FCC Test Report

Equipment	:	**cnPilot e430H Indoor**
Brand Name	:	Cambium Networks
Model No.	:	**REG-PL-E430H**
FCC ID	:	**Z8H89FT0039**
Standard	:	**47 CFR FCC Part 15.247**
Operating Band	:	**2400 MHz – 2483.5 MHz**
Function	:	**☒Point-to-multipoint; ☐Point-to-point**
Applicant	:	**Cambium Networks Inc. 3800 Golf Road, Suite 360 Rolling Meadows, IL 60008, USA**
Manufacturer	:	**XAVi Technologies Corporation 22F., No.69, Sec. 2, Guangfu Rd., Sanchong Dist., New Taipei City 241, Taiwan (R.O.C.)**

The product sample received on Nov. 01, 2017 and completely tested on Jun. 26, 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.

Approved by: Allen Lin

Testing Laboratory 1190

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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	Complied
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
FR7O2713-02AL	Rev. 01	Initial issue of report	Jul. 23, 2018
FR7O2713-02AL	Rev. 02	Revise typo	Jul. 23, 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
1	1	-	-	PIFA Antenna	I-PEX
2	2	-	-	PIFA Antenna	I-PEX
3	1	-	-	PIFA Antenna	I-PEX
4	2	-	-	PIFA Antenna	I-PEX
5	1	-	-	PIFA Antenna	I-PEX

Ant.	Gain (dBi)			
	2.4G	5G		BT
		Non-Beamforming	Beamforming	
1	3.57	-	-	-
2	3.57	-	-	-
3	-	4.96	3.01	-
4	-	4.96	3.01	-
5	-	-	-	3.35

Note 1: The EUT has five antennas.

For 2.4GHz function:

For IEEE 802.11 b/g mode (1TX/1RX)

Ant. 1 (port 1) or Ant. 2 (port 2) can be used as transmitting/receiving antenna alone and simultaneously.

For IEEE 802.11 n mode (2TX/2RX)

Ant. 1 (port 1) and Ant. 2 (port 2) could transmit/receive simultaneously.

For 5GHz function:

For IEEE 802.11 a mode (1TX/1RX)

Ant. 3 (port 1) or Ant. 4 (port 2) can be used as transmitting/receiving antenna alone and simultaneously.

For IEEE 802.11 n/ac mode (2TX/2RX)

Ant. 3 (port 1) and Ant. 4 (port 2) could transmit/receive simultaneously.

For BT function:

For BT-LE/BR/EDR (1TX/1RX)

Only Ant. 5 (port 1) can be used as transmitting/receiving antenna.

1.1.3 EUT Information

Identify EUT			
RF Chip	IPQ4019(Qualcomm)		
Operational Condition			
EUT Power Type	From AC Adapter & PoE		
Type of EUT			
☒	Stand-alone		
☐	Combined (EUT where the radio part is fully integrated within another device)		
	Combined Equipment - Brand Name / Model No.:	…	
☐	Plug-in radio (EUT intended for a variety of host systems)		
	Host System - Brand Name / Model No.:	…	
☐	Other:		

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.624	2.048	404.375u	3k

1.1.5 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR7O2713AL

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

Modifications	Performance Checking
1. Enclosure is replaced 2. PCB Layout: WiFi 2.4G and Bluetooth antenna location exchanged. 3. Heat sink was added 4. Change Equipment Name to cnPilot e430H Indoor and Change Model Name to REG-PL-E430H 5. Antenna gain was increased	1. Radiated Emission data above 1GHz was evaluated 2. Maximum Conducted Output Power 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 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	TH01-HY	Gary	22.7°C / 57%	06/Nov/2017
Radiated (9kHz to 30MHz)	03CH02-HY	Andy	23.5°C / 65%	29/Dec/2017
Radiated (30MHz to 1GHz)	03CH09-HY	Andy	23.5°C / 65%	14/Nov/2017
Radiated (above 1GHz)	03CH02-HY	Jeff	24.3°C / 68%	26/Jun/2018
AC Conduction	CO04-HY	Eric	23.5°C / 65%	13/Oct/2017

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%

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	QCARCT 3.0.265.0

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	Adapter 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	Adapter mode
Operating Mode > 1GHz	CTX
1	PoE mode
Orthogonal Planes of EUT	**Y 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	Notebook	DELL	E5410	DoC
4	Adapter for NB	DELL	HA65NM130	DoC
5	AC adaptor	CWT	KPL-050S-VI	-
6	Client	-	E430W	-

Note: Support equipment No.5 & 6 was provided by customer.

Support Equipment – Radiated Emission below 1GHz				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	AC adaptor	CWT	KPL-050S-VI	-

Note: Support equipment No.1 was provided by customer.

Support Equipment – Radiated Emission above 1GHz				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	PoE (Remote)	Cambium Networks	NET-P30-56IN	-

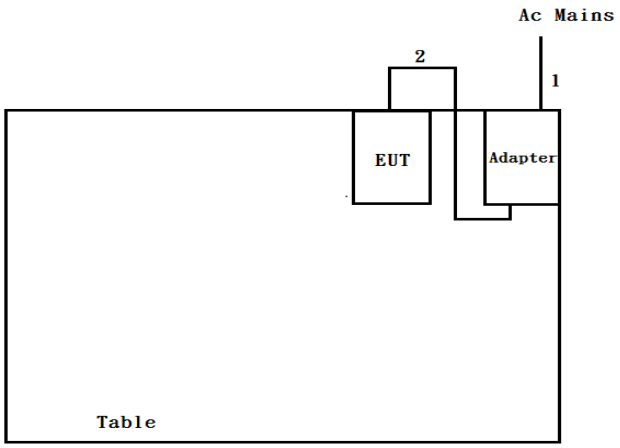
Note: Support equipment No.1 was provided by customer.

Support Equipment – AC Conduction				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	AC adaptor	CWT	KPL-050S-VI	-

Note: Support equipment No.1 was provided by customer.

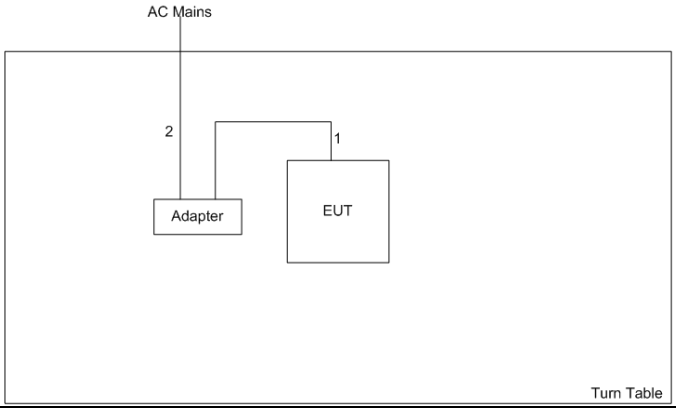
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



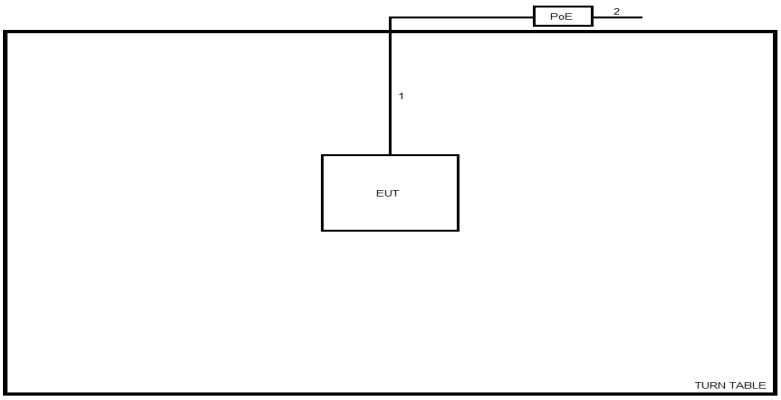
Item	Connection	Shielded	Length(m)	Remark
1	AC power line	No	1.8	-
2	DC power line	No	1	-

Test Setup Diagram - Radiated Test below 1GHz



Item	Connection	Shielded	Length(m)	Remark
1	DC power line	No	1	-
2	AC power line	No	1.8	-

Test Setup Diagram - Radiated Test above 1GHz



Item	Connection	Shielded	Length(m)	Remark
1	RJ45 Cable	No	10	-
2	AC Power line	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

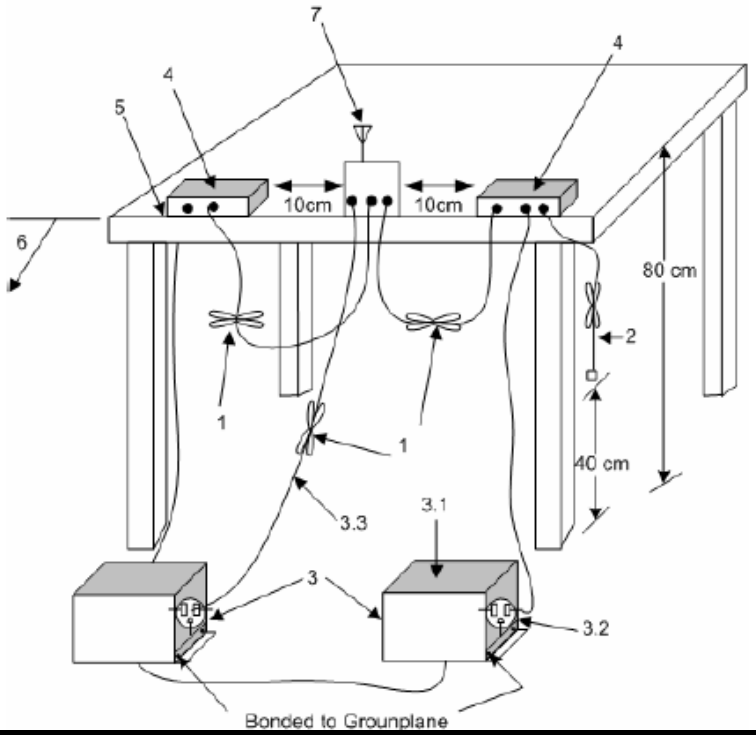
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

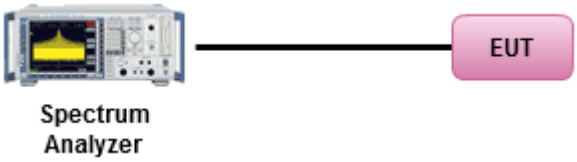
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
	☒ Refer as KDB 558074, clause 8.1 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.
	☐ Refer as RSS-Gen, clause 6.6 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 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 C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

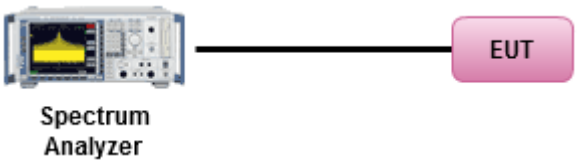
3.4.2 Measuring Instruments

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 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 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 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

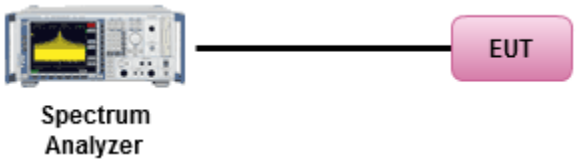
Refer a test equipment and calibration data table in this test report.

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 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.

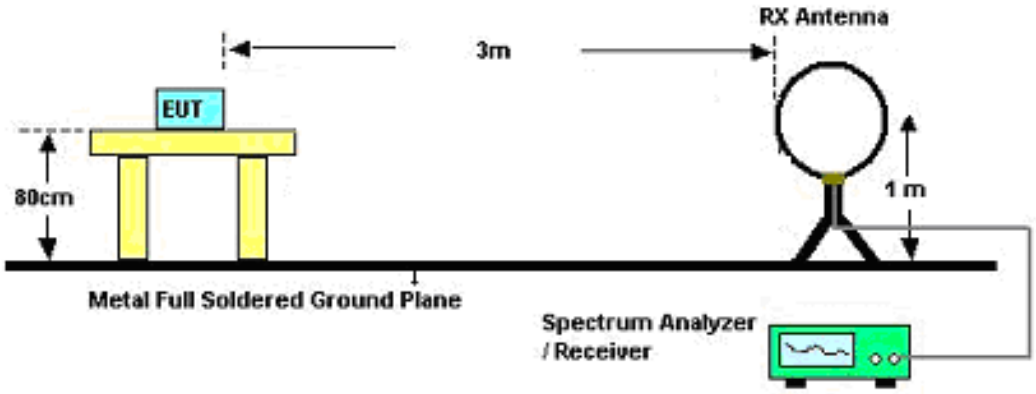
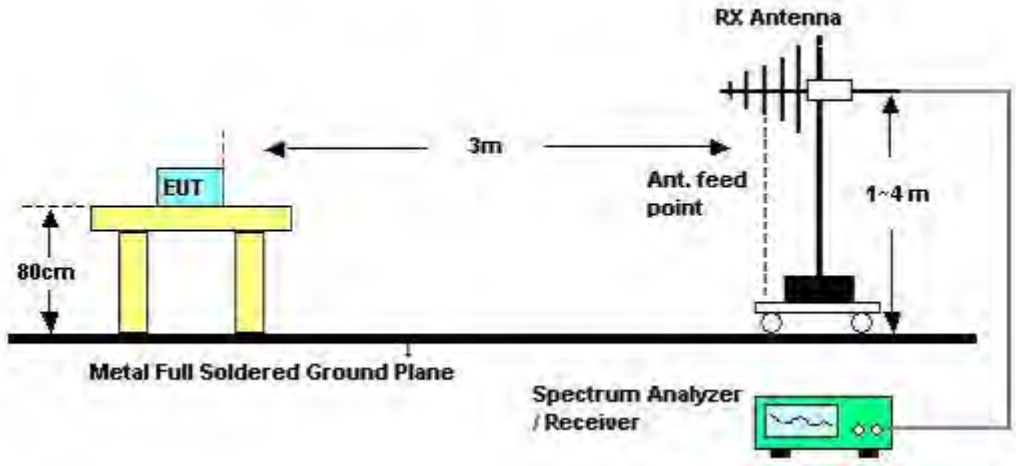
3.6.2 Measuring Instruments

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

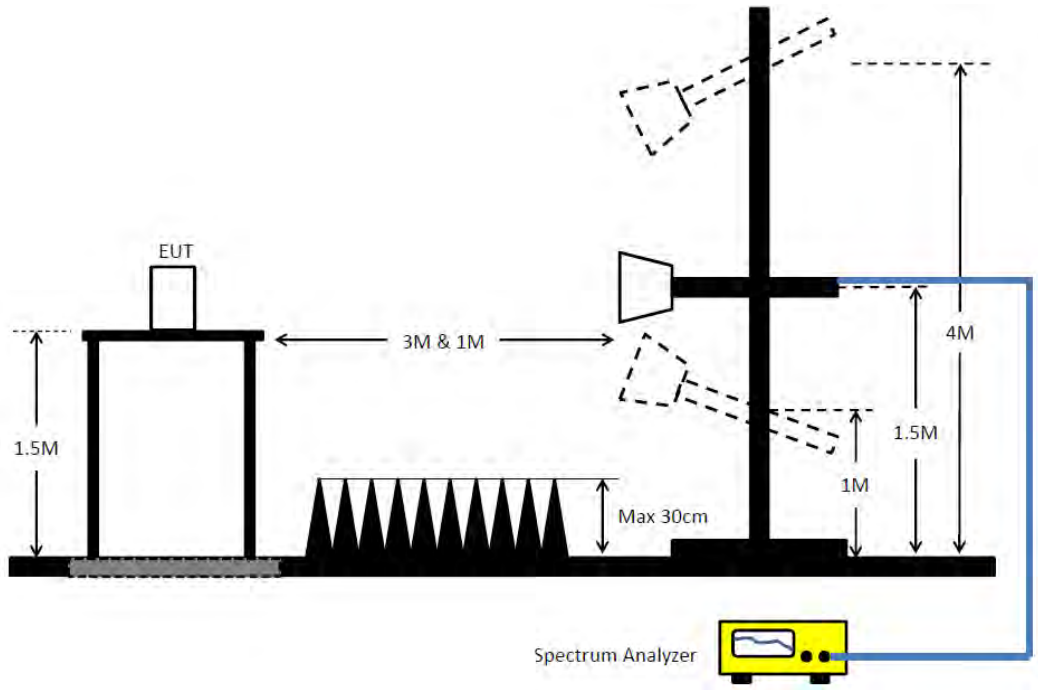
3.6.3 Test Procedures

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 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 F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9KHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	15/Nov/2016	14/Nov/2017
RF Cable-CON	HUBER+ SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	R&S	ESH3-Z2	100921	10 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require

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	27/Jul/2017	26/Jul/2018
RF Cable-0.2m	HUBER+ SUHNER	SUCOFLEX_104	MY677/3	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+ SUHNER	SUCOFLEX_104	MY678/3	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.5m	HUBER+ SUHNER	SUCOFLEX_104	MY10717/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
Bluetooth Tester	ROHDE&SCHWARZ	CBT	101021	2.4GHz	28/Apr/2017	27/Apr/2018

Instrument for Radiated Test - 9kHz to 30MHz

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSP 40	101500	10Hz~40GHz	28/Jun/2017	27/Jun/2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	20/Oct/2017	19/Oct/2018
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	29/Jun/2017	28/Jun/2018
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	26/Jan/2017	25/Jan/2018
Receiver	R&S	ESU3	102052	9kHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
Loop Antenna	TESEQ	HLA 6120	24155	9 kHz~30 MHz	03/Feb/2017	02/Feb/2018

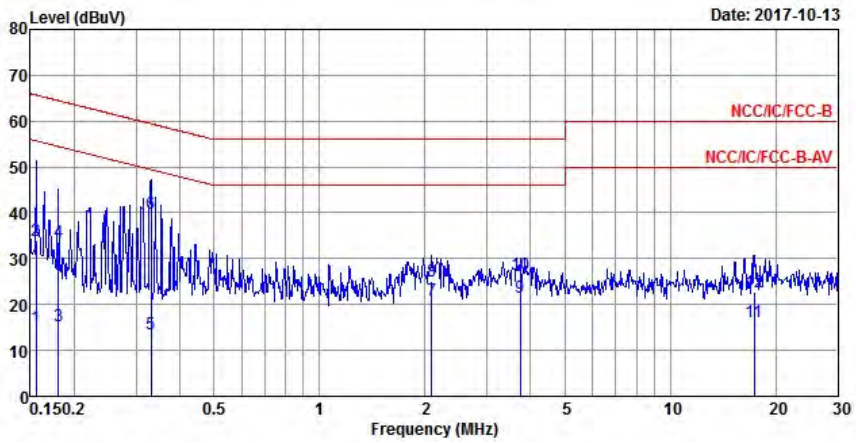
Instrument for Radiated Test – 30MHz to 1GHz

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
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	19/Apr/2017	18/Apr/2018
Spectrum	R&S	FSV40	101500	9kHz ~ 40GHz	28/Jun/2017	27/Jun/2018
Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	26/Jan/2017	25/Jan/2018
Bilog Antenna	SCHAFFNER	CBL 6112B	22237	30MHz ~ 1GHz	08/Jul/2017	07/Jul/2018

Instrument for Radiated Test – above 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	01/Nov/2017	31/Oct/2018
Amplifier	Keysight	83017A	MY53270196	1GHz ~ 26.5GHz	31/Aug/2017	30/Aug/2018
Spectrum Analyzer	R&S	FSV 40	101514	10Hz ~ 40GHz	28/Aug/2017	27/Aug/2018
RF Cable-high	SUHNER	SUCOFLEX106	CB222	1GHz ~ 40GHz	26/Jan/2018	25/Jan/2019
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	18GHz ~ 40GHz	09/Feb/2018	08/Feb/2019
Horn Antenna	SCHWARZBECK	BBHA9120D	1531	1GHz ~ 18GHz	18/Apr/2018	17/Apr/2019

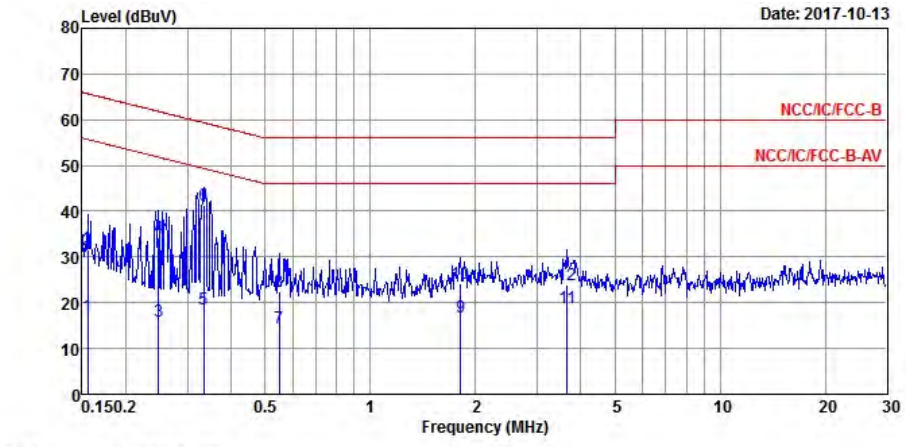
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	Adapter mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15567	15.15	-40.54	55.69	5.54	9.61	0.00	Average
2	0.15567	33.91	-31.78	65.69	24.30	9.61	0.00	QP
3	0.18056	15.31	-39.15	54.46	5.66	9.65	0.00	Average
4	0.18056	33.79	-30.67	64.46	24.14	9.65	0.00	QP
5	0.33033	13.67	-35.77	49.44	4.03	9.64	0.00	Average
6 MAX	0.33033	39.80	-19.64	59.44	30.16	9.64	0.00	QP
7	2.08787	21.04	-24.96	46.00	11.39	9.65	0.00	Average
8	2.08787	25.20	-30.80	56.00	15.55	9.65	0.00	QP
9	3.73953	21.59	-24.41	46.00	11.89	9.70	0.00	Average
10	3.73953	26.62	-29.38	56.00	16.92	9.70	0.00	QP
11	17.38262	16.35	-33.65	50.00	6.49	9.86	0.00	Average
12	17.38262	22.62	-37.38	60.00	12.76	9.86	0.00	QP

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

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



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15567	17.00	-38.69	55.69	7.34	9.66	0.00	Average
2	0.15567	31.55	-34.14	65.69	21.89	9.66	0.00	QP
3	0.24814	15.99	-35.83	51.82	6.33	9.66	0.00	Average
4	0.24814	34.38	-27.44	61.82	24.72	9.66	0.00	QP
5	0.33385	18.70	-30.65	49.35	9.03	9.67	0.00	Average
6 MAX	0.33385	41.26	-18.09	59.35	31.59	9.67	0.00	QP
7	0.54934	14.40	-31.60	46.00	4.74	9.66	0.00	Average
8	0.54934	22.42	-33.58	56.00	12.76	9.66	0.00	QP
9	1.80957	16.79	-29.21	46.00	7.02	9.77	0.00	Average
10	1.80957	24.17	-31.83	56.00	14.40	9.77	0.00	QP
11	3.66111	18.87	-27.13	46.00	9.10	9.77	0.00	Average
12	3.66111	23.94	-32.06	56.00	14.17	9.77	0.00	QP

Note 1: “>20dB” means emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found emissions (No emissions were detected.)

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)	683.75k	1.034M	1M03F1D	676.25k	1.032M

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

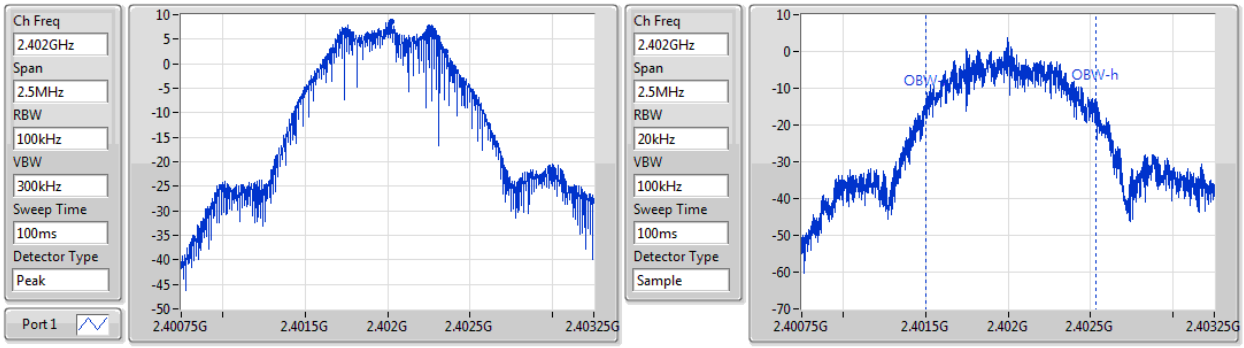
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	683.75k	1.033M
2440MHz_TnomVnom	Pass	500k	681.25k	1.034M
2480MHz_TnomVnom	Pass	500k	676.25k	1.032M

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

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

2402MHz

06/11/2017

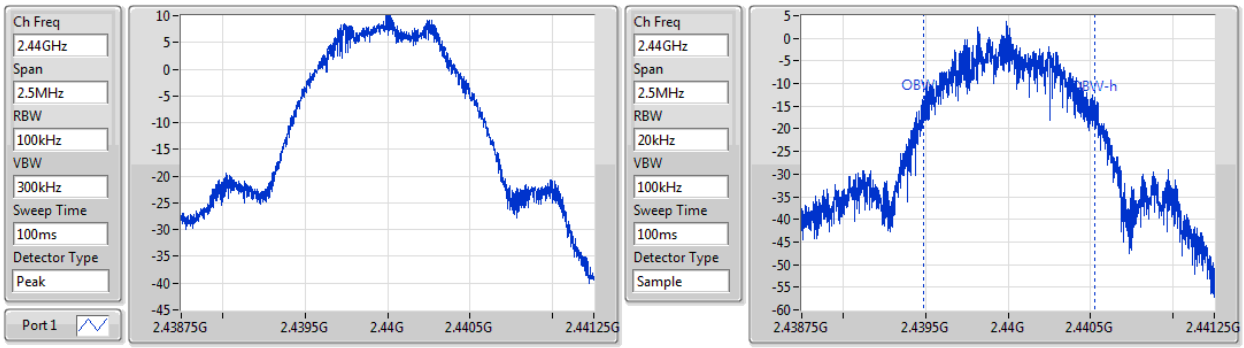


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
683.75k	2.401665G	2.402349G	1.033M	2.4015G	2.402533G	500k	1

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

2440MHz

06/11/2017

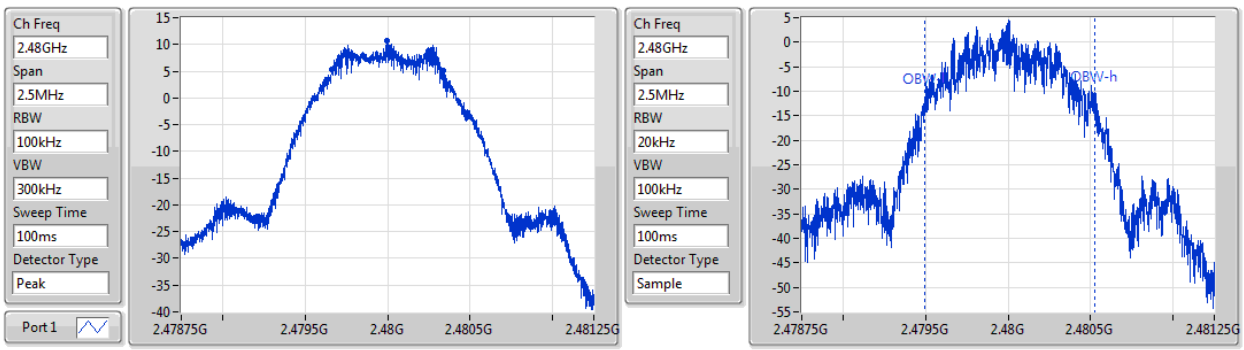


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
681.25k	2.439655G	2.440336G	1.034M	2.439489G	2.440523G	500k	1

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

2480MHz

06/11/2017



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
676.25k	2.479661G	2.480338G	1.032M	2.479494G	2.480526G	500k	1

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	6.93	0.00493

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.35	4.64	21.00
2440MHz_TnomVnom	Pass	3.35	6.02	21.00
2480MHz_TnomVnom	Pass	3.35	6.93	21.00

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-3.66

RBW=3kHz.

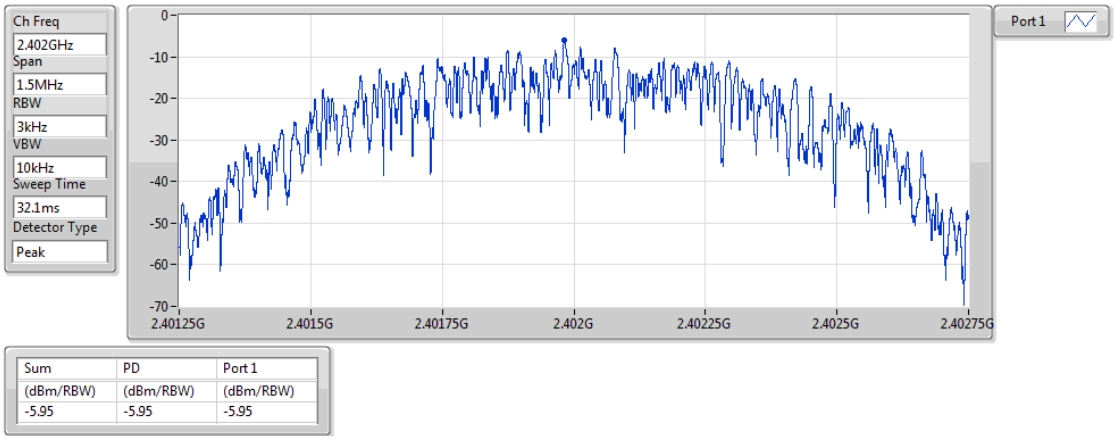
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.35	-5.95	8.00
2440MHz_TnomVnom	Pass	3.35	-5.97	8.00
2480MHz_TnomVnom	Pass	3.35	-3.66	8.00

RBW=3kHz.

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

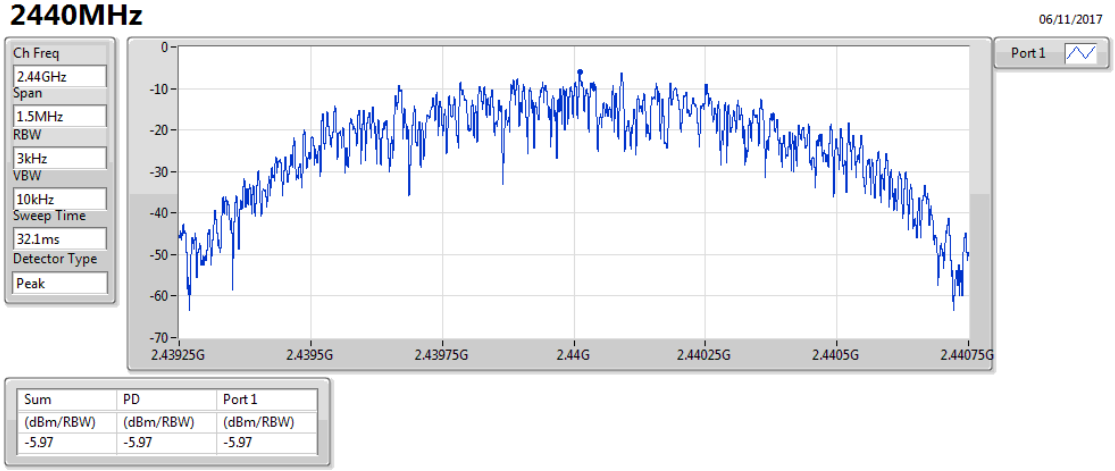
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.95	-5.95	-5.95

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

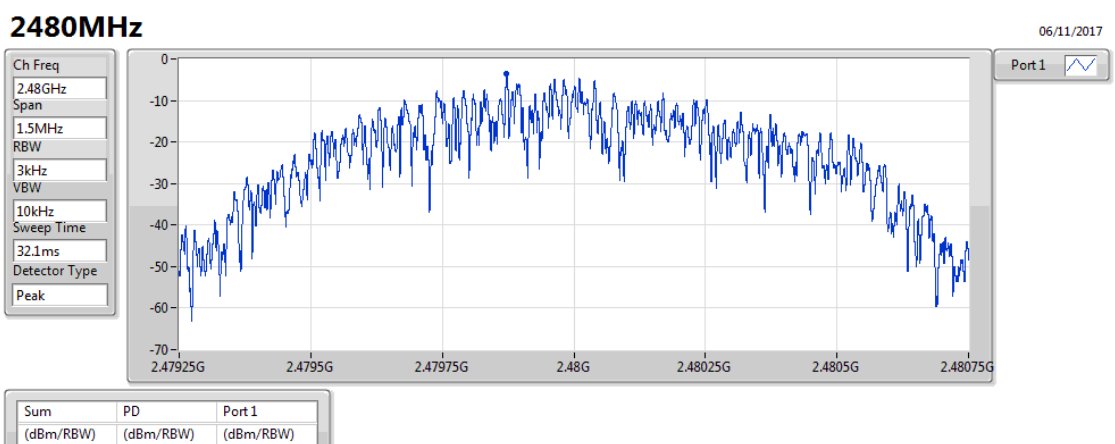
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.97	-5.97	-5.97

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

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-3.66	-3.66	-3.66

Summary

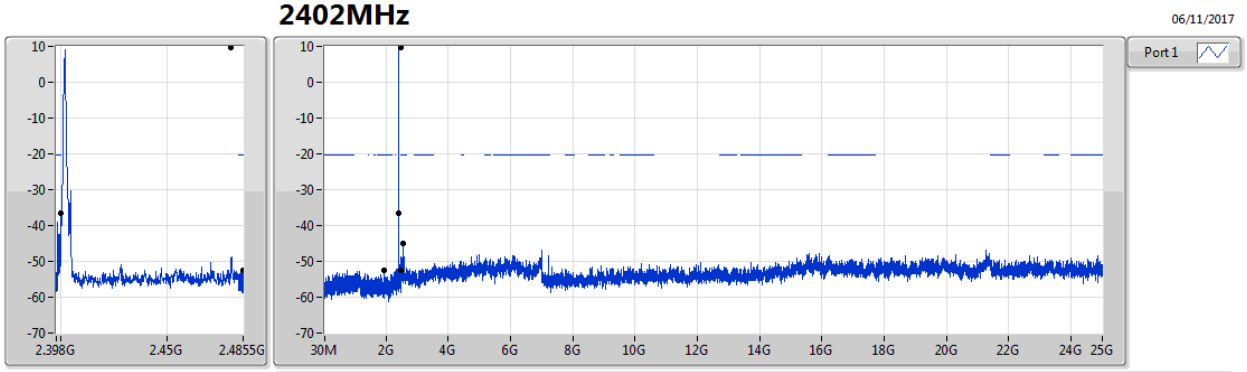
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.479826G	9.64	-20.36	1.950448G	-52.38	2.399992G	-36.63	2.485456G	-52.58	2.555858G	-44.94	1

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	2.479826G	9.64	-20.36	1.950448G	-52.38	2.399992G	-36.63	2.485456G	-52.58	2.555858G	-44.94	1
2440MHz_TnomVnom	Pass	2.479826G	9.64	-20.36	2.3092G	-51.06	2.398988G	-52.92	2.48444G	-53.01	2.595258G	-44.71	1
2480MHz_TnomVnom	Pass	2.479826G	9.64	-20.36	657.52M	-52.22	2.399772G	-51.30	2.484008G	-48.12	6.045605G	-47.51	1

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

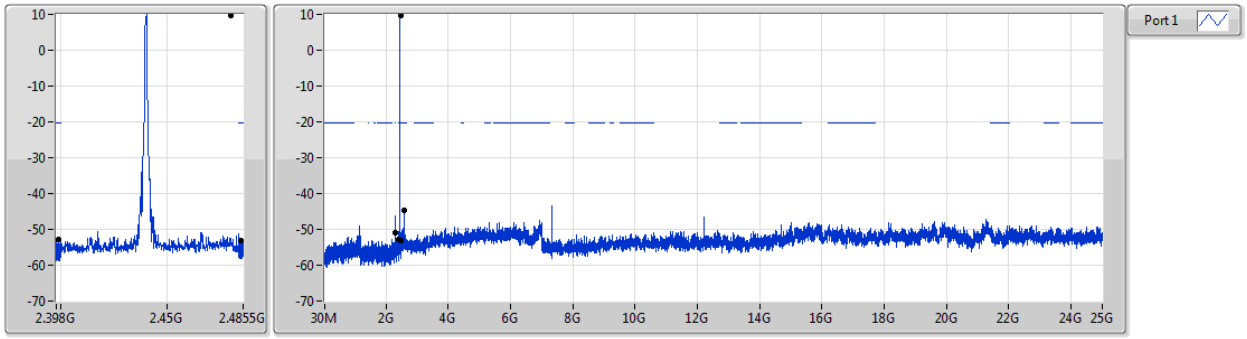
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.479826G	9.64	-20.36	1.950448G	-52.38	2.399992G	-36.63	2.485456G	-52.58	2.555858G	-44.94	1

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

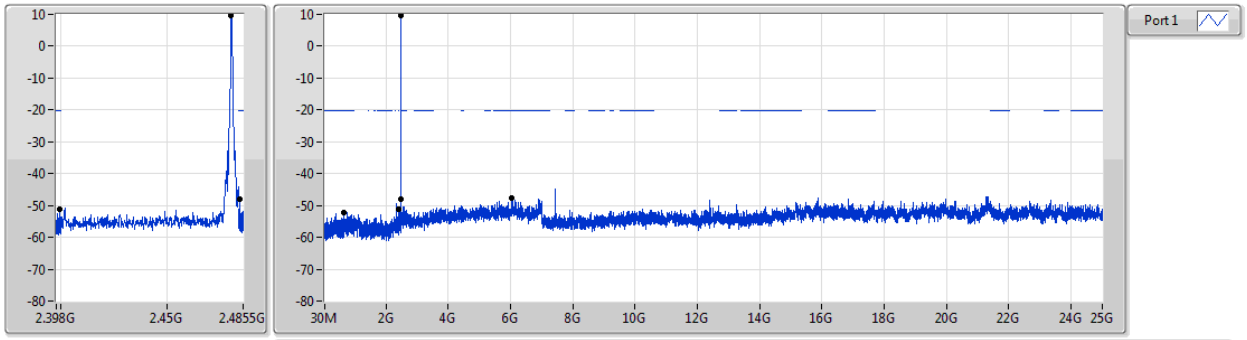
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.479826G	9.64	-20.36	2.3092G	-51.06	2.398988G	-52.92	2.48444G	-53.01	2.595258G	-44.71	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
2.479826G	9.64	-20.36	657.52M	-52.22	2.399772G	-51.30	2.484008G	-48.12	6.045605G	-47.51	1

Summary

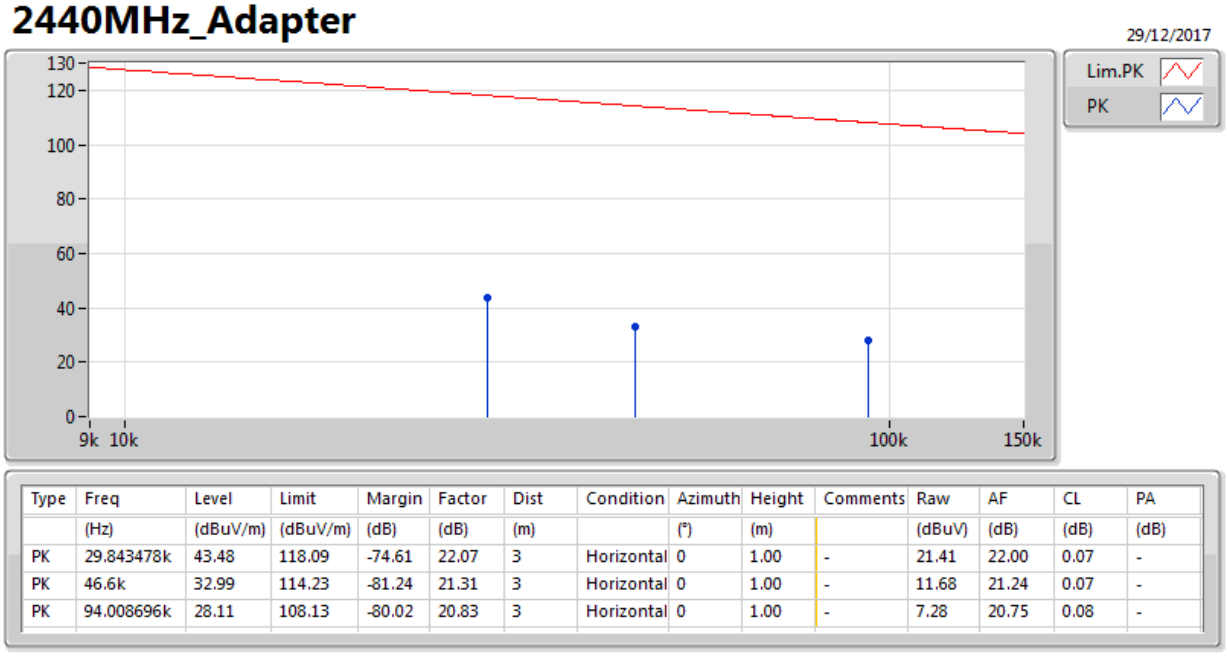
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	QP	31.94M	36.18	40.00	-3.82	-3.57	3	Horizontal	13	3.27	-

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	29.843478k	43.48	118.09	-74.61	22.07	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	46.6k	32.99	114.23	-81.24	21.31	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	94.008696k	28.11	108.13	-80.02	20.83	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	1.188261M	37.58	66.13	-28.55	21.01	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	3.567609M	44.31	69.50	-25.19	20.88	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	7.807174M	36.60	69.50	-32.90	21.67	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	150.28M	26.89	43.50	-16.61	-9.67	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	299.66M	28.97	46.00	-17.03	-5.83	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	373.38M	26.86	46.00	-19.14	-4.24	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	470.38M	33.98	46.00	-12.02	-1.82	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	683.78M	31.19	46.00	-14.81	0.21	3	Horizontal	360	1.00	-
2440MHz	Pass	QP	31.94M	36.18	40.00	-3.82	-3.57	3	Horizontal	13	3.27	-
2440MHz	Pass	PK	154.16M	33.65	43.50	-9.85	-9.79	3	Vertical	360	1.00	-
2440MHz	Pass	PK	183.26M	28.92	43.50	-14.58	-10.48	3	Vertical	360	1.00	-
2440MHz	Pass	PK	301.6M	26.60	46.00	-19.40	-5.78	3	Vertical	360	1.00	-
2440MHz	Pass	PK	468.44M	32.81	46.00	-13.19	-1.87	3	Vertical	360	1.00	-
2440MHz	Pass	PK	674.08M	30.85	46.00	-15.15	0.22	3	Vertical	360	1.00	-
2440MHz	Pass	QP	31.94M	36.16	40.00	-3.84	-3.57	3	Vertical	137	1.00	-

BT-LE(1Mbps)

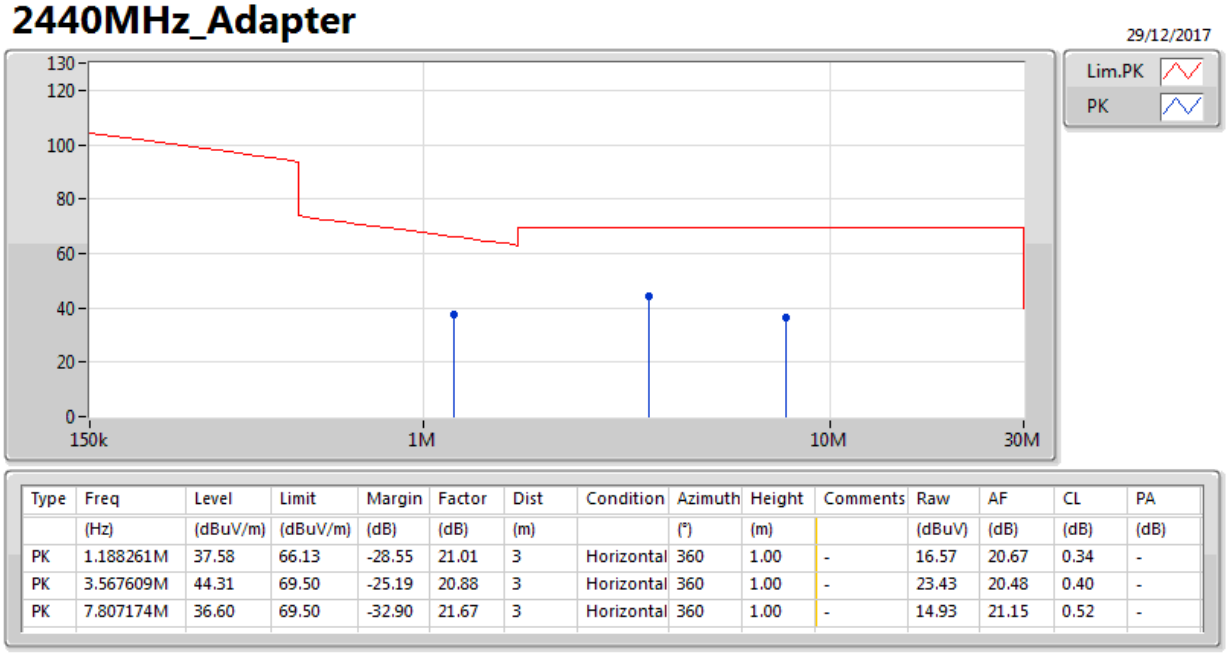
2440MHz_Adapter



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	29.843478k	43.48	118.09	-74.61	22.07	3	Horizontal	0	1.00	-	21.41	22.00	0.07	-
PK	46.6k	32.99	114.23	-81.24	21.31	3	Horizontal	0	1.00	-	11.68	21.24	0.07	-
PK	94.008696k	28.11	108.13	-80.02	20.83	3	Horizontal	0	1.00	-	7.28	20.75	0.08	-

BT-LE(1Mbps)

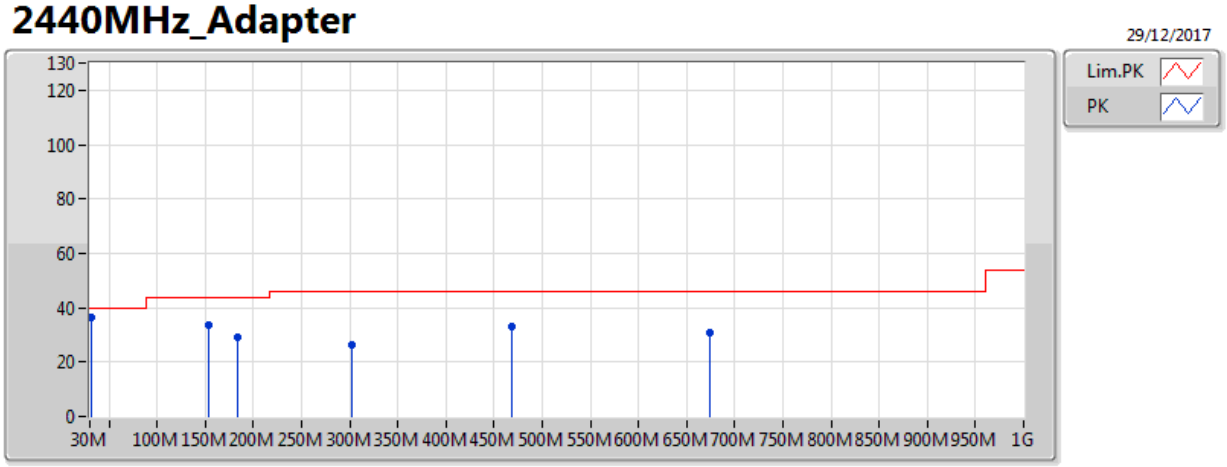
2440MHz_Adapter



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	1.188261M	37.58	66.13	-28.55	21.01	3	Horizontal	360	1.00	-	16.57	20.67	0.34	-
PK	3.567609M	44.31	69.50	-25.19	20.88	3	Horizontal	360	1.00	-	23.43	20.48	0.40	-
PK	7.807174M	36.60	69.50	-32.90	21.67	3	Horizontal	360	1.00	-	14.93	21.15	0.52	-

BT-LE(1Mbps)

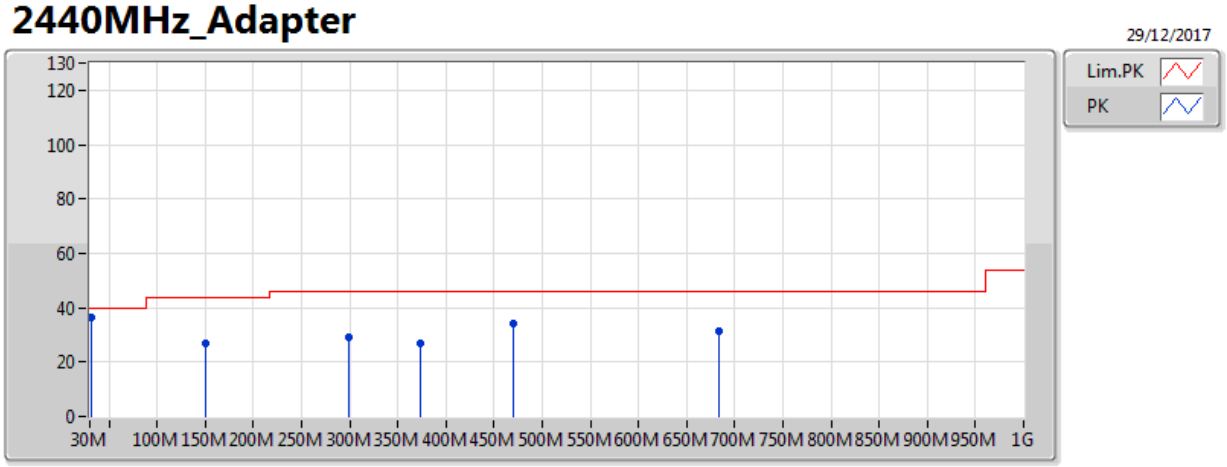
2440MHz_Adapter



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	154.16M	33.65	43.50	-9.85	-9.79	3	Vertical	360	1.00	-	43.44	15.19	2.13	27.12
PK	183.26M	28.92	43.50	-14.58	-10.48	3	Vertical	360	1.00	-	39.40	14.24	2.27	26.99
PK	301.6M	26.60	46.00	-19.40	-5.78	3	Vertical	360	1.00	-	32.38	18.49	2.42	26.69
PK	468.44M	32.81	46.00	-13.19	-1.87	3	Vertical	360	1.00	-	34.68	22.32	3.47	27.66
PK	674.08M	30.85	46.00	-15.15	0.22	3	Vertical	360	1.00	-	30.63	24.02	4.15	27.96
QP	31.94M	36.16	40.00	-3.84	-3.57	3	Vertical	137	1.00	-	39.73	22.27	1.74	27.58

BT-LE(1Mbps)

2440MHz_Adapter



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	150.28M	26.89	43.50	-16.61	-9.67	3	Horizontal	360	1.00	-	36.56	15.37	2.10	27.14
PK	299.66M	28.97	46.00	-17.03	-5.83	3	Horizontal	360	1.00	-	34.80	18.45	2.40	26.68
PK	373.38M	26.86	46.00	-19.14	-4.24	3	Horizontal	360	1.00	-	31.10	19.88	3.01	27.13
PK	470.38M	33.98	46.00	-12.02	-1.82	3	Horizontal	360	1.00	-	35.80	22.38	3.47	27.67
PK	683.78M	31.19	46.00	-14.81	0.21	3	Horizontal	360	1.00	-	30.98	24.03	4.14	27.96
QP	31.94M	36.18	40.00	-3.82	-3.57	3	Horizontal	13	3.27	-	39.75	22.27	1.74	27.58

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	50.20	54.00	-3.80	30.69	3	Vertical	142	1.80	-

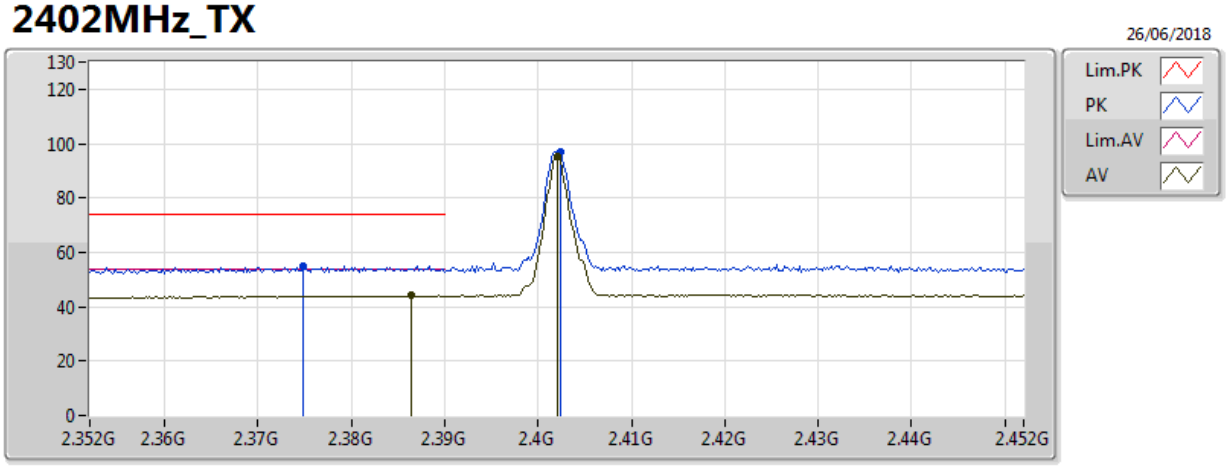
Result

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	2.3864G	44.05	54.00	-9.95	30.37	3	Vertical	172	2.16	-
2402MHz	Pass	AV	2.402G	95.47	Inf	-Inf	30.41	3	Vertical	172	2.16	-
2402MHz	Pass	PK	2.3748G	55.17	74.00	-18.83	30.33	3	Vertical	172	2.16	-
2402MHz	Pass	PK	2.4024G	97.00	Inf	-Inf	30.42	3	Vertical	172	2.16	-
2402MHz	Pass	AV	2.3832G	44.10	54.00	-9.90	30.35	3	Horizontal	209	1.81	-
2402MHz	Pass	AV	2.402G	94.70	Inf	-Inf	30.41	3	Horizontal	209	1.81	-
2402MHz	Pass	PK	2.377G	55.57	74.00	-18.43	30.33	3	Horizontal	209	1.81	-
2402MHz	Pass	PK	2.4022G	96.19	Inf	-Inf	30.42	3	Horizontal	209	1.81	-
2402MHz	Pass	AV	4.79788G	31.27	54.00	-22.73	5.78	3	Vertical	0	1.50	-
2402MHz	Pass	PK	4.7917G	45.15	74.00	-28.85	5.77	3	Vertical	0	1.50	-
2402MHz	Pass	AV	4.804G	32.39	54.00	-21.61	5.79	3	Horizontal	0	1.50	-
2402MHz	Pass	PK	4.80352G	46.39	74.00	-27.61	5.78	3	Horizontal	0	1.50	-
2440MHz	Pass	AV	2.3812G	44.08	54.00	-9.92	30.34	3	Vertical	92	1.76	-
2440MHz	Pass	AV	2.44G	93.80	Inf	-Inf	30.55	3	Vertical	92	1.76	-
2440MHz	Pass	AV	2.4996G	44.75	54.00	-9.25	30.75	3	Vertical	92	1.76	-
2440MHz	Pass	PK	2.3852G	54.61	74.00	-19.39	30.36	3	Vertical	92	1.76	-
2440MHz	Pass	PK	2.44G	95.30	Inf	-Inf	30.55	3	Vertical	92	1.76	-
2440MHz	Pass	PK	2.4988G	54.54	74.00	-19.46	30.75	3	Vertical	92	1.76	-
2440MHz	Pass	AV	2.3892G	44.12	54.00	-9.88	30.37	3	Horizontal	197	1.56	-
2440MHz	Pass	AV	2.44G	93.60	Inf	-Inf	30.55	3	Horizontal	197	1.56	-
2440MHz	Pass	AV	2.494G	44.67	54.00	-9.33	30.73	3	Horizontal	197	1.56	-
2440MHz	Pass	PK	2.3684G	55.33	74.00	-18.67	30.30	3	Horizontal	197	1.56	-
2440MHz	Pass	PK	2.4396G	95.04	Inf	-Inf	30.55	3	Horizontal	197	1.56	-
2440MHz	Pass	PK	2.4944G	55.77	74.00	-18.23	30.73	3	Horizontal	197	1.56	-
2440MHz	Pass	AV	4.87976G	31.03	54.00	-22.97	5.95	3	Vertical	0	1.50	-
2440MHz	Pass	AV	7.3194G	42.37	54.00	-11.63	11.15	3	Vertical	311	1.79	-
2440MHz	Pass	PK	4.88522G	44.73	74.00	-29.27	5.96	3	Vertical	0	1.50	-
2440MHz	Pass	PK	7.31916G	56.29	74.00	-17.71	11.15	3	Vertical	311	1.79	-
2440MHz	Pass	AV	4.8797G	31.22	54.00	-22.78	5.95	3	Horizontal	0	1.50	-
2440MHz	Pass	AV	7.31934G	41.35	54.00	-12.65	11.15	3	Horizontal	179	1.61	-
2440MHz	Pass	PK	4.8893G	44.89	74.00	-29.11	5.97	3	Horizontal	0	1.50	-
2440MHz	Pass	PK	7.32G	55.18	74.00	-18.82	11.15	3	Horizontal	179	1.61	-
2480MHz	Pass	AV	2.48G	97.58	Inf	-Inf	30.68	3	Vertical	142	1.80	-
2480MHz	Pass	AV	2.483502G	50.20	54.00	-3.80	30.69	3	Vertical	142	1.80	-
2480MHz	Pass	PK	2.4802G	98.99	Inf	-Inf	30.68	3	Vertical	142	1.80	-
2480MHz	Pass	PK	2.483502G	60.42	74.00	-13.58	30.69	3	Vertical	142	1.80	-
2480MHz	Pass	AV	2.48G	95.21	Inf	-Inf	30.68	3	Horizontal	189	1.33	-
2480MHz	Pass	AV	2.483502G	48.47	54.00	-5.53	30.69	3	Horizontal	189	1.33	-
2480MHz	Pass	PK	2.4798G	96.61	Inf	-Inf	30.68	3	Horizontal	189	1.33	-
2480MHz	Pass	PK	2.483502G	58.20	74.00	-15.80	30.69	3	Horizontal	189	1.33	-
2480MHz	Pass	AV	4.95976G	32.73	54.00	-21.27	6.11	3	Vertical	173	1.50	-
2480MHz	Pass	AV	7.4394G	43.11	54.00	-10.89	11.48	3	Vertical	47	1.78	-
2480MHz	Pass	PK	4.95994G	45.83	74.00	-28.17	6.11	3	Vertical	173	1.50	-
2480MHz	Pass	PK	7.43922G	57.22	74.00	-16.78	11.48	3	Vertical	47	1.78	-
2480MHz	Pass	AV	4.95988G	33.99	54.00	-20.01	6.11	3	Horizontal	321	1.50	-
2480MHz	Pass	AV	7.4394G	41.10	54.00	-12.90	11.48	3	Horizontal	176	1.50	-
2480MHz	Pass	PK	4.95952G	47.03	74.00	-26.97	6.11	3	Horizontal	321	1.50	-

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz	Pass	PK	7.43912G	55.29	74.00	-18.71	11.48	3	Horizontal	176	1.50	-

BT-LE(1Mbps)

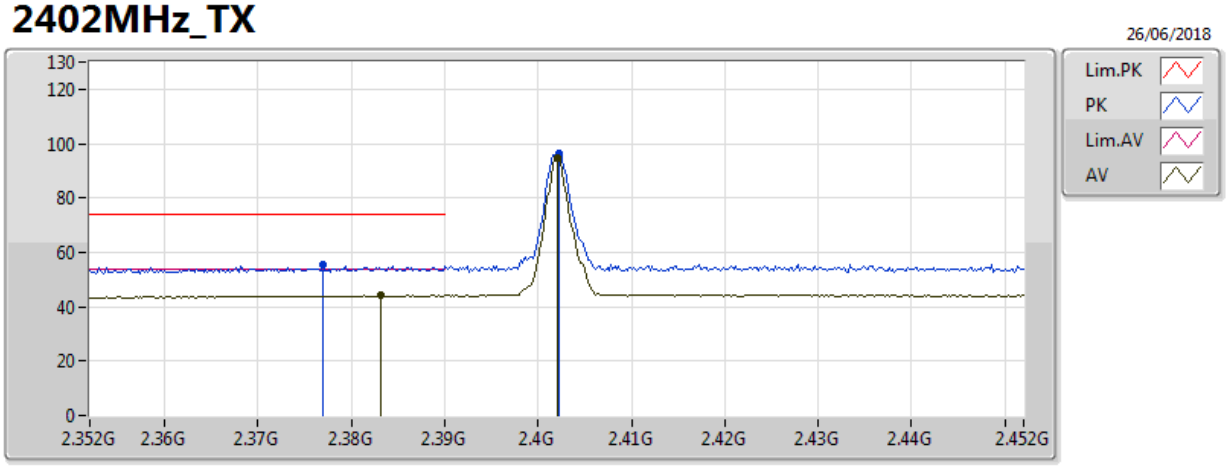
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3864G	44.05	54.00	-9.95	30.37	3	Vertical	172	2.16	-
AV	2.402G	95.47	Inf	-Inf	30.41	3	Vertical	172	2.16	-
PK	2.3748G	55.17	74.00	-18.83	30.33	3	Vertical	172	2.16	-
PK	2.4024G	97.00	Inf	-Inf	30.42	3	Vertical	172	2.16	-

BT-LE(1Mbps)

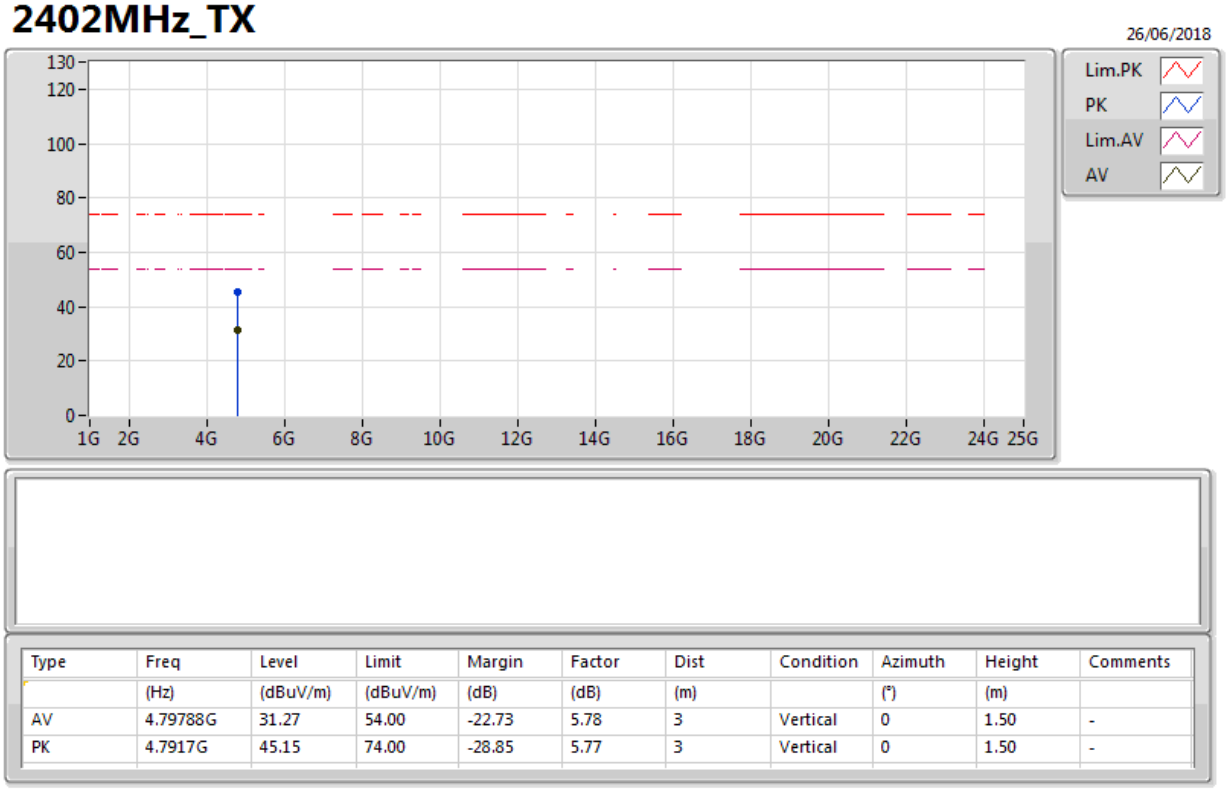
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3832G	44.10	54.00	-9.90	30.35	3	Horizontal	209	1.81	-
AV	2.402G	94.70	Inf	-Inf	30.41	3	Horizontal	209	1.81	-
PK	2.377G	55.57	74.00	-18.43	30.33	3	Horizontal	209	1.81	-
PK	2.4022G	96.19	Inf	-Inf	30.42	3	Horizontal	209	1.81	-

BT-LE(1Mbps)

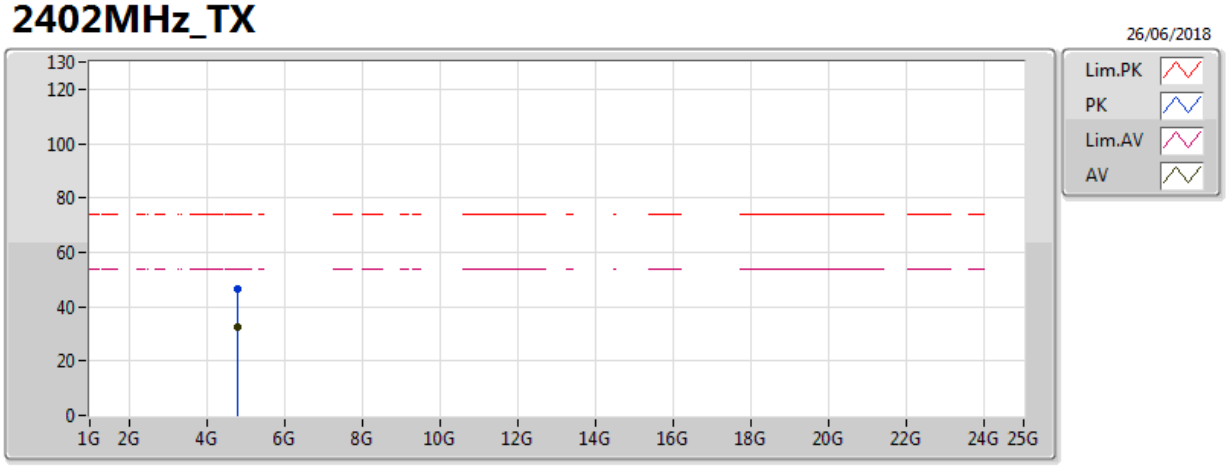
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.79788G	31.27	54.00	-22.73	5.78	3	Vertical	0	1.50	-
PK	4.7917G	45.15	74.00	-28.85	5.77	3	Vertical	0	1.50	-

BT-LE(1Mbps)

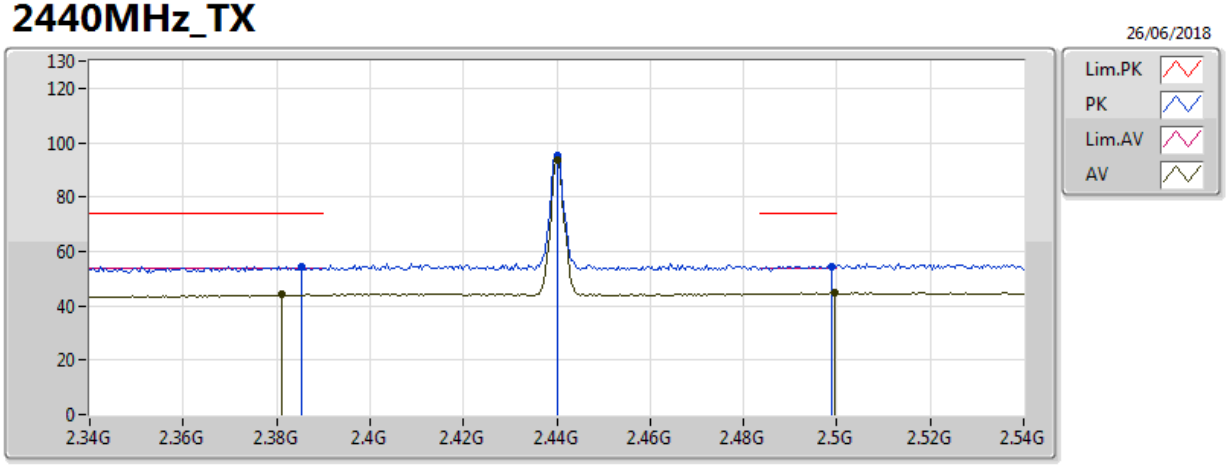
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.804G	32.39	54.00	-21.61	5.79	3	Horizontal	0	1.50	-
PK	4.80352G	46.39	74.00	-27.61	5.78	3	Horizontal	0	1.50	-

BT-LE(1Mbps)

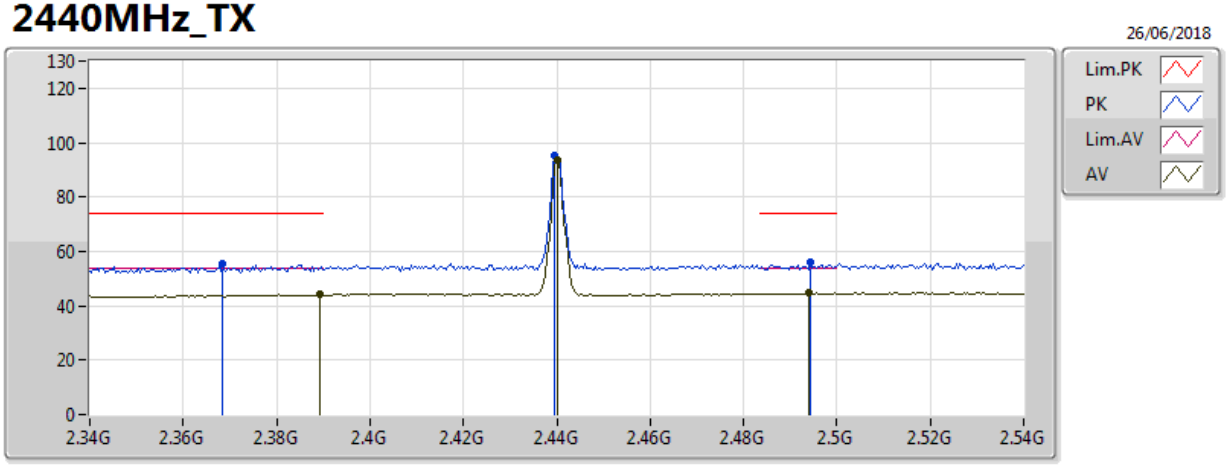
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3812G	44.08	54.00	-9.92	30.34	3	Vertical	92	1.76	-
AV	2.44G	93.80	Inf	-Inf	30.55	3	Vertical	92	1.76	-
AV	2.4996G	44.75	54.00	-9.25	30.75	3	Vertical	92	1.76	-
PK	2.3852G	54.61	74.00	-19.39	30.36	3	Vertical	92	1.76	-
PK	2.44G	95.30	Inf	-Inf	30.55	3	Vertical	92	1.76	-
PK	2.4988G	54.54	74.00	-19.46	30.75	3	Vertical	92	1.76	-

BT-LE(1Mbps)

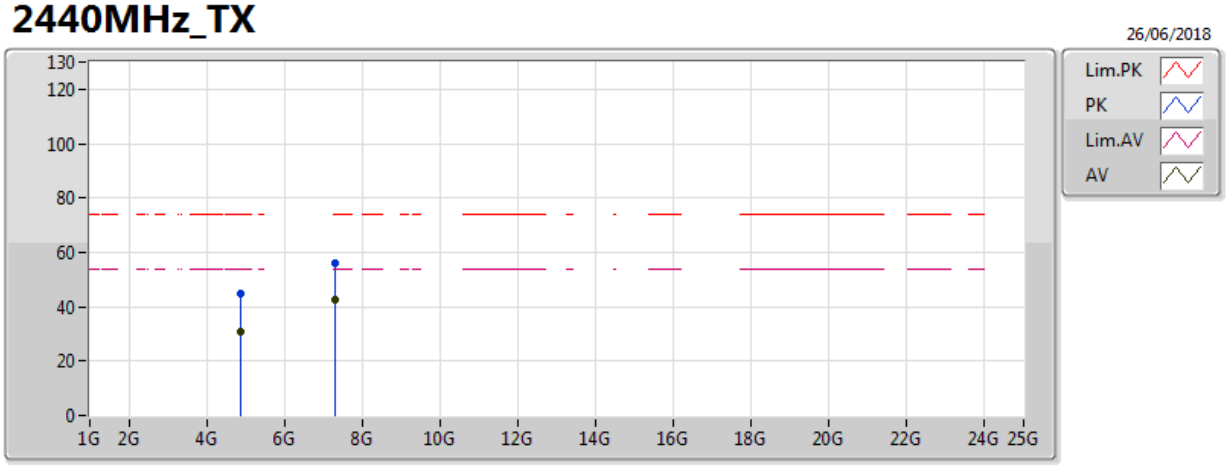
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3892G	44.12	54.00	-9.88	30.37	3	Horizontal	197	1.56	-
AV	2.44G	93.60	Inf	-Inf	30.55	3	Horizontal	197	1.56	-
AV	2.494G	44.67	54.00	-9.33	30.73	3	Horizontal	197	1.56	-
PK	2.3684G	55.33	74.00	-18.67	30.30	3	Horizontal	197	1.56	-
PK	2.4396G	95.04	Inf	-Inf	30.55	3	Horizontal	197	1.56	-
PK	2.4944G	55.77	74.00	-18.23	30.73	3	Horizontal	197	1.56	-

BT-LE(1Mbps)

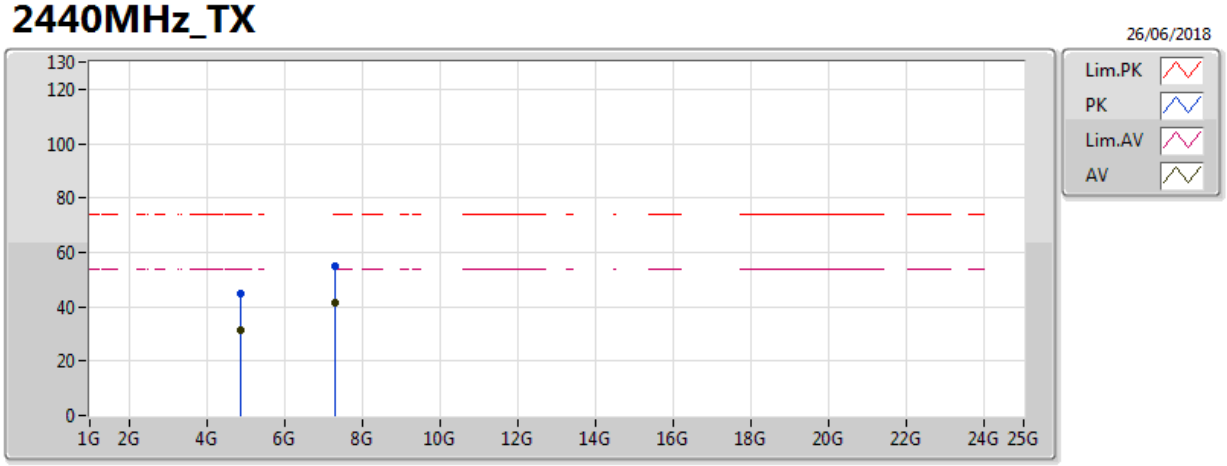
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.87976G	31.03	54.00	-22.97	5.95	3	Vertical	0	1.50	-
AV	7.3194G	42.37	54.00	-11.63	11.15	3	Vertical	311	1.79	-
PK	4.88522G	44.73	74.00	-29.27	5.96	3	Vertical	0	1.50	-
PK	7.31916G	56.29	74.00	-17.71	11.15	3	Vertical	311	1.79	-

BT-LE(1Mbps)

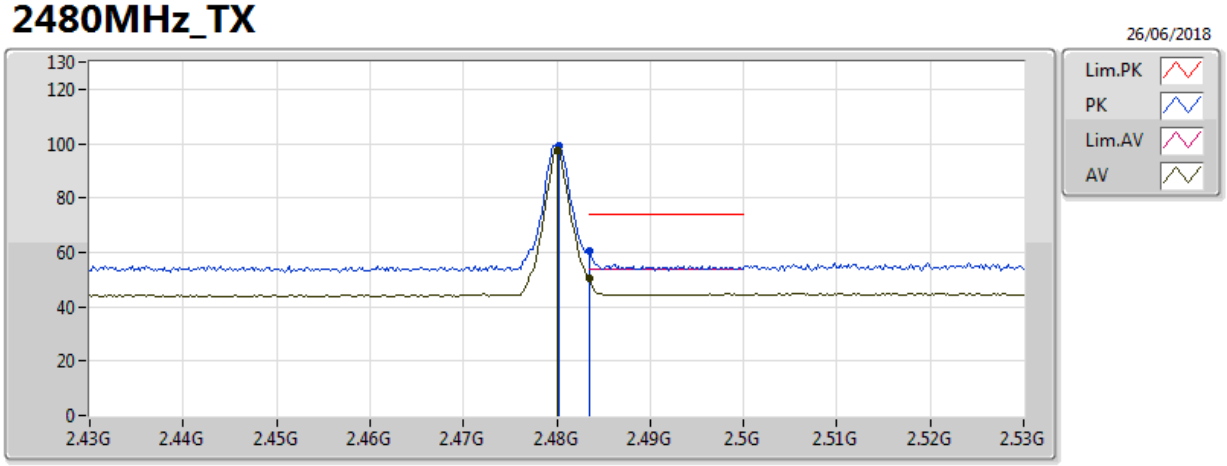
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.8797G	31.22	54.00	-22.78	5.95	3	Horizontal	0	1.50	-
AV	7.31934G	41.35	54.00	-12.65	11.15	3	Horizontal	179	1.61	-
PK	4.8893G	44.89	74.00	-29.11	5.97	3	Horizontal	0	1.50	-
PK	7.32G	55.18	74.00	-18.82	11.15	3	Horizontal	179	1.61	-

BT-LE(1Mbps)

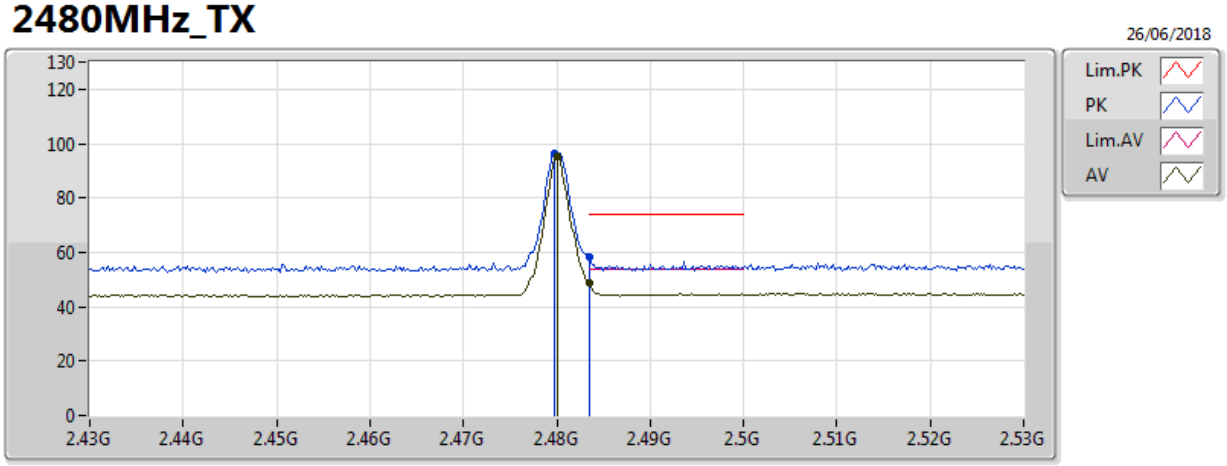
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.48G	97.58	Inf	-Inf	30.68	3	Vertical	142	1.80	-
AV	2.483502G	50.20	54.00	-3.80	30.69	3	Vertical	142	1.80	-
PK	2.4802G	98.99	Inf	-Inf	30.68	3	Vertical	142	1.80	-
PK	2.483502G	60.42	74.00	-13.58	30.69	3	Vertical	142	1.80	-

BT-LE(1Mbps)

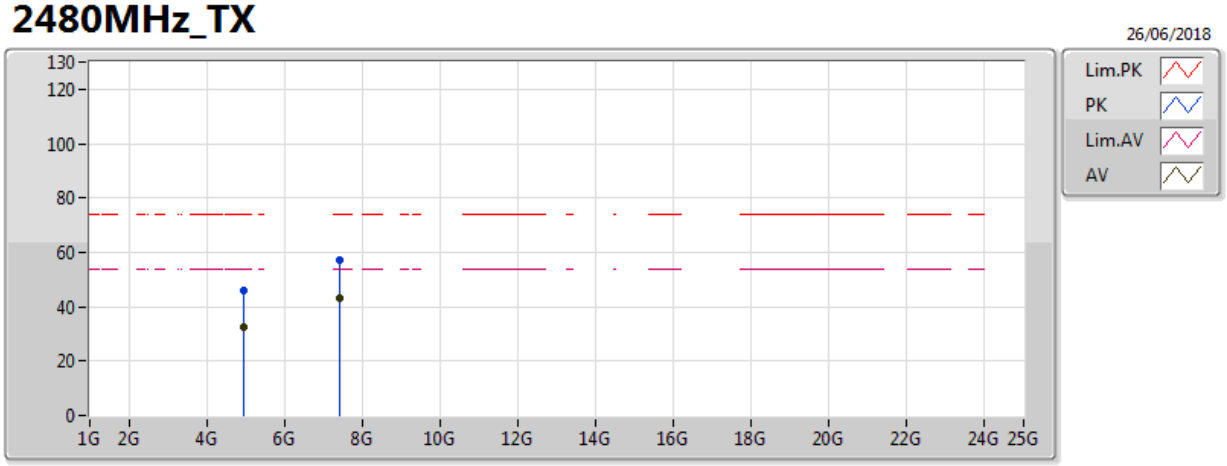
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.48G	95.21	Inf	-Inf	30.68	3	Horizontal	189	1.33	-
AV	2.483502G	48.47	54.00	-5.53	30.69	3	Horizontal	189	1.33	-
PK	2.4798G	96.61	Inf	-Inf	30.68	3	Horizontal	189	1.33	-
PK	2.483502G	58.20	74.00	-15.80	30.69	3	Horizontal	189	1.33	-

BT-LE(1Mbps)

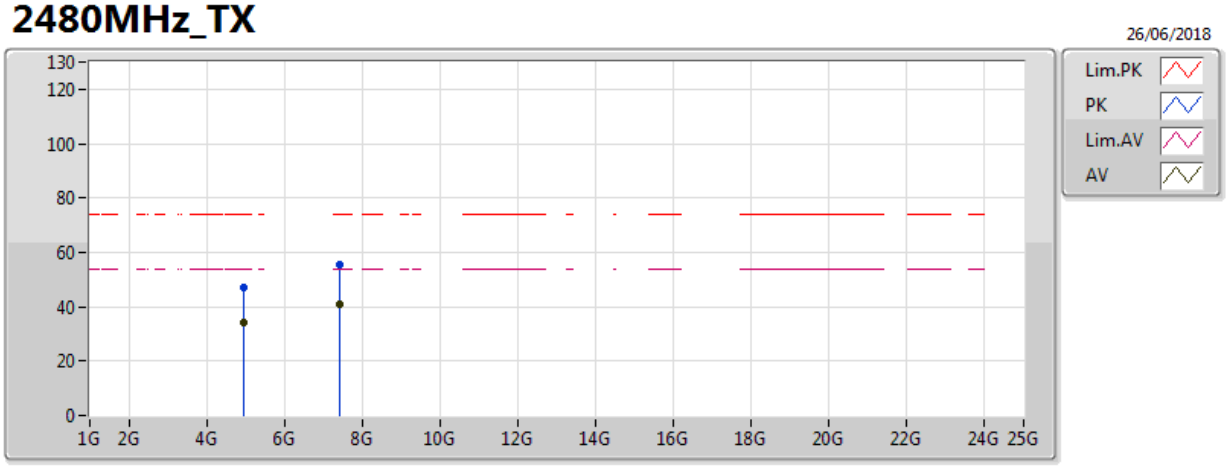
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.95976G	32.73	54.00	-21.27	6.11	3	Vertical	173	1.50	-
AV	7.4394G	43.11	54.00	-10.89	11.48	3	Vertical	47	1.78	-
PK	4.95994G	45.83	74.00	-28.17	6.11	3	Vertical	173	1.50	-
PK	7.43922G	57.22	74.00	-16.78	11.48	3	Vertical	47	1.78	-

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	4.95988G	33.99	54.00	-20.01	6.11	3	Horizontal	321	1.50	-
AV	7.4394G	41.10	54.00	-12.90	11.48	3	Horizontal	176	1.50	-
PK	4.95952G	47.03	74.00	-26.97	6.11	3	Horizontal	321	1.50	-
PK	7.43912G	55.29	74.00	-18.71	11.48	3	Horizontal	176	1.50	-