



# **FCC Test Report**

FCC ID : UDX-60099010

Equipment : Wi-Fi 6 Access Point

Brand Name : CISCO

Model Name : MR36-HW

Applicant : Cisco Systems

170 West Tasman Drive, San Jose, CA 95134 USA

Manufacturer : Cisco Systems

170 West Tasman Drive, San Jose, CA 95134 USA

Standard : 47 CFR FCC Part 15.247

The product was received on Jun. 20, 2019, and testing was started from Jun. 20, 2019 and completed on Jul. 31, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Allen Lin

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)

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# History of this test report

Report No.	Version	Description	Issued Date
FR962029-06AL	01	Initial issue of report	Oct. 17, 2019

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# **Summary of Test Result**

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

Note: From Sporton Project No.:FR962029AL.

## **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: Jackson Tsai

Report Producer: Jenny Yang

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# **General Description**

#### Information 1.1

## 1.1.1 RF General Information

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

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	BT-LE(1Mbps)	1.0	1TX
2.4-2.4835GHz	BT-LE(2Mbps)	2.0	1TX
2.4-2.4835GHz	BT-LE(0.125Mbps)	2.0	1TX
2.4-2.4835GHz	BT-LE(0.5Mbps)	2.0	1TX

### Note:

- Bluetooth LE uses a GFSK (0.125 Mbps/0.5Mbps/1Mbps/2Mbps) modulation for DSSS.
- BWch is the nominal channel bandwidth.

#### 1.1.2 **Antenna Information**

Ant.	Brand	Model Name	Antenna Type	Connector
1	-	-	PIFA	I-PEX
2	-	-	PIFA	I-PEX
3	-	-	PIFA	I-PEX
4	-	-	PIFA	I-PEX
5	-	-	PIFA	I-PEX
6	-	-	PIFA	I-PEX

		Gain (dBi)										
A m 4	Port		Radio 1						Radio 2			Radio 3
Ant.	Port	2.4G		5	G		5G				DТ	
		2.46	B1	B2	В3	B4	2.4G	B1	B2	В3	В4	ВТ
1	1	4.22	-	-	-	-	-	-	-	-	-	-
2	2	4.68	-	-	-	-	-	-	1	-	-	-
3	3	ı	4.67	4.67	5.29	4.77	-	-	1	-	-	-
4	4	ı	4.91	4.91	4.98	4.9	-	-	1	-	-	-
5	5	-	-	-	-	-	3.02	3.06	3.06	2.57	2.38	-
6	6	-	-	-	-	-	-	-	-	-	-	2.91

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## FCC Test Report

Note 1: The EUT has six antennas.

### For 2.4GHz function:

For IEEE 802.11 b/g/n/ac/ax mode (2TX/2RX) (Radio 1)

Support diversity function and pre-tested on each single chain, Ant. 1 (port 1) and Ant. 2(port 2) can be used as transmitting/receiving antenna.

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For IEEE 802.11 b/g/n/ac mode (1TX/1RX) (Radio 2)

Ant. 5 (port 5) can be used as transmitting/receiving antenna.

### For 5GHz function:

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

Support diversity function and pre-tested on each single chain, Ant. 3 (port 3) and Ant. 4(port 4) can be used as transmitting/receiving antenna.

For IEEE 802.11 a/n/ac mode (1TX/1RX) (Radio 2)

Ant. 5 (port 5) can be used as transmitting/receiving antenna.

### For BT function:

For IEEE 802.15.1 Bluetooth mode (1TX/1RX) (Radio 3)

Ant. 6 (port 6) can be used as transmitting/receiving antenna.

### 1.1.3 EUT Information

	Operational Condition								
EUT	Power T	уре	Fro	m AC Adapter / F	PoE				
EUΊ	Function	n	$\boxtimes$	Point-to-multipo	oint		Point-to-point		
					Type of E	UT			
$\boxtimes$	Stand-alo	ne							
	Combine	d (EUT where	e the	radio part is full	y integrate	ed within a	another device)		
	Combine	d Equipment	- Bra	and Name / Mod	el 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
BT-LE(0.125Mbps)	0.978	0.1	17.066m	100
BT-LE(0.5Mbps)	0.913	0.4	4.566m	300
BT-LE(1Mbps)	0.859	0.66	2.147m	1k
BT-LE(2Mbps)	0.581	2.36	1.091m	1k

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

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## 1.1.5 Table for Permissive Change

This product is an extension of original one reported under Sporton project number: FR962029AL

Below is the table for the change of the product with respect to the original one.

Modifications	Performance Checking		
Update Model Name: MR36-HW	N/A		

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## 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

## 1.3 Testing Location Information

	Testing Location									
$\boxtimes$	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	BEI ADD : No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County, Taiwan (R.O.C.)								
		TEL	:	886-3-656-9065	FAX : 886-3-656-9085					
	Test site Designation No. TW0006 with FCC.									

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
AC Conduction	CO01-HY	Justin	23.5~24.4°C / 58.3~67.3 %	24/Jun/2019~ 13/Jul/2019
RF Conducted	TH06-HY	Dexter	24.3~25.7°C / 54~58%	25/Jun/2019~ 31/Jul/2019
Radiated	Radiated 03CH09-HY Lego		23.5~26.9°C / 45~58%	20/Jun/2019~ 28/Jun/2019

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# 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)

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Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.54 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	1.6 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.3 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.9 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.3 dB	Confidence levels of 95%
Temperature	0.7 °C	Confidence levels of 95%
Humidity	4 %	Confidence levels of 95%

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### **Test Configuration of EUT** 2

#### **Test Condition** 2.1

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

#### **Test Channel Mode** 2.2

Test Software	DoS
---------------	-----

Mode	Power Setting
BT-LE(1Mbps)	-
2402MHz	100
2440MHz	100
2480MHz	100
BT-LE(2Mbps)	-
2402MHz	100
2440MHz	100
2480MHz	100
BT-LE(0.125Mbps)	-
2402MHz	100
2440MHz	100
2480MHz	100
BT-LE(0.5Mbps)	-
2402MHz	100
2440MHz	100
2480MHz	100

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### **The Worst Case Measurement Configuration** 2.3

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			
2	PoE mode		

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

The Worst Case Mode for Following Conformance Tests				
Tests Item	Emissions in Restricted Fr	equency 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	СТХ			
1	Adapter mode			
2	PoE mode			
Operating Mode > 1GHz	СТХ			
	X Plane Y Plane Z Plane			
Orthogonal Planes of EUT				
Worst Planes of EUT	V			

The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis			
Operating Mode CTX			
1	WLAN 2.4G (Radio1) + 5G (Radio1) + BT (Radio3) + WLAN 2.4G (Radio2)		
2	2 WLAN 2.4G (Radio1) + 5G (Radio1) + BT (Radio3) + WLAN 5G (Radio2)		
Refer to Sporton Test Report No.: FA962029 for Co-location RF Exposure Evaluation.			

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# 2.4 Support Equipment

	Support Equipment – AC Conduction						
No.	No. Equipment Brand Name Model Name FCC ID						
1	AC adapter	MA-PWR-30W-US	-				
2	PoE	-					
3	3 Notebook (remote) DELL E5530		E5530	DoC			
4	Client AP (remote)	CISCO	AXL	DoC			

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Note: Support equipment No.1 & 2 & 4 was provided by customer.

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

	Support Equipment – Radiated Emission						
No.	No. Equipment Brand Name Model Name FCC ID						
1	AC adapter	MA-PWR-30W-US	-				
2	2 PoE CISCO MA-INJ-2		MA-INJ-4	-			
3	Notebook (remote)	DELL	E5530	DoC			
4	Client AP (remote)	CISCO	AXL	DoC			

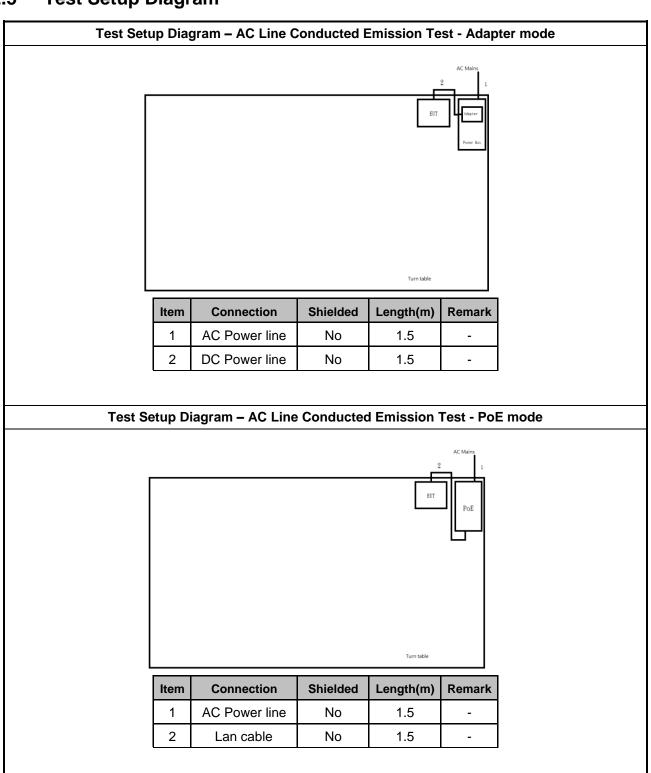
Note: Support equipment No.1 & 2 & 4 was provided by customer.

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### **Test Setup Diagram** 2.5

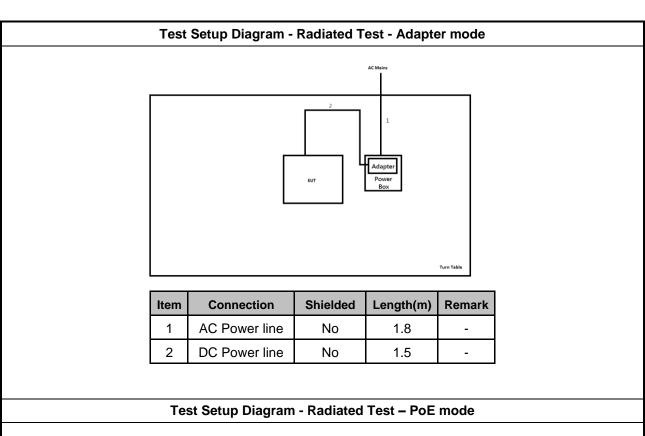


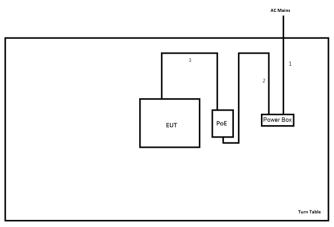
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Item	Connection	Shielded	Length(m)	Remark
1	AC Power line	No	1.5	-
2	AC Power line	No	1.5	-
3	LAN cable	No	2.0	-

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#### **Transmitter Test Result** 3

#### **AC Power-line Conducted Emissions** 3.1

## 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.							

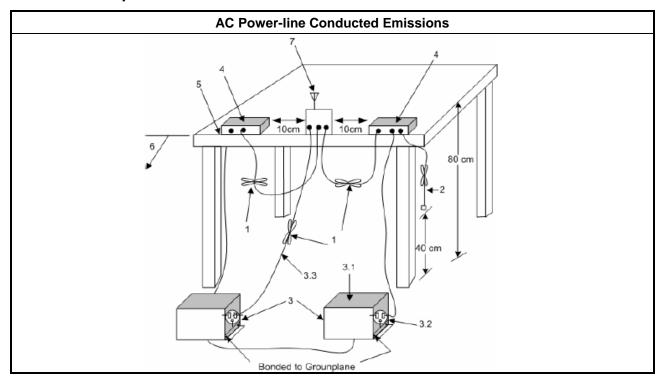
## 3.1.2 Measuring Instruments

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

#### **Test Procedures** 3.1.3

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

#### 3.1.4 **Test Setup**



#### 3.1.5 **Test Result of AC Power-line Conducted Emissions**

Refer as Appendix A

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## 3.2 DTS Bandwidth

## 3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit					
Systems using digital modulation techniques:					
■ 6 dB bandwidth ≥ 500 kHz.					

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## 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

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# 3.3 Maximum Conducted Output Power

## 3.3.1 Maximum Conducted Output Power Limit

•	■ If $G_{TX} \le 6$ dBi, then $P_{Out} \le 30$ dBm (1 W)							
•	<ul> <li>Point-to-multipoint systems (P2M): If G<sub>TX</sub> &gt; 6 dBi, then P<sub>Out</sub> = 30 - (G<sub>TX</sub> - 6) dBm</li> <li>Point-to-point systems (P2P): If G<sub>TX</sub> &gt; 6 dBi, then P<sub>Out</sub> = 30 - (G<sub>TX</sub> - 6)/3 dBm</li> </ul>							
•								
•	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							
r.p.	Power Limit:							
24	00-2483.5 MHz Band							
•	Point-to-multipoint systems (P2M): P <sub>eirp</sub> ≤ 36 dBm (4 W)							
-	Point-to-point systems (P2P): $P_{eirp} \le MAX(36, [P_{Out} + G_{TX}]) dBm$							
-	Smart antenna system (SAS)							
	- Single beam: P <sub>eirp</sub> ≤ MAX(36, P <sub>Out</sub> + G <sub>TX</sub> ) dBm							
	- Overlap beam: P <sub>eirp</sub> ≤ MAX(36, P <sub>Out</sub> + G <sub>TX</sub> ) dBm							
	- Aggregate power on all beams: P <sub>eiro</sub> ≤ MAX(36, [P <sub>Out</sub> + G <sub>TX</sub> + 8]) dBm							

## 3.3.2 Measuring Instruments

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

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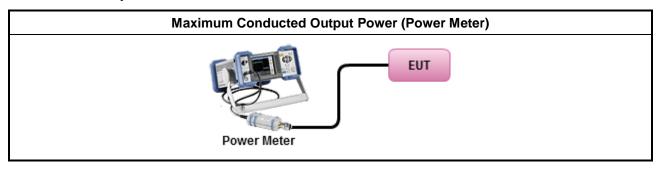
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## 3.3.3 Test Procedures

	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 <sub>total</sub> = P <sub>1</sub> + P <sub>2</sub> + + P <sub>n</sub> (calculated in linear unit [mW] and transfer to log unit [dBm])  EIRP <sub>total</sub> = P <sub>total</sub> + DG							

## 3.3.4 Test Setup



## 3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C

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3.4 Power Spectral Density

## 3.4.1 Power Spectral Density Limit

## **Power Spectral Density Limit**

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

### 3.4.2 Measuring Instruments

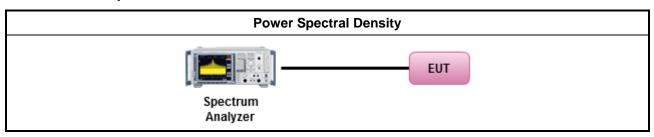
Refer a test equipment and calibration data table in this test report.

### 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



## 3.4.5 Test Result of Power Spectral Density

Refer as Appendix D

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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				

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- 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.

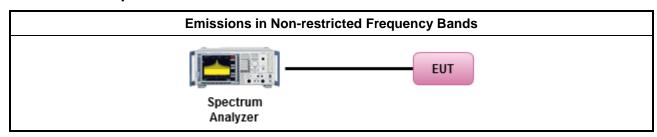
## 3.5.2 Measuring Instruments

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

## 3.5.3 Test Procedures

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

## 3.5.4 Test Setup



## 3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

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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	0.009~0.490 2400/F(kHz)		300				
0.490~1.705 24000/F(kHz)		33.8 - 23	30				
1.705~30.0 30		29	30				
30~88	30~88 100		3				
88~216	150	43.5	3				
216~960 200		46	3				
Above 960	500	54	3				

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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 below30 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 ELIT

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.

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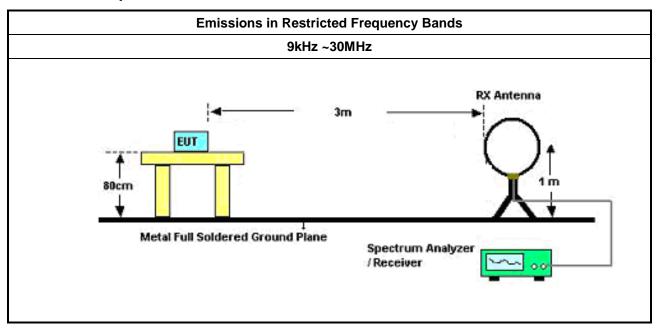


#### 3.6.3 **Test Procedures**

### **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.
- 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  $f \ge 1$  GHz for peak measurement. For average measurement, refer as 1.1.4.

#### 3.6.4 **Test Setup**



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30MHz~1GHz **RX Antenna** Ant. feed EUT point Metal Full Soldered Ground Plane Spectrum Analyzer /Receiver **Above 1GHz** EUT 4M 3M & 1M 1.5M Spectrum Analyzer

Report No.: FR962029-06AL

## 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

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# 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	ENV 216	101274	9kHz ~ 30MHz	03/Jun/2019	02/Jun/2020
RF Cable-CON	MTJ	RG142	CB001-CO	9kHz ~ 30MHz	17/Sep/2018	16/Sep/2019
AC POWER	APC	AFC-11003G	F308010045	47Hz~63Hz 5~300V	NCR	NCR
Impuls Begrenzer Pulse Limiter	SCHWARZBECK	VTSD 9561F	9495	9kHz ~ 30MHz	11/Oct/2018	10/Oct/2019

NCR : Non-Calibration Require

## **Instrument for Radiated Test**

Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	30MHz ~ 1GHz	22/Apr/2019	21/Apr/2020
3m Semi Anechoic Chamber	TDK	SAC-3M	03CH09-HY	1GHz ~ 18GHz	13/Jun/2019	12/Jun/2020
Amplifier	EMC	EMC9135	980232	9KHz~1GHz	22/Apr/2019	21/Apr/2020
Microwave Preamplifier with 10 dB Pad	EMC	EMC051845 & WK0602-10	980240 & 01	1GHz ~ 18GHz	11/Jan/2019	10/Jan/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	31/Jul/2018	30/Jul/2019
Bilog Antenna & 5dB Attenuator	TESEQ & MTJ	CBL6111D & MTJ6102-05	35418 / 3	30MHz~1GHz	02/Oct/2018	03/Oct/2019
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	BBHA9170221	18GHz~40GHz	22/Mar/2019	21/Mar/2020
Preamplifier	MITEQ	TTA1840-35-HG	1864481	18GHz ~ 40GHz	24/Aug/2018	23/Aug/2019
LF-CABLE-2019 0218	Jye Bao	RG142	CB028	9kHz ~ 1GHz	18/Feb/2019	17/Feb/2020
RF Cable-high	HUBER+ SUHNER	SUCOFLEX104	SN 556626/4 + 556627	1GHz ~ 40GHz	13/Mar/2019	12/Mar/2020

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## FCC Test Report

**Instrument for Conducted Test** 

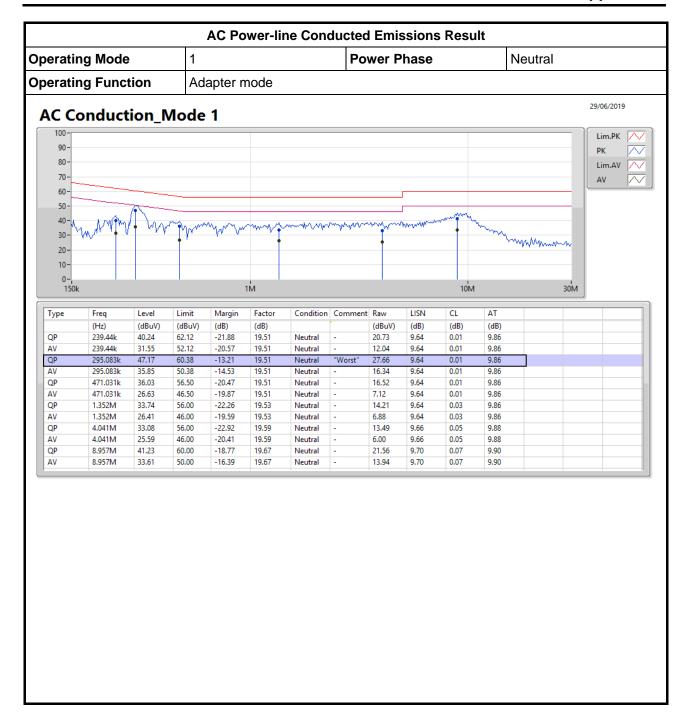
Instrument	Manufacturer	Model No.	Serial No.	Spec.	Calibration Date	Calibration Due Date
Spectrum Analyzer	R&S	FSV 40	101013	10Hz~40GHz	13/Mar/2019	12/Mar/2020
Power Sensor	Anritsu	MA2411B	1339407	300MHz ~ 40GHz	17/Nov/2018	16/Nov/2019
Power Meter	Anritsu	ML2495A	1517010	300MHz ~ 40GHz	17/Nov/2018	16/Nov/2019
Cable 0.2m	HUBER	MY10710/4	RF Cable - 01	30MHz ~18G	10/Jan/2019	09/Jan/2020
Cable 0.2m	HUBER	MY10711/4	RF Cable - 02	30MHz ~18G	10/Jan/2019	09/Jan/2020
Cable 0.5m	HUBER	MY39470/4	RF Cable - 29	30MHz ~18G	10/Jan/2019	09/Jan/2020
SMB100A Signal Generator	R&S	SMB100A03	181147	100kHz~40GHz	12/Nov/2018	10/Nov/2020

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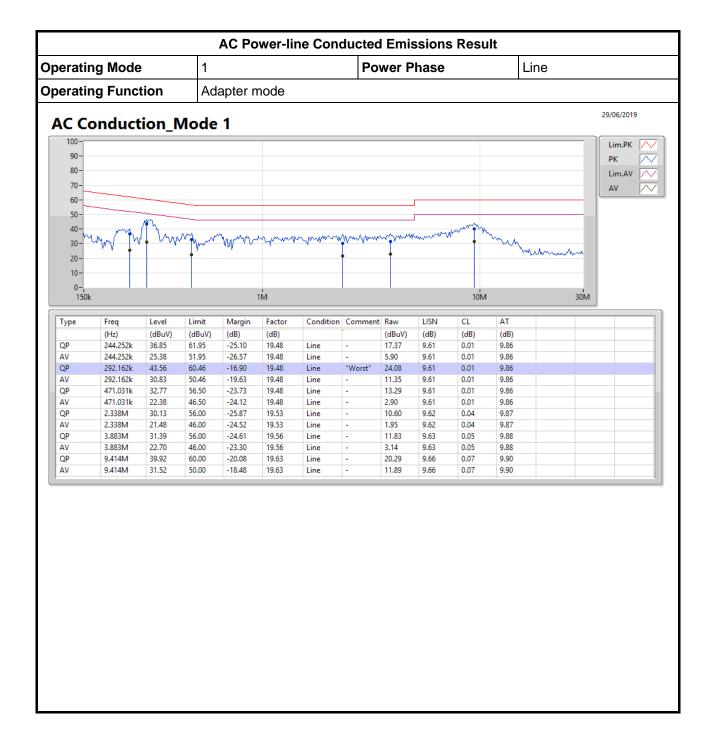
TEL: 886-3-3273456 Page Number : 24 of 24 FAX: 886-3-3270973 Issued Date : Oct. 17, 2019

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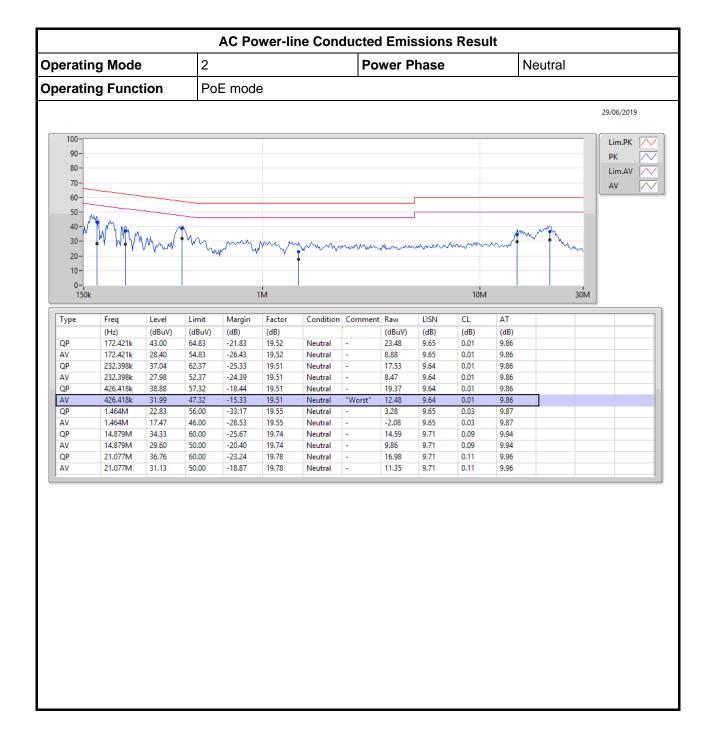
## **AC Power-line Conducted Emissions**



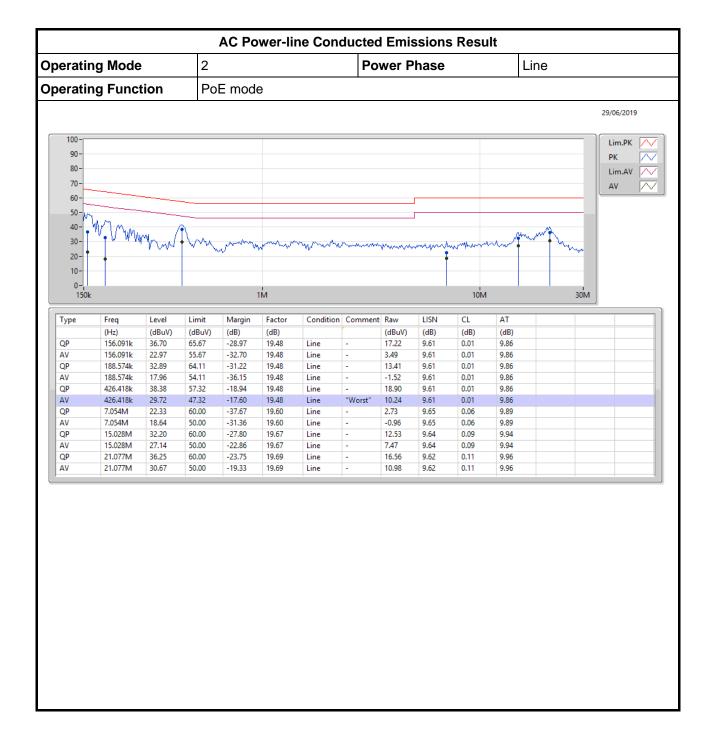














EBW-DTS Appendix B

**Summary** 

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-	-	-	-
BT-LE(1Mbps)	656.25k	1.032M	1M03F1D	655k	1.032M
BT-LE(2Mbps)	1.145M	2.081M	2M08F1D	1.138M	2.079M
BT-LE(0.125Mbps)	617.5k	1.057M	1M06F1D	615k	1.052M
BT-LE(0.5Mbps)	657.5k	1.024M	1M02F1D	655k	1.022M

**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;

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EBW-DTS Appendix B

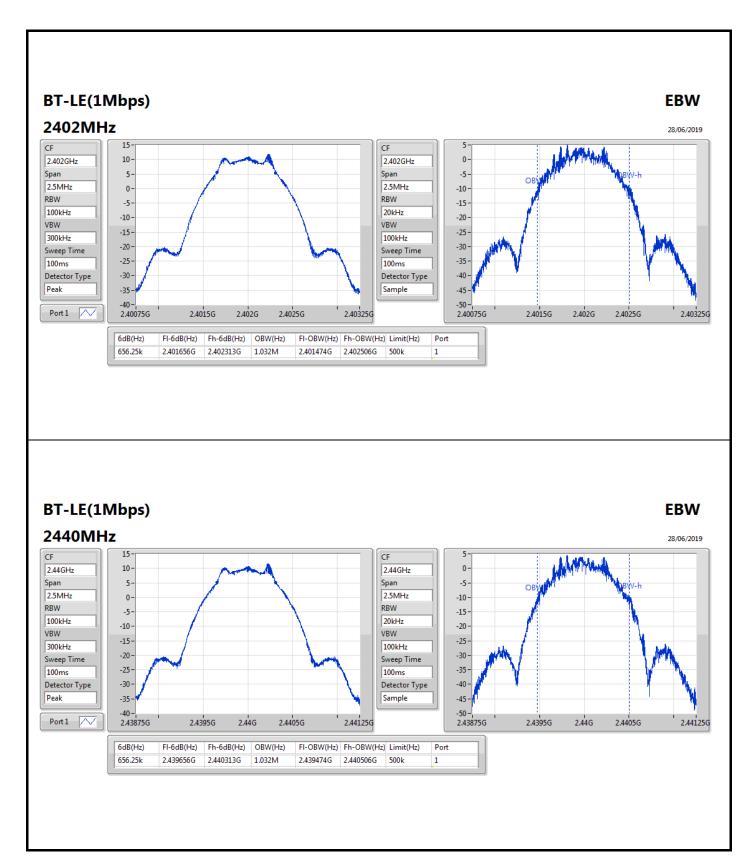
## Result

Mode	Result	Limit	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	656.25k	1.032M
2440MHz	Pass	500k	656.25k	1.032M
2480MHz	Pass	500k	655k	1.032M
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	500k	1.145M	2.079M
2440MHz	Pass	500k	1.138M	2.081M
2480MHz	Pass	500k	1.14M	2.081M
BT-LE(0.125Mbps)	-	-	-	-
2402MHz	Pass	500k	617.5k	1.057M
2440MHz	Pass	500k	615k	1.052M
2480MHz	Pass	500k	615k	1.054M
BT-LE(0.5Mbps)	-	-	-	-
2402MHz	Pass	500k	655k	1.024M
2440MHz	Pass	500k	657.5k	1.024M
2480MHz	Pass	500k	655k	1.022M

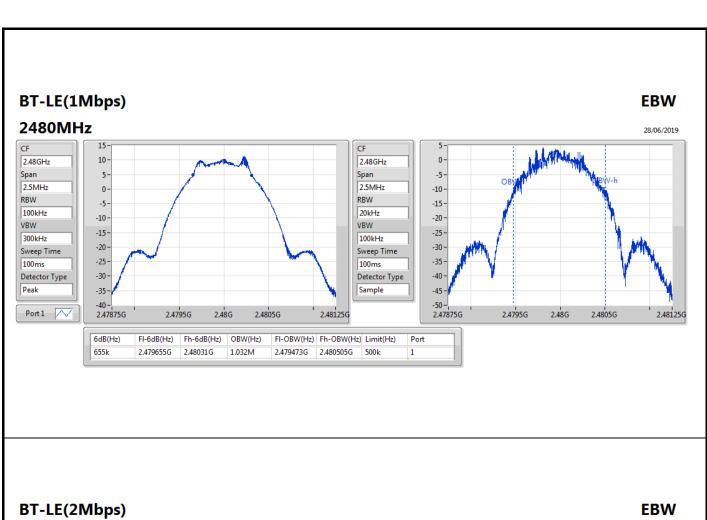
Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

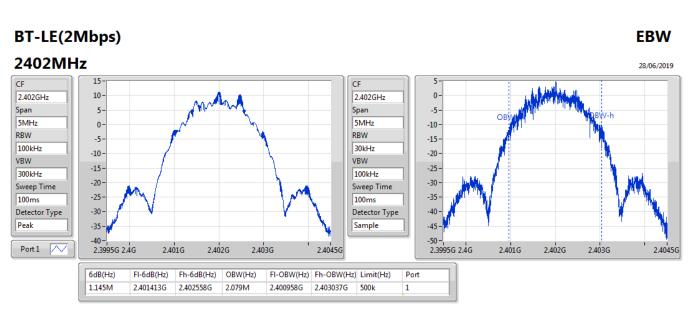
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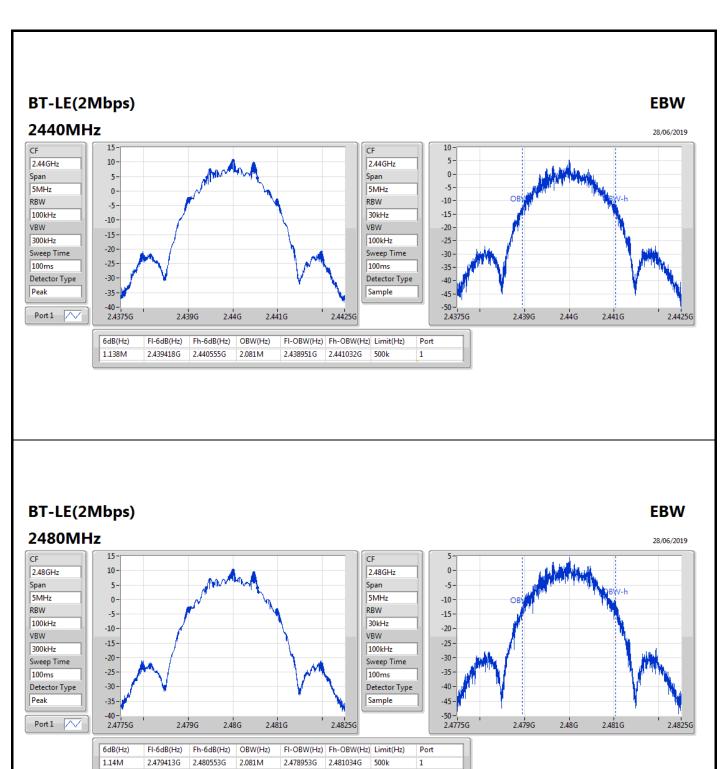




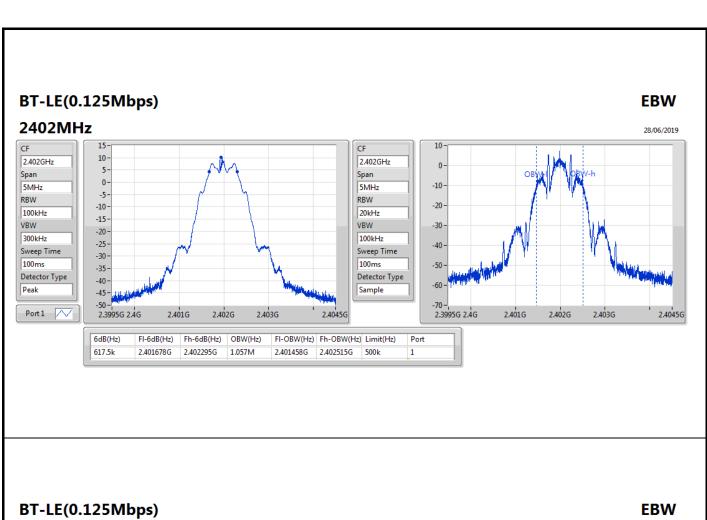
Page No. : B4 of B8

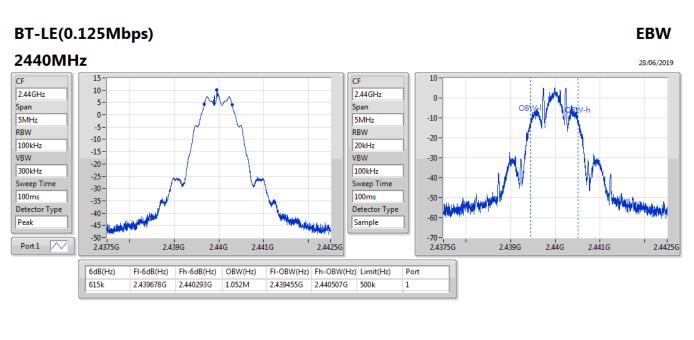
1.14M



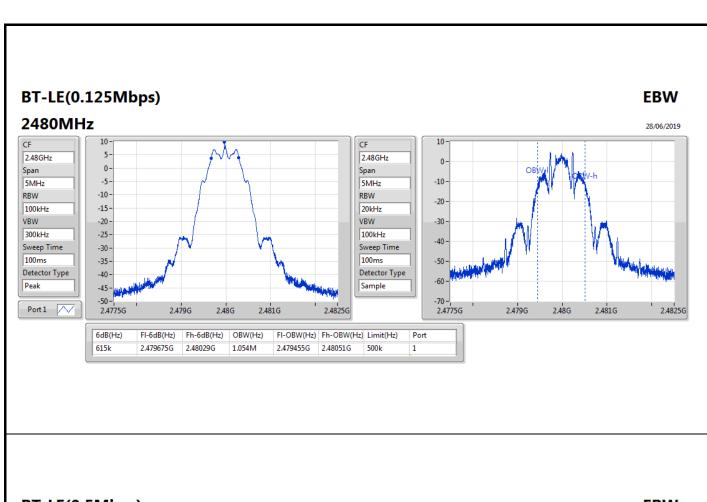


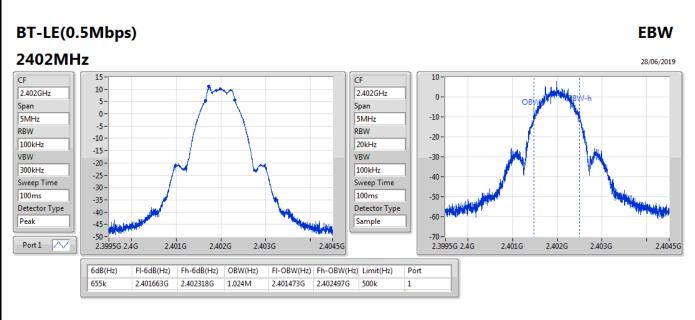




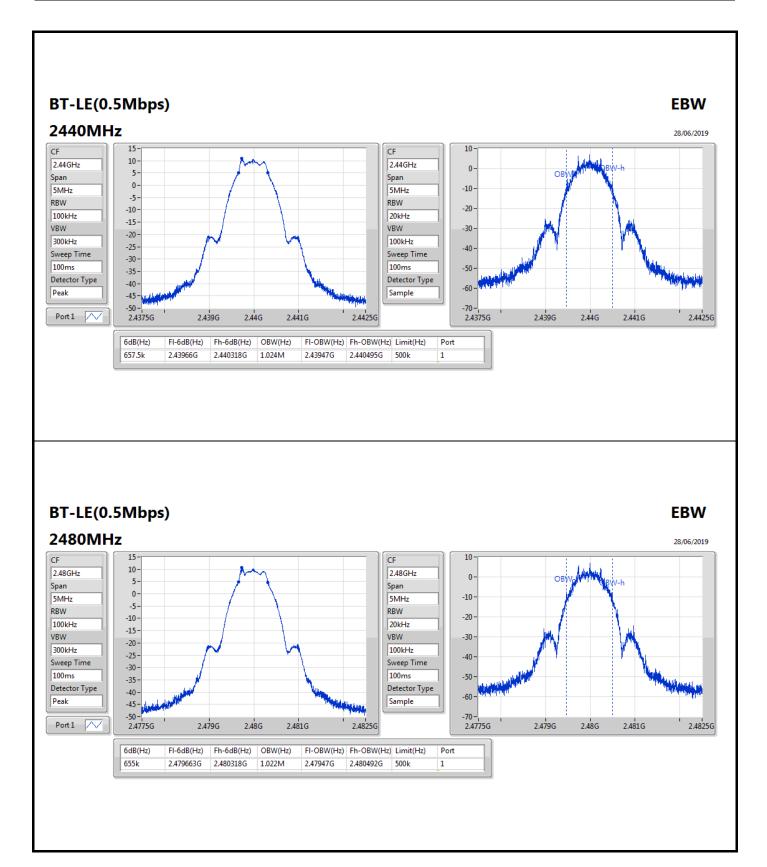














## Average Power-DTS

## Appendix C

**Summary** 

Mode	Power	Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
BT-LE(1Mbps)	11.45	0.01396
BT-LE(2Mbps)	11.46	0.01400
BT-LE(0.125Mbps)	11.49	0.01409
BT-LE(0.5Mbps)	11.48	0.01406

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Mode	Result	Gain	Power	Power Limit
		(dBi)	(dBm)	(dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.91	11.45	30.00
2440MHz	Pass	2.91	11.18	30.00
2480MHz	Pass	2.91	10.89	30.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.91	11.46	30.00
2440MHz	Pass	2.91	11.18	30.00
2480MHz	Pass	2.91	10.86	30.00
BT-LE(0.125Mbps)	-	-	-	-
2402MHz	Pass	2.91	11.49	30.00
2440MHz	Pass	2.91	11.22	30.00
2480MHz	Pass	2.91	10.93	30.00
BT-LE(0.5Mbps)	-	-	-	-
2402MHz	Pass	2.91	11.48	30.00
2440MHz	Pass	2.91	11.20	30.00
2480MHz	Pass	2.91	10.85	30.00

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

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PSD-DTS Appendix D

**Summary** 

PD
(dBm/RBW)
-
-4.95
-7.94
5.34
-1.51

RBW=3 kHz.

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**PSD-DTS** Appendix D

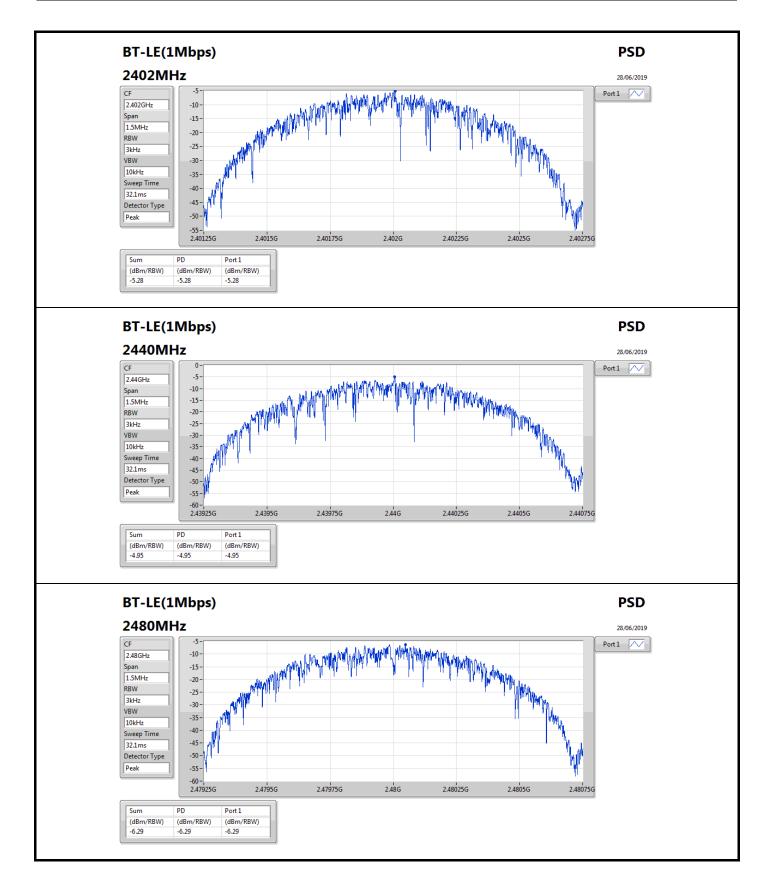
#### Result

Mode	Result	Gain	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	2.91	-5.28	8.00
2440MHz	Pass	2.91	-4.95	8.00
2480MHz	Pass	2.91	-6.29	8.00
BT-LE(2Mbps)	-	-	-	-
2402MHz	Pass	2.91	-7.94	8.00
2440MHz	Pass	2.91	-8.12	8.00
2480MHz	Pass	2.91	-9.22	8.00
BT-LE(0.125Mbps)	-	-	-	-
2402MHz	Pass	2.91	5.34	8.00
2440MHz	Pass	2.91	5.03	8.00
2480MHz	Pass	2.91	4.66	8.00
BT-LE(0.5Mbps)	-	-	-	-
2402MHz	Pass	2.91	-2.80	8.00
2440MHz	Pass	2.91	-1.51	8.00
2480MHz	Pass	2.91	-3.27	8.00

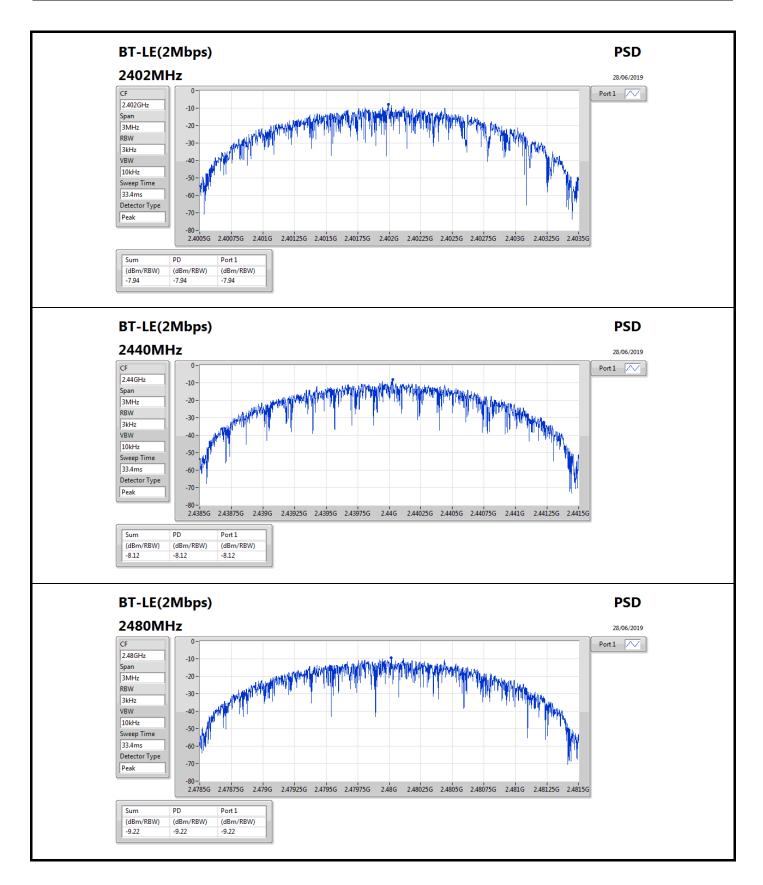
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DG = Directional Gain; RBW=3 kHz;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X power density;

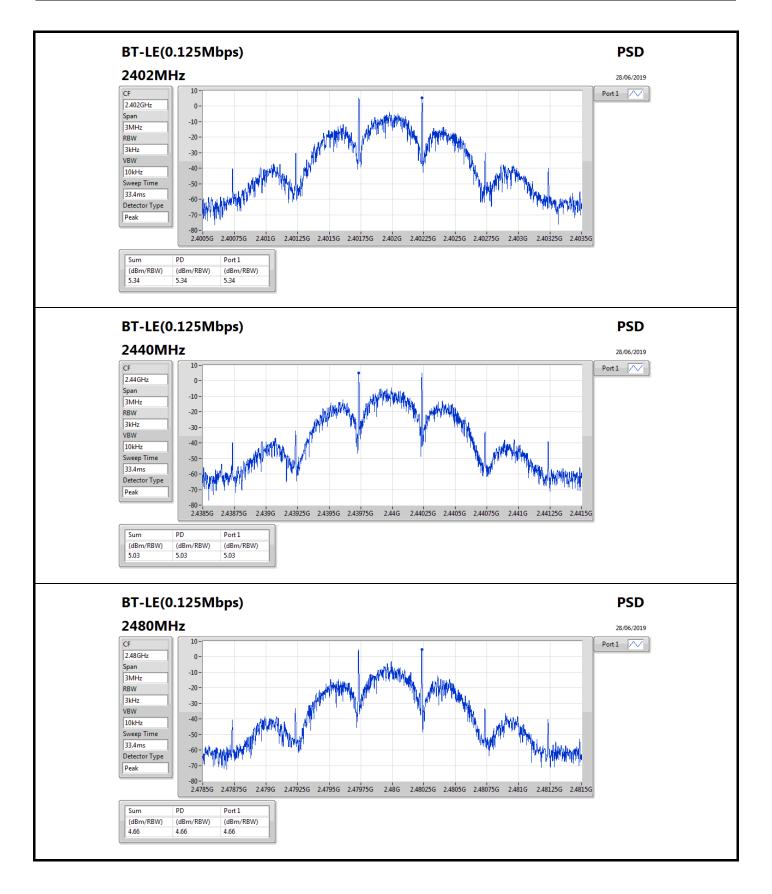




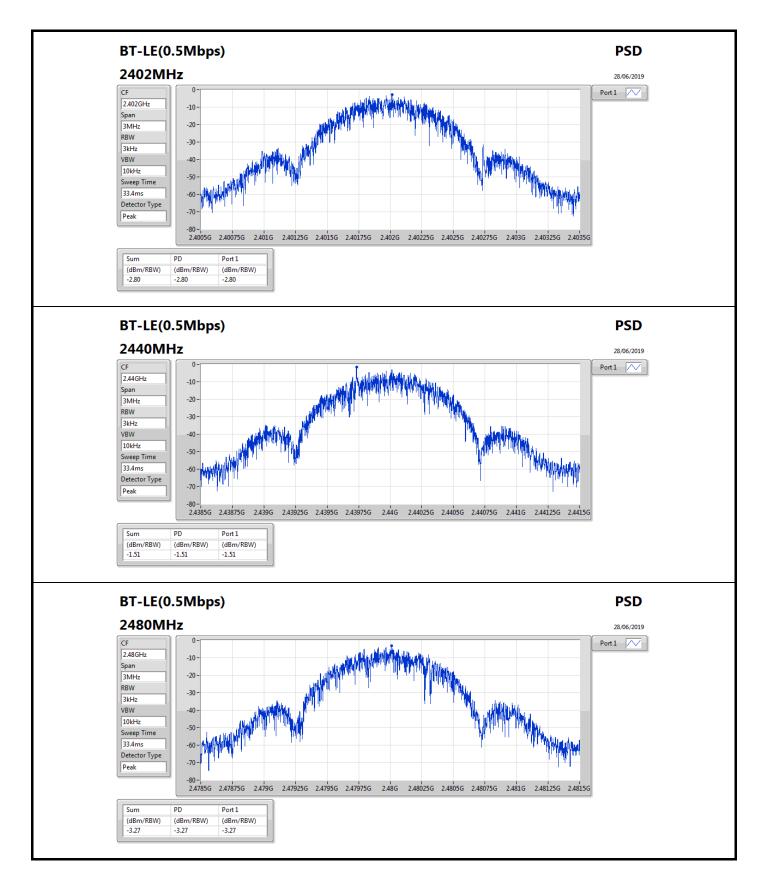














## CSE-DTS(Non-restricted Band)

Appendix E

**Summary** 

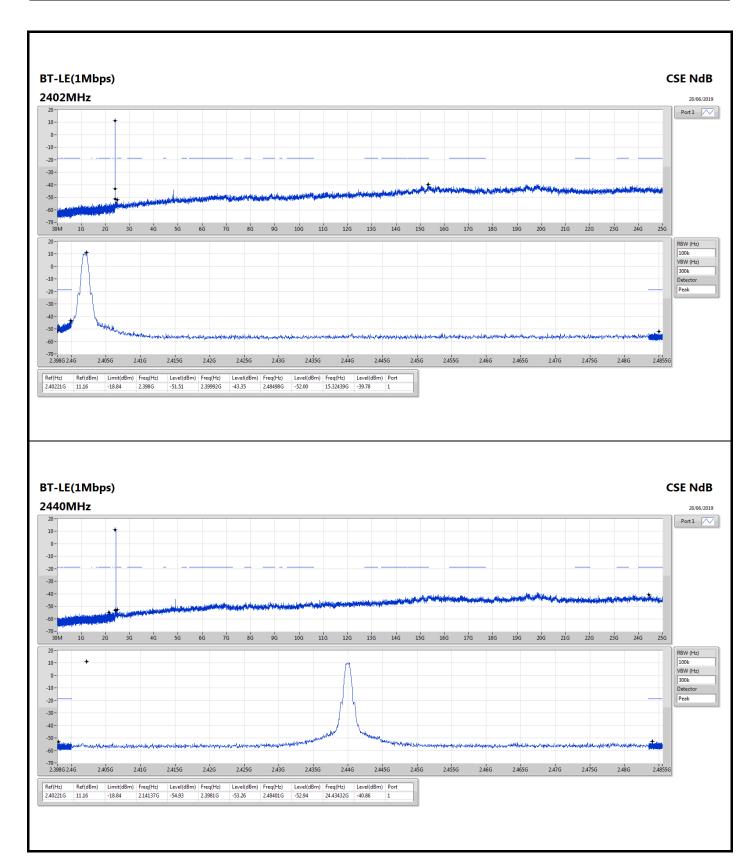
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
2.4-2.4835GHz		-	-	-	-	-	-		-		-	•	-
BT-LE(1Mbps)	Pass	2.40221G	11.16	-18.84	2.398G	-51.51	2.39992G	-43.35	2.48498G	-52.00	15.32439G	-39.78	1
BT-LE(2Mbps)	Pass	2.40196G	10.66	-19.34	2.3957G	-49.10	2.39998G	-21.00	2.4842G	-53.31	14.74837G	-41.09	1
BT-LE(0.125Mbps)	Pass	2.40196G	7.96	-22.04	1.97899G	-54.68	2.39993G	-43.78	2.48599G	-53.21	24.45689G	-39.70	1
BT-LE(0.5Mbps)	Pass	2.40171G	10.73	-19.27	2.1591G	-54.13	2.39908G	-54.00	2.4861G	-52.77	15.33651G	-40.61	1

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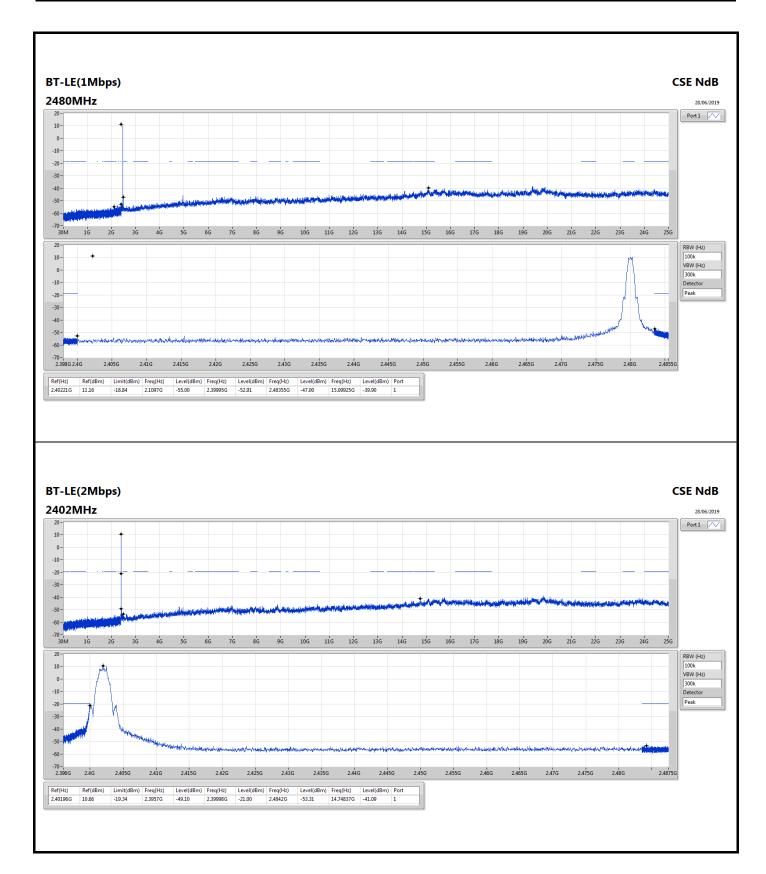
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
BT-LE(1Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40221G	11.16	-18.84	2.398G	-51.51	2.39992G	-43.35	2.48498G	-52.00	15.32439G	-39.78	1
2440MHz	Pass	2.40221G	11.16	-18.84	2.14137G	-54.93	2.3981G	-53.26	2.48401G	-52.94	24.43432G	-40.86	1
2480MHz	Pass	2.40221G	11.16	-18.84	2.1097G	-55.00	2.39995G	-52.91	2.48355G	-47.00	15.09925G	-39.90	1
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	10.66	-19.34	2.3957G	-49.10	2.39998G	-21.00	2.4842G	-53.31	14.74837G	-41.09	1
2440MHz	Pass	2.40196G	10.66	-19.34	2.0479G	-54.83	2.39885G	-54.10	2.48645G	-52.90	15.0551G	-40.62	1
2480MHz	Pass	2.40196G	10.66	-19.34	2.13544G	-54.96	2.39874G	-52.82	2.48373G	-40.89	15.10576G	-40.06	1
BT-LE(0.125Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40196G	7.96	-22.04	1.97899G	-54.68	2.39993G	-43.78	2.48599G	-53.21	24.45689G	-39.70	1
2440MHz	Pass	2.40196G	7.96	-22.04	1.75452G	-54.98	2.39983G	-53.94	2.48646G	-53.29	16.7548G	-40.18	1
2480MHz	Pass	2.40196G	7.96	-22.04	2.18838G	-55.04	2.39962G	-53.45	2.48389G	-46.24	15.33088G	-40.82	1
BT-LE(0.5Mbps)	-	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	2.40171G	10.73	-19.27	2.39511G	-53.41	2.39964G	-43.72	2.48697G	-53.09	15.07762G	-40.78	1
2440MHz	Pass	2.40171G	10.73	-19.27	2.1591G	-54.13	2.39908G	-54.00	2.4861G	-52.77	15.33651G	-40.61	1
2480MHz	Pass	2.40171G	10.73	-19.27	2.0689G	-55.06	2.39941G	-53.26	2.4836G	-47.30	15.11138G	-40.81	1

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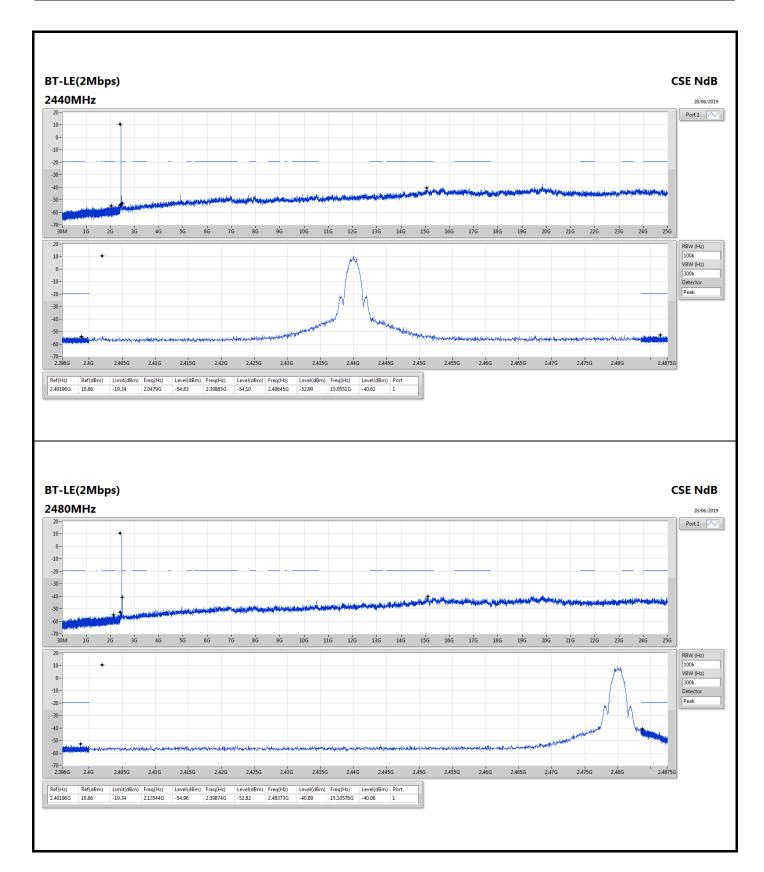




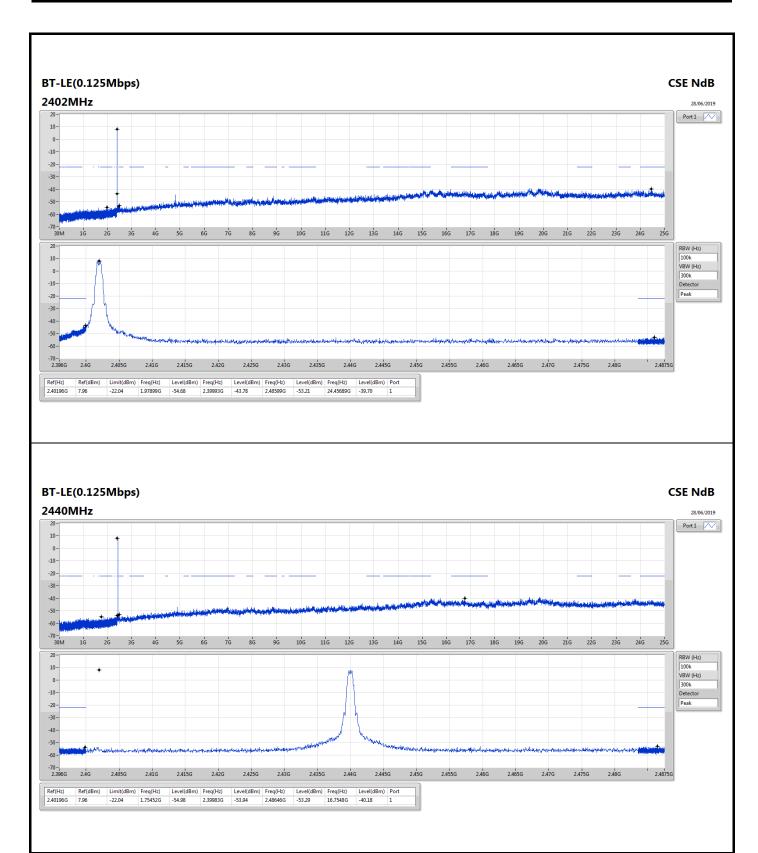




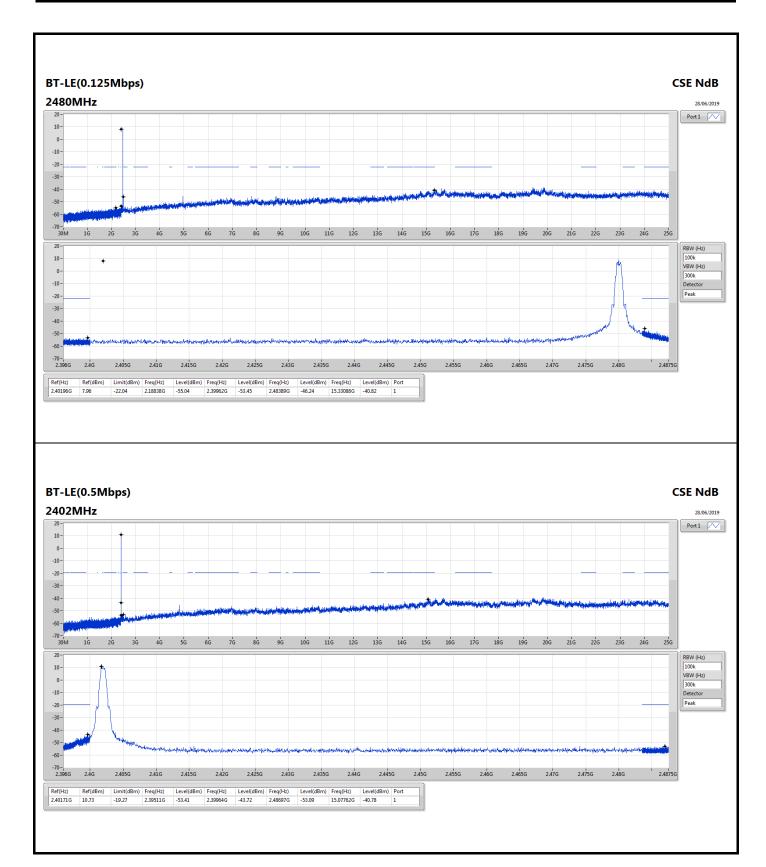




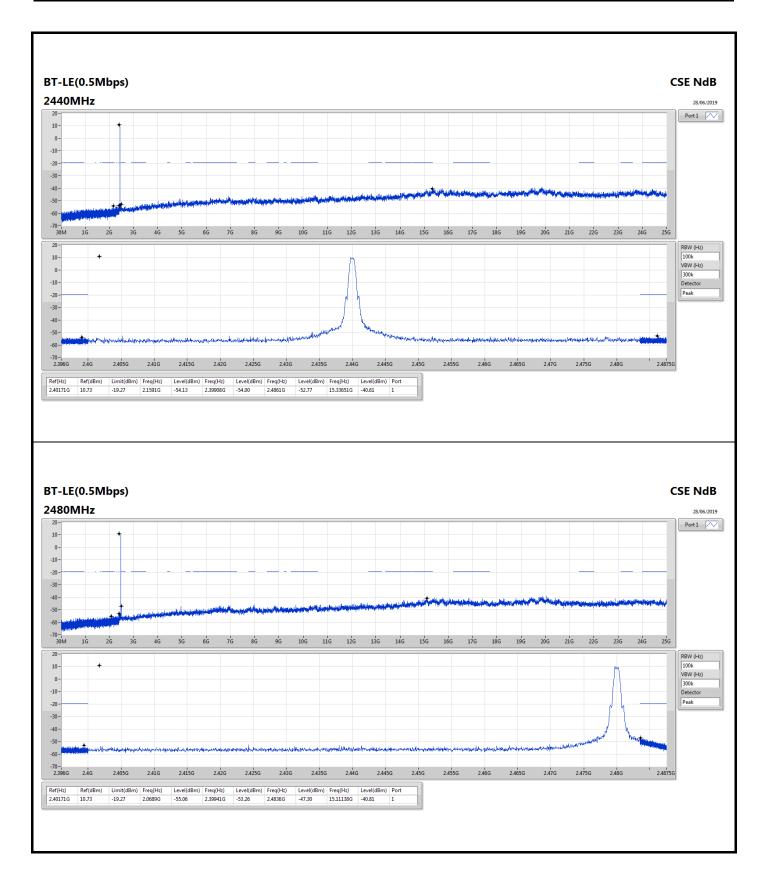














Appendix F.1

**Summary** 

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2.4-2.4835GHz	-	-	•	-	-	-	-	-	-	-	-	-
BT-LE(2Mbps)	Pass	PK	41.64M	35.57	40.00	-4.43	-19.06	3	Vertical	360	2.00	-

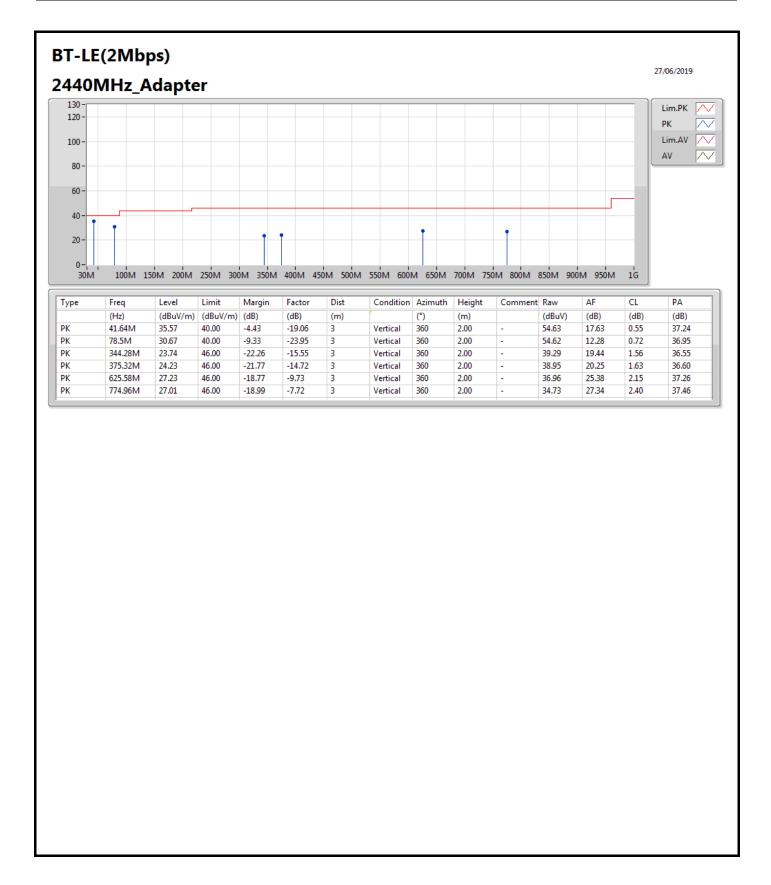
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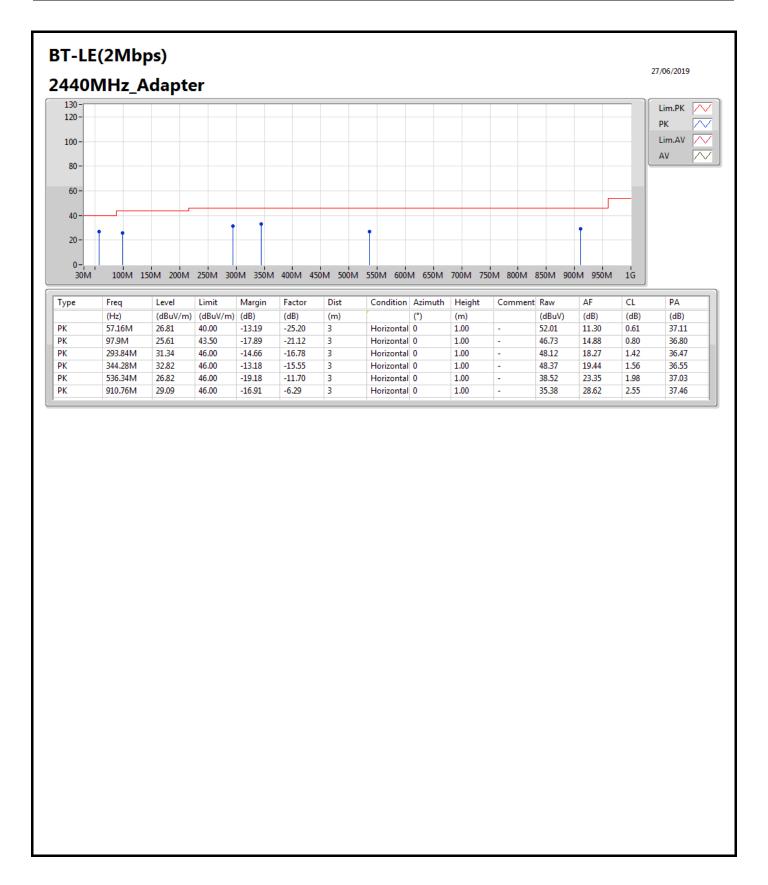
Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2440MHz	Pass	PK	41.64M	35.57	40.00	-4.43	-19.06	3	Vertical	360	2.00	-
2440MHz	Pass	PK	78.5M	30.67	40.00	-9.33	-23.95	3	Vertical	360	2.00	-
2440MHz	Pass	PK	344.28M	23.74	46.00	-22.26	-15.55	3	Vertical	360	2.00	-
2440MHz	Pass	PK	375.32M	24.23	46.00	-21.77	-14.72	3	Vertical	360	2.00	-
2440MHz	Pass	PK	625.58M	27.23	46.00	-18.77	-9.73	3	Vertical	360	2.00	-
2440MHz	Pass	PK	774.96M	27.01	46.00	-18.99	-7.72	3	Vertical	360	2.00	-
2440MHz	Pass	PK	57.16M	26.81	40.00	-13.19	-25.20	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	97.9M	25.61	43.50	-17.89	-21.12	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	293.84M	31.34	46.00	-14.66	-16.78	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	344.28M	32.82	46.00	-13.18	-15.55	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	536.34M	26.82	46.00	-19.18	-11.70	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	910.76M	29.09	46.00	-16.91	-6.29	3	Horizontal	0	1.00	-
2440MHz	Pass	PK	92.08M	27.58	43.50	-15.92	-21.91	3	Vertical	0	1.00	-
2440MHz	Pass	PK	159.98M	26.72	43.50	-16.78	-19.77	3	Vertical	0	1.00	-
2440MHz	Pass	PK	255.04M	24.21	46.00	-21.79	-16.35	3	Vertical	0	1.00	-
2440MHz	Pass	PK	346.22M	31.13	46.00	-14.87	-15.49	3	Vertical	0	1.00	-
2440MHz	Pass	PK	643.04M	25.87	46.00	-20.13	-9.44	3	Vertical	0	1.00	-
2440MHz	Pass	PK	932.1M	34.66	46.00	-11.34	-5.34	3	Vertical	0	1.00	-
2440MHz	Pass	PK	86.26M	24.94	40.00	-15.06	-22.89	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	175.5M	28.09	43.50	-15.41	-20.94	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	216M	28.32	43.50	-15.18	-20.91	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	344.28M	35.79	46.00	-10.21	-15.55	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	530.52M	24.47	46.00	-21.53	-11.74	3	Horizontal	360	1.00	-
2440MHz	Pass	PK	776.9M	33.01	46.00	-12.99	-7.70	3	Horizontal	360	1.00	-

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Appendix F.2

**Summary** 

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	-	-	-	-
BT-LE(0.125Mbps)	Pass	AV	2.4835G	46.16	54.00	-7.84	31.58	3	Horizontal	155	1.50	-
BT-LE(0.5Mbps)	Pass	AV	2.4835G	45.83	54.00	-8.17	31.58	3	Horizontal	155	1.49	-
BT-LE(1Mbps)	Pass	AV	2.4835G	46.29	54.00	-7.71	31.58	3	Horizontal	154	1.53	-
BT-LE(2Mbps)	Pass	AV	2.4835G	49.66	54.00	-4.34	31.58	3	Horizontal	154	1.50	-

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Result							i				i	
Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
BT-LE(0.125Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3568G	43.01	54.00	-10.99	31.64	3	Vertical	167	1.50	-
2402MHz	Pass	AV	2.402G	91.85	Inf	-Inf	31.54	3	Vertical	167	1.50	-
2402MHz	Pass	PK	2.369G	56.81	74.00	-17.19	31.61	3	Vertical	167	1.50	-
2402MHz	Pass	PK	2.4022G	93.70	Inf	-Inf	31.54	3	Vertical	167	1.50	-
2402MHz	Pass	AV	2.3636G	43.00	54.00	-11.00	31.63	3	Horizontal	154	1.49	-
2402MHz	Pass	AV	2.402G	100.12	Inf	-Inf	31.54	3	Horizontal	154	1.49	-
2402MHz	Pass	PK	2.3566G	56.38	74.00	-17.62	31.64	3	Horizontal	154	1.49	-
2402MHz	Pass	PK	2.4022G	102.09	Inf	-Inf	31.54	3	Horizontal	154	1.49	-
2402MHz	Pass	AV	4.80359G	32.61	54.00	-21.39	-3.94	3	Vertical	211	1.50	-
2402MHz	Pass	PK	4.80397G	45.34	74.00	-28.66	-3.94	3	Vertical	211	1.50	-
2402MHz	Pass	AV	4.80396G	38.14	54.00	-15.86	-3.94	3	Horizontal	44	1.00	-
2402MHz	Pass	PK	4.80345G	48.07	74.00	-25.93	-3.94	3	Horizontal	44	1.00	-
2440MHz	Pass	AV	2.3492G	43.23	54.00	-10.77	31.66	3	Vertical	166	1.50	-
2440MHz	Pass	AV	2.44G	94.54	Inf	-Inf	31.55	3	Vertical	166	1.50	-
2440MHz	Pass	AV	2.4936G	43.51	54.00	-10.49	31.58	3	Vertical	166	1.50	-
2440MHz	Pass	PK	2.378G	56.33	74.00	-17.67	31.59	3	Vertical	166	1.50	-
2440MHz	Pass	PK	2.4404G	95.88	Inf	-Inf	31.55	3	Vertical	166	1.50	-
2440MHz	Pass	PK	2.4908G	56.68	74.00	-17.32	31.58	3	Vertical	166	1.50	-
2440MHz	Pass	AV	2.3504G	43.18	54.00	-10.82	31.66	3	Horizontal	154	1.50	_
2440MHz	Pass	AV	2.44G	101.11	Inf	-Inf	31.55	3	Horizontal	154	1.50	_
2440MHz	Pass	AV	2.492G	43.51	54.00	-10.49	31.58	3	Horizontal	154	1.50	_
2440MHz	Pass	PK	2.3752G	57.38	74.00	-16.62	31.60	3	Horizontal	154	1.50	_
2440MHz	Pass	PK	2.4396G	102.45	Inf	-10.02 -Inf	31.55	3	Horizontal	154	1.50	
2440MHz	Pass	PK	2.4892G	56.35	74.00	-17.65	31.57	3	Horizontal	154	1.50	_
2440MHz	Pass	AV	4.87995G	32.87	54.00	-21.13	-3.90	3	Vertical	204	1.49	_
2440MHz	Pass	PK	4.87941G	44.74	74.00	-29.26	-3.90	3	Vertical	204	1.49	_
2440MHz	Pass	AV	4.87994G	38.59	54.00	-15.41	-3.90	3	Horizontal	357	2.09	_
2440MHz	Pass	PK	4.87942G	48.26	74.00	-25.74	-3.90	3	Horizontal	357	2.09	_
2480MHz	Pass	AV	2.48G	97.23	Inf	-25.74 -Inf	31.57	3	Vertical	96	1.50	_
2480MHz	Pass	AV	2.4836G	44.23	54.00	-9.77	31.58	3	Vertical	96	1.50	_
2480MHz	Pass	PK	2.4802G	98.43	Inf	-9.77 -Inf	31.57	3	Vertical	96	1.50	_
2480MHz	Pass	PK	2.485G	56.62	74.00	-17.38	31.58	3	Vertical	96	1.50	_
2480MHz	Pass	AV	2.48G	103.19	Inf	-17.30 -Inf	31.57	3	Horizontal	155	1.50	_
2480MHz	Pass	AV	2.4835G	46.16	54.00	-7.84	31.58	3	Horizontal	155	1.50	-
2480MHz	Pass	PK	2.4798G	104.32	Inf	-7.04 -Inf	31.57	3	Horizontal	155	1.50	_
2480MHz	Pass	PK	2.4730G 2.4838G	57.97	74.00	-16.03	31.58	3	Horizontal	155	1.50	-
2480MHz	Pass	AV	4.96001G	36.29	54.00	-17.71	-3.63	3	Vertical	208	2.99	_
2480MHz	Pass	PK	4.9604G	46.76	74.00	-27.24	-3.63	3	Vertical	208	2.99	
2480MHz	Pass	AV	4.95995G	39.82	54.00	-14.18	-3.63	3	Horizontal	351	1.44	_
2480MHz	Pass	PK	4.95993G 4.96037G	48.67	74.00	-25.33	-3.63	3	Horizontal	351	1.44	_
BT-LE(0.5Mbps)	-	-	4.500510	-	-	-20.00	-3.03		i ionzoniai	-	1.44	-
2402MHz		AV	2.361G	43.24	54.00	-10.76	31.64	3	Vertical	167	1.50	-
	Pass							3	Vertical			-
2402MHz	Pass	AV	2.402G	92.14	Inf	-Inf	31.54		Vertical	167	1.50	-
2402MHz	Pass	PK	2.3606G	55.90	74.00	-18.10	31.64	3	Vertical	167	1.50	-
2402MHz	Pass	PK	2.4018G	93.99	Inf	-Inf	31.54	3	Vertical	167	1.50	-
2402MHz	Pass	AV	2.3526G	43.19	54.00	-10.81	31.65	3	Horizontal	155	1.48	-
2402MHz	Pass	AV	2.402G	100.62	Inf	-Inf	31.54	3	Horizontal	155	1.48	-

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		_	I _				T					
Mode	Result	Type	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2402MHz	Pass	PK	2.3876G	56.68	74.00	-17.32	31.57	3	Horizontal	155	1.48	-
2402MHz	Pass	PK	2.4022G	102.46	Inf	-Inf	31.54	3	Horizontal	155	1.48	-
2402MHz	Pass	AV	4.80391G	34.03	54.00	-19.97	-3.94	3	Vertical	208	1.88	-
2402MHz	Pass	PK	4.80349G	45.79	74.00	-28.21	-3.94	3	Vertical	208	1.88	-
2402MHz	Pass	AV	4.80396G	38.81	54.00	-15.19	-3.94	3	Horizontal	40	1.01	-
2402MHz	Pass	PK	4.80364G	47.89	74.00	-26.11	-3.94	3	Horizontal	40	1.01	-
2440MHz	Pass	AV	2.348G	43.17	54.00	-10.83	31.67	3	Vertical	165	1.50	-
2440MHz	Pass	AV	2.44G	93.75	Inf	-Inf	31.55	3	Vertical	165	1.50	-
2440MHz	Pass	AV	2.496G	43.48	54.00	-10.52	31.57	3	Vertical	165	1.50	-
2440MHz	Pass	PK	2.3608G	57.04	74.00	-16.96	31.64	3	Vertical	165	1.50	-
2440MHz	Pass	PK	2.4404G	95.67	Inf	-Inf	31.55	3	Vertical	165	1.50	-
2440MHz	Pass	PK	2.4924G	56.41	74.00	-17.59	31.58	3	Vertical	165	1.50	-
2440MHz	Pass	AV	2.3468G	43.25	54.00	-10.75	31.67	3	Horizontal	152	1.52	-
2440MHz	Pass	AV	2.44G	100.55	Inf	-Inf	31.55	3	Horizontal	152	1.52	-
2440MHz	Pass	AV	2.4976G	43.49	54.00	-10.51	31.58	3	Horizontal	152	1.52	-
2440MHz	Pass	PK	2.3452G	56.61	74.00	-17.39	31.67	3	Horizontal	152	1.52	-
2440MHz	Pass	PK	2.4396G	102.38	Inf	-Inf	31.55	3	Horizontal	152	1.52	-
2440MHz	Pass	PK	2.4884G	56.76	74.00	-17.24	31.57	3	Horizontal	152	1.52	-
2440MHz	Pass	AV	4.87996G	33.50	54.00	-20.50	-3.90	3	Vertical	204	1.45	-
2440MHz	Pass	PK	4.88022G	45.07	74.00	-28.93	-3.90	3	Vertical	204	1.45	-
2440MHz	Pass	AV	4.87995G	39.02	54.00	-14.98	-3.90	3	Horizontal	358	2.16	-
2440MHz	Pass	PK	4.87953G	47.73	74.00	-26.27	-3.90	3	Horizontal	358	2.16	-
2480MHz	Pass	AV	2.4798G	96.16	Inf	-Inf	31.57	3	Vertical	96	1.50	-
2480MHz	Pass	AV	2.4836G	44.18	54.00	-9.82	31.58	3	Vertical	96	1.50	-
2480MHz	Pass	PK	2.4802G	98.32	Inf	-Inf	31.57	3	Vertical	96	1.50	_
2480MHz	Pass	PK	2.4844G	56.59	74.00	-17.41	31.58	3	Vertical	96	1.50	_
2480MHz	Pass	AV	2.48G	102.43	Inf	-Inf	31.57	3	Horizontal	155	1.49	_
2480MHz	Pass	AV	2.4835G	45.83	54.00	-8.17	31.58	3	Horizontal	155	1.49	_
2480MHz	Pass	PK	2.4798G	104.37	Inf	-Inf	31.57	3	Horizontal	155	1.49	_
2480MHz	Pass	PK	2.4842G	57.75	74.00	-16.25	31.58	3	Horizontal	155	1.49	_
2480MHz	Pass	AV	4.96003G	35.67	54.00	-18.33	-3.63	3	Vertical	214	2.27	_
2480MHz	Pass	PK	4.9596G	46.78	74.00	-27.22	-3.63	3	Vertical	214	2.27	
2480MHz	Pass	AV	4.96G	40.72	54.00	-13.28	-3.63	3	Horizontal	352	2.14	-
			4.96018G				-				-	
2480MHz BT-LE(1Mbps)	Pass -	PK -	4.90010G	48.83	74.00	-25.17	-3.63	3	Horizontal -	352	2.14	-
2402MHz	Pass	AV	2.3616G	43.28	54.00	-10.72	31.63	3	Vertical	163	1.50	<del>                                     </del>
							-		-			<del>-</del>
2402MHz	Pass	AV	2.402G	89.42	Inf	-Inf	31.54	3	Vertical	163	1.50	-
2402MHz	Pass	PK	2.357G	57.05	74.00	-16.95	31.64	3	Vertical	163	1.50	-
2402MHz	Pass	PK AV	2.402G	93.74	Inf	-Inf	31.54	3	Vertical	163	1.50	-
2402MHz	Pass	AV	2.3586G	43.24	54.00	-10.76	31.64	3	Horizontal	305	1.50	-
2402MHz	Pass	AV	2.402G	97.27	Inf	-Inf	31.54	3	Horizontal	305	1.50	-
2402MHz	Pass	PK	2.3846G	56.37	74.00	-17.63	31.57	3	Horizontal	305	1.50	-
2402MHz	Pass	PK	2.4018G	102.16	Inf	-Inf	31.54	3	Horizontal	305	1.50	-
2402MHz	Pass	AV	4.80393G	33.44	54.00	-20.56	-3.94	3	Vertical	207	1.50	-
2402MHz	Pass	PK	4.8035G	45.36	74.00	-28.64	-3.94	3	Vertical	207	1.50	-
2402MHz	Pass	AV	4.804G	38.17	54.00	-15.83	-3.94	3	Horizontal	42	1.00	-
2402MHz	Pass	PK	4.80353G	47.77	74.00	-26.23	-3.94	3	Horizontal	42	1.00	-
2440MHz	Pass	AV	2.3508G	43.20	54.00	-10.80	31.66	3	Vertical	166	1.51	-
2440MHz	Pass	AV	2.44G	90.93	Inf	-Inf	31.55	3	Vertical	166	1.51	-

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Mode	Result	Tune	Eroa	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
Wode	Result	Туре	Freq		(dBuV/m)	Margin (dB)			Condition		_	Comments
2440MHz	Door	A)/	(Hz)	(dBuV/m)			(dB)	(m) 3	Vertical	(°)	(m)	
2440MHz	Pass	AV	2.498G	43.55	54.00	-10.45	31.58 31.66	3	Vertical	166	1.51	-
	Pass	PK	2.3536G	56.35	74.00	-17.65	-	3	Vertical	166	1.51	-
2440MHz	Pass	PK	2.4396G	95.45	Inf	-Inf	31.55		Vertical	166	1.51	
2440MHz	Pass	PK	2.4976G	57.25	74.00	-16.75	31.58	3	Vertical	166	1.51	-
2440MHz	Pass	AV	2.3472G	43.19	54.00	-10.81	31.67	3	Horizontal	154	1.50	-
2440MHz	Pass	AV	2.44G	97.91	Inf	-Inf	31.55	3	Horizontal	154	1.50	-
2440MHz	Pass	AV	2.4908G	43.55	54.00	-10.45	31.58	3	Horizontal	154	1.50	-
2440MHz	Pass	PK	2.3456G	56.66	74.00	-17.34	31.67	3	Horizontal	154	1.50	-
2440MHz	Pass	PK	2.44G	102.76	Inf	-Inf	31.55	3	Horizontal	154	1.50	-
2440MHz	Pass	PK	2.49G	56.67	74.00	-17.33	31.58	3	Horizontal	154	1.50	-
2440MHz	Pass	AV	4.87991G	33.37	54.00	-20.63	-3.90	3	Vertical	207	1.93	-
2440MHz	Pass	PK	4.87934G	45.26	74.00	-28.74	-3.90	3	Vertical	207	1.93	-
2440MHz	Pass	AV	4.87995G	38.60	54.00	-15.40	-3.90	3	Horizontal	358	2.16	-
2440MHz	Pass	PK	4.87945G	47.81	74.00	-26.19	-3.90	3	Horizontal	358	2.16	-
2480MHz	Pass	AV	2.48G	94.82	Inf	-Inf	31.57	3	Vertical	98	1.79	-
2480MHz	Pass	AV	2.4835G	44.39	54.00	-9.61	31.58	3	Vertical	98	1.79	-
2480MHz	Pass	PK	2.48G	99.41	Inf	-Inf	31.57	3	Vertical	98	1.79	-
2480MHz	Pass	PK	2.4835G	56.57	74.00	-17.43	31.58	3	Vertical	98	1.79	-
2480MHz	Pass	AV	2.48G	99.42	Inf	-Inf	31.57	3	Horizontal	154	1.53	-
2480MHz	Pass	AV	2.4835G	46.29	54.00	-7.71	31.58	3	Horizontal	154	1.53	-
2480MHz	Pass	PK	2.4798G	104.45	Inf	-Inf	31.57	3	Horizontal	154	1.53	-
2480MHz	Pass	PK	2.4838G	59.43	74.00	-14.57	31.58	3	Horizontal	154	1.53	-
2480MHz	Pass	AV	4.95991G	35.97	54.00	-18.03	-3.63	3	Vertical	207	2.99	-
2480MHz	Pass	PK	4.9604G	46.35	74.00	-27.65	-3.63	3	Vertical	207	2.99	-
2480MHz	Pass	AV	4.95996G	40.21	54.00	-13.79	-3.63	3	Horizontal	351	2.14	-
2480MHz	Pass	PK	4.95942G	48.85	74.00	-25.15	-3.63	3	Horizontal	351	2.14	-
BT-LE(2Mbps)	-	-	-	-	-	-	-	-	-	-	-	-
2402MHz	Pass	AV	2.3574G	43.19	54.00	-10.81	31.64	3	Vertical	166	1.50	-
2402MHz	Pass	AV	2.402G	77.25	Inf	-Inf	31.54	3	Vertical	166	1.50	-
2402MHz	Pass	PK	2.3722G	57.50	74.00	-16.50	31.60	3	Vertical	166	1.50	-
2402MHz	Pass	PK	2.4024G	93.92	Inf	-Inf	31.54	3	Vertical	166	1.50	-
2402MHz	Pass	AV	2.3558G	43.18	54.00	-10.82	31.65	3	Horizontal	171	1.50	-
2402MHz	Pass	AV	2.402G	78.58	Inf	-Inf	31.54	3	Horizontal	171	1.50	-
2402MHz	Pass	PK	2.3688G	56.27	74.00	-17.73	31.61	3	Horizontal	171	1.50	-
2402MHz	Pass	PK	2.4024G	95.76	Inf	-Inf	31.54	3	Horizontal	171	1.50	-
2402MHz	Pass	AV	4.80477G	32.14	54.00	-21.86	-3.94	3	Vertical	209	1.50	-
2402MHz	Pass	PK	4.80417G	45.19	74.00	-28.81	-3.94	3	Vertical	209	1.50	-
2402MHz	Pass	AV	4.80494G	34.12	54.00	-19.88	-3.94	3	Horizontal	39	1.01	-
2402MHz	Pass	PK	4.80493G	47.22	74.00	-26.78	-3.94	3	Horizontal	39	1.01	-
2440MHz	Pass	AV	2.3408G	43.20	54.00	-10.80	31.69	3	Vertical	167	1.50	-
2440MHz	Pass	AV	2.44G	78.59	Inf	-Inf	31.55	3	Vertical	167	1.50	-
2440MHz	Pass	AV	2.4964G	43.48	54.00	-10.52	31.57	3	Vertical	167	1.50	-
2440MHz	Pass	PK	2.3812G	56.45	74.00	-17.55	31.59	3	Vertical	167	1.50	-
2440MHz	Pass	PK	2.4404G	95.67	Inf	-Inf	31.55	3	Vertical	167	1.50	-
2440MHz	Pass	PK	2.4976G	56.76	74.00	-17.24	31.58	3	Vertical	167	1.50	-
2440MHz	Pass	AV	2.348G	43.26	54.00	-10.74	31.67	3	Horizontal	155	1.51	-
2440MHz	Pass	AV	2.44G	83.28	Inf	-Inf	31.55	3	Horizontal	155	1.51	-
2440MHz	Pass	AV	2.4988G	43.50	54.00	-10.50	31.58	3	Horizontal	155	1.51	-
2440MHz	Pass	PK	2.346G	56.55	74.00	-17.45	31.68	3	Horizontal	155	1.51	-

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### RSE TX above 1GHz

# Appendix F.2

Mode	Result	Туре	Freq	Level	Limit	Margin	Factor	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dB)	(m)		(°)	(m)	
2440MHz	Pass	PK	2.4404G	102.28	Inf	-Inf	31.55	3	Horizontal	155	1.51	-
2440MHz	Pass	PK	2.4988G	56.81	74.00	-17.19	31.58	3	Horizontal	155	1.51	-
2440MHz	Pass	AV	4.87896G	30.65	54.00	-23.35	-3.90	3	Vertical	202	1.50	-
2440MHz	Pass	PK	4.87907G	44.58	74.00	-29.42	-3.90	3	Vertical	202	1.50	-
2440MHz	Pass	AV	4.88087G	33.71	54.00	-20.29	-3.90	3	Horizontal	357	2.17	-
2440MHz	Pass	PK	4.87903G	47.67	74.00	-26.33	-3.90	3	Horizontal	357	2.17	-
2480MHz	Pass	AV	2.48G	81.36	Inf	-Inf	31.57	3	Vertical	96	2.95	-
2480MHz	Pass	AV	2.4835G	46.97	54.00	-7.03	31.58	3	Vertical	96	2.95	-
2480MHz	Pass	PK	2.4804G	99.48	Inf	-Inf	31.57	3	Vertical	96	2.95	-
2480MHz	Pass	PK	2.4835G	60.53	74.00	-13.47	31.58	3	Vertical	96	2.95	-
2480MHz	Pass	AV	2.48G	84.94	Inf	-Inf	31.57	3	Horizontal	154	1.50	-
2480MHz	Pass	AV	2.4835G	49.66	54.00	-4.34	31.58	3	Horizontal	154	1.50	-
2480MHz	Pass	PK	2.4794G	104.35	Inf	-Inf	31.57	3	Horizontal	154	1.50	-
2480MHz	Pass	PK	2.4835G	64.19	74.00	-9.81	31.58	3	Horizontal	154	1.50	-
2480MHz	Pass	AV	4.96083G	32.18	54.00	-21.82	-3.63	3	Vertical	209	2.99	-
2480MHz	Pass	PK	4.95984G	45.55	74.00	-28.45	-3.63	3	Vertical	209	2.99	-
2480MHz	Pass	AV	4.96083G	34.65	54.00	-19.35	-3.63	3	Horizontal	358	2.12	-
2480MHz	Pass	PK	4.95905G	48.58	74.00	-25.42	-3.63	3	Horizontal	358	2.12	-

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