



FCC Test Report

FCC ID : UDX-60084020
Equipment : Wireless Sensor
Brand Name : Cisco
Model Name : MT12-HW
Applicant : Cisco Systems, Inc.
170 West Tasman Drive San Jose, CA 95134 USA
Manufacturer : Cisco Systems, Inc.
170 West Tasman Drive San Jose, CA 95134 USA
Standard : 47 CFR FCC Part 15.247

The product was received on Feb. 26, 2020, and testing was started from Mar. 31, 2020 and completed on Apr. 07, 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 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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PHOTOGRAPHS OF EUT V01



History of this test report

Report No.	Version	Description	Issued Date
FR010343AL	01	Initial issue of report	Jun. 24, 2020



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: 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.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Senao	5718A0391300	PCB	I-PEX	4.9

Note 1: The EUT has one antenna.

For BT function:

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

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

1.1.3 EUT Information

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

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
BT-LE(1Mbps)	1	0	50.002m	10

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		
<input checked="" type="checkbox"/>	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL : 886-3-327-3456 FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.		
<input type="checkbox"/>	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.) TEL : 886-3-656-9065 FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.		
<input type="checkbox"/>	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	CO04HY	Edward	21.4~22.5°C / 58~63%	02/Apr/2020
RF Conducted	TH01-HY	Vivi	20.1~26.9C / 50~60%	31/Mar/2020~ 07/Apr/2020
Radiated	03CH03-HY	Tony	23.2~25.4°C / 51~62%	31/Mar/2020~ 07/Apr/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	Dos
---------------	-----

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	8
2440MHz	8
2480MHz	8

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	USB mode

The Worst Case Mode for Following Conformance Tests	
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands
Test Condition	Conducted measurement at transmit chains

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
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	USB mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

2.4 Accessories

Accessories				
Battery	Brand Name	Energizer	Model Name	E91
	Power Rating	1.5Vdc, 3000mAh	Type	Alkaline Battery
Mounting bracket	Brand Name	CHAIN-RAY	Model Name	BRACKET WALL MOUNT
Magnet	Brand Name	XMAG	Model Name	MAGNET D25.4*1.59mm
Sensor Cable	Brand Name	Grand-Tek	Model Name	Sensor cable, 3.5mm Audio jack(w/molding) to Audio plug(w/molding) L=8ft
	Signal Line	2.44 meter, non-shielded cable		

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

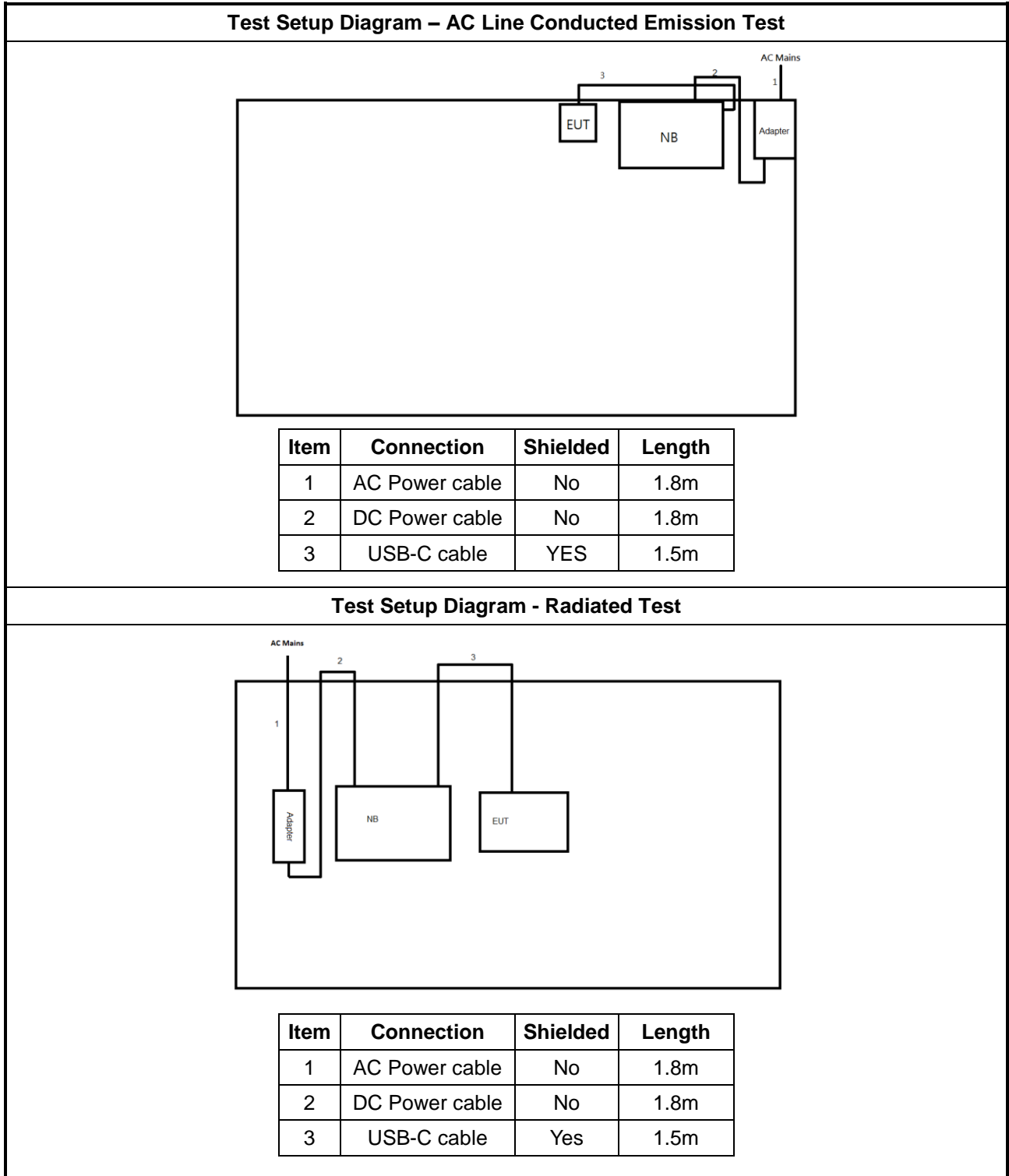
2.5 Support Equipment

Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	PP13S	-	-
2	AC adapter	DELL	AA90PM111	-	-
3	USB-C cable	UGREEN	US288	-	Customer provide

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	DoC	-
2	AC adapter	DELL	HA65NM130	DoC	-
3	USB-C cable	UGREEN	US288	-	Customer provide

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	PP13S	-	-
2	AC adapter	DELL	AA90PM111	-	-
3	USB-C cable	UGREEN	US288	-	Customer provide

2.6 Test Setup Diagram



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

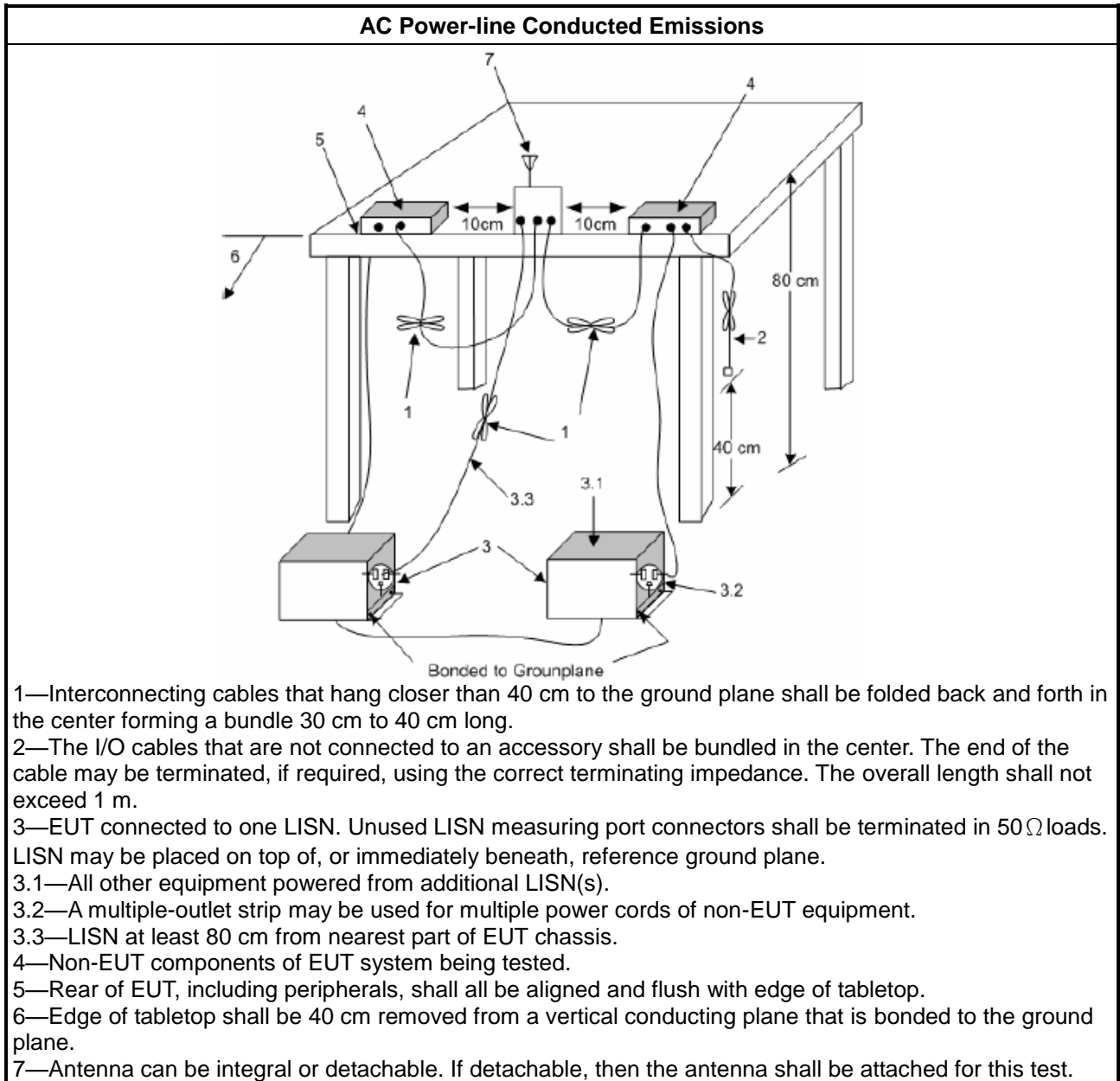
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
<ul style="list-style-type: none"> ▪ 6 dB bandwidth \geq 500 kHz.

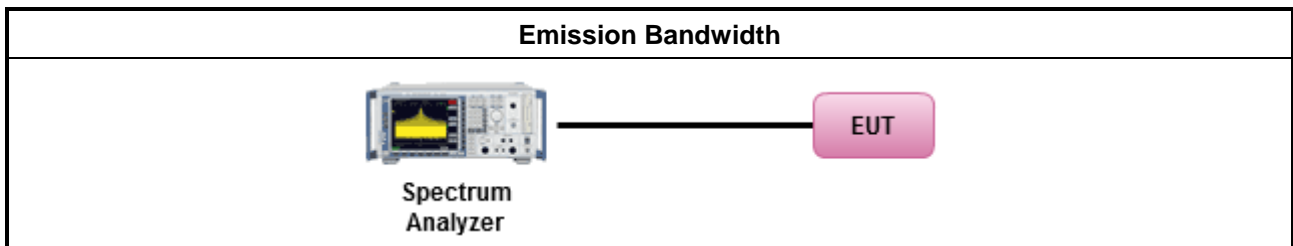
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method
<ul style="list-style-type: none"> ▪ For the emission bandwidth shall be measured using one of the options below:
<input checked="" type="checkbox"/> Refer as KDB 558074, clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
<input type="checkbox"/> Refer as RSS-Gen, clause 6.7 for for occupied bandwidth testing.
<input type="checkbox"/> Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	<ul style="list-style-type: none"> ▪ If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS):
	<ul style="list-style-type: none"> - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
e.i.r.p. Power Limit:	
	<ul style="list-style-type: none"> ▪ 2400-2483.5 MHz Band
	<ul style="list-style-type: none"> ▪ Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	<ul style="list-style-type: none"> ▪ Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	<ul style="list-style-type: none"> ▪ Smart antenna system (SAS)
	<ul style="list-style-type: none"> - Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

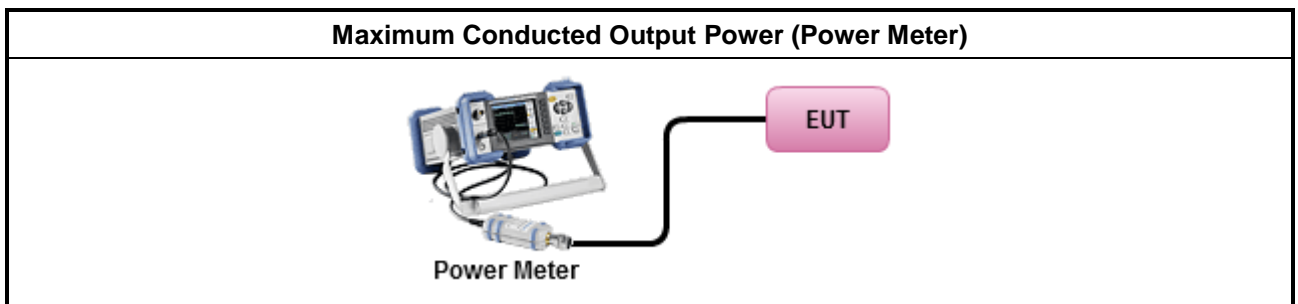
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> ▪ Maximum Peak Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
<ul style="list-style-type: none"> ▪ Maximum Average Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
<ul style="list-style-type: none"> ▪ For conducted measurement. 	
<ul style="list-style-type: none"> ▪ If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them. 	
<ul style="list-style-type: none"> ▪ If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$ 	

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
<ul style="list-style-type: none"> ▪ Power Spectral Density (PSD) ≤ 8 dBm/3kHz

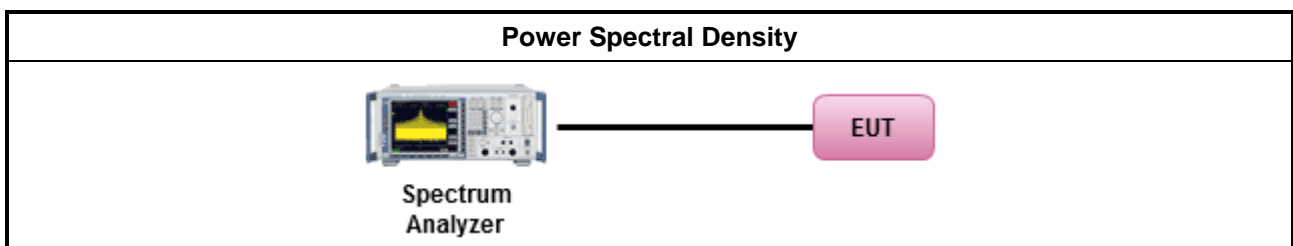
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
	<ul style="list-style-type: none"> ▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
	<ul style="list-style-type: none"> ▪ For conducted measurement.
	<ul style="list-style-type: none"> ▪ If The EUT supports multiple transmit chains using options given below:
	<ul style="list-style-type: none"> ▪ Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak 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.

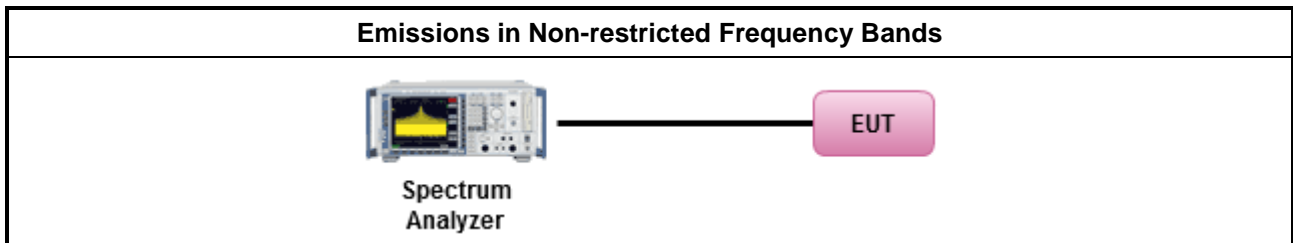
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB / decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

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

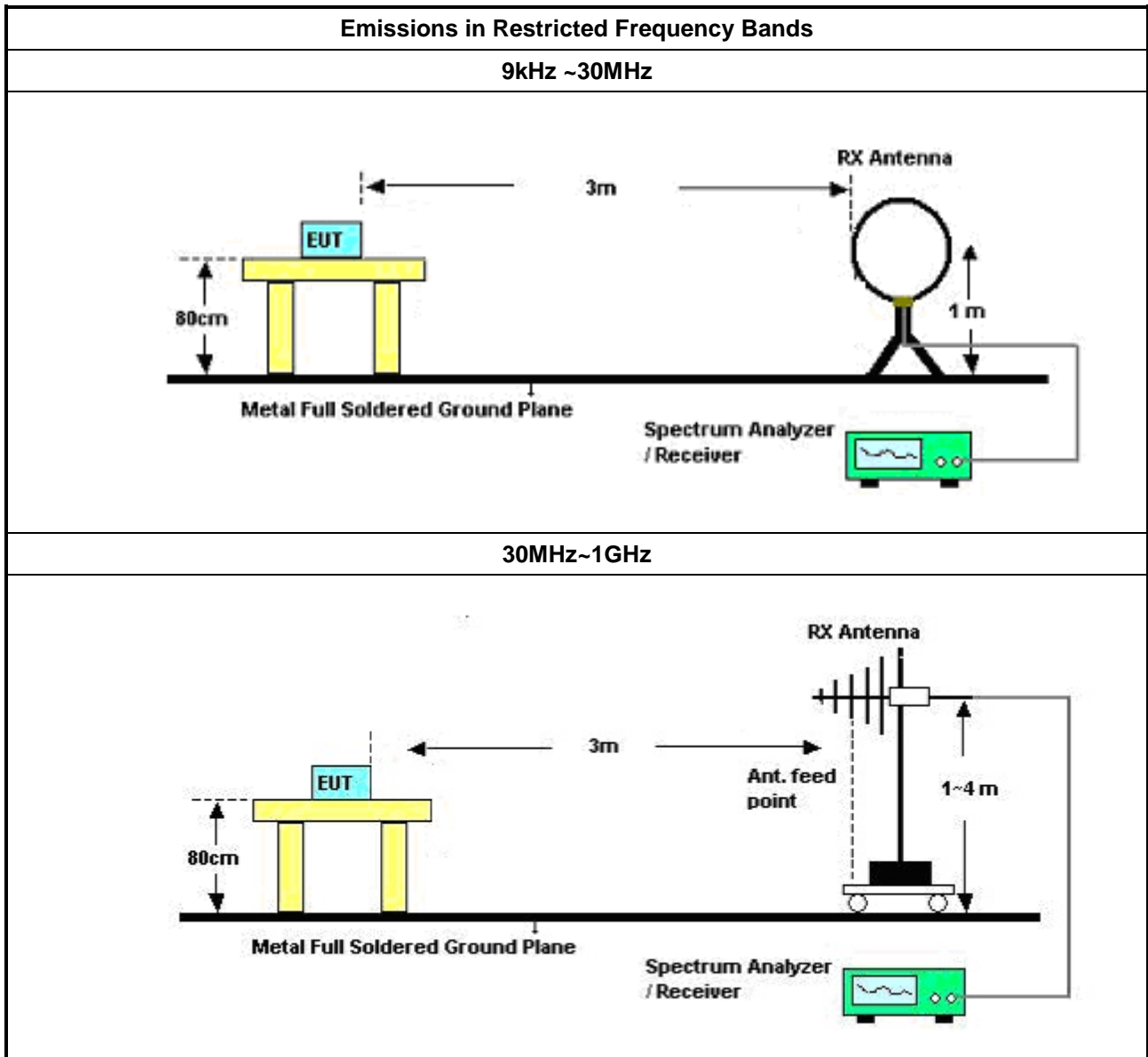
3.6.2 Measuring Instruments

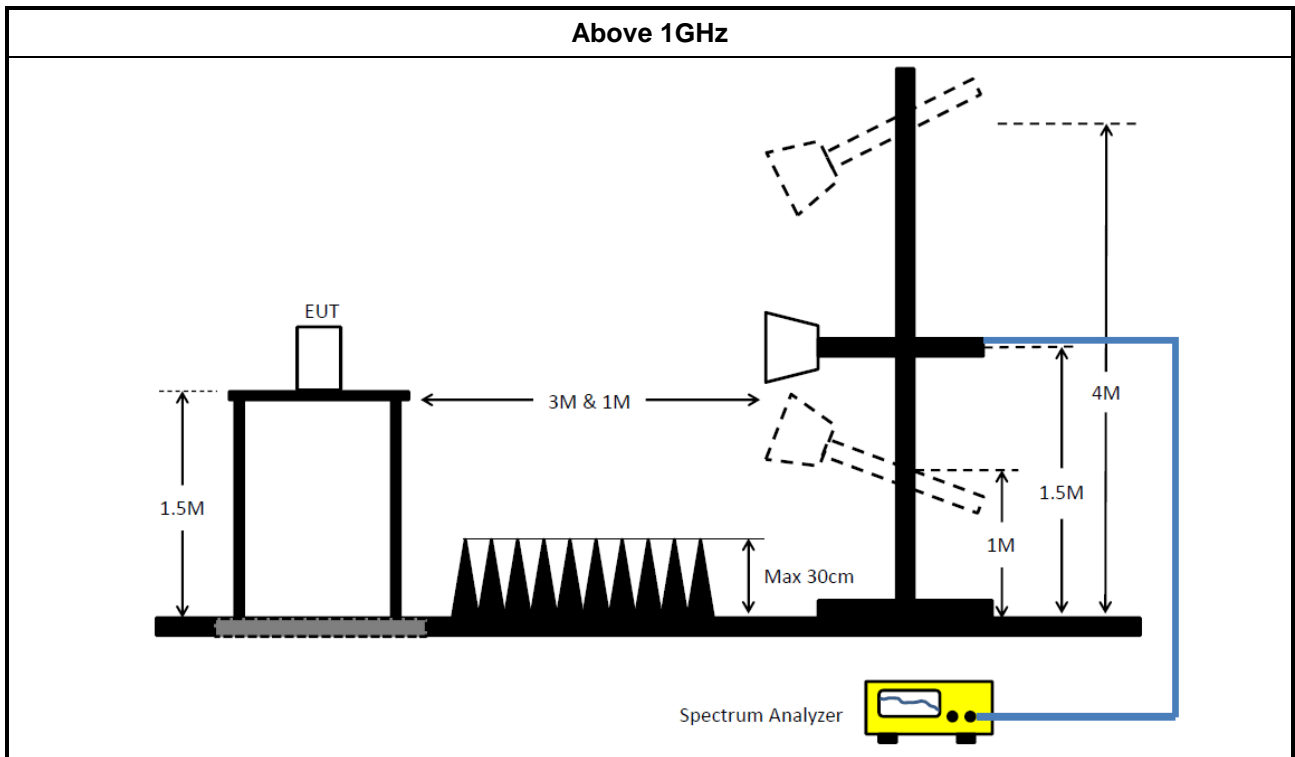
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
	<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
	<ul style="list-style-type: none"> ▪ For the transmitter unwanted emissions shall be measured using following options below: <ul style="list-style-type: none"> ▪ Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
	<ul style="list-style-type: none"> ▪ For the transmitter band-edge emissions shall be measured using following options below: <ul style="list-style-type: none"> ▪ Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below. ▪ Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements. ▪ Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
	<ul style="list-style-type: none"> ▪ Use the following spectrum analyzer settings: <ul style="list-style-type: none"> ▪ 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.
	<ul style="list-style-type: none"> ▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification. <ul style="list-style-type: none"> ▪ 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	04/Nov/2019	05/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	12/Sep/2019	11/Sep/2020
AC POWER	APC	AFC-11005G	F310050055	47Hz ~ 63Hz 5 ~ 300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	24/Sep/2019	23/Sep/2020

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	19/Mar/2020	18/Mar/2021
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz ~ 40GHz	12/Nov/2018	10/Nov/2020
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	17/Feb/2020	16/Feb/2021
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	17/Feb/2020	16/Feb/2021

Instrument for Radiated Test

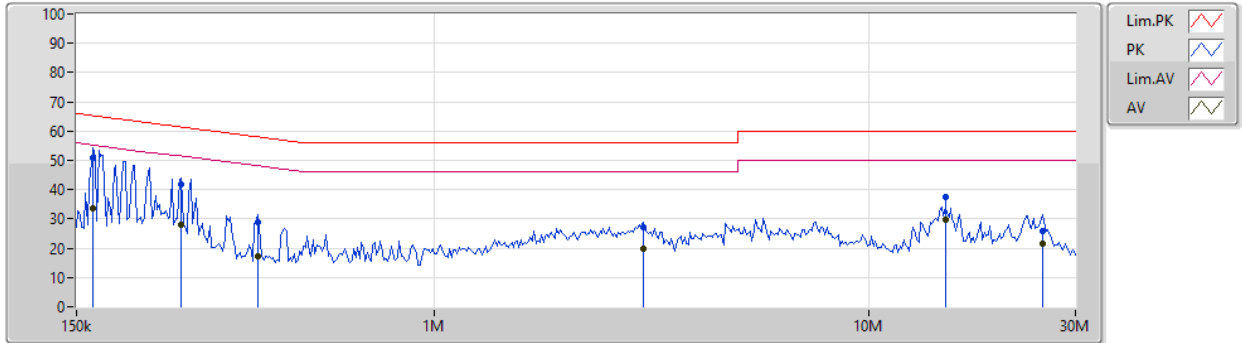
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	30/Aug/2019	29/Aug/2020
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	30/Aug/2019	29/Aug/2020
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	22/Apr/2019	21/Apr/2020
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112D / MTJ6102-05	2678 / 001	30MHz ~ 1GHz	06/Jul/2019	05/Jul/2020
Microwave System Preamplifier	KEYSIGHT	83017A	MY53270196	1GHz ~ 26.5GHz	09/Sep/2019	08/Sep/2020
Signal Analyzer	R&S	FSP40	100305	9kHz ~ 40GHz	10/Jun/2019	09/Jun/2020
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	18/Mar/2020	17/Mar/2021
RF CABLE 5+6m	HUBER+SUHNER	SUOFLEX 104	SN 805801/4 + SN 804300/4	1GHz ~ 40GHz	18/Mar/2020	17/Mar/2021
Double Ridged Guide Horn Antenna	COM-POWER	AH-118	10091	1GHz ~ 18GHz	10/Jun/ 2019	09/Jun/ 2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170339	15GHz ~ 40GHz	19/Apr/ 2019	18/Apr/ 2020
Loop Antenna	TESEQ	HLA 6120	31244	9k ~ 30MHz	16/Mar/2020	15/Mar/2021



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	USB mode		

02/04/2020



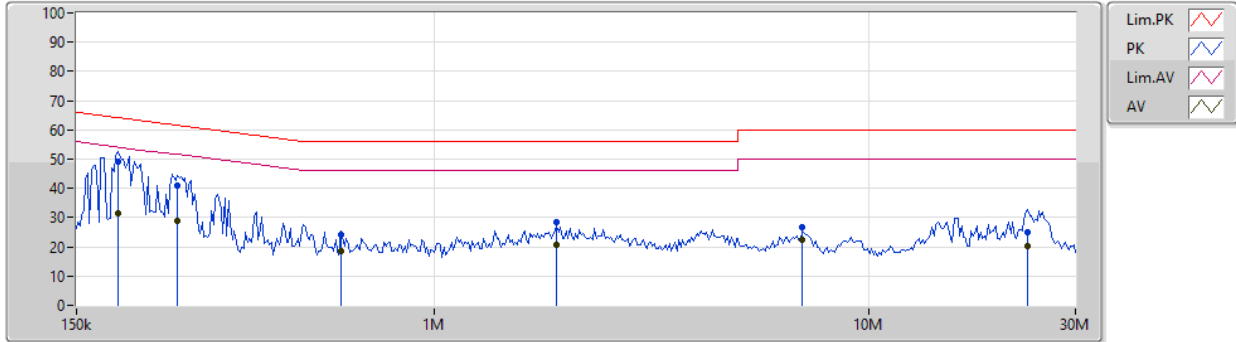
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	164.053k	50.77	65.25	-14.48	19.63	Neutral	"Worst"	31.14	9.65	0.11	9.87
AV	164.053k	33.80	55.25	-21.45	19.63	Neutral	-	14.17	9.65	0.11	9.87
QP	261.871k	41.92	61.37	-19.45	19.63	Neutral	-	22.29	9.64	0.12	9.87
AV	261.871k	28.03	51.37	-23.34	19.63	Neutral	-	8.40	9.64	0.12	9.87
QP	393.79k	29.03	57.99	-28.96	19.63	Neutral	-	9.40	9.63	0.13	9.87
AV	393.79k	17.27	47.99	-30.72	19.63	Neutral	-	-2.36	9.63	0.13	9.87
QP	3.028M	27.19	56.00	-28.81	19.71	Neutral	-	7.48	9.66	0.17	9.88
AV	3.028M	19.87	46.00	-26.13	19.71	Neutral	-	0.16	9.66	0.17	9.88
QP	15.028M	37.37	60.00	-22.63	19.90	Neutral	-	17.47	9.71	0.31	9.88
AV	15.028M	29.74	50.00	-20.26	19.90	Neutral	-	9.84	9.71	0.31	9.88
QP	25.212M	25.89	60.00	-34.11	19.98	Neutral	-	5.91	9.69	0.41	9.88
AV	25.212M	21.35	50.00	-28.65	19.98	Neutral	-	1.37	9.69	0.41	9.88



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	USB mode		

02/04/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	186.707k	49.01	64.18	-15.17	19.63	Line	"Worst"	29.38	9.65	0.11	9.87
AV	186.707k	31.35	54.18	-22.83	19.63	Line	-	11.72	9.65	0.11	9.87
QP	256.712k	41.12	61.54	-20.42	19.64	Line	-	21.48	9.65	0.12	9.87
AV	256.712k	28.74	51.54	-22.80	19.64	Line	-	9.10	9.65	0.12	9.87
QP	610.106k	24.16	56.00	-31.84	19.63	Line	-	4.53	9.64	0.12	9.87
AV	610.106k	18.41	46.00	-27.59	19.63	Line	-	-1.22	9.64	0.12	9.87
QP	1.916M	28.36	56.00	-27.64	19.67	Line	-	8.69	9.65	0.15	9.87
AV	1.916M	20.76	46.00	-25.24	19.67	Line	-	1.09	9.65	0.15	9.87
QP	7.054M	26.70	60.00	-33.30	19.79	Line	-	6.91	9.68	0.23	9.88
AV	7.054M	22.47	50.00	-27.53	19.79	Line	-	2.68	9.68	0.23	9.88
QP	23.282M	25.15	60.00	-34.85	19.86	Line	-	5.29	9.59	0.39	9.88
AV	23.282M	20.44	50.00	-29.56	19.86	Line	-	0.58	9.59	0.39	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)	752.5k	1.066M	1M07F1D	702.5k	1.057M

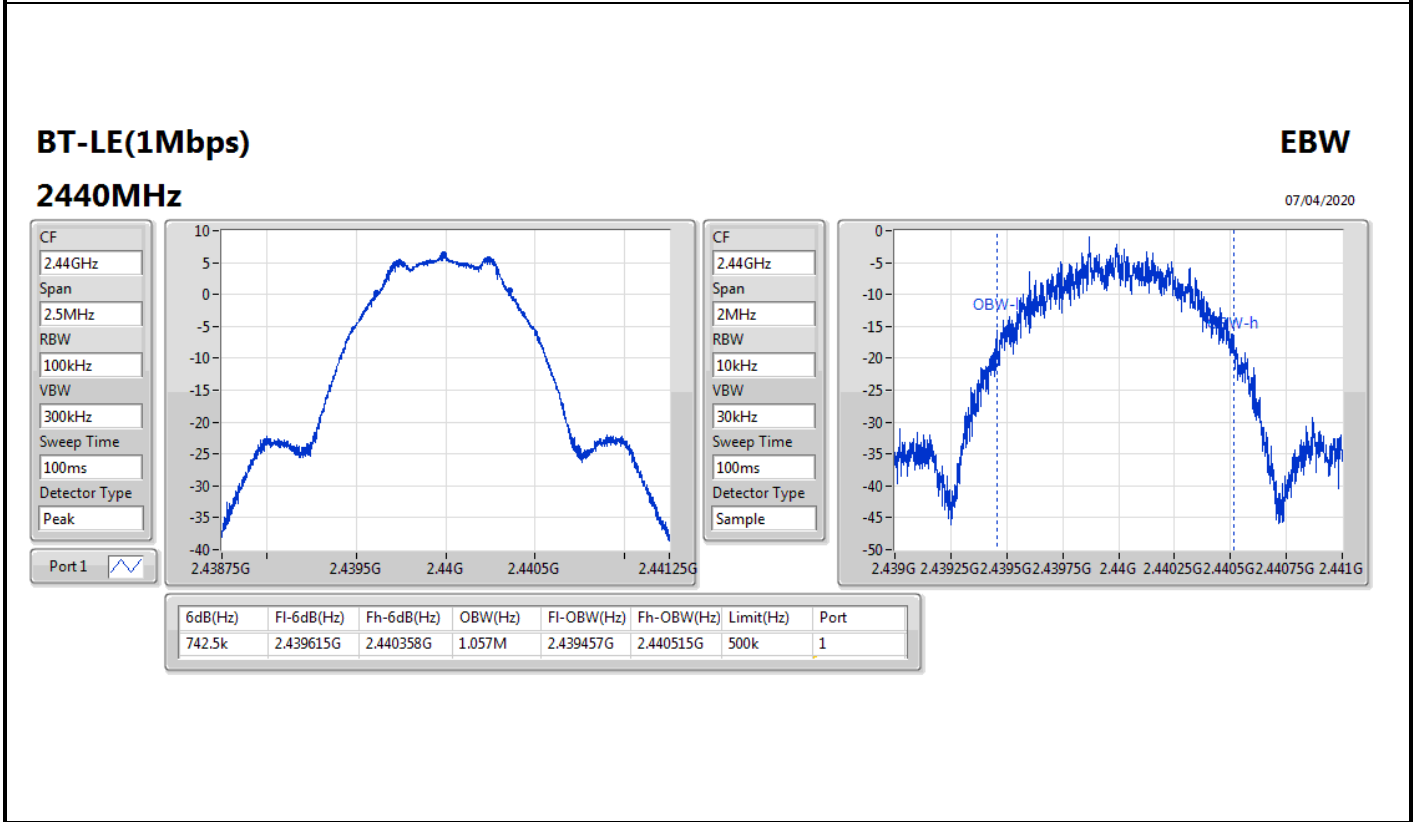
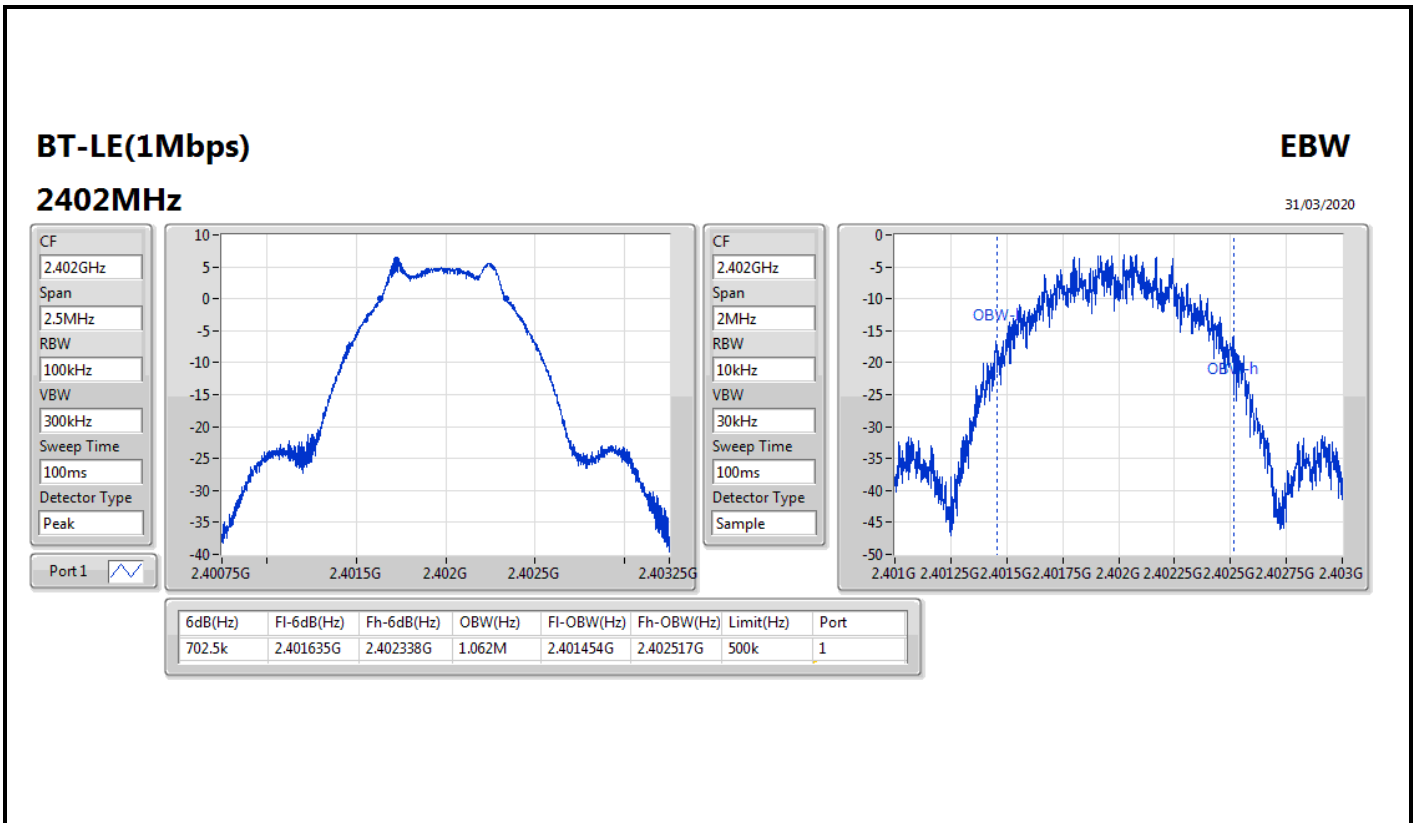
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	702.5k	1.062M
2440MHz	Pass	500k	742.5k	1.057M
2480MHz	Pass	500k	752.5k	1.066M

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



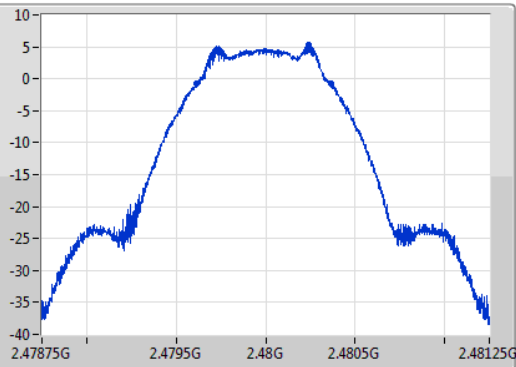
BT-LE(1Mbps)

EBW

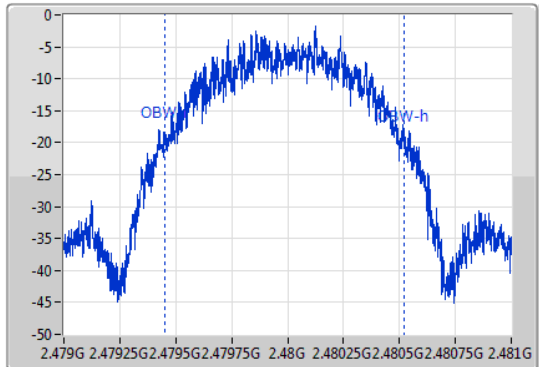
2480MHz

31/03/2020

CF
2.48GHz
Span
2.5MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



CF
2.48GHz
Span
2MHz
RBW
10kHz
VBW
30kHz
Sweep Time
100ms
Detector Type
Sample



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
752.5k	2.479613G	2.480365G	1.066M	2.479452G	2.480519G	500k	1



Summary

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



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.90	7.23	30.00
2440MHz	Pass	4.90	7.03	30.00
2480MHz	Pass	4.90	7.16	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-5.73

RBW=3 kHz.

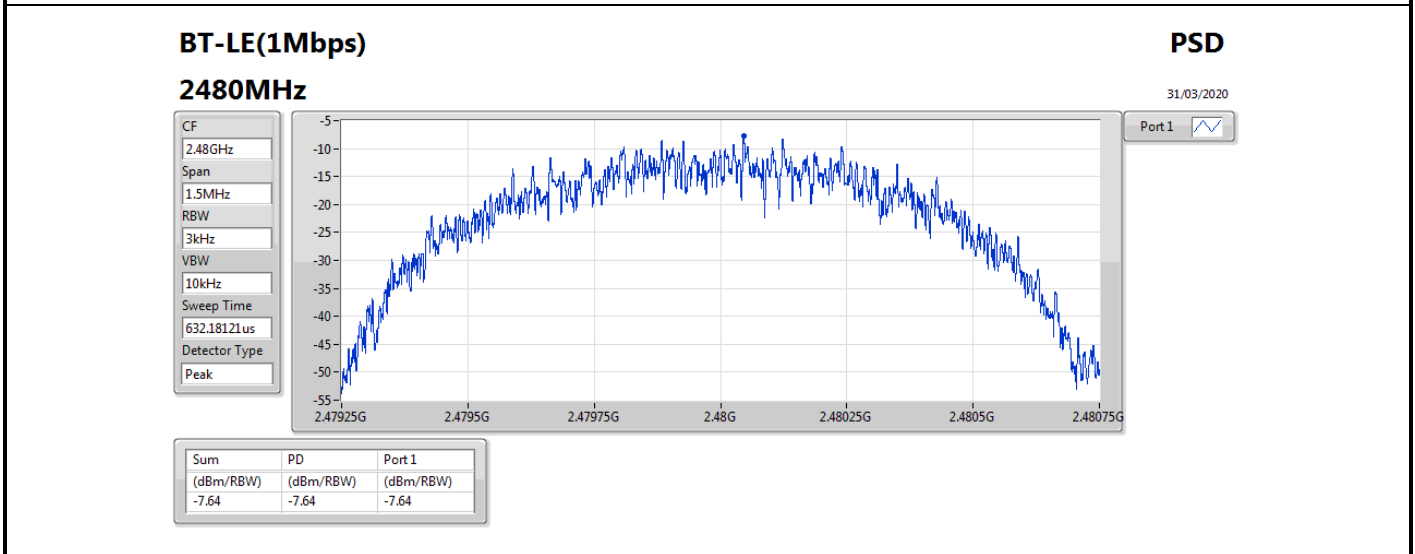
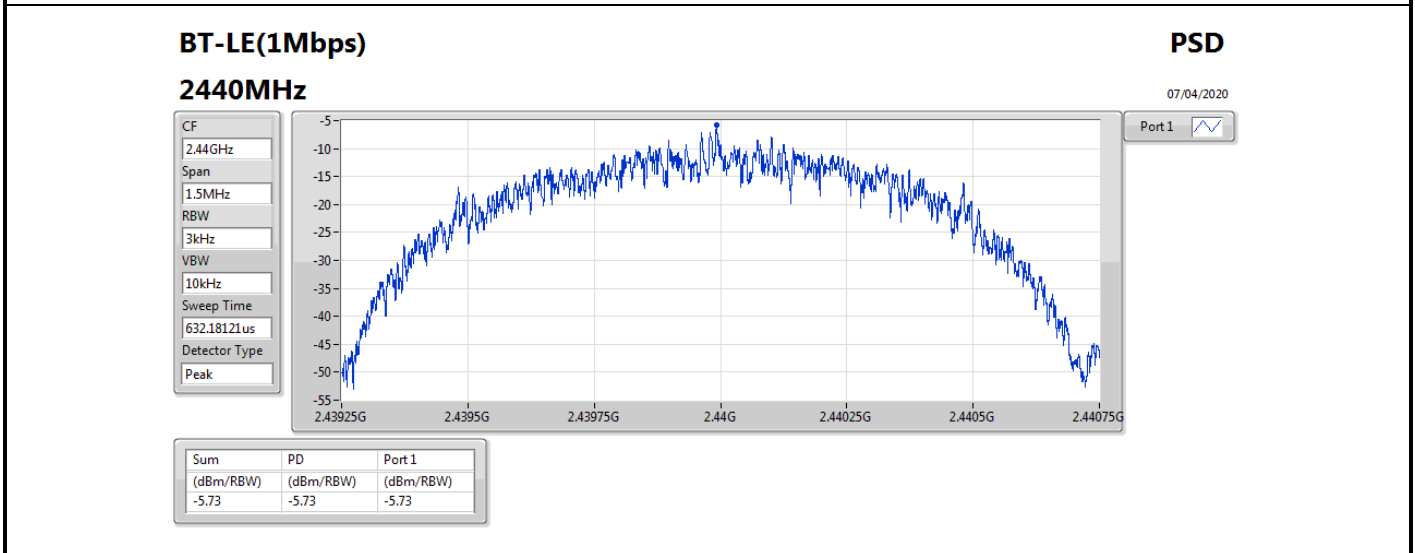
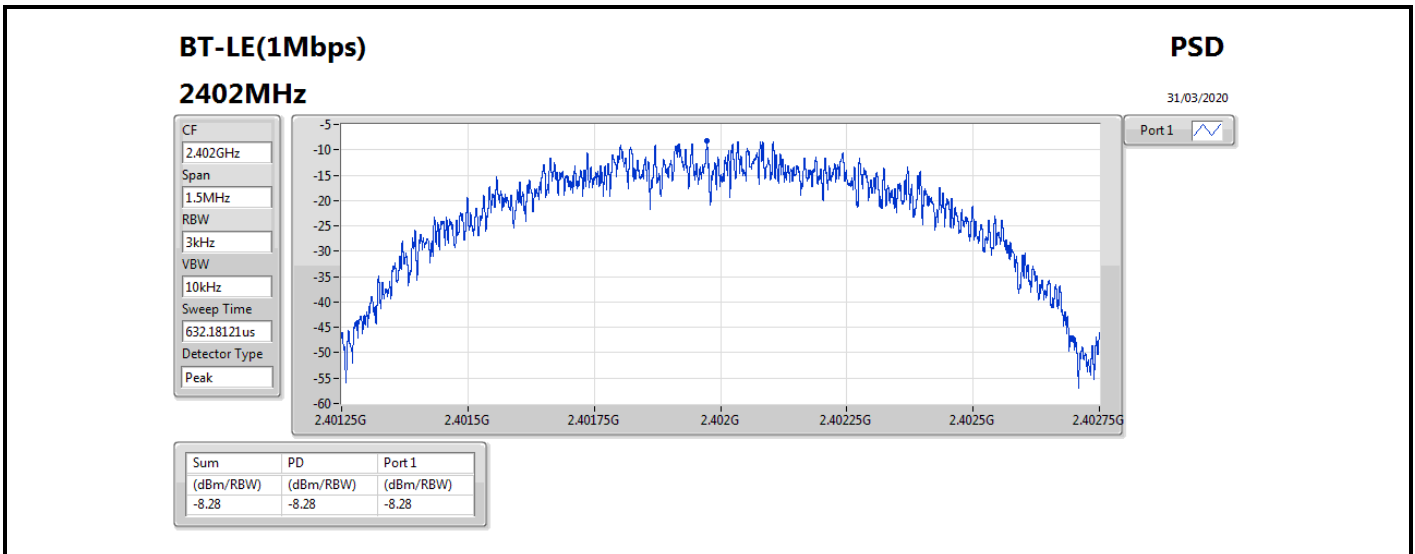


Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.90	-8.28	8.00
2440MHz	Pass	4.90	-5.73	8.00
2480MHz	Pass	4.90	-7.64	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;





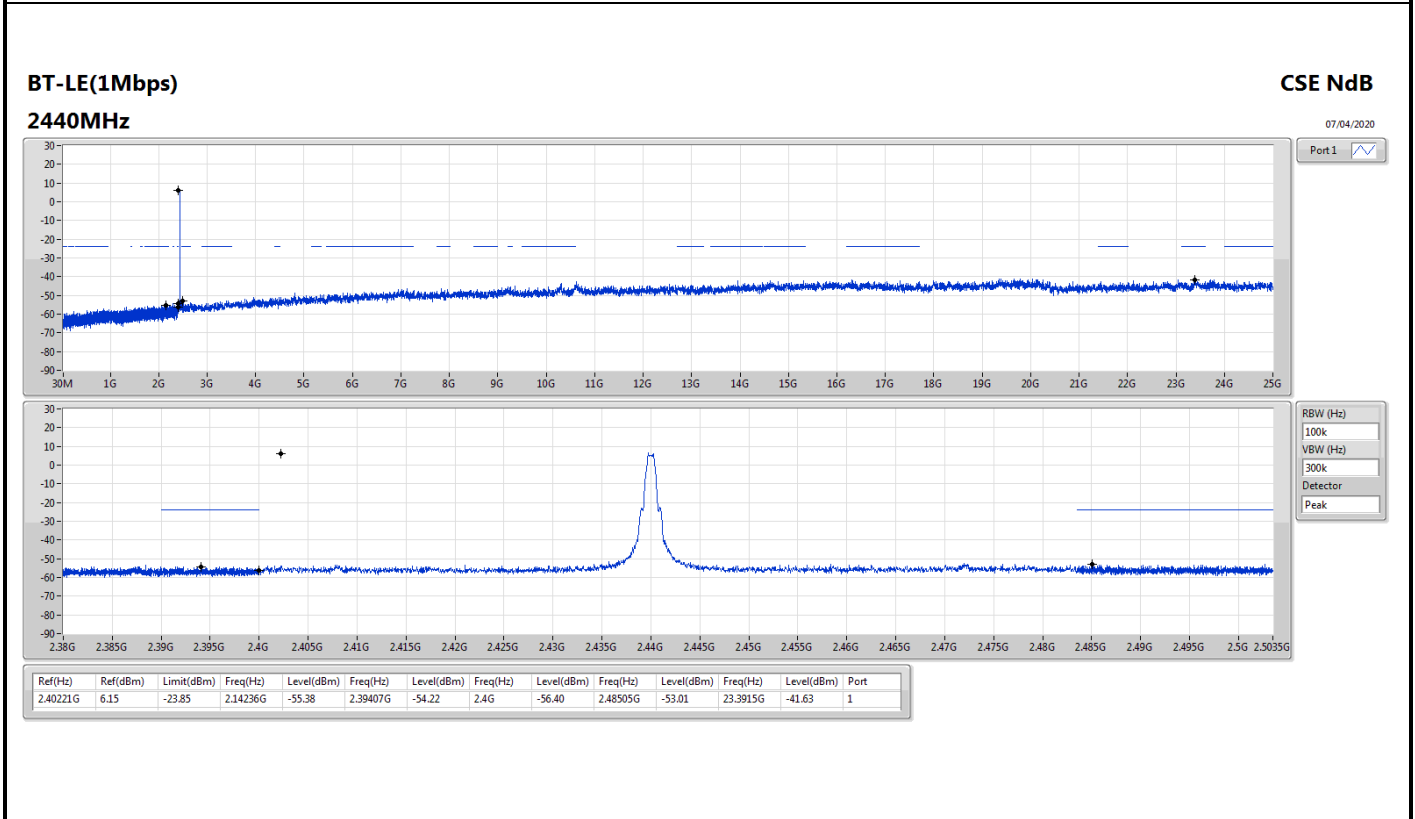
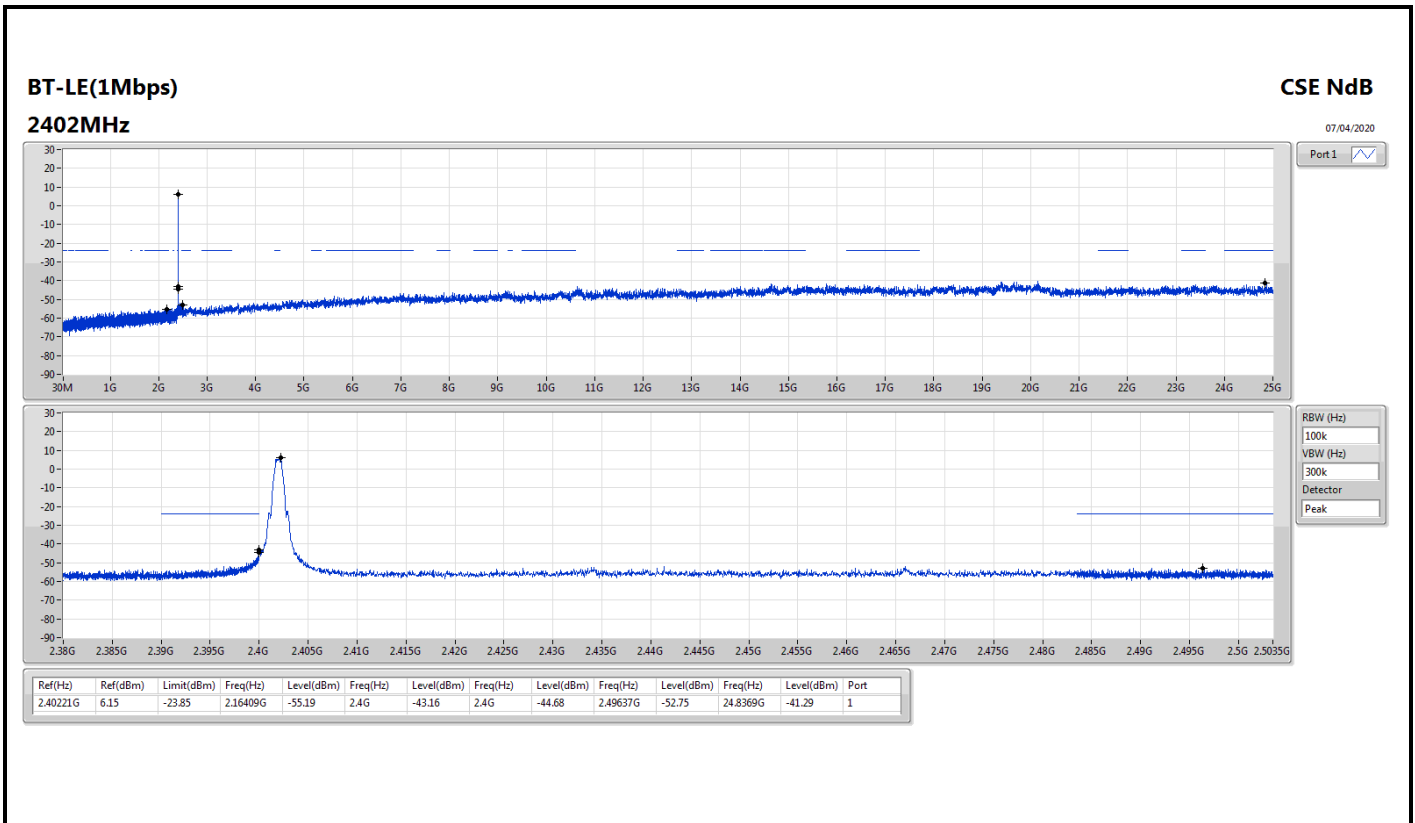
Summary

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	2.40221G	6.15	-23.85	2.16409G	-55.19	2.4G	-43.16	2.4G	-44.68	2.49637G	-52.75	24.8369G	-41.29	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	2.40221G	6.15	-23.85	2.16409G	-55.19	2.4G	-43.16	2.4G	-44.68	2.49637G	-52.75	24.8369G	-41.29	1
2440MHz	Pass	2.40221G	6.15	-23.85	2.14236G	-55.38	2.39407G	-54.22	2.4G	-56.40	2.48505G	-53.01	23.3915G	-41.63	1
2480MHz	Pass	2.40221G	6.15	-23.85	2.10564G	-55.07	2.39976G	-53.95	2.4835G	-52.18	2.48352G	-51.33	24.86221G	-41.38	1



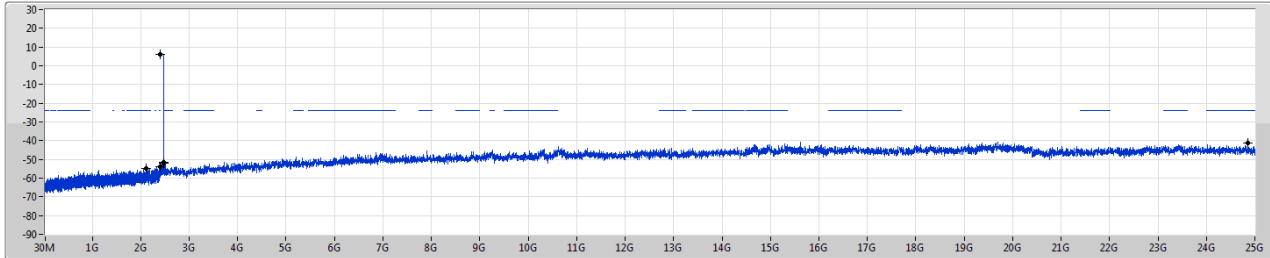


BT-LE(1Mbps)

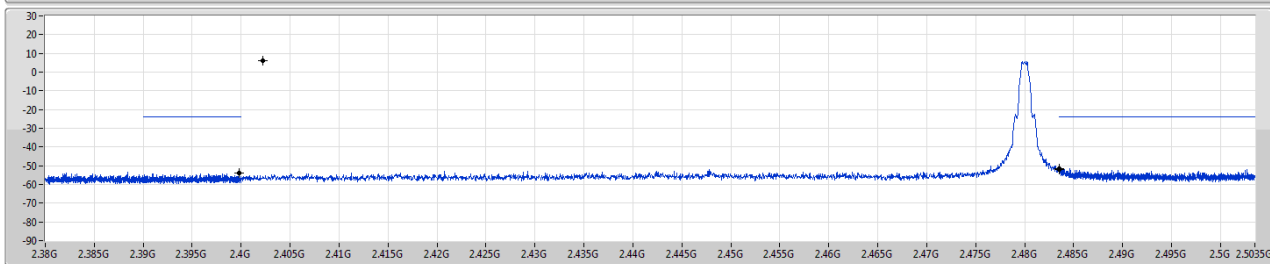
CSE NdB

2480MHz

07/04/2020



Port 1



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
2.40221G	6.15	-23.85	2.10564G	-55.07	2.39976G	-53.95	2.4835G	-52.18	2.48352G	-51.33	2.486221G	-41.38	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	43.58M	35.61	40.00	-4.39	3	Vertical	360	1.00	-



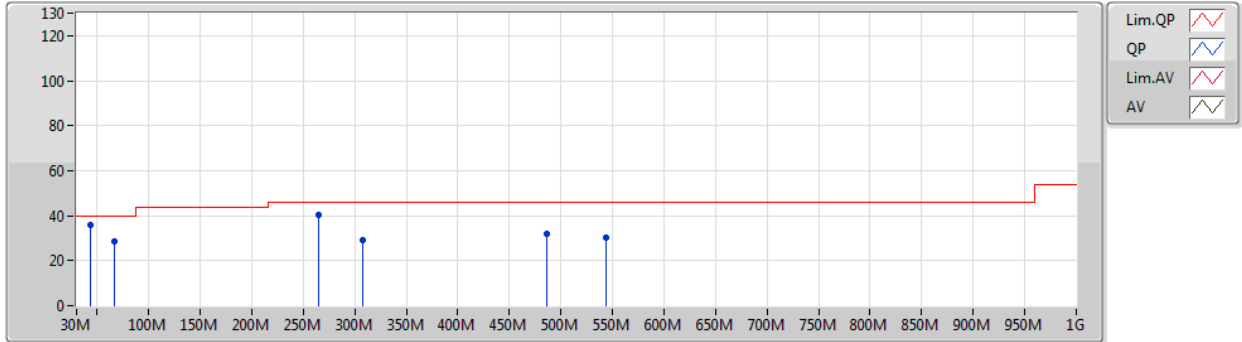
Result

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	43.58M	35.61	40.00	-4.39	3	Vertical	360	1.00	-
2440MHz	Pass	PK	66.86M	28.64	40.00	-11.36	3	Vertical	360	1.00	-
2440MHz	Pass	PK	264.74M	40.46	46.00	-5.54	3	Vertical	360	1.00	-
2440MHz	Pass	PK	307.42M	29.06	46.00	-16.94	3	Vertical	360	1.00	-
2440MHz	Pass	PK	485.9M	31.81	46.00	-14.19	3	Vertical	360	1.00	-
2440MHz	Pass	PK	544.1M	30.14	46.00	-15.86	3	Vertical	360	1.00	-
2440MHz	Pass	PK	45.52M	30.20	40.00	-9.80	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	121.18M	34.84	43.50	-8.66	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	260.86M	39.01	46.00	-6.99	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	429.64M	29.19	46.00	-16.81	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	575.14M	27.90	46.00	-18.10	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	712.88M	28.70	46.00	-17.30	3	Horizontal	0	1.00	-

BT-LE(1Mbps)

31/03/2020

2440MHz_USB

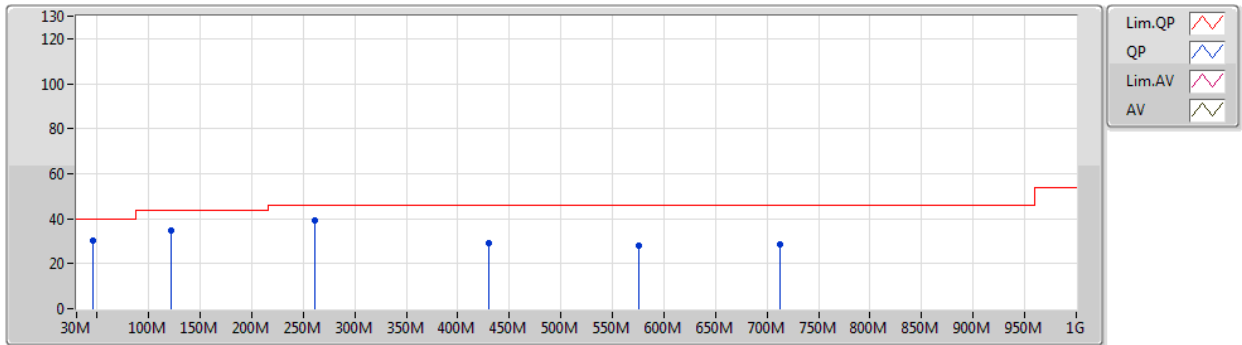


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	43.58M	35.61	40.00	-4.39	-10.63	3	Vertical	360	1.00	-	46.24	15.91	0.98	27.52
PK	66.86M	28.64	40.00	-11.36	-14.92	3	Vertical	360	1.00	-	43.56	11.32	1.23	27.47
PK	264.74M	40.46	46.00	-5.54	-5.60	3	Vertical	360	1.00	-	46.06	18.57	2.56	26.73
PK	307.42M	29.06	46.00	-16.94	-5.35	3	Vertical	360	1.00	-	34.41	18.61	2.78	26.74
PK	485.9M	31.81	46.00	-14.19	-1.40	3	Vertical	360	1.00	-	33.21	22.84	3.55	27.79
PK	544.1M	30.14	46.00	-15.86	-0.52	3	Vertical	360	1.00	-	30.66	23.75	3.75	28.02

BT-LE(1Mbps)

31/03/2020

2440MHz_USB



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	45.52M	30.20	40.00	-9.80	-11.46	3	Horizontal	0	1.00	-	41.66	15.06	1.00	27.52
PK	121.18M	34.84	43.50	-8.66	-8.30	3	Horizontal	0	1.00	-	43.14	17.32	1.69	27.31
PK	260.86M	39.01	46.00	-6.99	-5.55	3	Horizontal	0	1.00	-	44.56	18.64	2.54	26.73
PK	429.64M	29.19	46.00	-16.81	-2.52	3	Horizontal	0	1.00	-	31.71	21.71	3.31	27.54
PK	575.14M	27.90	46.00	-18.10	-0.02	3	Horizontal	0	1.00	-	27.92	24.10	3.93	28.05
PK	712.88M	28.70	46.00	-17.30	0.56	3	Horizontal	0	1.00	-	28.14	24.20	4.40	28.04



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	7.44072G	48.88	54.00	-5.12	3	Vertical	150	2.96	-



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	2.3786G	43.66	54.00	-10.34	3	Vertical	239	2.95	-
2402MHz	Pass	AV	2.402G	99.20	Inf	-Inf	3	Vertical	239	2.95	-
2402MHz	Pass	PK	2.3736G	54.40	74.00	-19.60	3	Vertical	239	2.95	-
2402MHz	Pass	PK	2.402G	99.24	Inf	-Inf	3	Vertical	239	2.95	-
2402MHz	Pass	AV	2.3698G	44.75	54.00	-9.25	3	Horizontal	106	1.29	-
2402MHz	Pass	AV	2.402G	103.92	Inf	-Inf	3	Horizontal	106	1.29	-
2402MHz	Pass	PK	2.3824G	54.48	74.00	-19.52	3	Horizontal	106	1.29	-
2402MHz	Pass	PK	2.402G	103.94	Inf	-Inf	3	Horizontal	106	1.29	-
2402MHz	Pass	AV	4.80408G	39.91	54.00	-14.09	3	Vertical	12	1.50	-
2402MHz	Pass	PK	4.8046G	49.01	74.00	-24.99	3	Vertical	12	1.50	-
2402MHz	Pass	AV	4.80392G	40.81	54.00	-13.19	3	Horizontal	342	1.25	-
2402MHz	Pass	PK	4.80432G	48.89	74.00	-25.11	3	Horizontal	342	1.25	-
2440MHz	Pass	AV	2.376G	36.10	54.00	-17.90	3	Vertical	192	2.26	-
2440MHz	Pass	AV	2.44G	97.38	Inf	-Inf	3	Vertical	192	2.26	-
2440MHz	Pass	AV	2.4928G	35.13	54.00	-18.87	3	Vertical	192	2.26	-
2440MHz	Pass	PK	2.3764G	46.90	74.00	-27.10	3	Vertical	192	2.26	-
2440MHz	Pass	PK	2.4404G	98.83	Inf	-Inf	3	Vertical	192	2.26	-
2440MHz	Pass	PK	2.4924G	46.73	74.00	-27.27	3	Vertical	192	2.26	-
2440MHz	Pass	AV	2.376G	37.73	54.00	-16.27	3	Horizontal	178	1.57	-
2440MHz	Pass	AV	2.44G	101.71	Inf	-Inf	3	Horizontal	178	1.57	-
2440MHz	Pass	AV	2.4904G	35.35	54.00	-18.65	3	Horizontal	178	1.57	-
2440MHz	Pass	PK	2.3876G	47.97	74.00	-26.03	3	Horizontal	178	1.57	-
2440MHz	Pass	PK	2.4396G	103.09	Inf	-Inf	3	Horizontal	178	1.57	-
2440MHz	Pass	PK	2.4835G	47.09	74.00	-26.91	3	Horizontal	178	1.57	-
2440MHz	Pass	AV	4.87952G	34.87	54.00	-19.13	3	Vertical	49	1.00	-
2440MHz	Pass	AV	7.3194G	46.40	54.00	-7.60	3	Vertical	176	1.00	-
2440MHz	Pass	PK	4.87946G	45.65	74.00	-28.35	3	Vertical	49	1.00	-
2440MHz	Pass	PK	7.31934G	54.33	74.00	-19.67	3	Vertical	176	1.00	-
2440MHz	Pass	AV	4.87946G	33.93	54.00	-20.07	3	Horizontal	47	1.00	-
2440MHz	Pass	AV	7.31934G	39.33	54.00	-14.67	3	Horizontal	50	2.32	-
2440MHz	Pass	PK	4.87952G	44.90	74.00	-29.10	3	Horizontal	47	1.00	-
2440MHz	Pass	PK	7.32066G	49.58	74.00	-24.42	3	Horizontal	50	2.32	-
2480MHz	Pass	AV	2.48G	97.61	Inf	-Inf	3	Vertical	39	1.34	-
2480MHz	Pass	AV	2.4835G	42.79	54.00	-11.21	3	Vertical	39	1.34	-
2480MHz	Pass	PK	2.4802G	98.38	Inf	-Inf	3	Vertical	39	1.34	-
2480MHz	Pass	PK	2.4954G	53.62	74.00	-20.38	3	Vertical	39	1.34	-
2480MHz	Pass	AV	2.48G	100.71	Inf	-Inf	3	Horizontal	0	1.99	-
2480MHz	Pass	AV	2.4835G	43.87	54.00	-10.13	3	Horizontal	0	1.99	-
2480MHz	Pass	PK	2.4798G	101.53	Inf	-Inf	3	Horizontal	0	1.99	-
2480MHz	Pass	PK	2.4956G	54.06	74.00	-19.94	3	Horizontal	0	1.99	-
2480MHz	Pass	AV	4.96028G	40.83	54.00	-13.17	3	Vertical	183	2.35	-
2480MHz	Pass	AV	7.44072G	48.88	54.00	-5.12	3	Vertical	150	2.96	-
2480MHz	Pass	PK	4.95956G	50.74	74.00	-23.26	3	Vertical	183	2.35	-
2480MHz	Pass	PK	7.4392G	56.92	74.00	-17.08	3	Vertical	150	2.96	-
2480MHz	Pass	AV	4.96024G	39.61	54.00	-14.39	3	Horizontal	0	1.11	-
2480MHz	Pass	AV	7.44064G	47.19	54.00	-6.81	3	Horizontal	334	1.03	-
2480MHz	Pass	PK	4.95968G	49.32	74.00	-24.68	3	Horizontal	0	1.11	-

Remark :

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

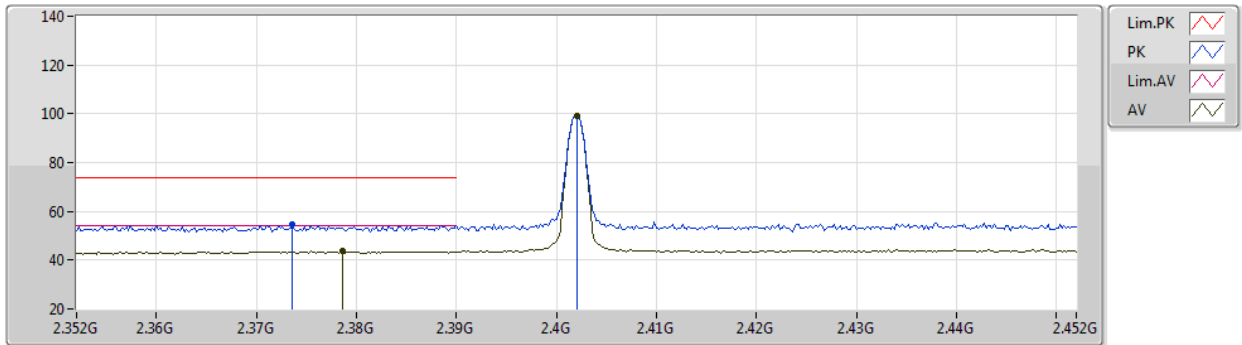


Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz	Pass	PK	7.43916G	55.75	74.00	-18.25	3	Horizontal	334	1.03	-

BT-LE(1Mbps)

31/03/2020

2402MHz_TX

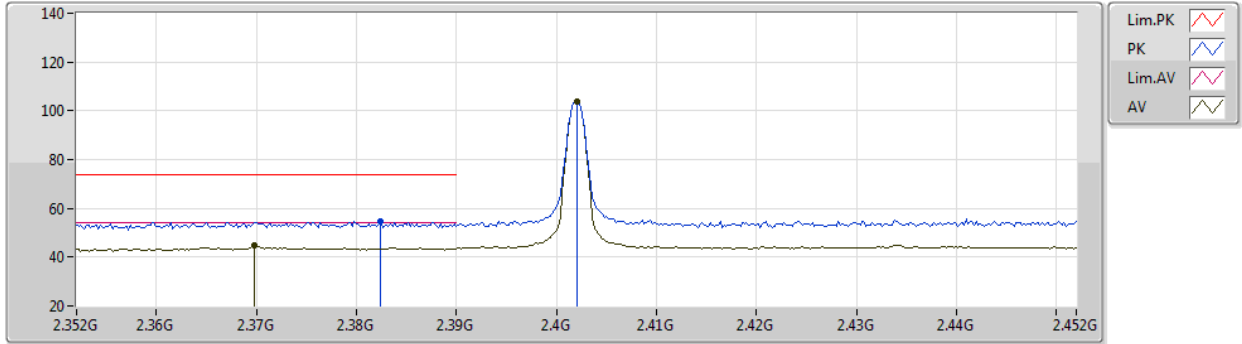


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3786G	43.66	54.00	-10.34	3.24	3	Vertical	239	2.95	-	40.42	29.49	3.99	30.24
AV	2.402G	99.20	Inf	-Inf	3.49	3	Vertical	239	2.95	-	95.71	29.70	4.01	30.22
PK	2.3736G	54.40	74.00	-19.60	3.18	3	Vertical	239	2.95	-	51.22	29.44	3.98	30.24
PK	2.402G	99.24	Inf	-Inf	3.49	3	Vertical	239	2.95	-	95.75	29.70	4.01	30.22

BT-LE(1Mbps)

31/03/2020

2402MHz_TX



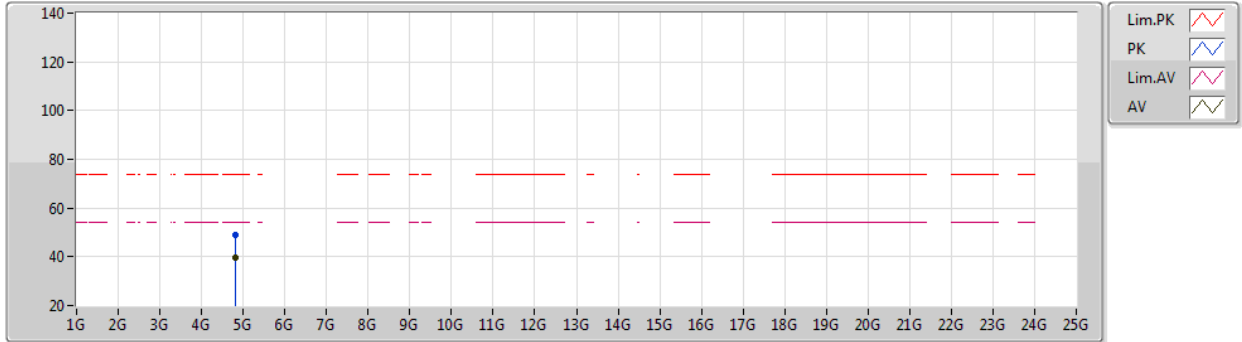
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3698G	44.75	54.00	-9.25	3.14	3	Horizontal	106	1.29	-	41.61	29.40	3.98	30.24
AV	2.402G	103.92	Inf	-Inf	3.49	3	Horizontal	106	1.29	-	100.43	29.70	4.01	30.22
PK	2.3824G	54.48	74.00	-19.52	3.28	3	Horizontal	106	1.29	-	51.20	29.52	3.99	30.23
PK	2.402G	103.94	Inf	-Inf	3.49	3	Horizontal	106	1.29	-	100.45	29.70	4.01	30.22



BT-LE(1Mbps)

31/03/2020

2402MHz_TX

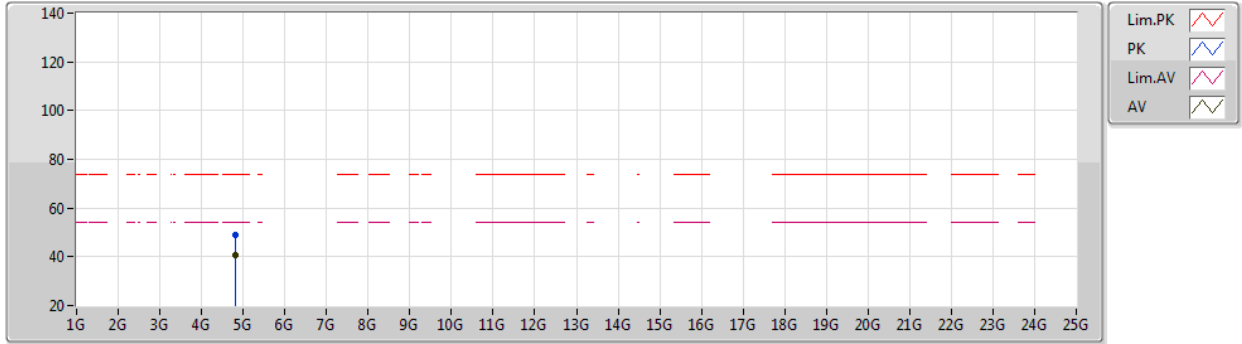


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80408G	39.91	54.00	-14.09	9.98	3	Vertical	12	1.50	-	29.93	33.61	5.78	29.41
PK	4.8046G	49.01	74.00	-24.99	9.98	3	Vertical	12	1.50	-	39.03	33.61	5.78	29.41

BT-LE(1Mbps)

31/03/2020

2402MHz_TX

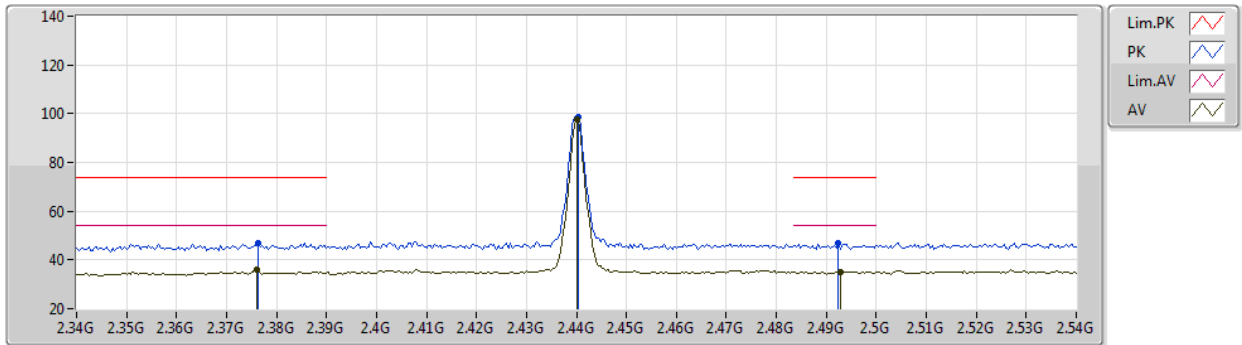


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80392G	40.81	54.00	-13.19	9.98	3	Horizontal	342	1.25	-	30.83	33.61	5.78	29.41
PK	4.80432G	48.89	74.00	-25.11	9.98	3	Horizontal	342	1.25	-	38.91	33.61	5.78	29.41

BT-LE(1Mbps)

31/03/2020

2440MHz_TX

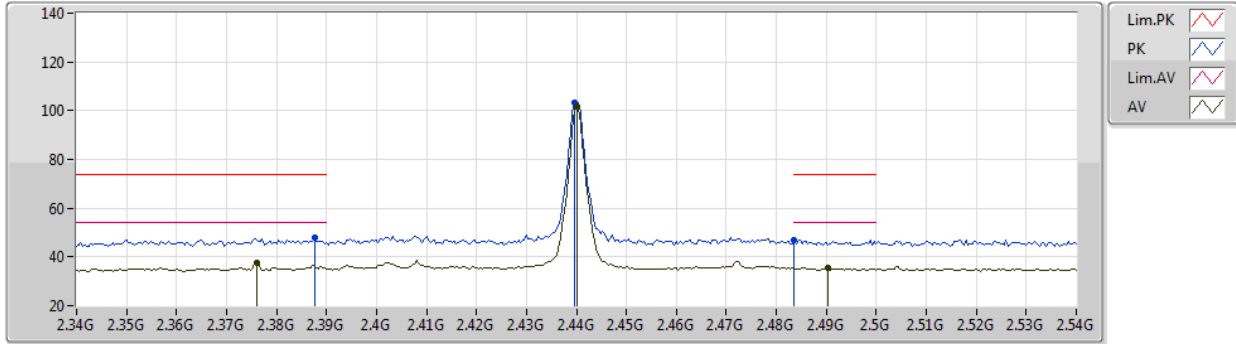


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.376G	36.10	54.00	-17.90	-2.29	3	Vertical	192	2.26	-	38.39	27.33	4.70	34.32
AV	2.44G	97.38	Inf	-Inf	-2.04	3	Vertical	192	2.26	-	99.42	27.52	4.78	34.34
AV	2.4928G	35.13	54.00	-18.87	-1.84	3	Vertical	192	2.26	-	36.97	27.68	4.84	34.36
PK	2.3764G	46.90	74.00	-27.10	-2.29	3	Vertical	192	2.26	-	49.19	27.33	4.70	34.32
PK	2.4404G	98.83	Inf	-Inf	-2.04	3	Vertical	192	2.26	-	100.87	27.52	4.78	34.34
PK	2.4924G	46.73	74.00	-27.27	-1.84	3	Vertical	192	2.26	-	48.57	27.68	4.84	34.36

BT-LE(1Mbps)

31/03/2020

2440MHz_TX

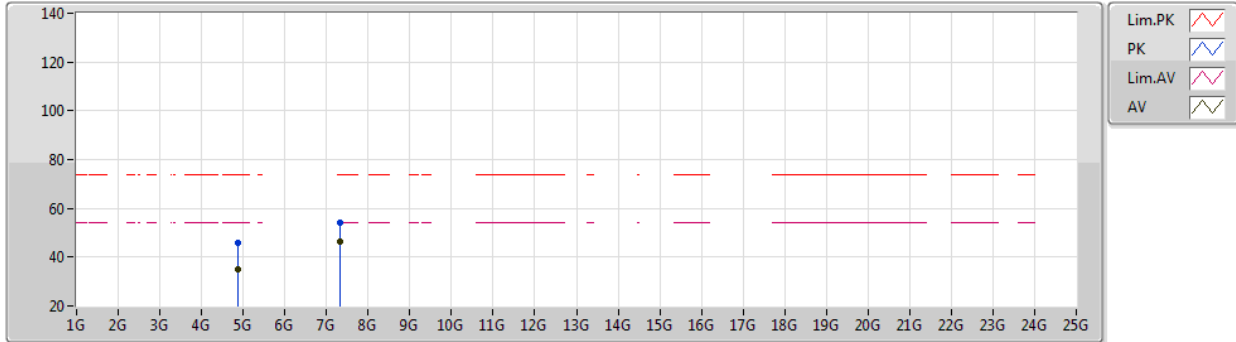


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.376G	37.73	54.00	-16.27	-2.29	3	Horizontal	178	1.57	-	40.02	27.33	4.70	34.32
AV	2.44G	101.71	Inf	-Inf	-2.04	3	Horizontal	178	1.57	-	103.75	27.52	4.78	34.34
AV	2.4904G	35.35	54.00	-18.65	-1.85	3	Horizontal	178	1.57	-	37.20	27.67	4.84	34.36
PK	2.3876G	47.97	74.00	-26.03	-2.25	3	Horizontal	178	1.57	-	50.22	27.36	4.72	34.33
PK	2.4396G	103.09	Inf	-Inf	-2.04	3	Horizontal	178	1.57	-	105.13	27.52	4.78	34.34
PK	2.4835G	47.09	74.00	-26.91	-1.88	3	Horizontal	178	1.57	-	48.97	27.65	4.83	34.36

BT-LE(1Mbps)

31/03/2020

2440MHz_TX

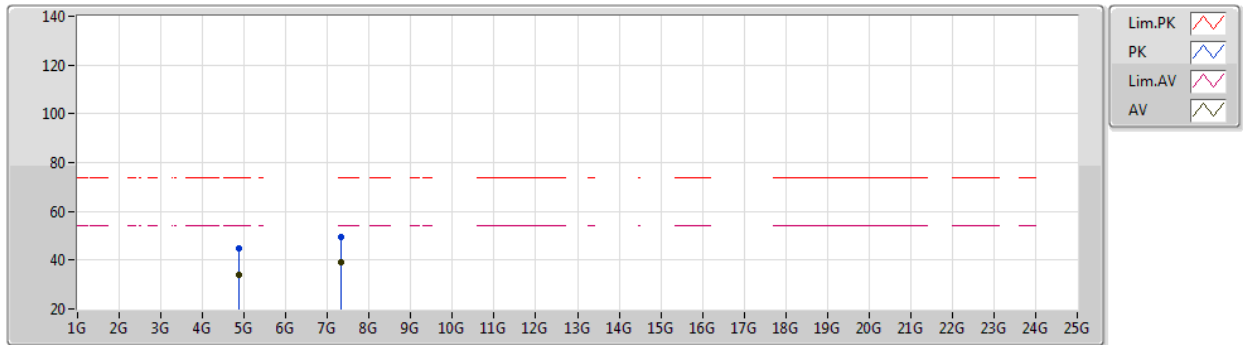


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87952G	34.87	54.00	-19.13	4.42	3	Vertical	49	1.00	-	30.45	31.48	6.81	33.87
AV	7.3194G	46.40	54.00	-7.60	10.54	3	Vertical	176	1.00	-	35.86	36.03	8.62	34.11
PK	4.87946G	45.65	74.00	-28.35	4.42	3	Vertical	49	1.00	-	41.23	31.48	6.81	33.87
PK	7.31934G	54.33	74.00	-19.67	10.54	3	Vertical	176	1.00	-	43.79	36.03	8.62	34.11

BT-LE(1Mbps)

31/03/2020

2440MHz_TX

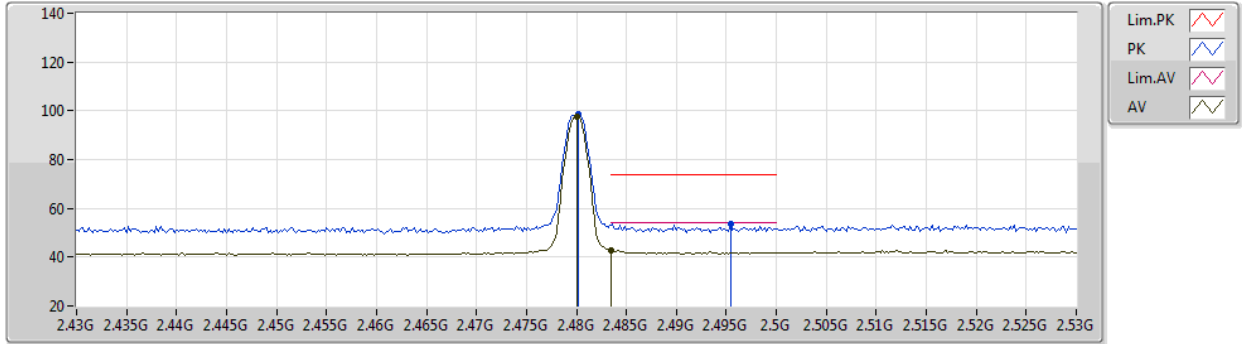


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87946G	33.93	54.00	-20.07	4.42	3	Horizontal	47	1.00	-	29.51	31.48	6.81	33.87
AV	7.31934G	39.33	54.00	-14.67	10.54	3	Horizontal	50	2.32	-	28.79	36.03	8.62	34.11
PK	4.87952G	44.90	74.00	-29.10	4.42	3	Horizontal	47	1.00	-	40.48	31.48	6.81	33.87
PK	7.32066G	49.58	74.00	-24.42	10.54	3	Horizontal	50	2.32	-	39.04	36.03	8.62	34.11

BT-LE(1Mbps)

31/03/2020

2480MHz_TX

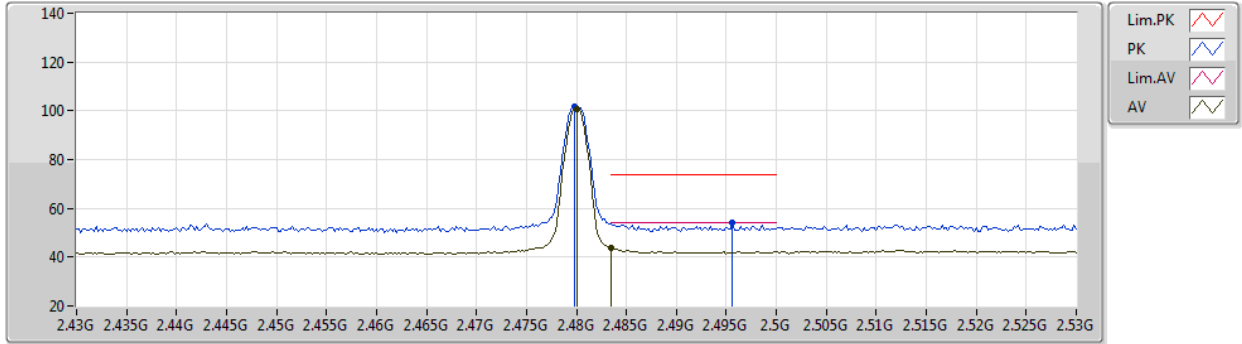


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	97.61	Inf	-Inf	3.94	3	Vertical	39	1.34	-	93.67	30.04	4.08	30.18
AV	2.4835G	42.79	54.00	-11.21	3.97	3	Vertical	39	1.34	-	38.82	30.07	4.08	30.18
PK	2.4802G	98.38	Inf	-Inf	3.94	3	Vertical	39	1.34	-	94.44	30.04	4.08	30.18
PK	2.4954G	53.62	74.00	-20.38	4.09	3	Vertical	39	1.34	-	49.53	30.16	4.10	30.17

BT-LE(1Mbps)

31/03/2020

2480MHz_TX

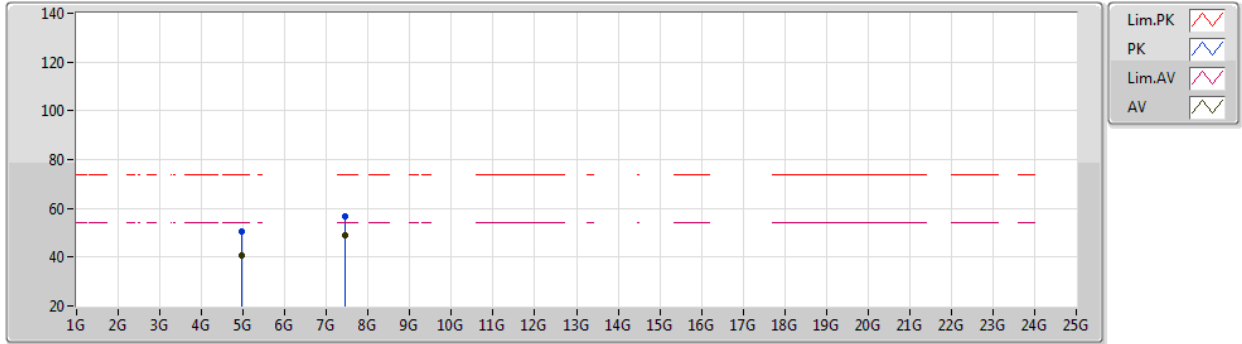


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	100.71	Inf	-Inf	3.94	3	Horizontal	0	1.99	-	96.77	30.04	4.08	30.18
AV	2.4835G	43.87	54.00	-10.13	3.97	3	Horizontal	0	1.99	-	39.90	30.07	4.08	30.18
PK	2.4798G	101.53	Inf	-Inf	3.94	3	Horizontal	0	1.99	-	97.59	30.04	4.08	30.18
PK	2.4956G	54.06	74.00	-19.94	4.09	3	Horizontal	0	1.99	-	49.97	30.16	4.10	30.17

BT-LE(1Mbps)

31/03/2020

2480MHz_TX

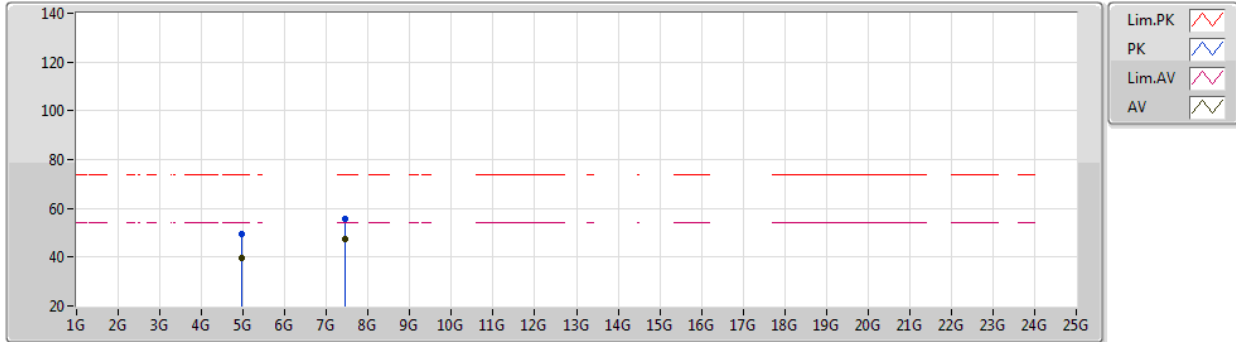


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.96028G	40.83	54.00	-13.17	10.47	3	Vertical	183	2.35	-	30.36	33.92	5.89	29.34
AV	7.44072G	48.88	54.00	-5.12	15.67	3	Vertical	150	2.96	-	33.21	38.90	7.24	30.47
PK	4.95956G	50.74	74.00	-23.26	10.47	3	Vertical	183	2.35	-	40.27	33.92	5.89	29.34
PK	7.4392G	56.92	74.00	-17.08	15.67	3	Vertical	150	2.96	-	41.25	38.90	7.24	30.47

BT-LE(1Mbps)

31/03/2020

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	4.96024G	39.61	54.00	-14.39	10.47	3	Horizontal	0	1.11	-	29.14	33.92	5.89	29.34
AV	7.44064G	47.19	54.00	-6.81	15.67	3	Horizontal	334	1.03	-	31.52	38.90	7.24	30.47
PK	4.95968G	49.32	74.00	-24.68	10.47	3	Horizontal	0	1.11	-	38.85	33.92	5.89	29.34
PK	7.43916G	55.75	74.00	-18.25	15.67	3	Horizontal	334	1.03	-	40.08	38.90	7.24	30.47