Test Type: Emissions [X] Immunity []

Product Type: Wireless Headphones

Product Name/Number: *Model Numbers: BMD0003 and BMD0004*
FCC ID: A94429638
IC: 3232A-429638

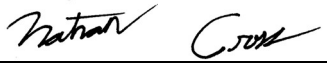
Prepared For: *Design Assurance Engineering Department, Bose Corporation*

Test Results: Pass [**X**] Fail []

Applicable Standards: Unintentional Radiated Interference referenced in:
FCC CFR 47 Part 15 Subpart C
Industry Canada RSS-247 Issue 2
Industry Canada RSS-GEN Issue 5

Report Number: *EMC.429638.18.282.3*

General Comments/Special Test Conditions:
This report relates only to the items tested. This report covers EMC marking requirements for models BMD0003 and BMD0004.

	Print Name	Signature	Date
Prepared By:	Karl Klemm		19 OCT 2018
Electrical Engineer Review* By:	Nathan Cross		19 OCT 2018

* Since every test result is separately reviewed after its completion, the electrical engineer review indicated above represents a higher level review to ensure this report lists and contains all applicable and appropriate requirements.

If the report carries the “accredited” logo, the reviewer must verify all the tests in this report are covered under the current ISO17025 accreditation. The A2LA-accredited logo must be removed if any of the tests in the report are not performed under the current scope of accreditation. It is the responsibility or the reviewer to ensure the A2LA advertising policy is followed.

Table of Contents

Tests Performed (Table of Contents):

Test Report Summary

Product Information:

Description

The EUT is a wireless headphone that contains DSS/DTS transceivers, manufactured by Cambridge Silicon Radio, CSR8675. The EUT uses Adaptive Frequency Hopping (AFH) mode, using a reduced hop set if interference is detected in band, however a minimum of 20 channels is always maintained.

The two models use identical electronics and are differentiated only by cosmetic differences in the enclosure. The differences in the enclosures have no impact on the transmitter function or characteristics. Model BMD003 was used for testing.

Setup (Cables and Accessories)

Spurious emissions was performed with the EUT playing IEC pink noise over the wireless link, with the EUT sensors operating and sending data over the wireless link, or while the EUT battery is charging from an external power supply. The EUT cannot charge and play audio at the same time. EUT is not sold with a power supply so when necessary a Bose model number S008AHU0500160 power supply was used for charging. For radio tests the radio was configured with CSR Blue Suite software (details provided in SOFTWARE AND FIRMWARE section).

EUT Antenna Description

The antenna is an internal PIF variant with antenna gain of 5.65 dBi formed by printed circuit board etch.

SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was version 0.6.3
The test utility software used during testing was Polycomm, version 0.2.1.0 and CSR Blue Suite version 2.6.2.

Scope:

This report covers EMC requirements. FCC CFR 47 PART 15 SUBPART C, Industry Canada RSS-247 Issue 2, and Industry Canada RSS-GEN Issue 5.

All measurements in this report were made radiated, with the EUT antenna connected.

Test Objective:

Verify product meets all applicable EMC requirements.

Measurement Method:

ANSI C63.10 (2013).

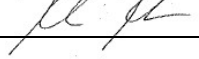
Results:

Product complies with all applicable EMC requirements. All final results represent worst-case emissions and/or immunity.

Conclusions:

The device under test (D.U.T.):
[**X**] meets all test standards selected in section 2 of this report.
[ ] does not meet all test standards selected in section 2 of this report.

Affirmation of Test Results:

	Print Name	Signature	Date
Testing Engineer/Technician	Karl Klemm		15 OCT 2018

Test Standards

Emissions:

	Standard
[X]	FCC Part 15C
[X]	Canada RSS-247
[X]	Canada RSS-GEN

Environmental Conditions

Ambient:

Temperature:	22±4 °C
Humidity:	30-60 %RH
Mains Voltage:	[X] 5 Vdc

FCC Test Site Accreditation.

Firm Name	Location	Accreditation	MRA	Designation Number	Expiration Date	Contact	Contact Title
Bose Corporation	1 New York Avenue, Framingham, MA	American Association for Laboratory Accreditation	N/A	US1088	07/31/2020	Carole Park	Quality Manager

Canadian Test Site Registration.

Radiated emissions below 1GHz were performed in Test Site 3232A-1. Radiated emissions above 1GHz were performed in Test Site 3232A-2.

Scope of Accreditation for: Bose Corporation

Test Site	OATS 3m	OATS 10m	OATS 30m	Chamber 3m	Chamber 10m	Expiry Date
3232A-2	No	No	No	Yes	No	2020-06-27
3232A-1	No	No	No	Yes	No	2020-04-25

Radiated Emissions 30 MHz to 1 GHz

Requirement:

Spurious emissions shall not exceed the radiated emissions limits shown below

radiated emissions limits

Frequency (MHz)	Field strength (μV/m at 3 metres)[Note 1]
30 – 88	100
88 – 216	150
216 – 960	200
Above 960	500

Test Procedure:

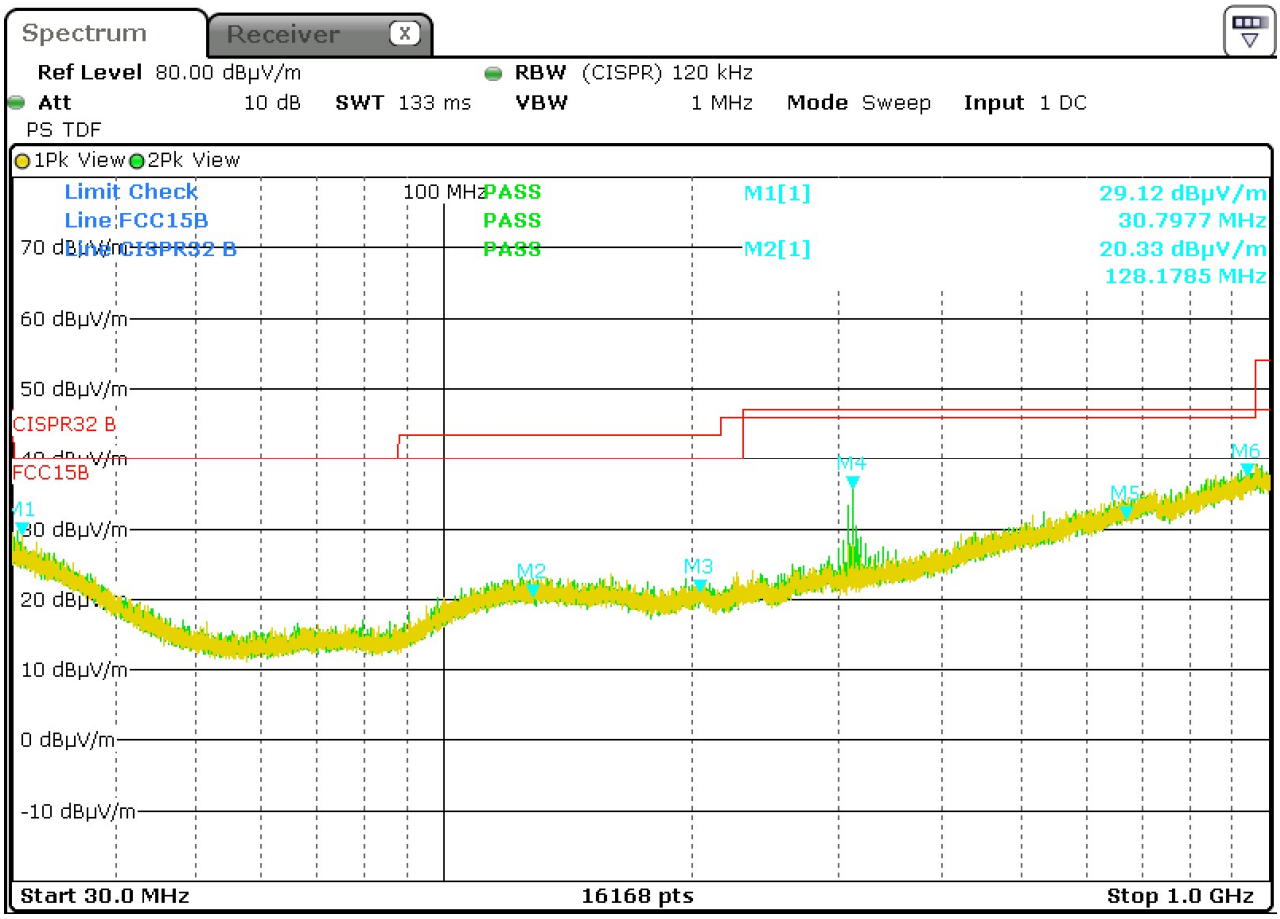
The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz measurements. The EUT is rotated around the vertical axis, the antenna polarization changed from H to V and the antenna height is varied from 1 to 4 meters in order to find the maximum value of the harmonic emission. Account is taken of the beam width of the antenna to make sure the EUT remains in the main lobe of the antenna. EUT was tested in 3 orthogonal axes and the worst-case results are shown below. For measurements below 1 GHz, the resolution bandwidth is set to 120 kHz and a quasi-peak detector was used.

Test setup details:

EUT is playing pink noise at max volume via Bluetooth from an ipod; sensors are not active (sensors have no impact on radiated emissions performance). EUT is powered by the internal battery. Worst case orientation found to be with the glasses closed and the lenses down.

EUT is connected to a power supply and charging; no audio is playing, no sensors are active. EUT is not provided with a power supply; using Bose power supply MN: S008AHU0500160. Worst case orientation found to be with the glasses open and the lenses forward.

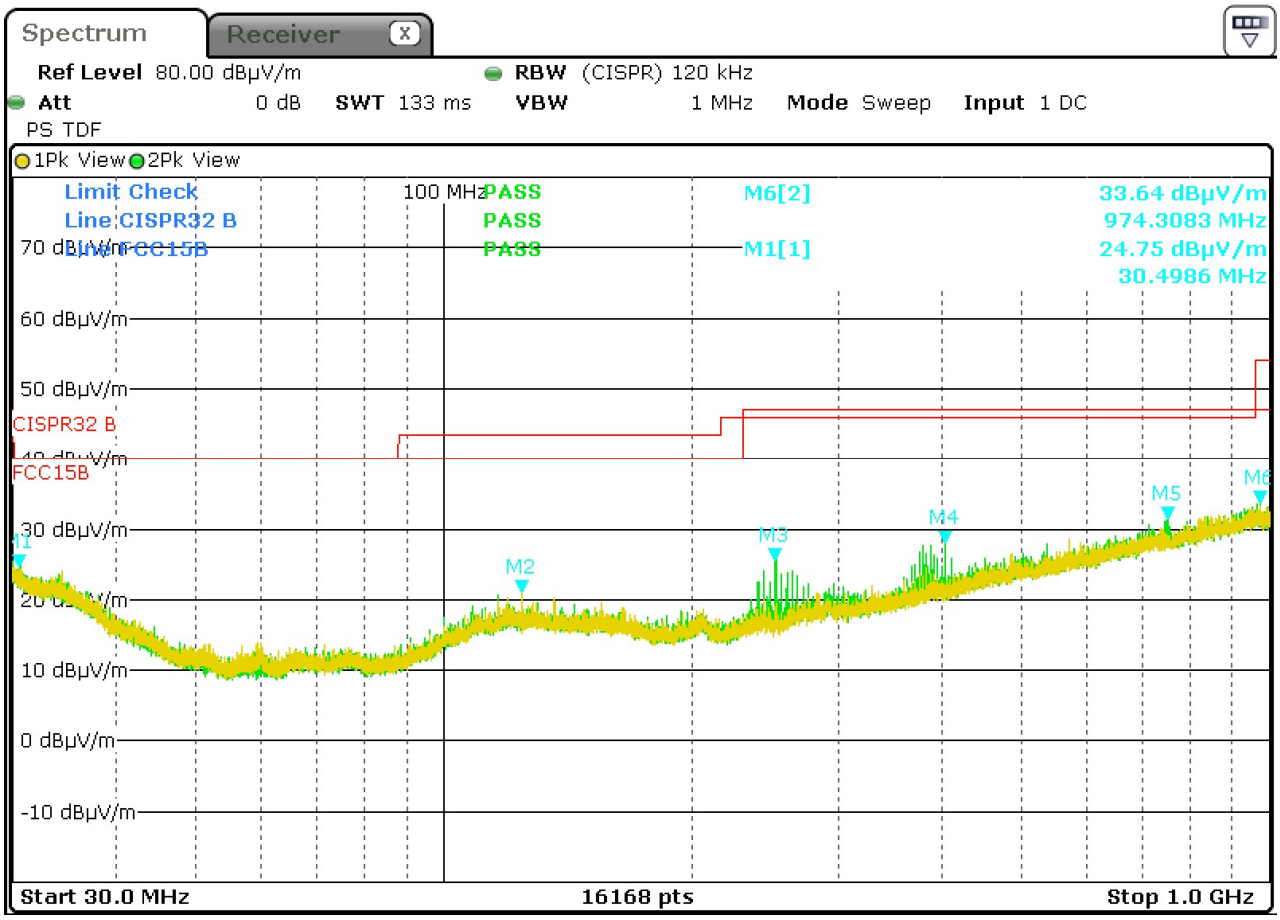
Test Results:



Max-Hold Pre-scan, 30 MHz to 1 GHz
Playing pink noise at max volume, powered by internal battery
Glasses closed, lenses down

CISPR 32&11 "Other" @ 3 Meters and FCC Class B										
Emission Frequency (MHz)	Measured Amplitude (dBµV/m) QP	Measured Amplitude (dBµV/m) Peak	CISPR 32 Limit (dBµV/m) QP	CISPR 32 Margin (dB) QP	FCC B Limit (dBµV/m) QP	FCC B Margin (dB) QP	Table Azimuth (0° closest to	Receiving Antenna Pol (H/V)	Receiving Antenna Height (Meters)	Notes / Mode
Playing pink noise at max volume, glasses closed lenses down powered by internal battery										
30.000	19.60	24.30	40.0	20.4	40.0	20.4				ambient
125.360	13.10	19.30	40.0	26.9	43.5	30.4				ambient
204.360	12.40	22.20	40.0	27.6	43.5	31.1				ambient
312.000	34.70	38.90	47.0	12.3	46.0	11.3	184	H	1.0	
665.090	24.20	34.70	47.0	22.8	46.0	21.8				ambient
937.040	28.90	40.20	47.0	18.1	46.0	17.1				ambient

EUT PASSES FCC Class B limits by 12.3 dB at 312.000 MHz and CISPR Class B limits by 11.3 dB at 312.000 MHz.



Max-Hold Pre-scan, 30 MHz to 1 GHz
Charging, power supply connected to 120 V, 60 Hz
Glasses open, lenses forward

Emission Frequency (MHz)	Measured Amplitude (dBµV/m) QP	Measured Amplitude (dBµV/m) Peak	CISPR 32 Limit (dBµV/m) QP	CISPR 32 Margin (dB) QP	FCC B Limit (dBµV/m) QP	FCC B Margin (dB) QP	Table Azimuth (0° closest to	Receiving Antenna Pol (H/V)	Receiving Antenna Height (Meters)	Notes / Mode
30.499	19.10	28.90	40.0	20.9	40.0	20.9				ambient
135.990	17.80	23.20	40.0	22.2	43.5	25.7	314	V	1.0	
252.000	24.10	28.20	47.0	22.9	46.0	21.9	170	H	1.2	
384.000	26.60	30.60	47.0	20.4	46.0	19.4	215	H	2.2	
751.010	31.50	37.30	47.0	15.5	46.0	14.5	77	H	1.6	
965.450	25.40	33.90	47.0	21.6	54.0	28.6				ambient

EUT PASSES FCC Class B limits by 15.5 dB at 751.010 MHz and CISPR Class B limits by 14.5 dB at 751.010 MHz.

Test Equipment Used:

TN	Description	Model	S/N	Manufacturer	Most Recent service	Service Due Date
644	Maxwell House 3 Meter Semi-Anechoic Chamber	N/A	1698A	EM Test	20-Dec-2017	20-Dec-2019
1445	Maxwell House Radiated Emissions Cable Set	N/A	N/A	Bose Corporation	28-Jul-2018	27-Aug-2018
2319	EMI Test Receiver	ESR26	101276	Rohde & Schwarz	26-Apr-2018	26-Apr-2019
1375	System Controller	SC99V	050905-1	Sunol Sciences Corp	Verify before use	
1541	Antenna 30MHz - 6GHz	JB6	A050807	Sunol Sciences Corp	29-Nov-2017	29-Nov-2018
2077	PreAmplifier	N/A	N/A	Bose Corporation	28-Jul-2018	27-Aug-2018
1692	Flexible Microwave Cable	HFE160D	200001	Rohde & Schwarz	28-Jul-2018	27-Aug-2018

Date(s) of test: 24-Jul-18, 25-Jul-18

Radiated Emissions 1 GHz to 40 GHz

Requirement:

FCC 15.205, 15.209, 15.247 (d), IC RSS-GEN Clause 8.9 (Transmitter)

Restricted Bands:
In any of the restricted bands defined in FCC part 15.209(a), the field strength at a distance of 3 meters shall not exceed 54dBµV/m (average) or 74dBµV/m (peak)

Non-Restricted Bands:
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

Test Procedure:

The EUT is placed in a standard ANSI C63.10 test setup. Standard Gain Horn Antennas and Double-Ridged Guide Horn Antennas with suitable pre-amps mounted directly on the horn antennas are used for the measurement of the harmonics. The EUT hopping is stopped and measurements are made in the low, mid and high end of the frequency range at the defined limit distance of 3 meters. The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz measurements and 1.5 m above the ground plane for above 1GHz measurements. The EUT is rotated around the vertical axis, the antenna polarization changed from H to V and the antenna height is varied from 1 to 4 meters in order to find the maximum value of the harmonic emission. Account is taken of the beam width of the horn antennas to make sure the EUT remains in the main lobe of the antenna. EUT was tested in 3 orthogonal axes and the worst-case results are shown below.

For peak measurements above 1 GHz, a resolution bandwidth of 1 MHz was used and video bandwidth of 3 MHz was used. For average measurements above 1GHz, the resolution bandwidth and video bandwidth are set as described in ANSI C63.10:2013 for the applicable measurement. An average detector was used and a duty cycle correction factor was added to correspond to the average during the transmission to compute the emission level that would have been measured had the test been performed at 100 % duty cycle. The duty cycle correction factor used was 2.2 dB for DH5 Bluetooth and 3.6 dB for BLE.

Test setup details:

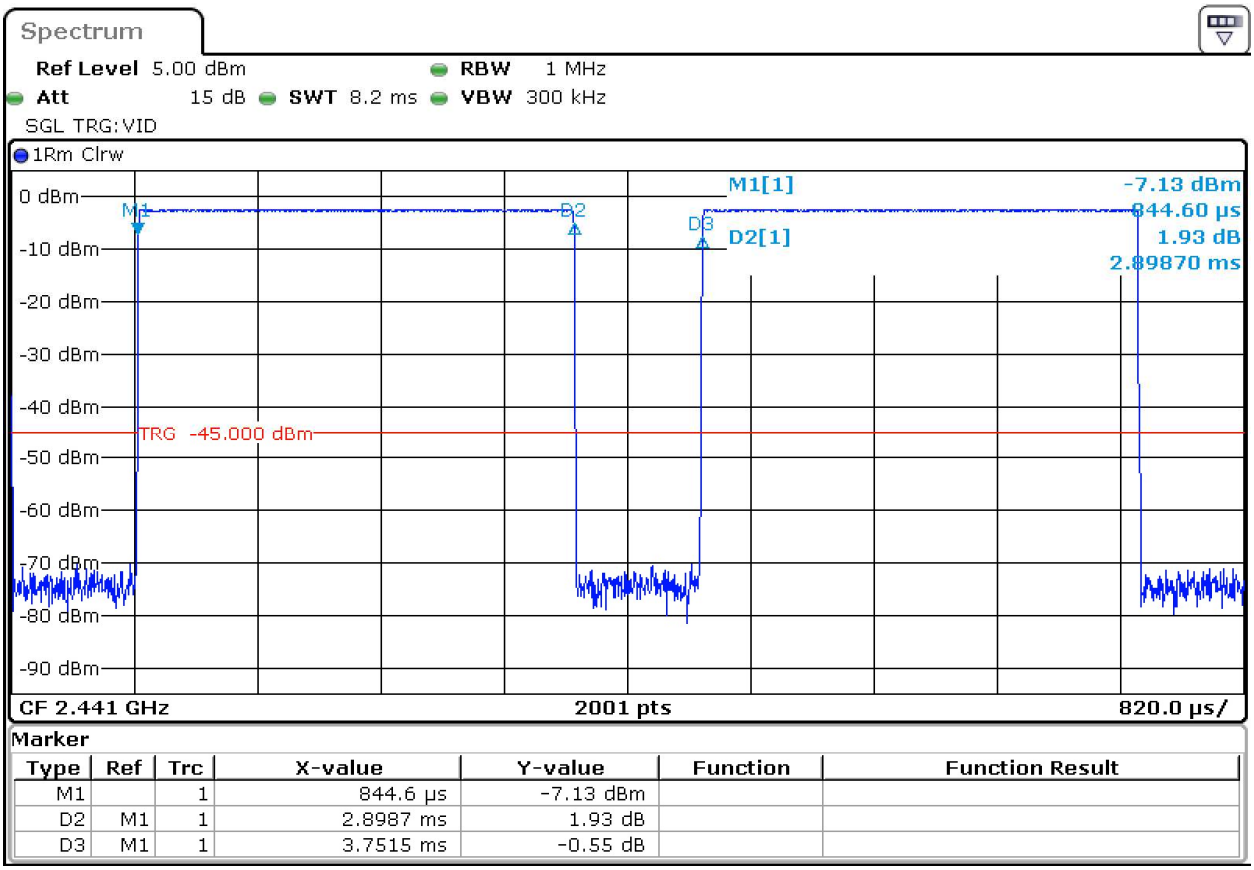
The EUT is software programmed via the USB cable with software which is used to set the test modes of the Bluetooth device. The EUT antenna is connected, the measurements are made using a radiated emissions setup. Testing performed in the worst case orientation - with the glasses closed and the lenses down.

Spurious/Harmonics
The EUT is transmitting at full power, either on 2402 MHz, 2441 MHz (BT) or 2442 MHz (BLE), 2480 MHz, or hopping on low/mid/high channels. For Bluetooth mode, DH5 packets were used.

Band-edge
The EUT is transmitting at full power, either on 2402 MHz, 2480 MHz, or hopping on all channels. For Bluetooth mode, DH5 and 3DH5 packets were used.

Test Results:

Duty Cycle Correction



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	844.6 µs	-7.13 dBm		
D2	M1	1	2.8987 ms	1.93 dB		
D3	M1	1	3.7515 ms	-0.55 dB		

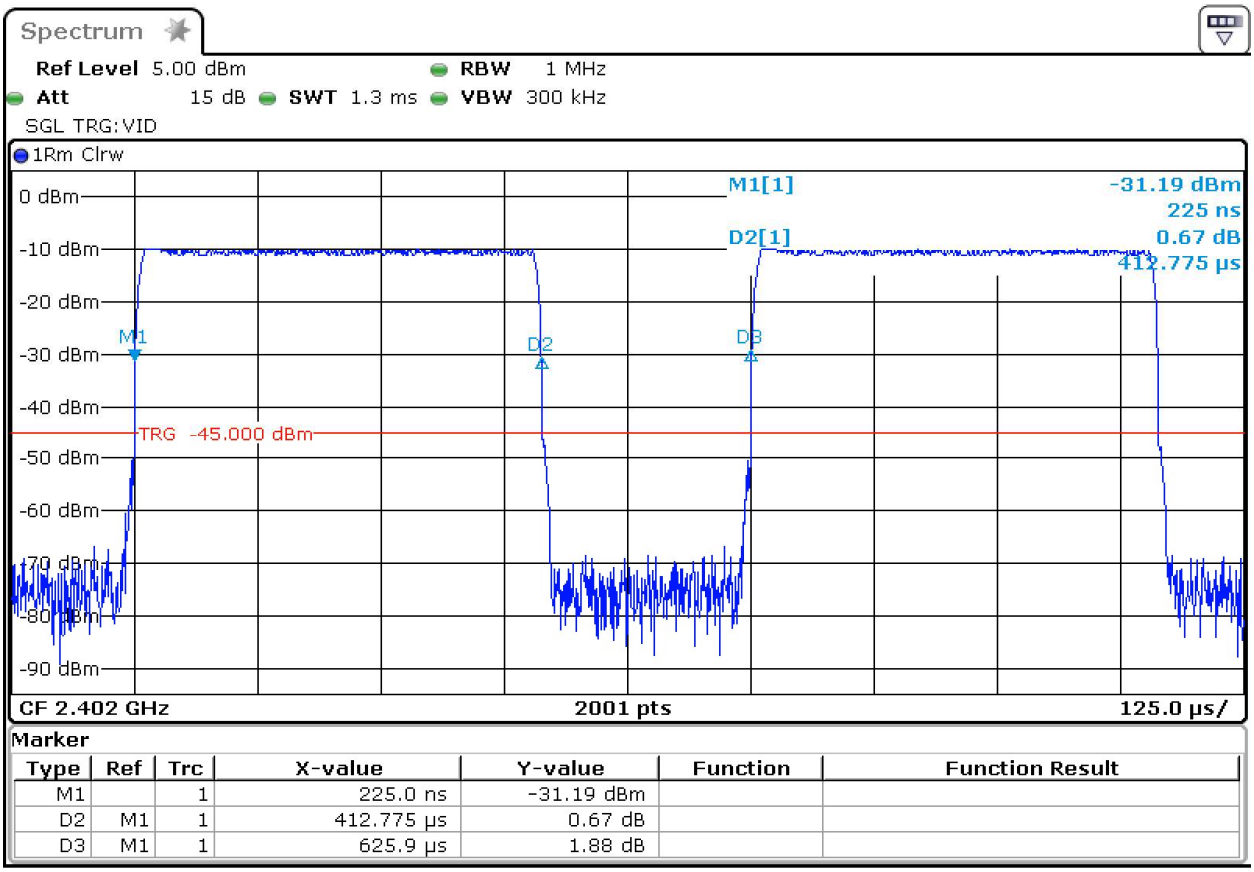
DH5 packets transmitting in test mode. Marker D2 = Time ON, Marker D3 = Period.

Duty Cycle = Time ON / Period = D3 / D2
= 2.8987 / 3.7515 = 0.773

Duty Cycle (%) = 77.3 %

Duty Cycle correction factor (dB) = 20*LOG(1/Duty Cycle)
= 20*LOG(1/0.773) = 2.2

Duty Cycle correction factor (dB) = 2.2 dB



BLE packets transmitting in test mode. Marker D2 = Time ON, Marker D3 = Period.

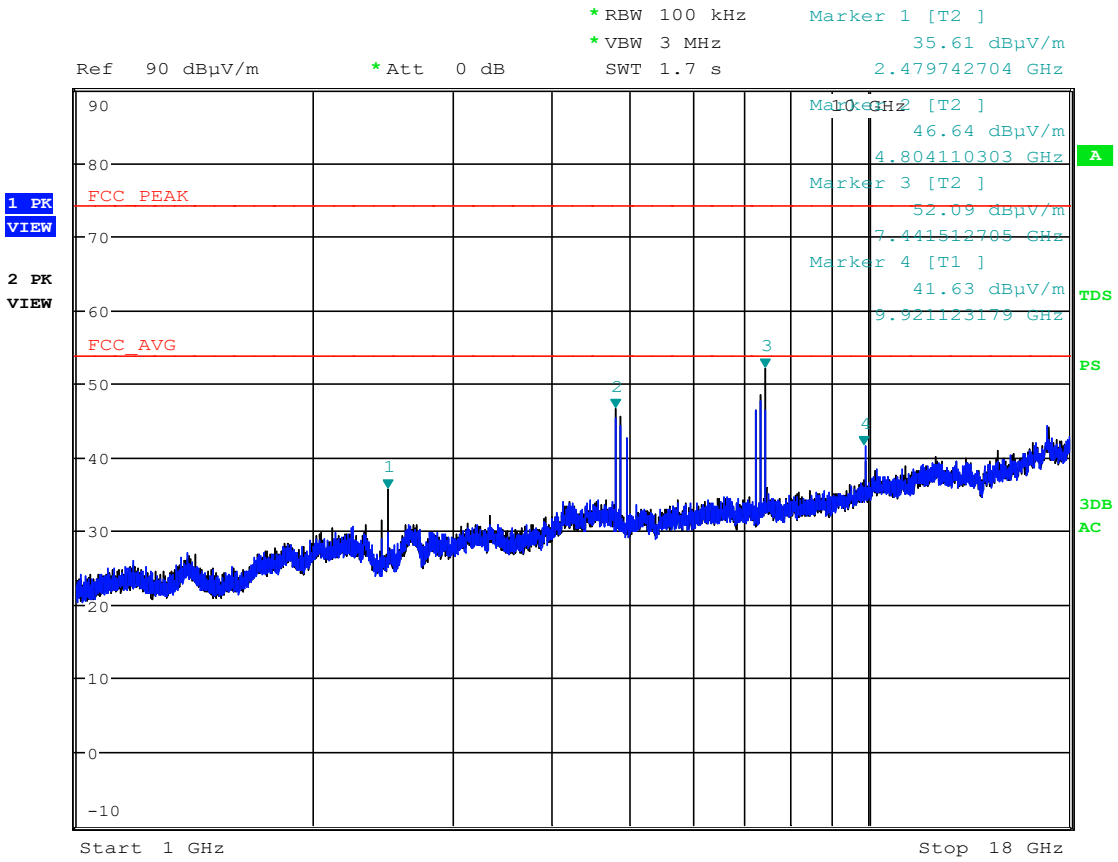
Duty Cycle = Time ON / Period = D3 / D2
= 412.775 / 625.9 = 0.659

Duty Cycle (%) = 65.9 %

Duty Cycle correction factor (dB) = 20*LOG(1/Duty Cycle)
= 20*LOG(1/0.659) = 3.6

Duty Cycle correction factor (dB) = 3.6 dB

Harmonics/Spurious



Max-Hold pre-scan, 1 GHz to 18 GHz
Hopping on Low/Mid/High channels
Glasses closed, lenses down

BT PASSES FCC Class B limits by 1.2 dB at 7440.000 MHz.

BLE PASSES FCC Class B limits by 7.6 dB at 4884.000 MHz.

All emissions were below the restricted band limits, which are more stringent than the non-restricted band limits.

Note: no emissions were visible over the noise floor above 18 GHz.

DSS Radio - BT (DH5) Data

FCC 15B Class B Product (Residential) @ 3 Meters												
Emission	AVG			Peak	FCC 15B				Table	Receiving Antenna		
Frequency (MHz)	Measured Amplitude (dBµV/m)	Duty Cycle Correction Factor (dB)	Corrected Amplitude (dBµV/m)	Measured Amplitude (dBµV/m)	Limit (dBµV/m) AVG	Limit (dBµV/m) Peak	Margin (dB) AVG	Margin (dB) Peak	Azimuth (0° closest to	Pol (H/V)	Height (Meters)	Notes / Mode
Tx on 2402 MHz, DH5												
Glasses closed, lenses down												
4804.000	48.4	2.2	50.6	54.1	54.0	74.0	3.4	19.9	160	H	1.5	AVG corrected for D.C.
7206.000	44.1	2.2	46.3	52.2	54.0	74.0	7.7	21.8	70	H	1.0	AVG corrected for D.C.
9608.600	33.4	2.2	35.6	47.2	54.0	74.0	18.4	26.8	293	H	3.0	AVG corrected for D.C.
12010.600	37.1	2.2	39.3	50.4	54.0	74.0	14.7	23.6	139	H	2.0	AVG corrected for D.C.
14412.000	34.8	n/a	34.8	49.4	54.0	74.0	19.2	24.6				noise floor. No correction
16814.000	39.2	n/a	39.2	53.9	54.0	74.0	14.8	20.1				noise floor. No correction

FCC 15B Class B Product (Residential) @ 3 Meters												
Emission	AVG			Peak	FCC 15B				Table	Receiving Antenna		
Frequency (MHz)	Measured Amplitude (dBµV/m)	Duty Cycle Correction Factor (dB)	Corrected Amplitude (dBµV/m)	Measured Amplitude (dBµV/m)	Limit (dBµV/m) AVG	Limit (dBµV/m) Peak	Margin (dB) AVG	Margin (dB) Peak	Azimuth (0° closest to	Pol (H/V)	Height (Meters)	Notes / Mode
Tx on 2441 MHz, DH5												
Glasses closed, lenses down												
4882.000	47.8	2.2	50.0	53.5	54.0	74.0	4.0	20.5	157	H	1.3	AVG corrected for D.C.
7323.000	48.1	2.2	50.3	55.6	54.0	74.0	3.7	18.4	290	H	2.1	AVG corrected for D.C.
9763.900	33.4	2.2	35.6	47.0	54.0	74.0	18.4	27.0	217	H	2.3	AVG corrected for D.C.
12204.400	38.3	2.2	40.5	52.2	54.0	74.0	13.5	21.8	128	H	2.3	AVG corrected for D.C.
14646.000	35.6	n/a	35.6	49.7	54.0	74.0	18.4	24.3				noise floor. No correction
17087.000	38.1	n/a	38.1	52.4	54.0	74.0	15.9	21.6				noise floor. No correction

FCC 15B Class B Product (Residential) @ 3 Meters												
Emission	AVG			Peak	FCC 15B				Table	Receiving Antenna		
Frequency (MHz)	Measured Amplitude (dBµV/m)	Duty Cycle Correction Factor (dB)	Corrected Amplitude (dBµV/m)	Measured Amplitude (dBµV/m)	Limit (dBµV/m) AVG	Limit (dBµV/m) Peak	Margin (dB) AVG	Margin (dB) Peak	Azimuth (0° closest to	Pol (H/V)	Height (Meters)	Notes / Mode
Tx on 2480 MHz, DH5												
Glasses closed, lenses down												
4960.000	45.3	2.2	47.5	51.8	54.0	74.0	6.5	22.2	155	H	1.0	AVG corrected for D.C.
7440.000	50.6	2.2	52.8	57.9	54.0	74.0	1.2	16.1	289	H	3.0	AVG corrected for D.C.
9919.491	36.8	2.2	39.0	50.0	54.0	74.0	15.0	24.0	139	H	2.5	AVG corrected for D.C.
12399.500	38.0	2.2	40.2	50.8	54.0	74.0	13.8	23.2	227	H	2.4	AVG corrected for D.C.
14880.000	35.4	n/a	35.4	48.7	54.0	74.0	18.6	25.3				noise floor. No correction
17360.000	37.8	n/a	37.8	51.3	54.0	74.0	16.2	22.7				noise floor. No correction

Duty cycle correction was added to all average measurements above the noise floor. The raw and corrected readings are displayed in the tables above.

Duty cycle = 77.3 %, correction factor = 2.2 dB

The duty cycle corrected average values were calculated by adding the duty cycle correction to the measured average reading.
AVG corrected for D.C. = AVG reading(raw) + correction factor

For 7440 MHz:
AVG corrected for D.C. = 50.6 dBuV/m + 2.2 dB = 52.8 dBuV/m

DTS radio - BLE Data

FCC 15B Class B Product (Residential) @ 3 Meters												
Emission Frequency (MHz)	AVG Measured Amplitude (dBµV/m)	AVG Duty Cycle Correction Factor (dB)	AVG Corrected Amplitude (dBµV/m)	Peak Measured Amplitude (dBµV/m)	FCC 15B Limit (dBµV/m) AVG	FCC 15B Limit (dBµV/m) Peak	FCC 15B Margin (dB) AVG	FCC 15B Margin (dB) Peak	Table Azimuth (0° closest to	Receiving Antenna Pol (H/V)	Receiving Antenna Height (Meters)	Notes / Mode
Tx on 2402 MHz, BLE **Glasses closed, lenses down**												
4804.000	41.4	3.6	45.0	51.2	54.0	74.0	9.0	22.8	159	H	1.5	AVG corrected for D.C.
7206.600	35.0	3.6	38.6	48.3	54.0	74.0	15.4	25.7	71	H	1.0	AVG corrected for D.C.
9609.900	33.9	3.6	37.5	46.9	54.0	74.0	16.5	27.1	293	H	3.0	AVG corrected for D.C.
12010.600	35.3	n/a	35.3	49.3	54.0	74.0	18.7	24.7				noise floor. No correction
14412.000	34.7	n/a	34.7	48.1	54.0	74.0	19.3	25.9				noise floor. No correction
16814.000	39.2	n/a	39.2	52.1	54.0	74.0	14.8	21.9				noise floor. No correction

FCC 15B Class B Product (Residential) @ 3 Meters												
Emission Frequency (MHz)	AVG Measured Amplitude (dBµV/m)	AVG Duty Cycle Correction Factor (dB)	AVG Corrected Amplitude (dBµV/m)	Peak Measured Amplitude (dBµV/m)	FCC 15B Limit (dBµV/m) AVG	FCC 15B Limit (dBµV/m) Peak	FCC 15B Margin (dB) AVG	FCC 15B Margin (dB) Peak	Table Azimuth (0° closest to	Receiving Antenna Pol (H/V)	Receiving Antenna Height (Meters)	Notes / Mode
Tx on 2442 MHz, BLE **Glasses closed, lenses down**												
4884.000	42.8	3.6	46.4	52.4	54.0	74.0	7.6	21.6	159	H	1.3	AVG corrected for D.C.
7325.300	38.1	3.6	41.7	50.4	54.0	74.0	12.3	23.6	290	H	2.1	AVG corrected for D.C.
9766.600	32.6	3.6	36.2	46.7	54.0	74.0	17.8	27.3	239	H	2.3	AVG corrected for D.C.
12210.000	35.9	n/a	35.9	49.1	54.0	74.0	18.1	24.9				noise floor. No correction
14652.000	35.5	n/a	35.5	48.9	54.0	74.0	18.5	25.1				noise floor. No correction
17094.000	38.0	n/a	38.0	51.0	54.0	74.0	16.0	23.0				noise floor. No correction

FCC 15B Class B Product (Residential) @ 3 Meters												
Emission Frequency (MHz)	AVG Measured Amplitude (dBµV/m)	AVG Duty Cycle Correction Factor (dB)	AVG Corrected Amplitude (dBµV/m)	Peak Measured Amplitude (dBµV/m)	FCC 15B Limit (dBµV/m) AVG	FCC 15B Limit (dBµV/m) Peak	FCC 15B Margin (dB) AVG	FCC 15B Margin (dB) Peak	Table Azimuth (0° closest to	Receiving Antenna Pol (H/V)	Receiving Antenna Height (Meters)	Notes / Mode
Tx on 2480 MHz, BLE **Glasses closed, lenses down**												
4960.000	41.2	3.6	44.8	50.9	54.0	74.0	9.2	23.1	157	H	1.0	AVG corrected for D.C.
7439.200	37.5	3.6	41.1	50.4	54.0	74.0	12.9	23.6	289	H	3.0	AVG corrected for D.C.
9917.891	33.8	3.6	37.4	47.3	54.0	74.0	16.6	26.7	135	H	2.5	AVG corrected for D.C.
12398.800	34.9	n/a	34.9	48.2	54.0	74.0	19.1	25.8	238	H	2.4	noise floor. No correction
14880.000	35.4	n/a	35.4	48.7	54.0	74.0	18.6	25.3				noise floor. No correction
17360.000	37.9	n/a	37.9	51.3	54.0	74.0	16.1	22.7				noise floor. No correction

Duty cycle correction was added to all average measurements above the noise floor. The raw and corrected readings are displayed in the tables above.

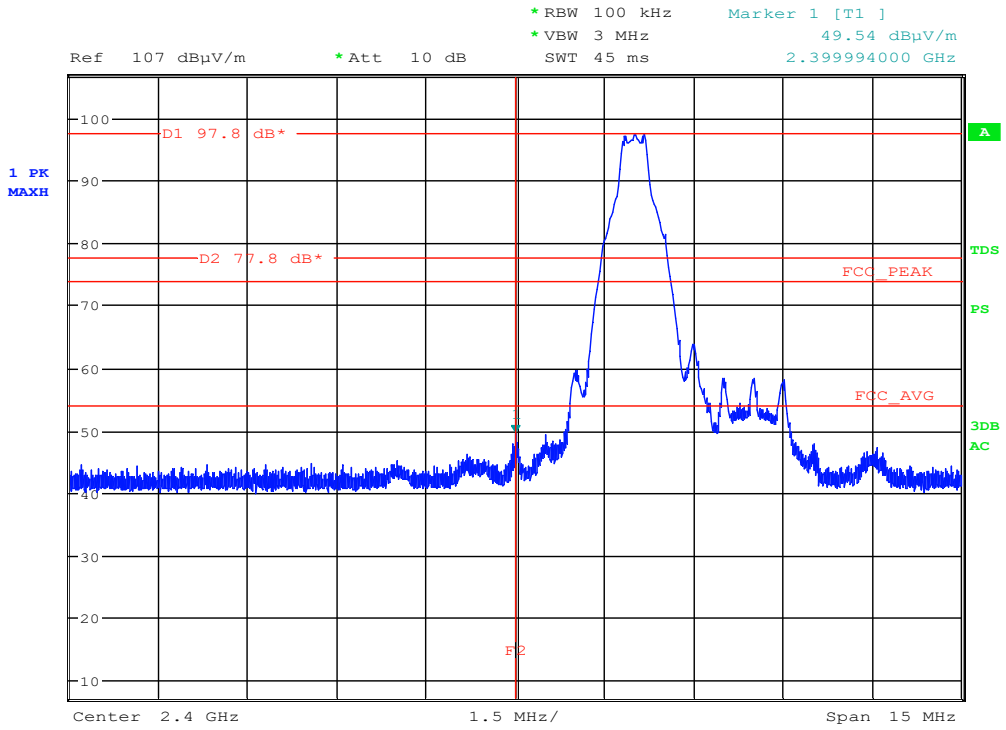
Duty cycle = 65.9 %, correction factor = 3.6 dB

The duty cycle corrected average values were calculated by adding the duty cycle correction to the measured average reading.
AVG corrected for D.C. = AVG reading(raw) + correction factor

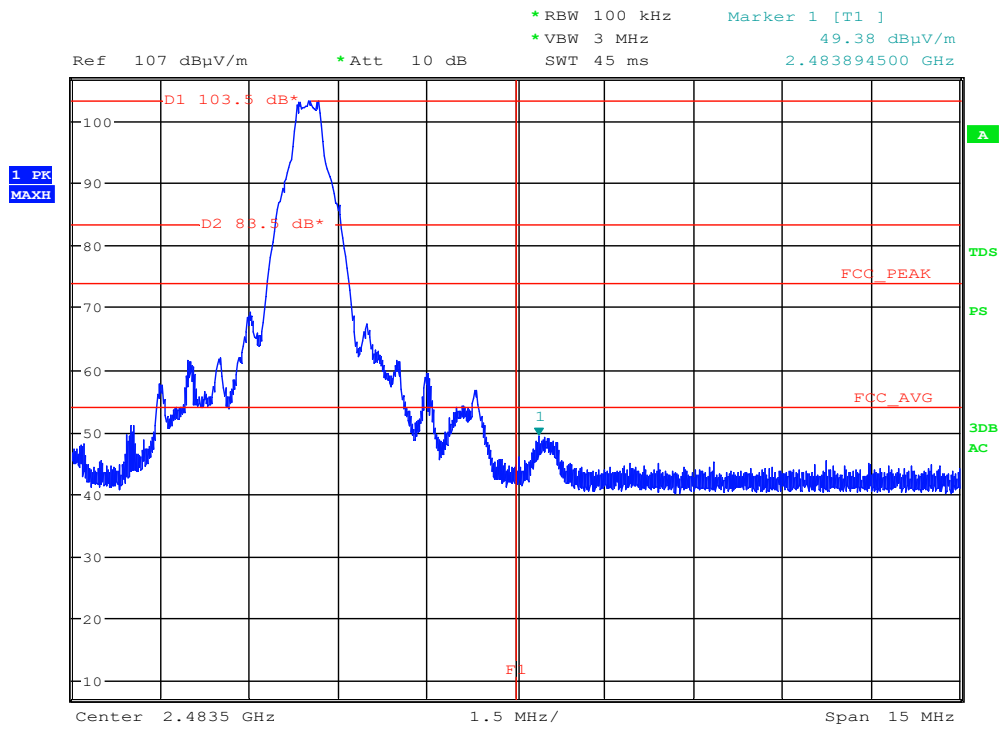
For 4884 MHz:
AVG corrected for D.C. = 42.8 dBuV/m + 3.6 dB = 46.4 dBuV/m

Band-edge

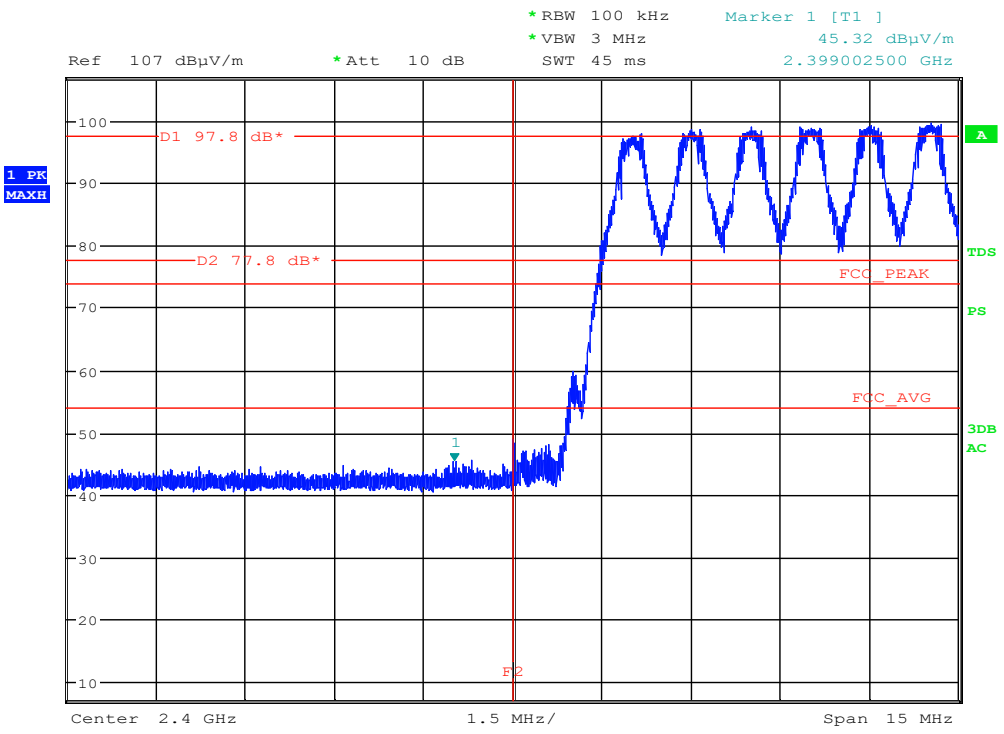
Plots show both the restricted band limits (FCC_PEAK, FCC_AVG) and the non-restricted band limits of -20 dBc (Line D2, X.Y dB*). The frequency marker, F1 or F2, denotes the edge of the band.



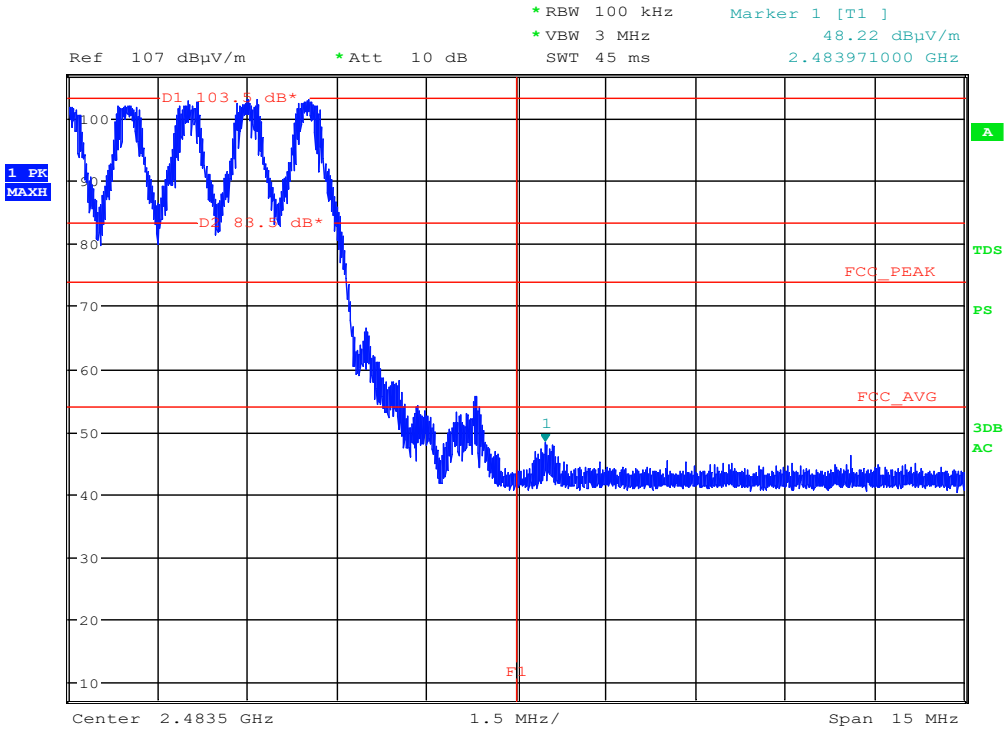
Lower Bandedge DH5



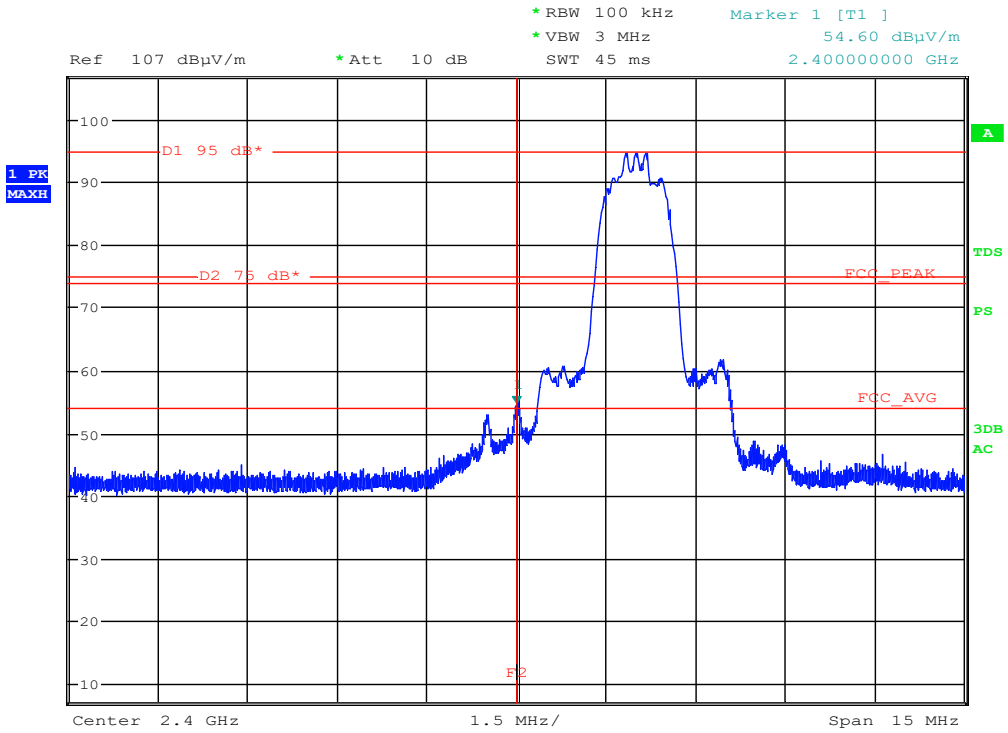
Upper Bandedge DH5



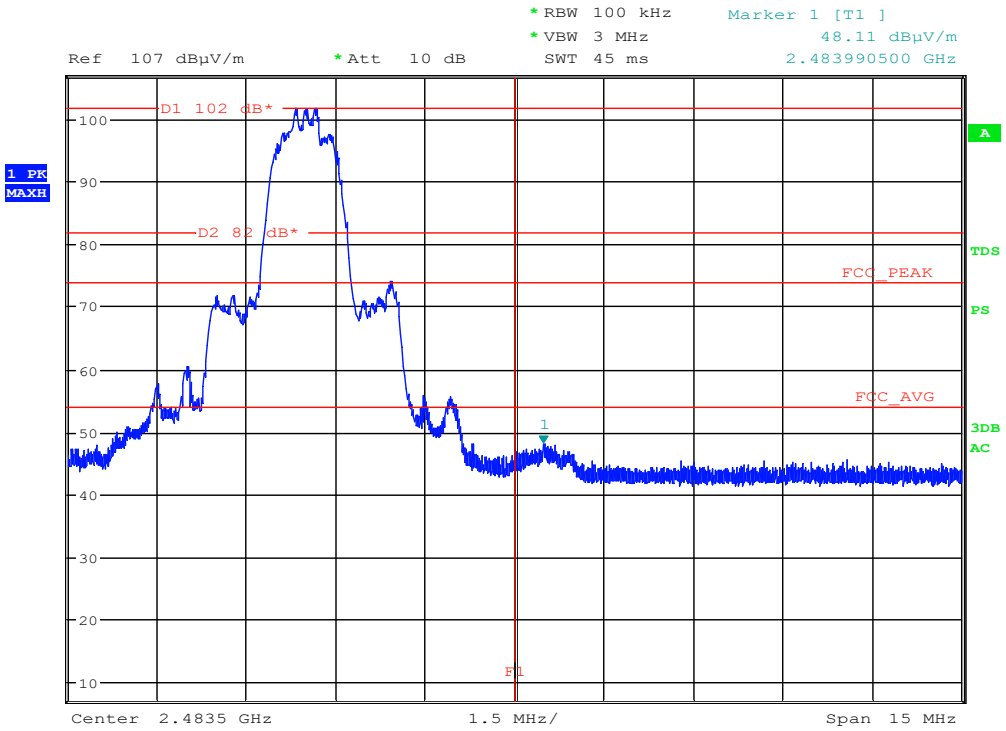
Lower Bandedge DH5, hopping



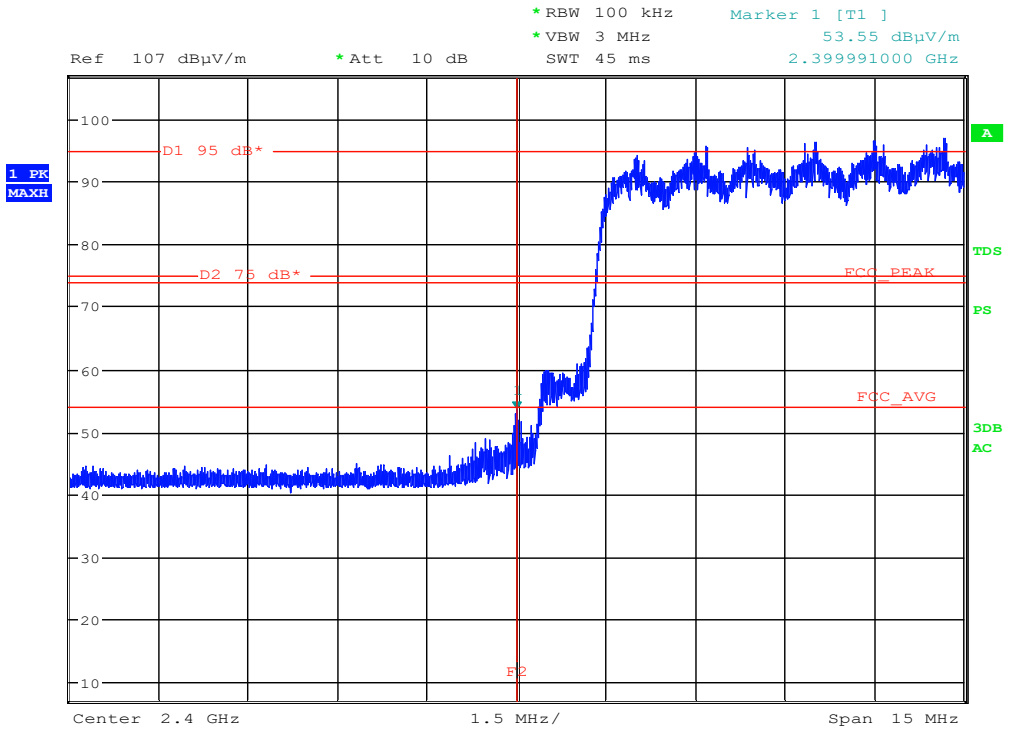
Upper Bandedge DH5, hopping



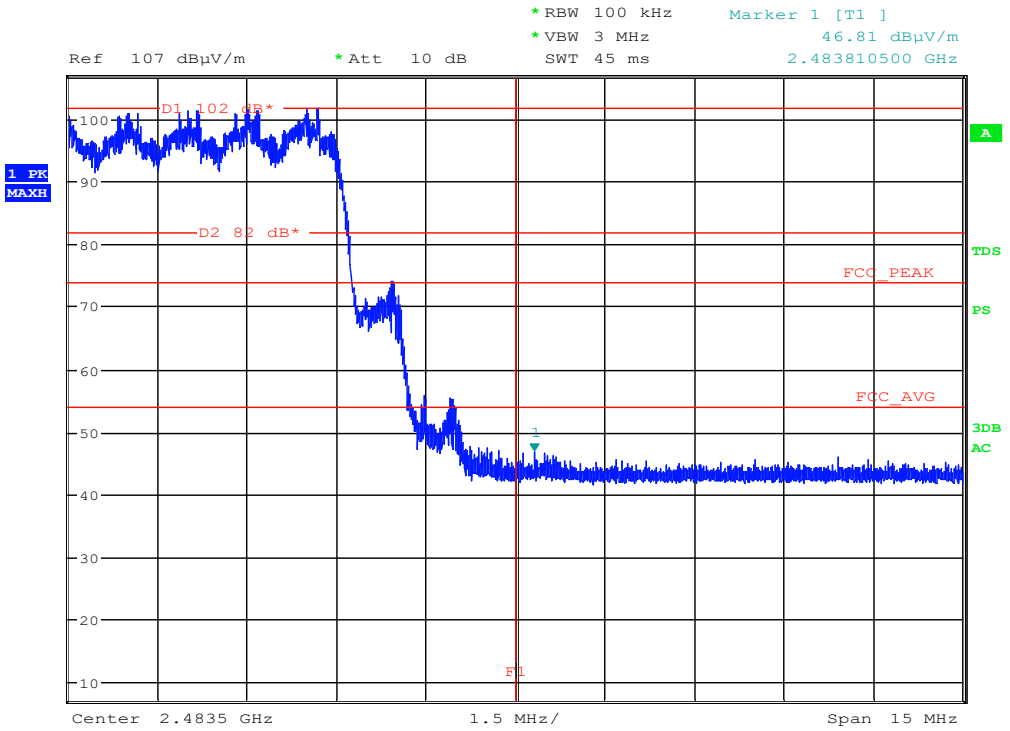
Lower Bandedge 3DH5



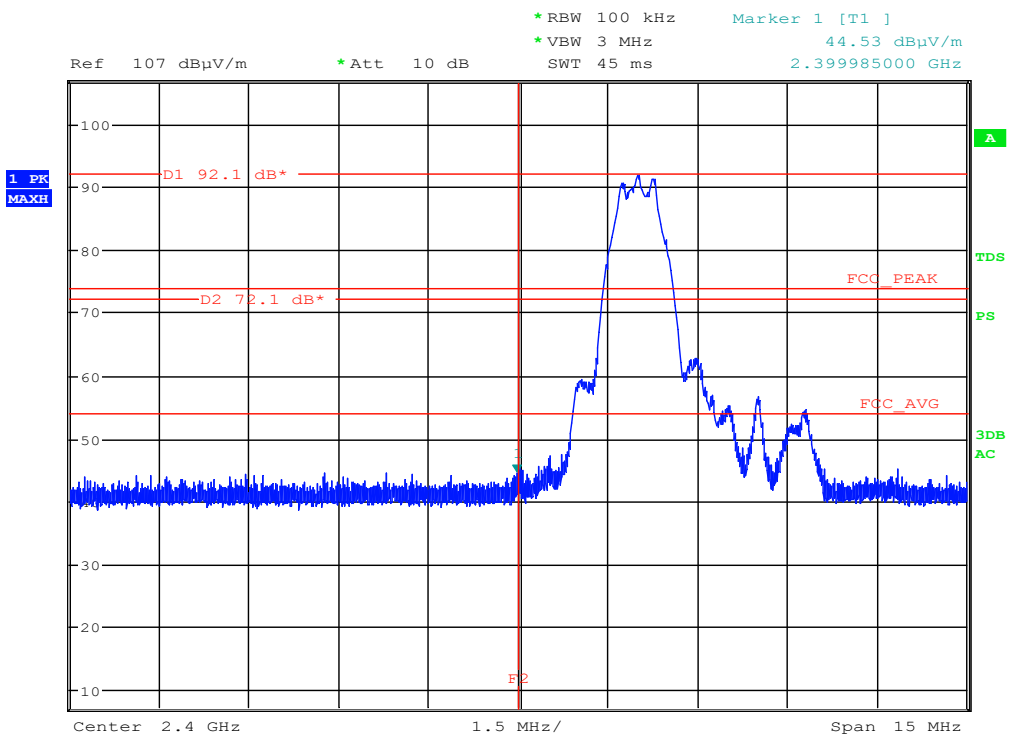
Upper Bandedge 3DH5



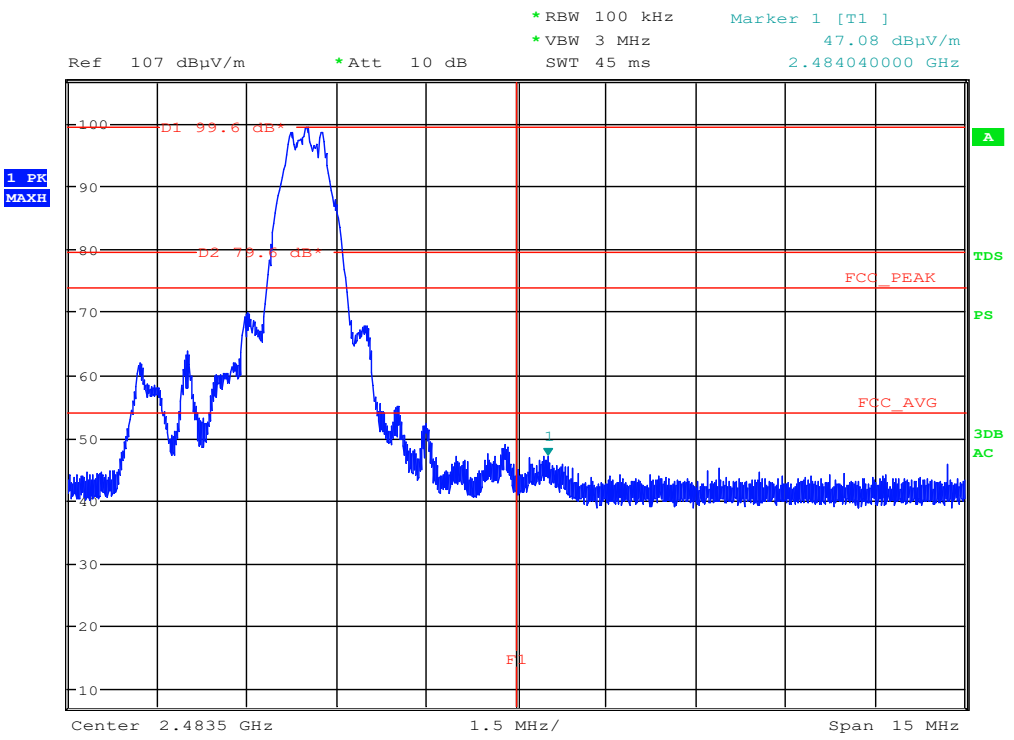
Lower Bandedge 3DH5, hopping



Upper Bandedge 3DH5, hopping



Lower Bandedge BLE



Upper Bandedge BLE

Test Equipment Used:

TN	Description	Model	S/N	Manufacturer	Most Recent Calibration	Calibration Due Date
2349	Double Ridge Waveguide Horn Antenna 1-18GHz	3117	00152406	ETS Lindgren	27-Dec-2017	27-Dec-2018
2602	Miteq pre-amp 1-18GHz 35dB	AFS42-01001800-28-10P-42	N/A	Miteq	09-Feb-2018	09-Feb-2019
2373	RF Cable 30MHz-18GHz - 25 feet "N"	TRU-300	N/A	TRU Corporation	Verify before use	
2479	RF cable 30MHz-18GHz	257-257-3052640	N/A	SRC Haverhill	26-Jan-2018	26-Jan-2019
2357	RF Cable 30MHz-18GHz	TRU-300	TRU-12707-03	TRU Corporation	26-Jan-2018	26-Jan-2019
2414	Band Reject Filter (2.4GHz)	BRM50702-07	003	Micro-Tronics	07-Mar-2018	07-Mar-2019
2929	Mini-circuits band-edge pre-amp 300 MHz - 8 GHz 20 dB	ZX60HV-83LN+	N/A	Mini-Circuits	20-Dec-2017	20-Dec-2018

Date(s) of test: 04-Oct-18, 08-Oct-18

End of Report