



FCC Test Report

FCC ID : RWO-RZ350259
Equipment : Smartphone
Brand Name : RAZER
Model Name : RZ35-0259
Applicant : Razer Inc.
201 3rd Street, Suite 900, San Francisco,
CA 94103, USA
Manufacturer : Razer Inc.
201 3rd Street, Suite 900, San Francisco,
CA 94103, USA
Standard : 47 CFR FCC Part 15.247

The product was received on Nov. 11, 2017, and testing was started from Sep. 06, 2018 and completed on Sep. 11, 2018. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, 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 report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

HISTORY OF THIS TEST REPORT3

SUMMARY OF TEST RESULT4

1 GENERAL DESCRIPTION5

1.1 Information.....5

1.2 Testing Applied Standards7

1.3 Testing Location Information7

1.4 Measurement Uncertainty7

2 TEST CONFIGURATION OF EUT.....8

2.1 Test Condition8

2.2 Test Channel Mode8

2.3 The Worst Case Measurement Configuration9

2.4 Accessories10

2.5 Support Equipment.....10

2.6 Test Setup Diagram11

3 TRANSMITTER TEST RESULT13

3.1 AC Power-line Conducted Emissions13

3.2 DTS Bandwidth.....14

3.3 Maximum Conducted Output Power15

3.4 Power Spectral Density17

3.5 Emissions in Non-restricted Frequency Bands18

3.6 Emissions in Restricted Frequency Bands.....19

4 TEST EQUIPMENT AND CALIBRATION DATA.....22

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 RESULTS OF RADIATED EMISSION CO-LOCATION

APPENDIX H. TEST PHOTOS

PHOTOGRAPHS OF EUT V01



History of this test report

Report No.	Version	Description	Issued Date
FR871722AL	01	Initial issue of report	Sep. 28, 2018



Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	FCC 15.203
3.1	15.207	AC Power-line Conducted Emissions	PASS	FCC 15.207
3.2	15.247(a)	DTS Bandwidth	PASS	≥500kHz
3.3	15.247(b)	Maximum Conducted Output Power	PASS	Power [dBm]:30
3.4	15.247(e)	Power Spectral Density	PASS	PSD [dBm/3kHz]:8
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	Non-Restricted Bands: >20 dBc
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: FCC 15.209

Reviewed by: Jackson Tsai

Report Producer: Michelle Tsai

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
2.4-2.4835GHz	BT-LE(2Mbps)	2.0	1TX

Note:

- ♦ Bluetooth LE uses a GFSK (1Mbps/2Mbps) modulation for DSSS.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector
1	1	-	-	PIFA Antenna	mini Murata
2	2	-	-	PIFA Antenna	mini Murata

Ant.	Port	Gain (dBi)					
		2.4G	Bluetooth	5G			
				UNII-1	UNII-2A	UNII-2C	UNII-3
1	1	1.4	1.4	-3.6	-2.5	-0.2	2.5
2	2	-1.7	-	-0.9	-0.8	0.3	-1.7

Note 1: The EUT has two antennas.

For 2.4GHz function:

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

Support diversity function and pre-tested on each single chain(Maximum Conducted Output Power).

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

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

For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX)

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

For 5GHz function:

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

Support diversity function and pre-tested on each single chain(Maximum Conducted Output Power).

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

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



1.1.3 EUT Information

Identify EUT	
SW	O-MRO-RC005-RZR
Operational Condition	
EUT Power Type	From AC Adapter / Battery
EUT Function	<input checked="" type="checkbox"/> Point-to-multipoint <input type="checkbox"/> Point-to-point
Type of EUT	
<input checked="" type="checkbox"/>	Stand-alone
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device)
	Combined Equipment - Brand Name / Model No.: ...
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems)
	Host System - Brand Name / Model No.: ...
<input type="checkbox"/>	Other:

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	0.63	2.007	393.75u	3k
BT-LE(2Mbps)	0.333	4.776	207.813u	10k

1.2 Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013
- ◆ KDB 558074 D01 v05

1.3 Testing Location Information

Testing Location				
<input checked="" type="checkbox"/>	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.				
<input type="checkbox"/>	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	Barry	24.3°C / 63%	11/Sep/2018
Radiated	03CH02-HY	Kevin	23.5°C / 59%	06/Sep/2018
AC Conduction	CO04-HY	Terry	23.5°C / 59%	06/Sep/2018

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%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	3.7V

2.2 Test Channel Mode




Test Software	QRCT
---------------	------

Mode	PowerSetting
BT-LE(1Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default
BT-LE(2Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	USB 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 Receiver Radiated Unwanted Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode	CTX		
1	USB Mode		
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 2.4GHz
2	Bluetooth+WLAN 5GHz

Refer to Sporton Test Report No.: FA871722 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.

2.4 Accessories

Accessories				
AC Adapter	Brand Name	Razer	Model Name	RC30-021501
	Power Rating	I/P: 100~240V,50/60Hz, 3A-5V, 2.67A-9V, 2.0A-12V		
Battery	Brand Name	Razer	Model Name	RC30-0259
	Power Rating	3.85 Vdc, 4000mAh	Type	Li-ion, Polymer
USB Cable	Brand Name	Razer	Model Name	RC30-02150705-0000
	Signal Line	1.0 meter, non-shielded cable, w/o ferrite core		
Audio Dongle	Brand Name	Razer	Model Name	RC30-02590400-0000
	Signal Line	0.10 meter, non-shielded cable, w/o ferrite core		

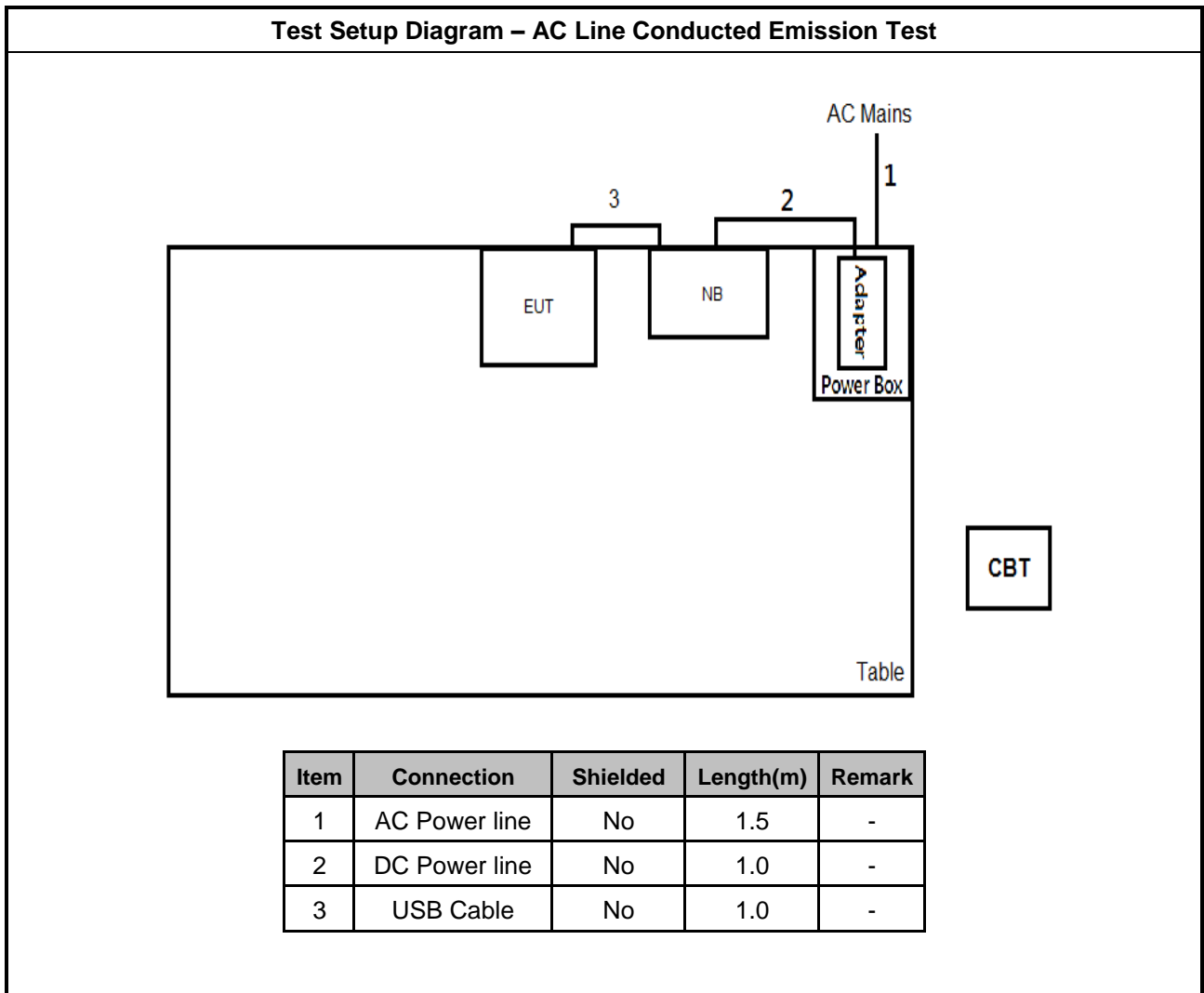
Reminder: Regarding to more detail and other information, please refer to user manual.

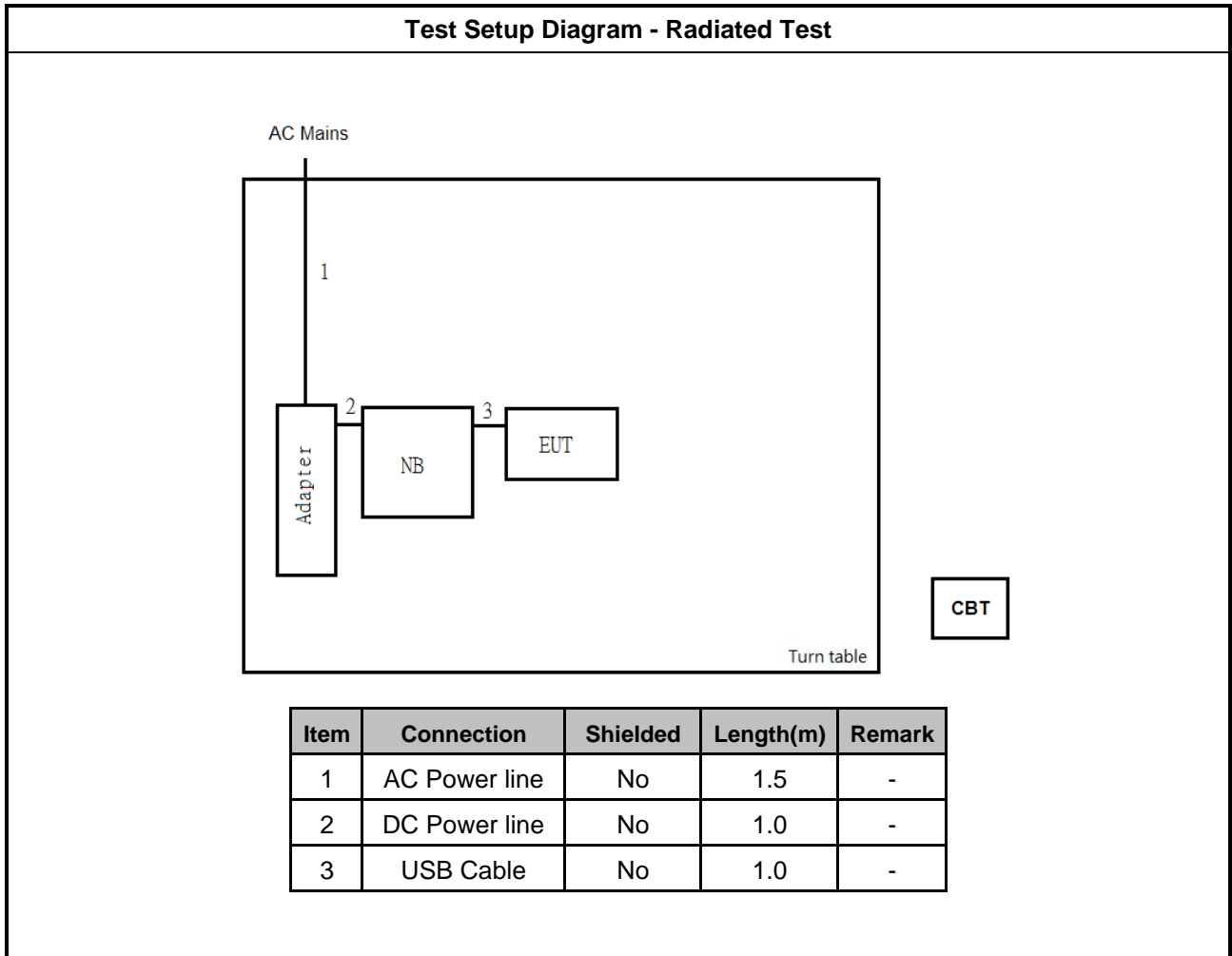
2.5 Support Equipment

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	DC Power Supply	GW	GPS-3030DD	-

Support Equipment – AC Conduction and Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	HP	Probook 5220m	-
2	AC adapter for NB	HP	PPP012H-S	-
3	Bluetooth Tester (Remote Workstation)	R&S	CBT	-

2.6 Test Setup Diagram





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.

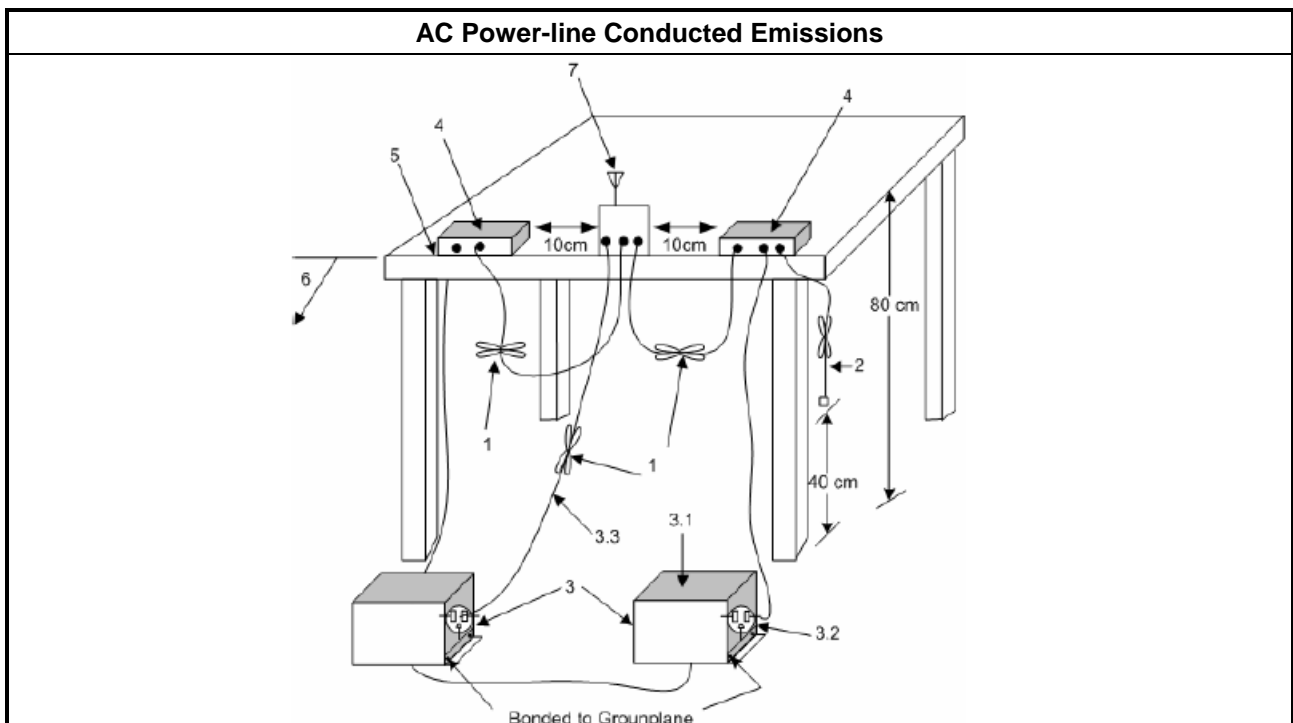
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method
<ul style="list-style-type: none"> 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:
<ul style="list-style-type: none"> ▪ 6 dB bandwidth \geq 500 kHz.

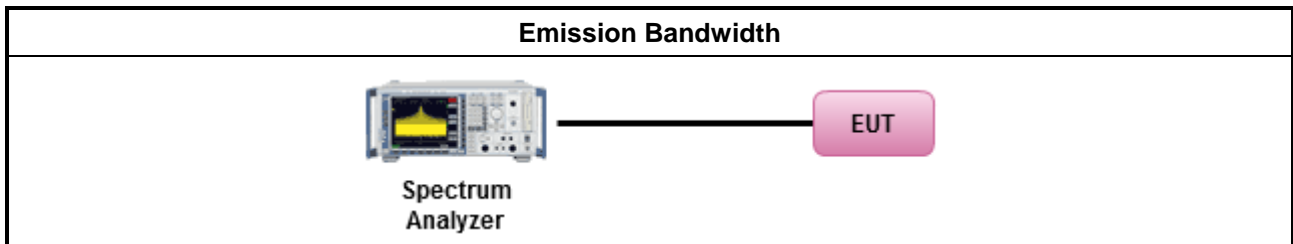
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
<ul style="list-style-type: none"> ▪ For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/> Refer as KDB 558074, clause 8.2 (11.9.2.2 of ANSI C63.10) DTS bandwidth measurement.
<input type="checkbox"/> Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
<input type="checkbox"/> 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	
	<ul style="list-style-type: none"> ▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS):
	<ul style="list-style-type: none"> - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - 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:	
	<ul style="list-style-type: none"> ▪ 2400-2483.5 MHz Band
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS)
	<ul style="list-style-type: none"> - Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
<p>P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.</p>	

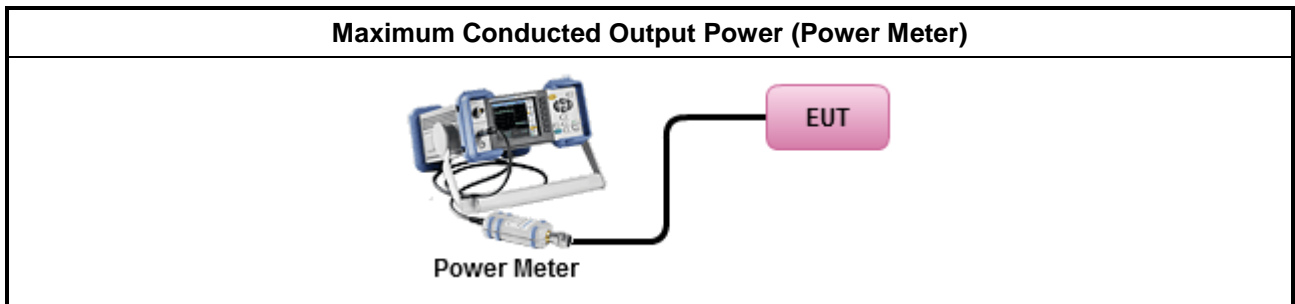
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ Maximum Peak Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
<ul style="list-style-type: none"> ▪ Maximum Average Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
<ul style="list-style-type: none"> ▪ For conducted measurement. 	
<ul style="list-style-type: none"> ▪ 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. 	
<ul style="list-style-type: none"> ▪ 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
<ul style="list-style-type: none"> Power Spectral Density (PSD) ≤ 8 dBm/3kHz

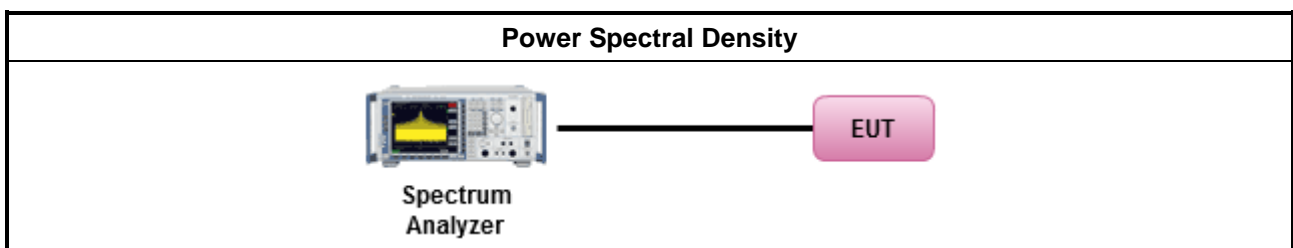
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method
<ul style="list-style-type: none"> 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).
<input checked="" type="checkbox"/> Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Method PKPSD.
<ul style="list-style-type: none"> For conducted measurement. <ul style="list-style-type: none"> If The EUT supports multiple transmit chains using options given below: <ul style="list-style-type: none"> 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.

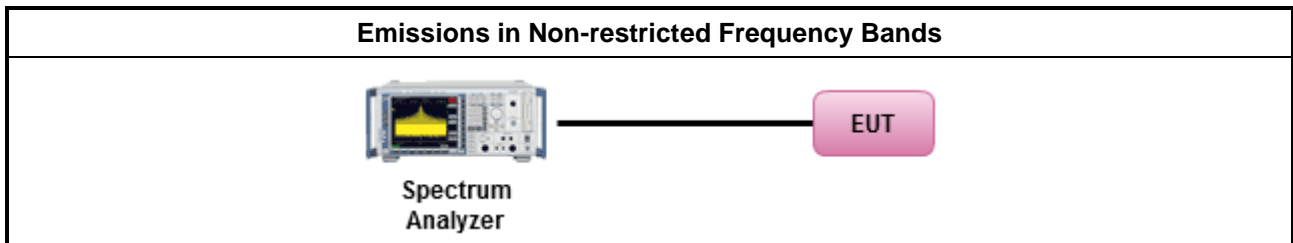
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
<ul style="list-style-type: none"> Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency 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.

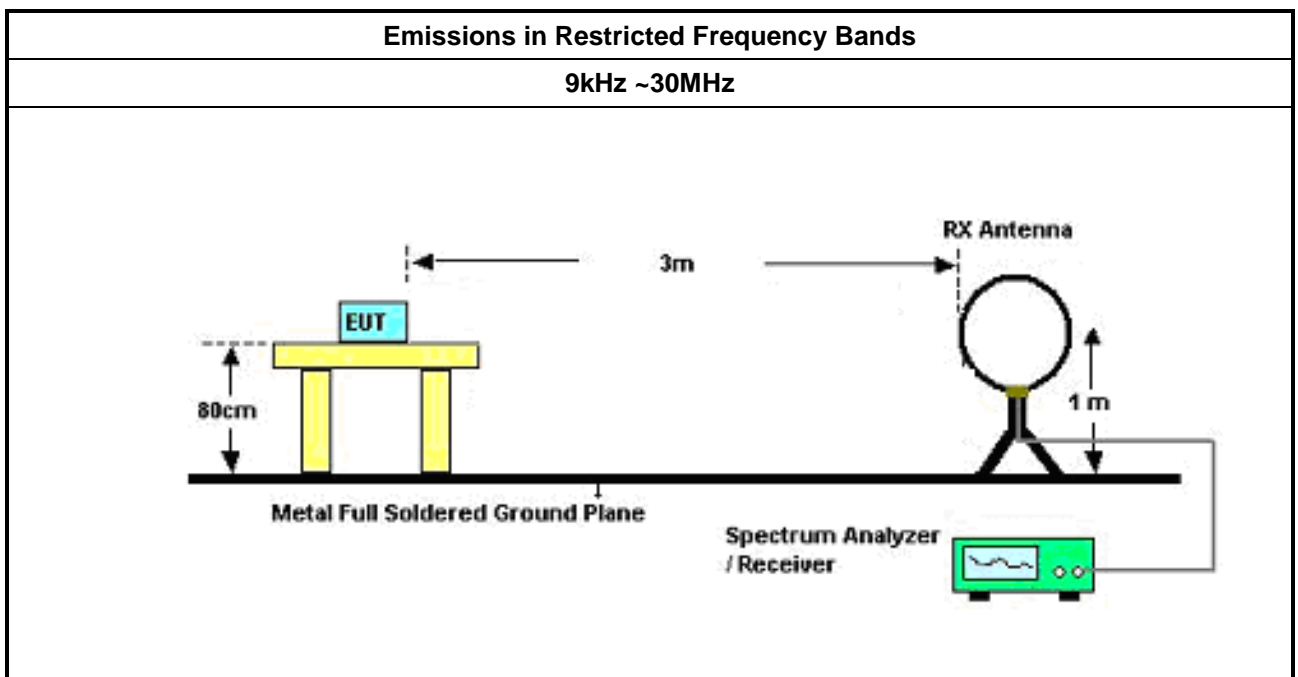
3.6.2 Measuring Instruments

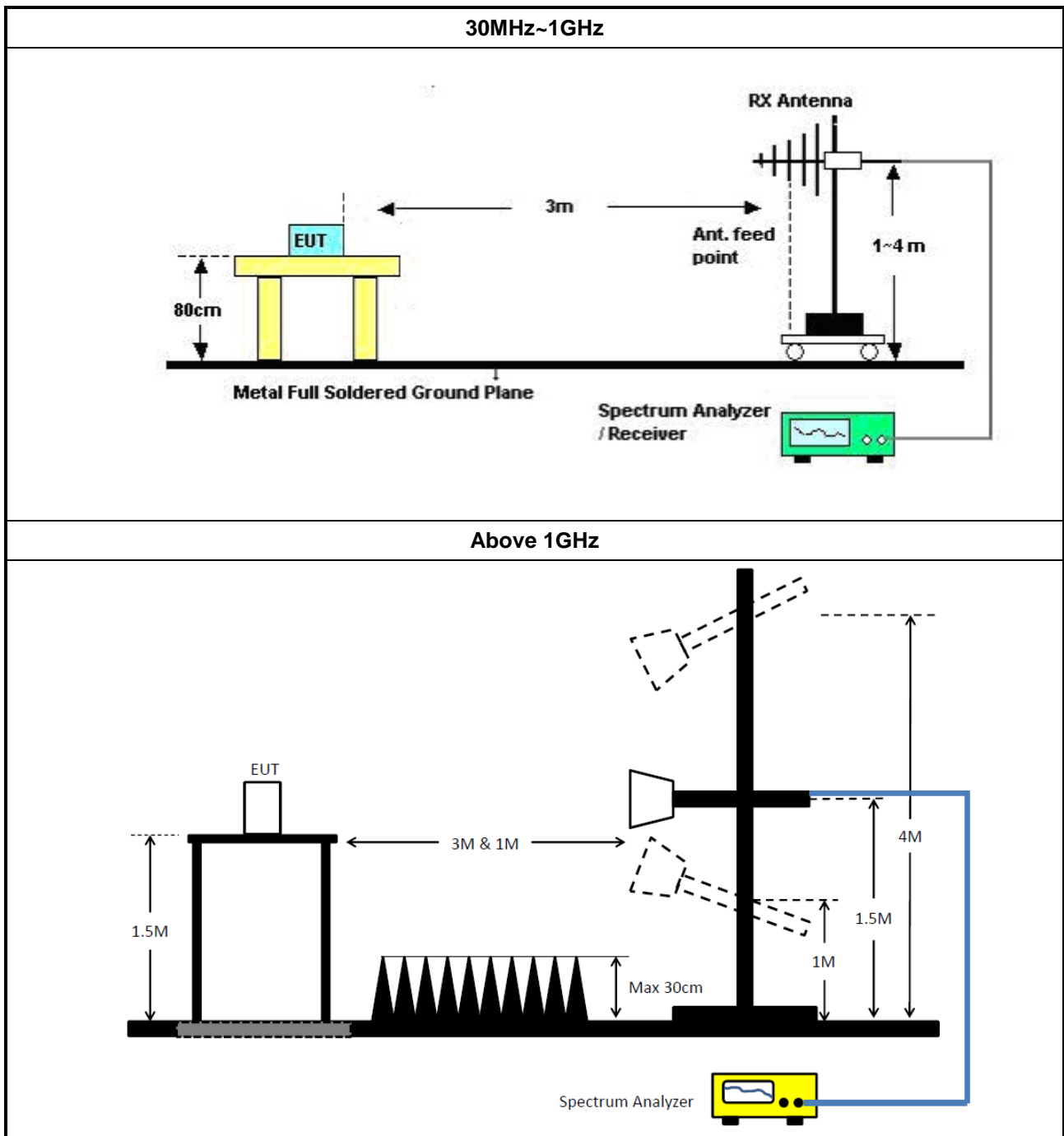
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
	<ul style="list-style-type: none"> The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
	<ul style="list-style-type: none"> 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.
	<ul style="list-style-type: none"> For the transmitter unwanted emissions shall be measured using following options below: <ul style="list-style-type: none"> Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
	<ul style="list-style-type: none"> For the transmitter band-edge emissions shall be measured using following options below: <ul style="list-style-type: none"> Refer as KDB 558074 clause 8.7.1, 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 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements. Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).

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	ESR	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/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

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	03CH02-HY	30MHz ~ 1GHz 3m	20/Oct/2017	19/Oct/2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz ~ 18GHz 3m	27/Oct/2017	26/Oct/2018
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	27Jul/2018	02/Jul/2019
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	28/Sep/2017	27/Sep/2018
Spectrum Analyzer	Rohde & Schwarz	FSP40	100593	9KHz - 40GHz	12/Dec/2017	11/Dec/2018
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100354	9kHz ~ 2.75GHz	08/Dec/2017	07/Dec/2018
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	19/Jan/2018	18/Jan/2019
RF Cable-high	SUHNER	SUCOFLEX104	MY34918/4	1GHz ~ 40GHz	19/Jan/2018	18/Jan/2019
Bilog Antenna	SCHAFFNER	CBL 6112B	2723	30MHz ~ 1GHz	09/Sep/2017	08/Sep/2018
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170154	18GHz ~ 40GHz	06/Feb/2018	05/Feb/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA 9120 D 1531	1GHz ~ 18GHz	18/Apr/ 2018	17/Apr/2019
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	24/Aug/2018	23/Aug/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	15GHz ~ 40GHz	12/Mar/2018	11/Mar/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 01543	1GHz ~ 18GHz	11/May/2018	10/May/2019



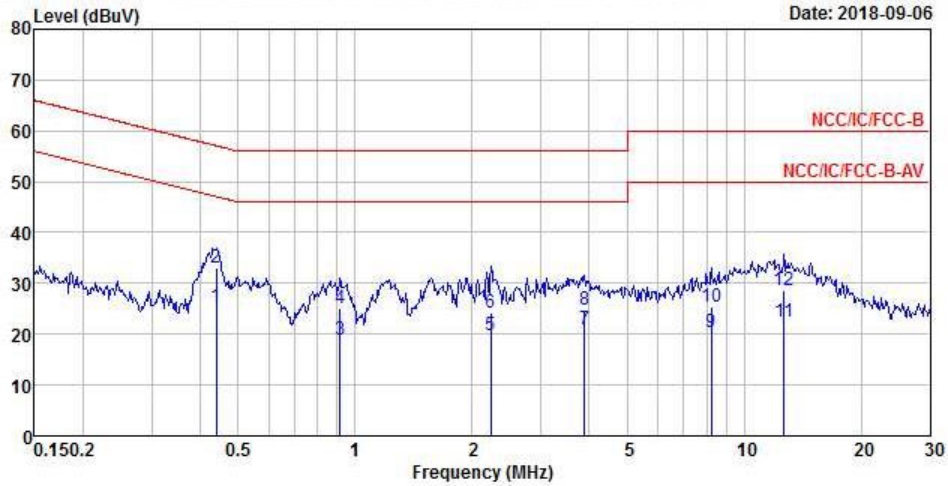
Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9kHz~40GHz	04/Jan/2018	03/Jan/2019
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	05/Feb/2018	04/Feb/2019
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	10/Feb/2017	09/Feb/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10710/4	30MHz ~ 26.5GHz	23/Aug/2018	22/Aug/2019
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	23/Aug/2018	22/Aug/2019
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10713/4	30MHz ~ 26.5GHz	23/Aug/2018	22/Aug/2019
Signal Generator	R&S	SMR100A	175727	10kHz ~ 40GHz	26/Oct/2017	25/Oct/2018



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	USB Mode		



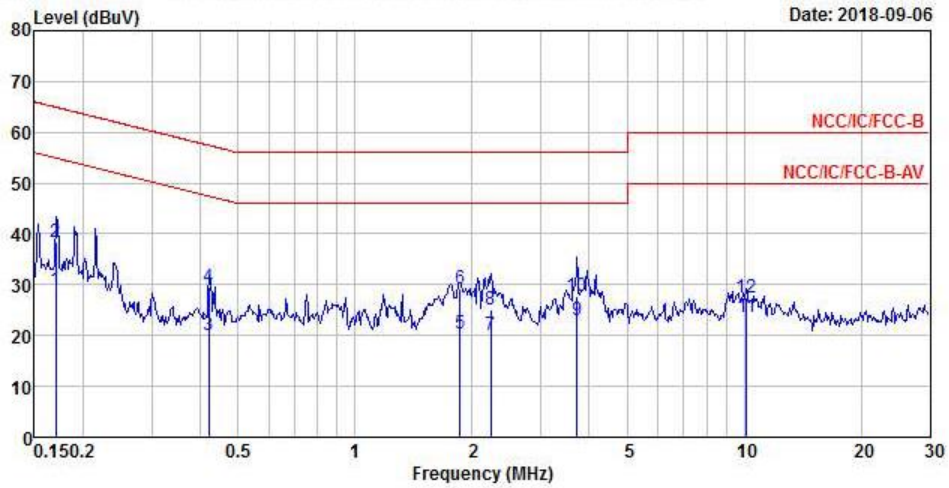
	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	MAX	0.44	25.40	-21.67	47.07	15.70	9.61	0.09 Average
2		0.44	33.01	-24.06	57.07	23.31	9.61	0.09 QP
3		0.91	18.96	-27.04	46.00	9.33	9.62	0.01 Average
4		0.91	25.05	-30.95	56.00	15.42	9.62	0.01 QP
5		2.24	19.73	-26.27	46.00	10.09	9.63	0.01 Average
6		2.24	24.29	-31.71	56.00	14.65	9.63	0.01 QP
7		3.88	20.81	-25.19	46.00	11.09	9.64	0.08 Average
8		3.88	24.81	-31.19	56.00	15.09	9.64	0.08 QP
9		8.24	20.34	-29.66	50.00	10.48	9.68	0.18 Average
10		8.24	25.30	-34.70	60.00	15.44	9.68	0.18 QP
11		12.65	22.45	-27.55	50.00	12.67	9.70	0.08 Average
12		12.65	28.59	-31.41	60.00	18.81	9.70	0.08 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	USB Mode		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.17	28.97	-25.97	54.94	19.33	9.62	0.02	Average
2	0.17	38.25	-26.69	64.94	28.61	9.62	0.02	QP
3	0.42	20.14	-27.28	47.42	10.44	9.61	0.09	Average
4	0.42	29.66	-27.76	57.42	19.96	9.61	0.09	QP
5	1.86	20.42	-25.58	46.00	10.80	9.62	0.00	Average
6	1.86	29.21	-26.79	56.00	19.59	9.62	0.00	QP
7	2.24	19.96	-26.04	46.00	10.33	9.62	0.01	Average
8	2.24	25.06	-30.94	56.00	15.43	9.62	0.01	QP
9 MAX	3.72	23.14	-22.86	46.00	13.43	9.63	0.08	Average
10	3.72	27.90	-28.10	56.00	18.19	9.63	0.08	QP
11	10.13	23.49	-26.51	50.00	13.64	9.66	0.19	Average
12	10.13	27.49	-32.51	60.00	17.64	9.66	0.19	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

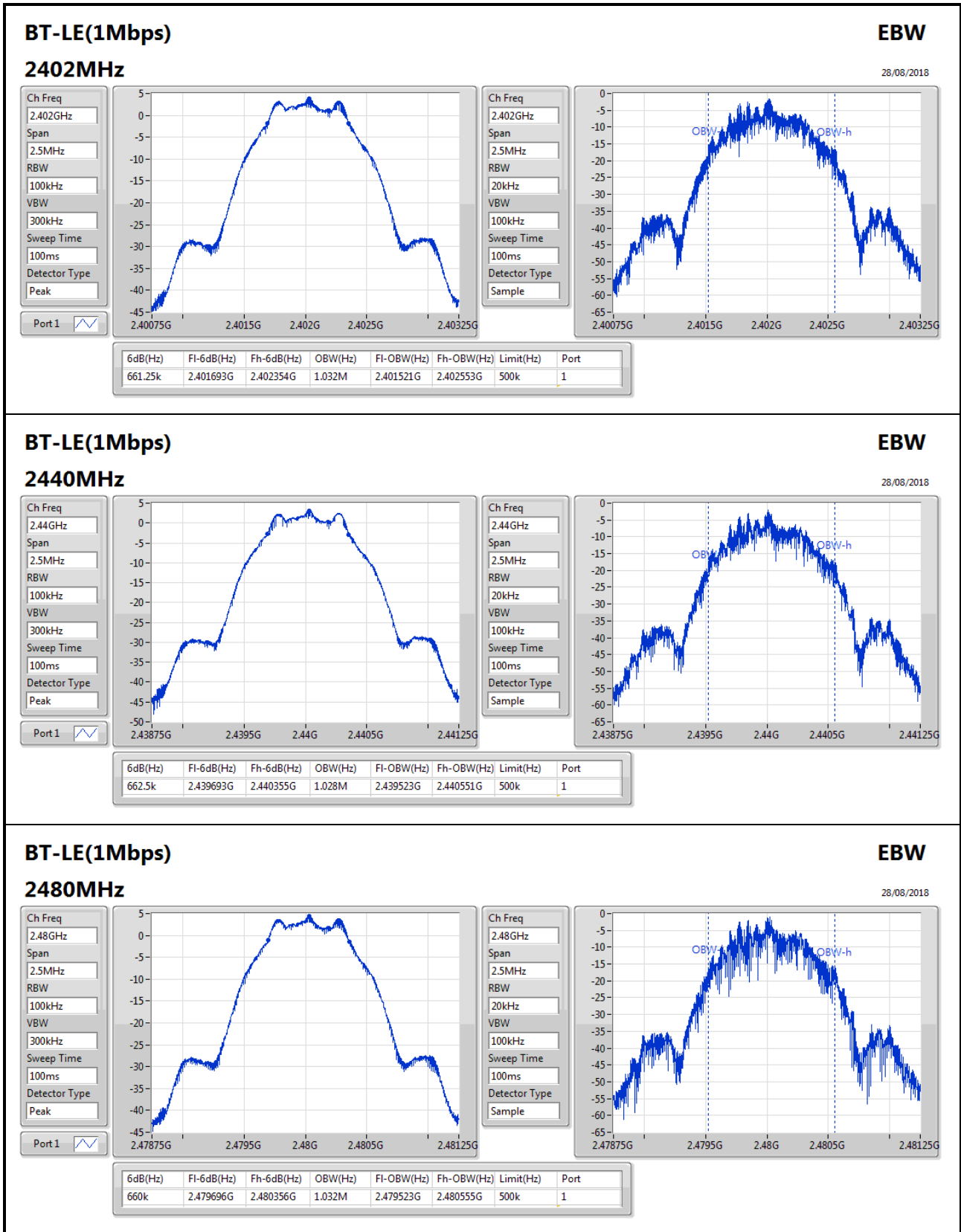
Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	662.5k	1.032M	1M03F1D	660k	1.028M
BT-LE(2Mbps)	1.14M	2.036M	2M04F1D	1.138M	2.031M

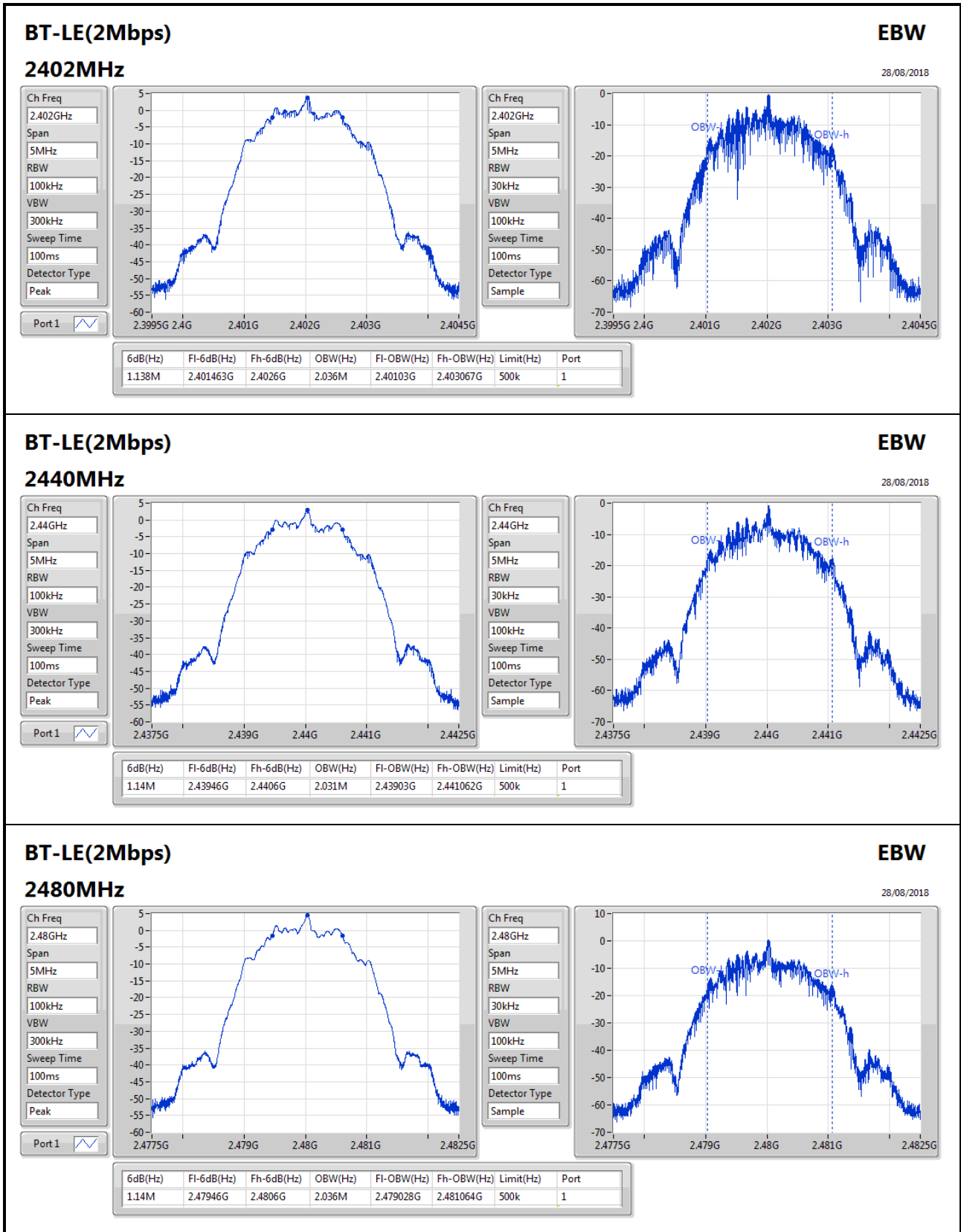
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;

Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	661.25k	1.032M
2440MHz_TnomVnom	Pass	500k	662.5k	1.028M
2480MHz_TnomVnom	Pass	500k	660k	1.032M
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	1.138M	2.036M
2440MHz_TnomVnom	Pass	500k	1.14M	2.031M
2480MHz_TnomVnom	Pass	500k	1.14M	2.036M

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




BT-LE(2Mbps)
EBW

28/08/2018

2480MHz

Ch Freq: 2.48GHz
Span: 5MHz
RBW: 100kHz
VBW: 300kHz
Sweep Time: 100ms
Detector Type: Peak

Ch Freq: 2.48GHz
Span: 5MHz
RBW: 30kHz
VBW: 100kHz
Sweep Time: 100ms
Detector Type: Sample



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	4.83	0.00304
BT-LE(2Mbps)	4.98	0.00315

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.40	4.25	30.00
2440MHz_TnomVnom	Pass	1.40	3.43	30.00
2480MHz_TnomVnom	Pass	1.40	4.83	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.40	4.47	30.00
2440MHz_TnomVnom	Pass	1.40	3.63	30.00
2480MHz_TnomVnom	Pass	1.40	4.98	30.00



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	4.06	0.00255
BT-LE(2Mbps)	3.57	0.00228

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.40	3.41	30.00
2440MHz_TnomVnom	Pass	1.40	2.62	30.00
2480MHz_TnomVnom	Pass	1.40	4.06	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.40	2.99	30.00
2440MHz_TnomVnom	Pass	1.40	2.08	30.00
2480MHz_TnomVnom	Pass	1.40	3.57	30.00



Summary

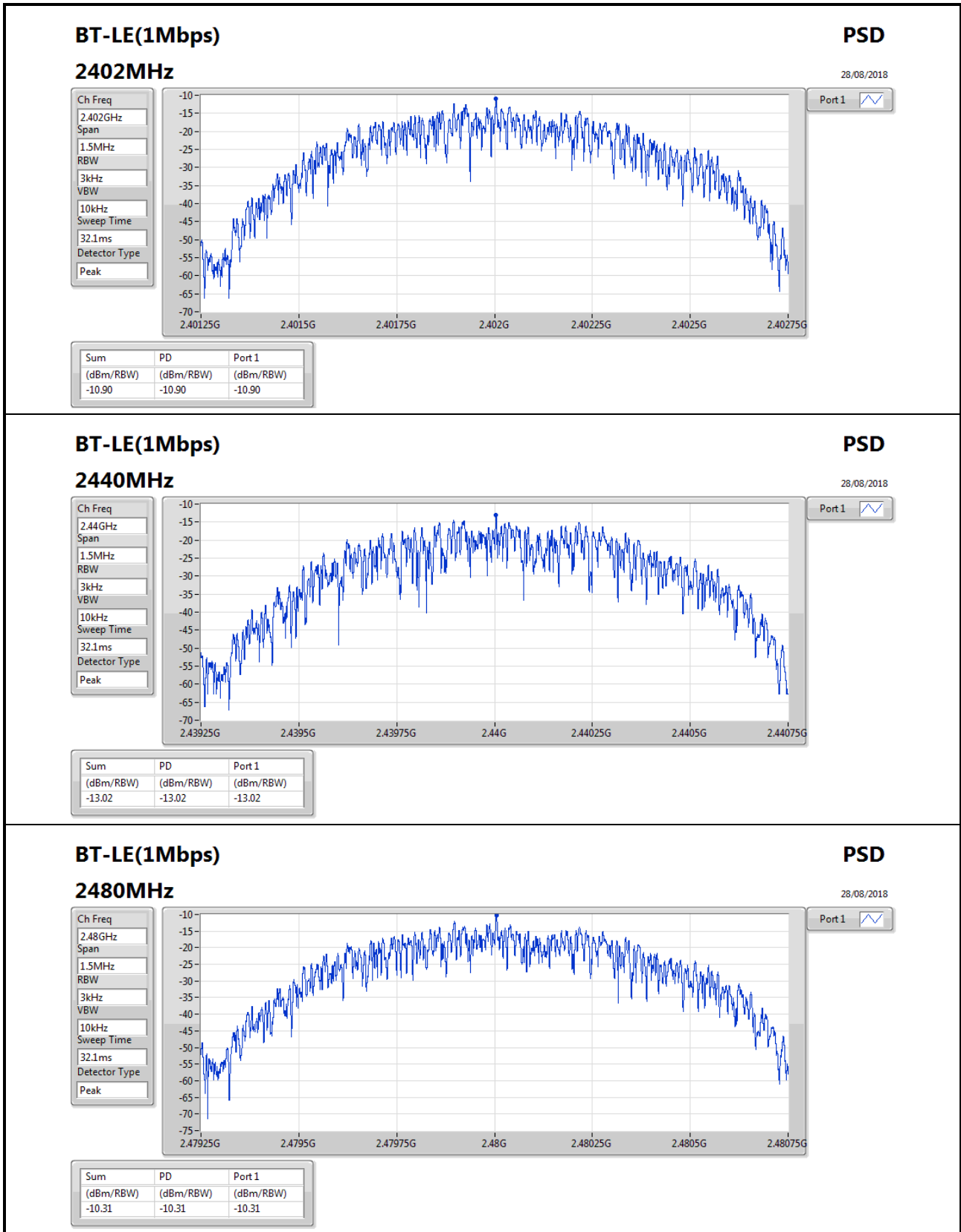
Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-10.31
BT-LE(2Mbps)	-14.38

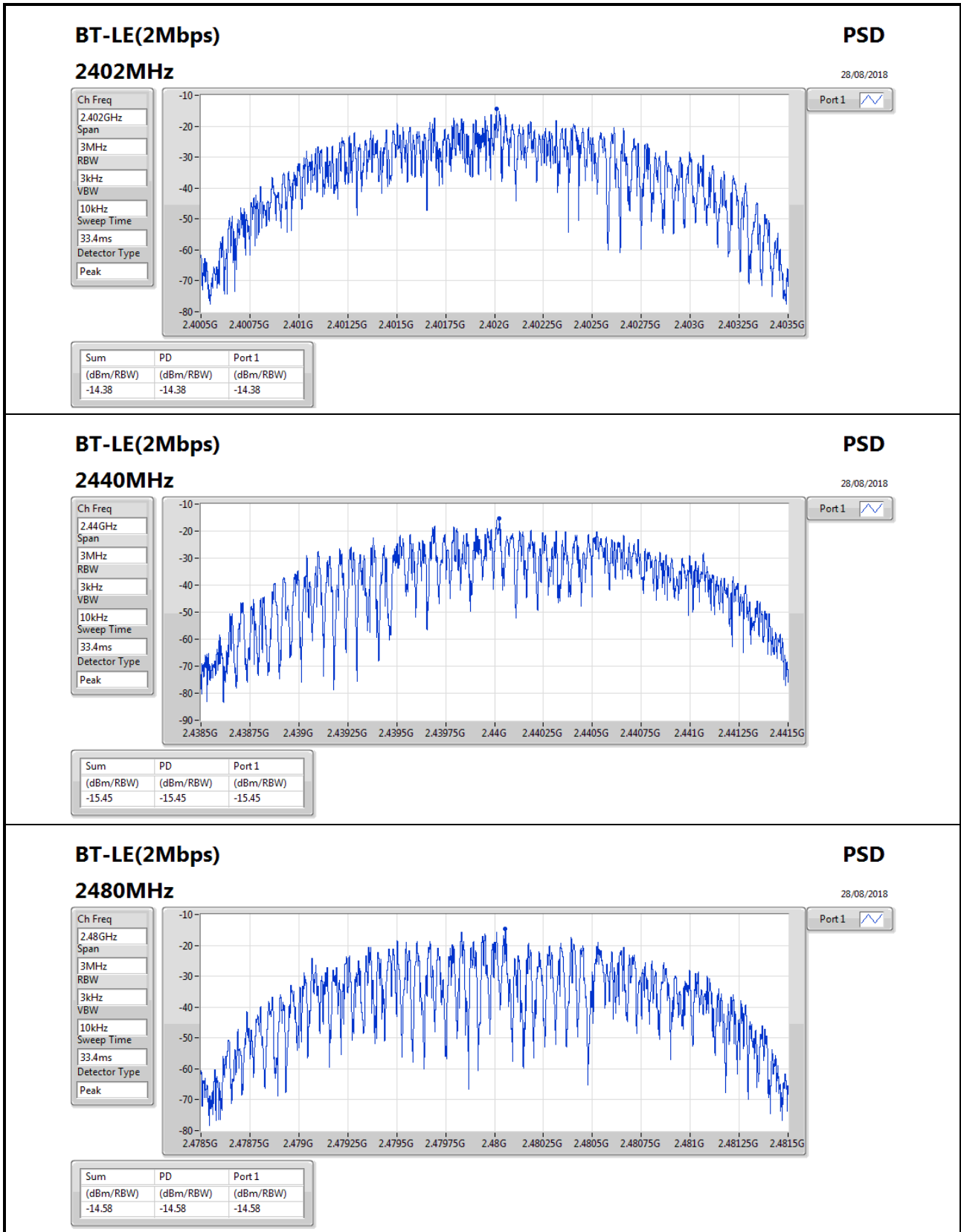
RBW=3kHz.

Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.40	-10.90	8.00
2440MHz_TnomVnom	Pass	1.40	-13.02	8.00
2480MHz_TnomVnom	Pass	1.40	-10.31	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	1.40	-14.38	8.00
2440MHz_TnomVnom	Pass	1.40	-15.45	8.00
2480MHz_TnomVnom	Pass	1.40	-14.58	8.00

RBW=3kHz.





BT-LE(2Mbps)

2480MHz

PSD

28/08/2018

Ch Freq
2.48GHz

Span
3MHz

RBW
3kHz

VBW
10kHz

Sweep Time
33.4ms

Detector Type
Peak

Port 1

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-14.58	-14.58	-14.58

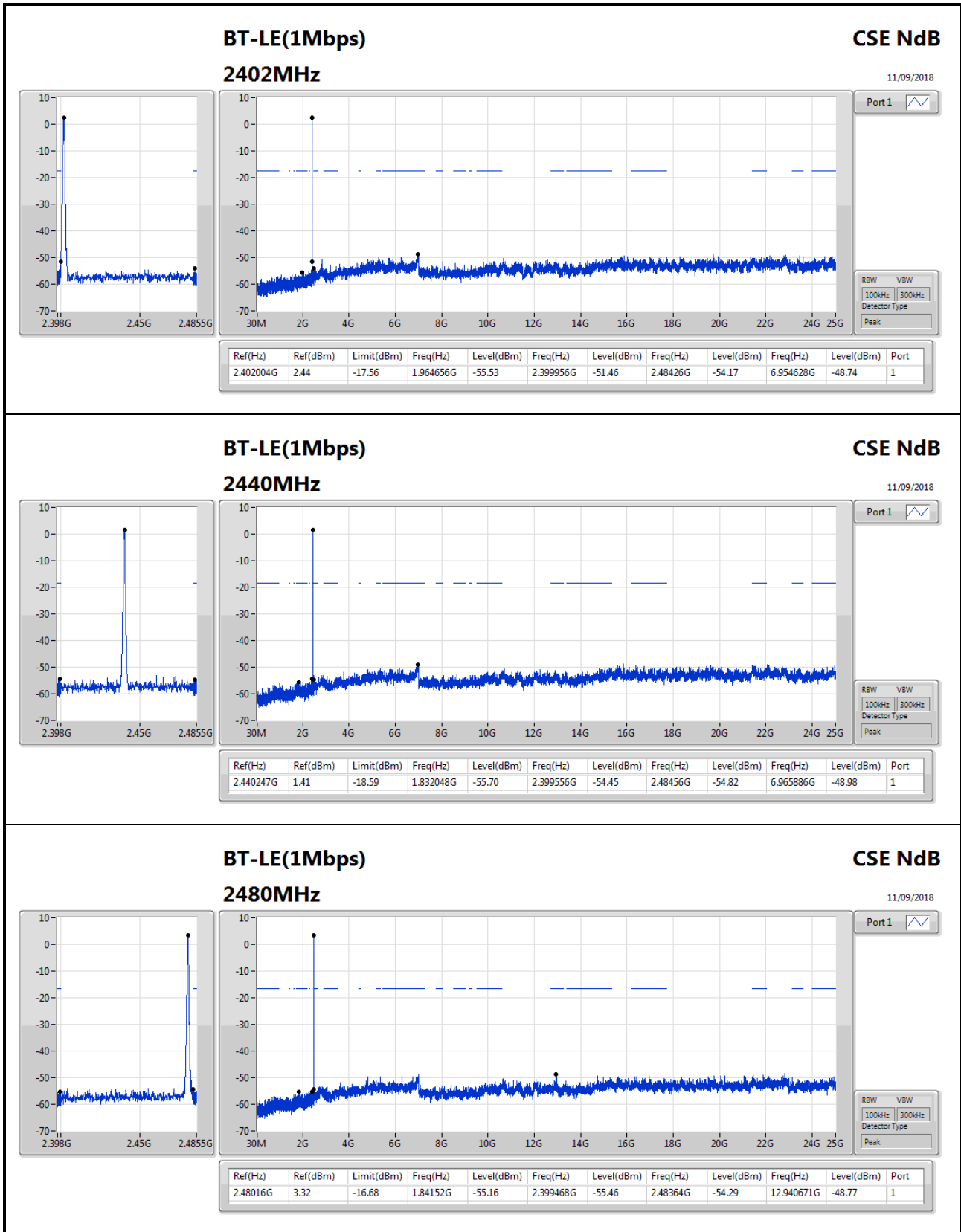


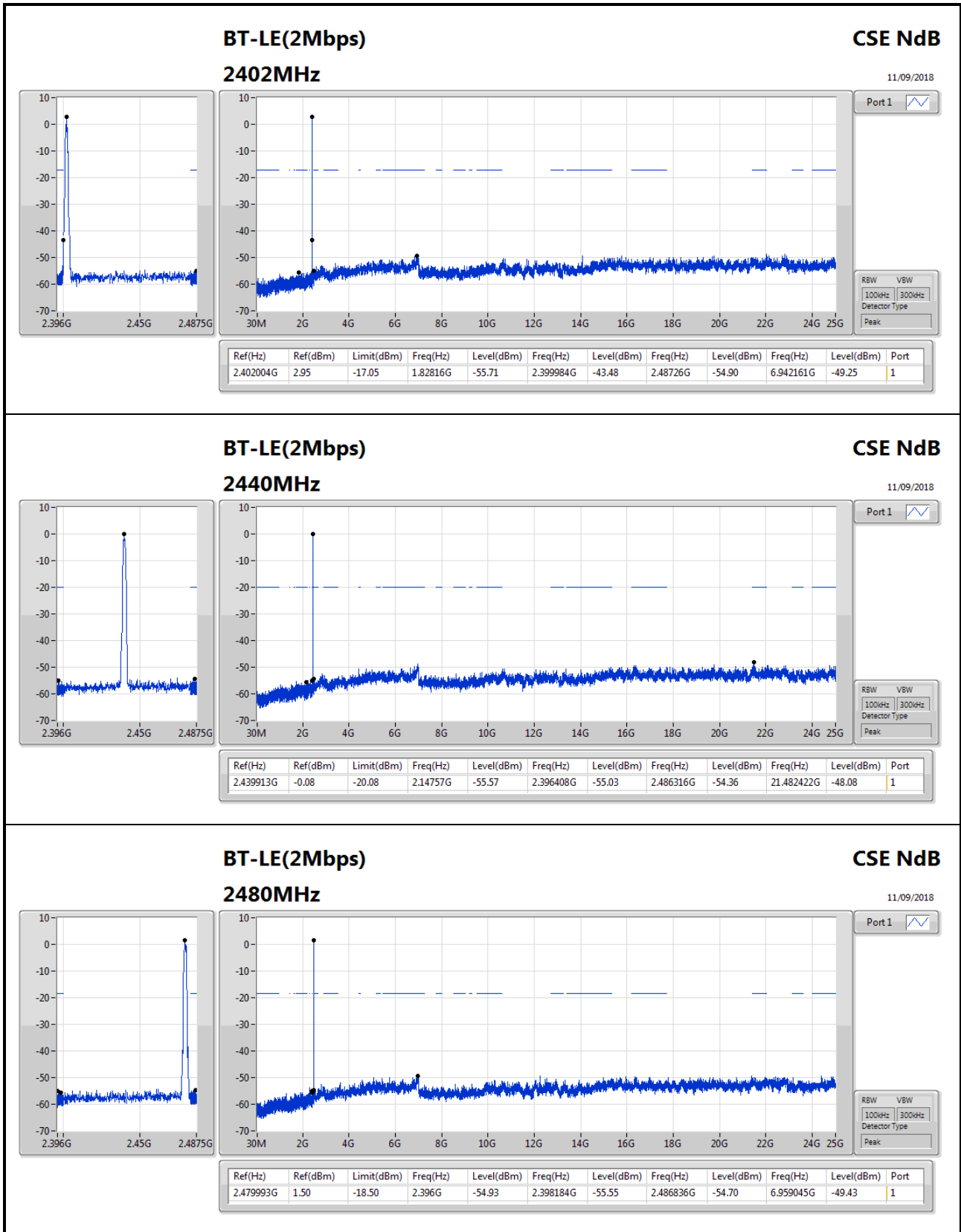
Summary

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	2.440247G	1.41	-18.59	1.832048G	-55.70	2.399556G	-54.45	2.48456G	-54.82	6.965886G	-48.98	1
BT-LE(2Mbps)	Pass	2.402004G	2.95	-17.05	1.82816G	-55.71	2.399984G	-43.48	2.48726G	-54.90	6.942161G	-49.25	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402004G	2.44	-17.56	1.964656G	-55.53	2.399956G	-51.46	2.48426G	-54.17	6.954628G	-48.74	1
2440MHz	Pass	2.440247G	1.41	-18.59	1.832048G	-55.70	2.399556G	-54.45	2.48456G	-54.82	6.965886G	-48.98	1
2480MHz	Pass	2.48016G	3.32	-16.68	1.84152G	-55.16	2.399468G	-55.46	2.48364G	-54.29	12.940671G	-48.77	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402004G	2.95	-17.05	1.82816G	-55.71	2.399984G	-43.48	2.48726G	-54.90	6.942161G	-49.25	1
2440MHz	Pass	2.439913G	-0.08	-20.08	2.14757G	-55.57	2.396408G	-55.03	2.486316G	-54.36	21.482422G	-48.08	1
2480MHz	Pass	2.479993G	1.50	-18.50	2.396G	-54.93	2.398184G	-55.55	2.486836G	-54.70	6.959045G	-49.43	1





BT-LE(2Mbps)

2480MHz

CSE NdB
11/09/2018

Port1

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.479993G	1.50	-18.50	2.396G	-54.93	2.398184G	-55.55	2.486836G	-54.70	6.959045G	-49.43	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	32.811594M	32.42	40.00	-7.58	-5.86	3	Vertical	360	1.00	-
BT-LE(2Mbps)	Pass	PK	245.34M	40.58	46.00	-5.42	-7.45	3	Horizontal	0	1.00	-

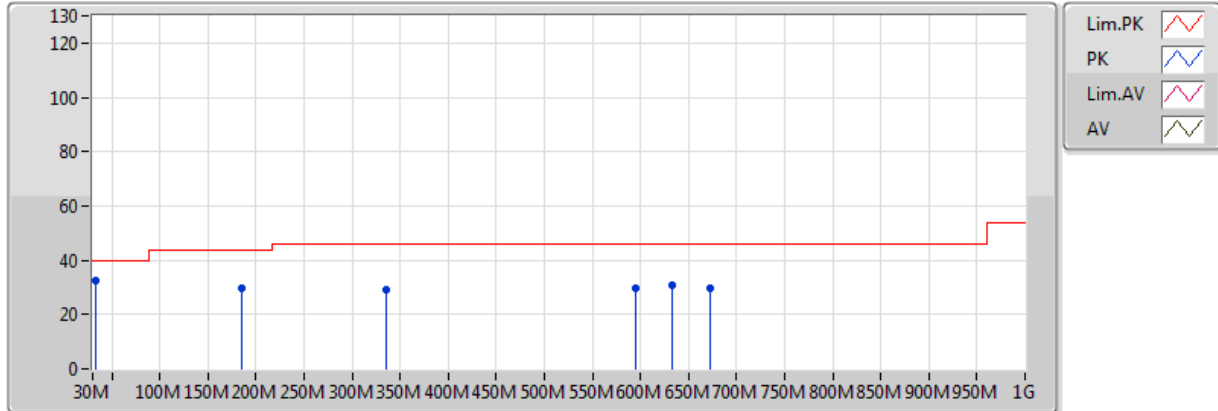
Result

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	32.811594M	32.42	40.00	-7.58	-5.86	3	Vertical	360	1.00	-
2440MHz	Pass	PK	184.637681M	29.65	43.50	-13.85	-10.93	3	Vertical	360	1.00	-
2440MHz	Pass	PK	335.057971M	29.31	46.00	-16.69	-5.27	3	Vertical	360	1.00	-
2440MHz	Pass	PK	595.130435M	29.74	46.00	-16.26	-0.93	3	Vertical	360	1.00	-
2440MHz	Pass	PK	633.086957M	30.75	46.00	-15.25	-0.23	3	Vertical	360	1.00	-
2440MHz	Pass	PK	672.449275M	29.79	46.00	-16.21	-0.25	3	Vertical	360	1.00	-
2440MHz	Pass	PK	32.811594M	27.40	40.00	-12.60	-5.86	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	145.275362M	23.24	43.50	-20.26	-9.94	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	181.826087M	29.02	43.50	-14.48	-10.91	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	211.347826M	28.49	43.50	-15.01	-10.59	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	256.333333M	25.98	46.00	-20.02	-6.06	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	332.246377M	33.96	46.00	-12.04	-5.34	3	Horizontal	0	1.00	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	30M	26.49	40.00	-13.51	-4.53	3	Vertical	360	1.00	-
2440MHz	Pass	PK	64.92M	31.35	40.00	-8.65	-15.44	3	Vertical	360	1.00	-
2440MHz	Pass	PK	175.5M	29.48	43.50	-14.02	-10.77	3	Vertical	360	1.00	-
2440MHz	Pass	PK	247.28M	33.29	46.00	-12.71	-7.26	3	Vertical	360	1.00	-
2440MHz	Pass	PK	353.98M	27.86	46.00	-18.14	-4.63	3	Vertical	360	1.00	-
2440MHz	Pass	PK	720.64M	30.84	46.00	-15.16	0.37	3	Vertical	360	1.00	-
2440MHz	Pass	PK	31.94M	27.33	40.00	-12.67	-5.45	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	66.86M	31.69	40.00	-8.31	-15.35	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	173.56M	37.80	43.50	-5.70	-10.70	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	245.34M	40.58	46.00	-5.42	-7.45	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	309.36M	34.96	46.00	-11.04	-5.42	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	722.58M	32.66	46.00	-13.34	0.44	3	Horizontal	0	1.00	-

BT-LE(1Mbps)

2440MHz_USB

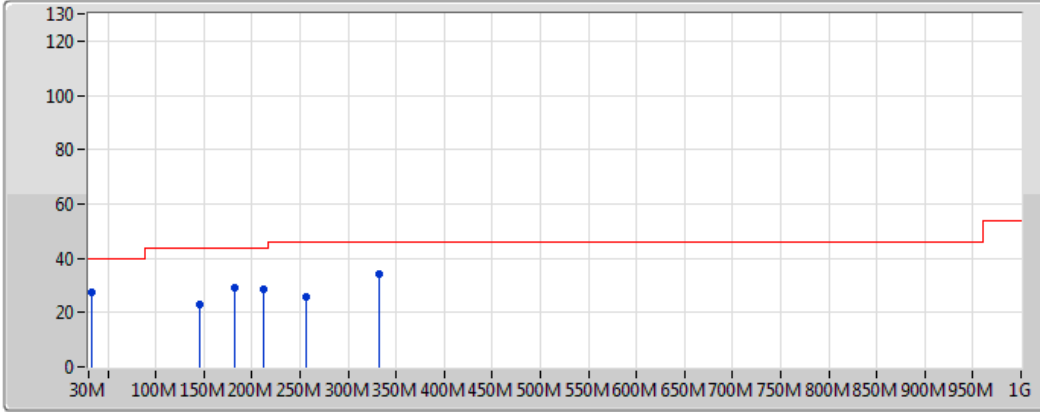
25/08/2018







Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	32.811594M	32.42	40.00	-7.58	-5.86	3	Vertical	360	1.00	-
PK	184.637681M	29.65	43.50	-13.85	-10.93	3	Vertical	360	1.00	-
PK	335.057971M	29.31	46.00	-16.69	-5.27	3	Vertical	360	1.00	-
PK	595.130435M	29.74	46.00	-16.26	-0.93	3	Vertical	360	1.00	-
PK	633.086957M	30.75	46.00	-15.25	-0.23	3	Vertical	360	1.00	-
PK	672.449275M	29.79	46.00	-16.21	-0.25	3	Vertical	360	1.00	-

BT-LE(1Mbps)
2440MHz_USB

25/08/2018



Legend:

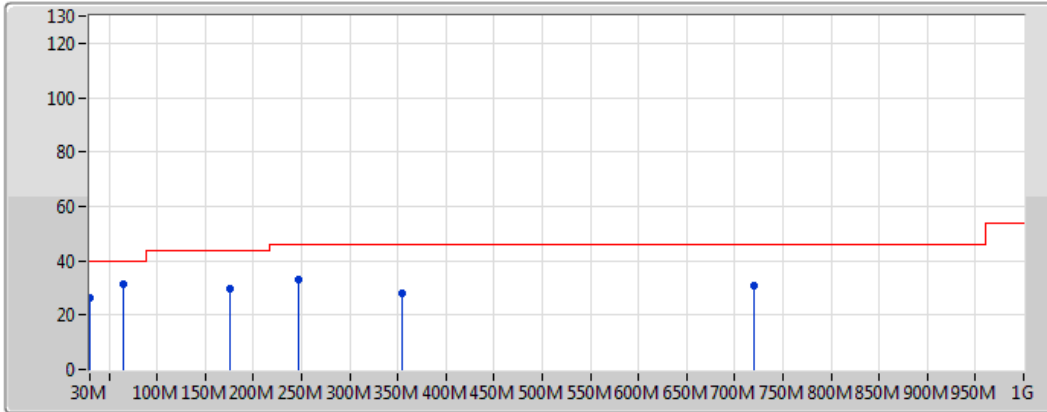
- Lim.PK 
- PK 
- Lim.AV 
- AV 

Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	32.811594M	27.40	40.00	-12.60	-5.86	3	Horizontal	0	1.00	-
PK	145.275362M	23.24	43.50	-20.26	-9.94	3	Horizontal	0	1.00	-
PK	181.826087M	29.02	43.50	-14.48	-10.91	3	Horizontal	0	1.00	-
PK	211.347826M	28.49	43.50	-15.01	-10.59	3	Horizontal	0	1.00	-
PK	256.333333M	25.98	46.00	-20.02	-6.06	3	Horizontal	0	1.00	-
PK	332.246377M	33.96	46.00	-12.04	-5.34	3	Horizontal	0	1.00	-

BT-LE(2Mbps)

2440MHz_USB

30/08/2018

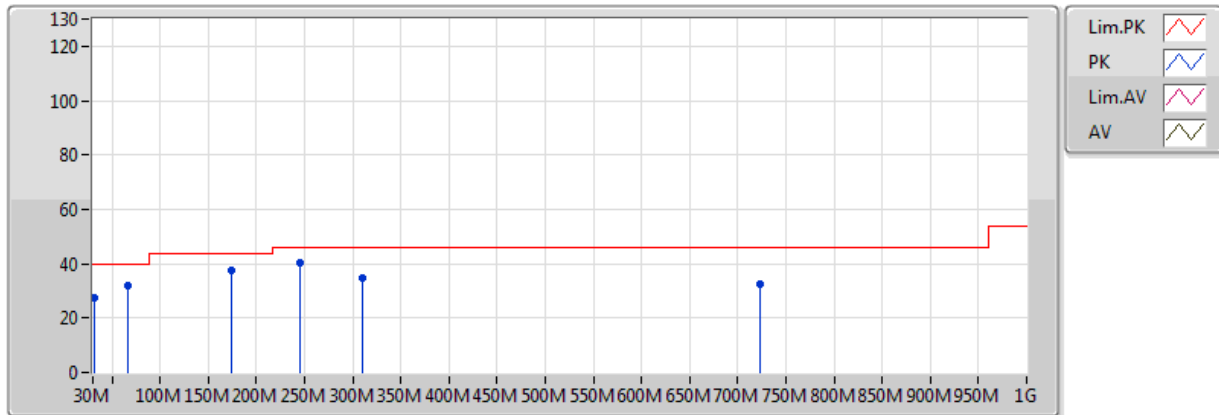


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	30M	26.49	40.00	-13.51	-4.53	3	Vertical	360	1.00	-
PK	64.92M	31.35	40.00	-8.65	-15.44	3	Vertical	360	1.00	-
PK	175.5M	29.48	43.50	-14.02	-10.77	3	Vertical	360	1.00	-
PK	247.28M	33.29	46.00	-12.71	-7.26	3	Vertical	360	1.00	-
PK	353.98M	27.86	46.00	-18.14	-4.63	3	Vertical	360	1.00	-
PK	720.64M	30.84	46.00	-15.16	0.37	3	Vertical	360	1.00	-

BT-LE(2Mbps)

2440MHz_USB

30/08/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	31.94M	27.33	40.00	-12.67	-5.45	3	Horizontal	0	1.00	-
PK	66.86M	31.69	40.00	-8.31	-15.35	3	Horizontal	0	1.00	-
PK	173.56M	37.80	43.50	-5.70	-10.70	3	Horizontal	0	1.00	-
PK	245.34M	40.58	46.00	-5.42	-7.45	3	Horizontal	0	1.00	-
PK	309.36M	34.96	46.00	-11.04	-5.42	3	Horizontal	0	1.00	-
PK	722.58M	32.66	46.00	-13.34	0.44	3	Horizontal	0	1.00	-



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	2.499998G	48.39	54.00	-5.61	32.67	3	Vertical	277	2.17	-
BT-LE(2Mbps)	Pass	AV	2.4984G	48.79	54.00	-5.21	32.67	3	Vertical	193	1.49	-

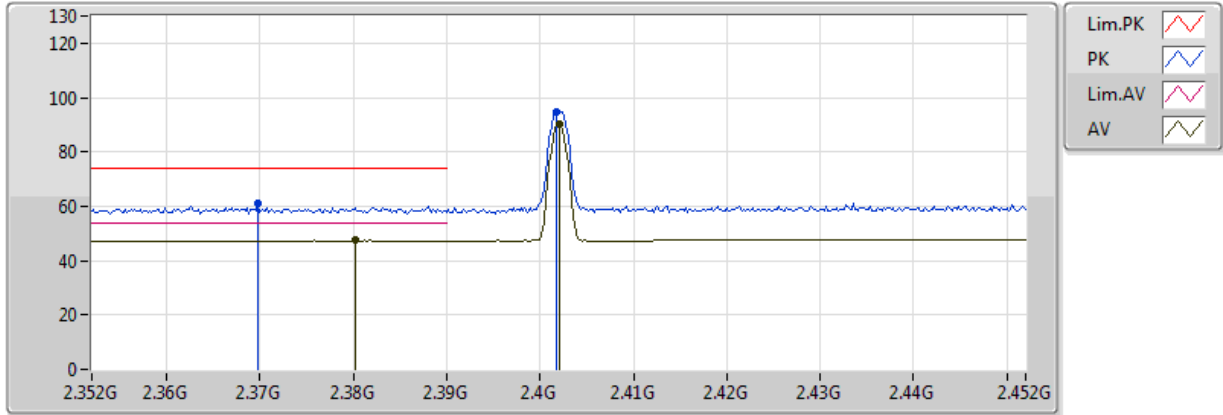


Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2402MHz	Pass	PK	2.3524G	60.79	74.00	-13.21	32.14	3	Horizontal	222	1.15	-
2402MHz	Pass	PK	2.4022G	94.50	Inf	-Inf	32.32	3	Horizontal	222	1.15	-
2402MHz	Pass	AV	4.8169G	33.10	54.00	-20.90	3.01	3	Vertical	60	1.55	-
2402MHz	Pass	PK	4.8133G	45.63	74.00	-28.37	3.00	3	Vertical	60	1.55	-
2402MHz	Pass	AV	4.81876G	33.13	54.00	-20.87	3.01	3	Horizontal	298	2.12	-
2402MHz	Pass	PK	4.81204G	45.81	74.00	-28.19	3.00	3	Horizontal	298	2.12	-
2440MHz	Pass	AV	2.3896G	47.82	54.00	-6.18	32.28	3	Vertical	193	1.49	-
2440MHz	Pass	AV	2.44G	89.63	Inf	-Inf	32.46	3	Vertical	193	1.49	-
2440MHz	Pass	AV	2.4984G	48.79	54.00	-5.21	32.67	3	Vertical	193	1.49	-
2440MHz	Pass	PK	2.3864G	60.21	74.00	-13.79	32.26	3	Vertical	193	1.49	-
2440MHz	Pass	PK	2.4396G	93.01	Inf	-Inf	32.46	3	Vertical	193	1.49	-
2440MHz	Pass	PK	2.488G	61.78	74.00	-12.22	32.63	3	Vertical	193	1.49	-
2440MHz	Pass	AV	2.3816G	47.77	54.00	-6.23	32.25	3	Horizontal	347	1.24	-
2440MHz	Pass	AV	2.44G	89.74	Inf	-Inf	32.46	3	Horizontal	347	1.24	-
2440MHz	Pass	AV	2.4992G	48.79	54.00	-5.21	32.67	3	Horizontal	347	1.24	-
2440MHz	Pass	PK	2.3588G	60.16	74.00	-13.84	32.16	3	Horizontal	347	1.24	-
2440MHz	Pass	PK	2.4396G	93.40	Inf	-Inf	32.46	3	Horizontal	347	1.24	-
2440MHz	Pass	PK	2.4956G	61.19	74.00	-12.81	32.65	3	Horizontal	347	1.24	-
2440MHz	Pass	AV	4.87184G	33.47	54.00	-20.53	3.13	3	Vertical	98	1.41	-
2440MHz	Pass	PK	4.88108G	46.34	74.00	-27.66	3.17	3	Vertical	98	1.41	-
2440MHz	Pass	AV	4.8734G	33.44	54.00	-20.56	3.13	3	Horizontal	213	1.50	-
2440MHz	Pass	PK	4.86752G	45.92	74.00	-28.08	3.12	3	Horizontal	213	1.50	-
2480MHz	Pass	AV	2.48G	89.60	Inf	-Inf	32.60	3	Vertical	359	1.50	-
2480MHz	Pass	AV	2.4994G	48.54	54.00	-5.46	32.67	3	Vertical	359	1.50	-
2480MHz	Pass	PK	2.4798G	94.00	Inf	-Inf	32.60	3	Vertical	359	1.50	-
2480MHz	Pass	PK	2.484G	61.06	74.00	-12.94	32.61	3	Vertical	359	1.50	-
2480MHz	Pass	AV	2.48G	90.71	Inf	-Inf	32.60	3	Horizontal	197	1.50	-
2480MHz	Pass	AV	2.4988G	48.79	54.00	-5.21	32.67	3	Horizontal	197	1.50	-
2480MHz	Pass	PK	2.4798G	94.14	Inf	-Inf	32.60	3	Horizontal	197	1.50	-
2480MHz	Pass	PK	2.4994G	60.98	74.00	-13.02	32.67	3	Horizontal	197	1.50	-
2480MHz	Pass	AV	4.97404G	33.49	54.00	-20.51	3.35	3	Vertical	274	1.46	-
2480MHz	Pass	PK	4.96174G	46.06	74.00	-27.94	3.33	3	Vertical	274	1.46	-
2480MHz	Pass	AV	4.97062G	33.45	54.00	-20.55	3.35	3	Horizontal	169	1.86	-
2480MHz	Pass	PK	4.96G	46.05	74.00	-27.95	3.33	3	Horizontal	169	1.86	-

BT-LE(1Mbps)

2402MHz_TX

24/08/2018

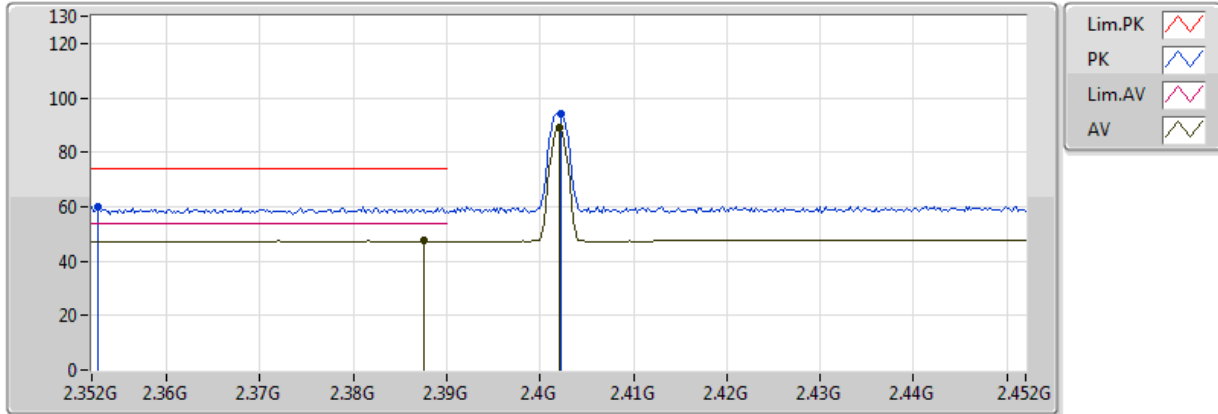


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3802G	47.37	54.00	-6.63	32.24	3	Vertical	173	2.57	-
AV	2.402G	90.09	Inf	-Inf	32.31	3	Vertical	173	2.57	-
PK	2.3698G	61.03	74.00	-12.97	32.20	3	Vertical	173	2.57	-
PK	2.4018G	94.87	Inf	-Inf	32.31	3	Vertical	173	2.57	-

BT-LE(1Mbps)

2402MHz_TX

24/08/2018

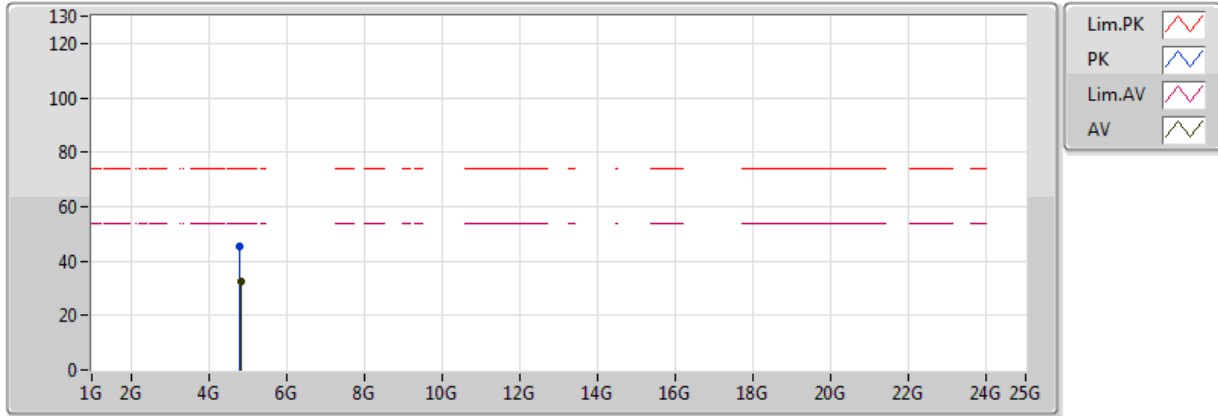


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3876G	47.40	54.00	-6.60	32.27	3	Horizontal	218	1.58	-
AV	2.402G	88.82	Inf	-Inf	32.31	3	Horizontal	218	1.58	-
PK	2.3526G	60.08	74.00	-13.92	32.14	3	Horizontal	218	1.58	-
PK	2.4022G	93.95	Inf	-Inf	32.32	3	Horizontal	218	1.58	-

BT-LE(1Mbps)

2402MHz_TX

24/08/2018

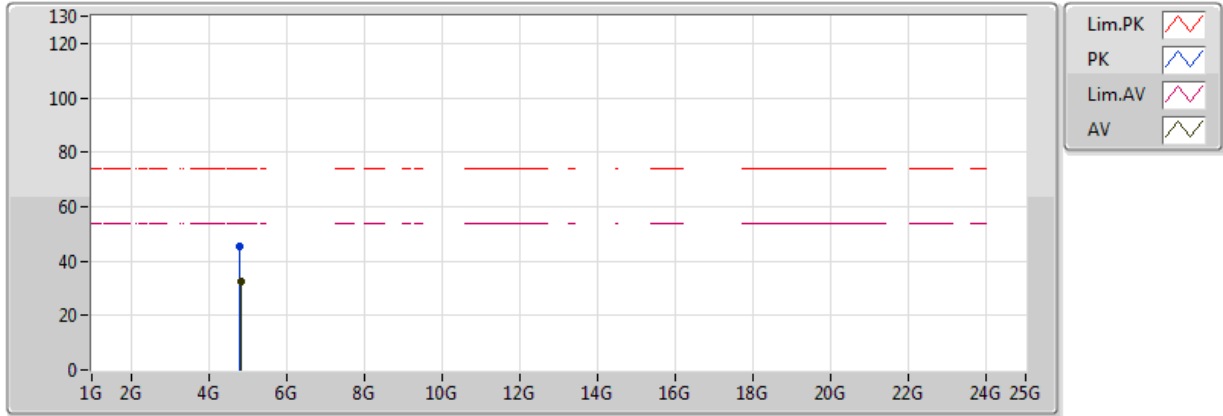


Type	Freq (Hz)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.81882G	32.41	54.00	-21.59	3.01	3	Vertical	322	1.50	-
PK	4.79224G	45.22	74.00	-28.78	2.97	3	Vertical	322	1.50	-

BT-LE(1Mbps)

2402MHz_TX

24/08/2018

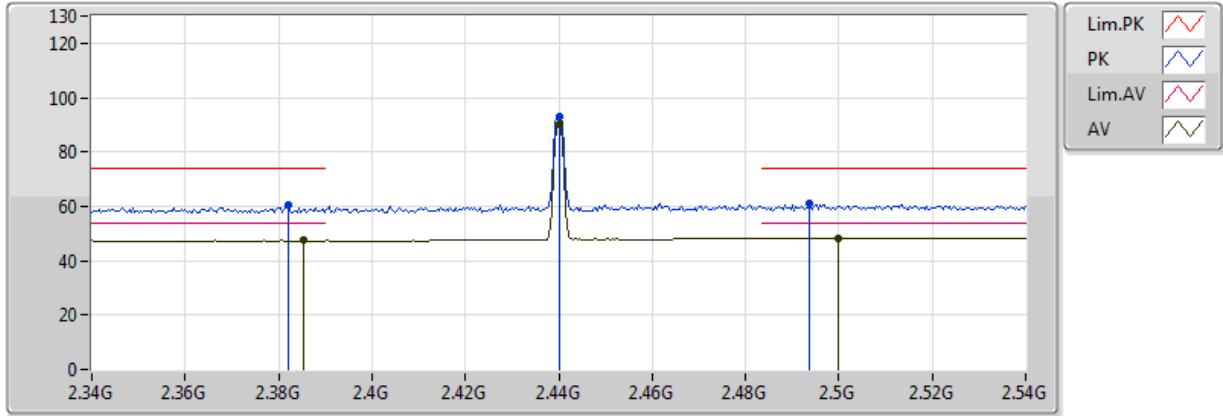


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.81864G	32.47	54.00	-21.53	3.01	3	Horizontal	297	2.54	-
PK	4.81348G	45.22	74.00	-28.78	3.00	3	Horizontal	297	2.54	-

BT-LE(1Mbps)

2440MHz_TX

24/08/2018

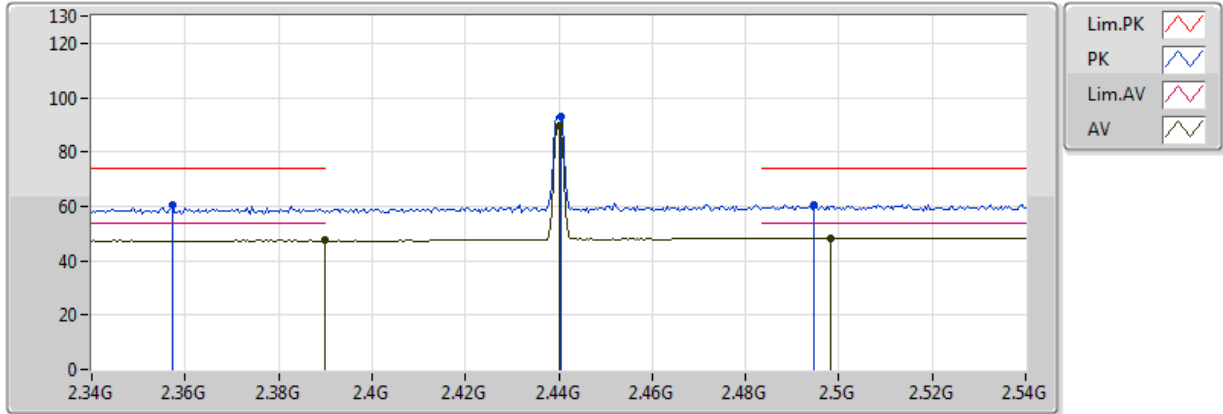


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3852G	47.37	54.00	-6.63	32.25	3	Vertical	277	2.17	-
AV	2.44G	90.03	Inf	-Inf	32.46	3	Vertical	277	2.17	-
AV	2.499998G	48.39	54.00	-5.61	32.67	3	Vertical	277	2.17	-
PK	2.382G	60.28	74.00	-13.72	32.25	3	Vertical	277	2.17	-
PK	2.44G	92.87	Inf	-Inf	32.46	3	Vertical	277	2.17	-
PK	2.4936G	60.85	74.00	-13.15	32.64	3	Vertical	277	2.17	-

BT-LE(1Mbps)

2440MHz_TX

24/08/2018

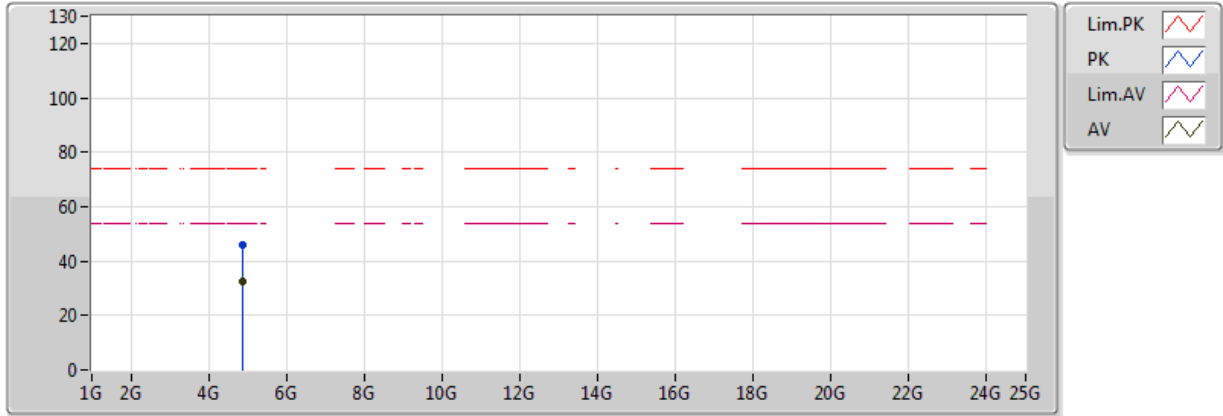


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.389998G	47.42	54.00	-6.58	32.28	3	Horizontal	216	1.24	-
AV	2.44G	89.57	Inf	-Inf	32.46	3	Horizontal	216	1.24	-
AV	2.4984G	48.39	54.00	-5.61	32.67	3	Horizontal	216	1.24	-
PK	2.3572G	60.25	74.00	-13.75	32.16	3	Horizontal	216	1.24	-
PK	2.4404G	93.25	Inf	-Inf	32.46	3	Horizontal	216	1.24	-
PK	2.4948G	60.43	74.00	-13.57	32.65	3	Horizontal	216	1.24	-

BT-LE(1Mbps)

2440MHz_TX

24/08/2018

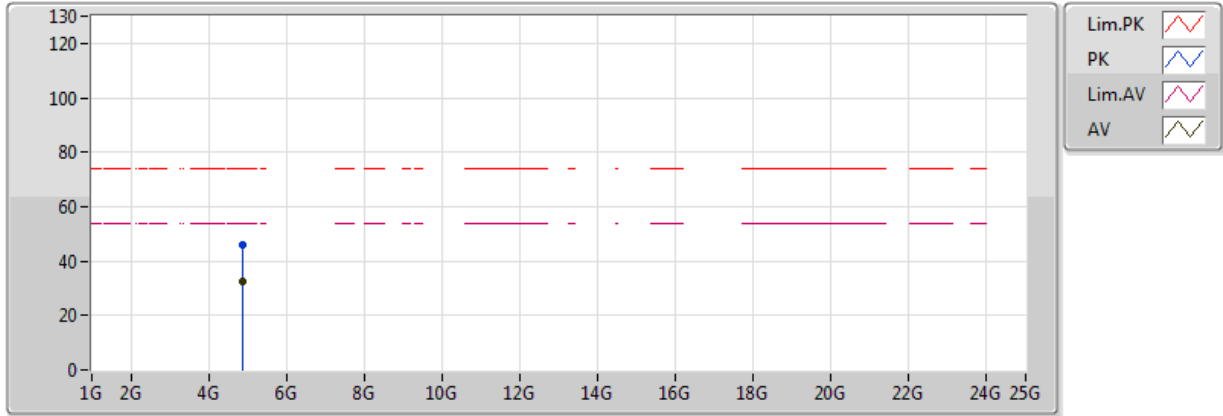


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.87052G	32.77	54.00	-21.23	3.13	3	Vertical	296	1.50	-
PK	4.87736G	45.73	74.00	-28.27	3.16	3	Vertical	296	1.50	-

BT-LE(1Mbps)

2440MHz_TX

24/08/2018

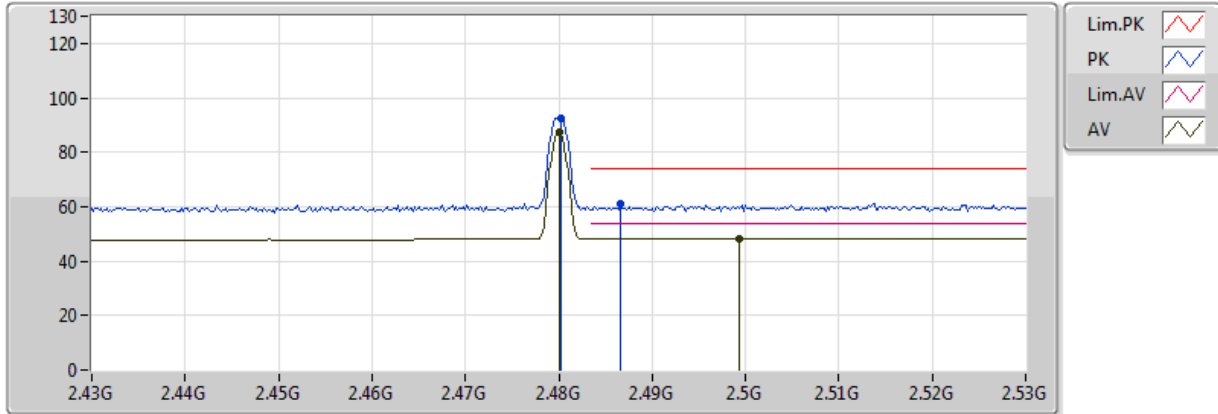


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.86962G	32.72	54.00	-21.28	3.13	3	Horizontal	335	1.50	-
PK	4.88198G	45.80	74.00	-28.20	3.17	3	Horizontal	335	1.50	-

BT-LE(1Mbps)

2480MHz_TX

24/08/2018

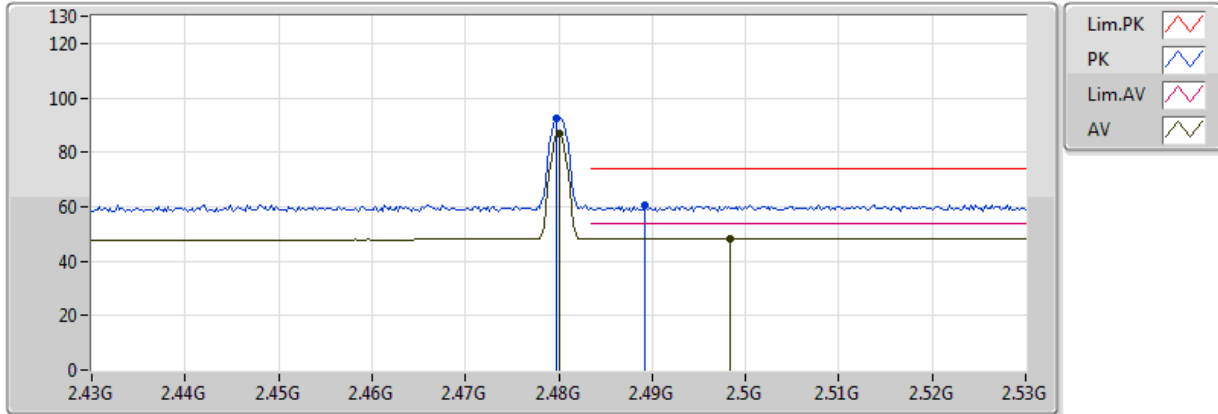


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	87.14	Inf	-Inf	32.60	3	Vertical	273	1.50	-
AV	2.4994G	48.39	54.00	-5.61	32.67	3	Vertical	273	1.50	-
PK	2.4802G	92.60	Inf	-Inf	32.60	3	Vertical	273	1.50	-
PK	2.4866G	61.28	74.00	-12.72	32.62	3	Vertical	273	1.50	-

BT-LE(1Mbps)

2480MHz_TX

24/08/2018

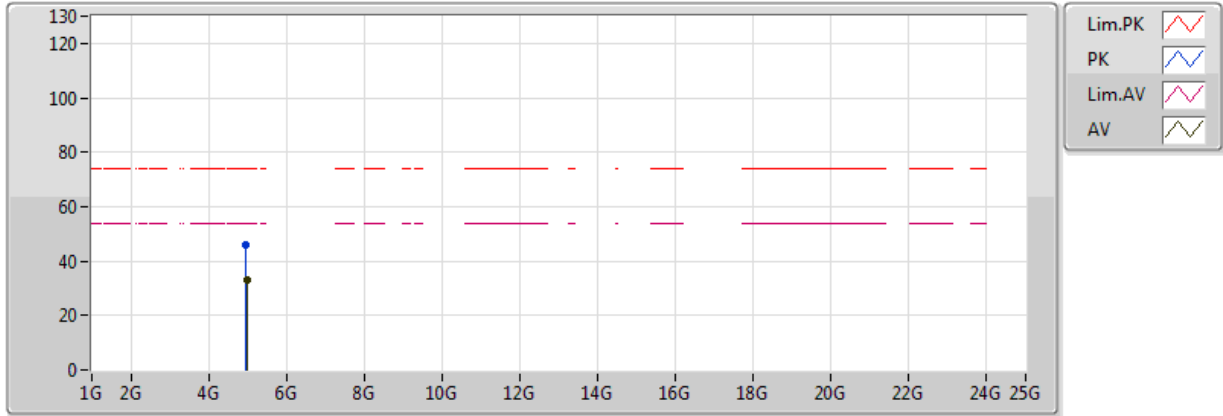


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	86.75	Inf	-Inf	32.60	3	Horizontal	204	2.15	-
AV	2.4984G	48.39	54.00	-5.61	32.67	3	Horizontal	204	2.15	-
PK	2.4798G	92.28	Inf	-Inf	32.60	3	Horizontal	204	2.15	-
PK	2.4892G	60.33	74.00	-13.67	32.63	3	Horizontal	204	2.15	-

BT-LE(1Mbps)

2480MHz_TX

24/08/2018

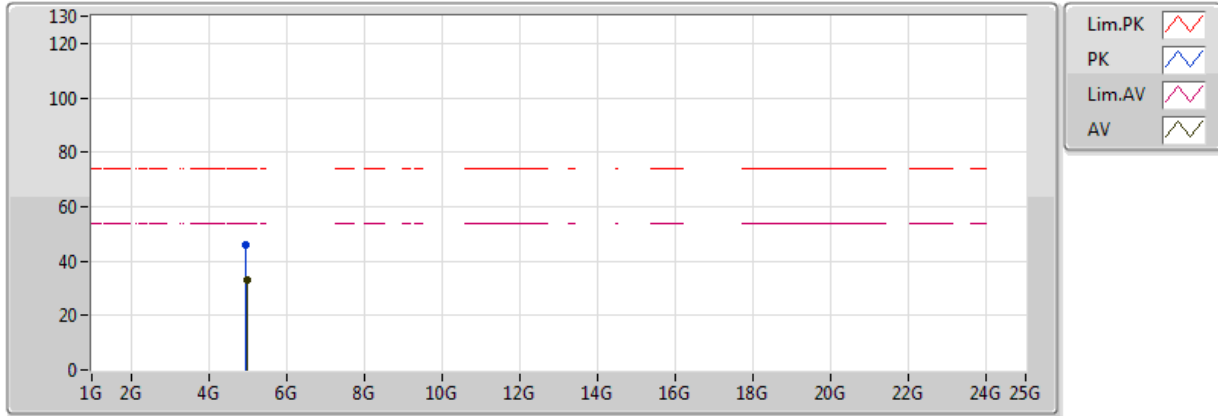


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97458G	32.89	54.00	-21.11	3.35	3	Vertical	6	1.50	-
PK	4.97014G	46.00	74.00	-28.00	3.35	3	Vertical	6	1.50	-

BT-LE(1Mbps)

2480MHz_TX

24/08/2018

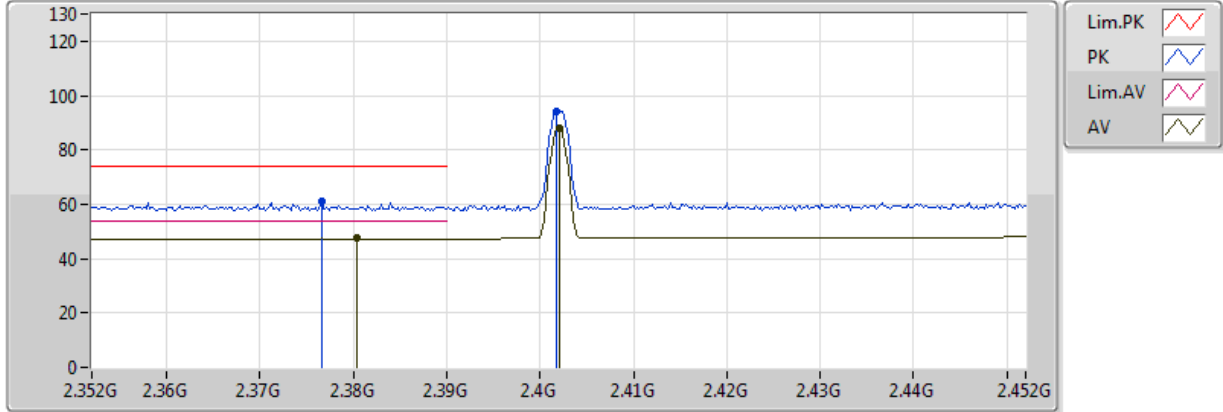


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.9744G	32.95	54.00	-21.05	3.35	3	Horizontal	268	1.50	-
PK	4.9531G	46.10	74.00	-27.90	3.32	3	Horizontal	268	1.50	-

BT-LE(2Mbps)

2402MHz_TX

30/08/2018

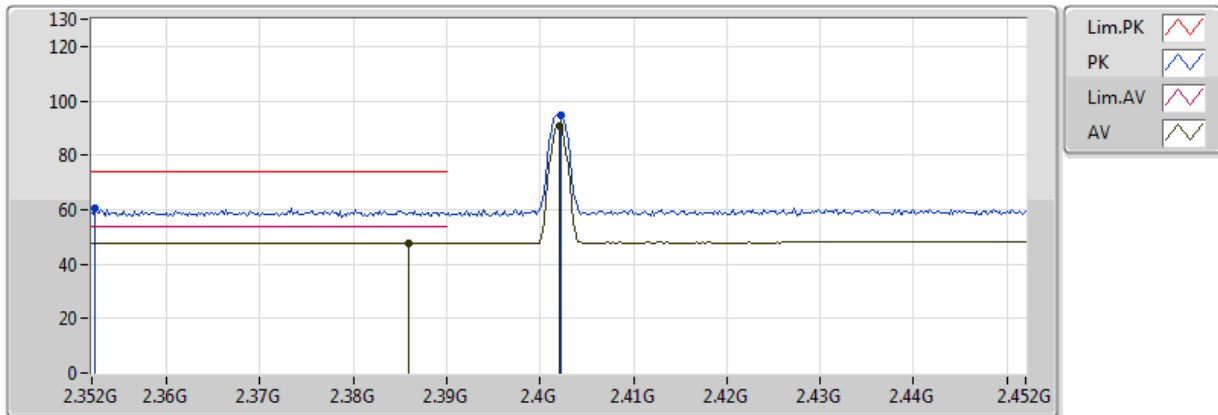


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3804G	47.51	54.00	-6.49	32.24	3	Vertical	252	1.50	-
AV	2.402G	88.19	Inf	-Inf	32.31	3	Vertical	252	1.50	-
PK	2.3766G	60.80	74.00	-13.20	32.22	3	Vertical	252	1.50	-
PK	2.4018G	94.08	Inf	-Inf	32.31	3	Vertical	252	1.50	-

BT-LE(2Mbps)

2402MHz_TX

30/08/2018

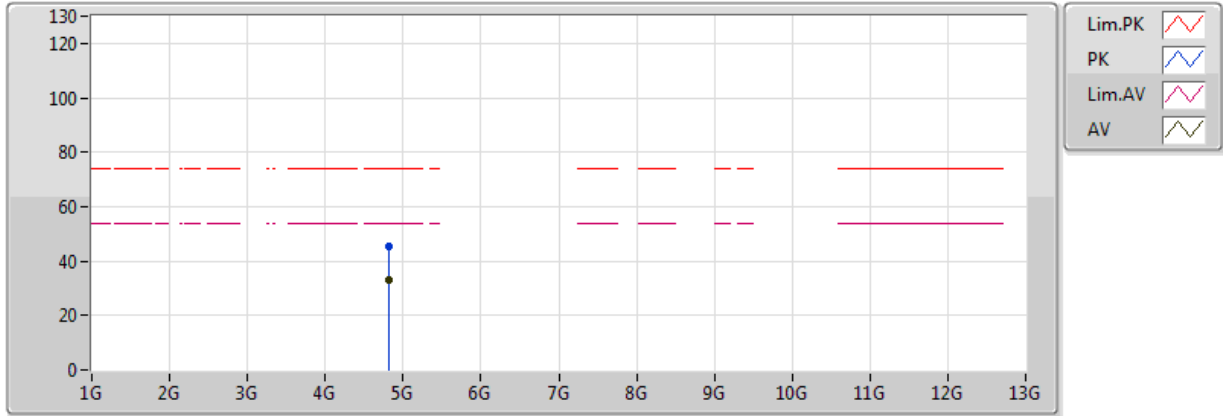


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.386G	47.78	54.00	-6.22	32.26	3	Horizontal	222	1.15	-
AV	2.402G	90.81	Inf	-Inf	32.31	3	Horizontal	222	1.15	-
PK	2.3524G	60.79	74.00	-13.21	32.14	3	Horizontal	222	1.15	-
PK	2.4022G	94.50	Inf	-Inf	32.32	3	Horizontal	222	1.15	-

BT-LE(2Mbps)

2402MHz_TX

30/08/2018

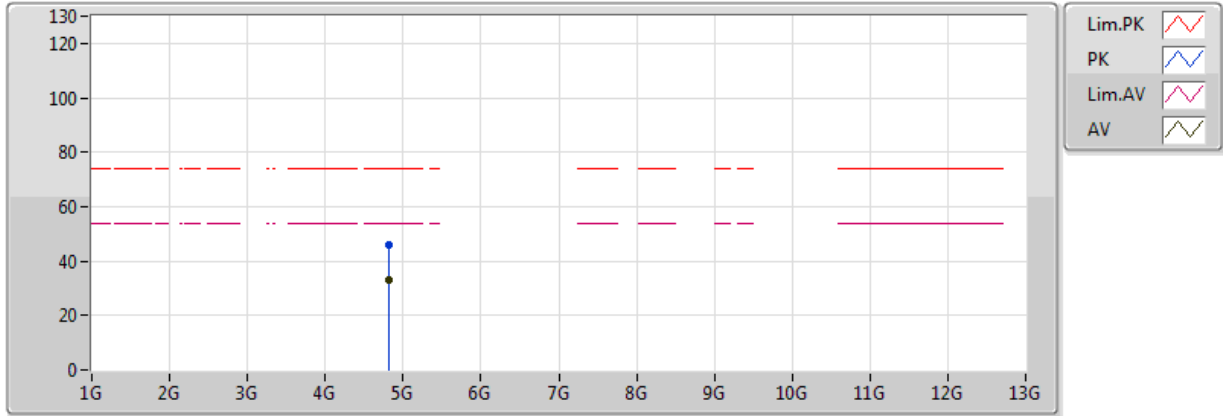


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.8169G	33.10	54.00	-20.90	3.01	3	Vertical	60	1.55	-
PK	4.8133G	45.63	74.00	-28.37	3.00	3	Vertical	60	1.55	-

BT-LE(2Mbps)

2402MHz_TX

30/08/2018

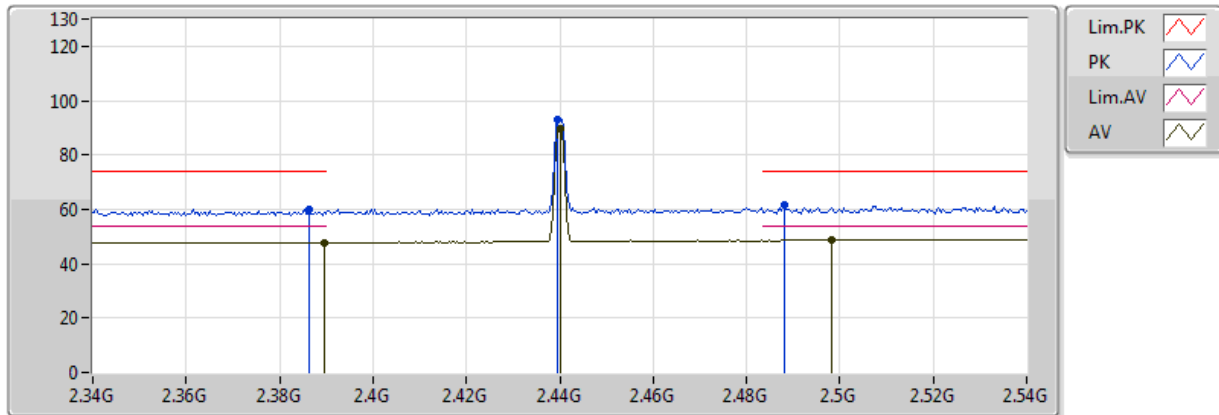


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.81876G	33.13	54.00	-20.87	3.01	3	Horizontal	298	2.12	-
PK	4.81204G	45.81	74.00	-28.19	3.00	3	Horizontal	298	2.12	-

BT-LE(2Mbps)

2440MHz_TX

30/08/2018

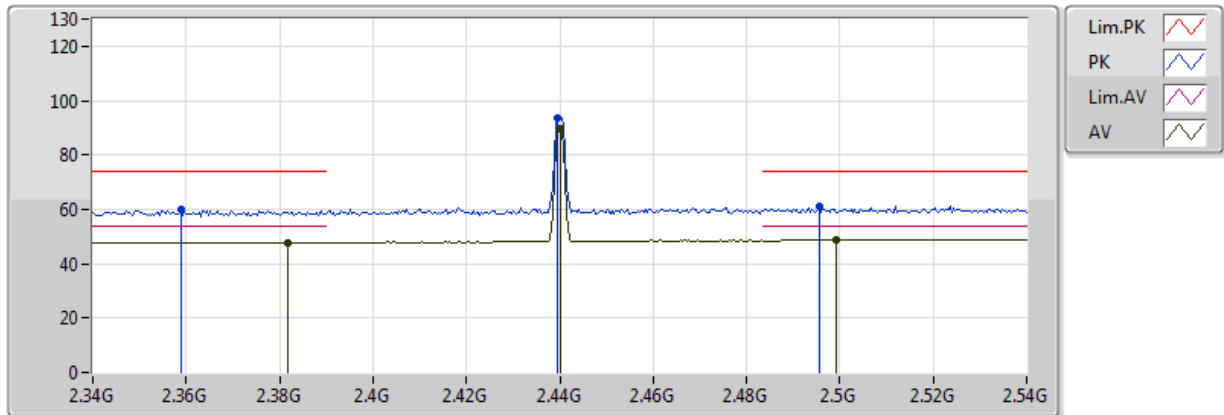


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3896G	47.82	54.00	-6.18	32.28	3	Vertical	193	1.49	-
AV	2.44G	89.63	Inf	-Inf	32.46	3	Vertical	193	1.49	-
AV	2.4984G	48.79	54.00	-5.21	32.67	3	Vertical	193	1.49	-
PK	2.3864G	60.21	74.00	-13.79	32.26	3	Vertical	193	1.49	-
PK	2.4396G	93.01	Inf	-Inf	32.46	3	Vertical	193	1.49	-
PK	2.488G	61.78	74.00	-12.22	32.63	3	Vertical	193	1.49	-

BT-LE(2Mbps)

2440MHz_TX

30/08/2018

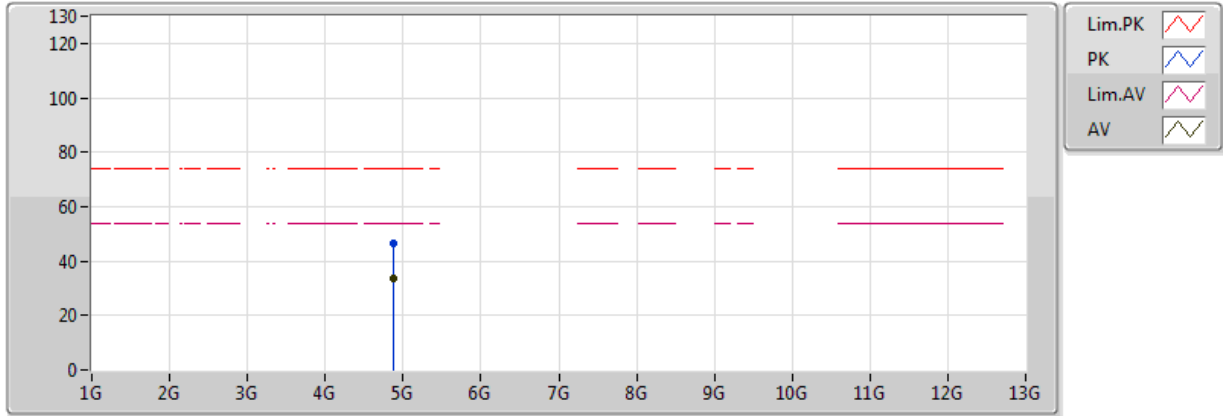


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3816G	47.77	54.00	-6.23	32.25	3	Horizontal	347	1.24	-
AV	2.44G	89.74	Inf	-Inf	32.46	3	Horizontal	347	1.24	-
AV	2.4992G	48.79	54.00	-5.21	32.67	3	Horizontal	347	1.24	-
PK	2.3588G	60.16	74.00	-13.84	32.16	3	Horizontal	347	1.24	-
PK	2.4396G	93.40	Inf	-Inf	32.46	3	Horizontal	347	1.24	-
PK	2.4956G	61.19	74.00	-12.81	32.65	3	Horizontal	347	1.24	-

BT-LE(2Mbps)

2440MHz_TX

30/08/2018

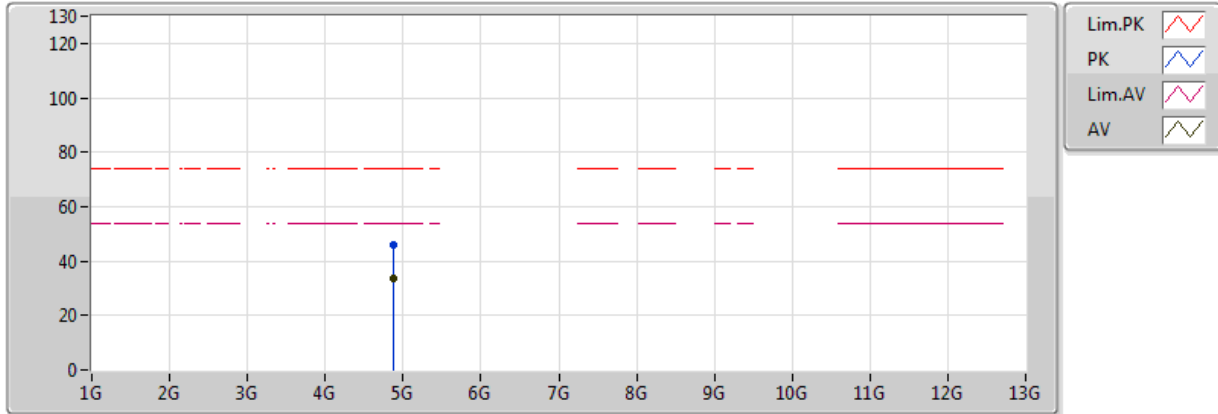


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.87184G	33.47	54.00	-20.53	3.13	3	Vertical	98	1.41	-
PK	4.88108G	46.34	74.00	-27.66	3.17	3	Vertical	98	1.41	-

BT-LE(2Mbps)

2440MHz_TX

30/08/2018

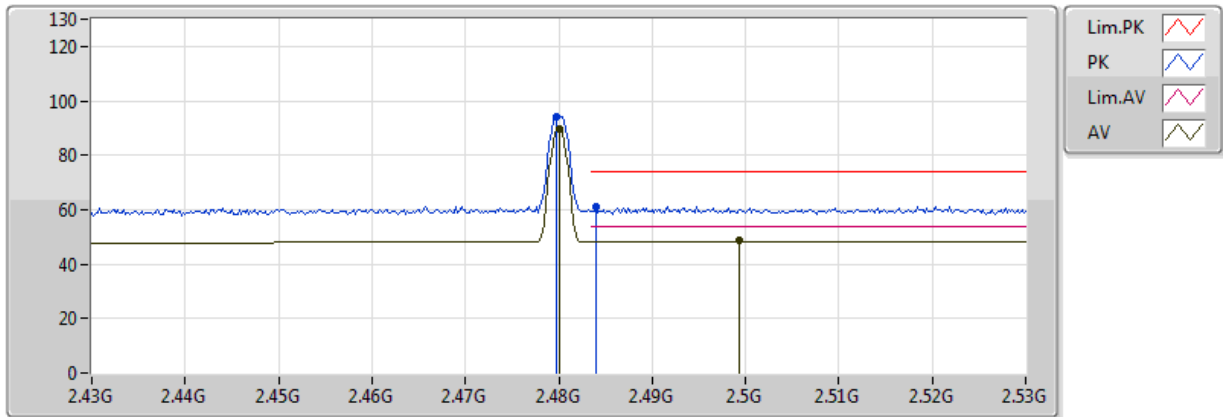


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.8734G	33.44	54.00	-20.56	3.13	3	Horizontal	213	1.50	-
PK	4.86752G	45.92	74.00	-28.08	3.12	3	Horizontal	213	1.50	-

BT-LE(2Mbps)

2480MHz_TX

30/08/2018

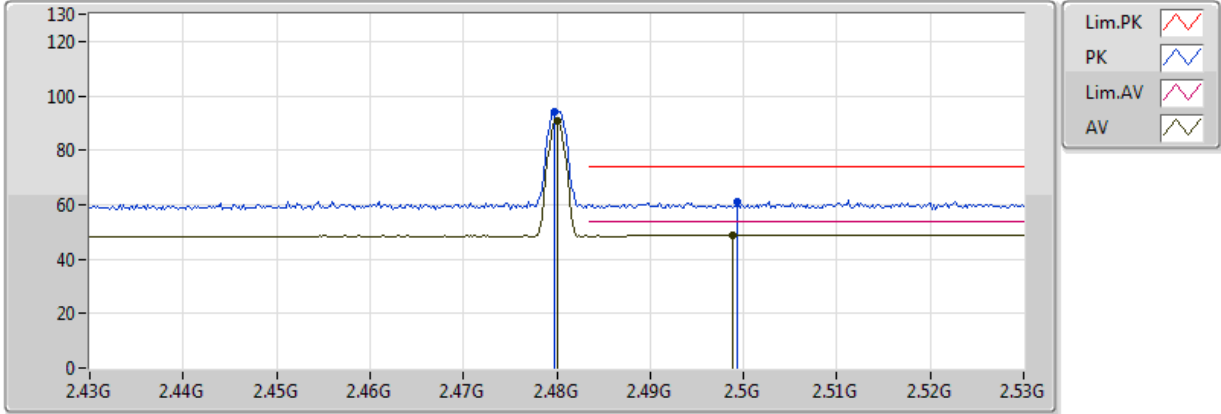


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	89.60	Inf	-Inf	32.60	3	Vertical	359	1.50	-
AV	2.4994G	48.54	54.00	-5.46	32.67	3	Vertical	359	1.50	-
PK	2.4798G	94.00	Inf	-Inf	32.60	3	Vertical	359	1.50	-
PK	2.484G	61.06	74.00	-12.94	32.61	3	Vertical	359	1.50	-

BT-LE(2Mbps)

2480MHz_TX

30/08/2018

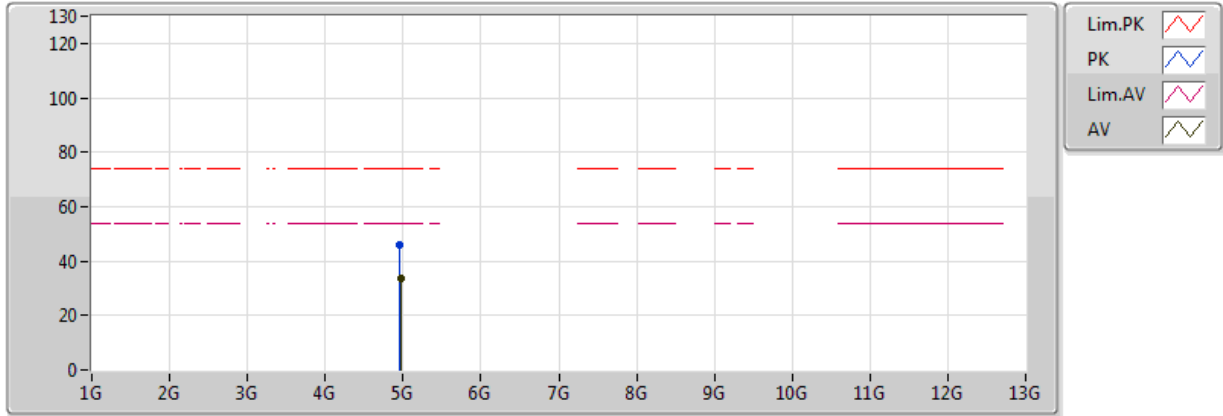


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	90.71	Inf	-Inf	32.60	3	Horizontal	197	1.50	-
AV	2.4988G	48.79	54.00	-5.21	32.67	3	Horizontal	197	1.50	-
PK	2.4798G	94.14	Inf	-Inf	32.60	3	Horizontal	197	1.50	-
PK	2.4994G	60.98	74.00	-13.02	32.67	3	Horizontal	197	1.50	-

BT-LE(2Mbps)

2480MHz_TX

30/08/2018

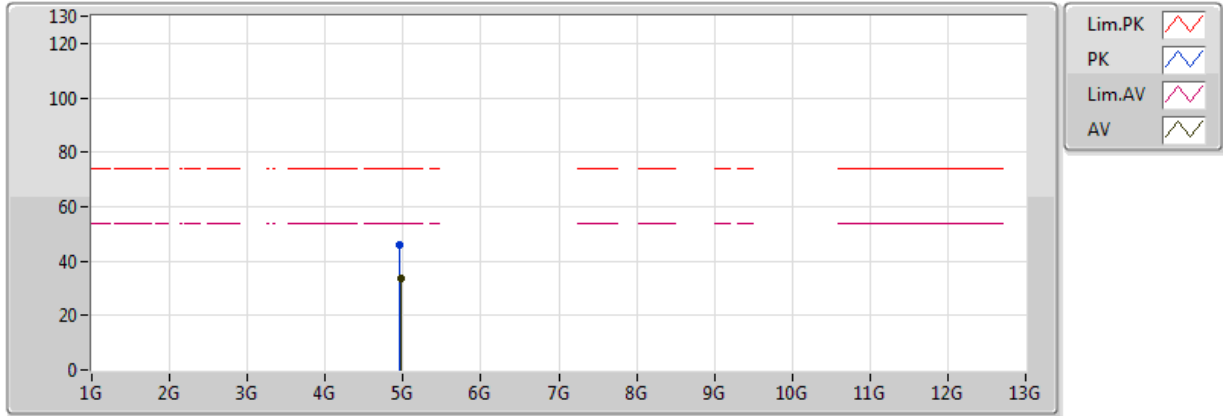


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97404G	33.49	54.00	-20.51	3.35	3	Vertical	274	1.46	-
PK	4.96174G	46.06	74.00	-27.94	3.33	3	Vertical	274	1.46	-

BT-LE(2Mbps)

2480MHz_TX

30/08/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.97062G	33.45	54.00	-20.55	3.35	3	Horizontal	169	1.86	-
PK	4.96G	46.05	74.00	-27.95	3.33	3	Horizontal	169	1.86	-



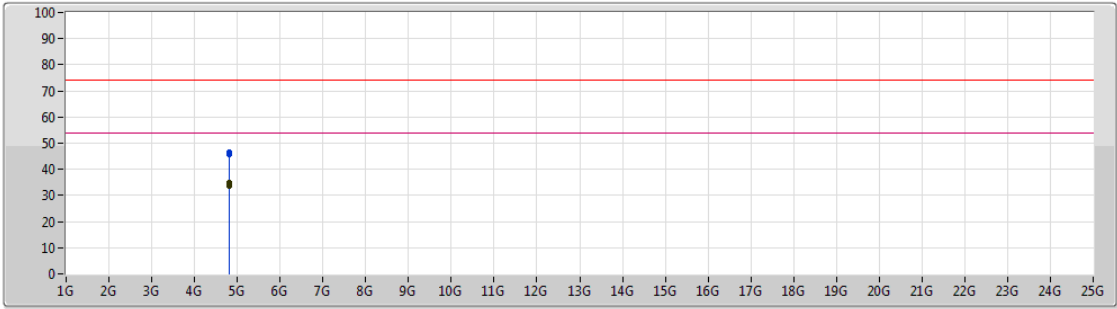
Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
1	Pass	PK	4.80299G	45.94	54.00	-8.06	2.07	3	Horizontal	237	1.26	-
2	Pass	AV	10.36876G	45.62	54.00	-8.38	12.66	3	Horizontal	50	1.28	-



Radiation-above 1GHz_Mode 1

12/09/2018



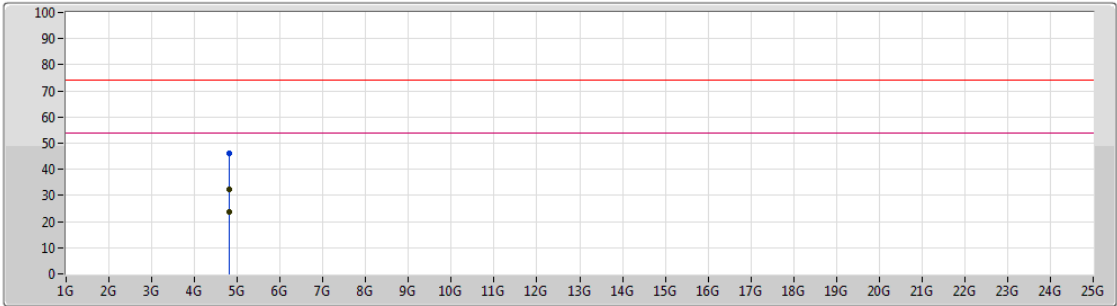
Lim.PK
 PK
 Lim.AV
 AV

Type	Freq [Hz]	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Factor [dB]	Dist [m]	Condition	Azimuth [°]	Height [m]	Comments
AV	4.80478G	33.74	54.00	-20.26	2.08	3	Vertical	124	1.48	-
AV	4.82456G	35.01	54.00	-18.99	2.13	3	Vertical	184	3.00	-
PK	4.80459G	45.63	74.00	-28.37	2.08	3	Vertical	124	1.48	-
PK	4.82466G	46.70	74.00	-27.30	2.13	3	Vertical	184	3.00	-



Radiation-above 1GHz_Mode 1

12/09/2018



Legend for the graph:

- Lim.PK: Red line with a downward-pointing triangle
- PK: Blue line with an upward-pointing triangle
- Lim.AV: Purple line with a downward-pointing triangle
- AV: Purple line with an upward-pointing triangle

Type	Freq [Hz]	Level [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Factor [dB]	Dist [m]	Condition	Azimuth [°]	Height [m]	Comments
AV	4.806G	23.85	54.00	-30.15	2.08	3	Horizontal	237	1.26	-
AV	4.82247G	32.36	54.00	-21.64	2.13	3	Horizontal	116	1.55	-
PK	4.80299G	45.94	54.00	-8.06	2.07	3	Horizontal	237	1.26	-
PK	4.82417G	46.24	74.00	-27.76	2.13	3	Horizontal	116	1.55	-

