

 MOTOROLA SOLUTIONS	 MS ISO/IEC 17025 TESTING SAMM No. 0825																														
MOTOROLA PENANG ADV. COMM. LABORATORY Motorola Solutions Malaysia Sdn. Bhd. Innoplex Plot 2A Medan Bayan Lepas, Mukim 12, S.W.D. 11900 Bayan Lepas, Penang, Malaysia.	FCC / ISED TEST REPORT Report Revision : Rev.A																														
<table><tr><td>Date/s Tested</td><td>: 09-Jan-2019 - 22-Jan-2019</td></tr><tr><td>Report Issue Date</td><td>: 23-Jan-2019</td></tr><tr><td>Manufacturer/Location</td><td>: Motorola Solutions - Schaumburg</td></tr><tr><td>Requestor</td><td>: HOPKINS, SEAN</td></tr><tr><td>Product Type</td><td>: Hand-held</td></tr><tr><td>Product Version (PMN)</td><td>: P1B</td></tr><tr><td>Model Number (HVIN)</td><td>: H55TGT9PW8AN</td></tr><tr><td>Frequency Band</td><td>: 2.402 - 2.480 GHz</td></tr><tr><td>Max RF Output Power</td><td>: 11.5 mWatts</td></tr><tr><td>Applicant Name</td><td>: Motorola Solutions, Inc</td></tr><tr><td>Applicant Address</td><td>: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322</td></tr><tr><td>FCC Registrations</td><td>: 461337</td></tr><tr><td>ISED Registrations</td><td>: 109AK</td></tr><tr><td>Firmware Version (FVIN)</td><td>: D00.00.31</td></tr></table>  The equipment was tested accordance to the requirement listed below: <table><tr><td>(2.4GHz BT LE) FCC 47 CFR Part 15 Subpart C ISED RSS 247 Issue 2, February 2017</td><td>PASS</td></tr></table>		Date/s Tested	: 09-Jan-2019 - 22-Jan-2019	Report Issue Date	: 23-Jan-2019	Manufacturer/Location	: Motorola Solutions - Schaumburg	Requestor	: HOPKINS, SEAN	Product Type	: Hand-held	Product Version (PMN)	: P1B	Model Number (HVIN)	: H55TGT9PW8AN	Frequency Band	: 2.402 - 2.480 GHz	Max RF Output Power	: 11.5 mWatts	Applicant Name	: Motorola Solutions, Inc	Applicant Address	: 8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322	FCC Registrations	: 461337	ISED Registrations	: 109AK	Firmware Version (FVIN)	: D00.00.31	(2.4GHz BT LE) FCC 47 CFR Part 15 Subpart C ISED RSS 247 Issue 2, February 2017	PASS
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Prepared By:  Gan Boon Teong Test Personnel	Approved By:  Vincent Foong Responsible Engineer																														

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REVISION HISTORY

Revision History	Description	Date	Originator
Rev. A	Initial Report	23-Jan-2019	Gan Boon Teong

1.0 General Information

EUT Description:

Technologies	2.4GHz BT LE
TX Frequency range	2402MHz – 2480MHz
Modulation Type	GFSK
Antenna type	Stamped metal

Note:

1. The EUT contains following accessory devices and data cable.

Item	Brand	Model or P/N
Hi-Cap Battery, IMPRES GEN2, LIION, IP68, 5650T	Motorola Solutions	NNTN9089A
Single Unit Charger (SUC), IMPRES 2, 3A, 115VAC, US/NA + PWR SUPPLY WALL CUBE, AC, DC 110VAC FIXED BLADE US 14.5V/2.5A L6 BARREL	Motorola Solutions	NNTN9199A (Charger Base) + PS000040A01 (power supply)
Multi-unit Charger (MUC), IMPRES G2, 6-DISP, BASE with INSERTS + US Line Cord	Motorola Solutions	NNTN9115A (Charger Base) + 3087791G01 (Linecord)
MICRO USB Programming cable	Motorola Solutions	CB000262A01

Channel number and frequency information:

40 channels are provided to this EUT:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, the EUT is to comply with the requirements of the following standards:

FCC 47 CFR Part 15 Subpart C

KDB 558074 D01 15.247 Meas Guidance v05

ANSI C63.10-2013

Deviation from standard

Not applicable as no deviation from standard test method.

2.0 Summary of Test Results

FCC Clause	ISED Clause	Test Item	Result	Remark	Serial Number Tested
15.247 (a)(2)	RSS-247 5.2(a)	DTS & 99% Channel Bandwidth	Pass	Highest 99% OCB: BTLE 4.0: 1.058 MHz (1M1F1D) BTLE 5.0: 2.075 MHz (2M1F1D)	437P1B0032
15.247 (b)(3)	RSS-247 5.4(d)	Conducted RF Output Power (Average)	Pass	Highest output power: BTLE 4.0: 10.465 dBm BTLE 5.0: 10.134 dBm	437P1B0032
15.247(e)	RSS-247 5.2(b)	Maximum Power Spectral Density	Pass	Meet the limit requirement.	437P1B0032
15.247(d)	RSS-247 5.5	Conducted Spurious Emissions	Pass	Worst case emission: BTLE 4.0: -38.90 dBm BTLE 5.0: -39.31 dBm	437P1B0032
15.247 (d)	RSS-247 5.5	Band edge Conducted Spurious Emission	Pass	Worst case emission: BTLE 4.0: -45.10 dBm BTLE 5.0: -37.59 dBm	437P1B0032
15.205, 15.209, 15.247 (d)	RSS-247 5.5	Radiated Emission within Restricted Bands	NA	Not Performed.	Not Performed.
15.207	RSS-Gen 8.8	AC Power Line Conducted Emission	Pass	Meet the limit requirement.	437P1B0039
15.203	-	Antenna requirement	Pass	No antenna connector is used.	437P1B0032 437P1B0039

Note: NA → Not Applicable

3.0. Measurement Uncertainty

Measurement	Frequency	Expended Uncertainty (k=1.96) (±dB)
AC Power Line Conducted Spurious Emission	150KHz ~ 30MHz	3.43
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	5.01
	200MHz ~ 1000MHz	5.01
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.01
	18GHz ~ 25GHz	5.01

4.0 Equipment List

Bluetooth ATE # 1 (SW Version: Ate Main_3.1.10_R2)

Description	Model	Serial Number	Calibration Date	Calibration Due Date
POWER SUPPLY (0-20V / 0-25A)	6652A	MY40001437	17-Aug-17	17-Aug-19
SPECTRUM ANALYZER	FSEK30	838495/014	11-Jul-18	11-Jul-19
SPECTRUM ANALYZER	E4445A	MY46181513	24-Dec-17	24-Dec-19

Conducted Emission Test

Description	Model	Serial Number	Calibration Date	Calibration Due Date
TEMPERATURE & HUMIDITY LOGGER	TM320	12249289	27-Apr-18	27-Apr-19
V-NETWORK 2-LINE	ENV216V	101039	10-Jul-18	10-Jul-19
EMI TEST RECEIVER	ESCI	100225	9-Jul-18	9-Jul-19
PROGRAMMABLE AC SOURCE	61604	ABR000000926	27-Jun-18	27-Jun-19
Test Software	EMC32			
Version	Ver. 8.53.0			

5.0 Test Mode Applicability and Test Channel Detail

Radiated Emission Test (Above 1GHz)

☐ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☐ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Environmental conditions
Test Mode	0 to 39	0,19,39	GFSK	22.9°C, 61%RH

Radiated Emission Test (Below 1GHz)

☐ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☐ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Environmental conditions
Test Mode	0 to 39	0,19,39	GFSK	22.9°C, 61%RH

Power Line Conducted Emission Test

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Environmental conditions
Application Mode	0 to 39	AUTO	AUTO	23.7°C, 73%RH

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

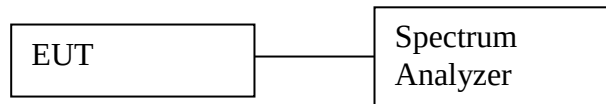
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Available Channel	Tested Channel	Modulation Type	Environmental conditions
Test Mode	0 to 39	0,19,39	GFSK	22.9°C, 61%RH

6.0 Transmitter Test Parameters

6.1 6dB Channel Bandwidth

6.1.1 Test Setup



- 1) Check and ensure the spectrum analyzer well calibrate.
- 2) Turn on the DUT and set DUT to transmit maximum power.
- 3) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- 4) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max hold
 - e. Sweep = auto
- 5) Measure the freq different of two frequencies that were attenuated 6dB from peak of the emission & record the frequency difference as the emission bandwidth.

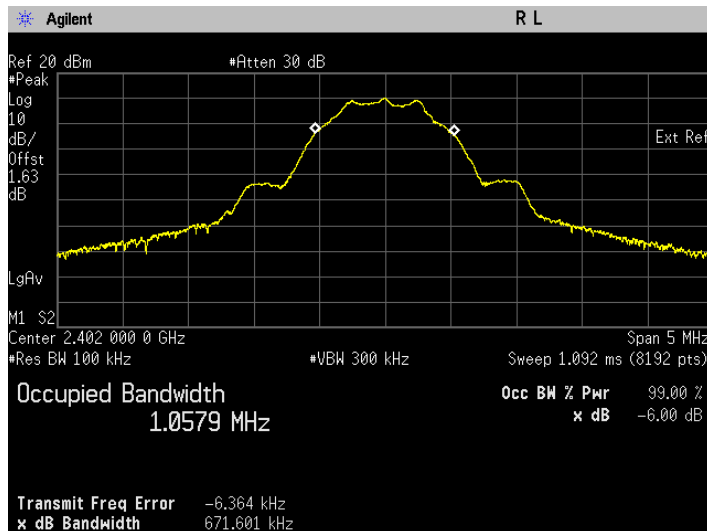
6.1.2 Test Limits:

Normal Condition (25 ° C)
≥500 kHz

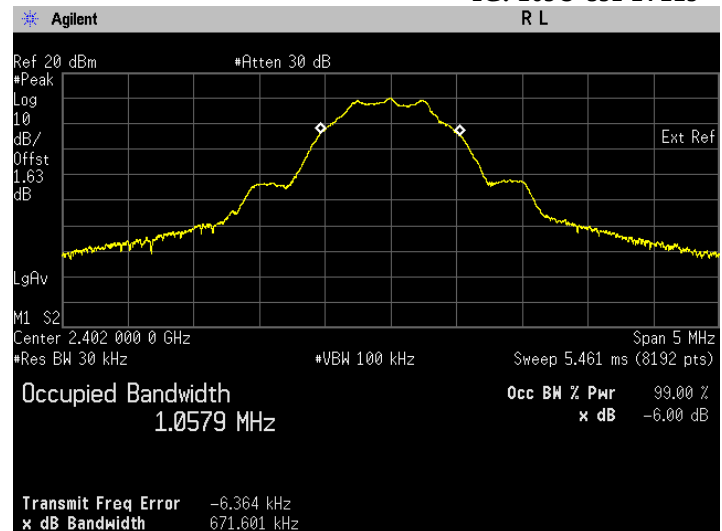
6.1.3 Test Data:

BTLE4.0

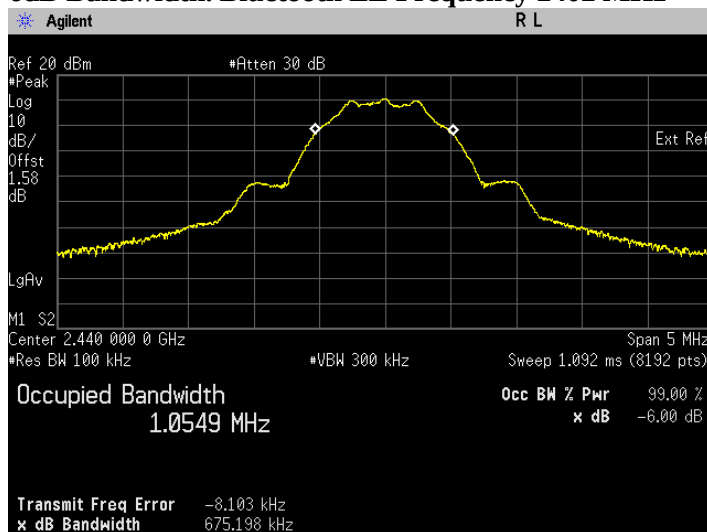
Test Conditions		Test Frequency	Results		
Standard	Modulation Type	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
Bluetooth L.E	GFSK	2402	0.672	1.058	Pass
Bluetooth L.E	GFSK	2440	0.675	1.055	Pass
Bluetooth L.E	GFSK	2480	0.674	1.056	Pass



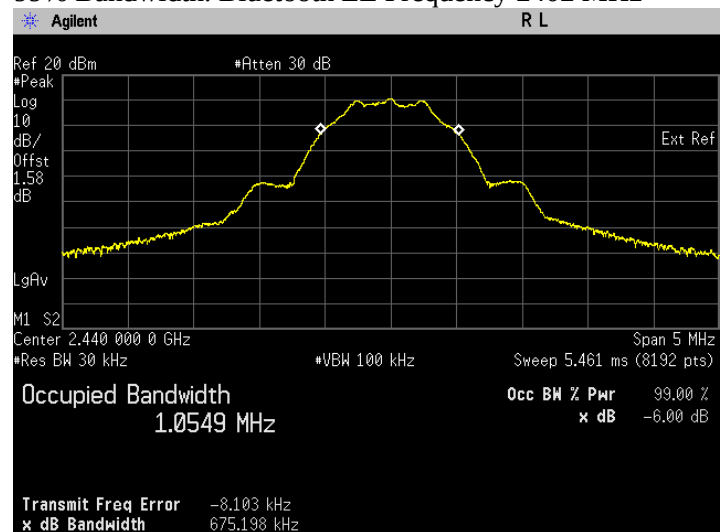
6dB Bandwidth. Bluetooth LE Frequency 2402 MHz



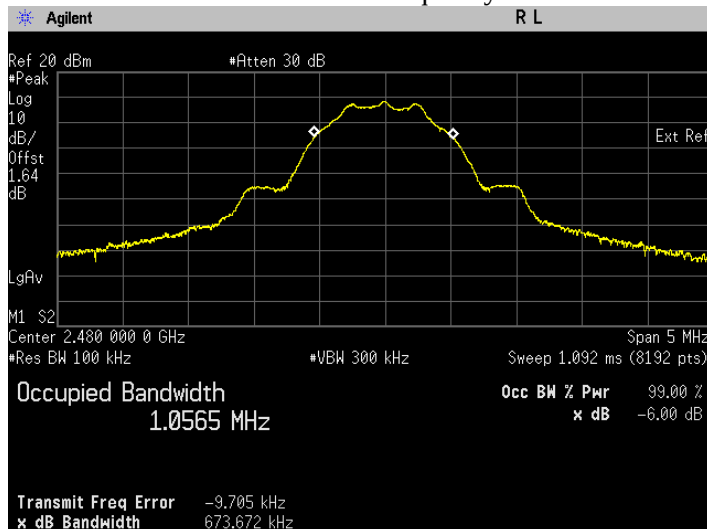
99% Bandwidth. Bluetooth LE Frequency 2402 MHz



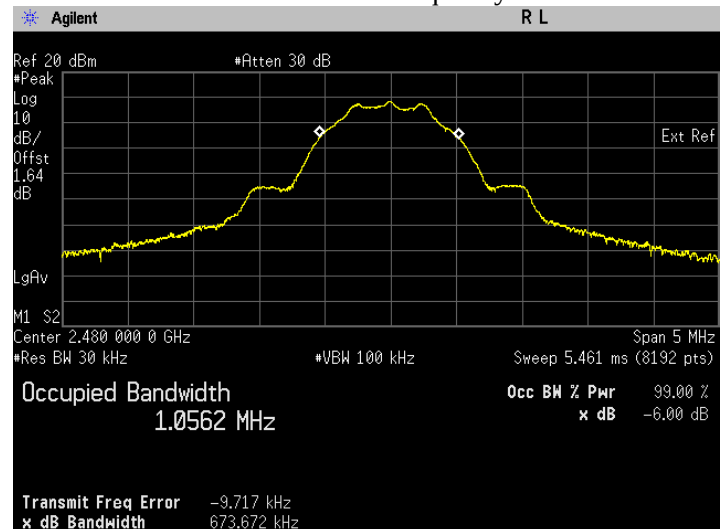
6dB Bandwidth. Bluetooth LE Frequency 2440 MHz



99% Bandwidth. Bluetooth LE Frequency 2440 MHz



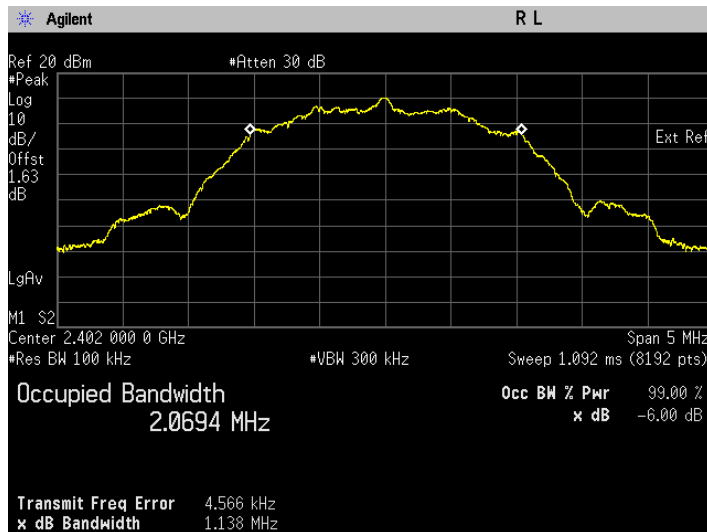
6dB Bandwidth. Bluetooth LE Frequency 2480 MHz



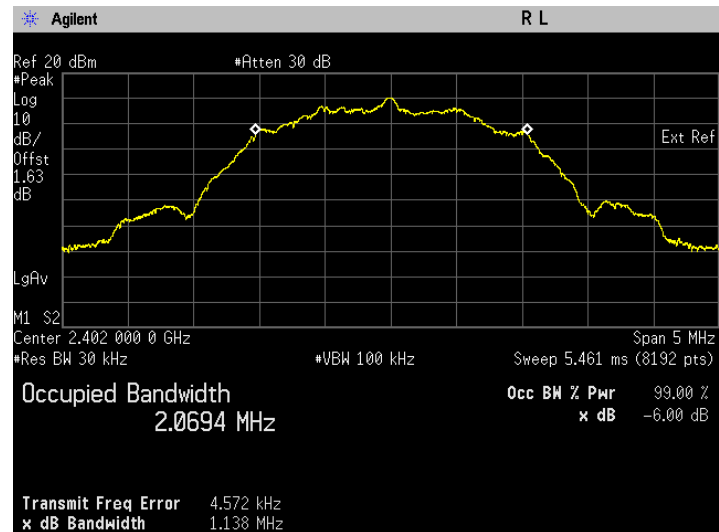
99% Bandwidth. Bluetooth LE Frequency 2480 MHz

BTLE 5.0

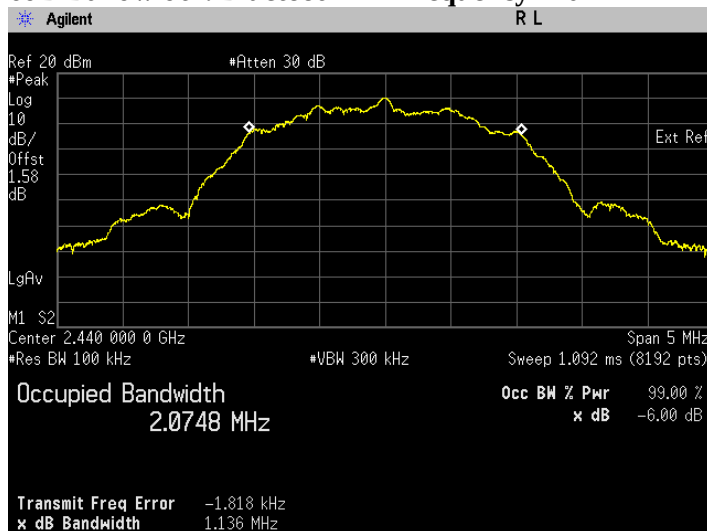
Test Conditions		Test Frequency	Results		
Standard	Modulation Type	Tx (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)	Status
Bluetooth L.E	GFSK	2402	1.138	2.069	Pass
Bluetooth L.E	GFSK	2440	1.136	2.075	Pass
Bluetooth L.E	GFSK	2480	1.145	2.074	Pass



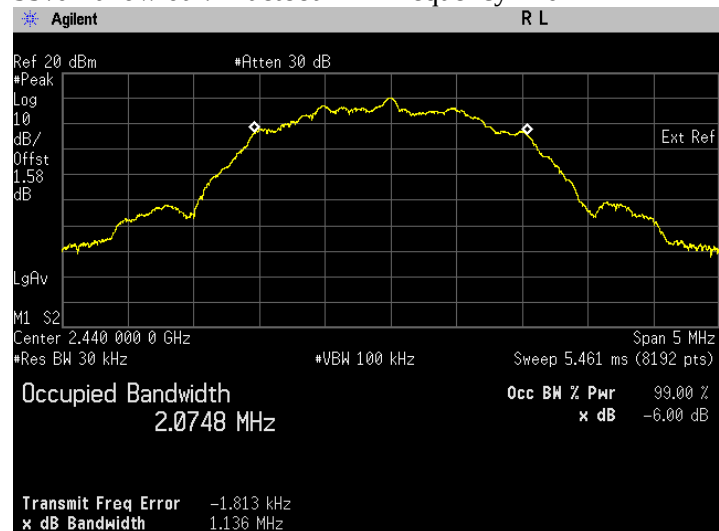
6dB Bandwidth. Bluetooth LE Frequency 2402 MHz



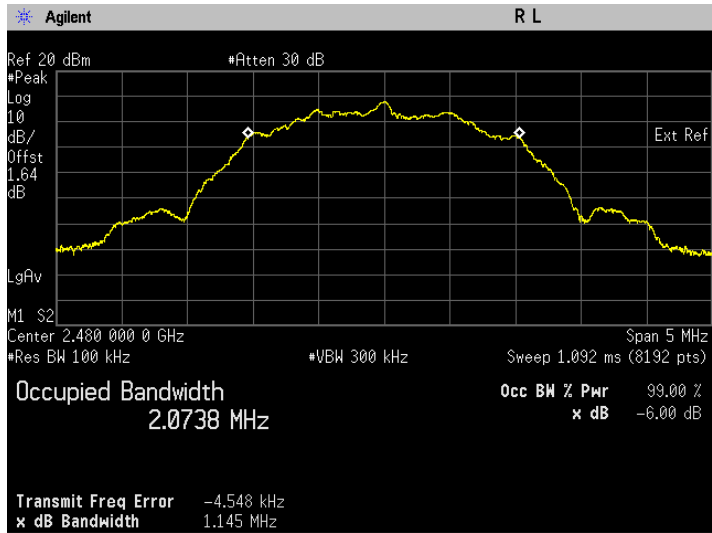
99% Bandwidth. Bluetooth LE Frequency 2402 MHz



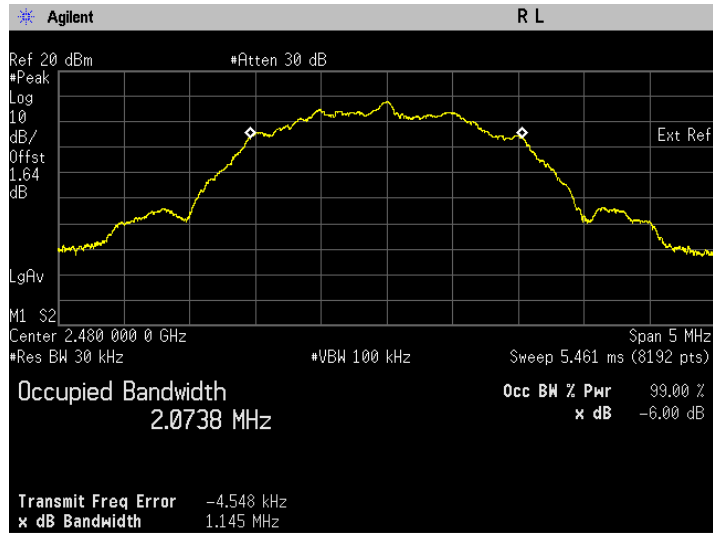
6dB Bandwidth. Bluetooth LE Frequency 2440 MHz



99% Bandwidth. Bluetooth LE Frequency 2440 MHz



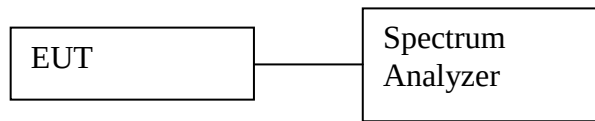
6dB Bandwidth. Bluetooth LE Frequency 2480 MHz



99% Bandwidth. Bluetooth LE Frequency 2480 MHz

6.2 Conducted RF Output Power

6.2.1 Test Setup



- 1) Check and ensure the spectrum analyzer well calibrate.
- 2) Turn on the DUT and set DUT to transmit maximum power.
- 3) Measure the duty cycle of transmitter output signal.
- 4) Setting of Spectrum analyzer :
 - a. Set the RBW = 300 kHz.
 - b. Set the VBW $\geq [3 \times \text{RBW}]$.
 - c. Set the span $\geq [1.5 \times \text{OBW bandwidth}]$.
 - d. Detector = average.
 - e. Sweep time = auto couple.
 - f. Trace mode = free run.
 - g. Allow trace to fully stabilize.
- 5) Add in duty cycle correction into final test result.
- 6) Duty cycle correction is calculated as below:
 $10 \log (1/x)$

6.2.2 Test Limits:

Normal Condition (25 ° C)
$\leq 1 \text{ Watt}(30 \text{ dBm})$

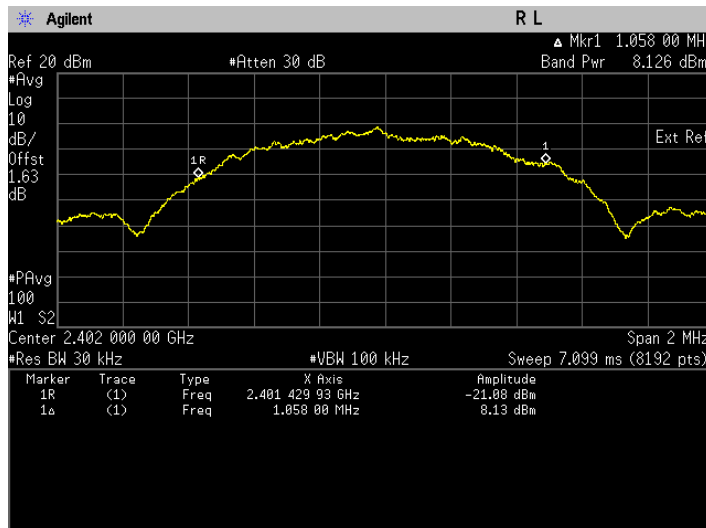
6.2.3 Test Data:

BTLE 4.0

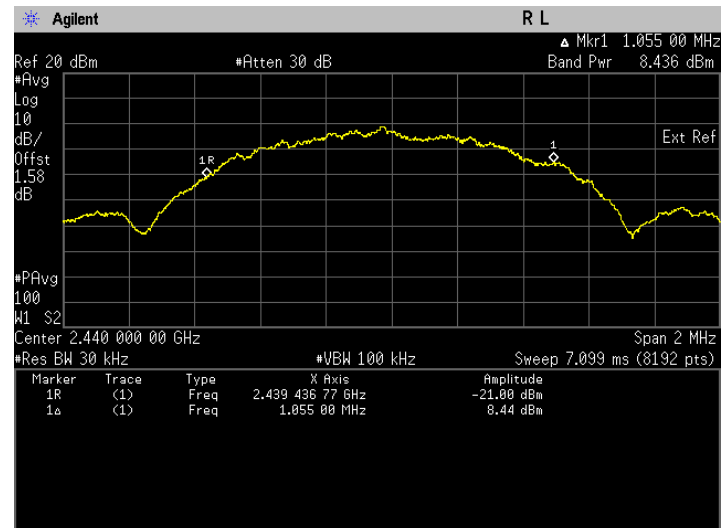
Output power = band power +duty cycle factor

Duty cycle factor =2.029dBm

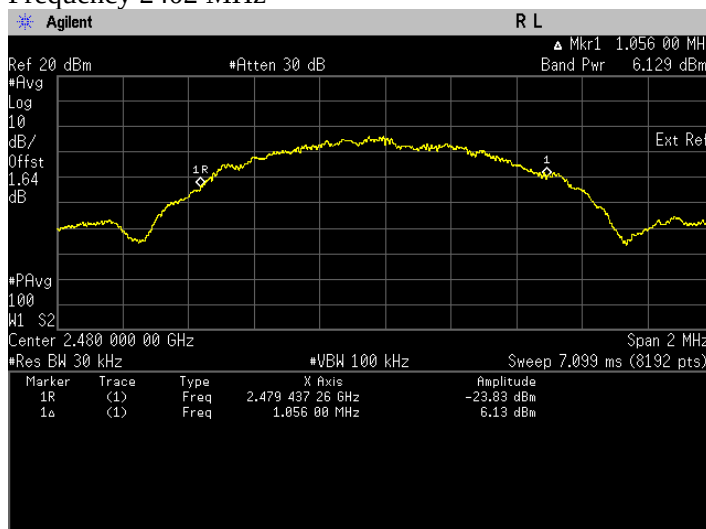
Test Conditions			Test Frequency	Results
Standard	Modulation Type	Tx (MHz)	Output Power (dBm)	Status
Bluetooth L.E	GFSK	2402	10.155	Pass
Bluetooth L.E	GFSK	2440	10.465	Pass
Bluetooth L.E	GFSK	2480	8.158	Pass



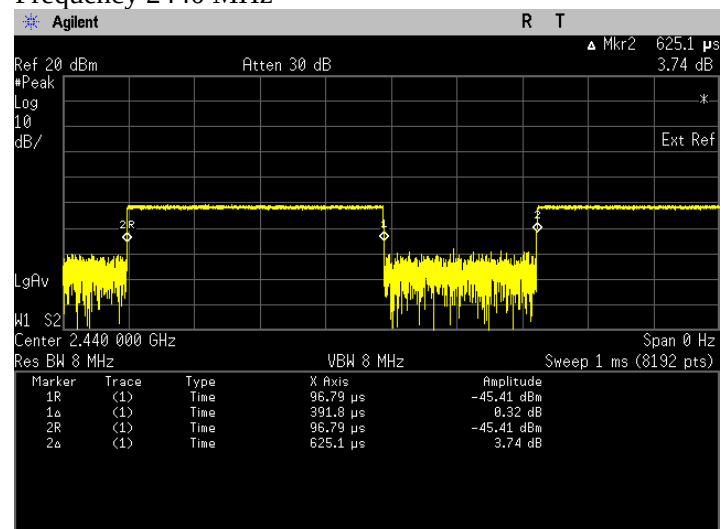
Frequency 2402 MHz



Frequency 2440 MHz



Frequency 2480 MHz



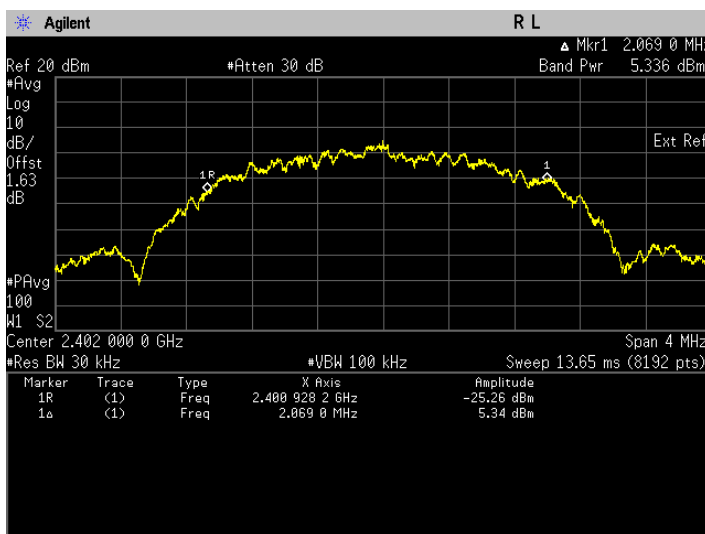
Duty Cycle

BTLE 5.0

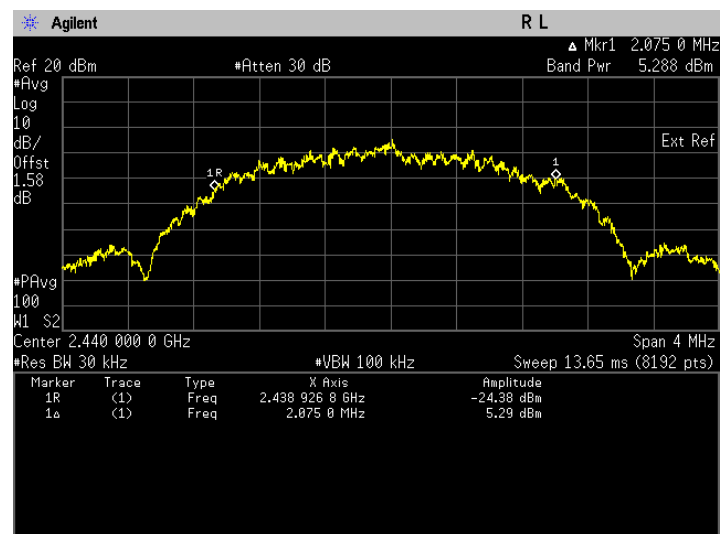
Output power = band power +duty cycle factor

Duty cycle factor =4.798 dBm

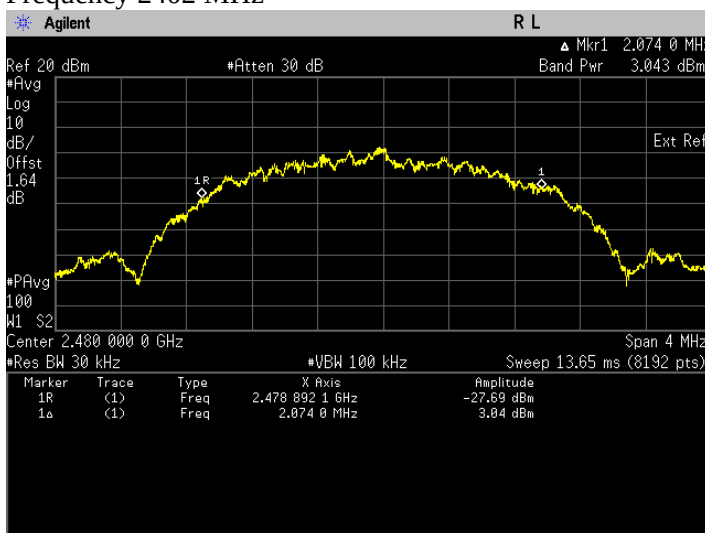
Test Conditions			Test Frequency	Results
Standard	Modulation Type	Tx (MHz)	Output Power (dBm)	Status
Bluetooth L.E	GFSK	2402	10.134	Pass
Bluetooth L.E	GFSK	2440	10.086	Pass
Bluetooth L.E	GFSK	2480	7.841	Pass



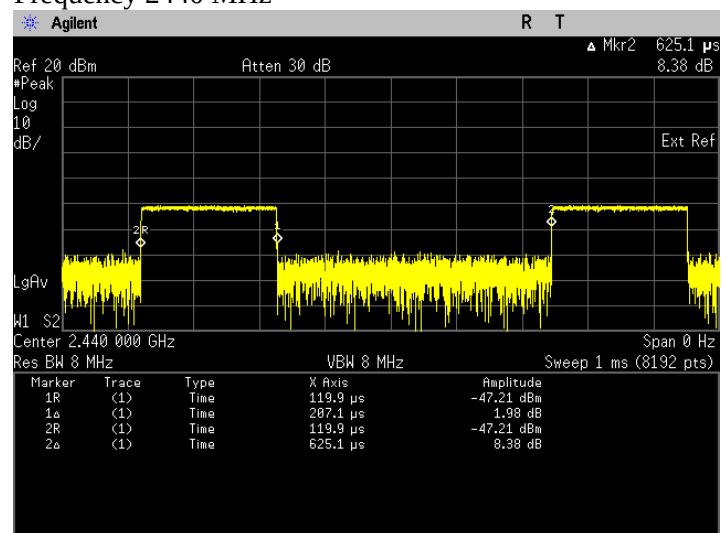
Frequency 2402 MHz



Frequency 2440 MHz



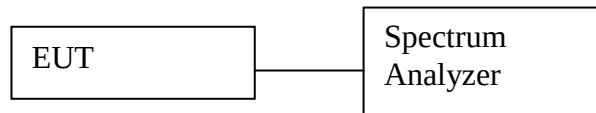
Frequency 2480 MHz



Duty Cycle

6.3 Maximum Peak Power Spectral Density

6.3.1 Test Setup



Maximum Peak

- 1) Check and ensure the spectrum analyzer well calibrate.
- 2) Turn on the DUT and set DUT to transmit maximum power.
- 3) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- 4) Setting of Spectrum analyzer :
 - a. Set analyzer center frequency to DTS channel center frequency.
 - b. Set the span to 1.5 times the DTS bandwidth.
 - c. Set the RBW to 3 kHz.
 - d. Set the VBW $\geq [3 \times \text{RBW}]$.
 - e. Detector = peak.
 - f. Sweep time = auto couple.
 - g. Trace mode = max hold.
 - h. Allow trace to fully stabilize.
 - i. Use the peak marker function to determine the maximum amplitude level within the RBW.
 - j. If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

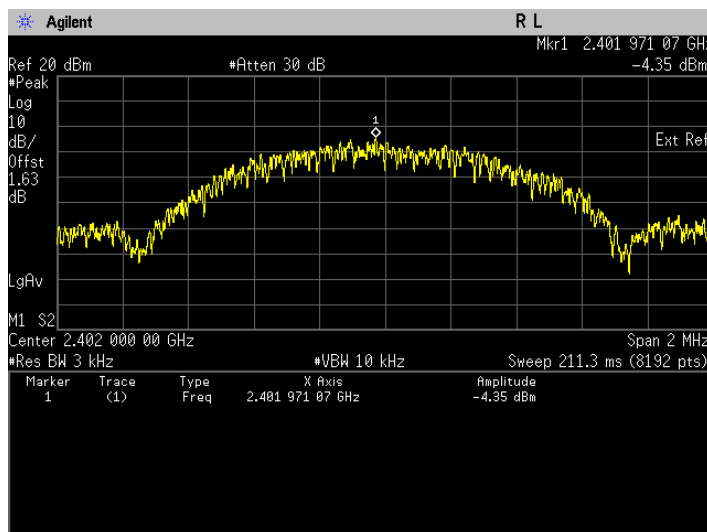
6.3.2 Test Limits:

Normal Condition (25 ° C)
$\leq 8 \text{ dBm/3kHz}$

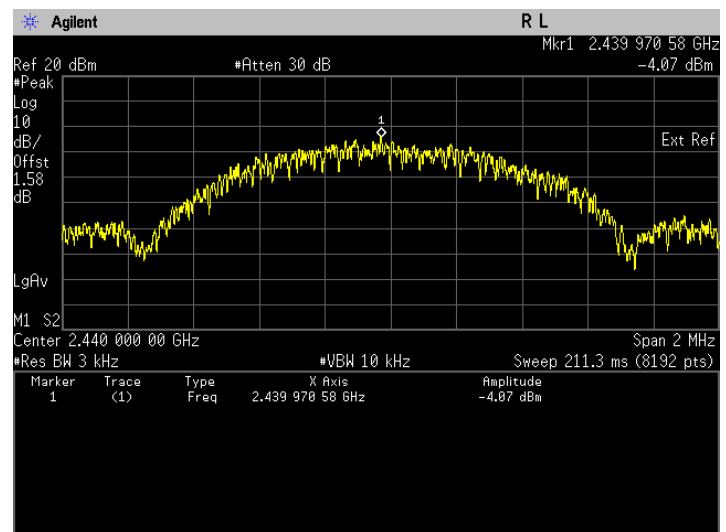
6.3.3 Test Result

BTLE 4.0

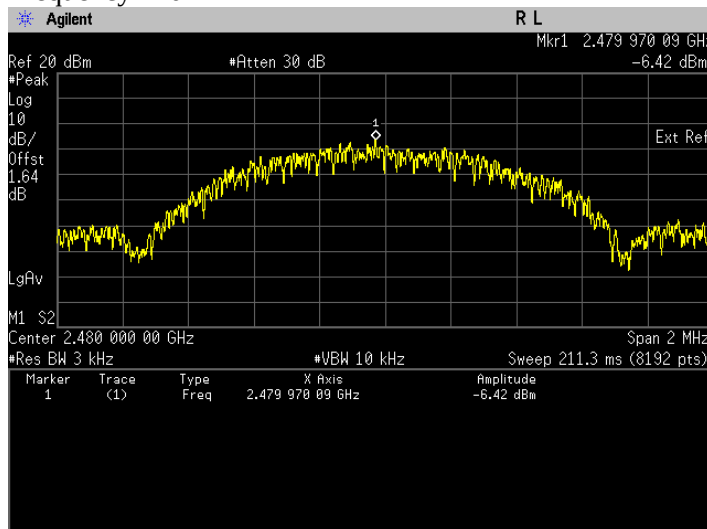
Test Conditions		Test Frequency	Results	
Standard	Modulation Type	Tx (MHz)	Power (dBm/3kHz)	Status
Bluetooth L.E.	GFSK	2402	-4.35	Pass
Bluetooth L.E.	GFSK	2440	-4.07	Pass
Bluetooth L.E.	GFSK	2480	-6.42	Pass



Maximum Power Spectral Density. Bluetooth LE
 Frequency 2402 MHz



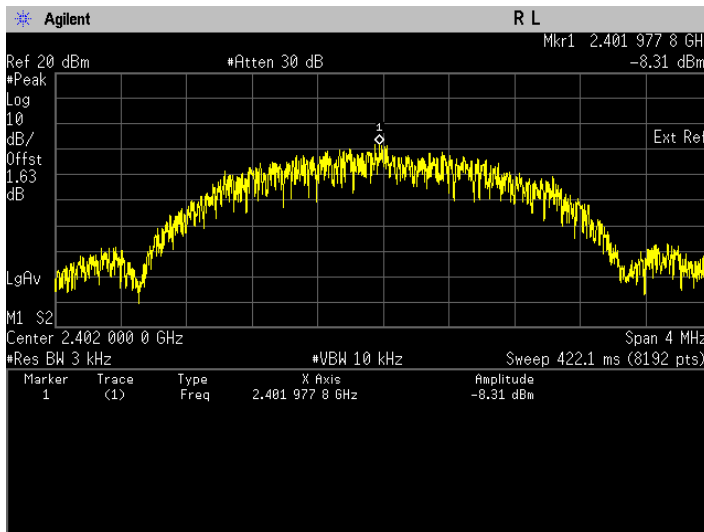
Maximum Power Spectral Density. Bluetooth LE
 Frequency 2440 MHz



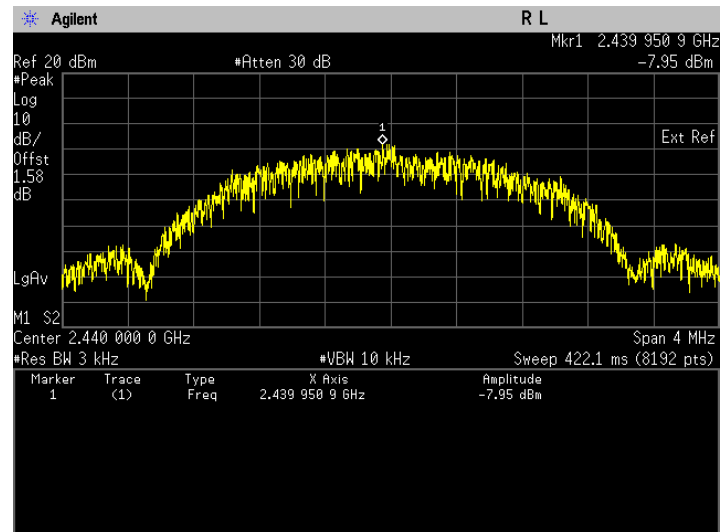
Maximum Power Spectral Density. Bluetooth LE
 Frequency 2480 MHz

BTLE 5.0

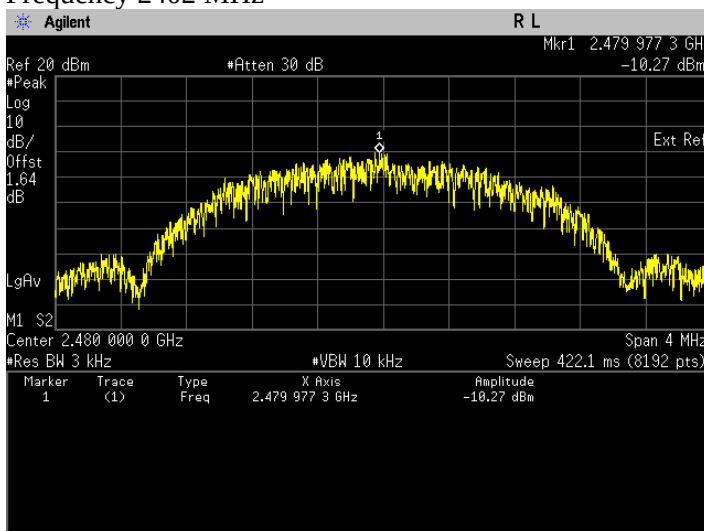
Test Conditions		Test Frequency	Results	
Standard	Modulation Type	Tx (MHz)	Power (dBm/3kHz)	Status
Bluetooth L.E.	GFSK	2402	-8.31	Pass
Bluetooth L.E.	GFSK	2440	-7.95	Pass
Bluetooth L.E.	GFSK	2480	-10.27	Pass



Maximum Power Spectral Density. Bluetooth LE
 Frequency 2402 MHz



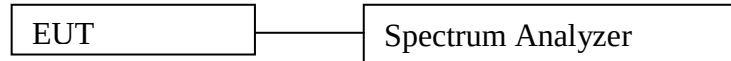
Maximum Power Spectral Density. Bluetooth LE
 Frequency 2440 MHz



Maximum Power Spectral Density. Bluetooth LE
 Frequency 2480 MHz

6.4 Conducted Spurious Emission

6.4.1 Test Setup



- 1) Check and ensure the spectrum analyzer well calibrate.
- 2) Turn on the DUT and set DUT to transmit maximum power.
- 3) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- 4) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max Hold
 - e. Sweep = auto
- 5) Use the peak marker function to measure highest emission and scan up to 10th harmonic.

6.4.2 Test Limits:

Normal Condition (25 ° C)
Shall be at least 30 dB below peak (max) power.

6.4.3 Test Result

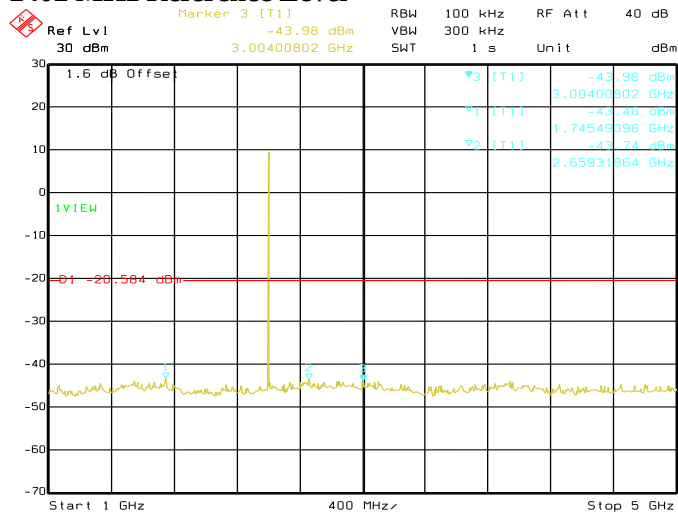
BTLE 4.0

Test Conditions			Test Frequency	Results	
Standard	Modulation Type	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
Bluetooth L.E.	GFSK	2402	14188.38	-39.92	Pass
			6993.99	-40.25	Pass
			6743.49	-40.79	Pass
Bluetooth L.E.	GFSK	2440	14188.38	-38.90	Pass
			6993.99	-39.84	Pass
			13707.41	-39.97	Pass
Bluetooth L.E.	GFSK	2480	14188.38	-40.07	Pass
			6993.99	-40.80	Pass
			15671.34	-41.01	Pass



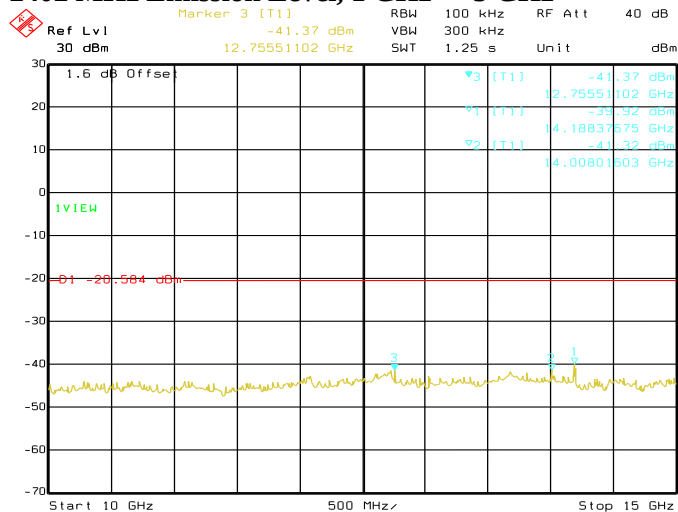
Date: 09.JAN.2019 09:04:55

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Reference Level



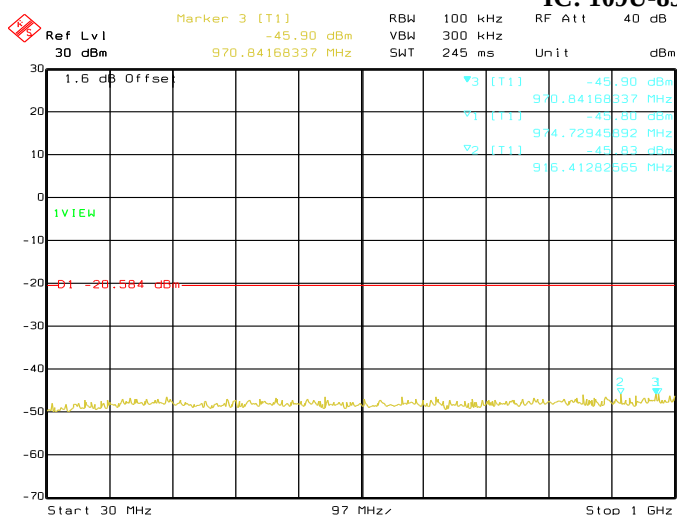
Date: 09.JAN.2019 09:06:41

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 1 GHz -> 5 GHz



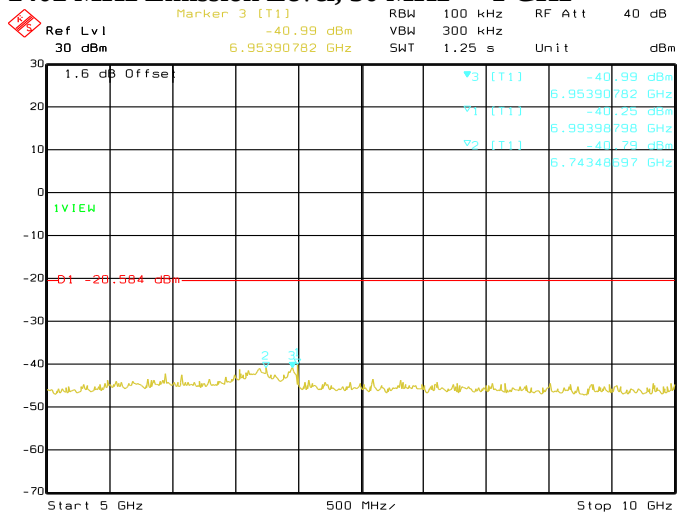
Date: 09.JAN.2019 09:08:27

Conducted Emissions. Bluetooth LE, Frequency 2402 Emission Level, 10 GHz -> 15 GHz



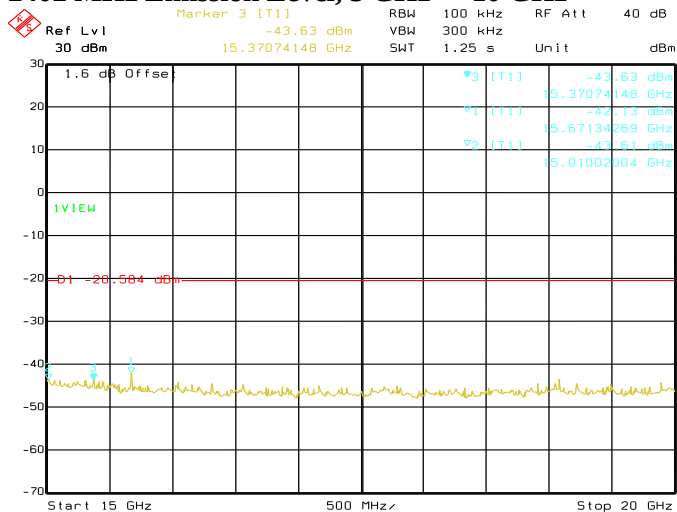
Date: 09.JAN.2019 09:05:46

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 30 MHz -> 1 GHz



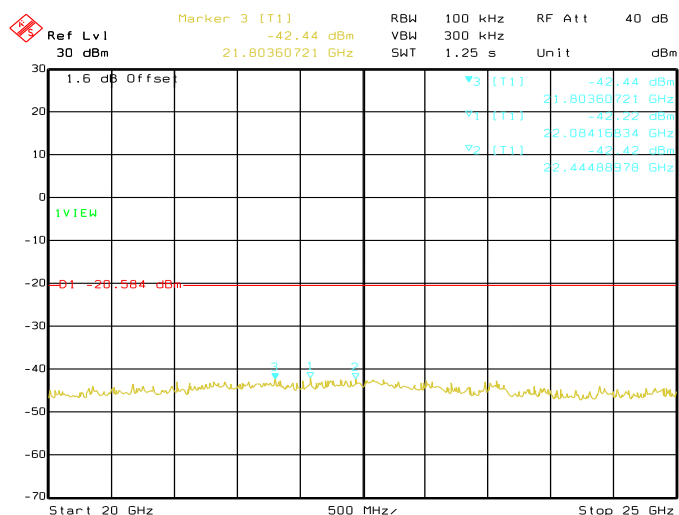
Date: 09.JAN.2019 09:07:34

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 5 GHz -> 10 GHz



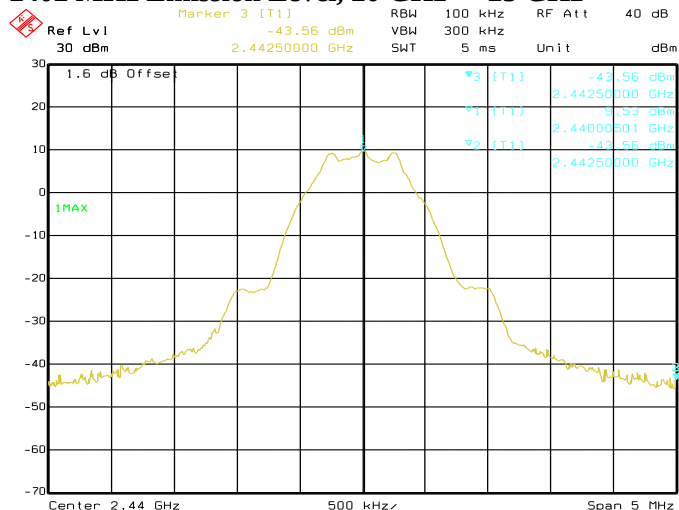
Date: 09.JAN.2019 09:09:20

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 15 GHz -> 20 GHz



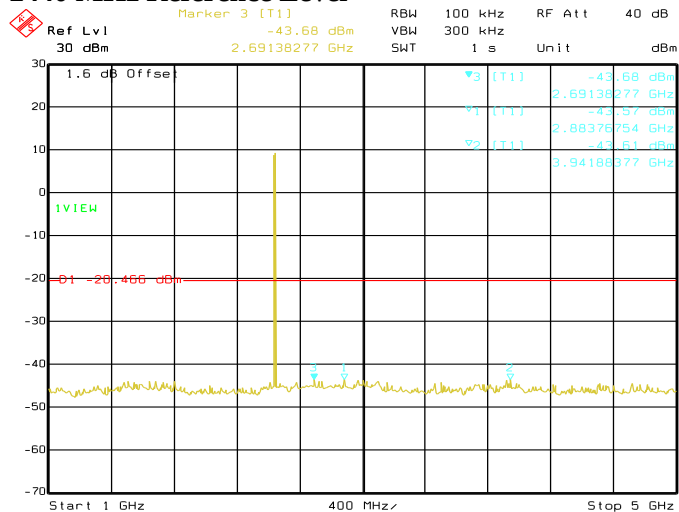
Date: 09.JAN.2019 09:10:14

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 20 GHz -> 25 GHz



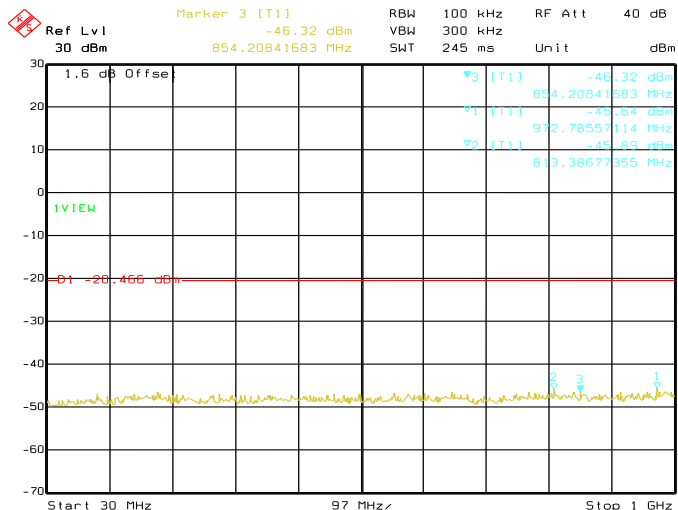
Date: 09.JAN.2019 09:11:34

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Reference Level



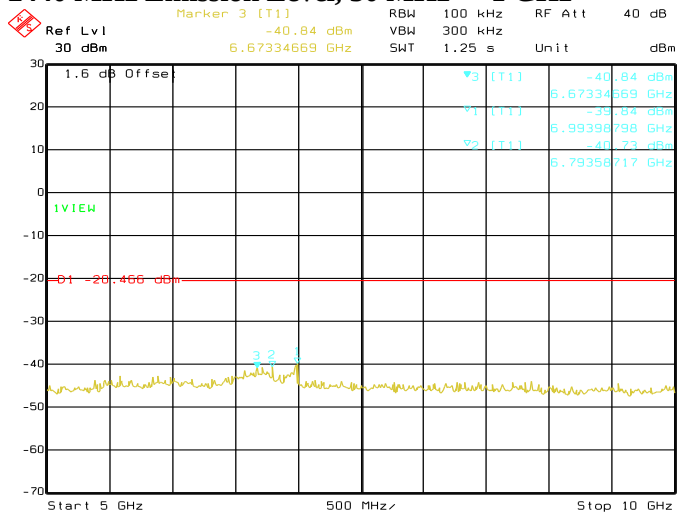
Date: 09.JAN.2019 09:13:22

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 1 GHz -> 5 GHz



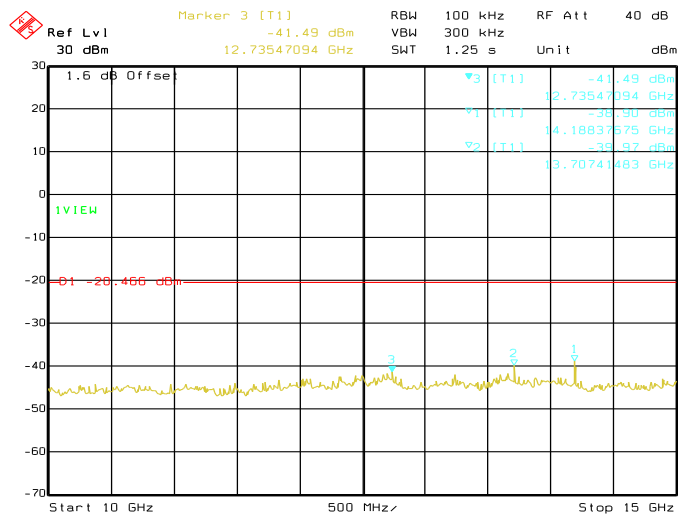
Date: 09.JAN.2019 09:12:27

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 30 MHz -> 1 GHz



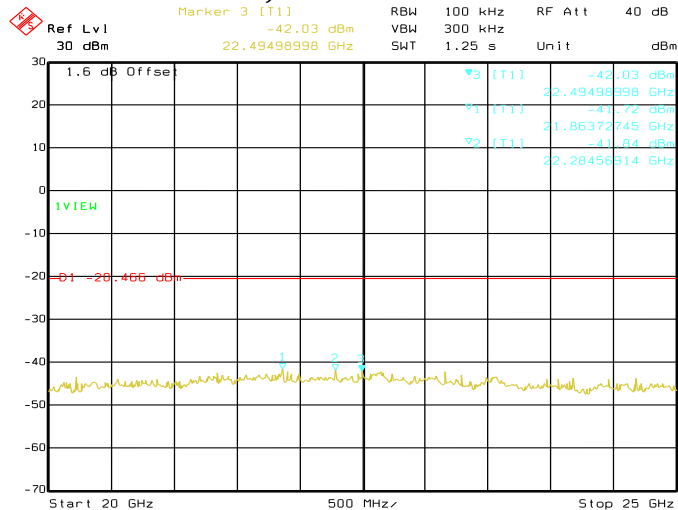
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Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 5 GHz -> 10 GHz



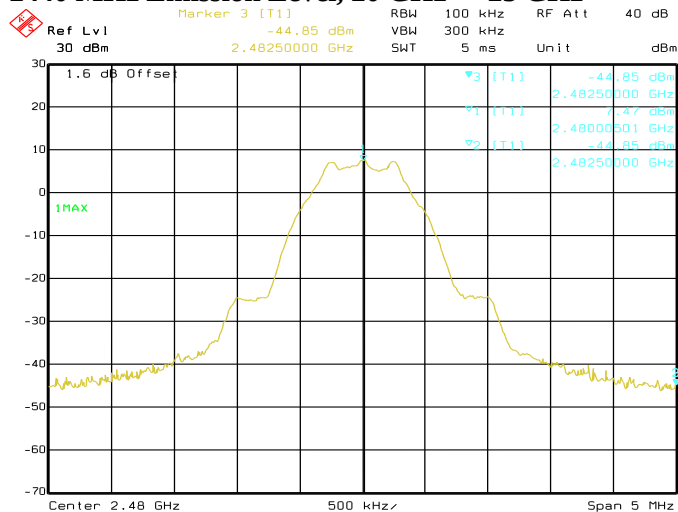
Date: 09.JAN.2019 09:15:08

Conducted Emissions. Bluetooth LE, Frequency 2440 Emission Level, 10 GHz -> 15 GHz



Date: 09.JAN.2019 09:16:01

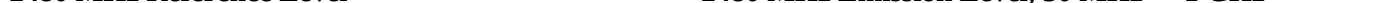
Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 15 GHz -> 20 GHz



Date: 09.JAN.2019 09:16:55

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 20 GHz -> 25 GHz

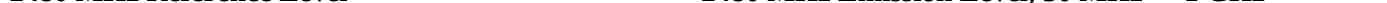
Ref Lvl 30 dBm Marker 3 [T1] -45.95 dBm RBW 100 kHz RF Att 40 dB
30 dBm 976.67334669 MHz VSW 300 kHz Unit dBm
SWT 245 ms



Date: 09.JAN.2019 09:18:33

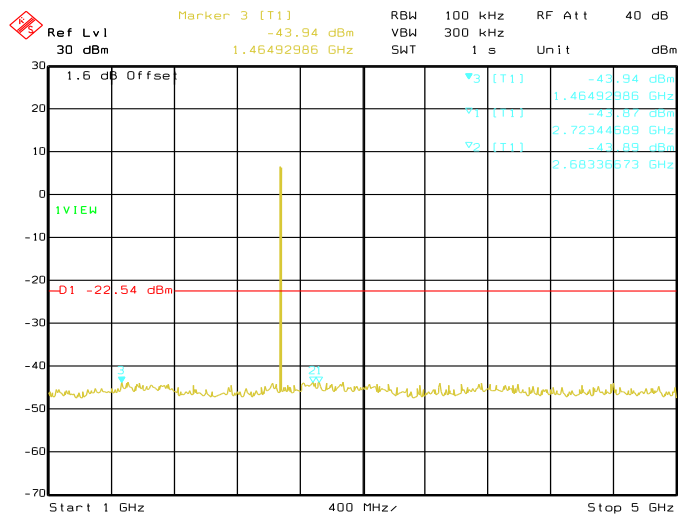
Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Reference Level

Ref Lvl 30 dBm Marker 3 [T1] -45.95 dBm RBW 100 kHz RF Att 40 dB
30 dBm 976.67334669 MHz VSW 300 kHz Unit dBm
SWT 245 ms



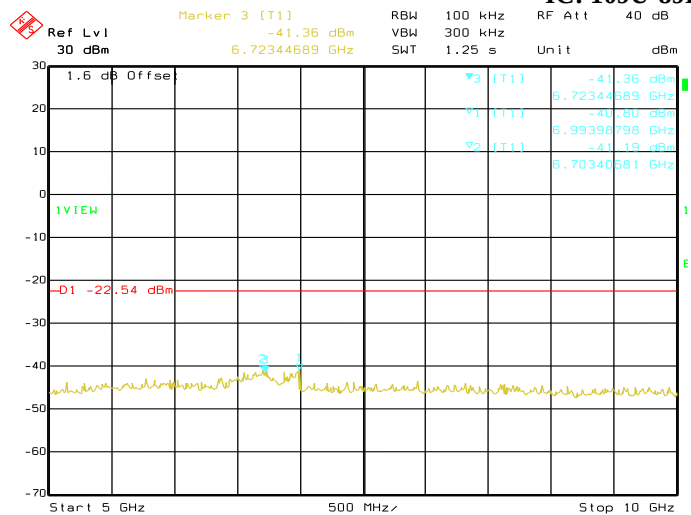
Date: 09.JAN.2019 09:19:27

Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Emission Level, 30 MHz -> 1 GHz



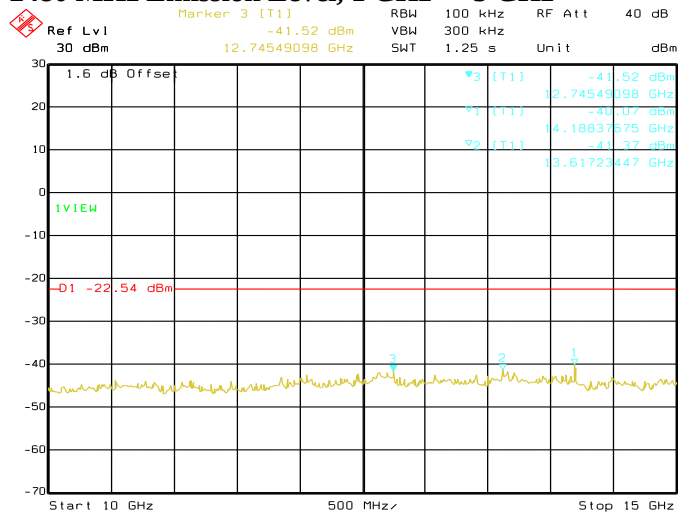
Date: 09.JAN.2019 09:20:21

**Conducted Emissions. Bluetooth LE, Frequency
2480 MHz Emission Level, 1 GHz -> 5 GHz**



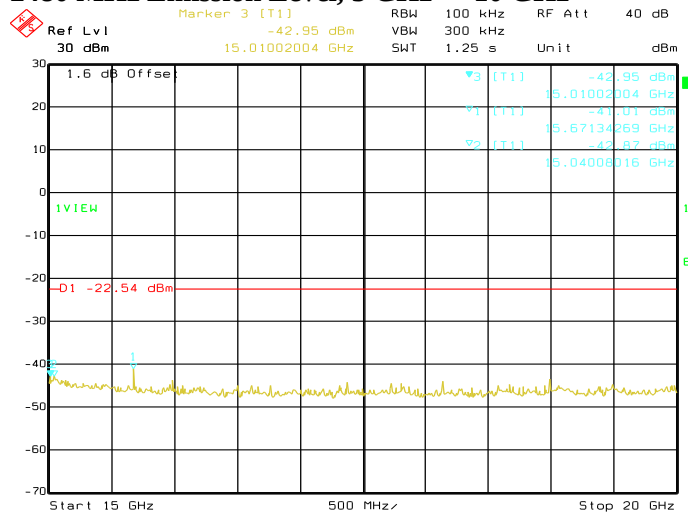
Date: 09.JAN.2019 09:21:15

**Conducted Emissions. Bluetooth LE, Frequency
2480 MHz Emission Level, 5 GHz -> 10 GHz**



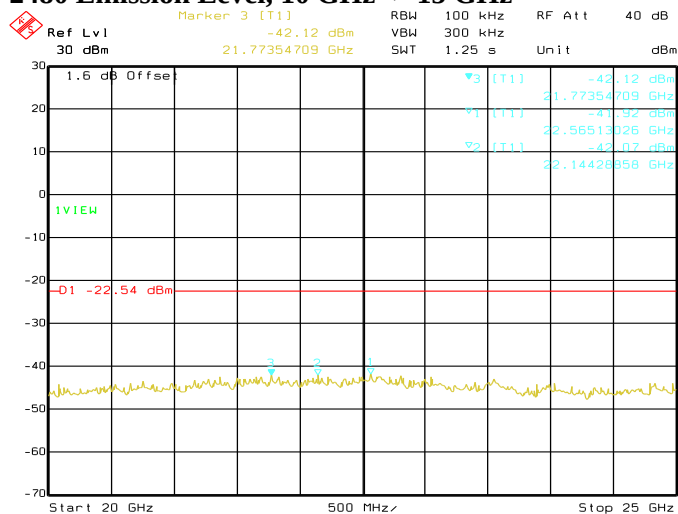
Date: 09.JAN.2019 09:22:08

**Conducted Emissions. Bluetooth LE, Frequency
2480 MHz Emission Level, 10 GHz -> 15 GHz**



Date: 09.JAN.2019 09:23:02

**Conducted Emissions. Bluetooth LE, Frequency
2480 MHz Emission Level, 15 GHz -> 20 GHz**

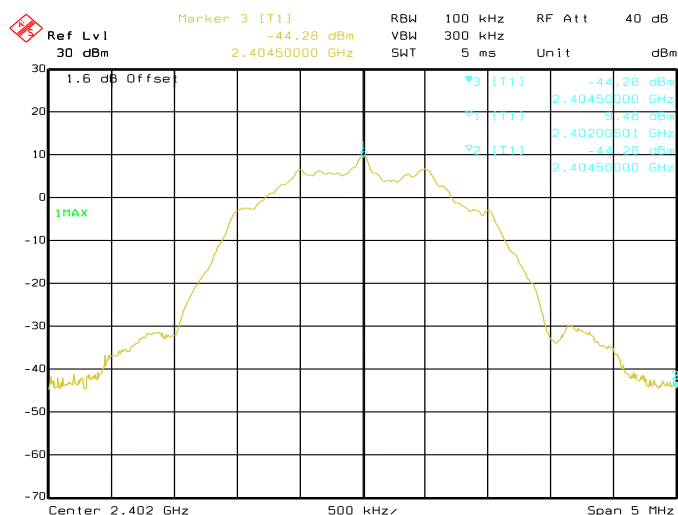


Date: 09.JAN.2019 09:23:54

**Conducted Emissions. Bluetooth LE, Frequency
2480 MHz Emission Level, 20 GHz -> 25 GHz**

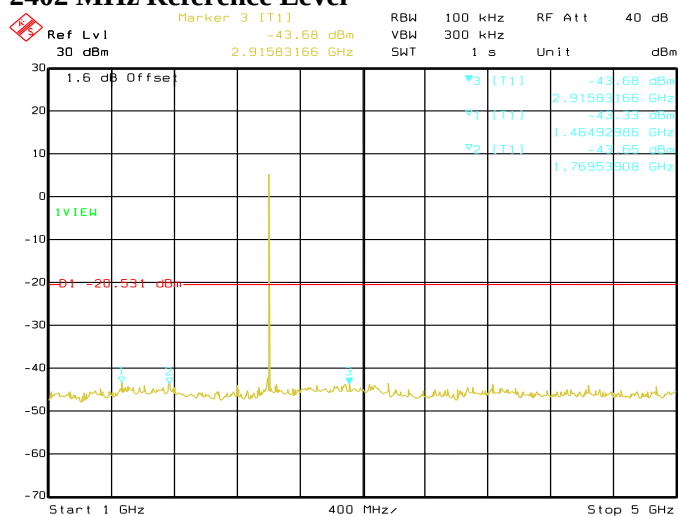
BTLE 5.0

Test Conditions			Test Frequency	Results	
Standard	Modulation Type	Tx (MHz)	Spurs (MHz)	Level (dBm)	Status
Bluetooth L.E.	GFSK	2402	14188.38	-39.86	Pass
			15671.34	-39.98	Pass
			6573.15	-40.72	Pass
Bluetooth L.E.	GFSK	2440	6733.47	-40.08	Pass
			14188.38	-40.66	Pass
			6993.99	-40.71	Pass
Bluetooth L.E.	GFSK	2480	14188.38	-39.31	Pass
			6993.99	-39.93	Pass
			6973.95	-40.24	Pass



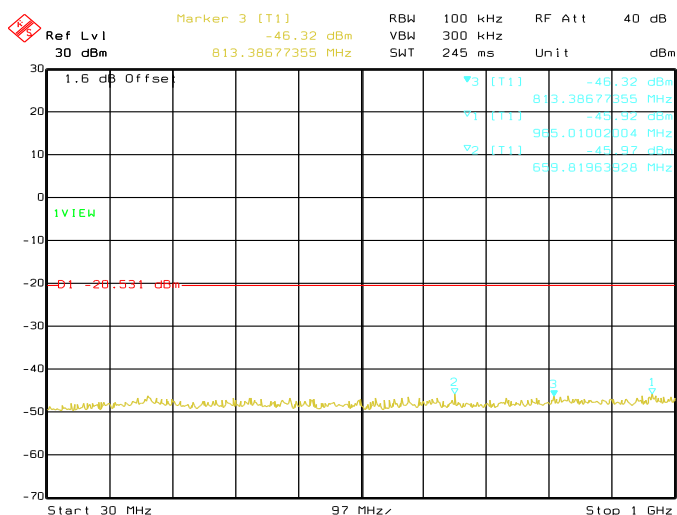
Date: 09.JAN.2019 10:09:14

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Reference Level



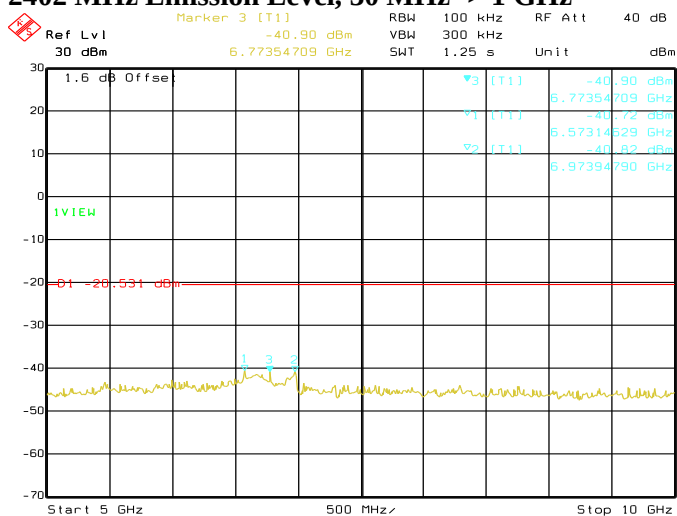
Date: 09.JAN.2019 10:11:00

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 1 GHz -> 5 GHz



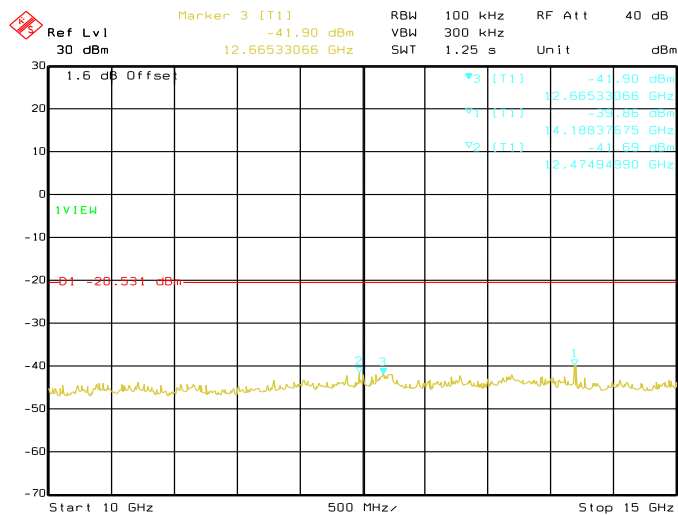
Date: 09.JAN.2019 10:10:05

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 30 MHz -> 1 GHz



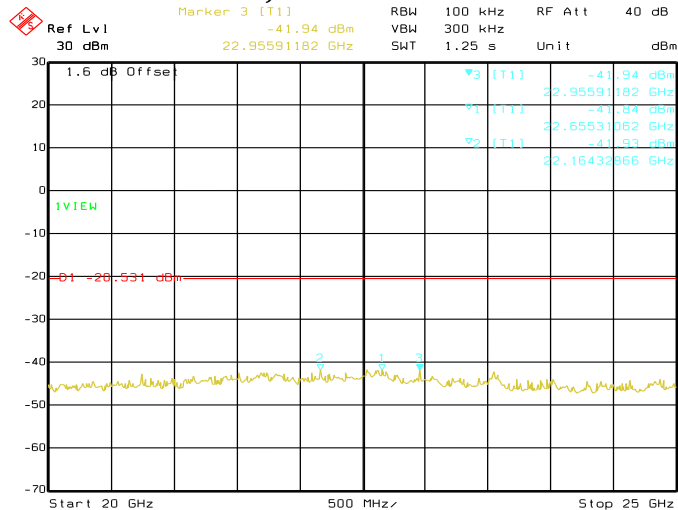
Date: 09.JAN.2019 10:11:53

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 5 GHz -> 10 GHz



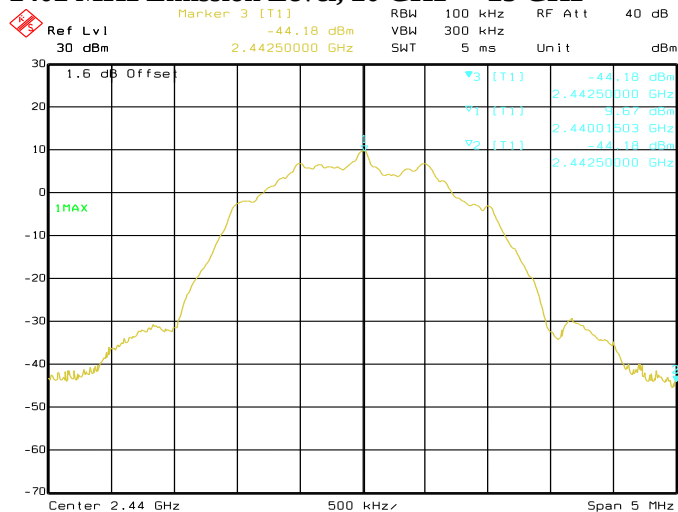
Date: 09.JAN.2019 10:12:46

Conducted Emissions. Bluetooth LE, Frequency 2402 Emission Level, 10 GHz -> 15 GHz



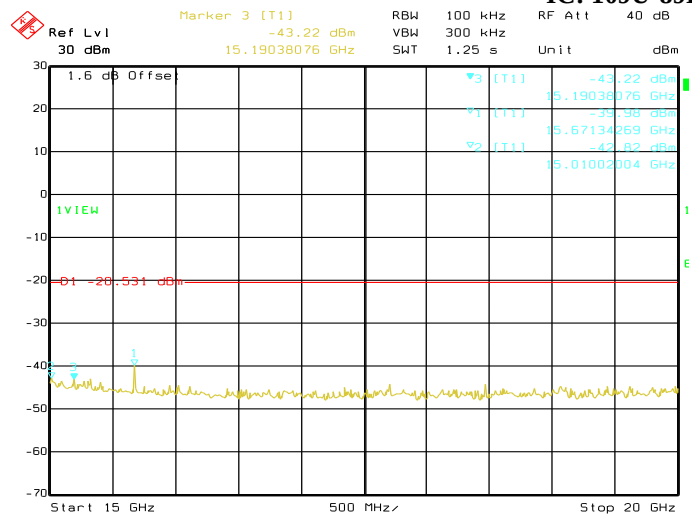
Date: 09.JAN.2019 10:14:33

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 20 GHz -> 25 GHz



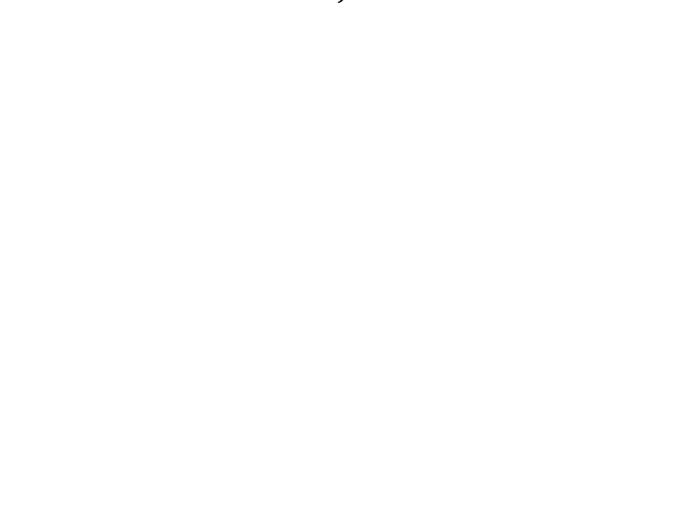
Date: 09.JAN.2019 10:18:30

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Reference Level



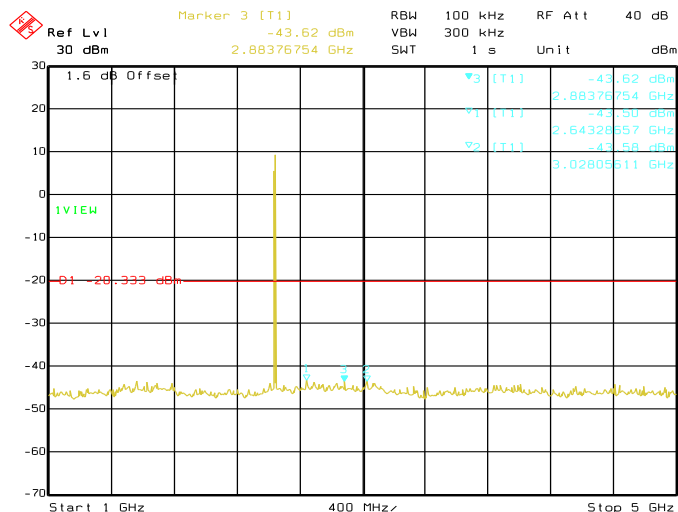
Date: 09.JAN.2019 10:13:39

Conducted Emissions. Bluetooth LE, Frequency 2402 MHz Emission Level, 15 GHz -> 20 GHz



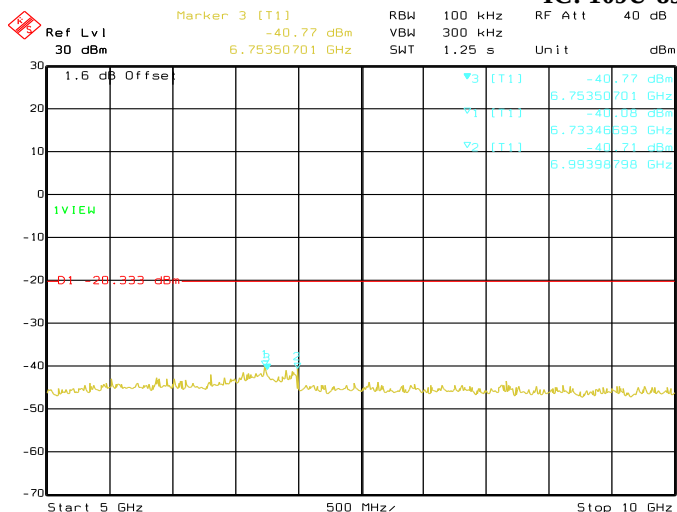
Date: 09.JAN.2019 10:19:23

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 30 MHz -> 1 GHz



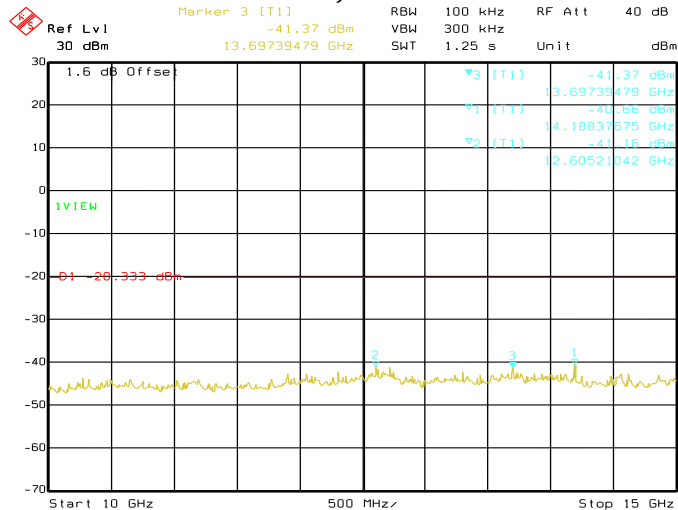
Date: 09.JAN.2019 10:20:17

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 1 GHz -> 5 GHz



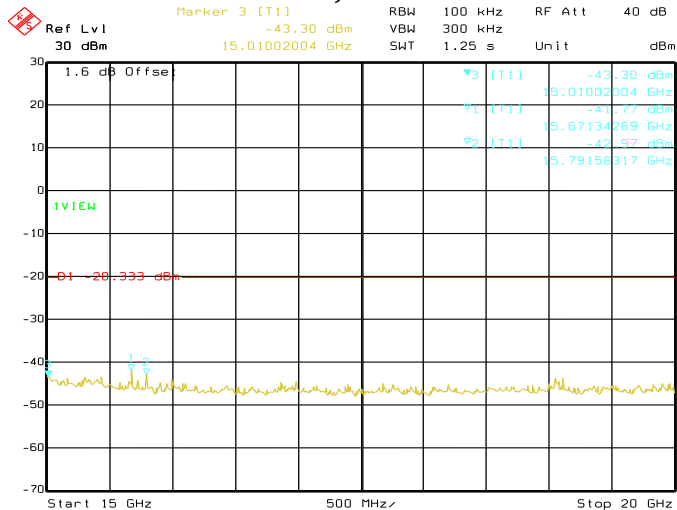
Date: 09.JAN.2019 10:21:11

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 5 GHz -> 10 GHz



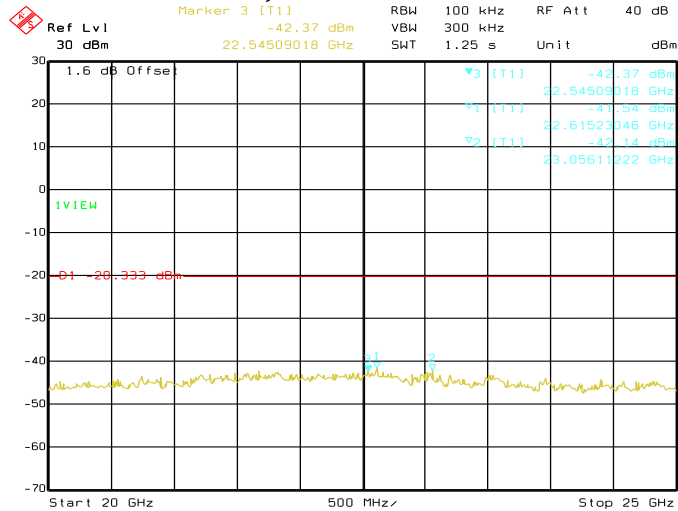
Date: 09.JAN.2019 10:22:04

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 10 GHz -> 15 GHz



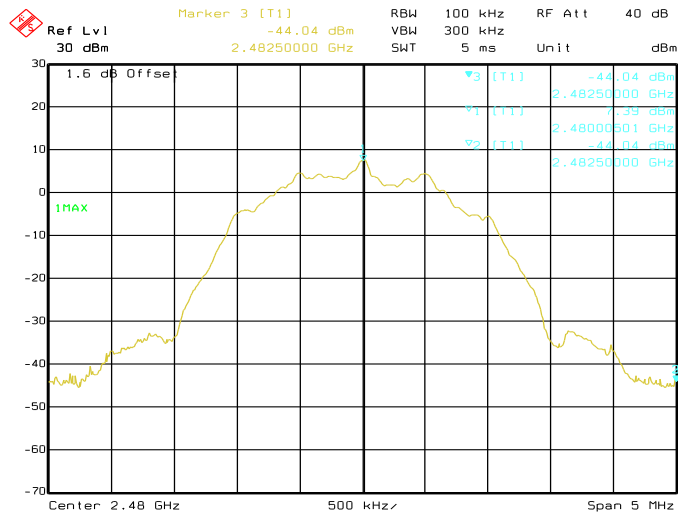
Date: 09.JAN.2019 10:22:57

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 15 GHz -> 20 GHz



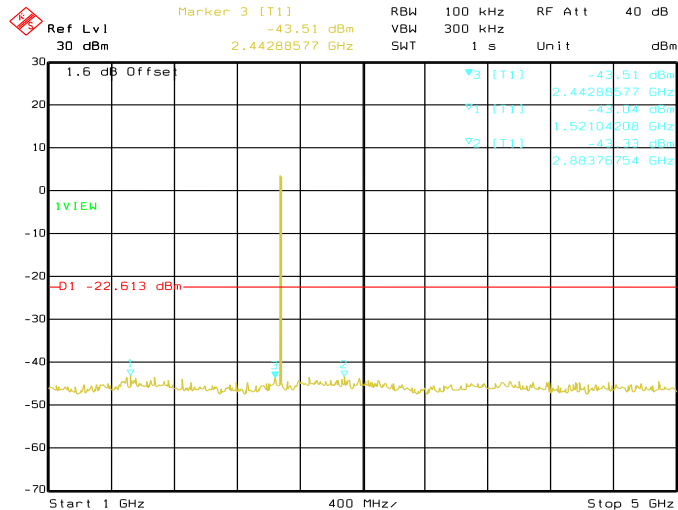
Date: 09.JAN.2019 10:23:51

Conducted Emissions. Bluetooth LE, Frequency 2440 MHz Emission Level, 20 GHz -> 25 GHz



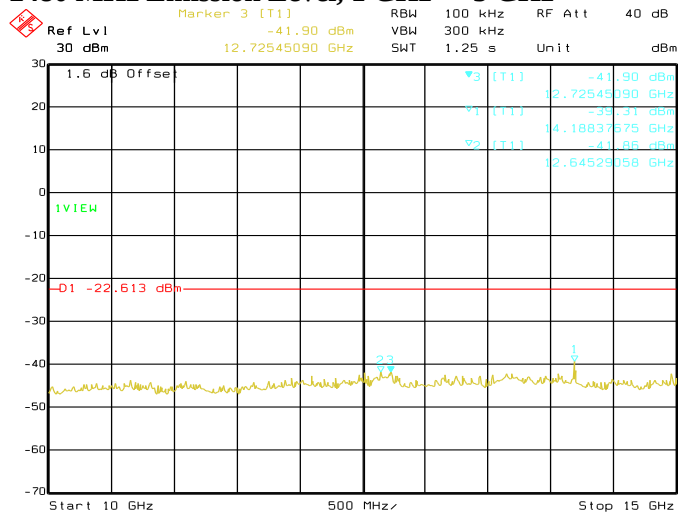
Date: 09.JAN.2019 10:25:11

Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Reference Level



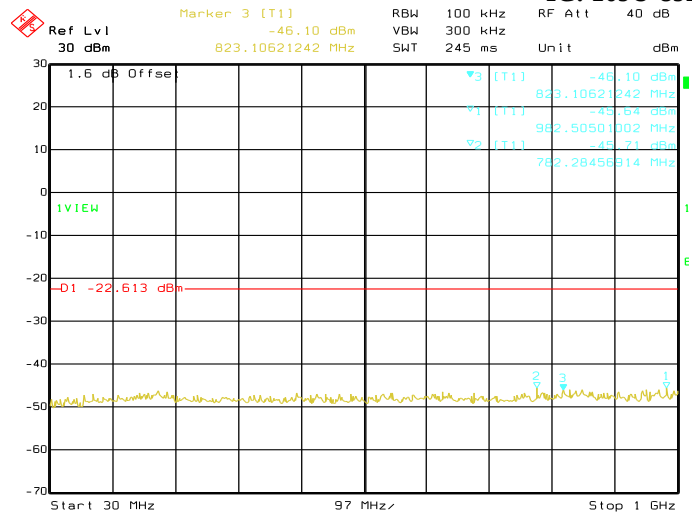
Date: 09.JAN.2019 10:26:59

Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Emission Level, 1 GHz -> 5 GHz



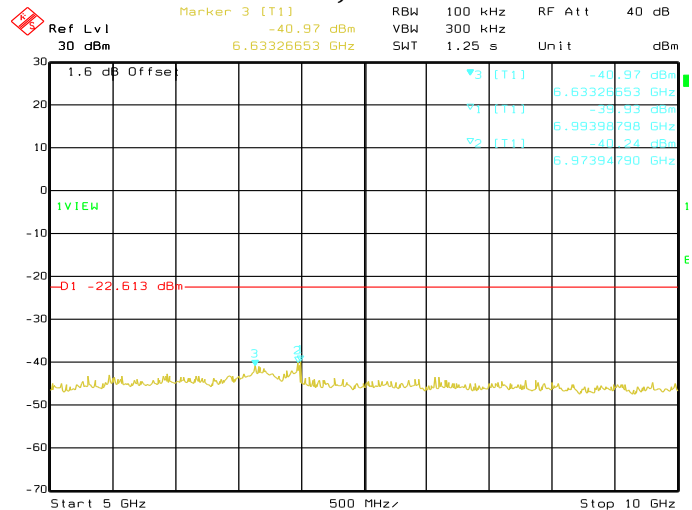
Date: 09.JAN.2019 10:28:45

Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Emission Level, 10 GHz -> 15 GHz



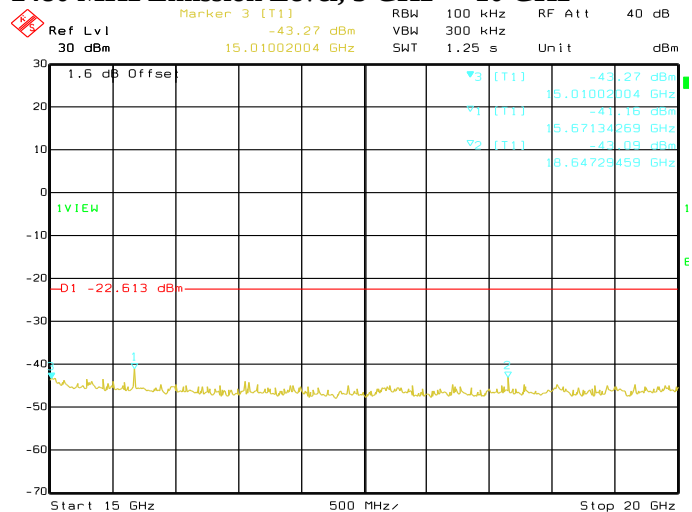
Date: 09.JAN.2019 10:26:04

Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Emission Level, 30 MHz -> 1 GHz



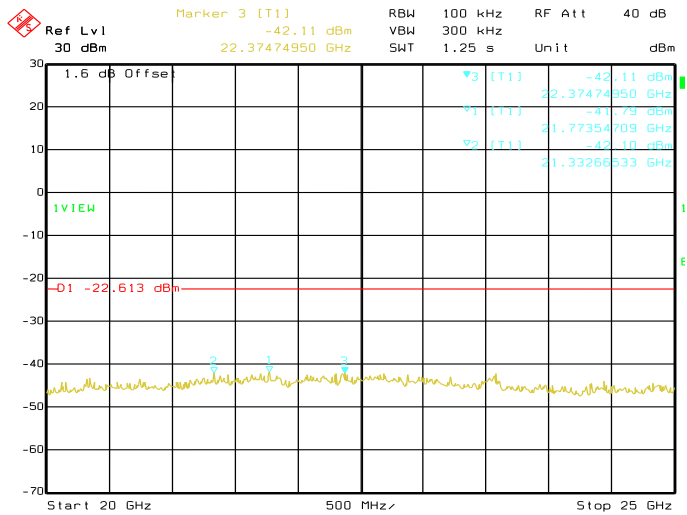
Date: 09.JAN.2019 10:27:52

Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Emission Level, 5 GHz -> 10 GHz



Date: 09.JAN.2019 10:29:39

Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Emission Level, 15 GHz -> 20 GHz

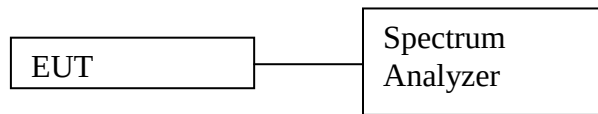


Date: 09.JAN.2019 10:30:32

Conducted Emissions. Bluetooth LE, Frequency 2480 MHz Emission Level, 20 GHz -> 25 GHz

6.5 Band edge Conducted Spurious Emission

6.5.1 Test Setup



- a) Check and ensure the spectrum analyzer well calibrate.
- b) Turn on the DUT and set DUT to transmit maximum power.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) Setting of Spectrum analyzer :
 - a. RBW = 100 kHz
 - b. VBW = 300 kHz
 - c. Detector mode = Peak
 - d. Trace = Max Hold
 - e. Sweep = auto
- e) Use the peak marker function to measure highest emission.

6.5.2 Test Limits:

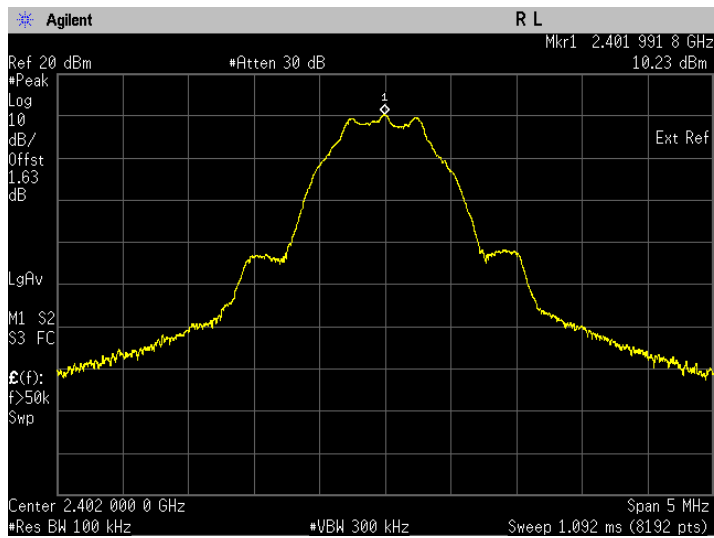
Normal Condition (25 ° C)

Shall be at least 30 dB below peak (max) power.

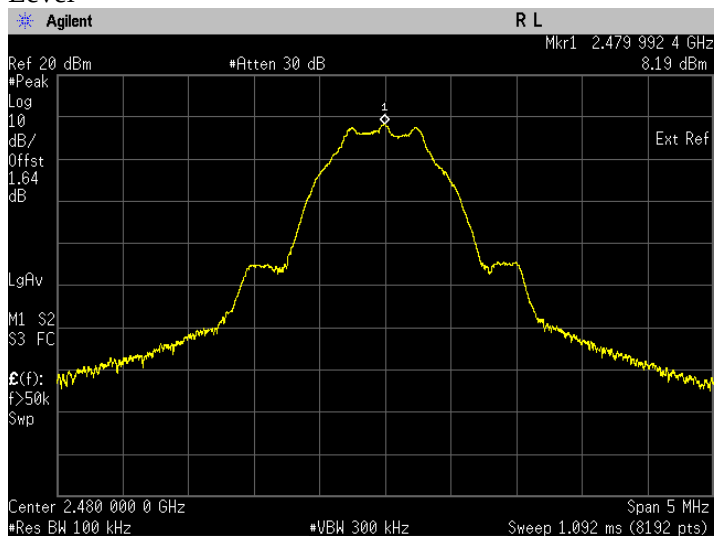
6.5.3 Test Result

BTLE 4.0

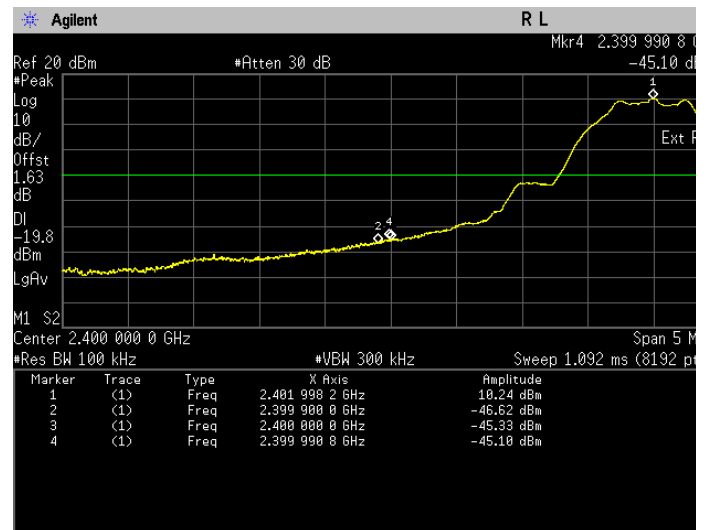
Test Conditions		Test Frequency	Results		
Standard	Modulation Type	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
Bluetooth L.E	GFSK	2402	2399.99	-45.10	Pass
Bluetooth L.E	GFSK	2480	2483.59	-56.23	Pass



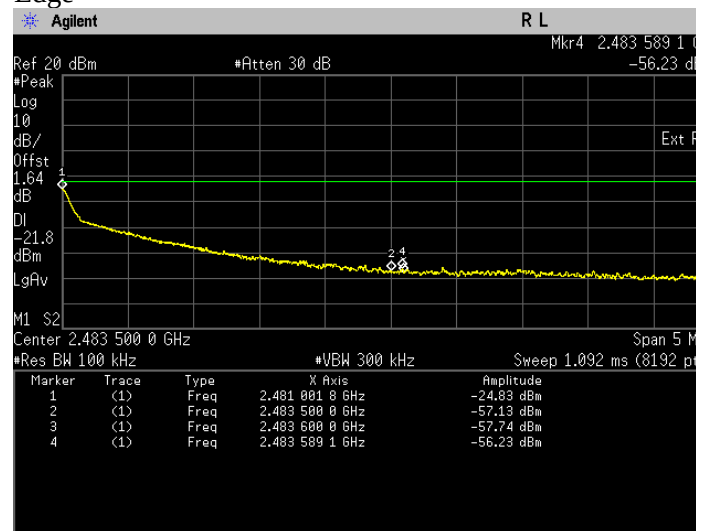
Band Edge. Bluetooth LE Frequency 2402 MHz Reference Level



Band Edge. Bluetooth LE Frequency 2480 MHz Reference Level



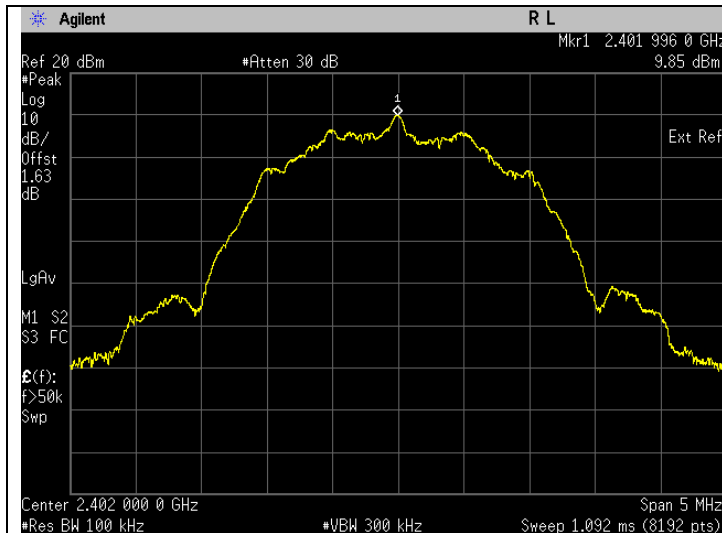
Band Edge. Bluetooth LE Frequency 2402 MHz Band Edge



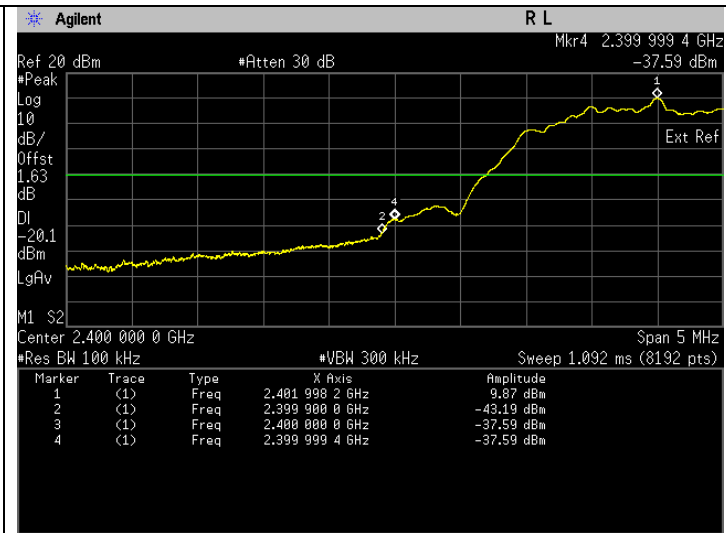
Band Edge. Bluetooth LE Frequency 2480 MHz Band Edge

BTLE 5.0

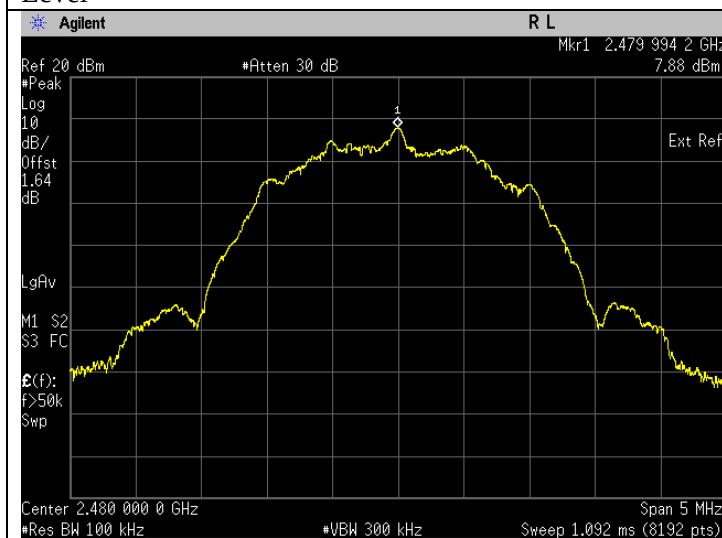
Test Conditions		Test Frequency	Results		
Standard	Modulation Type	Tx (MHz)	Frequencies (MHz)	Power (dBm)	Status
Bluetooth L.E	GFSK	2402	2400.00	-37.59	Pass
Bluetooth L.E	GFSK	2480	2483.56	-54.89	Pass



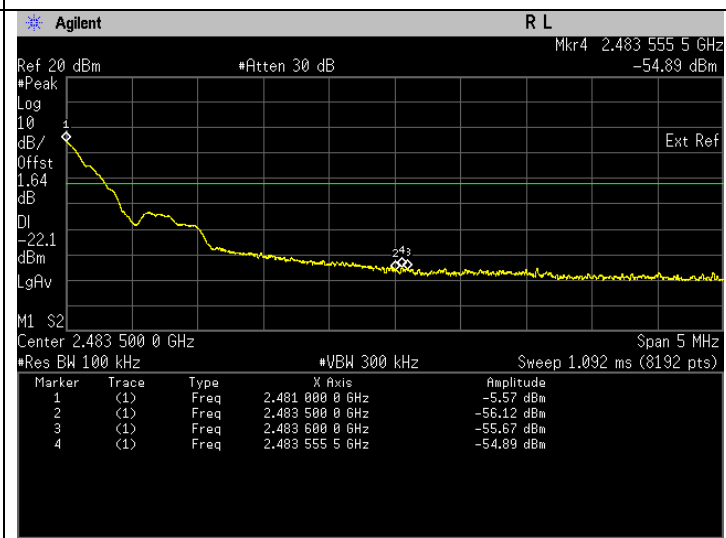
Band Edge. Bluetooth LE Frequency 2402 MHz Reference Level



Band Edge. Bluetooth LE Frequency 2402 MHz Band Edge



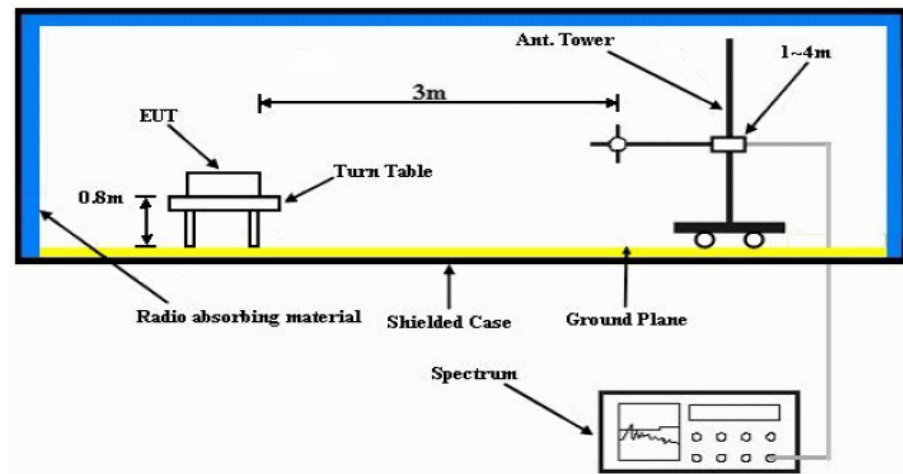
Band Edge. Bluetooth LE Frequency 2480 MHz Reference Level



Band Edge. Bluetooth LE Frequency 2480 MHz Band Edge

6.6 Radiated Emission within Restricted Bands

6.6.1 Test Setup



- The EUT is placed on the top of a rotating table 0.8m above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
- The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
- The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

6.6.2 Test Limits:

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power.

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

NOTE:

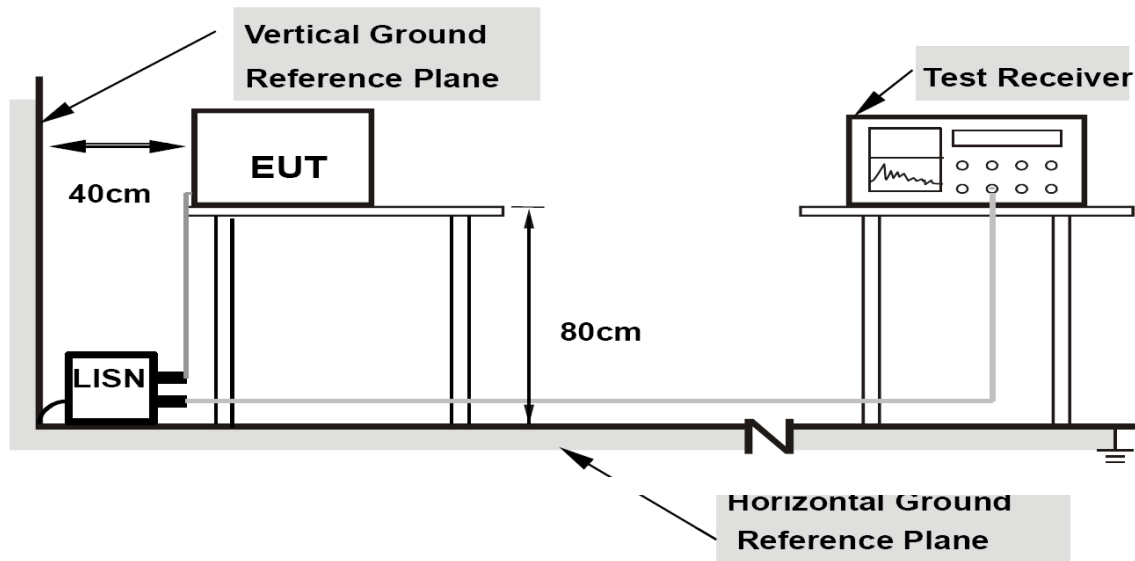
- 1) The lower limit shall apply at the transition frequencies.
- 2) Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 3) For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

6.6.3 Test Results:

Not Performed.

6.7 AC Powerline Conducted Emission

6.7.1 Test Setup



- 1) Tests were conducted for both Receive and Transmit Mode of the EUT.
- 2) The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50uH of coupling impedance for the measuring instrument.
- 3) Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- 4) The frequency range from 150 kHz to 30MHz was measured.

6.7.2 Test Limits:

For AC Power Line Conducted Test Limit can be Class A or B depends on product classification.

**Limits for conducted disturbance at the mains ports
of class A ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	79	66
0,50 to 30	73	60
NOTE The lower limit shall apply at the transition frequency.		

Table 1: Limits for Conducted Disturbance at the Mains Ports of Class A ITE.

**Limits for conducted disturbance at the mains ports
of class B ITE**

Frequency range MHz	Limits dB(μ V)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50
NOTE 1 The lower limit shall apply at the transition frequencies. NOTE 2 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

Table 2: Limits for Conducted Disturbance at the Mains Ports of Class B ITE

6.7.3 Test Result

EMI Auto Test Template: Voltage with 2-Line-LISN

Hardware Setup: Voltage with 2-Line-LISN
Measurement Type: 2 Line LISN
Frequency Range: 150 kHz - 30 MHz
Graphics Level Range: 0 dBμV - 80 dBμV

Preview Measurements:
Scan Test Template: Voltage with 2-Line-LISN pre

Data Reduction:
Limit Line #1: FCC Part 15 Class B Voltage on Mains QP
Limit Line #2: FCC Part 15 Class B Voltage on Mains AV
Peak Search: 6 dB , Maximum Results: 20
Subrange Maxima: 10 Subranges , Maxima per Subrange: 1
Acceptance Offset: -20 dB
Maximum Number of Results: 20

Maximization Measurements:
Template for Single Meas.: Voltage with 2-Line-LISN max

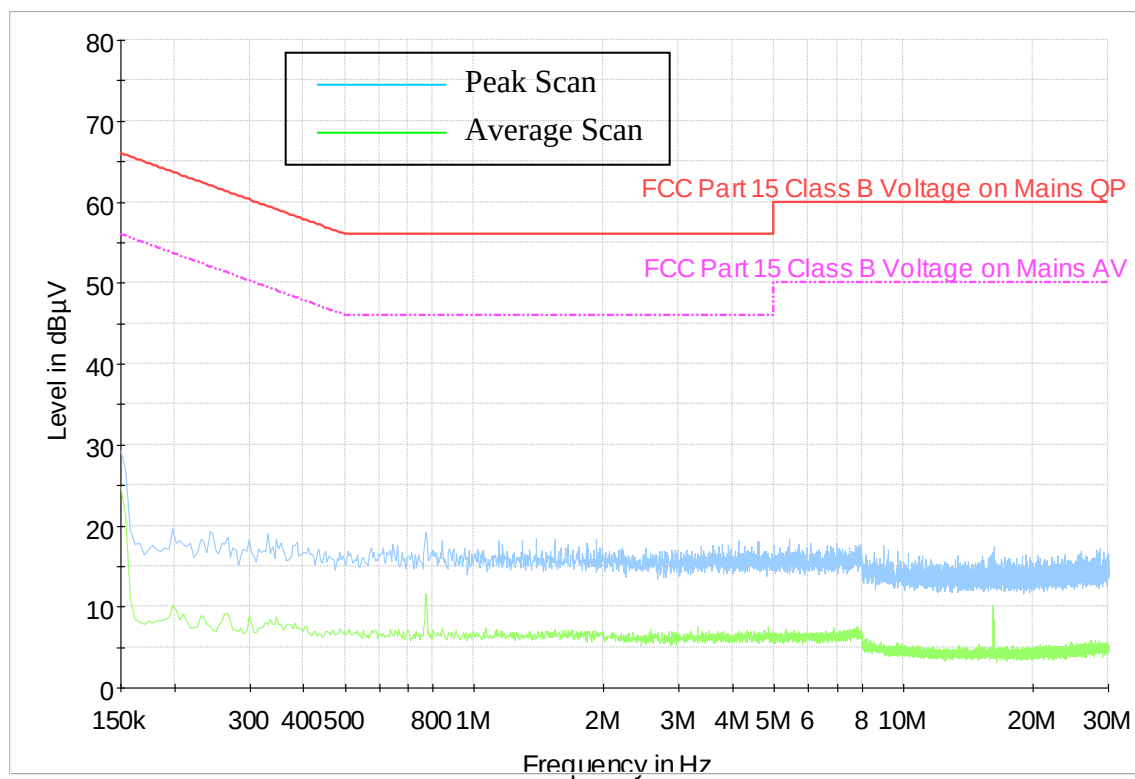
Final Measurements:
Template for Single Meas.: Voltage with 2-Line-LISN fin

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamplifier
150 kHz - 30 MHz	4.5 kHz	QPK; CAV	9 kHz	1 s	0 dB

Receiver: [ESCI 3]

1) Ambient Noise

Voltage with 2-Line-LISN

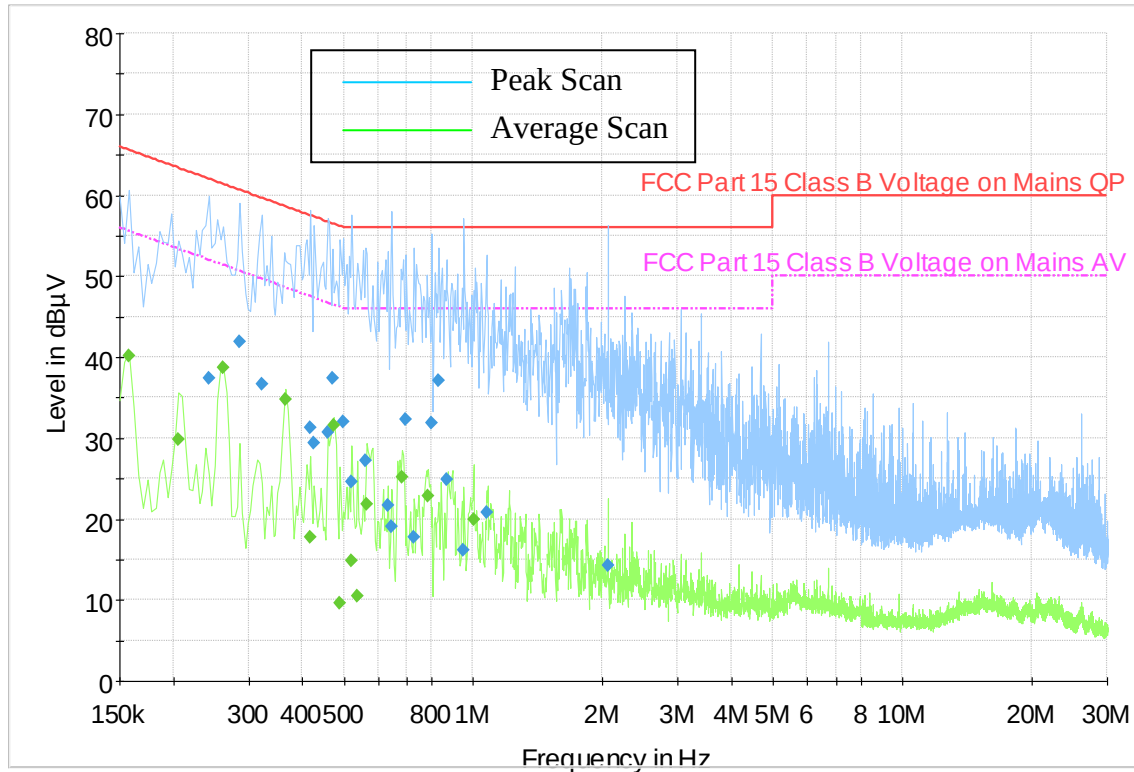


120VAC, 60Hz

SUC

1) Charger Alone

Voltage with 2-Line-LISN



Quasipeak Measurement

Frequency (MHz)	QuasiPeak (dBuV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)	Comment
0.242000	37.4	1000.0	9.000	On	L1	9.8	24.6	62.0	PASS
0.286000	41.9	1000.0	9.000	On	L1	9.8	18.7	60.6	PASS
0.322000	36.6	1000.0	9.000	On	L1	9.8	23.0	59.7	PASS
0.418000	31.2	1000.0	9.000	On	N	9.9	26.3	57.5	PASS
0.426000	29.4	1000.0	9.000	On	N	9.9	27.9	57.3	PASS
0.458000	30.7	1000.0	9.000	On	L1	10.0	26.0	56.7	PASS
0.470000	37.4	1000.0	9.000	On	N	10.0	19.1	56.5	PASS
0.498000	32.1	1000.0	9.000	On	N	10.0	24.0	56.0	PASS
0.522000	24.6	1000.0	9.000	On	L1	10.0	31.4	56.0	PASS
0.562000	27.3	1000.0	9.000	On	N	9.9	28.8	56.0	PASS
0.634000	21.6	1000.0	9.000	On	N	9.9	34.4	56.0	PASS
0.646000	19.1	1000.0	9.000	On	L1	9.9	36.9	56.0	PASS
0.698000	32.3	1000.0	9.000	On	L1	9.9	23.7	56.0	PASS
0.726000	17.8	1000.0	9.000	On	L1	9.9	38.2	56.0	PASS
0.802000	31.8	1000.0	9.000	On	L1	9.9	24.2	56.0	PASS
0.830000	37.1	1000.0	9.000	On	L1	9.9	18.9	56.0	PASS
0.866000	24.8	1000.0	9.000	On	L1	9.8	31.2	56.0	PASS
0.950000	16.2	1000.0	9.000	On	N	9.9	39.8	56.0	PASS
1.074000	20.9	1000.0	9.000	On	N	9.9	35.1	56.0	PASS
2.062000	14.3	1000.0	9.000	On	N	9.8	41.7	56.0	PASS

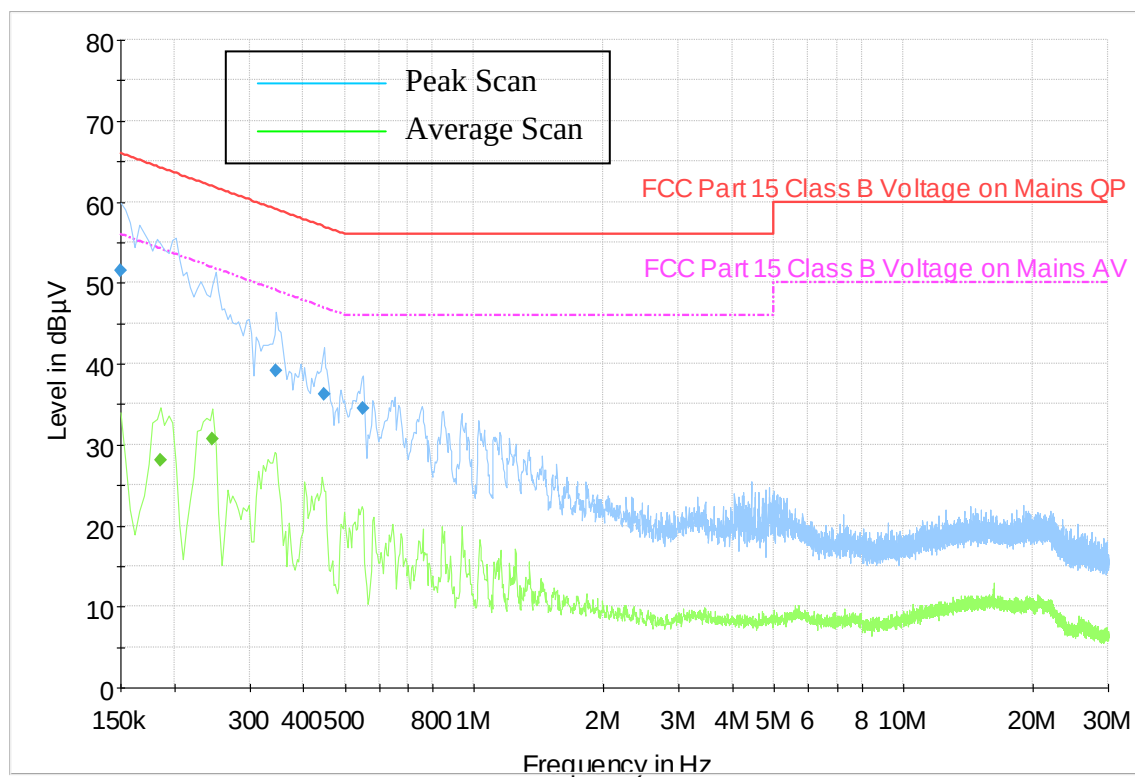
Average Measurement

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.158000	40.2	1000.0	9.000	On	N	10.0	15.4	55.6	PASS
0.206000	29.9	1000.0	9.000	On	N	9.9	23.5	53.4	PASS
0.262000	38.7	1000.0	9.000	On	N	9.8	12.7	51.4	PASS
0.366000	34.7	1000.0	9.000	On	N	9.9	13.9	48.6	PASS
0.418000	17.7	1000.0	9.000	On	N	9.9	29.8	47.5	PASS
0.474000	31.5	1000.0	9.000	On	N	10.0	14.9	46.4	PASS
0.490000	9.6	1000.0	9.000	On	N	10.0	36.5	46.2	PASS
0.522000	14.9	1000.0	9.000	On	N	10.0	31.1	46.0	PASS
0.538000	10.5	1000.0	9.000	On	N	10.0	35.5	46.0	PASS
0.566000	21.8	1000.0	9.000	On	N	9.9	24.2	46.0	PASS
0.682000	25.2	1000.0	9.000	On	N	9.8	20.8	46.0	PASS
0.786000	22.8	1000.0	9.000	On	N	9.8	23.2	46.0	PASS
1.002000	19.9	1000.0	9.000	On	L1	9.8	26.1	46.0	PASS

* Expanded Uncertainty (U) = +/- 3.43 dB

2) Charger with Radio Off

Voltage with 2-Line-LISN



Quasipeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	51.5	1000.0	9.000	On	N	10.0	14.5	66.0	PASS
0.346000	39.1	1000.0	9.000	On	L1	9.9	19.9	59.1	PASS
0.446000	36.2	1000.0	9.000	On	N	10.0	20.8	56.9	PASS
0.550000	34.5	1000.0	9.000	On	N	9.9	21.5	56.0	PASS

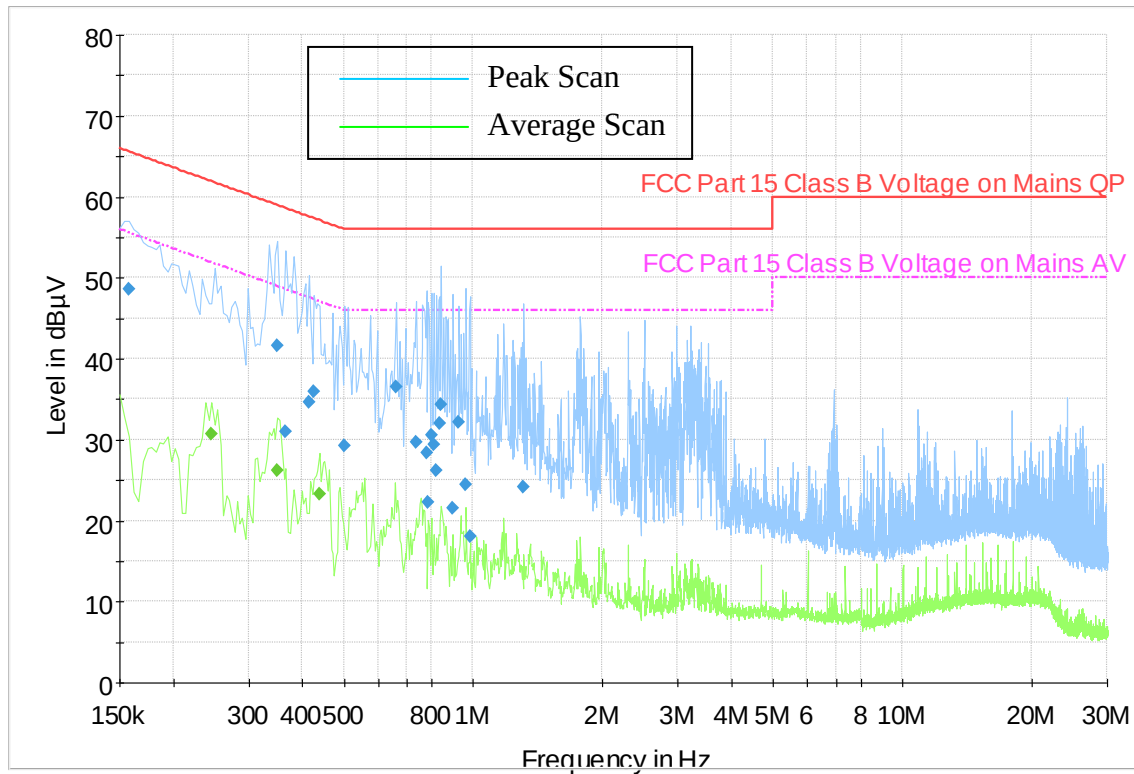
Average Measurement

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.186000	28.1	1000.0	9.000	On	N	9.9	26.1	54.2	PASS
0.246000	30.7	1000.0	9.000	On	L1	9.8	21.2	51.9	PASS

* Expanded Uncertainty (U) = +/- 3.43 dB

3) Charger with Radio Standby Mode

Voltage with 2-Line-LISN



Quasipeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.158000	48.6	1000.0	9.000	On	L1	9.9	16.9	65.6	PASS
0.350000	41.6	1000.0	9.000	On	N	9.9	17.3	59.0	PASS
0.366000	31.0	1000.0	9.000	On	N	9.9	27.6	58.6	PASS
0.414000	34.7	1000.0	9.000	On	L1	9.9	22.9	57.6	PASS
0.426000	36.0	1000.0	9.000	On	N	9.9	21.4	57.3	PASS
0.502000	29.3	1000.0	9.000	On	L1	10.0	26.7	56.0	PASS
0.662000	36.5	1000.0	9.000	On	N	9.8	19.5	56.0	PASS
0.738000	29.7	1000.0	9.000	On	N	9.8	26.3	56.0	PASS
0.778000	28.4	1000.0	9.000	On	N	9.8	27.6	56.0	PASS
0.786000	22.3	1000.0	9.000	On	L1	9.9	33.7	56.0	PASS
0.798000	30.6	1000.0	9.000	On	N	9.8	25.4	56.0	PASS
0.810000	29.3	1000.0	9.000	On	N	9.8	26.7	56.0	PASS
0.822000	26.2	1000.0	9.000	On	N	9.8	29.8	56.0	PASS
0.834000	32.0	1000.0	9.000	On	L1	9.9	24.0	56.0	PASS
0.842000	34.4	1000.0	9.000	On	L1	9.8	21.6	56.0	PASS
0.898000	21.5	1000.0	9.000	On	N	9.9	34.5	56.0	PASS
0.926000	32.2	1000.0	9.000	On	N	9.9	23.8	56.0	PASS
0.962000	24.4	1000.0	9.000	On	L1	9.8	31.6	56.0	PASS
0.982000	18.0	1000.0	9.000	On	N	9.9	38.0	56.0	PASS
1.310000	24.1	1000.0	9.000	On	N	9.9	31.9	56.0	PASS

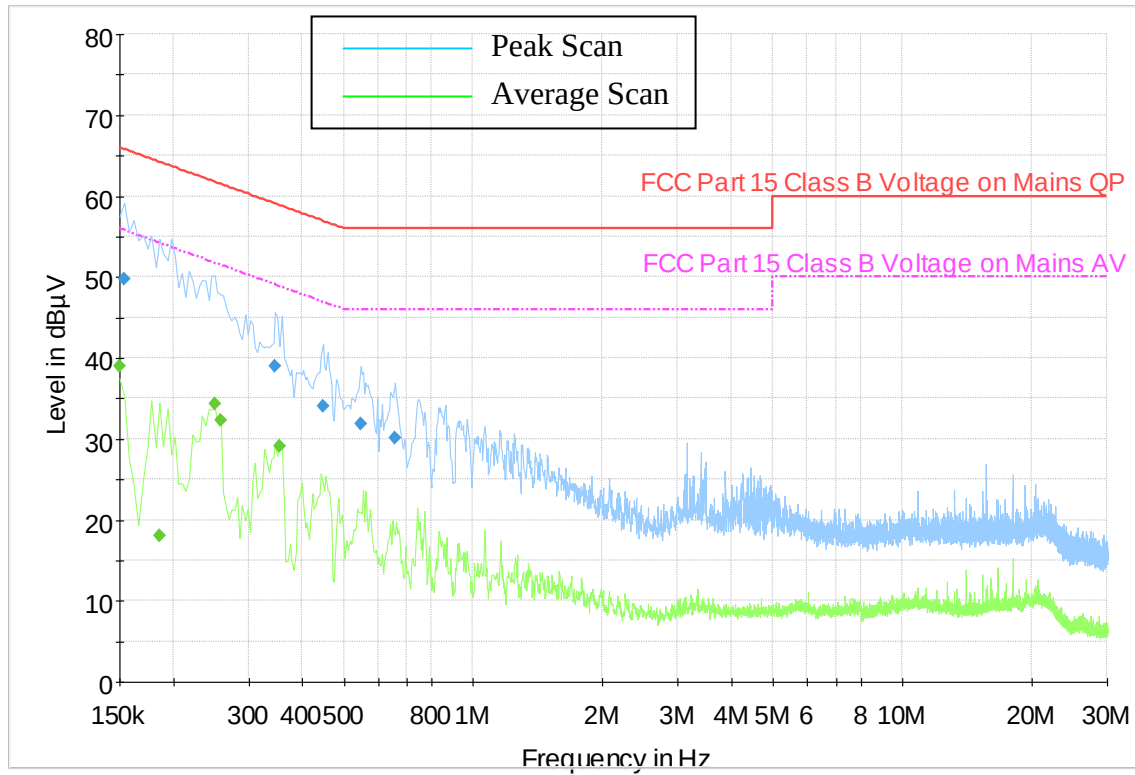
Average Measurement

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.246000	30.7	1000.0	9.000	On	N	9.9	21.1	51.9	PASS
0.350000	26.2	1000.0	9.000	On	N	9.9	22.8	49.0	PASS
0.438000	23.2	1000.0	9.000	On	L1	9.9	23.9	47.1	PASS

* Expanded Uncertainty (U) = +/- 3.43dB

4) Charger with Radio in BLE TX Mode

Voltage with 2-Line-LISN



Quasipeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.154000	49.7	1000.0	9.000	On	N	10.0	16.0	65.8	PASS
0.346000	39.0	1000.0	9.000	On	L1	9.9	20.1	59.1	PASS
0.446000	34.0	1000.0	9.000	On	L1	10.0	22.9	56.9	PASS
0.546000	31.8	1000.0	9.000	On	L1	10.0	24.2	56.0	PASS
0.658000	30.2	1000.0	9.000	On	L1	9.9	25.8	56.0	PASS

Average Measurement

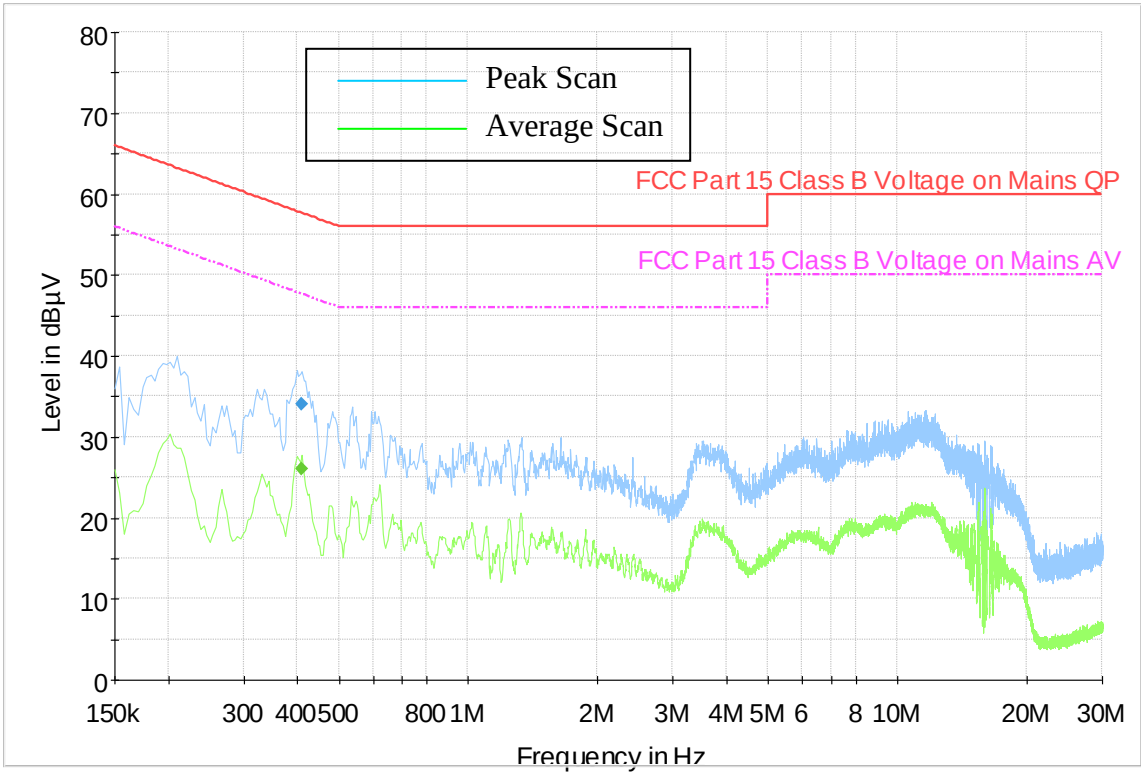
Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.150000	39.0	1000.0	9.000	On	N	10.0	17.0	56.0	PASS
0.186000	18.0	1000.0	9.000	On	L1	9.9	36.2	54.2	PASS
0.250000	34.4	1000.0	9.000	On	L1	9.8	17.4	51.8	PASS
0.258000	32.3	1000.0	9.000	On	N	9.8	19.2	51.5	PASS
0.354000	29.1	1000.0	9.000	On	L1	9.9	19.7	48.9	PASS

* Expanded Uncertainty (U) = +/- 3.43 dB

MUC

1) Charger Alone

Voltage with 2-Line-LISN



Quasipeak Measurement

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.410000	34.0	1000.0	9.000	On	L1	9.9	23.6	57.6	PASS

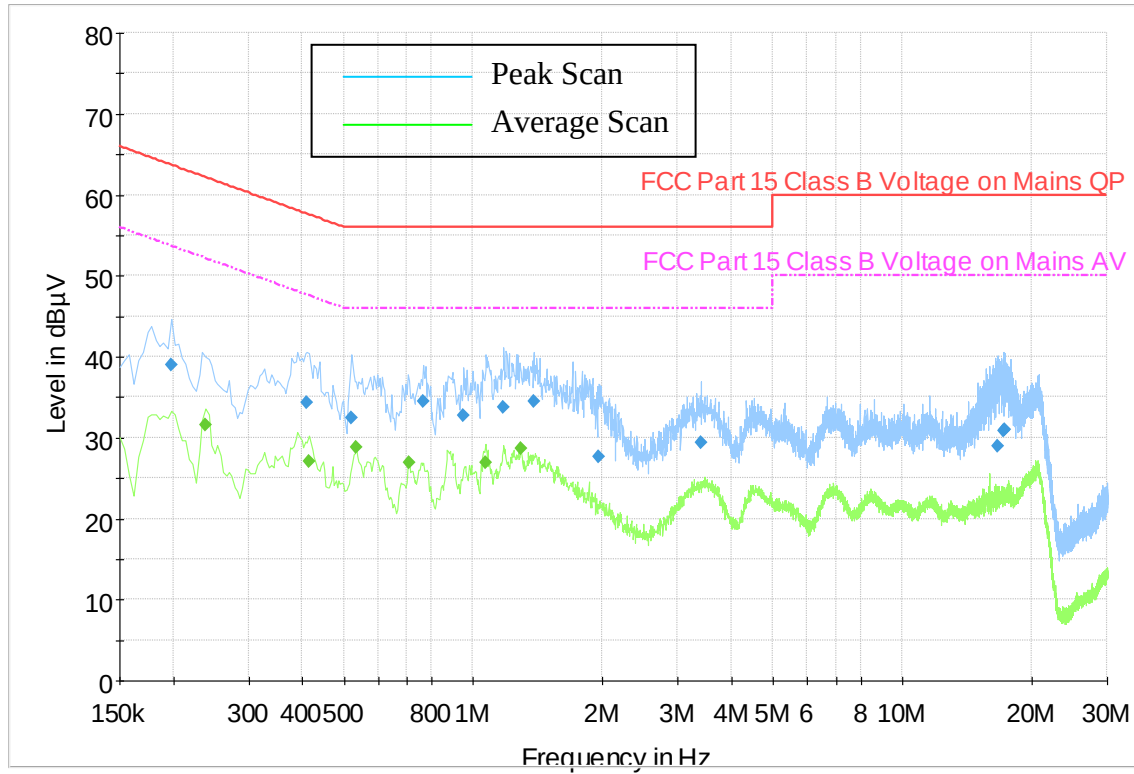
Average Measurement

Frequency (MHz)	CAverage (dBµV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.410000	26.0	1000.0	9.000	On	N	9.9	21.7	47.6	PASS

* Expanded Uncertainty (U) = +/- 3.43 dB

2) Charger with Radio Off

Voltage with 2-Line-LISN



Quasipeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.198000	38.9	1000.0	9.000	On	L1	9.9	24.7	63.7	PASS
0.410000	34.4	1000.0	9.000	On	N	9.9	23.3	57.6	PASS
0.522000	32.4	1000.0	9.000	On	N	10.0	23.6	56.0	PASS
0.766000	34.4	1000.0	9.000	On	L1	9.9	21.6	56.0	PASS
0.950000	32.7	1000.0	9.000	On	L1	9.8	23.3	56.0	PASS
1.178000	33.7	1000.0	9.000	On	L1	9.8	22.3	56.0	PASS
1.382000	34.5	1000.0	9.000	On	L1	9.8	21.5	56.0	PASS
1.966000	27.6	1000.0	9.000	On	N	9.8	28.4	56.0	PASS
3.398000	29.3	1000.0	9.000	On	L1	9.7	26.7	56.0	PASS
16.634000	28.9	1000.0	9.000	On	N	9.8	31.1	60.0	PASS
17.246000	30.9	1000.0	9.000	On	N	9.8	29.1	60.0	PASS
17.350000	31.0	1000.0	9.000	On	N	9.8	29.0	60.0	PASS

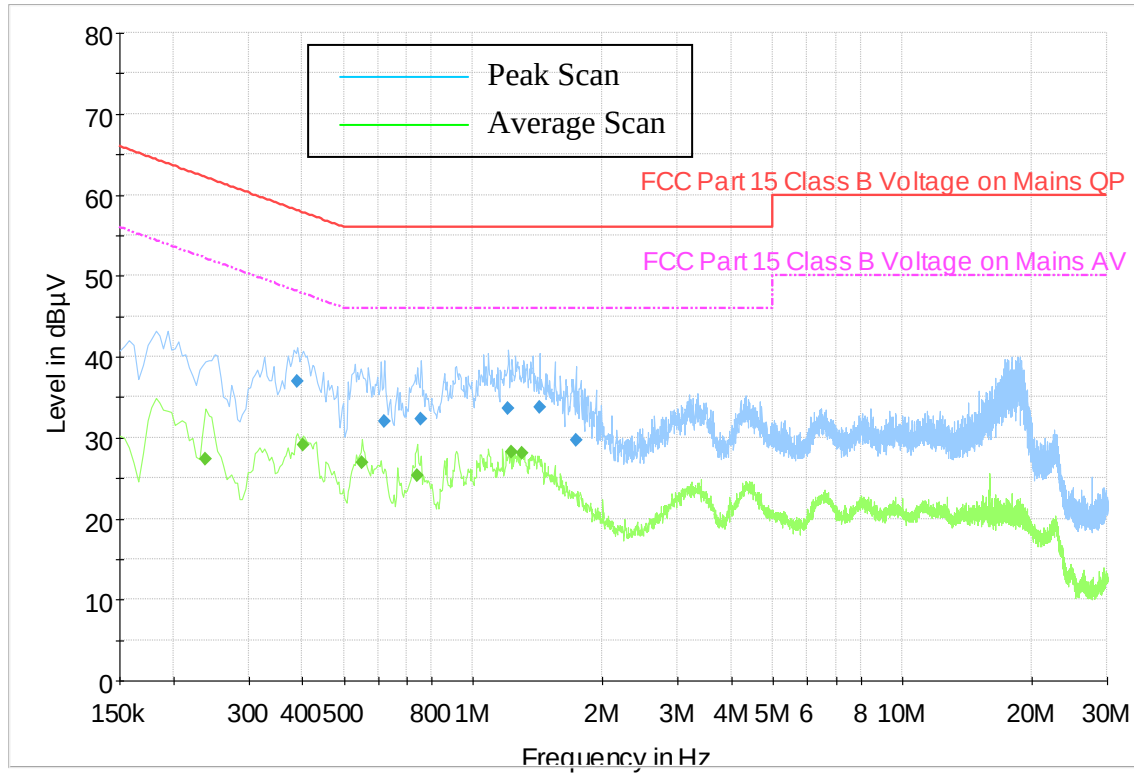
Average Measurement

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.238000	31.6	1000.0	9.000	On	N	9.9	20.6	52.2	PASS
0.414000	27.0	1000.0	9.000	On	N	9.9	20.5	47.6	PASS
0.534000	28.8	1000.0	9.000	On	L1	10.0	17.2	46.0	PASS
0.710000	26.8	1000.0	9.000	On	L1	9.9	19.2	46.0	PASS
1.066000	27.0	1000.0	9.000	On	L1	9.8	19.0	46.0	PASS
1.290000	28.7	1000.0	9.000	On	L1	9.8	17.3	46.0	PASS

* Expanded Uncertainty (U) = +/- 3.43 dB

3) Charger with Radio Standby Mode

Voltage with 2-Line-LISN



Quasipeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.390000	37.0	1000.0	9.000	On	L1	9.9	21.0	58.1	PASS
0.622000	31.9	1000.0	9.000	On	L1	9.9	24.1	56.0	PASS
0.754000	32.3	1000.0	9.000	On	L1	9.9	23.7	56.0	PASS
1.206000	33.5	1000.0	9.000	On	N	9.9	22.5	56.0	PASS
1.430000	33.7	1000.0	9.000	On	L1	9.8	22.3	56.0	PASS
1.734000	29.7	1000.0	9.000	On	L1	9.7	26.3	56.0	PASS

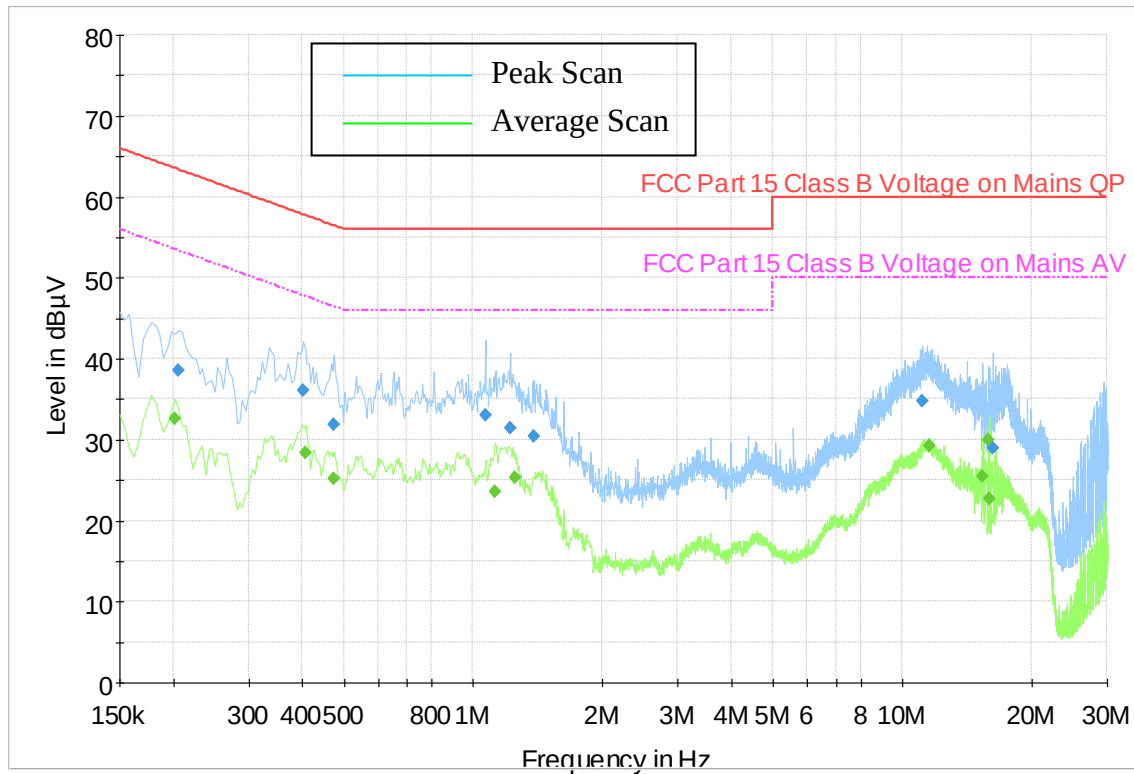
Average Measurement

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.238000	27.3	1000.0	9.000	On	N	9.9	24.8	52.2	PASS
0.402000	29.1	1000.0	9.000	On	L1	9.9	18.7	47.8	PASS
0.550000	26.9	1000.0	9.000	On	L1	10.0	19.1	46.0	PASS
0.742000	25.3	1000.0	9.000	On	L1	9.9	20.7	46.0	PASS
1.230000	28.3	1000.0	9.000	On	L1	9.8	17.7	46.0	PASS
1.302000	28.1	1000.0	9.000	On	L1	9.8	17.9	46.0	PASS

* Expanded Uncertainty (U) = +/- 3.43dB

4) Charger with Radio in BLE TX Mode

Voltage with 2-Line-LISN



Quasipeak Measurement

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.206000	38.5	1000.0	9.000	On	L1	9.9	24.8	63.4	PASS
0.402000	36.1	1000.0	9.000	On	N	9.9	21.7	57.8	PASS
0.474000	31.8	1000.0	9.000	On	L1	10.0	24.6	56.4	PASS
1.066000	33.0	1000.0	9.000	On	L1	9.8	23.0	56.0	PASS
1.218000	31.4	1000.0	9.000	On	N	9.9	24.6	56.0	PASS
1.386000	30.3	1000.0	9.000	On	N	9.8	25.7	56.0	PASS
11.138000	34.7	1000.0	9.000	On	N	9.8	25.3	60.0	PASS
16.226000	28.9	1000.0	9.000	On	L1	9.8	31.1	60.0	PASS

Average Measurement

Frequency (MHz)	CAverage (dBμV)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.202000	32.6	1000.0	9.000	On	L1	9.9	20.9	53.5	PASS
0.406000	28.4	1000.0	9.000	On	L1	9.9	19.4	47.7	PASS
0.474000	25.1	1000.0	9.000	On	N	10.0	21.3	46.4	PASS
1.126000	23.6	1000.0	9.000	On	N	9.9	22.4	46.0	PASS
1.254000	25.3	1000.0	9.000	On	N	9.9	20.7	46.0	PASS
11.542000	29.2	1000.0	9.000	On	N	9.8	20.8	50.0	PASS
15.402000	25.4	1000.0	9.000	On	L1	9.8	24.6	50.0	PASS
15.846000	30.0	1000.0	9.000	On	N	9.8	20.0	50.0	PASS
15.934000	22.6	1000.0	9.000	On	N	9.8	27.4	50.0	PASS

* Expanded Uncertainty (U) = +/- 3.43 dB

--End of Test Report--