

FCC Test Report

FCC ID : 2ACIA-TTBT010
Equipment : Wireless Audio System
Model Name : A-1447K
Applicant : Ten Tronics Co., Ltd
No.33, Lane 347, Chung-San S. Road,
Young-Kang District
Manufacturer : Ten Tronics Co., Ltd
No.33, Lane 347, Chung-San S. Road,
Young-Kang District
Standard : 47 CFR FCC Part 15.247

The product was received on May 15, 2020, and testing was started from Aug. 16, 2020 and completed on Aug. 24, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

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



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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



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PHOTOGRAPHS OF EUT V01



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
1	Cortec	AN2400-92140BRS	Dipole	SMA
2	Ten-tronics	IFA-1	PCB	N/A

Ant.	Port	Gain (dBi)	
		SRD 2.4G	BT
1	1	4.87	-
2	1	-	1.1

Note 1: The EUT has two antennas.

For SRD 2.4GHz function:

For SRD 2.4G mode (1TX/1RX)

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

For BT function:

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

Ant. 2 (port 1) could transmit/receive.



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)	0.654	1.84	424.375u	3k

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

1.2 Testing Applied Standards

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

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

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				
<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	CO04-HY	Edward	23.5~25.8°C / 52~57%	20/Aug/2020
RF Conducted	TH06-HY	Raven	22.5~23.8°C / 58~72%	17/Aug/2020~21/Aug/2020
Radiated	03CH03-HY	Edward	22.5~25.4°C / 52~54%	16/Aug/2020~24/Aug/2020

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Condition

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

2.2 Test Channel Mode




Test Software Version	nstallBlueSuite_2_6_4_1046
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Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	Default
2440MHz	Default
2480MHz	Default

2.3 The Worst Case Measurement Configuration

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

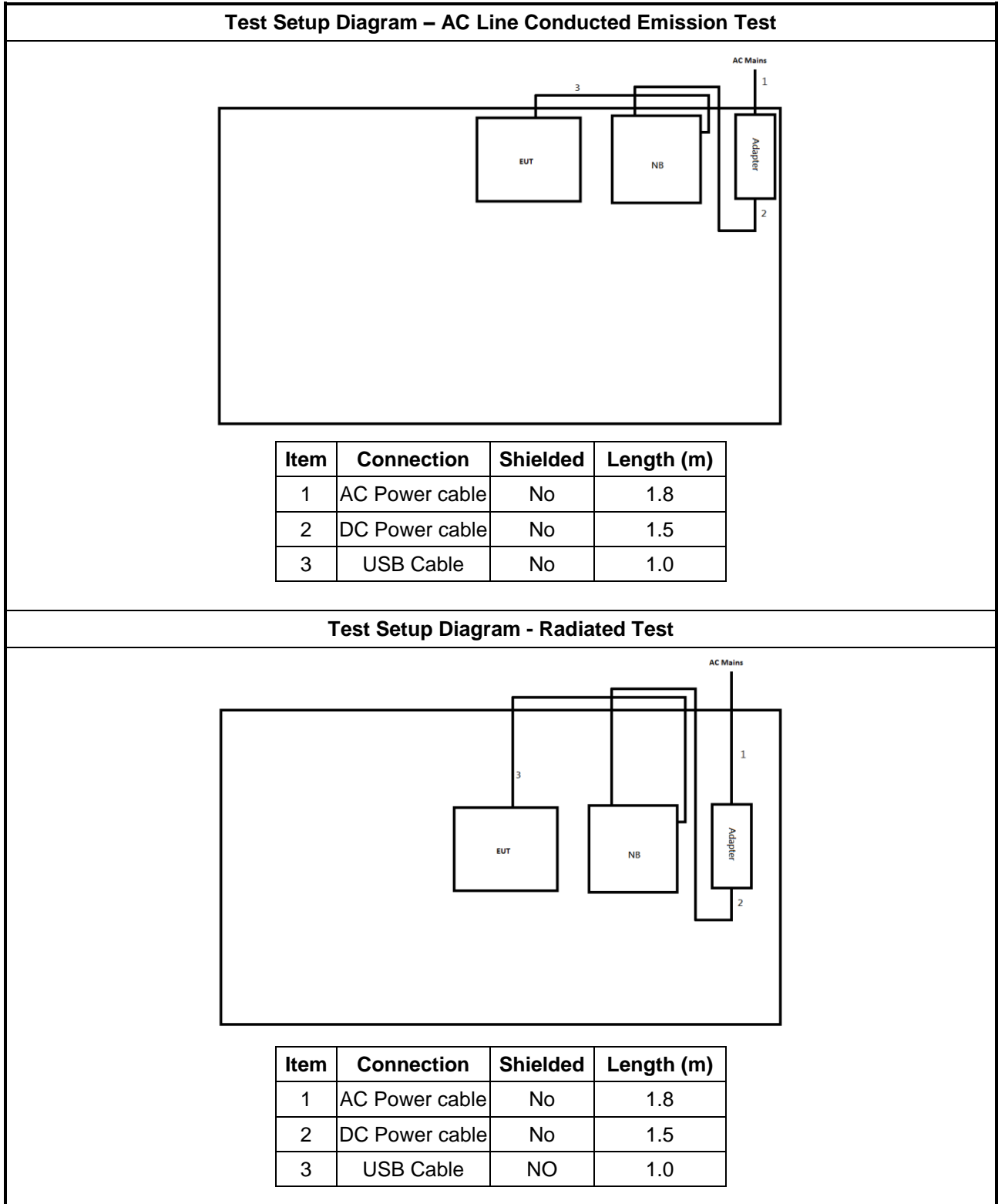
2.4 Support Equipment

Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	5220m	-	-
2	AC Adapter for Notebook	HP	PPP012H-S	-	-
3	USB Cable	Hawk	04-HTE120	-	-

Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	-	-
2	AC Adapter for Notebook	DELL	HA65NM130	-	-
3	Fixture	-	-	-	Customer provide
4	USB Cable	Hawk	04-HTE120	-	-

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	HP	5220m	-	-
2	AC Adapter for Notebook	HP	PPP012H-S	-	-
3	USB Cable	Hawk	04-HTE120	-	-

2.5 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

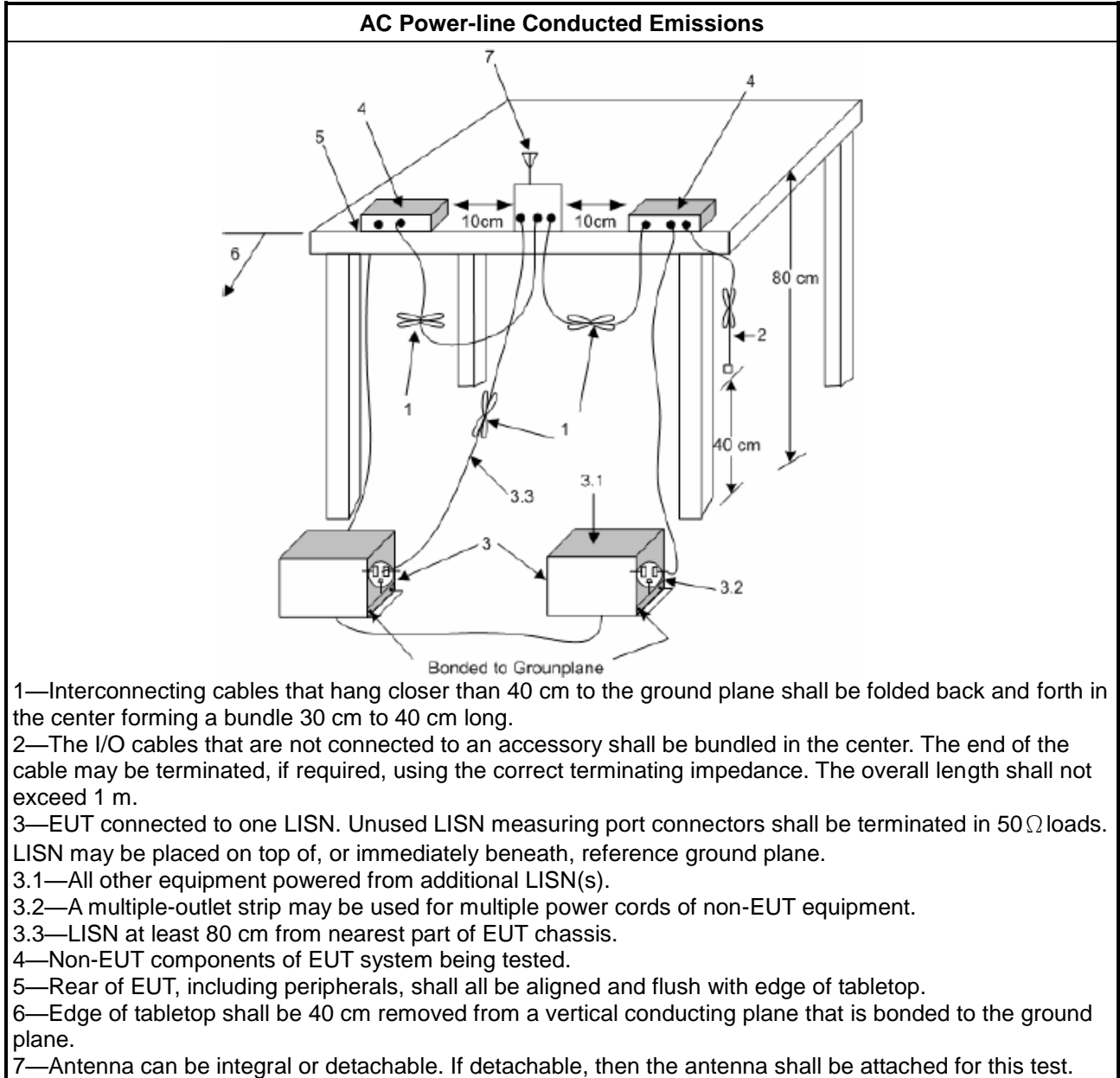
Test Method
<ul style="list-style-type: none"> Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

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:
<ul style="list-style-type: none"> ▪ 6 dB bandwidth \geq 500 kHz.

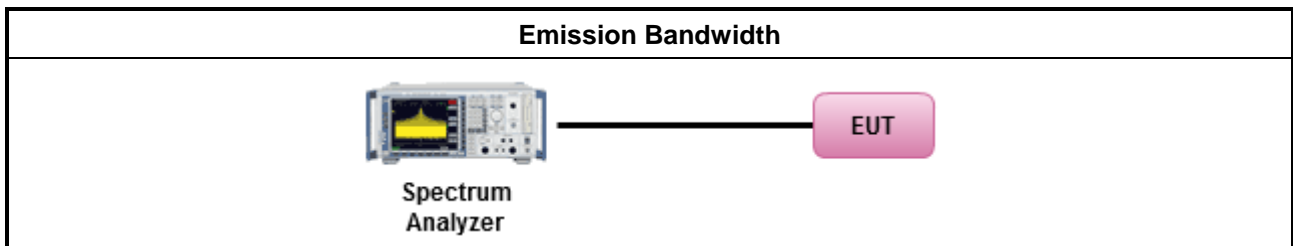
3.2.2 Measuring Instruments

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.	

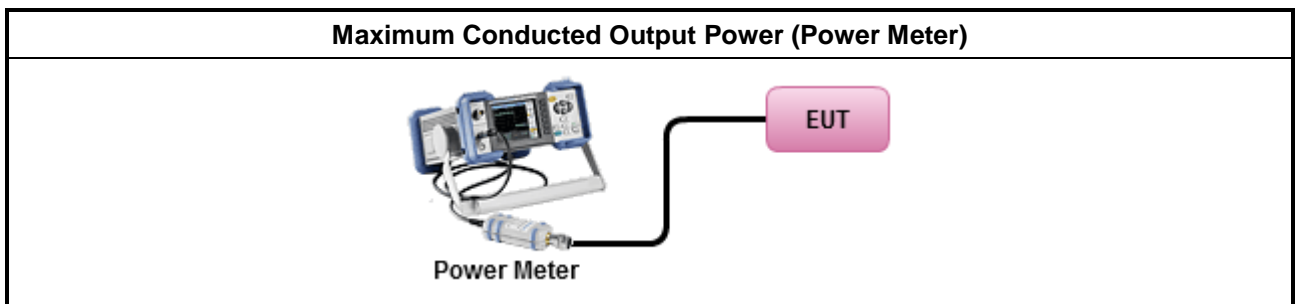
3.3.2 Measuring Instruments

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

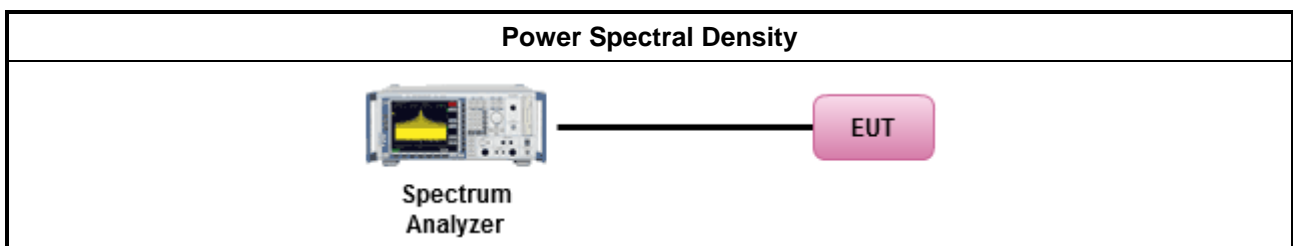
3.4.2 Measuring Instruments

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.

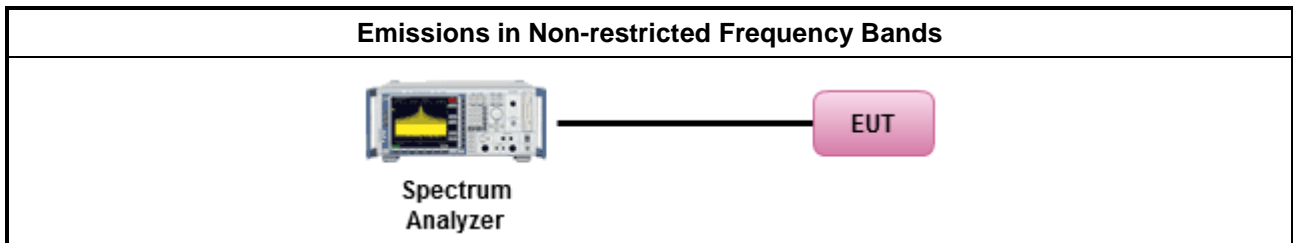
3.5.2 Measuring Instruments

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

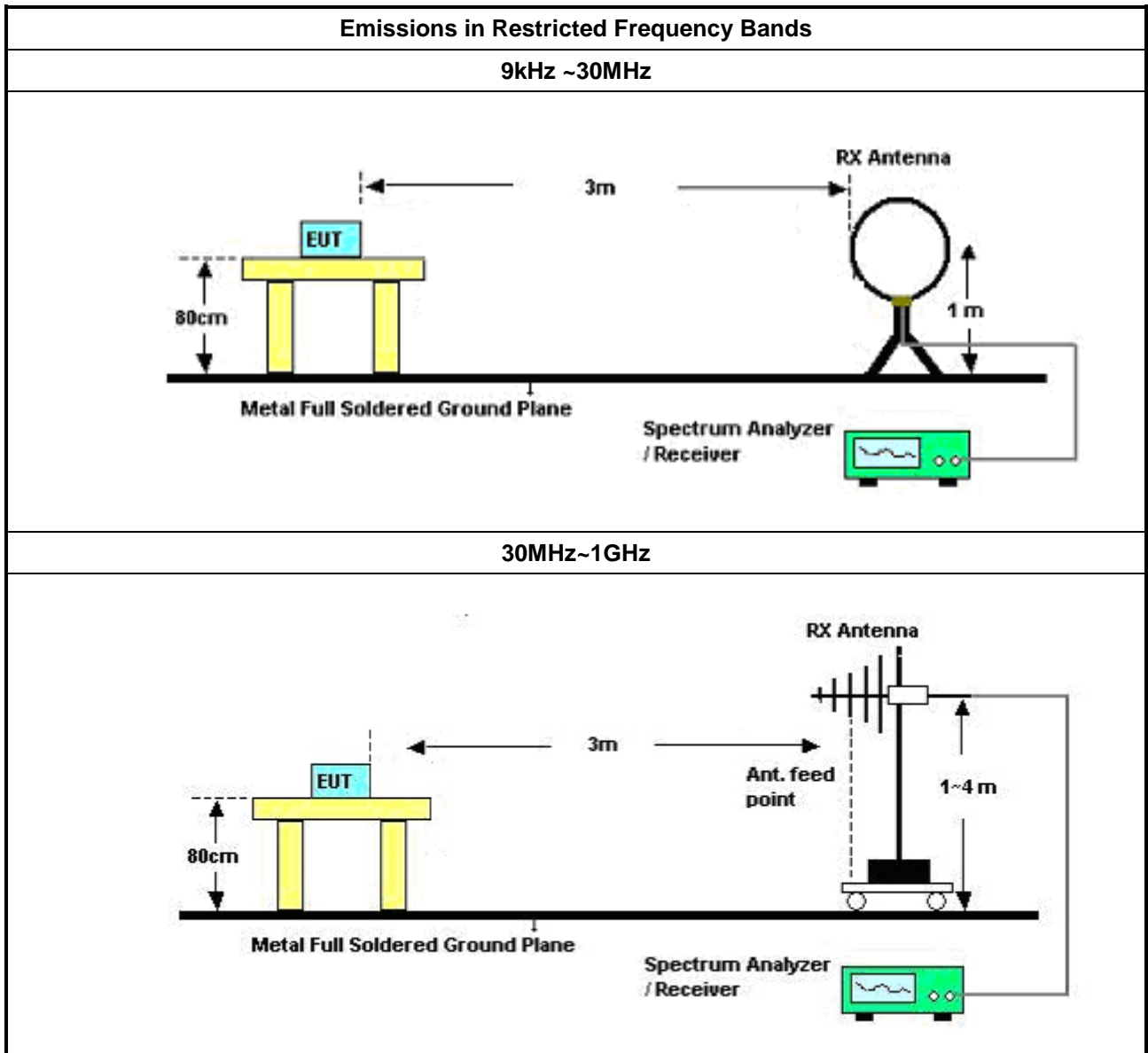
Test Method	
	<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency 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.

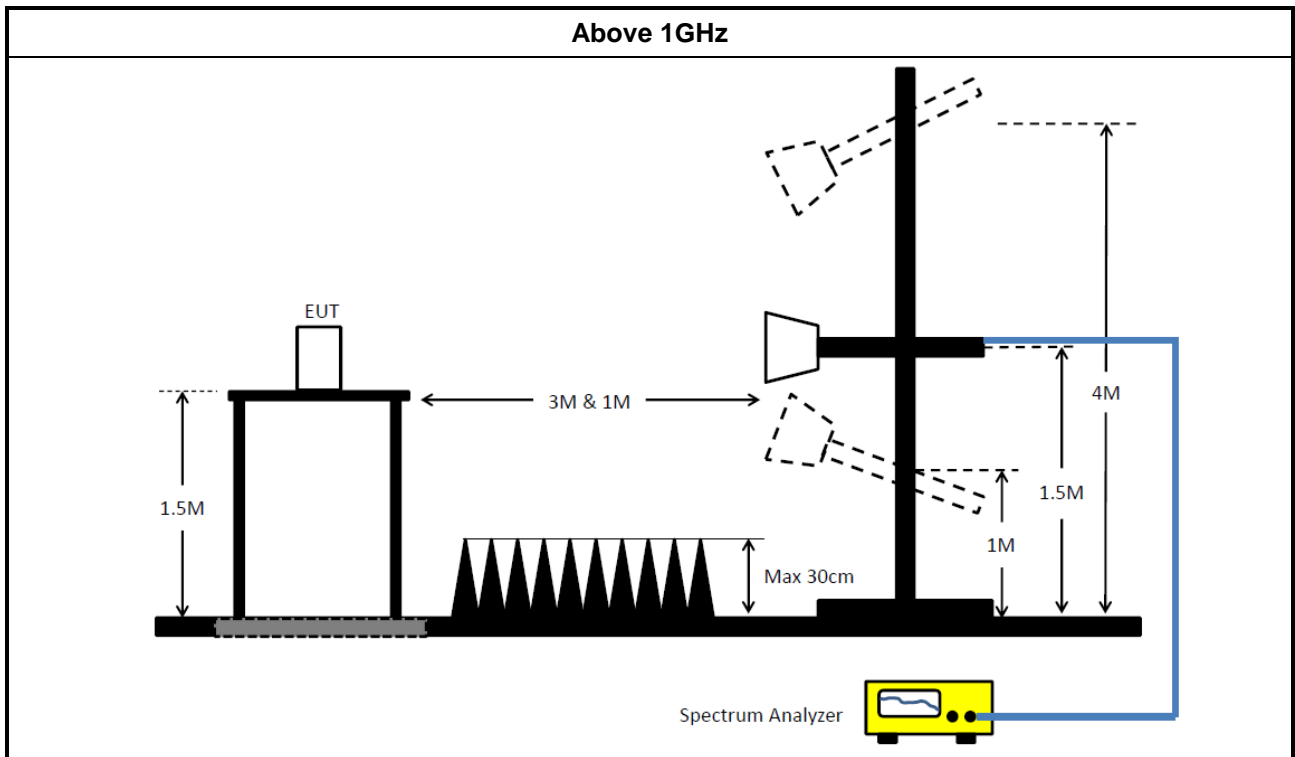
3.6.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.6.5 Test Setup





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

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

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR3	102051	9kHz ~ 3.6GHz	29/May/2020	28/May/2021
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	05/Nov/2019	04/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	23/Sep/2019	22/Sep/2020
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz ~ 30MHz	24/Sep/2019	23/Sep/2020

NCR: Non-Calibration Require

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Signal Analyzer	R&S	FSV 40	101029	10kHz ~ 40GHz	01/Oct/2019	30/Sep/2020
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	12/Nov/2018	11/Nov/2020
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	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz~1GHz 3m	06/Aug/2020	05/Aug/2021
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz~18GHz 3m	04/Aug/2020	03/Aug/2021
Signal Analyzer	R&S	FSV 40	101515	10Hz~40GHz	15/Feb/2020	14/Feb/2021
Amplifier	HP	8447D	2944A08033	10kHz~1.3GHz	14/Apr/2020	13/Apr/2021
Microwave System Preamplifier	KEYSIGHT	83017A	MY53270196	1GHz~26.5GHz	09/Sep/2019	08/Sep/2020
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMCI	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	19/Apr/2020	18/Apr/2021
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz~18GHz	26/Mar/2020	25/Mar/2021
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz~30MHz	19/Jun/2020	18/Jun/2021
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	18/Mar/2020	17/Mar/2021
RF CABLE 5+6m	HUBER+SUHNER	SUOFLEX 104	SN MY38596/4+SN 804300/4	1GHz~40GHz	04/Aug/2020	03/Aug/2021
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	13/Mar/2020	12/Mar/2021
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz~40GHz	10/Mar/2020	09/Mar/2021
Loop Antenna	TESEQ	HLA 6120	31244	9kHz~30MHz	16/Mar/2020	15/Mar/2021
EMI Test Receiver	R&S	ESR3	102051	9kHz~3.6GHz	29/May/2020	28/May/2021



Summary

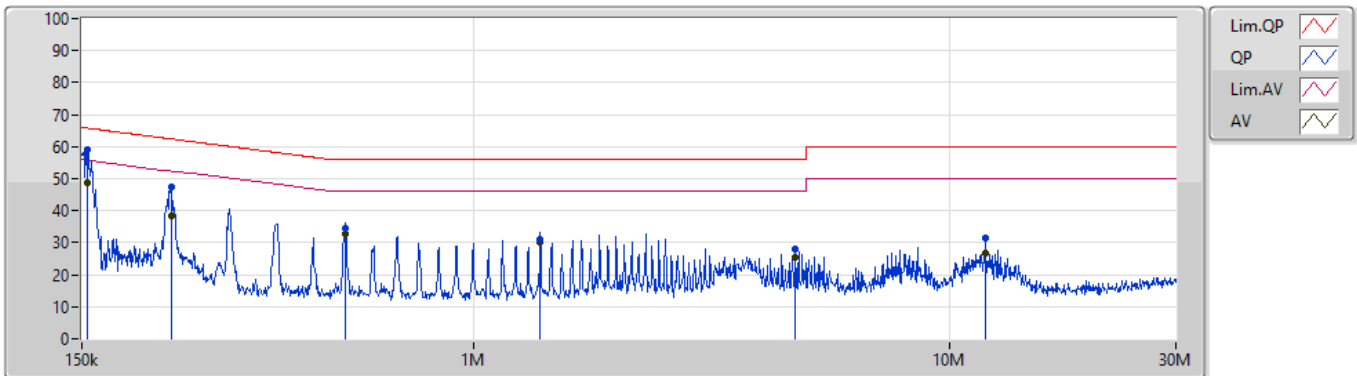
Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	QP	151.807k	59.24	65.90	-6.66	Neutral

Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	154.251k	58.87	65.77	-6.90	Line	"Worst"
Mode 1	Pass	AV	154.251k	48.61	55.77	-7.16	Line	-
Mode 1	Pass	QP	230.851k	47.26	62.42	-15.16	Line	-
Mode 1	Pass	AV	230.851k	38.27	52.42	-14.15	Line	-
Mode 1	Pass	QP	538.12k	34.32	56.00	-21.68	Line	-
Mode 1	Pass	AV	538.12k	32.76	46.00	-13.24	Line	-
Mode 1	Pass	QP	1.38M	31.23	56.00	-24.77	Line	-
Mode 1	Pass	AV	1.38M	30.04	46.00	-15.96	Line	-
Mode 1	Pass	QP	4.759M	28.05	56.00	-27.95	Line	-
Mode 1	Pass	AV	4.759M	25.38	46.00	-20.62	Line	-
Mode 1	Pass	QP	11.967M	31.56	60.00	-28.44	Line	-
Mode 1	Pass	AV	11.967M	26.59	50.00	-23.41	Line	-
Mode 1	Pass	QP	151.807k	59.24	65.90	-6.66	Neutral	"Worst"
Mode 1	Pass	AV	151.807k	48.68	55.90	-7.22	Neutral	-
Mode 1	Pass	QP	230.851k	47.20	62.42	-15.22	Neutral	-
Mode 1	Pass	AV	230.851k	37.95	52.42	-14.47	Neutral	-
Mode 1	Pass	QP	535.976k	33.49	56.00	-22.51	Neutral	-
Mode 1	Pass	AV	535.976k	31.93	46.00	-14.07	Neutral	-
Mode 1	Pass	QP	1.993M	30.71	56.00	-25.29	Neutral	-
Mode 1	Pass	AV	1.993M	28.80	46.00	-17.20	Neutral	-
Mode 1	Pass	QP	4.759M	27.46	56.00	-28.54	Neutral	-
Mode 1	Pass	AV	4.759M	24.72	46.00	-21.28	Neutral	-
Mode 1	Pass	QP	12.504M	30.54	60.00	-29.46	Neutral	-
Mode 1	Pass	AV	12.504M	25.86	50.00	-24.14	Neutral	-

Conducted Emissions at Powerline_Mode 1

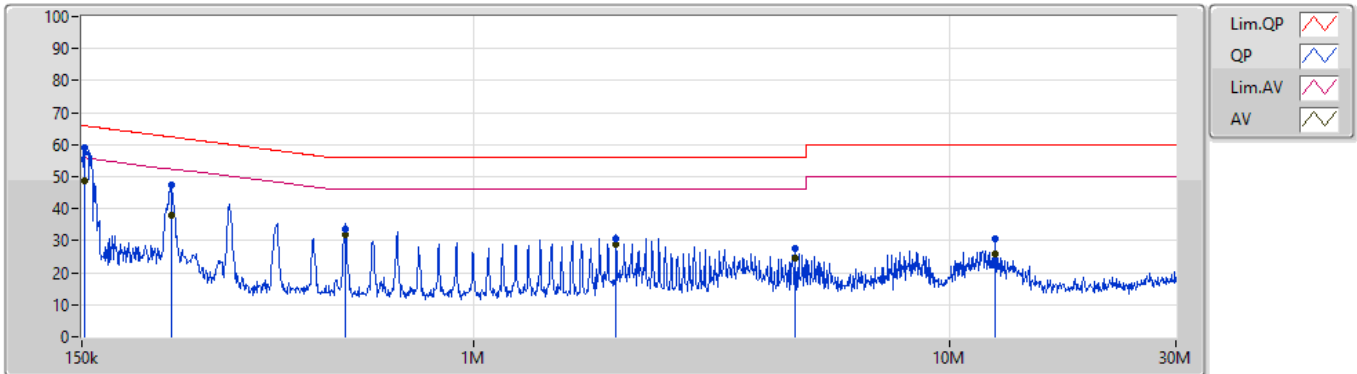
20/08/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	154.251k	58.87	65.77	-6.90	19.64	Line	"Worst"	39.23	9.66	0.11	9.87
AV	154.251k	48.61	55.77	-7.16	19.64	Line	-	28.97	9.66	0.11	9.87
QP	230.851k	47.26	62.42	-15.16	19.63	Line	-	27.63	9.65	0.11	9.87
AV	230.851k	38.27	52.42	-14.15	19.63	Line	-	18.64	9.65	0.11	9.87
QP	538.12k	34.32	56.00	-21.68	19.63	Line	-	14.69	9.64	0.12	9.87
AV	538.12k	32.76	46.00	-13.24	19.63	Line	-	13.13	9.64	0.12	9.87
QP	1.38M	31.23	56.00	-24.77	19.64	Line	-	11.59	9.64	0.12	9.88
AV	1.38M	30.04	46.00	-15.96	19.64	Line	-	10.40	9.64	0.12	9.88
QP	4.759M	28.05	56.00	-27.95	19.75	Line	-	8.30	9.67	0.20	9.88
AV	4.759M	25.38	46.00	-20.62	19.75	Line	-	5.63	9.67	0.20	9.88
QP	11.967M	31.56	60.00	-28.44	19.85	Line	-	11.71	9.68	0.29	9.88
AV	11.967M	26.59	50.00	-23.41	19.85	Line	-	6.74	9.68	0.29	9.88

Conducted Emissions at Powerline_Mode 1

20/08/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	151.807k	59.24	65.90	-6.66	19.63	Neutral	"Worst"	39.61	9.65	0.11	9.87
AV	151.807k	48.68	55.90	-7.22	19.63	Neutral	-	29.05	9.65	0.11	9.87
QP	230.851k	47.20	62.42	-15.22	19.62	Neutral	-	27.58	9.64	0.11	9.87
AV	230.851k	37.95	52.42	-14.47	19.62	Neutral	-	18.33	9.64	0.11	9.87
QP	535.976k	33.49	56.00	-22.51	19.62	Neutral	-	13.87	9.63	0.12	9.87
AV	535.976k	31.93	46.00	-14.07	19.62	Neutral	-	12.31	9.63	0.12	9.87
QP	1.993M	30.71	56.00	-25.29	19.66	Neutral	-	11.05	9.65	0.14	9.87
AV	1.993M	28.80	46.00	-17.20	19.66	Neutral	-	9.14	9.65	0.14	9.87
QP	4.759M	27.46	56.00	-28.54	19.75	Neutral	-	7.71	9.67	0.20	9.88
AV	4.759M	24.72	46.00	-21.28	19.75	Neutral	-	4.97	9.67	0.20	9.88
QP	12.504M	30.54	60.00	-29.46	19.88	Neutral	-	10.66	9.71	0.29	9.88
AV	12.504M	25.86	50.00	-24.14	19.88	Neutral	-	5.98	9.71	0.29	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)	697.5k	1.024M	1M02F1D	683.75k	1.02M

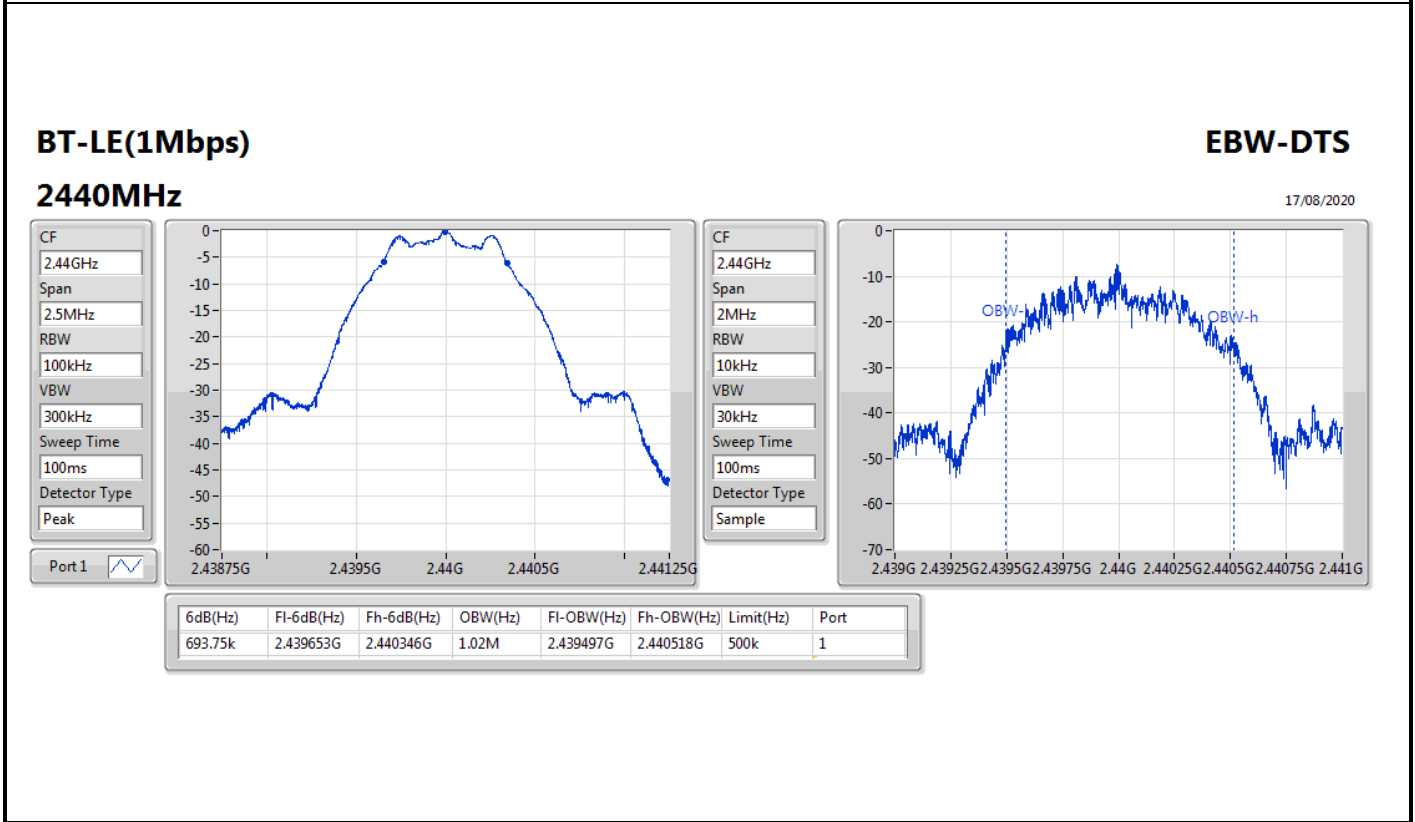
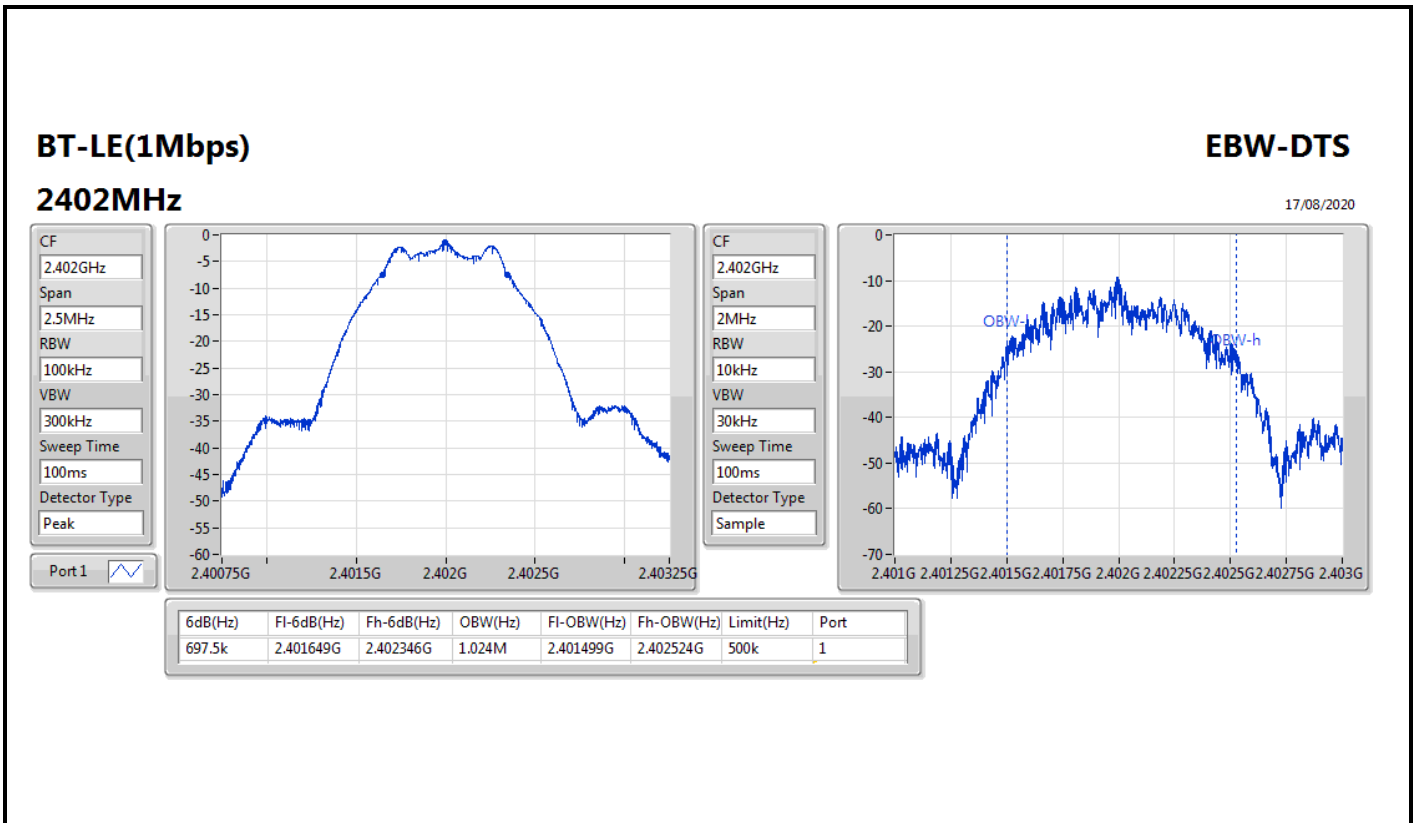
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	697.5k	1.024M
2440MHz	Pass	500k	693.75k	1.02M
2480MHz	Pass	500k	683.75k	1.022M

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

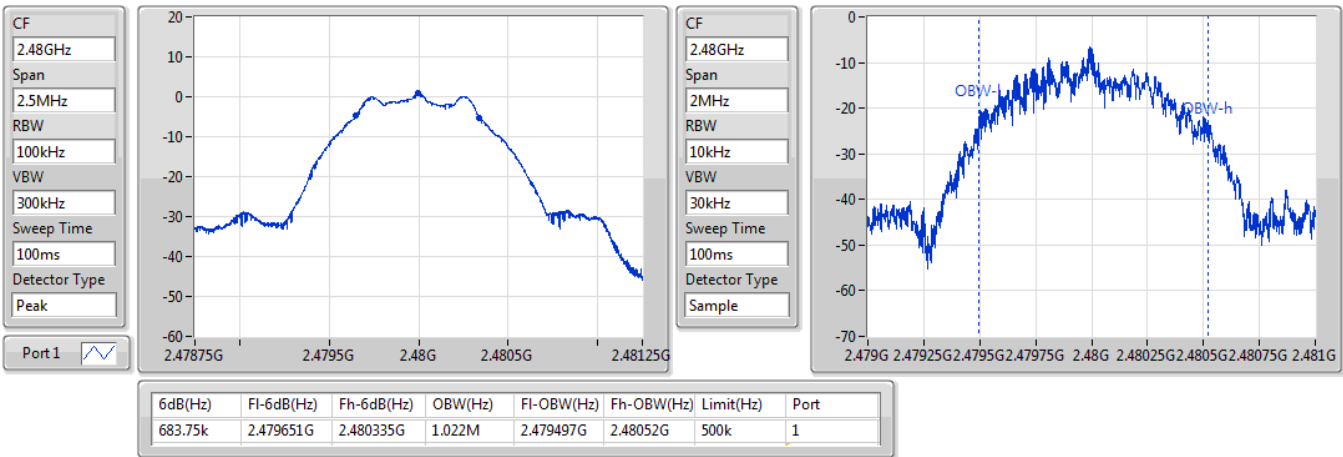


BT-LE(1Mbps)

2480MHz

EBW-DTS

17/08/2020





Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	0.69	0.00117



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.10	-1.45	30.00
2440MHz	Pass	1.10	-0.76	30.00
2480MHz	Pass	1.10	0.69	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-14.43

RBW=3 kHz.

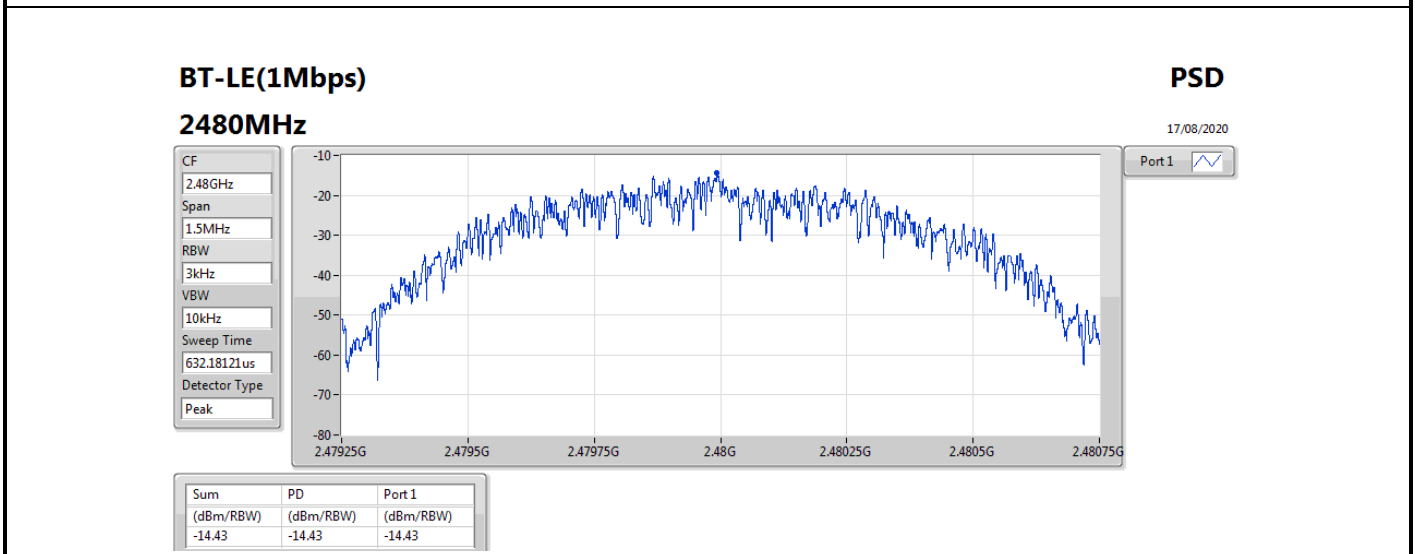
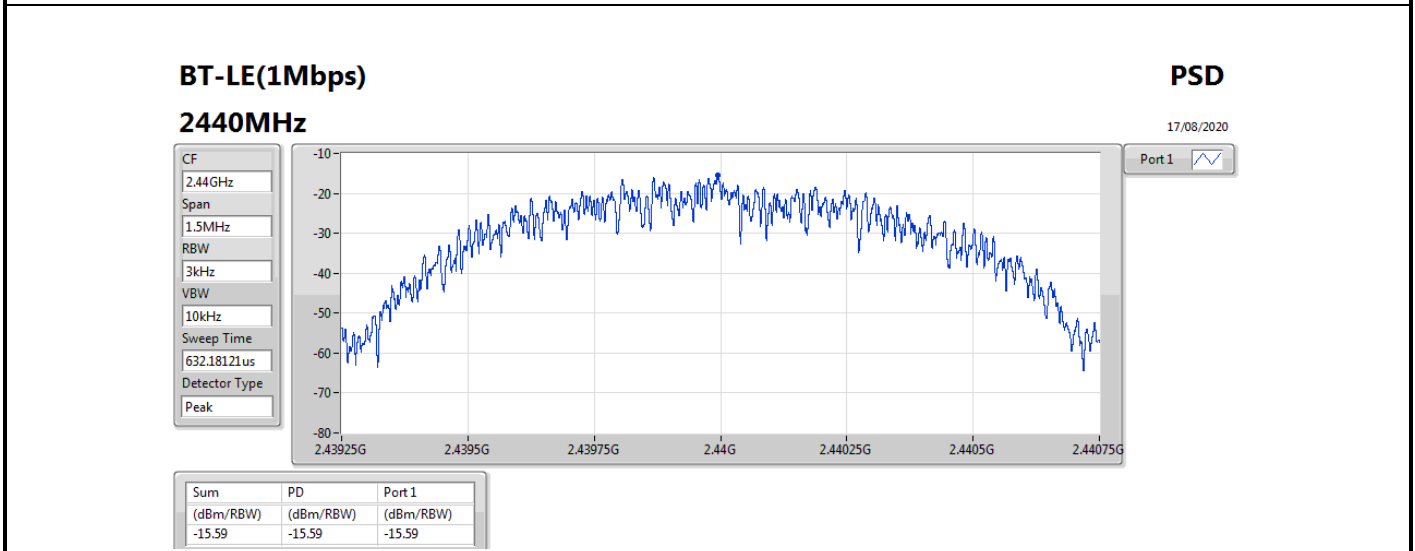
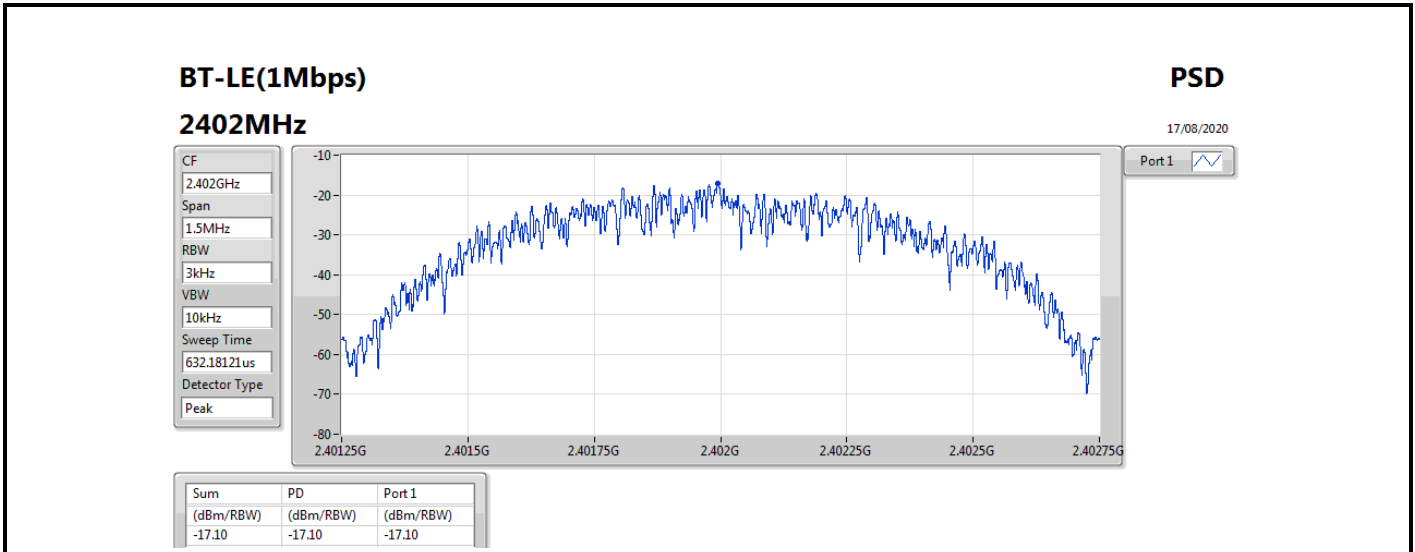


Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.10	-17.10	8.00
2440MHz	Pass	1.10	-15.59	8.00
2480MHz	Pass	1.10	-14.43	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;





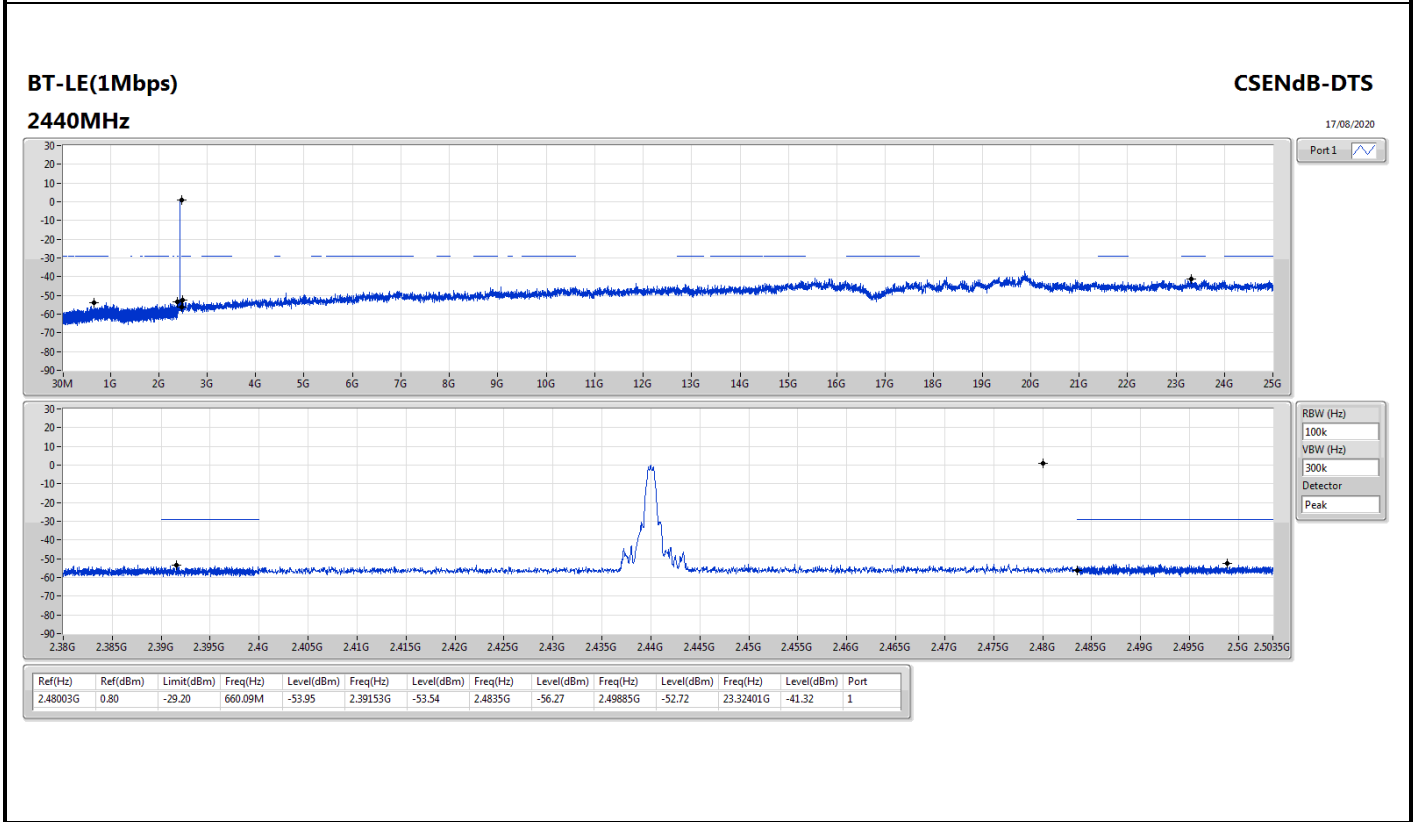
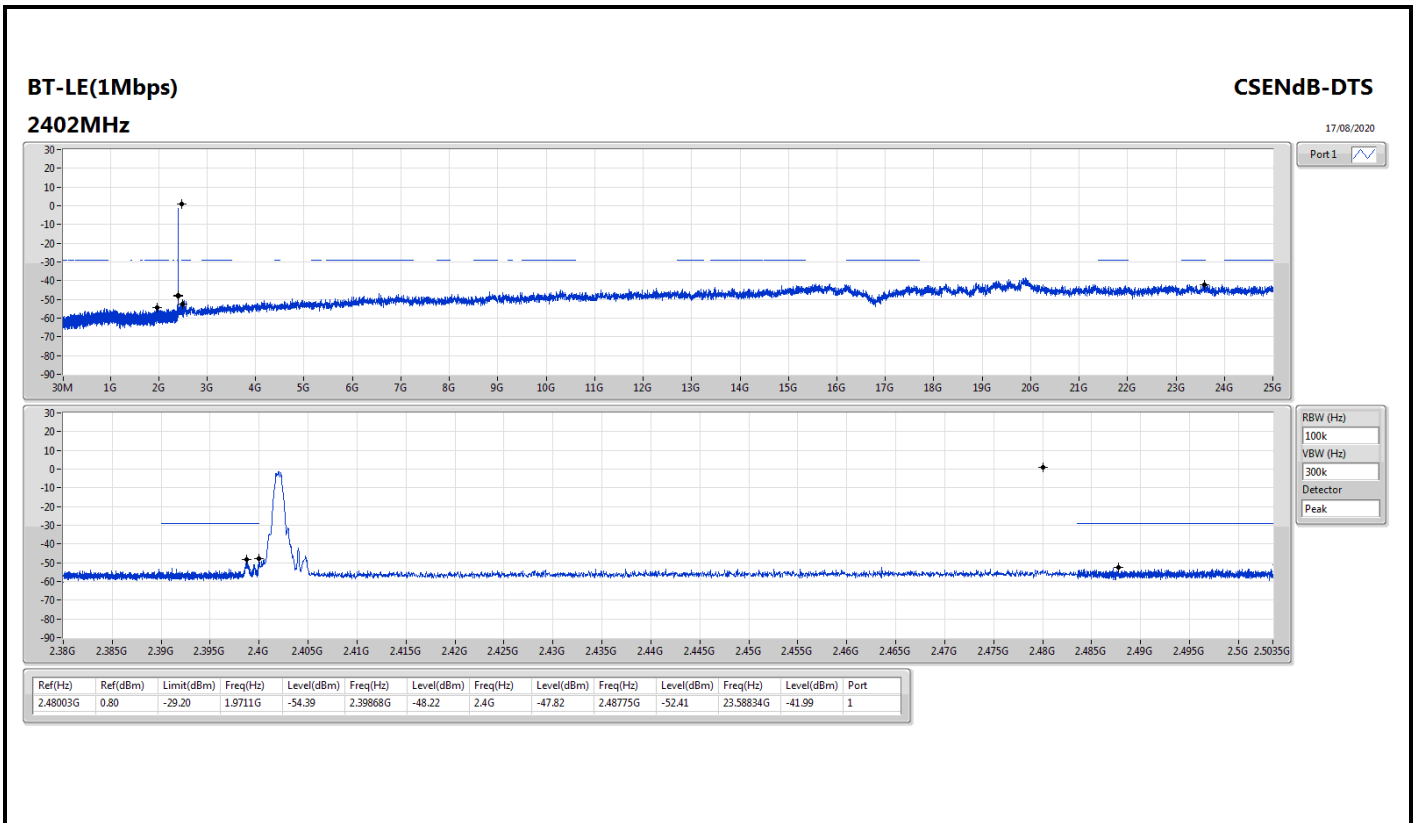
Summary

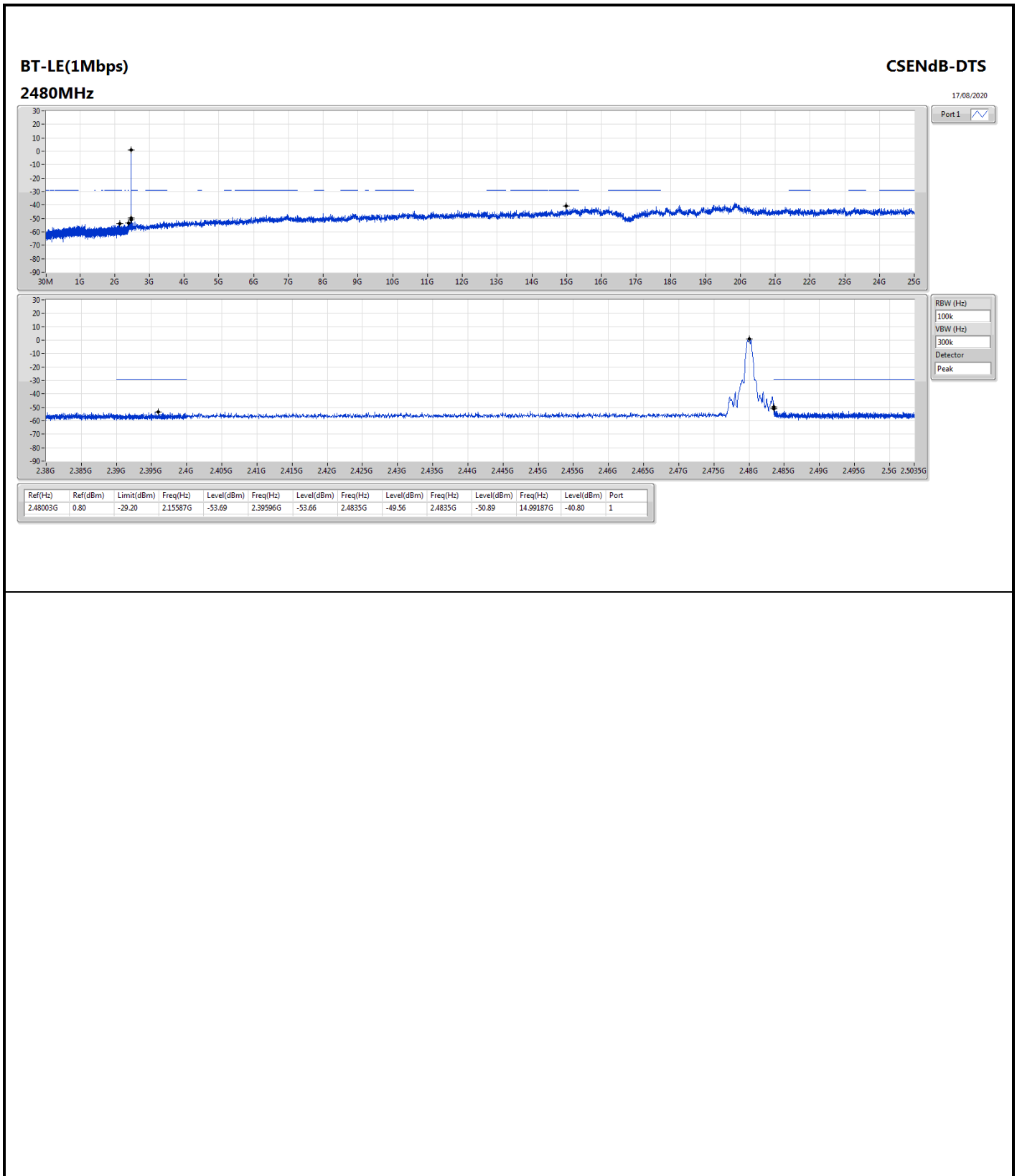
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.48003G	0.80	-29.20	1.9711G	-54.39	2.39868G	-48.22	2.4G	-47.82	2.48775G	-52.41	23.58834G	-41.99	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	2.48003G	0.80	-29.20	1.9711G	-54.39	2.39868G	-48.22	2.4G	-47.82	2.48775G	-52.41	23.58834G	-41.99	1
2440MHz	Pass	2.48003G	0.80	-29.20	660.09M	-53.95	2.39153G	-53.54	2.4835G	-56.27	2.49885G	-52.72	23.32401G	-41.32	1
2480MHz	Pass	2.48003G	0.80	-29.20	2.15587G	-53.69	2.39596G	-53.66	2.4835G	-49.56	2.4835G	-50.89	14.99187G	-40.80	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	30M	31.65	40.00	-8.35	3	Horizontal	0	1.00	-



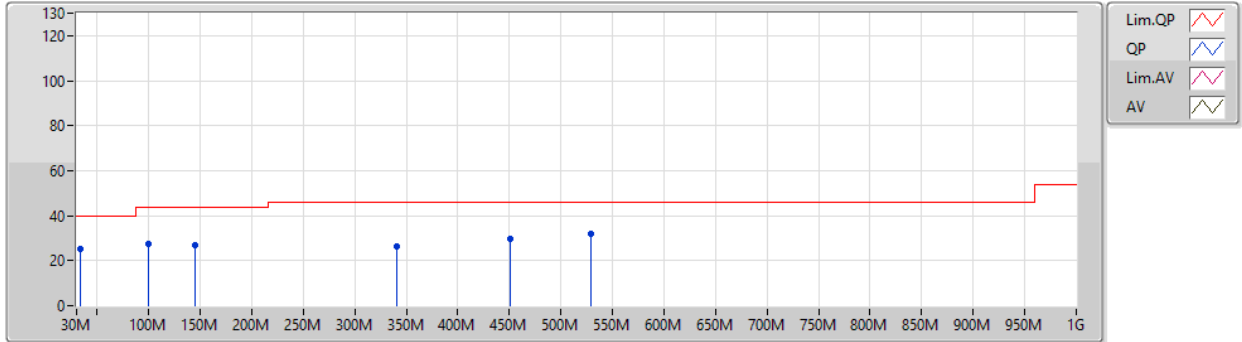
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	33.88M	25.48	40.00	-14.52	3	Vertical	360	1.00	-
2440MHz	Pass	PK	99.84M	27.56	43.50	-15.94	3	Vertical	360	1.00	-
2440MHz	Pass	PK	144.46M	26.74	43.50	-16.76	3	Vertical	360	1.00	-
2440MHz	Pass	PK	340.4M	26.37	46.00	-19.63	3	Vertical	360	1.00	-
2440MHz	Pass	PK	450.98M	29.71	46.00	-16.29	3	Vertical	360	1.00	-
2440MHz	Pass	PK	528.58M	32.07	46.00	-13.93	3	Vertical	360	1.00	-
2440MHz	Pass	PK	30M	31.65	40.00	-8.35	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	99.84M	27.17	43.50	-16.33	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	144.46M	30.51	43.50	-12.99	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	454.86M	31.14	46.00	-14.86	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	503.36M	32.83	46.00	-13.17	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	627.52M	37.05	46.00	-8.95	3	Horizontal	0	1.00	-

BT-LE(1Mbps)

16/08/2020

2440MHz_USB

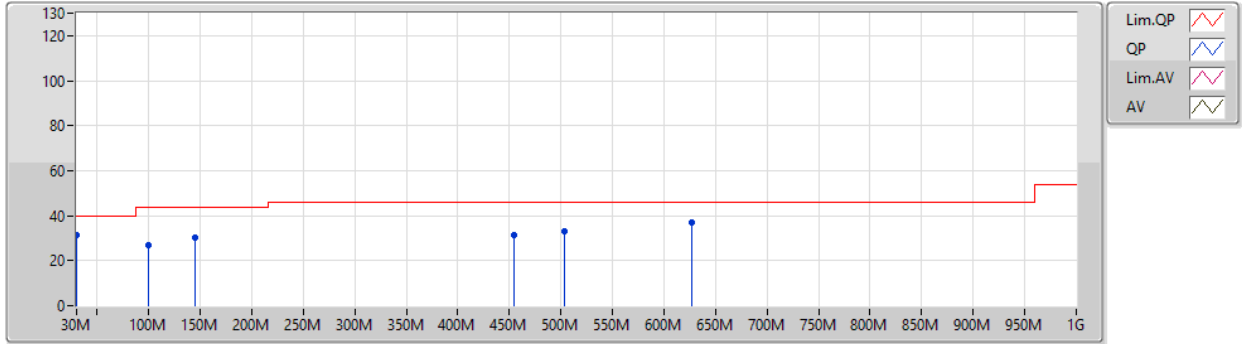


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	33.88M	25.48	40.00	-14.52	-5.66	3	Vertical	360	1.00	-	31.14	21.00	0.90	27.56
PK	99.84M	27.56	43.50	-15.94	-9.86	3	Vertical	360	1.00	-	37.42	15.93	1.60	27.39
PK	144.46M	26.74	43.50	-16.76	-9.56	3	Vertical	360	1.00	-	36.30	15.73	1.92	27.21
PK	340.4M	26.37	46.00	-19.63	-4.69	3	Vertical	360	1.00	-	31.06	19.13	3.06	26.88
PK	450.98M	29.71	46.00	-16.29	-2.29	3	Vertical	360	1.00	-	32.00	21.99	3.41	27.69
PK	528.58M	32.07	46.00	-13.93	-1.24	3	Vertical	360	1.00	-	33.31	22.87	3.81	27.92

BT-LE(1Mbps)

16/08/2020

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	30M	31.65	40.00	-8.35	-3.35	3	Horizontal	0	1.00	-	35.00	23.33	0.90	27.58
PK	99.84M	27.17	43.50	-16.33	-9.86	3	Horizontal	0	1.00	-	37.03	15.93	1.60	27.39
PK	144.46M	30.51	43.50	-12.99	-9.56	3	Horizontal	0	1.00	-	40.07	15.73	1.92	27.21
PK	454.86M	31.14	46.00	-14.86	-2.18	3	Horizontal	0	1.00	-	33.32	22.09	3.43	27.70
PK	503.36M	32.83	46.00	-13.17	-1.61	3	Horizontal	0	1.00	-	34.44	22.49	3.71	27.81
PK	627.52M	37.05	46.00	-8.95	0.03	3	Horizontal	0	1.00	-	37.02	23.88	4.21	28.06



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4835G	52.30	54.00	-1.70	3	Vertical	273	1.14	-



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	2.3526G	48.03	54.00	-5.97	3	Vertical	277	1.14	-
2402MHz	Pass	AV	2.402G	97.95	Inf	-Inf	3	Vertical	277	1.14	-
2402MHz	Pass	PK	2.3782G	59.72	74.00	-14.28	3	Vertical	277	1.14	-
2402MHz	Pass	PK	2.4022G	99.61	Inf	-Inf	3	Vertical	277	1.14	-
2402MHz	Pass	AV	2.3546G	48.01	54.00	-5.99	3	Horizontal	247	1.12	-
2402MHz	Pass	AV	2.402G	94.37	Inf	-Inf	3	Horizontal	247	1.12	-
2402MHz	Pass	PK	2.3598G	58.85	74.00	-15.15	3	Horizontal	247	1.12	-
2402MHz	Pass	PK	2.4022G	96.03	Inf	-Inf	3	Horizontal	247	1.12	-
2402MHz	Pass	AV	4.80391G	42.09	54.00	-11.91	3	Vertical	31	1.16	-
2402MHz	Pass	PK	4.80397G	50.66	74.00	-23.34	3	Vertical	31	1.16	-
2402MHz	Pass	AV	4.8038G	40.73	54.00	-13.27	3	Horizontal	327	1.50	-
2402MHz	Pass	PK	4.80364G	49.53	74.00	-24.47	3	Horizontal	327	1.50	-
2440MHz	Pass	AV	2.3444G	48.11	54.00	-5.89	3	Vertical	273	1.01	-
2440MHz	Pass	AV	2.44G	99.08	Inf	-Inf	3	Vertical	273	1.01	-
2440MHz	Pass	AV	2.4952G	48.53	54.00	-5.47	3	Vertical	273	1.01	-
2440MHz	Pass	PK	2.3532G	58.83	74.00	-15.17	3	Vertical	273	1.01	-
2440MHz	Pass	PK	2.44G	100.65	Inf	-Inf	3	Vertical	273	1.01	-
2440MHz	Pass	PK	2.486G	59.37	74.00	-14.63	3	Vertical	273	1.01	-
2440MHz	Pass	AV	2.3564G	48.01	54.00	-5.99	3	Horizontal	186	1.01	-
2440MHz	Pass	AV	2.44G	94.97	Inf	-Inf	3	Horizontal	186	1.01	-
2440MHz	Pass	AV	2.4932G	48.52	54.00	-5.48	3	Horizontal	186	1.01	-
2440MHz	Pass	PK	2.3652G	59.21	74.00	-14.79	3	Horizontal	186	1.01	-
2440MHz	Pass	PK	2.44G	96.54	Inf	-Inf	3	Horizontal	186	1.01	-
2440MHz	Pass	PK	2.4904G	58.65	74.00	-15.35	3	Horizontal	186	1.01	-
2440MHz	Pass	AV	4.87988G	43.49	54.00	-10.51	3	Vertical	33	1.02	-
2440MHz	Pass	AV	7.31928G	45.24	54.00	-8.76	3	Vertical	350	2.51	-
2440MHz	Pass	PK	4.87953G	51.33	74.00	-22.67	3	Vertical	33	1.02	-
2440MHz	Pass	PK	7.3193G	55.51	74.00	-18.49	3	Vertical	350	2.51	-
2440MHz	Pass	AV	4.87986G	41.70	54.00	-12.30	3	Horizontal	28	1.24	-
2440MHz	Pass	AV	7.31946G	46.42	54.00	-7.58	3	Horizontal	190	1.14	-
2440MHz	Pass	PK	4.87953G	49.90	74.00	-24.10	3	Horizontal	28	1.24	-
2440MHz	Pass	PK	7.3192G	56.27	74.00	-17.73	3	Horizontal	190	1.14	-
2480MHz	Pass	AV	2.48G	100.32	Inf	-Inf	3	Vertical	273	1.14	-
2480MHz	Pass	AV	2.4835G	52.30	54.00	-1.70	3	Vertical	273	1.14	-
2480MHz	Pass	PK	2.4798G	101.87	Inf	-Inf	3	Vertical	273	1.14	-
2480MHz	Pass	PK	2.4835G	62.20	74.00	-11.80	3	Vertical	273	1.14	-
2480MHz	Pass	AV	2.48G	96.58	Inf	-Inf	3	Horizontal	193	1.19	-
2480MHz	Pass	AV	2.4835G	50.80	54.00	-3.20	3	Horizontal	193	1.19	-
2480MHz	Pass	PK	2.4798G	98.10	Inf	-Inf	3	Horizontal	193	1.19	-
2480MHz	Pass	PK	2.4836G	61.01	74.00	-12.99	3	Horizontal	193	1.19	-
2480MHz	Pass	AV	4.95993G	42.88	54.00	-11.12	3	Vertical	33	1.39	-
2480MHz	Pass	AV	7.4393G	47.89	54.00	-6.11	3	Vertical	355	1.07	-
2480MHz	Pass	PK	4.9594G	50.90	74.00	-23.10	3	Vertical	33	1.39	-
2480MHz	Pass	PK	7.44077G	56.96	74.00	-17.04	3	Vertical	355	1.07	-
2480MHz	Pass	AV	4.95993G	42.92	54.00	-11.08	3	Horizontal	58	1.34	-
2480MHz	Pass	AV	7.43928G	47.98	54.00	-6.02	3	Horizontal	214	1.10	-
2480MHz	Pass	PK	4.95942G	51.13	74.00	-22.87	3	Horizontal	58	1.34	-



RSE TX above 1GHz

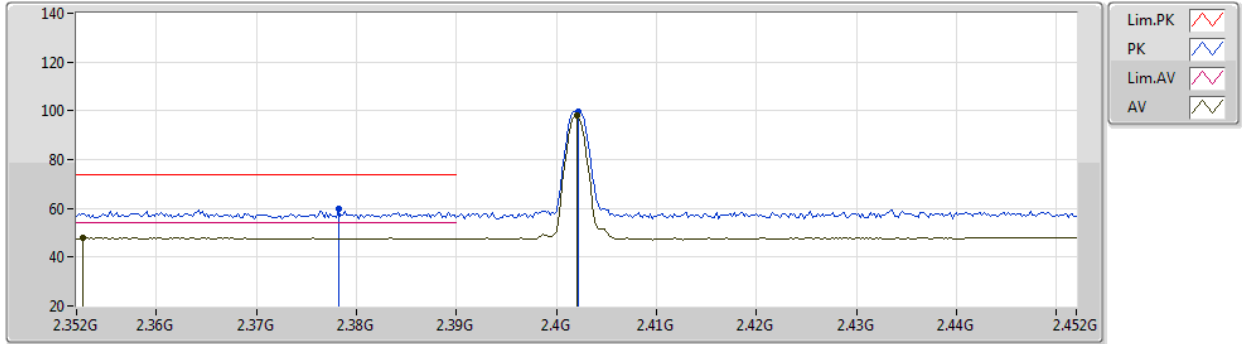
Appendix F.2

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz	Pass	PK	7.44083G	56.99	74.00	-17.01	3	Horizontal	214	1.10	-

BT-LE(1Mbps)

16/08/2020

2402MHz_TX

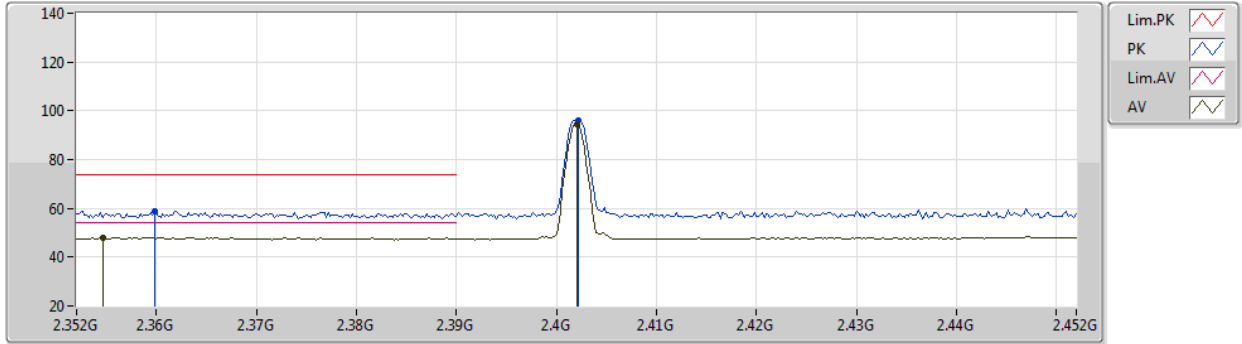


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3526G	48.03	54.00	-5.97	31.94	3	Vertical	277	1.14	-	16.09	27.69	4.25	-
AV	2.402G	97.95	Inf	-Inf	31.90	3	Vertical	277	1.14	-	66.05	27.60	4.30	-
PK	2.3782G	59.72	74.00	-14.28	31.92	3	Vertical	277	1.14	-	27.80	27.64	4.28	-
PK	2.4022G	99.61	Inf	-Inf	31.90	3	Vertical	277	1.14	-	67.71	27.60	4.30	-

BT-LE(1Mbps)

16/08/2020

2402MHz_TX

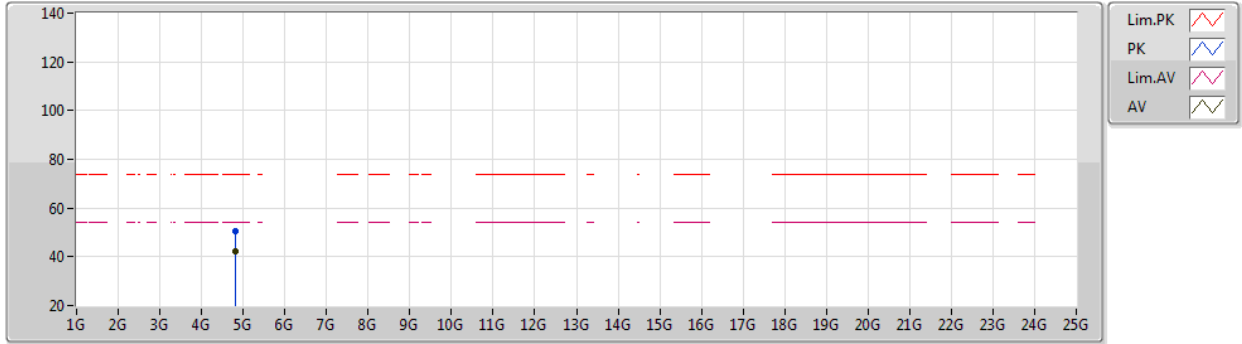


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3546G	48.01	54.00	-5.99	31.94	3	Horizontal	247	1.12	-	16.07	27.69	4.25	-
AV	2.402G	94.37	Inf	-Inf	31.90	3	Horizontal	247	1.12	-	62.47	27.60	4.30	-
PK	2.3598G	58.85	74.00	-15.15	31.94	3	Horizontal	247	1.12	-	26.91	27.68	4.26	-
PK	2.4022G	96.03	Inf	-Inf	31.90	3	Horizontal	247	1.12	-	64.13	27.60	4.30	-

BT-LE(1Mbps)

16/08/2020

2402MHz_TX



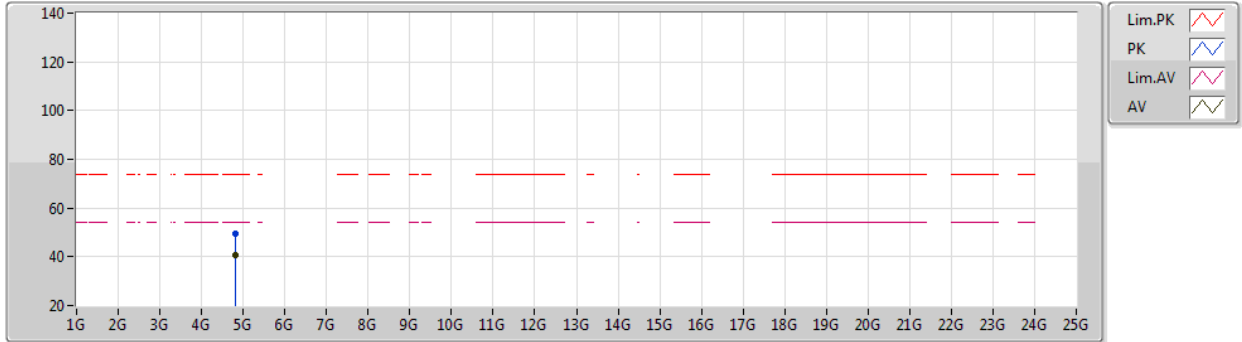
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80391G	42.09	54.00	-11.91	8.19	3	Vertical	31	1.16	-	33.90	31.10	6.50	29.41
PK	4.80397G	50.66	74.00	-23.34	8.19	3	Vertical	31	1.16	-	42.47	31.10	6.50	29.41



BT-LE(1Mbps)

16/08/2020

2402MHz_TX

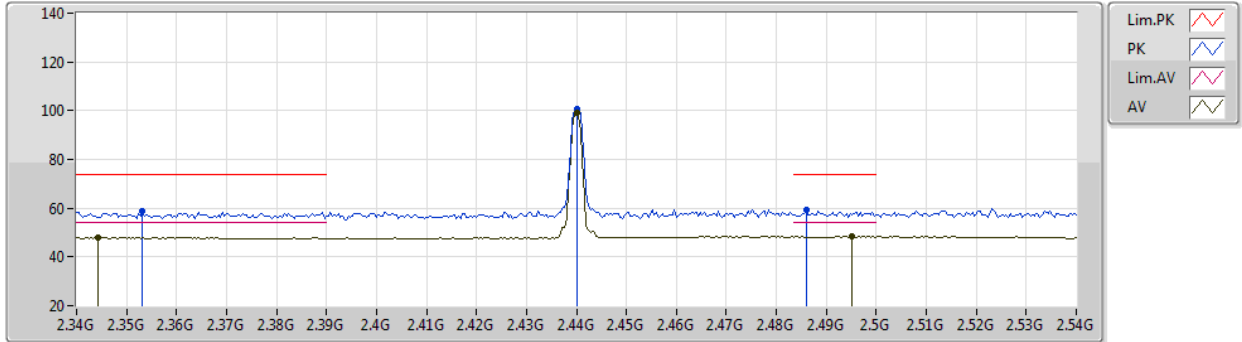


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.8038G	40.73	54.00	-13.27	8.19	3	Horizontal	327	1.50	-	32.54	31.10	6.50	29.41
PK	4.80364G	49.53	74.00	-24.47	8.19	3	Horizontal	327	1.50	-	41.34	31.10	6.50	29.41

BT-LE(1Mbps)

16/08/2020

2440MHz_TX

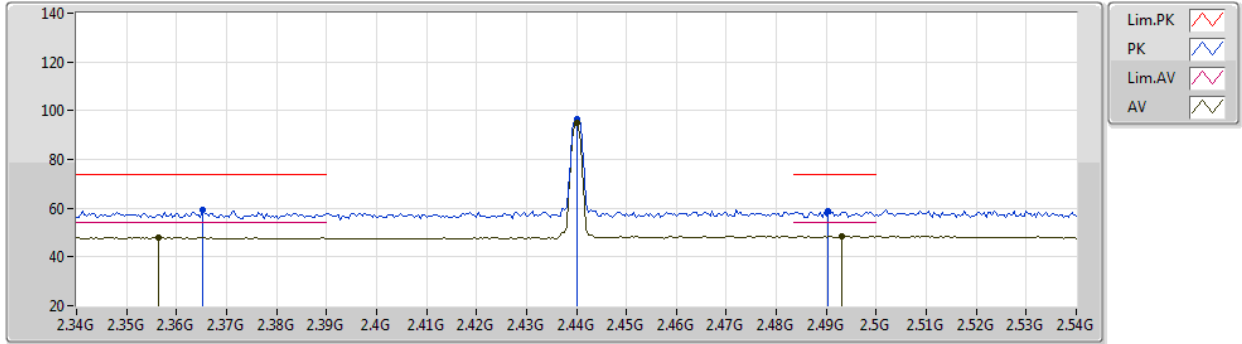


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3444G	48.11	54.00	-5.89	31.96	3	Vertical	273	1.01	-	16.15	27.72	4.24	-
AV	2.44G	99.08	Inf	-Inf	31.86	3	Vertical	273	1.01	-	67.22	27.52	4.34	-
AV	2.4952G	48.53	54.00	-5.47	31.81	3	Vertical	273	1.01	-	16.72	27.41	4.40	-
PK	2.3532G	58.83	74.00	-15.17	31.94	3	Vertical	273	1.01	-	26.89	27.69	4.25	-
PK	2.44G	100.65	Inf	-Inf	31.86	3	Vertical	273	1.01	-	68.79	27.52	4.34	-
PK	2.486G	59.37	74.00	-14.63	31.82	3	Vertical	273	1.01	-	27.55	27.43	4.39	-

BT-LE(1Mbps)

16/08/2020

2440MHz_TX

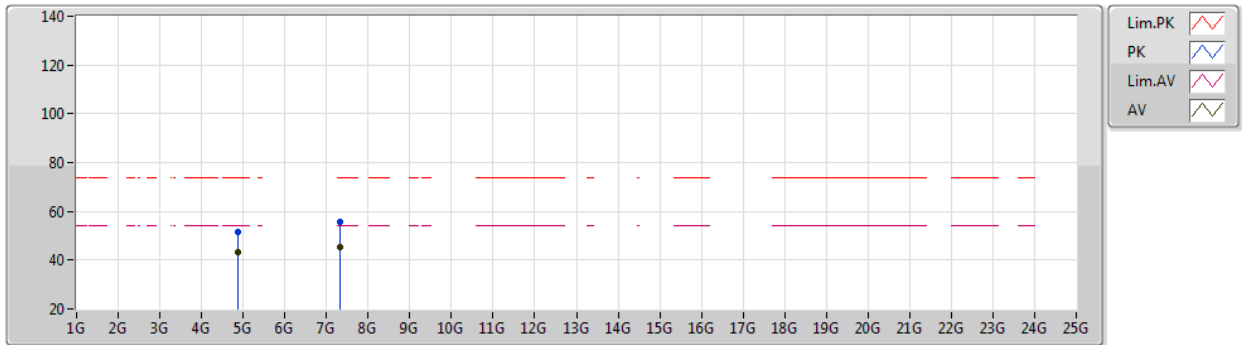


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3564G	48.01	54.00	-5.99	31.95	3	Horizontal	186	1.01	-	16.06	27.69	4.26	-
AV	2.44G	94.97	Inf	-Inf	31.86	3	Horizontal	186	1.01	-	63.11	27.52	4.34	-
AV	2.4932G	48.52	54.00	-5.48	31.80	3	Horizontal	186	1.01	-	16.72	27.41	4.39	-
PK	2.3652G	59.21	74.00	-14.79	31.94	3	Horizontal	186	1.01	-	27.27	27.67	4.27	-
PK	2.44G	96.54	Inf	-Inf	31.86	3	Horizontal	186	1.01	-	64.68	27.52	4.34	-
PK	2.4904G	58.65	74.00	-15.35	31.81	3	Horizontal	186	1.01	-	26.84	27.42	4.39	-

BT-LE(1Mbps)

16/08/2020

2440MHz_TX

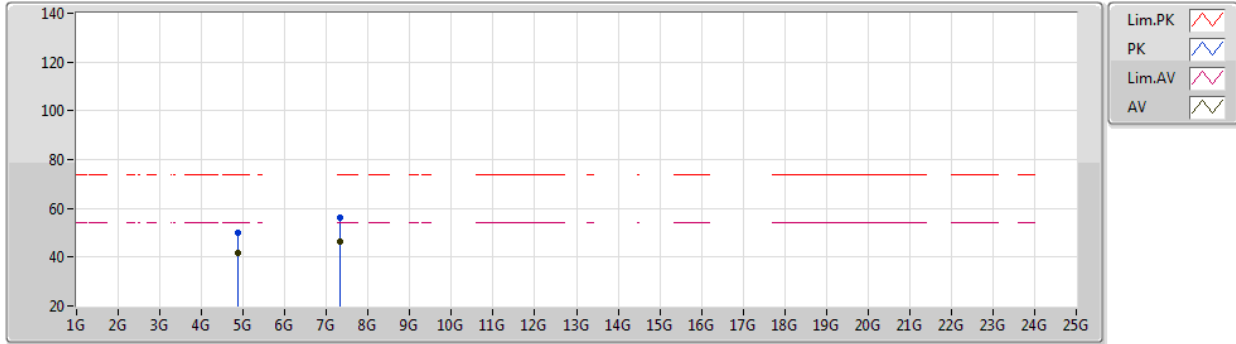


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87988G	43.49	54.00	-10.51	8.30	3	Vertical	33	1.02	-	35.19	31.10	6.58	29.38
AV	7.31928G	45.24	54.00	-8.76	13.58	3	Vertical	350	2.51	-	31.66	36.34	7.60	30.36
PK	4.87953G	51.33	74.00	-22.67	8.30	3	Vertical	33	1.02	-	43.03	31.10	6.58	29.38
PK	7.3193G	55.51	74.00	-18.49	13.58	3	Vertical	350	2.51	-	41.93	36.34	7.60	30.36

BT-LE(1Mbps)

16/08/2020

2440MHz_TX

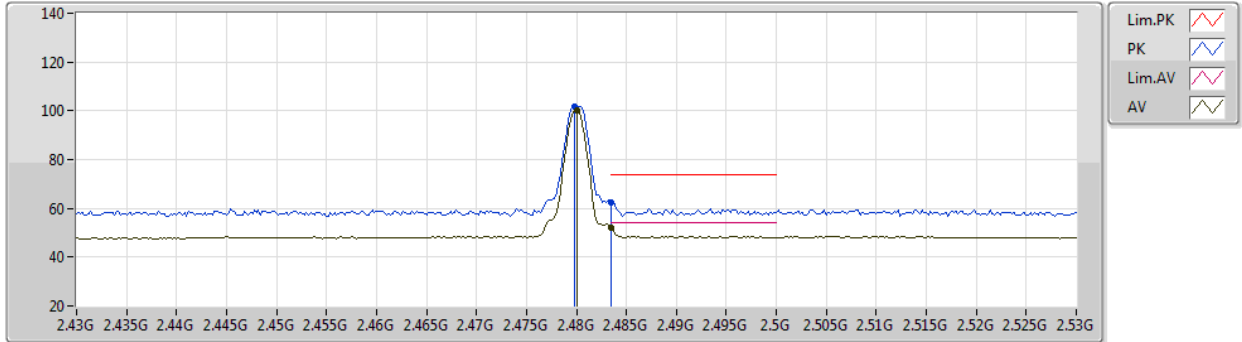


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87986G	41.70	54.00	-12.30	8.30	3	Horizontal	28	1.24	-	33.40	31.10	6.58	29.38
AV	7.31946G	46.42	54.00	-7.58	13.58	3	Horizontal	190	1.14	-	32.84	36.34	7.60	30.36
PK	4.87953G	49.90	74.00	-24.10	8.30	3	Horizontal	28	1.24	-	41.60	31.10	6.58	29.38
PK	7.3192G	56.27	74.00	-17.73	13.58	3	Horizontal	190	1.14	-	42.69	36.34	7.60	30.36

BT-LE(1Mbps)

16/08/2020

2480MHz_TX

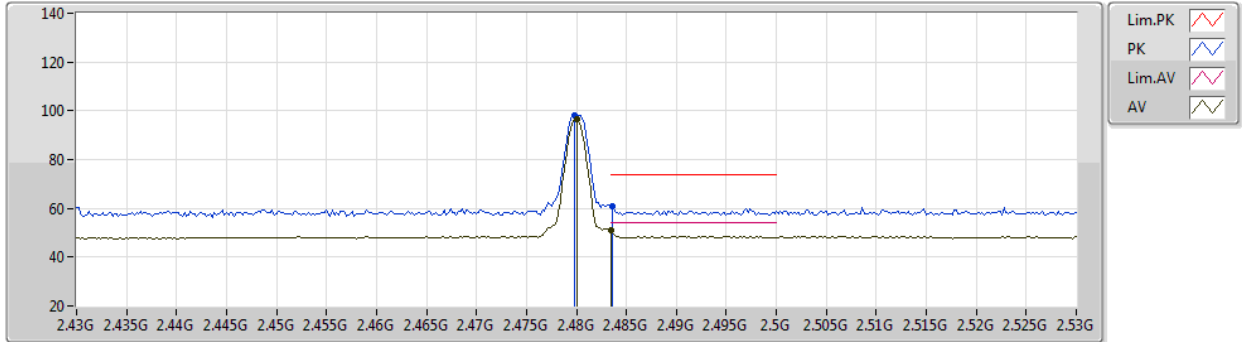


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	100.32	Inf	-Inf	31.82	3	Vertical	273	1.14	-	68.50	27.44	4.38	-
AV	2.4835G	52.30	54.00	-1.70	31.81	3	Vertical	273	1.14	-	20.49	27.43	4.38	-
PK	2.4798G	101.87	Inf	-Inf	31.82	3	Vertical	273	1.14	-	70.05	27.44	4.38	-
PK	2.4835G	62.20	74.00	-11.80	31.81	3	Vertical	273	1.14	-	30.39	27.43	4.38	-

BT-LE(1Mbps)

16/08/2020

2480MHz_TX

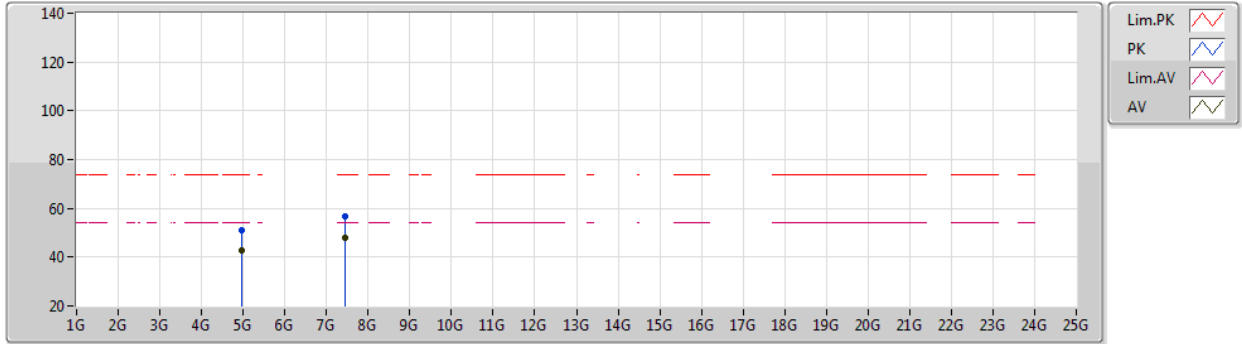


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	96.58	Inf	-Inf	31.82	3	Horizontal	193	1.19	-	64.76	27.44	4.38	-
AV	2.4835G	50.80	54.00	-3.20	31.81	3	Horizontal	193	1.19	-	18.99	27.43	4.38	-
PK	2.4798G	98.10	Inf	-Inf	31.82	3	Horizontal	193	1.19	-	66.28	27.44	4.38	-
PK	2.4836G	61.01	74.00	-12.99	31.81	3	Horizontal	193	1.19	-	29.20	27.43	4.38	-

BT-LE(1Mbps)

16/08/2020

2480MHz_TX



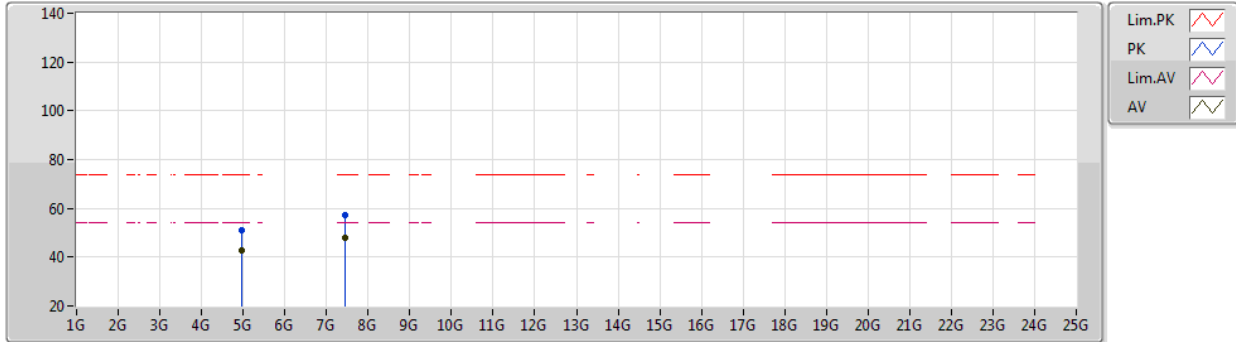
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AV	4.95993G	42.88	54.00	-11.12	8.52	3	Vertical	33	1.39	-	34.36	31.20	6.66	29.34
AV	7.43993G	47.89	54.00	-6.11	13.41	3	Vertical	355	1.07	-	34.48	36.24	7.64	30.47
PK	4.9594G	50.90	74.00	-23.10	8.52	3	Vertical	33	1.39	-	42.38	31.20	6.66	29.34
PK	7.44077G	56.96	74.00	-17.04	13.41	3	Vertical	355	1.07	-	43.55	36.24	7.64	30.47



BT-LE(1Mbps)

16/08/2020

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	4.95993G	42.92	54.00	-11.08	8.52	3	Horizontal	58	1.34	-	34.40	31.20	6.66	29.34
AV	7.43928G	47.98	54.00	-6.02	13.41	3	Horizontal	214	1.10	-	34.57	36.24	7.64	30.47
PK	4.95942G	51.13	74.00	-22.87	8.52	3	Horizontal	58	1.34	-	42.61	31.20	6.66	29.34
PK	7.44083G	56.99	74.00	-17.01	13.41	3	Horizontal	214	1.10	-	43.58	36.24	7.64	30.47