

## Appendix A

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

Product Name: BLUETOOTH NOISE ISOLATING EARMUFFS

Trade Mark: TZUMI, SOUNDGUARDS

Test Model: RN01

FCC ID: 2AON7-8445

### Environmental Conditions

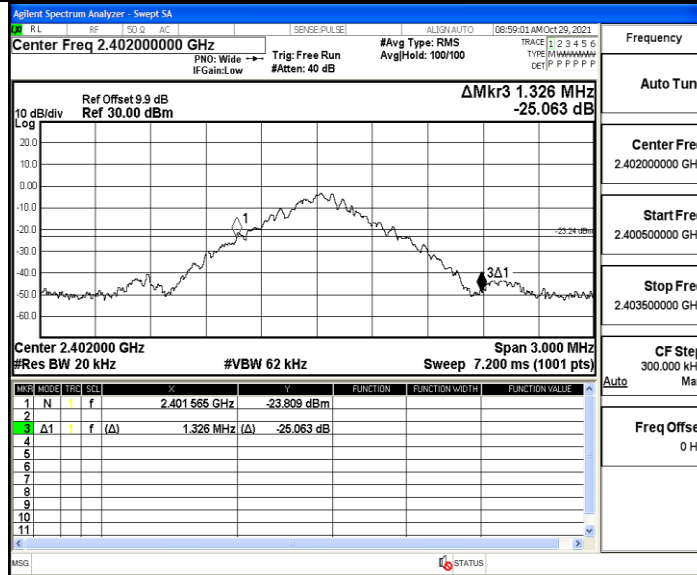
Temperature:	22.8° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	Anna Hu
Supervised by:	Hugo Chen

#### A.1 20 dB Bandwidth

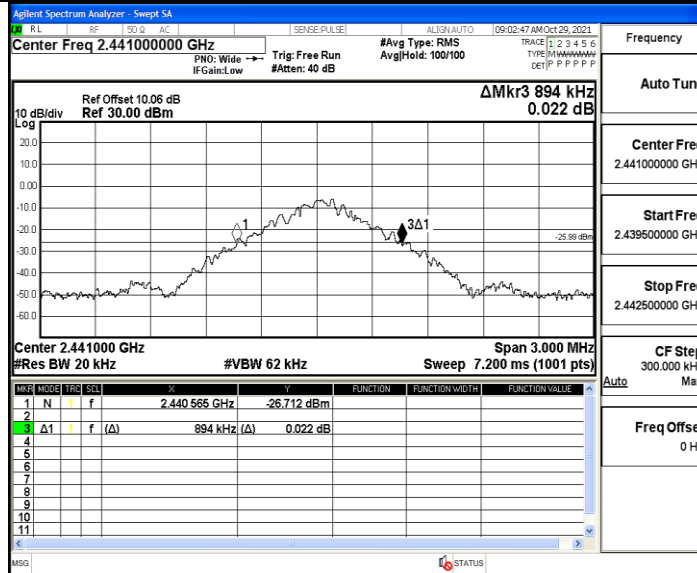
TestMode	Antenna	Channel	20db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
DH5	Ant1	2402	0.891	2401.565	2402.456	---	PASS
		2441	0.894	2440.565	2441.459	---	PASS
		2480	0.936	2479.565	2480.501	---	PASS
2DH5	Ant1	2402	1.338	2401.358	2402.696	---	PASS
		2441	1.359	2440.352	2441.711	---	PASS
		2480	1.359	2479.352	2480.711	---	PASS

Test Graph

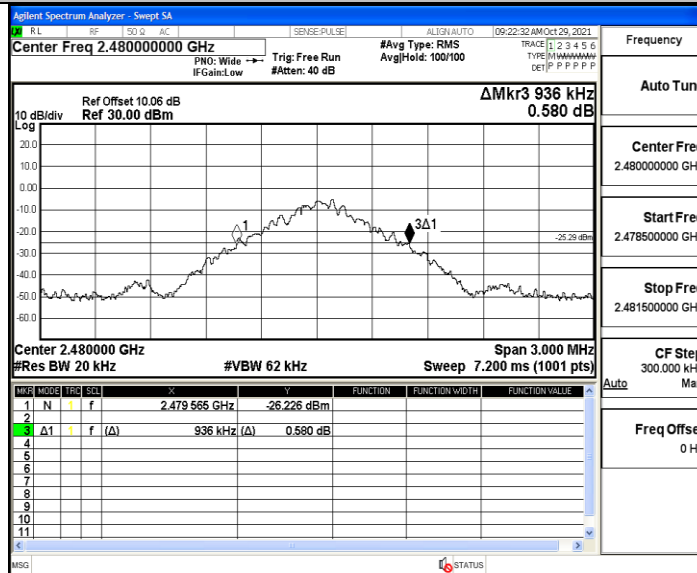
DH5\_Ant1\_2402



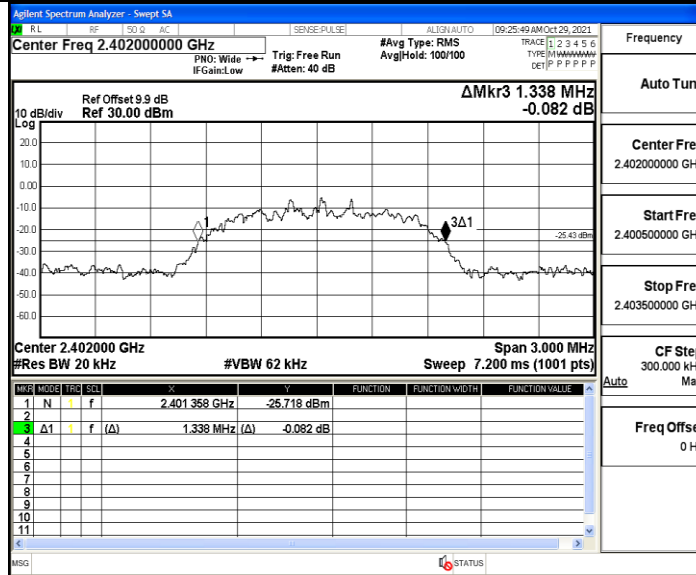
DH5\_Ant1\_2441



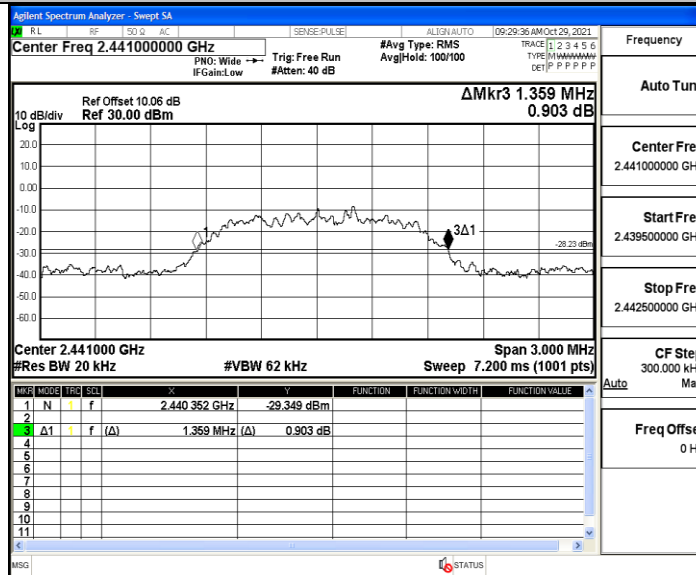
DH5\_Ant1\_2480



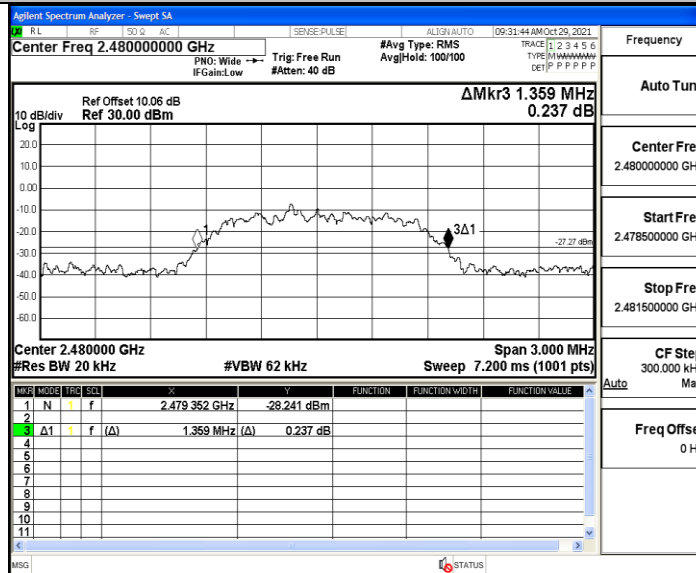
2DH5\_Ant1\_2402



2DH5\_Ant1\_2441



2DH5\_Ant1\_2480

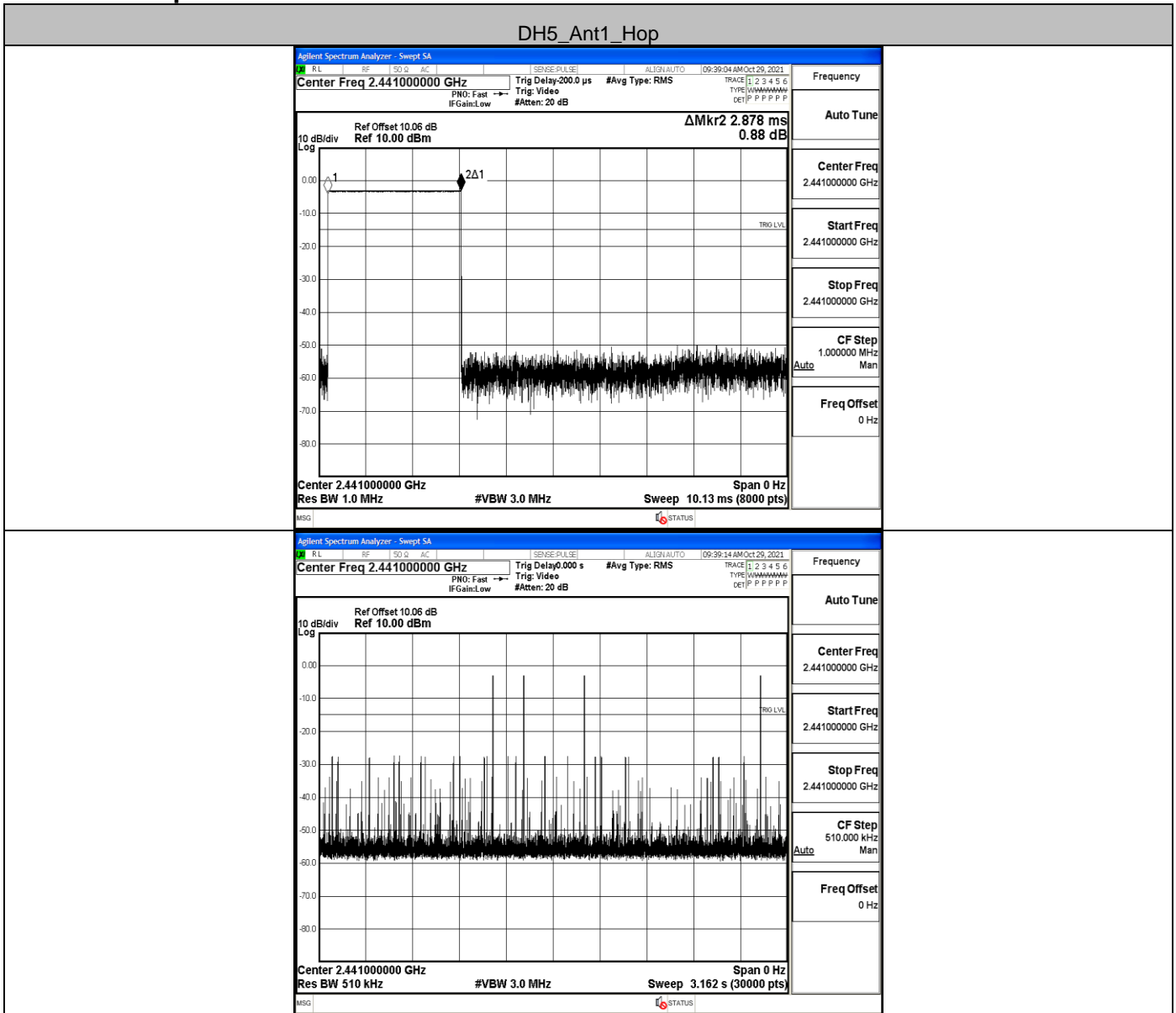


**A.2 Dwell Time**

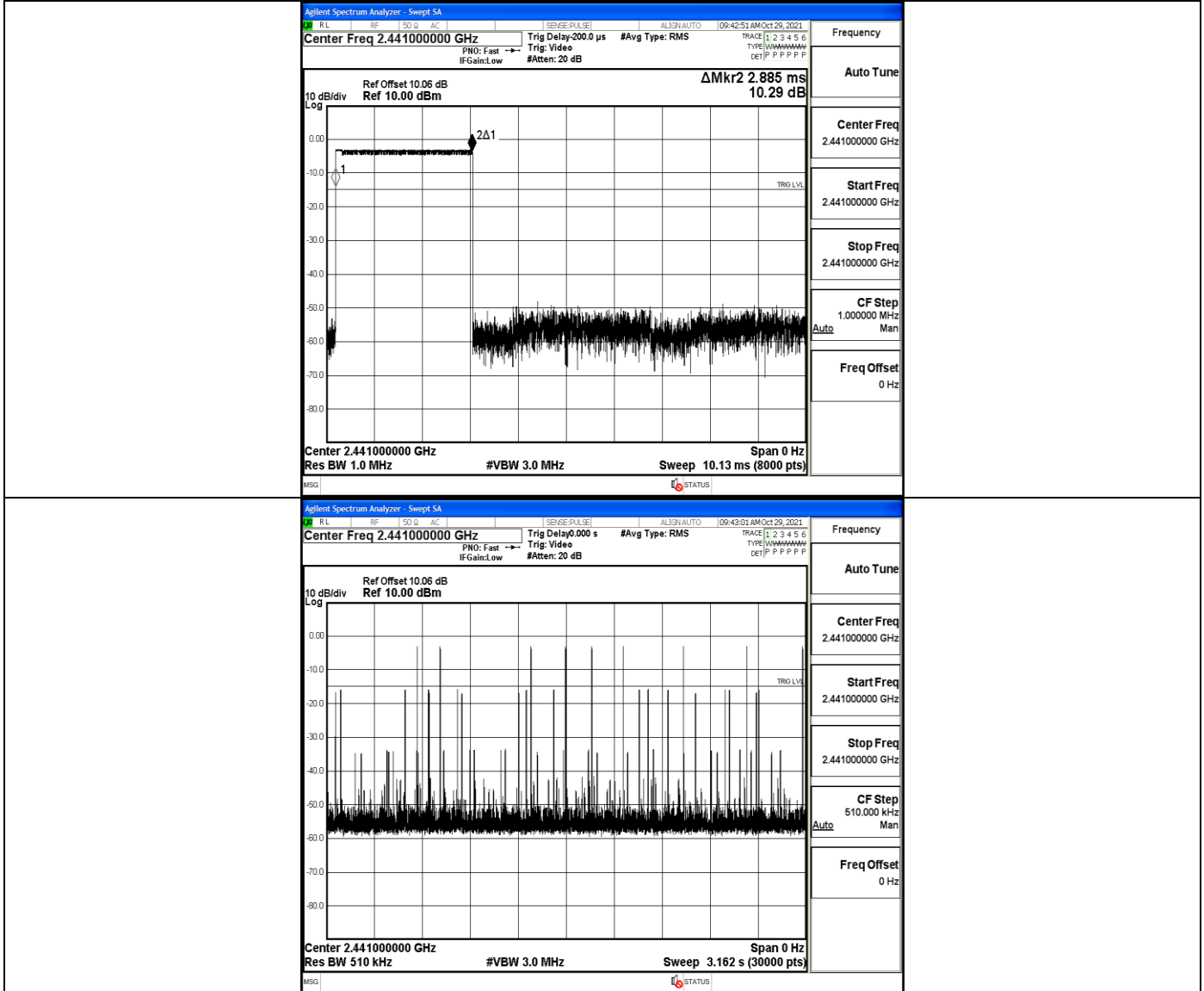
TestMode	Antenna	Channel	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH5	Ant1	Hop	2.88	50	0.144	≤0.4	PASS
2DH5	Ant1	Hop	2.89	100	0.289	≤0.4	PASS

### Test Graph

#### DH5\_Ant1\_Hop



### 2DH5\_Ant1\_Hop

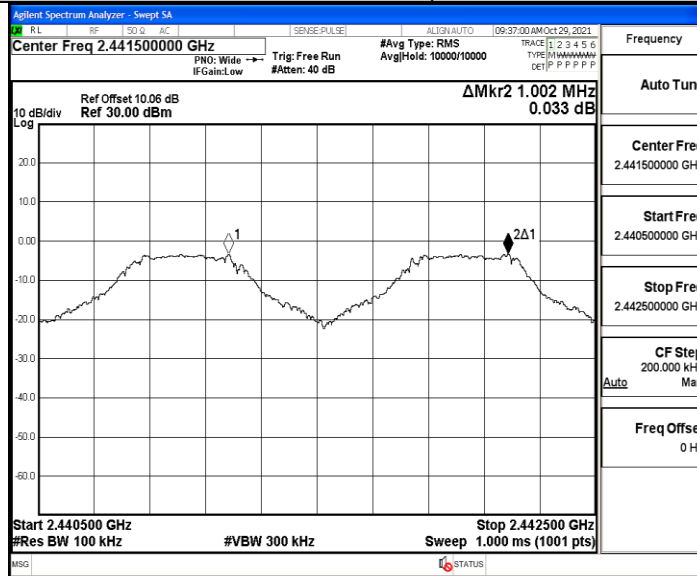


### A.3 Carrier Frequency Separation

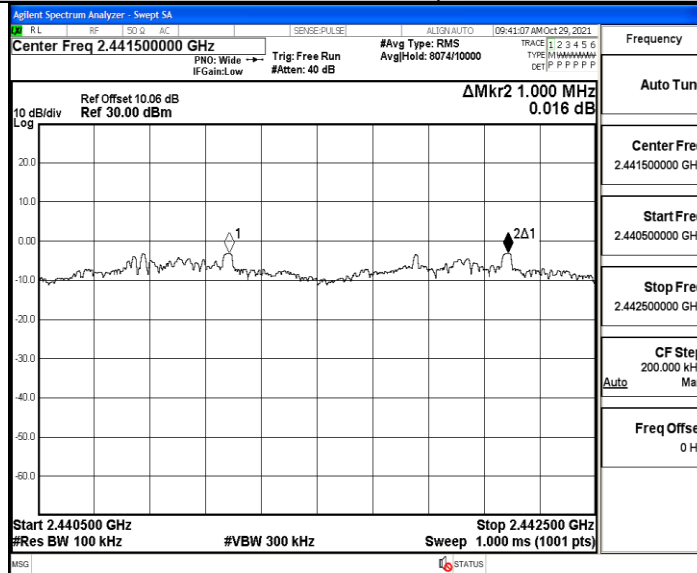
TestMode	Antenna	Channel	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Hop	1.002	$\geq 0.936$	PASS
2DH5	Ant1	Hop	1.000	$\geq 0.906$	PASS

### Test Graph

DH5\_Ant1\_Hop



2DH5\_Ant1\_Hop

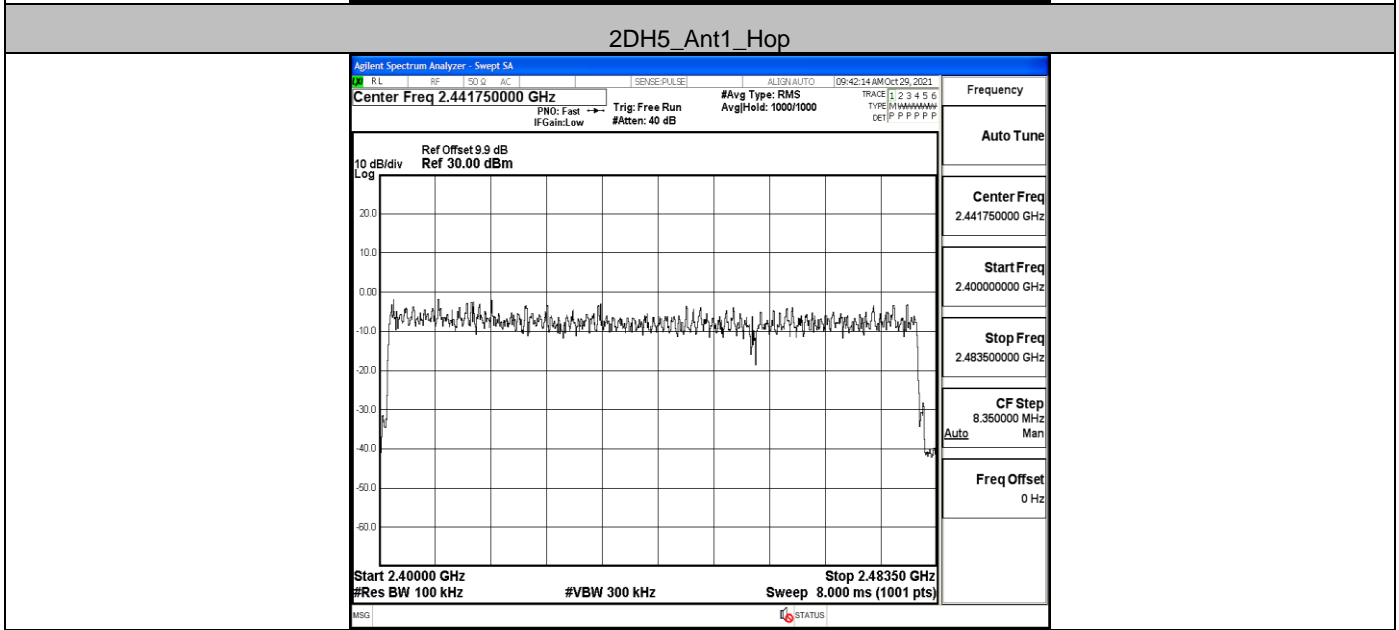
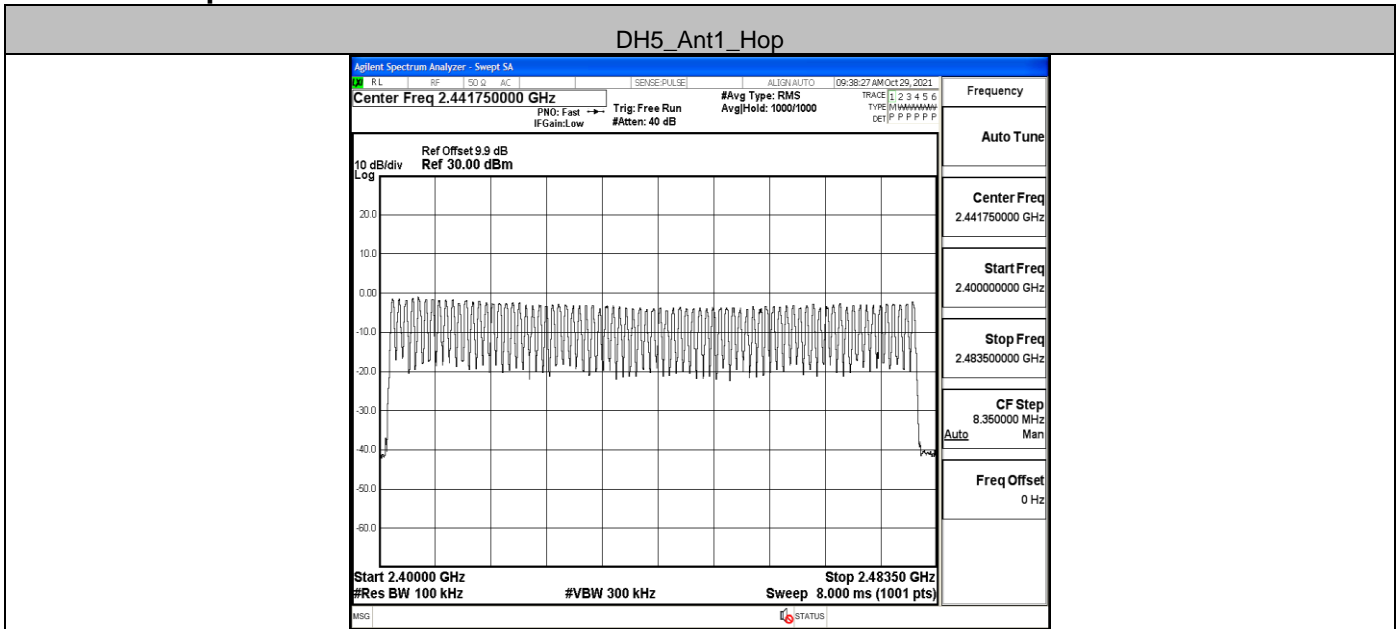




### A.4 Hopping Channel Number

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

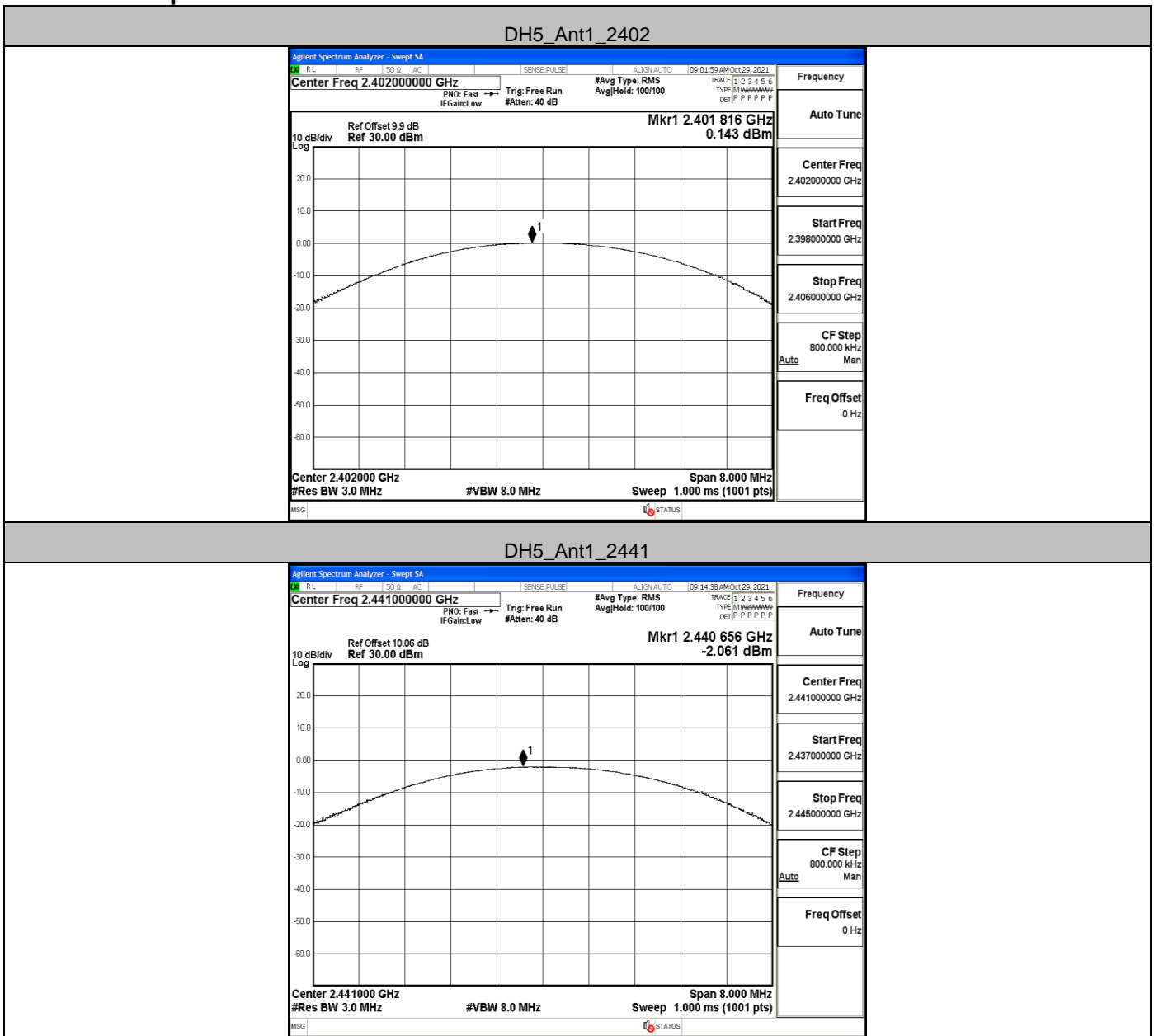
### Test Graph



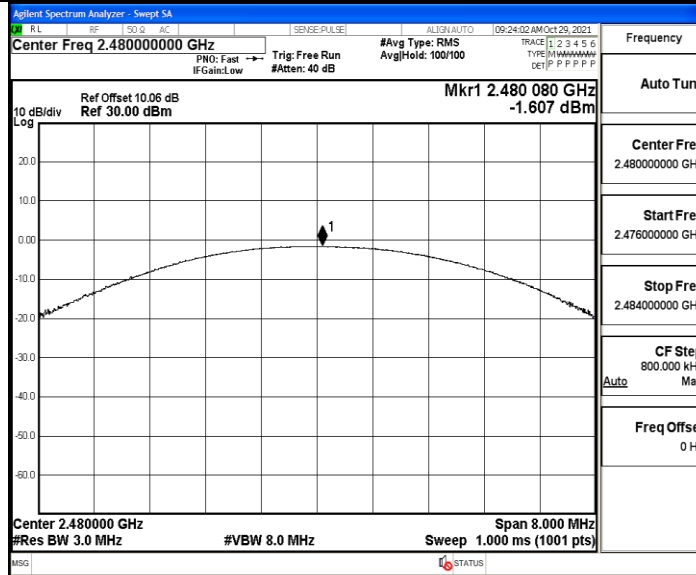
### A.5 Conducted Peak Output Power

TestMode	Antenna	Channel	Result[dBm]	Limit[dBm]	Verdict
DH5	Ant1	2402	0.14	≤20.97	PASS
		2441	-2.06	≤20.97	PASS
		2480	-1.61	≤20.97	PASS
2DH5	Ant1	2402	-0.46	≤20.97	PASS
		2441	-2.59	≤20.97	PASS
		2480	-1.4	≤20.97	PASS

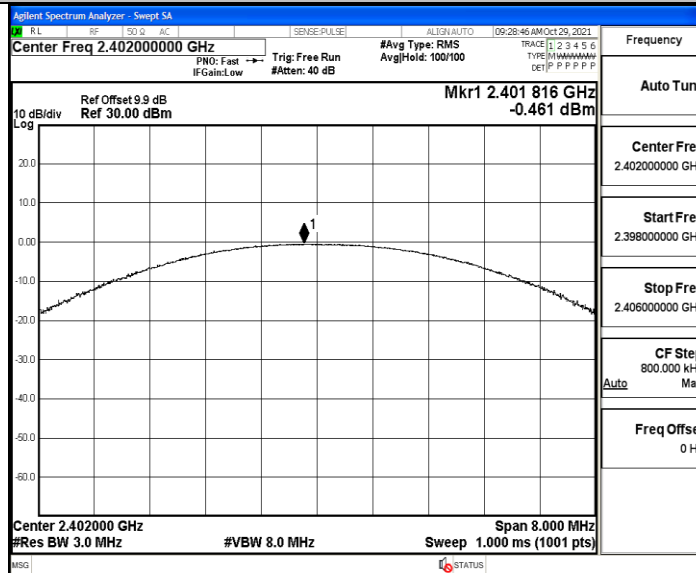
### Test Graph



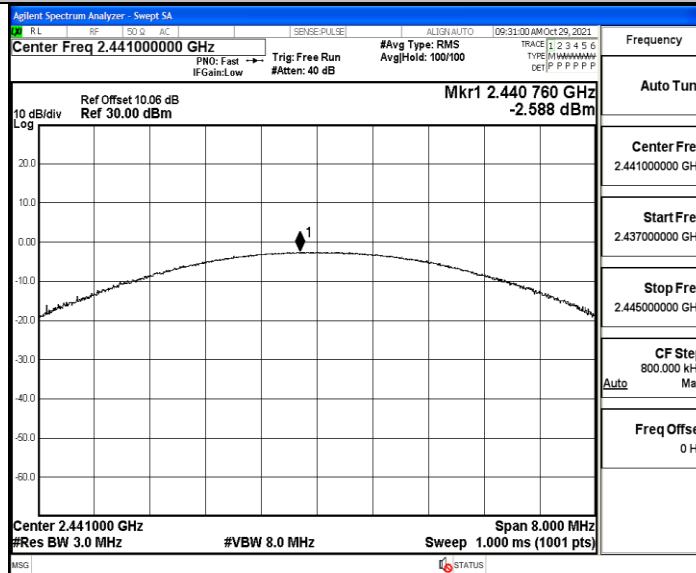
DH5\_Ant1\_2480



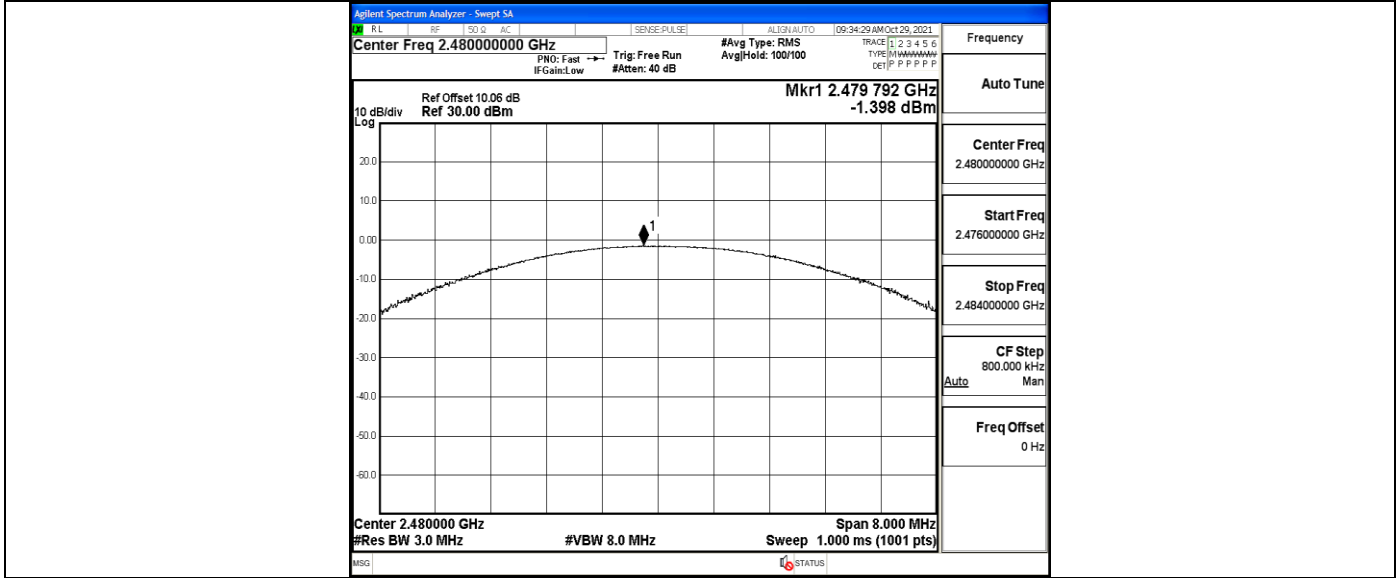
2DH5\_Ant1\_2402



2DH5\_Ant1\_2441



2DH5\_Ant1\_2480

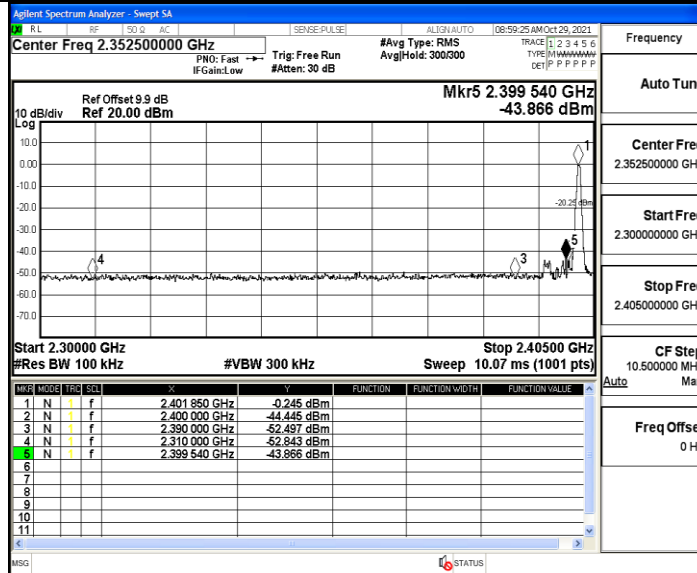


**A.6 Band-edge for RF Conducted Emissions**

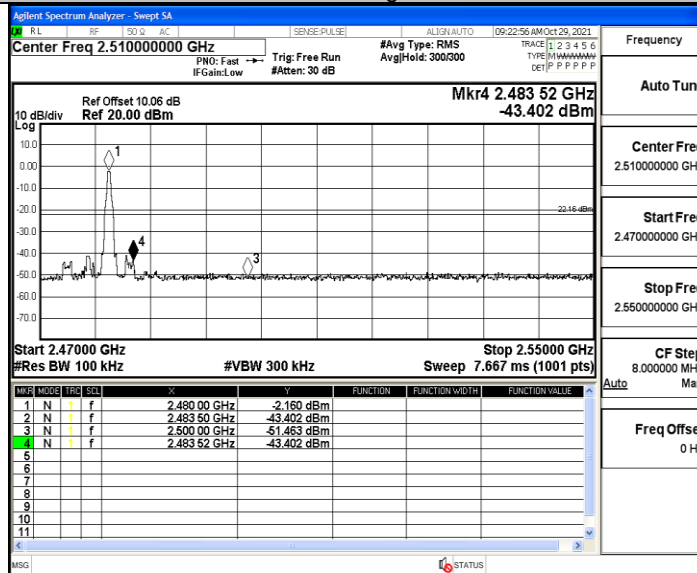
TestMode	Antenna	ChName	Channel	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
DH5	Ant1	Low	2402	-0.25	-43.87	≤-20.25	PASS
		High	2480	-2.16	-43.4	≤-22.16	PASS
		Low	Hop_2402	-1.53	-49.8	≤-21.53	PASS
		High	Hop_2480	-2.27	-47.72	≤-22.27	PASS
2DH5	Ant1	Low	2402	-1.63	-44.2	≤-21.63	PASS
		High	2480	-1.98	-43.85	≤-21.98	PASS
		Low	Hop_2402	-1.75	-49.68	≤-21.75	PASS
		High	Hop_2480	-2.87	-48.38	≤-22.87	PASS

Test Graph

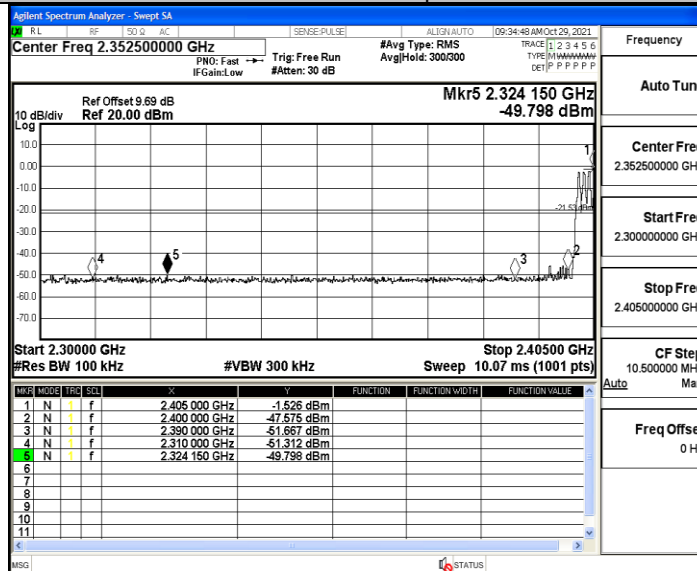
DH5\_Ant1\_Low\_2402



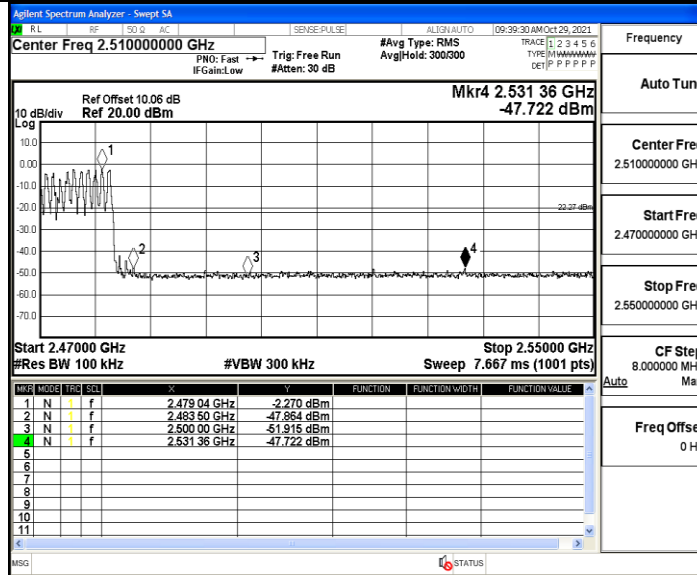
DH5\_Ant1\_High\_2480



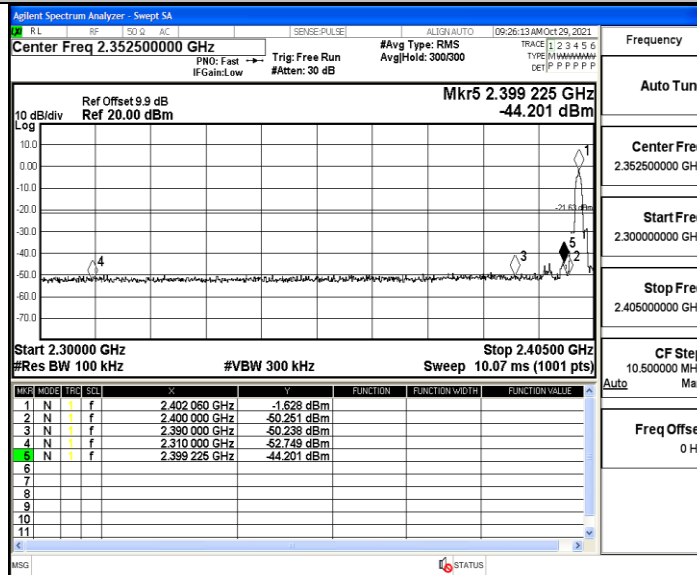
DH5\_Ant1\_Low\_Hop\_2402



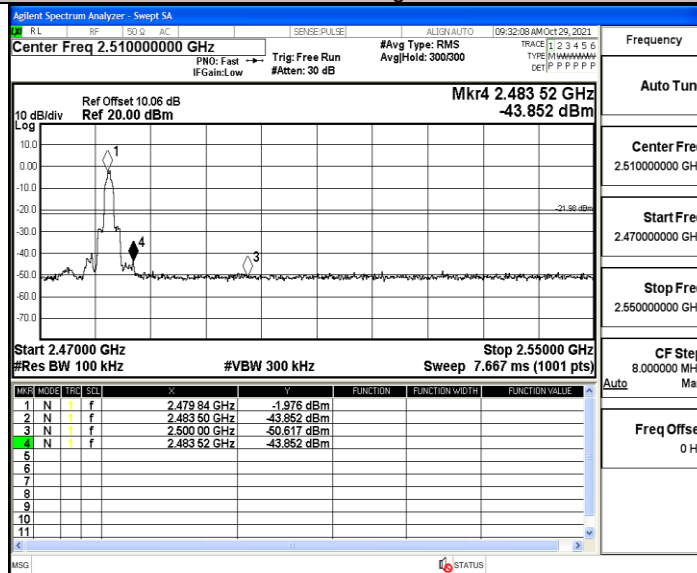
DH5\_Ant1\_High\_Hop\_2480



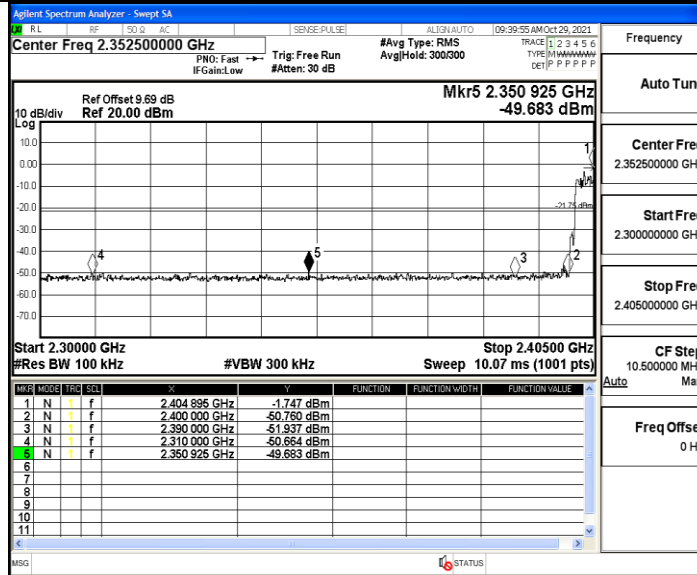
2DH5\_Ant1\_Low\_2402



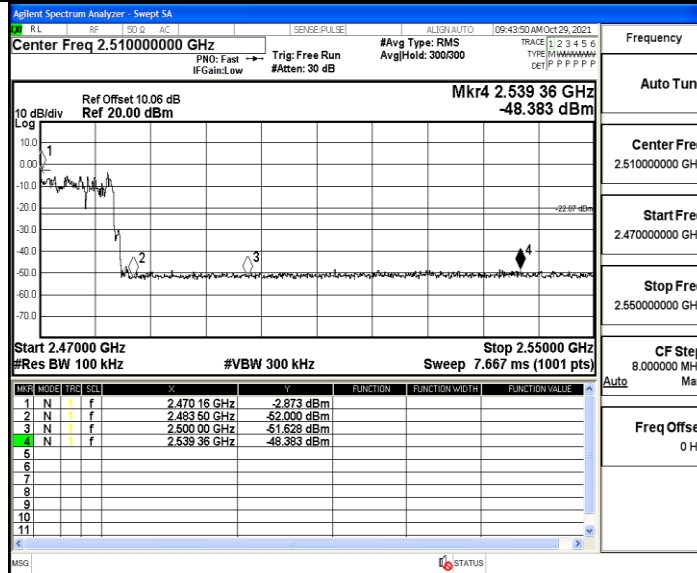
2DH5\_Ant1\_High\_2480



2DH5\_Ant1\_Low\_Hop\_2402



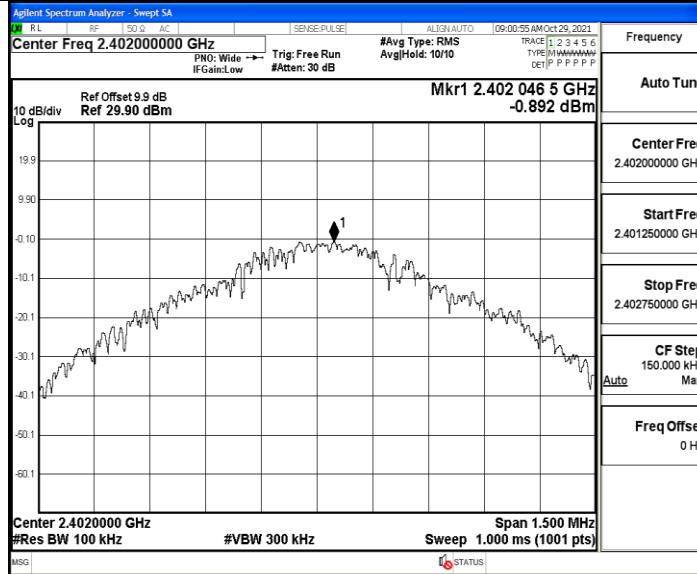
2DH5\_Ant1\_High\_Hop\_2480



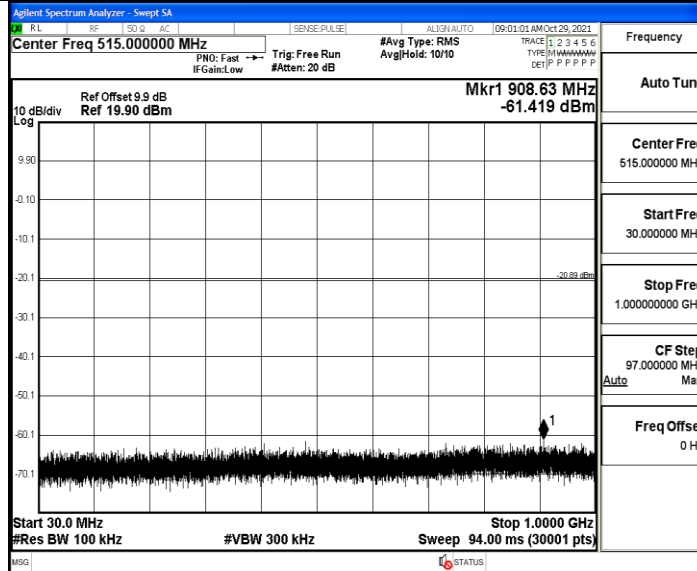


### A.7 RF Conducted Spurious Emissions Test Graph

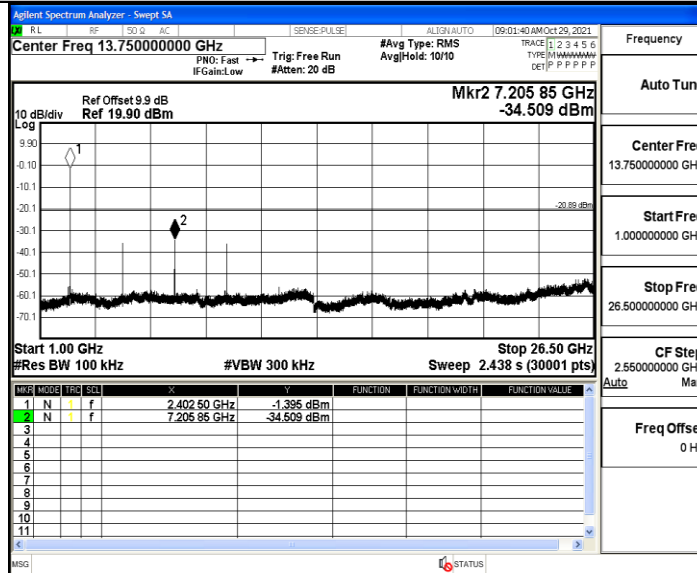
DH5\_Ant1\_2402\_0~Reference



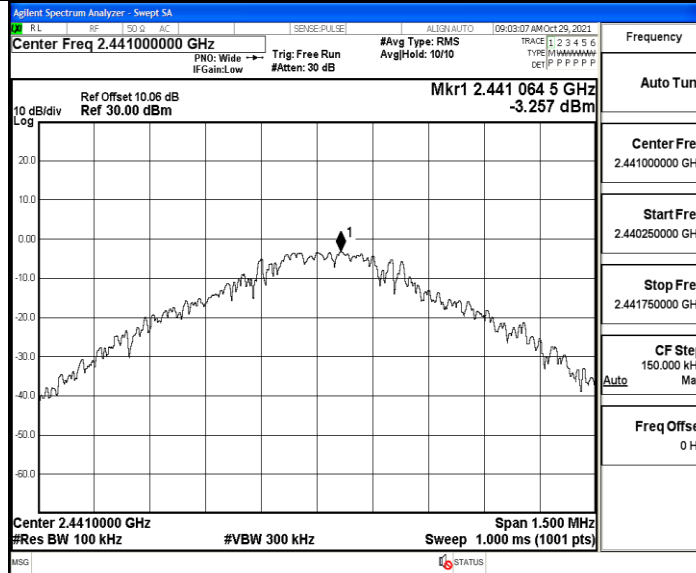
DH5\_Ant1\_2402\_30~1000



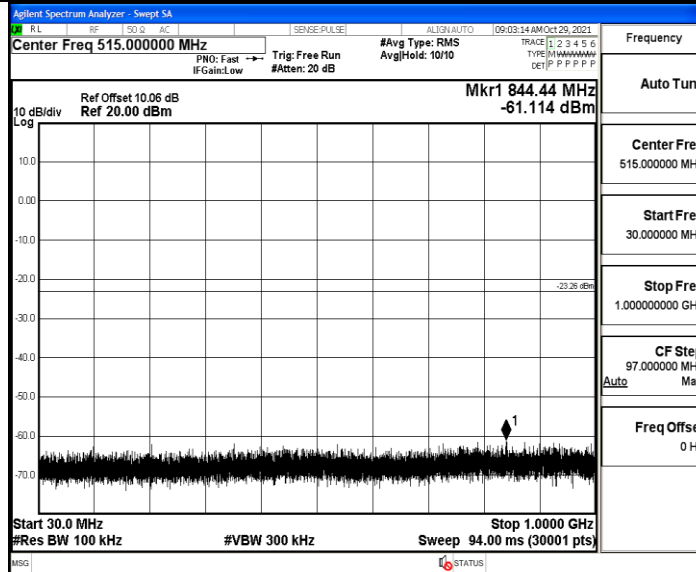
DH5\_Ant1\_2402\_1000~26500



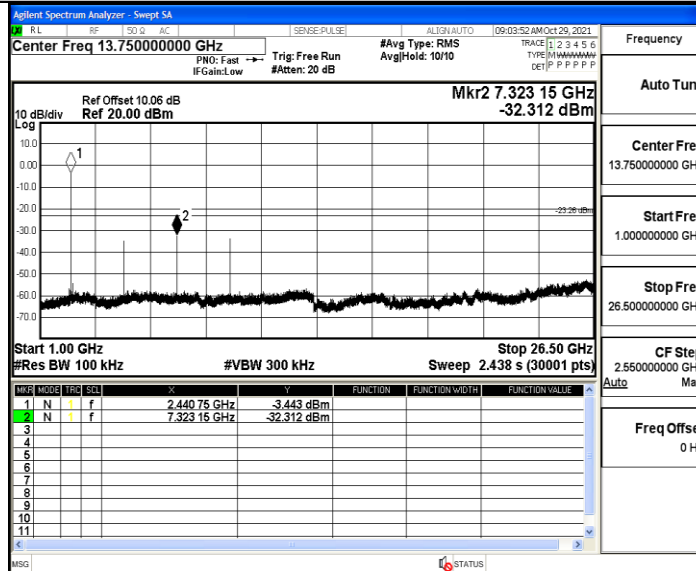
DH5\_Ant1\_2441\_0~Reference



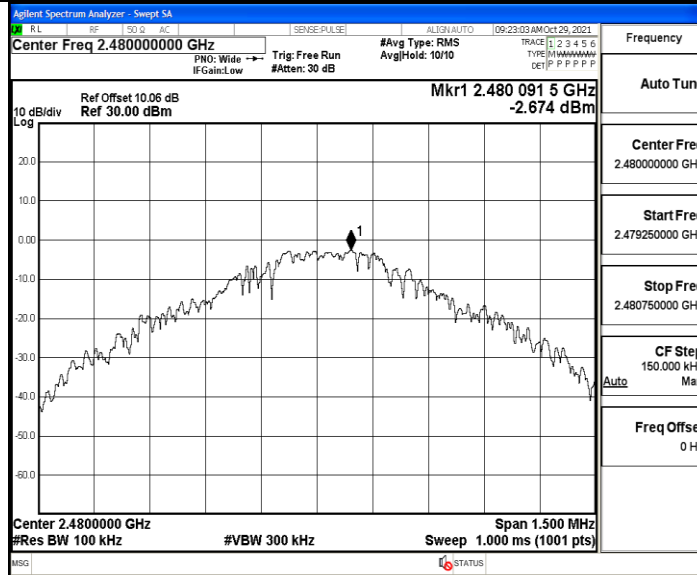
DH5\_Ant1\_2441\_30~1000



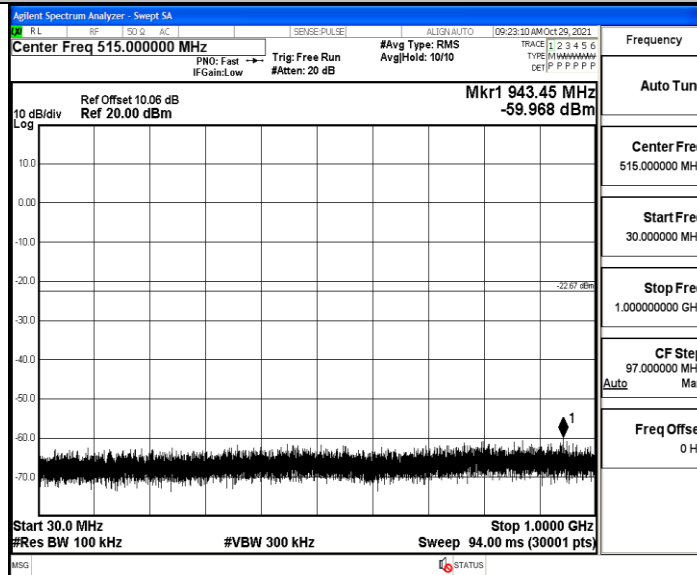
DH5\_Ant1\_2441\_1000~26500



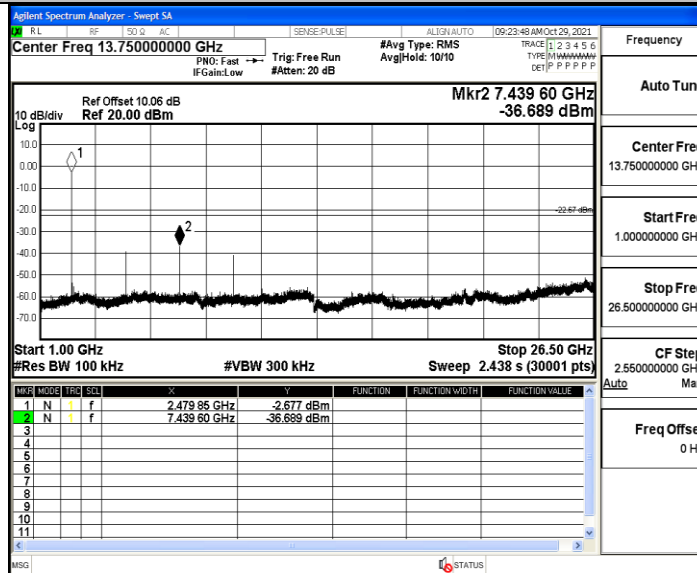
DH5\_Ant1\_2480\_0-Reference



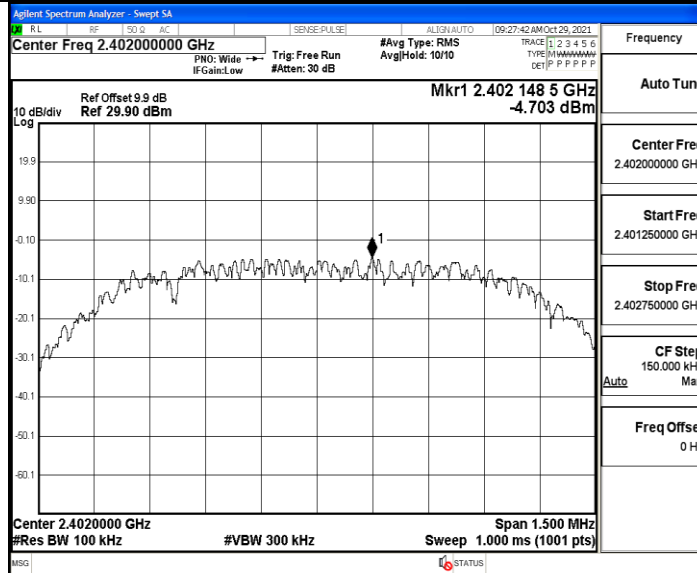
DH5\_Ant1\_2480\_30-1000



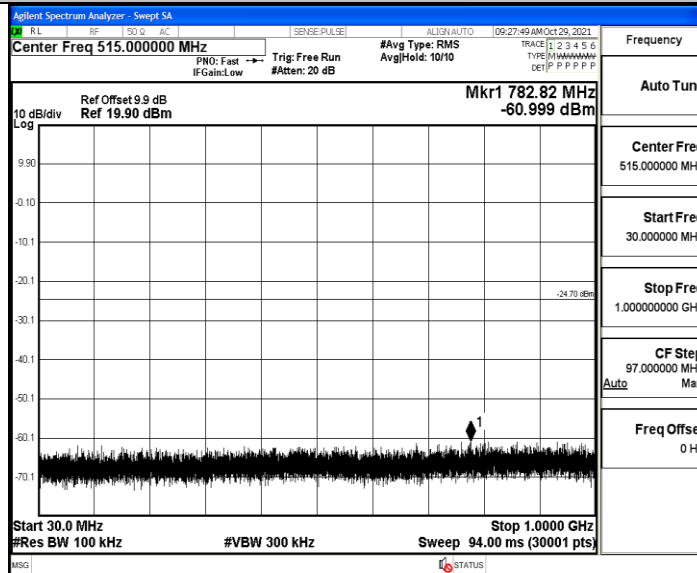
DH5\_Ant1\_2480\_1000-26500



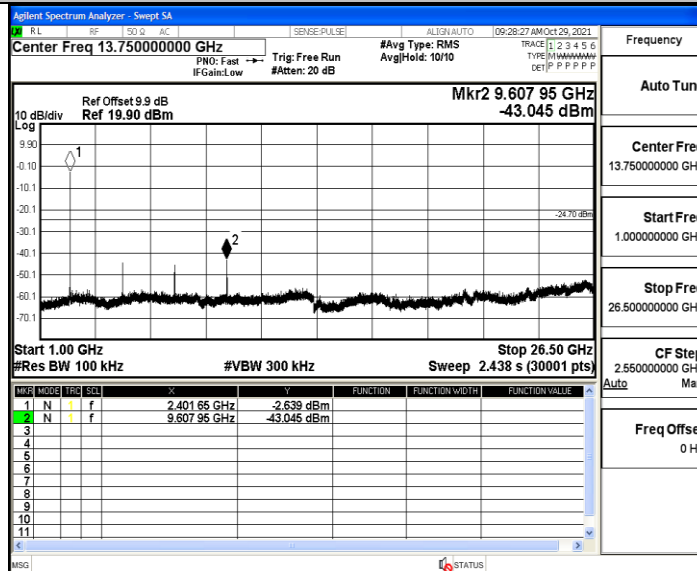
2DH5\_Ant1\_2402\_0~Reference



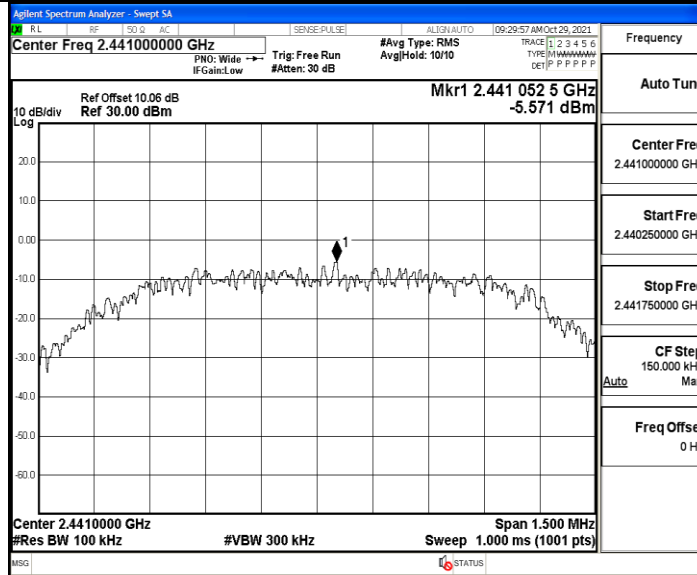
2DH5\_Ant1\_2402\_30~1000



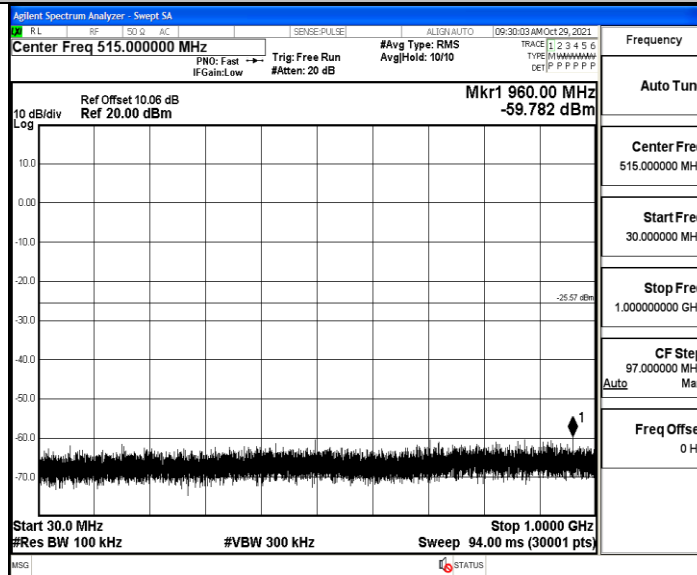
2DH5\_Ant1\_2402\_1000~26500



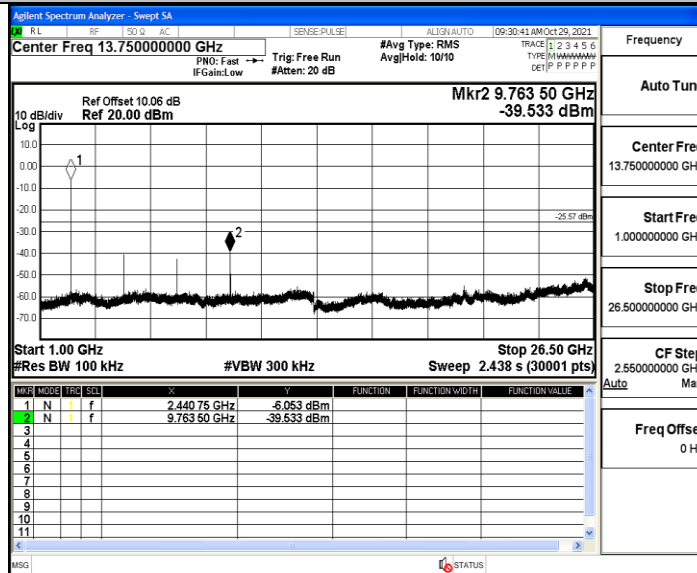
2DH5\_Ant1\_2441\_0~Reference



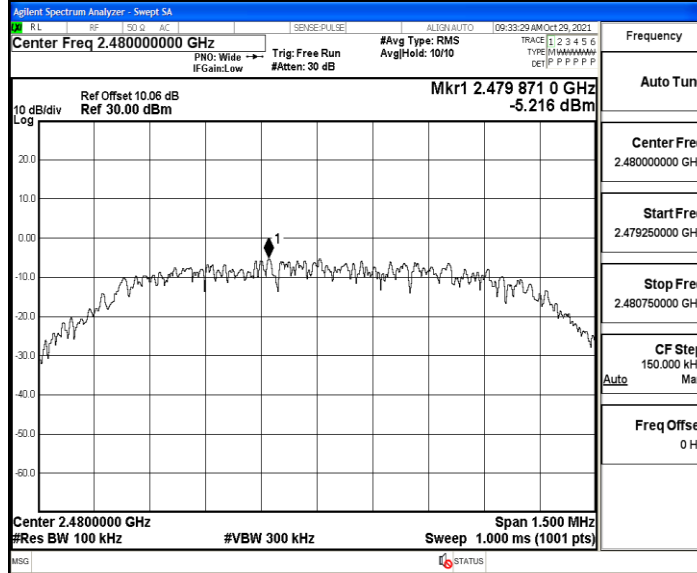
2DH5\_Ant1\_2441\_30~1000



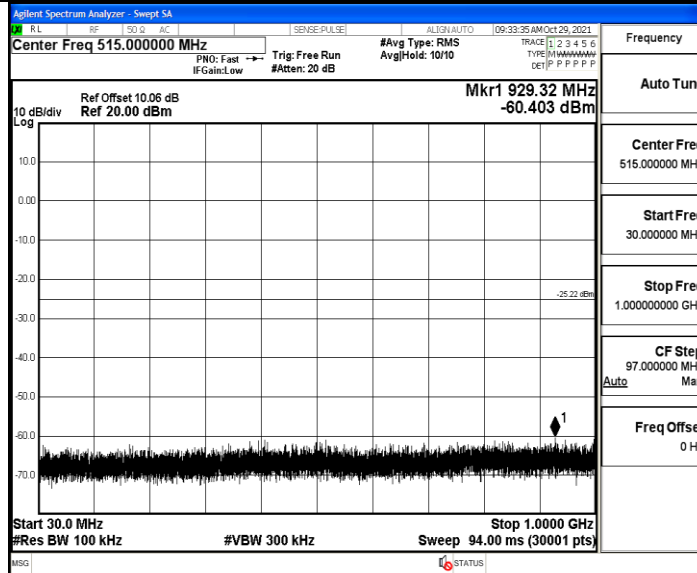
2DH5\_Ant1\_2441\_1000~26500



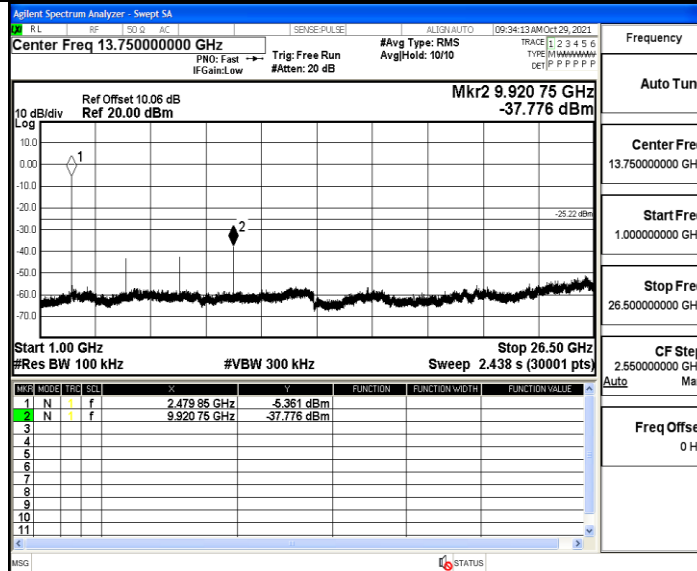
2DH5\_Ant1\_2480\_0~Reference



2DH5\_Ant1\_2480\_30~1000



2DH5\_Ant1\_2480\_1000~26500



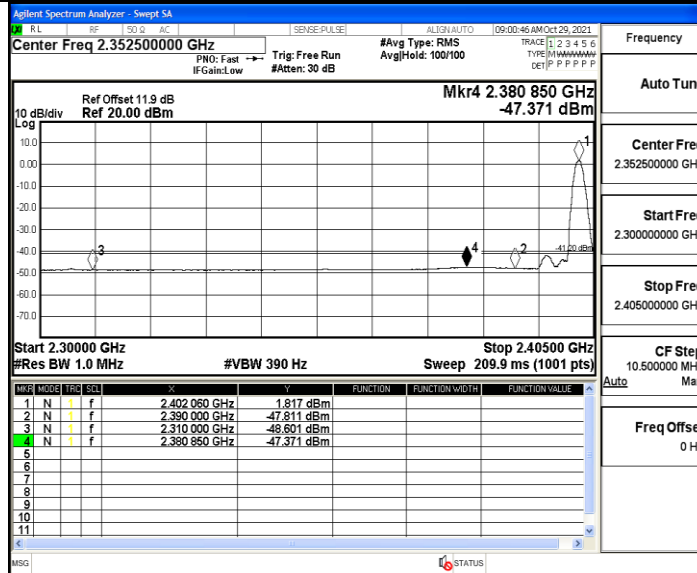
**A.8 Restrict-band band-edge measurements**

TestMode	Antenna	ChName	Channel	Detector	Freq(MHz)	Result(dBm)	Limit(dBm)	Verdict
DH5	Ant1	Low	2402	AV	2310.000	-48.6	≤-41.20	PASS
				AV	2380.850	-47.37	≤-41.20	PASS
				AV	2390.000	-47.81	≤-41.20	PASS
				Peak	2310.000	-41.11	≤-21.20	PASS
				Peak	2384.210	-38.36	≤-21.20	PASS
				Peak	2390.000	-40.51	≤-21.20	PASS
		High	2480	AV	2483.500	-43.35	≤-41.20	PASS
				AV	2483.520	-43.35	≤-41.20	PASS
				AV	2500.000	-54.86	≤-41.20	PASS
				Peak	2483.500	-40	≤-21.20	PASS
				Peak	2483.840	-39.38	≤-21.20	PASS
				Peak	2500.000	-47.96	≤-21.20	PASS
2DH5	Ant1	Low	2402	AV	2310.000	-58.54	≤-41.20	PASS
				AV	2379.695	-52.3	≤-41.20	PASS
				AV	2390.000	-54.07	≤-41.20	PASS
				Peak	2310.000	-51.95	≤-21.20	PASS
				Peak	2379.905	-42.6	≤-21.20	PASS
				Peak	2390.000	-46.82	≤-21.20	PASS
		High	2480	AV	2483.500	-45.58	≤-41.20	PASS
				AV	2483.520	-45.58	≤-41.20	PASS
				AV	2500.000	-54.11	≤-41.20	PASS
				Peak	2483.500	-40.5	≤-21.20	PASS
				Peak	2483.680	-40.09	≤-21.20	PASS
				Peak	2500.000	-47.26	≤-21.20	PASS

Note:

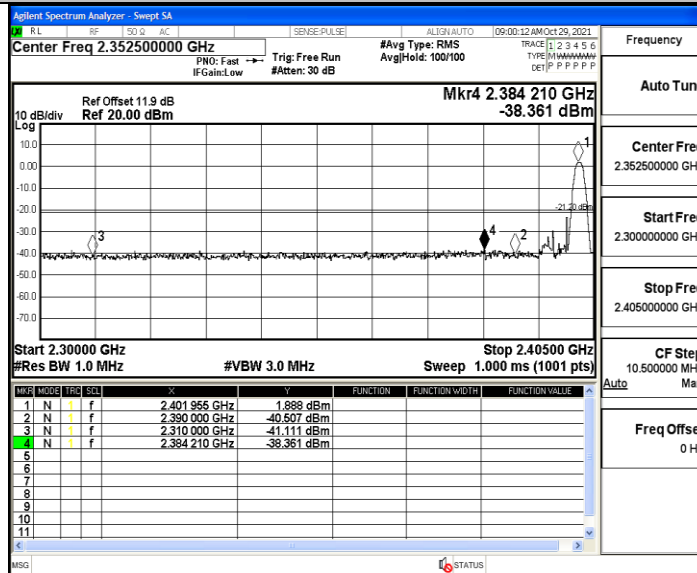
1. The Antenna Gain is compensated in the graph with 2dBi and Antenna Gain which is Higher.
2. The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

DH5\_Ant1\_Low\_2402\_AV



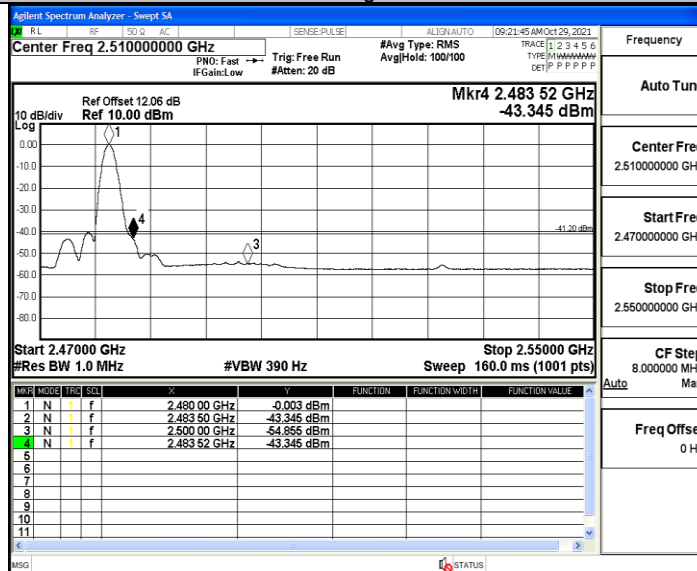
Frequency	Auto Tune
Center Freq	2.352500000 GHz
Start Freq	2.300000000 GHz
Stop Freq	2.405000000 GHz
CF Step	10.500000 MHz
Auto	Man
Freq Offset	0 Hz

DH5\_Ant1\_Low\_2402\_Peak



Frequency	Auto Tune
Center Freq	2.352500000 GHz
Start Freq	2.300000000 GHz
Stop Freq	2.405000000 GHz
CF Step	10.500000 MHz
Auto	Man
Freq Offset	0 Hz

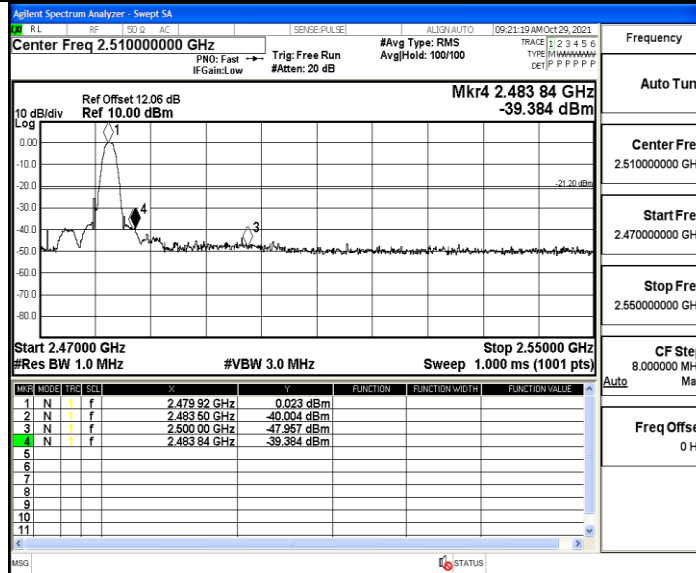
DH5\_Ant1\_High\_2480\_AV



Frequency	Auto Tune
Center Freq	2.510000000 GHz
Start Freq	2.470000000 GHz
Stop Freq	2.550000000 GHz
CF Step	8.000000 MHz
Auto	Man
Freq Offset	0 Hz

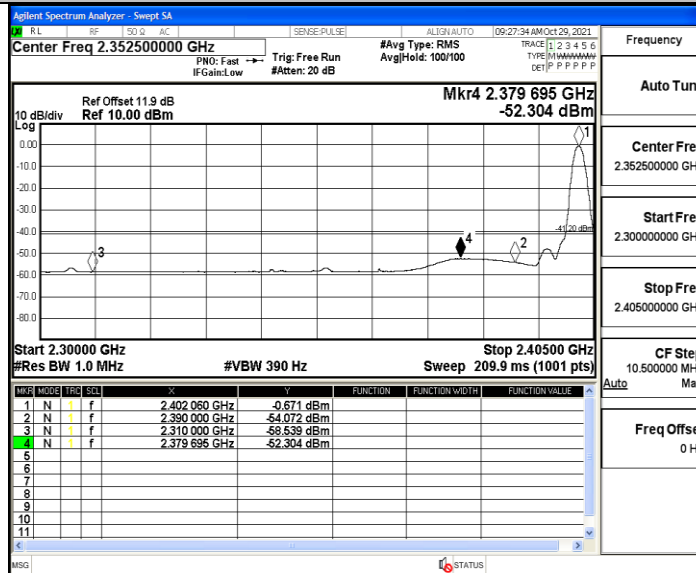


DH5\_Ant1\_High\_2480\_Peak



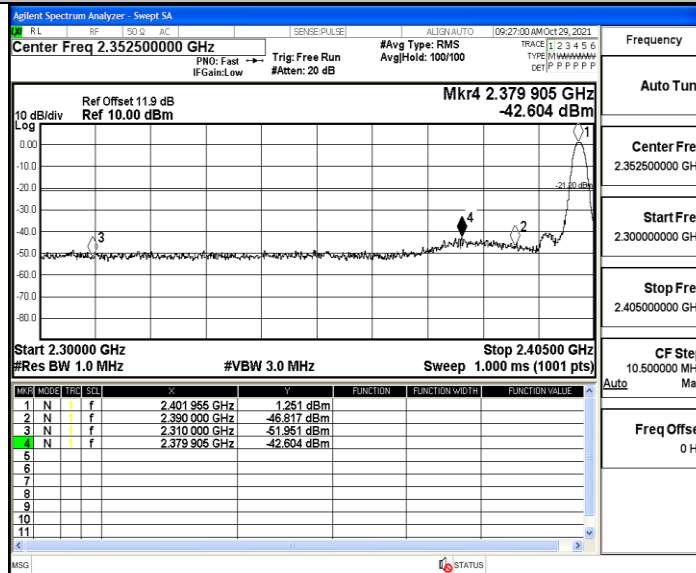
Frequency	Auto Tune
Center Freq	2.510000000 GHz
Start Freq	2.470000000 GHz
Stop Freq	2.550000000 GHz
CF Step	8.000000 MHz
Auto	Man
Freq Offset	0 Hz

2DH5\_Ant1\_Low\_2402\_AV



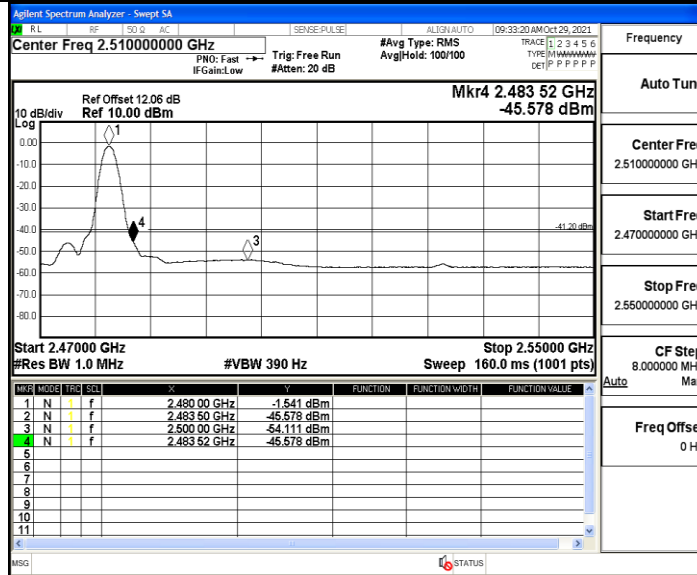
Frequency	Auto Tune
Center Freq	2.352500000 GHz
Start Freq	2.300000000 GHz
Stop Freq	2.405000000 GHz
CF Step	10.500000 MHz
Auto	Man
Freq Offset	0 Hz

2DH5\_Ant1\_Low\_2402\_Peak



Frequency	Auto Tune
Center Freq	2.352500000 GHz
Start Freq	2.300000000 GHz
Stop Freq	2.405000000 GHz
CF Step	10.500000 MHz
Auto	Man
Freq Offset	0 Hz

2DH5\_Ant1\_High\_2480\_AV



2DH5\_Ant1\_High\_2480\_Peak

