



FCC Test Report

FCC ID : UDX-60084040
Equipment : Wireless Sensor
Brand Name : Cisco
Model Name : MT11-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 Jan. 08, 2021, and testing was started from Jan. 13, 2021 and completed on Jan. 20, 2021. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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

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History of this test report

[illegible]

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: Amber Chiu

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 antenna	I-PEX	4.9

Note 1: The EUT has one antenna.

For BT function:

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

Only Ant. 1 can be used as transmitting/receiving antenna.

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From AC Adapter/ From Battery/ From Host System		
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)	0.425	3.72	2.114m	1k

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

1.2 Testing Applied Standards

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

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013

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

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

1.3 Testing Location Information

Testing Location			
☒	HWA YA	ADD : No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)	
		TEL : 886-3-327-3456	FAX : 886-3-327-0973
Test site Designation No. TW1190 with FCC.			
☐	JHUBEI	ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)	
		TEL : 886-3-656-9065	FAX : 886-3-656-9085
Test site Designation No. TW0006 with FCC.			
☐	Wen Shan	ADD : No.14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
		TEL : 886-3-318-0787	FAX : 886-3-318-0287
Test site Designation No. TW1097 with FCC.			

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Daniel Lin	18.9~20.1°C / 41~52%	20/Jan/2021
RF Conducted	TH06-HY	Alan Chien	20.1~26.9°C / 50~60%	13/Jan/2021
Radiated	03CH02-HY	Daniel Lin	19.6~23.1°C / 52~61%	16/Jan/2021

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-DTS	Tnom	20°C
-	Vnom	120V

2.2 Test Channel Mode

Test Software Version	Dos 6.1
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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	Adapter mode
2	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	Adapter mode		
2	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	1.5 Vdc, 3000 mAh	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

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

2.5 Support Equipment

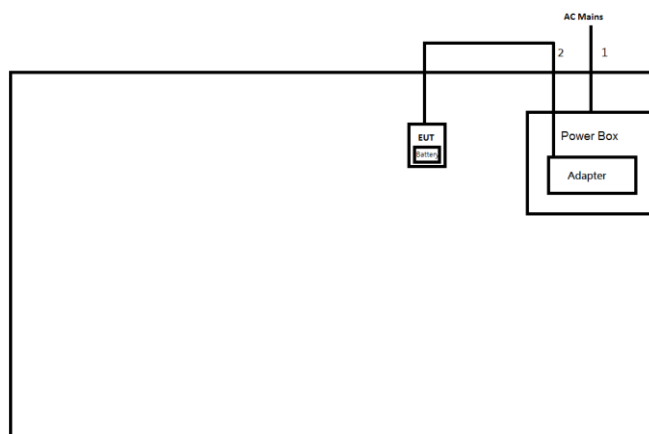
Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	5220M	-	-
2	Adapter for NB	HP	PPP012L-E	-	-
3	AC Power Cable for NB	Power sync	PW-GPC180-3	-	-
4	Adapater	Apple	A138S	-	-
5	USB Cable	Hawk	04-HTE120	-	-

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	Adapter for NB	DELL	HA65NM130	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	5220M	-	-
2	Adapter for NB	HP	PPP012L-E	-	-
3	AC Power Cable for NB	Power sync	PW-GPC180-3	-	-
4	Adapater	Apple	A138S	-	-
5	USB Cable	Hawk	04-HTE120	-	-

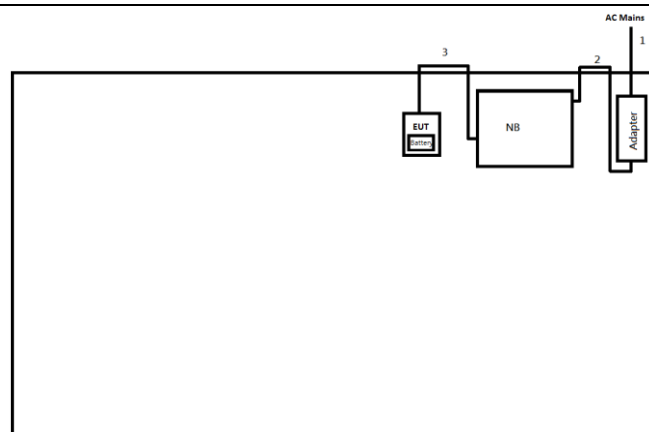
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test Adapter mode

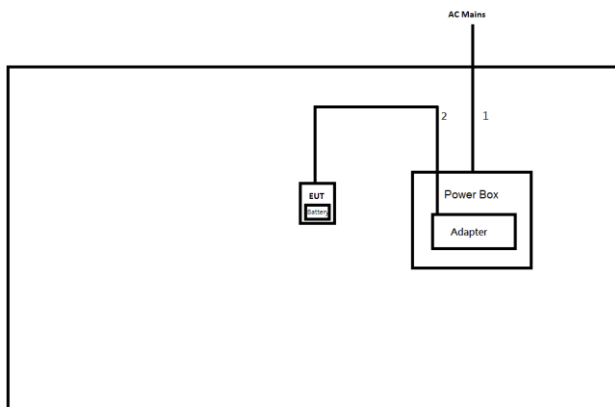


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	USB cable	No	1.0	-

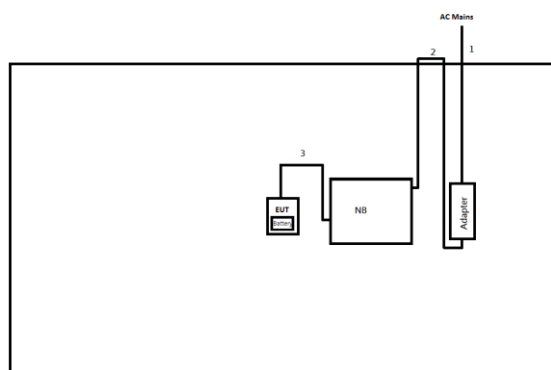
Test Setup Diagram – AC Line Conducted Emission Test USB mode



Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	2.0	-
3	USB cable	No	1.0	-

Test Setup Diagram - Radiated Test Adapter mode


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	USB cable	No	1.0	-

Test Setup Diagram - Radiated Test USB mode


Item	Connection	Shielded	Length(m)	Remark
1	AC Power cable	No	1.8	-
2	DC Power cable	No	2.0	-
3	USB cable	No	1.0	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

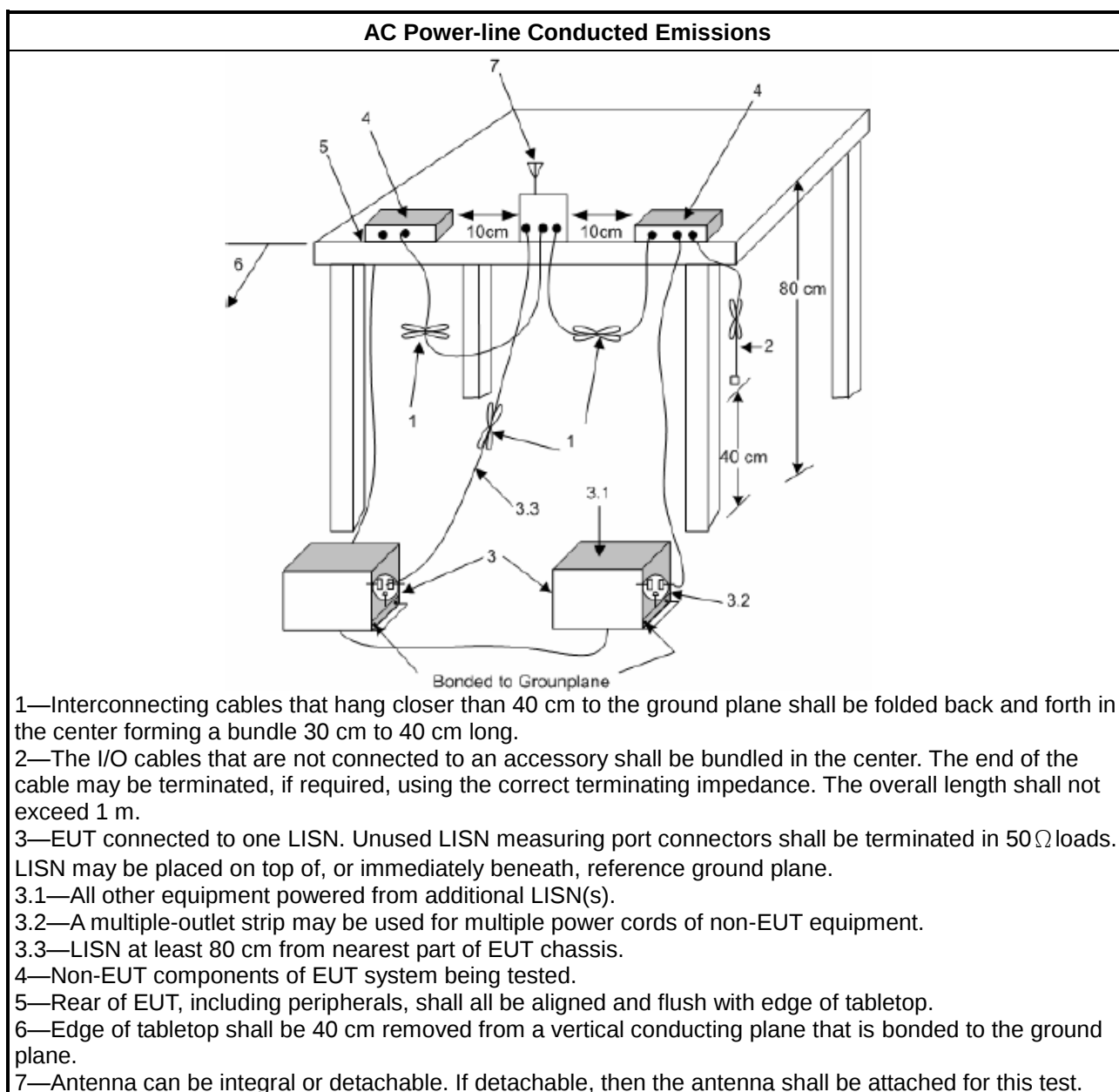
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

3.1.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.1.5 Test Setup



3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

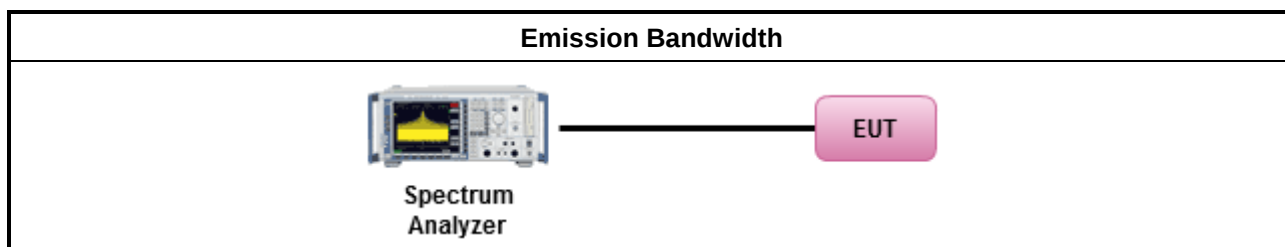
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
▪ For the emission bandwidth shall be measured using one of the options below:	
☒	Refer as KDB 558074, clause 8.2 (11.8 of ANSI C63.10) DTS bandwidth measurement.
☐	Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
☐	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	Smart antenna system (SAS):
	- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
e.i.r.p. Power Limit:	
	2400-2483.5 MHz Band
	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	Smart antenna system (SAS)
	- Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	- Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

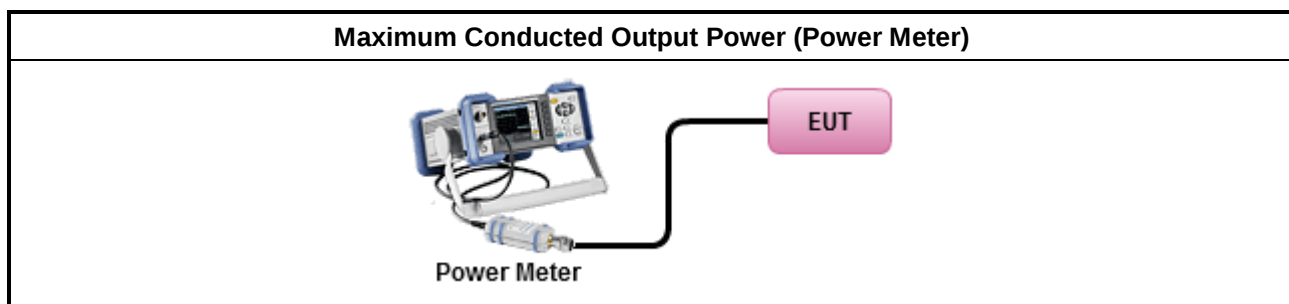
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
Maximum Peak Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
☐	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
☐	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
Maximum Average Conducted Output Power	
☐	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
☒	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
For conducted measurement.	
If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.	
If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$	

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit	
▪	Power Spectral Density (PSD) ≤ 8 dBm/3kHz

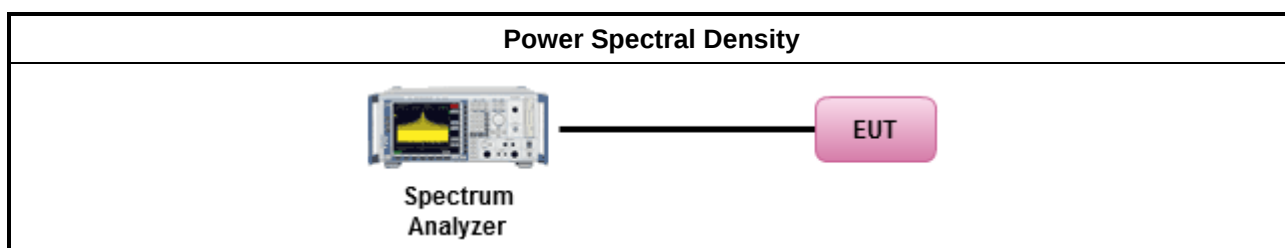
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
▪	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
☒	Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Max. PSD.
▪	For conducted measurement.
▪	If The EUT supports multiple transmit chains using options given below:
▪	Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30
Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak level. Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average level.	

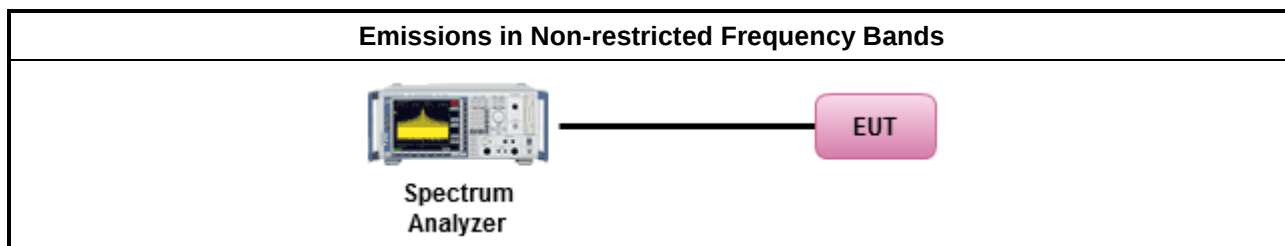
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method
Refer as KDB 558074, clause 8.5 (11.11 of ANSI C63.10) for non-restricted frequency bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

3.6.2 Measuring Instruments

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

3.6.3 Test Procedures

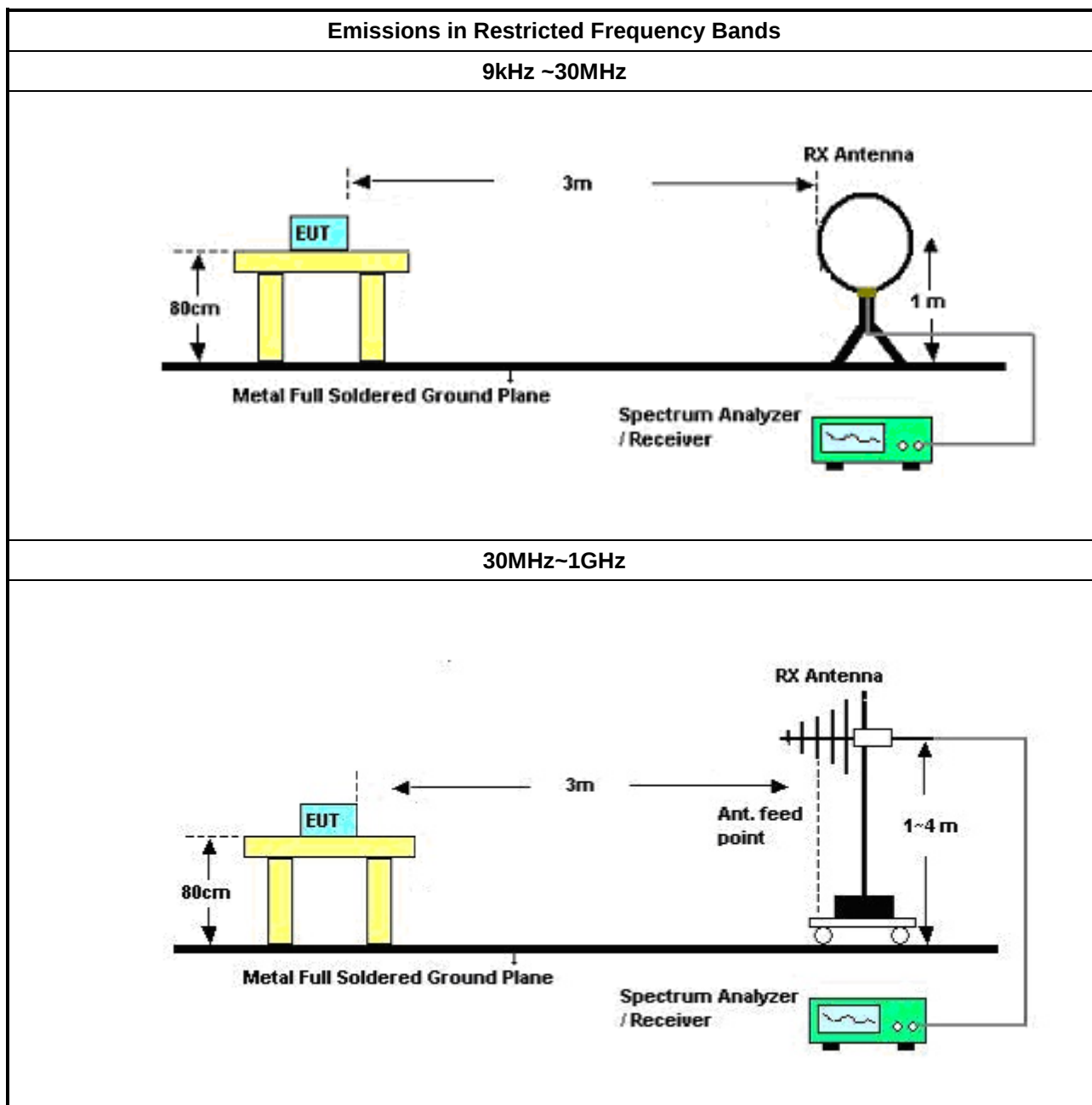
Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
For the transmitter band-edge emissions shall be measured using following options below:	
	Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
Use the following spectrum analyzer settings:	
	Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
	Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.	
	Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

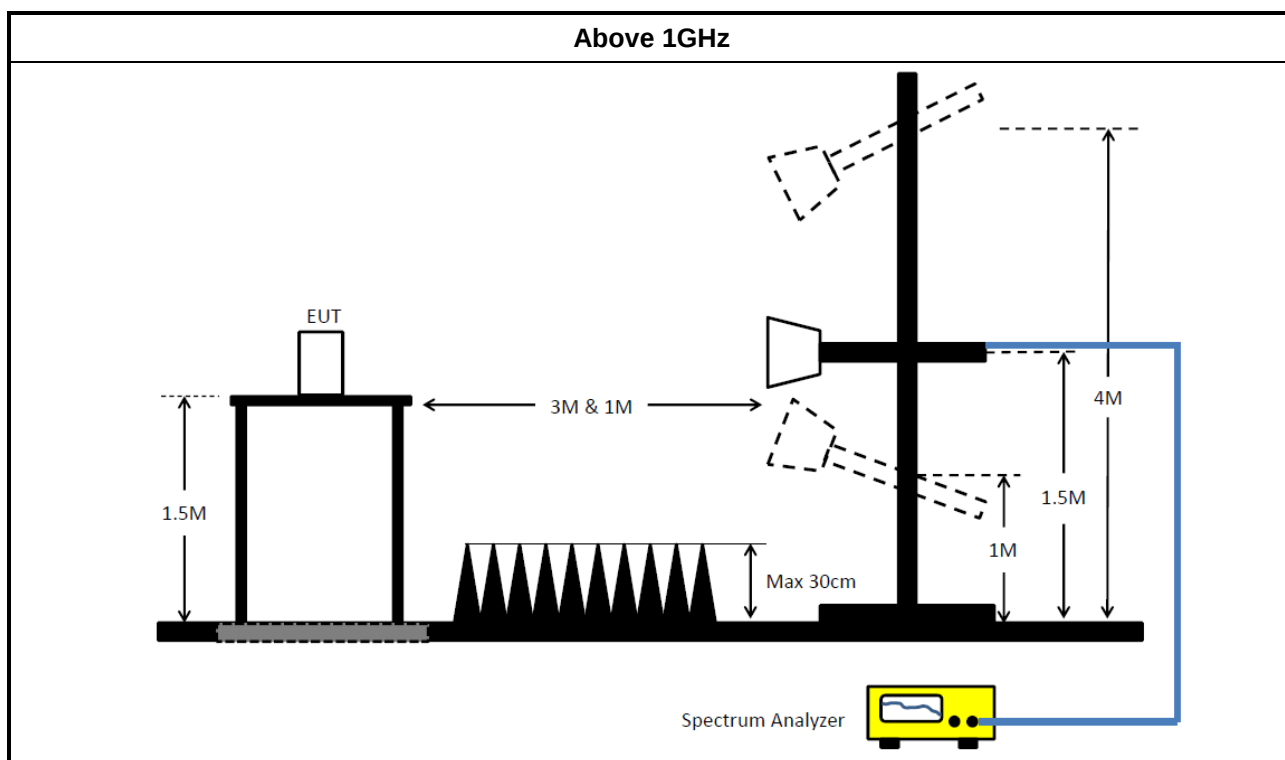
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.6.5 Test Setup





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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer/ Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	29/May/2020	28/May/2021
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	11/Nov/2020	10/Nov/2021
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	31/Aug/2020	30/Aug/2021
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	21/Sep/2020	20/Sep/2021

Instrument for Conducted Test

Instrument	Manufacturer/ Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101029	10Hz~40GHz	19/Oct/2020	18/Oct/2021
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	20/Oct/2020	19/Oct/2021
Pulse Sensor	Anritsu	MA2411B	1027452	300MHz~40GHz	18/Mar/2020	17/Mar/2021
Power Meter	Anritsu	ML2495A	1124009	300MHz~40GHz	18/Mar/2020	17/Mar/2021

Instrument for Radiated Test

Instrument	Manufacturer/ Brand	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz~1GHz 3m	04/Aug/2020	03/Aug/2021
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz~18GHz 3m	02/Aug/2020	01/Aug/2021
Signal Analyzer	R&S	FSP40	100593	9kHz~40GHz	27/Feb/2020	26/Feb/2021
Amplifier	Agilent	8447D	2944A11149	100kHz~1.3GHz	30/Jun/2020	29/Jun/2021
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz~18GHz	23/Oct/2020	22/Oct/2021
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112B / MTJ6102-05	2723 / 2	30MHz~1GHz	06/Sep/2020	05/Sep/2021
Double Ridged Guide Horn Antenna	SCHWARZBEC	BBHA 9120 D	BBHA 9120 D 01543	1GHz~18GHz	09/Jun/2020	08/Jun/2021
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz~30MHz	20/Jun/2020	19/Jun/2021
RF Cable-R03m	Jye Bao	RG142	CB017	30MHz~1GHz	25/Mar/2020	24/Mar/2021
RF Cable-R03m	HUBER+SUHNER	SUCOFLEX104	805193/4+ 805192/4	1GHz~40GHz	08/Apr/2020	07/Apr/2021
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	13/Mar/2020	12/Mar/2021
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz~40GHz	10/Mar/2020	09/Mar/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2020	15/Mar/2021
EMI Test Receiver	R&S	ESR3	102051	9kHz~3.6GHz	29/May/2020	28/May/2021



Conducted Emissions at Powerline

Appendix A

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	2.274M	18.08	46.00	-27.92	Neutral
Mode 2	Pass	QP	212.287k	51.84	63.11	-11.27	Line

Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	257.124k	26.29	61.53	-35.24	Line	-
Mode 1	Pass	AV	257.124k	20.86	51.53	-30.67	Line	-
Mode 1	Pass	QP	293.329k	19.70	60.44	-40.74	Line	-
Mode 1	Pass	AV	293.329k	17.31	50.44	-33.13	Line	-
Mode 1	Pass	QP	362.445k	18.02	58.68	-40.66	Line	-
Mode 1	Pass	AV	362.445k	12.56	48.68	-36.12	Line	-
Mode 1	Pass	QP	802.141k	24.35	56.00	-31.65	Line	-
Mode 1	Pass	AV	802.141k	13.98	46.00	-32.02	Line	-
Mode 1	Pass	QP	2.211M	25.26	56.00	-30.74	Line	-
Mode 1	Pass	AV	2.211M	17.83	46.00	-28.17	Line	"Worst"
Mode 1	Pass	QP	11.137M	18.03	60.00	-41.97	Line	-
Mode 1	Pass	AV	11.137M	15.11	50.00	-34.89	Line	-
Mode 1	Pass	QP	256.1k	25.69	61.56	-35.87	Neutral	-
Mode 1	Pass	AV	256.1k	20.55	51.56	-31.01	Neutral	-
Mode 1	Pass	QP	290.996k	20.32	60.49	-40.17	Neutral	-
Mode 1	Pass	AV	290.996k	17.60	50.49	-32.89	Neutral	-
Mode 1	Pass	QP	423.503k	17.22	57.38	-40.16	Neutral	-
Mode 1	Pass	AV	423.503k	12.71	47.38	-34.67	Neutral	-
Mode 1	Pass	QP	805.349k	24.87	56.00	-31.13	Neutral	-
Mode 1	Pass	AV	805.349k	15.33	46.00	-30.67	Neutral	-
Mode 1	Pass	QP	2.274M	24.12	56.00	-31.88	Neutral	-
Mode 1	Pass	AV	2.274M	18.08	46.00	-27.92	Neutral	"Worst"
Mode 1	Pass	QP	19.71M	19.57	60.00	-40.43	Neutral	-
Mode 1	Pass	AV	19.71M	14.84	50.00	-35.16	Neutral	-
Mode 2	Pass	QP	212.287k	51.84	63.11	-11.27	Line	"Worst"
Mode 2	Pass	AV	212.287k	40.22	53.11	-12.89	Line	-
Mode 2	Pass	QP	284.109k	41.91	60.70	-18.79	Line	-
Mode 2	Pass	AV	284.109k	31.22	50.70	-19.48	Line	-
Mode 2	Pass	QP	352.457k	37.46	58.91	-21.45	Line	-
Mode 2	Pass	AV	352.457k	27.45	48.91	-21.46	Line	-
Mode 2	Pass	QP	1.275M	32.73	56.00	-23.27	Line	-
Mode 2	Pass	AV	1.275M	31.32	46.00	-14.68	Line	-
Mode 2	Pass	QP	2.125M	33.92	56.00	-22.08	Line	-
Mode 2	Pass	AV	2.125M	31.59	46.00	-14.41	Line	-
Mode 2	Pass	QP	10.83M	32.12	60.00	-27.88	Line	-
Mode 2	Pass	AV	10.83M	27.95	50.00	-22.05	Line	-
Mode 2	Pass	QP	212.287k	51.63	63.11	-11.48	Neutral	"Worst"
Mode 2	Pass	AV	212.287k	39.88	53.11	-13.23	Neutral	-
Mode 2	Pass	QP	281.85k	41.38	60.76	-19.38	Neutral	-
Mode 2	Pass	AV	281.85k	30.16	50.76	-20.60	Neutral	-
Mode 2	Pass	QP	356.703k	35.97	58.81	-22.84	Neutral	-
Mode 2	Pass	AV	356.703k	25.52	48.81	-23.29	Neutral	-
Mode 2	Pass	QP	2.125M	33.66	56.00	-22.34	Neutral	-

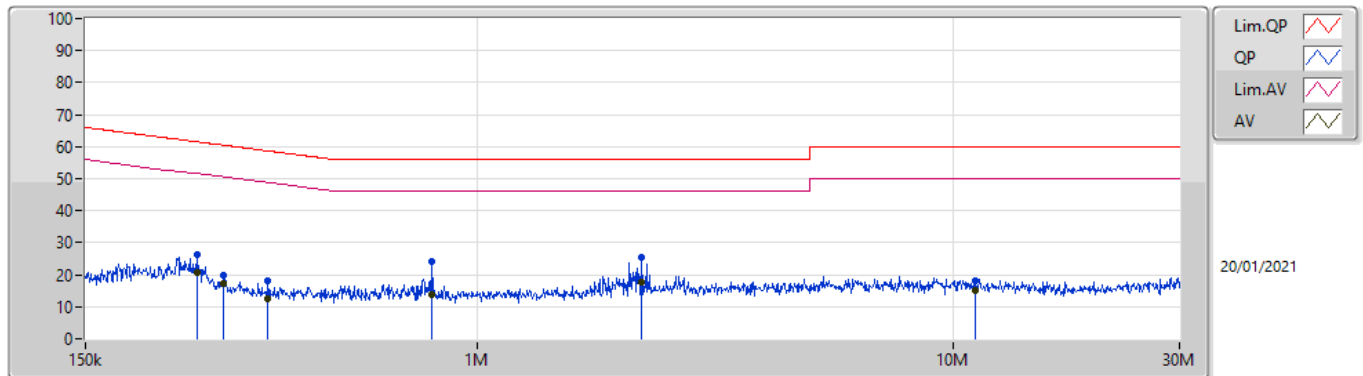


Conducted Emissions at Powerline

Appendix A

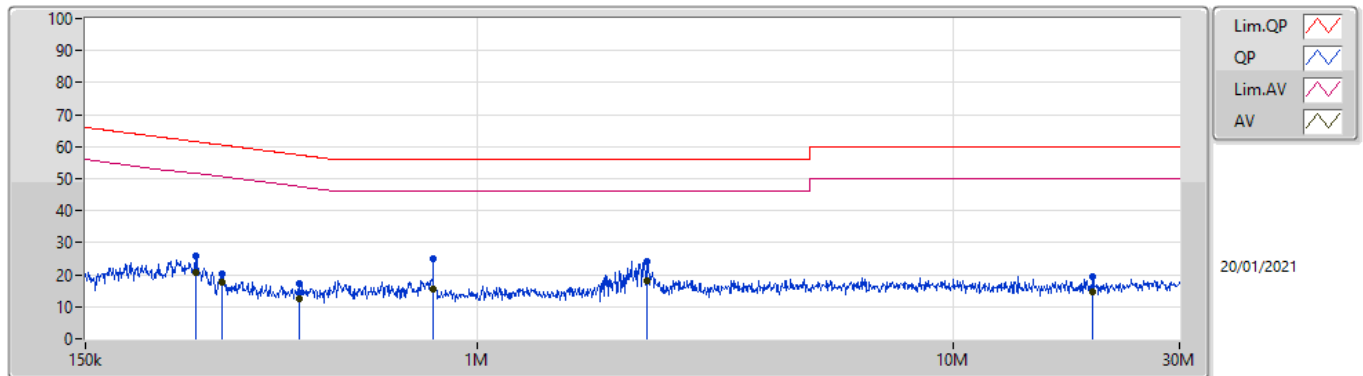
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 2	Pass	AV	2.125M	31.23	46.00	-14.77	Neutral	-
Mode 2	Pass	QP	2.832M	32.15	56.00	-23.85	Neutral	-
Mode 2	Pass	AV	2.832M	30.39	46.00	-15.61	Neutral	-
Mode 2	Pass	QP	27.673M	33.11	60.00	-26.89	Neutral	-
Mode 2	Pass	AV	27.673M	26.34	50.00	-23.66	Neutral	-

Conducted Emissions at Powerline_Mode 1



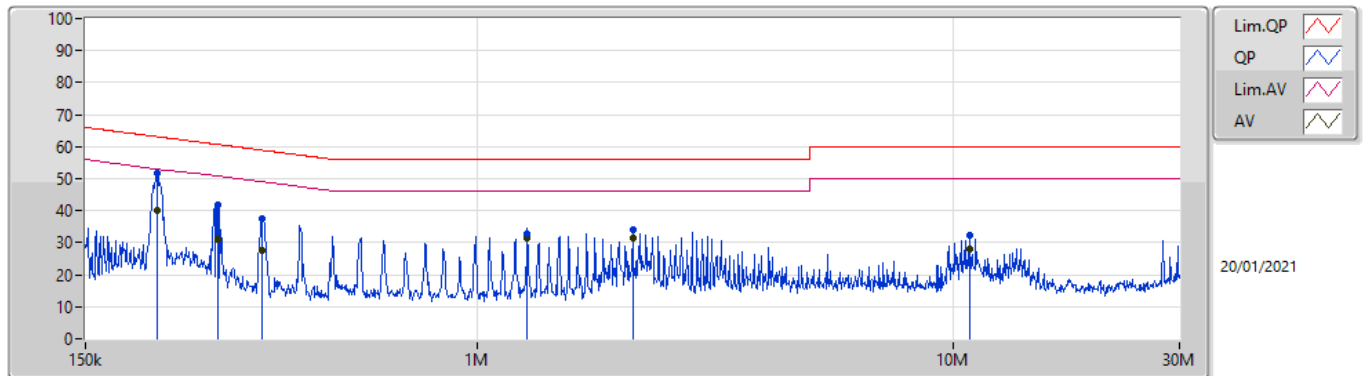
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	257.124k	26.29	61.53	-35.24	19.59	Line	-	6.70	9.68	0.01	9.90			
AV	257.124k	20.86	51.53	-30.67	19.59	Line	-	1.27	9.68	0.01	9.90			
QP	293.329k	19.70	60.44	-40.74	19.59	Line	-	0.11	9.67	0.02	9.90			
AV	293.329k	17.31	50.44	-33.13	19.59	Line	-	-2.28	9.67	0.02	9.90			
QP	362.445k	18.02	58.68	-40.66	19.59	Line	-	-1.57	9.67	0.02	9.90			
AV	362.445k	12.56	48.68	-36.12	19.59	Line	-	-7.03	9.67	0.02	9.90			
QP	802.141k	24.35	56.00	-31.65	19.53	Line	-	4.82	9.67	0.04	9.82			
AV	802.141k	13.98	46.00	-32.02	19.53	Line	-	-5.55	9.67	0.04	9.82			
QP	2.211M	25.26	56.00	-30.74	19.58	Line	-	5.68	9.68	0.09	9.81			
AV	2.211M	17.83	46.00	-28.17	19.58	Line	"Worst"	-1.75	9.68	0.09	9.81			
QP	11.137M	18.03	60.00	-41.97	19.83	Line	-	-1.80	9.71	0.22	9.90			
AV	11.137M	15.11	50.00	-34.89	19.83	Line	-	-4.72	9.71	0.22	9.90			

Conducted Emissions at Powerline_Mode 1



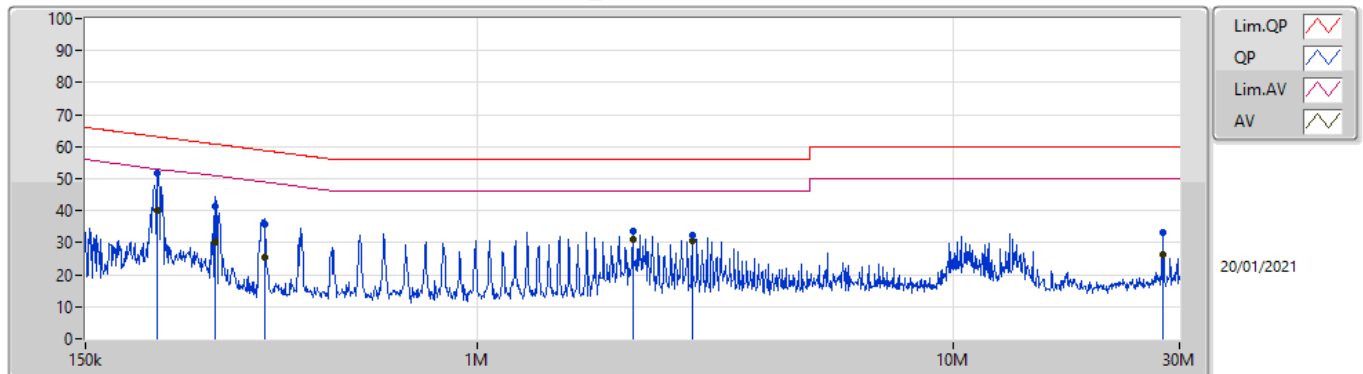
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	256.1k	25.69	61.56	-35.87	19.59	Neutral	-	6.10	9.68	0.01	9.90			
AV	256.1k	20.55	51.56	-31.01	19.59	Neutral	-	0.96	9.68	0.01	9.90			
QP	290.996k	20.32	60.49	-40.17	19.59	Neutral	-	0.73	9.67	0.02	9.90			
AV	290.996k	17.60	50.49	-32.89	19.59	Neutral	-	-1.99	9.67	0.02	9.90			
QP	423.503k	17.22	57.38	-40.16	19.58	Neutral	-	-2.36	9.67	0.02	9.89			
AV	423.503k	12.71	47.38	-34.67	19.58	Neutral	-	-6.87	9.67	0.02	9.89			
QP	805.349k	24.87	56.00	-31.13	19.53	Neutral	-	5.34	9.67	0.04	9.82			
AV	805.349k	15.33	46.00	-30.67	19.53	Neutral	-	-4.20	9.67	0.04	9.82			
QP	2.274M	24.12	56.00	-31.88	19.59	Neutral	-	4.53	9.68	0.09	9.82			
AV	2.274M	18.08	46.00	-27.92	19.59	Neutral	"Worst"	-1.51	9.68	0.09	9.82			
QP	19.71M	19.57	60.00	-40.43	19.94	Neutral	-	-0.37	9.75	0.29	9.90			
AV	19.71M	14.84	50.00	-35.16	19.94	Neutral	-	-5.10	9.75	0.29	9.90			

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	212.287k	51.84	63.11	-11.27	19.59	Line	"Worst"	32.25	9.68	0.01	9.90			
AV	212.287k	40.22	53.11	-12.89	19.59	Line	-	20.63	9.68	0.01	9.90			
QP	284.109k	41.91	60.70	-18.79	19.59	Line	-	22.32	9.67	0.02	9.90			
AV	284.109k	31.22	50.70	-19.48	19.59	Line	-	11.63	9.67	0.02	9.90			
QP	352.457k	37.46	58.91	-21.45	19.59	Line	-	17.87	9.67	0.02	9.90			
AV	352.457k	27.45	48.91	-21.46	19.59	Line	-	7.86	9.67	0.02	9.90			
QP	1.275M	32.73	56.00	-23.27	19.53	Line	-	13.20	9.67	0.06	9.80			
AV	1.275M	31.32	46.00	-14.68	19.53	Line	-	11.79	9.67	0.06	9.80			
QP	2.125M	33.92	56.00	-22.08	19.57	Line	-	14.35	9.68	0.08	9.81			
AV	2.125M	31.59	46.00	-14.41	19.57	Line	-	12.02	9.68	0.08	9.81			
QP	10.83M	32.12	60.00	-27.88	19.83	Line	-	12.29	9.71	0.22	9.90			
AV	10.83M	27.95	50.00	-22.05	19.83	Line	-	8.12	9.71	0.22	9.90			

Conducted Emissions at Powerline_Mode 2



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	212.287k	51.63	63.11	-11.48	19.59	Neutral	"Worst"	32.04	9.68	0.01	9.90			
AV	212.287k	39.88	53.11	-13.23	19.59	Neutral	-	20.29	9.68	0.01	9.90			
QP	281.85k	41.38	60.76	-19.38	19.59	Neutral	-	21.79	9.68	0.01	9.90			
AV	281.85k	30.16	50.76	-20.60	19.59	Neutral	-	10.57	9.68	0.01	9.90			
QP	356.703k	35.97	58.81	-22.84	19.59	Neutral	-	16.38	9.67	0.02	9.90			
AV	356.703k	25.52	48.81	-23.29	19.59	Neutral	-	5.93	9.67	0.02	9.90			
QP	2.125M	33.66	56.00	-22.34	19.57	Neutral	-	14.09	9.68	0.08	9.81			
AV	2.125M	31.23	46.00	-14.77	19.57	Neutral	-	11.66	9.68	0.08	9.81			
QP	2.832M	32.15	56.00	-23.85	19.64	Neutral	-	12.51	9.69	0.10	9.85			
AV	2.832M	30.39	46.00	-15.61	19.64	Neutral	-	10.75	9.69	0.10	9.85			
QP	27.673M	33.11	60.00	-26.89	19.98	Neutral	-	13.13	9.71	0.37	9.90			
AV	27.673M	26.34	50.00	-23.66	19.98	Neutral	-	6.36	9.71	0.37	9.90			



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)	710k	1.069M	1M07F1D	703.75k	1.059M

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

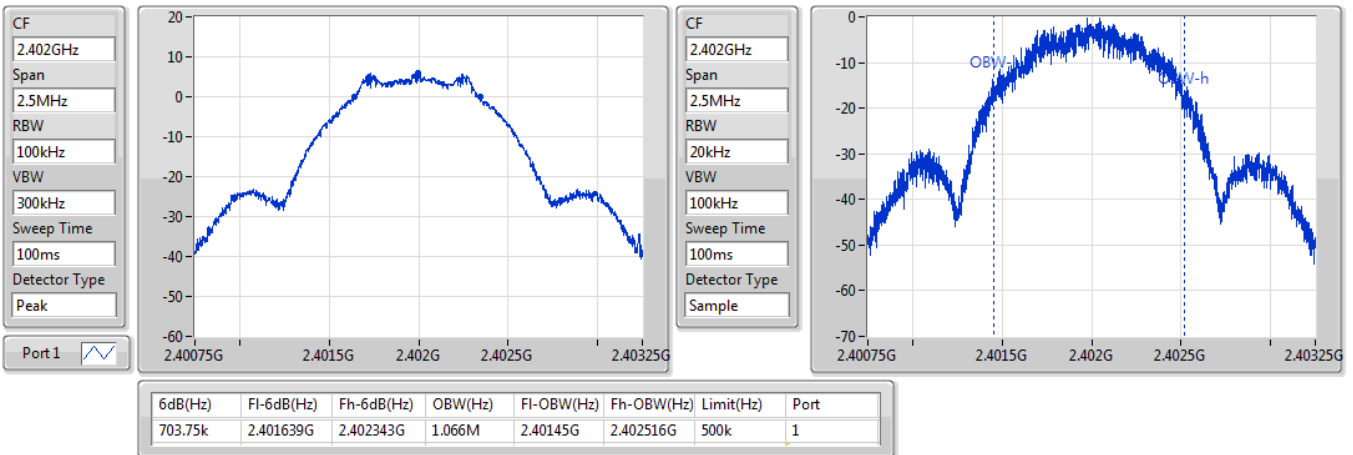
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	703.75k	1.066M
2440MHz	Pass	500k	710k	1.059M
2480MHz	Pass	500k	705k	1.069M

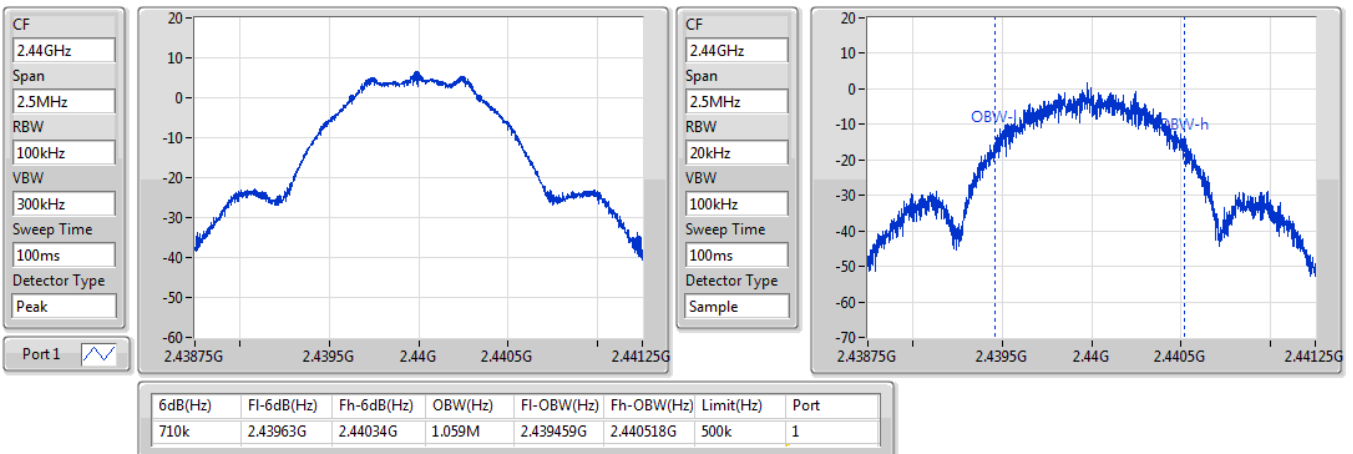
Port X-N dB = Port X 6dB down bandwidth;
Port X-OBW = Port X 99% occupied bandwidth

BT-LE(1Mbps)
2402MHz
EBW-DTS

13/01/2021

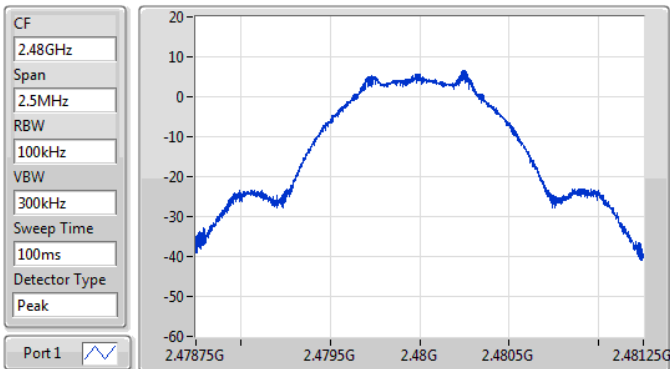

BT-LE(1Mbps)
2440MHz
EBW-DTS

13/01/2021



BT-LE(1Mbps)

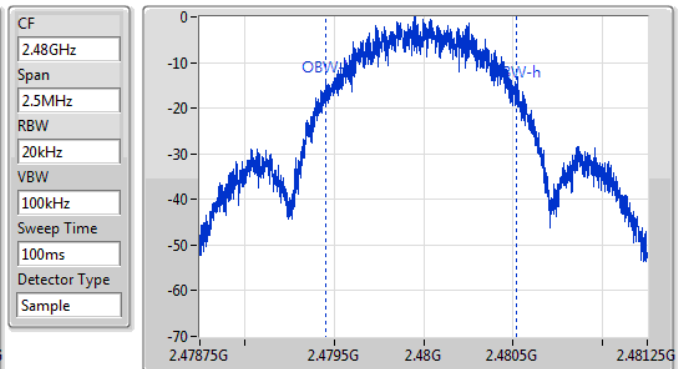
2480MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
705k	2.479639G	2.480344G	1.069M	2.479452G	2.480521G	500k	1

EBW-DTS

13/01/2021





Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	6.72	0.00470



Average Power-DTS

Appendix C

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.90	6.70	30.00
2440MHz	Pass	4.90	6.72	30.00
2480MHz	Pass	4.90	6.54	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-7.48

RBW = 3kHz;



Result

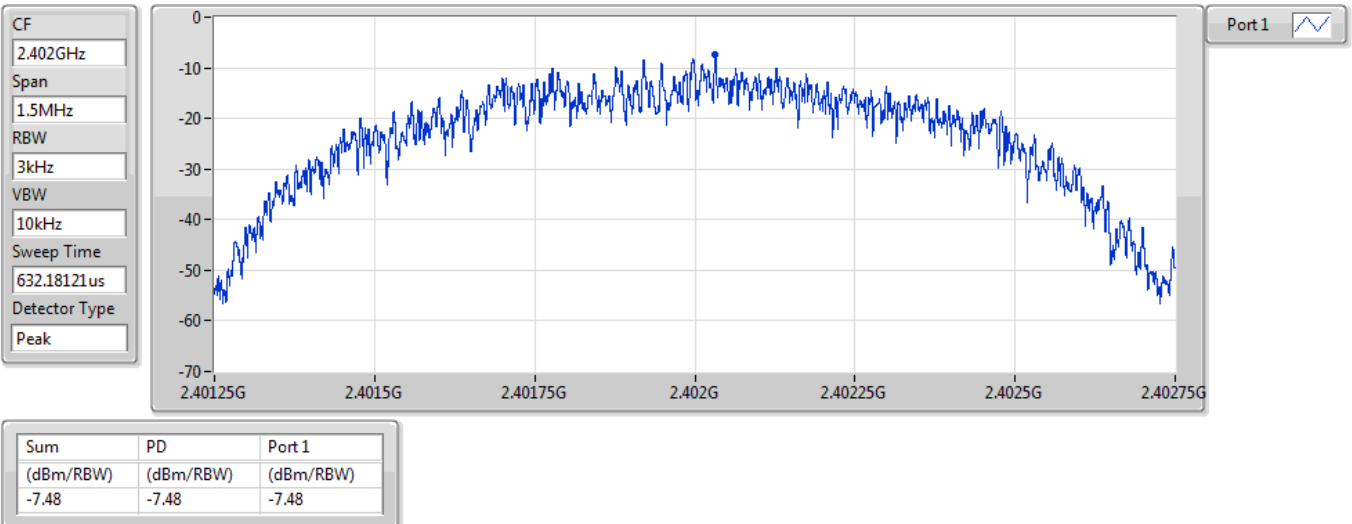
Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.90	-7.48	8.00
2440MHz	Pass	4.90	-9.34	8.00
2480MHz	Pass	4.90	-8.49	8.00

DG = Directional Gain; RBW = 3kHz;
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)

2402MHz

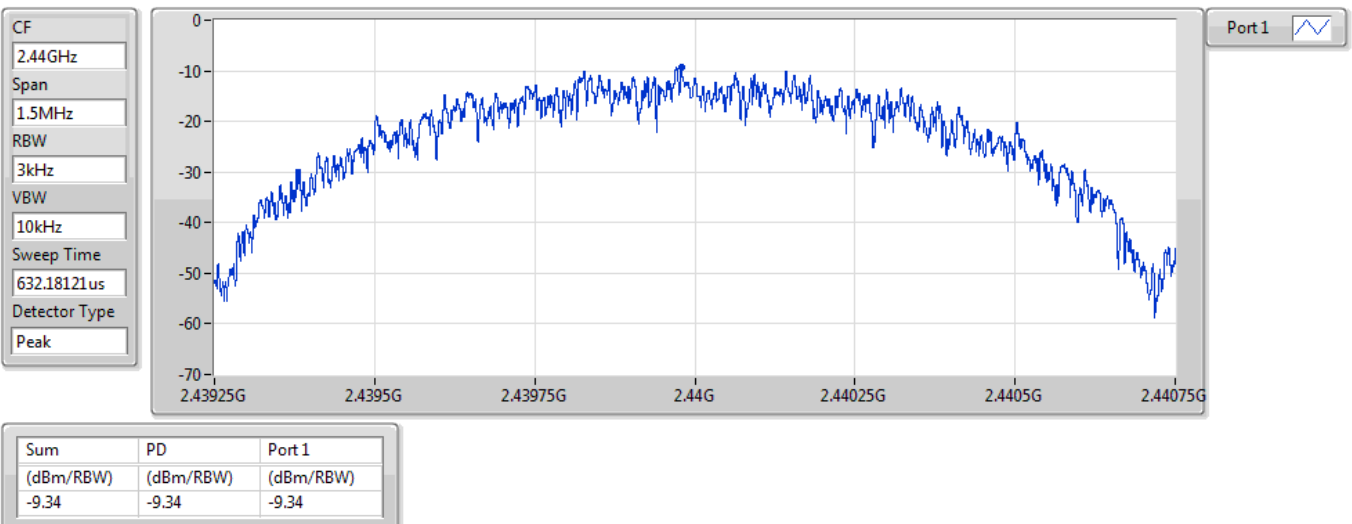
13/01/2021



BT-LE(1Mbps)

2440MHz

13/01/2021

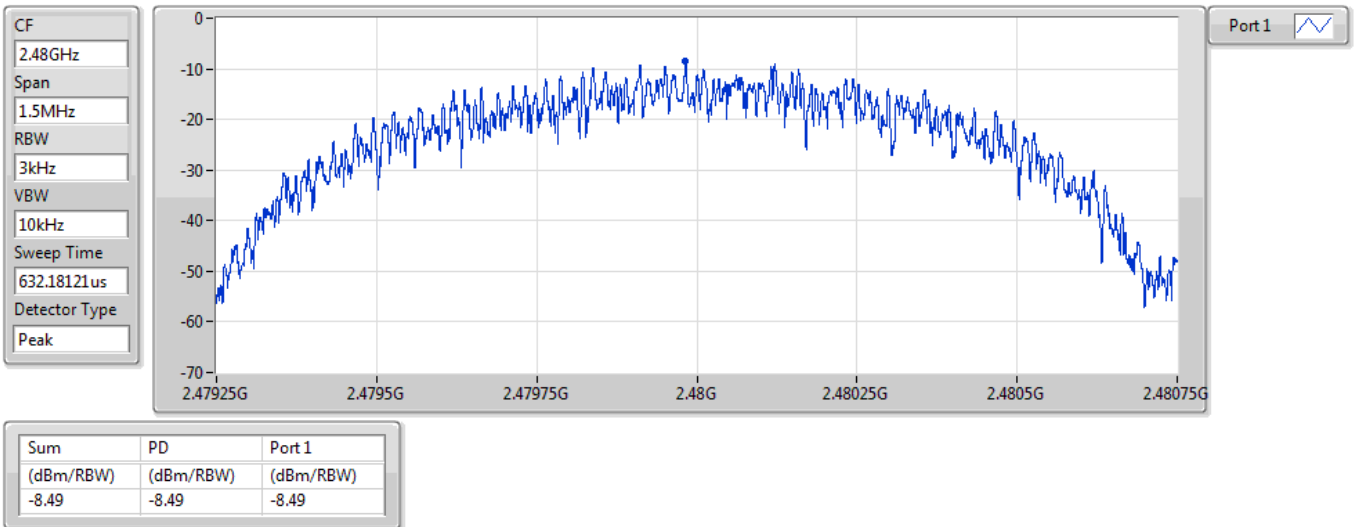


BT-LE(1Mbps)

2480MHz

PSD

13/01/2021





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	2.44G	5.71	-24.29	1.92704G	-55.60	2.4G	-46.75	2.4G	-48.14	2.49601G	-53.40	15.23089G	-43.37	1

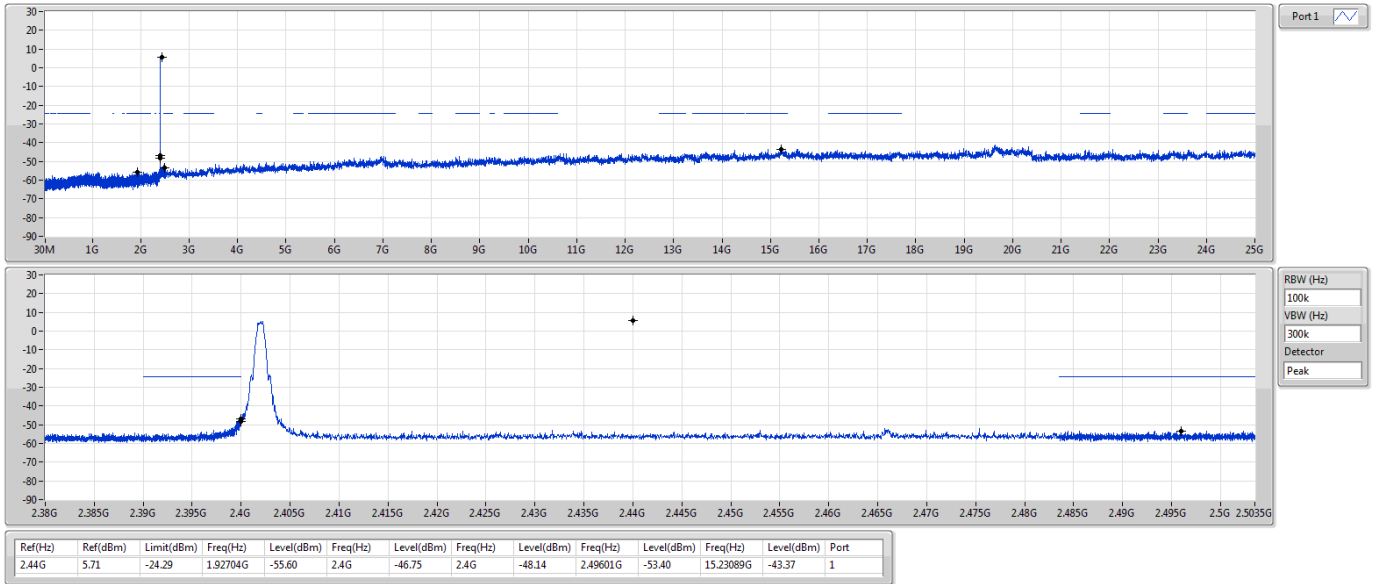
Result

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	2.44G	5.71	-24.29	1.92704G	-55.60	2.4G	-46.75	2.4G	-48.14	2.49601G	-53.40	15.23089G	-43.37	1
2440MHz	Pass	2.44G	5.71	-24.29	1.97081G	-54.41	2.39593G	-54.06	2.4835G	-56.37	2.49502G	-52.88	24.68786G	-43.08	1
2480MHz	Pass	2.44G	5.71	-24.29	2.00224G	-55.96	2.39034G	-54.41	2.4835G	-54.55	2.48405G	-52.34	15.24777G	-42.44	1

BT-LE(1Mbps)

CSEndB-DTS

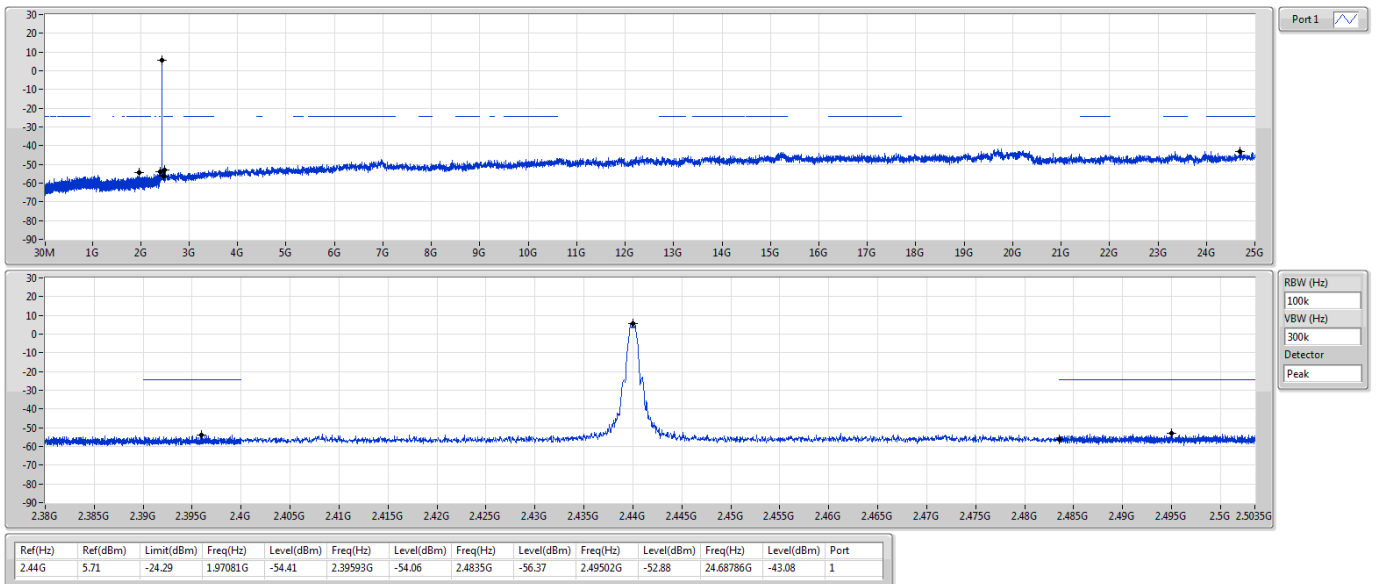
2402MHz



BT-LE(1Mbps)

CSEndB-DTS

2440MHz

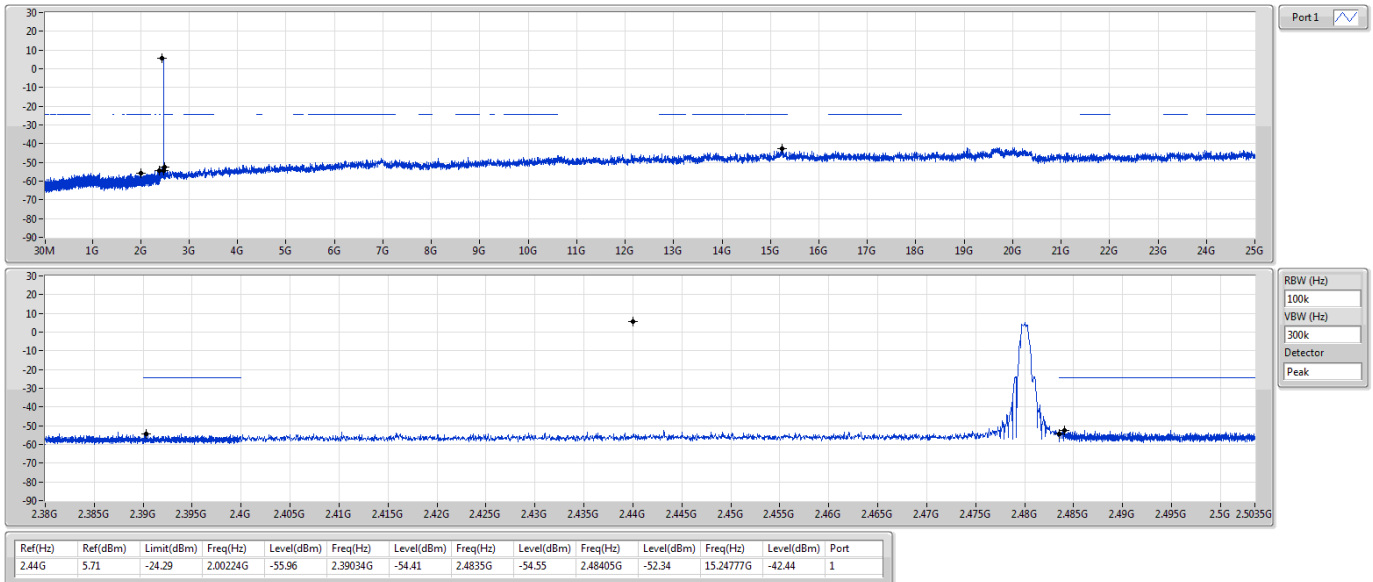


BT-LE(1Mbps)

CSEndB-DTS

2480MHz

13/01/2021





Summary

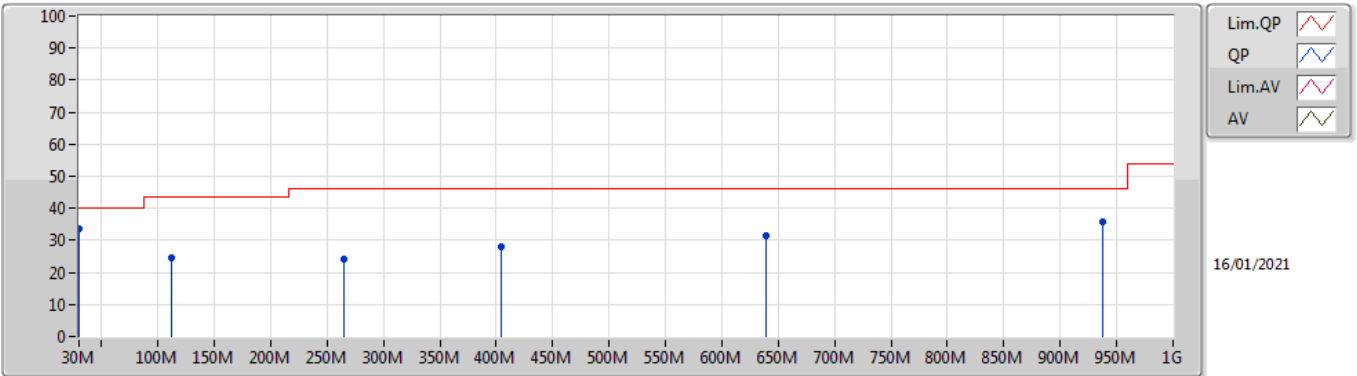
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	35.82M	34.00	40.00	-6.00	3	Vertical	0	1.00	-

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	30M	33.70	40.00	-6.30	3	Vertical	0	1.00	-
2440MHz	Pass	PK	111.48M	24.65	43.50	-18.85	3	Vertical	0	1.00	-
2440MHz	Pass	PK	264.74M	24.07	46.00	-21.93	3	Vertical	0	1.00	-
2440MHz	Pass	PK	404.42M	27.88	46.00	-18.12	3	Vertical	0	1.00	-
2440MHz	Pass	PK	639.16M	31.48	46.00	-14.52	3	Vertical	0	1.00	-
2440MHz	Pass	PK	937.92M	35.95	46.00	-10.05	3	Vertical	0	1.00	-
2440MHz	Pass	PK	30M	28.26	40.00	-11.74	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	144.46M	26.03	43.50	-17.47	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	189.08M	26.07	43.50	-17.43	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	410.24M	28.15	46.00	-17.85	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	557.68M	30.92	46.00	-15.08	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	934.04M	36.35	46.00	-9.65	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	35.82M	34.00	40.00	-6.00	3	Vertical	0	1.00	-
2440MHz	Pass	PK	55.22M	28.79	40.00	-11.21	3	Vertical	0	1.00	-
2440MHz	Pass	PK	264.74M	27.38	46.00	-18.62	3	Vertical	0	1.00	-
2440MHz	Pass	PK	470.38M	29.67	46.00	-16.33	3	Vertical	0	1.00	-
2440MHz	Pass	PK	561.56M	31.71	46.00	-14.29	3	Vertical	0	1.00	-
2440MHz	Pass	PK	763.32M	33.44	46.00	-12.56	3	Vertical	0	1.00	-
2440MHz	Pass	PK	30M	27.24	40.00	-12.76	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	64.92M	28.89	40.00	-11.11	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	264.74M	30.87	46.00	-15.13	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	414.12M	27.99	46.00	-18.01	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	608.12M	31.49	46.00	-14.51	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	934.04M	36.47	46.00	-9.53	3	Horizontal	360	1.00	-

BT-LE(1Mbps)

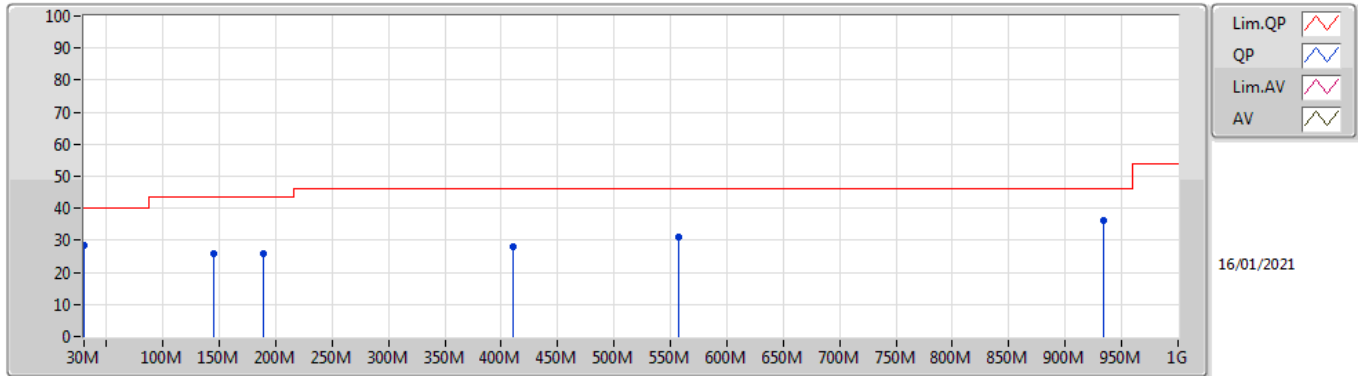
2440MHz_Adapter



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	30M	33.70	40.00	-6.30	-3.19	3	Vertical	0	1.00	-	36.89	23.32	0.70	27.21
PK	111.48M	24.65	43.50	-18.85	-9.04	3	Vertical	0	1.00	-	33.69	17.19	1.51	27.74
PK	264.74M	24.07	46.00	-21.93	-6.00	3	Vertical	0	1.00	-	30.07	18.59	2.46	27.05
PK	404.42M	27.88	46.00	-18.12	-3.46	3	Vertical	0	1.00	-	31.34	21.28	3.02	27.76
PK	639.16M	31.48	46.00	-14.52	0.02	3	Vertical	0	1.00	-	31.46	24.35	3.96	28.29
PK	937.92M	35.95	46.00	-10.05	3.44	3	Vertical	0	1.00	-	32.51	25.85	4.88	27.29

BT-LE(1Mbps)

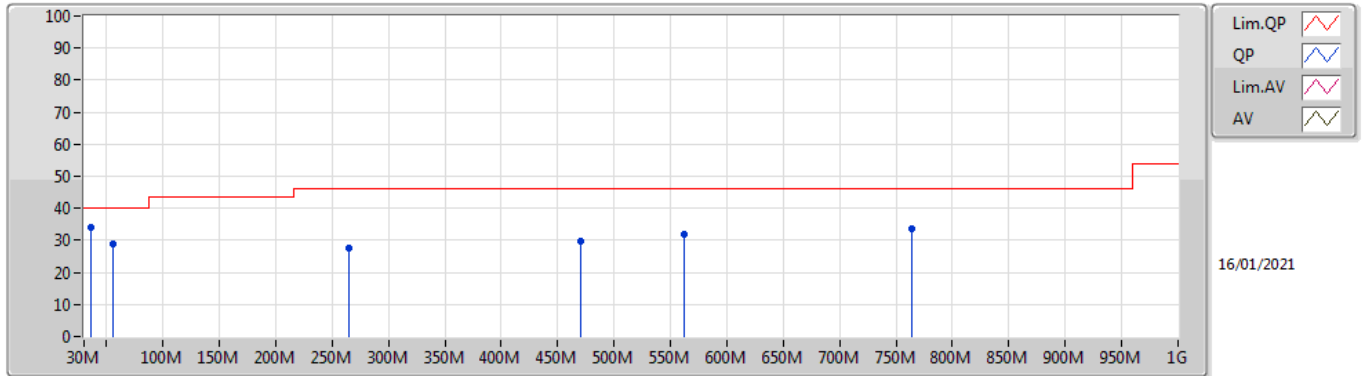
2440MHz_Adapter



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	30M	28.26	40.00	-11.74	-3.19	3	Horizontal	360	1.00	-	31.45	23.32	0.70	27.21
PK	144.46M	26.03	43.50	-17.47	-9.93	3	Horizontal	360	1.00	-	35.96	15.95	1.72	27.60
PK	189.08M	26.07	43.50	-17.43	-11.13	3	Horizontal	360	1.00	-	37.20	14.19	2.05	27.37
PK	410.24M	28.15	46.00	-17.85	-3.12	3	Horizontal	360	1.00	-	31.27	21.64	3.04	27.80
PK	557.68M	30.92	46.00	-15.08	-0.56	3	Horizontal	360	1.00	-	31.48	24.16	3.63	28.35
PK	934.04M	36.35	46.00	-9.65	3.41	3	Horizontal	360	1.00	-	32.94	25.84	4.87	27.30

BT-LE(1Mbps)

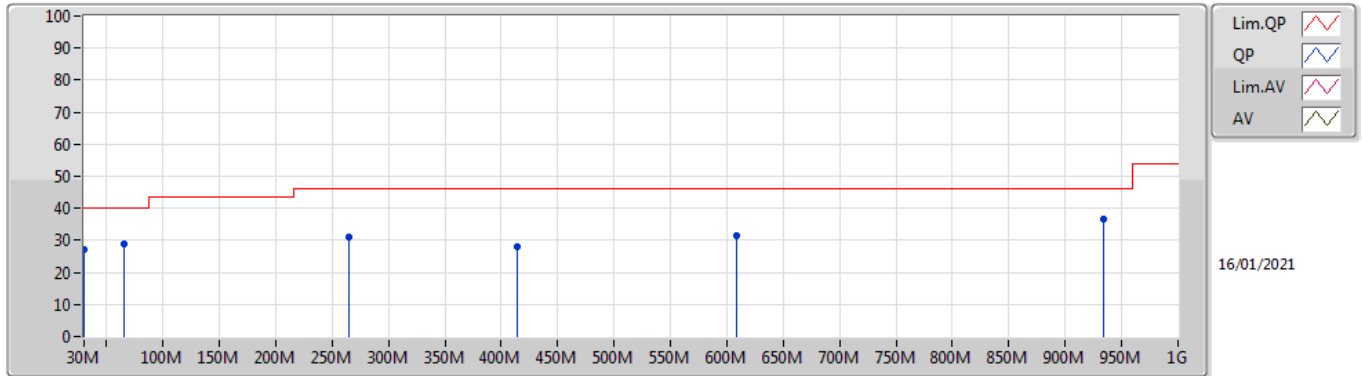
2440MHz_USB



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	35.82M	34.00	40.00	-6.00	-6.18	3	Vertical	0	1.00	-	40.18	19.97	0.82	26.97
PK	55.22M	28.79	40.00	-11.21	-14.68	3	Vertical	0	1.00	-	43.47	12.11	1.00	27.79
PK	264.74M	27.38	46.00	-18.62	-6.00	3	Vertical	0	1.00	-	33.38	18.59	2.46	27.05
PK	470.38M	29.67	46.00	-16.33	-2.24	3	Vertical	0	1.00	-	31.91	22.60	3.32	28.16
PK	561.56M	31.71	46.00	-14.29	-0.58	3	Vertical	0	1.00	-	32.29	24.12	3.65	28.35
PK	763.32M	33.44	46.00	-12.56	1.41	3	Vertical	0	1.00	-	32.03	25.00	4.35	27.94

BT-LE(1Mbps)

2440MHz_USB



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	30M	27.24	40.00	-12.76	-3.19	3	Horizontal	360	1.00	-	30.43	23.32	0.70	27.21
PK	64.92M	28.89	40.00	-11.11	-15.31	3	Horizontal	360	1.00	-	44.20	11.40	1.10	27.81
PK	264.74M	30.87	46.00	-15.13	-6.00	3	Horizontal	360	1.00	-	36.87	18.59	2.46	27.05
PK	414.12M	27.99	46.00	-18.01	-2.98	3	Horizontal	360	1.00	-	30.97	21.79	3.06	27.83
PK	608.12M	31.49	46.00	-14.51	-0.43	3	Horizontal	360	1.00	-	31.92	24.05	3.83	28.31
PK	934.04M	36.47	46.00	-9.53	3.41	3	Horizontal	360	1.00	-	33.06	25.84	4.87	27.30



Summary

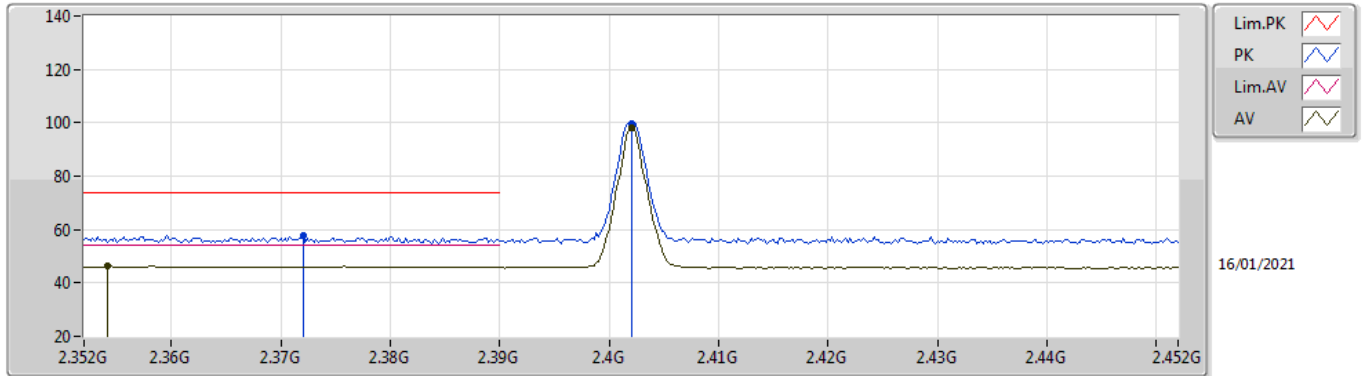
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LTE(1Mbps)	Pass	AV	7.44051G	50.16	54.00	-3.84	3	Horizontal	325	1.00	-

Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3542G	46.29	54.00	-7.71	3	Vertical	360	1.51	-
2402MHz	Pass	AV	2.402G	98.14	Inf	-Inf	3	Vertical	360	1.51	-
2402MHz	Pass	PK	2.372G	57.82	74.00	-16.18	3	Vertical	360	1.51	-
2402MHz	Pass	PK	2.402G	99.58	Inf	-Inf	3	Vertical	360	1.51	-
2402MHz	Pass	AV	2.373G	46.15	54.00	-7.85	3	Horizontal	306	2.29	-
2402MHz	Pass	AV	2.402G	92.22	Inf	-Inf	3	Horizontal	306	2.29	-
2402MHz	Pass	PK	2.356G	57.61	74.00	-16.39	3	Horizontal	306	2.29	-
2402MHz	Pass	PK	2.4018G	93.82	Inf	-Inf	3	Horizontal	306	2.29	-
2402MHz	Pass	AV	4.80392G	35.40	54.00	-18.60	3	Vertical	20	2.12	-
2402MHz	Pass	PK	4.80354G	45.22	74.00	-28.78	3	Vertical	20	2.12	-
2402MHz	Pass	AV	4.80404G	36.20	54.00	-17.80	3	Horizontal	318	1.90	-
2402MHz	Pass	PK	4.8036G	45.83	74.00	-28.17	3	Horizontal	318	1.90	-
2440MHz	Pass	AV	2.3412G	46.24	54.00	-7.76	3	Vertical	347	2.09	-
2440MHz	Pass	AV	2.44G	100.40	Inf	-Inf	3	Vertical	347	2.09	-
2440MHz	Pass	AV	2.4904G	46.05	54.00	-7.95	3	Vertical	347	2.09	-
2440MHz	Pass	PK	2.3504G	58.08	74.00	-15.92	3	Vertical	347	2.09	-
2440MHz	Pass	PK	2.4404G	101.89	Inf	-Inf	3	Vertical	347	2.09	-
2440MHz	Pass	PK	2.4972G	56.80	74.00	-17.20	3	Vertical	347	2.09	-
2440MHz	Pass	AV	2.3412G	46.31	54.00	-7.69	3	Horizontal	358	1.10	-
2440MHz	Pass	AV	2.44G	95.91	Inf	-Inf	3	Horizontal	358	1.10	-
2440MHz	Pass	AV	2.486G	45.92	54.00	-8.08	3	Horizontal	358	1.10	-
2440MHz	Pass	PK	2.3696G	57.80	74.00	-16.20	3	Horizontal	358	1.10	-
2440MHz	Pass	PK	2.4404G	97.72	Inf	-Inf	3	Horizontal	358	1.10	-
2440MHz	Pass	PK	2.494G	57.15	74.00	-16.85	3	Horizontal	358	1.10	-
2440MHz	Pass	AV	4.88013G	33.87	54.00	-20.13	3	Vertical	23	2.16	-
2440MHz	Pass	AV	7.32052G	47.66	54.00	-6.34	3	Vertical	331	1.94	-
2440MHz	Pass	PK	4.87937G	44.63	74.00	-29.37	3	Vertical	23	2.16	-
2440MHz	Pass	PK	7.32075G	57.08	74.00	-16.92	3	Vertical	331	1.94	-
2440MHz	Pass	AV	4.88008G	36.05	54.00	-17.95	3	Horizontal	319	1.00	-
2440MHz	Pass	AV	7.3205G	46.81	54.00	-7.19	3	Horizontal	5	1.85	-
2440MHz	Pass	PK	4.8794G	46.23	74.00	-27.77	3	Horizontal	319	1.00	-
2440MHz	Pass	PK	7.32079G	56.75	74.00	-17.25	3	Horizontal	5	1.85	-
2480MHz	Pass	AV	2.48G	99.25	Inf	-Inf	3	Vertical	352	2.24	-
2480MHz	Pass	AV	2.4835G	48.34	54.00	-5.66	3	Vertical	352	2.24	-
2480MHz	Pass	PK	2.4798G	100.70	Inf	-Inf	3	Vertical	352	2.24	-
2480MHz	Pass	PK	2.4835G	57.97	74.00	-16.03	3	Vertical	352	2.24	-
2480MHz	Pass	AV	2.48G	97.67	Inf	-Inf	3	Horizontal	0	1.30	-
2480MHz	Pass	AV	2.4835G	47.64	54.00	-6.36	3	Horizontal	0	1.30	-
2480MHz	Pass	PK	2.4798G	99.10	Inf	-Inf	3	Horizontal	0	1.30	-
2480MHz	Pass	PK	2.4942G	57.78	74.00	-16.22	3	Horizontal	0	1.30	-
2480MHz	Pass	AV	4.96034G	30.42	54.00	-23.58	3	Vertical	360	1.05	-
2480MHz	Pass	AV	7.44057G	49.03	54.00	-4.97	3	Vertical	335	2.08	-
2480MHz	Pass	PK	4.95971G	43.27	74.00	-30.73	3	Vertical	360	1.05	-
2480MHz	Pass	PK	7.43917G	58.56	74.00	-15.44	3	Vertical	335	2.08	-
2480MHz	Pass	AV	4.95987G	33.87	54.00	-20.13	3	Horizontal	319	1.07	-
2480MHz	Pass	AV	7.44051G	50.16	54.00	-3.84	3	Horizontal	325	1.00	-
2480MHz	Pass	PK	4.95942G	45.07	74.00	-28.93	3	Horizontal	319	1.07	-
2480MHz	Pass	PK	7.44062G	59.22	74.00	-14.78	3	Horizontal	325	1.00	-

BT-LE(1Mbps)

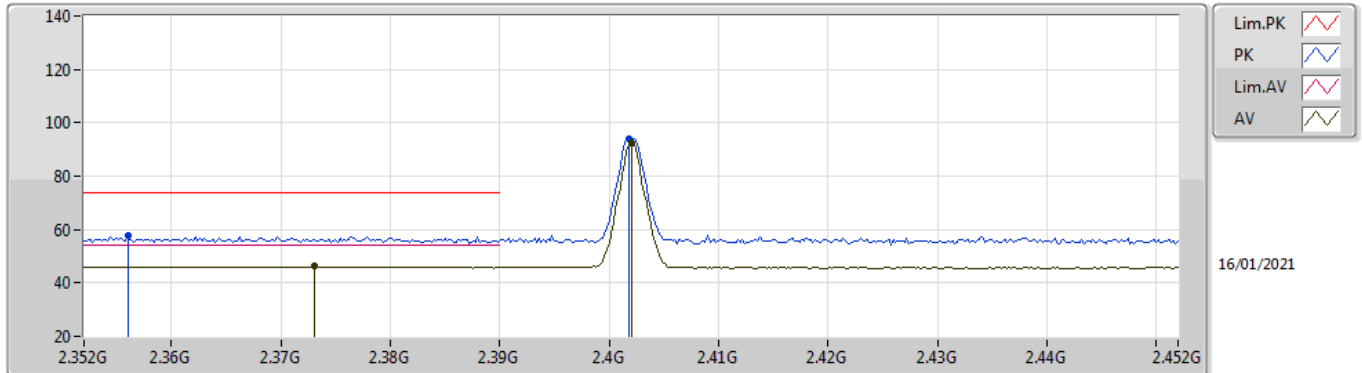
2402MHz_TX



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	2.3542G	46.29	54.00	-7.71	33.62	3	Vertical	360	1.51	-	12.67	27.69	5.93	-
AV	2.402G	98.14	Inf	-Inf	33.55	3	Vertical	360	1.51	-	64.59	27.59	5.96	-
PK	2.372G	57.82	74.00	-16.18	33.60	3	Vertical	360	1.51	-	24.22	27.66	5.94	-
PK	2.402G	99.58	Inf	-Inf	33.55	3	Vertical	360	1.51	-	66.03	27.59	5.96	-

BT-LE(1Mbps)

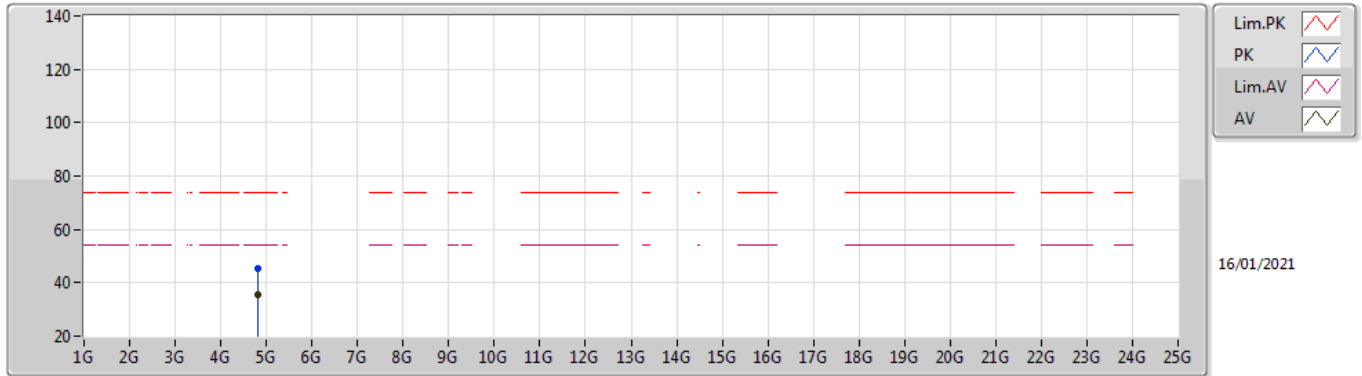
2402MHz_TX



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	2.373G	46.15	54.00	-7.85	33.59	3	Horizontal	306	2.29	-	12.56	27.65	5.94	-
AV	2.402G	92.22	Inf	-Inf	33.55	3	Horizontal	306	2.29	-	58.67	27.59	5.96	-
PK	2.356G	57.61	74.00	-16.39	33.62	3	Horizontal	306	2.29	-	23.99	27.69	5.93	-
PK	2.4018G	93.82	Inf	-Inf	33.55	3	Horizontal	306	2.29	-	60.27	27.59	5.96	-

BT-LE(1Mbps)

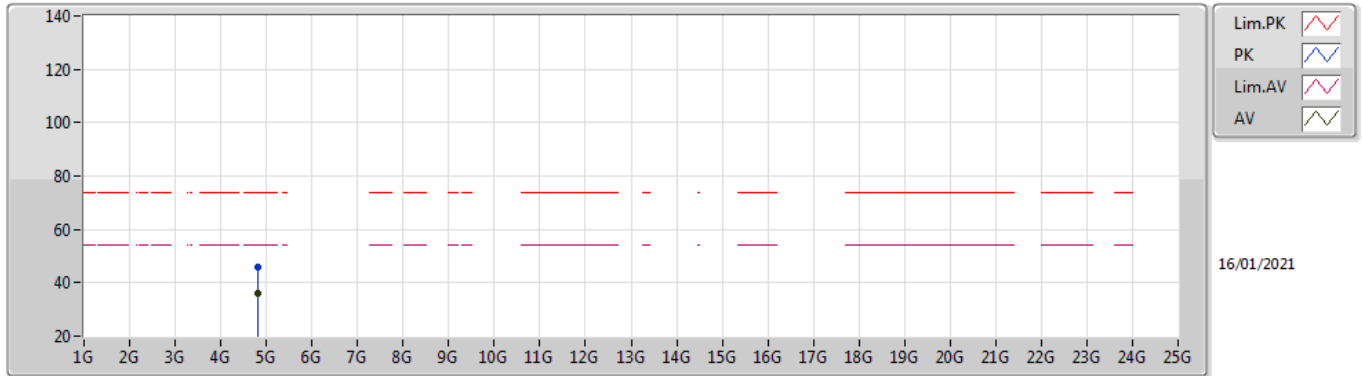
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80392G	35.40	54.00	-18.60	4.88	3	Vertical	20	2.12	-	30.52	30.92	8.25	34.29
PK	4.80354G	45.22	74.00	-28.78	4.87	3	Vertical	20	2.12	-	40.35	30.91	8.25	34.29

BT-LE(1Mbps)

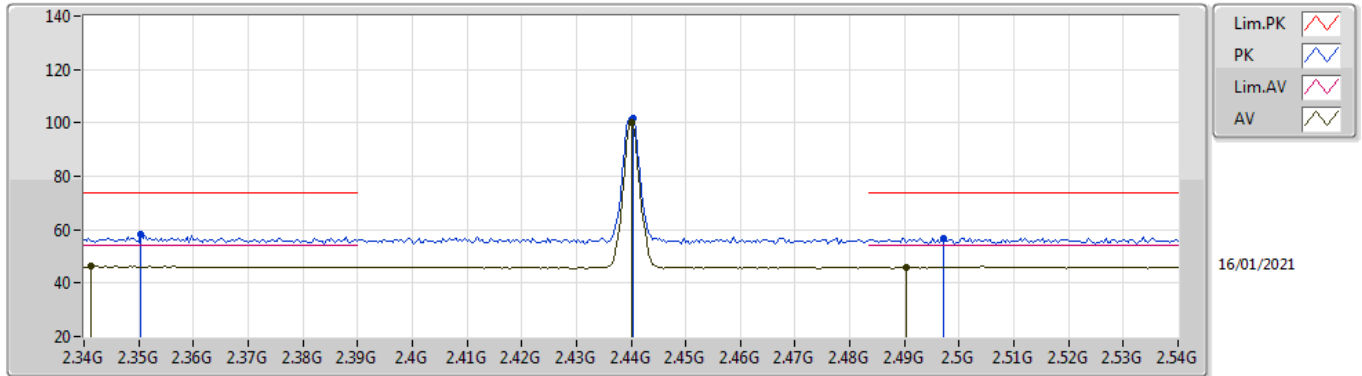
2402MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80404G	36.20	54.00	-17.80	4.88	3	Horizontal	318	1.90	-	31.32	30.92	8.25	34.29
PK	4.8036G	45.83	74.00	-28.17	4.87	3	Horizontal	318	1.90	-	40.96	30.91	8.25	34.29

BT-LE(1Mbps)

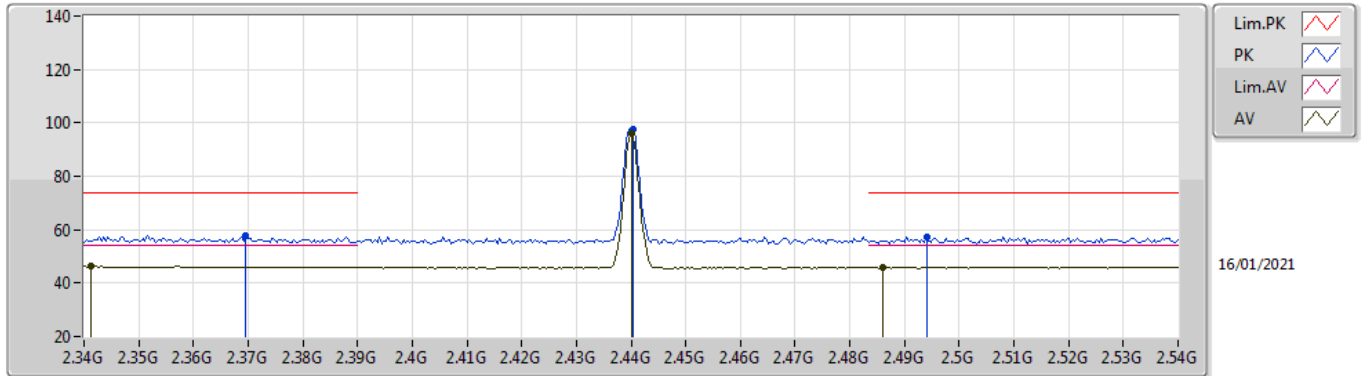
2440MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3412G	46.24	54.00	-7.76	33.66	3	Vertical	347	2.09	-	12.58	27.74	5.92	-
AV	2.44G	100.40	Inf	-Inf	33.45	3	Vertical	347	2.09	-	66.95	27.44	6.01	-
AV	2.4904G	46.05	54.00	-7.95	33.47	3	Vertical	347	2.09	-	12.58	27.40	6.07	-
PK	2.3504G	58.08	74.00	-15.92	33.62	3	Vertical	347	2.09	-	24.46	27.70	5.92	-
PK	2.4404G	101.89	Inf	-Inf	33.45	3	Vertical	347	2.09	-	68.44	27.44	6.01	-
PK	2.4972G	56.80	74.00	-17.20	33.48	3	Vertical	347	2.09	-	23.32	27.40	6.08	-

BT-LE(1Mbps)

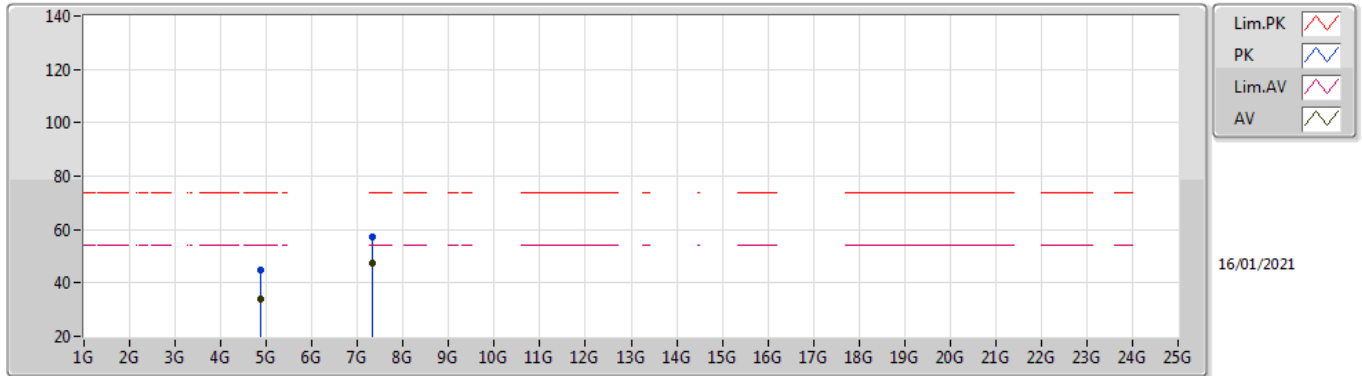
2440MHz_TX



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	2.3412G	46.31	54.00	-7.69	33.66	3	Horizontal	358	1.10	-	12.65	27.74	5.92	-
AV	2.44G	95.91	Inf	-Inf	33.45	3	Horizontal	358	1.10	-	62.46	27.44	6.01	-
AV	2.486G	45.92	54.00	-8.08	33.46	3	Horizontal	358	1.10	-	12.46	27.40	6.06	-
PK	2.3696G	57.80	74.00	-16.20	33.60	3	Horizontal	358	1.10	-	24.20	27.66	5.94	-
PK	2.4404G	97.72	Inf	-Inf	33.45	3	Horizontal	358	1.10	-	64.27	27.44	6.01	-
PK	2.494G	57.15	74.00	-16.85	33.47	3	Horizontal	358	1.10	-	23.68	27.40	6.07	-

BT-LE(1Mbps)

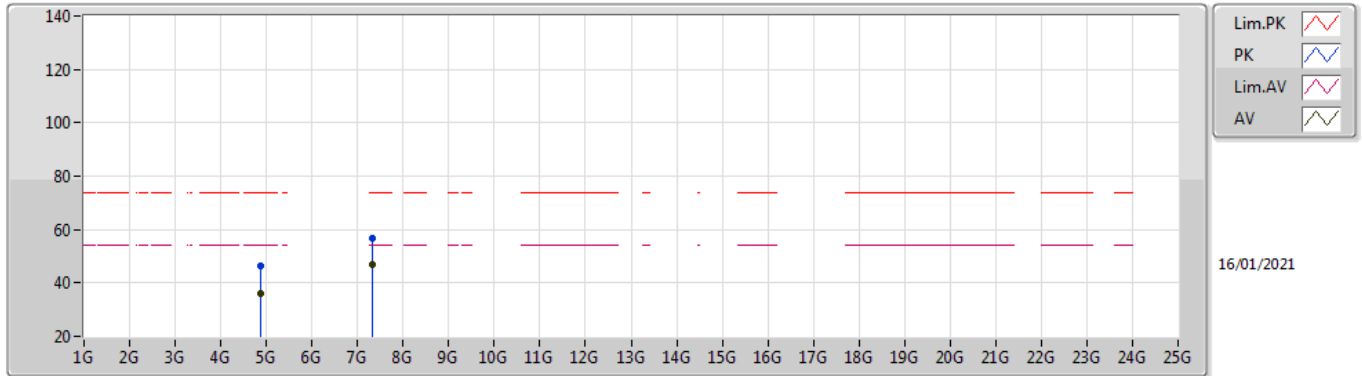
2440MHz_TX



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	4.88013G	33.87	54.00	-20.13	5.08	3	Vertical	23	2.16	-	28.79	31.04	8.30	34.26
AV	7.32052G	47.66	54.00	-6.34	11.78	3	Vertical	331	1.94	-	35.88	36.32	10.03	34.57
PK	4.87937G	44.63	74.00	-29.37	5.08	3	Vertical	23	2.16	-	39.55	31.04	8.30	34.26
PK	7.32075G	57.08	74.00	-16.92	11.78	3	Vertical	331	1.94	-	45.30	36.32	10.03	34.57

BT-LE(1Mbps)

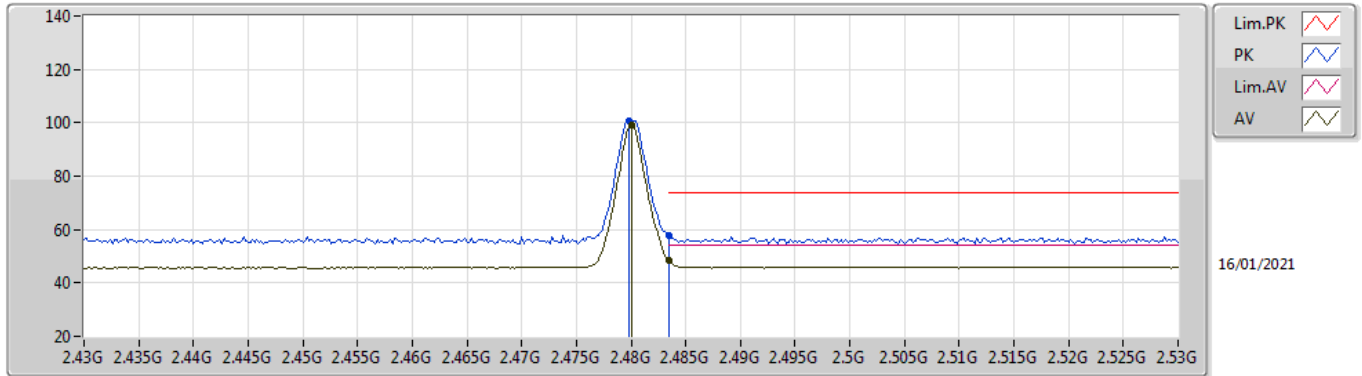
2440MHz_TX



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	4.88008G	36.05	54.00	-17.95	5.08	3	Horizontal	319	1.00	-	30.97	31.04	8.30	34.26
AV	7.3205G	46.81	54.00	-7.19	11.78	3	Horizontal	5	1.85	-	35.03	36.32	10.03	34.57
PK	4.8794G	46.23	74.00	-27.77	5.08	3	Horizontal	319	1.00	-	41.15	31.04	8.30	34.26
PK	7.32079G	56.75	74.00	-17.25	11.78	3	Horizontal	5	1.85	-	44.97	36.32	10.03	34.57

BT-LE(1Mbps)

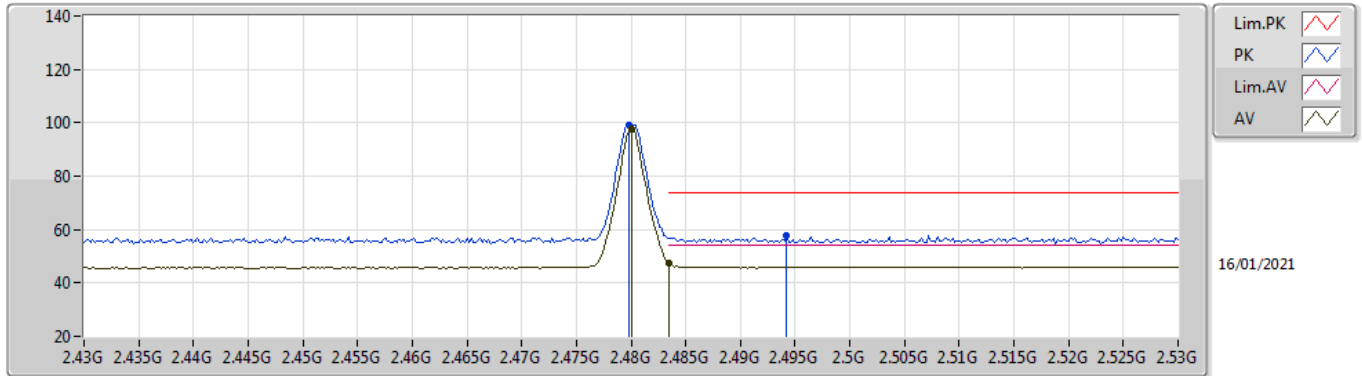
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	99.25	Inf	-Inf	33.46	3	Vertical	352	2.24	-	65.79	27.40	6.06	-
AV	2.4835G	48.34	54.00	-5.66	33.46	3	Vertical	352	2.24	-	14.88	27.40	6.06	-
PK	2.4798G	100.70	Inf	-Inf	33.46	3	Vertical	352	2.24	-	67.24	27.40	6.06	-
PK	2.4835G	57.97	74.00	-16.03	33.46	3	Vertical	352	2.24	-	24.51	27.40	6.06	-

BT-LE(1Mbps)

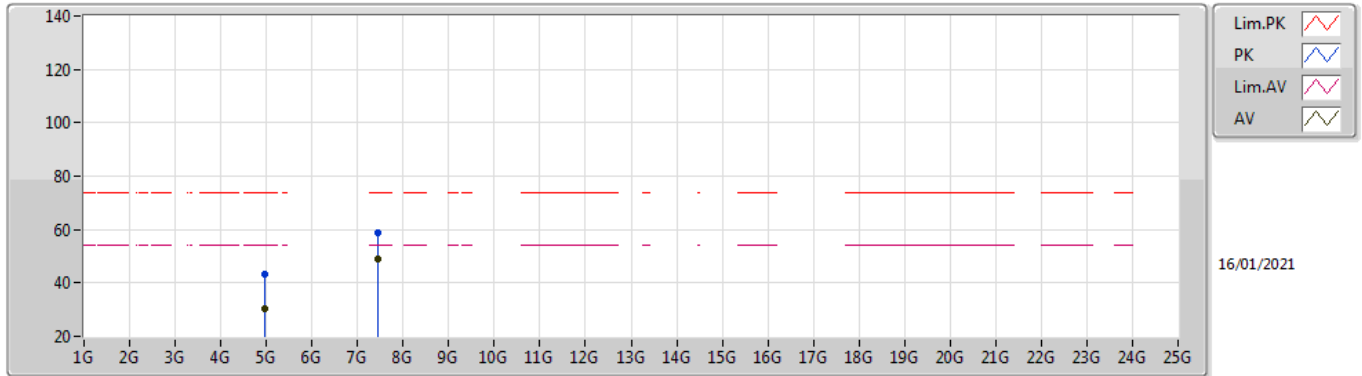
2480MHz_TX



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	97.67	Inf	-Inf	33.46	3	Horizontal	0	1.30	-	64.21	27.40	6.06	-
AV	2.4835G	47.64	54.00	-6.36	33.46	3	Horizontal	0	1.30	-	14.18	27.40	6.06	-
PK	2.4798G	99.10	Inf	-Inf	33.46	3	Horizontal	0	1.30	-	65.64	27.40	6.06	-
PK	2.4942G	57.78	74.00	-16.22	33.47	3	Horizontal	0	1.30	-	24.31	27.40	6.07	-

BT-LE(1Mbps)

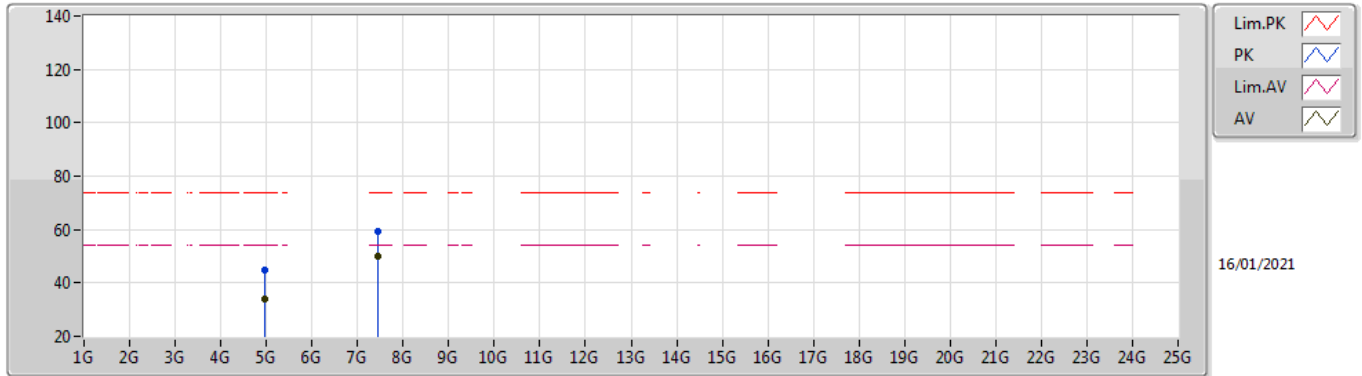
2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.96034G	30.42	54.00	-23.58	5.34	3	Vertical	360	1.05	-	25.08	31.22	8.35	34.23
AV	7.44057G	49.03	54.00	-4.97	11.69	3	Vertical	335	2.08	-	37.34	36.18	10.10	34.59
PK	4.95971G	43.27	74.00	-30.73	5.34	3	Vertical	360	1.05	-	37.93	31.22	8.35	34.23
PK	7.43917G	58.56	74.00	-15.44	11.69	3	Vertical	335	2.08	-	46.87	36.18	10.10	34.59

BT-LE(1Mbps)

2480MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95987G	33.87	54.00	-20.13	5.34	3	Horizontal	319	1.07	-	28.53	31.22	8.35	34.23
AV	7.44051G	50.16	54.00	-3.84	11.69	3	Horizontal	325	1.00	-	38.47	36.18	10.10	34.59
PK	4.95942G	45.07	74.00	-28.93	5.34	3	Horizontal	319	1.07	-	39.73	31.22	8.35	34.23
PK	7.44062G	59.22	74.00	-14.78	11.69	3	Horizontal	325	1.00	-	47.53	36.18	10.10	34.59