FCC Test Report

FCC ID	:	**UIDTG4482**
Equipment	:	**Wireless Gateway**
Brand Name	:	**ARRIS**
Model Name	:	**TG4482**
Applicant	:	**ARRIS** **3871 Lakefield Drive, Suite 300, Suwanee, GA 30024**
Manufacturer	:	**ARRIS** **3871 Lakefield Drive, Suite 300, Suwanee, GA 30024**
Standard	:	**47 CFR FCC Part 15.247**

The product was received on Oct. 14, 2019, and testing was started from Dec. 16, 2019 and completed on Mar. 06, 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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History of this test report

Report No.	Version	Description	Issued Date
FR992407AZ	01	Initial issue of report	Apr. 01, 2020

Summary of Test Result

Report Clause	Ref. Std. Clause	Test Items	Result (PASS/FAIL)	Remark
1.1.2	15.203	Antenna Requirement	PASS	-
3.1	15.207	AC Power-line Conducted Emissions	PASS	-
3.2	15.247(a)	DTS Bandwidth	PASS	-
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-
3.4	15.247(e)	Power Spectral Density	PASS	-
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and explanations:
None

Reviewed by: Sam Tsai
Report Producer: Ann Hou

1 General Description

1.1 Information

1.1.1 RF General Information

Frequency Range (MHz)	IEEE Std.	Ch. Frequency (MHz)	Channel Number	Max Output Power (dBm)
2400-2483.5	802.15.4	2405-2475	11-25 [15]	21.24

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

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

1.1.2 Antenna Information

Ant.	Port	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
5	1	Airgain	N01CPAEF	PIFA	I-PEX	4.7
6	2	Airgain	N01CPAEM	PIFA	I-PEX	6.2

For Zigbee function:

For Zigbee mode (1TX/1RX)

Ant. 5 (port 1) or Ant. 6 (port 2) could transmit/receive, the worst case was Ant. 6(port 2) and it was recorded in this test report.

1.1.3 EUT Information

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

1.1.4 Mode Test Duty Cycle

Mode	DC	DCF(dB)	T(s)	VBW(Hz) ≥ 1/T
Zigbee	1	0	n/a (DC>=0.98)	n/a (DC>=0.98)

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

1.2 Testing Applied Standards

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

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

1.3 Testing Location Information

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

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO04-HY	Edward	19.9~20.4°C / 60~65%	25/Feb/2020
RF Conducted	TH06-HY	Raven	22.4~25.1°C / 61~69%	17/Dec/2019~ 06/Mar/2020
Radiated	03CH03-HY	Patrick	21.5~26.5°C / 51~58%	16/Dec/2019~ 06/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)	0.9 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	2.4 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.0 dB	Confidence levels of 95%
Temperature	0.41 °C	Confidence levels of 95%
Humidity	3.4 %	Confidence levels of 95%

2 Test Configuration of EUT

2.1 Test Condition

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

2.2 Test Channel Mode

Test Software	Dos

Mode	Power Setting
Zigbee_1TX(Port2)	-
2405MHz	20
2440MHz	20
2475MHz	20

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	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
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	Adapter mode
Operating Mode > 1GHz	CTX
Orthogonal Planes of EUT	**Y Plane**
	

2.4 Accessories

Accessories				
AC Adapter	**Brand Name**	ARRIS	**Model Name**	NBC56A120460VU
	Power Rating	I/P: 100-240Vac, 1.5A, O/P: 12Vdc, 4.6A		
	Power Cord	1.85 meter, non-shielded cable, w/o ferrite core		

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

2.5 Support Equipment

Support Equipment – AC Conduction (Beamforming)					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Notebook	DELL	P73G	-	Remote
2	Adapter for Notebook	DELL	LA65NM130	-	Remote

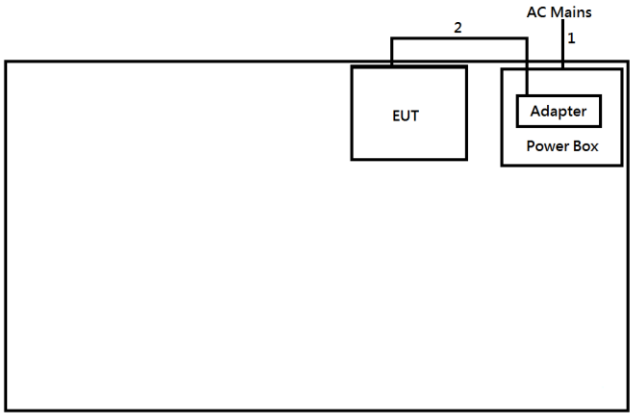
Support Equipment – Conducted (Non-Beamforming)					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Notebook	DELL	E5410	DoC	-
2	Adapter for Notebook	DELL	HA65NM130	DoC	-

Support Equipment – Conducted (Beamforming)					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Notebook	DELL	P73G	-	-
2	Adapter for Notebook	DELL	LA65NM130	DoC	-

Support Equipment – Radiated (Beamforming)					
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**	**Remark**
1	Notebook	DELL	P73G	-	Remote
2	Adapter for Notebook	DELL	LA65NM130	-	Remote

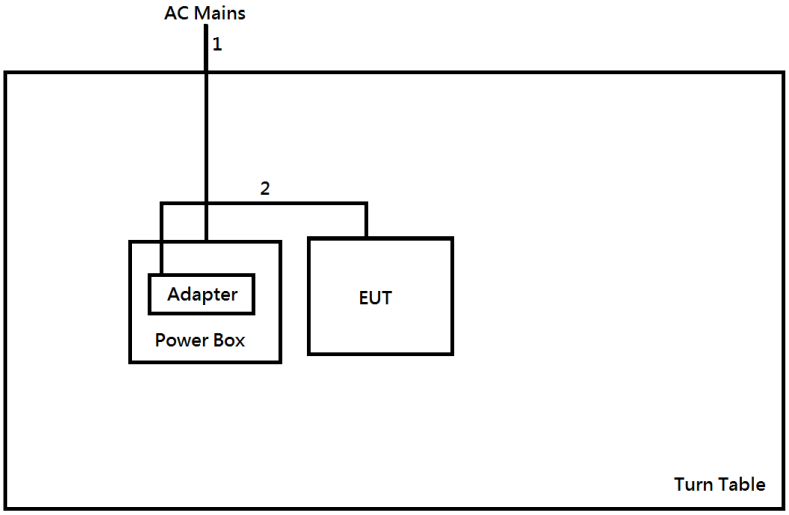
2.6 Test Setup Diagram

Test Setup Diagram – AC Line Conducted Emission Test



Item	Connection	Shielded	Length
1	AC Power cable	No	1.5m
2	DC Power cable	No	1.85m

Test Setup Diagram - Radiated Test



Item	Connection	Shielded	Length
1	AC Power cable	No	1.5m
2	DC Power cable	No	1.85m

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

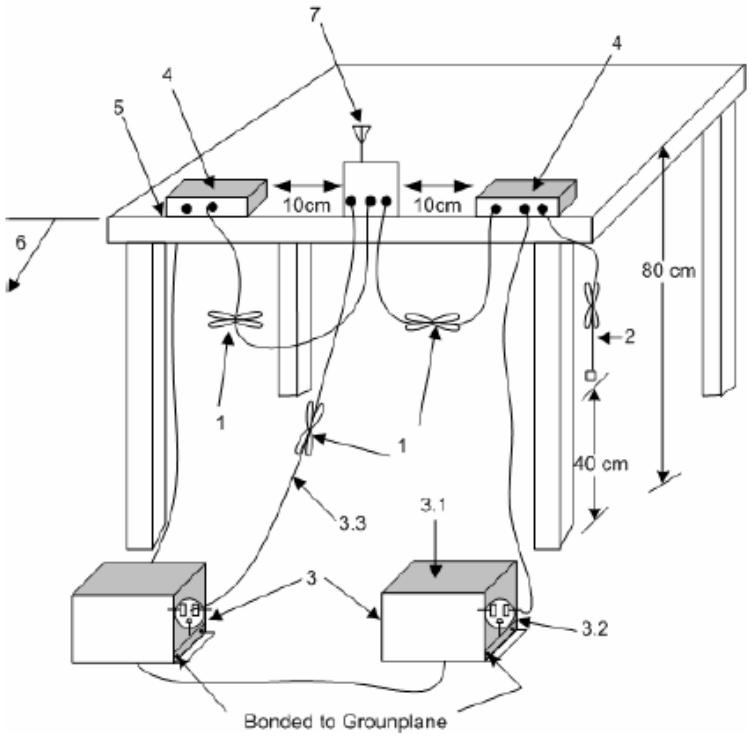
Refer a test equipment and calibration data table in this test report.

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

AC Power-line Conducted Emissions



1—Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 cm to 40 cm long.
2—The I/O cables that are not connected to an accessory shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3—EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50Ωloads. LISN may be placed on top of, or immediately beneath, reference ground plane.
3.1—All other equipment powered from additional LISN(s).
3.2—A multiple-outlet strip may be used for multiple power cords of non-EUT equipment.
3.3—LISN at least 80 cm from nearest part of EUT chassis.
4—Non-EUT components of EUT system being tested.
5—Rear of EUT, including peripherals, shall all be aligned and flush with edge of tabletop.
6—Edge of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.
7—Antenna can be integral or detachable. If detachable, then the antenna shall be attached for this test.

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 ≥ 500 kHz.

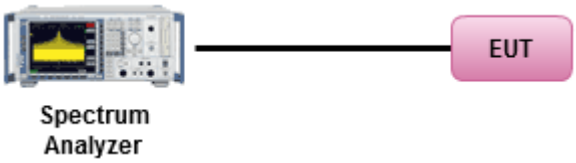
3.2.2 Measuring Instruments

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 for occupied bandwidth testing.
	☐ Refer as ANSI C63.10, clause 6.9.3 for occupied bandwidth testing.

3.2.4 Test Setup

Emission Bandwidth


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} ≤ 6 dBi, then P_{Out} ≤ 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 + 8dB dBm
e.i.r.p. Power Limit:		
▪ 2400-2483.5 MHz Band		
	▪ Point-to-multipoint systems (P2M): P_{eirp} ≤ 36 dBm (4 W)	
	▪ Point-to-point systems (P2P): P_{eirp} ≤ MAX(36, [P_{Out} + G_{TX}]) dBm	
	▪ Smart antenna system (SAS)	
		- Single beam: P_{eirp} ≤ MAX(36, P_{Out} + G_{TX}) dBm
		- Overlap beam: P_{eirp} ≤ MAX(36, P_{Out} + G_{TX}) dBm
		- Aggregate power on all beams: P_{eirp} ≤ 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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

Maximum Conducted Output Power (Power Meter)


3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

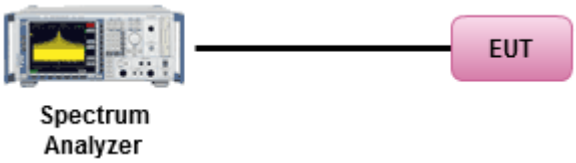
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method		
▪ Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).		
	☒ Refer as KDB 558074, clause 8.4 (11.10 of ANSI C63.10) Method PKPSD.	
▪ 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

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

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

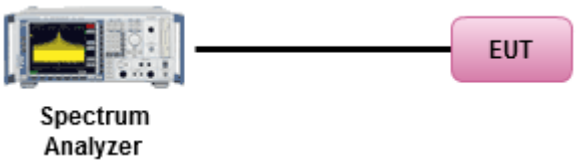
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

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

3.5.4 Test Setup

Emissions in Non-restricted Frequency Bands


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.

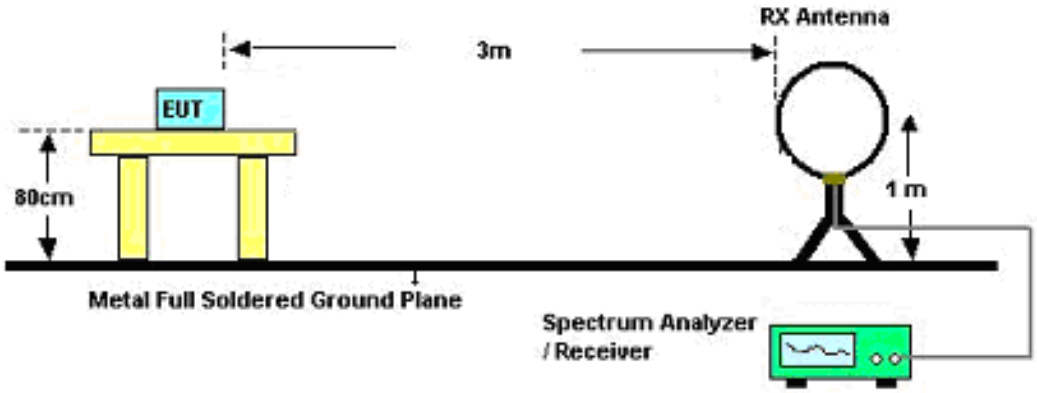
3.6.3 Test Procedures

Test Method	
▪ The average emission levels shall be measured in [duty cycle ≥ 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 (i.e., 1 MHz).
▪ 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 ≥ 1 GHz for peak measurement. For average measurement, refer as 1.1.4.
▪ KDB 414788 Open-Field Test Sites and Chamber Correlation Justification.	
	▪ Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in regulations; however, an attempt should be made to avoid making measurements in the near field.
	▪ Open-field site and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

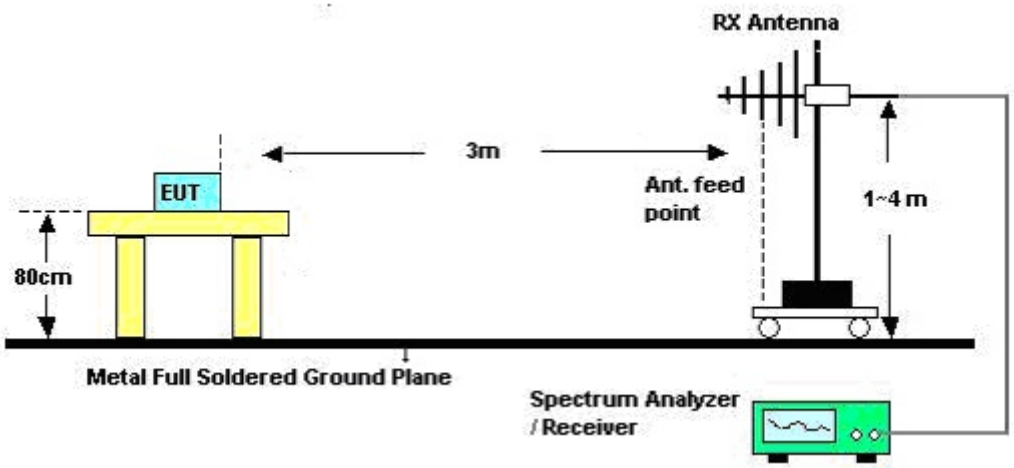
3.6.4 Test Setup

Emissions in Restricted Frequency Bands

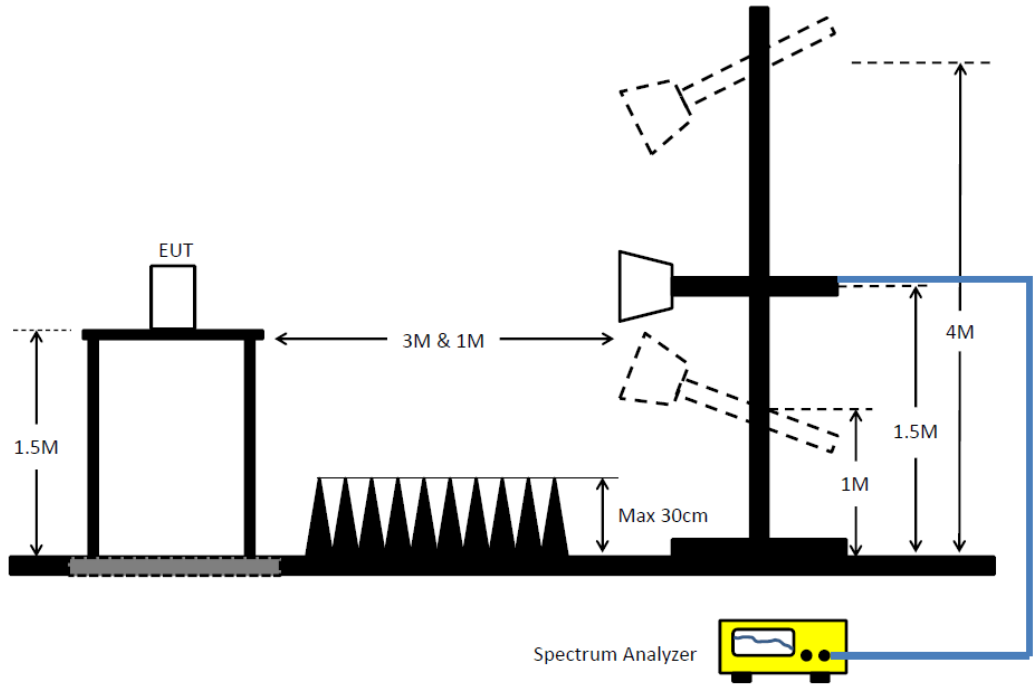
9kHz ~30MHz



30MHz~1GHz



Above 1GHz



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

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

3.6.6 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F

4 Test Equipment and Calibration Data

Instrument for AC Conduction

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

NCR: Non-Calibration Require

Instrument for Conducted Test

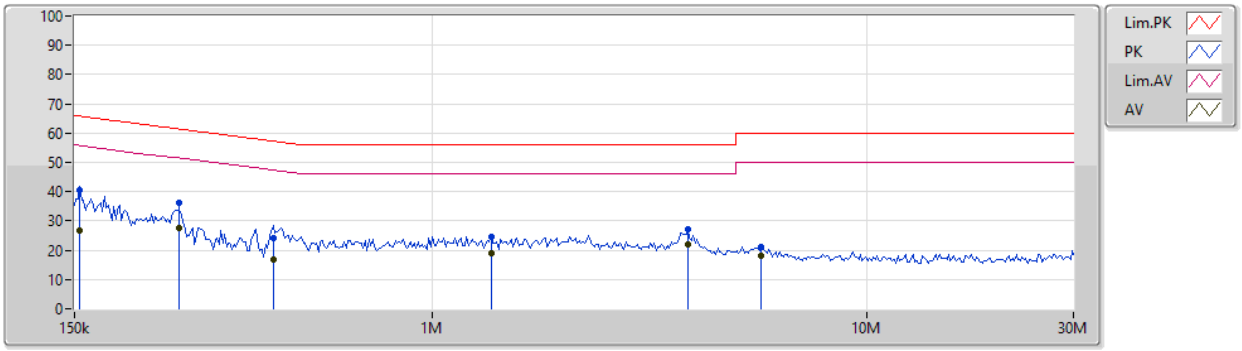
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101029	10kHz ~ 40GHz	01/Oct/2019	30/Sep/2020
Pulse Power Sensor	Anritsu	MA2411B	1027452	300MHz ~ 40GHz	14/Mar/2019	13/Mar/2020
Power Meter	Anritsu	ML2495A	1124009	300MHz ~ 40GHz	14/Mar/2019	13/Mar/2020
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	12/Nov/2018	10/Nov/2020
CABLE 0.2m	HUBER	329022/4	RF Cable - 02	30 to 1000MHz 1 to 18GHz	02/Apr/2019	01/Apr/2020
CABLE 0.2m	HUBER	329013/3	RF Cable - 18	30 to 1000MHz 1 to 18GHz	02/Apr/2019	01/Apr/2020
CABLE 0.5m	HUBER	MY39476/4	RF Cable - 47	30 to 1000MHz 1 to 18GHz	02/Apr/2019	01/Apr/2020

Instrument for Radiated Test

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	30/Aug/2019	29/Aug/2020
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	1GHz ~ 18GHz 3m	30/Aug/2019	29/Aug/2020
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	22/Apr/2019	21/Apr/2020
EMI Test Receiver	R&S	ESR3	102052	9kHz ~ 3.6GHz	09/Apr/2019	08/Apr/2020
Bilog Antenna & 5dB Attenuator	SCHAFFNER / MTJ	CBL 6112D / MTJ6102-05	2678 / 001	30MHz ~ 1GHz	06/Jul/2019	05/Jul/2020
Microwave System Preamplifier	KEYSIGHT	83017A	MY53270196	1GHz ~ 26.5GHz	09/Sep/2019	08/Sep/2020
Microwave Premplifier	EMC INSTRUMENTS	EM18G40G	060604	18GHz ~ 40GHz	08/Nov/2019	07/Nov/2020
Signal Analyzer	R&S	FSP40	100305	9 kHz ~ 40 GHz	10/Jun/2019	09/Jun/2020
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	22/Mar/2019	21/Mar/2020
RF CABLE 6m	HUBER+SUHNER	SUOFLEX 104	SN 805801/4	1GHz ~ 40GHz	21/Mar/2019	20/Mar/2020
RF CABLE	HUBER+SUHNER	SUOFLEX 104	802378/4	1 GHz ~ 18 GHz	04/Jul/2019	03/Jul/2020
Double Ridged Guide Horn Antenna	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1531	1GHz ~ 18GHz	09/Mar/2019	08/Mar/2020
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170221	15GHz ~ 40GHz	22/Mar/2019	21/Mar/2020
Loop Antenna	TESEQ	HLA 6120	31244	9k-30MHz	15/Mar/2019	14/Mar/2020

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	Adapter mode		

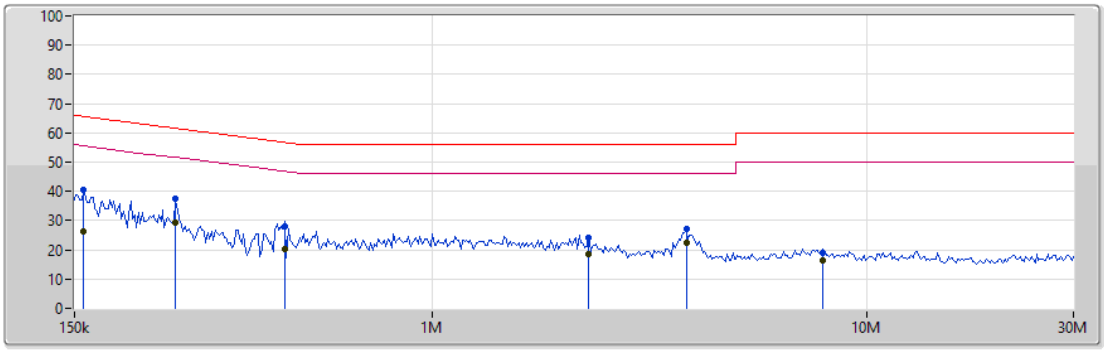
25/02/2020



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	154.545k	40.69	65.75	-25.06	19.63	Neutral	-	21.06	9.65	0.11	9.87
AV	154.545k	26.82	55.75	-28.93	19.63	Neutral	-	7.19	9.65	0.11	9.87
QP	261.871k	36.41	61.37	-24.96	19.63	Neutral	-	16.78	9.64	0.12	9.87
AV	261.871k	27.46	51.37	-23.91	19.63	Neutral	-	7.83	9.64	0.12	9.87
QP	430.682k	24.00	57.24	-33.24	19.63	Neutral	-	4.37	9.63	0.13	9.87
AV	430.682k	17.00	47.24	-30.24	19.63	Neutral	-	-2.63	9.63	0.13	9.87
QP	1.366M	24.40	56.00	-31.60	19.65	Neutral	-	4.75	9.64	0.13	9.88
AV	1.366M	19.18	46.00	-26.82	19.65	Neutral	-	-0.47	9.64	0.13	9.88
QP	3.883M	27.06	56.00	-28.94	19.73	Neutral	-	7.33	9.66	0.19	9.88
AV	3.883M	22.11	46.00	-23.89	19.73	Neutral	"Worst"	2.38	9.66	0.19	9.88
QP	5.724M	21.30	60.00	-38.70	19.77	Neutral	-	1.53	9.68	0.21	9.88
AV	5.724M	18.05	50.00	-31.95	19.77	Neutral	-	-1.72	9.68	0.21	9.88

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	Adapter mode		

25/02/2020



Type	Freq	Level	Limit	Margin	Factor	Condition	Comment	Raw	LISN	CL	AT
	(Hz)	(dBuV)	(dBuV)	(dB)	(dB)			(dBuV)	(dB)	(dB)	(dB)
QP	157.652k	40.64	65.58	-24.94	19.64	Line	-	21.00	9.66	0.11	9.87
AV	157.652k	26.19	55.58	-29.39	19.64	Line	-	6.55	9.66	0.11	9.87
QP	256.712k	37.43	61.54	-24.11	19.64	Line	-	17.79	9.65	0.12	9.87
AV	256.712k	29.42	51.54	-22.12	19.64	Line	"Worst"	9.78	9.65	0.12	9.87
QP	457.178k	28.20	56.75	-28.55	19.64	Line	-	8.56	9.64	0.13	9.87
AV	457.178k	20.10	46.75	-26.65	19.64	Line	-	0.46	9.64	0.13	9.87
QP	2.292M	23.99	56.00	-32.01	19.68	Line	-	4.31	9.65	0.16	9.87
AV	2.292M	18.46	46.00	-27.54	19.68	Line	-	-1.22	9.65	0.16	9.87
QP	3.845M	27.34	56.00	-28.66	19.73	Line	-	7.61	9.66	0.19	9.88
AV	3.845M	22.54	46.00	-23.46	19.73	Line	-	2.81	9.66	0.19	9.88
QP	7.949M	19.10	60.00	-40.90	19.81	Line	-	-0.71	9.68	0.25	9.88
AV	7.949M	16.30	50.00	-33.70	19.81	Line	-	-3.51	9.68	0.25	9.88

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
2.4-2.4835GHz	-	-	-	-	-
Zigbee_1TX(Port2)	1.669M	2.259M	2M26G1D	1.644M	2.244M

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)	Port 2-N dB (Hz)	Port 2-OBW (Hz)
Zigbee_1TX(Port2)	-	-	-	-	-	-
2405MHz	Pass	500k			1.669M	2.244M
2440MHz	Pass	500k			1.644M	2.249M
2475MHz	Pass	500k			1.663M	2.259M

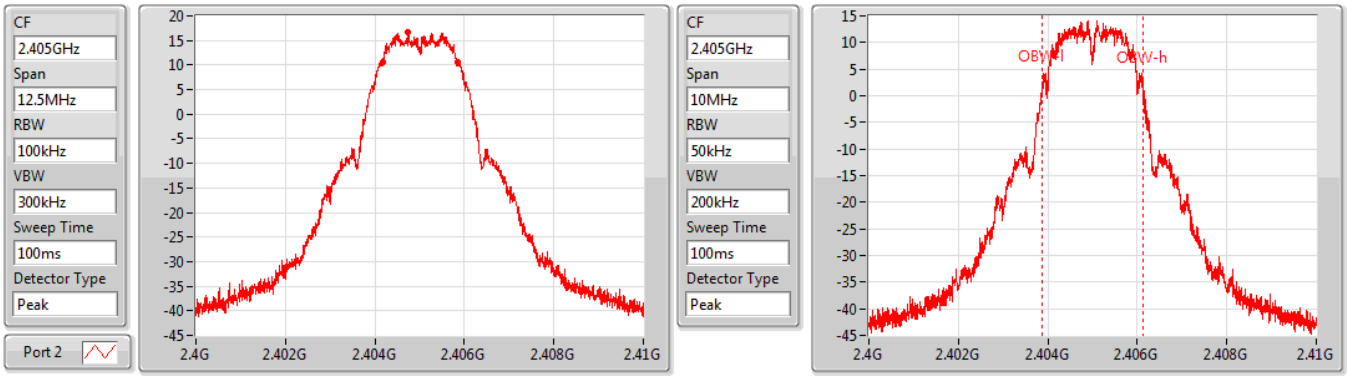
Port X-N dB = Port **X** 6dB down bandwidth; **Port X-OBW** = Port **X** 99% occupied bandwidth;

Zigbee_1TX(Port2)

EBW

2405MHz

24/12/2019



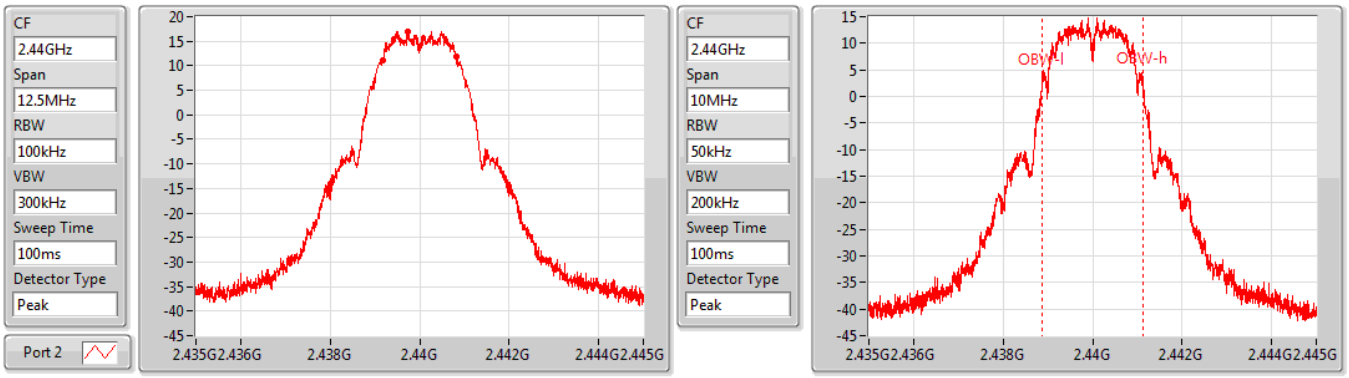
6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.669M	2.404175G	2.405844G	2.244M	2.403876G	2.406119G	500k	2

Zigbee_1TX(Port2)

EBW

2440MHz

24/12/2019

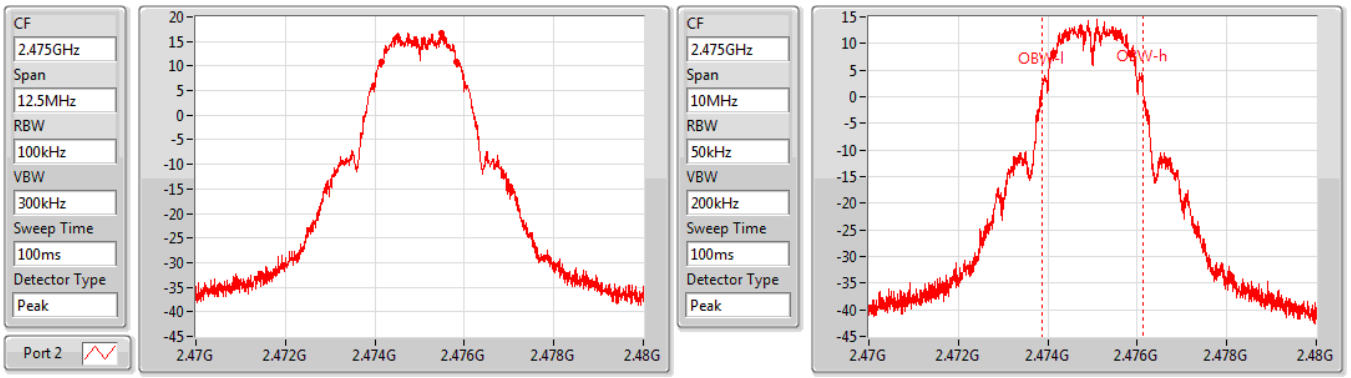


6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.644M	2.439169G	2.440813G	2.249M	2.438871G	2.441119G	500k	2

Zigbee_1TX(Port2) **EBW**

2475MHz

24/12/2019



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
1.663M	2.474163G	2.475825G	2.259M	2.473866G	2.476124G	500k	2

Summary

Mode	Total Power (dBm)	Total Power (W)
2.4-2.4835GHz	-	-
Zigbee_1TX(Port2)	21.24	0.13305

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)
Zigbee_1TX(Port2)	-	-	-	-	-	-
2405MHz	Pass	6.20		20.85	20.85	29.80
2440MHz	Pass	6.20		21.24	21.24	29.80
2475MHz	Pass	6.20		21.05	21.05	29.80

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

Summary

Mode	PD (dBm/RBW)
2.4-2.4835GHz	-
Zigbee_1TX(Port2)	5.07

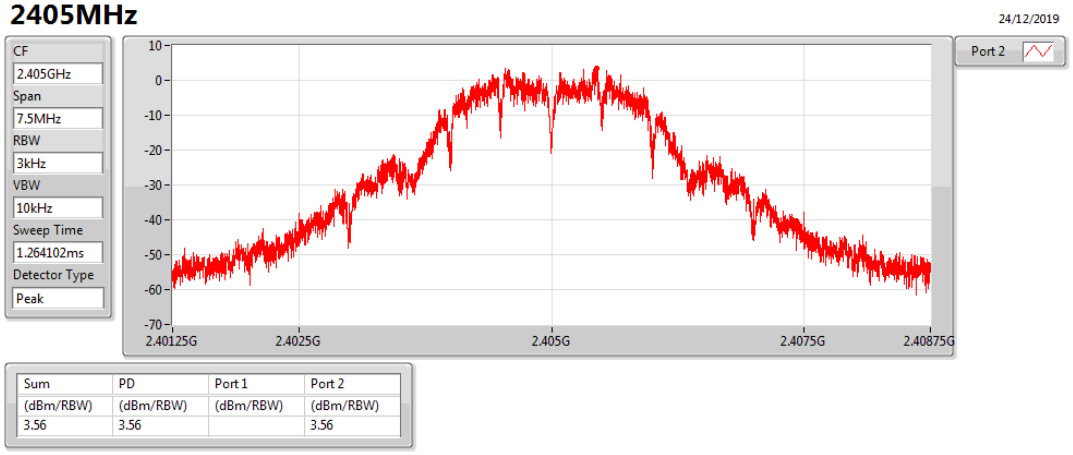
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)
Zigbee_1TX(Port2)	-	-	-	-	-	-
2405MHz	Pass	6.20		3.56	3.56	7.80
2440MHz	Pass	6.20		5.07	5.07	7.80
2475MHz	Pass	6.20		4.54	4.54	7.80

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

Zigbee_1TX(Port2) PSD

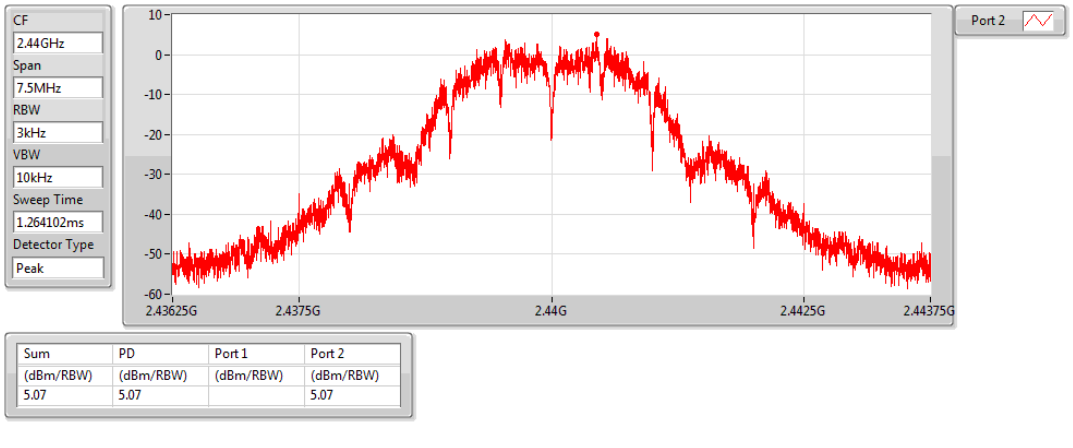
2405MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
3.56	3.56		3.56

Zigbee_1TX(Port2) PSD

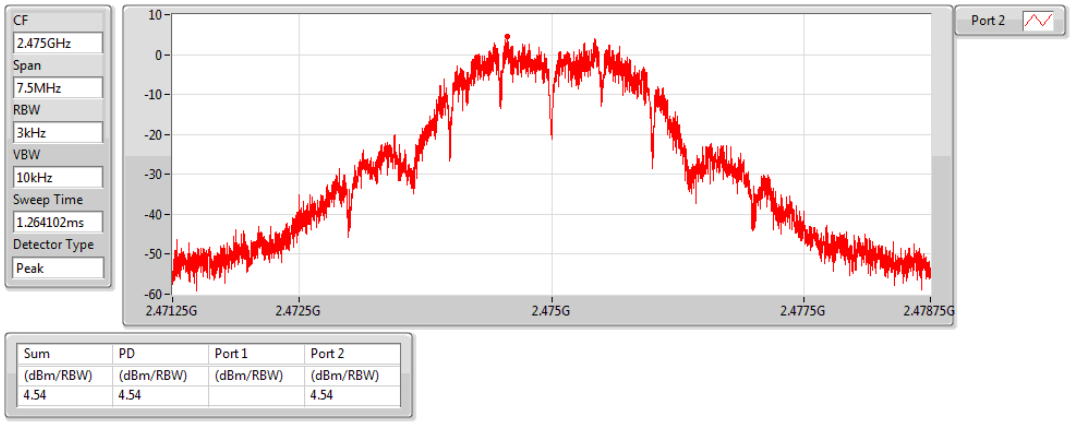
2440MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
5.07	5.07		5.07

Zigbee_1TX(Port2) PSD

2475MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.54	4.54		4.54

Summary

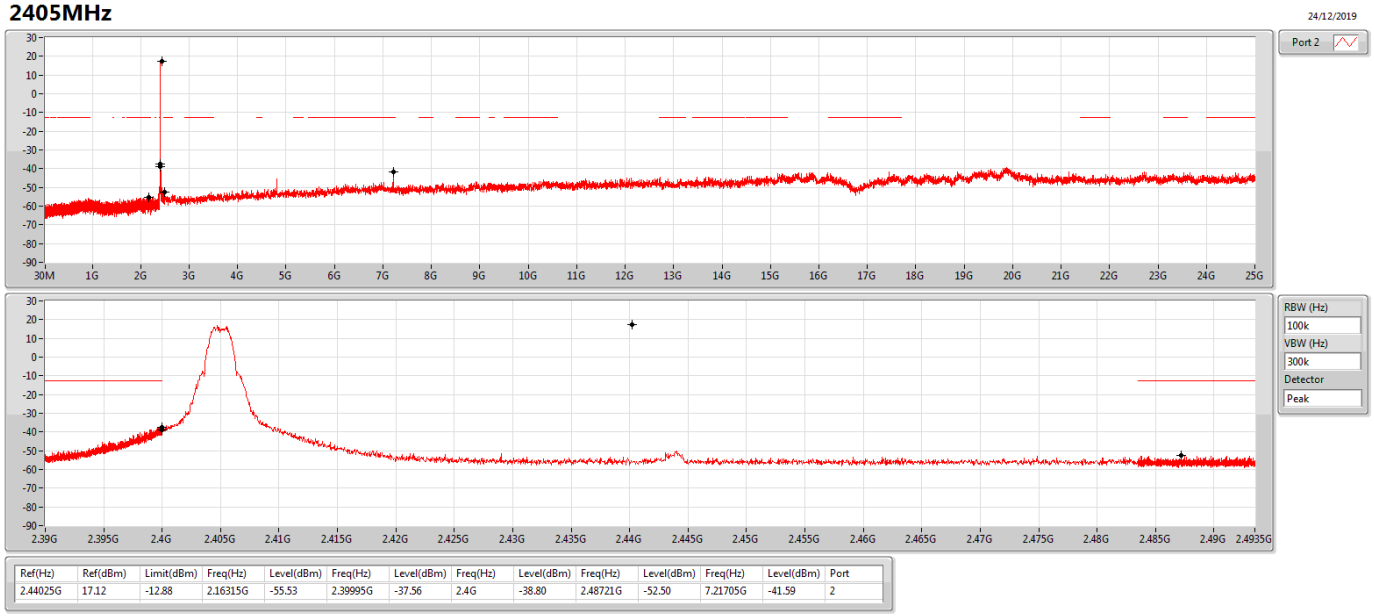
Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zigbee_1TX(Port2)	Pass	2.44025G	17.12	-12.88	2.16315G	-55.53	2.39995G	-37.56	2.4G	-38.80	2.48721G	-52.50	7.21705G	-41.59	2

Result

Mode	Result	Ref (Hz)	Ref (dBm)	Limit (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Freq (Hz)	Level (dBm)	Port
Zigbee_1TX(Port2)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	2.44025G	17.12	-12.88	2.16315G	-55.53	2.39995G	-37.56	2.4G	-38.80	2.48721G	-52.50	7.21705G	-41.59	2
2440MHz	Pass	2.44025G	17.12	-12.88	1.99175G	-55.45	2.39872G	-52.90	2.4G	-55.62	2.49252G	-52.40	23.24449G	-41.71	2
2475MHz	Pass	2.44025G	17.12	-12.88	2.14397G	-55.29	2.39233G	-53.30	2.4835G	-44.47	2.48394G	-42.49	24.87621G	-41.68	2

Zigbee_1TX(Port2) **CSE NdB**

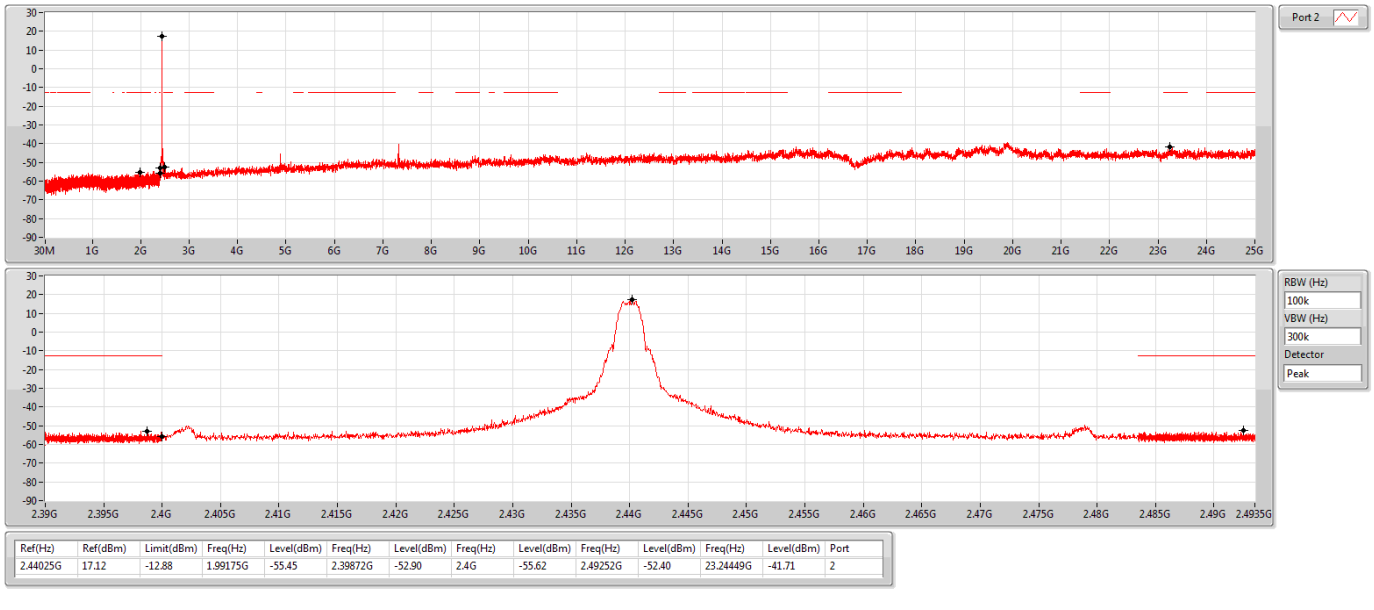
2405MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44025G	17.12	-12.88	2.16315G	-55.53	2.39995G	-37.56	2.4G	-38.80	2.48721G	-52.50	7.21705G	-41.59	2

Zigbee_1TX(Port2) **CSE NdB**

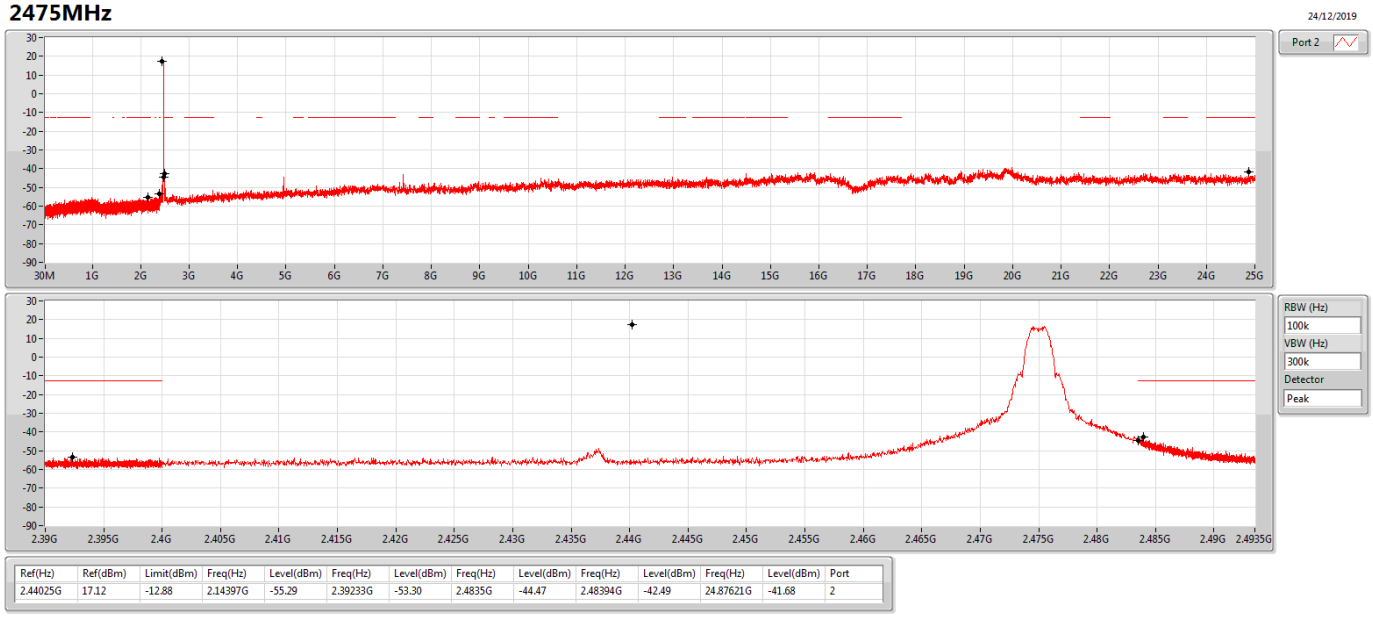
2440MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44025G	17.12	-12.88	1.99175G	-55.45	2.39872G	-52.90	2.4G	-55.62	2.49252G	-52.40	23.24449G	-41.71	2

Zigbee_1TX(Port2) **CSE NdB**

2475MHz



Ref(Hz)	Ref(dBm)	Limit(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Freq(Hz)	Level(dBm)	Port
2.44025G	17.12	-12.88	2.14397G	-55.29	2.39233G	-53.30	2.4835G	-44.47	2.48394G	-42.49	24.87621G	-41.68	2

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee_1TX(Port2)	Pass	PK	835.1M	41.69	46.00	-4.31	3	Horizontal	0	1.00	-

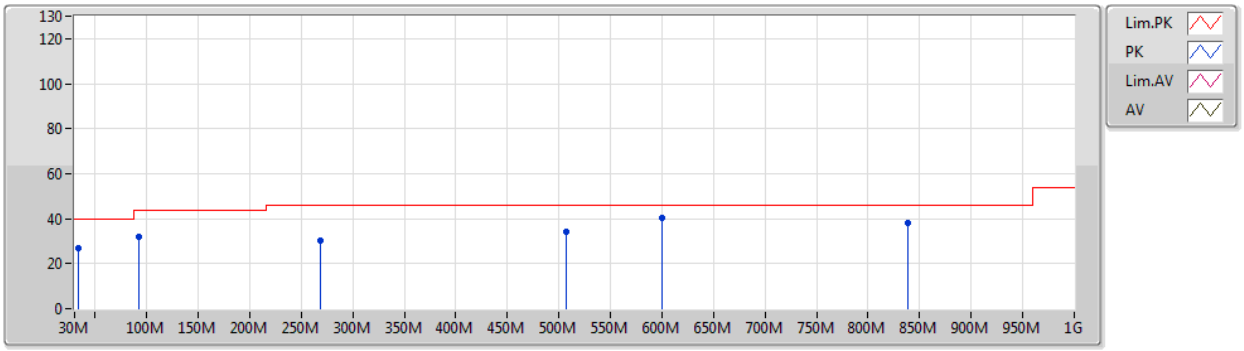
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee_1TX(Port2)	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	33.88M	26.82	40.00	-13.18	3	Vertical	360	1.00	-
2440MHz	Pass	PK	92.08M	31.72	43.50	-11.78	3	Vertical	360	1.00	-
2440MHz	Pass	PK	268.62M	30.19	46.00	-15.81	3	Vertical	360	1.00	-
2440MHz	Pass	PK	507.24M	34.32	46.00	-11.68	3	Vertical	360	1.00	-
2440MHz	Pass	PK	600.36M	40.45	46.00	-5.55	3	Vertical	360	1.00	-
2440MHz	Pass	PK	838.98M	38.21	46.00	-7.79	3	Vertical	360	1.00	-
2440MHz	Pass	PK	41.64M	24.68	40.00	-15.32	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	92.08M	27.37	43.50	-16.13	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	253.1M	30.47	46.00	-15.53	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	353.98M	29.92	46.00	-16.08	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	650.8M	35.82	46.00	-10.18	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	835.1M	41.69	46.00	-4.31	3	Horizontal	0	1.00	-

Zigbee_1TX(Port2)

2440MHz_Adapter

30/12/2019

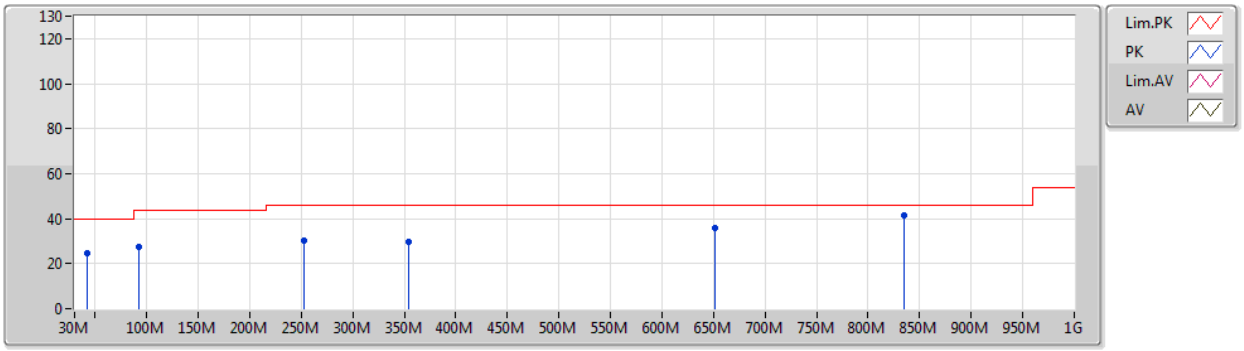


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	33.88M	26.82	40.00	-13.18	-6.72	3	Vertical	360	1.00	-	33.54	19.98	0.86	27.56
PK	92.08M	31.72	43.50	-11.78	-11.45	3	Vertical	360	1.00	-	43.17	14.50	1.45	27.40
PK	268.62M	30.19	46.00	-15.81	-5.99	3	Vertical	360	1.00	-	36.18	18.15	2.58	26.72
PK	507.24M	34.32	46.00	-11.68	-1.60	3	Vertical	360	1.00	-	35.92	22.63	3.63	27.86
PK	600.36M	40.45	46.00	-5.55	-0.24	3	Vertical	360	1.00	-	40.69	23.73	4.08	28.05
PK	838.98M	38.21	46.00	-7.79	2.33	3	Vertical	360	1.00	-	35.88	25.24	4.85	27.76

Zigbee_1TX(Port2)

30/12/2019

2440MHz_Adapter



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
PK	41.64M	24.68	40.00	-15.32	-9.93	3	Horizontal	0	1.00	-	34.61	16.65	0.95	27.53
PK	92.08M	27.37	43.50	-16.13	-11.45	3	Horizontal	0	1.00	-	38.82	14.50	1.45	27.40
PK	253.1M	30.47	46.00	-15.53	-6.38	3	Horizontal	0	1.00	-	36.85	17.86	2.50	26.74
PK	353.98M	29.92	46.00	-16.08	-4.41	3	Horizontal	0	1.00	-	34.33	19.60	2.99	27.00
PK	650.8M	35.82	46.00	-10.18	0.04	3	Horizontal	0	1.00	-	35.78	23.98	4.18	28.12
PK	835.1M	41.69	46.00	-4.31	2.27	3	Horizontal	0	1.00	-	39.42	25.20	4.84	27.77

Summary

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-
Zigbee_1TX(Port2)	Pass	AV	2.4835G	51.52	54.00	-2.48	3	Horizontal	170	2.00	-

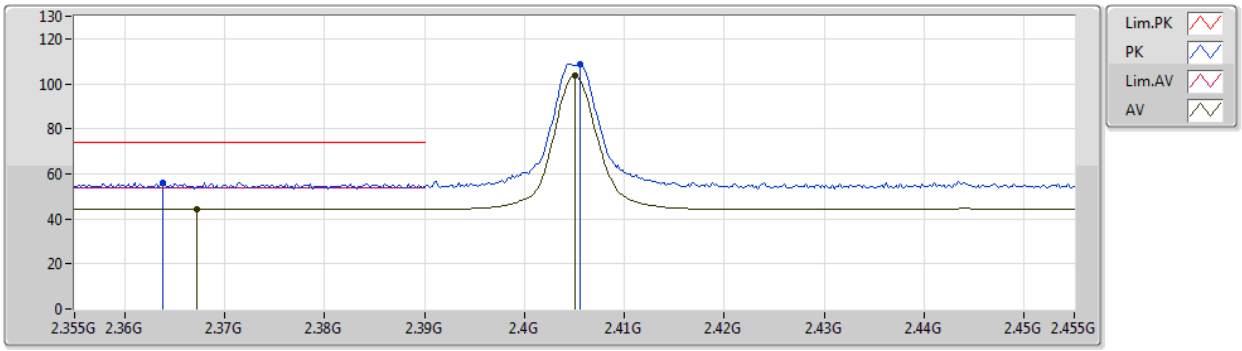
Result

Mode	Result	Type	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Dist (m)	Condition	Azimuth (°)	Height (m)	Comments
Zigbee_1TX(Port2)	-	-	-	-	-	-	-	-	-	-	-
2405MHz	Pass	AV	2.3672G	44.30	54.00	-9.70	3	Vertical	184	1.71	-
2405MHz	Pass	AV	2.405G	103.85	Inf	-Inf	3	Vertical	184	1.71	-
2405MHz	Pass	PK	2.3638G	56.17	74.00	-17.83	3	Vertical	184	1.71	-
2405MHz	Pass	PK	2.4056G	108.75	Inf	-Inf	3	Vertical	184	1.71	-
2405MHz	Pass	AV	2.3672G	45.92	54.00	-8.08	3	Horizontal	172	1.93	-
2405MHz	Pass	AV	2.405G	113.11	Inf	-Inf	3	Horizontal	172	1.93	-
2405MHz	Pass	PK	2.367G	57.48	74.00	-16.52	3	Horizontal	172	1.93	-
2405MHz	Pass	PK	2.4056G	118.29	Inf	-Inf	3	Horizontal	172	1.93	-
2405MHz	Pass	AV	4.81101G	43.03	54.00	-10.97	3	Vertical	277	2.93	-
2405MHz	Pass	PK	4.81099G	52.95	74.00	-21.05	3	Vertical	277	2.93	-
2405MHz	Pass	AV	4.81101G	45.94	54.00	-8.06	3	Horizontal	224	1.51	-
2405MHz	Pass	PK	4.81098G	55.64	74.00	-18.36	3	Horizontal	224	1.51	-
2440MHz	Pass	AV	2.34G	44.37	54.00	-9.63	3	Vertical	198	2.50	-
2440MHz	Pass	AV	2.44G	108.00	Inf	-Inf	3	Vertical	198	2.50	-
2440MHz	Pass	AV	2.4835G	44.12	54.00	-9.88	3	Vertical	198	2.50	-
2440MHz	Pass	PK	2.3532G	55.89	74.00	-18.11	3	Vertical	198	2.50	-
2440MHz	Pass	PK	2.4404G	112.99	Inf	-Inf	3	Vertical	198	2.50	-
2440MHz	Pass	PK	2.4964G	55.82	74.00	-18.18	3	Vertical	198	2.50	-
2440MHz	Pass	AV	2.3432G	44.44	54.00	-9.56	3	Horizontal	172	1.80	-
2440MHz	Pass	AV	2.44G	112.98	Inf	-Inf	3	Horizontal	172	1.80	-
2440MHz	Pass	AV	2.4852G	44.24	54.00	-9.76	3	Horizontal	172	1.80	-
2440MHz	Pass	PK	2.386G	56.21	74.00	-17.79	3	Horizontal	172	1.80	-
2440MHz	Pass	PK	2.4404G	118.08	Inf	-Inf	3	Horizontal	172	1.80	-
2440MHz	Pass	PK	2.4964G	56.29	74.00	-17.71	3	Horizontal	172	1.80	-
2440MHz	Pass	AV	4.87898G	39.27	54.00	-14.73	3	Vertical	187	1.67	-
2440MHz	Pass	PK	4.88111G	50.20	74.00	-23.80	3	Vertical	187	1.67	-
2440MHz	Pass	AV	4.87899G	48.06	54.00	-5.94	3	Horizontal	215	1.50	-
2440MHz	Pass	PK	4.87902G	57.49	74.00	-16.51	3	Horizontal	215	1.50	-
2475MHz	Pass	AV	2.475G	109.66	Inf	-Inf	3	Vertical	184	2.75	-
2475MHz	Pass	AV	2.4835G	49.00	54.00	-5.00	3	Vertical	184	2.75	-
2475MHz	Pass	PK	2.4744G	114.80	Inf	-Inf	3	Vertical	184	2.75	-
2475MHz	Pass	PK	2.4836G	60.93	74.00	-13.07	3	Vertical	184	2.75	-
2475MHz	Pass	AV	2.475G	113.11	Inf	-Inf	3	Horizontal	170	2.00	-
2475MHz	Pass	AV	2.4835G	51.52	54.00	-2.48	3	Horizontal	170	2.00	-
2475MHz	Pass	PK	2.4746G	118.14	Inf	-Inf	3	Horizontal	170	2.00	-
2475MHz	Pass	PK	2.4836G	63.35	74.00	-10.65	3	Horizontal	170	2.00	-
2475MHz	Pass	AV	4.94903G	33.17	54.00	-20.83	3	Vertical	204	1.56	-
2475MHz	Pass	PK	4.94883G	46.50	74.00	-27.50	3	Vertical	204	1.56	-
2475MHz	Pass	AV	4.95101G	40.63	54.00	-13.37	3	Horizontal	213	1.37	-
2475MHz	Pass	PK	4.9512G	51.19	74.00	-22.81	3	Horizontal	213	1.37	-

Zigbee_1TX(Port2)

20/12/2019

2405MHz_TX

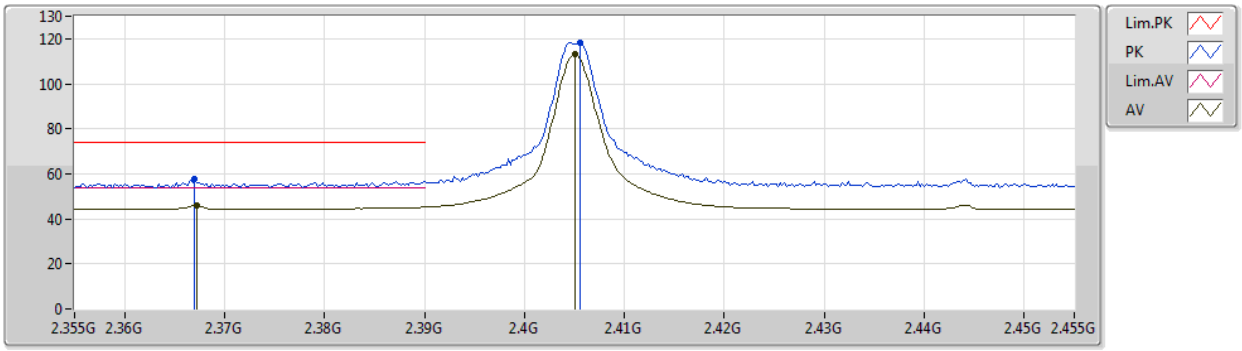


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3672G	44.30	54.00	-9.70	31.61	3	Vertical	184	1.71	-	12.69	27.63	3.98	-
AV	2.405G	103.85	Inf	-Inf	31.50	3	Vertical	184	1.71	-	72.35	27.49	4.01	-
PK	2.3638G	56.17	74.00	-17.83	31.61	3	Vertical	184	1.71	-	24.56	27.64	3.97	-
PK	2.4056G	108.75	Inf	-Inf	31.50	3	Vertical	184	1.71	-	77.25	27.49	4.01	-

Zigbee_1TX(Port2)

20/12/2019

2405MHz_TX

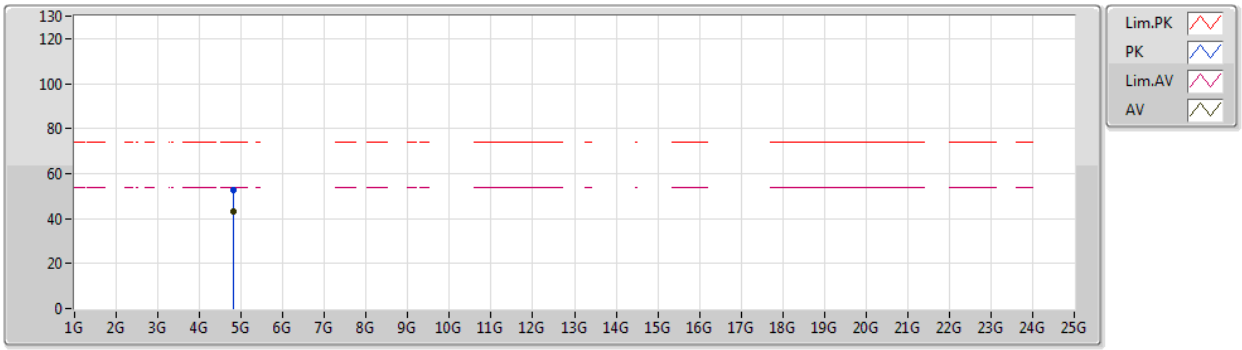


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3672G	45.92	54.00	-8.08	31.61	3	Horizontal	172	1.93	-	14.31	27.63	3.98	-
AV	2.405G	113.11	Inf	-Inf	31.50	3	Horizontal	172	1.93	-	81.61	27.49	4.01	-
PK	2.367G	57.48	74.00	-16.52	31.60	3	Horizontal	172	1.93	-	25.88	27.63	3.97	-
PK	2.4056G	118.29	Inf	-Inf	31.50	3	Horizontal	172	1.93	-	86.79	27.49	4.01	-

Zigbee_1TX(Port2)

20/12/2019

2405MHz_TX

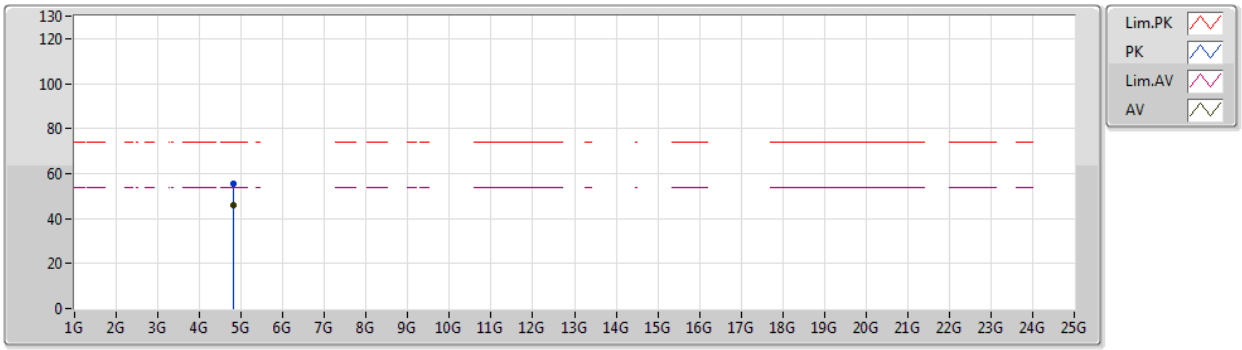


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.81101G	43.03	54.00	-10.97	7.48	3	Vertical	277	2.93	-	35.55	31.11	5.78	29.41
PK	4.81099G	52.95	74.00	-21.05	7.48	3	Vertical	277	2.93	-	45.47	31.11	5.78	29.41

Zigbee_1TX(Port2)

20/12/2019

2405MHz_TX

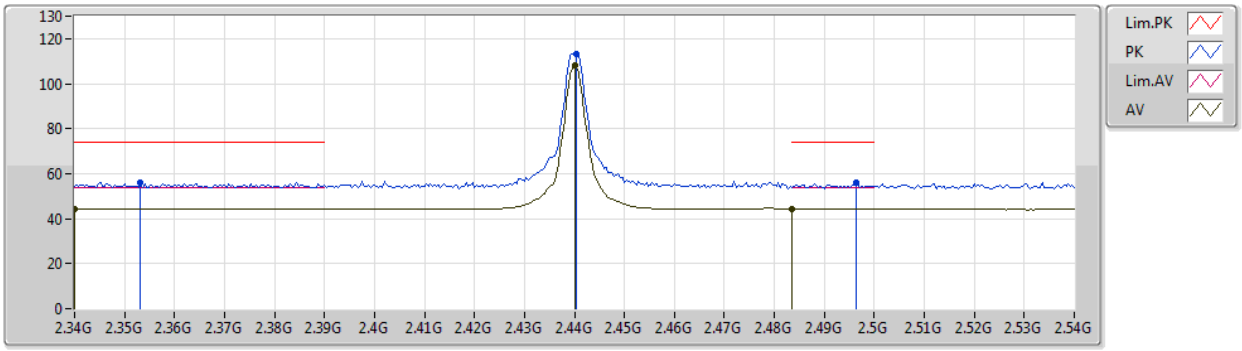


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.81101G	45.94	54.00	-8.06	7.48	3	Horizontal	224	1.51	-	38.46	31.11	5.78	29.41
PK	4.81098G	55.64	74.00	-18.36	7.48	3	Horizontal	224	1.51	-	48.16	31.11	5.78	29.41

Zigbee_1TX(Port2)

20/12/2019

2440MHz_TX

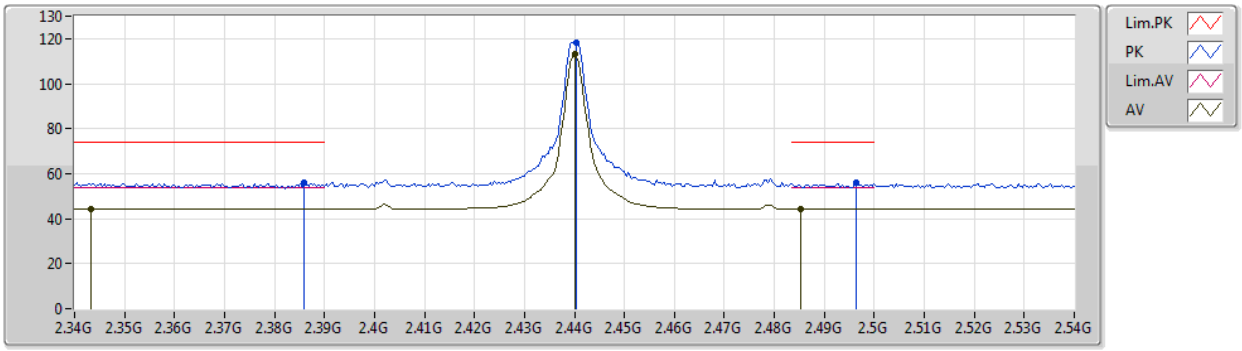


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.34G	44.37	54.00	-9.63	31.69	3	Vertical	198	2.50	-	12.68	27.74	3.95	-
AV	2.44G	108.00	Inf	-Inf	31.46	3	Vertical	198	2.50	-	76.54	27.42	4.04	-
AV	2.4835G	44.12	54.00	-9.88	31.41	3	Vertical	198	2.50	-	12.71	27.33	4.08	-
PK	2.3532G	55.89	74.00	-18.11	31.65	3	Vertical	198	2.50	-	24.24	27.69	3.96	-
PK	2.4404G	112.99	Inf	-Inf	31.46	3	Vertical	198	2.50	-	81.53	27.42	4.04	-
PK	2.4964G	55.82	74.00	-18.18	31.41	3	Vertical	198	2.50	-	24.41	27.31	4.10	-

Zigbee_1TX(Port2)

20/12/2019

2440MHz_TX

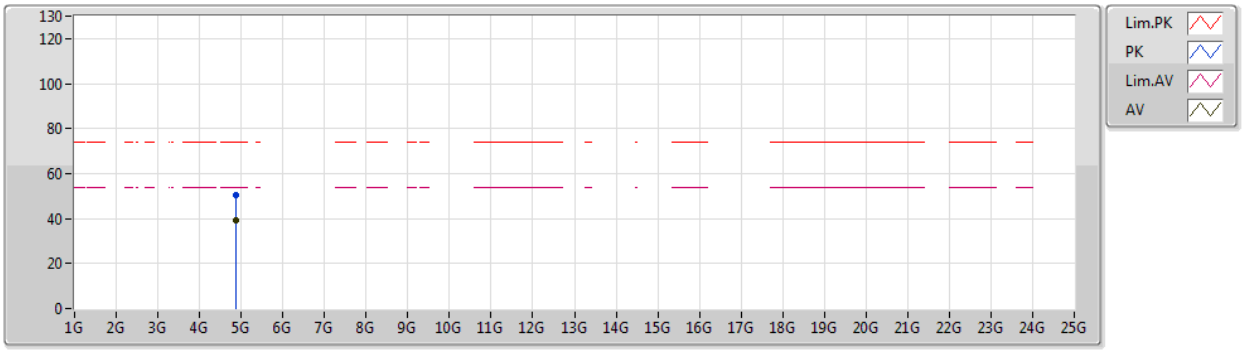


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.3432G	44.44	54.00	-9.56	31.68	3	Horizontal	172	1.80	-	12.76	27.73	3.95	-
AV	2.44G	112.98	Inf	-Inf	31.46	3	Horizontal	172	1.80	-	81.52	27.42	4.04	-
AV	2.4852G	44.24	54.00	-9.76	31.42	3	Horizontal	172	1.80	-	12.82	27.33	4.09	-
PK	2.386G	56.21	74.00	-17.79	31.55	3	Horizontal	172	1.80	-	24.66	27.56	3.99	-
PK	2.4404G	118.08	Inf	-Inf	31.46	3	Horizontal	172	1.80	-	86.62	27.42	4.04	-
PK	2.4964G	56.29	74.00	-17.71	31.41	3	Horizontal	172	1.80	-	24.88	27.31	4.10	-

Zigbee_1TX(Port2)

2440MHz_TX

20/12/2019

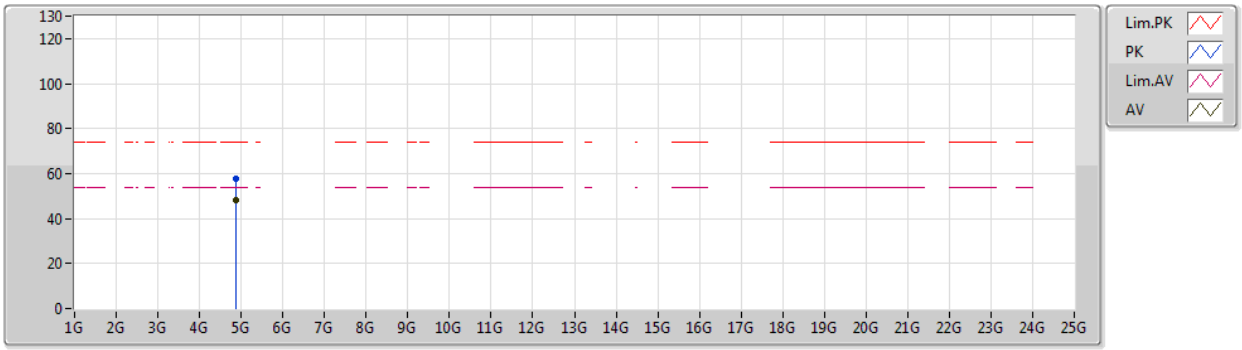


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.87898G	39.27	54.00	-14.73	7.63	3	Vertical	187	1.67	-	31.64	31.18	5.83	29.38
PK	4.88111G	50.20	74.00	-23.80	7.64	3	Vertical	187	1.67	-	42.56	31.18	5.83	29.37

Zigbee_1TX(Port2)

20/12/2019

2440MHz_TX

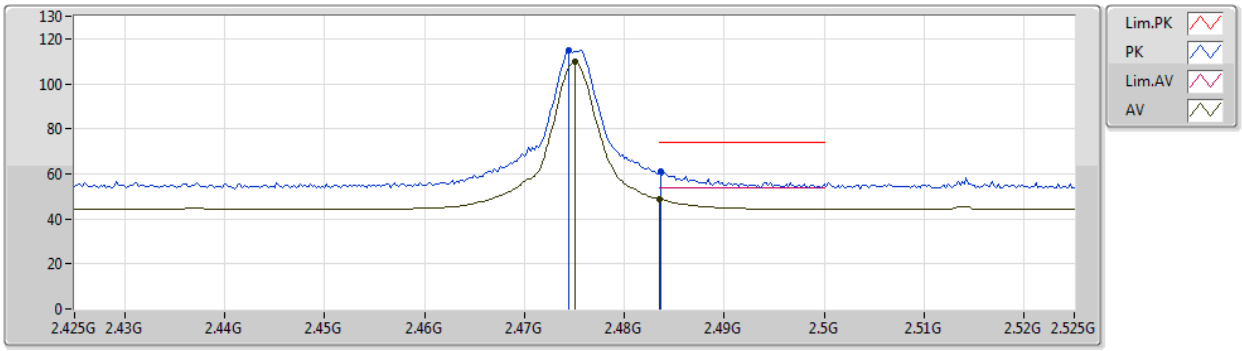


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.87899G	48.06	54.00	-5.94	7.63	3	Horizontal	215	1.50	-	40.43	31.18	5.83	29.38
PK	4.87902G	57.49	74.00	-16.51	7.63	3	Horizontal	215	1.50	-	49.86	31.18	5.83	29.38

Zigbee_1TX(Port2)

20/12/2019

2475MHz_TX

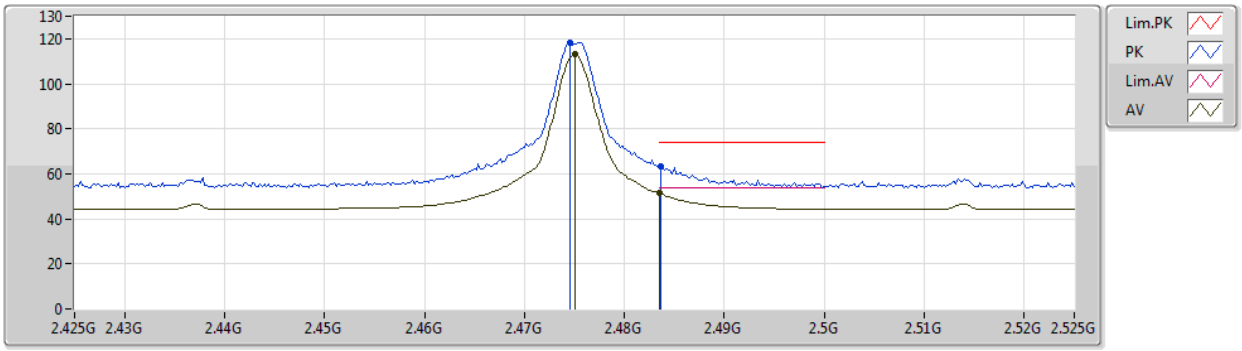


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.475G	109.66	Inf	-Inf	31.43	3	Vertical	184	2.75	-	78.23	27.35	4.08	-
AV	2.4835G	49.00	54.00	-5.00	31.41	3	Vertical	184	2.75	-	17.59	27.33	4.08	-
PK	2.4744G	114.80	Inf	-Inf	31.43	3	Vertical	184	2.75	-	83.37	27.35	4.08	-
PK	2.4836G	60.93	74.00	-13.07	31.41	3	Vertical	184	2.75	-	29.52	27.33	4.08	-

Zigbee_1TX(Port2)

20/12/2019

2475MHz_TX

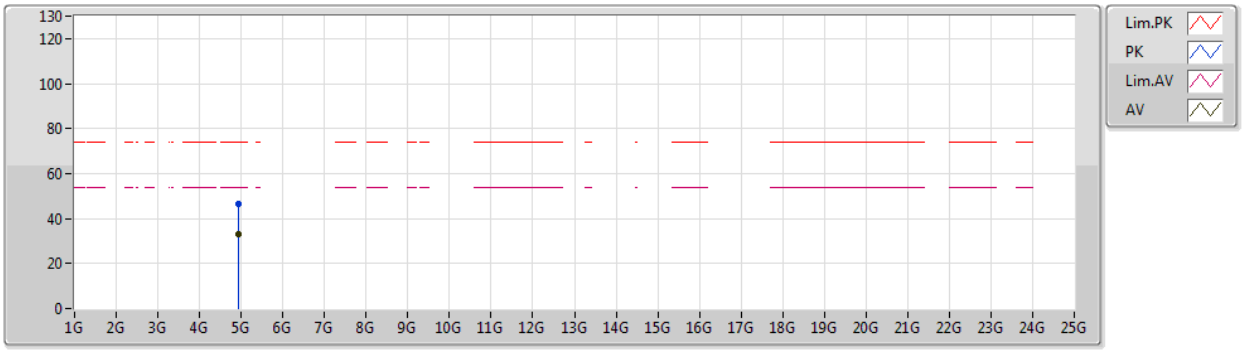


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	2.475G	113.11	Inf	-Inf	31.43	3	Horizontal	170	2.00	-	81.68	27.35	4.08	-
AV	2.4835G	51.52	54.00	-2.48	31.41	3	Horizontal	170	2.00	-	20.11	27.33	4.08	-
PK	2.4746G	118.14	Inf	-Inf	31.43	3	Horizontal	170	2.00	-	86.71	27.35	4.08	-
PK	2.4836G	63.35	74.00	-10.65	31.41	3	Horizontal	170	2.00	-	31.94	27.33	4.08	-

Zigbee_1TX(Port2)

20/12/2019

2475MHz_TX

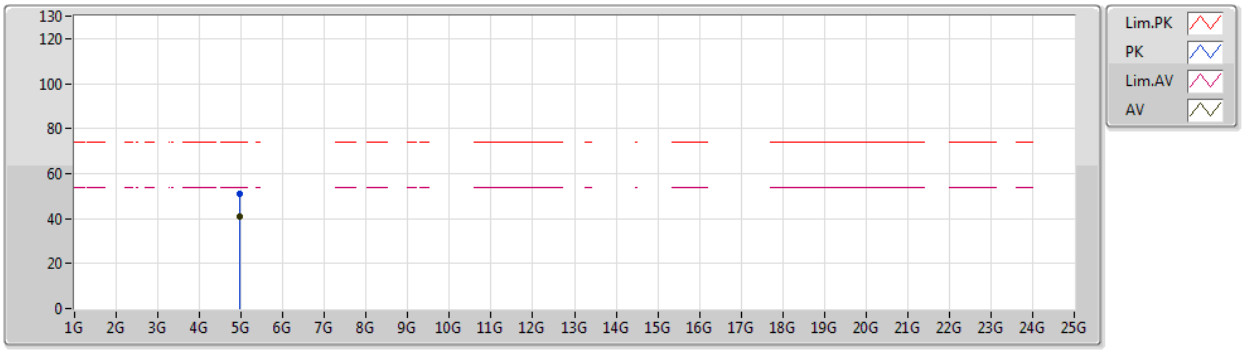


Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.94903G	33.17	54.00	-20.83	7.89	3	Vertical	204	1.56	-	25.28	31.35	5.88	29.34
PK	4.94883G	46.50	74.00	-27.50	7.89	3	Vertical	204	1.56	-	38.61	31.35	5.88	29.34

Zigbee_1TX(Port2)

20/12/2019

2475MHz_TX



Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comment	Raw	AF	CL	PA
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)		(dBuV)	(dB)	(dB)	(dB)
AV	4.95101G	40.63	54.00	-13.37	7.89	3	Horizontal	213	1.37	-	32.74	31.35	5.88	29.34
PK	4.9512G	51.19	74.00	-22.81	7.89	3	Horizontal	213	1.37	-	43.30	31.35	5.88	29.34