

NCC Test Report

Equipment : Spotlight Cam Mount
Brand Name : RING
Model Name : 5L5C4T
Applicant : 環安智控股份有限公司
台北市內湖區堤頂大道二段 179 號 4 樓
Manufacturer : 群光電子股份有限公司
台灣新北市三重區光復路二段 69 號
Standard : LP0002 Section 4.10 (2020-07-01)

The product was received on May 31, 2019, and testing was started from Jun. 08, 2019 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 variant 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	4.10.1.4	Antenna Requirement	PASS	-
3.1	3.3	AC Power-line Conducted Emissions	PASS	Refer as 1.1.6
3.2	4.10.1.6	DTS Bandwidth	PASS	Refer as 1.1.6
3.3	4.10.1.2	Maximum Conducted Output Power	PASS	Refer as 1.1.6
3.4	4.10.1.6	Power Spectral Density	PASS	Refer as 1.1.6
3.5	4.10.1.5	Emissions in Non-restricted Frequency Bands	PASS	Refer as 1.1.6
3.6	4.10.1.5	Emissions in Restricted Frequency Bands	PASS	Refer as 1.1.6
3.7	3.9	Receiver Radiated Unwanted Emissions	PASS	Refer as 1.1.6

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: Michelle Tsai

1 General Description

1.1 Information

1.1.1 RF General Information

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

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

Note:

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

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	WGT	Ant 1	PIFA	I-PEX
2	WGT	Ant 2	PIFA	I-PEX
3	Aristotle	Lora Ant	PIFA	I-PEX

Ant.	Port	Gain (dBi)		
		2.4G	BT	LoRa
1	2	1.06	-	-
2	1	1.27	1.06	-
3	1	-	-	0.73

Note 1: The EUT has three antennas.

For 2.4GHz function:

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

Support diversity function and tested on each single chain.

For IEEE 802.11 n (HT20) mode (2TX/2RX)

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

For BT function:

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

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

For LoRa function:

For LoRa mode (1TX/1RX)

Ant. 3 (port 1) could transmit/receive.

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From Switching Power Supply
EUT Function	☐ Point-to-multipoint ☒ Point-to-point
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device)
	Combined Equipment - Brand Name / Model No.: ...
☐	Plug-in radio (EUT intended for a variety of host systems)
	Host System - Brand Name / Model No.: ...
☐	Other:

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-LE(1Mbps)	0.647	1.89	404.375u	3k

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

1.1.5 Table for Multiple Listing

The model names in the following table are all refer to the identical product.

Model Name	Sample	Description
5L5C4T	1	All the samples are identical, the difference is appearance color.
	2	

1.1.6 Table for Existing Change

This product is an extension of original one reported under Sporton project number: TR953031-04AL

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking
The equipment name was added. (Spotlight Cam Mount).	The conducted power was verified, and the deviation between the result of verification and original power is within 2dB, therefore test results refer to the original report.

1.2 Testing Applied Standards

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

- ♦ LP0002 (2020-07-01)
- ♦ ANSI C63.10-2013
- ♦ ANSI C63.4-2014

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	
☐	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	
☐	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 Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	24.8~25.5°C / 62~64%	22/Aug/2020
RF Conducted	TH06-HY	Gary	23.2~24.6°C / 62~68.5%	10/Jun/2019
Radiated (Below 1GHz)	03CH03-HY	Edward	22.1~24.8°C / 58~64%	21/Aug/2020~24/Aug/2020
Radiated (Above 1GHz)	03CH01-HY	Justin	21.8~23.2°C / 52.7~53.5%	08/Jun/2019~24/Jun/2019
	03CH03-HY	Streak	21.3~22.4°C / 51.2~52.6%	

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)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

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

2.2 Test Channel Mode

Test Software Version	Microsoft Windows Version 6.1
-----------------------	-------------------------------

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/CRX
1	Switching Power Supply Mode (TX)
2	Switching Power Supply Mode (RX)

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 Receiver Radiated Unwanted Emissions
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/CRX
1	Switching Power Supply Mode
Operating Mode > 1GHz	CTX/CRX
Orthogonal Planes of EUT	Y Plane
	

2.4 Accessories

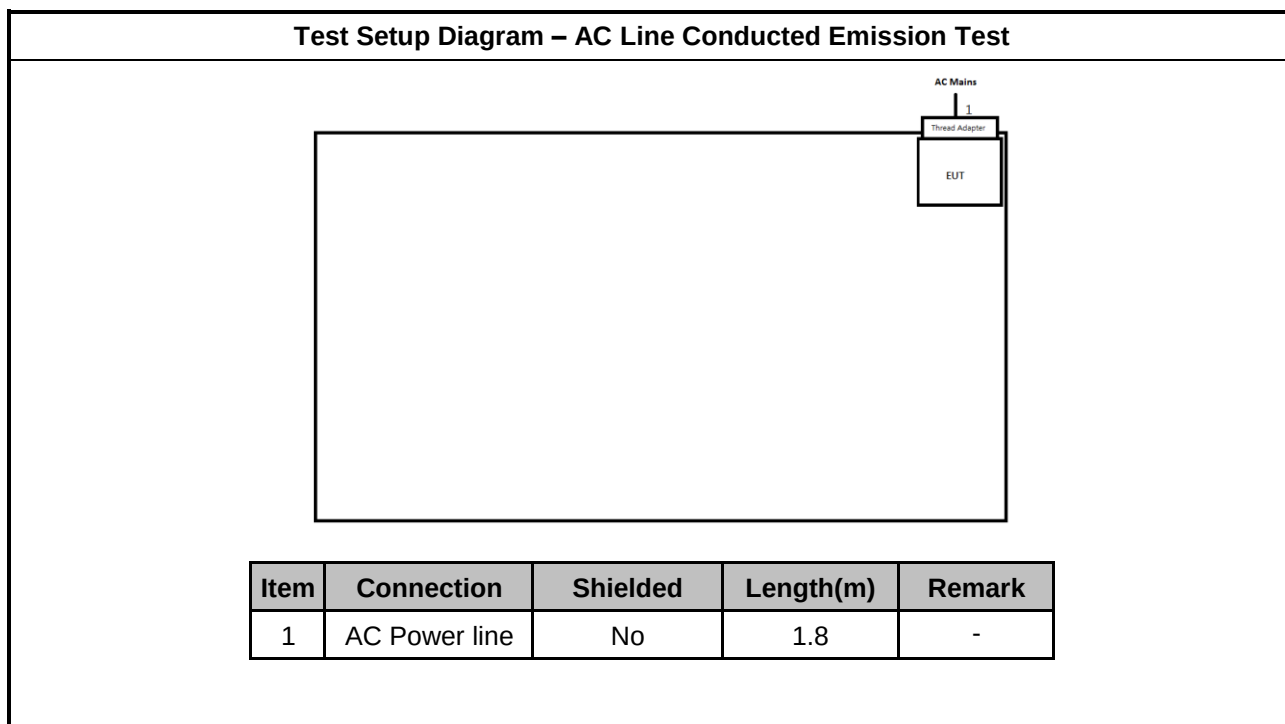
Accessories				
AC Power Cord	Brand Name	Ring	Model Name	UE-251
	Power Cord	6.1 meter, Non-shielded cable, w/o ferrite core		
Thread Adaptor	Brand Name	Ring	Model Name	Hedge Hog

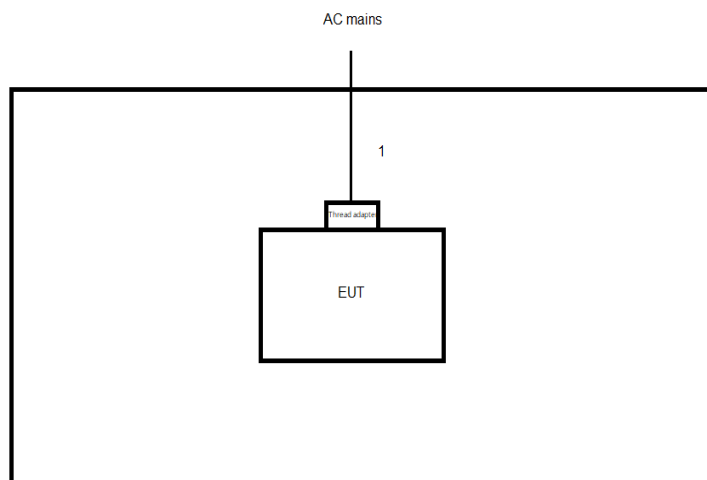
Reminder: Regarding to more detail and other information, please refer to user manual.

2.5 Support Equipment

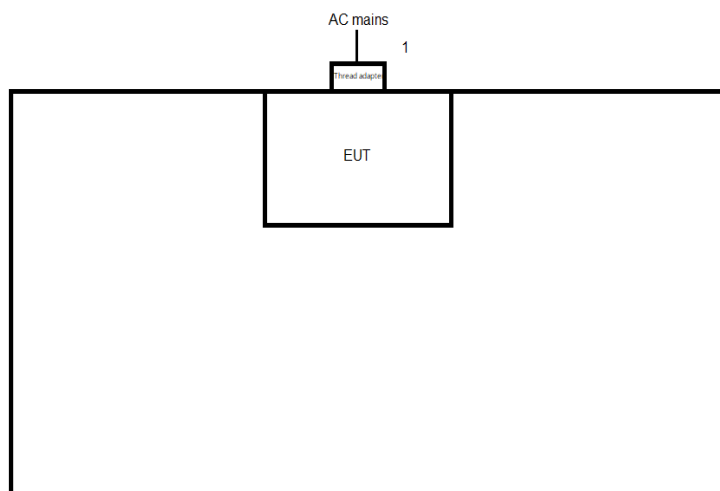
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for Notebook	DELL	HA65NM130	DoC

2.6 Test Setup Diagram

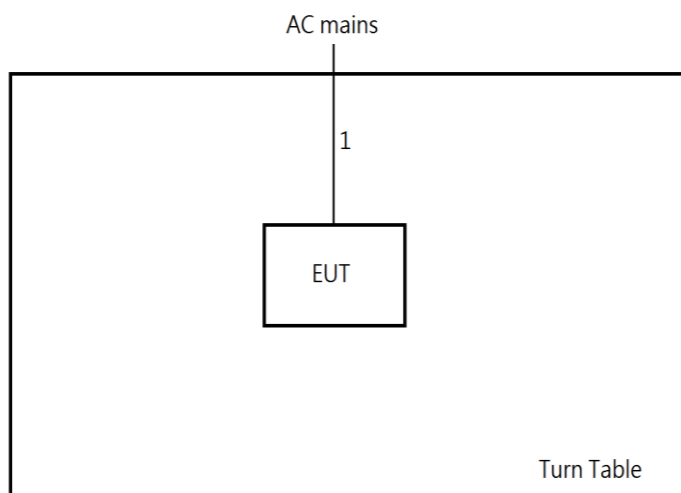


Test Setup Diagram - Radiated Test (Below 1GHz) TX


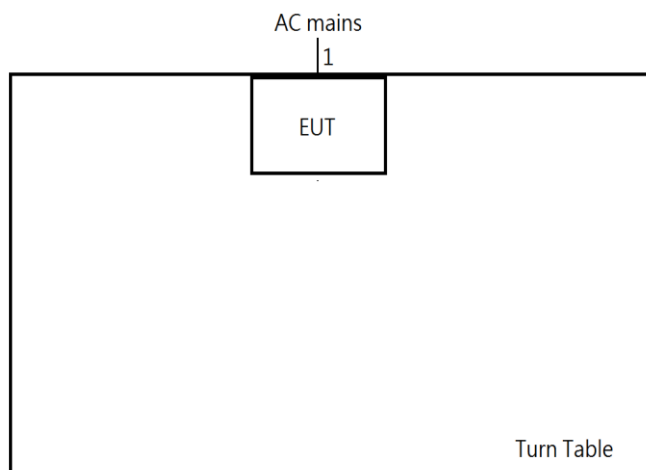
Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.8	-

Test Setup Diagram - Radiated Test (Below 1GHz) RX


Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.8	-

Test Setup Diagram - Radiated Test (Above 1GHz) TX


Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	6.1	-

Test Setup Diagram - Radiated Test (Above 1GHz) RX


Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	6.1	-

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

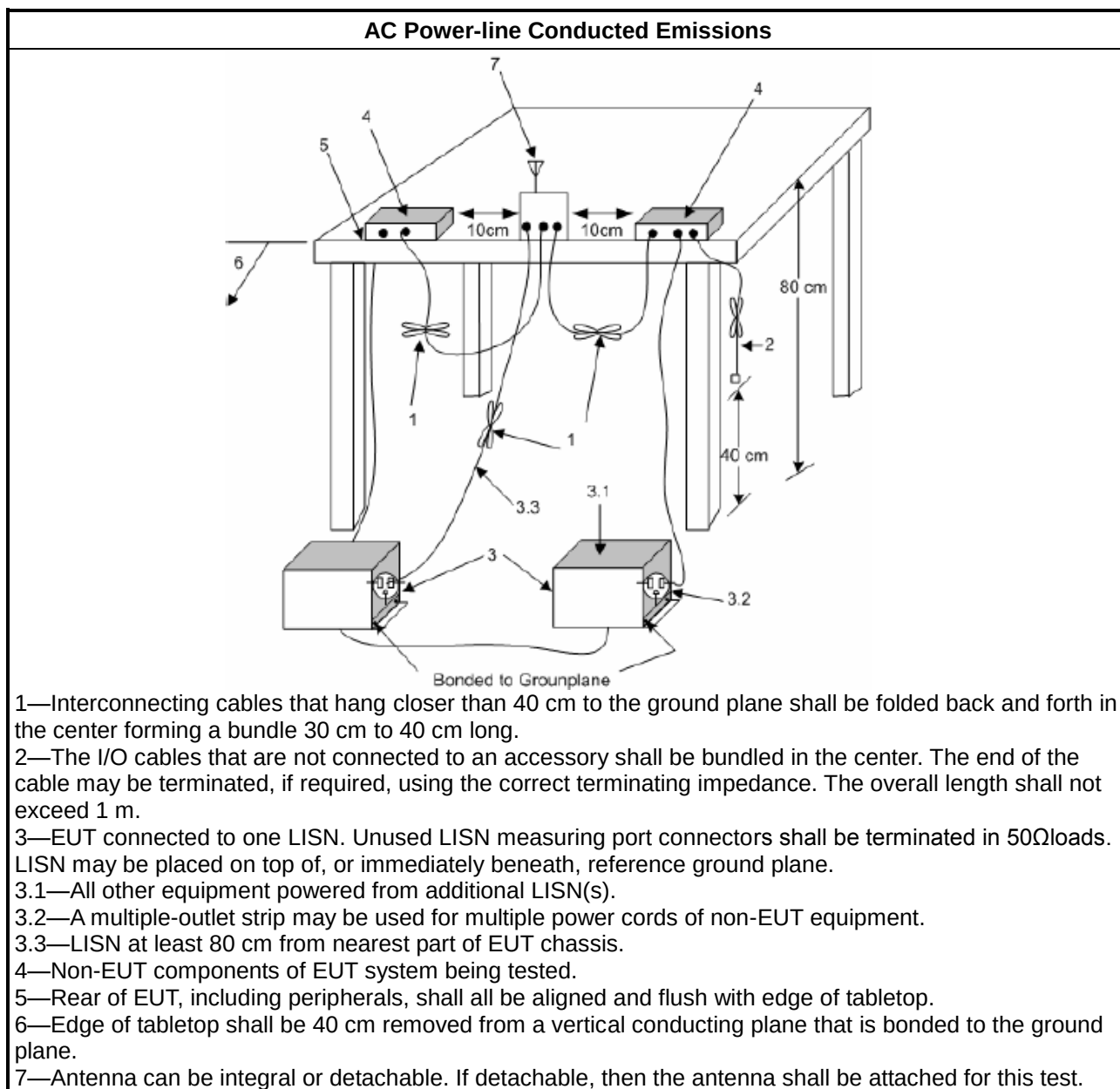
Test Method
▪ Refer as ANSI C63.10-2013, clause 6.2 foray power-line conducted emissions.

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.

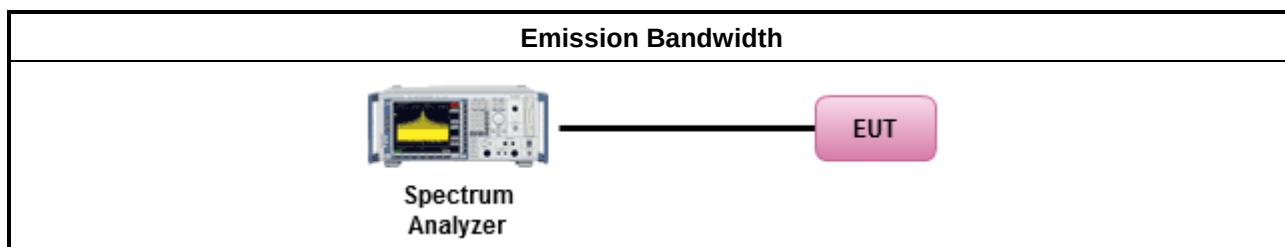
3.2.2 Measuring Instruments

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.	

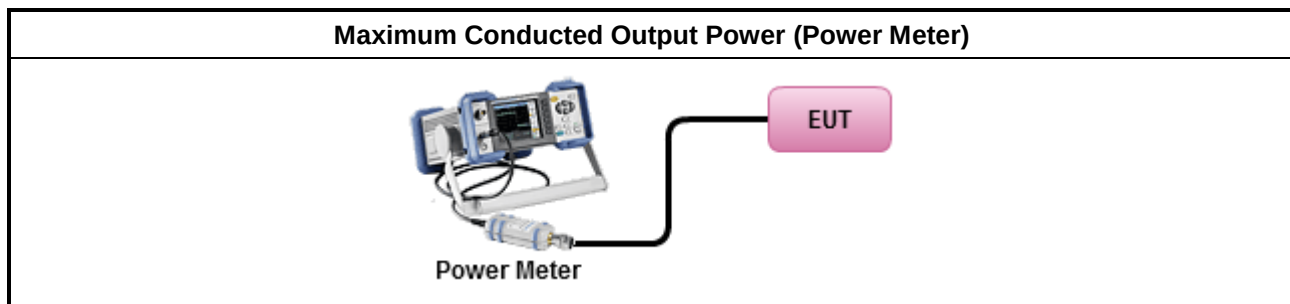
3.3.2 Measuring Instruments

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

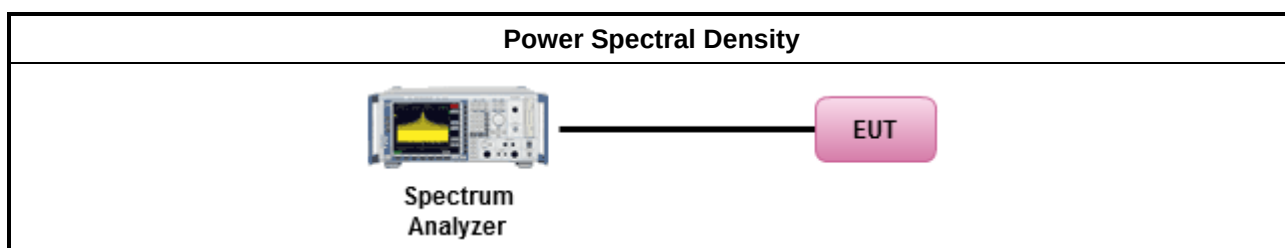
3.4.2 Measuring Instruments

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) Method PKPSD.
▪	For conducted measurement.
▪	If The EUT supports multiple transmit chains using options given below:
▪	Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

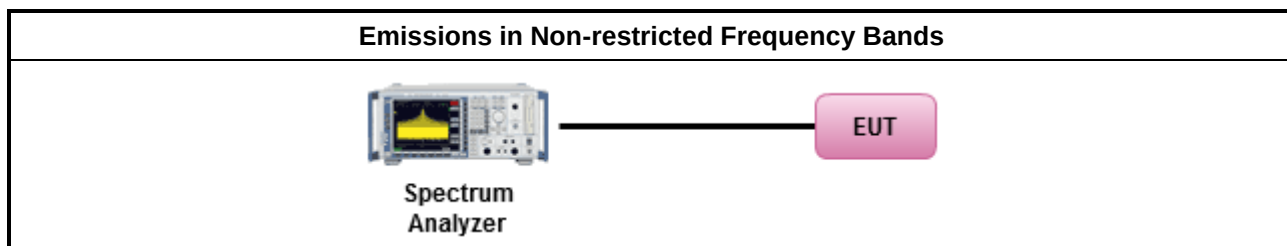
3.5.2 Measuring Instruments

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

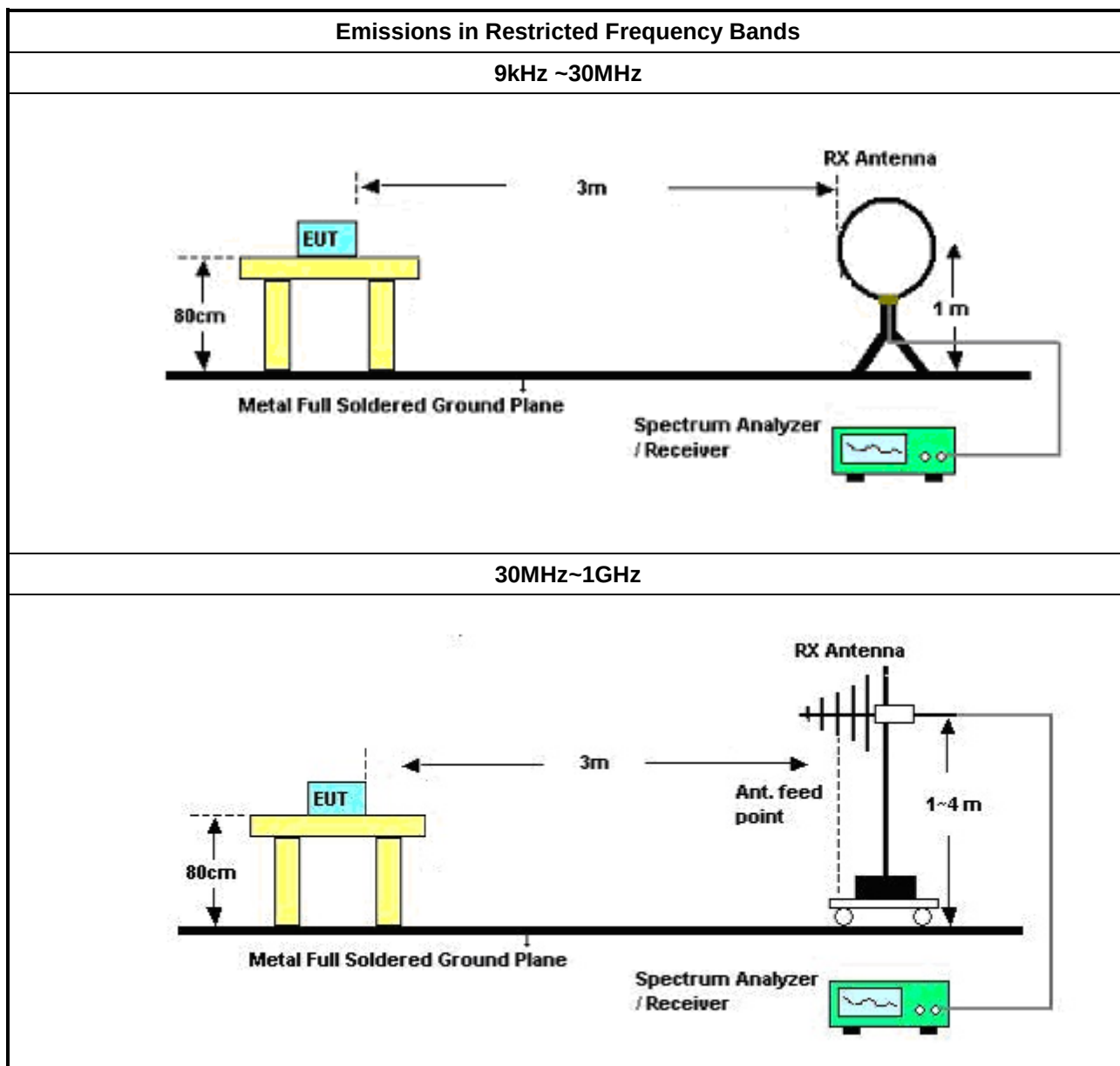
Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted 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 LP0002 6.5.2: 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.

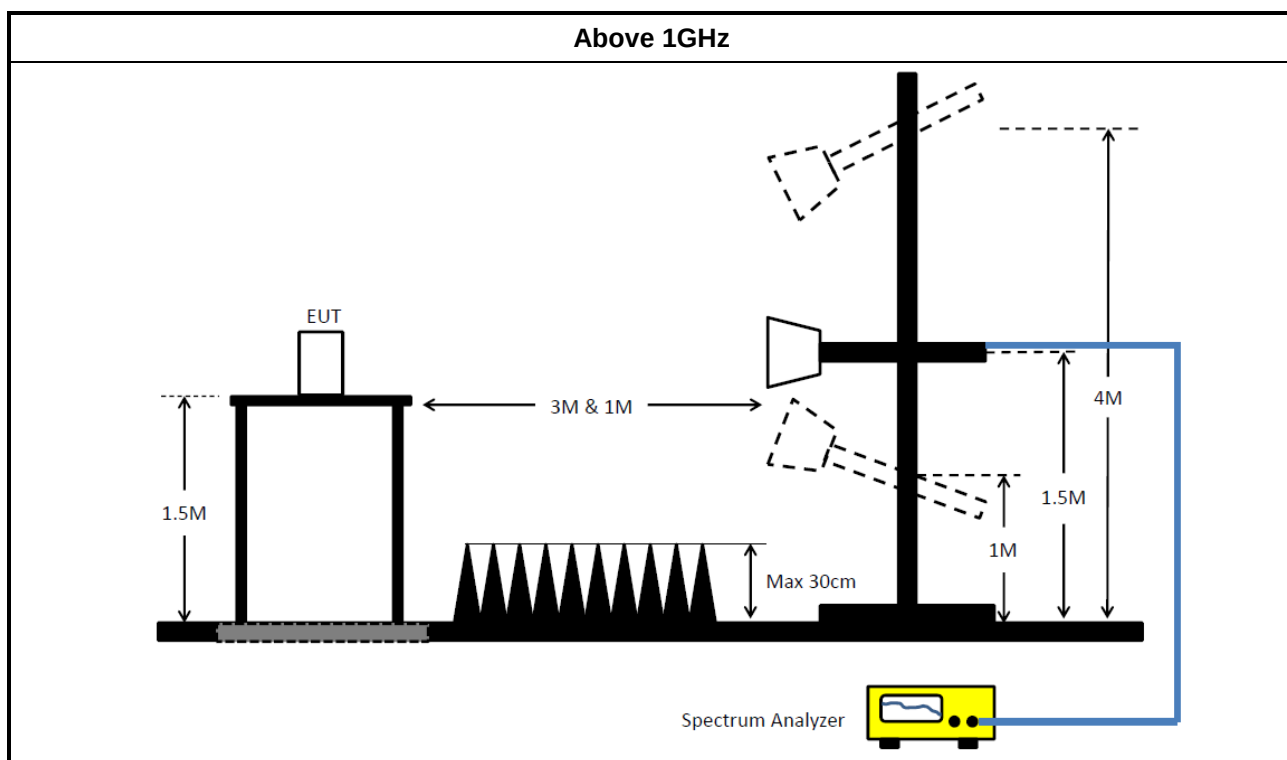
3.6.4 Measurement Results Calculation

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

3.7 Receiver Radiated Spurious Emissions

3.7.1 Receiver in Radiated Spurious Emissions Limit

Restricted Spurious 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.

3.7.2 Measuring Instruments

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

3.7.3 Test Procedures

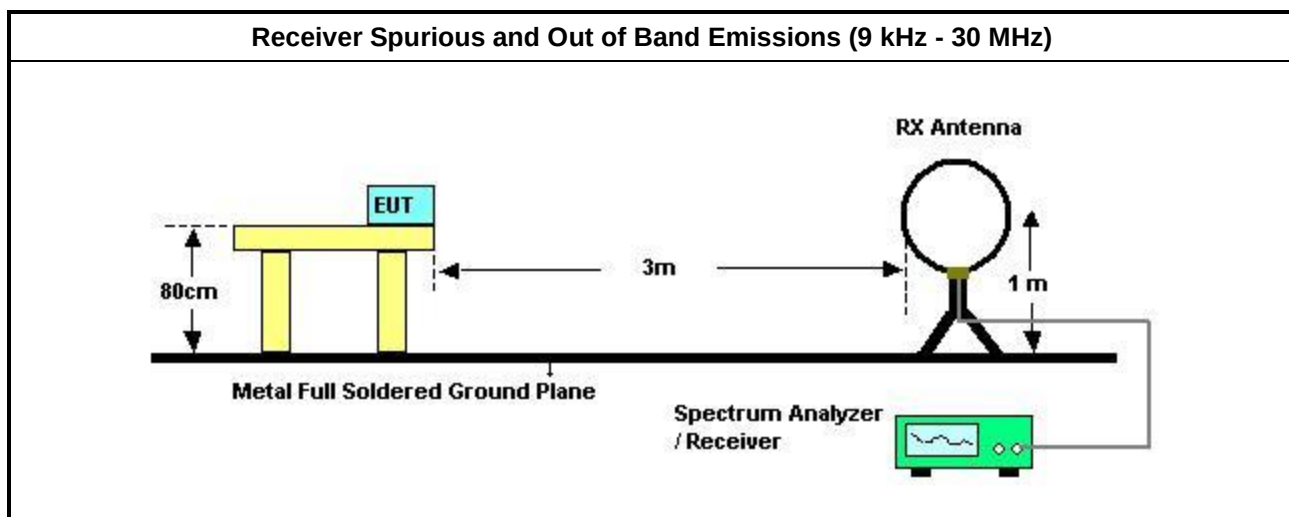
Test Method	
☒	The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is higher, without exceeding 40 GHz.
☒	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).
☒	For radiated measurement, refer as ANSI C63.4, clause 8.3.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from below 30 MHz.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from 30 MHz-1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the QP-Limit so that the QP level does not need to be reported in addition.
☒	Refer as ANSI C63.4, clause 8.3.1.2 and 8.3.2.2 for radiated emissions from above 1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
☒	All amplitude of spurious emissions that are attenuated by more than 30 dB below the permissible value has no need to be reported.

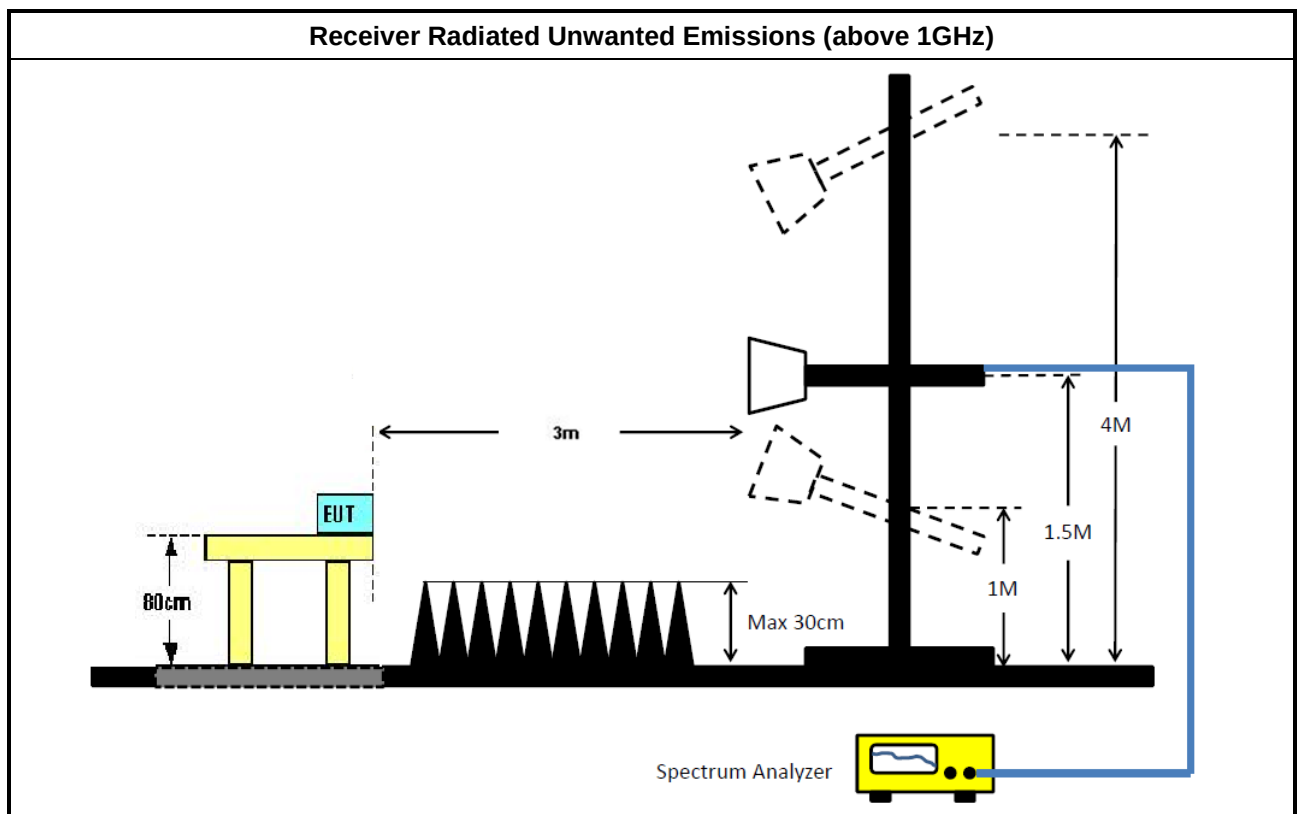
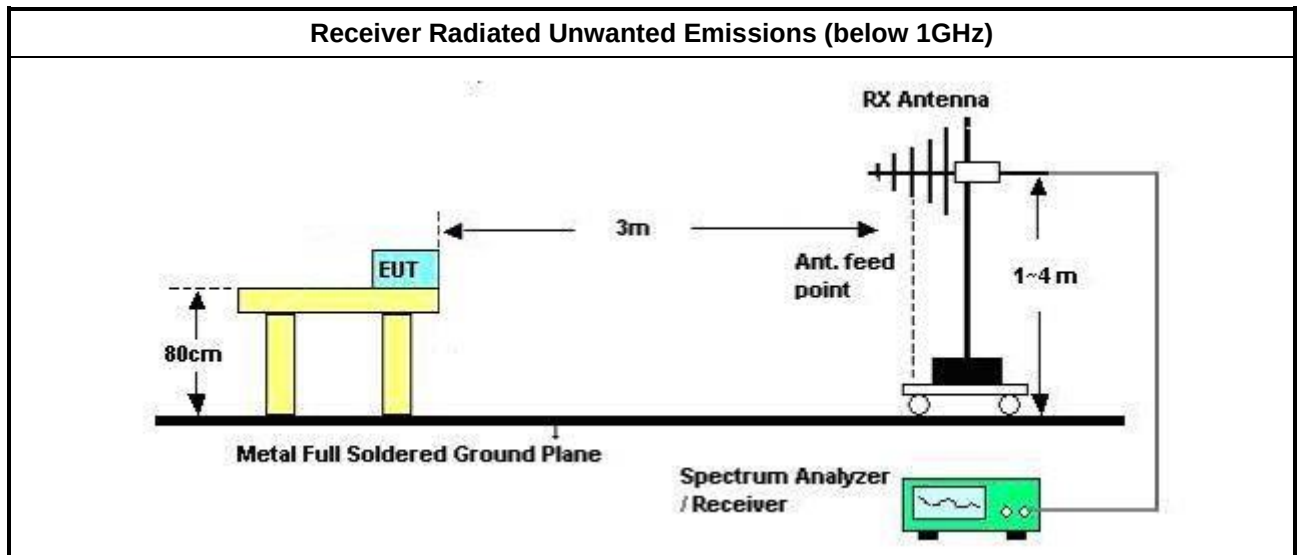
3.7.4 Measurement Results Calculation

The measured Level is calculated using:

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

3.7.5 Test Setup





3.7.6 Receiver Radiated Unwanted Emissions (Below 30MHz)

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

3.7.7 Test Result of Receiver Radiated Unwanted Emissions

Refer as Appendix G

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

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	13/Mar/2019	12/Mar/2020
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	17/Nov/2018	16/Nov/2019
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	17/Nov/2018	16/Nov/2019
Cable 0.2m	HUBER	MY10710/4	RF Cable - 01	30MHz ~18G	21/Mar/2019	20/Mar/2020
Cable 0.2m	HUBER	MY10711/4	RF Cable - 02	30MHz ~18G	21/Mar/2019	20/Mar/2020
Cable 0.5m	HUBER	MY39470/4	RF Cable - 29	30MHz ~18G	21/Mar/2019	20/Mar/2020
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	12/Nov/2018	10/Nov/2020

Instrument for Radiated Test below 1GHz (03CH03-HY)

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
Signal Analyzer	R&S	FSP30	100793	9kHz~30GHz	03/Jun/2020	02/Jun/2021
Amplifier	HP	8447D	2944A08033	10kHz~1.3GHz	14/Apr/2020	13/Apr/2021
Bilog Antenna & 6dB Attenuator	SCHAFFNER / EMCI	CBL6112B / N-6-05	22237 / AT-N-0603	30MHz~1GHz	19/Apr/2020	18/Apr/2021
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz~1GHz	18/Mar/2020	17/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

Instrument for Radiated Test above 1GHz (03CH01-HY)

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Microwave Preamplifier	Agilent	8449B	3008A02602	1GHz~26.5GHz	27/Mar/2019	26/Mar/2020
Site V.S.W.R	Riken	3m SAC	03CH01-HY	1 GHz ~ 18 GHz 3m	09/Jan/2019	08/Jan/2020
Spectrum Analyzer	R&S	FSV 40	101407	10Hz ~ 40GHz	31/Jul/2017	30/Jul/2018
Spectrum Analyzer	R&S	FSV 40	101407	10Hz ~ 40GHz	16/Aug/2018	15/Aug/2019
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	24/Aug/2018	23/Aug/2019
Horn Antenna	SCHWARZBECK	BBHA9120	BBHA9120D0 1834	1 GHz ~ 18 GHz	30/Jan/2019	29/Jan/2020
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA 9170221	18GHz ~ 40GHz	22/Mar/2019	21/Mar/2020
RF Cable	HUBER+SUHNER	SUCOFLEX 102	SN805196/4+ MY39495	1 GHz~40 GHz	13/Mar/2019	12/Mar/2020

Instrument for Radiated Test above 1GHz (03CH03-HY)

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	31/Oct/2018	30/Oct/2019
Microwave System Preamplifier	KEYSIGHT	83017A	MY53270196	1GHz ~ 26.5GHz	05/Sep/2018	04/Sep/2019
Signal Analyzer	R&S	FSV40	101500	10Hz ~ 40GHz	18/Jul/2018	17/Jul/2019
RF CABLE 5+6m	HUBER+SUHNER	SUOFLEX 104	SN 805801/4+SN 804300/4	1GHz ~ 40GHz	21/Mar/2019	20/Mar/2020
RF CABLE	HUBER+SUHNER	SUOFLEX 104	SN 805801/4	1GHz ~ 40GHz	21/Mar/2019	20/Mar/2020
RF CABLE	HUBER+SUHNER	SUOFLEX 104	805805/4	1 GHz ~ 18 GHz	01/May/2019	30/Apr/2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	18GHz~40GHz	22/Mar/2019	21/Mar/2020
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz ~ 18GHz	09/Mar/ 2019	08/Mar/2020
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz~40GHz	24/Aug/2018	23/Aug/2019

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition
Mode 1	Pass	AV	490.912k	24.74	46.15	-21.41	Line
Mode 2	Pass	AV	488.957k	24.66	46.19	-21.53	Neutral

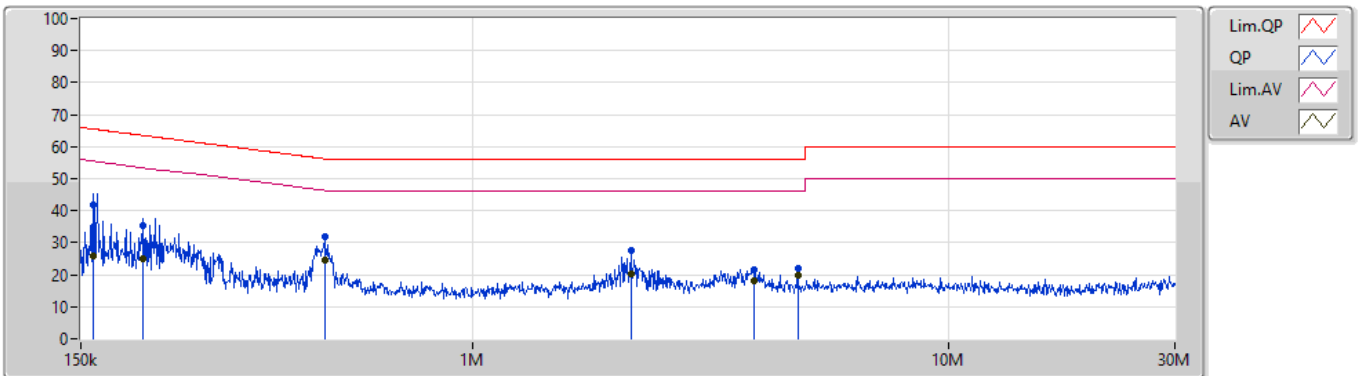
Mode Configure

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 1	Pass	QP	159.256k	41.87	65.50	-23.63	Line	-
Mode 1	Pass	AV	159.256k	25.94	55.50	-29.56	Line	-
Mode 1	Pass	QP	203.167k	35.24	63.48	-28.24	Line	-
Mode 1	Pass	AV	203.167k	24.96	53.48	-28.52	Line	-
Mode 1	Pass	QP	490.912k	32.10	56.15	-24.05	Line	-
Mode 1	Pass	AV	490.912k	24.74	46.15	-21.41	Line	"Worst"
Mode 1	Pass	QP	2.15M	27.76	56.00	-28.24	Line	-
Mode 1	Pass	AV	2.15M	20.26	46.00	-25.74	Line	-
Mode 1	Pass	QP	3.913M	21.45	56.00	-34.55	Line	-
Mode 1	Pass	AV	3.913M	18.06	46.00	-27.94	Line	-
Mode 1	Pass	QP	4.835M	22.07	56.00	-33.93	Line	-
Mode 1	Pass	AV	4.835M	19.87	46.00	-26.13	Line	-
Mode 1	Pass	QP	159.893k	41.25	65.46	-24.21	Neutral	-
Mode 1	Pass	AV	159.893k	25.90	55.46	-29.56	Neutral	-
Mode 1	Pass	QP	206.437k	36.01	63.34	-27.33	Neutral	-
Mode 1	Pass	AV	206.437k	25.67	53.34	-27.67	Neutral	-
Mode 1	Pass	QP	473.588k	31.17	56.46	-25.29	Neutral	-
Mode 1	Pass	AV	473.588k	24.27	46.46	-22.19	Neutral	-
Mode 1	Pass	QP	2.15M	32.86	56.00	-23.14	Neutral	-
Mode 1	Pass	AV	2.15M	24.17	46.00	-21.83	Neutral	"Worst"
Mode 1	Pass	QP	3.836M	22.21	56.00	-33.79	Neutral	-
Mode 1	Pass	AV	3.836M	18.98	46.00	-27.02	Neutral	-
Mode 1	Pass	QP	4.835M	21.73	56.00	-34.27	Neutral	-
Mode 1	Pass	AV	4.835M	19.47	46.00	-26.53	Neutral	-
Mode 2	Pass	QP	161.82k	41.14	65.37	-24.23	Line	-
Mode 2	Pass	AV	161.82k	25.69	55.37	-29.68	Line	-
Mode 2	Pass	QP	204.796k	35.35	63.42	-28.07	Line	-
Mode 2	Pass	AV	204.796k	25.38	53.42	-28.04	Line	-
Mode 2	Pass	QP	492.876k	31.83	56.11	-24.28	Line	-
Mode 2	Pass	AV	492.876k	24.49	46.11	-21.62	Line	"Worst"
Mode 2	Pass	QP	2.185M	25.15	56.00	-30.85	Line	-
Mode 2	Pass	AV	2.185M	18.97	46.00	-27.03	Line	-
Mode 2	Pass	QP	3.79M	21.49	56.00	-34.51	Line	-
Mode 2	Pass	AV	3.79M	18.08	46.00	-27.92	Line	-
Mode 2	Pass	QP	4.835M	21.42	56.00	-34.58	Line	-
Mode 2	Pass	AV	4.835M	19.01	46.00	-26.99	Line	-
Mode 2	Pass	QP	160.533k	41.29	65.43	-24.14	Neutral	-
Mode 2	Pass	AV	160.533k	25.81	55.43	-29.62	Neutral	-
Mode 2	Pass	QP	231.775k	32.49	62.39	-29.90	Neutral	-
Mode 2	Pass	AV	231.775k	25.37	52.39	-27.02	Neutral	-
Mode 2	Pass	QP	488.957k	32.39	56.19	-23.80	Neutral	-
Mode 2	Pass	AV	488.957k	24.66	46.19	-21.53	Neutral	"Worst"
Mode 2	Pass	QP	2.229M	31.40	56.00	-24.60	Neutral	-

Mode	Result	Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Condition	Comments
Mode 2	Pass	AV	2.229M	23.48	46.00	-22.52	Neutral	-
Mode 2	Pass	QP	3.76M	22.10	56.00	-33.90	Neutral	-
Mode 2	Pass	AV	3.76M	18.67	46.00	-27.33	Neutral	-
Mode 2	Pass	QP	4.835M	21.54	56.00	-34.46	Neutral	-
Mode 2	Pass	AV	4.835M	19.29	46.00	-26.71	Neutral	-

Conducted Emissions at Powerline_Mode 1

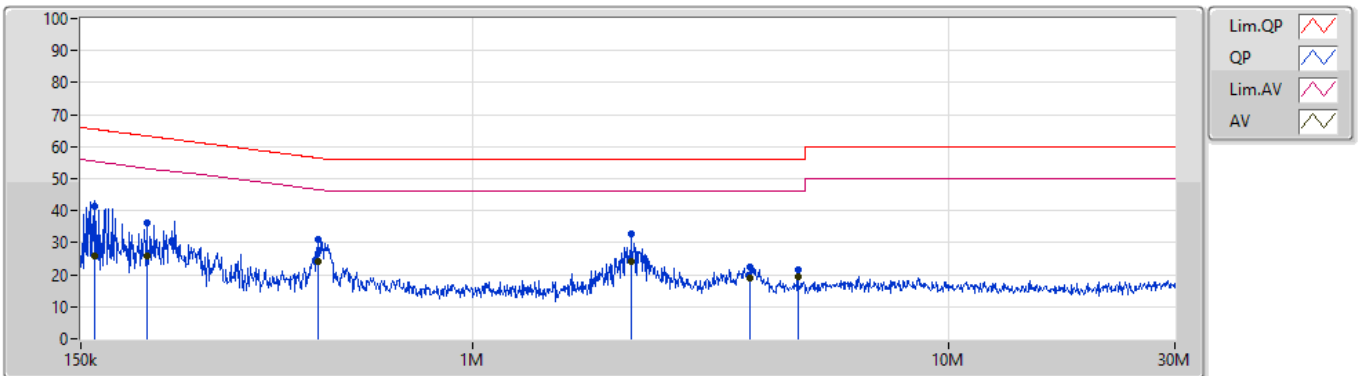
22/08/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	159.256k	41.87	65.50	-23.63	19.64	Line	-	22.23	9.66	0.11	9.87			
AV	159.256k	25.94	55.50	-29.56	19.64	Line	-	6.30	9.66	0.11	9.87			
QP	203.167k	35.24	63.48	-28.24	19.63	Line	-	15.61	9.65	0.11	9.87			
AV	203.167k	24.96	53.48	-28.52	19.63	Line	-	5.33	9.65	0.11	9.87			
QP	490.912k	32.10	56.15	-24.05	19.64	Line	-	12.46	9.64	0.13	9.87			
AV	490.912k	24.74	46.15	-21.41	19.64	Line	"Worst"	5.10	9.64	0.13	9.87			
QP	2.15M	27.76	56.00	-28.24	19.66	Line	-	8.10	9.65	0.14	9.87			
AV	2.15M	20.26	46.00	-25.74	19.66	Line	-	0.60	9.65	0.14	9.87			
QP	3.913M	21.45	56.00	-34.55	19.72	Line	-	1.73	9.66	0.18	9.88			
AV	3.913M	18.06	46.00	-27.94	19.72	Line	-	-1.66	9.66	0.18	9.88			
QP	4.835M	22.07	56.00	-33.93	19.75	Line	-	2.32	9.67	0.20	9.88			
AV	4.835M	19.87	46.00	-26.13	19.75	Line	-	0.12	9.67	0.20	9.88			

Conducted Emissions at Powerline_Mode 1

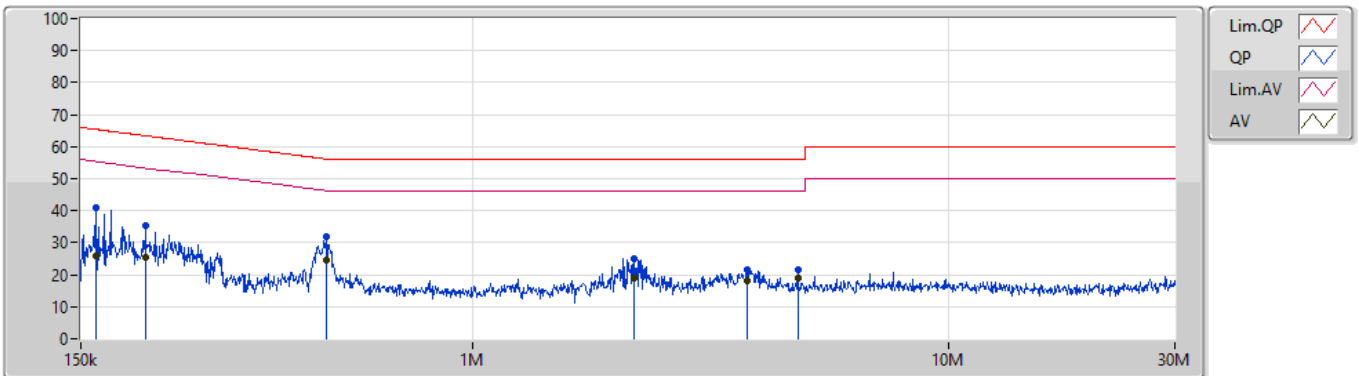
22/08/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	159.893k	41.25	65.46	-24.21	19.63	Neutral	-	21.62	9.65	0.11	9.87			
AV	159.893k	25.90	55.46	-29.56	19.63	Neutral	-	6.27	9.65	0.11	9.87			
QP	206.437k	36.01	63.34	-27.33	19.62	Neutral	-	16.39	9.64	0.11	9.87			
AV	206.437k	25.67	53.34	-27.67	19.62	Neutral	-	6.05	9.64	0.11	9.87			
QP	473.588k	31.17	56.46	-25.29	19.63	Neutral	-	11.54	9.63	0.13	9.87			
AV	473.588k	24.27	46.46	-22.19	19.63	Neutral	-	4.64	9.63	0.13	9.87			
QP	2.15M	32.86	56.00	-23.14	19.66	Neutral	-	13.20	9.65	0.14	9.87			
AV	2.15M	24.17	46.00	-21.83	19.66	Neutral	"Worst"	4.51	9.65	0.14	9.87			
QP	3.836M	22.21	56.00	-33.79	19.72	Neutral	-	2.49	9.66	0.18	9.88			
AV	3.836M	18.98	46.00	-27.02	19.72	Neutral	-	-0.74	9.66	0.18	9.88			
QP	4.835M	21.73	56.00	-34.27	19.75	Neutral	-	1.98	9.67	0.20	9.88			
AV	4.835M	19.47	46.00	-26.53	19.75	Neutral	-	-0.28	9.67	0.20	9.88			

Conducted Emissions at Powerline_Mode 2

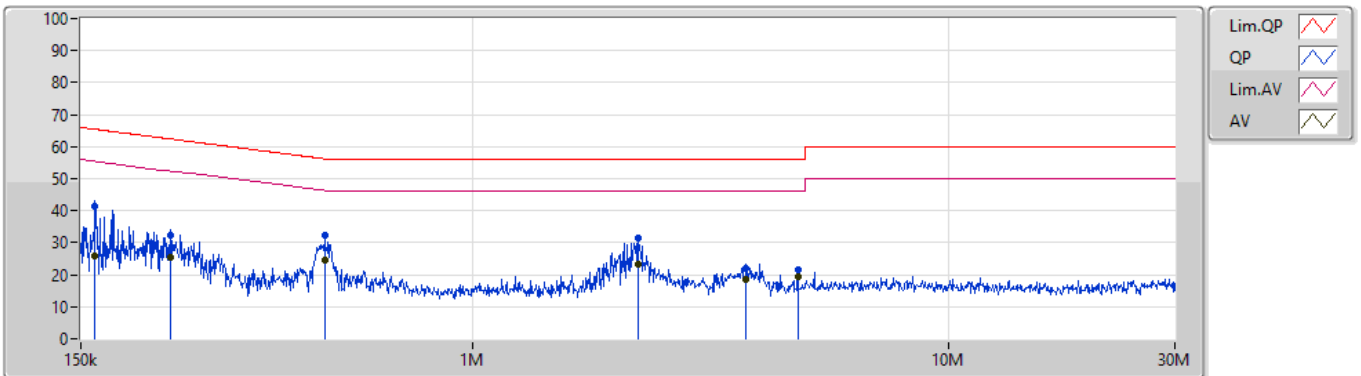
22/08/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	161.82k	41.14	65.37	-24.23	19.64	Line	-	21.50	9.66	0.11	9.87			
AV	161.82k	25.69	55.37	-29.68	19.64	Line	-	6.05	9.66	0.11	9.87			
QP	204.796k	35.35	63.42	-28.07	19.63	Line	-	15.72	9.65	0.11	9.87			
AV	204.796k	25.38	53.42	-28.04	19.63	Line	-	5.75	9.65	0.11	9.87			
QP	492.876k	31.83	56.11	-24.28	19.64	Line	-	12.19	9.64	0.13	9.87			
AV	492.876k	24.49	46.11	-21.62	19.64	Line	"Worst"	4.85	9.64	0.13	9.87			
QP	2.185M	25.15	56.00	-30.85	19.67	Line	-	5.48	9.65	0.15	9.87			
AV	2.185M	18.97	46.00	-27.03	19.67	Line	-	-0.70	9.65	0.15	9.87			
QP	3.79M	21.49	56.00	-34.51	19.72	Line	-	1.77	9.66	0.18	9.88			
AV	3.79M	18.08	46.00	-27.92	19.72	Line	-	-1.64	9.66	0.18	9.88			
QP	4.835M	21.42	56.00	-34.58	19.75	Line	-	1.67	9.67	0.20	9.88			
AV	4.835M	19.01	46.00	-26.99	19.75	Line	-	-0.74	9.67	0.20	9.88			

Conducted Emissions at Powerline_Mode 2

22/08/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	160.533k	41.29	65.43	-24.14	19.63	Neutral	-	21.66	9.65	0.11	9.87			
AV	160.533k	25.81	55.43	-29.62	19.63	Neutral	-	6.18	9.65	0.11	9.87			
QP	231.775k	32.49	62.39	-29.90	19.62	Neutral	-	12.87	9.64	0.11	9.87			
AV	231.775k	25.37	52.39	-27.02	19.62	Neutral	-	5.75	9.64	0.11	9.87			
QP	488.957k	32.39	56.19	-23.80	19.63	Neutral	-	12.76	9.63	0.13	9.87			
AV	488.957k	24.66	46.19	-21.53	19.63	Neutral	"Worst"	5.03	9.63	0.13	9.87			
QP	2.229M	31.40	56.00	-24.60	19.67	Neutral	-	11.73	9.65	0.15	9.87			
AV	2.229M	23.48	46.00	-22.52	19.67	Neutral	-	3.81	9.65	0.15	9.87			
QP	3.76M	22.10	56.00	-33.90	19.72	Neutral	-	2.38	9.66	0.18	9.88			
AV	3.76M	18.67	46.00	-27.33	19.72	Neutral	-	-1.05	9.66	0.18	9.88			
QP	4.835M	21.54	56.00	-34.46	19.75	Neutral	-	1.79	9.67	0.20	9.88			
AV	4.835M	19.29	46.00	-26.71	19.75	Neutral	-	-0.46	9.67	0.20	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)	662.5k	1.016M	1M02F1D	660k	1.012M

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;

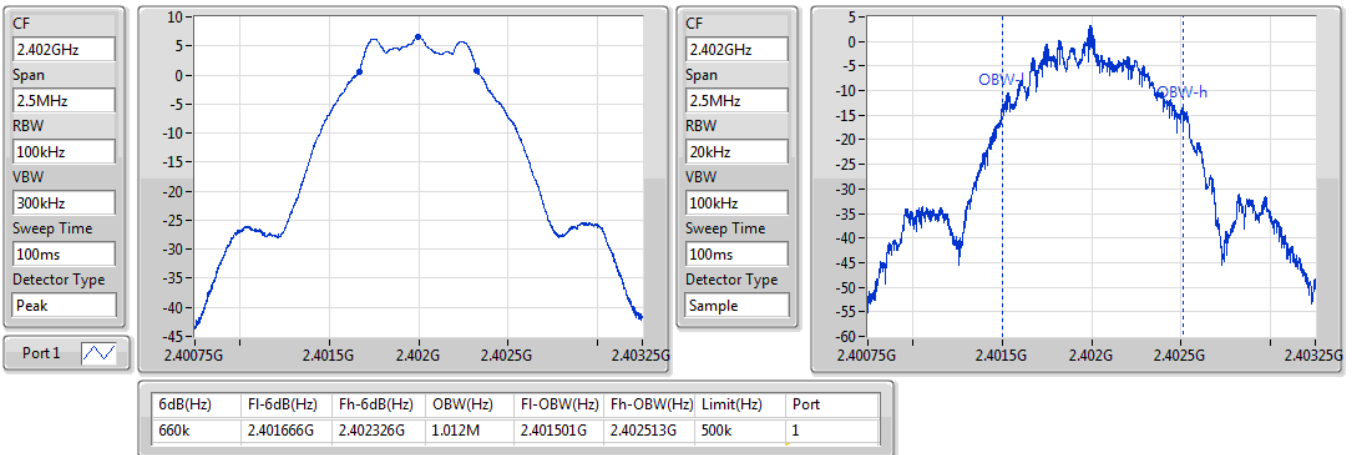
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	660k	1.012M
2440MHz	Pass	500k	660k	1.013M
2480MHz	Pass	500k	662.5k	1.016M

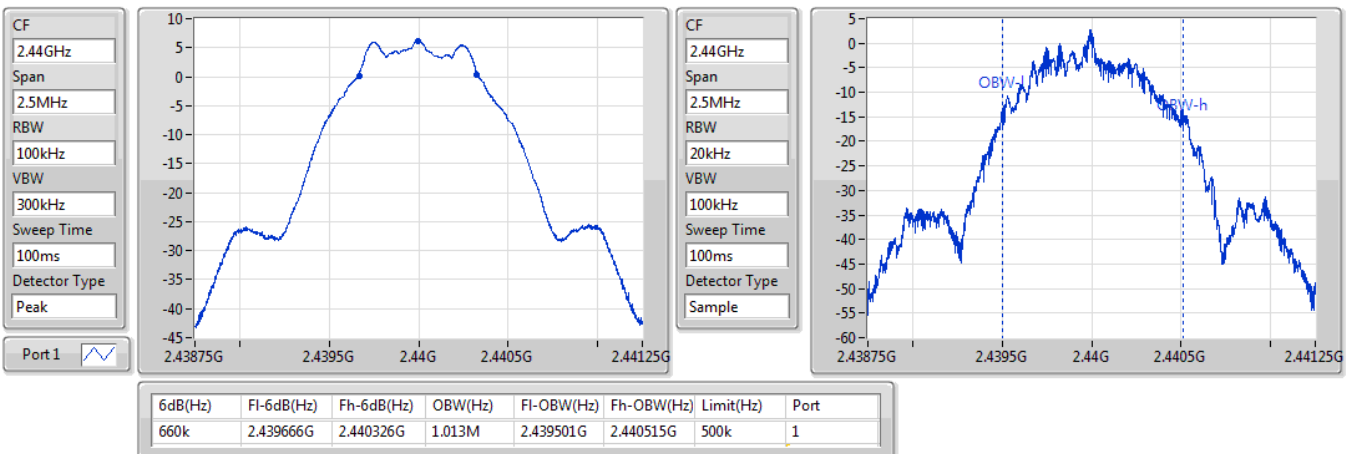
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
2402MHz
EBW

10/06/2019


BT-LE(1Mbps)
2440MHz
EBW

10/06/2019

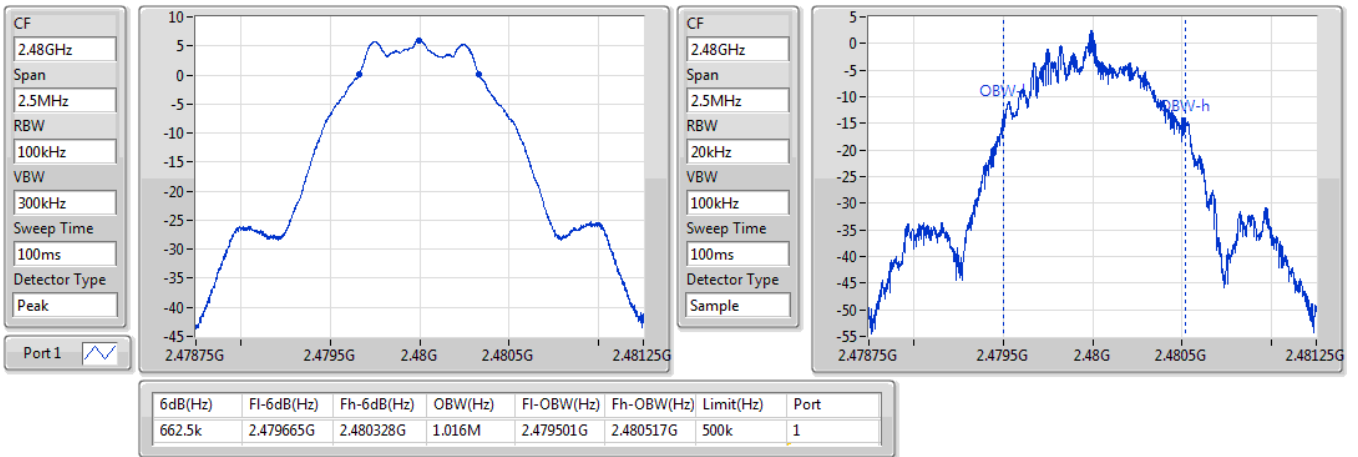


BT-LE(1Mbps)

2480MHz

EBW

10/06/2019





Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	6.23	0.00420



Average Power-DTS

Appendix C

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.06	6.23	30.00
2440MHz	Pass	1.06	5.86	30.00
2480MHz	Pass	1.06	5.65	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-7.99

RBW=3 kHz.



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.06	-7.99	8.00
2440MHz	Pass	1.06	-8.43	8.00
2480MHz	Pass	1.06	-8.57	8.00

DG = Directional Gain; RBW=3 kHz;

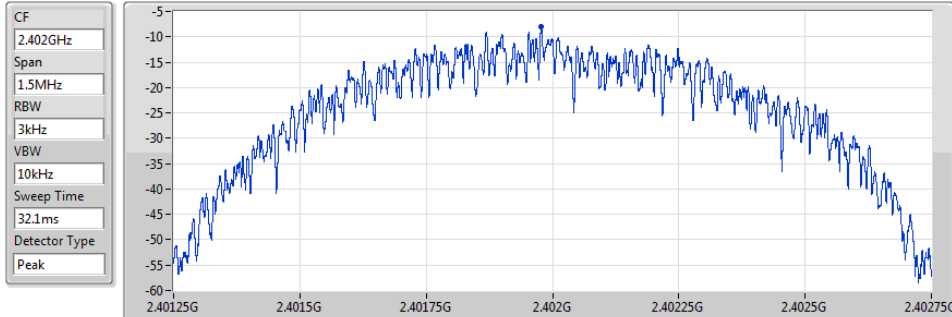
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

PSD

2402MHz

10/06/2019



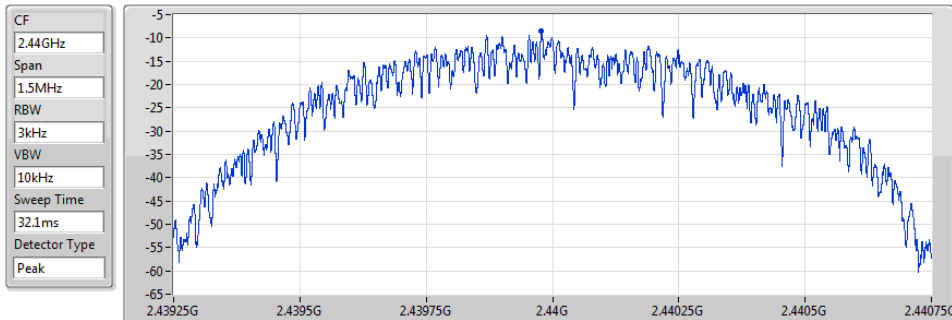
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.99	-7.99	-7.99

BT-LE(1Mbps)

PSD

2440MHz

10/06/2019



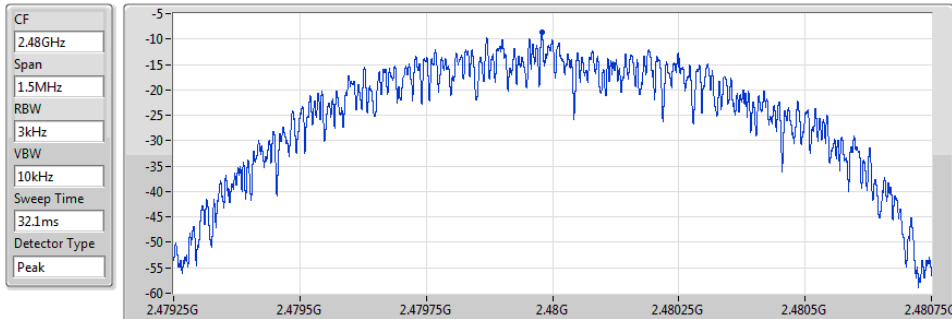
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.43	-8.43	-8.43

BT-LE(1Mbps)

PSD

2480MHz

10/06/2019



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-8.57	-8.57	-8.57



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.402G	6.40	-23.60	1.62662G	-62.96	2.39892G	-61.76	2.48425G	-61.22	14.6377G	-46.47	1

Result

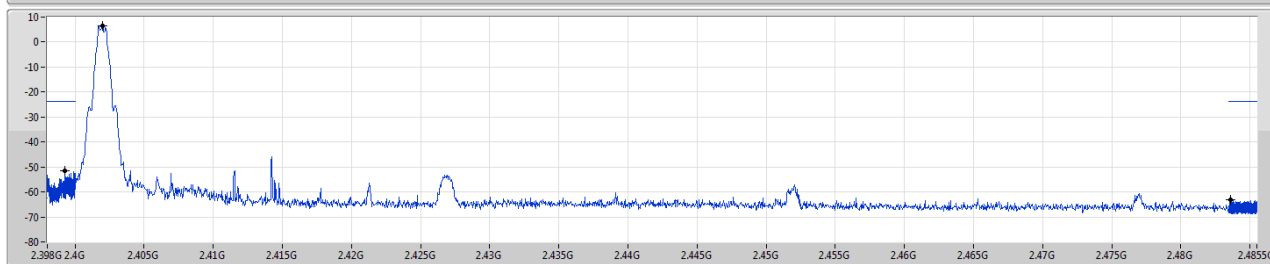
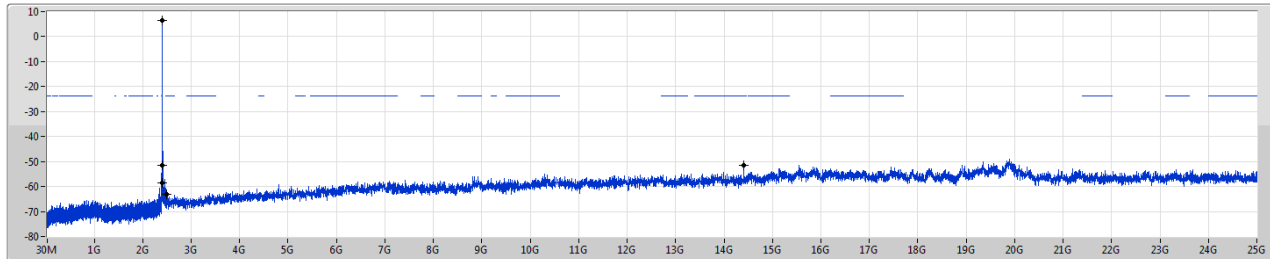
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.402G	6.40	-23.60	2.39326G	-58.59	2.39928G	-51.36	2.48362G	-63.02	14.41256G	-51.41	1
2440MHz	Pass	2.402G	6.40	-23.60	1.62662G	-62.96	2.39892G	-61.76	2.48425G	-61.22	14.6377G	-46.47	1
2480MHz	Pass	2.402G	6.40	-23.60	1.65326G	-64.37	2.39827G	-63.20	2.48391G	-54.94	14.05514G	-50.55	1

BT-LE(1Mbps)

2402MHz

CSE NdB

10/06/2019



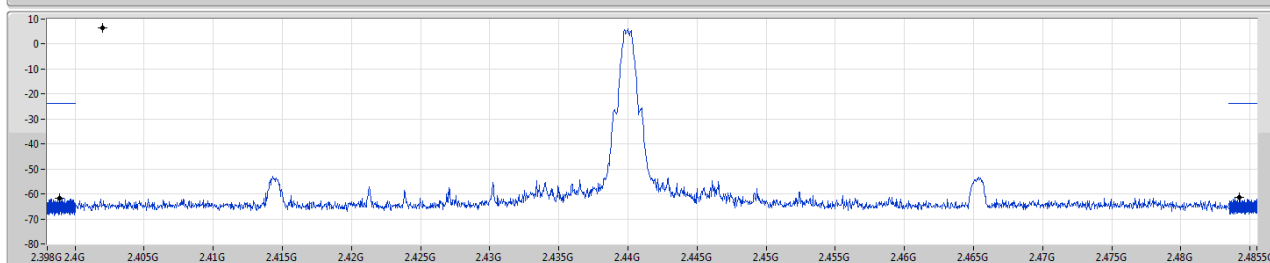
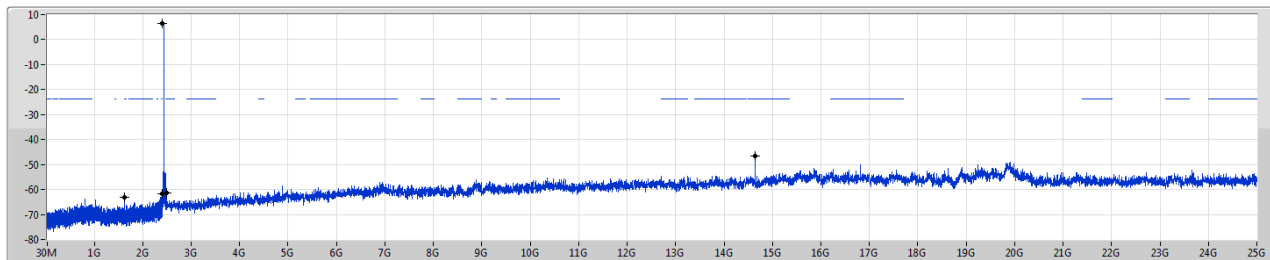
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2402G	6.40	-23.60	2.39326G	-58.59	2.39928G	-51.36	2.48362G	-63.02	2.41256G	-51.41	1

BT-LE(1Mbps)

2440MHz

CSE NdB

10/06/2019



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2402G	6.40	-23.60	1.62662G	-62.96	2.39892G	-61.76	2.48425G	-61.22	2.41377G	-46.47	1

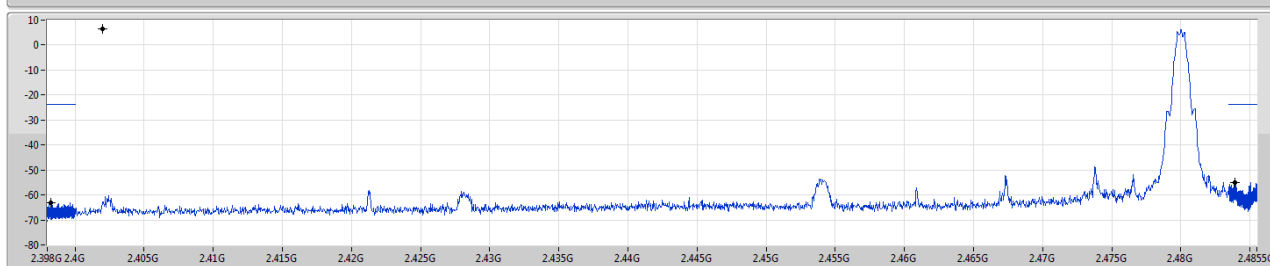
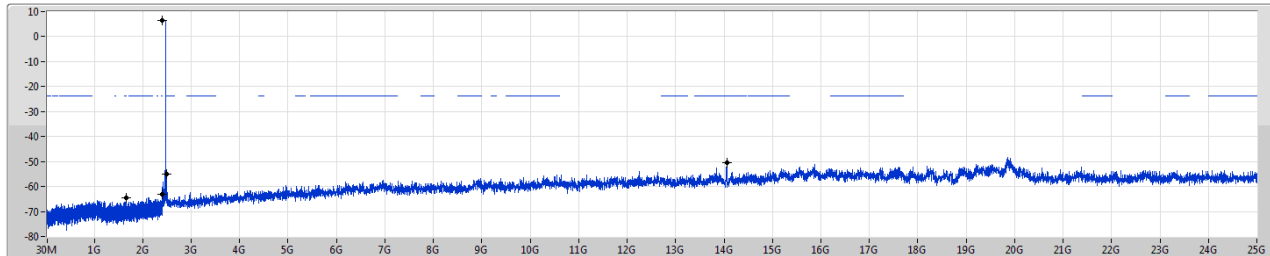
BT-LE(1Mbps)

2480MHz

CSE NdB

10/06/2019

Port1



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

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.402G	6.40	-23.60	1.65326G	-64.37	2.39827G	-63.20	2.48391G	-54.94	14.05514G	-50.55	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	33.31	40.00	-6.69	3	Horizontal	360	1.00	-

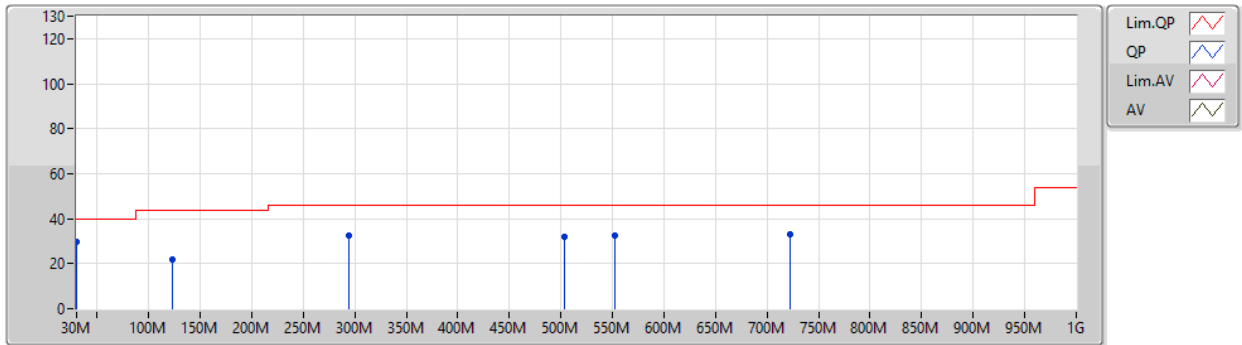
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	30M	29.50	40.00	-10.50	3	Vertical	0	1.00	-
2440MHz	Pass	PK	123.12M	21.92	43.50	-21.58	3	Vertical	0	1.00	-
2440MHz	Pass	PK	293.84M	32.50	46.00	-13.50	3	Vertical	0	1.00	-
2440MHz	Pass	PK	503.36M	31.80	46.00	-14.20	3	Vertical	0	1.00	-
2440MHz	Pass	PK	551.86M	32.73	46.00	-13.27	3	Vertical	0	1.00	-
2440MHz	Pass	PK	722.58M	32.93	46.00	-13.07	3	Vertical	0	1.00	-
2440MHz	Pass	PK	30M	33.31	40.00	-6.69	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	123.12M	22.39	43.50	-21.11	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	293.84M	29.90	46.00	-16.10	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	454.86M	31.00	46.00	-15.00	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	503.36M	33.15	46.00	-12.85	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	551.86M	32.24	46.00	-13.76	3	Horizontal	360	1.00	-

BT-LE(1Mbps)

13/08/2020

2440MHz_Switching power supply

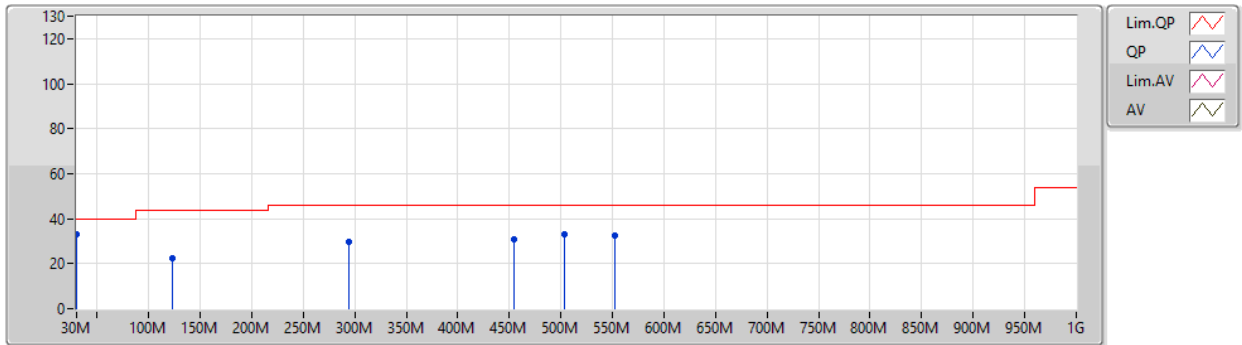


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	29.50	40.00	-10.50	-3.35	3	Vertical	0	1.00	-	32.85	23.33	0.90	27.58
PK	123.12M	21.92	43.50	-21.58	-8.27	3	Vertical	0	1.00	-	30.19	17.19	1.82	27.28
PK	293.84M	32.50	46.00	-13.50	-5.52	3	Vertical	0	1.00	-	38.02	18.28	2.86	26.66
PK	503.36M	31.80	46.00	-14.20	-1.61	3	Vertical	0	1.00	-	33.41	22.49	3.71	27.81
PK	551.86M	32.73	46.00	-13.27	-0.20	3	Vertical	0	1.00	-	32.93	23.91	3.91	28.02
PK	722.58M	32.93	46.00	-13.07	0.80	3	Vertical	0	1.00	-	32.13	24.30	4.49	27.99

BT-LE(1Mbps)

13/08/2020

2440MHz_Switching power supply



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	33.31	40.00	-6.69	-3.35	3	Horizontal	360	1.00	-	36.66	23.33	0.90	27.58
PK	123.12M	22.39	43.50	-21.11	-8.27	3	Horizontal	360	1.00	-	30.66	17.19	1.82	27.28
PK	293.84M	29.90	46.00	-16.10	-5.52	3	Horizontal	360	1.00	-	35.42	18.28	2.86	26.66
PK	454.86M	31.00	46.00	-15.00	-2.18	3	Horizontal	360	1.00	-	33.18	22.09	3.43	27.70
PK	503.36M	33.15	46.00	-12.85	-1.61	3	Horizontal	360	1.00	-	34.76	22.49	3.71	27.81
PK	551.86M	32.24	46.00	-13.76	-0.20	3	Horizontal	360	1.00	-	32.44	23.91	3.91	28.02



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.4882G	49.68	54.00	-4.32	32.11	3	Horizontal	158	2.29	-

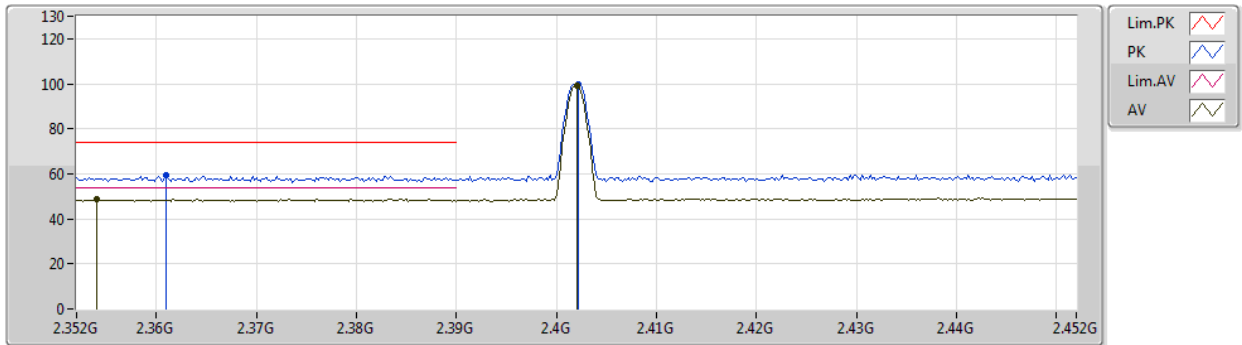
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.354G	48.66	54.00	-5.34	32.33	3	Vertical	271	2.42	-
2402MHz	Pass	AV	2.402G	99.09	Inf	-Inf	32.20	3	Vertical	271	2.42	-
2402MHz	Pass	PK	2.361G	59.49	74.00	-14.51	32.32	3	Vertical	271	2.42	-
2402MHz	Pass	PK	2.4022G	99.58	Inf	-Inf	32.20	3	Vertical	271	2.42	-
2402MHz	Pass	AV	2.3536G	48.67	54.00	-5.33	32.34	3	Horizontal	172	2.08	-
2402MHz	Pass	AV	2.402G	100.06	Inf	-Inf	32.20	3	Horizontal	172	2.08	-
2402MHz	Pass	PK	2.3682G	59.03	74.00	-14.97	32.29	3	Horizontal	172	2.08	-
2402MHz	Pass	PK	2.4022G	100.51	Inf	-Inf	32.20	3	Horizontal	172	2.08	-
2402MHz	Pass	AV	4.79272G	34.75	54.00	-19.25	8.12	3	Vertical	105	2.49	-
2402MHz	Pass	PK	4.81294G	45.65	74.00	-28.35	8.18	3	Vertical	105	2.49	-
2402MHz	Pass	AV	4.79392G	34.51	54.00	-19.49	8.12	3	Horizontal	339	2.45	-
2402MHz	Pass	PK	4.79584G	45.26	74.00	-28.74	8.13	3	Horizontal	339	2.45	-
2440MHz	Pass	AV	2.39G	48.04	54.00	-5.96	32.23	3	Vertical	276	2.41	-
2440MHz	Pass	AV	2.44G	99.14	Inf	-Inf	32.16	3	Vertical	276	2.41	-
2440MHz	Pass	AV	2.4835G	49.18	54.00	-4.82	32.11	3	Vertical	276	2.41	-
2440MHz	Pass	PK	2.39G	57.17	74.00	-16.83	32.23	3	Vertical	276	2.41	-
2440MHz	Pass	PK	2.4398G	99.59	Inf	-Inf	32.16	3	Vertical	276	2.41	-
2440MHz	Pass	PK	2.4898G	59.12	74.00	-14.88	32.11	3	Vertical	276	2.41	-
2440MHz	Pass	AV	2.39G	48.31	54.00	-5.69	32.23	3	Horizontal	171	2.20	-
2440MHz	Pass	AV	2.44G	99.40	Inf	-Inf	32.16	3	Horizontal	171	2.20	-
2440MHz	Pass	AV	2.4896G	48.93	54.00	-5.07	32.11	3	Horizontal	171	2.20	-
2440MHz	Pass	PK	2.39G	56.89	74.00	-17.11	32.23	3	Horizontal	171	2.20	-
2440MHz	Pass	PK	2.44G	99.86	Inf	-Inf	32.16	3	Horizontal	171	2.20	-
2440MHz	Pass	PK	2.4838G	59.72	74.00	-14.28	32.11	3	Horizontal	171	2.20	-
2440MHz	Pass	AV	4.88498G	34.60	54.00	-19.40	8.32	3	Vertical	59	1.87	-
2440MHz	Pass	PK	4.89236G	45.64	74.00	-28.36	8.31	3	Vertical	59	1.87	-
2440MHz	Pass	AV	4.87994G	34.82	54.00	-19.18	8.33	3	Horizontal	255	1.90	-
2440MHz	Pass	PK	4.89398G	45.87	74.00	-28.13	8.31	3	Horizontal	255	1.90	-
2480MHz	Pass	AV	2.48G	97.65	Inf	-Inf	32.12	3	Vertical	282	2.20	-
2480MHz	Pass	AV	2.4912G	49.19	54.00	-4.81	32.11	3	Vertical	282	2.20	-
2480MHz	Pass	PK	2.4798G	98.09	Inf	-Inf	32.12	3	Vertical	282	2.20	-
2480MHz	Pass	PK	2.494G	59.86	74.00	-14.14	32.10	3	Vertical	282	2.20	-
2480MHz	Pass	AV	2.48G	99.62	Inf	-Inf	32.12	3	Horizontal	158	2.29	-
2480MHz	Pass	AV	2.4882G	49.68	54.00	-4.32	32.11	3	Horizontal	158	2.29	-
2480MHz	Pass	PK	2.4798G	100.11	Inf	-Inf	32.12	3	Horizontal	158	2.29	-
2480MHz	Pass	PK	2.497G	59.72	74.00	-14.28	32.11	3	Horizontal	158	2.29	-
2480MHz	Pass	AV	4.95022G	35.06	54.00	-18.94	8.45	3	Vertical	237	2.47	-
2480MHz	Pass	PK	4.96612G	46.07	74.00	-27.93	8.52	3	Vertical	237	2.47	-
2480MHz	Pass	AV	4.96466G	35.35	54.00	-18.65	8.52	3	Horizontal	360	1.50	-
2480MHz	Pass	PK	4.9632G	46.55	74.00	-27.45	8.50	3	Horizontal	360	1.50	-

BT-LE(1Mbps)

2402MHz_TX

12/06/2019

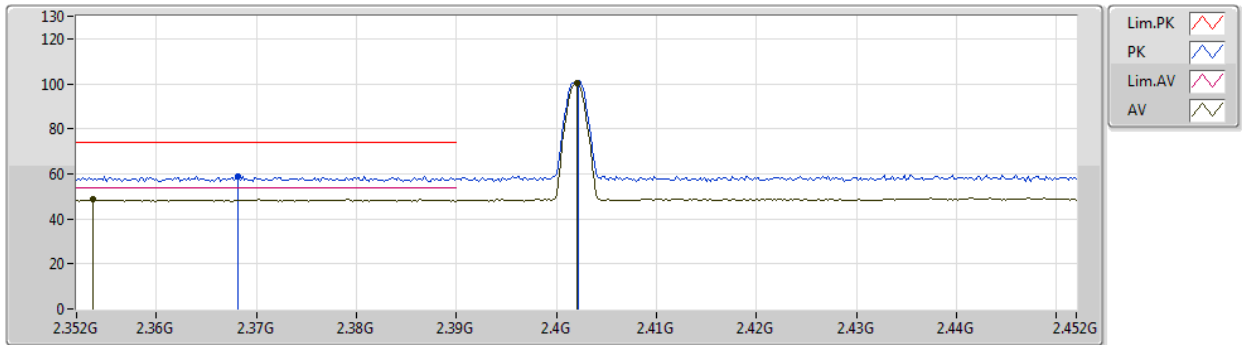


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.354G	48.66	54.00	-5.34	32.33	3	Vertical	271	2.42	-	16.33	27.68	4.65	-
AV	2.402G	99.09	Inf	-Inf	32.20	3	Vertical	271	2.42	-	66.89	27.50	4.70	-
PK	2.361G	59.49	74.00	-14.51	32.32	3	Vertical	271	2.42	-	27.17	27.66	4.66	-
PK	2.402G	99.58	Inf	-Inf	32.20	3	Vertical	271	2.42	-	67.38	27.50	4.70	-

BT-LE(1Mbps)

2402MHz_TX

12/06/2019

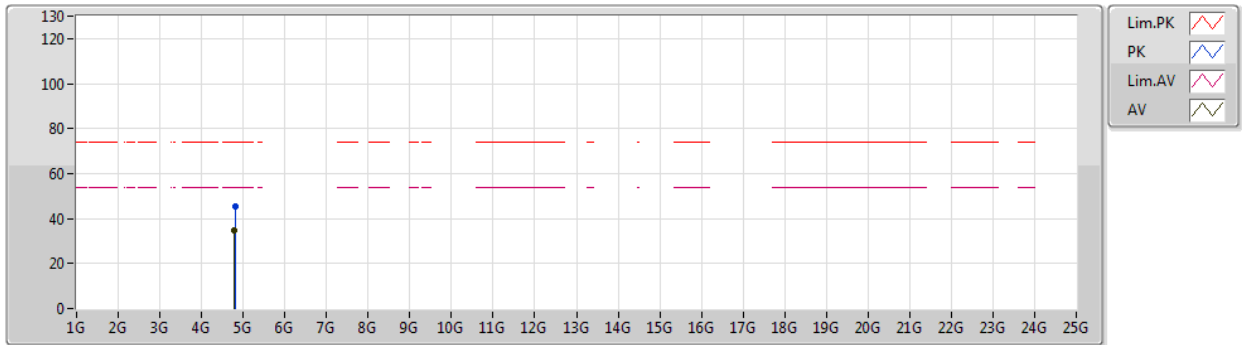


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3536G	48.67	54.00	-5.33	32.34	3	Horizontal	172	2.08	-	16.33	27.69	4.65	-
AV	2.402G	100.06	Inf	-Inf	32.20	3	Horizontal	172	2.08	-	67.86	27.50	4.70	-
PK	2.3682G	59.03	74.00	-14.97	32.29	3	Horizontal	172	2.08	-	26.74	27.63	4.66	-
PK	2.4022G	100.51	Inf	-Inf	32.20	3	Horizontal	172	2.08	-	68.31	27.50	4.70	-

BT-LE(1Mbps)

2402MHz_TX

12/06/2019

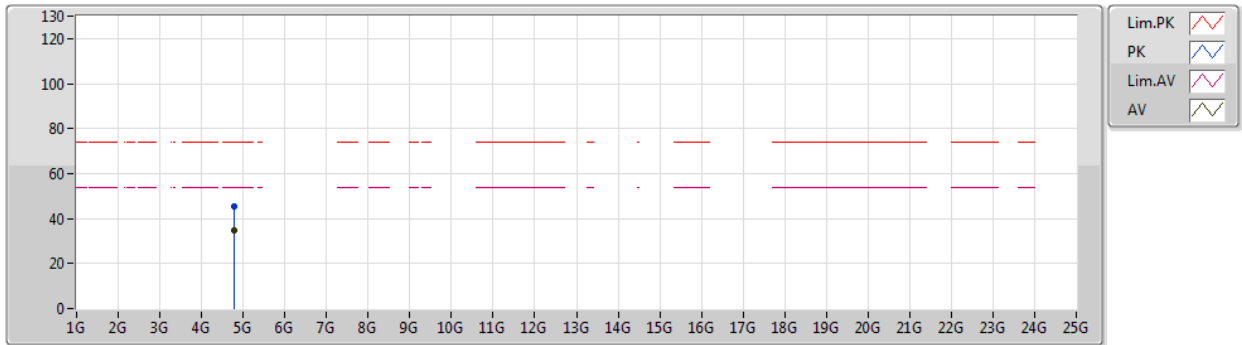


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.79272G	34.75	54.00	-19.25	8.12	3	Vertical	105	2.49	-	26.63	31.11	6.79	29.78
PK	4.81294G	45.65	74.00	-28.35	8.18	3	Vertical	105	2.49	-	37.47	31.15	6.81	29.78

BT-LE(1Mbps)

2402MHz_TX

12/06/2019

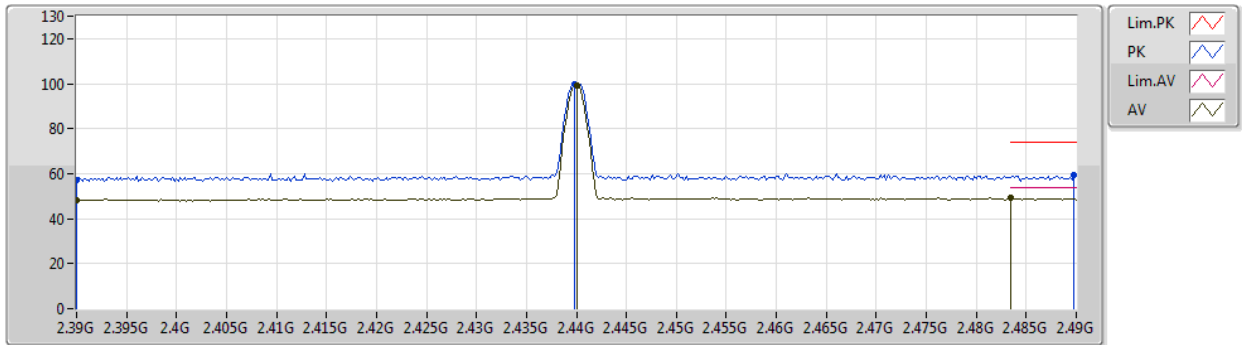


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.79392G	34.51	54.00	-19.49	8.12	3	Horizontal	339	2.45	-	26.39	31.11	6.79	29.78
PK	4.79584G	45.26	74.00	-28.74	8.13	3	Horizontal	339	2.45	-	37.13	31.11	6.80	29.78

BT-LE(1Mbps)

2440MHz_TX

12/06/2019

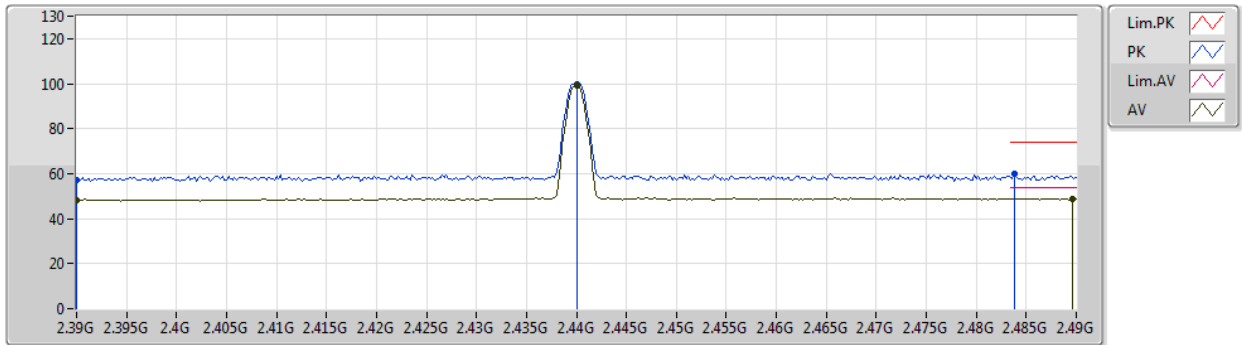


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.39G	48.04	54.00	-5.96	32.23	3	Vertical	276	2.41	-	15.81	27.54	4.69	-
AV	2.44G	99.14	Inf	-Inf	32.16	3	Vertical	276	2.41	-	66.98	27.42	4.74	-
AV	2.4835G	49.18	54.00	-4.82	32.11	3	Vertical	276	2.41	-	17.07	27.33	4.78	-
PK	2.39G	57.17	74.00	-16.83	32.23	3	Vertical	276	2.41	-	24.94	27.54	4.69	-
PK	2.4398G	99.59	Inf	-Inf	32.16	3	Vertical	276	2.41	-	67.43	27.42	4.74	-
PK	2.4898G	59.12	74.00	-14.88	32.11	3	Vertical	276	2.41	-	27.01	27.32	4.79	-

BT-LE(1Mbps)

2440MHz_TX

12/06/2019

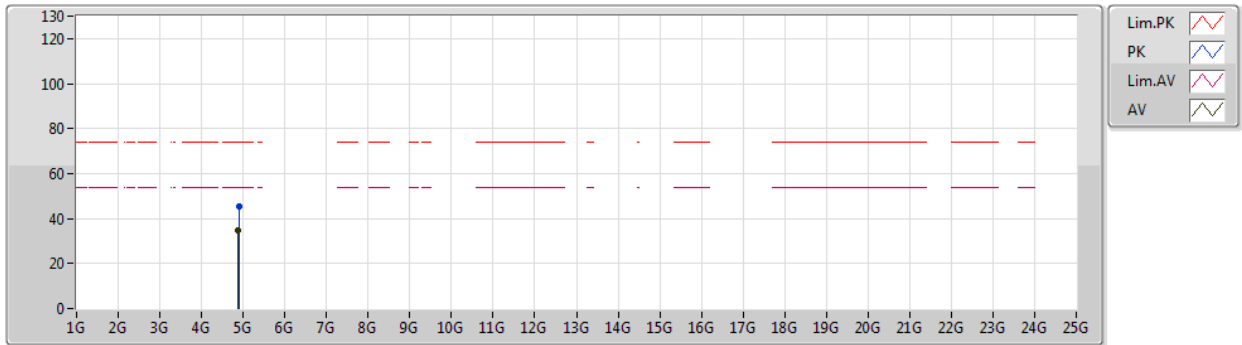


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.39G	48.31	54.00	-5.69	32.23	3	Horizontal	171	2.20	-	16.08	27.54	4.69	-
AV	2.44G	99.40	Inf	-Inf	32.16	3	Horizontal	171	2.20	-	67.24	27.42	4.74	-
AV	2.4896G	48.93	54.00	-5.07	32.11	3	Horizontal	171	2.20	-	16.82	27.32	4.79	-
PK	2.39G	56.89	74.00	-17.11	32.23	3	Horizontal	171	2.20	-	24.66	27.54	4.69	-
PK	2.44G	99.86	Inf	-Inf	32.16	3	Horizontal	171	2.20	-	67.70	27.42	4.74	-
PK	2.4838G	59.72	74.00	-14.28	32.11	3	Horizontal	171	2.20	-	27.61	27.33	4.78	-

BT-LE(1Mbps)

2440MHz_TX

12/06/2019

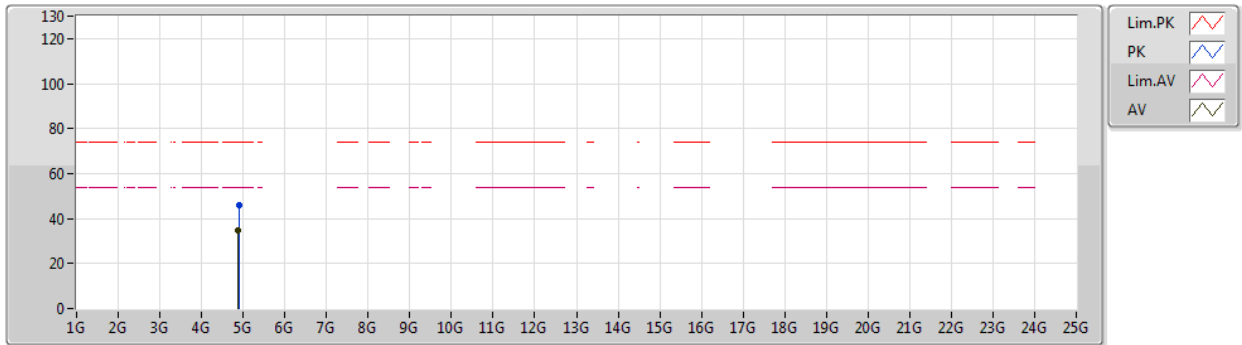


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.88498G	34.60	54.00	-19.40	8.32	3	Vertical	59	1.87	-	26.28	31.23	6.86	29.77
PK	4.89236G	45.64	74.00	-28.36	8.31	3	Vertical	59	1.87	-	37.33	31.22	6.86	29.77

BT-LE(1Mbps)

2440MHz_TX

12/06/2019

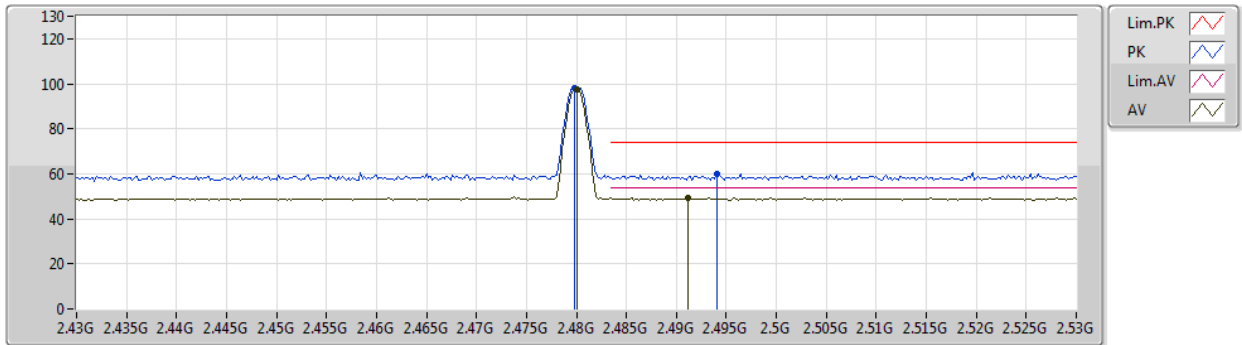


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87994G	34.82	54.00	-19.18	8.33	3	Horizontal	255	1.90	-	26.49	31.24	6.86	29.77
PK	4.89398G	45.87	74.00	-28.13	8.31	3	Horizontal	255	1.90	-	37.56	31.21	6.87	29.77

BT-LE(1Mbps)

2480MHz_TX

12/06/2019

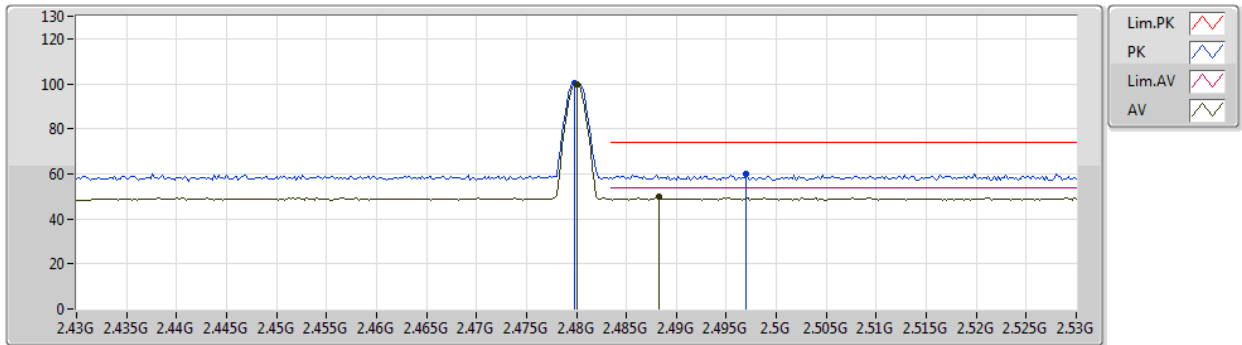


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	97.65	Inf	-Inf	32.12	3	Vertical	282	2.20	-	65.53	27.34	4.78	-
AV	2.4912G	49.19	54.00	-4.81	32.11	3	Vertical	282	2.20	-	17.08	27.32	4.79	-
PK	2.4798G	98.09	Inf	-Inf	32.12	3	Vertical	282	2.20	-	65.97	27.34	4.78	-
PK	2.494G	59.86	74.00	-14.14	32.10	3	Vertical	282	2.20	-	27.76	27.31	4.79	-

BT-LE(1Mbps)

2480MHz_TX

12/06/2019

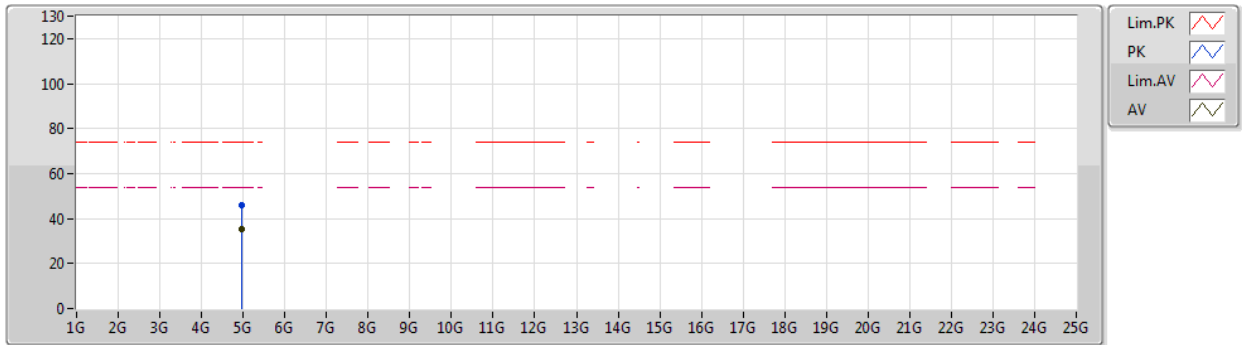


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	99.62	Inf	-Inf	32.12	3	Horizontal	158	2.29	-	67.50	27.34	4.78	-
AV	2.4882G	49.68	54.00	-4.32	32.11	3	Horizontal	158	2.29	-	17.57	27.32	4.79	-
PK	2.4798G	100.11	Inf	-Inf	32.12	3	Horizontal	158	2.29	-	67.99	27.34	4.78	-
PK	2.497G	59.72	74.00	-14.28	32.11	3	Horizontal	158	2.29	-	27.61	27.31	4.80	-

BT-LE(1Mbps)

2480MHz_TX

12/06/2019

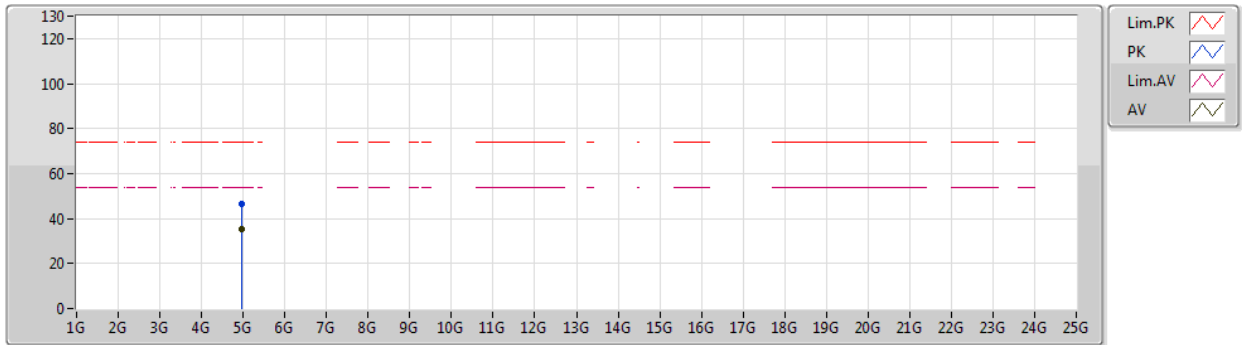


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95022G	35.06	54.00	-18.94	8.45	3	Vertical	237	2.47	-	26.61	31.30	6.91	29.76
PK	4.96612G	46.07	74.00	-27.93	8.52	3	Vertical	237	2.47	-	37.55	31.36	6.92	29.76

BT-LE(1Mbps)

2480MHz_TX

12/06/2019



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.96466G	35.35	54.00	-18.65	8.52	3	Horizontal	360	1.50	-	26.83	31.36	6.92	29.76
PK	4.9632G	46.55	74.00	-27.45	8.50	3	Horizontal	360	1.50	-	38.05	31.35	6.91	29.76



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
0.9G-T	-	-	-	-	-	-	-	-	-	-	-	-
LoRa_DTS_Nss1_1TX	Pass	PK	30M	36.90	40.00	-3.10	-3.35	3	Vertical	0	1.00	-
LoRa_FHSS-250k_Nss1_1TX	Pass	PK	753.99M	42.43	46.00	-3.57	1.37	3	Horizontal	0	1.00	-

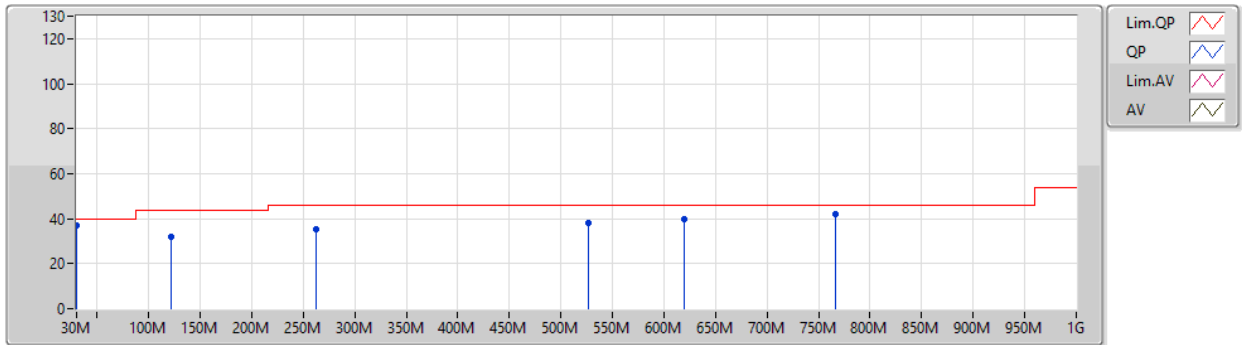
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
LoRa_DTS_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-
924.1MHz	Pass	PK	30M	36.90	40.00	-3.10	-3.35	3	Vertical	0	1.00	-
924.1MHz	Pass	PK	121.38M	32.03	43.50	-11.47	-8.13	3	Vertical	0	1.00	-
924.1MHz	Pass	PK	261.96M	35.24	46.00	-10.76	-5.36	3	Vertical	0	1.00	-
924.1MHz	Pass	PK	526.25M	38.01	46.00	-7.99	-1.35	3	Vertical	0	1.00	-
924.1MHz	Pass	PK	619.03M	39.74	46.00	-6.26	0.00	3	Vertical	0	1.00	-
924.1MHz	Pass	PK	766.64M	42.22	46.00	-3.78	1.50	3	Vertical	0	1.00	-
924.1MHz	Pass	PK	35.62M	35.10	40.00	-4.90	-6.56	3	Horizontal	360	1.00	-
924.1MHz	Pass	PK	121.38M	32.68	43.50	-10.82	-8.13	3	Horizontal	360	1.00	-
924.1MHz	Pass	PK	256.33M	35.73	46.00	-10.27	-5.61	3	Horizontal	360	1.00	-
924.1MHz	Pass	PK	479.86M	37.71	46.00	-8.29	-1.72	3	Horizontal	360	1.00	-
924.1MHz	Pass	PK	550.14M	38.91	46.00	-7.09	-0.18	3	Horizontal	360	1.00	-
924.1MHz	Pass	PK	752.58M	42.21	46.00	-3.79	1.35	3	Horizontal	360	1.00	-
LoRa_FHSS-250k_Nss1_1TX	-	-	-	-	-	-	-	-	-	-	-	-
924.7MHz	Pass	PK	121.38M	32.68	43.50	-10.82	-8.13	3	Horizontal	0	1.00	-
924.7MHz	Pass	PK	218.38M	32.04	46.00	-13.96	-10.33	3	Horizontal	0	1.00	-
924.7MHz	Pass	PK	252.12M	34.15	46.00	-11.85	-6.19	3	Horizontal	0	1.00	-
924.7MHz	Pass	PK	389.88M	35.93	46.00	-10.07	-3.32	3	Horizontal	0	1.00	-
924.7MHz	Pass	PK	432.06M	37.67	46.00	-8.33	-2.35	3	Horizontal	0	1.00	-
924.7MHz	Pass	PK	753.99M	42.43	46.00	-3.57	1.37	3	Horizontal	0	1.00	-
924.7MHz	Pass	PK	31.41M	36.35	40.00	-3.65	-4.38	3	Horizontal	360	1.00	-
924.7MHz	Pass	PK	121.38M	32.68	43.50	-10.82	-8.13	3	Horizontal	360	1.00	-
924.7MHz	Pass	PK	256.33M	35.73	46.00	-10.27	-5.61	3	Horizontal	360	1.00	-
924.7MHz	Pass	PK	427.84M	37.53	46.00	-8.47	-2.33	3	Horizontal	360	1.00	-
924.7MHz	Pass	PK	479.86M	37.71	46.00	-8.29	-1.72	3	Horizontal	360	1.00	-
924.7MHz	Pass	PK	703.38M	39.82	46.00	-6.18	0.33	3	Horizontal	360	1.00	-

LoRa_DTS_Nss1_1TX

24/08/2020

924.1MHz_Switching power supply

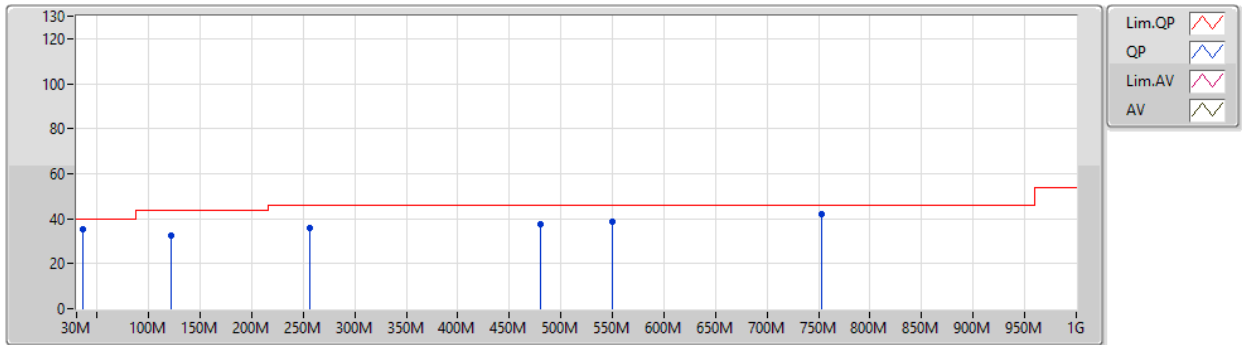


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	30M	36.90	40.00	-3.10	-3.35	3	Vertical	0	1.00	-	40.25	23.33	0.90	27.58
PK	121.38M	32.03	43.50	-11.47	-8.13	3	Vertical	0	1.00	-	40.16	17.35	1.81	27.29
PK	261.96M	35.24	46.00	-10.76	-5.36	3	Vertical	0	1.00	-	40.60	18.67	2.67	26.70
PK	526.25M	38.01	46.00	-7.99	-1.35	3	Vertical	0	1.00	-	39.36	22.75	3.81	27.91
PK	619.03M	39.74	46.00	-6.26	0.00	3	Vertical	0	1.00	-	39.74	23.86	4.18	28.04
PK	766.64M	42.22	46.00	-3.78	1.50	3	Vertical	0	1.00	-	40.72	24.77	4.67	27.94

LoRa_DTS_Nss1_1TX

24/08/2020

924.1MHz_Switching power supply

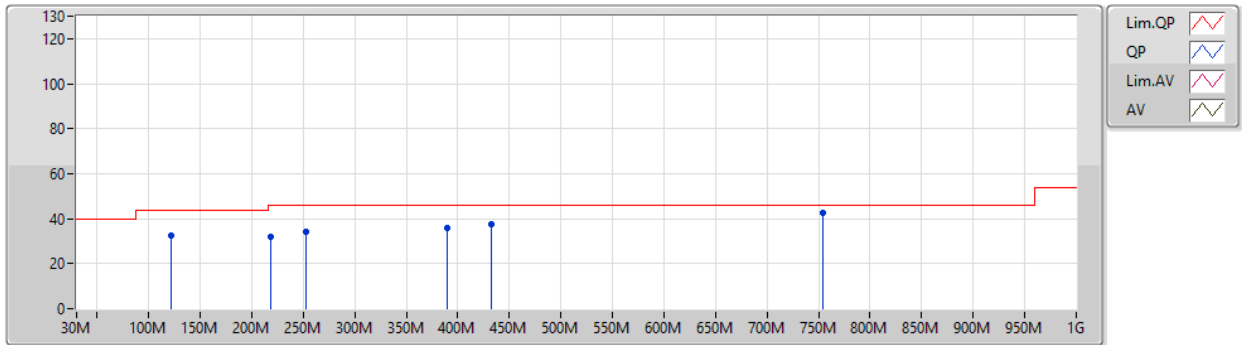


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	35.62M	35.10	40.00	-4.90	-6.56	3	Horizontal	360	1.00	-	41.66	20.08	0.91	27.55
PK	121.38M	32.68	43.50	-10.82	-8.13	3	Horizontal	360	1.00	-	40.81	17.35	1.81	27.29
PK	256.33M	35.73	46.00	-10.27	-5.61	3	Horizontal	360	1.00	-	41.34	18.45	2.64	26.70
PK	479.86M	37.71	46.00	-8.29	-1.72	3	Horizontal	360	1.00	-	39.43	22.45	3.58	27.75
PK	550.14M	38.91	46.00	-7.09	-0.18	3	Horizontal	360	1.00	-	39.09	23.94	3.90	28.02
PK	752.58M	42.21	46.00	-3.79	1.35	3	Horizontal	360	1.00	-	40.86	24.74	4.61	28.00

LoRa_FHSS-250k_Nss1_1TX

24/08/2020

924.7MHz_Switching power supply

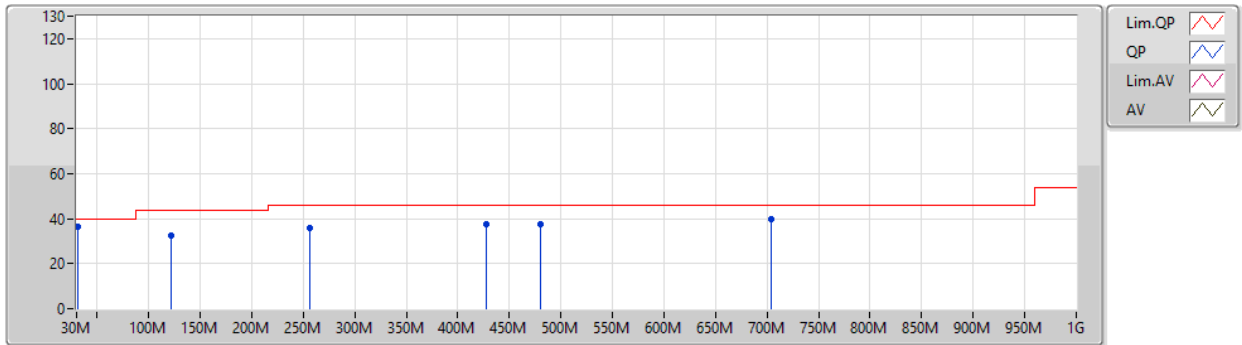


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	121.38M	32.68	43.50	-10.82	-8.13	3	Horizontal	0	1.00	-	40.81	17.35	1.81	27.29
PK	218.38M	32.04	46.00	-13.96	-10.33	3	Horizontal	0	1.00	-	42.37	14.10	2.41	26.84
PK	252.12M	34.15	46.00	-11.85	-6.19	3	Horizontal	0	1.00	-	40.34	17.91	2.61	26.71
PK	389.88M	35.93	46.00	-10.07	-3.32	3	Horizontal	0	1.00	-	39.25	20.61	3.26	27.19
PK	432.06M	37.67	46.00	-8.33	-2.35	3	Horizontal	0	1.00	-	40.02	21.82	3.36	27.53
PK	753.99M	42.43	46.00	-3.57	1.37	3	Horizontal	0	1.00	-	41.06	24.74	4.62	27.99

LoRa_FHSS-250k_Nss1_1TX

24/08/2020

924.7MHz_Switching power supply



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	31.41M	36.35	40.00	-3.65	-4.38	3	Horizontal	360	1.00	-	40.73	22.29	0.90	27.57
PK	121.38M	32.68	43.50	-10.82	-8.13	3	Horizontal	360	1.00	-	40.81	17.35	1.81	27.29
PK	256.33M	35.73	46.00	-10.27	-5.61	3	Horizontal	360	1.00	-	41.34	18.45	2.64	26.70
PK	427.84M	37.53	46.00	-8.47	-2.33	3	Horizontal	360	1.00	-	39.86	21.80	3.36	27.49
PK	479.86M	37.71	46.00	-8.29	-1.72	3	Horizontal	360	1.00	-	39.43	22.45	3.58	27.75
PK	703.38M	39.82	46.00	-6.18	0.33	3	Horizontal	360	1.00	-	39.49	23.90	4.41	27.98



Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	4.456G	32.85	54.00	-21.15	1.11	3	Horizontal	360	1.00	-

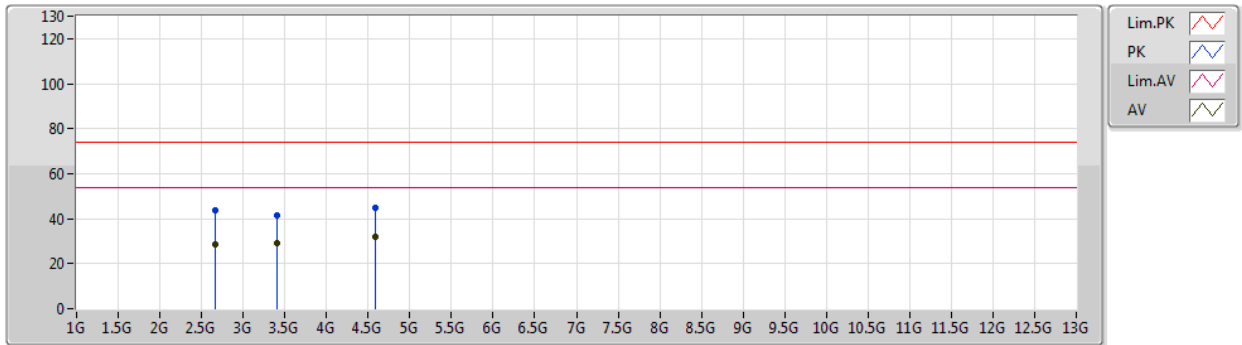
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	AV	2.664G	28.43	54.00	-25.57	-3.71	3	Vertical	0	1.00	-
2440MHz	Pass	AV	3.412G	29.26	54.00	-24.74	-1.92	3	Vertical	0	1.00	-
2440MHz	Pass	AV	4.588G	31.79	54.00	-22.21	1.50	3	Vertical	0	1.00	-
2440MHz	Pass	PK	2.664G	43.57	74.00	-30.43	-3.71	3	Vertical	0	1.00	-
2440MHz	Pass	PK	3.412G	41.52	74.00	-32.48	-1.92	3	Vertical	0	1.00	-
2440MHz	Pass	PK	4.588G	44.55	74.00	-29.45	1.50	3	Vertical	0	1.00	-
2440MHz	Pass	AV	1.2G	28.58	54.00	-25.42	-8.30	3	Horizontal	67	1.02	-
2440MHz	Pass	AV	3.828G	31.42	54.00	-22.58	-0.16	3	Horizontal	360	1.00	-
2440MHz	Pass	AV	4.456G	32.85	54.00	-21.15	1.11	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	1.2G	40.09	74.00	-33.91	-8.30	3	Horizontal	67	1.02	-
2440MHz	Pass	PK	3.828G	43.76	74.00	-30.24	-0.16	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	4.456G	44.05	74.00	-29.95	1.11	3	Horizontal	360	1.00	-

BT-LE(1Mbps)RX

2440MHz_RX

12/06/2019

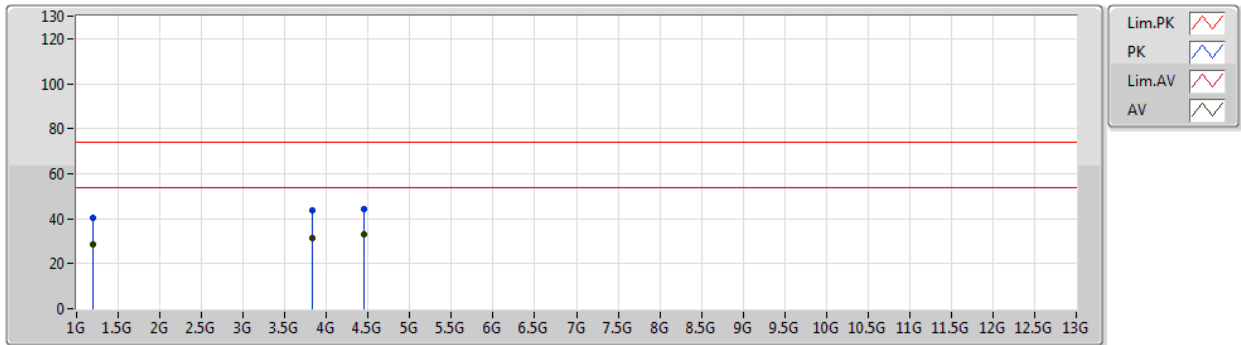


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.664G	28.43	54.00	-25.57	-3.71	3	Vertical	0	1.00	-	32.14	27.90	3.93	35.54
AV	3.412G	29.26	54.00	-24.74	-1.92	3	Vertical	0	1.00	-	31.18	28.42	4.84	35.18
AV	4.588G	31.79	54.00	-22.21	1.50	3	Vertical	0	1.00	-	30.29	30.88	5.26	34.64
PK	2.664G	43.57	74.00	-30.43	-3.71	3	Vertical	0	1.00	-	47.28	27.90	3.93	35.54
PK	3.412G	41.52	74.00	-32.48	-1.92	3	Vertical	0	1.00	-	43.44	28.42	4.84	35.18
PK	4.588G	44.55	74.00	-29.45	1.50	3	Vertical	0	1.00	-	43.05	30.88	5.26	34.64

BT-LE(1Mbps)RX

2440MHz_RX

12/06/2019



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	1.2G	28.58	54.00	-25.42	-8.30	3	Horizontal	67	1.02	-	36.88	25.40	2.60	36.30
AV	3.828G	31.42	54.00	-22.58	-0.16	3	Horizontal	360	1.00	-	31.58	29.51	5.32	34.99
AV	4.456G	32.85	54.00	-21.15	1.11	3	Horizontal	360	1.00	-	31.74	30.51	5.30	34.70
PK	1.2G	40.09	74.00	-33.91	-8.30	3	Horizontal	67	1.02	-	48.39	25.40	2.60	36.30
PK	3.828G	43.76	74.00	-30.24	-0.16	3	Horizontal	360	1.00	-	43.92	29.51	5.32	34.99
PK	4.456G	44.05	74.00	-29.95	1.11	3	Horizontal	360	1.00	-	42.94	30.51	5.30	34.70