10.4 Peak Spectral Density

Requirement(s):

Spec	Item	Requirement	Applicable
§ 15.407	a)(1)(i)	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☐
	a)(1)(ii)	For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☐
	a)(a)(iii)	For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band.	☒
	a)(2)	For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.	☒
	a)(3)	For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.	☒
Test Setup		Spectrum Analyzer — EUT	
Test Procedure		789033 D02 General UNII Test Procedures New Rules v01, II.F. Method SA-1 Maximum spectral density measurement procedure - Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal. - Set RBW = 1 MHz - Set VBW ≥ 3 MHz - Detector = RMS. - Sweep time = auto couple. - Trace mode = max hold. - Trace average at least 100 traces in power averaging - Use the peak marker function to determine the maximum amplitude level within the RBW. Apply correction to the result if different RBW is used.	
Test Date	01/16/2015	Environmental condition: Temperature 22ºC, Relative Humidity 42%, Atmospheric Pressure 1020mbar	
Remark		For 5Ghz band, Highest antenna gain = 20 dBi For band 5.2GHz and 5.5GHz. The power limit and PSD limit will be reduced by amount of 14 dB.	
Result	☒ Pass ☐ Fail		

Equipment Setting

Test	RBW	VBW	Span	Detector	Sweep	Trace	Notes
PSD	1MHz	≥3MHz	>EBW	RMS	Auto	Average	-

Test Data   ☒ Yes   ☐ N/A

Test Plot   ☒ Yes (See below)   ☐ N/A

PSD measurement result for 5.1GHz

Type	Bandwidth (MHz)	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Limit (dBm/MHz)	Result
				Chain1	Chain2	Combined PSD		
PSD	20	5170	Low	-10.884	-10.106	-7.47	≤17	Pass
PSD	20	5200	Mid	7.137	8.543	10.91	≤17	Pass
PSD	20	5240	High	7.248	8.795	11.10	≤17	Pass
PSD	40	5175	Low	-17.490	-15.624	-13.45	≤17	Pass
PSD	40	5200	Mid	3.999	5.879	8.05	≤17	Pass
PSD	40	5230	High	4.270	5.989	8.22	≤17	Pass
PSD	80	5195	Low	-18.891	-15.962	-14.17	≤17	Pass
PSD	80	5200	Mid	2.022	3.706	5.96	≤17	Pass
PSD	80	5210	High	2.048	3.588	5.90	≤17	Pass

PSD measurement result for 5.2GHz & 5.5GHz

Type	Bandwidth (MHz)	Freq (MHz)	CH	Conducted PSD (dBm/MHz)			Limit (dBm/MHz)	Result
				Chain1	Chain2	Combined PSD		
PSD	20	5260	Low	-7.428	-5.656	-3.44	≤ -3	Pass
PSD	20	5295	Mid	-7.761	-5.56	-3.51	≤ -3	Pass
PSD	20	5320	High	-14.7	-11.383	-9.72	≤ -3	Pass
PSD	40	5270	Low	-9.521	-7.422	-5.34	≤ -3	Pass
PSD	40	5290	Mid	-9.823	-7.29	-5.36	≤ -3	Pass
PSD	40	5310	High	-17.843	-14.481	-12.83	≤ -3	Pass
PSD	80	5290	Mid	-18.478	-16.192	-14.18	≤ -3	Pass
PSD	20	5500	Low	-16.869	-13.43	-11.81	≤ -3	Pass
PSD	20	5590	Mid	-8.144	-6.077	-3.98	≤ -3	Pass
PSD	20	5700	High	-5.01	-4.124	-1.53	≤ -3	Pass
PSD	40	5510	Low	-20.283	-16.613	-15.06	≤ -3	Pass
PSD	40	5555	Mid	-10.418	-7.491	-5.70	≤ -3	Pass
PSD	40	5690	High	-8.318	-7.289	-4.76	≤ -3	Pass
PSD	80	5530	Low	-21.98	-18.779	-17.08	≤ -3	Pass
PSD	80	5545	High	-12.24	-8.764	-7.15	≤ -3	Pass
PSD	80	5560	Mid	-12.161	-8.254	-6.77	≤ -3	Pass

PSD Measurement Results for 5.8GHz

Type	Bandwidth (MHz)	Freq (MHz)	CH	Conducted PSD (dBm/500KHz)				Limit (dBm/500KHz)	Result
				Chain1	Chain2	Correction factor (dB)*	Combined PSD		
PSD	20	5745	Low	-7.985	-8.818	6.99	1.62	≤30	Pass
PSD	20	5785	Mid	2.334	1.298	6.99	11.847	≤30	Pass
PSD	20	5825	High	-2.244	-7.034	6.99	5.99	≤30	Pass
PSD	40	5755	Low	-9.355	-13.62	6.99	-0.98	≤30	Pass
PSD	40	5785	Mid	-1.773	-2.462	6.99	7.896	≤30	Pass
PSD	40	5815	High	-9.854	-12.836	6.99	-1.09	≤30	Pass
PSD	80	5775	Low	-13.599	-16.303	6.99	-4.74	≤30	Pass
PSD	80	5785	Mid	-3.844	-4.466	6.99	5.856	≤30	Pass
PSD	80	5795	High	-13.239	-16.434	6.99	-4.55	≤30	Pass
*Note	BW correction factor = 10log(500kHz/RBW)								

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Test Plots
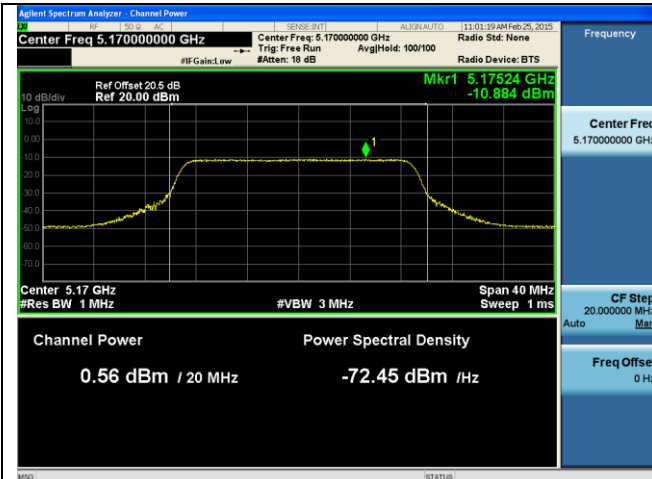
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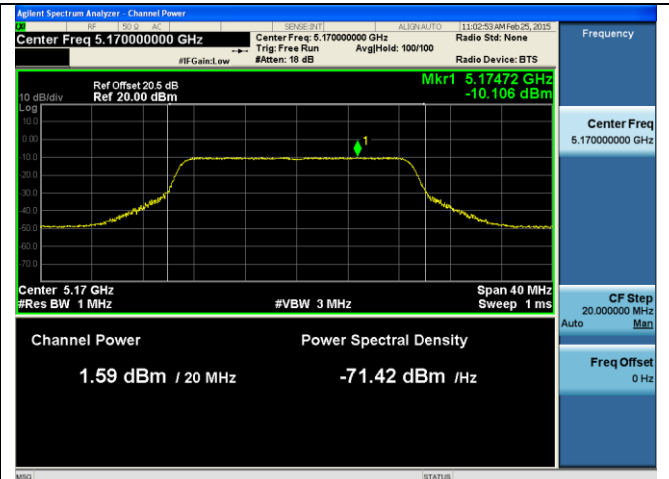
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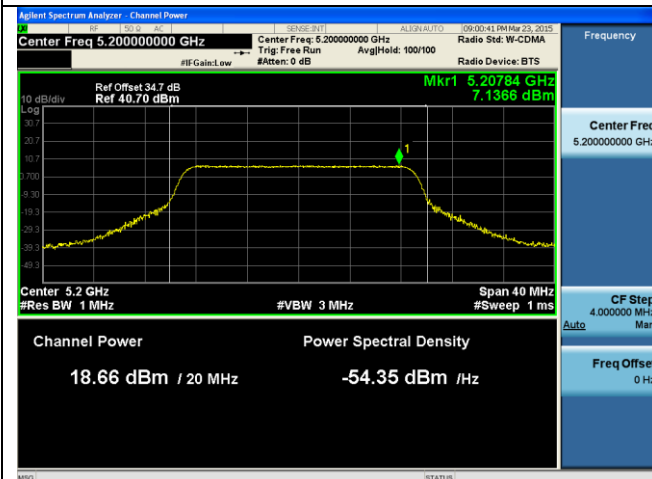
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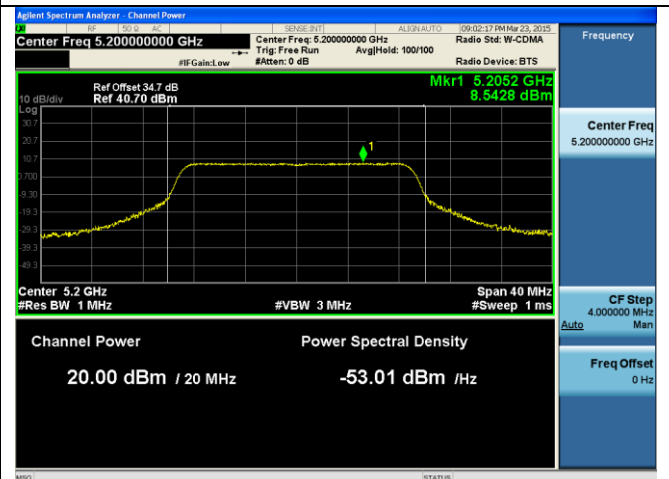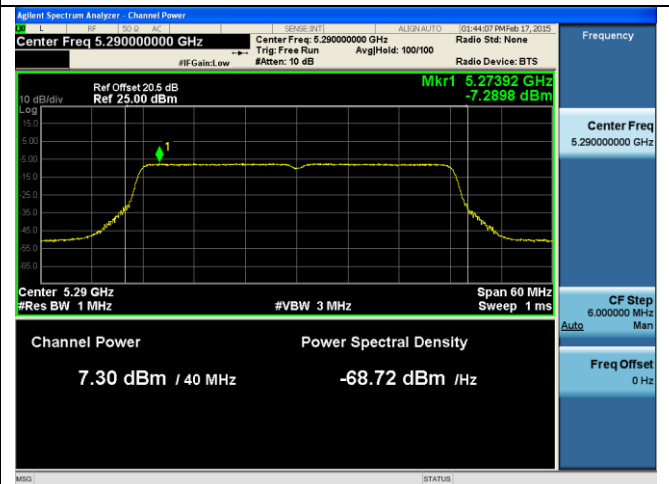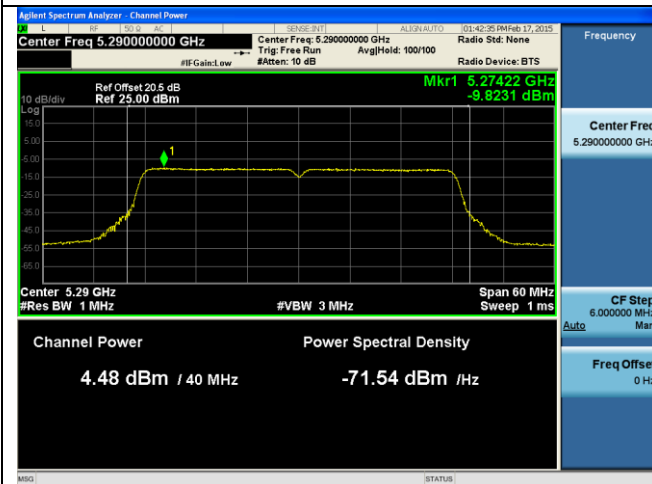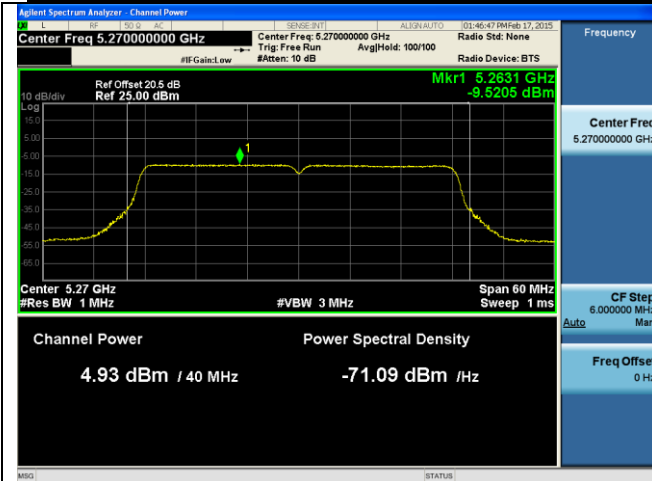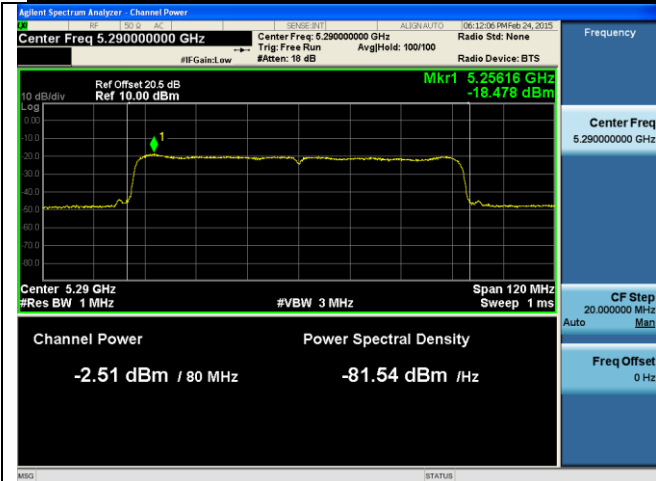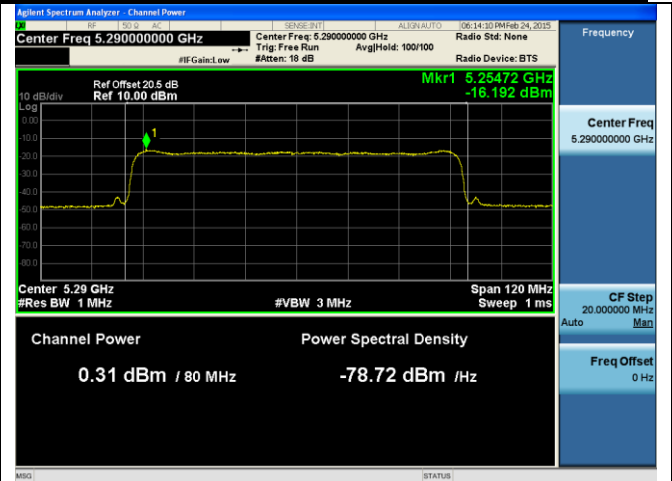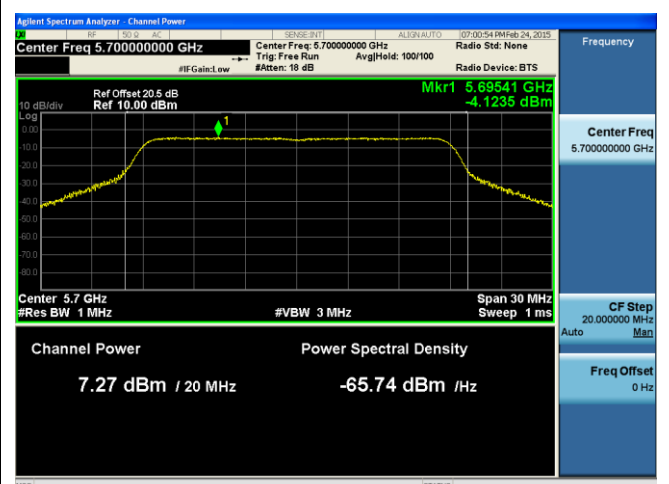

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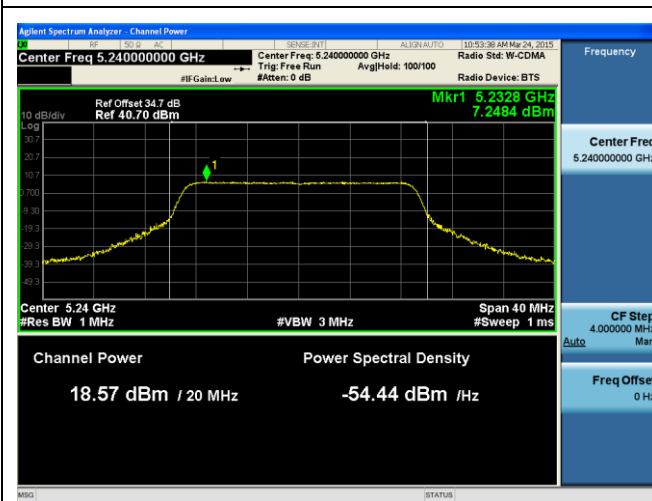
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PSD-5240 MHz-20 BW-chain2

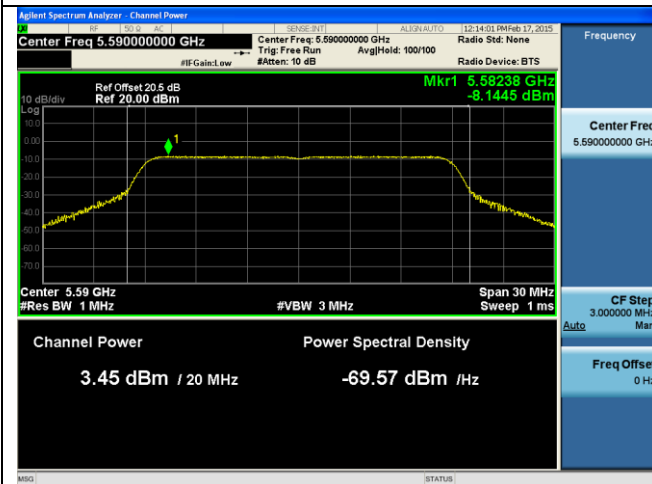**SIEMIC**
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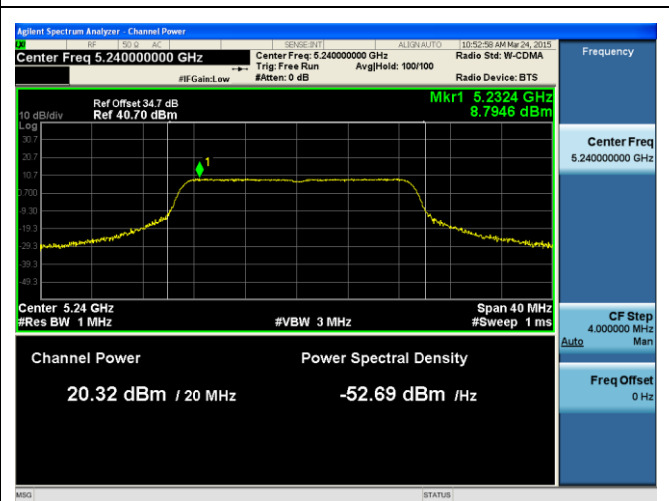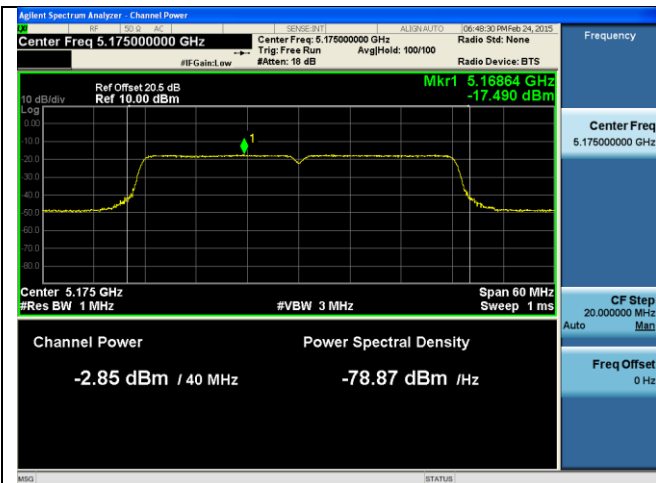
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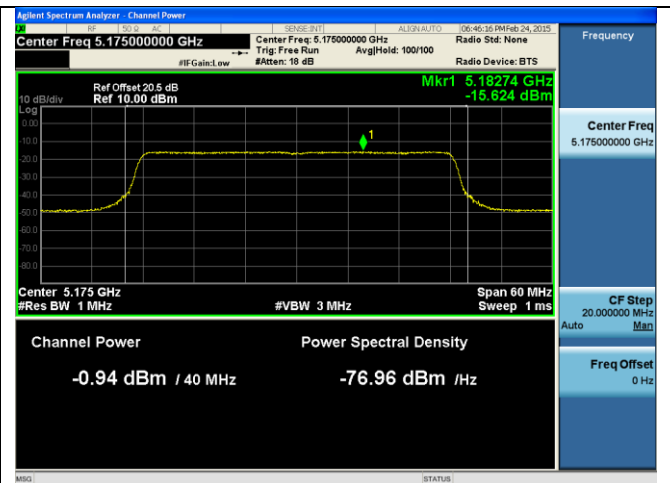
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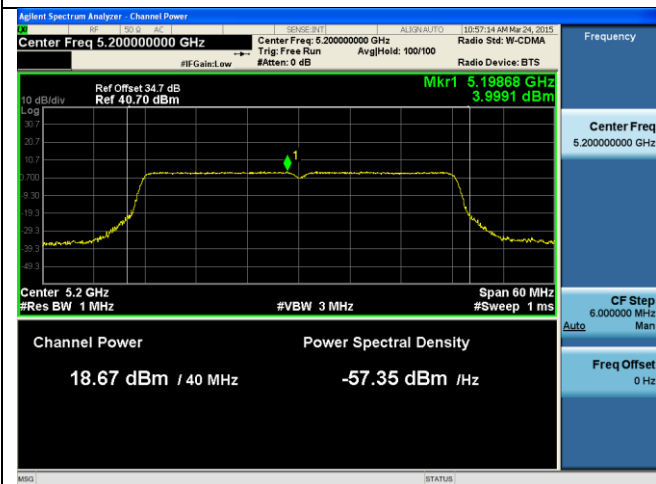
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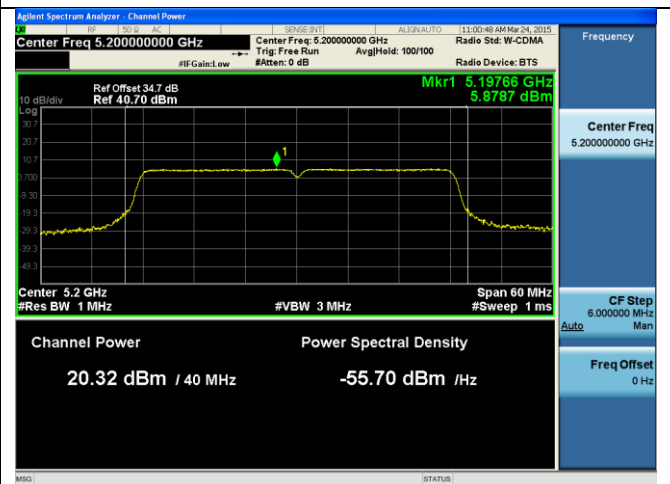
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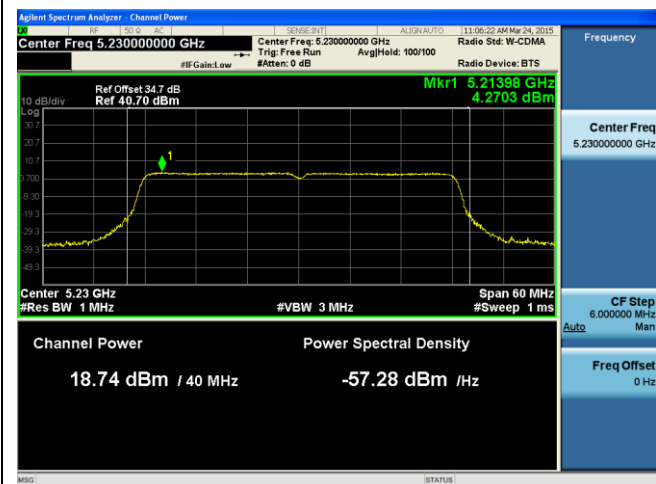
PSD-5230 MHz-40 BW-chain1

PSD-5230 MHz-40 BW-chain2

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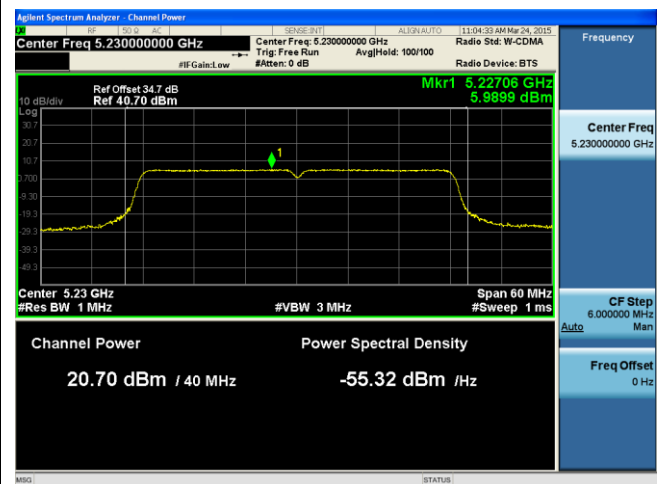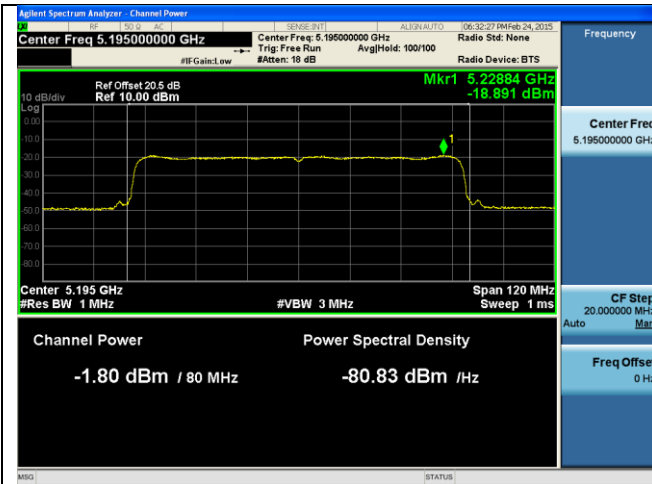
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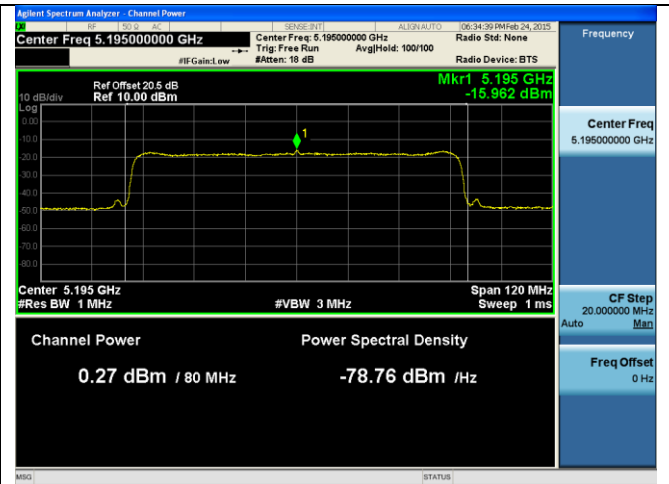
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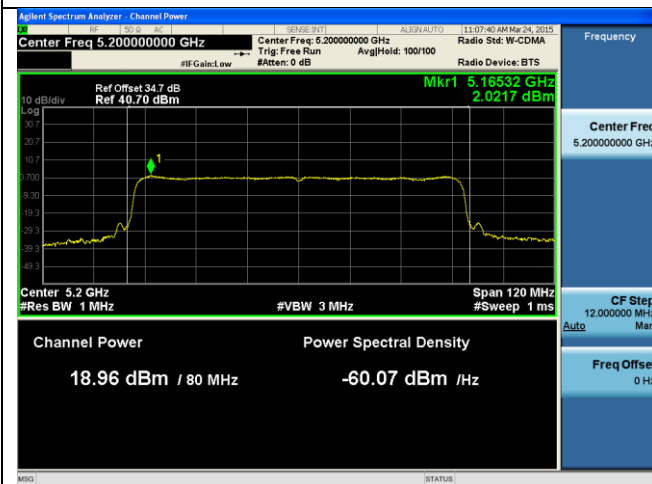
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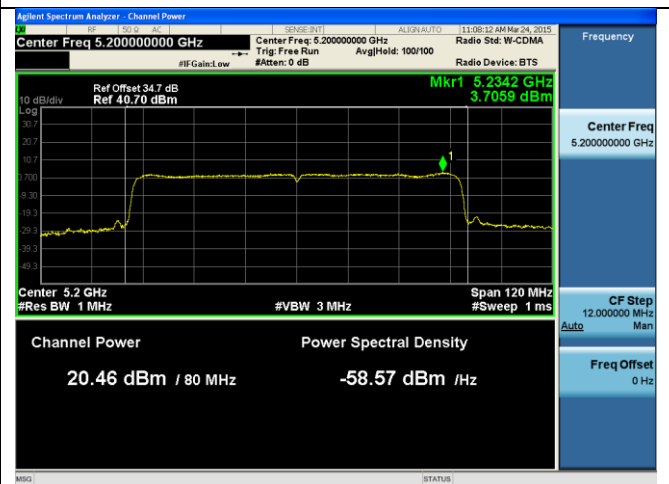
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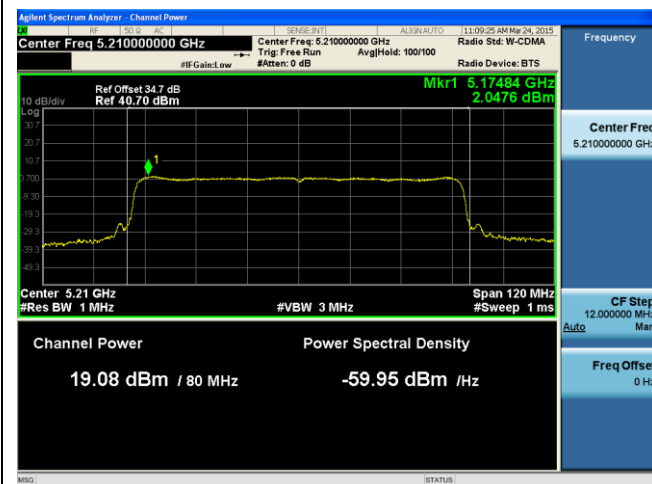
PSD-5210 MHz-80 BW-chain1

PSD-5210 MHz-80 BW-chain2

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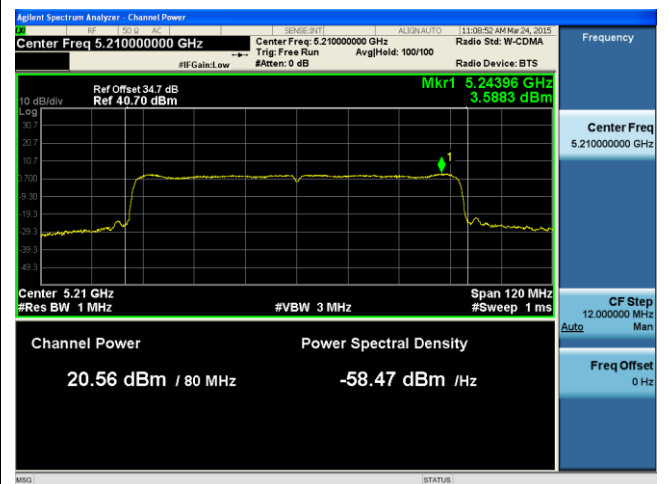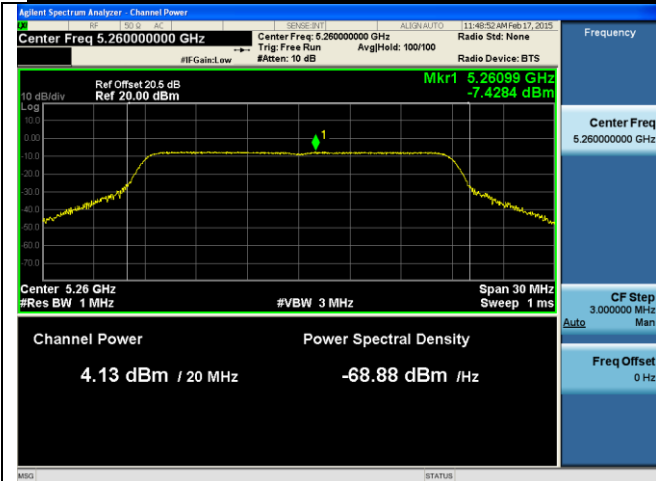
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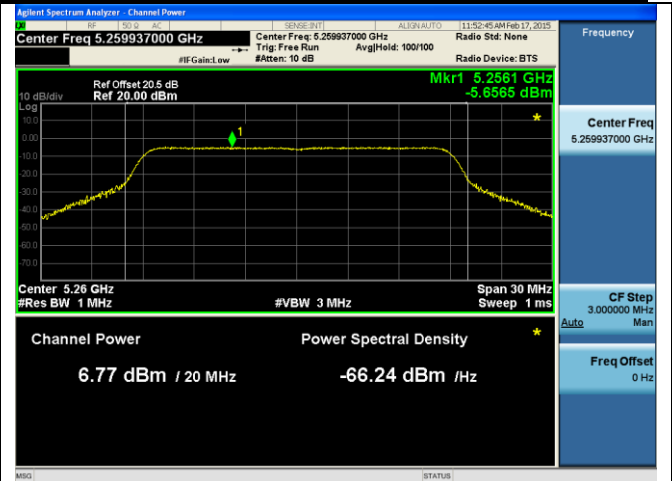
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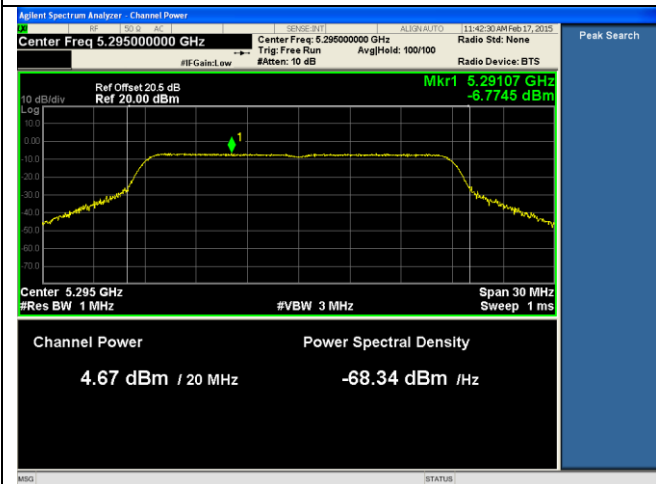
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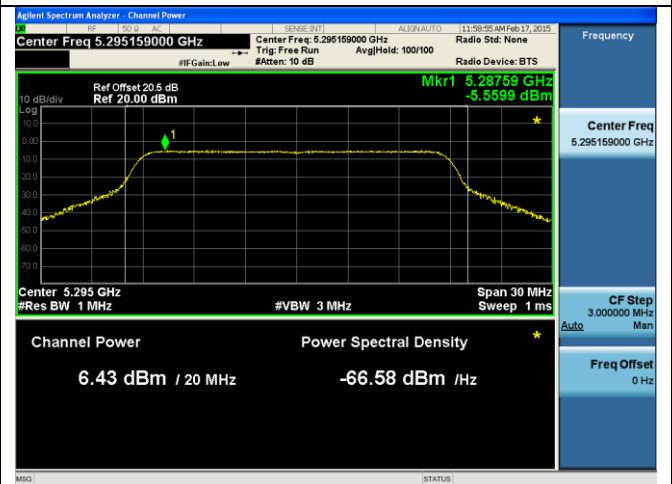
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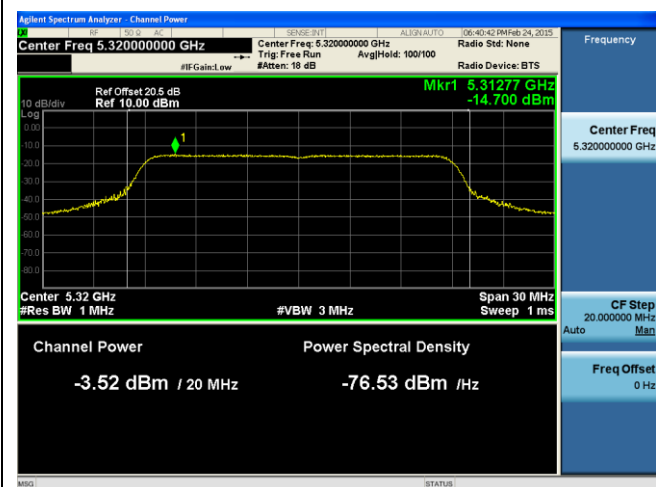
PSD-5320 MHz-20 BW-chain1

PSD-5320 MHz-20 BW-chain2

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PSD-5270 MHz-40 BW-chain1

PSD-5270 MHz-20 BW-chain2

PSD-5290 MHz-40 BW-chain1

PSD-5290 MHz-40 BW-chain2

PSD-5310 MHz-40 BW-chain1
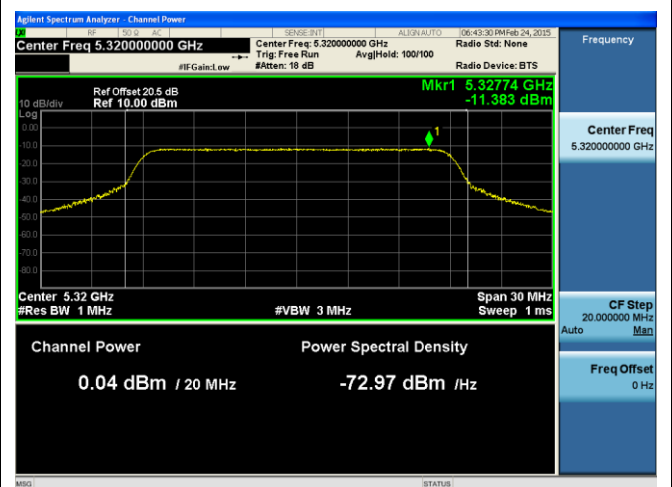
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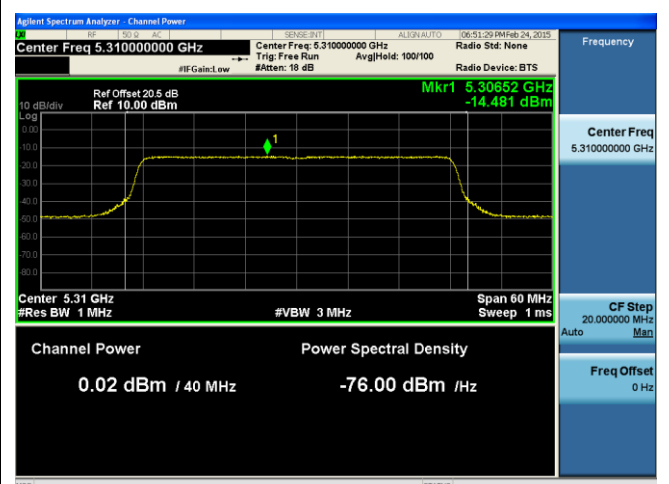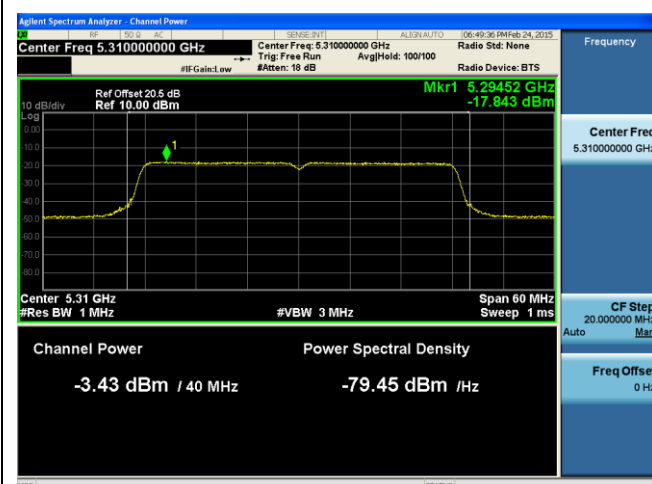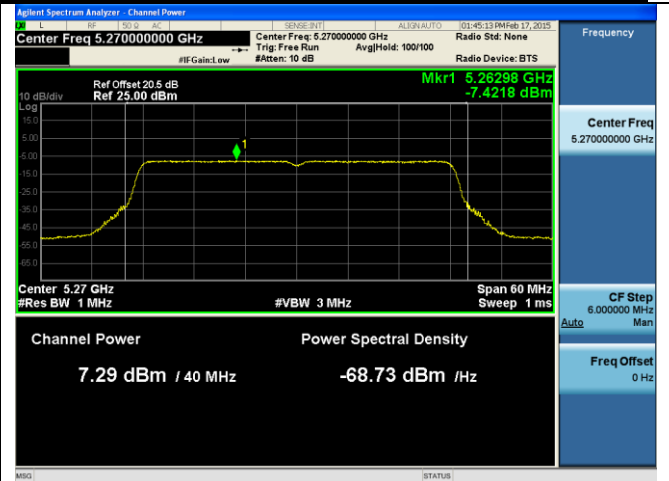
PSD-5290 MHz-80 BW-chain1

PSD-5290 MHz-80 BW-chain2

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PSD-5500 MHz-20 BW-chain1

PSD-5500 MHz-20 BW-chain2

PSD-5590 MHz-20 BW-chain1

PSD-5590 MHz-20 BW-chain2

PSD-5700 MHz-20 BW-chain1

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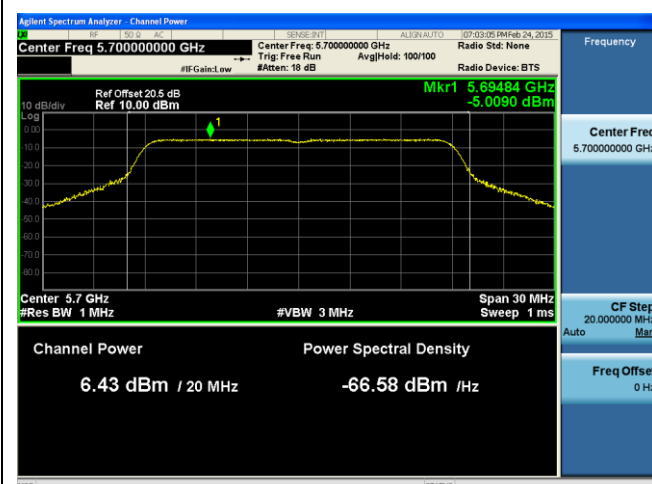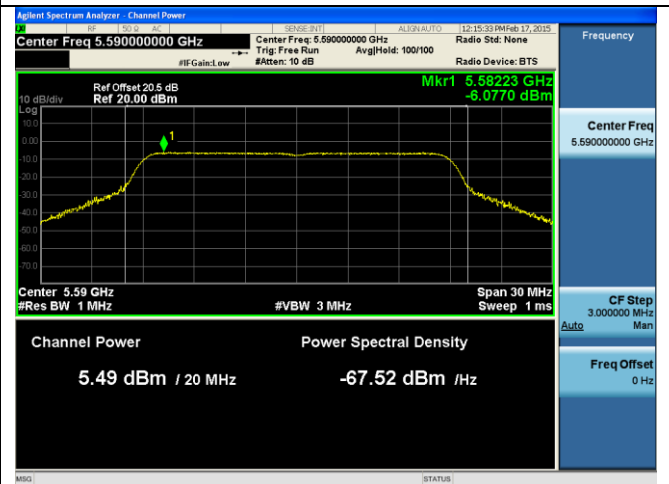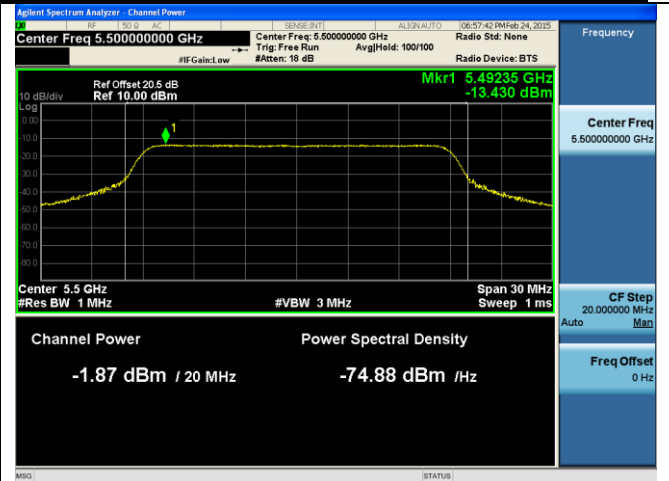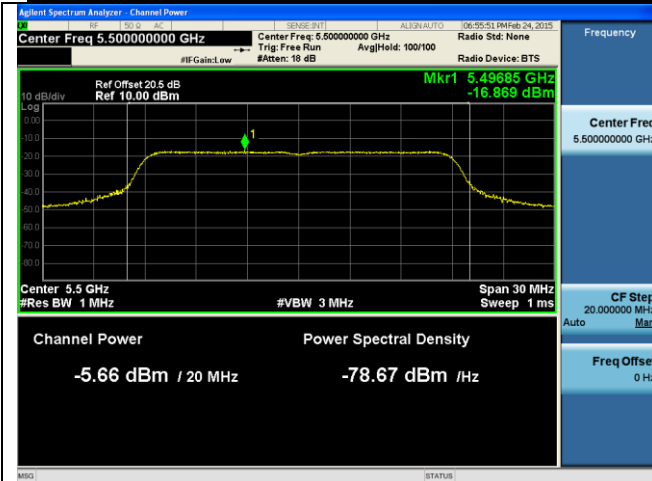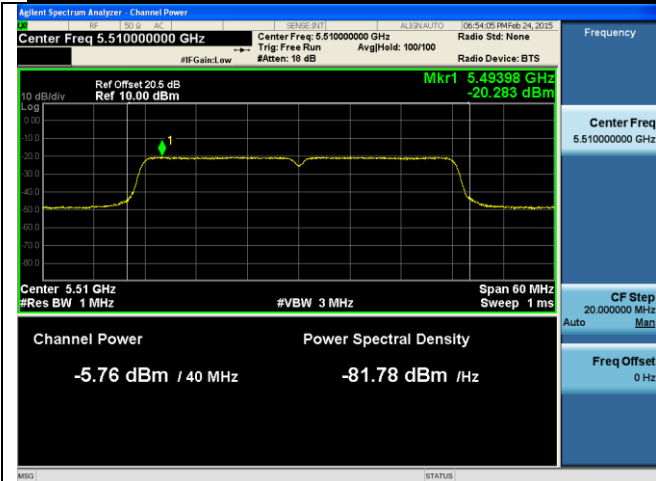
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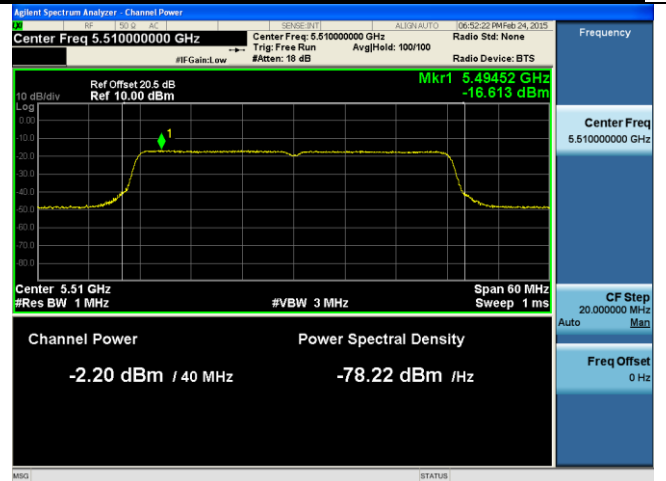
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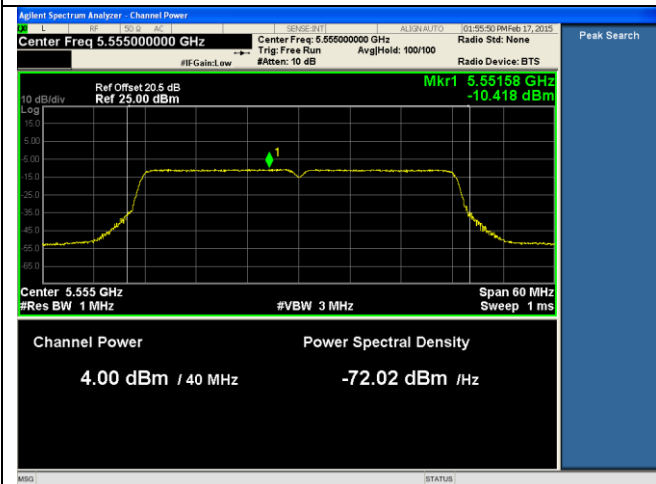
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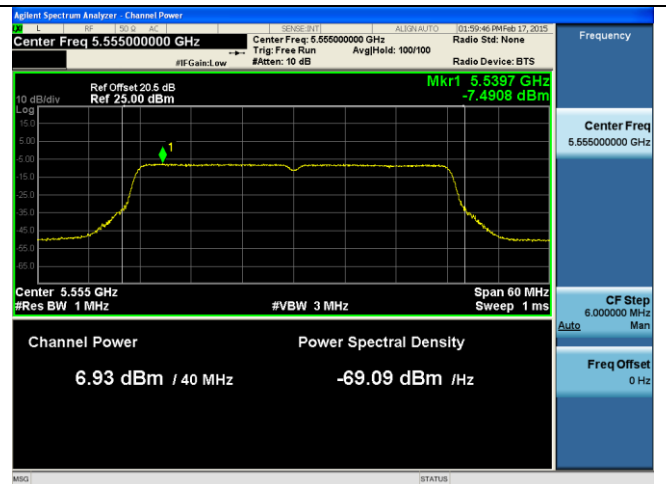
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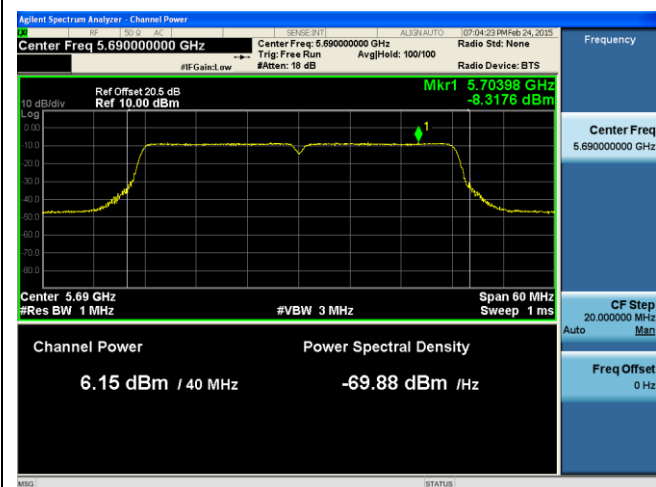
PSD-5690 MHz-40 BW-chain1

PSD-5690 MHz-40 BW-chain2

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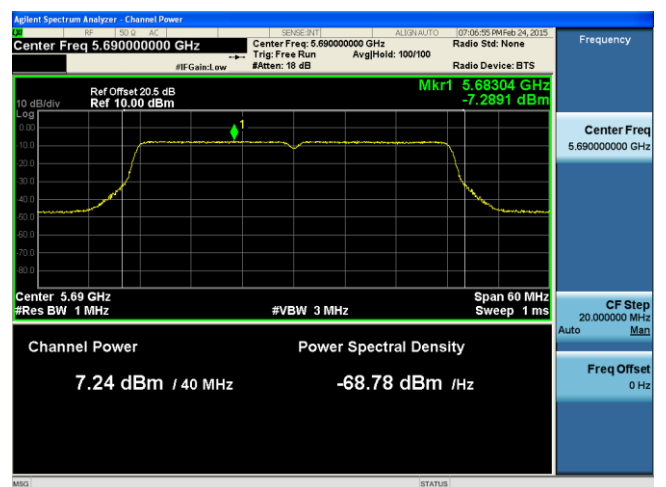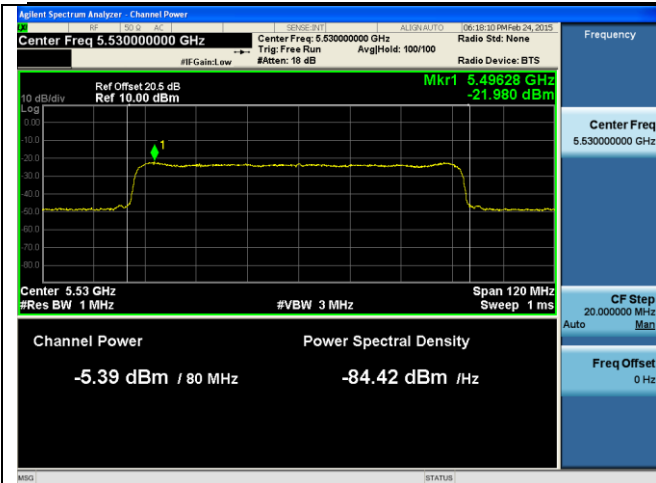
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PSD-5530 MHz-80 BW-chain2
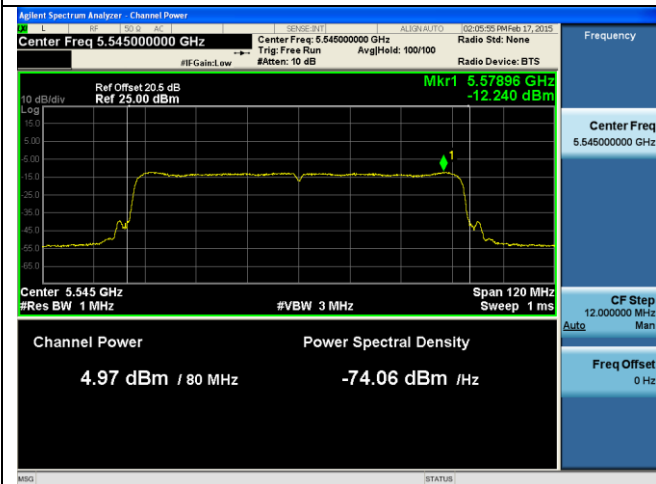
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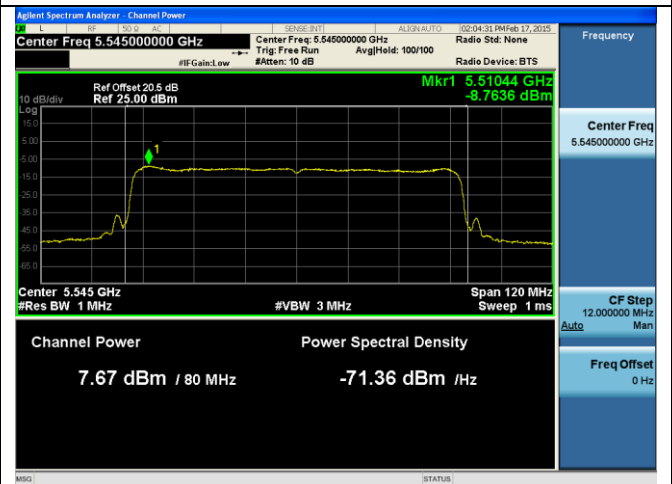
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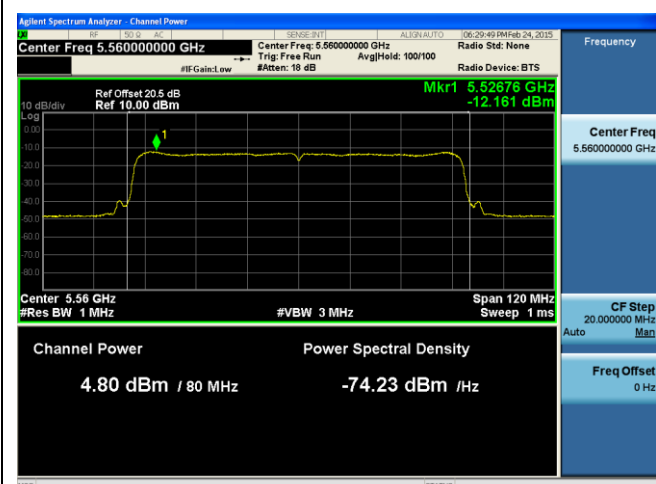
PSD-5560 MHz-80 BW-chain1

PSD-5560 MHz-80 BW-chain2

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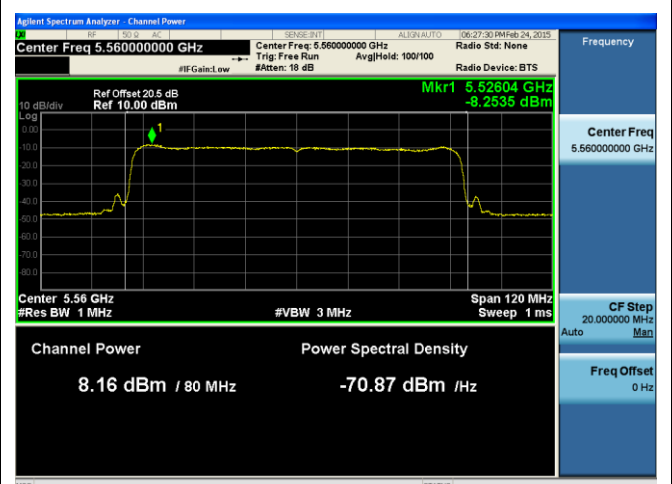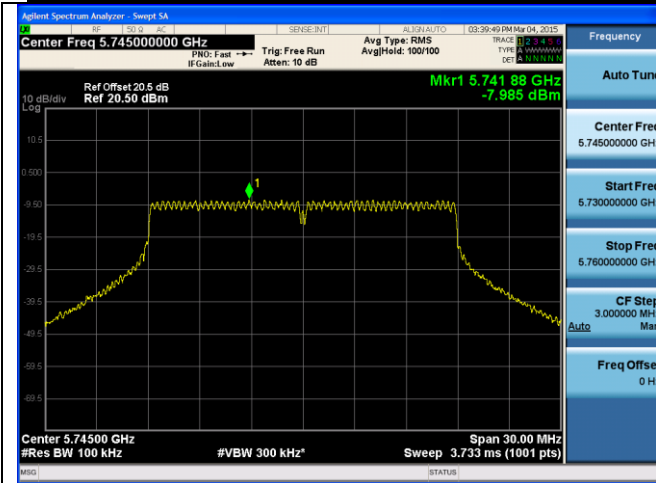
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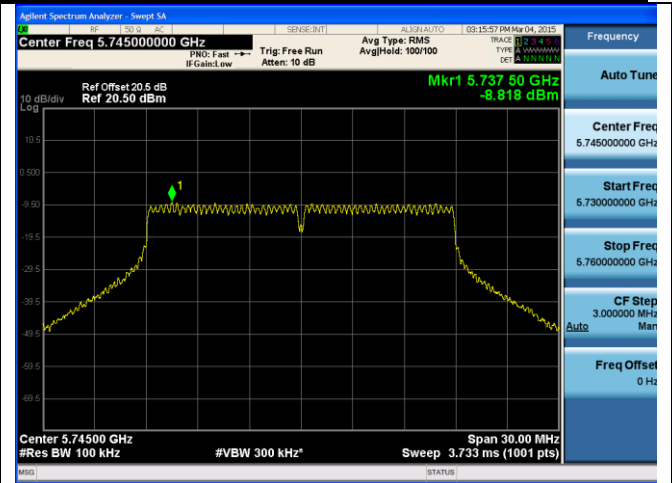
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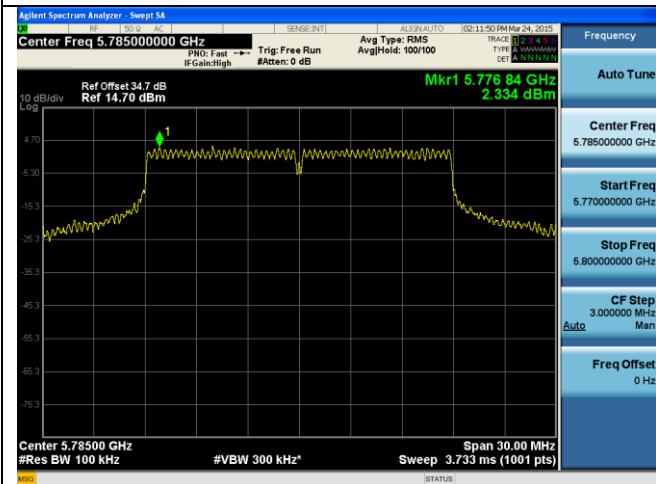
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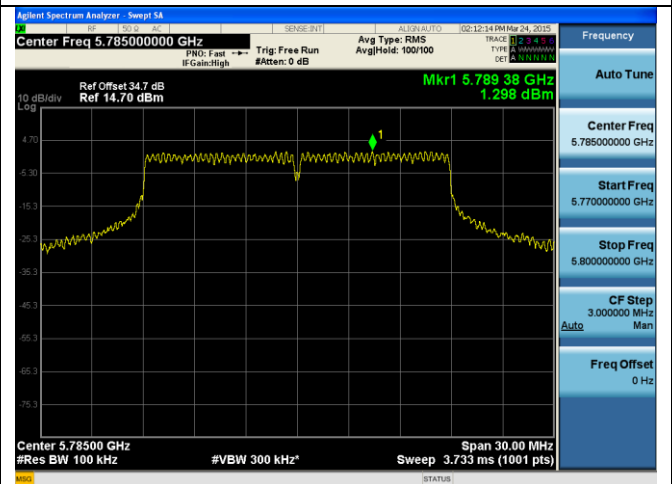
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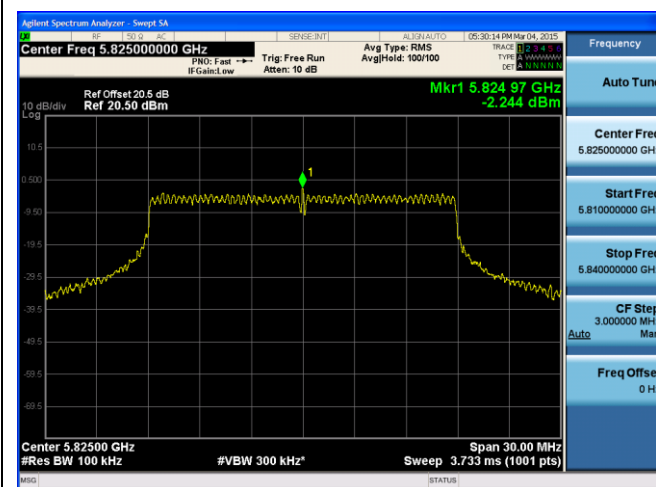
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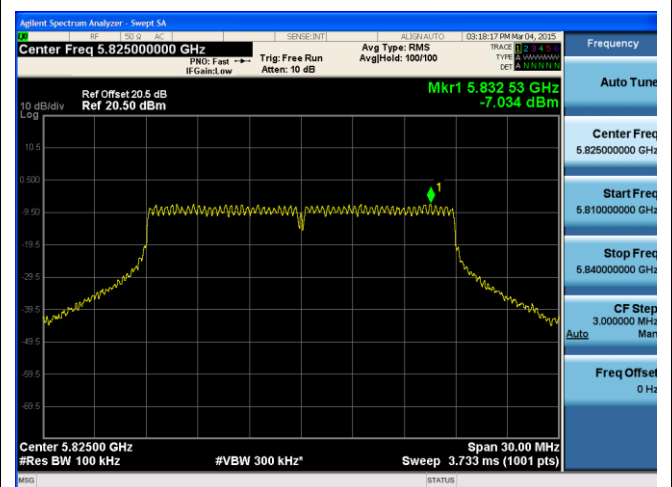
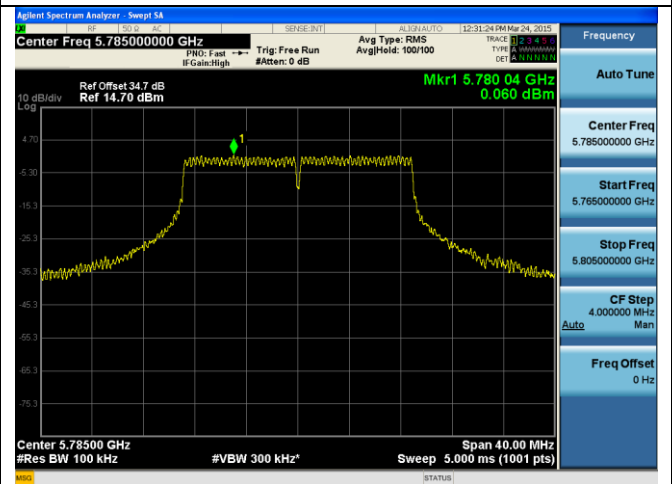**PSD-5825 MHz-20 BW-chain2**
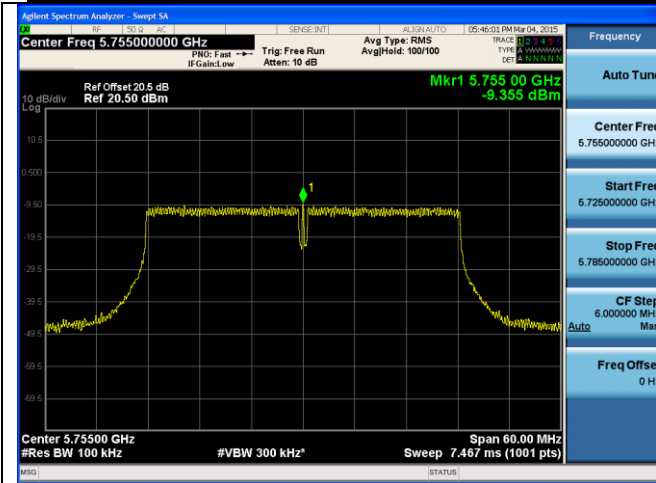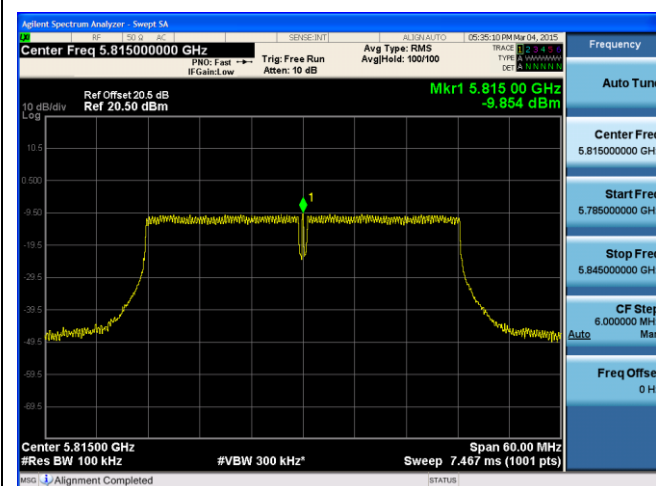
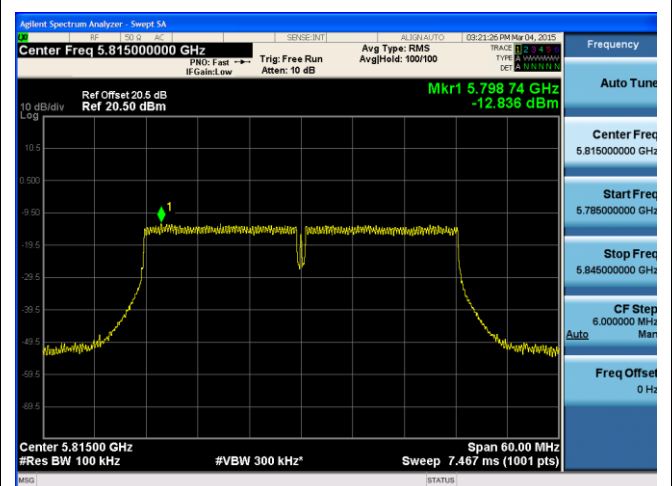**PSD-5755 MHz-40 BW-chain1**
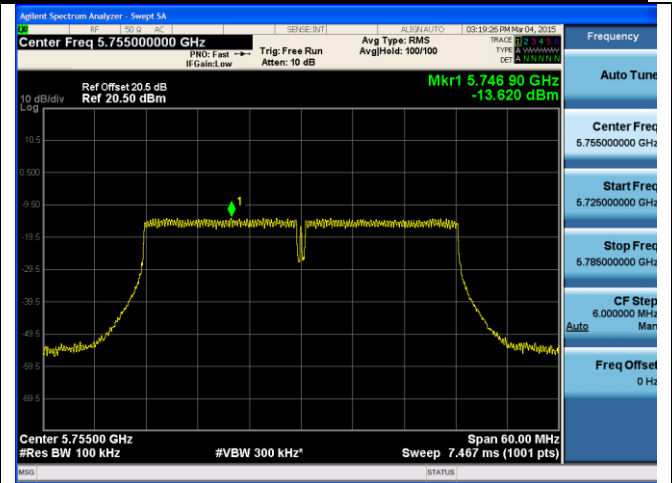
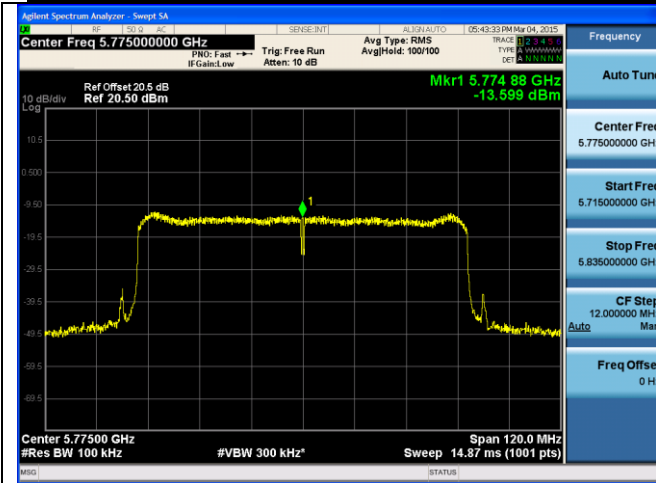**PSD-5755 MHz-20 BW-chain2**
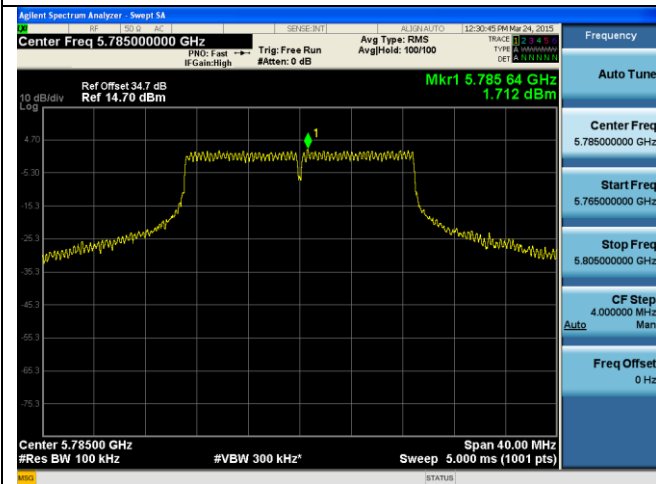
PSD-5785 MHz-40 BW-chain1

PSD-5785 MHz-40 BW-chain2

PSD-5815 MHz-40 BW-chain1

PSD-5815 MHz-40 BW-chain2

SIEMIC
GLOBAL TESTING & CERTIFICATIONS
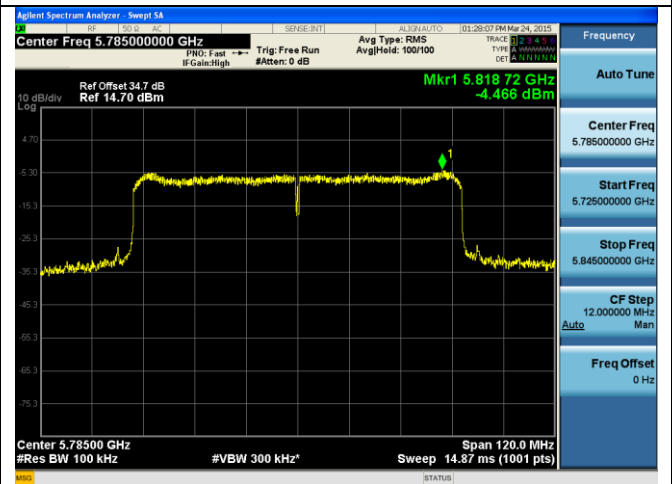YOUR CHOICE FOR- TCB FCB CB NB CAB RCB

PSD-5775 MHz-80 BW-chain1
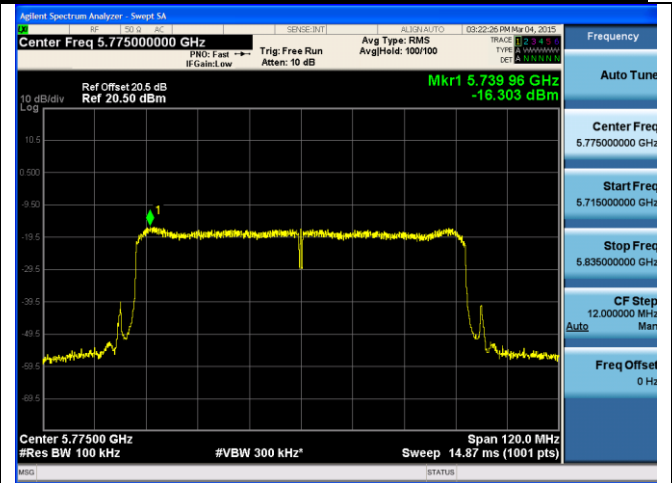
PSD-5775 MHz-80 BW-chain2
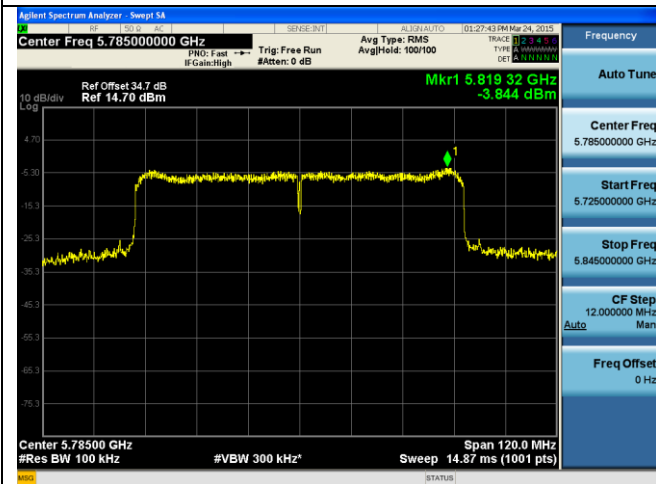
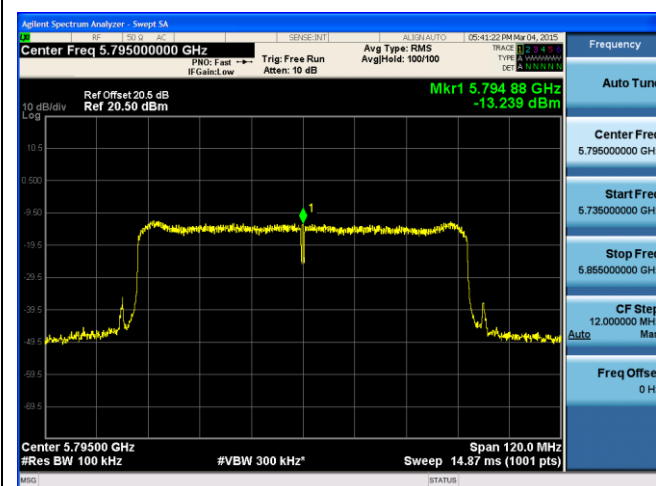**PSD-5785 MHz-80 BW-chain1**

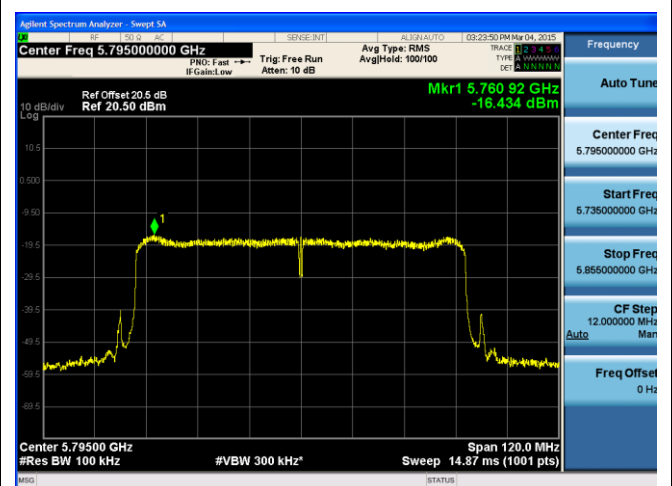**PSD-5785 MHz-80 BW-chain2**

PSD-5795 MHz-80 BW-chain1

PSD-5795 MHz-80 BW-chain2