

Report No.: FR751835AD

Project No: CB10607466

FCC Test Report

Equipment

: AC2200 Smart Whole-Home Wi-Fi System

Brand Name

TP-Link

Model No.

Deco M6

FCC ID

: TE7M6

Standard

: 47 CFR FCC Part 15.247

Frequency

: 2400 MHz - 2483.5 MHz

Function

⊠Point-to-multipoint; □Point-to-point

Applicant

: TP-Link Technologies Co., Ltd.

Building 24 (floors 1,3,4,5) and 28 (floors1-4)

Central Science and Technology Park, Shennan Rd,

Nanshan, Shenzhen, China

Manufacturer

: TP-Link Technologies Co., Ltd.

Building 24 (floors 1,3,4,5) and 28 (floors1-4)

Central Science and Technology Park, Shennan Rd,

Nanshan, Shenzhen, China

The product sample received on May 18, 2017 and completely tested on Jul. 04, 2017. We, SPORTON, 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 test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONALINC., the test report shall not be reproduced except in full.

Sam Chen

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Summary of Test Result

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

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Revision History

Report No.	Version	Description	Issued Date
FR751835AD	Rev. 01	Initial issue of report	Sep. 04, 2017

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1 General Description

1.1 Information

1.1.1 RF General Information

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

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

Note:

- Bluetooth LE uses a GFSK (1Mbps) modulation for DSSS.
- BWch is the channel separation
- Nss-Min is the minimum number of spatial streams.
- Nant is the number of outputs. e.g., 2(2, 3) means have 2 outputs for port 2 and port 3. 2 means have 2 outputs for port 1 and port 2.

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1.1.2 Antenna Information

Ant.	Brand	Product Number	Туре	Connector	Gain (dBi)	Remark
1	TP-LINK	3101501303	Omni-Directional	I-PEX	1.2	WLAN 2.4GHz TX/RX
2	TP-LINK	3101501305	Omni-Directional	I-PEX	1.3	WLAN 2.4GHz TX/RX
3	TP-LINK	3101501307	Omni-Directional	I-PEX	0.85	WLAN 5GHz band 1 TX/RX
4	TP-LINK	3101501309	Omni-Directional	I-PEX	0.64	WLAN 5GHz band 1 TX/RX
5	TP-LINK	3101501306	Omni-Directional	I-PEX	0.81	WLAN 5GHz band 4 TX/RX
6	TP-LINK	3101501308	Omni-Directional	I-PEX	0.88	WLAN 5GHz band 4 TX/RX
7	TP-LINK	6035500107	Omni-Directional	N/A	1.4	Bluetooth TX/RX
8	TP-LINK	3101501304	Omni-Directional	I-PEX	1.1	Zigbee TX/RX

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Note: The EUT has eight antennas.

For WLAN 2.4GHz b/g/n/ac (2TX/2RX):

Ant. 1 (Port 1), and Ant. 2 (Port 2) can be used as transmitting/receiving antenna.

Ant. 1 (Port 1), and Ant. 2 (Port 2) could transmit/receive simultaneously.

For WLAN 5GHz band 1 a/n/ac (2TX/2RX):

Ant. 3 (Port 1), and Ant. 4 (Port 2) can be used as transmitting/receiving antenna.

Ant. 3 (Port 1), and Ant. 4 (Port 2) could transmit/receive simultaneously.

For WLAN 5GHz band 4 a/n/ac (2TX/2RX):

Ant. 5 (Port 1), and Ant. 6 (Port 2) can be used as transmitting/receiving antenna.

Ant. 5 (Port 1), and Ant. 6 (Port 2) could transmit/receive simultaneously.

For Bluetooth (1TX/1RX):

Only Ant. 7 (Port 1) can be used as transmitting/receiving antenna.

For Zigbee (1TX/1RX):

Only Ant. 8 (Port 1) can be used as transmitting/receiving antenna.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF(dB)
BT-LE(1Mbps)	0.611	2.14

1.1.4 EUT Operational Condition

EUT Power Type	From Power Adapter

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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:

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- 47 CFR FCC Part 15
- ANSI C63.10-2013
- FCC KDB 558074 D01 v04
- FCC KDB 412172 D01 v01r01

1.3 Testing Location Information

	Testing Location				
	HWA YA	ADD	:	No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.	
		TEL	:	886-3-327-3456 FAX : 886-3-318-0055	
\boxtimes	JHUBEI	ADD	:	No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.	
		TEL	:	886-3-656-9065 FAX : 886-3-656-9085	

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-CB	Brian Sun	22°C / 54%	Jun. 27, 2017~Jul. 03, 2017
Radiated	03CH01-CB	Paul Chen, Jay Luo, Welson Chen	22°C / 54%	Jun. 20, 2017~Jul. 04, 2017
AC Conduction	CO01-CB	GN Hou	23°C / 53%	Jun. 27, 2017

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.

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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)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	9.74 x10 ⁻⁸	Confidence levels of 95%

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2 Test Configuration of EUT

2.1 Test Channel Mode

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

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2.2 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	Normal Link (Repeater mode)	

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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	

Th	e 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	Normal Link (Repeater mode)
Operating Mode > 1GHz	CTX

The Worst Case Mode for Following Conformance Tests			
Tests Item	Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation		
Operating Mode	Operating Mode		
1 WLAN 2.4GHz+WLAN 5GHz+Bluetooth+Zigbee			
Refer to Sporton Test Report No.: FA751835 for Co-location RF Exposure Evaluation.			

Note: 1. The EUT can only be used at Z axis position.

- 2. All the specification of test configurations and test modes were based on customer's request.
- 3. There are two modes of EUT, one is AP mode, and other is Repeater mode, Repeater mode was selected as representative test mode because it equipped with the most complicated functions.

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2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link:

During the test, the EUT operation to normal function.

During the test, the following programs under WIN 7 were executed:

The remote notebook executed "ping.exe" to link with the EUT to maintain the connection by LAN, WAN and WLAN.

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The remote notebook executed "Telent" to traffic packet data and sent instruction to another device.

The remote notebook executed "Telent" to control the EUT continuously transmit Bluetooth and Zigbee signal. The remote notebook executed "Winthrax.exe" to read and write data from EUT.

2.4 Accessories

		,	Accessories	
No	Equipment Name	Brand Name	Model Name	Rating
1	Adapter	TP-Link	T120200-2B4	Input: 100-240V ~ 50/60Hz, 0.8A Output: 12V, 2A

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2.5 Support Equipment

For Test Site No: CO01-CB

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	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
1	NB*6	DELL	E6430	DoC	
2	AP	TP-LINK	Deco M6	DoC	
3	Device	TP-LINK	Deco M6	DoC	
4	Flash disk3.0	Transcend	639205 7755	DoC	

For Test Site No: 03CH01-CB (below 1GHz)

		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
1	NB*4	DELL	E4300	DoC
2	NB*2	Apple	Mac Book	DoC
3	AP	TP-LINK	Deco M6	DoC
4	Device	TP-LINK	Deco M6	DoC
5	Flash disk	Silicon Power	I-Series	DoC

For Test Site No: 03CH01-CB (above 1GHz)

	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
1	NB	DELL	E4300	DoC	

For Test Site No: TH01-CB

	Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID	
1	NB	DELL	E4300	DoC	

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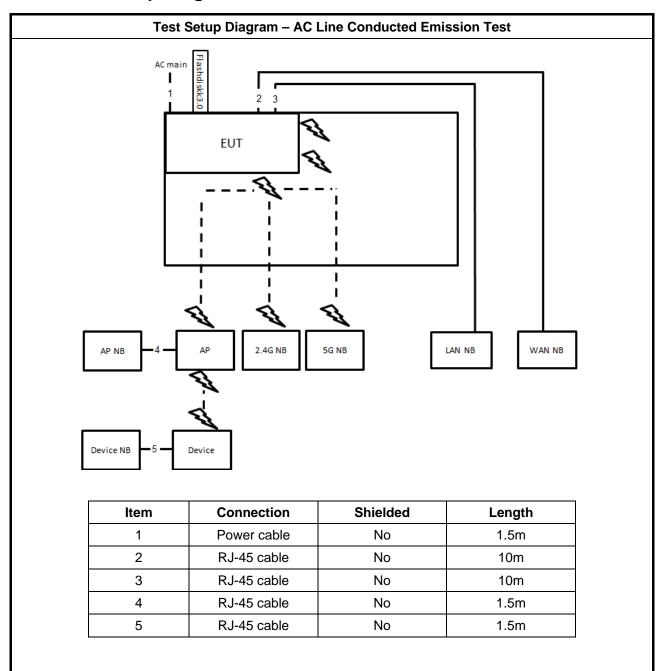
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Test Setup Diagram 2.6



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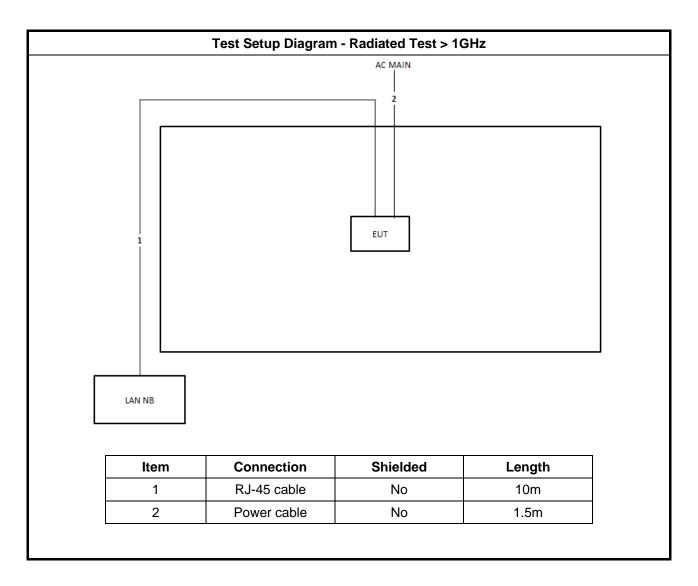


Test Setup Diagram - Radiated Test < 1GHz AC MAIN Flashdisk WAN NB LAN NB Device Device NB AP NB 2.4G NB 5G NB (Repeater) (Repeater) Connection **Shielded** Length **Item** 1 Power cable No 1.5m 2 RJ-45 cable No 10m 3 RJ-45 cable No 10m 4 RJ-45 cable No 1.5m 5 RJ-45 cable No 1.5m

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3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Powe	er-line Conducted Emissions L	imit
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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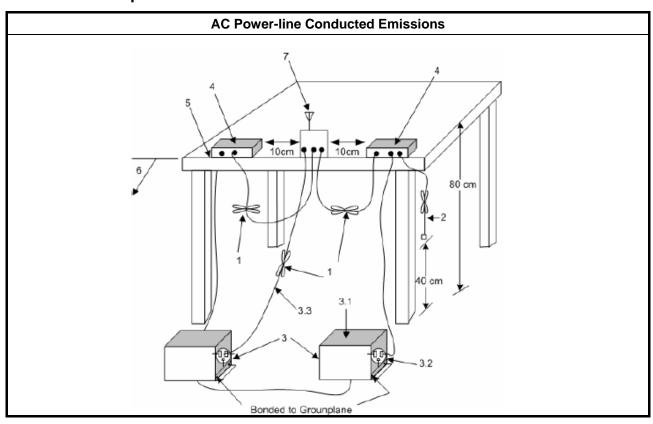
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

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

3.1.4 Test Setup



3.1.5 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A

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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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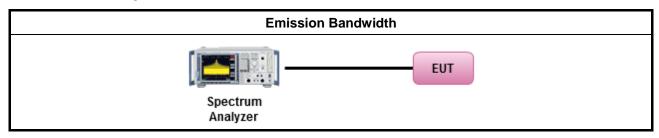
3.2.2 Measuring Instruments

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 FCC KDB 558074, clause 8.1 Option 1 for6 dB bandwidth measurement.							
Refer as FCC KDB 558074, clause 8.2 Option 2 for6 dB bandwidth measurement.								
	Refer as ANSI C63.10, clause 6.9.1 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

Maximum Conducted Output Power Limit■ If $G_{TX} \le 6$ dBi, then $P_{Out} \le 30$ dBm (1 W)■ Point-to-multipoint systems (P2M): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)$ dBm■ Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm■ Smart antenna system (SAS):- Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm- Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3$ dBm- Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 - (G_{TX} - 6)/3 + 8$ dB dBm

 \mathbf{P}_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, \mathbf{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 FCC KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).									
	☐ Refer as FCC KDB 558074, clause 9.1.2 Option 2 (peak power meter for VBW ≥ DTS BW)									
•	Maximum Conducted Output Power									
	[duty cycle ≥ 98% or external video / power trigger]									
	Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).									
	Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)									
	duty cycle < 98% and average over on/off periods with duty factor									
	Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).									
	Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)									
	RF power meter and average over on/off periods with duty factor or gated trigger									
	Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM-G (using an RF average power meter).									
•	For conducted measurement.									
	If the EUT supports multiple transmit chains using options given below: Refer as FCC 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 + + P _n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP _{total} = P _{total} + DG									

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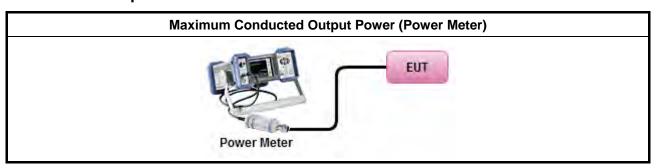
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3.3.4 Test Setup



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3.3.5 Test Result of Maximum Conducted Output Power

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3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

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

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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).									
	$oxed{\boxtimes}$ Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz; Detector=peak).									
	[duty cycle ≥ 98% or external video / power trigger]									
	Refer as FCC KDB 558074, clause 10.3 Method AVGPSD-1 (spectral trace averaging).									
	Refer as FCC KDB 558074, clause 10.4 Method AVGPSD-2 (slow sweep speed)									
	duty cycle < 98% and average over on/off periods with duty factor									
İ	Refer as FCC KDB 558074, clause 10.5 Method AVGPSD-1 Alt (spectral trace averaging).									
	Refer as FCC KDB 558074, clause 10.6 Method AVGPSD-2 Alt. (slow sweep speed)									
•	For conducted measurement.									
	If The EUT supports multiple transmit chains using options given below:									
	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 66 In-band power spectral density (PSD). Sample all transmit ports simultaneously us spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up NTX output to obtain the value for the first frequency bin of the summed spectrum.). A the amplitude (power) values for the different transmit chains and use this as the new trace.	sing a it port in the to the dd up								
	Option 2: Measure and sum spectral maxima across the outputs. With this technique, spare measured at each output of the device at the required resolution bandwidth maximum value (peak) of each spectrum is determined. These maximum values are summed mathematically in linear power units across the outputs. These operations she performed separately over frequency spans that have different out-of-band or spicemission limits,	The then all be								
	Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Re FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains shall be compared with the limit have been reduced with 10 log Or each transmit chains shall be add 10 log(N) to compared with the limit.	chains								

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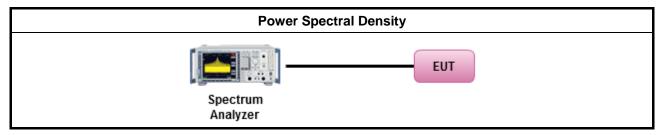
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3.4.4 Test Setup



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 PSD level.
- Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

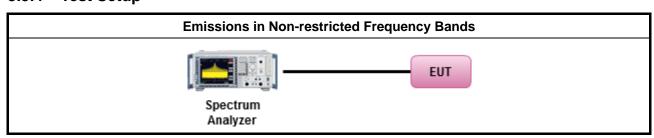
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Test Method ■ Refer as FCC KDB 558074, clause 11 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E

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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	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					

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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 EUT.

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 6.9.2.2 band-edge testing shall be performed at the lowest frequen channel and highest frequency channel within the allowed operating band.	ісу
•	For the transmitter unwanted emissions shall be measured using following options below:	
_	 Refer as FCC KDB 558074, clause 12 for unwanted emissions into restricted bands. 	
	☐ Refer as FCC KDB 558074, clause 12.2.5.1 Option 1 (trace averaging for duty cycle ≥98%))
	Refer as FCC KDB 558074, clause 12.2.5.2 Option 2 (trace averaging + duty factor).	
	Refer as FCC KDB 558074, clause 12.2.5.3 Option 3 (Reduced VBW≥1/T).	
	☐ Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW ≥ 1/T, where T is pulse time	÷.
	Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions.	
	Refer as FCC KDB 558074, clause 12.2.4 measurement procedure peak limit.	
•	For the transmitter band-edge emissions shall be measured using following options below:	
	 Refer as FCC KDB 558074 clause 13.1, When the performing peak or average radiat measurements, emissions within 2 MHz of the authorized band edge may be measured using to marker-delta method described below. 	
	 Refer as FCC KDB 558074, clause 13.2 (ANSI C63.10, clause 6.9.3) for marker-delta method band-edge measurements. 	for
	 Refer as FCC KDB 558074, clause 13.3 for narrower resolution bandwidth (100kHz) using to band power and summing the spectral levels (i.e., 1 MHz). 	he
•	For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.	
	 For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB 	
	For FCC KDB 662911 The methodology described here may overestimate array gain, there resulting in apparent failures to satisfy the out-of-band limits even if the device is actual compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.	ally

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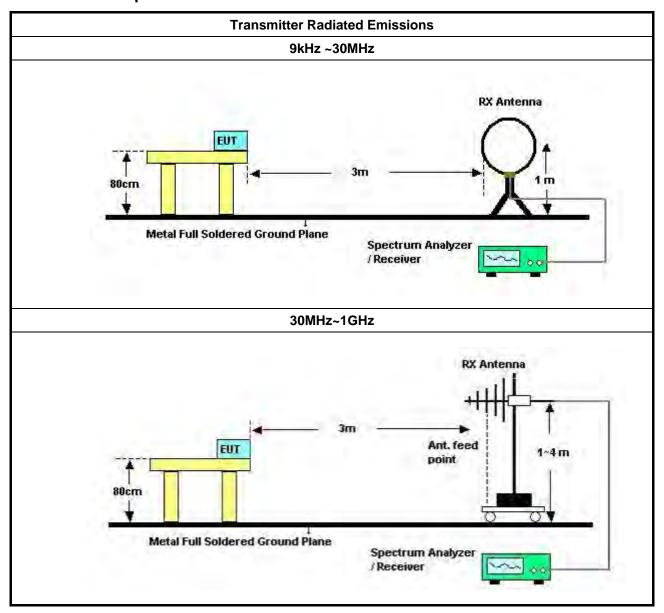
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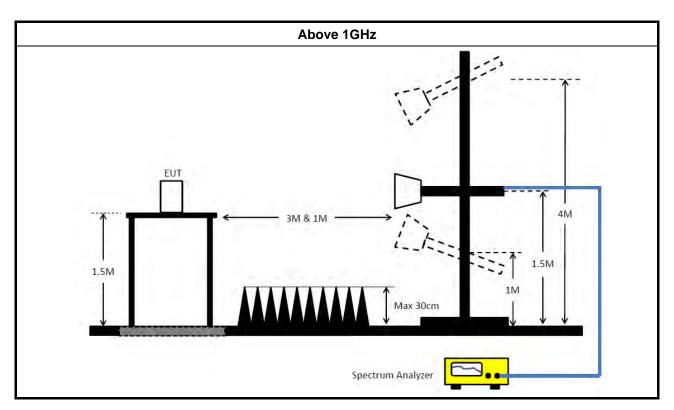


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3.6.4 Test Setup



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3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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

3.6.6 Transmitter Radiated Unwanted Emissions

Refer as Appendix F

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4 Test Equipment and Calibration Data

					I	
Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	60123 9kHz ~ 8.45GHz Jan. 23, 2017		Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50-16- 2	04083 150kHz ~ 100MHz Dec. 14, 2016		Dec. 14, 2016	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Dec. 21, 2016	Conduction (CO01-CB)
COND Cable	Woken	Cable	01	150kHz ~ 30MHz	May 23, 2017	Conduction (CO01-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	Conduction (CO01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2016	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 25, 2016	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Radiation (03CH01-CB)
Pre-Amplifier	r EMCI EMC330N 980332 20MHz ~ 3GHz May 02, 2017		Radiation (03CH01-CB)			
Pre-Amplifier	Agilent	nt 8449B 3008A02310 1GHz ~ 26.5GHz Jan. 16, 2017		Radiation (03CH01-CB)		
Pre-Amplifier	er MITEQ TTA1840-35-HG 1864479 18GHz ~ 40GHz Jun. 28, 2016		Radiation (03CH01-CB)			
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 22, 2016	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 06, 2017	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Radiation (03CH01-CB)
RF Cable-high	Woken	Woken High Cable-40G#1 N/A 18GHz ~ 40 GHz Oct. 24, 2016		Oct. 24, 2016	Radiation (03CH01-CB)	
RF Cable-high	Woken	High Cable-40G#2	le-40G#2 N/A 18GHz ~ 40 GHz Oct. 24, 2016		Oct. 24, 2016	Radiation (03CH01-CB)
Loop Antenna	Teseq	HLA 6120	24155 9kHz - 30 MHz Mar. 16, 2016*		Mar. 16, 2016*	Radiation (10CH01-CB)
Test Software	Audix	E3	6.2009-10-7	N/A	N/A	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)

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FCC Test Report

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
RF Cable-high	Woken RG402		High Cable-7	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz –26.5 GHz	Oct. 24, 2016	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 22, 2016	Conducted (TH01-CB)

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Note: Calibration Interval of instruments listed above is one year.

N.C.R. means Non-Calibration required.

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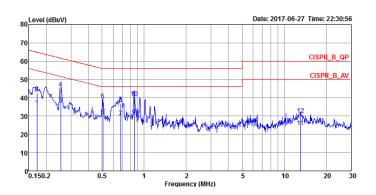
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[&]quot;*" Calibration Interval of instruments listed above is two years.



AC Power-line Conducted Emissions Result

AC Power-line Conducted Emissions Result						
Operating Mode 1 Power Phase Neutral						
Operating Function	Normal Link (Repeater mode)					



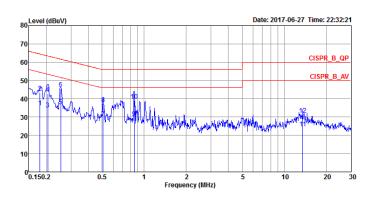
			0ver	Limit	Read	LISN	Cable		
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1712	35.12	-19.78	54.90	24.87	10.10	0.15	Average	NEUTRAL
2	0.1712	42.61	-22.29	64.90	32.36	10.10	0.15	QP	NEUTRAL
3	0.2535	36.25	-15.39	51.64	26.08	10.08	0.09	Average	NEUTRAL
4	0.2535	45.24	-16.40	61.64	35.07	10.08	0.09	QP	NEUTRAL
5	0.5074	30.04	-15.96	46.00	19.76	10.22	0.06	Average	NEUTRAL
6	0.5074	38.64	-17.36	56.00	28.36	10.22	0.06	QP	NEUTRAL
7	0.6790	29.10	-16.90	46.00	18.82	10.17	0.11	Average	NEUTRAL
8	0.6790	36.99	-19.01	56.00	26.71	10.17	0.11	QP	NEUTRAL
9	0.8483	29.93	-16.07	46.00	19.67	10.10	0.16	Average	NEUTRAL
10	0.8483	39.85	-16.15	56.00	29.59	10.10	0.16	QP	NEUTRAL
11	13.0575	23.87	-26.13	50.00	13.45	10.24	0.18	Average	NEUTRAL
12	13.0575	30.65	-29.35	60.00	20.23	10.24	0.18	QP	NEUTRAL

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



AC Power-line Conducted Emissions Result

AC Power-line Conducted Emissions Result						
Operating Mode 1 Power Phase Line						
Operating Function	Normal Link (Repeater mode)					



			0ver	Limit	Read	LISN	Cable		
	Freq	Level	Limit	Line	Level	Factor	Loss	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB	dB		
1	0.1806	35.42	-19.04	54.46	25.37	9.91	0.14	Average	LINE
2	0.1806	43.37	-21.09	64.46	33.32	9.91	0.14	QP	LINE
3	0.2050	34.28	-19.12	53.40	24.23	9.92	0.13	Average	LINE
4	0.2050	42.69	-20.71	63.40	32.64	9.92	0.13	QP	LINE
5	0.2535	36.09	-15.55	51.64	26.08	9.92	0.09	Average	LINE
6	0.2535	45.45	-16.19	61.64	35.44	9.92	0.09	QP	LINE
7	0.5101	29.47	-16.53	46.00	19.46	9.95	0.06	Average	LINE
8	0.5101	37.27	-18.73	56.00	27.26	9.95	0.06	QP	LINE
9	0.8483	29.51	-16.49	46.00	19.39	9.96	0.16	Average	LINE
10	0.8483	38.96	-17.04	56.00	28.84	9.96	0.16	QP	LINE
11	13.6228	24.01	-25.99	50.00	13.62	10.21	0.18	Average	LINE
12	13.6228	31.28	-28.72	60.00	20.89	10.21	0.18	QP	LINE

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



EBW-DTS Result Appendix B

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
BT-LE(1Mbps)	-	-	-	-	-
2.4-2.4835GHz	698.75k	1.028M	1M03F1D	690k	1.023M

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	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	500k	698.75k	1.026M
2440MHz	Pass	500k	691.25k	1.023M
2480MHz	Pass	500k	690k	1.028M

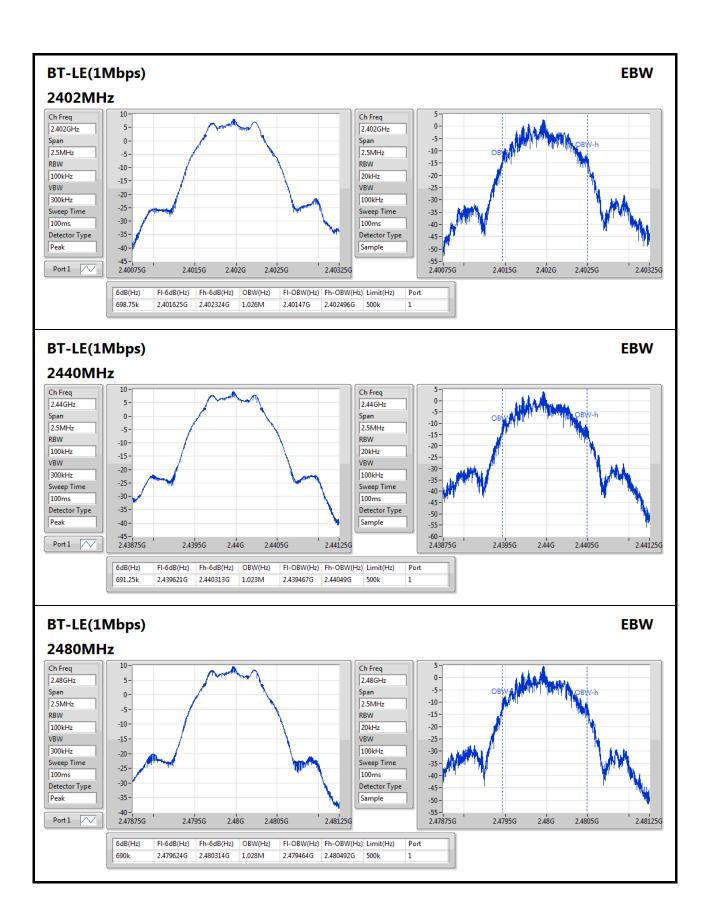
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Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth;

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AV Power-DTS Result

Appendix C

Summary

Mode	Power	Power
	(dBm)	(W)
BT-LE(1Mbps)	-	-
2.4-2.4835GHz	8.92	0.00780

Result

Mode	Result	Gain	Power	Power Limit
		(dBi)	(dBm)	(dBm)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.40	7.28	30.00
2440MHz	Pass	1.40	8.31	30.00
2480MHz	Pass	1.40	8.92	30.00

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PSD-DTS Result

Appendix D

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Summary

<u> </u>	
Mode	PD
	(dBm/RBW)
BT-LE(1Mbps)	·
2.4-2.4835GHz	-6.81

RBW=3kHz.

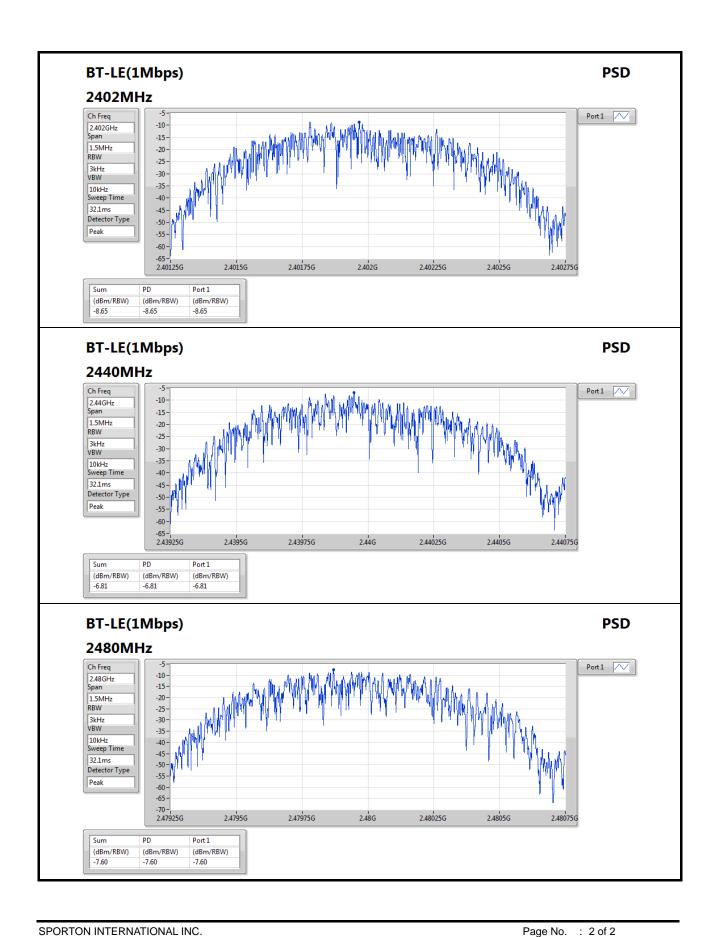
Result

Mode	Result	Gain	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)
BT-LE(1Mbps)	-	-	-	-
2402MHz	Pass	1.40	-8.65	8.00
2440MHz	Pass	1.40	-6.81	8.00
2480MHz	Pass	1.40	-7.60	8.00

RBW=3kHz.

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CSE Non-restricted Band-DTS Result

Appendix E

Summary

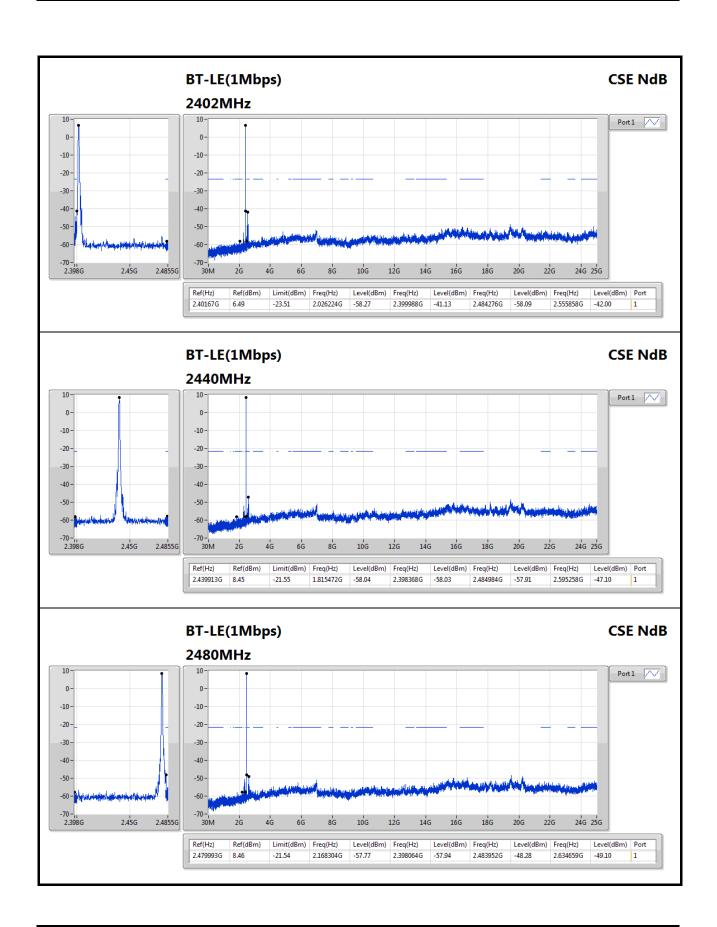
Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
BT-LE(1Mbps)	-	-	-	-	-	-	=	-	-	-	=	-	-
2.4-2.4835GHz	Pass	2.40167G	6.49	-23.51	2.026224G	-58.27	2.399988G	-41.13	2.484276G	-58.09	2.555858G	-42.00	1

Result

TOUR!													
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	2.40167G	6.49	-23.51	2.026224G	-58.27	2.399988G	-41.13	2.484276G	-58.09	2.555858G	-42.00	1
2440MHz	Pass	2.439913G	8.45	-21.55	1.815472G	-58.04	2.398368G	-58.03	2.484984G	-57.91	2.595258G	-47.10	1
2480MHz	Pass	2.479993G	8.46	-21.54	2.168304G	-57.77	2.398064G	-57.94	2.483952G	-48.28	2.634659G	-49.10	1

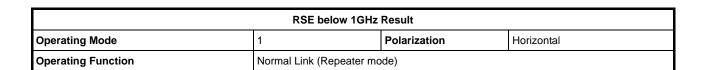
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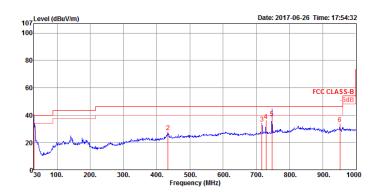




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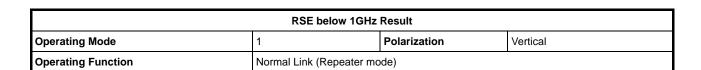
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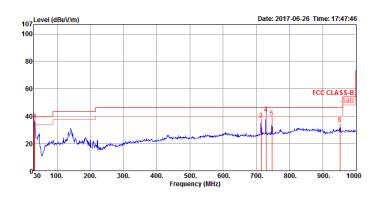




	Freq	Level		Over Limit				Preamp Factor		T/Pos	Remark	Pol/Phase
_	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.00	35.55	40.00	-4.45	43.10	0.53	24.45	32.53	100	215	QP	HORIZONTAL
2	434.49	27.78	46.00	-18.22	36.30	1.62	22.32	32.46	100	221	Peak	HORIZONTAL
3	716.76	33.87	46.00	-12.13	38.91	2.12	25.31	32.47	100	125	Peak	HORIZONTAL
4	729.37	35.99	46.00	-10.01	40.79	2.15	25.50	32.45	100	245	Peak	HORIZONTAL
5	746.83	38.05	46.00	-7.95	42.51	2.18	25.78	32.42	100	211	QP	HORIZONTAL
6	951.50	33.62	46.00	-12.38	35.72	2.43	26.82	31.35	100	45	Peak	HORIZONTAL

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





	Freq	Level	Limit Line	Over Limit				Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	30.00	36.95	40.00	-3.05	44.50	0.53	24.45	32.53	300	360	Peak	VERTICAL
2	32.91	36.20	40.00	-3.80	45.58	0.53	22.62	32.53	300	360	Peak	VERTICAL
3	714.82	37.57	46.00	-8.43	42.66	2.12	25.27	32.48	100	248	Peak	VERTICAL
4	729.37	41.90	46.00	-4.10	46.70	2.15	25.50	32.45	100	241	QP	VERTICAL
5	746.83	38.98	46.00	-7.02	43.44	2.18	25.78	32.42	100	258	Peak	VERTICAL
6	951.50	34.46	46.00	-11.54	36.56	2.43	26.82	31.35	100	126	Peak	VERTICAL

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

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RSE TX above 1GHz Result

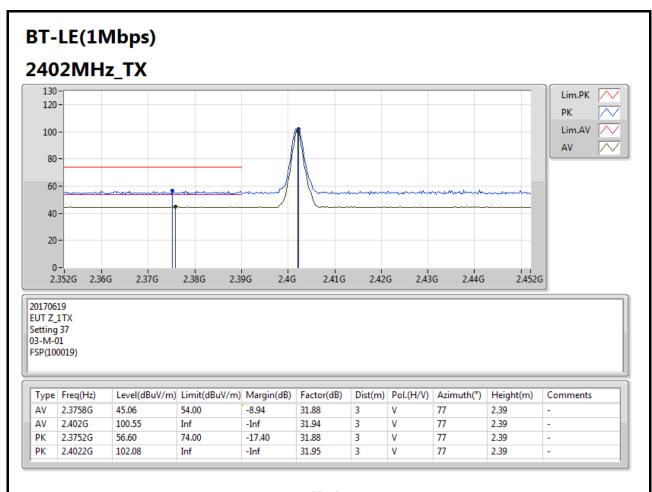
Appendix F.2

Summary

Mode	Result	Туре	Freq (Hz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Factor (dB)	Dist (m)	Pol. (H/V)	Azimuth	Height (m)	Comments
BT-LE(1Mbps)	-	-	-	-	-		-					-
2.4-2.4835GHz	Pass	AV	2.483502G	50.92	54.00	-3.08	32.14	3	Н	51	1.23	-

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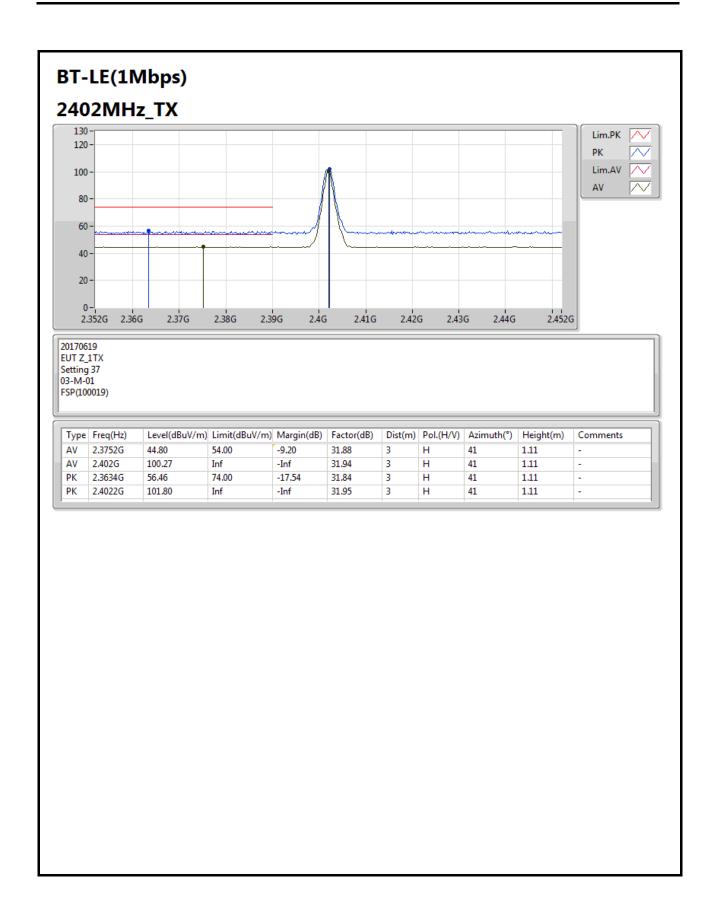


Mode

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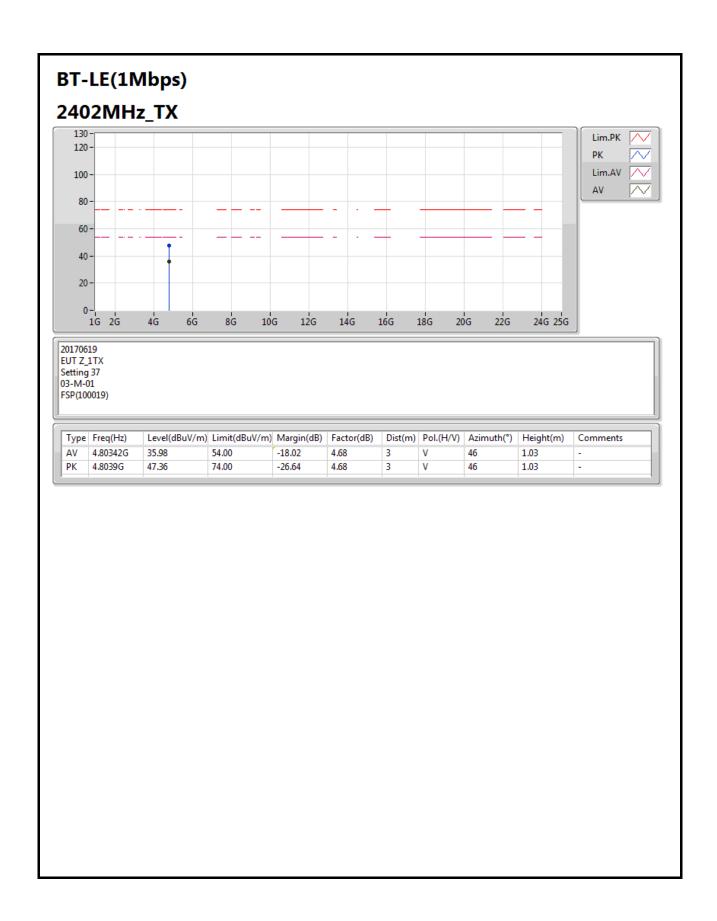
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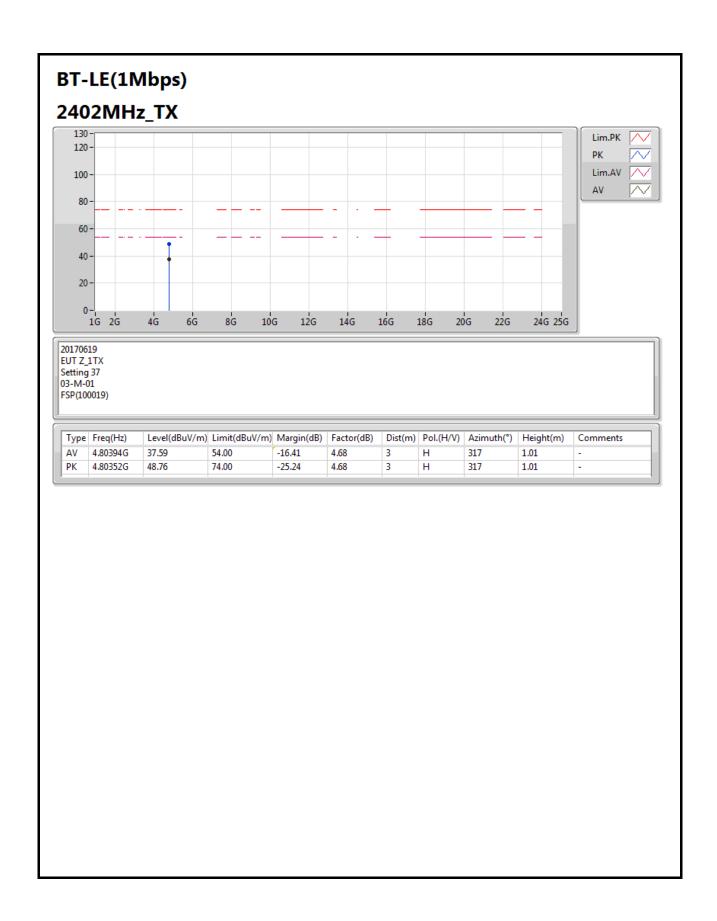
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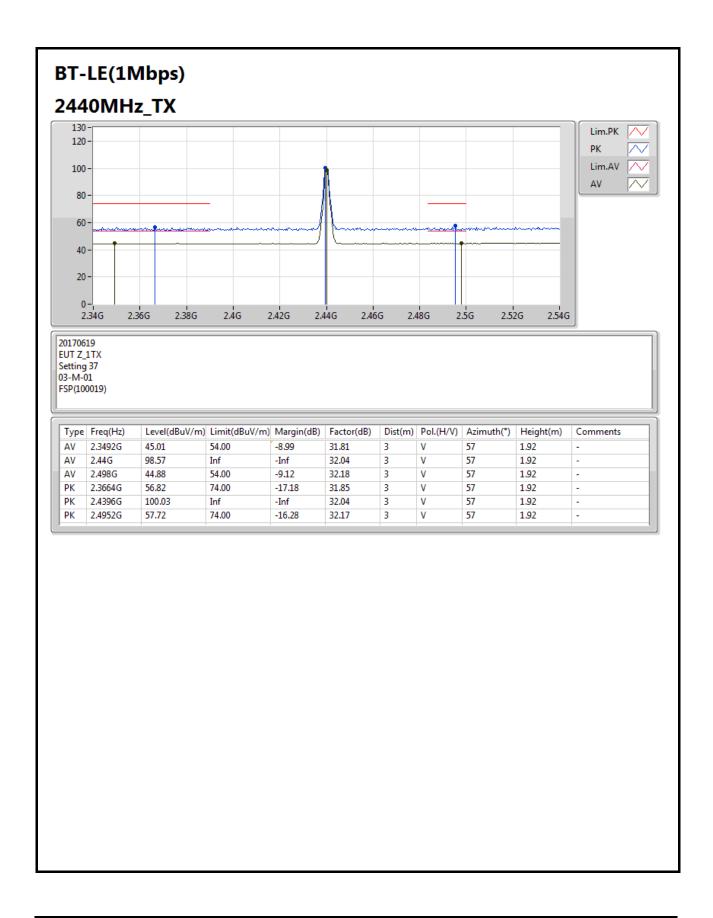
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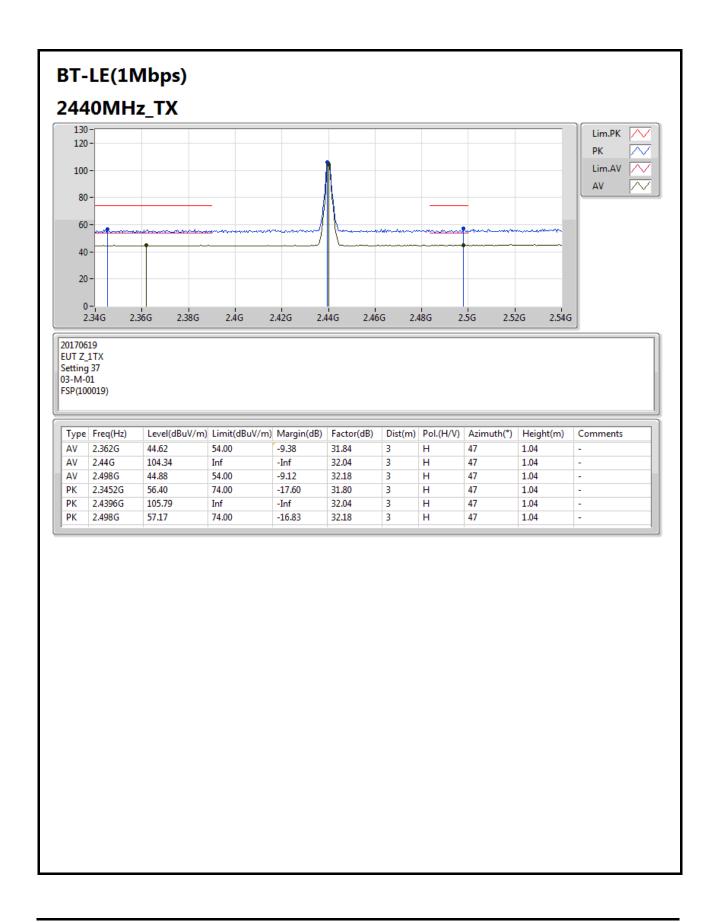
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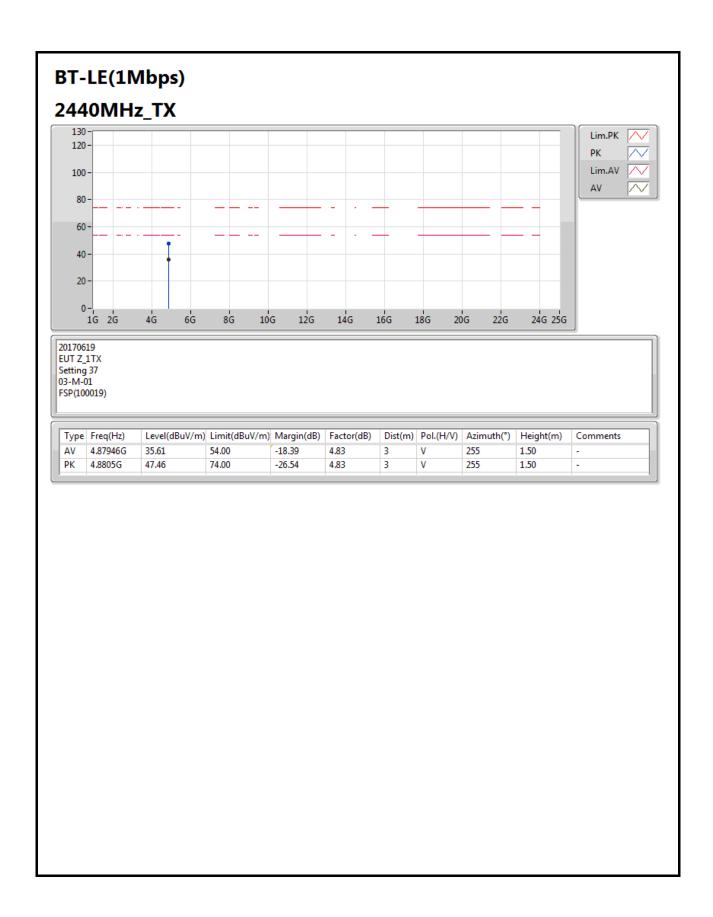
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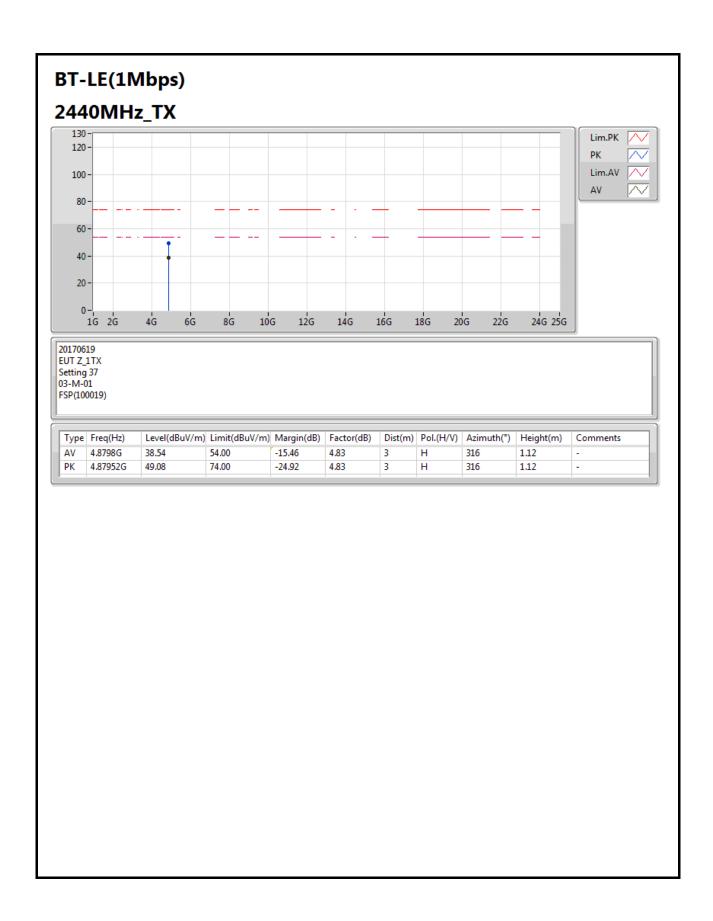
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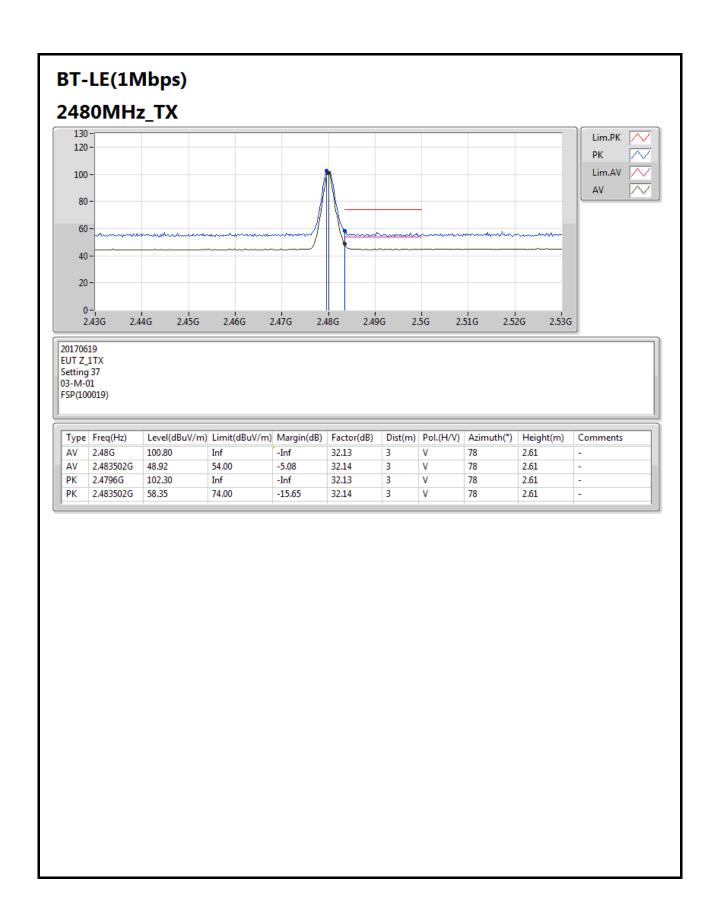
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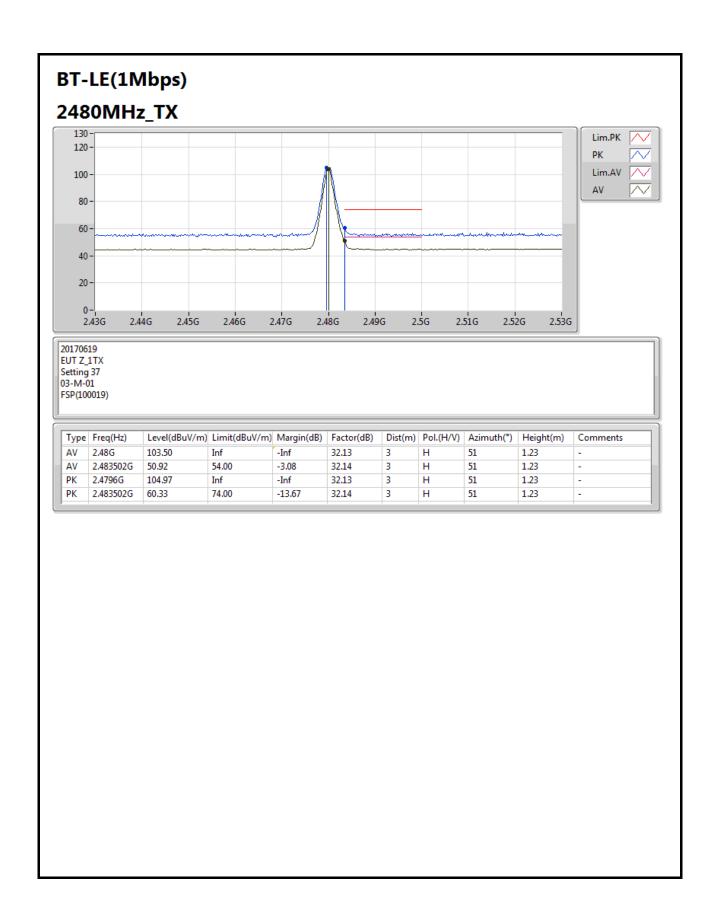
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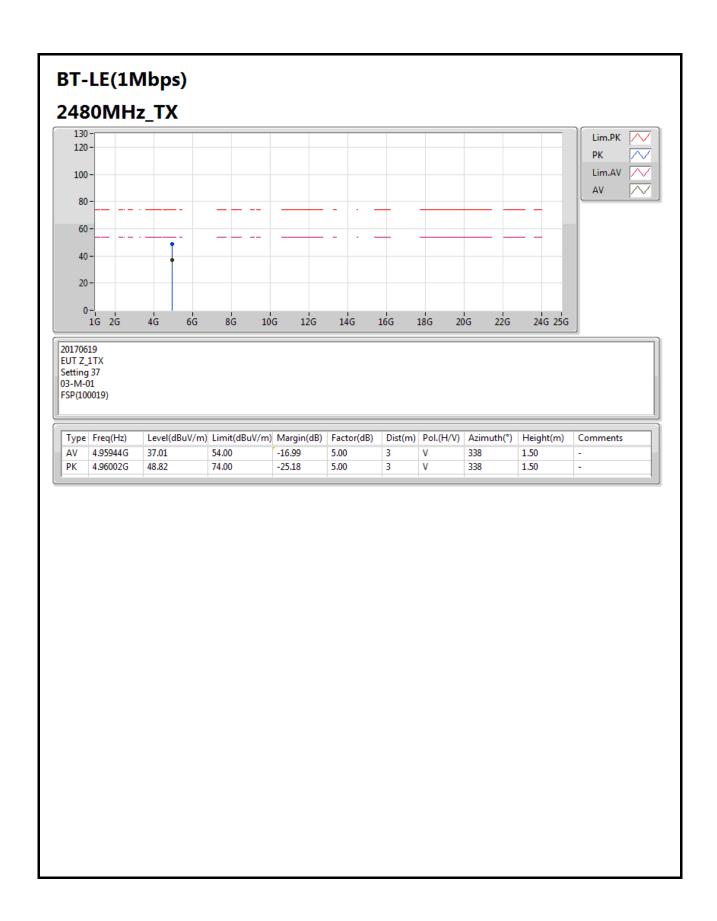
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