

FCC Test Report

FCC ID : 2AAAS-CM04
Equipment : Vivint Doorbell Camera Pro
Brand Name : vivint.
Model Name : CM04
Applicant : Vivint, Inc.
4931 N. 300 W., Provo, UT 84604 USA
Manufacturer : Chicony Electronics Co.,Ltd.
No.69, Sec. 2, Guangfu Rd., Sanchong Dist.
New Taipei City 241 Taiwan
Standard : 47 CFR FCC Part 15.247

The product was received on Aug. 13, 2019, and testing was started from Aug. 16, 2019 and completed on Sep. 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

TEL : 886-3-3273456
FAX : 886-3-3270973
Report Template No.: HE1-C10 Ver3.6
FCC ID: 2AAAS-CM04

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: Ben Tseng

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

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	AMPHENOL	CY5765-15-001-C-FF00	PIFA	I-PEX
2	AMPHENOL	CY5765-15-002-C-FF00	PIFA	I-PEX

Ant.	Port	Gain (dBi)		
		2.4G	BT	5G
1	1	2.66	2.66	4.12
2	2	0.05	-	4.41

Note 1: The EUT has two antennas.

For 2.4GHz function:

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)

Support diversity function, the Ant. 1 (port 1) was declared to be tested only by customer.

For 5GHz function:

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

Ant. 1 (port 1) and Ant. 2 (port 2) 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) $\geq 1/T$
BT-LE(1Mbps)	0.669	1.75	418.75u	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
- ♦ 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.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	22.4~24.5°C / 64.2~66.7%	10/Sep/2019
RF Conducted	TH06-HY	Jerry	23.5~25.6°C / 65~68%	26/Aug/2019~27/Aug/2019
Radiated	03CH09-HY	Ryan	22.5~24.3°C / 50.3~52.2%	16/Aug/2019~26/Sep/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	PowerSetting
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	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT	V		

2.4 Support Equipment

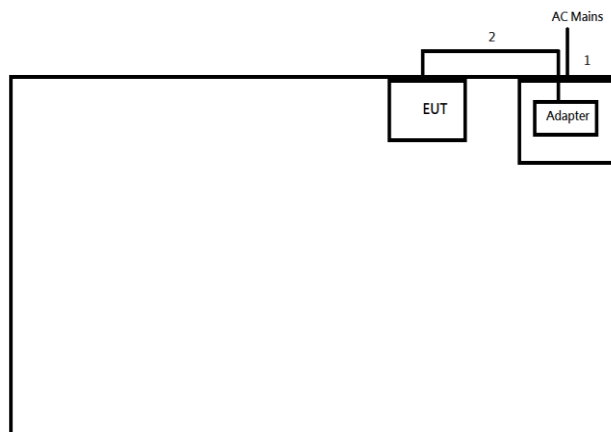
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for NB	DELL	HA65NM130	DoC
3	DC Power Supply	GW	GPS-3030DD	-

Support Equipment –AC Conduction and Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	AC Power Cable	Power sync	PW-GPC180-3	-
2	DC Power Cable	-	-	-
3	AC adapter	HOIOTO	ADS-40ST-12	-

Note: Support equipment No.2&3 was provided by customer.

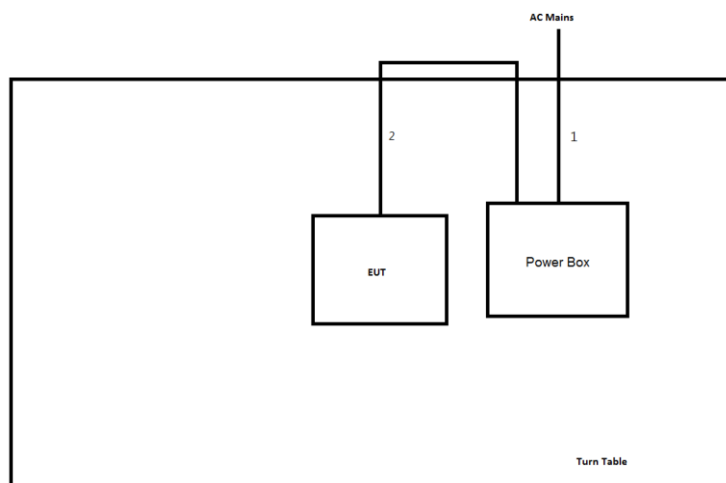
2.5 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power Cable	No	1.8	-
2	DC Power Cable	No	1.76	-

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.5	-
2	DC Power Cable	No	1.76	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

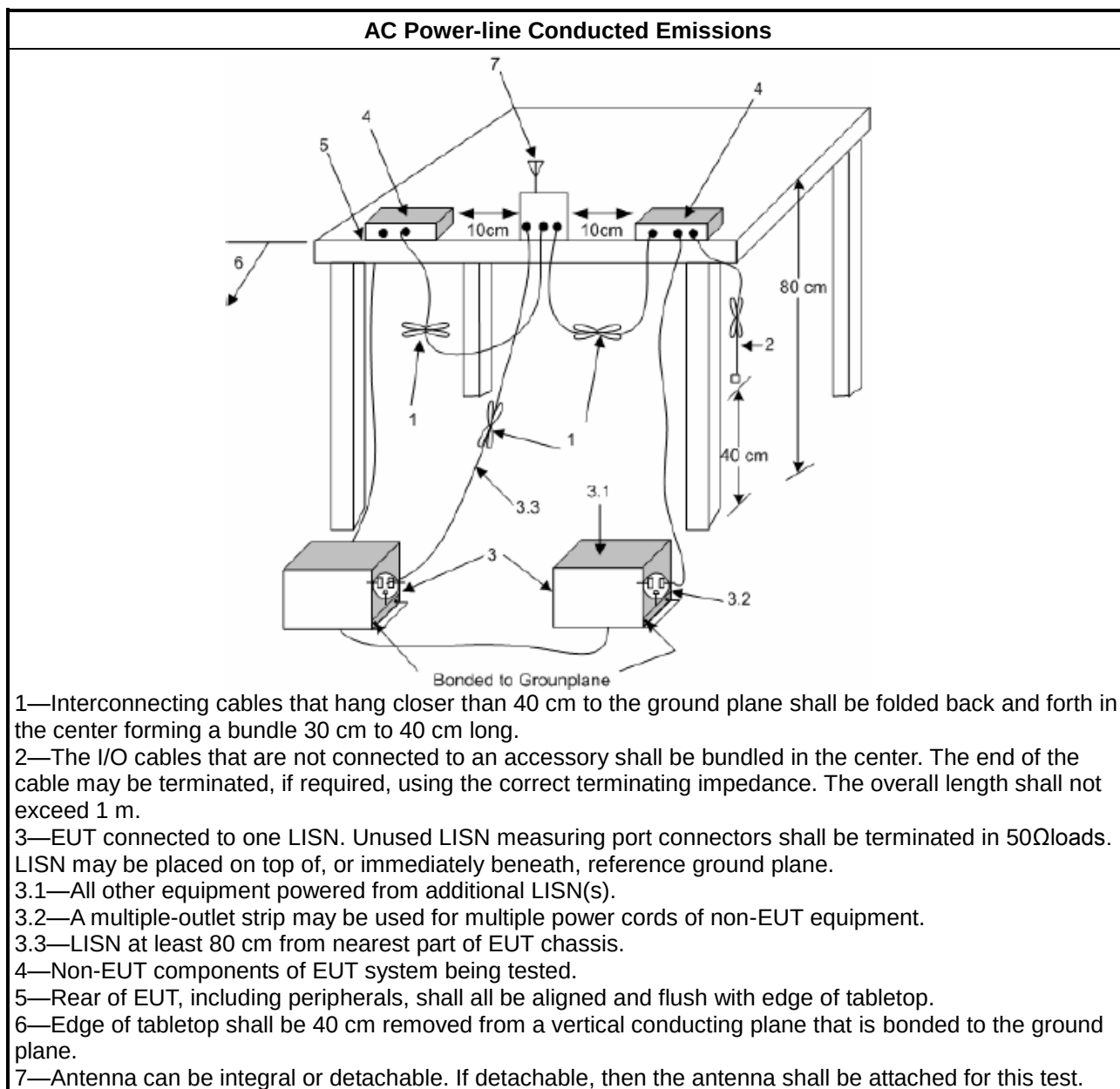
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit	
Systems using digital modulation techniques:	
▪	6 dB bandwidth $\geq$ 500 kHz.

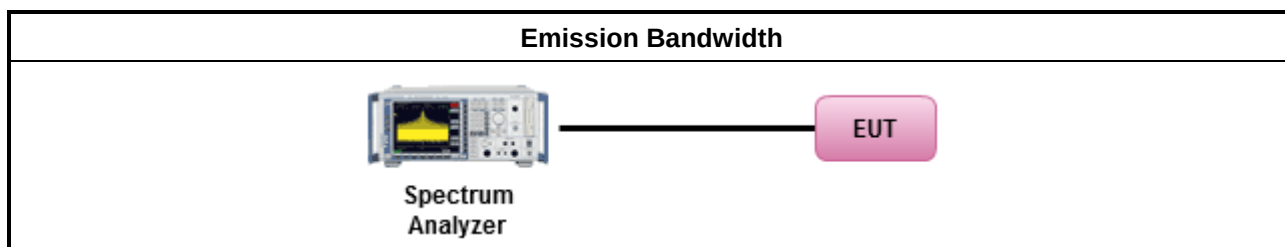
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
☒	Refer as KDB 558074, clause 8.2 (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.	

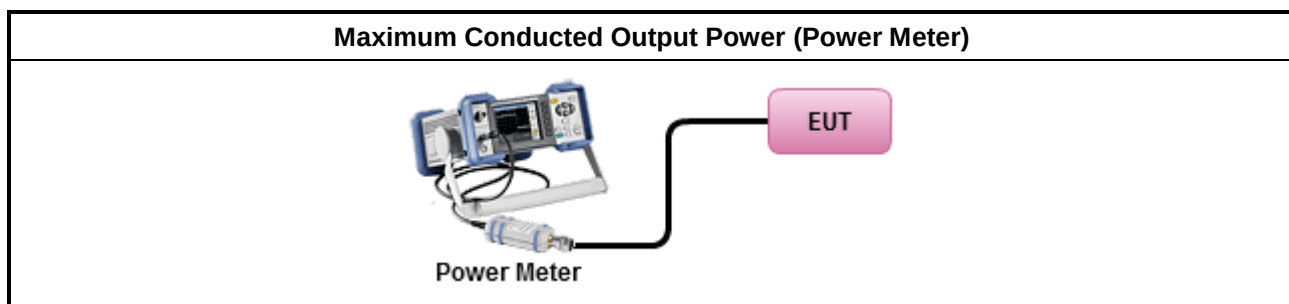
3.3.2 Measuring Instruments

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

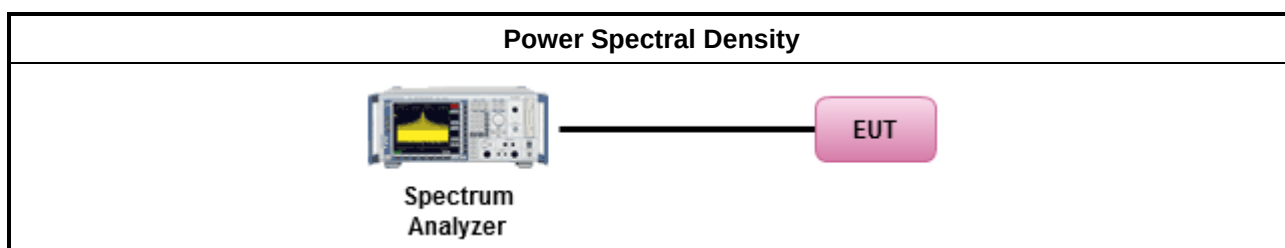
3.4.2 Measuring Instruments

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) 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



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.	

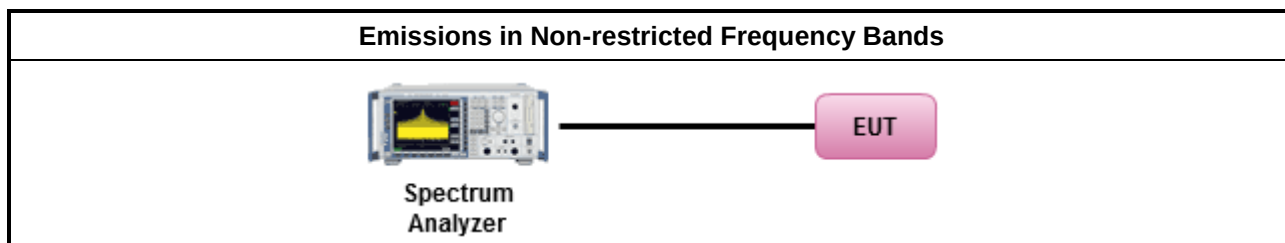
3.5.2 Measuring Instruments

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.

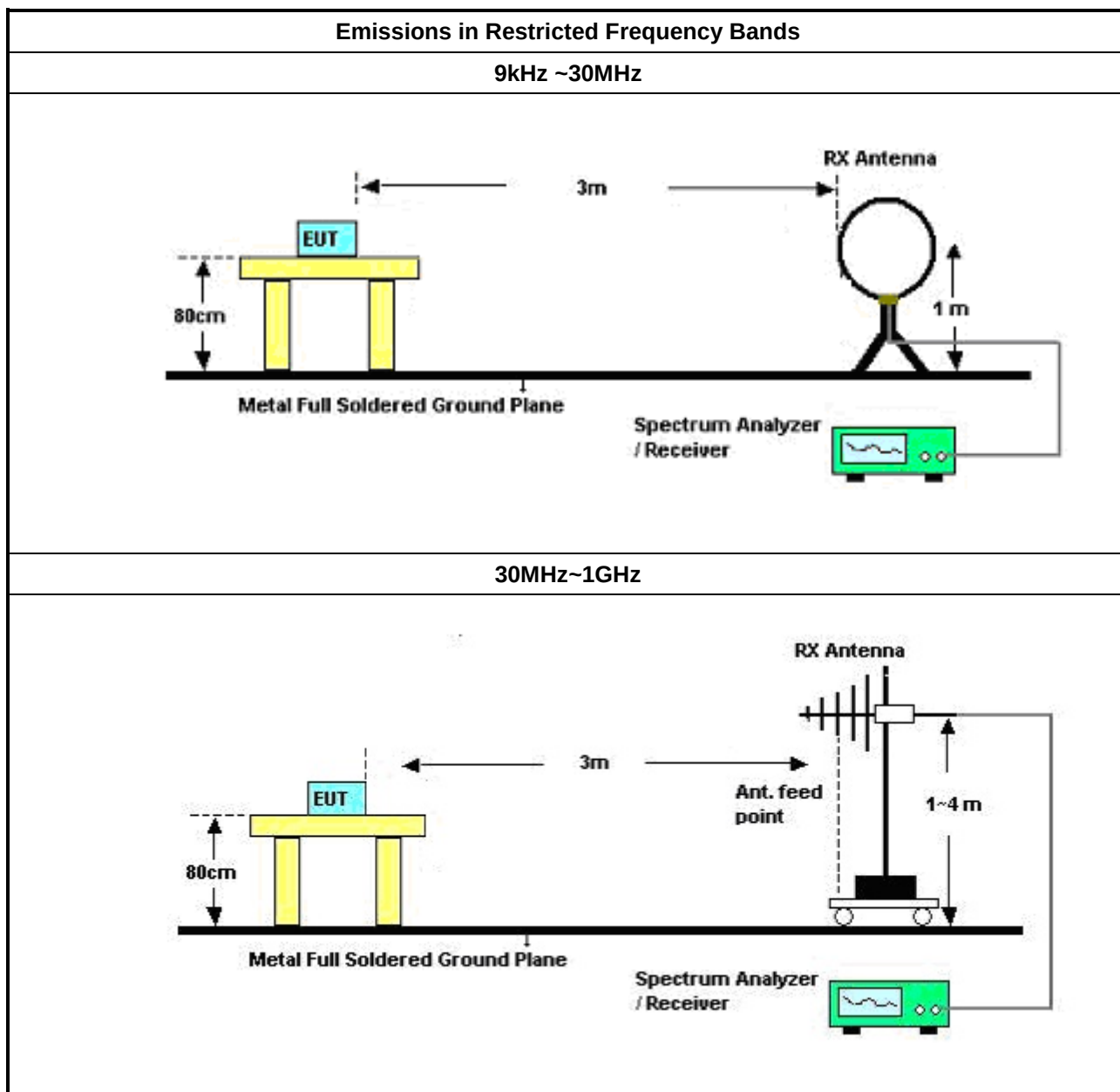
3.6.2 Measuring Instruments

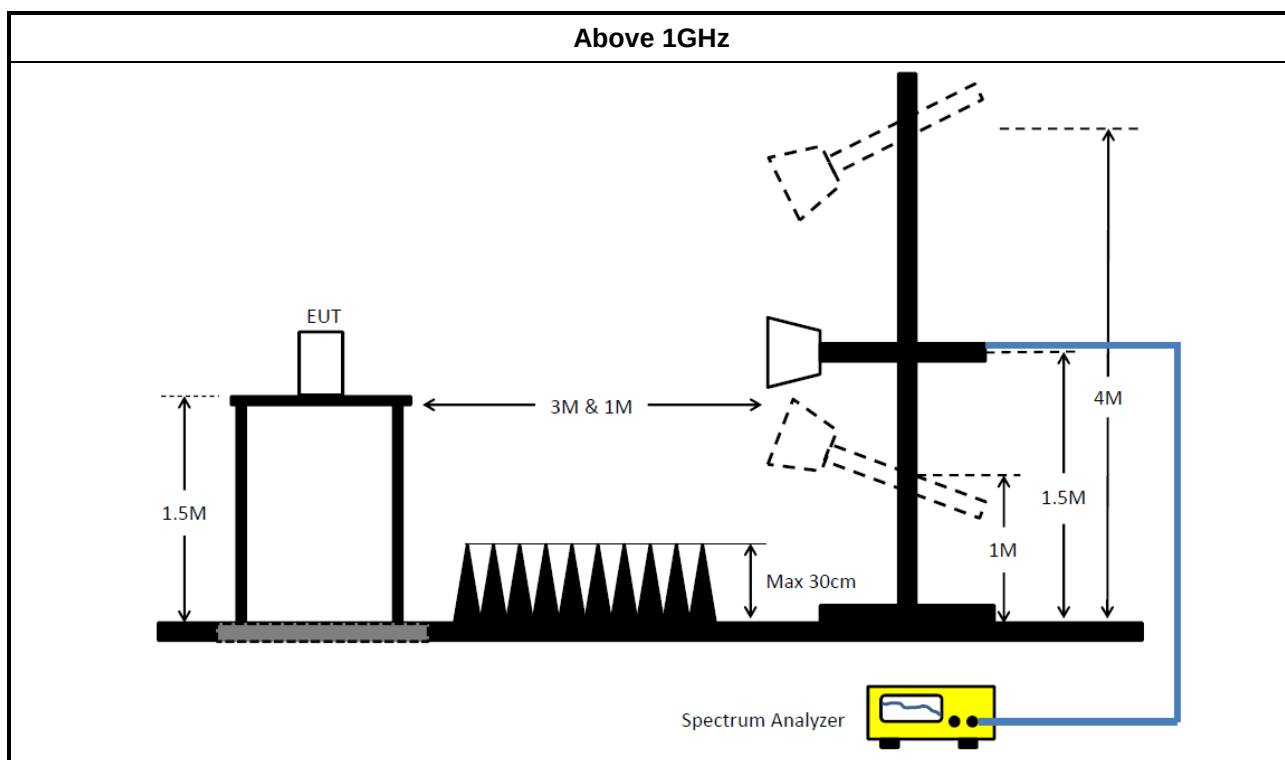
Refer a test equipment and calibration data table in this test report.

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 Test Setup





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

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

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	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

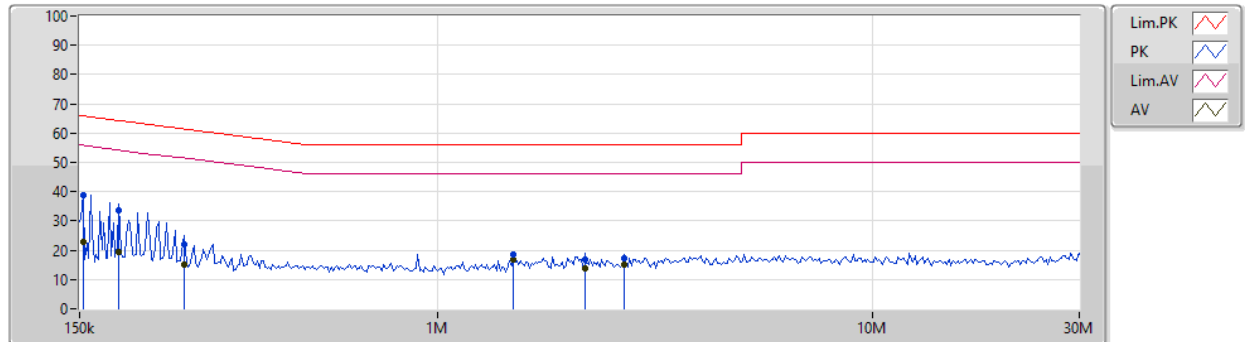
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	22/Apr/2019	21/Apr/2020
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	13/Jun/2019	12/Jun/2020
Microwave Preamplifier	Agilent	8449B	3008A02326	1GHz ~ 26.5GHz	15/Jul/2019	14/Jul/2020
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	22/Apr/2019	21/Apr/2020
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	07/Aug/2019	06/Aug/2020
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	02/Oct/2018	03/Oct/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	22/May/2019	21/May/2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz~40GHz	22/May/2019	21/May/2020
Preamplifier	MITEQ	TTA1840-35-H G	1864481	18GHz ~ 40GHz	24/Aug/2018	23/Aug/2019
Preamplifier	MITEQ	TTA1840-35-H G	1864481	18GHz ~ 40GHz	23/Aug/2019	22/Aug/2020
LF-CABLE-20190218	Jye Bao	RG142	CB028	9kHz ~ 1GHz	18/Feb/2019	17/Feb/2020
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	13/Mar/2019	12/Mar/2020
Turn Table	ChainTek	T-200S	1308028	-	NCR	NCR
Antenna Mast	ChainTek	MBS-400	1308049	-	NCR	NCR
Controller	ChainTek	3000	MF780208325	-	NCR	NCR
AC Power Source	G.W	AFC-1KW	F104070001	-	NCR	NCR
Soldering iron	XRTRONIC	1f15	-	-	NCR	NCR
Site V.S.W.R	Riken	3m SAC	03CH09-HY	-	13/Jun/2019	12/Jun/2020

NCR : Non-Calibration Require

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Adapter Mode		

10/09/2019

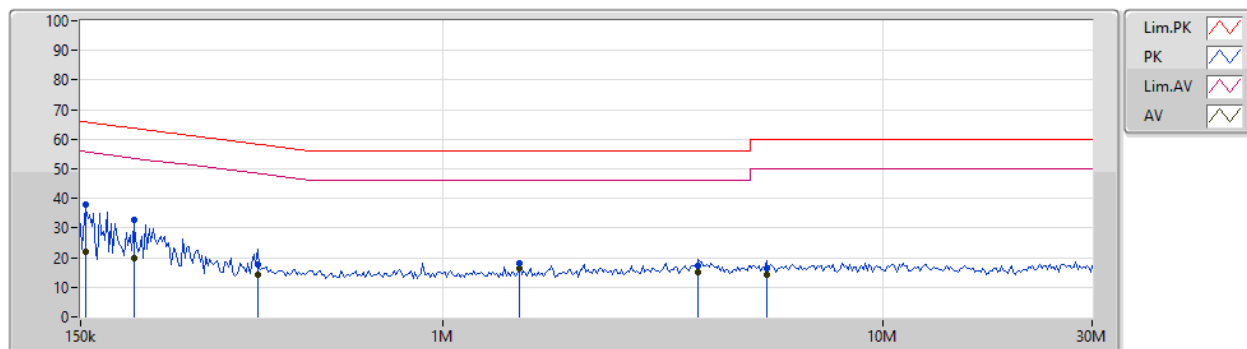


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	153.015k	38.82	65.83	-27.01	19.48	Neutral	"Worst"	19.34	9.60	0.01	9.87			
AV	153.015k	22.70	55.83	-33.13	19.48	Neutral	-	3.22	9.60	0.01	9.87			
QP	184.859k	33.53	64.26	-30.73	19.47	Neutral	-	14.06	9.59	0.01	9.87			
AV	184.859k	19.54	54.26	-34.72	19.47	Neutral	-	0.07	9.59	0.01	9.87			
QP	261.871k	22.11	61.37	-39.26	19.47	Neutral	-	2.64	9.59	0.01	9.87			
AV	261.871k	15.14	51.37	-36.23	19.47	Neutral	-	-4.33	9.59	0.01	9.87			
QP	1.494M	18.60	56.00	-37.40	19.52	Neutral	-	-0.92	9.60	0.03	9.89			
AV	1.494M	16.83	46.00	-29.17	19.52	Neutral	-	-2.69	9.60	0.03	9.89			
QP	2.18M	16.83	56.00	-39.17	19.53	Neutral	-	-2.70	9.61	0.03	9.89			
AV	2.18M	13.71	46.00	-32.29	19.53	Neutral	-	-5.82	9.61	0.03	9.89			
QP	2.687M	17.09	56.00	-38.91	19.54	Neutral	-	-2.45	9.61	0.04	9.89			
AV	2.687M	14.96	46.00	-31.04	19.54	Neutral	-	-4.58	9.61	0.04	9.89			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Adapter Mode		

10/09/2019



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	154.545k	37.86	65.75	-27.89	19.48	Line	"Worst"	18.38	9.60	0.01	9.87			
AV	154.545k	21.79	55.75	-33.96	19.48	Line	-	2.31	9.60	0.01	9.87			
QP	198.194k	32.67	63.69	-31.02	19.48	Line	-	13.19	9.60	0.01	9.87			
AV	198.194k	19.64	53.69	-34.05	19.48	Line	-	0.16	9.60	0.01	9.87			
QP	378.424k	17.66	58.31	-40.65	19.48	Line	-	-1.82	9.59	0.01	9.88			
AV	378.424k	14.15	48.31	-34.16	19.48	Line	-	-5.33	9.59	0.01	9.88			
QP	1.494M	18.10	56.00	-37.90	19.53	Line	-	-1.43	9.61	0.03	9.89			
AV	1.494M	16.40	46.00	-29.60	19.53	Line	-	-3.13	9.61	0.03	9.89			
QP	3.807M	17.42	56.00	-38.58	19.56	Line	-	-2.14	9.63	0.04	9.89			
AV	3.807M	14.90	46.00	-31.10	19.56	Line	-	-4.66	9.63	0.04	9.89			
QP	5.446M	16.55	60.00	-43.45	19.58	Line	-	-3.03	9.64	0.05	9.89			
AV	5.446M	14.33	50.00	-35.67	19.58	Line	-	-5.25	9.64	0.05	9.89			

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)	1.106M	1.054M	1M05F1D	1.079M	1.052M

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;

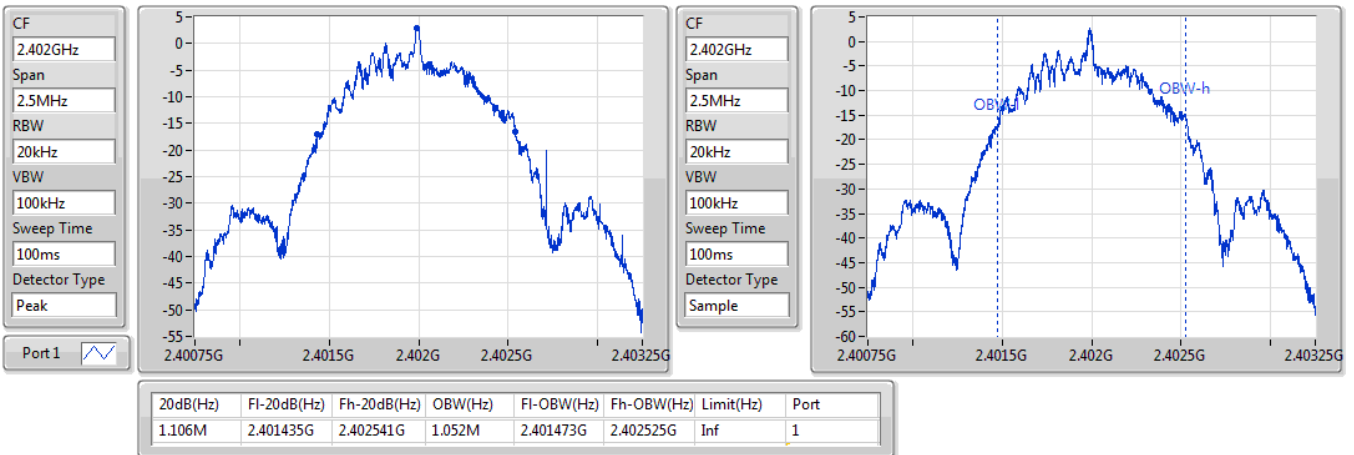
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	Inf	1.106M	1.052M
2440MHz	Pass	Inf	1.081M	1.054M
2480MHz	Pass	Inf	1.079M	1.053M

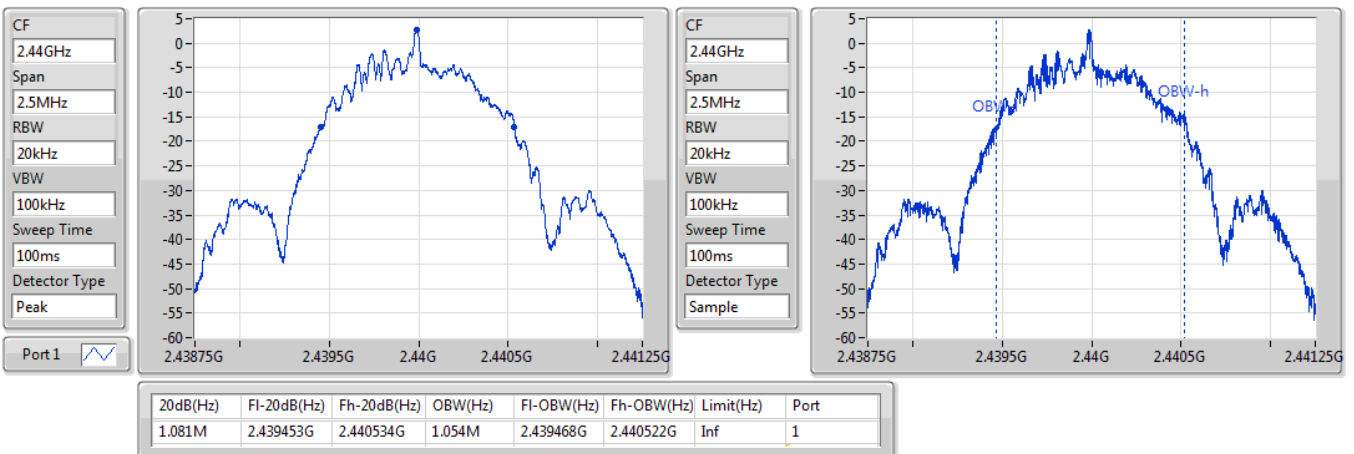
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
2402MHz

26/08/2019


BT-LE(1Mbps)
2440MHz

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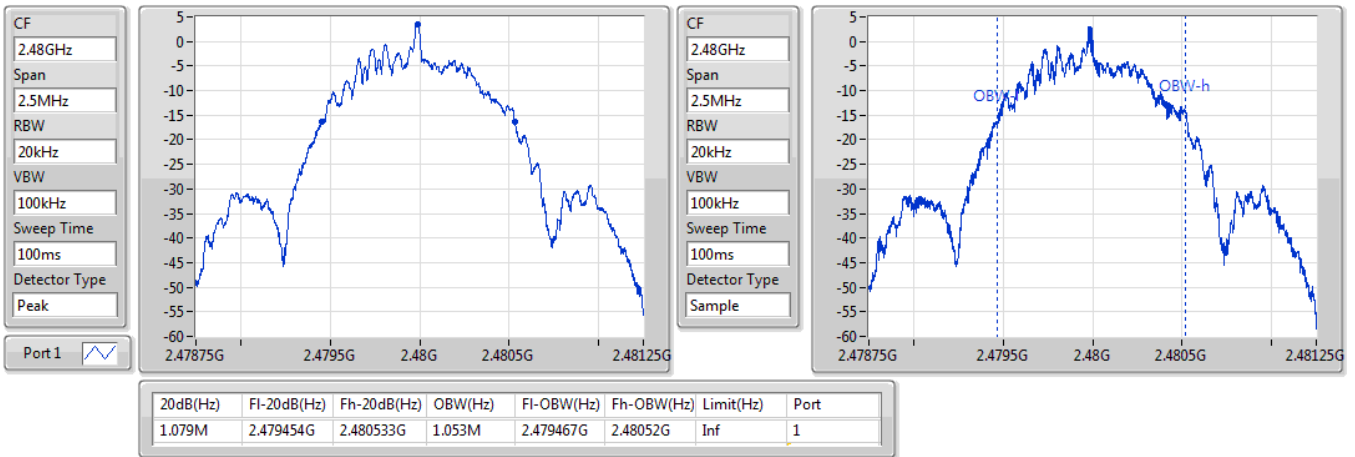


BT-LE(1Mbps)

2480MHz

EBW

26/08/2019





Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	5.86	0.00385



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.66	4.24	30.00
2440MHz	Pass	2.66	5.07	30.00
2480MHz	Pass	2.66	5.86	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-8.98

RBW=3 kHz.



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.66	-8.98	8.00
2440MHz	Pass	2.66	-11.06	8.00
2480MHz	Pass	2.66	-9.37	8.00

DG = Directional Gain; RBW=3 kHz;

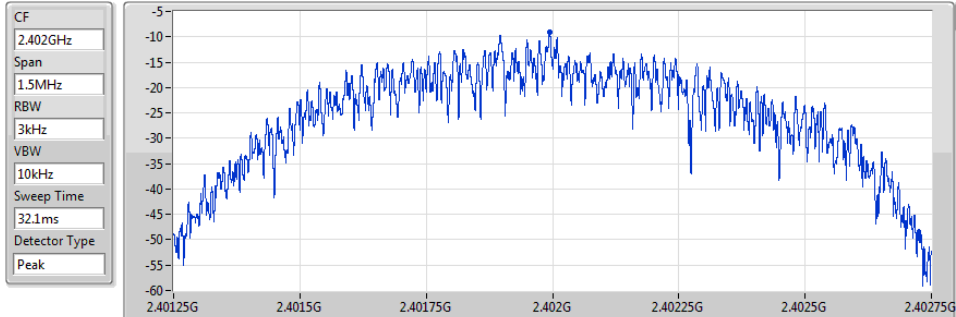
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

PSD

2402MHz

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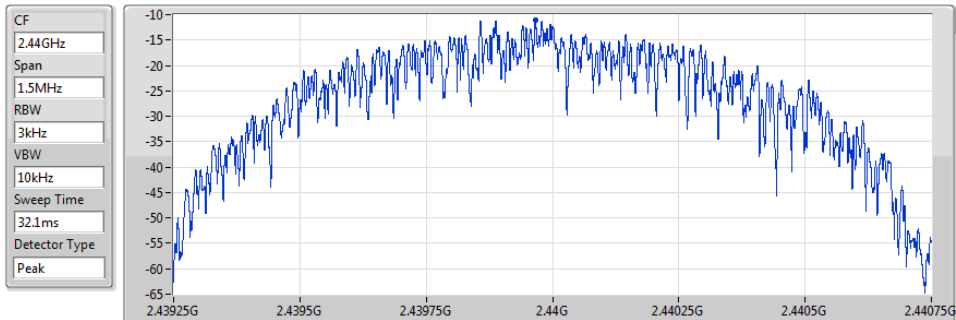
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.98	-8.98	-8.98

BT-LE(1Mbps)

PSD

2440MHz

26/08/2019



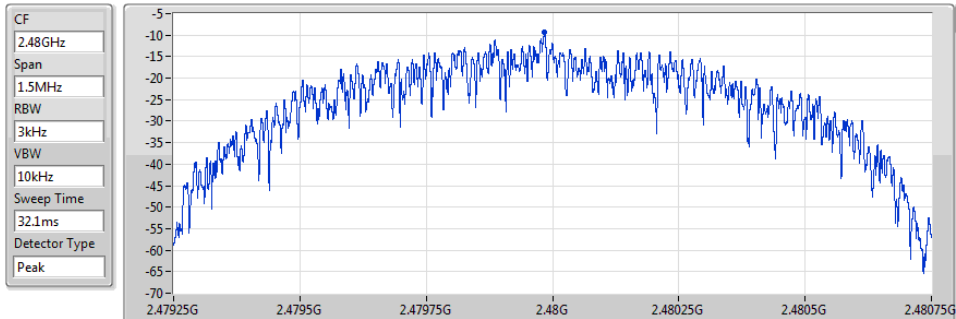
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-11.06	-11.06	-11.06

BT-LE(1Mbps)

PSD

2480MHz

26/08/2019



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-9.37	-9.37	-9.37



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	5.59	-14.41	2.39622G	-63.00	2.4G	-50.73	2.48547G	-62.66	15.30751G	-51.57	1

Result

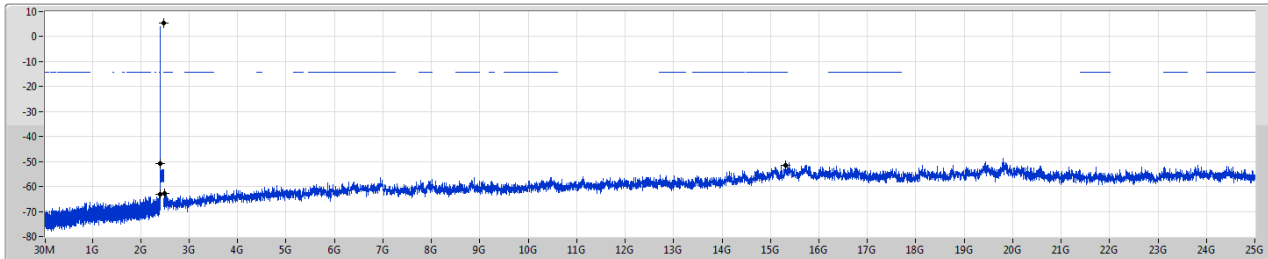
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.47999G	5.59	-14.41	2.39622G	-63.00	2.4G	-50.73	2.48547G	-62.66	15.30751G	-51.57	1
2440MHz	Pass	2.47999G	5.59	-14.41	2.10733G	-64.89	2.39904G	-63.24	2.4843G	-61.95	24.40899G	-50.74	1
2480MHz	Pass	2.47999G	5.59	-14.41	2.13515G	-65.05	2.39878G	-62.03	2.48382G	-56.10	15.08236G	-51.52	1

BT-LE(1Mbps)

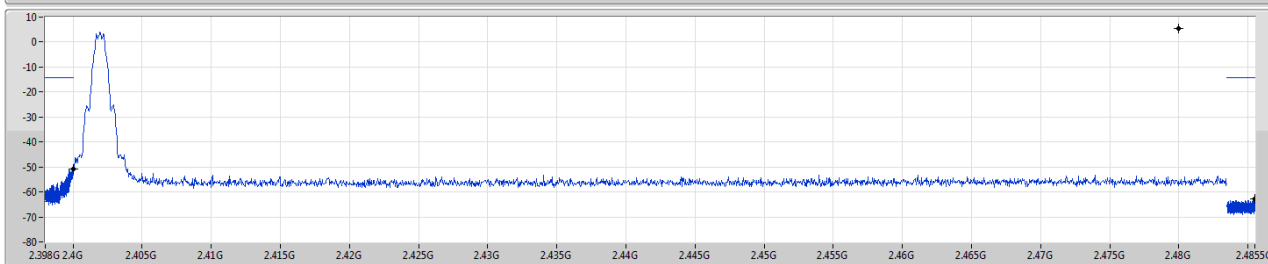
CSE NdB

2402MHz

26/08/2019



Port1



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

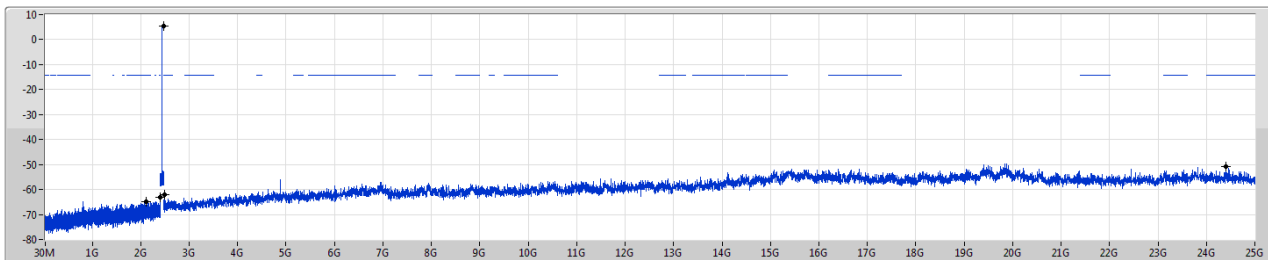
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.47999G	5.59	-14.41	2.39622G	-63.00	2.4G	-50.73	2.48547G	-62.66	15.30751G	-51.57	1

BT-LE(1Mbps)

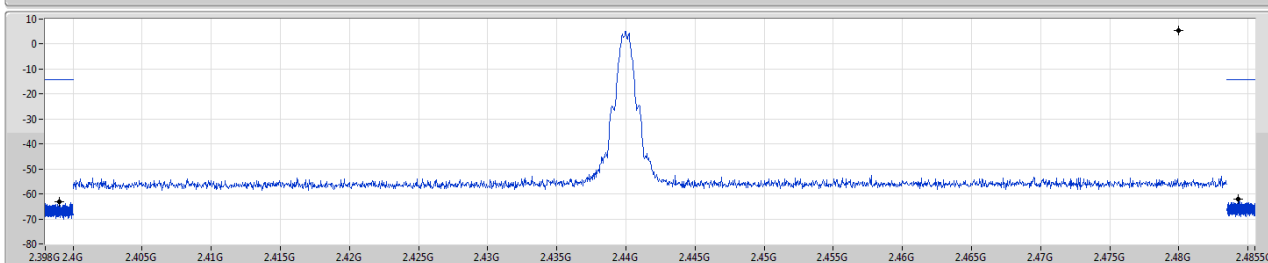
CSE NdB

2440MHz

26/08/2019



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)	Port
2.47999G	5.59	-14.41	2.10733G	-64.89	2.39904G	-63.24	2.4843G	-61.95	24.40899G	-50.74	1

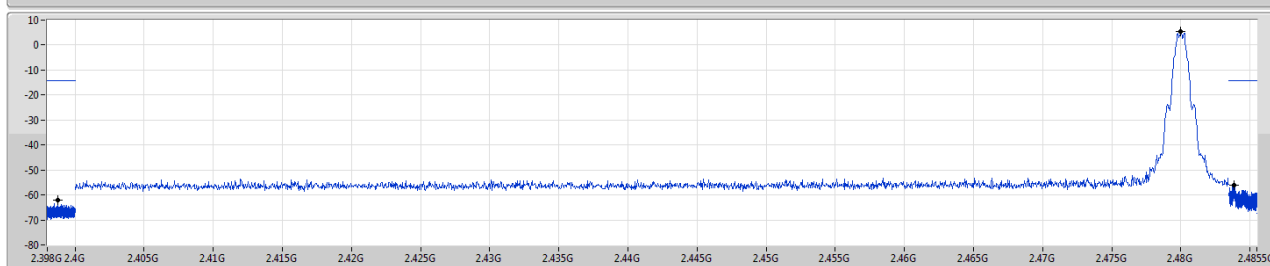
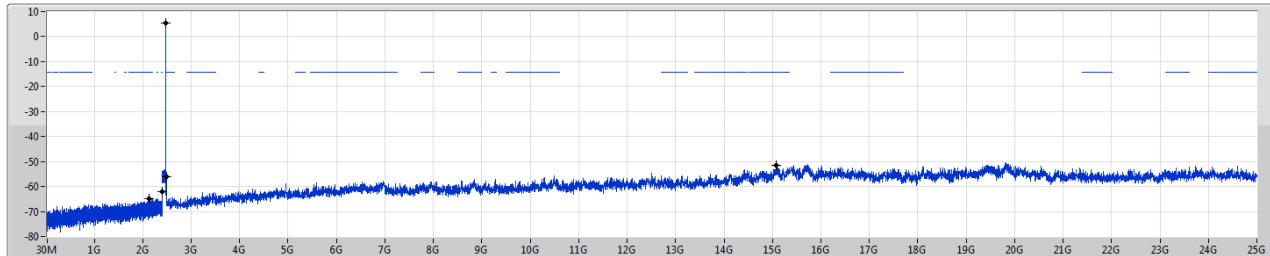
BT-LE(1Mbps)

2480MHz

CSE NdB

26/08/2019

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)	Port
2.47999G	5.59	-14.41	2.13515G	-65.05	2.39878G	-62.03	2.48382G	-56.10	15.08236G	-51.52	1



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	600.36M	41.46	46.00	-4.54	3	Horizontal	0	1.00	-

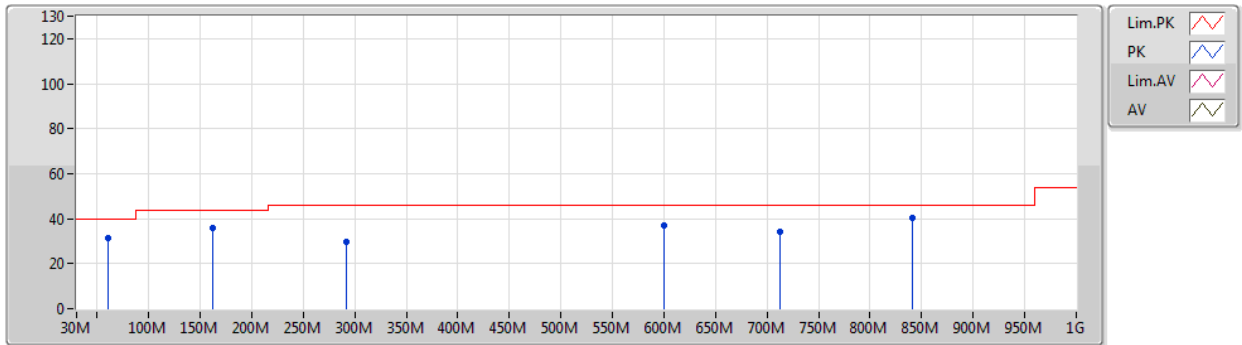
Result

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	61.04M	31.61	40.00	-8.39	3	Vertical	360	1.00	-
2440MHz	Pass	PK	161.92M	36.03	43.50	-7.47	3	Vertical	360	1.00	-
2440MHz	Pass	PK	291.9M	29.42	46.00	-16.58	3	Vertical	360	1.00	-
2440MHz	Pass	PK	600.36M	36.80	46.00	-9.20	3	Vertical	360	1.00	-
2440MHz	Pass	PK	712.88M	33.93	46.00	-12.07	3	Vertical	360	1.00	-
2440MHz	Pass	PK	840.92M	40.42	46.00	-5.58	3	Vertical	360	1.00	-
2440MHz	Pass	PK	61.04M	26.29	40.00	-13.71	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	161.92M	37.59	43.50	-5.91	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	293.84M	30.41	46.00	-15.59	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	600.36M	41.46	46.00	-4.54	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	960M	34.31	46.00	-11.69	3	Horizontal	0	1.00	-
2440MHz	Pass	QP	840M	40.80	46.00	-5.20	3	Horizontal	72	1.86	-

BT-LE(1Mbps)

2440MHz_Adapter

26/09/2019

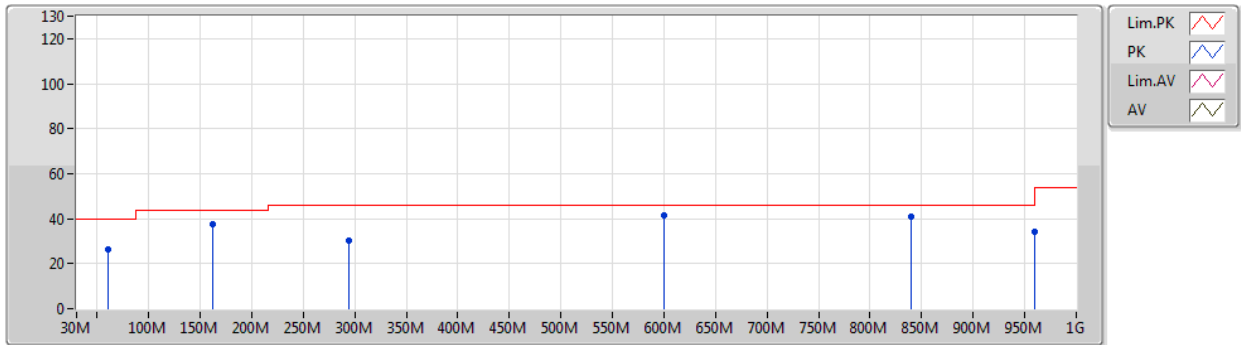


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	61.04M	31.61	40.00	-8.39	-25.47	3	Vertical	360	1.00	-	57.08	10.99	0.62	37.08
PK	161.92M	36.03	43.50	-7.47	-19.93	3	Vertical	360	1.00	-	55.96	15.54	1.05	36.52
PK	291.9M	29.42	46.00	-16.58	-16.82	3	Vertical	360	1.00	-	46.24	18.23	1.42	36.47
PK	600.36M	36.80	46.00	-9.20	-10.43	3	Vertical	360	1.00	-	47.23	24.70	2.09	37.22
PK	712.88M	33.93	46.00	-12.07	-8.99	3	Vertical	360	1.00	-	42.92	26.09	2.30	37.38
PK	840.92M	40.42	46.00	-5.58	-6.75	3	Vertical	360	1.00	-	47.17	28.26	2.49	37.50

BT-LE(1Mbps)

2440MHz_Adapter

26/09/2019



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)
PK	61.04M	26.29	40.00	-13.71	-25.47	3	Horizontal	0	1.00	-	51.76	10.99	0.62	37.08
PK	161.92M	37.59	43.50	-5.91	-19.93	3	Horizontal	0	1.00	-	57.52	15.54	1.05	36.52
PK	293.84M	30.41	46.00	-15.59	-16.78	3	Horizontal	0	1.00	-	47.19	18.27	1.42	36.47
PK	600.36M	41.46	46.00	-4.54	-10.43	3	Horizontal	0	1.00	-	51.89	24.70	2.09	37.22
PK	960M	34.31	46.00	-11.69	-4.35	3	Horizontal	0	1.00	-	38.66	30.29	2.61	37.25
QP	840M	40.80	46.00	-5.20	-6.76	3	Horizontal	72	1.86	-	47.56	28.25	2.49	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	2.4888G	47.53	54.00	-6.47	3	Vertical	305	1.50	-

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	2.358G	47.50	54.00	-6.50	3	Vertical	196	1.50	-
2402MHz	Pass	AV	2.402G	92.02	Inf	-Inf	3	Vertical	196	1.50	-
2402MHz	Pass	PK	2.3872G	59.12	74.00	-14.88	3	Vertical	196	1.50	-
2402MHz	Pass	PK	2.4022G	93.17	Inf	-Inf	3	Vertical	196	1.50	-
2402MHz	Pass	AV	2.3566G	47.29	54.00	-6.71	3	Horizontal	316	1.08	-
2402MHz	Pass	AV	2.402G	99.80	Inf	-Inf	3	Horizontal	316	1.08	-
2402MHz	Pass	PK	2.3722G	59.77	74.00	-14.23	3	Horizontal	316	1.08	-
2402MHz	Pass	PK	2.4022G	101.00	Inf	-Inf	3	Horizontal	316	1.08	-
2402MHz	Pass	AV	4.80353G	35.71	54.00	-18.29	3	Vertical	33	1.50	-
2402MHz	Pass	PK	4.80334G	47.42	74.00	-26.58	3	Vertical	33	1.50	-
2402MHz	Pass	AV	4.80409G	34.82	54.00	-19.18	3	Horizontal	144	1.50	-
2402MHz	Pass	PK	4.8031G	47.93	74.00	-26.07	3	Horizontal	144	1.50	-
2440MHz	Pass	AV	2.34G	47.18	54.00	-6.82	3	Vertical	305	1.50	-
2440MHz	Pass	AV	2.44G	94.31	Inf	-Inf	3	Vertical	305	1.50	-
2440MHz	Pass	AV	2.4888G	47.53	54.00	-6.47	3	Vertical	305	1.50	-
2440MHz	Pass	PK	2.3596G	58.69	74.00	-15.31	3	Vertical	305	1.50	-
2440MHz	Pass	PK	2.44G	95.43	Inf	-Inf	3	Vertical	305	1.50	-
2440MHz	Pass	PK	2.4936G	58.90	74.00	-15.10	3	Vertical	305	1.50	-
2440MHz	Pass	AV	2.3488G	47.19	54.00	-6.81	3	Horizontal	318	1.00	-
2440MHz	Pass	AV	2.44G	102.64	Inf	-Inf	3	Horizontal	318	1.00	-
2440MHz	Pass	AV	2.4992G	47.39	54.00	-6.61	3	Horizontal	318	1.00	-
2440MHz	Pass	PK	2.3568G	59.33	74.00	-14.67	3	Horizontal	318	1.00	-
2440MHz	Pass	PK	2.44G	103.86	Inf	-Inf	3	Horizontal	318	1.00	-
2440MHz	Pass	PK	2.4936G	58.91	74.00	-15.09	3	Horizontal	318	1.00	-
2440MHz	Pass	AV	4.87994G	36.51	54.00	-17.49	3	Vertical	118	1.12	-
2440MHz	Pass	PK	4.88006G	47.11	74.00	-26.89	3	Vertical	118	1.12	-
2440MHz	Pass	AV	4.87962G	34.85	54.00	-19.15	3	Horizontal	7	1.00	-
2440MHz	Pass	PK	4.88047G	47.31	74.00	-26.69	3	Horizontal	7	1.00	-
2480MHz	Pass	AV	2.48G	95.27	Inf	-Inf	3	Vertical	113	1.50	-
2480MHz	Pass	AV	2.4926G	47.20	54.00	-6.80	3	Vertical	113	1.50	-
2480MHz	Pass	PK	2.4798G	95.77	Inf	-Inf	3	Vertical	113	1.50	-
2480MHz	Pass	PK	2.4988G	58.91	74.00	-15.09	3	Vertical	113	1.50	-
2480MHz	Pass	PK	2.4802G	106.09	Inf	-Inf	3	Horizontal	316	1.06	-
2480MHz	Pass	AV	2.48G	104.94	Inf	-Inf	3	Horizontal	316	1.06	-
2480MHz	Pass	PK	2.4842G	59.70	74.00	-14.30	3	Horizontal	316	1.06	-
2480MHz	Pass	AV	2.4966G	47.48	54.00	-6.52	3	Horizontal	316	1.06	-
2480MHz	Pass	AV	4.96876G	35.02	54.00	-18.98	3	Vertical	128	1.27	-
2480MHz	Pass	PK	4.95622G	47.17	74.00	-26.83	3	Vertical	128	1.27	-
2480MHz	Pass	AV	4.95976G	35.04	54.00	-18.96	3	Horizontal	212	1.50	-
2480MHz	Pass	PK	4.9672G	46.83	74.00	-27.17	3	Horizontal	212	1.50	-

Remark :

Page No. : F2 of F14

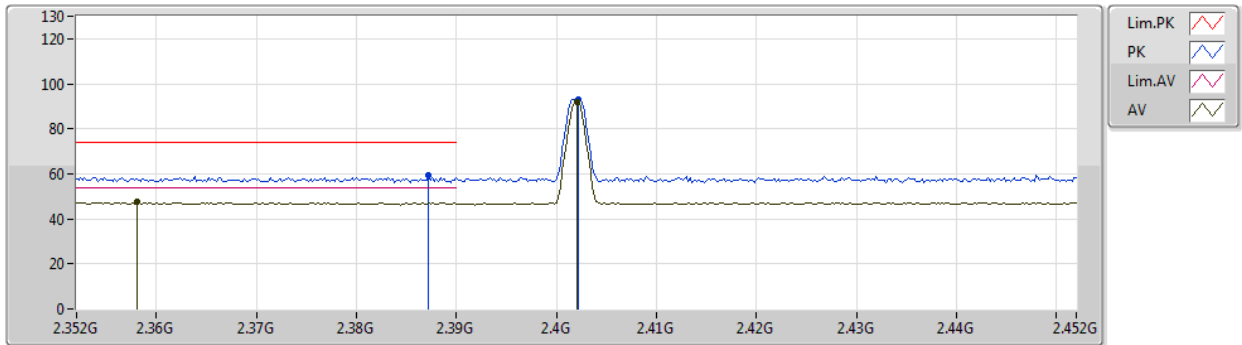
Level (dBuV/m) = Raw(Read Level) + AF(Antenna Factor) + CL(Cable Loss) - PA(Preamp Factor)

981313

BT-LE(1Mbps)

2402MHz_TX

23/08/2019

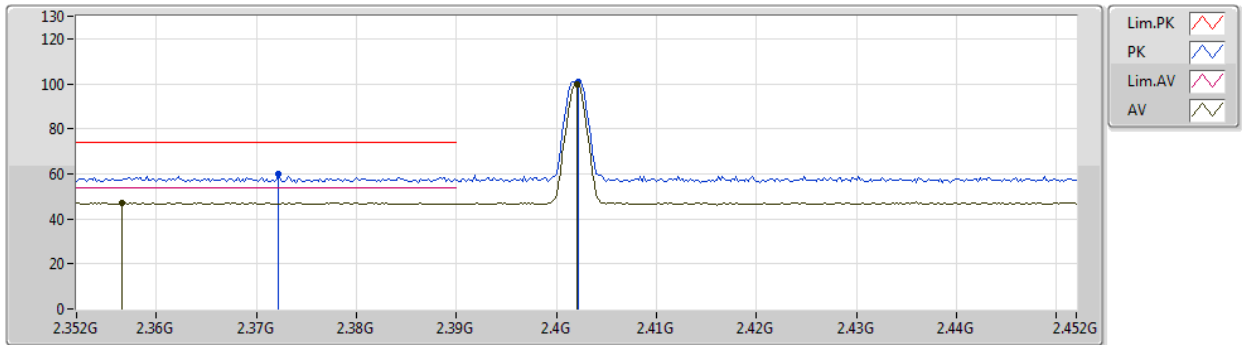


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.358G	47.50	54.00	-6.50	33.89	3	Vertical	196	1.50	-	13.61	27.77	6.12	-
AV	2.402G	92.02	Inf	-Inf	33.71	3	Vertical	196	1.50	-	58.31	27.60	6.11	-
PK	2.3872G	59.12	74.00	-14.88	33.76	3	Vertical	196	1.50	-	25.36	27.65	6.11	-
PK	2.4022G	93.17	Inf	-Inf	33.71	3	Vertical	196	1.50	-	59.46	27.60	6.11	-

BT-LE(1Mbps)

2402MHz_TX

23/08/2019

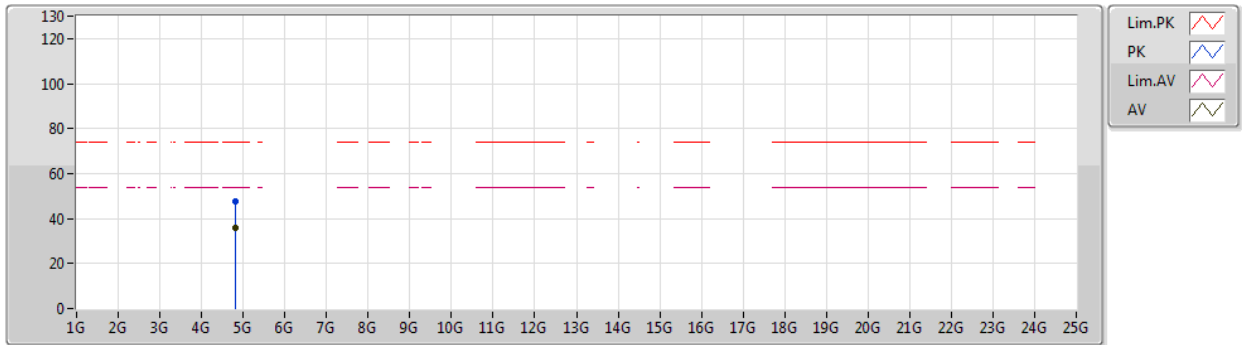


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3566G	47.29	54.00	-6.71	33.89	3	Horizontal	316	1.08	-	13.40	27.77	6.12	-
AV	2.402G	99.80	Inf	-Inf	33.71	3	Horizontal	316	1.08	-	66.09	27.60	6.11	-
PK	2.3722G	59.77	74.00	-14.23	33.83	3	Horizontal	316	1.08	-	25.94	27.71	6.12	-
PK	2.4022G	101.00	Inf	-Inf	33.71	3	Horizontal	316	1.08	-	67.29	27.60	6.11	-

BT-LE(1Mbps)

23/08/2019

2402MHz_TX

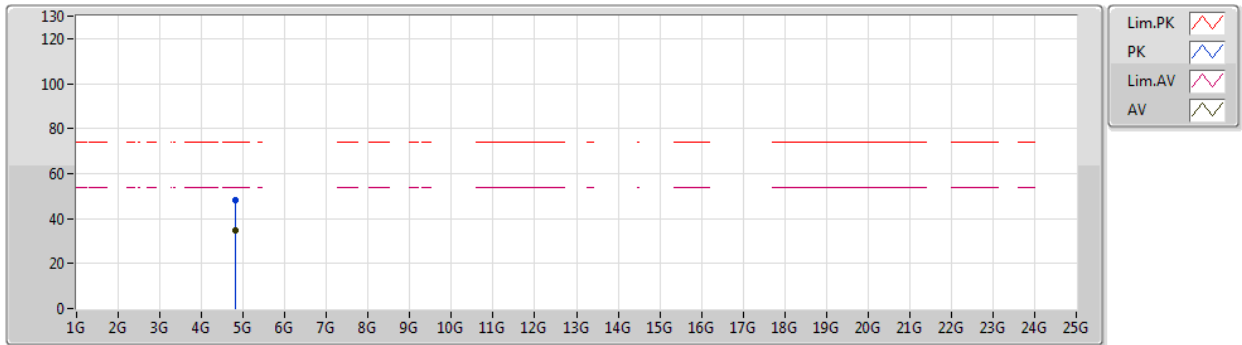


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80353G	35.71	54.00	-18.29	5.70	3	Vertical	33	1.50	-	30.01	31.10	8.90	34.30
PK	4.80334G	47.42	74.00	-26.58	5.70	3	Vertical	33	1.50	-	41.72	31.10	8.90	34.30

BT-LE(1Mbps)

23/08/2019

2402MHz_TX

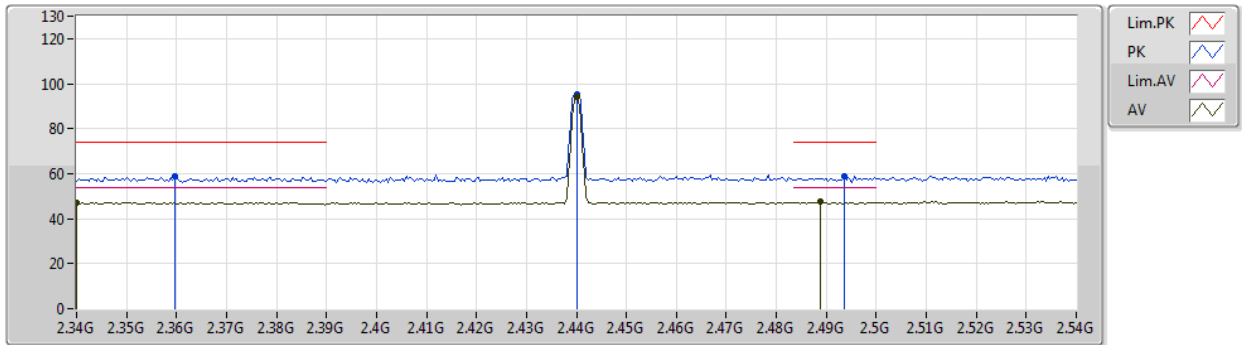


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80409G	34.82	54.00	-19.18	5.70	3	Horizontal	144	1.50	-	29.12	31.10	8.90	34.30
PK	4.8031G	47.93	74.00	-26.07	5.70	3	Horizontal	144	1.50	-	42.23	31.10	8.90	34.30

BT-LE(1Mbps)

2440MHz_TX

23/08/2019

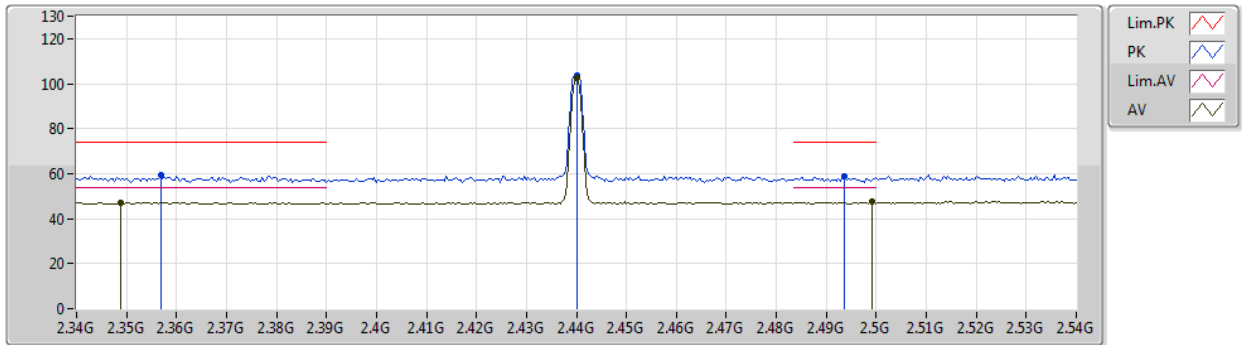


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.34G	47.18	54.00	-6.82	33.96	3	Vertical	305	1.50	-	13.22	27.84	6.12	-
AV	2.44G	94.31	Inf	-Inf	33.69	3	Vertical	305	1.50	-	60.62	27.56	6.13	-
AV	2.4888G	47.53	54.00	-6.47	33.66	3	Vertical	305	1.50	-	13.87	27.51	6.15	-
PK	2.3596G	58.69	74.00	-15.31	33.88	3	Vertical	305	1.50	-	24.81	27.76	6.12	-
PK	2.44G	95.43	Inf	-Inf	33.69	3	Vertical	305	1.50	-	61.74	27.56	6.13	-
PK	2.4936G	58.90	74.00	-15.10	33.66	3	Vertical	305	1.50	-	25.24	27.51	6.15	-

BT-LE(1Mbps)

2440MHz_TX

23/08/2019

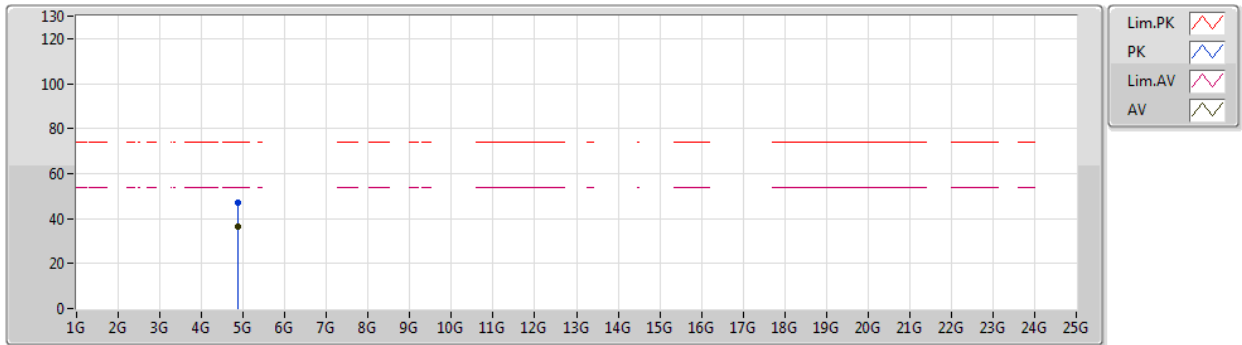


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3488G	47.19	54.00	-6.81	33.92	3	Horizontal	318	1.00	-	13.27	27.80	6.12	-
AV	2.44G	102.64	Inf	-Inf	33.69	3	Horizontal	318	1.00	-	68.95	27.56	6.13	-
AV	2.4992G	47.39	54.00	-6.61	33.65	3	Horizontal	318	1.00	-	13.74	27.50	6.15	-
PK	2.3568G	59.33	74.00	-14.67	33.89	3	Horizontal	318	1.00	-	25.44	27.77	6.12	-
PK	2.44G	103.86	Inf	-Inf	33.69	3	Horizontal	318	1.00	-	70.17	27.56	6.13	-
PK	2.4936G	58.91	74.00	-15.09	33.66	3	Horizontal	318	1.00	-	25.25	27.51	6.15	-

BT-LE(1Mbps)

23/08/2019

2440MHz_TX

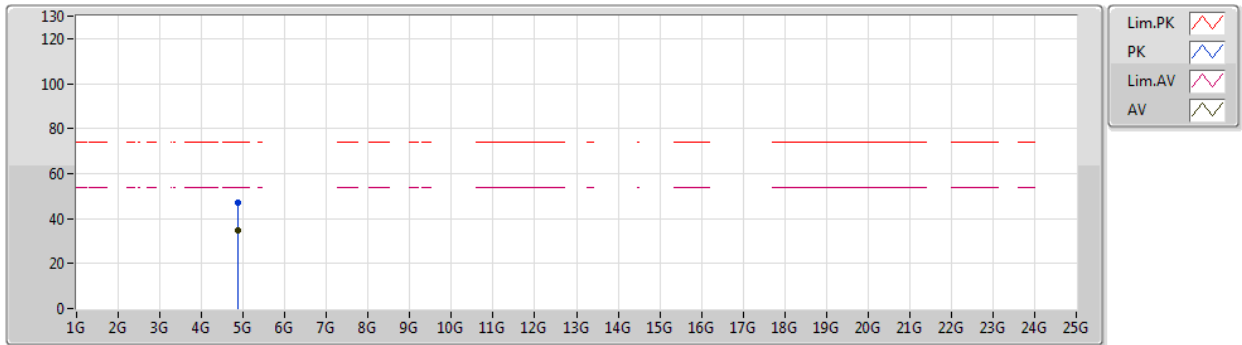


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87994G	36.51	54.00	-17.49	5.78	3	Vertical	118	1.12	-	30.73	31.10	8.96	34.28
PK	4.88006G	47.11	74.00	-26.89	5.78	3	Vertical	118	1.12	-	41.33	31.10	8.96	34.28

BT-LE(1Mbps)

23/08/2019

2440MHz_TX

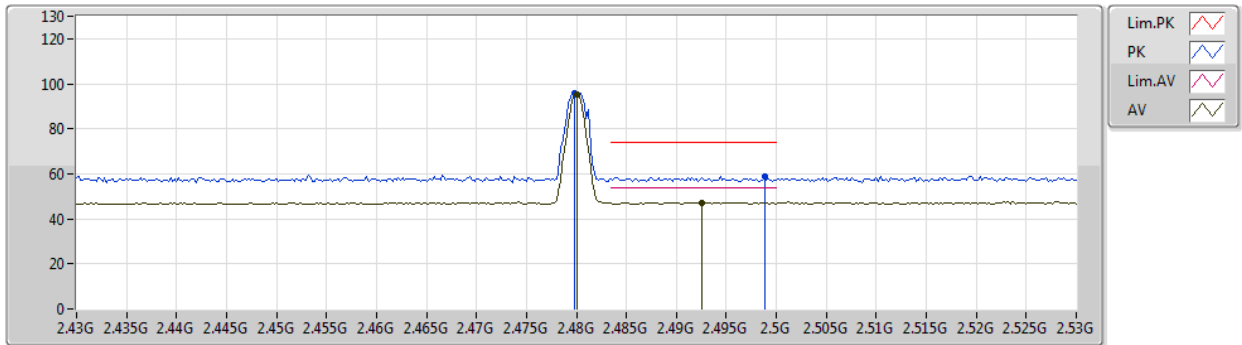


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87962G	34.85	54.00	-19.15	5.78	3	Horizontal	7	1.00	-	29.07	31.10	8.96	34.28
PK	4.88047G	47.31	74.00	-26.69	5.78	3	Horizontal	7	1.00	-	41.53	31.10	8.96	34.28

BT-LE(1Mbps)

2480MHz_TX

23/08/2019

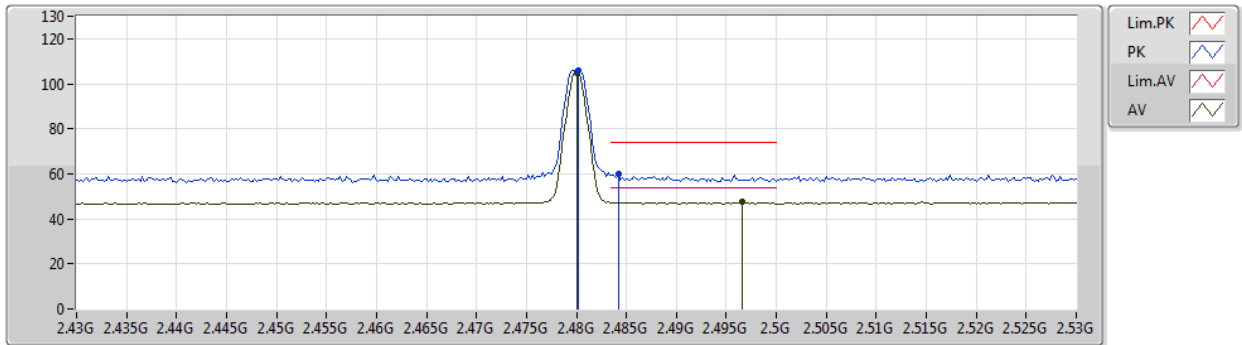


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	95.27	Inf	-Inf	33.67	3	Vertical	113	1.50	-	61.60	27.52	6.15	-
AV	2.4926G	47.20	54.00	-6.80	33.66	3	Vertical	113	1.50	-	13.54	27.51	6.15	-
PK	2.4798G	95.77	Inf	-Inf	33.66	3	Vertical	113	1.50	-	62.11	27.52	6.14	-
PK	2.4988G	58.91	74.00	-15.09	33.65	3	Vertical	113	1.50	-	25.26	27.50	6.15	-

BT-LE(1Mbps)

2480MHz_TX

23/08/2019

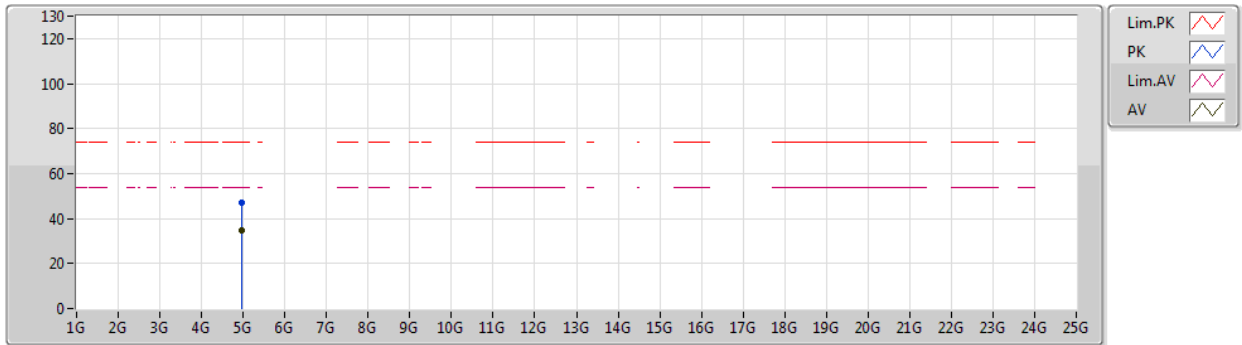


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	2.4802G	106.09	Inf	-Inf	33.67	3	Horizontal	316	1.06	-	72.42	27.52	6.15	-
AV	2.48G	104.94	Inf	-Inf	33.67	3	Horizontal	316	1.06	-	71.27	27.52	6.15	-
PK	2.4842G	59.70	74.00	-14.30	33.67	3	Horizontal	316	1.06	-	26.03	27.52	6.15	-
AV	2.4966G	47.48	54.00	-6.52	33.65	3	Horizontal	316	1.06	-	13.83	27.50	6.15	-

BT-LE(1Mbps)

23/08/2019

2480MHz_TX

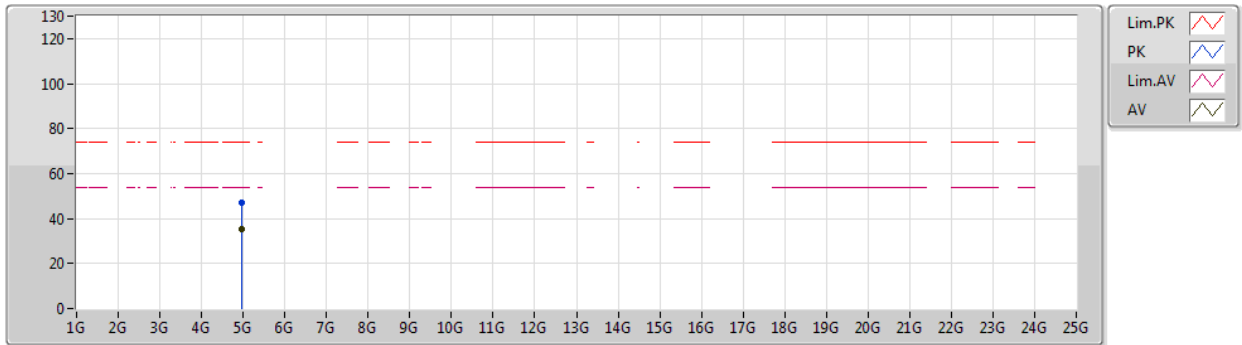


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.96876G	35.02	54.00	-18.98	6.27	3	Vertical	128	1.27	-	28.75	31.38	9.03	34.14
PK	4.95622G	47.17	74.00	-26.83	6.18	3	Vertical	128	1.27	-	40.99	31.32	9.02	34.16

BT-LE(1Mbps)

23/08/2019

2480MHz_TX



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	4.95976G	35.04	54.00	-18.96	6.21	3	Horizontal	212	1.50	-	28.83	31.34	9.03	34.16
PK	4.9672G	46.83	74.00	-27.17	6.26	3	Horizontal	212	1.50	-	40.57	31.37	9.03	34.14