



NCC Test Report

Equipment : Wireless gateway
Brand Name : PHILIPS
Model No. : LCN1870/05
Applicant : 台灣昕諾飛股份有限公司
台北市南港區 115 園區街 3-1 號 15 樓之 1
Manufacturer : Signify (China) Investment Co., Ltd.
Building 9, Lane 888, Tianlin Road, Minhang
District, Shanghai 200233 China
Standard : LP0002 Section 3.10 (2018-01-10)

The product was received on Oct. 19, 2017, and testing was started from Nov. 09, 2017 and completed on Mar. 17, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The 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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Report Template No.: HE1-C11 Ver2.0

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	3.10.1.4	Antenna Requirement	PASS	-
3.1	2.3	AC Power-line Conducted Emissions	PASS	-
3.2	3.10.1.6	DTS Bandwidth	PASS	-
3.3	3.10.1.2	Maximum Conducted Output Power	PASS	-
3.4	3.10.1.6	Power Spectral Density	PASS	-
3.5	3.10.1.5	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	3.10.1.5	Emissions in Restricted Frequency Bands	PASS	-
3.7	2.11	Receiver Radiated Unwanted Emissions	PASS	-
3.8	5.20	Maximum Permissible Exposure	PASS	-

Note1: Authorized by Original Applicant to use the report test data, therefore test results refer to the original report. From Sporton Project No.: TR7O1918-02AC.

Note 2: The conducted power was verified, and the deviation between the result of verification and original power is within 2dB, therefore test results refer to the original report.

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and explanations:

None

Reviewed by: Ben Tseng

Report Producer: Yunha Liou

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std.	Ch. Frequency (MHz)	Channel Number
2400-2483.5	802.15.4	2405-2480	11-26 [16]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	Zigbee	5	1

Note:.

- ♦ Zigbee uses a O-QPSK (250kbps) modulation for DSSS.
- ♦ BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

Ant.	Brand	Model Name	Antenna Type	Connector
1	-	-	Printed PIFA Antenna	Murata
2	-	-	Printed PIFA Antenna	Murata

Ant.	Gain (dBi)		
	2.4G	BT	ZigBee
1	2.4	-	-
2	-	1.7	1.7

Note 1: The EUT has two antennas.

For 2.4GHz function:

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

For Bluetooth / ZigBee function:

Only Ant. 2 can be used as transmitting/receiving antenna.

1.1.3 EUT Information

Identify EUT	
ZigBee Chip	Brand: SiliconLabs / Model Name: EFR32MG12P432F1024IM48-B
Operational Condition	
EUT Power Type	From AC Adapter
Type of EUT	
☒	Stand-alone
☐	Combined (EUT where the radio part is fully integrated within another device)
	Combined Equipment - Brand Name / Model No.: ...
☐	Plug-in radio (EUT intended for a variety of host systems)
	Host System - Brand Name / Model No.: ...
☐	Other:

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) $\geq 1/T$
Zigbee	1	0	n/a (DC $\geq$ 0.98)	n/a (DC $\geq$ 0.98)

1.2 Testing Applied Standards

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

- ♦ LP0002 (2018-01-10)
- ♦ ANSI C63.10-2013
- ♦ KDB 558074 D01 v05r02
- ♦ ANSI C63.4-2014
- ♦ KDB 414788 D01 v01r01

1.3 Testing Location Information

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

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Tim	24.3°C / 65.2%	09/Nov/2017
Radiated(TX)	03CH09-HY	Eric	23°C / 60%	16/Nov/2017
Radiated(RX)	03CH09-HY	Daniel	21.7~22.5°C / 44~49%	17/Mar/2020
AC Conduction(TX)	CO04-HY	Thor Wei	23°C /60%	10/Nov/2017
AC Conduction(RX)	CO04-HY	Jeff	21.4~25.3°C / 51~60%	17/Mar/2020

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 (30MHz ~ 1,000MHz)	2.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	2.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	2.9 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

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

2.2 Test Channel Mode

Test Software	Dos
---------------	-----

Mode	Power Setting
Zigbee	-
2405MHz	0f
2440MHz	0f
2480MHz	0f

2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral
Operating Mode	CTX/CRX
1	Adapter 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 Receiver Radiated Unwanted Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
Operating Mode < 1GHz	CTX/CRX		
1	Adapter mode		
Operating Mode > 1GHz	CTX/CRX		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			
Worst Planes of EUT		V	

2.4 Accessories

Accessories				
AC Adapter	Brand Name	PHILIPS	Model Name	S005BMM0500100
	Power Rating	I/P: 100 - 240Vac, 300m A, O/P: 5 Vdc, 5 W		
	Power Cord	1.5 meter, Non-Shielded cable, w/o ferrite core		

2.5 Support Equipment

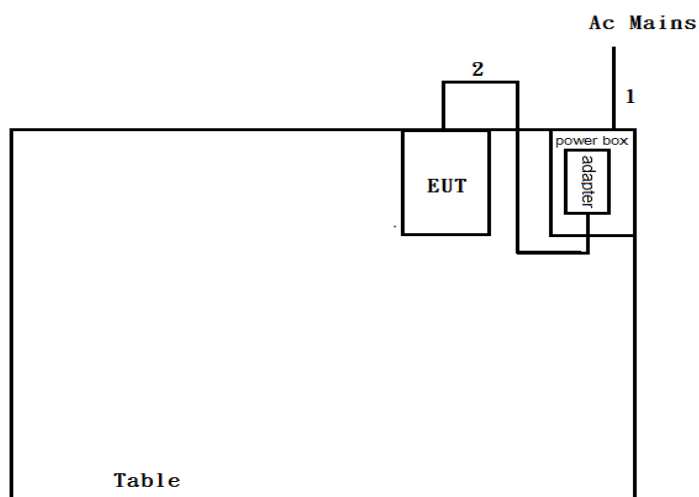
Support Equipment - RF Conducted				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	E5410	DoC
2	Adapter for NB	DELL	HA65NM130	DoC
3	AC Source	G.W	APS-9102	-

Support Equipment - AC Conduction / Radiated				
No.	Equipment	Brand Name	Model Name	FCC ID
1	RJ-45 cable X2	Power sync	CAT-6E-01	DOC
2	Load	Sporton	-	-

Note: No.1, 2 was provided by sporton Lab. The applicant has signed the recognizance that the equipment will not be sold with the accessory.

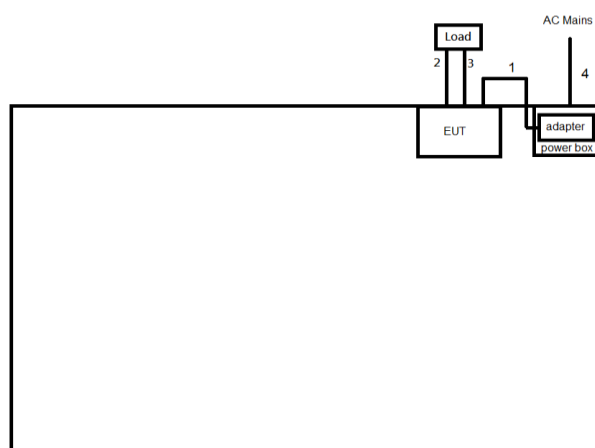
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test (TX)



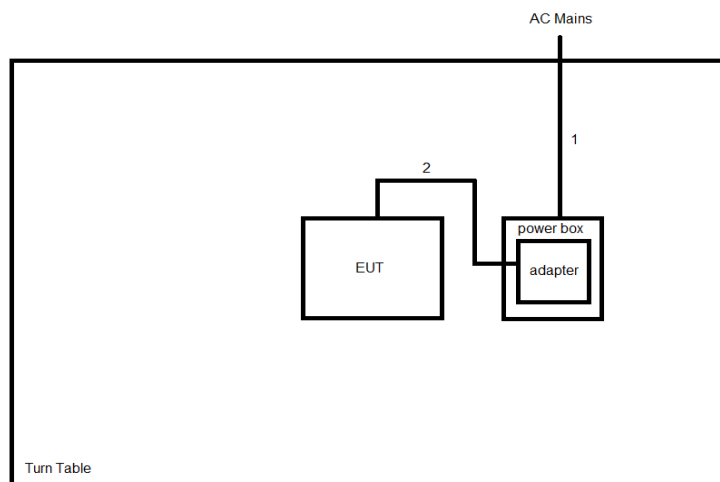
Item	Connection	Shielded	Length
1	AC power line	No	1.7m
2	DC power line	No	1.5m

Test Setup Diagram – AC Line Conducted Emission Test (RX)



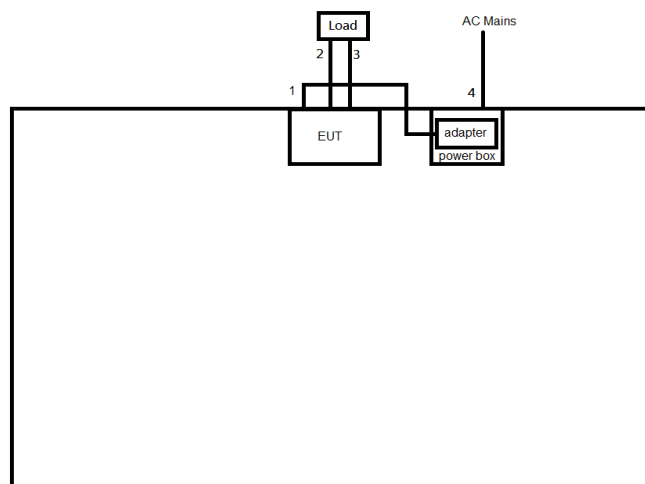
Item	Connection	Shielded	Length	Remark
1	DC Power cable	No	1.5m	-
2	RJ-45 cable	No	1.0m	-
3	RJ-45 cable	No	1.0m	-
4	Power cable	No	1.8m	-

Test Setup Diagram - Radiated Test (TX)



Item	Connection	Shielded	Length
1	AC power line	No	1.7m
2	DC power line	No	1.5m

Test Setup Diagram - Radiated Test (RX)



Item	Connection	Shielded	Length	Remark
1	DC Power cable	No	1.5m	-
2	RJ-45 cable	No	1.0m	-
3	RJ-45 cable	No	1.0m	-
4	Power cable	No	1.8m	-

3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

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

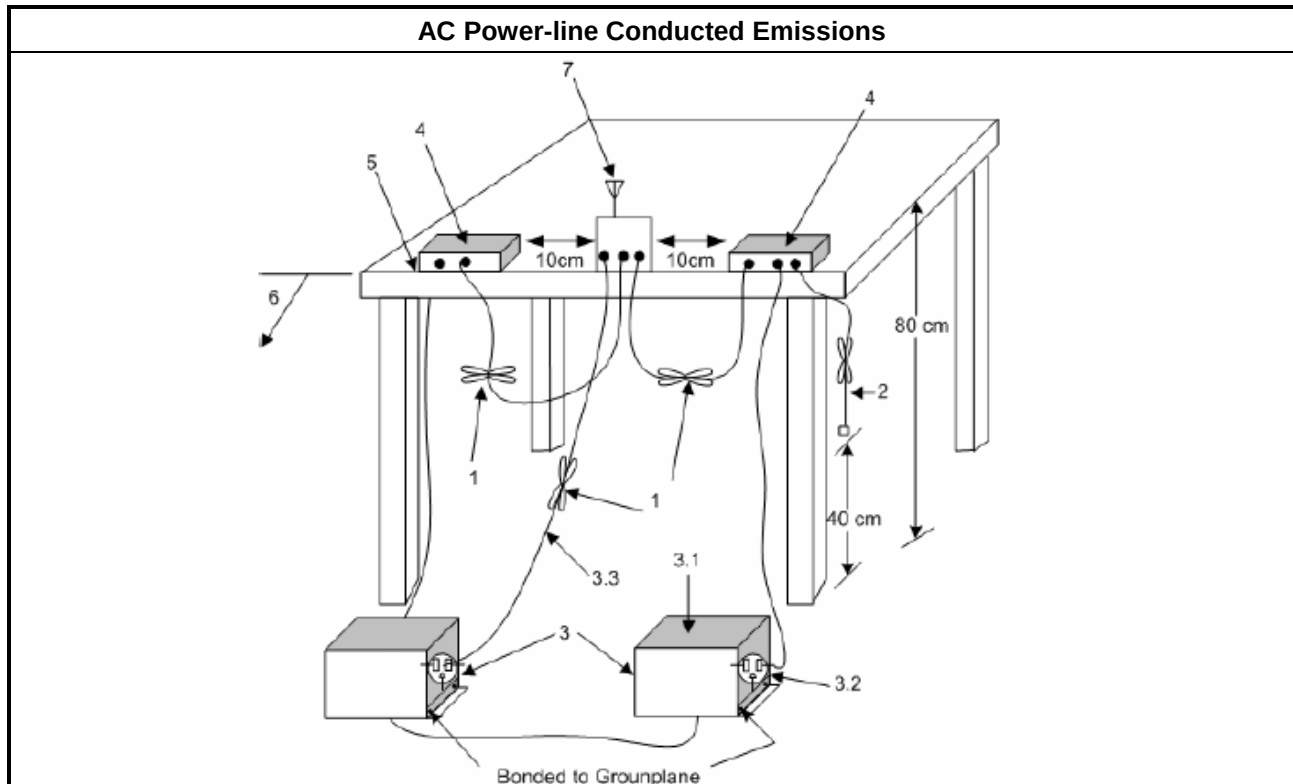
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

3.2 DTS Bandwidth

3.2.1 6dB Bandwidth Limit

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

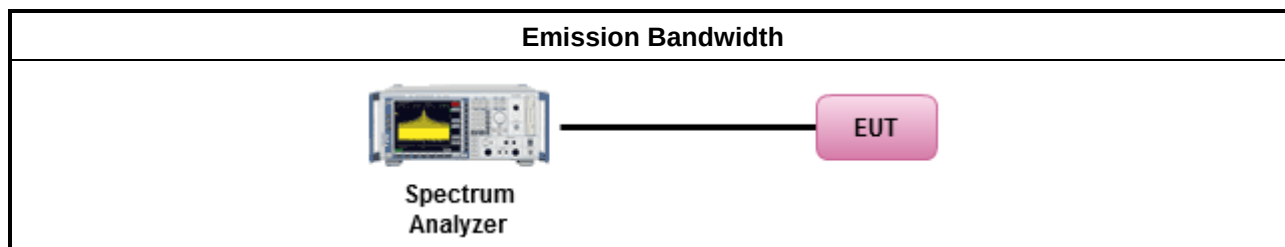
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

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

3.2.4 Test Setup



3.2.5 Test Result of Emission Bandwidth

Refer as Appendix B

3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

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

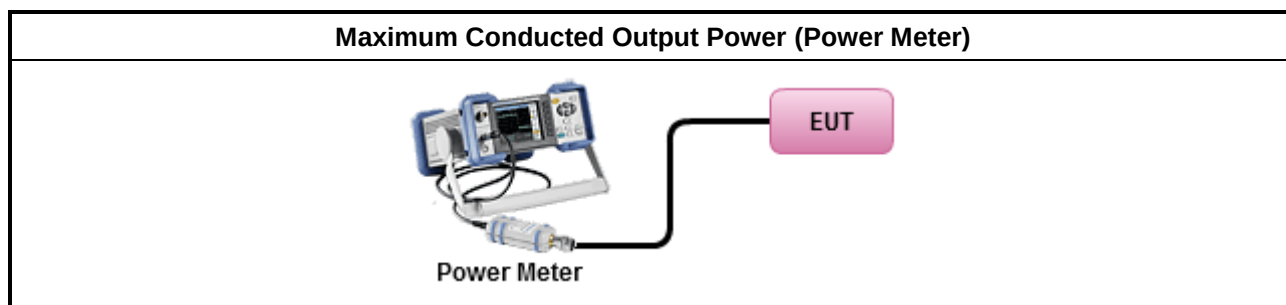
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

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

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit	
▪	Power Spectral Density (PSD) $\leq$ 8 dBm/3kHz

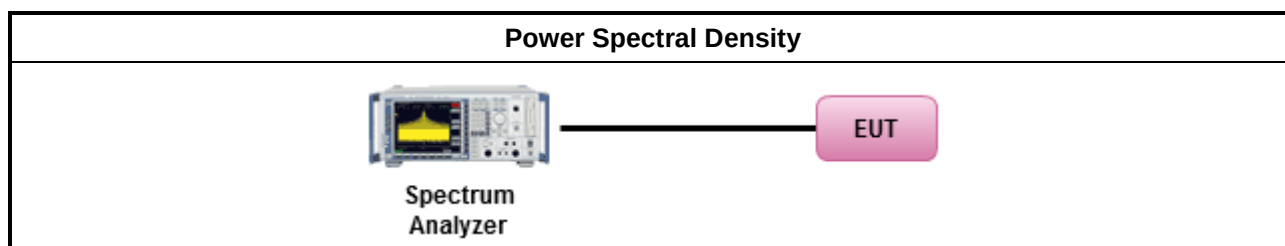
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

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

3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

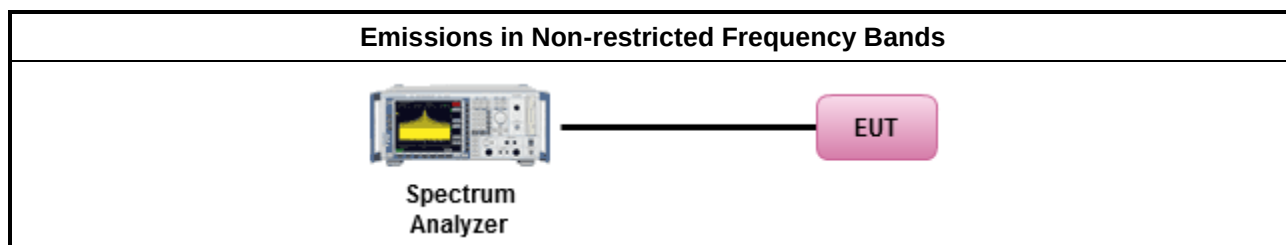
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

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

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

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

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

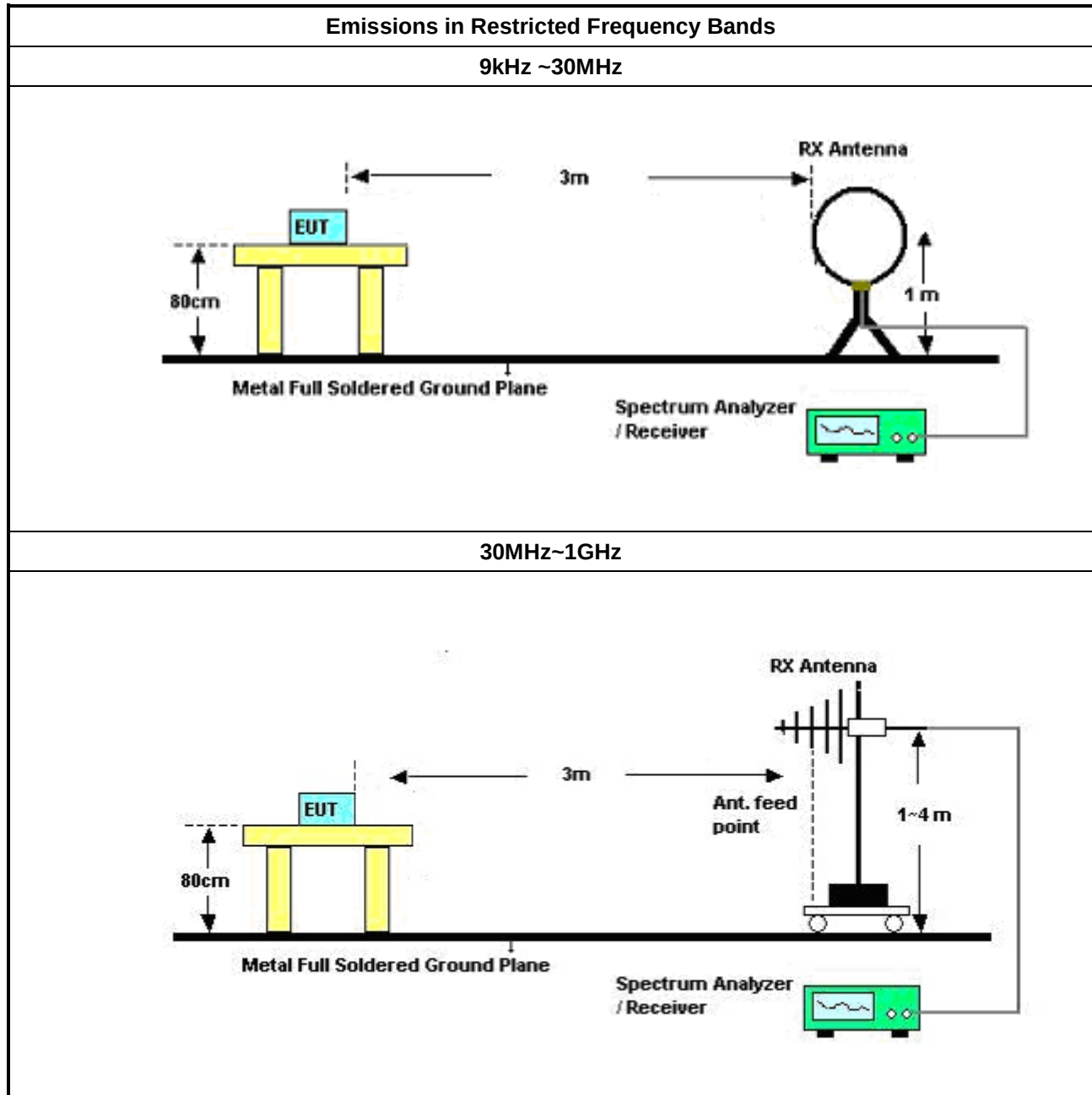
3.6.2 Measuring Instruments

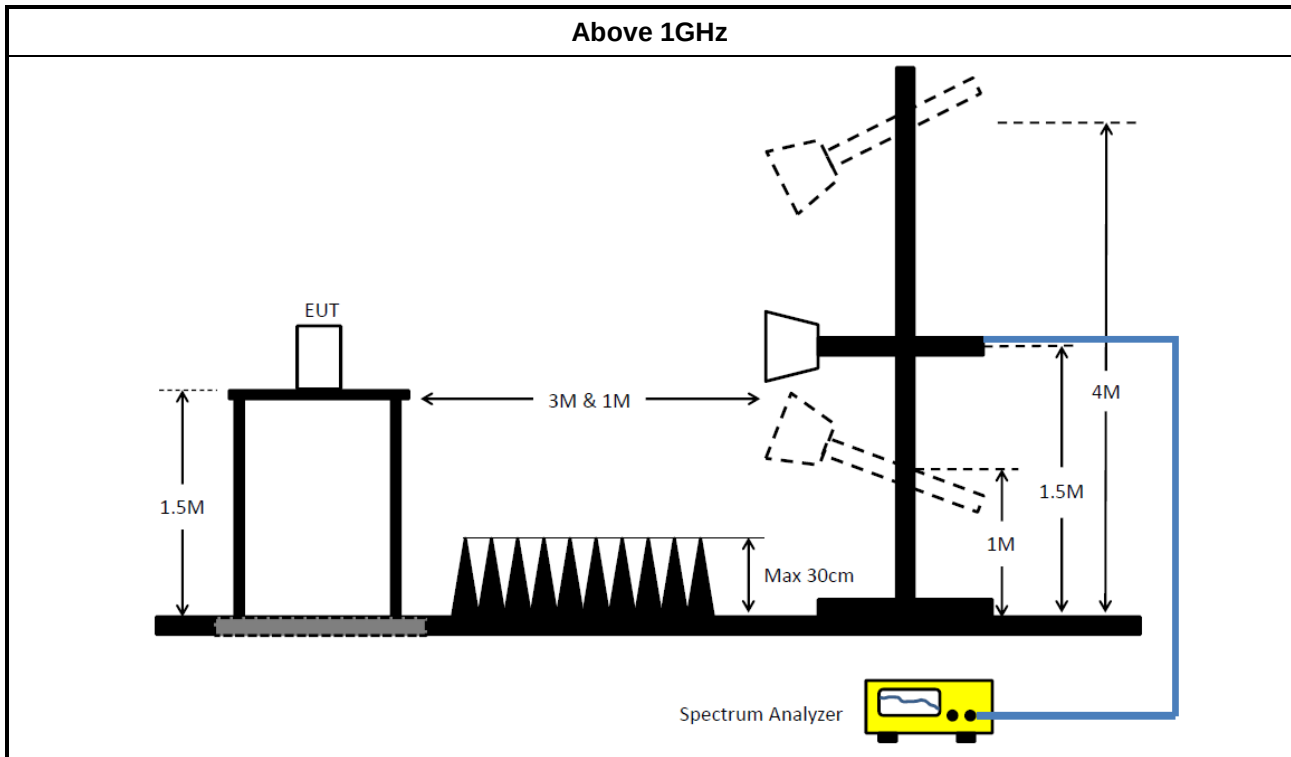
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
The average emission levels shall be measured in [duty cycle $\geq$ 98 or duty factor].	
Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.	
For the transmitter unwanted emissions shall be measured using following options below:	
	Refer as KDB 558074, clause 8.6 (11.12 of ANSI C63.10) for restricted frequency bands.
For the transmitter band-edge emissions shall be measured using following options below:	
	Refer as KDB 558074 clause 8.7.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	Refer as KDB 558074, clause 8.7.2 (6.10.6 of ANSI C63.10) for marker-delta method for band-edge measurements.
	Refer as KDB 558074, clause 8.7.3 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels.
Use the following spectrum analyzer settings:	
	Set RBW=100 kHz for $f < 1$ GHz; VBW=3 * RBW; Sweep = auto; Detector function = peak; Trace = max hold.
	Set RBW = 1 MHz, VBW= 3MHz for $f \geq 1$ GHz for peak measurement. For average measurement, refer as 1.1.4.
KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.	
	Based on LP0002 5.5.2: measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

3.6.4 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

3.7 Receiver Radiated Spurious Emissions

3.7.1 Receiver in Radiated Spurious Emissions Limit

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

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

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

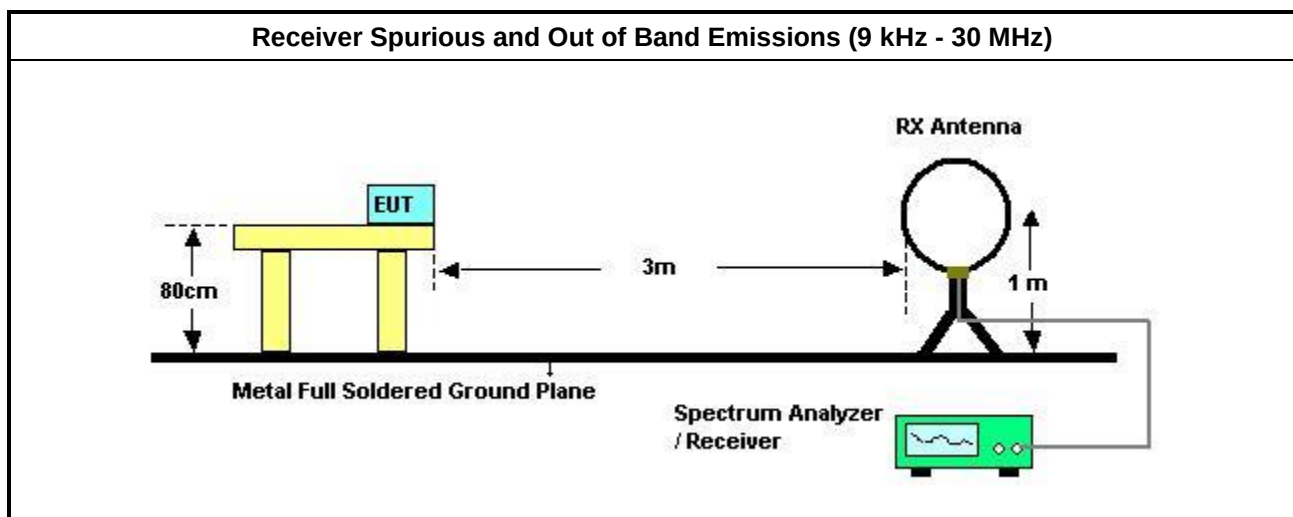
3.7.2 Measuring Instruments

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

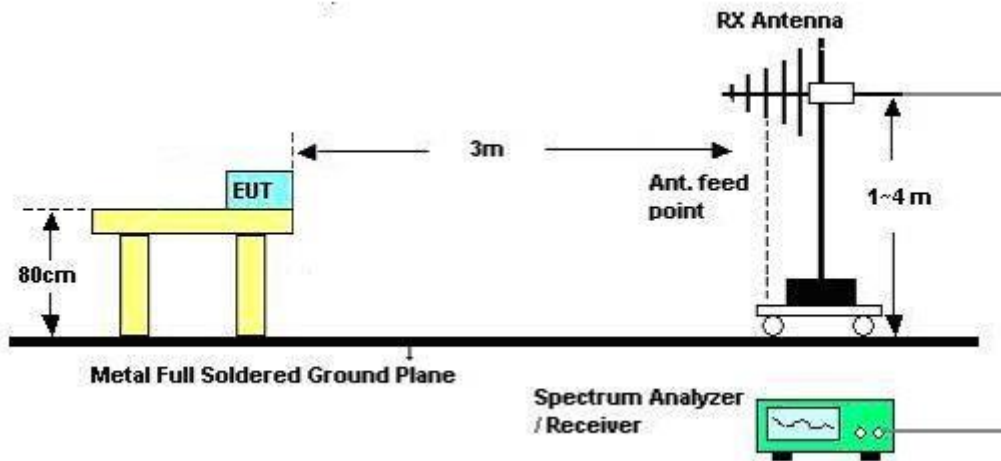
3.7.3 Test Procedures

Test Method	
☒	The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is higher, without exceeding 40 GHz.
☒	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).
☒	For radiated measurement, refer as KDB558074, clause 12.2.7.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from below 30 MHz.
☒	Refer as ANSI C63.4, clause 8.3.1.1 and 8.3.2.1 for radiated emissions from 30 MHz-1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the QP-Limit so that the QP level does not need to be reported in addition.
☒	Refer as ANSI C63.4, clause 8.3.1.2 and 8.3.2.2 for radiated emissions from above 1 GHz. For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
☒	All amplitude of spurious emissions that are attenuated by more than 30 dB below the permissible value has no need to be reported.

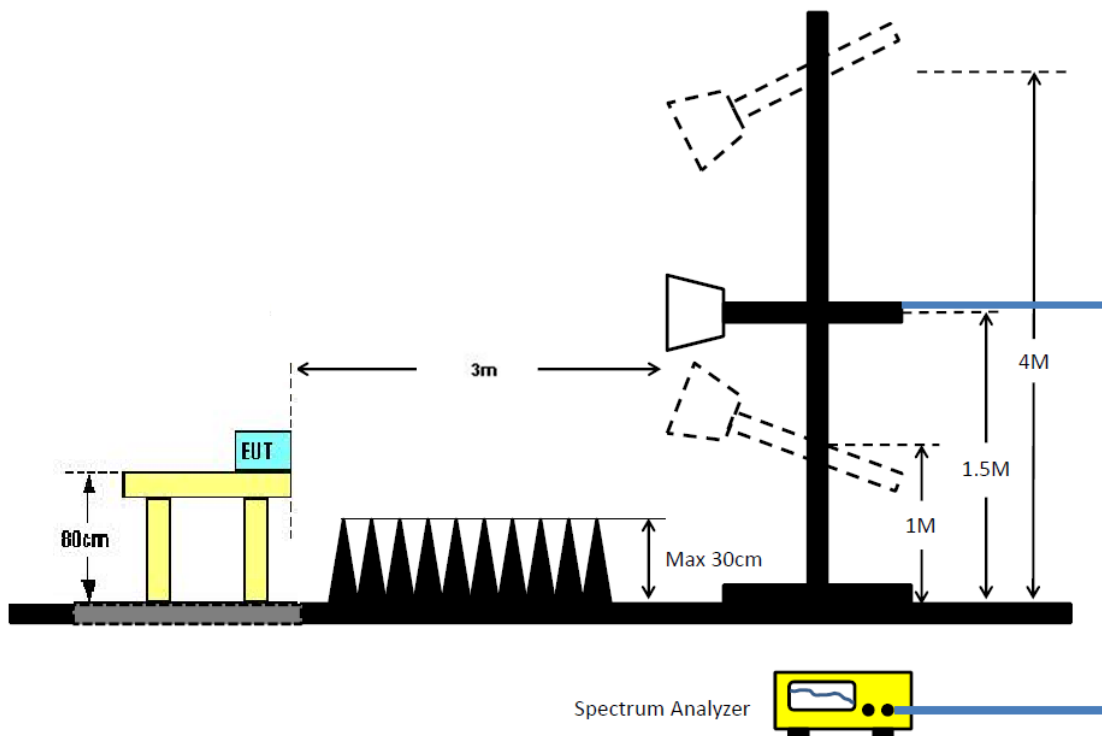
3.7.4 Test Setup



Receiver Radiated Unwanted Emissions (below 1GHz)



Receiver Radiated Unwanted Emissions (above 1GHz)



3.7.5 Receiver Radiated Unwanted Emissions (Below 30MHz)

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

3.7.6 Test Result of Receiver Radiated Unwanted Emissions

Refer as Appendix G

3.8 Maximum Permissible Exposure

3.8.1 Maximum Permissible Exposure Limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	*100	6
3-30	1842 / f	4.89 / f	*900 / f ²	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5.0	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	*100	30
3-30	1842/f	4.89/f	*180/f ²	30
30-300	27.5	0.073	1.0	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

3.8.2 Measuring Instruments

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

3.8.3 MPE Calculation Method

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$

3.8.4 Test Result of Calculated Result and Limit

Refer as Appendix H

4 Test Equipment and Calibration Data

Instrument for AC Conduction(TX)

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	15/Nov/2016	14/Nov/2017
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	R&S	ESH3-Z2	100921	10 kHz ~ 30 MHz	12/Oct/2017	11/Oct/2018

NCR : Non-Calibration Require

Instrument for AC Conduction(RX)

EMC Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	04/Nov/2019	05/Nov/2020
RF Cable-CON	MTJ	RG142	CB002-CO	9kHz ~ 200MHz	12/Sep/2019	11/Sep/2020
AC POWER	APC	AFC-11005G	F310050055	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561-F	9561-F041	9 kHz ~ 30 MHz	24/Sep/2019	23/Sep/2020

NCR : Non-Calibration Require

Instrument for Conducted Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	9kHz~40GHz	30/Dec/2016	29/Dec/2017
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	27/Jul/2017	26/Jul/2018
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	10/Feb/2017	09/Feb/2018
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	10/Feb/2017	09/Feb/2018
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

Instrument for Radiated Test(TX)

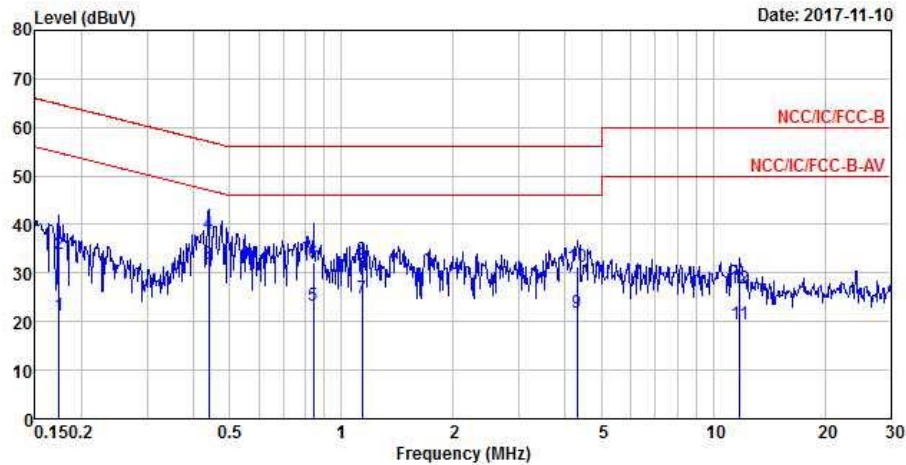
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	25/Apr/2017	24/Apr/2018
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	21/Jun/2017	20/Jun/2018
Amplifier	Agilent	8449B	3008A02096	1GHz ~ 26.5GHz	25/Apr/2017	24/Apr/2018
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	25/Apr/2017	24/Apr/2018
Spectrum Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz ~ 44GHz	20/Jul/2017	19/Jul/2018
Bilog Antenna	TESEQ	CBL 6111D	35418	30MHz~1GHz	09/Sep/2017	08/Sep/2018
Horn Antenna	SCHWARZBECK	BBHA 9120D	BBHA9120D 1534	1GHz~18GHz	28/Apr/2017	27/Apr/2018
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170614	18GHz ~ 40GHz	06/Feb/2017	05/Feb/2018
Loop Antenna	TESTQ	HLA 6120	31244	9 kHz~30 MHz	02/Mar/2017	01/Mar/2018
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	02/Feb/2017	01/Feb/2018
RF Cable-high	Jye Bao	RG142	03CH09-HY	1GHz ~ 40GHz	02/Feb/2017	01/Feb/2018
Receiver	R&S	ESR3	102052	9KHz ~ 3.6GHz	29/Apr/2017	28/Apr/2018

Instrument for Radiated Test(RX)

3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	22/Apr/2019	21/Apr/2020
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	13/Jun/2019	12/Jun/2020
Microwave System Prempplier	Agilent	8449B	3008A02326	1GHz ~ 26.5GHz	15/Jul/2019	14/Jul/2020
Amplifier	EMC	EMC9135	980232	9kHz~1GHz	22/Apr/2019	21/Apr/2020
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200885	10Hz~44GHz	07/Aug/2019	06/Aug/2020
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	11/Oct/2019	10/Oct/2020
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA9120 D 1534	1GHz~18GHz	22/May/2019	21/May/2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170614	18GHz~40GHz	22/May/2019	21/May/2020
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	05/Aug/2019	04/Aug/2020
Loop Antenna	TESEQ	HLA 6120	24155	9k-30MHz	29/Mar/2019	28/Mar/2020
LF-CABLE-2019 0218	Jye Bao	RG142	CB028	9kHz ~ 1GHz	17/Feb/2020	16/Feb/2021
RF Cable-high	HUBER+SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	13/Mar/2020	11/Mar/2021

AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Neutral
Operating Function	Adapter Mode - TX		



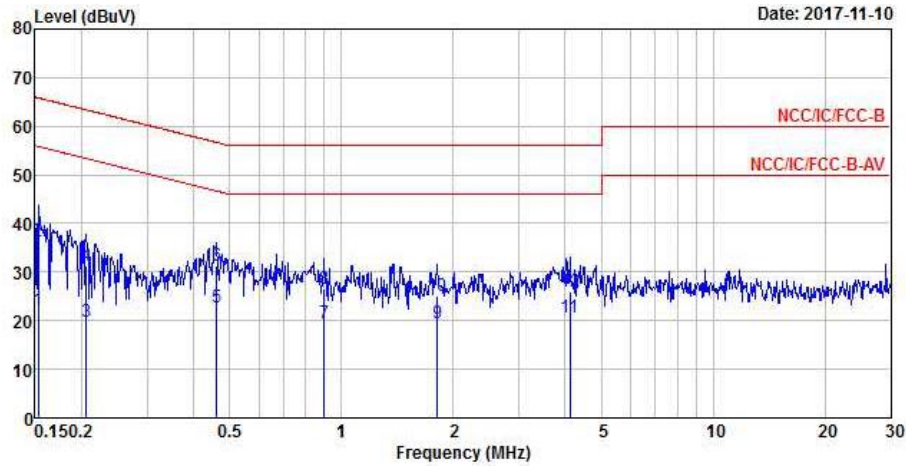
	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.17399	21.33	-33.44	54.77	11.67	9.64	0.02	Average
2	0.17399	33.90	-30.87	64.77	24.24	9.64	0.02	QP
3 MAX	0.43974	31.98	-15.09	47.07	22.26	9.63	0.09	Average
4	0.43974	38.00	-19.07	57.07	28.28	9.63	0.09	QP
5	0.83932	23.20	-22.80	46.00	13.58	9.60	0.02	Average
6	0.83932	32.16	-23.84	56.00	22.54	9.60	0.02	QP
7	1.13523	24.69	-21.31	46.00	15.09	9.60	0.00	Average
8	1.13523	32.65	-23.35	56.00	23.05	9.60	0.00	QP
9	4.31464	21.98	-24.02	46.00	12.17	9.71	0.10	Average
10	4.31464	31.30	-24.70	56.00	21.49	9.71	0.10	QP
11	11.80701	19.56	-30.44	50.00	9.66	9.78	0.12	Average
12	11.80701	26.83	-33.17	60.00	16.93	9.78	0.12	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	Adapter Mode - TX		



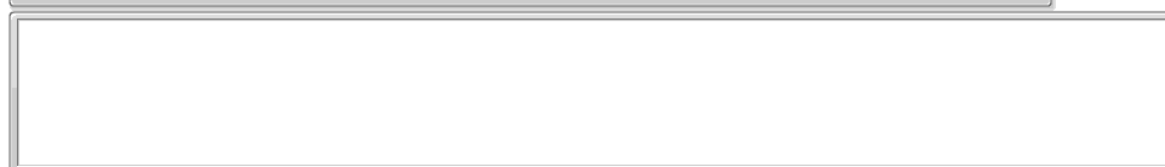
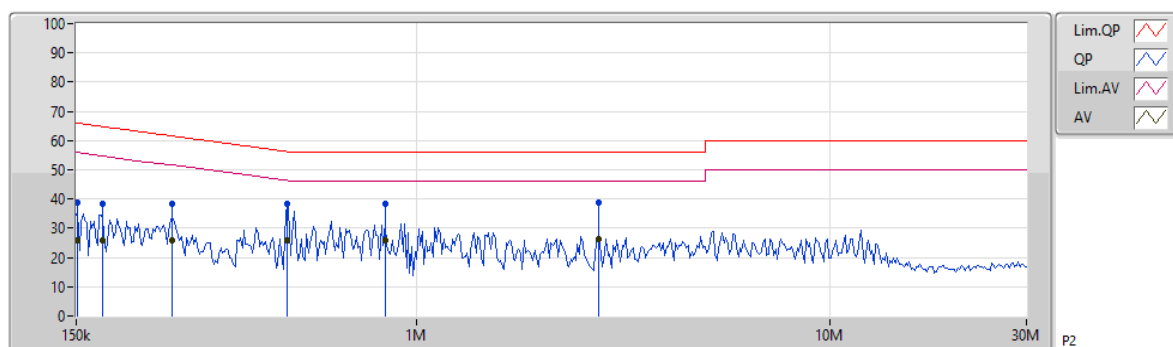
	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.15321	22.28	-33.54	55.82	12.58	9.66	0.04	Average
2	0.15321	36.18	-29.64	65.82	26.48	9.66	0.04	QP
3	0.20614	19.67	-33.69	53.36	10.02	9.65	0.00	Average
4	0.20614	31.24	-32.12	63.36	21.59	9.65	0.00	QP
5 MAX	0.46122	22.67	-24.00	46.67	12.92	9.67	0.08	Average
6	0.46122	31.26	-25.41	56.67	21.51	9.67	0.08	QP
7	0.89917	19.38	-26.62	46.00	9.73	9.64	0.01	Average
8	0.89917	26.52	-29.48	56.00	16.87	9.64	0.01	QP
9	1.80957	19.34	-26.66	46.00	9.57	9.77	0.00	Average
10	1.80957	25.05	-30.95	56.00	15.28	9.77	0.00	QP
11	4.11372	20.55	-25.45	46.00	10.69	9.77	0.09	Average
12	4.11372	26.03	-29.97	56.00	16.17	9.77	0.09	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	Neutral
Operating Function	Adapter Mode - RX		

17/03/2020



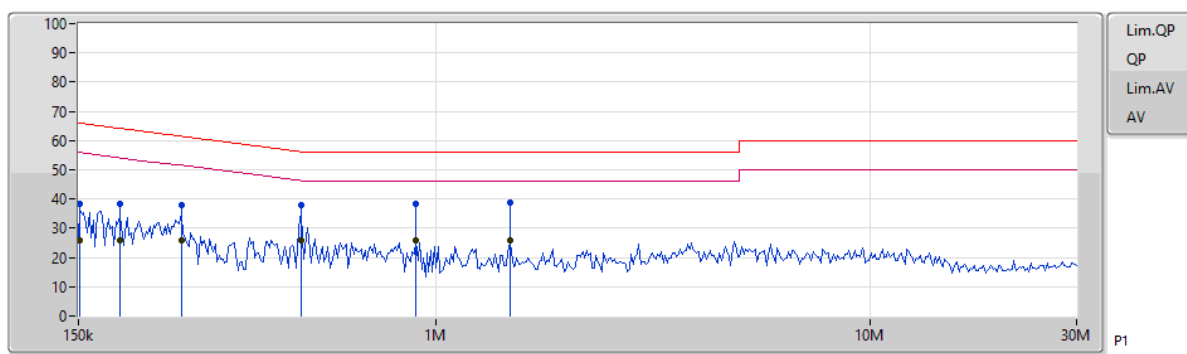
Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Raw (dBuV)	Condition	Comment	LISN (dB)	CL (dB)	AT (dB)				
QP	151.5k	38.66	65.92	-27.26	19.03	Neutral	-	9.65	0.11	9.87				
AV	151.5k	26.03	55.92	-29.89	6.40	Neutral	-	9.65	0.11	9.87				
QP	174.145k	38.20	64.76	-26.56	18.58	Neutral	-	9.64	0.11	9.87				
AV	174.145k	26.02	54.76	-28.74	6.40	Neutral	-	9.64	0.11	9.87				
QP	256.712k	38.38	61.54	-23.16	18.75	Neutral	-	9.64	0.12	9.87				
AV	256.712k	26.02	51.54	-25.52	6.39	Neutral	-	9.64	0.12	9.87				
QP	485.303k	38.33	56.25	-17.92	18.70	Neutral	-	9.63	0.13	9.87				
AV	485.303k	26.05	46.25	-20.20	6.42	Neutral	-	9.63	0.13	9.87				
QP	838.859k	38.44	56.00	-17.56	18.82	Neutral	-	9.63	0.12	9.87				
AV	838.859k	25.99	46.00	-20.01	6.37	Neutral	-	9.63	0.12	9.87				
QP	2.769M	38.87	56.00	-17.13	19.18	Neutral	"Worst"	9.65	0.17	9.87				
AV	2.769M	26.09	46.00	-19.91	6.40	Neutral	-	9.65	0.17	9.87				

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	Adapter Mode - RX		

17/03/2020



Type	Freq (Hz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Raw (dBuV)	Condition	Comment	LISN (dB)	CL (dB)	AT (dB)				
QP	151.5k	38.39	65.92	-27.53	18.75	Line	-	9.66	0.11	9.87				
AV	151.5k	26.06	55.92	-29.86	6.42	Line	-	9.66	0.11	9.87				
QP	186.707k	38.34	64.18	-25.84	18.71	Line	-	9.65	0.11	9.87				
AV	186.707k	26.01	54.18	-28.17	6.38	Line	-	9.65	0.11	9.87				
QP	259.279k	37.98	61.45	-23.47	18.34	Line	-	9.65	0.12	9.87				
AV	259.279k	26.06	51.45	-25.39	6.42	Line	-	9.65	0.12	9.87				
QP	490.156k	37.91	56.17	-18.26	18.27	Line	-	9.64	0.13	9.87				
AV	490.156k	26.03	46.17	-20.14	6.39	Line	-	9.64	0.13	9.87				
QP	899.37k	38.57	56.00	-17.43	18.94	Line	-	9.64	0.11	9.88				
AV	899.37k	26.04	46.00	-19.96	6.41	Line	-	9.64	0.11	9.88				
QP	1.479M	38.94	56.00	-17.06	19.29	Line	"Worst"	9.65	0.13	9.87				
AV	1.479M	26.06	46.00	-19.94	6.41	Line	-	9.65	0.13	9.87				

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	-	-	-	-	-
Zigbee	1.669M	2.23M	2M23G1D	1.644M	2.224M

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;

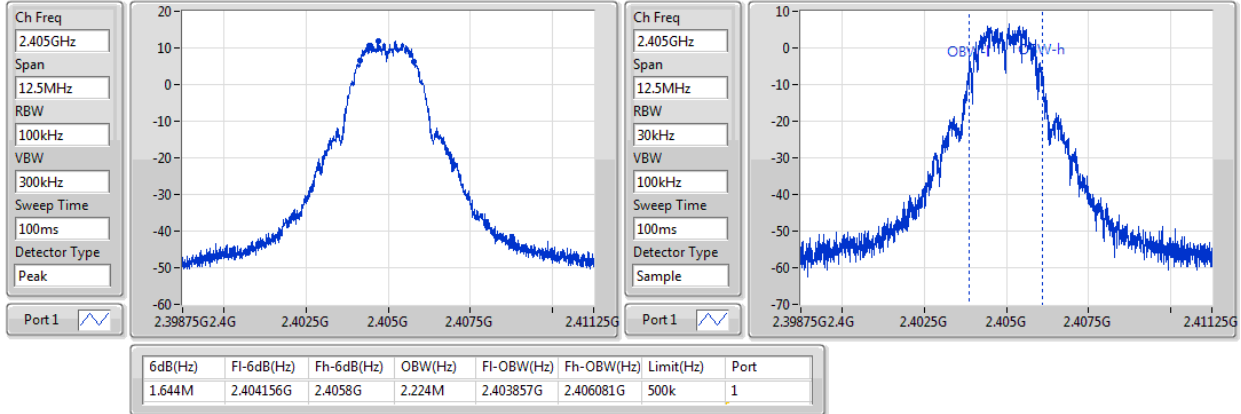
Result

Mode	Result	Limit (Hz)	Port 1-N dB (Hz)	Port 1-OBW (Hz)
Zigbee	-	-	-	-
2405MHz_TnomVnom	Pass	500k	1.644M	2.224M
2440MHz_TnomVnom	Pass	500k	1.65M	2.23M
2480MHz_TnomVnom	Pass	500k	1.669M	2.23M

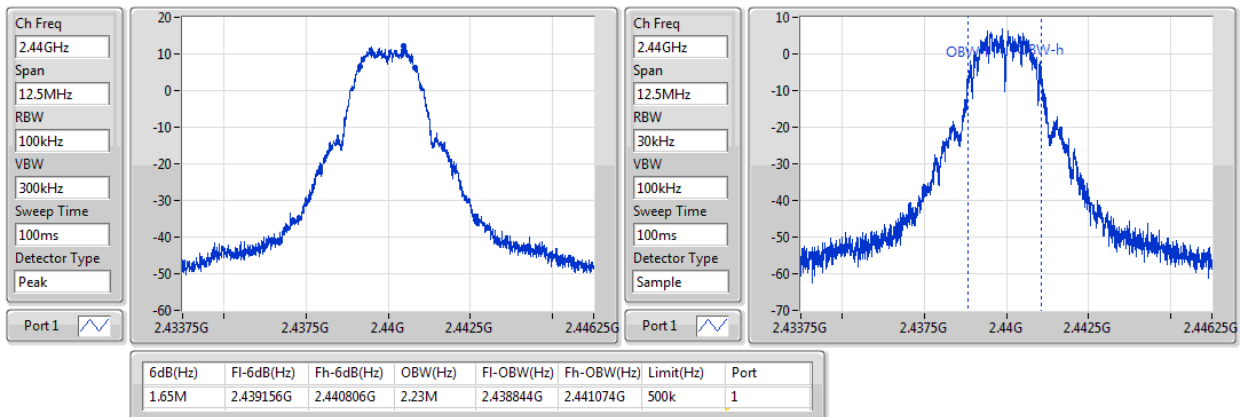
Port X-N dB = Port X 6dB down bandwidth; **Port X-OBW** = Port X 99% occupied bandwidth;

Zigbee
2405MHz
EBW

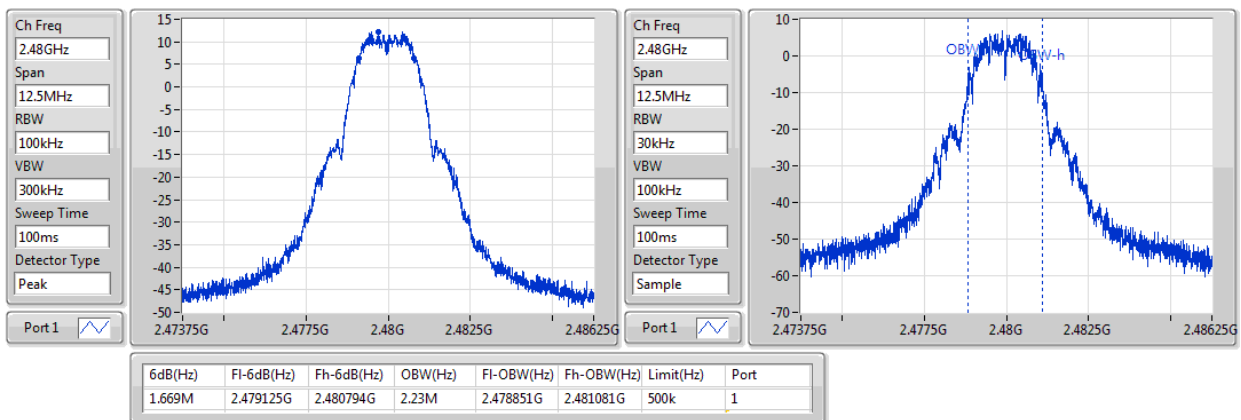
09/11/2017


Zigbee
2440MHz
EBW

09/11/2017


Zigbee
2480MHz
EBW

09/11/2017



**Summary**

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
Zigbee	16.41	0.04375

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Total Power (dBm)	Power Limit (dBm)
Zigbee	-	-	-	-	-
2405MHz_TnomVnom	Pass	1.70	15.96	15.96	30.00
2440MHz_TnomVnom	Pass	1.70	16.22	16.22	30.00
2480MHz_TnomVnom	Pass	1.70	16.41	16.41	30.00

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
Zigbee	0.44

RBW=3kHz.

Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee	-	-	-	-	-
2405MHz_TnomVnom	Pass	1.70	-1.53	-1.53	8.00
2440MHz_TnomVnom	Pass	1.70	-1.77	-1.77	8.00
2480MHz_TnomVnom	Pass	1.70	0.44	0.44	8.00

DG = Directional Gain; RBW=3kHz;

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

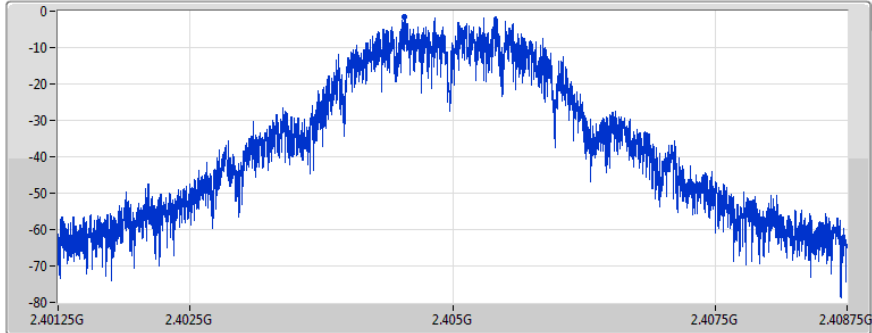
Zigbee

2405MHz

PSD

09/11/2017

Ch Freq
2.405GHz
Span
7.5MHz
RBW
3kHz
VBW
10kHz
Sweep Time
83.4ms
Detector Type
Peak



Port 1

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.53	-1.53	-1.53

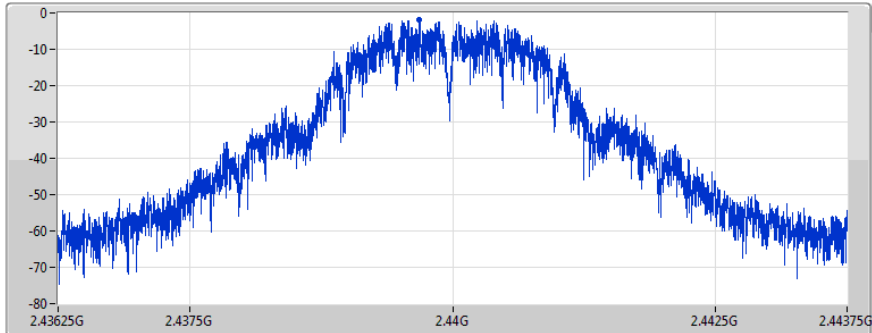
Zigbee

2440MHz

PSD

09/11/2017

Ch Freq
2.44GHz
Span
7.5MHz
RBW
3kHz
VBW
10kHz
Sweep Time
83.4ms
Detector Type
Peak



Port 1

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
-1.77	-1.77	-1.77

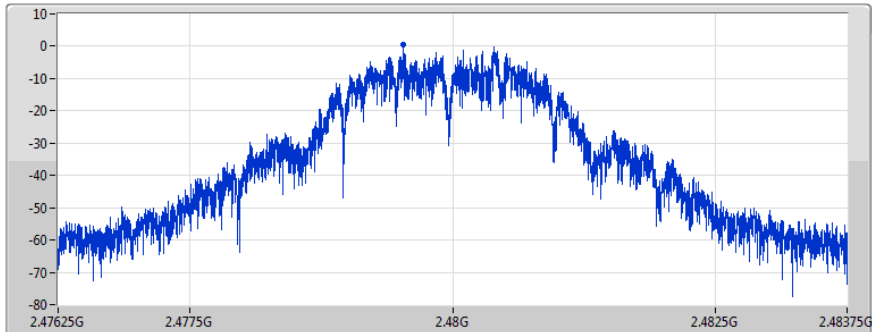
Zigbee

2480MHz

PSD

09/11/2017

Ch Freq
2.48GHz
Span
7.5MHz
RBW
3kHz
VBW
10kHz
Sweep Time
83.4ms
Detector Type
Peak



Port 1

Sum	PD	Port 1
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
0.44	0.44	0.44

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	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	2.480327G	12.09	-17.91	2.1422G	-54.64	2.392G	-54.51	2.48354G	-38.74	6.949787G	-48.68	1

Result

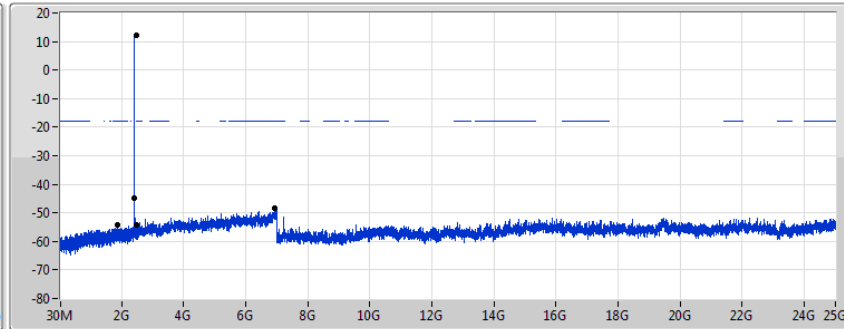
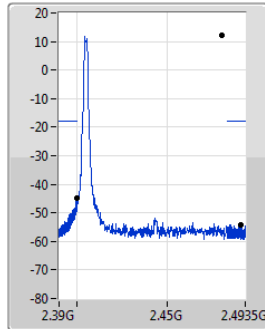
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz_TnomVnom	Pass	2.480327G	12.09	-17.91	1.8708G	-54.33	2.39972G	-44.99	2.49076G	-54.17	6.921654G	-48.30	1
2440MHz_TnomVnom	Pass	2.480327G	12.09	-17.91	2.30858G	-54.33	2.3961G	-54.60	2.48544G	-54.27	6.991987G	-49.08	1
2480MHz_TnomVnom	Pass	2.480327G	12.09	-17.91	2.1422G	-54.64	2.392G	-54.51	2.48354G	-38.74	6.949787G	-48.68	1

Zigbee

2405MHz

CSE NdB

09/11/2017



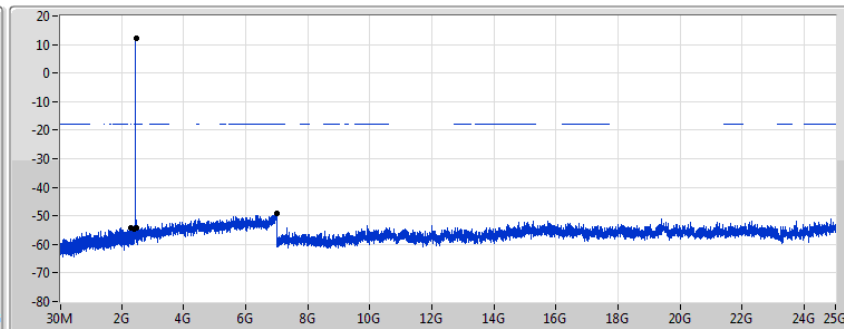
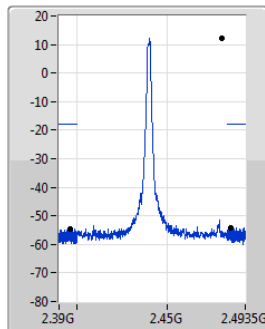
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.480327G	12.09	-17.91	1.8708G	-54.33	2.39972G	-44.99	2.49076G	-54.17	6.921654G	-48.30	1

Zigbee

2440MHz

CSE NdB

09/11/2017



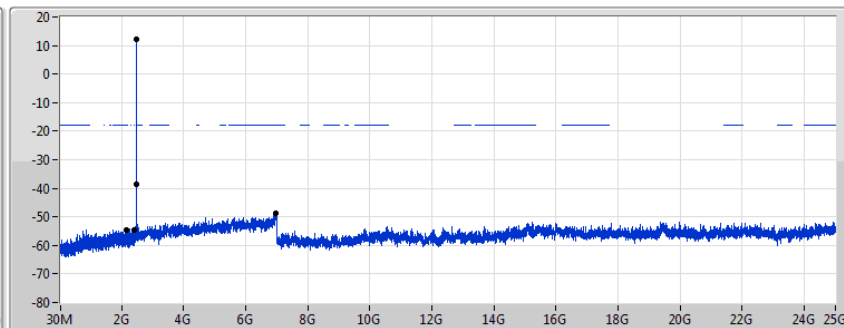
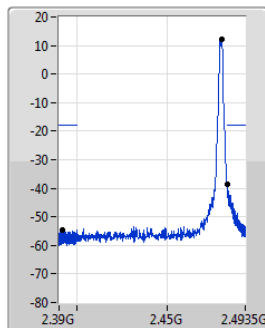
Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.480327G	12.09	-17.91	2.30858G	-54.33	2.3961G	-54.60	2.48544G	-54.27	6.991987G	-49.08	1

Zigbee

2480MHz

CSE NdB

09/11/2017



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.480327G	12.09	-17.91	2.1422G	-54.64	2.392G	-54.51	2.48354G	-38.74	6.949787G	-48.68	1



RSE TX below 1GHz Result

Appendix F.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	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	PK	179.38M	39.84	43.50	-3.66	-20.11	3	Horizontal	0	1.00	-

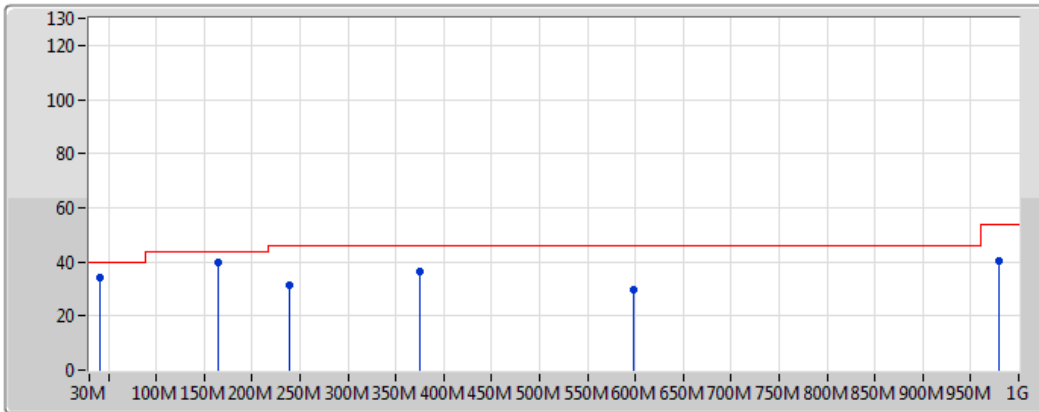
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	100.81M	31.88	43.50	-11.62	-19.95	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	179.38M	39.84	43.50	-3.66	-20.11	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	238.55M	35.91	46.00	-10.09	-17.52	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	375.32M	38.14	46.00	-7.86	-13.10	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	597.45M	33.24	46.00	-12.76	-8.40	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	774.96M	35.86	46.00	-10.14	-5.37	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	41.64M	34.17	40.00	-5.83	-18.52	3	Vertical	360	1.00	-
2440MHz	Pass	PK	164.83M	39.68	43.50	-3.82	-19.15	3	Vertical	360	1.00	-
2440MHz	Pass	PK	238.55M	31.46	46.00	-14.54	-17.52	3	Vertical	360	1.00	-
2440MHz	Pass	PK	375.32M	36.43	46.00	-9.57	-13.10	3	Vertical	360	1.00	-
2440MHz	Pass	PK	598.42M	29.50	46.00	-16.50	-8.39	3	Vertical	360	1.00	-
2440MHz	Pass	PK	979.63M	40.26	54.00	-13.74	-1.68	3	Vertical	360	1.00	-

Zigbee

2440MHz_Adapter

16/11/2017



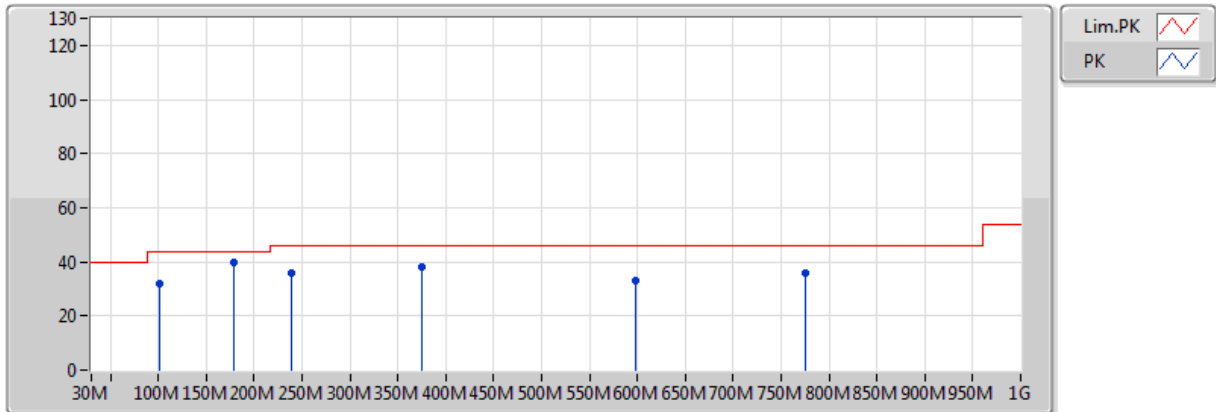
Lim.PK
PK

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	41.64M	34.17	40.00	-5.83	-18.52	3	Vertical	360	1.00	-	52.69	17.63	1.08	37.22
PK	164.83M	39.68	43.50	-3.82	-19.15	3	Vertical	360	1.00	-	58.83	15.27	2.11	36.53
PK	238.55M	31.46	46.00	-14.54	-17.52	3	Vertical	360	1.00	-	48.98	16.38	2.50	36.40
PK	375.32M	36.43	46.00	-9.57	-13.10	3	Vertical	360	1.00	-	49.53	20.25	3.22	36.57
PK	598.42M	29.50	46.00	-16.50	-8.39	3	Vertical	360	1.00	-	37.89	24.68	4.12	37.19
PK	979.63M	40.26	54.00	-13.74	-1.68	3	Vertical	360	1.00	-	41.94	30.06	5.48	37.22

Zigbee

2440MHz_Adapter

16/11/2017



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	100.81M	31.88	43.50	-11.62	-19.95	3	Horizontal	0	1.00	-	51.83	15.23	1.62	36.80
PK	179.38M	39.84	43.50	-3.66	-20.11	3	Horizontal	0	1.00	-	59.95	14.15	2.20	36.46
PK	238.55M	35.91	46.00	-10.09	-17.52	3	Horizontal	0	1.00	-	53.43	16.38	2.50	36.40
PK	375.32M	38.14	46.00	-7.86	-13.10	3	Horizontal	0	1.00	-	51.24	20.25	3.22	36.57
PK	597.45M	33.24	46.00	-12.76	-8.40	3	Horizontal	0	1.00	-	41.64	24.67	4.12	37.18
PK	774.96M	35.86	46.00	-10.14	-5.37	3	Horizontal	0	1.00	-	41.23	27.34	4.73	37.44

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	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	2.483502G	51.37	54.00	-2.63	30.79	3	Horizontal	148	2.03	-

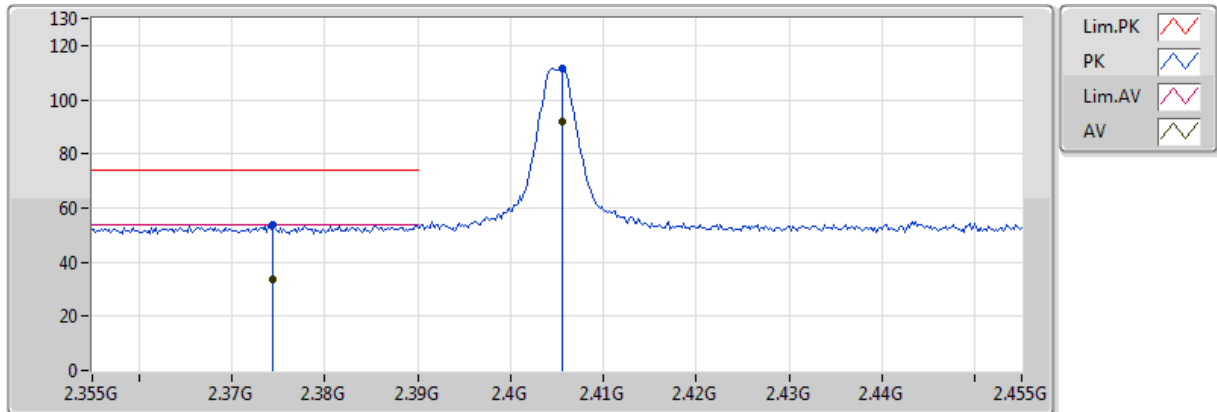
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	AV	2.3846G	38.39	54.00	-15.61	30.44	3	Horizontal	168	1.21	-
2405MHz	Pass	AV	2.4056G	95.87	Inf	-Inf	30.51	3	Horizontal	168	1.21	-
2405MHz	Pass	PK	2.3846G	58.39	74.00	-15.61	30.44	3	Horizontal	168	1.21	-
2405MHz	Pass	PK	2.4056G	115.87	Inf	-Inf	30.51	3	Horizontal	168	1.21	-
2405MHz	Pass	AV	2.3744G	33.59	54.00	-20.41	30.88	3	Vertical	133	1.72	-
2405MHz	Pass	AV	2.4056G	91.66	Inf	-Inf	30.99	3	Vertical	133	1.72	-
2405MHz	Pass	PK	2.3744G	53.59	74.00	-20.41	30.88	3	Vertical	133	1.72	-
2405MHz	Pass	PK	2.4056G	111.66	Inf	-Inf	30.99	3	Vertical	133	1.72	-
2405MHz	Pass	AV	4.81102G	26.24	54.00	-27.76	2.06	3	Horizontal	42	1.76	-
2405MHz	Pass	PK	4.81102G	46.24	74.00	-27.76	2.06	3	Horizontal	42	1.76	-
2405MHz	Pass	AV	4.80882G	27.64	54.00	-26.36	2.06	3	Vertical	204	1.61	-
2405MHz	Pass	PK	4.80882G	47.64	74.00	-26.36	2.06	3	Vertical	204	1.61	-
2440MHz	Pass	AV	2.342G	38.93	54.00	-15.07	30.29	3	Horizontal	168	1.00	-
2440MHz	Pass	AV	2.4396G	95.79	Inf	-Inf	30.63	3	Horizontal	168	1.00	-
2440MHz	Pass	AV	2.4928G	38.07	54.00	-15.93	30.82	3	Horizontal	168	1.00	-
2440MHz	Pass	PK	2.342G	58.93	74.00	-15.07	30.29	3	Horizontal	168	1.00	-
2440MHz	Pass	PK	2.4396G	115.79	Inf	-Inf	30.63	3	Horizontal	168	1.00	-
2440MHz	Pass	PK	2.4928G	58.07	74.00	-15.93	30.82	3	Horizontal	168	1.00	-
2440MHz	Pass	AV	2.3864G	33.93	54.00	-20.07	30.92	3	Vertical	134	1.49	-
2440MHz	Pass	AV	2.4396G	91.50	Inf	-Inf	31.11	3	Vertical	134	1.49	-
2440MHz	Pass	AV	2.4976G	35.25	54.00	-18.75	31.32	3	Vertical	134	1.49	-
2440MHz	Pass	PK	2.3864G	53.93	74.00	-20.07	30.92	3	Vertical	134	1.49	-
2440MHz	Pass	PK	2.4396G	111.50	Inf	-Inf	31.11	3	Vertical	134	1.49	-
2440MHz	Pass	PK	2.4976G	55.25	74.00	-18.75	31.32	3	Vertical	134	1.49	-
2440MHz	Pass	AV	4.88114G	25.57	54.00	-28.43	2.28	3	Horizontal	17	2.47	-
2440MHz	Pass	PK	4.88114G	45.57	74.00	-28.43	2.28	3	Horizontal	17	2.47	-
2440MHz	Pass	AV	4.8812G	24.89	54.00	-29.11	2.28	3	Vertical	95	1.69	-
2440MHz	Pass	PK	4.8812G	44.89	74.00	-29.11	2.28	3	Vertical	95	1.69	-
2480MHz	Pass	AV	2.4794G	95.02	Inf	-Inf	30.78	3	Horizontal	148	2.03	-
2480MHz	Pass	AV	2.483502G	51.37	54.00	-2.63	30.79	3	Horizontal	148	2.03	-
2480MHz	Pass	PK	2.4794G	115.02	Inf	-Inf	30.78	3	Horizontal	148	2.03	-
2480MHz	Pass	PK	2.483502G	71.37	74.00	-2.63	30.79	3	Horizontal	148	2.03	-
2480MHz	Pass	AV	2.4806G	90.73	Inf	-Inf	30.78	3	Vertical	134	1.37	-
2480MHz	Pass	AV	2.483502G	47.41	54.00	-6.59	30.79	3	Vertical	134	1.37	-
2480MHz	Pass	PK	2.4806G	110.73	Inf	-Inf	30.78	3	Vertical	134	1.37	-
2480MHz	Pass	PK	2.483502G	67.41	74.00	-6.59	30.79	3	Vertical	134	1.37	-
2480MHz	Pass	AV	4.96104G	25.55	54.00	-28.45	2.53	3	Horizontal	341	1.78	-
2480MHz	Pass	PK	4.96104G	45.55	74.00	-28.45	2.53	3	Horizontal	341	1.78	-
2480MHz	Pass	AV	4.96104G	24.21	54.00	-29.79	2.53	3	Vertical	360	1.21	-
2480MHz	Pass	PK	4.96104G	44.21	74.00	-29.79	2.53	3	Vertical	360	1.21	-

Zigbee

2405MHz_TX

16/11/2017

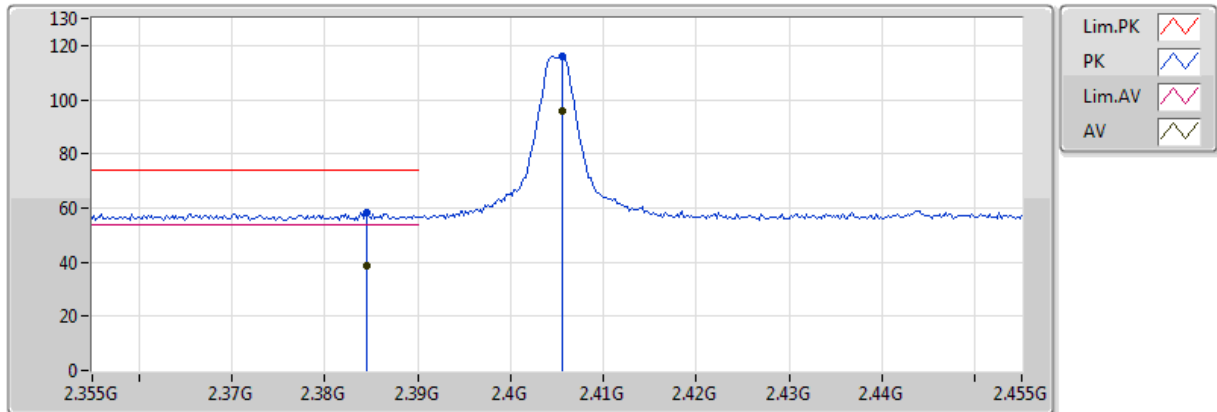


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3744G	33.59	54.00	-20.41	30.88	3	Vertical	133	1.72	-	2.71	27.27	3.61	-
AV	2.4056G	91.66	Inf	-Inf	30.99	3	Vertical	133	1.72	-	60.67	27.35	3.64	-
PK	2.3744G	53.59	74.00	-20.41	30.88	3	Vertical	133	1.72	-	22.71	27.27	3.61	-
PK	2.4056G	111.66	Inf	-Inf	30.99	3	Vertical	133	1.72	-	80.67	27.35	3.64	-

Zigbee

2405MHz_TX

16/11/2017

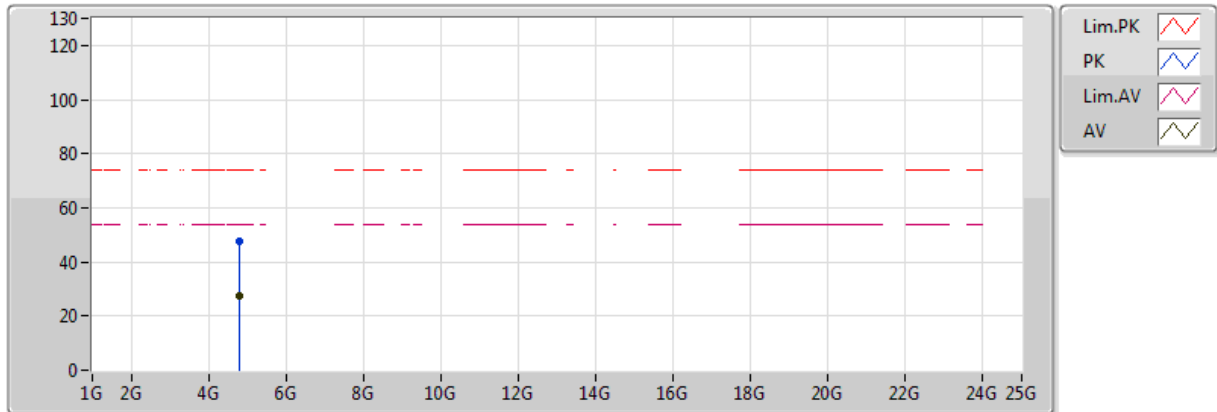


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3846G	38.39	54.00	-15.61	30.44	3	Horizontal	168	1.21	-	7.95	27.20	3.24	-
AV	2.4056G	95.87	Inf	-Inf	30.51	3	Horizontal	168	1.21	-	65.36	27.25	3.26	-
PK	2.3846G	58.39	74.00	-15.61	30.44	3	Horizontal	168	1.21	-	27.95	27.20	3.24	-
PK	2.4056G	115.87	Inf	-Inf	30.51	3	Horizontal	168	1.21	-	85.36	27.25	3.26	-

Zigbee

2405MHz_TX

16/11/2017

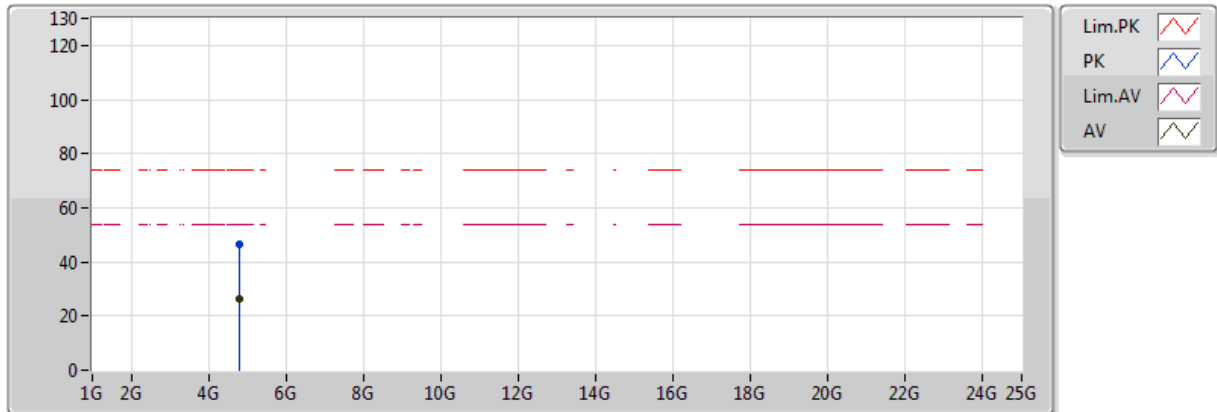


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.80882G	27.64	54.00	-26.36	2.06	3	Vertical	204	1.61	-	25.58	31.26	5.39	34.59
PK	4.80882G	47.64	74.00	-26.36	2.06	3	Vertical	204	1.61	-	45.58	31.26	5.39	34.59

Zigbee

2405MHz_TX

16/11/2017

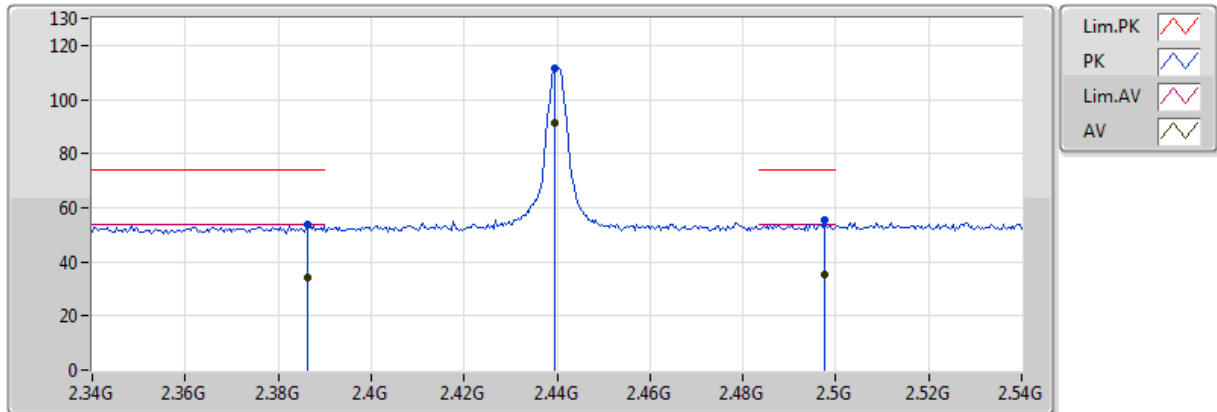


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.81102G	26.24	54.00	-27.76	2.06	3	Horizontal	42	1.76	-	24.18	31.26	5.39	34.59
PK	4.81102G	46.24	74.00	-27.76	2.06	3	Horizontal	42	1.76	-	44.18	31.26	5.39	34.59

Zigbee

2440MHz_TX

16/11/2017

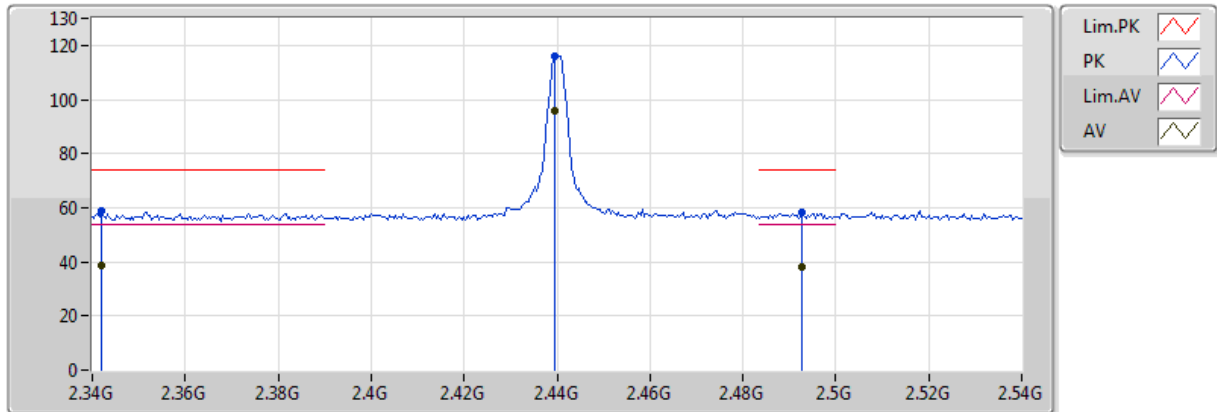


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	2.3864G	33.93	54.00	-20.07	30.92	3	Vertical	134	1.49	-	3.01	27.30	3.62	-
AV	2.4396G	91.50	Inf	-Inf	31.11	3	Vertical	134	1.49	-	60.39	27.44	3.67	-
AV	2.4976G	35.25	54.00	-18.75	31.32	3	Vertical	134	1.49	-	3.93	27.59	3.73	-
PK	2.3864G	53.93	74.00	-20.07	30.92	3	Vertical	134	1.49	-	23.01	27.30	3.62	-
PK	2.4396G	111.50	Inf	-Inf	31.11	3	Vertical	134	1.49	-	80.39	27.44	3.67	-
PK	2.4976G	55.25	74.00	-18.75	31.32	3	Vertical	134	1.49	-	23.93	27.59	3.73	-

Zigbee

2440MHz_TX

16/11/2017

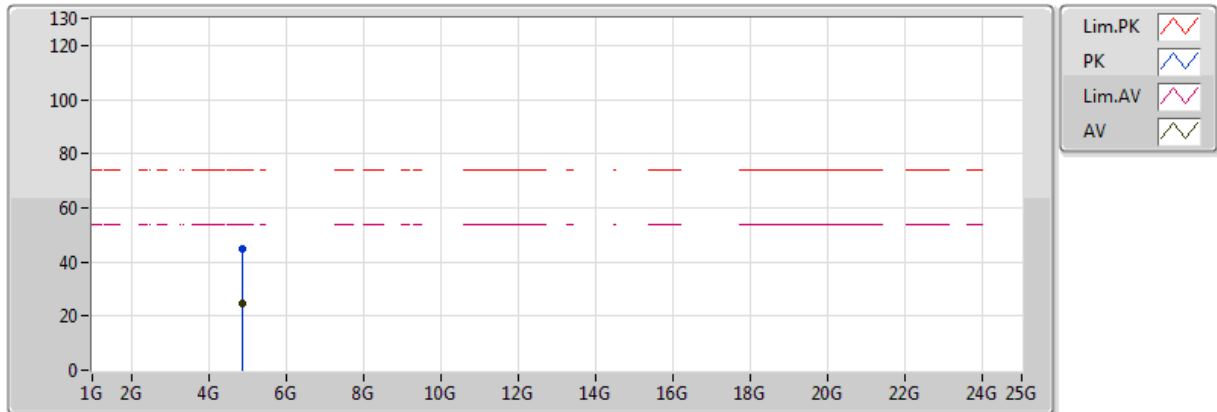


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.342G	38.93	54.00	-15.07	30.29	3	Horizontal	168	1.00	-	8.64	27.09	3.20	-
AV	2.4396G	95.79	Inf	-Inf	30.63	3	Horizontal	168	1.00	-	65.16	27.34	3.29	-
AV	2.4928G	38.07	54.00	-15.93	30.82	3	Horizontal	168	1.00	-	7.25	27.48	3.34	-
PK	2.342G	58.93	74.00	-15.07	30.29	3	Horizontal	168	1.00	-	28.64	27.09	3.20	-
PK	2.4396G	115.79	Inf	-Inf	30.63	3	Horizontal	168	1.00	-	85.16	27.34	3.29	-
PK	2.4928G	58.07	74.00	-15.93	30.82	3	Horizontal	168	1.00	-	27.25	27.48	3.34	-

Zigbee

2440MHz_TX

16/11/2017

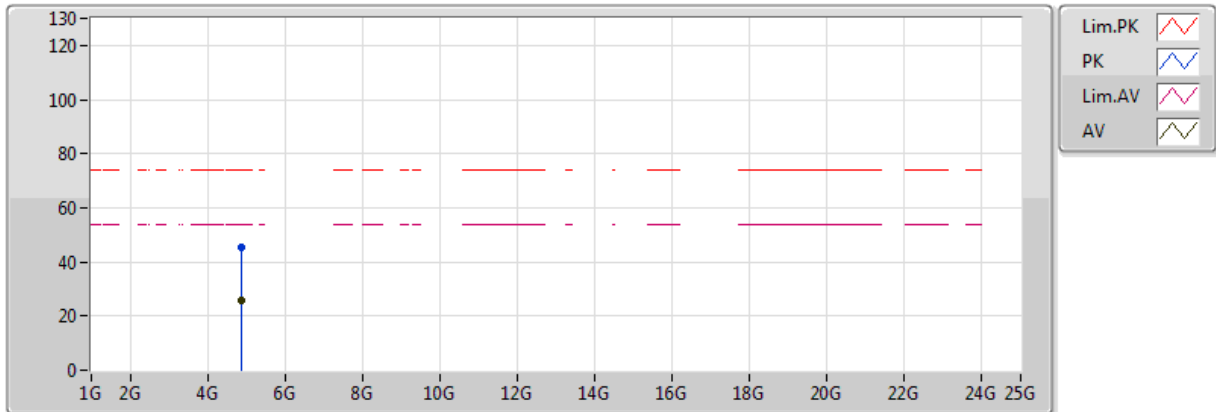


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.8812G	24.89	54.00	-29.11	2.28	3	Vertical	95	1.69	-	22.61	31.39	5.47	34.57
PK	4.8812G	44.89	74.00	-29.11	2.28	3	Vertical	95	1.69	-	42.61	31.39	5.47	34.57

Zigbee

2440MHz_TX

16/11/2017

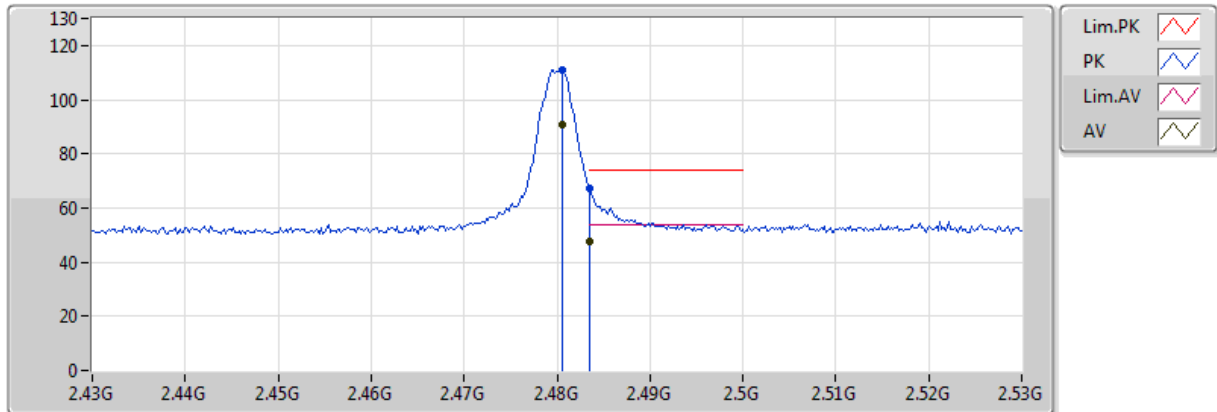


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.88114G	25.57	54.00	-28.43	2.28	3	Horizontal	17	2.47	-	23.29	31.39	5.47	34.57
PK	4.88114G	45.57	74.00	-28.43	2.28	3	Horizontal	17	2.47	-	43.29	31.39	5.47	34.57

Zigbee

2480MHz_TX

16/11/2017

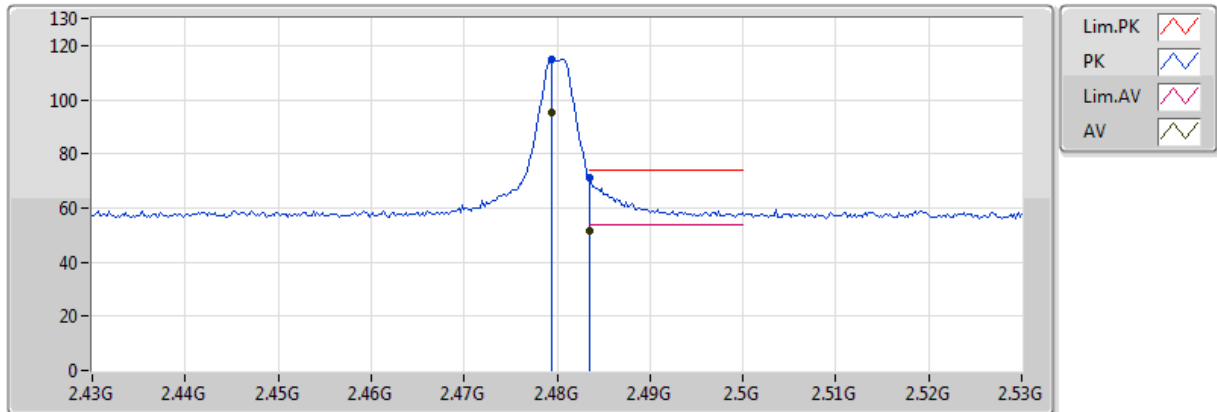


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.4806G	90.73	Inf	-Inf	30.78	3	Vertical	134	1.37	-	59.95	27.45	3.33	-
AV	2.483502G	47.41	54.00	-6.59	30.79	3	Vertical	134	1.37	-	16.62	27.46	3.33	-
PK	2.4806G	110.73	Inf	-Inf	30.78	3	Vertical	134	1.37	-	79.95	27.45	3.33	-
PK	2.483502G	67.41	74.00	-6.59	30.79	3	Vertical	134	1.37	-	36.62	27.46	3.33	-

Zigbee

2480MHz_TX

16/11/2017

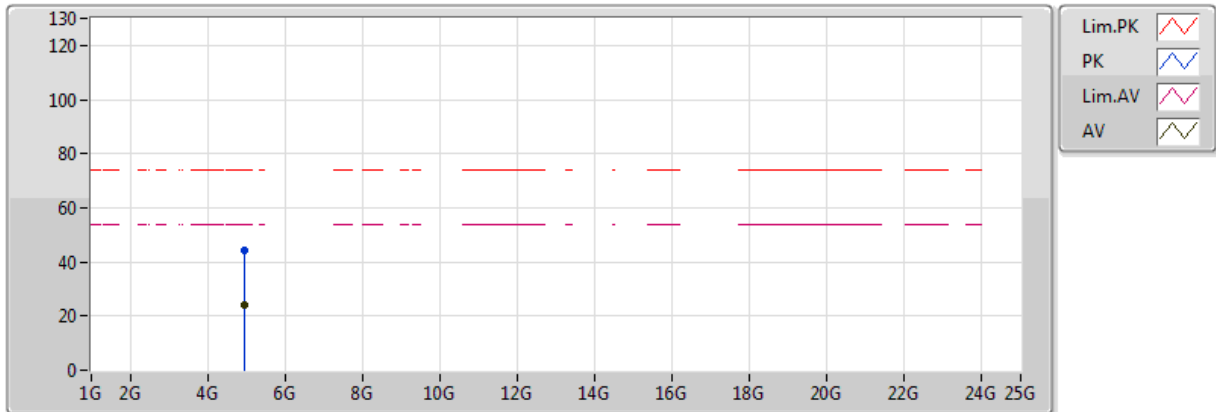


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.4794G	95.02	Inf	-Inf	30.78	3	Horizontal	148	2.03	-	64.24	27.45	3.33	-
AV	2.483502G	51.37	54.00	-2.63	30.79	3	Horizontal	148	2.03	-	20.58	27.46	3.33	-
PK	2.4794G	115.02	Inf	-Inf	30.78	3	Horizontal	148	2.03	-	84.24	27.45	3.33	-
PK	2.483502G	71.37	74.00	-2.63	30.79	3	Horizontal	148	2.03	-	40.58	27.46	3.33	-

Zigbee

2480MHz_TX

16/11/2017

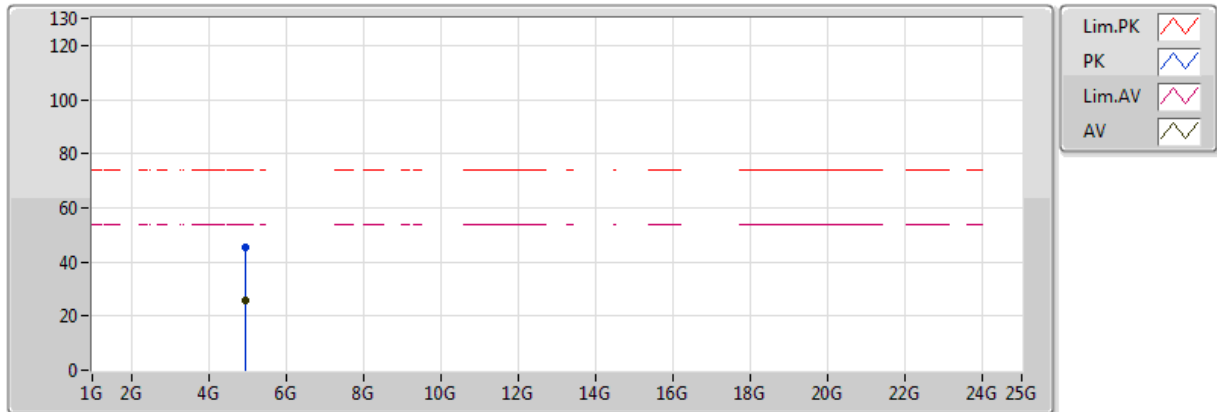


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.96104G	24.21	54.00	-29.79	2.53	3	Vertical	360	1.21	-	21.68	31.53	5.56	34.56
PK	4.96104G	44.21	74.00	-29.79	2.53	3	Vertical	360	1.21	-	41.68	31.53	5.56	34.56

Zigbee

2480MHz_TX

16/11/2017



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	4.96104G	25.55	54.00	-28.45	2.53	3	Horizontal	341	1.78	-	23.02	31.53	5.56	34.56
PK	4.96104G	45.55	74.00	-28.45	2.53	3	Horizontal	341	1.78	-	43.02	31.53	5.56	34.56



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	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	PK	54.25M	33.47	40.00	-6.53	-24.57	3	Horizontal	0	1.00	-

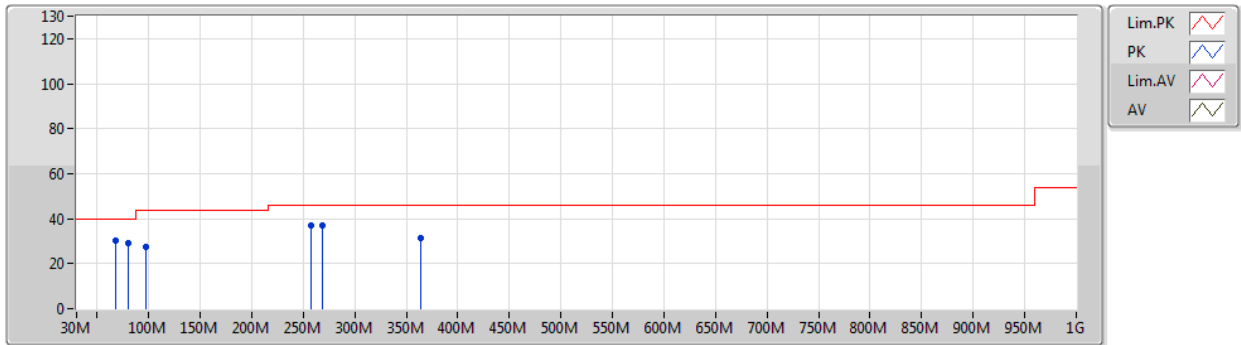
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	67.9M	30.50	40.00	-9.50	-24.97	3	Vertical	360	1.00	-
2440MHz	Pass	PK	79.6M	29.30	40.00	-10.70	-24.27	3	Vertical	360	1.00	-
2440MHz	Pass	PK	97.15M	27.22	43.50	-16.28	-20.62	3	Vertical	360	1.00	-
2440MHz	Pass	PK	257.05M	37.07	46.00	-8.93	-16.79	3	Vertical	360	1.00	-
2440MHz	Pass	PK	268.75M	37.03	46.00	-8.97	-16.95	3	Vertical	360	1.00	-
2440MHz	Pass	PK	364.3M	31.31	46.00	-14.69	-15.12	3	Vertical	360	1.00	-
2440MHz	Pass	PK	54.25M	33.47	40.00	-6.53	-24.57	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	65.95M	33.12	40.00	-6.88	-25.14	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	91.3M	32.58	43.50	-10.92	-21.82	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	292.15M	31.83	46.00	-14.17	-16.87	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	563.2M	33.63	46.00	-12.37	-11.23	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	598.3M	28.89	46.00	-17.11	-11.42	3	Horizontal	0	1.00	-

ZigbeeRX

2440MHz_Adapter

16/03/2020

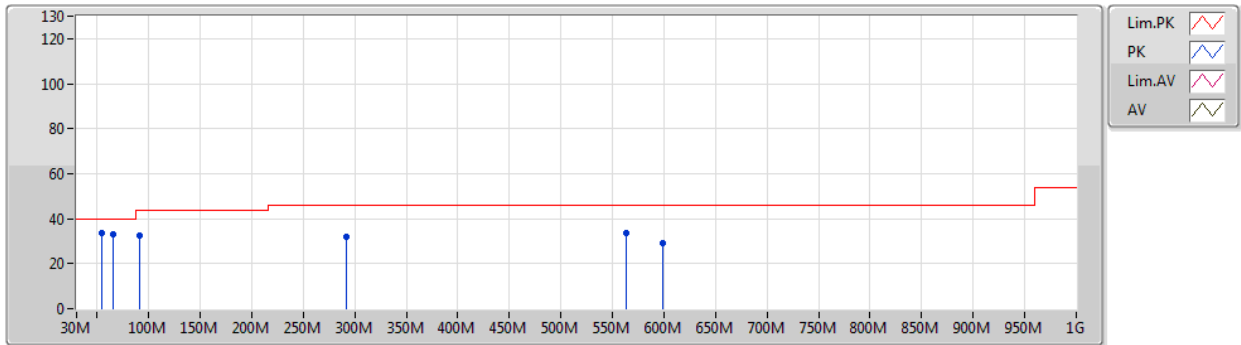


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	67.9M	30.50	40.00	-9.50	-24.97	3	Vertical	360	1.00	-	55.47	11.39	0.66	37.02
PK	79.6M	29.30	40.00	-10.70	-24.27	3	Vertical	360	1.00	-	53.57	11.93	0.73	36.93
PK	97.15M	27.22	43.50	-16.28	-20.62	3	Vertical	360	1.00	-	47.84	15.38	0.80	36.80
PK	257.05M	37.07	46.00	-8.93	-16.79	3	Vertical	360	1.00	-	53.86	18.33	1.31	36.43
PK	268.75M	37.03	46.00	-8.97	-16.95	3	Vertical	360	1.00	-	53.98	18.14	1.35	36.44
PK	364.3M	31.31	46.00	-14.69	-15.12	3	Vertical	360	1.00	-	46.43	19.85	1.61	36.58

ZigbeeRX

2440MHz_Adapter

16/03/2020



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
PK	54.25M	33.47	40.00	-6.53	-24.57	3	Horizontal	0	1.00	-	58.04	11.96	0.60	37.13
PK	65.95M	33.12	40.00	-6.88	-25.14	3	Horizontal	0	1.00	-	58.26	11.25	0.65	37.04
PK	91.3M	32.58	43.50	-10.92	-21.82	3	Horizontal	0	1.00	-	54.40	14.26	0.77	36.85
PK	292.15M	31.83	46.00	-14.17	-16.87	3	Horizontal	0	1.00	-	48.70	18.18	1.42	36.47
PK	563.2M	33.63	46.00	-12.37	-11.23	3	Horizontal	0	1.00	-	44.86	23.84	2.04	37.11
PK	598.3M	28.89	46.00	-17.11	-11.42	3	Horizontal	0	1.00	-	40.31	23.70	2.09	37.21



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	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee	Pass	AV	1.54G	37.66	54.00	-16.34	-4.66	3	Horizontal	0	1.00	-

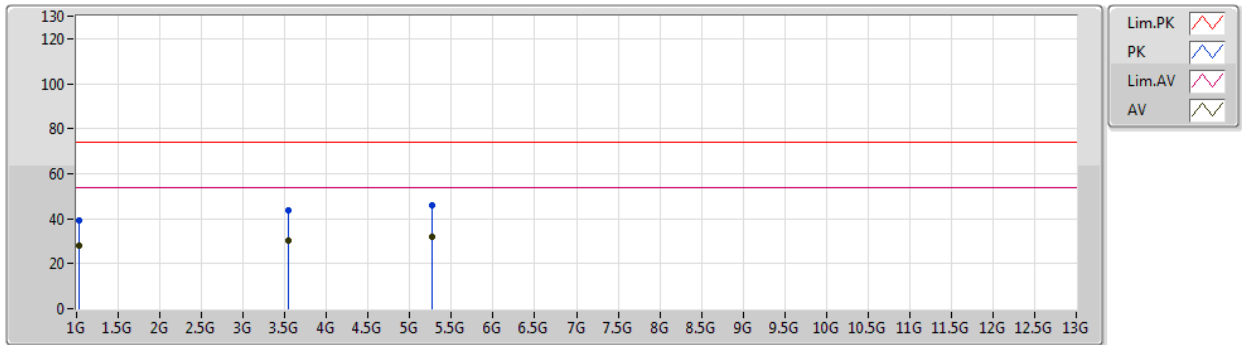
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	AV	1.03G	28.23	54.00	-25.77	-7.58	3	Vertical	360	1.00	-
2440MHz	Pass	AV	3.54G	30.13	54.00	-23.87	0.49	3	Vertical	360	1.00	-
2440MHz	Pass	AV	5.26G	32.18	54.00	-21.82	4.45	3	Vertical	360	1.00	-
2440MHz	Pass	PK	1.03G	39.07	74.00	-34.93	-7.58	3	Vertical	360	1.00	-
2440MHz	Pass	PK	3.54G	43.60	74.00	-30.40	0.49	3	Vertical	360	1.00	-
2440MHz	Pass	PK	5.26G	46.19	74.00	-27.81	4.45	3	Vertical	360	1.00	-
2440MHz	Pass	AV	1.54G	37.66	54.00	-16.34	-4.66	3	Horizontal	0	1.00	-
2440MHz	Pass	AV	4.24G	31.06	54.00	-22.94	2.28	3	Horizontal	0	1.00	-
2440MHz	Pass	AV	5.488G	32.38	54.00	-21.62	4.74	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	1.54G	42.08	74.00	-31.92	-4.66	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	4.24G	44.23	74.00	-29.77	2.28	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	5.488G	46.21	74.00	-27.79	4.74	3	Horizontal	0	1.00	-

ZigbeeRX

2440MHz_RX

16/03/2020

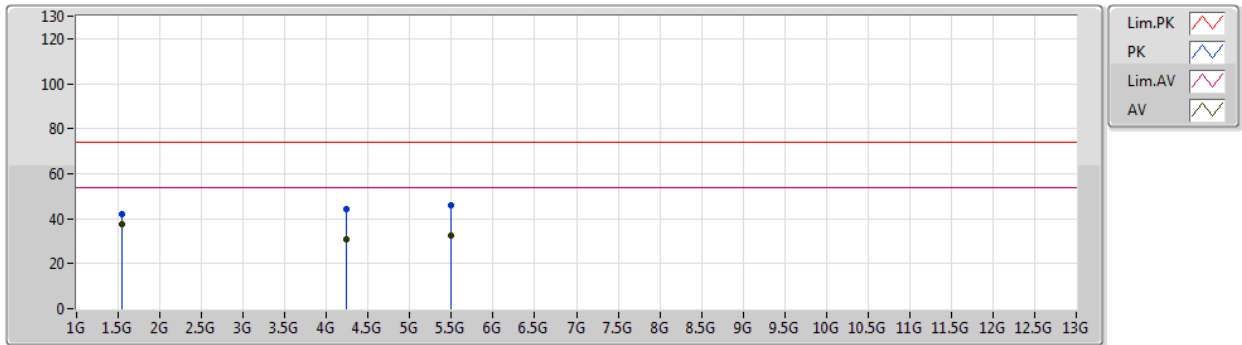


Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	1.03G	28.23	54.00	-25.77	-7.58	3	Vertical	360	1.00	-	35.81	24.47	3.01	35.06
AV	3.54G	30.13	54.00	-23.87	0.49	3	Vertical	360	1.00	-	29.64	28.73	5.78	34.02
AV	5.26G	32.18	54.00	-21.82	4.45	3	Vertical	360	1.00	-	27.73	31.56	6.95	34.06
PK	1.03G	39.07	74.00	-34.93	-7.58	3	Vertical	360	1.00	-	46.65	24.47	3.01	35.06
PK	3.54G	43.60	74.00	-30.40	0.49	3	Vertical	360	1.00	-	43.11	28.73	5.78	34.02
PK	5.26G	46.19	74.00	-27.81	4.45	3	Vertical	360	1.00	-	41.74	31.56	6.95	34.06

ZigbeeRX

2440MHz_RX

16/03/2020



Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comment	Raw (dBuV)	AF (dB)	CL (dB)	PA (dB)
AV	1.54G	37.66	54.00	-16.34	-4.66	3	Horizontal	0	1.00	-	42.32	25.65	3.69	34.00
AV	4.24G	31.06	54.00	-22.94	2.28	3	Horizontal	0	1.00	-	28.78	30.08	6.23	34.03
AV	5.488G	32.38	54.00	-21.62	4.74	3	Horizontal	0	1.00	-	27.64	31.78	7.03	34.07
PK	1.54G	42.08	74.00	-31.92	-4.66	3	Horizontal	0	1.00	-	46.74	25.65	3.69	34.00
PK	4.24G	44.23	74.00	-29.77	2.28	3	Horizontal	0	1.00	-	41.95	30.08	6.23	34.03
PK	5.488G	46.21	74.00	-27.79	4.74	3	Horizontal	0	1.00	-	41.47	31.78	7.03	34.07



Exposure Environment: General Population / Uncontrolled Exposure

For Zigbee

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;G1D	1.70	16.41	18.11	0.50	18.61	0.07261	20	0.01445	1.00000

1. Photographs of Conducted Emissions Test Configuration

Front view



Side view



Under Table View



2. Photographs of Radiated Emissions Test Configuration

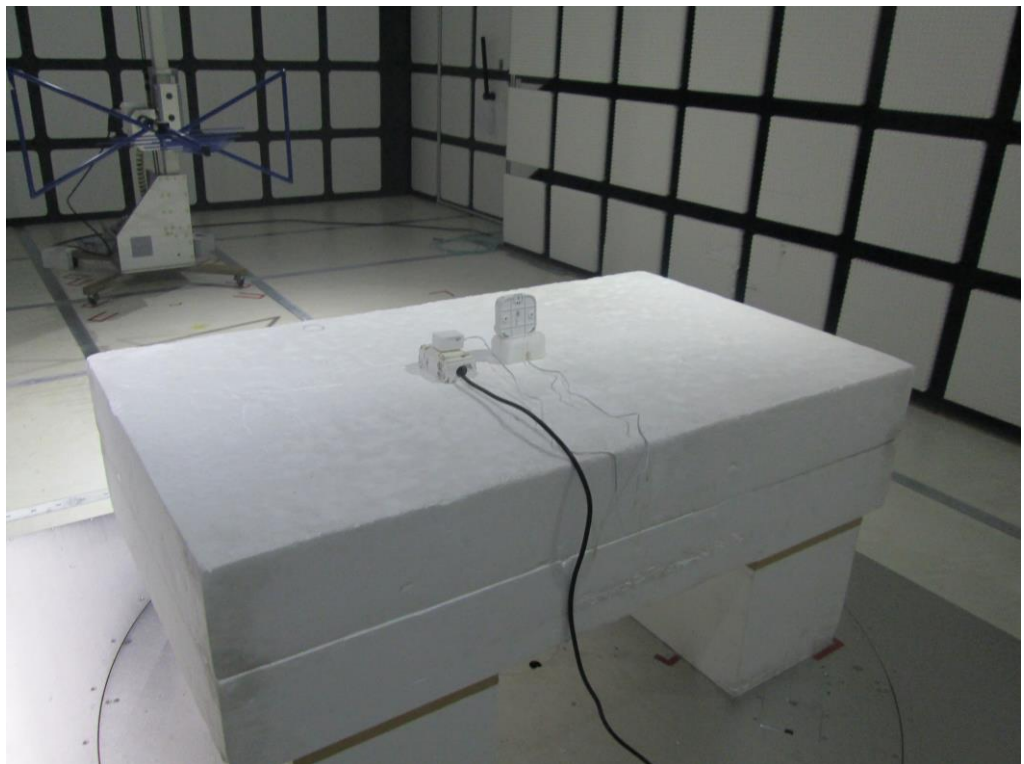
For radiated emissions below 1GHz

TX

Front view



Rear view

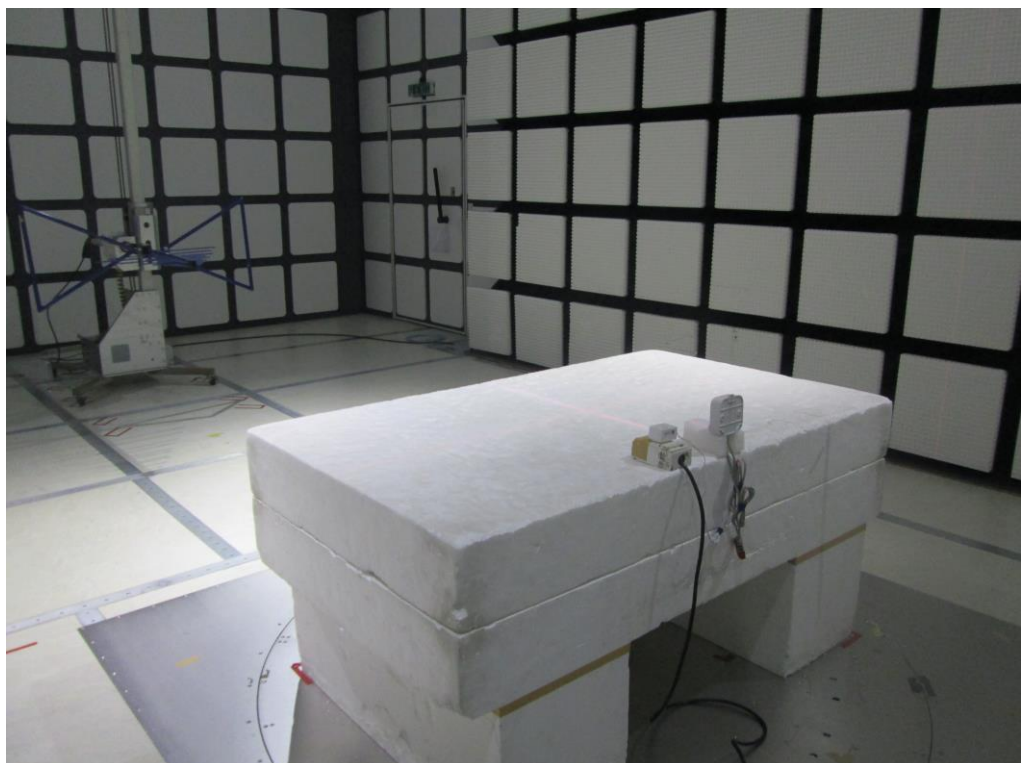


RX

Front view

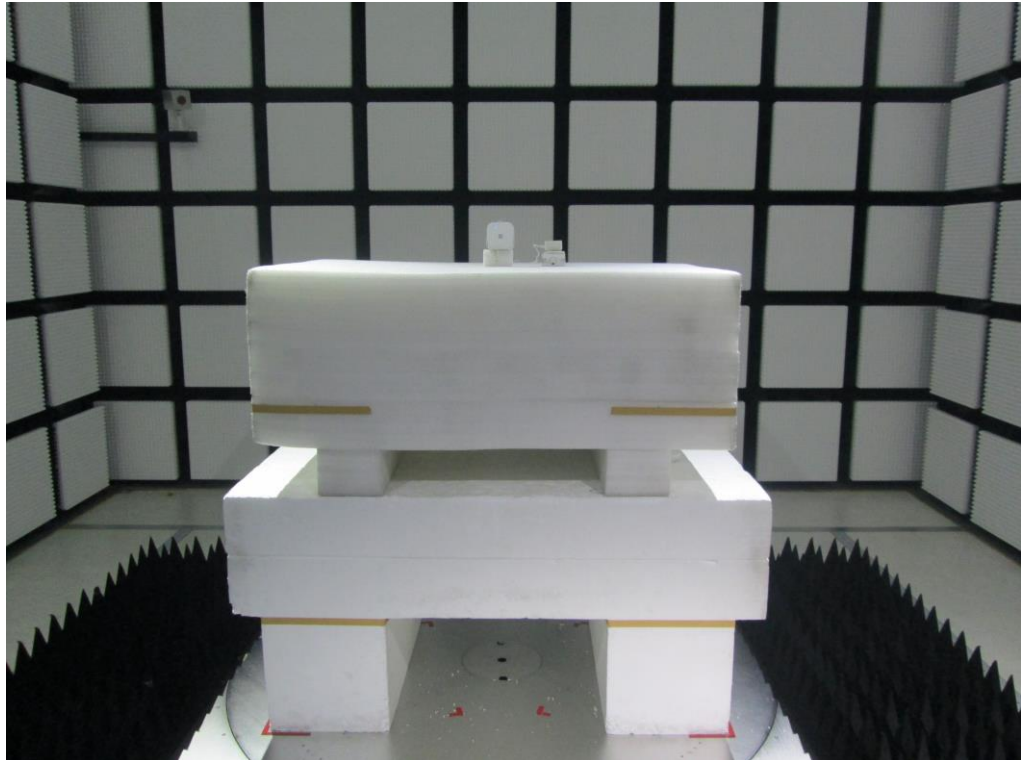


Rear view

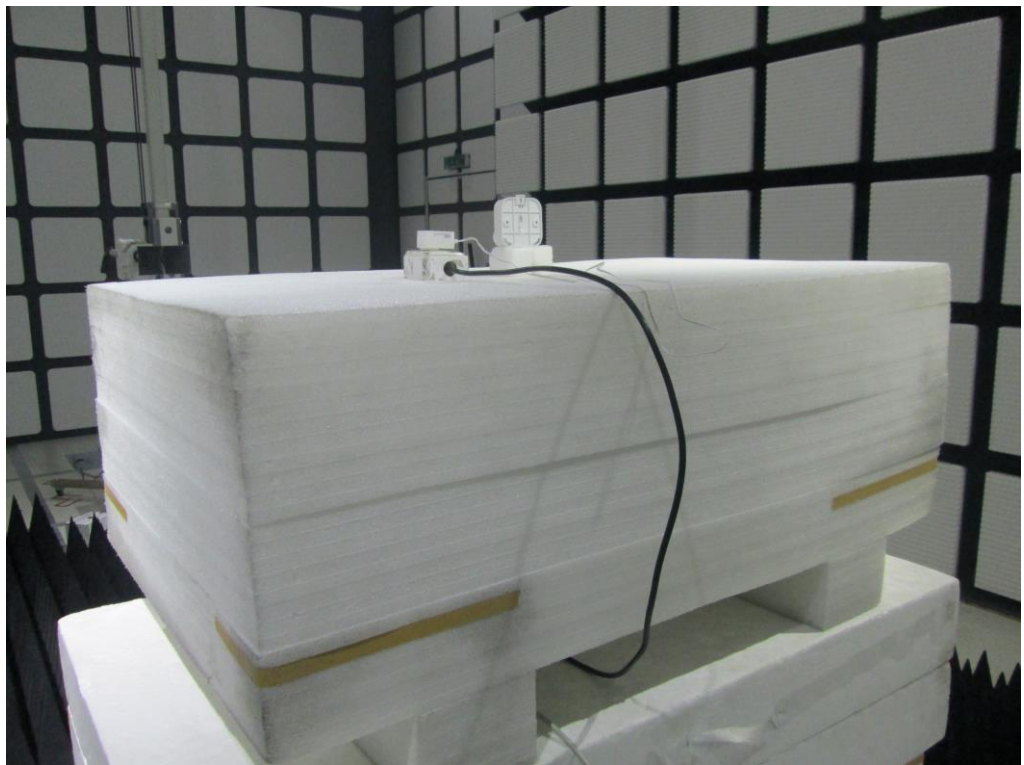


For radiated emissions above 1GHz
TX

Front view

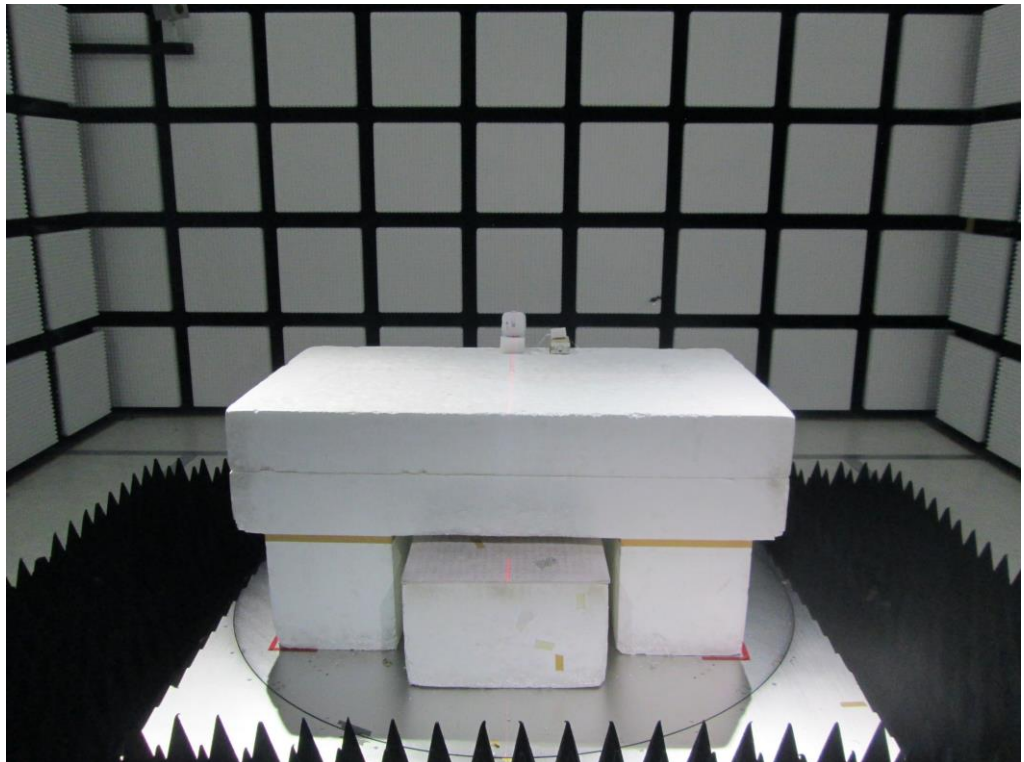


Rear view



RX

Front view



Rear view

