



FCC Test Report

FCC ID : UDX-60084010
Equipment : Wireless Sensor
Brand Name : Cisco
Model Name : MT10-HW
Applicant : Cisco Systems, Inc.
170 West Tasman Drive San Jose, CA 95134 USA
Manufacturer : Cisco Systems, Inc.
170 West Tasman Drive San Jose, CA 95134 USA
Standard : 47 CFR FCC Part 15.247

The product was received on Dec. 23, 2019, and testing was started from Dec. 26, 2019 and completed on Dec. 27, 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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History of this test report

TEL : 886-3-3273456
FAX : 886-3-3270973
Report Template No.: HE1-C10 Ver3.8
FCC ID: UDX-60084010

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: Debby Hung

1 General Description

1.1 Information

1.1.1 RF General Information

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

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

Note:

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

1.1.2 Antenna Information

Ant.	Brand	Model Number (P/N)	Antenna Type	Connector	Antenna Gain (dBi)
1	SENAO	5718A0391300	PCB	IPEX	4.0

For BT function:

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

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

1.1.3 EUT Information

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

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-LE(1Mbps)	1	0	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)

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

1.2 Testing Applied Standards

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

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

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

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

1.3 Testing Location Information

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

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	20.3~23.1°C / 55.6~67.2%	26/Dec/2019
RF Conducted	TH06-HY	Gary	23.5~26.6°C / 65~69%	27/Dec/2019
Radiated	03CH02-HY	Streak	21.4~22.8°C / 50.2~53.6%	26/Dec/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)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

RF Conducted	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	5V

2.2 Test Channel Mode

Test Software	CMD
---------------	-----

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

2.3 The Worst Case Measurement Configuration

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

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

The Worst Case Mode for Following Conformance Tests			
Tests Item	Emissions in Restricted Frequency Bands		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX		
1	USB Mode		
Operating Mode > 1GHz	CTX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT	V		

2.4 Accessories

Accessories				
Battery	Brand Name	Energizer	Model Name	E91
	Power Rating	1.5 Vdc, 3000 mAh		
	Type	Li-ion, <u>Not</u>		
Magnet	Brand Name	XMAG	Model Name	MAGNET D25.4*1.59mm
Mounting bracket	Brand Name	CHAIN-RAY	Model Name	BRACKET WALL MOUNT

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

2.5 Support Equipment

Support Equipment – AC Conduction					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Power Cable	Power sync	TPCMRN0018	-	-
2	Adapter	DELL	AA90PM111	-	-
3	Notebook	DELL	PP13S	-	-
4	USB-C Cable	UGREEN	US288	-	Note 1

Note 1: Support equipment No.4 was provided by customer.

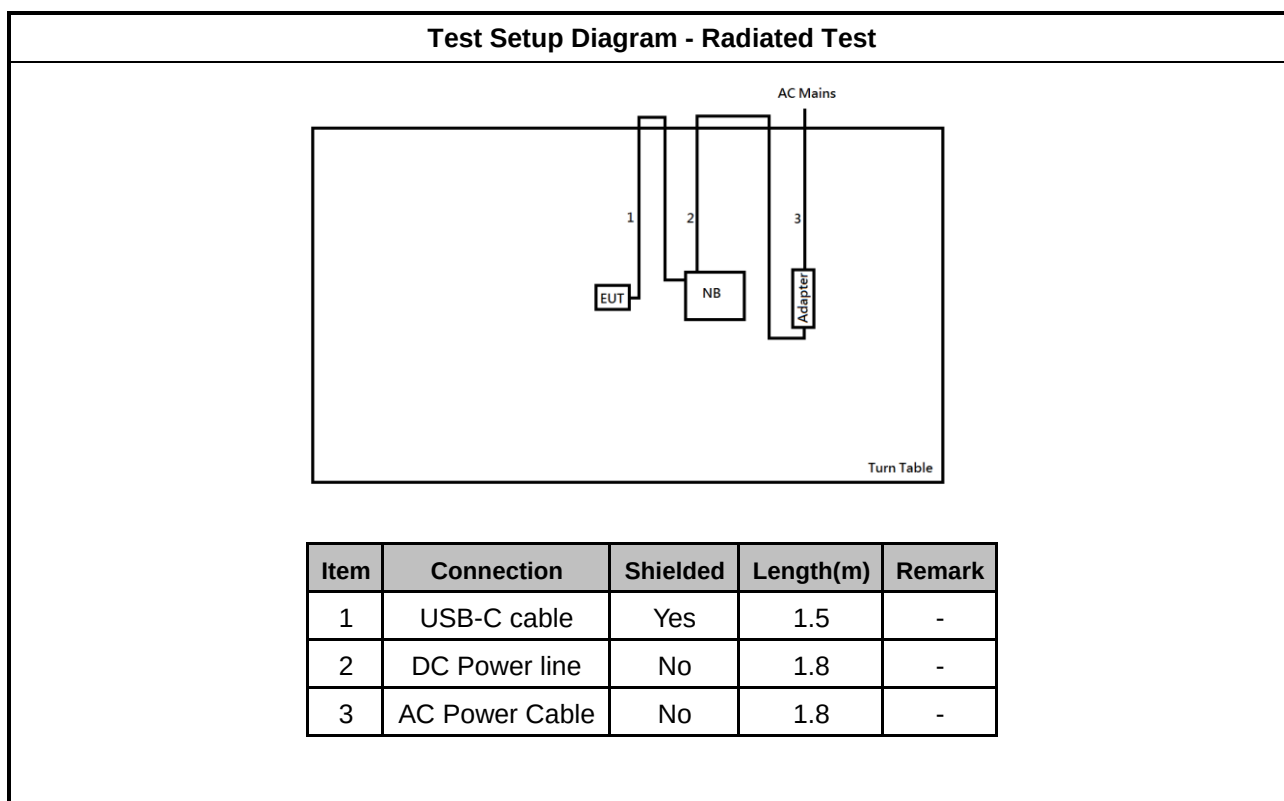
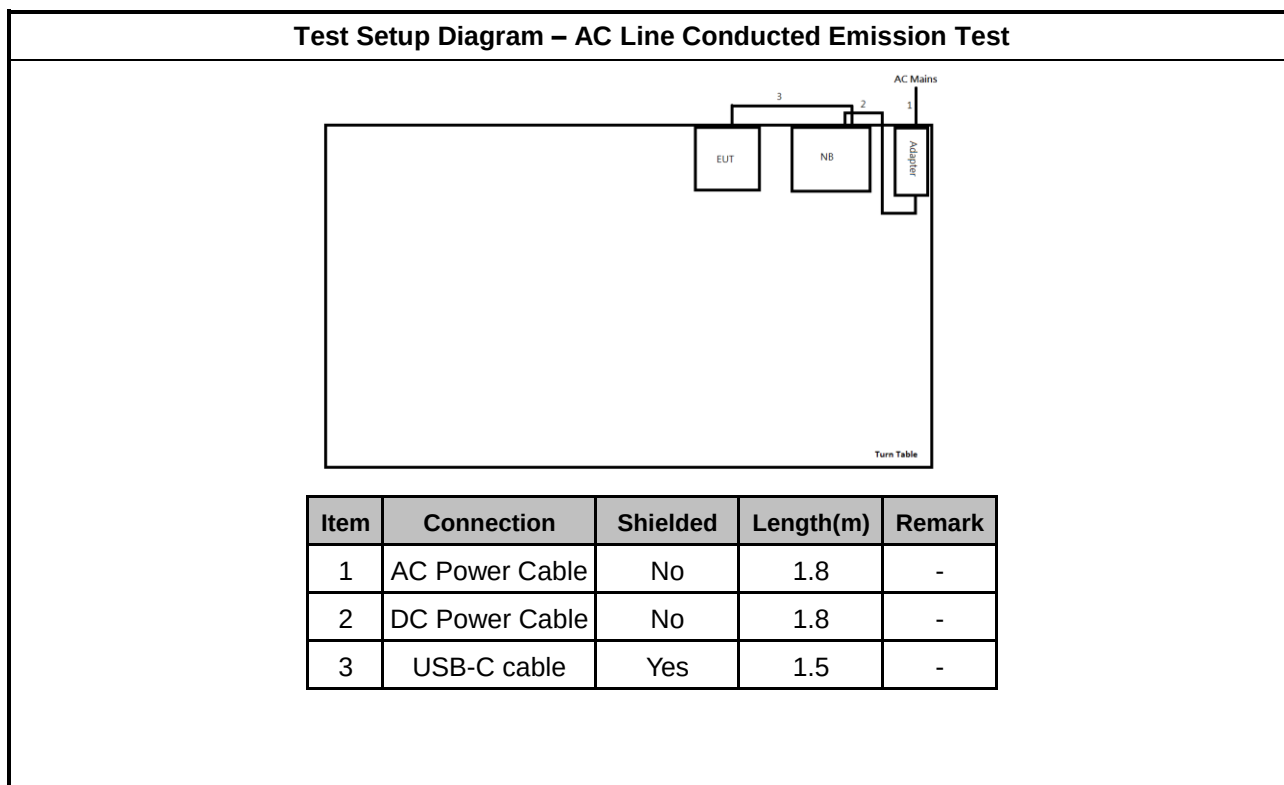
Support Equipment – Conducted					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	Notebook	DELL	E5410	DOC	-
2	Adapter for NB	DELL	HA65NM130	DOC	-
3	Fixture	-	-	-	Note 1

Note 1: Support equipment No.3 was provided by customer.

Support Equipment – Radiated					
No.	Equipment	Brand Name	Model Name	FCC ID	Remark
1	AC Power Cable	Power sync	TPCMRN0018	-	-
2	Adapter	DELL	AA90PM111	-	-
3	Notebook	DELL	E4300	-	-
4	USB-C Cable	UGREEN	US288	-	Note 1

Note 1: Support equipment No.4 was provided by customer.

2.6 Test Setup Diagram



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

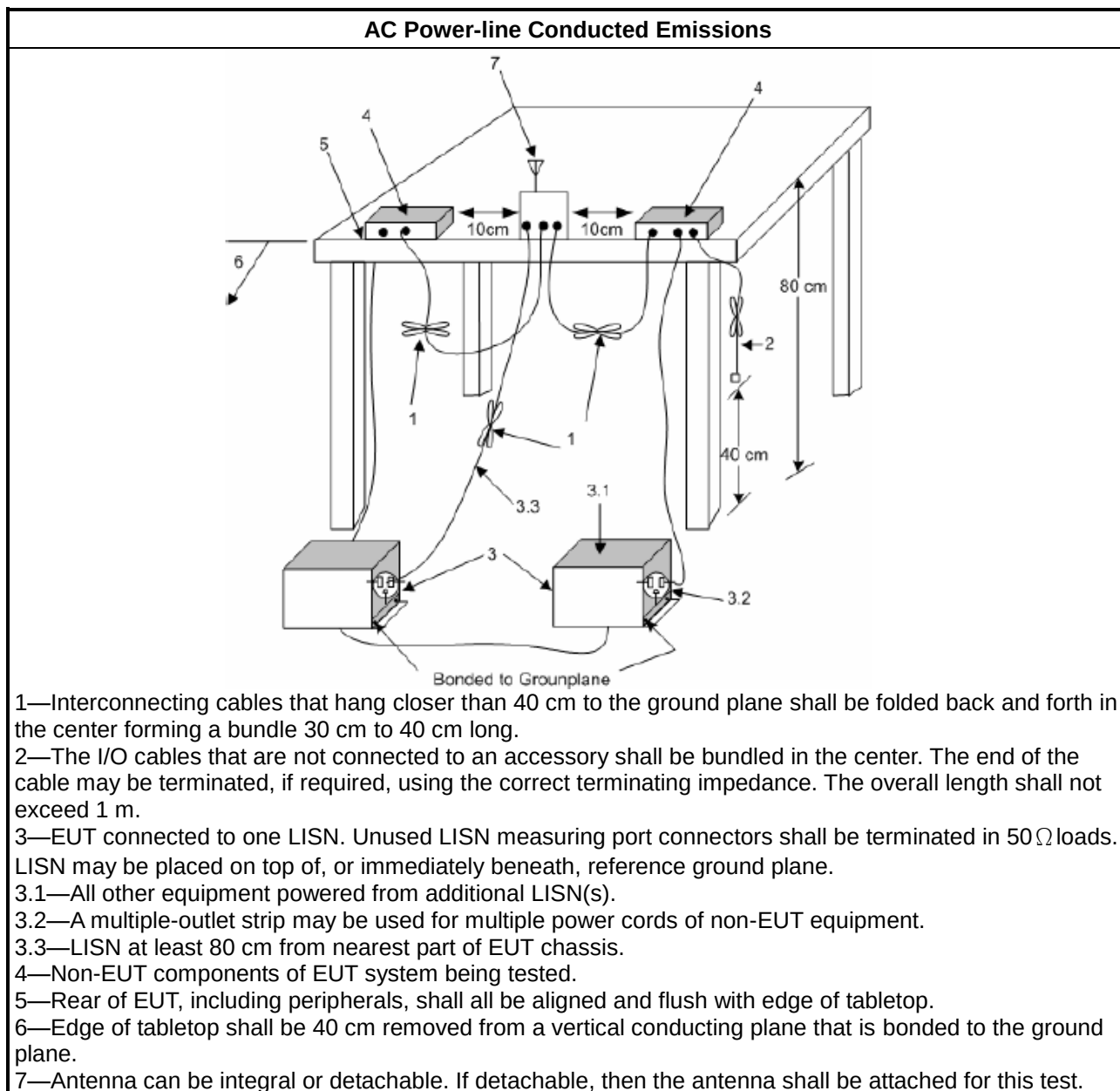
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

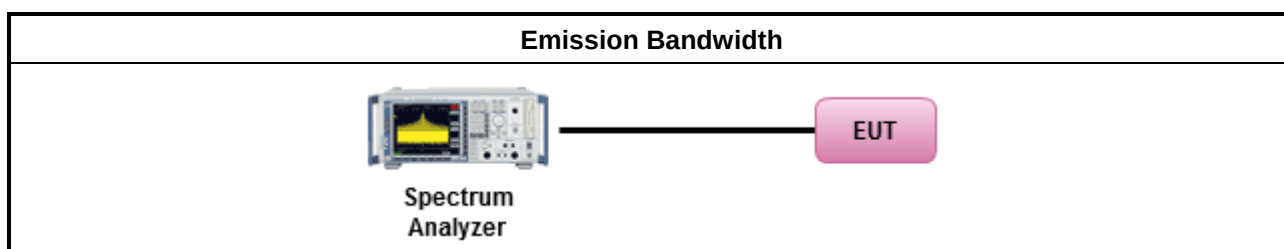
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

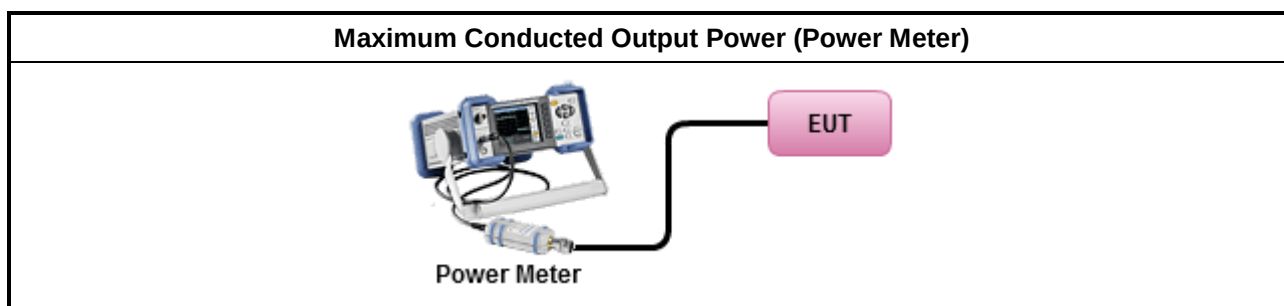
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

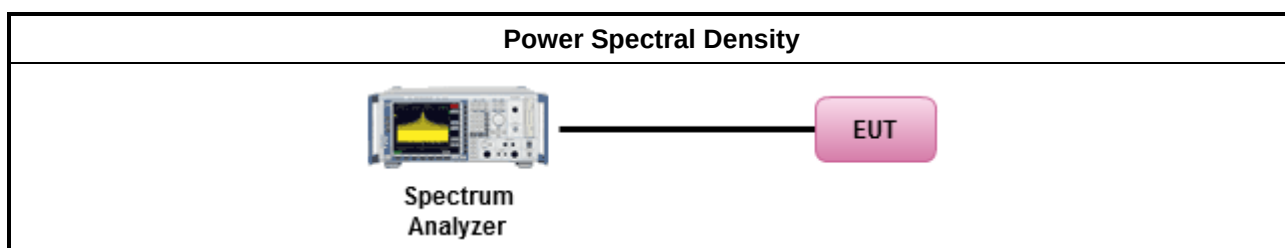
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

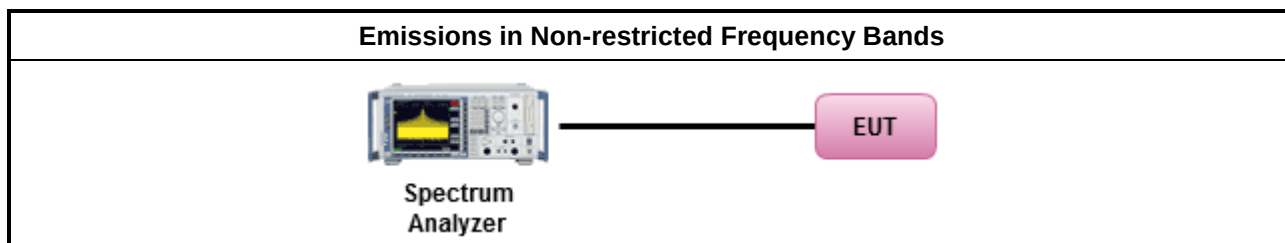
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

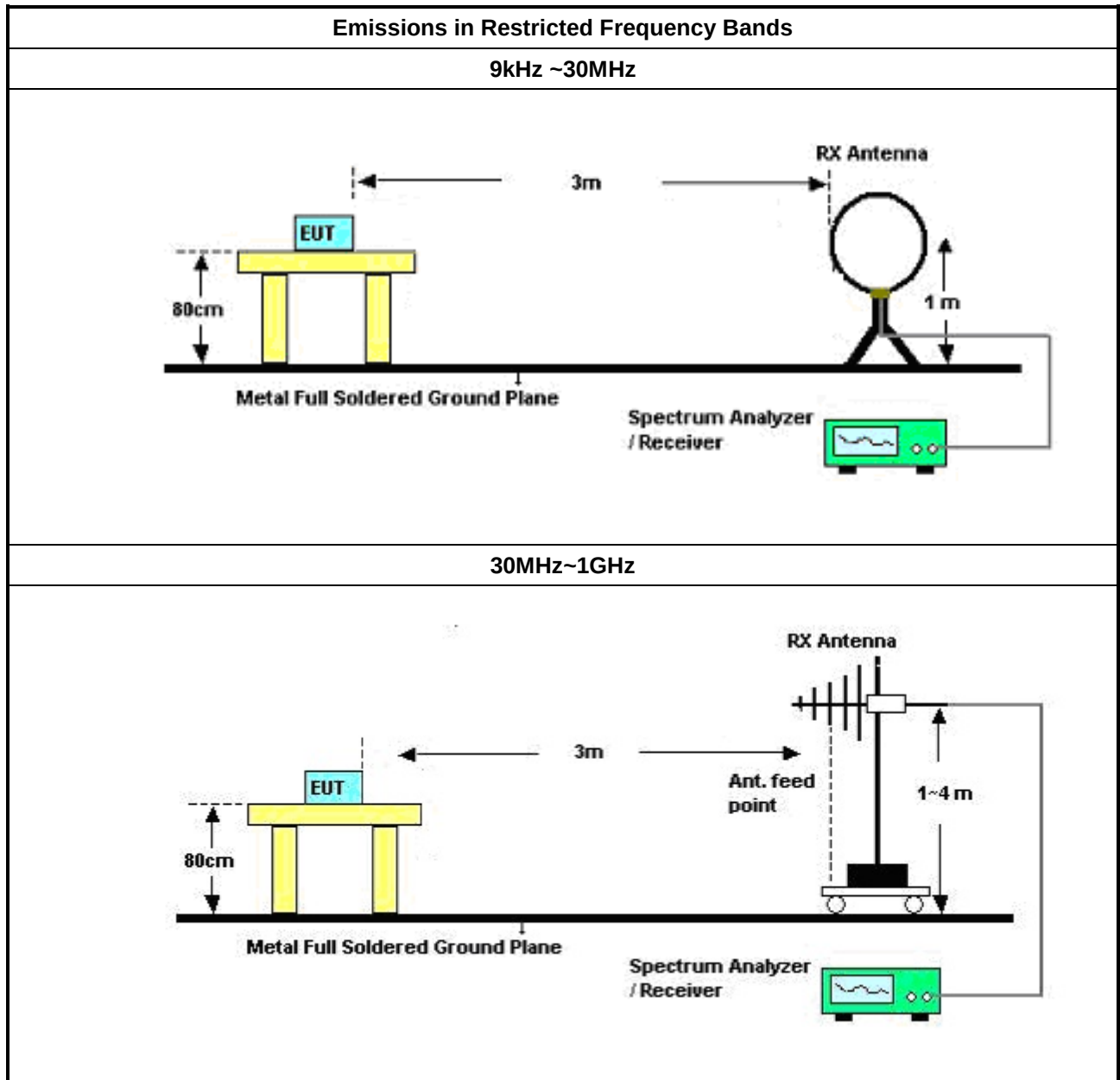
3.6.2 Measuring Instruments

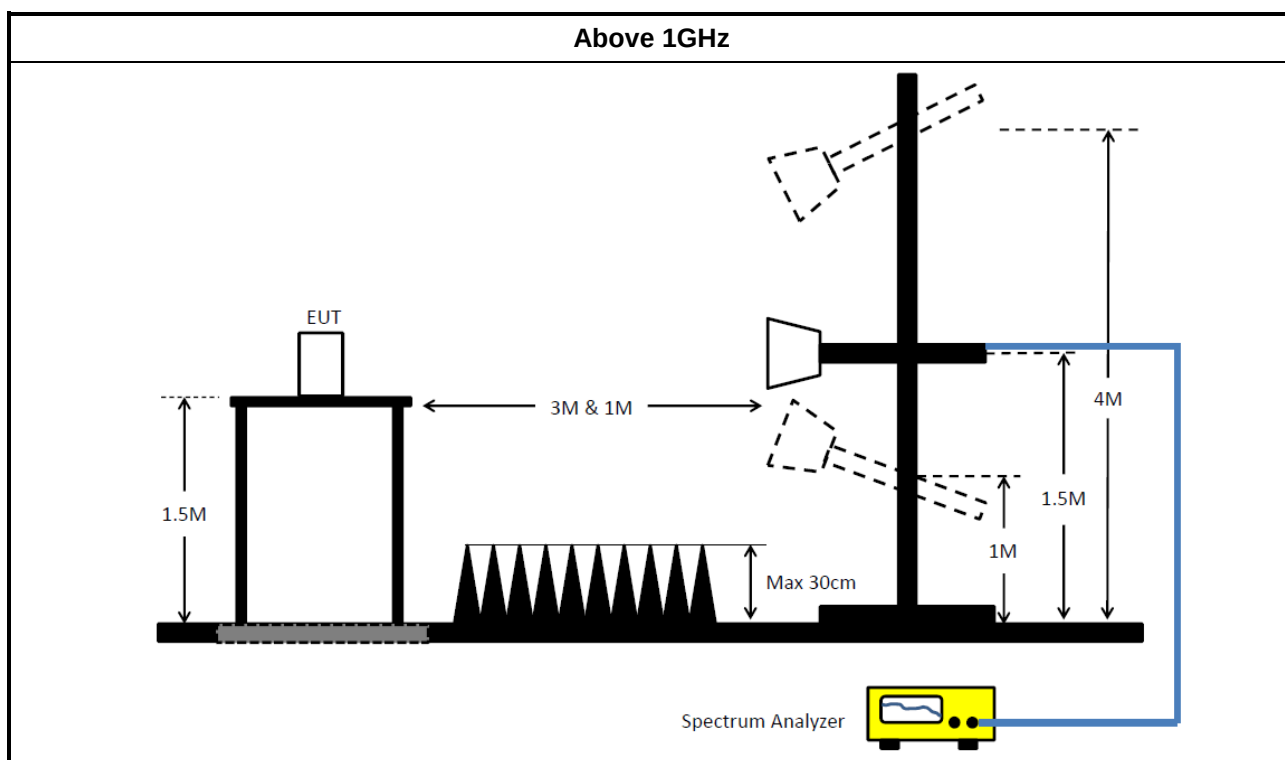
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

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

3.6.4 Test Setup





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

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

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
EMC Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	04/Nov/2019	05/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	12/Sep/2019	11/Sep/2020
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	24/Sep/2019	23/Sep/2020

NCR: Non-Calibration Require

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	13/Mar/2019	12/Mar/2020
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	12/Nov/2018	10/Nov/2020
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	19/Feb/2019	18/Feb/2020
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	19/Feb/2019	18/Feb/2020
Cable 0.2m	HUBER	MY10710/4	RF Cable - 01	30MHz~18G	11/Jan/2019	10/Jan/2020
Cable 0.2m	HUBER	MY10711/4	RF Cable - 02	30MHz~18G	11/Jan/2019	10/Jan/2020
Cable 0.5m	HUBER	MY10714/4	RF Cable - 05	30MHz~1G	11/Jan/2019	10/Jan/2020

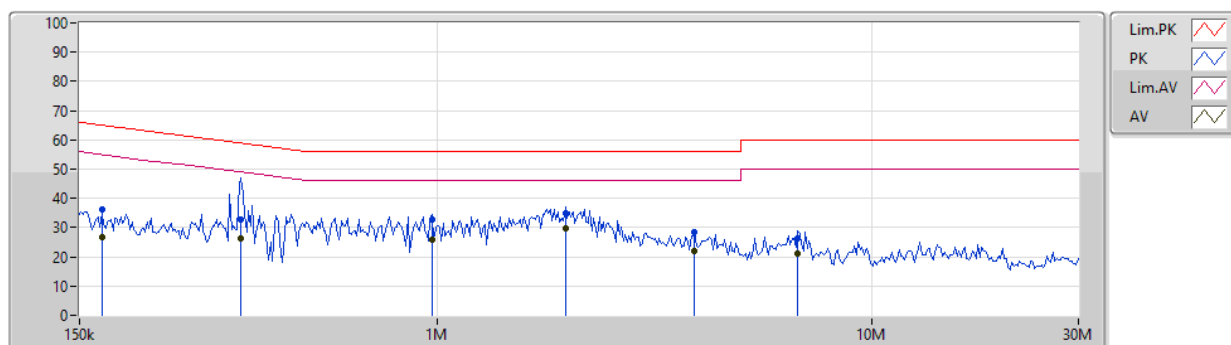
Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz ~ 1GHz 3m	29/Aug/2019	28/Aug/2020
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH02-HY	1GHz ~ 18GHz 3m	29/Aug/2019	28/Aug/2020
Amplifier	Agilent	8447D	2944A11149	100kHz ~ 1.3GHz	02/Jul/2019	01/Jul/2020
Microwave Preamplifier	Agilent	8449B	3008A02373	1GHz ~ 26.5GHz	16/Oct/2019	15/Oct/2020
Spectrum Analyzer	Rohde & Schwarz	FSP40	100305	9kHz - 40GHz	10/Jan/2019	09/Jan/2020
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	26/Mar/2019	25/Mar/2020
RF Cable-high 6m	SUHNER	SUCOFLEX104	10567868 / SN805193/4	1GHz~40GHz	09/Apr/2019	08/Apr/2020
RF Cable-high 7m	SUHNER	SUCOFLEX104	10567868 / SN805192/4	1GHz~40GHz	09/Apr/2019	08/Apr/2020
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112D / MTJ6102-05	2678 / 001	30MHz ~ 2GHz	06/Jul/2019	05/Jul/2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	15GHz ~ 40GHz	22/Mar/2019	21/Mar/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
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 01543	1GHz ~ 18GHz	03/Jun/2019	02/Jun/2020

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	USB Mode		

26/12/2019

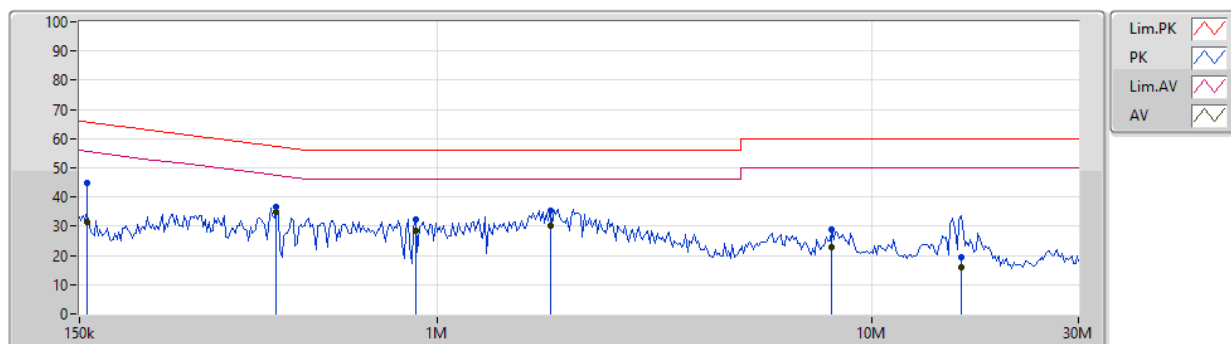


Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	169.024k	36.12	65.01	-28.89	19.63	Neutral	-	16.49	9.65	0.11	9.87			
AV	169.024k	26.74	55.01	-28.27	19.63	Neutral	-	7.11	9.65	0.11	9.87			
QP	352.963k	32.59	58.89	-26.30	19.62	Neutral	-	12.97	9.63	0.12	9.87			
AV	352.963k	26.42	48.89	-22.47	19.62	Neutral	-	6.80	9.63	0.12	9.87			
QP	973.889k	32.88	56.00	-23.12	19.62	Neutral	-	13.26	9.63	0.11	9.88			
AV	973.889k	25.88	46.00	-20.12	19.62	Neutral	-	6.26	9.63	0.11	9.88			
QP	1.974M	34.93	56.00	-21.07	19.67	Neutral	-	15.26	9.65	0.15	9.87			
AV	1.974M	29.62	46.00	-16.38	19.67	Neutral	"Worst"	9.95	9.65	0.15	9.87			
QP	3.922M	28.35	56.00	-27.65	19.73	Neutral	-	8.62	9.66	0.19	9.88			
AV	3.922M	21.96	46.00	-24.04	19.73	Neutral	-	2.23	9.66	0.19	9.88			
QP	6.779M	26.38	60.00	-33.62	19.79	Neutral	-	6.59	9.68	0.23	9.88			
AV	6.779M	21.13	50.00	-28.87	19.79	Neutral	-	1.34	9.68	0.23	9.88			

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	USB Mode		

26/12/2019



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Factor (dB)	Condition	Comment	Raw (dBuV)	LISN (dB)	CL (dB)	AT (dB)			
QP	156.091k	45.02	65.67	-20.65	19.64	Line	-	25.38	9.66	0.11	9.87			
AV	156.091k	31.26	55.67	-24.41	19.64	Line	-	11.62	9.66	0.11	9.87			
QP	426.418k	36.62	57.32	-20.70	19.64	Line	-	16.98	9.64	0.13	9.87			
AV	426.418k	35.02	47.32	-12.30	19.64	Line	"Worst"	15.38	9.64	0.13	9.87			
QP	890.466k	32.32	56.00	-23.68	19.62	Line	-	12.70	9.64	0.11	9.87			
AV	890.466k	28.36	46.00	-17.64	19.62	Line	-	8.74	9.64	0.11	9.87			
QP	1.823M	35.31	56.00	-20.69	19.66	Line	-	15.65	9.65	0.14	9.87			
AV	1.823M	30.00	46.00	-16.00	19.66	Line	-	10.34	9.65	0.14	9.87			
QP	8.109M	28.72	60.00	-31.28	19.81	Line	-	8.91	9.68	0.25	9.88			
AV	8.109M	22.74	50.00	-27.26	19.81	Line	-	2.93	9.68	0.25	9.88			
QP	16.112M	19.22	60.00	-40.78	19.86	Line	-	-0.64	9.66	0.32	9.88			
AV	16.112M	15.82	50.00	-34.18	19.86	Line	-	-4.04	9.66	0.32	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)	722.5k	1.059M	1M06F1D	708.75k	1.053M

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;

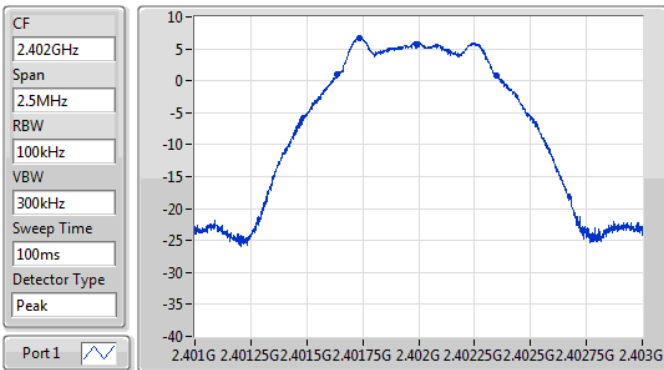
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	712.5k	1.059M
2440MHz	Pass	500k	722.5k	1.056M
2480MHz	Pass	500k	708.75k	1.053M

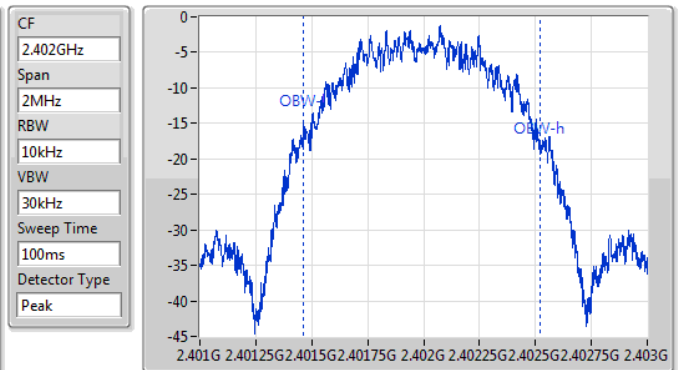
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

BT-LE(1Mbps)
2402MHz

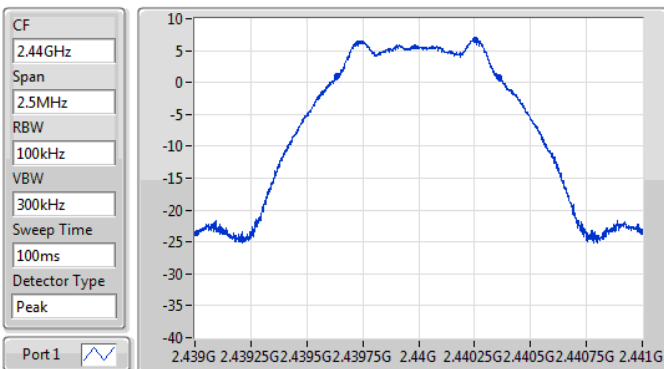
27/12/2019



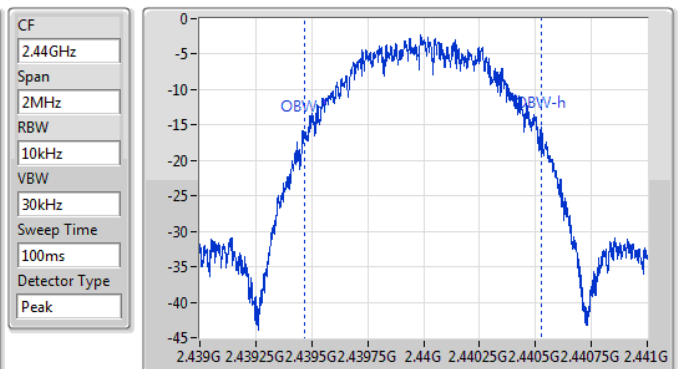
6dB(Hz)	FI-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	FI-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
712.5k	2.401636G	2.402349G	1.059M	2.401463G	2.402523G	500k	1

EBW

BT-LE(1Mbps)
2440MHz

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6dB(Hz)	FI-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	FI-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
722.5k	2.439635G	2.440358G	1.056M	2.439468G	2.440525G	500k	1

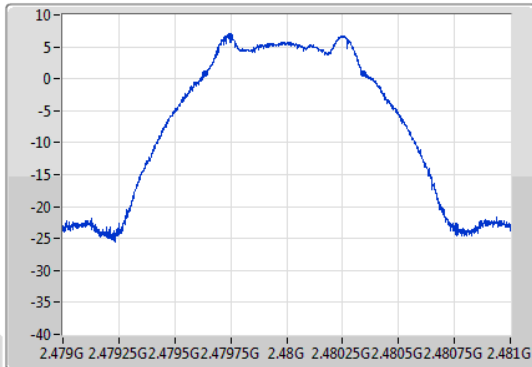


BT-LE(1Mbps)

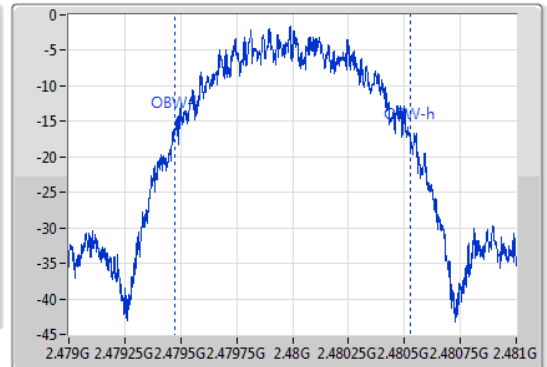
2480MHz

27/12/2019

CF
2.48GHz
Span
2.5MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak
Port 1



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



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
708.75k	2.479636G	2.480345G	1.053M	2.479471G	2.480525G	500k	1



Summary

Mode	Power (dBm)	Power (W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	6.95	0.00495



Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.00	6.88	30.00
2440MHz	Pass	4.00	6.95	30.00
2480MHz	Pass	4.00	6.89	30.00

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



Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-6.02

RBW=3 kHz.



Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	4.00	-7.53	8.00
2440MHz	Pass	4.00	-6.02	8.00
2480MHz	Pass	4.00	-6.11	8.00

DG = Directional Gain; RBW=3 kHz;

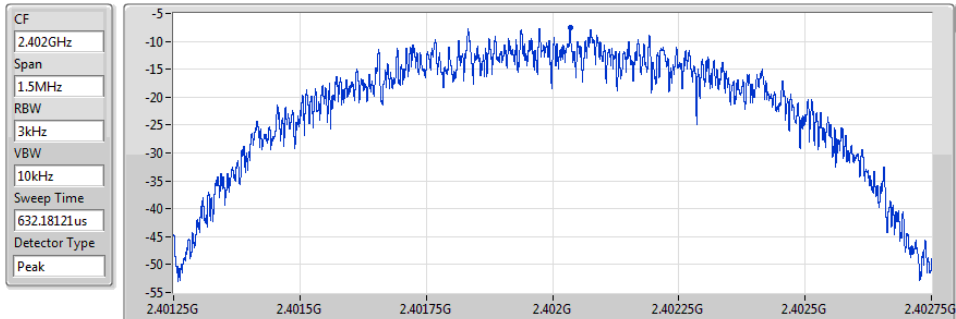
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;

BT-LE(1Mbps)

PSD

2402MHz

27/12/2019



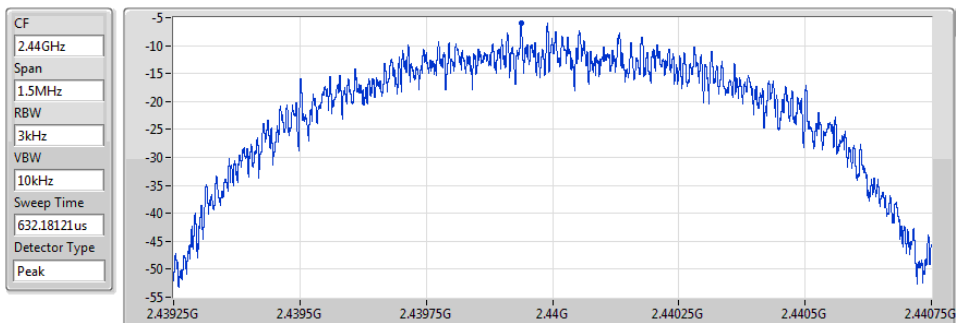
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-7.53	-7.53	-7.53

BT-LE(1Mbps)

PSD

2440MHz

27/12/2019



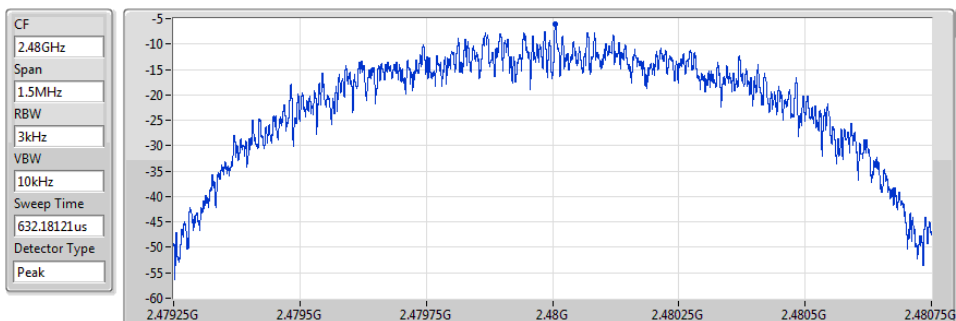
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.02	-6.02	-6.02

BT-LE(1Mbps)

PSD

2480MHz

27/12/2019



Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.11	-6.11	-6.11



Summary

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	2.44025G	6.41	-23.59	2.02985G	-54.04	2.39998G	-44.18	2.4G	-45.19	2.49864G	-51.20	24.61194G	-40.32	1

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.44025G	6.41	-23.59	2.02985G	-54.04	2.39998G	-44.18	2.4G	-45.19	2.49864G	-51.20	24.61194G	-40.32	1
2440MHz	Pass	2.44025G	6.41	-23.59	2.10446G	-53.91	2.3946G	-52.00	2.4835G	-55.72	2.49725G	-51.85	24.79472G	-41.23	1
2480MHz	Pass	2.44025G	6.41	-23.59	2.14735G	-54.46	2.3944G	-52.39	2.4835G	-53.57	2.48368G	-50.54	17.50304G	-41.26	1

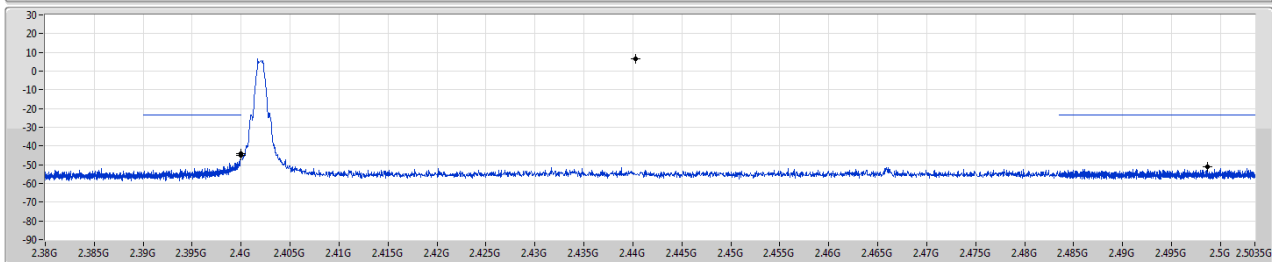
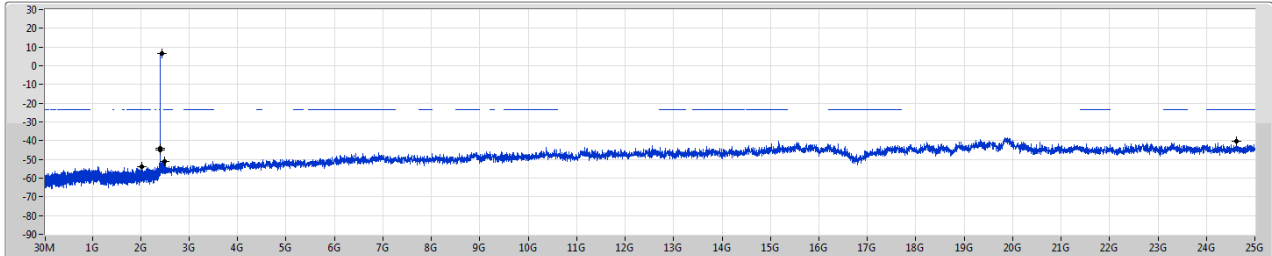
BT-LE(1Mbps)

2402MHz

CSE NdB

27/12/2019

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)	Freq(Hz)	Level(dBm)	Port
2.44025G	6.41	-23.39	2.02985G	-54.04	2.39998G	-44.18	2.4G	-45.19	2.49864G	-51.20	2.41194G	-40.32	1

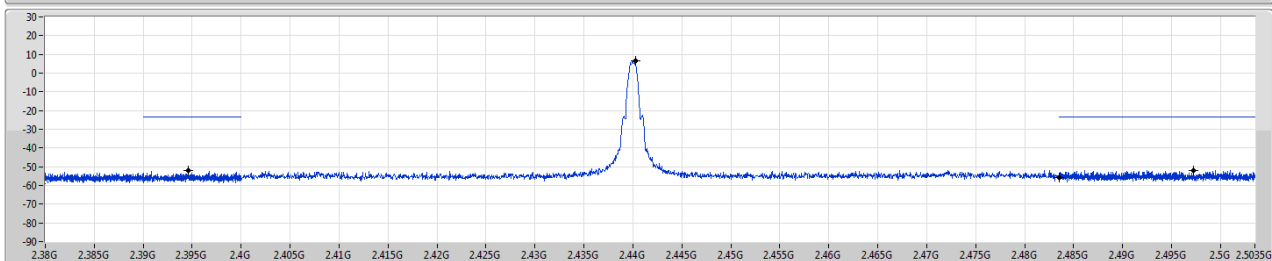
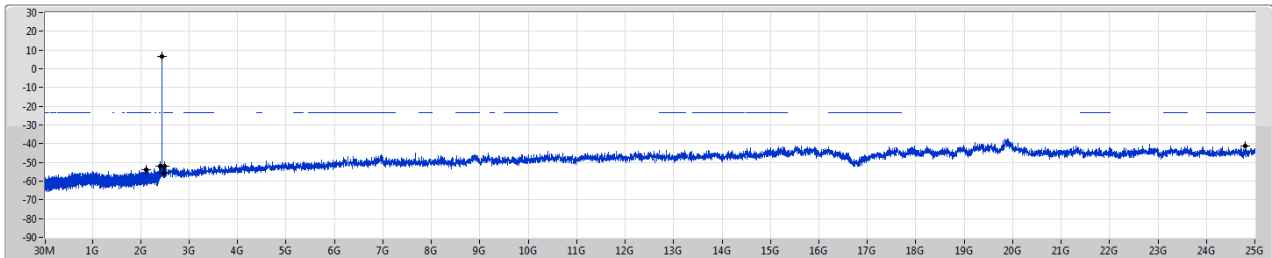
BT-LE(1Mbps)

2440MHz

CSE NdB

27/12/2019

Port1



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

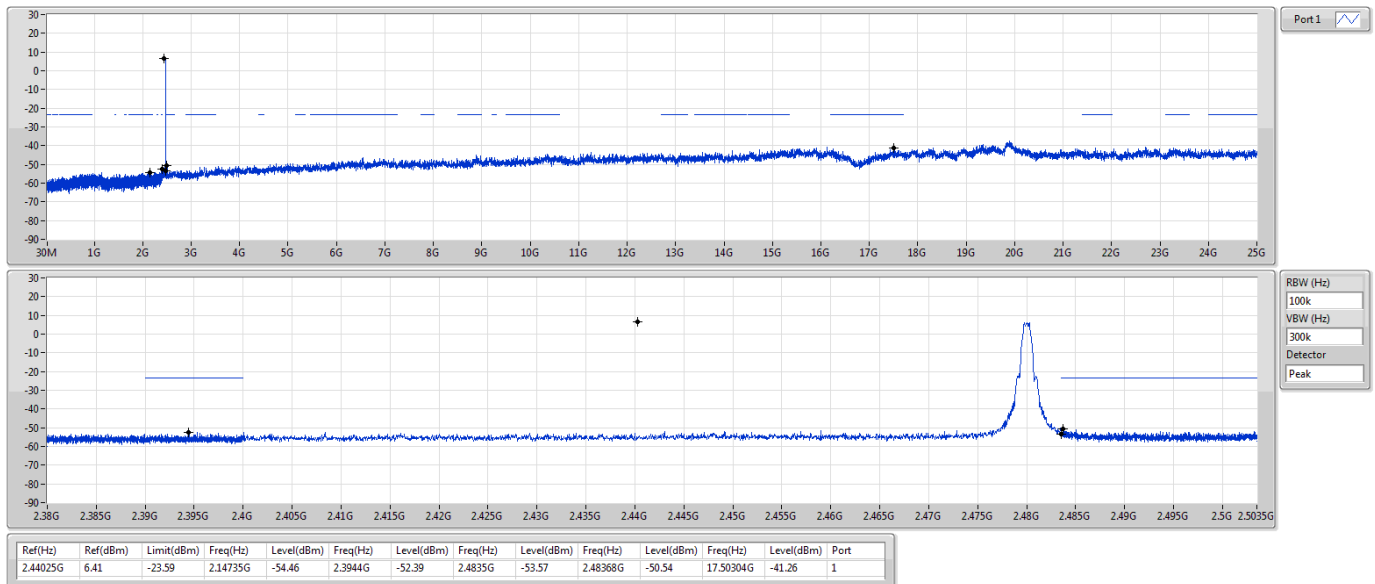
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44025G	6.41	-23.39	2.10446G	-53.91	2.3946G	-52.00	2.4835G	-55.72	2.49725G	-51.85	2.479472G	-41.23	1

BT-LE(1Mbps)

2480MHz

CSE NdB

27/12/2019





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	57.16M	34.36	40.00	-5.64	3	Vertical	0	1.00	-

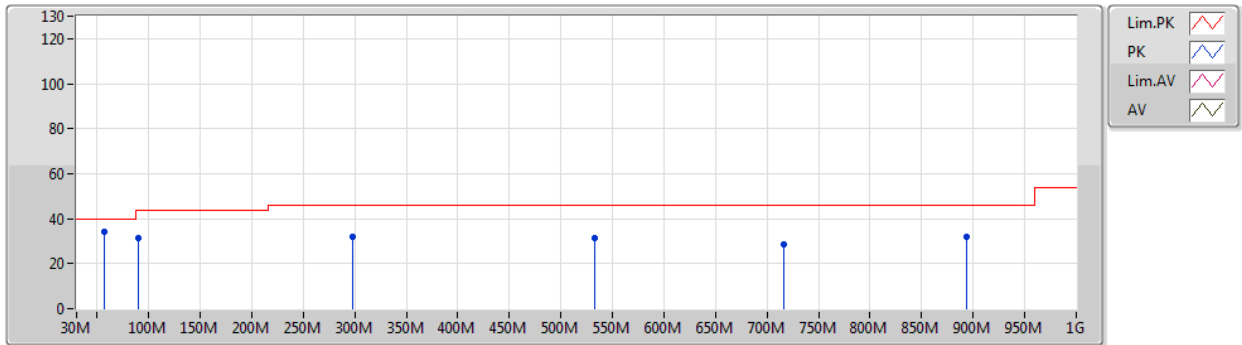
Result

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	57.16M	34.36	40.00	-5.64	3	Vertical	0	1.00	-
2440MHz	Pass	PK	90.14M	31.17	43.50	-12.33	3	Vertical	0	1.00	-
2440MHz	Pass	PK	297.72M	32.04	46.00	-13.96	3	Vertical	0	1.00	-
2440MHz	Pass	PK	532.46M	31.50	46.00	-14.50	3	Vertical	0	1.00	-
2440MHz	Pass	PK	716.76M	28.83	46.00	-17.17	3	Vertical	0	1.00	-
2440MHz	Pass	PK	893.3M	31.86	46.00	-14.14	3	Vertical	0	1.00	-
2440MHz	Pass	PK	132.82M	37.48	43.50	-6.02	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	247.28M	35.30	46.00	-10.70	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	293.84M	38.98	46.00	-7.02	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	522.76M	30.13	46.00	-15.87	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	800.18M	30.27	46.00	-15.73	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	885.54M	33.63	46.00	-12.37	3	Horizontal	360	1.00	-

BT-LE(1Mbps)

2440MHz_USB

26/12/2019

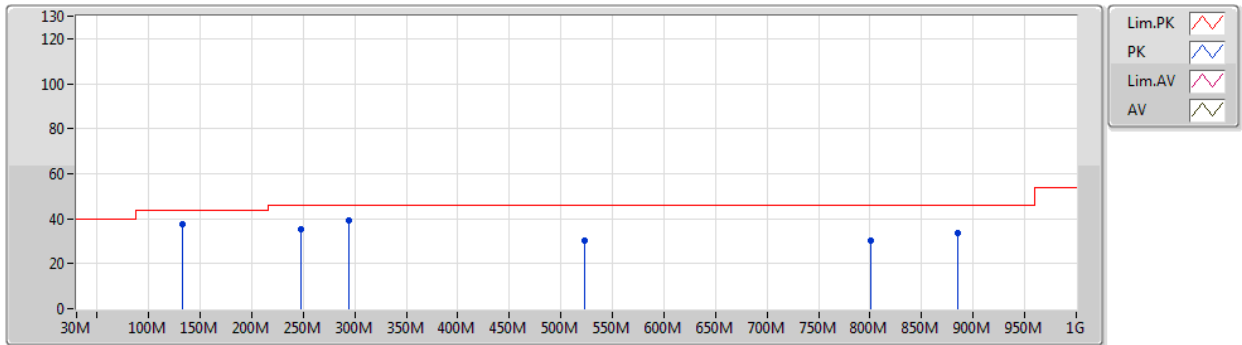


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	57.16M	34.36	40.00	-5.64	-15.02	3	Vertical	0	1.00	-	49.38	11.76	0.91	27.69
PK	90.14M	31.17	43.50	-12.33	-12.38	3	Vertical	0	1.00	-	43.55	13.98	1.39	27.75
PK	297.72M	32.04	46.00	-13.96	-5.89	3	Vertical	0	1.00	-	37.93	18.29	2.99	27.17
PK	532.46M	31.50	46.00	-14.50	-2.09	3	Vertical	0	1.00	-	33.59	22.98	3.49	28.56
PK	716.76M	28.83	46.00	-17.17	-0.12	3	Vertical	0	1.00	-	28.95	24.17	4.07	28.36
PK	893.3M	31.86	46.00	-14.14	2.01	3	Vertical	0	1.00	-	29.85	25.42	4.33	27.74

BT-LE(1Mbps)

2440MHz_USB

26/12/2019



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)
PK	132.82M	37.48	43.50	-6.02	-9.26	3	Horizontal	360	1.00	-	46.74	16.71	1.72	27.69
PK	247.28M	35.30	46.00	-10.70	-7.27	3	Horizontal	360	1.00	-	42.57	17.20	2.72	27.19
PK	293.84M	38.98	46.00	-7.02	-5.98	3	Horizontal	360	1.00	-	44.96	18.21	2.98	27.17
PK	522.76M	30.13	46.00	-15.87	-2.39	3	Horizontal	360	1.00	-	32.52	22.68	3.44	28.51
PK	800.18M	30.27	46.00	-15.73	0.83	3	Horizontal	360	1.00	-	29.44	24.81	4.17	28.15
PK	885.54M	33.63	46.00	-12.37	1.86	3	Horizontal	360	1.00	-	31.77	25.35	4.31	27.80



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	49.47	54.00	-4.53	3	Horizontal	0	2.77	-

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	2.37G	44.20	54.00	-9.80	3	Vertical	116	1.05	-
2402MHz	Pass	AV	2.402G	97.32	Inf	-Inf	3	Vertical	116	1.05	-
2402MHz	Pass	PK	2.3716G	56.13	74.00	-17.87	3	Vertical	116	1.05	-
2402MHz	Pass	PK	2.4018G	98.93	Inf	-Inf	3	Vertical	116	1.05	-
2402MHz	Pass	AV	2.37G	44.76	54.00	-9.24	3	Horizontal	5	2.90	-
2402MHz	Pass	AV	2.402G	102.99	Inf	-Inf	3	Horizontal	5	2.90	-
2402MHz	Pass	PK	2.3702G	56.99	74.00	-17.01	3	Horizontal	5	2.90	-
2402MHz	Pass	PK	2.4018G	104.60	Inf	-Inf	3	Horizontal	5	2.90	-
2402MHz	Pass	AV	4.80408G	33.79	54.00	-20.21	3	Vertical	269	1.49	-
2402MHz	Pass	PK	4.80448G	45.54	74.00	-28.46	3	Vertical	269	1.49	-
2402MHz	Pass	AV	4.804G	33.70	54.00	-20.30	3	Horizontal	23	1.00	-
2402MHz	Pass	PK	4.8037G	45.18	74.00	-28.82	3	Horizontal	23	1.00	-
2440MHz	Pass	AV	2.346G	44.13	54.00	-9.87	3	Vertical	117	1.00	-
2440MHz	Pass	AV	2.44G	94.33	Inf	-Inf	3	Vertical	117	1.00	-
2440MHz	Pass	AV	2.4992G	44.57	54.00	-9.43	3	Vertical	117	1.00	-
2440MHz	Pass	PK	2.3516G	56.33	74.00	-17.67	3	Vertical	117	1.00	-
2440MHz	Pass	PK	2.4396G	96.03	Inf	-Inf	3	Vertical	117	1.00	-
2440MHz	Pass	PK	2.4928G	56.32	74.00	-17.68	3	Vertical	117	1.00	-
2440MHz	Pass	AV	2.376G	44.49	54.00	-9.51	3	Horizontal	360	1.00	-
2440MHz	Pass	AV	2.44G	101.00	Inf	-Inf	3	Horizontal	360	1.00	-
2440MHz	Pass	AV	2.5G	44.69	54.00	-9.31	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	2.344G	56.15	74.00	-17.85	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	2.4404G	102.66	Inf	-Inf	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	2.4952G	56.66	74.00	-17.34	3	Horizontal	360	1.00	-
2440MHz	Pass	AV	4.88024G	32.61	54.00	-21.39	3	Vertical	259	2.00	-
2440MHz	Pass	AV	7.32053G	47.65	54.00	-6.35	3	Vertical	268	3.00	-
2440MHz	Pass	PK	4.87958G	45.03	74.00	-28.97	3	Vertical	259	2.00	-
2440MHz	Pass	PK	7.32082G	57.84	74.00	-16.16	3	Vertical	268	3.00	-
2440MHz	Pass	AV	4.88012G	35.90	54.00	-18.10	3	Horizontal	29	2.50	-
2440MHz	Pass	AV	7.32057G	46.42	54.00	-7.58	3	Horizontal	31	1.01	-
2440MHz	Pass	PK	4.88054G	46.38	74.00	-27.62	3	Horizontal	29	2.50	-
2440MHz	Pass	PK	7.31927G	56.71	74.00	-17.29	3	Horizontal	31	1.01	-
2480MHz	Pass	AV	2.48G	96.46	Inf	-Inf	3	Vertical	117	1.00	-
2480MHz	Pass	AV	2.4835G	46.45	54.00	-7.55	3	Vertical	117	1.00	-
2480MHz	Pass	PK	2.4802G	98.15	Inf	-Inf	3	Vertical	117	1.00	-
2480MHz	Pass	PK	2.4835G	57.58	74.00	-16.42	3	Vertical	117	1.00	-
2480MHz	Pass	AV	2.48G	101.96	Inf	-Inf	3	Horizontal	0	2.77	-
2480MHz	Pass	AV	2.4835G	49.47	54.00	-4.53	3	Horizontal	0	2.77	-
2480MHz	Pass	PK	2.4798G	103.64	Inf	-Inf	3	Horizontal	0	2.77	-
2480MHz	Pass	PK	2.4835G	59.17	74.00	-14.83	3	Horizontal	0	2.77	-
2480MHz	Pass	AV	4.95994G	35.71	54.00	-18.29	3	Vertical	348	2.35	-
2480MHz	Pass	AV	7.44057G	45.25	54.00	-8.75	3	Vertical	155	1.29	-
2480MHz	Pass	PK	4.96042G	46.45	74.00	-27.55	3	Vertical	348	2.35	-
2480MHz	Pass	PK	7.43923G	56.56	74.00	-17.44	3	Vertical	155	1.29	-
2480MHz	Pass	AV	4.95976G	33.63	54.00	-20.37	3	Horizontal	73	2.13	-
2480MHz	Pass	AV	7.44052G	48.80	54.00	-5.20	3	Horizontal	30	1.00	-
2480MHz	Pass	PK	4.95964G	44.86	74.00	-29.14	3	Horizontal	73	2.13	-

Remark :

Page No. : F2 of F15

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

9D2315

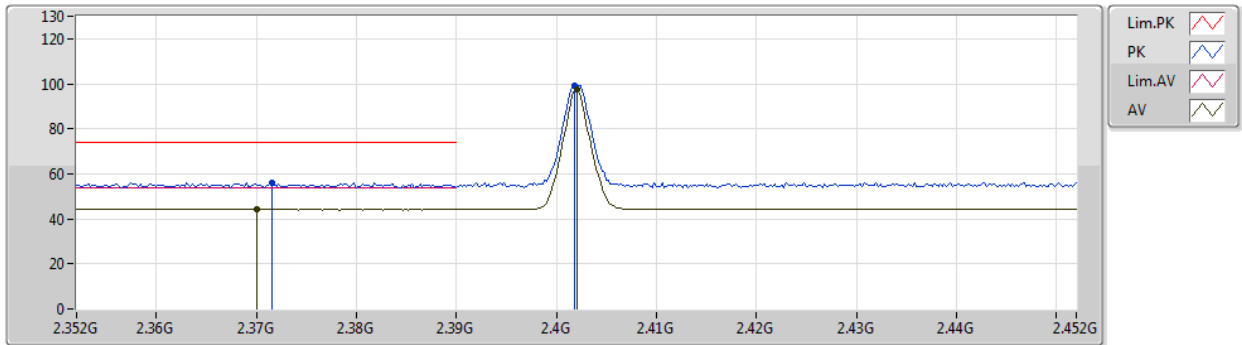


Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2480MHz	Pass	PK	7.43919G	59.13	74.00	-14.87	3	Horizontal	30	1.00	-

BT-LE(1Mbps)

2402MHz_TX

26/12/2019

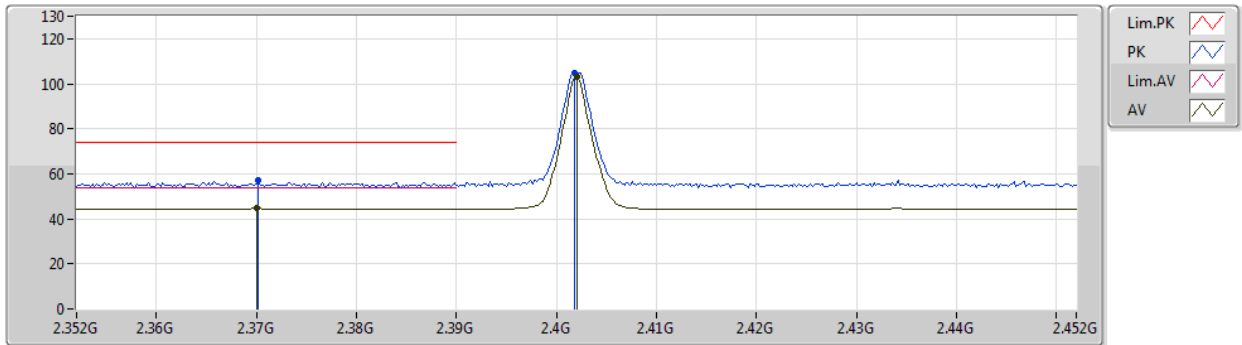


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.37G	44.20	54.00	-9.80	32.00	3	Vertical	116	1.05	-	12.20	27.31	4.69	-
AV	2.402G	97.32	Inf	-Inf	32.14	3	Vertical	116	1.05	-	65.18	27.41	4.73	-
PK	2.3716G	56.13	74.00	-17.87	32.01	3	Vertical	116	1.05	-	24.12	27.31	4.70	-
PK	2.4018G	98.93	Inf	-Inf	32.14	3	Vertical	116	1.05	-	66.79	27.41	4.73	-

BT-LE(1Mbps)

2402MHz_TX

26/12/2019

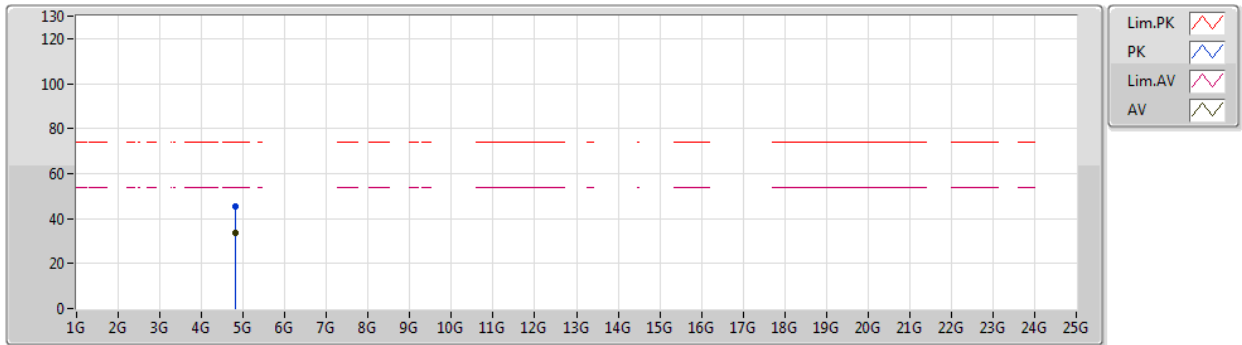


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.37G	44.76	54.00	-9.24	32.00	3	Horizontal	5	2.90	-	12.76	27.31	4.69	-
AV	2.402G	102.99	Inf	-Inf	32.14	3	Horizontal	5	2.90	-	70.85	27.41	4.73	-
PK	2.3702G	56.99	74.00	-17.01	32.01	3	Horizontal	5	2.90	-	24.98	27.31	4.70	-
PK	2.4018G	104.60	Inf	-Inf	32.14	3	Horizontal	5	2.90	-	72.46	27.41	4.73	-

BT-LE(1Mbps)

26/12/2019

2402MHz_TX

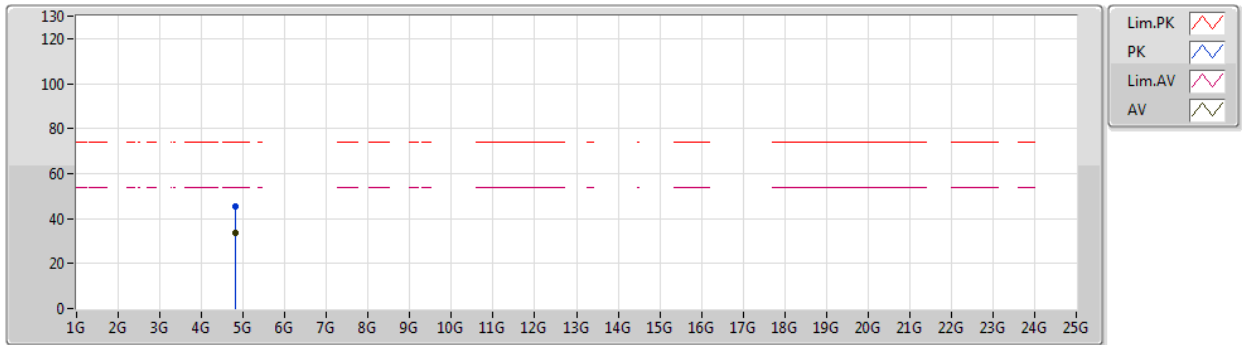


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80408G	33.79	54.00	-20.21	4.22	3	Vertical	269	1.49	-	29.57	31.35	6.78	33.91
PK	4.80448G	45.54	74.00	-28.46	4.22	3	Vertical	269	1.49	-	41.32	31.35	6.78	33.91

BT-LE(1Mbps)

26/12/2019

2402MHz_TX

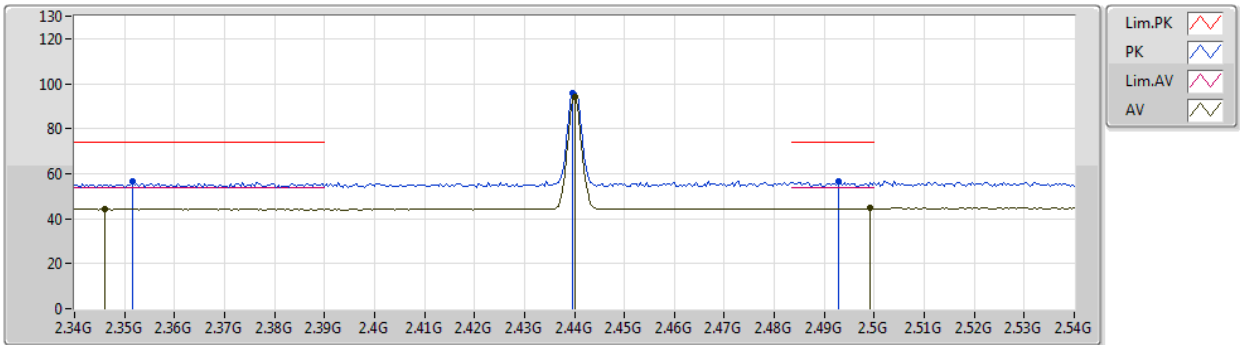


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.804G	33.70	54.00	-20.30	4.22	3	Horizontal	23	1.00	-	29.48	31.35	6.78	33.91
PK	4.8037G	45.18	74.00	-28.82	4.22	3	Horizontal	23	1.00	-	40.96	31.35	6.78	33.91

BT-LE(1Mbps)

2440MHz_TX

26/12/2019

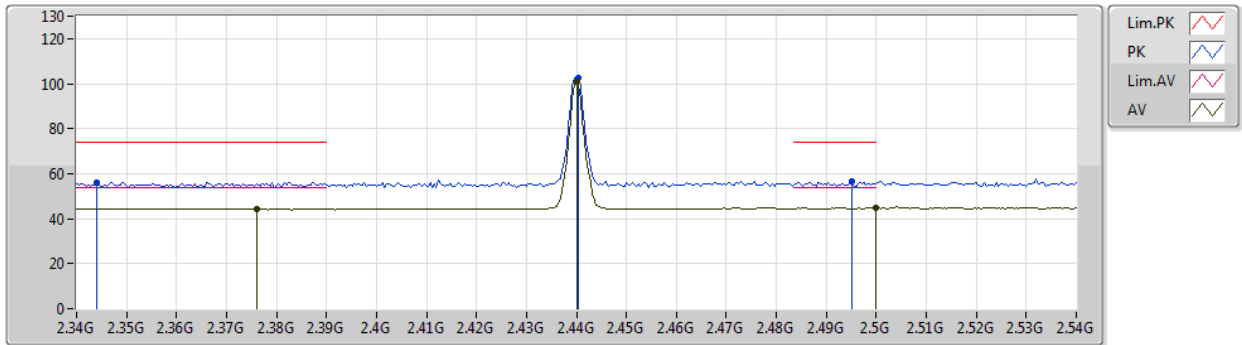


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.346G	44.13	54.00	-9.87	31.91	3	Vertical	117	1.00	-	12.22	27.24	4.67	-
AV	2.44G	94.33	Inf	-Inf	32.30	3	Vertical	117	1.00	-	62.03	27.52	4.78	-
AV	2.4992G	44.57	54.00	-9.43	32.55	3	Vertical	117	1.00	-	12.02	27.70	4.85	-
PK	2.3516G	56.33	74.00	-17.67	31.92	3	Vertical	117	1.00	-	24.41	27.25	4.67	-
PK	2.4396G	96.03	Inf	-Inf	32.30	3	Vertical	117	1.00	-	63.73	27.52	4.78	-
PK	2.4928G	56.32	74.00	-17.68	32.52	3	Vertical	117	1.00	-	23.80	27.68	4.84	-

BT-LE(1Mbps)

2440MHz_TX

26/12/2019

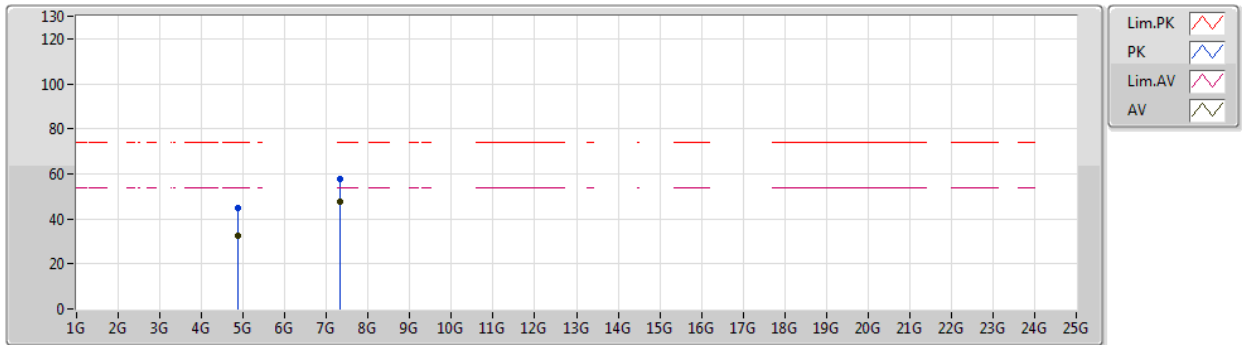


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.376G	44.49	54.00	-9.51	32.03	3	Horizontal	360	1.00	-	12.46	27.33	4.70	-
AV	2.44G	101.00	Inf	-Inf	32.30	3	Horizontal	360	1.00	-	68.70	27.52	4.78	-
AV	2.5G	44.69	54.00	-9.31	32.55	3	Horizontal	360	1.00	-	12.14	27.70	4.85	-
PK	2.344G	56.15	74.00	-17.85	31.89	3	Horizontal	360	1.00	-	24.26	27.23	4.66	-
PK	2.4404G	102.66	Inf	-Inf	32.30	3	Horizontal	360	1.00	-	70.36	27.52	4.78	-
PK	2.4952G	56.66	74.00	-17.34	32.53	3	Horizontal	360	1.00	-	24.13	27.69	4.84	-

BT-LE(1Mbps)

26/12/2019

2440MHz_TX

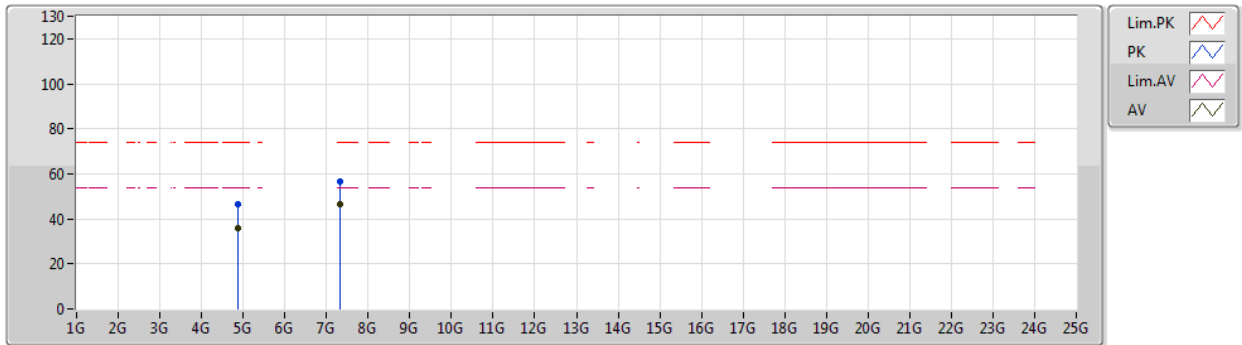


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.88024G	32.61	54.00	-21.39	4.42	3	Vertical	259	2.00	-	28.19	31.48	6.81	33.87
AV	7.32053G	47.65	54.00	-6.35	10.54	3	Vertical	268	3.00	-	37.11	36.03	8.62	34.11
PK	4.87958G	45.03	74.00	-28.97	4.42	3	Vertical	259	2.00	-	40.61	31.48	6.81	33.87
PK	7.32082G	57.84	74.00	-16.16	10.54	3	Vertical	268	3.00	-	47.30	36.03	8.62	34.11

BT-LE(1Mbps)

26/12/2019

2440MHz_TX

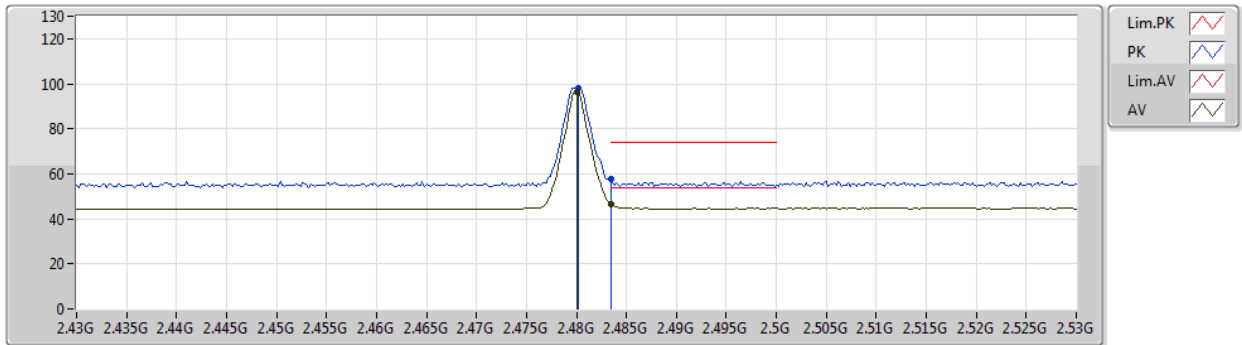


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.88012G	35.90	54.00	-18.10	4.42	3	Horizontal	29	2.50	-	31.48	31.48	6.81	33.87
AV	7.32057G	46.42	54.00	-7.58	10.54	3	Horizontal	31	1.01	-	35.88	36.03	8.62	34.11
PK	4.88054G	46.38	74.00	-27.62	4.42	3	Horizontal	29	2.50	-	41.96	31.48	6.81	33.87
PK	7.31927G	56.71	74.00	-17.29	10.54	3	Horizontal	31	1.01	-	46.17	36.03	8.62	34.11

BT-LE(1Mbps)

2480MHz_TX

26/12/2019

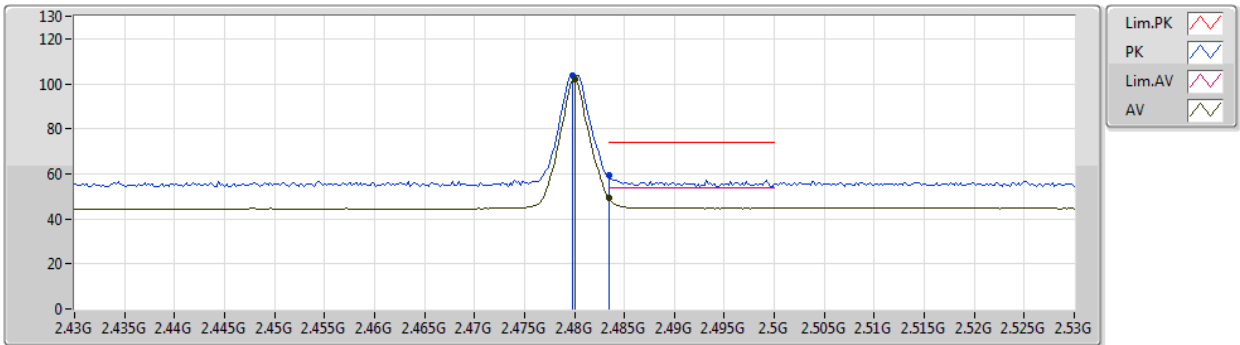


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	96.46	Inf	-Inf	32.46	3	Vertical	117	1.00	-	64.00	27.64	4.82	-
AV	2.4835G	46.45	54.00	-7.55	32.48	3	Vertical	117	1.00	-	13.97	27.65	4.83	-
PK	2.4802G	98.15	Inf	-Inf	32.46	3	Vertical	117	1.00	-	65.69	27.64	4.82	-
PK	2.4835G	57.58	74.00	-16.42	32.48	3	Vertical	117	1.00	-	25.10	27.65	4.83	-

BT-LE(1Mbps)

2480MHz_TX

26/12/2019

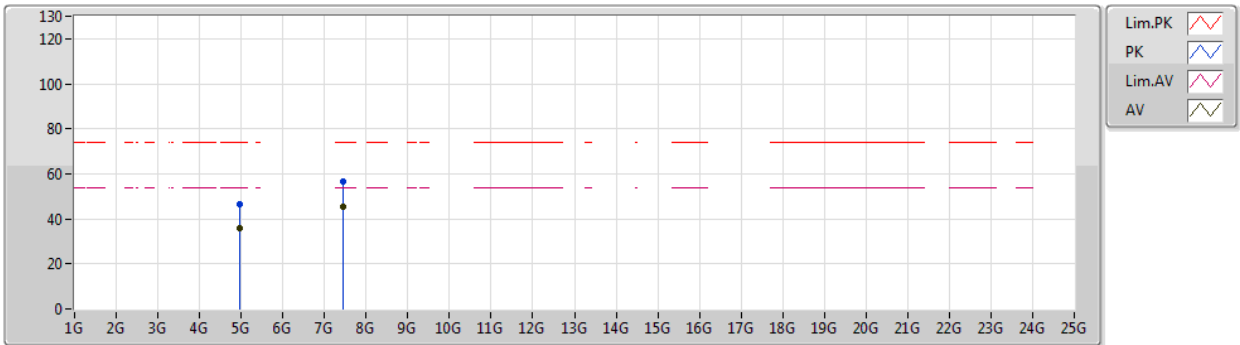


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.48G	101.96	Inf	-Inf	32.46	3	Horizontal	0	2.77	-	69.50	27.64	4.82	-
AV	2.4835G	49.47	54.00	-4.53	32.48	3	Horizontal	0	2.77	-	16.99	27.65	4.83	-
PK	2.4798G	103.64	Inf	-Inf	32.46	3	Horizontal	0	2.77	-	71.18	27.64	4.82	-
PK	2.4835G	59.17	74.00	-14.83	32.48	3	Horizontal	0	2.77	-	26.69	27.65	4.83	-

BT-LE(1Mbps)

2480MHz_TX

26/12/2019

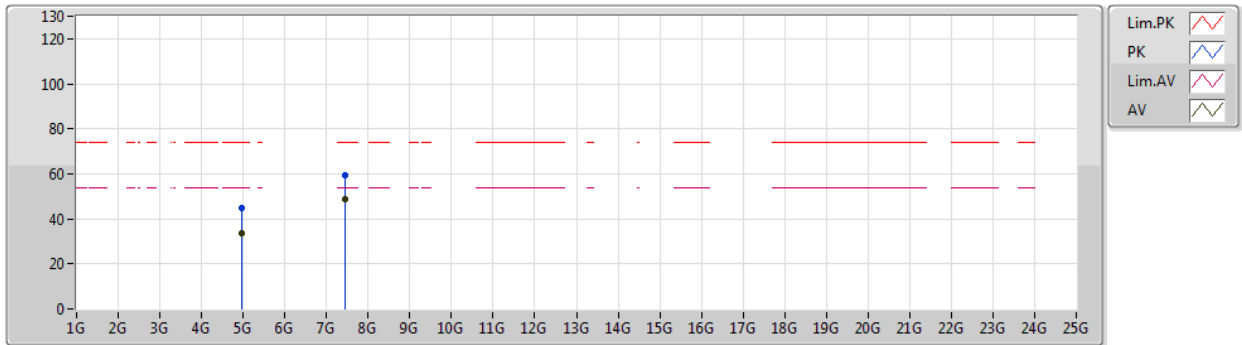


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95994G	35.71	54.00	-18.29	4.64	3	Vertical	348	2.35	-	31.07	31.63	6.83	33.82
AV	7.44057G	45.25	54.00	-8.75	10.92	3	Vertical	155	1.29	-	34.33	36.35	8.68	34.11
PK	4.96042G	46.45	74.00	-27.55	4.65	3	Vertical	348	2.35	-	41.80	31.63	6.84	33.82
PK	7.43923G	56.56	74.00	-17.44	10.91	3	Vertical	155	1.29	-	45.65	36.34	8.68	34.11

BT-LE(1Mbps)

2480MHz_TX

26/12/2019



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	4.95976G	33.63	54.00	-20.37	4.64	3	Horizontal	73	2.13	-	28.99	31.63	6.83	33.82
AV	7.44052G	48.80	54.00	-5.20	10.92	3	Horizontal	30	1.00	-	37.88	36.35	8.68	34.11
PK	4.95964G	44.86	74.00	-29.14	4.64	3	Horizontal	73	2.13	-	40.22	31.63	6.83	33.82
PK	7.43919G	59.13	74.00	-14.87	10.91	3	Horizontal	30	1.00	-	48.22	36.34	8.68	34.11