FCC Test Report

FCC ID	:	**TVE-111T15A**
Equipment	:	**Network Security Gateway**
Brand Name	:	**FORTINET**
Model Name	:	**FORTIGATE-200Fxxxxxx, FortiGate 200Fxxxxxx, FG-200Fxxxxxx FORTIGATE-201Fxxxxxx, FortiGate 201Fxxxxxx, FG-201Fxxxxxx FORTIGATE-200F-USGxxxxxx, FortiGate 200F-USGxxxxxx, FG-200F-USGxxxxxx FORTIGATE-201F-USGxxxxxx, FortiGate 201F-USGxxxxxx, FG-201F-USGxxxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes, or marketing purposes only)**
Applicant	:	**FORTINET INC 899 KIFER RD SUNNYVALE CA 94086 UNITED STATES**
Manufacturer	:	**iBASE TECHNOLOGY INC BLDG G, 11TH FL 3-1 YUAN QU ST NANKANG, TAIPEI 115 TAIWAN**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Aug. 14, 2020, and testing was started from Sep. 02, 2020 and completed on Sep. 06, 2020. 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 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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PHOTOGRAPHS OF EUT V01

History of this test report

Report No.	Version	Description	Issued Date
FR081424AL	01	Initial issue of report	Oct. 20, 2020

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: Ann Hou

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)	1.0	1TX
2.4-2.4835GHz	BT-LE(2Mbps)	2.0	1TX

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

1.1.2 Antenna Information

Ant.	Port	Brand Name	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	Wieson	ARY196-0047-001-00	PCB	MHF	1.71

Note 1: The EUT has one antenna.

For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

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

1.1.3 EUT Information

Operational Condition				
EUT Power Type	From Switch Power supply			
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)	1	0	10m	10
BT-LE(2Mbps)	1	0	10m	10

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

1.1.5 Table for Multiple Listing

Model Name	Description
FORTIGATE-200Fxxxxxx, FortiGate 200Fxxxxxx, FG-200Fxxxxxx FORTIGATE-200F-USGxxxxxx, FortiGate 200F-USGxxxxxx, FG-200F-USGxxxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-“, or blank for software changes, or marketing purposes only)	Without Storage
FORTIGATE-201Fxxxxxx, FortiGate 201Fxxxxxx, FG-201Fxxxxxx FORTIGATE-201F-USGxxxxxx, FortiGate 201F-USGxxxxxx, FG-201F-USGxxxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-“, or blank for software changes, or marketing purposes only)	With Storage (1x 480GB SDD)

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

The following reference test guidance is not within the scope of accreditation of TAF:

- 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.					
☒	Wen Shan	ADD : No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)			
		TEL : 886-3-318-0787		FAX : 886-3-318-0287	
Test site Designation No. TW1097 with FCC.					

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	23.6~24.9°C / 56~60%	06/Sep/2020
RF Conducted	TH06-HY	Raven	22.7~24.1°C / 54~67%	04/Sep/2020
Radiated	03CH09-HY	Andy	23.5~26.8°C / 51~66%	02/Sep/2020~ 03/Sep/2020

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)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	Tera Term Version 4.76

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	12
2440MHz	12
2480MHz	12
BT-LE(2Mbps)	-
2402MHz	12
2440MHz	12
2480MHz	12

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	Switch Power supply 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	Switch Power supply mode
Operating Mode > 1GHz	CTX
Orthogonal Planes of EUT	**Z Plane**

2.4 Support Equipment

Support Equipment – AC Conduction					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	USB 3.0 Flash	TRANSCEND	D24425 2101	-	-
2	RJ45 cable	Power sync	CAT-6E-01	-	-
3	RJ45 cable	Power sync	UTP5-01	-	-
4	RJ45 cable	IBA	RJ45 LAN CABLE	-	Note 1
5	Fiber cable	OPTEC	OPSFPE-T-X5-PEB	-	Note 1
6	GND Cable	Sporton	Sporton	-	-
7	Load(Remote)	Sporton	Sporton	-	-

Note 1: Support equipment No.4&5 was provided by customer.

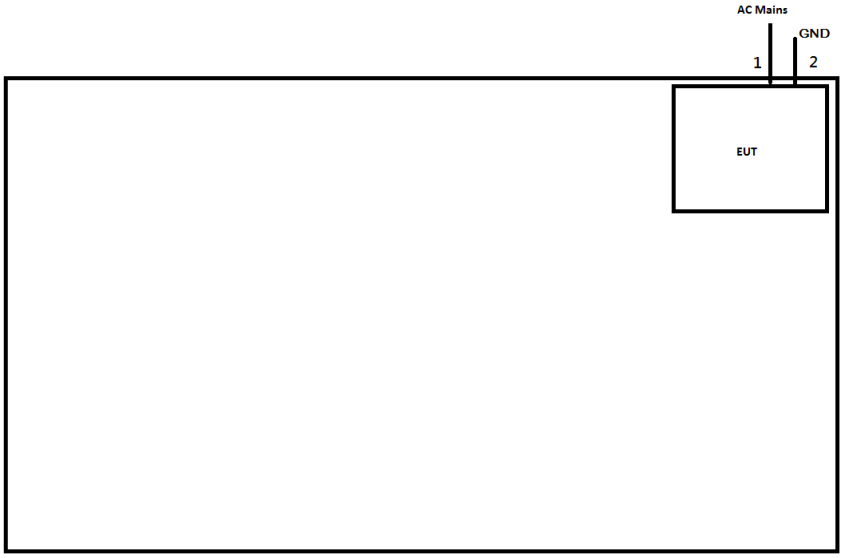
Support Equipment – Conducted					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-

Support Equipment – Radiated					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	USB 3.0 Flash	TRANSCEND	D24425 2101	-	-
2	RJ45 cable	Power sync	CAT-6E-01	-	-
3	RJ45 cable	Power sync	UTP5-01	-	-
4	RJ45 cable	IBA	RJ45 LAN CABLE	-	Note 1
5	Fiber cable	OPTEC	OPSFPE-T-X5-PEB	-	Note 1
6	GND Cable	Sporton	Sporton	-	-
7	Load(Remote)	Sporton	Sporton	-	-

Note 1: Support equipment No.4&5 was provided by customer.

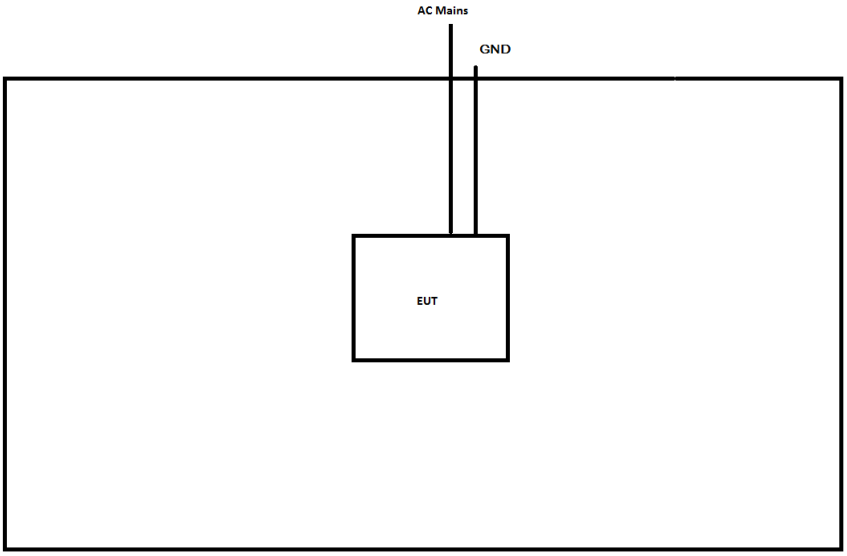
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length (m)
1	AC Power cable	No	1.8
2	GND cable	No	1.8

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length (m)
1	AC Power cable	No	1.8
2	GND cable	No	1.8

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

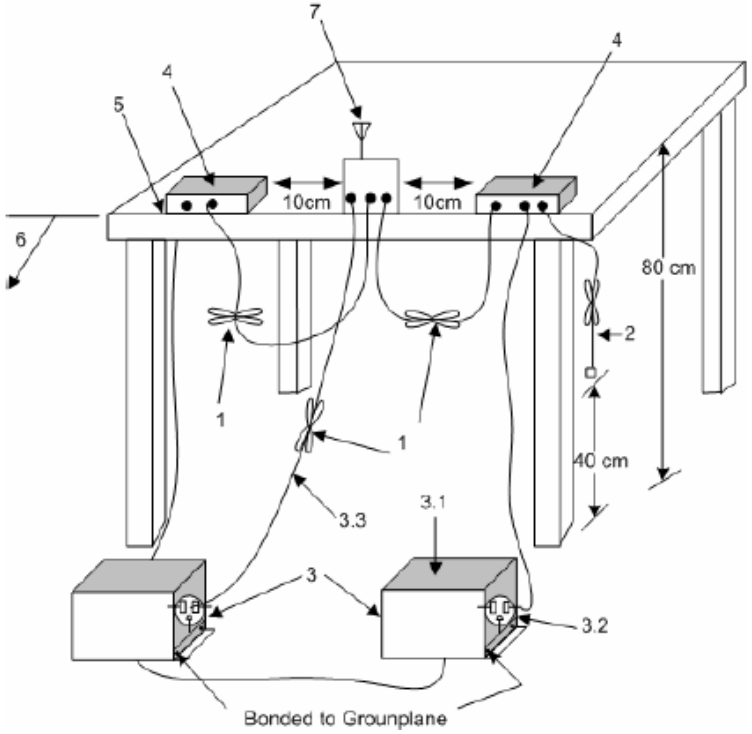
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Raw(Read Level) +LISN(LISN Factor) + CL(Cable Loss) + AT(Attenuator).

3.1.5 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.

3.1.6 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

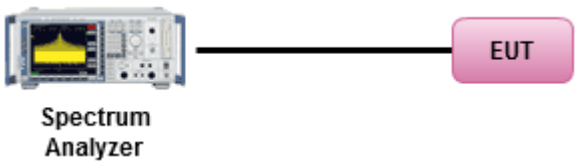
Refer a test equipment and calibration data table in this test report.

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 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 $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ 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 $P_{Out} = 30 – (G_{TX} – 6)/3 + 8$dB dBm
e.i.r.p. Power Limit:		
▪ 2400-2483.5 MHz Band		
	▪ Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)	
	▪ Point-to-point systems (P2P): $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX}])$ dBm	
	▪ Smart antenna system (SAS)	
		- Single beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		- Overlap beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		- Aggregate power on all beams: $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX} + 8])$ 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

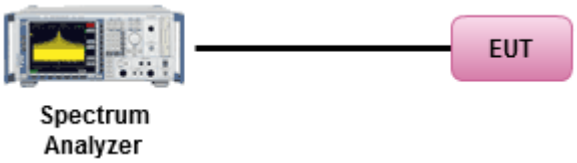
3.4.2 Measuring Instruments

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) Max. PSD.	
▪ 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

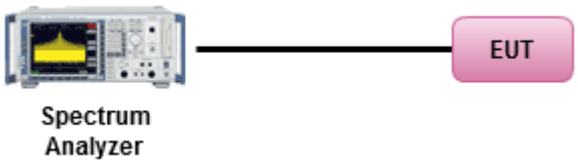
Refer a test equipment and calibration data table in this test report.

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.

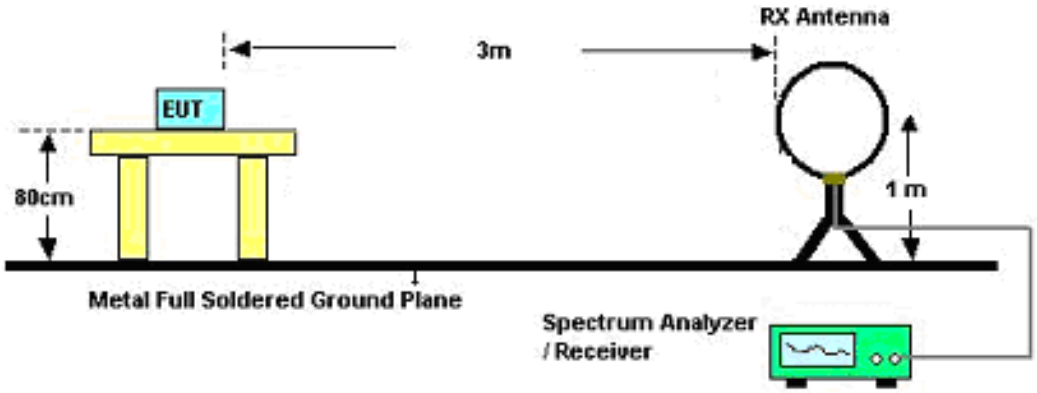
3.6.4 Measurement Results Calculation

The measured Level is calculated using:
Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

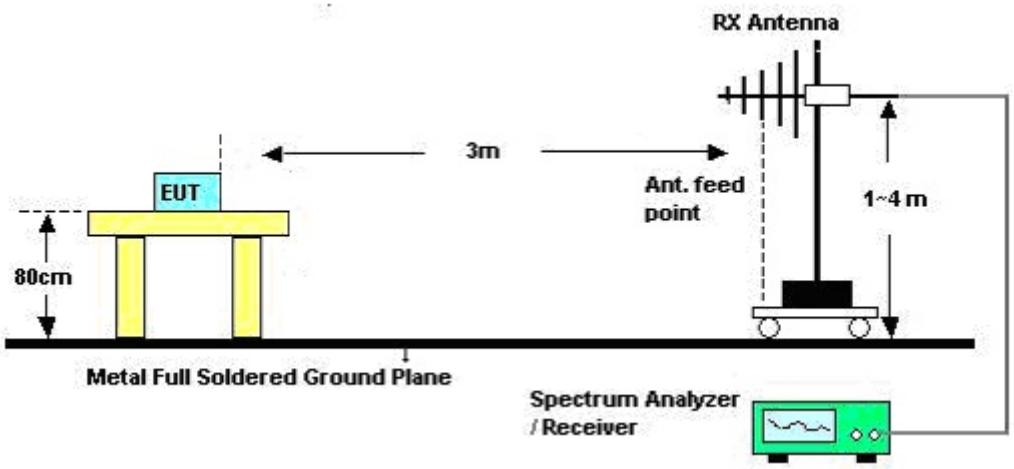
3.6.5 Test Setup

Emissions in Restricted Frequency Bands

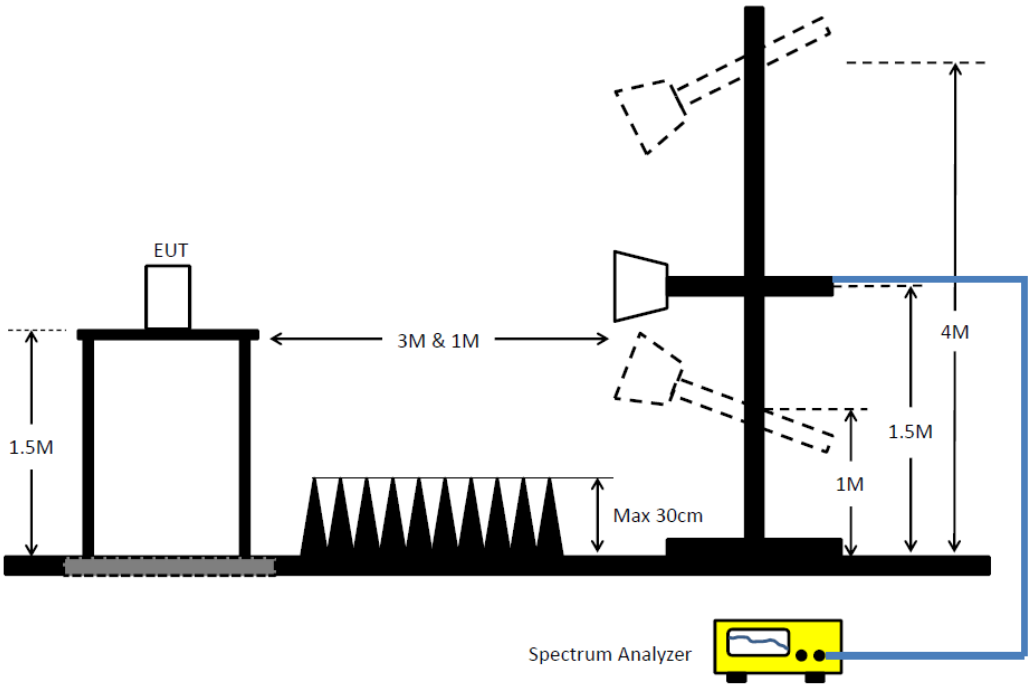
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



3.6.6 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.

3.6.7 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
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	29/May/2020	28/May/2021
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	05/Nov/2019	04/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	31/Aug/2020	30/Aug/2021
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	24/Sep/2019	23/Sep/2020

NCR: Non-Calibration Require

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	11/Nov/2020
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	18/Mar/2020	17/Mar/2021
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	18/Mar/2020	17/Mar/2021

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz~1GHz 3m	27/Mar/2020	26/Mar/2021
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz 3m	19/Mar/2020	18/Mar/2021
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	17/Aug/2020	16/Aug/2021
Amplifier	EMC	EMC9135	980232	9kHz~1GHz	14/Apr/2020	13/Apr/2021
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz~26.5GHz	24/Jun/2020	23/Jun/2021
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D&MTJ6102-05	35418 & 3	30MHz~1GHz	30/Sep/2019	29/Sep/2020
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	28/May/2020	27/May/2021
RF Cable-R03m	Jye Bao	RG142	CB031+324530/4	30MHz~1GHz	12/Feb/2020	11/Feb/2021
RF CABLE 5m+3m+1m	HUBER+SUHNER	SUCOFLEX104	25918/4+ 39478/4 +324530/4	1GHz~40GHz	15/Aug/2020	14/Aug/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2020	15/Mar/2021
EMI Test Receiver	R&S	ESR3	102051	9kHz~3.6GHz	29/May/2020	28/May/2021
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	13/Mar/2020	12/Mar/2021

Summary

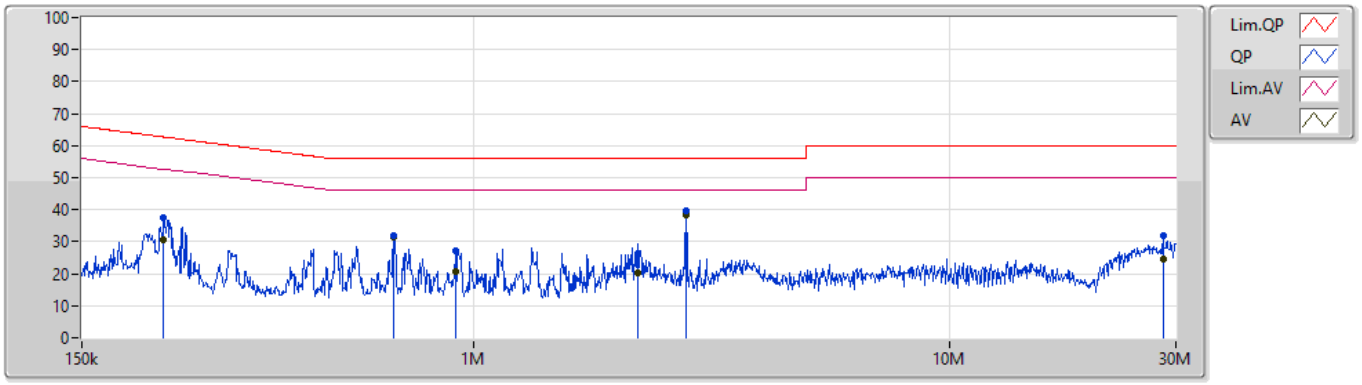
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	2.798M	38.62	46.00	-7.38	Neutral

Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	222.704k	37.66	62.71	-25.05	Line	-
Mode 1	Pass	AV	222.704k	30.72	52.71	-21.99	Line	-
Mode 1	Pass	QP	681.033k	32.01	56.00	-23.99	Line	-
Mode 1	Pass	AV	681.033k	31.33	46.00	-14.67	Line	-
Mode 1	Pass	QP	918.749k	27.30	56.00	-28.70	Line	-
Mode 1	Pass	AV	918.749k	20.55	46.00	-25.45	Line	-
Mode 1	Pass	QP	2.211M	26.13	56.00	-29.87	Line	-
Mode 1	Pass	AV	2.211M	20.36	46.00	-25.64	Line	-
Mode 1	Pass	QP	2.798M	39.45	56.00	-16.55	Line	-
Mode 1	Pass	AV	2.798M	38.37	46.00	-7.63	Line	“Worst”
Mode 1	Pass	QP	28.231M	31.76	60.00	-28.24	Line	-
Mode 1	Pass	AV	28.231M	24.69	50.00	-25.31	Line	-
Mode 1	Pass	QP	222.704k	35.52	62.71	-27.19	Neutral	-
Mode 1	Pass	AV	222.704k	28.67	52.71	-24.04	Neutral	-
Mode 1	Pass	QP	456.875k	35.08	56.75	-21.67	Neutral	-
Mode 1	Pass	AV	456.875k	25.50	46.75	-21.25	Neutral	-
Mode 1	Pass	QP	664.915k	35.62	56.00	-20.38	Neutral	-
Mode 1	Pass	AV	664.915k	24.65	46.00	-21.35	Neutral	-
Mode 1	Pass	QP	1.215M	30.84	56.00	-25.16	Neutral	-
Mode 1	Pass	AV	1.215M	19.56	46.00	-26.44	Neutral	-
Mode 1	Pass	QP	2.798M	39.63	56.00	-16.37	Neutral	-
Mode 1	Pass	AV	2.798M	38.62	46.00	-7.38	Neutral	“Worst”
Mode 1	Pass	QP	3.642M	27.90	56.00	-28.10	Neutral	-
Mode 1	Pass	AV	3.642M	21.81	46.00	-24.19	Neutral	-

Conducted Emissions at Powerline_Mode 1

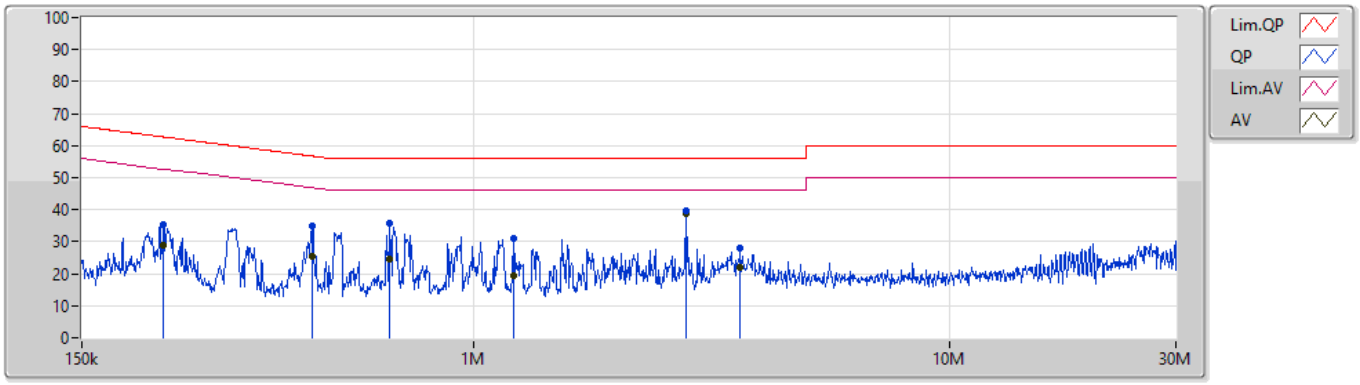
06/09/2020



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	222.704k	37.66	62.71	-25.05	19.53	Line	-	18.13	9.65	0.01	9.87
AV	222.704k	30.72	52.71	-21.99	19.53	Line	-	11.19	9.65	0.01	9.87
QP	681.033k	32.01	56.00	-23.99	19.55	Line	-	12.46	9.64	0.04	9.87
AV	681.033k	31.33	46.00	-14.67	19.55	Line	-	11.78	9.64	0.04	9.87
QP	918.749k	27.30	56.00	-28.70	19.57	Line	-	7.73	9.64	0.05	9.88
AV	918.749k	20.55	46.00	-25.45	19.57	Line	-	0.98	9.64	0.05	9.88
QP	2.211M	26.13	56.00	-29.87	19.61	Line	-	6.52	9.65	0.09	9.87
AV	2.211M	20.36	46.00	-25.64	19.61	Line	-	0.75	9.65	0.09	9.87
QP	2.798M	39.45	56.00	-16.55	19.62	Line	-	19.83	9.65	0.10	9.87
AV	2.798M	38.37	46.00	-7.63	19.62	Line	"Worst"	18.75	9.65	0.10	9.87
QP	28.231M	31.76	60.00	-28.24	19.77	Line	-	11.99	9.52	0.37	9.88
AV	28.231M	24.69	50.00	-25.31	19.77	Line	-	4.92	9.52	0.37	9.88

Conducted Emissions at Powerline_Mode 1

06/09/2020



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	222.704k	35.52	62.71	-27.19	19.52	Neutral	-	16.00	9.64	0.01	9.87
AV	222.704k	28.67	52.71	-24.04	19.52	Neutral	-	9.15	9.64	0.01	9.87
QP	456.875k	35.08	56.75	-21.67	19.52	Neutral	-	15.56	9.63	0.02	9.87
AV	456.875k	25.50	46.75	-21.25	19.52	Neutral	-	5.98	9.63	0.02	9.87
QP	664.915k	35.62	56.00	-20.38	19.54	Neutral	-	16.08	9.63	0.04	9.87
AV	664.915k	24.65	46.00	-21.35	19.54	Neutral	-	5.11	9.63	0.04	9.87
QP	1.215M	30.84	56.00	-25.16	19.58	Neutral	-	11.26	9.64	0.06	9.88
AV	1.215M	19.56	46.00	-26.44	19.58	Neutral	-	-0.02	9.64	0.06	9.88
QP	2.798M	39.63	56.00	-16.37	19.62	Neutral	-	20.01	9.65	0.10	9.87
AV	2.798M	38.62	46.00	-7.38	19.62	Neutral	"Worst"	19.00	9.65	0.10	9.87
QP	3.642M	27.90	56.00	-28.10	19.65	Neutral	-	8.25	9.66	0.11	9.88
AV	3.642M	21.81	46.00	-24.19	19.65	Neutral	-	2.16	9.66	0.11	9.88

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)	720k	1.057M	1M06F1D	693.75k	1.043M
BT-LE(2Mbps)	1.473M	2.085M	2M09F1D	1.383M	2.063M

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

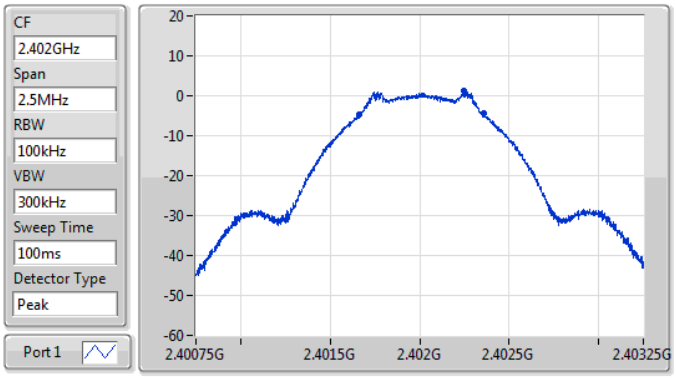
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	693.75k	1.043M
2440MHz	Pass	500k	696.25k	1.057M
2480MHz	Pass	500k	720k	1.057M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.398M	2.067M
2440MHz	Pass	500k	1.383M	2.063M
2480MHz	Pass	500k	1.473M	2.085M

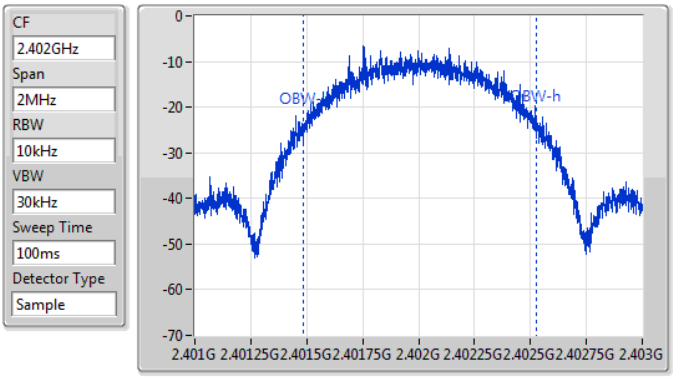
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

BT-LE(1Mbps) EBW-DTS

2402MHz

04/09/2020



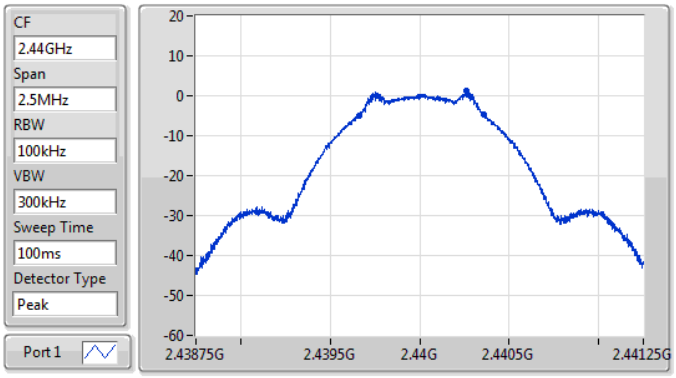


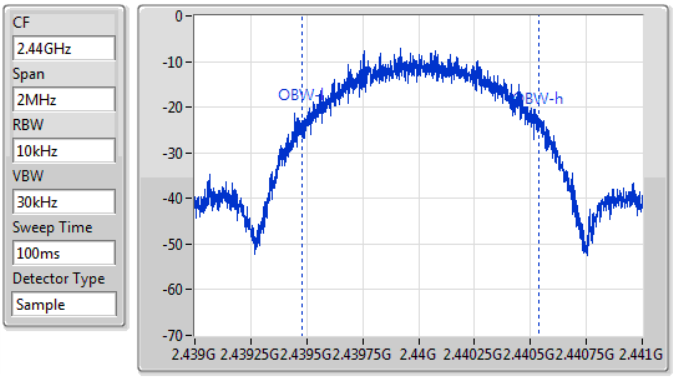
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
693.75k	2.401663G	2.402356G	1.043M	2.401485G	2.402529G	500k	1

BT-LE(1Mbps) EBW-DTS

2440MHz

04/09/2020



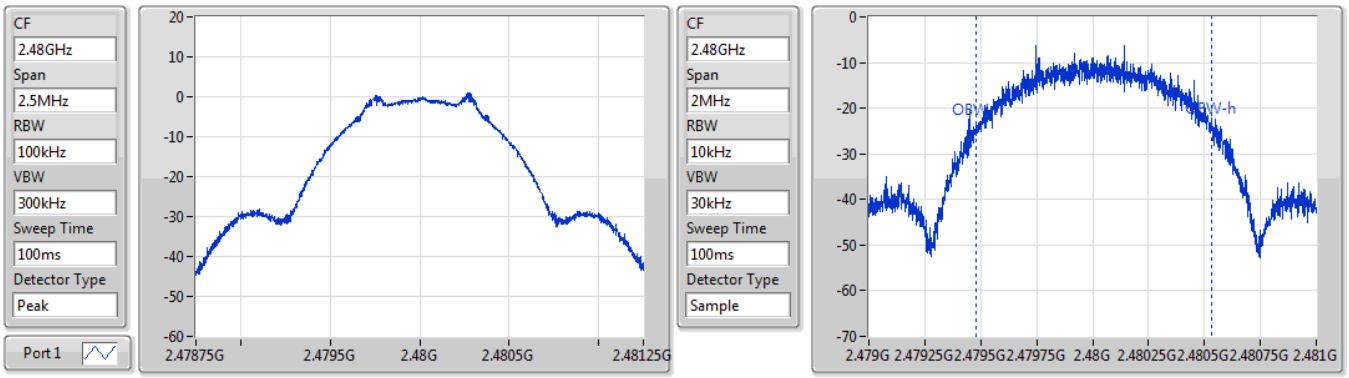


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
696.25k	2.439661G	2.440358G	1.057M	2.439479G	2.440537G	500k	1

BT-LE(1Mbps) EBW-DTS

2480MHz

04/09/2020

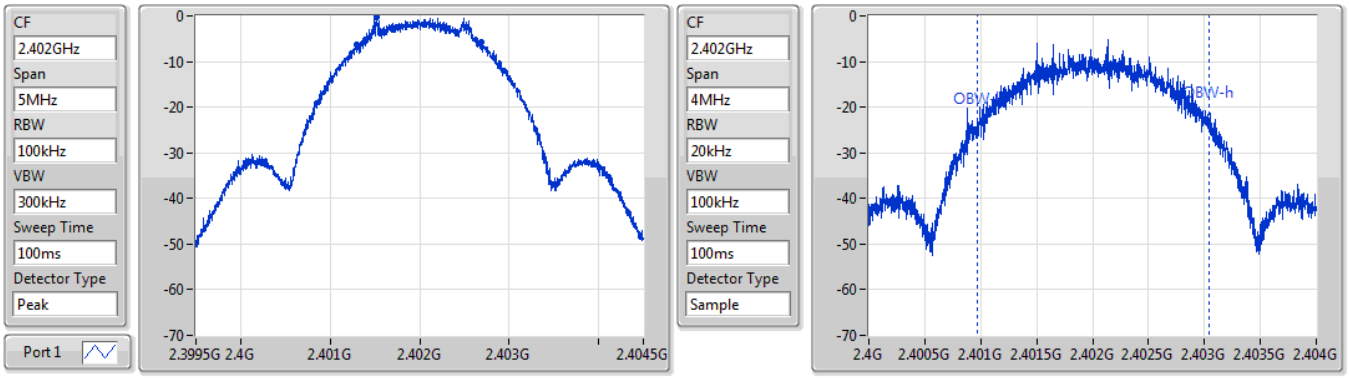


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
720k	2.479653G	2.480373G	1.057M	2.479477G	2.480535G	500k	1

BT-LE(2Mbps) EBW-DTS

2402MHz

04/09/2020

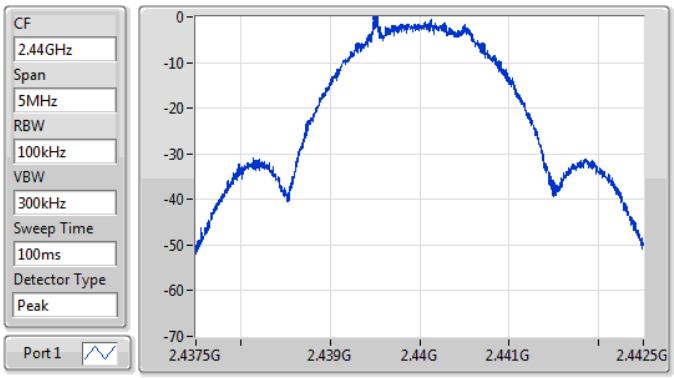


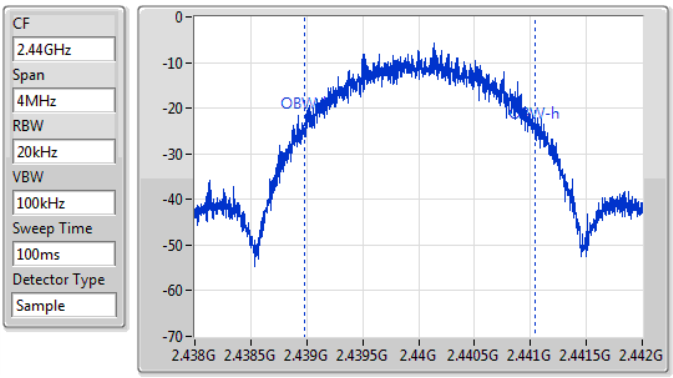
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.398M	2.401295G	2.402693G	2.067M	2.400973G	2.403039G	500k	1

BT-LE(2Mbps) EBW-DTS

2440MHz

04/09/2020



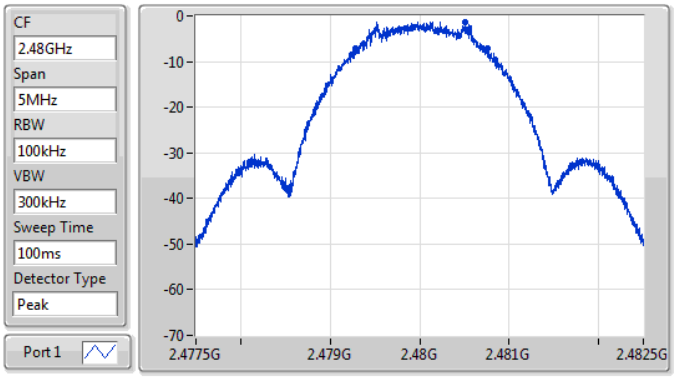


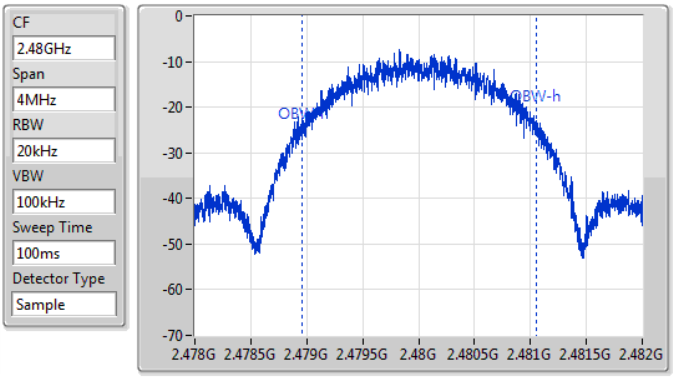
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.383M	2.439318G	2.4407G	2.063M	2.438983G	2.441045G	500k	1

BT-LE(2Mbps) EBW-DTS

2480MHz

04/09/2020





6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.473M	2.479283G	2.480755G	2.085M	2.478963G	2.481047G	500k	1

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	1.44	0.00139
BT-LE(2Mbps)	1.41	0.00138

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.71	1.44	30.00
2440MHz	Pass	1.71	1.25	30.00
2480MHz	Pass	1.71	0.79	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	1.71	1.41	30.00
2440MHz	Pass	1.71	1.21	30.00
2480MHz	Pass	1.71	0.74	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-9.90
BT-LE(2Mbps)	-14.83

RBW = 3kHz;

Result

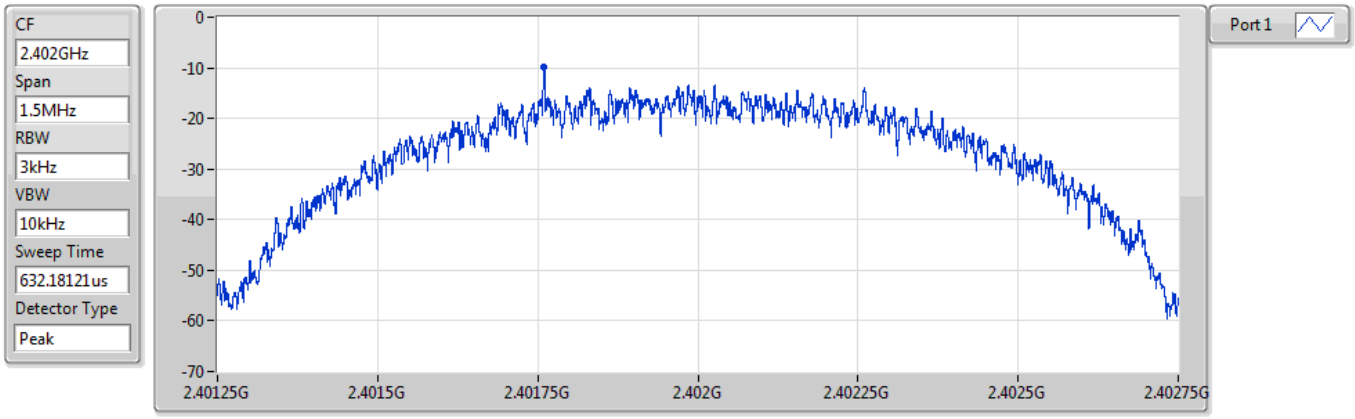
Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.71	-9.90	8.00
2440MHz	Pass	1.71	-11.74	8.00
2480MHz	Pass	1.71	-10.14	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	1.71	-14.96	8.00
2440MHz	Pass	1.71	-14.83	8.00
2480MHz	Pass	1.71	-15.52	8.00

DG = Directional Gain; RBW = 3kHz;
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

04/09/2020

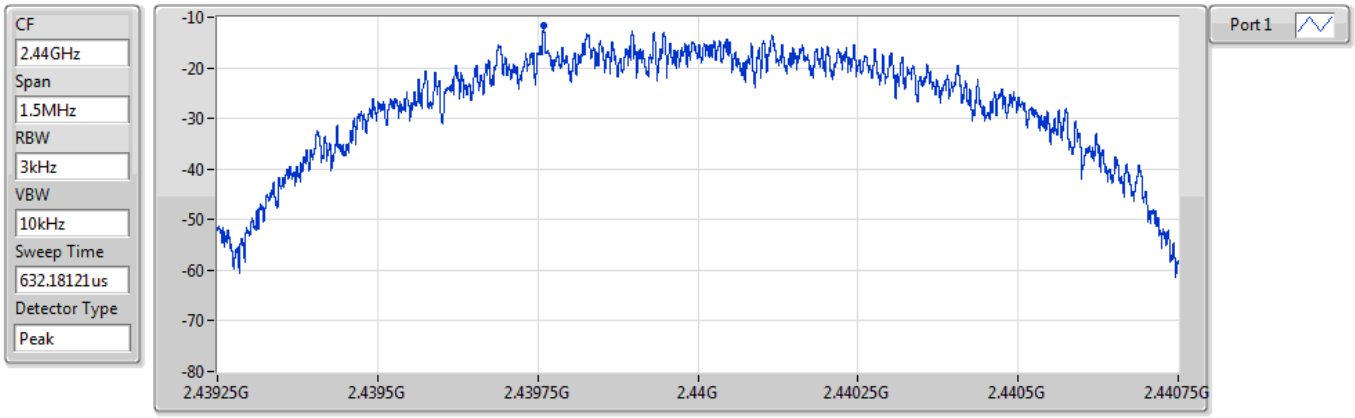


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.90	-9.90	-9.90

BT-LE(1Mbps) PSD

2440MHz

04/09/2020

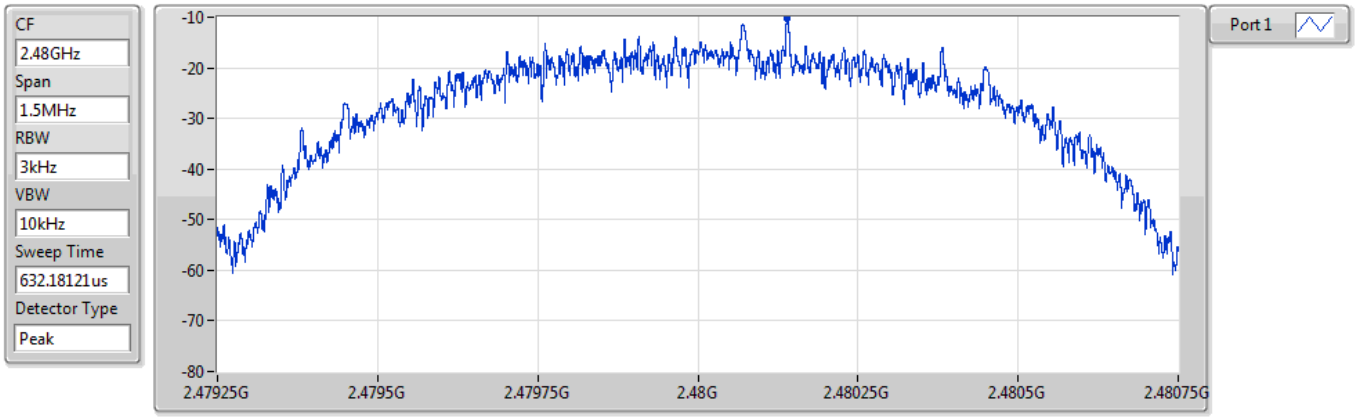


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.74	-11.74	-11.74

BT-LE(1Mbps) PSD

2480MHz

04/09/2020

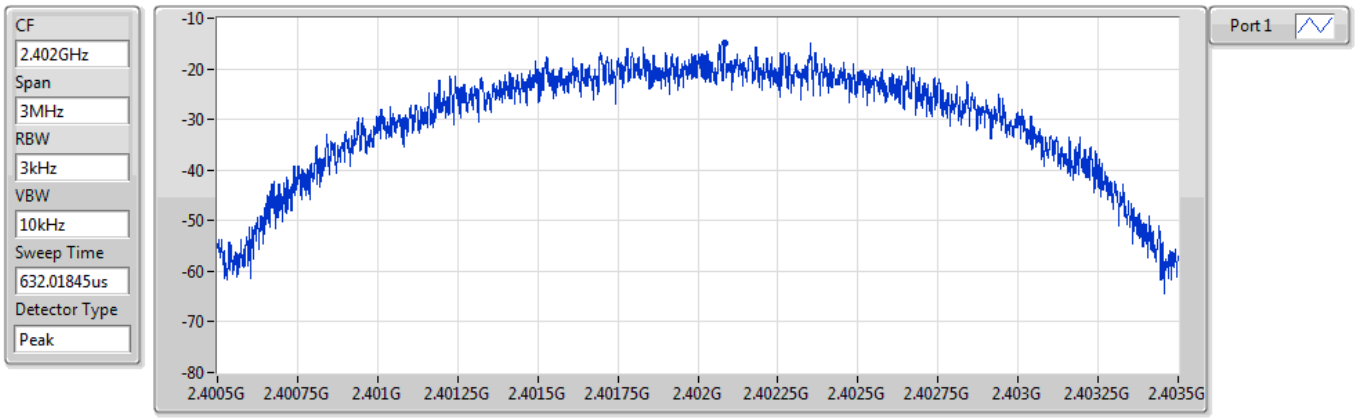


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.14	-10.14	-10.14

BT-LE(2Mbps) PSD

2402MHz

04/09/2020

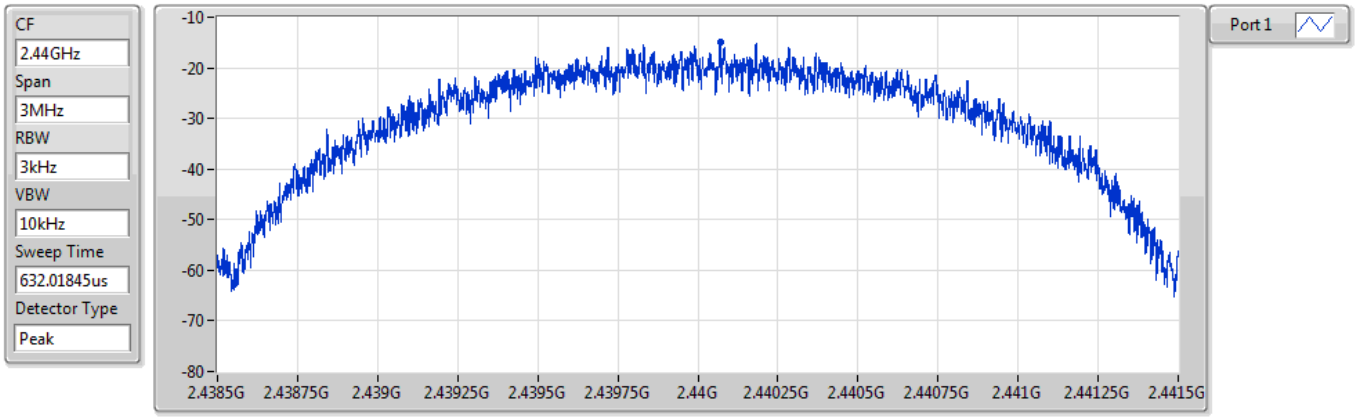


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.96	-14.96	-14.96

BT-LE(2Mbps) PSD

2440MHz

04/09/2020

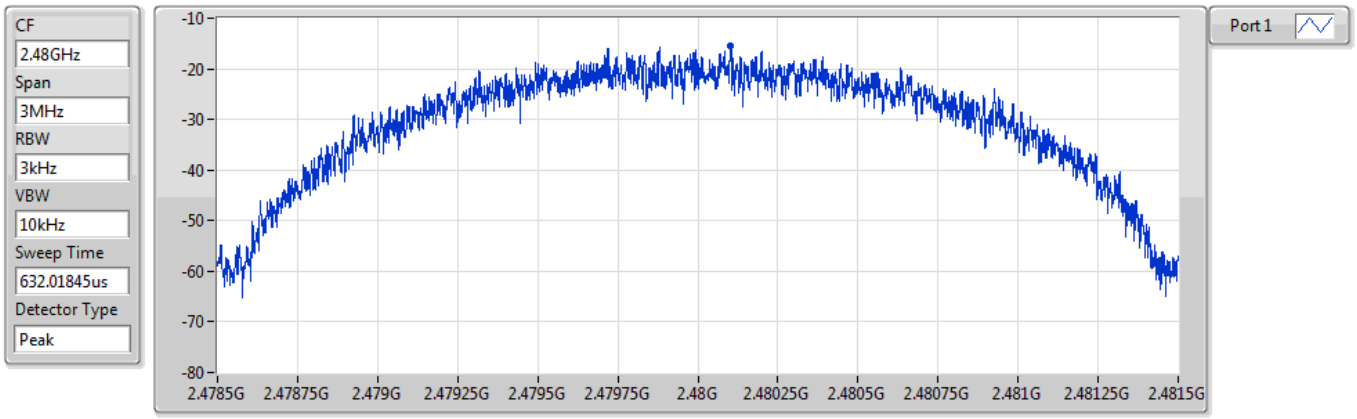


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.83	-14.83	-14.83

BT-LE(2Mbps) PSD

2480MHz

04/09/2020



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-15.52	-15.52	-15.52

Summary

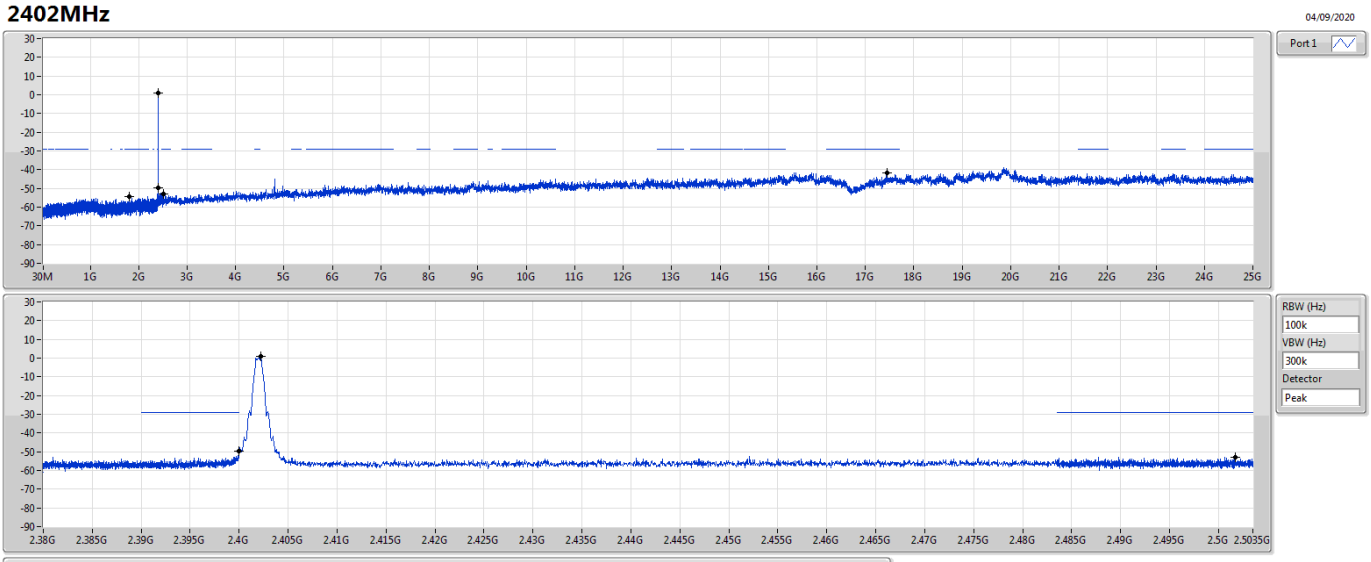
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40225G	1.13	-28.87	1.80748G	-54.40	2.4G	-49.75	2.4G	-49.71	2.50168G	-52.78	17.45524G	-41.89	1
BT-LE(2Mbps)	Pass	2.40209G	-0.79	-30.79	2.06246G	-54.81	2.39999G	-33.10	2.4G	-31.70	2.48874G	-52.90	23.33807G	-42.20	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)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40225G	1.13	-28.87	1.80748G	-54.40	2.4G	-49.75	2.4G	-49.71	2.50168G	-52.78	17.45524G	-41.89	1
2440MHz	Pass	2.40225G	1.13	-28.87	1.9429G	-55.61	2.39985G	-53.26	2.4835G	-55.53	2.50095G	-51.97	23.30995G	-41.96	1
2480MHz	Pass	2.40225G	1.13	-28.87	2.11827G	-54.62	2.39828G	-53.93	2.4G	-56.06	2.49996G	-52.43	15.15497G	-42.27	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40209G	-0.79	-30.79	2.06246G	-54.81	2.39999G	-33.10	2.4G	-31.70	2.48874G	-52.90	23.33807G	-42.20	1
2440MHz	Pass	2.40209G	-0.79	-30.79	2.1779G	-55.39	2.39899G	-52.98	2.4835G	-54.20	2.48659G	-52.87	23.37182G	-41.38	1
2480MHz	Pass	2.40209G	-0.79	-30.79	2.00664G	-54.45	2.39551G	-53.72	2.4835G	-54.91	2.48394G	-52.32	24.71598G	-41.49	1

BT-LE(1Mbps) **CSENdB-DTS**

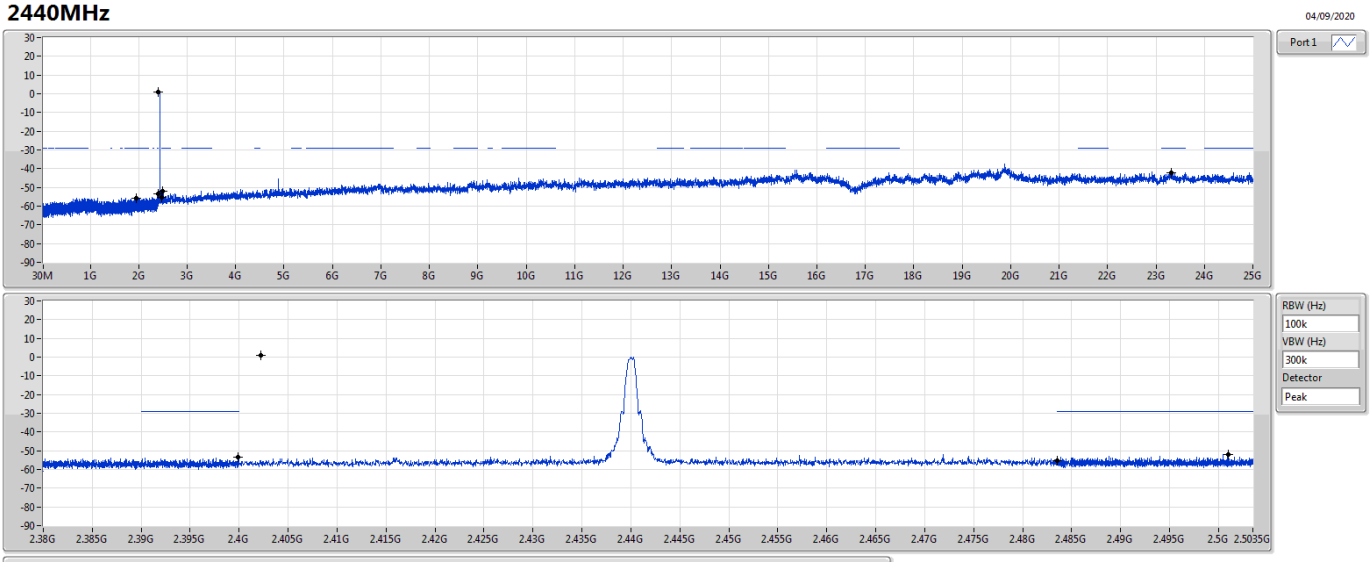
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40225G	1.13	-28.87	1.80748G	-54.40	2.4G	-49.75	2.4G	-49.71	2.50168G	-52.78	17.45524G	-41.89	1

BT-LE(1Mbps) **CSENdB-DTS**

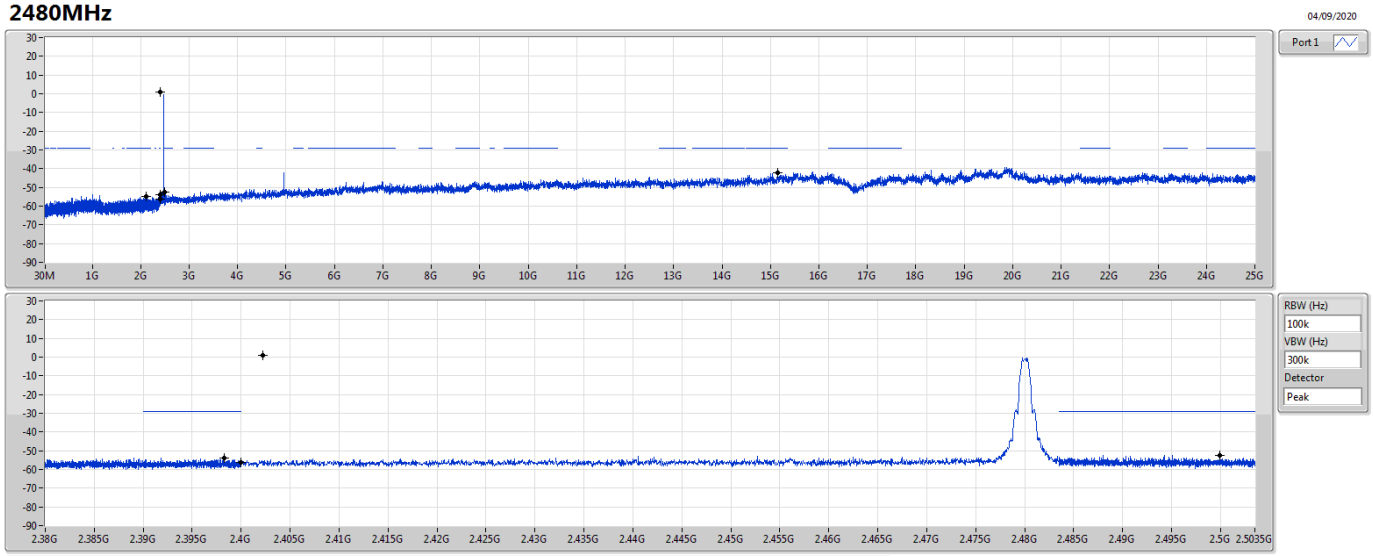
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40225G	1.13	-28.87	1.9429G	-55.61	2.39985G	-53.26	2.4835G	-55.53	2.50095G	-51.97	23.30995G	-41.96	1

BT-LE(1Mbps) **CSENdB-DTS**

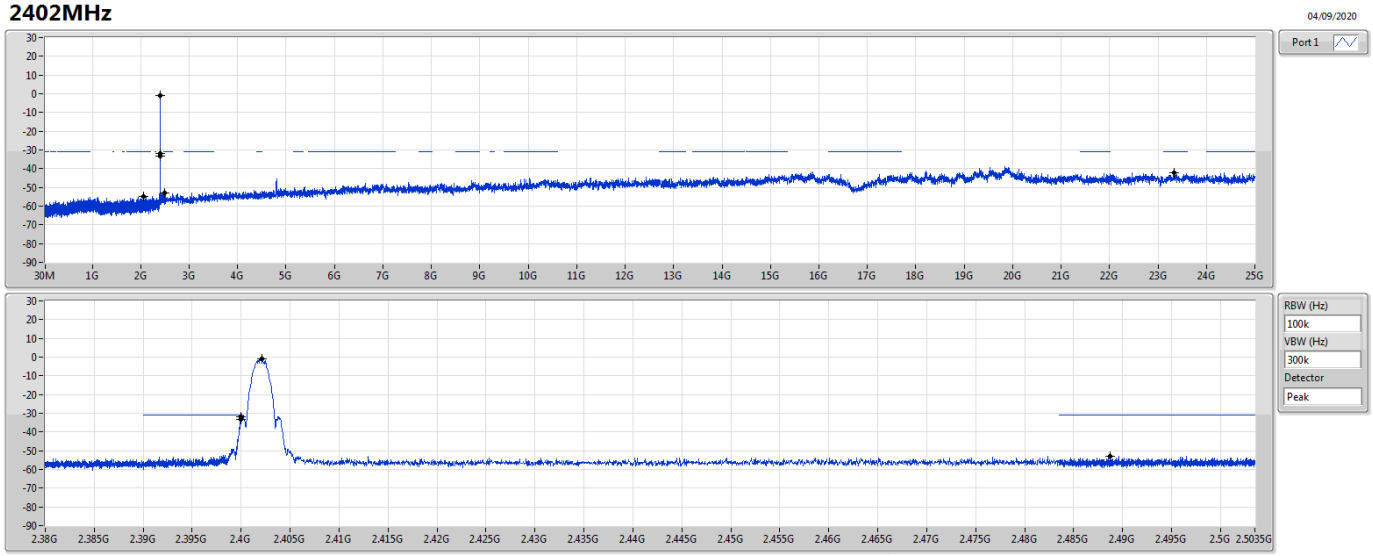
2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40225G	1.13	-28.87	2.11827G	-54.62	2.39828G	-53.93	2.4G	-56.06	2.49996G	-52.43	15.15497G	-42.27	1

BT-LE(2Mbps) **CSENdB-DTS**

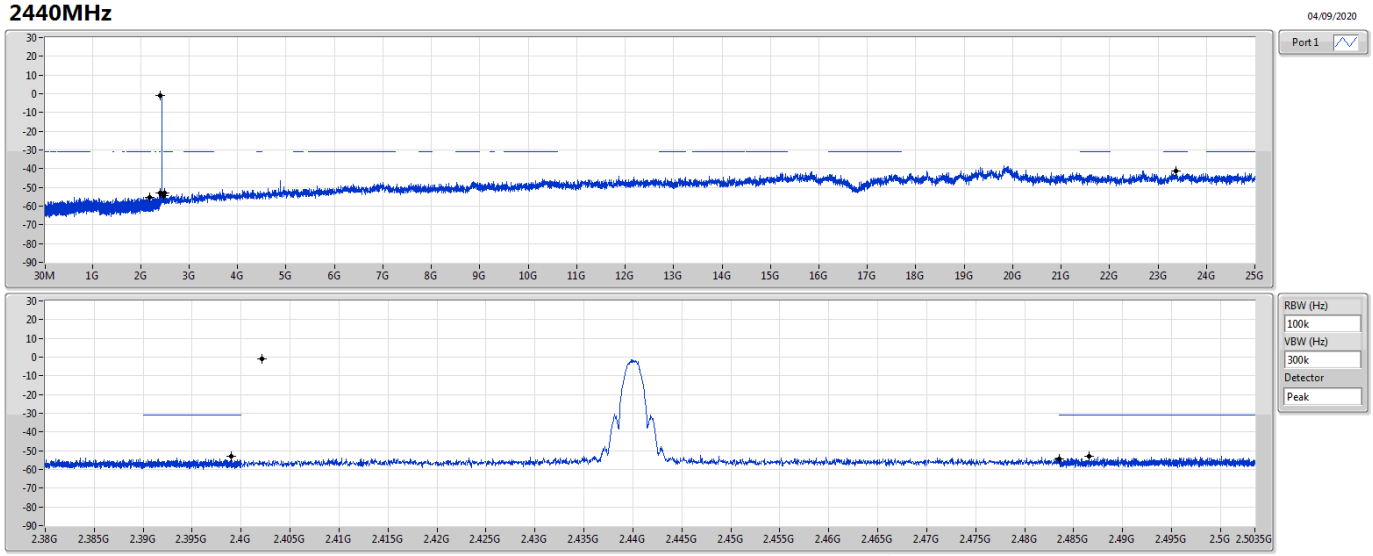
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40209G	-0.79	-30.79	2.06246G	-54.81	2.39999G	-33.10	2.4G	-31.70	2.48874G	-52.90	23.33807G	-42.20	1

BT-LE(2Mbps) **CSENdB-DTS**

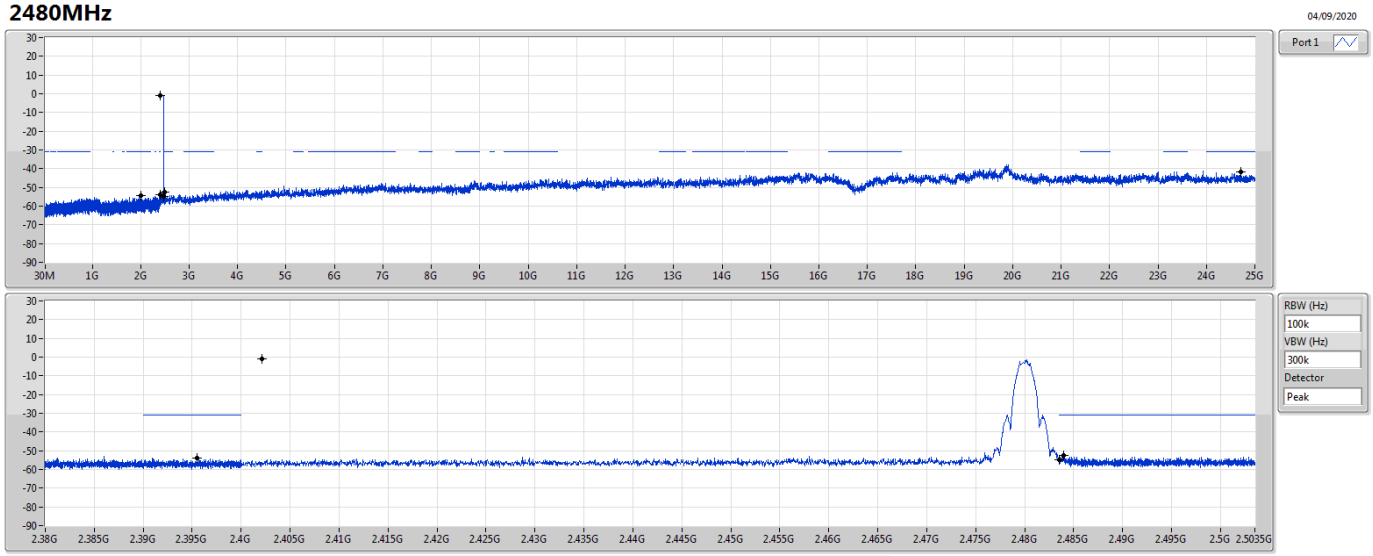
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40209G	-0.79	-30.79	2.1779G	-55.39	2.39899G	-52.98	2.4835G	-54.20	2.48659G	-52.87	23.37182G	-41.38	1

BT-LE(2Mbps) **CSENdB-DTS**

2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40209G	-0.79	-30.79	2.00664G	-54.45	2.39551G	-53.72	2.4835G	-54.91	2.48394G	-52.32	24.71598G	-41.49	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	82.38M	35.39	40.00	-4.61	3	Vertical	360	1.00	-

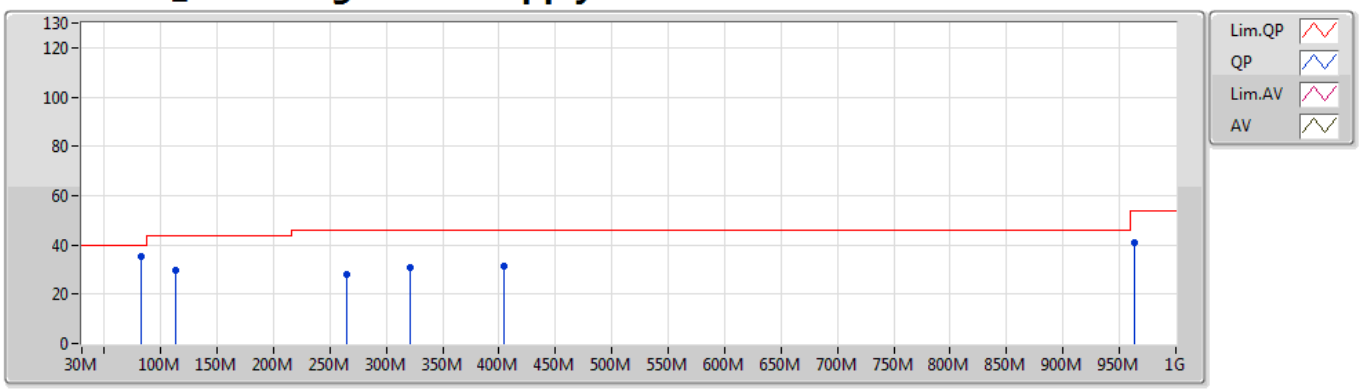
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	82.38M	35.39	40.00	-4.61	3	Vertical	360	1.00	-
2440MHz	Pass	PK	113.42M	29.46	43.50	-14.04	3	Vertical	360	1.00	-
2440MHz	Pass	PK	264.74M	28.07	46.00	-17.93	3	Vertical	360	1.00	-
2440MHz	Pass	PK	321M	30.94	46.00	-15.06	3	Vertical	360	1.00	-
2440MHz	Pass	PK	404.42M	31.22	46.00	-14.78	3	Vertical	360	1.00	-
2440MHz	Pass	PK	963.14M	41.00	54.00	-13.00	3	Vertical	360	1.00	-
2440MHz	Pass	PK	94.02M	38.52	43.50	-4.98	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	152.22M	28.47	43.50	-15.03	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	264.74M	33.26	46.00	-12.74	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	319.06M	32.62	46.00	-13.38	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	435.46M	29.92	46.00	-16.08	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	800.18M	30.94	46.00	-15.06	3	Horizontal	0	1.00	-

BT-LE(2Mbps)

03/09/2020

2440MHz_Switching Power Supply

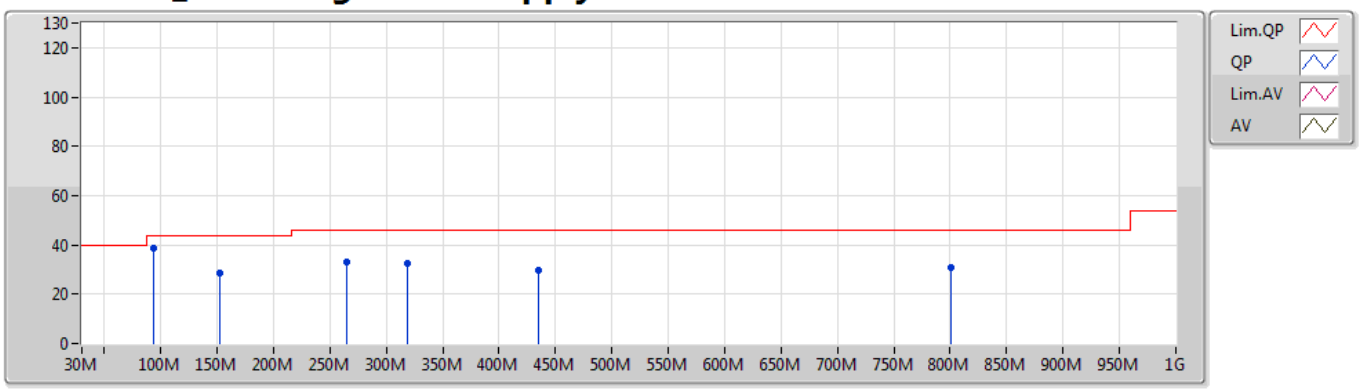


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	82.38M	35.39	40.00	-4.61	-23.13	3	Vertical	360	1.00	-	58.52	12.88	0.70	36.71
PK	113.42M	29.46	43.50	-14.04	-19.42	3	Vertical	360	1.00	-	48.88	16.29	0.80	36.51
PK	264.74M	28.07	46.00	-17.93	-15.76	3	Vertical	360	1.00	-	43.83	19.32	1.33	36.41
PK	321M	30.94	46.00	-15.06	-16.45	3	Vertical	360	1.00	-	47.39	18.52	1.44	36.41
PK	404.42M	31.22	46.00	-14.78	-13.63	3	Vertical	360	1.00	-	44.85	21.10	1.71	36.44
PK	963.14M	41.00	54.00	-13.00	-4.30	3	Vertical	360	1.00	-	45.30	30.05	2.93	37.28

BT-LE(2Mbps)

03/09/2020

2440MHz_Switching Power Supply



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	94.02M	38.52	43.50	-4.98	-21.40	3	Horizontal	0	1.00	-	59.92	14.47	0.70	36.57
PK	152.22M	28.47	43.50	-15.03	-19.23	3	Horizontal	0	1.00	-	47.70	16.14	0.96	36.33
PK	264.74M	33.26	46.00	-12.74	-15.76	3	Horizontal	0	1.00	-	49.02	19.32	1.33	36.41
PK	319.06M	32.62	46.00	-13.38	-16.49	3	Horizontal	0	1.00	-	49.11	18.48	1.44	36.41
PK	435.46M	29.92	46.00	-16.08	-12.90	3	Horizontal	0	1.00	-	42.82	21.88	1.77	36.55
PK	800.18M	30.94	46.00	-15.06	-7.79	3	Horizontal	0	1.00	-	38.73	27.12	2.60	37.51

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	4.80377G	48.48	54.00	-5.52	3	Horizontal	19	1.20	-
BT-LE(2Mbps)	Pass	AV	4.8031G	46.56	54.00	-7.44	3	Horizontal	18	1.29	-

Result

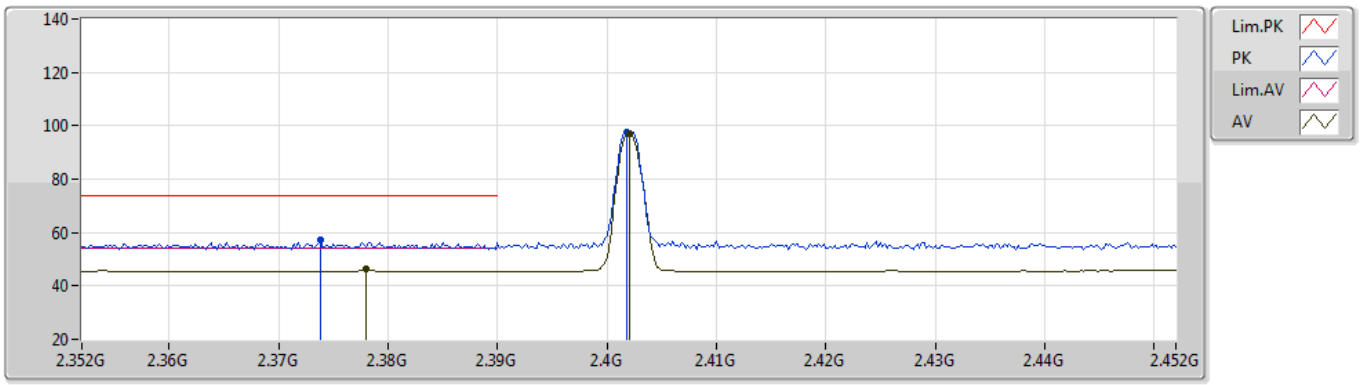
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.378G	46.21	54.00	-7.79	3	Vertical	10	1.80	-
2402MHz	Pass	AV	2.402G	96.82	Inf	-Inf	3	Vertical	10	1.80	-
2402MHz	Pass	PK	2.3738G	57.04	74.00	-16.96	3	Vertical	10	1.80	-
2402MHz	Pass	PK	2.4018G	97.62	Inf	-Inf	3	Vertical	10	1.80	-
2402MHz	Pass	AV	2.378G	45.83	54.00	-8.17	3	Horizontal	290	2.69	-
2402MHz	Pass	AV	2.402G	94.15	Inf	-Inf	3	Horizontal	290	2.69	-
2402MHz	Pass	PK	2.37G	56.75	74.00	-17.25	3	Horizontal	290	2.69	-
2402MHz	Pass	PK	2.4018G	94.97	Inf	-Inf	3	Horizontal	290	2.69	-
2402MHz	Pass	AV	4.80375G	41.17	54.00	-12.83	3	Vertical	5	1.66	-
2402MHz	Pass	PK	4.80363G	48.59	74.00	-25.41	3	Vertical	5	1.66	-
2402MHz	Pass	AV	4.80377G	48.48	54.00	-5.52	3	Horizontal	19	1.20	-
2402MHz	Pass	PK	4.80455G	53.66	74.00	-20.34	3	Horizontal	19	1.20	-
2440MHz	Pass	AV	2.368G	45.53	54.00	-8.47	3	Vertical	360	1.28	-
2440MHz	Pass	AV	2.44G	92.47	Inf	-Inf	3	Vertical	360	1.28	-
2440MHz	Pass	AV	2.5G	45.93	54.00	-8.07	3	Vertical	360	1.28	-
2440MHz	Pass	PK	2.3484G	56.74	74.00	-17.26	3	Vertical	360	1.28	-
2440MHz	Pass	PK	2.4396G	93.31	Inf	-Inf	3	Vertical	360	1.28	-
2440MHz	Pass	PK	2.4972G	56.78	74.00	-17.22	3	Vertical	360	1.28	-
2440MHz	Pass	AV	2.3492G	45.49	54.00	-8.51	3	Horizontal	289	2.62	-
2440MHz	Pass	AV	2.44G	89.34	Inf	-Inf	3	Horizontal	289	2.62	-
2440MHz	Pass	AV	2.5G	45.91	54.00	-8.09	3	Horizontal	289	2.62	-
2440MHz	Pass	PK	2.356G	56.31	74.00	-17.69	3	Horizontal	289	2.62	-
2440MHz	Pass	PK	2.4396G	90.18	Inf	-Inf	3	Horizontal	289	2.62	-
2440MHz	Pass	PK	2.4896G	56.63	74.00	-17.37	3	Horizontal	289	2.62	-
2440MHz	Pass	AV	4.87974G	37.18	54.00	-16.82	3	Vertical	262	1.96	-
2440MHz	Pass	PK	4.87965G	45.69	74.00	-28.31	3	Vertical	262	1.96	-
2440MHz	Pass	AV	4.87974G	42.06	54.00	-11.94	3	Horizontal	17	1.02	-
2440MHz	Pass	PK	4.87957G	49.37	74.00	-24.63	3	Horizontal	17	1.02	-
2480MHz	Pass	AV	2.48G	88.49	Inf	-Inf	3	Vertical	1	1.14	-
2480MHz	Pass	AV	2.4898G	45.94	54.00	-8.06	3	Vertical	1	1.14	-
2480MHz	Pass	PK	2.4798G	89.40	Inf	-Inf	3	Vertical	1	1.14	-
2480MHz	Pass	PK	2.4946G	57.32	74.00	-16.68	3	Vertical	1	1.14	-
2480MHz	Pass	AV	2.48G	84.87	Inf	-Inf	3	Horizontal	289	1.26	-
2480MHz	Pass	AV	2.499G	45.92	54.00	-8.08	3	Horizontal	289	1.26	-
2480MHz	Pass	PK	2.4798G	85.84	Inf	-Inf	3	Horizontal	289	1.26	-
2480MHz	Pass	PK	2.489G	56.37	74.00	-17.63	3	Horizontal	289	1.26	-
2480MHz	Pass	AV	4.9603G	38.32	54.00	-15.68	3	Vertical	256	2.23	-
2480MHz	Pass	PK	4.95949G	46.68	74.00	-27.32	3	Vertical	256	2.23	-
2480MHz	Pass	AV	4.96031G	42.62	54.00	-11.38	3	Horizontal	26	1.22	-
2480MHz	Pass	PK	4.95955G	49.49	74.00	-24.51	3	Horizontal	26	1.22	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.378G	46.05	54.00	-7.95	3	Vertical	1	1.46	-
2402MHz	Pass	AV	2.402G	96.03	Inf	-Inf	3	Vertical	1	1.46	-
2402MHz	Pass	PK	2.3678G	56.76	74.00	-17.24	3	Vertical	1	1.46	-
2402MHz	Pass	PK	2.4016G	98.33	Inf	-Inf	3	Vertical	1	1.46	-
2402MHz	Pass	AV	2.3778G	45.72	54.00	-8.28	3	Horizontal	286	2.69	-
2402MHz	Pass	AV	2.402G	92.38	Inf	-Inf	3	Horizontal	286	2.69	-
2402MHz	Pass	PK	2.3702G	56.60	74.00	-17.40	3	Horizontal	286	2.69	-
2402MHz	Pass	PK	2.4016G	94.69	Inf	-Inf	3	Horizontal	286	2.69	-
2402MHz	Pass	AV	4.80312G	39.43	54.00	-14.57	3	Vertical	0	1.40	-
2402MHz	Pass	PK	4.80294G	47.83	74.00	-26.17	3	Vertical	0	1.40	-
2402MHz	Pass	AV	4.8031G	46.56	54.00	-7.44	3	Horizontal	18	1.29	-
2402MHz	Pass	PK	4.80299G	53.34	74.00	-20.66	3	Horizontal	18	1.29	-
2440MHz	Pass	AV	2.368G	45.52	54.00	-8.48	3	Vertical	360	1.67	-
2440MHz	Pass	AV	2.44G	90.65	Inf	-Inf	3	Vertical	360	1.67	-
2440MHz	Pass	AV	2.4996G	45.98	54.00	-8.02	3	Vertical	360	1.67	-
2440MHz	Pass	PK	2.35G	56.02	74.00	-17.98	3	Vertical	360	1.67	-
2440MHz	Pass	PK	2.4396G	93.00	Inf	-Inf	3	Vertical	360	1.67	-
2440MHz	Pass	PK	2.4984G	56.39	74.00	-17.61	3	Vertical	360	1.67	-
2440MHz	Pass	AV	2.3484G	45.49	54.00	-8.51	3	Horizontal	287	2.62	-

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2440MHz	Pass	AV	2.44G	87.66	Inf	-Inf	3	Horizontal	287	2.62	-
2440MHz	Pass	AV	2.5G	45.95	54.00	-8.05	3	Horizontal	287	2.62	-
2440MHz	Pass	PK	2.3524G	57.17	74.00	-16.83	3	Horizontal	287	2.62	-
2440MHz	Pass	PK	2.4396G	90.05	Inf	-Inf	3	Horizontal	287	2.62	-
2440MHz	Pass	PK	2.4852G	56.51	74.00	-17.49	3	Horizontal	287	2.62	-
2440MHz	Pass	AV	4.8791G	36.97	54.00	-17.03	3	Vertical	262	2.30	-
2440MHz	Pass	PK	4.88099G	46.47	74.00	-27.53	3	Vertical	262	2.30	-
2440MHz	Pass	AV	4.87909G	40.55	54.00	-13.45	3	Horizontal	14	1.10	-
2440MHz	Pass	PK	4.88096G	49.02	74.00	-24.98	3	Horizontal	14	1.10	-
2480MHz	Pass	AV	2.48G	87.30	Inf	-Inf	3	Vertical	356	1.77	-
2480MHz	Pass	AV	2.4835G	46.25	54.00	-7.75	3	Vertical	356	1.77	-
2480MHz	Pass	PK	2.4796G	89.77	Inf	-Inf	3	Vertical	356	1.77	-
2480MHz	Pass	PK	2.4948G	57.35	74.00	-16.65	3	Vertical	356	1.77	-
2480MHz	Pass	AV	2.48G	83.73	Inf	-Inf	3	Horizontal	287	2.83	-
2480MHz	Pass	AV	2.4835G	46.00	54.00	-8.00	3	Horizontal	287	2.83	-
2480MHz	Pass	PK	2.4794G	86.21	Inf	-Inf	3	Horizontal	287	2.83	-
2480MHz	Pass	PK	2.4842G	57.05	74.00	-16.95	3	Horizontal	287	2.83	-
2480MHz	Pass	AV	4.96099G	37.07	54.00	-16.93	3	Vertical	262	2.00	-
2480MHz	Pass	PK	4.96113G	46.59	74.00	-27.41	3	Vertical	262	2.00	-
2480MHz	Pass	AV	4.96098G	41.46	54.00	-12.54	3	Horizontal	17	1.00	-
2480MHz	Pass	PK	4.96112G	49.45	74.00	-24.55	3	Horizontal	17	1.00	-

BT-LE(1Mbps)

2402MHz_TX

02/09/2020

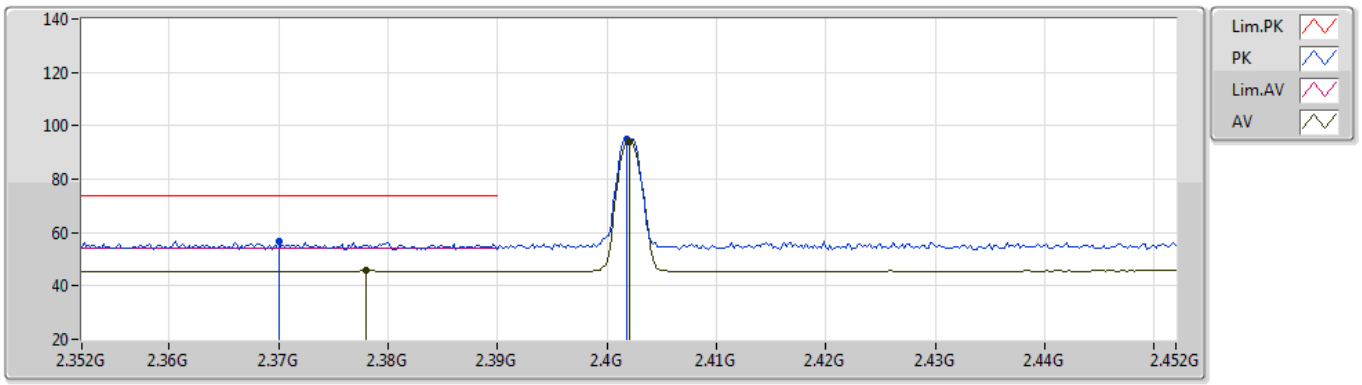


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.378G	46.21	54.00	-7.79	31.56	3	Vertical	10	1.80	-	14.65	27.69	3.87	-
AV	2.402G	96.82	Inf	-Inf	31.50	3	Vertical	10	1.80	-	65.32	27.60	3.90	-
PK	2.3738G	57.04	74.00	-16.96	31.56	3	Vertical	10	1.80	-	25.48	27.70	3.86	-
PK	2.4018G	97.62	Inf	-Inf	31.50	3	Vertical	10	1.80	-	66.12	27.60	3.90	-

BT-LE(1Mbps)

2402MHz_TX

02/09/2020

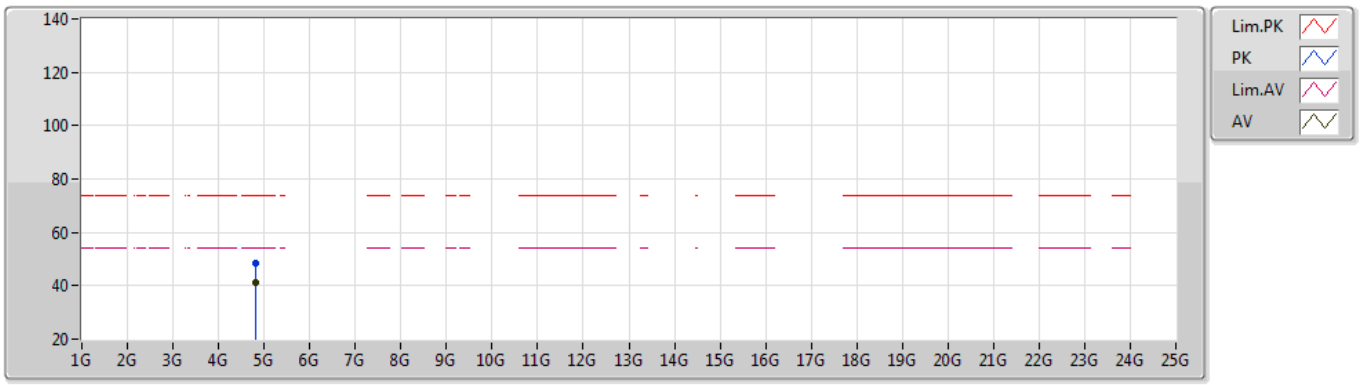


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.378G	45.83	54.00	-8.17	31.56	3	Horizontal	290	2.69	-	14.27	27.69	3.87	-
AV	2.402G	94.15	Inf	-Inf	31.50	3	Horizontal	290	2.69	-	62.65	27.60	3.90	-
PK	2.37G	56.75	74.00	-17.25	31.57	3	Horizontal	290	2.69	-	25.18	27.72	3.85	-
PK	2.4018G	94.97	Inf	-Inf	31.50	3	Horizontal	290	2.69	-	63.47	27.60	3.90	-

BT-LE(1Mbps)

2402MHz_TX

02/09/2020

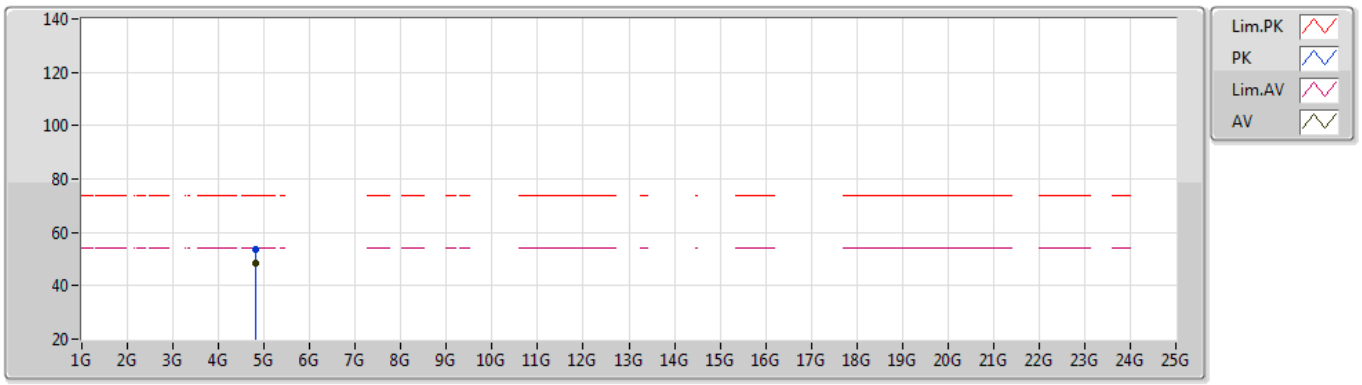


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80375G	41.17	54.00	-12.83	1.49	3	Vertical	5	1.66	-	39.68	31.12	5.30	34.93
PK	4.80363G	48.59	74.00	-25.41	1.48	3	Vertical	5	1.66	-	47.11	31.11	5.30	34.93

BT-LE(1Mbps)

2402MHz_TX

02/09/2020

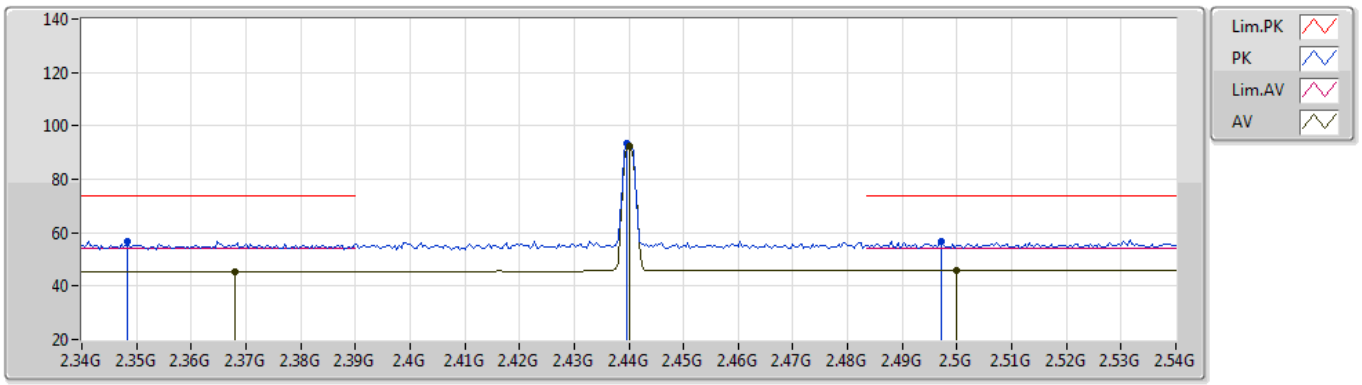


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80377G	48.48	54.00	-5.52	1.49	3	Horizontal	19	1.20	-	46.99	31.12	5.30	34.93
PK	4.80455G	53.66	74.00	-20.34	1.49	3	Horizontal	19	1.20	-	52.17	31.12	5.30	34.93

BT-LE(1Mbps)

2440MHz_TX

02/09/2020

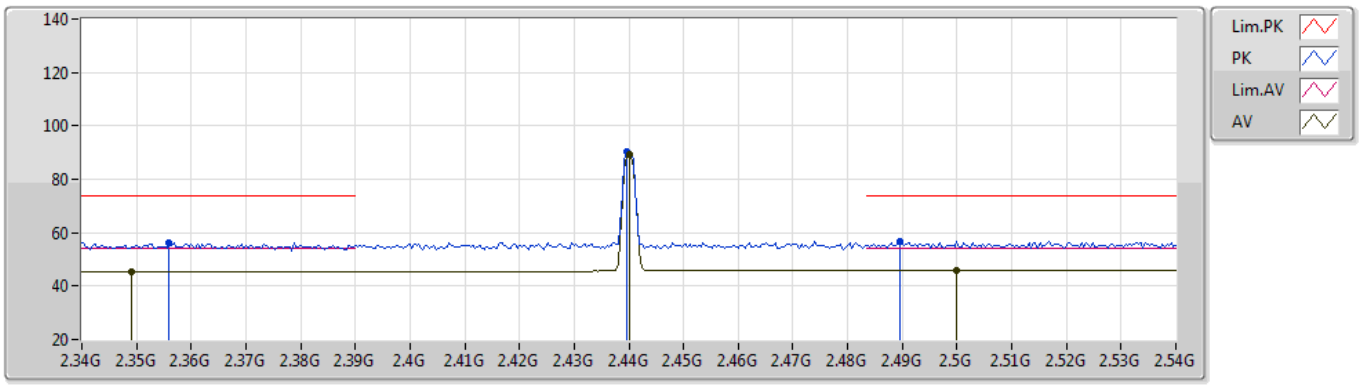


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.368G	45.53	54.00	-8.47	31.58	3	Vertical	360	1.28	-	13.95	27.73	3.85	-
AV	2.44G	92.47	Inf	-Inf	31.56	3	Vertical	360	1.28	-	60.91	27.60	3.96	-
AV	2.5G	45.93	54.00	-8.07	31.65	3	Vertical	360	1.28	-	14.28	27.60	4.05	-
PK	2.3484G	56.74	74.00	-17.26	31.62	3	Vertical	360	1.28	-	25.12	27.80	3.82	-
PK	2.4396G	93.31	Inf	-Inf	31.56	3	Vertical	360	1.28	-	61.75	27.60	3.96	-
PK	2.4972G	56.78	74.00	-17.22	31.65	3	Vertical	360	1.28	-	25.13	27.60	4.05	-

BT-LE(1Mbps)

2440MHz_TX

02/09/2020

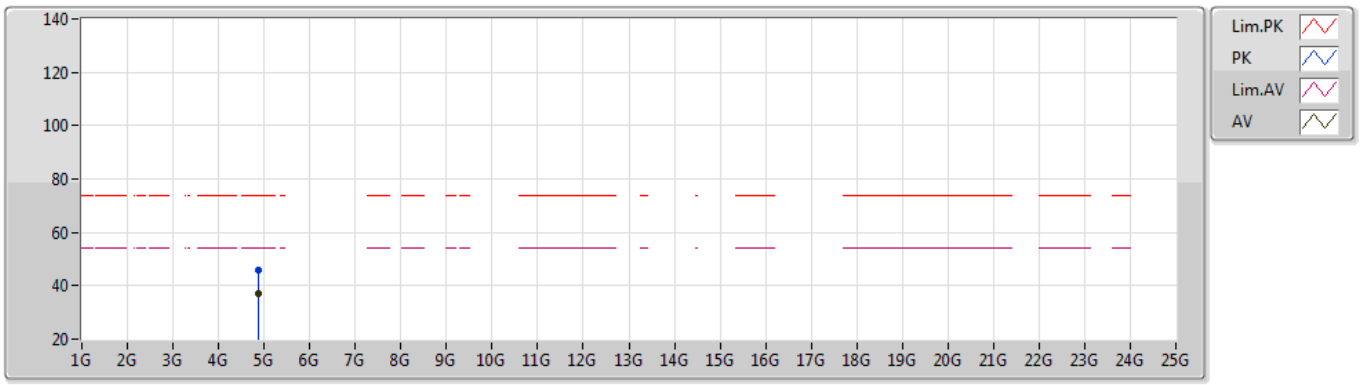


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3492G	45.49	54.00	-8.51	31.62	3	Horizontal	289	2.62	-	13.87	27.80	3.82	-
AV	2.44G	89.34	Inf	-Inf	31.56	3	Horizontal	289	2.62	-	57.78	27.60	3.96	-
AV	2.5G	45.91	54.00	-8.09	31.65	3	Horizontal	289	2.62	-	14.26	27.60	4.05	-
PK	2.356G	56.31	74.00	-17.69	31.61	3	Horizontal	289	2.62	-	24.70	27.78	3.83	-
PK	2.4396G	90.18	Inf	-Inf	31.56	3	Horizontal	289	2.62	-	58.62	27.60	3.96	-
PK	2.4896G	56.63	74.00	-17.37	31.63	3	Horizontal	289	2.62	-	25.00	27.60	4.03	-

BT-LE(1Mbps)

2440MHz_TX

02/09/2020

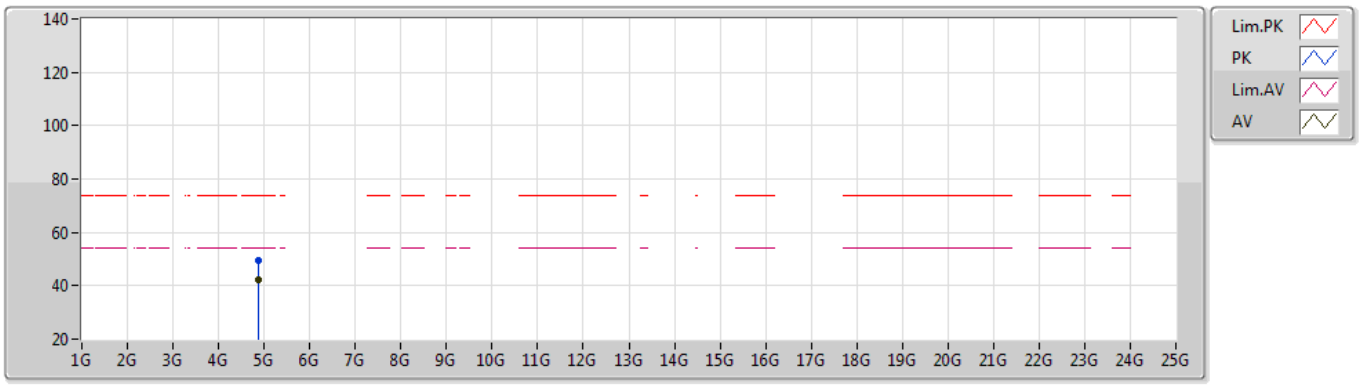


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.87974G	37.18	54.00	-16.82	1.65	3	Vertical	262	1.96	-	35.53	31.24	5.34	34.93
PK	4.87965G	45.69	74.00	-28.31	1.65	3	Vertical	262	1.96	-	44.04	31.24	5.34	34.93

BT-LE(1Mbps)

2440MHz_TX

02/09/2020

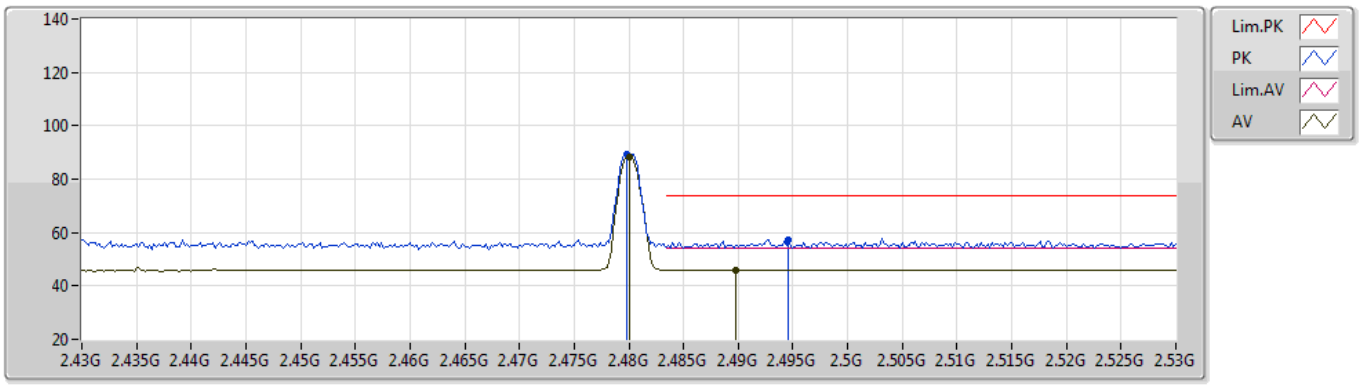


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.87974G	42.06	54.00	-11.94	1.65	3	Horizontal	17	1.02	-	40.41	31.24	5.34	34.93
PK	4.87957G	49.37	74.00	-24.63	1.65	3	Horizontal	17	1.02	-	47.72	31.24	5.34	34.93

BT-LE(1Mbps)

2480MHz_TX

02/09/2020

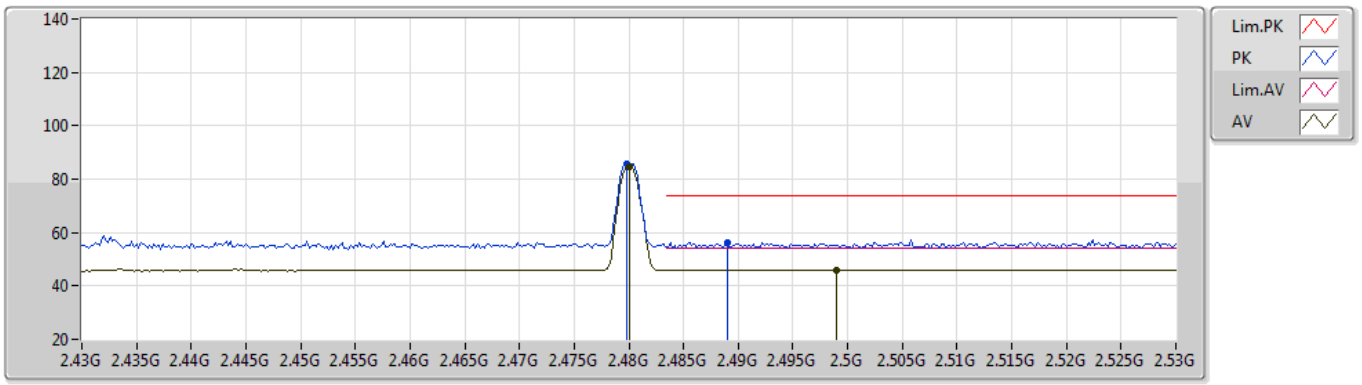


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	88.49	Inf	-Inf	31.62	3	Vertical	1	1.14	-	56.87	27.60	4.02	-
AV	2.4898G	45.94	54.00	-8.06	31.63	3	Vertical	1	1.14	-	14.31	27.60	4.03	-
PK	2.4798G	89.40	Inf	-Inf	31.62	3	Vertical	1	1.14	-	57.78	27.60	4.02	-
PK	2.4946G	57.32	74.00	-16.68	31.64	3	Vertical	1	1.14	-	25.68	27.60	4.04	-

BT-LE(1Mbps)

2480MHz_TX

02/09/2020

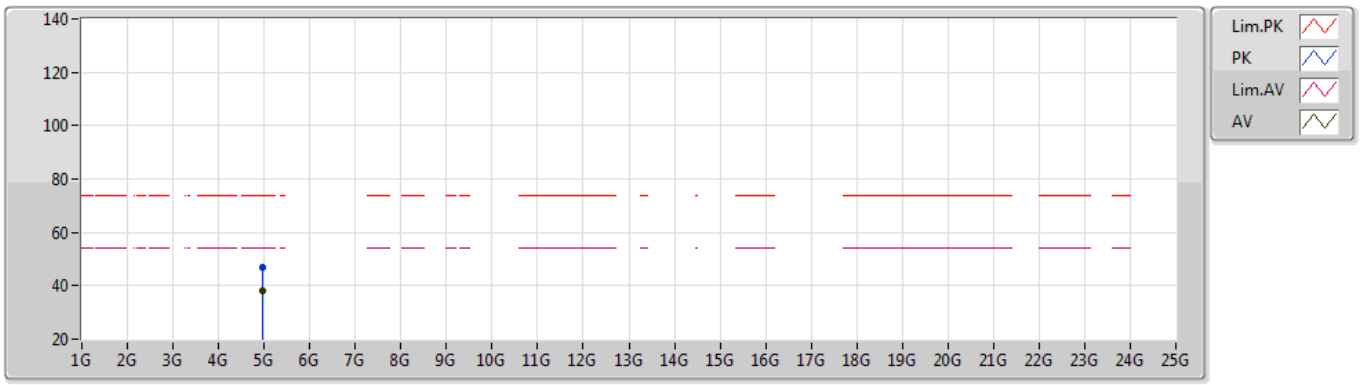


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	84.87	Inf	-Inf	31.62	3	Horizontal	289	1.26	-	53.25	27.60	4.02	-
AV	2.499G	45.92	54.00	-8.08	31.65	3	Horizontal	289	1.26	-	14.27	27.60	4.05	-
PK	2.4798G	85.84	Inf	-Inf	31.62	3	Horizontal	289	1.26	-	54.22	27.60	4.02	-
PK	2.489G	56.37	74.00	-17.63	31.63	3	Horizontal	289	1.26	-	24.74	27.60	4.03	-

BT-LE(1Mbps)

2480MHz_TX

02/09/2020

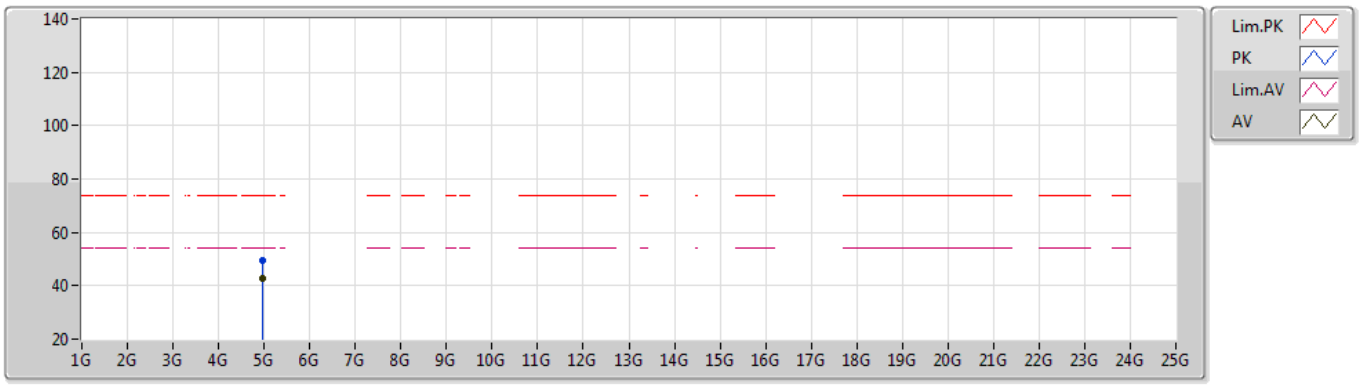


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.9603G	38.32	54.00	-15.68	1.86	3	Vertical	256	2.23	-	36.46	31.42	5.38	34.94
PK	4.95949G	46.68	74.00	-27.32	1.86	3	Vertical	256	2.23	-	44.82	31.42	5.38	34.94

BT-LE(1Mbps)

2480MHz_TX

02/09/2020

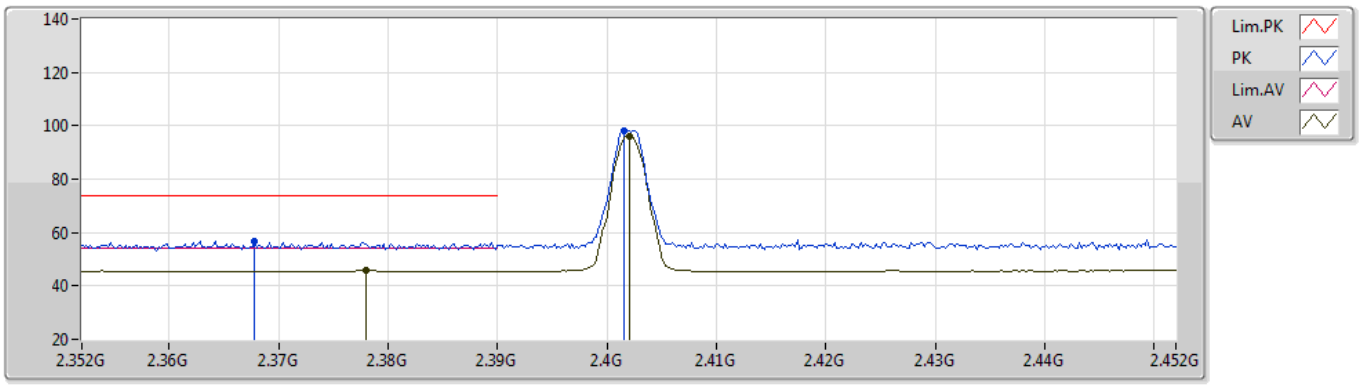


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.96031G	42.62	54.00	-11.38	1.86	3	Horizontal	26	1.22	-	40.76	31.42	5.38	34.94
PK	4.95955G	49.49	74.00	-24.51	1.86	3	Horizontal	26	1.22	-	47.63	31.42	5.38	34.94

BT-LE(2Mbps)

2402MHz_TX

02/09/2020

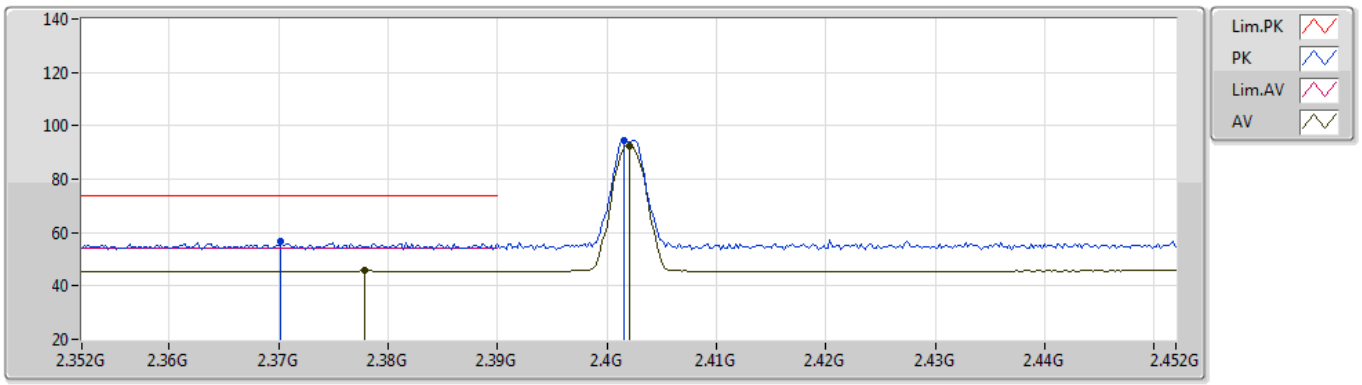


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.378G	46.05	54.00	-7.95	31.56	3	Vertical	1	1.46	-	14.49	27.69	3.87	-
AV	2.402G	96.03	Inf	-Inf	31.50	3	Vertical	1	1.46	-	64.53	27.60	3.90	-
PK	2.3678G	56.76	74.00	-17.24	31.58	3	Vertical	1	1.46	-	25.18	27.73	3.85	-
PK	2.4016G	98.33	Inf	-Inf	31.50	3	Vertical	1	1.46	-	66.83	27.60	3.90	-

BT-LE(2Mbps)

2402MHz_TX

02/09/2020

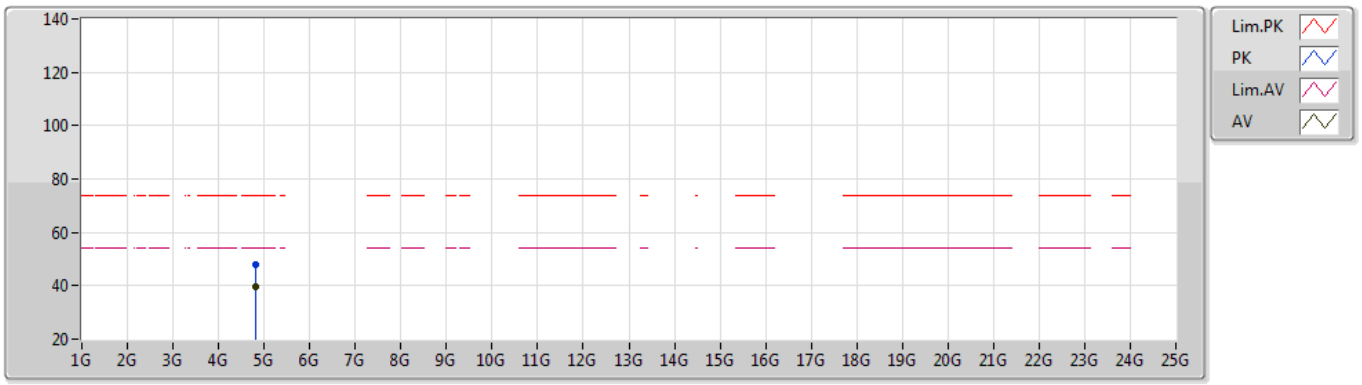


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3778G	45.72	54.00	-8.28	31.56	3	Horizontal	286	2.69	-	14.16	27.69	3.87	-
AV	2.402G	92.38	Inf	-Inf	31.50	3	Horizontal	286	2.69	-	60.88	27.60	3.90	-
PK	2.3702G	56.60	74.00	-17.40	31.58	3	Horizontal	286	2.69	-	25.02	27.72	3.86	-
PK	2.4016G	94.69	Inf	-Inf	31.50	3	Horizontal	286	2.69	-	63.19	27.60	3.90	-

BT-LE(2Mbps)

2402MHz_TX

02/09/2020

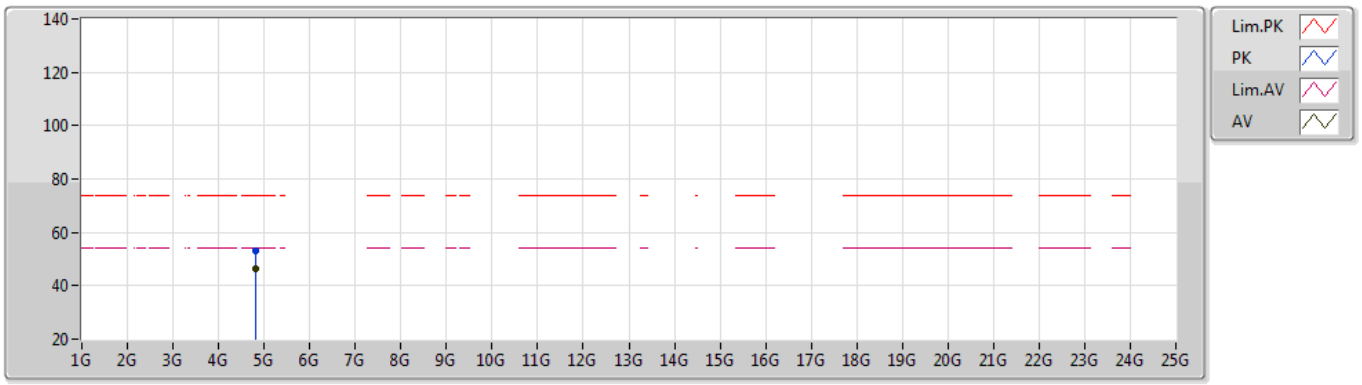


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80312G	39.43	54.00	-14.57	1.48	3	Vertical	0	1.40	-	37.95	31.11	5.30	34.93
PK	4.80294G	47.83	74.00	-26.17	1.48	3	Vertical	0	1.40	-	46.35	31.11	5.30	34.93

BT-LE(2Mbps)

2402MHz_TX

02/09/2020

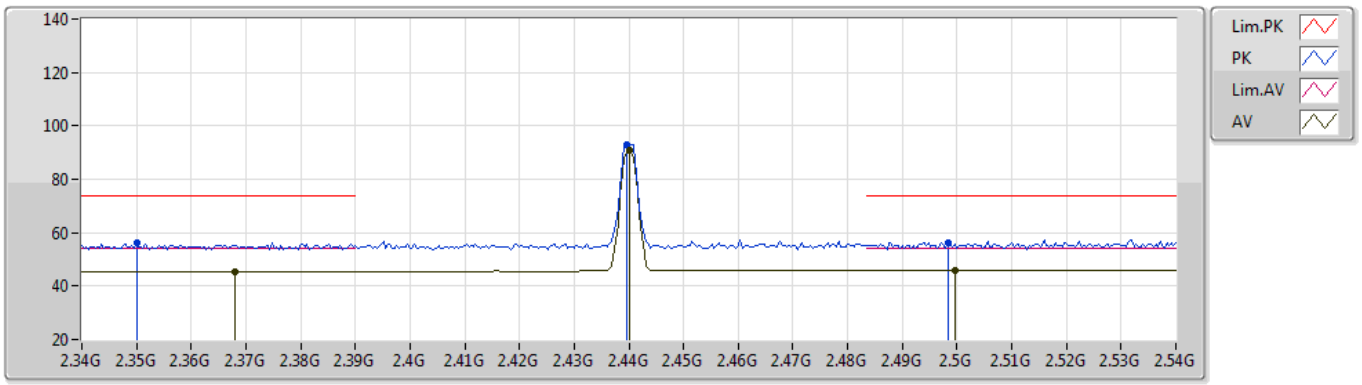


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.8031G	46.56	54.00	-7.44	1.48	3	Horizontal	18	1.29	-	45.08	31.11	5.30	34.93
PK	4.80299G	53.34	74.00	-20.66	1.48	3	Horizontal	18	1.29	-	51.86	31.11	5.30	34.93

BT-LE(2Mbps)

2440MHz_TX

02/09/2020

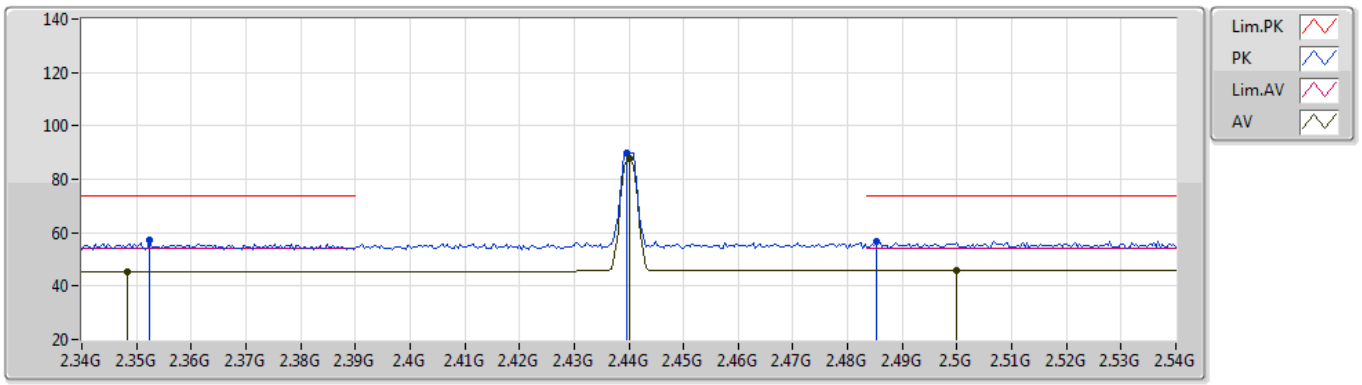


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.368G	45.52	54.00	-8.48	31.58	3	Vertical	360	1.67	-	13.94	27.73	3.85	-
AV	2.44G	90.65	Inf	-Inf	31.56	3	Vertical	360	1.67	-	59.09	27.60	3.96	-
AV	2.4996G	45.98	54.00	-8.02	31.65	3	Vertical	360	1.67	-	14.33	27.60	4.05	-
PK	2.35G	56.02	74.00	-17.98	31.63	3	Vertical	360	1.67	-	24.39	27.80	3.83	-
PK	2.4396G	93.00	Inf	-Inf	31.56	3	Vertical	360	1.67	-	61.44	27.60	3.96	-
PK	2.4984G	56.39	74.00	-17.61	31.65	3	Vertical	360	1.67	-	24.74	27.60	4.05	-

BT-LE(2Mbps)

2440MHz_TX

02/09/2020

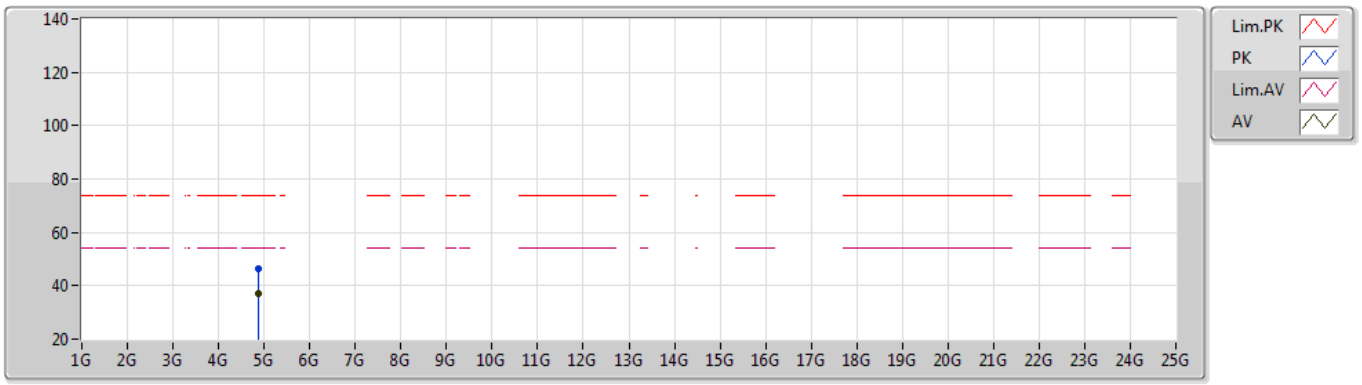


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3484G	45.49	54.00	-8.51	31.62	3	Horizontal	287	2.62	-	13.87	27.80	3.82	-
AV	2.44G	87.66	Inf	-Inf	31.56	3	Horizontal	287	2.62	-	56.10	27.60	3.96	-
AV	2.5G	45.95	54.00	-8.05	31.65	3	Horizontal	287	2.62	-	14.30	27.60	4.05	-
PK	2.3524G	57.17	74.00	-16.83	31.62	3	Horizontal	287	2.62	-	25.55	27.79	3.83	-
PK	2.4396G	90.05	Inf	-Inf	31.56	3	Horizontal	287	2.62	-	58.49	27.60	3.96	-
PK	2.4852G	56.51	74.00	-17.49	31.63	3	Horizontal	287	2.62	-	24.88	27.60	4.03	-

BT-LE(2Mbps)

2440MHz_TX

02/09/2020

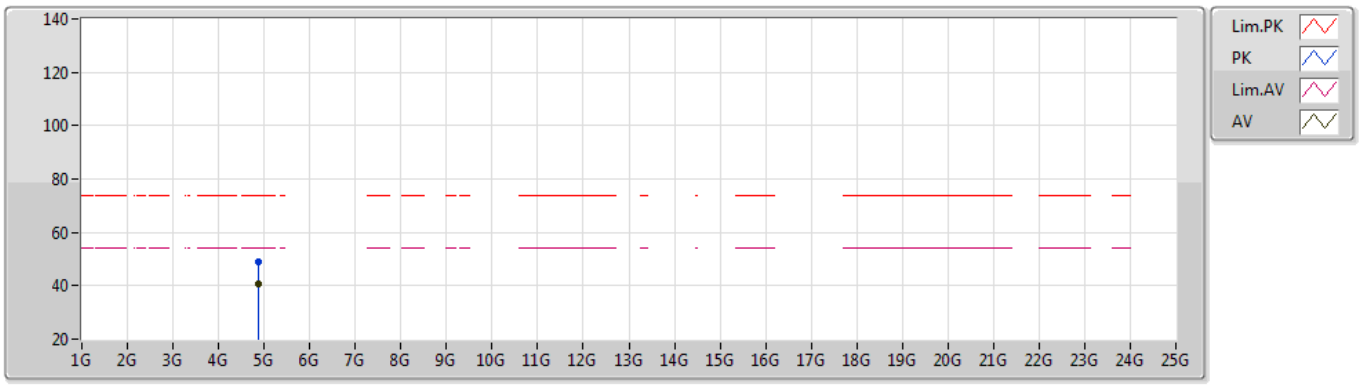


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.8791G	36.97	54.00	-17.03	1.65	3	Vertical	262	2.30	-	35.32	31.24	5.34	34.93
PK	4.88099G	46.47	74.00	-27.53	1.65	3	Vertical	262	2.30	-	44.82	31.24	5.34	34.93

BT-LE(2Mbps)

2440MHz_TX

02/09/2020

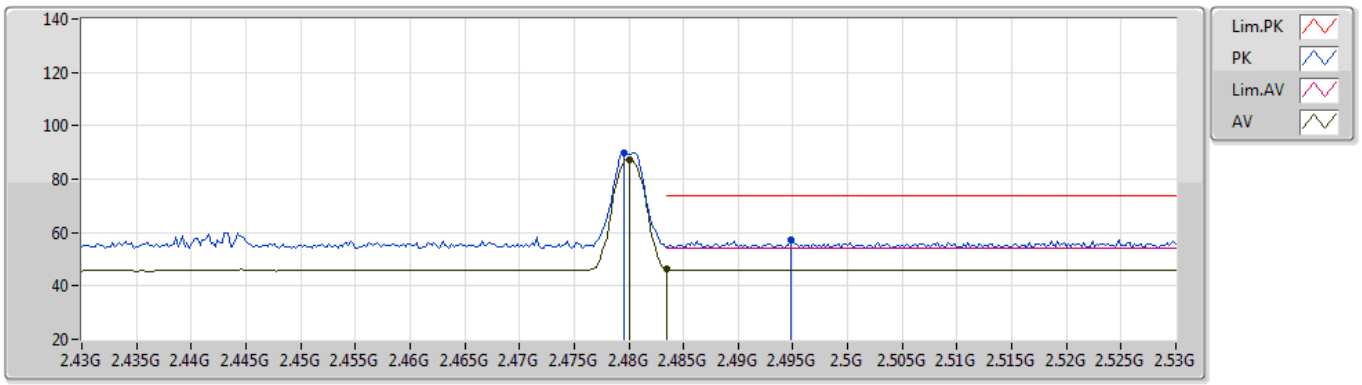


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.87909G	40.55	54.00	-13.45	1.65	3	Horizontal	14	1.10	-	38.90	31.24	5.34	34.93
PK	4.88096G	49.02	74.00	-24.98	1.65	3	Horizontal	14	1.10	-	47.37	31.24	5.34	34.93

BT-LE(2Mbps)

2480MHz_TX

02/09/2020

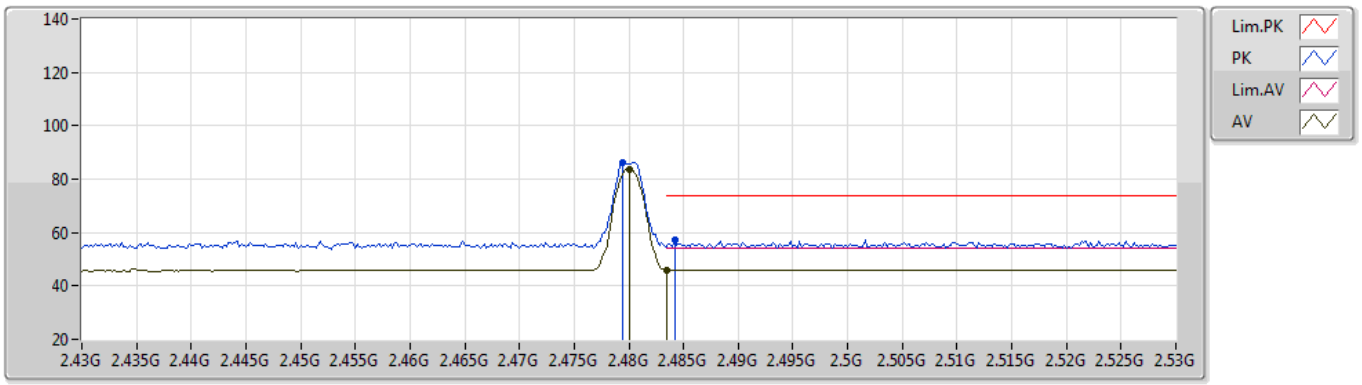


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	87.30	Inf	-Inf	31.62	3	Vertical	356	1.77	-	55.68	27.60	4.02	-
AV	2.4835G	46.25	54.00	-7.75	31.63	3	Vertical	356	1.77	-	14.62	27.60	4.03	-
PK	2.4796G	89.77	Inf	-Inf	31.62	3	Vertical	356	1.77	-	58.15	27.60	4.02	-
PK	2.4948G	57.35	74.00	-16.65	31.64	3	Vertical	356	1.77	-	25.71	27.60	4.04	-

BT-LE(2Mbps)

2480MHz_TX

02/09/2020

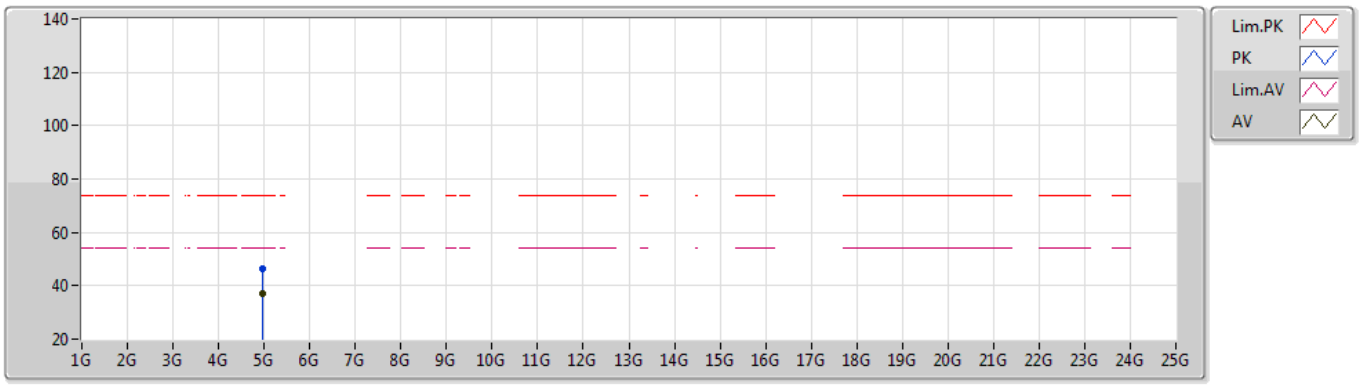


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	83.73	Inf	-Inf	31.62	3	Horizontal	287	2.83	-	52.11	27.60	4.02	-
AV	2.4835G	46.00	54.00	-8.00	31.63	3	Horizontal	287	2.83	-	14.37	27.60	4.03	-
PK	2.4794G	86.21	Inf	-Inf	31.62	3	Horizontal	287	2.83	-	54.59	27.60	4.02	-
PK	2.4842G	57.05	74.00	-16.95	31.63	3	Horizontal	287	2.83	-	25.42	27.60	4.03	-

BT-LE(2Mbps)

2480MHz_TX

02/09/2020

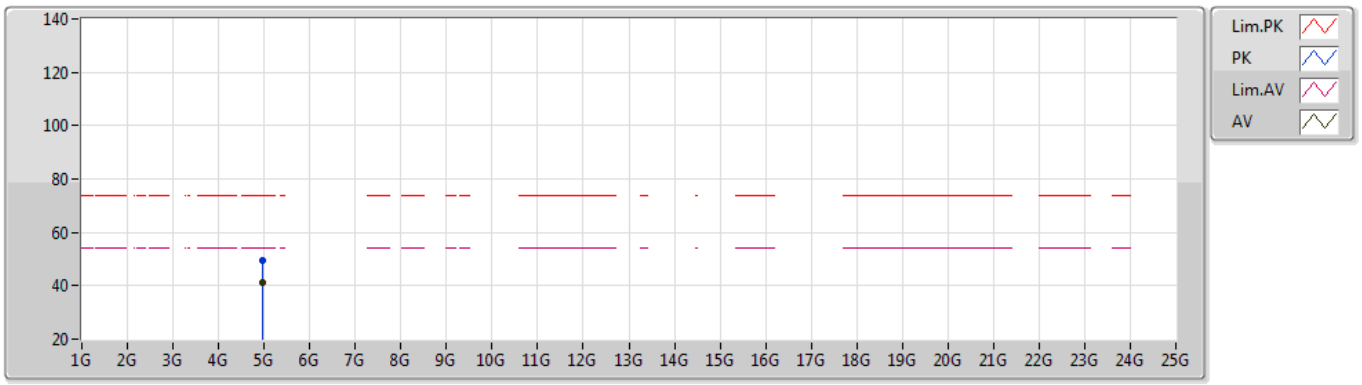


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.96099G	37.07	54.00	-16.93	1.86	3	Vertical	262	2.00	-	35.21	31.42	5.38	34.94
PK	4.96113G	46.59	74.00	-27.41	1.86	3	Vertical	262	2.00	-	44.73	31.42	5.38	34.94

BT-LE(2Mbps)

2480MHz_TX

02/09/2020



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	4.96098G	41.46	54.00	-12.54	1.86	3	Horizontal	17	1.00	-	39.60	31.42	5.38	34.94
PK	4.96112G	49.45	74.00	-24.55	1.86	3	Horizontal	17	1.00	-	47.59	31.42	5.38	34.94