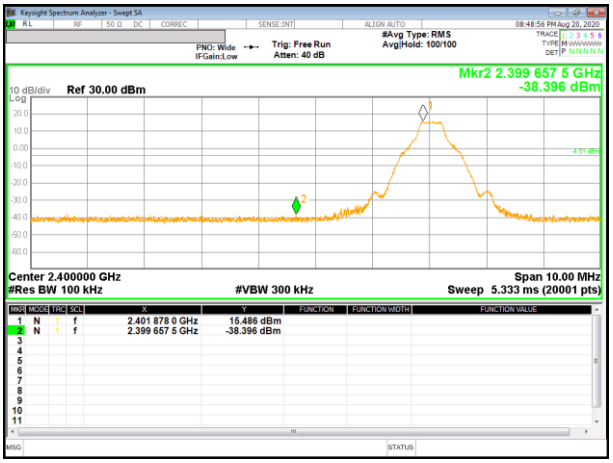
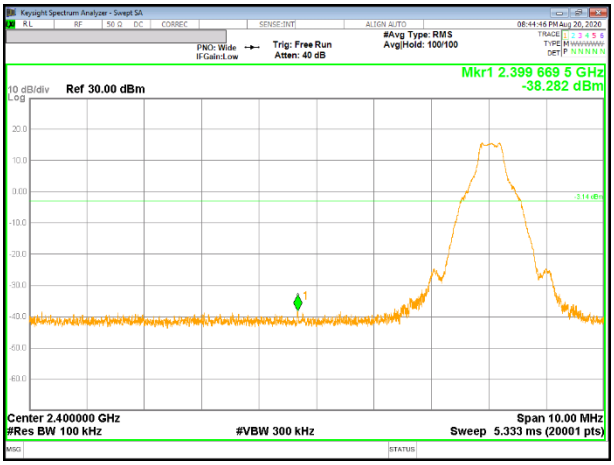
9.8.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

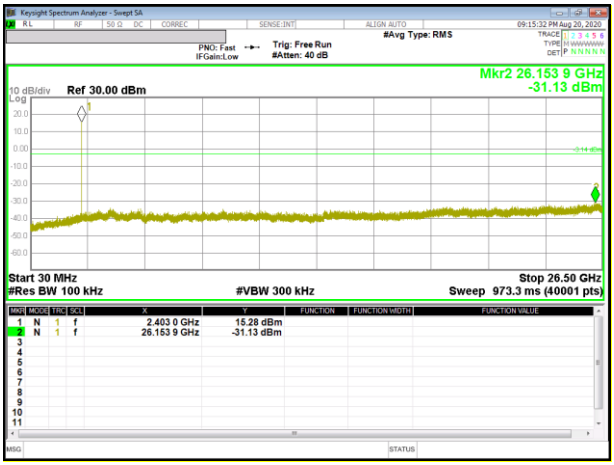
SPURIOUS EMISSIONS, NON-HOPPING(Antenna 1)



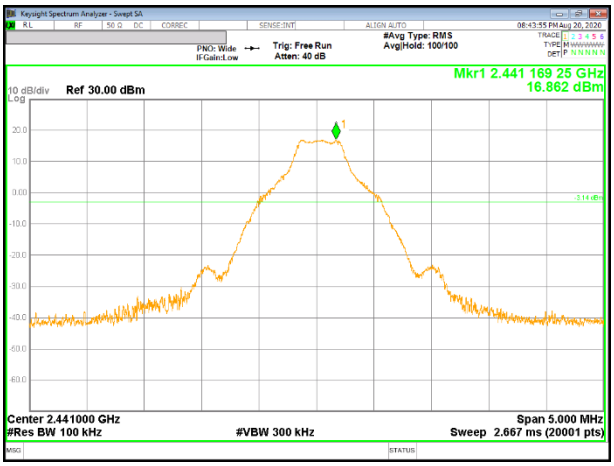
0 CHANNEL BANDEDGE



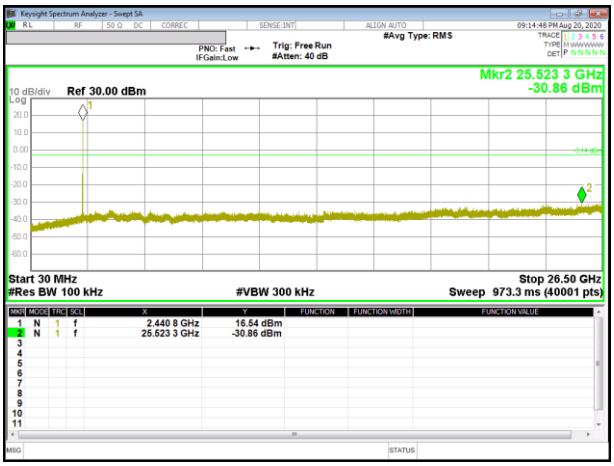
1 CHANNEL BANDEDGE



OUT-OF-BAND 1 CHANNEL



IN-BAND REFERENCE LEVEL



OUT-OF-BAND 39 CHANNEL

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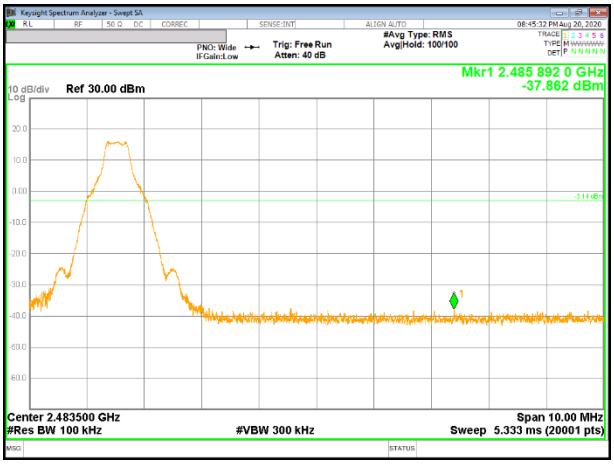
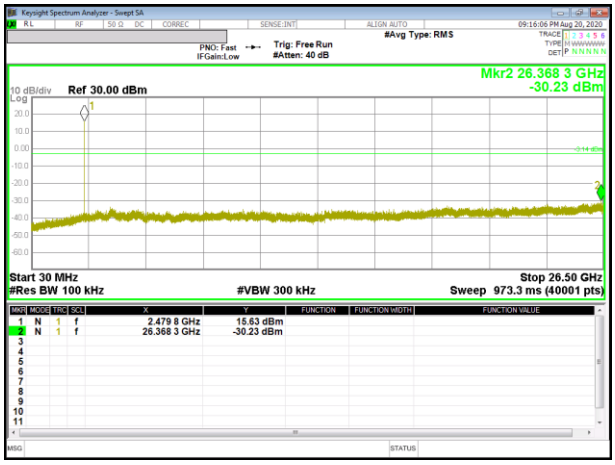
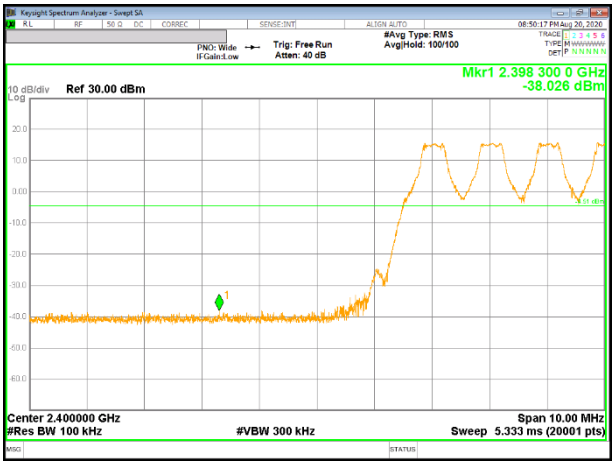


78 CHANNEL BANDEDGE

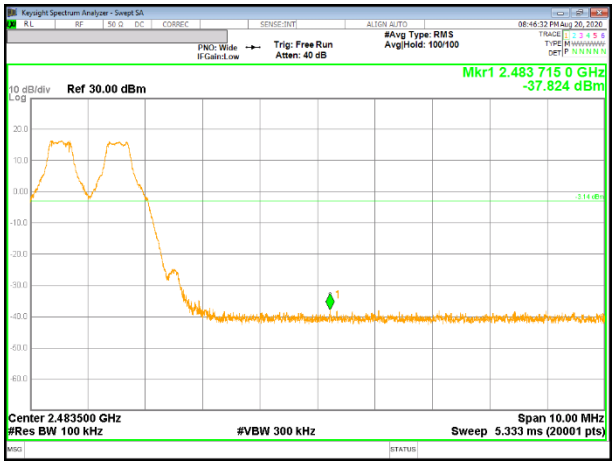


OUT-OF-BAND 78 CHANNEL

SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



LOW BANDEDGE



HIGH BANDEDGE

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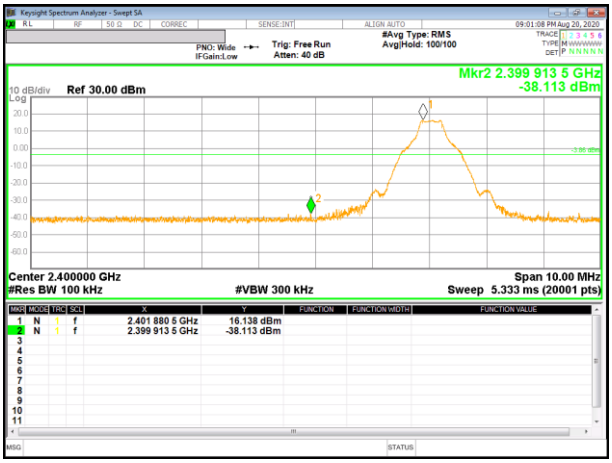
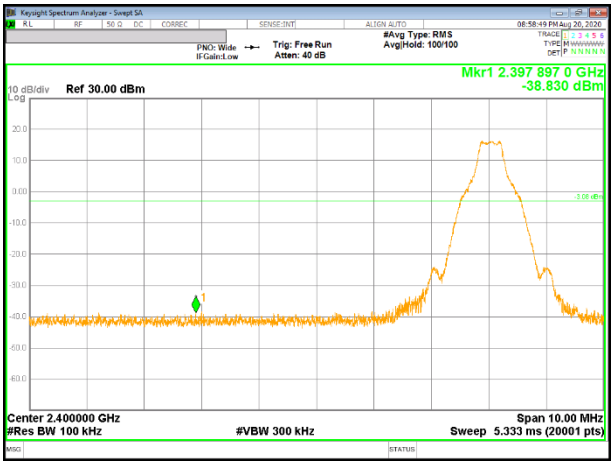
SPURIOUS EMISSIONS, NON-HOPPING(Antenna 2)

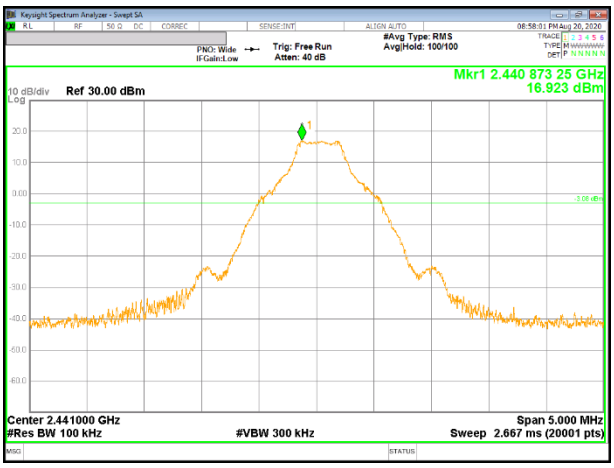


0 CHANNEL BANDEDGE

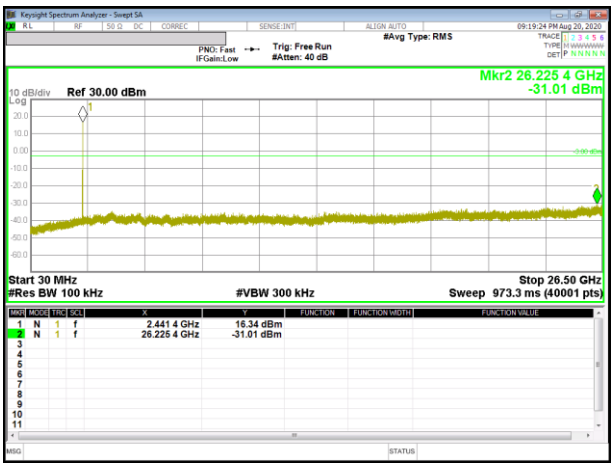


1 CHANNEL BANDEDGE

OUT-OF-BAND 1 CHANNEL



IN-BAND REFERENCE LEVEL



OUT-OF-BAND 39 CHANNEL

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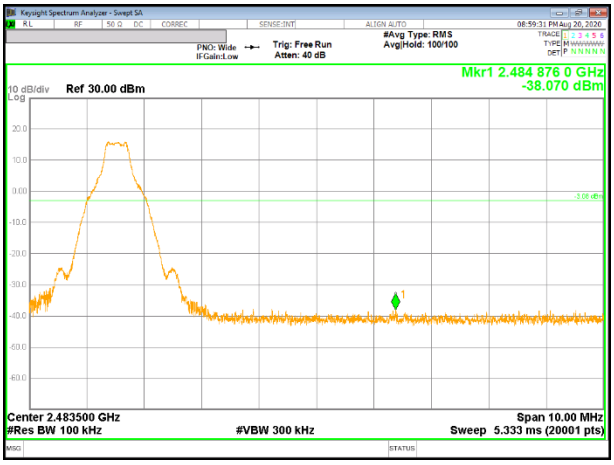
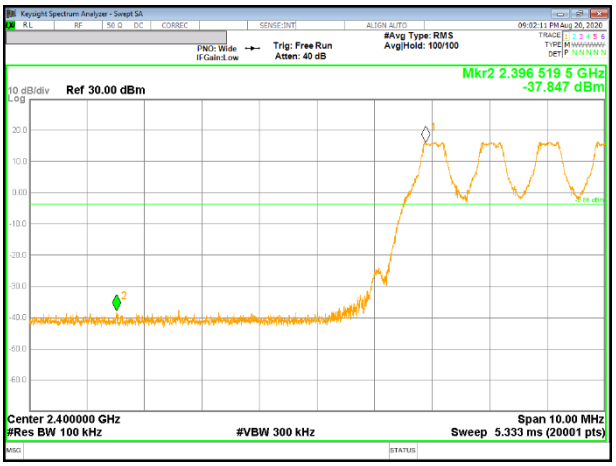


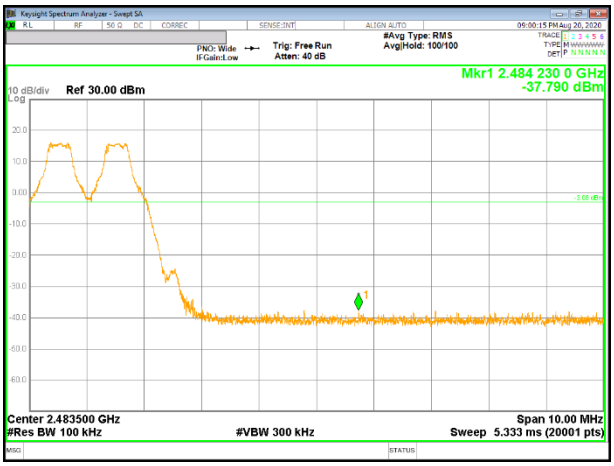
78 CHANNEL BANDEDGE

OUT-OF-BAND 78 CHANNEL

SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



LOW BANDEDGE



HIGH BANDEDGE

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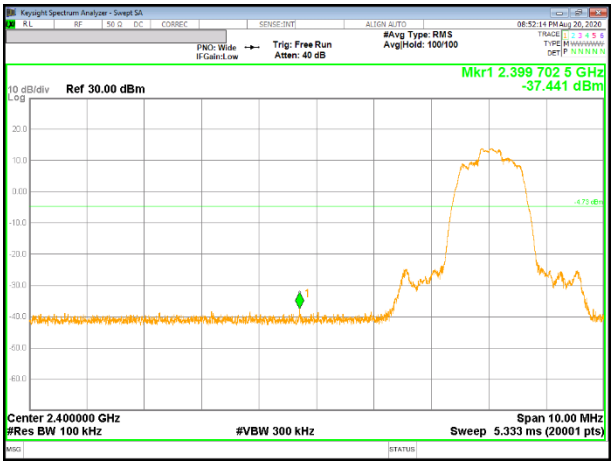
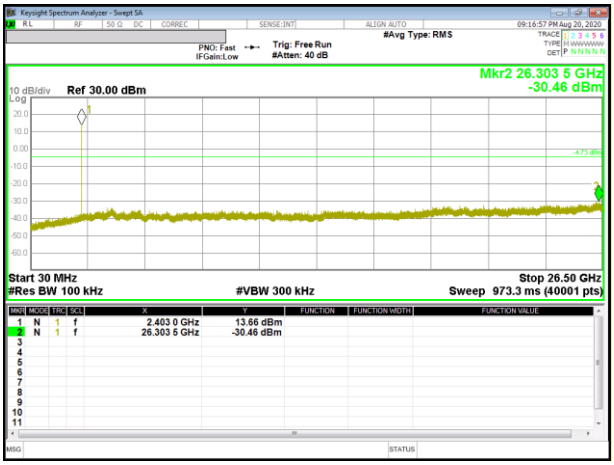
9.8.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

SPURIOUS EMISSIONS, NON-HOPPING(Antenna 1)

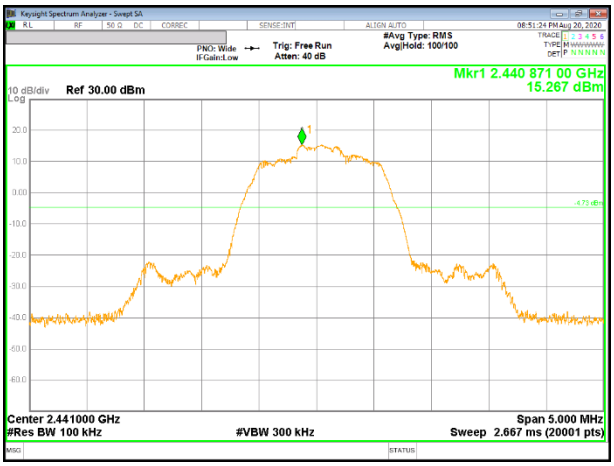
0 CHANNEL BANDEDGE



1 CHANNEL BANDEDGE



OUT-OF-BAND 1 CHANNEL



IN-BAND REFERENCE LEVEL

OUT-OF-BAND 39 CHANNEL

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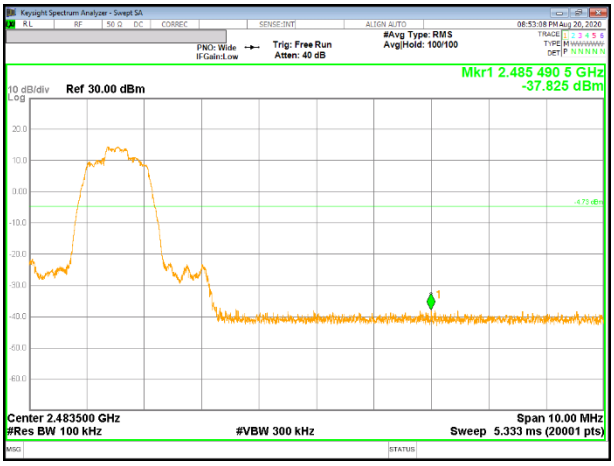
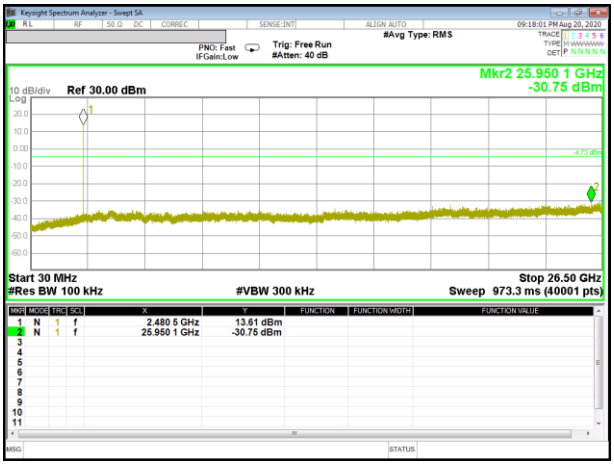
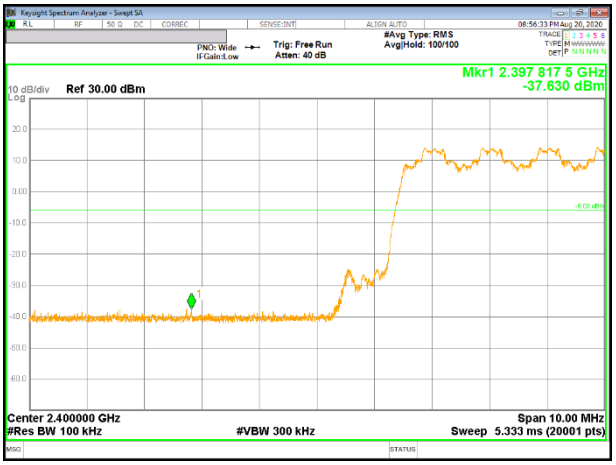


78 CHANNEL BANDEDGE



OUT-OF-BAND 78 CHANNEL

SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



LOW BANDEDGE

HIGH BANDEDGE

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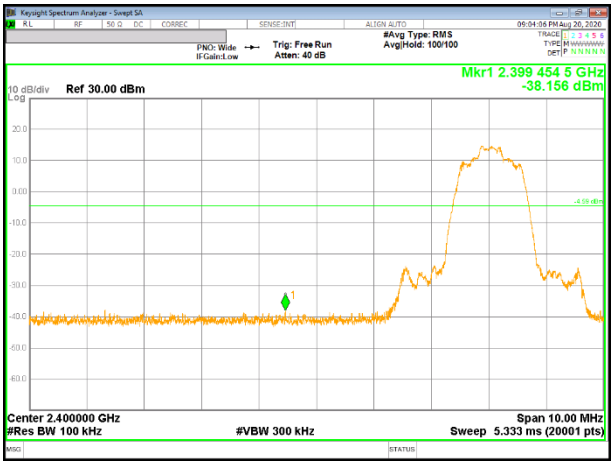
SPURIOUS EMISSIONS, NON-HOPPING(Antenna 2)

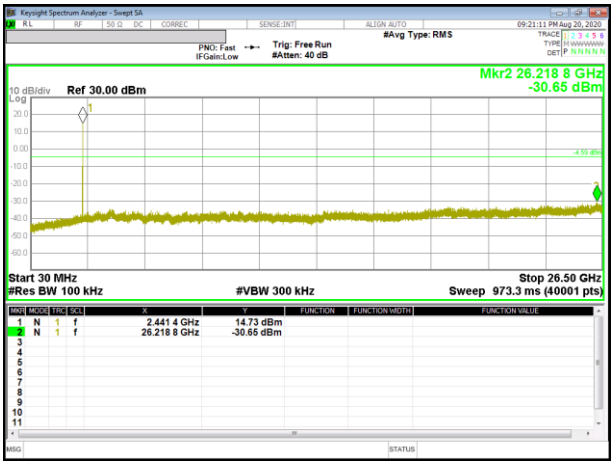
0 CHANNEL BANDEDGE



1 CHANNEL BANDEDGE

OUT-OF-BAND 1 CHANNEL

IN-BAND REFERENCE LEVEL



OUT-OF-BAND 39 CHANNEL

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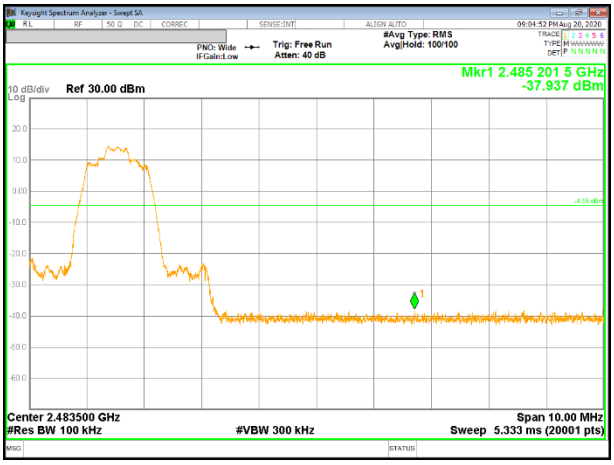
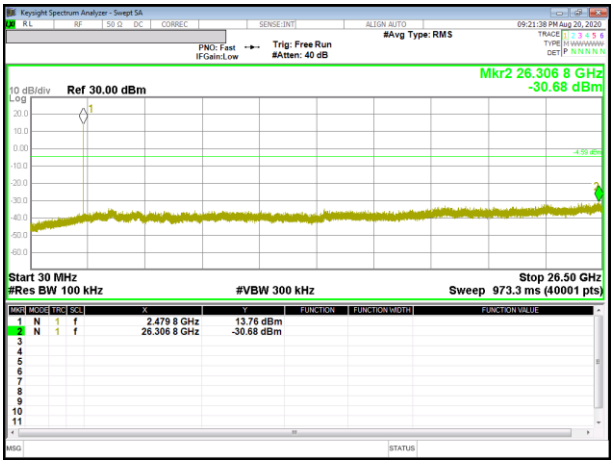
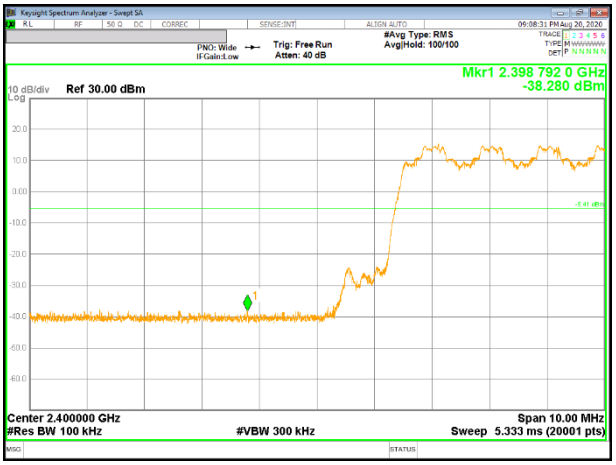


78 CHANNEL BANDEDGE

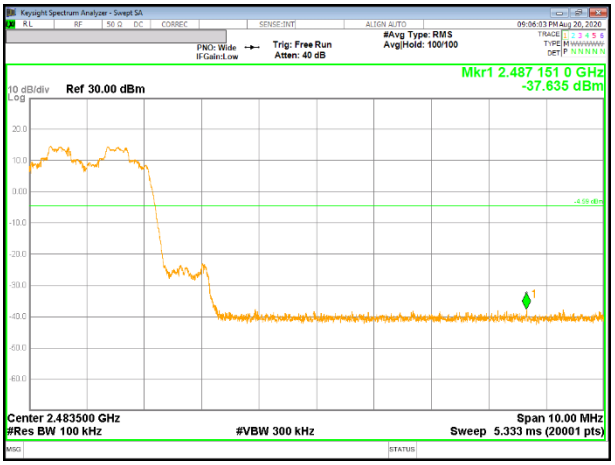


OUT-OF-BAND 78 CHANNEL

SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON



LOW BANDEDGE



HIGH BANDEDGE

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10. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

FCC Part 15.205 (a) : Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~ 12.52025	149.9 ~ 150.05	1645.5 ~ 1646.5	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	12.57675 ~ 12.57725	156.52475 ~	1660 ~ 1710	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	13.36 ~ 13.41	156.52525	1718.8 ~ 1722.2	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	16.42 ~ 16.423	156.7 ~ 156.9	2200 ~ 2300	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.69475 ~ 16.69525	162.0125 ~	2310 ~ 2390	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	16.80425 ~ 16.80475	167.17	2483.5 ~ 2500	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	25.5 ~ 25.67	167.72 ~ 173.2	2655 ~ 2900		
8.291 ~ 8.294	37.5 ~ 38.25	240 ~ 285	3260 ~ 3267		
8.362 ~ 8.366	73 ~ 74.6	322 ~ 335.4	3332 ~ 3339		
8.37625 ~ 8.38675	74.8 ~ 75.2	399.90 ~ 410	3345.8 ~ 3358		
		608 ~ 614	3600 ~ 4400		
		960 ~ 1240			

▪ FCC Part 15.205(b) : The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

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TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. 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. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements.(Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 kHz for peak measurements.)

For band edge measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1/T (on time) for average measurement.

GFSK = 1/T = 1 / 0.002878S = 347Hz.

The minimum VBW was 347Hz, but test receiver(ESU40) couldn't set value 347Hz. Due to this reason, testing VBW was set to 500Hz(Worst cases).

The spectrum from 1GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

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.

Note : Emission was pre-scanned from 9kHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

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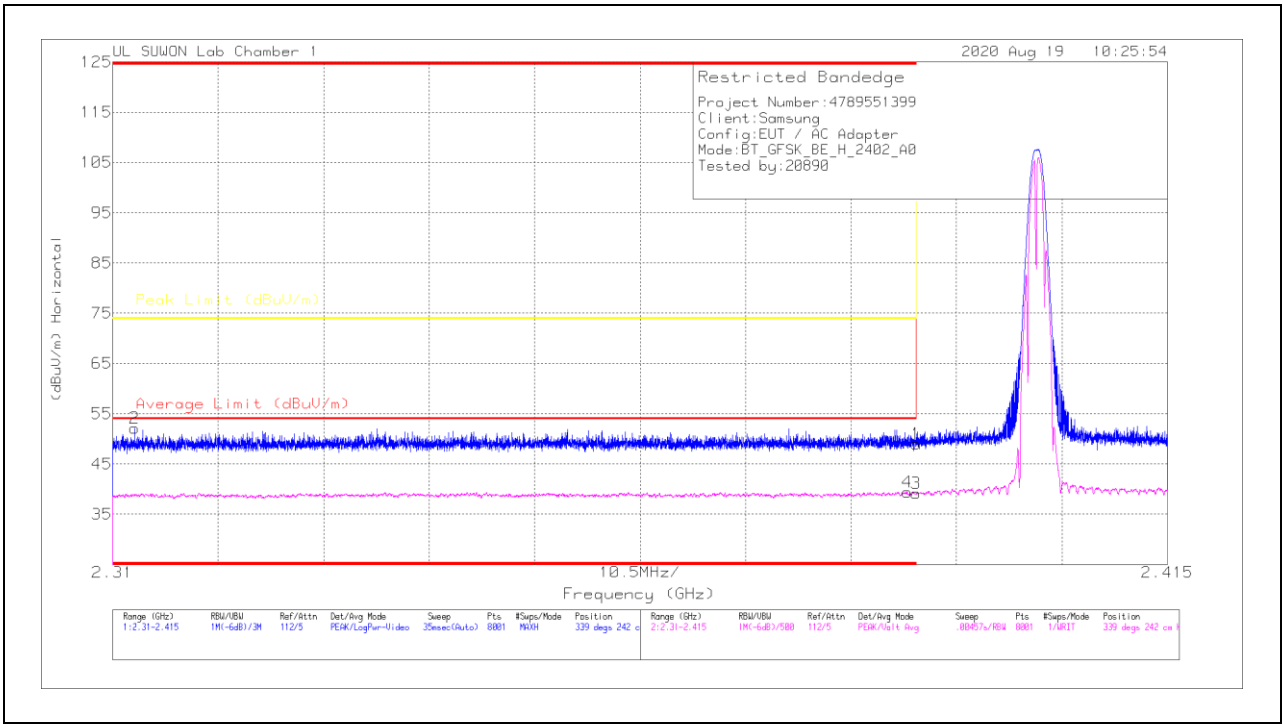
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. BLUETOOTH BASIC DATA RATE GFSK MODULATION

Antenna 1 BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.37	Pk	32.1	-25.5	48.97	-	-	74	-25.03	339	242	H
2	* 2.31218	45.91	Pk	31.8	-25.6	52.11	-	-	74	-21.89	339	242	H
3	* 2.39	32.57	VA1T	32.1	-25.5	39.17	54	-14.83	-	-	339	242	H
4	* 2.38908	32.88	VA1T	32.1	-25.6	39.38	54	-14.62	-	-	339	242	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

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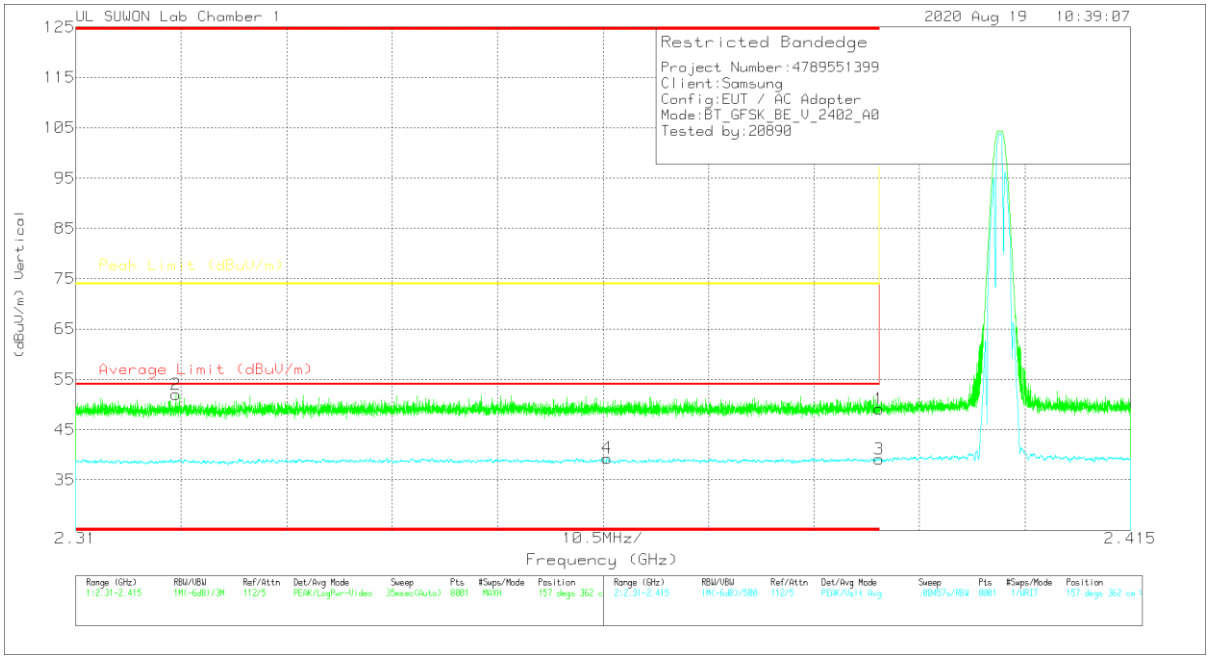
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.53	Pk	32.1	-25.5	49.13	-	-	74	-24.87	157	362	V
2	* 2.31996	45.72	Pk	31.9	-25.6	52.02	-	-	74	-21.98	157	362	V
3	* 2.39	32.56	VA1T	32.1	-25.5	39.16	54	-14.84	-	-	157	362	V
4	* 2.36289	32.95	VA1T	32	-25.6	39.35	54	-14.65	-	-	157	362	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

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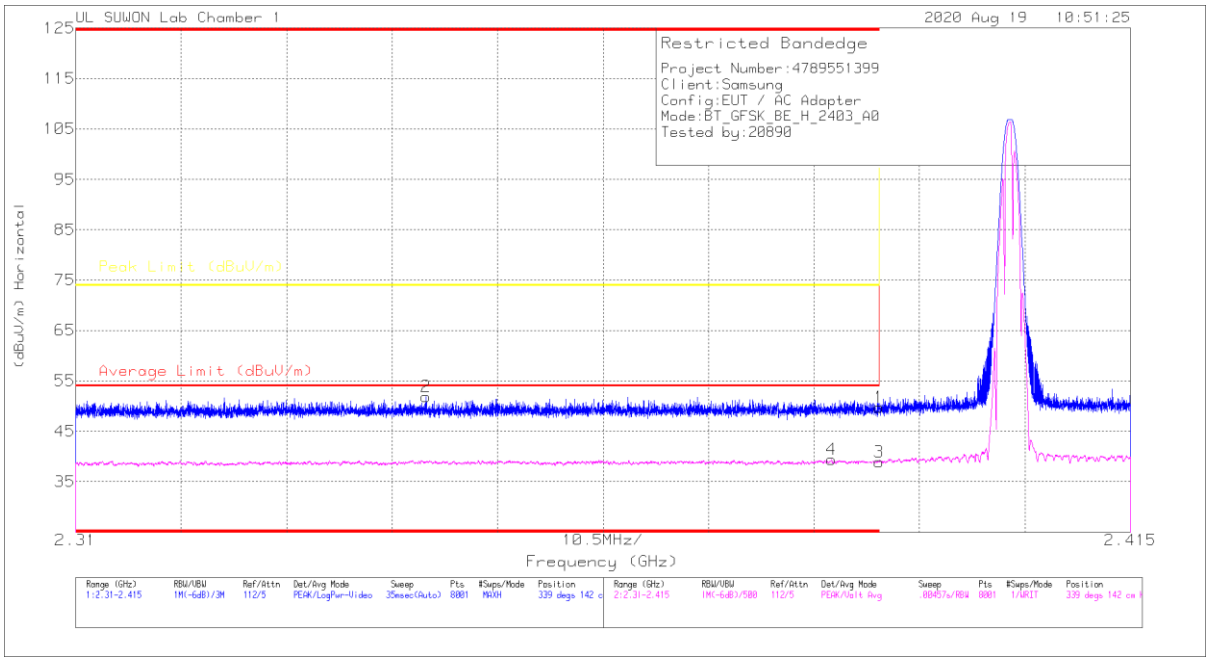
Antenna 1 BANDEDGE (1 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	43.16	Pk	32.1	-25.5	49.76	-	-	74	-24.24	339	142	H
2	* 2.34489	45.46	Pk	32	-25.6	51.86	-	-	74	-22.14	339	142	H
3	* 2.39	32.35	VA1T	32.1	-25.5	38.95	54	-15.05	-	-	339	142	H
4	* 2.38523	32.78	VA1T	32.1	-25.5	39.38	54	-14.62	-	-	339	142	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

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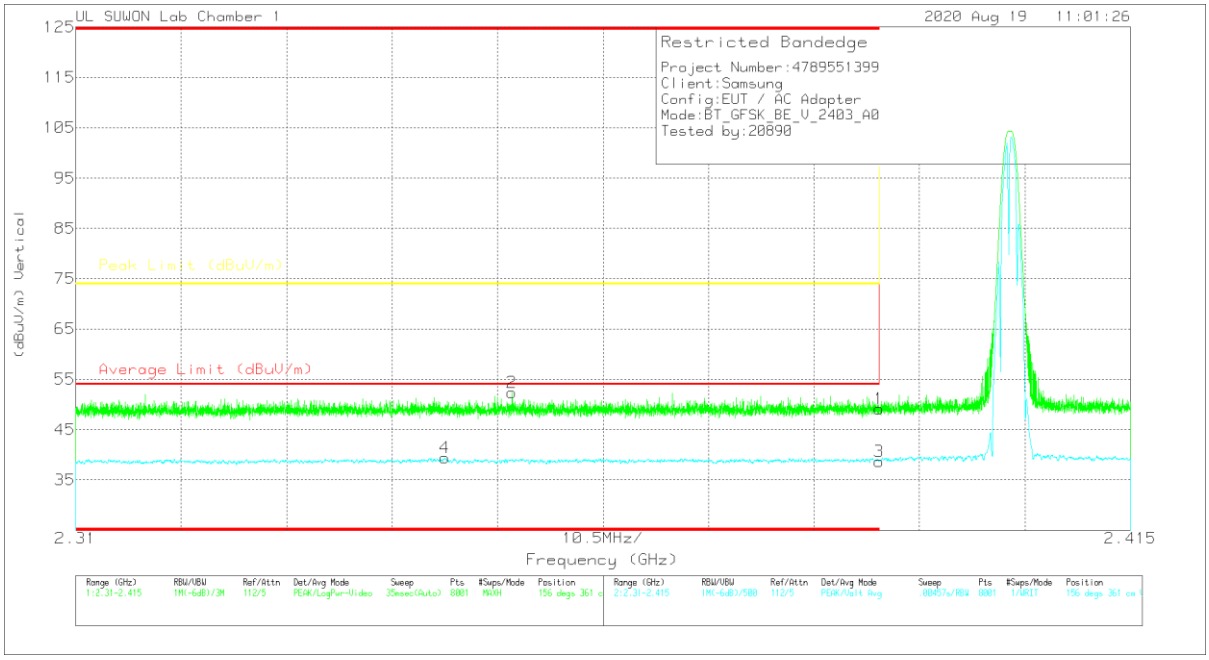
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.59	Pk	32.1	-25.5	49.19	-	-	74	-24.81	156	361	V
2	* 2.35344	45.89	Pk	32	-25.5	52.39	-	-	74	-21.61	156	361	V
3	* 2.39	32.12	VA1T	32.1	-25.5	38.72	54	-15.28	-	-	156	361	V
4	* 2.34676	33	VA1T	32	-25.6	39.4	54	-14.6	-	-	156	361	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

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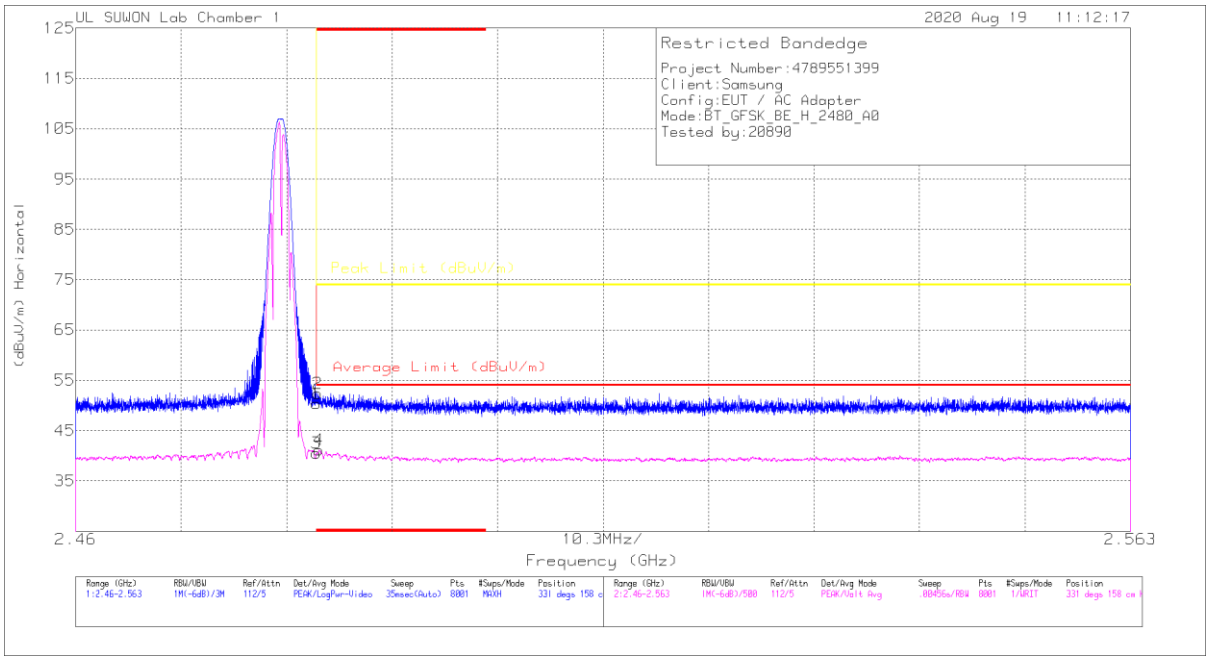
Antenna 1 BANDEDGE (78 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	43.37	Pk	32.2	-25.2	50.37	-	-	74	-23.63	331	158	H
2	* 2.48364	45.35	Pk	32.2	-25.2	52.35	-	-	74	-21.65	331	158	H
3	* 2.48351	33.57	VA1T	32.2	-25.2	40.57	54	-13.43	-	-	331	158	H
4	* 2.48377	34.12	VA1T	32.2	-25.2	41.12	54	-12.88	-	-	331	158	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

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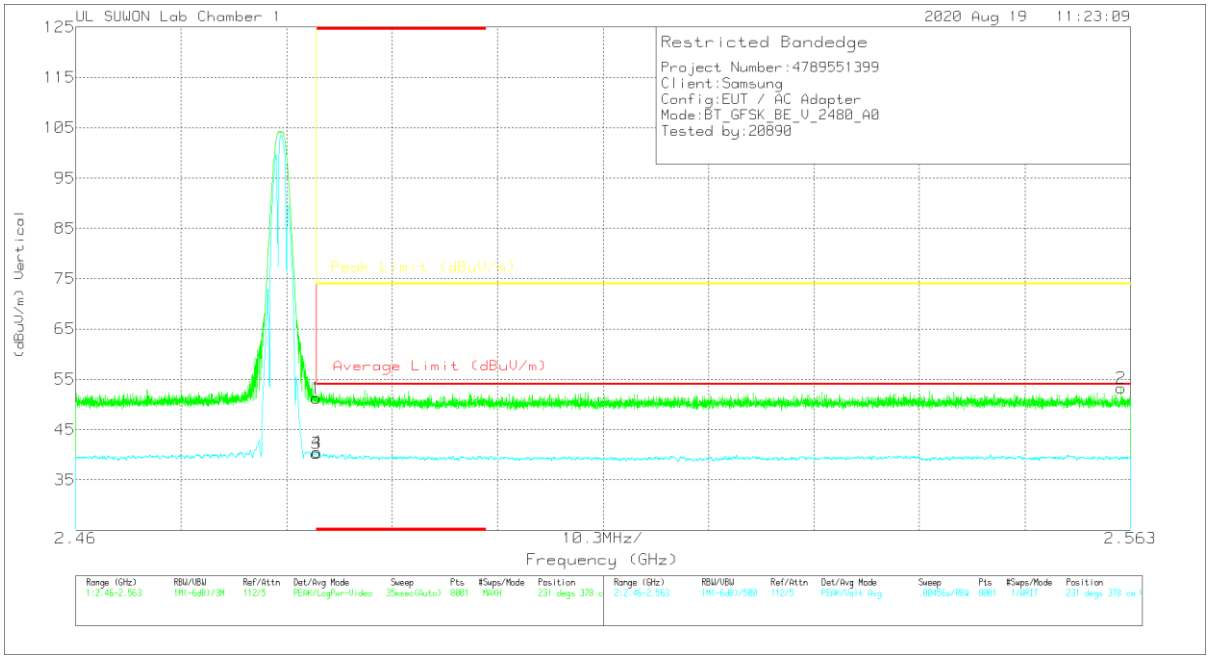
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	44.22	Pk	32.2	-25.2	51.22	-	-	74	-22.78	231	378	V
2	2.5621	46.04	Pk	32.3	-25.1	53.24	-	-	74	-20.76	231	378	V
3	* 2.48351	33.33	VA1T	32.2	-25.2	40.33	54	-13.67	-	-	231	378	V
4	* 2.48355	33.51	VA1T	32.2	-25.2	40.51	54	-13.49	-	-	231	378	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

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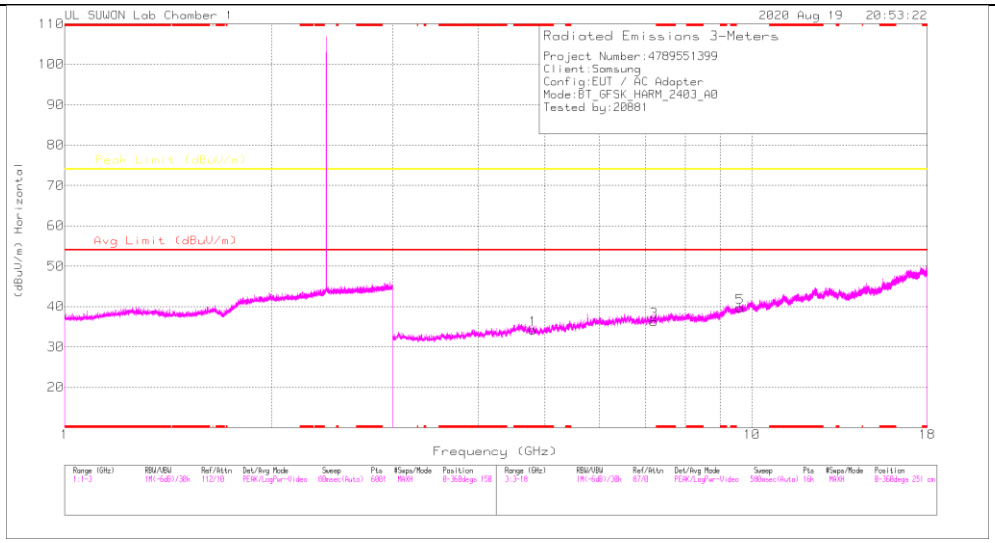
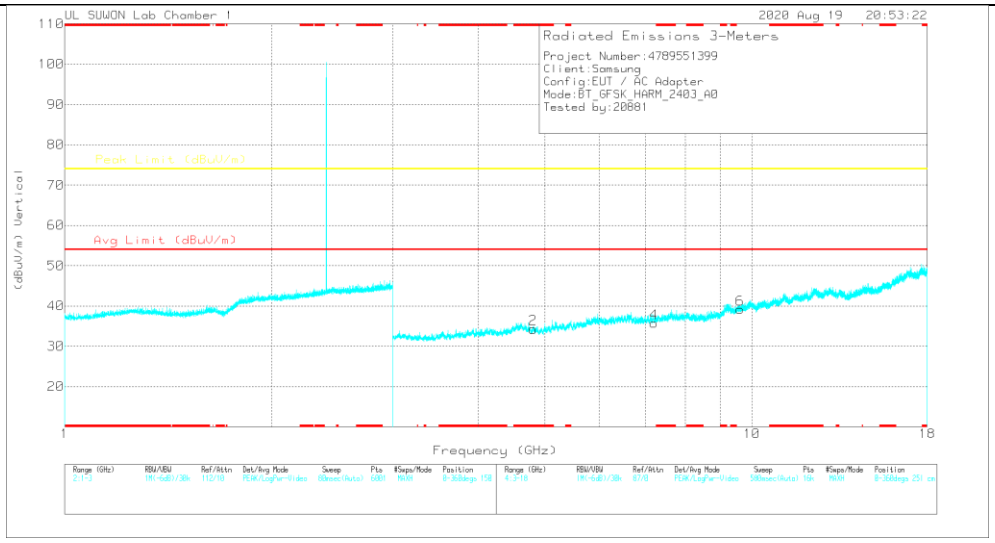
HARMONICS AND SPURIOUS EMISSIONS

Antenna 1 / 1 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80679	40.08	PKFH	34.2	-31.6	42.68	-	-	74	-31.32	360	100	H
* 4.80502	40.23	PKFH	34.2	-31.5	42.93	-	-	74	-31.07	360	100	V
7.20899	37.14	PKFH	35.9	-27.9	45.14	-	-	74	-28.86	360	100	H
7.21006	35.96	PKFH	35.9	-27.9	43.96	-	-	74	-30.04	360	100	V
9.61119	33.54	PKFH	36.8	-23.2	47.14	-	-	74	-26.86	360	100	H
9.61117	33.76	PKFH	36.8	-23.2	47.36	-	-	74	-26.64	360	100	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

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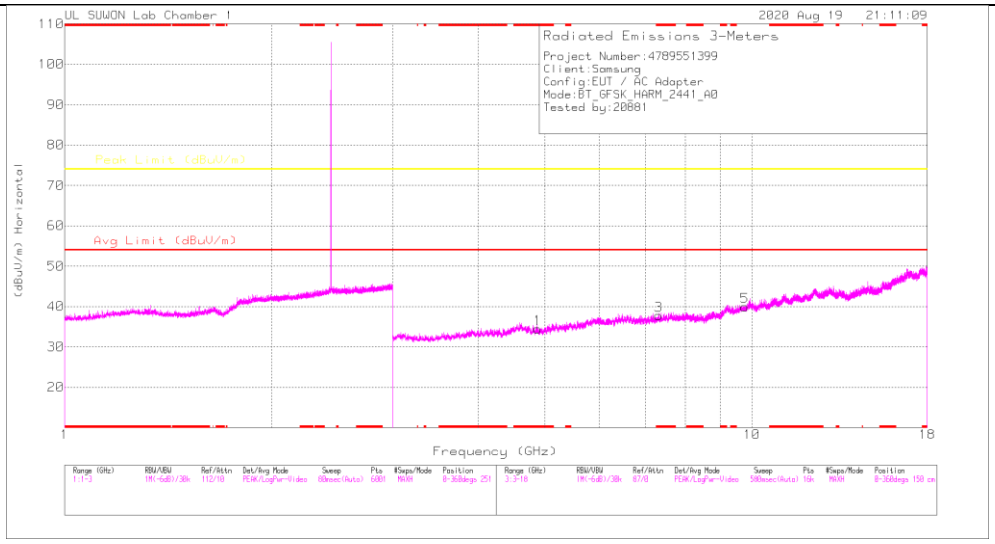
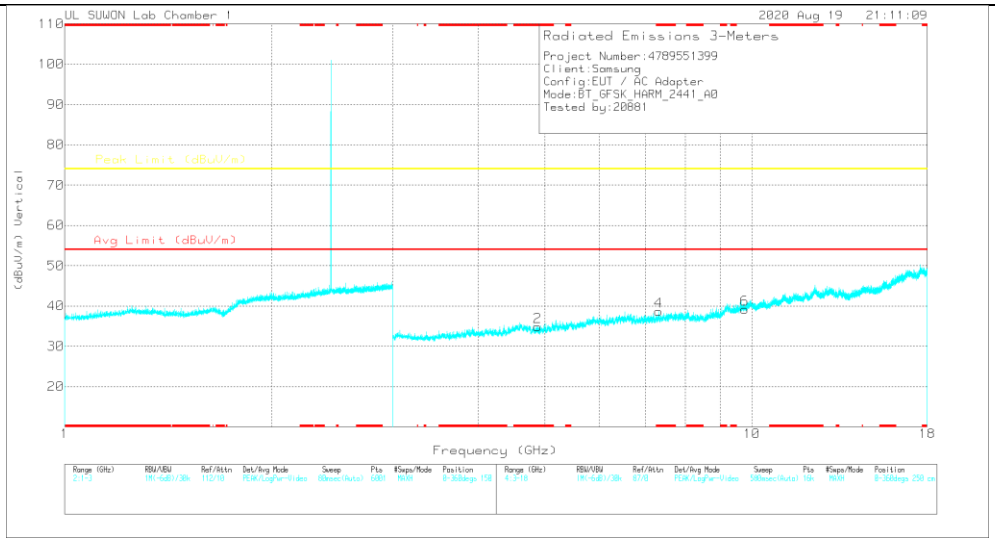
Antenna 1 / 39 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.87944	39.53	PKFH	34.1	-31.6	42.03	-	-	74	-31.97	360	100	H
* 4.88293	40.52	PKFH	34.1	-31.6	43.02	-	-	74	-30.98	360	100	V
* 7.32211	35.93	PKFH	35.9	-27.2	44.63	-	-	74	-29.37	360	100	H
* 7.32196	36.45	PKFH	35.9	-27.2	45.15	-	-	74	-28.85	360	100	V
9.76528	33.53	PKFH	37	-23.9	46.63	-	-	74	-27.37	360	100	H
9.76468	34.1	PKFH	37	-23.9	47.2	-	-	74	-26.8	360	100	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

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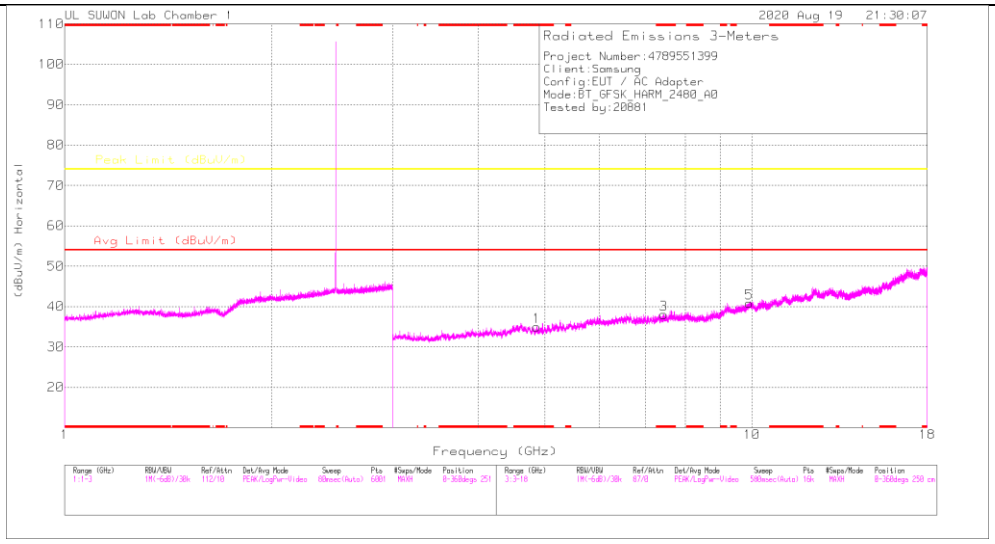
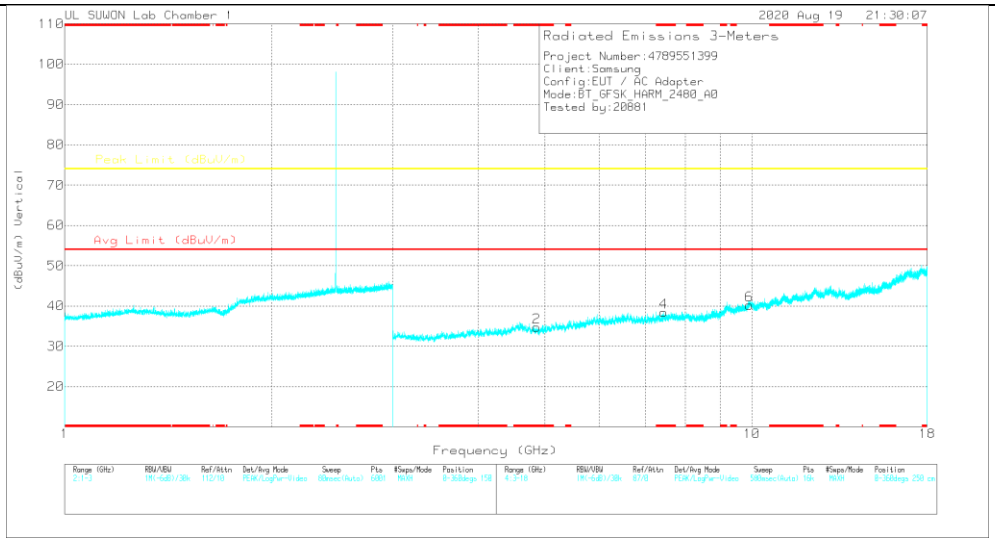
Antenna 1 / 78 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96146	39.38	PKFH	34.1	-31.6	41.88	-	-	74	-32.12	360	100	H
* 4.95997	40.79	PKFH	34.1	-31.6	43.29	-	-	74	-30.71	360	100	V
* 7.43831	35.47	PKFH	35.9	-27.2	44.17	-	-	74	-29.83	360	100	H
* 7.44008	36.91	PKFH	35.9	-27.1	45.71	-	-	74	-28.29	360	100	V
9.92033	34.02	PKFH	37.2	-22.1	49.12	-	-	74	-24.88	360	100	H
9.91855	33.17	PKFH	37.2	-22.1	48.27	-	-	74	-25.73	360	100	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

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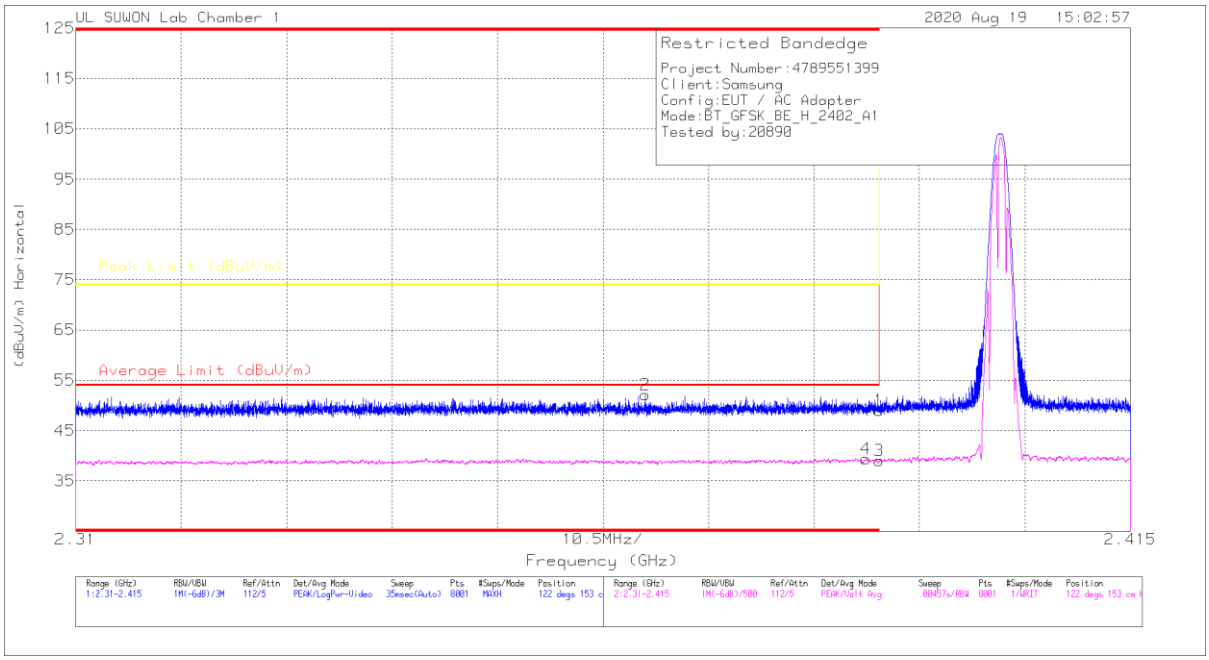
Antenna 2 BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.46	Pk	32.1	-25.5	49.06	-	-	74	-24.94	122	153	H
2	* 2.3667	45.81	Pk	32	-25.7	52.11	-	-	74	-21.89	122	153	H
3	* 2.39	32.45	VA1T	32.1	-25.5	39.05	54	-14.95	-	-	122	153	H
4	* 2.3887	32.87	VA1T	32.1	-25.5	39.47	54	-14.53	-	-	122	153	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

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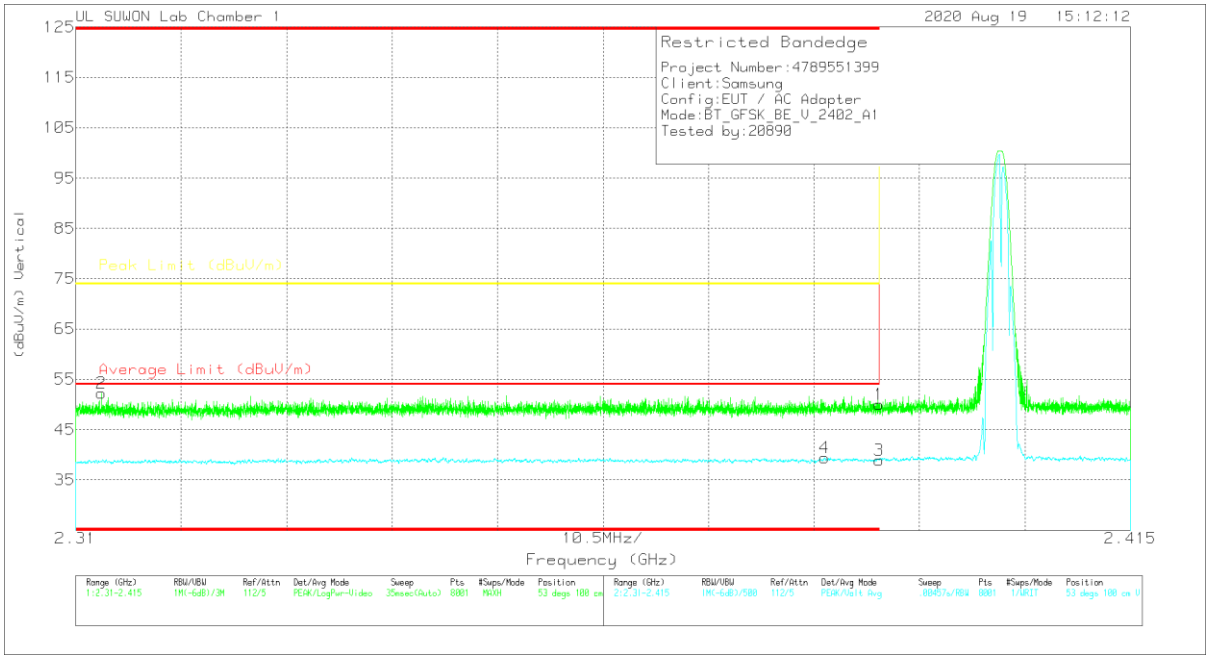
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	43.37	Pk	32.1	-25.5	49.97	-	-	74	-24.03	53	100	V
2	* 2.31255	45.95	Pk	31.9	-25.6	52.25	-	-	74	-21.75	53	100	V
3	* 2.39	32.32	VA1T	32.1	-25.5	38.92	54	-15.08	-	-	53	100	V
4	* 2.38456	32.84	VA1T	32.1	-25.5	39.44	54	-14.56	-	-	53	100	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

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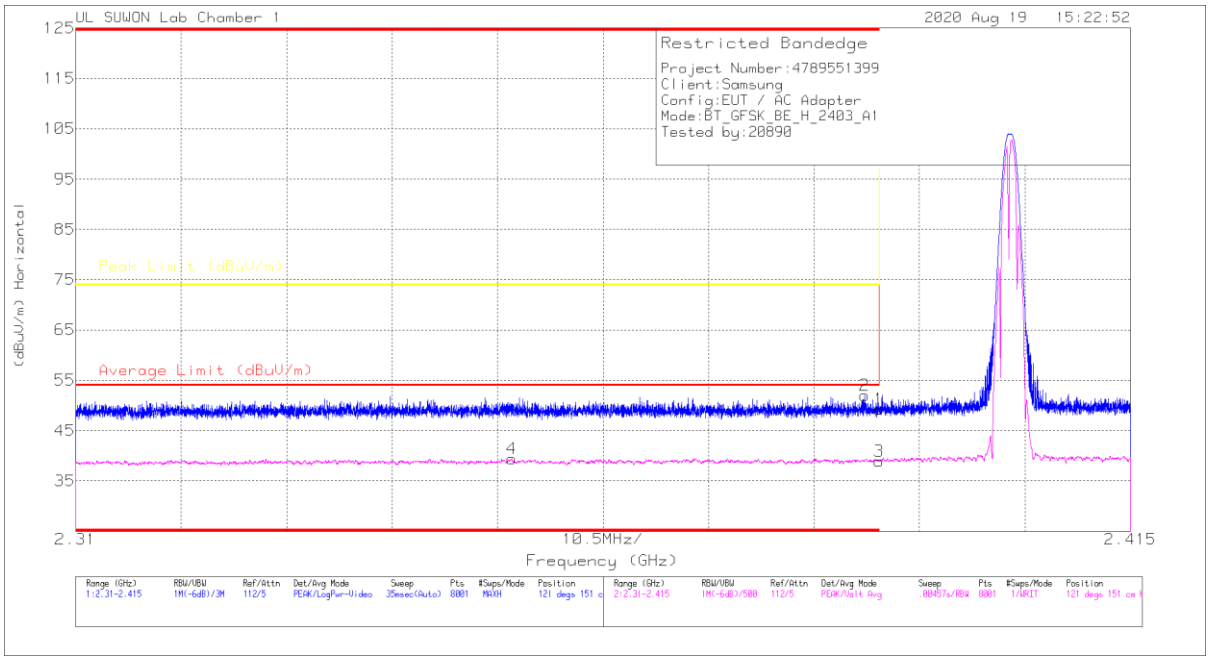
Antenna 2 BANDEDGE (1 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.64	Pk	32.1	-25.5	49.24	-	-	74	-24.76	121	151	H
2	* 2.38851	45.38	Pk	32.1	-25.5	51.98	-	-	74	-22.02	121	151	H
3	* 2.39	32.32	VA1T	32.1	-25.5	38.92	54	-15.08	-	-	121	151	H
4	* 2.35339	32.91	VA1T	32	-25.5	39.41	54	-14.59	-	-	121	151	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

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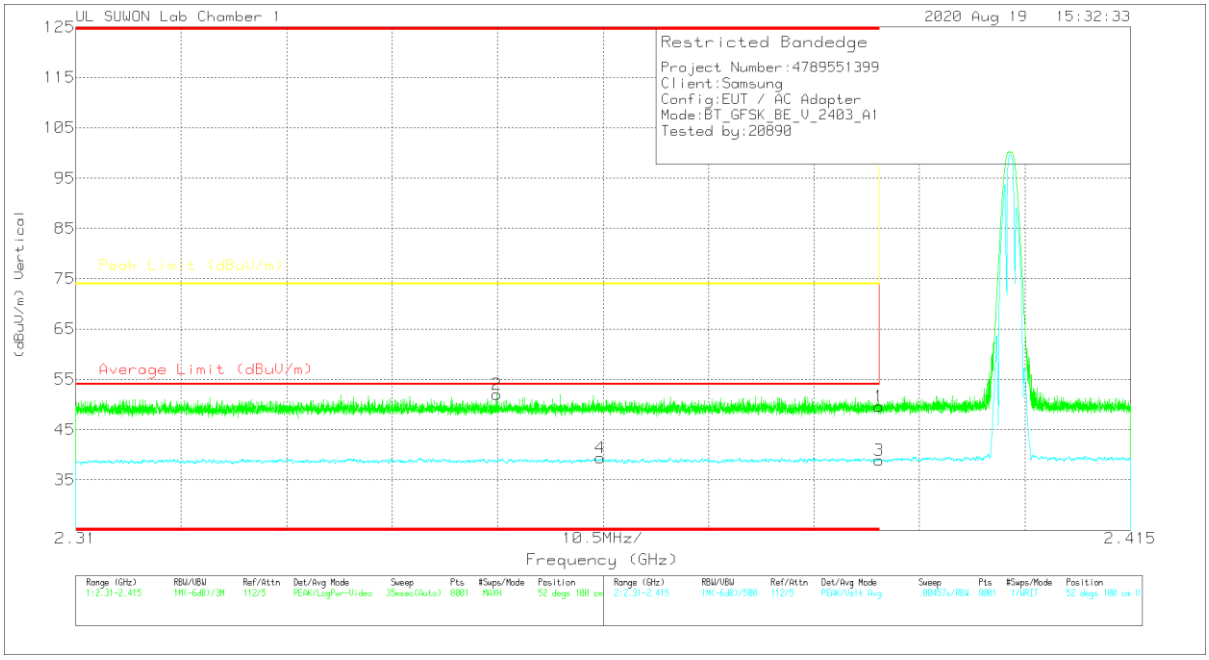
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	43.03	Pk	32.1	-25.5	49.63	-	-	74	-24.37	52	100	V
2	* 2.35192	45.62	Pk	32	-25.6	52.02	-	-	74	-21.98	52	100	V
3	* 2.39	32.37	VA1T	32.1	-25.5	38.97	54	-15.03	-	-	52	100	V
4	* 2.3622	32.86	VA1T	32	-25.5	39.36	54	-14.64	-	-	52	100	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

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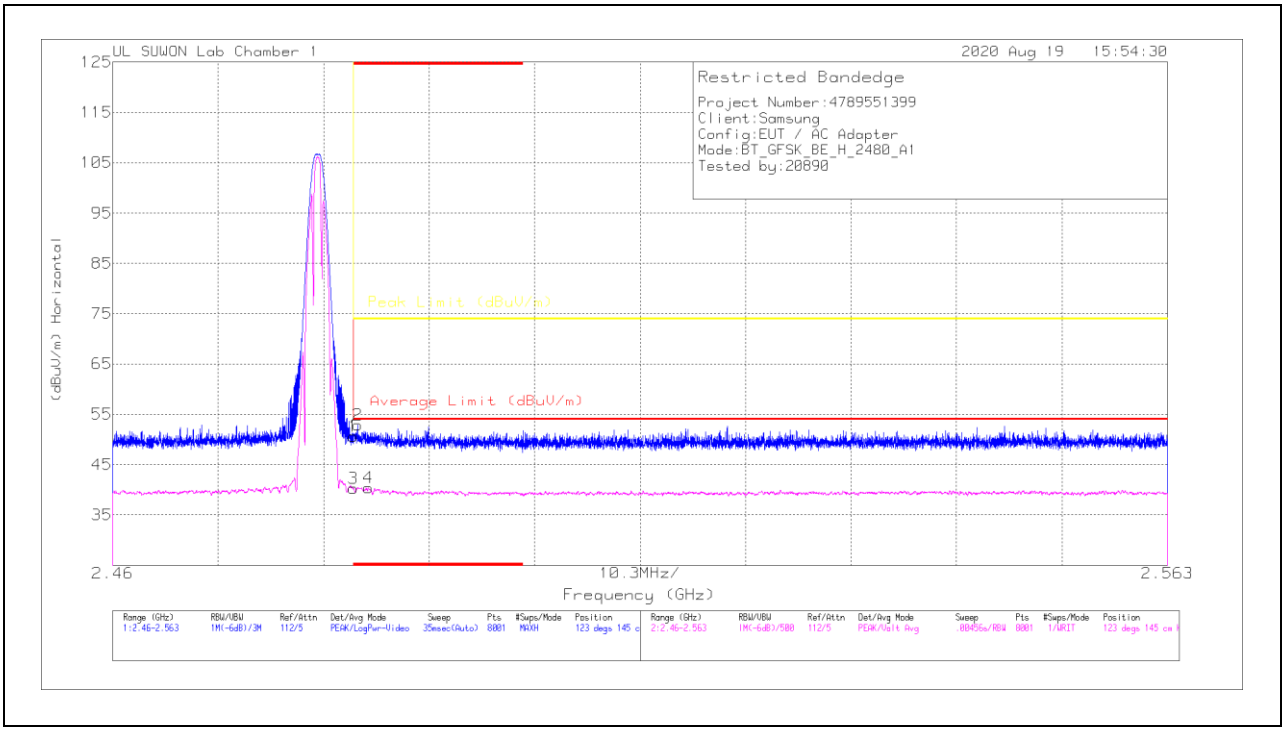
Antenna 2 BANDEDGE (78 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	43.58	Pk	32.2	-25.2	50.58	-	-	74	-23.42	123	145	H
2	* 2.48393	45.86	Pk	32.2	-25.2	52.86	-	-	74	-21.14	123	145	H
3	* 2.48351	33.31	VA1T	32.2	-25.2	40.31	54	-13.69	-	-	123	145	H
4	* 2.48496	33.41	VA1T	32.2	-25.2	40.41	54	-13.59	-	-	123	145	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

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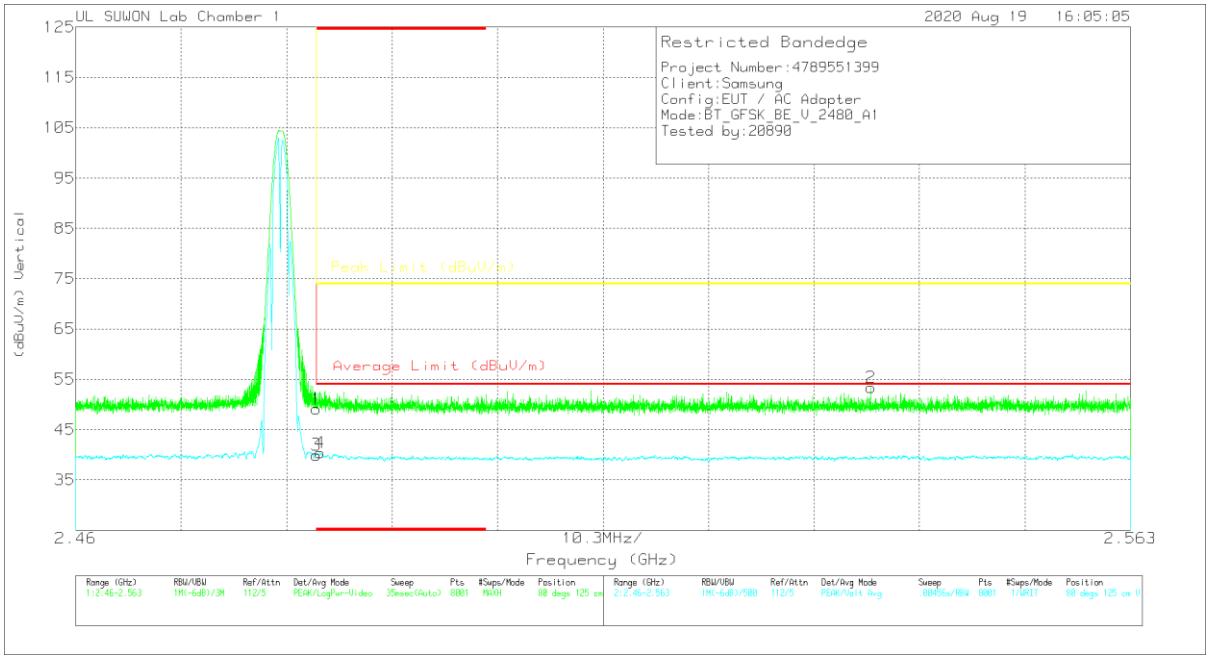
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	42.09	Pk	32.2	-25.2	49.09	-	-	74	-24.91	80	125	V
2	2.53765	46.28	Pk	32.3	-25.2	53.38	-	-	74	-20.62	80	125	V
3	* 2.48351	32.97	VA1T	32.2	-25.2	39.97	54	-14.03	-	-	80	125	V
4	* 2.48386	33.37	VA1T	32.2	-25.2	40.37	54	-13.63	-	-	80	125	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

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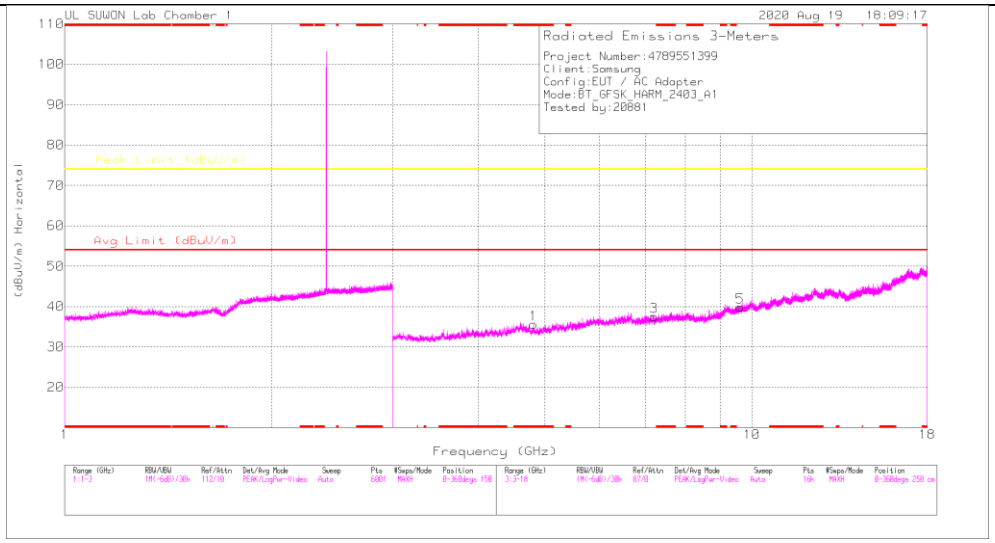
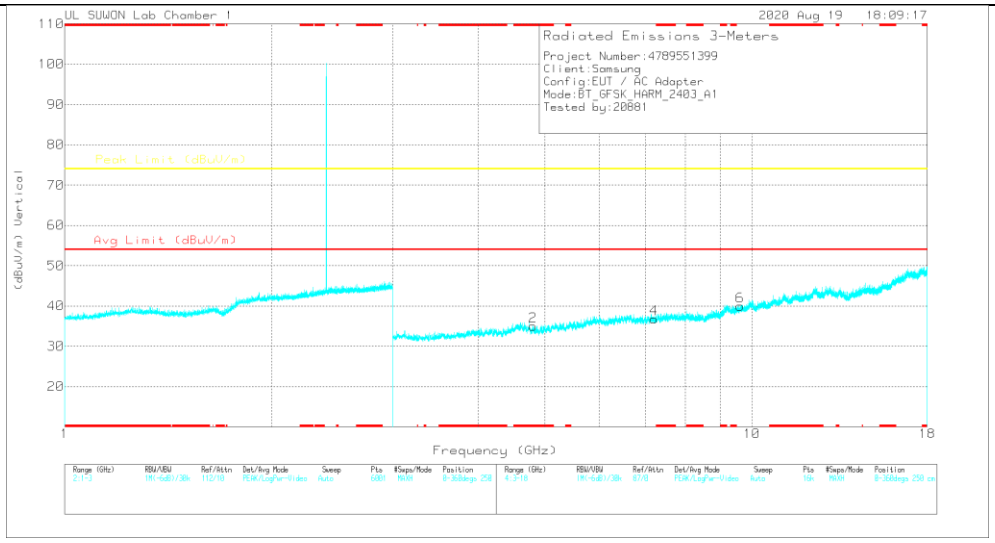
HARMONICS AND SPURIOUS EMISSIONS

Antenna 2 / 1 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.81356	40.18	PKFH	34.2	-31.7	42.68	-	-	74	-31.32	360	100	H
* 4.80697	40.12	PKFH	34.2	-31.6	42.72	-	-	74	-31.28	360	100	V
7.20771	35.99	PKFH	35.9	-27.9	43.99	-	-	74	-30.01	360	100	H
7.20807	35.85	PKFH	35.9	-27.9	43.85	-	-	74	-30.15	360	100	V
9.61207	32.71	PKFH	36.8	-23.2	46.31	-	-	74	-27.69	360	100	H
9.61161	32.92	PKFH	36.8	-23.2	46.52	-	-	74	-27.48	360	100	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

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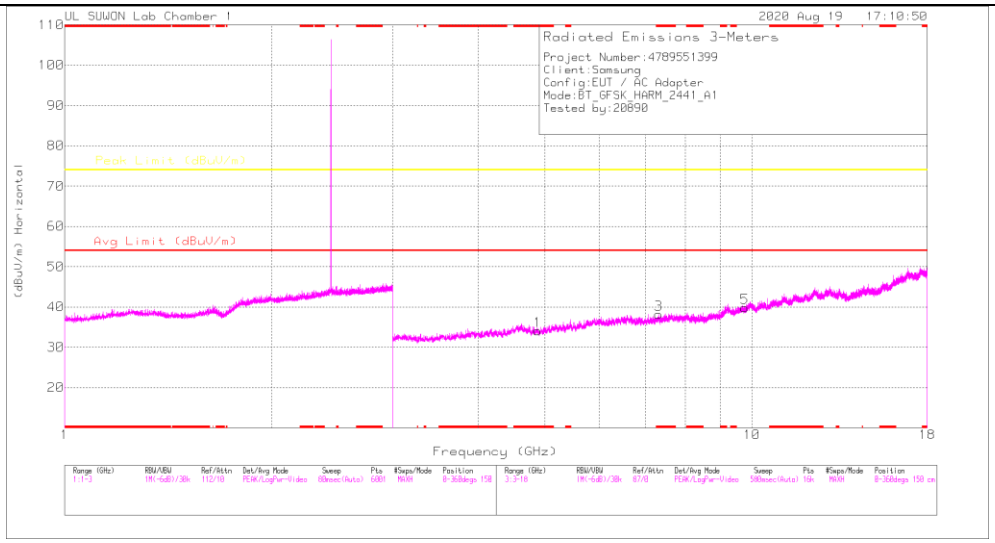
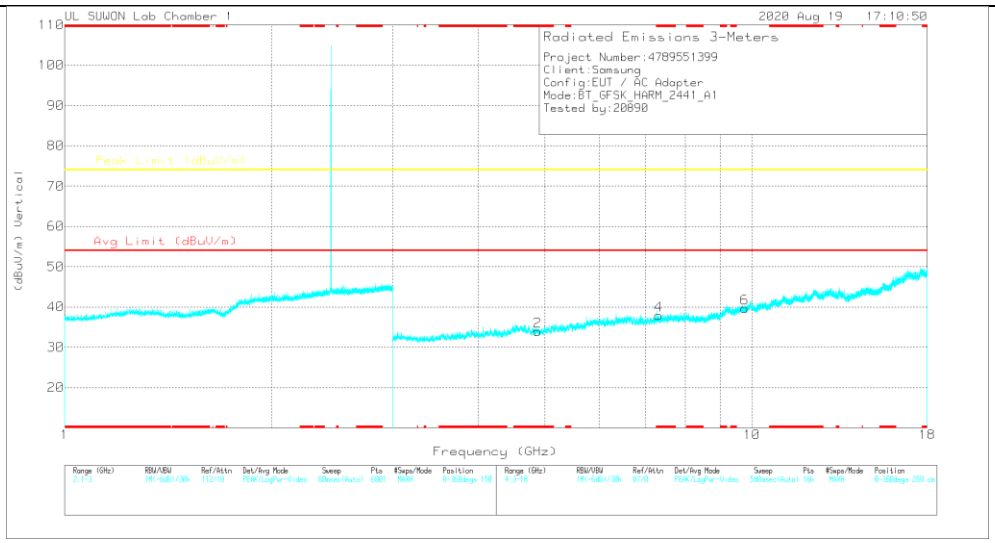
Antenna 2 / 39 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88072	39.8	PKFH	34.1	-31.6	42.3	-	-	74	-31.7	0	100	H
* 4.88173	39.36	PKFH	34.1	-31.6	41.86	-	-	74	-32.14	0	100	V
* 7.32399	35.57	PKFH	35.9	-27.2	44.27	-	-	74	-29.73	0	100	H
* 7.3213	37.33	PKFH	35.9	-27.2	46.03	-	-	74	-27.97	0	100	V
9.76559	33.15	PKFH	37	-23.9	46.25	-	-	74	-27.75	0	100	H
9.76598	33.29	PKFH	37	-23.9	46.39	-	-	74	-27.61	0	100	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

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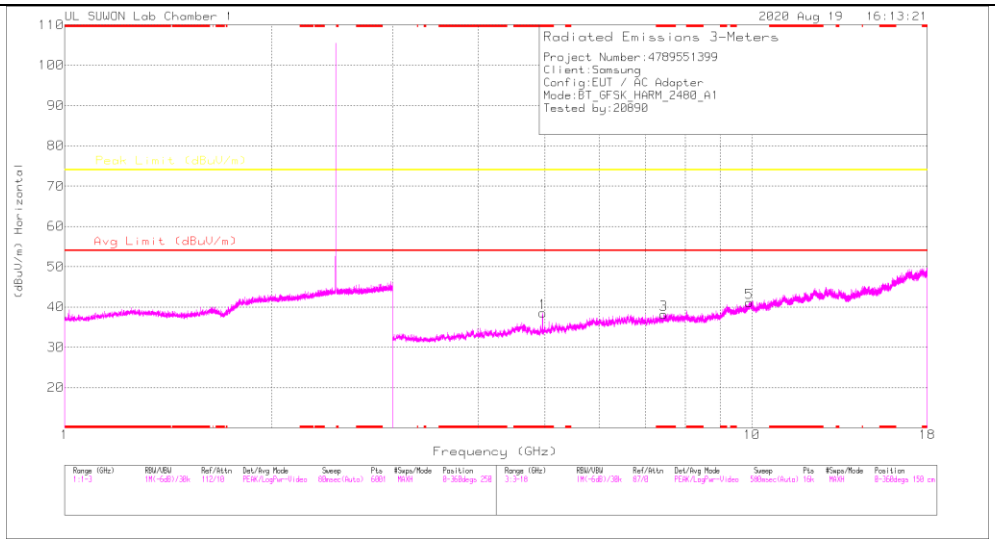
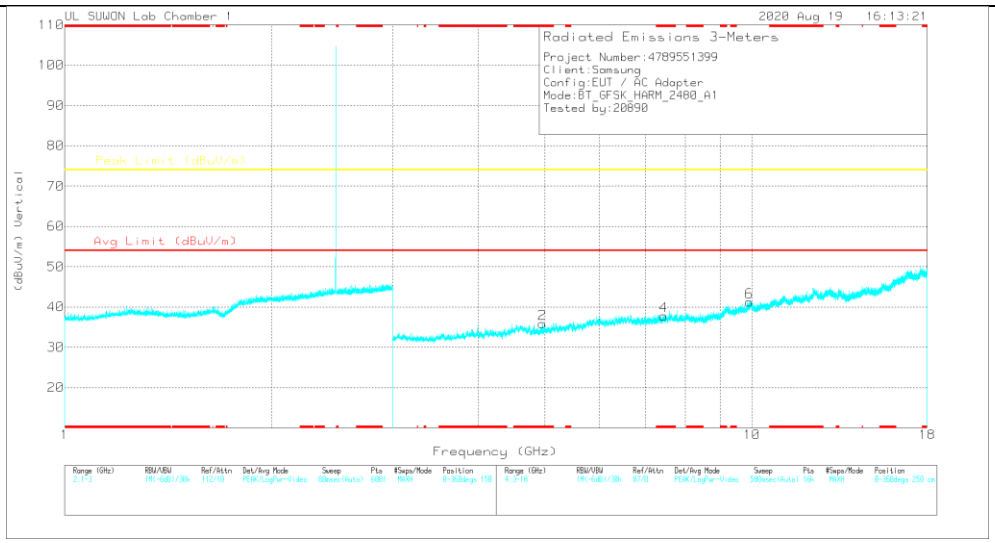
Antenna 2 / 78 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96009	41.71	PKFH	34.1	-31.6	44.21	-	-	74	-29.79	111	247	H
* 4.96001	34.97	VA1T	34.1	-31.6	37.47	54	-16.53	-	-	111	247	H
* 4.96005	40.55	PKFH	34.1	-31.6	43.05	-	-	74	-30.95	93	143	V
* 4.96007	31.77	VA1T	34.1	-31.6	34.27	54	-19.73	-	-	93	143	V
* 7.43949	36.16	PKFH	35.9	-27.1	44.96	-	-	74	-29.04	0	100	H
* 7.45114	37.49	PKFH	35.9	-27	46.39	-	-	74	-27.61	0	100	V
9.91423	32.7	PKFH	37.2	-22.1	47.8	-	-	74	-26.2	0	100	H
9.91522	32.3	PKFH	37.2	-22.1	47.4	-	-	74	-26.6	0	100	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

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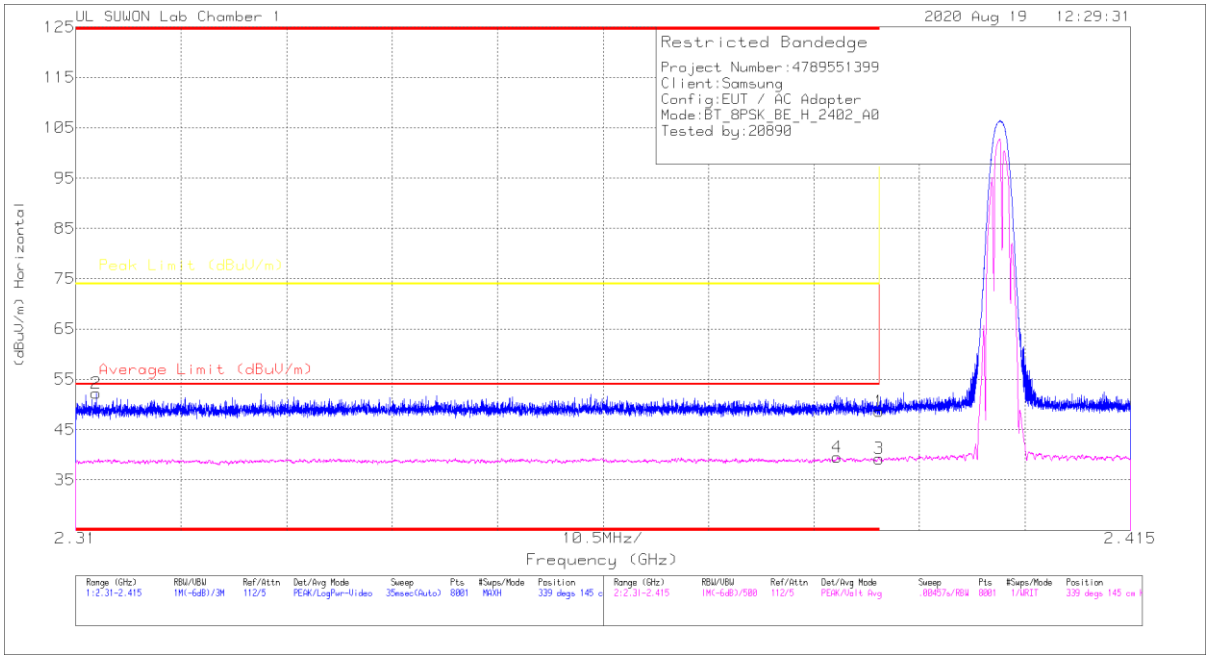
10.1.2. BLUETOOTH ENHANCED DATA RATE 8PSK MODULATION

Antenna 1 / BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	41.99	Pk	32.1	-25.5	48.59	-	-	74	-25.41	339	145	H
2	* 2.31202	46.04	Pk	31.8	-25.6	52.24	-	-	74	-21.76	339	145	H
3	* 2.39	32.63	VA1T	32.1	-25.5	39.23	54	-14.77	-	-	339	145	H
4	* 2.38582	32.94	VA1T	32.1	-25.5	39.54	54	-14.46	-	-	339	145	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

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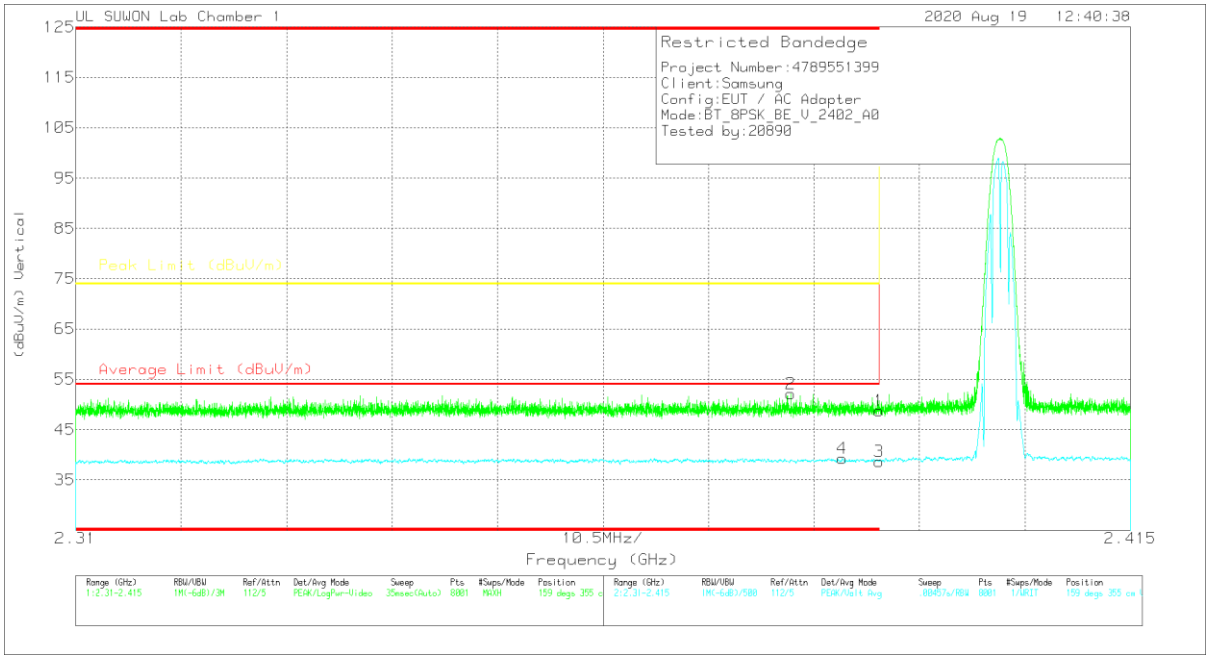
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.21	Pk	32.1	-25.5	48.81	-	-	74	-25.19	159	355	V
2	* 2.38118	45.59	Pk	32.1	-25.6	52.09	-	-	74	-21.91	159	355	V
3	* 2.39	32.1	VA1T	32.1	-25.5	38.7	54	-15.3	-	-	159	355	V
4	* 2.38631	32.69	VA1T	32.1	-25.5	39.29	54	-14.71	-	-	159	355	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

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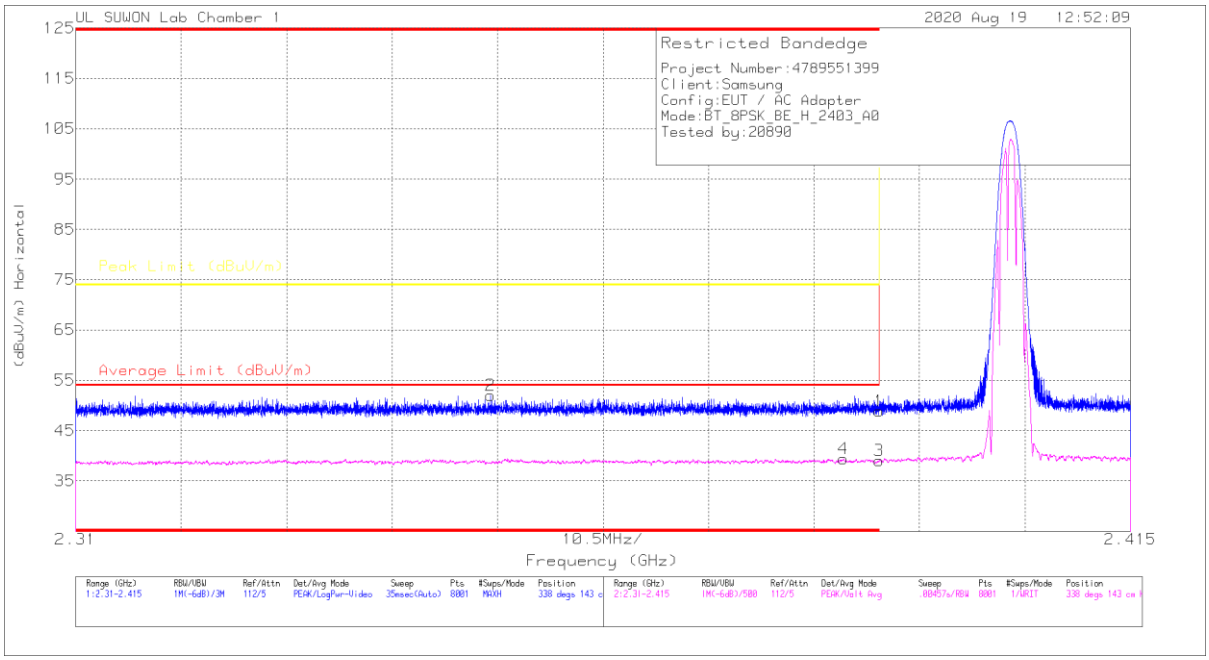
Antenna 1 / BANDEDGE (1 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.27	Pk	32.1	-25.5	48.87	-	-	74	-25.13	338	143	H
2	* 2.35128	45.75	Pk	32	-25.7	52.05	-	-	74	-21.95	338	143	H
3	* 2.39	32.48	VA1T	32.1	-25.5	39.08	54	-14.92	-	-	338	143	H
4	* 2.38641	32.77	VA1T	32.1	-25.5	39.37	54	-14.63	-	-	338	143	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

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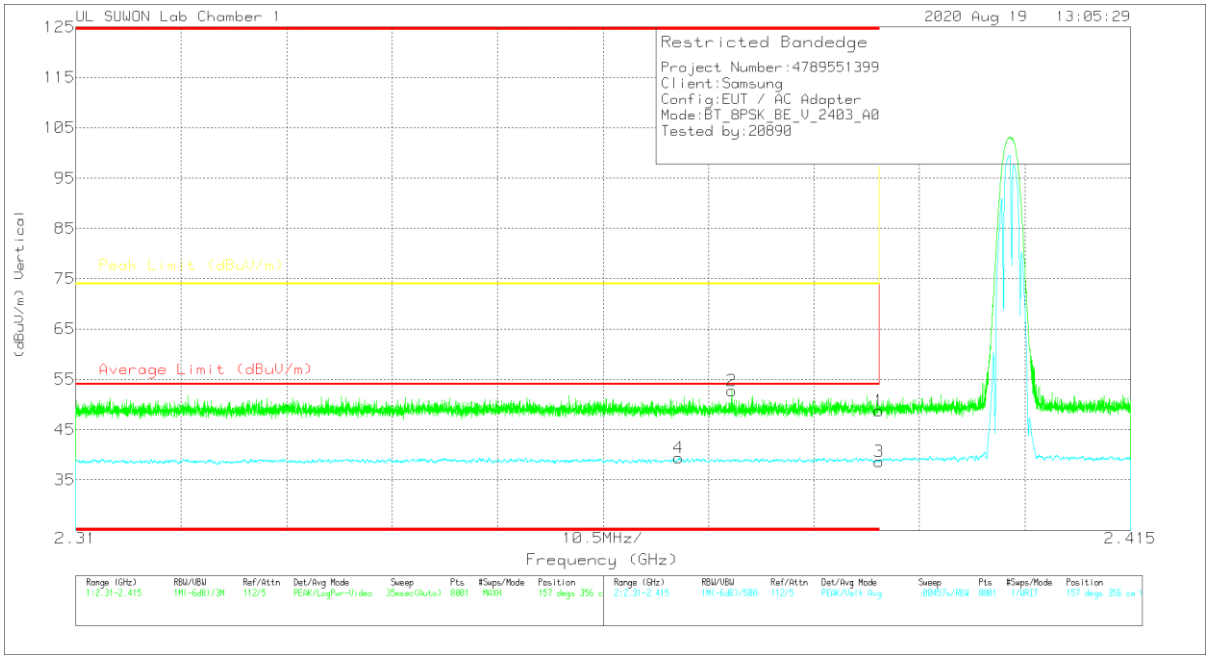
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.16	Pk	32.1	-25.5	48.76	-	-	74	-25.24	157	356	V
2	* 2.37534	46.23	Pk	32.1	-25.6	52.73	-	-	74	-21.27	157	356	V
3	* 2.39	32.11	VA1T	32.1	-25.5	38.71	54	-15.29	-	-	157	356	V
4	* 2.37003	32.92	VA1T	32	-25.5	39.42	54	-14.58	-	-	157	356	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

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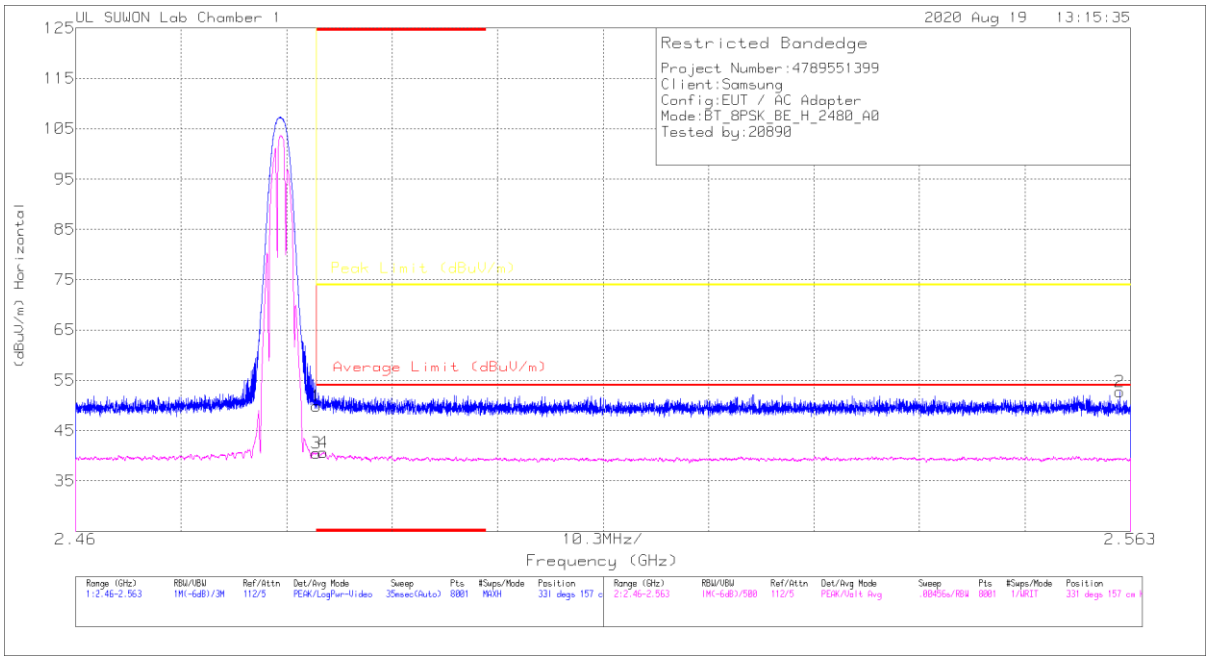
Antenna 1 / BANDEDGE (78 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	42.88	Pk	32.2	-25.2	49.88	-	-	74	-24.12	331	157	H
2	2.56194	45.59	Pk	32.3	-25.1	52.79	-	-	74	-21.21	331	157	H
3	* 2.48351	33.49	VA1T	32.2	-25.2	40.49	54	-13.51	-	-	331	157	H
4	* 2.48419	33.55	VA1T	32.2	-25.1	40.65	54	-13.35	-	-	331	157	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

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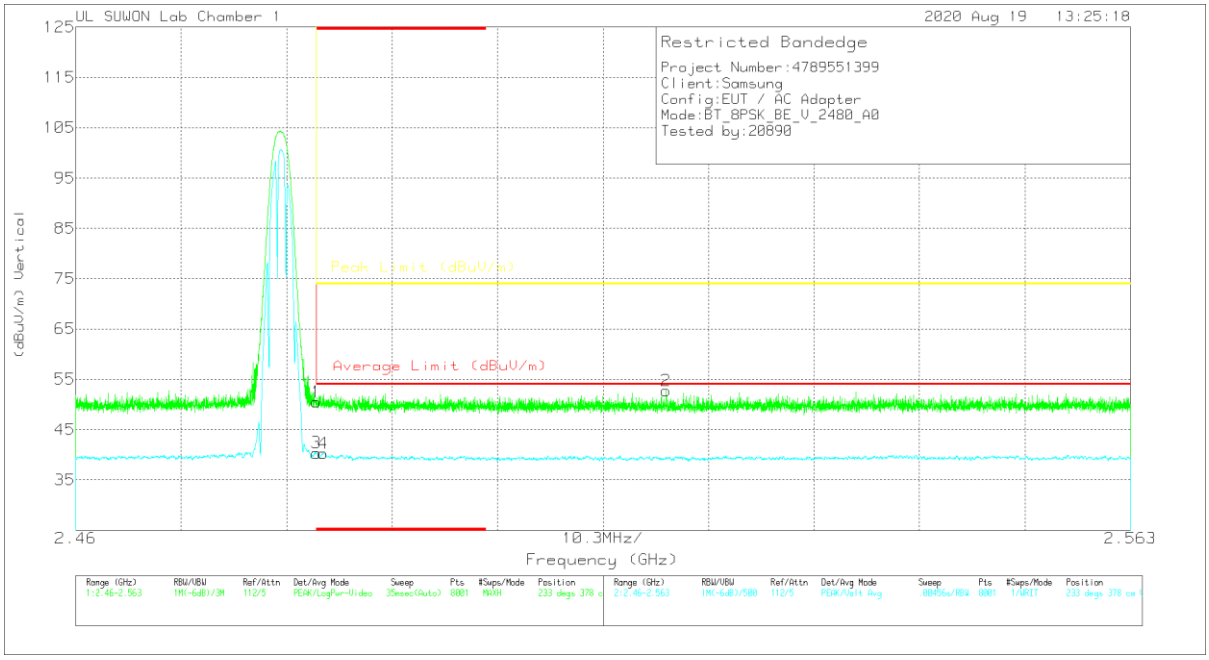
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	43.51	Pk	32.2	-25.2	50.51	-	-	74	-23.49	233	378	V
2	2.51767	45.7	Pk	32.2	-25.2	52.7	-	-	74	-21.3	233	378	V
3	* 2.48351	33.35	VA1T	32.2	-25.2	40.35	54	-13.65	-	-	233	378	V
4	* 2.48418	33.24	VA1T	32.2	-25.1	40.34	54	-13.66	-	-	233	378	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

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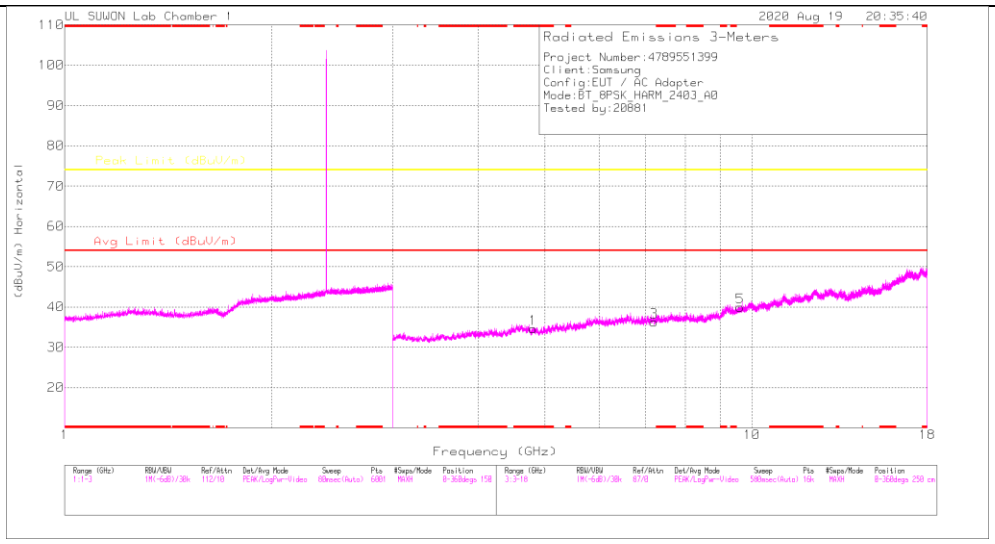
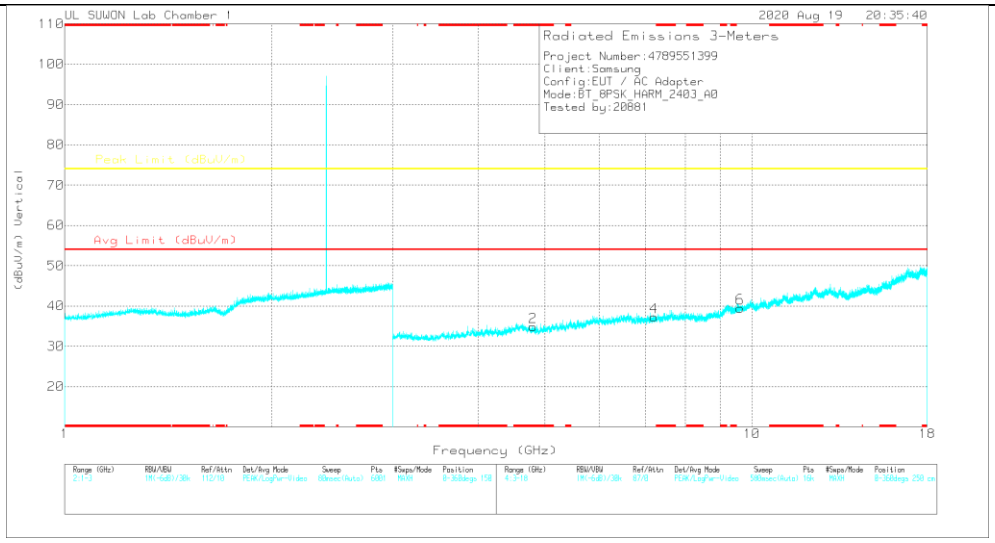
HARMONICS AND SPURIOUS EMISSIONS

Antenna 1 / 1 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80621	39.3	PKFH	34.2	-31.5	42	-	-	74	-32	360	100	H
* 4.80456	39.66	PKFH	34.2	-31.5	42.36	-	-	74	-31.64	360	100	V
7.2077	35.66	PKFH	35.9	-27.9	43.66	-	-	74	-30.34	360	100	H
7.2096	35.68	PKFH	35.9	-27.9	43.68	-	-	74	-30.32	360	100	V
9.61072	33.75	PKFH	36.8	-23.2	47.35	-	-	74	-26.65	360	100	H
9.61309	33.44	PKFH	36.8	-23.1	47.14	-	-	74	-26.86	360	100	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

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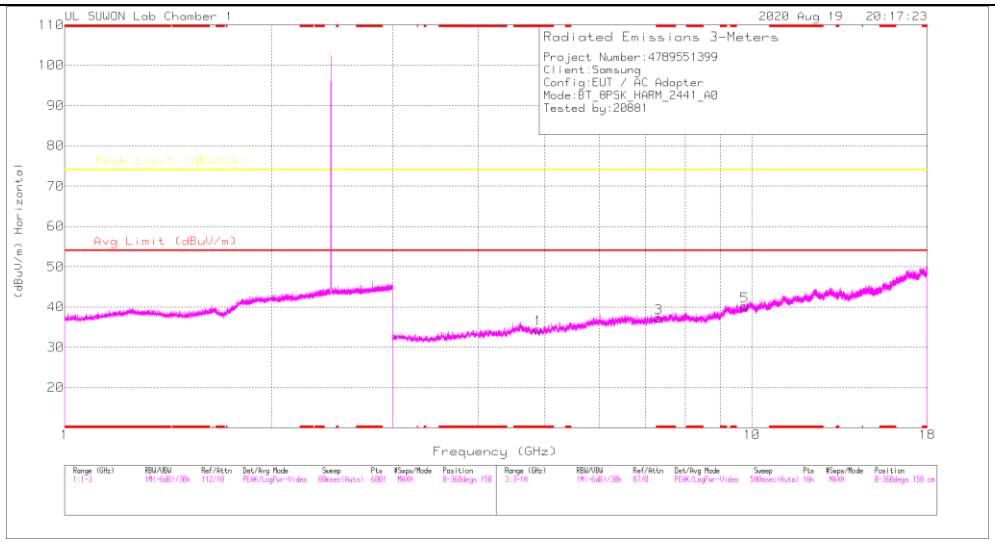
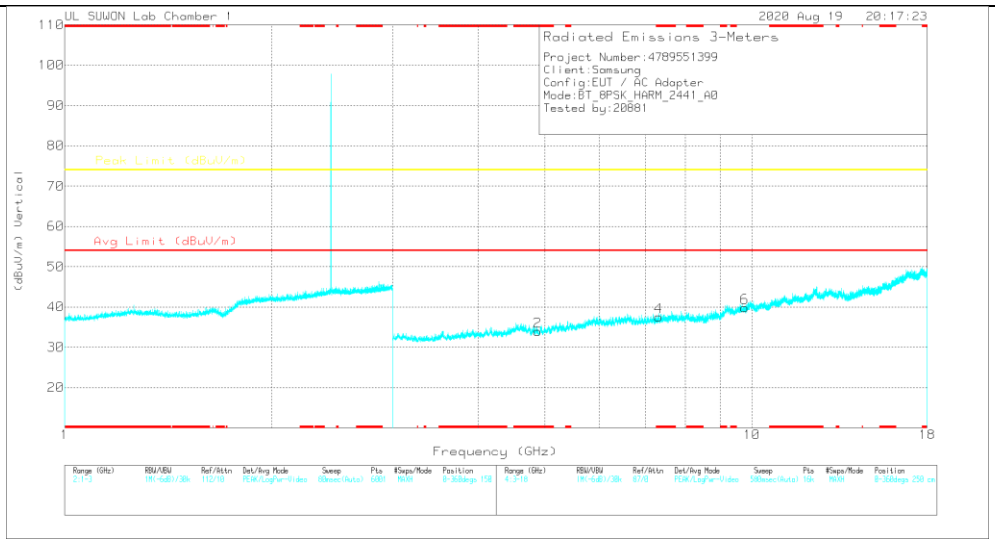
Antenna 1 / 39 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88767	39.07	PKFH	34.1	-31.7	41.47	-	-	74	-32.53	360	100	H
* 4.88018	39.28	PKFH	34.1	-31.7	41.68	-	-	74	-32.32	360	100	V
* 7.32465	36.1	PKFH	35.9	-27.3	44.7	-	-	74	-29.3	360	100	H
* 7.32135	35.88	PKFH	35.9	-27.2	44.58	-	-	74	-29.42	360	100	V
9.76551	33.17	PKFH	37	-23.9	46.27	-	-	74	-27.73	360	100	H
9.76468	33.13	PKFH	37	-23.9	46.23	-	-	74	-27.77	360	100	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

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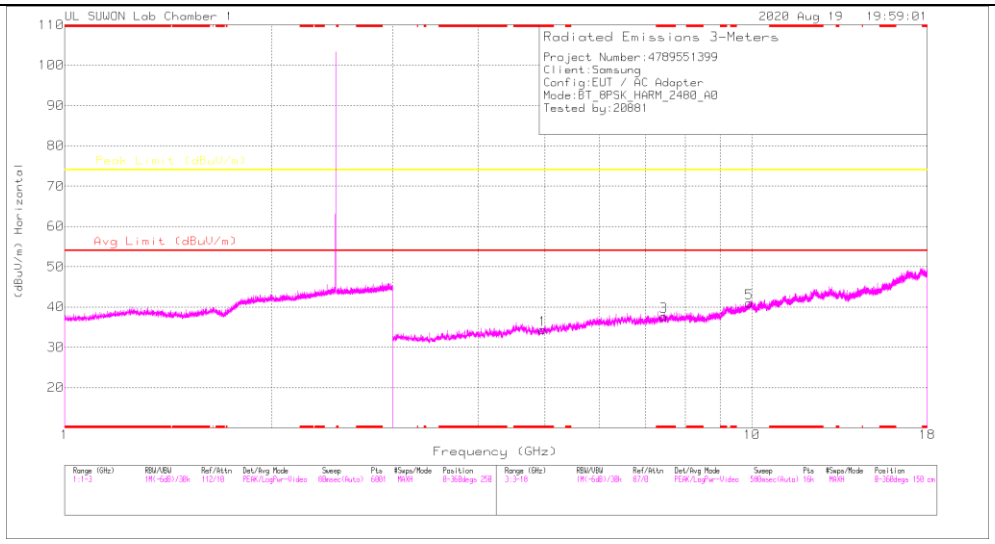
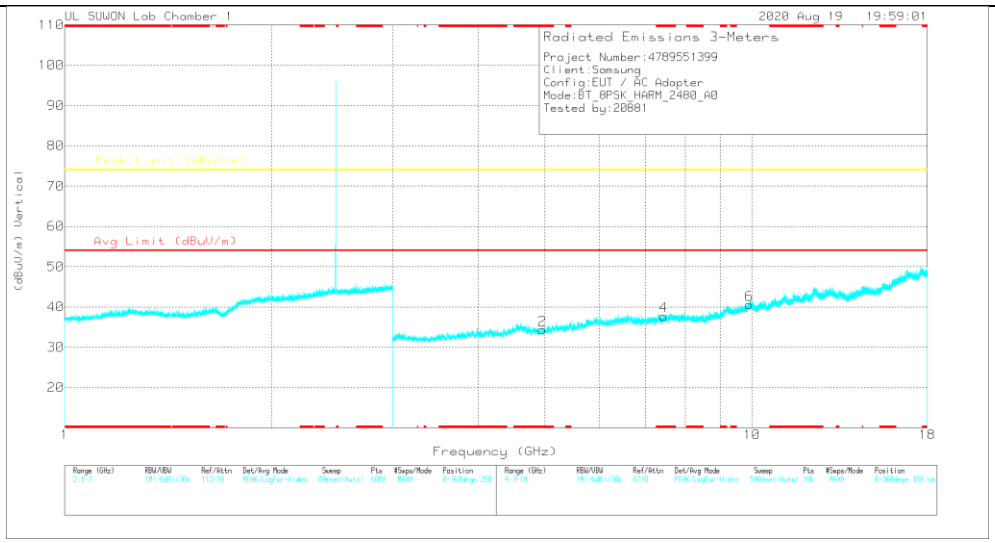
Antenna 1 / 78 CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96395	39.03	PKFH	34.1	-31.5	41.63	-	-	74	-32.37	360	100	H
* 4.95993	38.65	PKFH	34.1	-31.6	41.15	-	-	74	-32.85	360	100	V
* 7.43929	35.85	PKFH	35.9	-27.1	44.65	-	-	74	-29.35	360	100	H
* 7.44009	35.91	PKFH	35.9	-27.1	44.71	-	-	74	-29.29	360	100	V
9.92197	32.26	PKFH	37.2	-22	47.46	-	-	74	-26.54	360	100	H
9.92104	32.04	PKFH	37.2	-22	47.24	-	-	74	-26.76	360	100	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

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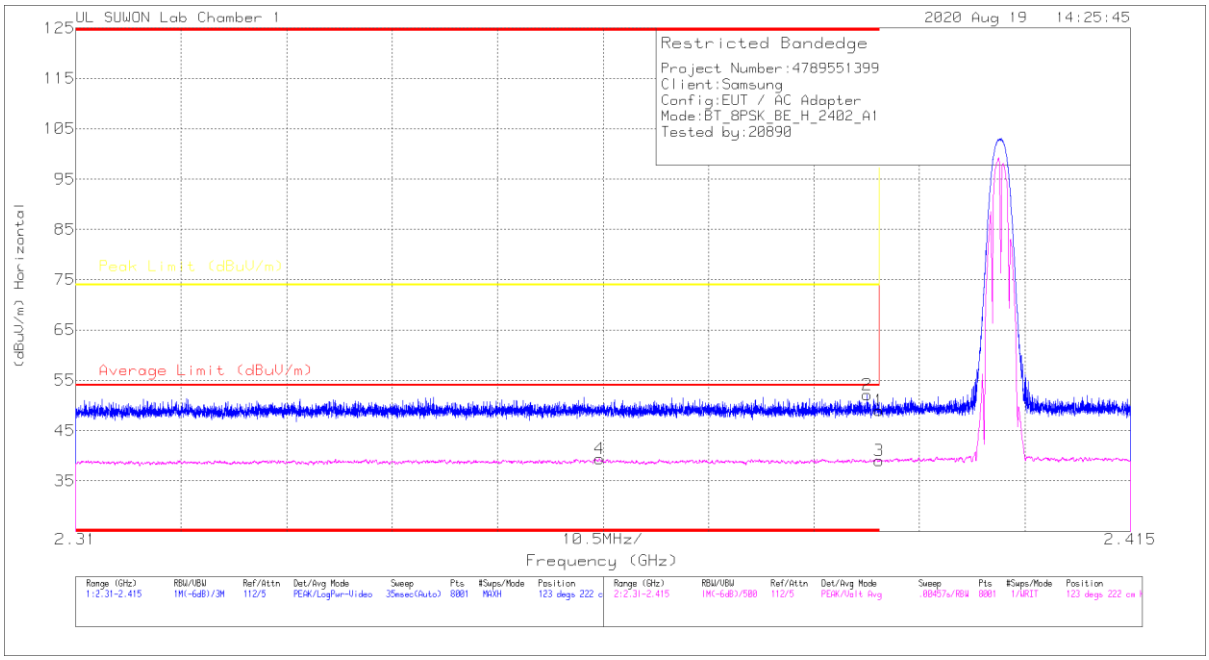
Antenna 2 / BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.43	Pk	32.1	-25.5	49.03	-	-	74	-24.97	123	222	H
2	* 2.38878	45.59	Pk	32.1	-25.6	52.09	-	-	74	-21.91	123	222	H
3	* 2.39	32.49	VA1T	32.1	-25.5	39.09	54	-14.91	-	-	123	222	H
4	* 2.36213	32.9	VA1T	32	-25.5	39.4	54	-14.6	-	-	123	222	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

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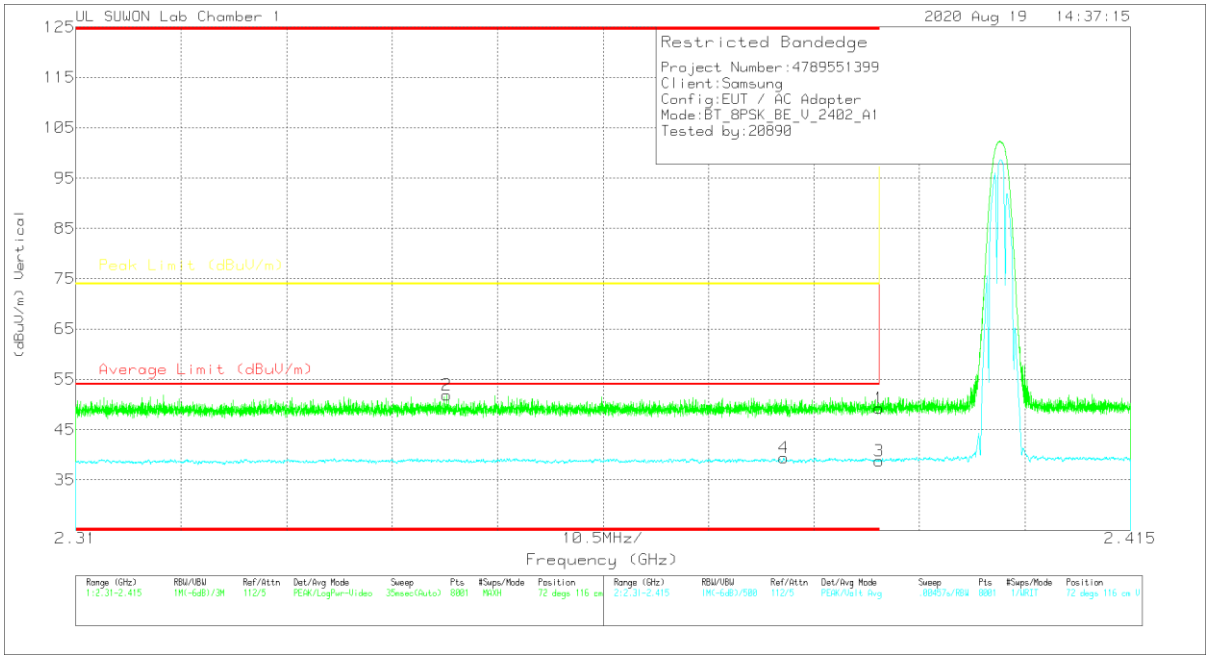
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	42.64	Pk	32.1	-25.5	49.24	-	-	74	-24.76	72	116	V
2	* 2.34692	45.51	Pk	32	-25.6	51.91	-	-	74	-22.09	72	116	V
3	* 2.39	32.2	VA1T	32.1	-25.5	38.8	54	-15.2	-	-	72	116	V
4	* 2.38047	32.9	VA1T	32.1	-25.6	39.4	54	-14.6	-	-	72	116	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

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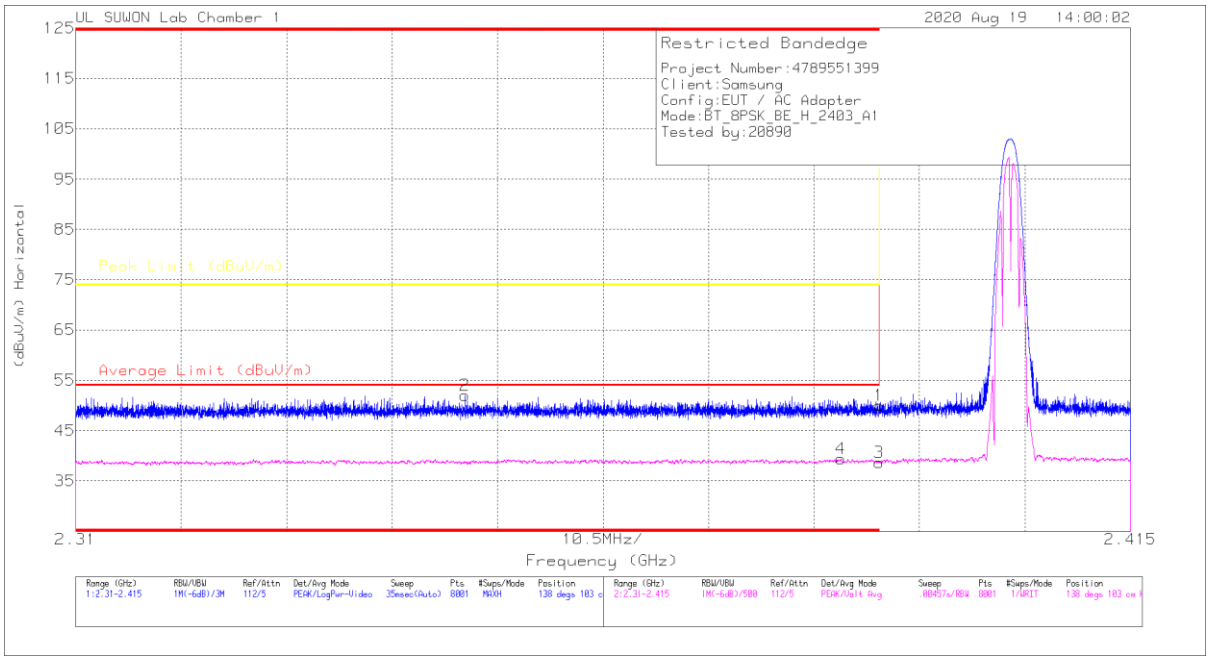
Antenna 2 / BANDEDGE (1 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	43.39	Pk	32.1	-25.5	49.99	-	-	74	-24.01	138	103	H
2	* 2.34873	45.73	Pk	32	-25.7	52.03	-	-	74	-21.97	138	103	H
3	* 2.39	32.01	VA1T	32.1	-25.5	38.61	54	-15.39	-	-	138	103	H
4	* 2.38618	32.85	VA1T	32.1	-25.5	39.45	54	-14.55	-	-	138	103	H

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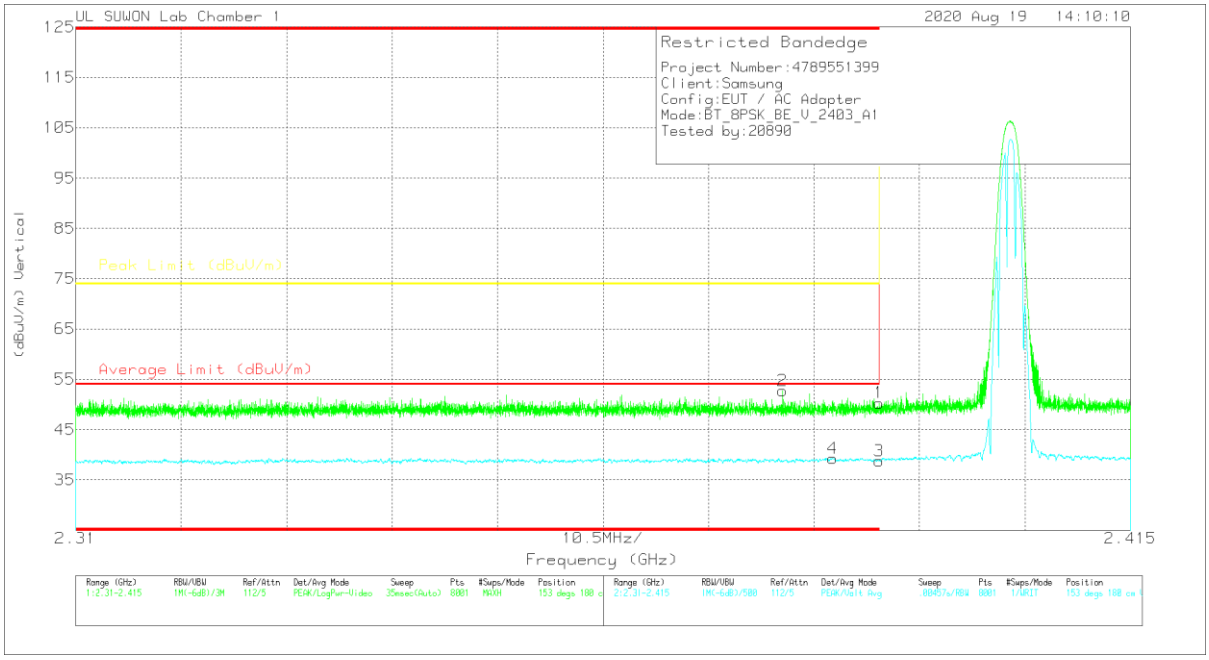
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[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	43.72	Pk	32.1	-25.5	50.32	-	-	74	-23.68	153	180	V
2	* 2.38039	46.21	Pk	32.1	-25.6	52.71	-	-	74	-21.29	153	180	V
3	* 2.39	32.17	VA1T	32.1	-25.5	38.77	54	-15.23	-	-	153	180	V
4	* 2.38536	32.74	VA1T	32.1	-25.5	39.34	54	-14.66	-	-	153	180	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

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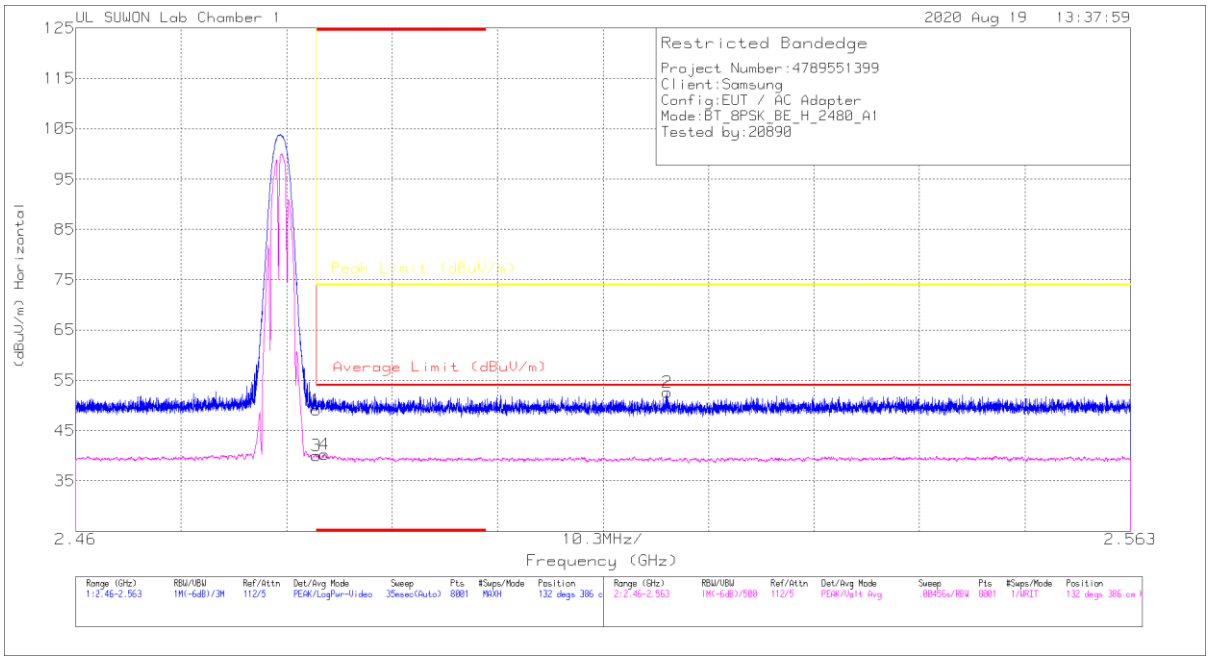
Antenna 2 / BANDEDGE (78 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	42.14	Pk	32.2	-25.2	49.14	-	-	74	-24.86	132	386	H
2	2.51778	45.57	Pk	32.2	-25.2	52.57	-	-	74	-21.43	132	386	H
3	* 2.48351	33.05	VA1T	32.2	-25.2	40.05	54	-13.95	-	-	132	386	H
4	* 2.48431	33.18	VA1T	32.2	-25.1	40.28	54	-13.72	-	-	132	386	H

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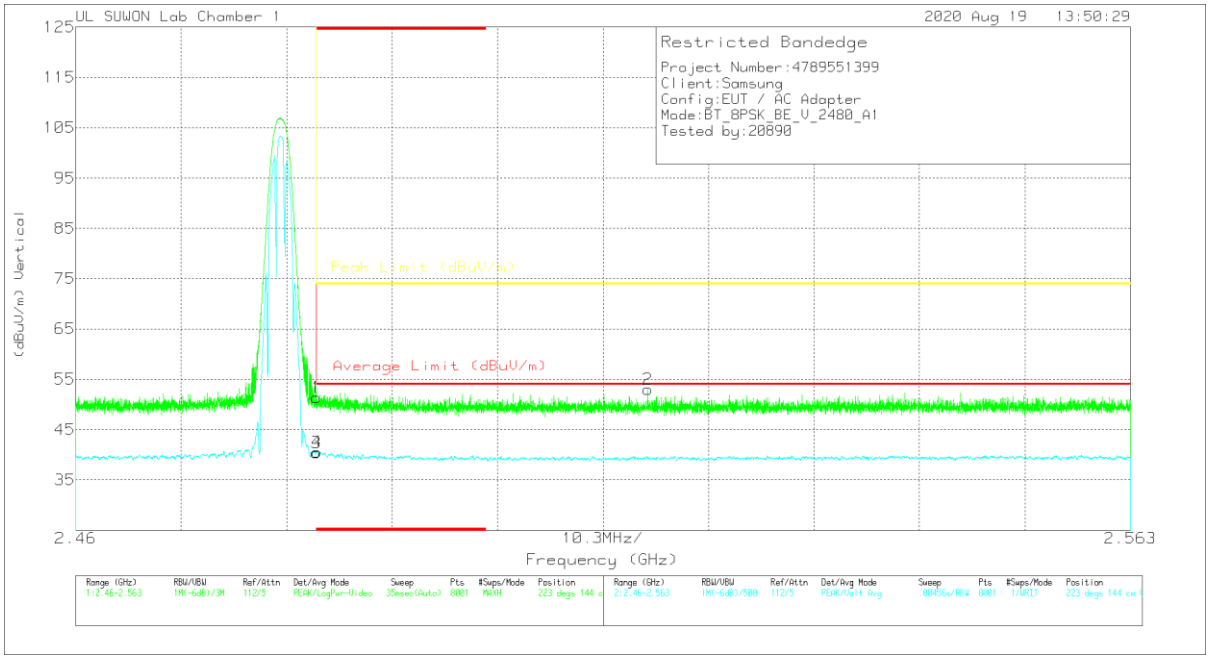
VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00218957	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	44.41	Pk	32.2	-25.2	51.41	-	-	74	-22.59	223	144	V
2	2.51586	46.01	Pk	32.2	-25.2	53.01	-	-	74	-20.99	223	144	V
3	* 2.48351	33.41	VA1T	32.2	-25.2	40.41	54	-13.59	-	-	223	144	V
4	* 2.48354	33.54	VA1T	32.2	-25.2	40.54	54	-13.46	-	-	223	144	V

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