

Appendix A

RF Test Data for BT(BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Karaoke Microphone

Trade Mark: N/A

Test Model: CT027

FCC ID: 2A2SJ-CT027

Environmental Conditions

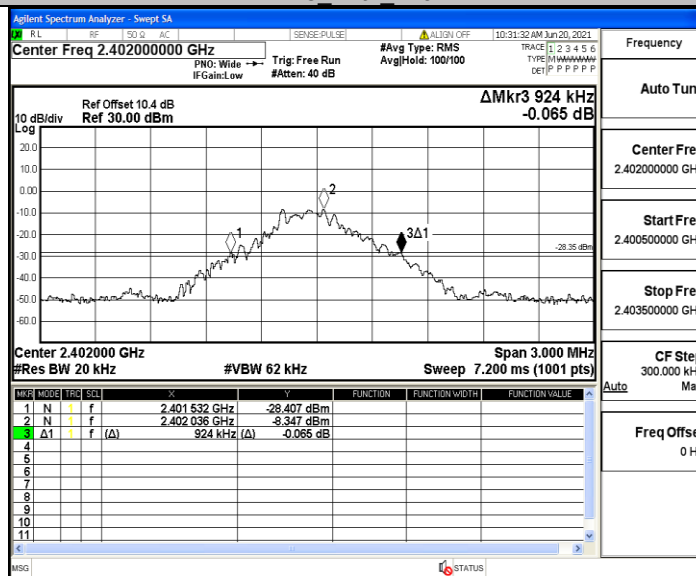
Temperature:	22.8° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen

A.1 20 dB Bandwidth

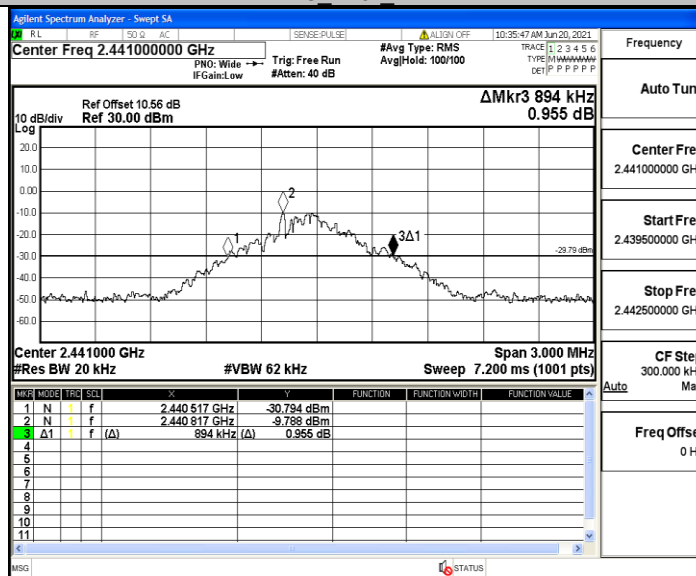
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.924	2401.532	2402.456	---	PASS
		2441	0.894	2440.517	2441.411	---	PASS
		2480	0.939	2479.517	2480.456	---	PASS
2DH5	Ant1	2402	1.371	2401.289	2402.660	---	PASS
		2441	1.332	2440.313	2441.645	---	PASS
		2480	1.335	2479.307	2480.642	---	PASS

Test Graph

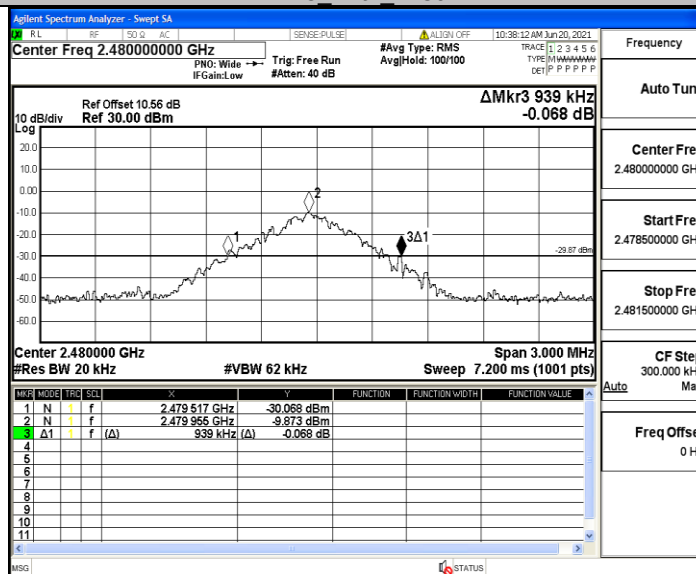
DH5_Ant1_2402



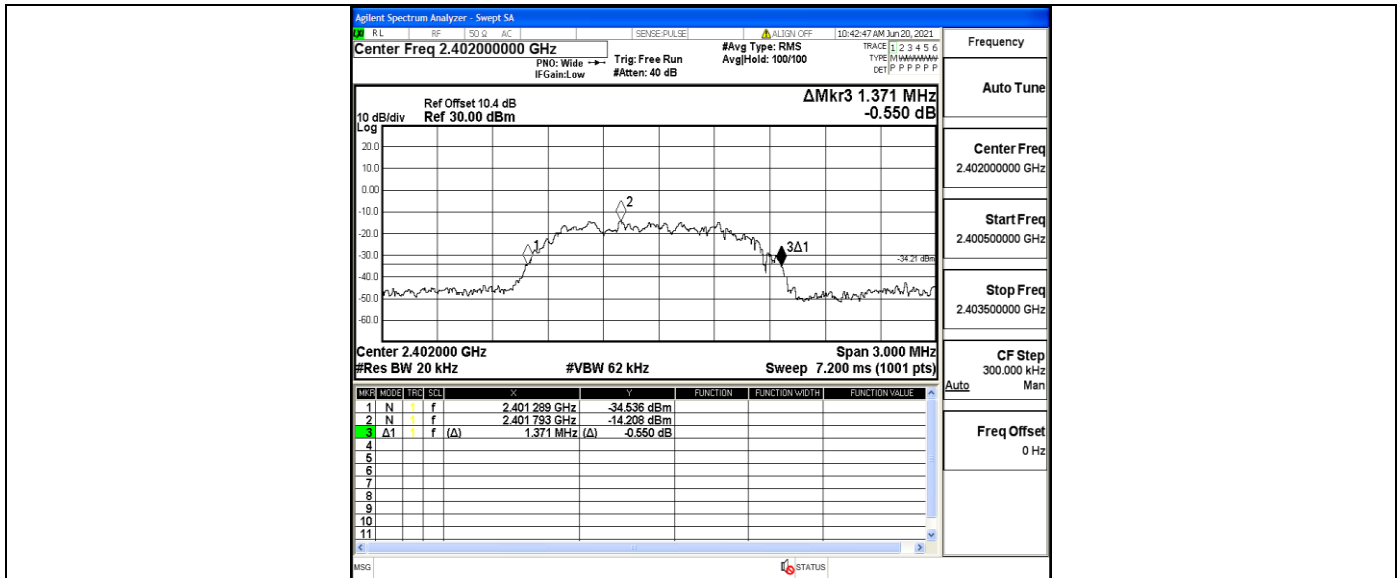
DH5_Ant1_2441



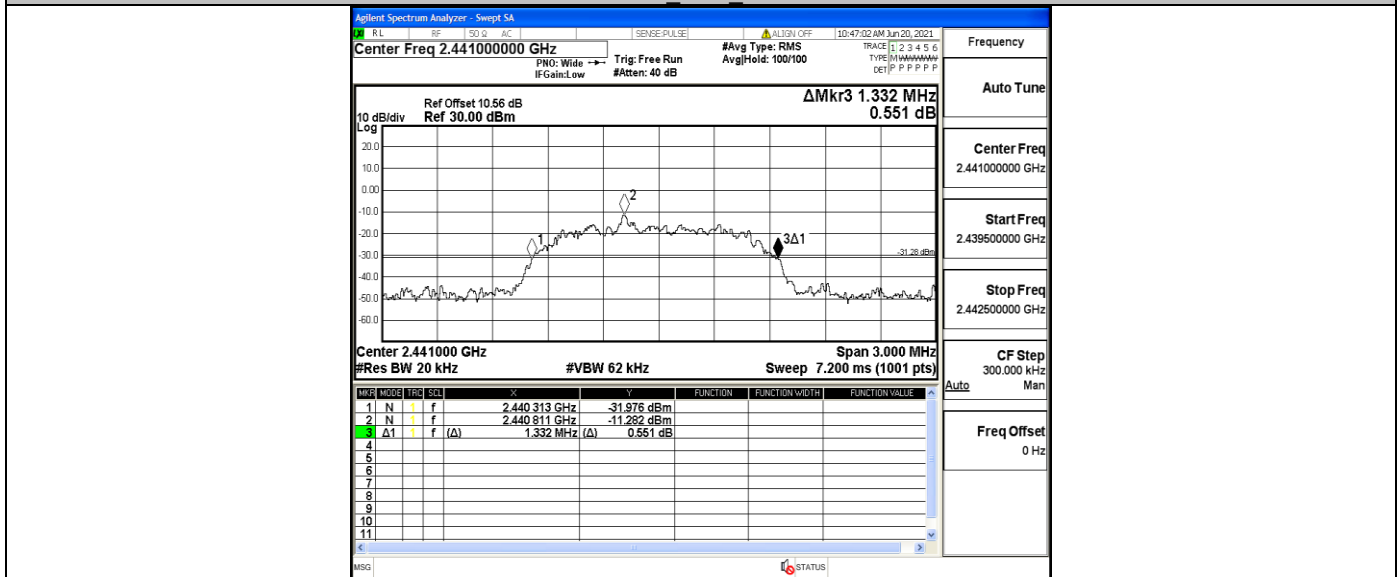
DH5_Ant1_2480



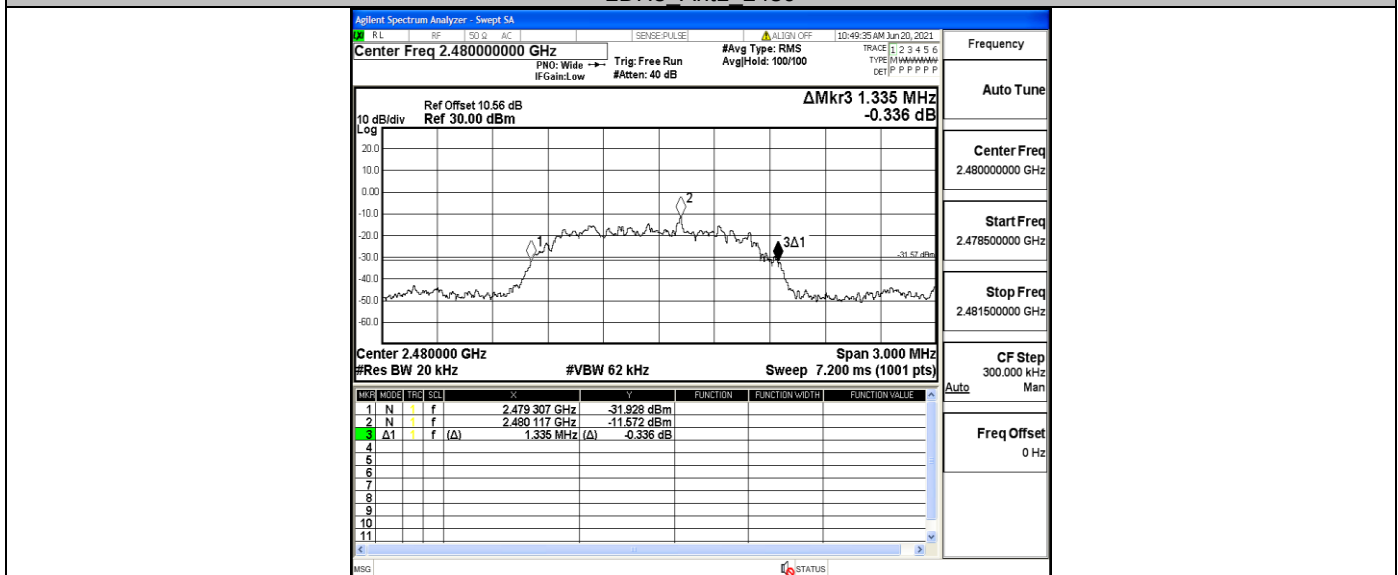
2DH5_Ant1_2402



2DH5 Ant1 2441



2DH5 Ant1 2480

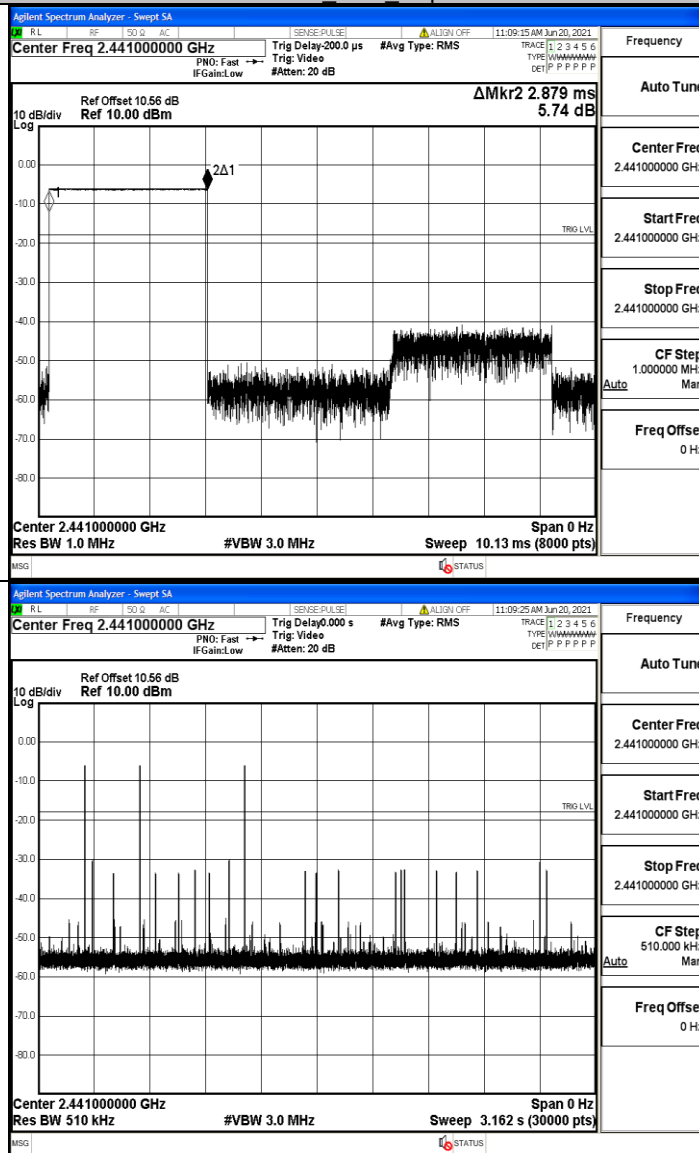


A.2 Dwell Time

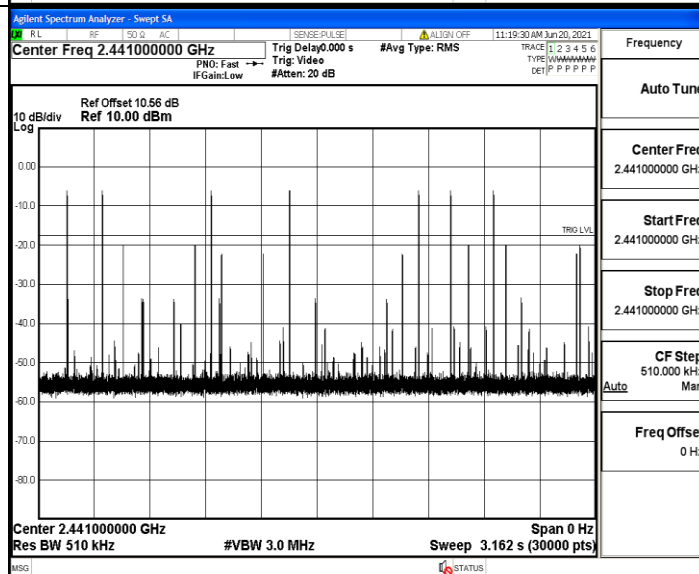
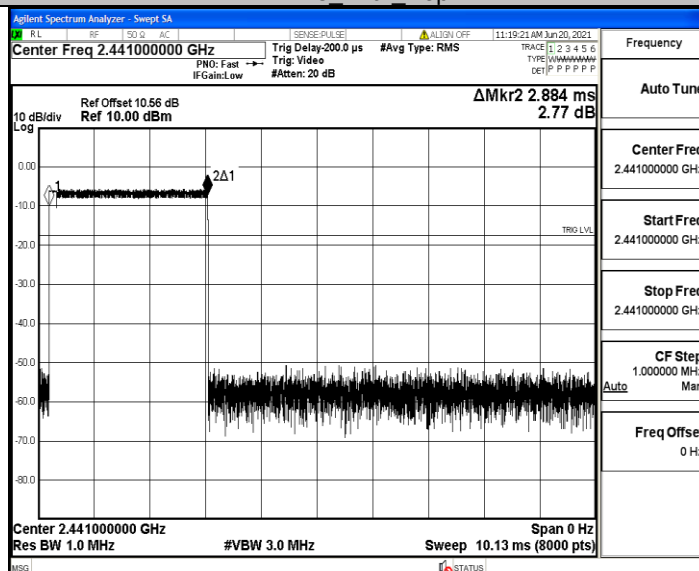
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.88	40	0.115	<=0.4	PASS
2DH5	Ant1	Hop	2.88	80	0.231	<=0.4	PASS

Test Graph

DH5_Ant1_Hop



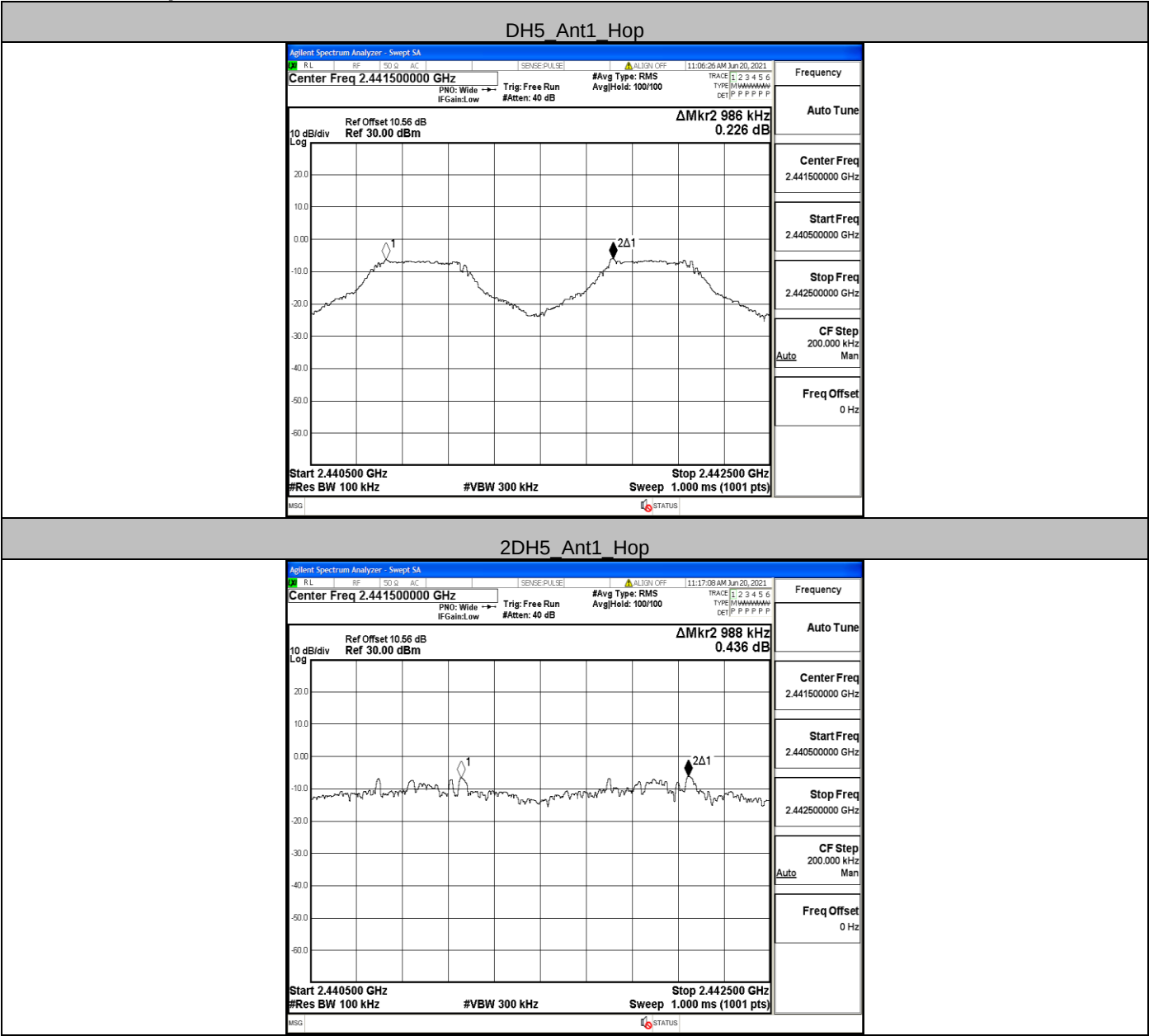
2DH5_Ant1_Hop



A.3 Carrier Frequency Separation

TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	0.986	≥ 0.939	PASS
2DH5	Ant1	Hop	0.988	≥ 0.914	PASS

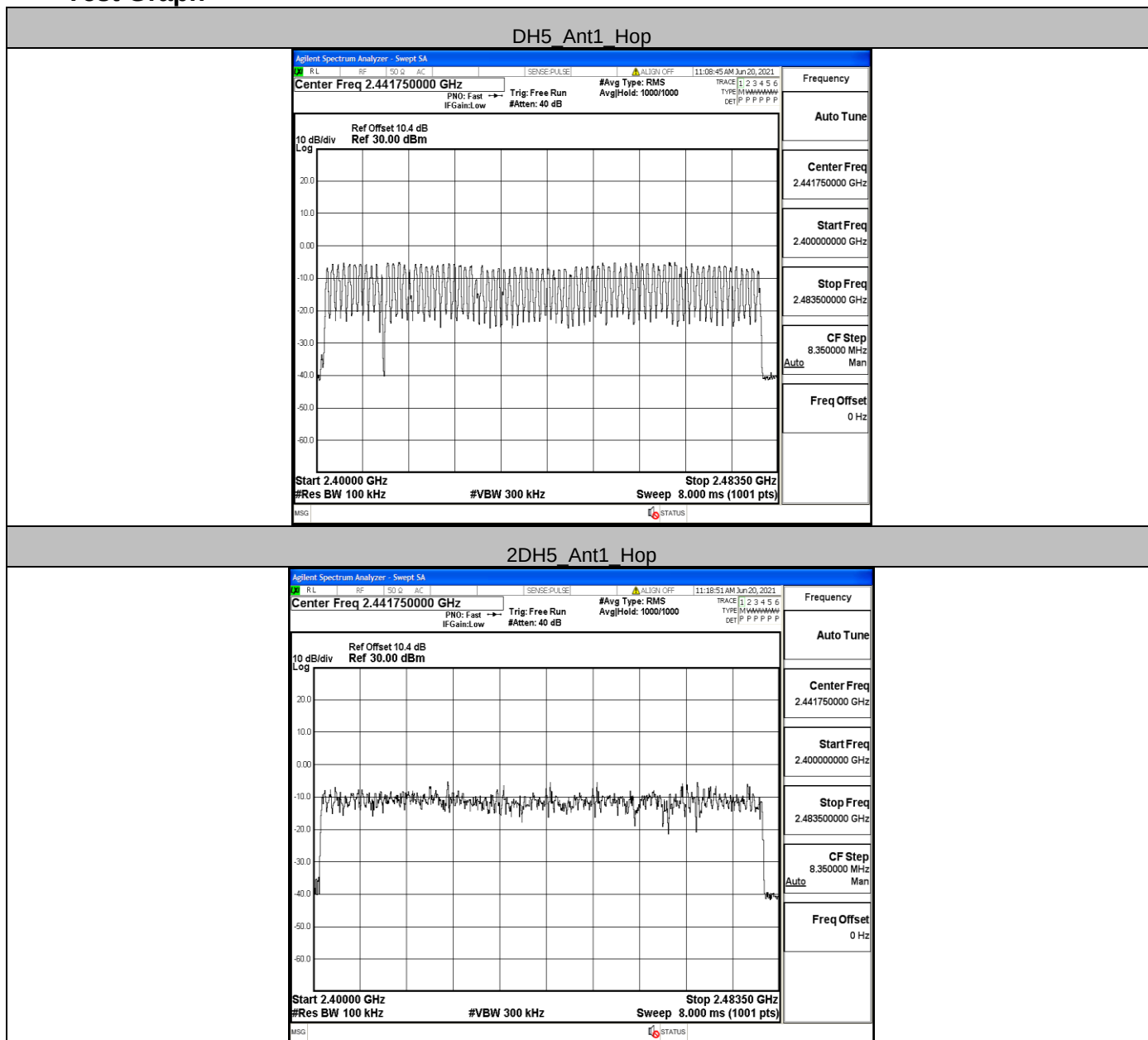
Test Graph



A.4 Hopping Channel Number

TestMode	Antenna	Channel	Result[Num]	Limit[Num]	Verdict
DH5	Ant1	Hop	79	>=15	PASS
2DH5	Ant1	Hop	79	>=15	PASS

Test Graph

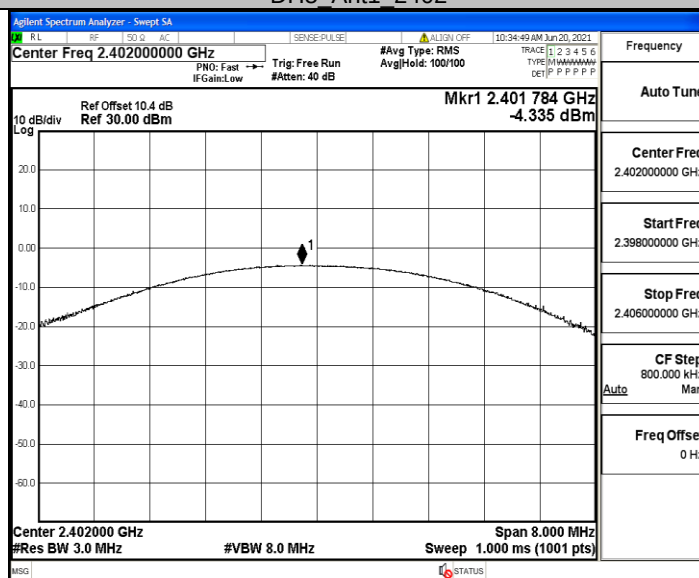


A.5 Conducted Peak Output Power

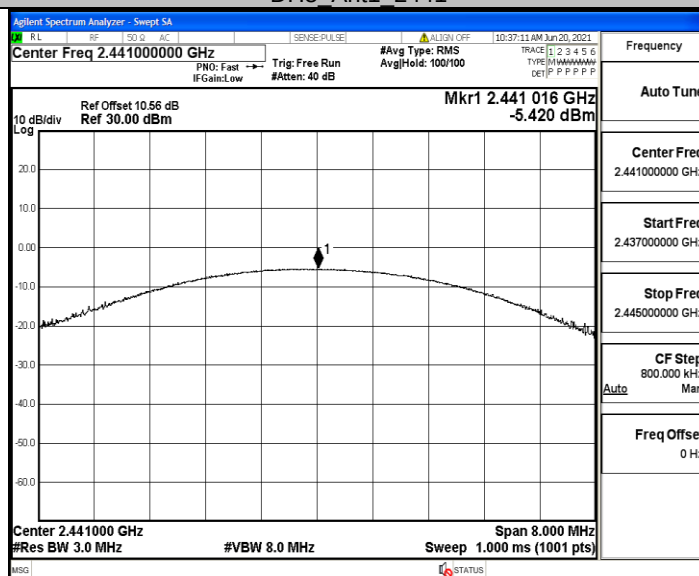
TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	-4.34	<=30	PASS
		2441	-5.42	<=30	PASS
		2480	-5.26	<=30	PASS
2DH5	Ant1	2402	-3.79	<=20.97	PASS
		2441	-4.74	<=20.97	PASS
		2480	-4.84	<=20.97	PASS

Test Graph

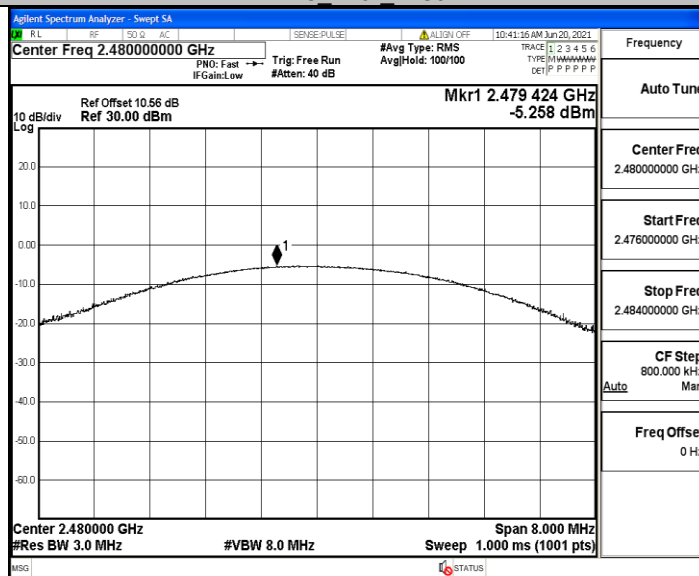
DH5_Ant1_2402



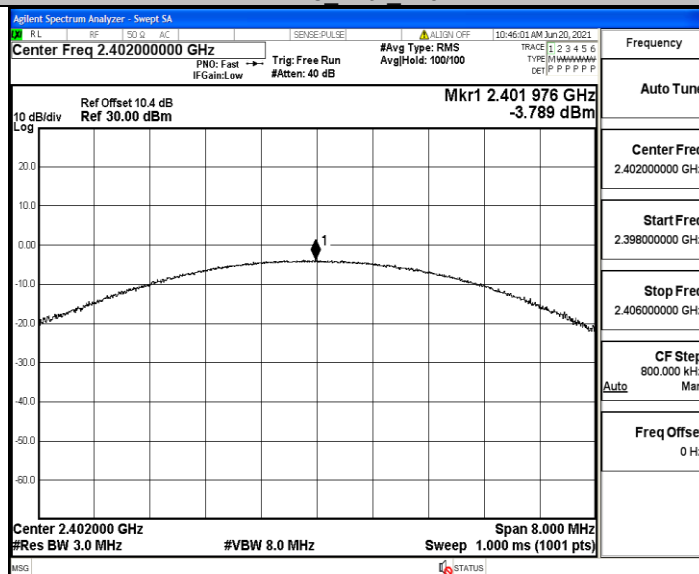
DH5_Ant1_2441



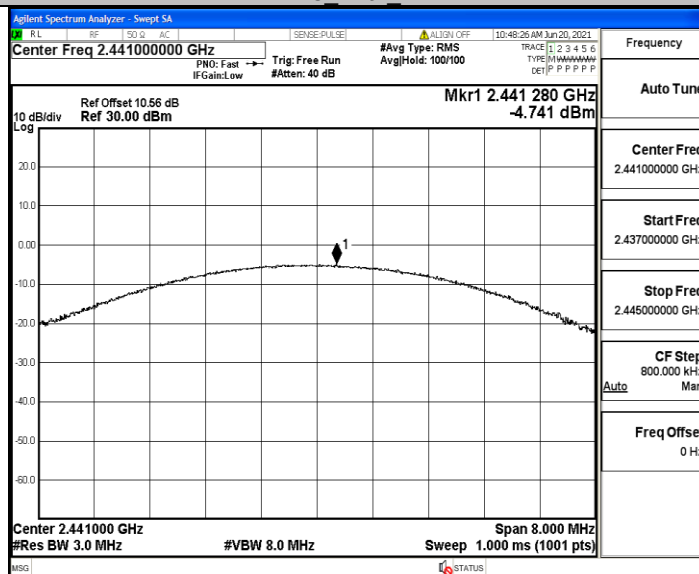
DH5_Ant1_2480

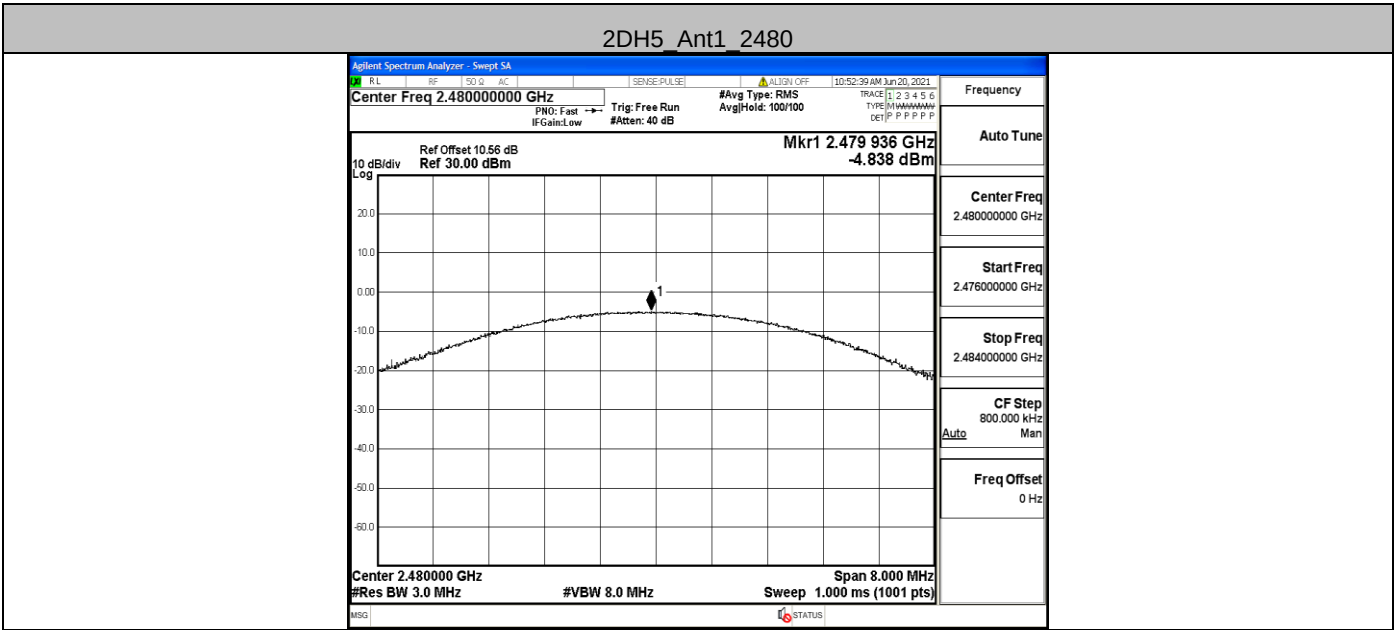


2DH5_Ant1_2402



2DH5_Ant1_2441



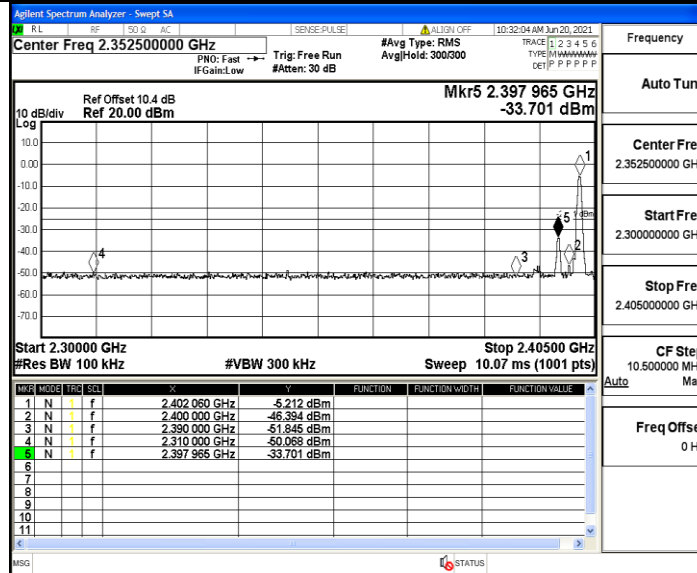


A.6 Band-edge for RF Conducted Emissions

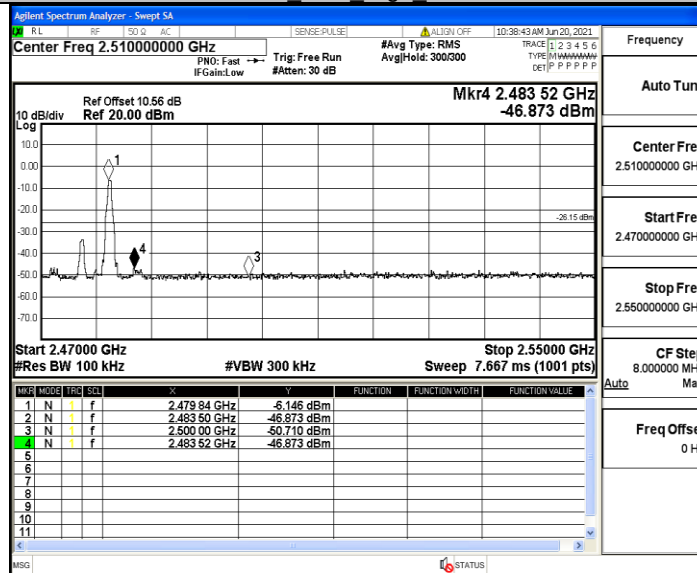
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-5.21	-33.7	<=-25.21	PASS
		High	2480	-6.15	-46.87	<=-26.15	PASS
		Low	Hop_2402	-5.43	-48.98	<=-25.43	PASS
		High	Hop_2480	-6.36	-47.22	<=-26.36	PASS
2DH5	Ant1	Low	2402	-7.68	-36.45	<=-27.68	PASS
		High	2480	-6.95	-48.22	<=-26.95	PASS
		Low	Hop_2402	-8.53	-48.47	<=-28.53	PASS
		High	Hop_2480	-7.35	-47.5	<=-27.35	PASS

Test Graph

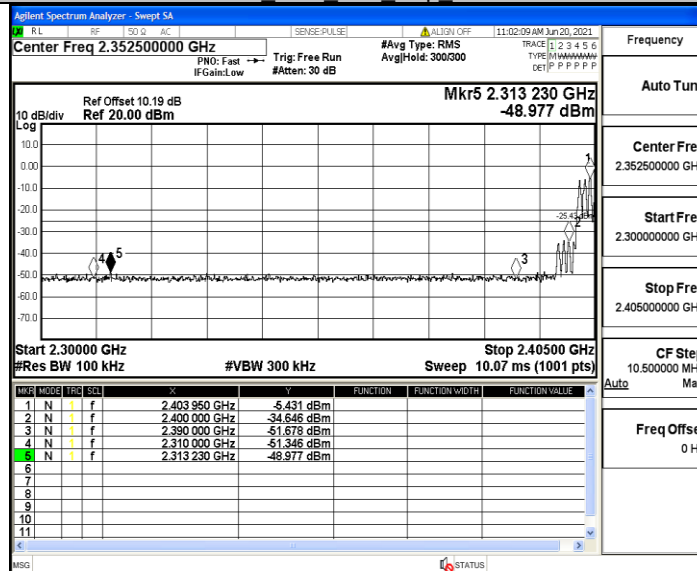
DH5_Ant1_Low_2402



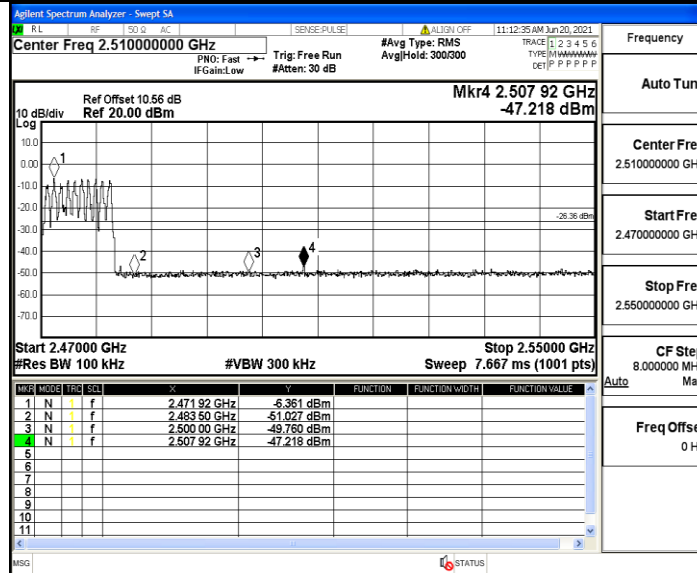
DH5_Ant1_High_2480



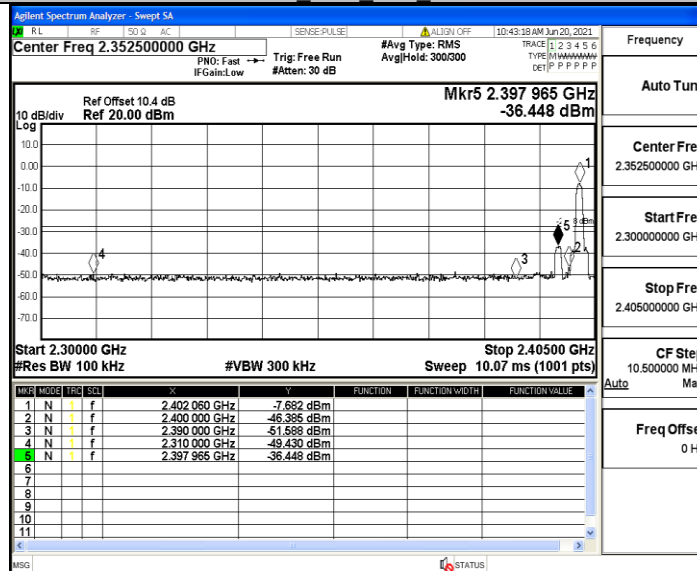
DH5_Ant1_Low_Hop_2402



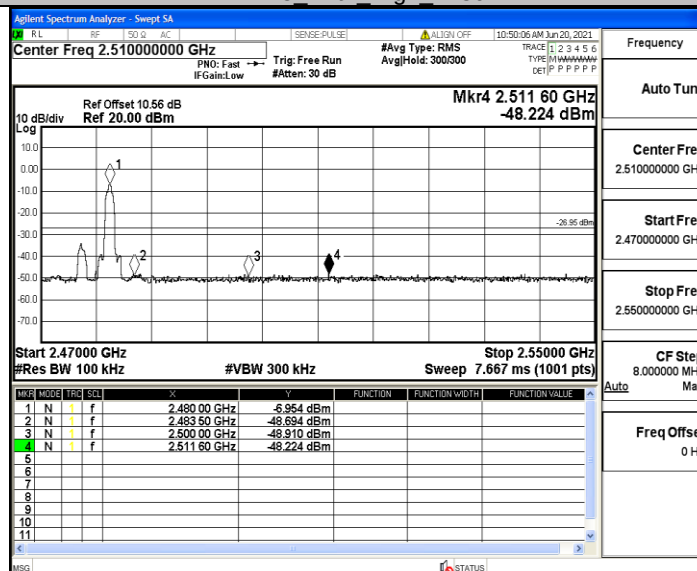
DH5_Ant1_High_Hop_2480



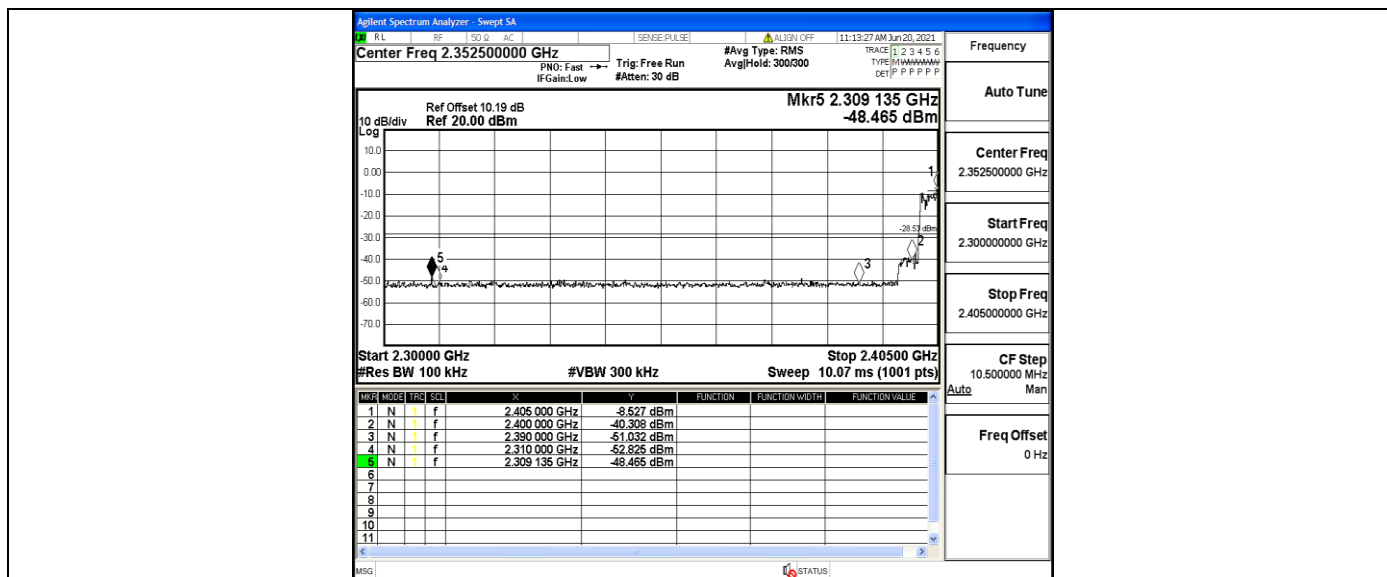
2DH5_Ant1_Low_2402



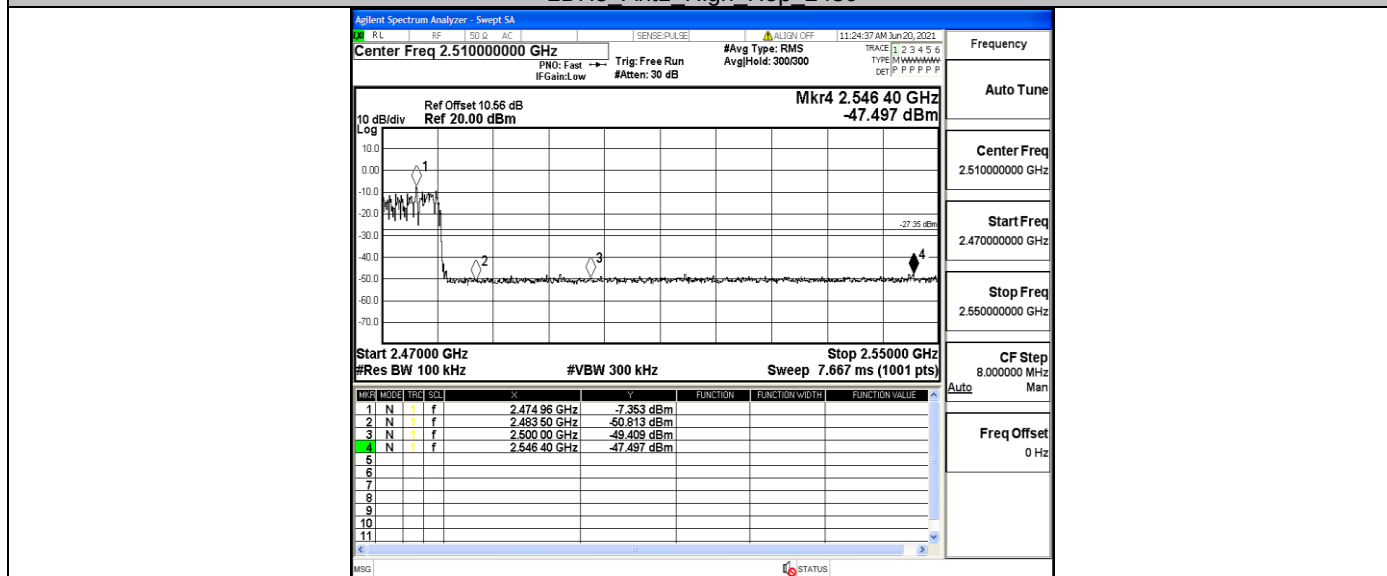
2DH5_Ant1_High_2480



2DH5_Ant1_Low_Hop_2402

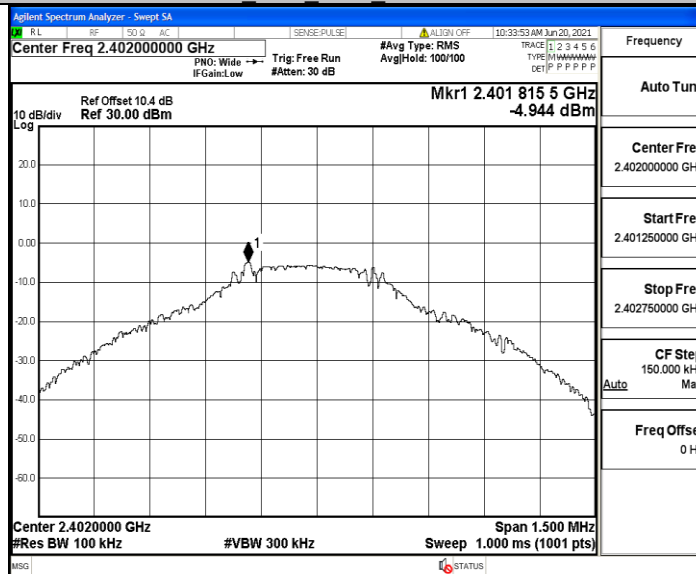


2DH5_Ant1_High_Hop_2480

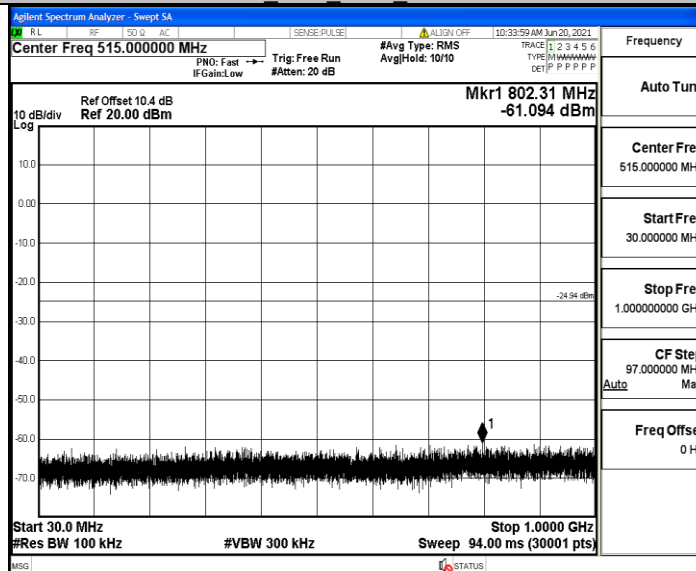


A.7 RF Conducted Spurious Emissions Test Graph

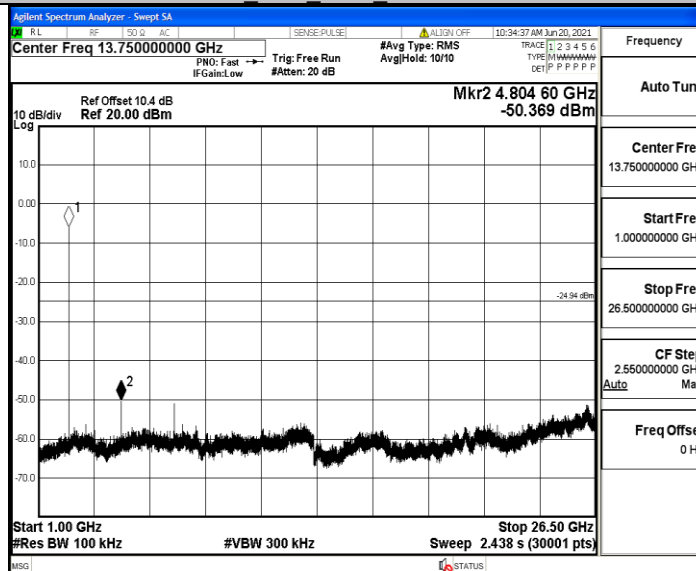
DH5_Ant1_2402_0-Reference



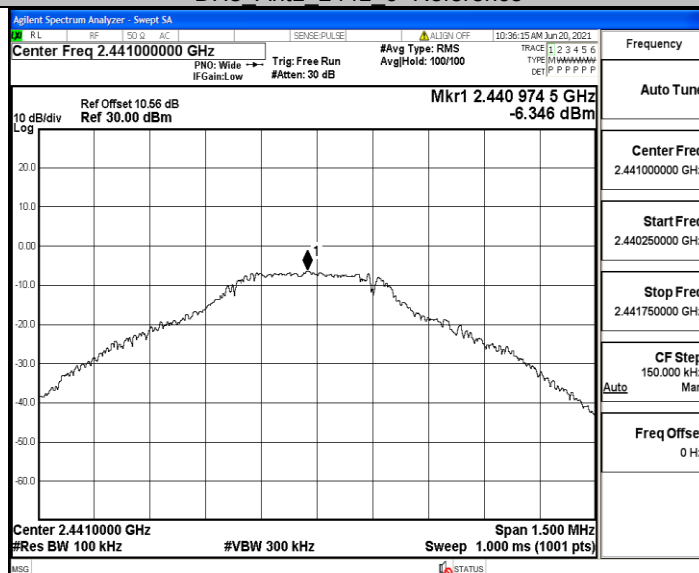
DH5_Ant1_2402_30~1000



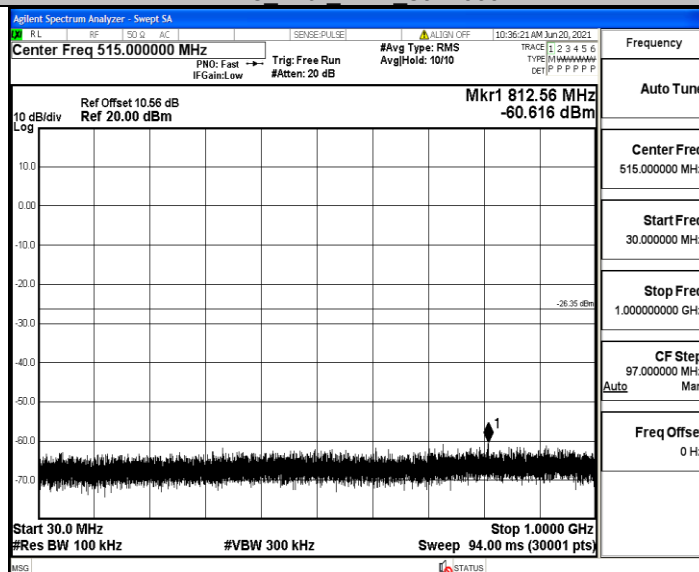
DH5_Ant1_2402_1000~26500



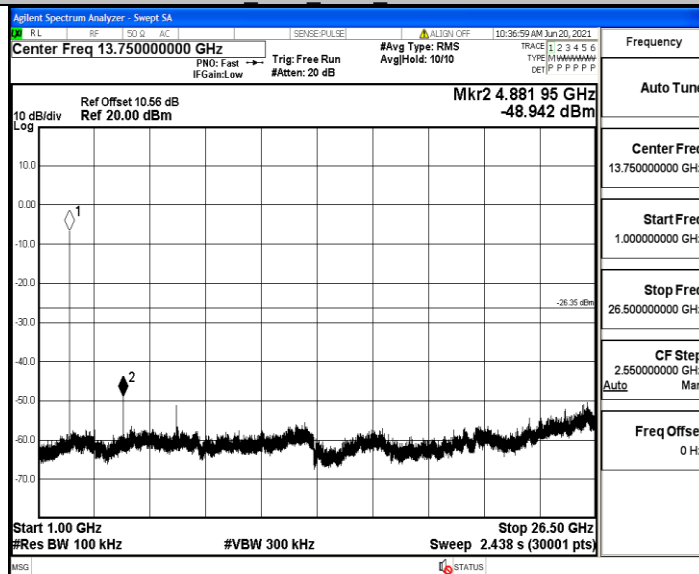
DH5_Ant1_2441_0-Reference



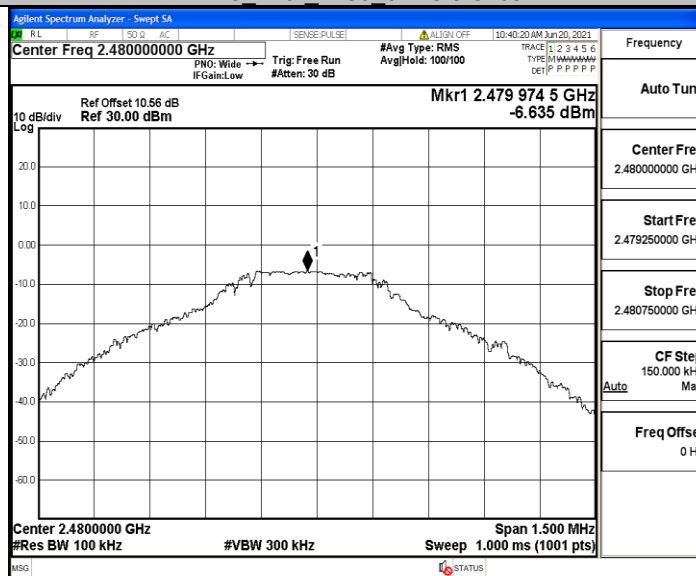
DH5_Ant1_2441_30~1000



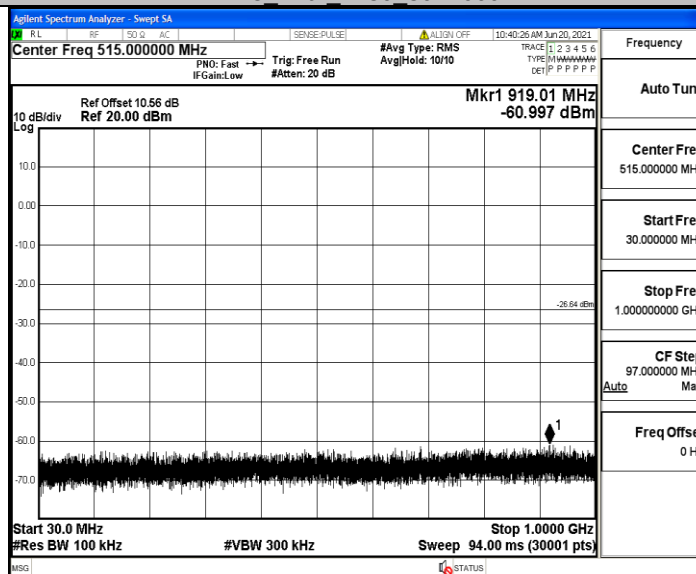
DH5_Ant1_2441_1000~26500



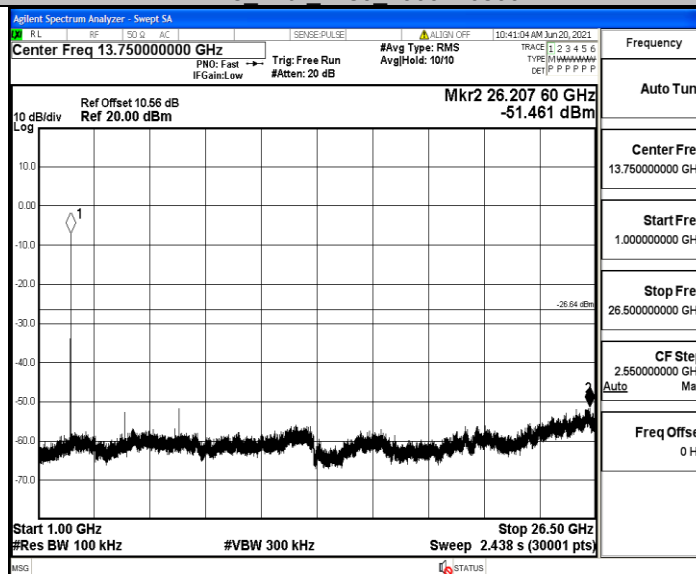
DH5_Ant1_2480_0-Reference



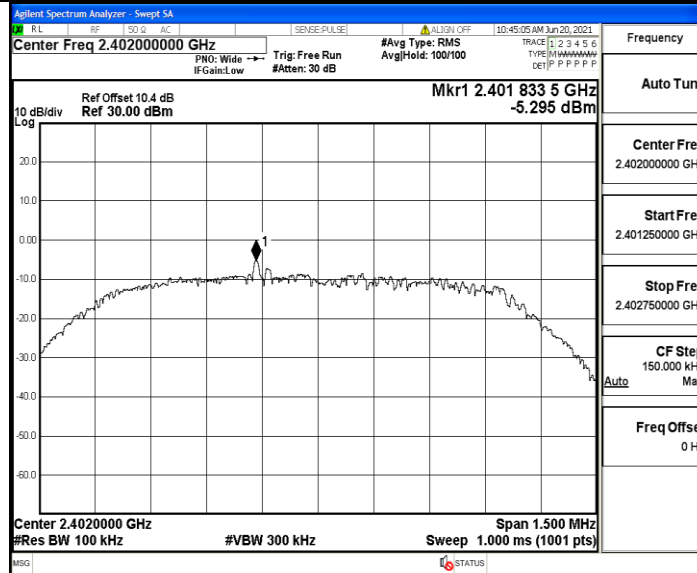
DH5_Ant1_2480_30~1000



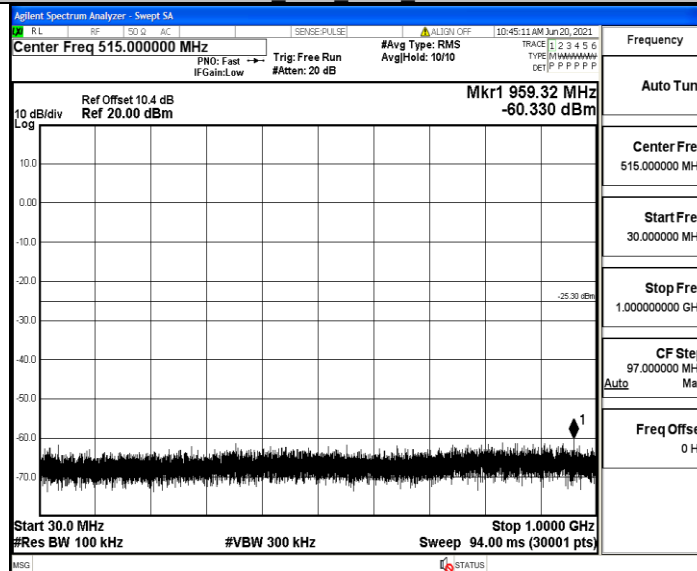
DH5_Ant1_2480_1000~26500



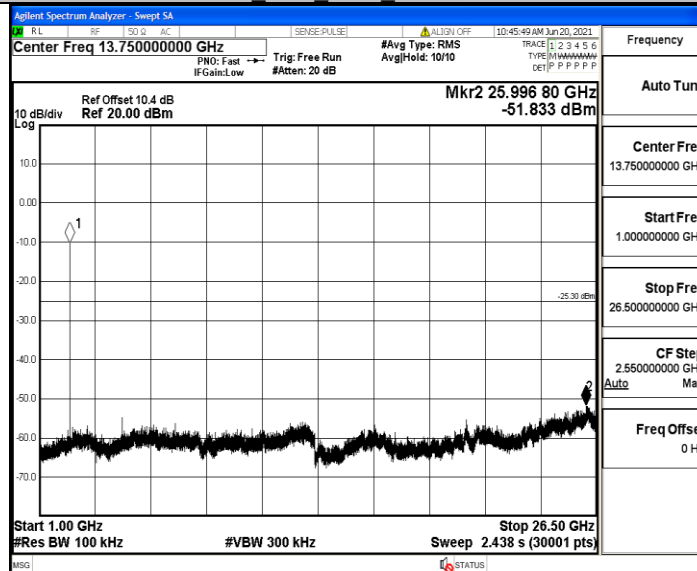
2DH5_Ant1_2402_0~Reference



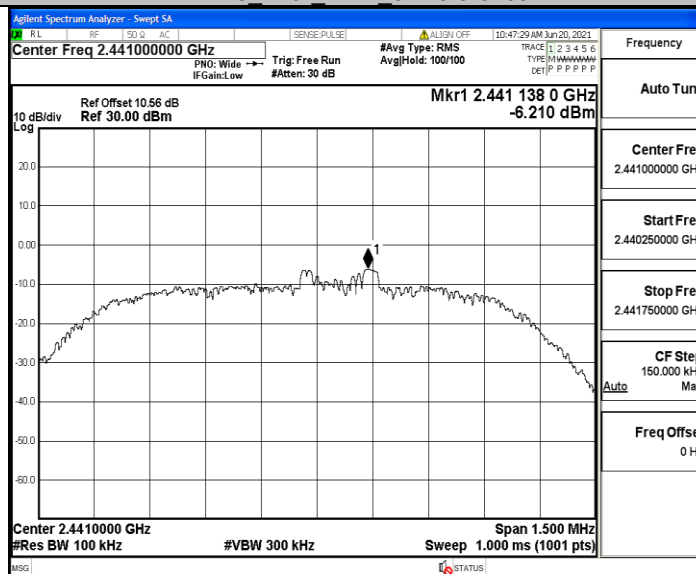
2DH5_Ant1_2402_30~1000



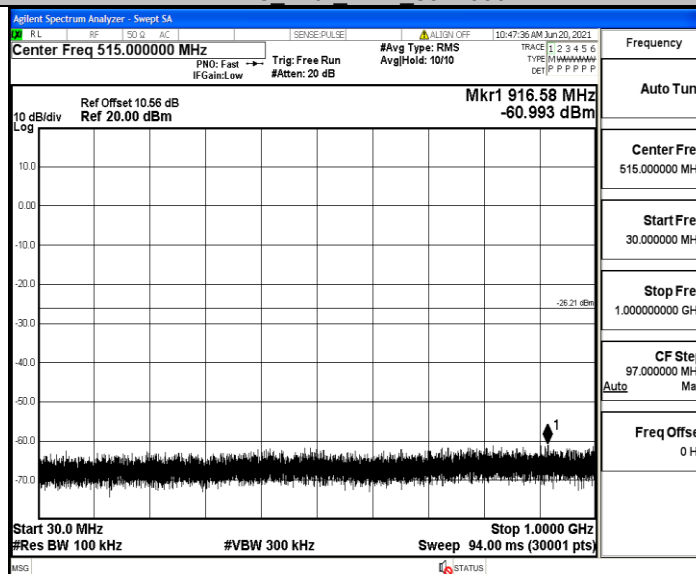
2DH5_Ant1_2402_1000~26500



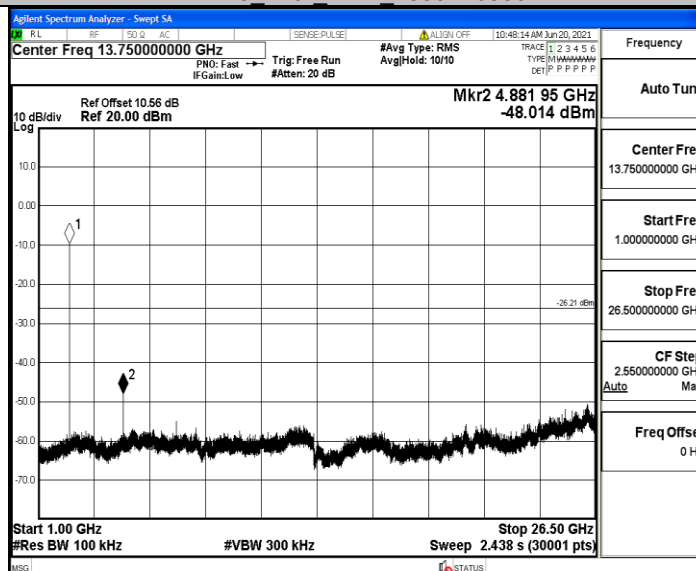
2DH5_Ant1_2441_0~Reference



2DH5_Ant1_2441_30~1000



2DH5_Ant1_2441_1000~26500



Agilent Spectra Analyzer - Sweep SA

RF 30.0 AC SENSE-ULPSE ALIGN OFF 10:51:43 AM Jun 20, 2021

Center Freq 2.48000000 GHz #Avg Type: RMS AvgHold: 100/100 TRAC1 2 3 4 5 6 TYPE: M W W W W W W W W W DET: P P P P P P P

PK0: Wide IF Gain: Low Trig: Free Run #Atten: 0 dB

Ref Offset 10.56 dB Mkr1 2.479 814 0 GHz
Ref 30.00 dBm -6.079 dBm

10 dB/div Log

Center 2.4800000 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.000 ms (1001 pts) Span 1.500 MHz

MSG STATUS

Frequency

Auto Tun

Center Freq 2.48000000 GHz

Start Freq 2.479250000 GHz

Stop Freq 2.480750000 GHz

CF Step 150.000 kHz

Auto

Freq Offset 0 Hz

Agilent Spectrum Analyzer - Sweep SA

RL RF SO G AC SENSE/PULSE

Center Freq 515.000000 MHz

PNO: Fast IF Gain: Low Trig: Free Run #Atten: 20 dB

#Avg Type: RMS Avg/Hold: 10/10

Time: 10:51:49 AM Jun 20, 2021

Trace: 1 2 3 4 5 6

Type: Normal

Det: PPPP

Frequency

Auto Tun

Center Freq 515.000000 MHz

Start Freq 30.000000 MHz

Stop Freq 1.000000000 GHz

CF Stop 97.000000 MHz

Auto

Freq Offset 0 Hz

10 dB/div

Ref Offset 10.56 dB

Ref 20.00 dBm

Mkr1 930.06 MHz

-60.607 dBm

-26.08 dBm

1

Start 30.0 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 94.00 ms (30001 pts)

Stop 1.0000 GHz

MSG STATUS

The screenshot displays a spectrum analyzer interface. The main plot area shows a noisy baseline at approximately -60.6 dBm. A marker labeled '1' is positioned at 930.06 MHz, indicating a reading of -60.607 dBm. The y-axis is labeled '10 dB/div' and 'Log'. The x-axis represents frequency. Various control panels are visible at the top and right, including settings for center frequency (515.000000 MHz), span (30.0 MHz to 1.0 GHz), resolution bandwidth (100 kHz), and video bandwidth (300 kHz). The status bar at the bottom shows 'MSG' and 'STATUS' indicators.

Agilent Spectrum Analyzer - Sweep SA

Center Freq 13.75000000 GHz

Ref Offt 10.56 dB
Ref 20.00 dBm

Trig: Free Run
#Atten: 20 dB

#Avg Type: RMS
AvgHold: 10/10

10 dBS/div
Log

Mkr2 26.135 35 GHz
-50.921 dBm

Start 1.00 GHz
#Res BW 100 kHz

Stop 26.50 GHz
Sweep 2.438 s (30001 pts)

#VBW 300 kHz

Frequency

Auto Tun

Center Freq
13.75000000 GHz

Start Freq
1.00000000 GHz

Stop Freq
26.50000000 GHz

CF Stop
2.55000000 GHz

Auto

Freq Offset
0 Hz

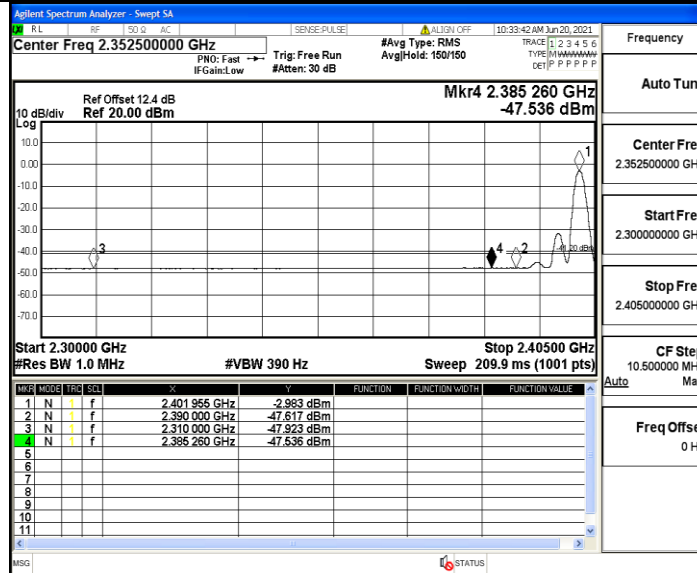
A.8 Restrict-band band-edge measurements

TestMode	Antenna	ChName	Channel	Detector	Freq (MHz)	Result(dBm)	Limit(dBm)	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-47.92	<=-41.20	PASS
				AV	2385.260	-47.54	<=-41.20	PASS
				AV	2390.000	-47.62	<=-41.20	PASS
				Peak	2310.000	-41.39	<=-21.20	PASS
				Peak	2371.190	-37.01	<=-21.20	PASS
				Peak	2390.000	-41.54	<=-21.20	PASS
		High	2480	AV	2483.500	-44.58	<=-41.20	PASS
				AV	2483.920	-44.18	<=-41.20	PASS
				AV	2500.000	-46.99	<=-41.20	PASS
				Peak	2483.500	-36.73	<=-21.20	PASS
				Peak	2483.760	-36.36	<=-21.20	PASS
				Peak	2500.000	-39.08	<=-21.20	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-47.94	<=-41.20	PASS
				AV	2388.725	-47.52	<=-41.20	PASS
				AV	2390.000	-47.7	<=-41.20	PASS
				Peak	2310.000	-41.5	<=-21.20	PASS
				Peak	2386.940	-37.56	<=-21.20	PASS
				Peak	2390.000	-38.64	<=-21.20	PASS
		High	2480	AV	2483.500	-45.45	<=-41.20	PASS
				AV	2483.840	-45.3	<=-41.20	PASS
				AV	2500.000	-46.87	<=-41.20	PASS
				Peak	2483.500	-36.79	<=-21.20	PASS
				Peak	2500.000	-39.98	<=-21.20	PASS

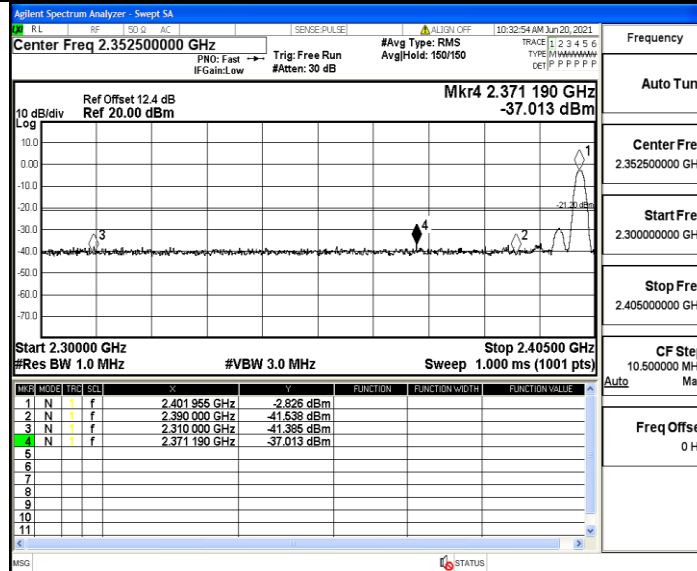
Note:

1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

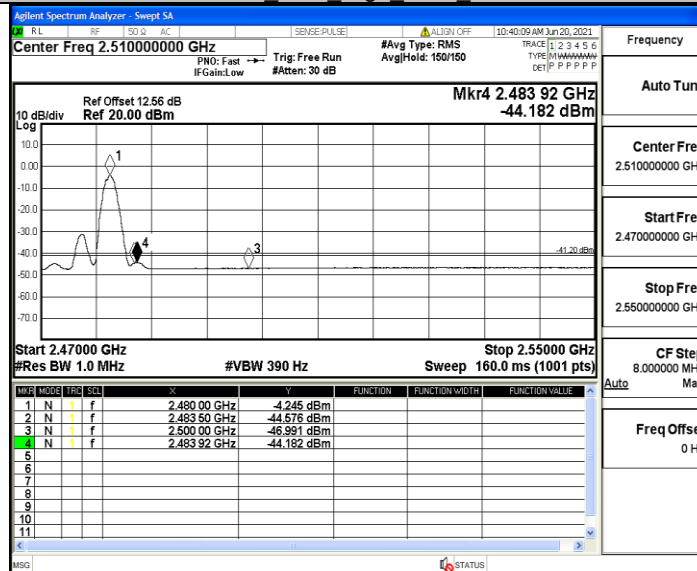
DH5 Ant1 Low 2402 AV



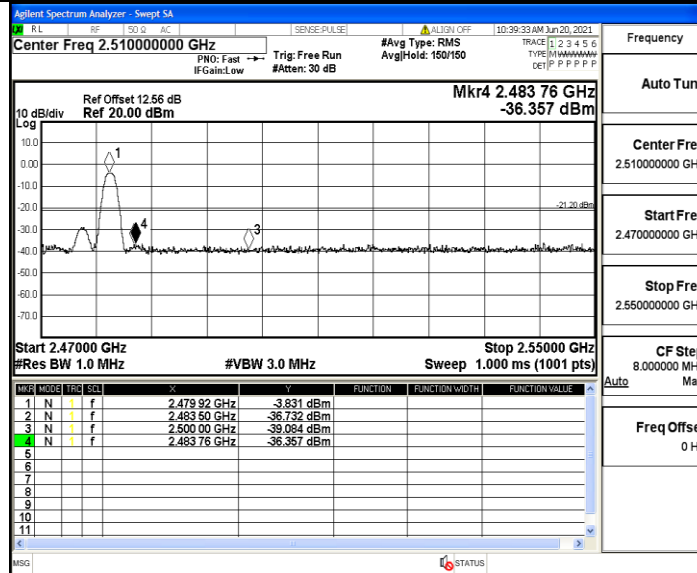
DH5 Ant1 Low 2402 Peak



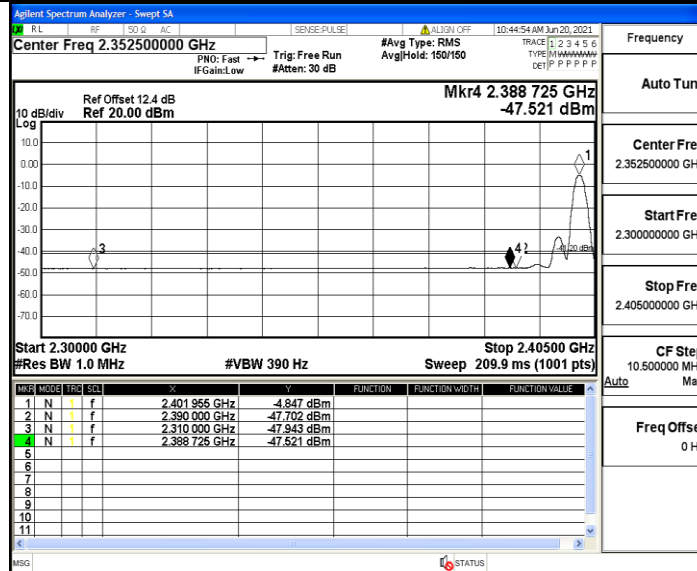
DH5 Ant1 High 2480 AV



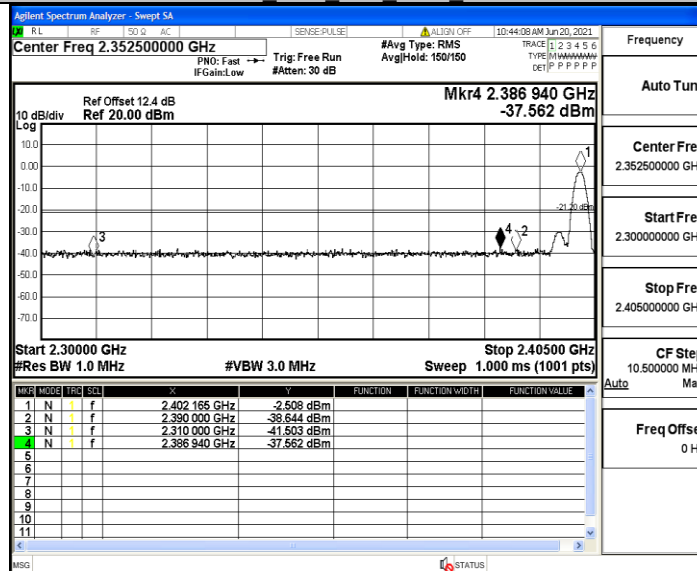
DH5_Ant1_High_2480_Peak



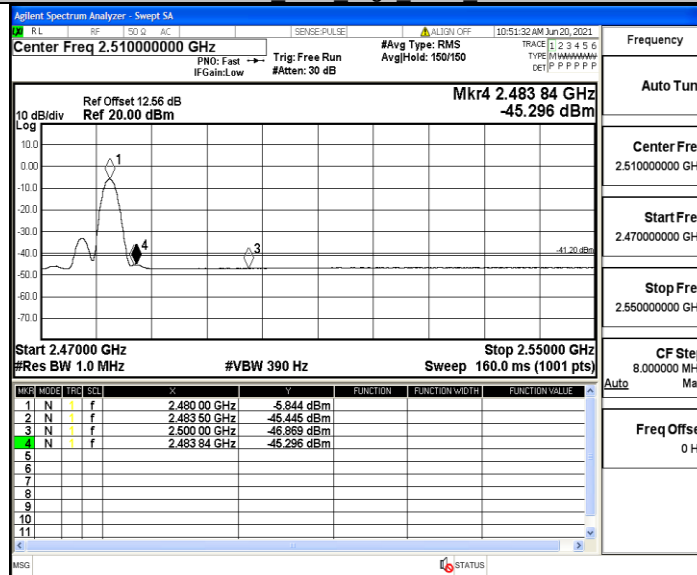
2DH5_Ant1_Low_2402_AV



2DH5_Ant1_Low_2402_Peak



2DH5_Ant1_High_2480_AV



2DH5_Ant1_High_2480_Peak

