

FCC Test Report

FCC ID : UDX-60071010
Equipment : Network Camera
Brand Name : Cisco Systems, Inc.
Model Name : MV72-HW
Applicant / 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 May 28, 2018, and testing was started from Jun. 16, 2018 and completed on Jun. 20, 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.)

Table of Contents

HISTORY OF THIS TEST REPORT	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Information.....	5
1.2 Testing Applied Standards	7
1.3 Testing Location Information	7
1.4 Measurement Uncertainty	7
2 TEST CONFIGURATION OF EUT.....	8
2.1 Test Condition	8
2.2 Test Channel Mode	8
2.3 The Worst Case Measurement Configuration	9
2.4 Support Equipment.....	10
2.5 Test Setup Diagram	11
3 TRANSMITTER TEST RESULT	12
3.1 AC Power-line Conducted Emissions	12
3.2 DTS Bandwidth.....	14
3.3 Maximum Conducted Output Power	15
3.4 Power Spectral Density	17
3.5 Emissions in Non-restricted Frequency Bands	18
3.6 Emissions in Restricted Frequency Bands.....	19
4 TEST EQUIPMENT AND CALIBRATION DATA.....	23
APPENDIX A. TEST RESULTS OF AC POWER-LINE CONDUCTED EMISSIONS	
APPENDIX B. TEST RESULTS OF DTS BANDWIDTH	
APPENDIX C. TEST RESULTS OF MAXIMUM CONDUCTED OUTPUT POWER	
APPENDIX D. TEST RESULTS OF POWER SPECTRAL DENSITY	
APPENDIX E. TEST RESULTS OF EMISSIONS IN NON-RESTRICTED FREQUENCY BANDS	
APPENDIX F. TEST RESULTS OF EMISSIONS IN RESTRICTED FREQUENCY BANDS	
APPENDIX G. TEST RESULTS OF RADIATED EMISSION CO-LOCATION	
TEST SETUP PHOTOS V01	
PHOTOGRAPHS OF EUT V01	



History of this test report

TEL : 886-3-3273456
FAX : 886-3-3270973
Report Template No.: HE1-C10 Ver3.1
FCC ID: UDX-60071010

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: 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 for DSSS.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	LYNwave	ALX18F-222AA1-00	PIFA Antenna	I-PEX
2	LYNwave	ALX18F-222AA0-00	PIFA Antenna	I-PEX

Ant.	Gain (dBi)		
	2.4G	5G	BT
1	3.6	4.9	-
2	5.2	4.9	5.2

For 2.4 GHz function:

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

Support diversity function and pre-tested on each single chain, the worst case was Ant. 2 and it was record in this test report.

For 5 GHz function:X

For IEEE 802.11 a/n/ac mode (1TX/1RX)

Support diversity function and pre-tested on each single chain, the worst case was Ant. 1 and it was record in this test report.

For Bluetooth function:

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

Ant. 2 could transmit/receive simultaneously.

1.1.3 EUT Information

Operational Condition			
EUT Power Type	From PoE		
EUT Function	<input checked="" type="checkbox"/> Point-to-multipoint	<input type="checkbox"/> Point-to-point	
Type of EUT			
<input checked="" type="checkbox"/>	Stand-alone		
<input type="checkbox"/>	Combined (EUT where the radio part is fully integrated within another device)		
	Combined Equipment - Brand Name / Model No.: ...		
<input type="checkbox"/>	Plug-in radio (EUT intended for a variety of host systems)		
	Host System - Brand Name / Model No.: ...		
<input type="checkbox"/>	Other:		

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
BT-LE(1Mbps)	0.63	2.007	393.75u	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 v05

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	23.3°C / 65%	16/Jun/2018
Radiated	03CH09-HY	Andy	22.6°C / 62%	20/Jun/2018
AC Conduction	CO04-HY	Jeff	22.6°C / 62%	20/Jun/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

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

2.2 Test Channel Mode



Test Software Version	QRCT V3.0.210.0
-----------------------	-----------------

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	PoE 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	PoE mode	
Operating Mode > 1GHz	CTX	
Orthogonal Planes of EUT	Y Plane	Z Plane
		
Worst Planes of EUT		V

The Worst Case Mode for Following Conformance Tests	
Tests Item	Simultaneous Transmission Analysis
Operating Mode	Normal Link
1	Bluetooth+WLAN 2.4GHz
2	Bluetooth+WLAN 5GHz
Refer to Sporton Test Report No.: FA851628 for Co-location RF Exposure Evaluation and Appendix G for Radiated Emission Co-location.	

2.4 Support Equipment

Support Equipment – RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	R33002 / DOC
2	Adapter for NB	DELL	HA65NM130	R35737 / DOC
3	AC Source	GW	APS-9102	-

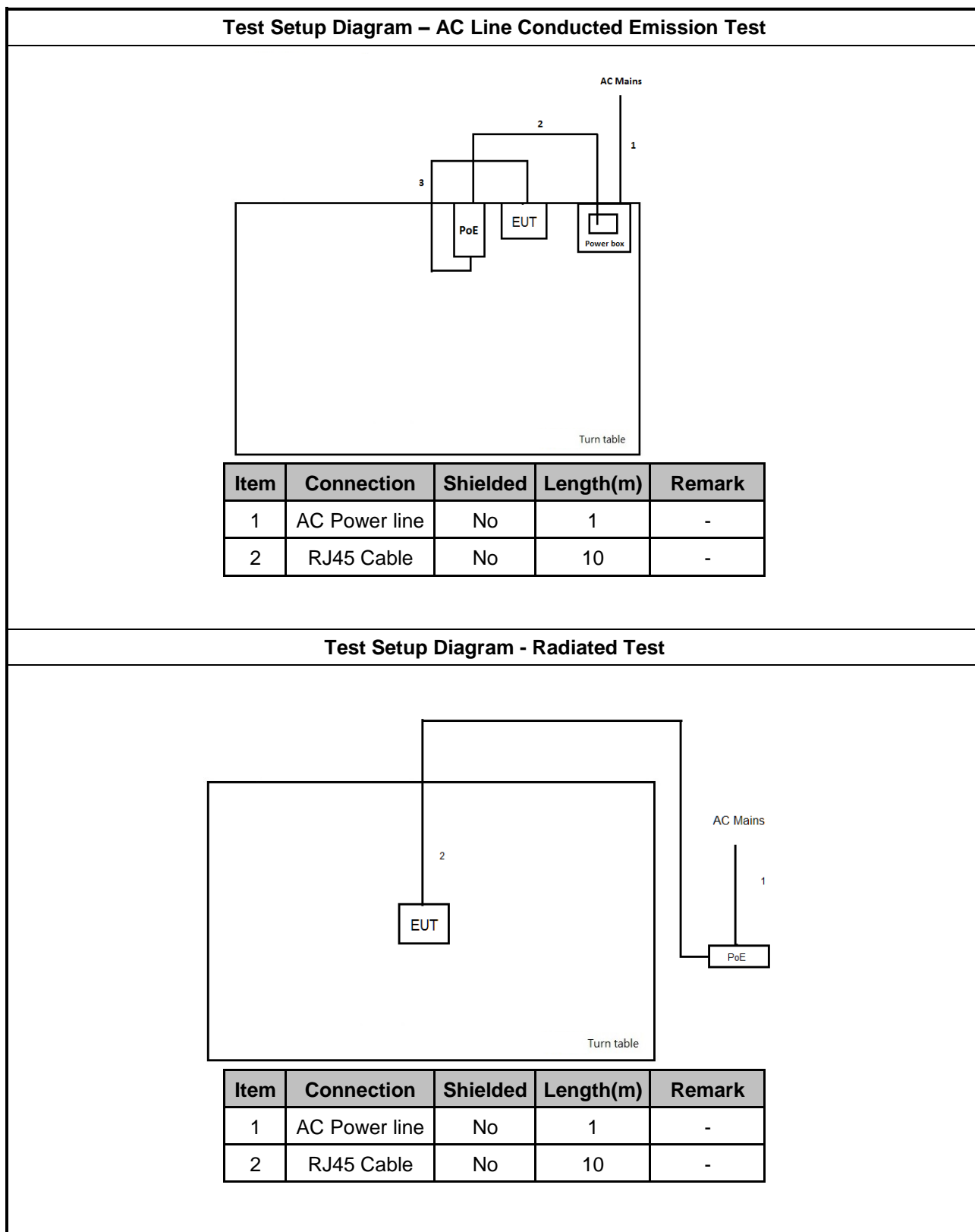
Support Equipment – Radiated Emission				
No.	Equipment	Brand Name	Model Name	FCC ID
1	PoE (remote)	CISCO	MA-INJ-4	-

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

Support Equipment – AC Conduction				
No.	Equipment	Brand Name	Model Name	FCC ID
1	PoE	CISCO	MA-INJ-4	-

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

2.5 Test Setup Diagram



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

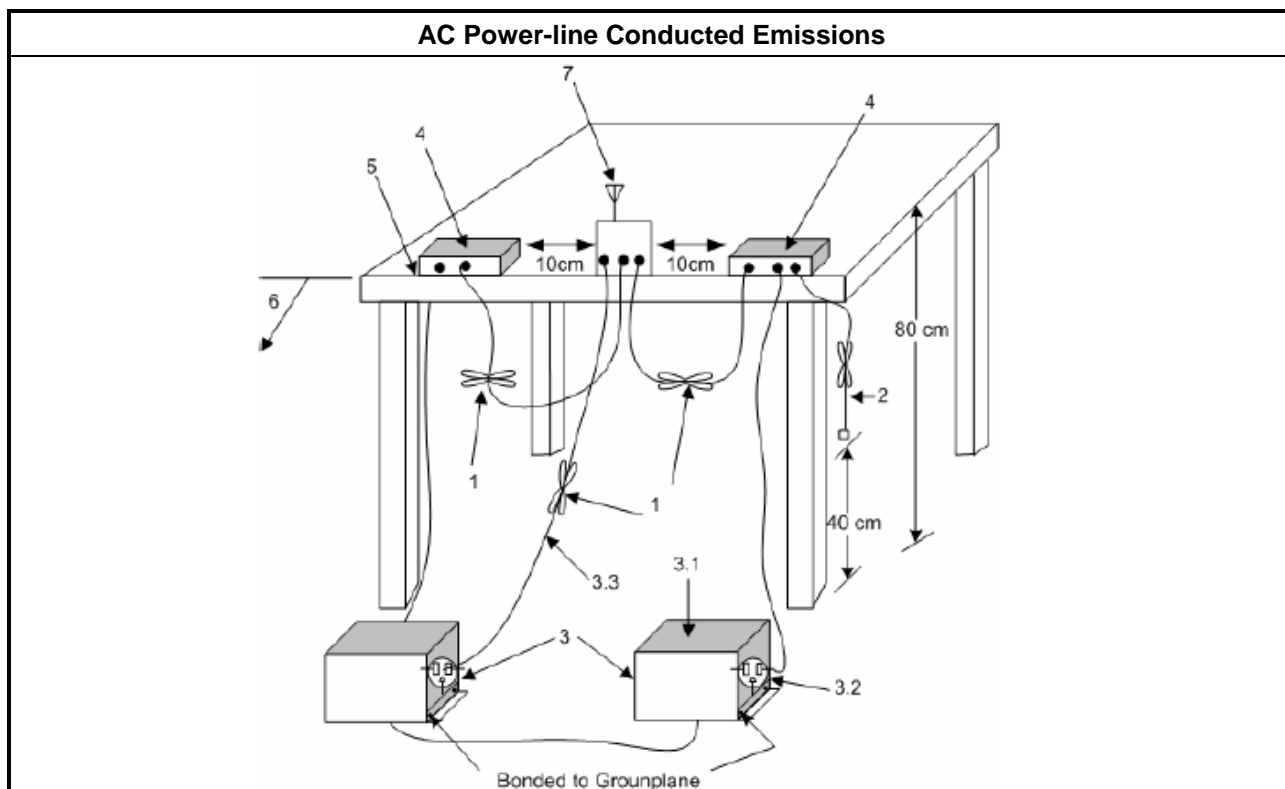
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup





3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

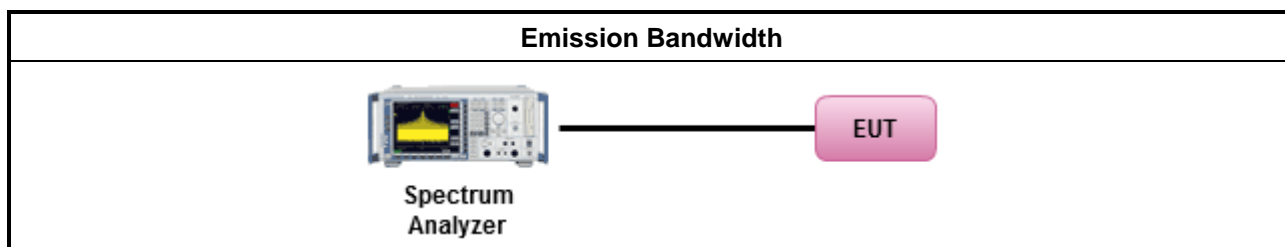
3.2.2 Measuring Instruments

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 8.2 (11.9.2.2 of ANSI C63.10) DTS bandwidth measurement.
<input type="checkbox"/>	Refer as RSS-Gen, clause 6.7 for occupied bandwidth testing.
<input type="checkbox"/>	Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit	
	<ul style="list-style-type: none"> If $G_{TX} \leq 6$ dBi, then $P_{Out} \leq 30$ dBm (1 W)
	<ul style="list-style-type: none"> Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm
	<ul style="list-style-type: none"> Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> Smart antenna system (SAS):
	<ul style="list-style-type: none"> - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm
e.i.r.p. Power Limit:	
	<ul style="list-style-type: none"> 2400-2483.5 MHz Band
	<ul style="list-style-type: none"> Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)
	<ul style="list-style-type: none"> Point-to-point systems (P2P): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
	<ul style="list-style-type: none"> Smart antenna system (SAS)
	<ul style="list-style-type: none"> - Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
	<ul style="list-style-type: none"> - Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.	

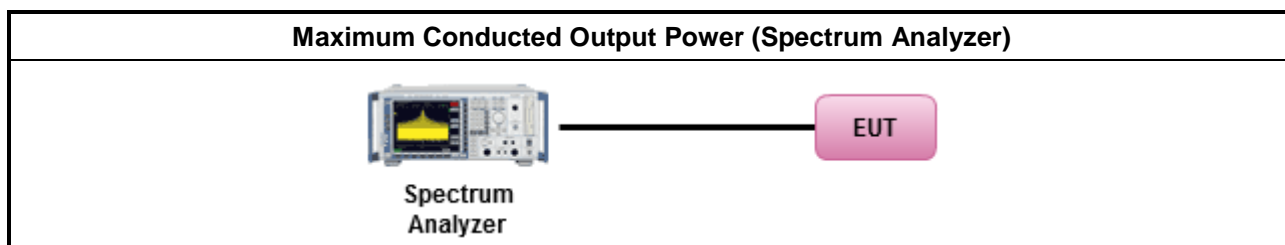
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> Maximum Peak Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.1 (11.9.1.1 of ANSI C63.10) RBW ≥ EBW method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.2 (11.9.1.2 of ANSI C63.10) integrated band power method.
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.1.3 (11.9.1.3 of ANSI C63.10) peak power meter.
<ul style="list-style-type: none"> Maximum Average Conducted Output Power 	
<input type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.2 (11.9.2.2 of ANSI C63.10) using a spectrum analyzer.
<input checked="" type="checkbox"/>	Refer as KDB 558074, clause 8.3.2.3 (11.9.2.3 of ANSI C63.10) using a power meter.
<ul style="list-style-type: none"> For conducted measurement. 	
<ul style="list-style-type: none"> If the EUT supports multiple transmit chains using options given below: Refer as KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them. 	
<ul style="list-style-type: none"> If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$ 	

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
<ul style="list-style-type: none"> Power Spectral Density (PSD) ≤ 8 dBm/3kHz

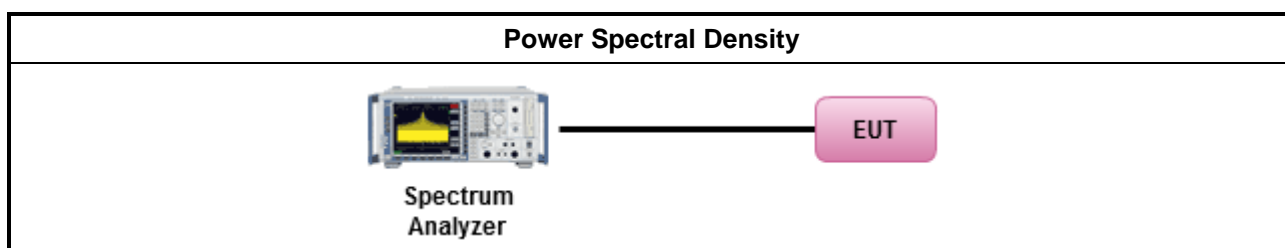
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method
<ul style="list-style-type: none"> Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
<input checked="" type="checkbox"/> Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Method PKPSD.
<ul style="list-style-type: none"> For conducted measurement.
<ul style="list-style-type: none"> If The EUT supports multiple transmit chains using options given below:
<ul style="list-style-type: none"> Measure and sum the spectra across the outputs. Refer as KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

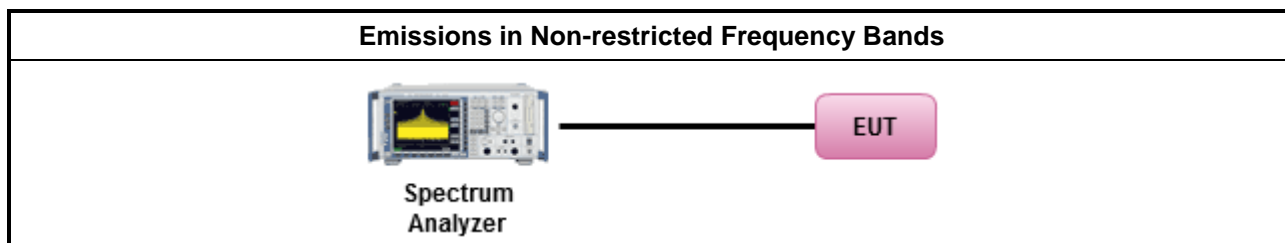
3.5.2 Measuring Instruments

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 8.5 (11.11 of ANSI C63.10) for non-restricted frequency bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

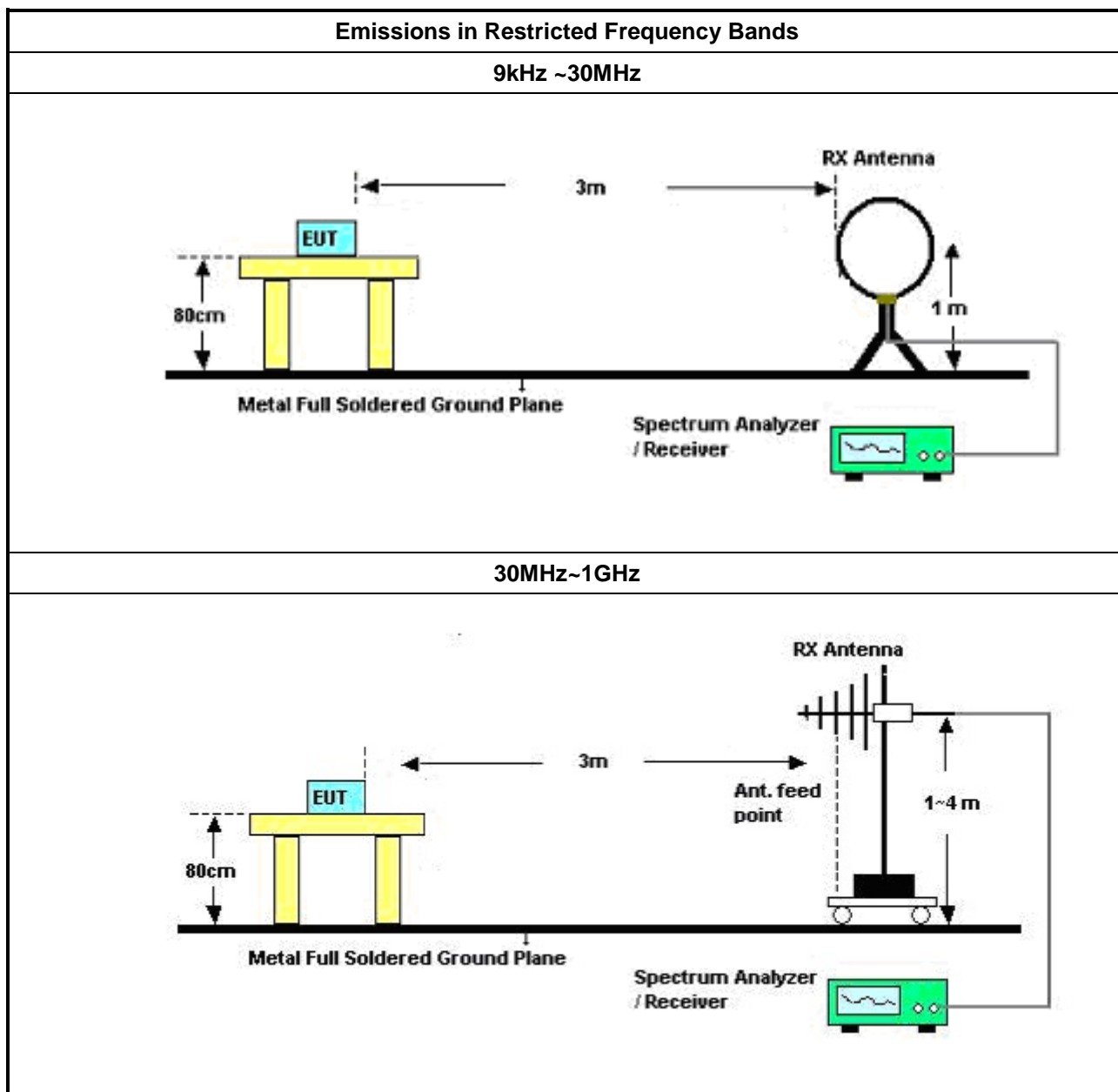
3.6.2 Measuring Instruments

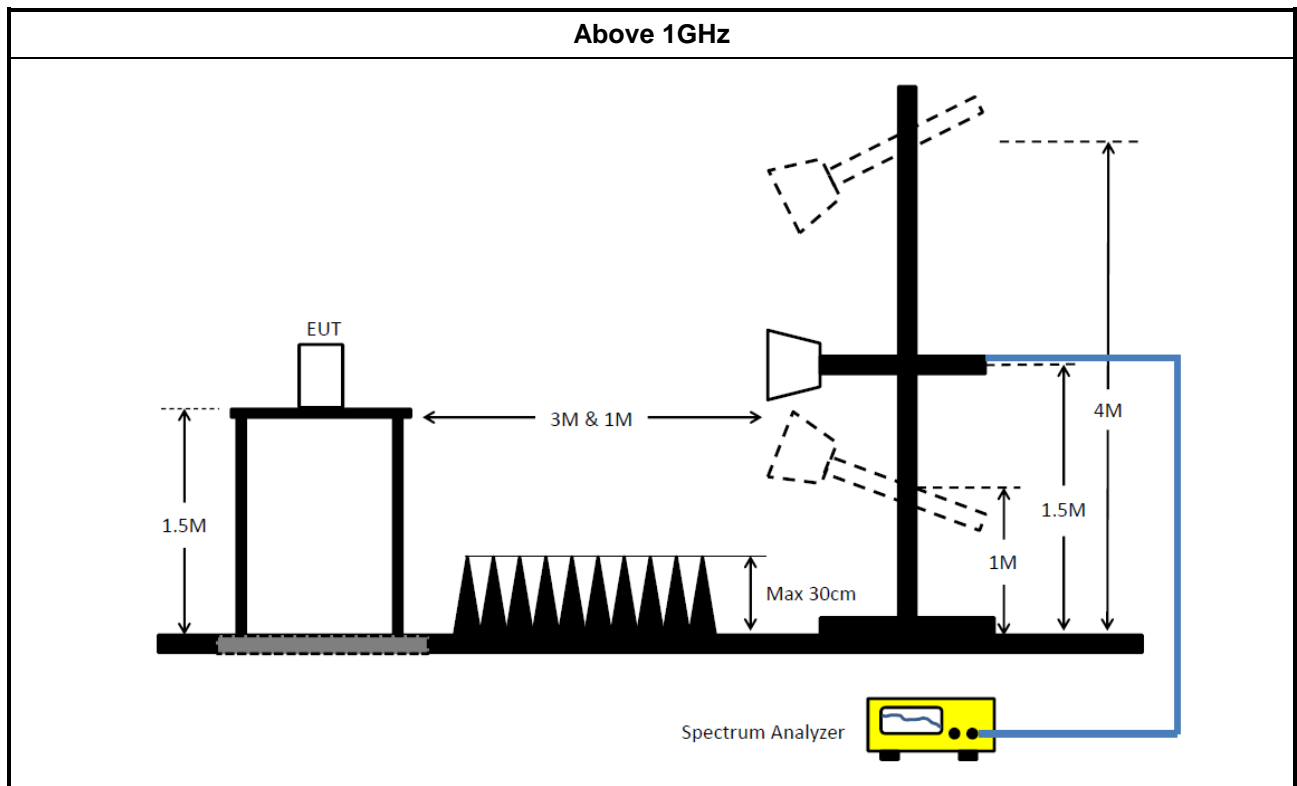
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
<ul style="list-style-type: none"> The average emission levels shall be measured in [duty cycle \geq 98 or duty factor]. 	
<ul style="list-style-type: none"> Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. 	
<ul style="list-style-type: none"> For the transmitter unwanted emissions shall be measured using following options below: 	
	<ul style="list-style-type: none"> Refer as KDB 558074, clause 12.2.5.3 (11.11 of ANSI C63.10) for restricted frequency bands.
<ul style="list-style-type: none"> For the transmitter band-edge emissions shall be measured using following options below: 	
	<ul style="list-style-type: none"> Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	<ul style="list-style-type: none"> Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	<ul style="list-style-type: none"> Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).

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	102051	9KHz ~ 3.6GHz	03/May/2018	02/May/2019
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

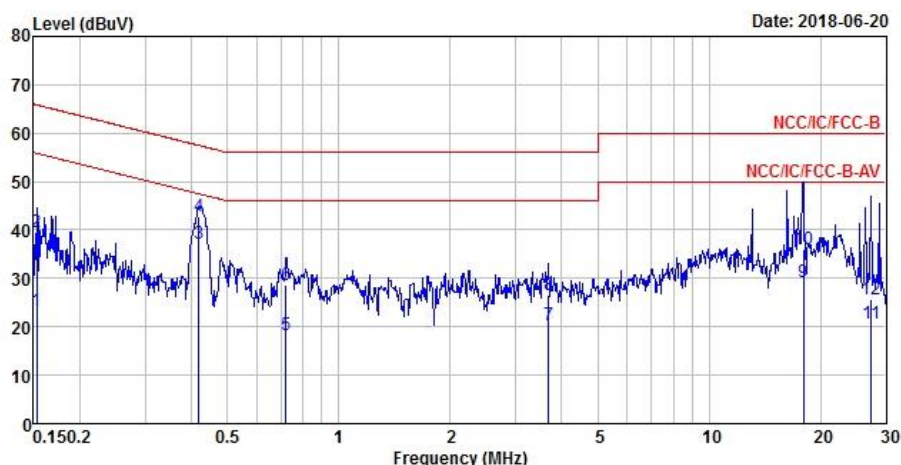
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	23/Apr/2018	22/Apr/2019
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	14/Jun/2018	13/Jun/2019
Amplifier	Agilent	8449B	3008A02326	1GHz ~ 26.5GHz	17/Jul/2017	16/Jul/2018
Microwave Preamplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	10/May/2018	09/May/2019
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	27/Apr/2018	26/Apr/2019
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	20/Jul/2017	19/Jul/2018
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	09/Sep/2017	08/Sep/2018
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	30/Apr/2018	29/Apr/2019
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz~40GHz	09/Feb/2018	08/Feb/2019
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	24/Aug/2017	23/Aug/2018
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	29/Mar/2018	28/Mar/2019
RF Cable-R03m	Jye Bao	RG142	CB031	9kHz ~ 1GHz	1/Feb/2018	31/Jan/2019
RF Cable-high	SUHNER	SUCOFLEX104	MY34918/4	1GHz ~ 40GHz	2/Feb/2018	1/Feb/2019

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9kHz~40GHz	29/Dec/2017	28/Dec/2018
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	05/Feb/2018	04/Feb/2019
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	05/Feb/2018	04/Feb/2019
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10709/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_104	MY10712/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_104	MY10713/4	30MHz ~ 26.5GHz	25/Aug/2017	24/Aug/2018

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	PoE mode		

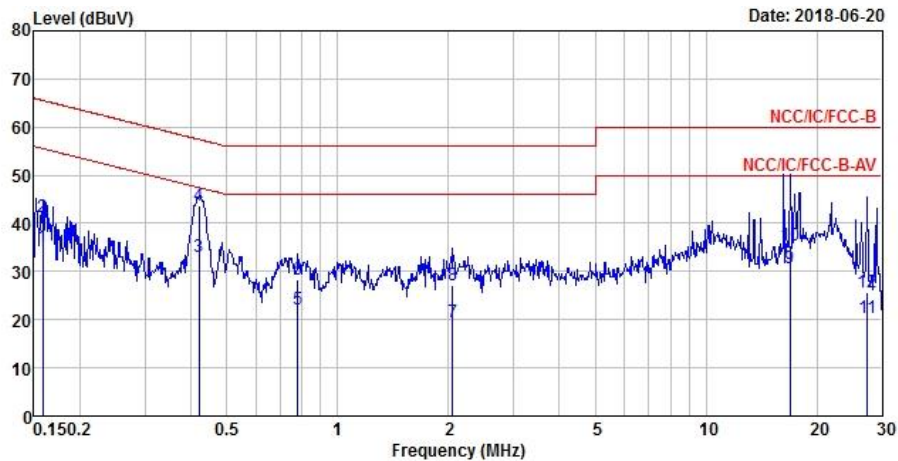


	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15	23.30	-32.52	55.82	13.63	9.63	0.04	Average
2	0.15	39.42	-26.40	65.82	29.75	9.63	0.04	QP
3 MAX	0.42	37.09	-10.37	47.46	27.38	9.61	0.10	Average
4	0.42	42.89	-14.57	57.46	33.18	9.61	0.10	QP
5	0.72	18.21	-27.79	46.00	8.55	9.62	0.04	Average
6	0.72	28.75	-27.25	56.00	19.09	9.62	0.04	QP
7	3.68	20.38	-25.62	46.00	10.66	9.64	0.08	Average
8	3.68	26.59	-29.41	56.00	16.87	9.64	0.08	QP
9	17.94	29.15	-20.85	50.00	19.31	9.71	0.13	Average
10	17.94	36.09	-23.91	60.00	26.25	9.71	0.13	QP
11	27.42	20.66	-29.34	50.00	10.82	9.69	0.15	Average
12	27.42	25.66	-34.34	60.00	15.82	9.69	0.15	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	PoE mode		



	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.16	35.18	-20.38	55.56	25.53	9.62	0.03	Average
2	0.16	41.36	-24.20	65.56	31.71	9.62	0.03	QP
3	0.42	32.95	-14.47	47.42	23.25	9.61	0.09	Average
4 MAX	0.42	43.81	-13.61	57.42	34.11	9.61	0.09	QP
5	0.78	22.13	-23.87	46.00	12.49	9.61	0.03	Average
6	0.78	28.31	-27.69	56.00	18.67	9.61	0.03	QP
7	2.05	19.46	-26.54	46.00	9.84	9.62	0.00	Average
8	2.05	27.12	-28.88	56.00	17.50	9.62	0.00	QP
9	16.93	30.57	-19.43	50.00	20.85	9.63	0.09	Average
10	16.93	35.38	-24.62	60.00	25.66	9.63	0.09	QP
11	27.42	20.43	-29.57	50.00	10.75	9.53	0.15	Average
12	27.42	25.70	-34.30	60.00	16.02	9.53	0.15	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)	675k	1.061M	1M06F1D	667.5k	1.057M

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

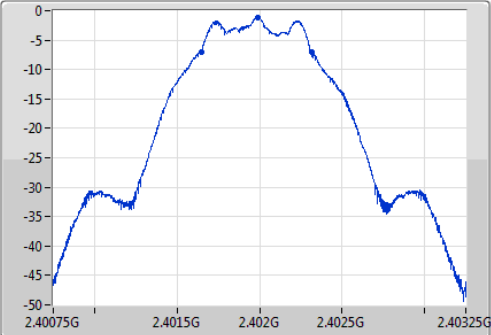
Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	500k	667.5k	1.058M
2440MHz_TnomVnom	Pass	500k	671.25k	1.061M
2480MHz_TnomVnom	Pass	500k	675k	1.057M

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

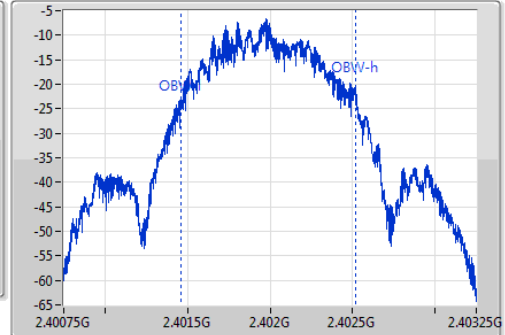
BT-LE(1Mbps)
EBW
2402MHz

11/06/2018

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

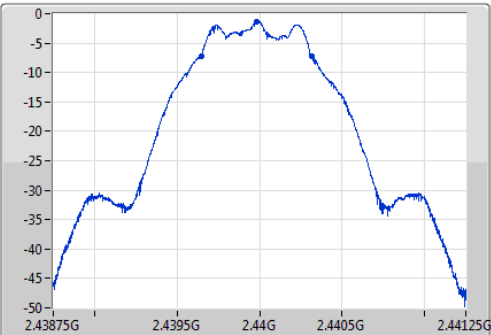


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
667.5k	2.401646G	2.402314G	1.058M	2.40146G	2.402518G	500k	1

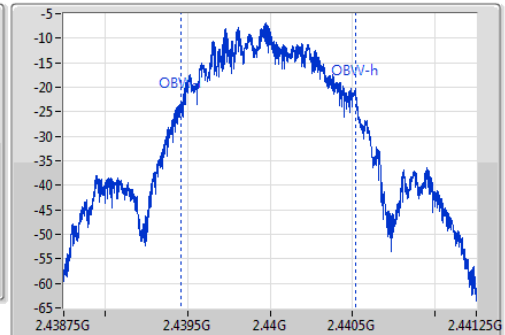
BT-LE(1Mbps)
EBW
2440MHz

11/06/2018

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

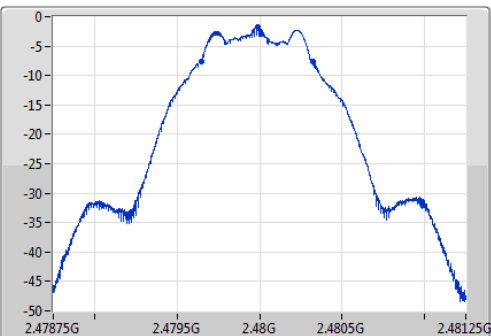


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
671.25k	2.439645G	2.440316G	1.061M	2.439459G	2.44052G	500k	1

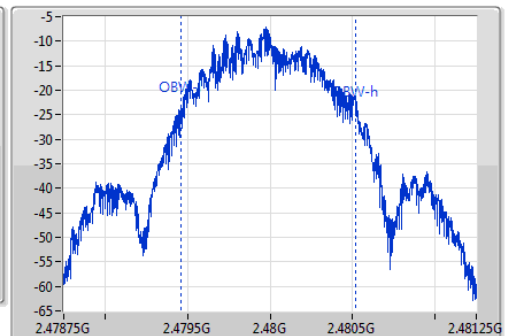
BT-LE(1Mbps)
EBW
2480MHz

11/06/2018

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
675k	2.479646G	2.480321G	1.057M	2.479463G	2.48052G	500k	1

**Summary**

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	-1.38	0.00073

Result

Mode	Result	Gain (dBi)	Power (dBm)	Power Limit (dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	5.20	-1.38	30.00
2440MHz_TnomVnom	Pass	5.20	-1.79	30.00
2480MHz_TnomVnom	Pass	5.20	-2.02	30.00

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
BT-LE(1Mbps)	-16.07

RBW=3kHz.

Result

Mode	Result	Gain (dBi)	PD (dBm/RBW)	PD Limit (dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz_TnomVnom	Pass	5.20	-16.79	8.00
2440MHz_TnomVnom	Pass	5.20	-16.07	8.00
2480MHz_TnomVnom	Pass	5.20	-17.31	8.00

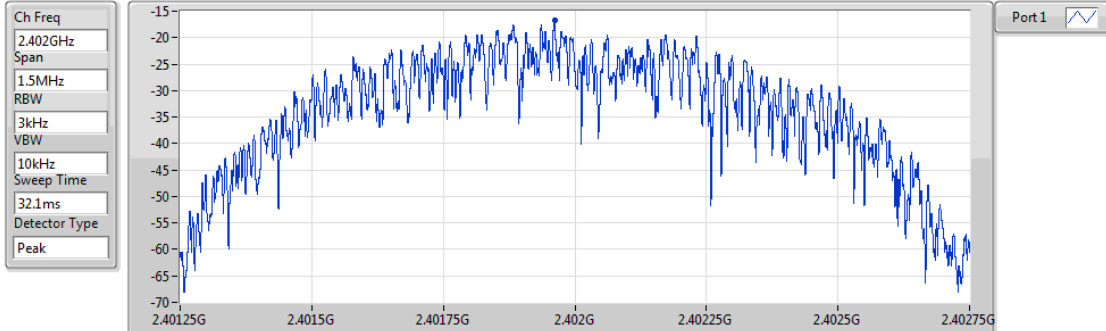
RBW=3kHz.

BT-LE(1Mbps)

2402MHz

PSD

11/06/2018



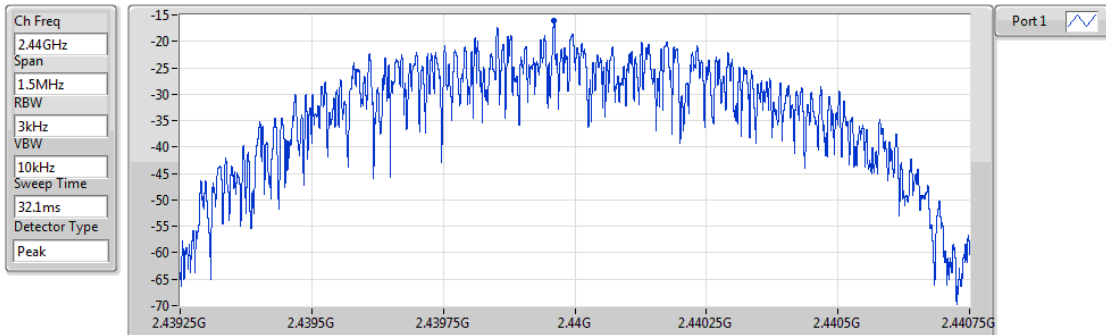
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.79	-16.79	-16.79

BT-LE(1Mbps)

2440MHz

PSD

11/06/2018



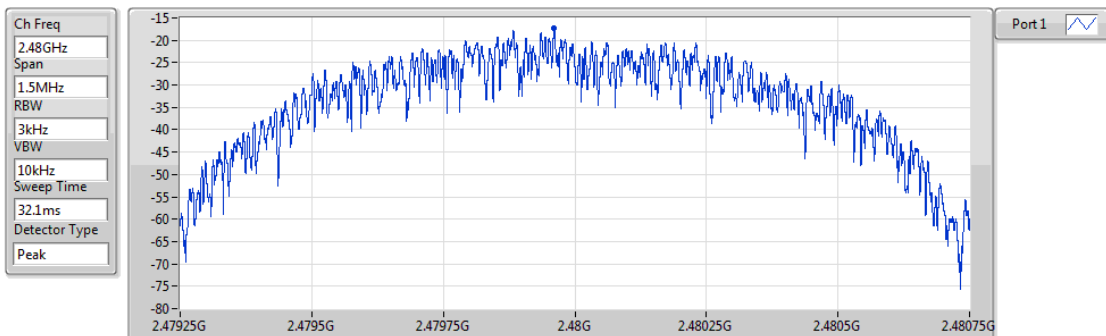
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-16.07	-16.07	-16.07

BT-LE(1Mbps)

2480MHz

PSD

11/06/2018



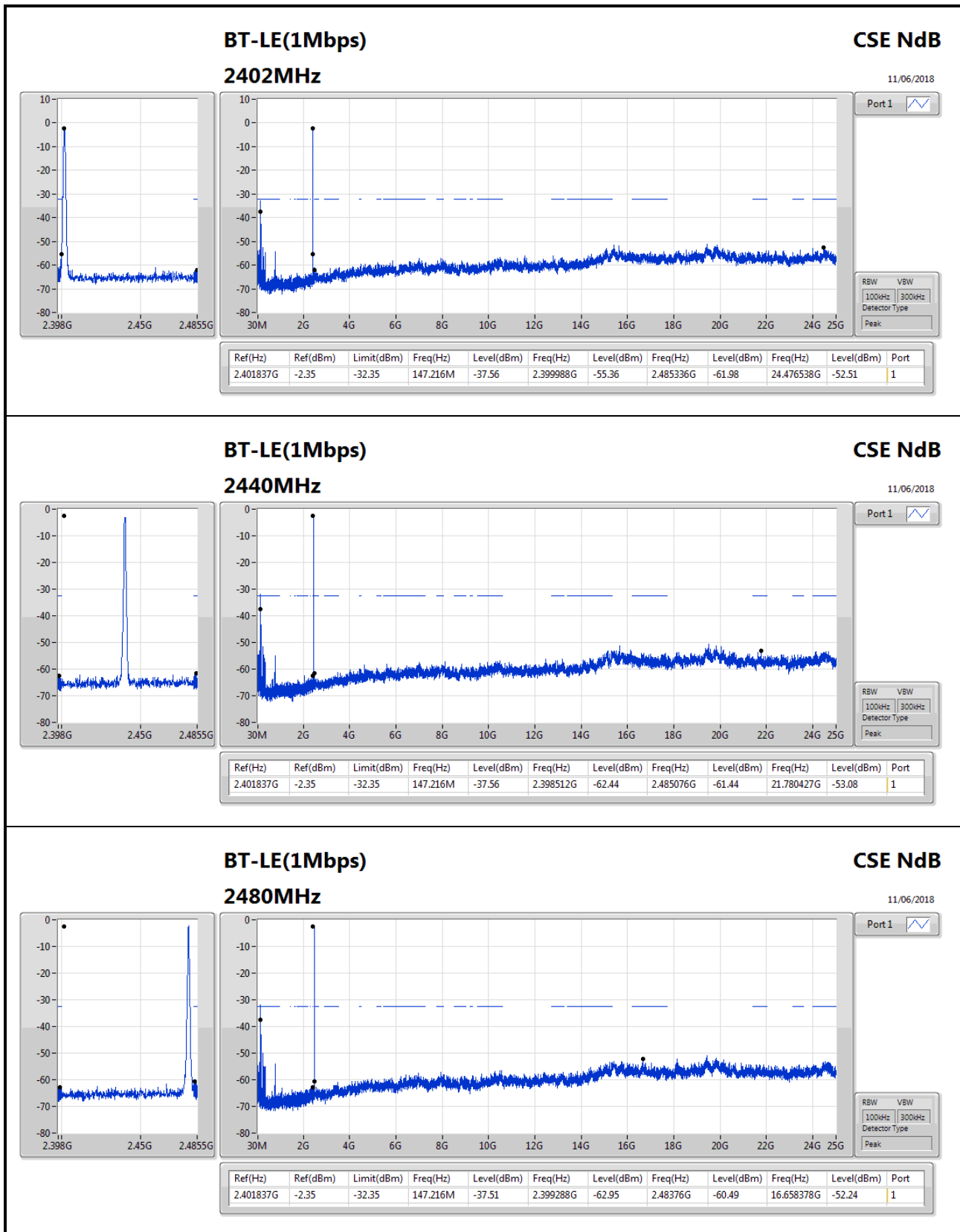
Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-17.31	-17.31	-17.31

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	-2.35	-32.35	147.216M	-37.51	2.399288G	-62.95	2.48376G	-60.49	16.658378G	-52.24	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_TnomVnom	Pass	2.401837G	-2.35	-32.35	147.216M	-37.56	2.399988G	-55.36	2.485336G	-61.98	24.476538G	-52.51	1
2440MHz_TnomVnom	Pass	2.401837G	-2.35	-32.35	147.216M	-37.56	2.398512G	-62.44	2.485076G	-61.44	21.780427G	-53.08	1
2480MHz_TnomVnom	Pass	2.401837G	-2.35	-32.35	147.216M	-37.51	2.399288G	-62.95	2.48376G	-60.49	16.658378G	-52.24	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	33.88M	35.80	40.00	-4.20	-15.32	3	Vertical	360	1.00	-

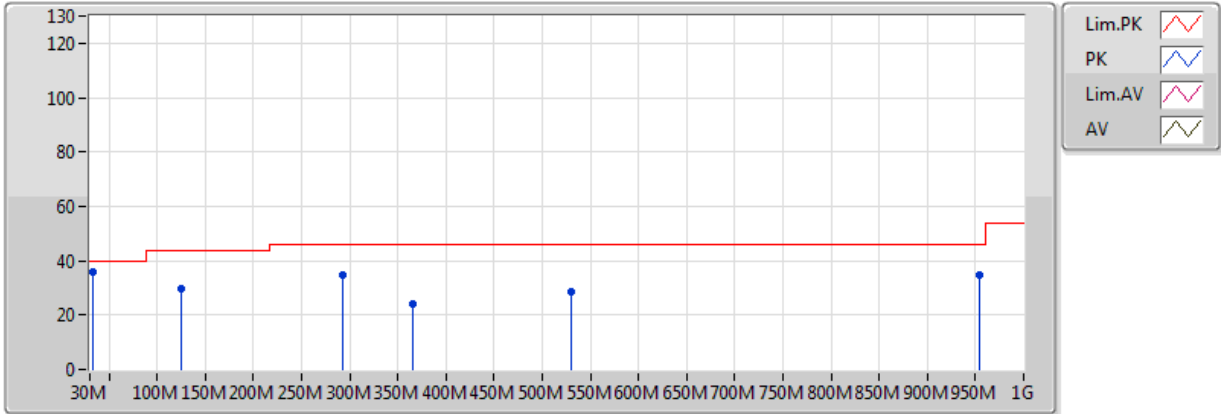
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	33.88M	35.80	40.00	-4.20	-15.32	3	Vertical	360	1.00	-
2440MHz	Pass	PK	125.06M	29.44	43.50	-14.06	-19.22	3	Vertical	360	1.00	-
2440MHz	Pass	PK	291.9M	34.48	46.00	-11.52	-16.84	3	Vertical	360	1.00	-
2440MHz	Pass	PK	365.62M	24.21	46.00	-21.79	-15.09	3	Vertical	360	1.00	-
2440MHz	Pass	PK	530.52M	28.35	46.00	-17.65	-12.09	3	Vertical	360	1.00	-
2440MHz	Pass	PK	953.44M	34.88	46.00	-11.12	-4.71	3	Vertical	360	1.00	-
2440MHz	Pass	PK	55.22M	32.63	40.00	-7.37	-25.16	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	212.36M	27.85	43.50	-15.65	-20.95	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	276.38M	30.49	46.00	-15.51	-16.83	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	315.18M	24.72	46.00	-21.28	-16.46	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	493.66M	27.20	46.00	-18.80	-12.19	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	953.44M	35.16	46.00	-10.84	-4.71	3	Horizontal	0	1.00	-

BT-LE(1Mbps)

2440MHz_PoE

16/06/2018

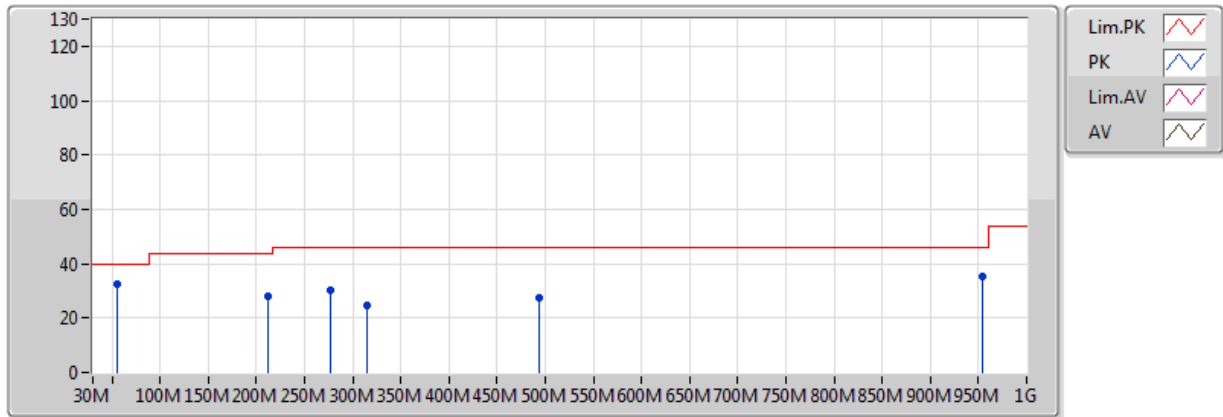


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	33.88M	35.80	40.00	-4.20	-15.32	3	Vertical	360	1.00	-
PK	125.06M	29.44	43.50	-14.06	-19.22	3	Vertical	360	1.00	-
PK	291.9M	34.48	46.00	-11.52	-16.84	3	Vertical	360	1.00	-
PK	365.62M	24.21	46.00	-21.79	-15.09	3	Vertical	360	1.00	-
PK	530.52M	28.35	46.00	-17.65	-12.09	3	Vertical	360	1.00	-
PK	953.44M	34.88	46.00	-11.12	-4.71	3	Vertical	360	1.00	-

BT-LE(1Mbps)

2440MHz_PoE

16/06/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
PK	55.22M	32.63	40.00	-7.37	-25.16	3	Horizontal	0	1.00	-
PK	212.36M	27.85	43.50	-15.65	-20.95	3	Horizontal	0	1.00	-
PK	276.38M	30.49	46.00	-15.51	-16.83	3	Horizontal	0	1.00	-
PK	315.18M	24.72	46.00	-21.28	-16.46	3	Horizontal	0	1.00	-
PK	493.66M	27.20	46.00	-18.80	-12.19	3	Horizontal	0	1.00	-
PK	953.44M	35.16	46.00	-10.84	-4.71	3	Horizontal	0	1.00	-

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(1Mbps)	Pass	AV	2.491G	47.13	54.00	-6.87	31.13	3	Vertical	13	2.09	-

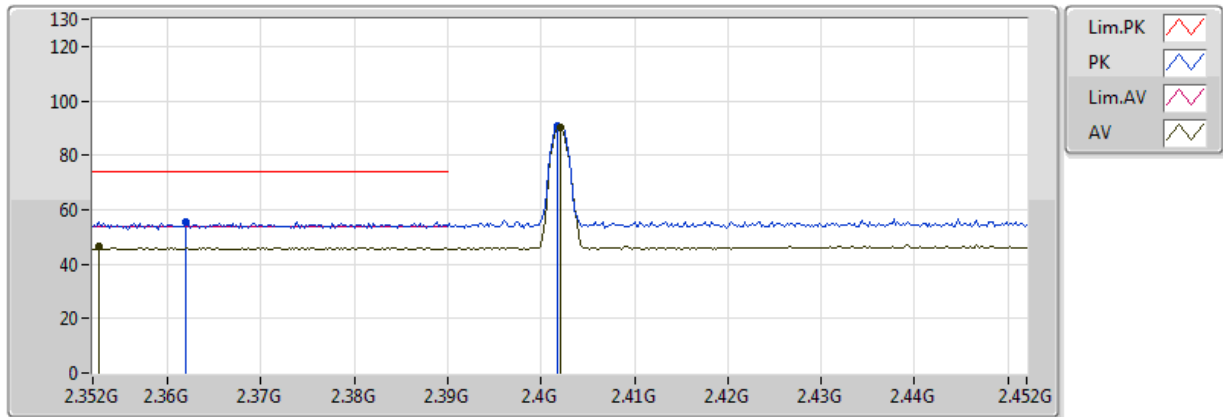
Result

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	2.3526G	46.33	54.00	-7.67	30.65	3	Vertical	19	2.26	-
2402MHz	Pass	AV	2.402G	90.05	Inf	-Inf	30.82	3	Vertical	19	2.26	-
2402MHz	Pass	PK	2.362G	55.65	74.00	-18.35	30.67	3	Vertical	19	2.26	-
2402MHz	Pass	PK	2.4018G	90.72	Inf	-Inf	30.82	3	Vertical	19	2.26	-
2402MHz	Pass	AV	2.3852G	46.16	54.00	-7.84	30.76	3	Horizontal	353	3.03	-
2402MHz	Pass	AV	2.402G	87.29	Inf	-Inf	30.82	3	Horizontal	353	3.03	-
2402MHz	Pass	PK	2.3814G	55.82	74.00	-18.18	30.75	3	Horizontal	353	3.03	-
2402MHz	Pass	PK	2.4022G	87.99	Inf	-Inf	30.82	3	Horizontal	353	3.03	-
2402MHz	Pass	AV	4.80555G	34.46	54.00	-19.54	2.08	3	Vertical	214	2.20	-
2402MHz	Pass	PK	4.80528G	44.91	74.00	-29.09	2.08	3	Vertical	214	2.20	-
2402MHz	Pass	AV	4.80648G	34.95	54.00	-19.05	2.09	3	Horizontal	262	1.05	-
2402MHz	Pass	PK	4.80469G	44.43	74.00	-29.57	2.08	3	Horizontal	262	1.05	-
2440MHz	Pass	AV	2.35G	46.05	54.00	-7.95	30.63	3	Vertical	20	3.09	-
2440MHz	Pass	AV	2.44G	92.64	Inf	-Inf	30.95	3	Vertical	20	3.09	-
2440MHz	Pass	AV	2.499998G	46.79	54.00	-7.21	31.17	3	Vertical	20	3.09	-
2440MHz	Pass	PK	2.386G	55.81	74.00	-18.19	30.76	3	Vertical	20	3.09	-
2440MHz	Pass	PK	2.4404G	93.35	Inf	-Inf	30.96	3	Vertical	20	3.09	-
2440MHz	Pass	PK	2.4924G	55.88	74.00	-18.12	31.14	3	Vertical	20	3.09	-
2440MHz	Pass	AV	2.3532G	46.29	54.00	-7.71	30.65	3	Horizontal	350	3.16	-
2440MHz	Pass	AV	2.44G	89.31	Inf	-Inf	30.95	3	Horizontal	350	3.16	-
2440MHz	Pass	AV	2.4888G	46.79	54.00	-7.21	31.13	3	Horizontal	350	3.16	-
2440MHz	Pass	PK	2.3888G	55.16	74.00	-18.84	30.77	3	Horizontal	350	3.16	-
2440MHz	Pass	PK	2.4404G	90.03	Inf	-Inf	30.96	3	Horizontal	350	3.16	-
2440MHz	Pass	PK	2.4888G	55.88	74.00	-18.12	31.13	3	Horizontal	350	3.16	-
2440MHz	Pass	AV	4.87787G	32.71	54.00	-21.29	2.26	3	Vertical	350	1.42	-
2440MHz	Pass	PK	4.87768G	43.84	74.00	-30.16	2.26	3	Vertical	350	1.42	-
2440MHz	Pass	AV	4.87843G	33.82	54.00	-20.18	2.27	3	Horizontal	59	2.01	-
2440MHz	Pass	PK	4.87832G	43.50	74.00	-30.50	2.27	3	Horizontal	59	2.01	-
2480MHz	Pass	AV	2.48G	90.02	Inf	-Inf	31.10	3	Vertical	13	2.09	-
2480MHz	Pass	AV	2.491G	47.13	54.00	-6.87	31.13	3	Vertical	13	2.09	-
2480MHz	Pass	PK	2.4798G	90.68	Inf	-Inf	31.10	3	Vertical	13	2.09	-
2480MHz	Pass	PK	2.4924G	56.25	74.00	-17.75	31.14	3	Vertical	13	2.09	-
2480MHz	Pass	AV	2.48G	85.30	Inf	-Inf	31.10	3	Horizontal	2	3.07	-
2480MHz	Pass	AV	2.4868G	47.13	54.00	-6.87	31.12	3	Horizontal	2	3.07	-
2480MHz	Pass	PK	2.4798G	86.04	Inf	-Inf	31.10	3	Horizontal	2	3.07	-
2480MHz	Pass	PK	2.4904G	56.65	74.00	-17.35	31.13	3	Horizontal	2	3.07	-
2480MHz	Pass	AV	4.956G	33.97	54.00	-20.03	2.46	3	Vertical	38	2.25	-
2480MHz	Pass	PK	4.96G	43.78	74.00	-30.22	2.47	3	Vertical	38	2.25	-
2480MHz	Pass	AV	4.96332G	34.92	54.00	-19.08	2.48	3	Horizontal	171	1.50	-
2480MHz	Pass	PK	4.964G	44.66	74.00	-29.34	2.48	3	Horizontal	171	1.50	-

BT-LE(1Mbps)

2402MHz_TX

16/06/2018

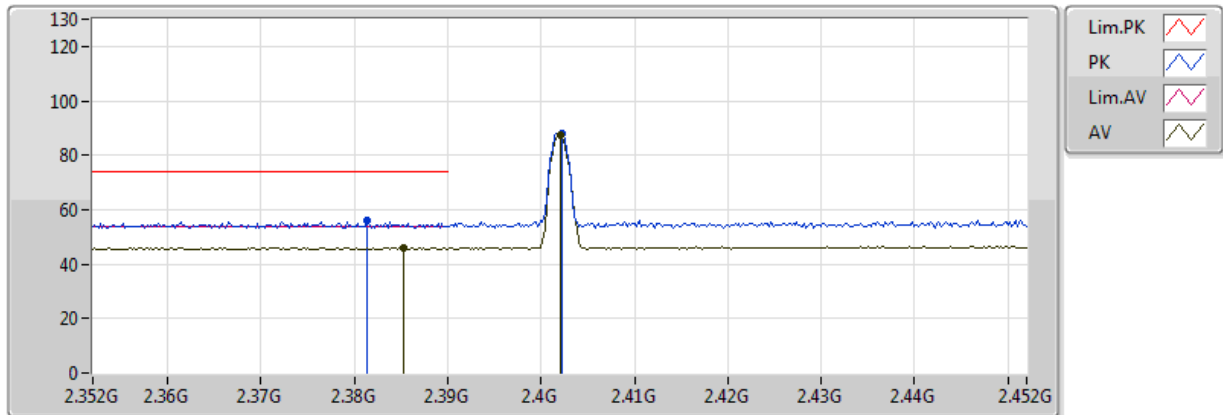


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3526G	46.33	54.00	-7.67	30.65	3	Vertical	19	2.26	-
AV	2.402G	90.05	Inf	-Inf	30.82	3	Vertical	19	2.26	-
PK	2.362G	55.65	74.00	-18.35	30.67	3	Vertical	19	2.26	-
PK	2.4018G	90.72	Inf	-Inf	30.82	3	Vertical	19	2.26	-

BT-LE(1Mbps)

2402MHz_TX

16/06/2018

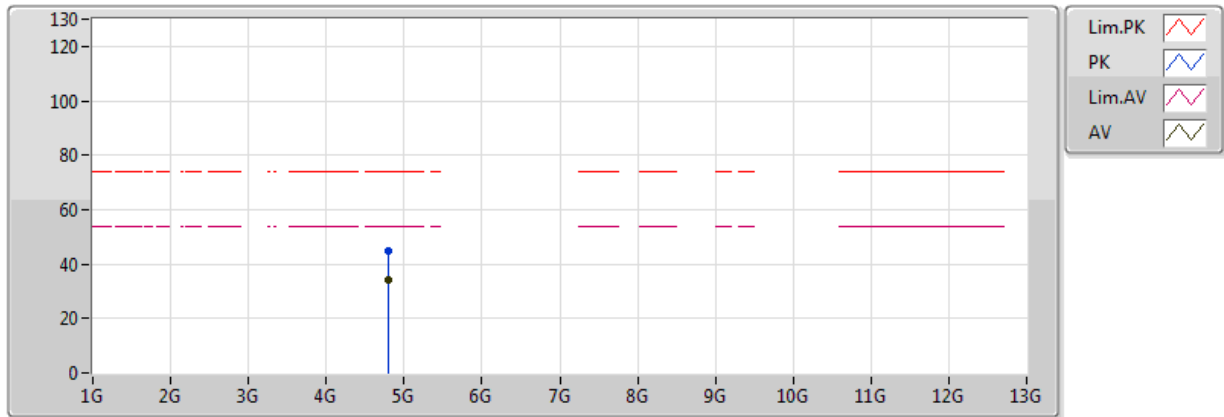


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3852G	46.16	54.00	-7.84	30.76	3	Horizontal	353	3.03	-
AV	2.402G	87.29	Inf	-Inf	30.82	3	Horizontal	353	3.03	-
PK	2.3814G	55.82	74.00	-18.18	30.75	3	Horizontal	353	3.03	-
PK	2.4022G	87.99	Inf	-Inf	30.82	3	Horizontal	353	3.03	-

BT-LE(1Mbps)

2402MHz_TX

16/06/2018

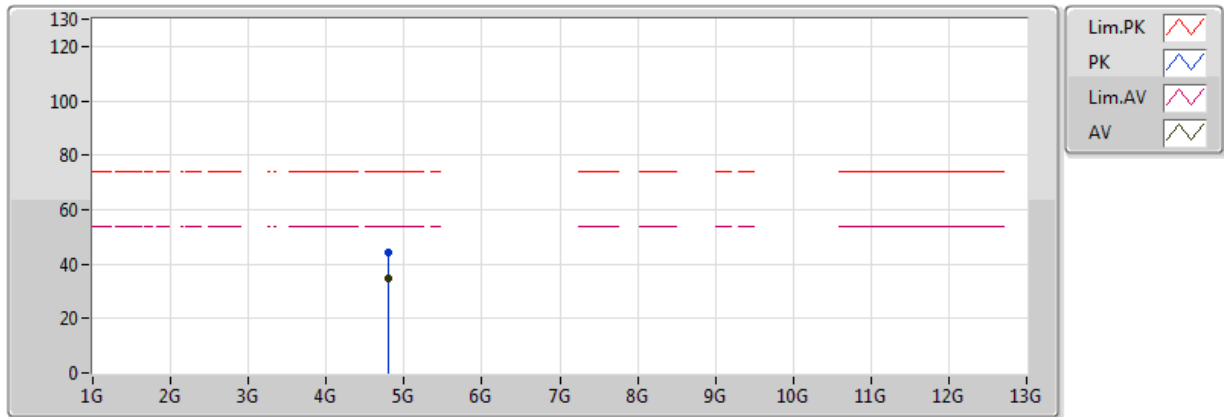


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80555G	34.46	54.00	-19.54	2.08	3	Vertical	214	2.20	-
PK	4.80528G	44.91	74.00	-29.09	2.08	3	Vertical	214	2.20	-

BT-LE(1Mbps)

2402MHz_TX

16/06/2018

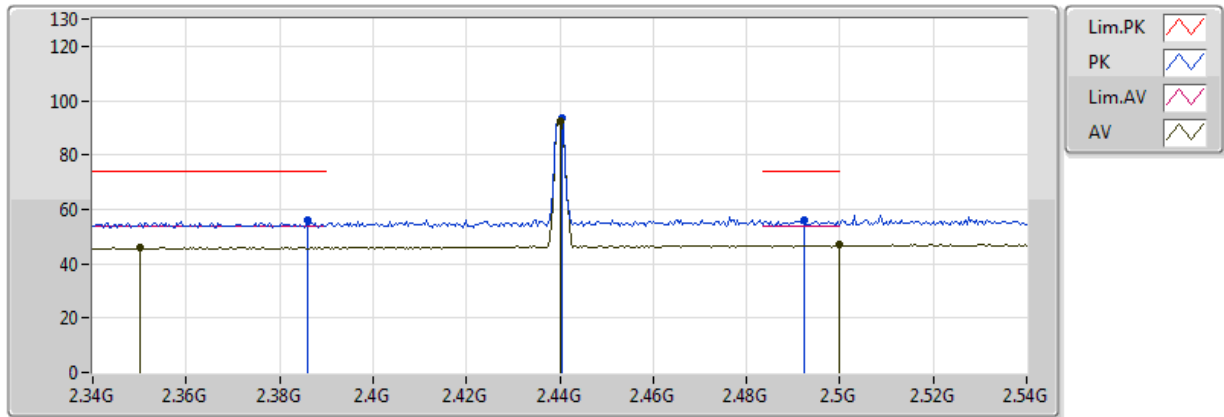


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80648G	34.95	54.00	-19.05	2.09	3	Horizontal	262	1.05	-
PK	4.80649G	44.43	74.00	-29.57	2.08	3	Horizontal	262	1.05	-

BT-LE(1Mbps)

2440MHz_TX

16/06/2018

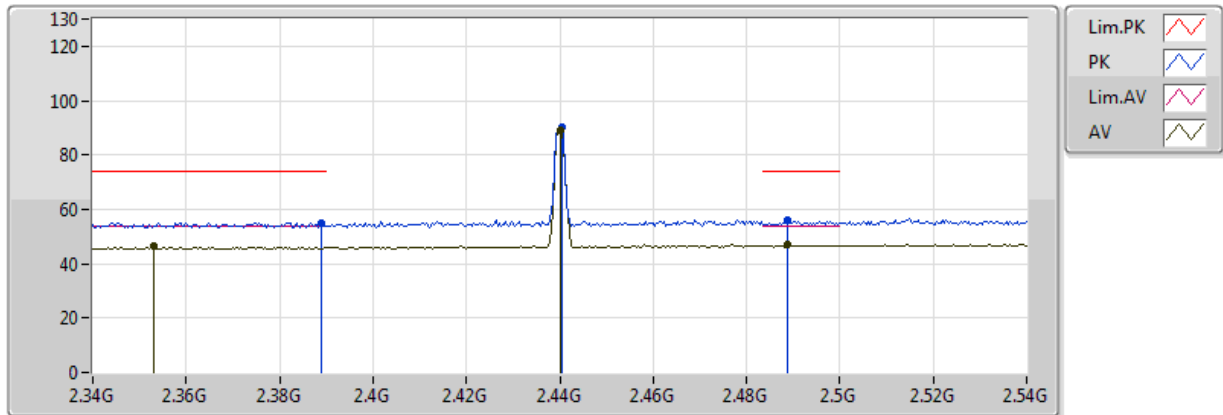


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.35G	46.05	54.00	-7.95	30.63	3	Vertical	20	3.09	-
AV	2.44G	92.64	Inf	-Inf	30.95	3	Vertical	20	3.09	-
AV	2.499998G	46.79	54.00	-7.21	31.17	3	Vertical	20	3.09	-
PK	2.386G	55.81	74.00	-18.19	30.76	3	Vertical	20	3.09	-
PK	2.4404G	93.35	Inf	-Inf	30.96	3	Vertical	20	3.09	-
PK	2.4924G	55.88	74.00	-18.12	31.14	3	Vertical	20	3.09	-

BT-LE(1Mbps)

2440MHz_TX

16/06/2018

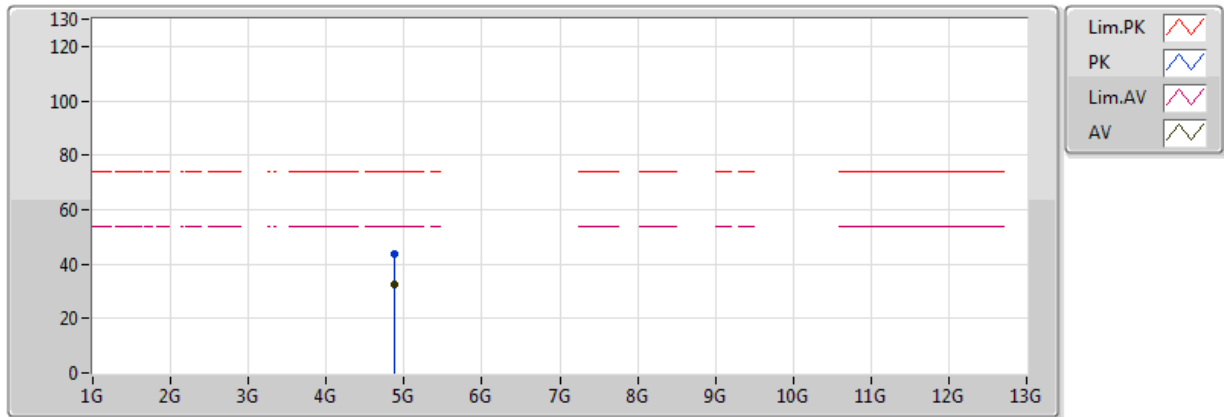


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.3532G	46.29	54.00	-7.71	30.65	3	Horizontal	350	3.16	-
AV	2.44G	89.31	Inf	-Inf	30.95	3	Horizontal	350	3.16	-
AV	2.4888G	46.79	54.00	-7.21	31.13	3	Horizontal	350	3.16	-
PK	2.3888G	55.16	74.00	-18.84	30.77	3	Horizontal	350	3.16	-
PK	2.4404G	90.03	Inf	-Inf	30.96	3	Horizontal	350	3.16	-
PK	2.4888G	55.88	74.00	-18.12	31.13	3	Horizontal	350	3.16	-

BT-LE(1Mbps)

2440MHz_TX

16/06/2018

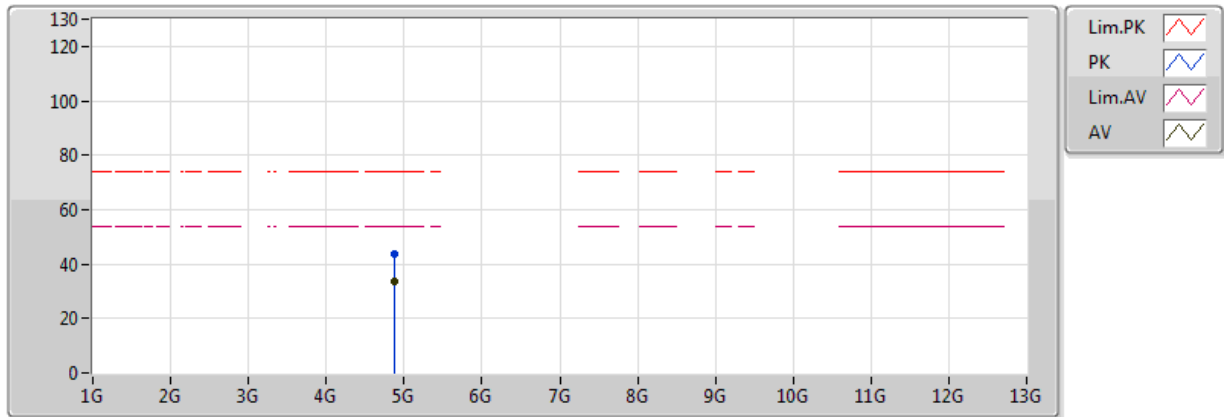


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.87787G	32.71	54.00	-21.29	2.26	3	Vertical	350	1.42	-
PK	4.87768G	43.84	74.00	-30.16	2.26	3	Vertical	350	1.42	-

BT-LE(1Mbps)

2440MHz_TX

16/06/2018

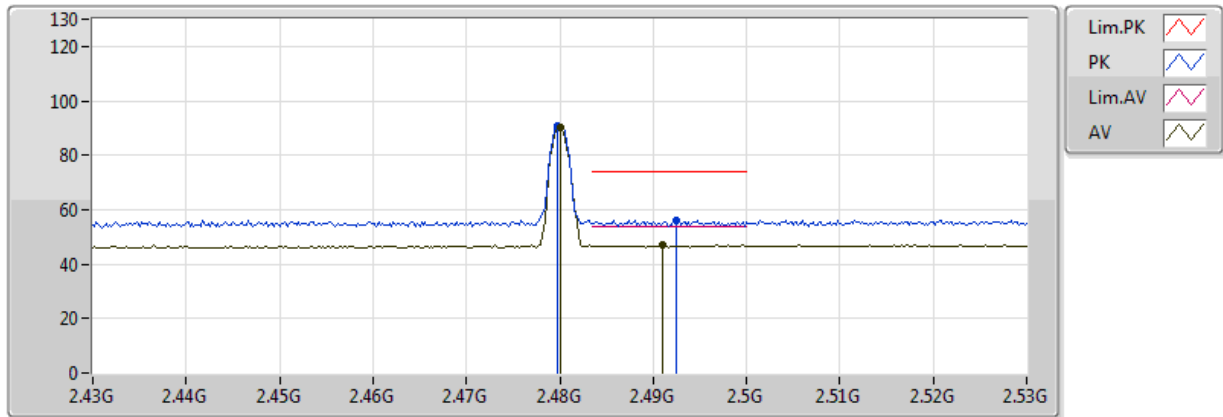


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.87843G	33.82	54.00	-20.18	2.27	3	Horizontal	59	2.01	-
PK	4.87832G	43.50	74.00	-30.50	2.27	3	Horizontal	59	2.01	-

BT-LE(1Mbps)

2480MHz_TX

16/06/2018

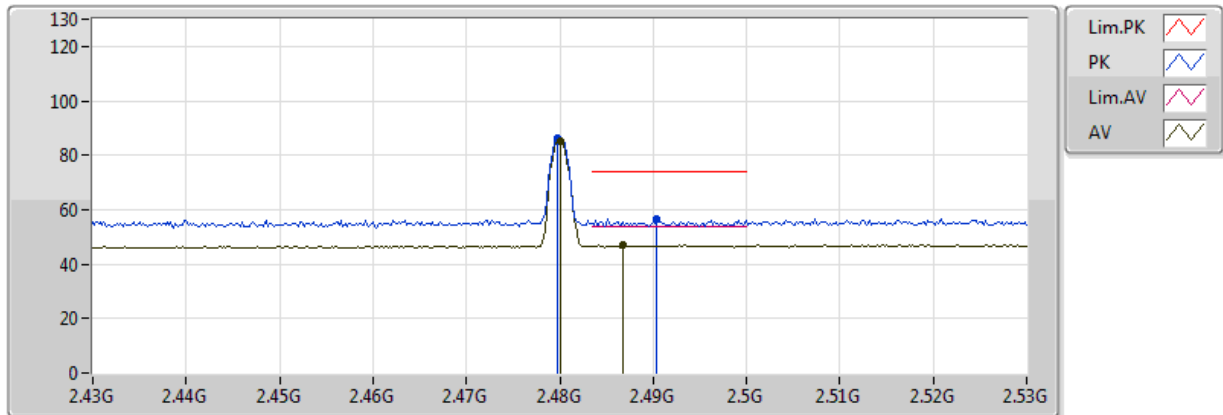


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	90.02	Inf	-Inf	31.10	3	Vertical	13	2.09	-
AV	2.491G	47.13	54.00	-6.87	31.13	3	Vertical	13	2.09	-
PK	2.4798G	90.68	Inf	-Inf	31.10	3	Vertical	13	2.09	-
PK	2.4924G	56.25	74.00	-17.75	31.14	3	Vertical	13	2.09	-

BT-LE(1Mbps)

2480MHz_TX

16/06/2018

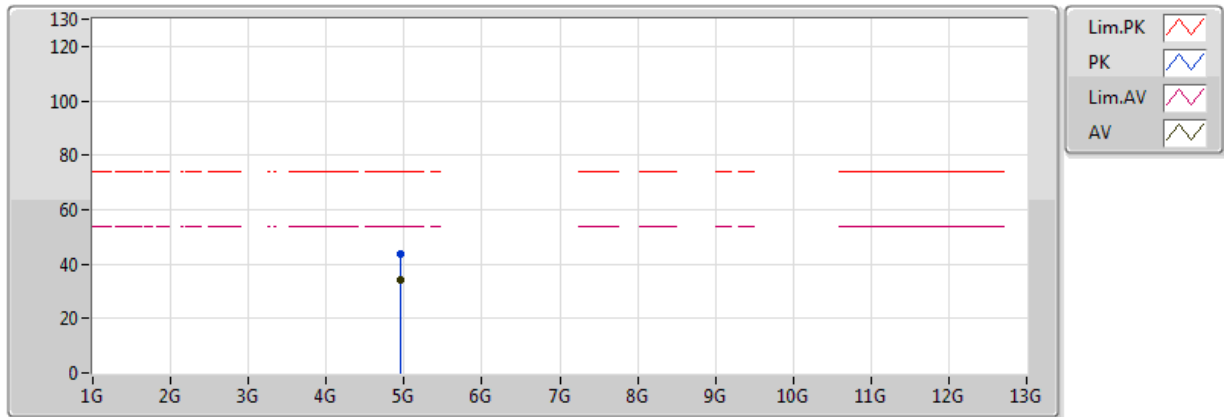


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	2.48G	85.30	Inf	-Inf	31.10	3	Horizontal	2	3.07	-
AV	2.4868G	47.13	54.00	-6.87	31.12	3	Horizontal	2	3.07	-
PK	2.4798G	86.04	Inf	-Inf	31.10	3	Horizontal	2	3.07	-
PK	2.4904G	56.65	74.00	-17.35	31.13	3	Horizontal	2	3.07	-

BT-LE(1Mbps)

2480MHz_TX

16/06/2018

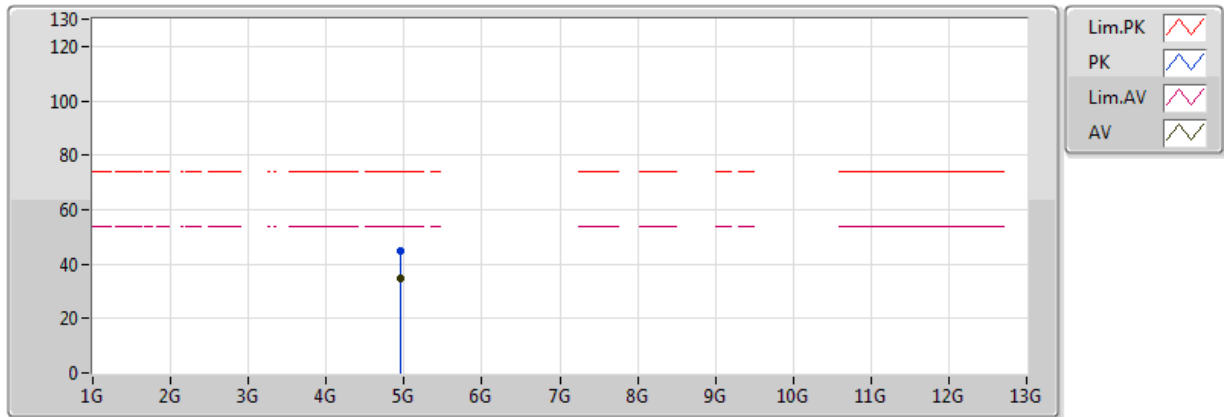


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.956G	33.97	54.00	-20.03	2.46	3	Vertical	38	2.25	-
PK	4.96G	43.78	74.00	-30.22	2.47	3	Vertical	38	2.25	-

BT-LE(1Mbps)

2480MHz_TX

16/06/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.96332G	34.92	54.00	-19.08	2.48	3	Horizontal	171	1.50	-
PK	4.964G	44.66	74.00	-29.34	2.48	3	Horizontal	171	1.50	-

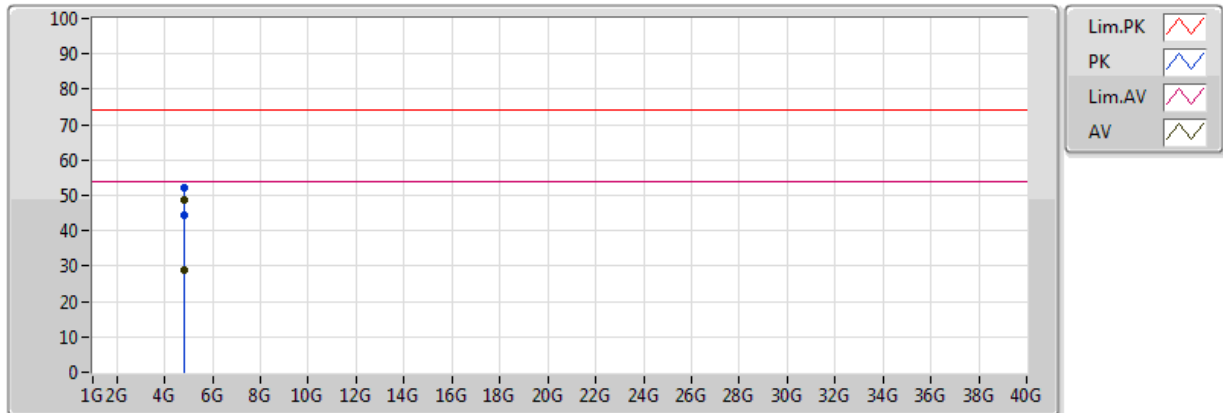


Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Mode 1.	Pass	AV	4.824G	48.55	54.00	-5.45	2.13	3	Vertical	215	1.53	-
Mode 2.	Pass	AV	4.804G	47.56	54.00	-6.44	2.08	3	Vertical	175	1.67	-

Radiation-above 1GHz_Mode 1

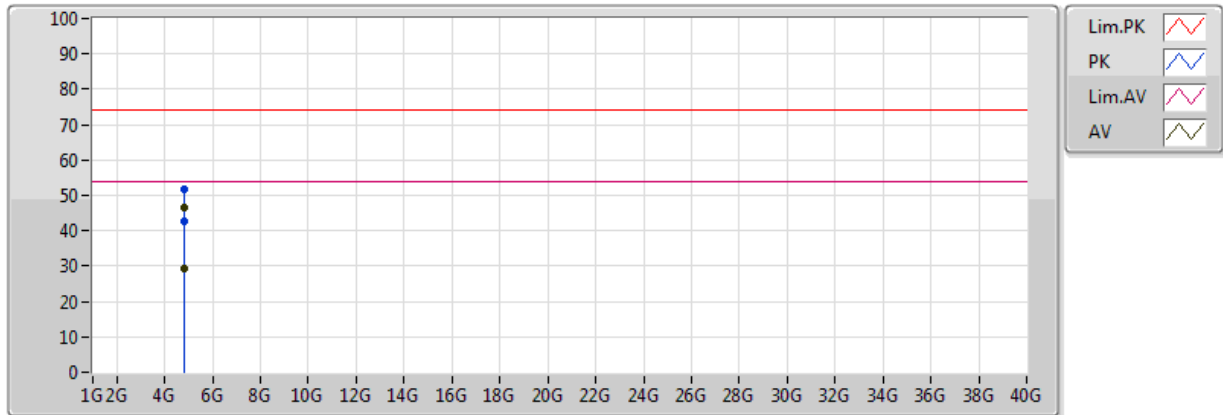
31/08/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80481G	29.00	54.00	-25.00	2.08	3	Vertical	102	1.74	-
AV	4.824G	48.55	54.00	-5.45	2.13	3	Vertical	215	1.53	-
PK	4.80481G	44.26	74.00	-29.74	2.08	3	Vertical	102	1.74	-
PK	4.82405G	52.34	74.00	-21.66	2.13	3	Vertical	215	1.53	-

Radiation-above 1GHz_Mode 1

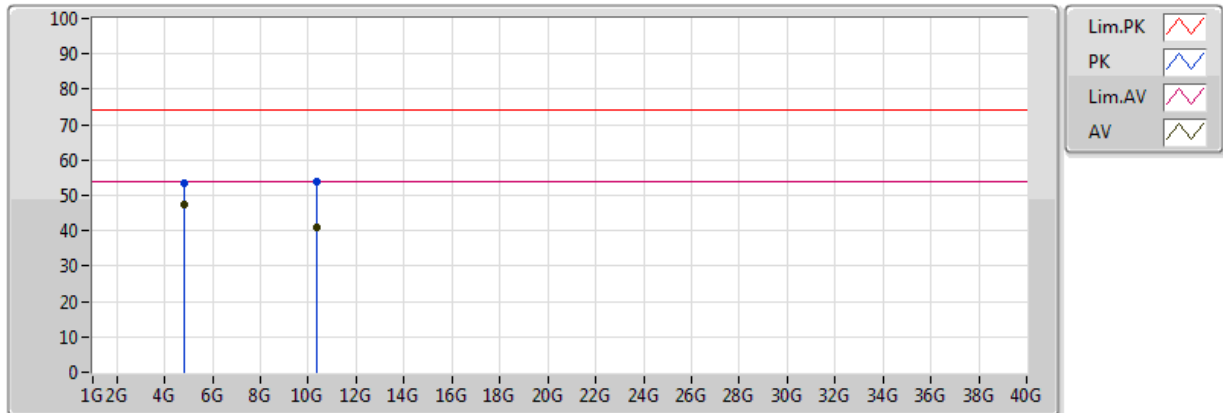
31/08/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80654G	29.17	54.00	-24.83	2.09	3	Horizontal	305	1.57	-
AV	4.824G	46.36	54.00	-7.64	2.13	3	Horizontal	185	1.49	-
PK	4.80654G	42.84	74.00	-31.16	2.09	3	Horizontal	305	1.57	-
PK	4.82406G	51.67	74.00	-22.33	2.13	3	Horizontal	185	1.49	-

Radiation-above 1GHz_Mode 2

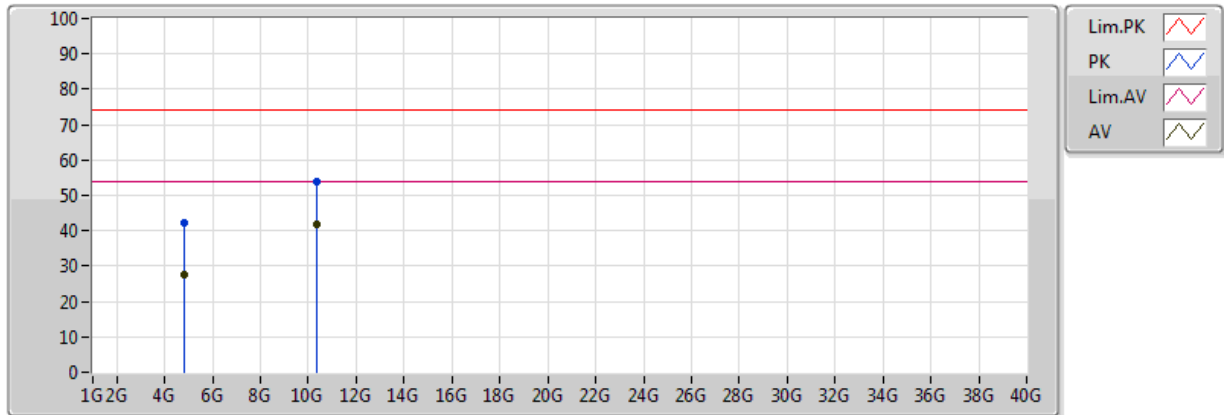
31/08/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.804G	47.56	54.00	-6.44	2.08	3	Vertical	175	1.67	-
AV	10.36548G	41.06	54.00	-12.94	12.65	3	Vertical	212	1.58	-
PK	4.80405G	53.44	74.00	-20.56	2.08	3	Vertical	175	1.67	-
PK	10.37128G	53.73	74.00	-20.27	12.66	3	Vertical	212	1.58	-

Radiation-above 1GHz_Mode 2

31/08/2018



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
AV	4.80637G	27.76	54.00	-26.24	2.09	3	Horizontal	321	1.56	-
AV	10.36876G	41.86	54.00	-12.14	12.65	3	Horizontal	179	1.84	-
PK	4.80635G	42.37	74.00	-31.63	2.09	3	Horizontal	321	1.56	-
PK	10.36432G	53.88	74.00	-20.12	12.64	3	Horizontal	179	1.84	-