

FCC Test Report

Equipment : 802.11ac Tri Band PoE Access Point
Brand Name : LITE-ON, MOJO
Model No. : WP9333, WP9331, O-105, WP9331-FM
FCC ID : PPQ-WP9333
Standard : 47 CFR FCC Part 15.247
Operating Band : 2400 MHz – 2483.5 MHz
Function : ☒ Point-to-multipoint; ☐ Point-to-point
Applicant : LITE-ON Technology Corp.
Bldg. C, 90, Chien 1 Rd., Chung-Ho, New Taipei City,
23585 Taiwan
Manufacturer : Lite-On Network Communication (Dongguan) Limited
30#Keji Rd., Yin Hu Industrial Area, Qingxi
Town, DongGuan City, Guangdong, China

The product sample received on Sep. 07, 2017 and completely tested on Oct. 03, 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.

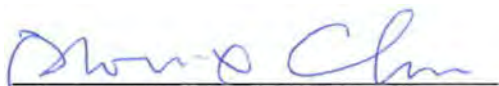

Phoenix Chen / Assistant Manager



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Testing Applied Standards	7
1.3	Testing Location Information	8
1.4	Measurement Uncertainty	8
2	TEST CONFIGURATION OF EUT.....	9
2.1	Test Condition	9
2.2	Test Channel Mode	9
2.3	The Worst Case Measurement Configuration.....	10
2.4	Accessories	11
2.5	Support Equipment.....	11
2.6	Test Setup Diagram	12
3	TRANSMITTER TEST RESULT	14
3.1	AC Power-line Conducted Emissions	14
3.2	DTS Bandwidth.....	15
3.3	Maximum Conducted Output Power	16
3.4	Power Spectral Density	18
3.5	Emissions in Non-restricted Frequency Bands	19
3.6	Emissions in Restricted Frequency Bands.....	20
4	TEST EQUIPMENT AND CALIBRATION DATA.....	24
APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS		
APPENDIX B. TEST RESULTS OF DTS BANDWIDTH		
APPENDIX C. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER		
APPENDIX D. TEST RESULTS OF POWER SPECTRAL DENSITY		
APPENDIX E. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS		
APPENDIX F. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS		
APPENDIX G. TEST PHOTOS		
PHOTOGRAPHS OF EUT v01		

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



SPORTON INTERNATIONAL INC.
TEL : 886-3-3273456
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FCC ID: PPQ-WP9333

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	Radio
1	2	Walsin	RFMTA400809MMLB901	Metal Antenna	MMCX	R1
2	1	Walsin	RFMTA400811MMLB901	Metal Antenna	MMCX	R1
3	2	Walsin	RFMTA400814MM5B901	Metal Antenna	MMCX	R2
4	1	Walsin	RFMTA400816MM5B901	Metal Antenna	MMCX	R2
5	2	Master Wave Technology Co., Ltd	98P7RPIPF000	PCB Antenna	I-PEX	R3
6	1	Master Wave Technology Co., Ltd	98P7RPIPF001	PCB Antenna	I-PEX	R3
7	1	Walsin	RFPCA381017MMAB702	PCB Antenna	MMCX	R4

Ant.	Gain (dBi)						
	Radio 1	Radio 2		Radio 3			Radio 4
	2.4G	5G B1	5G B4	2.4G	5G B1	5G B4	BT
1	5.9	-	-	-	-	-	-
2	5.9	-	-	-	-	-	-
3	-	6.2	6.4	-	-	-	-
4	-	6.2	6.4	-	-	-	-
5	-	-	-	6.5	4.7	6.0	-
6	-	-	-	6.5	4.8	5.5	-
7	-	-	-	-	-	-	8.6



Note 1: The EUT has seven antennas.

Note 2: The EUT contain Radio 3 (2.4G)/(5G) RF module (Model Name: WM862FEMD, FCC ID: PPQ-WM862FEMD)

For 2.4 GHz function:

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

Radio 1

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

Radio 3

Ant. 5 (port 2) and Ant. 6 (port 1) could transmit/receive simultaneously.

For 5 GHz function:

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

Radio 2 (For B1 and B4)

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

Radio 3 (For B1 and B4)

Ant. 5 (port 2) and Ant. 6 (port 1) could transmit/receive simultaneously.

For Bluetooth function:

For Bluetooth mode (1TX/1RX)

Radio 4

Only Ant. 7 (port 1) can be used as transmitting/receiving antenna.

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From AC main / PoE		
Beamforming Function	☐ With beamforming	☒ Without beamforming	
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)	0.62	2.076	404.375u	3k

1.1.5 Table for Multiple Listing

The brand/model names in the following table are all refer to the identical product.

Brand Name	Model Name	CPU	CPU Brand	DDR	DDR Brand	Flash	Flash Brand/Model
LITE-ON	WP9333	IPQ4029	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC
						32X2	2x32 25Q256JVFQ WINBOND
		IPQ4019	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC
						32X2	2x32 25Q256JVFQ WINBOND
	WP9331	IPQ4029	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC
						32X2	2x32 25Q256JVFQ WINBOND
		IPQ4019	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC
						32X2	2x32 25Q256JVFQ WINBOND
	WP9331-FM	IPQ4029	Qualcomm Atheros	512	Micron	64	1x64 MX25L51245GMI-08G MXIC
						32X2	2x32 25Q256JVFQ WINBOND
MOJO	O-105	IPQ4029	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC
						32X2	2x32 25Q256JVFQ WINBOND
		IPQ4019	Qualcomm Atheros	256	Micron	64	1x64 MX25L51245GMI-08G MXIC
						32X2	2x32 25Q256JVFQ WINBOND

Brand Name	Model Name	Radio 1	Radio 2	Radio 3	Radio 4	EUT Power Type
LITE-ON	WP9333	V	V	V	V	AC main / PoE
	WP9331	V	V	X	V	PoE
	WP9331-FM	V	V	X	V	PoE
MOJO	O-105	V	V	X	V	PoE

Note:

Radio 1: 802.11ac 2.4G only

Radio 2: 802.11ac 5GHz on board

Radio 3: 802.11ac PCIe card, 2.4G+5GB1/B4

Radio 4: Bluetooth (BT LE and BR/EDR) on board

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			
☒	HWAYA	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	Tim	22.5°C / 66%	12/Sep/2017
Radiated	03CH02-HY	Jerry	23.5°C / 65%	15/Sep/2017
AC Conduction	CO04-HY	Jeff	23.4°C / 53%	03/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 (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	120V

2.2 Test Channel Mode

Test Software	Dos
---------------	-----

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	08
2440MHz	08
2480MHz	07

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	PoE mode
2	AC mode
Mode 2 configuration was tested and found to be the worst case and measured during the test.	

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

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	1. Radio 1 (2.4G) + Radio 2 (5G) + Radio 3 (2.4G) + Radio 4 (BT)
	2. Radio 1 (2.4G) + Radio 2 (5G) + Radio 3 (5G) + Radio 4 (BT)
Refer to Sporton Test Report No.: FA790613 for Co-location RF Exposure Evaluation.	

2.4 Accessories

Accessories		
Power Cable	Signal Line	6 meter, non-shielded cable, w/o ferrite core
Ground Wire	Signal Line	6.4 meter, non-shielded cable, w/o ferrite core

2.5 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	AC Source	G.W	APS-9102	-

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	PoE	Microsemi	PD-9001G	-

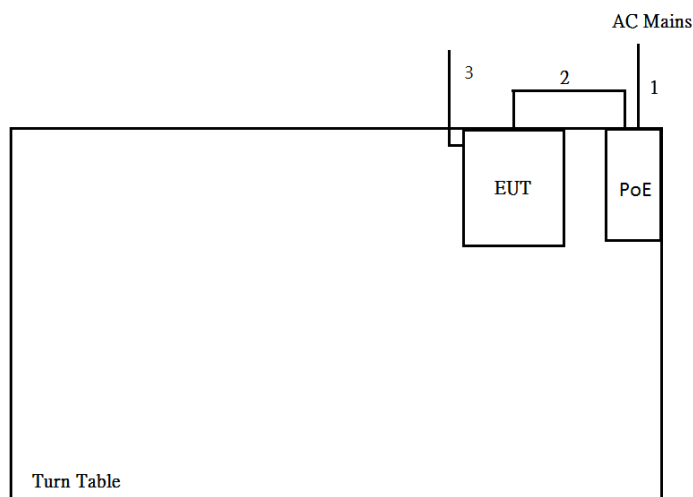
Note: Support equipment No.1 was provided by customer.

Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	PoE	Microsemi	PD-9001G	-

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

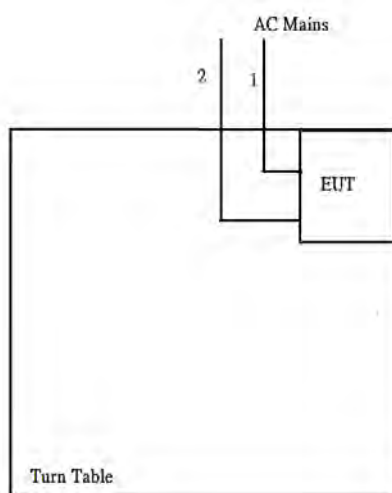
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test (PoE mode)

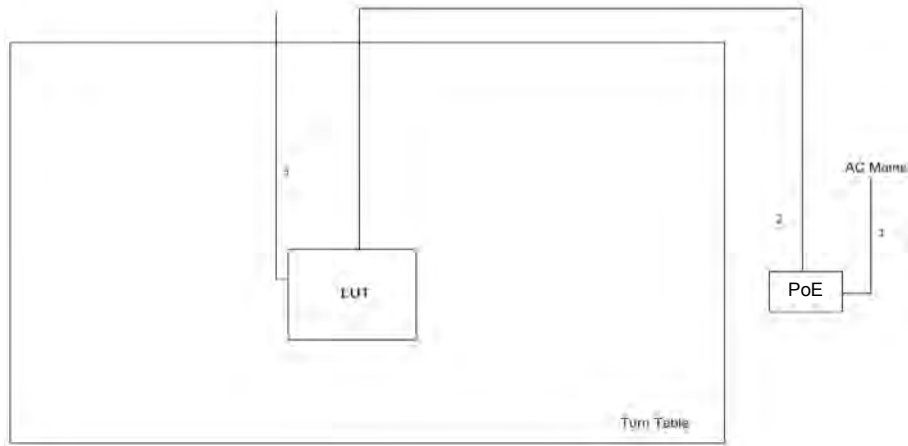


Item	Connection	Shielded	Length
1	AC power line	No	1.2m
2	RJ-45 cable	No	1m
3	Ground wire	No	6.4m

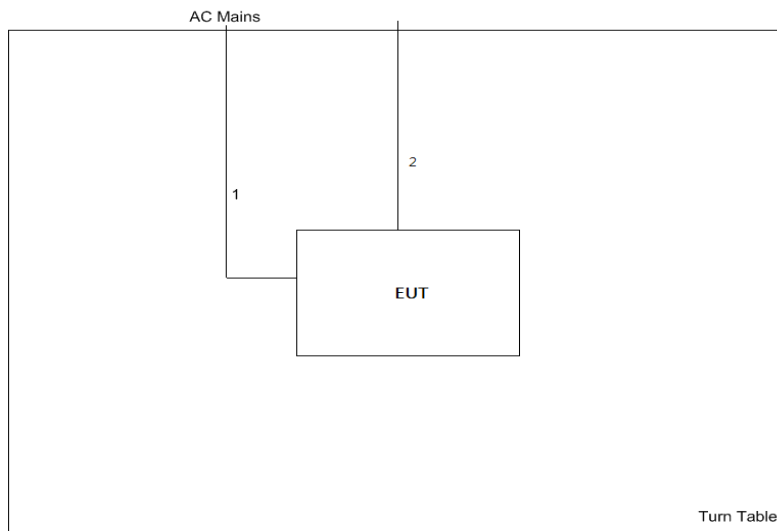
Test Setup Diagram – AC Line Conducted Emission Test (AC mode)



Item	Connection	Shielded	Length
1	AC power line	No	6m
2	Ground wire	No	6.4m

Test Setup Diagram - Radiated Test (PoE mode)


Item	Connection	Shielded	Length
1	AC power line	No	1.2m
2	RJ-45 cable	No	10m
3	Ground wire	No	6.4m

Test Setup Diagram - Radiated Test (AC mode)


Item	Connection	Shielded	Length
1	AC power line	No	6m
2	Ground wire	No	6.4m

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.

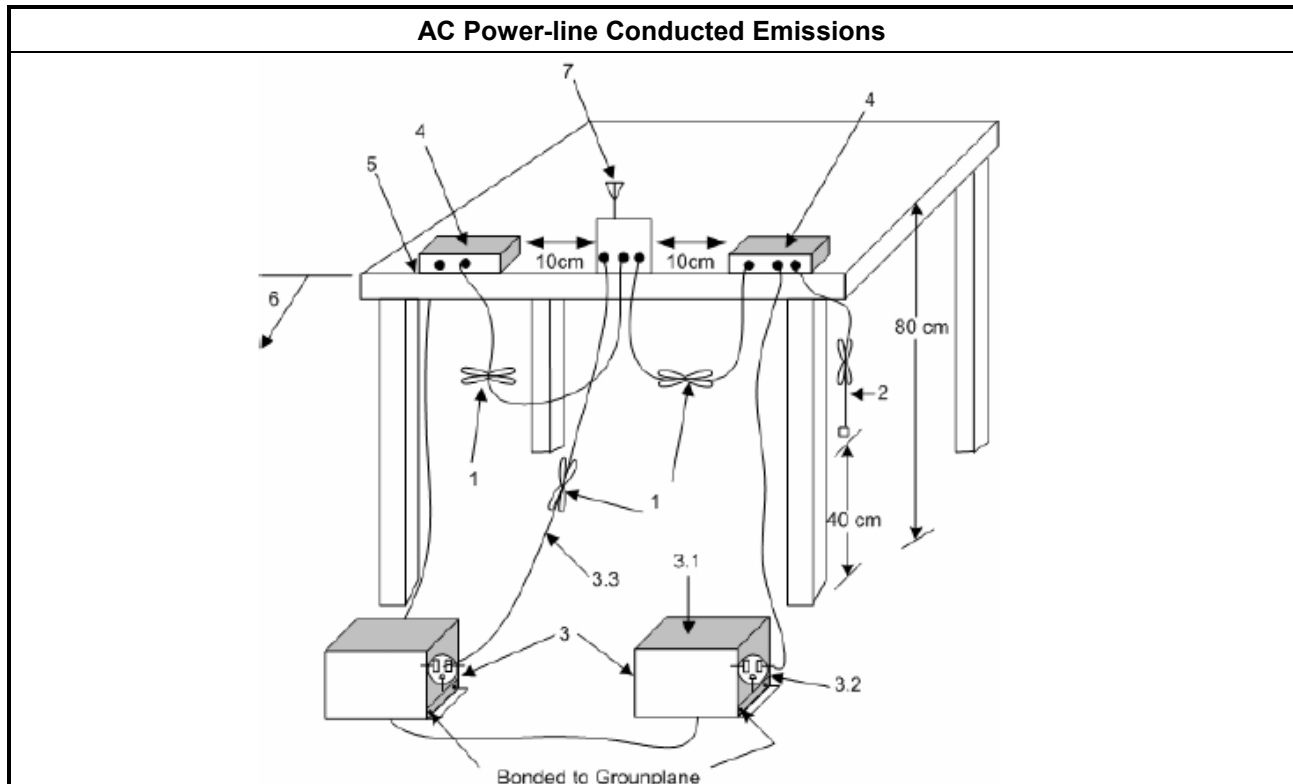
3.1.2 Measuring Instruments

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.

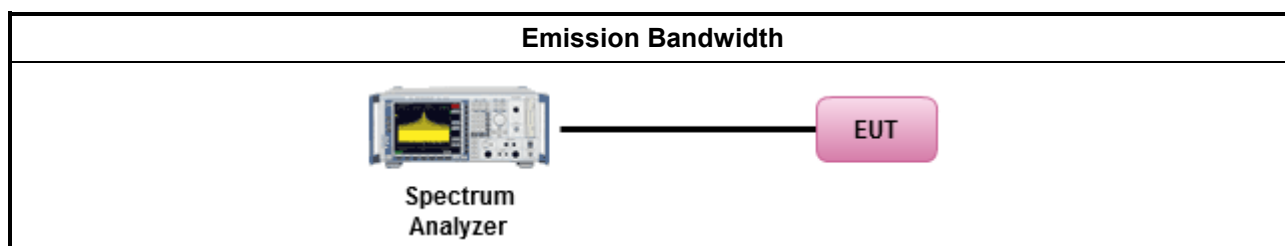
3.2.2 Measuring Instruments

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, 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



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.		

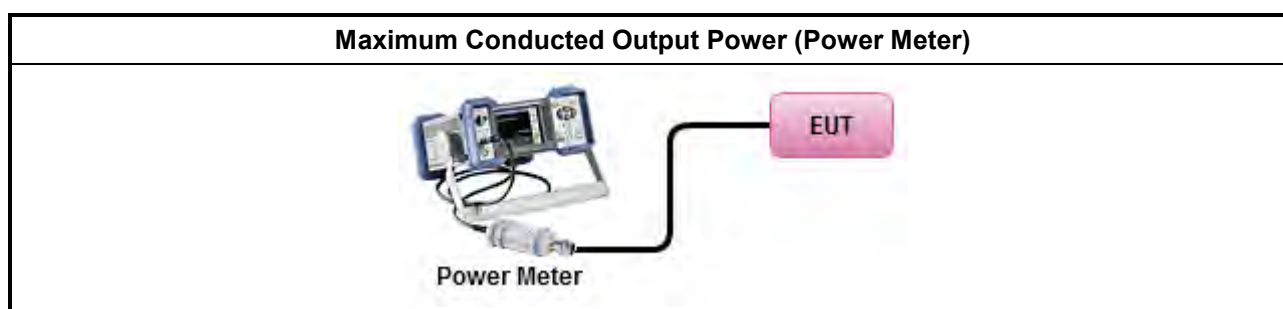
3.3.2 Measuring Instruments

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, 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: $P_{total} = P_1 + P_2 + \dots + P_n$ (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

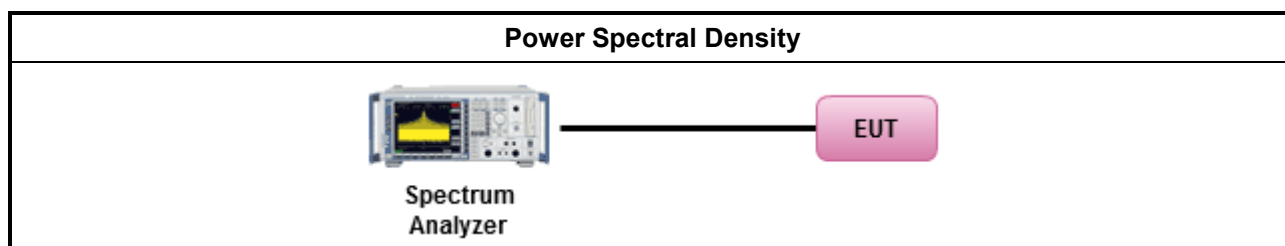
3.4.2 Measuring Instruments

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, 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.	

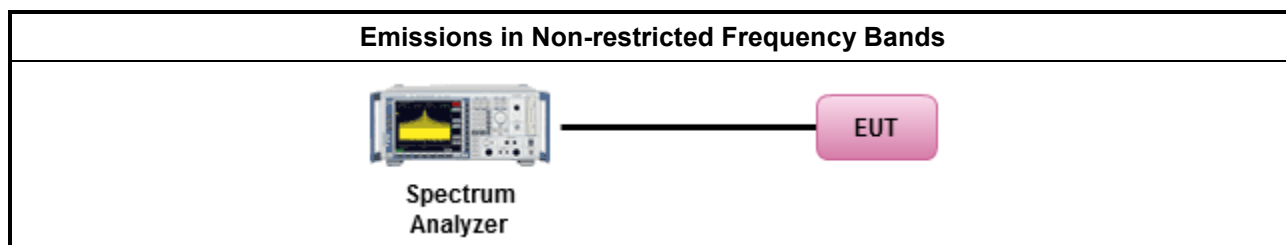
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as KDB 558074, 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.

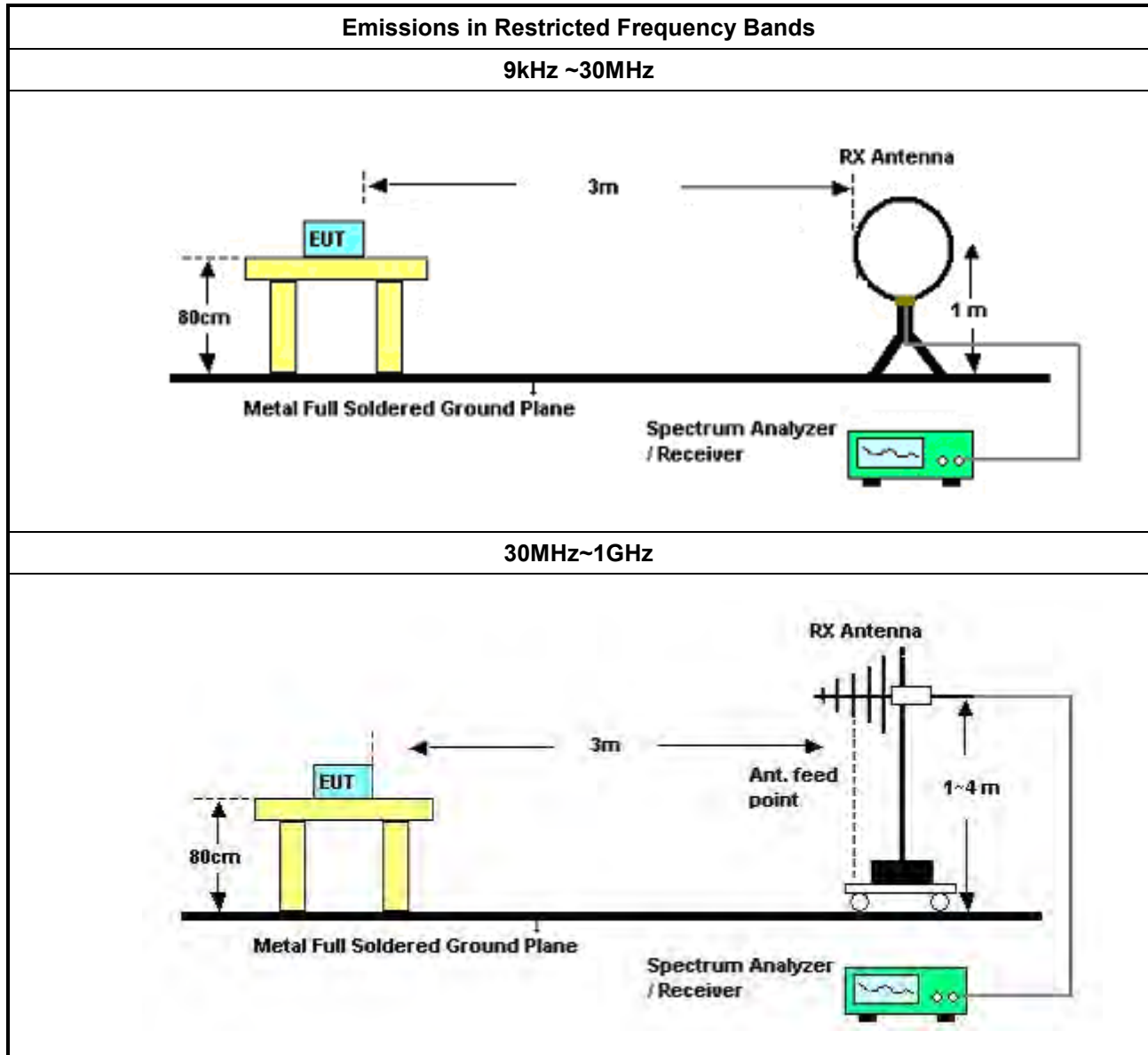
3.6.2 Measuring Instruments

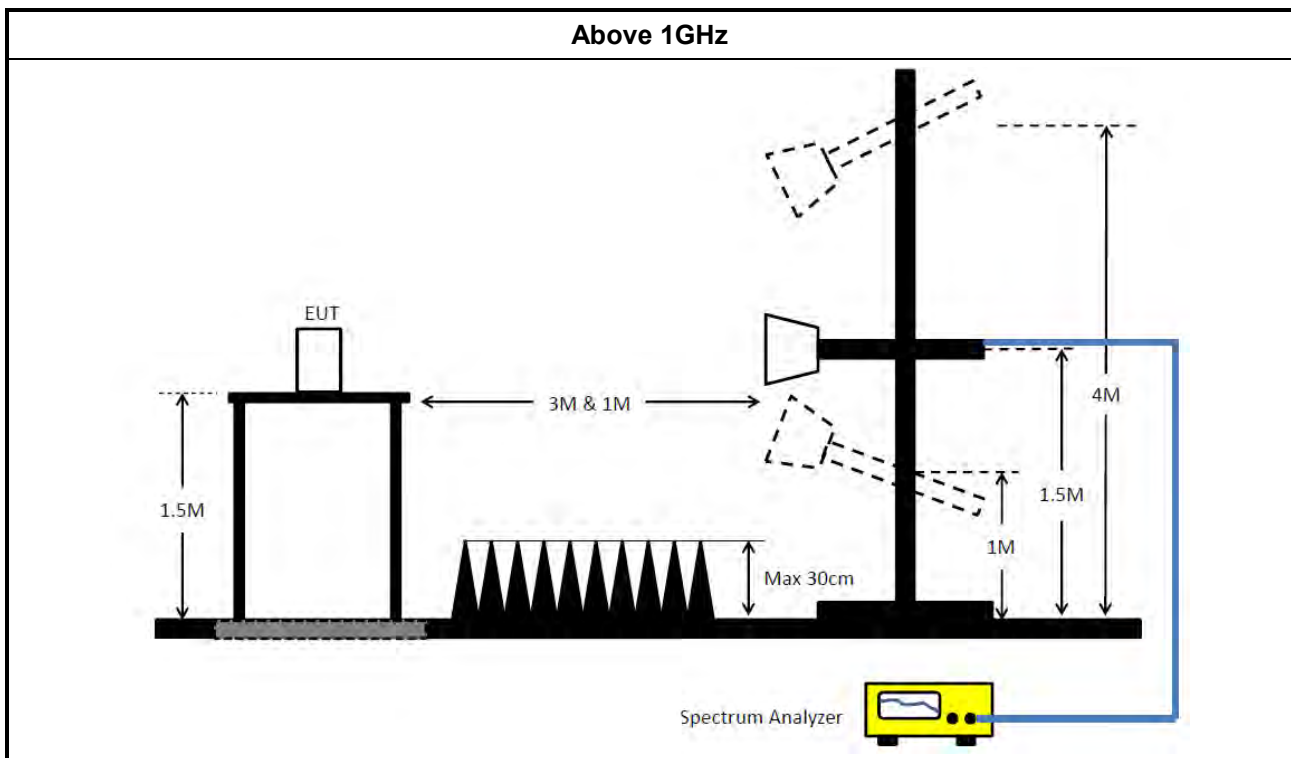
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
The average emission levels shall be measured in [duty cycle ≥ 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 $\geq 1/T$.
	☒ 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





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

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

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix 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/2016	20/Oct/2017

NCR : Non-Calibration Require

Instrument for Radiated Test

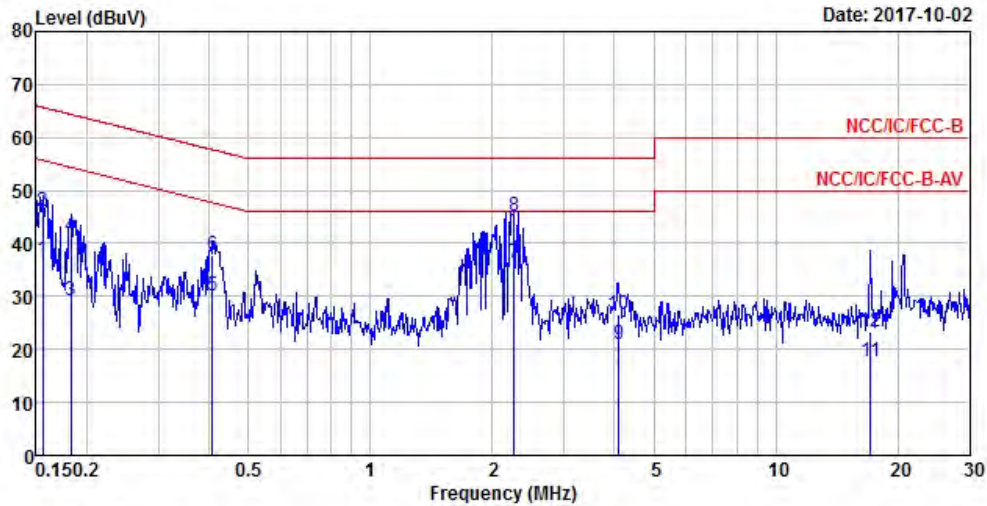
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSP40	100593	9KHz - 40GHz	26/Oct/2016	25/Oct/2017
3m Semi Anechoic	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz-1GHz	21/Oct/2016	20/Oct/2017
3m Semi Anechoic	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz ~ 18GHz	12/Dec/2016	11/Dec/2017
Amplifier	Agilent	8447D	2944A11149	100KHz-1.3GHz	29/Jun/2017	28/Jun/2018
Amplifier	Agilent	8449B	3008A02373	1GHz-26.5GHz	20/Sep/2016	19/Sep/2017
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA9120D 01531	1GHz-18GHz	11/May/2017	10/May/2018
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	18GHz-40GHz	06/Feb/2017	05/Feb/2018
Bilog Antenna	SCHAFFNER	CBL6112B	2723	30MHz-1GHz	01/Oct/2016	30/Sep/2017
Amplifier	MITEQ	JS44-18004000-3 3-8P	1840917	18GHz-40GHz	06/Feb/2017	05/Feb/2018
Loop Antenna	TESEQ	HLA 6120	31244	9KHz-30MHz	02/Mar/2017	01/Mar/2018
RF Cable-high	SUHNER	SUCOFLEX104	MY34918/4	1GHz ~ 40GHz	26/Jan/2017	25/Jan/2018
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	26/Jan/2017	25/Jan/2018
Receiver	R&S	ESU-26	100422/026	20Hz ~ 26.5GHz	21/Sep/2016	20/Sep/2017

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9kHz~40GHz	30/Dec/2016	29/Dec/2017
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	10/Feb/2017	09/Feb/2018
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	10/Feb/2017	09/Feb/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018
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
Operating Function	PoE mode		



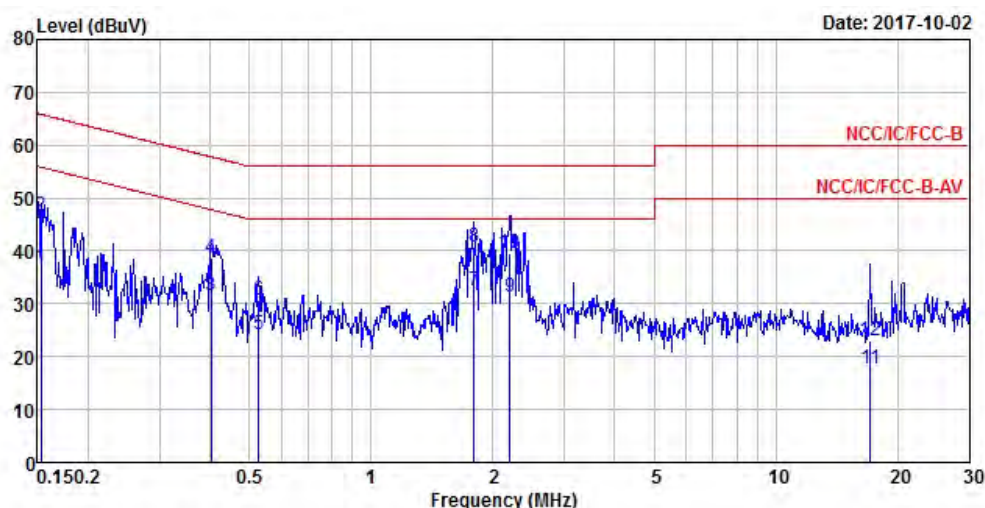
	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.15567	37.00	-18.69	55.69	27.16	9.61	0.23	Average
2	0.15567	46.15	-19.54	65.69	36.31	9.61	0.23	QP
3	0.18249	29.27	-25.10	54.37	19.35	9.65	0.27	Average
4	0.18249	41.41	-22.96	64.37	31.49	9.65	0.27	QP
5	0.40831	30.23	-17.45	47.68	20.50	9.63	0.10	Average
6	0.40831	37.71	-19.97	57.68	27.98	9.63	0.10	QP
7 MAX	2.26057	36.38	-9.62	46.00	26.45	9.66	0.27	Average
8	2.26057	45.20	-10.80	56.00	35.27	9.66	0.27	QP
9	4.09199	20.82	-25.18	46.00	11.01	9.71	0.10	Average
10	4.09199	26.64	-29.36	56.00	16.83	9.71	0.10	QP
11	17.10851	17.73	-32.27	50.00	7.67	9.86	0.20	Average
12	17.10851	23.23	-36.77	60.00	13.17	9.86	0.20	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	PoE mode		



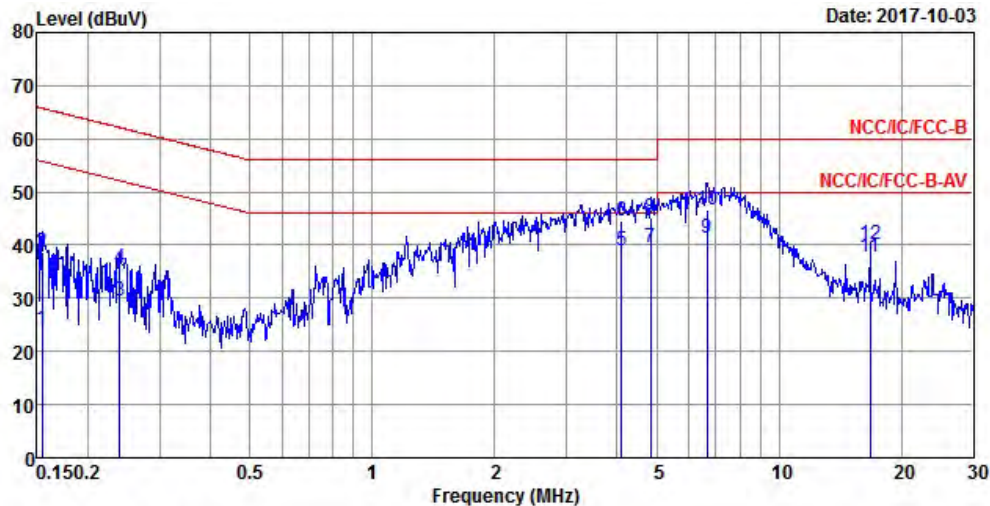
	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.15321	36.84	-18.98	55.82	26.96	9.66	0.22	Average
2	0.15321	46.65	-19.17	65.82	36.77	9.66	0.22	QP
3	0.40187	31.70	-16.11	47.81	21.92	9.68	0.10	Average
4	0.40187	38.65	-19.16	57.81	28.87	9.68	0.10	QP
5	0.52655	24.21	-21.79	46.00	14.45	9.66	0.10	Average
6	0.52655	30.78	-25.22	56.00	21.02	9.66	0.10	QP
7 MAX	1.80001	32.41	-13.59	46.00	22.37	9.77	0.27	Average
8	1.80001	40.86	-15.14	56.00	30.82	9.77	0.27	QP
9	2.20147	31.39	-14.61	46.00	21.33	9.79	0.27	Average
10	2.20147	39.69	-16.31	56.00	29.63	9.79	0.27	QP
11	17.10851	17.62	-32.38	50.00	7.56	9.86	0.20	Average
12	17.10851	22.91	-37.09	60.00	12.85	9.86	0.20	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	2	Power Phase	Neutral
Operating Function	AC mode		



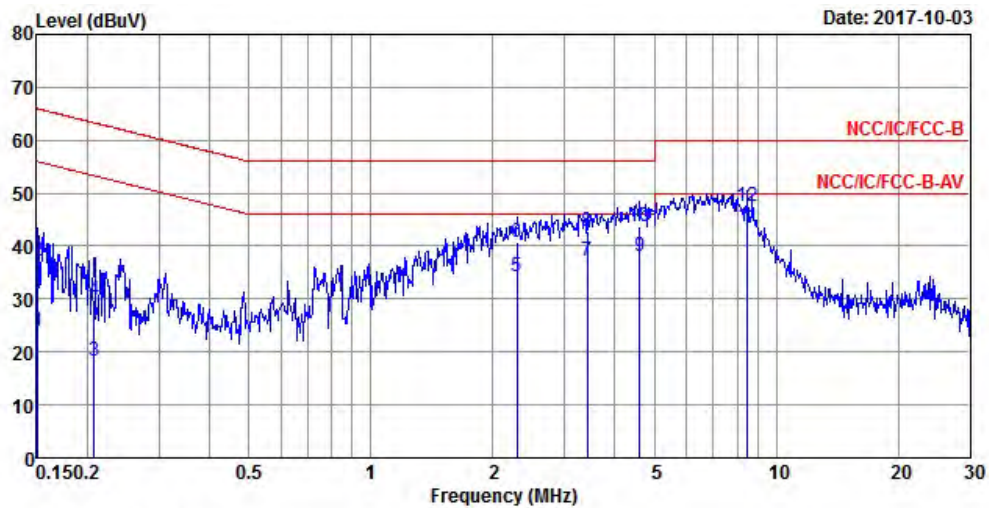
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15403	24.29	-31.49	55.78	14.46	9.61	0.22	Average
2	0.15403	38.77	-27.01	65.78	28.94	9.61	0.22	QP
3	0.23910	29.56	-22.57	52.13	19.65	9.66	0.25	Average
4	0.23910	35.67	-26.46	62.13	25.76	9.66	0.25	QP
5	4.09199	38.83	-7.17	46.00	29.02	9.71	0.10	Average
6	4.09199	44.44	-11.56	56.00	34.63	9.71	0.10	QP
7 MAX	4.82243	39.58	-6.42	46.00	29.74	9.72	0.12	Average
8	4.82243	45.08	-10.92	56.00	35.24	9.72	0.12	QP
9	6.66237	41.37	-8.63	50.00	31.48	9.73	0.16	Average
10	6.66237	46.73	-13.27	60.00	36.84	9.73	0.16	QP
11	16.73273	37.69	-12.31	50.00	27.64	9.85	0.20	Average
12	16.73273	40.22	-19.78	60.00	30.17	9.85	0.20	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	2	Power Phase	Line
Operating Function	AC mode		



	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.15080	23.98	-31.98	55.96	14.10	9.66	0.22	Average
2	0.15080	37.34	-28.62	65.96	27.46	9.66	0.22	QP
3	0.20723	18.40	-34.92	53.32	8.46	9.65	0.29	Average
4	0.20723	29.83	-33.49	63.32	19.89	9.65	0.29	QP
5	2.29679	34.23	-11.77	46.00	24.18	9.79	0.26	Average
6	2.29679	40.63	-15.37	56.00	30.58	9.79	0.26	QP
7	3.41743	37.31	-8.69	46.00	27.39	9.77	0.15	Average
8	3.41743	42.88	-13.12	56.00	32.96	9.77	0.15	QP
9	4.59787	38.12	-7.88	46.00	28.23	9.77	0.12	Average
10	4.59787	43.67	-12.33	56.00	33.78	9.77	0.12	QP
11	8.48812	43.69	-6.31	50.00	33.76	9.75	0.18	Average
12	8.48812	47.43	-12.57	60.00	37.50	9.75	0.18	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)	Min-N dB (Hz)	Max-OBW (Hz)	Min-OBW (Hz)	ITU-Code
2.4-2.4835GHz	-	-	-		
BT-LE(1Mbps)	700k	687.5k	1.027M	1.026M	1M03F1D

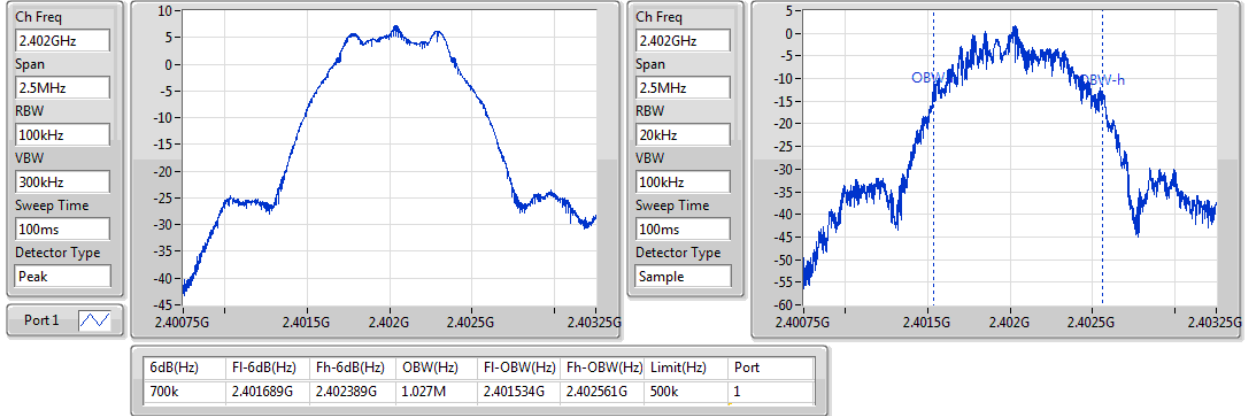
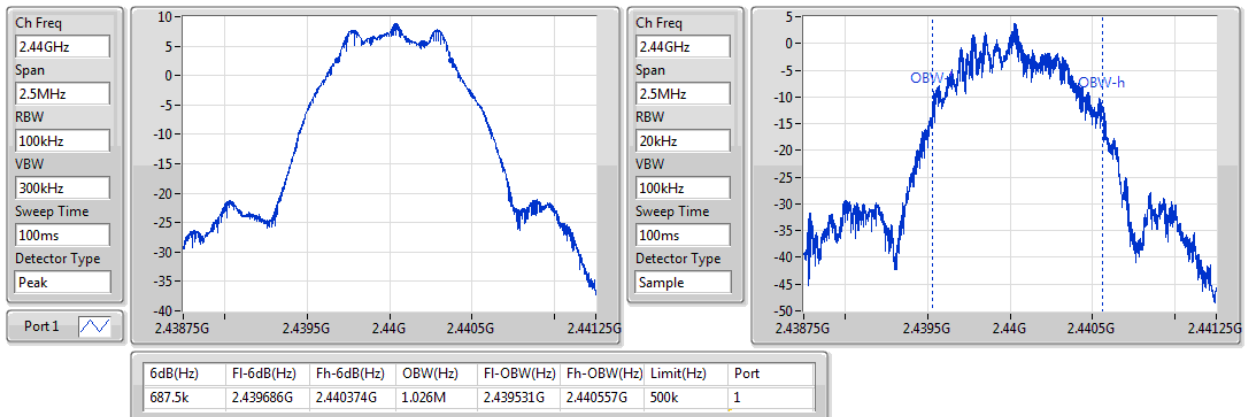
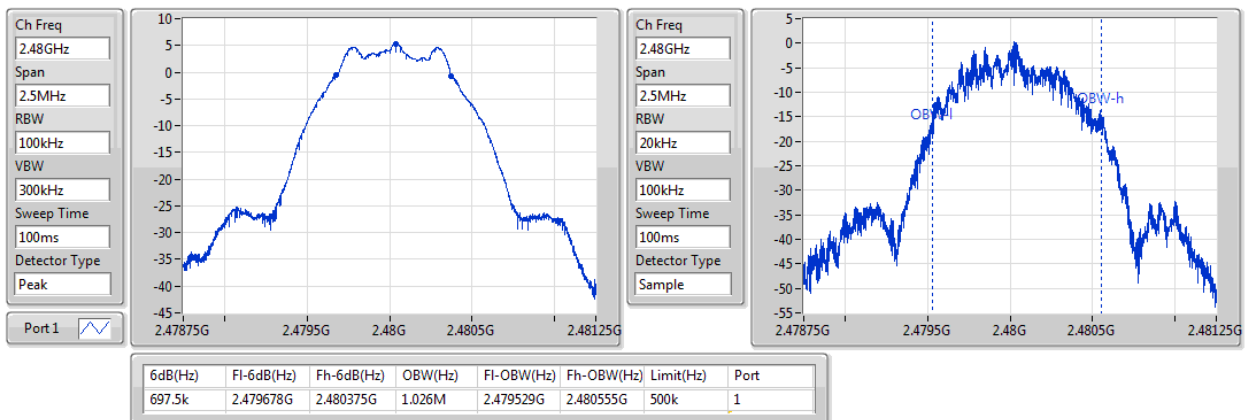
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;

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	700k	1.027M
2440MHz_TnomVnom	Pass	500K	687.5k	1.026M
2480MHz_TnomVnom	Pass	500K	697.5k	1.026M

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)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	7.17	0.00521

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	8.60	5.62	27.40
2440MHz_TnomVnom	Pass	8.60	7.17	27.40
2480MHz_TnomVnom	Pass	8.60	4.22	27.40

**Summary**

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-6.83

RBW=3kHz.

Result

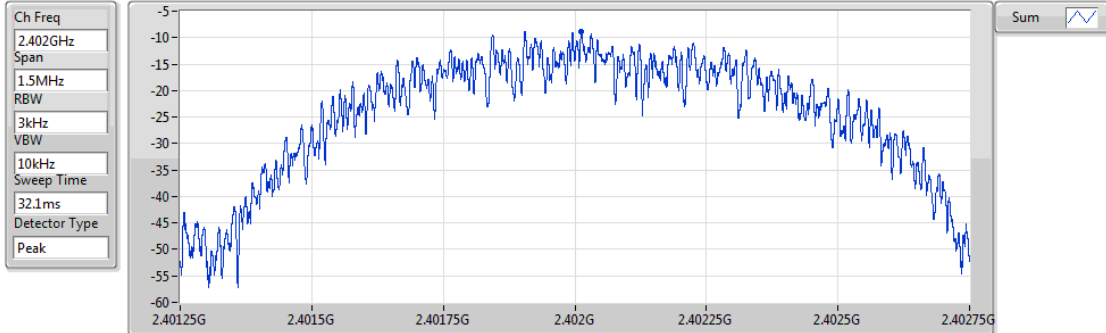
Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	8.60	-8.83	5.40
2440MHz_TnomVnom	Pass	8.60	-6.83	5.40
2480MHz_TnomVnom	Pass	8.60	-10.05	5.40

RBW=3kHz.

BT-LE(1Mbps)

PSD

2402MHz

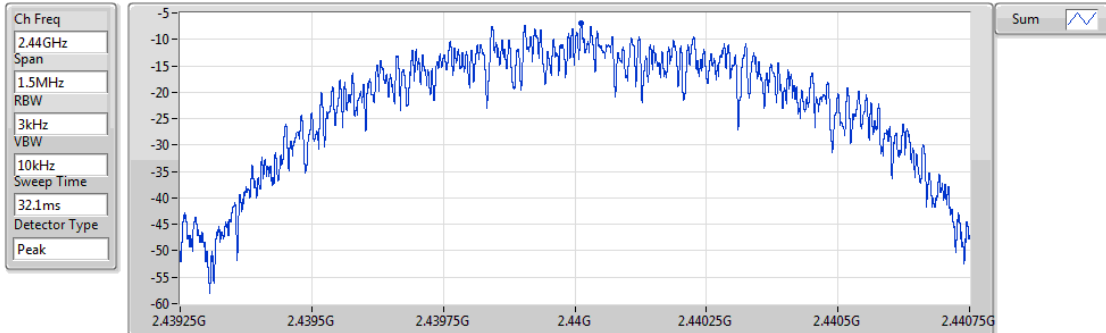


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.83	-8.83	-8.83	-8.83

BT-LE(1Mbps)

PSD

2440MHz

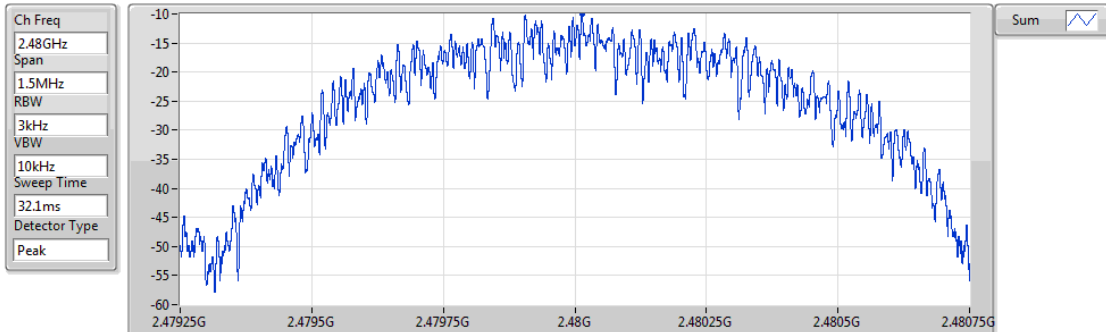


Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.83	-6.83	-6.83	-6.83

BT-LE(1Mbps)

PSD

2480MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.05	-10.05	-10.05	-10.05

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	2.44008G	8.32	-21.68	2.199088G	-54.79	2.399992G	-39.73	2.485308G	-52.90	6.954628G	-47.87	1

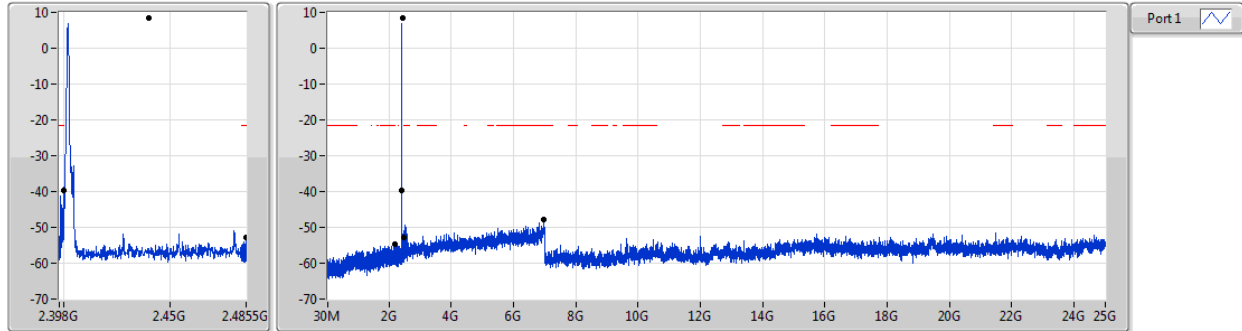
Result

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	2.44008G	8.32	-21.68	2.199088G	-54.79	2.399992G	-39.73	2.485308G	-52.90	6.954628G	-47.87	1
2440MHz_TnomVnom	Pass	2.44008G	8.32	-21.68	1.714832G	-54.89	2.398012G	-54.94	2.484416G	-54.07	6.954628G	-47.98	1
2480MHz_TnomVnom	Pass	2.44008G	8.32	-21.68	2.03096G	-54.39	2.399552G	-54.12	2.484868G	-53.62	6.991214G	-48.39	1

BT-LE(1Mbps)

CSE NdB

2402MHz

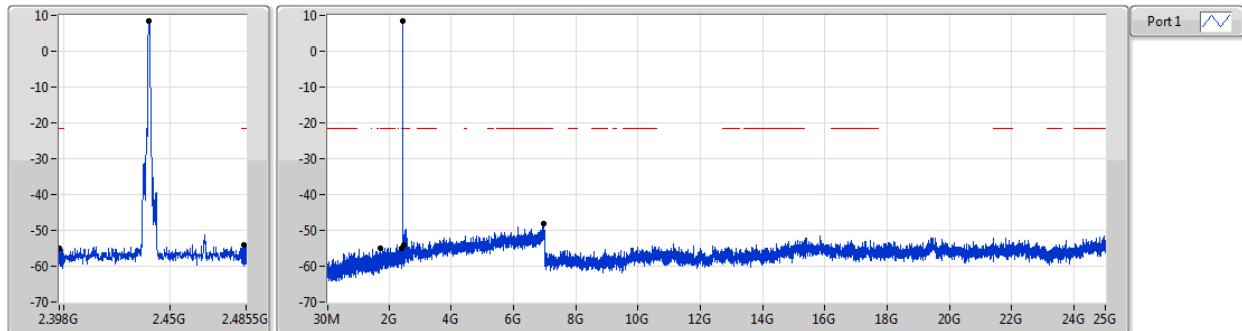


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	8.32	-21.68	2.199088G	-54.79	2.399992G	-39.73	2.485308G	-52.90	6.954628G	-47.87	1

BT-LE(1Mbps)

CSE NdB

2440MHz

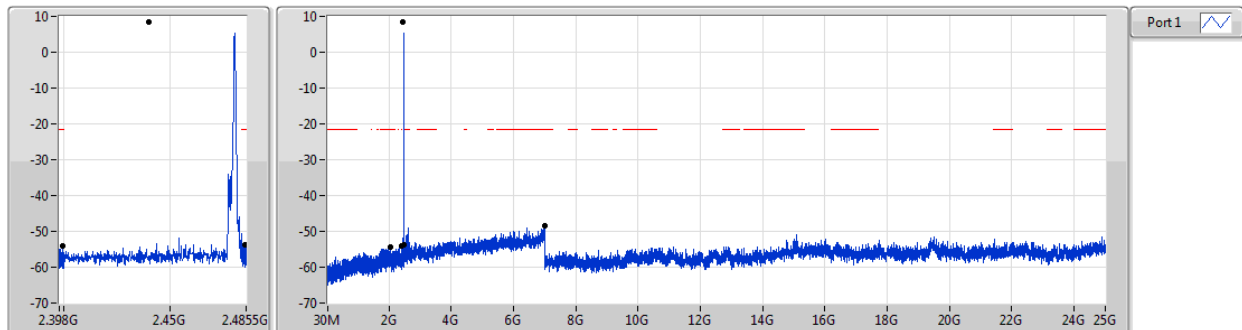


Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	8.32	-21.68	1.714832G	-54.89	2.398012G	-54.94	2.484416G	-54.07	6.954628G	-47.98	1

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
2.44008G	8.32	-21.68	2.03096G	-54.39	2.399552G	-54.12	2.484868G	-53.62	6.991214G	-48.39	1

**Summary**

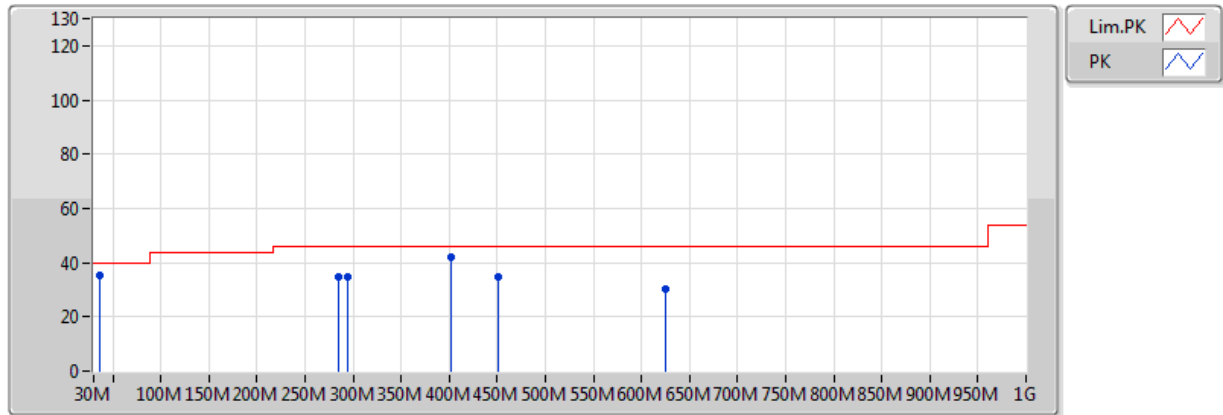
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	402.48M	41.80	46.00	-4.20	-3.29	3	Vertical	0	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz_PoE	Pass	PK	111.48M	28.29	43.50	-15.21	-8.23	3	Horizontal	360	1.00	-
2440MHz_PoE	Pass	PK	284.14M	38.12	46.00	-7.88	-6.08	3	Horizontal	360	1.00	-
2440MHz_PoE	Pass	PK	297.72M	38.62	46.00	-7.38	-5.90	3	Horizontal	360	1.00	-
2440MHz_PoE	Pass	PK	400.54M	35.22	46.00	-10.78	-3.38	3	Horizontal	360	1.00	-
2440MHz_PoE	Pass	PK	450.98M	33.94	46.00	-12.06	-2.37	3	Horizontal	360	1.00	-
2440MHz_PoE	Pass	PK	549.92M	29.87	46.00	-16.13	-0.34	3	Horizontal	360	1.00	-
2440MHz_PoE	Pass	PK	35.82M	35.14	40.00	-4.86	-5.85	3	Vertical	0	1.00	-
2440MHz_PoE	Pass	PK	284.14M	34.61	46.00	-11.39	-6.08	3	Vertical	0	1.00	-
2440MHz_PoE	Pass	PK	293.84M	34.58	46.00	-11.42	-6.04	3	Vertical	0	1.00	-
2440MHz_PoE	Pass	PK	402.48M	41.80	46.00	-4.20	-3.29	3	Vertical	0	1.00	-
2440MHz_PoE	Pass	PK	450.98M	34.61	46.00	-11.39	-2.37	3	Vertical	0	1.00	-
2440MHz_PoE	Pass	PK	625.58M	30.53	46.00	-15.47	-0.09	3	Vertical	0	1.00	-
2440MHz_AC	Pass	PK	30M	25.11	40.00	-14.89	-5.15	3	Horizontal	360	1.00	-
2440MHz_AC	Pass	PK	127M	21.42	43.50	-22.08	-8.98	3	Horizontal	360	1.00	-
2440MHz_AC	Pass	PK	258.92M	23.59	46.00	-22.41	-6.50	3	Horizontal	360	1.00	-
2440MHz_AC	Pass	PK	418M	27.03	46.00	-18.97	-3.73	3	Horizontal	360	1.00	-
2440MHz_AC	Pass	PK	584.84M	30.45	46.00	-15.55	-1.19	3	Horizontal	360	1.00	-
2440MHz_AC	Pass	PK	873.9M	34.44	46.00	-11.56	2.55	3	Horizontal	360	1.00	-
2440MHz_AC	Pass	PK	31.94M	25.69	40.00	-14.31	-5.94	3	Vertical	0	1.00	-
2440MHz_AC	Pass	PK	125.06M	21.51	43.50	-21.99	-8.94	3	Vertical	0	1.00	-
2440MHz_AC	Pass	PK	262.8M	23.28	46.00	-22.72	-6.53	3	Vertical	0	1.00	-
2440MHz_AC	Pass	PK	460.68M	28.76	46.00	-17.24	-3.02	3	Vertical	0	1.00	-
2440MHz_AC	Pass	PK	703.18M	30.91	46.00	-15.09	-0.28	3	Vertical	0	1.00	-
2440MHz_AC	Pass	PK	934.04M	35.46	46.00	-10.54	3.07	3	Vertical	0	1.00	-

BT-LE(1Mbps)

2440MHz_PoE

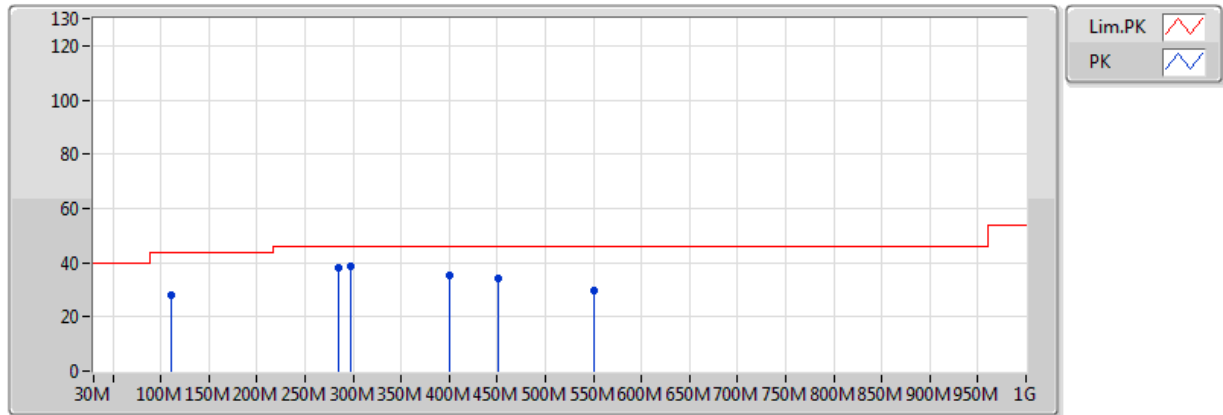


EUT=X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	35.82M	35.14	40.00	-4.86	-5.85	3	Vertical	0	1.00	-	40.99	19.92	1.81	27.57
PK	284.14M	34.61	46.00	-11.39	-6.08	3	Vertical	0	1.00	-	40.69	18.06	2.58	26.72
PK	293.84M	34.58	46.00	-11.42	-6.04	3	Vertical	0	1.00	-	40.62	18.28	2.38	26.69
PK	402.48M	41.80	46.00	-4.20	-3.29	3	Vertical	0	1.00	-	45.09	20.93	3.08	27.30
PK	450.98M	34.61	46.00	-11.39	-2.37	3	Vertical	0	1.00	-	36.98	21.76	3.43	27.56
PK	625.58M	30.53	46.00	-15.47	-0.09	3	Vertical	0	1.00	-	30.62	23.94	3.96	27.98

BT-LE(1Mbps)

2440MHz_PoE

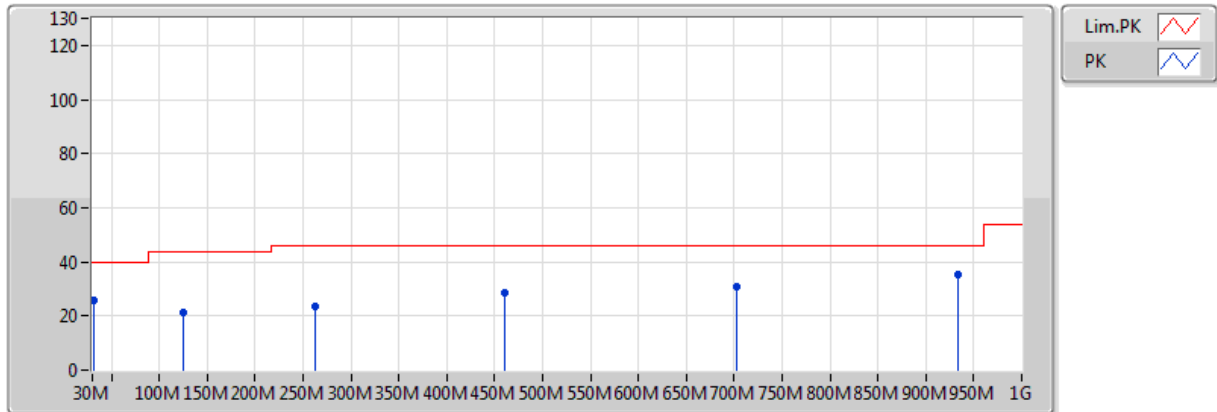


EUT=X

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	111.48M	28.29	43.50	-15.21	-8.23	3	Horizontal	360	1.00	-	36.52	17.10	1.98	27.31
PK	284.14M	38.12	46.00	-7.88	-6.08	3	Horizontal	360	1.00	-	44.20	18.06	2.58	26.72
PK	297.72M	38.62	46.00	-7.38	-5.90	3	Horizontal	360	1.00	-	44.52	18.39	2.39	26.68
PK	400.54M	35.22	46.00	-10.78	-3.38	3	Horizontal	360	1.00	-	38.60	20.84	3.06	27.29
PK	450.98M	33.94	46.00	-12.06	-2.37	3	Horizontal	360	1.00	-	36.31	21.76	3.43	27.56
PK	549.92M	29.87	46.00	-16.13	-0.34	3	Horizontal	360	1.00	-	30.21	23.91	3.66	27.91

BT-LE(1Mbps)

2440MHz_AC

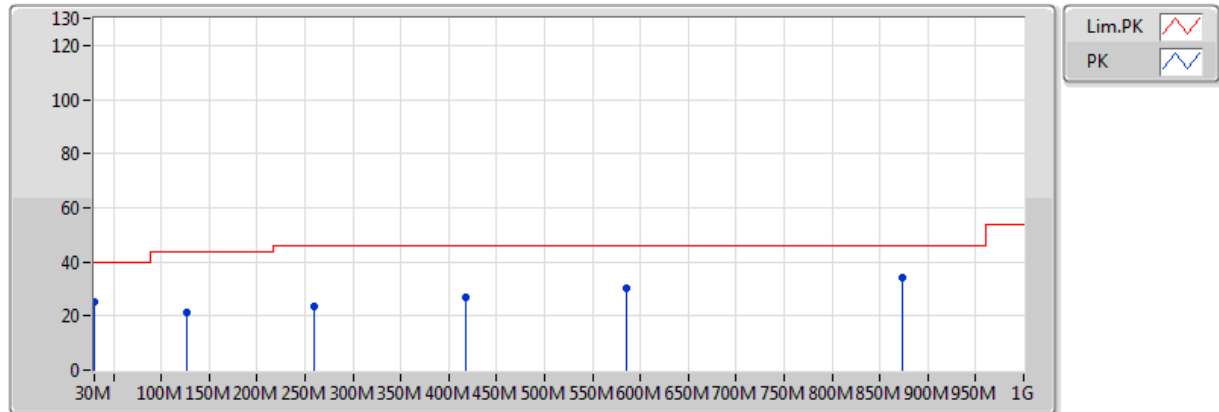


EUT=X

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	31.94M	25.69	40.00	-14.31	-5.94	3	Vertical	0	1.00	-	31.63	21.19	0.71	27.83
PK	125.06M	21.51	43.50	-21.99	-8.94	3	Vertical	0	1.00	-	30.45	17.12	1.66	27.72
PK	262.8M	23.28	46.00	-22.72	-6.53	3	Vertical	0	1.00	-	29.81	18.47	2.29	27.29
PK	460.68M	28.76	46.00	-17.24	-3.02	3	Vertical	0	1.00	-	31.78	21.98	3.28	28.28
PK	703.18M	30.91	46.00	-15.09	-0.28	3	Vertical	0	1.00	-	31.19	23.99	4.10	28.37
PK	934.04M	35.46	46.00	-10.54	3.07	3	Vertical	0	1.00	-	32.39	25.67	4.92	27.51

BT-LE(1Mbps)

2440MHz_AC



EUT=X

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	30M	25.11	40.00	-14.89	-5.15	3	Horizontal	360	1.00	-	30.26	22.02	0.68	27.85
PK	127M	21.42	43.50	-22.08	-8.98	3	Horizontal	360	1.00	-	30.40	17.05	1.68	27.71
PK	258.92M	23.59	46.00	-22.41	-6.50	3	Horizontal	360	1.00	-	30.09	18.54	2.26	27.30
PK	418M	27.03	46.00	-18.97	-3.73	3	Horizontal	360	1.00	-	30.76	21.24	3.09	28.06
PK	584.84M	30.45	46.00	-15.55	-1.19	3	Horizontal	360	1.00	-	31.64	23.72	3.64	28.55
PK	873.9M	34.44	46.00	-11.56	2.55	3	Horizontal	360	1.00	-	31.89	25.36	4.96	27.76

**Summary**

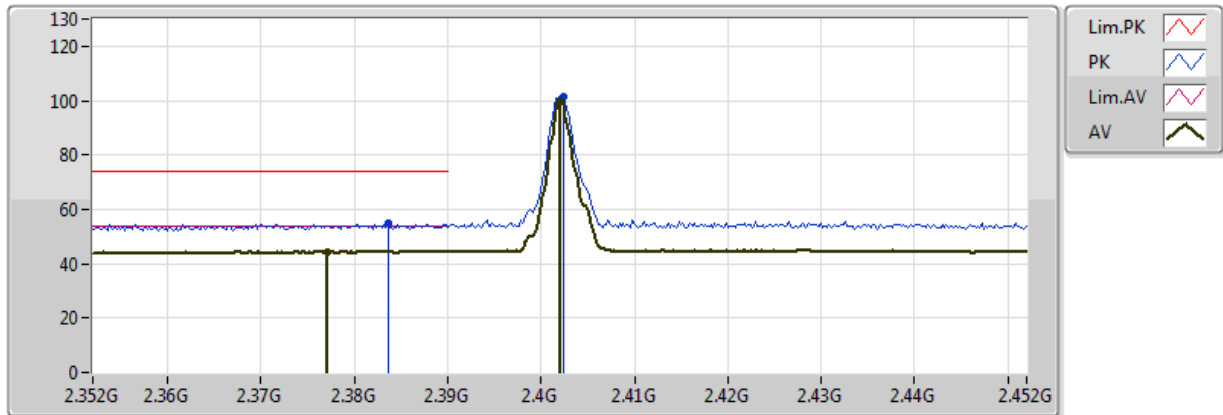
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.483502G	50.36	54.00	-3.64	31.27	3	Vertical	360	1.99	-

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	2.3874G	44.47	54.00	-9.53	30.93	3	Horizontal	4	2.19	-
2402MHz	Pass	AV	2.402G	98.07	Inf	-Inf	30.98	3	Horizontal	4	2.19	-
2402MHz	Pass	PK	2.3806G	55.23	74.00	-18.77	30.90	3	Horizontal	4	2.19	-
2402MHz	Pass	PK	2.4024G	99.89	Inf	-Inf	30.98	3	Horizontal	4	2.19	-
2402MHz	Pass	AV	2.3772G	44.48	54.00	-9.52	30.89	3	Vertical	3	2.13	-
2402MHz	Pass	AV	2.402G	99.74	Inf	-Inf	30.98	3	Vertical	3	2.13	-
2402MHz	Pass	PK	2.3836G	54.80	74.00	-19.20	30.91	3	Vertical	3	2.13	-
2402MHz	Pass	PK	2.4024G	101.29	Inf	-Inf	30.98	3	Vertical	3	2.13	-
2402MHz	Pass	AV	4.80399G	40.41	54.00	-13.59	2.10	3	Horizontal	7	1.16	-
2402MHz	Pass	PK	4.80464G	48.34	74.00	-25.66	2.10	3	Horizontal	7	1.16	-
2402MHz	Pass	AV	4.80412G	43.05	54.00	-10.95	2.10	3	Vertical	0	2.29	-
2402MHz	Pass	PK	4.80444G	50.22	74.00	-23.78	2.10	3	Vertical	0	2.29	-
2440MHz	Pass	AV	2.3876G	44.43	54.00	-9.57	30.93	3	Horizontal	358	2.15	-
2440MHz	Pass	AV	2.4404G	99.37	Inf	-Inf	31.12	3	Horizontal	358	2.15	-
2440MHz	Pass	AV	2.492G	45.30	54.00	-8.70	31.30	3	Horizontal	358	2.15	-
2440MHz	Pass	PK	2.38G	55.17	74.00	-18.83	30.90	3	Horizontal	358	2.15	-
2440MHz	Pass	PK	2.44G	100.95	Inf	-Inf	31.11	3	Horizontal	358	2.15	-
2440MHz	Pass	PK	2.4924G	55.99	74.00	-18.01	31.30	3	Horizontal	358	2.15	-
2440MHz	Pass	AV	2.3884G	44.42	54.00	-9.58	30.93	3	Vertical	6	2.08	-
2440MHz	Pass	AV	2.44G	101.13	Inf	-Inf	31.11	3	Vertical	6	2.08	-
2440MHz	Pass	AV	2.4924G	45.40	54.00	-8.60	31.30	3	Vertical	6	2.08	-
2440MHz	Pass	PK	2.3504G	55.24	74.00	-18.76	30.80	3	Vertical	6	2.08	-
2440MHz	Pass	PK	2.4396G	102.62	Inf	-Inf	31.11	3	Vertical	6	2.08	-
2440MHz	Pass	PK	2.4848G	55.46	74.00	-18.54	31.28	3	Vertical	6	2.08	-
2440MHz	Pass	AV	4.8799G	40.52	54.00	-13.48	2.34	3	Horizontal	6	1.33	-
2440MHz	Pass	PK	4.87962G	49.16	74.00	-24.84	2.34	3	Horizontal	6	1.33	-
2440MHz	Pass	AV	4.88009G	46.34	54.00	-7.66	2.34	3	Vertical	0	2.27	-
2440MHz	Pass	PK	4.8806G	53.02	74.00	-20.98	2.34	3	Vertical	0	2.27	-
2480MHz	Pass	AV	2.4802G	97.93	Inf	-Inf	31.26	3	Horizontal	354	1.86	-
2480MHz	Pass	AV	2.483502G	49.42	54.00	-4.58	31.27	3	Horizontal	354	1.86	-
2480MHz	Pass	PK	2.4798G	99.71	Inf	-Inf	31.26	3	Horizontal	354	1.86	-
2480MHz	Pass	PK	2.483502G	56.78	74.00	-17.22	31.27	3	Horizontal	354	1.86	-
2480MHz	Pass	AV	2.4802G	99.11	Inf	-Inf	31.26	3	Vertical	360	1.99	-
2480MHz	Pass	AV	2.483502G	50.36	54.00	-3.64	31.27	3	Vertical	360	1.99	-
2480MHz	Pass	PK	2.4798G	100.71	Inf	-Inf	31.26	3	Vertical	360	1.99	-
2480MHz	Pass	PK	2.483502G	57.86	74.00	-16.14	31.27	3	Vertical	360	1.99	-
2480MHz	Pass	AV	4.95972G	38.31	54.00	-15.69	2.59	3	Horizontal	345	1.32	-
2480MHz	Pass	PK	4.95955G	47.05	74.00	-26.95	2.59	3	Horizontal	345	1.32	-
2480MHz	Pass	AV	4.95999G	42.83	54.00	-11.17	2.59	3	Vertical	0	2.20	-
2480MHz	Pass	PK	4.95955G	50.23	74.00	-23.77	2.59	3	Vertical	0	2.20	-

BT-LE(1Mbps)

2402MHz_TX

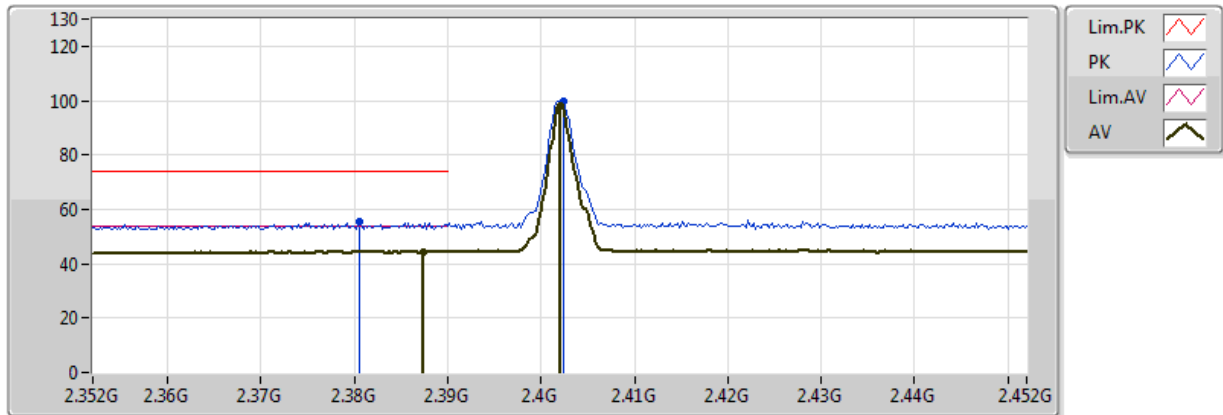


EUT = X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3772G	44.48	54.00	-9.52	30.89	3	Vertical	3	2.13	-	13.59	27.28	3.61	-
AV	2.402G	99.74	Inf	-Inf	30.98	3	Vertical	3	2.13	-	68.77	27.35	3.63	-
PK	2.3836G	54.80	74.00	-19.20	30.91	3	Vertical	3	2.13	-	23.88	27.30	3.62	-
PK	2.4024G	101.29	Inf	-Inf	30.98	3	Vertical	3	2.13	-	70.32	27.35	3.63	-

BT-LE(1Mbps)

2402MHz_TX

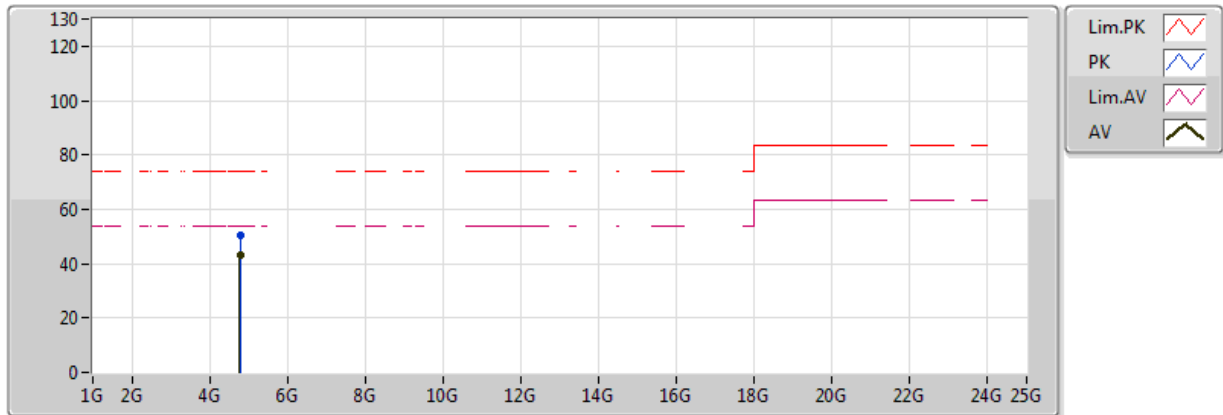


EUT = X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3874G	44.47	54.00	-9.53	30.93	3	Horizontal	4	2.19	-	13.54	27.31	3.62	-
AV	2.402G	98.07	Inf	-Inf	30.98	3	Horizontal	4	2.19	-	67.09	27.35	3.63	-
PK	2.3806G	55.23	74.00	-18.77	30.90	3	Horizontal	4	2.19	-	24.33	27.29	3.61	-
PK	2.4024G	99.89	Inf	-Inf	30.98	3	Horizontal	4	2.19	-	68.91	27.35	3.63	-

BT-LE(1Mbps)

2402MHz_TX

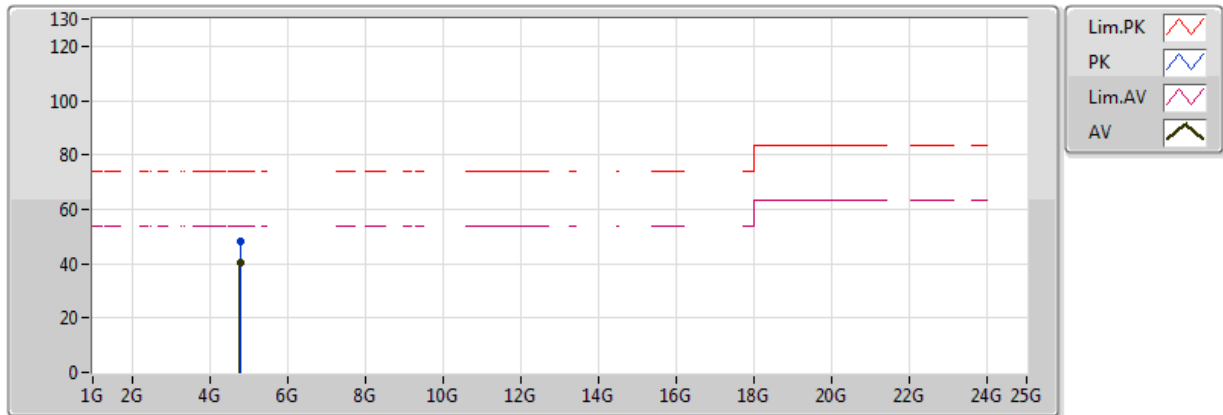


EUT = X

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80412G	43.05	54.00	-10.95	2.10	3	Vertical	0	2.29	-	40.95	31.25	5.38	34.53
PK	4.80444G	50.22	74.00	-23.78	2.10	3	Vertical	0	2.29	-	48.11	31.25	5.38	34.53

BT-LE(1Mbps)

2402MHz_TX

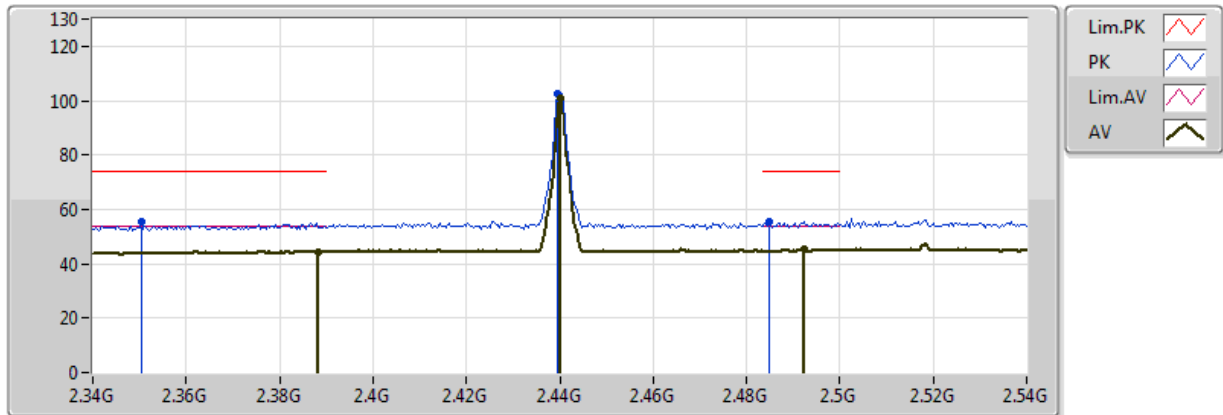


EUT = X

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80399G	40.41	54.00	-13.59	2.10	3	Horizontal	7	1.16	-	38.31	31.25	5.38	34.53
PK	4.80464G	48.34	74.00	-25.66	2.10	3	Horizontal	7	1.16	-	46.24	31.25	5.39	34.53

BT-LE(1Mbps)

2440MHz_TX

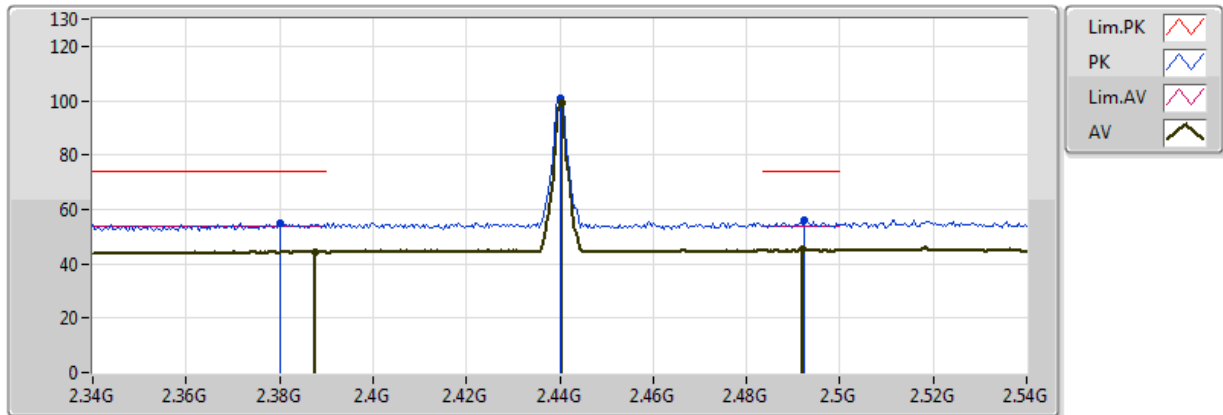


EUT = X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3884G	44.42	54.00	-9.58	30.93	3	Vertical	6	2.08	-	13.49	27.31	3.62	-
AV	2.44G	101.13	Inf	-Inf	31.11	3	Vertical	6	2.08	-	70.01	27.44	3.67	-
AV	2.4924G	45.40	54.00	-8.60	31.30	3	Vertical	6	2.08	-	14.10	27.58	3.72	-
PK	2.3504G	55.24	74.00	-18.76	30.80	3	Vertical	6	2.08	-	24.44	27.21	3.59	-
PK	2.4396G	102.62	Inf	-Inf	31.11	3	Vertical	6	2.08	-	71.51	27.44	3.67	-
PK	2.4848G	55.46	74.00	-18.54	31.28	3	Vertical	6	2.08	-	24.19	27.56	3.71	-

BT-LE(1Mbps)

2440MHz_TX

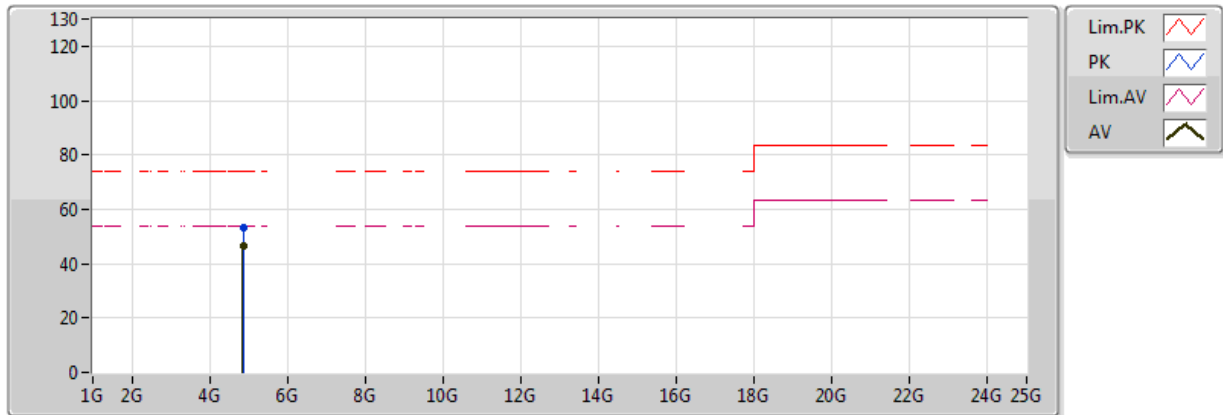


EUT = X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3876G	44.43	54.00	-9.57	30.93	3	Horizontal	358	2.15	-	13.50	27.31	3.62	-
AV	2.4404G	99.37	Inf	-Inf	31.12	3	Horizontal	358	2.15	-	68.26	27.45	3.67	-
AV	2.492G	45.30	54.00	-8.70	31.30	3	Horizontal	358	2.15	-	14.00	27.58	3.72	-
PK	2.38G	55.17	74.00	-18.83	30.90	3	Horizontal	358	2.15	-	24.27	27.29	3.61	-
PK	2.44G	100.95	Inf	-Inf	31.11	3	Horizontal	358	2.15	-	69.83	27.44	3.67	-
PK	2.4924G	55.99	74.00	-18.01	31.30	3	Horizontal	358	2.15	-	24.68	27.58	3.72	-

BT-LE(1Mbps)

2440MHz_TX

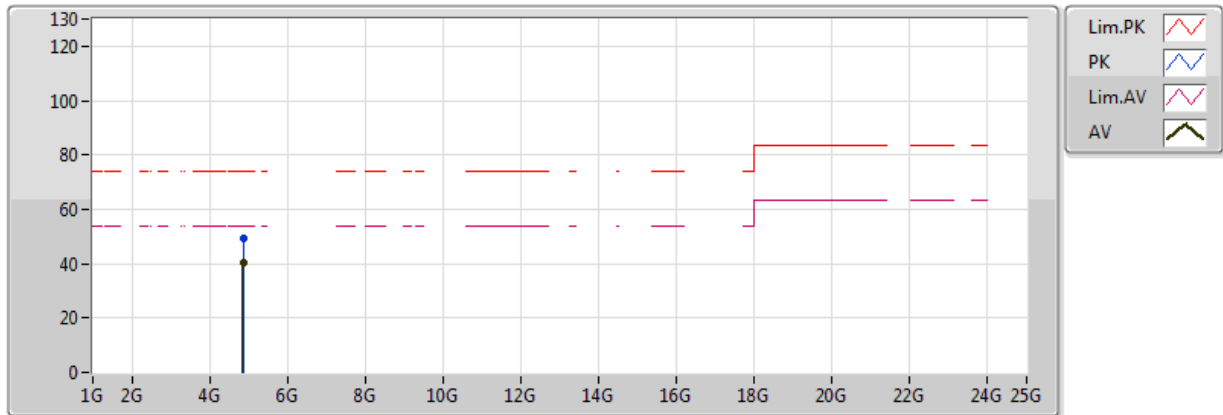


EUT = X

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.88009G	46.34	54.00	-7.66	2.34	3	Vertical	0	2.27	-	44.00	31.38	5.47	34.51
PK	4.8806G	53.02	74.00	-20.98	2.34	3	Vertical	0	2.27	-	50.68	31.39	5.47	34.51

BT-LE(1Mbps)

2440MHz_TX

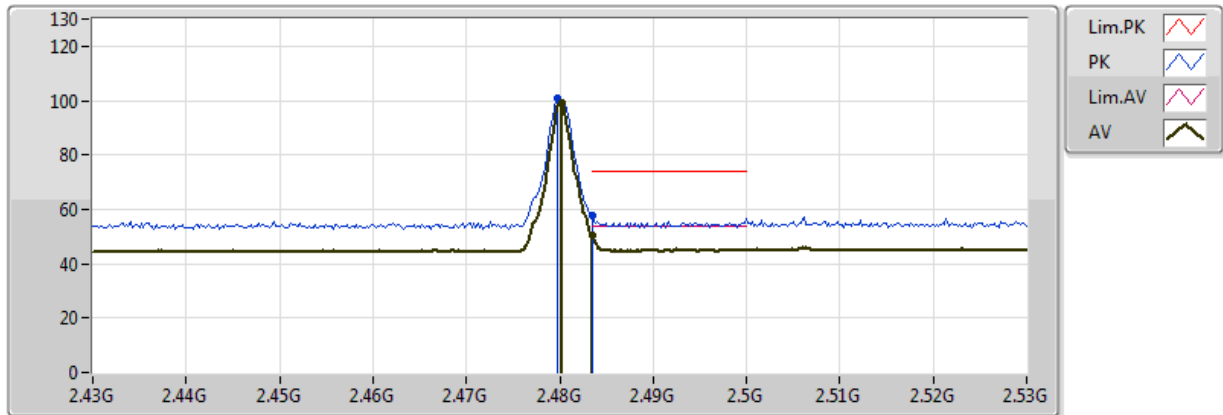


EUT = X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.8799G	40.52	54.00	-13.48	2.34	3	Horizontal	6	1.33	-	38.18	31.38	5.47	34.51
PK	4.87962G	49.16	74.00	-24.84	2.34	3	Horizontal	6	1.33	-	46.82	31.38	5.47	34.51

BT-LE(1Mbps)

2480MHz_TX

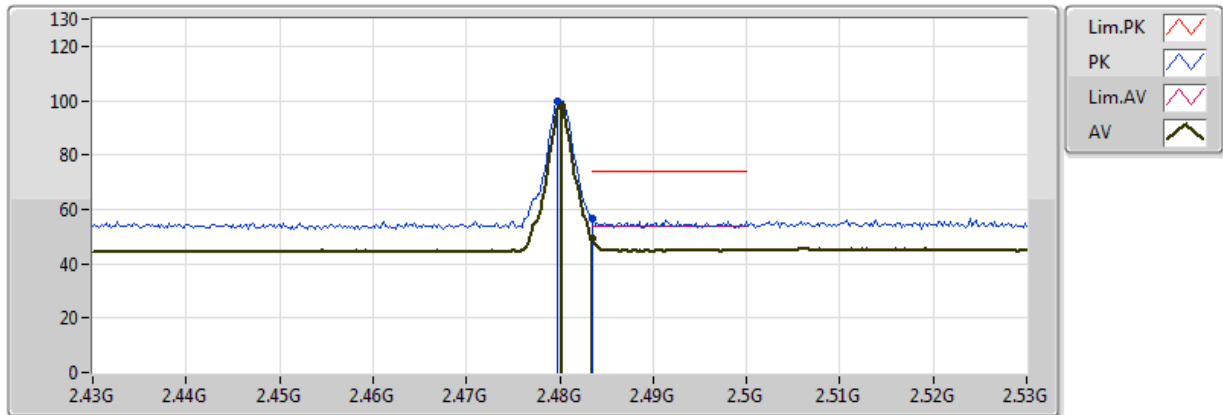


EUT = X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.4802G	99.11	Inf	-Inf	31.26	3	Vertical	360	1.99	-	67.85	27.55	3.71	-
AV	2.483502G	50.36	54.00	-3.64	31.27	3	Vertical	360	1.99	-	19.09	27.56	3.71	-
PK	2.4798G	100.71	Inf	-Inf	31.26	3	Vertical	360	1.99	-	69.45	27.55	3.71	-
PK	2.483502G	57.86	74.00	-16.14	31.27	3	Vertical	360	1.99	-	26.59	27.56	3.71	-

BT-LE(1Mbps)

2480MHz_TX

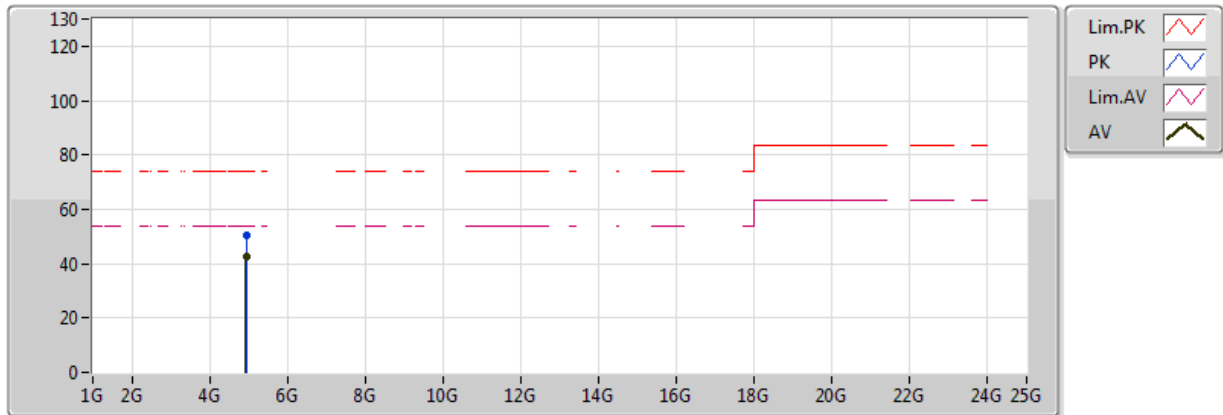


EUT = X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.4802G	97.93	Inf	-Inf	31.26	3	Horizontal	354	1.86	-	66.67	27.55	3.71	-
AV	2.483502G	49.42	54.00	-4.58	31.27	3	Horizontal	354	1.86	-	18.15	27.56	3.71	-
PK	2.4798G	99.71	Inf	-Inf	31.26	3	Horizontal	354	1.86	-	68.45	27.55	3.71	-
PK	2.483502G	56.78	74.00	-17.22	31.27	3	Horizontal	354	1.86	-	25.51	27.56	3.71	-

BT-LE(1Mbps)

2480MHz_TX

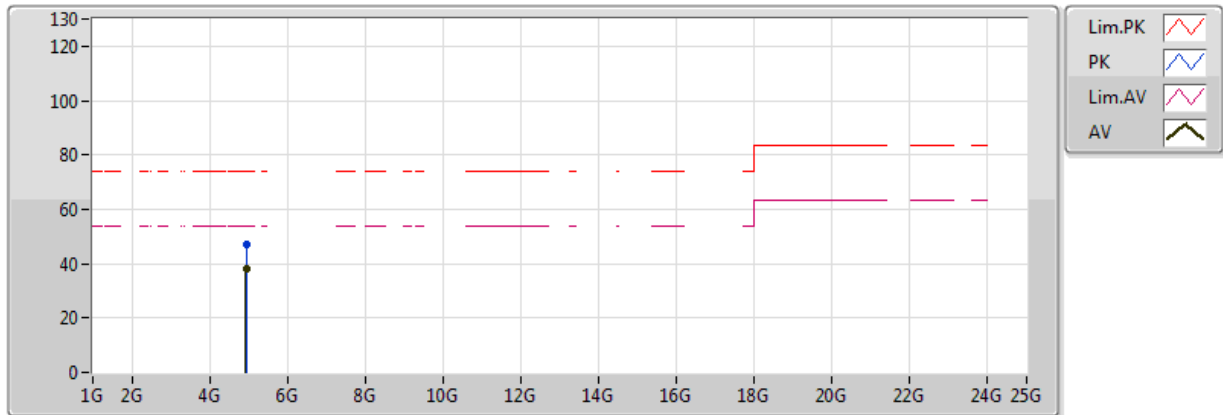


EUT = X

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95999G	42.83	54.00	-11.17	2.59	3	Vertical	0	2.20	-	40.24	31.53	5.56	34.49
PK	4.95955G	50.23	74.00	-23.77	2.59	3	Vertical	0	2.20	-	47.64	31.53	5.56	34.49

BT-LE(1Mbps)

2480MHz_TX



EUT = X

Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95972G	38.31	54.00	-15.69	2.59	3	Horizontal	345	1.32	-	35.72	31.53	5.56	34.49
PK	4.95955G	47.05	74.00	-26.95	2.59	3	Horizontal	345	1.32	-	44.46	31.53	5.56	34.49