

TEST REPORT

Report Number.: 14441108-E2V2

Applicant : DISH TECHNOLOGIES LLC
90 INVERNESS CIRCLE EAST
ENGLEWOOD, CO 80112, UNITED STATES

Model : D35

Brand : DISH

FCC ID : DKNP27TJ

EUT Description : TV SET TOP BOX CLIENT

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C

Date of Issue:
2022-10-10

Prepared by:
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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	2022-09-27	Initial Issue	---
V2	2022-10-10	Added power verification test result Section 6.3	Tina Chu

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
TABLE OF CONTENTS	3
1. ATTESTATION OF TEST RESULTS	4
2. TEST RESULTS SUMMARY	6
3. TEST METHODOLOGY	7
4. FACILITIES AND ACCREDITATION	7
5. DECISION RULES AND MEASUREMENT UNCERTAINTY	8
5.1. METROLOGICAL TRACEABILITY	8
5.2. DECISION RULES.....	8
5.3. MEASUREMENT UNCERTAINTY.....	8
5.4. SAMPLE CALCULATION	8
6. EQUIPMENT UNDER TEST	9
6.1. EUT DESCRIPTION	9
6.2. INTRODUCTION OF TEST DATA REUSE.....	9
6.3. SPOT CHECK VERIFICATION RESULTS SUMMARY	10
6.4. DESCRIPTION OF AVAILABLE ANTENNAS	11
6.5. SOFTWARE AND FIRMWARE.....	11
6.6. WORST-CASE CONFIGURATION AND MODE.....	11
6.7. DESCRIPTION OF TEST SETUP.....	11
7. TEST AND MEASUREMENT EQUIPMENT	13
8. MEASUREMENT METHOD.....	13
9. RADIATED TEST RESULTS.....	14
9.1. LIMITS AND PROCEDURE.....	14
9.2. TRANSMITTER ABOVE 1 GHz (BLE).....	15
9.3. TRANSMITTER ABOVE 1 GHz (BT)	19
10. SETUP PHOTOS	23
Appendix A - Reference Test Report	24

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: DISH TECHNOLOGIES LLC
90 INVERNESS CIRCLE EAST
ENGLEWOOD, CO 80112, UNITED STATES

EUT DESCRIPTION: TV SET TOP BOX CLIENT

MODEL: D35

SERIAL NUMBER: RADIATED: E4EXVH00558D, CONUDCTED: E4EXVH00529D

SAMPLE RECEIPT DATE: 2022-09-08

DATE TESTED: 2022-09-12 TO 2022-09-14, 2022-10-10

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:



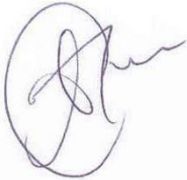
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2. TEST RESULTS SUMMARY

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

Below is a list of the data provided by the customer:

1. Antenna gain and type (see section 6.4)

BT

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Not performed	Per ANSI C63.10, Section 11.6.
See Comment	20dB BW	Not performed	ANSI C63.10 Sections 6.9.2 and 6.9.3
15.247 (a)(1)	Hopping Frequency Separation	Not performed	None.
15.247 (a)(1)(iii)	Number of Hopping Channels	Not performed	None.
15.247 (a)(1)(iii)	Average Time of Occupancy	Not performed	None.
15.247 (b)(1)	Output Power	Partial testing performed and complies	None.
See Comment	Average Power	Partial testing performed and complies	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (d)	Conducted Spurious Emissions	Not performed	None.
15.209, 15.205	Radiated Emissions	Partial testing performed and complies	None.
15.207	AC Mains Conducted Emissions	Not performed	None.

BLE

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Not performed	ANSI C63.10 Section 11.6.
-	99% OBW	Not performed	ANSI C63.10 Section 6.9.3.
15.247 (a) (2)	6dB BW	Not performed	None.
15.247 (b) (3)	Output Power	Partial testing performed and complies	None.
See Comment	Average power	Partial testing performed and complies	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	PSD	Not performed	None.
15.247 (d)	Conducted Spurious Emissions	Not performed	None.
15.209, 15.205	Radiated Emissions	Partial testing performed and complies	None.
15.207	AC Mains Conducted Emissions	Not performed	None.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, KDB 484596 D01 v01.

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, Certificate Number 0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
<input checked="" type="checkbox"/>	Building 1: 47173 Benicia Street, Fremont, CA 94538	US0104	2324A	550739
<input type="checkbox"/>	Building 2: 47266 Benicia Street, Fremont, CA 94538	US0104	22541	550739
<input checked="" type="checkbox"/>	Building 4: 47658 Kato Rd, Fremont, CA 94538	US0104	2324B	550739

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB

Uncertainty figures are valid to a confidence level of 95%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

$$\text{Final Voltage (dBuV)} = \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor (dB)} + \text{LISN Insertion Loss.}$$

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

6. EQUIPMENT UNDER TEST

6.1. EUT DESCRIPTION

The EUT is a TV Set Top Box Client with RF4CE Zigbee, BLE (2Mbps), and BT radios.

6.2. INTRODUCTION OF TEST DATA REUSE

This application for certification is leveraging the data reuse procedures from KDB 484596 D01 v01 based on reference FCC ID: DKNBC88, to cover FCC ID: DKNP27TJ.

The major difference between two FCC IDs is FCC ID: DKNP27TJ is using a new RF4CE Zigbee radio, all other circuitry and features are identical.

This report is to cover the BT/BLE portion, where reference FCC ID BT/BLE data is reused, BT/BLE's previous FCC ID: DKNBC88 worst-case modes were performed on this FCC ID: DKNP27TJ to ensure the testing remains compliant with new RF4CE Zigbee radio. See reference information as below.

Reference application that contains the reused reference data which is attached to this report in Appendix A.

Equipment Class	Reference FCC ID	Frequency Range (MHz)	Reference Report	Report Title/Section
DTS	DKNBC88	2402 to 2480	13618993-E1V2	BLE / All sections
DSS	DKNBC88	2402 to 2480	13618993-E2V2	BT / All sections

6.3. SPOT CHECK VERIFICATION RESULTS SUMMARY

Test Engineer: 12485 GA				Test Date: 2022-10-10			
FCC ID: DKNP27TJ SPOT CHECK RESULTS							
Technology	Mode	Test Item	Channel	Original model Output power (dBm)		Spot check model Output power (dBm)	
				D35		D35	
				DKNBC88		DKNP27TJ	
				Peak	Avg	Peak	Avg
BLE	BLE	Output power	2402MHz, Low	8.10	7.75	8.87	8.72
			2480MHz, High	6.62	6.3	7.48	7.12
BT	GFSK		2402MHz, Low	8.68	8.47	9.37	9.28
			2441MHz, Mid	8.56	8.43	9.07	8.97

FCC ID: DKNP27TJ SPOT CHECK RESULTS									
Technology	Mode	Test Item	Channel	Original model (Worst margin dB)		Spot check model (Worst margin dB)		Delta (dB)	
				D35		D35			
				DKNBC88		DKNP27TJ			
				H	V	H	V	H	V
BLE	BLE	RBE	2480MHz, High	-11.96	-14.52	-11.83	-11.82	0.13	2.7
BT	GFSK		2402MHz, Low	-15.88	-17.22	-14.62	-14.73	1.26	2.49
				Worst margin (dB)		Worst margin (dB)		Delta (dB)	
BLE	BLE	RSE	2402MHz, Low	-15.01		-14.51		0.5	
BT	GFSK		2402MHz, Low	-0.51*		-17.61		-17.61	

Comparison of the models, deviation is within 3dB range and all tests are under FCC Technical Limits.
 * this spurious emissions scan had a lot of noise.

6.4. DESCRIPTION OF AVAILABLE ANTENNAS

The antenna gain(s) and type, as provided by the manufacturer, are as follows:

The BT/BLE radio utilizes a PCB Inverted F antenna, with a maximum gain of 4.2 dBi.

The zigbee radio utilizes a PCB Inverted F antenna, with a maximum gain of 4.1 dBi.

6.5. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was BCM 02.011.0330.0000

6.6. WORST-CASE CONFIGURATION AND MODE

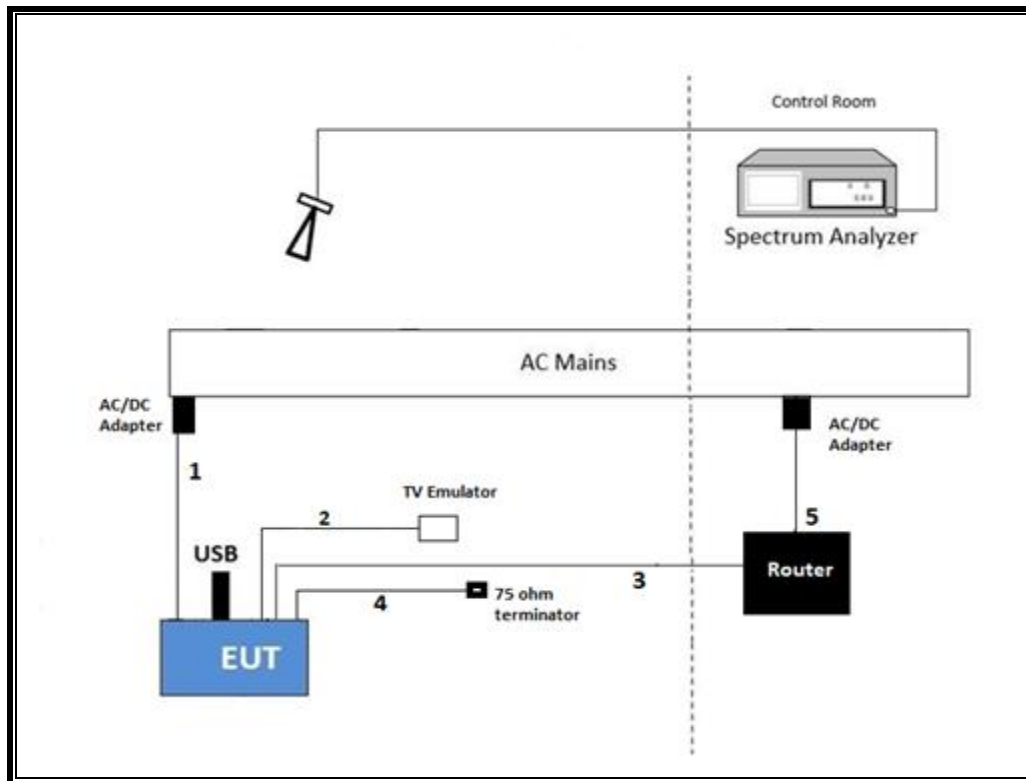
The EUT is a desktop device, therefore, all final radiated testing was performed with the EUT in X orientation.

This EUT supports BLE/BT + Zigbee simultaneous transmission, radiated emission test 30MHz to 18GHz and Zigbee's previous FCC ID: DKNBC88 worst-case modes were performed on this FCC ID: DKNP27TJ to ensure the testing remains compliant with new RF4CE Zigbee radio.

6.7. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description	Manufacturer	Model	Serial Number	FCC ID/ DoC		
AC/DC Adapter(EUT)	NetBit	NBC25A120210VU	222109	DoC		
Router	D-Link	EBR-2310	F311388010596	DoC		
Router Adapter	D-Link	AF0605	LF4R07082717180	DoC		
TV Emulator	DISH	TV Emulator	D52-12			
Laptop: Radiated test	HP	Elitebook 740	N/A	DoC		
AC/DC Adapter(Laptop): Radiated test	HP	HSTNN-DA40	N/A	DoC		
USB Flash Drive	Sandisk	Cruzer Glide 16GB	SDCZ60-016G	DoC		
I/O CABLES (RADIATED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	Barrel	Un-shielded	1.5	EUT to AC/DC adapter Mains
2	HDMI	1	HDMI	shielded	2.5	EUT to Emulator
3	RJ45	1	RJ45	Un-shielded	More than 3	EUT to Ethernet Router
4	Coaxial RF	1	Coaxial RF	shielded	1	75 ohm load terminated BNC port on coaxial cable
5	DC	1	Barrel	Un-shielded	1.5	Ethernet router to AC/DC Adapter

RADIATED TEST SETUP DIAGRAM



TEST SETUP

The EUT is connected to a test laptop by USB to UART cable adapter, support equipment and powered by AC/DC adapter during the tests. Test software exercised the BT radio card. Laptop was removed during the testing.

Power cycling the EUT to select Zigbee radio mode/channel.

7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST					
Description	Manufacturer	Model	ID Num	Cal Due	Last Cal
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	170648	2023-02-10	2022-02-10
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB3	85150	2022-10-15	2021-10-15
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	80403	2023-06-08	2022-06-08
RF Filter Box, 1-18GHz	UL-FR1	NA	171389	2023-05-31	2022-05-31
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201497	2023-02-18	2022-02-18
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	90388	2023-01-24	2022-01-24
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	90733	2023-01-24	2022-01-24
Test Software List					
Description	Manufacturer	Model	Version		
Radiated Software	UL	UL EMC	Sept 15 2022, Dec 28 2015, Dec 29 2015, May 11 2016, Jul 6 2022, Jul 15, 2014, Dec 10 2021		

8. MEASUREMENT METHOD

Radiated emissions non-restricted frequency bands: ANSI C63.10 Section -11.11

Radiated emissions restricted frequency bands: ANSI C63.10 Section -11.12.1

9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements in the 30-1000MHz range, 9kHz for peak and/or quasi-peak detection measurements in the 0.15-30MHz range and 200Hz for peak and/or quasi-peak detection measurements in the 9 to 150kHz range. Peak detection is used unless otherwise noted as quasi-peak or average (9-90kHz and 110-490kHz).

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

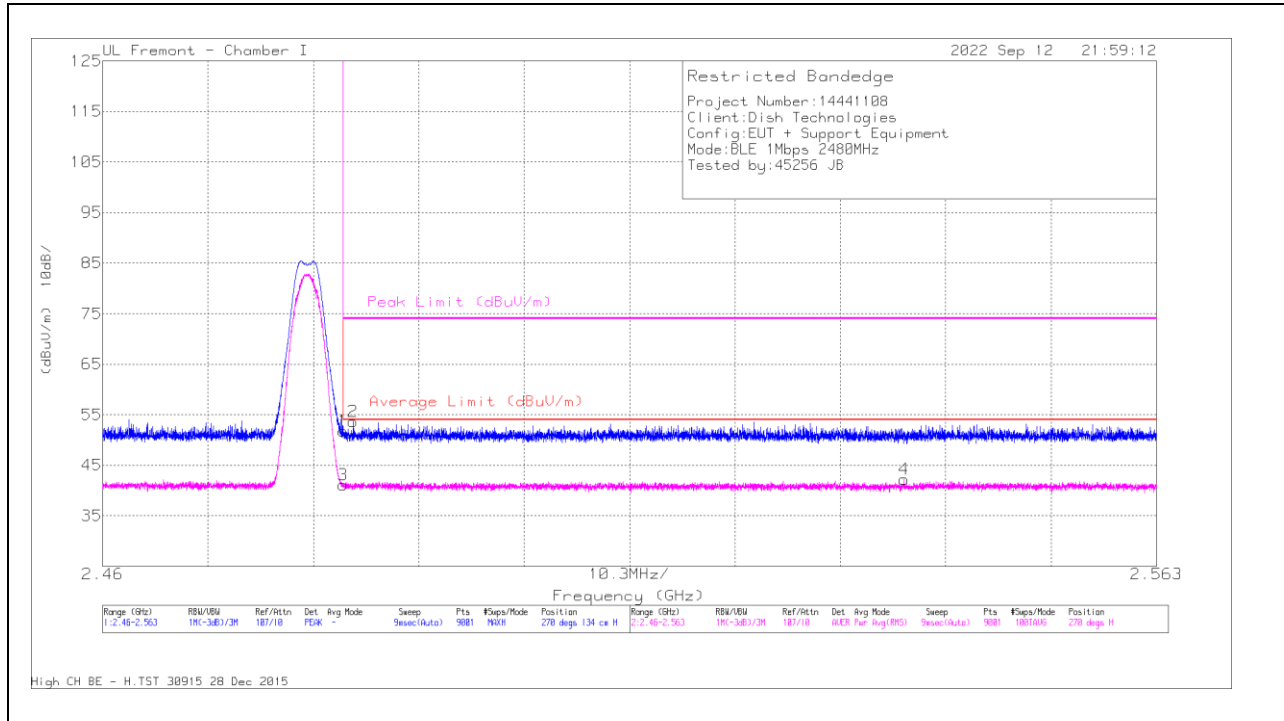
The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

9.2. TRANSMITTER ABOVE 1 GHz (BLE)

BANDEDGE (HIGH CHANNEL)

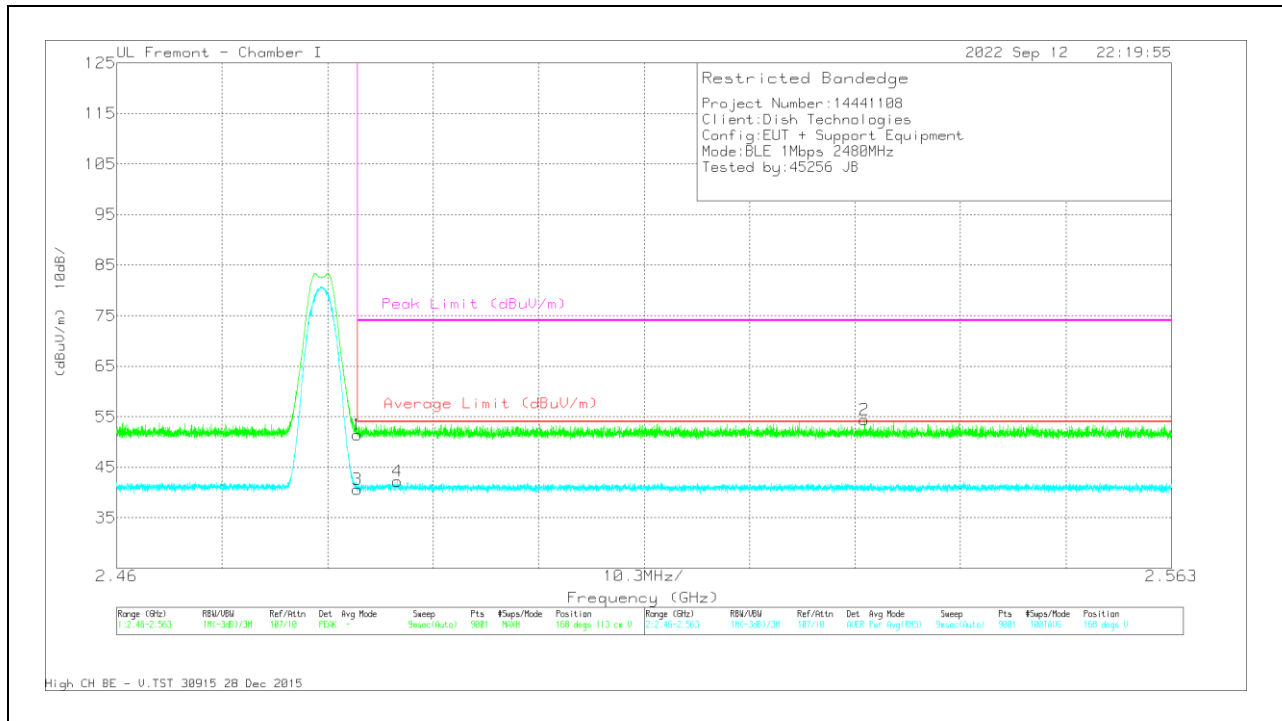
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	Amp/Cbl/Pad (dB)	DC (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	40.29	Pk	32.6	-21.1	0	51.79	-	-	74	-22.21	270	134	H
2	* 2.484467	42.1	Pk	32.6	-21.1	0	53.6	-	-	74	-20.4	270	134	H
3	* 2.4835	29.6	RMS	32.6	-21.1	0	41.1	54	-12.9	-	-	270	134	H
4	2.538334	30.77	RMS	32.6	-21.2	0	42.17	54	-11.83	-	-	270	134	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

VERTICAL RESULT

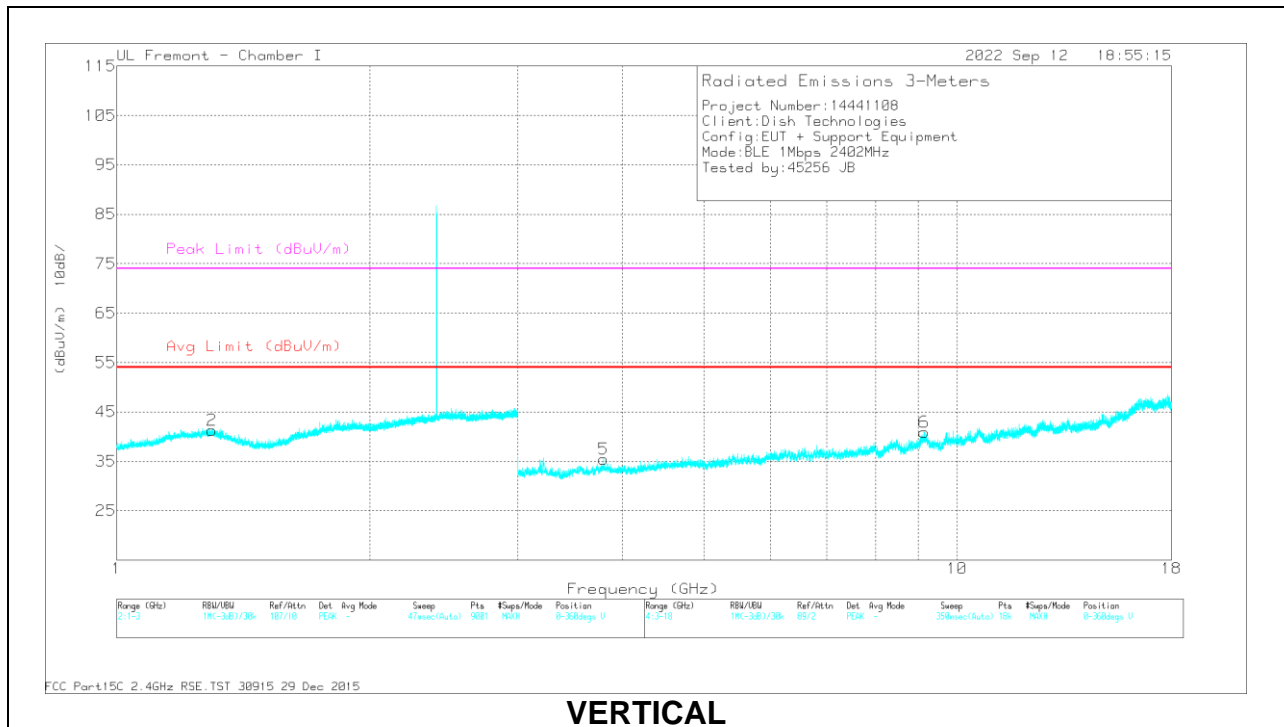
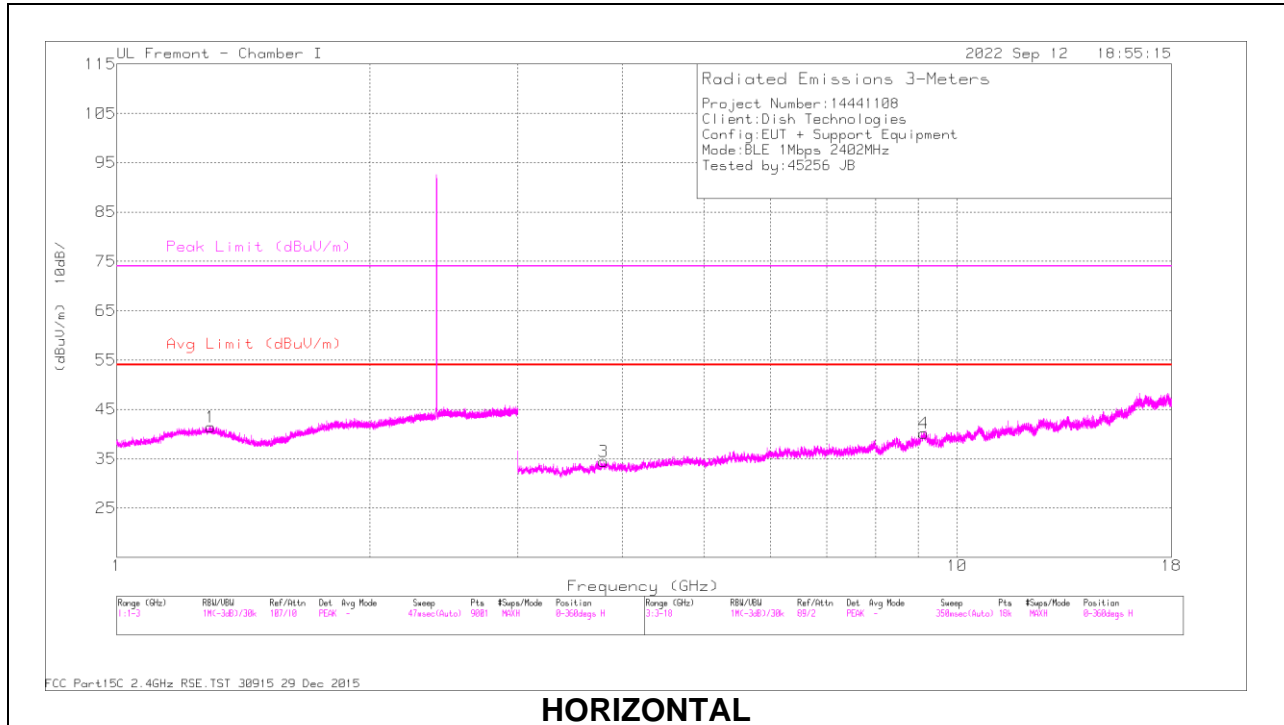


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	Amp/Ch/Pad (dB)	DC (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.4835	39.88	Pk	32.6	-21.1	0	51.38	-	-	74	-22.62	168	113	V
2	2.533036	42.84	Pk	32.6	-21.1	0	54.34	-	-	74	-19.66	168	113	V
3	* 2.4835	29.1	RMS	32.6	-21.1	0	40.6	54	-13.4	-	-	168	113	V
4	* 2.48742	30.58	RMS	32.6	-21	0	42.18	54	-11.82	-	-	168	113	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

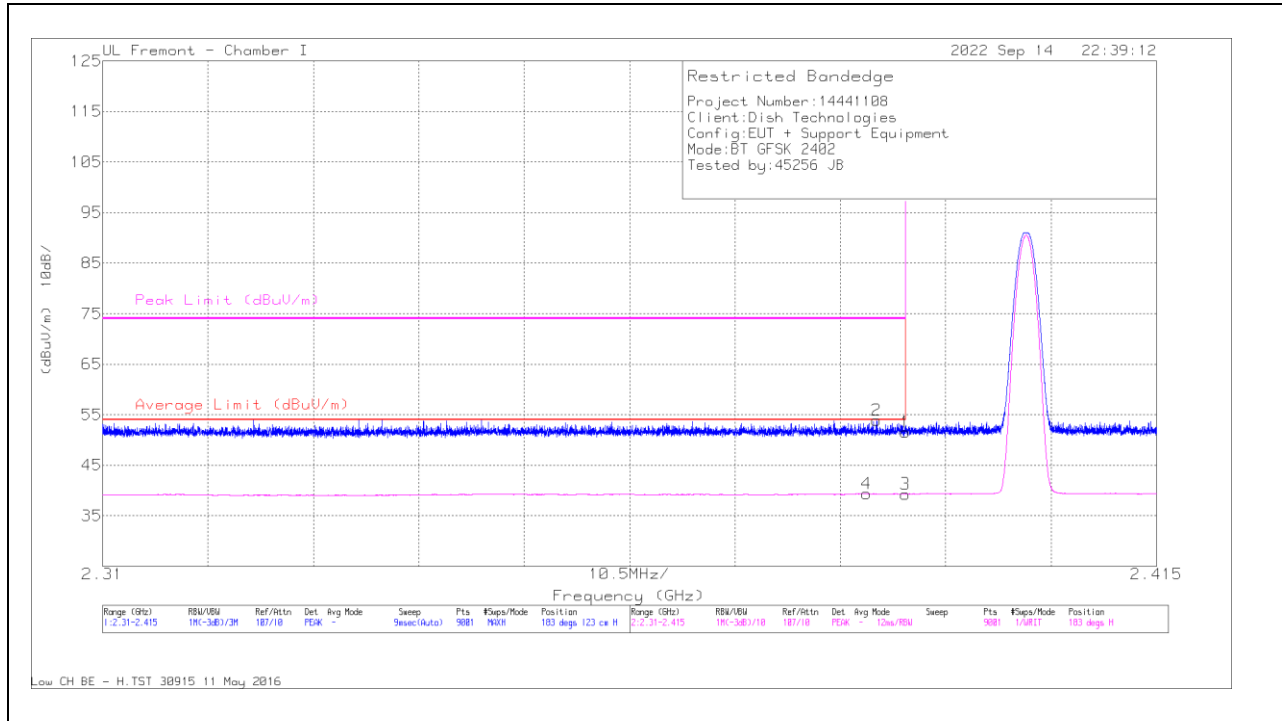
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	Amp/Cbl/Pad (dB)	DC (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.293177	43.59	PK2	29.1	-21.2	-	51.49	-	-	74	-22.51	343	180	H
	* 1.292138	31.45	MAv1	29.1	-21.2	0	39.35	54	-14.65	-	-	343	180	H
2	* 1.297189	43.6	PK2	29.1	-21.2	-	51.5	-	-	74	-22.5	89	110	V
	* 1.297736	31.59	MAv1	29.1	-21.2	0	39.49	54	-14.51	-	-	89	110	V
3	* 3.801078	38.88	PK2	33.9	-28.9	-	43.88	-	-	74	-30.12	54	118	H
	* 3.79832	27.44	MAv1	33.9	-28.8	0	32.54	54	-21.46	-	-	54	118	H
4	* 9.137356	35.18	PK2	36.7	-21.3	-	50.58	-	-	74	-23.42	265	110	H
	* 9.135938	22.95	MAv1	36.7	-21.4	0	38.25	54	-15.75	-	-	265	110	H
5	* 3.800334	39.39	PK2	33.9	-28.8	-	44.49	-	-	74	-29.51	267	113	V
	* 3.800135	28.04	MAv1	33.9	-28.8	0	33.14	54	-20.86	-	-	267	113	V
6	* 9.139371	35.07	PK2	36.7	-21.3	-	50.47	-	-	74	-23.53	111	221	V
	* 9.143063	23.28	MAv1	36.7	-21.5	0	38.48	54	-15.52	-	-	111	221	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

9.3. TRANSMITTER ABOVE 1 GHz (BT)

BANDEDGE (LOW CHANNEL)

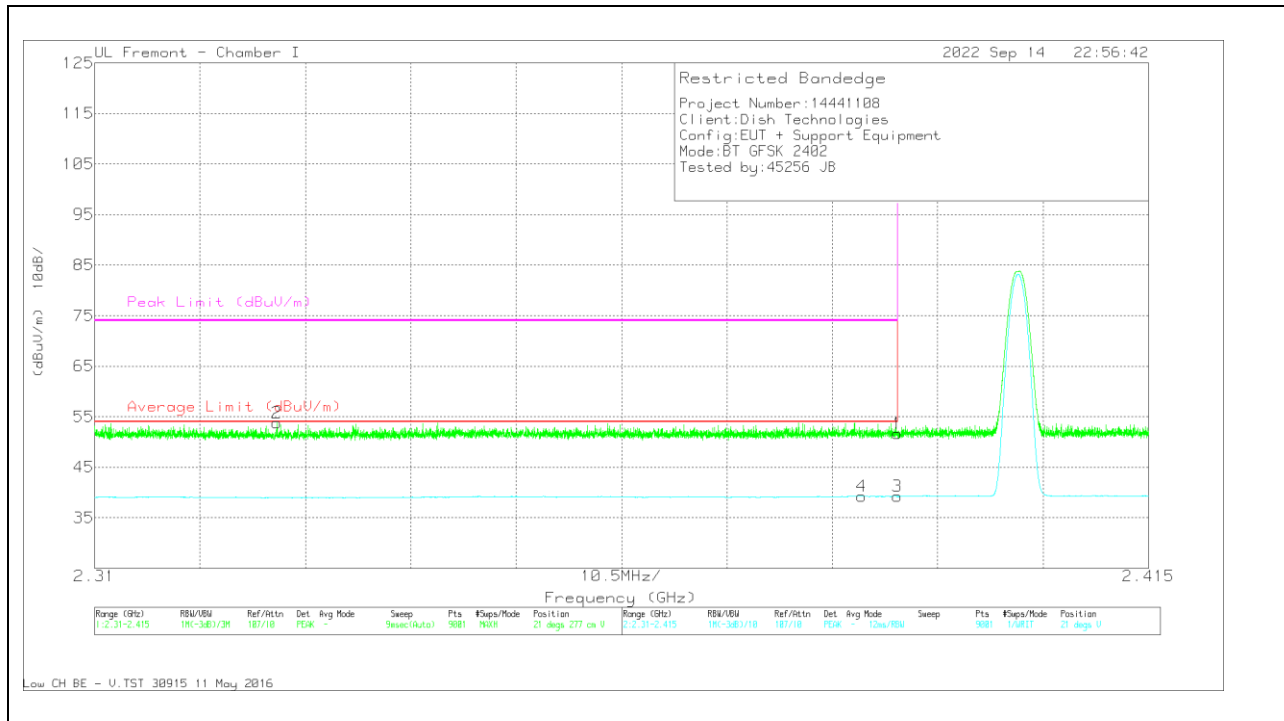
HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.83	PK	32.3	-20.6	51.53	-	-	74	-22.47	183	123	H
2	* 2.387131	42.16	PK	32.2	-20.5	53.86	-	-	74	-20.14	183	123	H
3	* 2.39	27.6	VA1T	32.3	-20.6	39.3	54	-14.7	-	-	183	123	H
4	* 2.386139	27.68	VA1T	32.2	-20.5	39.38	54	-14.62	-	-	183	123	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

VERTICAL RESULT

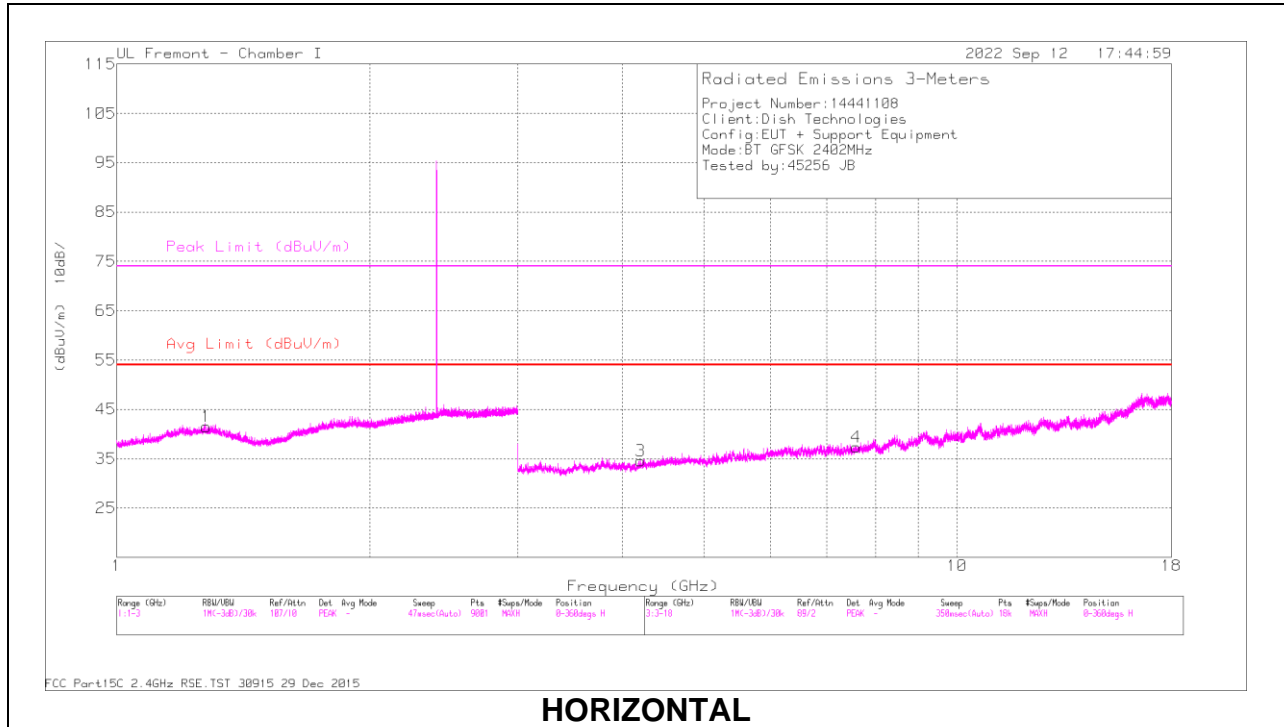


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	Amp/Cbl/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.01	Pk	32.3	-20.6	51.71	-	-	74	-22.29	21	277	V
2	* 2.328166	42.12	Pk	32	-20.3	53.82	-	-	74	-20.18	21	277	V
3	* 2.39	27.5	VA1T	32.3	-20.6	39.2	54	-14.8	-	-	21	277	V
4	* 2.386396	27.57	VA1T	32.2	-20.5	39.27	54	-14.73	-	-	21	277	V

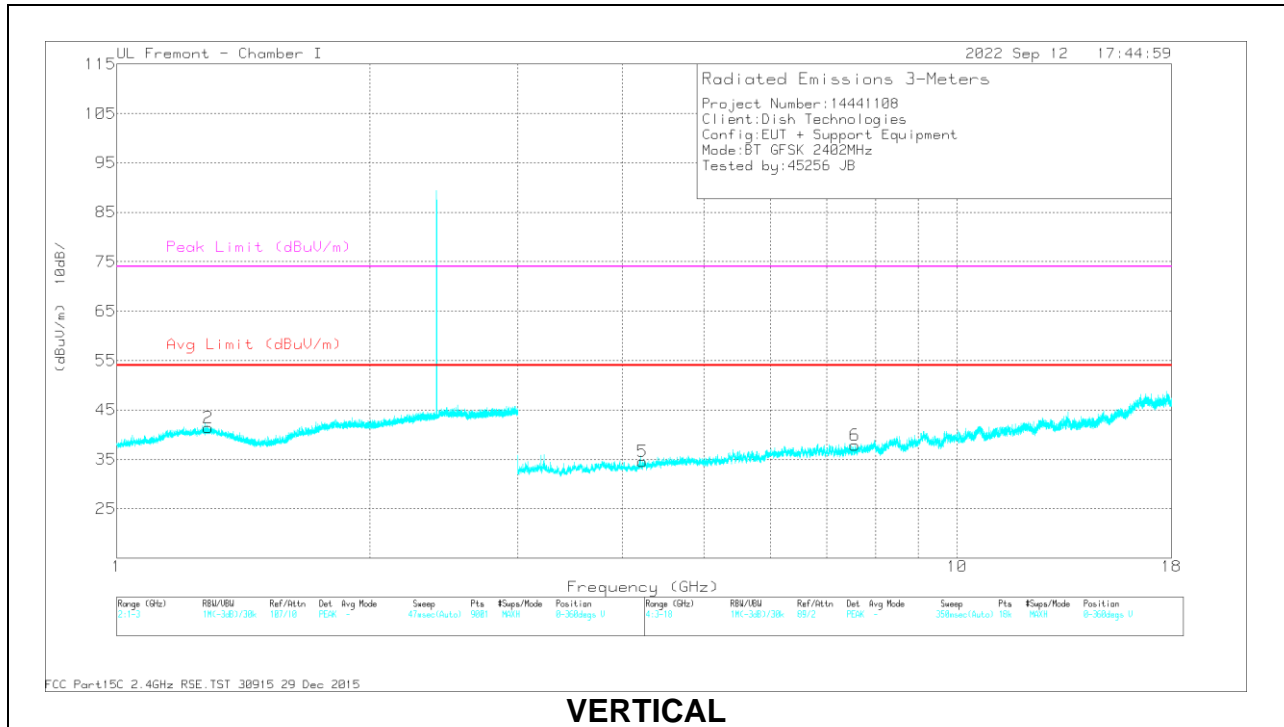
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.277657	41.27	PKFH	29.2	-21.2	49.27	-	-	74	-24.73	334	186	H
	* 1.277713	28.39	VA1T	29.2	-21.2	36.39	54	-17.61	-	-	334	186	H
2	* 1.284389	41.93	PKFH	29	-21.2	49.73	-	-	74	-24.27	47	132	V
	* 1.281847	28.43	VA1T	29.1	-21.2	36.33	54	-17.67	-	-	47	132	V
3	* 4.203145	37.3	PKFH	33.8	-28.6	42.5	-	-	74	-31.5	298	106	H
	* 4.203537	23.91	VA1T	33.8	-28.6	29.11	54	-24.89	-	-	298	106	H
4	* 7.591464	34.4	PKFH	36	-25.4	45	-	-	74	-29	215	117	H
	* 7.590457	21.67	VA1T	36	-25.4	32.27	54	-21.73	-	-	215	117	H
5	* 4.228046	38.47	PKFH	33.8	-28.5	43.77	-	-	74	-30.23	73	143	V
	* 4.225501	24.09	VA1T	33.8	-28.4	29.49	54	-24.51	-	-	73	143	V
6	* 7.560412	34.49	PKFH	36.1	-25.2	45.39	-	-	74	-28.61	351	139	V
	* 7.563073	21.16	VA1T	36.1	-25.3	31.96	54	-22.04	-	-	351	139	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PKFH FHSS/BT RB=100k for Frequencies<1GHz / RB=1MHz for Frequencies>1GHz, VB=3 x RB, Peak

VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration