FCC Test Report

FCC ID	:	**2AEUPBHAIC001**
Equipment	:	**Indoor Cam**
Brand Name	:	**RING**
Model Name	:	**5UM4E5**
Applicant	:	**Ring LLC** **1523 26th St, Santa Monica, CA 90404, USA**
Manufacturer	:	**Chicony Electronics (Dong Guan) Co.,Ltd.** **San Zhong Guan Li Qu, Qingxi Town,** **Dongguan City Guangdong 523651 China**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on May 30, 2019, and testing was started from Jun. 19, 2019 and completed on Jun. 26, 2019. 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.)

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History of this test report

Report No.	Version	Description	Issued Date
FR952303AL	01	Initial issue of report	Jul. 04, 2019

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:>30 dBc
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: FCC 15.209

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: Jackson Tsai

Report Producer: Ann Hou

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	Bluetooth Mode	Ch. Frequency (MHz)	Channel Number
2400-2483.5	LE	2402-2480	0-39 [40]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1.0	1TX

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

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	WIESON	-	Dipole	I-PEX

Ant.	Port	Gain (dBi)					
		2.4G (2412MHz)	2.4G (2417MHz)	2.4G (2437MHz)	2.4G (2457MHz)	2.4G (2462MHz)	BT
1	1	2.33	2.47	2.47	3.04	3.10	3.10

Note 1: The EUT has one antenna.

For 2.4GHz function:

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

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

For BT function:

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

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

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)	0.626	2.03	391.25u	3k

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
- KDB 558074 D01 v05r02

1.3 Testing Location Information

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

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Dexter	26.2~26.6°C / 53~55%	21/Jun/2019~ 26/Jun/2019
Radiated	03CH01-HY	Edward	23.7~26.8°C / 59.2~62.9%	19/Jun/2019~ 20/Jun/2019
AC Conduction	CO04-HY	Jeff	21.2~23.9°C / 56.2~59.1%	21/Jun/2019

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)	3.54 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	1.6 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	120V

2.2 Test Channel Mode

Test Software	DoS

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**
	
Worst Planes of EUT	V

2.4 Accessories and Support Equipment

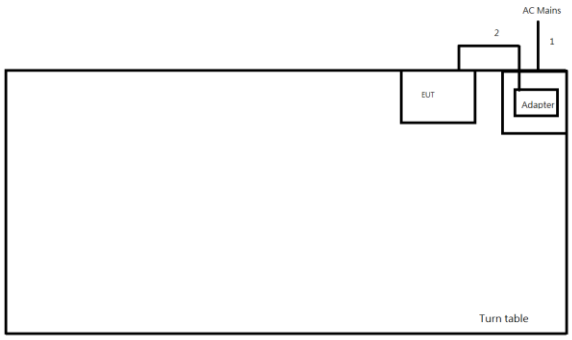
Accessories				
AC Adapter 1 (US Plug)	**Brand Name**	ring	**Model Name**	DSA-12PFU-05 FUS 050200
	Power Rating	I/P: 100-240Vac, 0.5A, O/P: 5Vdc, 2A		
	Power Cord	1.95 meter, non-shielded cable, w/o ferrite core		
AC Adapter 1 (EU Plug)	**Brand Name**	ring	**Model Name**	DSA-12PFU-05 FCA 050200
	Power Rating	I/P: 100-240Vac, 0.5A, O/P: 5Vdc, 2A		
	Power Cord	1.98 meter, non-shielded cable, w/o ferrite core		

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

Support Equipment – RF Conducted				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E5410	DoC
2	Adapter for Notebook	DELL	HA65NM130	DoC
3	AC Power Source	GW	APS-9102	N/A

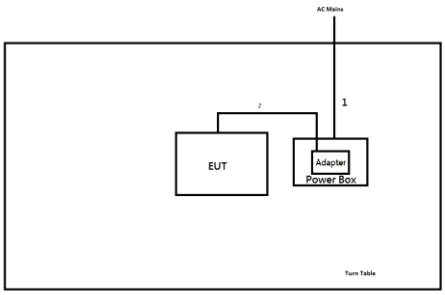
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length
1	AC Power line	No	1.5m
2	DC Power line	No	1.95 m

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	AC Power line	No	1.5m
2	DC Power line	No	1.95m

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

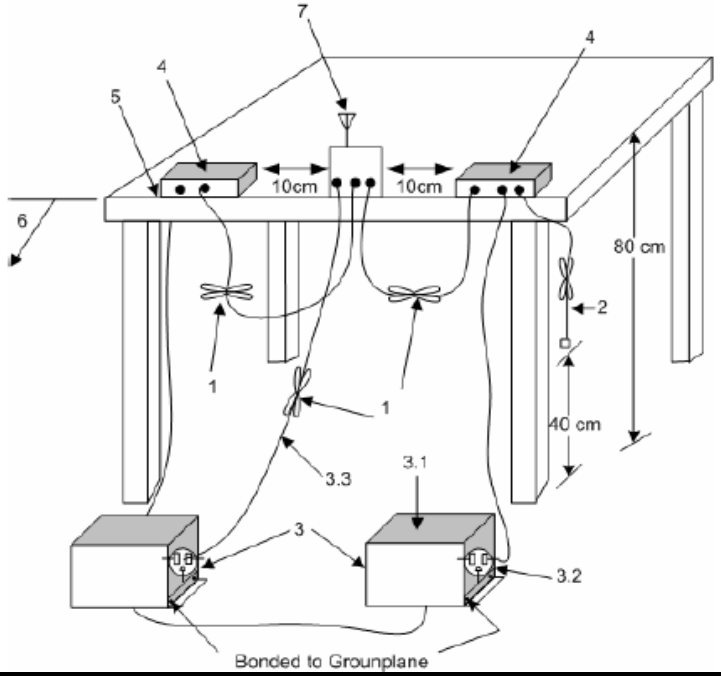
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
▪ 6 dB bandwidth ≥ 500 kHz.

3.2.2 Measuring Instruments

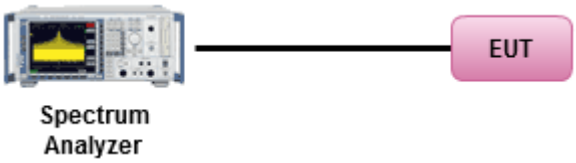
Refer a test equipment and calibration data table in this test report.

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 for occupied bandwidth testing.
	☐ Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup

Emission Bandwidth



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): $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX}])$ dBm	
	▪ Smart antenna system (SAS)	
		- Single beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		- Overlap beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		- Aggregate power on all beams: $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX} + 8])$ 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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)


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

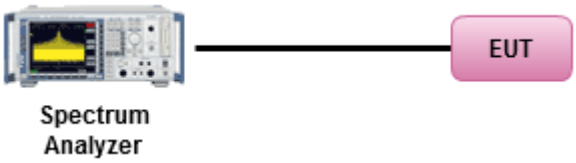
3.4.2 Measuring Instruments

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) Method PKPSD.	
▪ 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

Power Spectral Density


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.	

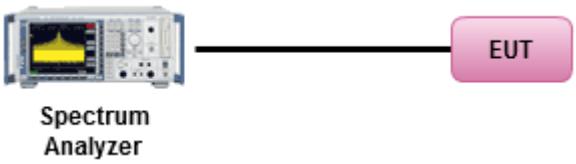
3.5.2 Measuring Instruments

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

Emissions in Non-restricted Frequency Bands


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 below30 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.

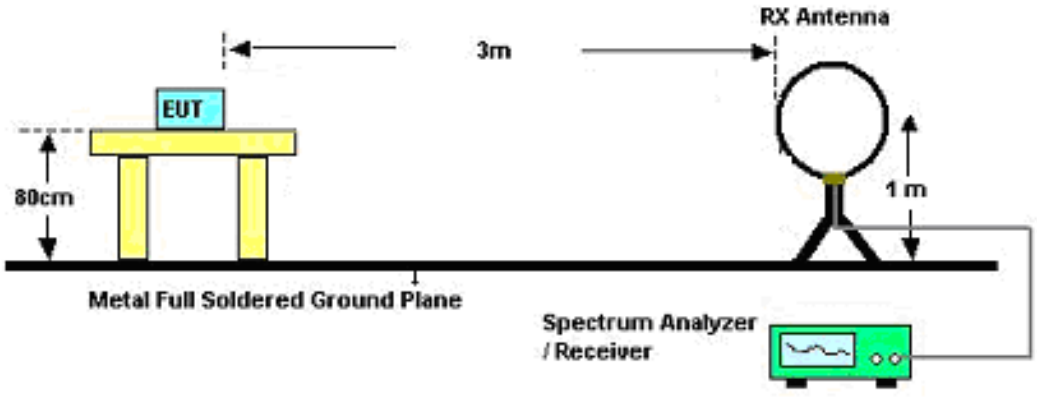
3.6.2 Measuring Instruments

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

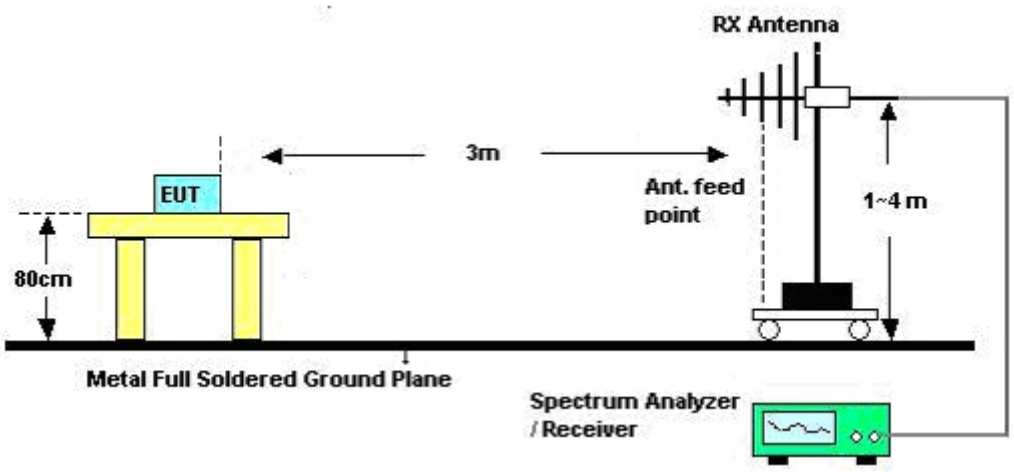
3.6.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [duty cycle ≥ 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 ≥ 1 GHz for peak measurement. For average measurement, refer as 1.1.4.

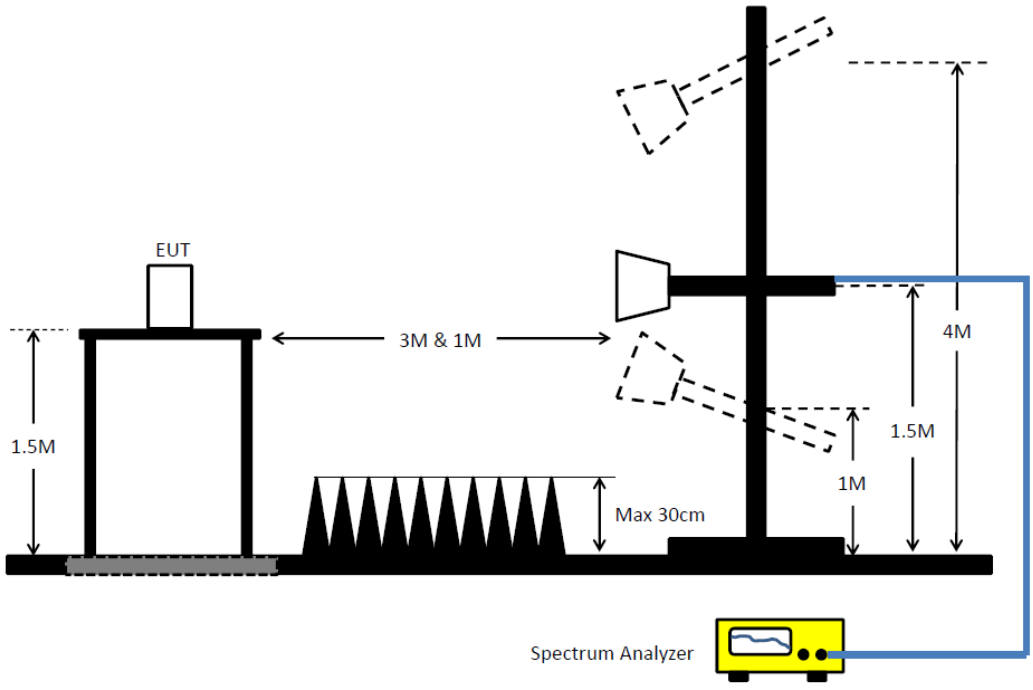
3.6.4 Test Setup

Emissions in Restricted Frequency Bands
9kHz ~30MHz


30MHz~1GHz



Above 1GHz



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

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

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	08/Nov/2018	07/Nov/2019
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	17/Sep/2018	16/Sep/2019
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/2018	11/Oct/2019

NCR : Non-Calibration Require

Instrument for Conducted Test

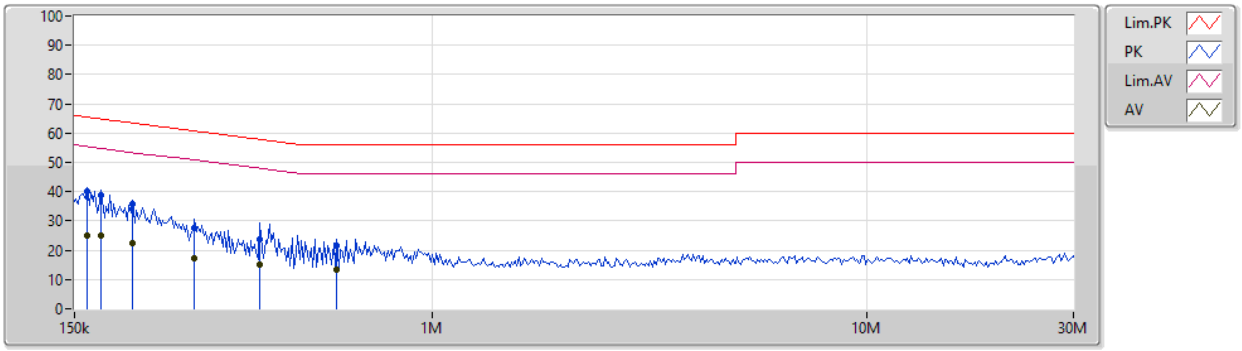
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz ~ 40GHz	13/Mar/2019	12/Mar/2020
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	17/Nov/2018	16/Nov/2019
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	17/Nov/2018	16/Nov/2019
Cable 0.2m	HUBER	MY10710/4	RF Cable - 01	30MHz ~18G	10/Jan/2019	09/Jan/2020
Cable 0.2m	HUBER	MY10711/4	RF Cable - 02	30MHz ~18G	10/Jan/2019	09/Jan/2020
Cable 0.5m	HUBER	MY39470/4	RF Cable - 29	30MHz ~18G	10/Jan/2019	09/Jan/2020
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	Riken	SAC-3M	03CH01-HY	30MHz ~ 1GHz 3m	11/Jan/2019	10/Jan/2020
3m Semi Anechoic Chamber	Riken	SAC-3M	03CH01-HY	1GHz ~ 18GHz 3m	09/Jan/2019	08/Jan/2020
PreAmplifier	COM-POWER	PA-103	161050	1 MHz ~ 1.0GHz	24/Jul/2018	23/Jul/2019
Microwave Preamplifier	Agilent	8449B	3008A02602	1GHz ~ 26.5GHz	27/Mar/2019	26/Mar/2020
Spectrum Analyzer	R&S	FSV40	101407	10Hz ~ 40GHz	16/Aug/2018	15/Aug/2019
RF Cable-R03m	Jye Bao	RG142	CB019	9kHz ~ 1GHz	14/Dec/2018	13/Dce/2019
RF Cable-high	SUHNER	SUCOFLEX 104	SN805196/4+MY39495	1 GHz ~ 18 GHz	13/Mar/2019	12/Mar/2020
Bilog Antenna & 5db Attenuator	SCHAFFNER/MTJ	CBL6112D / MTJ6102-05	2678 / 001	30MHz ~ 2GHz	07/Jul/2018	06/Jul/2019
EMI Test Receiver	R&S	ESU-26	100422	20Hz ~ 26.5GHz	25/Oct/2018	24/Oct/2019
Loop Antenna	TESEQ	HLA 6120	31244	9k ~ 30MHz	15/Mar/2019	14/Mar/2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170339	18GHz ~ 40GHz	19/Apr/2019	18/Apr/2020
Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D-1130	1GHz ~ 18GHz	26/Oct/2018	25/Oct/2019

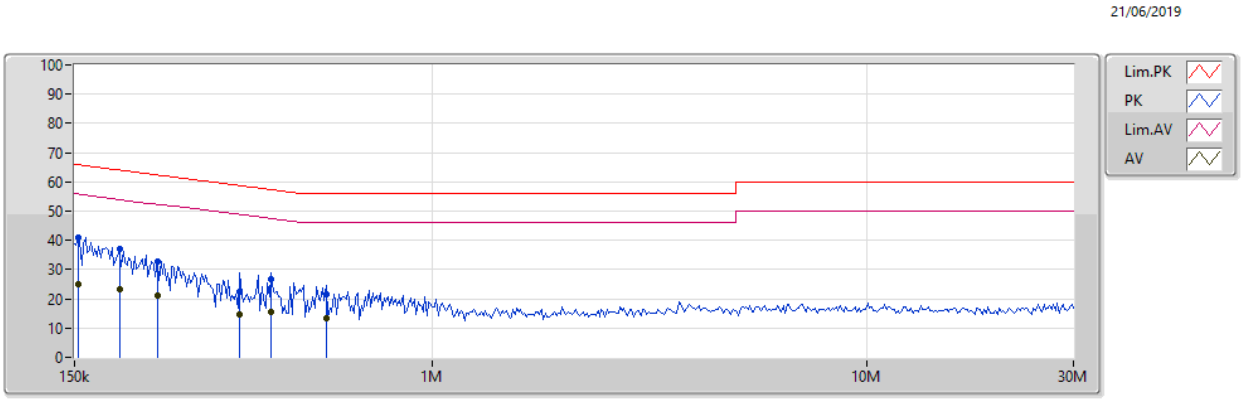
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	Adapter mode		

21/06/2019



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	160.82k	39.97	65.43	-25.46	19.48	Neutral	"Worst"	20.49	9.60	0.01	9.87
AV	160.82k	25.20	55.43	-30.23	19.48	Neutral	-	5.72	9.60	0.01	9.87
QP	172.421k	38.72	64.83	-26.11	19.48	Neutral	-	19.24	9.60	0.01	9.87
AV	172.421k	24.84	54.83	-29.99	19.48	Neutral	-	5.36	9.60	0.01	9.87
QP	204.199k	35.77	63.44	-27.67	19.47	Neutral	-	16.30	9.59	0.01	9.87
AV	204.199k	22.62	53.44	-30.82	19.47	Neutral	-	3.15	9.59	0.01	9.87
QP	283.569k	27.77	60.70	-32.93	19.48	Neutral	-	8.29	9.59	0.01	9.88
AV	283.569k	17.45	50.70	-33.25	19.48	Neutral	-	-2.03	9.59	0.01	9.88
QP	401.705k	23.56	57.82	-34.26	19.48	Neutral	-	4.08	9.59	0.01	9.88
AV	401.705k	14.88	47.82	-32.94	19.48	Neutral	-	-4.60	9.59	0.01	9.88
QP	604.065k	21.73	56.00	-34.27	19.48	Neutral	-	2.25	9.59	0.01	9.88
AV	604.065k	13.39	46.00	-32.61	19.48	Neutral	-	-6.09	9.59	0.01	9.88

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	Adapter mode		



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	153.015k	40.82	65.83	-25.01	19.48	Line	"Worst"	21.34	9.60	0.01	9.87
AV	153.015k	24.91	55.83	-30.92	19.48	Line	-	5.43	9.60	0.01	9.87
QP	190.46k	37.13	64.01	-26.88	19.48	Line	-	17.65	9.60	0.01	9.87
AV	190.46k	23.07	54.01	-30.94	19.48	Line	-	3.59	9.60	0.01	9.87
QP	232.398k	32.93	62.37	-29.44	19.48	Line	-	13.45	9.60	0.01	9.87
AV	232.398k	21.13	52.37	-31.24	19.48	Line	-	1.65	9.60	0.01	9.87
QP	360.058k	22.57	58.73	-36.16	19.48	Line	-	3.09	9.59	0.01	9.88
AV	360.058k	14.44	48.73	-34.29	19.48	Line	-	-5.04	9.59	0.01	9.88
QP	426.418k	26.87	57.32	-30.45	19.48	Line	-	7.39	9.59	0.01	9.88
AV	426.418k	15.64	47.32	-31.68	19.48	Line	-	-3.84	9.59	0.01	9.88
QP	569.056k	21.50	56.00	-34.50	19.48	Line	-	2.02	9.59	0.01	9.88
AV	569.056k	13.17	46.00	-32.83	19.48	Line	-	-6.31	9.59	0.01	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)	720k	1.053M	1M05F1D	701.25k	1.051M

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

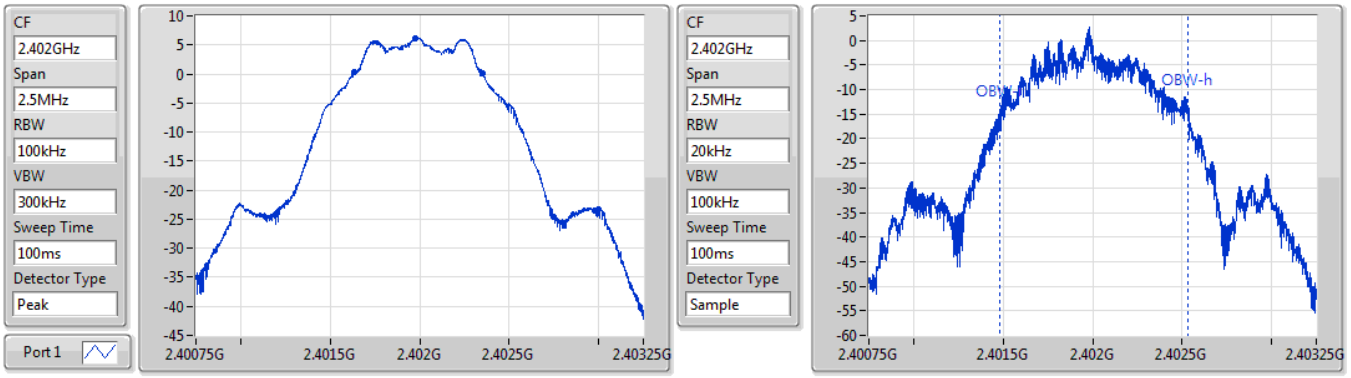
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	720k	1.053M
2440MHz_TnomVnom	Pass	500k	711.25k	1.051M
2480MHz_TnomVnom	Pass	500k	701.25k	1.052M

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

BT-LE(1Mbps) **EBW**

2402MHz

21/06/2019

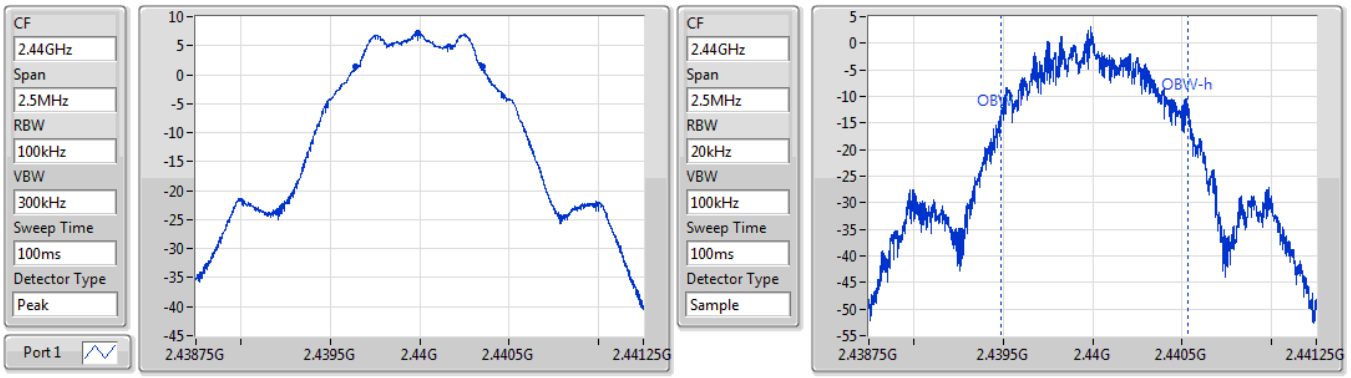


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
720k	2.401634G	2.402354G	1.053M	2.401478G	2.402531G	500k	1

BT-LE(1Mbps) **EBW**

2440MHz

21/06/2019

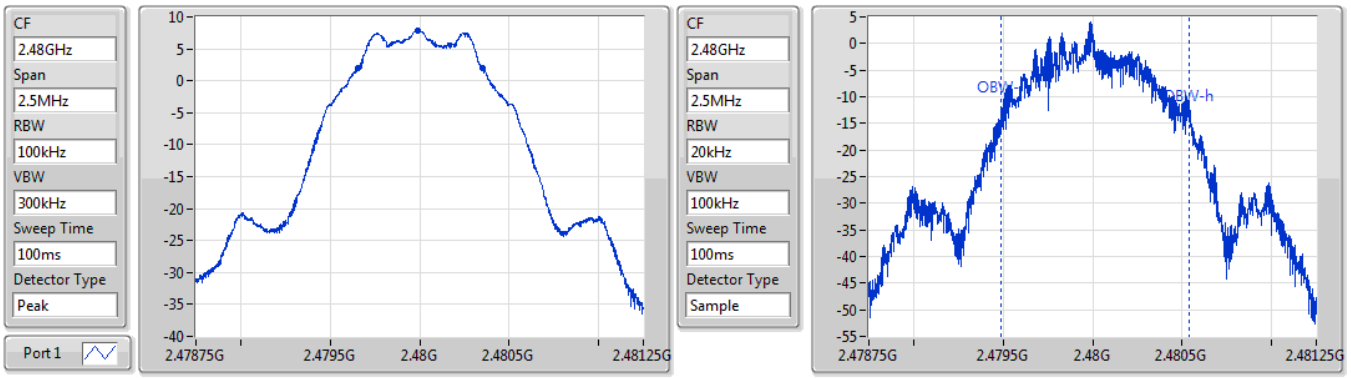


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
711.25k	2.439641G	2.440353G	1.051M	2.439485G	2.440536G	500k	1

BT-LE(1Mbps) **EBW**

2480MHz

21/06/2019



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
701.25k	2.479654G	2.480355G	1.052M	2.479488G	2.48054G	500k	1

Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	8.70	0.00741

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.10	6.92	30.00
2440MHz	Pass	3.10	7.96	30.00
2480MHz	Pass	3.10	8.70	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-6.06

RBW=3 kHz.

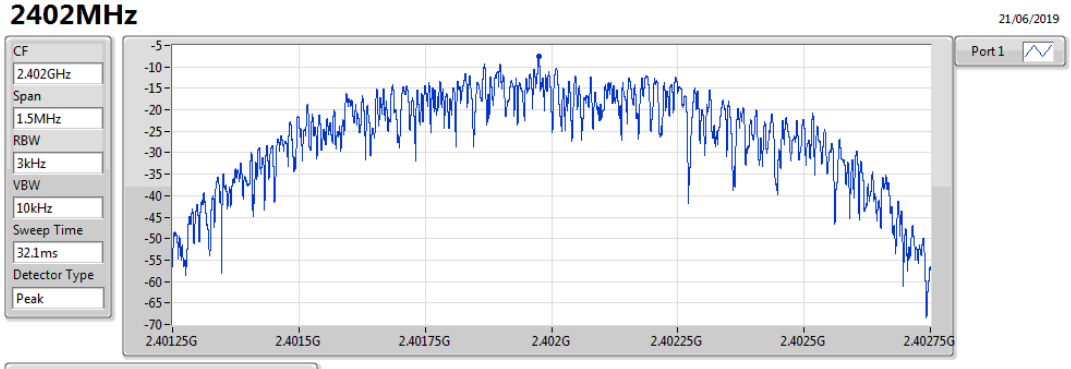
Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	3.10	-7.64	8.00
2440MHz	Pass	3.10	-6.06	8.00
2480MHz	Pass	3.10	-7.83	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**

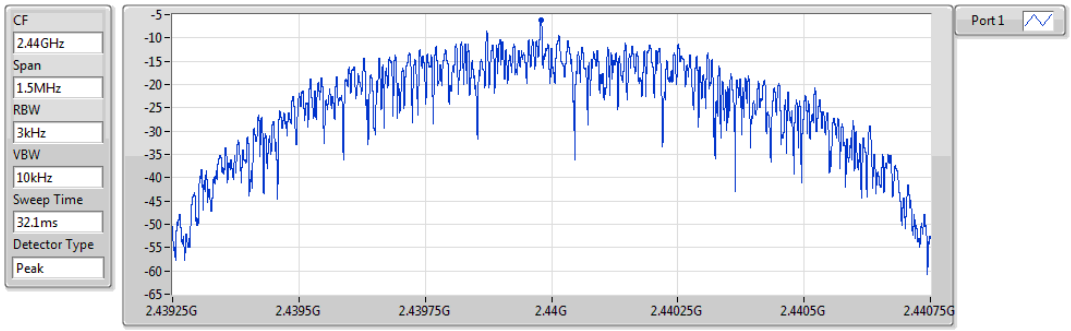
2402MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.64	-7.64	-7.64

BT-LE(1Mbps) **PSD**

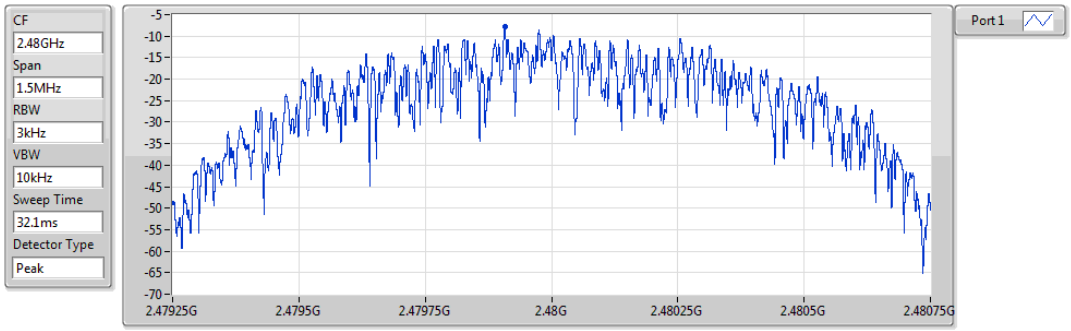
2440MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.06	-6.06	-6.06

BT-LE(1Mbps) **PSD**

2480MHz



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.83	-7.83	-7.83

Summary

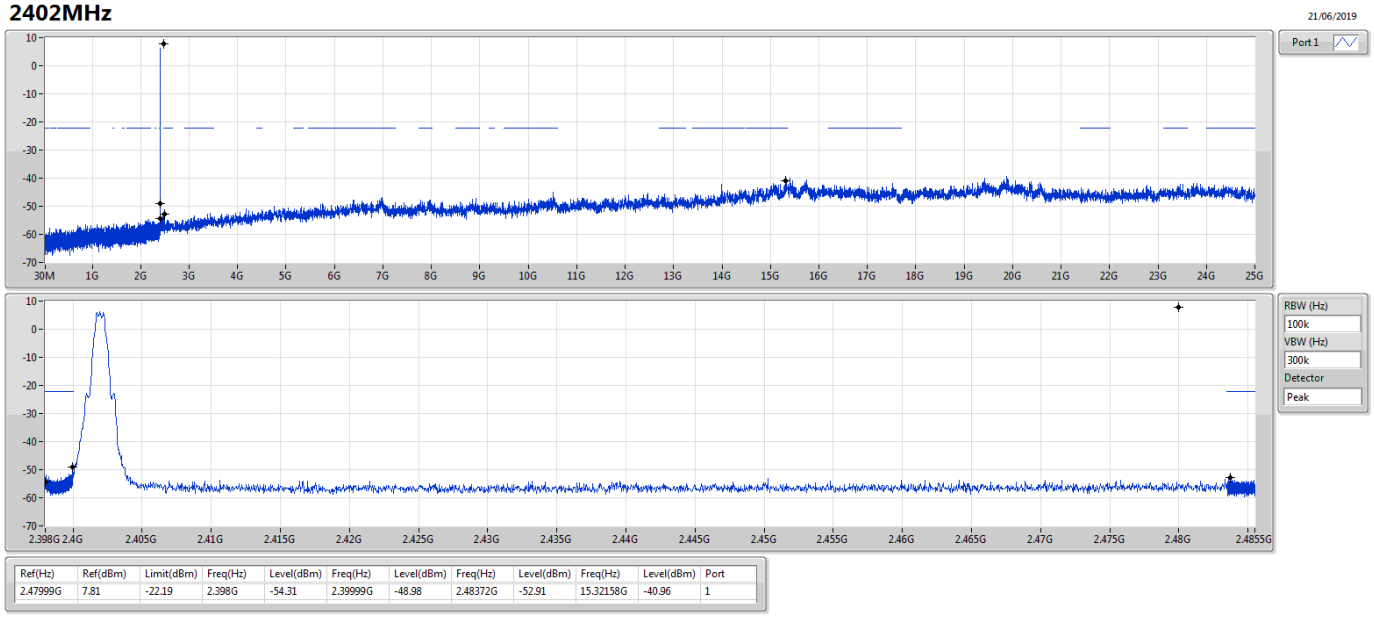
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.47999G	7.81	-22.19	2.398G	-54.31	2.39999G	-48.98	2.48372G	-52.91	15.32158G	-40.96	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TnomVnom	Pass	2.47999G	7.81	-22.19	2.398G	-54.31	2.39999G	-48.98	2.48372G	-52.91	15.32158G	-40.96	1
2440MHz_TnomVnom	Pass	2.47999G	7.81	-22.19	2.15706G	-54.74	2.39844G	-53.41	2.48484G	-52.68	15.06548G	-41.68	1
2480MHz_TnomVnom	Pass	2.47999G	7.81	-22.19	2.15114G	-54.86	2.39926G	-53.75	2.48396G	-51.66	16.28407G	-41.69	1

BT-LE(1Mbps) **CSE NdB**

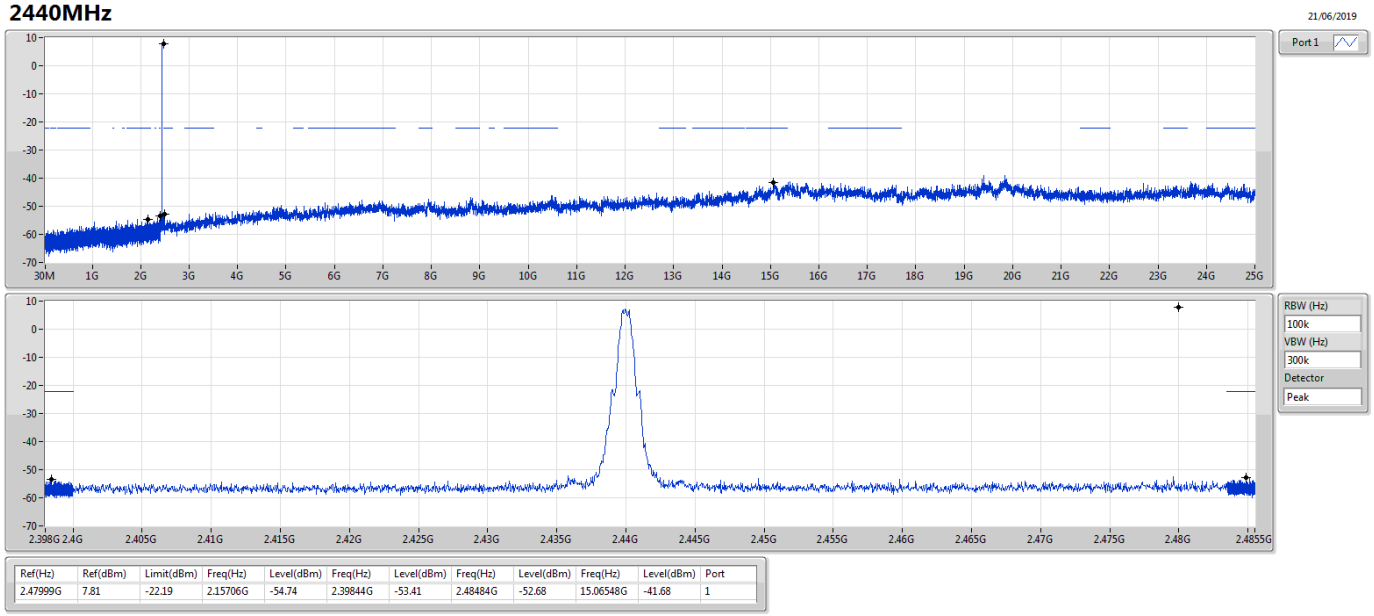
2402MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	7.81	-22.19	2.398G	-54.31	2.39999G	-48.98	2.48372G	-52.91	15.32158G	-40.96	1

BT-LE(1Mbps) **CSE NdB**

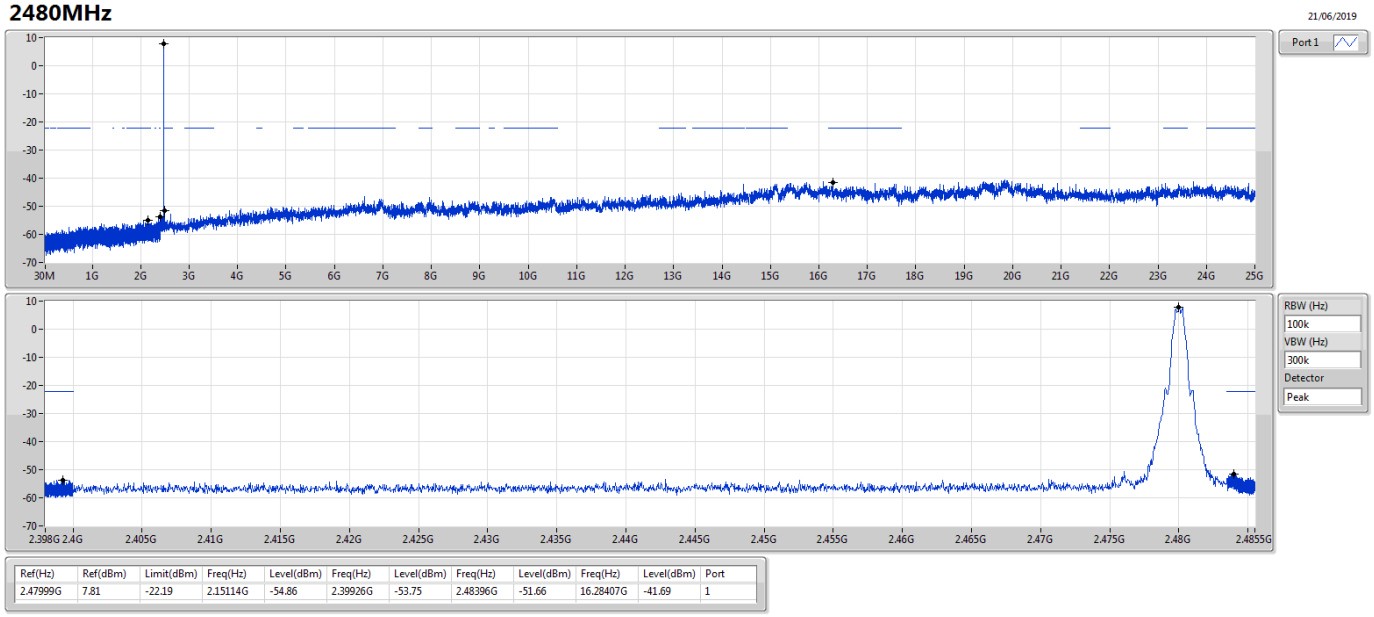
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	7.81	-22.19	2.15706G	-54.74	2.39844G	-53.41	2.48484G	-52.68	15.06548G	-41.68	1

BT-LE(1Mbps) **CSE NdB**

2480MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	7.81	-22.19	2.15114G	-54.86	2.39926G	-53.75	2.48396G	-51.66	16.28407G	-41.69	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	377.26M	36.04	46.00	-9.96	-9.46	3	Horizontal	0	2.00	-

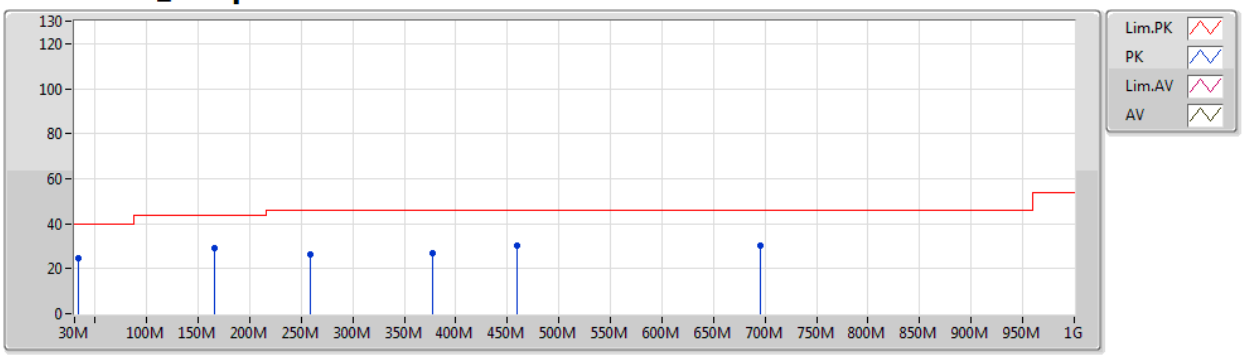
Result

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_Adapter	Pass	PK	33.88M	24.85	40.00	-15.15	-10.01	3	Vertical	360	2.00	-
2440MHz_Adapter	Pass	PK	165.8M	28.88	43.50	-14.62	-15.78	3	Vertical	360	2.00	-
2440MHz_Adapter	Pass	PK	258.92M	26.29	46.00	-19.71	-11.25	3	Vertical	360	2.00	-
2440MHz_Adapter	Pass	PK	377.26M	26.86	46.00	-19.14	-9.46	3	Vertical	360	2.00	-
2440MHz_Adapter	Pass	PK	458.74M	30.34	46.00	-15.66	-6.96	3	Vertical	360	2.00	-
2440MHz_Adapter	Pass	PK	695.42M	30.33	46.00	-15.67	-3.91	3	Vertical	360	2.00	-
2440MHz_Adapter	Pass	PK	30M	29.87	40.00	-10.13	-8.16	3	Horizontal	0	2.00	-
2440MHz_Adapter	Pass	PK	167.74M	30.57	43.50	-12.93	-15.84	3	Horizontal	0	2.00	-
2440MHz_Adapter	Pass	PK	268.62M	29.39	46.00	-16.61	-11.55	3	Horizontal	0	2.00	-
2440MHz_Adapter	Pass	PK	377.26M	36.04	46.00	-9.96	-9.46	3	Horizontal	0	2.00	-
2440MHz_Adapter	Pass	PK	377.26M	36.04	46.00	-9.96	-9.46	3	Horizontal	0	2.00	-
2440MHz_Adapter	Pass	PK	695.42M	35.07	46.00	-10.93	-3.91	3	Horizontal	0	2.00	-

BT-LE(1Mbps)

20/06/2019

2440MHz_Adapter

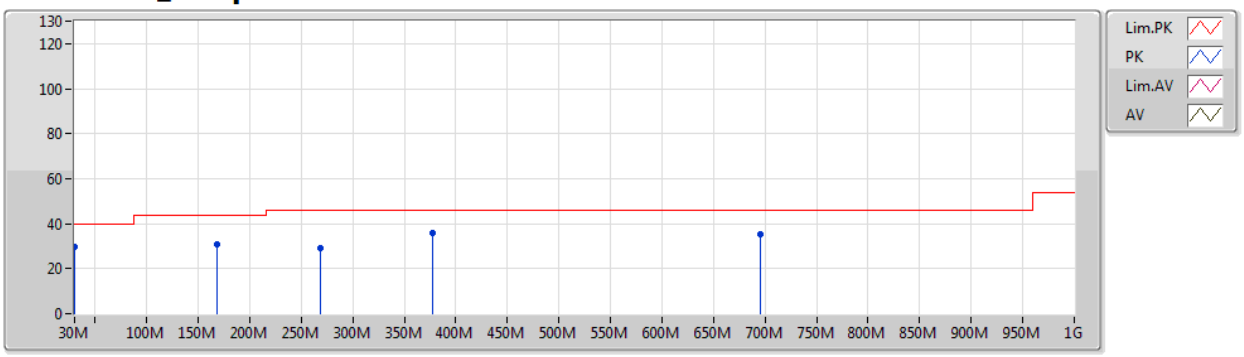


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	33.88M	24.85	40.00	-15.15	-10.01	3	Vertical	360	2.00	-
PK	165.8M	28.88	43.50	-14.62	-15.78	3	Vertical	360	2.00	-
PK	258.92M	26.29	46.00	-19.71	-11.25	3	Vertical	360	2.00	-
PK	377.26M	26.86	46.00	-19.14	-9.46	3	Vertical	360	2.00	-
PK	458.74M	30.34	46.00	-15.66	-6.96	3	Vertical	360	2.00	-
PK	695.42M	30.33	46.00	-15.67	-3.91	3	Vertical	360	2.00	-

BT-LE(1Mbps)

20/06/2019

2440MHz_Adapter



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
PK	30M	29.87	40.00	-10.13	-8.16	3	Horizontal	0	2.00	-
PK	167.74M	30.57	43.50	-12.93	-15.84	3	Horizontal	0	2.00	-
PK	268.62M	29.39	46.00	-16.61	-11.55	3	Horizontal	0	2.00	-
PK	377.26M	36.04	46.00	-9.96	-9.46	3	Horizontal	0	2.00	-
PK	377.26M	36.04	46.00	-9.96	-9.46	3	Horizontal	0	2.00	-
PK	695.42M	35.07	46.00	-10.93	-3.91	3	Horizontal	0	2.00	-

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	2.4936G	48.15	54.00	-5.85	31.33	3	Vertical	330	1.17	-

Result

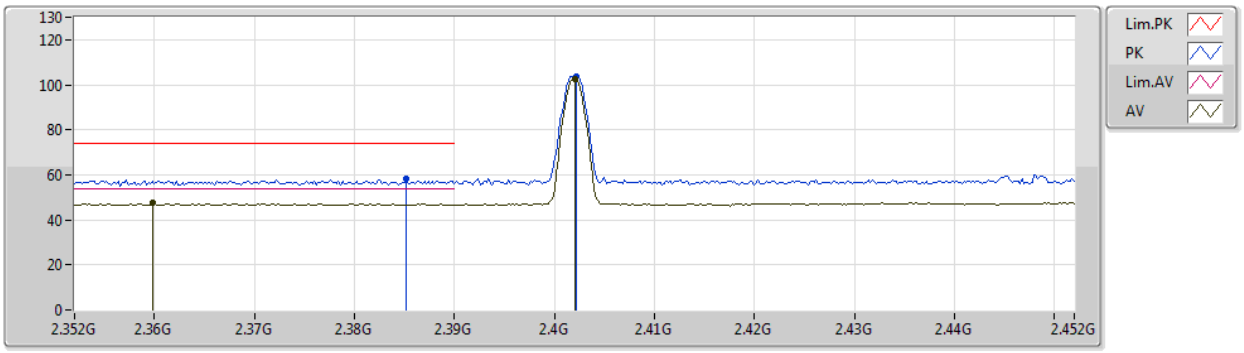
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz_TX	Pass	AV	2.3598G	47.36	54.00	-6.64	30.85	3	Vertical	314	1.23	-
2402MHz_TX	Pass	AV	2.402G	102.73	Inf	-Inf	31.00	3	Vertical	314	1.23	-
2402MHz_TX	Pass	PK	2.3852G	58.10	74.00	-15.90	30.94	3	Vertical	314	1.23	-
2402MHz_TX	Pass	PK	2.4022G	103.70	Inf	-Inf	31.00	3	Vertical	314	1.23	-
2402MHz_TX	Pass	AV	2.3806G	47.12	54.00	-6.88	30.93	3	Horizontal	176	2.17	-
2402MHz_TX	Pass	AV	2.402G	101.00	Inf	-Inf	31.00	3	Horizontal	176	2.17	-
2402MHz_TX	Pass	PK	2.355G	57.81	74.00	-16.19	30.83	3	Horizontal	176	2.17	-
2402MHz_TX	Pass	PK	2.4022G	101.97	Inf	-Inf	31.00	3	Horizontal	176	2.17	-
2402MHz_TX	Pass	AV	4.80356G	37.80	54.00	-16.20	1.62	3	Vertical	1	1.50	-
2402MHz_TX	Pass	PK	4.80451G	46.93	74.00	-27.07	1.62	3	Vertical	1	1.50	-
2402MHz_TX	Pass	AV	4.80352G	34.51	54.00	-19.49	1.62	3	Horizontal	172	1.49	-
2402MHz_TX	Pass	PK	4.804G	44.15	74.00	-29.85	1.62	3	Horizontal	172	1.49	-
2440MHz_TX	Pass	AV	2.3524G	47.12	54.00	-6.88	30.83	3	Vertical	334	1.03	-
2440MHz_TX	Pass	AV	2.44G	104.17	Inf	-Inf	31.14	3	Vertical	334	1.03	-
2440MHz_TX	Pass	AV	2.4844G	47.88	54.00	-6.12	31.31	3	Vertical	334	1.03	-
2440MHz_TX	Pass	PK	2.3488G	59.19	74.00	-14.81	30.81	3	Vertical	334	1.03	-
2440MHz_TX	Pass	PK	2.44G	105.20	Inf	-Inf	31.14	3	Vertical	334	1.03	-
2440MHz_TX	Pass	PK	2.4944G	59.10	74.00	-14.90	31.33	3	Vertical	334	1.03	-
2440MHz_TX	Pass	AV	2.3892G	47.13	54.00	-6.87	30.95	3	Horizontal	176	2.42	-
2440MHz_TX	Pass	AV	2.44G	101.49	Inf	-Inf	31.14	3	Horizontal	176	2.42	-
2440MHz_TX	Pass	AV	2.5G	47.67	54.00	-6.33	31.36	3	Horizontal	176	2.42	-
2440MHz_TX	Pass	PK	2.3432G	58.18	74.00	-15.82	30.79	3	Horizontal	176	2.42	-
2440MHz_TX	Pass	PK	2.4396G	102.42	Inf	-Inf	31.14	3	Horizontal	176	2.42	-
2440MHz_TX	Pass	PK	2.4856G	58.20	74.00	-15.80	31.31	3	Horizontal	176	2.42	-
2440MHz_TX	Pass	AV	4.8798G	36.83	54.00	-17.17	1.81	3	Vertical	357	2.31	-
2440MHz_TX	Pass	AV	7.3207G	39.39	54.00	-14.61	7.50	3	Vertical	64	1.46	-
2440MHz_TX	Pass	PK	4.88021G	46.31	74.00	-27.69	1.81	3	Vertical	357	2.31	-
2440MHz_TX	Pass	PK	7.31807G	50.69	74.00	-23.31	7.49	3	Vertical	64	1.46	-
2440MHz_TX	Pass	AV	4.88045G	34.55	54.00	-19.45	1.81	3	Horizontal	168	1.38	-
2440MHz_TX	Pass	AV	7.31914G	39.02	54.00	-14.98	7.50	3	Horizontal	277	1.29	-
2440MHz_TX	Pass	PK	4.87966G	45.04	74.00	-28.96	1.81	3	Horizontal	168	1.38	-
2440MHz_TX	Pass	PK	7.31982G	50.36	74.00	-23.64	7.50	3	Horizontal	277	1.29	-
2480MHz_TX	Pass	AV	2.48G	105.45	Inf	-Inf	31.28	3	Vertical	330	1.17	-
2480MHz_TX	Pass	AV	2.4936G	48.15	54.00	-5.85	31.33	3	Vertical	330	1.17	-
2480MHz_TX	Pass	PK	2.48G	106.64	Inf	-Inf	31.28	3	Vertical	330	1.17	-
2480MHz_TX	Pass	PK	2.4908G	58.59	74.00	-15.41	31.32	3	Vertical	330	1.17	-
2480MHz_TX	Pass	AV	2.48G	100.16	Inf	-Inf	31.28	3	Horizontal	178	2.34	-
2480MHz_TX	Pass	AV	2.4846G	47.89	54.00	-6.11	31.31	3	Horizontal	178	2.34	-
2480MHz_TX	Pass	PK	2.48G	101.39	Inf	-Inf	31.28	3	Horizontal	178	2.34	-
2480MHz_TX	Pass	PK	2.4922G	58.30	74.00	-15.70	31.33	3	Horizontal	178	2.34	-
2480MHz_TX	Pass	AV	4.95954G	39.27	54.00	-14.73	2.02	3	Vertical	10	2.32	-
2480MHz_TX	Pass	AV	7.43928G	41.77	54.00	-12.23	7.80	3	Vertical	37	2.07	-
2480MHz_TX	Pass	PK	4.95962G	47.56	74.00	-26.44	2.02	3	Vertical	10	2.32	-
2480MHz_TX	Pass	PK	7.4391G	51.61	74.00	-22.39	7.80	3	Vertical	37	2.07	-
2480MHz_TX	Pass	AV	4.9596G	36.65	54.00	-17.35	2.02	3	Horizontal	166	1.08	-
2480MHz_TX	Pass	AV	7.43928G	40.29	54.00	-13.71	7.80	3	Horizontal	234	1.95	-
2480MHz_TX	Pass	PK	4.9596G	45.88	74.00	-28.12	2.02	3	Horizontal	166	1.08	-

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz_TX	Pass	PK	7.43934G	51.31	74.00	-22.69	7.80	3	Horizontal	234	1.95	-

BT-LE(1Mbps)

19/06/2019

2402MHz_TX

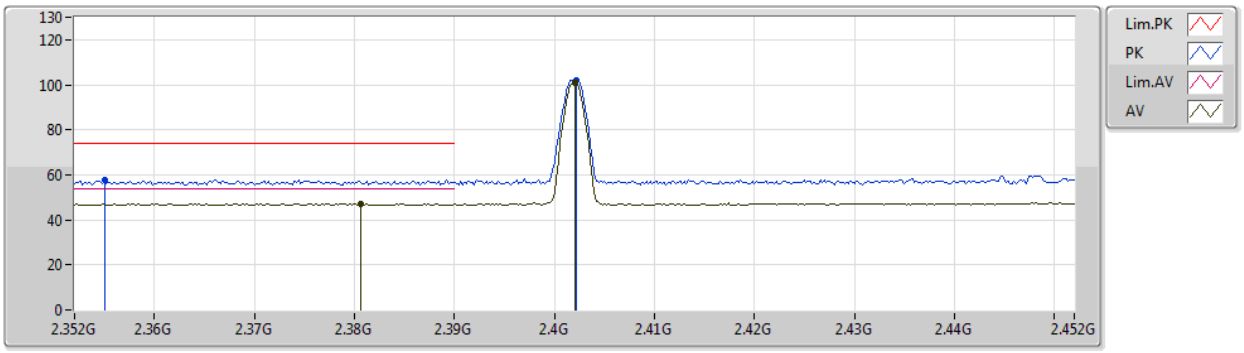


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3598G	47.36	54.00	-6.64	30.85	3	Vertical	314	1.23	-
AV	2.402G	102.73	Inf	-Inf	31.00	3	Vertical	314	1.23	-
PK	2.3852G	58.10	74.00	-15.90	30.94	3	Vertical	314	1.23	-
PK	2.4022G	103.70	Inf	-Inf	31.00	3	Vertical	314	1.23	-

BT-LE(1Mbps)

19/06/2019

2402MHz_TX

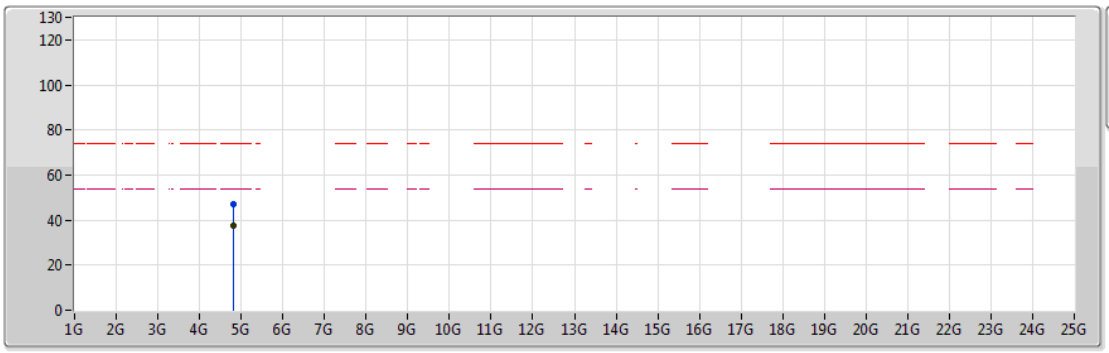


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3806G	47.12	54.00	-6.88	30.93	3	Horizontal	176	2.17	-
AV	2.402G	101.00	Inf	-Inf	31.00	3	Horizontal	176	2.17	-
PK	2.355G	57.81	74.00	-16.19	30.83	3	Horizontal	176	2.17	-
PK	2.4022G	101.97	Inf	-Inf	31.00	3	Horizontal	176	2.17	-

BT-LE(1Mbps)

2402MHz_TX

19/06/2019

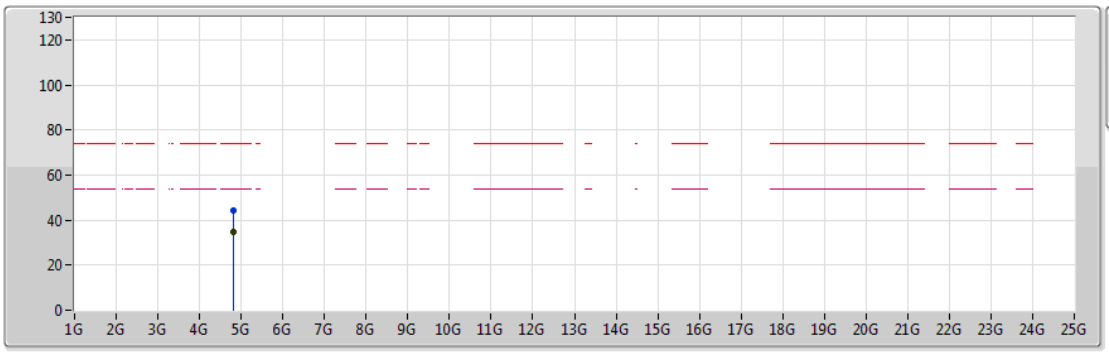


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.80356G	37.80	54.00	-16.20	1.62	3	Vertical	1	1.50	-
PK	4.80451G	46.93	74.00	-27.07	1.62	3	Vertical	1	1.50	-

BT-LE(1Mbps)

2402MHz_TX

19/06/2019

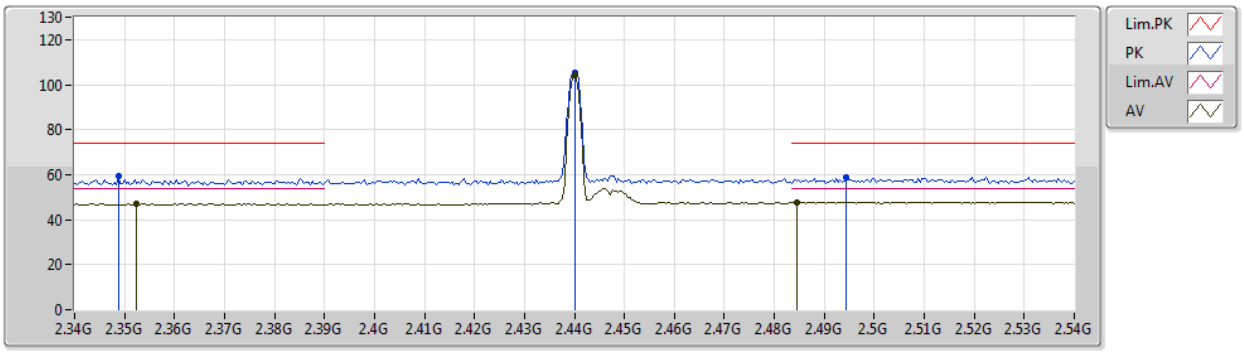


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.80352G	34.51	54.00	-19.49	1.62	3	Horizontal	172	1.49	-
PK	4.804G	44.15	74.00	-29.85	1.62	3	Horizontal	172	1.49	-

BT-LE(1Mbps)

19/06/2019

2440MHz_TX

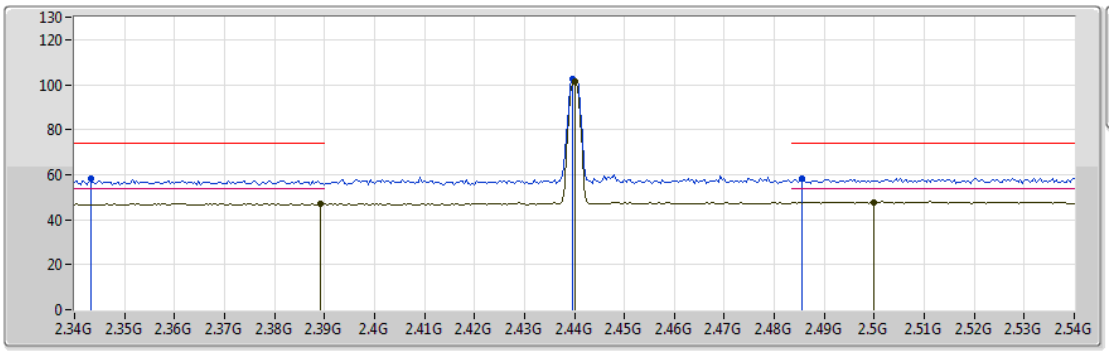


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3524G	47.12	54.00	-6.88	30.83	3	Vertical	334	1.03	-
AV	2.44G	104.17	Inf	-Inf	31.14	3	Vertical	334	1.03	-
AV	2.4844G	47.88	54.00	-6.12	31.31	3	Vertical	334	1.03	-
PK	2.3488G	59.19	74.00	-14.81	30.81	3	Vertical	334	1.03	-
PK	2.44G	105.20	Inf	-Inf	31.14	3	Vertical	334	1.03	-
PK	2.4944G	59.10	74.00	-14.90	31.33	3	Vertical	334	1.03	-

BT-LE(1Mbps)

19/06/2019

2440MHz_TX

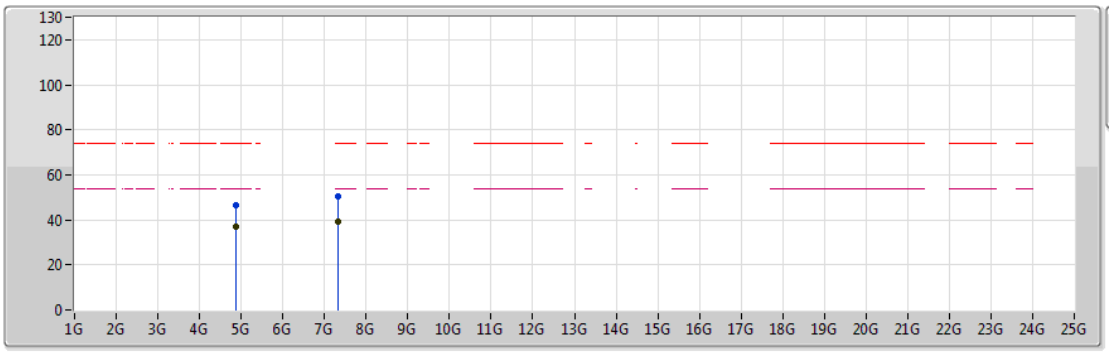


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.3892G	47.13	54.00	-6.87	30.95	3	Horizontal	176	2.42	-
AV	2.44G	101.49	Inf	-Inf	31.14	3	Horizontal	176	2.42	-
AV	2.5G	47.67	54.00	-6.33	31.36	3	Horizontal	176	2.42	-
PK	2.3432G	58.18	74.00	-15.82	30.79	3	Horizontal	176	2.42	-
PK	2.4396G	102.42	Inf	-Inf	31.14	3	Horizontal	176	2.42	-
PK	2.4856G	58.20	74.00	-15.80	31.31	3	Horizontal	176	2.42	-

BT-LE(1Mbps)

2440MHz_TX

19/06/2019

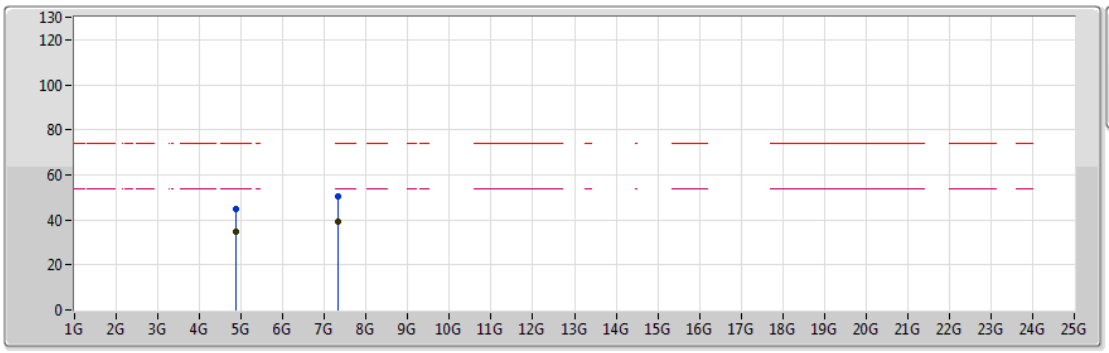


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.8798G	36.83	54.00	-17.17	1.81	3	Vertical	357	2.31	-
AV	7.3207G	39.39	54.00	-14.61	7.50	3	Vertical	64	1.46	-
PK	4.88021G	46.31	74.00	-27.69	1.81	3	Vertical	357	2.31	-
PK	7.31807G	50.69	74.00	-23.31	7.49	3	Vertical	64	1.46	-

BT-LE(1Mbps)

2440MHz_TX

19/06/2019

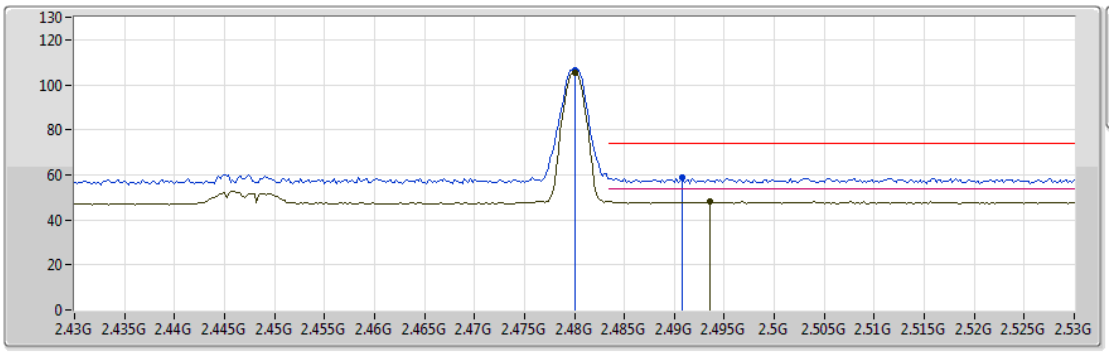


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.88045G	34.55	54.00	-19.45	1.81	3	Horizontal	168	1.38	-
AV	7.31914G	39.02	54.00	-14.98	7.50	3	Horizontal	277	1.29	-
PK	4.87966G	45.04	74.00	-28.96	1.81	3	Horizontal	168	1.38	-
PK	7.31982G	50.36	74.00	-23.64	7.50	3	Horizontal	277	1.29	-

BT-LE(1Mbps)

2480MHz_TX

19/06/2019

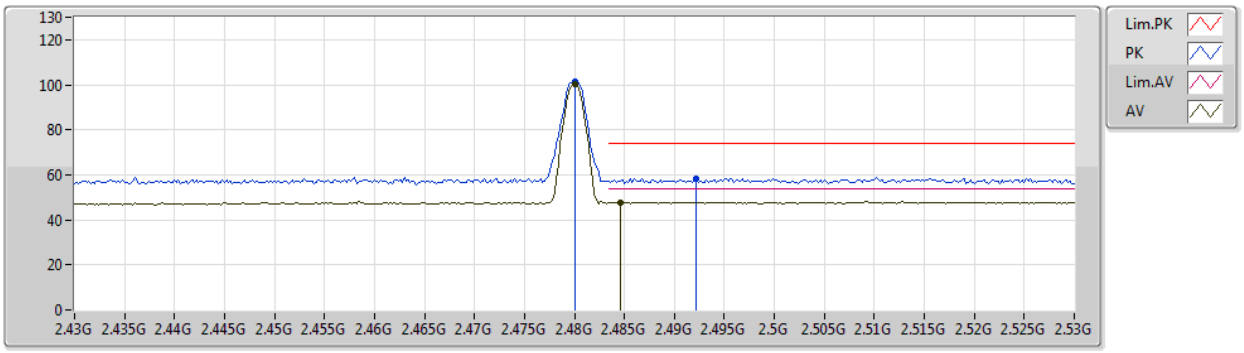


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.48G	105.45	Inf	-Inf	31.28	3	Vertical	330	1.17	-
AV	2.4936G	48.15	54.00	-5.85	31.33	3	Vertical	330	1.17	-
PK	2.48G	106.64	Inf	-Inf	31.28	3	Vertical	330	1.17	-
PK	2.4908G	58.59	74.00	-15.41	31.32	3	Vertical	330	1.17	-

BT-LE(1Mbps)

2480MHz_TX

19/06/2019

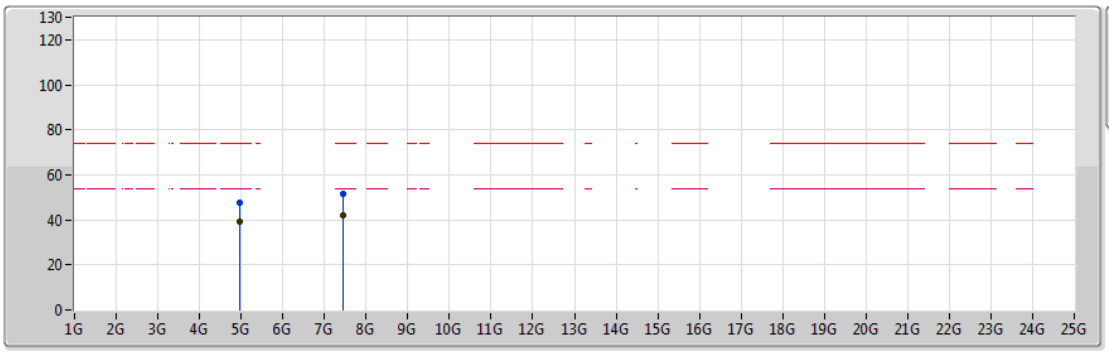


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	2.48G	100.16	Inf	-Inf	31.28	3	Horizontal	178	2.34	-
AV	2.4846G	47.89	54.00	-6.11	31.31	3	Horizontal	178	2.34	-
PK	2.48G	101.39	Inf	-Inf	31.28	3	Horizontal	178	2.34	-
PK	2.4922G	58.30	74.00	-15.70	31.33	3	Horizontal	178	2.34	-

BT-LE(1Mbps)

2480MHz_TX

19/06/2019

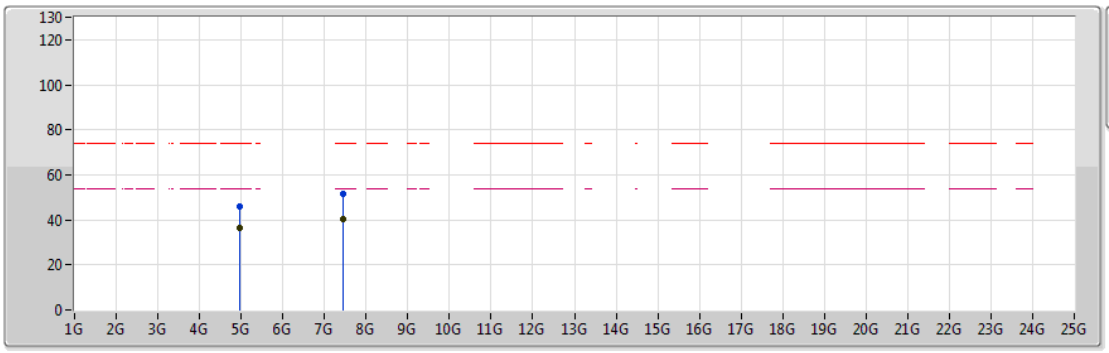


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.95954G	39.27	54.00	-14.73	2.02	3	Vertical	10	2.32	-
AV	7.43928G	41.77	54.00	-12.23	7.80	3	Vertical	37	2.07	-
PK	4.95962G	47.56	74.00	-26.44	2.02	3	Vertical	10	2.32	-
PK	7.4391G	51.61	74.00	-22.39	7.80	3	Vertical	37	2.07	-

BT-LE(1Mbps)

2480MHz_TX

19/06/2019



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
AV	4.9596G	36.65	54.00	-17.35	2.02	3	Horizontal	166	1.08	-
AV	7.43928G	40.29	54.00	-13.71	7.80	3	Horizontal	234	1.95	-
PK	4.9596G	45.88	74.00	-28.12	2.02	3	Horizontal	166	1.08	-
PK	7.43934G	51.31	74.00	-22.69	7.80	3	Horizontal	234	1.95	-