

FCC Test Report

FCC ID : 2AIBV-MINICAM
Equipment : Furbo Dog Camera
Brand Name : Furbo
Model Name : Furbo Mini
Applicant : Tomofun Co. Ltd.
4F., No.178, Sec.3, Minquan E. Rd., Taipei City 1054,
Taiwan
Standard : 47 CFR FCC Part 15.247

The product was received on Jun. 29, 2020, and testing was started from Jul. 04, 2020 and completed on Jul. 22, 2020. 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 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 REPORT	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Information.....	5
1.2 Testing Applied Standards	6
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	12
3.1 AC Power-line Conducted Emissions	12
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 V01	



History of this test report

TEL : 886-3-3273456
FAX : 886-3-3270973
Report Template No.: HE1-C10 Ver.4.0
FCC ID: 2AIBV-MINICAM

Summary of Test Result

Report Clause	Ref.Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and explanations:

None

Reviewed by: Sam Tsai

Report Producer: Yunha Liou

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.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	LYNwave	ALX20F-051AA2-00	Dipole	I-PEX
2	LYNwave	ALX20F-051AA2-00	Dipole	I-PEX

Ant.	Port	Gain (dBi)	
		2.4G	BT
1	1	2.8	-
2	2	-	2.8

Note 1: The EUT has two antennas.

For 2.4GHz function:

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

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

For BT function:

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

Ant. 2 (port 2) could transmit/receive.

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From AC Adapter		
EUT Function	☒ Point-to-multipoint	☐ Point-to-point	
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)	0.16	7.96	100u	10k

Note. If DC < 0.98, the DCF was added while measuring Output power and PSD.

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

The following reference test guidance is not within the scope of accreditation of TAF:

- ♦ KDB 558074 D01 v05r02
- ♦ KDB 414788 D01 v01r01

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.			
☒	Wen Shan	ADD : No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
		TEL : 886-3-318-0787	FAX : 886-3-318-0287
Test site Designation No. TW1097 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	23.5~24.4°C / 50~53%	15/Jul/2020
RF Conducted	TH06-HY	Alan	20.1~26.9°C / 50~60%	06/Jul/2020~22/Jul/2020
Radiated	03CH09-HY	Lego	23.6~25.6°C / 50~60%	04/Jul/2020~14/Jul/2020

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)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	Microsoft Windows Version 6.1
-----------------------	-------------------------------

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

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	Adapter 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	Adapter mode
Operating Mode > 1GHz	CTX
Orthogonal Planes of EUT	Y Plane
	

2.4 Accessories

Accessories				
AC Adapter	Brand Name	Furbo	Model Name	S005CAU0500100
	Manufacturer	Trillion Win	SN	TWN-ADP-R033613L-U
	Power Rating	I/P:100 - 240Vac, 0.2A, O/P:5 Vdc,1A		
USB Cable	Brand Name	Furbo	Model Name	3061000152F7
	Manufacturer	EACH-TAI	SN	E-6B2004055
	Signal Line	2 meter, non-shielded cable, w/o ferrite core		

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

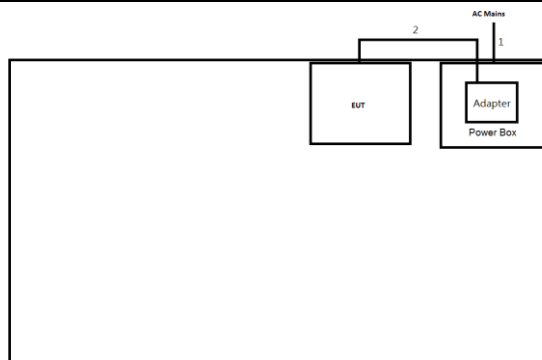
2.5 Support Equipment

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-
3	AC Power Source	Furbo	S005CAU0500100	-	Note 1

Note 1: No.3 was provided by customer.

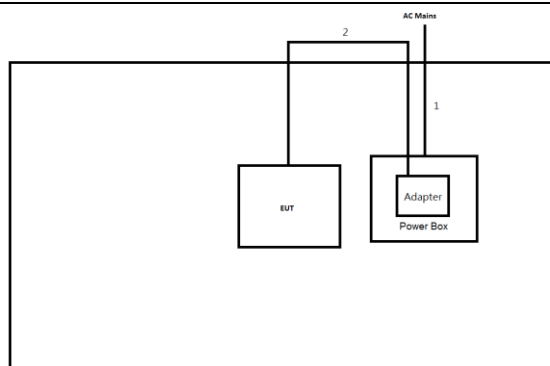
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	USB cable	No	2.0	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	USB cable	No	2.0	-

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

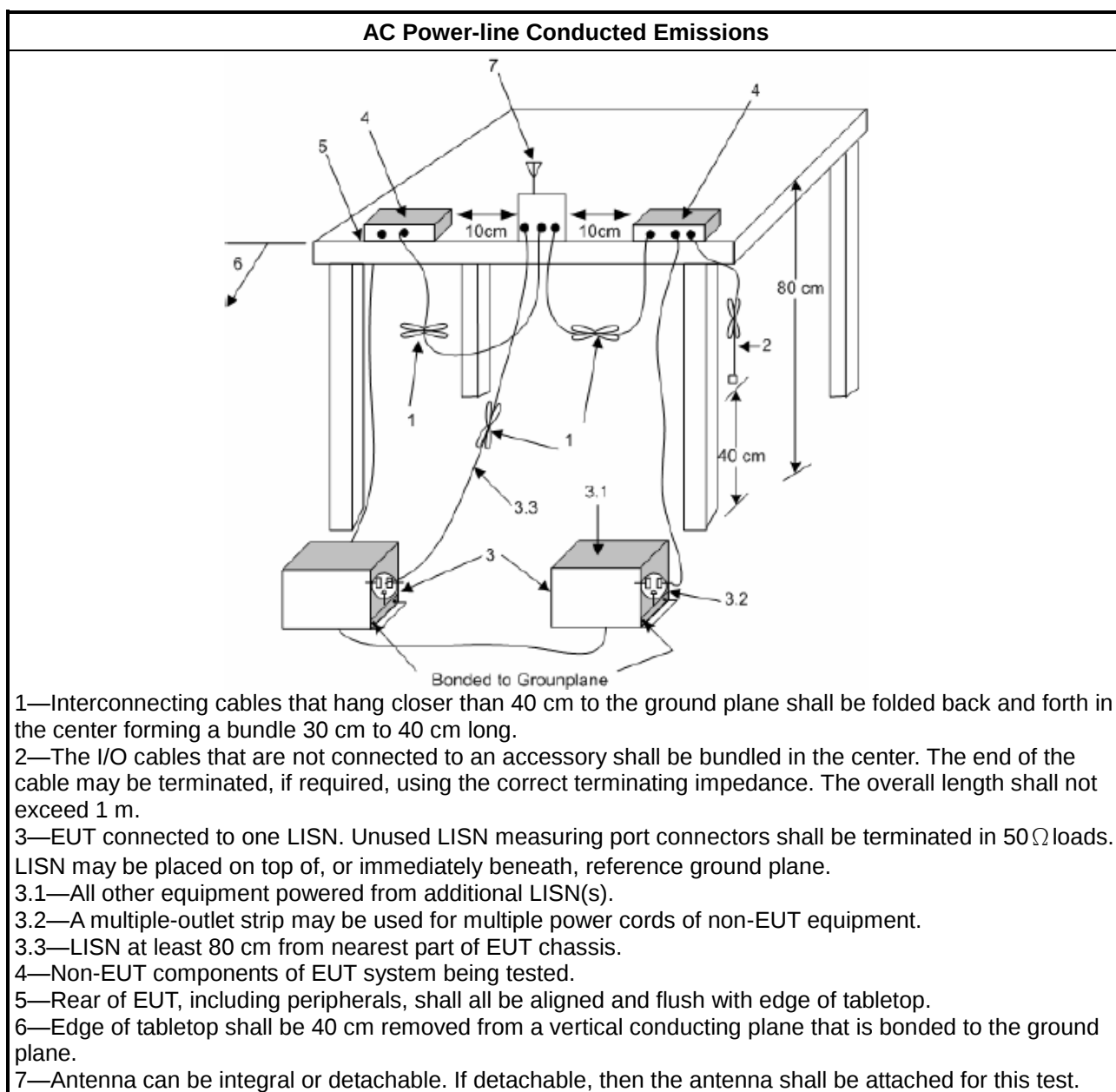
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + LISN(LISN Factor) + CL(Cable Loss) - AT(Attenuator).

3.1.5 Test Setup



3.1.6 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 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
☐	Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
☐	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.	

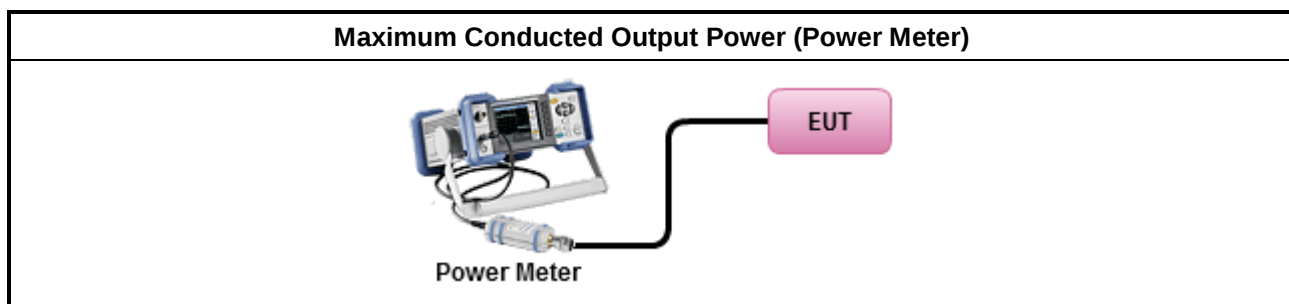
3.3.2 Measuring Instruments

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 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
☐	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
☐	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
Maximum Average Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
☒	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a 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 8.4 (11.10 of ANSI C63.10) Max. PSD.
▪	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 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 level.	

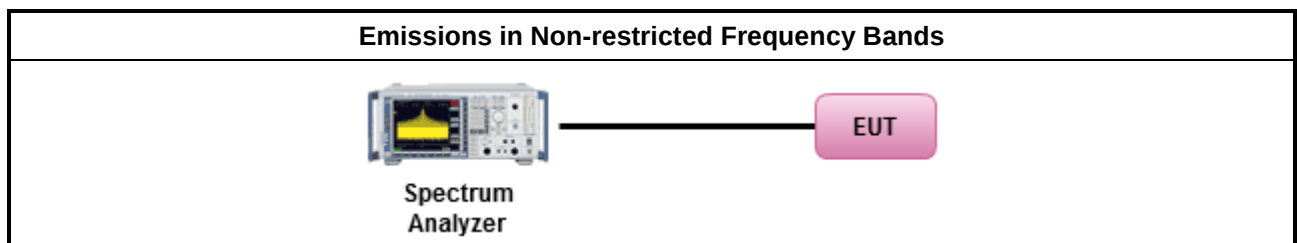
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as KDB 558074, clause 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

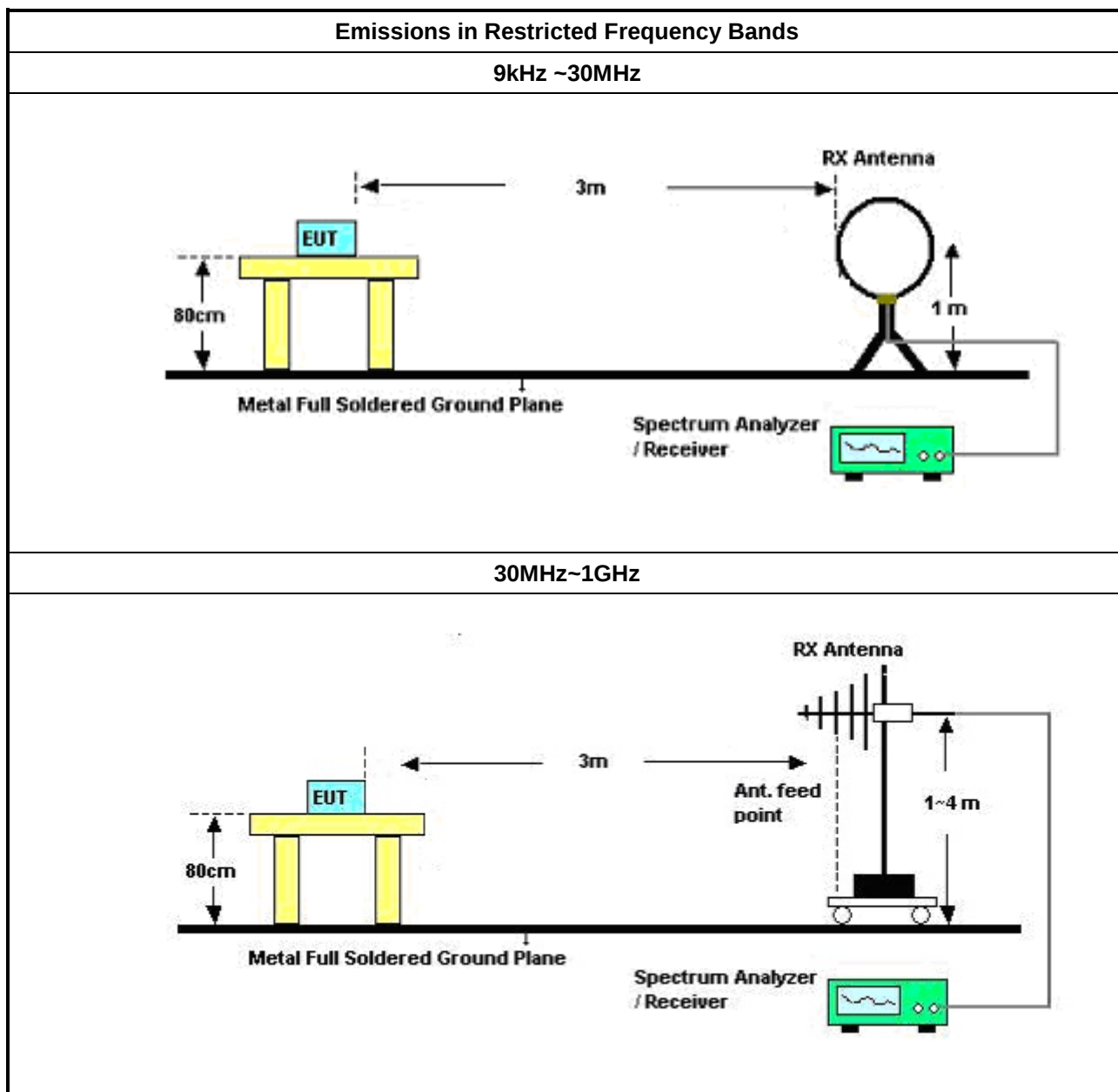
Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
For the transmitter band-edge emissions shall be measured using following options below:	
	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.
Use the following spectrum analyzer settings:	
	Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
	Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.	
	Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

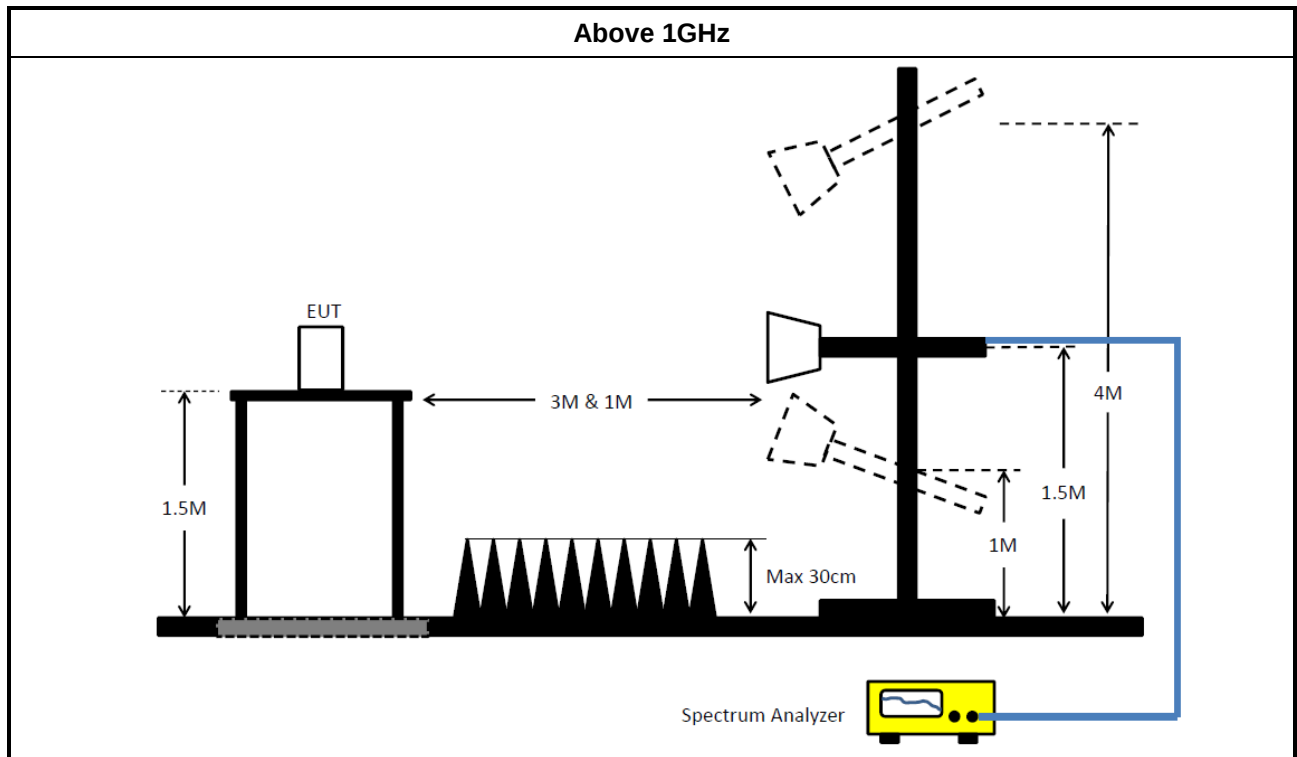
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamplifier Factor)

3.6.5 Test Setup





3.6.6 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.

3.6.7 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
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	29/May/2020	28/May/2021
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	05/Nov/2019	04/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	23/Sep/2019	22/Sep/2020
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	24/Sep/2019	23/Sep/2020

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101029	10kHz ~ 40GHz	01/Oct/2019	30/Sep/2020
Pulse Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	18/Mar/2020	17/Mar/2021
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	18/Mar/2020	17/Mar/2021
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz ~ 40GHz	12/Nov/2018	10/Nov/2020

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz 3m	27/Mar/2020	26/Mar/2021
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz 3m	19/Mar/2020	18/Mar/2021
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	07/Aug/2019	06/Aug/2020
Amplifier	EMC	EMC9135	980232	9kHz ~ 1GHz	14/Apr/2020	13/Apr/2021
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	04/Sep/2019	03/Sep/2020
Microwave Preamplifier	Agilent	8449B	3008A02326	1GHz ~ 26.5GHz	15/Jul/2019	14/Jul/2020
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D&MTJ6 102-05	35418 & 3	30MHz ~ 1GHz	30/Sep/2019	29/Sep/2020
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz ~ 18GHz	28/May/2020	27/May/2021
RF Cable-low	Jye Bao	RG142	CB031+3245 30/4	30MHz ~ 1GHz	12/Feb/2020	11/Feb/2021
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX104	324530/4+17 173/4	1GHz ~ 40GHz	12/Feb/2020	11/Feb/2021
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz ~ 40GHz	13/Mar/2020	12/Mar/2021
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	10/Mar/2020	09/Mar/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz ~ 30MHz	16/Mar/2020	15/Mar/2021
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	29/May/2020	28/May/2021

**Summary**

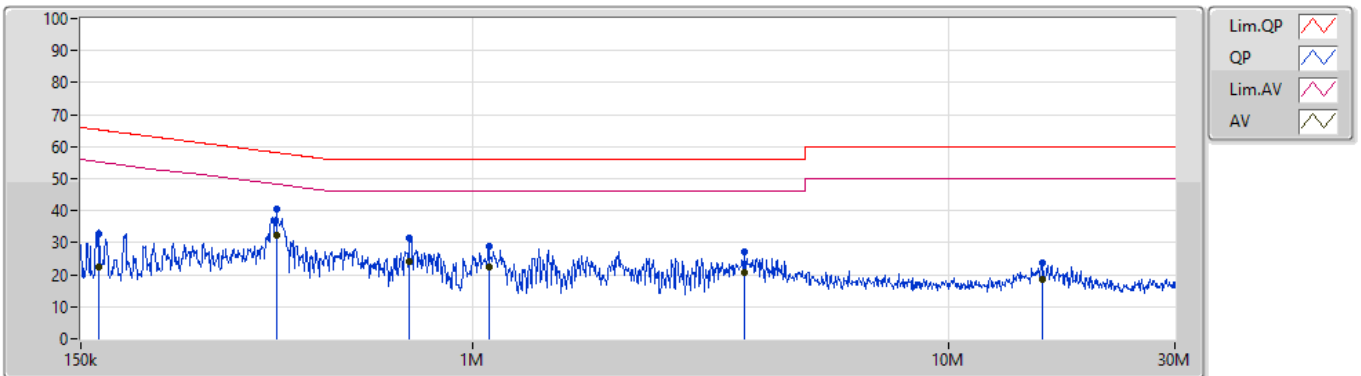
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	380.23k	41.35	48.28	-6.93	Neutral

Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	163.769k	32.93	65.27	-32.34	Line	-
Mode 1	Pass	AV	163.769k	22.22	55.27	-33.05	Line	-
Mode 1	Pass	QP	387.896k	40.47	58.10	-17.63	Line	-
Mode 1	Pass	AV	387.896k	32.53	48.10	-15.57	Line	"Worst"
Mode 1	Pass	QP	737.637k	31.38	56.00	-24.62	Line	-
Mode 1	Pass	AV	737.637k	24.07	46.00	-21.93	Line	-
Mode 1	Pass	QP	1.082M	28.94	56.00	-27.06	Line	-
Mode 1	Pass	AV	1.082M	22.37	46.00	-23.63	Line	-
Mode 1	Pass	QP	3.73M	27.14	56.00	-28.86	Line	-
Mode 1	Pass	AV	3.73M	20.84	46.00	-25.16	Line	-
Mode 1	Pass	QP	15.825M	23.59	60.00	-36.41	Line	-
Mode 1	Pass	AV	15.825M	18.61	50.00	-31.39	Line	-
Mode 1	Pass	QP	380.23k	47.75	58.28	-10.53	Neutral	-
Mode 1	Pass	AV	380.23k	41.35	48.28	-6.93	Neutral	"Worst"
Mode 1	Pass	QP	544.604k	35.73	56.00	-20.27	Neutral	-
Mode 1	Pass	AV	544.604k	29.19	46.00	-16.81	Neutral	-
Mode 1	Pass	QP	752.508k	38.41	56.00	-17.59	Neutral	-
Mode 1	Pass	AV	752.508k	29.06	46.00	-16.94	Neutral	-
Mode 1	Pass	QP	1.086M	35.82	56.00	-20.18	Neutral	-
Mode 1	Pass	AV	1.086M	28.53	46.00	-17.47	Neutral	-
Mode 1	Pass	QP	3.599M	33.29	56.00	-22.71	Neutral	-
Mode 1	Pass	AV	3.599M	25.76	46.00	-20.24	Neutral	-
Mode 1	Pass	QP	15.699M	29.85	60.00	-30.15	Neutral	-
Mode 1	Pass	AV	15.699M	22.34	50.00	-27.66	Neutral	-

Conducted Emissions at Powerline_Mode 1

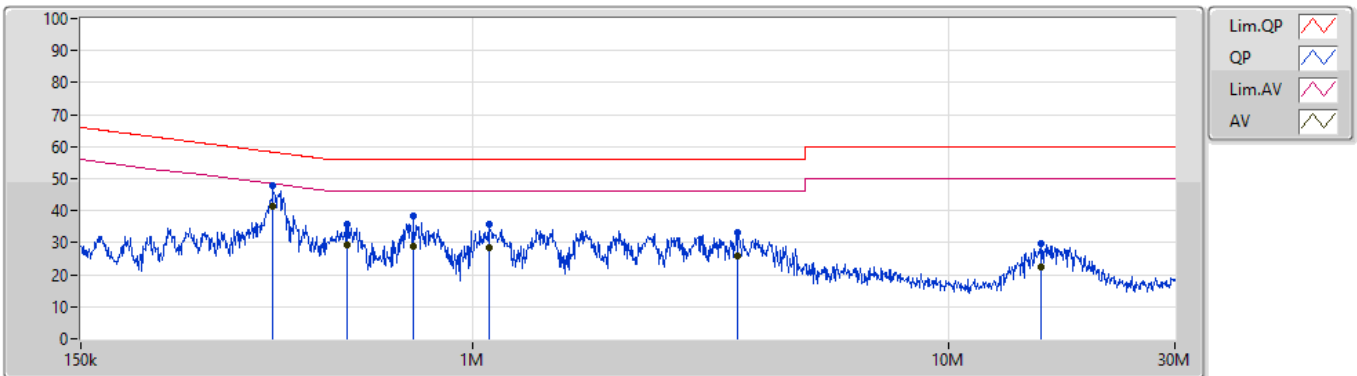
15/07/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	163.769k	32.93	65.27	-32.34	19.64	Line	-	13.29	9.66	0.11	9.87			
AV	163.769k	22.22	55.27	-33.05	19.64	Line	-	2.58	9.66	0.11	9.87			
QP	387.896k	40.47	58.10	-17.63	19.64	Line	-	20.83	9.64	0.13	9.87			
AV	387.896k	32.53	48.10	-15.57	19.64	Line	"Worst"	12.89	9.64	0.13	9.87			
QP	737.637k	31.38	56.00	-24.62	19.63	Line	-	11.75	9.64	0.12	9.87			
AV	737.637k	24.07	46.00	-21.93	19.63	Line	-	4.44	9.64	0.12	9.87			
QP	1.082M	28.94	56.00	-27.06	19.63	Line	-	9.31	9.64	0.11	9.88			
AV	1.082M	22.37	46.00	-23.63	19.63	Line	-	2.74	9.64	0.11	9.88			
QP	3.73M	27.14	56.00	-28.86	19.72	Line	-	7.42	9.66	0.18	9.88			
AV	3.73M	20.84	46.00	-25.16	19.72	Line	-	1.12	9.66	0.18	9.88			
QP	15.825M	23.59	60.00	-36.41	19.86	Line	-	3.73	9.66	0.32	9.88			
AV	15.825M	18.61	50.00	-31.39	19.86	Line	-	-1.25	9.66	0.32	9.88			

Conducted Emissions at Powerline_Mode 1

15/07/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	380.23k	47.75	58.28	-10.53	19.63	Neutral	-	28.12	9.63	0.13	9.87			
AV	380.23k	41.35	48.28	-6.93	19.63	Neutral	"Worst"	21.72	9.63	0.13	9.87			
QP	544.604k	35.73	56.00	-20.27	19.62	Neutral	-	16.11	9.63	0.12	9.87			
AV	544.604k	29.19	46.00	-16.81	19.62	Neutral	-	9.57	9.63	0.12	9.87			
QP	752.508k	38.41	56.00	-17.59	19.62	Neutral	-	18.79	9.63	0.12	9.87			
AV	752.508k	29.06	46.00	-16.94	19.62	Neutral	-	9.44	9.63	0.12	9.87			
QP	1.086M	35.82	56.00	-20.18	19.62	Neutral	-	16.20	9.63	0.11	9.88			
AV	1.086M	28.53	46.00	-17.47	19.62	Neutral	-	8.91	9.63	0.11	9.88			
QP	3.599M	33.29	56.00	-22.71	19.71	Neutral	-	13.58	9.66	0.17	9.88			
AV	3.599M	25.76	46.00	-20.24	19.71	Neutral	-	6.05	9.66	0.17	9.88			
QP	15.699M	29.85	60.00	-30.15	19.91	Neutral	-	9.94	9.71	0.32	9.88			
AV	15.699M	22.34	50.00	-27.66	19.91	Neutral	-	2.43	9.71	0.32	9.88			

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)	732.5k	1.027M	1M03F1D	723.75k	1.026M

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

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

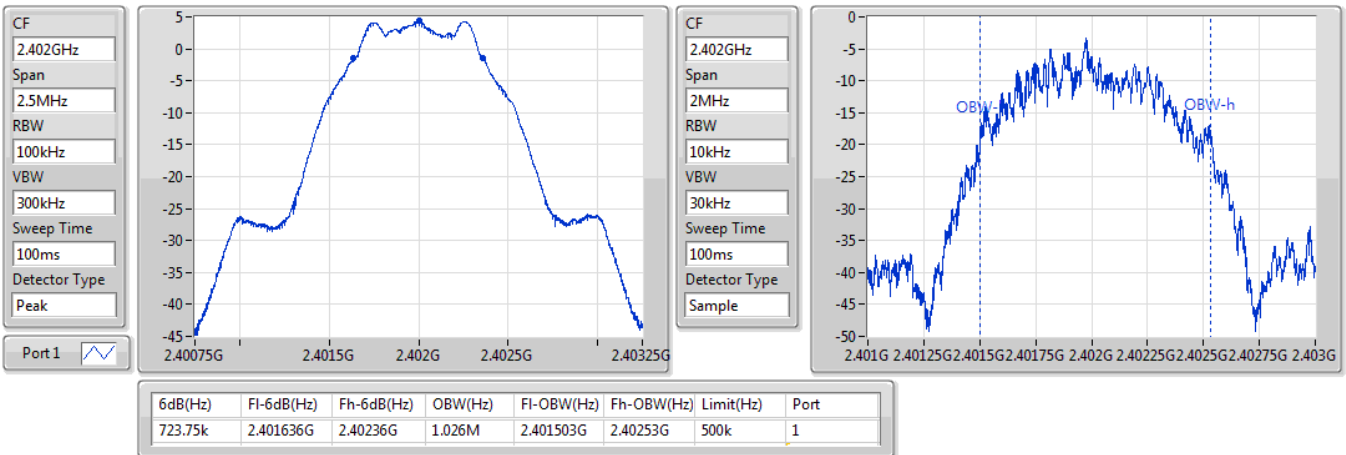
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	723.75k	1.026M
2440MHz	Pass	500k	726.25k	1.027M
2480MHz	Pass	500k	732.5k	1.026M

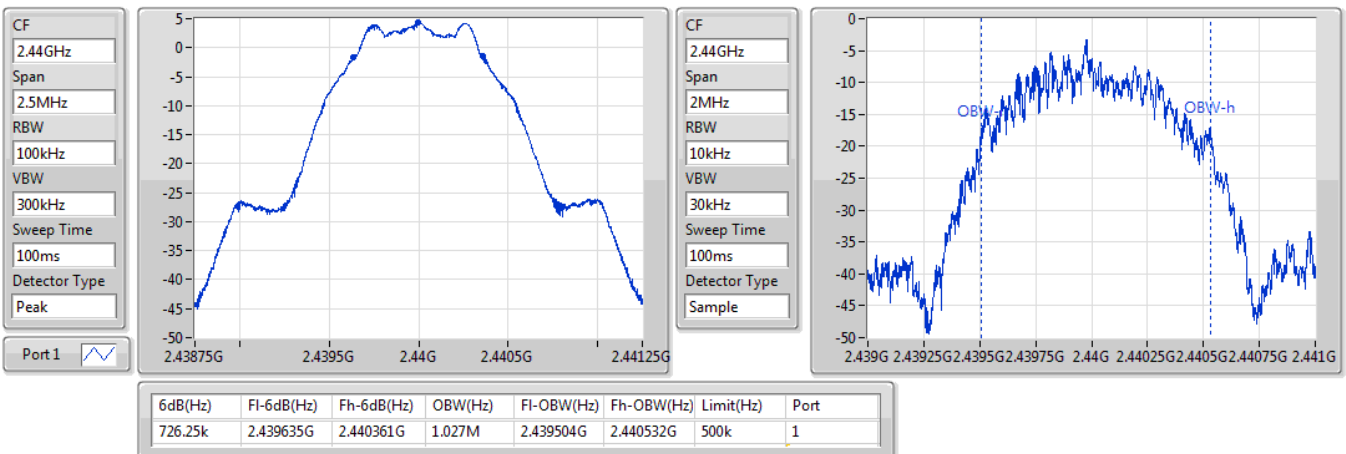
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
2402MHz

06/07/2020

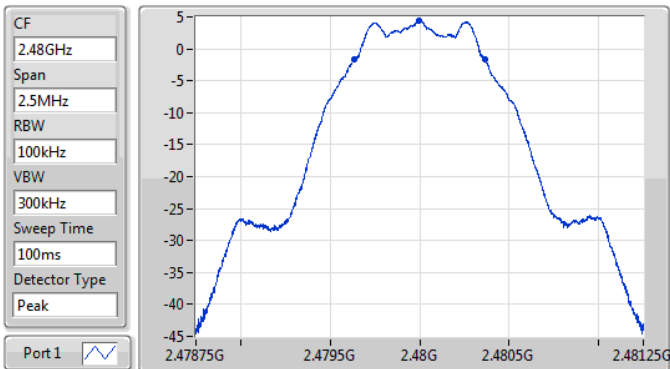

BT-LE(1Mbps)
2440MHz

06/07/2020



BT-LE(1Mbps)

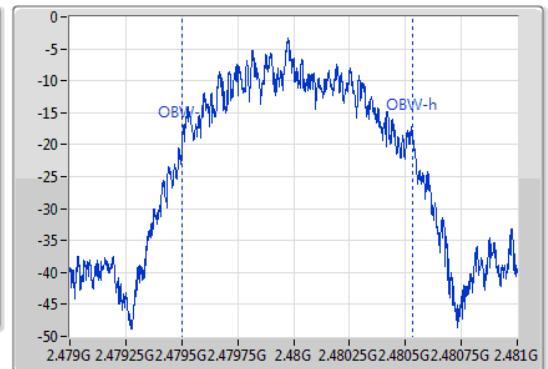
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
732.5k	2.479633G	2.480365G	1.026M	2.479503G	2.48053G	500k	1

EBW

06/07/2020





Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	5.18	0.00330



Average Power-DTS

Appendix C

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.80	5.18	30.00
2440MHz	Pass	2.80	4.94	30.00
2480MHz	Pass	2.80	5.00	30.00

DG = Directional Gain; **Port X** = Port X output power



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-10.29

RBW=3 kHz.

Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.80	-10.57	8.00
2440MHz	Pass	2.80	-10.68	8.00
2480MHz	Pass	2.80	-10.29	8.00

DG = Directional Gain; RBW=3 kHz;

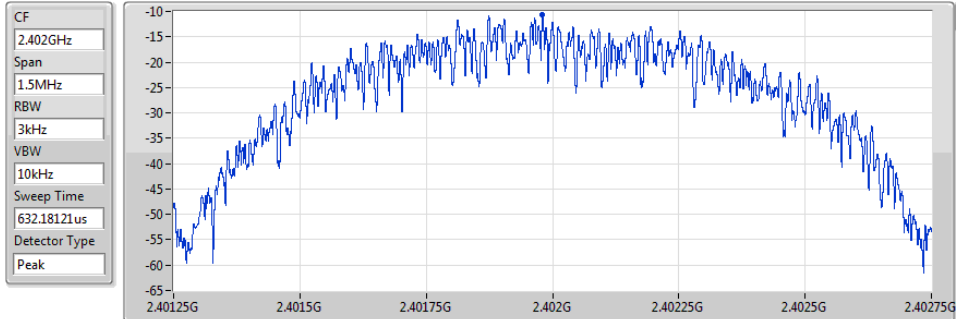
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

PSD

2402MHz

06/07/2020



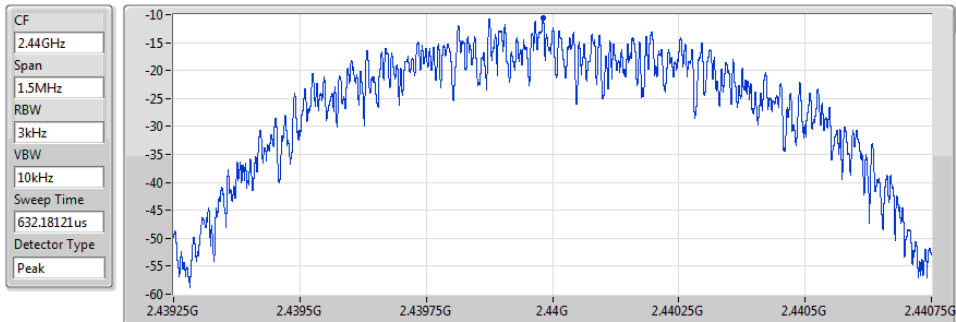
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.57	-10.57	-10.57

BT-LE(1Mbps)

PSD

2440MHz

06/07/2020



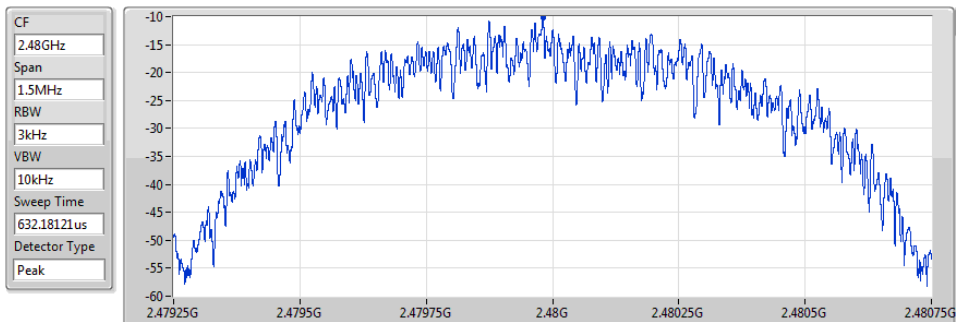
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.68	-10.68	-10.68

BT-LE(1Mbps)

PSD

2480MHz

06/07/2020



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-10.29	-10.29	-10.29

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)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.402G	4.43	-25.57	837.23M	-54.58	2.4G	-51.90	2.4G	-54.22	2.50335G	-52.70	15.30401G	-41.01	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)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	4.43	-25.57	837.23M	-54.58	2.4G	-51.90	2.4G	-54.22	2.50335G	-52.70	15.30401G	-41.01	1
2440MHz	Pass	2.402G	4.43	-25.57	2.08273G	-55.04	2.39147G	-52.69	2.4835G	-55.69	2.49407G	-52.61	23.27621G	-41.48	1
2480MHz	Pass	2.402G	4.43	-25.57	2.14471G	-54.23	2.39725G	-53.87	2.4835G	-55.49	2.48578G	-53.05	23.59116G	-41.63	1

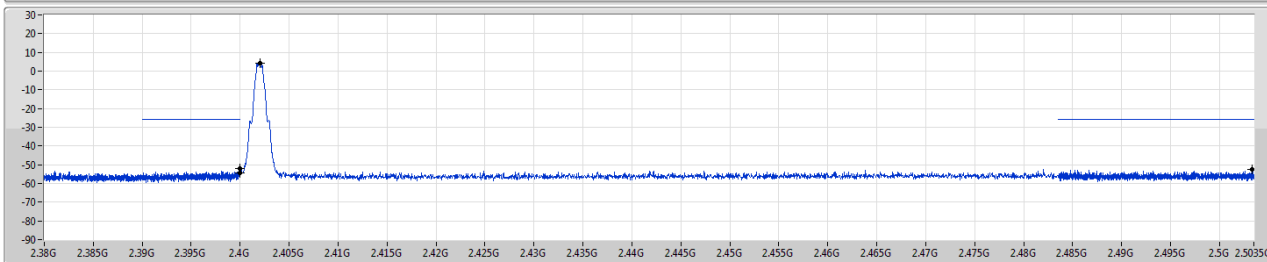
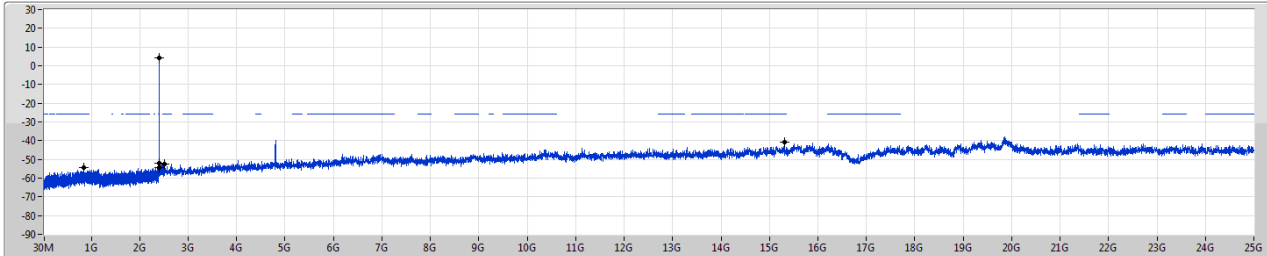
BT-LE(1Mbps)

2402MHz

CSE NdB

06/07/2020

Port1



RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	4.43	-25.57	837.23M	-54.58	2.4G	-51.90	2.4G	-54.22	2.50335G	-52.70	15.30401G	-41.01	1

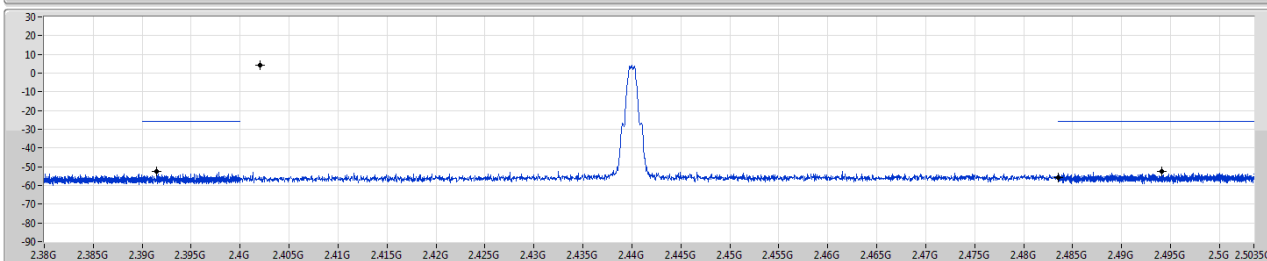
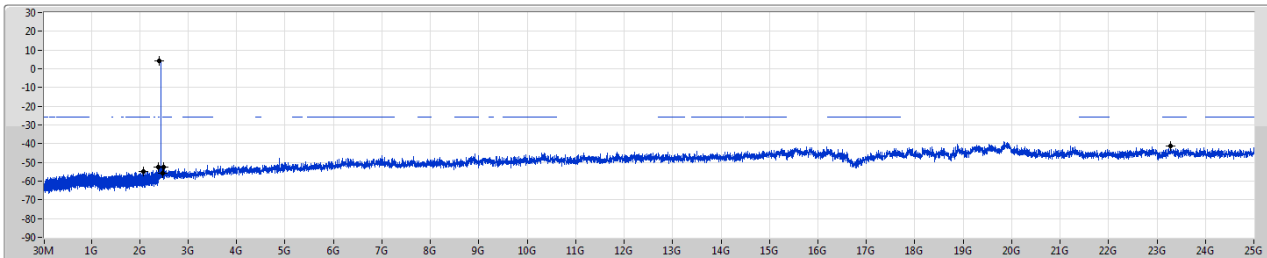
BT-LE(1Mbps)

2440MHz

CSE NdB

06/07/2020

Port1



RBW (Hz)
100k
VBW (Hz)
300k
Detector
Peak

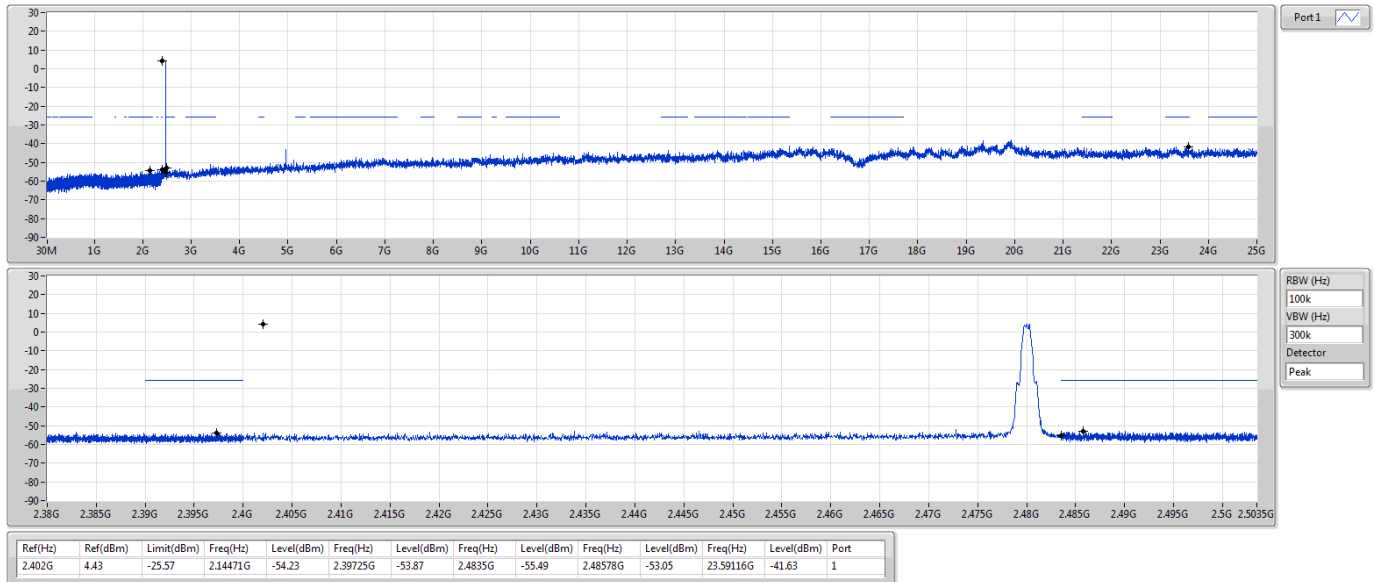
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	4.43	-25.57	2.08273G	-55.04	2.39147G	-52.69	2.4835G	-55.69	2.49407G	-52.61	23.27621G	-41.48	1

BT-LE(1Mbps)

2480MHz

CSE NdB

06/07/2020





Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	62.98M	35.73	40.00	-4.27	3	Horizontal	360	1.00	-

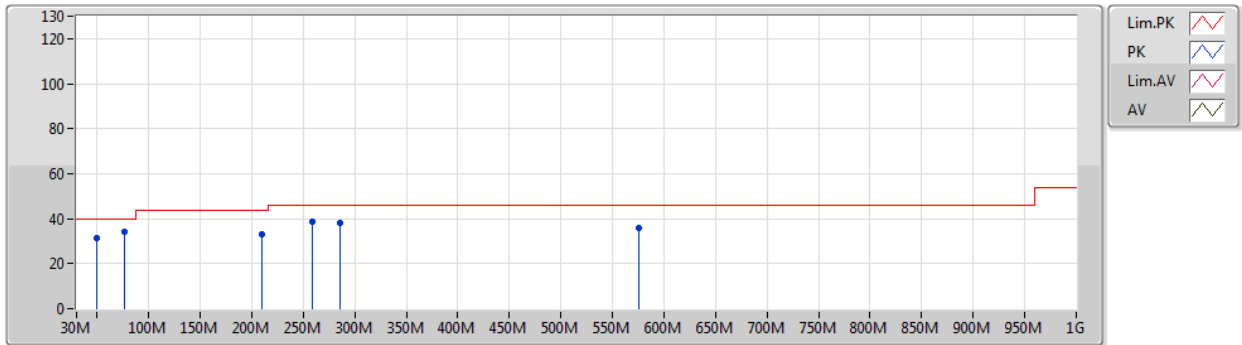
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	49.4M	31.17	40.00	-8.83	3	Vertical	0	1.00	-
2440MHz	Pass	PK	76.56M	34.27	40.00	-5.73	3	Vertical	0	1.00	-
2440MHz	Pass	PK	210.42M	33.33	43.50	-10.17	3	Vertical	0	1.00	-
2440MHz	Pass	PK	258.92M	38.77	46.00	-7.23	3	Vertical	0	1.00	-
2440MHz	Pass	PK	286.08M	37.88	46.00	-8.12	3	Vertical	0	1.00	-
2440MHz	Pass	PK	575.14M	35.91	46.00	-10.09	3	Vertical	0	1.00	-
2440MHz	Pass	PK	62.98M	35.73	40.00	-4.27	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	299.66M	41.00	46.00	-5.00	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	317.12M	41.70	46.00	-4.30	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	476.2M	36.13	46.00	-9.87	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	499.48M	35.50	46.00	-10.50	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	825.4M	37.32	46.00	-8.68	3	Horizontal	360	1.00	-

BT-LE(1Mbps)

2440MHz_Adapter

14/07/2020

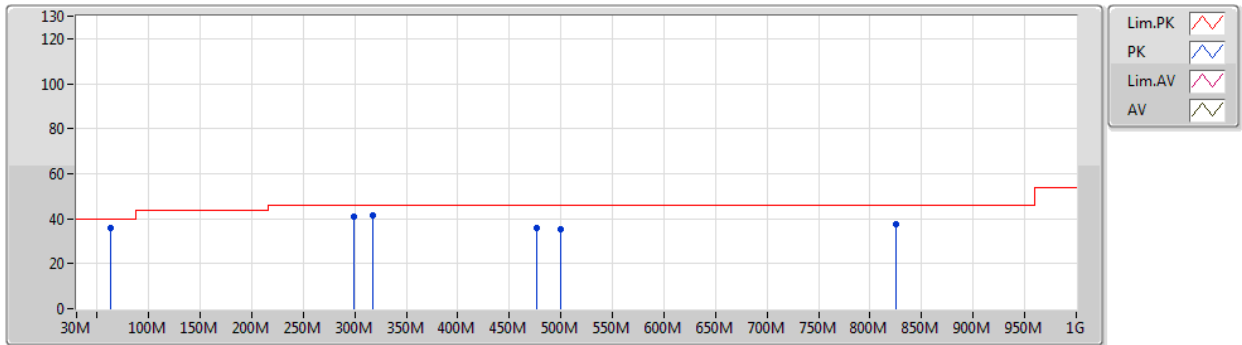


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBm)	AF (dB)	CL (dB)	PA (dB)
PK	49.4M	31.17	40.00	-8.83	-22.87	3	Vertical	0	1.00	-	54.04	13.72	0.50	37.09
PK	76.56M	34.27	40.00	-5.73	-24.38	3	Vertical	0	1.00	-	58.65	11.87	0.70	36.95
PK	210.42M	33.33	43.50	-10.17	-21.07	3	Vertical	0	1.00	-	54.40	14.16	1.14	36.37
PK	258.92M	38.77	46.00	-7.23	-16.06	3	Vertical	0	1.00	-	54.83	19.05	1.32	36.43
PK	286.08M	37.88	46.00	-8.12	-17.07	3	Vertical	0	1.00	-	54.95	18.03	1.37	36.47
PK	575.14M	35.91	46.00	-10.09	-10.05	3	Vertical	0	1.00	-	45.96	25.00	2.10	37.15

BT-LE(1Mbps)

2440MHz_Adapter

14/07/2020



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBm)	AF (dB)	CL (dB)	PA (dB)
PK	62.98M	35.73	40.00	-4.27	-25.64	3	Horizontal	360	1.00	-	61.37	10.82	0.60	37.06
PK	299.66M	41.00	46.00	-5.00	-16.72	3	Horizontal	360	1.00	-	57.72	18.23	1.40	36.35
PK	317.12M	41.70	46.00	-4.30	-16.62	3	Horizontal	360	1.00	-	58.32	18.45	1.43	36.50
PK	476.2M	36.13	46.00	-9.87	-12.35	3	Horizontal	360	1.00	-	48.48	22.65	1.85	36.85
PK	499.48M	35.50	46.00	-10.50	-12.17	3	Horizontal	360	1.00	-	47.67	22.92	1.90	36.99
PK	825.4M	37.32	46.00	-8.68	-7.73	3	Horizontal	360	1.00	-	45.05	27.12	2.65	37.50



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	4.80401G	47.41	54.00	-6.59	3	Horizontal	311	1.80	-

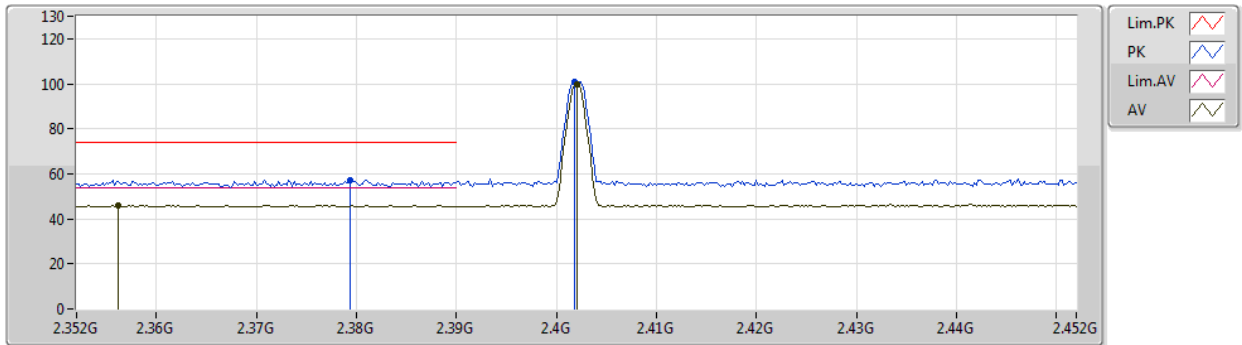
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3562G	46.05	54.00	-7.95	3	Vertical	360	1.06	-
2402MHz	Pass	AV	2.402G	99.73	Inf	-Inf	3	Vertical	360	1.06	-
2402MHz	Pass	PK	2.3794G	57.40	74.00	-16.60	3	Vertical	360	1.06	-
2402MHz	Pass	PK	2.4018G	100.70	Inf	-Inf	3	Vertical	360	1.06	-
2402MHz	Pass	AV	2.3648G	46.29	54.00	-7.71	3	Horizontal	79	1.00	-
2402MHz	Pass	AV	2.402G	94.96	Inf	-Inf	3	Horizontal	79	1.00	-
2402MHz	Pass	PK	2.3682G	57.72	74.00	-16.28	3	Horizontal	79	1.00	-
2402MHz	Pass	PK	2.4022G	95.90	Inf	-Inf	3	Horizontal	79	1.00	-
2402MHz	Pass	AV	4.80405G	45.06	54.00	-8.94	3	Vertical	343	1.97	-
2402MHz	Pass	PK	4.80436G	52.06	74.00	-21.94	3	Vertical	343	1.97	-
2402MHz	Pass	AV	4.80401G	47.41	54.00	-6.59	3	Horizontal	311	1.80	-
2402MHz	Pass	PK	4.80462G	53.38	74.00	-20.62	3	Horizontal	311	1.80	-
2440MHz	Pass	AV	2.3436G	45.98	54.00	-8.02	3	Vertical	360	1.30	-
2440MHz	Pass	AV	2.44G	100.17	Inf	-Inf	3	Vertical	360	1.30	-
2440MHz	Pass	AV	2.498G	46.66	54.00	-7.34	3	Vertical	360	1.30	-
2440MHz	Pass	PK	2.3684G	57.21	74.00	-16.79	3	Vertical	360	1.30	-
2440MHz	Pass	PK	2.44G	101.23	Inf	-Inf	3	Vertical	360	1.30	-
2440MHz	Pass	PK	2.4888G	57.95	74.00	-16.05	3	Vertical	360	1.30	-
2440MHz	Pass	AV	2.3408G	45.98	54.00	-8.02	3	Horizontal	88	1.00	-
2440MHz	Pass	AV	2.44G	95.46	Inf	-Inf	3	Horizontal	88	1.00	-
2440MHz	Pass	AV	2.4916G	46.55	54.00	-7.45	3	Horizontal	88	1.00	-
2440MHz	Pass	PK	2.3848G	57.17	74.00	-16.83	3	Horizontal	88	1.00	-
2440MHz	Pass	PK	2.44G	96.44	Inf	-Inf	3	Horizontal	88	1.00	-
2440MHz	Pass	PK	2.4936G	57.99	74.00	-16.01	3	Horizontal	88	1.00	-
2440MHz	Pass	AV	4.88007G	42.97	54.00	-11.03	3	Vertical	339	1.89	-
2440MHz	Pass	PK	4.87955G	50.63	74.00	-23.37	3	Vertical	339	1.89	-
2440MHz	Pass	AV	4.87999G	45.37	54.00	-8.63	3	Horizontal	324	2.00	-
2440MHz	Pass	PK	4.87942G	52.41	74.00	-21.59	3	Horizontal	324	2.00	-
2480MHz	Pass	AV	2.48G	100.43	Inf	-Inf	3	Vertical	356	1.03	-
2480MHz	Pass	AV	2.4842G	46.74	54.00	-7.26	3	Vertical	356	1.03	-
2480MHz	Pass	PK	2.4798G	101.35	Inf	-Inf	3	Vertical	356	1.03	-
2480MHz	Pass	PK	2.496G	58.31	74.00	-15.69	3	Vertical	356	1.03	-
2480MHz	Pass	AV	2.48G	94.89	Inf	-Inf	3	Horizontal	75	1.00	-
2480MHz	Pass	AV	2.4868G	46.56	54.00	-7.44	3	Horizontal	75	1.00	-
2480MHz	Pass	PK	2.4802G	95.84	Inf	-Inf	3	Horizontal	75	1.00	-
2480MHz	Pass	PK	2.4856G	57.97	74.00	-16.03	3	Horizontal	75	1.00	-
2480MHz	Pass	AV	4.95992G	42.25	54.00	-11.75	3	Vertical	341	1.96	-
2480MHz	Pass	PK	4.95987G	50.44	74.00	-23.56	3	Vertical	341	1.96	-
2480MHz	Pass	AV	4.96004G	44.03	54.00	-9.97	3	Horizontal	310	1.95	-
2480MHz	Pass	PK	4.96047G	51.22	74.00	-22.78	3	Horizontal	310	1.95	-

BT-LE(1Mbps)

2402MHz_TX

04/07/2020

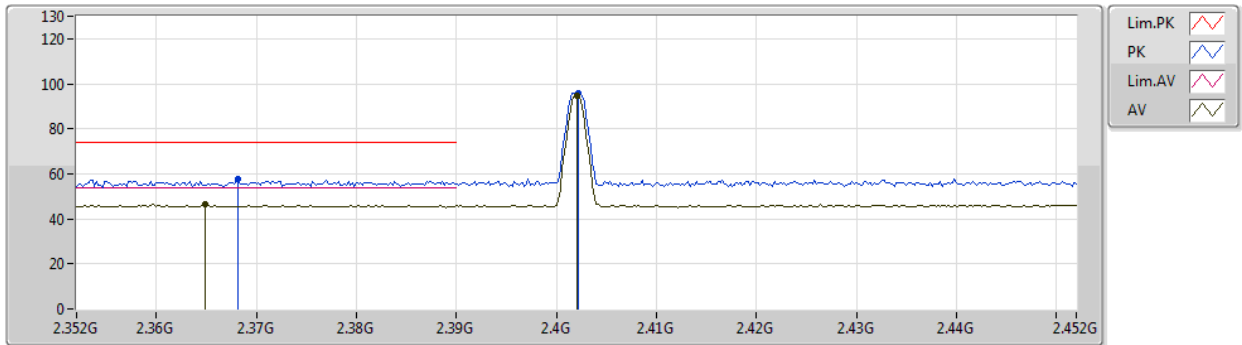


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3562G	46.05	54.00	-7.95	32.79	3	Vertical	360	1.06	-	13.26	27.78	5.01	-
AV	2.402G	99.73	Inf	-Inf	32.70	3	Vertical	360	1.06	-	67.03	27.60	5.10	-
PK	2.3794G	57.40	74.00	-16.60	32.74	3	Vertical	360	1.06	-	24.66	27.68	5.06	-
PK	2.4018G	100.70	Inf	-Inf	32.70	3	Vertical	360	1.06	-	68.00	27.60	5.10	-

BT-LE(1Mbps)

2402MHz_TX

04/07/2020

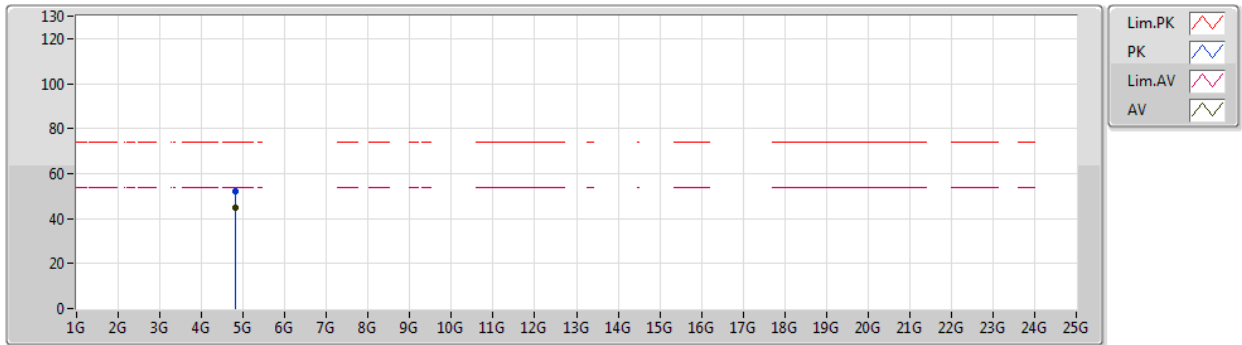


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3648G	46.29	54.00	-7.71	32.77	3	Horizontal	79	1.00	-	13.52	27.74	5.03	-
AV	2.402G	94.96	Inf	-Inf	32.70	3	Horizontal	79	1.00	-	62.26	27.60	5.10	-
PK	2.3682G	57.72	74.00	-16.28	32.77	3	Horizontal	79	1.00	-	24.95	27.73	5.04	-
PK	2.4022G	95.90	Inf	-Inf	32.70	3	Horizontal	79	1.00	-	63.20	27.60	5.10	-

BT-LE(1Mbps)

2402MHz_TX

04/07/2020

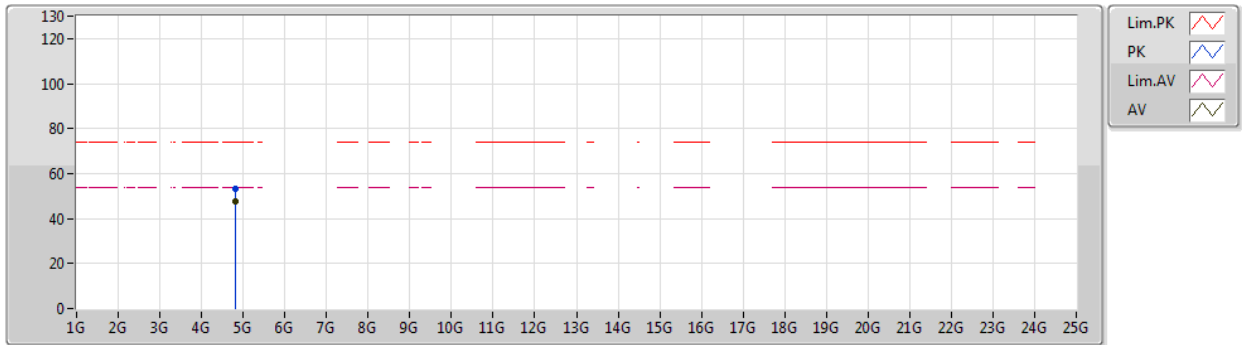


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80405G	45.06	54.00	-8.94	4.12	3	Vertical	343	1.97	-	40.94	31.12	7.30	34.30
PK	4.80436G	52.06	74.00	-21.94	4.12	3	Vertical	343	1.97	-	47.94	31.12	7.30	34.30

BT-LE(1Mbps)

2402MHz_TX

04/07/2020

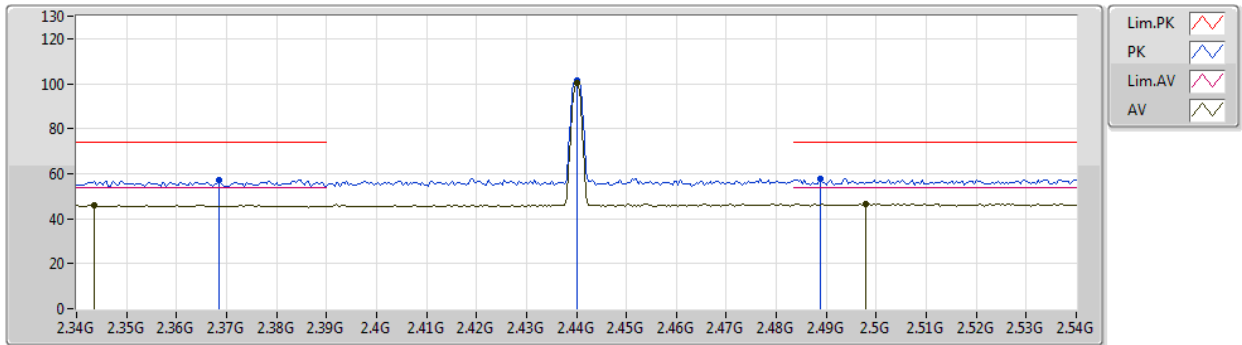


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80401G	47.41	54.00	-6.59	4.12	3	Horizontal	311	1.80	-	43.29	31.12	7.30	34.30
PK	4.80462G	53.38	74.00	-20.62	4.12	3	Horizontal	311	1.80	-	49.26	31.12	7.30	34.30

BT-LE(1Mbps)

2440MHz_TX

04/07/2020

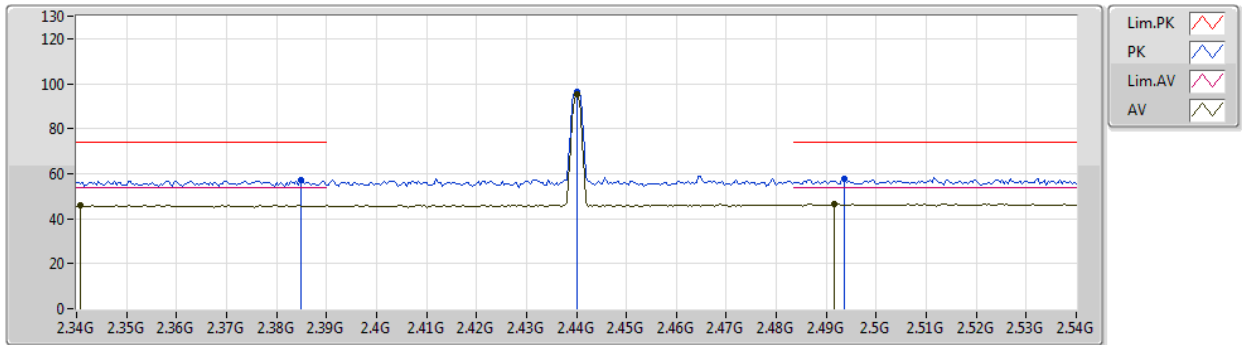


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3436G	45.98	54.00	-8.02	32.80	3	Vertical	360	1.30	-	13.18	27.81	4.99	-
AV	2.44G	100.17	Inf	-Inf	32.76	3	Vertical	360	1.30	-	67.41	27.60	5.16	-
AV	2.498G	46.66	54.00	-7.34	32.85	3	Vertical	360	1.30	-	13.81	27.60	5.25	-
PK	2.3684G	57.21	74.00	-16.79	32.77	3	Vertical	360	1.30	-	24.44	27.73	5.04	-
PK	2.44G	101.23	Inf	-Inf	32.76	3	Vertical	360	1.30	-	68.47	27.60	5.16	-
PK	2.4888G	57.95	74.00	-16.05	32.83	3	Vertical	360	1.30	-	25.12	27.60	5.23	-

BT-LE(1Mbps)

2440MHz_TX

04/07/2020

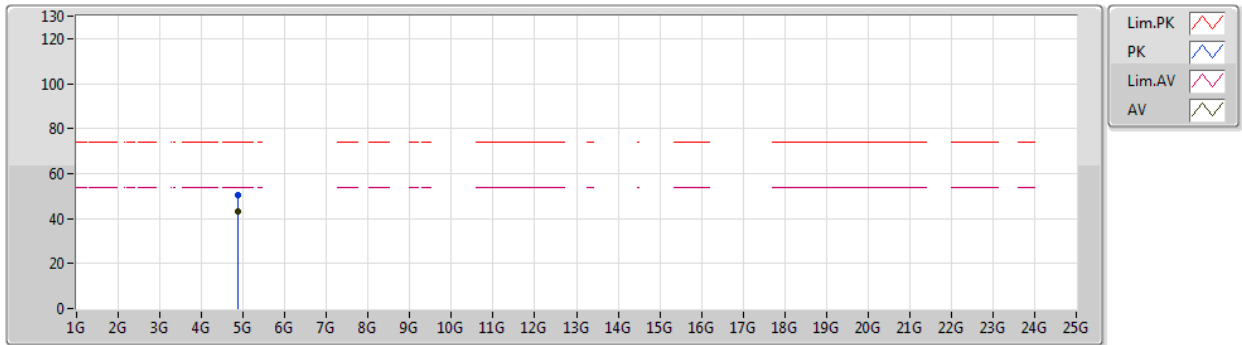


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3408G	45.98	54.00	-8.02	32.80	3	Horizontal	88	1.00	-	13.18	27.82	4.98	-
AV	2.44G	95.46	Inf	-Inf	32.76	3	Horizontal	88	1.00	-	62.70	27.60	5.16	-
AV	2.4916G	46.55	54.00	-7.45	32.84	3	Horizontal	88	1.00	-	13.71	27.60	5.24	-
PK	2.3848G	57.17	74.00	-16.83	32.73	3	Horizontal	88	1.00	-	24.44	27.66	5.07	-
PK	2.44G	96.44	Inf	-Inf	32.76	3	Horizontal	88	1.00	-	63.68	27.60	5.16	-
PK	2.4936G	57.99	74.00	-16.01	32.84	3	Horizontal	88	1.00	-	25.15	27.60	5.24	-

BT-LE(1Mbps)

2440MHz_TX

04/07/2020

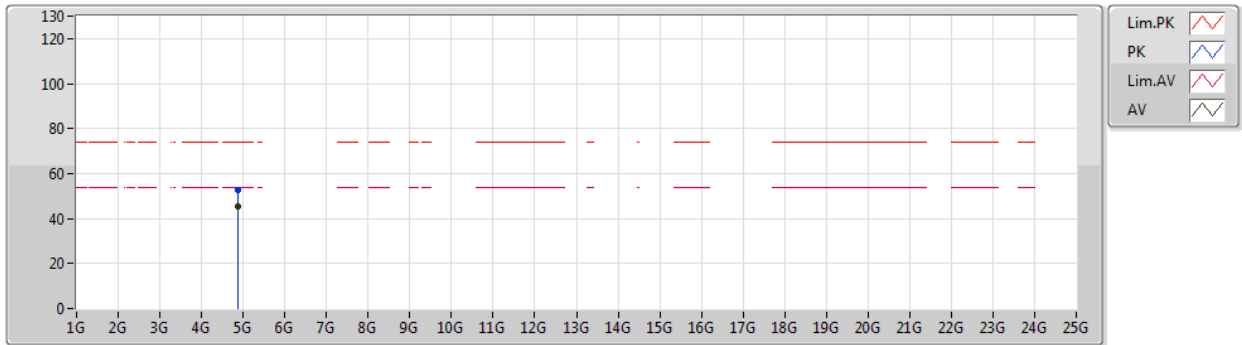


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.88007G	42.97	54.00	-11.03	4.34	3	Vertical	339	1.89	-	38.63	31.24	7.38	34.28
PK	4.87955G	50.63	74.00	-23.37	4.34	3	Vertical	339	1.89	-	46.29	31.24	7.38	34.28

BT-LE(1Mbps)

2440MHz_TX

04/07/2020

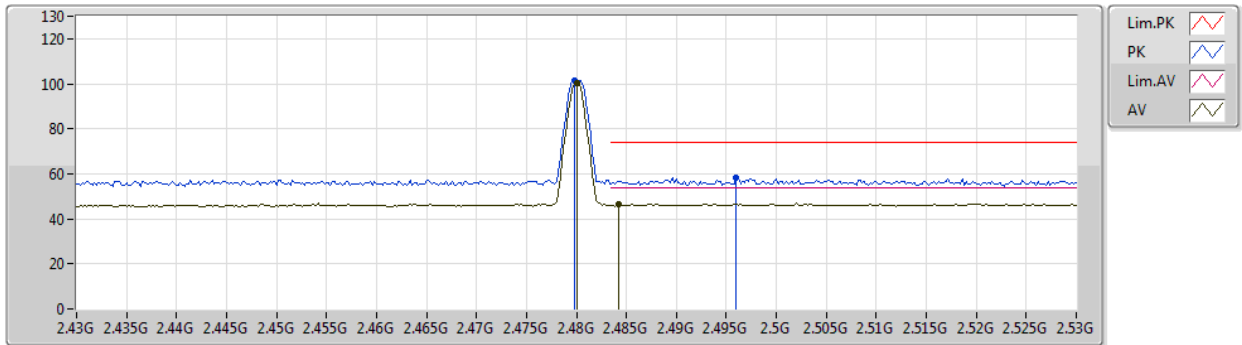


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87999G	45.37	54.00	-8.63	4.34	3	Horizontal	324	2.00	-	41.03	31.24	7.38	34.28
PK	4.87942G	52.41	74.00	-21.59	4.34	3	Horizontal	324	2.00	-	48.07	31.24	7.38	34.28

BT-LE(1Mbps)

2480MHz_TX

04/07/2020

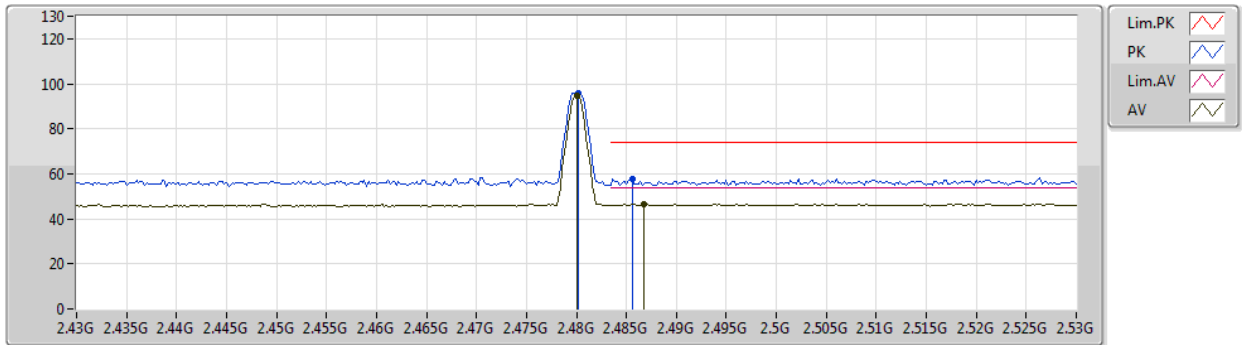


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	100.43	Inf	-Inf	32.82	3	Vertical	356	1.03	-	67.61	27.60	5.22	-
AV	2.4842G	46.74	54.00	-7.26	32.83	3	Vertical	356	1.03	-	13.91	27.60	5.23	-
PK	2.4798G	101.35	Inf	-Inf	32.82	3	Vertical	356	1.03	-	68.53	27.60	5.22	-
PK	2.496G	58.31	74.00	-15.69	32.84	3	Vertical	356	1.03	-	25.47	27.60	5.24	-

BT-LE(1Mbps)

2480MHz_TX

04/07/2020

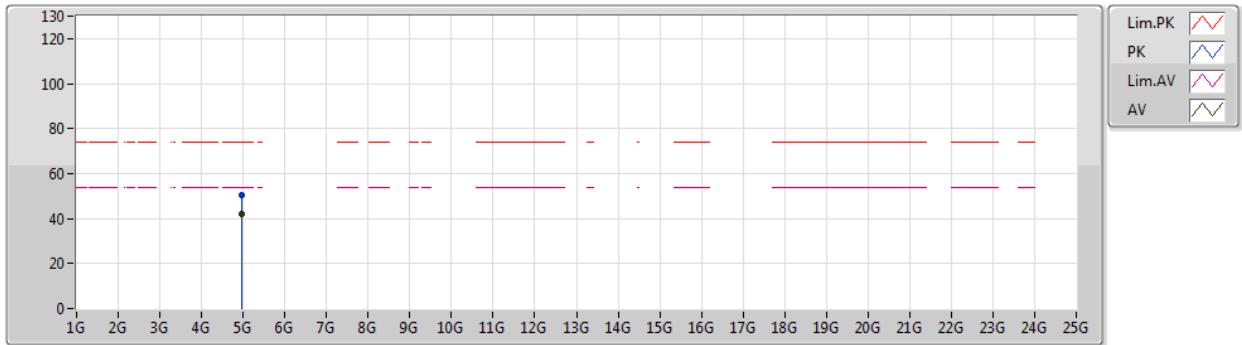


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	94.89	Inf	-Inf	32.82	3	Horizontal	75	1.00	-	62.07	27.60	5.22	-
AV	2.4868G	46.56	54.00	-7.44	32.83	3	Horizontal	75	1.00	-	13.73	27.60	5.23	-
PK	2.4802G	95.84	Inf	-Inf	32.82	3	Horizontal	75	1.00	-	63.02	27.60	5.22	-
PK	2.4856G	57.97	74.00	-16.03	32.83	3	Horizontal	75	1.00	-	25.14	27.60	5.23	-

BT-LE(1Mbps)

2480MHz_TX

04/07/2020

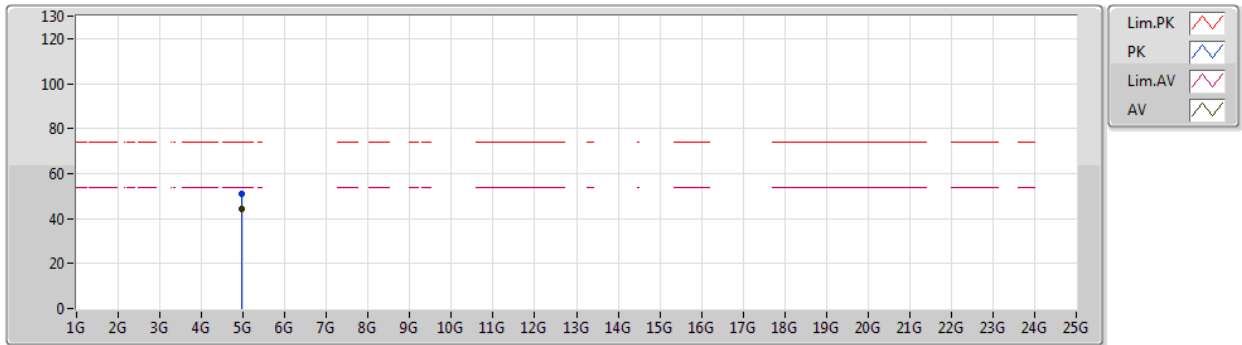


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95992G	42.25	54.00	-11.75	4.72	3	Vertical	341	1.96	-	37.53	31.42	7.46	34.16
PK	4.95987G	50.44	74.00	-23.56	4.72	3	Vertical	341	1.96	-	45.72	31.42	7.46	34.16

BT-LE(1Mbps)

2480MHz_TX

04/07/2020



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.96004G	44.03	54.00	-9.97	4.72	3	Horizontal	310	1.95	-	39.31	31.42	7.46	34.16
PK	4.96047G	51.22	74.00	-22.78	4.72	3	Horizontal	310	1.95	-	46.50	31.42	7.46	34.16