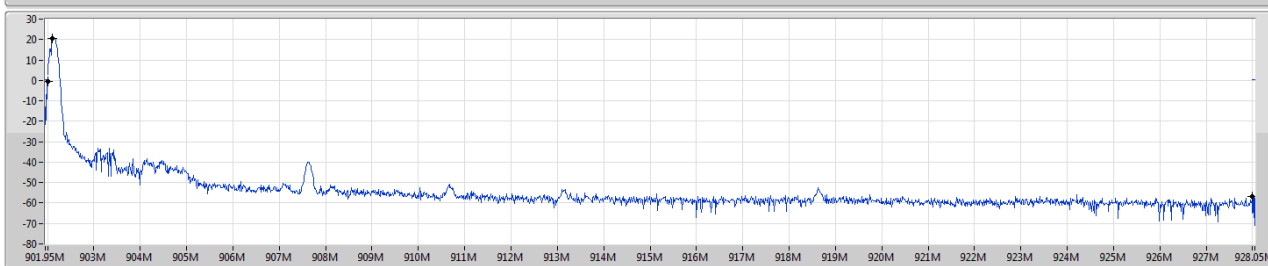
CSE NdB

902.1375MHz

03/04/2019



Port1

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

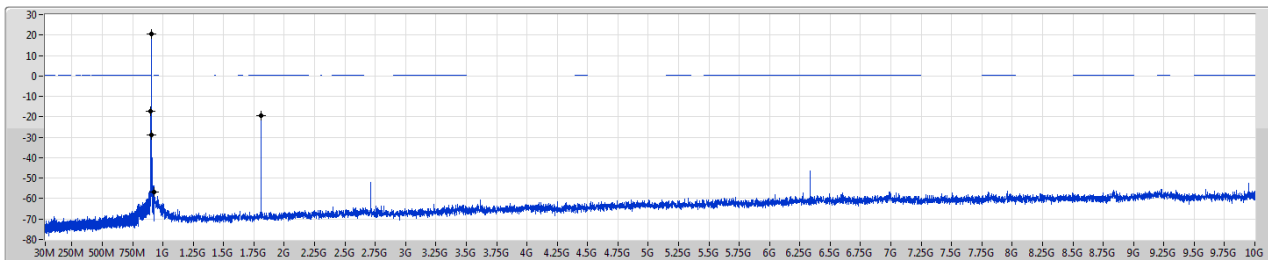
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
902.1M	20.50	0.50	898.24M	-17.68	902M	-0.38	928M	-56.72	1.80349G	-18.90	1

DBPSK

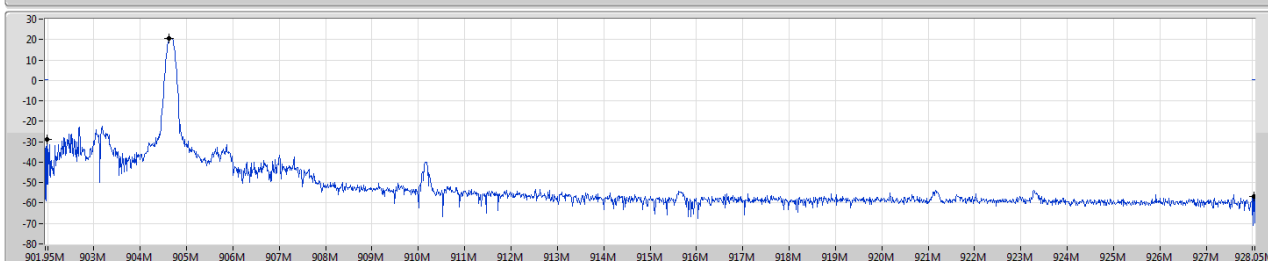
CSE NdB

904.6625MHz

03/04/2019



Port1

RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
904.63M	20.51	0.51	900.75M	-17.08	901.99M	-29.00	928.04M	-56.72	1.80916G	-19.20	1



RSE TX below 1GHz (Dipole Antenna)

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
902-904.8MHz	-	-	-	-	-	-	-	-	-	-	-	-
DBPSK	Pass	QP	132.82M	40.46	43.50	-3.04	-9.21	3	Horizontal	354	1.32	-

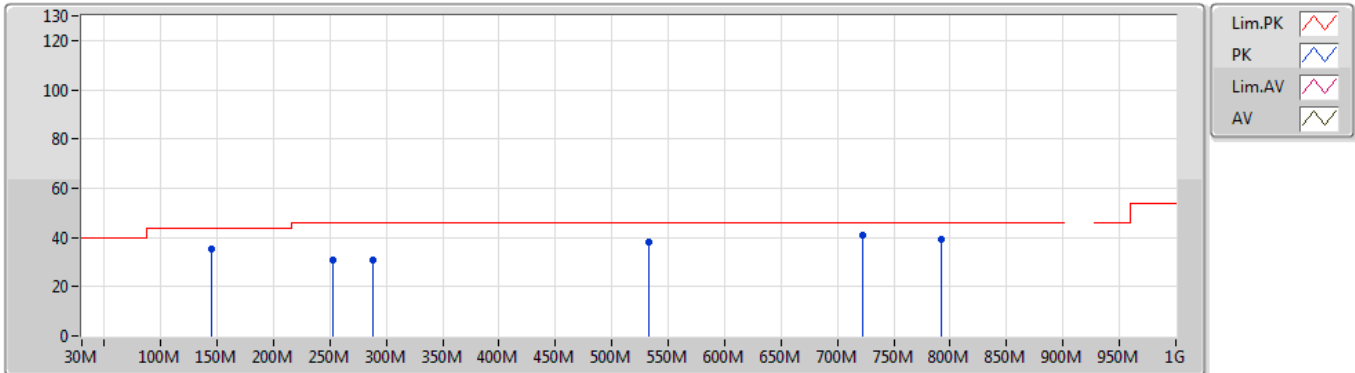
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
DBPSK	-	-	-	-	-	-	-	-	-	-	-	-
902.1375MHz	Pass	PK	144.46M	35.23	43.50	-8.27	-9.91	3	Vertical	0	2.00	-
902.1375MHz	Pass	PK	253.1M	30.70	46.00	-15.30	-6.59	3	Vertical	0	2.00	-
902.1375MHz	Pass	PK	288.02M	31.06	46.00	-14.94	-6.12	3	Vertical	0	2.00	-
902.1375MHz	Pass	PK	532.46M	37.89	46.00	-8.11	-1.73	3	Vertical	0	2.00	-
902.1375MHz	Pass	PK	722.58M	41.17	46.00	-4.83	0.29	3	Vertical	0	2.00	-
902.1375MHz	Pass	PK	792.42M	39.11	46.00	-6.89	1.20	3	Vertical	0	2.00	-
902.1375MHz	Pass	PK	156.1M	40.19	43.50	-3.31	-10.42	3	Horizontal	360	2.00	-
902.1375MHz	Pass	PK	262.8M	39.20	46.00	-6.80	-5.85	3	Horizontal	360	2.00	-
902.1375MHz	Pass	PK	722.58M	42.19	46.00	-3.81	0.29	3	Horizontal	360	2.00	-
902.1375MHz	Pass	PK	792.42M	37.53	46.00	-8.47	1.20	3	Horizontal	360	2.00	-
902.1375MHz	Pass	QP	142.52M	39.45	43.50	-4.05	-9.80	3	Horizontal	354	1.32	-
902.1375MHz	Pass	QP	132.82M	40.46	43.50	-3.04	-9.21	3	Horizontal	354	1.32	-
904.6625MHz	Pass	PK	130.88M	36.87	43.50	-6.63	-9.09	3	Vertical	0	1.00	-
904.6625MHz	Pass	PK	167.74M	38.46	43.50	-5.04	-10.72	3	Vertical	0	1.00	-
904.6625MHz	Pass	PK	264.74M	35.47	46.00	-10.53	-5.91	3	Vertical	0	1.00	-
904.6625MHz	Pass	PK	530.52M	35.69	46.00	-10.31	-1.83	3	Vertical	0	1.00	-
904.6625MHz	Pass	PK	716.76M	40.26	46.00	-5.74	0.15	3	Vertical	0	1.00	-
904.6625MHz	Pass	PK	792.42M	38.43	46.00	-7.57	1.20	3	Vertical	0	1.00	-
904.6625MHz	Pass	PK	179.38M	40.44	43.50	-3.06	-10.98	3	Horizontal	0	2.00	-
904.6625MHz	Pass	PK	264.74M	38.67	46.00	-7.33	-5.91	3	Horizontal	0	2.00	-
904.6625MHz	Pass	PK	720.64M	42.60	46.00	-3.40	0.23	3	Horizontal	0	2.00	-
904.6625MHz	Pass	PK	790.48M	38.76	46.00	-7.24	1.20	3	Horizontal	0	2.00	-
904.6625MHz	Pass	QP	142.52M	39.05	43.50	-4.45	-9.80	3	Horizontal	5	1.21	-
904.6625MHz	Pass	QP	156.1M	38.10	43.50	-5.40	-10.42	3	Horizontal	5	1.21	-

DBPSK

902.1375MHz_USB

04/04/2019

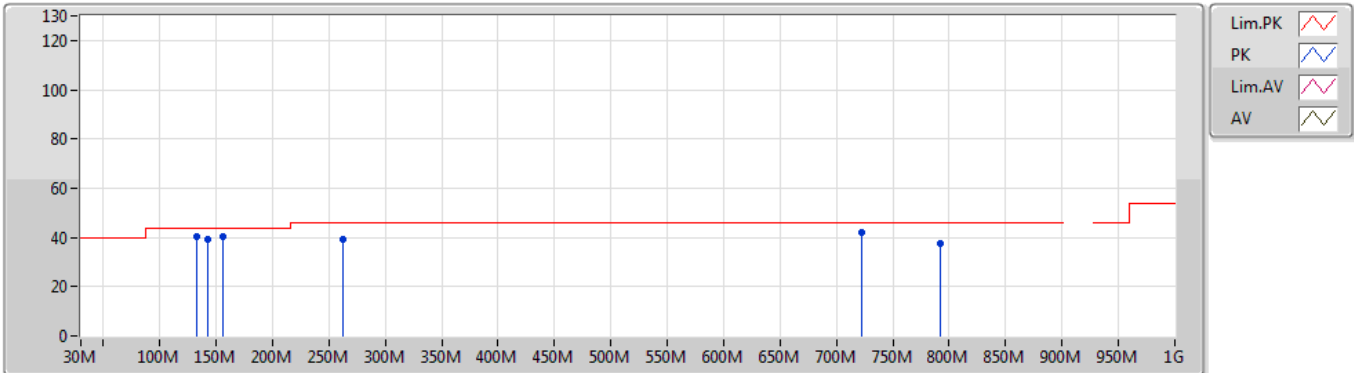


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	144.46M	35.23	43.50	-8.27	-9.91	3	Vertical	0	2.00	-				
PK	253.1M	30.70	46.00	-15.30	-6.59	3	Vertical	0	2.00	-				
PK	288.02M	31.06	46.00	-14.94	-6.12	3	Vertical	0	2.00	-				
PK	532.46M	37.89	46.00	-8.11	-1.73	3	Vertical	0	2.00	-				
PK	722.58M	41.17	46.00	-4.83	0.29	3	Vertical	0	2.00	-				
PK	792.42M	39.11	46.00	-6.89	1.20	3	Vertical	0	2.00	-				

DBPSK

902.1375MHz_USB

04/04/2019

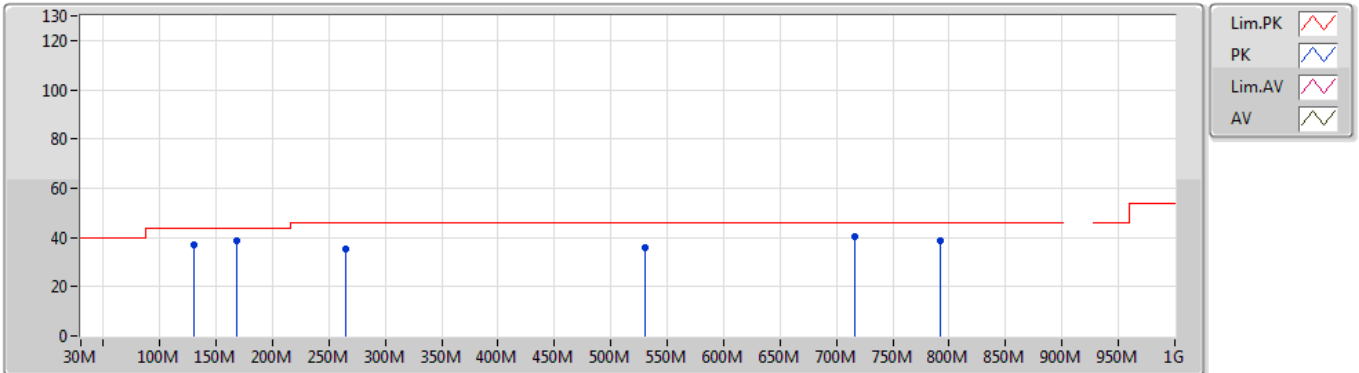


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	156.1M	40.19	43.50	-3.31	-10.42	3	Horizontal	360	2.00	-				
PK	262.8M	39.20	46.00	-6.80	-5.85	3	Horizontal	360	2.00	-				
PK	722.58M	42.19	46.00	-3.81	0.29	3	Horizontal	360	2.00	-				
PK	792.42M	37.53	46.00	-8.47	1.20	3	Horizontal	360	2.00	-				
QP	142.52M	39.45	43.50	-4.05	-9.80	3	Horizontal	354	1.32	-				
QP	132.82M	40.46	43.50	-3.04	-9.21	3	Horizontal	354	1.32	-				

DBPSK

904.6625MHz_USB

04/04/2019

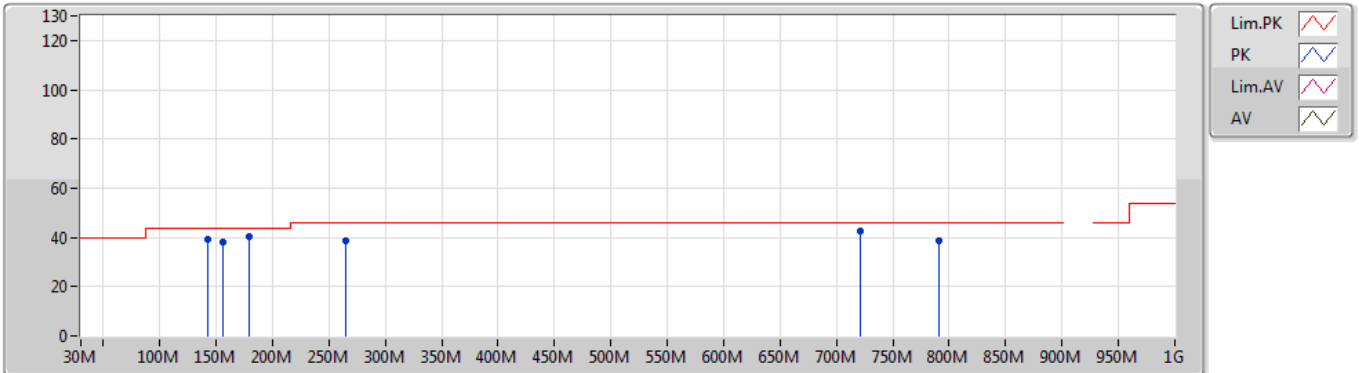


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	130.88M	36.87	43.50	-6.63	-9.09	3	Vertical	0	1.00	-				
PK	167.74M	38.46	43.50	-5.04	-10.72	3	Vertical	0	1.00	-				
PK	264.74M	35.47	46.00	-10.53	-5.91	3	Vertical	0	1.00	-				
PK	530.52M	35.69	46.00	-10.31	-1.83	3	Vertical	0	1.00	-				
PK	716.76M	40.26	46.00	-5.74	0.15	3	Vertical	0	1.00	-				
PK	792.42M	38.43	46.00	-7.57	1.20	3	Vertical	0	1.00	-				

DBPSK

904.6625MHz_USB

04/04/2019



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	179.38M	40.44	43.50	-3.06	-10.98	3	Horizontal	0	2.00	-				
PK	264.74M	38.67	46.00	-7.33	-5.91	3	Horizontal	0	2.00	-				
PK	720.64M	42.60	46.00	-3.40	0.23	3	Horizontal	0	2.00	-				
PK	790.48M	38.76	46.00	-7.24	1.20	3	Horizontal	0	2.00	-				
QP	142.52M	39.05	43.50	-4.45	-9.80	3	Horizontal	5	1.21	-				
QP	156.1M	38.10	43.50	-5.40	-10.42	3	Horizontal	5	1.21	-				



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
902-904.8MHz	-	-	-	-	-	-	-	-	-	-	-	-
DBPSK	Pass	AV	3.61869G	53.76	54.00	-0.24	0.12	3	Vertical	166	1.20	-

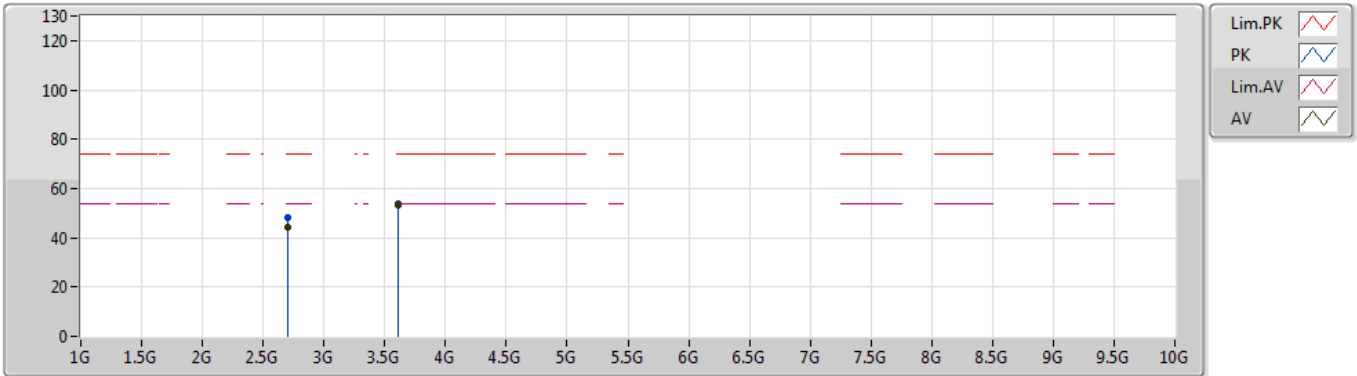
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
DBPSK	-	-	-	-	-	-	-	-	-	-	-	-
902.1375MHz	Pass	AV	2.70649G	44.14	54.00	-9.86	-1.71	3	Vertical	273	1.27	-
902.1375MHz	Pass	AV	3.60847G	53.07	54.00	-0.93	0.08	3	Vertical	167	1.41	-
902.1375MHz	Pass	PK	2.70637G	48.31	74.00	-25.69	-1.71	3	Vertical	273	1.27	-
902.1375MHz	Pass	PK	3.60856G	53.80	74.00	-20.20	0.08	3	Vertical	167	1.41	-
902.1375MHz	Pass	AV	2.70632G	46.58	54.00	-7.42	-1.71	3	Horizontal	65	1.01	-
902.1375MHz	Pass	AV	3.60852G	51.63	54.00	-2.37	0.08	3	Horizontal	6	1.01	-
902.1375MHz	Pass	PK	2.70649G	50.12	74.00	-23.88	-1.71	3	Horizontal	65	1.01	-
902.1375MHz	Pass	PK	3.60848G	53.23	74.00	-20.77	0.08	3	Horizontal	6	1.01	-
904.6625MHz	Pass	AV	2.71409G	46.22	54.00	-7.78	-1.68	3	Vertical	278	1.00	-
904.6625MHz	Pass	AV	3.61869G	53.76	54.00	-0.24	0.12	3	Vertical	166	1.20	-
904.6625MHz	Pass	PK	2.71412G	48.24	74.00	-25.76	-1.68	3	Vertical	278	1.00	-
904.6625MHz	Pass	PK	3.61862G	54.75	74.00	-19.25	0.12	3	Vertical	166	1.20	-
904.6625MHz	Pass	AV	2.71399G	47.79	54.00	-6.21	-1.68	3	Horizontal	65	1.01	-
904.6625MHz	Pass	AV	3.61864G	51.44	54.00	-2.56	0.12	3	Horizontal	1	2.90	-
904.6625MHz	Pass	PK	2.71408G	49.64	74.00	-24.36	-1.68	3	Horizontal	65	1.01	-
904.6625MHz	Pass	PK	3.61855G	52.38	74.00	-21.62	0.12	3	Horizontal	1	2.90	-

DBPSK

902.1375MHz_TX

04/04/2019

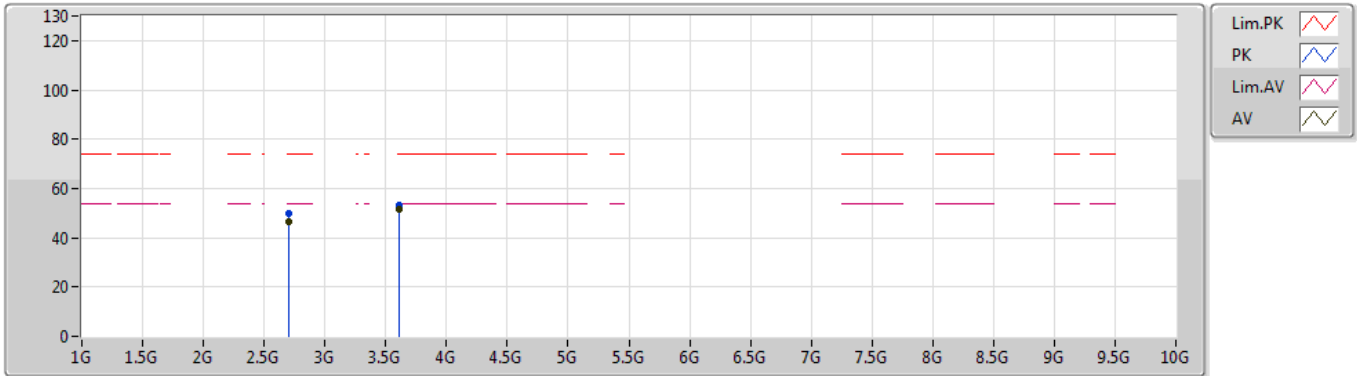


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
AV	2.70649G	44.14	54.00	-9.86	-1.71	3	Vertical	273	1.27	-				
AV	3.60847G	53.07	54.00	-0.93	0.08	3	Vertical	167	1.41	-				
PK	2.70637G	48.31	74.00	-25.69	-1.71	3	Vertical	273	1.27	-				
PK	3.60856G	53.80	74.00	-20.20	0.08	3	Vertical	167	1.41	-				

DBPSK

902.1375MHz_TX

04/04/2019

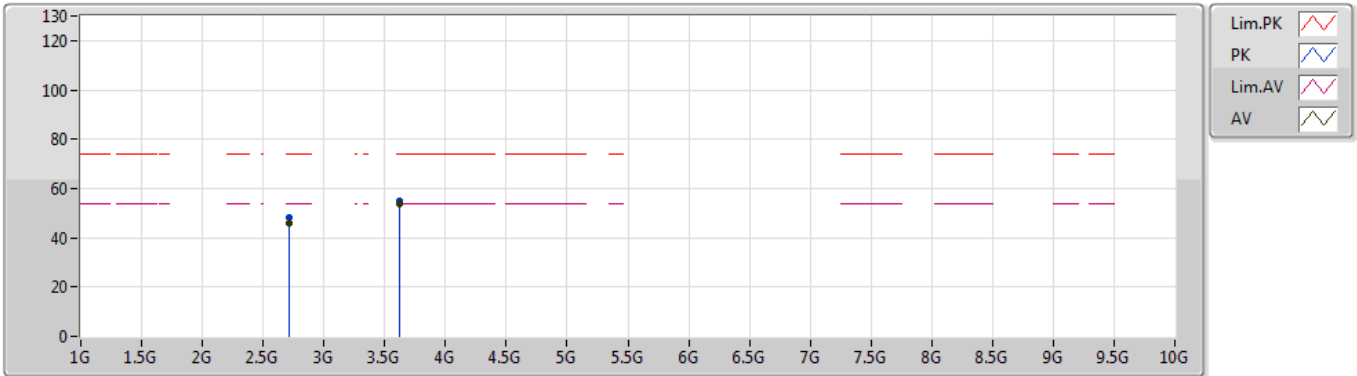


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
AV	2.70632G	46.58	54.00	-7.42	-1.71	3	Horizontal	65	1.01	-				
AV	3.60852G	51.63	54.00	-2.37	0.08	3	Horizontal	6	1.01	-				
PK	2.70649G	50.12	74.00	-23.88	-1.71	3	Horizontal	65	1.01	-				
PK	3.60848G	53.23	74.00	-20.77	0.08	3	Horizontal	6	1.01	-				

DBPSK

904.6625MHz_TX

04/04/2019

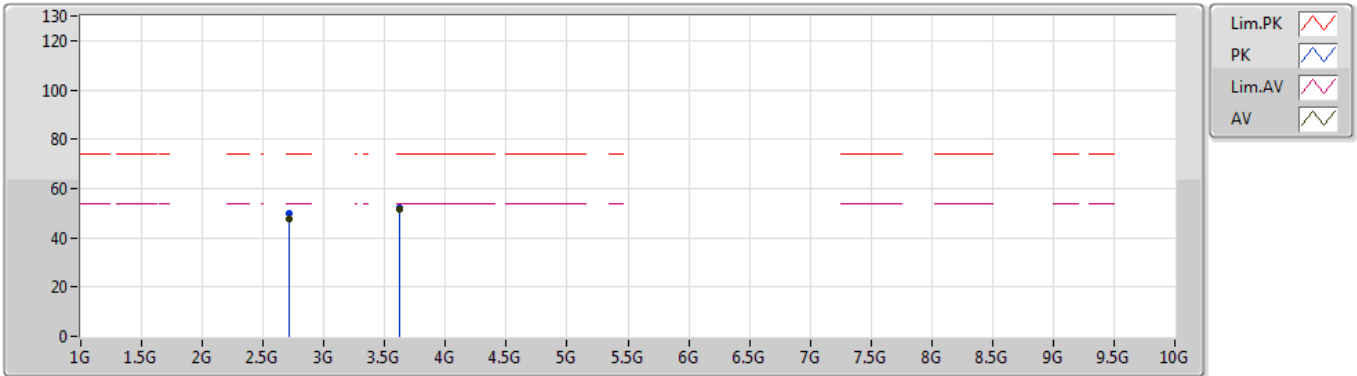


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
AV	2.71409G	46.22	54.00	-7.78	-1.68	3	Vertical	278	1.00	-				
AV	3.61869G	53.76	54.00	-0.24	0.12	3	Vertical	166	1.20	-				
PK	2.71412G	48.24	74.00	-25.76	-1.68	3	Vertical	278	1.00	-				
PK	3.61862G	54.75	74.00	-19.25	0.12	3	Vertical	166	1.20	-				

DBPSK

904.6625MHz_TX

04/04/2019



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
AV	2.71399G	47.79	54.00	-6.21	-1.68	3	Horizontal	65	1.01	-				
AV	3.61864G	51.44	54.00	-2.56	0.12	3	Horizontal	1	2.90	-				
PK	2.71408G	49.64	74.00	-24.36	-1.68	3	Horizontal	65	1.01	-				
PK	3.61855G	52.38	74.00	-21.62	0.12	3	Horizontal	1	2.90	-				



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
902-904.8MHz	-	-	-	-	-	-	-	-	-	-	-	-
DBPSK	Pass	PK	191.02M	40.12	43.50	-3.38	-11.05	3	Horizontal	0	2.00	-

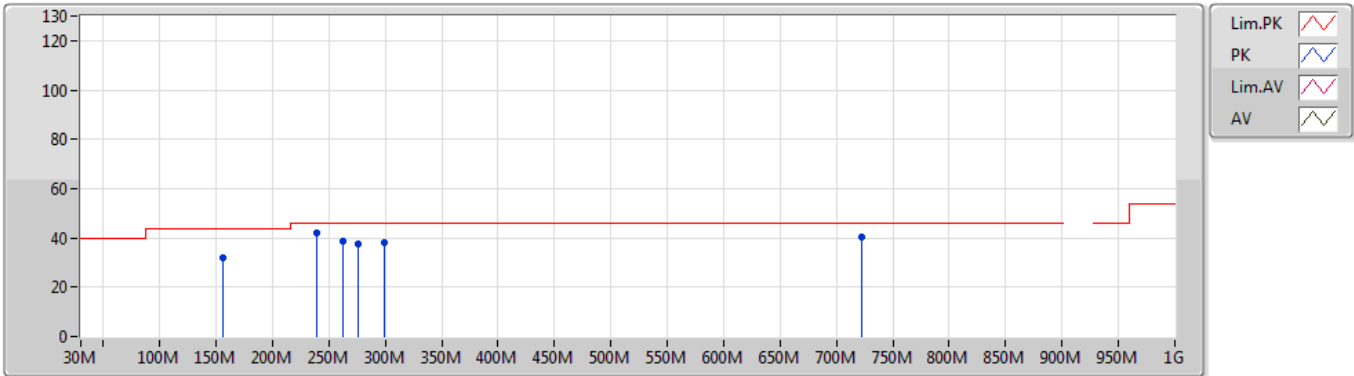
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
DBPSK	-	-	-	-	-	-	-	-	-	-	-	-
902.1375MHz	Pass	PK	156.1M	32.10	43.50	-11.40	-10.42	3	Vertical	360	1.00	-
902.1375MHz	Pass	PK	239.52M	42.20	46.00	-3.80	-8.23	3	Vertical	360	1.00	-
902.1375MHz	Pass	PK	262.8M	38.49	46.00	-7.51	-5.85	3	Vertical	360	1.00	-
902.1375MHz	Pass	PK	276.38M	37.44	46.00	-8.56	-6.23	3	Vertical	360	1.00	-
902.1375MHz	Pass	PK	299.66M	38.11	46.00	-7.89	-5.86	3	Vertical	360	1.00	-
902.1375MHz	Pass	PK	722.58M	40.59	46.00	-5.41	0.29	3	Vertical	360	1.00	-
902.1375MHz	Pass	PK	142.52M	30.96	43.50	-12.54	-9.80	3	Horizontal	0	2.00	-
902.1375MHz	Pass	PK	191.02M	40.12	43.50	-3.38	-11.05	3	Horizontal	0	2.00	-
902.1375MHz	Pass	PK	227.88M	42.14	46.00	-3.86	-9.63	3	Horizontal	0	2.00	-
902.1375MHz	Pass	PK	722.58M	38.23	46.00	-7.77	0.29	3	Horizontal	0	2.00	-
902.1375MHz	Pass	QP	251.16M	41.71	46.00	-4.29	-6.83	3	Horizontal	0	1.15	-
902.1375MHz	Pass	QP	264.74M	41.74	46.00	-4.26	-5.91	3	Horizontal	0	1.15	-
904.6625MHz	Pass	PK	107.6M	26.83	43.50	-16.67	-9.47	3	Vertical	0	2.00	-
904.6625MHz	Pass	PK	167.74M	27.80	43.50	-15.70	-10.72	3	Vertical	0	2.00	-
904.6625MHz	Pass	PK	227.88M	38.14	46.00	-7.86	-9.63	3	Vertical	0	2.00	-
904.6625MHz	Pass	PK	288.02M	32.99	46.00	-13.01	-6.12	3	Vertical	0	2.00	-
904.6625MHz	Pass	PK	532.46M	34.13	46.00	-11.87	-1.73	3	Vertical	0	2.00	-
904.6625MHz	Pass	PK	722.58M	39.03	46.00	-6.97	0.29	3	Vertical	0	2.00	-
904.6625MHz	Pass	PK	179.38M	38.20	43.50	-5.30	-10.98	3	Horizontal	360	1.00	-
904.6625MHz	Pass	PK	288.02M	42.16	46.00	-3.84	-6.12	3	Horizontal	360	1.00	-
904.6625MHz	Pass	PK	722.58M	40.17	46.00	-5.83	0.29	3	Horizontal	360	1.00	-
904.6625MHz	Pass	QP	227.88M	40.61	46.00	-5.39	-9.63	3	Horizontal	354	1.20	-
904.6625MHz	Pass	QP	262.8M	41.67	46.00	-4.33	-5.85	3	Horizontal	354	1.20	-
904.6625MHz	Pass	QP	276.38M	41.66	46.00	-4.34	-6.23	3	Horizontal	354	1.20	-

DBPSK

902.1375MHz_USB

04/04/2019

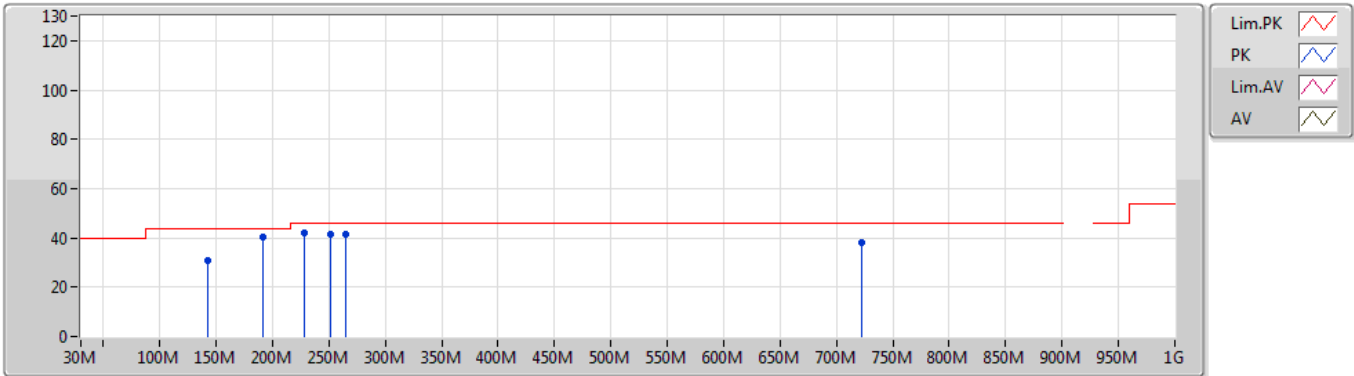


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	156.1M	32.10	43.50	-11.40	-10.42	3	Vertical	360	1.00	-				
PK	239.52M	42.20	46.00	-3.80	-8.23	3	Vertical	360	1.00	-				
PK	262.8M	38.49	46.00	-7.51	-5.85	3	Vertical	360	1.00	-				
PK	276.38M	37.44	46.00	-8.56	-6.23	3	Vertical	360	1.00	-				
PK	299.66M	38.11	46.00	-7.89	-5.86	3	Vertical	360	1.00	-				
PK	722.58M	40.59	46.00	-5.41	0.29	3	Vertical	360	1.00	-				

DBPSK

902.1375MHz_USB

04/04/2019

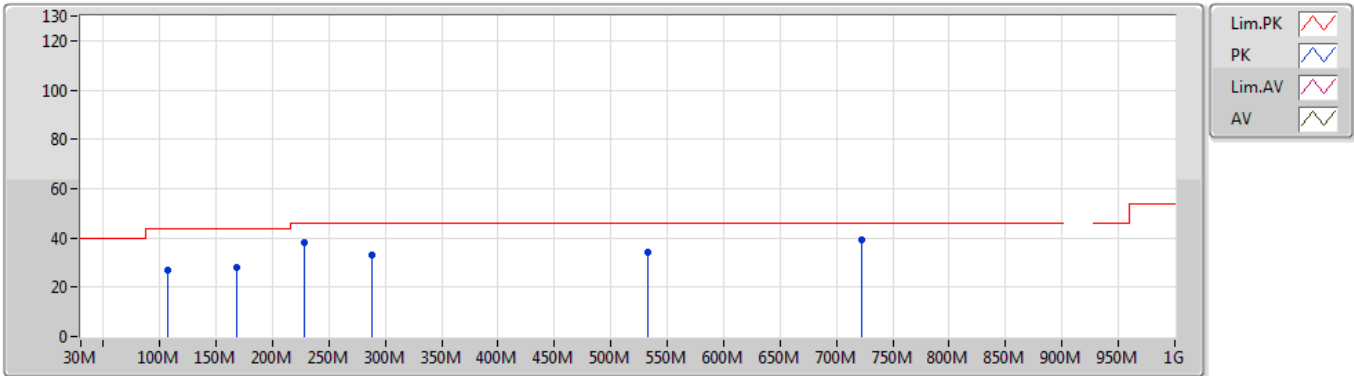


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	142.52M	30.96	43.50	-12.54	-9.80	3	Horizontal	0	2.00	-				
PK	191.02M	40.12	43.50	-3.38	-11.05	3	Horizontal	0	2.00	-				
PK	227.88M	42.14	46.00	-3.86	-9.63	3	Horizontal	0	2.00	-				
PK	722.58M	38.23	46.00	-7.77	0.29	3	Horizontal	0	2.00	-				
QP	251.16M	41.71	46.00	-4.29	-6.83	3	Horizontal	0	1.15	-				
QP	264.74M	41.74	46.00	-4.26	-5.91	3	Horizontal	0	1.15	-				

DBPSK

904.6625MHz_USB

04/04/2019

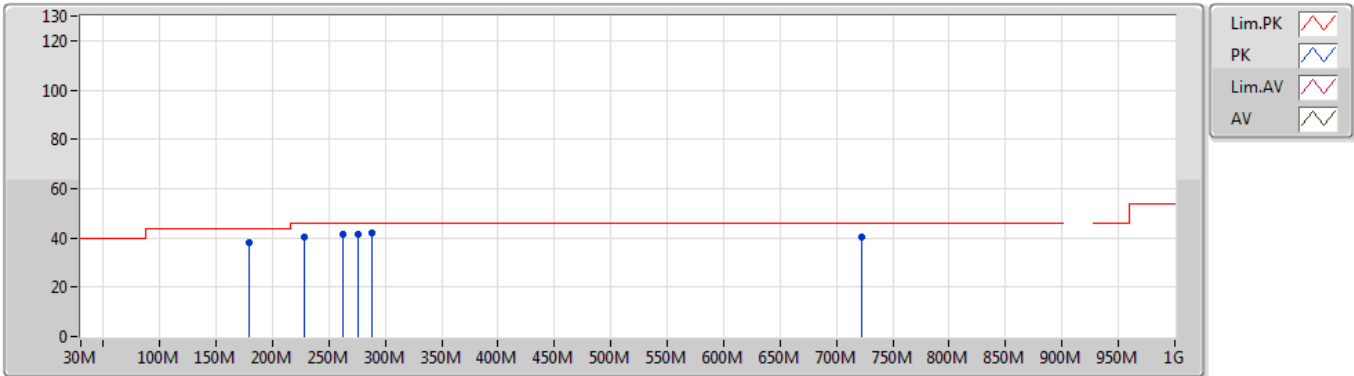


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	107.6M	26.83	43.50	-16.67	-9.47	3	Vertical	0	2.00	-				
PK	167.74M	27.80	43.50	-15.70	-10.72	3	Vertical	0	2.00	-				
PK	227.88M	38.14	46.00	-7.86	-9.63	3	Vertical	0	2.00	-				
PK	288.02M	32.99	46.00	-13.01	-6.12	3	Vertical	0	2.00	-				
PK	532.46M	34.13	46.00	-11.87	-1.73	3	Vertical	0	2.00	-				
PK	722.58M	39.03	46.00	-6.97	0.29	3	Vertical	0	2.00	-				

DBPSK

904.6625MHz_USB

04/04/2019



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
PK	179.38M	38.20	43.50	-5.30	-10.98	3	Horizontal	360	1.00	-				
PK	288.02M	42.16	46.00	-3.84	-6.12	3	Horizontal	360	1.00	-				
PK	722.58M	40.17	46.00	-5.83	0.29	3	Horizontal	360	1.00	-				
QP	227.88M	40.61	46.00	-5.39	-9.63	3	Horizontal	354	1.20	-				
QP	262.8M	41.67	46.00	-4.33	-5.85	3	Horizontal	354	1.20	-				
QP	276.38M	41.66	46.00	-4.34	-6.23	3	Horizontal	354	1.20	-				



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
902-904.8MHz	-	-	-	-	-	-	-	-	-	-	-	-
DBPSK	Pass	AV	3.61867G	35.86	54.00	-18.14	0.12	3	Vertical	206	1.04	-

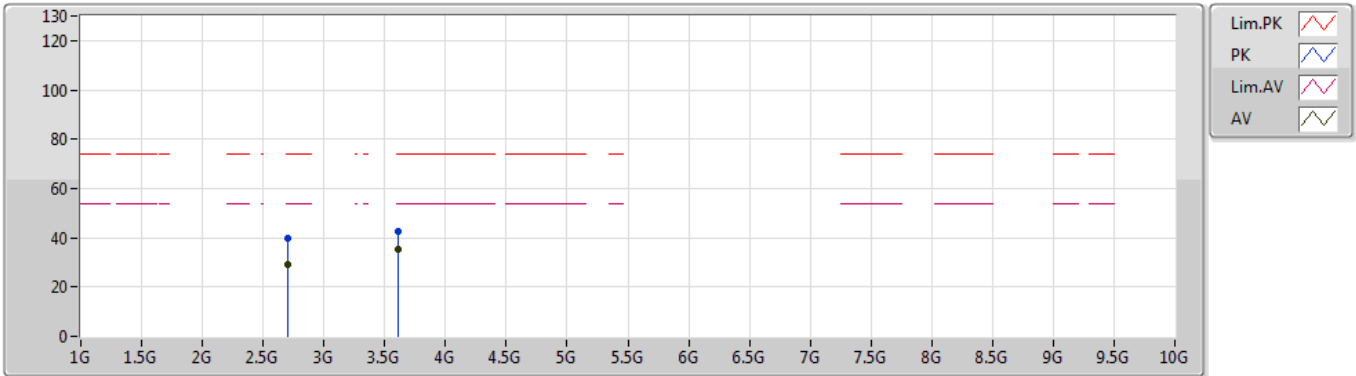
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
DBPSK	-	-	-	-	-	-	-	-	-	-	-	-
902.1375MHz	Pass	AV	2.70631G	28.87	54.00	-25.13	-1.71	3	Vertical	200	2.94	-
902.1375MHz	Pass	AV	3.60852G	35.57	54.00	-18.43	0.08	3	Vertical	208	1.48	-
902.1375MHz	Pass	PK	2.70653G	39.78	74.00	-34.22	-1.71	3	Vertical	200	2.94	-
902.1375MHz	Pass	PK	3.60838G	42.84	74.00	-31.16	0.08	3	Vertical	208	1.48	-
902.1375MHz	Pass	AV	2.70645G	27.99	54.00	-26.01	-1.71	3	Horizontal	150	1.11	-
902.1375MHz	Pass	AV	3.6085G	34.87	54.00	-19.13	0.08	3	Horizontal	165	2.77	-
902.1375MHz	Pass	PK	2.70183G	39.39	74.00	-34.61	-1.73	3	Horizontal	150	1.11	-
902.1375MHz	Pass	PK	3.6086G	42.28	74.00	-31.72	0.08	3	Horizontal	165	2.77	-
904.6625MHz	Pass	AV	2.714G	28.89	54.00	-25.11	-1.68	3	Vertical	186	2.89	-
904.6625MHz	Pass	AV	3.61867G	35.86	54.00	-18.14	0.12	3	Vertical	206	1.04	-
904.6625MHz	Pass	PK	2.71519G	39.92	74.00	-34.08	-1.68	3	Vertical	186	2.89	-
904.6625MHz	Pass	PK	3.61875G	42.57	74.00	-31.43	0.12	3	Vertical	206	1.04	-
904.6625MHz	Pass	AV	2.71401G	28.13	54.00	-25.87	-1.68	3	Horizontal	220	2.76	-
904.6625MHz	Pass	AV	3.61864G	34.83	54.00	-19.17	0.12	3	Horizontal	166	1.21	-
904.6625MHz	Pass	PK	2.71509G	39.53	74.00	-34.47	-1.68	3	Horizontal	220	2.76	-
904.6625MHz	Pass	PK	3.61856G	42.68	74.00	-31.32	0.12	3	Horizontal	166	1.21	-

DBPSK

902.1375MHz_TX

04/04/2019

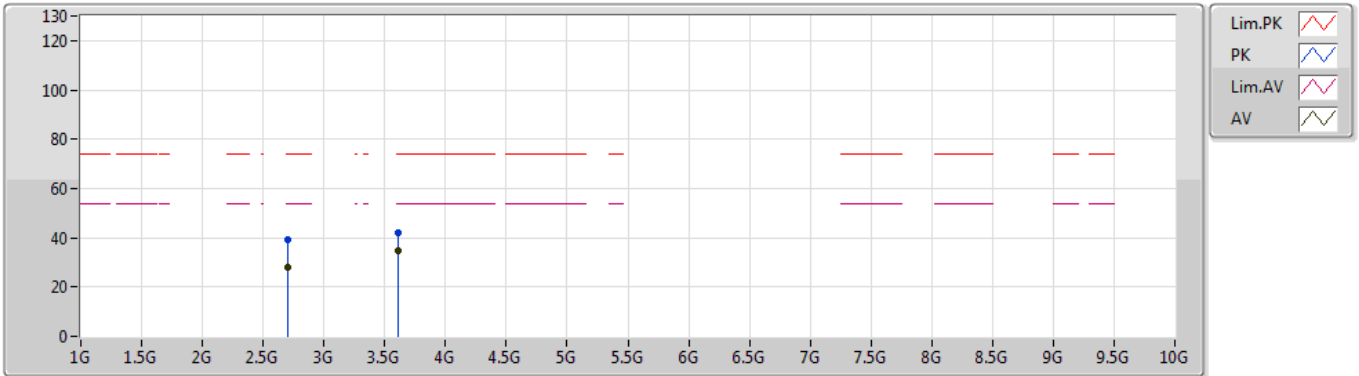


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
AV	2.70631G	28.87	54.00	-25.13	-1.71	3	Vertical	200	2.94	-				
AV	3.60852G	35.57	54.00	-18.43	0.08	3	Vertical	208	1.48	-				
PK	2.70653G	39.78	74.00	-34.22	-1.71	3	Vertical	200	2.94	-				
PK	3.60838G	42.84	74.00	-31.16	0.08	3	Vertical	208	1.48	-				

DBPSK

902.1375MHz_TX

04/04/2019

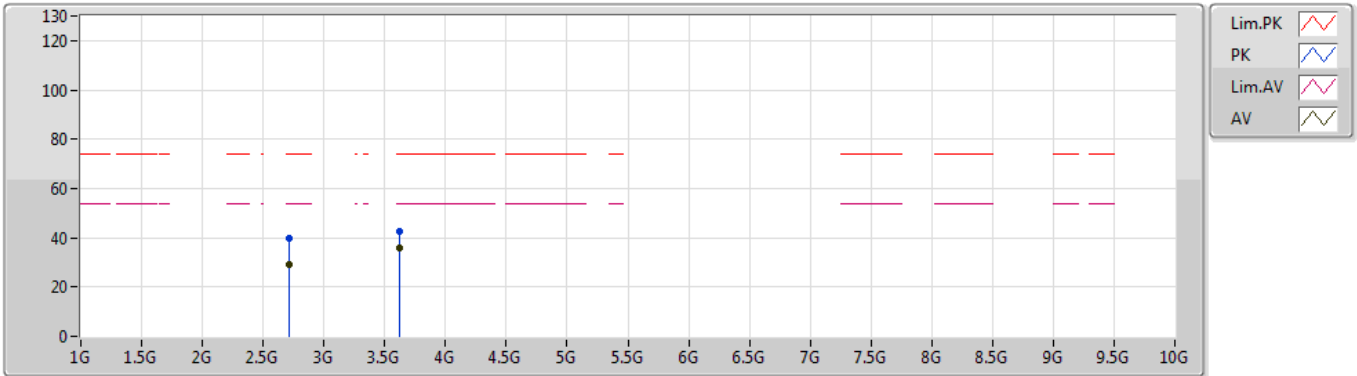


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
AV	2.70645G	27.99	54.00	-26.01	-1.71	3	Horizontal	150	1.11	-				
AV	3.6085G	34.87	54.00	-19.13	0.08	3	Horizontal	165	2.77	-				
PK	2.70183G	39.39	74.00	-34.61	-1.73	3	Horizontal	150	1.11	-				
PK	3.6086G	42.28	74.00	-31.72	0.08	3	Horizontal	165	2.77	-				

DBPSK

904.6625MHz_TX

04/04/2019

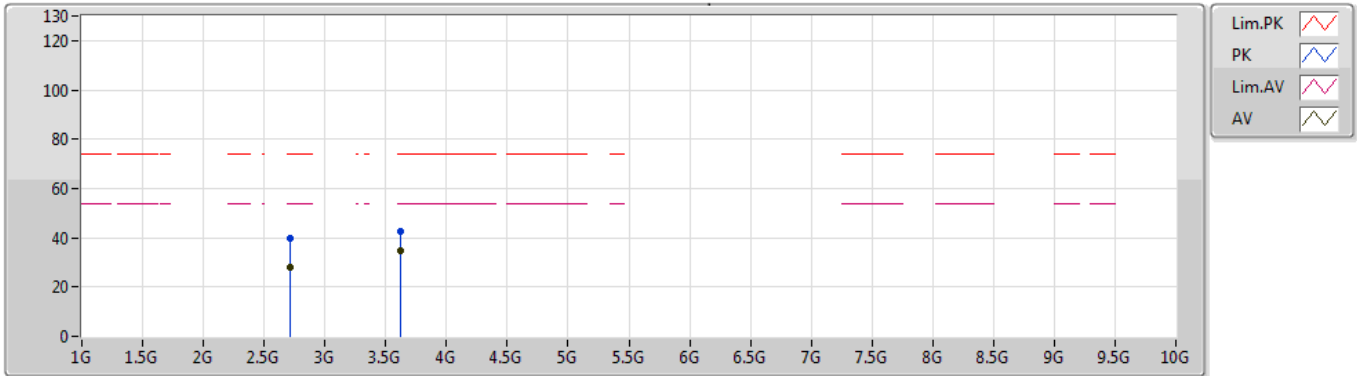


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
AV	2.714G	28.89	54.00	-25.11	-1.68	3	Vertical	186	2.89	-				
AV	3.61867G	35.86	54.00	-18.14	0.12	3	Vertical	206	1.04	-				
PK	2.71519G	39.92	74.00	-34.08	-1.68	3	Vertical	186	2.89	-				
PK	3.61875G	42.57	74.00	-31.43	0.12	3	Vertical	206	1.04	-				

DBPSK

04/04/2019

904.6625MHz_TX



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment				
AV	2.71401G	28.13	54.00	-25.87	-1.68	3	Horizontal	220	2.76	-				
AV	3.61864G	34.83	54.00	-19.17	0.12	3	Horizontal	166	1.21	-				
PK	2.71509G	39.53	74.00	-34.47	-1.68	3	Horizontal	220	2.76	-				
PK	3.61856G	42.68	74.00	-31.32	0.12	3	Horizontal	166	1.21	-				