

FCC Test Report

Equipment : UniFi StadiumXG
Brand Name : UBIQUITI
Model No. : UAP-StadiumXG, UAP-StadiumXG-BK
FCC ID : SWX-UAPSTMXG
Contains FCC ID : SWX-M445GL, SWX-M445GH
Standard : 47 CFR FCC Part 15.247
Operating Band : 2400 MHz – 2483.5 MHz
Function : ☒ Point-to-multipoint; ☐ Point-to-point
Applicant : Ubiquiti Networks, Inc.
685 Third Avenue, 27th Floor New York,
New York 10017 USA
Manufacturer : Ubiquiti Networks, Inc.
685 Third Avenue, 27th Floor New York,
New York 10017 USA

The product sample received on Nov. 29, 2017 and completely tested on Dec. 20, 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.

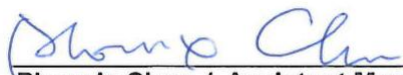

Phoenix Chen / Assistant Manager



Table of Contents

1	GENERAL DESCRIPTION	5
1.1	Information.....	5
1.2	Testing Applied Standards	7
1.3	Testing Location Information	7
1.4	Measurement Uncertainty	7
2	TEST CONFIGURATION OF EUT.....	8
2.1	Test Condition	8
2.2	Test Channel Mode	8
2.3	The Worst Case Measurement Configuration.....	9
2.4	Accessories	10
2.5	Support Equipment.....	10
2.6	Test Setup Diagram	11
3	TRANSMITTER TEST RESULT	13
3.1	AC Power-line Conducted Emissions	13
3.2	DTS Bandwidth.....	14
3.3	Maximum Conducted Output Power	15
3.4	Power Spectral Density	17
3.5	Emissions in Non-restricted Frequency Bands	18
3.6	Emissions in Restricted Frequency Bands.....	19
4	TEST EQUIPMENT AND CALIBRATION DATA	23
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 V02		

Summary of Test Result

Conformance Test Specifications				
Report Clause	Ref. Std. Clause	Description	Limit	Result
1.1.2	15.203	Antenna Requirement	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	FCC 15.207	Complied
3.2	15.247(a)	DTS Bandwidth	≥500kHz	Complied
3.3	15.247(b)	Maximum Conducted Output Power	Power [dBm]:30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:8	Complied
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	Non-Restricted Bands: >30 dBc	Complied
3.6	15.247(d)	Emissions in Restricted Frequency Bands	Restricted Bands: FCC 15.209	Complied

Revision History

[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)	1.0	1TX

Note:

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

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector
1	1	-	-	Internal Antenna	I-PEX
2	2	-	-	Internal Antenna	I-PEX
3	3	-	-	Internal Antenna	I-PEX
4	4	-	-	Internal Antenna	I-PEX
5	5	-	-	Internal Antenna	I-PEX
6	1	-	-	Internal Antenna	I-PEX

Ant.	Gain (dBi)				
	Bluetooth	UNII-1	UNII-2A	UNII-2C	UNII-3
1	-	10	10	10	10
		15	15	15	15
2	-	10	10	10	10
		15	15	15	15
3	-	10	10	10	10
		15	15	15	15
4	-	10	10	10	10
		15	15	15	15
5	-	2	2	2	2
6	2	-	-	-	-

Note 1: The EUT has six antennas.

For Bluetooth function:

For IEEE 802.15.4 Bluetooth mode (1TX/1RX)

Only Ant. 6 (port 1) can be used as transmitting/receiving antenna.

For 5GHz function:

For IEEE 802.11 a/n/ac mode (4TX/5RX)

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

Ant. 5 (port 5) can be used as receiving antenna only.

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From PoE
RF Chip	QCA9994
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)	0.623	2.055	405u	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	Color	Description
UBIQUITI	UAP-StadiumXG	White	All the models are identical, the difference as appearance color.
UBIQUITI	UAP-StadiumXG-BK	Black	

1.2 Testing Applied Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013
- ♦ KDB 558074 D01 v04

1.3 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Tim	23.5°C / 65%	20/Dec/2017
Radiated	03CH09-HY	Jeff	24.2°C / 58%	20/Dec/2017
AC Conduction	CO04-HY	Thor	22.8°C / 51.5%	01/Dec/2017

1.4 Measurement Uncertainty

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

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

2 Test Configuration of EUT

2.1 Test Condition

Condition Item	Abbreviation/Remark	Remark
RF Conducted-DTS	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

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

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

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		
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
Test Condition	Radiated measurement
Operating Mode	Normal Link
1	Bluetooth+WLAN 5GHz
Refer to Sporton Test Report No.: FA661623-22 for Co-location RF Exposure Evaluation.	

2.4 Accessories

Accessories				
PoE	Brand Name	UBIQUITI	Model Name	GP-C500-120G
	Power Rating	I/P: 100 - 240Vac, 1.5 A ; O/P: 50Vdc, 1.2A		

2.5 Support Equipment

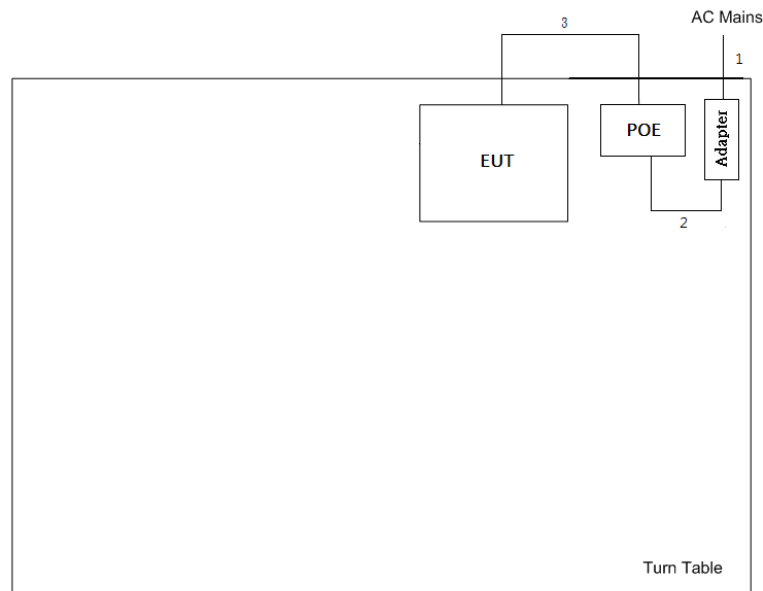
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for NB	DELL	HA65NM130	DoC
3	Adapter for PoE	D-Link	DSA-0421S-50	N/A

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Adapter for PoE (Remote Workstation)	D-Link	DSA-0421S-50	N/A

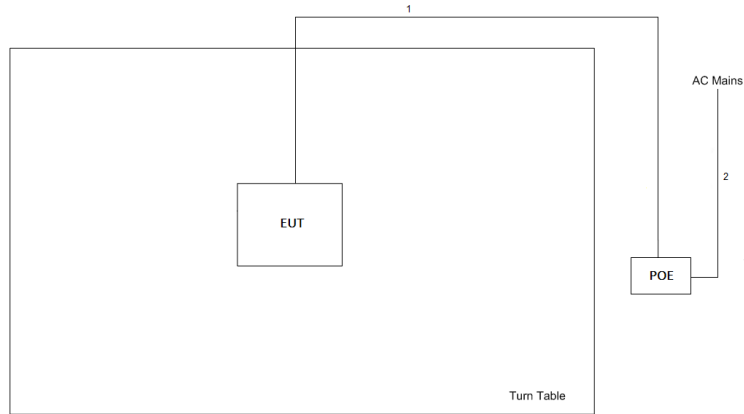
Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Adapter for PoE	D-Link	DSA-0421S-50	N/A

2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC power line	No	1.0	-
2	DC power line	No	1.5	-
3	RJ-45 cable	No	1.0	-

Test Setup Diagram - Radiated Test


Item	Connection	Shielded	Length(m)	Remark
1	RJ45 Cable	No	10.0	-
2	AC power line	No	1.0	-

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.

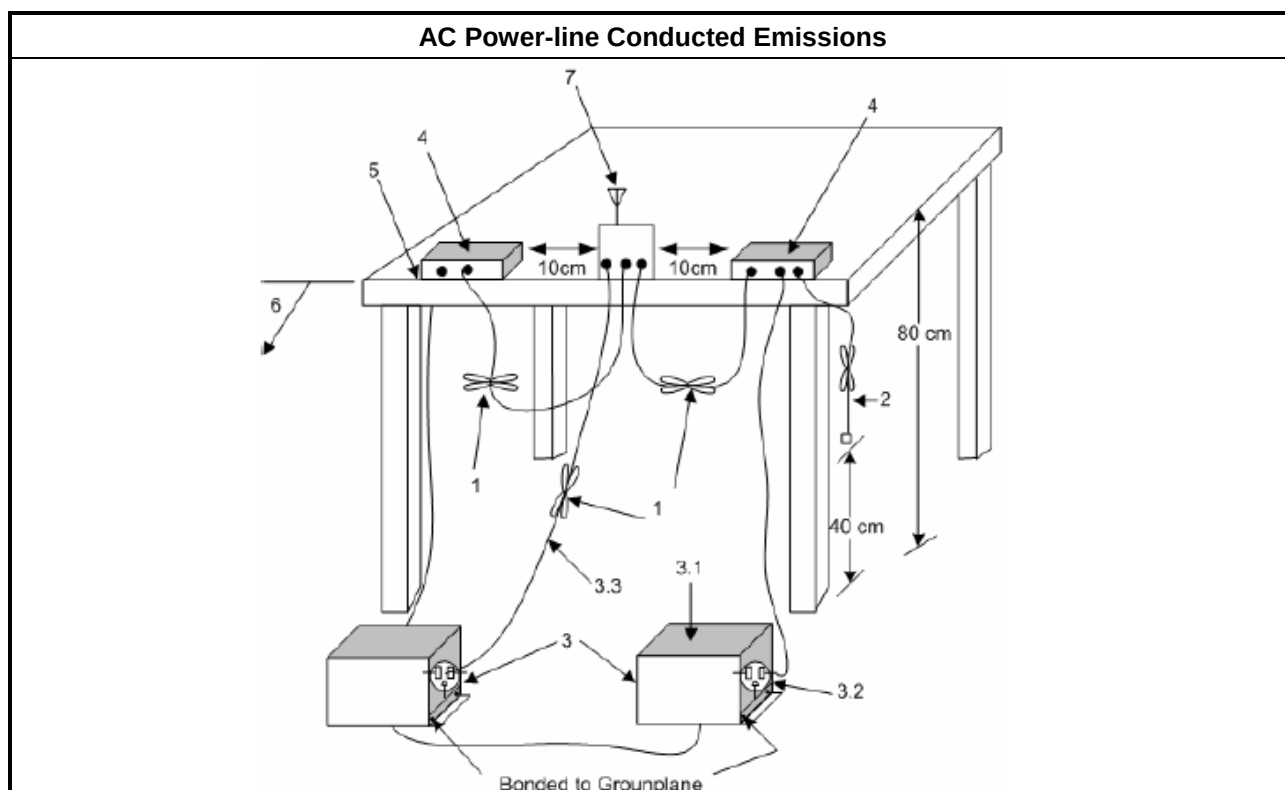
3.1.2 Measuring Instruments

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.

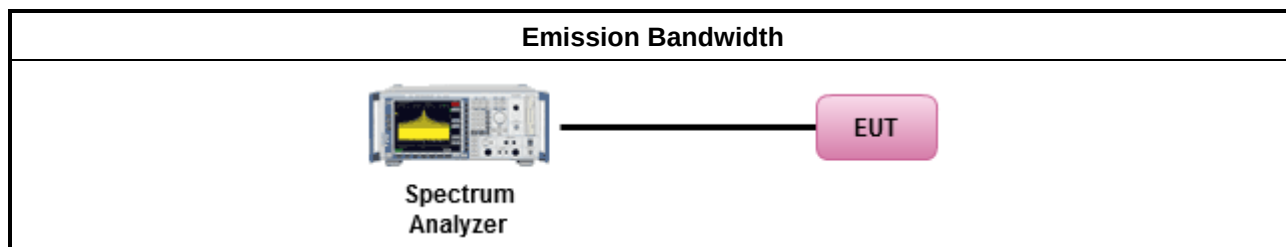
3.2.2 Measuring Instruments

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.

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.		

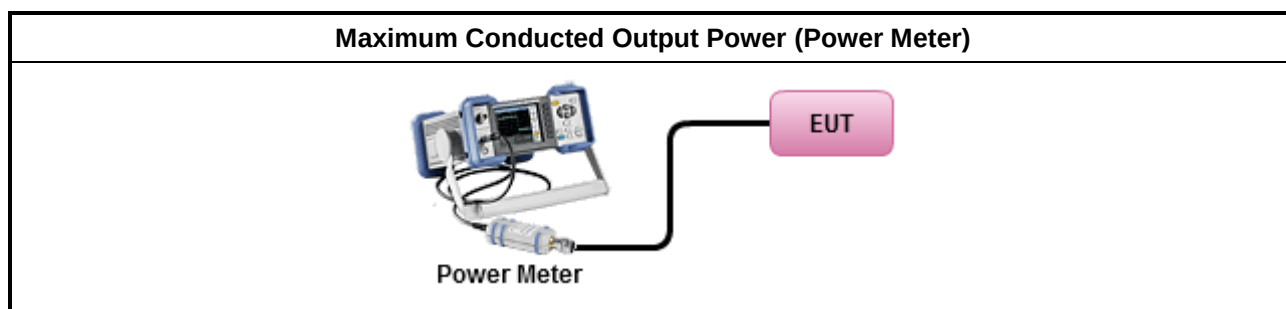
3.3.2 Measuring Instruments

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

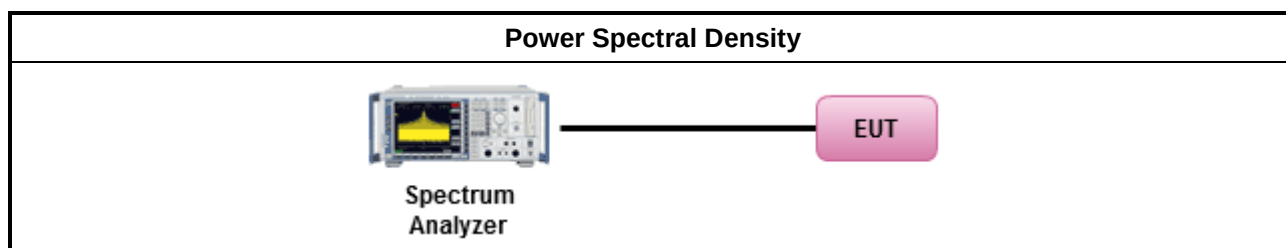
3.4.2 Measuring Instruments

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.	

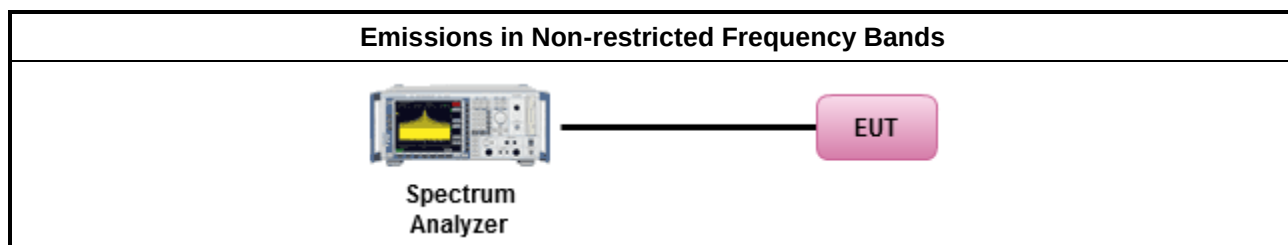
3.5.2 Measuring Instruments

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.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

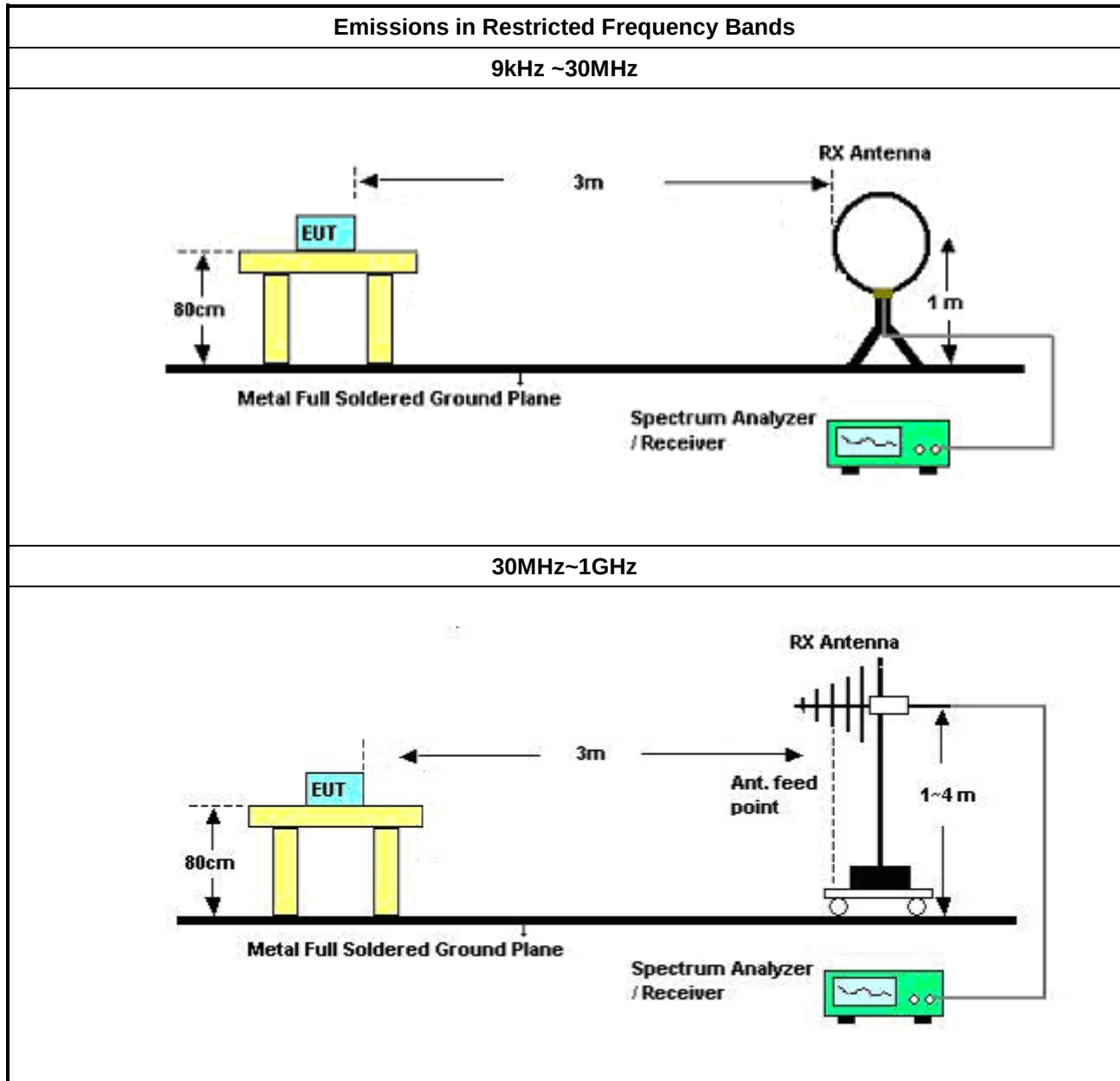
3.6.2 Measuring Instruments

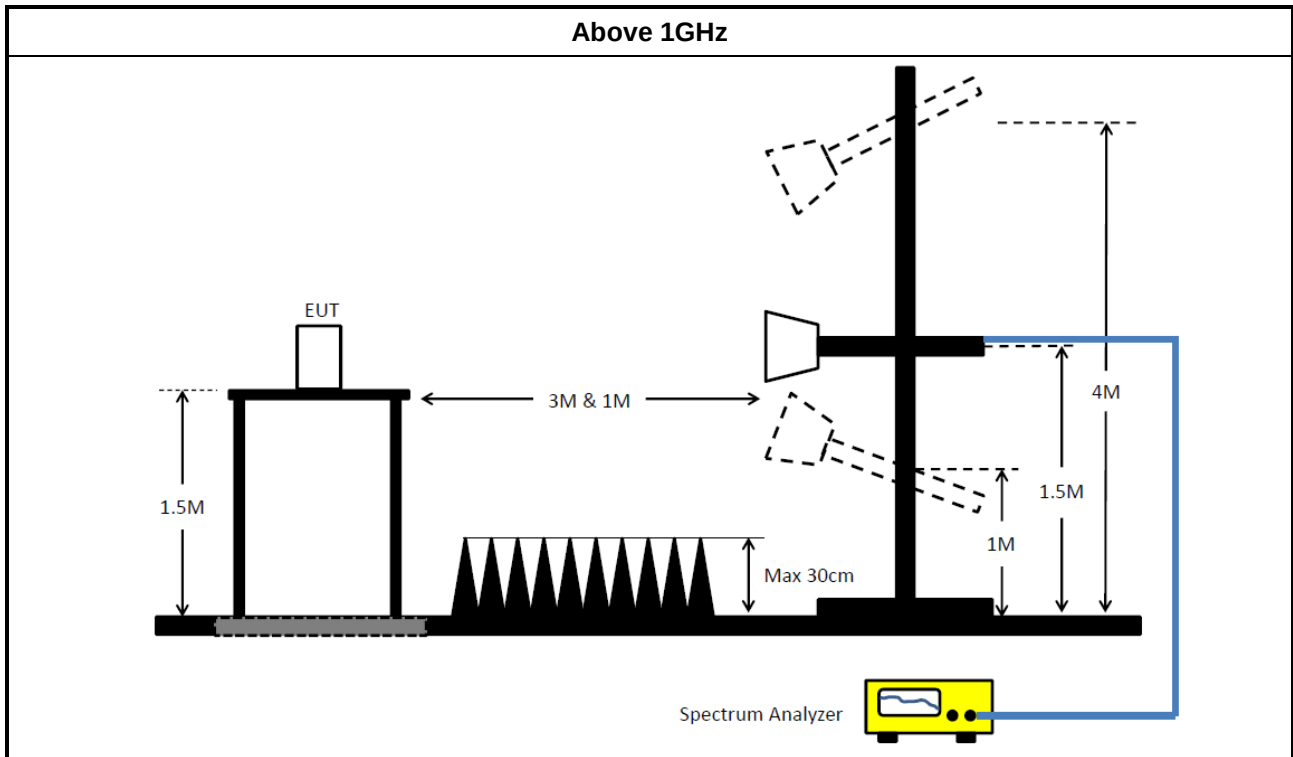
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 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, 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
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/2018

NCR : Non-Calibration Require

Instrument for Radiated Test

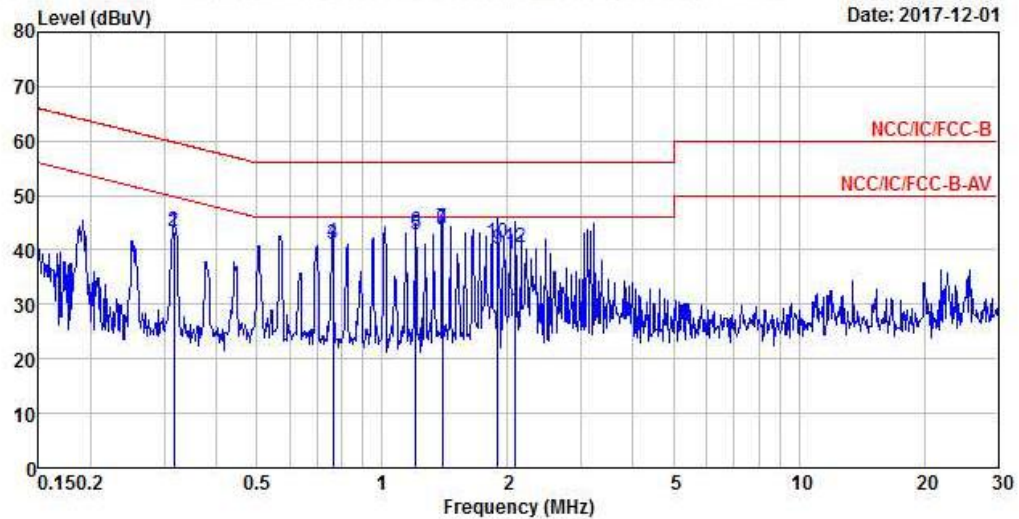
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	31/Oct/2017	30/Oct/2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	01/Nov/2017	31/Oct/2018
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	19/Apr/2017	18/Apr/2018
Amplifier	Keysight	83017A	MY53270196	1GHz ~ 26.5GHz	31/Aug/2017	30/Aug/2018
Spectrum	R&S	FSV40	101500	9kHz ~ 40GHz	28/Jun/2017	27/Jun/2018
Receiver	R&S	ESR3	102052	9KHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	26/Jan/2017	25/Jan/2018
RF Cable-high	SUHNER	SUCOFLEX106	CB222	1GHz ~ 40GHz	26/Jan/2017	25/Jan/2018
Bilog Antenna	SCHAFFNER	CBL 6112B	22237	30MHz ~ 1GHz	08/Jul/2017	07/Jul/2018
Horn Antenna	SCHWARZBECK	BBHA9120D	1531	1GHz ~ 18GHz	25/Apr/ 2017	24/Apr/2018
Loop Antenna	TESEQ	HLA 6120	31244	9 kHz~30 MHz	02/Mar/2017	01/Mar/2018

**Instrument for Conducted Test**

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	30/Dec/2016	29/Dec/2017
Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	24/Feb/2017	23/Feb/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY677/3	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY678/3	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-1.5m	HUBER+SUHNER	SUCOFLEX_104	MY12586/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	PoE Mode		



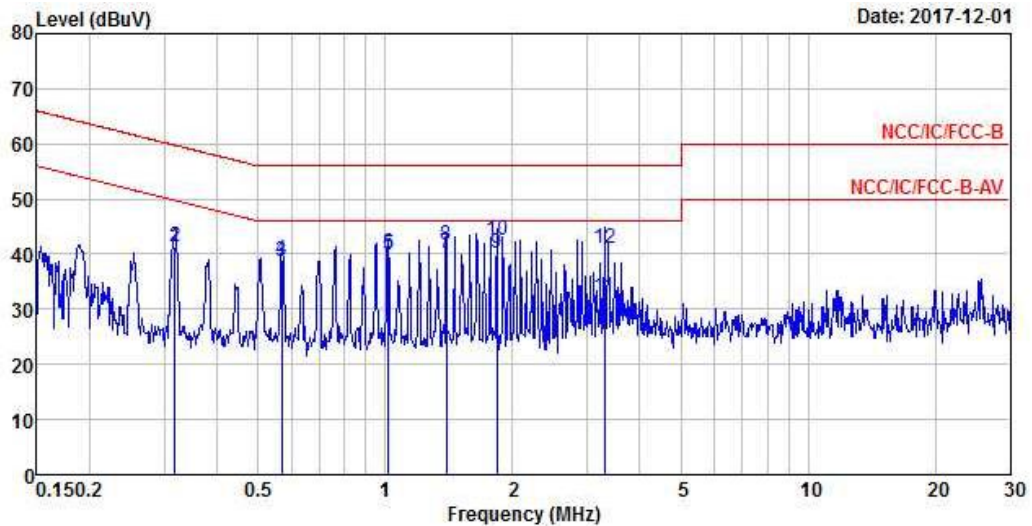
	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.3166	43.43	-6.37	49.80	33.75	9.61	0.07	Average
2	0.3166	43.33	-16.47	59.80	33.65	9.61	0.07	QP
3	0.7630	40.99	-5.01	46.00	31.35	9.61	0.03	Average
4	0.7630	41.42	-14.58	56.00	31.78	9.61	0.03	QP
5	1.2034	42.70	-3.30	46.00	33.09	9.61	0.00	Average
6	1.2034	43.26	-12.74	56.00	33.65	9.61	0.00	QP
7 MAX	1.3958	44.07	-1.93	46.00	34.46	9.61	0.00	Average
8	1.3958	43.55	-12.45	56.00	33.94	9.61	0.00	QP
9	1.8979	40.22	-5.78	46.00	30.60	9.62	0.00	Average
10	1.8979	41.23	-14.77	56.00	31.61	9.62	0.00	QP
11	2.0879	39.21	-6.79	46.00	29.58	9.62	0.01	Average
12	2.0879	40.47	-15.53	56.00	30.84	9.62	0.01	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	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.3183	41.24	-8.51	49.75	31.56	9.61	0.07	Average
2	0.3183	41.37	-18.38	59.75	31.69	9.61	0.07	QP
3	0.5701	38.60	-7.40	46.00	28.93	9.61	0.06	Average
4	0.5701	38.95	-17.05	56.00	29.28	9.61	0.06	QP
5	1.0157	39.92	-6.08	46.00	30.30	9.62	0.00	Average
6	1.0157	40.22	-15.78	56.00	30.60	9.62	0.00	QP
7	1.3958	40.05	-5.95	46.00	30.43	9.62	0.00	Average
8	1.3958	41.75	-14.25	56.00	32.13	9.62	0.00	QP
9 MAX	1.8386	40.19	-5.81	46.00	30.56	9.63	0.00	Average
10	1.8386	42.57	-13.43	56.00	32.94	9.63	0.00	QP
11	3.2930	32.13	-13.87	46.00	22.43	9.64	0.06	Average
12	3.2930	41.06	-14.94	56.00	31.36	9.64	0.06	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	645k	987.006k	987KF1D	637.5k	974.513k

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;

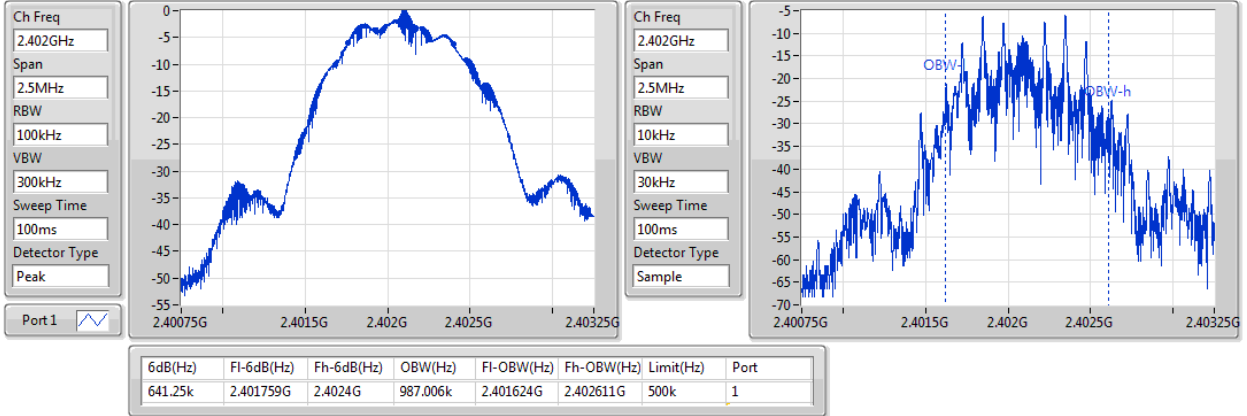
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	641.25k	987.006k
2440MHz_TnomVnom	Pass	500k	645k	978.261k
2480MHz_TnomVnom	Pass	500k	637.5k	974.513k

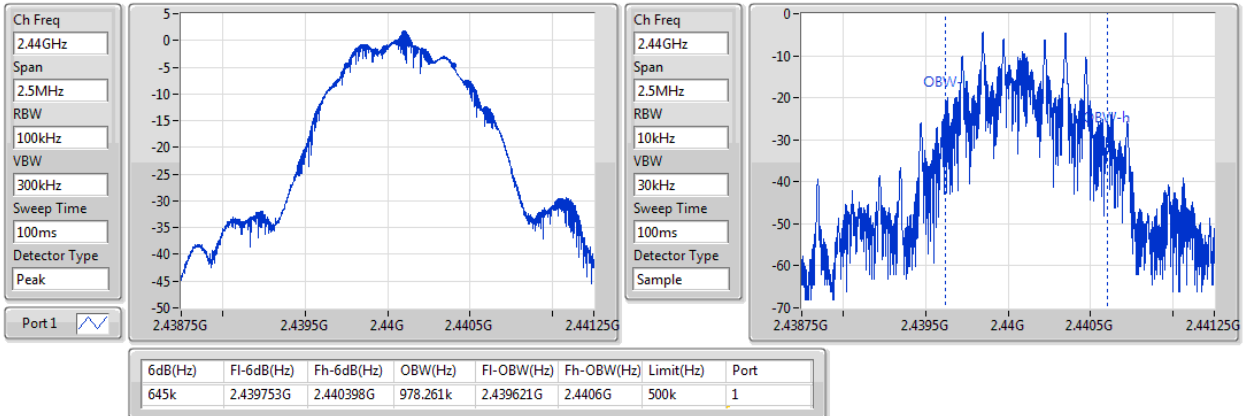
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
EBW
2402MHz

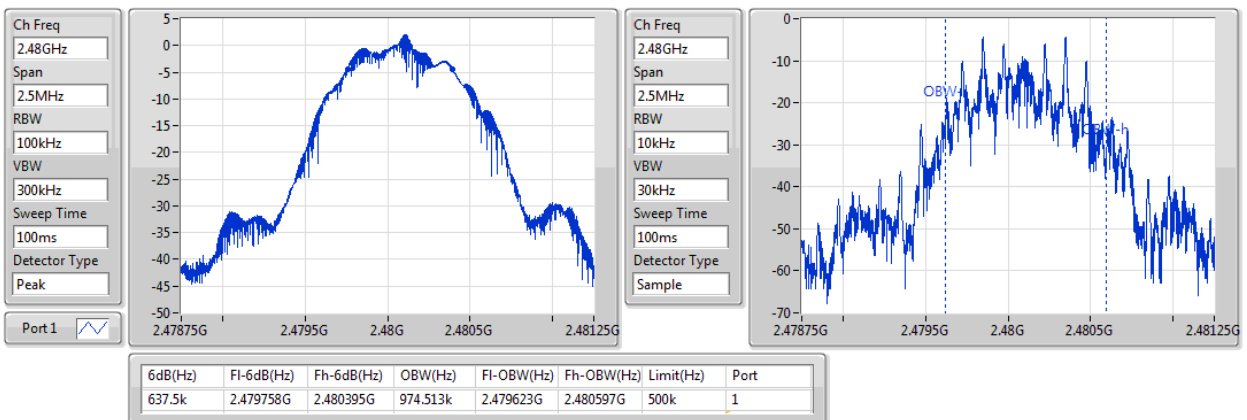
20/12/2017


BT-LE(1Mbps)
EBW
2440MHz

20/12/2017


BT-LE(1Mbps)
EBW
2480MHz

20/12/2017



Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	7.23	0.00528

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	2.00	5.56	30.00
2440MHz_TnomVnom	Pass	2.00	7.23	30.00
2480MHz_TnomVnom	Pass	2.00	7.17	30.00

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	0.60

RBW=3kHz.

Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	2.00	-2.02	8.00
2440MHz_TnomVnom	Pass	2.00	0.60	8.00
2480MHz_TnomVnom	Pass	2.00	-0.07	8.00

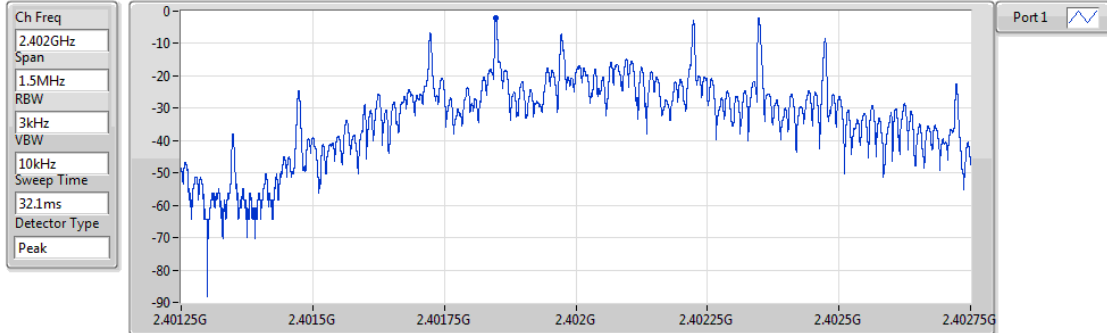
RBW=3kHz.

BT-LE(1Mbps)

PSD

2402MHz

16/12/2017



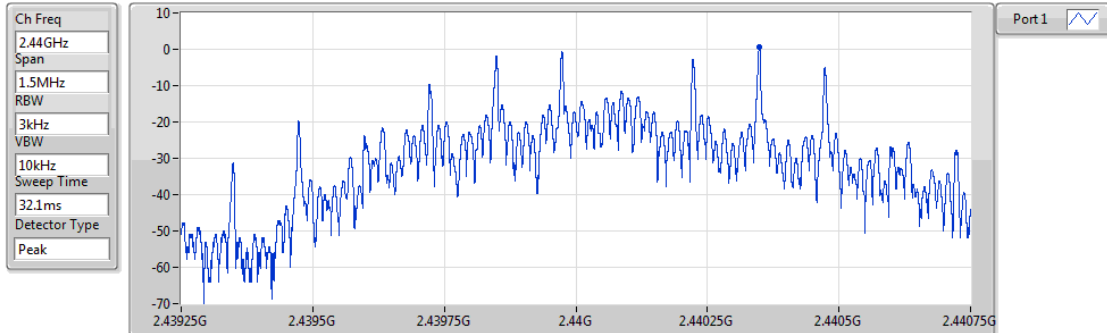
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-2.02	-2.02	-2.02

BT-LE(1Mbps)

PSD

2440MHz

16/12/2017



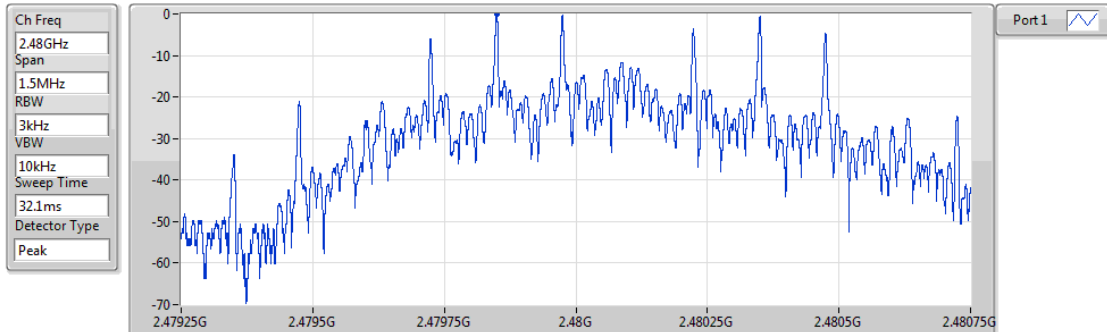
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.60	0.60	0.60

BT-LE(1Mbps)

PSD

2480MHz

16/12/2017



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-0.07	-0.07	-0.07

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	6.98	-23.02	2.09608G	-54.90	2.3988G	-43.57	2.483656G	-54.54	7.205102G	-47.41	1

Result

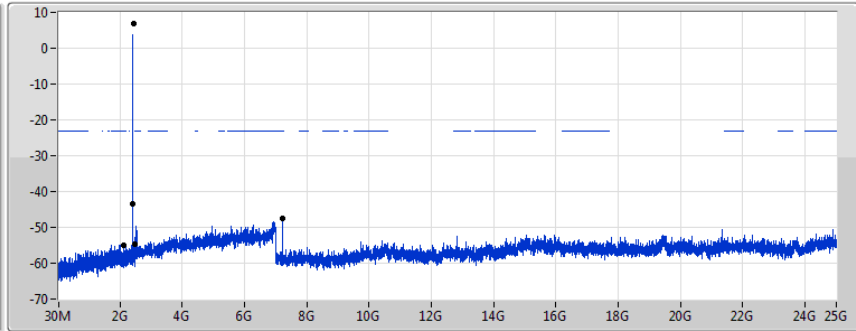
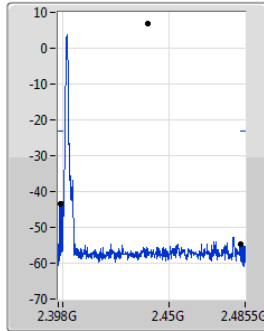
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.44008G	6.98	-23.02	2.09608G	-54.90	2.3988G	-43.57	2.483656G	-54.54	7.205102G	-47.41	1
2440MHz_TnomVnom	Pass	2.44008G	6.98	-23.02	2.04872G	-53.83	2.39854G	-55.24	2.485264G	-53.34	6.932114G	-48.15	1
2480MHz_TnomVnom	Pass	2.44008G	6.98	-23.02	1.956368G	-54.59	2.399864G	-55.59	2.483528G	-47.56	6.9884G	-48.21	1

BT-LE(1Mbps)

CSE NdB

2402MHz

16/12/2017



Port 1

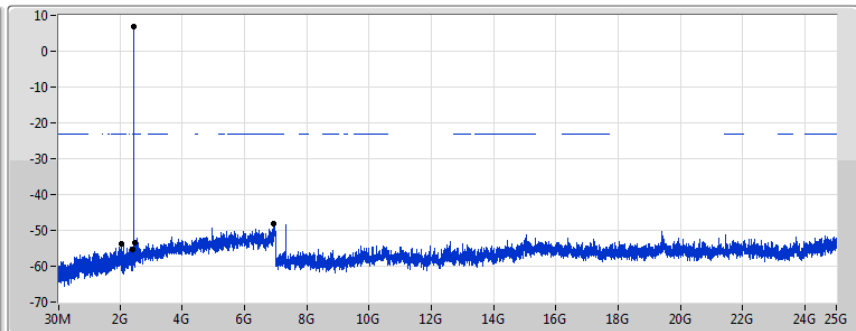
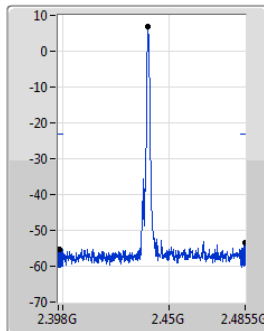
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	6.98	-23.02	2.09608G	-54.90	2.3988G	-43.57	2.483656G	-54.54	7.205102G	-47.41	1

BT-LE(1Mbps)

CSE NdB

2440MHz

16/12/2017



Port 1

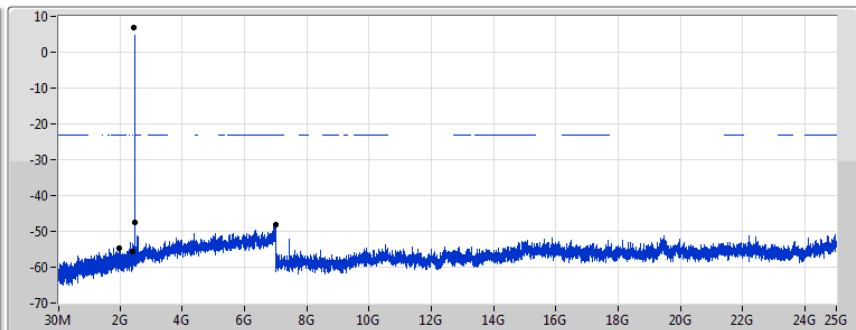
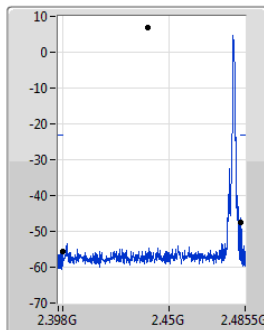
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44008G	6.98	-23.02	2.04872G	-53.83	2.39854G	-55.24	2.485264G	-53.34	6.932114G	-48.15	1

BT-LE(1Mbps)

CSE NdB

2480MHz

16/12/2017



Port 1

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	6.98	-23.02	1.956368G	-54.59	2.399864G	-55.59	2.483528G	-47.56	6.9884G	-48.21	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	31.94M	33.45	40.00	-6.55	-3.57	3	Vertical	0	1.00	-

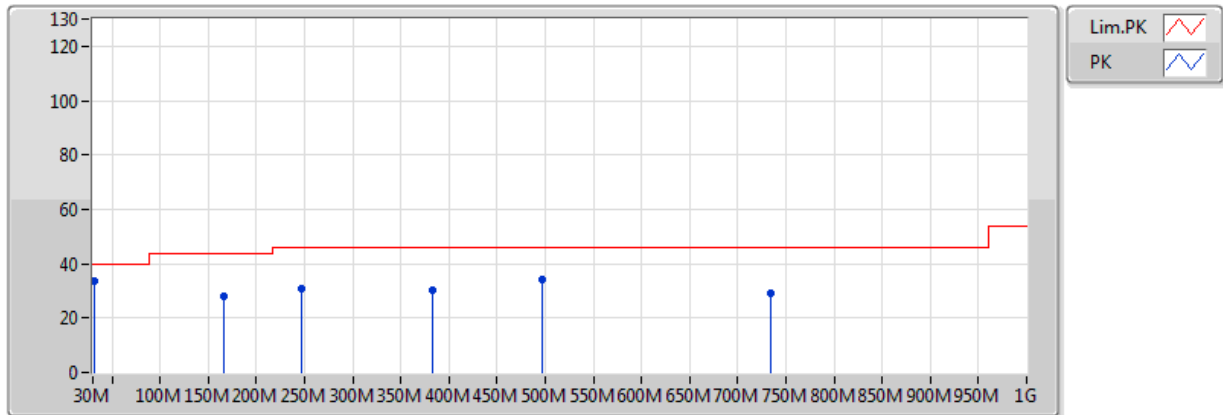
Result

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	Pass	PK	117.3M	26.77	43.50	-16.73	-8.01	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	165.8M	28.62	43.50	-14.88	-9.84	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	243.4M	37.98	46.00	-8.02	-7.26	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	464.56M	31.23	46.00	-14.77	-1.99	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	676.02M	32.02	46.00	-13.98	0.22	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	910.76M	35.75	46.00	-10.25	2.95	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	31.94M	33.45	40.00	-6.55	-3.57	3	Vertical	0	1.00	-
2440MHz	Pass	PK	165.8M	27.97	43.50	-15.53	-9.84	3	Vertical	0	1.00	-
2440MHz	Pass	PK	247.28M	31.07	46.00	-14.93	-6.82	3	Vertical	0	1.00	-
2440MHz	Pass	PK	383.08M	30.11	46.00	-15.89	-4.09	3	Vertical	0	1.00	-
2440MHz	Pass	PK	497.54M	34.10	46.00	-11.90	-1.75	3	Vertical	0	1.00	-
2440MHz	Pass	PK	734.22M	29.26	46.00	-16.74	1.26	3	Vertical	0	1.00	-

BT-LE(1Mbps)

2440MHz_PoE

20/12/2017

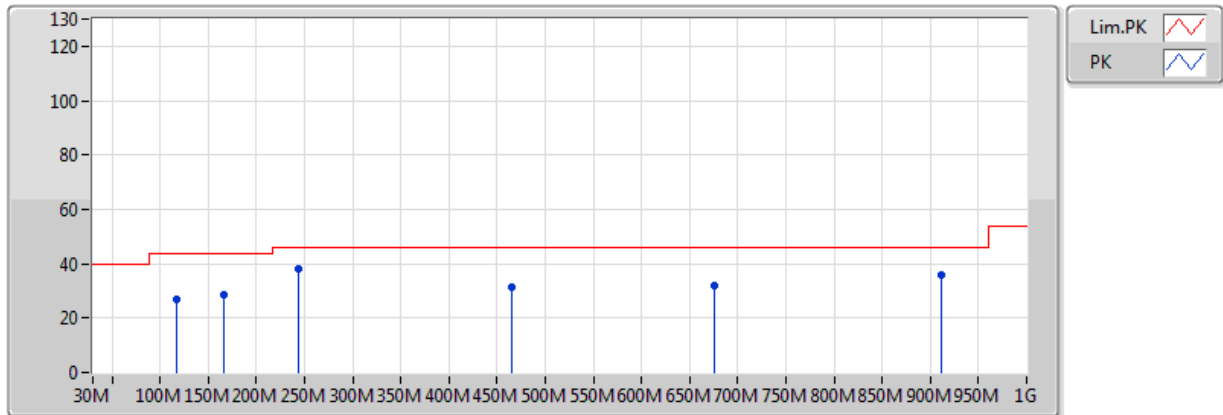


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	31.94M	33.45	40.00	-6.55	-3.57	3	Vertical	0	1.00	-	37.02	22.27	1.74	27.58
PK	165.8M	27.97	43.50	-15.53	-9.84	3	Vertical	0	1.00	-	37.81	14.82	2.41	27.07
PK	247.28M	31.07	46.00	-14.93	-6.82	3	Vertical	0	1.00	-	37.89	17.42	2.56	26.81
PK	383.08M	30.11	46.00	-15.89	-4.09	3	Vertical	0	1.00	-	34.20	20.07	3.03	27.19
PK	497.54M	34.10	46.00	-11.90	-1.75	3	Vertical	0	1.00	-	35.85	22.53	3.54	27.82
PK	734.22M	29.26	46.00	-16.74	1.26	3	Vertical	0	1.00	-	28.00	24.86	4.29	27.88

BT-LE(1Mbps)

2440MHz_PoE

20/12/2017



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	117.3M	26.77	43.50	-16.73	-8.01	3	Horizontal	360	1.00	-	34.78	17.24	2.04	27.29
PK	165.8M	28.62	43.50	-14.88	-9.84	3	Horizontal	360	1.00	-	38.46	14.82	2.41	27.07
PK	243.4M	37.98	46.00	-8.02	-7.26	3	Horizontal	360	1.00	-	45.24	16.96	2.59	26.81
PK	464.56M	31.23	46.00	-14.77	-1.99	3	Horizontal	360	1.00	-	33.22	22.18	3.46	27.64
PK	676.02M	32.02	46.00	-13.98	0.22	3	Horizontal	360	1.00	-	31.80	24.04	4.15	27.96
PK	910.76M	35.75	46.00	-10.25	2.95	3	Horizontal	360	1.00	-	32.80	25.59	4.82	27.47

**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	4.999G	52.88	54.00	-1.12	6.30	3	Horizontal	10	1.65	-

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	2.3606G	45.39	54.00	-8.61	30.35	3	Horizontal	185	1.23	-
2402MHz	Pass	AV	2.402G	94.30	Inf	-Inf	30.50	3	Horizontal	185	1.23	-
2402MHz	Pass	PK	2.354G	57.46	74.00	-16.54	30.33	3	Horizontal	185	1.23	-
2402MHz	Pass	PK	2.4024G	95.53	Inf	-Inf	30.50	3	Horizontal	185	1.23	-
2402MHz	Pass	AV	2.3712G	45.40	54.00	-8.60	30.39	3	Vertical	300	2.36	-
2402MHz	Pass	AV	2.402G	76.36	Inf	-Inf	30.50	3	Vertical	300	2.36	-
2402MHz	Pass	PK	2.3728G	58.18	74.00	-15.82	30.39	3	Vertical	300	2.36	-
2402MHz	Pass	PK	2.4024G	78.12	Inf	-Inf	30.50	3	Vertical	300	2.36	-
2402MHz	Pass	AV	4.804G	33.76	54.00	-20.24	5.85	3	Horizontal	76	1.04	-
2402MHz	Pass	AV	4.999G	52.35	54.00	-1.65	6.30	3	Horizontal	8	1.50	-
2402MHz	Pass	PK	4.804G	47.28	74.00	-26.72	5.85	3	Horizontal	76	1.04	-
2402MHz	Pass	PK	4.999G	55.68	74.00	-18.32	6.30	3	Horizontal	8	1.50	-
2402MHz	Pass	AV	4.804G	33.37	54.00	-20.63	5.85	3	Vertical	13	1.70	-
2402MHz	Pass	AV	4.999G	44.14	54.00	-9.86	6.30	3	Vertical	344	1.20	-
2402MHz	Pass	PK	4.804G	47.49	74.00	-26.51	5.85	3	Vertical	13	1.70	-
2402MHz	Pass	PK	4.999G	51.07	74.00	-22.93	6.30	3	Vertical	344	1.20	-
2440MHz	Pass	AV	2.3872G	45.42	54.00	-8.58	30.45	3	Horizontal	0	2.96	-
2440MHz	Pass	AV	2.44G	91.82	Inf	-Inf	30.63	3	Horizontal	0	2.96	-
2440MHz	Pass	AV	2.4948G	46.53	54.00	-7.47	30.83	3	Horizontal	0	2.96	-
2440MHz	Pass	PK	2.358G	57.04	74.00	-16.96	30.34	3	Horizontal	0	2.96	-
2440MHz	Pass	PK	2.44G	93.17	Inf	-Inf	30.63	3	Horizontal	0	2.96	-
2440MHz	Pass	PK	2.4952G	57.49	74.00	-16.51	30.83	3	Horizontal	0	2.96	-
2440MHz	Pass	AV	2.3608G	45.25	54.00	-8.75	30.35	3	Vertical	296	1.80	-
2440MHz	Pass	AV	2.44G	79.68	Inf	-Inf	30.63	3	Vertical	296	1.80	-
2440MHz	Pass	AV	2.4868G	46.84	54.00	-7.16	30.80	3	Vertical	296	1.80	-
2440MHz	Pass	PK	2.3744G	57.53	74.00	-16.47	30.40	3	Vertical	296	1.80	-
2440MHz	Pass	PK	2.44G	81.32	Inf	-Inf	30.63	3	Vertical	296	1.80	-
2440MHz	Pass	PK	2.484G	58.52	74.00	-15.48	30.79	3	Vertical	296	1.80	-
2440MHz	Pass	AV	4.999G	52.38	54.00	-1.62	6.30	3	Horizontal	8	1.50	-
2440MHz	Pass	AV	7.32G	41.98	54.00	-12.02	11.35	3	Horizontal	4	1.60	-
2440MHz	Pass	PK	4.999G	56.08	74.00	-17.92	6.30	3	Horizontal	8	1.50	-
2440MHz	Pass	PK	7.32G	55.47	74.00	-18.53	11.35	3	Horizontal	4	1.60	-
2440MHz	Pass	AV	4.99G	44.04	54.00	-9.96	6.28	3	Vertical	342	1.21	-
2440MHz	Pass	AV	7.32G	39.06	54.00	-14.94	11.35	3	Vertical	26	1.01	-
2440MHz	Pass	PK	4.99G	51.29	74.00	-22.71	6.28	3	Vertical	342	1.21	-
2440MHz	Pass	PK	7.32G	52.51	74.00	-21.49	11.35	3	Vertical	26	1.01	-
2480MHz	Pass	AV	2.48G	88.80	Inf	-Inf	30.78	3	Horizontal	12	2.75	-
2480MHz	Pass	AV	2.483502G	46.61	54.00	-7.39	30.79	3	Horizontal	12	2.75	-
2480MHz	Pass	PK	2.4798G	90.20	Inf	-Inf	30.78	3	Horizontal	12	2.75	-
2480MHz	Pass	PK	2.4946G	59.15	74.00	-14.85	30.83	3	Horizontal	12	2.75	-
2480MHz	Pass	AV	2.48G	76.06	Inf	-Inf	30.78	3	Vertical	199	1.15	-
2480MHz	Pass	AV	2.4984G	46.49	54.00	-7.51	30.84	3	Vertical	199	1.15	-
2480MHz	Pass	PK	2.4798G	77.87	Inf	-Inf	30.78	3	Vertical	199	1.15	-
2480MHz	Pass	AV	4.999G	52.88	54.00	-1.12	6.30	3	Horizontal	10	1.65	-
2480MHz	Pass	AV	7.44G	41.96	54.00	-12.04	11.62	3	Horizontal	352	1.50	-
2480MHz	Pass	PK	4.999G	56.11	74.00	-17.89	6.30	3	Horizontal	10	1.65	-
2480MHz	Pass	PK	7.44G	55.46	74.00	-18.54	11.62	3	Horizontal	352	1.50	-



RSE TX above 1GHz Result

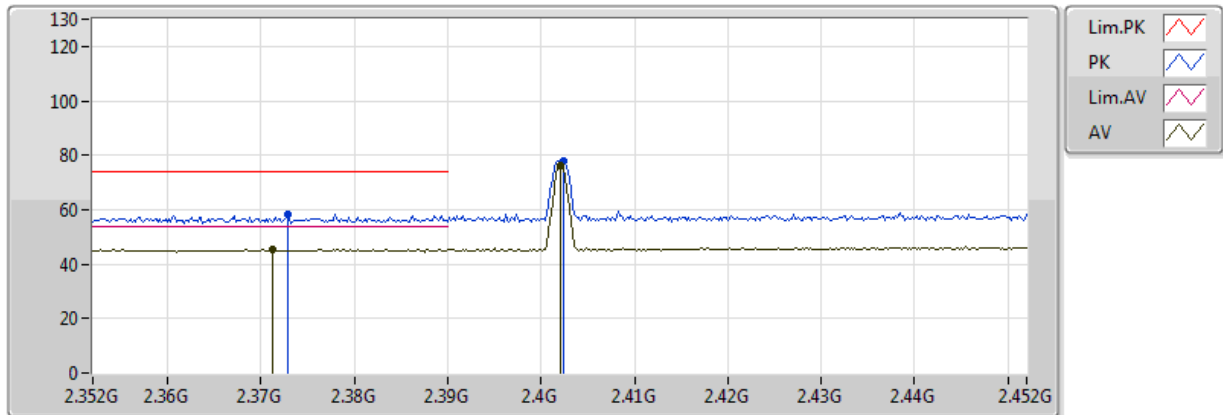
Appendix F.2

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz	Pass	AV	4.999G	44.25	54.00	-9.75	6.30	3	Vertical	344	1.21	-
2480MHz	Pass	AV	7.44G	45.44	54.00	-8.56	11.62	3	Vertical	352	1.50	-
2480MHz	Pass	PK	4.999G	51.32	74.00	-22.68	6.30	3	Vertical	344	1.21	-
2480MHz	Pass	PK	7.44G	54.07	74.00	-19.93	11.62	3	Vertical	352	1.50	-

BT-LE(1Mbps)

2402MHz_TX

19/12/2017

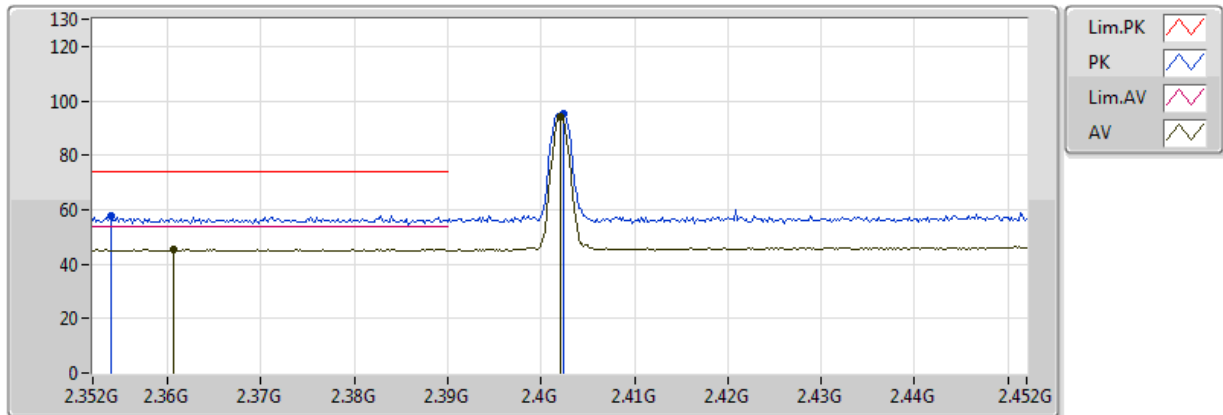


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3712G	45.40	54.00	-8.60	30.39	3	Vertical	300	2.36	-	15.01	27.17	3.22	-
AV	2.402G	76.36	Inf	-Inf	30.50	3	Vertical	300	2.36	-	45.86	27.25	3.25	-
PK	2.3728G	58.18	74.00	-15.82	30.39	3	Vertical	300	2.36	-	27.79	27.17	3.23	-
PK	2.4024G	78.12	Inf	-Inf	30.50	3	Vertical	300	2.36	-	47.62	27.25	3.25	-

BT-LE(1Mbps)

2402MHz_TX

19/12/2017

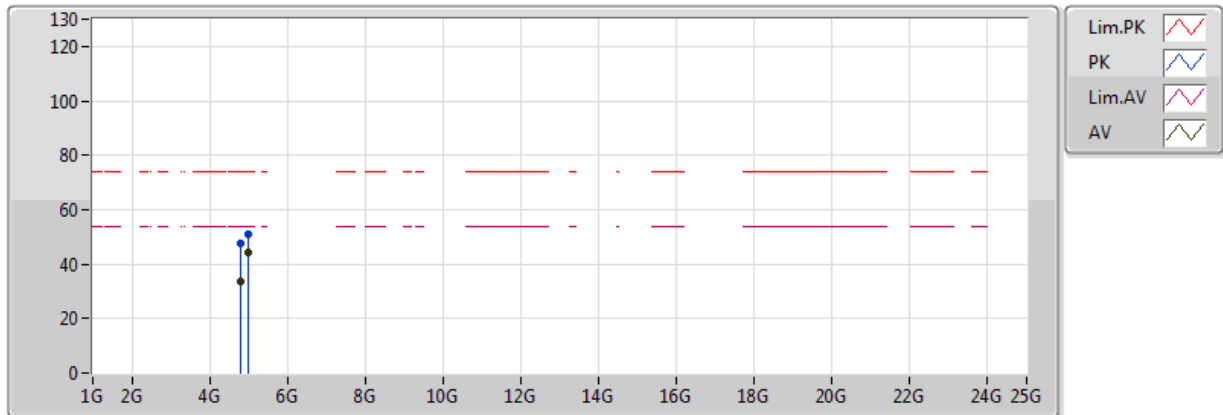


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3606G	45.39	54.00	-8.61	30.35	3	Horizontal	185	1.23	-	15.04	27.14	3.21	-
AV	2.402G	94.30	Inf	-Inf	30.50	3	Horizontal	185	1.23	-	63.80	27.25	3.25	-
PK	2.354G	57.46	74.00	-16.54	30.33	3	Horizontal	185	1.23	-	27.13	27.12	3.21	-
PK	2.4024G	95.53	Inf	-Inf	30.50	3	Horizontal	185	1.23	-	65.04	27.25	3.25	-

BT-LE(1Mbps)

2402MHz_TX

19/12/2017

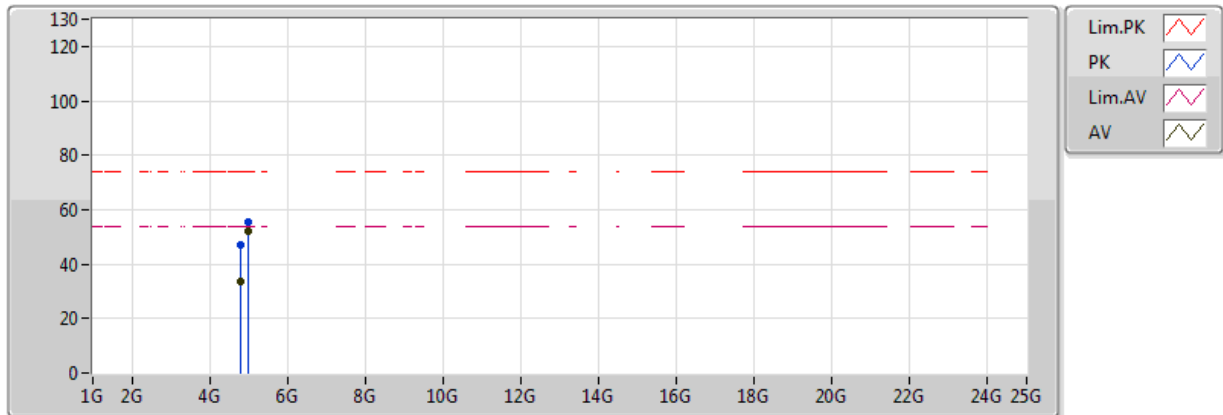


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.804G	33.37	54.00	-20.63	5.85	3	Vertical	13	1.70	-	27.52	31.19	4.51	29.85
AV	4.999G	44.14	54.00	-9.86	6.30	3	Vertical	344	1.20	-	37.84	31.50	4.61	29.81
PK	4.804G	47.49	74.00	-26.51	5.85	3	Vertical	13	1.70	-	41.64	31.19	4.51	29.85
PK	4.999G	51.07	74.00	-22.93	6.30	3	Vertical	344	1.20	-	44.77	31.50	4.61	29.81

BT-LE(1Mbps)

2402MHz_TX

19/12/2017

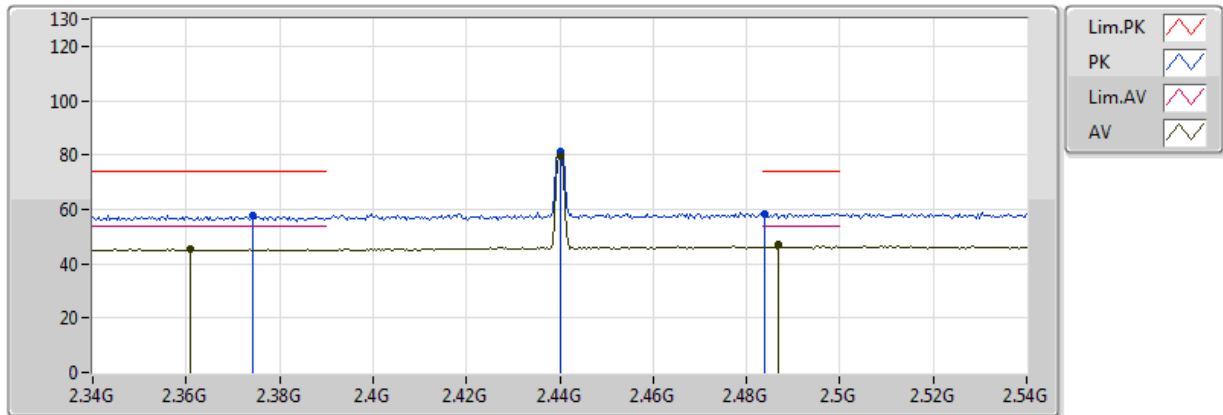


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.804G	33.76	54.00	-20.24	5.85	3	Horizontal	76	1.04	-	27.91	31.19	4.51	29.85
AV	4.999G	52.35	54.00	-1.65	6.30	3	Horizontal	8	1.50	-	46.05	31.50	4.61	29.81
PK	4.804G	47.28	74.00	-26.72	5.85	3	Horizontal	76	1.04	-	41.43	31.19	4.51	29.85
PK	4.999G	55.68	74.00	-18.32	6.30	3	Horizontal	8	1.50	-	49.38	31.50	4.61	29.81

BT-LE(1Mbps)

2440MHz_TX

19/12/2017

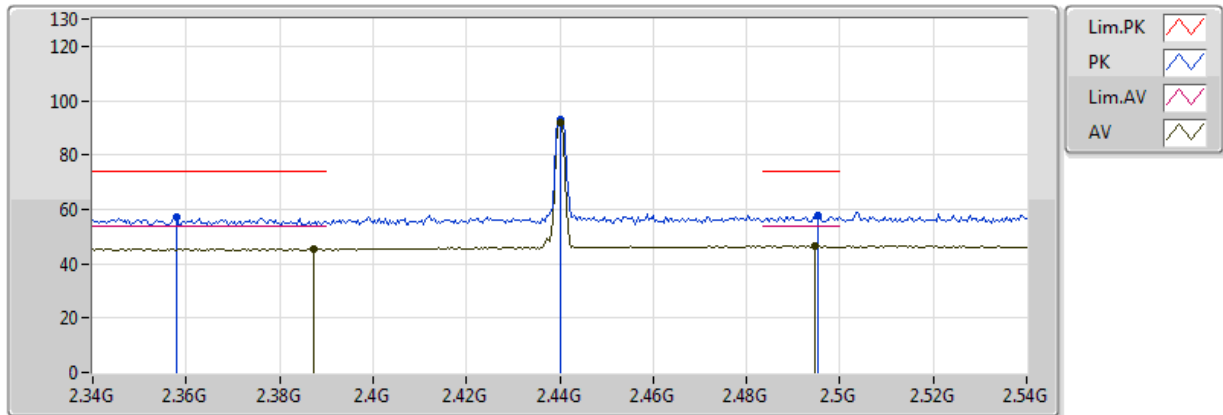


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3608G	45.25	54.00	-8.75	30.35	3	Vertical	296	1.80	-	14.90	27.14	3.21	-
AV	2.44G	79.68	Inf	-Inf	30.63	3	Vertical	296	1.80	-	49.05	27.34	3.29	-
AV	2.4868G	46.84	54.00	-7.16	30.80	3	Vertical	296	1.80	-	16.03	27.47	3.34	-
PK	2.3744G	57.53	74.00	-16.47	30.40	3	Vertical	296	1.80	-	27.13	27.17	3.23	-
PK	2.44G	81.32	Inf	-Inf	30.63	3	Vertical	296	1.80	-	50.69	27.34	3.29	-
PK	2.484G	58.52	74.00	-15.48	30.79	3	Vertical	296	1.80	-	27.73	27.46	3.33	-

BT-LE(1Mbps)

2440MHz_TX

19/12/2017

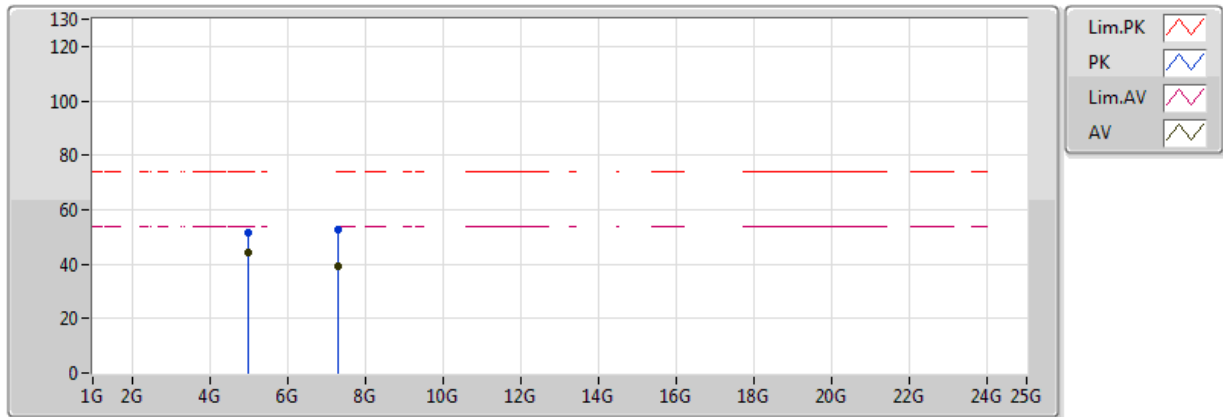


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3872G	45.42	54.00	-8.58	30.45	3	Horizontal	0	2.96	-	14.97	27.21	3.24	-
AV	2.44G	91.82	Inf	-Inf	30.63	3	Horizontal	0	2.96	-	61.19	27.34	3.29	-
AV	2.4948G	46.53	54.00	-7.47	30.83	3	Horizontal	0	2.96	-	15.70	27.49	3.34	-
PK	2.358G	57.04	74.00	-16.96	30.34	3	Horizontal	0	2.96	-	26.70	27.13	3.21	-
PK	2.44G	93.17	Inf	-Inf	30.63	3	Horizontal	0	2.96	-	62.53	27.34	3.29	-
PK	2.4952G	57.49	74.00	-16.51	30.83	3	Horizontal	0	2.96	-	26.66	27.49	3.35	-

BT-LE(1Mbps)

2440MHz_TX

19/12/2017

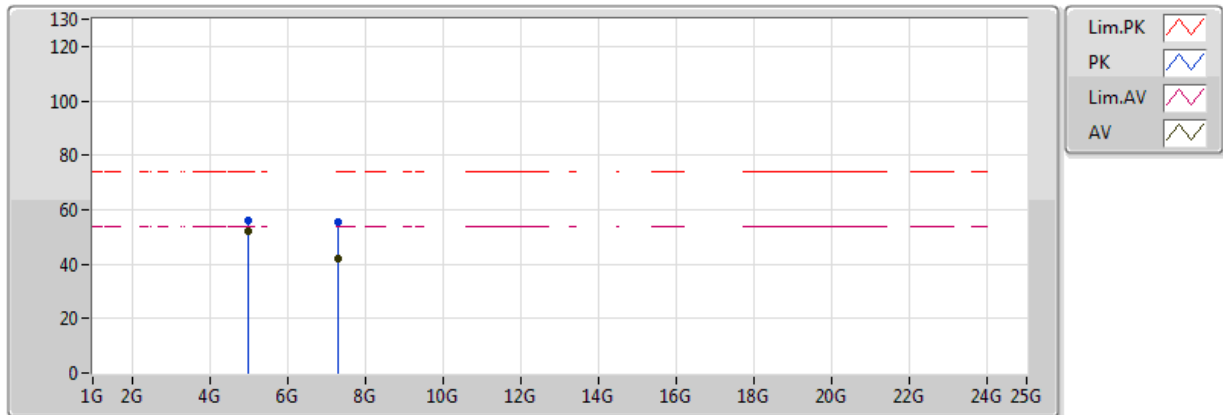


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.99G	44.04	54.00	-9.96	6.28	3	Vertical	342	1.21	-	37.76	31.48	4.61	29.81
AV	7.32G	39.06	54.00	-14.94	11.35	3	Vertical	26	1.01	-	27.71	36.04	6.12	30.80
PK	4.99G	51.29	74.00	-22.71	6.28	3	Vertical	342	1.21	-	45.01	31.48	4.61	29.81
PK	7.32G	52.51	74.00	-21.49	11.35	3	Vertical	26	1.01	-	41.16	36.04	6.12	30.80

BT-LE(1Mbps)

2440MHz_TX

19/12/2017

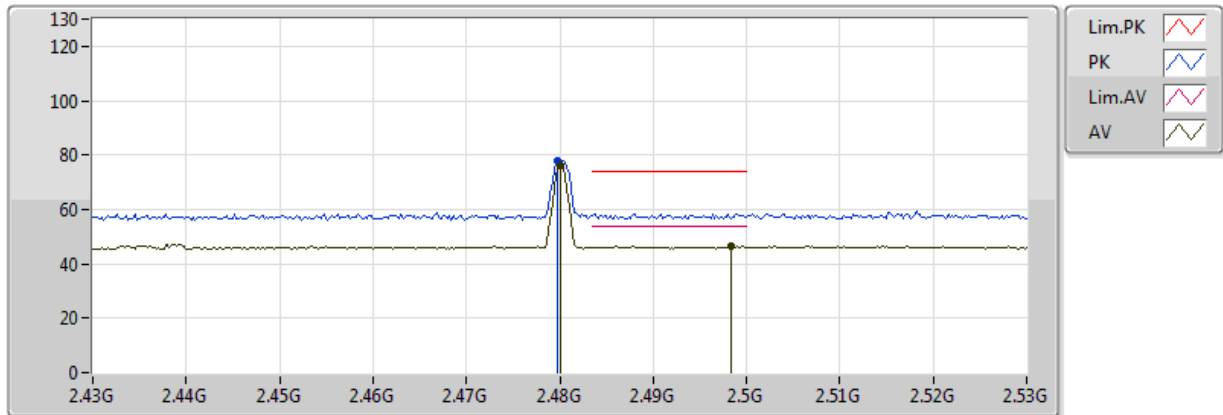


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.999G	52.38	54.00	-1.62	6.30	3	Horizontal	8	1.50	-	46.08	31.50	4.61	29.81
AV	7.32G	41.98	54.00	-12.02	11.35	3	Horizontal	4	1.60	-	30.63	36.04	6.12	30.80
PK	4.999G	56.08	74.00	-17.92	6.30	3	Horizontal	8	1.50	-	49.78	31.50	4.61	29.81
PK	7.32G	55.47	74.00	-18.53	11.35	3	Horizontal	4	1.60	-	44.12	36.04	6.12	30.80

BT-LE(1Mbps)

2480MHz_TX

19/12/2017

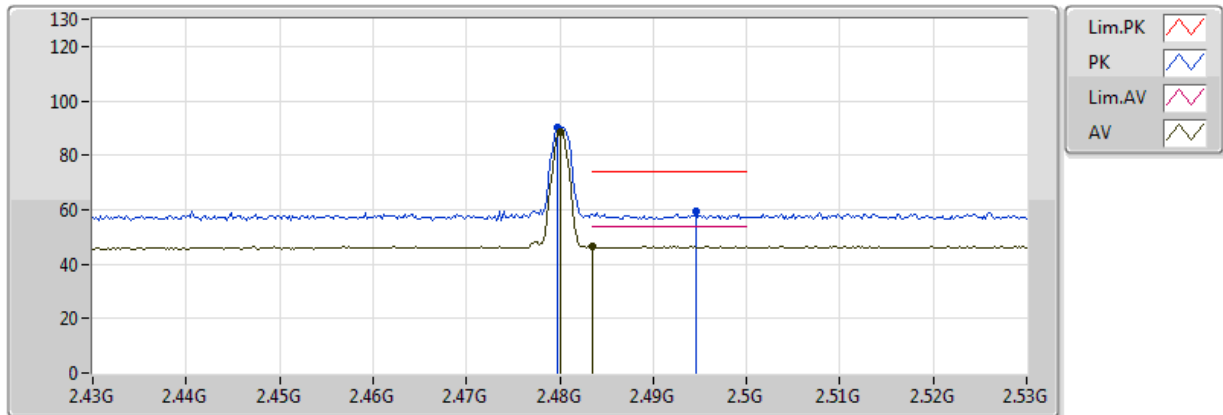


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	76.06	Inf	-Inf	30.78	3	Vertical	199	1.15	-	45.28	27.45	3.33	-
AV	2.4984G	46.49	54.00	-7.51	30.84	3	Vertical	199	1.15	-	15.64	27.50	3.35	-
PK	2.4798G	77.87	Inf	-Inf	30.78	3	Vertical	199	1.15	-	47.10	27.45	3.33	-

BT-LE(1Mbps)

2480MHz_TX

19/12/2017

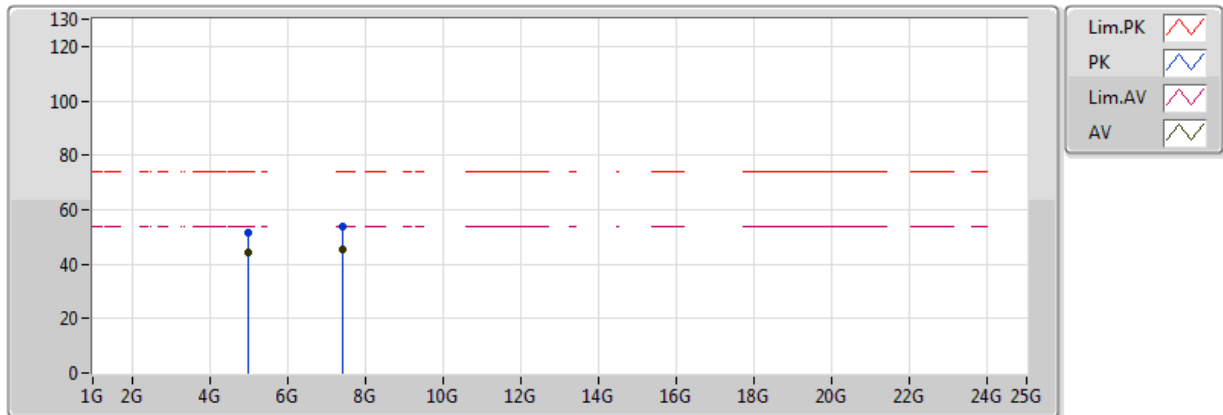


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	88.80	Inf	-Inf	30.78	3	Horizontal	12	2.75	-	58.02	27.45	3.33	-
AV	2.483502G	46.61	54.00	-7.39	30.79	3	Horizontal	12	2.75	-	15.82	27.46	3.33	-
PK	2.4798G	90.20	Inf	-Inf	30.78	3	Horizontal	12	2.75	-	59.42	27.45	3.33	-
PK	2.4946G	59.15	74.00	-14.85	30.83	3	Horizontal	12	2.75	-	28.32	27.49	3.34	-

BT-LE(1Mbps)

2480MHz_TX

19/12/2017

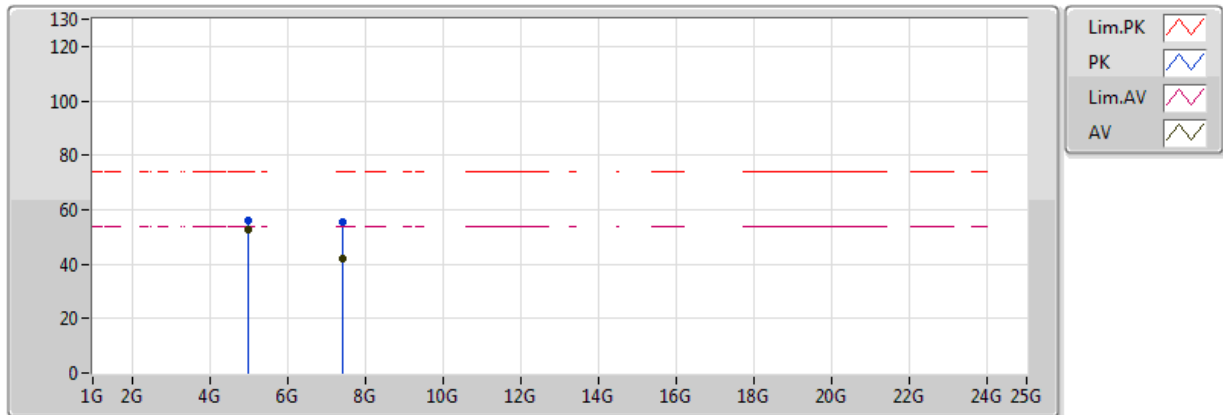


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.999G	44.25	54.00	-9.75	6.30	3	Vertical	344	1.21	-	37.95	31.50	4.61	29.81
AV	7.44G	45.44	54.00	-8.56	11.62	3	Vertical	352	1.50	-	33.82	36.28	6.23	30.89
PK	4.999G	51.32	74.00	-22.68	6.30	3	Vertical	344	1.21	-	45.02	31.50	4.61	29.81
PK	7.44G	54.07	74.00	-19.93	11.62	3	Vertical	352	1.50	-	42.45	36.28	6.23	30.89

BT-LE(1Mbps)

2480MHz_TX

19/12/2017



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	4.999G	52.88	54.00	-1.12	6.30	3	Horizontal	10	1.65	-	46.58	31.50	4.61	29.81
AV	7.44G	41.96	54.00	-12.04	11.62	3	Horizontal	352	1.50	-	30.34	36.28	6.23	30.89
PK	4.999G	56.11	74.00	-17.89	6.30	3	Horizontal	10	1.65	-	49.81	31.50	4.61	29.81
PK	7.44G	55.46	74.00	-18.54	11.62	3	Horizontal	352	1.50	-	43.84	36.28	6.23	30.89