

NCC Test Report

Equipment : BT121 Bluetooth Smart Ready Module
Brand Name : Silicon Labs
Model No. : BT121
Standard : LP0002 Section 3.10 (2016-08-23)
Frequency : 2400 MHz – 2483.5 MHz
Function : ☒Point-to-multipoint; ☐Point-to-point
Applicant : 精聯電子股份有限公司
 新北市新店區寶橋路 235 巷 136 號 5F
Manufacturer : Silicon Laboratories International Pte Ltd
 Alberga Business Park, Bertel Jungin Aukio 3, 02600
 Espoo Finland

The product sample received on Jun. 02, 2017 and completely tested on Jun. 22, 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 INTERNATIONAL INC., the test report shall not be reproduced except in full.


Phoenix Chen
SPORTON INTERNATIONAL INC.



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Summary of Test Result

Conformance Test Specifications				
Report Clause	Ref. Std. Clause	Description	Limit	Result
1.1.2	3.10.1.4	Antenna Requirement	LP0002-2.2	Complied
3.1	2.3	AC Power-line Conducted Emissions	LP0002-2.3	Complied
3.2	3.10.1.6	DTS Bandwidth	≥500kHz	Complied
3.3	3.10.1.2	Maximum Conducted Output Power	Power [dBm]:30	Complied
3.4	3.10.1.6	Power Spectral Density	PSD [dBm/3kHz]:8	Complied
3.5	3.10.1.5	Emissions in Non-restricted Frequency Bands	Non-Restricted Bands: >30 dBc	Complied
3.6	3.10.1.5	Emissions in Restricted Frequency Bands	Restricted Bands: LP0002-2.8	Complied
3.7	2.11	Receiver Radiated Unwanted Emissions	Restricted Bands: LP0002-2.8	Complied

Revision History

[illegible]

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.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	1	AMOTECH	-	chip antenna	fixed on board	3.29

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From DC power supply
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device)
	Combined Equipment - Brand Name / Model No.: ...
☐	Plug-in radio (EUT intended for a variety of host systems)
	Host System - Brand Name / Model No.: ...
☐	Other:

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-LE(1Mbps)	0.654	1.844	408.75u	3k

1.2 Testing Applied Standards

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

- ♦ NCC LP0002 (2016-08-23)
- ♦ ANSI C63.10-2013
- ♦ ANSI C63.4-2014
- ♦ 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
☐	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 Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Wayne	21.5°C / 61%	12/Jun/2017
Radiated	03CH03-HY	Ryan	23.5°C / 65%	13/Jun/2017
AC Conduction	CO04-HY	Bear	22.1°C / 59%	22/Jun/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	110V

2.2 Test Channel Mode

Test Software Version	BT Tool 1.1.0-154
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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	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	Normal Link
1	DC Power Supply

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

2.4 Support Equipment

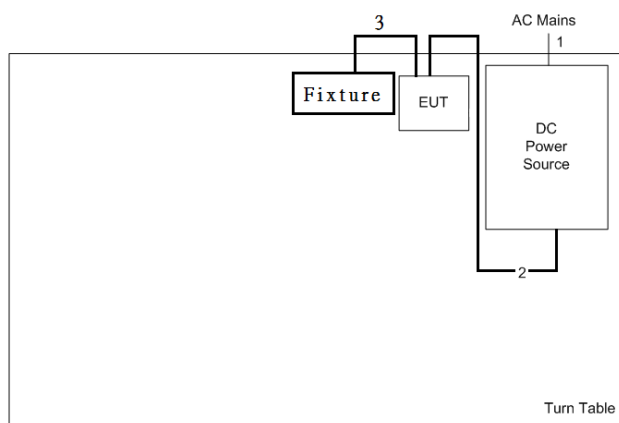
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	R33002 / DOC
2	Adapter for NB	DELL	HA65NM130	R35737 / DOC
3	DC power supply	GW	GPS-3030DD	-

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	DC power supply	G.W.	GPC-6030D	-

Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	DC power supply	G.W.	GPC-6030D	-

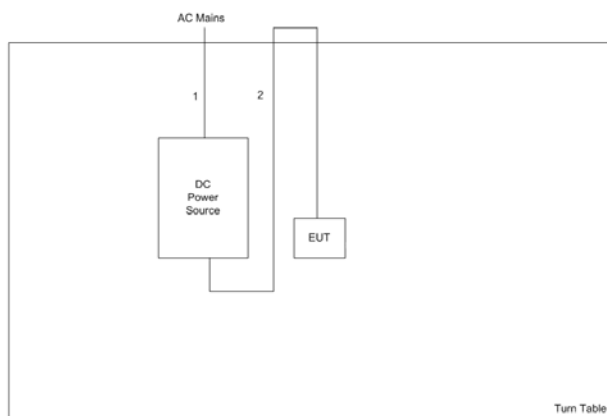
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length
1	AC power line	No	1.8m
2	DC power line	No	2.0m
3	line	No	0.2m

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	AC power line	No	2.0m
2	DC power line	No	1.0m

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.

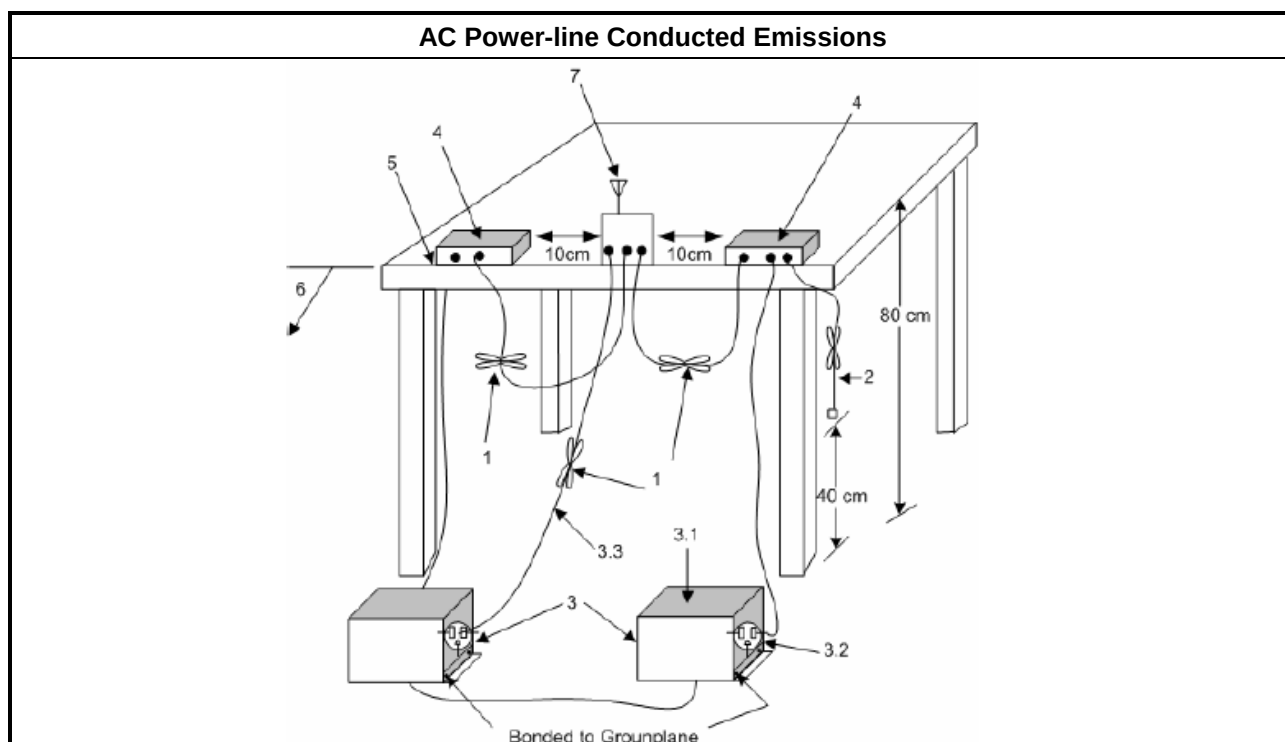
3.1.2 Measuring Instruments

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



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 $\geq$ 500 kHz.

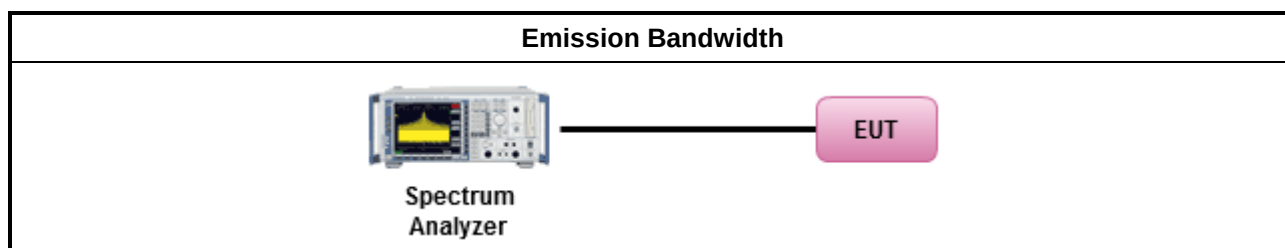
3.2.2 Measuring Instruments

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 D01 v04, clause 8.1 Option 1 for 6 dB bandwidth measurement.
☐	Refer as KDB 558074 D01 v04, clause 8.2 Option 2 for 6 dB bandwidth measurement.
☐	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup



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): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	▪	Smart antenna system (SAS)
	-	Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	-	Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	-	Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ 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.		

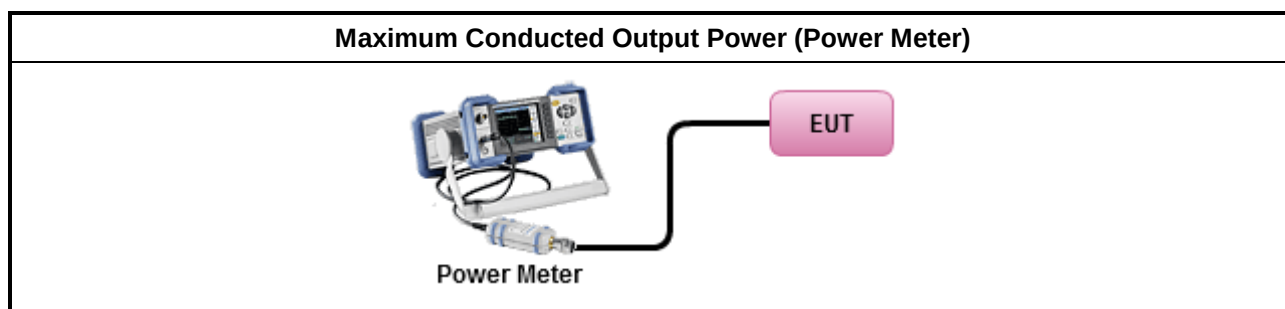
3.3.2 Measuring Instruments

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 D01 v04, clause 9.1.1 Option 1 (RBW ≥ EBW method).
☐	Refer as KDB 558074 D01 v04, clause 9.1.2 Option 2 (integrated band power method)
☐	Refer as KDB 558074 D01 v04, 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 D01 v04, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
Duty cycle < 98%	
☐	Refer as KDB 558074 D01 v04, 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 D01 v04, 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: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	

3.3.4 Test Setup



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

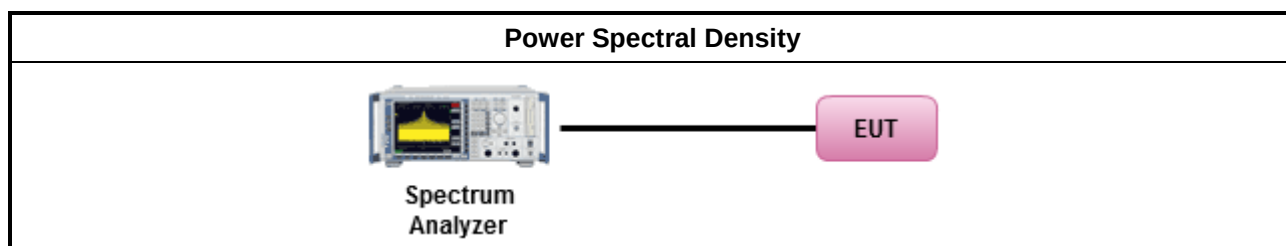
3.4.2 Measuring Instruments

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 D01 v04, 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



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.	

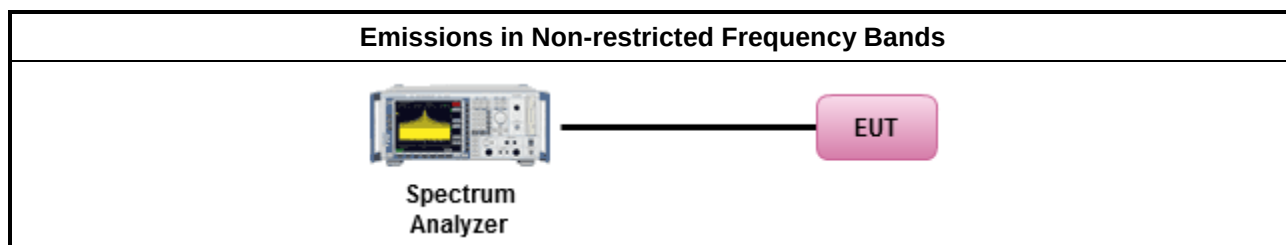
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as KDB 558074 D01 v04, clause 11 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup



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 below 30 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.

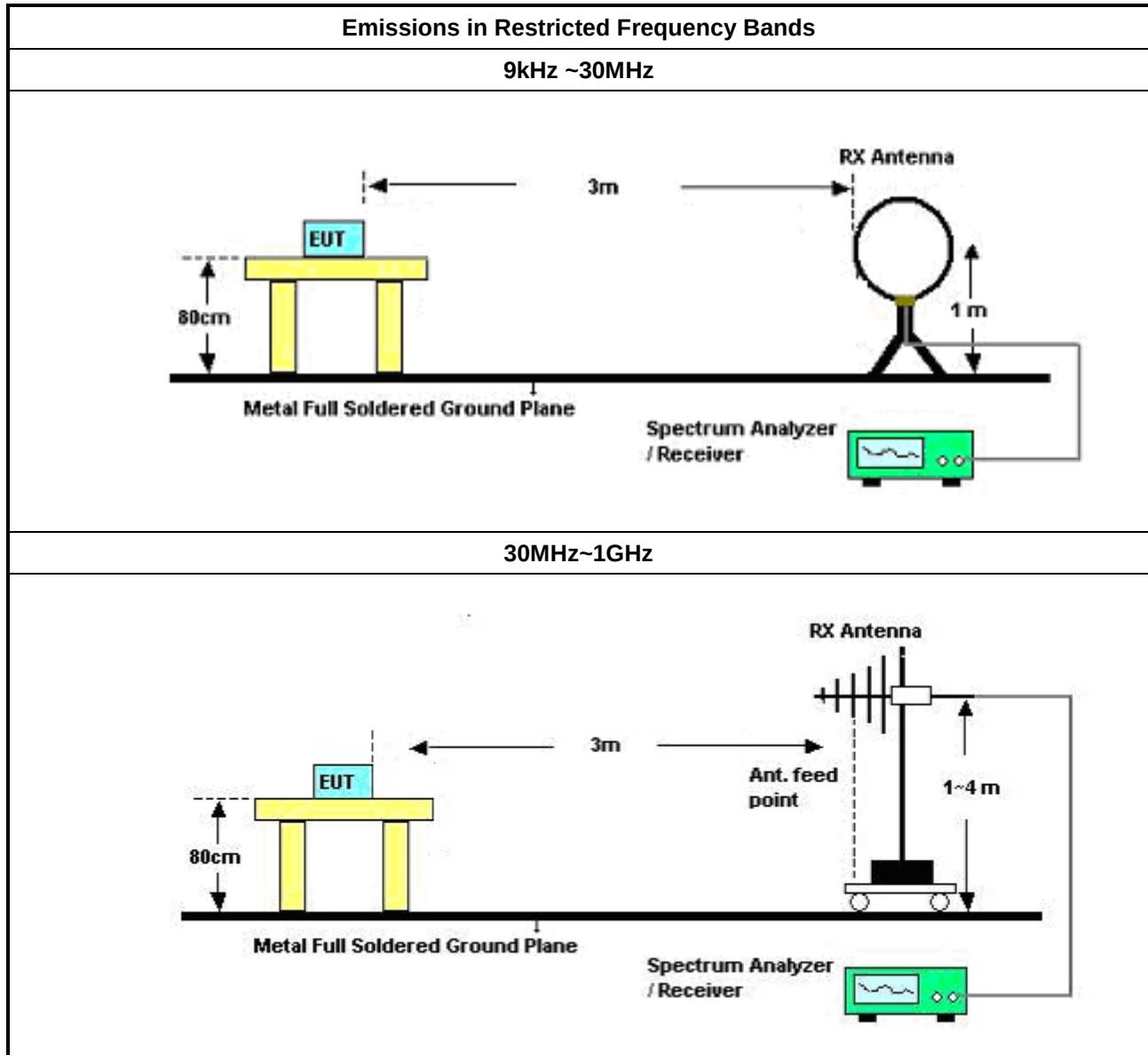
3.6.2 Measuring Instruments

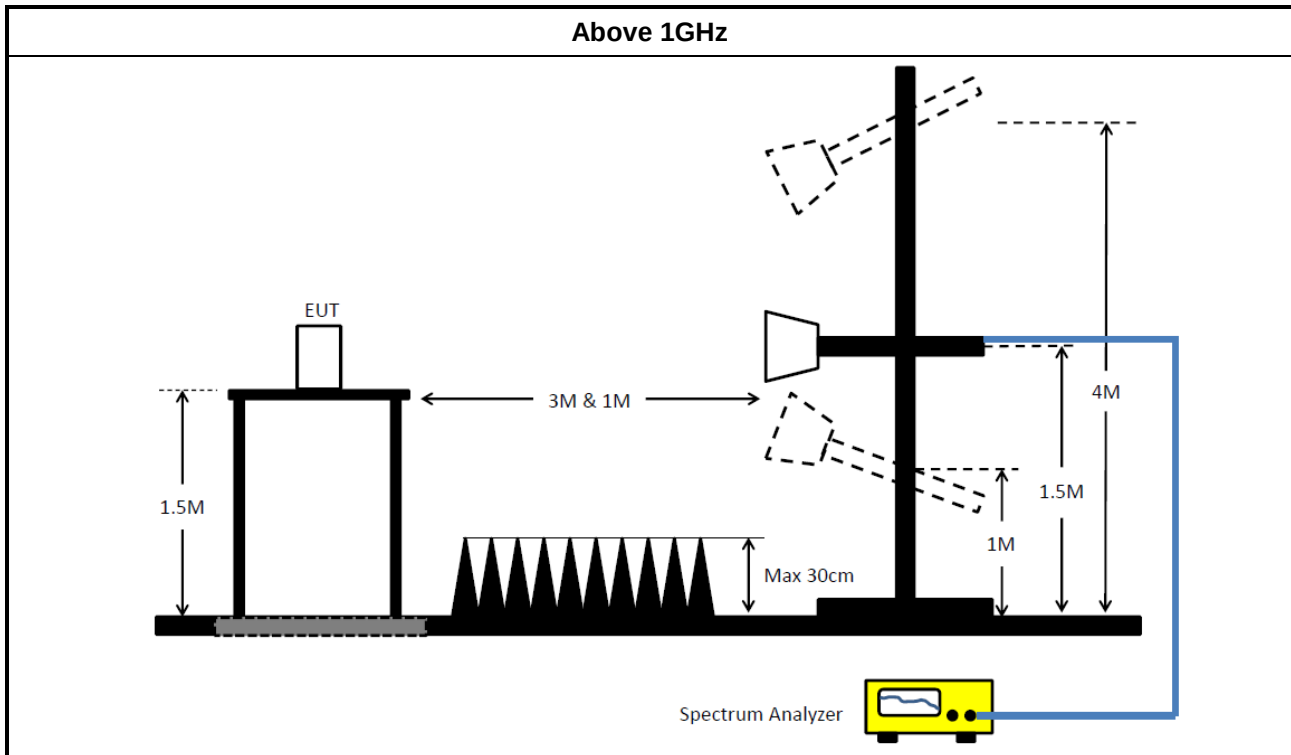
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 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 D01 v04, clause 12 for unwanted emissions into restricted bands.
	☒ Refer as KDB 558074 D01 v04, clause 12.2.5.3 (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW $\geq$ 1/T.
	☒ Refer as KDB 558074 D01 v04, 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 D01 v04 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 D01 v04, clause 13.2 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	Refer as KDB 558074 D01 v04, 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 D01 v04, 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





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

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

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

3.7 Receiver Radiated Spurious Emissions

3.7.1 Receiver in Radiated Spurious Emissions Limit

Restricted Spurious 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 below 30 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.

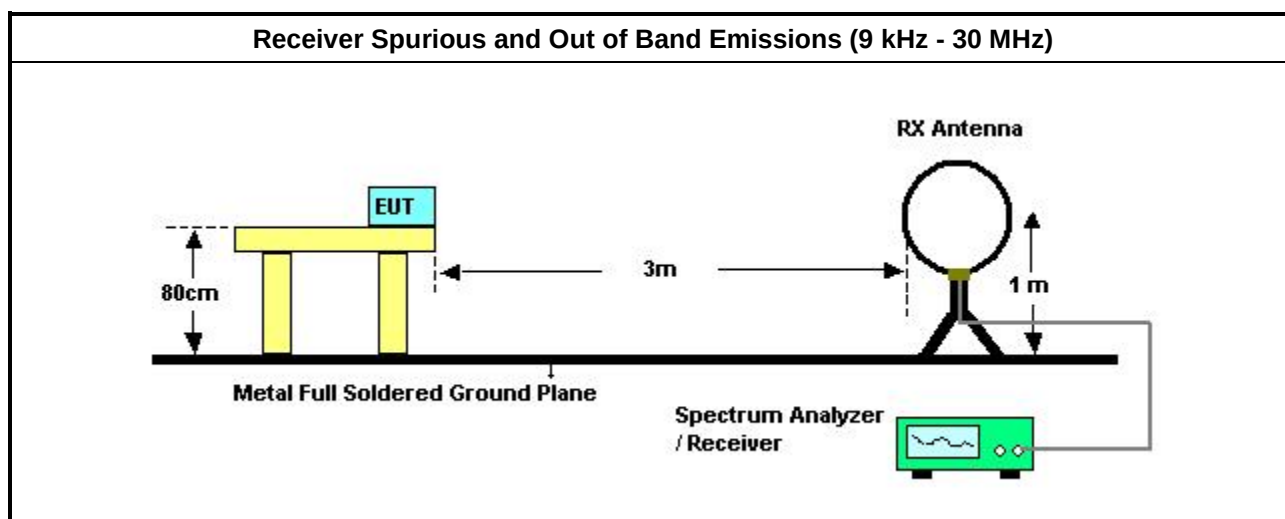
3.7.2 Measuring Instruments

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

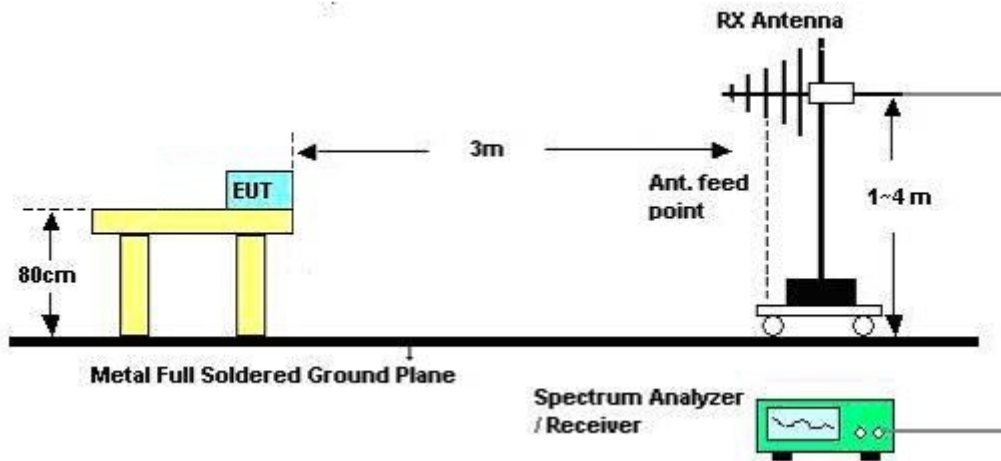
3.7.3 Test Procedures

Test Method	
☒	The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is higher, without exceeding 40 GHz.
☒	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).
☒	For radiated measurement, refer as KDB558074, clause 12.2.7.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from below 30 MHz.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from 30 MHz-1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the QP-Limit so that the QP level does not need to be reported in addition.
☒	Refer as ANSI C63.4, clause 8.3.1.2 and 8.3.2.2 for radiated emissions from above 1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
☒	All amplitude of spurious emissions that are attenuated by more than 30 dB below the permissible value has no need to be reported.

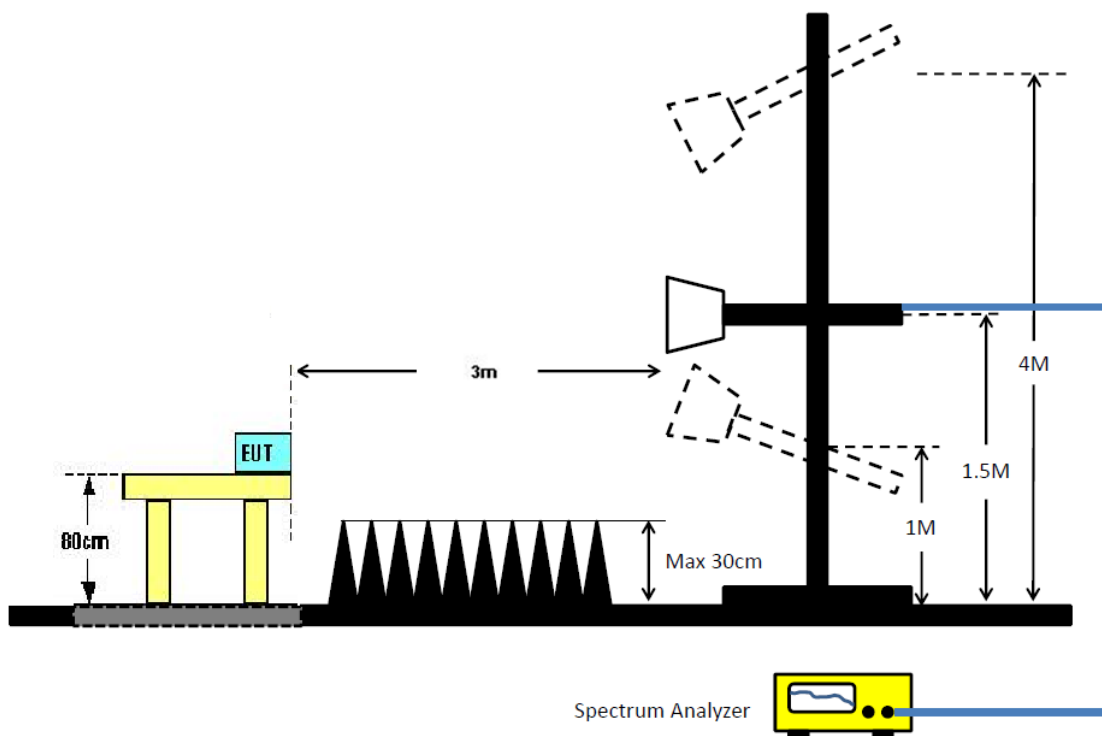
3.7.4 Test Setup



Receiver Radiated Unwanted Emissions (below 1GHz)



Receiver Radiated Unwanted Emissions (above 1GHz)



3.7.5 Receiver Radiated Unwanted Emissions (Below 30MHz)

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported. Any spurious which has more than 20 dB of margin compared to the applicable limit is not necessarily reported.

3.7.6 Test Result of Receiver Radiated Unwanted Emissions

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	24/Oct/2016	23/Oct/2017
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	21/Oct/2015	20/Oct/2016
DC LISN	MESSTEC	AN20200	03/10219	100kHz ~ 108MHz	14/Nov/2016	13/Nov/2017
DC LISN	MESSTEC	AN20200	03/10220	100kHz ~ 108MHz	14/Nov/2016	13/Nov/2017

NCR : Non-Calibration Require

Instrument for Radiated Test

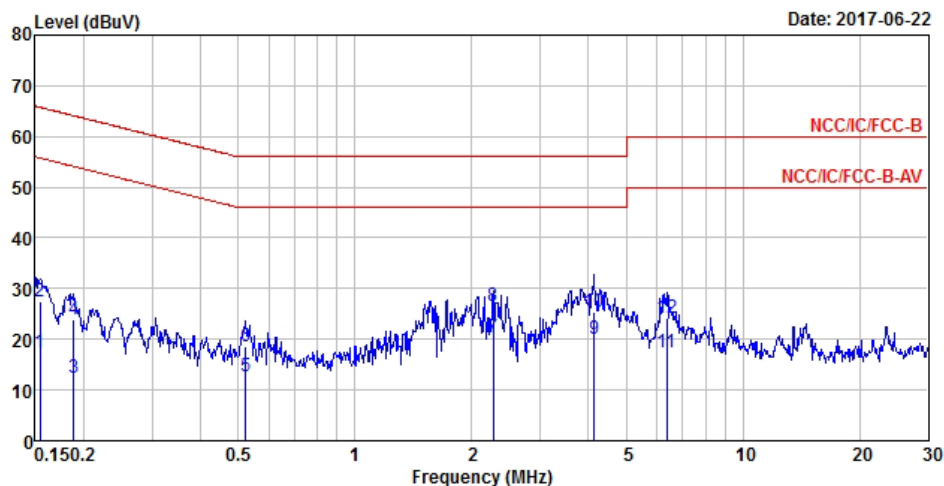
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz	28/Nov/2016	27/Nov/2017
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz	16/Dec/2016	15/Dec/2017
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	19/Apr/2017	18/Apr/2018
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 9120D1531	1GHz ~ 18GHz	25/Apr/2017	24/Apr/2018
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz ~ 40GHz	06/Feb/2017	05/Feb/2018
Loop Antenna	TESEQ	HLA 6120	24155	9 kHz~30 MHz	02/Mar/2017	01/Mar/2018
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

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSP 40	100305	9kHz~40GHz	30/Dec/2016	29/Dec/2017
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	27/Oct/2016	26/Oct/2017
Power Meter	Anritsu	ML2495A	1517010	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	MY10710/4	30MHz~26.5GHz	02/Oct/2016	01/Oct/2017
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	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

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
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	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	17.34	-38.44	55.78	16.67	0.45	0.22	Average
2	0.15	27.52	-38.26	65.78	26.85	0.45	0.22	QP
3	0.19	12.35	-41.76	54.11	11.72	0.35	0.28	Average
4	0.19	23.93	-40.18	64.11	23.30	0.35	0.28	QP
5	0.52	12.66	-33.34	46.00	12.36	0.20	0.10	Average
6	0.52	18.66	-37.34	56.00	18.36	0.20	0.10	QP
7 MAX	2.27	20.28	-25.72	46.00	19.81	0.21	0.26	Average
8	2.27	26.62	-29.38	56.00	26.15	0.21	0.26	QP
9	4.14	20.19	-25.81	46.00	19.85	0.24	0.10	Average
10	4.14	25.35	-30.65	56.00	25.01	0.24	0.10	QP
11	6.35	17.35	-32.65	50.00	16.90	0.30	0.15	Average
12	6.35	24.21	-35.79	60.00	23.76	0.30	0.15	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.)

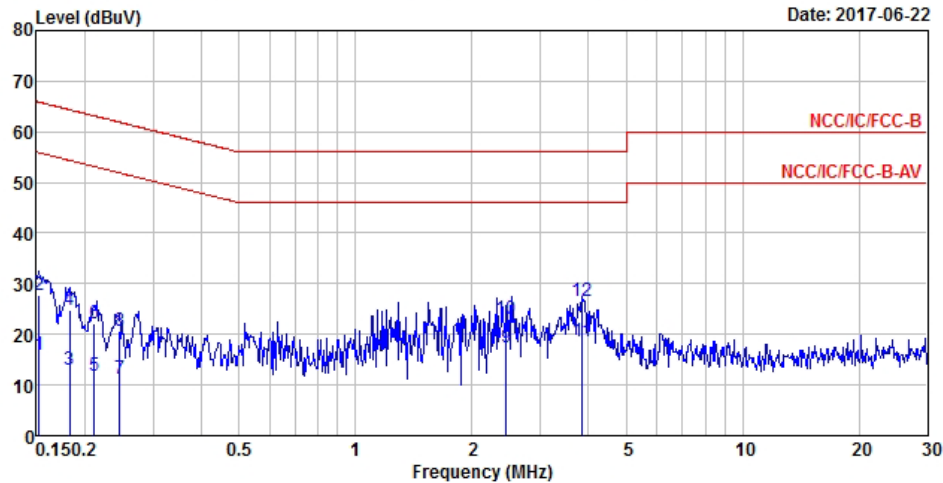
AC Power-line Conducted Emissions Result

Operating Mode

1

Power Phase

Line



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	15.91	-39.96	55.87	15.24	0.45	0.22	Average
2	0.15	27.71	-38.16	65.87	27.04	0.45	0.22	QP
3	0.18	12.99	-41.38	54.37	12.35	0.37	0.27	Average
4	0.18	24.79	-39.58	64.37	24.15	0.37	0.27	QP
5	0.21	11.72	-41.42	53.14	11.13	0.31	0.28	Average
6	0.21	22.05	-41.09	63.14	21.46	0.31	0.28	QP
7	0.25	11.23	-40.68	51.91	10.70	0.29	0.24	Average
8	0.25	20.69	-41.22	61.91	20.16	0.29	0.24	QP
9	2.45	17.32	-28.68	46.00	16.90	0.18	0.24	Average
10	2.45	23.04	-32.96	56.00	22.62	0.18	0.24	QP
11 MAX	3.86	18.56	-27.44	46.00	18.25	0.20	0.11	Average
12	3.86	26.56	-29.44	56.00	26.25	0.20	0.11	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)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	660k	1.131M	1M13F1D	658.75k	1.016M

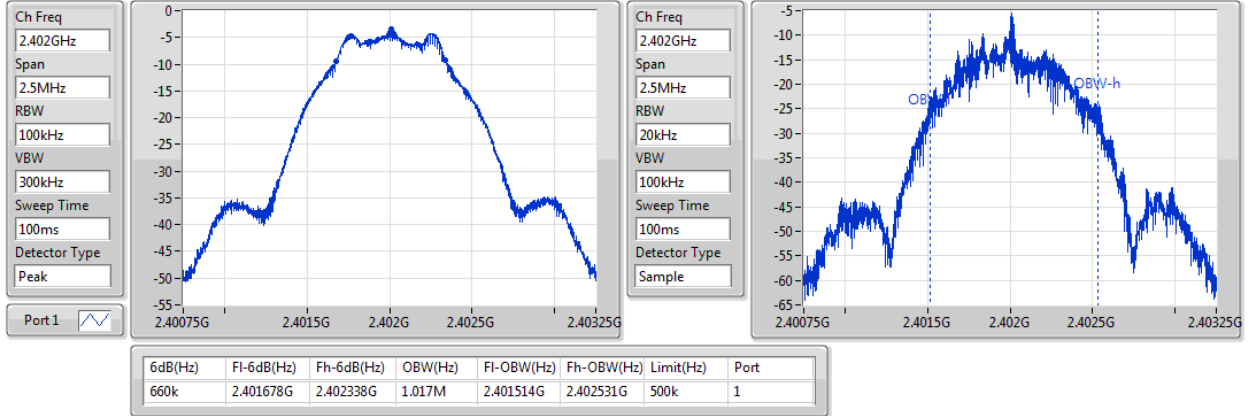
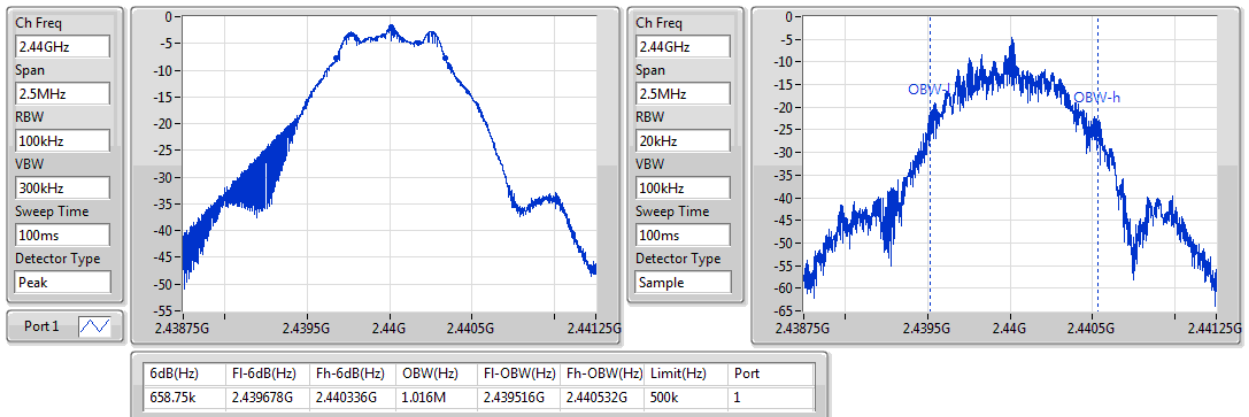
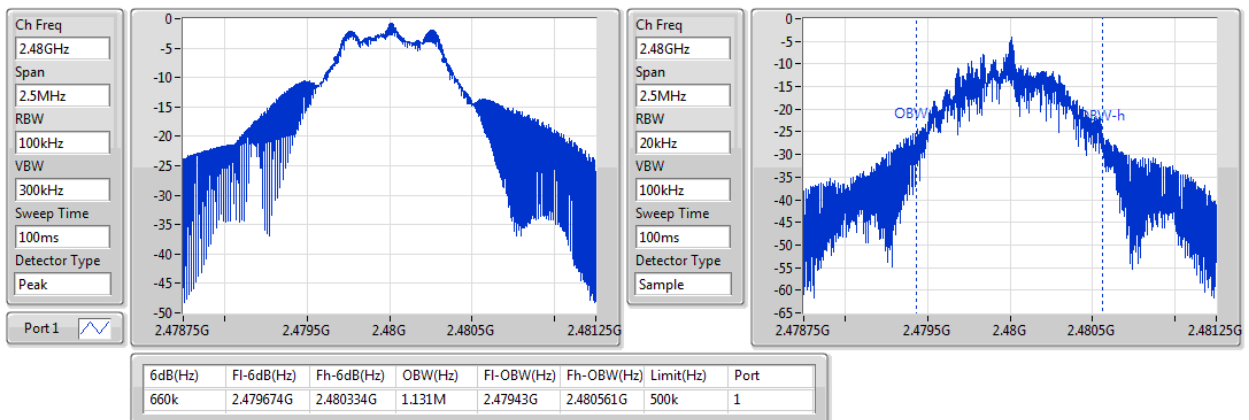
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

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	660k	1.017M
2440MHz_TnomVnom	Pass	500k	658.75k	1.016M
2480MHz_TnomVnom	Pass	500k	660k	1.131M

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

BT-LE(1Mbps)
EBW
2402MHz

BT-LE(1Mbps)
EBW
2440MHz

BT-LE(1Mbps)
EBW
2480MHz


**Summary**

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	-3.43	0.00045

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.29	-5.69	30.00
2440MHz_TnomVnom	Pass	3.29	-4.25	30.00
2480MHz_TnomVnom	Pass	3.29	-3.43	30.00

**Summary**

Mode	PD (dBm/RBW)
BT-LE(1Mbps)	-
2.4-2.4835GHz	-16.50

RBW=3kHz.

Result

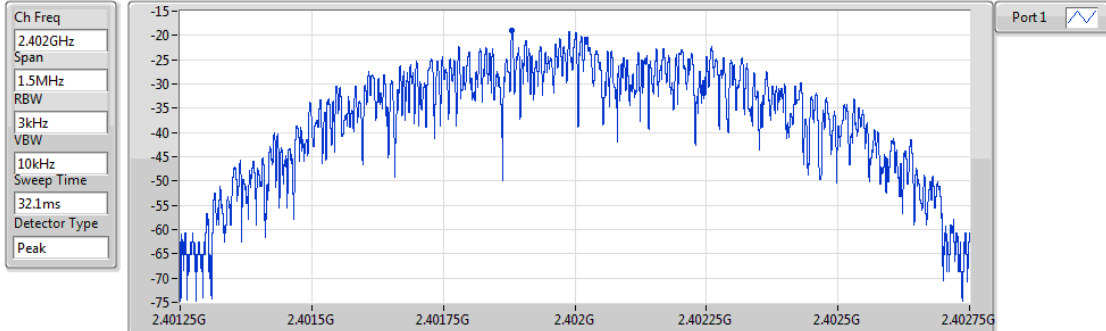
Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	3.29	-18.92	8.00
2440MHz_TnomVnom	Pass	3.29	-17.36	8.00
2480MHz_TnomVnom	Pass	3.29	-16.50	8.00

RBW=3kHz.

BT-LE(1Mbps)

PSD

2402MHz

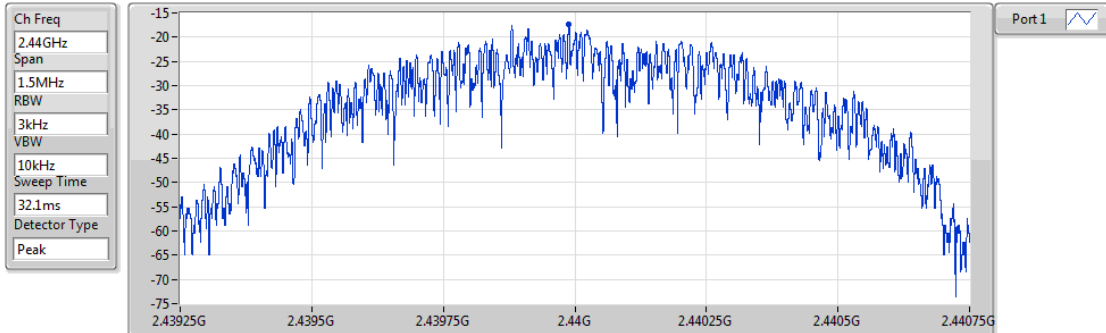


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-18.92	-18.92	-18.92

BT-LE(1Mbps)

PSD

2440MHz

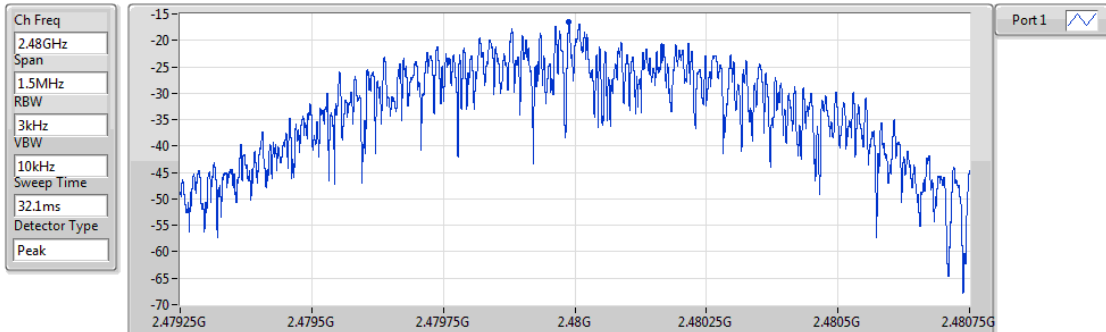


Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.36	-17.36	-17.36

BT-LE(1Mbps)

PSD

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.50	-16.50	-16.50

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	2.479993G	-2.58	-32.58	1.9244G	-58.78	2.398748G	-59.35	2.484684G	-57.99	24.741083G	-52.73	1

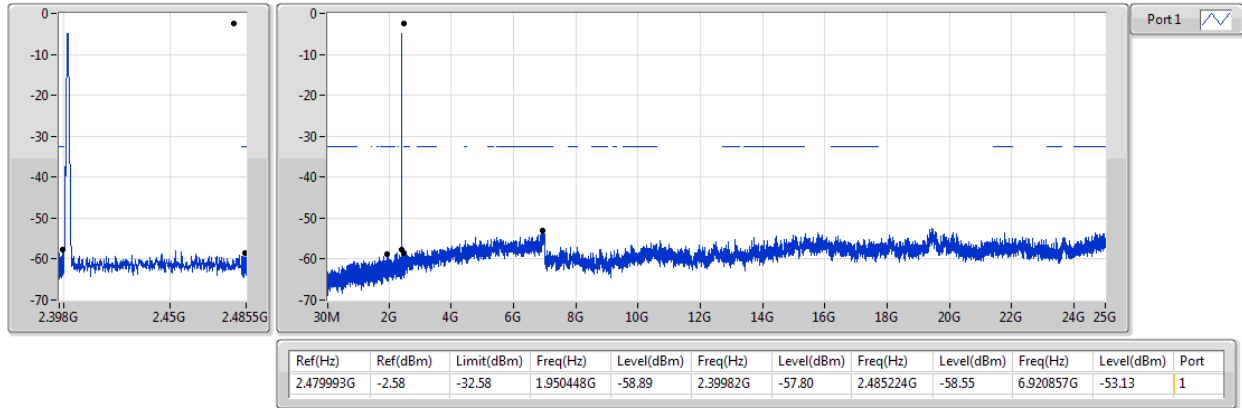
Result

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	2.479993G	-2.58	-32.58	1.950448G	-58.89	2.39982G	-57.80	2.485224G	-58.55	6.920857G	-53.13	1
2440MHz_TnomVnom	Pass	2.479993G	-2.58	-32.58	2.02504G	-59.21	2.399344G	-59.33	2.484004G	-58.62	24.935271G	-52.77	1
2480MHz_TnomVnom	Pass	2.479993G	-2.58	-32.58	1.9244G	-58.78	2.398748G	-59.35	2.484684G	-57.99	24.741083G	-52.73	1

BT-LE(1Mbps)

CSE NdB

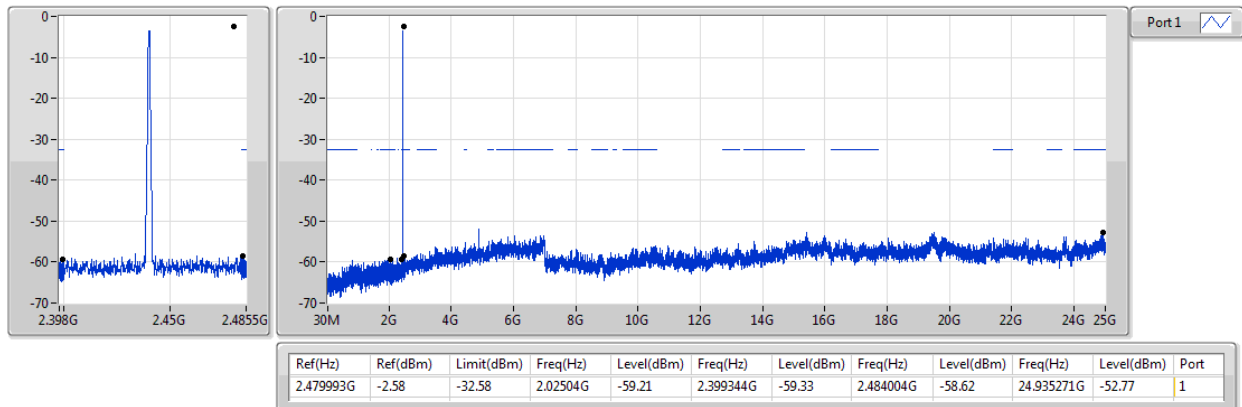
2402MHz



BT-LE(1Mbps)

CSE NdB

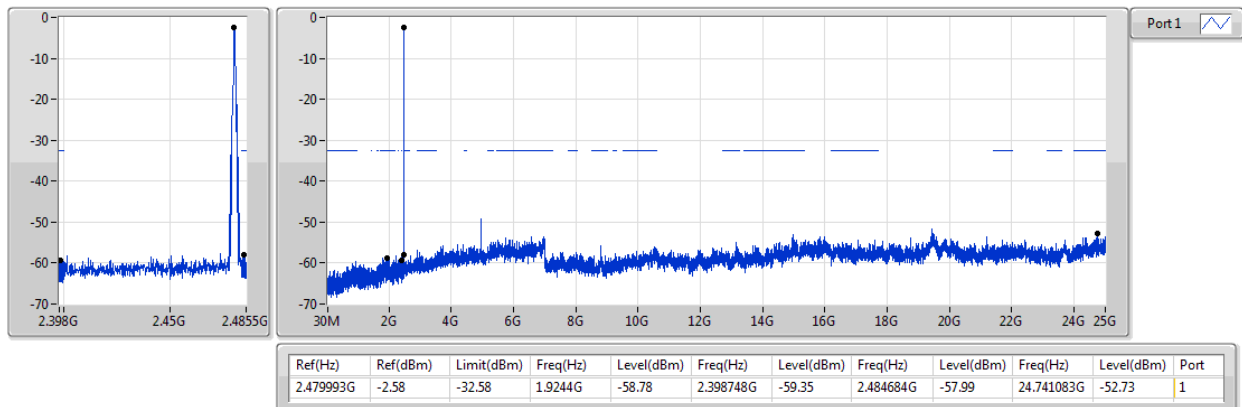
2440MHz



BT-LE(1Mbps)

CSE NdB

2480MHz





Summary

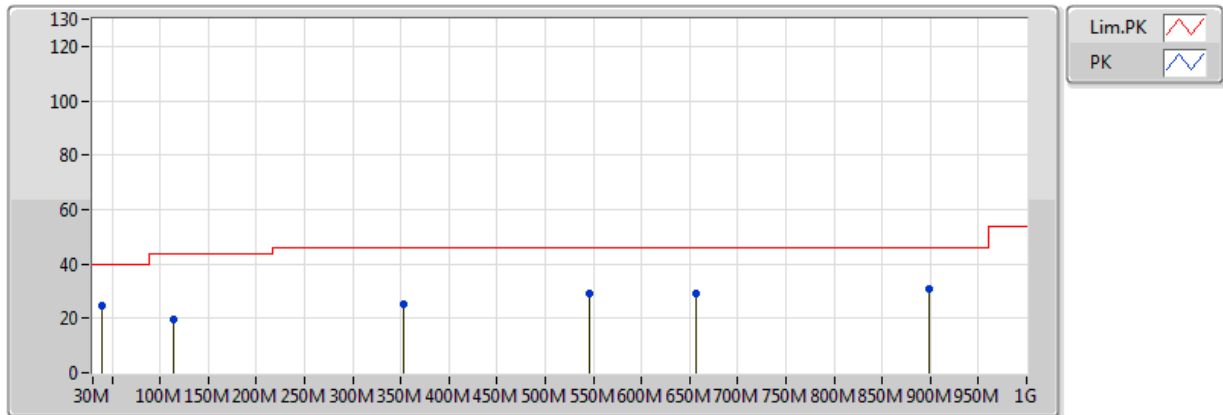
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	809.88M	31.22	46.00	-14.78	2.20	3	H	360	1.00	-

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	23.05	40.00	-16.95	-4.62	3	H	360	1.00	-
2440MHz	Pass	PK	127M	20.57	43.50	-22.93	-8.35	3	H	360	1.00	-
2440MHz	Pass	PK	367.56M	24.11	46.00	-21.89	-3.95	3	H	360	1.00	-
2440MHz	Pass	PK	586.78M	28.58	46.00	-17.42	-0.15	3	H	360	1.00	-
2440MHz	Pass	PK	615.88M	28.61	46.00	-17.39	0.01	3	H	360	1.00	-
2440MHz	Pass	PK	809.88M	31.22	46.00	-14.78	2.20	3	H	360	1.00	-
2440MHz	Pass	PK	39.7M	24.81	40.00	-15.19	-8.77	3	V	0	1.00	-
2440MHz	Pass	PK	113.42M	19.46	43.50	-24.04	-8.45	3	V	0	1.00	-
2440MHz	Pass	PK	352.04M	25.27	46.00	-20.73	-4.36	3	V	0	1.00	-
2440MHz	Pass	PK	546.04M	28.87	46.00	-17.13	-0.14	3	V	0	1.00	-
2440MHz	Pass	PK	656.62M	29.08	46.00	-16.92	0.45	3	V	0	1.00	-
2440MHz	Pass	PK	899.12M	31.07	46.00	-14.93	3.03	3	V	0	1.00	-

BT-LE(1Mbps)

2440MHz_DC power Mode

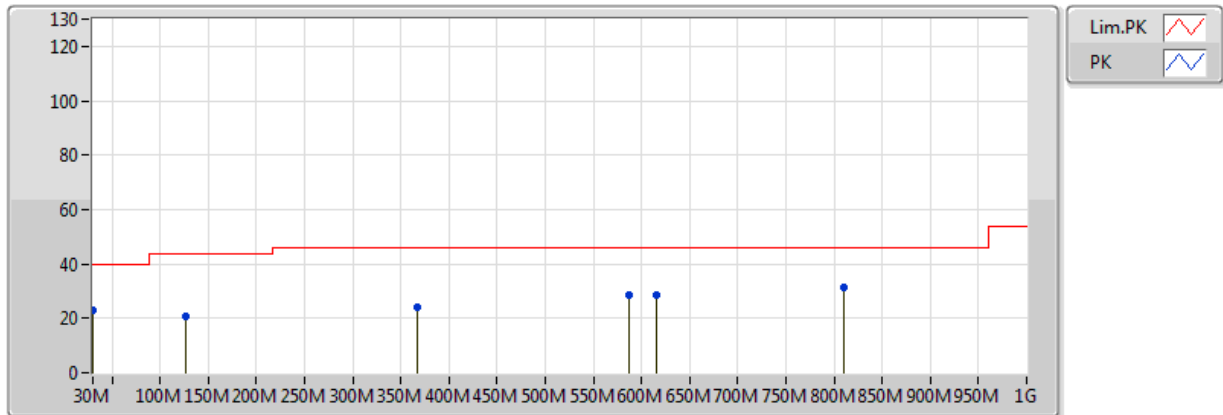


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	39.7M	24.81	40.00	-15.19	-8.77	3	V	0	1.00	-
PK	113.42M	19.46	43.50	-24.04	-8.45	3	V	0	1.00	-
PK	352.04M	25.27	46.00	-20.73	-4.36	3	V	0	1.00	-
PK	546.04M	28.87	46.00	-17.13	-0.14	3	V	0	1.00	-
PK	656.62M	29.08	46.00	-16.92	0.45	3	V	0	1.00	-
PK	899.12M	31.07	46.00	-14.93	3.03	3	V	0	1.00	-

BT-LE(1Mbps)

2440MHz_DC power Mode



EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	30M	23.05	40.00	-16.95	-4.62	3	H	360	1.00	-
PK	127M	20.57	43.50	-22.93	-8.35	3	H	360	1.00	-
PK	367.56M	24.11	46.00	-21.89	-3.95	3	H	360	1.00	-
PK	586.78M	28.58	46.00	-17.42	-0.15	3	H	360	1.00	-
PK	615.88M	28.61	46.00	-17.39	0.01	3	H	360	1.00	-
PK	809.88M	31.22	46.00	-14.78	2.20	3	H	360	1.00	-

**Summary**

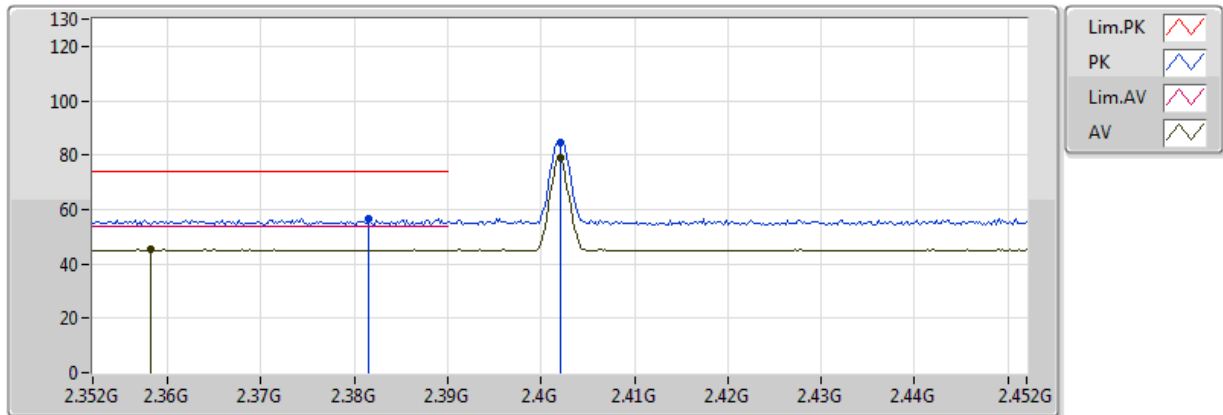
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	AV	2.484G	48.12	54.00	-5.88	31.78	3	V	311	3.69	-

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	2.3812G	45.36	54.00	-8.64	32.36	3	H	212	2.01	-
2402MHz	Pass	AV	2.402G	85.49	Inf	-Inf	32.45	3	H	212	2.01	-
2402MHz	Pass	PK	2.3554G	57.16	74.00	-16.84	32.26	3	H	212	2.01	-
2402MHz	Pass	PK	2.402G	91.72	Inf	-Inf	32.45	3	H	212	2.01	-
2402MHz	Pass	AV	2.3582G	45.26	54.00	-8.74	32.27	3	V	17	1.38	-
2402MHz	Pass	AV	2.402G	79.00	Inf	-Inf	32.45	3	V	17	1.38	-
2402MHz	Pass	PK	2.3816G	56.52	74.00	-17.48	32.36	3	V	17	1.38	-
2402MHz	Pass	PK	2.402G	84.61	Inf	-Inf	32.45	3	V	17	1.38	-
2440MHz	Pass	AV	2.3828G	46.94	54.00	-7.06	31.42	3	H	310	3.05	-
2440MHz	Pass	AV	2.44G	89.76	Inf	-Inf	31.62	3	H	310	3.05	-
2440MHz	Pass	AV	2.4912G	47.87	54.00	-6.13	31.81	3	H	310	3.05	-
2440MHz	Pass	AV	4.88G	32.75	54.00	-21.25	6.62	3	H	277	1.50	-
2440MHz	Pass	PK	2.3828G	59.51	74.00	-14.49	31.42	3	H	310	3.05	-
2440MHz	Pass	PK	2.4396G	90.79	Inf	-Inf	31.62	3	H	310	3.05	-
2440MHz	Pass	PK	2.4888G	60.09	74.00	-13.91	31.80	3	H	310	3.05	-
2440MHz	Pass	PK	4.88G	46.12	74.00	-27.88	6.62	3	H	277	1.50	-
2440MHz	Pass	AV	2.388G	47.15	54.00	-6.85	31.44	3	V	310	3.05	-
2440MHz	Pass	AV	2.44G	81.72	Inf	-Inf	31.62	3	V	310	3.05	-
2440MHz	Pass	AV	2.4844G	48.10	54.00	-5.90	31.78	3	V	310	3.05	-
2440MHz	Pass	AV	4.88G	32.16	54.00	-21.84	6.62	3	V	145	1.41	-
2440MHz	Pass	PK	2.382G	59.01	74.00	-14.99	31.42	3	V	310	3.05	-
2440MHz	Pass	PK	2.4404G	82.77	Inf	-Inf	31.63	3	V	310	3.05	-
2440MHz	Pass	PK	2.4848G	60.32	74.00	-13.68	31.79	3	V	310	3.05	-
2440MHz	Pass	PK	4.88G	45.95	74.00	-28.05	6.62	3	V	145	1.41	-
2480MHz	Pass	AV	2.48G	88.82	Inf	-Inf	31.77	3	H	35	2.00	-
2480MHz	Pass	AV	2.4916G	47.96	54.00	-6.04	31.81	3	H	35	2.00	-
2480MHz	Pass	AV	4.96G	33.85	54.00	-20.15	6.82	3	H	264	1.06	-
2480MHz	Pass	PK	2.48G	89.87	Inf	-Inf	31.77	3	H	35	2.00	-
2480MHz	Pass	PK	2.4988G	61.32	74.00	-12.68	31.84	3	H	35	2.00	-
2480MHz	Pass	PK	4.96G	46.22	74.00	-27.78	6.82	3	H	264	1.06	-
2480MHz	Pass	AV	2.48G	80.85	Inf	-Inf	31.77	3	V	311	3.69	-
2480MHz	Pass	AV	2.484G	48.12	54.00	-5.88	31.78	3	V	311	3.69	-
2480MHz	Pass	AV	4.96G	46.50	54.00	-7.50	6.82	3	V	268	1.49	-
2480MHz	Pass	PK	2.48G	82.17	Inf	-Inf	31.77	3	V	311	3.69	-
2480MHz	Pass	PK	2.4934G	60.57	74.00	-13.43	31.82	3	V	311	3.69	-
2480MHz	Pass	PK	4.96G	46.81	74.00	-27.19	6.82	3	V	268	1.49	-

BT-LE(1Mbps)

2402MHz_TX

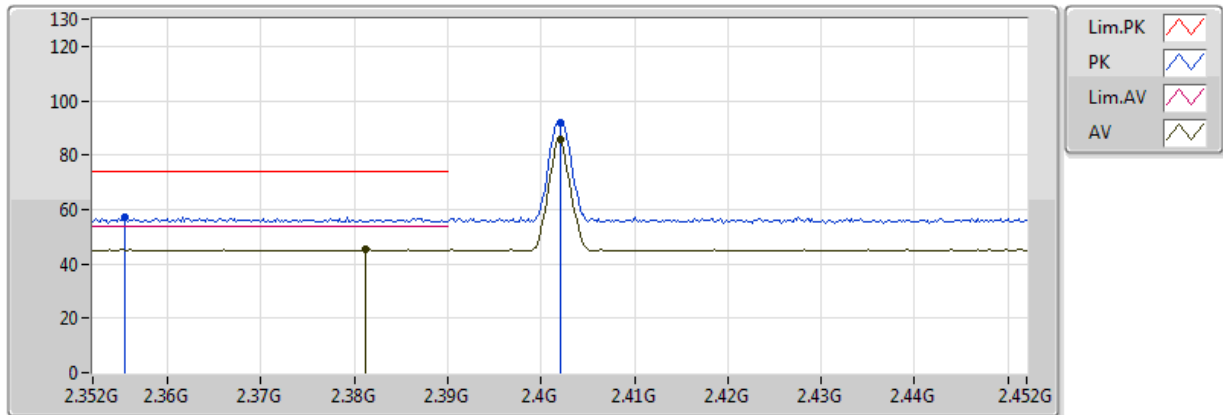


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3582G	45.26	54.00	-8.74	32.27	3	V	17	1.38	-
AV	2.402G	79.00	Inf	-Inf	32.45	3	V	17	1.38	-
PK	2.3816G	56.52	74.00	-17.48	32.36	3	V	17	1.38	-
PK	2.402G	84.61	Inf	-Inf	32.45	3	V	17	1.38	-

BT-LE(1Mbps)

2402MHz_TX

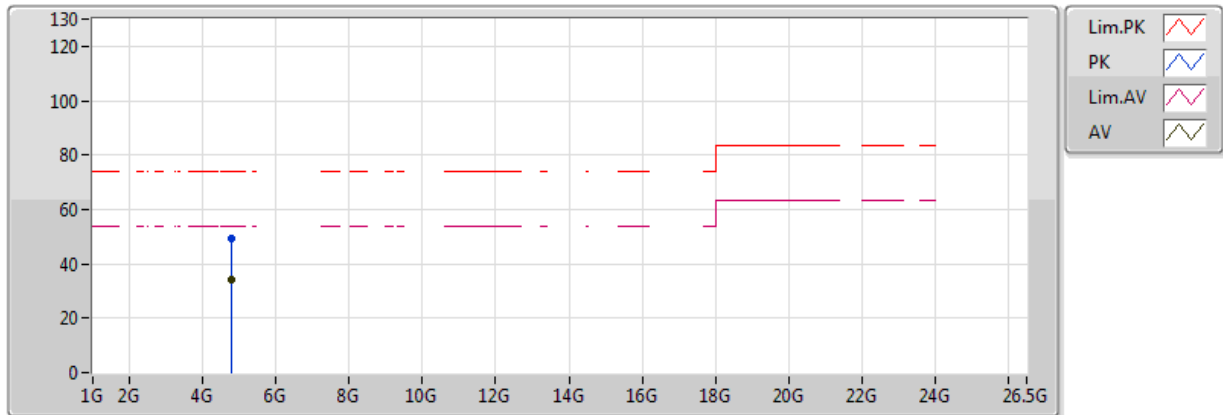


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3812G	45.36	54.00	-8.64	32.36	3	H	212	2.01	-
AV	2.402G	85.49	Inf	-Inf	32.45	3	H	212	2.01	-
PK	2.3554G	57.16	74.00	-16.84	32.26	3	H	212	2.01	-
PK	2.402G	91.72	Inf	-Inf	32.45	3	H	212	2.01	-

BT-LE(1Mbps)

2402MHz_TX

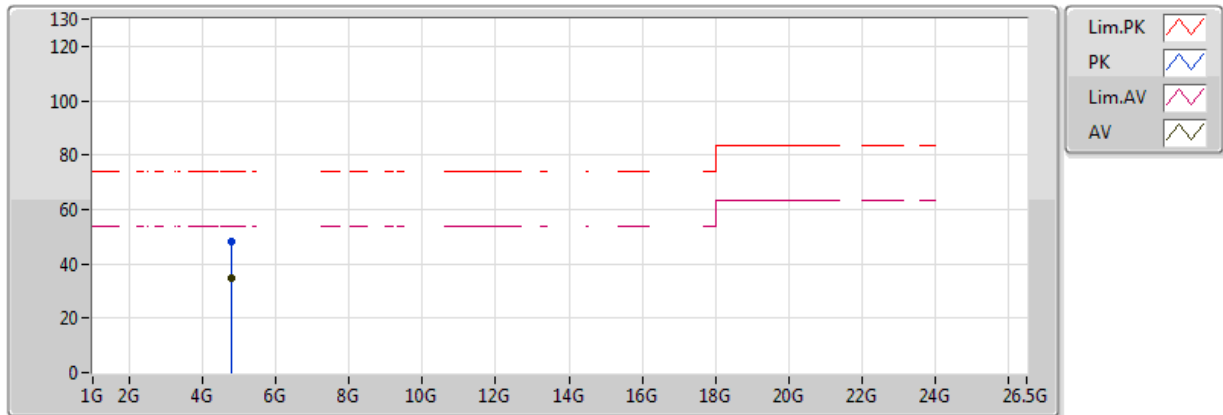


EUT=Z

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	34.41	54.00	-19.59	3.65	3	V	307	1.01	-
PK	4.804G	49.37	74.00	-24.63	3.65	3	V	307	1.01	-

BT-LE(1Mbps)

2402MHz_TX

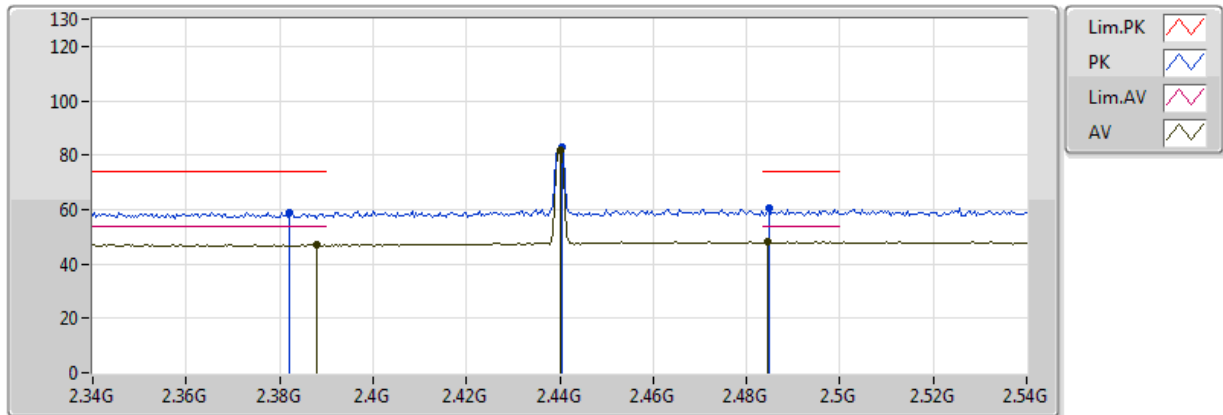


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Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.804G	34.51	54.00	-19.49	3.65	3	H	0	1.50	-
PK	4.804G	48.42	74.00	-25.58	3.65	3	H	0	1.50	-

BT-LE(1Mbps)

2440MHz_TX

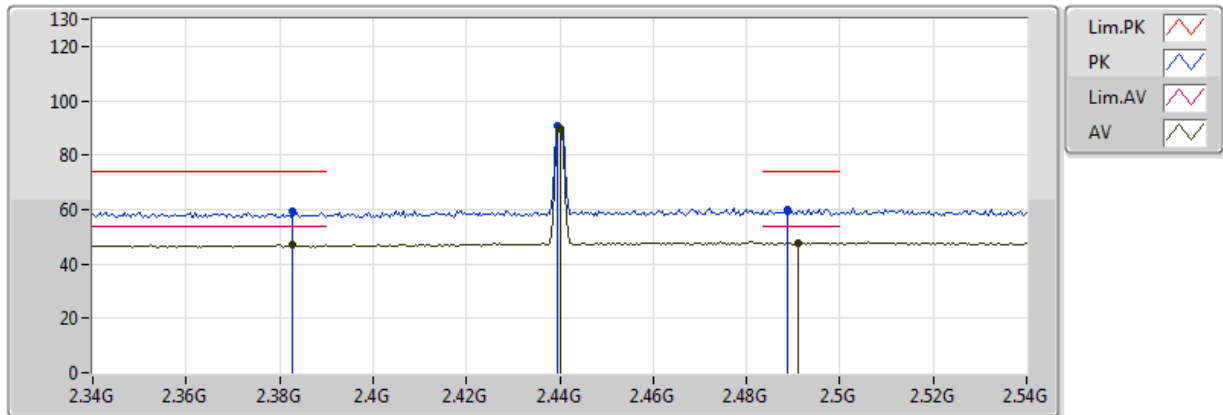


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.388G	47.15	54.00	-6.85	31.44	3	V	310	3.05	-
AV	2.44G	81.72	Inf	-Inf	31.62	3	V	310	3.05	-
AV	2.4844G	48.10	54.00	-5.90	31.78	3	V	310	3.05	-
PK	2.382G	59.01	74.00	-14.99	31.42	3	V	310	3.05	-
PK	2.4404G	82.77	Inf	-Inf	31.63	3	V	310	3.05	-
PK	2.4848G	60.32	74.00	-13.68	31.79	3	V	310	3.05	-

BT-LE(1Mbps)

2440MHz_TX

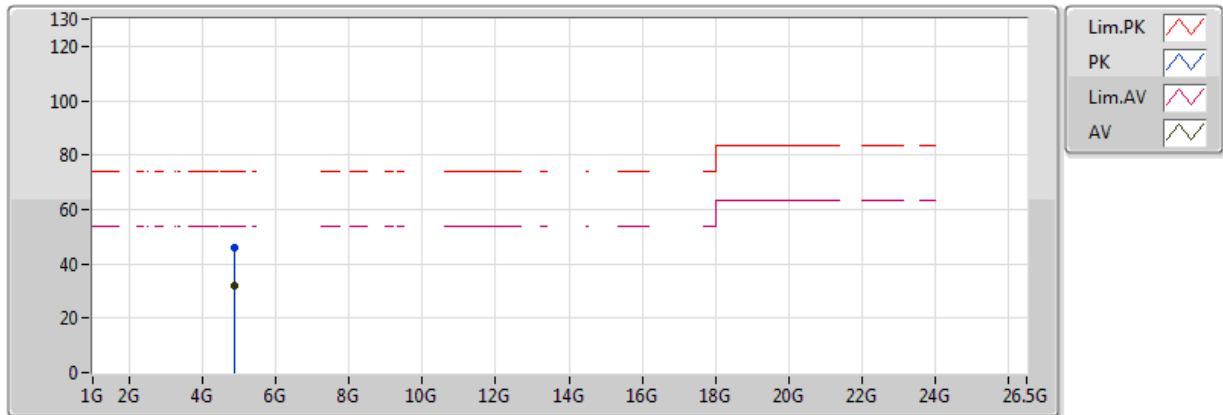


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.3828G	46.94	54.00	-7.06	31.42	3	H	310	3.05	-
AV	2.44G	89.76	Inf	-Inf	31.62	3	H	310	3.05	-
AV	2.4912G	47.87	54.00	-6.13	31.81	3	H	310	3.05	-
PK	2.3828G	59.51	74.00	-14.49	31.42	3	H	310	3.05	-
PK	2.4396G	90.79	Inf	-Inf	31.62	3	H	310	3.05	-
PK	2.4888G	60.09	74.00	-13.91	31.80	3	H	310	3.05	-

BT-LE(1Mbps)

2440MHz_TX

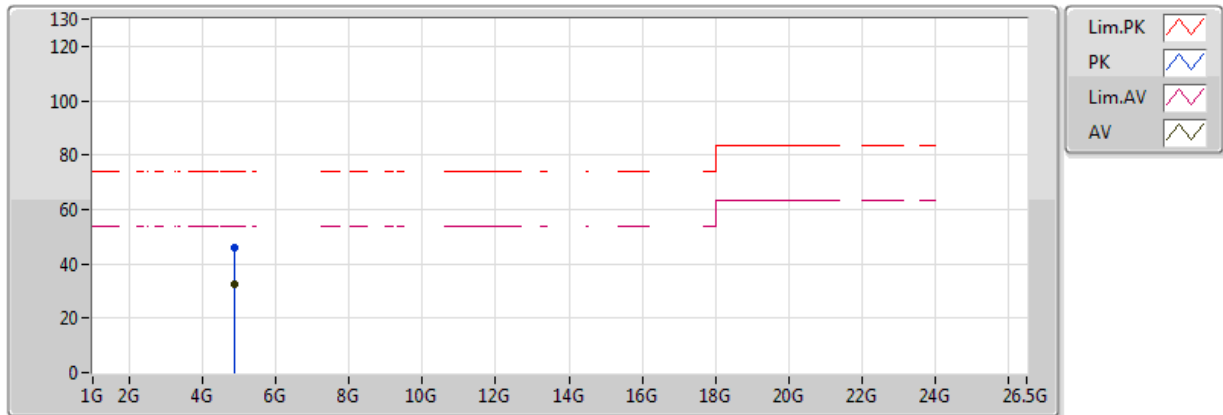


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Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	4.88G	32.16	54.00	-21.84	6.62	3	V	145	1.41	-
PK	4.88G	45.95	74.00	-28.05	6.62	3	V	145	1.41	-

BT-LE(1Mbps)

2440MHz_TX

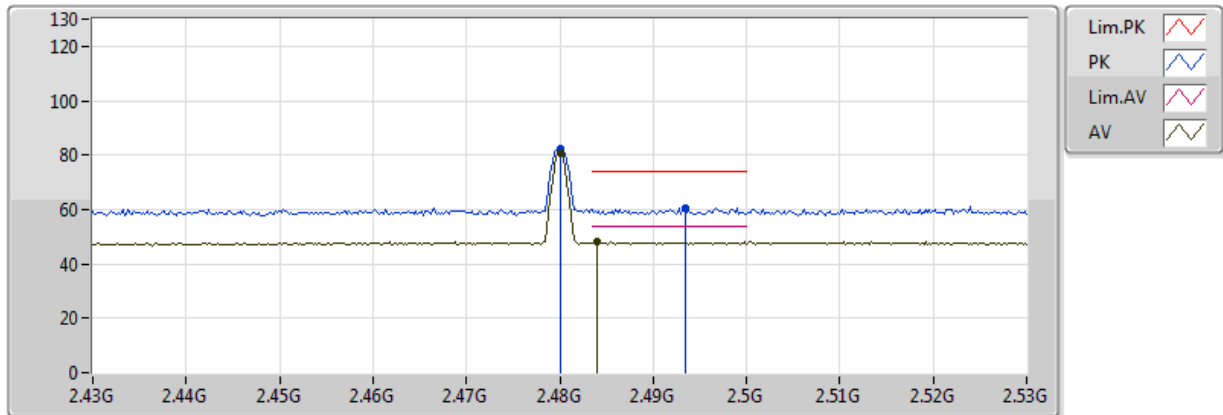


EUT=Z

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	32.75	54.00	-21.25	6.62	3	H	277	1.50	-
PK	4.88G	46.12	74.00	-27.88	6.62	3	H	277	1.50	-

BT-LE(1Mbps)

2480MHz_TX

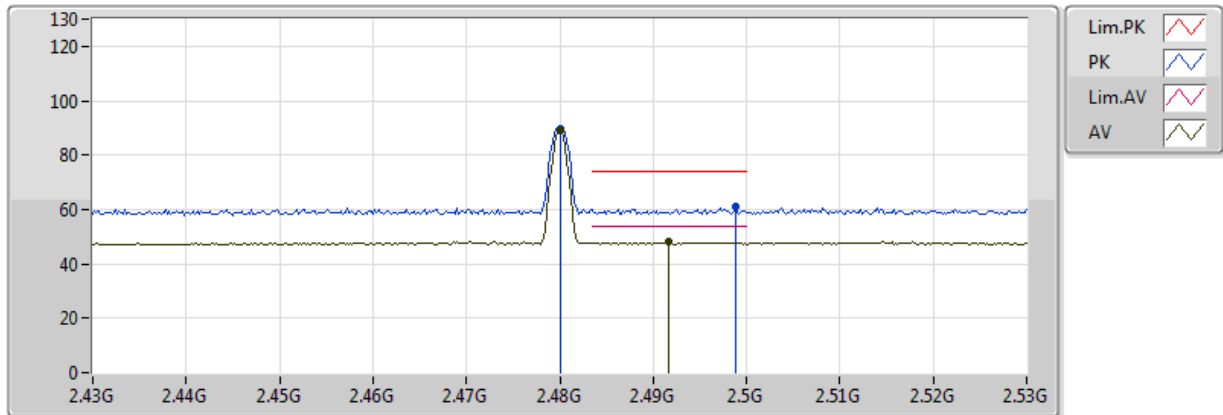


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.484G	48.12	54.00	-5.88	31.78	3	V	311	3.69	-
AV	2.48G	80.85	Inf	-Inf	31.77	3	V	311	3.69	-
PK	2.4934G	60.57	74.00	-13.43	31.82	3	V	311	3.69	-
PK	2.48G	82.17	Inf	-Inf	31.77	3	V	311	3.69	-

BT-LE(1Mbps)

2480MHz_TX

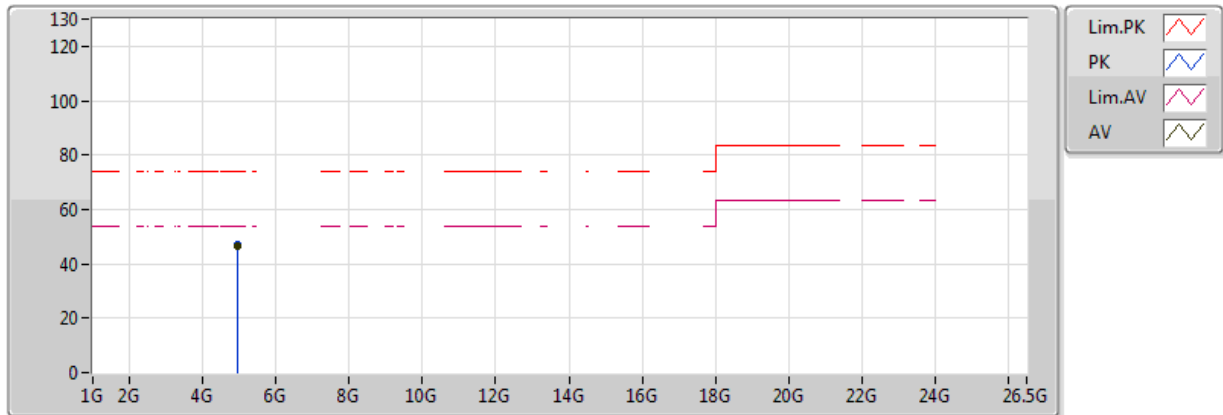


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
AV	2.4916G	47.96	54.00	-6.04	31.81	3	H	35	2.00	-
AV	2.48G	88.82	Inf	-Inf	31.77	3	H	35	2.00	-
PK	2.4988G	61.32	74.00	-12.68	31.84	3	H	35	2.00	-
PK	2.48G	89.87	Inf	-Inf	31.77	3	H	35	2.00	-

BT-LE(1Mbps)

2480MHz_TX

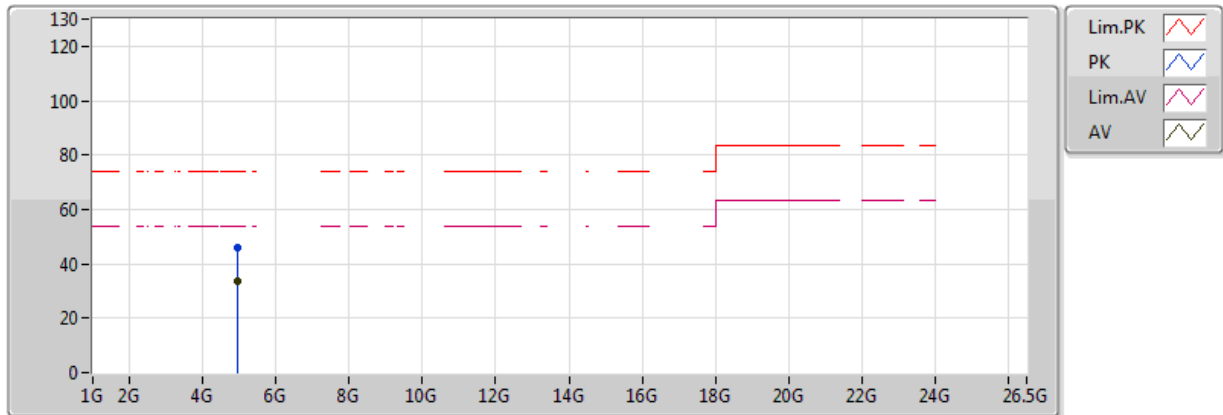


EUT=Z

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	46.50	54.00	-7.50	6.82	3	V	268	1.49	-
PK	4.96G	46.81	74.00	-27.19	6.82	3	V	268	1.49	-

BT-LE(1Mbps)

2480MHz_TX



EUT=Z

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	33.85	54.00	-20.15	6.82	3	H	264	1.06	-
PK	4.96G	46.22	74.00	-27.78	6.82	3	H	264	1.06	-

**Summary**

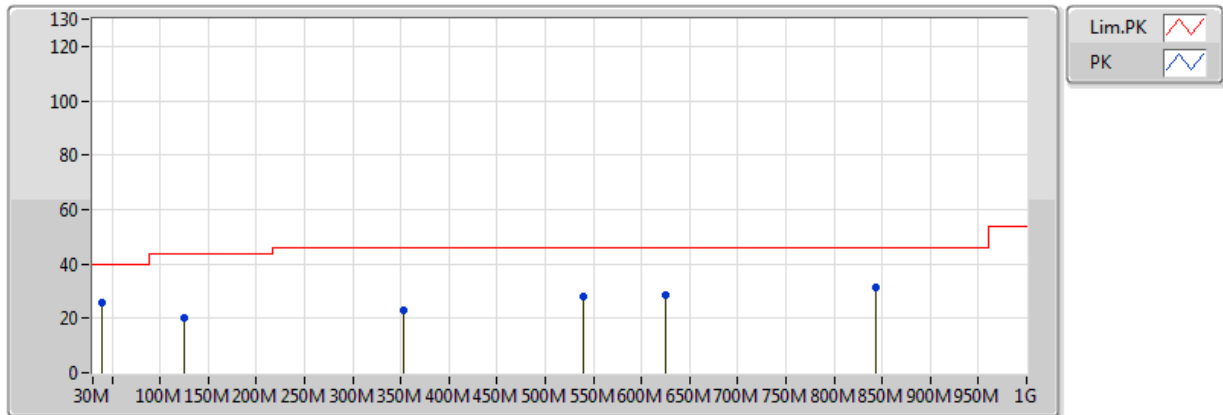
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	PK	39.7M	25.72	40.00	-14.28	-8.77	3	V	360	1.00	-

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	22.82	40.00	-17.18	-4.62	3	H	0	1.00	-
2440MHz	Pass	PK	128.94M	19.31	43.50	-24.19	-8.39	3	H	0	1.00	-
2440MHz	Pass	PK	322.94M	20.68	46.00	-25.32	-5.08	3	H	0	1.00	-
2440MHz	Pass	PK	561.56M	27.83	46.00	-18.17	-0.08	3	H	0	1.00	-
2440MHz	Pass	PK	625.58M	28.24	46.00	-17.76	0.14	3	H	0	1.00	-
2440MHz	Pass	PK	914.64M	31.35	46.00	-14.65	3.27	3	H	0	1.00	-
2440MHz	Pass	PK	39.7M	25.72	40.00	-14.28	-8.77	3	V	360	1.00	-
2440MHz	Pass	PK	125.06M	19.91	43.50	-23.59	-8.31	3	V	360	1.00	-
2440MHz	Pass	PK	352.04M	22.96	46.00	-23.04	-4.36	3	V	360	1.00	-
2440MHz	Pass	PK	540.22M	27.78	46.00	-18.22	-0.29	3	V	360	1.00	-
2440MHz	Pass	PK	625.58M	28.72	46.00	-17.28	0.14	3	V	360	1.00	-
2440MHz	Pass	PK	842.86M	31.27	46.00	-14.73	2.58	3	V	360	1.00	-

BT-LE(1Mbps)RX

2440MHz_DC power Mode

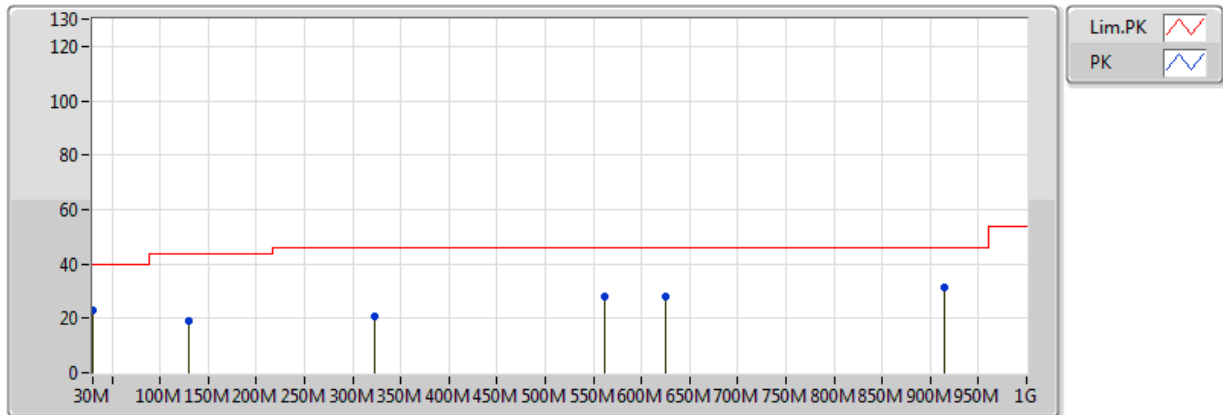


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	39.7M	25.72	40.00	-14.28	-8.77	3	V	360	1.00	-
PK	125.06M	19.91	43.50	-23.59	-8.31	3	V	360	1.00	-
PK	352.04M	22.96	46.00	-23.04	-4.36	3	V	360	1.00	-
PK	540.22M	27.78	46.00	-18.22	-0.29	3	V	360	1.00	-
PK	625.58M	28.72	46.00	-17.28	0.14	3	V	360	1.00	-
PK	842.86M	31.27	46.00	-14.73	2.58	3	V	360	1.00	-

BT-LE(1Mbps)RX

2440MHz_DC power Mode



EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	30M	22.82	40.00	-17.18	-4.62	3	H	0	1.00	-
PK	128.94M	19.31	43.50	-24.19	-8.39	3	H	0	1.00	-
PK	322.94M	20.68	46.00	-25.32	-5.08	3	H	0	1.00	-
PK	561.56M	27.83	46.00	-18.17	-0.08	3	H	0	1.00	-
PK	625.58M	28.24	46.00	-17.76	0.14	3	H	0	1.00	-
PK	914.64M	31.35	46.00	-14.65	3.27	3	H	0	1.00	-

**Summary**

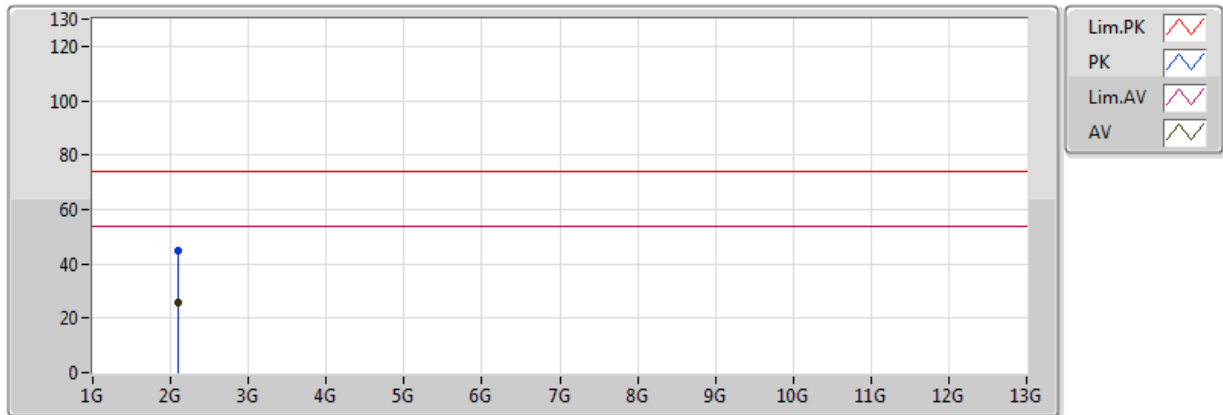
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2.4-2.4835GHz	Pass	AV	2.592G	26.23	54.00	-27.77	1.34	3	H	0	1.00	-

**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	AV	2.592G	26.23	54.00	-27.77	1.34	3	H	0	1.00	-
2440MHz	Pass	PK	2.592G	44.97	74.00	-29.03	1.34	3	H	0	1.00	-
2440MHz	Pass	AV	2.092G	25.97	54.00	-28.03	-0.58	3	V	360	1.00	-
2440MHz	Pass	PK	2.092G	44.88	74.00	-29.12	-0.58	3	V	360	1.00	-

BT-LE(1Mbps)RX

2440MHz_RX

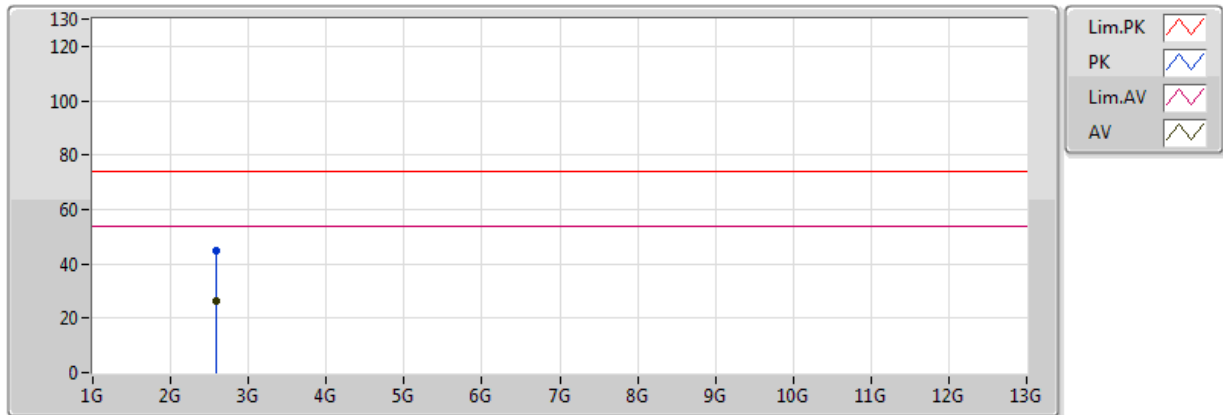


EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	2.092G	44.88	74.00	-29.12	-0.58	3	V	360	1.00	-
AV	2.092G	25.97	54.00	-28.03	-0.58	3	V	360	1.00	-

BT-LE(1Mbps)RX

2440MHz_RX



EUT=Z

Type	Freq(Hz)	Level(dBuV/m)	Limit(dBuV/m)	Margin(dB)	Factor(dB)	Dist(m)	Pol.(H/V)	Azimuth(°)	Height(m)	Comments
PK	2.592G	44.97	74.00	-29.03	1.34	3	H	0	1.00	-
AV	2.592G	26.23	54.00	-27.77	1.34	3	H	0	1.00	-