

FCC Test Report

FCC ID : H8NAP5620W
Equipment : WIFI Tri-band Mesh RE
Model Name : AP5620W-RoHS
**Applicant/
Manufacturer** : Askey Computer Corp.
10F, No.119, Jiankang Road, Zhonghe Dist., New
Taipei City, Taiwan
Standard : 47 CFR FCC Part 15.247

The product was received on Jun. 05, 2019, and testing was started from Jun. 05, 2019 and completed on Sep. 20, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

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



Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

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



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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: Kate Lo

1 General Description

1.1 Information

Radio	Chip	Function	TX
1	IPQ4019	WLAN 2.4G+WLAN 5G(U-NII-1/U-NII-2A)	2
2	QCA9984	WLAN 5G(U-NII-2C/U-NII-3)	4
3	CSR 8811	Bluetooth	1

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	Remark
1	Airgain	F2430DL	FPC	Spring contact	For Radio 1
2	Airgain	F2430DL	FPC	Spring contact	
3	Airgain	N5X20BLOM3	PCB	I-PEX	For Radio 2
4	Airgain	F5X30BL	FPC	Spring contact	
5	Airgain	F5X30BL	FPC	Spring contact	
6	Airgain	N5X20BLOM2	PCB	I-PEX	
7	Airgain	N2430LTMSSBK4	SMT PCB antenna	N/A	For Radio 3

Ant.	Port	Gain (dBi)											
		2.4G		5G								BT	
		Peak	Correlated	U-NII-1		U-NII-2A		U-NII-2C		U-NII-3		Peak	Correlated
1	1	1.1	4.0	1.5	5.8	1.4	5.4	-	-	-	-	-	-
2	2	1.1	4.0	1.5	5.8	1.4	5.4	-	-	-	-	-	-
3	1	-	-	-	-	-	-	0.8	6.6	0.5	6.2	-	-
4	2	-	-	-	-	-	-	0.8	6.6	0.5	6.2	-	-
5	3	-	-	-	-	-	-	0.8	6.6	0.5	6.2	-	-
6	4	-	-	-	-	-	-	0.8	6.6	0.5	6.2	-	-
7	1	-	-	-	-	-	-	-	-	-	-	0.9	-

Note 1: The EUT have seven antennas.

For 2.4GHz function:

For IEEE 802.11 b/g/n/ac mode (2TX/2RX)

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

For 5GHz function:

U-NII-1/U-NII-2A:

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

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

U-NII-2C/U-NII-3:

For IEEE 802.11 a/n/ac mode (4TX/4RX)

Ant. 3 (port 1), Ant. 4 (port 2), Ant. 5 (port 3) and Ant. 6 (port 4) could transmit/receive simultaneously.

For BT function:

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

Ant. 7 (port 1) could transmit/receive simultaneously.



1.1.3 EUT Information

Operational Condition	
EUT Power Type	From Switching Power Supply
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)	0.629	2.01	408.75u	3k

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

1.2 Testing Applied Standards

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

- ◆ 47 CFR FCC Part 15
- ◆ ANSI C63.10-2013
- ◆ KDB 558074 D01 v05r02
- ◆ KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location		
<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.		

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	23.5~26.2°C / 61.8~67.2%	20/Sep/2019
RF Conducted	TH07-HY	Clara	23.3~25.3°C / 59~63%	05/Jun/2019~ 19/Sep/2019
Radiated	03CH09-HY	Andy	23.2~24.6°C / 52.1~53.2%	02/Sep/2019~ 18/Sep/2019

1.4 Measurement Uncertainty

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

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.54 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	1.6 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Condition

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

2.2 Test Channel Mode




Test Software	DoS
---------------	-----

Mode	PowerSetting
BT-LE(1Mbps)	-
2402MHz	default
2440MHz	default
2480MHz	default

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	Switching Power Supply 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	Switching Power Supply mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT			V

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	CTX
1	Radio 1(2.4G)+Radio 1(5G)+Radio 2(5G)+Radio 3(Bluetooth)
Refer to Sporton Test Report No.: FA991916 for Co-location RF Exposure Evaluation.	



2.4 Support Equipment

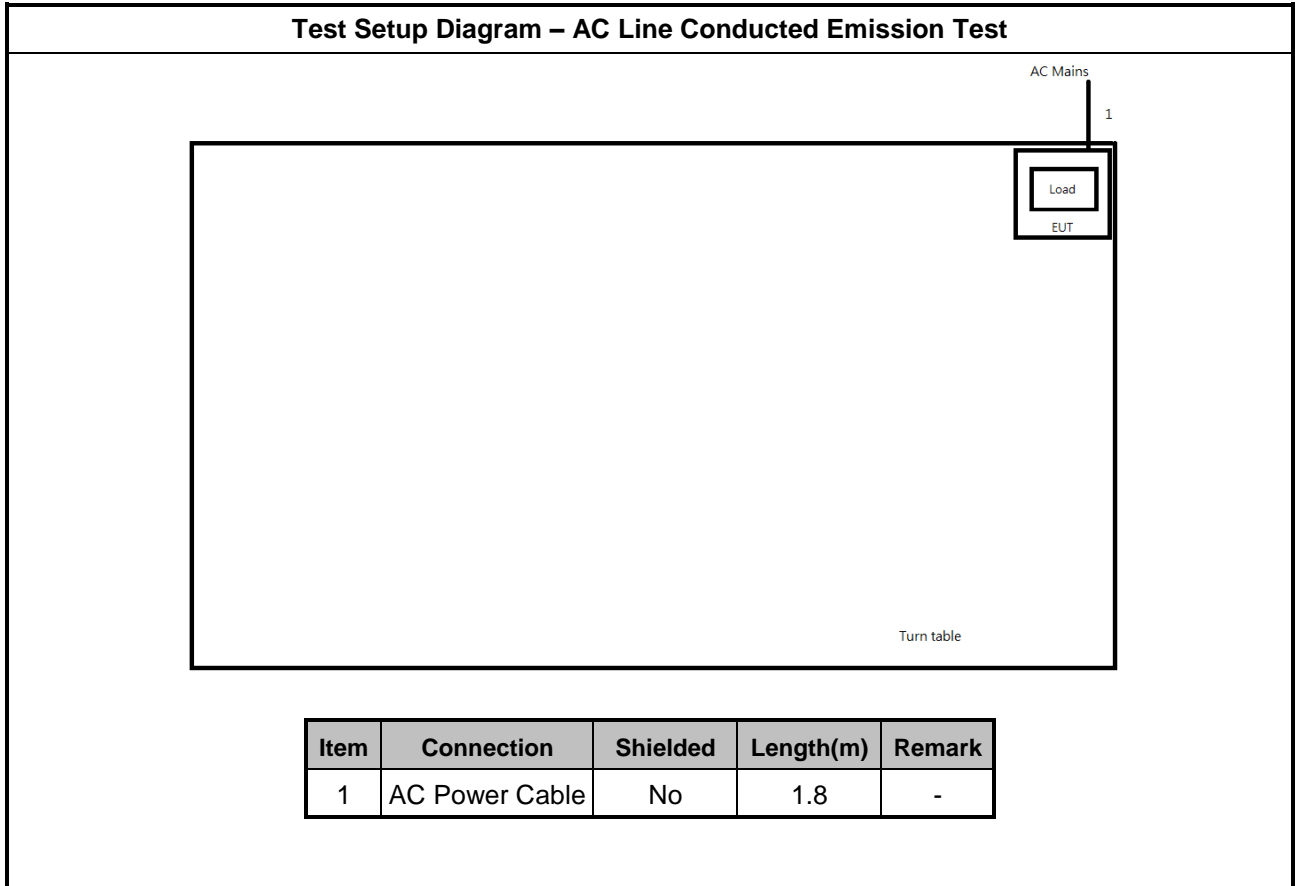
Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Power Cable	Power Sync	PW-GPC180-3	-
2	LAN Cable	Power sync	CAT-6E-10	N/A

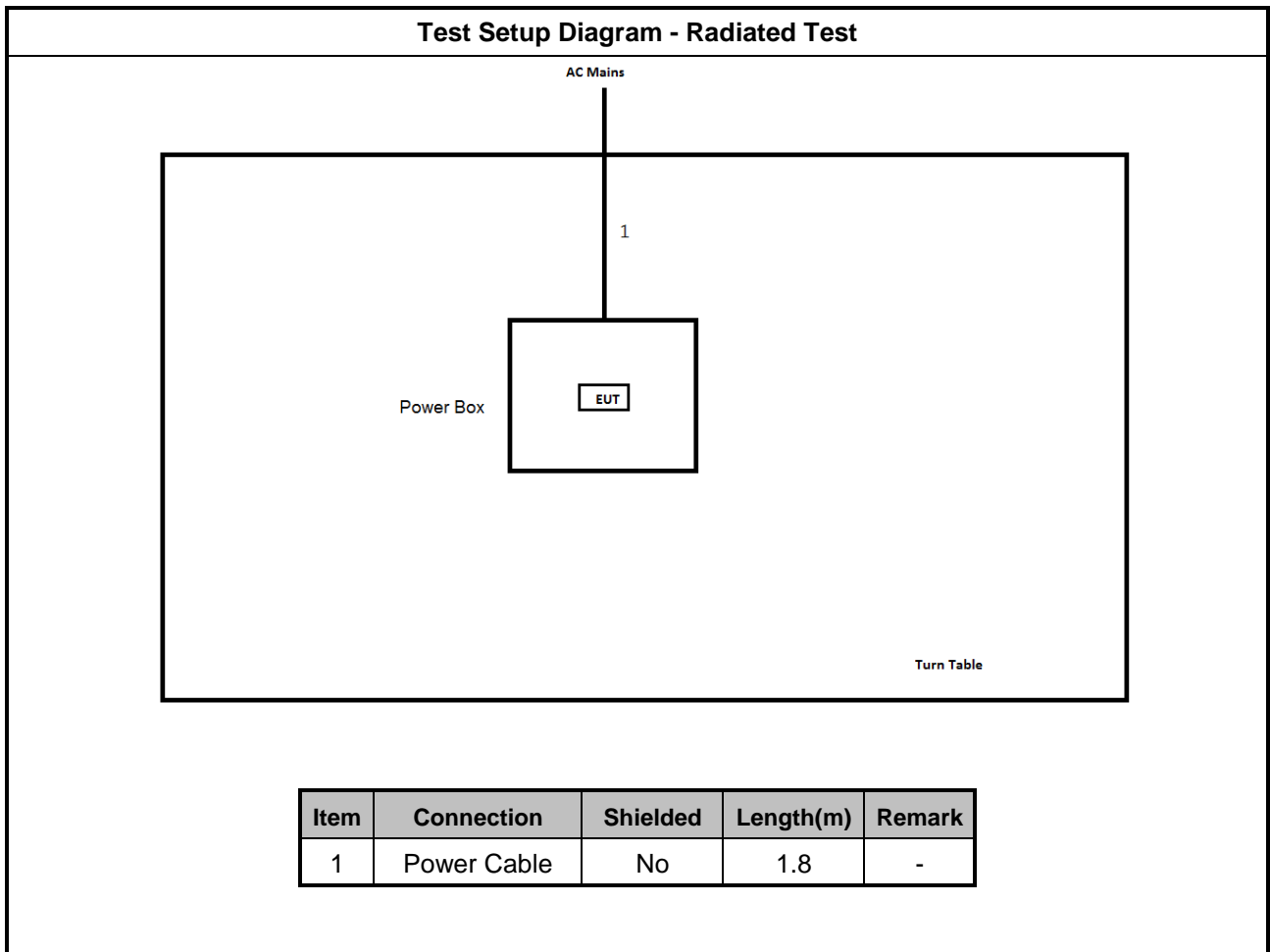
Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DOC
2	Adapter for NB	DELL	HA65NM130	DOC

Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Client for BF	-	-	-

Note: Support equipment No.1 was provided by customer.

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.

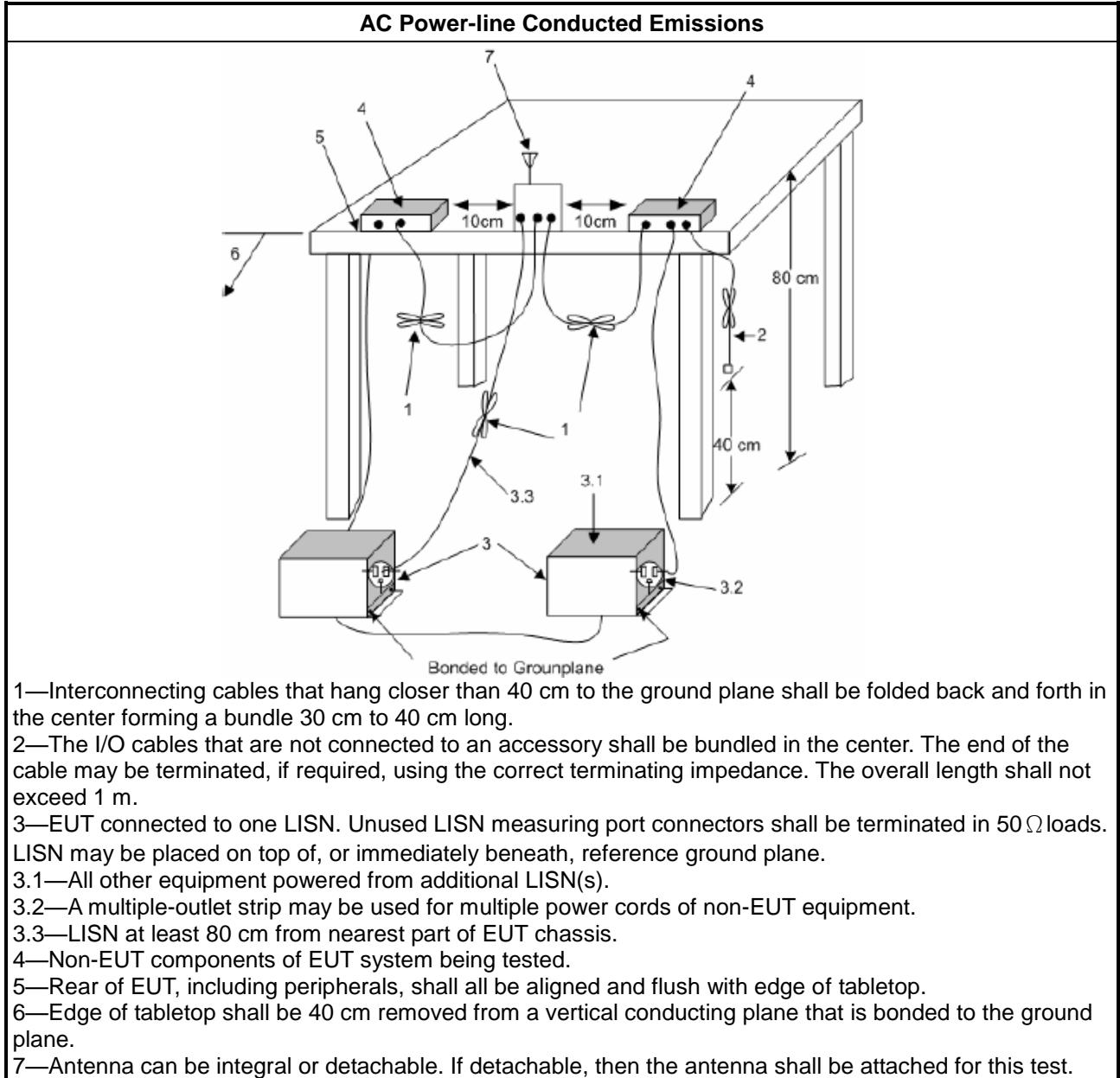
3.1.2 Measuring Instruments

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 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

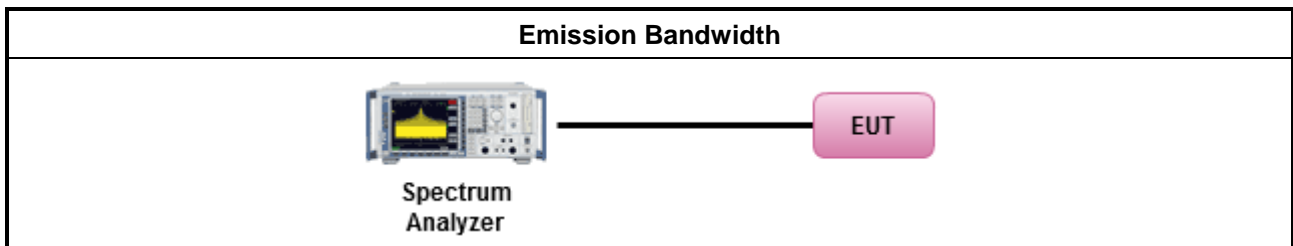
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

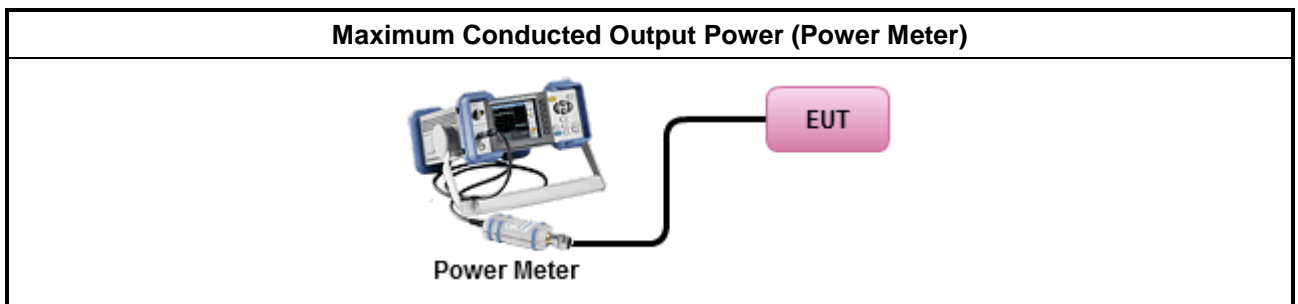
3.3.2 Measuring Instruments

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

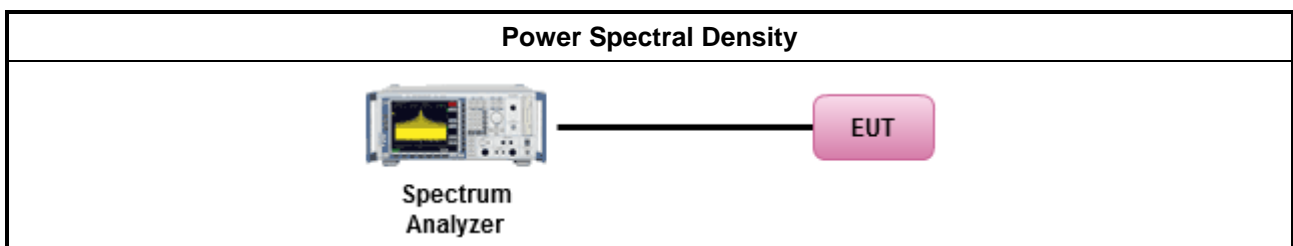
3.4.2 Measuring Instruments

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) Method PKPSD.
	<ul style="list-style-type: none"> ▪ For conducted measurement.
	<ul style="list-style-type: none"> ▪ If The EUT supports multiple transmit chains using options given below:
	<ul style="list-style-type: none"> ▪ Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

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

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average level.

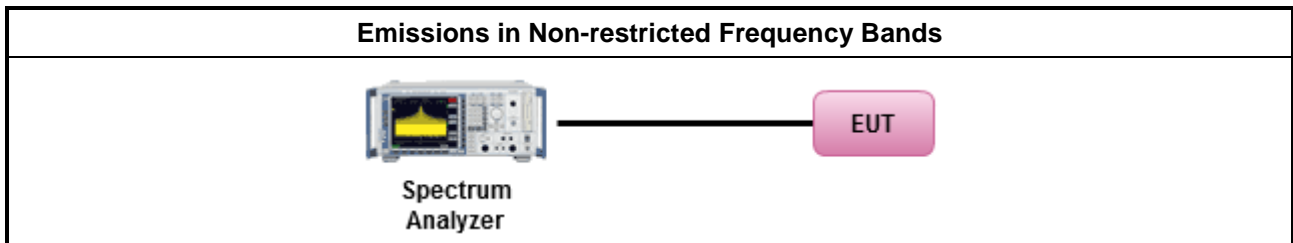
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

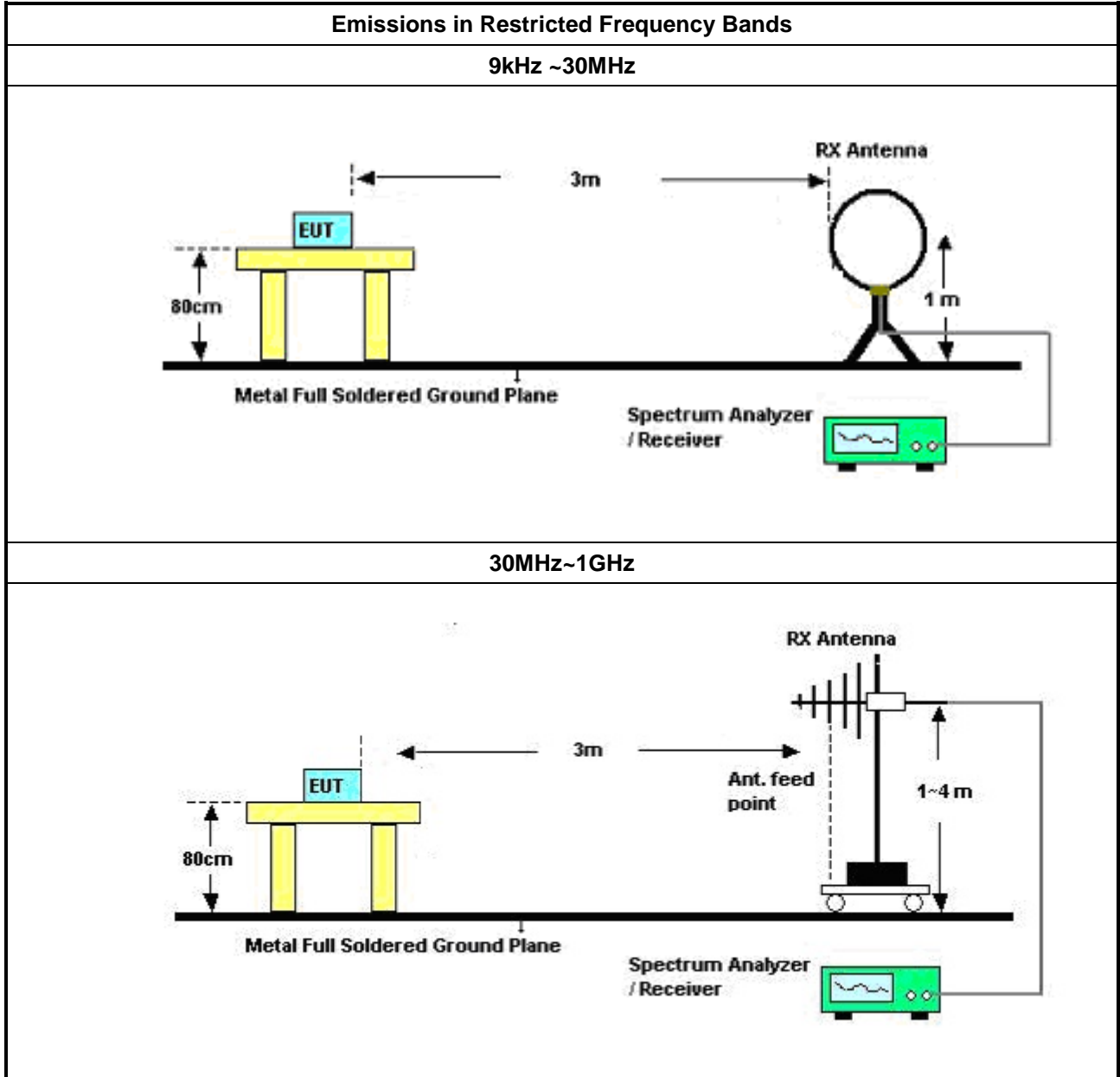
3.6.2 Measuring Instruments

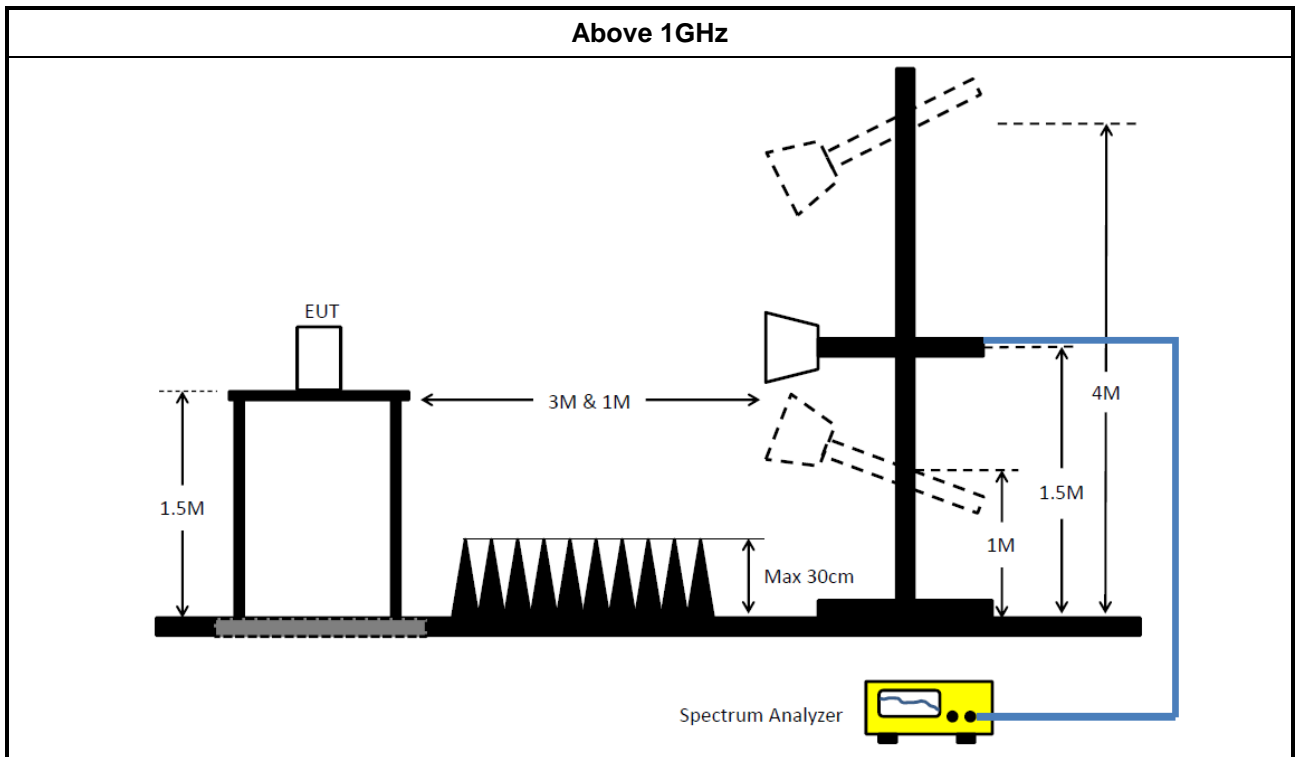
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
	<ul style="list-style-type: none"> ▪ The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
	<ul style="list-style-type: none"> ▪ Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
	<ul style="list-style-type: none"> ▪ For the transmitter unwanted emissions shall be measured using following options below: <ul style="list-style-type: none"> ▪ Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
	<ul style="list-style-type: none"> ▪ For the transmitter band-edge emissions shall be measured using following options below: <ul style="list-style-type: none"> ▪ Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below. ▪ Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements. ▪ Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
	<ul style="list-style-type: none"> ▪ Use the following spectrum analyzer settings: <ul style="list-style-type: none"> ▪ Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold. ▪ Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
	<ul style="list-style-type: none"> ▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification. <ul style="list-style-type: none"> ▪ Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field. ▪ Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

3.6.4 Test Setup





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

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

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9kHz~3.6GHz	09/Apr/2019	08/Apr/2020
LISN	R&S	ENV216	101295	9kHz~30MHz	08/Nov/2018	07/Nov/2019
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz~200MHz	17/Sep/2018	16/Sep/2019
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9kHz~30MHz	12/Oct/2018	11/Oct/2019

NCR : Non-Calibration Require

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	13/Mar/2019	12/Mar/2020
Power Sensor	Anritsu	MA2411B	1339407	300MHz~40GHz	17/Nov/2018	16/Nov/2019
Power Meter	Anritsu	ML2495A	1517010	300MHz~40GHz	17/Nov/2018	16/Nov/2019
Cable 0.2m	HUBER	MY10710/4	RF Cable - 01	30MHz~18G	10/Jan/2019	09/Jan/2020
Cable 0.2m	HUBER	MY10711/4	RF Cable - 02	30MHz~18G	10/Jan/2019	09/Jan/2020
Cable 0.5m	HUBER	MY39470/4	RF Cable - 29	30MHz~18G	10/Jan/2019	09/Jan/2020
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	12/Nov/2018	10/Nov/2020



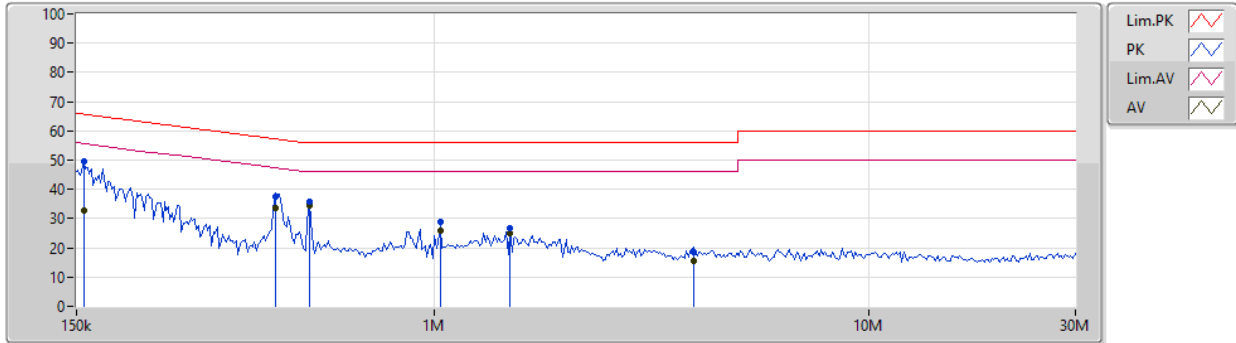
Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz~1GHz	22/Apr/2019	21/Apr/2020
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz~18GHz	13/Jun/2019	12/Jun/2020
Microwave System Prempfier	Agilent	8449B	3008A02326	1GHz~26.5GHz	15/Jul/2019	14/Jul/2020
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	22/Apr/2019	21/Apr/2020
EMI Test Receiver	R&S	ESR3	102052	9kHz~3.6GHz	09/Apr/2019	08/Apr/2020
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	07/Aug/2019	06/Aug/2020
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	02/Oct/2018	03/Oct/2019
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	22/May/2019	21/May/2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz~40GHz	22/May/2019	21/May/2020
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz~40GHz	05/Aug/2019	04/Aug/2020
Loop Antenna	TESEQ	HLA 6120	31244	9k~30MHz	15/Mar/2019	14/Mar/2020
LF-CABLE-2019 0218	Jye Bao	RG142	CB028	9kHz~1GHz	18/Feb/2019	17/Feb/2020
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4+556627	1GHz~40GHz	13/Mar/2019	12/Mar/2020

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Switching Power Supply mode		

20/09/2019



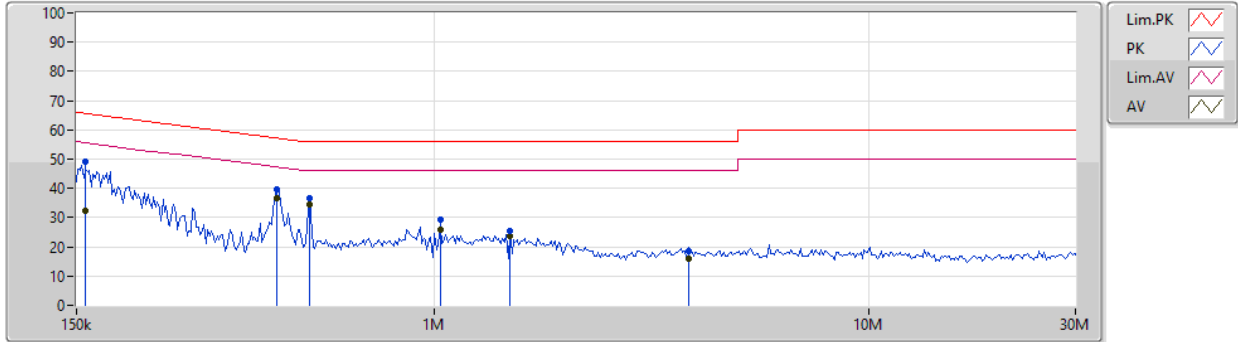
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	156.091k	49.41	65.67	-16.26	19.48	Neutral	-	29.93	9.60	0.01	9.87
AV	156.091k	32.78	55.67	-22.89	19.48	Neutral	-	13.30	9.60	0.01	9.87
QP	430.682k	37.43	57.24	-19.81	19.48	Neutral	-	17.95	9.59	0.01	9.88
AV	430.682k	33.80	47.24	-13.44	19.48	Neutral	-	14.32	9.59	0.01	9.88
QP	515.159k	35.68	56.00	-20.32	19.48	Neutral	-	16.20	9.59	0.01	9.88
AV	515.159k	34.47	46.00	-11.53	19.48	Neutral	"Worst"	14.99	9.59	0.01	9.88
QP	1.034M	28.88	56.00	-27.12	19.49	Neutral	-	9.39	9.59	0.02	9.88
AV	1.034M	25.79	46.00	-20.21	19.49	Neutral	-	6.30	9.59	0.02	9.88
QP	1.494M	26.73	56.00	-29.27	19.52	Neutral	-	7.21	9.60	0.03	9.89
AV	1.494M	24.92	46.00	-21.08	19.52	Neutral	-	5.40	9.60	0.03	9.89
QP	3.961M	18.37	56.00	-37.63	19.55	Neutral	-	-1.18	9.61	0.05	9.89
AV	3.961M	15.64	46.00	-30.36	19.55	Neutral	-	-3.91	9.61	0.05	9.89



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	Switching Power Supply mode		

20/09/2019



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)
QP	157.652k	49.09	65.58	-16.49	19.48	Line	-	29.61	9.60	0.01	9.87
AV	157.652k	32.48	55.58	-23.10	19.48	Line	-	13.00	9.60	0.01	9.87
QP	434.989k	39.50	57.17	-17.67	19.48	Line	-	20.02	9.59	0.01	9.88
AV	434.989k	36.52	47.17	-10.65	19.48	Line	"Worst"	17.04	9.59	0.01	9.88
QP	515.159k	36.60	56.00	-19.40	19.48	Line	-	17.12	9.59	0.01	9.88
AV	515.159k	34.42	46.00	-11.58	19.48	Line	-	14.94	9.59	0.01	9.88
QP	1.034M	29.29	56.00	-26.71	19.50	Line	-	9.79	9.60	0.02	9.88
AV	1.034M	25.88	46.00	-20.12	19.50	Line	-	6.38	9.60	0.02	9.88
QP	1.494M	25.53	56.00	-30.47	19.53	Line	-	6.00	9.61	0.03	9.89
AV	1.494M	23.67	46.00	-22.33	19.53	Line	-	4.14	9.61	0.03	9.89
QP	3.845M	18.44	56.00	-37.56	19.57	Line	-	-1.13	9.63	0.05	9.89
AV	3.845M	15.90	46.00	-30.10	19.57	Line	-	-3.67	9.63	0.05	9.89



Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	716.25k	1.034M	1M03F1D	693.75k	1.029M

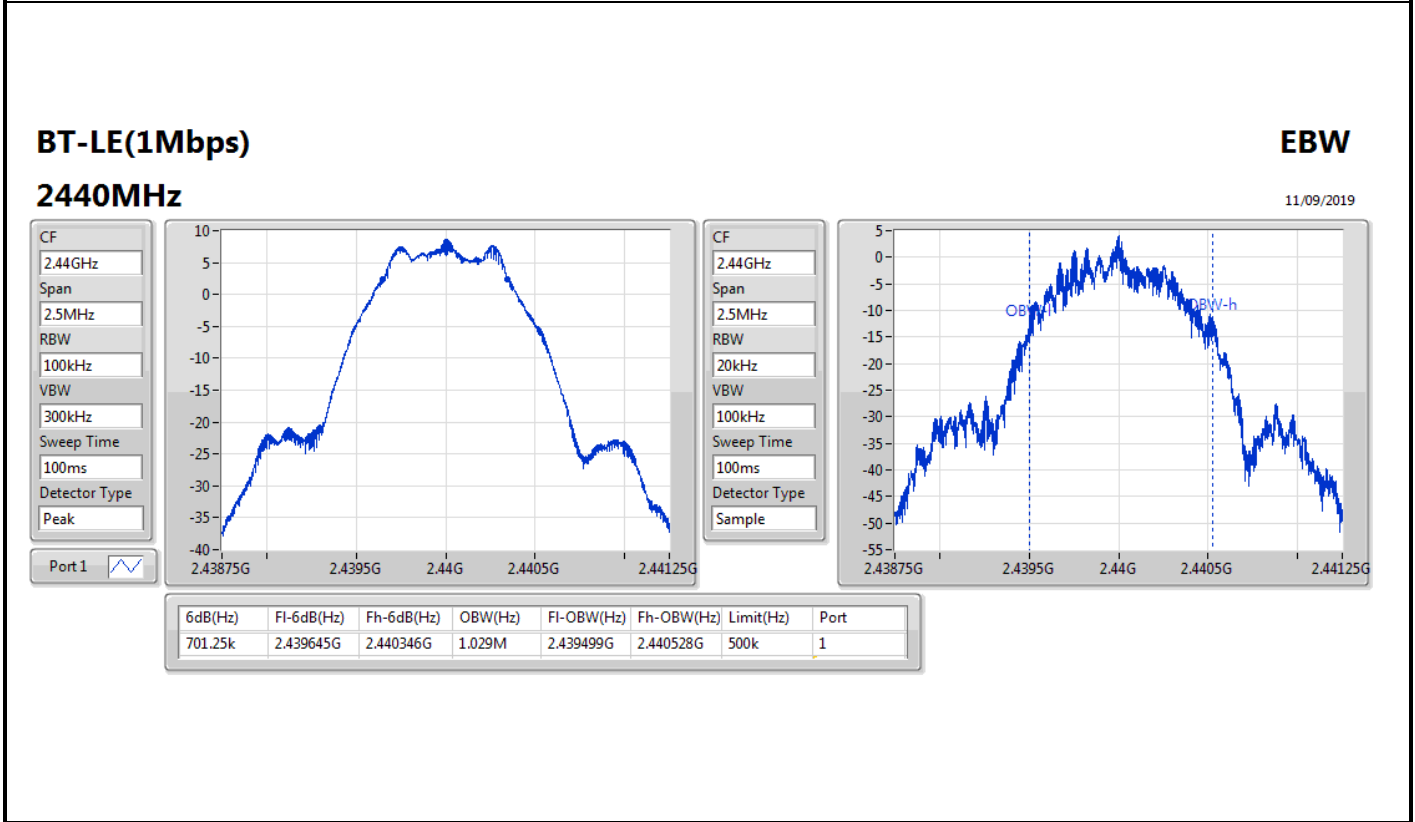
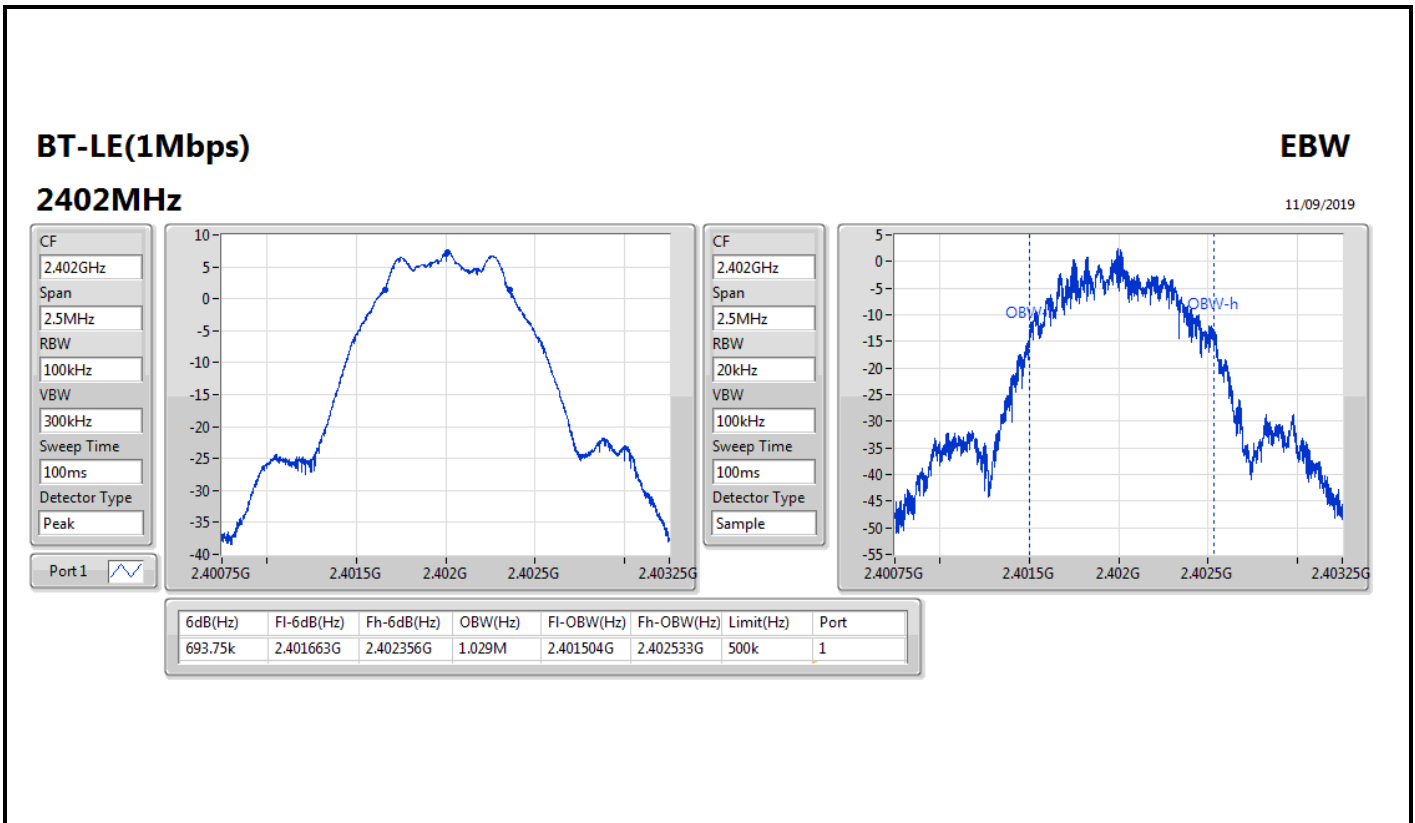
Max-N dB = Maximum 6dB down bandwidth; **Max-OBW** = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth; **Min-OBW** = Minimum 99% occupied bandwidth;



Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	693.75k	1.029M
2440MHz	Pass	500k	701.25k	1.029M
2480MHz	Pass	500k	716.25k	1.034M

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



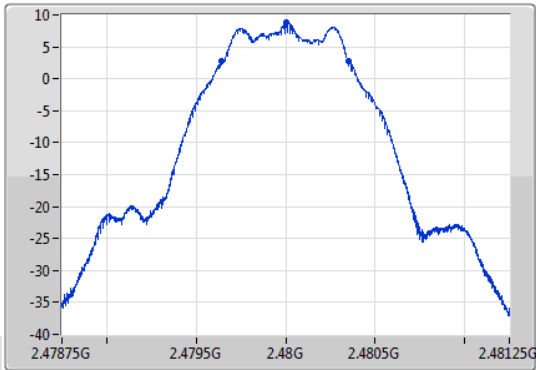
BT-LE(1Mbps)

2480MHz

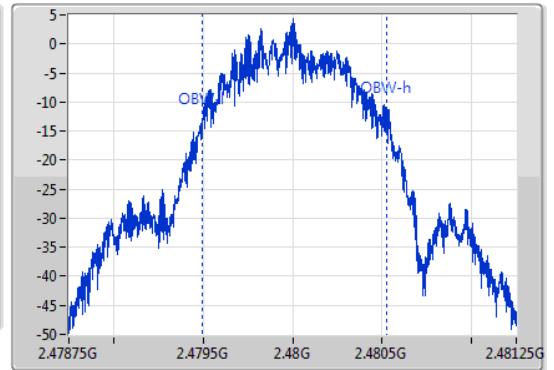
EBW

11/09/2019

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



CF
2.48GHz
Span
2.5MHz
RBW
20kHz
VBW
100kHz
Sweep Time
100ms
Detector Type
Sample



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
716.25k	2.479639G	2.480355G	1.034M	2.479494G	2.480528G	500k	1



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	8.86	0.00769



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.10	7.43	30.00
2440MHz	Pass	1.10	8.36	30.00
2480MHz	Pass	1.10	8.86	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-6.98

RBW=3 kHz.

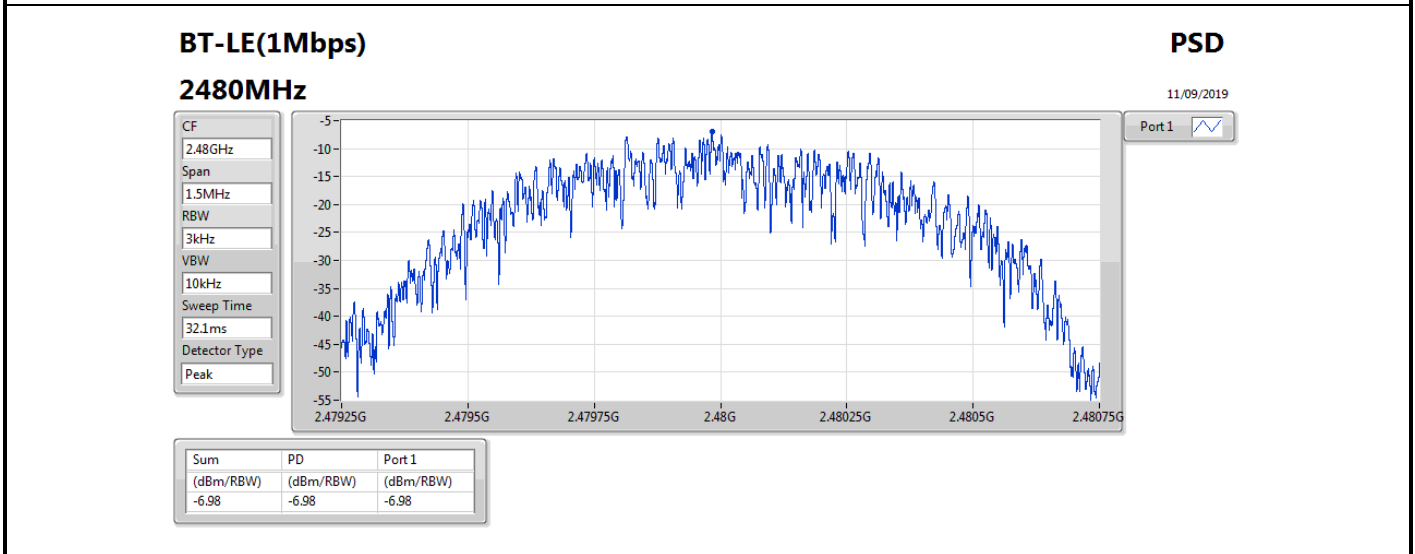
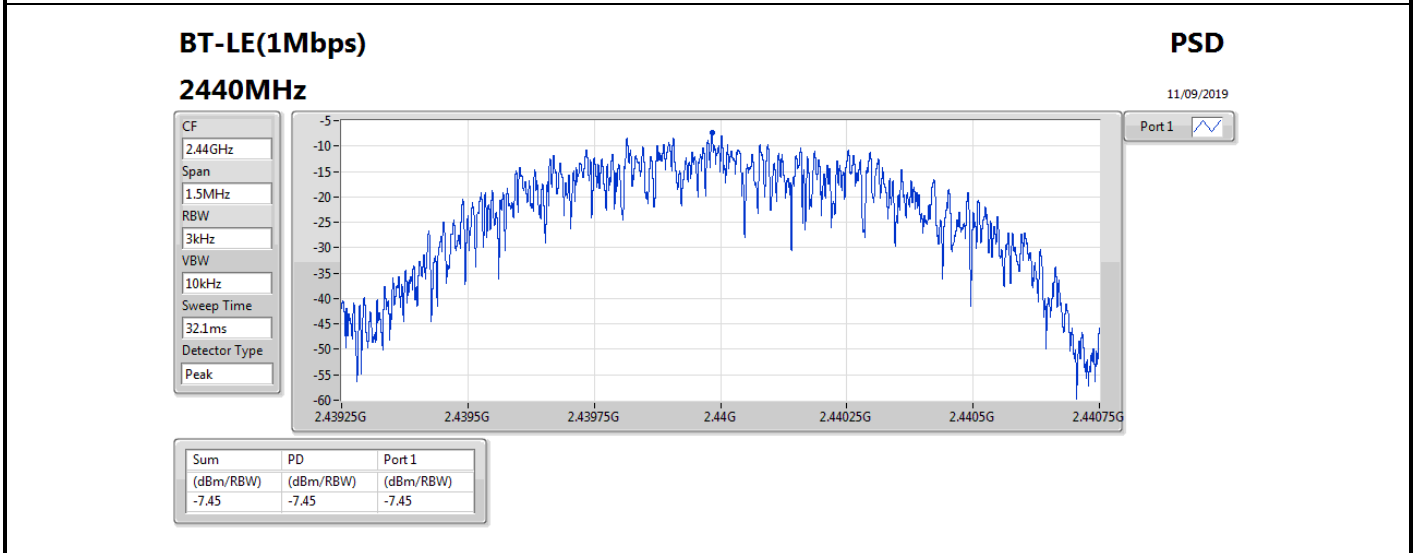
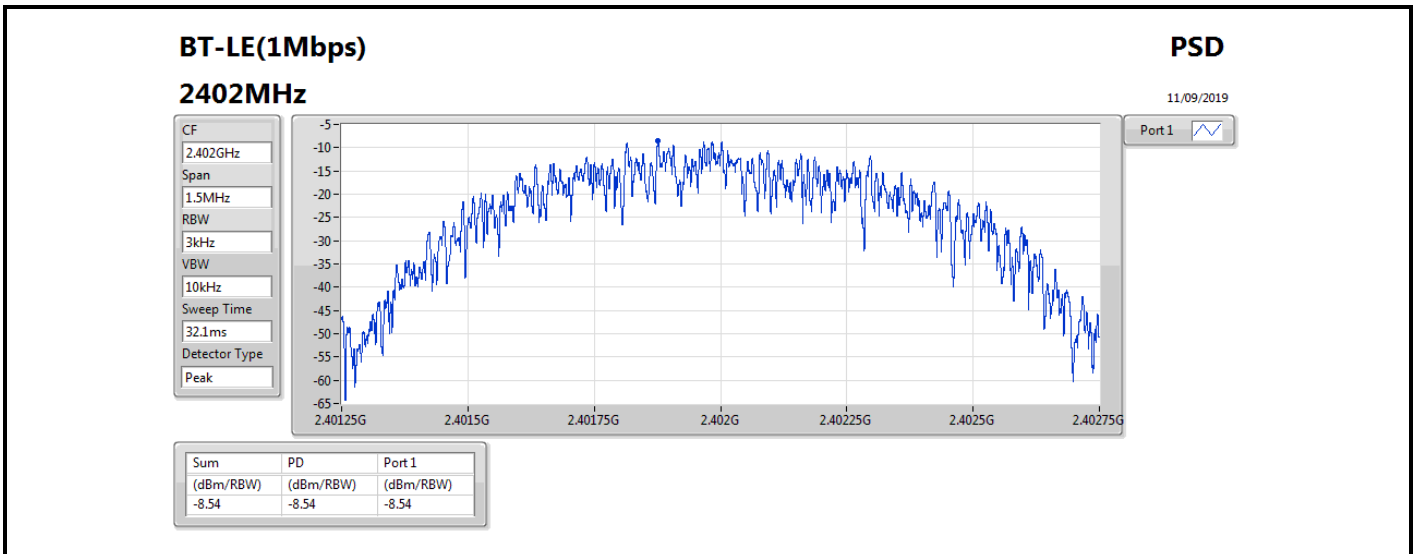


Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.10	-8.54	8.00
2440MHz	Pass	1.10	-7.45	8.00
2480MHz	Pass	1.10	-6.98	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;





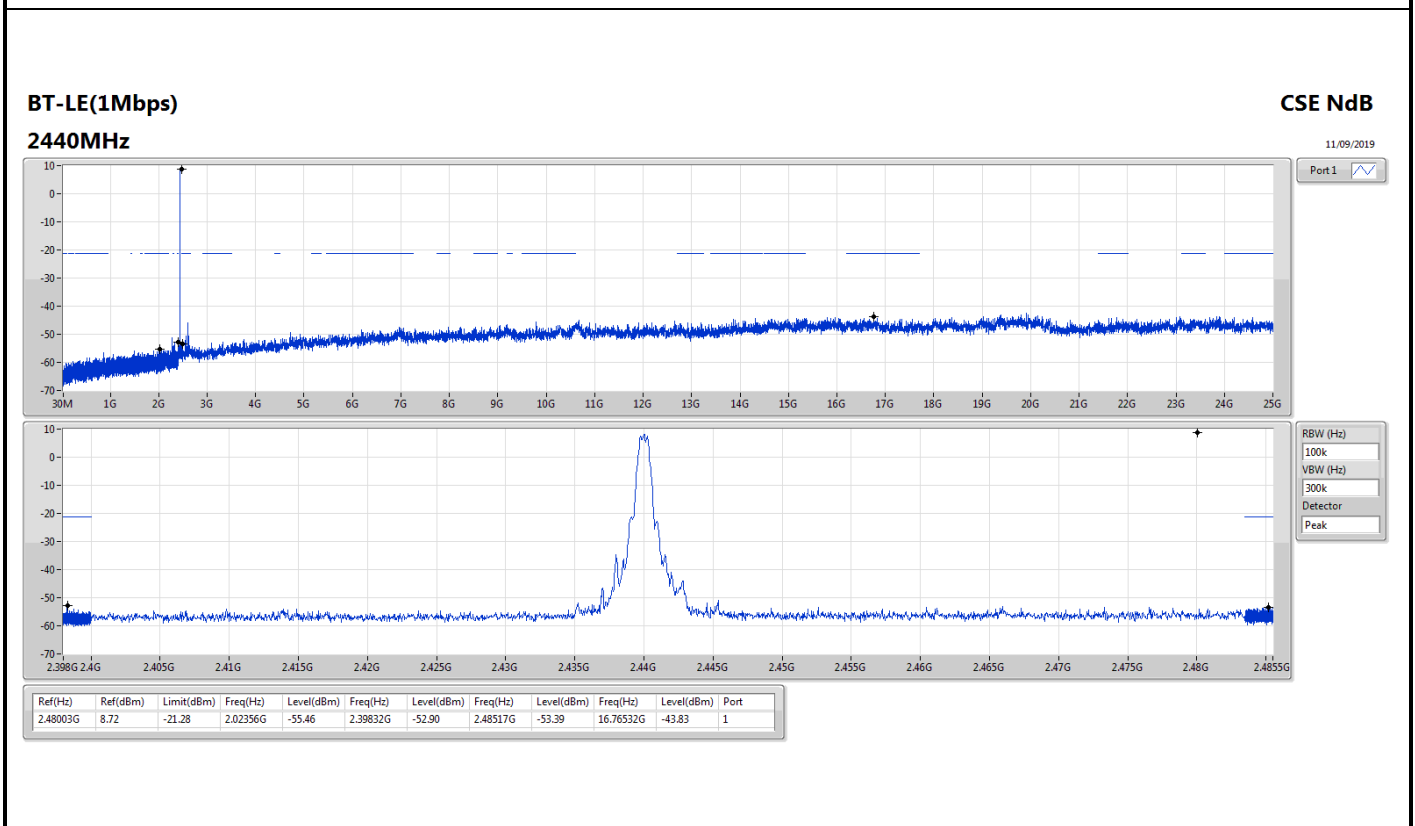
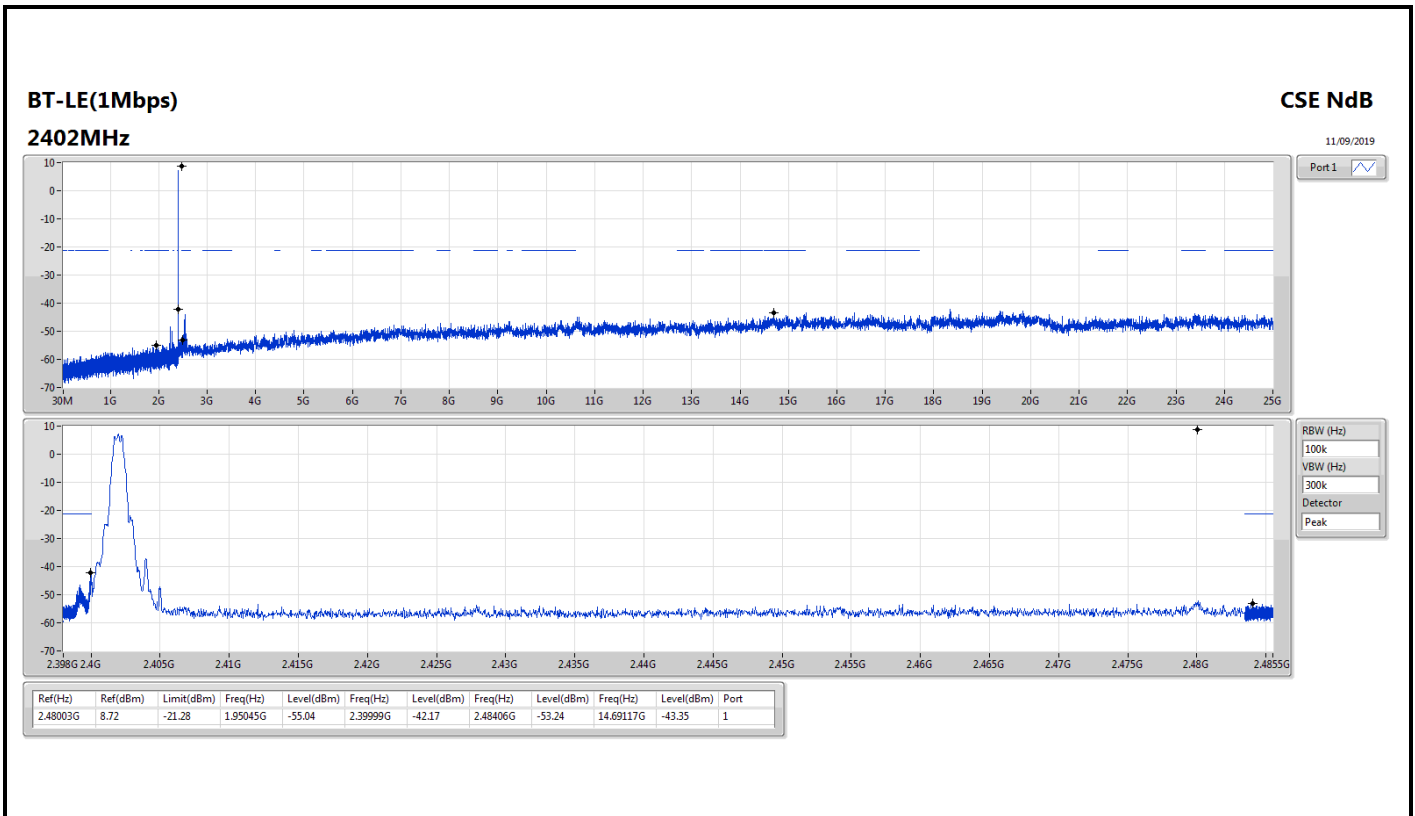
Summary

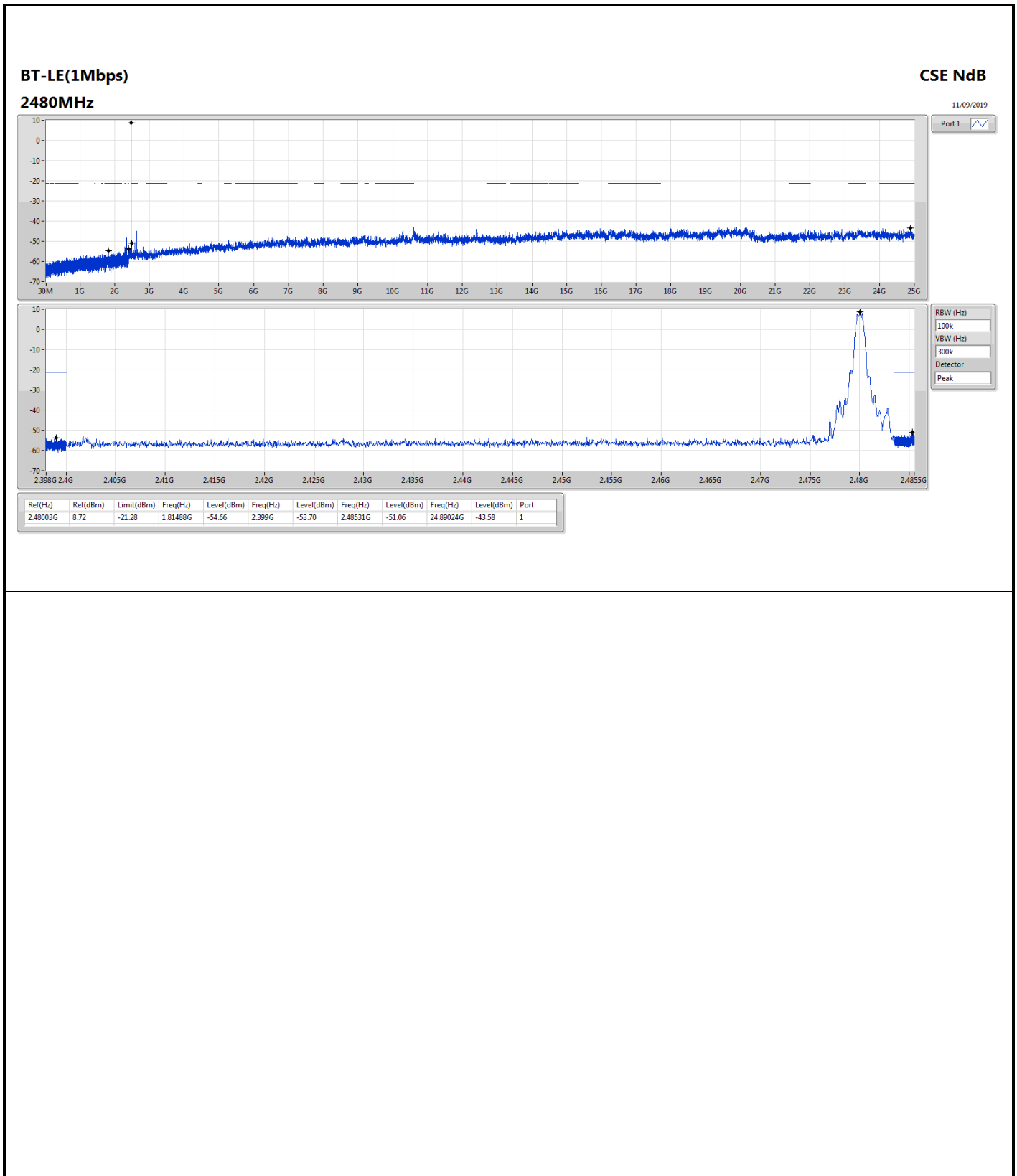
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.48003G	8.72	-21.28	1.95045G	-55.04	2.39999G	-42.17	2.48406G	-53.24	14.69117G	-43.35	1



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	2.48003G	8.72	-21.28	1.95045G	-55.04	2.39999G	-42.17	2.48406G	-53.24	14.69117G	-43.35	1
2440MHz	Pass	2.48003G	8.72	-21.28	2.02356G	-55.46	2.39832G	-52.90	2.48517G	-53.39	16.76532G	-43.83	1
2480MHz	Pass	2.48003G	8.72	-21.28	1.81488G	-54.66	2.399G	-53.70	2.48531G	-51.06	24.89024G	-43.58	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	590.66M	35.86	46.00	-10.14	3	Vertical	0	1.00	-



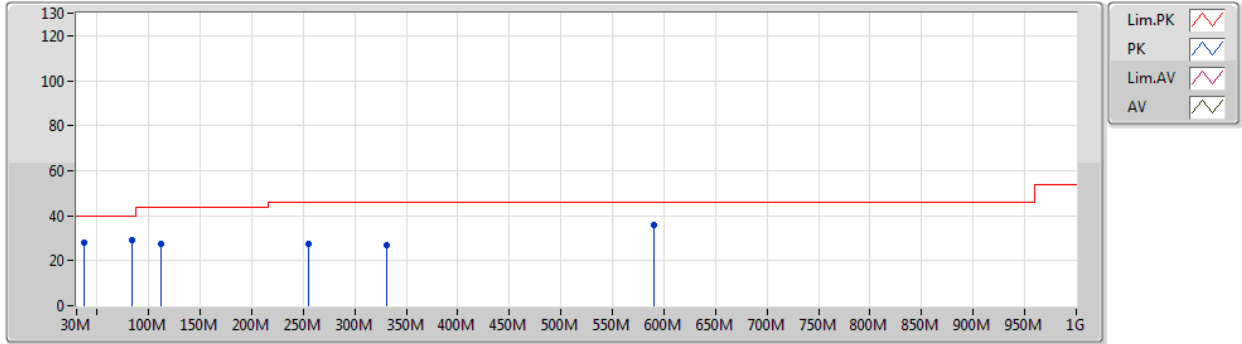
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	37.76M	27.81	40.00	-12.19	3	Vertical	0	1.00	-
2440MHz	Pass	PK	84.32M	28.93	40.00	-11.07	3	Vertical	0	1.00	-
2440MHz	Pass	PK	111.48M	27.34	43.50	-16.16	3	Vertical	0	1.00	-
2440MHz	Pass	PK	255.04M	27.44	46.00	-18.56	3	Vertical	0	1.00	-
2440MHz	Pass	PK	330.7M	26.64	46.00	-19.36	3	Vertical	0	1.00	-
2440MHz	Pass	PK	590.66M	35.86	46.00	-10.14	3	Vertical	0	1.00	-
2440MHz	Pass	PK	66.86M	14.60	40.00	-25.40	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	107.6M	28.44	43.50	-15.06	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	247.28M	29.01	46.00	-16.99	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	330.7M	32.25	46.00	-13.75	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	596.48M	33.54	46.00	-12.46	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	943.74M	29.67	46.00	-16.33	3	Horizontal	360	1.00	-

BT-LE(1Mbps)

16/09/2019

2440MHz_Switching Power Supply

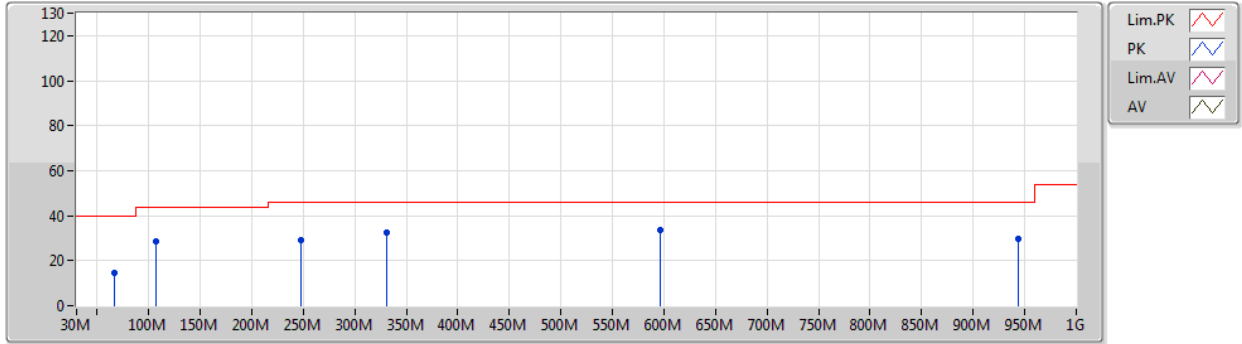


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	37.76M	27.81	40.00	-12.19	-17.07	3	Vertical	0	1.00	-	44.88	19.67	0.53	37.27
PK	84.32M	28.93	40.00	-11.07	-23.20	3	Vertical	0	1.00	-	52.13	12.95	0.75	36.90
PK	111.48M	27.34	43.50	-16.16	-19.63	3	Vertical	0	1.00	-	46.97	16.24	0.86	36.73
PK	255.04M	27.44	46.00	-18.56	-16.35	3	Vertical	0	1.00	-	43.79	18.77	1.31	36.43
PK	330.7M	26.64	46.00	-19.36	-16.01	3	Vertical	0	1.00	-	42.65	19.00	1.52	36.53
PK	590.66M	35.86	46.00	-10.14	-10.50	3	Vertical	0	1.00	-	46.36	24.61	2.08	37.19

BT-LE(1Mbps)

16/09/2019

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	66.86M	14.60	40.00	-25.40	-25.19	3	Horizontal	360	1.00	-	39.79	11.18	0.66	37.03
PK	107.6M	28.44	43.50	-15.06	-20.00	3	Horizontal	360	1.00	-	48.44	15.91	0.84	36.75
PK	247.28M	29.01	46.00	-16.99	-17.52	3	Horizontal	360	1.00	-	46.53	17.62	1.28	36.42
PK	330.7M	32.25	46.00	-13.75	-16.01	3	Horizontal	360	1.00	-	48.26	19.00	1.52	36.53
PK	596.48M	33.54	46.00	-12.46	-10.46	3	Horizontal	360	1.00	-	44.00	24.66	2.09	37.21
PK	943.74M	29.67	46.00	-16.33	-4.80	3	Horizontal	360	1.00	-	34.47	29.92	2.60	37.32



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	48.95	54.00	-5.05	3	Vertical	202	1.00	-



Result

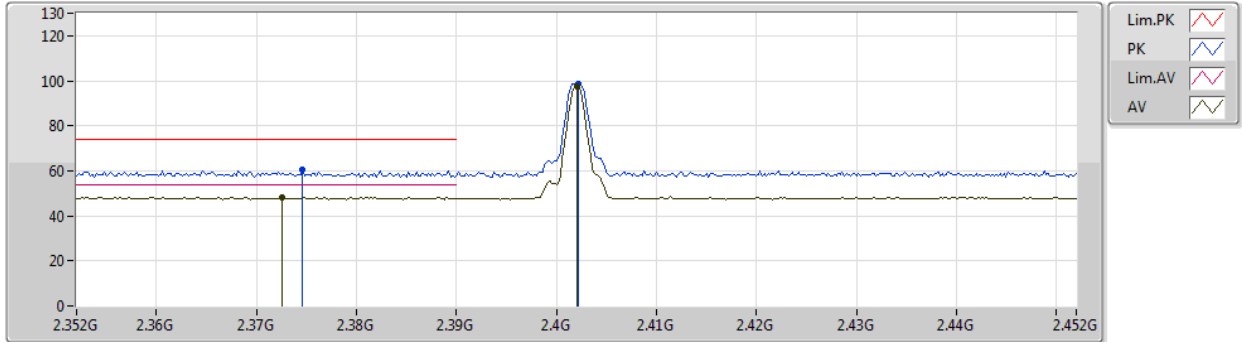
Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3726G	48.33	54.00	-5.67	3	Vertical	203	1.00	-
2402MHz	Pass	AV	2.402G	97.66	Inf	-Inf	3	Vertical	203	1.00	-
2402MHz	Pass	PK	2.3746G	60.24	74.00	-13.76	3	Vertical	203	1.00	-
2402MHz	Pass	PK	2.4022G	98.73	Inf	-Inf	3	Vertical	203	1.00	-
2402MHz	Pass	AV	2.3632G	48.23	54.00	-5.77	3	Horizontal	193	1.50	-
2402MHz	Pass	AV	2.402G	98.40	Inf	-Inf	3	Horizontal	193	1.50	-
2402MHz	Pass	PK	2.3624G	60.16	74.00	-13.84	3	Horizontal	193	1.50	-
2402MHz	Pass	PK	2.4022G	99.36	Inf	-Inf	3	Horizontal	193	1.50	-
2402MHz	Pass	AV	4.80354G	39.83	54.00	-14.17	3	Vertical	160	2.98	-
2402MHz	Pass	PK	4.80361G	50.42	74.00	-23.58	3	Vertical	160	2.98	-
2402MHz	Pass	AV	4.80342G	37.56	54.00	-16.44	3	Horizontal	211	1.50	-
2402MHz	Pass	PK	4.80354G	49.64	74.00	-24.36	3	Horizontal	211	1.50	-
2440MHz	Pass	AV	2.3472G	48.32	54.00	-5.68	3	Vertical	203	1.02	-
2440MHz	Pass	AV	2.44G	97.08	Inf	-Inf	3	Vertical	203	1.02	-
2440MHz	Pass	AV	2.4932G	48.53	54.00	-5.47	3	Vertical	203	1.02	-
2440MHz	Pass	PK	2.3656G	60.18	74.00	-13.82	3	Vertical	203	1.02	-
2440MHz	Pass	PK	2.4396G	98.19	Inf	-Inf	3	Vertical	203	1.02	-
2440MHz	Pass	PK	2.4864G	59.97	74.00	-14.03	3	Vertical	203	1.02	-
2440MHz	Pass	AV	2.3508G	48.23	54.00	-5.77	3	Horizontal	195	1.00	-
2440MHz	Pass	AV	2.44G	97.67	Inf	-Inf	3	Horizontal	195	1.00	-
2440MHz	Pass	AV	2.4936G	48.44	54.00	-5.56	3	Horizontal	195	1.00	-
2440MHz	Pass	PK	2.3624G	60.21	74.00	-13.79	3	Horizontal	195	1.00	-
2440MHz	Pass	PK	2.4396G	98.73	Inf	-Inf	3	Horizontal	195	1.00	-
2440MHz	Pass	PK	2.4916G	59.91	74.00	-14.09	3	Horizontal	195	1.00	-
2440MHz	Pass	AV	4.87955G	38.86	54.00	-15.14	3	Vertical	237	1.00	-
2440MHz	Pass	PK	4.87964G	50.46	74.00	-23.54	3	Vertical	237	1.00	-
2440MHz	Pass	AV	4.8797G	37.61	54.00	-16.39	3	Horizontal	206	2.35	-
2440MHz	Pass	PK	4.87976G	50.07	74.00	-23.93	3	Horizontal	206	2.35	-
2480MHz	Pass	AV	2.48G	97.89	Inf	-Inf	3	Vertical	202	1.00	-
2480MHz	Pass	AV	2.4835G	48.95	54.00	-5.05	3	Vertical	202	1.00	-
2480MHz	Pass	PK	2.4798G	98.91	Inf	-Inf	3	Vertical	202	1.00	-
2480MHz	Pass	PK	2.4835G	59.74	74.00	-14.26	3	Vertical	202	1.00	-
2480MHz	Pass	AV	2.48G	97.55	Inf	-Inf	3	Horizontal	197	1.35	-
2480MHz	Pass	AV	2.4835G	48.78	54.00	-5.22	3	Horizontal	197	1.35	-
2480MHz	Pass	PK	2.4798G	98.57	Inf	-Inf	3	Horizontal	197	1.35	-
2480MHz	Pass	PK	2.4984G	59.99	74.00	-14.01	3	Horizontal	197	1.35	-
2480MHz	Pass	AV	4.95972G	39.49	54.00	-14.51	3	Vertical	267	2.11	-
2480MHz	Pass	PK	4.95929G	50.86	74.00	-23.14	3	Vertical	267	2.11	-
2480MHz	Pass	AV	4.95986G	40.87	54.00	-13.13	3	Horizontal	214	2.54	-
2480MHz	Pass	PK	4.95952G	50.84	74.00	-23.16	3	Horizontal	214	2.54	-



BT-LE(1Mbps)

13/09/2019

2402MHz_TX

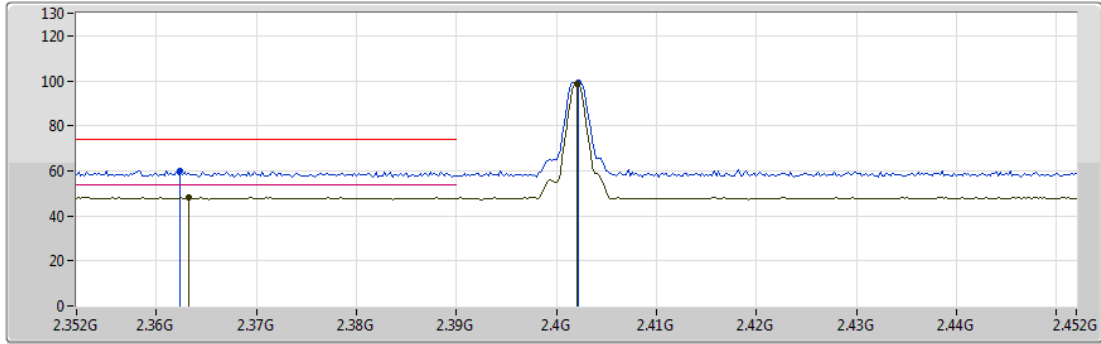






Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3726G	48.33	54.00	-5.67	35.05	3	Vertical	203	1.00	-	13.28	27.71	7.34	-
AV	2.402G	97.66	Inf	-Inf	34.93	3	Vertical	203	1.00	-	62.73	27.60	7.33	-
PK	2.3746G	60.24	74.00	-13.76	35.04	3	Vertical	203	1.00	-	25.20	27.70	7.34	-
PK	2.4022G	98.73	Inf	-Inf	34.93	3	Vertical	203	1.00	-	63.80	27.60	7.33	-

BT-LE(1Mbps)

13/09/2019

2402MHz_TX



Lim.PK 
 PK 
 Lim.AV 
 AV 

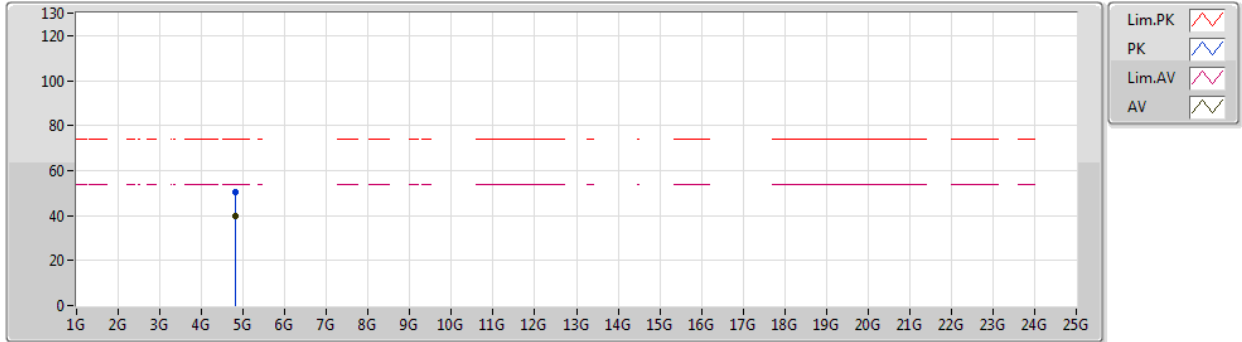
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3632G	48.23	54.00	-5.77	35.09	3	Horizontal	193	1.50	-	13.14	27.75	7.34	-
AV	2.402G	98.40	Inf	-Inf	34.93	3	Horizontal	193	1.50	-	63.47	27.60	7.33	-
PK	2.3624G	60.16	74.00	-13.84	35.09	3	Horizontal	193	1.50	-	25.07	27.75	7.34	-
PK	2.4022G	99.36	Inf	-Inf	34.93	3	Horizontal	193	1.50	-	64.43	27.60	7.33	-



BT-LE(1Mbps)

13/09/2019

2402MHz_TX



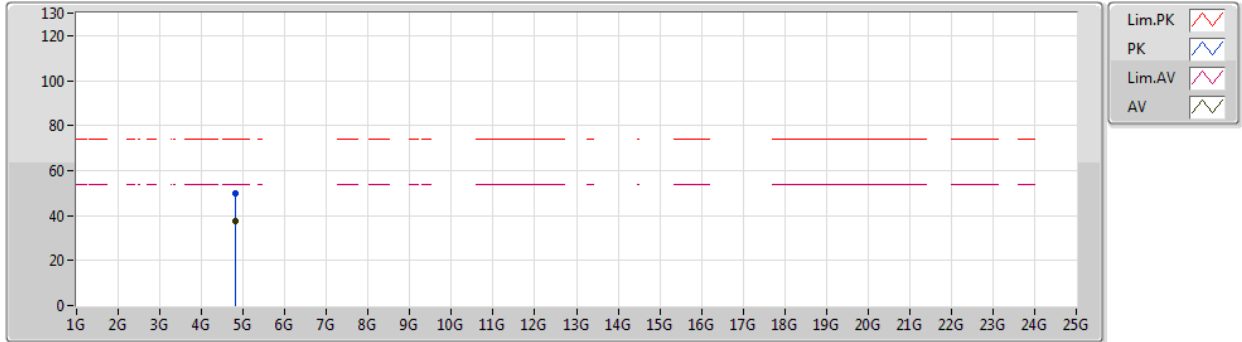
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AV	4.80354G	39.83	54.00	-14.17	7.17	3	Vertical	160	2.98	-	32.66	31.10	10.12	34.05
PK	4.80361G	50.42	74.00	-23.58	7.17	3	Vertical	160	2.98	-	43.25	31.10	10.12	34.05



BT-LE(1Mbps)

13/09/2019

2402MHz_TX

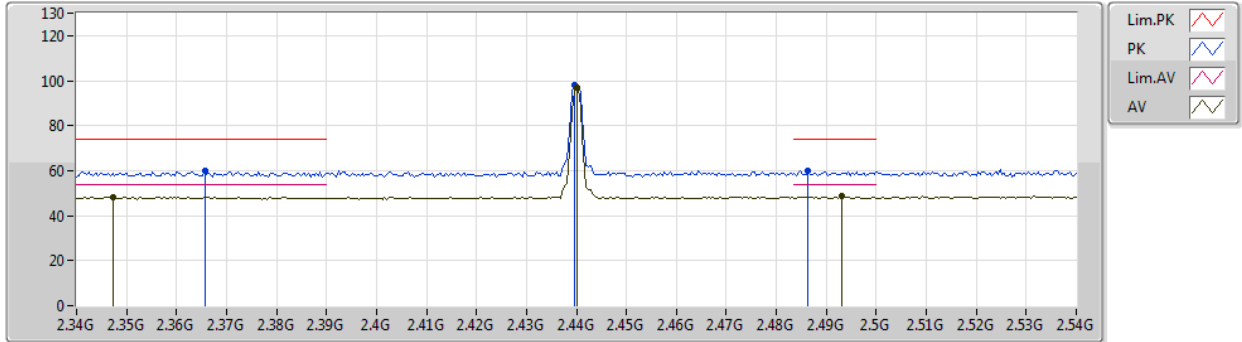


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80342G	37.56	54.00	-16.44	7.17	3	Horizontal	211	1.50	-	30.39	31.10	10.12	34.05
PK	4.80354G	49.64	74.00	-24.36	7.17	3	Horizontal	211	1.50	-	42.47	31.10	10.12	34.05

BT-LE(1Mbps)

13/09/2019

2440MHz_TX

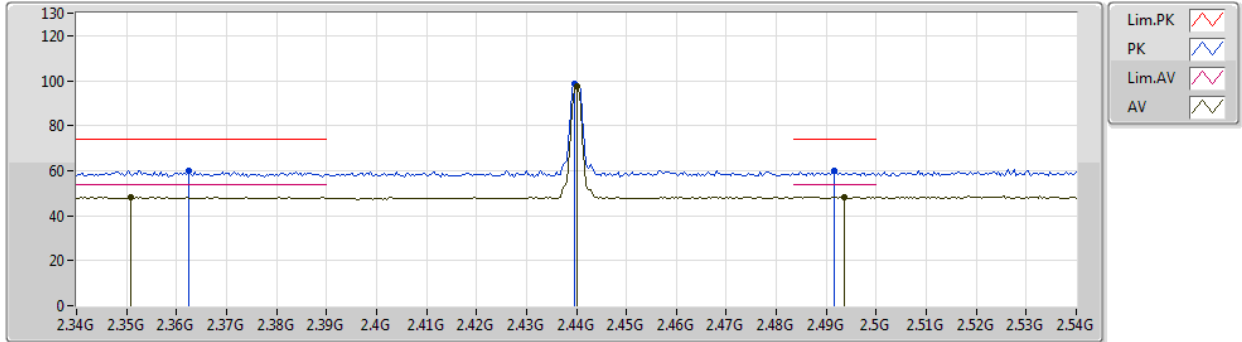


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3472G	48.32	54.00	-5.68	35.15	3	Vertical	203	1.02	-	13.17	27.81	7.34	-
AV	2.44G	97.08	Inf	-Inf	34.91	3	Vertical	203	1.02	-	62.17	27.56	7.35	-
AV	2.4932G	48.53	54.00	-5.47	34.88	3	Vertical	203	1.02	-	13.65	27.51	7.37	-
PK	2.3656G	60.18	74.00	-13.82	35.08	3	Vertical	203	1.02	-	25.10	27.74	7.34	-
PK	2.4396G	98.19	Inf	-Inf	34.91	3	Vertical	203	1.02	-	63.28	27.56	7.35	-
PK	2.4864G	59.97	74.00	-14.03	34.88	3	Vertical	203	1.02	-	25.09	27.51	7.37	-

BT-LE(1Mbps)

13/09/2019

2440MHz_TX



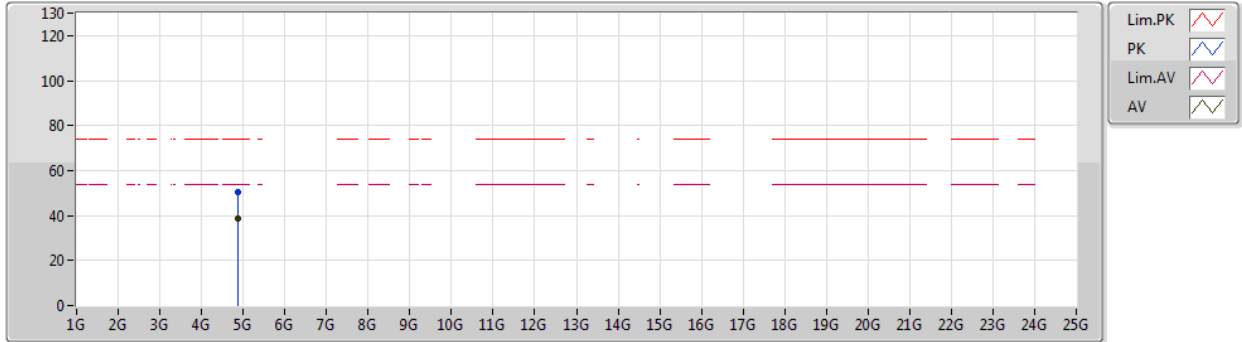
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3508G	48.23	54.00	-5.77	35.14	3	Horizontal	195	1.00	-	13.09	27.80	7.34	-
AV	2.44G	97.67	Inf	-Inf	34.91	3	Horizontal	195	1.00	-	62.76	27.56	7.35	-
AV	2.4936G	48.44	54.00	-5.56	34.88	3	Horizontal	195	1.00	-	13.56	27.51	7.37	-
PK	2.3624G	60.21	74.00	-13.79	35.09	3	Horizontal	195	1.00	-	25.12	27.75	7.34	-
PK	2.4396G	98.73	Inf	-Inf	34.91	3	Horizontal	195	1.00	-	63.82	27.56	7.35	-
PK	2.4916G	59.91	74.00	-14.09	34.88	3	Horizontal	195	1.00	-	25.03	27.51	7.37	-



BT-LE(1Mbps)

13/09/2019

2440MHz_TX



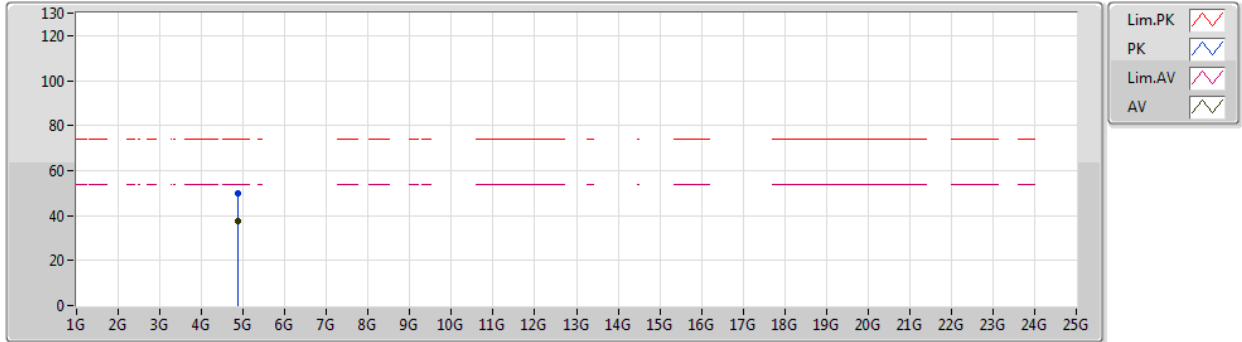
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87955G	38.86	54.00	-15.14	7.23	3	Vertical	237	1.00	-	31.63	31.10	10.18	34.05
PK	4.87964G	50.46	74.00	-23.54	7.23	3	Vertical	237	1.00	-	43.23	31.10	10.18	34.05



BT-LE(1Mbps)

13/09/2019

2440MHz_TX

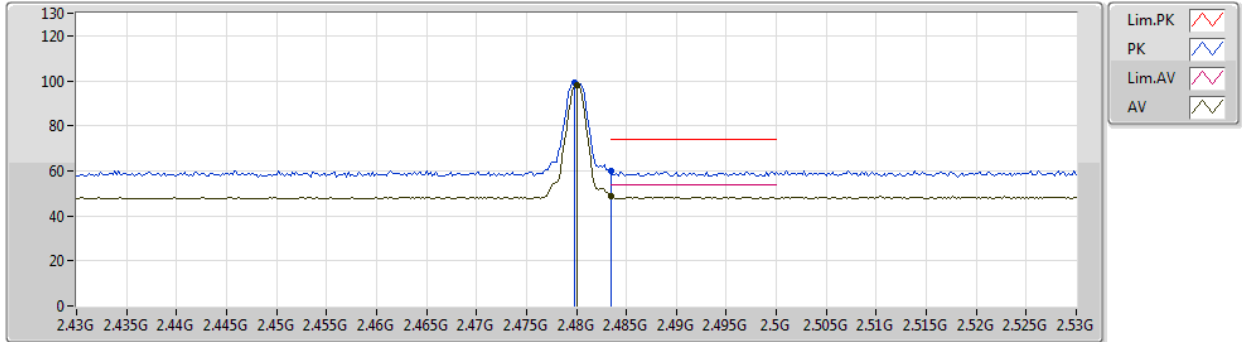


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87976G	37.61	54.00	-16.39	7.23	3	Horizontal	206	2.35	-	30.38	31.10	10.18	34.05
PK	4.87976G	50.07	74.00	-23.93	7.23	3	Horizontal	206	2.35	-	42.84	31.10	10.18	34.05

BT-LE(1Mbps)

13/09/2019

2480MHz_TX

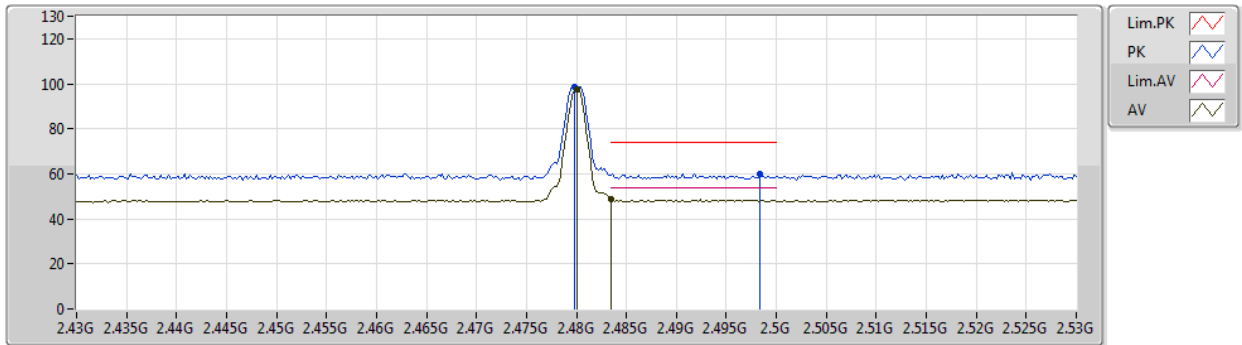


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	97.89	Inf	-Inf	34.89	3	Vertical	202	1.00	-	63.00	27.52	7.37	-
AV	2.4835G	48.95	54.00	-5.05	34.89	3	Vertical	202	1.00	-	14.06	27.52	7.37	-
PK	2.4798G	98.91	Inf	-Inf	34.88	3	Vertical	202	1.00	-	64.03	27.52	7.36	-
PK	2.4835G	59.74	74.00	-14.26	34.89	3	Vertical	202	1.00	-	24.85	27.52	7.37	-

BT-LE(1Mbps)

13/09/2019

2480MHz_TX



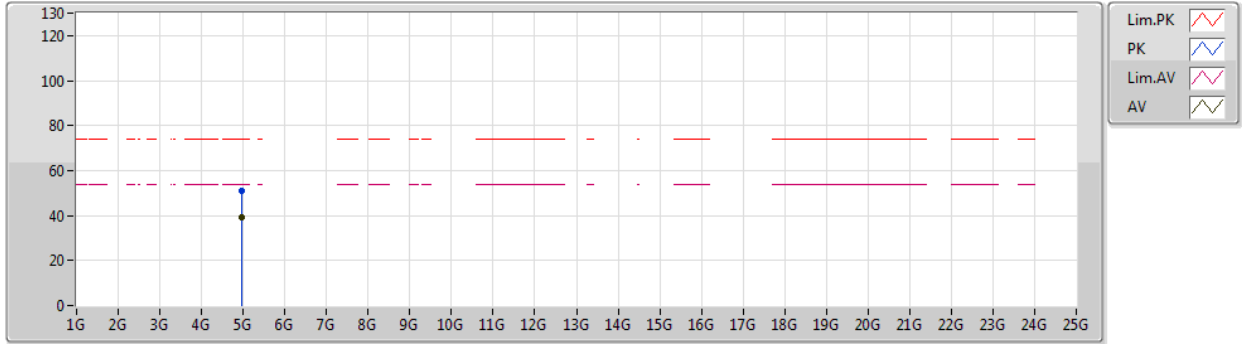
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	97.55	Inf	-Inf	34.89	3	Horizontal	197	1.35	-	62.66	27.52	7.37	-
AV	2.4835G	48.78	54.00	-5.22	34.89	3	Horizontal	197	1.35	-	13.89	27.52	7.37	-
PK	2.4798G	98.57	Inf	-Inf	34.88	3	Horizontal	197	1.35	-	63.69	27.52	7.36	-
PK	2.4984G	59.99	74.00	-14.01	34.87	3	Horizontal	197	1.35	-	25.12	27.50	7.37	-



BT-LE(1Mbps)

13/09/2019

2480MHz_TX



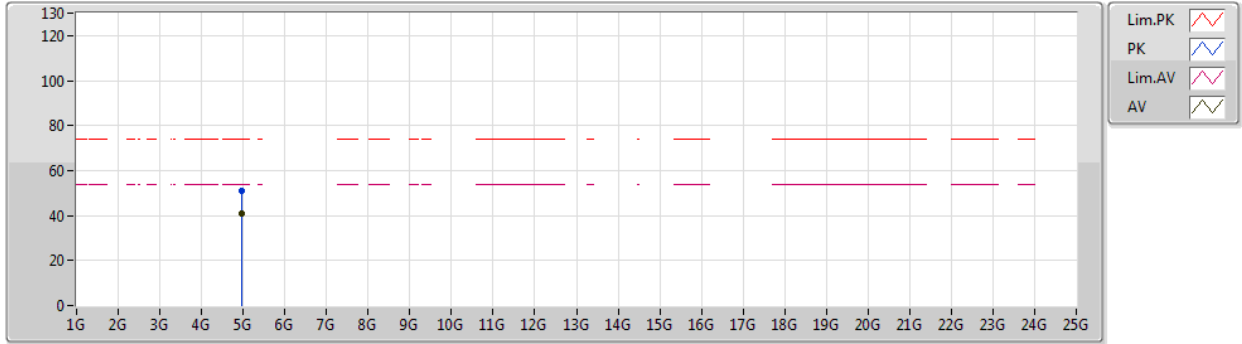
Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95972G	39.49	54.00	-14.51	7.55	3	Vertical	267	2.11	-	31.94	31.34	10.25	34.04
PK	4.95929G	50.86	74.00	-23.14	7.55	3	Vertical	267	2.11	-	43.31	31.34	10.25	34.04



BT-LE(1Mbps)

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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	4.95986G	40.87	54.00	-13.13	7.55	3	Horizontal	214	2.54	-	33.32	31.34	10.25	34.04
PK	4.95952G	50.84	74.00	-23.16	7.55	3	Horizontal	214	2.54	-	43.29	31.34	10.25	34.04