

Appendix B

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: 15" Screen Bluetooth PA speaker

Trade Mark: billboard

Test Model: BB2713

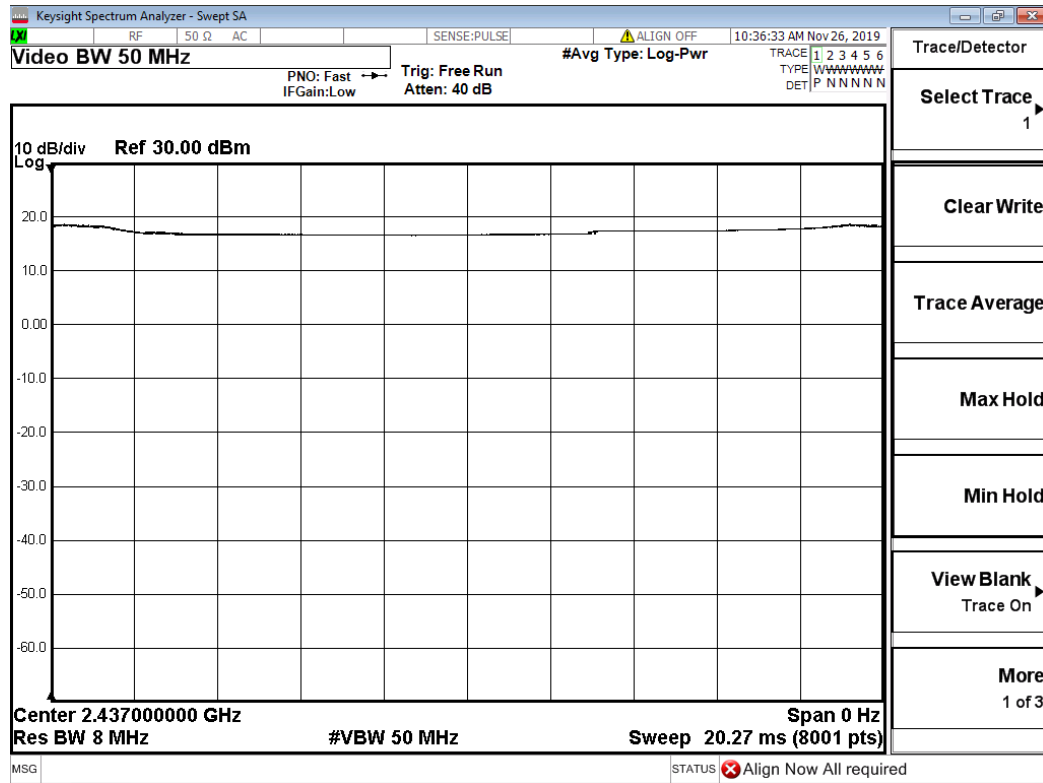
Environmental Conditions

Temperature:	23.6 ° C
Relative Humidity:	56%
ATM Pressure:	100.0 kPa
Test Engineer:	CHUANG WANG
Supervised by:	JAYDEN ZHUO

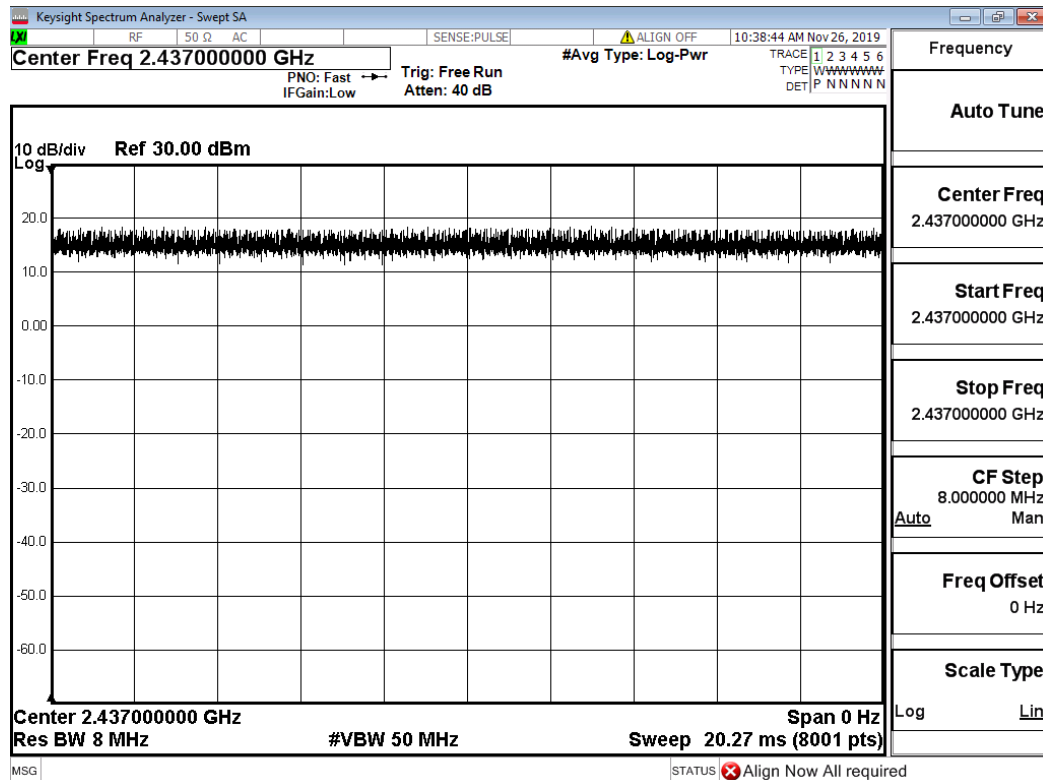
B.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2412	Ant1	100	PASS
11G	2412	Ant1	100	PASS
11N20SISO	2412	Ant1	100	PASS
11N40SISO	2412	Ant1	100	PASS

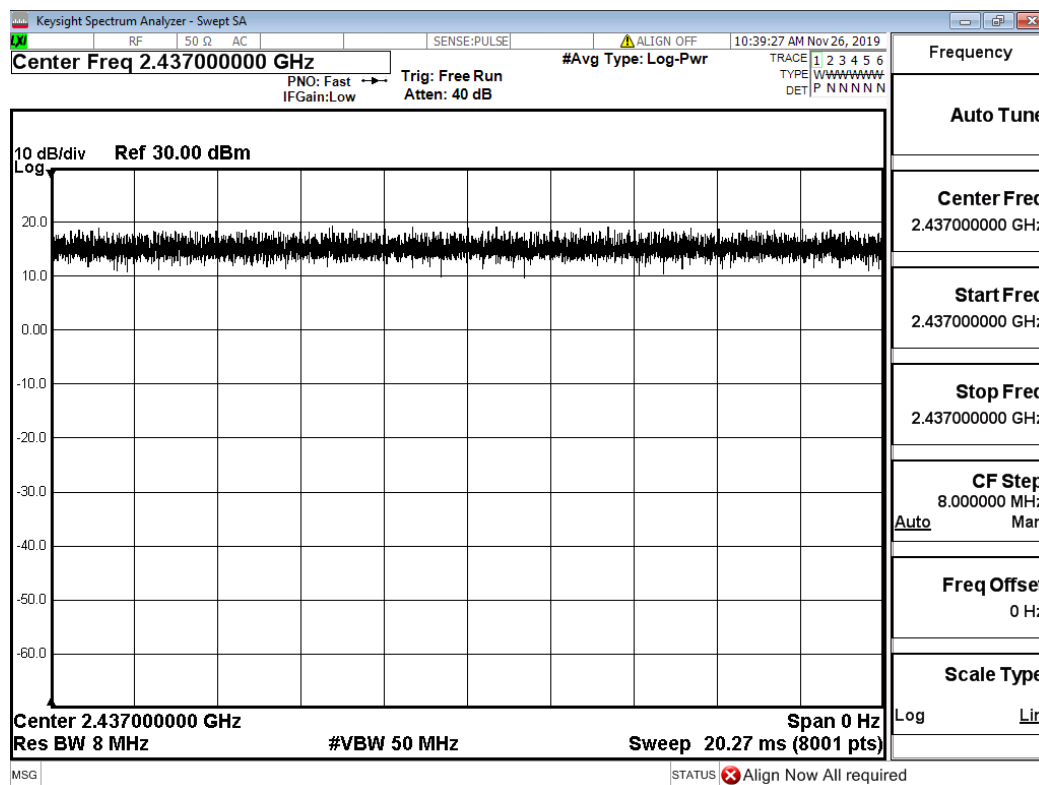
Duty Cycle_11B_2437_Ant1



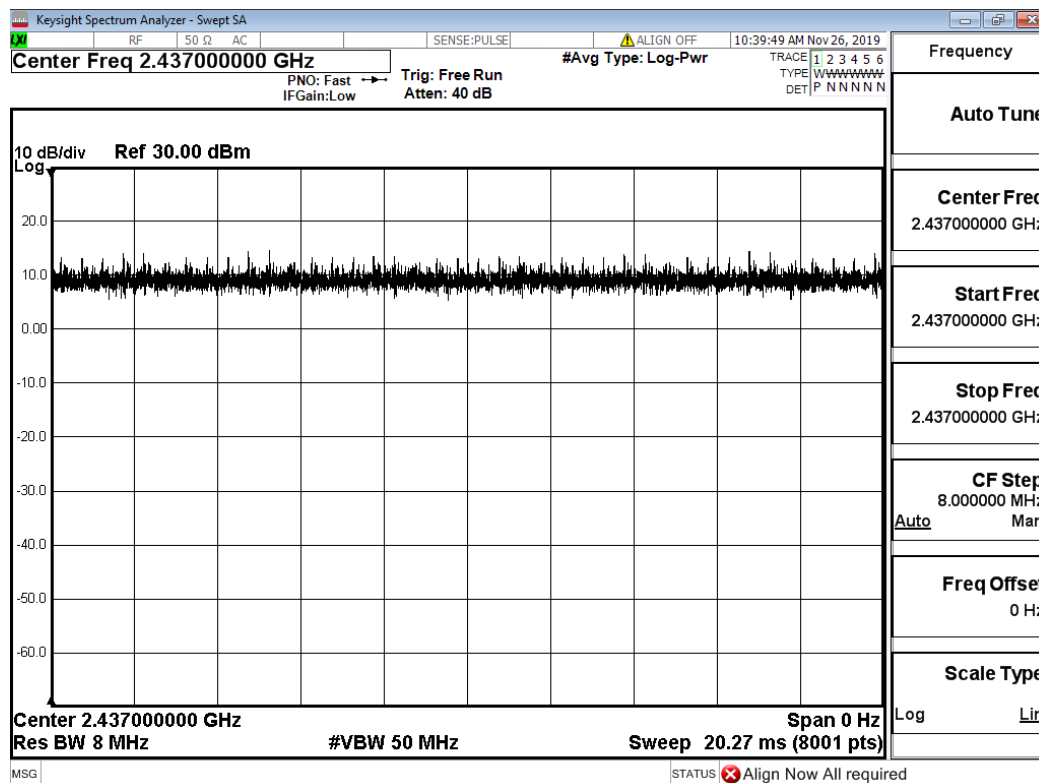
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1



B.2 Maximum Conducted Output Power

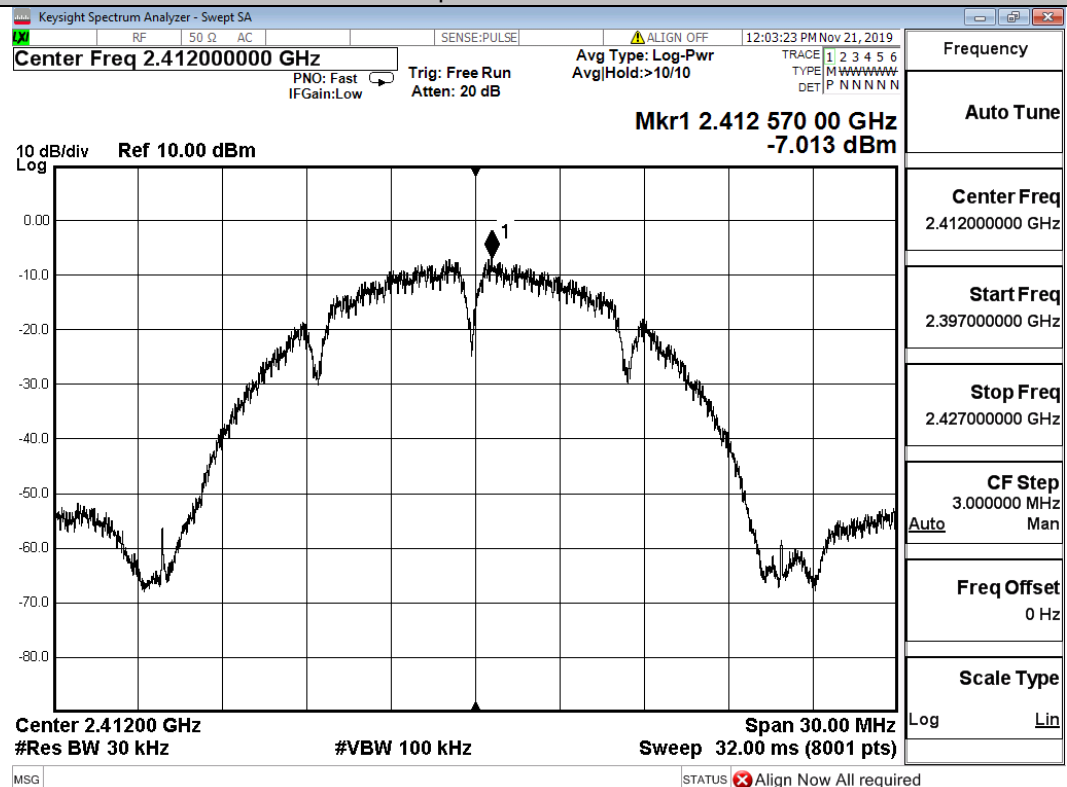
Mode	Channel	Meas. Peak Level [dBm]	Limit [dBm]	Verdict
11B	LCH	12.502	30	PASS
	MCH	13.188	30	PASS
	HCH	13.954	30	PASS
11G	LCH	8.906	30	PASS
	MCH	9.744	30	PASS
	HCH	10.024	30	PASS
11N20SISO	LCH	9.159	30	PASS
	MCH	9.727	30	PASS
	HCH	10.162	30	PASS
11N40SISO	LCH	7.508	30	PASS
	MCH	7.907	30	PASS
	HCH	8.234	30	PASS

B.3 Maximum Power Spectral Density

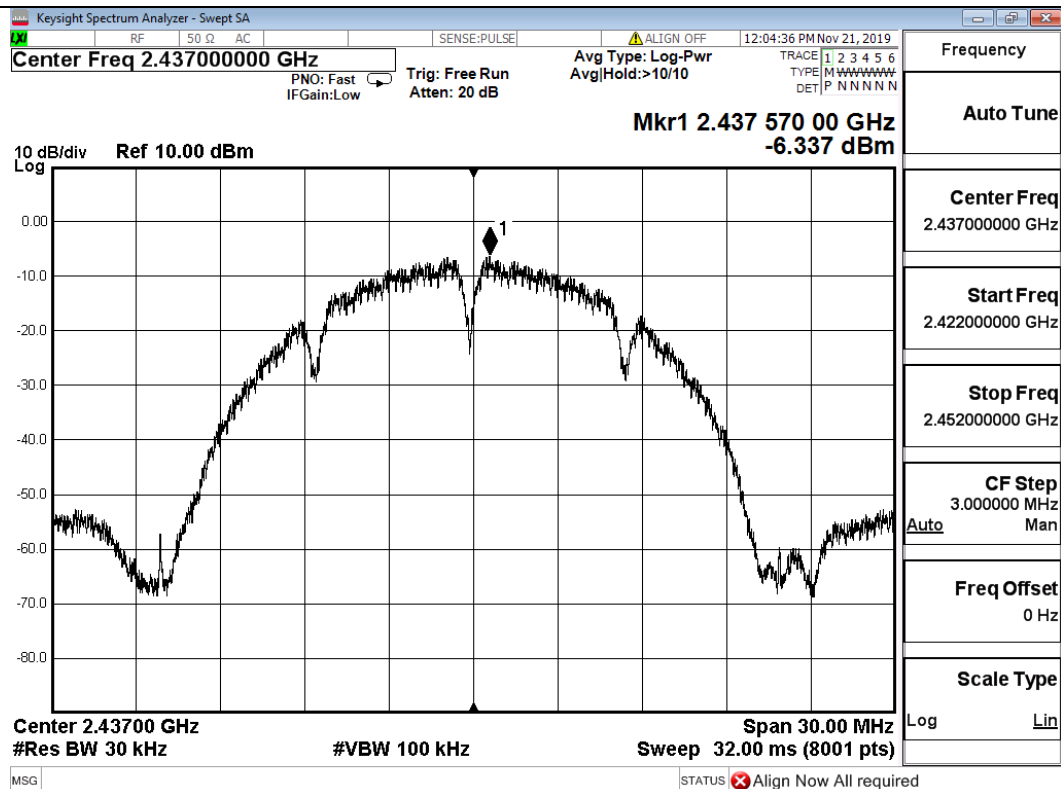
Mode	Channel	Meas.Level [dBm/30KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-7.013	8	PASS
	MCH	-6.337	8	PASS
	HCH	-5.701	8	PASS
11G	LCH	-15.853	8	PASS
	MCH	-15.358	8	PASS
	HCH	-14.782	8	PASS
11N20SISO	LCH	-15.708	8	PASS
	MCH	-15.022	8	PASS
	HCH	-14.256	8	PASS
11N40SISO	LCH	-18.159	8	PASS
	MCH	-17.406	8	PASS
	HCH	-15.638	8	PASS

Test Graphs

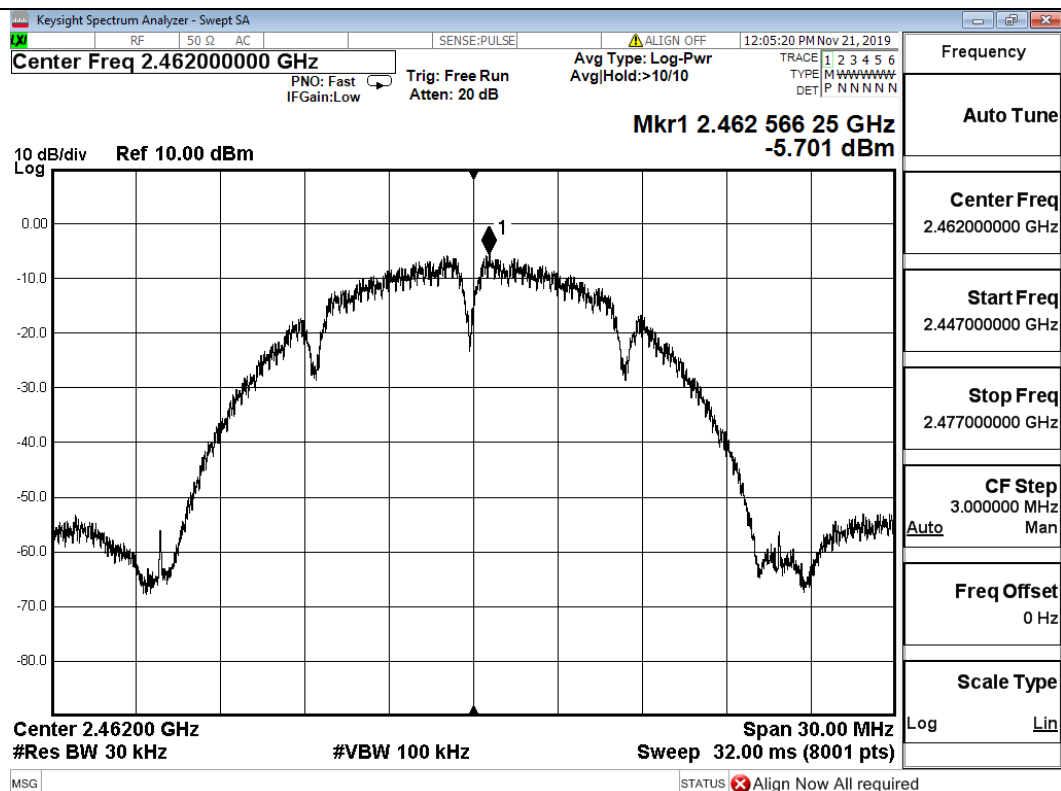
11B/LCH



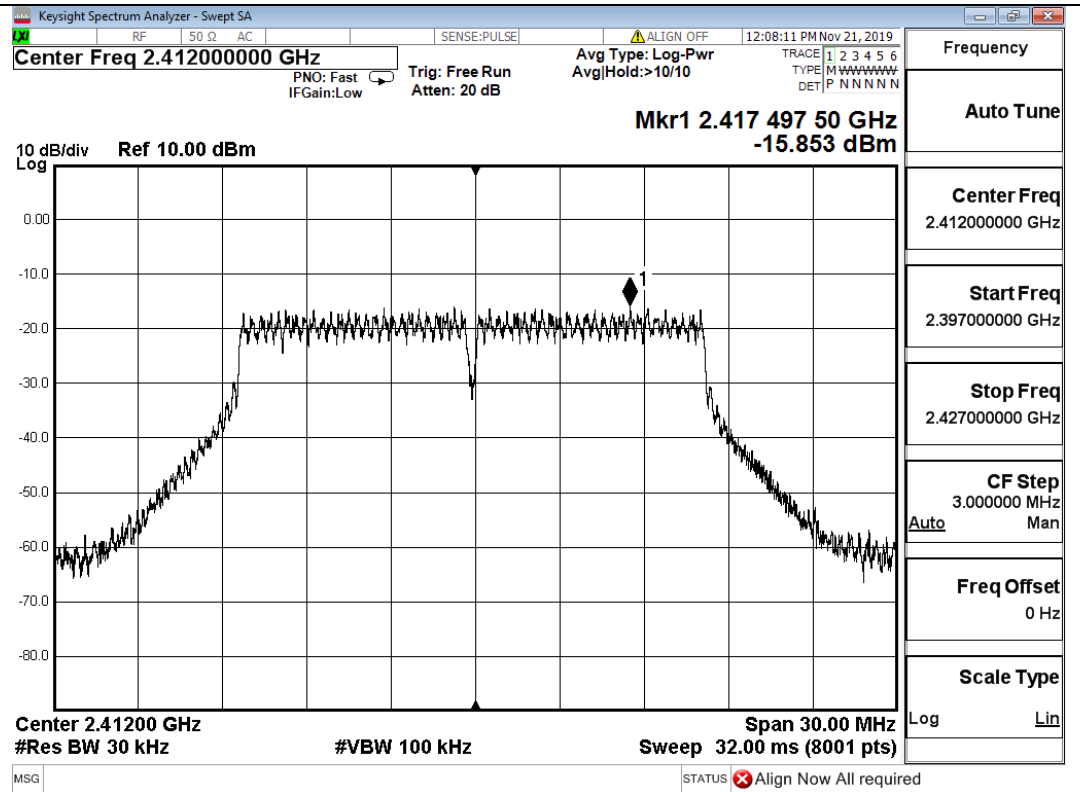
11B/MCH



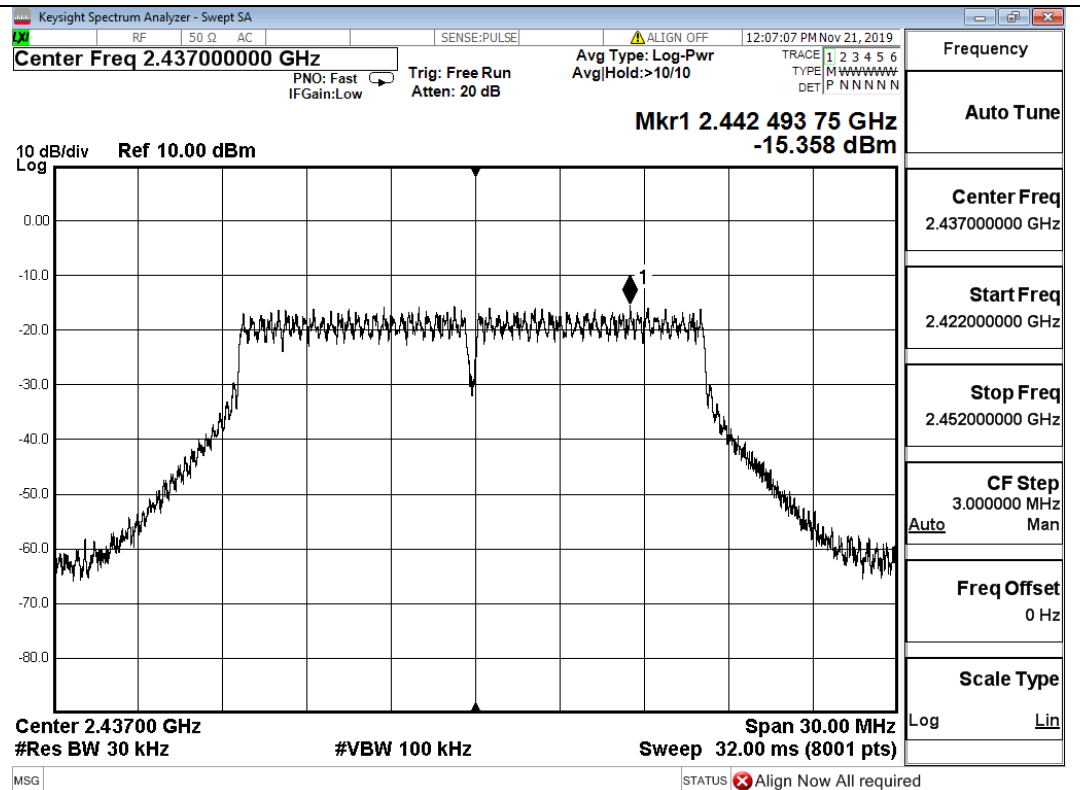
11B/HCH



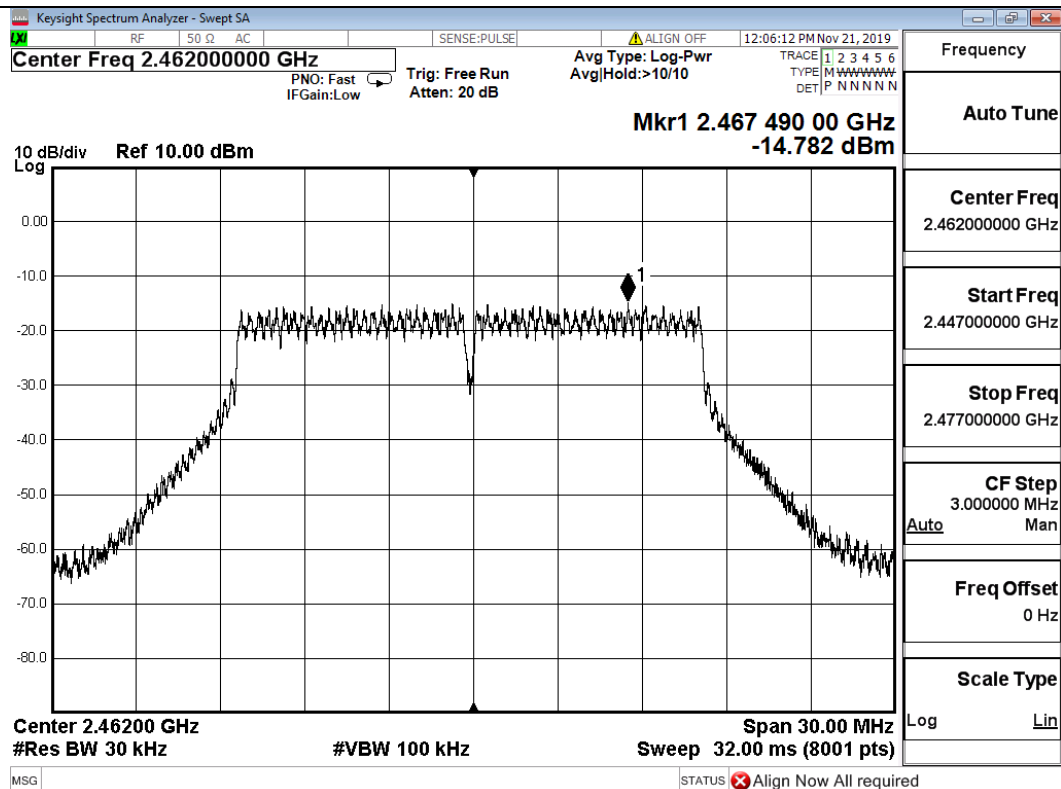
11G/LCH



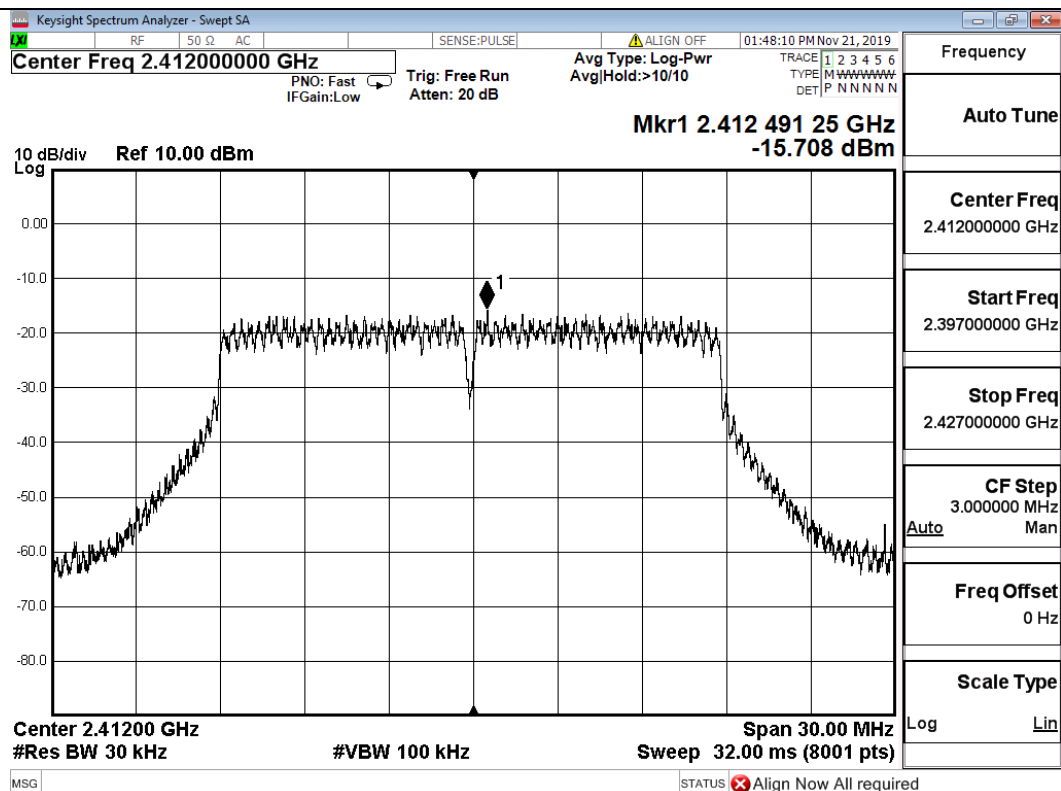
11G/MCH



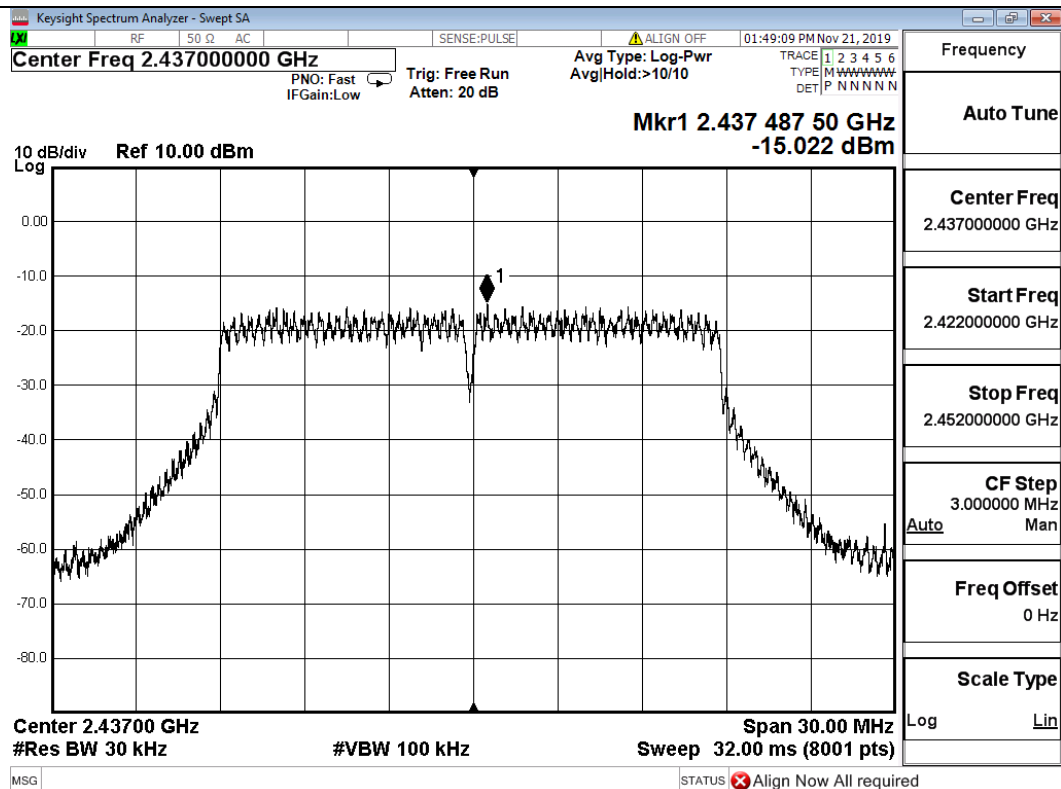
11G/HCH



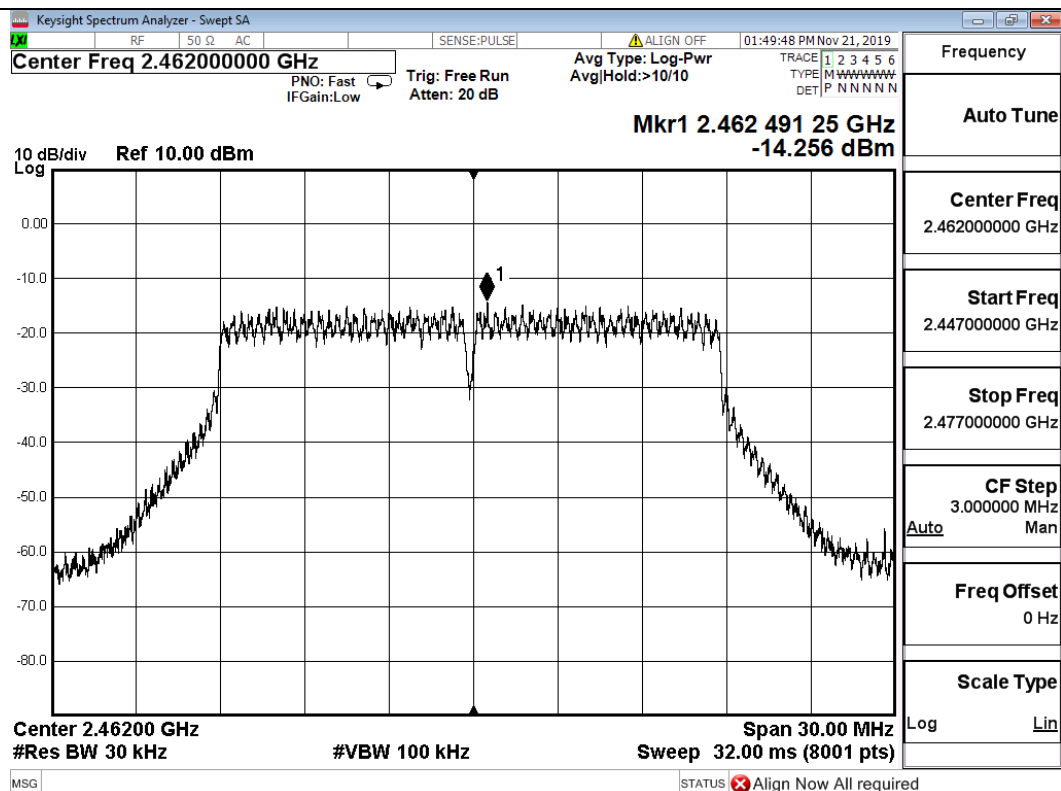
11N20SISO/LCH



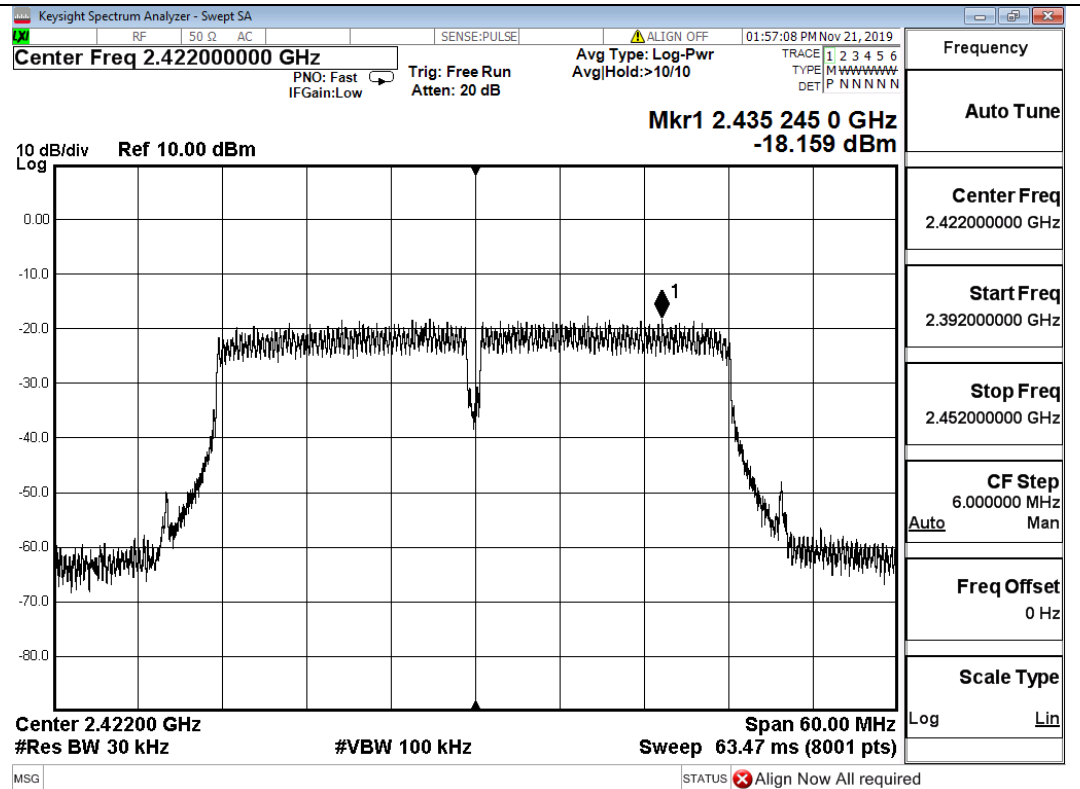
11N20SISO/MCH



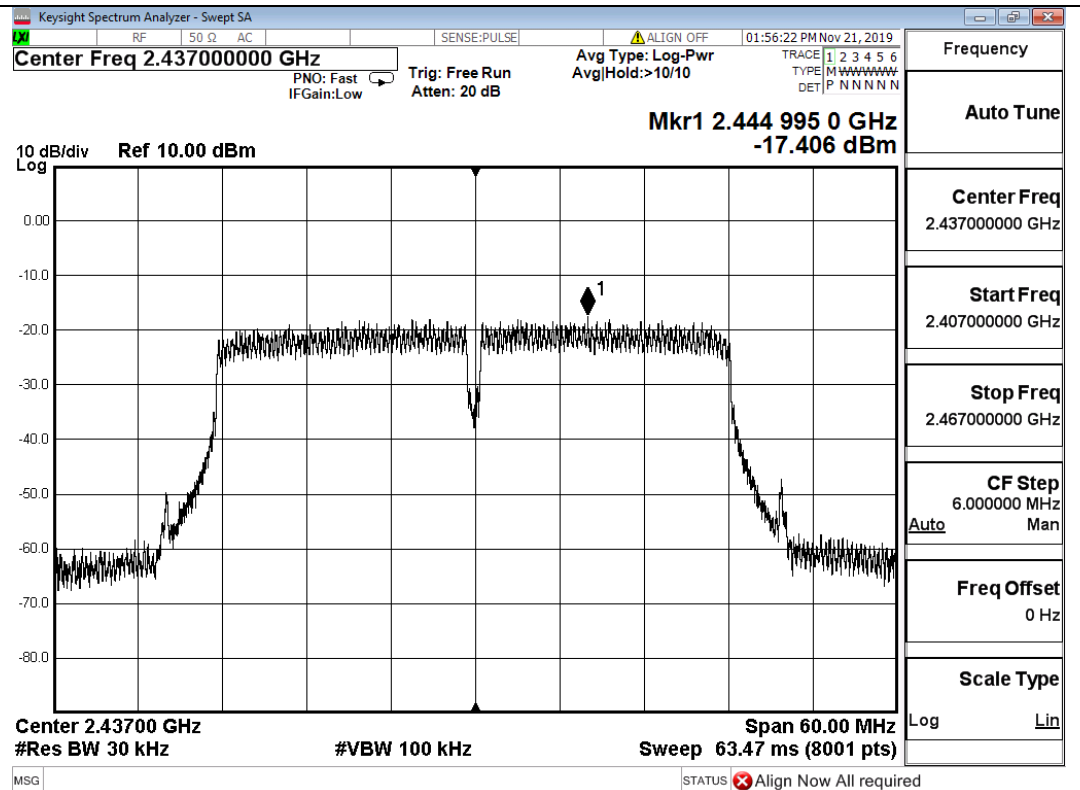
11N20SISO/HCH



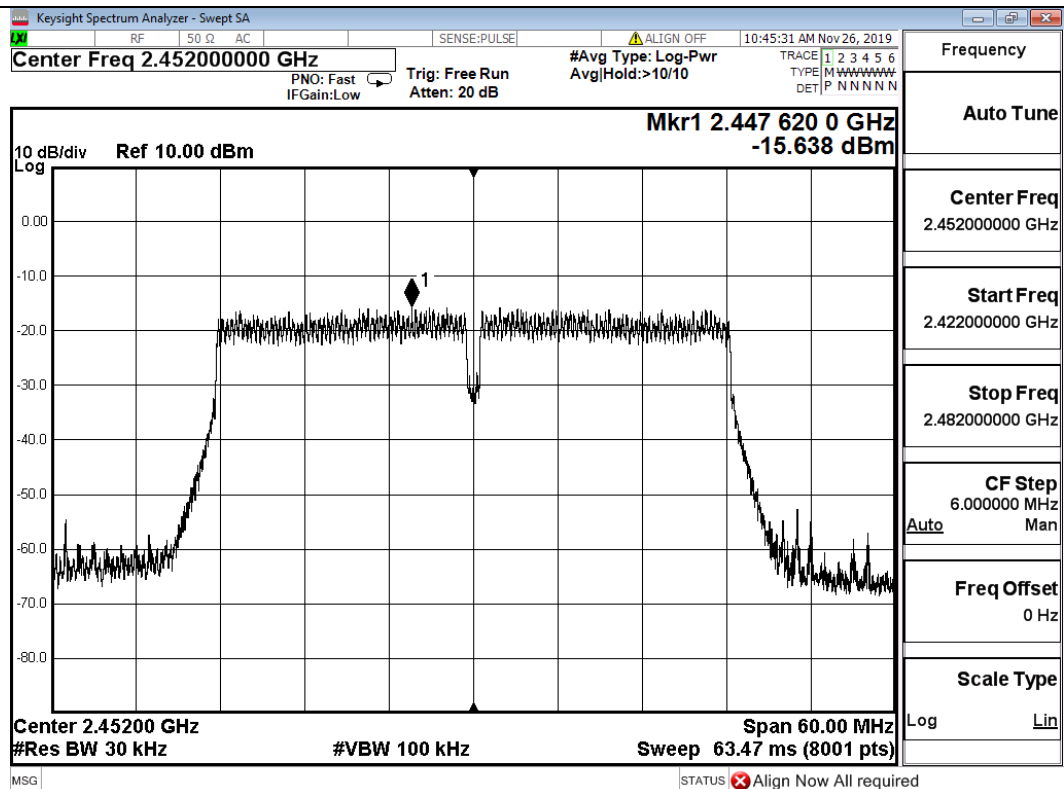
11N40SISO/LCH



11N40SISO/MCH

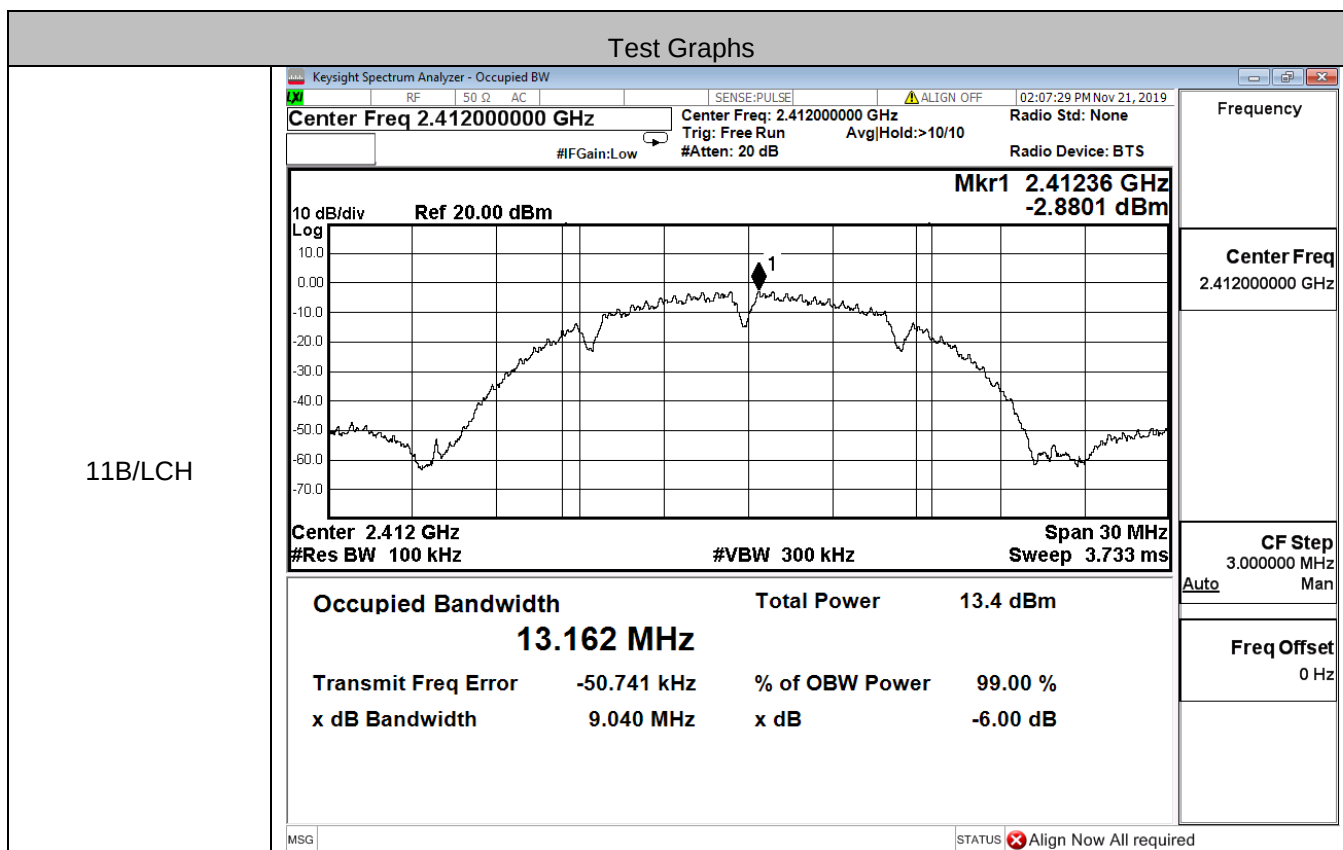


11N40SISO/HCH

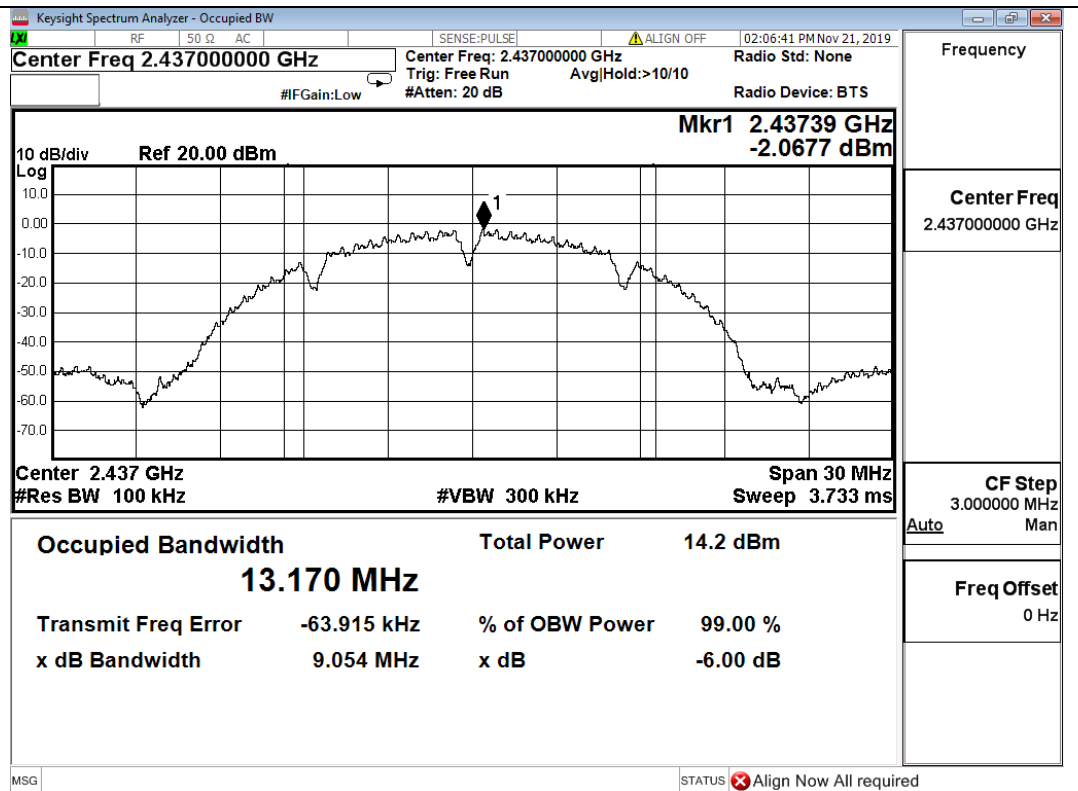


B.4 6dB Bandwidth

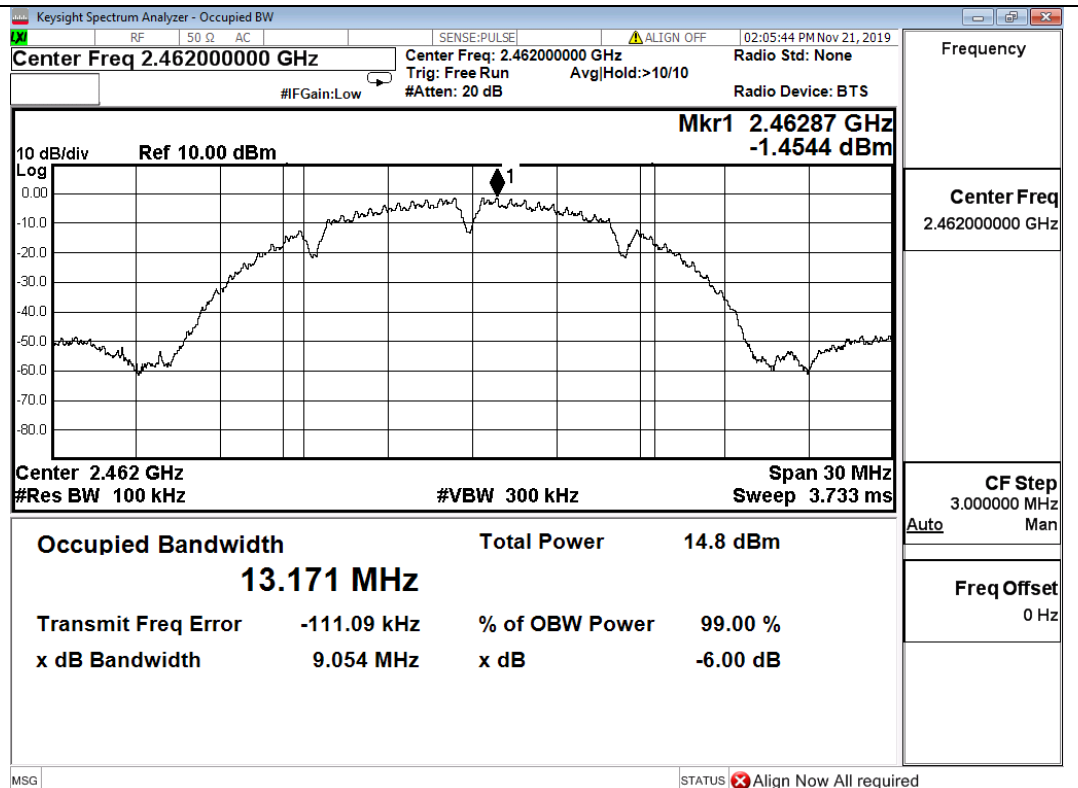
Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	9.040	≥ 0.5	PASS
	MCH	9.054	≥ 0.5	PASS
	HCH	9.054	≥ 0.5	PASS
11G	LCH	16.56	≥ 0.5	PASS
	MCH	16.56	≥ 0.5	PASS
	HCH	16.55	≥ 0.5	PASS
11N20SISO	LCH	17.72	≥ 0.5	PASS
	MCH	17.73	≥ 0.5	PASS
	HCH	17.73	≥ 0.5	PASS
11N40SISO	LCH	36.43	≥ 0.5	PASS
	MCH	36.43	≥ 0.5	PASS
	HCH	36.42	≥ 0.5	PASS



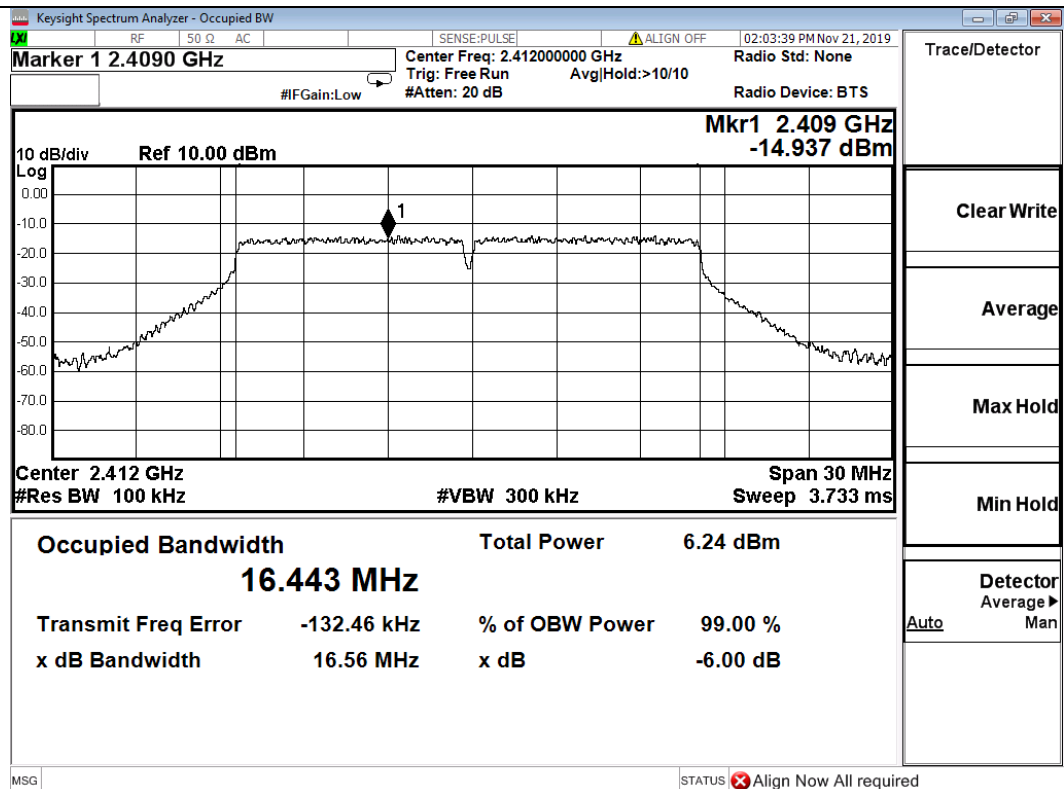
11B/MCH



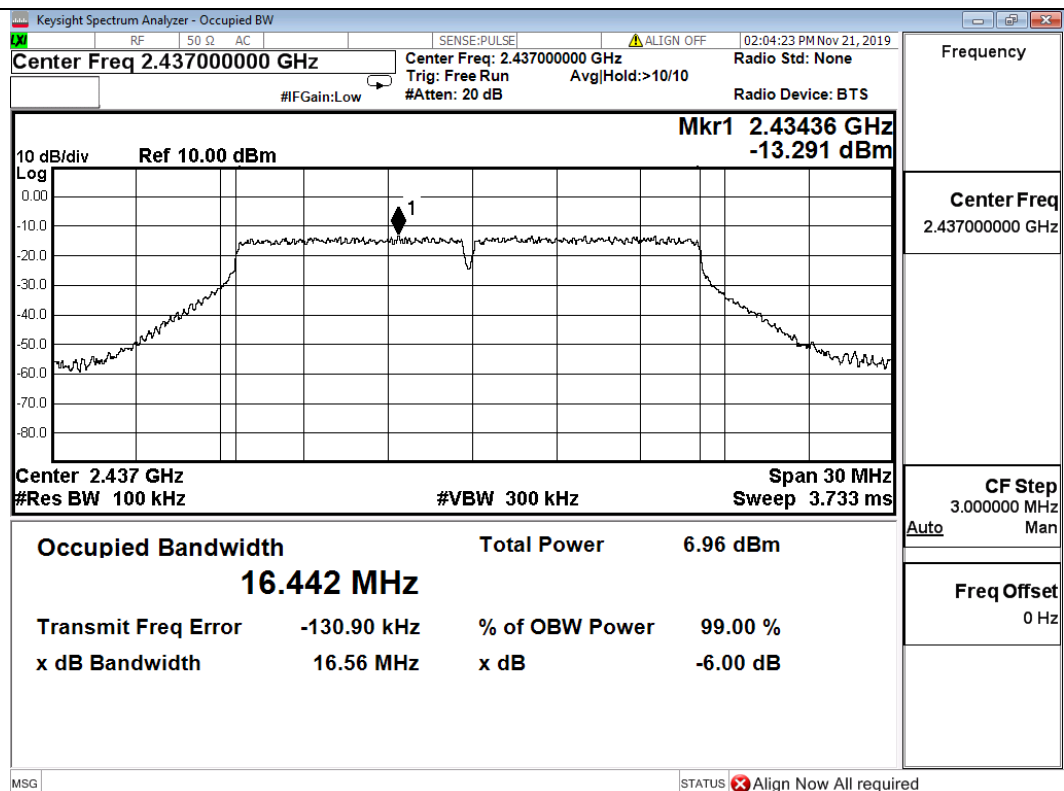
11B/HCH



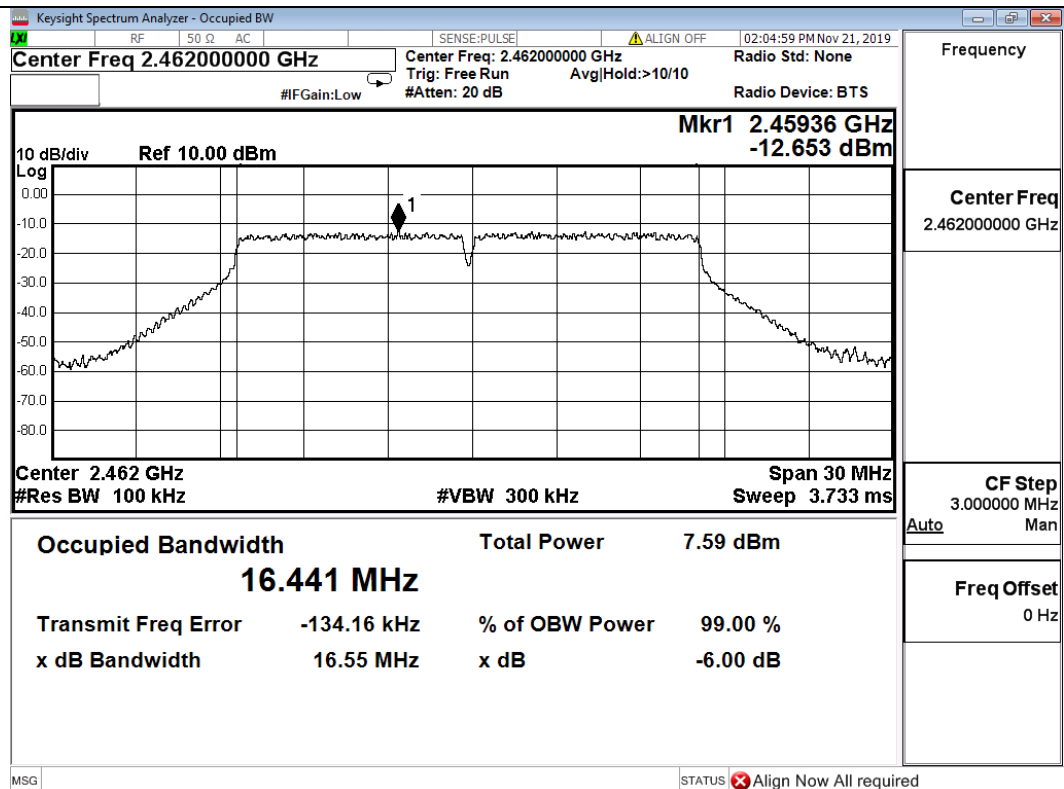
11G/LCH



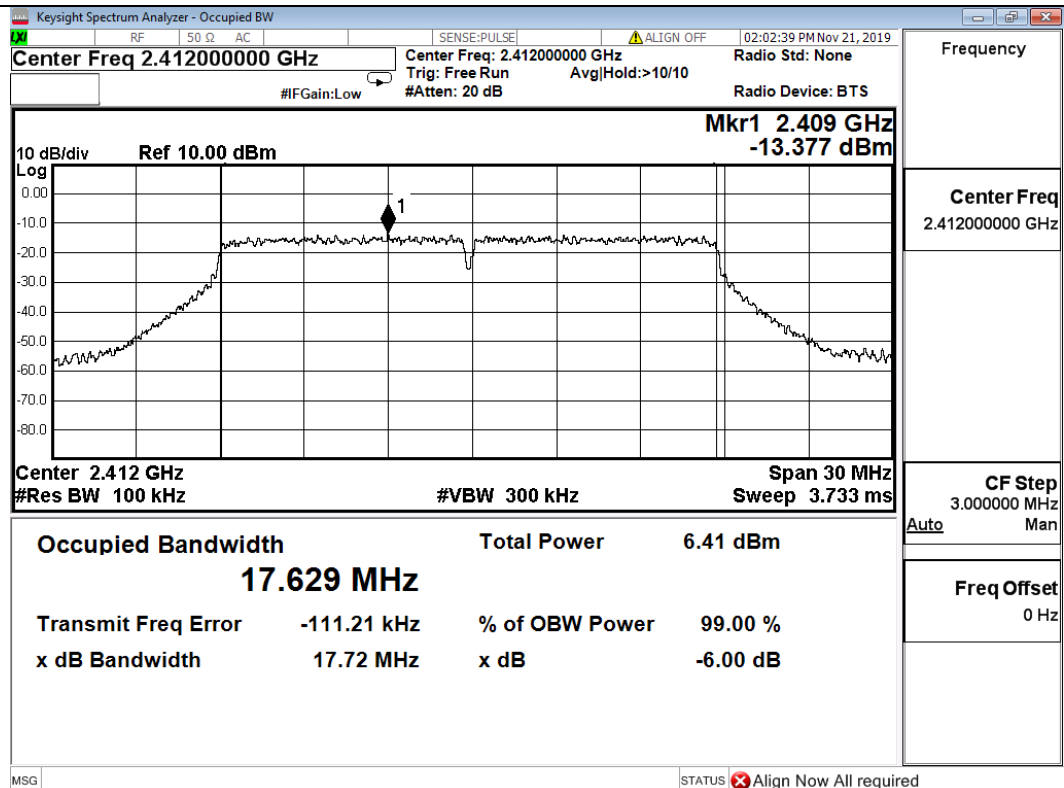
11G/MCH



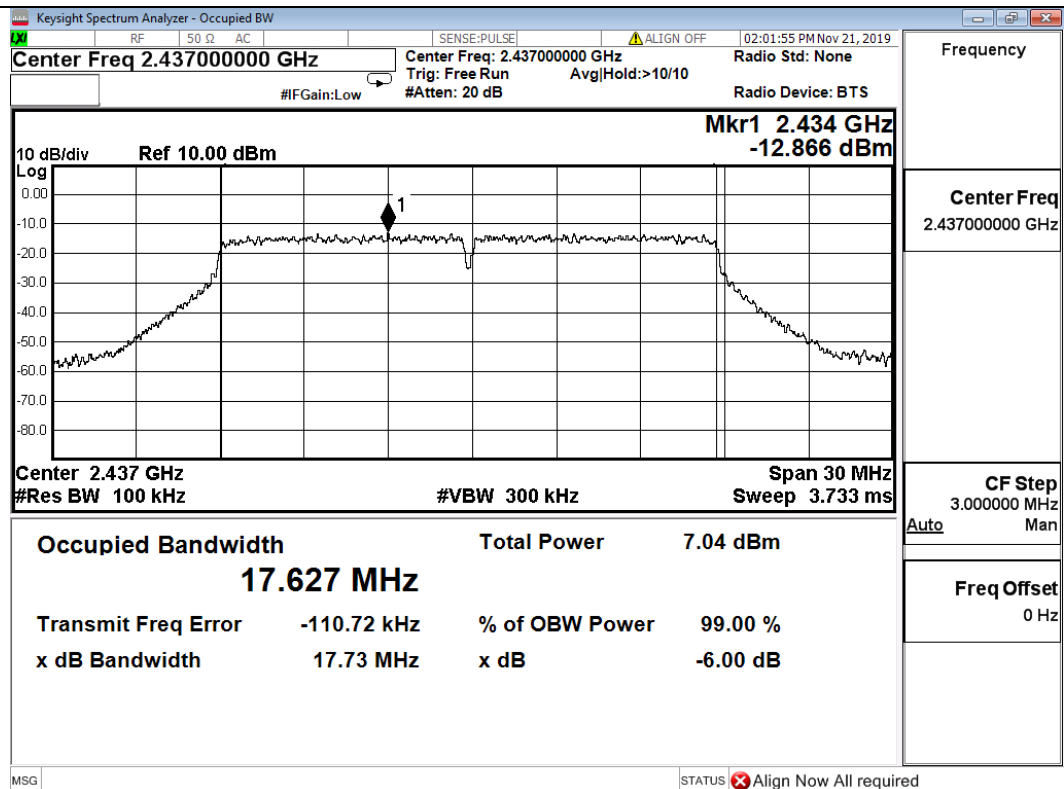
11G/HCH



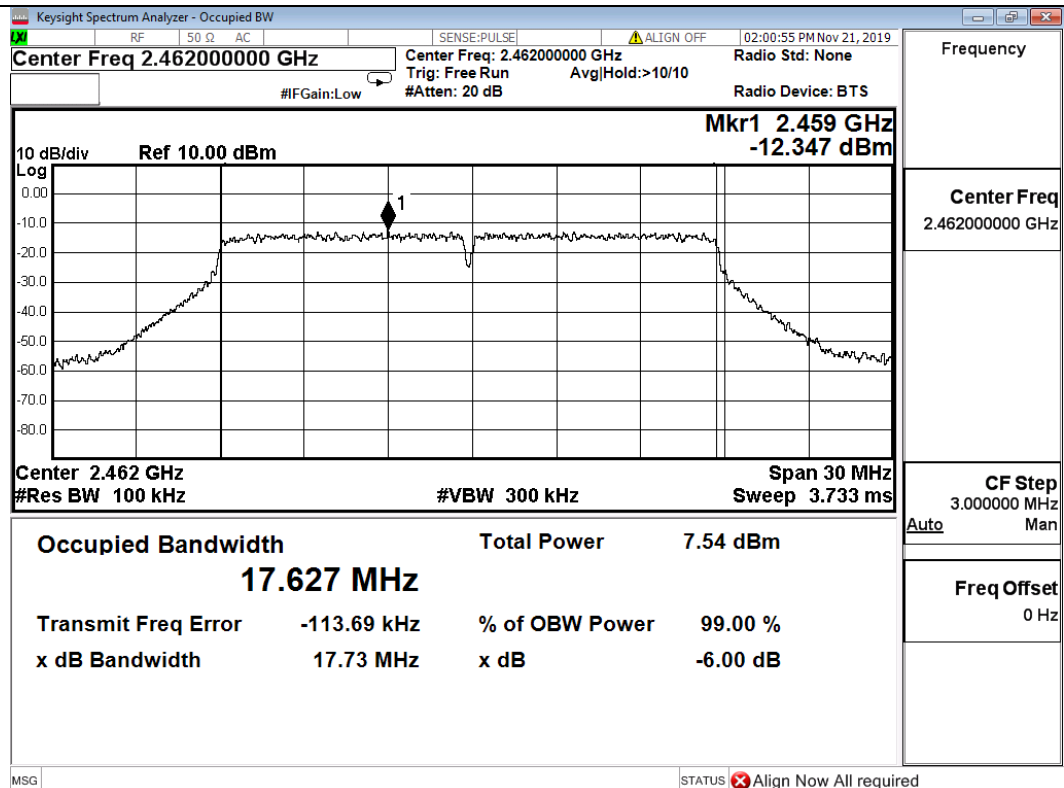
11N20SISO/LCH



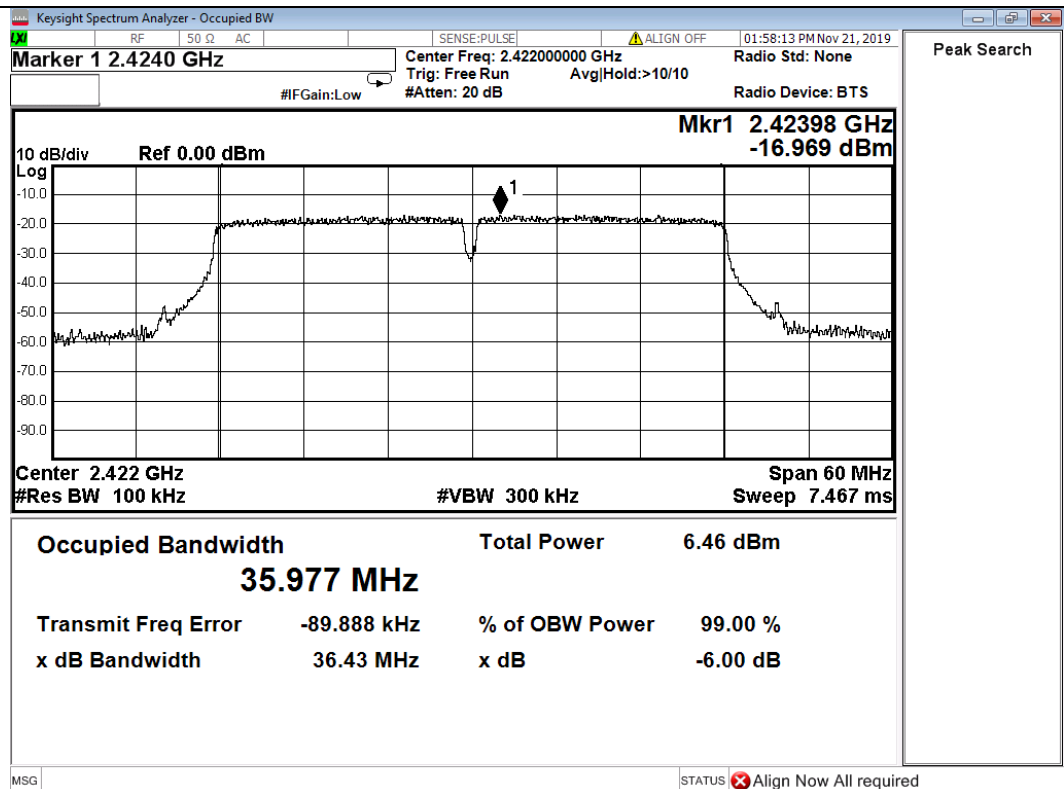
11N20SISO/MCH



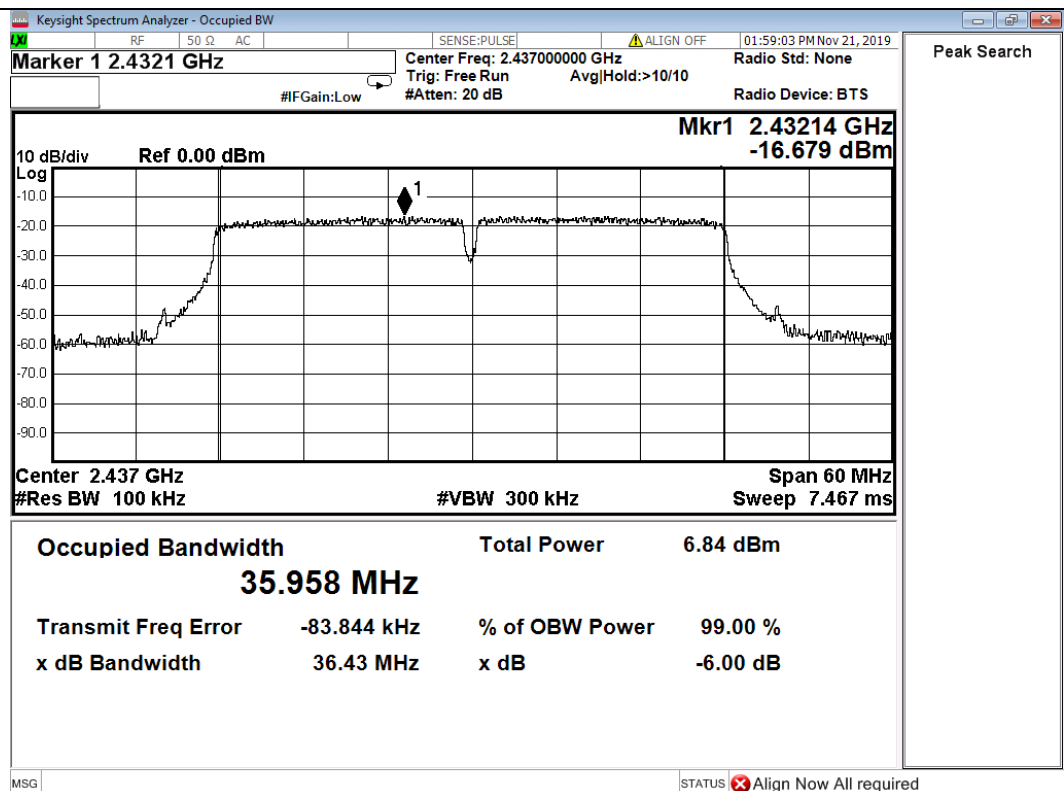
11N20SISO/HCH



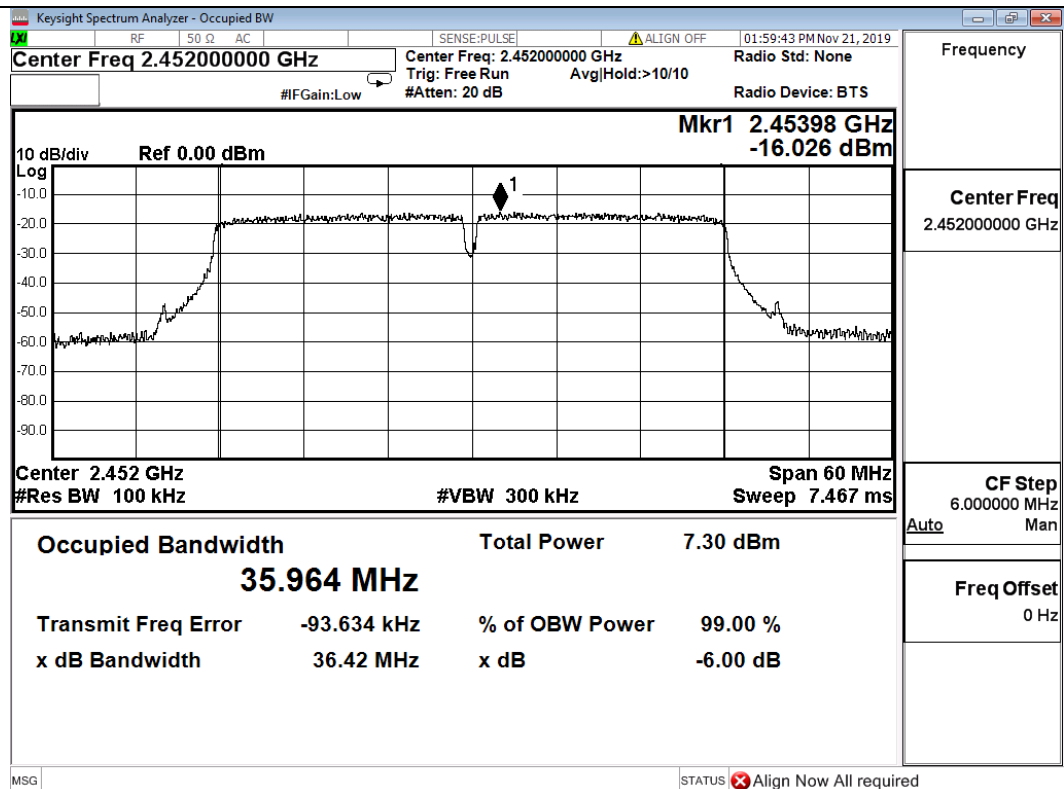
11N40SISO/LCH



11N40SISO/MCH



11N40SISO/HCH

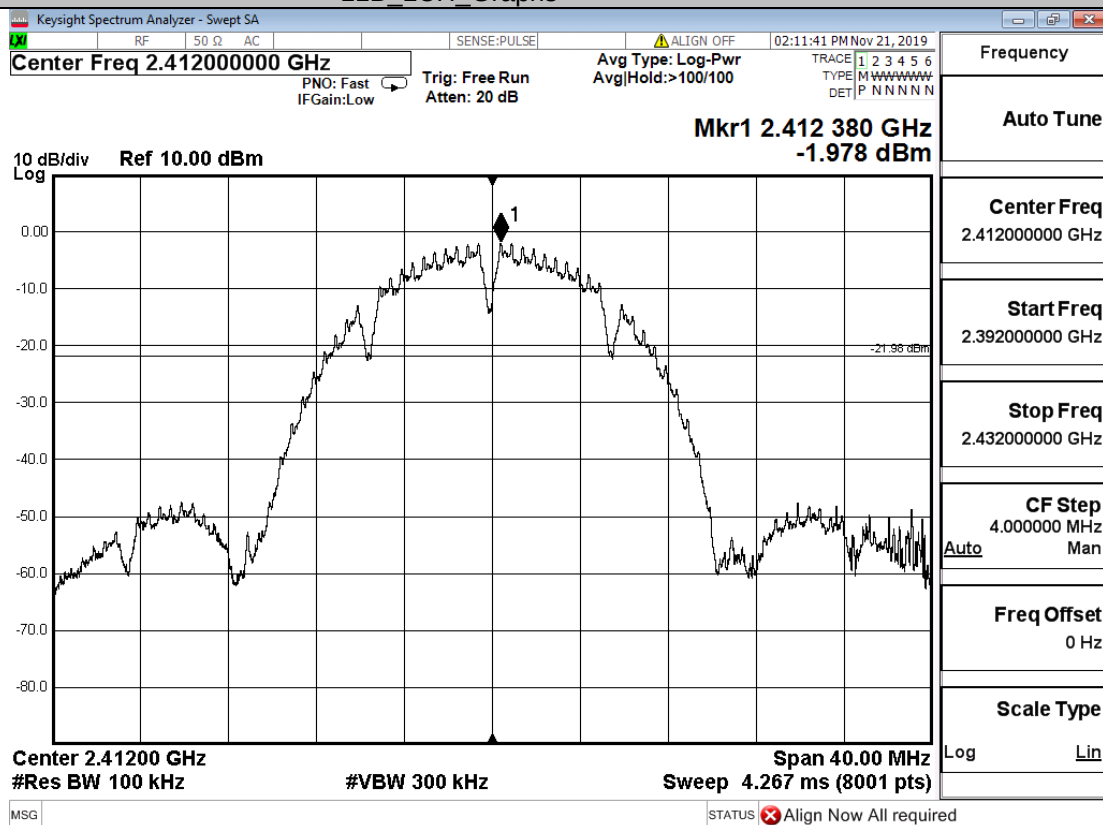


B.5 RF Conducted Spurious Emissions

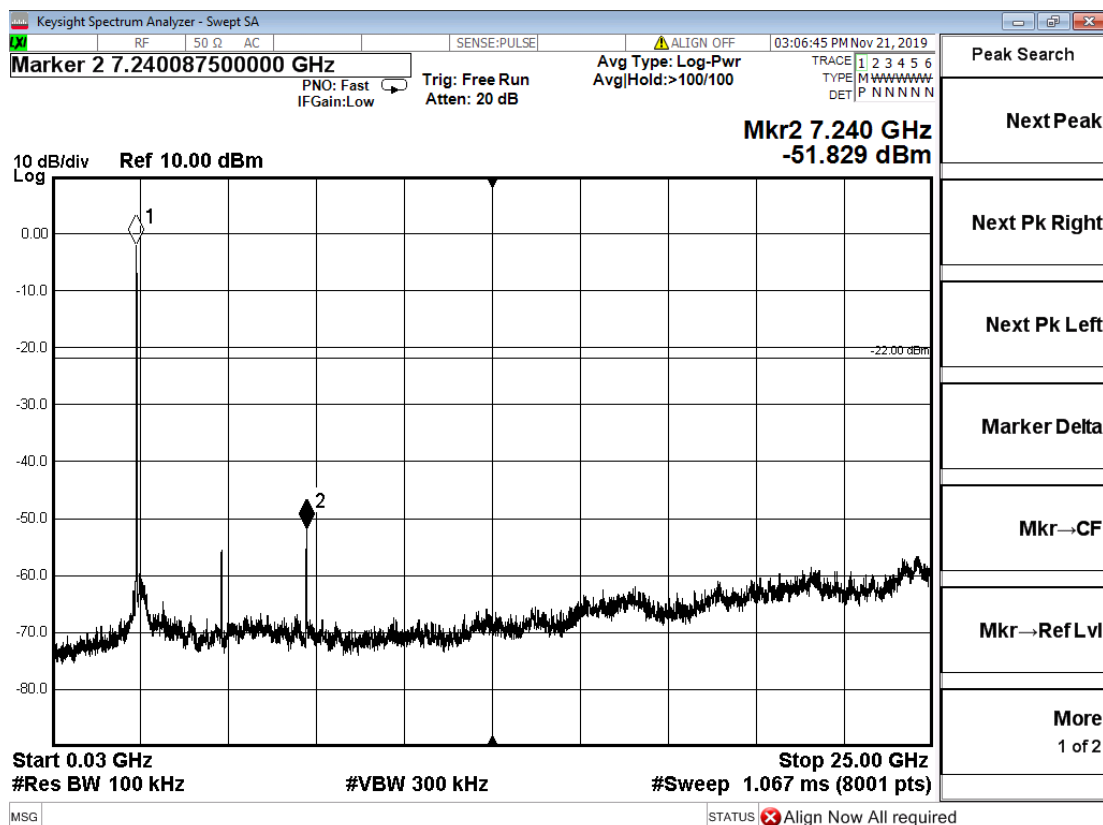
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-1.978	-51.829	-21.98	PASS
	MCH	-1.177	-55.010	-21.18	PASS
	HCH	-0.653	-56.583	-20.65	PASS
11G	LCH	-15.650	-61.893	-35.65	PASS
	MCH	-14.920	-61.613	-34.92	PASS
	HCH	-14.615	-60.717	-34.62	PASS
11N20 SISO	LCH	-15.356	-56.382	-35.36	PASS
	MCH	-14.717	-61.613	-34.72	PASS
	HCH	-14.067	-60.717	-34.07	PASS
11N40 SISO	LCH	-18.091	-56.790	-38.09	PASS
	MCH	-17.486	-61.685	-37.49	PASS
	HCH	-17.048	-63.964	-37.05	PASS

11B LCH Graphs

Pref/11B/LCH

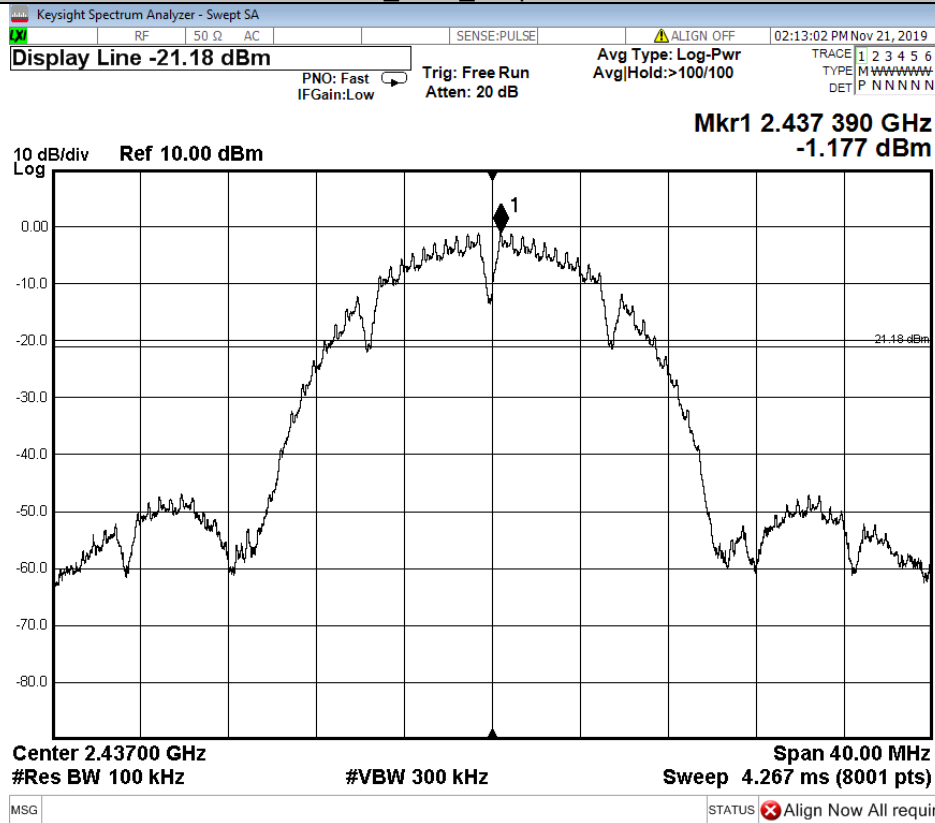


Puw/11B/LCH



11B_MCH_Graphs

Pref/11B/MCH



Display

Annotation▶

Title▶

Graticule

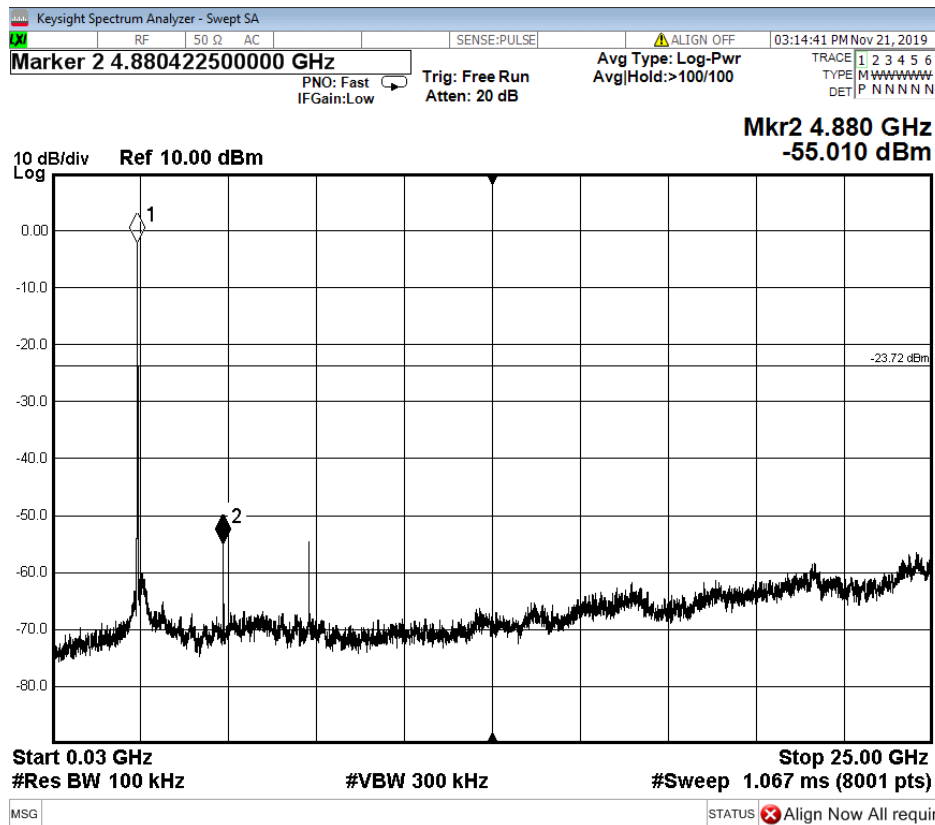
On Off

Display Line

On -21.18 dBm Off

System
Display▶
Settings

Puw/11B/MCH



Marker

Select Marker
2▶

Normal

Delta

Fixed▶

Off

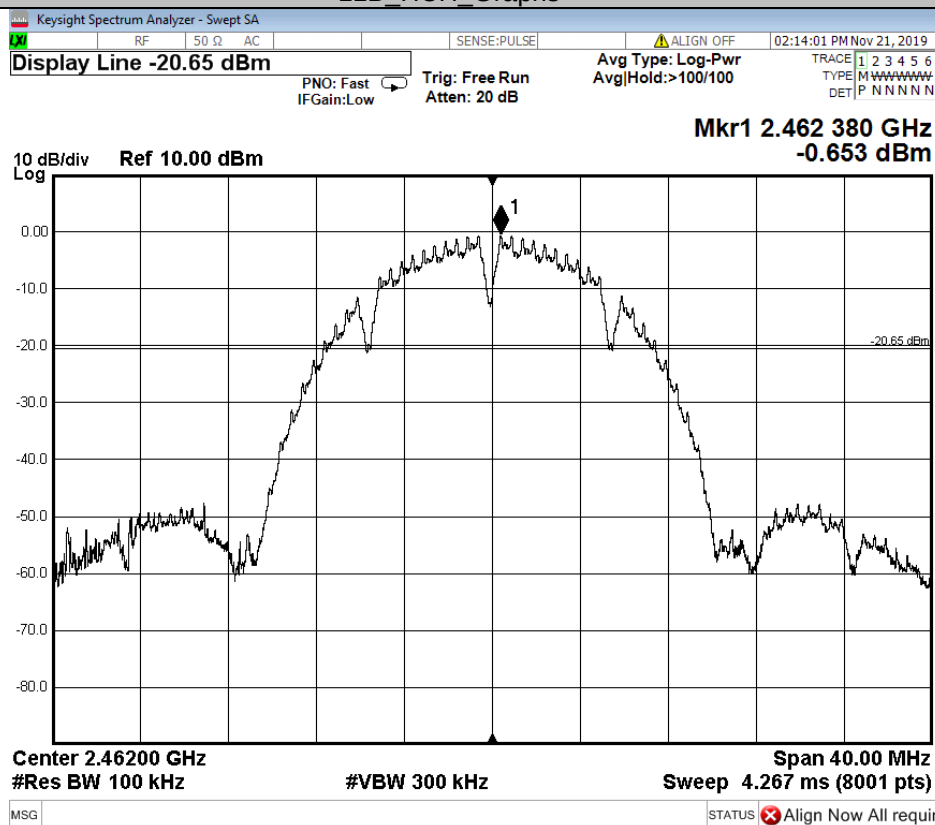
Properties▶

More

1 of 2

11B HCH Graphs

Pref/11B/HCH



Display

Annotation▶

Title▶

Graticule

On Off

Display Line

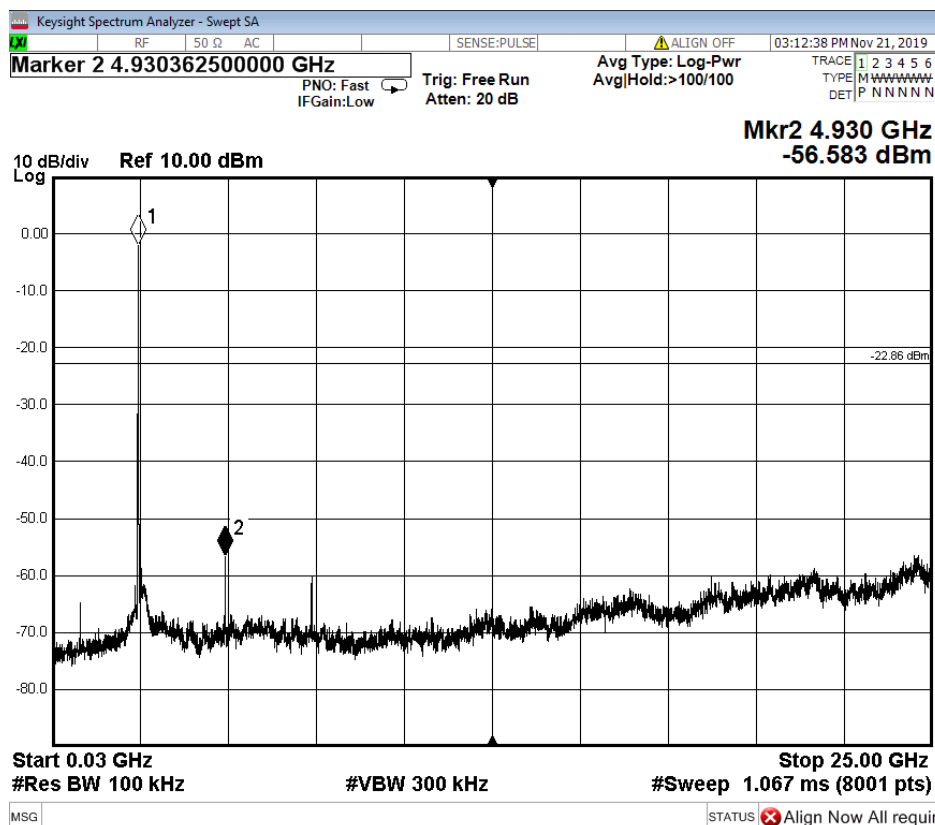
On -20.65 dBm Off

System

Display▶

Settings

Puw/11B/HCH



Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

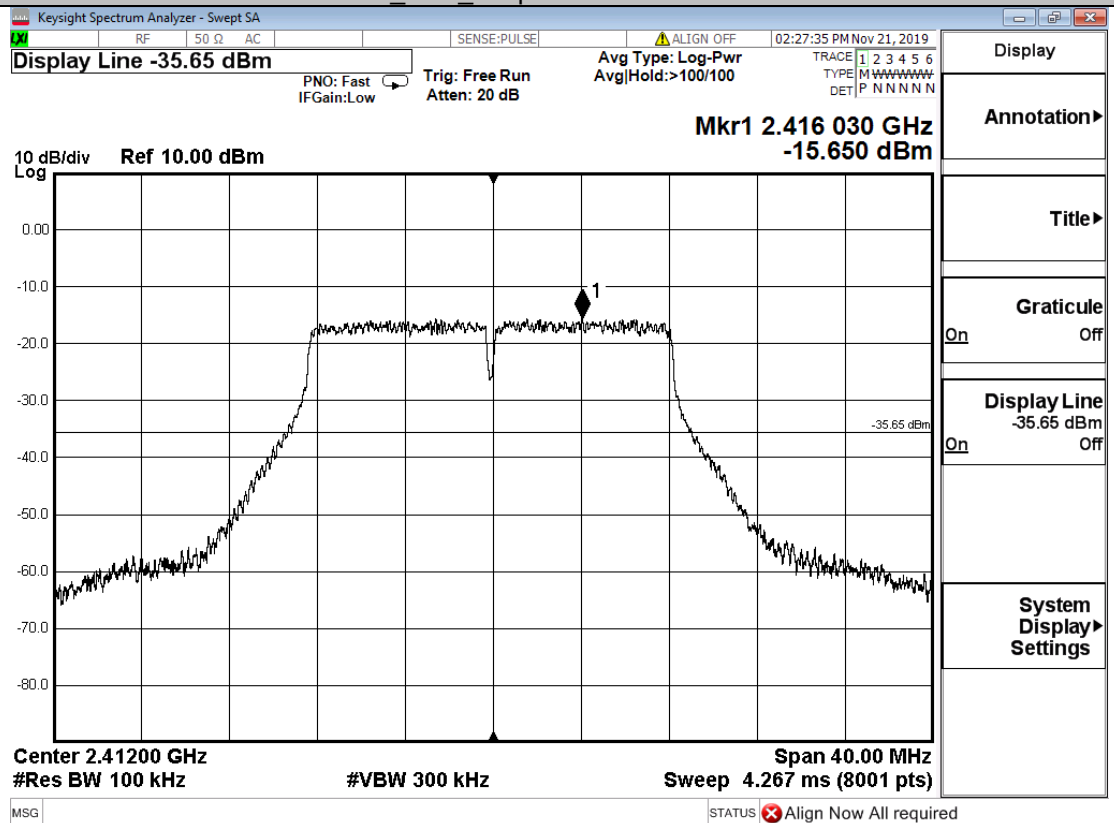
Mkr→Ref Lvl

More

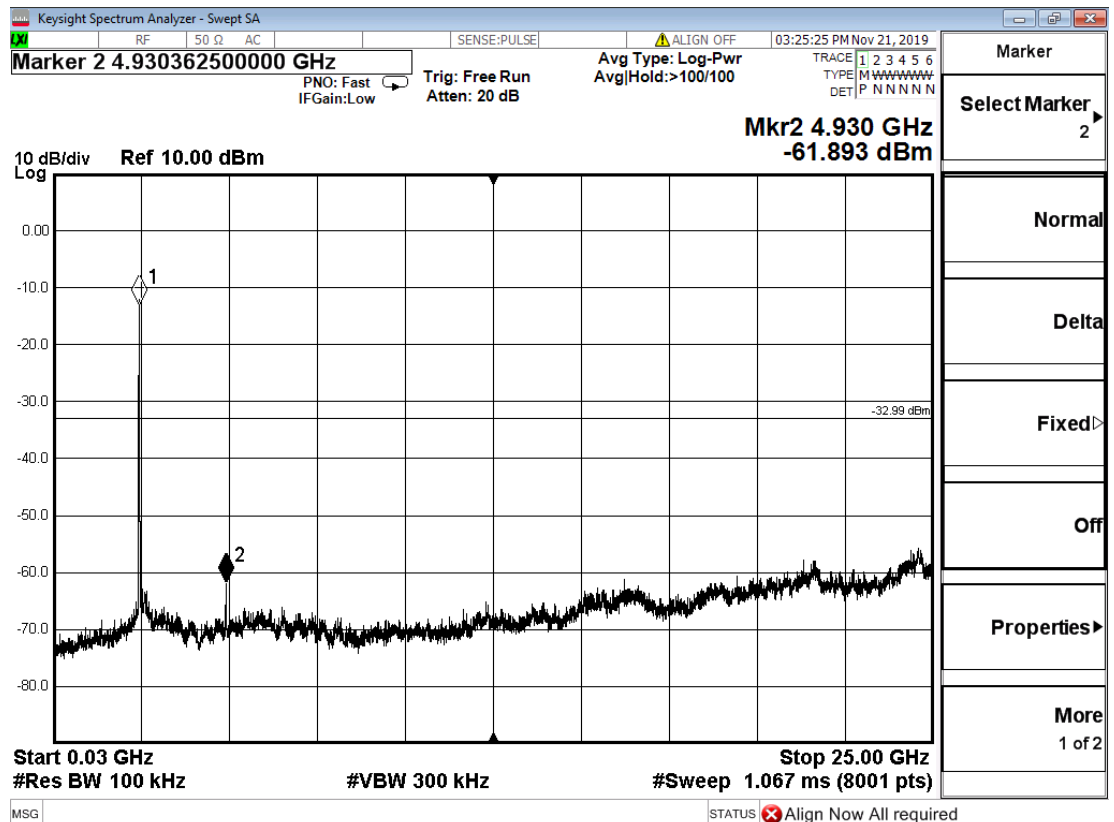
1 of 2

11G_LCH_Graphs

Pref/11G/LCH

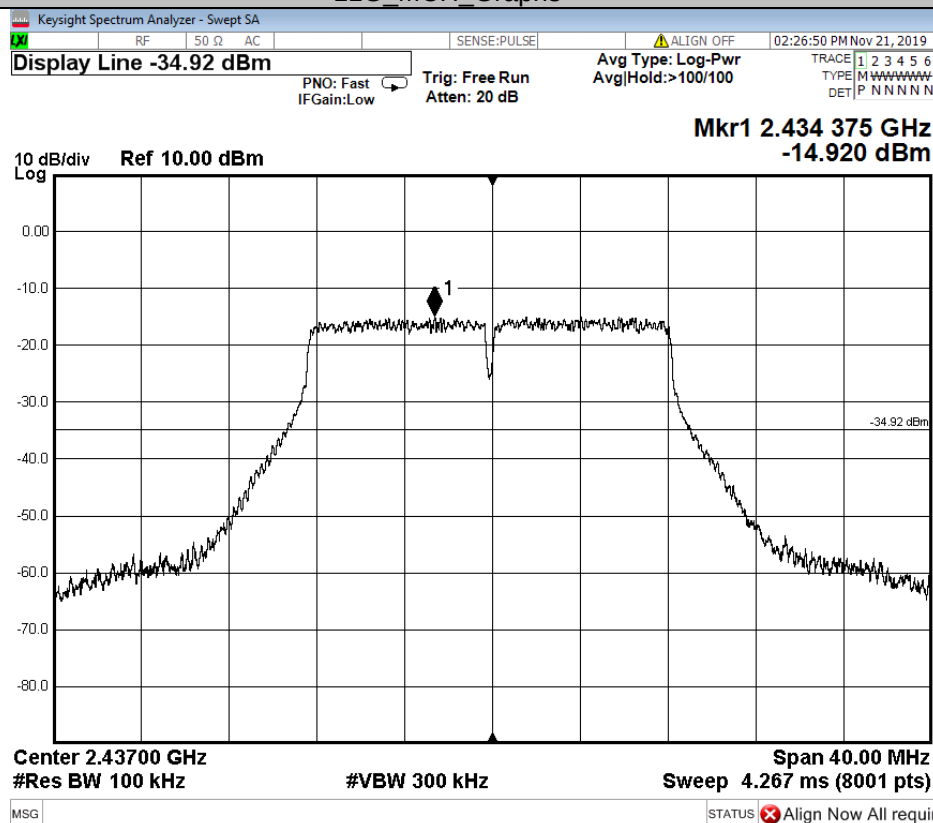


Puw/11G/LCH



11G_MCH_Graphs

Pref/11G/MCH



Display

Annotation▶

Title▶

Graticule

On

Off

Display Line

On

-34.92 dBm

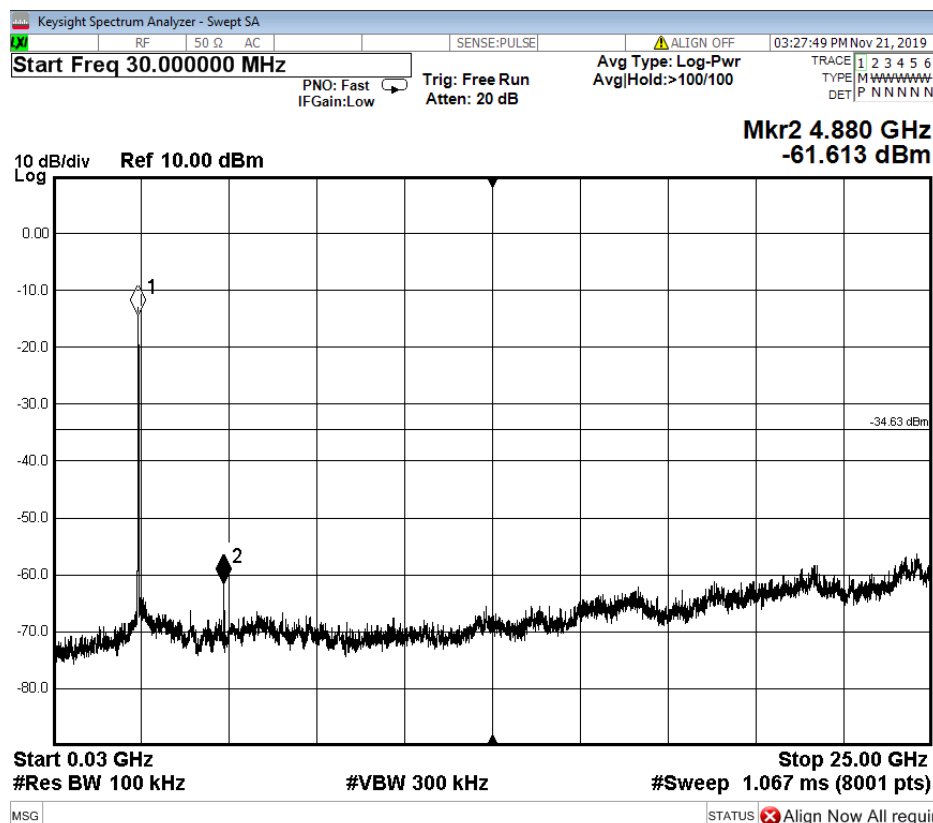
Off

System

Display▶

Settings

Puw/11G/MCH



Frequency

Auto Tune

Center Freq

12.515000000 GHz

Start Freq

30.000000 MHz

Stop Freq

25.000000000 GHz

CF Step

2.497000000 GHz

Auto

Man

Freq Offset

0 Hz

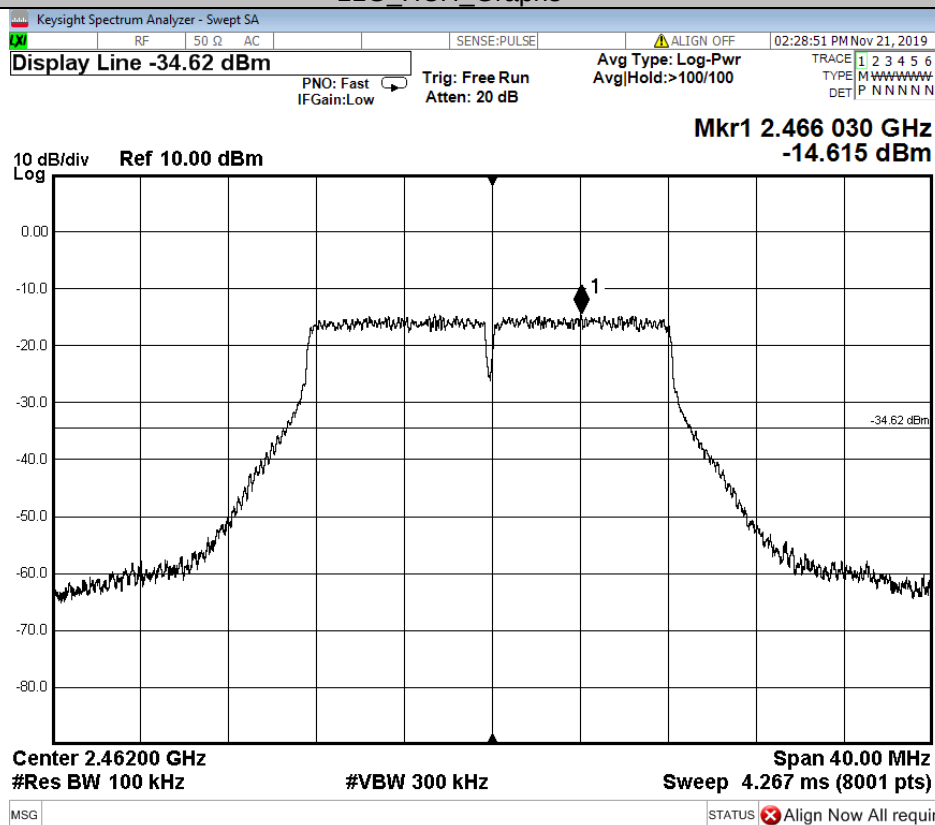
Scale Type

Log

Lin

11G HCH_Graphs

Pref/11G/HCH



Display

Annotation▶

Title▶

Graticule

On

Off

Display Line

On

-34.62 dBm

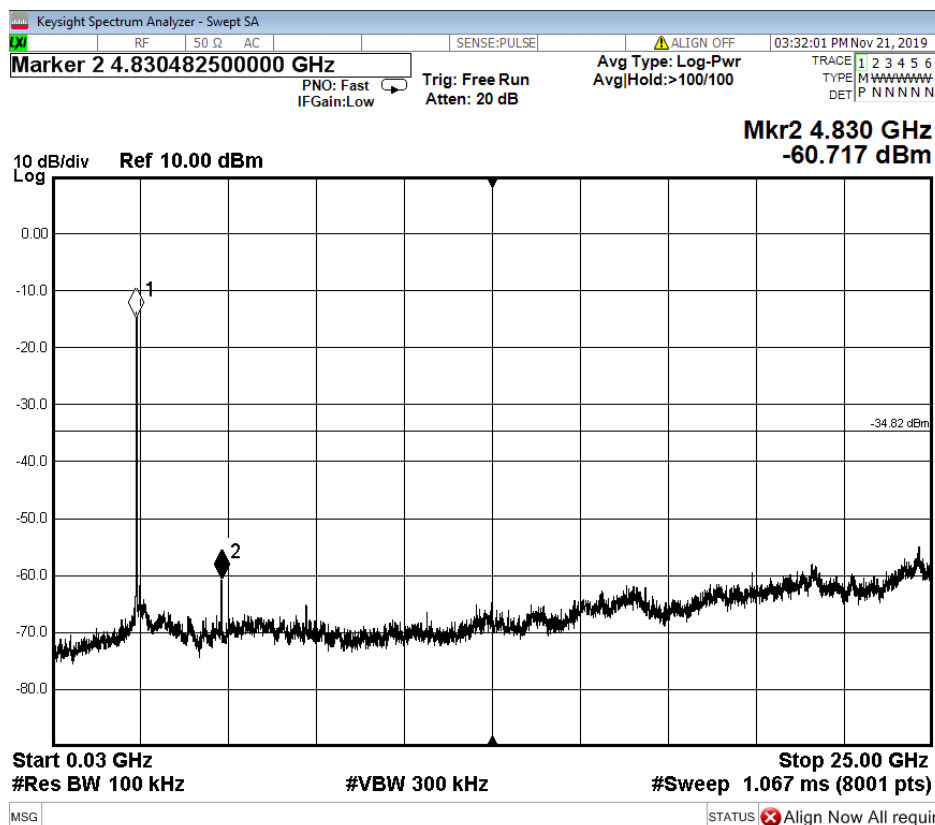
Off

System

Display▶

Settings

Puw/11G/HCH



Marker

Select Marker▶

2

Normal

Delta

Fixed▶

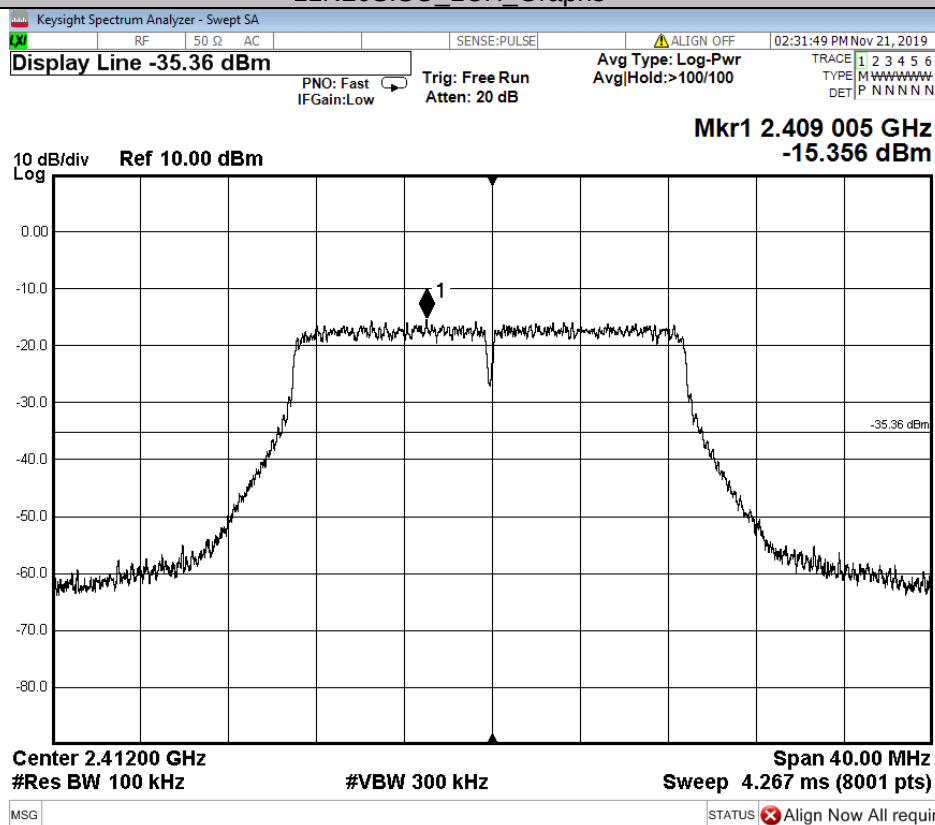
Off

Properties▶

More

1 of 2

11N20SISO LCH Graphs

Pref/11N20SIS
O/LCH

Display

Annotation▶

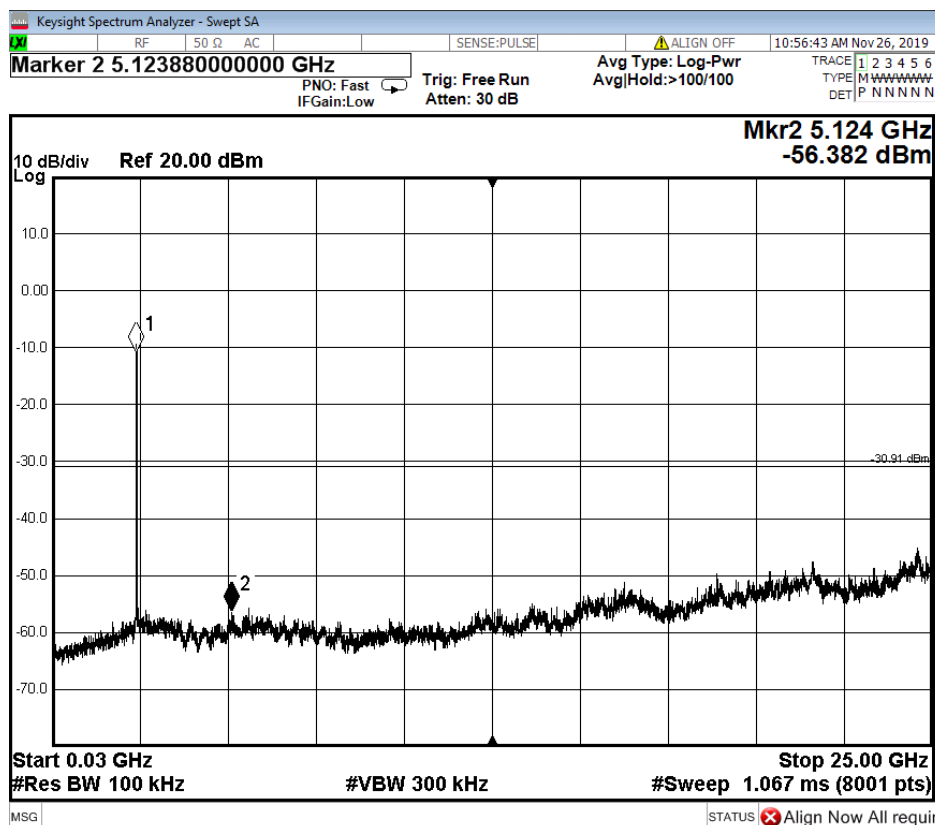
Title▶

Graticule

On Off

Display Line

On -35.36 dBm Off

System
Display▶
SettingsPuw/11N20
SISO/LCH

Peak Search

Next Peak

Next Pk Right

Next Pk Left

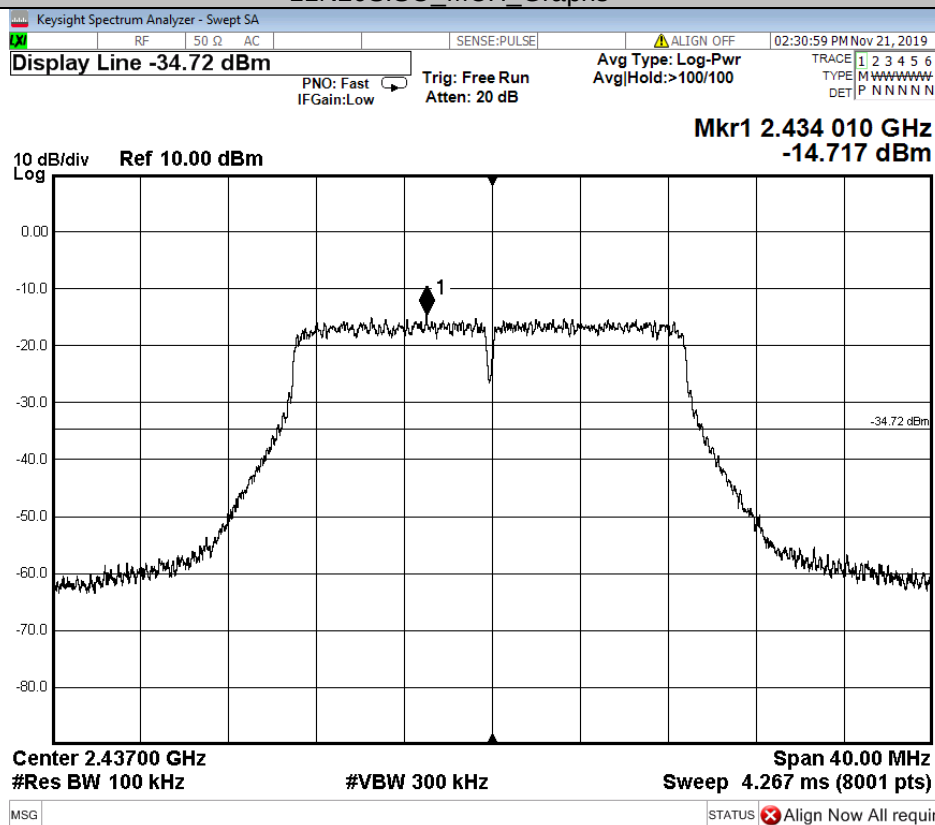
Marker Delta

Mkr→CF

Mkr→Ref Lvl

More
1 of 2

11N20SISO_MCH_Graphs

Pref/11N20
SISO/MCH

Display

Annotation▶

Title▶

Graticule

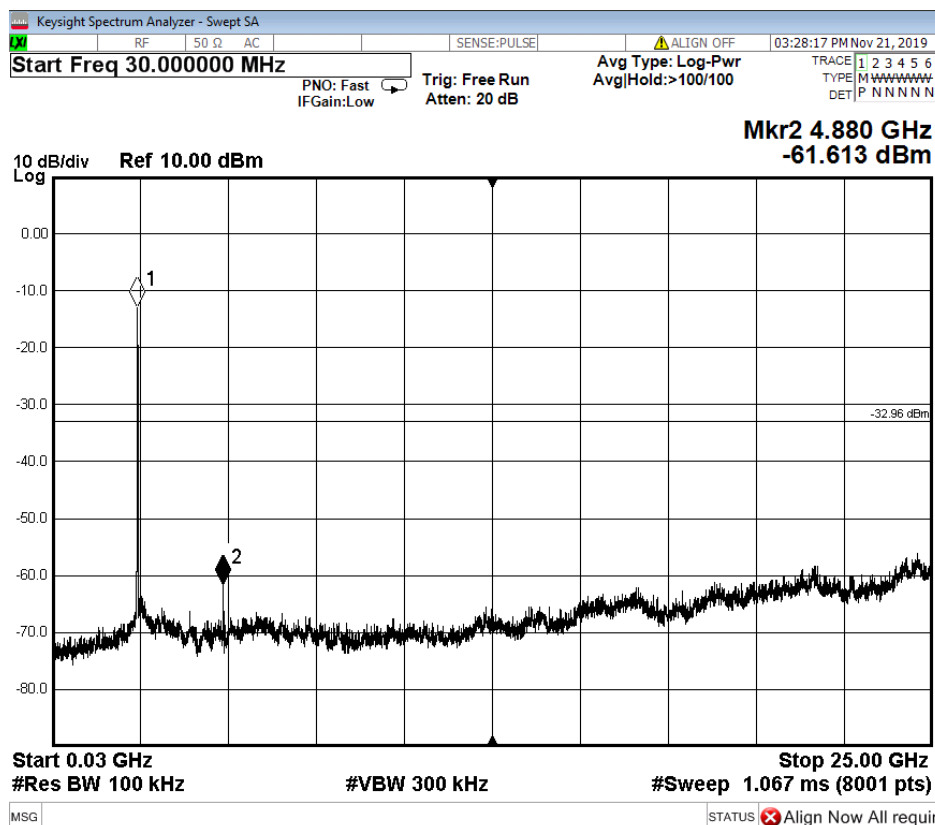
On

Off

Display Line

On

Off

System
Display▶
SettingsPuw/11N20
SISO/MCH

Frequency

Auto Tune

Center Freq

12.515000000 GHz

Start Freq

30.000000 MHz

Stop Freq

25.000000000 GHz

CF Step

2.497000000 GHz

Auto

Man

Freq Offset

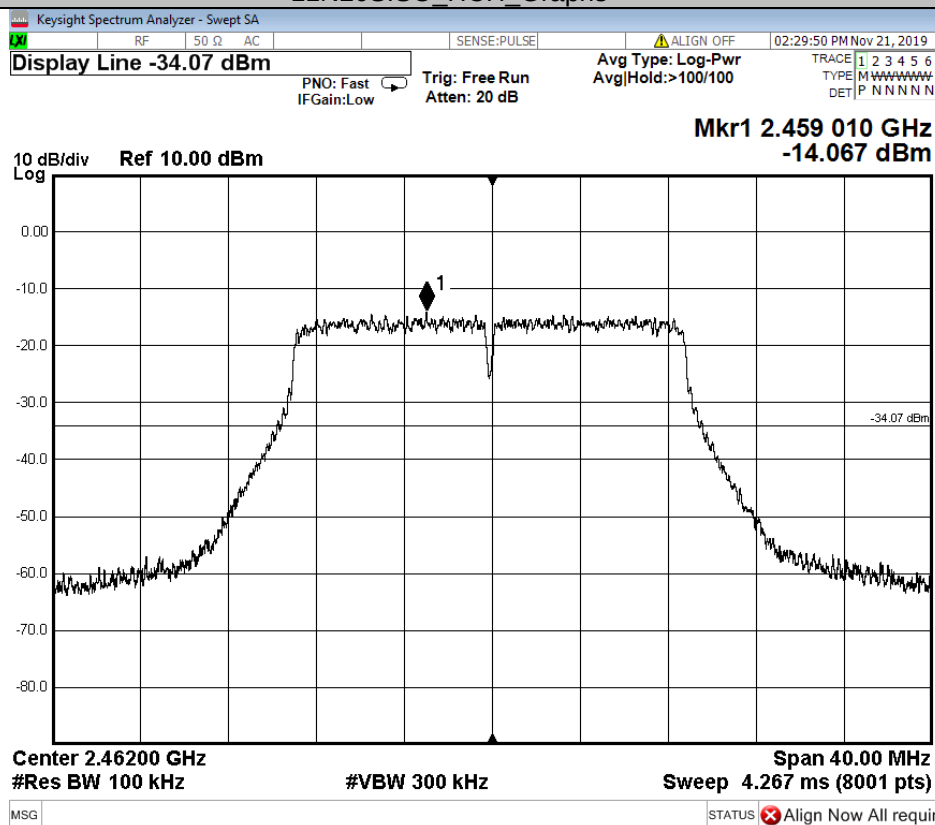
0 Hz

Scale Type

Log

Lin

11N20SISO_HCH_Graphs

Pref/11N20
SISO/HCH

Display

Annotation▶

Title▶

Graticule

On

Off

Display Line

On

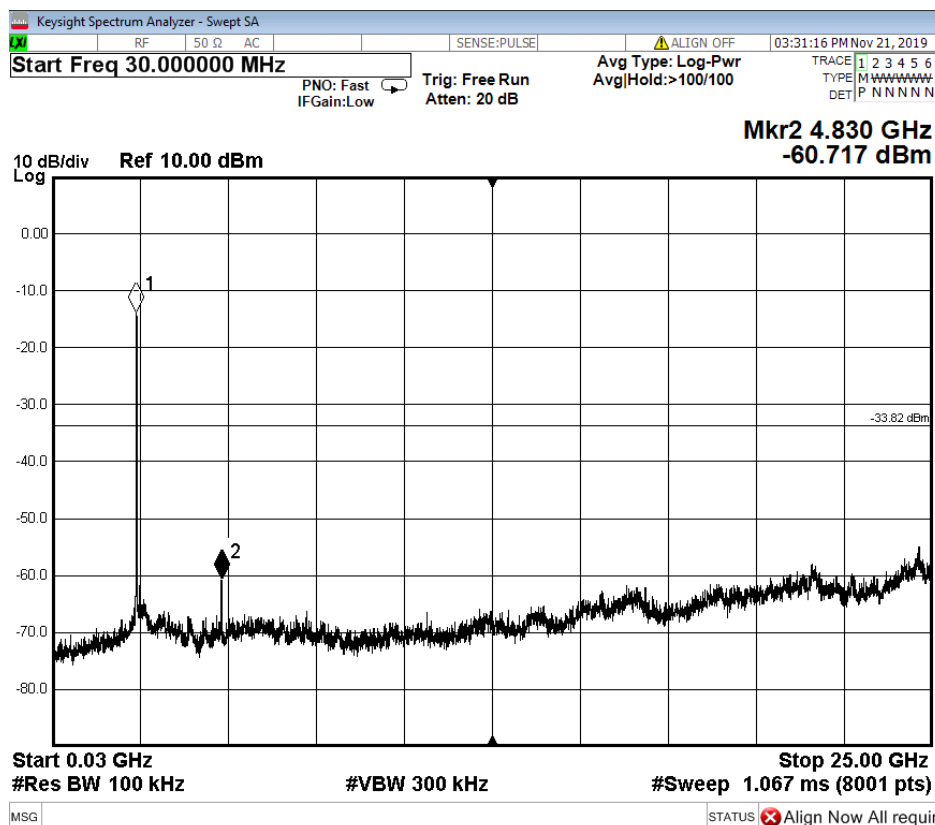
-34.07 dBm

Off

System

Display▶

Settings

Puw/11N20
SISO/HCH

Frequency

Auto Tune

Center Freq

12.515000000 GHz

Start Freq

30.000000 MHz

Stop Freq

25.000000000 GHz

CF Step

2.497000000 GHz

Auto Man

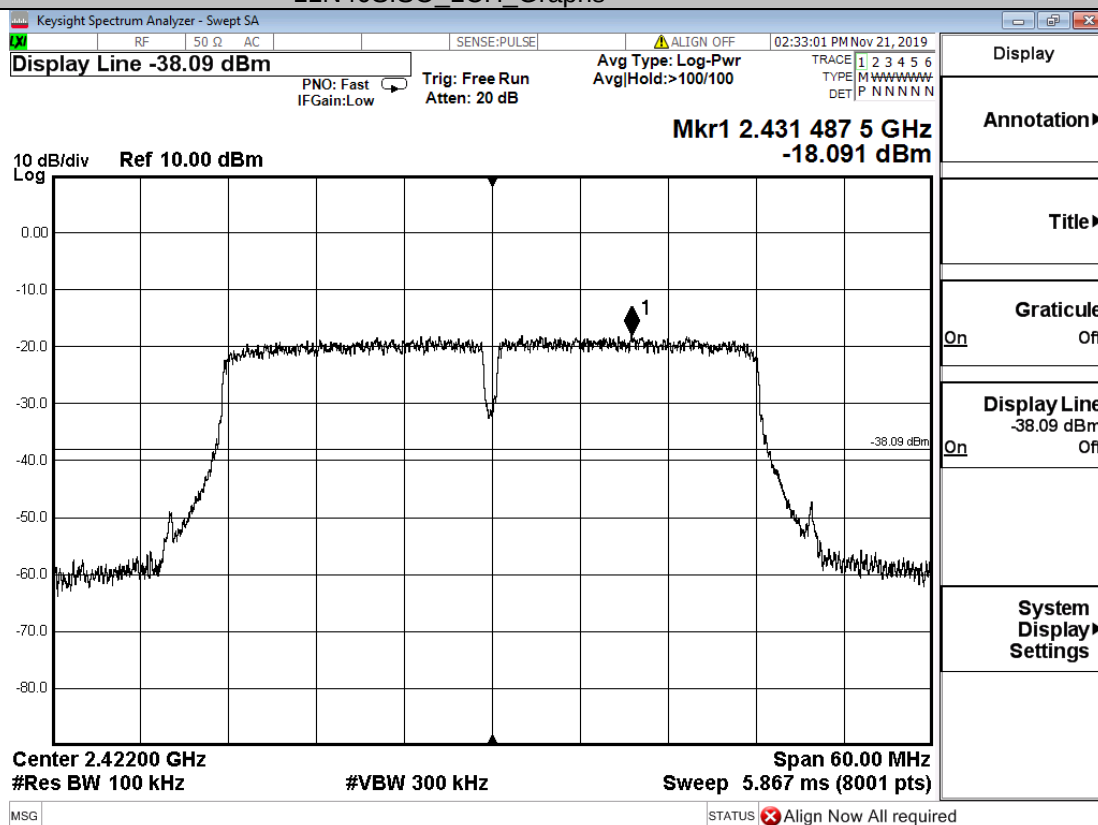
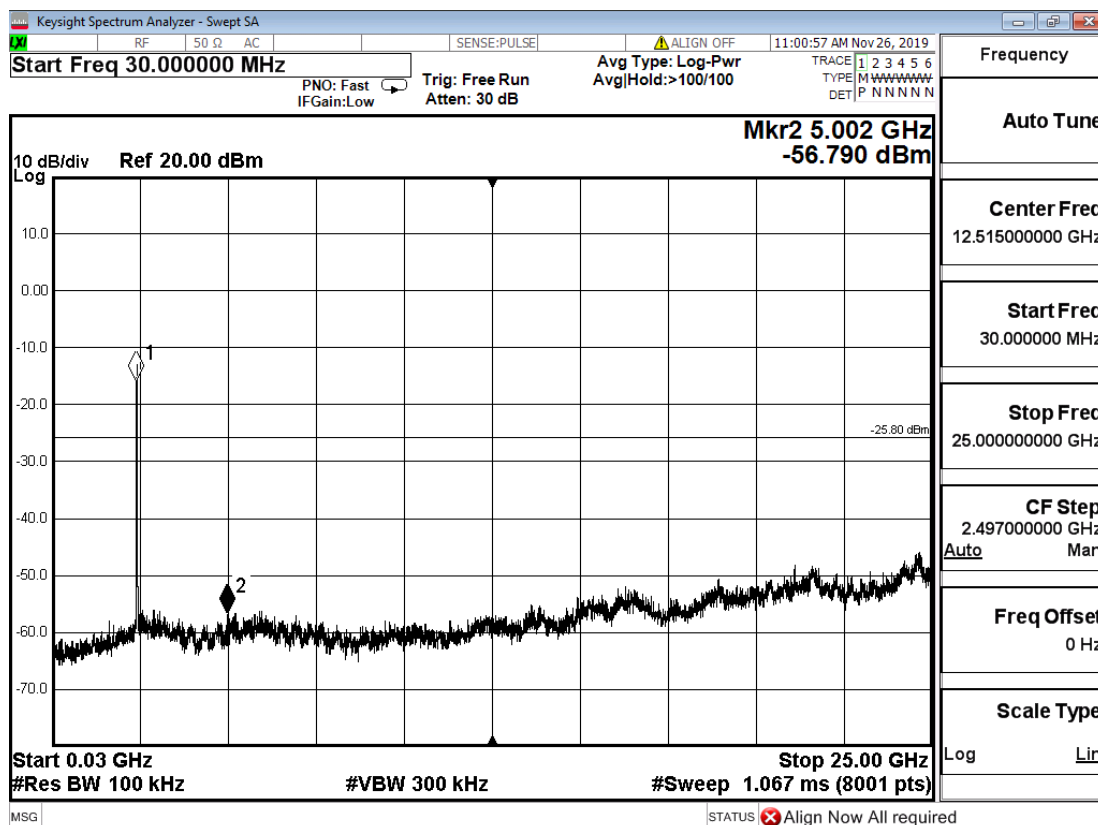
Freq Offset

0 Hz

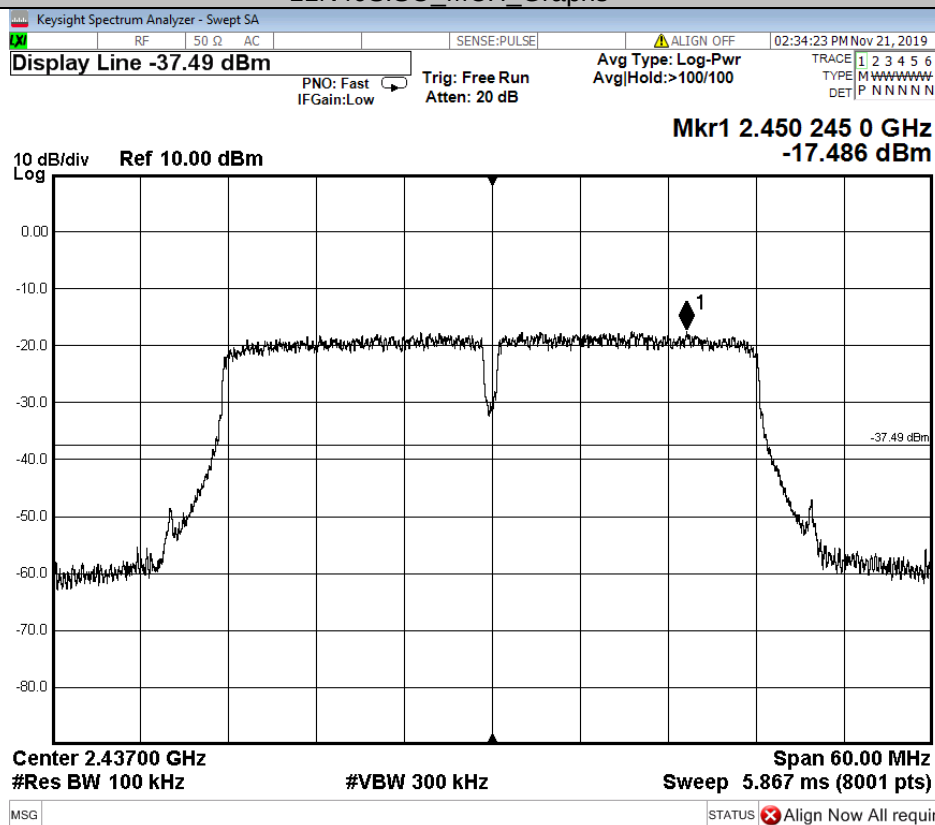
Scale Type

Log Lin

11N40SISO_LCH_Graphs

Pref/11N40SIS
O/LCHPuw/11N40
SISO/LCH

11N40SISO_MCH_Graphs

Pref/11N40
SISO/MCH

Display

Annotation▶

Title▶

Graticule

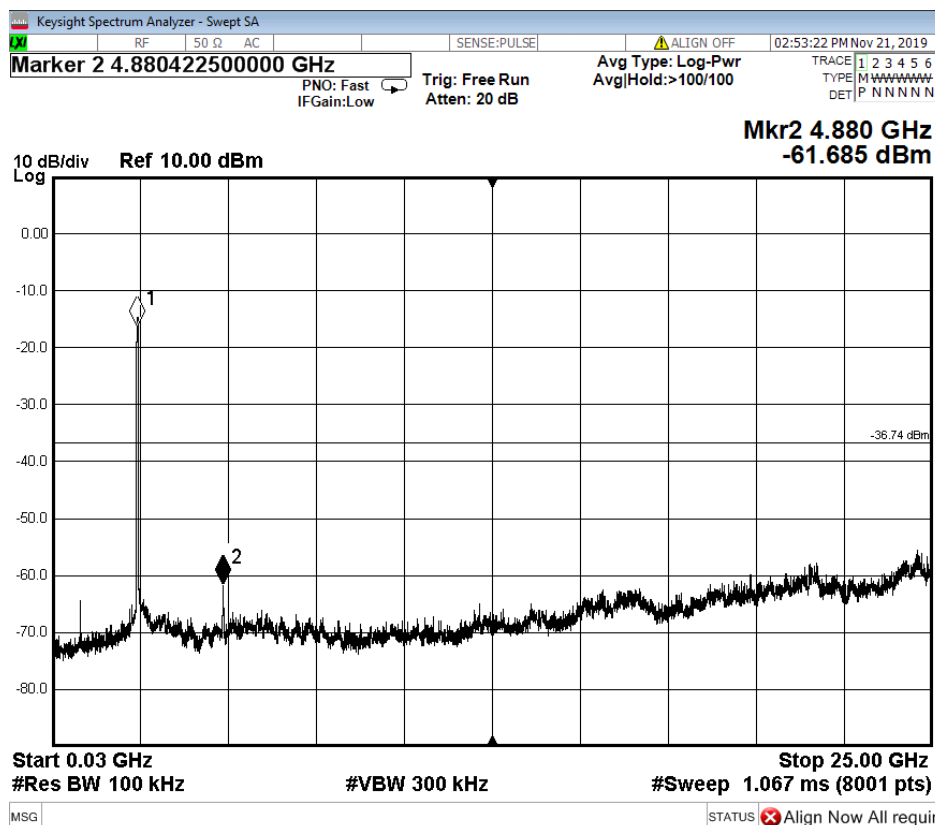
On

Off

Display Line

On

Off

System
Display▶
SettingsPuw/11N40
SISO/MCH

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

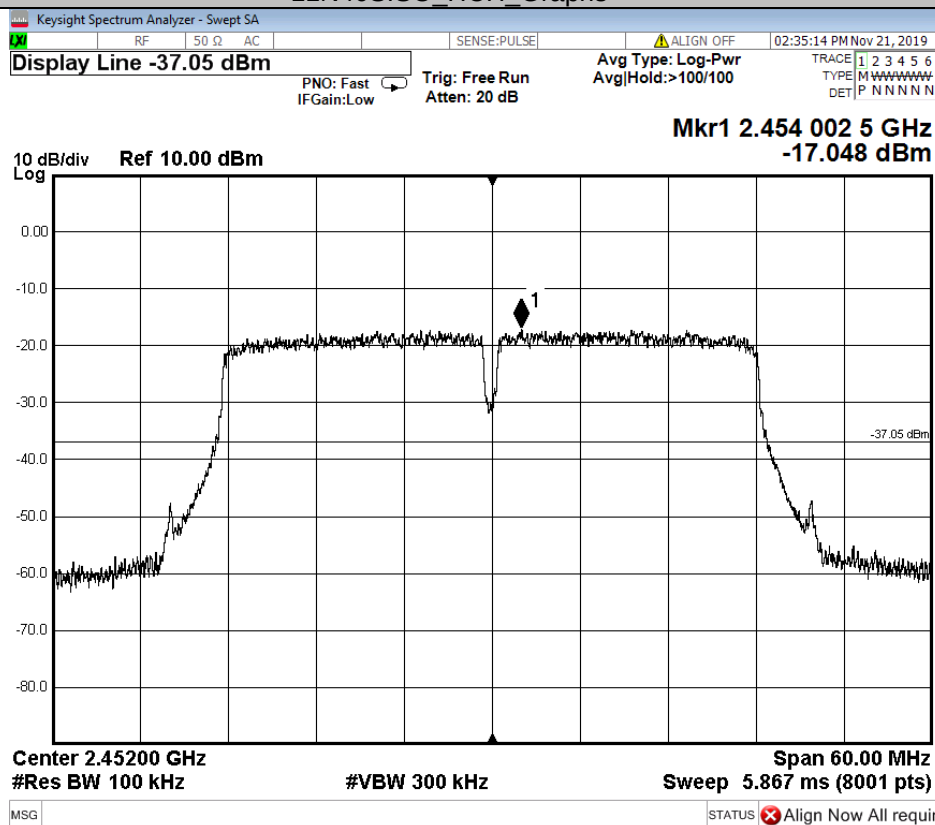
Mkr→CF

Mkr→Ref Lvl

More

1 of 2

11N40SISO_HCH_Graphs

Pref/11N40
SISO/HCH

Display

Annotation▶

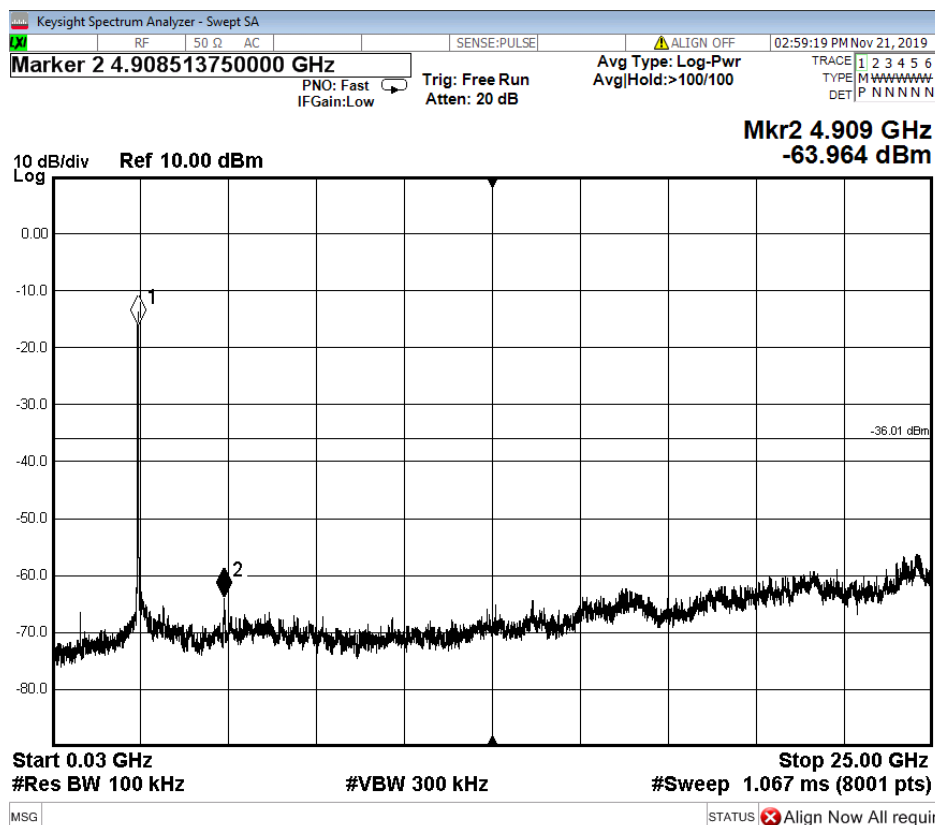
Title▶

Graticule

On Off

Display Line

On -37.05 dBm Off

System
Display▶
SettingsPuw/11N40
SISO/HCH

Peak Search

Next Peak

Next Pk Right

Next Pk Left

Marker Delta

Mkr→CF

Mkr→Ref Lvl

More

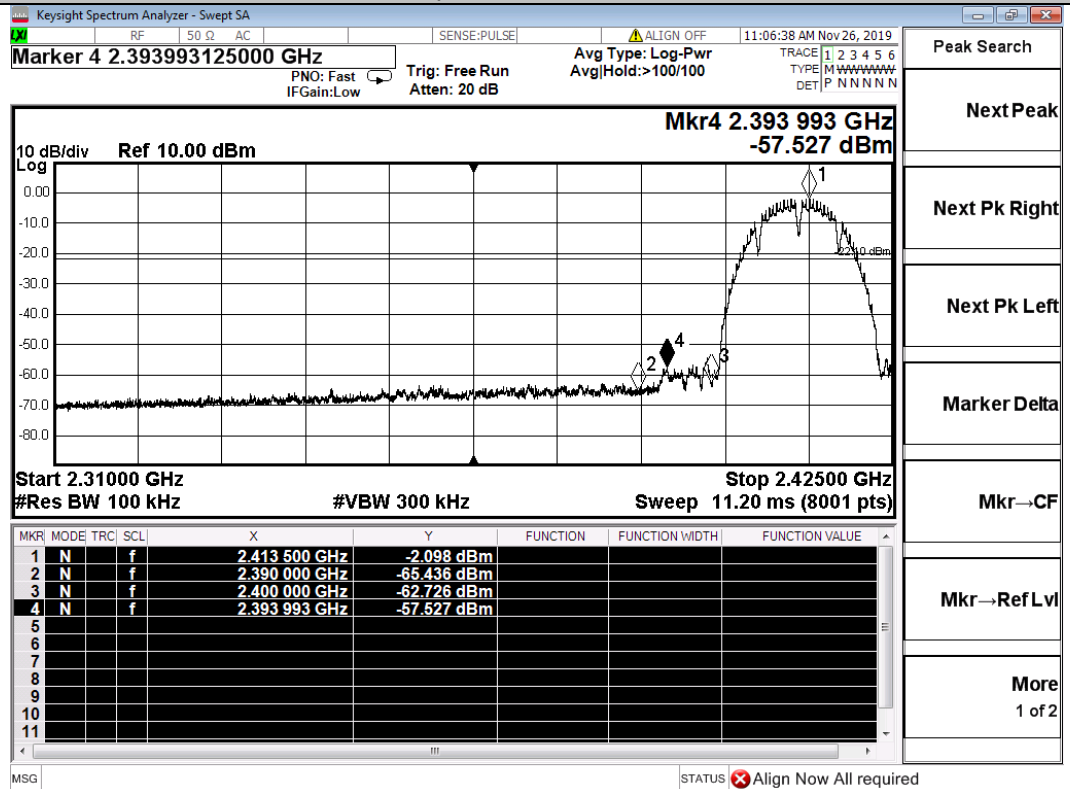
1 of 2

B.6 Band-edge for RF Conducted Emissions

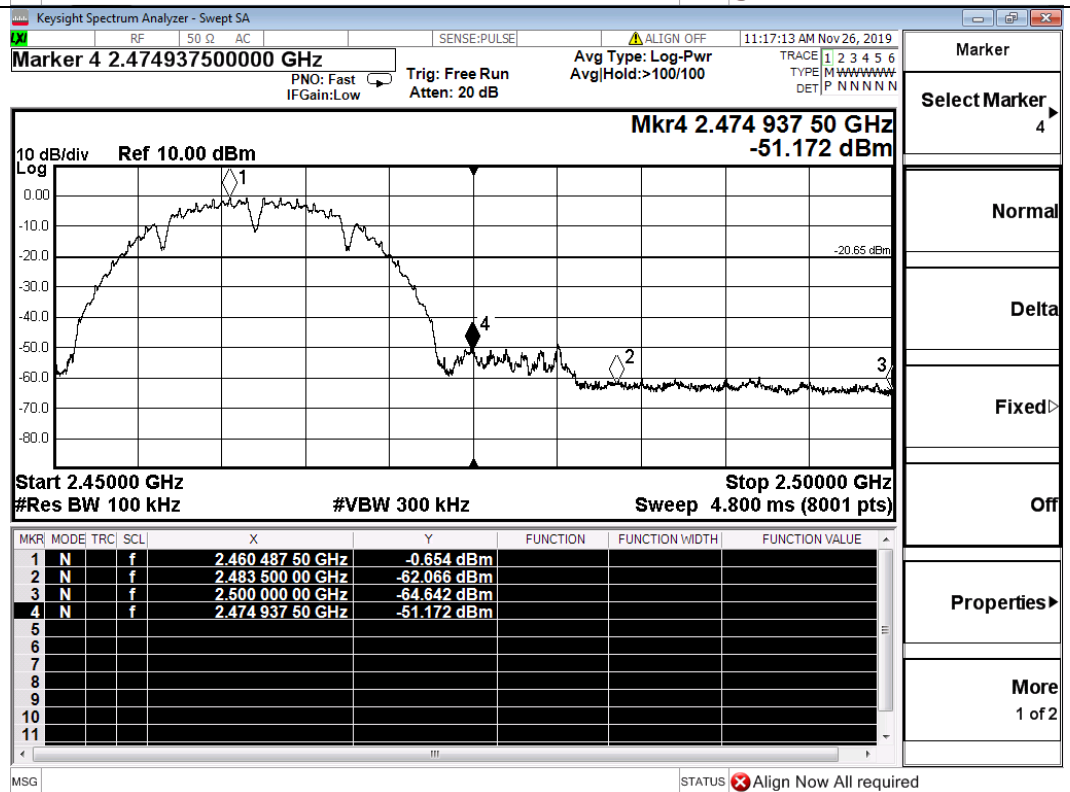
Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	-2.098	-57.527	-22.10	PASS
	HCH	-0.654	-51.172	-20.65	PASS
11G	LCH	-15.940	-62.881	-35.94	PASS
	HCH	-13.297	-53.266	-33.30	PASS
11N20SISO	LCH	-16.561	-62.454	-36.56	PASS
	HCH	-14.102	-50.423	-34.10	PASS
11N40SISO	LCH	-17.989	-64.125	-37.99	PASS
	HCH	-16.758	-49.050	-36.76	PASS

Test Graphs

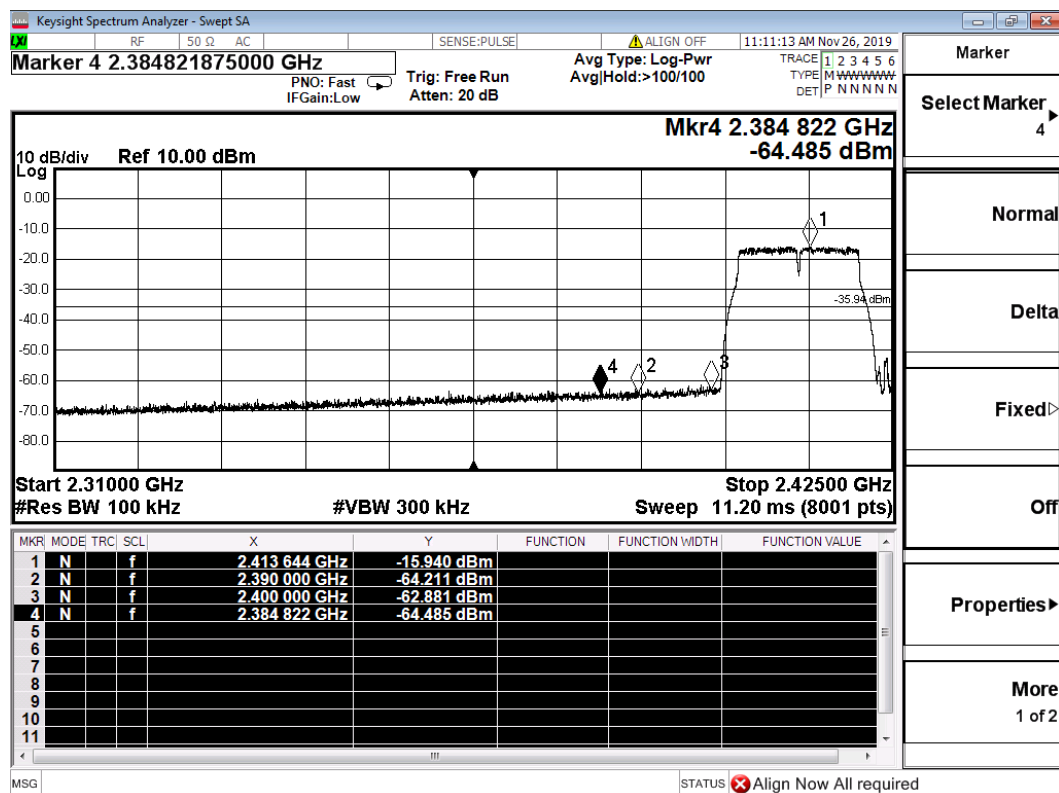
11B/LCH



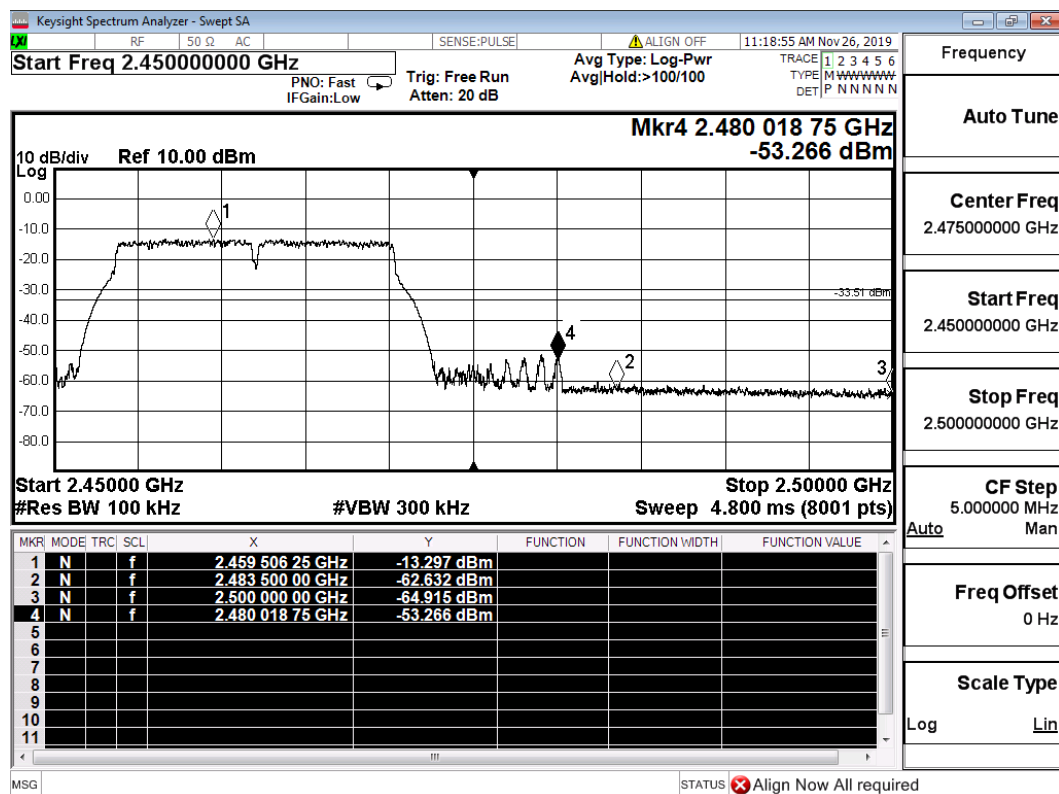
11B/HCH



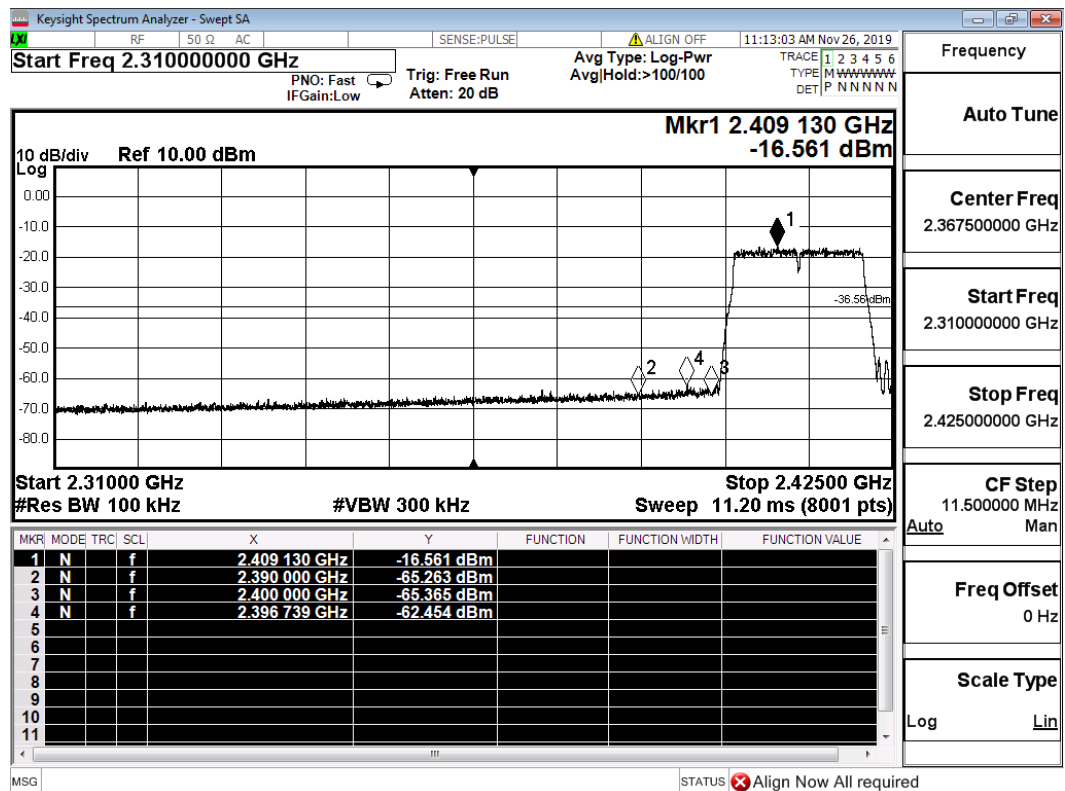
11G/LCH



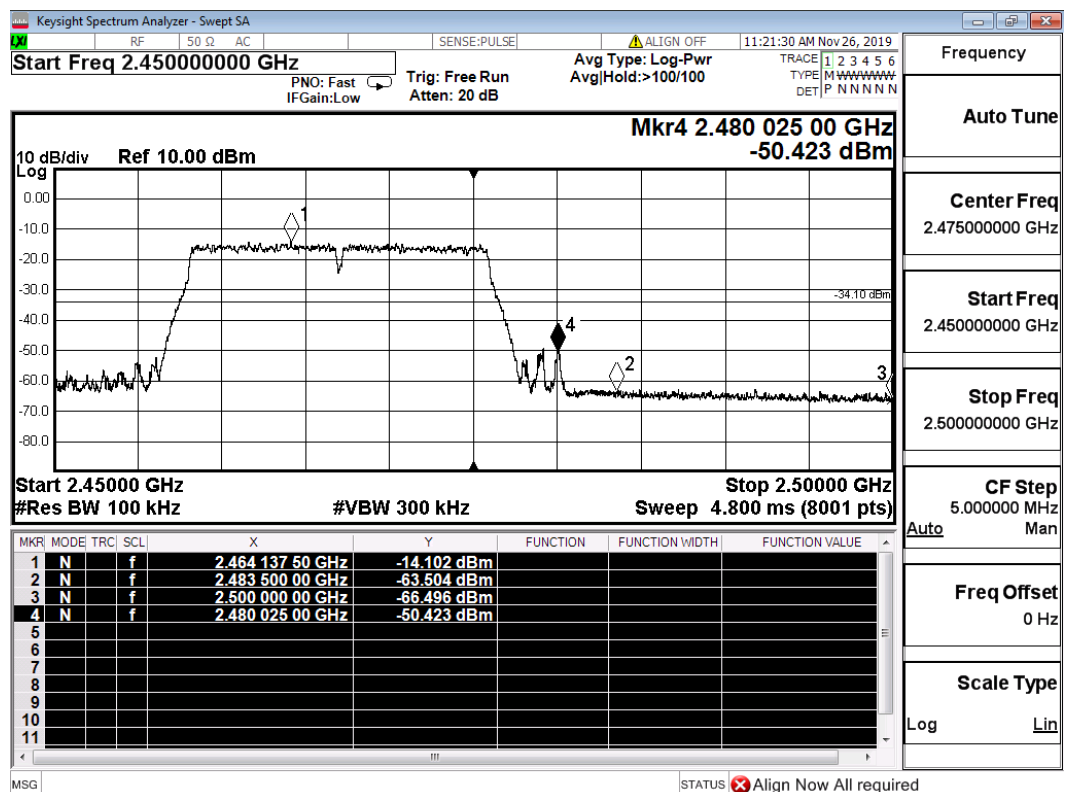
11G/HCH



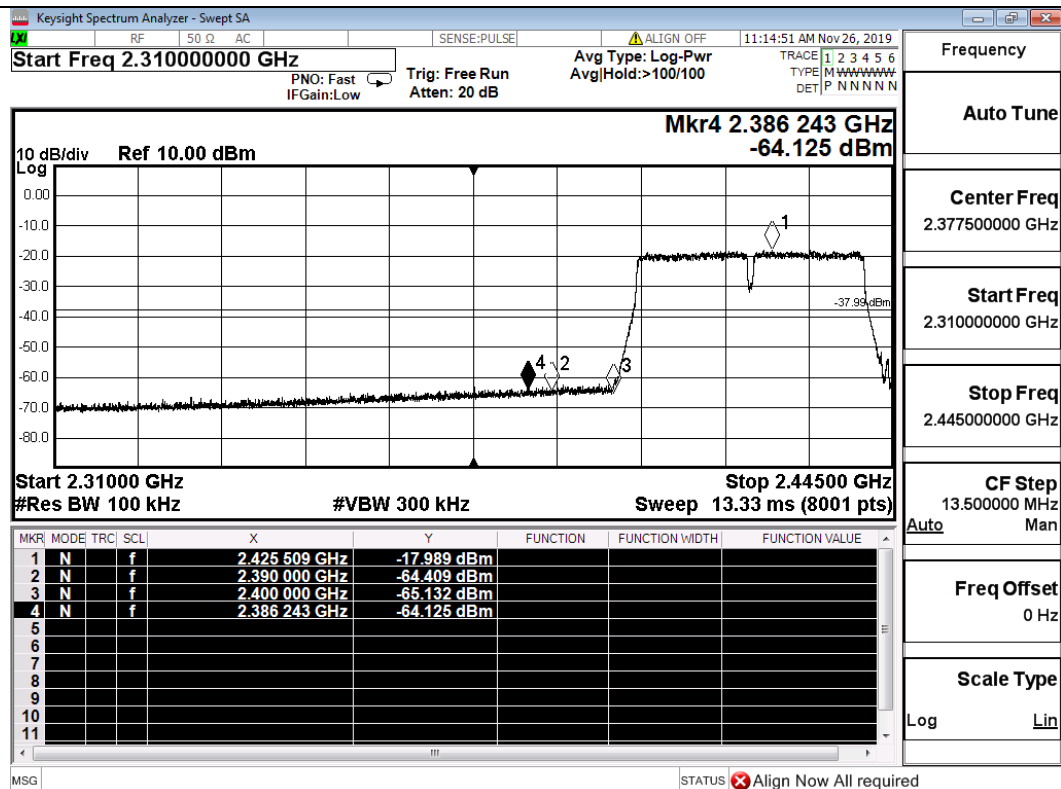
11N20SISO/LCH



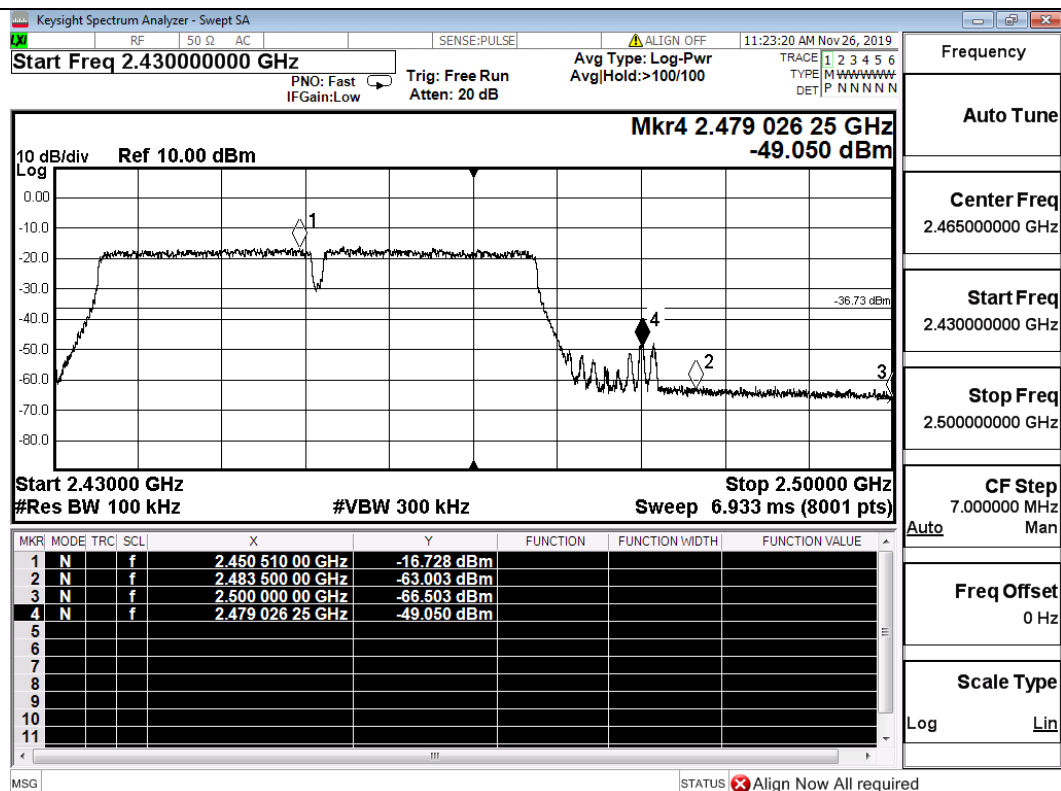
11N20SISO/HCH



11N40SISO/LCH



11N40SISO/HCH

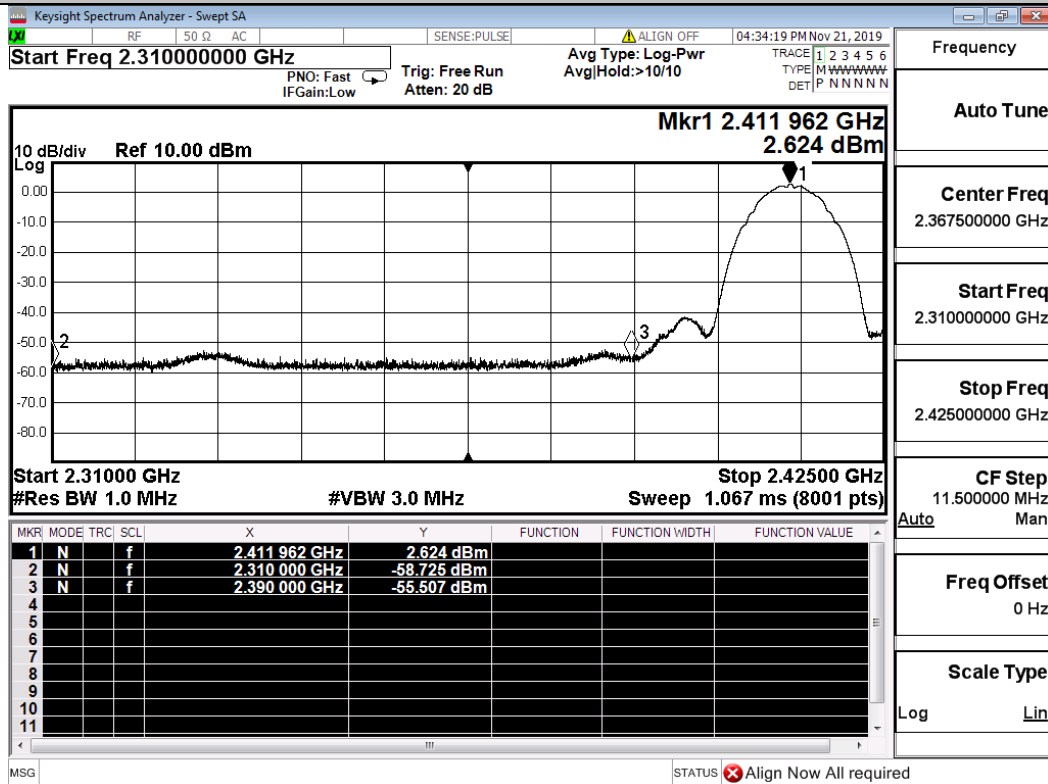


B.7 Restrict-band band-edge measurements

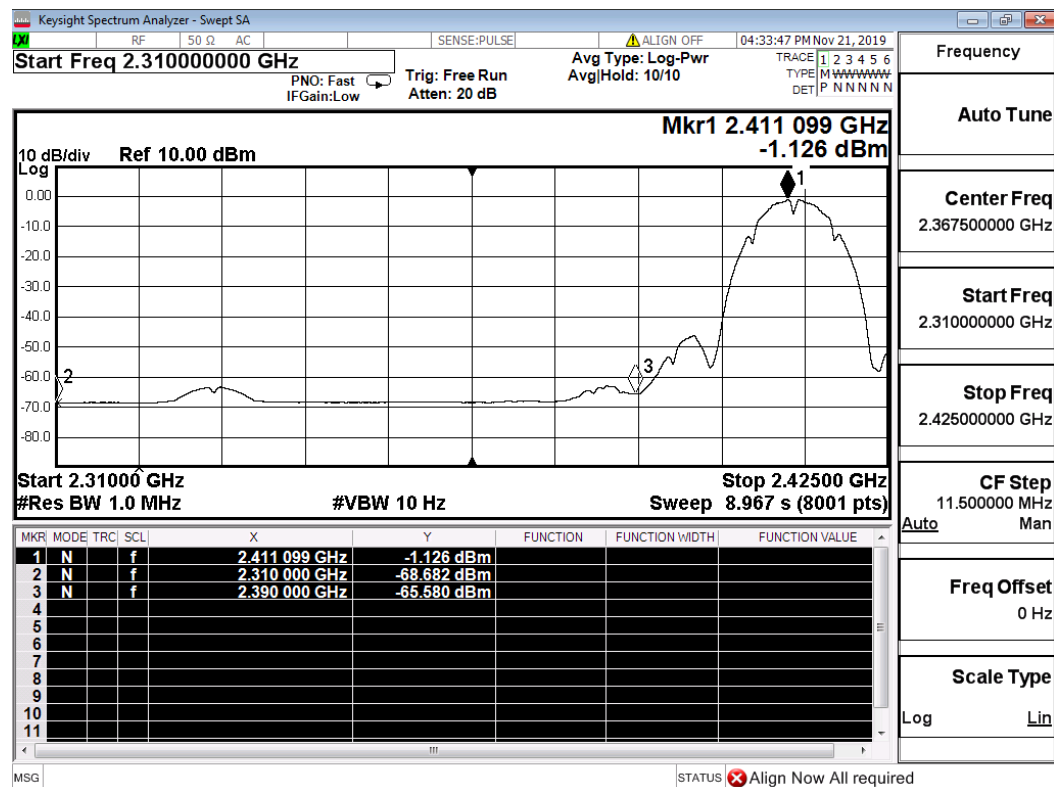
Test Mode	Test Channel	Ant	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
11B	2412	Ant1	2310.0	-58.725	3.0	0	39.51	PEAK	74	PASS
	2412	Ant1	2310.0	-68.682	3.0	50	29.55	AV	54	PASS
	2412	Ant1	2390.0	-55.507	3.0	0	42.72	PEAK	74	PASS
	2412	Ant1	2390.0	-65.580	3.0	0	32.65	AV	54	PASS
	2462	Ant1	2483.5	-53.023	3.0	0	45.21	PEAK	74	PASS
	2462	Ant1	2483.5	-63.517	3.0	0	34.71	AV	54	PASS
	2462	Ant1	2500.0	-55.543	3.0	0	42.69	PEAK	74	PASS
	2462	Ant1	2500.0	-66.442	3.0	0	31.79	AV	54	PASS
11G	2412	Ant1	2310.0	-60.528	3.0	0	37.70	PEAK	74	PASS
	2412	Ant1	2310.0	-70.942	3.0	0	27.29	AV	54	PASS
	2412	Ant1	2390.0	-55.025	3.0	0	43.21	PEAK	74	PASS
	2412	Ant1	2390.0	-66.818	3.0	0	31.41	AV	54	PASS
	2462	Ant1	2483.5	-53.821	3.0	0	44.41	PEAK	74	PASS
	2462	Ant1	2483.5	-65.566	3.0	0	32.66	AV	54	PASS
	2462	Ant1	2500.0	-57.718	3.0	0	40.51	PEAK	74	PASS
	2462	Ant1	2500.0	-68.192	3.0	0	30.04	AV	54	PASS
11N20 SISO	2412	Ant1	2310.0	-60.738	3.0	0	37.49	PEAK	74	PASS
	2412	Ant1	2310.0	-70.946	3.0	0	27.28	AV	54	PASS
	2412	Ant1	2390.0	-54.522	3.0	0	43.71	PEAK	74	PASS
	2412	Ant1	2390.0	-65.832	3.0	0	32.40	AV	54	PASS
	2462	Ant1	2483.5	-51.403	3.0	0	46.83	PEAK	74	PASS
	2462	Ant1	2483.5	-64.796	3.0	0	33.43	AV	54	PASS
	2462	Ant1	2500.0	-58.028	3.0	0	40.20	PEAK	74	PASS
	2462	Ant1	2500.0	-68.152	3.0	0	30.08	AV	54	PASS
11N40 SISO	2412	Ant1	2310.0	-59.552	3.0	0	38.68	PEAK	74	PASS
	2412	Ant1	2310.0	-70.909	3.0	0	27.32	AV	54	PASS

	2412	Ant1	2390.0	-51.946	3.0	0	46.28	PEAK	74	PASS
	2412	Ant1	2390.0	-63.122	3.0	0	35.11	AV	54	PASS
	2462	Ant1	2483.5	-49.898	3.0	0	48.33	PEAK	74	PASS
	2462	Ant1	2483.5	-61.520	3.0	0	36.71	AV	54	PASS
	2462	Ant1	2500.0	-53.706	3.0	0	44.52	PEAK	74	PASS
	2462	Ant1	2500.0	-66.689	3.0	0	31.54	AV	54	PASS

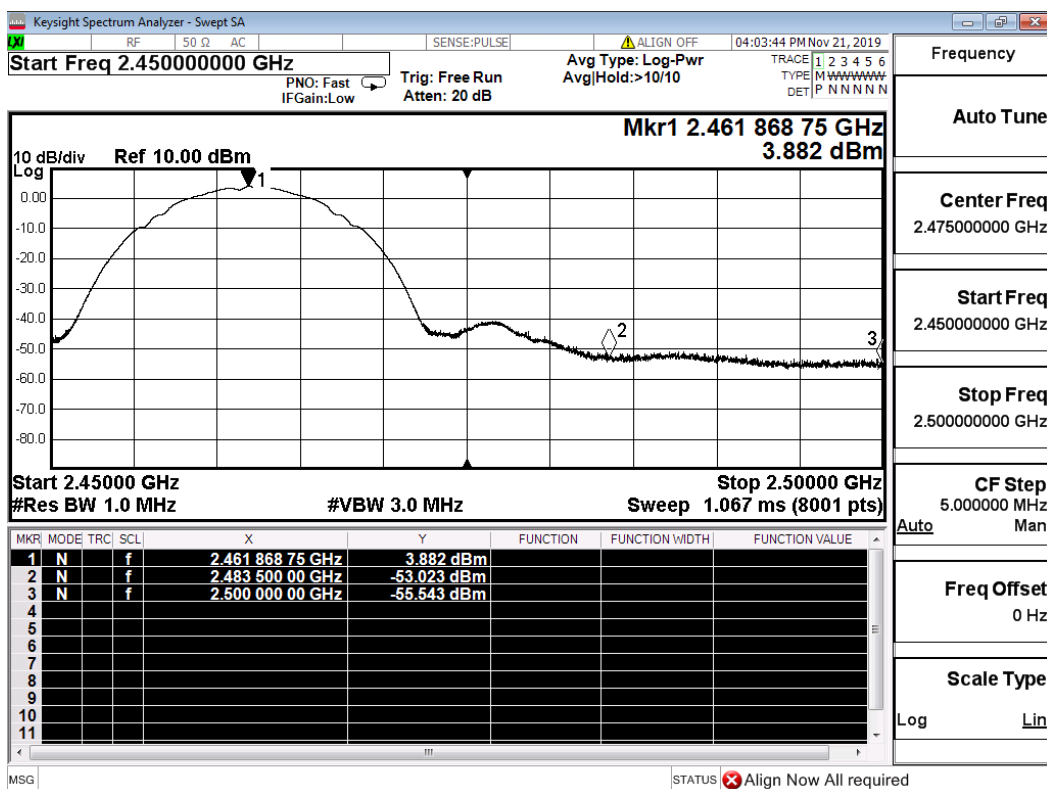
Restrict-band band-edge measurements_11B_2412_Ant1_PEAK



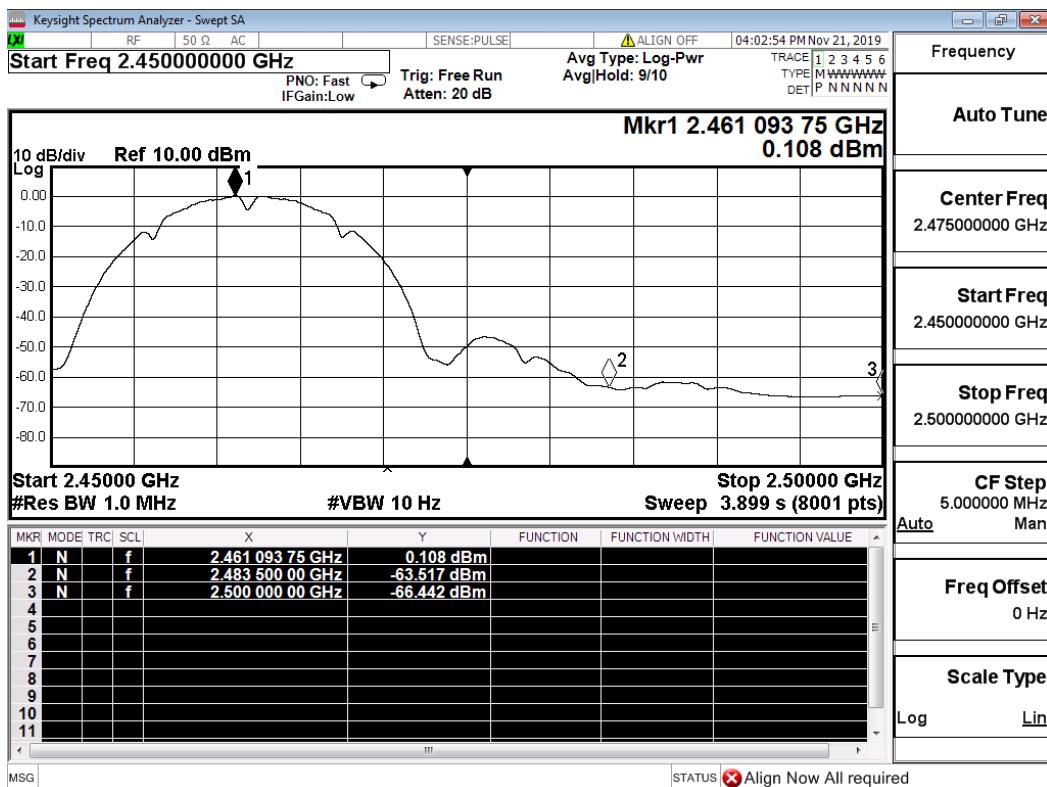
Restrict-band band-edge measurements_11B_2412_Ant1_AV



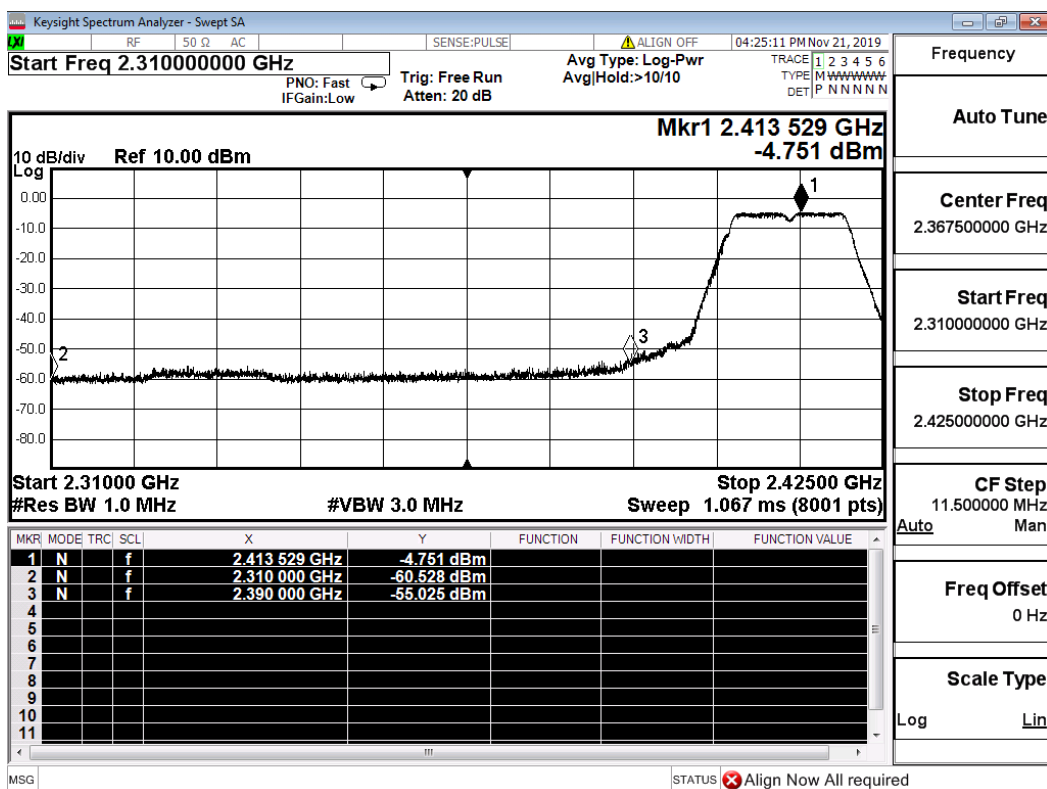
Restrict-band band-edge measurements_11B_2462_Ant1_PEAK



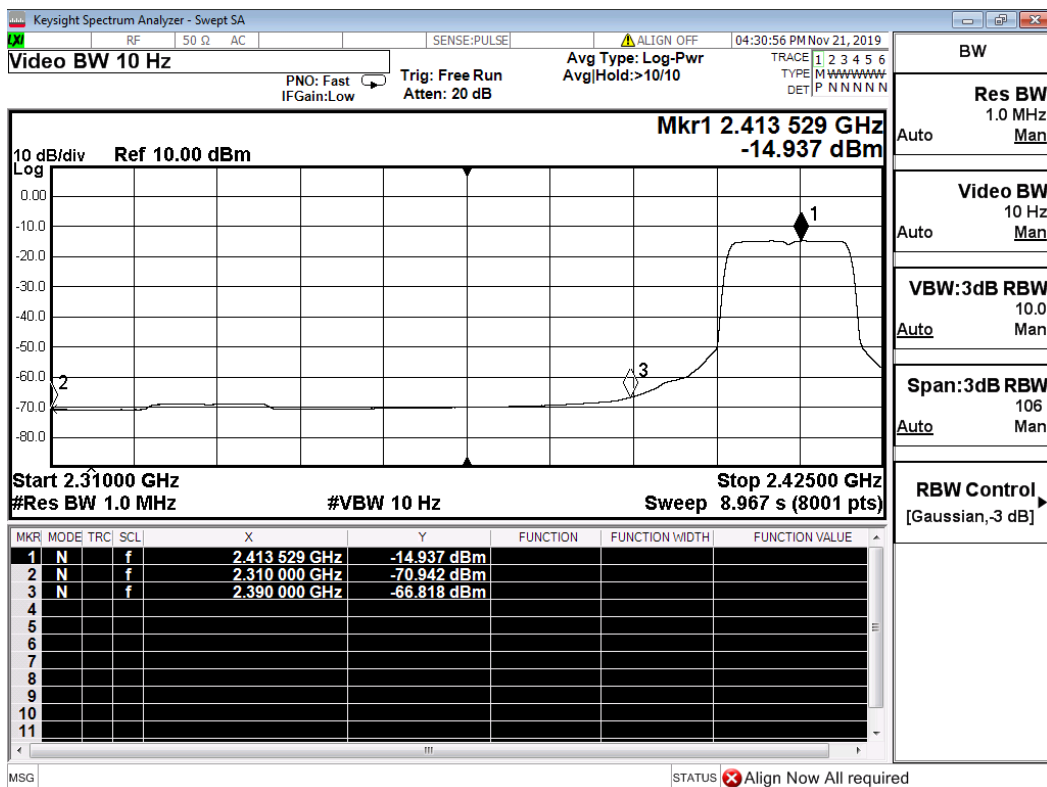
Restrict-band band-edge measurements_11B_2462_Ant1_AV



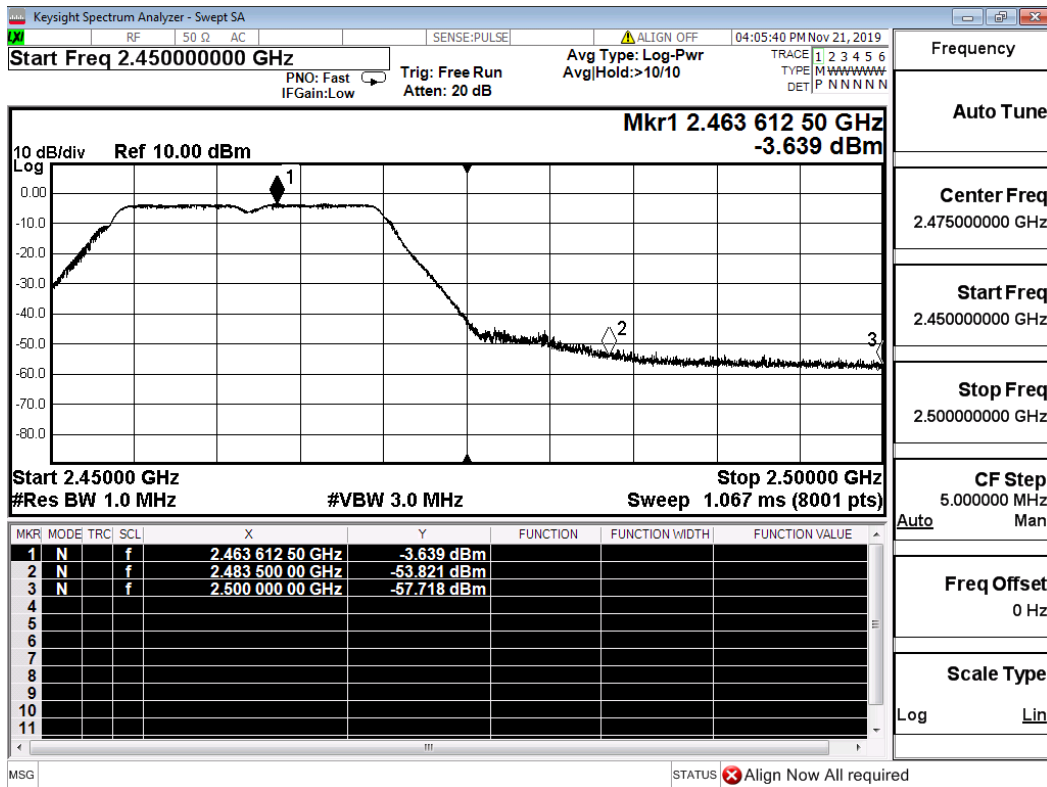
Restrict-band band-edge measurements_11G_2412_Ant1_PEAK



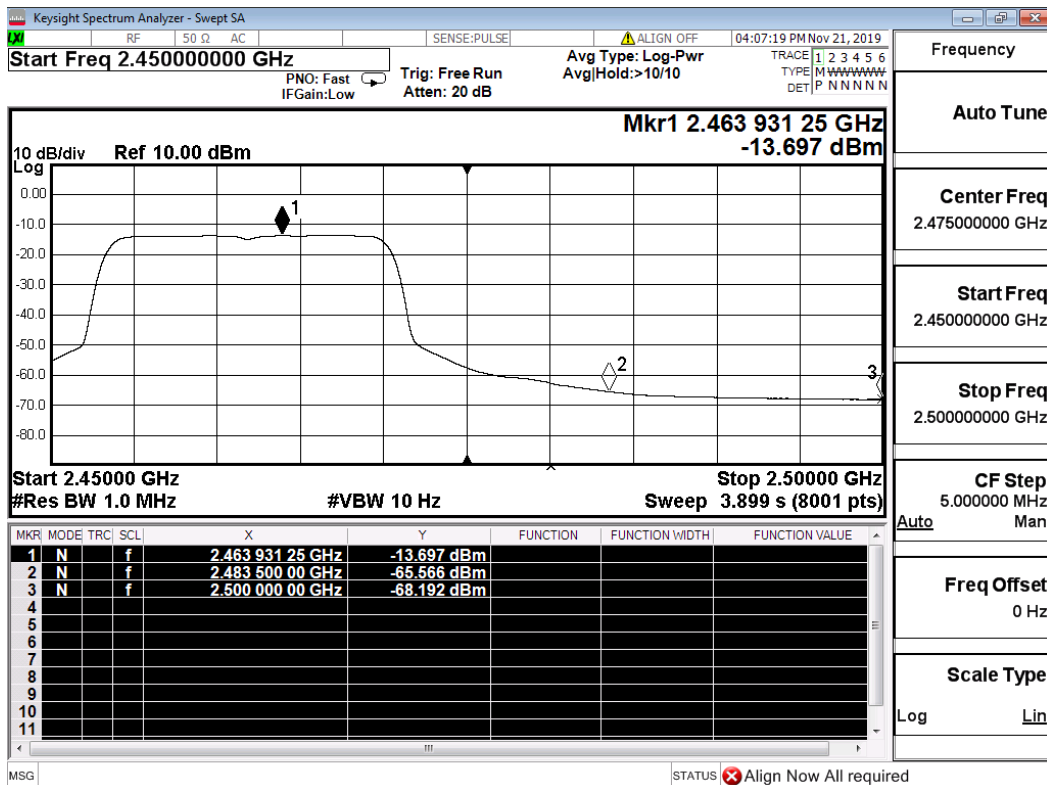
Restrict-band band-edge measurements_11G_2412_Ant1_AV



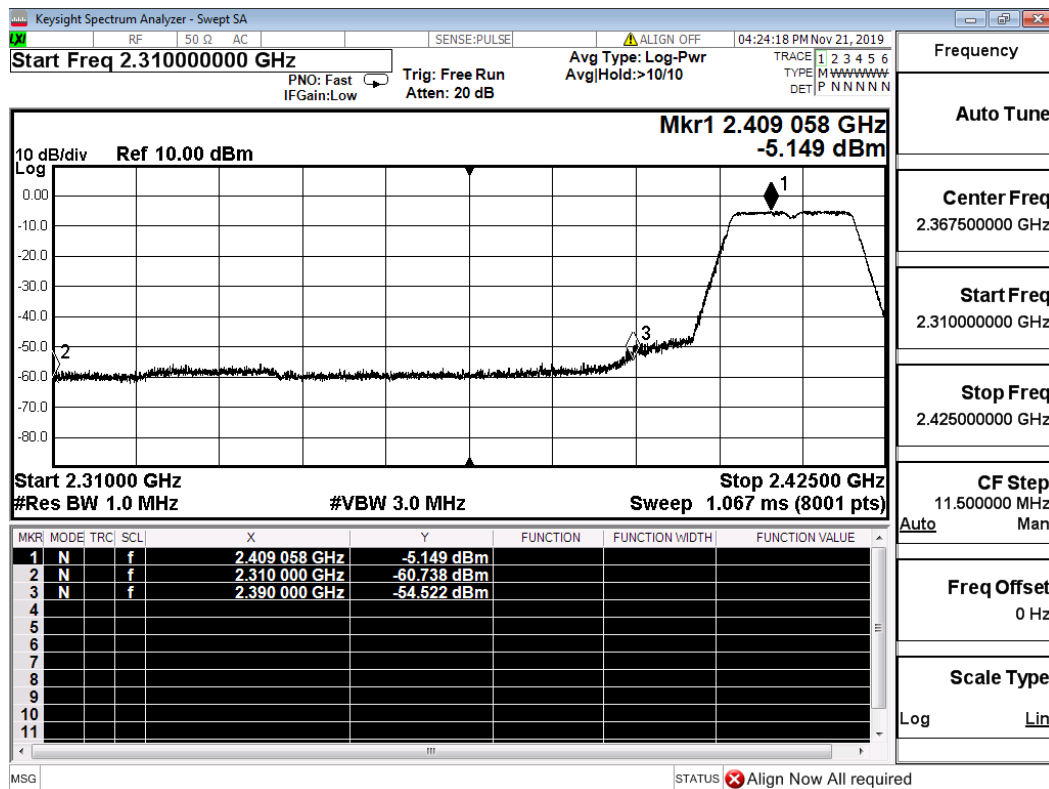
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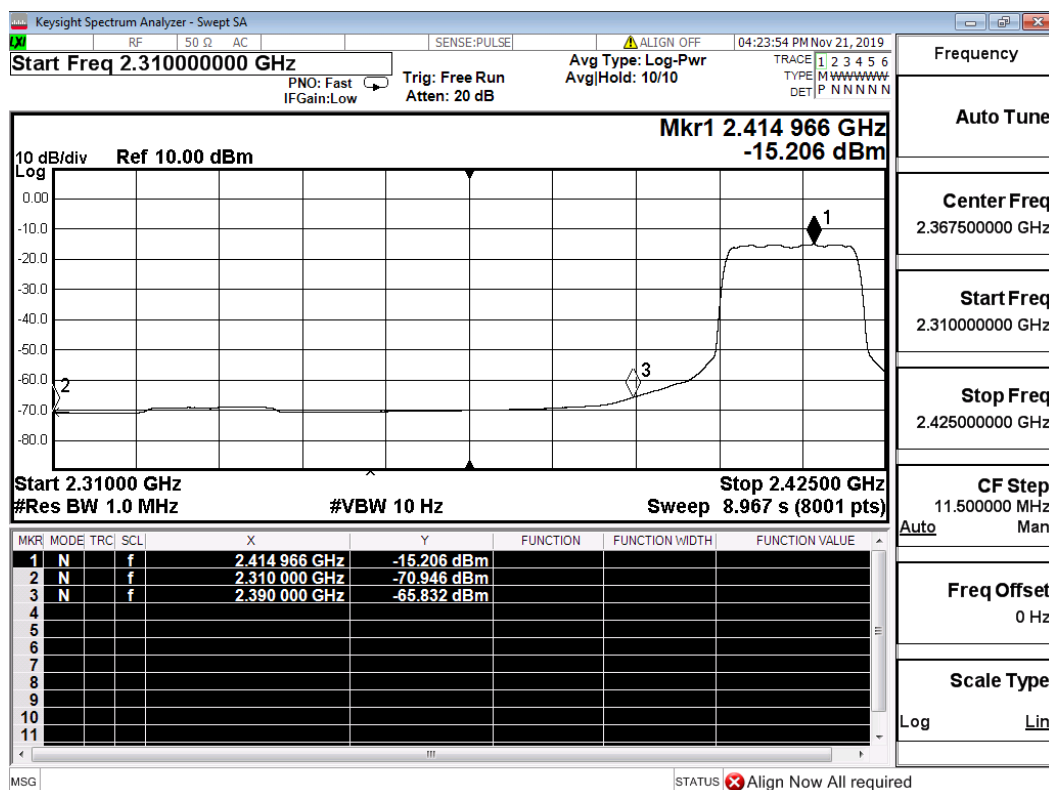
Restrict-band band-edge measurements_11G_2462_Ant1_AV



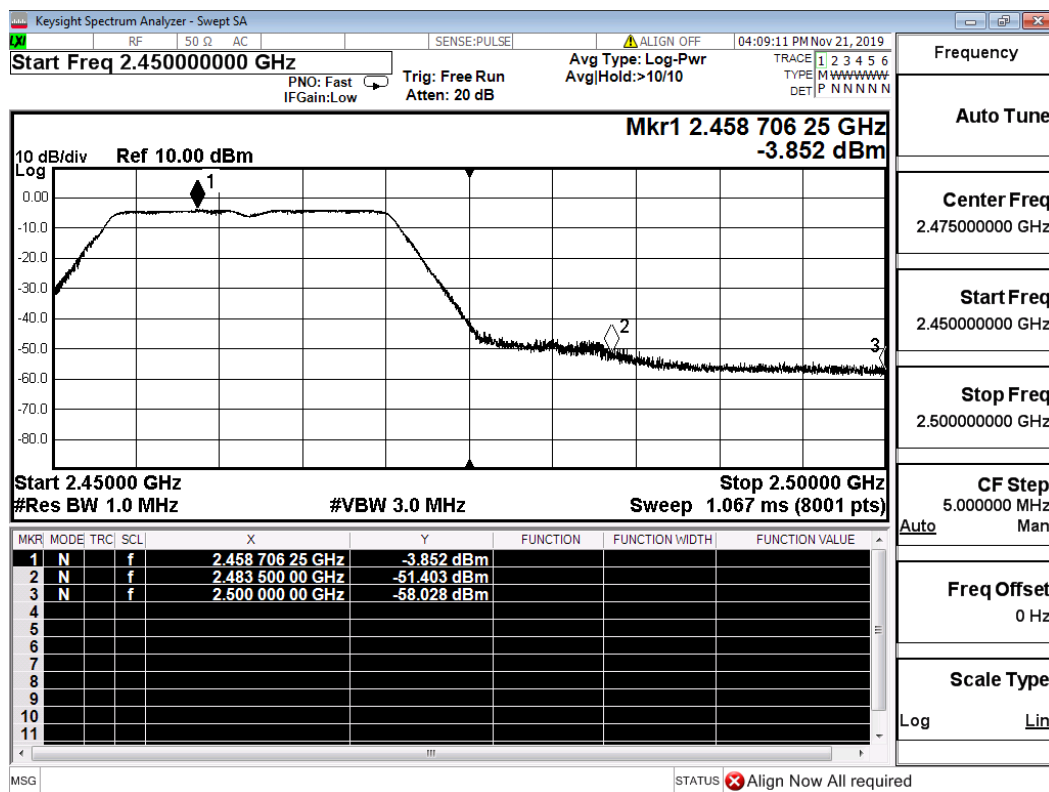
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_PEAK



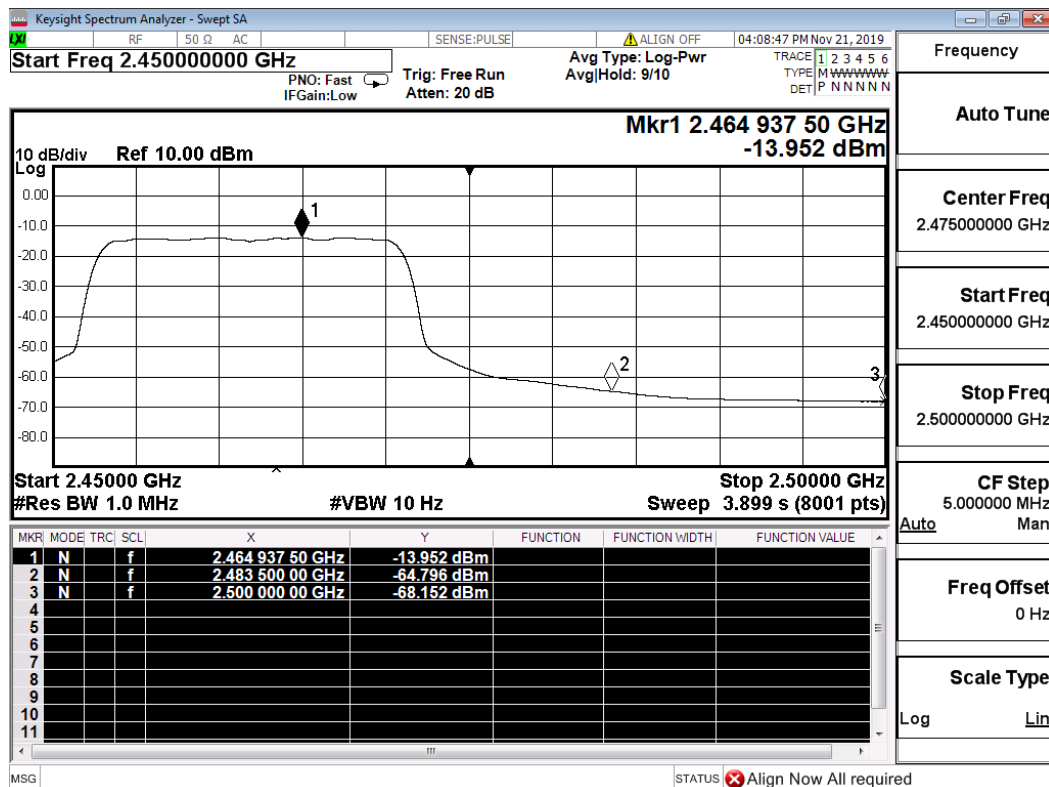
Restrict-band band-edge measurements_11N20SISO_2412_Ant1_AV



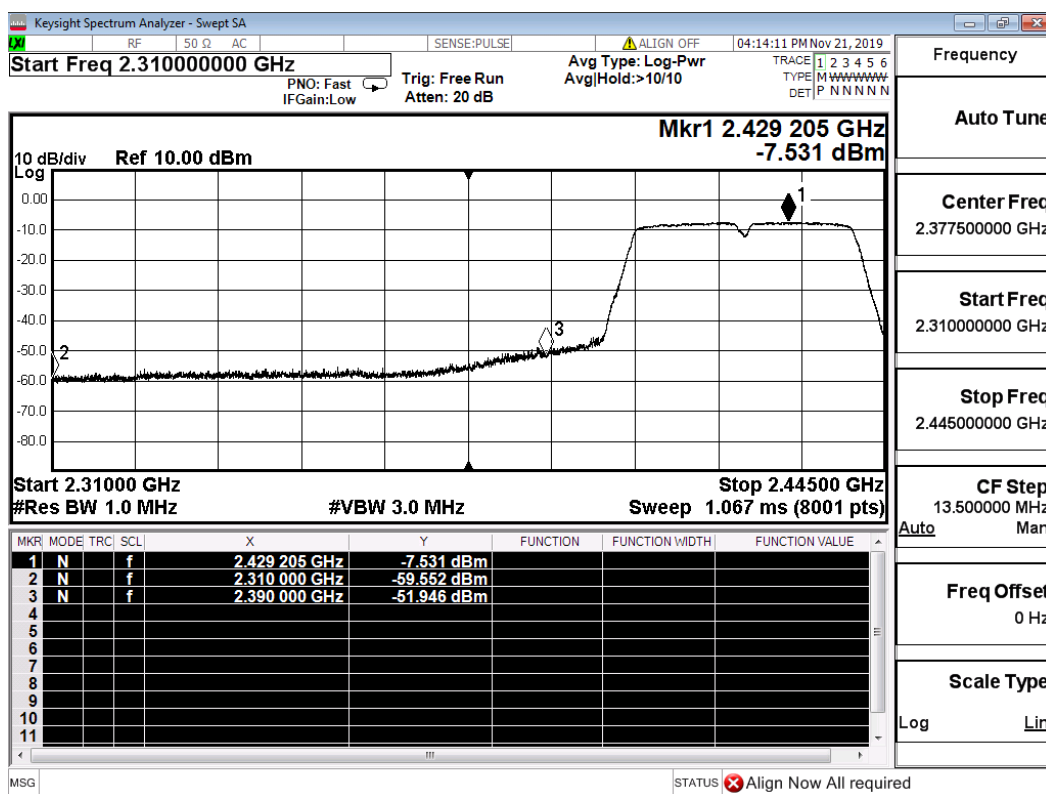
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_PEAK



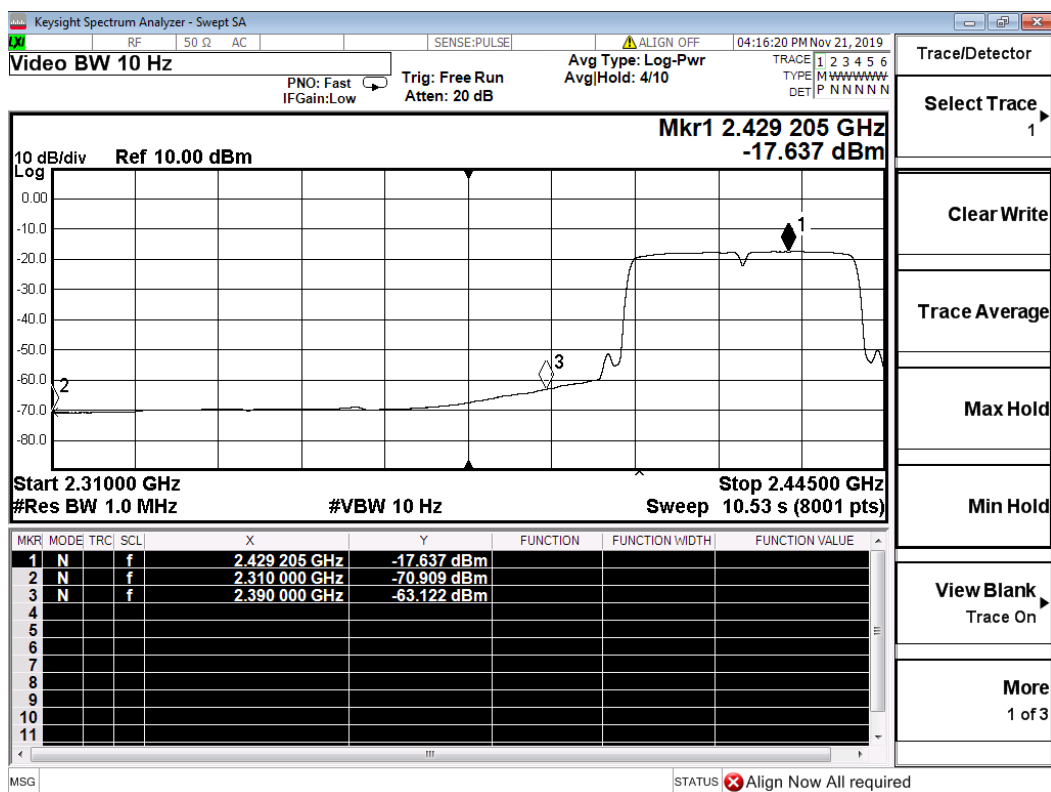
Restrict-band band-edge measurements_11N20SISO_2462_Ant1_AV



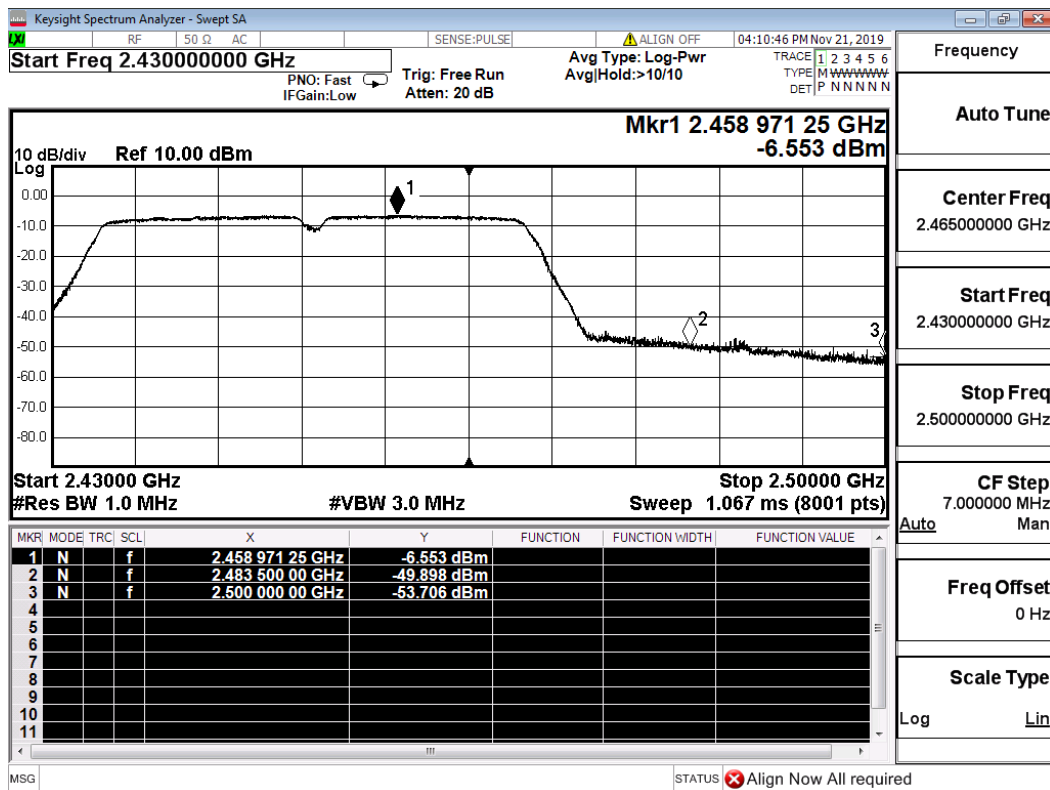
Restrict-band band-edge measurements_11N40SISO_2422_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2422_Ant1_AV



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_PEAK



Restrict-band band-edge measurements_11N40SISO_2452_Ant1_AV

