



11AC40SISO\_Ant1\_High\_5795\_Peak



11AC40SISO\_Ant2\_High\_5795\_Peak



11AC80SISO\_Ant1\_Low\_5210\_AV



11AC80SISO\_Ant1\_Low\_5210\_Peak



11AC80SISO\_Ant2\_Low\_5210\_AV



11AC80SISO\_Ant2\_Low\_5210\_Peak



11AC80SISO\_Ant1\_High\_5210\_AV



11AC80SISO\_Ant1\_High\_5210\_Peak



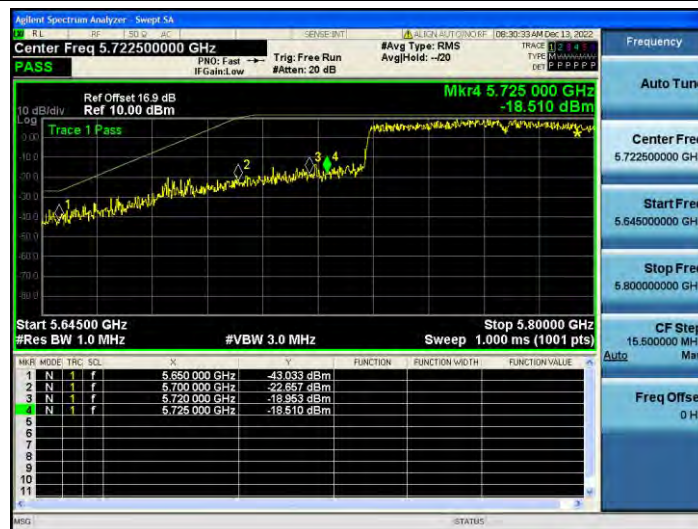
11AC80SISO\_Ant2\_High\_5210\_AV



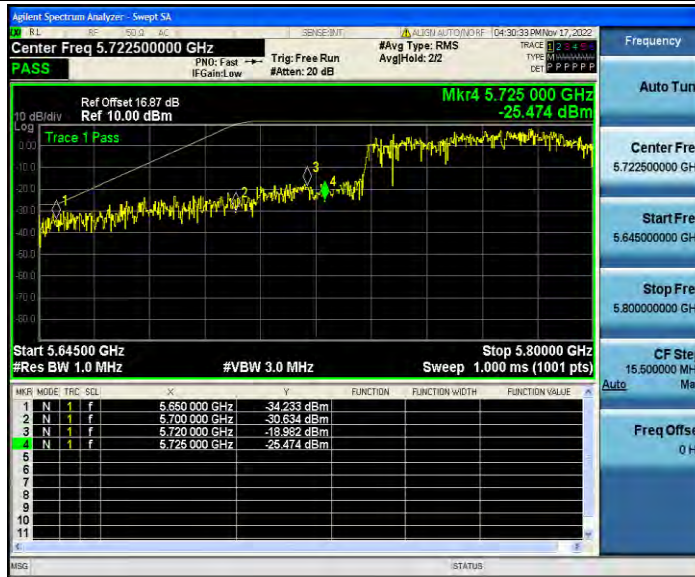
11AC80SISO\_Ant2\_High\_5210\_Peak



11AC80SISO\_Ant1\_Low\_5775\_Peak



11AC80SISO\_Ant2\_Low\_5775\_Peak



11AC80SISO\_Ant1\_High\_5775\_Peak



11AC80SISO\_Ant2\_High\_5775\_Peak







## 5.4 BANDWIDTH TEST

### 5.4.1 Applied procedures / Limit

The bandwidth at 26 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum power control level, as defined in KDB 789033, at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26 dB bandwidth.

The 26 dB bandwidth is used to determine the conducted power limits.

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

### 5.4.2 Test procedure

#### 26 dB BANDWID PROCEDURES

- a. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01
- b. Set RBW = approximately 1% of the emission bandwidth.
- c. Trace mode = max hold
- d. Detector = Peak
- e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%

#### 6 dB BANDWID PROCEDURES

- a. Set resolution bandwidth (RBW) = 100 kHz
- b. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW, Detector = Peak.
- c. Trace mode = max hold.
- d. Sweep = auto couple.
- e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

#### 99% BANDWID PROCEDURES



1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW  $\geq 3 \cdot$  RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



#### 5.4.3 Deviation from standard

No deviation.

#### 5.4.4 Test setup





### 5.4.5 Test results

TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	21.120	5169.440	5190.560	---	---
11A	Ant2	5180	21.280	5169.400	5190.680	---	---
11A	Ant1	5745	21.480	5734.080	5755.560	---	---
11A	Ant2	5745	30.040	5729.520	5759.560	---	---
11A	Ant1	5785	29.520	5770.080	5799.600	---	---
11A	Ant2	5785	39.680	5765.160	5804.840	---	---
11N20SISO	Ant1	5180	21.520	5169.120	5190.640	---	---
11N20SISO	Ant2	5180	30.600	5162.880	5193.480	---	---
11N20SISO	Ant1	5745	29.080	5728.080	5757.160	---	---
11N20SISO	Ant2	5745	34.360	5727.440	5761.800	---	---
11N40SISO	Ant2	5190	43.200	5166.240	5209.440	---	---
11N40SISO	Ant1	5755	61.120	5717.320	5778.440	---	---
11N40SISO	Ant1	5190	55.520	5160.400	5215.920	---	---
11N40SISO	Ant2	5755	65.920	5717.240	5783.160	---	---
11AC20SISO	Ant1	5180	21.960	5169.160	5191.120	---	---
11AC20SISO	Ant2	5180	24.840	5166.560	5191.400	---	---
11AC20SISO	Ant1	5745	28.280	5728.360	5756.640	---	---
11AC20SISO	Ant2	5745	34.320	5727.120	5761.440	---	---
11AC40SISO	Ant1	5755	49.920	5724.920	5774.840	---	---
11AC40SISO	Ant2	5755	66.480	5717.240	5783.720	---	---
11AC80SISO	Ant1	5775	125.120	5703.640	5828.760	---	---
11AC80SISO	Ant2	5775	118.080	5711.800	5829.880	---	---
11AC40SISO	Ant1	5190	42.240	5167.520	5209.760	---	---
11AC40SISO	Ant2	5190	39.760	5169.840	5209.600	---	---
11AC80SISO	Ant1	5210	81.440	5169.040	5250.480	---	---
11AC80SISO	Ant2	5210	87.520	5162.800	5250.320	---	---
11A	Ant1	5220	20.960	5209.440	5230.400	---	---
11A	Ant2	5220	20.840	5209.480	5230.320	---	---
11A	Ant1	5240	21.320	5229.120	5250.440	---	---
11A	Ant2	5240	23.040	5227.440	5250.480	---	---
11N20SISO	Ant1	5220	21.440	5209.240	5230.680	---	---
11N20SISO	Ant2	5220	22.800	5208.040	5230.840	---	---
11N20SISO	Ant1	5240	23.760	5226.840	5250.600	---	---
11N20SISO	Ant2	5240	23.400	5227.120	5250.520	---	---
11AC20SISO	Ant1	5220	23.880	5206.880	5230.760	---	---



11AC20SISO	Ant2	5220	23.600	5206.920	5230.520	---	---
11AC20SISO	Ant1	5240	22.640	5228.080	5250.720	---	---
11AC20SISO	Ant2	5240	22.360	5228.440	5250.800	---	---
11N40SISO	Ant1	5230	46.960	5202.800	5249.760	---	---
11N40SISO	Ant2	5230	40.320	5209.200	5249.520	---	---
11AC40SISO	Ant1	5230	46.160	5203.920	5250.080	---	---
11AC40SISO	Ant2	5230	41.200	5208.400	5249.600	---	---
11A	Ant1	5825	21.240	5814.320	5835.560	---	---
11A	Ant2	5825	35.600	5808.000	5843.600	---	---
11N20SISO	Ant1	5785	39.440	5765.320	5804.760	---	---
11N20SISO	Ant2	5785	37.240	5765.520	5802.760	---	---
11N20SISO	Ant1	5825	38.720	5805.280	5844.000	---	---
11N20SISO	Ant2	5825	30.120	5807.640	5837.760	---	---
11N40SISO	Ant1	5795	76.560	5756.120	5832.680	---	---
11N40SISO	Ant2	5795	56.720	5767.080	5823.800	---	---
11AC20SISO	Ant1	5785	37.520	5765.120	5802.640	---	---
11AC20SISO	Ant2	5785	27.760	5770.240	5798.000	---	---
11AC20SISO	Ant1	5825	35.120	5805.240	5840.360	---	---
11AC20SISO	Ant2	5825	26.480	5812.000	5838.480	---	---
11AC40SISO	Ant1	5795	77.600	5755.000	5832.600	---	---
11AC40SISO	Ant2	5795	70.640	5757.400	5828.040	---	---

11A-Ant1-5180



11A-Ant2-5180



11A-Ant1-5745



11A-Ant2-5745



11A-Ant1-5785



11A-Ant2-5785



11N20SISO-Ant1-5180



11N20SISO-Ant2-5180





11N20SISO-Ant1-5745



11N20SISO-Ant2-5745



11N40SISO-Ant2-5190



11N40SISO-Ant1-5755



11N40SISO-Ant1-5190



11N40SISO-Ant2-5755



11AC20SISO-Ant1-5180



11AC20SISO-Ant2-5180



11AC20SISO-Ant1-5745



11AC20SISO-Ant2-5745



11AC40SISO-Ant1-5755



11AC40SISO-Ant2-5755



11AC80SISO-Ant1-5775



11AC80SISO-Ant2-5775



11AC40SISO-Ant1-5190



11AC40SISO-Ant2-5190





11AC80SISO-Ant1-5210



11AC80SISO-Ant2-5210



11A-Ant1-5220



11A-Ant2-5220



11A-Ant1-5240



11A-Ant2-5240



11N20SISO-Ant1-5220



11N20SISO-Ant2-5220



11N20SISO-Ant1-5240



11N20SISO-Ant2-5240



11AC20SISO-Ant1-5220



11AC20SISO-Ant2-5220



11AC20SISO-Ant1-5240



11AC20SISO-Ant2-5240



11N40SISO-Ant1-5230



11N40SISO-Ant2-5230





11AC40SISO-Ant1-5230



11AC40SISO-Ant2-5230



11A-Ant1-5825



11A-Ant2-5825



11N20SISO-Ant1-5785



11N20SISO-Ant2-5785



11N20SISO-Ant1-5825



11N20SISO-Ant2-5825



11N40SISO-Ant1-5795



11N40SISO-Ant2-5795



11AC20SISO-Ant1-5785



11AC20SISO-Ant2-5785



11AC20SISO-Ant1-5825



11AC20SISO-Ant2-5825



11AC40SISO-Ant1-5795



11AC40SISO-Ant2-5795





Occupied channel bandwidth

TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.233	5171.311	5188.544	---	---
11A	Ant2	5180	17.293	5171.313	5188.606	---	---
11A	Ant1	5745	17.605	5736.069	5753.674	---	---
11A	Ant2	5745	18.159	5735.671	5753.830	---	---
11A	Ant1	5785	18.992	5774.964	5793.956	---	---
11A	Ant2	5785	21.799	5773.844	5795.643	---	---
11N20SISO	Ant1	5180	18.471	5170.724	5189.195	---	---
11N20SISO	Ant2	5180	18.472	5170.637	5189.109	---	---
11N20SISO	Ant1	5745	18.894	5735.328	5754.222	---	---
11N20SISO	Ant2	5745	18.578	5735.632	5754.210	---	---
11N40SISO	Ant2	5190	36.503	5171.716	5208.219	---	---
11N40SISO	Ant1	5755	37.115	5736.219	5773.334	---	---
11N40SISO	Ant1	5190	37.237	5171.4087	5208.6457	---	---
11N40SISO	Ant2	5755	37.092	5736.392	5773.484	---	---
11AC20SISO	Ant1	5180	18.498	5170.679	5189.177	---	---
11AC20SISO	Ant2	5180	18.132	5170.881	5189.013	---	---
11AC20SISO	Ant1	5745	18.860	5735.361	5754.221	---	---
11AC20SISO	Ant2	5745	18.682	5735.590	5754.272	---	---
11AC40SISO	Ant1	5755	37.010	5736.324	5773.334	---	---
11AC40SISO	Ant2	5755	37.758	5735.858	5773.616	---	---
11AC80SISO	Ant1	5775	76.712	5736.338	5813.050	---	---



11AC40SISO	Ant1	5190	37.162	5171.5655	5208.7275	---	---
11AC40SISO	Ant2	5190	36.684	5171.6546	5208.3386	---	---
11AC80SISO	Ant1	5210	75.495	5172.1323	5247.6273	---	---
11AC80SISO	Ant2	5210	75.760	5171.9961	5247.7561	---	---
11AC80SISO	Ant2	5775	76.122	5736.984	5813.106	---	---
11A	Ant1	5220	17.221	5211.3018	5228.5228	---	---
11A	Ant2	5220	17.224	5211.3226	5228.5466	---	---
11A	Ant1	5240	17.299	5231.2197	5248.5187	---	---
11A	Ant2	5240	17.536	5231.0544	5248.5904	---	---
11N20SISO	Ant1	5220	18.297	5210.7925	5229.0895	---	---
11N20SISO	Ant2	5220	18.117	5210.8443	5228.9613	---	---
11N20SISO	Ant1	5240	18.492	5230.6662	5249.1582	---	---
11N20SISO	Ant2	5240	18.173	5230.7688	5248.9418	---	---
11AC20SISO	Ant1	5220	18.405	5210.7244	5229.1294	---	---
11AC20SISO	Ant2	5220	18.011	5210.9121	5228.9231	---	---
11AC20SISO	Ant1	5240	18.475	5230.6331	5249.1081	---	---
11AC20SISO	Ant2	5240	18.097	5230.8491	5248.9461	---	---
11N40SISO	Ant1	5230	36.813	5211.4362	5248.2492	---	---
11N40SISO	Ant2	5230	36.506	5211.6153	5248.1213	---	---
11AC40SISO	Ant1	5230	36.841	5211.3843	5248.2253	---	---
11AC40SISO	Ant2	5230	36.597	5211.6119	5248.2089	---	---
11A	Ant1	5825	17.518	5816.2047	5833.7227	---	---
11A	Ant2	5825	19.460	5815.3473	5834.8073	---	---
11N20SISO	Ant1	5785	22.267	5772.7345	5795.0015	---	---
11N20SISO	Ant2	5785	18.715	5775.5187	5794.2337	---	---
11N20SISO	Ant1	5825	20.425	5814.4087	5834.8337	---	---
11N20SISO	Ant2	5825	18.257	5815.8231	5834.0801	---	---
11N40SISO	Ant1	5795	39.393	5774.2468	5813.6398	---	---
11N40SISO	Ant2	5795	36.992	5776.4156	5813.4076	---	---
11AC20SISO	Ant1	5785	21.711	5773.0210	5794.7320	---	---
11AC20SISO	Ant2	5785	18.294	5775.7814	5794.0754	---	---
11AC20SISO	Ant1	5825	19.537	5815.0016	5834.5386	---	---
11AC20SISO	Ant2	5825	18.202	5815.8716	5834.0736	---	---
11AC40SISO	Ant1	5795	39.076	5774.5042	5813.5802	---	---
11AC40SISO	Ant2	5795	37.033	5776.4329	5813.4659	---	---

11A-Ant1-5180



11A-Ant2-5180



11A-Ant1-5745



11A-Ant2-5745



11A-Ant1-5785



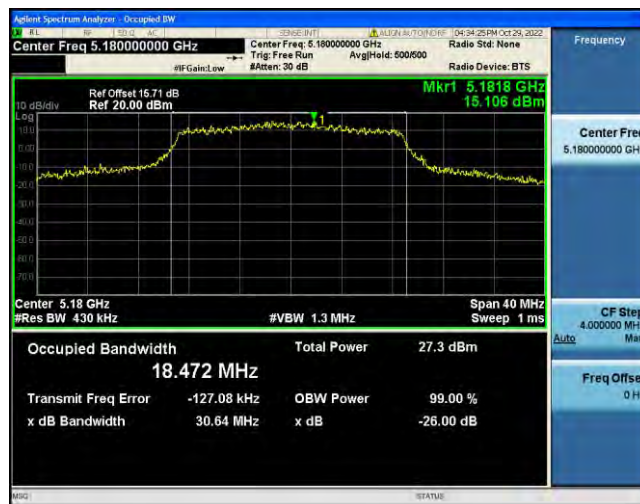
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11N20SISO-Ant1-5180



11N20SISO-Ant2-5180



11N20SISO-Ant1-5745



11N20SISO-Ant2-5745



11N40SISO-Ant2-5190



11N40SISO-Ant1-5755

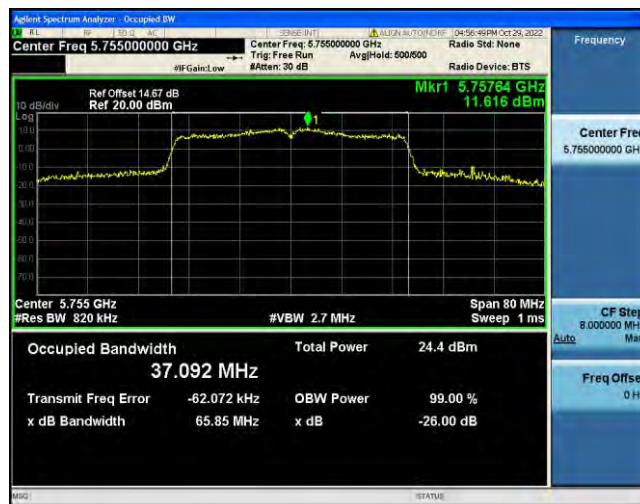


11N40SISO-Ant1-5190





11N40SISO-Ant2-5755



11AC20SISO-Ant1-5180



11AC20SISO-Ant2-5180



11AC20SISO-Ant1-5745



11AC20SISO-Ant2-5745



11AC40SISO-Ant1-5755



11AC40SISO-Ant2-5755



11AC80SISO-Ant1-5775



11AC40SISO-Ant1-5190



11AC40SISO-Ant2-5190



11AC80SISO-Ant1-5210



11AC80SISO-Ant2-5210



11AC80SISO-Ant2-5775



11A-Ant1-5220



11A-Ant2-5220



11A-Ant1-5240





11A-Ant2-5240



11N20SISO-Ant1-5220



11N20SISO-Ant2-5220



11N20SISO-Ant1-5240



11N20SISO-Ant2-5240



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11AC20SISO-Ant2-5240



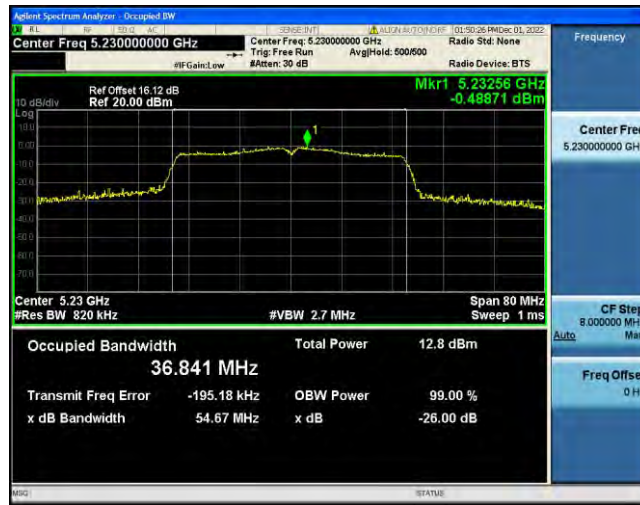
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11N40SISO-Ant2-5230



11AC40SISO-Ant1-5230



11AC40SISO-Ant2-5230



11A-Ant1-5825



11A-Ant2-5825



11N20SISO-Ant1-5785





11N20SISO-Ant2-5785



11N20SISO-Ant1-5825



11N20SISO-Ant2-5825



11N40SISO-Ant1-5795



11N40SISO-Ant2-5795



11AC20SISO-Ant1-5785



11AC20SISO-Ant2-5785



11AC20SISO-Ant1-5825



11AC20SISO-Ant2-5825



11AC40SISO-Ant1-5795



11AC40SISO-Ant2-5795



6dB bandwidth

TestMode	Antenna	Frequency[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.280	5736.840	5753.120	0.5	PASS
11A	Ant2	5745	16.280	5736.840	5753.120	0.5	PASS
11A	Ant1	5785	16.040	5777.080	5793.120	0.5	PASS
11A	Ant2	5785	16.280	5776.840	5793.120	0.5	PASS
11N20SISO	Ant1	5745	17.080	5736.440	5753.520	0.5	PASS



11N20SISO	Ant2	5745	17.520	5736.200	5753.720	0.5	PASS
11N40SISO	Ant1	5755	35.680	5736.840	5772.520	0.5	PASS
11N40SISO	Ant2	5755	35.680	5737.400	5773.080	0.5	PASS
11AC20SISO	Ant1	5745	17.120	5736.240	5753.360	0.5	PASS
11AC20SISO	Ant2	5745	17.560	5736.200	5753.760	0.5	PASS
11AC40SISO	Ant1	5755	35.520	5737.080	5772.600	0.5	PASS
11AC40SISO	Ant2	5755	35.680	5737.080	5772.760	0.5	PASS
11AC80SISO	Ant1	5775	75.200	5737.400	5812.600	0.5	PASS
11AC80SISO	Ant2	5775	75.200	5737.400	5812.600	0.5	PASS
11A	Ant1	5825	16.280	5816.840	5833.120	0.5	PASS
11A	Ant2	5825	16.280	5816.840	5833.120	0.5	PASS
11N20SISO	Ant1	5785	17.560	5776.200	5793.760	0.5	PASS
11N20SISO	Ant2	5785	17.560	5776.200	5793.760	0.5	PASS
11N20SISO	Ant1	5825	17.560	5816.200	5833.760	0.5	PASS
11N20SISO	Ant2	5825	17.560	5816.200	5833.760	0.5	PASS
11N40SISO	Ant1	5795	35.440	5777.160	5812.600	0.5	PASS
11N40SISO	Ant2	5795	35.920	5776.840	5812.760	0.5	PASS
11AC20SISO	Ant1	5785	17.560	5776.200	5793.760	0.5	PASS
11AC20SISO	Ant2	5785	17.240	5776.240	5793.480	0.5	PASS
11AC20SISO	Ant1	5825	17.560	5816.200	5833.760	0.5	PASS
11AC20SISO	Ant2	5825	17.560	5816.200	5833.760	0.5	PASS
11AC40SISO	Ant1	5795	35.440	5777.400	5812.840	0.5	PASS
11AC40SISO	Ant2	5795	36.320	5776.840	5813.160	0.5	PASS

11A-Ant1-5745





11A-Ant2-5745



11A-Ant1-5785



11A-Ant2-5785





11N20SISO-Ant1-5745



11N20SISO-Ant2-5745



11N40SISO-Ant1-5755



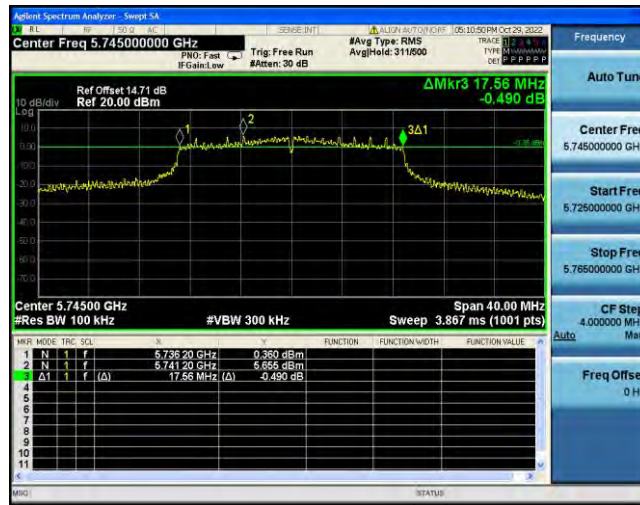
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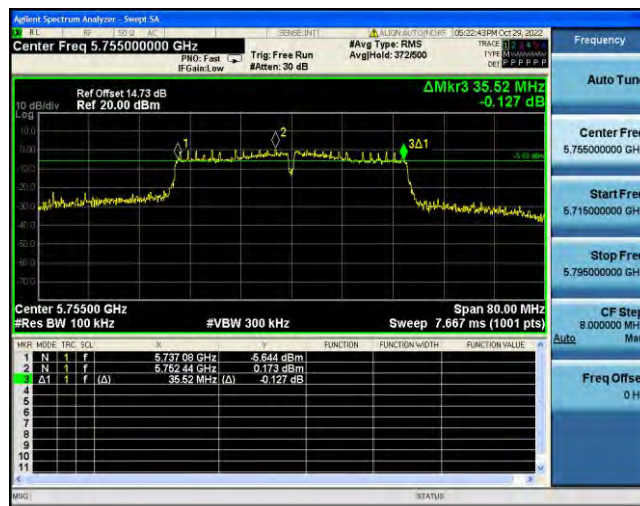
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11AC40SISO-Ant1-5755



11AC40SISO-Ant2-5755



11AC80SISO-Ant1-5775



11AC80SISO-Ant2-5775



11A-Ant1-5825



11A-Ant2-5825



11N20SISO-Ant1-5785



11N20SISO-Ant2-5785



11N20SISO-Ant1-5825



11N20SISO-Ant2-5825





11N40SISO-Ant1-5795



11N40SISO-Ant2-5795



11AC20SISO-Ant1-5785



11AC20SISO-Ant2-5785



11AC20SISO-Ant1-5825



11AC20SISO-Ant2-5825