FCC Test Report

Equipment	:	B-pillar Endpoint
Brand Name	:	Tesla
Model No.	:	1089773E
FCC ID	:	2AEIM-1089773E
Standard	:	47 CFR FCC Part 15.247
Operating Band	:	2400 MHz – 2483.5 MHz
Function	:	☒Point-to-multipoint; ☐Point-to-point
Applicant / Manufacturer	:	Tesla Motors, Inc. 3500 Deer Creek Road Palo Alto, California US 94304 United States Of America

The product sample received on Jun. 12, 2017 and completely tested on Feb. 28, 2018. We, SPORTON, 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 INTERNATIONALINC., the test report shall not be reproduced except in full.

Phoenix Chen / Assistant Manager

Testing Laboratory
1190

Table of Contents

Summary of Test Result

Conformance Test Specifications				
Report Clause	**Ref. Std. Clause**	**Description**	**Limit**	**Result**
1.1.2	15.203	Antenna Requirement	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	FCC 15.207	N/A
3.2	15.247(a)	DTS Bandwidth	≥500kHz	Complied
3.3	15.247(b)	Maximum Conducted Output Power	Power [dBm]:30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:8	Complied
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	Non-Restricted Bands: >30 dBc	Complied
3.6	15.247(d)	Emissions in Restricted Frequency Bands	Restricted Bands: FCC 15.209	Complied

Revision History

Report No.	Version	Description	Issued Date
FR752630-01AL	Rev. 01	Initial issue of report	Mar. 06, 2018

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

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

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	-	-	PCB Antenna	Fixed on board	6.74

1.1.3 EUT Information

Operational Condition		
EUT Power Type	From DC Power Supply	
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	n/a (DC>=0.98)	n/a (DC>=0.98)

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 v04

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	Lisa	23.1°C / 65.5%	16/Jun/2017
Radiated	03CH02-HY	Andy	22.5°C / 57%	28/Feb/2018

1.4 Measurement Uncertainty

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

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

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
RF Conducted-DTS	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	12V

2.2 Test Channel Mode

Test Software Version	BTool v1.41.11

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	0xC
2440MHz	0xC
2480MHz	0xC

2.3 The Worst Case Measurement Configuration

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	DC Power Supply	
Operating Mode > 1GHz	CTX	
Orthogonal Planes of EUT	**Y Plane**	**Z Plane**
		
Worst Planes of EUT	V	

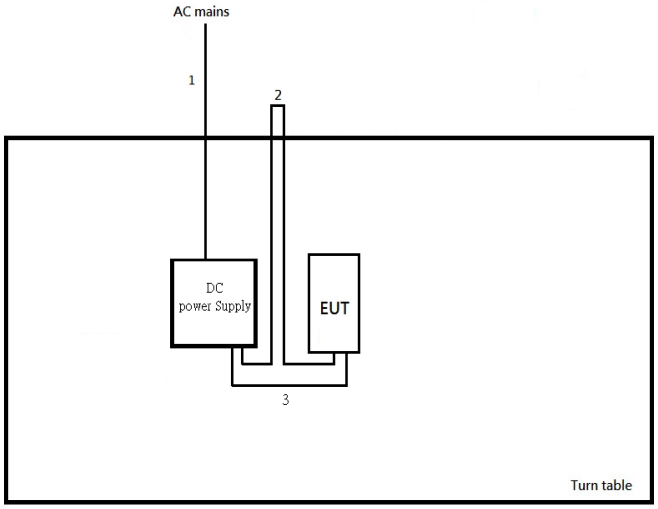
2.4 Support Equipment

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	DC Source	GW	GPS-3030DD	DoC

Support Equipment – Radiated Emission				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	DC Source	GW	GPS-3030DD	-

2.5 Test Setup Diagram

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC power line	No	1.8m	-
2	DC power cable	No	2.3m	-
3	GND line	No	0.9M	-

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

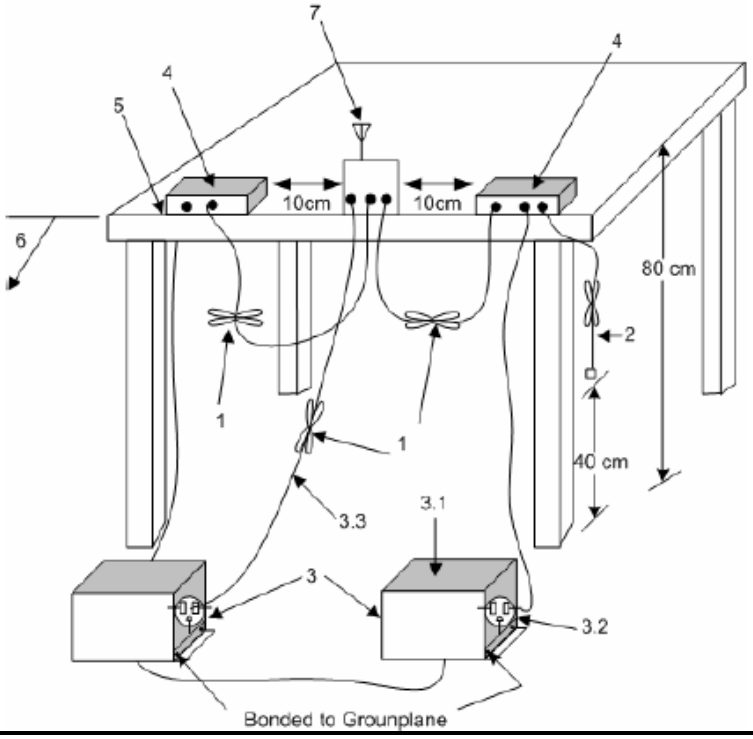
Refer a test equipment and calibration data table in this test report.

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



3.1.5 Test Result of AC Power-line Conducted Emissions

Please refer to FCC 15.207 which states, “Measurements to demonstrate compliance with the conducted limits are not required for devices employ DC power source for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines”.
Therefore, for this device, AC Power Line Conducted Emissions investigation is not required.

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

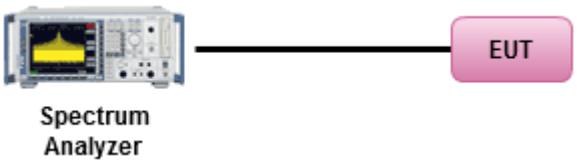
3.2.2 Measuring Instruments

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 8.1 Option 1 for 6 dB bandwidth measurement.
	☐ Refer as KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
	☐ 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 A

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 9.1.1 Option 1 (RBW ≥ EBW method).
	☐ Refer as KDB 558074, clause 9.1.2 Option 2 (integrated band power method)
	☐ Refer as KDB 558074, clause 9.1.3 Option 3 (peak power meter for VBW ≥ DTS BW)
▪ Maximum Average Conducted Output Power	
	Duty cycle ≥ 98%
	☐ Refer as KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
	Duty cycle < 98%
	☐ Refer as KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
	RF power meter and average over on/off periods with duty factor or gated trigger
	☒ Refer as KDB 558074, clause 9.2.3.1 Method AVGPM (using an RF average 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 B

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

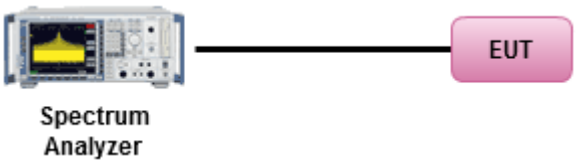
3.4.2 Measuring Instruments

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 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak).	
▪ 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 C

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 PSD 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 PSD level.

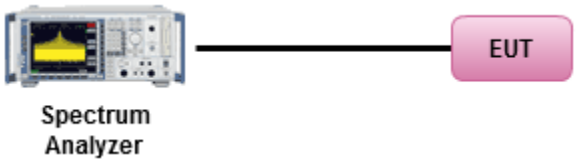
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
▪ Refer as KDB 558074, clause 11 for unwanted emissions into non-restricted 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 D

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.

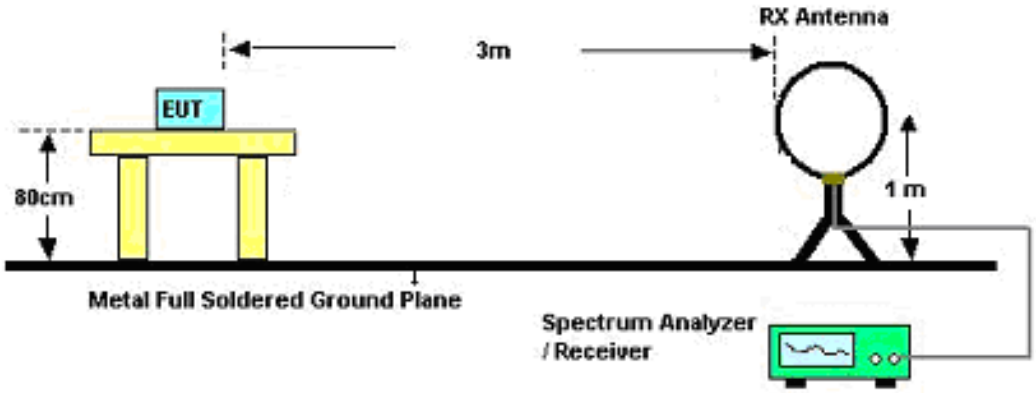
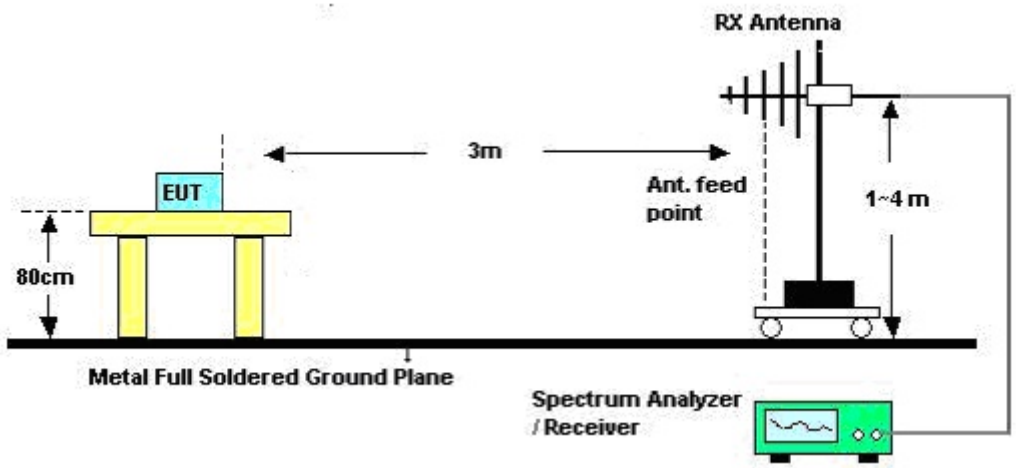
3.6.2 Measuring Instruments

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

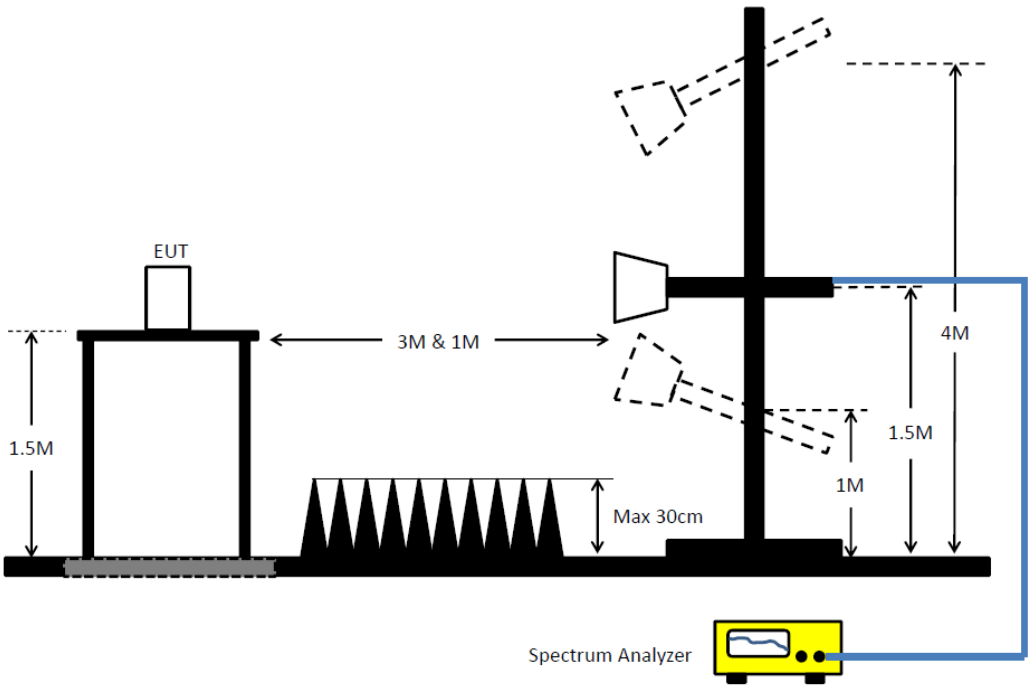
3.6.3 Test Procedures

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 12 for unwanted emissions into restricted bands.
☒ Refer as KDB 558074, clause 12.2.5.3 (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW≥1/T.
☒ Refer as KDB 558074, clause 12.2.4 measurement procedure peak limit.
▪ For the transmitter band-edge emissions shall be measured using following options below:
▪ Refer as KDB 558074 clause 13.1, 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 13.2 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
▪ Refer as KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
▪ For conducted and cabinet radiation measurement, refer as KDB 558074, clause 12.2.2.
▪ For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
▪ For KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

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 E

4 Test Equipment and Calibration Data

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSP40	100305	9KHz - 40GHz	12/Dec/2017	11/Dec/2018
3m Semi Anechoic	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz-1GHz	20/Oct/2017	19/Oct/2018
3m Semi Anechoic	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz ~ 18GHz	27/Oct/2017	26/Oct/2018
Amplifier	Ketsight	8449B	3008A02602	1GHz-26.5GHz	19/Sep/2017	18/Sep/2018
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA9120D 01531	1GHz-18GHz	11/May/2017	10/May/2018
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA 9170221	18GHz-40GHz	10/Mar/2017	09/Mar/2018
Bilog Antenna	SCHAFFNER	CBL6112B	2723	30MHz-1GHz	09/Sep/2017	08/Sep/2018
Amplifier	MITEQ	JS44-18004000-33-8P	1840917	18GHz-40GHz	06/Feb/2017	05/Feb/2018
RF Cable-high	SUHNER	SUCOFLEX104	MY34918/4	1GHz ~ 40GHz	19/Jan/2018	18/Jan/2019
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	19/Jan/2018	18/Jan/2019
Receiver	R&S	ESU3	102052	9kHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
Loop Antenna	TESEQ	HLA 6120	31244	9KHz-30MHz	02/Mar/2017	01/Mar/2018

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	30/Dec/2016	29/Dec/2017
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	21/Jul/2016	20/Jul/2017
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY677/3	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY678/3	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10717/4	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	710k	1.069M	1M07F1D	696.25k	1.057M

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;

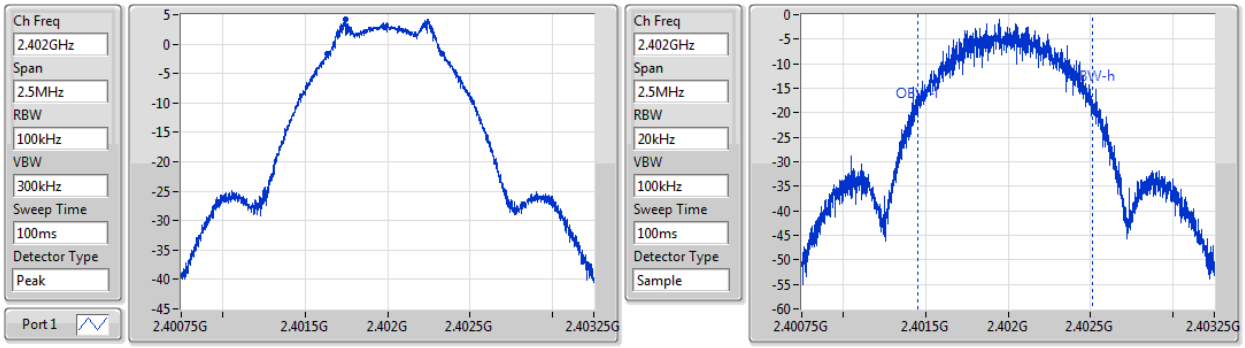
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	696.25k	1.057M
2440MHz	Pass	500k	710k	1.057M
2480MHz	Pass	500k	706.25k	1.069M

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

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

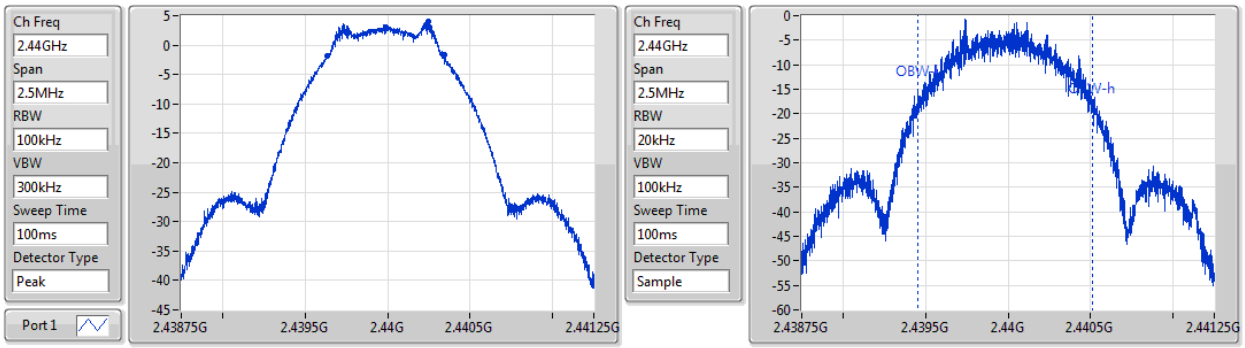
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
696.25k	2.401638G	2.402334G	1.057M	2.401454G	2.402511G	500k	1

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

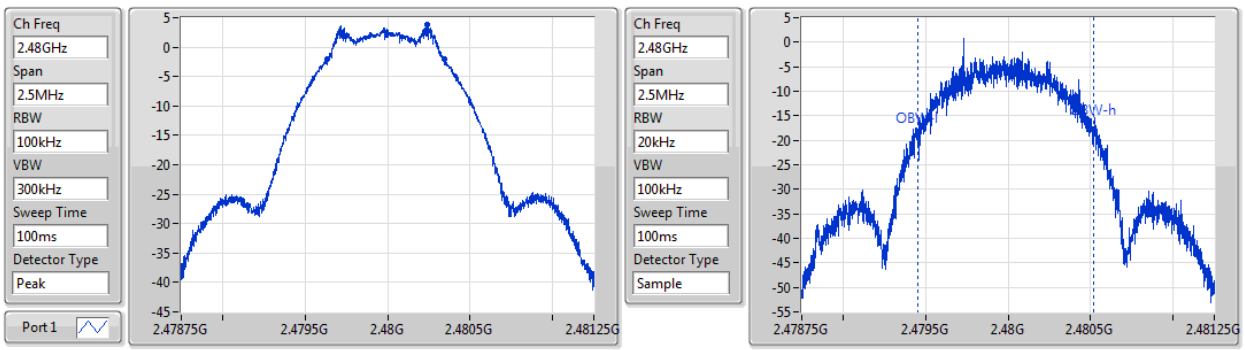
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
710k	2.439631G	2.440341G	1.057M	2.439457G	2.440513G	500k	1

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

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
706.25k	2.479636G	2.480343G	1.069M	2.479453G	2.480522G	500k	1

Summary

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	4.89	0.00308

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.74	4.89	29.26
2440MHz	Pass	6.74	4.63	29.26
2480MHz	Pass	6.74	4.35	29.26

Summary

Mode	PD (dBm/RBW)
BT-LE(1Mbps)	-
2.4-2.4835GHz	-8.17

RBW=3kHz.

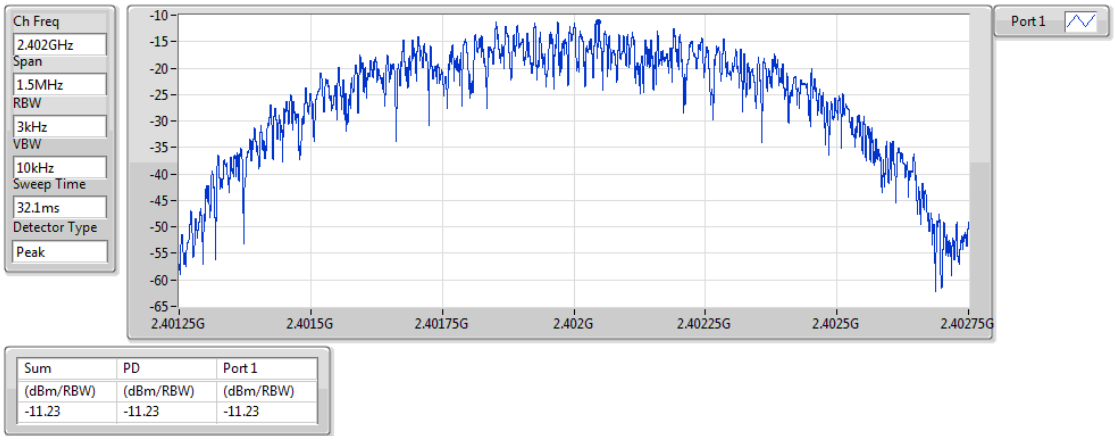
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	6.74	-11.23	7.26
2440MHz	Pass	6.74	-11.49	7.26
2480MHz	Pass	6.74	-8.17	7.26

RBW=3kHz.

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

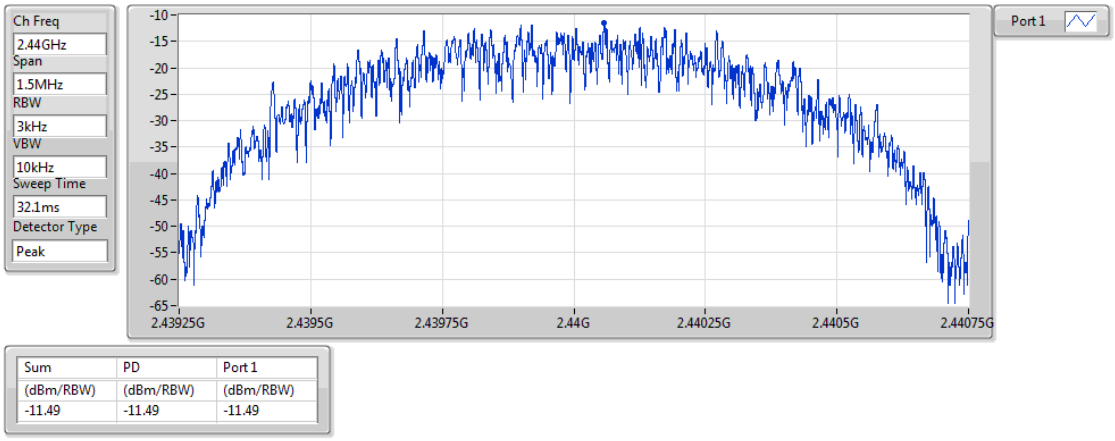
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.23	-11.23	-11.23

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

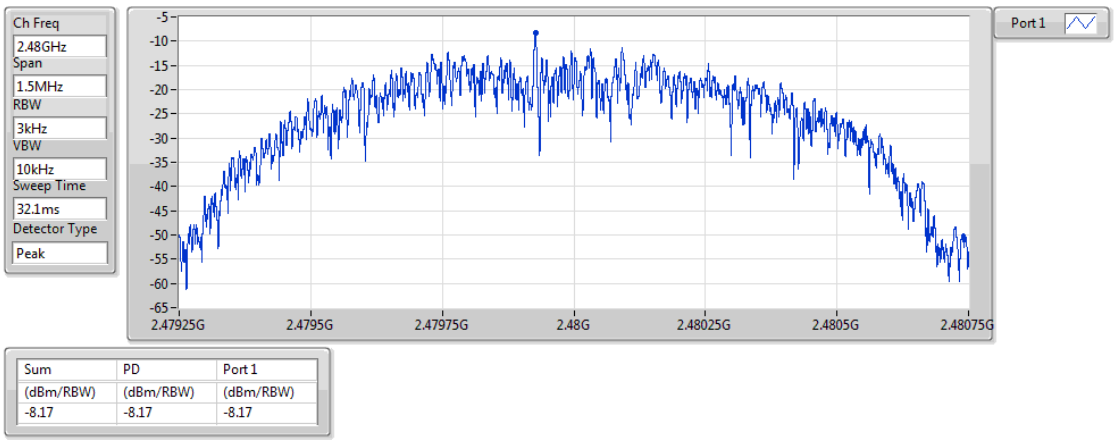
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.49	-11.49	-11.49

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

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.17	-8.17	-8.17

Summary

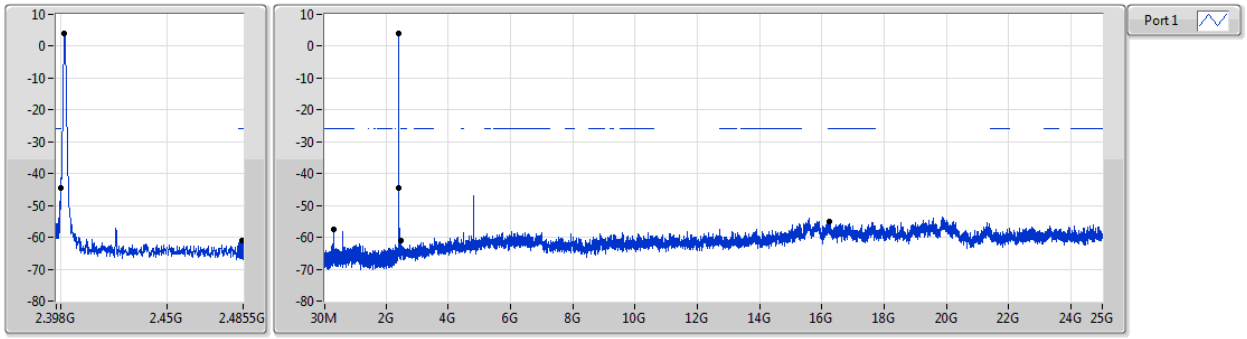
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.401837G	4.10	-25.90	299.952M	-57.59	2.399992G	-44.56	2.484996G	-61.13	16.216531G	-55.11	1

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	Pass	2.401837G	4.10	-25.90	299.952M	-57.59	2.399992G	-44.56	2.484996G	-61.13	16.216531G	-55.11	1
2440MHz	Pass	2.401837G	4.10	-25.90	304.688M	-57.42	2.398136G	-60.85	2.484288G	-60.75	15.183678G	-55.45	1
2480MHz	Pass	2.401837G	4.10	-25.90	309.424M	-56.29	2.39944G	-61.11	2.483548G	-55.20	17.643387G	-53.90	1

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

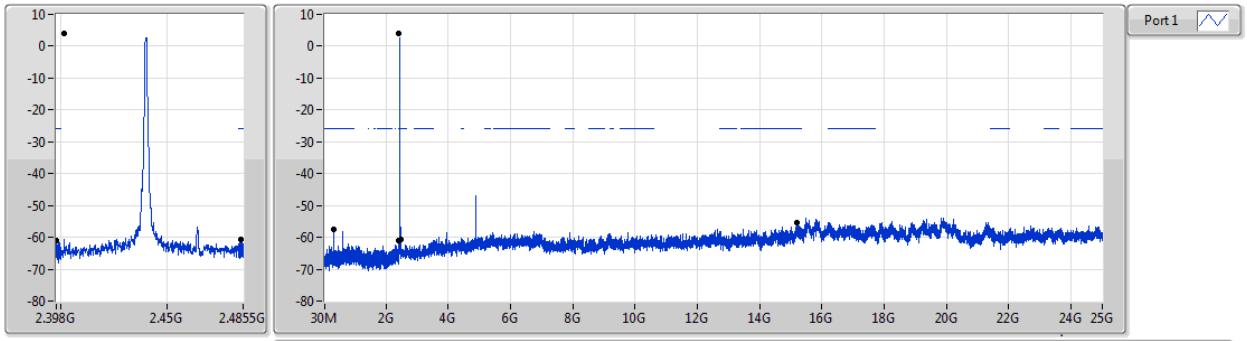
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.401837G	4.10	-25.90	299.952M	-57.59	2.399992G	-44.56	2.484996G	-61.13	16.216531G	-55.11	1

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

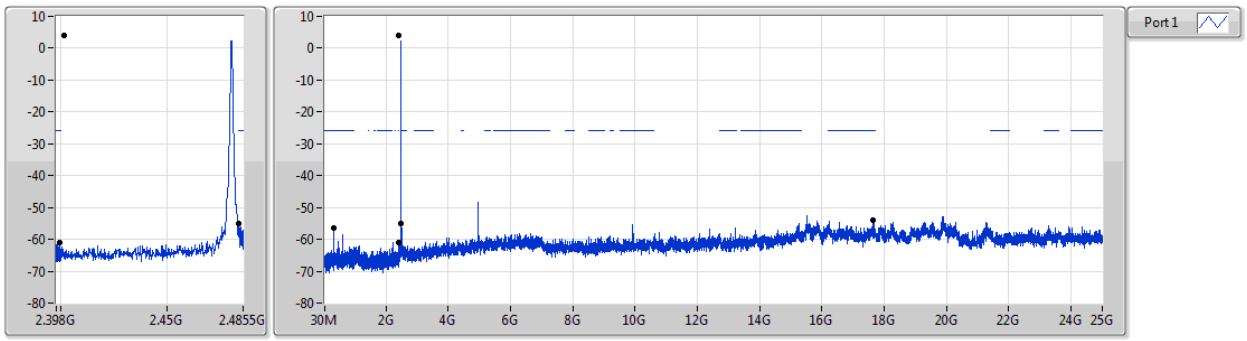
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.401837G	4.10	-25.90	304.688M	-57.42	2.398136G	-60.85	2.484288G	-60.75	15.183678G	-55.45	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
2.401837G	4.10	-25.90	309.424M	-56.29	2.39944G	-61.11	2.483548G	-55.20	17.643387G	-53.90	1

Summary

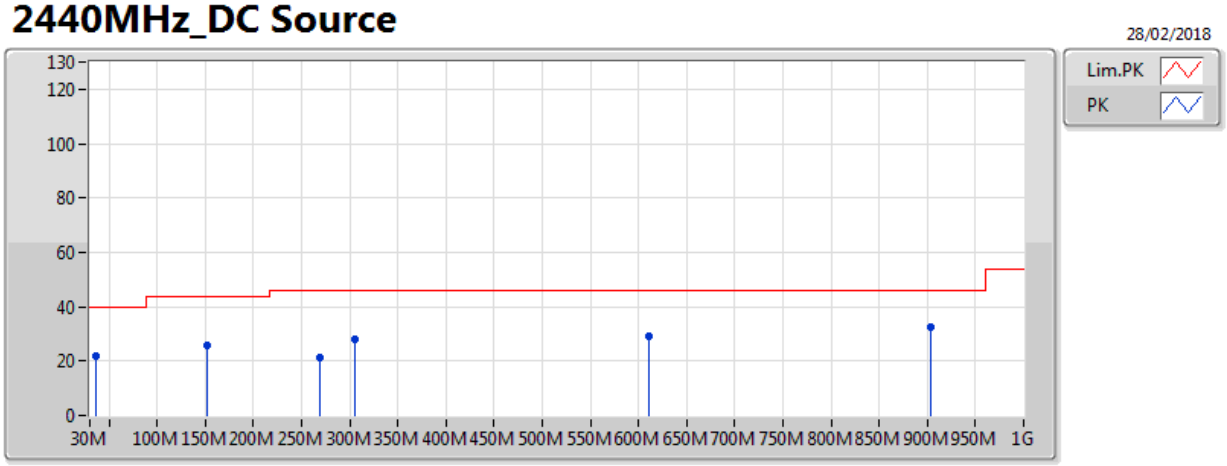
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	903M	32.75	46.00	-13.25	2.86	3	Vertical	360	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	35.82M	21.23	40.00	-18.77	-5.85	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	152.22M	22.08	43.50	-21.42	-9.73	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	220.12M	30.51	46.00	-15.49	-9.93	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	305.48M	30.64	46.00	-15.36	-5.68	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	730.34M	31.58	46.00	-14.42	1.11	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	883.6M	31.12	46.00	-14.88	2.68	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	35.82M	21.84	40.00	-18.16	-5.85	3	Vertical	360	1.00	-
2440MHz	Pass	PK	152.22M	25.68	43.50	-17.82	-9.73	3	Vertical	360	1.00	-
2440MHz	Pass	PK	268.62M	21.36	46.00	-24.64	-6.14	3	Vertical	360	1.00	-
2440MHz	Pass	PK	305.48M	28.27	46.00	-17.73	-5.68	3	Vertical	360	1.00	-
2440MHz	Pass	PK	610.06M	28.86	46.00	-17.14	-0.34	3	Vertical	360	1.00	-
2440MHz	Pass	PK	903M	32.75	46.00	-13.25	2.86	3	Vertical	360	1.00	-

BT-LE(1Mbps)

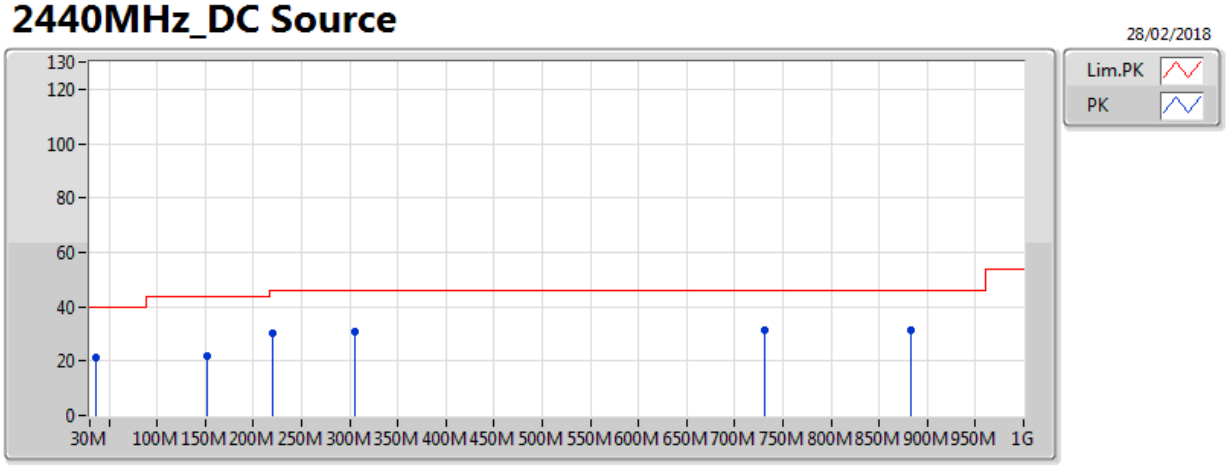
2440MHz_DC Source



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	35.82M	21.84	40.00	-18.16	-5.85	3	Vertical	360	1.00	-	27.69	19.92	1.81	27.57
PK	152.22M	25.68	43.50	-17.82	-9.73	3	Vertical	360	1.00	-	35.41	15.28	2.12	27.13
PK	268.62M	21.36	46.00	-24.64	-6.14	3	Vertical	360	1.00	-	27.50	18.14	2.47	26.75
PK	305.48M	28.27	46.00	-17.73	-5.68	3	Vertical	360	1.00	-	33.95	18.57	2.46	26.71
PK	610.06M	28.86	46.00	-17.14	-0.34	3	Vertical	360	1.00	-	29.20	23.84	3.81	27.99
PK	903M	32.75	46.00	-13.25	2.86	3	Vertical	360	1.00	-	29.89	25.55	4.79	27.49

BT-LE(1Mbps)

2440MHz_DC Source



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	35.82M	21.23	40.00	-18.77	-5.85	3	Horizontal	0	1.00	-	27.08	19.92	1.81	27.57
PK	152.22M	22.08	43.50	-21.42	-9.73	3	Horizontal	0	1.00	-	31.81	15.28	2.12	27.13
PK	220.12M	30.51	46.00	-15.49	-9.93	3	Horizontal	0	1.00	-	40.44	14.37	2.56	26.86
PK	305.48M	30.64	46.00	-15.36	-5.68	3	Horizontal	0	1.00	-	36.32	18.57	2.46	26.71
PK	730.34M	31.58	46.00	-14.42	1.11	3	Horizontal	0	1.00	-	30.47	24.73	4.27	27.89
PK	883.6M	31.12	46.00	-14.88	2.68	3	Horizontal	0	1.00	-	28.44	25.49	4.72	27.54

Summary

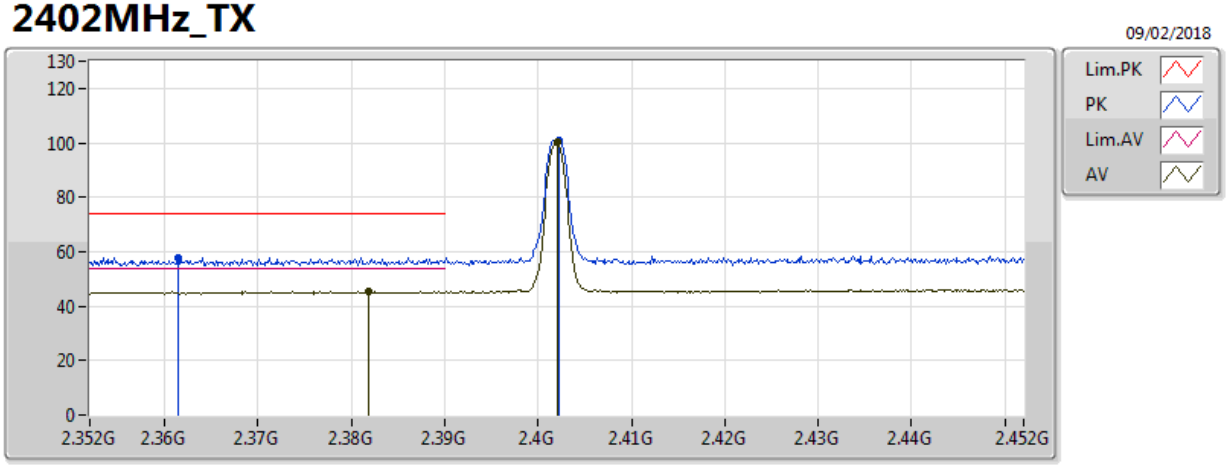
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	4.803942G	50.03	54.00	-3.97	5.85	3	Vertical	111	2.46	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.36229G	45.19	54.00	-8.81	30.36	3	Horizontal	357	1.64	-
2402MHz	Pass	AV	2.402G	89.77	Inf	-Inf	30.50	3	Horizontal	357	1.64	-
2402MHz	Pass	PK	2.377507G	57.74	74.00	-16.26	30.41	3	Horizontal	357	1.64	-
2402MHz	Pass	PK	2.40171G	90.66	Inf	-Inf	30.50	3	Horizontal	357	1.64	-
2402MHz	Pass	AV	2.381855G	45.35	54.00	-8.65	30.43	3	Vertical	355	1.94	-
2402MHz	Pass	AV	2.402G	100.25	Inf	-Inf	30.50	3	Vertical	355	1.94	-
2402MHz	Pass	PK	2.36142G	57.83	74.00	-16.17	30.35	3	Vertical	355	1.94	-
2402MHz	Pass	PK	2.40229G	101.00	Inf	-Inf	30.50	3	Vertical	355	1.94	-
2402MHz	Pass	AV	4.804G	49.52	54.00	-4.48	5.85	3	Horizontal	37	1.03	-
2402MHz	Pass	PK	4.80345G	55.22	74.00	-18.78	5.85	3	Horizontal	37	1.03	-
2402MHz	Pass	AV	4.803942G	50.03	54.00	-3.97	5.85	3	Vertical	111	2.46	-
2402MHz	Pass	PK	4.803508G	55.92	74.00	-18.08	5.85	3	Vertical	111	2.46	-
2440MHz	Pass	AV	2.3892G	44.34	54.00	-9.66	30.93	3	Horizontal	18	2.15	-
2440MHz	Pass	AV	2.44G	91.58	Inf	-Inf	31.11	3	Horizontal	18	2.15	-
2440MHz	Pass	AV	2.499998G	45.03	54.00	-8.97	31.33	3	Horizontal	18	2.15	-
2440MHz	Pass	PK	2.3496G	54.88	74.00	-19.12	30.79	3	Horizontal	18	2.15	-
2440MHz	Pass	PK	2.44G	92.11	Inf	-Inf	31.11	3	Horizontal	18	2.15	-
2440MHz	Pass	PK	2.4964G	55.87	74.00	-18.13	31.32	3	Horizontal	18	2.15	-
2440MHz	Pass	AV	2.3888G	44.27	54.00	-9.73	30.93	3	Vertical	36	2.10	-
2440MHz	Pass	AV	2.44G	99.29	Inf	-Inf	31.11	3	Vertical	36	2.10	-
2440MHz	Pass	AV	2.4856G	45.03	54.00	-8.97	31.28	3	Vertical	36	2.10	-
2440MHz	Pass	PK	2.3516G	55.35	74.00	-18.65	30.80	3	Vertical	36	2.10	-
2440MHz	Pass	PK	2.44G	100.83	Inf	-Inf	31.11	3	Vertical	36	2.10	-
2440MHz	Pass	PK	2.498G	56.00	74.00	-18.00	31.32	3	Vertical	36	2.10	-
2440MHz	Pass	AV	4.88G	45.89	54.00	-8.11	2.28	3	Horizontal	40	1.64	-
2440MHz	Pass	PK	4.88044G	53.21	74.00	-20.79	2.28	3	Horizontal	40	1.64	-
2440MHz	Pass	AV	4.88004G	42.04	54.00	-11.96	2.28	3	Vertical	190	1.59	-
2440MHz	Pass	PK	4.88048G	49.87	74.00	-24.13	2.28	3	Vertical	190	1.59	-
2480MHz	Pass	AV	2.48G	86.68	Inf	-Inf	31.26	3	Horizontal	98	1.52	-
2480MHz	Pass	AV	2.4958G	43.74	54.00	-10.26	31.32	3	Horizontal	98	1.52	-
2480MHz	Pass	PK	2.48G	87.94	Inf	-Inf	31.26	3	Horizontal	98	1.52	-
2480MHz	Pass	PK	2.4954G	55.10	74.00	-18.90	31.32	3	Horizontal	98	1.52	-
2480MHz	Pass	AV	2.48G	99.16	Inf	-Inf	32.79	3	Vertical	33	1.80	-
2480MHz	Pass	AV	2.483502G	46.48	54.00	-7.52	32.81	3	Vertical	33	1.80	-
2480MHz	Pass	PK	2.48G	100.34	Inf	-Inf	32.79	3	Vertical	33	1.80	-
2480MHz	Pass	PK	2.499G	56.53	74.00	-17.47	32.87	3	Vertical	33	1.80	-
2480MHz	Pass	AV	4.96004G	45.31	54.00	-8.69	2.53	3	Horizontal	47	1.74	-
2480MHz	Pass	PK	4.95942G	52.62	74.00	-21.38	2.52	3	Horizontal	47	1.74	-
2480MHz	Pass	AV	4.95998G	40.47	54.00	-13.53	2.53	3	Vertical	193	1.78	-
2480MHz	Pass	PK	4.96048G	49.47	74.00	-24.53	2.53	3	Vertical	193	1.78	-

BT-LE(1Mbps)

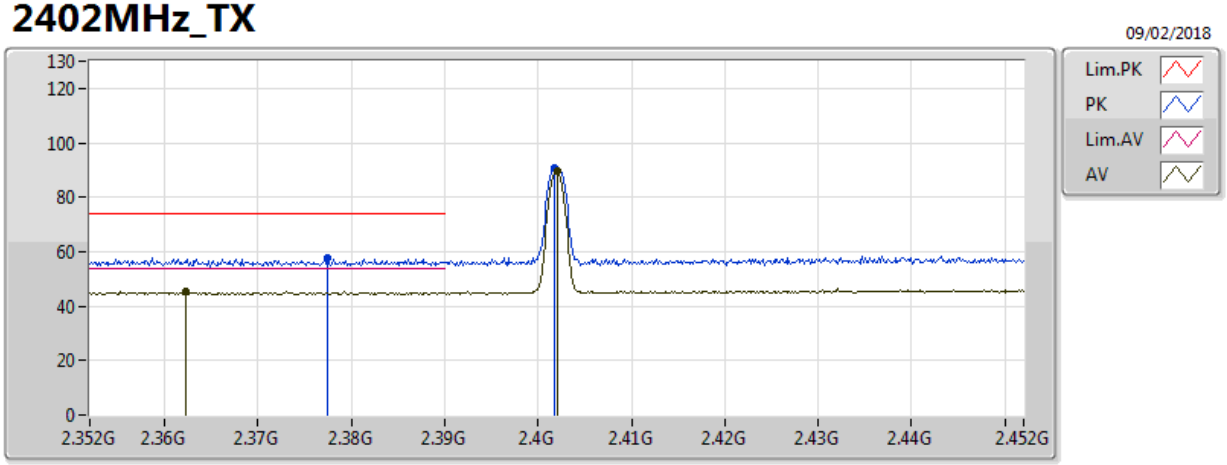
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.381855G	45.35	54.00	-8.65	30.43	3	Vertical	355	1.94	-	14.93	27.19	3.23	-
AV	2.402G	100.25	Inf	-Inf	30.50	3	Vertical	355	1.94	-	69.75	27.25	3.25	-
PK	2.36142G	57.83	74.00	-16.17	30.35	3	Vertical	355	1.94	-	27.48	27.14	3.22	-
PK	2.40229G	101.00	Inf	-Inf	30.50	3	Vertical	355	1.94	-	70.50	27.25	3.25	-

BT-LE(1Mbps)

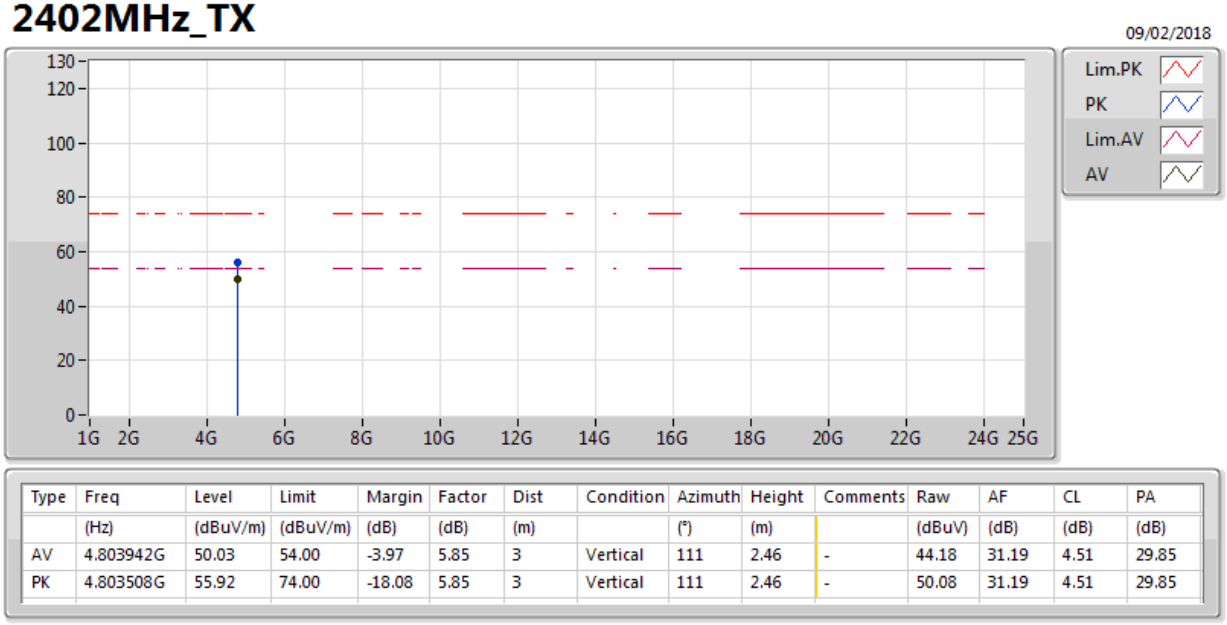
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.36229G	45.19	54.00	-8.81	30.36	3	Horizontal	357	1.64	-	14.83	27.14	3.22	-
AV	2.402G	89.77	Inf	-Inf	30.50	3	Horizontal	357	1.64	-	59.27	27.25	3.25	-
PK	2.377507G	57.74	74.00	-16.26	30.41	3	Horizontal	357	1.64	-	27.32	27.18	3.23	-
PK	2.40171G	90.66	Inf	-Inf	30.50	3	Horizontal	357	1.64	-	60.16	27.24	3.25	-

BT-LE(1Mbps)

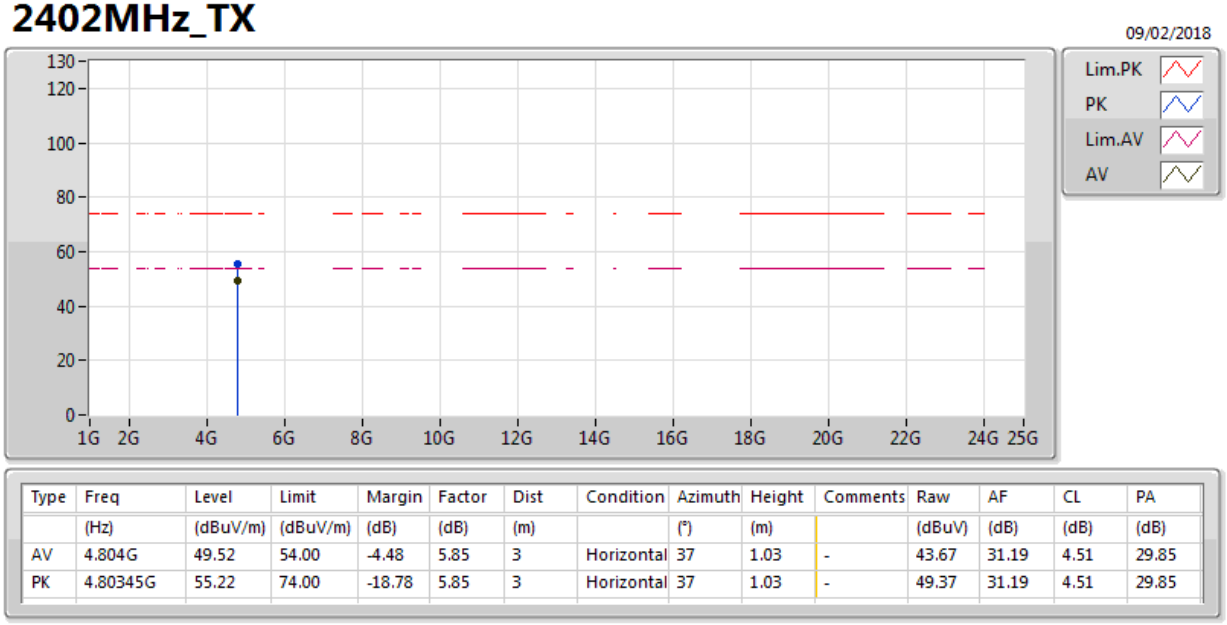
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.803942G	50.03	54.00	-3.97	5.85	3	Vertical	111	2.46	-	44.18	31.19	4.51	29.85
PK	4.803508G	55.92	74.00	-18.08	5.85	3	Vertical	111	2.46	-	50.08	31.19	4.51	29.85

BT-LE(1Mbps)

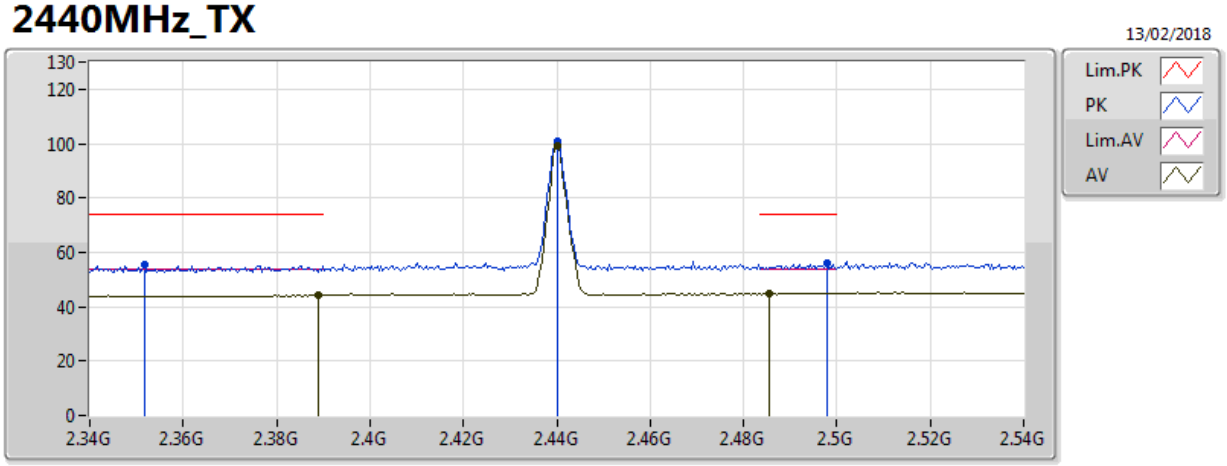
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.804G	49.52	54.00	-4.48	5.85	3	Horizontal	37	1.03	-	43.67	31.19	4.51	29.85
PK	4.80345G	55.22	74.00	-18.78	5.85	3	Horizontal	37	1.03	-	49.37	31.19	4.51	29.85

BT-LE(1Mbps)

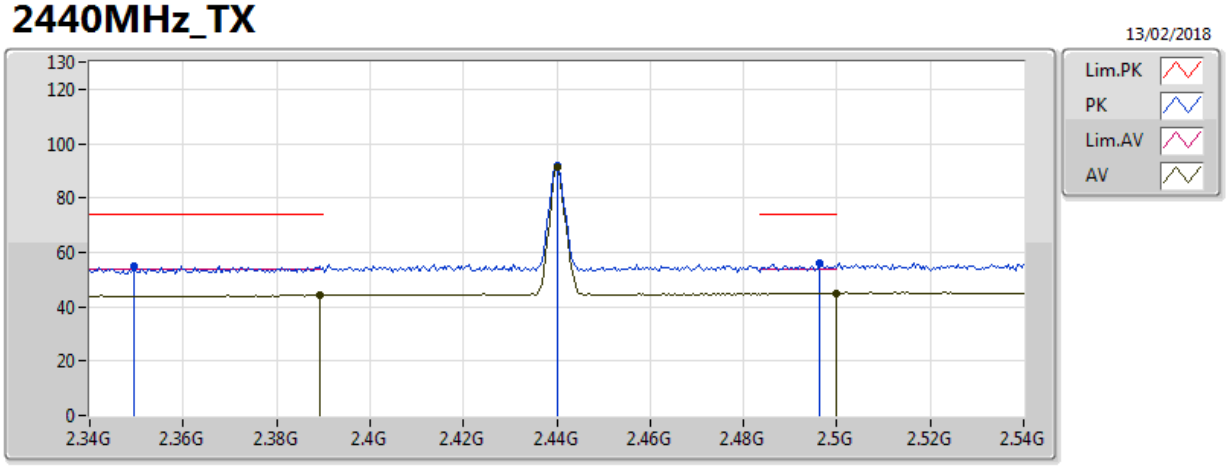
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3888G	44.27	54.00	-9.73	30.93	3	Vertical	36	2.10	-	13.34	27.31	3.62	-
AV	2.44G	99.29	Inf	-Inf	31.11	3	Vertical	36	2.10	-	68.18	27.44	3.67	-
AV	2.4856G	45.03	54.00	-8.97	31.28	3	Vertical	36	2.10	-	13.75	27.56	3.72	-
PK	2.3516G	55.35	74.00	-18.65	30.80	3	Vertical	36	2.10	-	24.55	27.21	3.59	-
PK	2.44G	100.83	Inf	-Inf	31.11	3	Vertical	36	2.10	-	69.72	27.44	3.67	-
PK	2.498G	56.00	74.00	-18.00	31.32	3	Vertical	36	2.10	-	24.68	27.59	3.73	-

BT-LE(1Mbps)

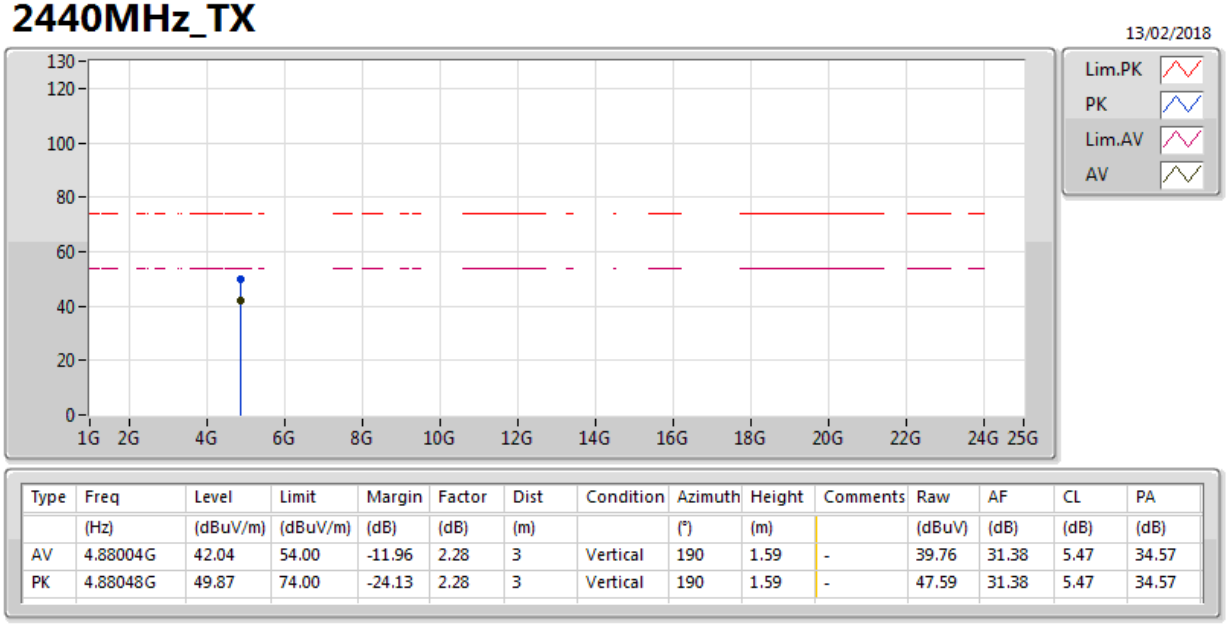
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3892G	44.34	54.00	-9.66	30.93	3	Horizontal	18	2.15	-	13.41	27.31	3.62	-
AV	2.44G	91.58	Inf	-Inf	31.11	3	Horizontal	18	2.15	-	60.47	27.44	3.67	-
AV	2.499998G	45.03	54.00	-8.97	31.33	3	Horizontal	18	2.15	-	13.70	27.60	3.73	-
PK	2.3496G	54.88	74.00	-19.12	30.79	3	Horizontal	18	2.15	-	24.09	27.21	3.58	-
PK	2.44G	92.11	Inf	-Inf	31.11	3	Horizontal	18	2.15	-	61.00	27.44	3.67	-
PK	2.4964G	55.87	74.00	-18.13	31.32	3	Horizontal	18	2.15	-	24.55	27.59	3.73	-

BT-LE(1Mbps)

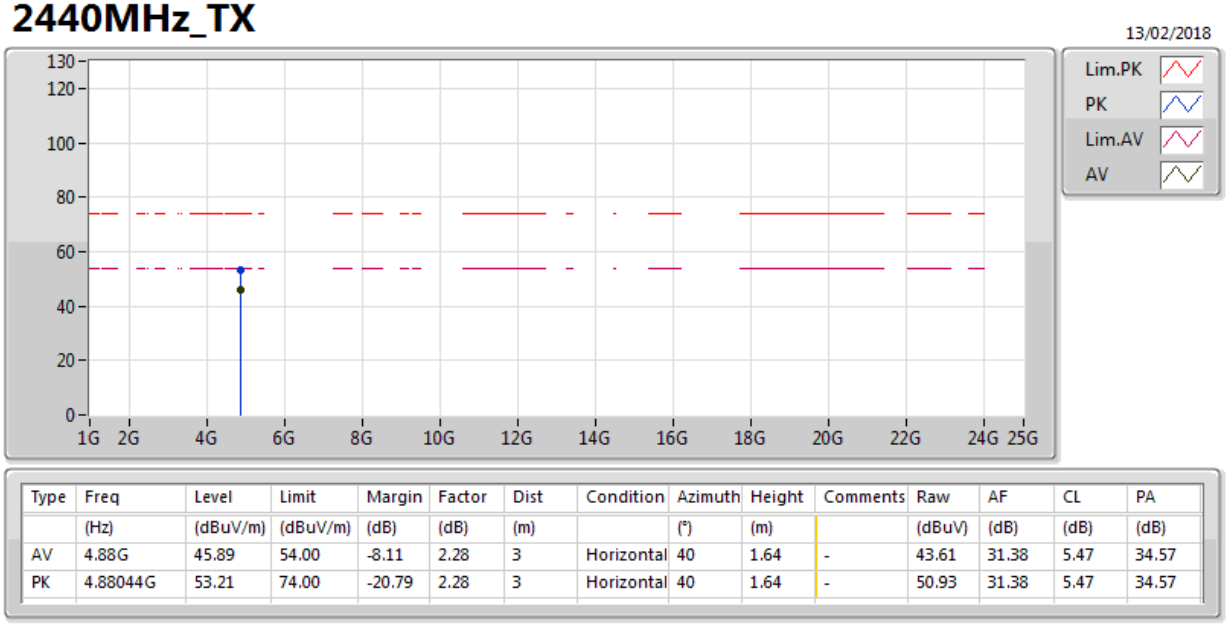
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.88004G	42.04	54.00	-11.96	2.28	3	Vertical	190	1.59	-	39.76	31.38	5.47	34.57
PK	4.88048G	49.87	74.00	-24.13	2.28	3	Vertical	190	1.59	-	47.59	31.38	5.47	34.57

BT-LE(1Mbps)

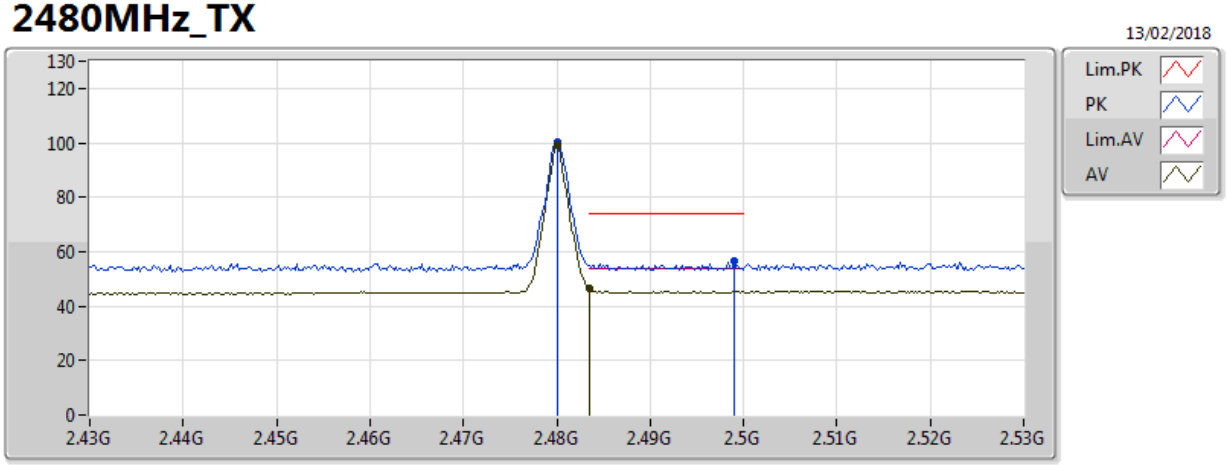
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.88G	45.89	54.00	-8.11	2.28	3	Horizontal	40	1.64	-	43.61	31.38	5.47	34.57
PK	4.88044G	53.21	74.00	-20.79	2.28	3	Horizontal	40	1.64	-	50.93	31.38	5.47	34.57

BT-LE(1Mbps)

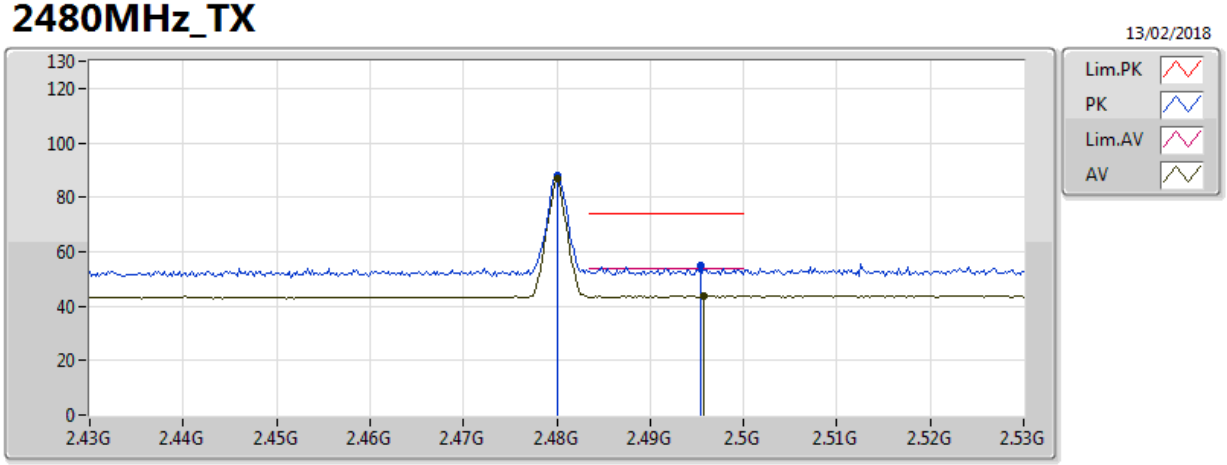
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	99.16	Inf	-Inf	32.79	3	Vertical	33	1.80	-	66.37	27.55	5.25	-
AV	2.483502G	46.48	54.00	-7.52	32.81	3	Vertical	33	1.80	-	13.67	27.56	5.25	-
PK	2.48G	100.34	Inf	-Inf	32.79	3	Vertical	33	1.80	-	67.55	27.55	5.25	-
PK	2.499G	56.53	74.00	-17.47	32.87	3	Vertical	33	1.80	-	23.66	27.60	5.27	-

BT-LE(1Mbps)

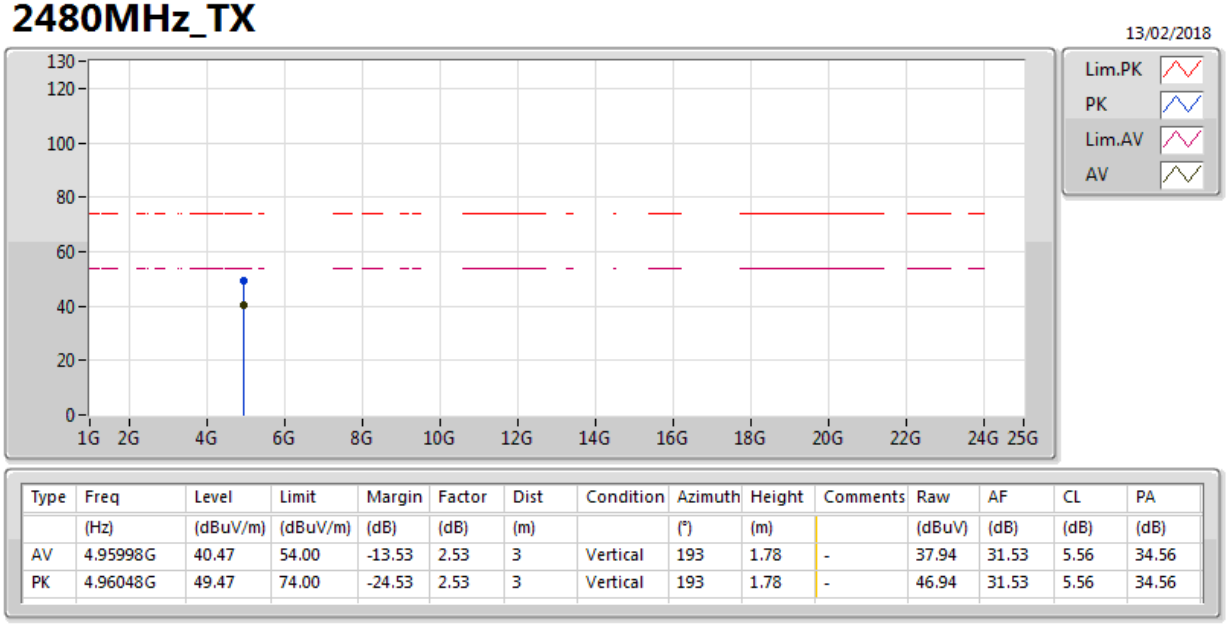
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	86.68	Inf	-Inf	31.26	3	Horizontal	98	1.52	-	55.42	27.55	3.71	-
AV	2.4958G	43.74	54.00	-10.26	31.32	3	Horizontal	98	1.52	-	12.42	27.59	3.73	-
PK	2.48G	87.94	Inf	-Inf	31.26	3	Horizontal	98	1.52	-	56.68	27.55	3.71	-
PK	2.4954G	55.10	74.00	-18.90	31.32	3	Horizontal	98	1.52	-	23.78	27.59	3.73	-

BT-LE(1Mbps)

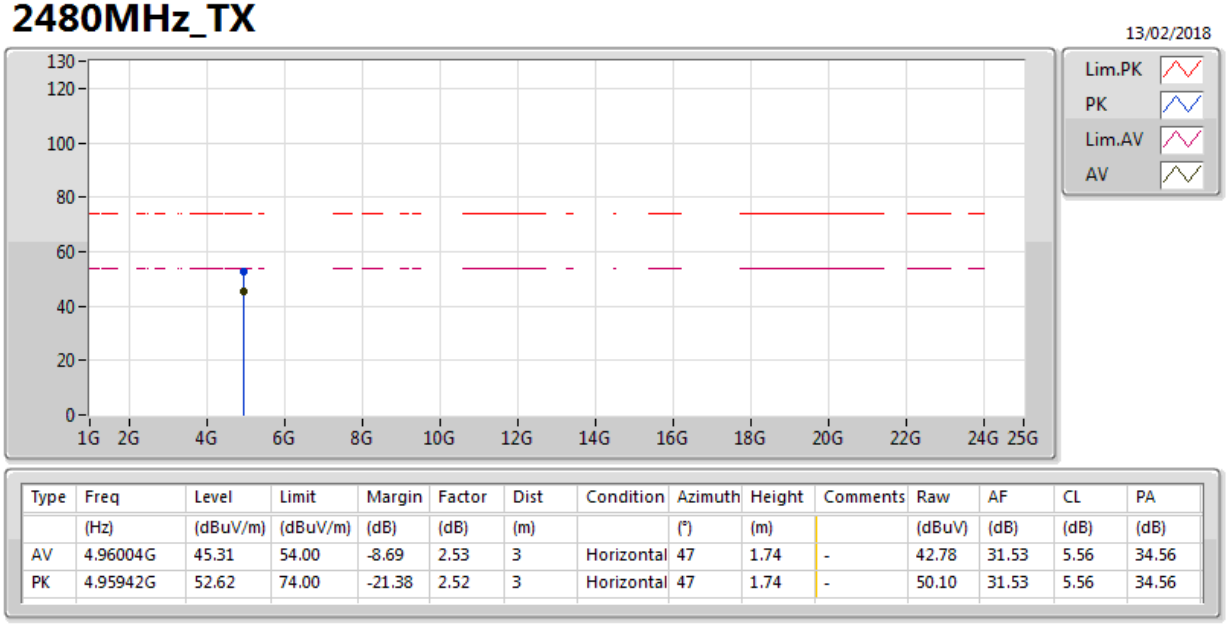
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95998G	40.47	54.00	-13.53	2.53	3	Vertical	193	1.78	-	37.94	31.53	5.56	34.56
PK	4.96048G	49.47	74.00	-24.53	2.53	3	Vertical	193	1.78	-	46.94	31.53	5.56	34.56

BT-LE(1Mbps)

2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.96004G	45.31	54.00	-8.69	2.53	3	Horizontal	47	1.74	-	42.78	31.53	5.56	34.56
PK	4.95942G	52.62	74.00	-21.38	2.52	3	Horizontal	47	1.74	-	50.10	31.53	5.56	34.56