FCC Test Report

FCC ID	:	**PPQ-3509R38BT**
Equipment	:	**802.11a/b/g/n 2Tx2R + BT5.0 USB WLAN Module**
Brand Name	:	**LITE-ON**
Model Name	:	**WCBN3509R(38BT)**
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 Oct. 24, 2019, and testing was started from Oct. 31, 2019 and completed on Nov. 27, 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.

Allen Lin

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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History of this test report

Report No.	Version	Description	Issued Date
FR9O2329AL	01	Initial issue of report	Dec. 25, 2019
FR9O2329AL	02	Revised typo This report is the latest version replacing for the report issued on Dec. 25, 2019	Dec. 25, 2019

Summary of Test Result

Report Clause	Ref.Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

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: Kate Lo

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth Mode	Ch. Frequency (MHz)	Channel Number
2400-2483.5	LE	2402-2480	0-39 [40]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1	1TX
2.4-2.4835GHz	BT-LE(2Mbps)	2	1TX

Note:
- Bluetooth LE uses a GFSK (1Mbps/2Mbps) modulation for DSSS.
- BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Support	Remark
1	HONGBO	290-10569	PIFA	I-Pex	2.4G+5G	Group 1
2	HONGBO	290-10569	PIFA	I-Pex	2.4G+5G	
3	HONGBO	290-10569	PIFA	I-Pex	BT	
4	PSA	RFMTA401030IMLB702	PIFA	I-Pex	2.4G+5G	Group 2
5	PSA	RFMTA401030IMLB702	PIFA	I-Pex	2.4G+5G	
6	PSA	RFMTA401030IMLB702	PIFA	I-Pex	BT	
7	HONGBO	290-10843	PIFA	I-Pex	2.4G+5G	Group 3
8	HONGBO	290-10843	PIFA	I-Pex	2.4G+5G	
9	HONGBO	290-10843	PIFA	I-Pex	BT	
10	PSA	RFMTA401050IMLB706	PIFA	I-Pex	2.4G+5G	Group 4
11	PSA	RFMTA401050IMLB706	PIFA	I-Pex	2.4G+5G	
12	PSA	RFMTA401050IMLB706	PIFA	I-Pex	BT	
13	HONGBO	290-10844	PIFA	I-Pex	2.4G+5G	Group 5
14	HONGBO	290-10844	PIFA	I-Pex	2.4G+5G	

Ant.	Brand	Model Name	Antenna Type	Connector	Support	Remark
15	HONGBO	290-10844	PIFA	I-Pex	BT	
16	PSA	RFMTA401080IML B704	PIFA	I-Pex	2.4G+5G	Group 6
17	PSA	RFMTA401080IML B704	PIFA	I-Pex	2.4G+5G	
18	PSA	RFMTA401080IML B704	PIFA	I-Pex	BT	
19	PSA	RFMTA340730IML B305	PIFA	I-Pex	2.4G+5G	Group 7
20	PSA	RFMTA340715IML B302	PIFA	I-Pex	2.4G+5G	
21	PSA	RFMTA340715IML B305	PIFA	I-Pex	BT	

Ant.	Port	Gain (dBi)			Remark
		2.4G	5G	BT	
1	1	**3.74**	**3.8**	**-**	**Group 1**
2	2	**3.74**	**3.8**	**-**	
3	3	**-**	**-**	**3.74**	
4	1	3.74	3.8	-	Group 2
5	2	3.74	3.8	-	
6	3	-	-	3.74	
7	1	3.05	1.59	-	Group 3
8	2	3.05	1.59	-	
9	3	-	-	3.05	
10	1	3.05	1.59	-	Group 4
11	2	3.05	1.59	-	
12	3	-	-	3.05	
13	1	2.38	1.49	-	Group 5
14	2	2.38	1.49	-	
15	3	-	-	2.38	
16	1	1.72	1.25	-	Group 6
17	2	1.72	1.25	-	
18	3	-	-	1.72	
19	1	-0.5	3.28	-	Group 7
20	2	-1.68	3.08	-	
21	3	-	-	-0.5	

Note 1: The EUT has twenty one antennas.
Note 2: EUT can match with above antennas for using. Group 1 was used to perform the worst configuration and result of that was recorded as the final test result.

For 2.4GHz function:
For IEEE 802.11 b/g/n mode (2TX/2RX)
Port 1 and Port 2 could transmit/receive simultaneously.

For BT function:
For IEEE 802.15.1 Bluetooth mode (1TX/1RX)
Port 3 could transmit/receive.

For 5GHz function:
For IEEE 802.11 a/n mode (2TX/2RX)
Port 1 and Port 2 could transmit/receive simultaneously.

1.1.3 EUT Information

Operational Condition				
EUT Power Type	From host system(NB)			
EUT Function	☒	Point-to-multipoint	☐	Point-to-point
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) ≥ 1/T
BT-LE(1Mbps)	0.85	0.71	2.124m	1k
BT-LE(2Mbps)	0.574	2.41	1.068m	1k

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

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 v05r02
- KDB 414788 D01 v01r01

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
RF Conducted	TH06-HY	Tim	23~25°C / 61~67%	03/Nov/2019~ 20/Nov/2019
Radiated	03CH03-HY	Justin	18.7~24.3°C / 53.8~61.2%	31/Oct/2019~ 20/Nov/2019
AC Conduction	CO04-HY	Edward	20.9~22.1°C / 60.4~64.2%	04/Nov/2019~ 27/Nov/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	5V

2.2 Test Channel Mode

Test Software Version	WCN_Combo_Tool 1747

Mode	PowerSetting
BT-LE(1Mbps)	-
2402MHz	default
2440MHz	default
2480MHz	default
BT-LE(2Mbps)	-
2402MHz	default
2440MHz	default
2480MHz	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
1	USB mode

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density 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

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	WLAN 2.4GHz+Bluetooth
2	WLAN 5GHz+Bluetooth
Refer to Sporton Test Report No.: FA9O2329 for Co-location RF Exposure Evaluation.	

2.4 Support Equipment

Support Equipment – RF Conducted				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E5410	DoC
2	Adapter for NB	DELL	HA65NM130	DoC
3	Fixture	LITE-ON	TB001	-

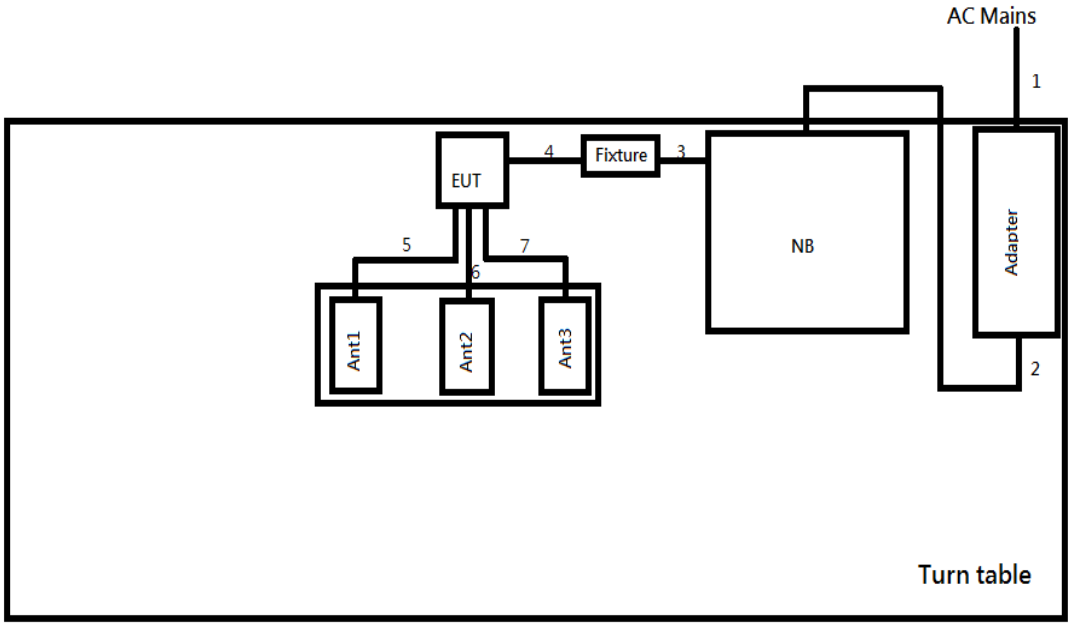
Note: Support equipment No.3 was provided by customer.

Support Equipment –AC Conduction and Radiated Emission				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E4300	-
2	Adapter	DELL	LA90PM111	-
3	Fixture	LITE-ON	TB001	-

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

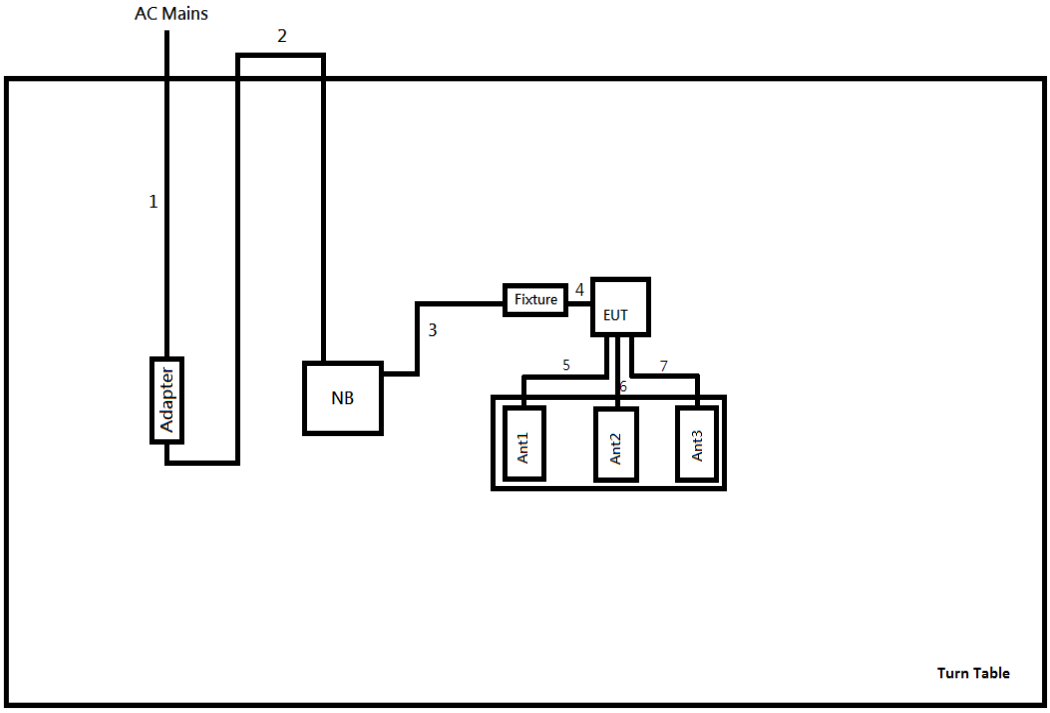
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power Cable	No	1.8	-
2	DC Power Cable	No	2.0	-
3	USB Cable	No	0.1	-
4	DATA Cable	No	0.05	-
5	RF cable	No	0.3	-
6	RF cable	No	0.3	-
7	RF cable	No	0.3	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power Cable	No	1.8	-
2	DC Power Cable	No	2.0	-
3	USB Cable	No	0.1	-
4	Fixture Cable	No	0.05	-
5	Antenna cable	No	0.3	-
6	Antenna cable	No	0.3	-
7	Antenna cable	No	0.3	-

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

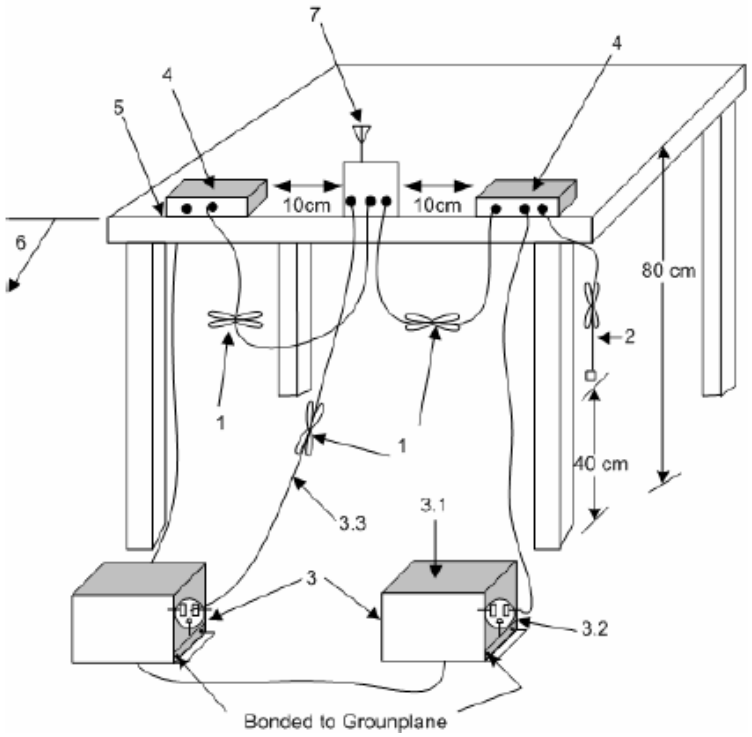
Refer a test equipment and calibration data table in this test report.

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

AC Power-line Conducted Emissions



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50Ω loads. LISN may be placed on top of, or immediately beneath, reference ground plane.
3.1—All other equipment powered from additional LISN(s).
3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
3.3—LISN at least 80 cm from nearest part of EUT chassis.
4—Non-EUT components of EUT system being tested.
5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
▪ 6 dB bandwidth ≥ 500 kHz.

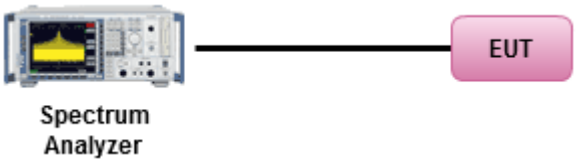
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
	☒ Refer as KDB 558074, clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
	☐ Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
	☐ Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup

Emission Bandwidth


3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit			
	▪ If G_{TX} ≤ 6 dBi, then P_{Out} ≤ 30 dBm (1 W)		
	▪ Point-to-multipoint systems (P2M): If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6) dBm		
	▪ Point-to-point systems (P2P): If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6)/3 dBm		
	▪ Smart antenna system (SAS):		
		- Single beam: If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6)/3 dBm	
		- Overlap beam: If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6)/3 dBm	
		- Aggregate power on all beams: If G_{TX} > 6 dBi, then P_{Out} = 30 – (G_{TX} – 6)/3 + 8dB dBm	
e.i.r.p. Power Limit:			
▪ 2400-2483.5 MHz Band			
	▪ Point-to-multipoint systems (P2M): P_{eirp} ≤ 36 dBm (4 W)		
	▪ Point-to-point systems (P2P): P_{eirp} ≤ MAX(36, [P_{Out} + G_{TX}]) dBm		
	▪ Smart antenna system (SAS)		
		- Single beam: P_{eirp} ≤ MAX(36, P_{Out} + G_{TX}) dBm	
		- Overlap beam: P_{eirp} ≤ MAX(36, P_{Out} + G_{TX}) dBm	
		- Aggregate power on all beams: P_{eirp} ≤ MAX(36, [P_{Out} + G_{TX} + 8]) dBm	
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, **G_{TX}** = the maximum transmitting antenna directional gain in dBi.			

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
▪ Maximum Peak Conducted Output Power	
	☐ Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
	☐ Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
	☐ Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
▪ Maximum Average Conducted Output Power	
	☐ Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
	☒ Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
▪ For conducted measurement.	
	▪ If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
	▪ If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)


3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
▪ Power Spectral Density (PSD)≤8 dBm/3kHz

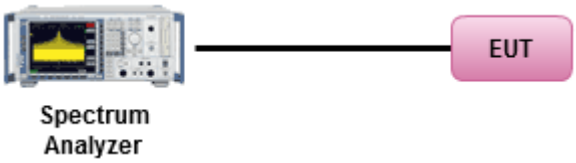
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method		
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).		
	☒ Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Method PKPSD.	
▪ For conducted measurement.		
	▪ If The EUT supports multiple transmit chains using options given below:	
		▪ Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	**Limit (dB)**
Peak output power procedure	20
Average output power procedure	30
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 level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average level.	

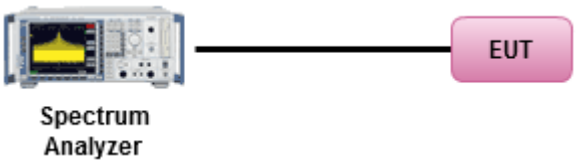
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
▪ Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency bands.

3.5.4 Test Setup

Emissions in Non-restricted Frequency Bands


3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 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 below30 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.

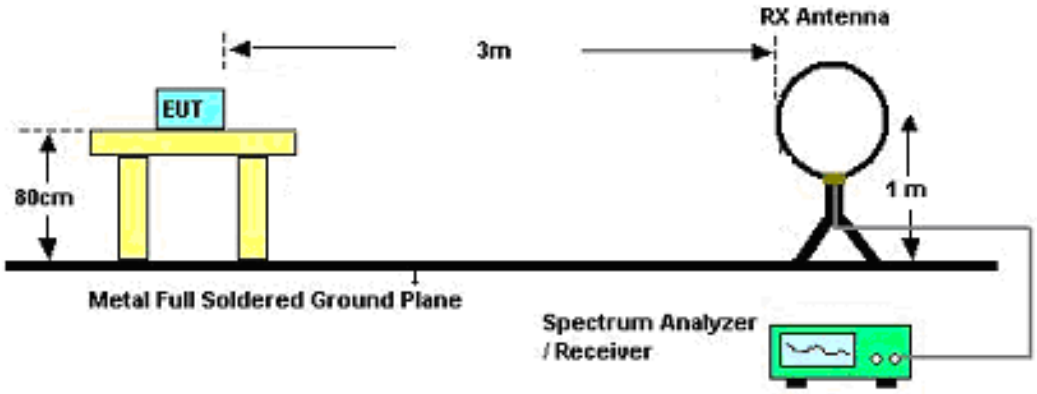
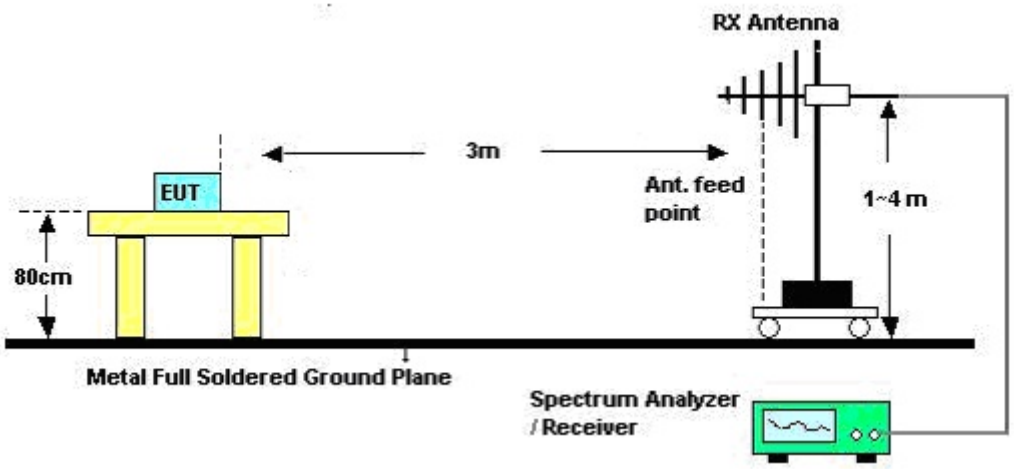
3.6.2 Measuring Instruments

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

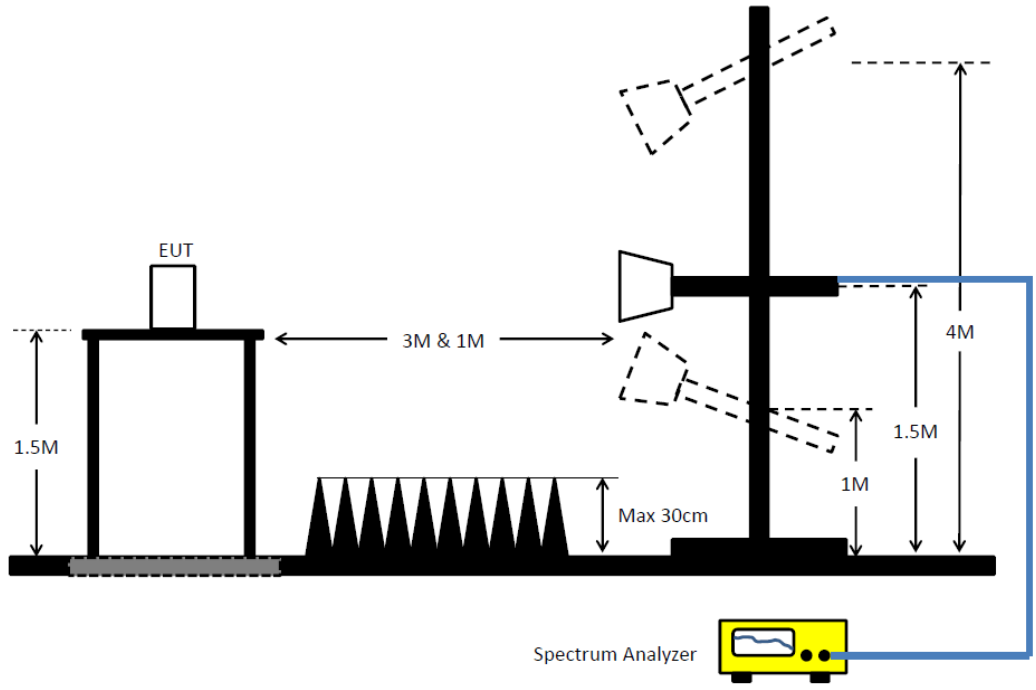
3.6.3 Test Procedures

Test Method
▪ The average emission levels shall be measured in [duty cycle ≥ 98 or duty factor].
▪ Refer as ANSI C63.10, clause 6.10.3 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 KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
▪ For the transmitter band-edge emissions shall be measured using following options below:
▪ Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
▪ Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
▪ Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
▪ Use the following spectrum analyzer settings:
▪ Set RBW=100 kHz for f < 1 GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
▪ Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement. For average measurement, refer as 1.1.4.
▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.
▪ Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
▪ Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

3.6.4 Test Setup

Emissions in Restricted Frequency Bands
9kHz ~30MHz

30MHz~1GHz


Above 1GHz



3.6.5 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.

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

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	09/Apr/2019	08/Apr/2020
LISN	R&S	ENV216	101295	9kHz~30MHz	08/Nov/2018	07/Nov/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	04/Nov/2019	05/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz~200MHz	12/Sep/2019	11/Sep/2020
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz~30MHz	24/Sep/2019	23/Sep/2020

NCR : Non-Calibration Require

Instrument for Radiated Test

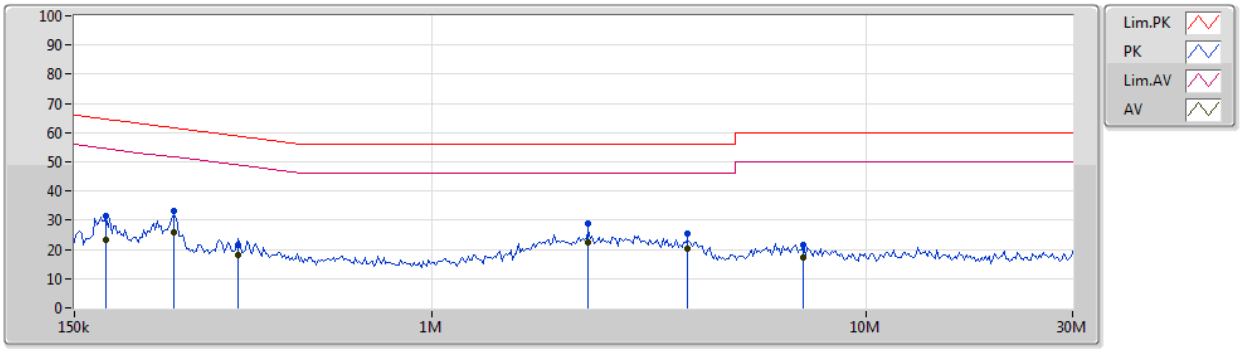
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	30/Aug/2019	29/Aug/2020
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	30/Aug/2019	29/Aug/2020
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	22/Apr/2019	21/Apr/2020
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
Bilog Antenna & 5db Attenuator	SCHAFFNER/MTJ	CBL6112D / MTJ6102-05	2678 / 001	30MHz ~ 2GHz	06/Jul/2019	05/Jul/2020
Microwave System Preamplifier	KEYSIGHT	83017A	MY53270196	1GHz ~ 26.5GHz	09/Sep/2019	08/Sep/2020
Signal Analyzer	R&S	FSV40	101500	10Hz ~ 40GHz	15/Aug/2019	14/Aug/2020
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	22/Mar/2019	21/Mar/2020
RF CABLE 6m	HUBER+SUHNER	SUOFLEX 104	SN 805801/4	1GHz ~ 40GHz	21/Mar/2019	20/Mar/2020
RF CABLE	HUBER+SUHNER	SUOFLEX 104	802378/4	1 GHz ~ 18 GHz	04/Jul/2019	03/Jul/2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170339	18GHz ~ 40GHz	19/Apr/2019	18/Apr/2020
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz ~ 18GHz	09/Mar/2019	08/Mar/2020
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	05/Aug/2019	04/Aug/2020

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101029	10KHz~40GHz	01/Oct/2019	30/Sep/2020
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	12/Nov/2018	10/Nov/2020
Pulse Power Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	14/Mar/2019	13/Mar/2020
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	14/Mar/2019	13/Mar/2020
CABLE 0.2m	HUBER	MY37960/4	RF Cable - 17	30MHz~18G	10/Jan/2019	09/Jan/2020
CABLE 0.2m	HUBER	MY37960/4	RF Cable - 17	30MHz~18G	10/Jan/2019	09/Jan/2020
CABLE 0.5m	HUBER	MY37963/4	RF Cable - 22	30MHz~18G	10/Jan/2019	09/Jan/2020

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	USB Mode		

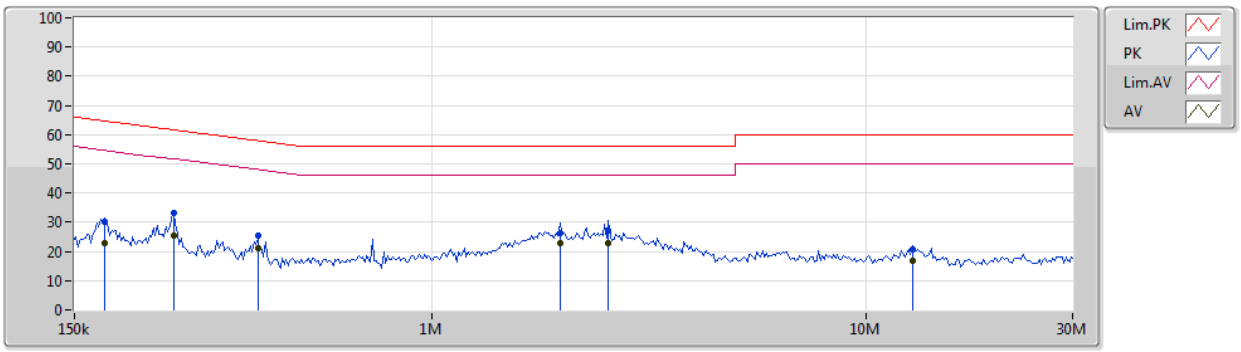
27/11/2019



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	177.646k	31.38	64.59	-33.21	19.47	Neutral	-	11.91	9.59	0.01	9.87
AV	177.646k	23.36	54.59	-31.23	19.47	Neutral	-	3.89	9.59	0.01	9.87
QP	254.17k	33.37	61.62	-28.25	19.47	Neutral	-	13.90	9.59	0.01	9.87
AV	254.17k	25.92	51.62	-25.70	19.47	Neutral	-	6.45	9.59	0.01	9.87
QP	356.493k	21.72	58.81	-37.09	19.48	Neutral	-	2.24	9.59	0.01	9.88
AV	356.493k	17.95	48.81	-30.86	19.48	Neutral	-	-1.53	9.59	0.01	9.88
QP	2.292M	28.75	56.00	-27.25	19.54	Neutral	-	9.21	9.61	0.04	9.89
AV	2.292M	22.57	46.00	-23.43	19.54	Neutral	"Worst"	3.03	9.61	0.04	9.89
QP	3.883M	25.42	56.00	-30.58	19.55	Neutral	-	5.87	9.61	0.05	9.89
AV	3.883M	20.41	46.00	-25.59	19.55	Neutral	-	0.86	9.61	0.05	9.89
QP	7.196M	21.53	60.00	-38.47	19.60	Neutral	-	1.93	9.65	0.06	9.89
AV	7.196M	17.13	50.00	-32.87	19.60	Neutral	-	-2.47	9.65	0.06	9.89

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	USB Mode		

27/11/2019



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	175.887k	30.27	64.68	-34.41	19.48	Line	-	10.79	9.60	0.01	9.87
AV	175.887k	22.86	54.68	-31.82	19.48	Line	-	3.38	9.60	0.01	9.87
QP	254.17k	33.25	61.62	-28.37	19.48	Line	-	13.77	9.60	0.01	9.87
AV	254.17k	25.39	51.62	-26.23	19.48	Line	-	5.91	9.60	0.01	9.87
QP	397.728k	25.64	57.89	-32.25	19.48	Line	-	6.16	9.59	0.01	9.88
AV	397.728k	21.27	47.89	-26.62	19.48	Line	-	1.79	9.59	0.01	9.88
QP	1.974M	26.50	56.00	-29.50	19.54	Line	-	6.96	9.62	0.03	9.89
AV	1.974M	22.78	46.00	-23.22	19.54	Line	-	3.24	9.62	0.03	9.89
QP	2.557M	27.16	56.00	-28.84	19.55	Line	-	7.61	9.62	0.04	9.89
AV	2.557M	23.05	46.00	-22.95	19.55	Line	"Worst"	3.50	9.62	0.04	9.89
QP	12.816M	20.81	60.00	-39.19	19.63	Line	-	1.18	9.65	0.08	9.90
AV	12.816M	16.81	50.00	-33.19	19.63	Line	-	-2.82	9.65	0.08	9.90

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	666.25k	1.033M	1M03F1D	665k	1.032M
BT-LE(2Mbps)	1.24M	2.069M	2M07F1D	1.235M	2.061M

Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

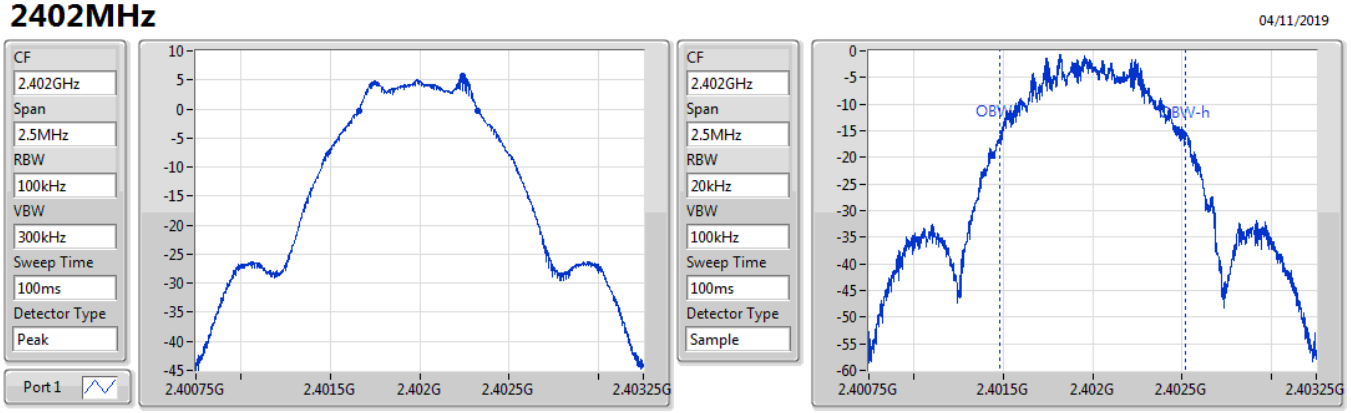
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	665k	1.033M
2440MHz_TnomVnom	Pass	500k	666.25k	1.032M
2480MHz_TnomVnom	Pass	500k	666.25k	1.032M
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	1.235M	2.061M
2440MHz_TnomVnom	Pass	500k	1.238M	2.069M
2480MHz_TnomVnom	Pass	500k	1.24M	2.066M

Port X-N dB = Port **X** 6dB down bandwidth; **Port X-OBW** = Port **X** 99% occupied bandwidth;

BT-LE(1Mbps) **EBW**

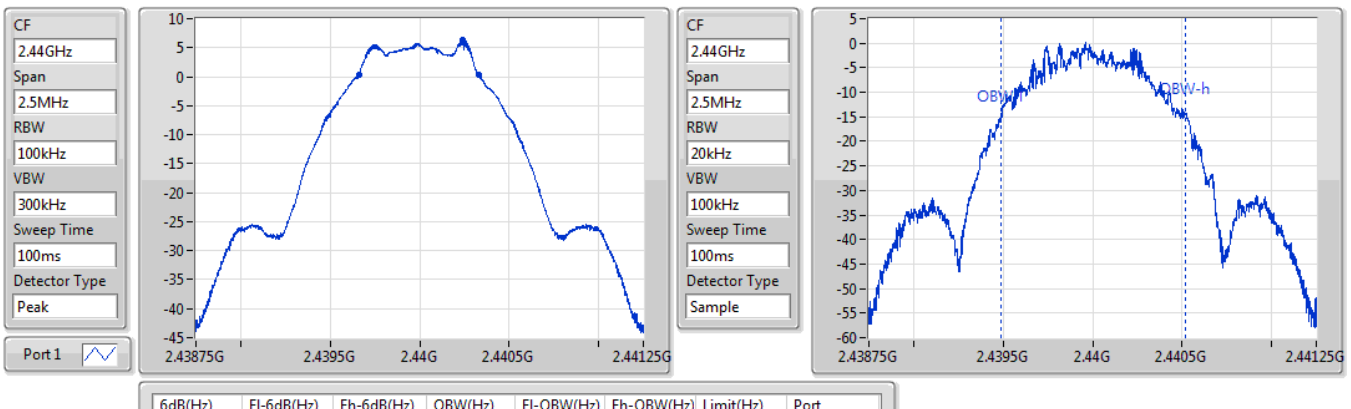
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
665k	2.40166G	2.402325G	1.033M	2.401484G	2.402517G	500k	1

BT-LE(1Mbps) **EBW**

2440MHz



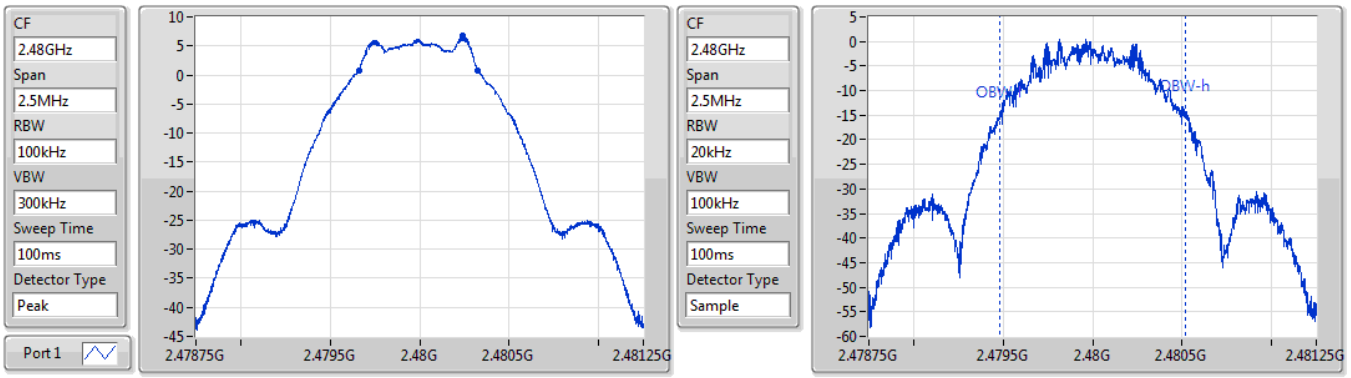
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
666.25k	2.439661G	2.440328G	1.032M	2.439485G	2.440517G	500k	1

BT-LE(1Mbps)

EBW

2480MHz

04/11/2019



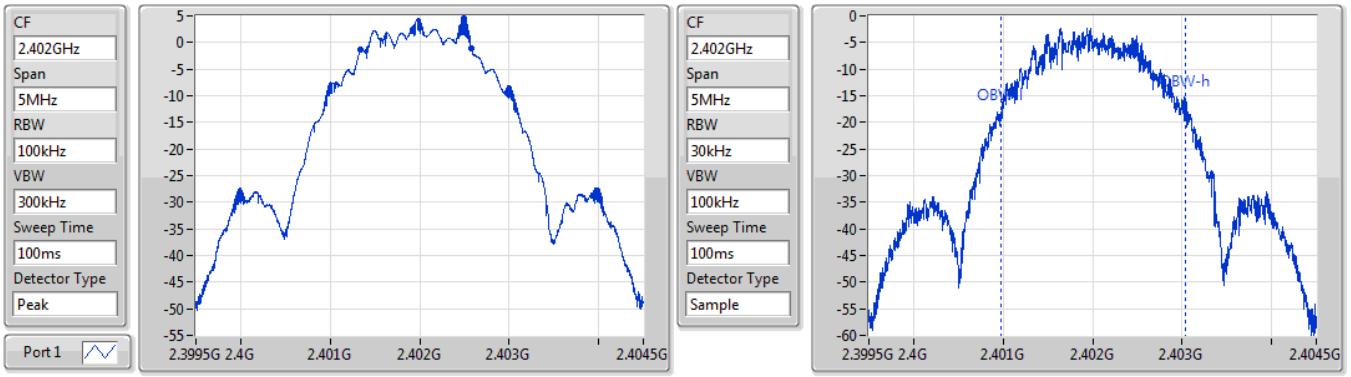
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
666.25k	2.47966G	2.480326G	1.032M	2.479484G	2.480516G	500k	1

BT-LE(2Mbps)

EBW

2402MHz

04/11/2019

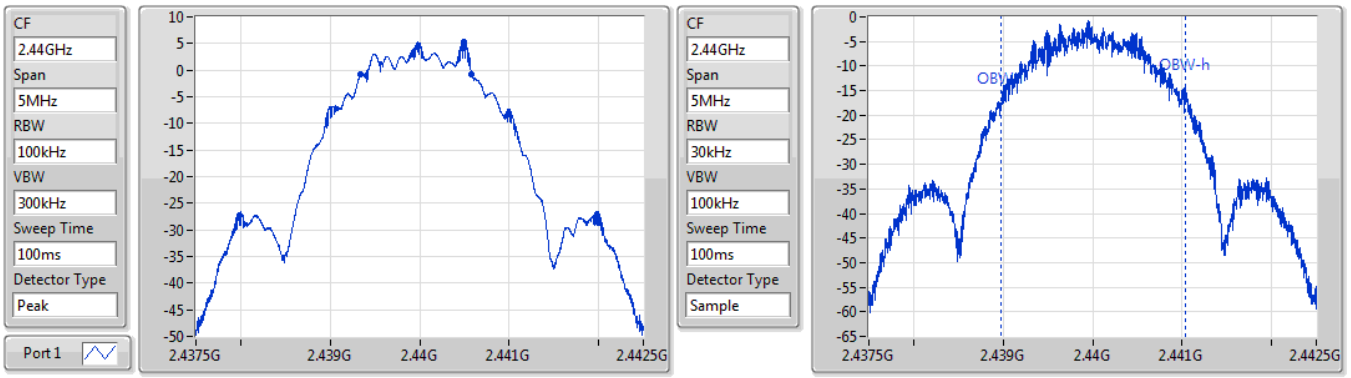


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.235M	2.401345G	2.40258G	2.061M	2.400976G	2.403037G	500k	1

BT-LE(2Mbps) **EBW**

2440MHz

04/11/2019

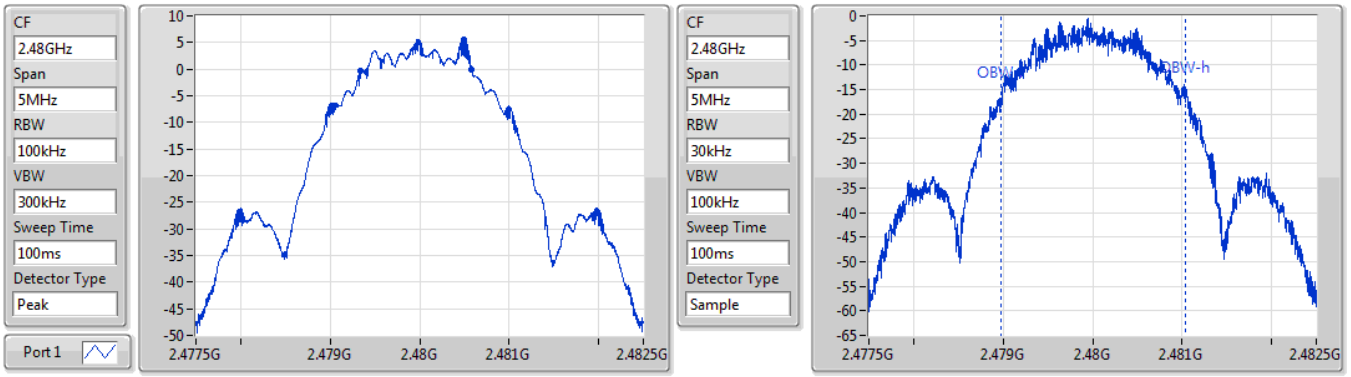


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.238M	2.439345G	2.440583G	2.069M	2.438971G	2.441039G	500k	1

BT-LE(2Mbps) **EBW**

2480MHz

04/11/2019



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.24M	2.479343G	2.480583G	2.066M	2.478971G	2.481037G	500k	1

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	7.38	0.00547
BT-LE(2Mbps)	7.28	0.00535

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.74	6.25	30.00
2440MHz_TnomVnom	Pass	3.74	6.92	30.00
2480MHz_TnomVnom	Pass	3.74	7.38	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.74	6.14	30.00
2440MHz_TnomVnom	Pass	3.74	6.86	30.00
2480MHz_TnomVnom	Pass	3.74	7.28	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-9.75
BT-LE(2Mbps)	-12.53

RBW=3 kHz.

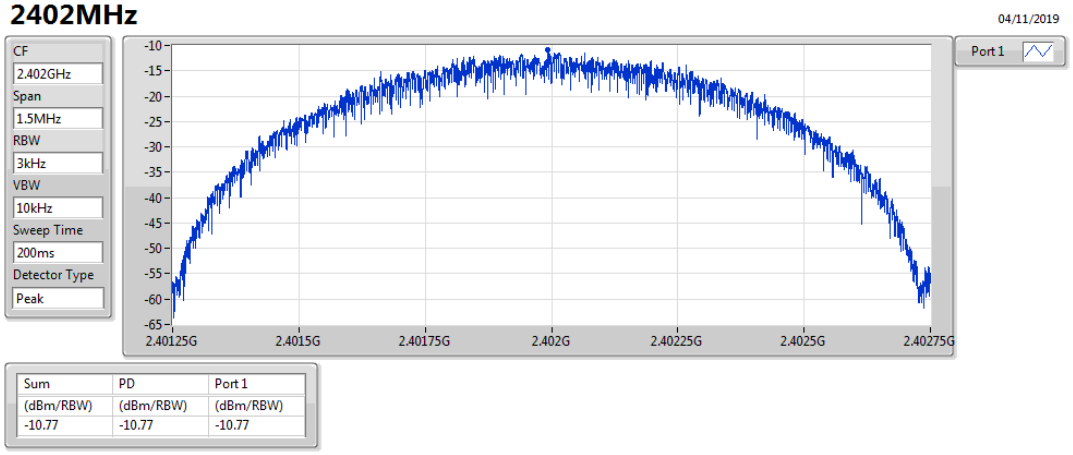
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.74	-10.77	8.00
2440MHz_TnomVnom	Pass	3.74	-10.07	8.00
2480MHz_TnomVnom	Pass	3.74	-9.75	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.74	-13.63	8.00
2440MHz_TnomVnom	Pass	3.74	-13.00	8.00
2480MHz_TnomVnom	Pass	3.74	-12.53	8.00

DG = Directional Gain; RBW=3 kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps) **PSD**

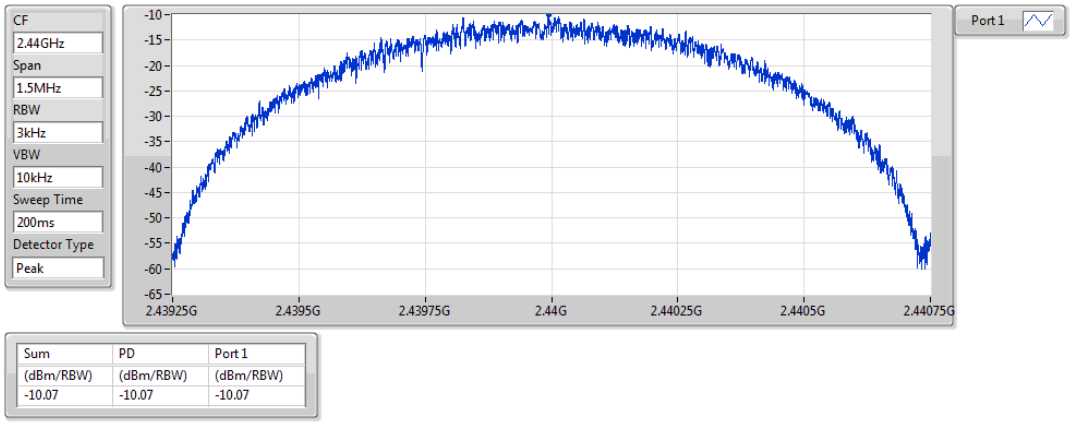
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.77	-10.77	-10.77

BT-LE(1Mbps) **PSD**

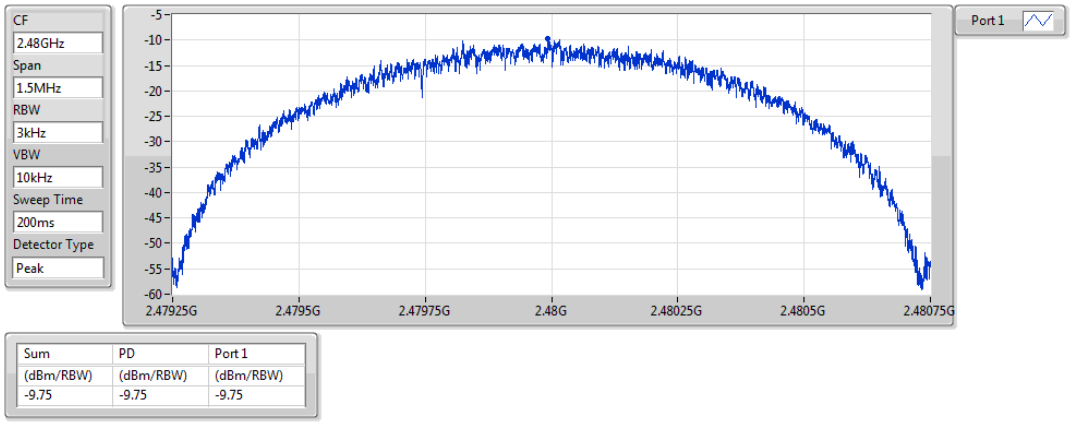
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.07	-10.07	-10.07

BT-LE(1Mbps) **PSD**

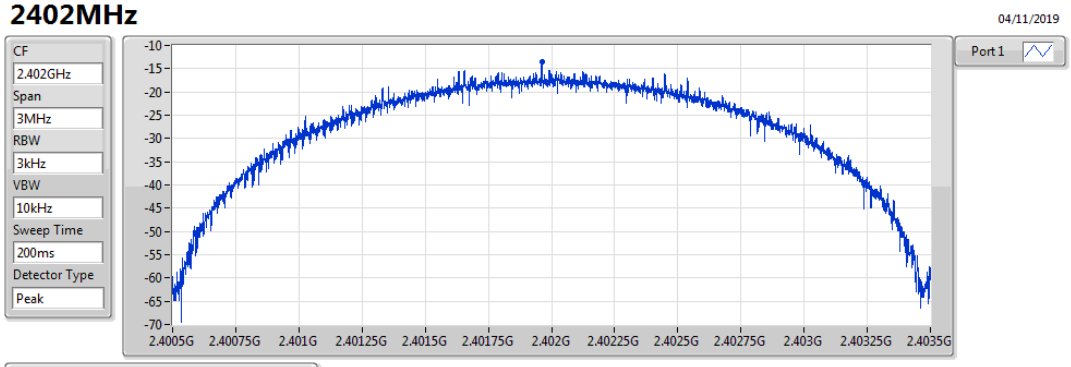
2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.75	-9.75	-9.75

BT-LE(2Mbps) **PSD**

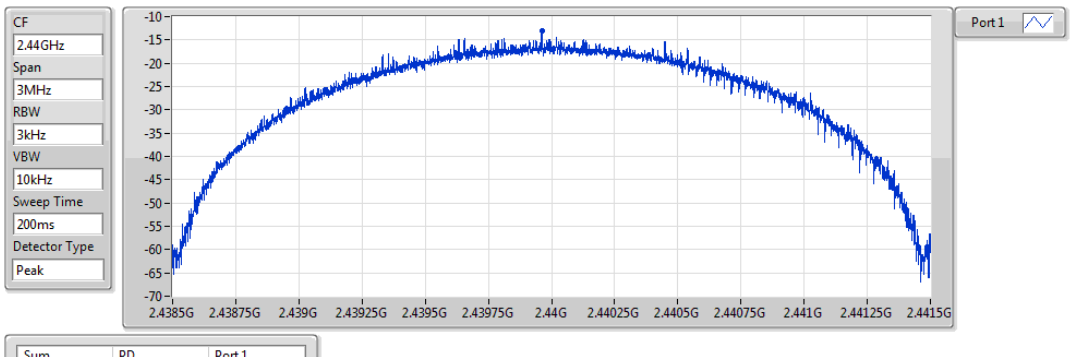
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.63	-13.63	-13.63

BT-LE(2Mbps) **PSD**

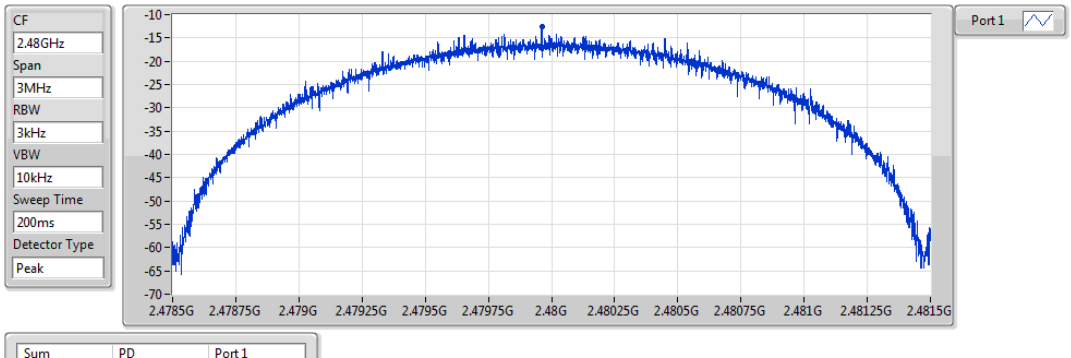
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-13.00	-13.00	-13.00

BT-LE(2Mbps) **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-12.53	-12.53	-12.53

Summary

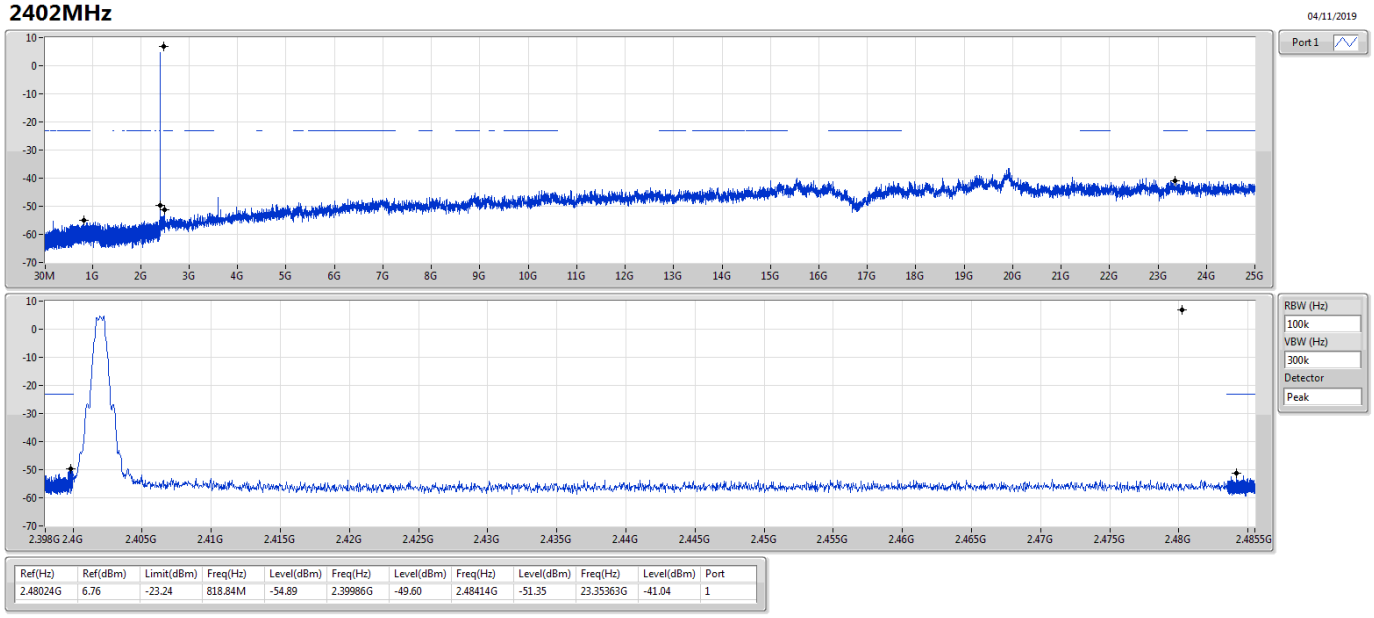
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.48024G	6.76	-23.24	2.13426G	-53.14	2.3993G	-52.31	2.48358G	-51.16	24.38929G	-39.44	1
BT-LE(2Mbps)	Pass	2.48003G	5.26	-24.74	2.3052G	-55.09	2.39999G	-27.44	2.4847G	-53.14	23.20744G	-39.60	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
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.48024G	6.76	-23.24	818.84M	-54.89	2.39986G	-49.60	2.48414G	-51.35	23.35363G	-41.04	1
2440MHz_TnomVnom	Pass	2.48024G	6.76	-23.24	709.62M	-54.91	2.39903G	-52.52	2.48397G	-52.25	17.41261G	-40.94	1
2480MHz_TnomVnom	Pass	2.48024G	6.76	-23.24	2.13426G	-53.14	2.3993G	-52.31	2.48358G	-51.16	24.38929G	-39.44	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.48003G	5.26	-24.74	2.3052G	-55.09	2.39999G	-27.44	2.4847G	-53.14	23.20744G	-39.60	1
2440MHz_TnomVnom	Pass	2.48003G	5.26	-24.74	1.62114G	-55.25	2.39841G	-52.82	2.48668G	-53.07	24.91558G	-40.14	1
2480MHz_TnomVnom	Pass	2.48003G	5.26	-24.74	2.16117G	-54.57	2.39793G	-53.29	2.48405G	-49.70	16.21731G	-39.82	1

BT-LE(1Mbps) **CSE NdB**

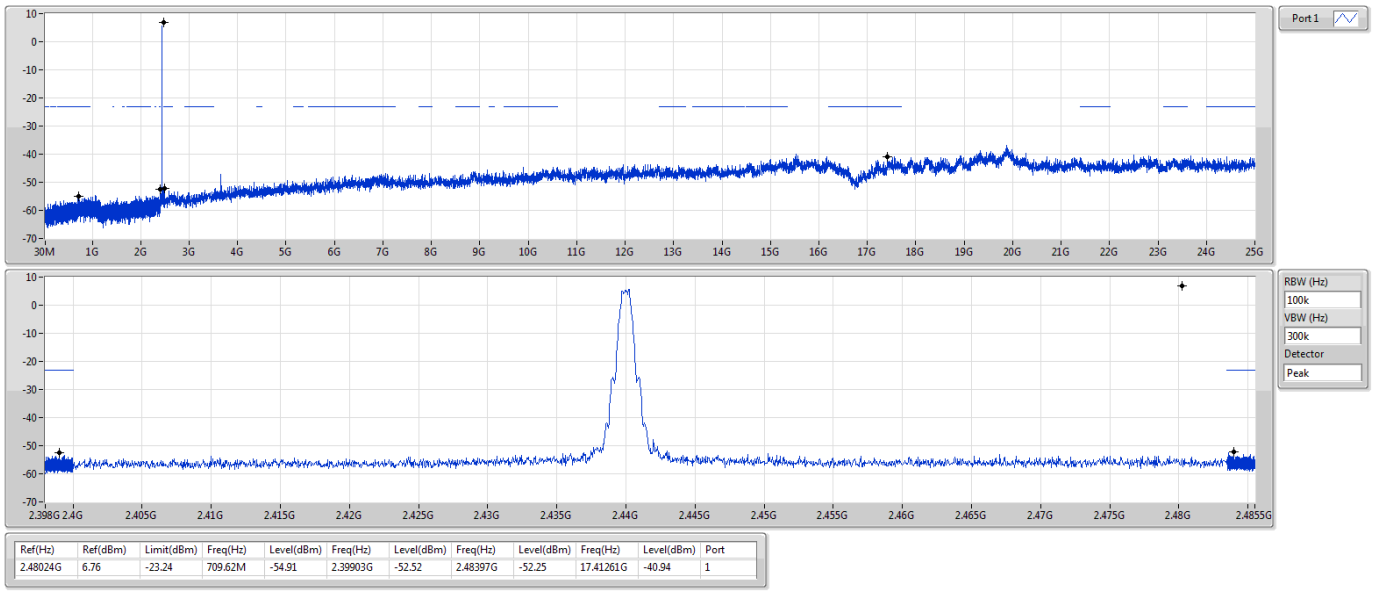
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48024G	6.76	-23.24	818.84M	-54.89	2.39986G	-49.60	2.48414G	-51.35	23.35363G	-41.04	1

BT-LE(1Mbps) **CSE NdB**

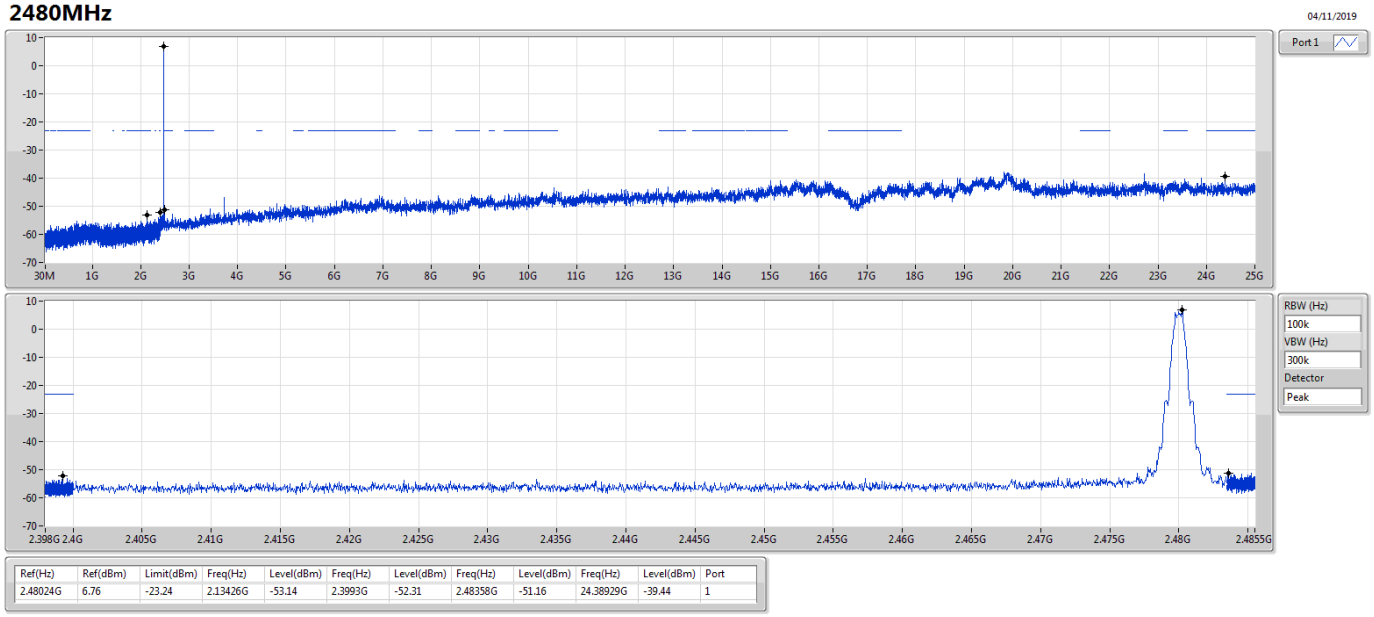
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48024G	6.76	-23.24	709.62M	-54.91	2.39903G	-52.52	2.48397G	-52.25	17.41261G	-40.94	1

BT-LE(1Mbps) **CSE NdB**

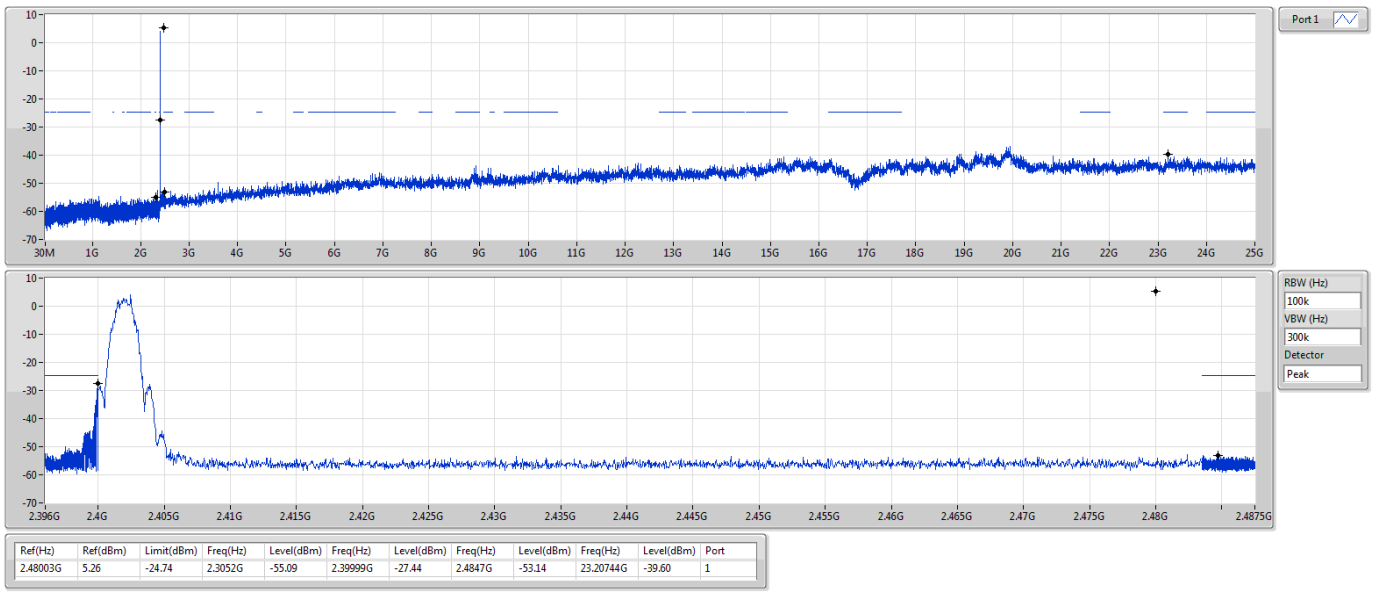
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48024G	6.76	-23.24	2.13426G	-53.14	2.3993G	-52.31	2.48358G	-51.16	24.38929G	-39.44	1

BT-LE(2Mbps) **CSE NdB**

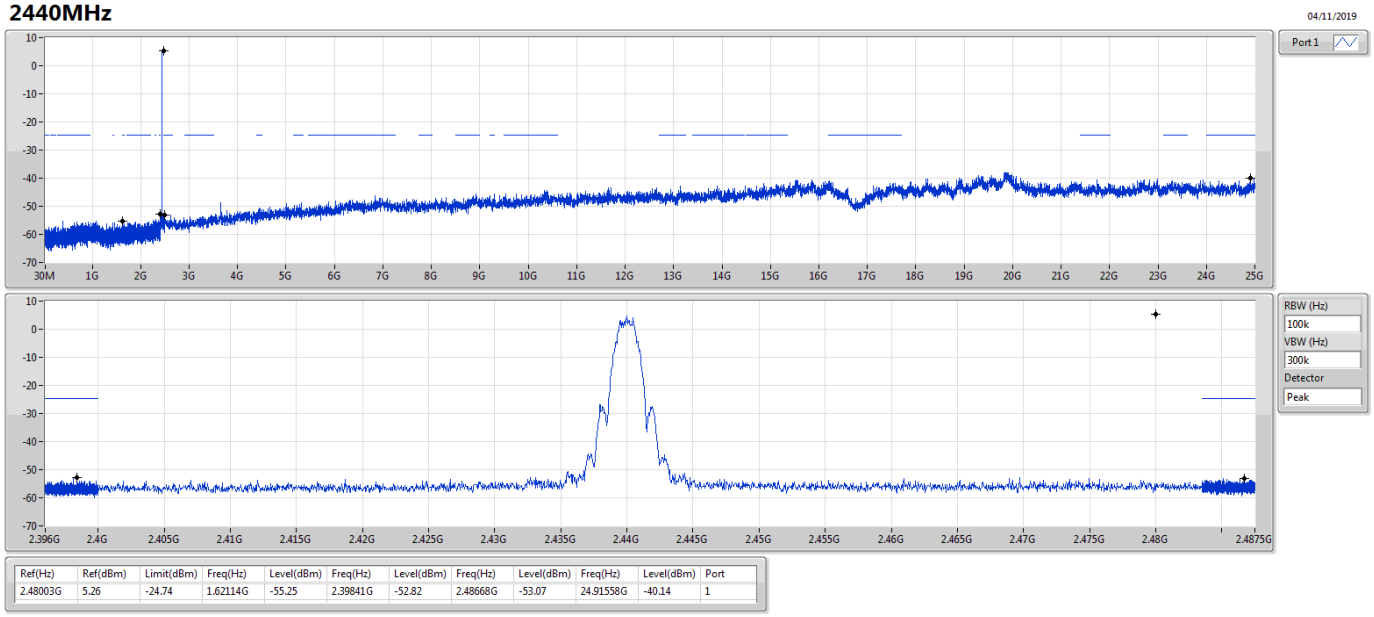
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48003G	5.26	-24.74	2.3052G	-55.09	2.39999G	-27.44	2.4847G	-53.14	23.20744G	-39.60	1

BT-LE(2Mbps) **CSE NdB**

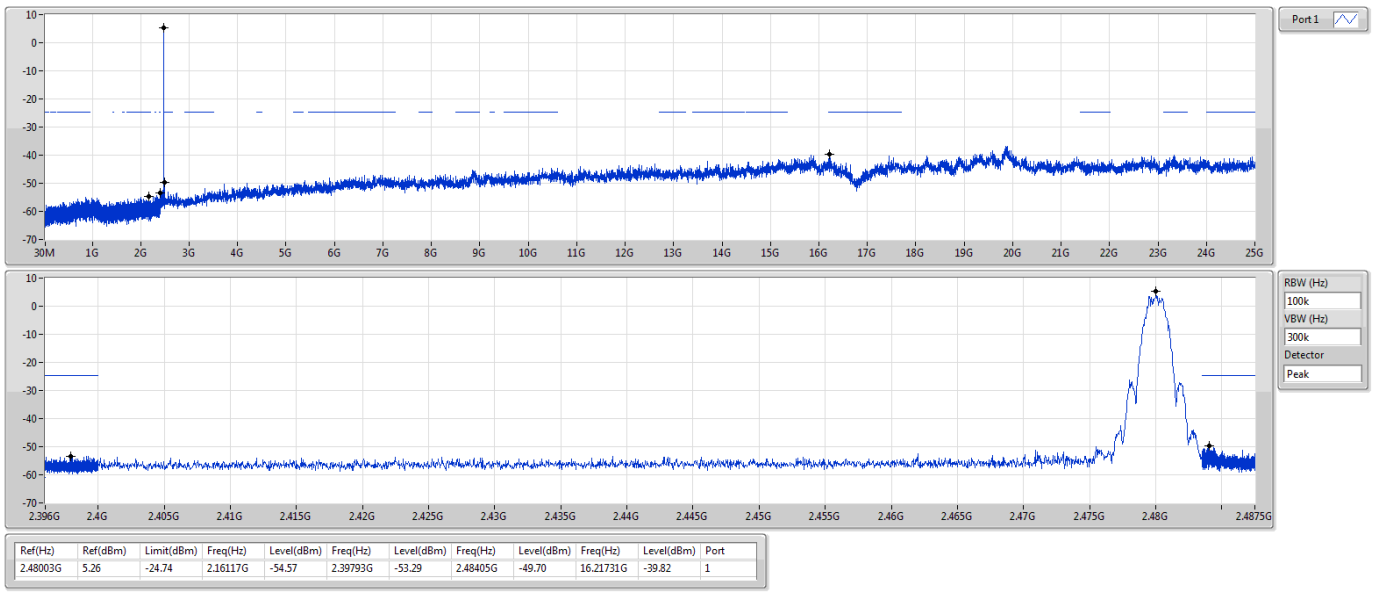
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48003G	5.26	-24.74	1.62114G	-55.25	2.39841G	-52.82	2.48668G	-53.07	24.91558G	-40.14	1

BT-LE(2Mbps) **CSE NdB**

2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.48003G	5.26	-24.74	2.16117G	-54.57	2.39793G	-53.29	2.48405G	-49.70	16.21731G	-39.82	1

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	PK	95.96M	38.66	43.50	-4.84	3	Horizontal	360	1.00	-

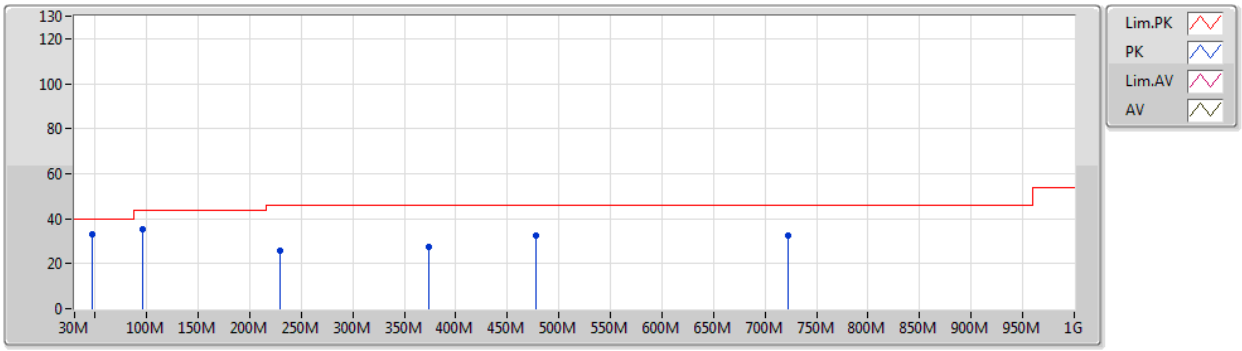
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz_USB	Pass	PK	47.46M	33.01	40.00	-6.99	3	Vertical	0	1.00	-
2440MHz_USB	Pass	PK	95.96M	35.56	43.50	-7.94	3	Vertical	0	1.00	-
2440MHz_USB	Pass	PK	229.82M	26.02	46.00	-19.98	3	Vertical	0	1.00	-
2440MHz_USB	Pass	PK	373.38M	27.18	46.00	-18.82	3	Vertical	0	1.00	-
2440MHz_USB	Pass	PK	478.14M	32.23	46.00	-13.77	3	Vertical	0	1.00	-
2440MHz_USB	Pass	PK	722.58M	32.56	46.00	-13.44	3	Vertical	0	1.00	-
2440MHz_USB	Pass	PK	95.96M	38.66	43.50	-4.84	3	Horizontal	360	1.00	-
2440MHz_USB	Pass	PK	264.74M	34.08	46.00	-11.92	3	Horizontal	360	1.00	-
2440MHz_USB	Pass	PK	293.84M	35.22	46.00	-10.78	3	Horizontal	360	1.00	-
2440MHz_USB	Pass	PK	322.94M	33.15	46.00	-12.85	3	Horizontal	360	1.00	-
2440MHz_USB	Pass	PK	482.02M	35.18	46.00	-10.82	3	Horizontal	360	1.00	-
2440MHz_USB	Pass	PK	722.58M	33.28	46.00	-12.72	3	Horizontal	360	1.00	-

BT-LE(2Mbps)

2440MHz_USB

02/11/2019

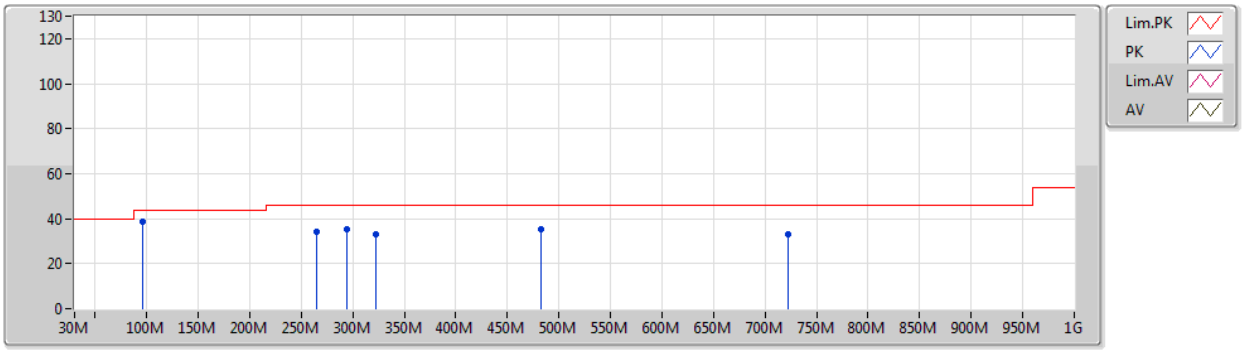


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	47.46M	33.01	40.00	-6.99	-12.39	3	Vertical	0	1.00	-	45.40	14.11	1.02	27.52
PK	95.96M	35.56	43.50	-7.94	-10.64	3	Vertical	0	1.00	-	46.20	15.27	1.48	27.39
PK	229.82M	26.02	46.00	-19.98	-9.14	3	Vertical	0	1.00	-	35.16	15.31	2.37	26.82
PK	373.38M	27.18	46.00	-18.82	-4.04	3	Vertical	0	1.00	-	31.22	20.01	3.07	27.12
PK	478.14M	32.23	46.00	-13.77	-1.66	3	Vertical	0	1.00	-	33.89	22.60	3.51	27.77
PK	722.58M	32.56	46.00	-13.44	0.81	3	Vertical	0	1.00	-	31.75	24.42	4.43	28.04

BT-LE(2Mbps)

2440MHz_USB

02/11/2019



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	95.96M	38.66	43.50	-4.84	-10.64	3	Horizontal	360	1.00	-	49.30	15.27	1.48	27.39
PK	264.74M	34.08	46.00	-11.92	-5.65	3	Horizontal	360	1.00	-	39.73	18.52	2.56	26.73
PK	293.84M	35.22	46.00	-10.78	-5.81	3	Horizontal	360	1.00	-	41.03	18.18	2.72	26.71
PK	322.94M	33.15	46.00	-12.85	-5.22	3	Horizontal	360	1.00	-	38.37	18.76	2.85	26.83
PK	482.02M	35.18	46.00	-10.82	-1.60	3	Horizontal	360	1.00	-	36.78	22.65	3.53	27.78
PK	722.58M	33.28	46.00	-12.72	0.81	3	Horizontal	360	1.00	-	32.47	24.42	4.43	28.04

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4918G	48.17	54.00	-5.83	3	Vertical	151	1.47	-
BT-LE(2Mbps)	Pass	AV	2.4835G	49.88	54.00	-4.12	3	Horizontal	178	1.50	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TX	Pass	AV	2.3532G	47.34	54.00	-6.66	3	Vertical	151	1.59	-
2402MHz_TX	Pass	AV	2.402G	96.72	Inf	-Inf	3	Vertical	151	1.59	-
2402MHz_TX	Pass	PK	2.3674G	59.96	74.00	-14.04	3	Vertical	151	1.59	-
2402MHz_TX	Pass	PK	2.4022G	97.78	Inf	-Inf	3	Vertical	151	1.59	-
2402MHz_TX	Pass	AV	2.39G	47.61	54.00	-6.39	3	Horizontal	239	1.99	-
2402MHz_TX	Pass	AV	2.402G	103.37	Inf	-Inf	3	Horizontal	239	1.99	-
2402MHz_TX	Pass	PK	2.3532G	60.40	74.00	-13.60	3	Horizontal	239	1.99	-
2402MHz_TX	Pass	PK	2.4018G	104.40	Inf	-Inf	3	Horizontal	239	1.99	-
2402MHz_TX	Pass	AV	3.603G	44.98	54.00	-9.02	3	Vertical	181	1.48	-
2402MHz_TX	Pass	AV	4.804G	40.76	54.00	-13.24	3	Vertical	305	1.37	-
2402MHz_TX	Pass	PK	3.60278G	50.61	74.00	-23.39	3	Vertical	181	1.48	-
2402MHz_TX	Pass	PK	4.804G	50.40	74.00	-23.60	3	Vertical	305	1.37	-
2402MHz_TX	Pass	AV	3.60296G	47.55	54.00	-6.45	3	Horizontal	210	1.16	-
2402MHz_TX	Pass	AV	4.80406G	46.45	54.00	-7.55	3	Horizontal	240	2.30	-
2402MHz_TX	Pass	PK	3.60288G	51.82	74.00	-22.18	3	Horizontal	210	1.16	-
2402MHz_TX	Pass	PK	4.80412G	55.11	74.00	-18.89	3	Horizontal	240	2.30	-
2440MHz_TX	Pass	AV	2.3412G	47.48	54.00	-6.52	3	Vertical	161	1.73	-
2440MHz_TX	Pass	AV	2.44G	97.86	Inf	-Inf	3	Vertical	161	1.73	-
2440MHz_TX	Pass	AV	2.4844G	47.90	54.00	-6.10	3	Vertical	161	1.73	-
2440MHz_TX	Pass	PK	2.3664G	59.41	74.00	-14.59	3	Vertical	161	1.73	-
2440MHz_TX	Pass	PK	2.4396G	98.97	Inf	-Inf	3	Vertical	161	1.73	-
2440MHz_TX	Pass	PK	2.5G	59.89	74.00	-14.11	3	Vertical	161	1.73	-
2440MHz_TX	Pass	AV	2.3404G	47.49	54.00	-6.51	3	Horizontal	169	1.49	-
2440MHz_TX	Pass	AV	2.44G	102.67	Inf	-Inf	3	Horizontal	169	1.49	-
2440MHz_TX	Pass	AV	2.4848G	47.90	54.00	-6.10	3	Horizontal	169	1.49	-
2440MHz_TX	Pass	PK	2.362G	58.77	74.00	-15.23	3	Horizontal	169	1.49	-
2440MHz_TX	Pass	PK	2.4396G	103.73	Inf	-Inf	3	Horizontal	169	1.49	-
2440MHz_TX	Pass	PK	2.4852G	59.69	74.00	-14.31	3	Horizontal	169	1.49	-
2440MHz_TX	Pass	AV	3.66G	42.94	54.00	-11.06	3	Vertical	181	1.40	-
2440MHz_TX	Pass	AV	4.88006G	39.02	54.00	-14.98	3	Vertical	222	2.26	-
2440MHz_TX	Pass	PK	3.6603G	48.65	74.00	-25.35	3	Vertical	181	1.40	-
2440MHz_TX	Pass	PK	4.88G	49.26	74.00	-24.74	3	Vertical	222	2.26	-
2440MHz_TX	Pass	AV	3.66G	46.43	54.00	-7.57	3	Horizontal	209	1.19	-
2440MHz_TX	Pass	AV	4.87994G	44.41	54.00	-9.59	3	Horizontal	238	2.23	-
2440MHz_TX	Pass	PK	3.65994G	50.84	74.00	-23.16	3	Horizontal	209	1.19	-
2440MHz_TX	Pass	PK	4.87988G	53.51	74.00	-20.49	3	Horizontal	238	2.23	-
2480MHz_TX	Pass	AV	2.48G	97.36	Inf	-Inf	3	Vertical	151	1.47	-
2480MHz_TX	Pass	AV	2.4918G	48.17	54.00	-5.83	3	Vertical	151	1.47	-
2480MHz_TX	Pass	PK	2.4798G	98.40	Inf	-Inf	3	Vertical	151	1.47	-
2480MHz_TX	Pass	PK	2.4876G	60.24	74.00	-13.76	3	Vertical	151	1.47	-
2480MHz_TX	Pass	AV	2.48G	101.61	Inf	-Inf	3	Horizontal	176	1.52	-
2480MHz_TX	Pass	AV	2.4884G	48.17	54.00	-5.83	3	Horizontal	176	1.52	-
2480MHz_TX	Pass	PK	2.4798G	102.65	Inf	-Inf	3	Horizontal	176	1.52	-
2480MHz_TX	Pass	PK	2.496G	60.04	74.00	-13.96	3	Horizontal	176	1.52	-
2480MHz_TX	Pass	AV	3.72G	42.62	54.00	-11.38	3	Vertical	182	1.38	-
2480MHz_TX	Pass	AV	4.95994G	40.36	54.00	-13.64	3	Vertical	172	2.66	-
2480MHz_TX	Pass	PK	3.72006G	48.07	74.00	-25.93	3	Vertical	182	1.38	-

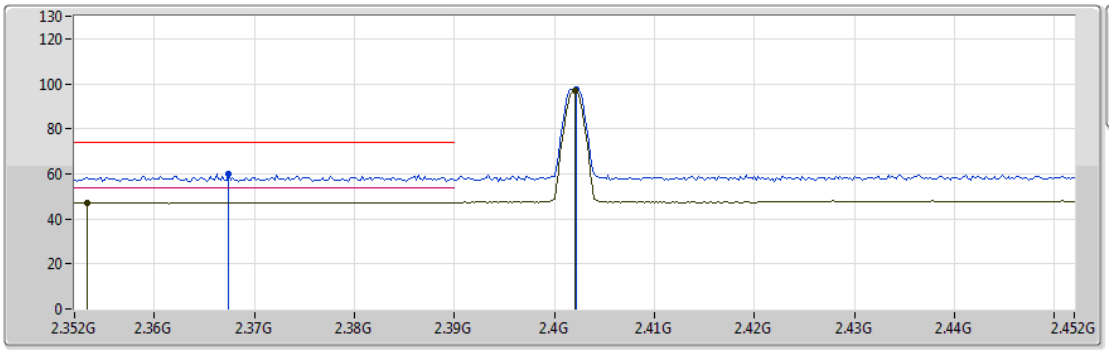
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz_TX	Pass	PK	4.96G	49.93	74.00	-24.07	3	Vertical	172	2.66	-
2480MHz_TX	Pass	AV	3.72G	46.18	54.00	-7.82	3	Horizontal	210	1.18	-
2480MHz_TX	Pass	AV	4.96G	44.04	54.00	-9.96	3	Horizontal	154	1.43	-
2480MHz_TX	Pass	PK	3.71988G	50.64	74.00	-23.36	3	Horizontal	210	1.18	-
2480MHz_TX	Pass	PK	4.95988G	53.13	74.00	-20.87	3	Horizontal	154	1.43	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TX	Pass	AV	2.3816G	47.55	54.00	-6.45	3	Vertical	151	1.60	-
2402MHz_TX	Pass	AV	2.402G	95.15	Inf	-Inf	3	Vertical	151	1.60	-
2402MHz_TX	Pass	PK	2.376G	59.56	74.00	-14.44	3	Vertical	151	1.60	-
2402MHz_TX	Pass	PK	2.4024G	97.77	Inf	-Inf	3	Vertical	151	1.60	-
2402MHz_TX	Pass	AV	2.357G	47.58	54.00	-6.42	3	Horizontal	235	1.87	-
2402MHz_TX	Pass	AV	2.402G	101.63	Inf	-Inf	3	Horizontal	235	1.87	-
2402MHz_TX	Pass	PK	2.385G	59.29	74.00	-14.71	3	Horizontal	235	1.87	-
2402MHz_TX	Pass	PK	2.4024G	104.27	Inf	-Inf	3	Horizontal	235	1.87	-
2402MHz_TX	Pass	AV	3.60299G	43.51	54.00	-10.49	3	Vertical	181	1.49	-
2402MHz_TX	Pass	AV	4.804G	39.36	54.00	-14.64	3	Vertical	303	1.50	-
2402MHz_TX	Pass	PK	3.60301G	49.35	74.00	-24.65	3	Vertical	181	1.49	-
2402MHz_TX	Pass	PK	4.80388G	49.57	74.00	-24.43	3	Vertical	303	1.50	-
2402MHz_TX	Pass	AV	3.60302G	45.94	54.00	-8.06	3	Horizontal	210	1.14	-
2402MHz_TX	Pass	AV	4.80394G	45.49	54.00	-8.51	3	Horizontal	239	2.30	-
2402MHz_TX	Pass	PK	3.6029G	51.58	74.00	-22.42	3	Horizontal	210	1.14	-
2402MHz_TX	Pass	PK	4.804G	54.83	74.00	-19.17	3	Horizontal	239	2.30	-
2440MHz_TX	Pass	AV	2.3404G	47.49	54.00	-6.51	3	Vertical	161	1.73	-
2440MHz_TX	Pass	AV	2.44G	96.23	Inf	-Inf	3	Vertical	161	1.73	-
2440MHz_TX	Pass	AV	2.4928G	48.16	54.00	-5.84	3	Vertical	161	1.73	-
2440MHz_TX	Pass	PK	2.3432G	58.73	74.00	-15.27	3	Vertical	161	1.73	-
2440MHz_TX	Pass	PK	2.4396G	98.91	Inf	-Inf	3	Vertical	161	1.73	-
2440MHz_TX	Pass	PK	2.49G	60.24	74.00	-13.76	3	Vertical	161	1.73	-
2440MHz_TX	Pass	AV	2.39G	47.61	54.00	-6.39	3	Horizontal	177	1.49	-
2440MHz_TX	Pass	AV	2.44G	101.00	Inf	-Inf	3	Horizontal	177	1.49	-
2440MHz_TX	Pass	AV	2.484G	48.16	54.00	-5.84	3	Horizontal	177	1.49	-
2440MHz_TX	Pass	PK	2.3412G	59.41	74.00	-14.59	3	Horizontal	177	1.49	-
2440MHz_TX	Pass	PK	2.4396G	103.64	Inf	-Inf	3	Horizontal	177	1.49	-
2440MHz_TX	Pass	PK	2.4892G	60.17	74.00	-13.83	3	Horizontal	177	1.49	-
2440MHz_TX	Pass	AV	3.65998G	42.16	54.00	-11.84	3	Vertical	178	1.30	-
2440MHz_TX	Pass	AV	4.88001G	38.32	54.00	-15.68	3	Vertical	223	1.48	-
2440MHz_TX	Pass	PK	3.65999G	48.70	74.00	-25.30	3	Vertical	178	1.30	-
2440MHz_TX	Pass	PK	4.87902G	49.08	74.00	-24.92	3	Vertical	223	1.48	-
2440MHz_TX	Pass	AV	3.65997G	44.83	54.00	-9.17	3	Horizontal	209	1.19	-
2440MHz_TX	Pass	AV	4.88002G	42.56	54.00	-11.44	3	Horizontal	154	1.52	-
2440MHz_TX	Pass	PK	3.65998G	50.48	74.00	-23.52	3	Horizontal	209	1.19	-
2440MHz_TX	Pass	PK	4.87988G	52.69	74.00	-21.31	3	Horizontal	154	1.52	-
2480MHz_TX	Pass	AV	2.48G	95.72	Inf	-Inf	3	Vertical	151	1.48	-
2480MHz_TX	Pass	AV	2.4835G	48.43	54.00	-5.57	3	Vertical	151	1.48	-
2480MHz_TX	Pass	PK	2.4794G	98.34	Inf	-Inf	3	Vertical	151	1.48	-
2480MHz_TX	Pass	PK	2.4894G	59.17	74.00	-14.83	3	Vertical	151	1.48	-
2480MHz_TX	Pass	AV	2.48G	99.92	Inf	-Inf	3	Horizontal	178	1.50	-
2480MHz_TX	Pass	AV	2.4835G	49.88	54.00	-4.12	3	Horizontal	178	1.50	-
2480MHz_TX	Pass	PK	2.4794G	102.58	Inf	-Inf	3	Horizontal	178	1.50	-

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz_TX	Pass	PK	2.4928G	59.89	74.00	-14.11	3	Horizontal	178	1.50	-
2480MHz_TX	Pass	AV	3.71998G	41.36	54.00	-12.64	3	Vertical	181	1.36	-
2480MHz_TX	Pass	AV	4.95998G	39.48	54.00	-14.52	3	Vertical	161	2.64	-
2480MHz_TX	Pass	PK	3.72001G	48.26	74.00	-25.74	3	Vertical	181	1.36	-
2480MHz_TX	Pass	PK	4.96G	50.42	74.00	-23.58	3	Vertical	161	2.64	-
2480MHz_TX	Pass	AV	3.72009G	44.81	54.00	-9.19	3	Horizontal	209	1.20	-
2480MHz_TX	Pass	AV	4.95998G	42.87	54.00	-11.13	3	Horizontal	152	1.43	-
2480MHz_TX	Pass	PK	3.72008G	50.51	74.00	-23.49	3	Horizontal	209	1.20	-
2480MHz_TX	Pass	PK	4.96003G	52.53	74.00	-21.47	3	Horizontal	152	1.43	-

BT-LE(1Mbps)

2402MHz_TX

02/11/2019

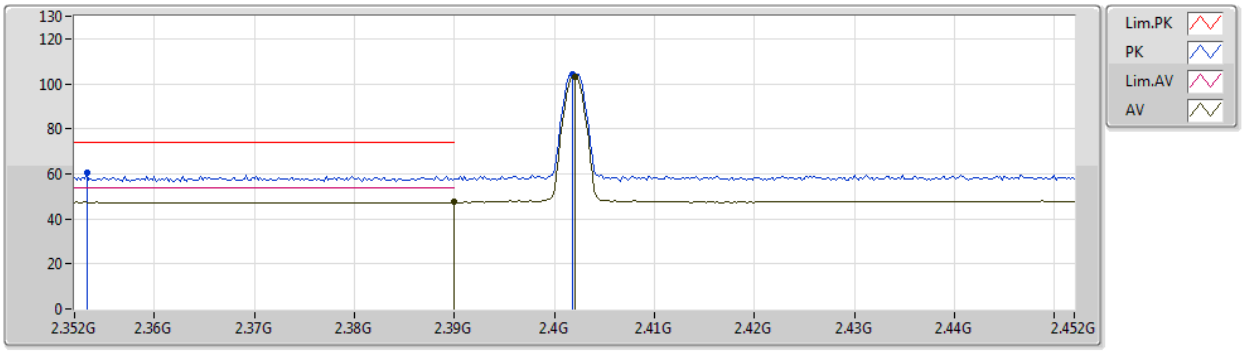


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3532G	47.34	54.00	-6.66	31.65	3	Vertical	151	1.59	-	15.69	27.69	3.96	-
AV	2.402G	96.72	Inf	-Inf	31.51	3	Vertical	151	1.59	-	65.21	27.50	4.01	-
PK	2.3674G	59.96	74.00	-14.04	31.61	3	Vertical	151	1.59	-	28.35	27.63	3.98	-
PK	2.4022G	97.78	Inf	-Inf	31.51	3	Vertical	151	1.59	-	66.27	27.50	4.01	-

BT-LE(1Mbps)

2402MHz_TX

02/11/2019

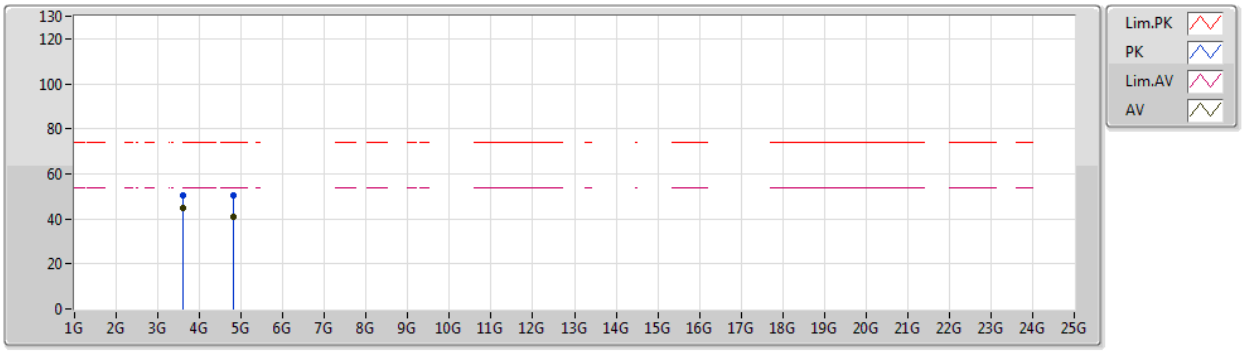


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.39G	47.61	54.00	-6.39	31.54	3	Horizontal	239	1.99	-	16.07	27.54	4.00	-
AV	2.402G	103.37	Inf	-Inf	31.51	3	Horizontal	239	1.99	-	71.86	27.50	4.01	-
PK	2.3532G	60.40	74.00	-13.60	31.65	3	Horizontal	239	1.99	-	28.75	27.69	3.96	-
PK	2.4018G	104.40	Inf	-Inf	31.51	3	Horizontal	239	1.99	-	72.89	27.50	4.01	-

BT-LE(1Mbps)

2402MHz_TX

02/11/2019

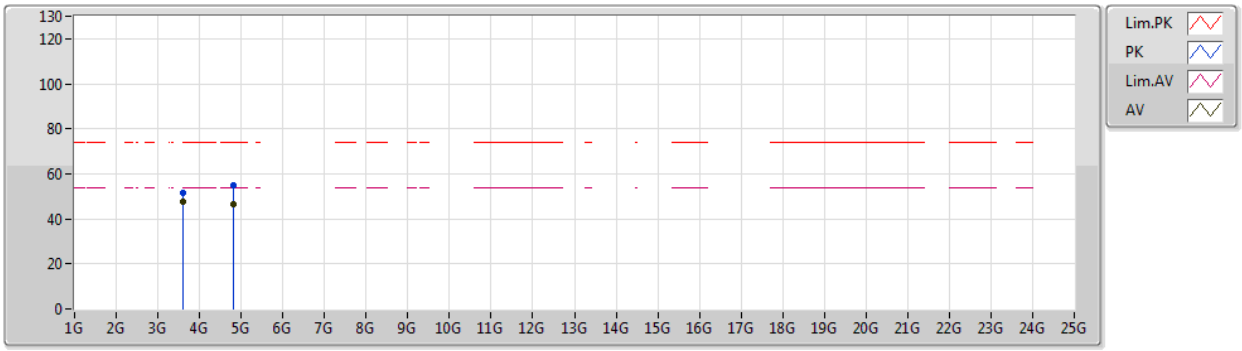


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.603G	44.98	54.00	-9.02	4.33	3	Vertical	181	1.48	-	40.65	29.10	4.98	29.75
AV	4.804G	40.76	54.00	-13.24	7.47	3	Vertical	305	1.37	-	33.29	31.10	5.78	29.41
PK	3.60278G	50.61	74.00	-23.39	4.33	3	Vertical	181	1.48	-	46.28	29.10	4.98	29.75
PK	4.804G	50.40	74.00	-23.60	7.47	3	Vertical	305	1.37	-	42.93	31.10	5.78	29.41

BT-LE(1Mbps)

2402MHz_TX

02/11/2019

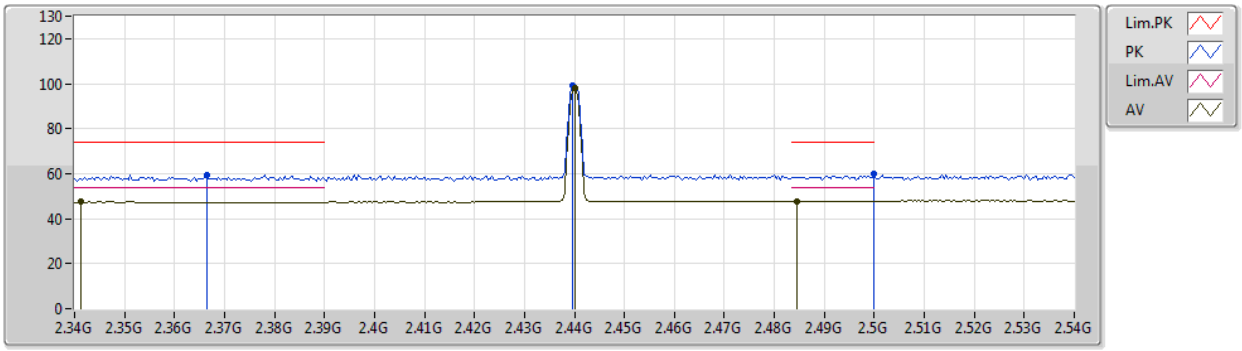


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.60296G	47.55	54.00	-6.45	4.33	3	Horizontal	210	1.16	-	43.22	29.10	4.98	29.75
AV	4.80406G	46.45	54.00	-7.55	7.47	3	Horizontal	240	2.30	-	38.98	31.10	5.78	29.41
PK	3.60288G	51.82	74.00	-22.18	4.33	3	Horizontal	210	1.16	-	47.49	29.10	4.98	29.75
PK	4.80412G	55.11	74.00	-18.89	7.47	3	Horizontal	240	2.30	-	47.64	31.10	5.78	29.41

BT-LE(1Mbps)

2440MHz_TX

02/11/2019

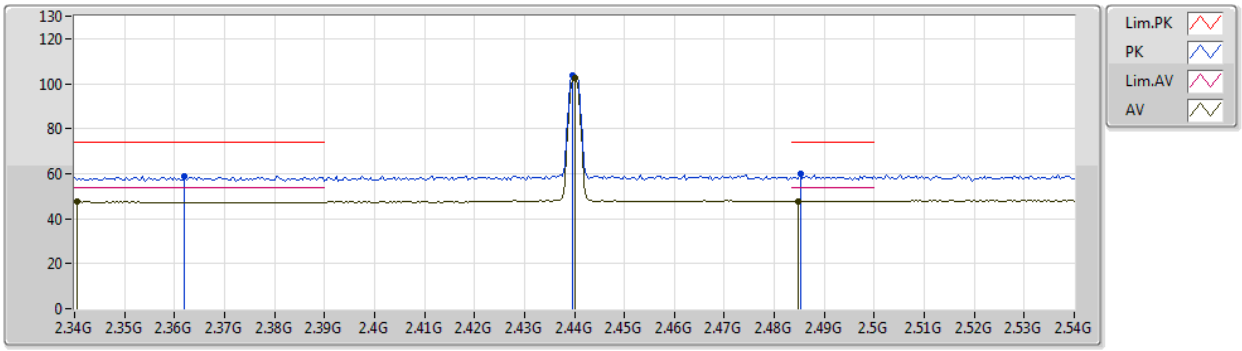


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3412G	47.48	54.00	-6.52	31.69	3	Vertical	161	1.73	-	15.79	27.74	3.95	-
AV	2.44G	97.86	Inf	-Inf	31.46	3	Vertical	161	1.73	-	66.40	27.42	4.04	-
AV	2.4844G	47.90	54.00	-6.10	31.42	3	Vertical	161	1.73	-	16.48	27.33	4.09	-
PK	2.3664G	59.41	74.00	-14.59	31.60	3	Vertical	161	1.73	-	27.81	27.63	3.97	-
PK	2.4396G	98.97	Inf	-Inf	31.46	3	Vertical	161	1.73	-	67.51	27.42	4.04	-
PK	2.5G	59.89	74.00	-14.11	31.40	3	Vertical	161	1.73	-	28.49	27.30	4.10	-

BT-LE(1Mbps)

02/11/2019

2440MHz_TX

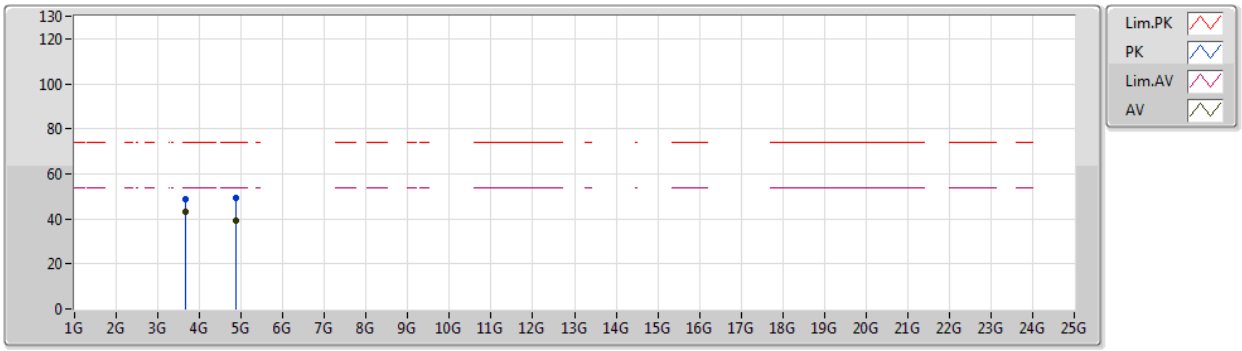


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3404G	47.49	54.00	-6.51	31.69	3	Horizontal	169	1.49	-	15.80	27.74	3.95	-
AV	2.44G	102.67	Inf	-Inf	31.46	3	Horizontal	169	1.49	-	71.21	27.42	4.04	-
AV	2.4848G	47.90	54.00	-6.10	31.42	3	Horizontal	169	1.49	-	16.48	27.33	4.09	-
PK	2.362G	58.77	74.00	-15.23	31.62	3	Horizontal	169	1.49	-	27.15	27.65	3.97	-
PK	2.4396G	103.73	Inf	-Inf	31.46	3	Horizontal	169	1.49	-	72.27	27.42	4.04	-
PK	2.4852G	59.69	74.00	-14.31	31.42	3	Horizontal	169	1.49	-	28.27	27.33	4.09	-

BT-LE(1Mbps)

2440MHz_TX

02/11/2019

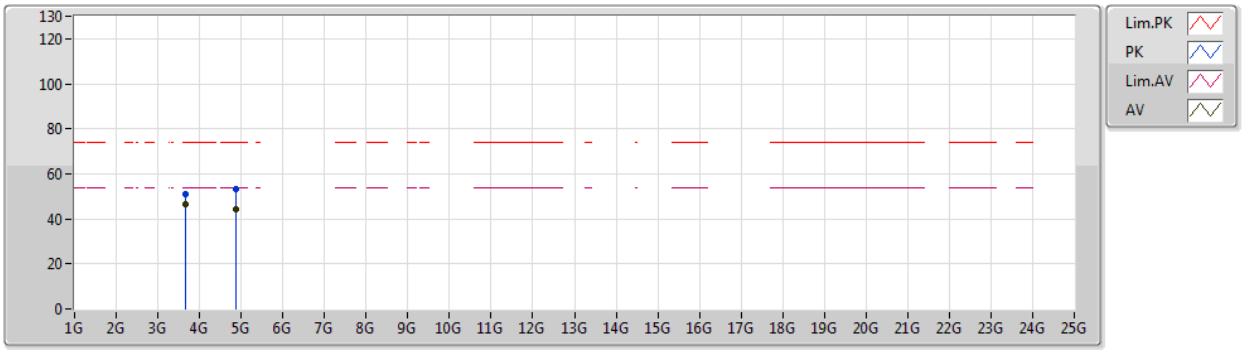


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.66G	42.94	54.00	-11.06	4.39	3	Vertical	181	1.40	-	38.55	29.10	5.02	29.73
AV	4.88006G	39.02	54.00	-14.98	7.63	3	Vertical	222	2.26	-	31.39	31.18	5.83	29.38
PK	3.6603G	48.65	74.00	-25.35	4.39	3	Vertical	181	1.40	-	44.26	29.10	5.02	29.73
PK	4.88G	49.26	74.00	-24.74	7.63	3	Vertical	222	2.26	-	41.63	31.18	5.83	29.38

BT-LE(1Mbps)

2440MHz_TX

02/11/2019

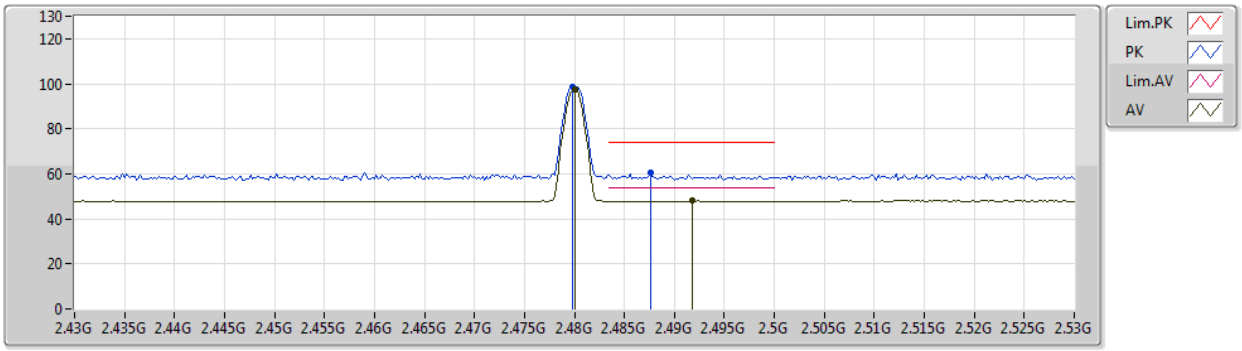


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.66G	46.43	54.00	-7.57	4.39	3	Horizontal	209	1.19	-	42.04	29.10	5.02	29.73
AV	4.87994G	44.41	54.00	-9.59	7.63	3	Horizontal	238	2.23	-	36.78	31.18	5.83	29.38
PK	3.65994G	50.84	74.00	-23.16	4.39	3	Horizontal	209	1.19	-	46.45	29.10	5.02	29.73
PK	4.87988G	53.51	74.00	-20.49	7.63	3	Horizontal	238	2.23	-	45.88	31.18	5.83	29.38

BT-LE(1Mbps)

2480MHz_TX

02/11/2019

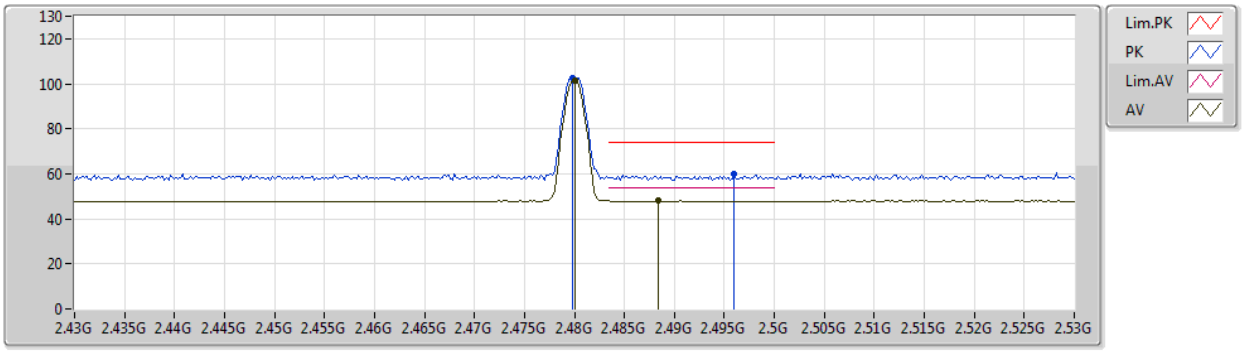


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	97.36	Inf	-Inf	31.42	3	Vertical	151	1.47	-	65.94	27.34	4.08	-
AV	2.4918G	48.17	54.00	-5.83	31.41	3	Vertical	151	1.47	-	16.76	27.32	4.09	-
PK	2.4798G	98.40	Inf	-Inf	31.42	3	Vertical	151	1.47	-	66.98	27.34	4.08	-
PK	2.4876G	60.24	74.00	-13.76	31.41	3	Vertical	151	1.47	-	28.83	27.32	4.09	-

BT-LE(1Mbps)

2480MHz_TX

02/11/2019

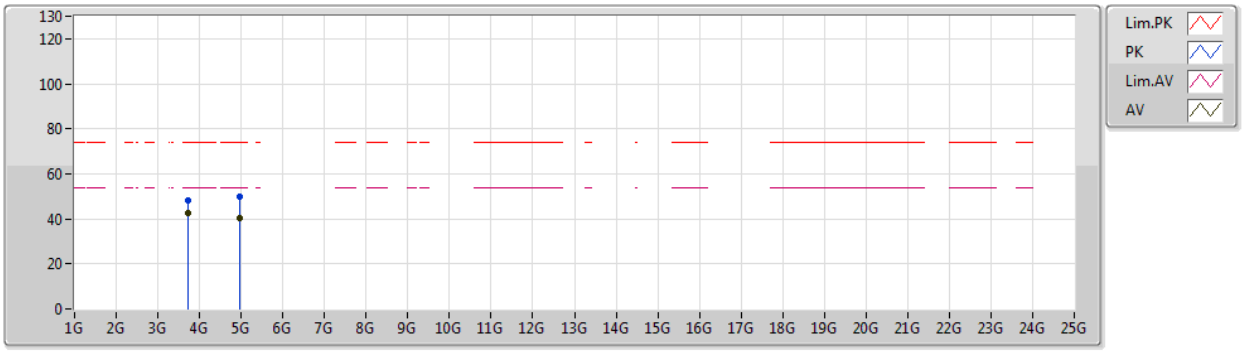


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	101.61	Inf	-Inf	31.42	3	Horizontal	176	1.52	-	70.19	27.34	4.08	-
AV	2.4884G	48.17	54.00	-5.83	31.41	3	Horizontal	176	1.52	-	16.76	27.32	4.09	-
PK	2.4798G	102.65	Inf	-Inf	31.42	3	Horizontal	176	1.52	-	71.23	27.34	4.08	-
PK	2.496G	60.04	74.00	-13.96	31.41	3	Horizontal	176	1.52	-	28.63	27.31	4.10	-

BT-LE(1Mbps)

2480MHz_TX

02/11/2019

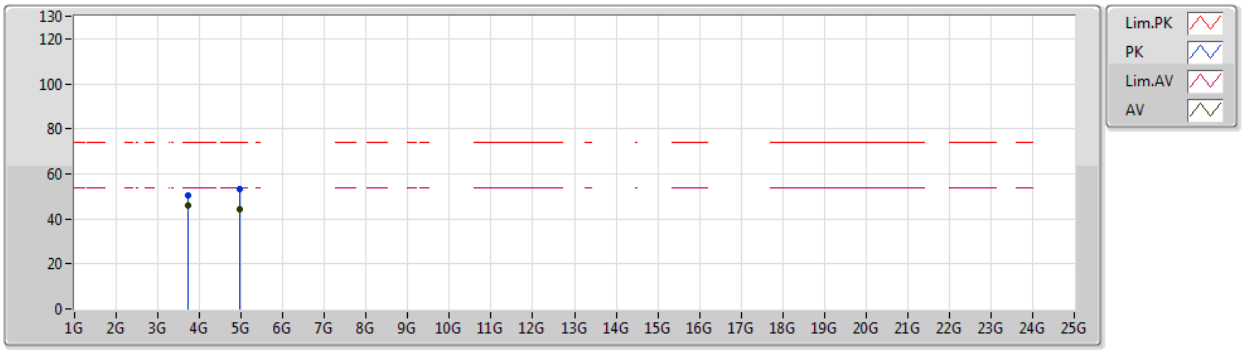


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.72G	42.62	54.00	-11.38	4.51	3	Vertical	182	1.38	-	38.11	29.14	5.07	29.70
AV	4.95994G	40.36	54.00	-13.64	7.93	3	Vertical	172	2.66	-	32.43	31.38	5.89	29.34
PK	3.72006G	48.07	74.00	-25.93	4.51	3	Vertical	182	1.38	-	43.56	29.14	5.07	29.70
PK	4.96G	49.93	74.00	-24.07	7.93	3	Vertical	172	2.66	-	42.00	31.38	5.89	29.34

BT-LE(1Mbps)

2480MHz_TX

02/11/2019

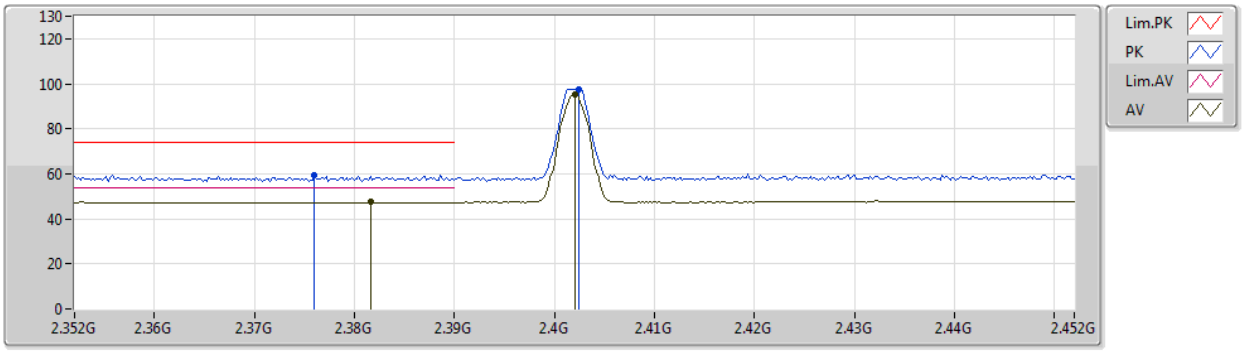


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.72G	46.18	54.00	-7.82	4.51	3	Horizontal	210	1.18	-	41.67	29.14	5.07	29.70
AV	4.96G	44.04	54.00	-9.96	7.93	3	Horizontal	154	1.43	-	36.11	31.38	5.89	29.34
PK	3.71988G	50.64	74.00	-23.36	4.51	3	Horizontal	210	1.18	-	46.13	29.14	5.07	29.70
PK	4.95988G	53.13	74.00	-20.87	7.93	3	Horizontal	154	1.43	-	45.20	31.38	5.89	29.34

BT-LE(2Mbps)

2402MHz_TX

02/11/2019

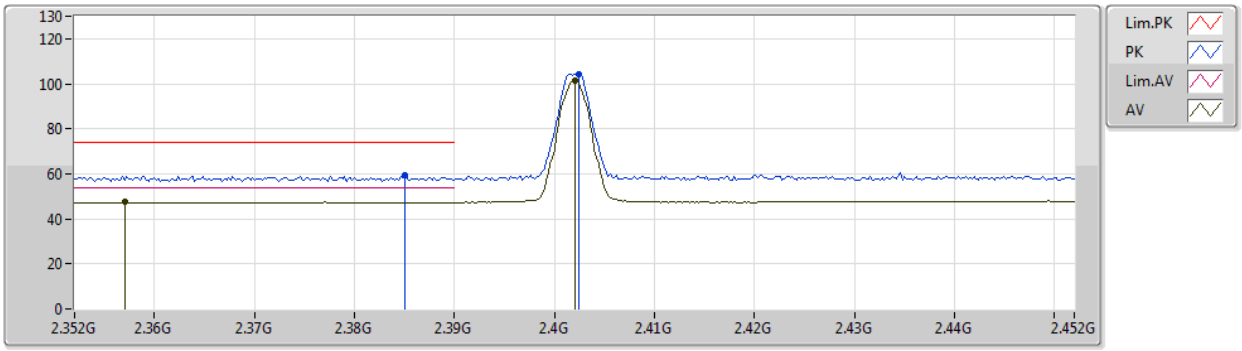


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3816G	47.55	54.00	-6.45	31.56	3	Vertical	151	1.60	-	15.99	27.57	3.99	-
AV	2.402G	95.15	Inf	-Inf	31.51	3	Vertical	151	1.60	-	63.64	27.50	4.01	-
PK	2.376G	59.56	74.00	-14.44	31.58	3	Vertical	151	1.60	-	27.98	27.60	3.98	-
PK	2.4024G	97.77	Inf	-Inf	31.51	3	Vertical	151	1.60	-	66.26	27.50	4.01	-

BT-LE(2Mbps)

2402MHz_TX

02/11/2019

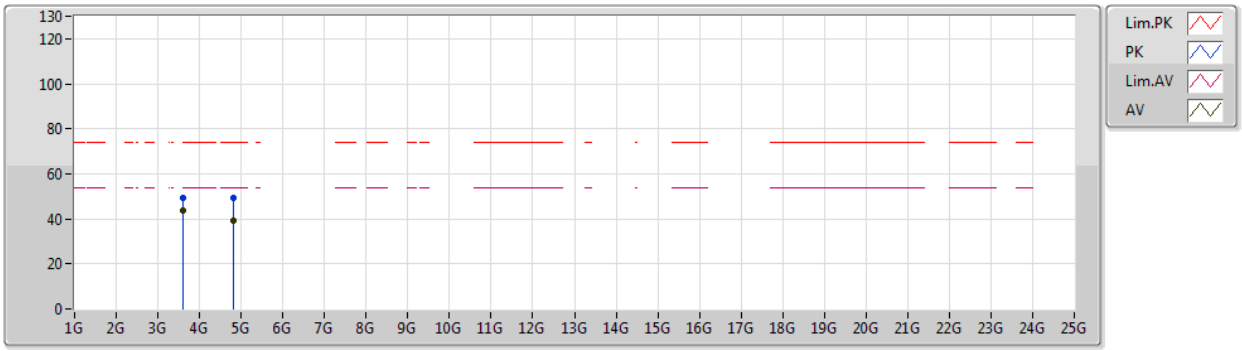


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.357G	47.58	54.00	-6.42	31.64	3	Horizontal	235	1.87	-	15.94	27.67	3.97	-
AV	2.402G	101.63	Inf	-Inf	31.51	3	Horizontal	235	1.87	-	70.12	27.50	4.01	-
PK	2.385G	59.29	74.00	-14.71	31.55	3	Horizontal	235	1.87	-	27.74	27.56	3.99	-
PK	2.4024G	104.27	Inf	-Inf	31.51	3	Horizontal	235	1.87	-	72.76	27.50	4.01	-

BT-LE(2Mbps)

2402MHz_TX

02/11/2019

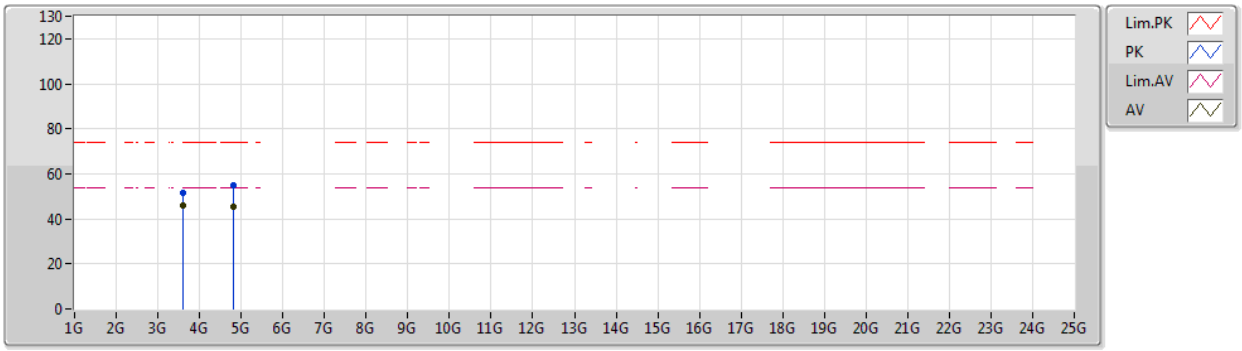


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.60299G	43.51	54.00	-10.49	4.33	3	Vertical	181	1.49	-	39.18	29.10	4.98	29.75
AV	4.804G	39.36	54.00	-14.64	7.47	3	Vertical	303	1.50	-	31.89	31.10	5.78	29.41
PK	3.60301G	49.35	74.00	-24.65	4.33	3	Vertical	181	1.49	-	45.02	29.10	4.98	29.75
PK	4.80388G	49.57	74.00	-24.43	7.47	3	Vertical	303	1.50	-	42.10	31.10	5.78	29.41

BT-LE(2Mbps)

2402MHz_TX

02/11/2019

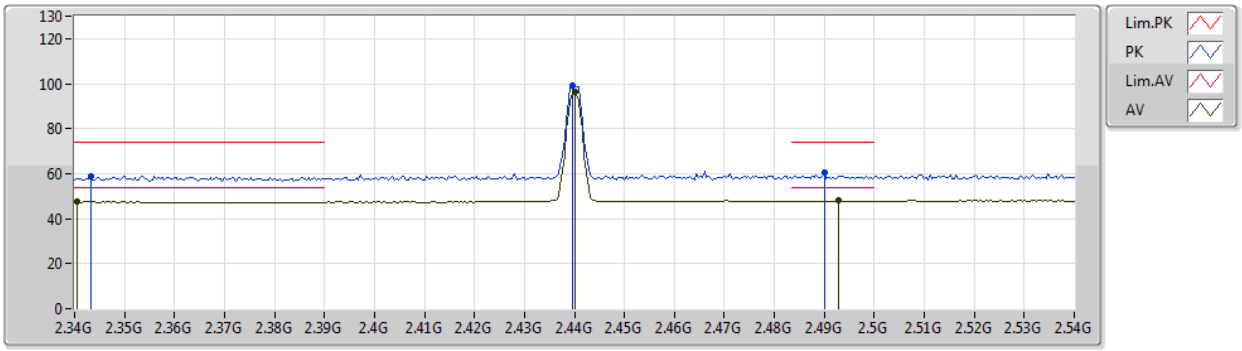


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.60302G	45.94	54.00	-8.06	4.33	3	Horizontal	210	1.14	-	41.61	29.10	4.98	29.75
AV	4.80394G	45.49	54.00	-8.51	7.47	3	Horizontal	239	2.30	-	38.02	31.10	5.78	29.41
PK	3.6029G	51.58	74.00	-22.42	4.33	3	Horizontal	210	1.14	-	47.25	29.10	4.98	29.75
PK	4.804G	54.83	74.00	-19.17	7.47	3	Horizontal	239	2.30	-	47.36	31.10	5.78	29.41

BT-LE(2Mbps)

2440MHz_TX

02/11/2019

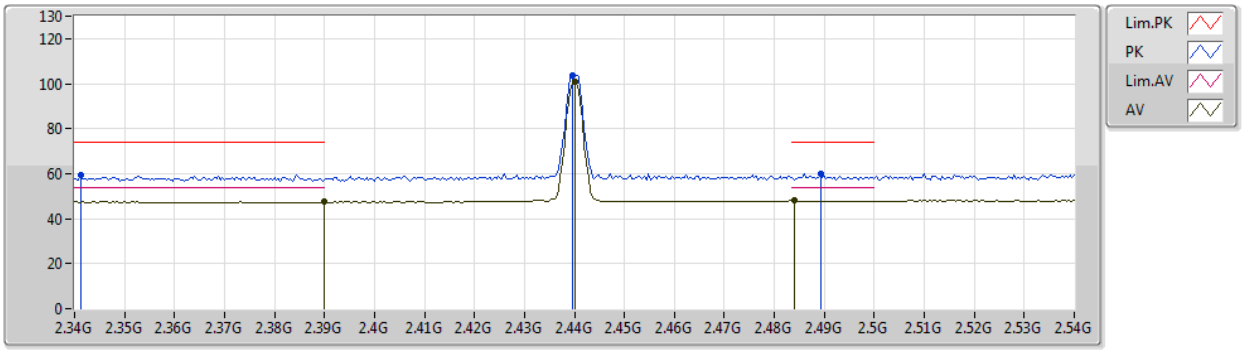


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3404G	47.49	54.00	-6.51	31.69	3	Vertical	161	1.73	-	15.80	27.74	3.95	-
AV	2.44G	96.23	Inf	-Inf	31.46	3	Vertical	161	1.73	-	64.77	27.42	4.04	-
AV	2.4928G	48.16	54.00	-5.84	31.40	3	Vertical	161	1.73	-	16.76	27.31	4.09	-
PK	2.3432G	58.73	74.00	-15.27	31.68	3	Vertical	161	1.73	-	27.05	27.73	3.95	-
PK	2.4396G	98.91	Inf	-Inf	31.46	3	Vertical	161	1.73	-	67.45	27.42	4.04	-
PK	2.49G	60.24	74.00	-13.76	31.41	3	Vertical	161	1.73	-	28.83	27.32	4.09	-

BT-LE(2Mbps)

2440MHz_TX

02/11/2019

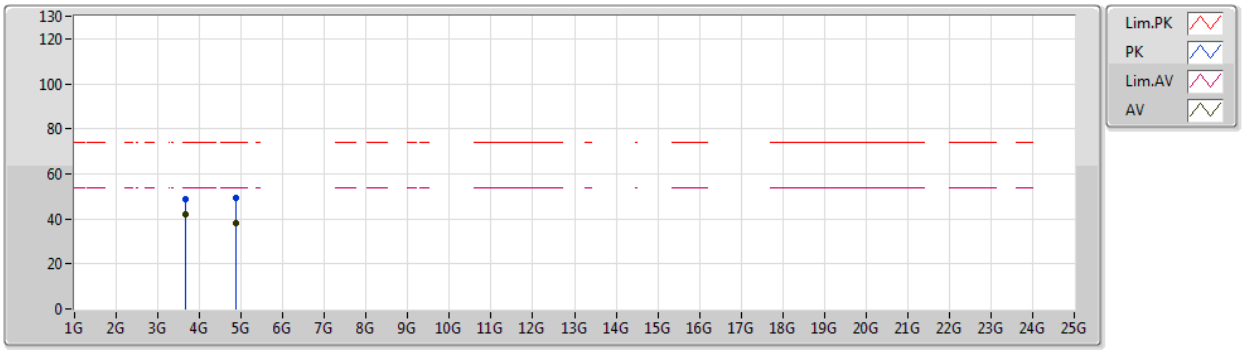


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.39G	47.61	54.00	-6.39	31.54	3	Horizontal	177	1.49	-	16.07	27.54	4.00	-
AV	2.44G	101.00	Inf	-Inf	31.46	3	Horizontal	177	1.49	-	69.54	27.42	4.04	-
AV	2.484G	48.16	54.00	-5.84	31.41	3	Horizontal	177	1.49	-	16.75	27.33	4.08	-
PK	2.3412G	59.41	74.00	-14.59	31.69	3	Horizontal	177	1.49	-	27.72	27.74	3.95	-
PK	2.4396G	103.64	Inf	-Inf	31.46	3	Horizontal	177	1.49	-	72.18	27.42	4.04	-
PK	2.4892G	60.17	74.00	-13.83	31.41	3	Horizontal	177	1.49	-	28.76	27.32	4.09	-

BT-LE(2Mbps)

02/11/2019

2440MHz_TX

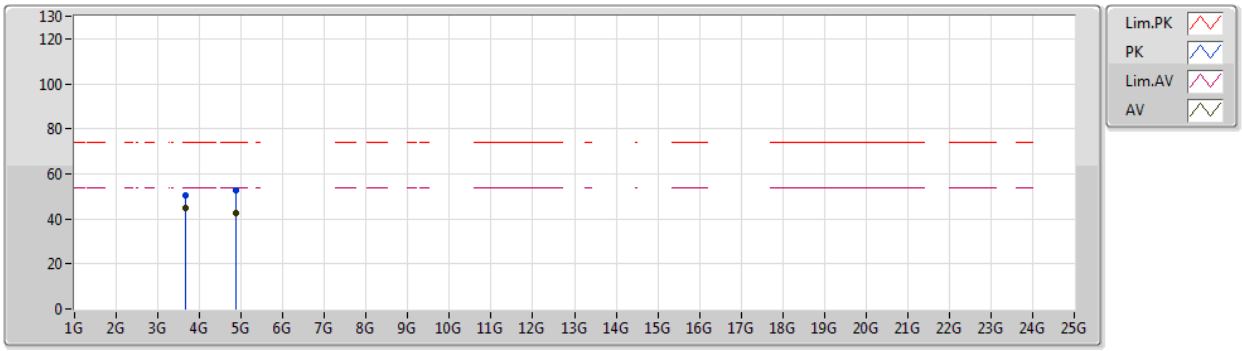


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.65998G	42.16	54.00	-11.84	4.39	3	Vertical	178	1.30	-	37.77	29.10	5.02	29.73
AV	4.88001G	38.32	54.00	-15.68	7.63	3	Vertical	223	1.48	-	30.69	31.18	5.83	29.38
PK	3.65999G	48.70	74.00	-25.30	4.39	3	Vertical	178	1.30	-	44.31	29.10	5.02	29.73
PK	4.87902G	49.08	74.00	-24.92	7.63	3	Vertical	223	1.48	-	41.45	31.18	5.83	29.38

BT-LE(2Mbps)

2440MHz_TX

02/11/2019

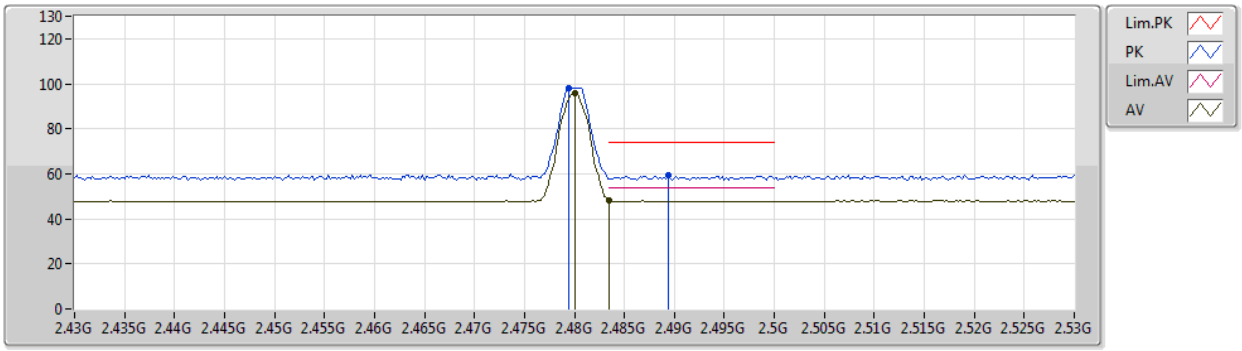


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.65997G	44.83	54.00	-9.17	4.39	3	Horizontal	209	1.19	-	40.44	29.10	5.02	29.73
AV	4.88002G	42.56	54.00	-11.44	7.63	3	Horizontal	154	1.52	-	34.93	31.18	5.83	29.38
PK	3.65998G	50.48	74.00	-23.52	4.39	3	Horizontal	209	1.19	-	46.09	29.10	5.02	29.73
PK	4.87988G	52.69	74.00	-21.31	7.63	3	Horizontal	154	1.52	-	45.06	31.18	5.83	29.38

BT-LE(2Mbps)

2480MHz_TX

02/11/2019

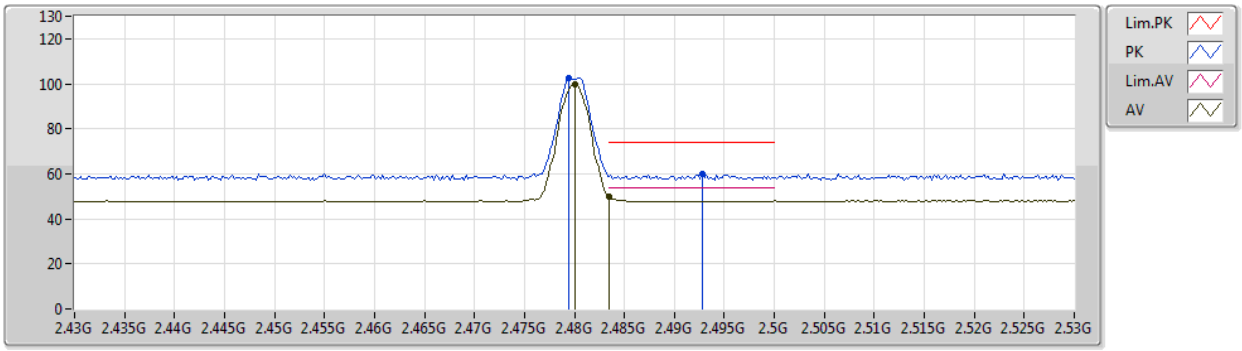


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	95.72	Inf	-Inf	31.42	3	Vertical	151	1.48	-	64.30	27.34	4.08	-
AV	2.4835G	48.43	54.00	-5.57	31.41	3	Vertical	151	1.48	-	17.02	27.33	4.08	-
PK	2.4794G	98.34	Inf	-Inf	31.42	3	Vertical	151	1.48	-	66.92	27.34	4.08	-
PK	2.4894G	59.17	74.00	-14.83	31.41	3	Vertical	151	1.48	-	27.76	27.32	4.09	-

BT-LE(2Mbps)

2480MHz_TX

02/11/2019

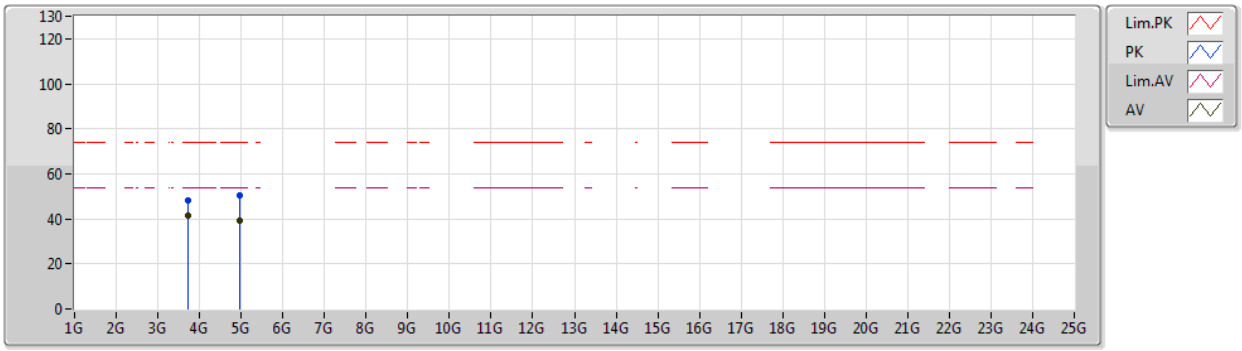


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	99.92	Inf	-Inf	31.42	3	Horizontal	178	1.50	-	68.50	27.34	4.08	-
AV	2.4835G	49.88	54.00	-4.12	31.41	3	Horizontal	178	1.50	-	18.47	27.33	4.08	-
PK	2.4794G	102.58	Inf	-Inf	31.42	3	Horizontal	178	1.50	-	71.16	27.34	4.08	-
PK	2.4928G	59.89	74.00	-14.11	31.40	3	Horizontal	178	1.50	-	28.49	27.31	4.09	-

BT-LE(2Mbps)

2480MHz_TX

02/11/2019

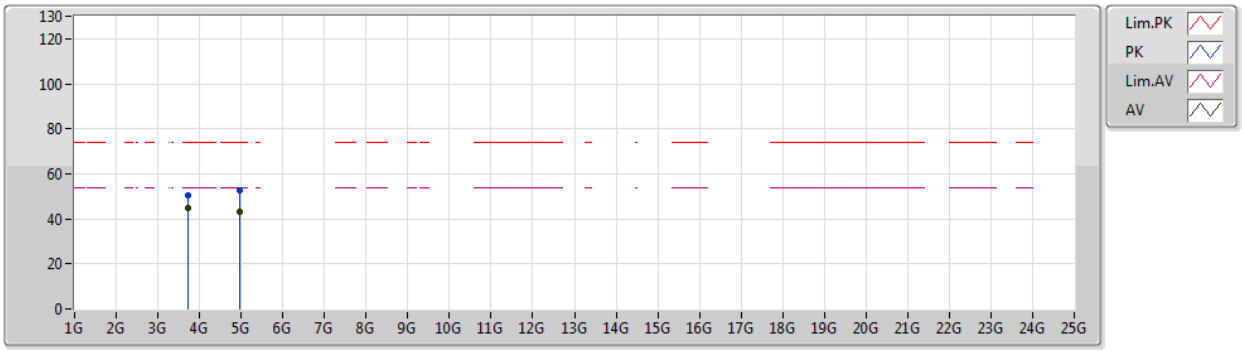


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.71998G	41.36	54.00	-12.64	4.51	3	Vertical	181	1.36	-	36.85	29.14	5.07	29.70
AV	4.95998G	39.48	54.00	-14.52	7.93	3	Vertical	161	2.64	-	31.55	31.38	5.89	29.34
PK	3.72001G	48.26	74.00	-25.74	4.51	3	Vertical	181	1.36	-	43.75	29.14	5.07	29.70
PK	4.96G	50.42	74.00	-23.58	7.93	3	Vertical	161	2.64	-	42.49	31.38	5.89	29.34

BT-LE(2Mbps)

2480MHz_TX

02/11/2019



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	3.72009G	44.81	54.00	-9.19	4.51	3	Horizontal	209	1.20	-	40.30	29.14	5.07	29.70
AV	4.95998G	42.87	54.00	-11.13	7.93	3	Horizontal	152	1.43	-	34.94	31.38	5.89	29.34
PK	3.72008G	50.51	74.00	-23.49	4.51	3	Horizontal	209	1.20	-	46.00	29.14	5.07	29.70
PK	4.96003G	52.53	74.00	-21.47	7.93	3	Horizontal	152	1.43	-	44.60	31.38	5.89	29.34