FCC Test Report

FCC ID	:	**2AEIM-1133148**
Equipment	:	**Car Key Fob with BLE**
Brand Name	:	**Tesla**
Model Name	:	**1133148**
Applicant / Manufacturer	:	**Tesla Motors, Inc. 3500 Deer Creek Road Palo Alto, California US 94304 United States Of America**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Jul. 06, 2018, and testing was started from Jul. 06, 2018 and completed on Jul. 06, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR862918-03AL	01	Initial issue of report	Jun. 03, 2019

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	Not Required	FCC 15.203
3.1	15.207	AC Power-line Conducted Emissions	PASS	FCC 15.207
3.2	15.247(a)	DTS Bandwidth	PASS	≥500kHz
3.3	15.247(b)	Maximum Conducted Output Power	PASS	Power [dBm]:30
3.4	15.247(e)	Power Spectral Density	PASS	PSD [dBm/3kHz]:8
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	Non-Restricted Bands: >30 dBc
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: FCC 15.209

Reviewed by: Sam Chen

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

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	3.8

For BT function:

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

1.1.3 EUT Information

Operational Condition				
EUT Power Type	From DC power supply / Battery			
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	n/a (DC>=0.98)	n/a (DC>=0.98)

1.1.5 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR862918AL

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
1. NFC Tag chip is changed (A7005 tag chip change to A9007 tag chip)	N/A for BT
2. Add a second layout	Radiated Spurious Emission for below 1G was evaluated.

1.2 Testing Applied Standards

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

- 47 CFR FCC Part 15
- ANSI C63.10-2013
- KDB 558074 D01 v05r02

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	TH01-HY	Andy Lee	23.5°C / 65%	06/Jul/2018
Radiated	03CH03-HY	Jeff Lin	24.2°C / 56%	06/Jul/2018

1.4 Measurement Uncertainty

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

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

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	3V

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

2.4 Support Equipment

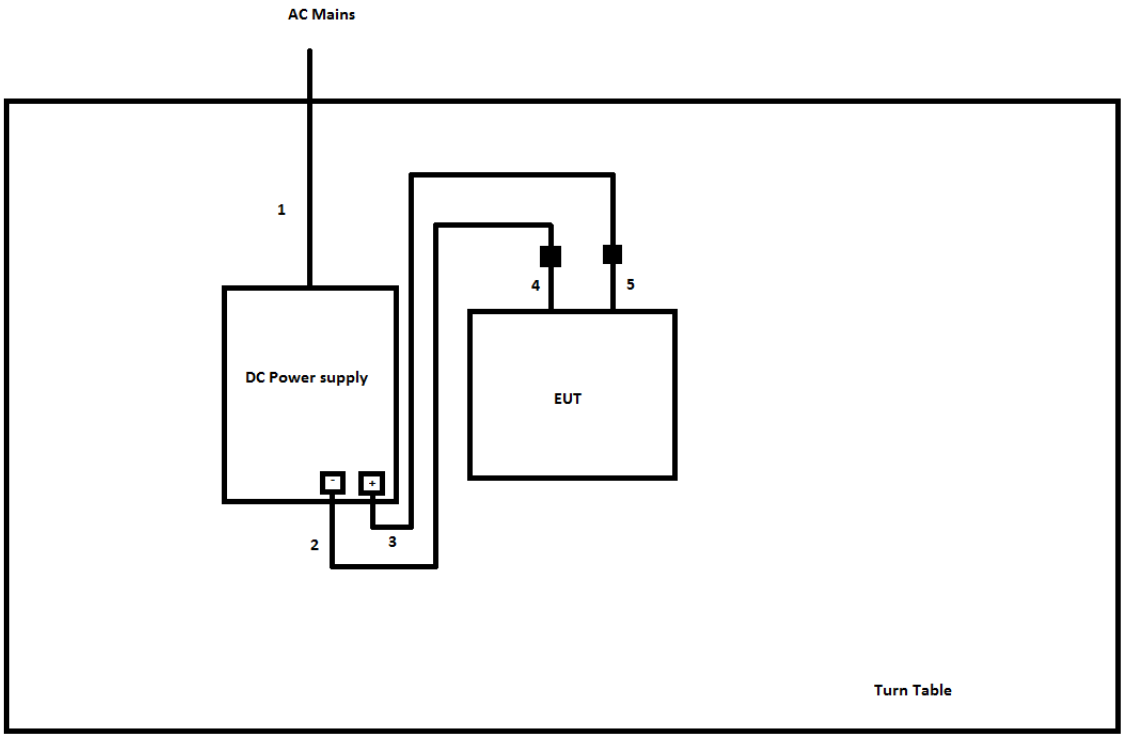
Support Equipment – RF Conducted				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	DC power supply	G.W	GPS-3030DD	-
2	Notebook	HP	TPN-W111	PD97260NG
3	Adapter for NB	HP	TPN-DA03	-
4	Fixture	-	-	-

Note: Support equipment No.2~4 was provided by customer.

Support Equipment – Radiated Emission				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	DC power supply	G.W	GPS-3030DD	-

2.5 Test Setup Diagram

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	AC Power line	No	1.5m
2	DC Power line	No	1.0m
3	DC Power line	No	1.0m
4	DC Power line	No	0.2m
5	DC Power line	No	0.2m

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

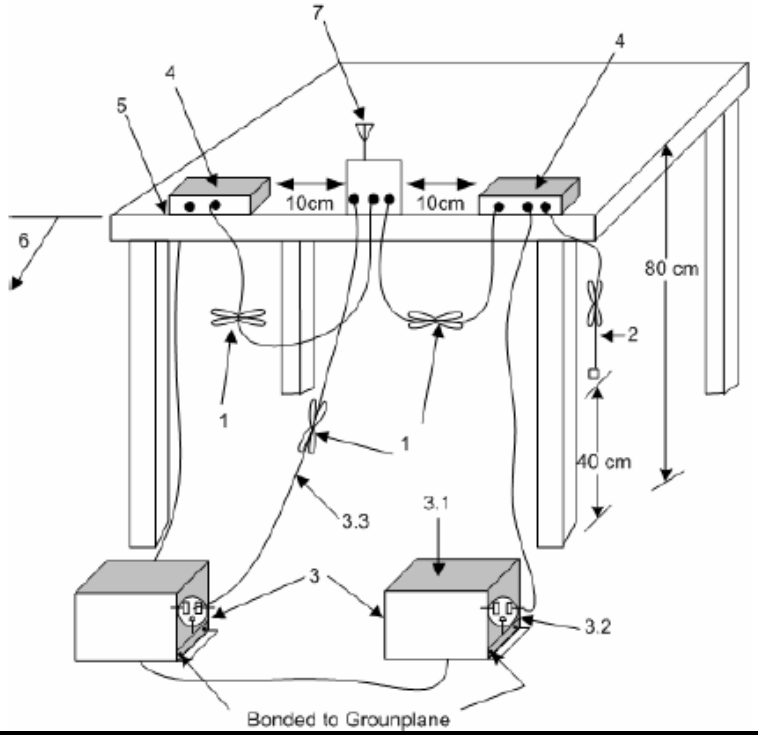
Refer a test equipment and calibration data table in this test report.

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.

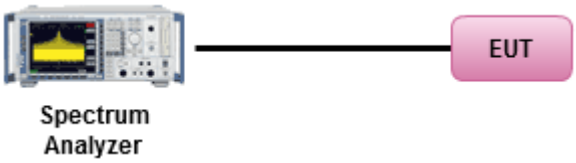
3.2.2 Measuring Instruments

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 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 A

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

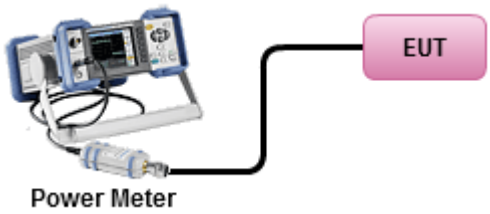
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
▪ Maximum Peak Conducted Output Power	
	☐ Refer as KDB 558074, clause 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

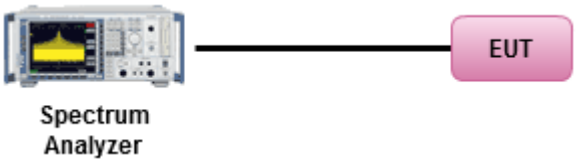
3.4.2 Measuring Instruments

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.	

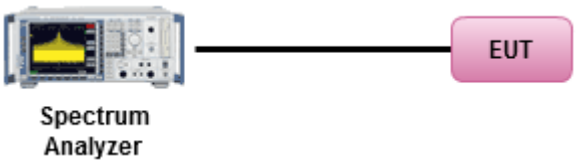
3.5.2 Measuring Instruments

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.

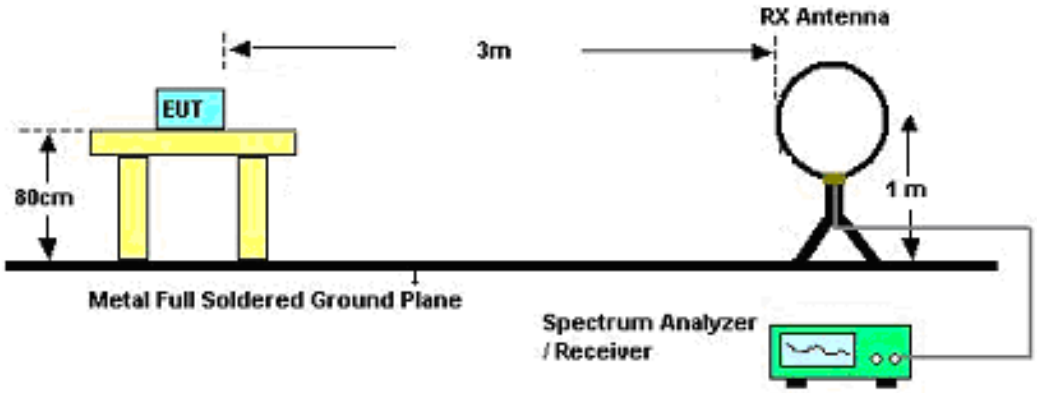
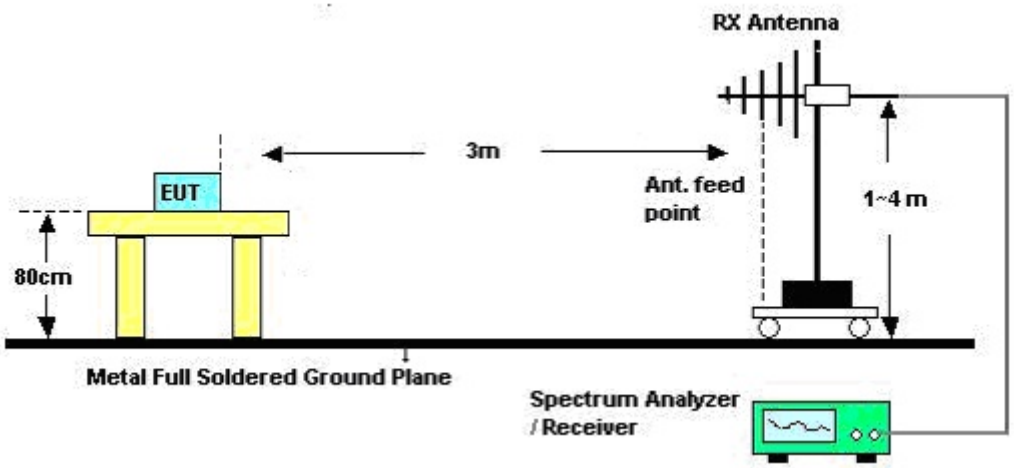
3.6.2 Measuring Instruments

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

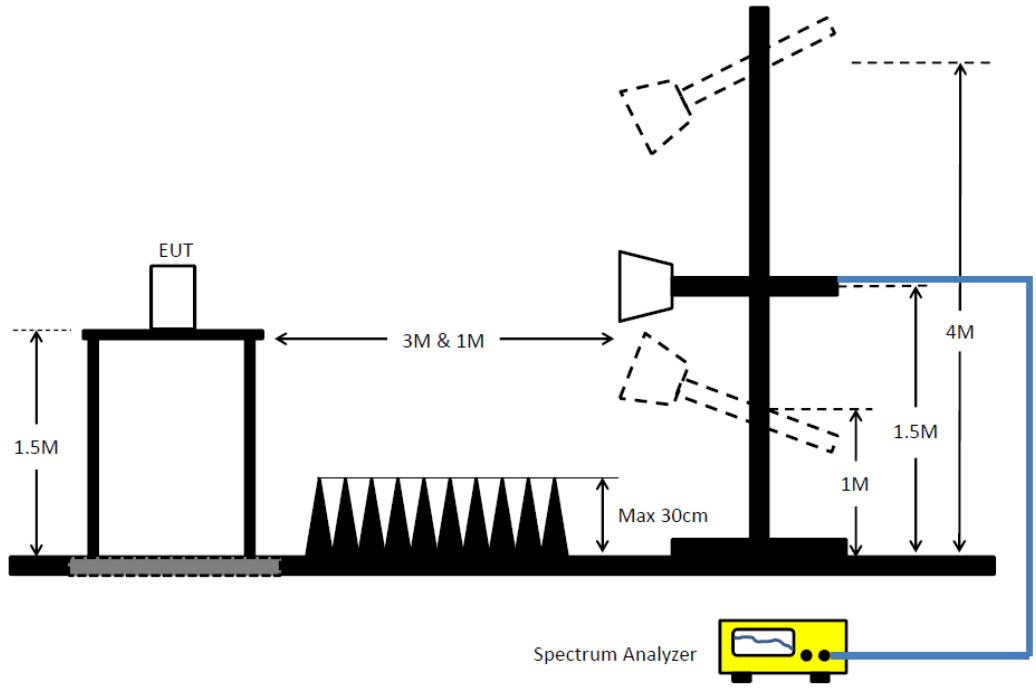
3.6.3 Test Procedures

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

Refer as Appendix E

4 Test Equipment and Calibration Data

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101515	9kHz~40GHz	08/Dec/2017	07/Dec/2018
Power Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	06/Nov/2017	05/Nov/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	06/Nov/2017	05/Nov/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz~26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz~26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10713/4	30MHz~26.5GHz	25/Aug/2017	24/Aug/2018
Signal Generator	R&S	SMR40	100116	10MHz~40GHz	27/Jul/2017	26/Jul/2018

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	31/Oct/2017	30/Oct/2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	01/Nov/2017	31/Oct/2018
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	23/Apr/2018	22/Apr/2019
Amplifier	Keysight	83017A	MY53270196	1GHz ~ 26.5GHz	31/Aug/2017	30/Aug/2018
Spectrum	R&S	FSP40	100593	9kHz ~ 40GHz	12/Dec/2017	13/Dec/2018
Receiver	R&S	ESCS 30	100354	9kHz ~ 2.75GHz	08/Dec/2017	07/Dec/2018
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	26/Jan/2018	25/Jan/2019
RF Cable-high	SUHNER	SUCOFLEX106	CB222	1GHz ~ 40GHz	26/Jan/2018	25/Jan/2019
Bilog Antenna	SCHAFFNER	CBL 6112B	22237	30MHz ~ 1GHz	08/Jul/2017	07/Jul/2018
Horn Antenna	SCHWARZBECK	BBHA9120D	1531	1GHz ~ 18GHz	18/Apr/ 2018	17/Apr/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz ~ 40GHz	06/Feb/ 2018	05/Feb/2019
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz~30 MHz	16/Mar/2018	15/Mar/2019

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)	733.75k	1.066M	1M07F1D	720k	1.058M

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

Result

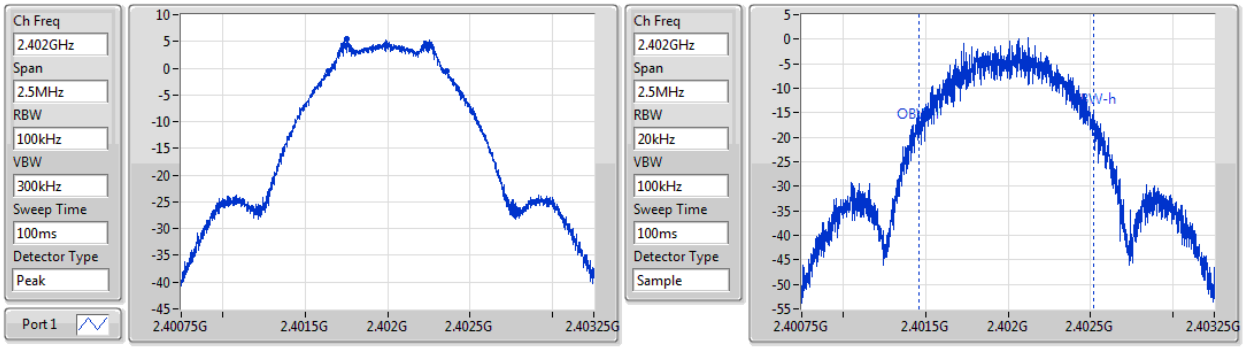
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	720k	1.058M
2440MHz_TnomVnom	Pass	500k	720k	1.066M
2480MHz_TnomVnom	Pass	500k	733.75k	1.058M

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

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

2402MHz

06/07/2018

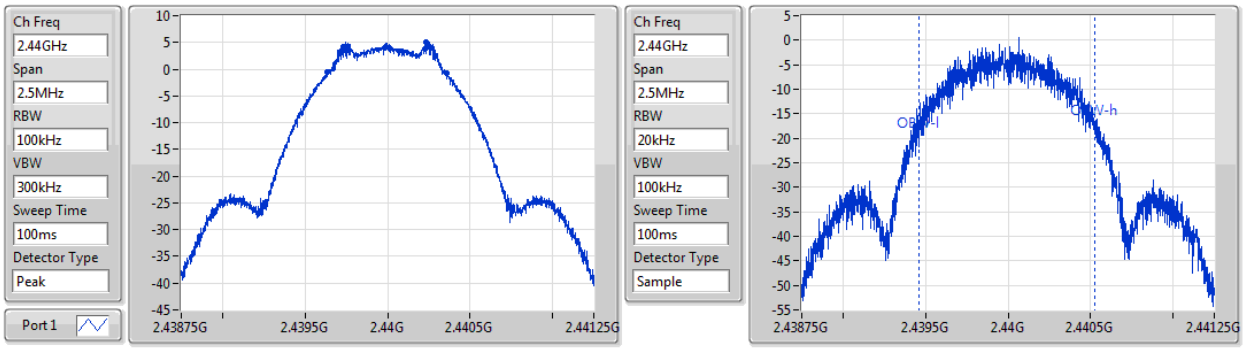


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
720k	2.40164G	2.40236G	1.058M	2.401463G	2.402521G	500k	1

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

2440MHz

06/07/2018

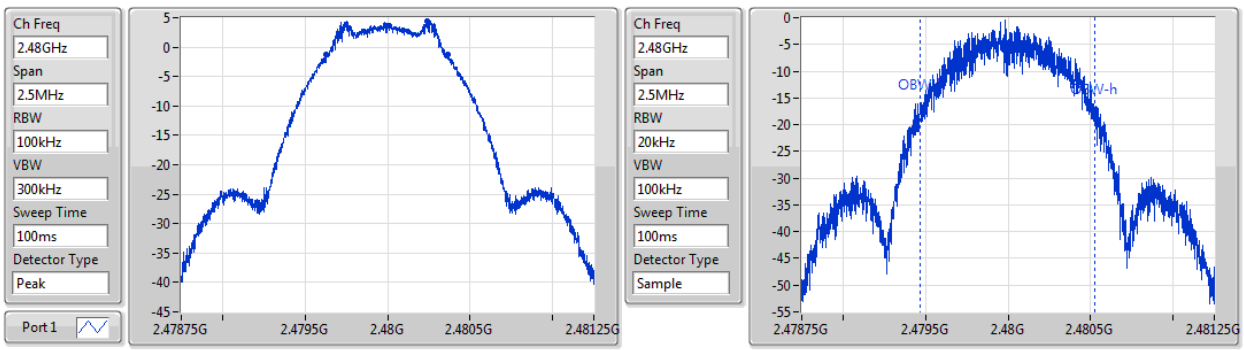


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
720k	2.439636G	2.440356G	1.066M	2.439462G	2.440527G	500k	1

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

2480MHz

06/07/2018



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
733.75k	2.479629G	2.480363G	1.058M	2.479465G	2.480523G	500k	1

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	5.81	0.00381

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.80	5.81	30.00
2440MHz_TnomVnom	Pass	3.80	5.53	30.00
2480MHz_TnomVnom	Pass	3.80	5.14	30.00

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-6.17

RBW=3kHz.

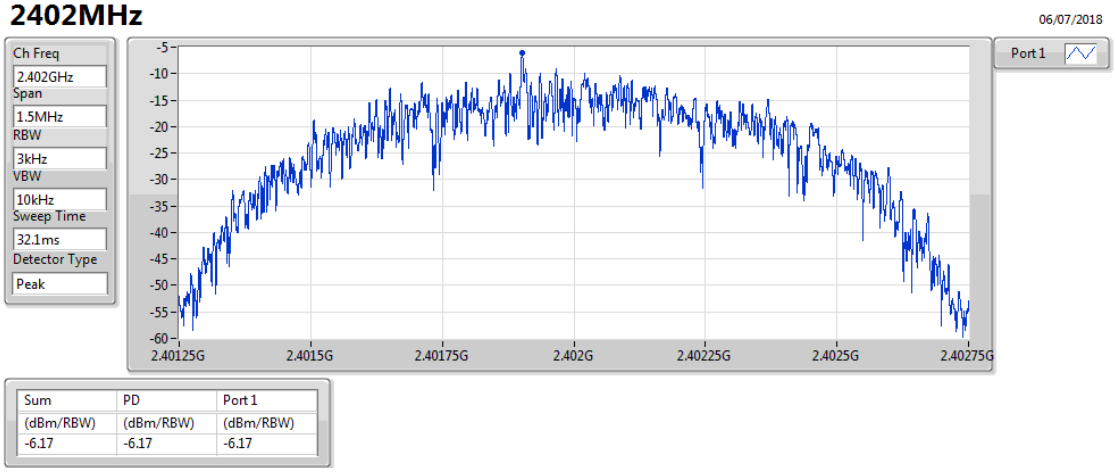
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.80	-6.17	8.00
2440MHz_TnomVnom	Pass	3.80	-9.28	8.00
2480MHz_TnomVnom	Pass	3.80	-9.81	8.00

RBW=3kHz.

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

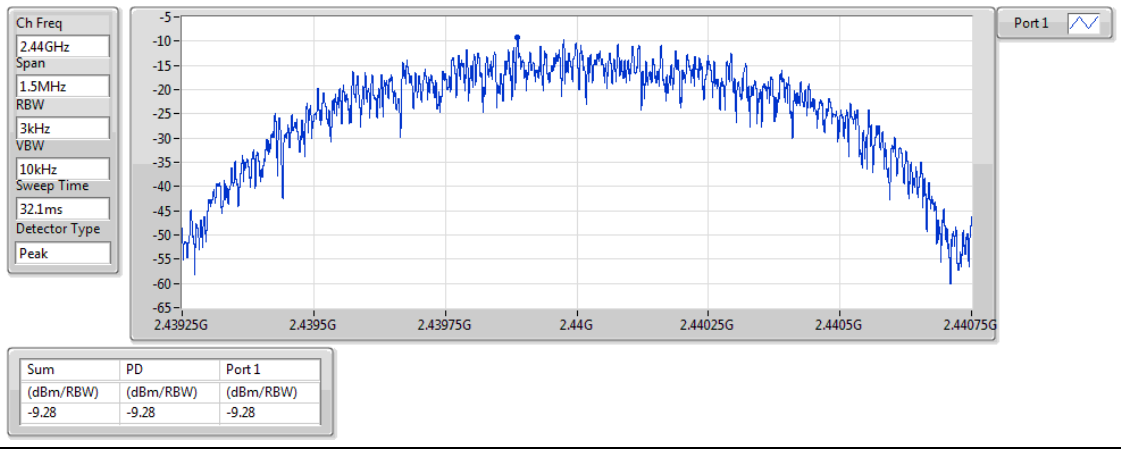
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.17	-6.17	-6.17

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

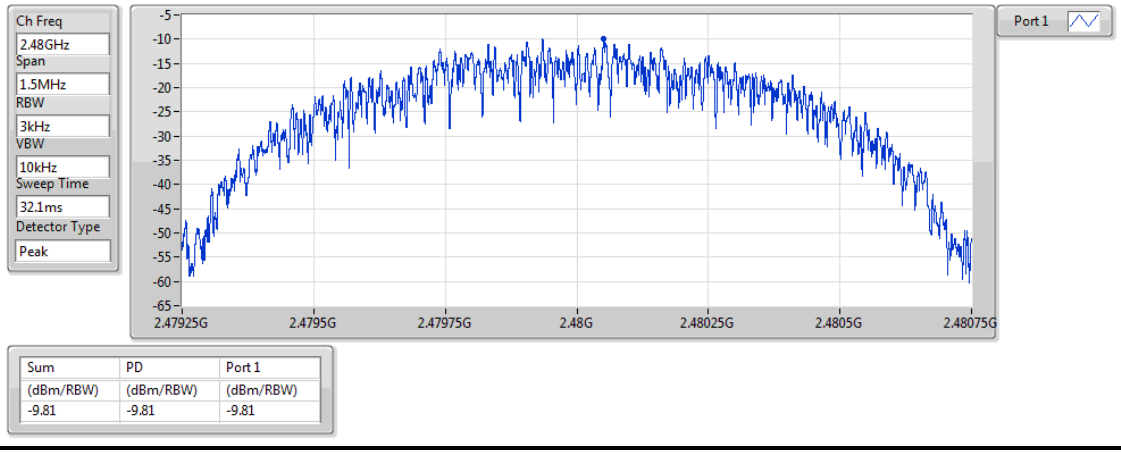
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.28	-9.28	-9.28

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

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.81	-9.81	-9.81

Summary

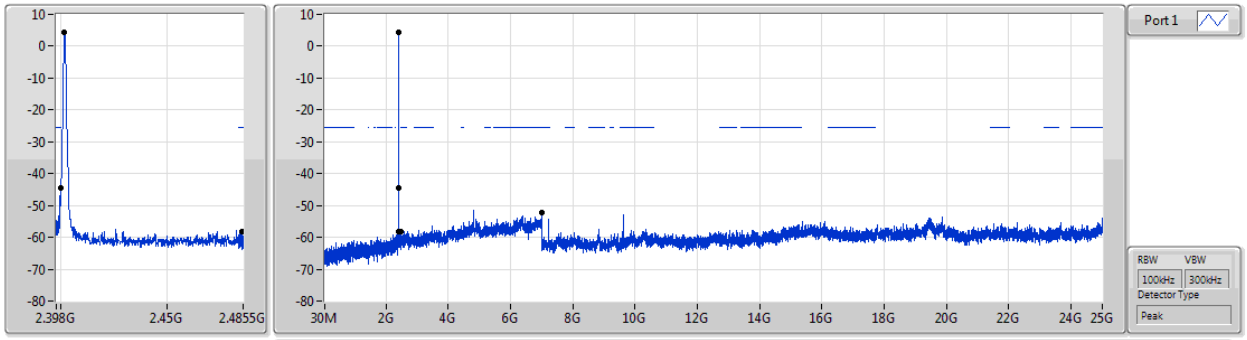
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.40167G	4.42	-25.58	2.395632G	-58.27	2.399988G	-44.61	2.485152G	-58.17	6.991214G	-52.25	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.40167G	4.42	-25.58	2.395632G	-58.27	2.399988G	-44.61	2.485152G	-58.17	6.991214G	-52.25	1
2440MHz_TnomVnom	Pass	2.40167G	4.42	-25.58	2.304464G	-59.12	2.39968G	-58.95	2.484708G	-57.52	9.757684G	-50.54	1
2480MHz_TnomVnom	Pass	2.40167G	4.42	-25.58	1.756272G	-58.20	2.399608G	-58.09	2.483652G	-52.86	6.214464G	-52.95	1

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

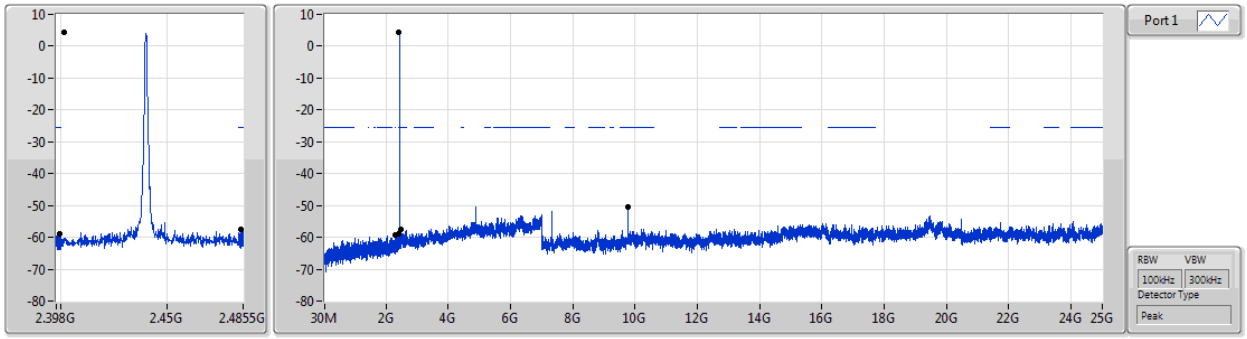
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40167G	4.42	-25.58	2.395632G	-58.27	2.399988G	-44.61	2.485152G	-58.17	6.991214G	-52.25	1

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

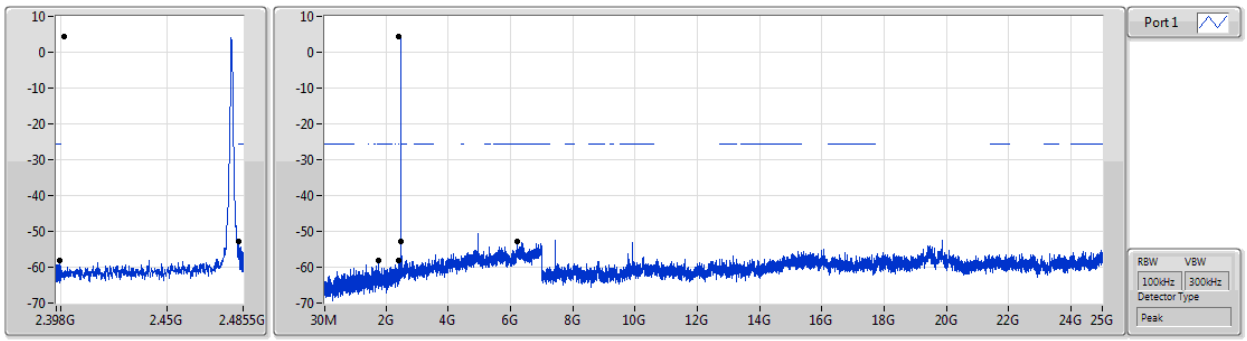
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.40167G	4.42	-25.58	2.304464G	-59.12	2.39968G	-58.95	2.484708G	-57.52	9.757684G	-50.54	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
2.40167G	4.42	-25.58	1.756272G	-58.20	2.399608G	-58.09	2.483652G	-52.86	6.214464G	-52.95	1

Summary

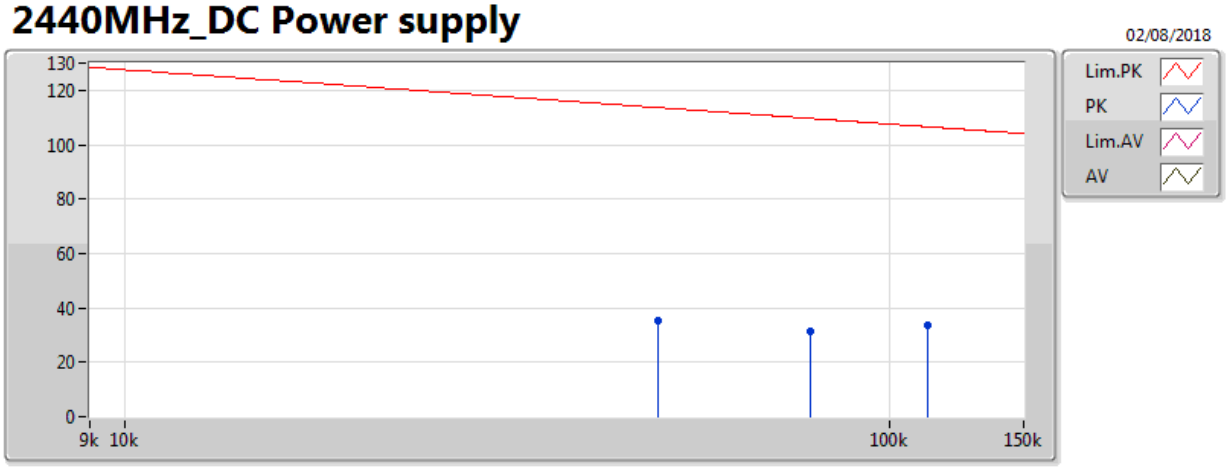
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	QP	37.76M	29.92	40.00	-10.08	-6.81	3	Vertical	208	1.00	-

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	49.89k	35.09	113.63	-78.54	13.58	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	78.936k	31.14	109.65	-78.51	13.56	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	112.494k	33.68	106.57	-72.89	13.62	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	1.1649M	42.99	66.31	-23.32	16.78	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	4.8066M	35.70	69.50	-33.80	18.68	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	18.2391M	35.69	69.50	-33.81	22.24	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	61.04M	27.86	40.00	-12.14	-14.32	3	Vertical	0	1.00	-
2440MHz	Pass	PK	258.92M	24.49	46.00	-21.51	-5.65	3	Vertical	0	1.00	-
2440MHz	Pass	PK	373.38M	27.30	46.00	-18.70	-4.22	3	Vertical	0	1.00	-
2440MHz	Pass	PK	555.74M	31.08	46.00	-14.92	-0.42	3	Vertical	0	1.00	-
2440MHz	Pass	PK	654.68M	31.79	46.00	-14.21	0.27	3	Vertical	0	1.00	-
2440MHz	Pass	QP	37.76M	29.92	40.00	-10.08	-6.81	3	Vertical	208	1.00	-
2440MHz	Pass	PK	30M	28.02	40.00	-11.98	-2.38	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	117.3M	23.10	43.50	-20.40	-8.00	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	262.8M	24.77	46.00	-21.23	-5.73	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	379.2M	31.27	46.00	-14.73	-4.18	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	571.26M	30.76	46.00	-15.24	-0.61	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	749.74M	32.74	46.00	-13.26	1.50	3	Horizontal	360	1.00	-

BT-LE(1Mbps)

2440MHz_DC Power supply

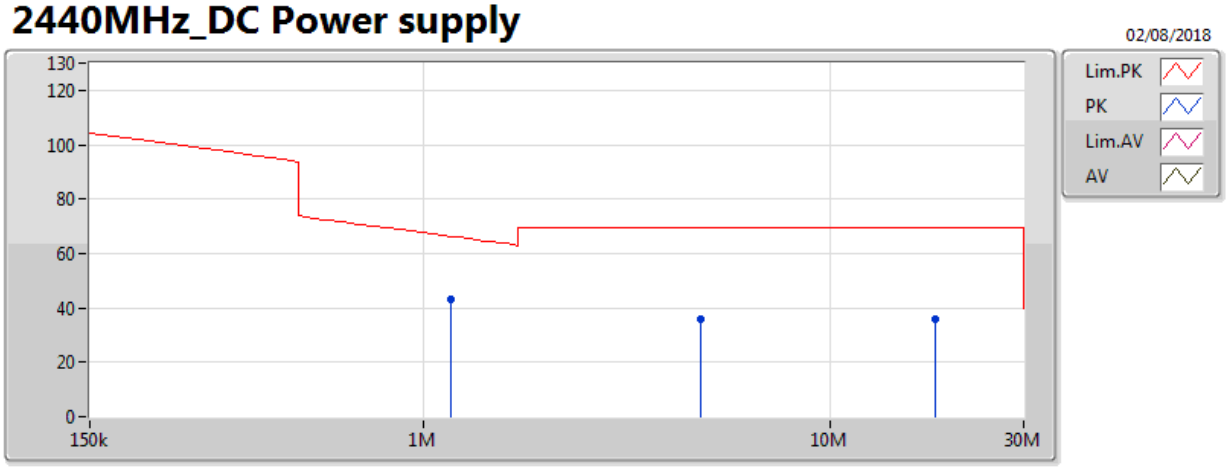


EUT = Z

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	49.89k	35.09	113.63	-78.54	13.58	3	Horizontal	360	1.00	-
PK	78.936k	31.14	109.65	-78.51	13.56	3	Horizontal	360	1.00	-
PK	112.494k	33.68	106.57	-72.89	13.62	3	Horizontal	360	1.00	-

BT-LE(1Mbps)

2440MHz_DC Power supply

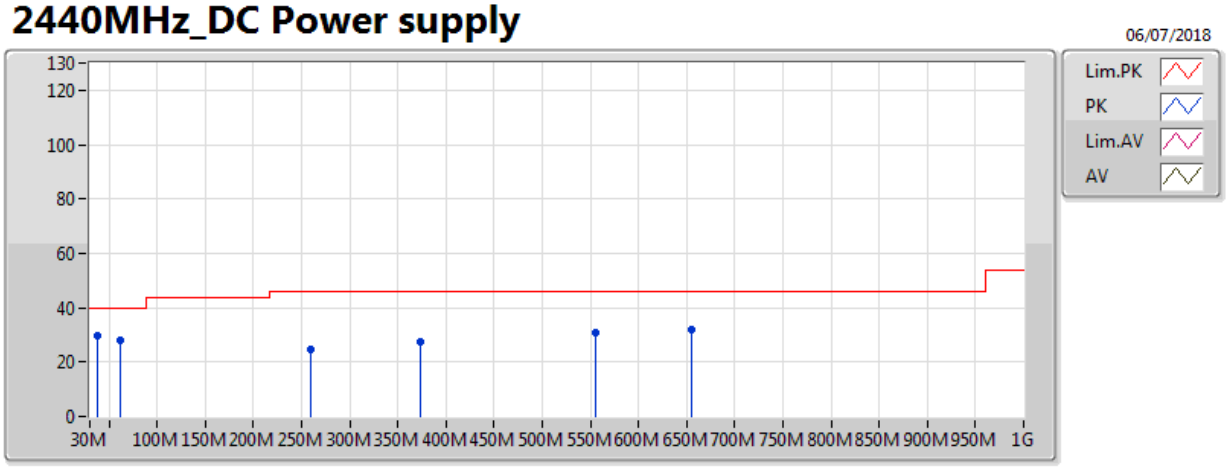


EUT = Z

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	1.1649M	42.99	66.31	-23.32	16.78	3	Horizontal	0	1.00	-
PK	4.8066M	35.70	69.50	-33.80	18.68	3	Horizontal	0	1.00	-
PK	18.2391M	35.69	69.50	-33.81	22.24	3	Horizontal	0	1.00	-

BT-LE(1Mbps)

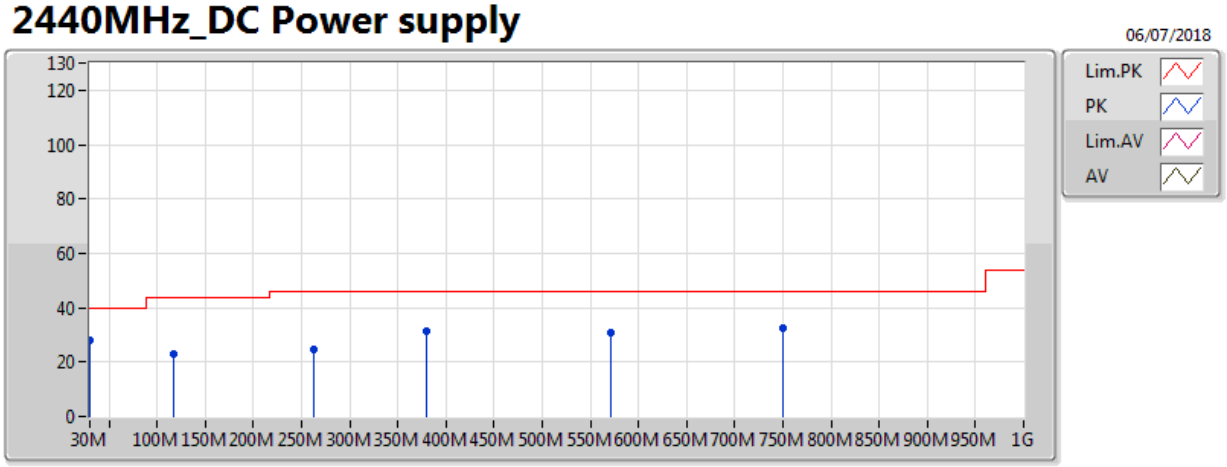
2440MHz_DC Power supply



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	61.04M	27.86	40.00	-12.14	-14.32	3	Vertical	0	1.00	-
PK	258.92M	24.49	46.00	-21.51	-5.65	3	Vertical	0	1.00	-
PK	373.38M	27.30	46.00	-18.70	-4.22	3	Vertical	0	1.00	-
PK	555.74M	31.08	46.00	-14.92	-0.42	3	Vertical	0	1.00	-
PK	654.68M	31.79	46.00	-14.21	0.27	3	Vertical	0	1.00	-
QP	37.76M	29.92	40.00	-10.08	-6.81	3	Vertical	208	1.00	-

BT-LE(1Mbps)

2440MHz_DC Power supply



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	30M	28.02	40.00	-11.98	-2.38	3	Horizontal	360	1.00	-
PK	117.3M	23.10	43.50	-20.40	-8.00	3	Horizontal	360	1.00	-
PK	262.8M	24.77	46.00	-21.23	-5.73	3	Horizontal	360	1.00	-
PK	379.2M	31.27	46.00	-14.73	-4.18	3	Horizontal	360	1.00	-
PK	571.26M	30.76	46.00	-15.24	-0.61	3	Horizontal	360	1.00	-
PK	749.74M	32.74	46.00	-13.26	1.50	3	Horizontal	360	1.00	-

Summary

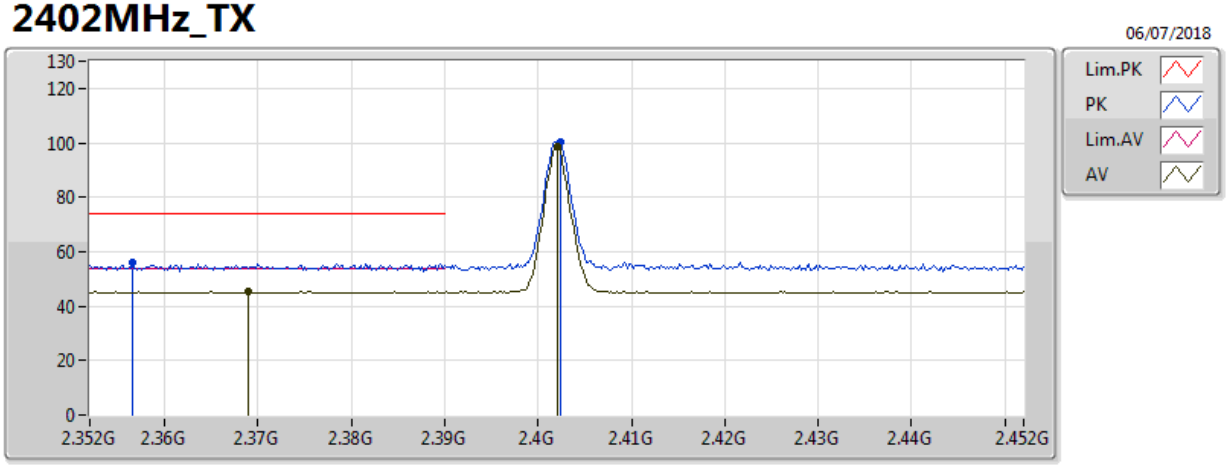
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.483502G	47.97	54.00	-6.03	32.61	3	Vertical	131	2.50	-

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	2.369G	45.31	54.00	-8.69	32.20	3	Vertical	146	2.61	-
2402MHz	Pass	AV	2.402G	98.55	Inf	-Inf	32.31	3	Vertical	146	2.61	-
2402MHz	Pass	PK	2.3566G	56.08	74.00	-17.92	32.16	3	Vertical	146	2.61	-
2402MHz	Pass	PK	2.4024G	100.10	Inf	-Inf	32.32	3	Vertical	146	2.61	-
2402MHz	Pass	AV	2.3826G	45.29	54.00	-8.71	32.25	3	Horizontal	205	1.18	-
2402MHz	Pass	AV	2.402G	85.77	Inf	-Inf	32.31	3	Horizontal	205	1.18	-
2402MHz	Pass	PK	2.3682G	56.00	74.00	-18.00	32.19	3	Horizontal	205	1.18	-
2402MHz	Pass	PK	2.4024G	87.20	Inf	-Inf	32.32	3	Horizontal	205	1.18	-
2402MHz	Pass	AV	4.80395G	43.79	54.00	-10.21	2.99	3	Vertical	99	2.82	-
2402MHz	Pass	PK	4.80451G	51.73	74.00	-22.27	2.99	3	Vertical	99	2.82	-
2402MHz	Pass	AV	4.80397G	41.76	54.00	-12.24	2.99	3	Horizontal	197	1.45	-
2402MHz	Pass	PK	4.80431G	50.52	74.00	-23.48	2.99	3	Horizontal	197	1.45	-
2440MHz	Pass	AV	2.3652G	45.15	54.00	-8.85	32.19	3	Vertical	145	3.13	-
2440MHz	Pass	AV	2.44G	99.15	Inf	-Inf	32.46	3	Vertical	145	3.13	-
2440MHz	Pass	AV	2.4904G	45.31	54.00	-8.69	32.64	3	Vertical	145	3.13	-
2440MHz	Pass	PK	2.3628G	56.34	74.00	-17.66	32.18	3	Vertical	145	3.13	-
2440MHz	Pass	PK	2.44G	100.44	Inf	-Inf	32.46	3	Vertical	145	3.13	-
2440MHz	Pass	PK	2.4868G	56.66	74.00	-17.34	32.62	3	Vertical	145	3.13	-
2440MHz	Pass	AV	2.3432G	45.15	54.00	-8.85	32.10	3	Horizontal	348	1.50	-
2440MHz	Pass	AV	2.44G	87.96	Inf	-Inf	32.46	3	Horizontal	348	1.50	-
2440MHz	Pass	AV	2.4972G	45.37	54.00	-8.63	32.66	3	Horizontal	348	1.50	-
2440MHz	Pass	PK	2.3636G	55.79	74.00	-18.21	32.18	3	Horizontal	348	1.50	-
2440MHz	Pass	PK	2.4404G	89.31	Inf	-Inf	32.46	3	Horizontal	348	1.50	-
2440MHz	Pass	PK	2.498G	55.41	74.00	-18.59	32.67	3	Horizontal	348	1.50	-
2440MHz	Pass	AV	4.88001G	42.20	54.00	-11.80	3.16	3	Vertical	105	1.44	-
2440MHz	Pass	PK	4.88041G	50.95	74.00	-23.05	3.16	3	Vertical	105	1.44	-
2440MHz	Pass	AV	4.87997G	40.97	54.00	-13.03	3.16	3	Horizontal	216	1.04	-
2440MHz	Pass	PK	4.88053G	50.15	74.00	-23.85	3.16	3	Horizontal	216	1.04	-
2480MHz	Pass	AV	2.48G	98.52	Inf	-Inf	32.60	3	Vertical	131	2.50	-
2480MHz	Pass	AV	2.483502G	47.97	54.00	-6.03	32.61	3	Vertical	131	2.50	-
2480MHz	Pass	PK	2.4798G	99.98	Inf	-Inf	32.60	3	Vertical	131	2.50	-
2480MHz	Pass	PK	2.483502G	56.41	74.00	-17.59	32.61	3	Vertical	131	2.50	-
2480MHz	Pass	AV	2.48G	88.83	Inf	-Inf	32.60	3	Horizontal	214	3.19	-
2480MHz	Pass	AV	2.483502G	45.42	54.00	-8.58	32.61	3	Horizontal	214	3.19	-
2480MHz	Pass	PK	2.4802G	90.19	Inf	-Inf	32.60	3	Horizontal	214	3.19	-
2480MHz	Pass	PK	2.4844G	56.73	74.00	-17.27	32.61	3	Horizontal	214	3.19	-
2480MHz	Pass	AV	4.96008G	43.60	54.00	-10.40	3.33	3	Vertical	341	1.20	-
2480MHz	Pass	PK	4.9605G	51.92	74.00	-22.08	3.33	3	Vertical	341	1.20	-
2480MHz	Pass	AV	4.96005G	40.68	54.00	-13.32	3.33	3	Horizontal	205	1.50	-
2480MHz	Pass	PK	4.96061G	50.16	74.00	-23.84	3.33	3	Horizontal	205	1.50	-

BT-LE(1Mbps)

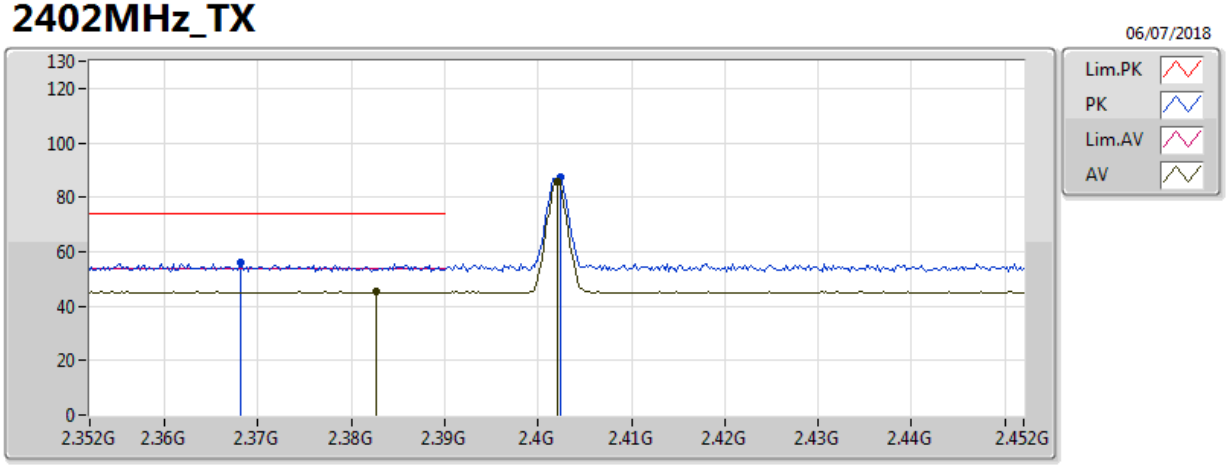
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.369G	45.31	54.00	-8.69	32.20	3	Vertical	146	2.61	-
AV	2.402G	98.55	Inf	-Inf	32.31	3	Vertical	146	2.61	-
PK	2.3566G	56.08	74.00	-17.92	32.16	3	Vertical	146	2.61	-
PK	2.4024G	100.10	Inf	-Inf	32.32	3	Vertical	146	2.61	-

BT-LE(1Mbps)

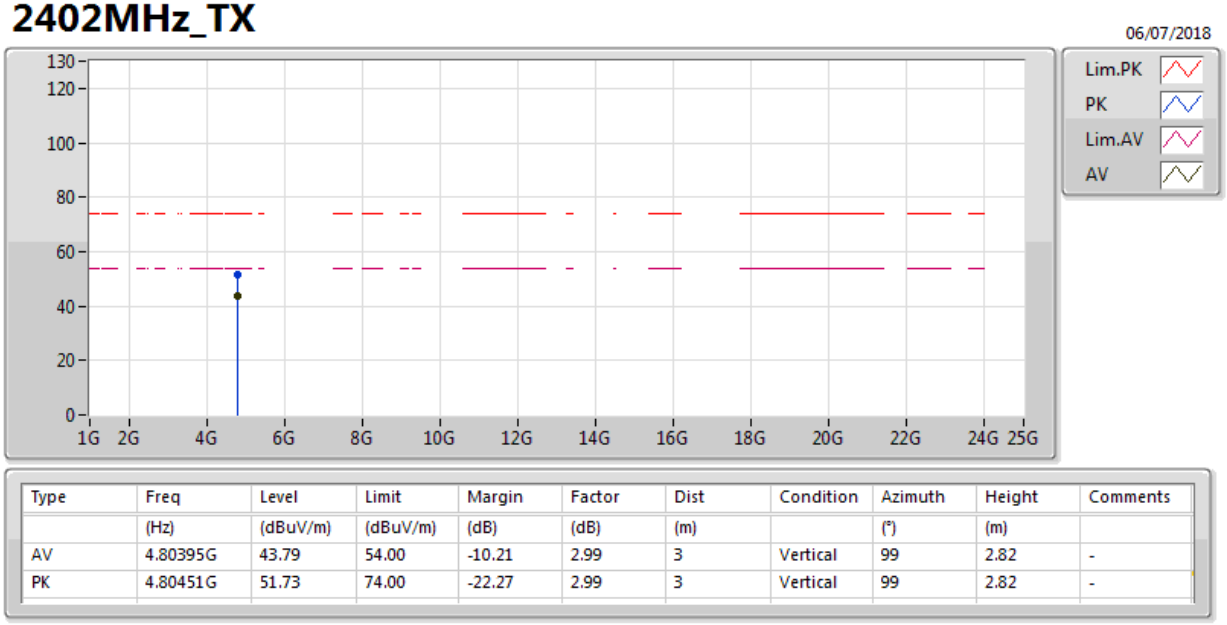
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3826G	45.29	54.00	-8.71	32.25	3	Horizontal	205	1.18	-
AV	2.402G	85.77	Inf	-Inf	32.31	3	Horizontal	205	1.18	-
PK	2.3682G	56.00	74.00	-18.00	32.19	3	Horizontal	205	1.18	-
PK	2.4024G	87.20	Inf	-Inf	32.32	3	Horizontal	205	1.18	-

BT-LE(1Mbps)

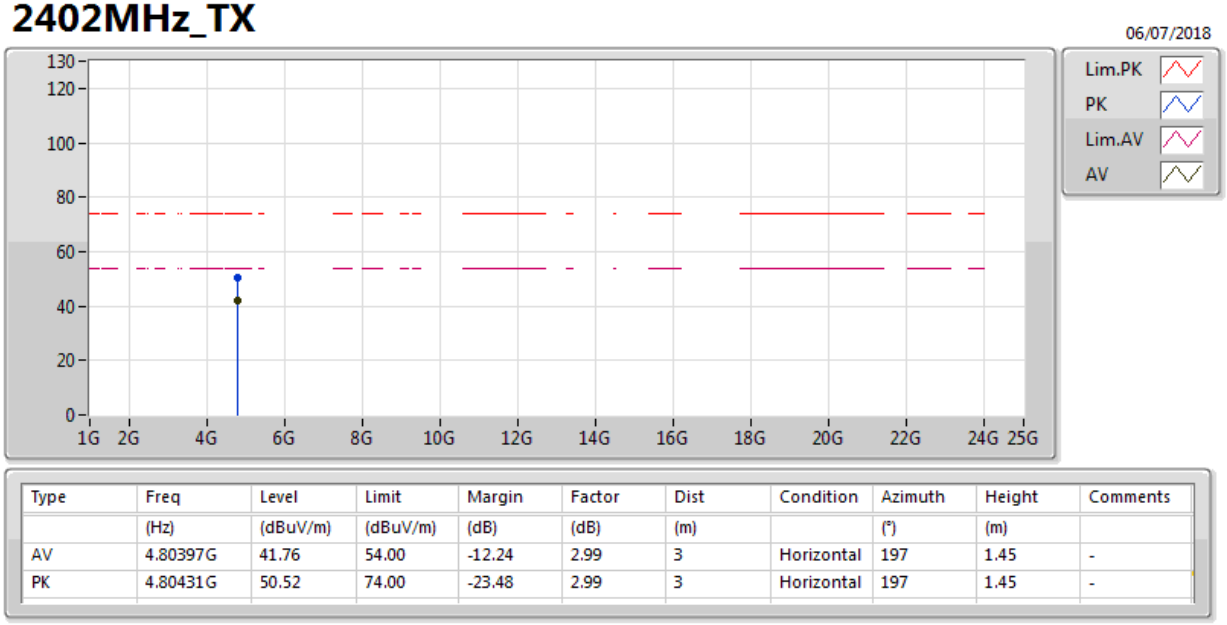
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.80395G	43.79	54.00	-10.21	2.99	3	Vertical	99	2.82	-
PK	4.80451G	51.73	74.00	-22.27	2.99	3	Vertical	99	2.82	-

BT-LE(1Mbps)

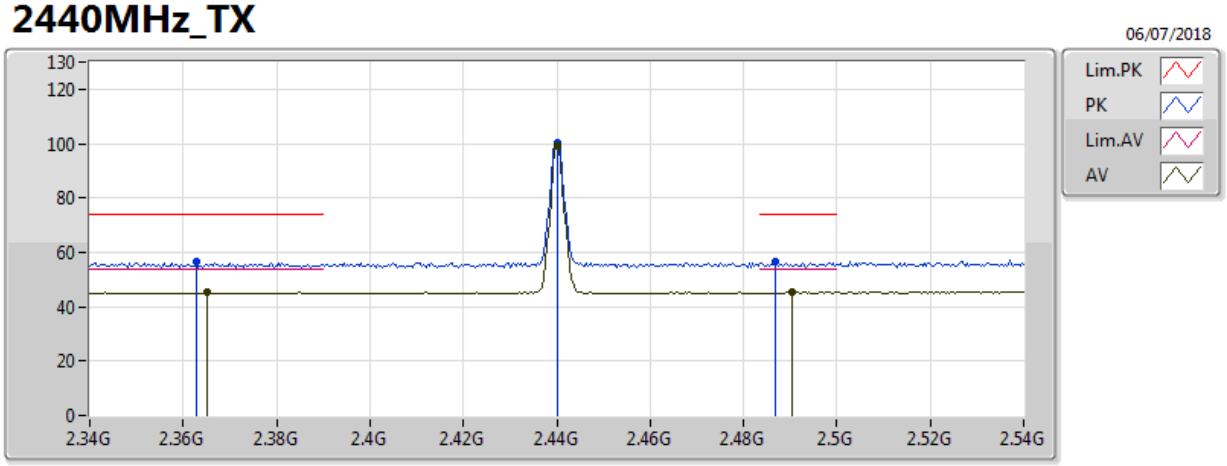
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.80397G	41.76	54.00	-12.24	2.99	3	Horizontal	197	1.45	-
PK	4.80431G	50.52	74.00	-23.48	2.99	3	Horizontal	197	1.45	-

BT-LE(1Mbps)

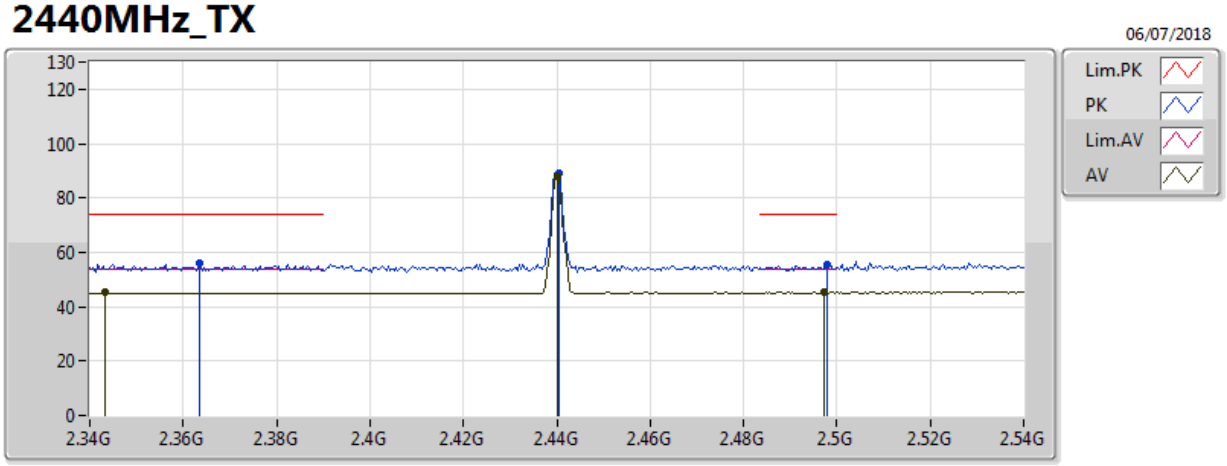
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3652G	45.15	54.00	-8.85	32.19	3	Vertical	145	3.13	-
AV	2.44G	99.15	Inf	-Inf	32.46	3	Vertical	145	3.13	-
AV	2.4904G	45.31	54.00	-8.69	32.64	3	Vertical	145	3.13	-
PK	2.3628G	56.34	74.00	-17.66	32.18	3	Vertical	145	3.13	-
PK	2.44G	100.44	Inf	-Inf	32.46	3	Vertical	145	3.13	-
PK	2.4868G	56.66	74.00	-17.34	32.62	3	Vertical	145	3.13	-

BT-LE(1Mbps)

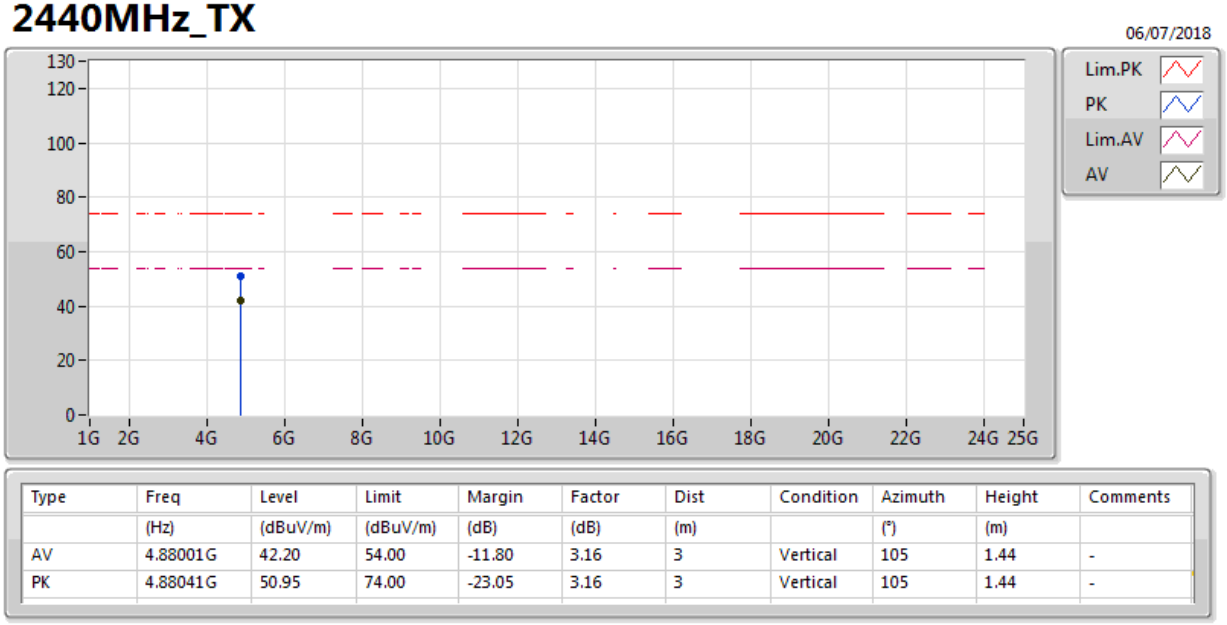
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3432G	45.15	54.00	-8.85	32.10	3	Horizontal	348	1.50	-
AV	2.44G	87.96	Inf	-Inf	32.46	3	Horizontal	348	1.50	-
AV	2.4972G	45.37	54.00	-8.63	32.66	3	Horizontal	348	1.50	-
PK	2.3636G	55.79	74.00	-18.21	32.18	3	Horizontal	348	1.50	-
PK	2.4404G	89.31	Inf	-Inf	32.46	3	Horizontal	348	1.50	-
PK	2.498G	55.41	74.00	-18.59	32.67	3	Horizontal	348	1.50	-

BT-LE(1Mbps)

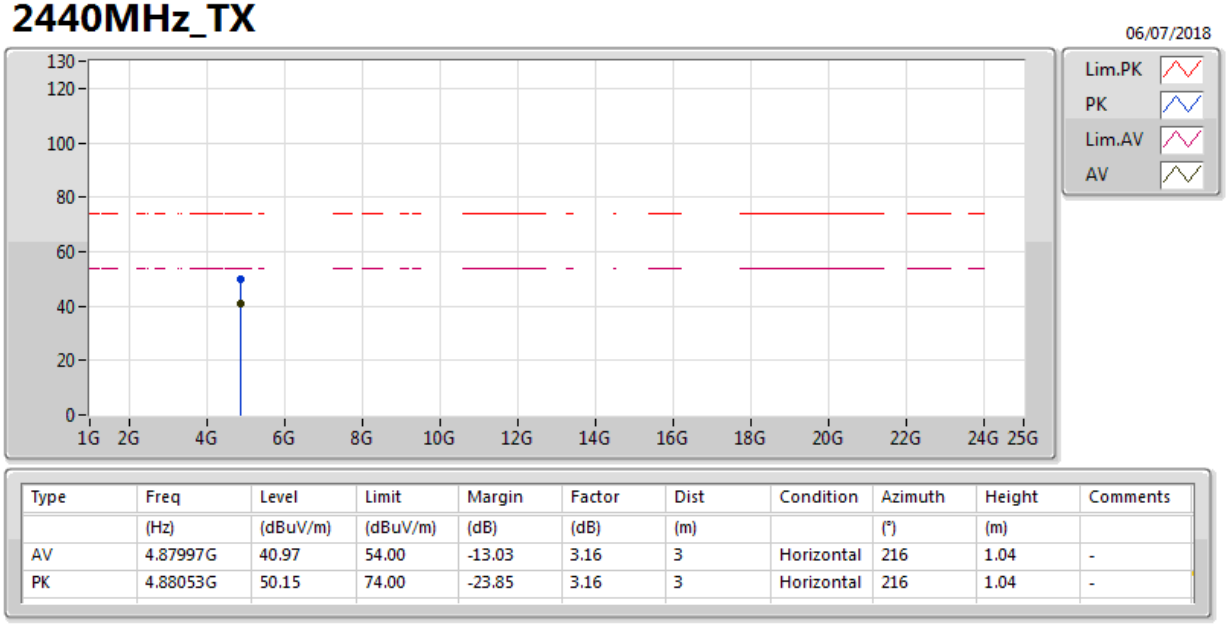
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.88001G	42.20	54.00	-11.80	3.16	3	Vertical	105	1.44	-
PK	4.88041G	50.95	74.00	-23.05	3.16	3	Vertical	105	1.44	-

BT-LE(1Mbps)

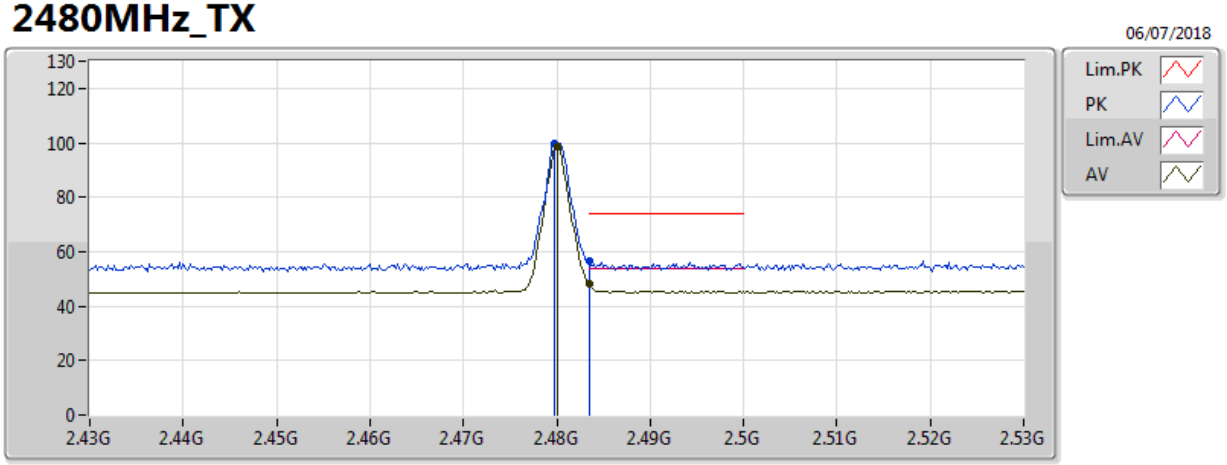
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.87997G	40.97	54.00	-13.03	3.16	3	Horizontal	216	1.04	-
PK	4.88053G	50.15	74.00	-23.85	3.16	3	Horizontal	216	1.04	-

BT-LE(1Mbps)

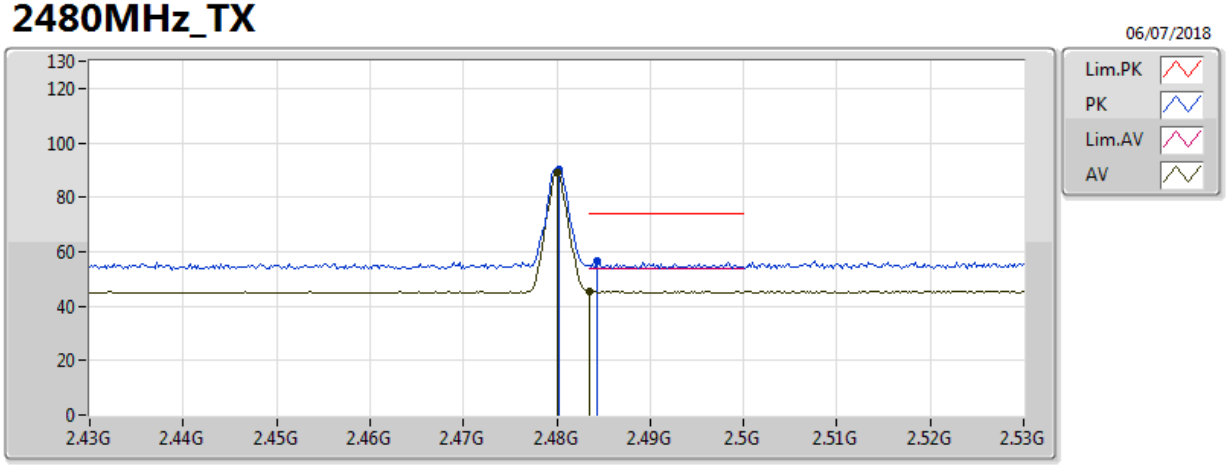
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.48G	98.52	Inf	-Inf	32.60	3	Vertical	131	2.50	-
AV	2.483502G	47.97	54.00	-6.03	32.61	3	Vertical	131	2.50	-
PK	2.4798G	99.98	Inf	-Inf	32.60	3	Vertical	131	2.50	-
PK	2.483502G	56.41	74.00	-17.59	32.61	3	Vertical	131	2.50	-

BT-LE(1Mbps)

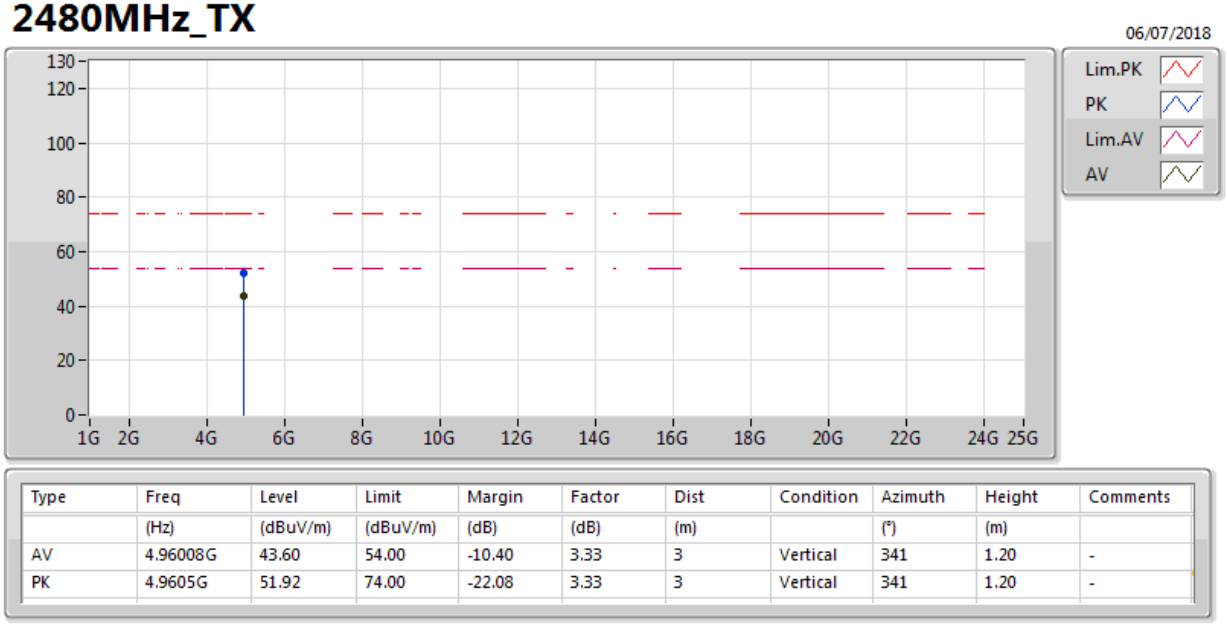
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.48G	88.83	Inf	-Inf	32.60	3	Horizontal	214	3.19	-
AV	2.483502G	45.42	54.00	-8.58	32.61	3	Horizontal	214	3.19	-
PK	2.4802G	90.19	Inf	-Inf	32.60	3	Horizontal	214	3.19	-
PK	2.4844G	56.73	74.00	-17.27	32.61	3	Horizontal	214	3.19	-

BT-LE(1Mbps)

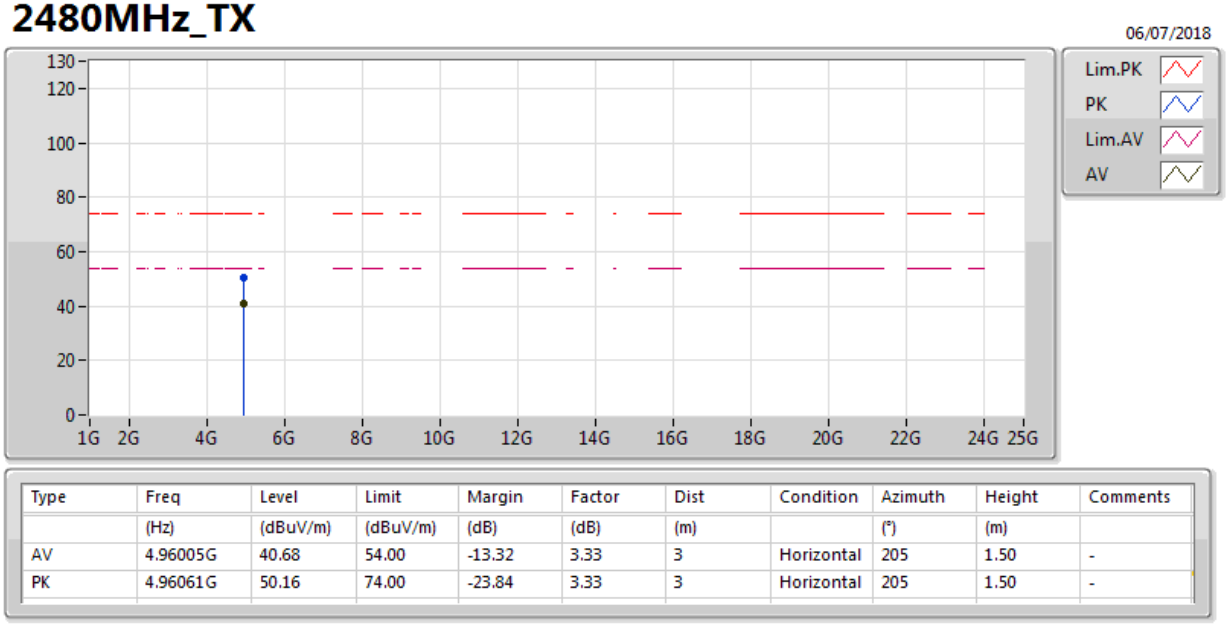
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.96008G	43.60	54.00	-10.40	3.33	3	Vertical	341	1.20	-
PK	4.9605G	51.92	74.00	-22.08	3.33	3	Vertical	341	1.20	-

BT-LE(1Mbps)

2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.96005G	40.68	54.00	-13.32	3.33	3	Horizontal	205	1.50	-
PK	4.96061G	50.16	74.00	-23.84	3.33	3	Horizontal	205	1.50	-