FCC Test Report

Equipment	:	**Active Stylus for Tablet**
Brand Name	:	**Wacom**
Model No.	:	**CS-321A**
FCC ID	:	**HV4CS321A**
Standard	:	**47 CFR FCC Part 15.247**
Frequency	:	**2400 MHz – 2483.5 MHz**
Function	:	**☐Point-to-multipoint; ☒Point-to-point**
Applicant	:	**Wacom Co., Ltd. 2-510-1 Toyonodai, Kazo-shi, Saitama 349-1148 Japan**
Manufacturer	:	**Wacom Co., Ltd. 2-510-1 Toyonodai, Kazo-shi, Saitama 349-1148 Japan**

The product sample received on Feb. 20, 2017 and completely tested on Mar. 09, 2017. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONALINC., the test report shall not be reproduced except in full.

Phoenix Chen
SPORTON INTERNATIONAL INC.

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
3.1	15.247(a)	DTS Bandwidth	≥500kHz	Complied
3.2	15.247(b)	Maximum Conducted Output Power	Power [dBm]:30	Complied
3.3	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:8	Complied
3.4	15.247(d)	Emissions in Non-restricted Frequency Bands	Non-Restricted Bands: >20 dBc	Complied
3.5	15.247(d)	Emissions in Restricted Frequency Bands	Restricted Bands: FCC 15.209	Complied

Revision History

Report No.	Version	Description	Issued Date
FR722002AL	Rev. 01	Initial issue of report	Mar. 21, 2017

1 General Description

1.1 Information

1.1.1 RF General Information

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

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

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

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)
1	Unictron Technologies Corporation	AA080	Chip Antenna	-1.9

1.1.3 EUT Information

Operational Condition		
EUT Power Type	From Battery	
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)	0.234	6.308	146.25u	10k

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 v03r05

1.3 Testing Location Information

Testing Location			
☐	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. 553509 with FCC.			
☒	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, 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	TH07-HY	Candy	22.5°C / 63%	09/Mar/2017
Radiated	03CH03-HY	Jeff	23.8°C / 57%	09/Mar/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 (30MHz ~ 1,000MHz)	2.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	2.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	2.9 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	1.5V

2.2 Test Channel Mode

Test Software Version	RealTerm Serial Capture Program 2.0.0.70

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

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

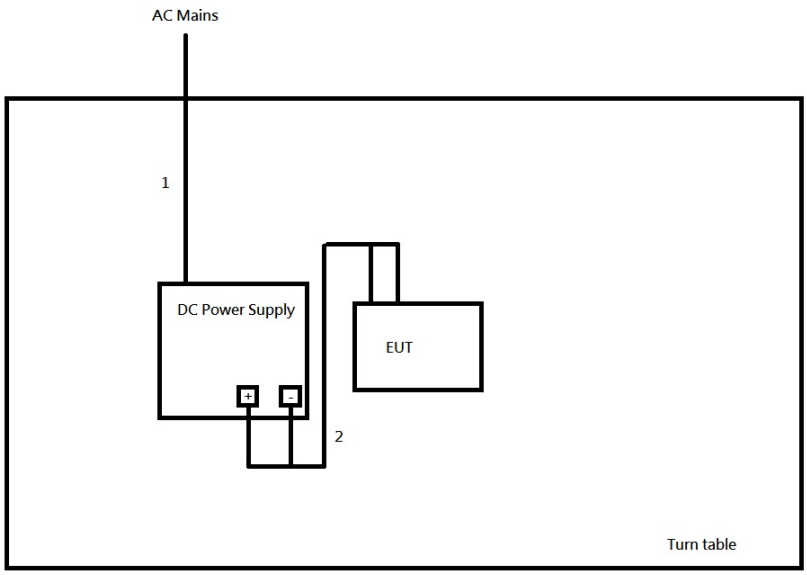
2.4 Support Equipment

Support Equipment – RF Conducted				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E6400	DOC
2	Adapter for NB	DELL	HA65NM130	DOC

Support Equipment – Radiated Emission				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	-	-	-	-

2.5 Test Setup Diagram

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	AC Power Line	No	1.8m
2	DC Power Line	No	0.9m

3 Transmitter Test Result

3.1 DTS Bandwidth

3.1.1 6dB Bandwidth Limit

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

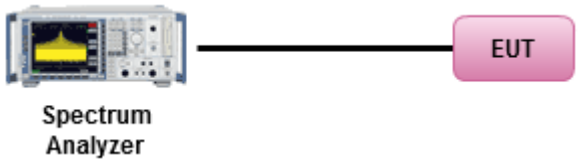
3.1.2 Measuring Instruments

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

3.1.3 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 for6 dB bandwidth measurement.
	☐ Refer as KDB 558074, clause 8.2 Option 2 for6 dB bandwidth measurement.
	☐ Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.1.4 Test Setup

Emission Bandwidth
 Spectrum Analyzer

3.1.5 Test Result of Emission Bandwidth

Refer as Appendix A

3.2 Maximum Conducted Output Power

3.2.1 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.			

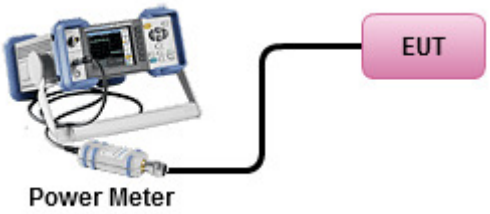
3.2.2 Measuring Instruments

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

3.2.3 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 (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]) $EIRP_{total} = P_{total} + DG$

3.2.4 Test Setup

Maximum Conducted Output Power (Power Meter)


3.2.5 Test Result of Maximum Conducted Output Power

Refer as Appendix B

3.3 Power Spectral Density

3.3.1 Power Spectral Density Limit

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

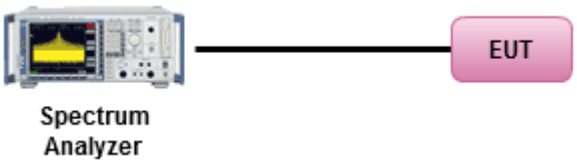
3.3.2 Measuring Instruments

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

3.3.3 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.

3.3.4 Test Setup

Power Spectral Density


3.3.5 Test Result of Power Spectral Density

Refer as Appendix C

3.4 Emissions in Non-restricted Frequency Bands

3.4.1 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.	

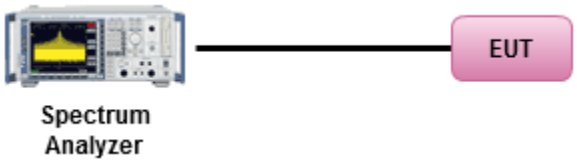
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup

Emissions in Non-restricted Frequency Bands


3.4.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix D

3.5 Emissions in Restricted Frequency Bands

3.5.1 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.

3.5.2 Measuring Instruments

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

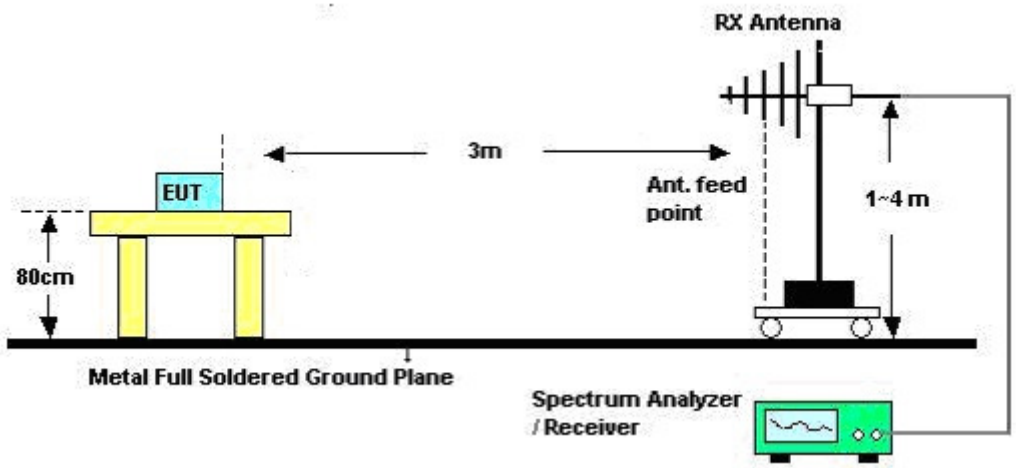
3.5.3 Test Procedures

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.

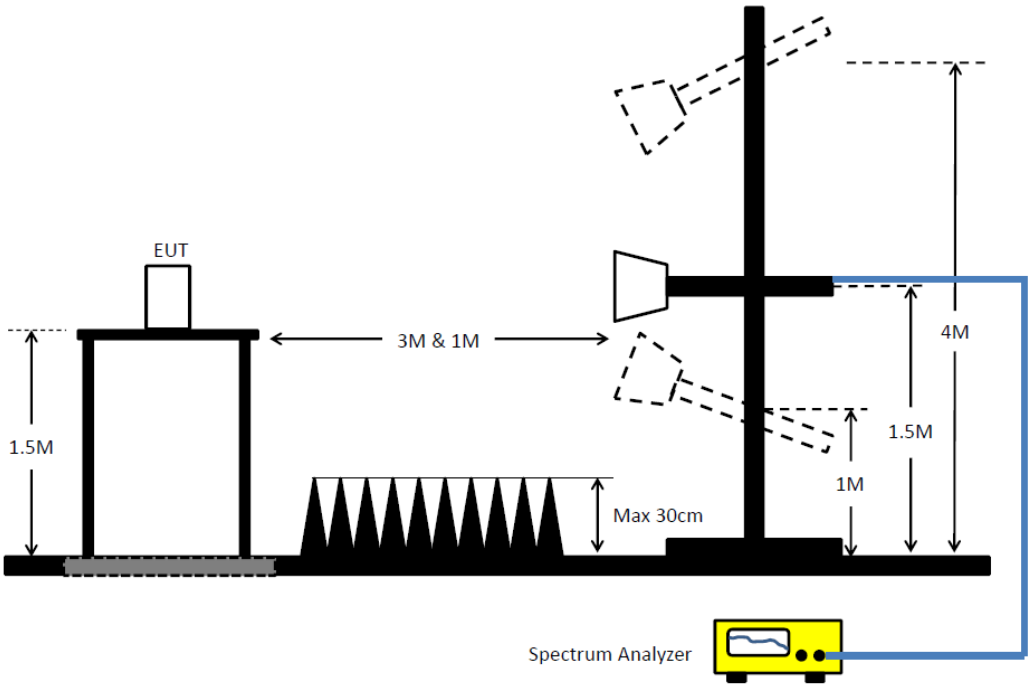
3.5.4 Test Setup

Emissions in Restricted Frequency Bands

30MHz~1GHz



Above 1GHz



3.5.5 Test Result of Emissions in Restricted Frequency Bands (Below 30MHz)

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported. All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.5.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix E

4 Test Equipment and Calibration Data

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz	28/Nov/2016	27/Nov/2017
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz	16/Dec/2016	15/Dec/2017
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	10/May/2016	09/May/2017
Amplifier	KEYSIGHT	83017A	MY53270197	1GHz ~ 26.5GHz	29/Aug/2016	28/Aug/2017
Spectrum	R&S	FSV40	101515	9kHz ~ 40GHz	28/Nov/2016	27/Nov/2017
Bilog Antenna	SCHAFFNER	CBL 6112D	2723	30MHz ~ 1GHz	01/Oct/2016	30/Sep/2017
Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA 9120D 1531	1GHz ~ 18GHz	22/Apr/2016	21/Apr/2017
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz ~ 40GHz	18/Feb/2016	17/Feb/2018
Loop Antenna	TESEQ	HLA 6120	24155	9 kHz~30 MHz	16/Mar/2016	15/Mar/2017
RF-Cable-high	SUHNER	SUHNER	CB222	1GHz ~ 40GHz	28/Oct/2016	27/Oct/2017
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	27/Oct/2016	26/Oct/2017
DC Power Source	G.W.	GPS-3030DD	GEN865896	0~30V,0~3A	14/Jan/2017	13/Jan/2018

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101500	9kHz~40GHz	12/May/2016	11/May/ 2017
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	27/Oct/2016	26/Oct/2017
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	27/Oct/2016	26/Oct/2017
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	21/Jul/2016	20/Jul/2017
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10713/4	30MHz ~ 26.5GHz	02/Oct/2016	01/Oct/2017

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	692.5k	982.009k	982kF1D	678.75k	952.024k

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

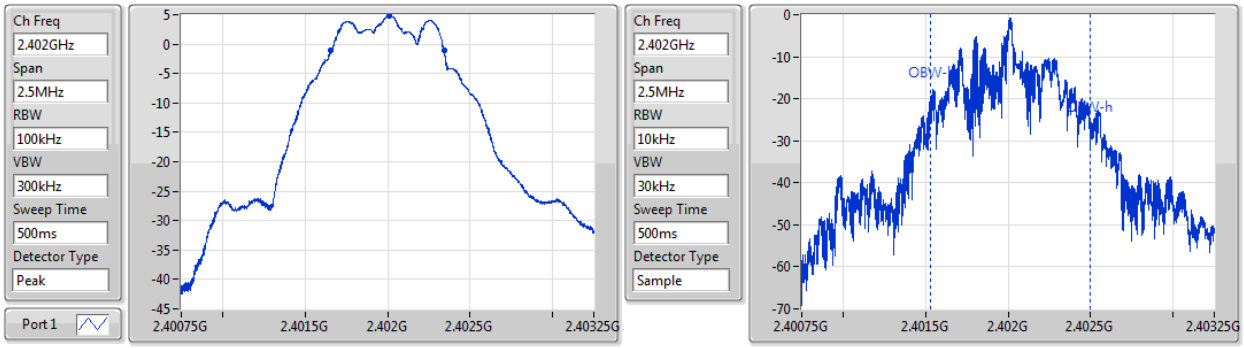
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	682.5k	964.518k
2440MHz	Pass	500k	692.5k	982.009k
2480MHz	Pass	500k	678.75k	952.024k

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

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

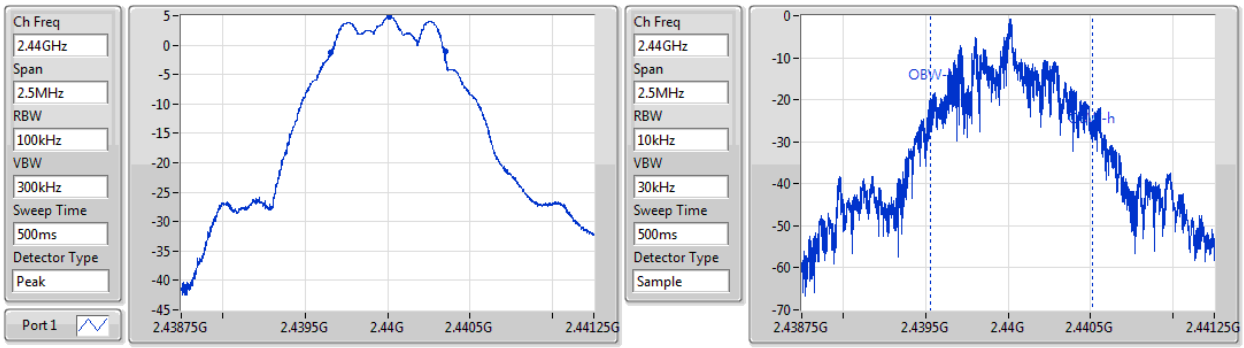
2402MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
682.5k	2.401659G	2.402341G	964.518k	2.401533G	2.402497G	500k	1

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

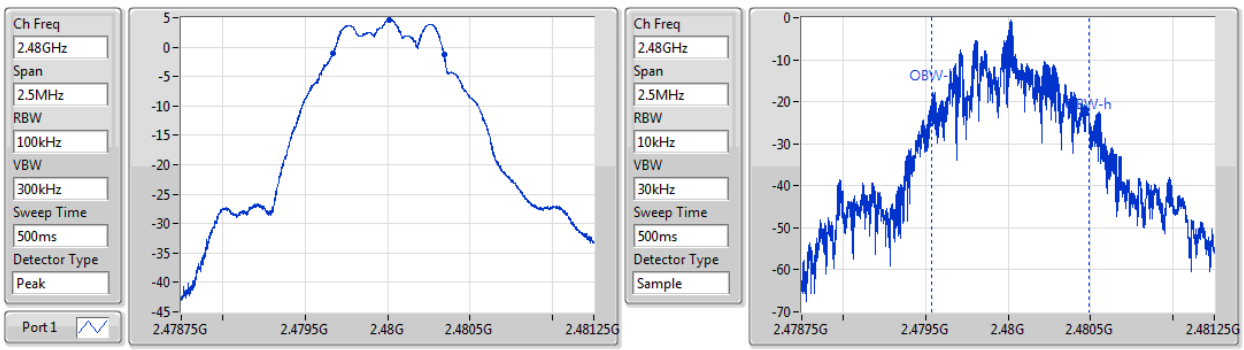
2440MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
692.5k	2.439658G	2.44035G	982.009k	2.43953G	2.440512G	500k	1

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

2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
678.75k	2.479666G	2.480345G	952.024k	2.479538G	2.48049G	500k	1

Summary

Mode	Power (dBm)	Power (W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	4.90	0.00309

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	-1.90	4.89	30.00
2440MHz	Pass	-1.90	4.90	30.00
2480MHz	Pass	-1.90	4.78	30.00

Summary

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	4.06	0.00255

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	-1.90	4.06	30.00
2440MHz	Pass	-1.90	3.99	30.00
2480MHz	Pass	-1.90	3.84	30.00

Summary

Mode	PD (dBm/RBW)
BT-LE(1Mbps)	-
2.4-2.4835GHz	-8.73

RBW=3kHz.

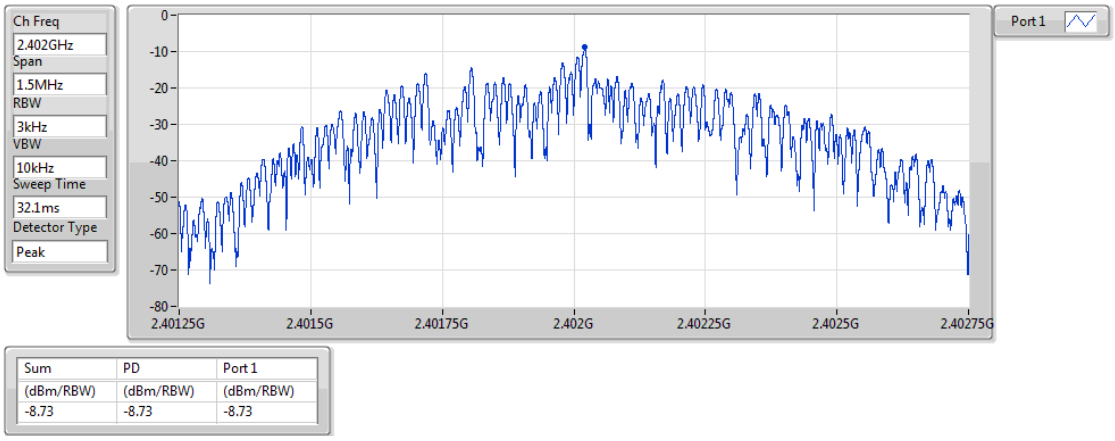
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	-1.90	-8.73	8.00
2440MHz	Pass	-1.90	-11.40	8.00
2480MHz	Pass	-1.90	-9.17	8.00

RBW=3kHz.

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

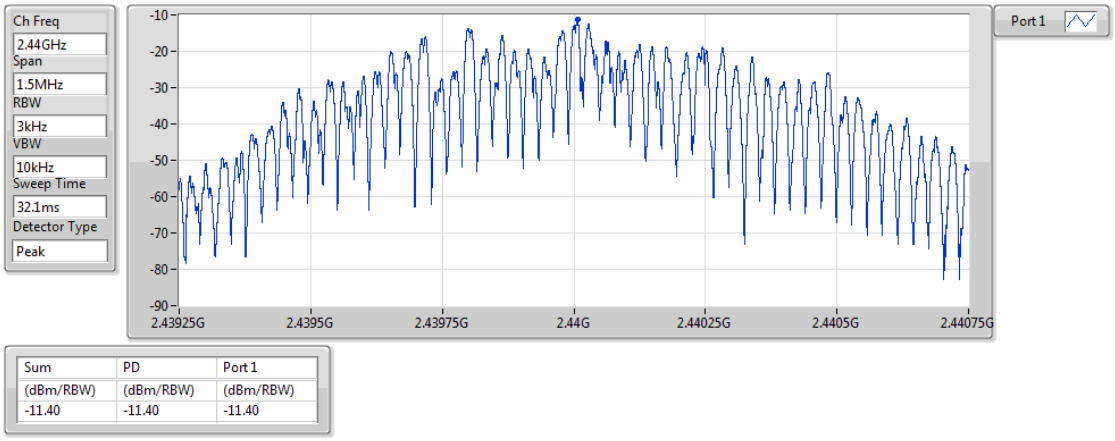
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.73	-8.73	-8.73

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

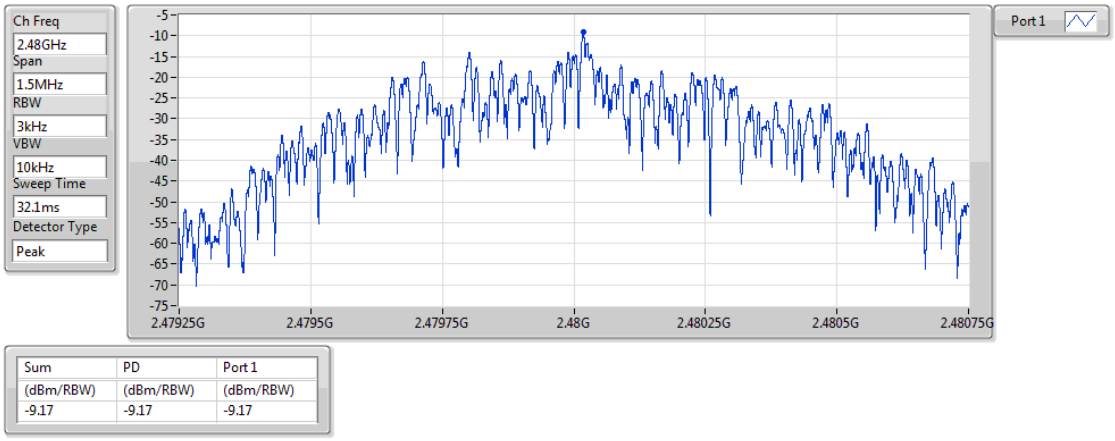
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.40	-11.40	-11.40

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

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.17	-9.17	-9.17

Summary

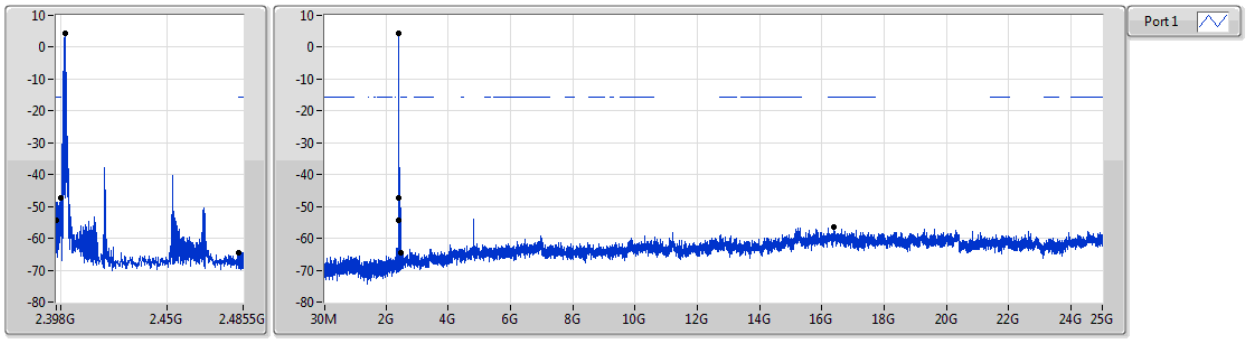
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	2.402004G	4.45	-15.55	2.398G	-54.22	2.399944G	-47.17	2.483636G	-64.42	16.368504G	-56.45	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402004G	4.45	-15.55	2.398G	-54.22	2.399944G	-47.17	2.483636G	-64.42	16.368504G	-56.45	1
2440MHz	Pass	2.440247G	3.92	-16.08	2.13752G	-65.08	2.39852G	-64.18	2.484788G	-64.35	16.40509G	-55.53	1
2480MHz	Pass	2.48016G	3.78	-16.22	195.76M	-64.17	2.398364G	-65.30	2.483656G	-49.90	24.521567G	-55.83	1

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

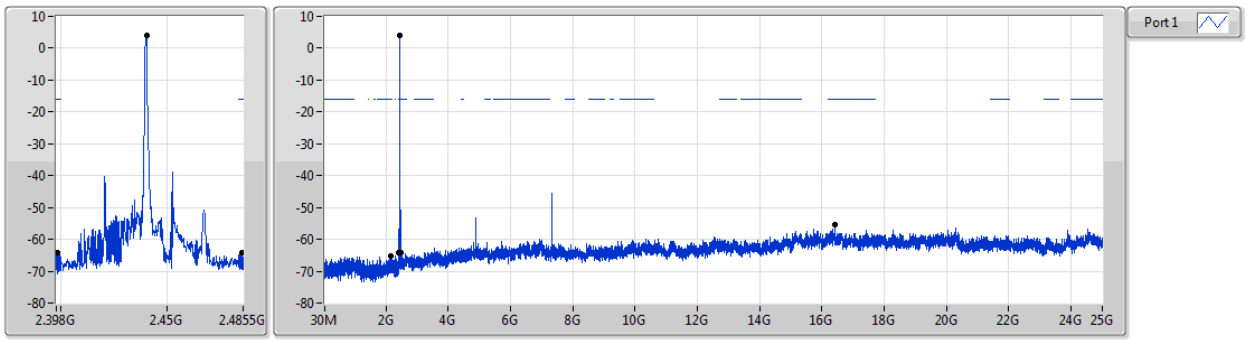
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402004G	4.45	-15.55	2.398G	-54.22	2.399944G	-47.17	2.483636G	-64.42	16.368504G	-56.45	1

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

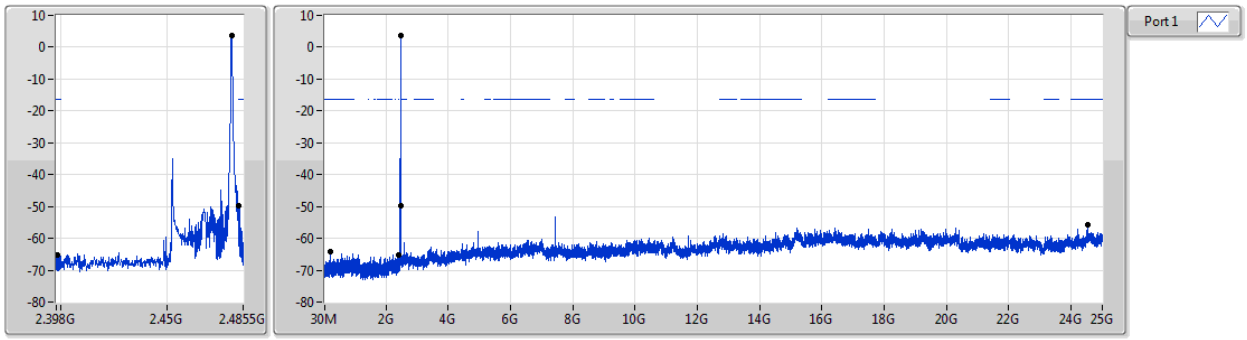
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.440247G	3.92	-16.08	2.13752G	-65.08	2.39852G	-64.18	2.484788G	-64.35	16.40509G	-55.53	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
2.48016G	3.78	-16.22	195.76M	-64.17	2.398364G	-65.30	2.483656G	-49.90	24.521567G	-55.83	1

Summary

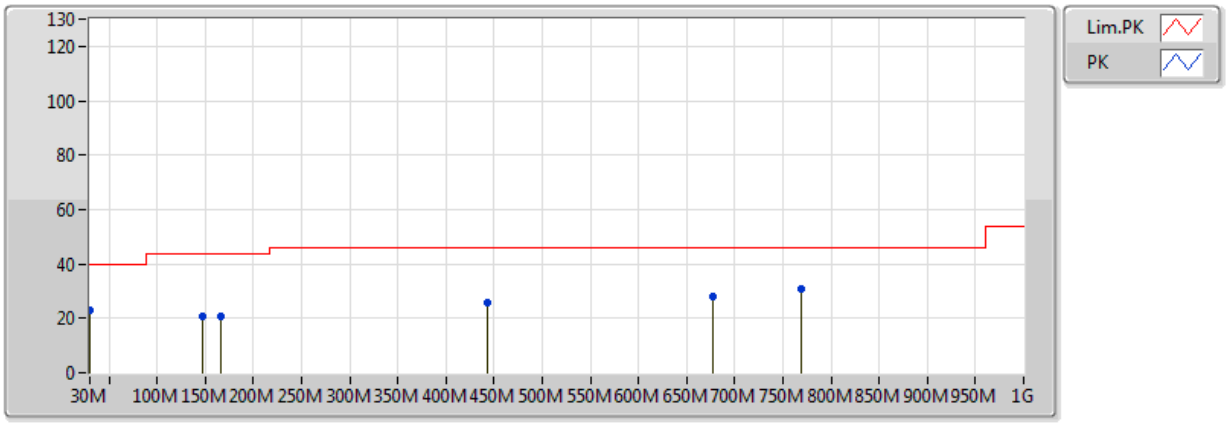
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	769.14M	30.90	46.00	-15.10	1.44	3	V	360	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	30M	23.90	40.00	-16.10	-3.82	3	H	0	1.00	-
2440MHz	Pass	PK	146.4M	20.46	43.50	-23.04	-9.33	3	H	0	1.00	-
2440MHz	Pass	PK	260.86M	20.89	46.00	-25.11	-5.85	3	H	0	1.00	-
2440MHz	Pass	PK	408.3M	25.32	46.00	-20.68	-2.61	3	H	0	1.00	-
2440MHz	Pass	PK	573.2M	27.55	46.00	-18.45	-0.52	3	H	0	1.00	-
2440MHz	Pass	PK	769.14M	30.40	46.00	-15.60	1.44	3	H	0	1.00	-
2440MHz	Pass	PK	30M	23.20	40.00	-16.80	-3.82	3	V	360	1.00	-
2440MHz	Pass	PK	146.4M	20.76	43.50	-22.74	-9.33	3	V	360	1.00	-
2440MHz	Pass	PK	165.8M	20.47	43.50	-23.03	-9.74	3	V	360	1.00	-
2440MHz	Pass	PK	443.22M	25.77	46.00	-20.23	-2.08	3	V	360	1.00	-
2440MHz	Pass	PK	677.96M	28.15	46.00	-17.85	0.17	3	V	360	1.00	-
2440MHz	Pass	PK	769.14M	30.90	46.00	-15.10	1.44	3	V	360	1.00	-

BT-LE(1Mbps)

2440MHz_DC Power Supply

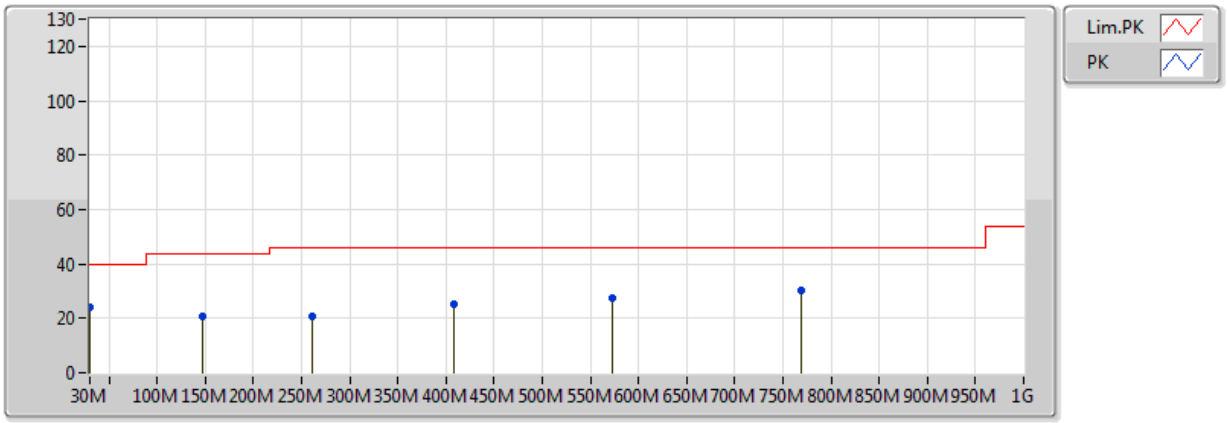


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	30M	23.20	40.00	-16.80	-3.82	3	V	360	1.00	-
PK	146.4M	20.76	43.50	-22.74	-9.33	3	V	360	1.00	-
PK	165.8M	20.47	43.50	-23.03	-9.74	3	V	360	1.00	-
PK	443.22M	25.77	46.00	-20.23	-2.08	3	V	360	1.00	-
PK	677.96M	28.15	46.00	-17.85	0.17	3	V	360	1.00	-
PK	769.14M	30.90	46.00	-15.10	1.44	3	V	360	1.00	-

BT-LE(1Mbps)

2440MHz_DC Power Supply



EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	30M	23.90	40.00	-16.10	-3.82	3	H	0	1.00	-
PK	146.4M	20.46	43.50	-23.04	-9.33	3	H	0	1.00	-
PK	260.86M	20.89	46.00	-25.11	-5.85	3	H	0	1.00	-
PK	408.3M	25.32	46.00	-20.68	-2.61	3	H	0	1.00	-
PK	769.14M	30.40	46.00	-15.60	1.44	3	H	0	1.00	-
PK	573.2M	27.55	46.00	-18.45	-0.52	3	H	0	1.00	-

Summary

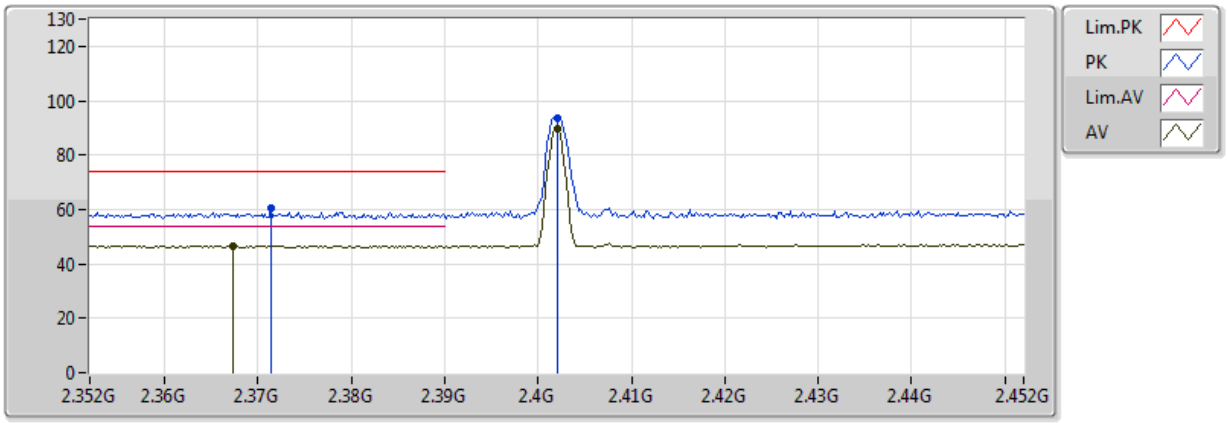
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	AV	2.4966G	48.09	54.00	-5.91	31.73	3	V	79	1.12	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.36G	46.74	54.00	-7.26	31.30	3	H	323	1.08	-
2402MHz	Pass	AV	2.402G	88.01	Inf	-Inf	31.43	3	H	323	1.08	-
2402MHz	Pass	PK	2.3548G	59.72	74.00	-14.28	31.28	3	H	323	1.08	-
2402MHz	Pass	PK	2.4022G	91.87	Inf	-Inf	31.43	3	H	323	1.08	-
2402MHz	Pass	AV	2.3674G	46.71	54.00	-7.29	31.32	3	V	216	2.78	-
2402MHz	Pass	AV	2.402G	89.72	Inf	-Inf	31.43	3	V	216	2.78	-
2402MHz	Pass	PK	2.3714G	60.40	74.00	-13.60	31.33	3	V	216	2.78	-
2402MHz	Pass	PK	2.402G	93.58	Inf	-Inf	31.43	3	V	216	2.78	-
2402MHz	Pass	AV	4.804G	32.62	54.00	-21.38	6.37	3	H	0	1.50	-
2402MHz	Pass	PK	4.804G	46.48	74.00	-27.52	6.37	3	H	0	1.50	-
2402MHz	Pass	AV	4.804G	32.63	54.00	-21.37	6.37	3	V	360	1.50	-
2402MHz	Pass	PK	4.804G	46.69	74.00	-27.31	6.37	3	V	360	1.50	-
2440MHz	Pass	AV	2.3408G	46.73	54.00	-7.27	31.24	3	H	320	1.04	-
2440MHz	Pass	AV	2.44G	89.84	Inf	-Inf	31.55	3	H	320	1.04	-
2440MHz	Pass	AV	2.488G	47.55	54.00	-6.45	31.70	3	H	320	1.04	-
2440MHz	Pass	PK	2.352G	59.08	74.00	-14.92	31.27	3	H	320	1.04	-
2440MHz	Pass	PK	2.4404G	93.66	Inf	-Inf	31.55	3	H	320	1.04	-
2440MHz	Pass	PK	2.4992G	59.34	74.00	-14.66	31.74	3	H	320	1.04	-
2440MHz	Pass	AV	2.3444G	46.80	54.00	-7.20	31.25	3	V	218	1.99	-
2440MHz	Pass	AV	2.44G	90.96	Inf	-Inf	31.55	3	V	218	1.99	-
2440MHz	Pass	AV	2.4956G	47.48	54.00	-6.52	31.73	3	V	218	1.99	-
2440MHz	Pass	PK	2.3616G	59.38	74.00	-14.62	31.30	3	V	218	1.99	-
2440MHz	Pass	PK	2.4396G	94.93	Inf	-Inf	31.55	3	V	218	1.99	-
2440MHz	Pass	PK	2.4976G	59.61	74.00	-14.39	31.73	3	V	218	1.99	-
2440MHz	Pass	AV	4.88G	32.20	54.00	-21.80	6.54	3	H	360	1.50	-
2440MHz	Pass	PK	4.88G	46.54	74.00	-27.46	6.54	3	H	360	1.50	-
2440MHz	Pass	AV	4.88G	32.24	54.00	-21.76	6.54	3	V	0	1.50	-
2440MHz	Pass	PK	4.88G	46.84	74.00	-27.16	6.54	3	V	0	1.50	-
2480MHz	Pass	AV	2.48G	89.77	Inf	-Inf	31.68	3	H	149	1.00	-
2480MHz	Pass	AV	2.488G	47.60	54.00	-6.40	31.70	3	H	149	1.00	-
2480MHz	Pass	PK	2.4798G	93.51	Inf	-Inf	31.68	3	H	149	1.00	-
2480MHz	Pass	PK	2.4966G	61.19	74.00	-12.81	31.73	3	H	149	1.00	-
2480MHz	Pass	AV	2.48G	93.45	Inf	-Inf	31.68	3	V	79	1.12	-
2480MHz	Pass	AV	2.4966G	48.09	54.00	-5.91	31.73	3	V	79	1.12	-
2480MHz	Pass	PK	2.48G	97.29	Inf	-Inf	31.68	3	V	79	1.12	-
2480MHz	Pass	PK	2.4966G	64.42	74.00	-9.58	31.73	3	V	79	1.12	-
2480MHz	Pass	AV	4.96G	33.01	54.00	-20.99	6.73	3	H	360	1.50	-
2480MHz	Pass	PK	4.96G	47.27	74.00	-26.73	6.73	3	H	360	1.50	-
2480MHz	Pass	AV	4.96G	33.59	54.00	-20.41	6.73	3	V	0	1.50	-
2480MHz	Pass	PK	4.96G	47.43	74.00	-26.57	6.73	3	V	0	1.50	-

BT-LE(1Mbps)

2402MHz_DC Power Supply

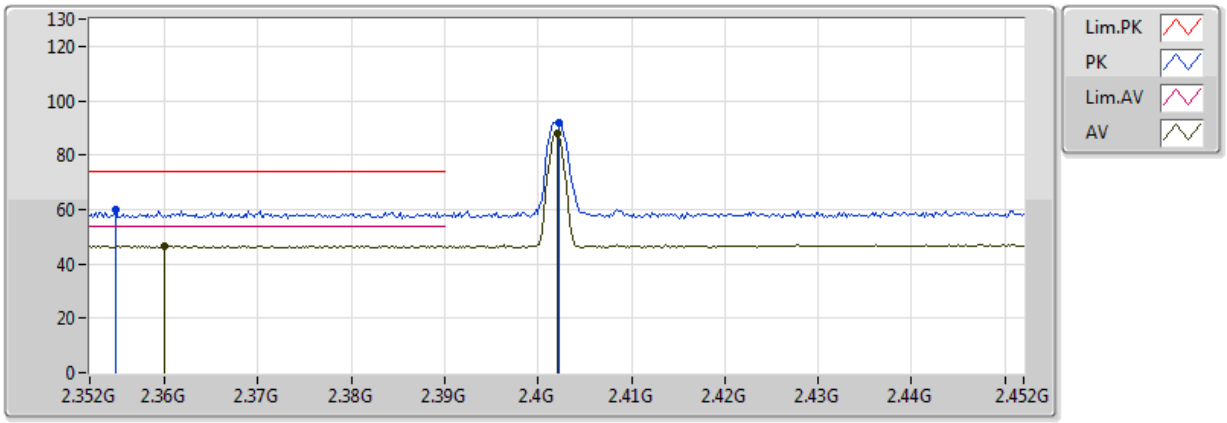


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3674G	46.71	54.00	-7.29	31.32	3	V	216	2.78	-
AV	2.402G	89.72	Inf	-Inf	31.43	3	V	216	2.78	-
PK	2.3714G	60.40	74.00	-13.60	31.33	3	V	216	2.78	-
PK	2.402G	93.58	Inf	-Inf	31.43	3	V	216	2.78	-

BT-LE(1Mbps)

2402MHz_DC Power Supply

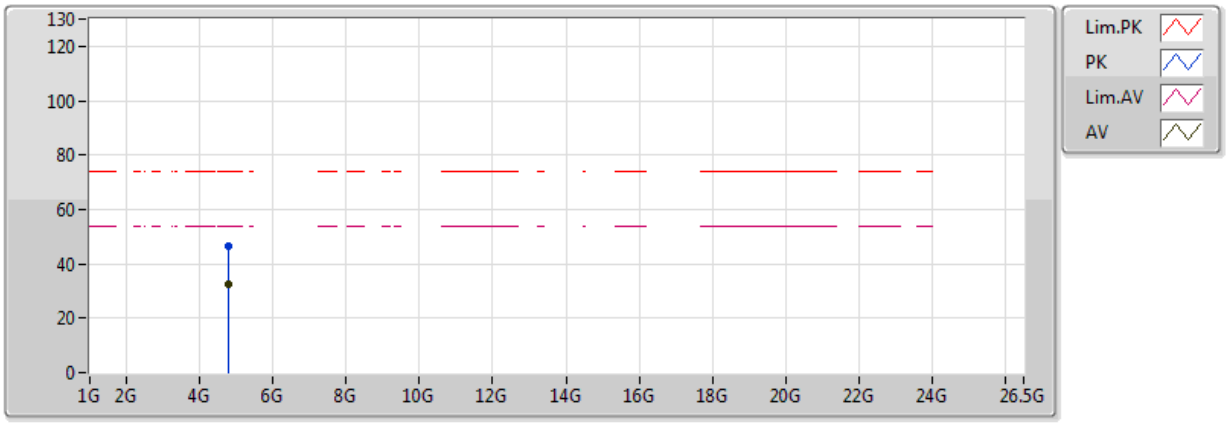


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.36G	46.74	54.00	-7.26	31.30	3	H	323	1.08	-
AV	2.402G	88.01	Inf	-Inf	31.43	3	H	323	1.08	-
PK	2.3548G	59.72	74.00	-14.28	31.28	3	H	323	1.08	-
PK	2.4022G	91.87	Inf	-Inf	31.43	3	H	323	1.08	-

BT-LE(1Mbps)

2402MHz_DC Power Supply

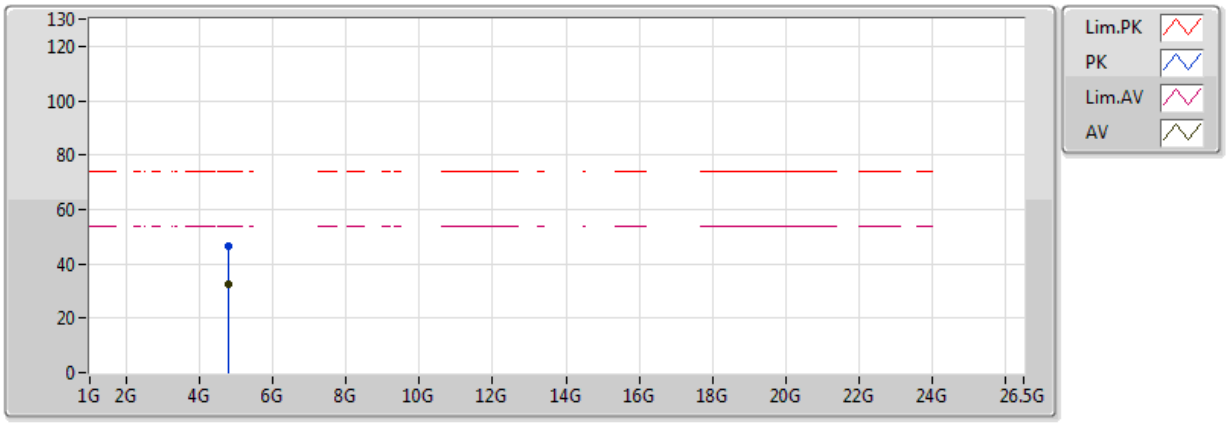


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.804G	32.63	54.00	-21.37	6.37	3	V	360	1.50	-
PK	4.804G	46.69	74.00	-27.31	6.37	3	V	360	1.50	-

BT-LE(1Mbps)

2402MHz_DC Power Supply

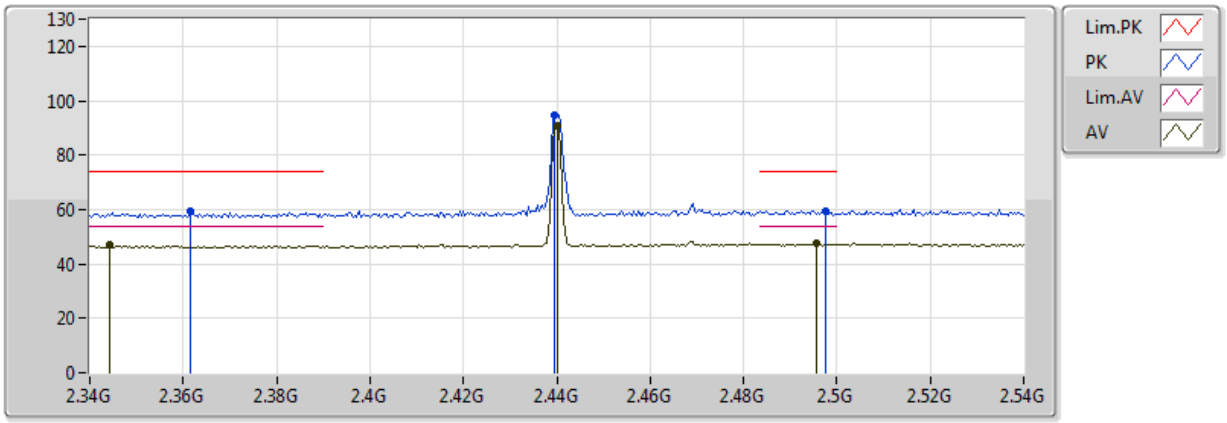


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.804G	32.62	54.00	-21.38	6.37	3	H	0	1.50	-
PK	4.804G	46.48	74.00	-27.52	6.37	3	H	0	1.50	-

BT-LE(1Mbps)

2440MHz_DC Power Supply

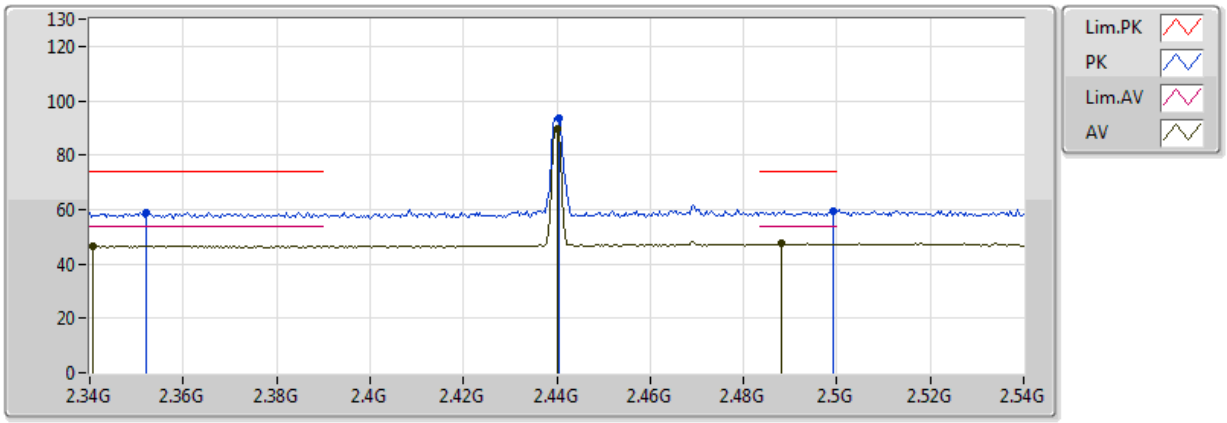


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3444G	46.80	54.00	-7.20	31.25	3	V	218	1.99	-
AV	2.44G	90.96	Inf	-Inf	31.55	3	V	218	1.99	-
AV	2.4956G	47.48	54.00	-6.52	31.73	3	V	218	1.99	-
PK	2.3616G	59.38	74.00	-14.62	31.30	3	V	218	1.99	-
PK	2.4396G	94.93	Inf	-Inf	31.55	3	V	218	1.99	-
PK	2.4976G	59.61	74.00	-14.39	31.73	3	V	218	1.99	-

BT-LE(1Mbps)

2440MHz_DC Power Supply

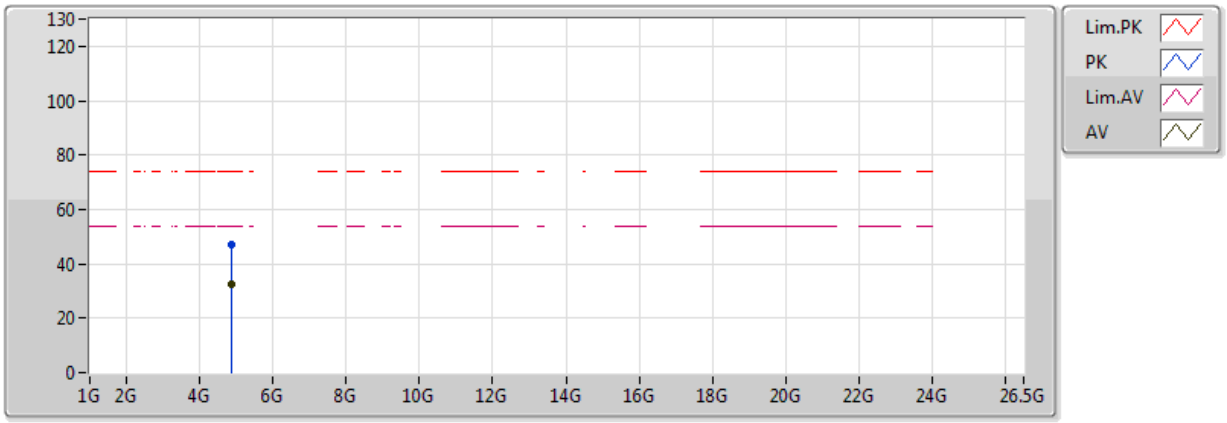


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3408G	46.73	54.00	-7.27	31.24	3	H	320	1.04	-
AV	2.44G	89.84	Inf	-Inf	31.55	3	H	320	1.04	-
AV	2.488G	47.55	54.00	-6.45	31.70	3	H	320	1.04	-
PK	2.352G	59.08	74.00	-14.92	31.27	3	H	320	1.04	-
PK	2.4404G	93.66	Inf	-Inf	31.55	3	H	320	1.04	-
PK	2.4992G	59.34	74.00	-14.66	31.74	3	H	320	1.04	-

BT-LE(1Mbps)

2440MHz_DC Power Supply

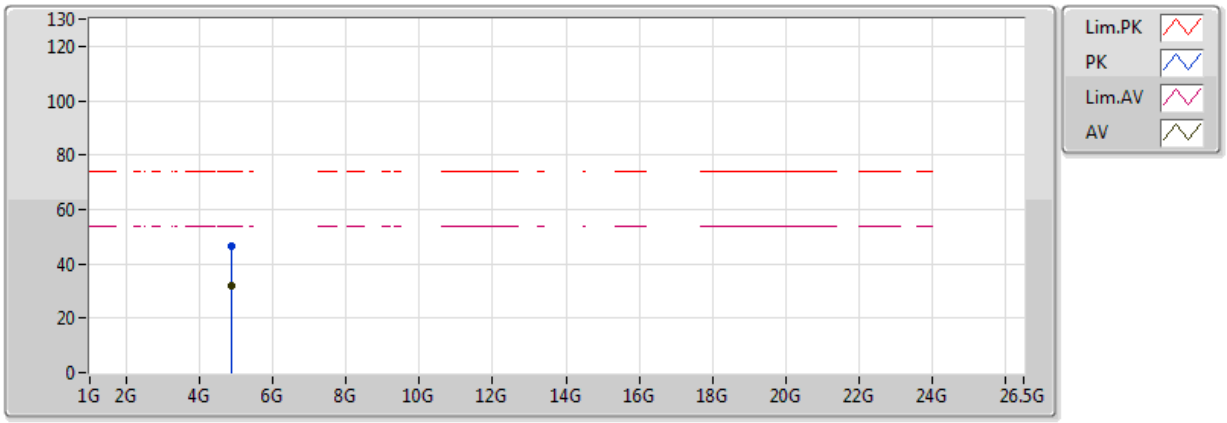


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88G	32.24	54.00	-21.76	6.54	3	V	0	1.50	-
PK	4.88G	46.84	74.00	-27.16	6.54	3	V	0	1.50	-

BT-LE(1Mbps)

2440MHz_DC Power Supply

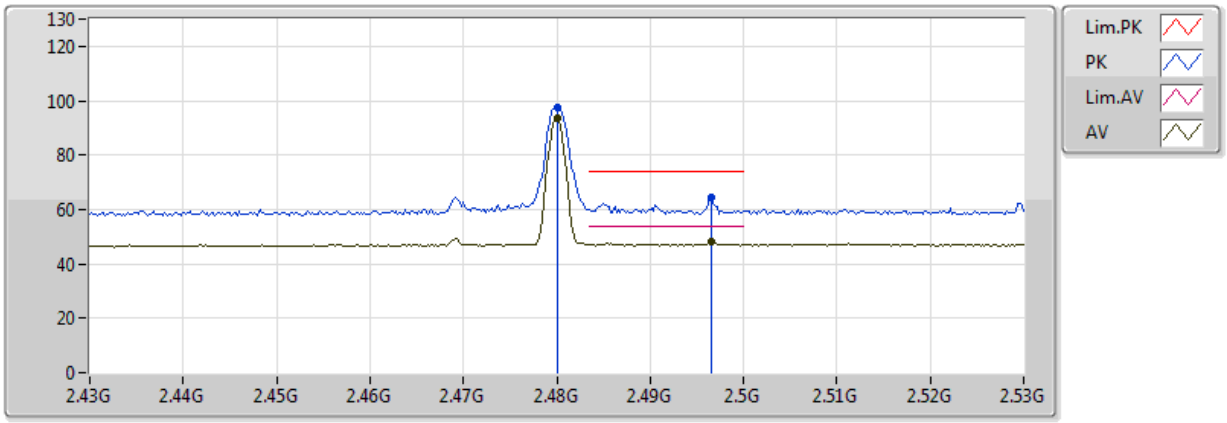


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88G	32.20	54.00	-21.80	6.54	3	H	360	1.50	-
PK	4.88G	46.54	74.00	-27.46	6.54	3	H	360	1.50	-

BT-LE(1Mbps)

2480MHz_DC Power Supply

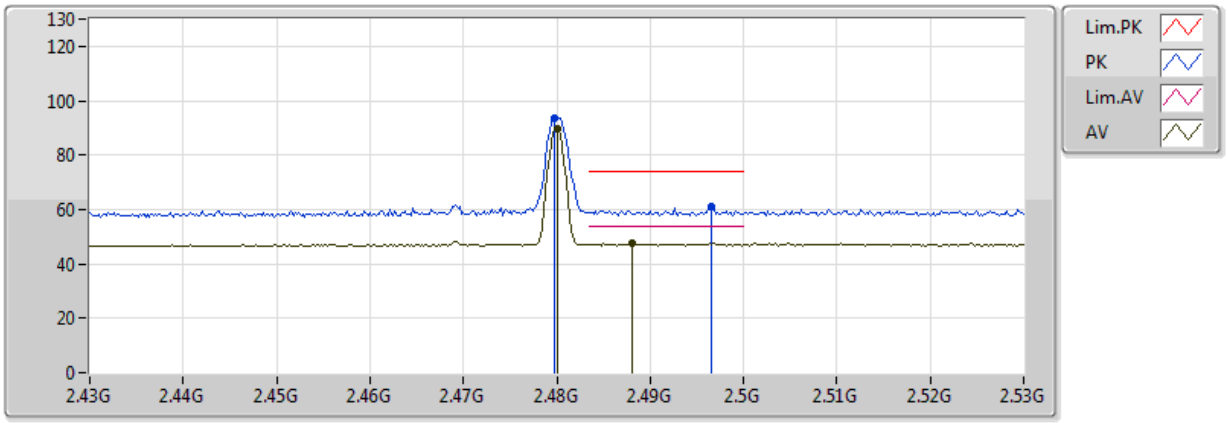


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.48G	93.45	Inf	-Inf	31.68	3	V	79	1.12	-
AV	2.4966G	48.09	54.00	-5.91	31.73	3	V	79	1.12	-
PK	2.48G	97.29	Inf	-Inf	31.68	3	V	79	1.12	-
PK	2.4966G	64.42	74.00	-9.58	31.73	3	V	79	1.12	-

BT-LE(1Mbps)

2480MHz_DC Power Supply

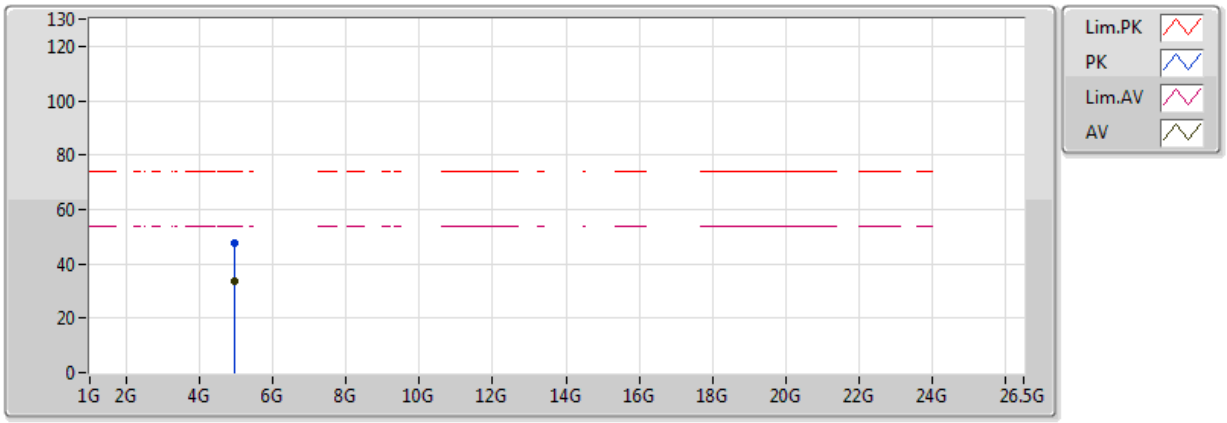


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.48G	89.77	Inf	-Inf	31.68	3	H	149	1.00	-
AV	2.488G	47.60	54.00	-6.40	31.70	3	H	149	1.00	-
PK	2.4798G	93.51	Inf	-Inf	31.68	3	H	149	1.00	-
PK	2.4966G	61.19	74.00	-12.81	31.73	3	H	149	1.00	-

BT-LE(1Mbps)

2480MHz_DC Power Supply

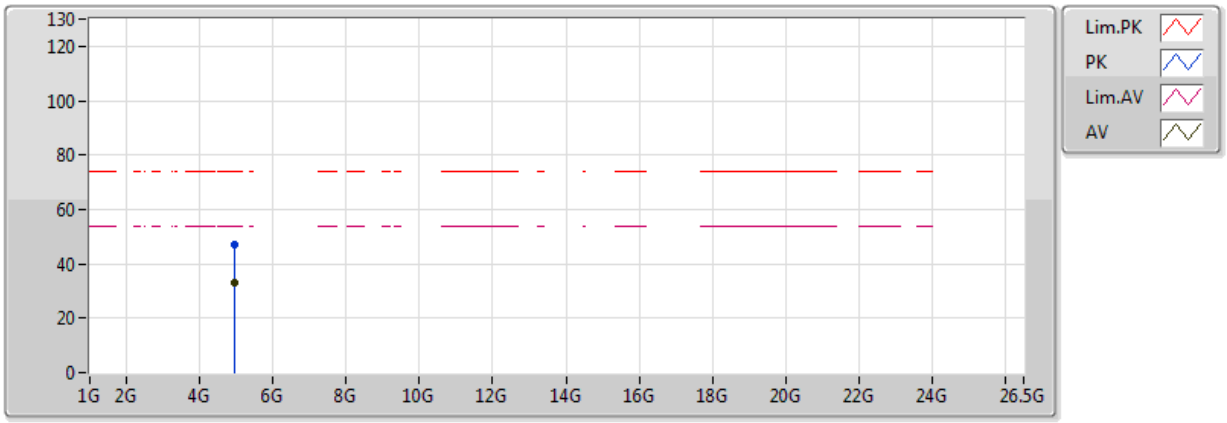


EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.96G	33.59	54.00	-20.41	6.73	3	V	0	1.50	-
PK	4.96G	47.43	74.00	-26.57	6.73	3	V	0	1.50	-

BT-LE(1Mbps)

2480MHz_DC Power Supply



EUT = Y axis

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.96G	33.01	54.00	-20.99	6.73	3	H	360	1.50	-
PK	4.96G	47.27	74.00	-26.73	6.73	3	H	360	1.50	-