

FCC Test Report

FCC ID : YHICE-IMX6-01
Equipment : WLAN/BT Module
Brand Name : NEXCOM
Model No. : WG7833-B0
Applicant : NEXCOM International Co., LTD.
9F., No.920, Chung-Cheng Road, Zhonghe Dist.,
New Taipei City, Taiwan 235, R.O.C.
Manufacturer : NEXCOM International Co., LTD.
9F., No.920, Chung-Cheng Road, Zhonghe Dist.,
New Taipei City, Taiwan 235, R.O.C.
Standard : 47 CFR FCC Part 15.247

The product was received on Feb. 09, 2018, and testing was started from Mar. 08, 2018 and completed on Mar. 17, 2018. 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

[illegible]

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	FCC 15.203
3.1	15.207	AC Power-line Conducted Emissions	PASS	FCC 15.207
3.2	15.247(a)	DTS Bandwidth	PASS	≥500kHz
3.3	15.247(b)	Maximum Conducted Output Power	PASS	Power [dBm]:30
3.4	15.247(e)	Power Spectral Density	PASS	PSD [dBm/3kHz]:8
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	Non-Restricted Bands: >30 dBc
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	Restricted Bands: FCC 15.209

Reviewed by: Sam Tsai

Report Producer: Michelle Tsai

1 General Description

1.1 Information

1.1.1 RF General Information

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

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

Note:

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

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector
1	1	SMARTEQ WIRELESS	LPCA-MINO	OMNI Antenna	I-PEX

Ant.	Gain (dBi)	
	2.4G	BT
1	2.15	2.15

Note: The antenna mentioned above will not be sold with the EUT in the market.

1.1.3 EUT Information

Operational Condition	
EUT Power Type	From Host system
RF Chip	WG7833-B0
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) $\geq 1/T$
BT-LE(1Mbps)	0.65	1.871	406.25u	3k

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 v04

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
RF Conducted	TH01-HY	Randy	22.5°C / 62%	08/Mar/2018
Radiated	03CH03-HY	Jerry	22.2°C / 51.8%	11/Mar/2018
AC Conduction	CO04-HY	Daniel	21.6°C / 52.8%	17/Mar/2018

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)	3.6 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	3.0 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

Condition Item	Abbreviation/Remark	Remark
RF Conducted-DTS	Abbreviation	Remark
TnomVnom	Tnom	20°C
-	Vnom	120V


2.2 Test Channel Mode

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

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX
1	USB Mode ; 2.4G TX

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	Z Plane
	

2.4 Support Equipment

Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	R33002 / DoC
2	AC Adapter for Notebook	DELL	HA65NM130	R35737 / DoC
3	Fixture	-	-	-

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

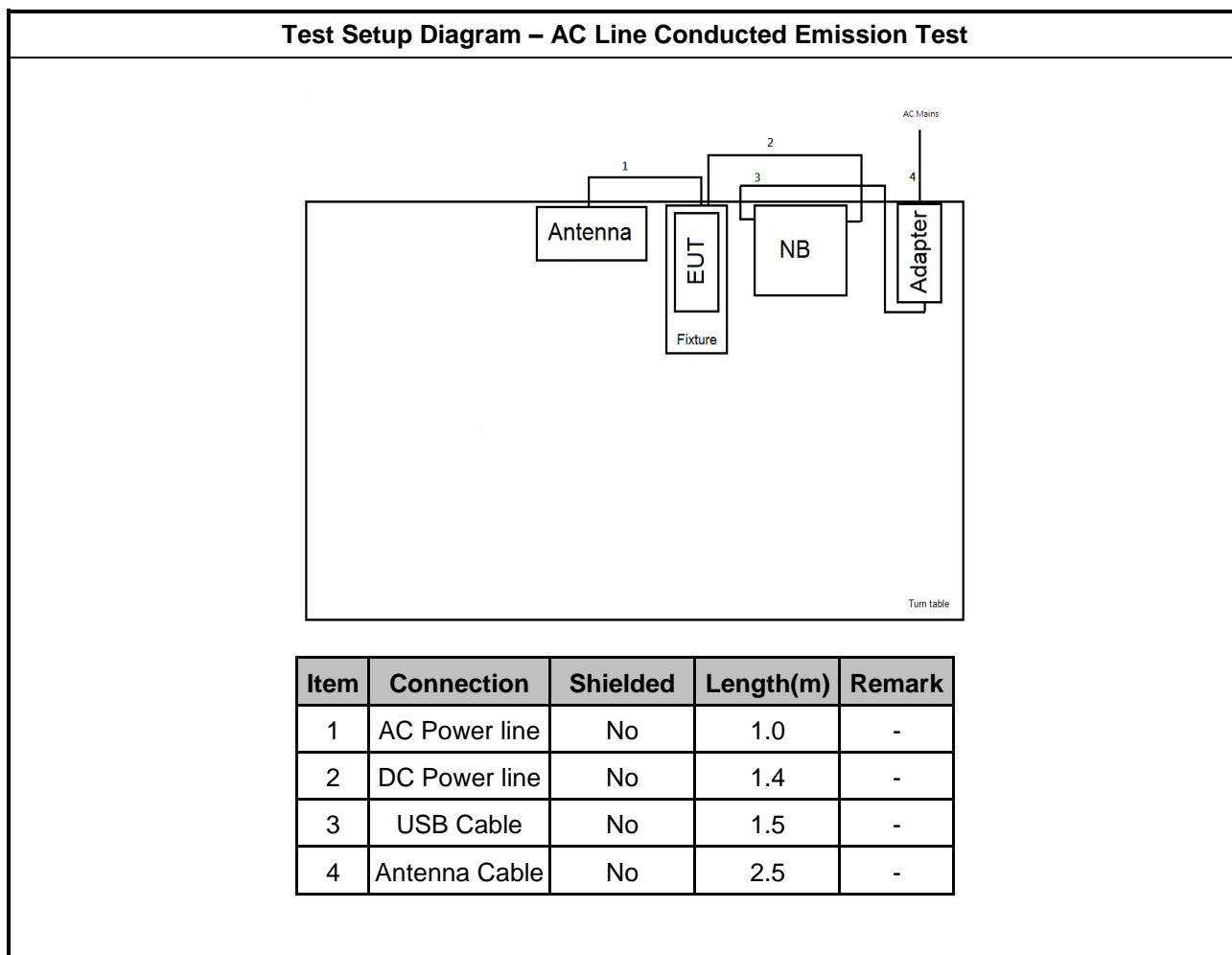
Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5530	R33002
2	AC Adapter for Notebook	DELL	LA65NS2-01	DoC
3	Fixture	-	-	-
4	Antenna	SMARTEQ WIRELESS	LPCA-MINO	-

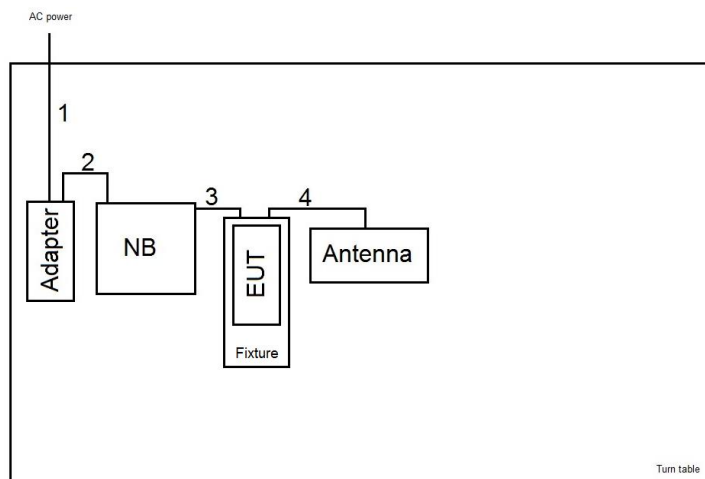
Note: Support equipment No.3 was provided by customer.

Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5530	R33002
2	AC Adapter for Notebook	DELL	LA65NS2-01	DoC
3	Fixture	-	-	-
4	Antenna	SMARTEQ WIRELESS	LPCA-MINO	-

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

2.5 Test Setup Diagram



Test Setup Diagram - Radiated Test


Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.0	-
2	DC Power line	No	1.4	-
3	USB Cable	No	1.5	-
4	Antenna Cable	No	2.5	-

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.

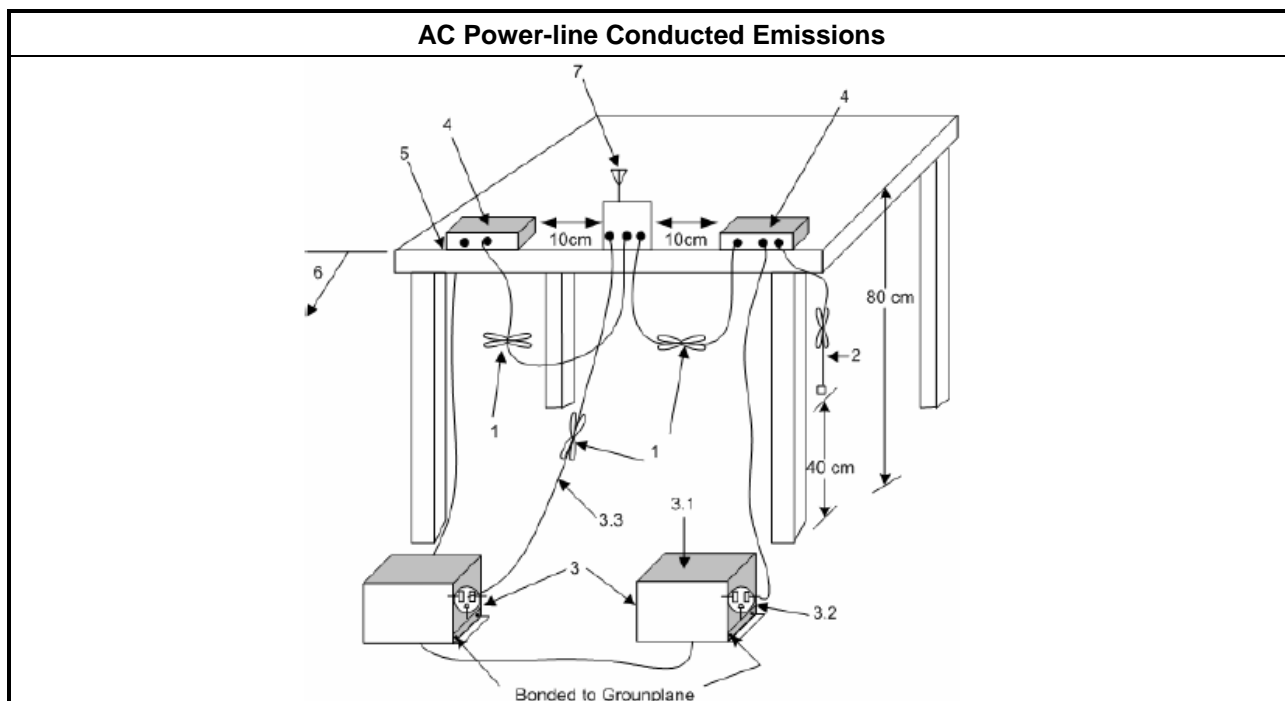
3.1.2 Measuring Instruments

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:	
▪	6 dB bandwidth \geq 500 kHz.

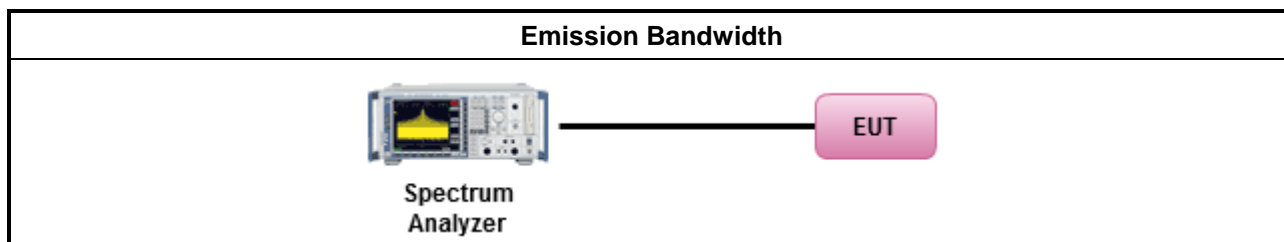
3.2.2 Measuring Instruments

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:	
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.
<input type="checkbox"/>	Refer as RSS-Gen, clause 6.6 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.	

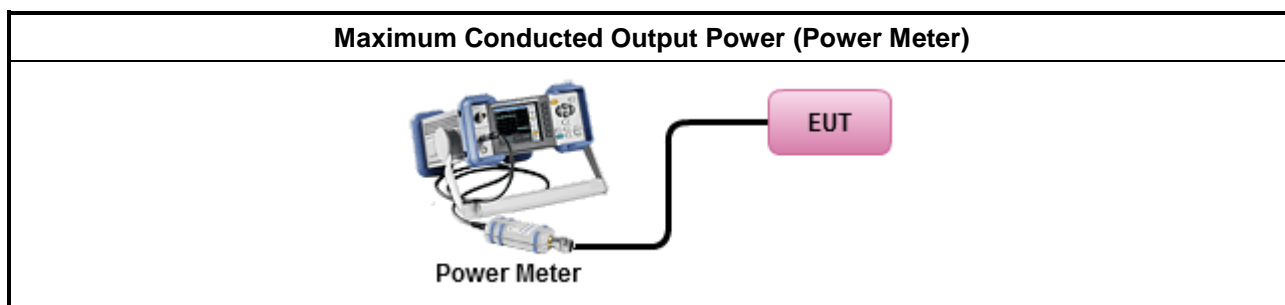
3.3.2 Measuring Instruments

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 9.1.1 Option 1 (RBW ≥ EBW method).
<input type="checkbox"/>	Refer as KDB 558074, clause 9.1.2 Option 2 (integrated band power method)
<input type="checkbox"/>	Refer as KDB 558074, clause 9.1.3 Option 3 (peak power meter for VBW ≥ DTS BW)
<ul style="list-style-type: none"> Maximum Average Conducted Output Power 	
Duty cycle ≥ 98%	
<input type="checkbox"/>	Refer as KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
Duty cycle < 98%	
<input type="checkbox"/>	Refer as KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
RF power meter and average over on/off periods with duty factor or gated trigger	
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 9.2.3.1 Method AVGPM (using an RF average 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	
▪	Power Spectral Density (PSD) ≤ 8 dBm/3kHz

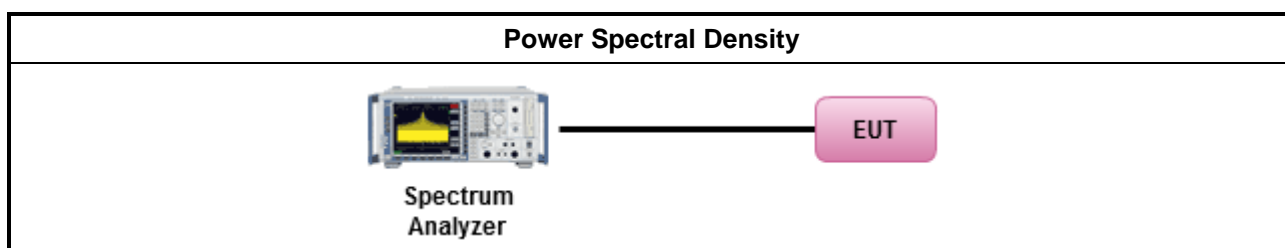
3.4.2 Measuring Instruments

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).
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak).
▪	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
<p>Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.</p> <p>Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.</p>	

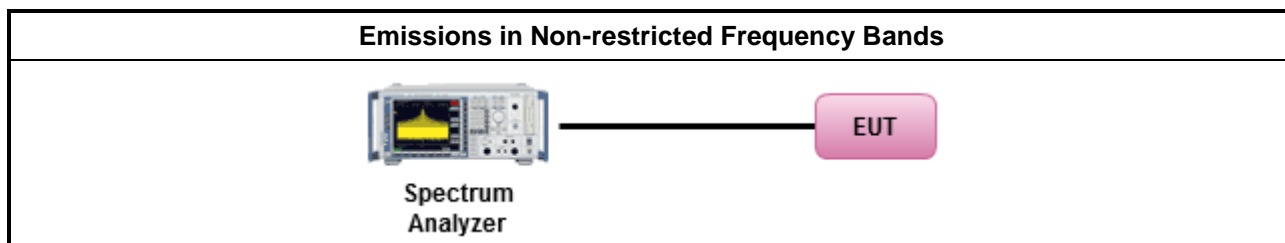
3.5.2 Measuring Instruments

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 11 for unwanted emissions into non-restricted 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.

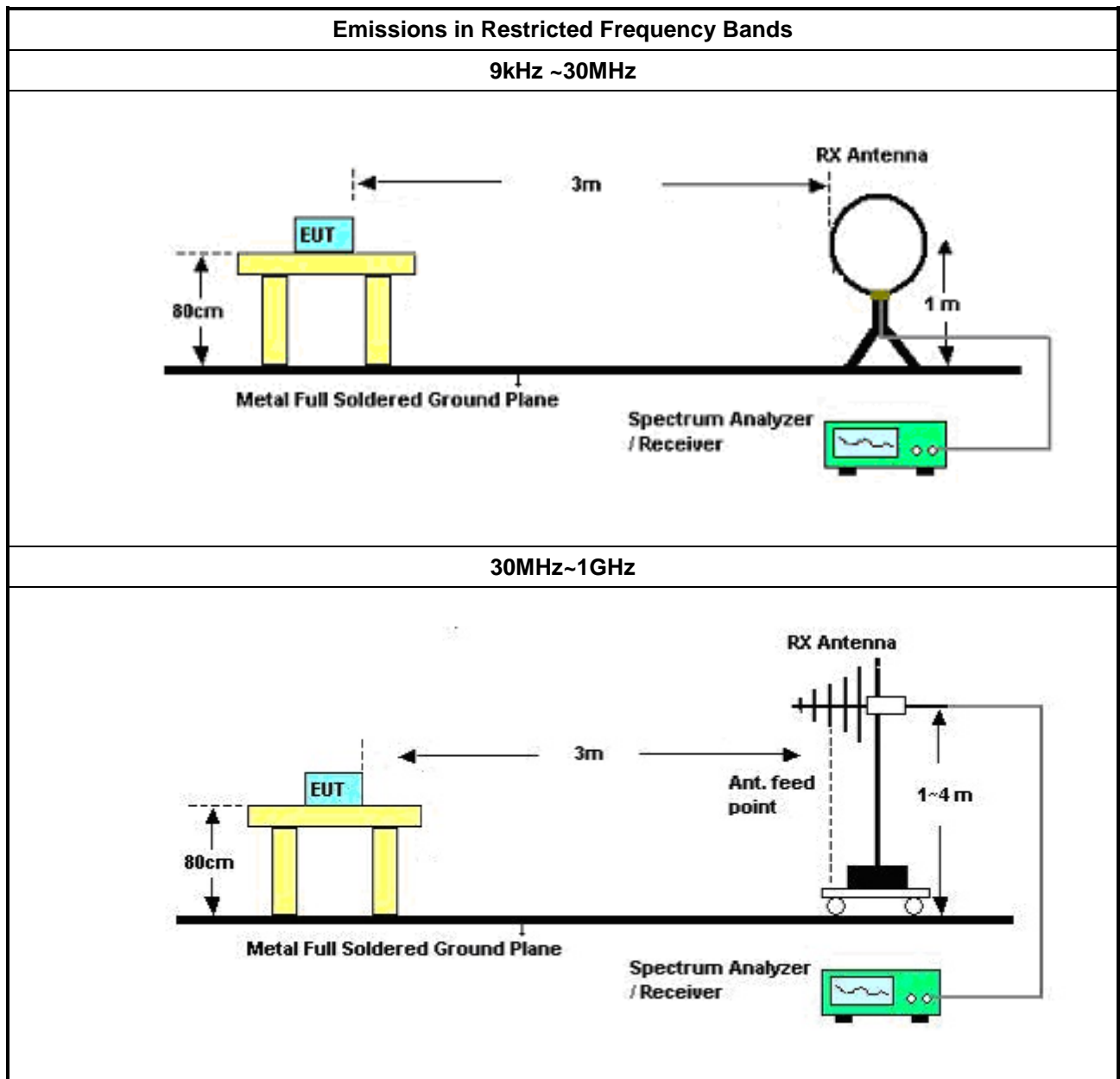
3.6.2 Measuring Instruments

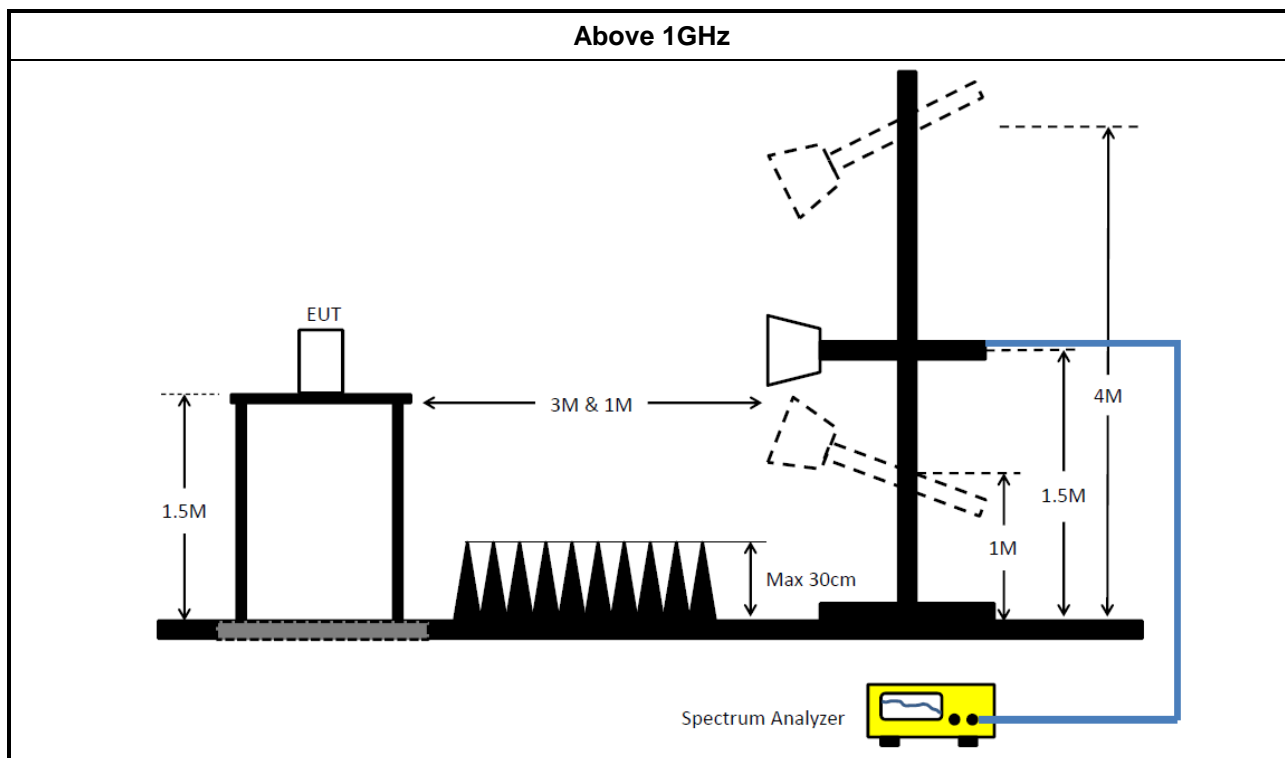
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> The average emission levels shall be measured in [duty cycle ≥ 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 12 for unwanted emissions into restricted bands.
	<input checked="" type="checkbox"/> Refer as KDB 558074, clause 12.2.5.3 (ANSI C63.10, clause 4.1.4.2.3), Reduced VBW $\geq 1/T$.
	<input checked="" type="checkbox"/> Refer as KDB 558074, clause 12.2.4 measurement procedure peak limit.
<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 13.1, 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.
	<ul style="list-style-type: none"> Refer as KDB 558074, clause 13.2 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	<ul style="list-style-type: none"> Refer as KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
<ul style="list-style-type: none"> For conducted and cabinet radiation measurement, refer as KDB 558074, clause 12.2.2. 	
	<ul style="list-style-type: none"> For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
	<ul style="list-style-type: none"> For KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

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	29/Apr/2017	28/Apr/2018
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	17/Nov/2017	16/Nov/2018
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	06/Oct/2017	05/Oct/2018
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	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require

Instrument for Radiated Test

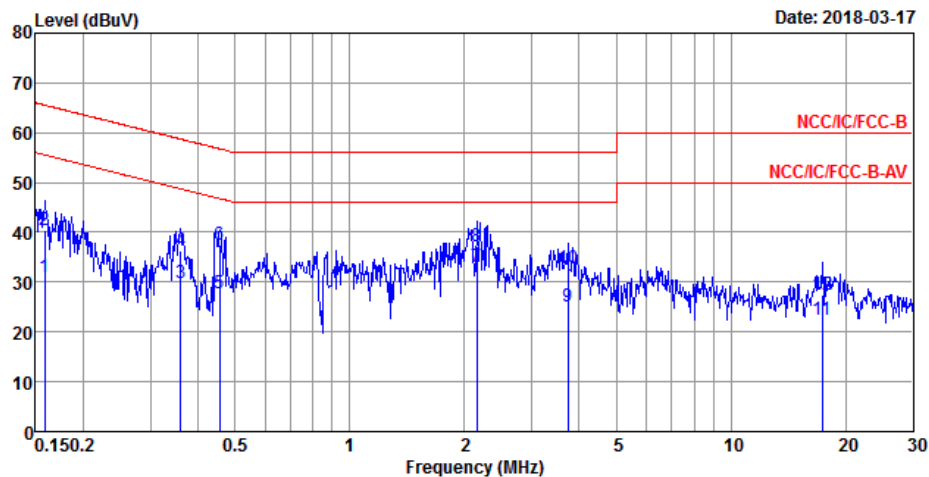
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	31/Oct/2017	30/Oct/2018
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	01/Nov/2017	31/Oct/2018
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	19/Apr/2017	18/Apr/2018
Amplifier	Keysight	83017A	MY53270196	1GHz ~ 26.5GHz	31/Aug/2017	30/Aug/2018
Spectrum	R&S	FSV40	101500	9kHz ~ 40GHz	28/Jun/2017	27/Jun/2018
Receiver	R&S	ESR3	102052	9KHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	26/Jan/2018	25/Jan/2019
RF Cable-high	SUHNER	SUCOFLEX106	CB222	1GHz ~ 40GHz	26/Jan/2018	25/Jan/2019
Bilog Antenna	SCHAFFNER	CBL 6112B	22237	30MHz ~ 1GHz	08/Jul/2017	07/Jul/2018
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	18GHz ~ 40GHz	06/Feb/ 2018	05/Feb/2019
Horn Antenna	SCHWARZBECK	BBHA9120D	1531	1GHz ~ 18GHz	25/Apr/ 2017	24/Apr/2018

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101515	9kHz~40GHz	08/Dec/2017	07/Dec/2018
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	10/May/2017	09/May/2018
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	06/Nov/2017	05/Nov/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY677/3	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY678/3	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10717/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	USB Mode ; BT 4.0 TX		

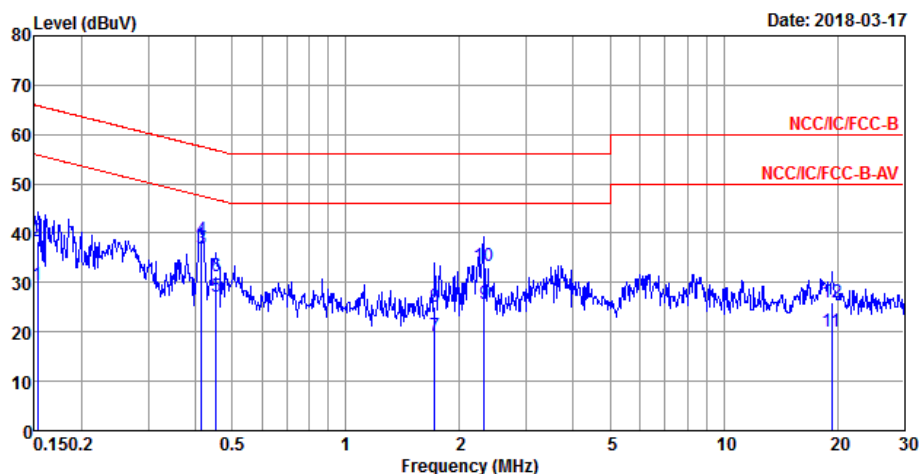


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1582	31.07	-24.49	55.56	21.41	9.63	0.03	Average
2	0.1582	40.42	-25.14	65.56	30.76	9.63	0.03	QP
3	0.3596	29.73	-19.01	48.74	20.04	9.61	0.08	Average
4	0.3596	36.35	-22.39	58.74	26.66	9.61	0.08	QP
5	0.4564	27.83	-18.93	46.76	18.13	9.61	0.09	Average
6	0.4564	37.58	-19.18	56.76	27.88	9.61	0.09	QP
7 MAX	2.1553	33.19	-12.81	46.00	23.55	9.63	0.01	Average
8	2.1553	37.28	-18.72	56.00	27.64	9.63	0.01	QP
9	3.7395	24.95	-21.05	46.00	15.23	9.64	0.08	Average
10	3.7395	32.71	-23.29	56.00	22.99	9.64	0.08	QP
11	17.3826	22.57	-27.43	50.00	12.76	9.71	0.10	Average
12	17.3826	27.59	-32.41	60.00	17.78	9.71	0.10	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	USB Mode ; BT 4.0 TX		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1532	29.44	-26.38	55.82	19.78	9.62	0.04	Average
2	0.1532	38.41	-27.41	65.82	28.75	9.62	0.04	QP
3 MAX	0.4148	36.98	-10.57	47.55	27.27	9.61	0.10	Average
4	0.4148	38.60	-18.95	57.55	28.89	9.61	0.10	QP
5	0.4539	27.10	-19.70	46.80	17.40	9.61	0.09	Average
6	0.4539	31.18	-25.62	56.80	21.48	9.61	0.09	QP
7	1.7162	19.15	-26.85	46.00	9.53	9.62	0.00	Average
8	1.7162	24.96	-31.04	56.00	15.34	9.62	0.00	QP
9	2.3213	25.56	-20.44	46.00	15.92	9.62	0.02	Average
10	2.3213	33.46	-22.54	56.00	23.82	9.62	0.02	QP
11	19.3257	20.12	-29.88	50.00	10.32	9.62	0.18	Average
12	19.3257	25.86	-34.14	60.00	16.06	9.62	0.18	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.

Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

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)	658.75k	1.018M	1M02F1D	657.5k	1.014M

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

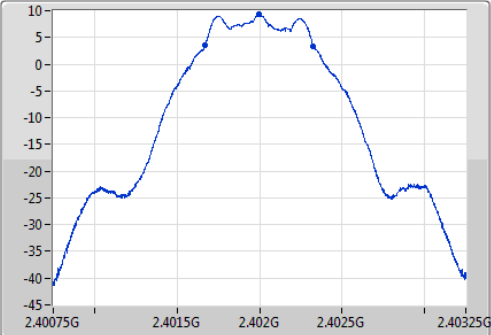
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	657.5k	1.018M
2440MHz	Pass	500k	657.5k	1.014M
2480MHz	Pass	500k	658.75k	1.016M

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

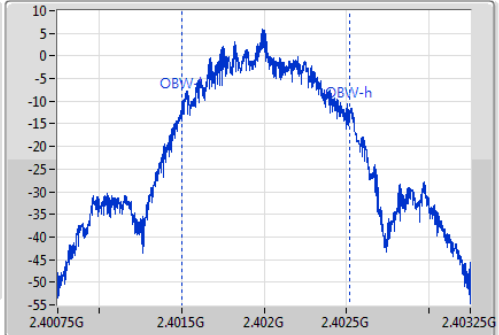
BT-LE(1Mbps)
EBW
2402MHz

08/03/2018

Ch Freq
2.402GHz
Span
2.5MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



Ch Freq
2.402GHz
Span
2.5MHz
RBW
20kHz
VBW
100kHz
Sweep Time
100ms
Detector Type
Sample

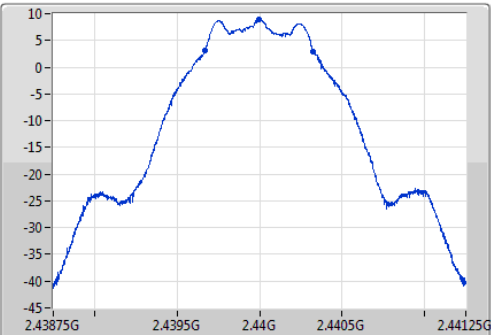


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
657.5k	2.401668G	2.402325G	1.018M	2.4015G	2.402518G	500k	1

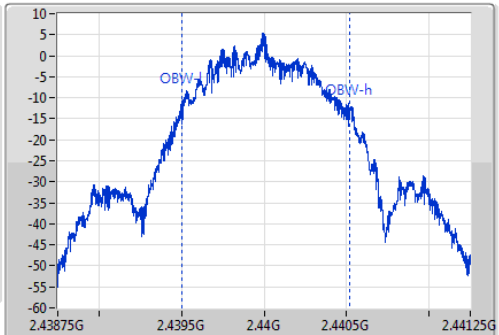
BT-LE(1Mbps)
EBW
2440MHz

08/03/2018

Ch Freq
2.44GHz
Span
2.5MHz
RBW
100kHz
VBW
300kHz
Sweep Time
100ms
Detector Type
Peak



Ch Freq
2.44GHz
Span
2.5MHz
RBW
20kHz
VBW
100kHz
Sweep Time
100ms
Detector Type
Sample

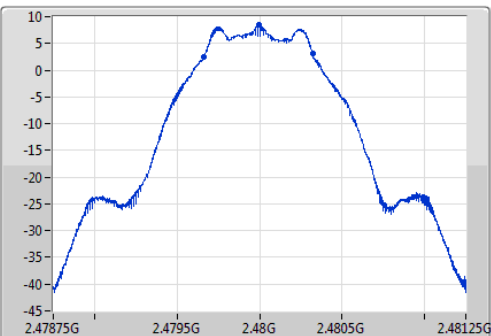


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
657.5k	2.439668G	2.440325G	1.014M	2.439503G	2.440517G	500k	1

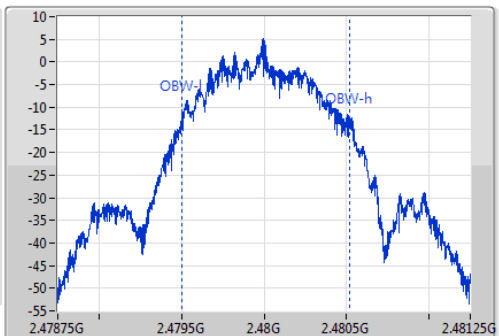
BT-LE(1Mbps)
EBW
2480MHz

08/03/2018

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



Ch Freq
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
658.75k	2.479665G	2.480324G	1.016M	2.479501G	2.480517G	500k	1

Summary

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	8.78	0.00755

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.15	8.78	30.00
2440MHz	Pass	2.15	8.42	30.00
2480MHz	Pass	2.15	7.94	30.00

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-5.59

RBW=3kHz.

Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.15	-5.59	8.00
2440MHz	Pass	2.15	-5.81	8.00
2480MHz	Pass	2.15	-6.53	8.00

RBW=3kHz.

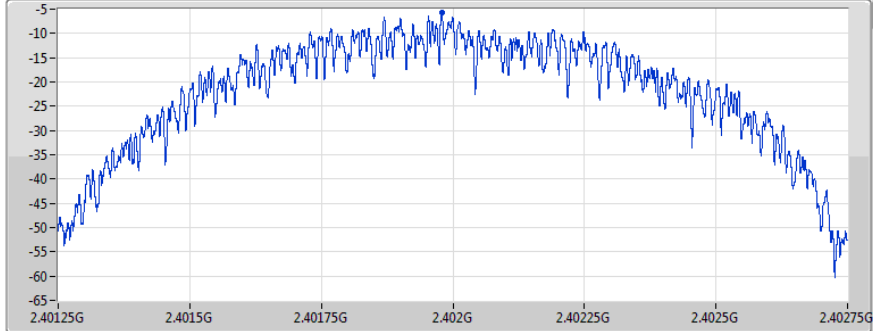
BT-LE(1Mbps)

PSD

2402MHz

08/03/2018

Ch Freq
2.402GHz
Span
1.5MHz
RBW
3kHz
VBW
10kHz
Sweep Time
32.1ms
Detector Type
Peak



Port 1

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.59	-5.59	-5.59

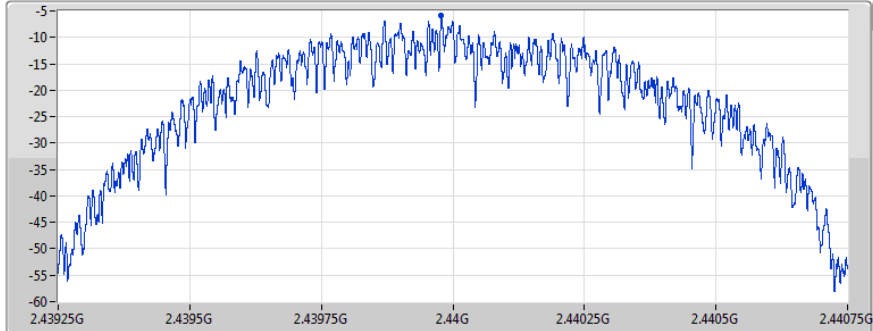
BT-LE(1Mbps)

PSD

2440MHz

08/03/2018

Ch Freq
2.44GHz
Span
1.5MHz
RBW
3kHz
VBW
10kHz
Sweep Time
32.1ms
Detector Type
Peak



Port 1

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-5.81	-5.81	-5.81

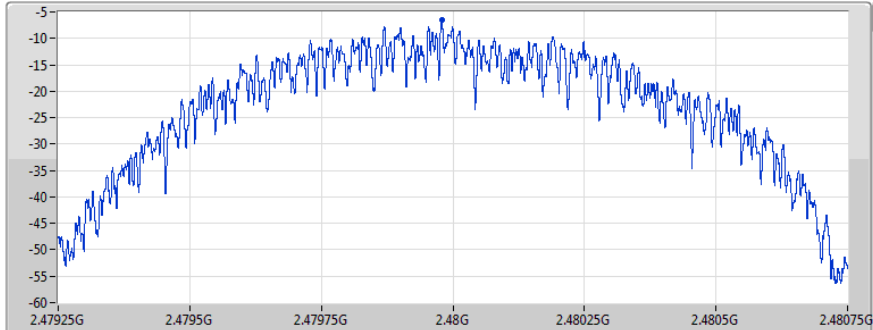
BT-LE(1Mbps)

PSD

2480MHz

08/03/2018

Ch Freq
2.48GHz
Span
1.5MHz
RBW
3kHz
VBW
10kHz
Sweep Time
32.1ms
Detector Type
Peak



Port 1

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-6.53	-6.53	-6.53

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	2.401837G	9.22	-20.78	2.396816G	-55.20	2.3997G	-48.01	2.48482G	-58.47	6.996843G	-53.42	1

Result

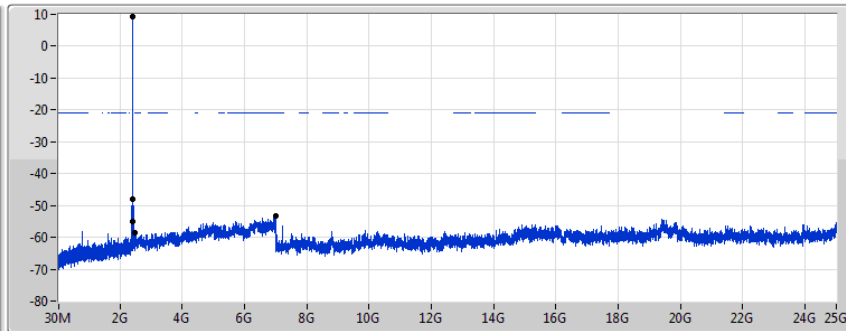
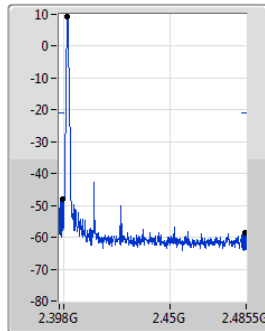
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.401837G	9.22	-20.78	2.396816G	-55.20	2.3997G	-48.01	2.48482G	-58.47	6.996843G	-53.42	1
2440MHz	Pass	2.401837G	9.22	-20.78	812.624M	-55.69	2.399156G	-58.13	2.484548G	-57.92	6.982771G	-53.32	1
2480MHz	Pass	2.401837G	9.22	-20.78	826.832M	-57.54	2.399156G	-59.08	2.483904G	-50.53	6.262307G	-53.21	1

BT-LE(1Mbps)

CSE NdB

2402MHz

08/03/2018



Port 1

RBW VSW
100kHz 300kHz
Detector Type
Peak

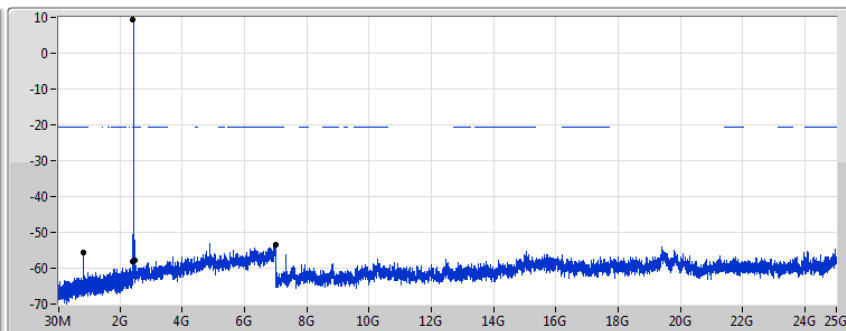
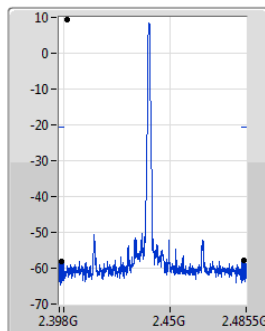
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.401837G	9.22	-20.78	2.396816G	-55.20	2.3997G	-48.01	2.48482G	-58.47	6.996843G	-53.42	1

BT-LE(1Mbps)

CSE NdB

2440MHz

08/03/2018



Port 1

RBW VSW
100kHz 300kHz
Detector Type
Peak

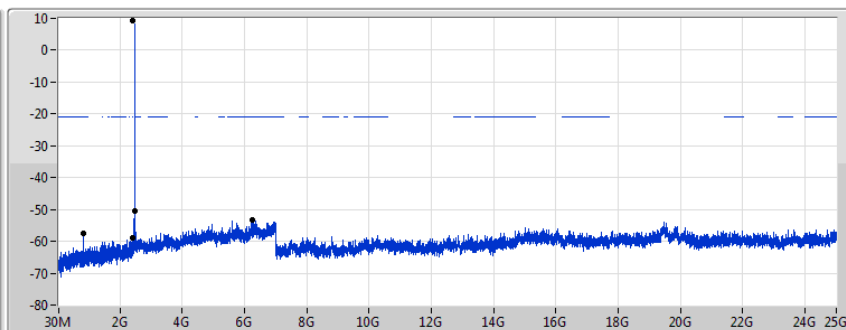
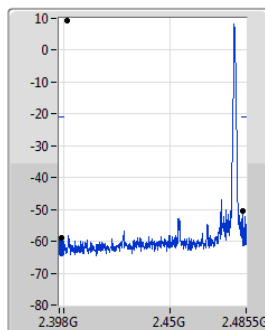
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.401837G	9.22	-20.78	812.624M	-55.69	2.399156G	-58.13	2.484548G	-57.92	6.982771G	-53.32	1

BT-LE(1Mbps)

CSE NdB

2480MHz

08/03/2018



Port 1

RBW VSW
100kHz 300kHz
Detector Type
Peak

Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.401837G	9.22	-20.78	826.832M	-57.54	2.399156G	-59.08	2.483904G	-50.53	6.262307G	-53.21	1

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	PK	266.68M	40.52	46.00	-5.48	-6.01	3	Horizontal	0	2.00	-

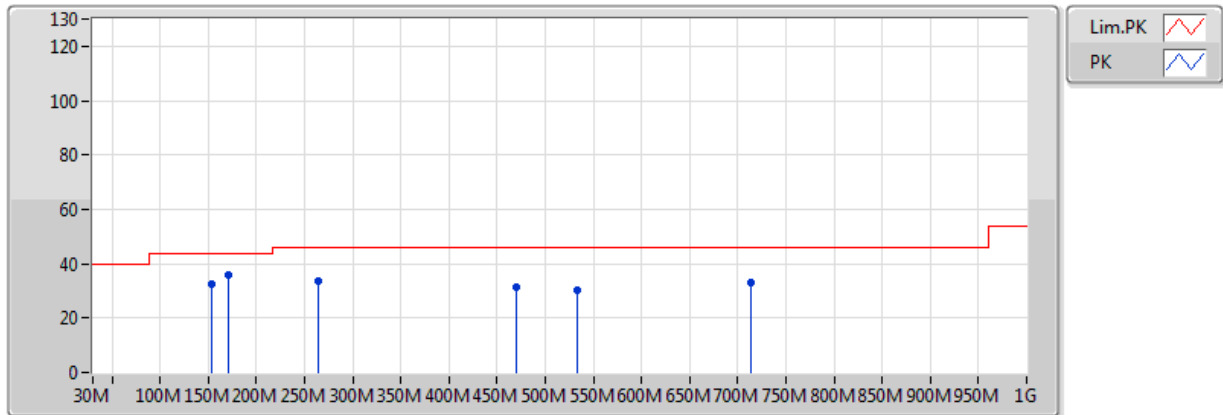
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	171.62M	33.23	43.50	-10.27	-9.85	3	Horizontal	0	2.00	-
2440MHz	Pass	PK	198.78M	36.44	43.50	-7.06	-10.04	3	Horizontal	0	2.00	-
2440MHz	Pass	PK	266.68M	40.52	46.00	-5.48	-6.01	3	Horizontal	0	2.00	-
2440MHz	Pass	PK	332.64M	32.60	46.00	-13.40	-5.21	3	Horizontal	0	2.00	-
2440MHz	Pass	PK	344.28M	34.67	46.00	-11.33	-4.86	3	Horizontal	0	2.00	-
2440MHz	Pass	PK	383.08M	32.74	46.00	-13.26	-4.09	3	Horizontal	0	2.00	-
2440MHz	Pass	PK	154.16M	32.44	43.50	-11.06	-9.79	3	Vertical	360	1.00	-
2440MHz	Pass	PK	171.62M	35.66	43.50	-7.84	-9.85	3	Vertical	360	1.00	-
2440MHz	Pass	PK	264.74M	33.65	46.00	-12.35	-5.89	3	Vertical	360	1.00	-
2440MHz	Pass	PK	470.38M	31.12	46.00	-14.88	-1.82	3	Vertical	360	1.00	-
2440MHz	Pass	PK	532.46M	30.42	46.00	-15.58	-0.93	3	Vertical	360	1.00	-
2440MHz	Pass	PK	712.88M	33.07	46.00	-12.93	0.51	3	Vertical	360	1.00	-

BT-LE(1Mbps)

2440MHz_USB

11/03/2018

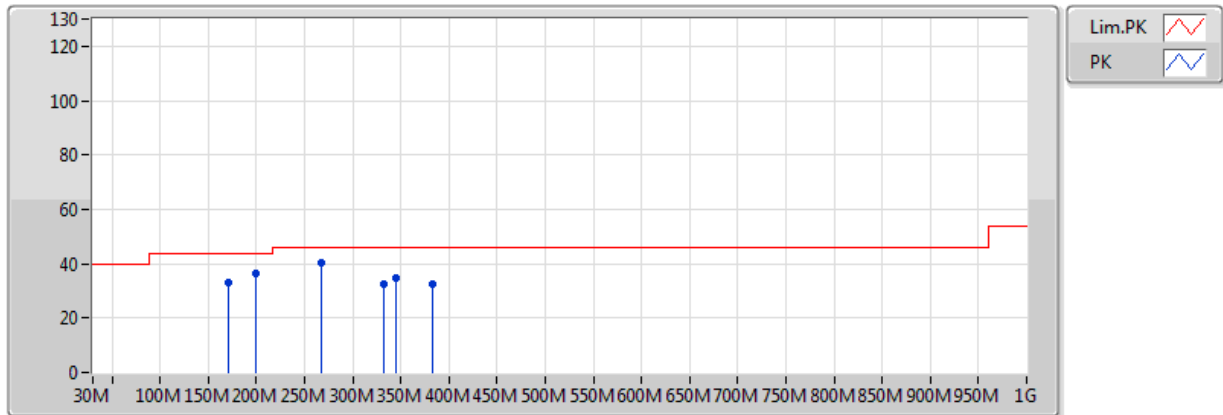


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	154.16M	32.44	43.50	-11.06	-9.79	3	Vertical	360	1.00	-	42.23	15.19	2.13	27.12
PK	171.62M	35.66	43.50	-7.84	-9.85	3	Vertical	360	1.00	-	45.51	14.68	2.52	27.04
PK	264.74M	33.65	46.00	-12.35	-5.89	3	Vertical	360	1.00	-	39.54	18.47	2.40	26.76
PK	470.38M	31.12	46.00	-14.88	-1.82	3	Vertical	360	1.00	-	32.94	22.38	3.47	27.67
PK	532.46M	30.42	46.00	-15.58	-0.93	3	Vertical	360	1.00	-	31.35	23.33	3.62	27.88
PK	712.88M	33.07	46.00	-12.93	0.51	3	Vertical	360	1.00	-	32.56	24.25	4.18	27.92

BT-LE(1Mbps)

2440MHz_USB

11/03/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	171.62M	33.23	43.50	-10.27	-9.85	3	Horizontal	0	2.00	-	43.08	14.68	2.52	27.04
PK	198.78M	36.44	43.50	-7.06	-10.04	3	Horizontal	0	2.00	-	46.48	14.39	2.48	26.92
PK	266.68M	40.52	46.00	-5.48	-6.01	3	Horizontal	0	2.00	-	46.53	18.31	2.44	26.76
PK	332.64M	32.60	46.00	-13.40	-5.21	3	Horizontal	0	2.00	-	37.81	18.89	2.77	26.88
PK	344.28M	34.67	46.00	-11.33	-4.86	3	Horizontal	0	2.00	-	39.53	19.18	2.91	26.95
PK	383.08M	32.74	46.00	-13.26	-4.09	3	Horizontal	0	2.00	-	36.83	20.07	3.03	27.19

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	4.80394G	50.16	54.00	-3.84	5.85	3	Vertical	184	1.75	-

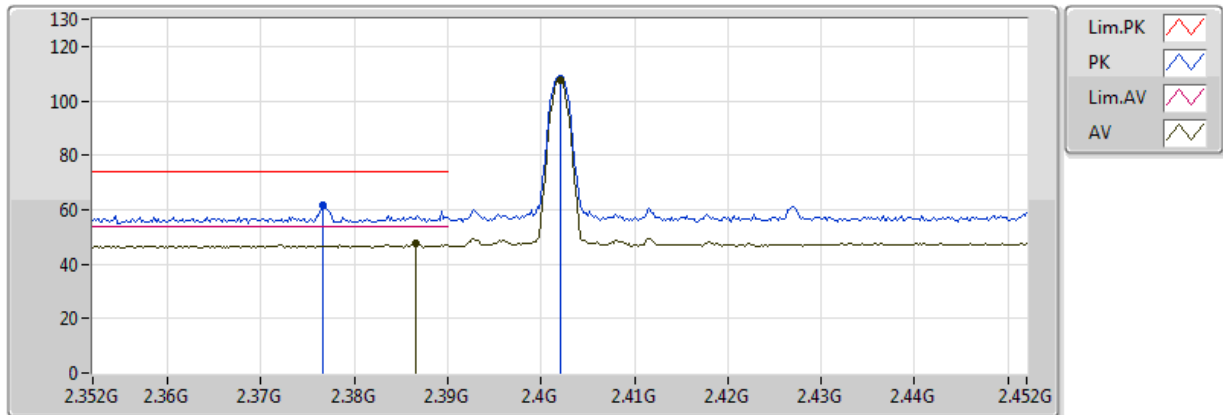
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3894G	46.73	54.00	-7.27	30.45	3	Horizontal	102	1.44	-
2402MHz	Pass	AV	2.402G	103.17	Inf	-Inf	30.50	3	Horizontal	102	1.44	-
2402MHz	Pass	PK	2.3768G	58.53	74.00	-15.47	30.41	3	Horizontal	102	1.44	-
2402MHz	Pass	PK	2.4022G	103.61	Inf	-Inf	30.50	3	Horizontal	102	1.44	-
2402MHz	Pass	AV	2.3866G	47.87	54.00	-6.13	30.45	3	Vertical	84	2.56	-
2402MHz	Pass	AV	2.402G	107.73	Inf	-Inf	30.50	3	Vertical	84	2.56	-
2402MHz	Pass	PK	2.3766G	61.72	74.00	-12.28	30.41	3	Vertical	84	2.56	-
2402MHz	Pass	PK	2.402G	108.13	Inf	-Inf	30.50	3	Vertical	84	2.56	-
2402MHz	Pass	AV	4.80402G	46.45	54.00	-7.55	5.85	3	Horizontal	205	1.51	-
2402MHz	Pass	PK	4.80438G	51.94	74.00	-22.06	5.85	3	Horizontal	205	1.51	-
2402MHz	Pass	AV	4.80394G	50.16	54.00	-3.84	5.85	3	Vertical	184	1.75	-
2402MHz	Pass	PK	4.80356G	54.83	74.00	-19.17	5.85	3	Vertical	184	1.75	-
2440MHz	Pass	AV	2.3464G	46.94	54.00	-7.06	30.30	3	Horizontal	96	1.07	-
2440MHz	Pass	AV	2.44G	102.32	Inf	-Inf	30.63	3	Horizontal	96	1.07	-
2440MHz	Pass	AV	2.488G	48.00	54.00	-6.00	30.81	3	Horizontal	96	1.07	-
2440MHz	Pass	PK	2.3536G	58.16	74.00	-15.84	30.33	3	Horizontal	96	1.07	-
2440MHz	Pass	PK	2.4396G	102.77	Inf	-Inf	30.63	3	Horizontal	96	1.07	-
2440MHz	Pass	PK	2.499998G	58.76	74.00	-15.24	30.85	3	Horizontal	96	1.07	-
2440MHz	Pass	AV	2.389998G	46.99	54.00	-7.01	30.45	3	Vertical	81	2.62	-
2440MHz	Pass	AV	2.44G	106.54	Inf	-Inf	30.63	3	Vertical	81	2.62	-
2440MHz	Pass	AV	2.4928G	48.00	54.00	-6.00	30.82	3	Vertical	81	2.62	-
2440MHz	Pass	PK	2.3888G	60.63	74.00	-13.37	30.45	3	Vertical	81	2.62	-
2440MHz	Pass	PK	2.4396G	107.00	Inf	-Inf	30.63	3	Vertical	81	2.62	-
2440MHz	Pass	PK	2.4908G	58.74	74.00	-15.26	30.82	3	Vertical	81	2.62	-
2440MHz	Pass	AV	4.88004G	40.86	54.00	-13.14	6.02	3	Horizontal	206	1.13	-
2440MHz	Pass	PK	4.8805G	48.39	74.00	-25.61	6.03	3	Horizontal	206	1.13	-
2440MHz	Pass	AV	4.87998G	41.91	54.00	-12.09	6.02	3	Vertical	182	1.99	-
2440MHz	Pass	PK	4.87972G	49.10	74.00	-24.90	6.02	3	Vertical	182	1.99	-
2480MHz	Pass	AV	2.48G	103.40	Inf	-Inf	30.78	3	Horizontal	95	1.07	-
2480MHz	Pass	AV	2.483502G	48.45	54.00	-5.55	30.79	3	Horizontal	95	1.07	-
2480MHz	Pass	PK	2.4798G	103.83	Inf	-Inf	30.78	3	Horizontal	95	1.07	-
2480MHz	Pass	PK	2.4844G	58.51	74.00	-15.49	30.79	3	Horizontal	95	1.07	-
2480MHz	Pass	AV	2.48G	107.12	Inf	-Inf	30.78	3	Vertical	82	2.37	-
2480MHz	Pass	AV	2.4864G	49.93	54.00	-4.07	30.80	3	Vertical	82	2.37	-
2480MHz	Pass	PK	2.48G	107.56	Inf	-Inf	30.78	3	Vertical	82	2.37	-
2480MHz	Pass	PK	2.483502G	60.52	74.00	-13.48	30.79	3	Vertical	82	2.37	-
2480MHz	Pass	AV	4.95976G	45.20	54.00	-8.80	6.21	3	Horizontal	206	1.08	-
2480MHz	Pass	PK	4.95956G	51.96	74.00	-22.04	6.21	3	Horizontal	206	1.08	-
2480MHz	Pass	AV	4.95986G	49.04	54.00	-4.96	6.21	3	Vertical	153	1.89	-
2480MHz	Pass	PK	4.96048G	54.19	74.00	-19.81	6.21	3	Vertical	153	1.89	-

BT-LE(1Mbps)

2402MHz_TX

11/03/2018

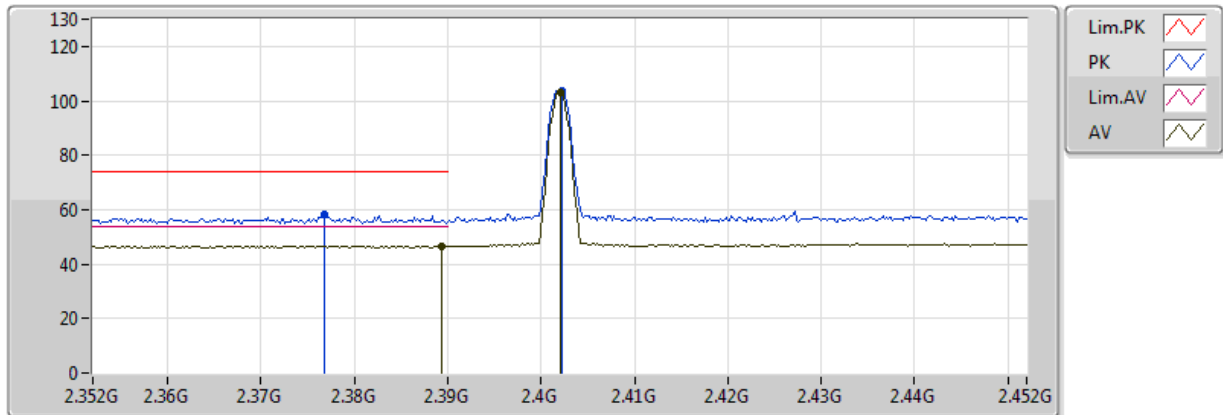


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3866G	47.87	54.00	-6.13	30.45	3	Vertical	84	2.56	-	17.42	27.21	3.24	-
AV	2.402G	107.73	Inf	-Inf	30.50	3	Vertical	84	2.56	-	77.23	27.25	3.25	-
PK	2.3766G	61.72	74.00	-12.28	30.41	3	Vertical	84	2.56	-	31.31	27.18	3.23	-
PK	2.402G	108.13	Inf	-Inf	30.50	3	Vertical	84	2.56	-	77.63	27.25	3.25	-

BT-LE(1Mbps)

2402MHz_TX

11/03/2018

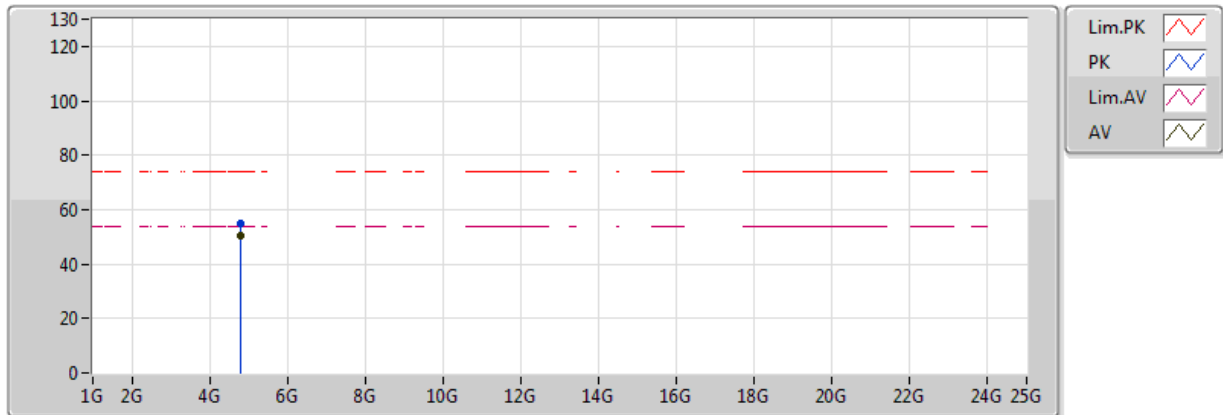


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3894G	46.73	54.00	-7.27	30.45	3	Horizontal	102	1.44	-	16.28	27.21	3.24	-
AV	2.402G	103.17	Inf	-Inf	30.50	3	Horizontal	102	1.44	-	72.67	27.25	3.25	-
PK	2.3768G	58.53	74.00	-15.47	30.41	3	Horizontal	102	1.44	-	28.12	27.18	3.23	-
PK	2.4022G	103.61	Inf	-Inf	30.50	3	Horizontal	102	1.44	-	73.11	27.25	3.25	-

BT-LE(1Mbps)

2402MHz_TX

11/03/2018

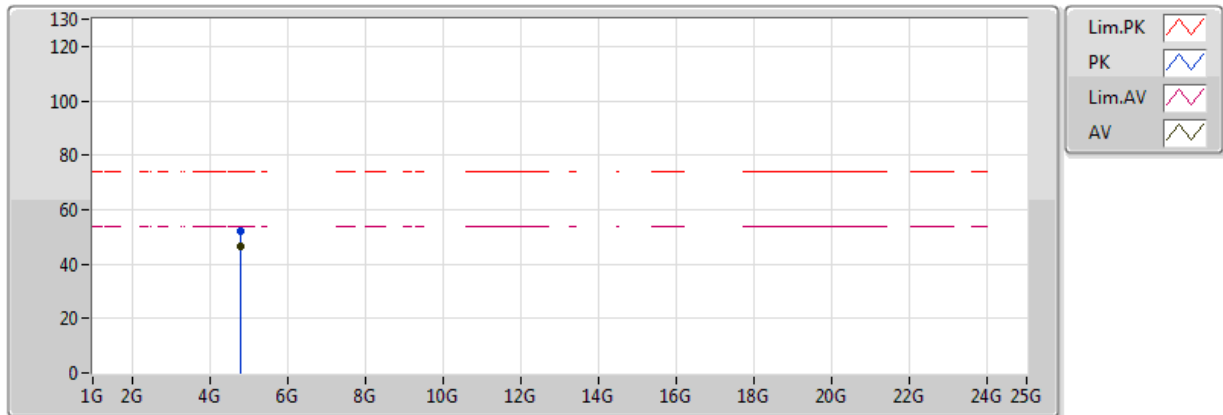


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80394G	50.16	54.00	-3.84	5.85	3	Vertical	184	1.75	-	44.31	31.19	4.51	29.85
PK	4.80356G	54.83	74.00	-19.17	5.85	3	Vertical	184	1.75	-	48.98	31.19	4.51	29.85

BT-LE(1Mbps)

2402MHz_TX

11/03/2018

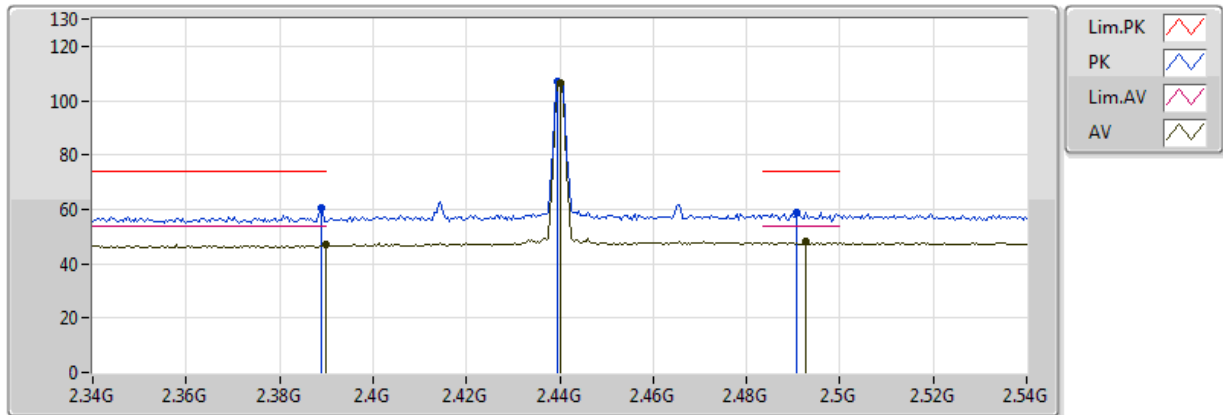


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.80402G	46.45	54.00	-7.55	5.85	3	Horizontal	205	1.51	-	40.60	31.19	4.51	29.85
PK	4.80438G	51.94	74.00	-22.06	5.85	3	Horizontal	205	1.51	-	46.09	31.19	4.51	29.85

BT-LE(1Mbps)

2440MHz_TX

11/03/2018

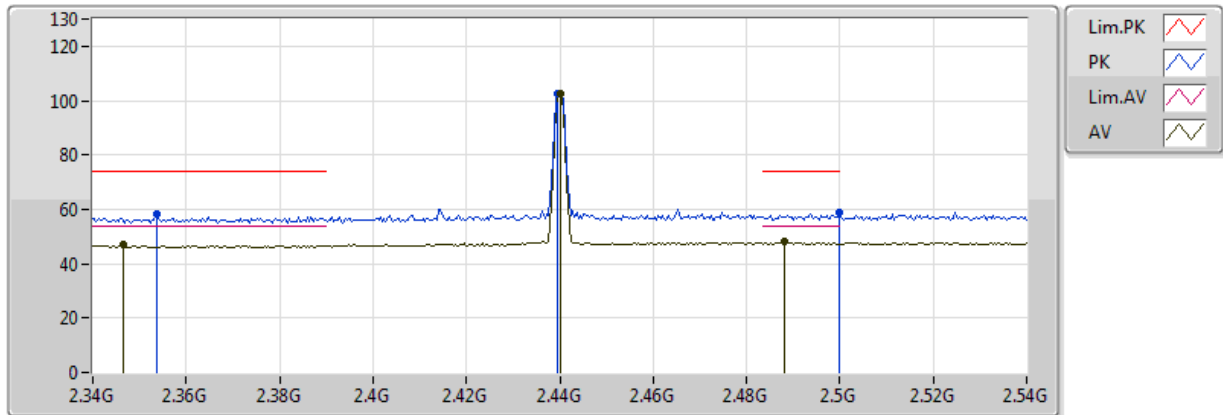


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.389998G	46.99	54.00	-7.01	30.45	3	Vertical	81	2.62	-	16.54	27.21	3.24	-
AV	2.44G	106.54	Inf	-Inf	30.63	3	Vertical	81	2.62	-	75.91	27.34	3.29	-
AV	2.4928G	48.00	54.00	-6.00	30.82	3	Vertical	81	2.62	-	17.18	27.48	3.34	-
PK	2.3888G	60.63	74.00	-13.37	30.45	3	Vertical	81	2.62	-	30.18	27.21	3.24	-
PK	2.4396G	107.00	Inf	-Inf	30.63	3	Vertical	81	2.62	-	76.37	27.34	3.29	-
PK	2.4908G	58.74	74.00	-15.26	30.82	3	Vertical	81	2.62	-	27.92	27.48	3.34	-

BT-LE(1Mbps)

2440MHz_TX

11/03/2018

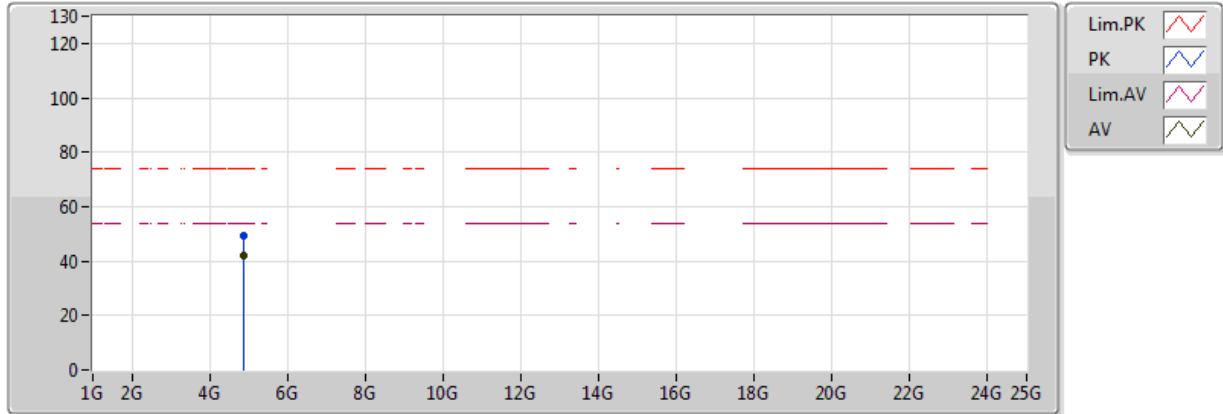


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3464G	46.94	54.00	-7.06	30.30	3	Horizontal	96	1.07	-	16.64	27.10	3.20	-
AV	2.44G	102.32	Inf	-Inf	30.63	3	Horizontal	96	1.07	-	71.69	27.34	3.29	-
AV	2.488G	48.00	54.00	-6.00	30.81	3	Horizontal	96	1.07	-	17.19	27.47	3.34	-
PK	2.3536G	58.16	74.00	-15.84	30.33	3	Horizontal	96	1.07	-	27.83	27.12	3.21	-
PK	2.4396G	102.77	Inf	-Inf	30.63	3	Horizontal	96	1.07	-	72.14	27.34	3.29	-
PK	2.499998G	58.76	74.00	-15.24	30.85	3	Horizontal	96	1.07	-	27.91	27.50	3.35	-

BT-LE(1Mbps)

2440MHz_TX

11/03/2018

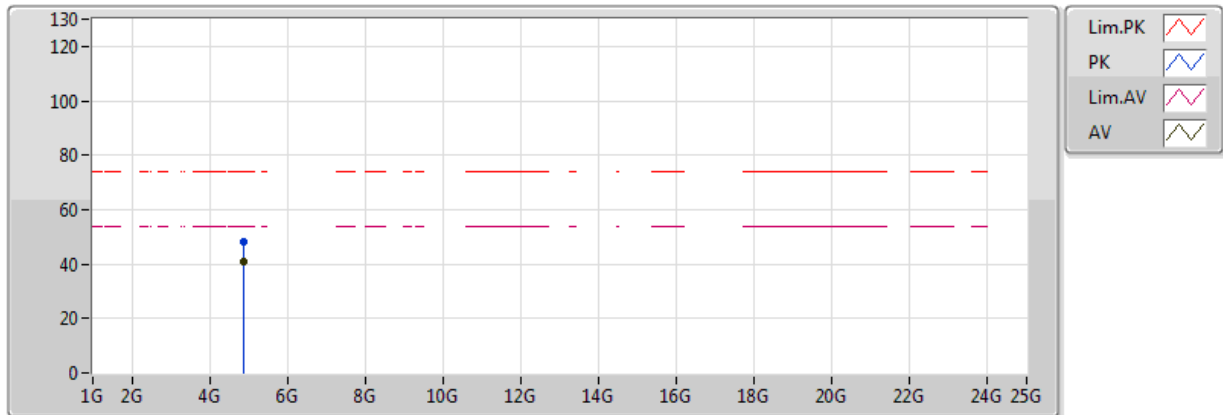


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.87998G	41.91	54.00	-12.09	6.02	3	Vertical	182	1.99	-	35.89	31.31	4.55	29.83
PK	4.87972G	49.10	74.00	-24.90	6.02	3	Vertical	182	1.99	-	43.08	31.31	4.55	29.83

BT-LE(1Mbps)

2440MHz_TX

11/03/2018

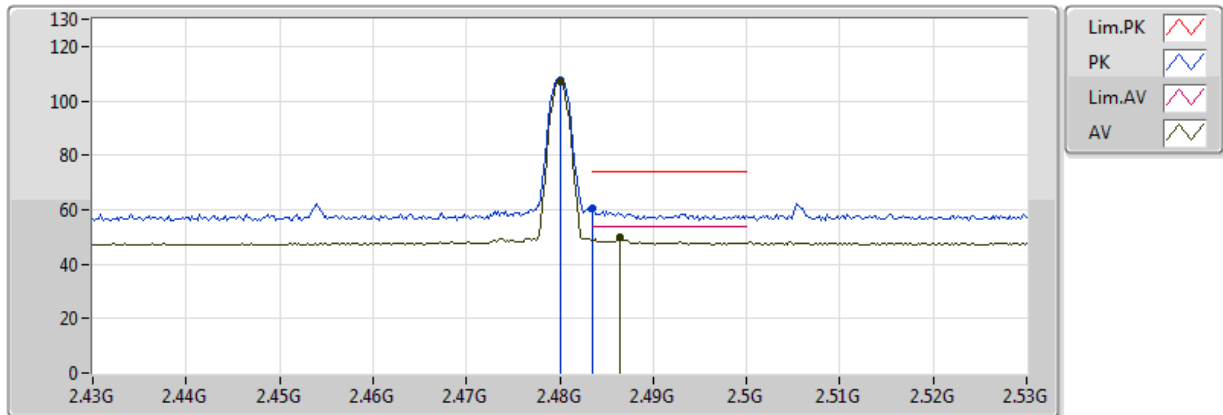


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.88004G	40.86	54.00	-13.14	6.02	3	Horizontal	206	1.13	-	34.84	31.31	4.55	29.83
PK	4.8805G	48.39	74.00	-25.61	6.03	3	Horizontal	206	1.13	-	42.36	31.31	4.55	29.83

BT-LE(1Mbps)

2480MHz_TX

11/03/2018

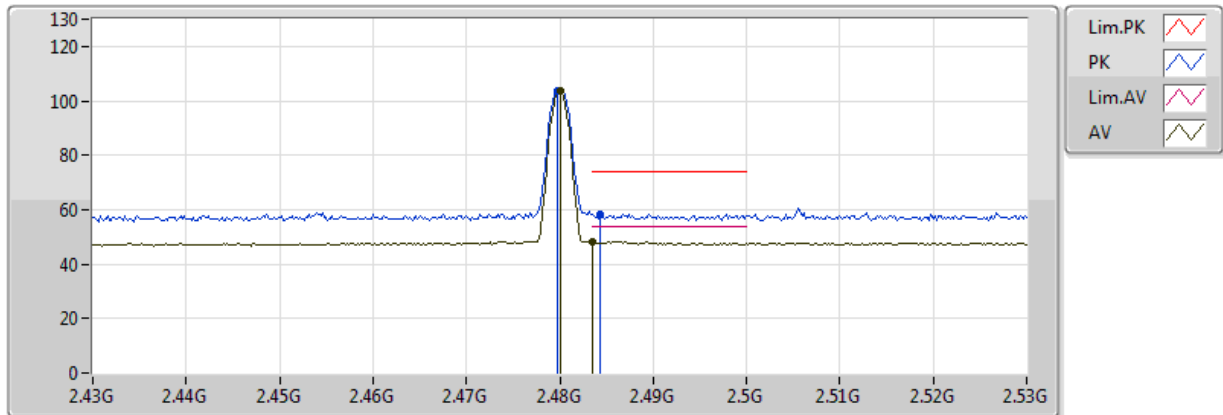


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	107.12	Inf	-Inf	30.78	3	Vertical	82	2.37	-	76.34	27.45	3.33	-
AV	2.4864G	49.93	54.00	-4.07	30.80	3	Vertical	82	2.37	-	19.13	27.46	3.34	-
PK	2.48G	107.56	Inf	-Inf	30.78	3	Vertical	82	2.37	-	76.78	27.45	3.33	-
PK	2.483502G	60.52	74.00	-13.48	30.79	3	Vertical	82	2.37	-	29.73	27.46	3.33	-

BT-LE(1Mbps)

2480MHz_TX

11/03/2018

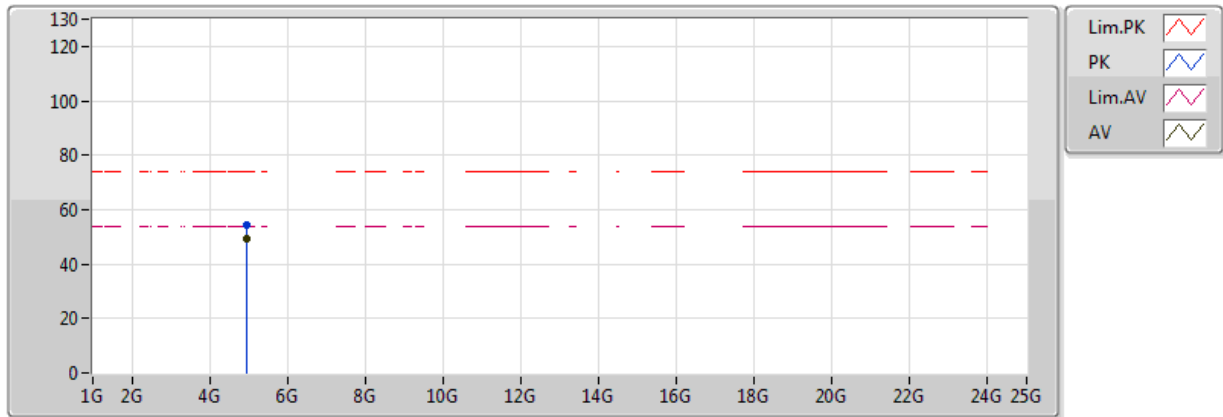


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.48G	103.40	Inf	-Inf	30.78	3	Horizontal	95	1.07	-	72.62	27.45	3.33	-
AV	2.483502G	48.45	54.00	-5.55	30.79	3	Horizontal	95	1.07	-	17.66	27.46	3.33	-
PK	2.4798G	103.83	Inf	-Inf	30.78	3	Horizontal	95	1.07	-	73.05	27.45	3.33	-
PK	2.4844G	58.51	74.00	-15.49	30.79	3	Horizontal	95	1.07	-	27.72	27.46	3.33	-

BT-LE(1Mbps)

2480MHz_TX

11/03/2018

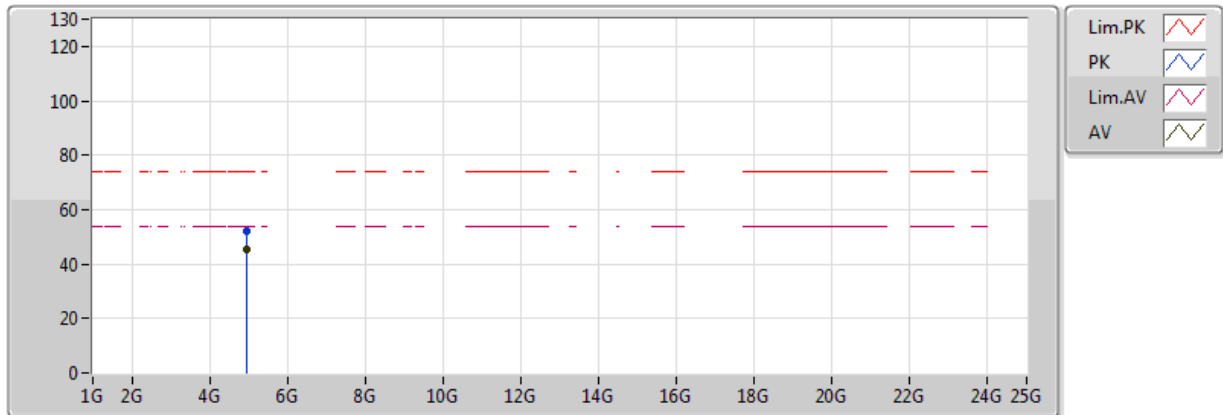


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95986G	49.04	54.00	-4.96	6.21	3	Vertical	153	1.89	-	42.83	31.44	4.59	29.82
PK	4.96048G	54.19	74.00	-19.81	6.21	3	Vertical	153	1.89	-	47.98	31.44	4.59	29.82

BT-LE(1Mbps)

2480MHz_TX

11/03/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	4.95976G	45.20	54.00	-8.80	6.21	3	Horizontal	206	1.08	-	38.99	31.44	4.59	29.82
PK	4.95956G	51.96	74.00	-22.04	6.21	3	Horizontal	206	1.08	-	45.75	31.44	4.59	29.82