

Appendix A

RF Test Data for 2.4G WIFI (Conducted Measurement)

Product Name: 3D Printer

Trade Mark:  **FLASHFORGE**
3D PRINTER

Test Model: Adventurer 3

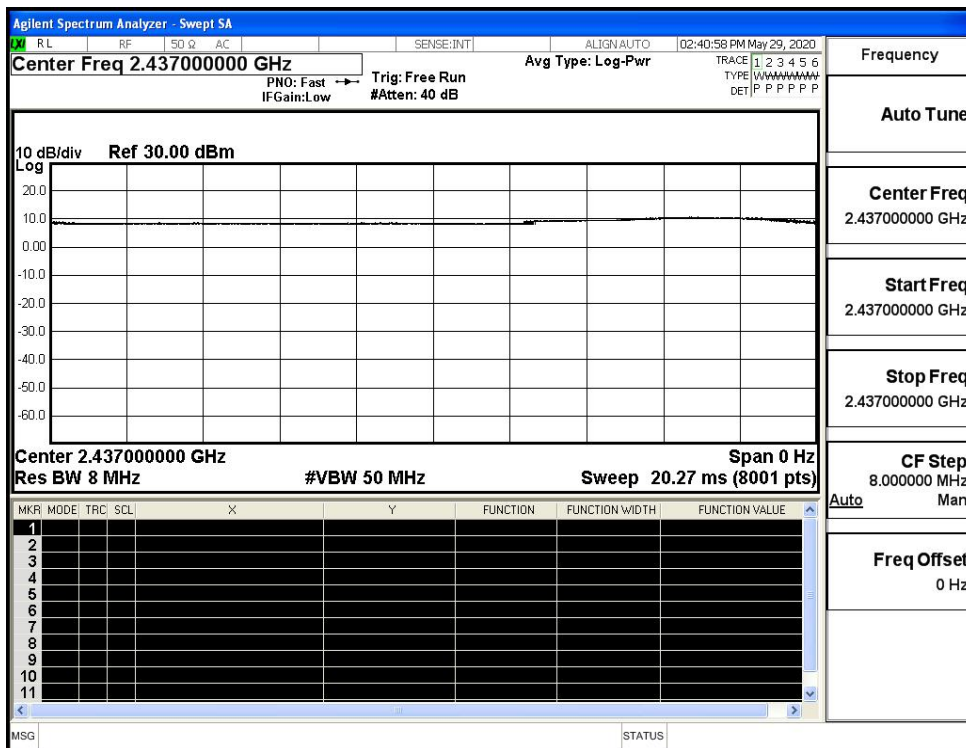
Environmental Conditions

Temperature:	23.5 ° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Li Huan

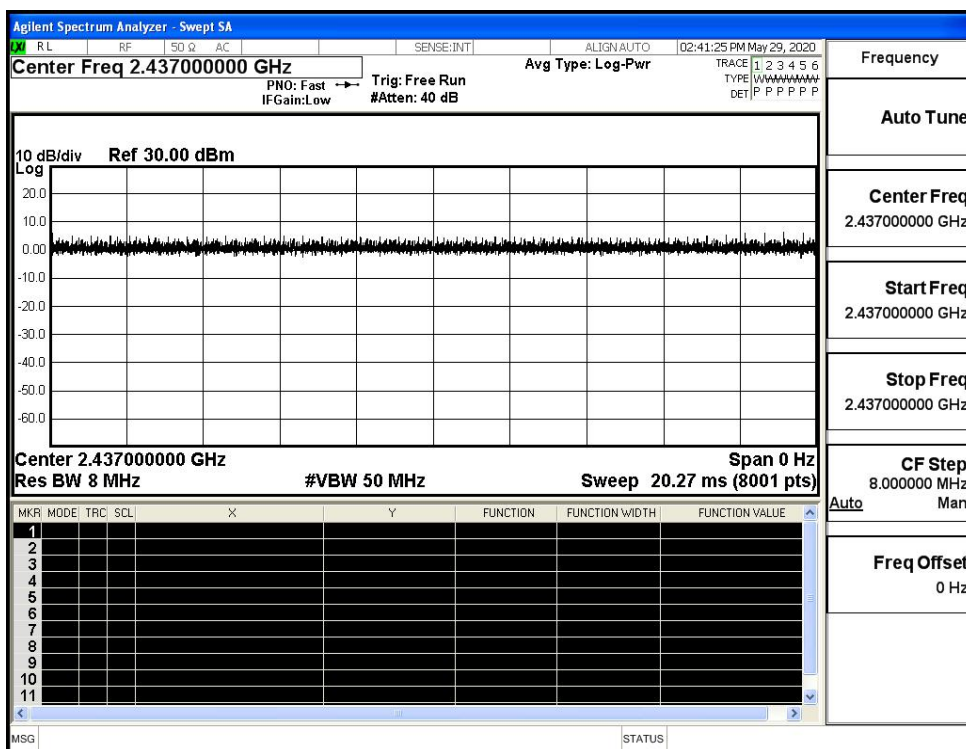
A.1 Duty Cycle

Test Mode	Test Channel	Ant	Duty Cycle[%]	Verdict
11B	2437	Ant1	100	PASS
11G	2437	Ant1	100	PASS
11N20SISO	2437	Ant1	100	PASS
11N40SISO	2437	Ant1	100	PASS

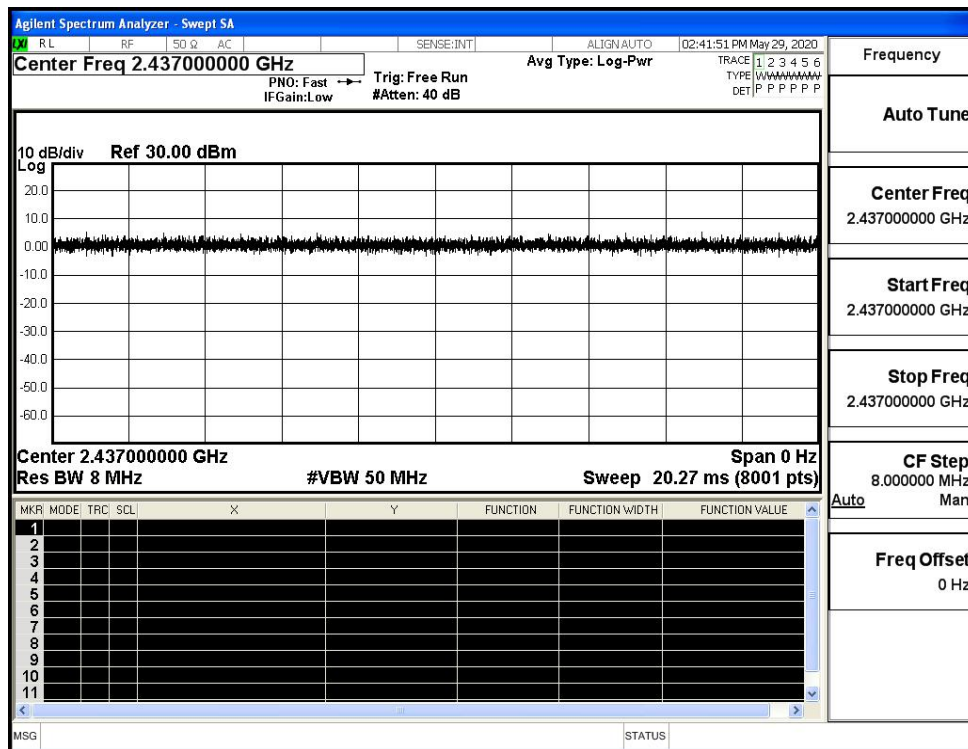
Duty Cycle_11B_2437_Ant1



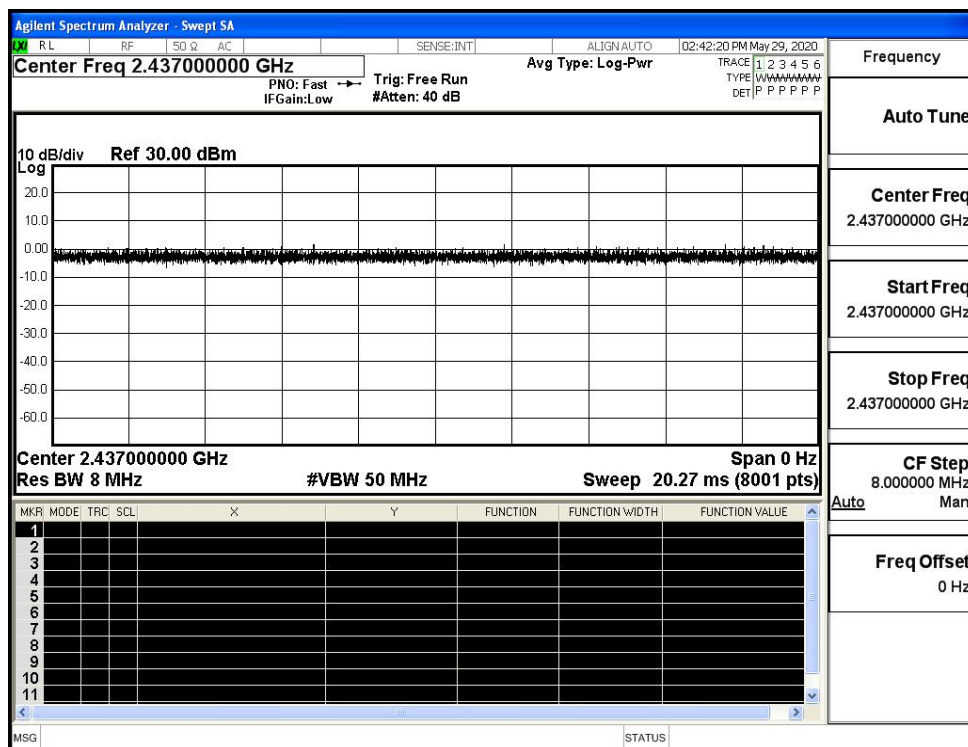
Duty Cycle_11G_2437_Ant1



Duty Cycle_11N20SISO_2437_Ant1



Duty Cycle_11N40SISO_2437_Ant1

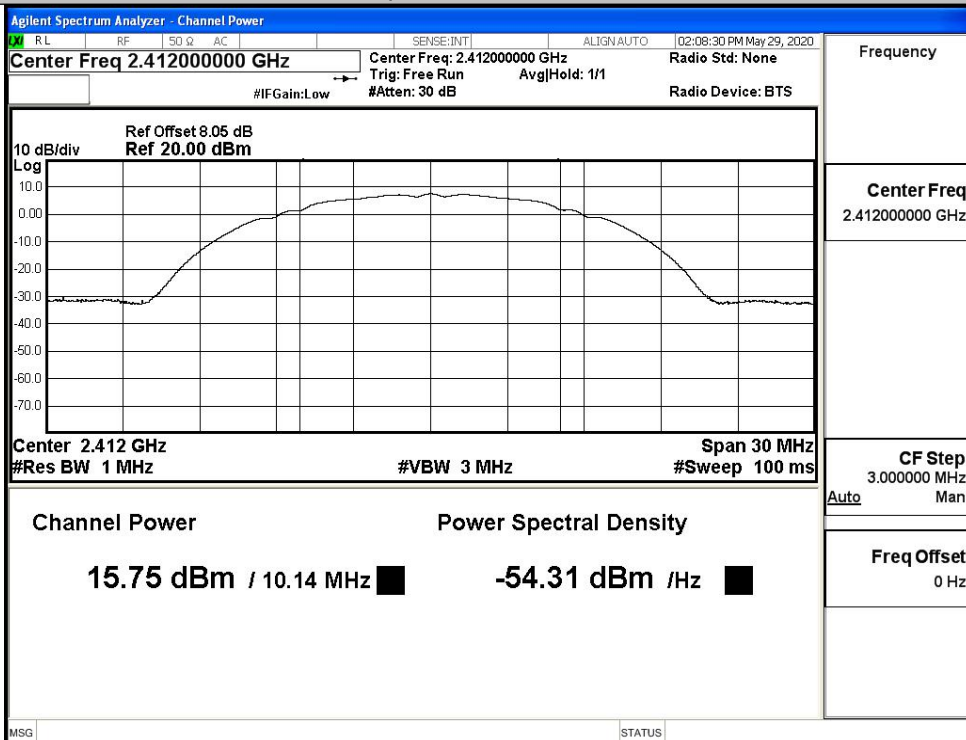


A.2 Maximum Conducted Output Power

Mode	Channel	Meas.Level [dBm]	Limit [dBm]	Verdict
11B	LCH	15.75	30	PASS
	MCH	15.44	30	PASS
	HCH	15.58	30	PASS
11G	LCH	13.48	30	PASS
	MCH	14.26	30	PASS
	HCH	14.38	30	PASS
11N20SISO	LCH	13.81	30	PASS
	MCH	13.92	30	PASS
	HCH	14.03	30	PASS
11N40SISO	LCH	13.33	30	PASS
	MCH	13.60	30	PASS
	HCH	13.73	30	PASS

Test Graphs

11B/LCH



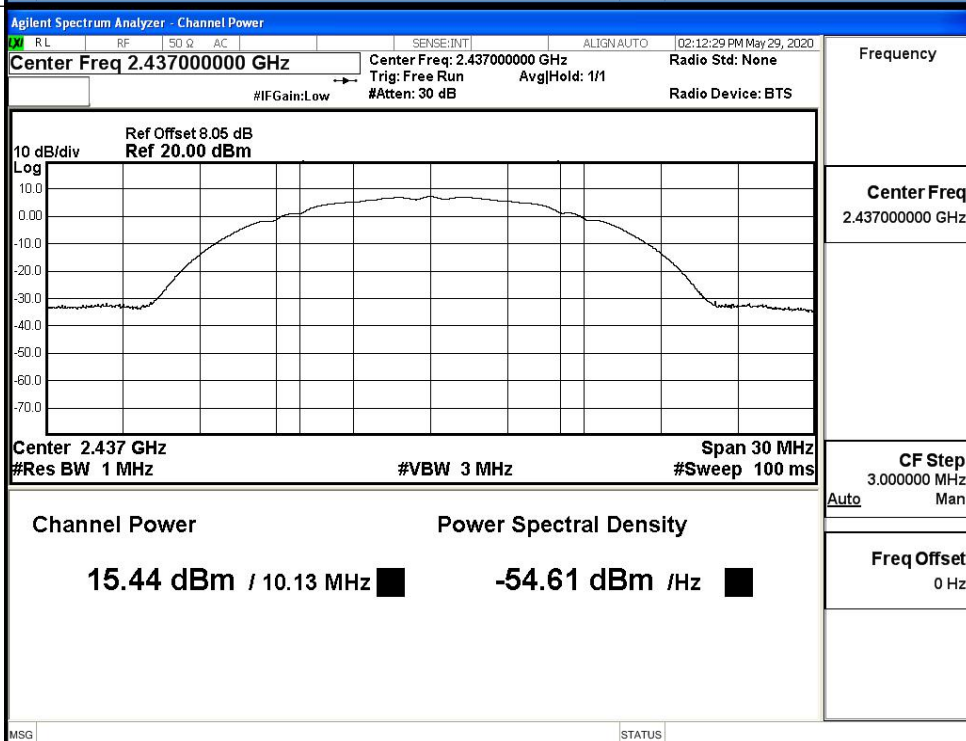
Frequency

Center Freq
2.41200000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11B/MCH



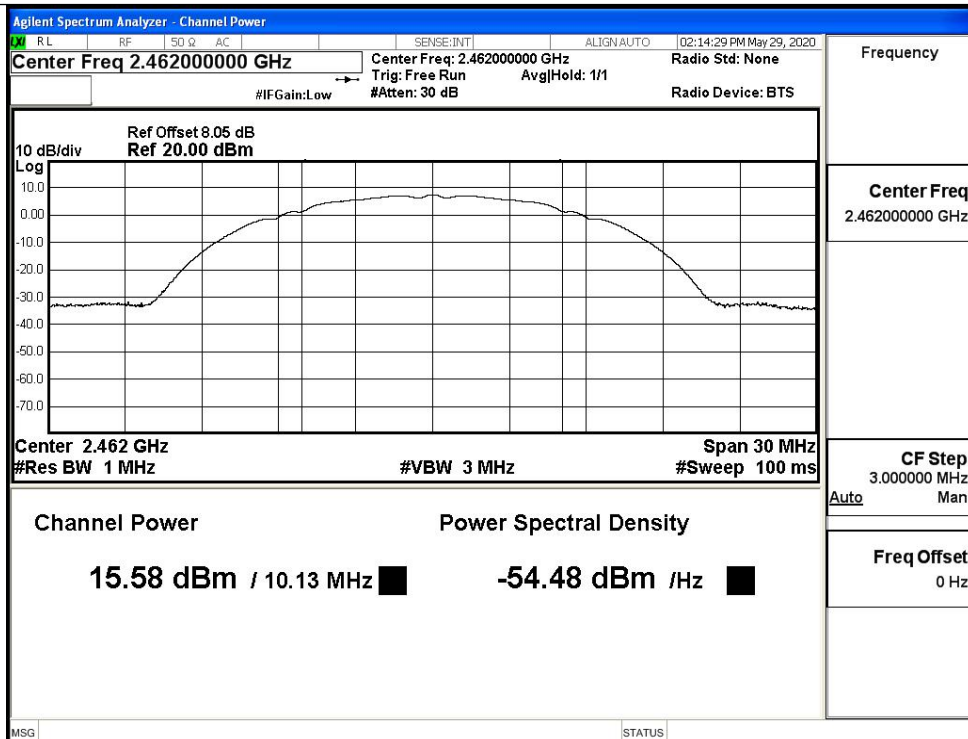
Frequency

Center Freq
2.437000000 GHz

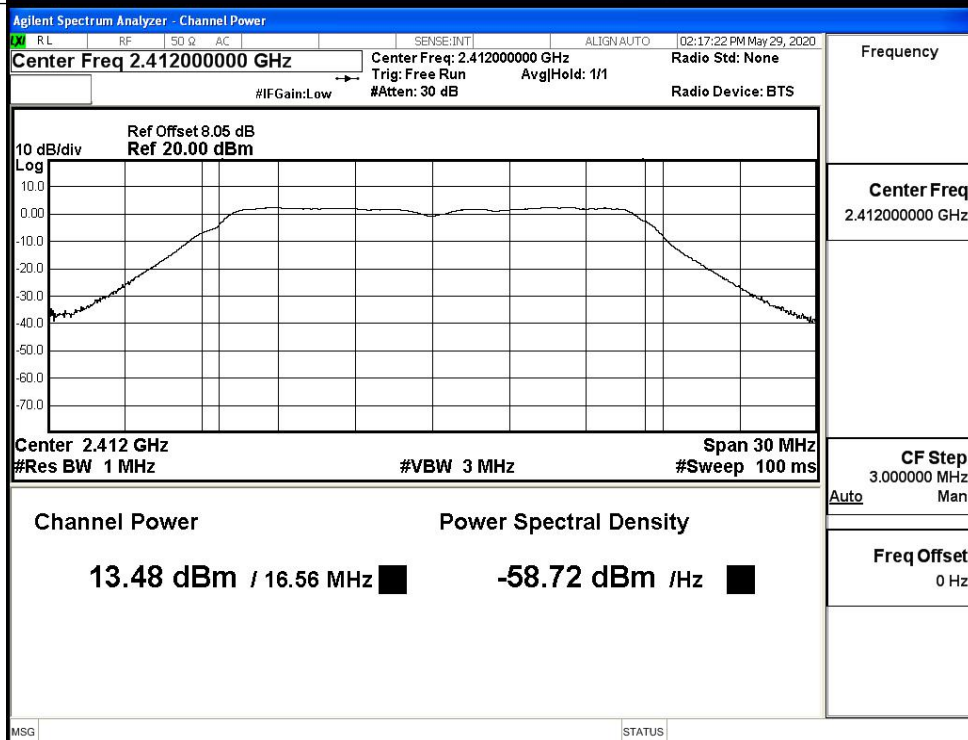
CF Step
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Auto Man

Freq Offset
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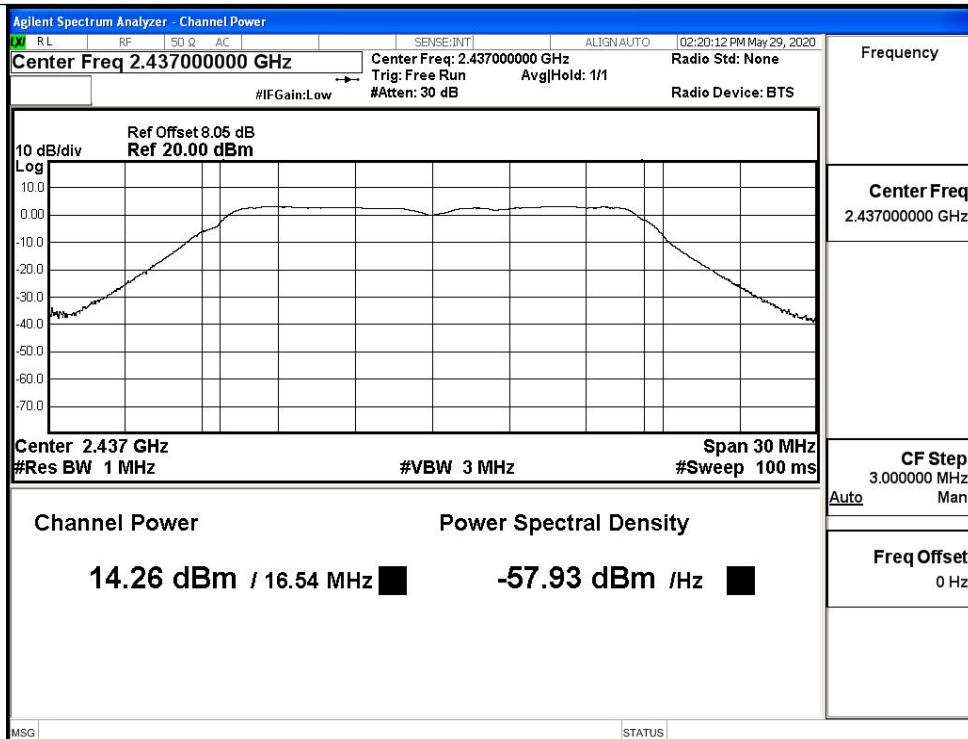
11B/HCH



11G/LCH



11G/MCH



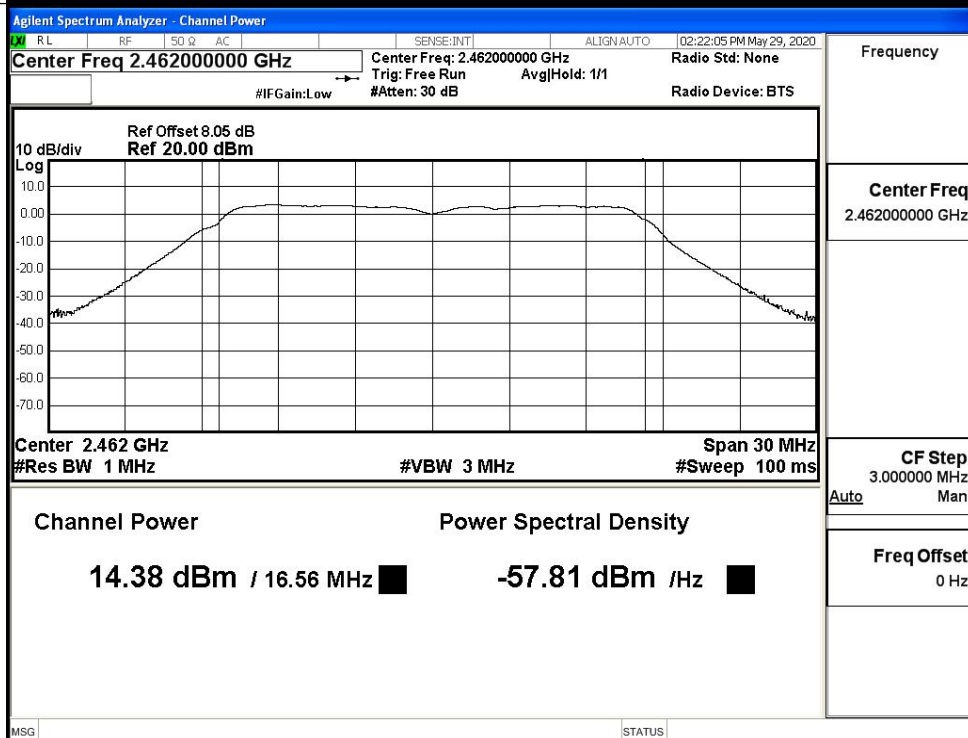
Frequency

Center Freq
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CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11G/HCH



Frequency

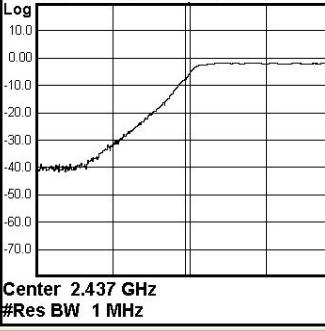
Center Freq
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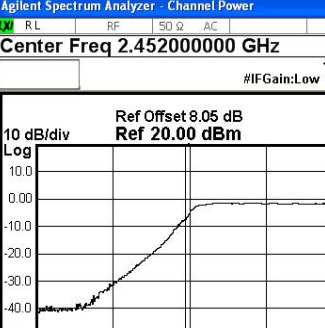
CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/LCH	Agilent Spectrum Analyzer - Channel Power RL RF 50 Ω AC SENSE:INT ALIGN AUTO 02:24:51 PM May 29, 2020 Center Freq 2.412000000 GHz Center Freq: 2.412000000 GHz Radio Std: None #IFGain:Low Trig: Free Run Avg Hold: 1/1 Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Log Center 2.412 GHz #Res BW 1 MHz #VBW 3 MHz Span 30 MHz #Sweep 100 ms Channel Power Power Spectral Density 13.81 dBm / 17.76 MHz -58.69 dBm /Hz MSG STATUS Frequency Center Freq 2.412000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
11N20SISO/MCH	Agilent Spectrum Analyzer - Channel Power RL RF 50 Ω AC SENSE:INT ALIGN AUTO 02:27:22 PM May 29, 2020 Center Freq 2.437000000 GHz Center Freq: 2.437000000 GHz Radio Std: None #IFGain:Low Trig: Free Run Avg Hold: 1/1 Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Log Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Span 30 MHz #Sweep 100 ms Channel Power Power Spectral Density 13.92 dBm / 17.7 MHz -58.56 dBm /Hz MSG STATUS Frequency Center Freq 2.437000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz

11N20SISO/HCH	Agilent Spectrum Analyzer - Channel Power RL RF 50 Ω AC SENSE:INT ALIGN AUTO 02:30:23 PM May 29, 2020 Center Freq 2.462000000 GHz Center Freq: 2.462000000 GHz Trig: Free Run Avg Hold: 1/1 Radio Std: None #IFGain:Low #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Log Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Span 30 MHz #Sweep 100 ms Channel Power Power Spectral Density 14.03 dBm / 17.72 MHz -58.45 dBm /Hz MSG STATUS	Frequency Center Freq 2.462000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
11N40SISO/LCH	Agilent Spectrum Analyzer - Channel Power RL RF 50 Ω AC SENSE:INT ALIGN AUTO 02:32:53 PM May 29, 2020 Center Freq 2.422000000 GHz Center Freq: 2.422000000 GHz Trig: Free Run Avg Hold: 1/1 Radio Std: None #IFGain:Low #Atten: 30 dB Radio Device: BTS 10 dB/div Ref Offset 8.05 dB Ref 20.00 dBm Log Center 2.422 GHz #Res BW 1 MHz #VBW 3 MHz Span 60 MHz #Sweep 100 ms Channel Power Power Spectral Density 13.33 dBm / 36.5 MHz -62.30 dBm /Hz MSG STATUS	Frequency Center Freq 2.422000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz

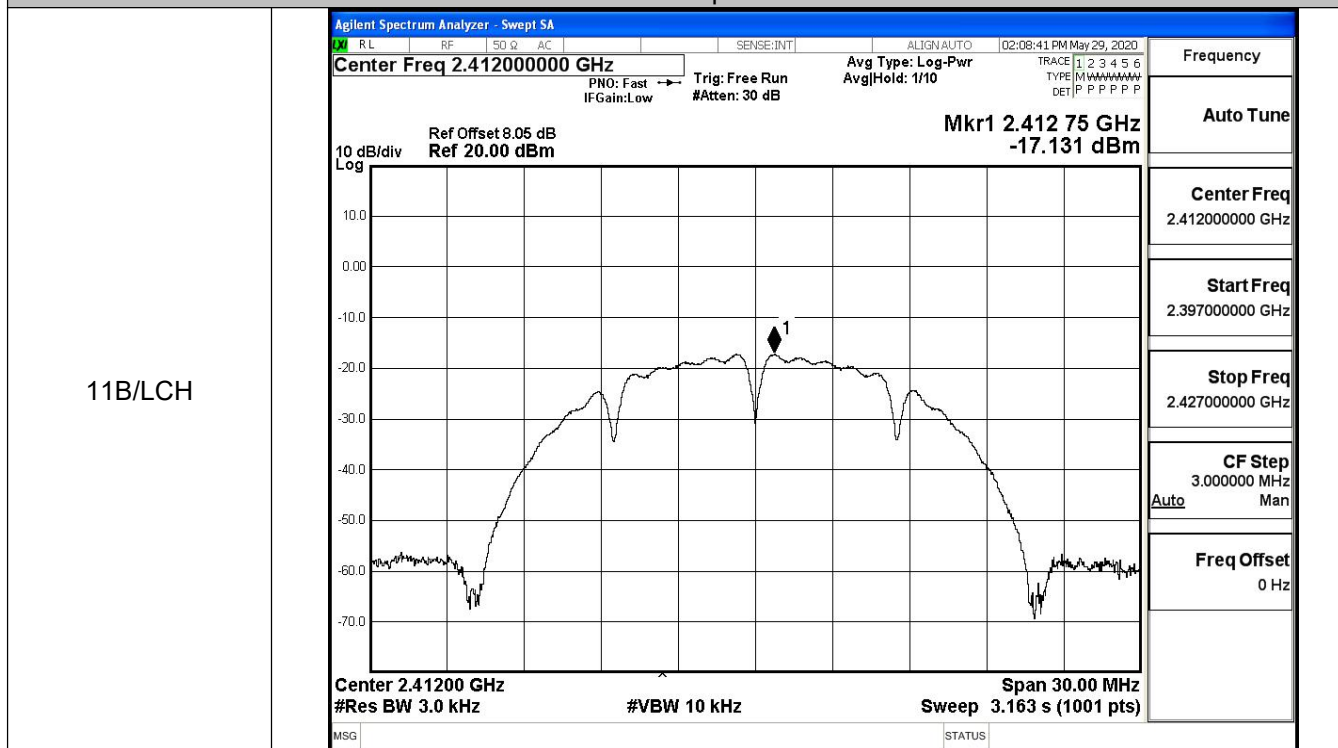
11N40SISO/MCH	Agilent Spectrum Analyzer - Channel Power	Frequency
	Center Freq 2.437000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm 10 dB/div Log  Center 2.437 GHz #Res BW 1 MHz Span 60 MHz #Sweep 100 ms Channel Power 13.60 dBm / 36.49 MHz Power Spectral Density -62.02 dBm /Hz	Center Freq 2.437000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
	MSG	STATUS

11N40SISO/HCH	Agilent Spectrum Analyzer - Channel Power	Frequency
	Center Freq 2.452000000 GHz Ref Offset 8.05 dB Ref 20.00 dBm 10 dB/div Log  Center 2.452 GHz #Res BW 1 MHz Span 60 MHz #Sweep 100 ms Channel Power 13.73 dBm / 36.53 MHz Power Spectral Density -61.90 dBm /Hz	Center Freq 2.452000000 GHz CF Step 6.000000 MHz Auto Man Freq Offset 0 Hz
	MSG	STATUS

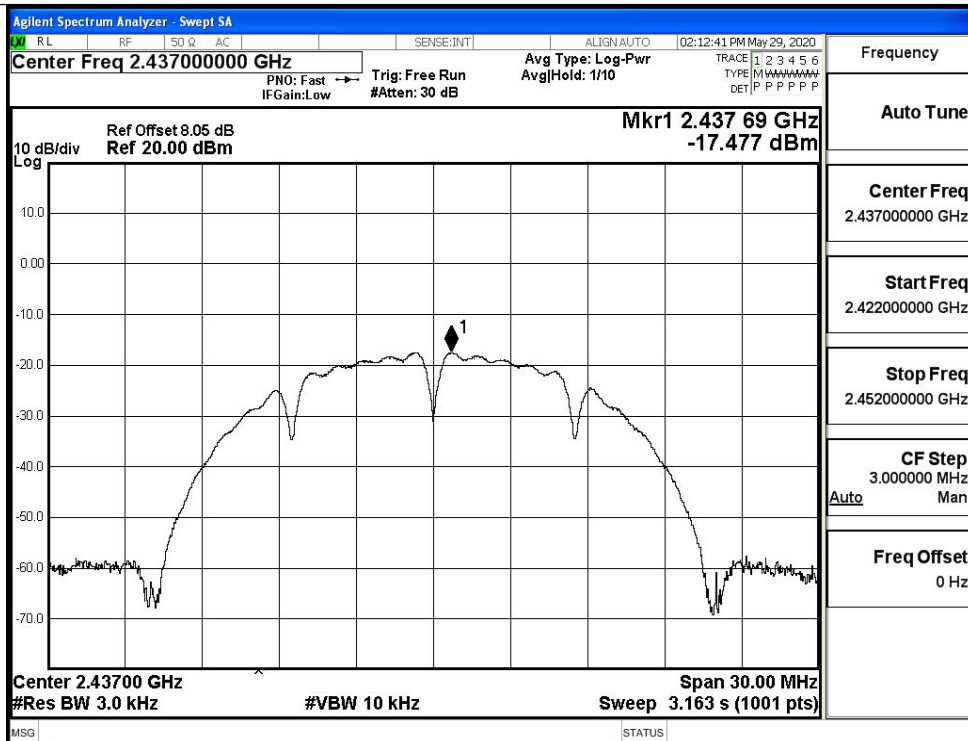
A.3 Maximum Power Spectral Density

Mode	Channel	Meas.Level [dBm/3KHz]	Limit [dBm/3KHz]	Verdict
11B	LCH	-17.131	8	PASS
	MCH	-17.477	8	PASS
	HCH	-17.345	8	PASS
11G	LCH	-22.671	8	PASS
	MCH	-22.109	8	PASS
	HCH	-21.654	8	PASS
11N20SISO	LCH	-22.375	8	PASS
	MCH	-21.956	8	PASS
	HCH	-21.815	8	PASS
11N40SISO	LCH	-25.064	8	PASS
	MCH	-25.364	8	PASS
	HCH	-24.523	8	PASS

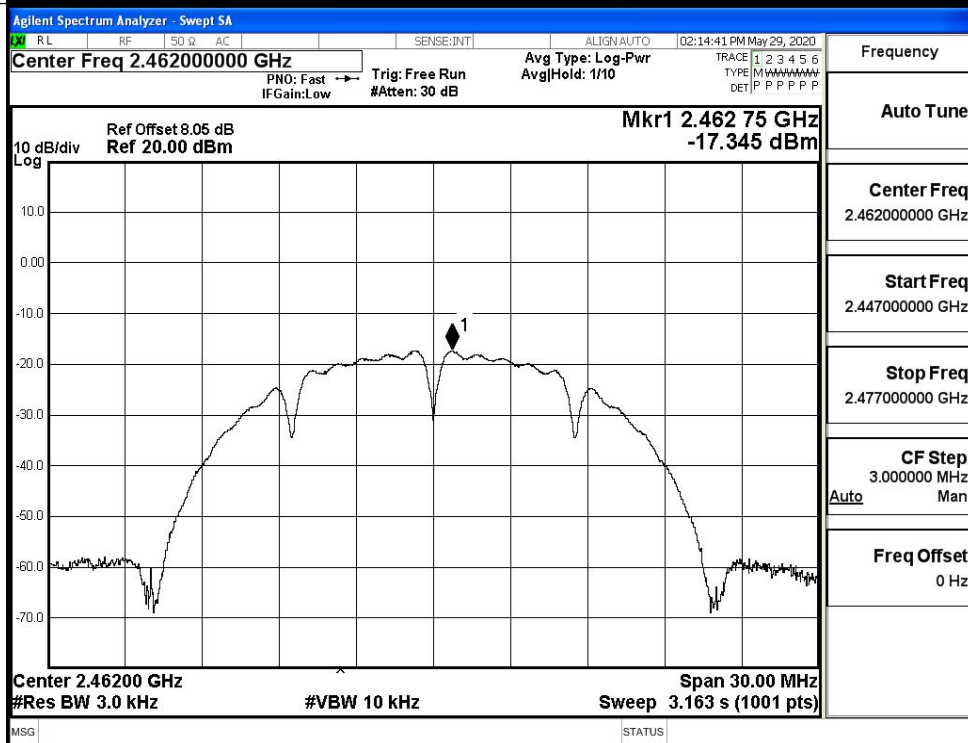
Test Graphs



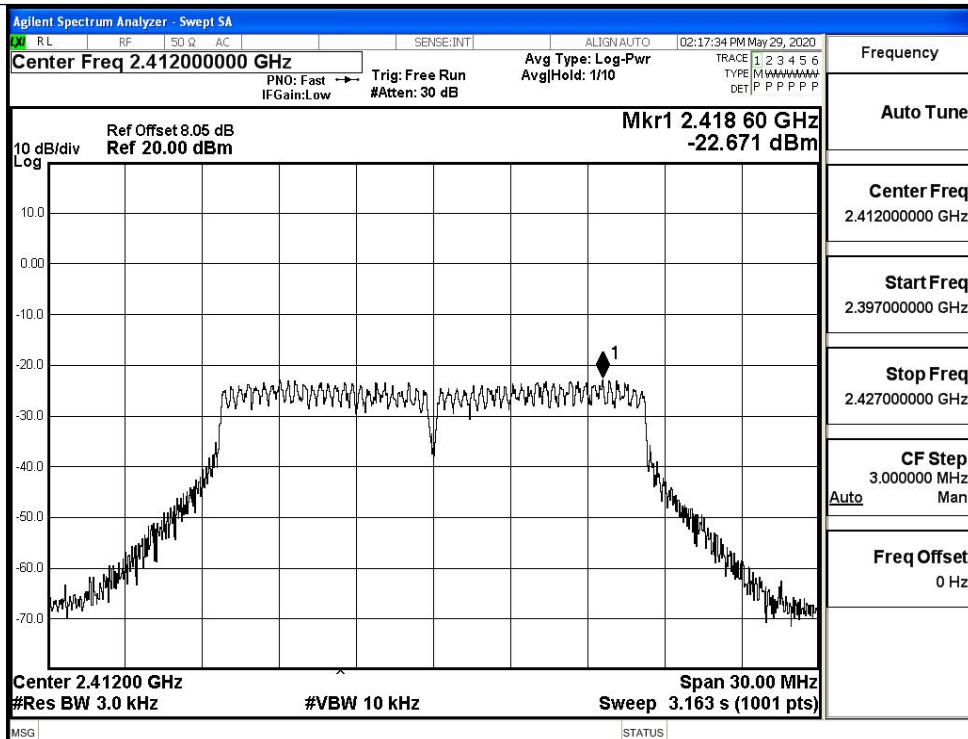
11B/MCH



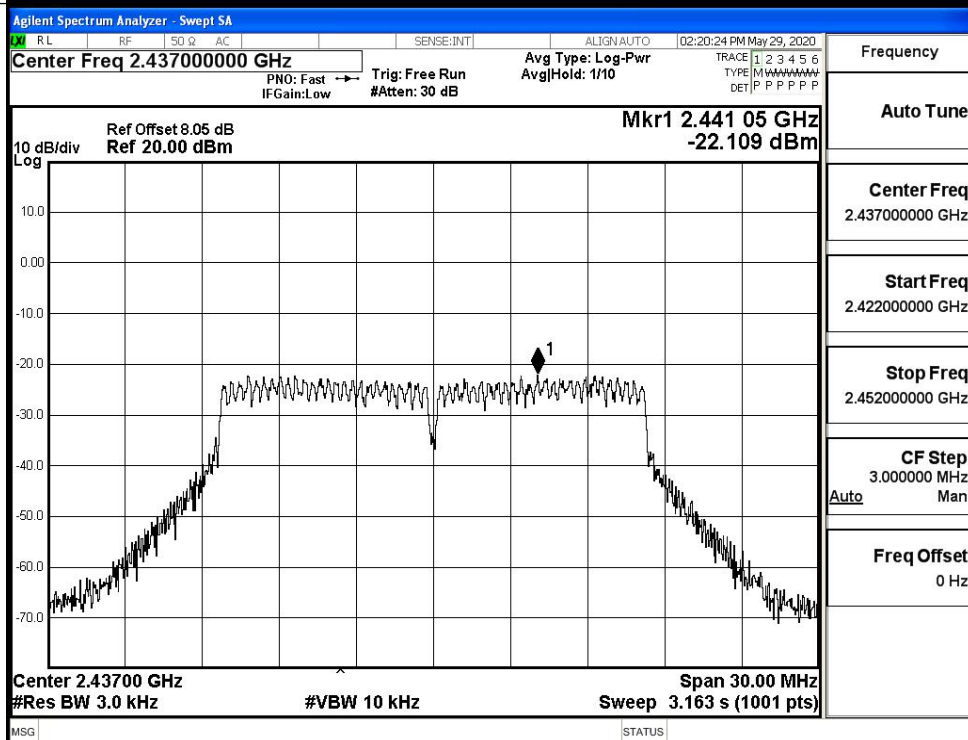
11B/HCH



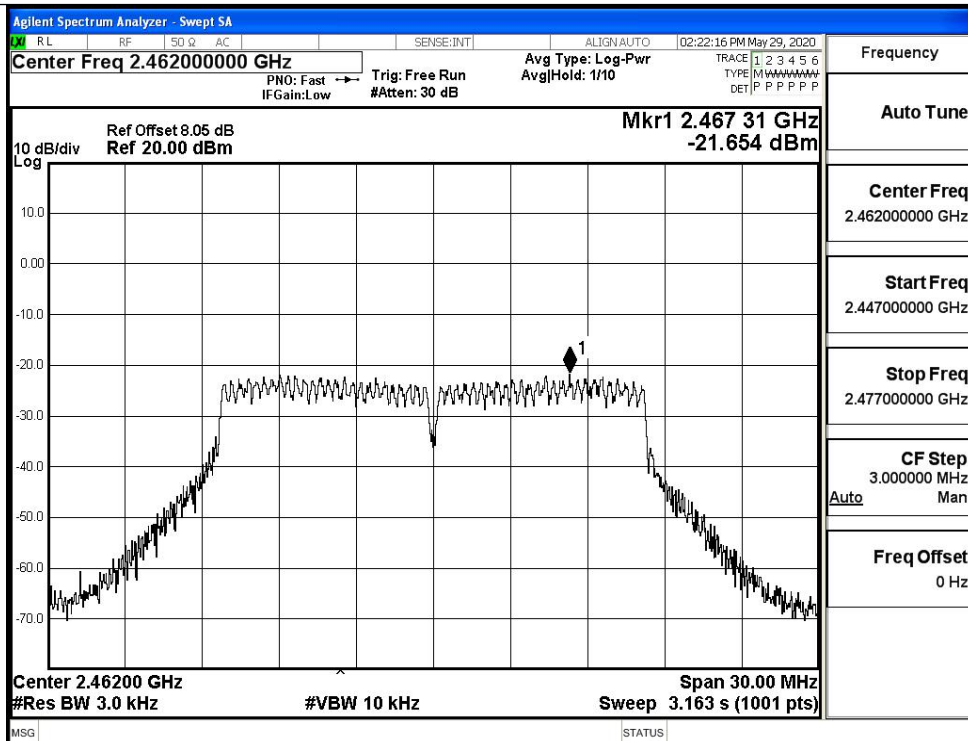
11G/LCH



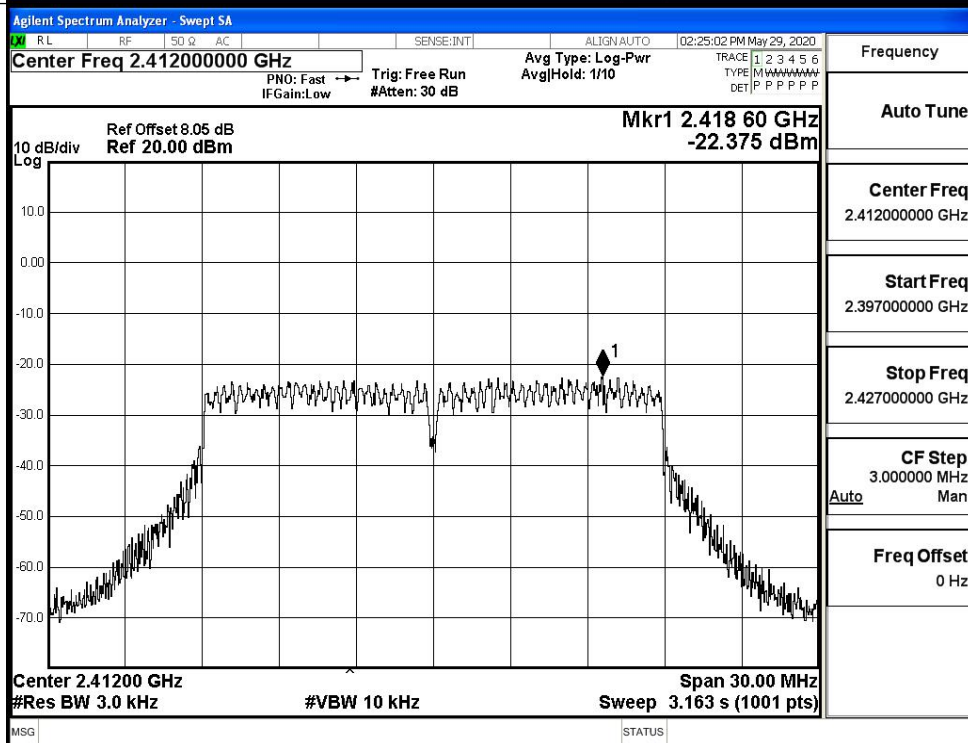
11G/MCH

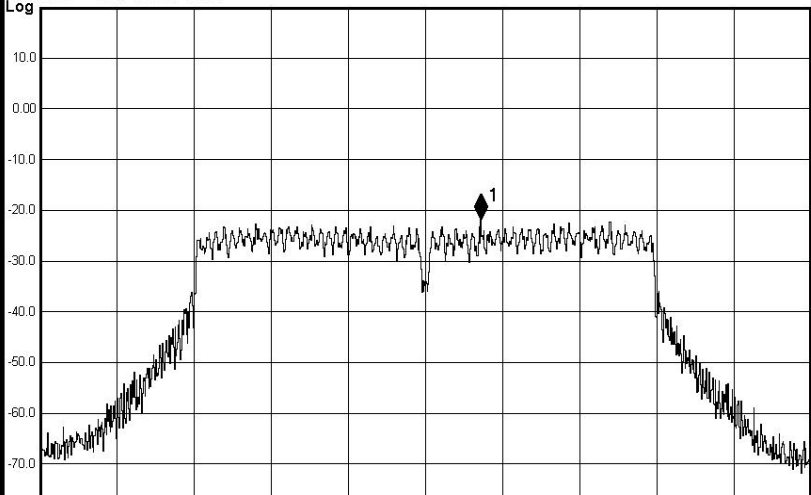
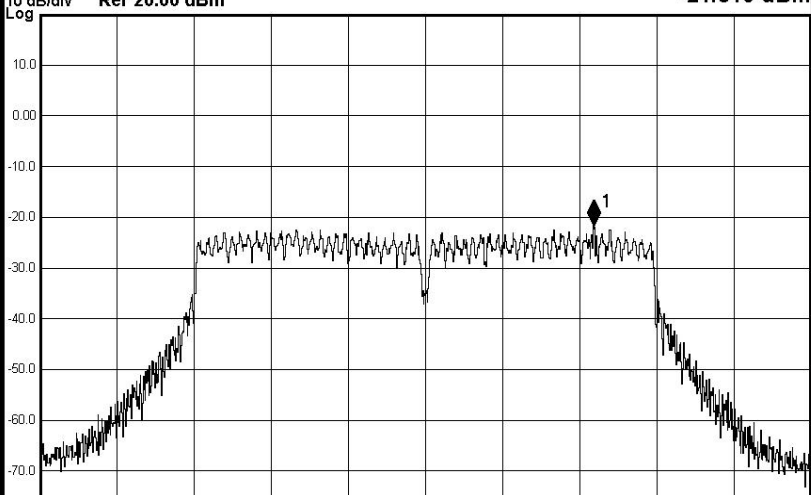


11G/HCH

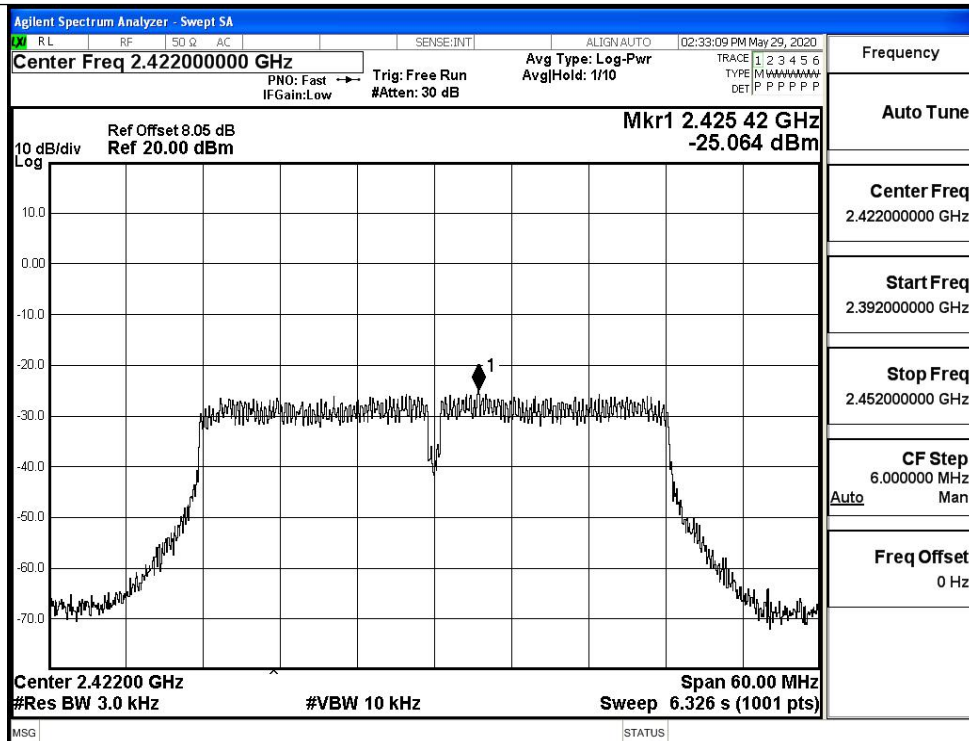


11N20SISO/LCH

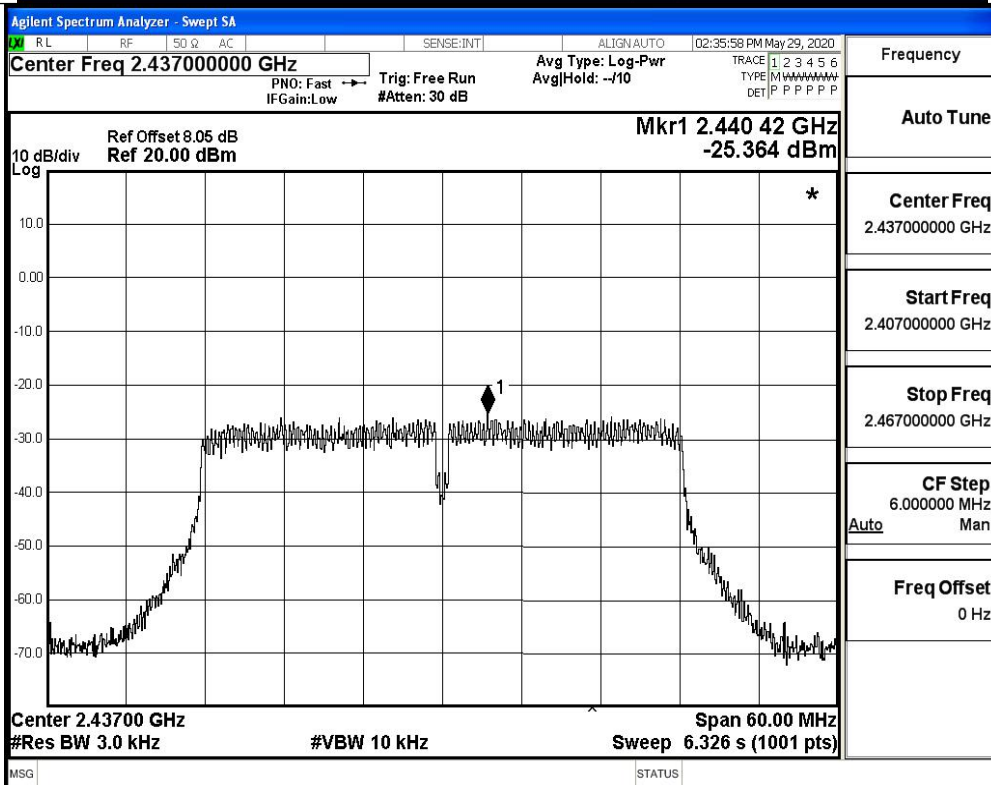


11N20SISO/MCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 02:27:33 PM May 29, 2020 Center Freq 2.437000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr AvgHold: 1/10 Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.439 16 GHz -21.956 dBm 10 dB/div Log  Center 2.43700 GHz Span 30.00 MHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 3.163 s (1001 pts) MSG STATUS Frequency Auto Tune Center Freq 2.437000000 GHz Start Freq 2.422000000 GHz Stop Freq 2.452000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz
11N20SISO/HCH	Agilent Spectrum Analyzer - Swept SA RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 02:30:35 PM May 29, 2020 Center Freq 2.462000000 GHz PNO: Fast IF Gain: Low Trig: Free Run #Atten: 30 dB Avg Type: Log-Pwr AvgHold: 1/10 Ref Offset 8.05 dB Ref 20.00 dBm Mkr1 2.468 54 GHz -21.815 dBm 10 dB/div Log  Center 2.46200 GHz Span 30.00 MHz #Res BW 3.0 kHz #VBW 10 kHz Sweep 3.163 s (1001 pts) MSG STATUS Frequency Auto Tune Center Freq 2.462000000 GHz Start Freq 2.447000000 GHz Stop Freq 2.477000000 GHz CF Step 3.000000 MHz Auto Man Freq Offset 0 Hz

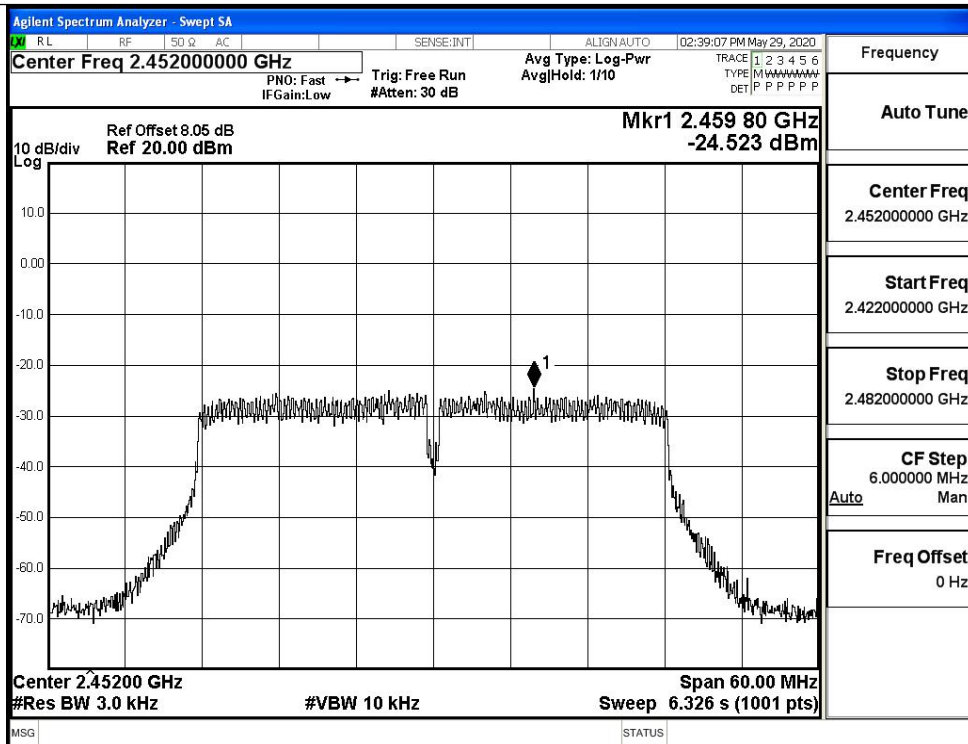
11N40SISO/LCH



11N40SISO/MCH



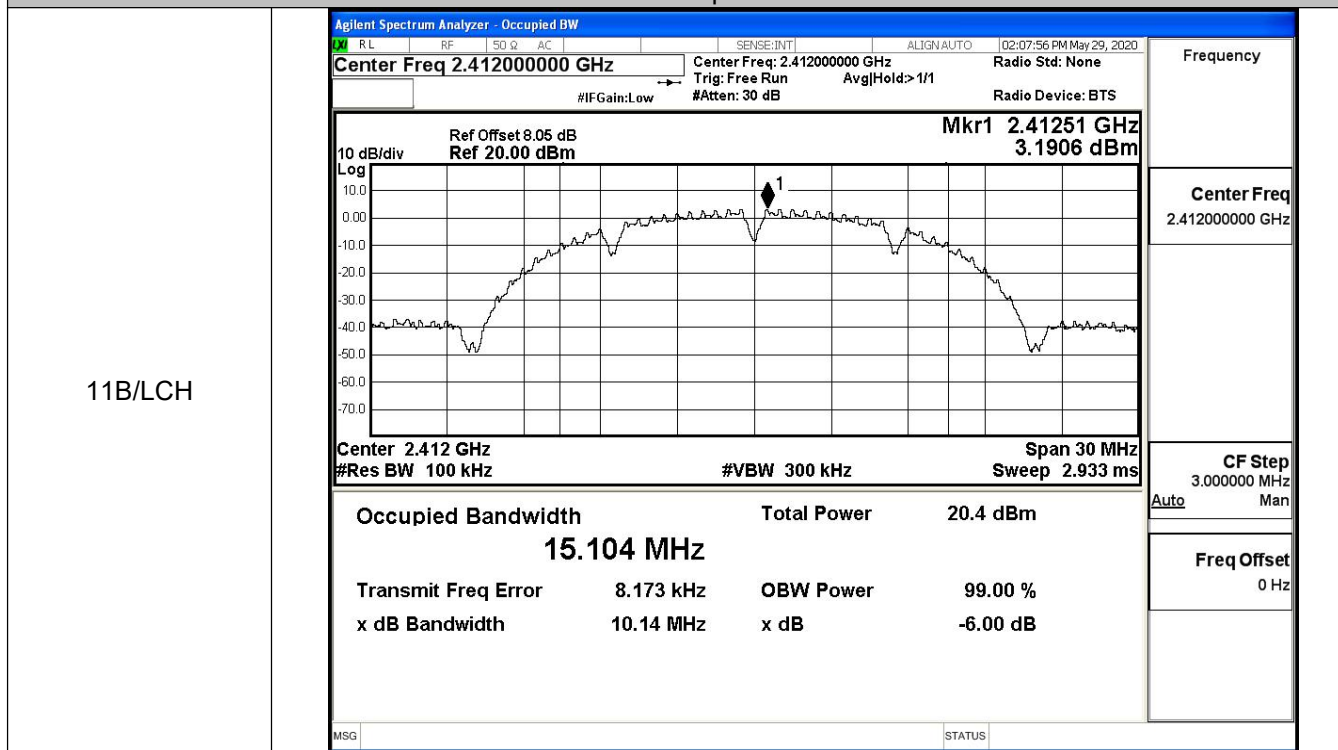
11N40SISO/HCH



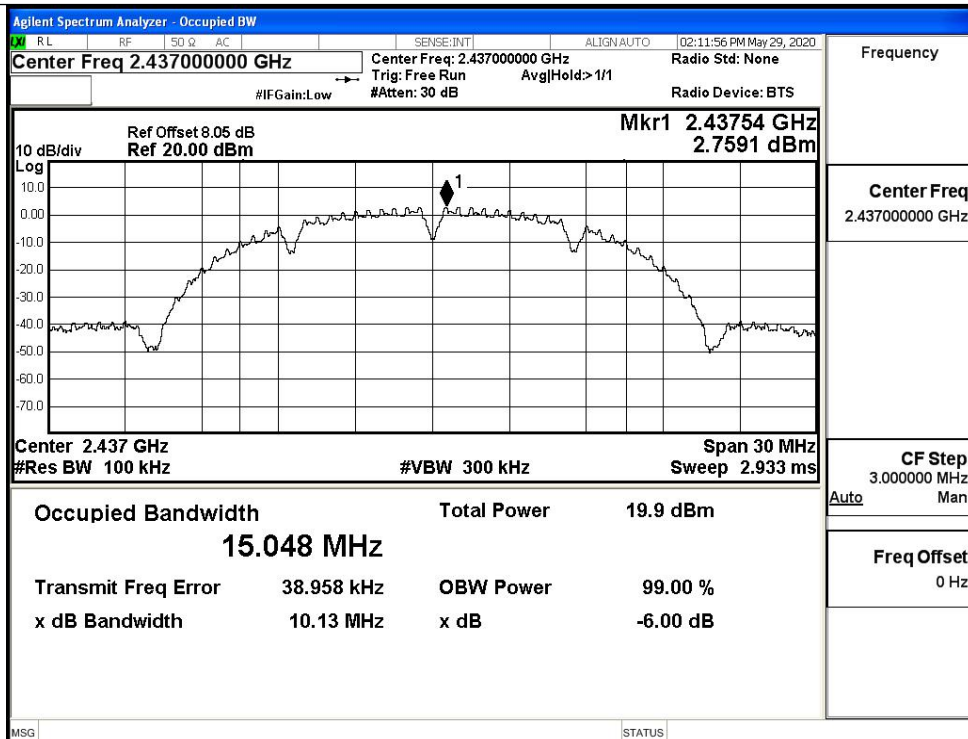
A.4 6dB Bandwidth

Mode	Channel	6dB Bandwidth [MHz]	Limit [MHz]	Verdict
11B	LCH	10.14	≥ 0.5	PASS
	MCH	10.13	≥ 0.5	PASS
	HCH	10.13	≥ 0.5	PASS
11G	LCH	16.56	≥ 0.5	PASS
	MCH	16.54	≥ 0.5	PASS
	HCH	16.56	≥ 0.5	PASS
11N20SISO	LCH	17.76	≥ 0.5	PASS
	MCH	17.70	≥ 0.5	PASS
	HCH	17.72	≥ 0.5	PASS
11N40SISO	LCH	36.50	≥ 0.5	PASS
	MCH	36.49	≥ 0.5	PASS
	HCH	36.53	≥ 0.5	PASS

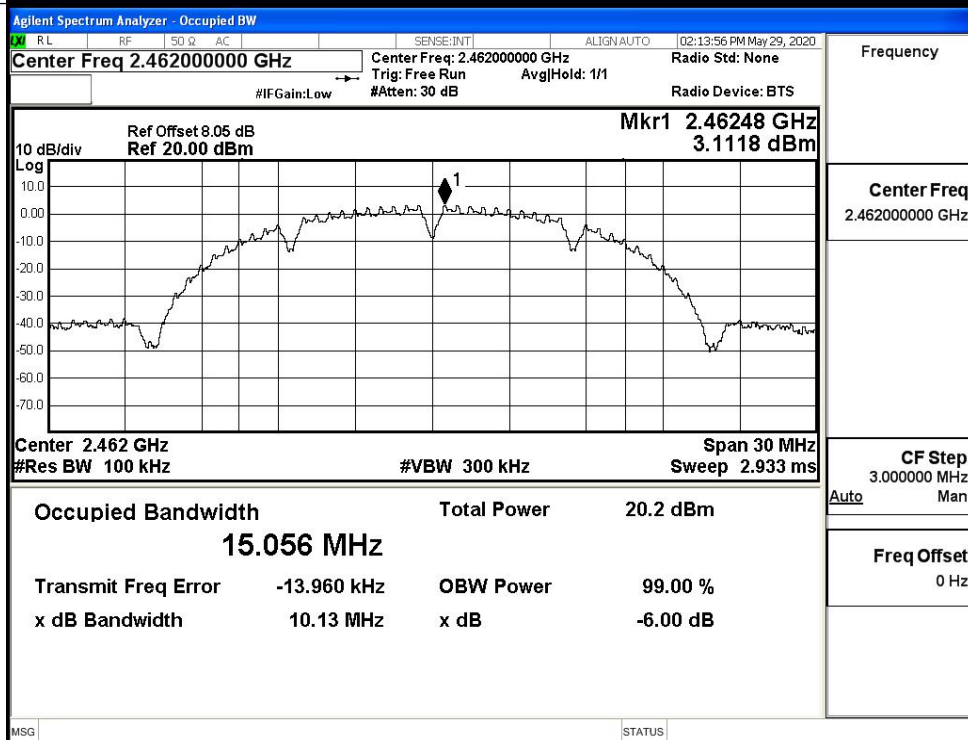
Test Graphs



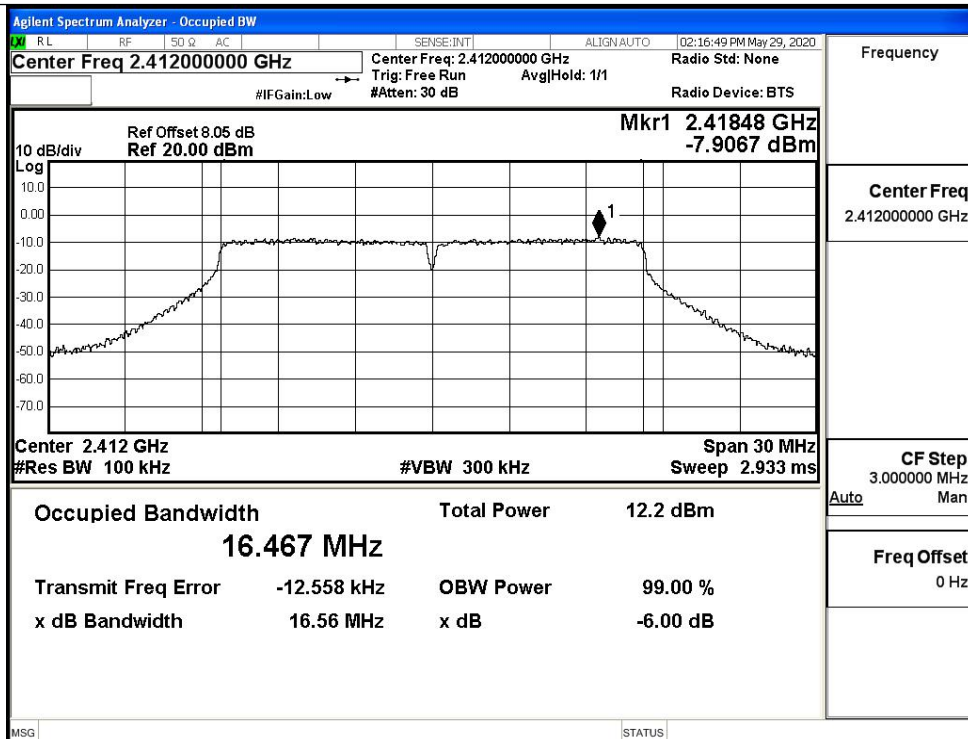
11B/MCH



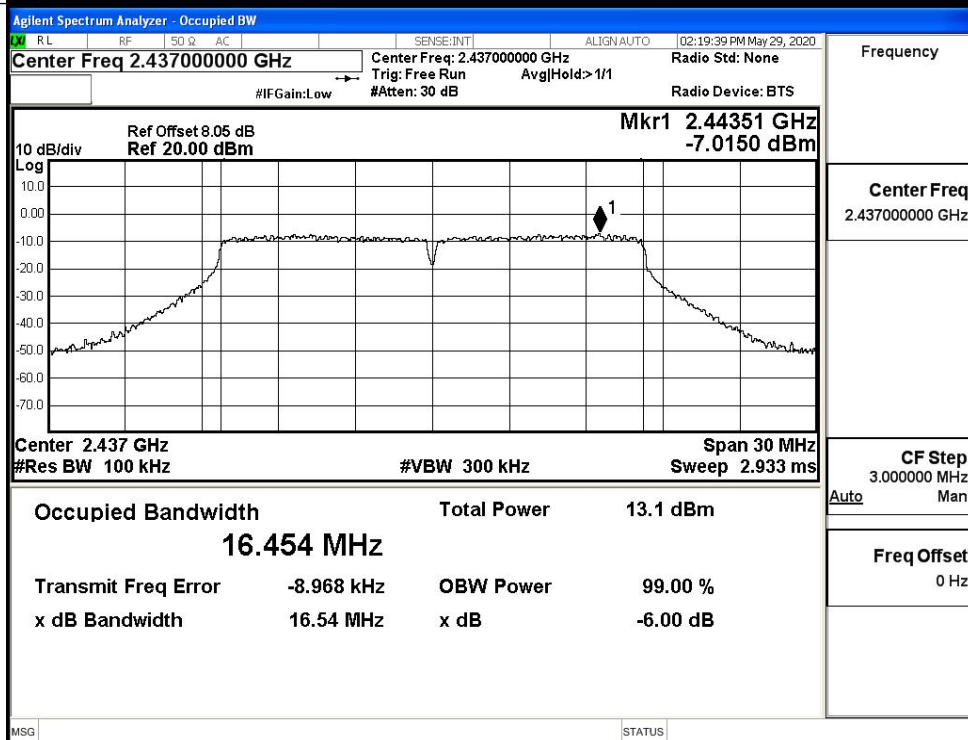
11B/HCH



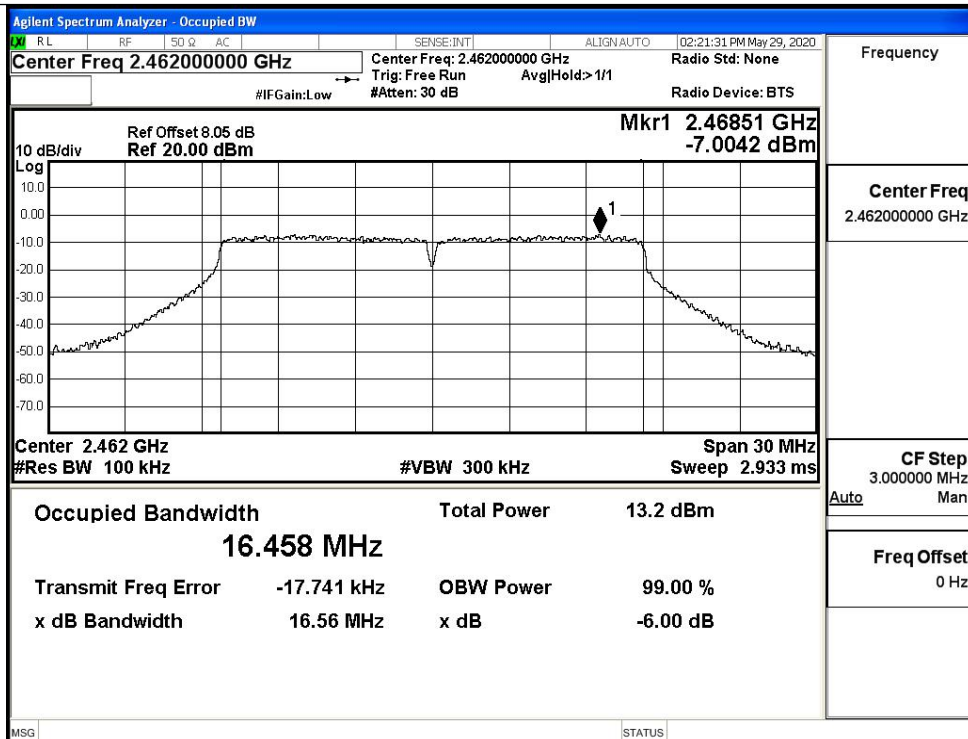
11G/LCH



11G/MCH



11G/HCH



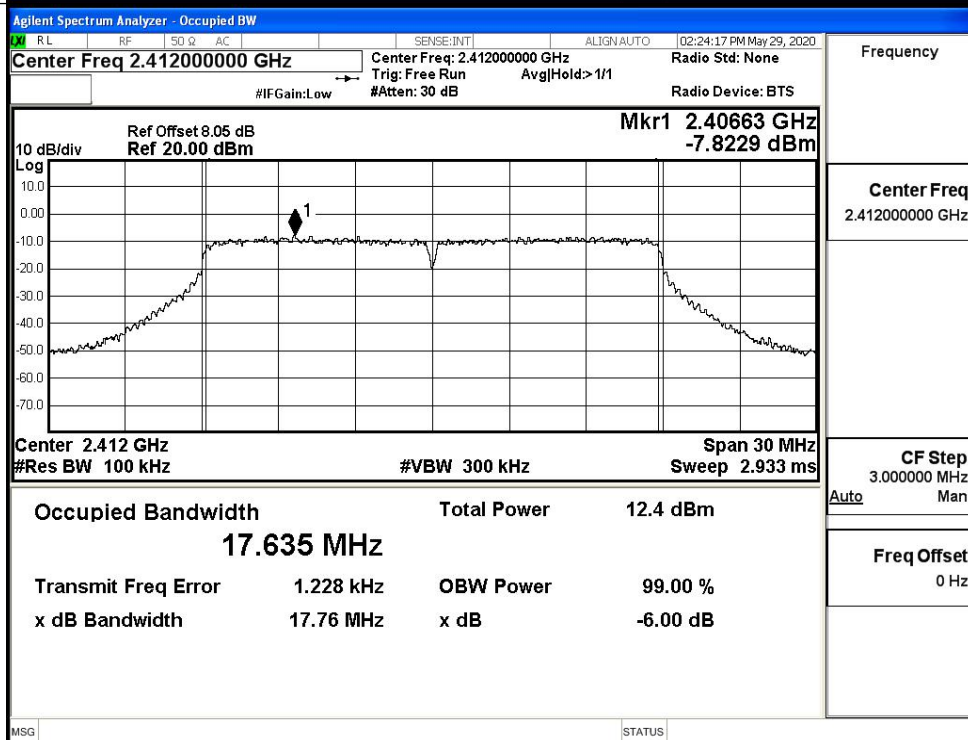
Frequency

Center Freq
2.462000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/LCH



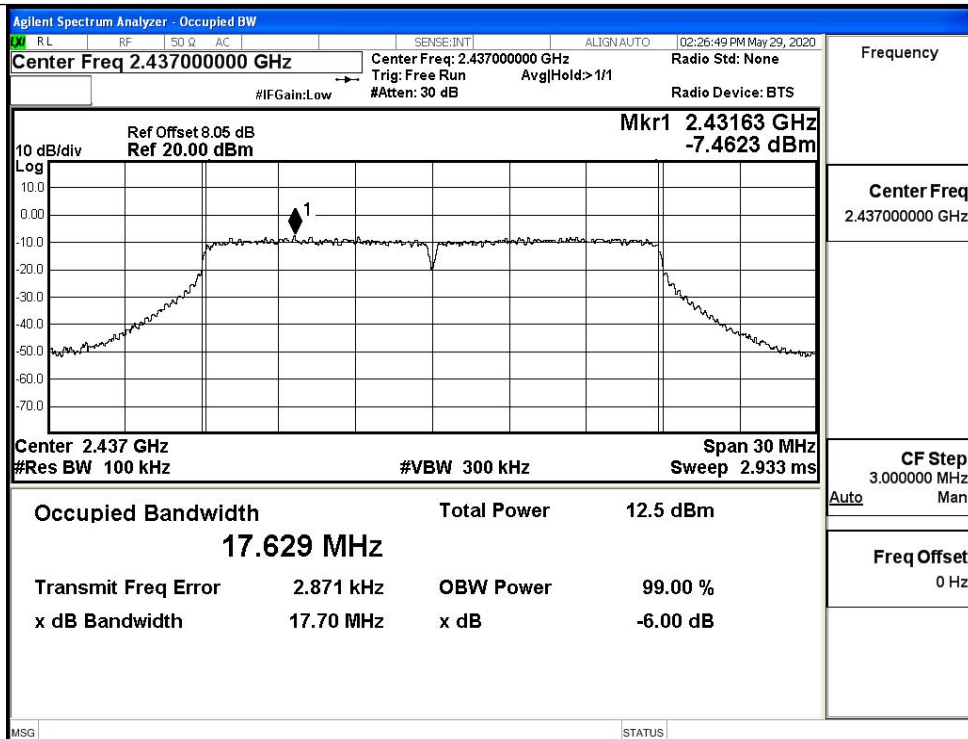
Frequency

Center Freq
2.412000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/MCH



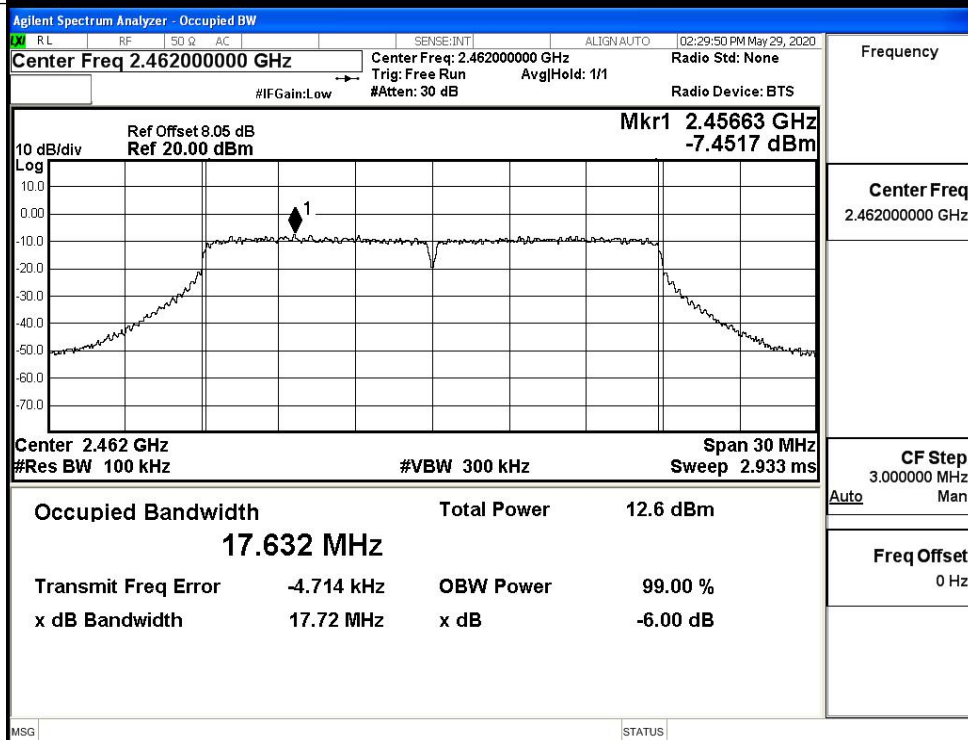
Frequency

Center Freq
2.437000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

11N20SISO/HCH



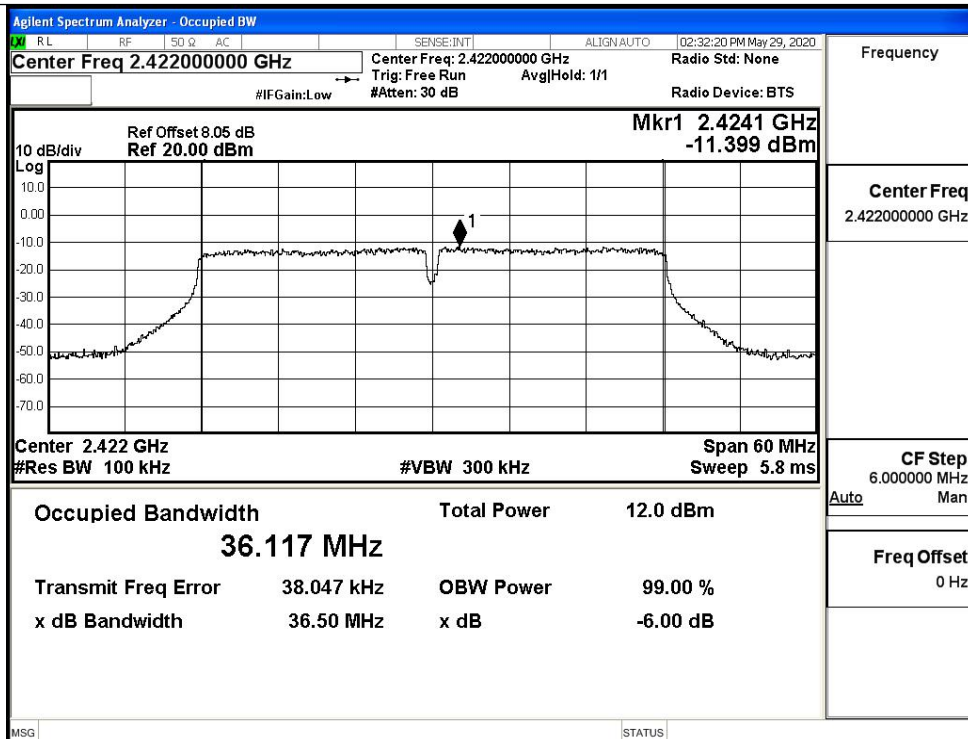
Frequency

Center Freq
2.462000000 GHz

CF Step
3.000000 MHz
Auto Man

Freq Offset
0 Hz

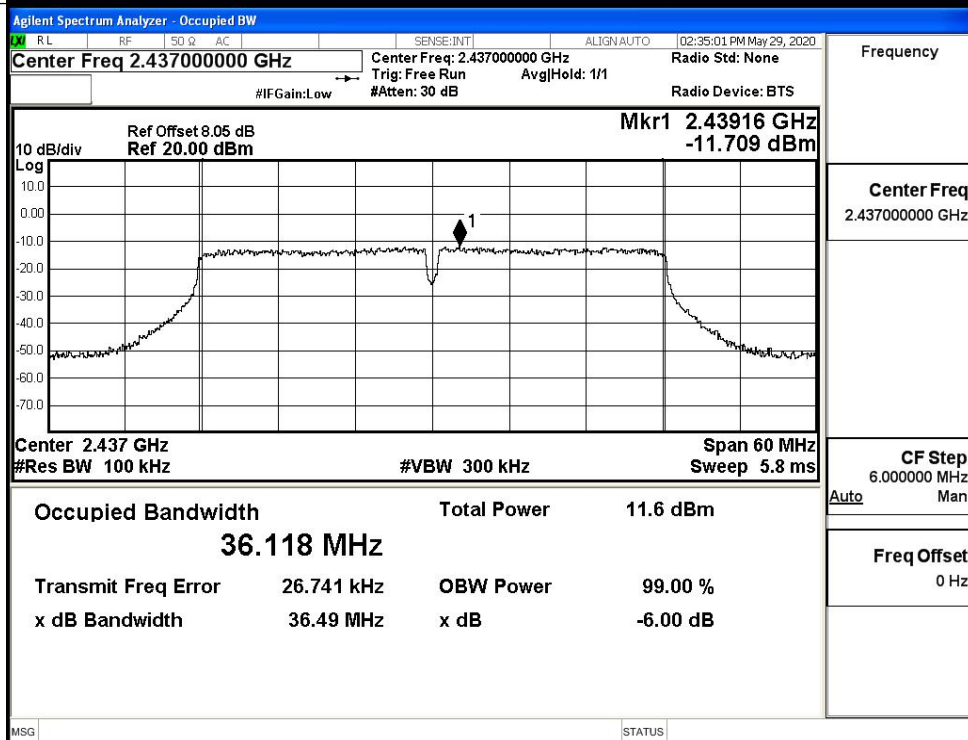
11N40SISO/LCH



Frequency

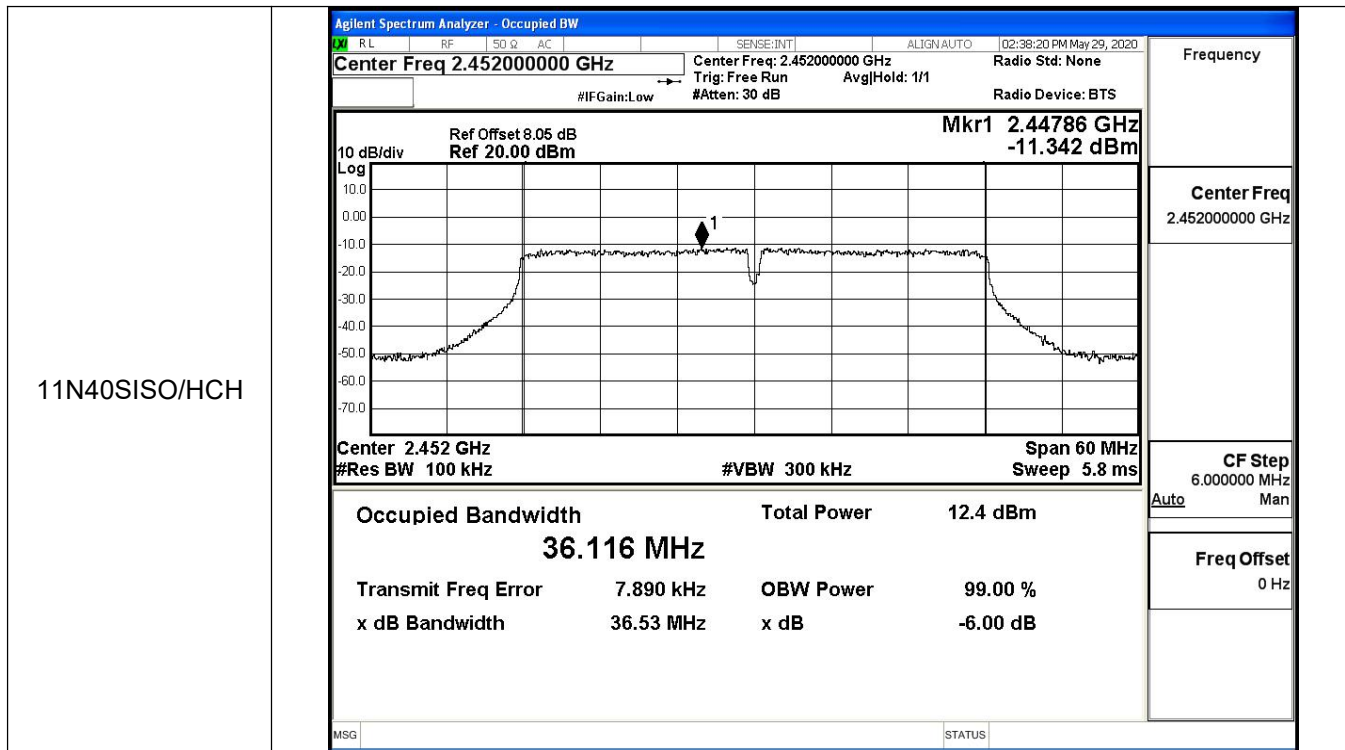
Center Freq
2.422000000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

11N40SISO/MCH



Frequency

Center Freq
2.437000000 GHzCF Step
6.000000 MHz
Auto ManFreq Offset
0 Hz

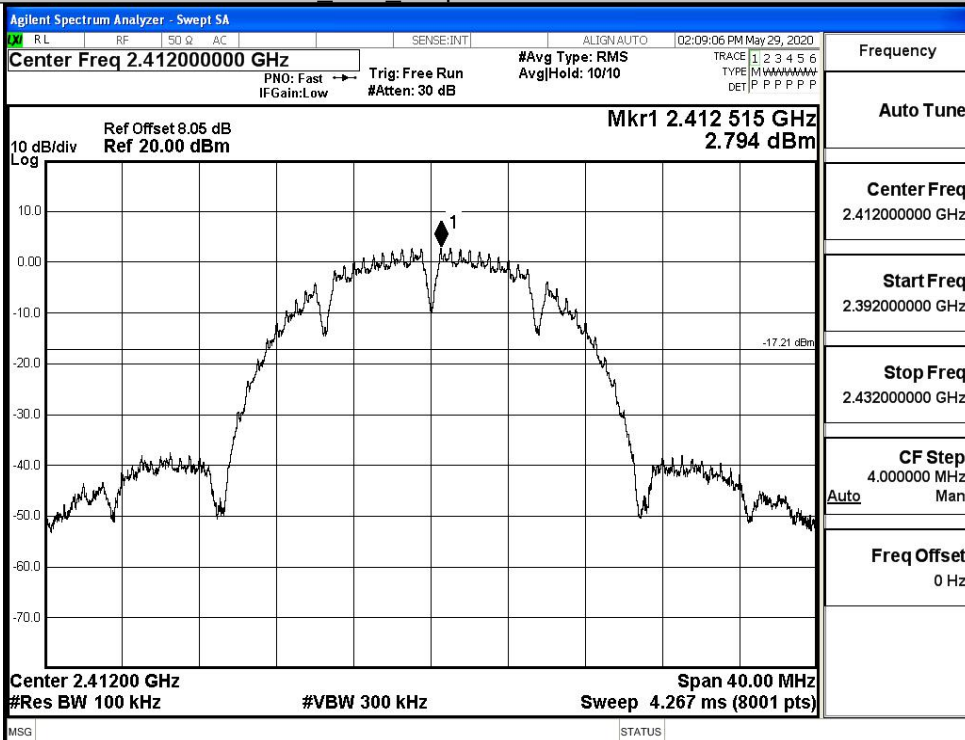


A.5 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
11B	LCH	2.794	-37.087	-17.206	PASS
	MCH	2.602	-38.277	-17.398	PASS
	HCH	2.721	-38.200	-17.279	PASS
11G	LCH	-8.234	-37.945	-28.234	PASS
	MCH	-7.339	-37.739	-27.339	PASS
	HCH	-7.226	-37.541	-27.226	PASS
11N20 SISO	LCH	-7.949	-38.055	-27.949	PASS
	MCH	-7.745	-38.534	-27.745	PASS
	HCH	-7.879	-37.536	-27.879	PASS
11N40 SISO	LCH	-11.606	-38.317	-31.606	PASS
	MCH	-11.484	-37.913	-31.484	PASS
	HCH	-11.491	-38.298	-31.491	PASS

11B LCH Graphs

Pref/11B/LCH



Puw/11B/LCH

