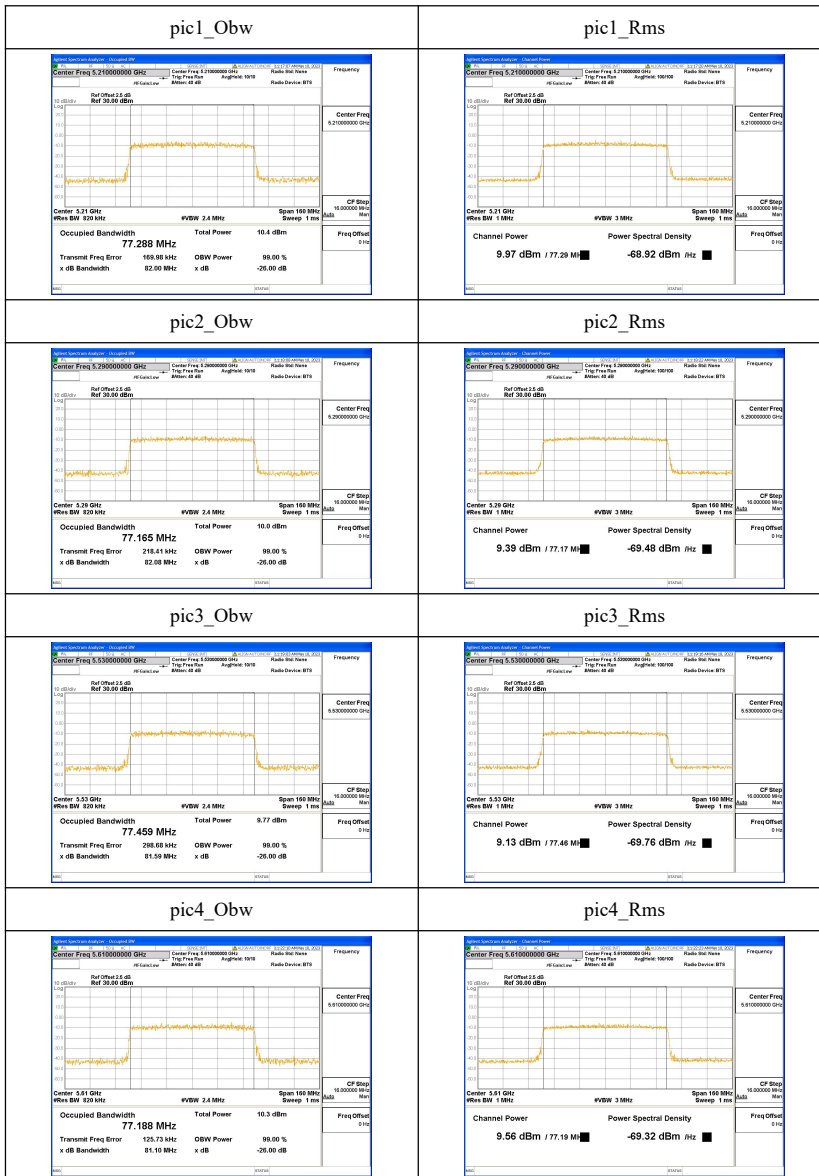
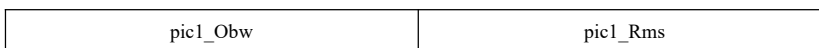
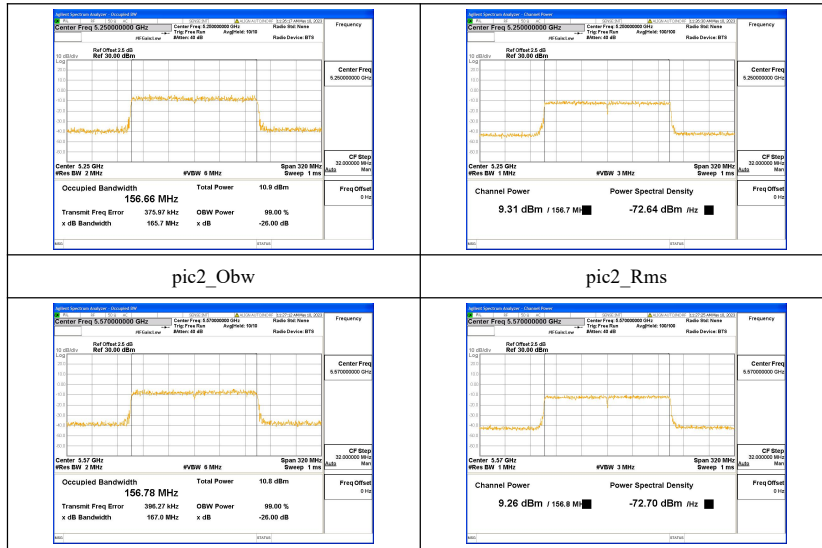


11ax-HE80:



11ax-HE160:





6.4. Power Spectral Density

SpeciPications:	FCC Part 15.407 (a)
DUT Serial Number:	S1
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

Standard	Frequency (MHz)	Limit (dBm)
FCC Part 15.407 (a)	5150MHz~5250MHz	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. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
	5250MHz~5350MHz	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. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
	5470MHz~5725MHz	

Note: Directional gain according to section 3.2 of this report

Band	802.11a Directional gain (dBi)	802.11n/ac/ax Directional gain (dBi)
UNII 1	3.50	6.51
UNII 2A	3.47	6.48
UNII 2C	3.94	6.95

UNII 1: 802.11a limit=17dBm/MHz

802.11n/ac/ax limit=17-(DG-6)=16.49dBm

UNII 2A: 802.11a limit=11dBm/MHz

802.11n/ac/ax limit=11-(DG-6)=11-0.48=10.52dBm/MHz

UNII 2C: 802.11a limit=11dBm/MHz

802.11n/ac/ax limit=11-(DG-6)=11-0.95=10.05dBm/MHz

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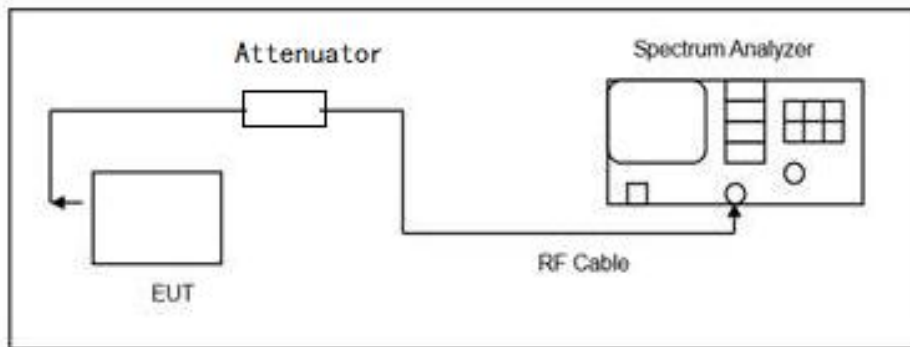
Measurement Uncertainty:

Measurement Uncertainty	$\pm 0.89\text{dBm/MHz}$
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Test Procedure

The measurement is according to ANSI C63.10 clause 12.5.

- a) Create an average power spectrum for the EUT operating mode being tested by following the instructions in 12.3.2 for measuring maximum conducted output power using a spectrum analyzer or EMI receiver; that is, select the appropriate test method (SA-1, SA-2, SA-3, or their respective alternatives) and apply it up to, but not including, the step labeled, “Compute power...” (This procedure is required even if the maximum conducted output power measurement was performed using the power meter method PM.)
- b) Use the peak search function on the instrument to find the peak of the spectrum.
- c) Make the following adjustments to the peak value of the spectrum, if applicable:
 - 1) If method SA-2 or SA-2A was used, then add $[10 \log (1 / D)]$, where D is the duty cycle, to the peak of the spectrum.
 - 2) If method SA-3A was used and the linear mode was used in step h) of 12.3.2.7, add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
- d) The result is the PPSD.

Test block diagram:**Chongqing Academy of Information and Communication Technology**

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**Test Results:****Chain.0**

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11a	36	Pic.1	-2.78	PASS
	40	Pic.2	-2.05	PASS
	48	Pic.3	-1.97	PASS
	52	Pic.4	-2.84	PASS
	56	Pic.5	-3.17	PASS
	64	Pic.6	-3.24	PASS
	100	Pic.7	-2.76	PASS
	116	Pic.8	-1.26	PASS
	140	Pic.9	-1.11	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11n-HT20	36	Pic.1	-3.11	PASS
	40	Pic.2	-2.31	PASS
	48	Pic.3	-2.46	PASS
	52	Pic.4	-3.21	PASS
	56	Pic.5	-3.61	PASS
	64	Pic.6	-3.51	PASS
	100	Pic.7	-3.36	PASS
	116	Pic.8	-1.48	PASS
	140	Pic.9	-1.40	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11n-HT40	38	Pic.1	-5.46	PASS
	46	Pic.2	-5.15	PASS
	54	Pic.3	-6.20	PASS
	62	Pic.4	-6.90	PASS
	102	Pic.5	-5.81	PASS
	118	Pic.6	-3.50	PASS
	134	Pic.7	-5.19	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ac-VHT20	36	Pic.1	-2.96	PASS
	40	Pic.2	-2.38	PASS
	48	Pic.3	-2.33	PASS
	52	Pic.4	-3.16	PASS

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	56	Pic.5	-3.77	PASS
	64	Pic.6	-3.38	PASS
	100	Pic.7	-3.16	PASS
	116	Pic.8	-1.23	PASS
	140	Pic.9	-1.56	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ac-VHT40	38	Pic.1	-5.37	PASS
	46	Pic.2	-4.72	PASS
	54	Pic.3	-6.29	PASS
	62	Pic.4	-6.66	PASS
	102	Pic.5	-5.71	PASS
	118	Pic.6	-3.29	PASS
	134	Pic.7	-5.14	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ac-VHT80	42	Pic.1	-8.52	PASS
	58	Pic.2	-9.76	PASS
	106	Pic.3	-8.54	PASS
	122	Pic.4	-7.56	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ac-VHT160	50	Pic.1	-13.26	PASS
	114	Pic.2	-11.88	PASS

Mode	RU Con.	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ax-HE20	Full	36	Pic.1	-4.99	PASS
	Full	40	Pic.2	-4.13	PASS
	Full	48	Pic.3	-2.80	PASS
	Full	52	Pic.4	-3.28	PASS
	Full	56	Pic.5	-4.48	PASS
	Full	64	Pic.6	-5.18	PASS
	Full	100	Pic.7	-4.71	PASS
	Full	116	Pic.8	-2.17	PASS
	Full	140	Pic.9	-1.98	PASS

Mode	RU Con.	Channel	Power Spectral Density(dBm/MHz)	Conclusion
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802.11ax-HE40	Full	38	Pic.1	-6.27	PASS
	Full	46	Pic.2	-5.54	PASS
	Full	54	Pic.3	-6.89	PASS
	Full	62	Pic.4	-7.22	PASS
	Full	102	Pic.5	-6.28	PASS
	Full	118	Pic.6	-3.74	PASS
	Full	134	Pic.7	-5.45	PASS

Mode	RU Con.	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ax-HE80	Full	42	Pic.1	-10.50	PASS
	Full	58	Pic.2	-10.76	PASS
	Full	106	Pic.3	-11.40	PASS
	Full	122	Pic.4	-9.08	PASS

Mode	RU Con.	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ax-HE160	Full	50	Pic.1	-13.35	PASS
	Full	114	Pic.2	-11.72	PASS

Chain.1

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11a	36	Pic.1	-2.13	PASS
	40	Pic.2	-1.54	PASS
	48	Pic.3	-1.76	PASS
	52	Pic.4	-2.43	PASS
	56	Pic.5	-3.14	PASS
	64	Pic.6	-3.22	PASS
	100	Pic.7	-1.83	PASS
	116	Pic.8	-0.02	PASS
	140	Pic.9	-1.00	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11n-HT20	36	Pic.1	-2.45	PASS
	40	Pic.2	-2.18	PASS
	48	Pic.3	-2.42	PASS
	52	Pic.4	-2.78	PASS
	56	Pic.5	-3.59	PASS

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	64	Pic.6	-3.38	PASS
	100	Pic.7	-2.43	PASS
	116	Pic.8	-0.50	PASS
	140	Pic.9	-1.10	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11n-HT40	38	Pic.1	-4.87	PASS
	46	Pic.2	-4.82	PASS
	54	Pic.3	-6.01	PASS
	62	Pic.4	-6.40	PASS
	102	Pic.5	-5.04	PASS
	118	Pic.6	-2.66	PASS
	134	Pic.7	-4.15	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ac-VHT20	36	Pic.1	-2.33	PASS
	40	Pic.2	-1.47	PASS
	48	Pic.3	-2.38	PASS
	52	Pic.4	-3.08	PASS
	56	Pic.5	-3.79	PASS
	64	Pic.6	-3.49	PASS
	100	Pic.7	-2.11	PASS
	116	Pic.8	-0.52	PASS
	140	Pic.9	-1.41	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ac-VHT40	38	Pic.1	-4.97	PASS
	46	Pic.2	-4.89	PASS
	54	Pic.3	-6.32	PASS
	62	Pic.4	-6.58	PASS
	102	Pic.5	-5.27	PASS
	118	Pic.6	-2.80	PASS
	134	Pic.7	-4.38	PASS

Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ac-VHT80	42	Pic.1	-7.98	PASS
	58	Pic.2	-9.73	PASS
	106	Pic.3	-7.69	PASS
	122	Pic.4	-6.36	PASS

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Mode	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ac-VHT160	50	Pic.1	-11.63	PASS
	114	Pic.2	-10.45	PASS

Mode	RU Con.	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ax-HE20	Full	36	Pic.1	-2.53	PASS
	Full	40	Pic.2	-1.48	PASS
	Full	48	Pic.3	-2.30	PASS
	Full	52	Pic.4	-3.08	PASS
	Full	56	Pic.5	-3.51	PASS
	Full	64	Pic.6	-3.25	PASS
	Full	100	Pic.7	-2.22	PASS
	Full	116	Pic.8	-0.50	PASS
Full	140	Pic.9	-1.46	PASS	

Mode	RU Con.	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ax-HE40	Full	38	Pic.1	-5.31	PASS
	Full	46	Pic.2	-5.00	PASS
	Full	54	Pic.3	-6.49	PASS
	Full	62	Pic.4	-6.78	PASS
	Full	102	Pic.5	-5.26	PASS
	Full	118	Pic.6	-3.31	PASS
	Full	134	Pic.7	-4.88	PASS

Mode	RU Con.	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ax-HE80	Full	42	Pic.1	-8.03	PASS
	Full	58	Pic.2	-9.99	PASS
	Full	106	Pic.3	-8.25	PASS
	Full	122	Pic.4	-6.04	PASS

Mode	RU Con.	Channel	Power Spectral Density(dBm/MHz)		Conclusion
802.11ax-HE160	Full	50	Pic.1	-11.94	PASS
	Full	114	Pic.2	-10.87	PASS

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MIMO

Mode	Channel	Chain0 Test Result(dBm/MHz)	Chain1 Test Result(dBm/MHz)	MIMO Result(dBm/MHz)	Conclusion
802.11n-HT20	36	-3.11	-2.45	0.24	PASS
	40	-2.31	-2.18	0.77	PASS
	48	-2.46	-2.42	0.57	PASS
	52	-3.21	-2.78	0.02	PASS
	56	-3.61	-3.59	-0.59	PASS
	64	-3.51	-3.38	-0.43	PASS
	100	-3.36	-2.43	0.14	PASS
	116	-1.48	-0.50	2.05	PASS
802.11n-HT40	140	-1.40	-1.10	1.76	PASS
	38	-5.46	-4.87	-2.14	PASS
	46	-5.15	-4.82	-1.97	PASS
	54	-6.20	-6.01	-3.09	PASS
	62	-6.90	-6.40	-3.63	PASS
	102	-5.81	-5.04	-2.40	PASS
	118	-3.50	-2.66	-0.05	PASS
802.11ac-VHT20	134	-5.19	-4.15	-1.63	PASS
	36	-2.96	-2.33	0.38	PASS
	40	-2.38	-1.47	1.11	PASS
	48	-2.33	-2.38	0.66	PASS
	52	-3.16	-3.08	-0.11	PASS
	56	-3.77	-3.79	-0.77	PASS
	64	-3.38	-3.49	-0.42	PASS
	100	-3.16	-2.11	0.41	PASS
	116	-1.23	-0.52	2.15	PASS
802.11ac-VHT40	140	-1.56	-1.41	1.53	PASS
	38	-5.37	-4.97	-2.16	PASS
	46	-4.72	-4.89	-1.79	PASS
	54	-6.29	-6.32	-3.29	PASS
	62	-6.66	-6.58	-3.61	PASS
	102	-5.71	-5.27	-2.47	PASS
	118	-3.29	-2.80	-0.03	PASS
802.11ac-VHT80	134	-5.14	-4.38	-1.73	PASS
	42	-8.52	-7.98	-5.23	PASS
	58	-9.76	-9.73	-6.73	PASS
	106	-8.54	-7.69	-5.08	PASS

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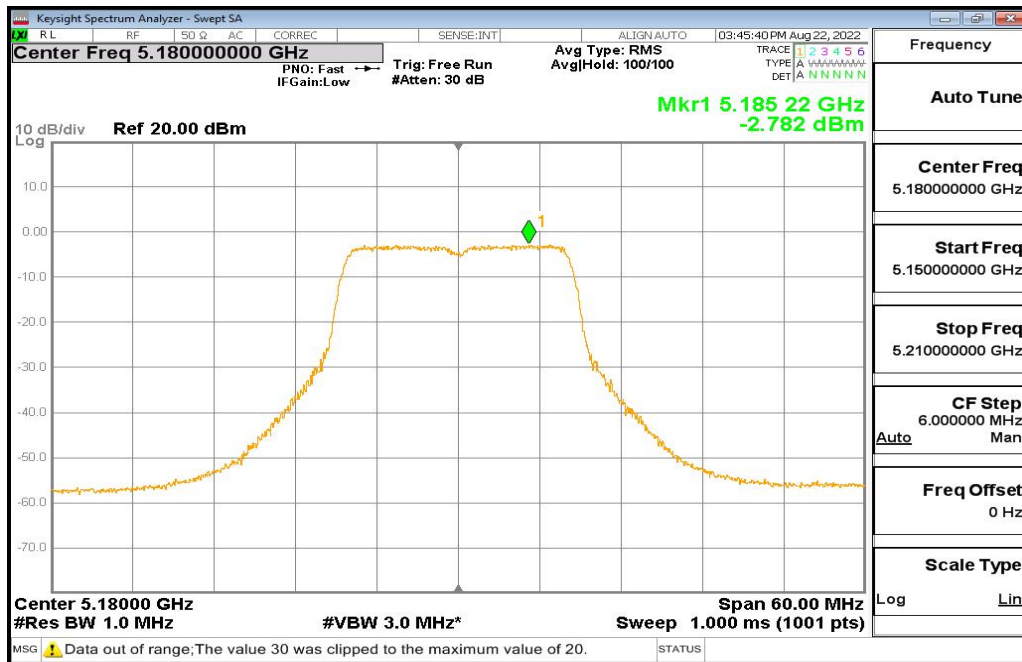
Mode	Channel	Chain0 Test Result(dBm/MHz)	Chain1 Test Result(dBm/MHz)	MIMO Result(dBm/MHz)	Conclusion
802.11ac-VHT160	122	-7.56	-6.36	-3.91	PASS
	50	-13.26	-11.63	-9.36	PASS
	114	-11.88	-10.45	-8.10	PASS
802.11ax-HE20	36	-4.99	-2.53	-0.58	PASS
	40	-4.13	-1.48	0.40	PASS
	48	-2.80	-2.30	0.47	PASS
	52	-3.28	-3.08	-0.17	PASS
	56	-4.48	-3.51	-0.96	PASS
	64	-5.18	-3.25	-1.10	PASS
	100	-4.71	-2.22	-0.28	PASS
	116	-2.17	-0.50	1.76	PASS
	140	-1.98	-1.46	1.30	PASS
802.11ax-HE40	38	-6.27	-5.31	-2.75	PASS
	46	-5.54	-5.00	-2.25	PASS
	54	-6.89	-6.49	-3.68	PASS
	62	-7.22	-6.78	-3.98	PASS
	102	-6.28	-5.26	-2.73	PASS
	118	-3.74	-3.31	-0.51	PASS
	134	-5.45	-4.88	-2.15	PASS
802.11ax-HE80	42	-10.50	-8.03	-6.08	PASS
	58	-10.76	-9.99	-7.35	PASS
	106	-11.40	-8.25	-6.54	PASS
	122	-9.08	-6.04	-4.29	PASS
802.11ax-HE160	50	-13.35	-11.94	-9.58	PASS
	114	-11.72	-10.87	-8.26	PASS

Test Picture as below:

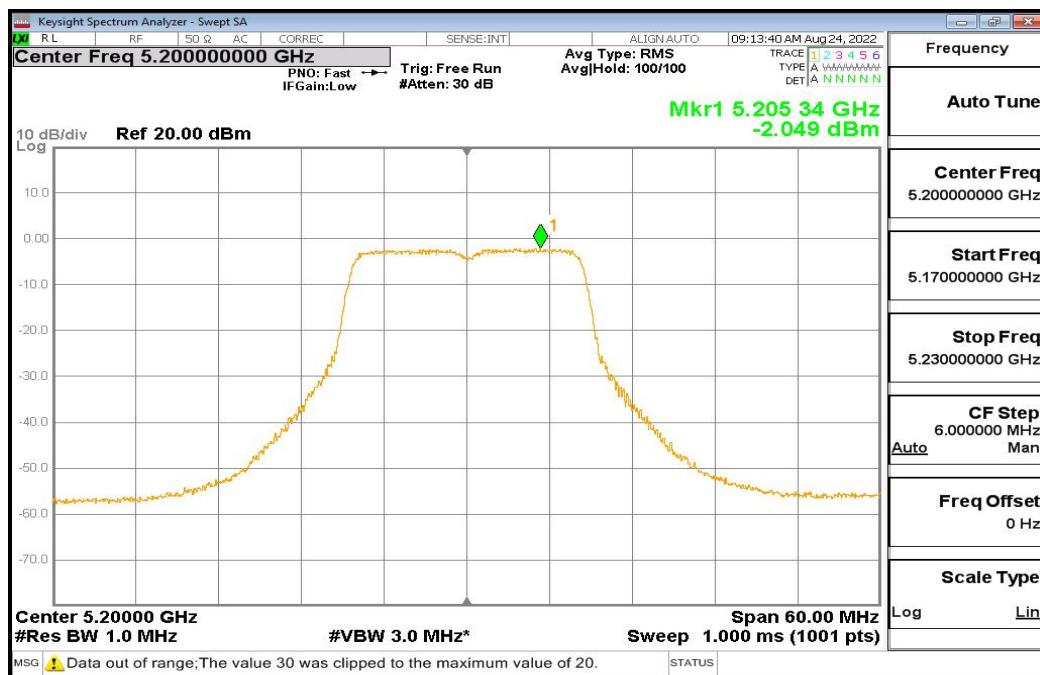
Chain.0

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11a Pic1

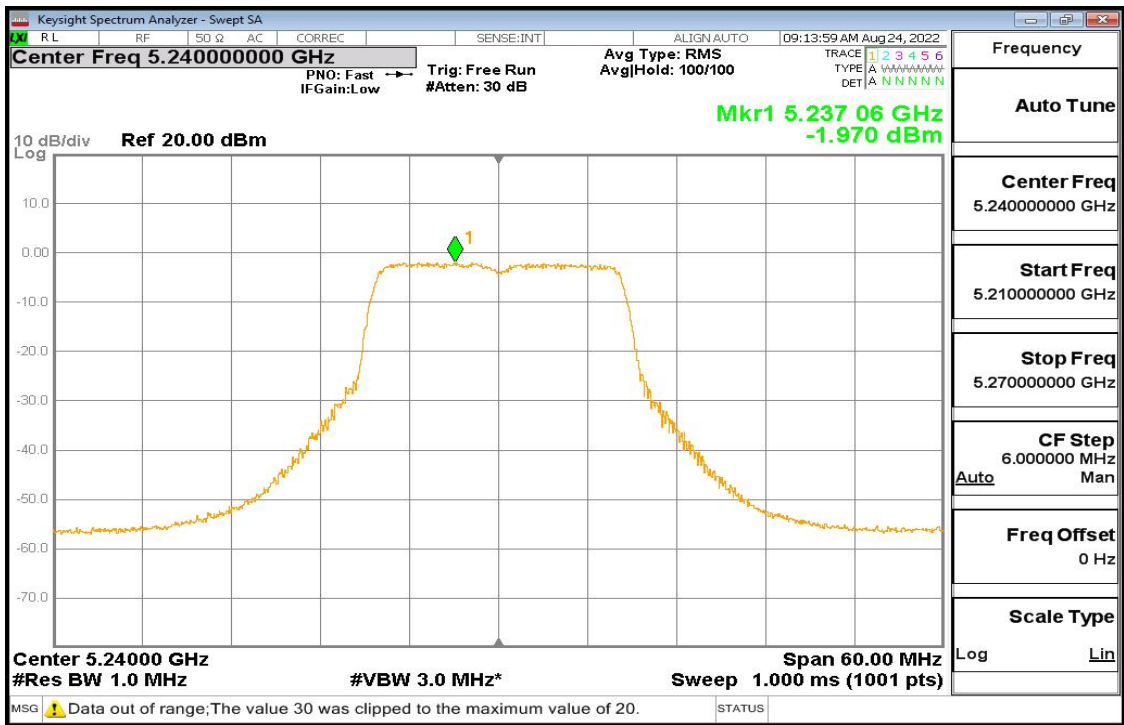


11a Pic2

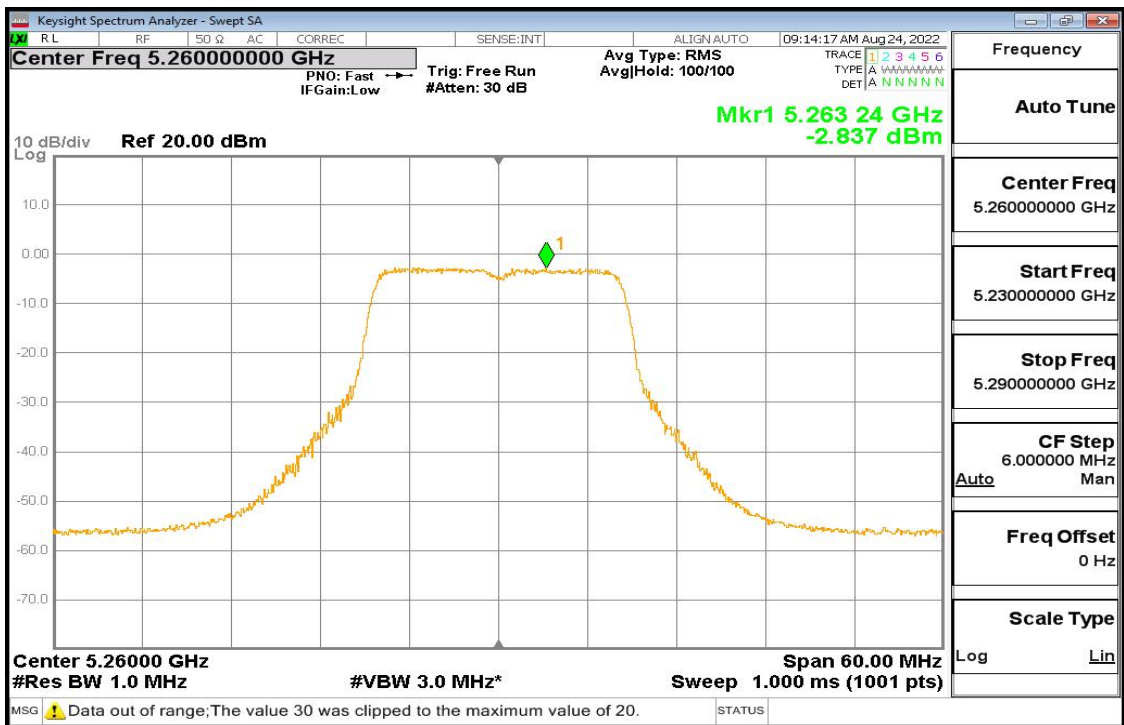
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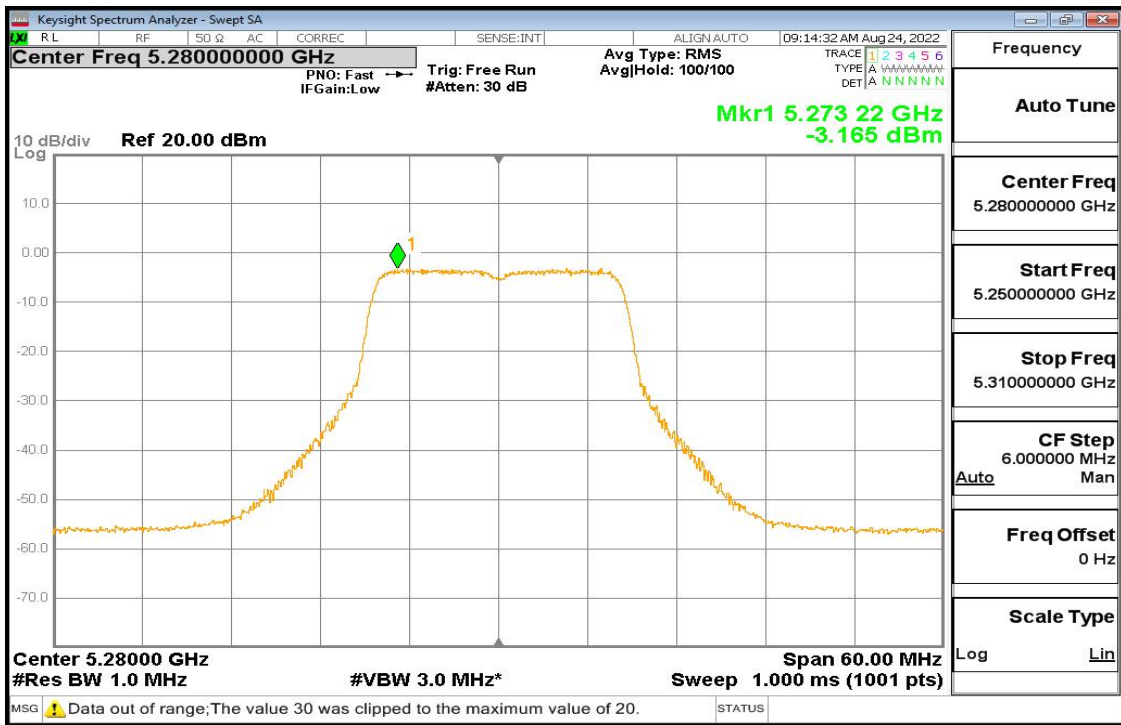
11a Pic3



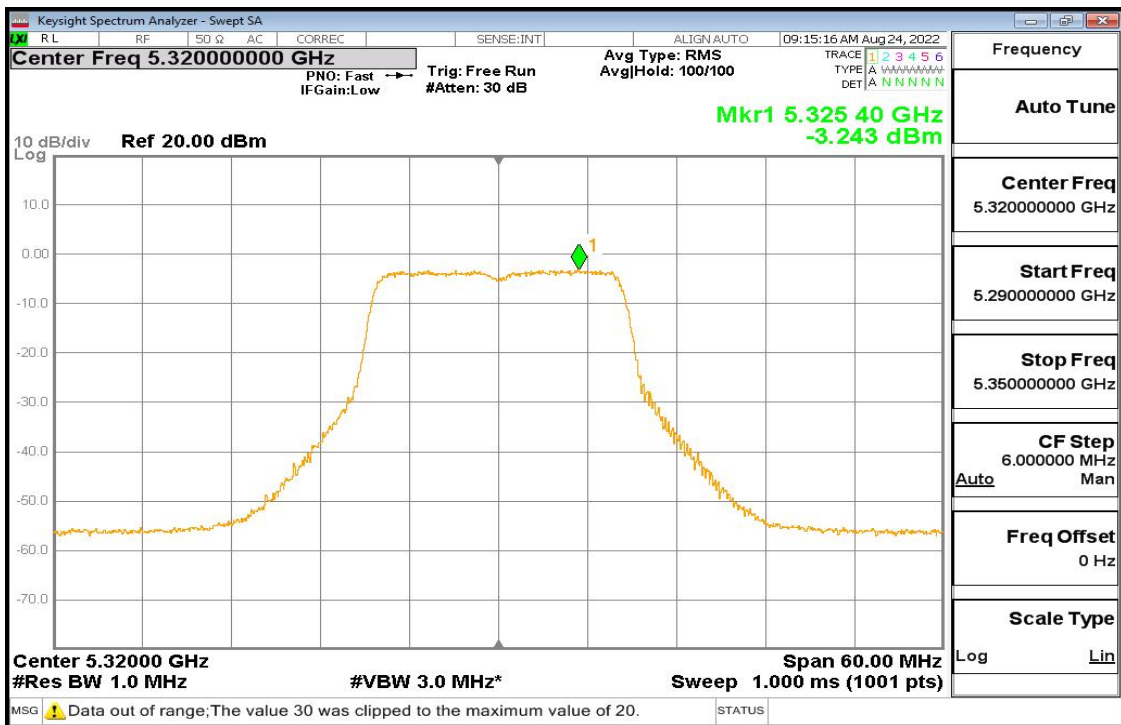
11a Pic4

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11a Pic5

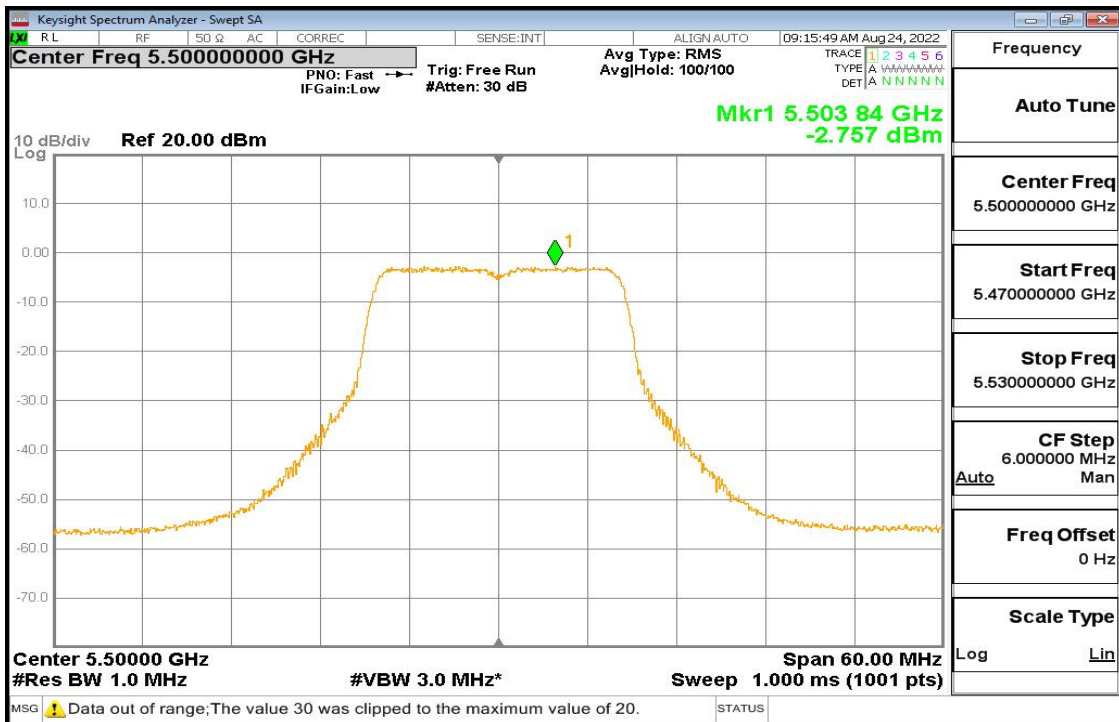


11a Pic6

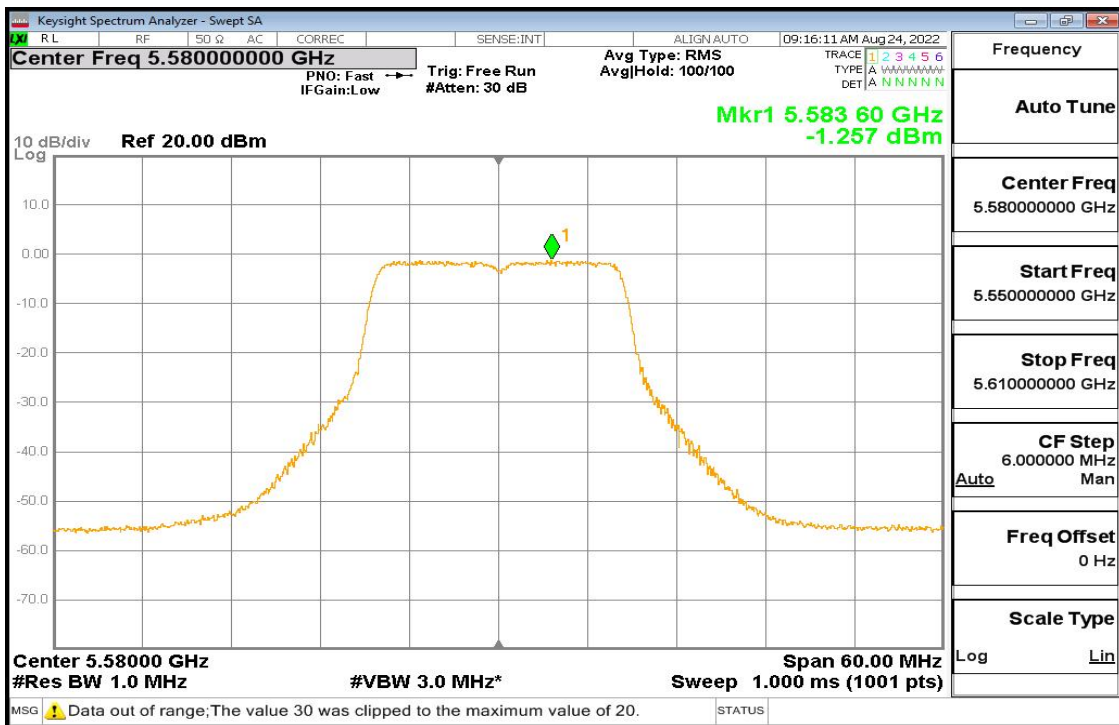
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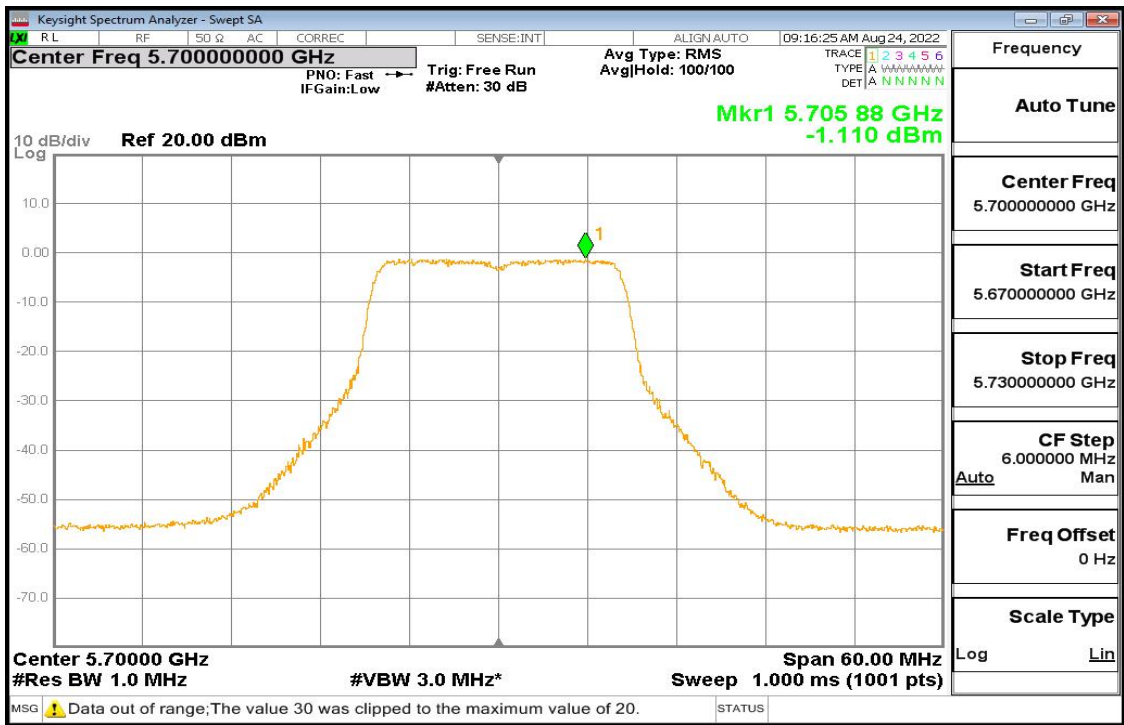
11a Pic7



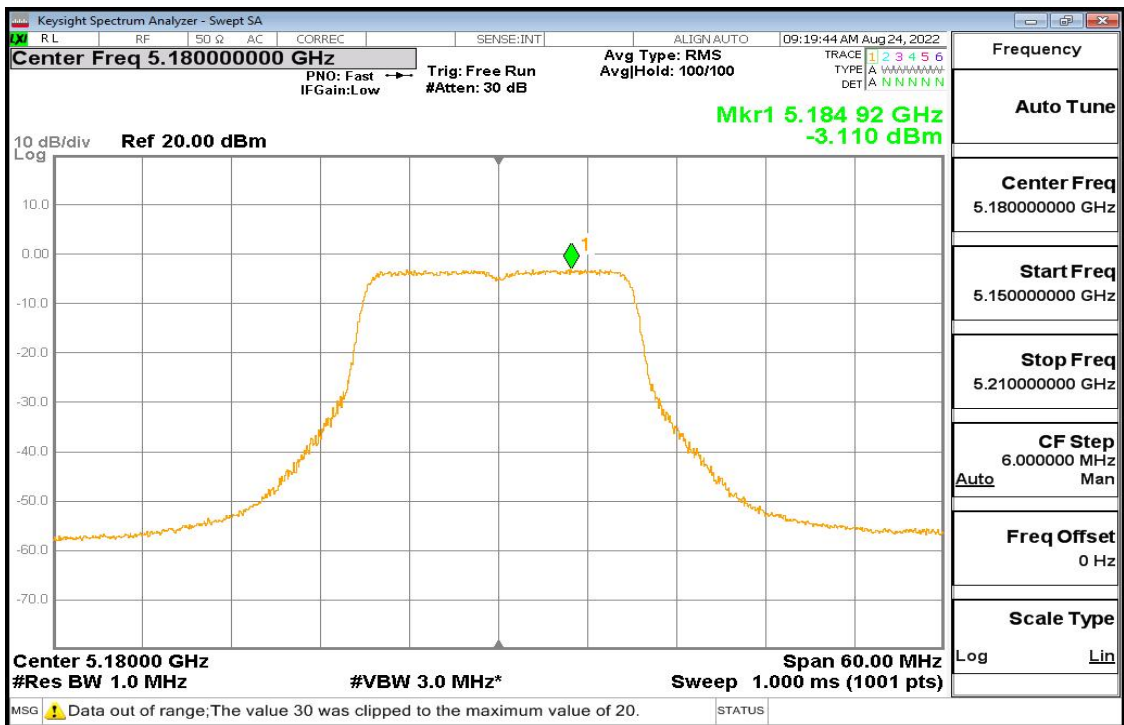
11a Pic8

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11a Pic9

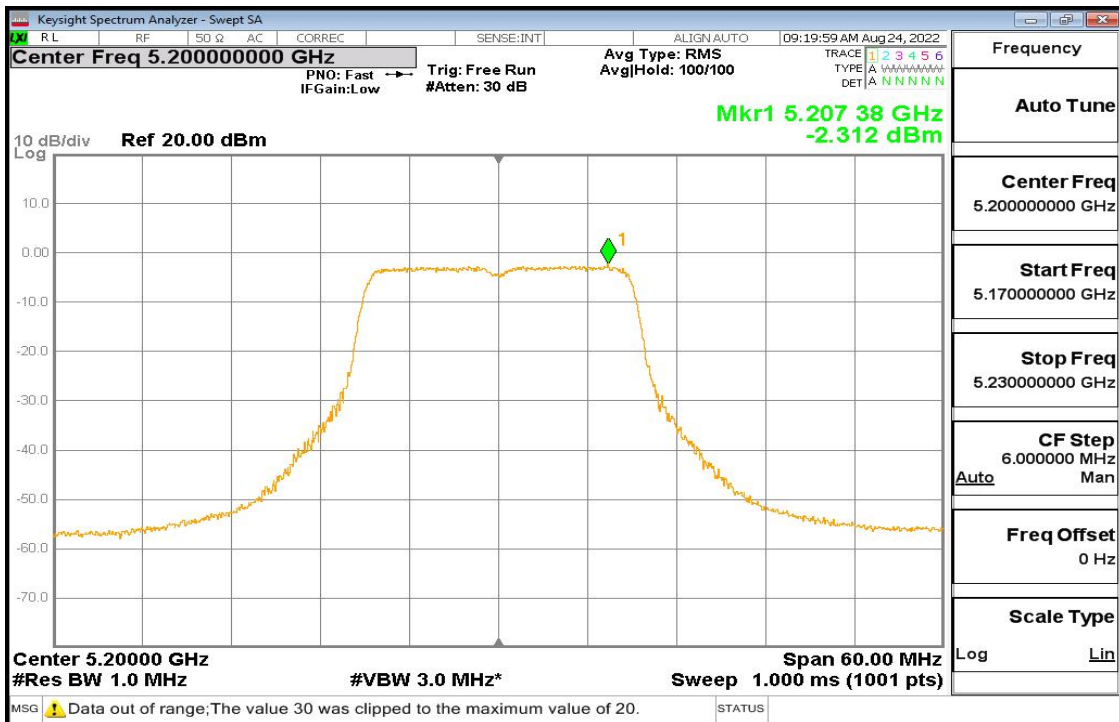


11n-20 Pic1

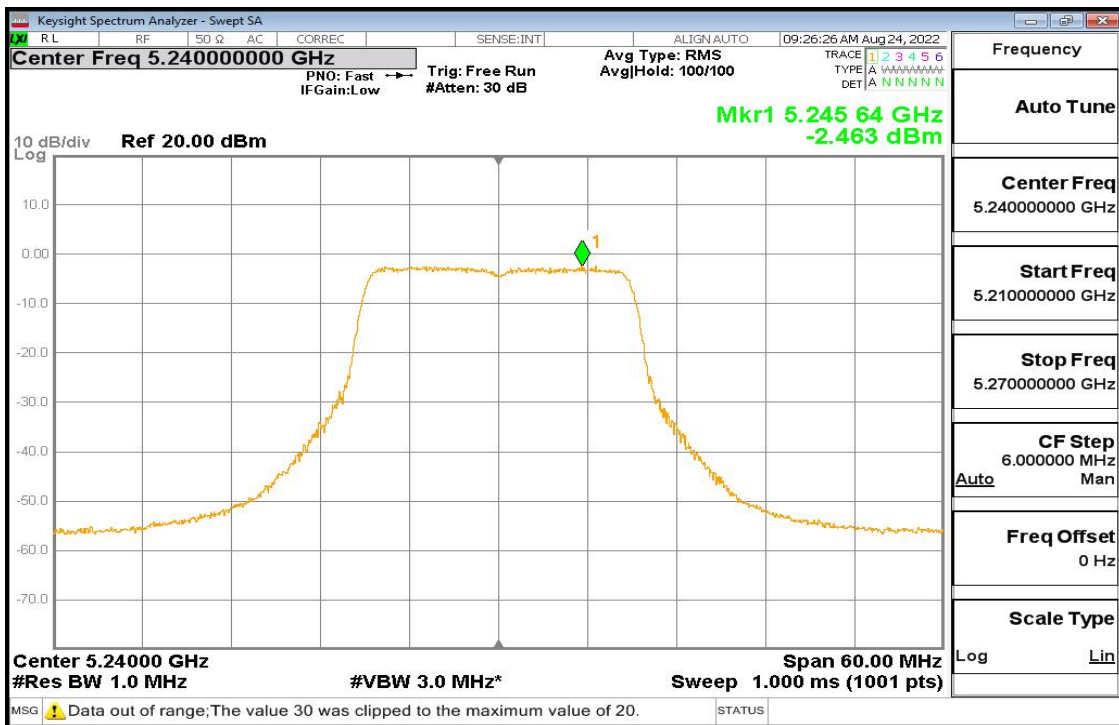
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11n-20 Pic2

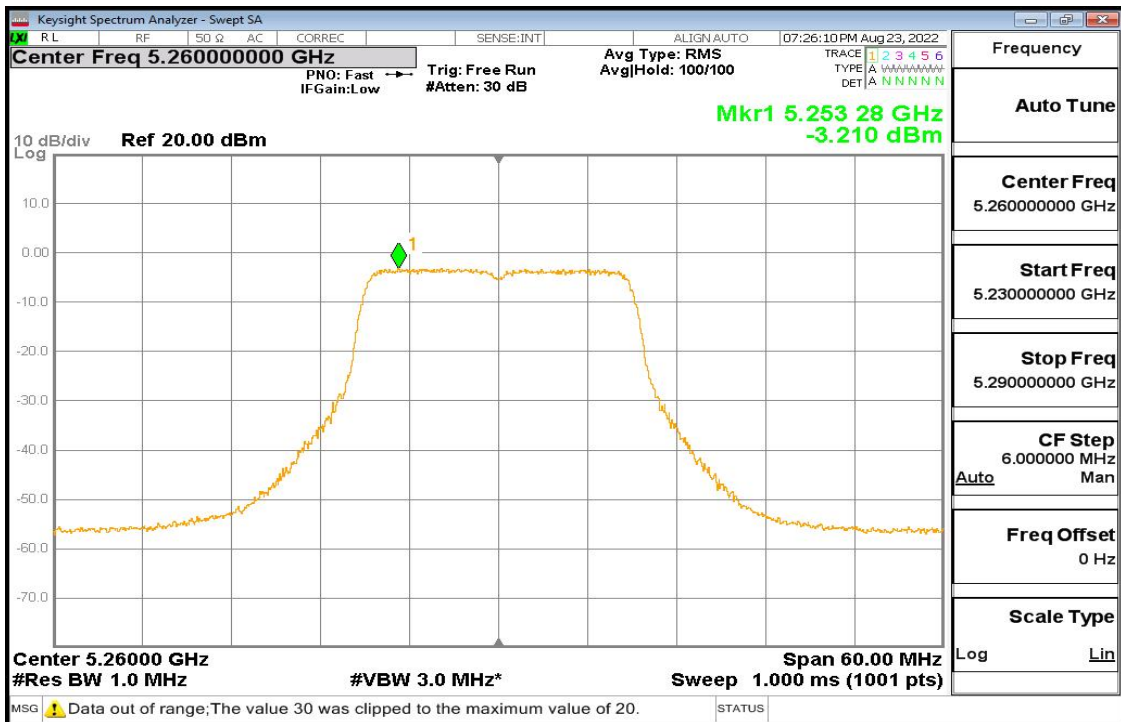


11n-20 Pic3

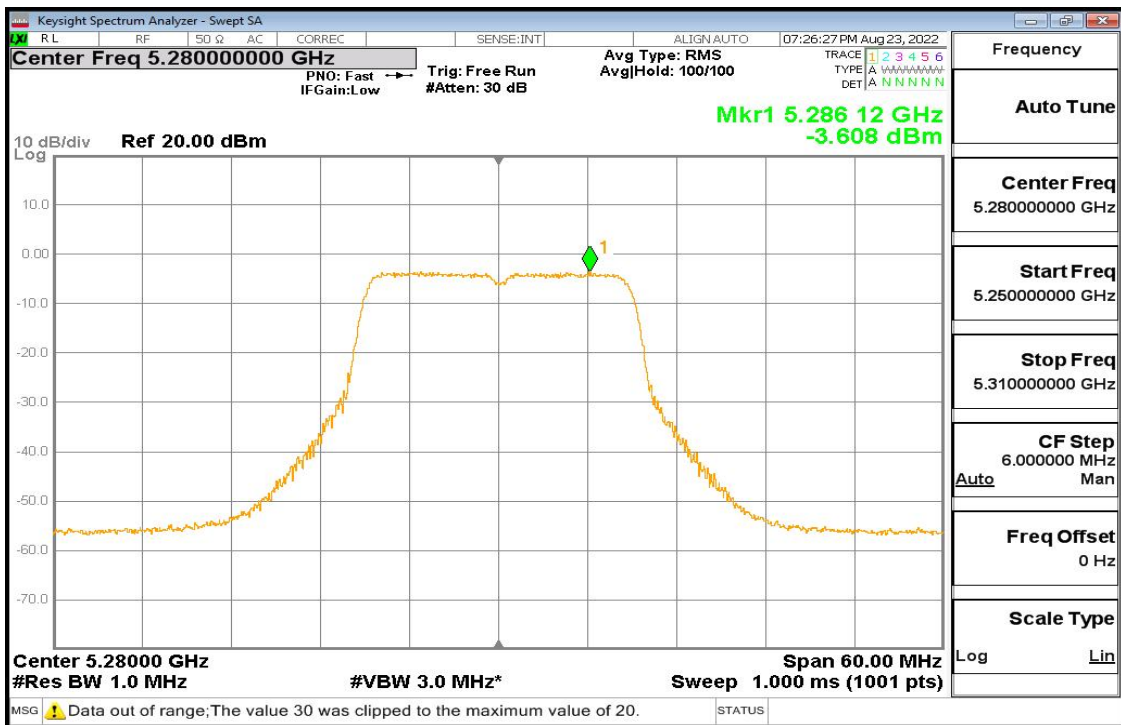
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11n-20 Pic4

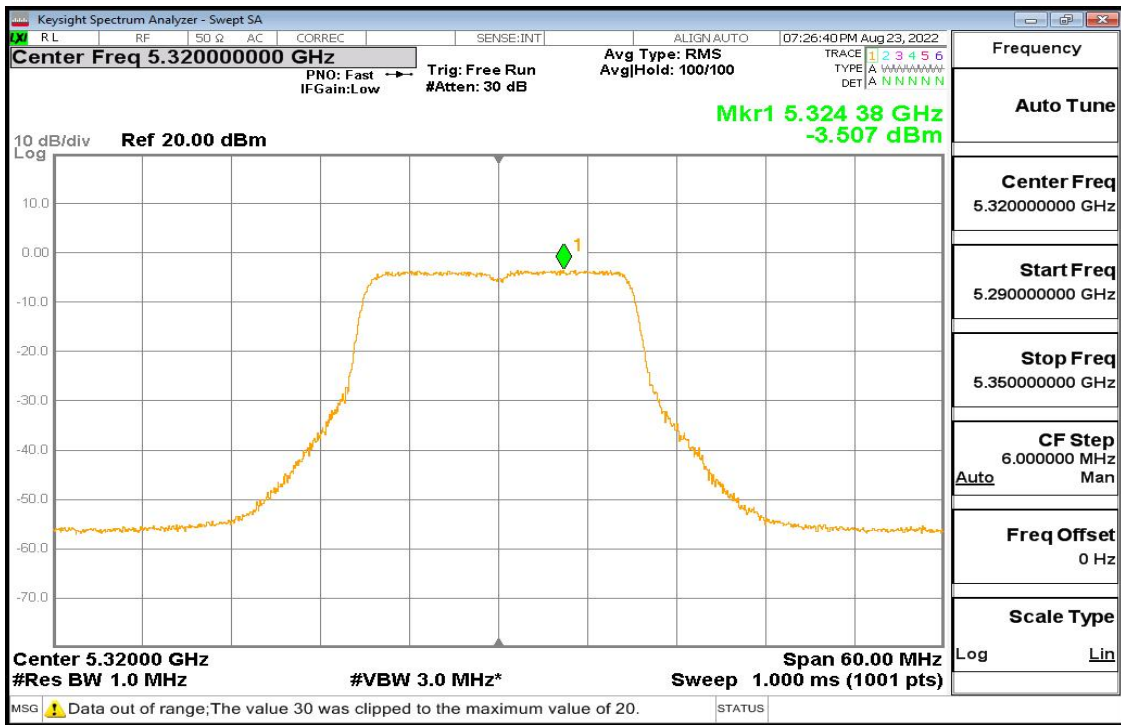


11n-20 Pic5

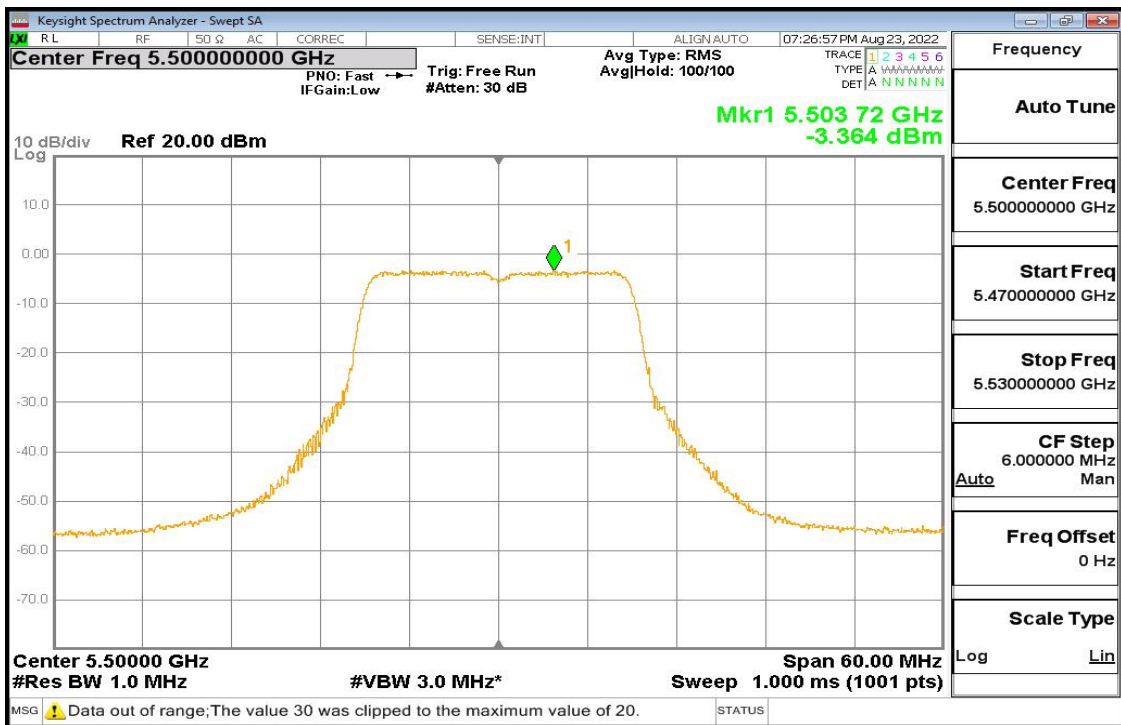
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11n-20 Pic6

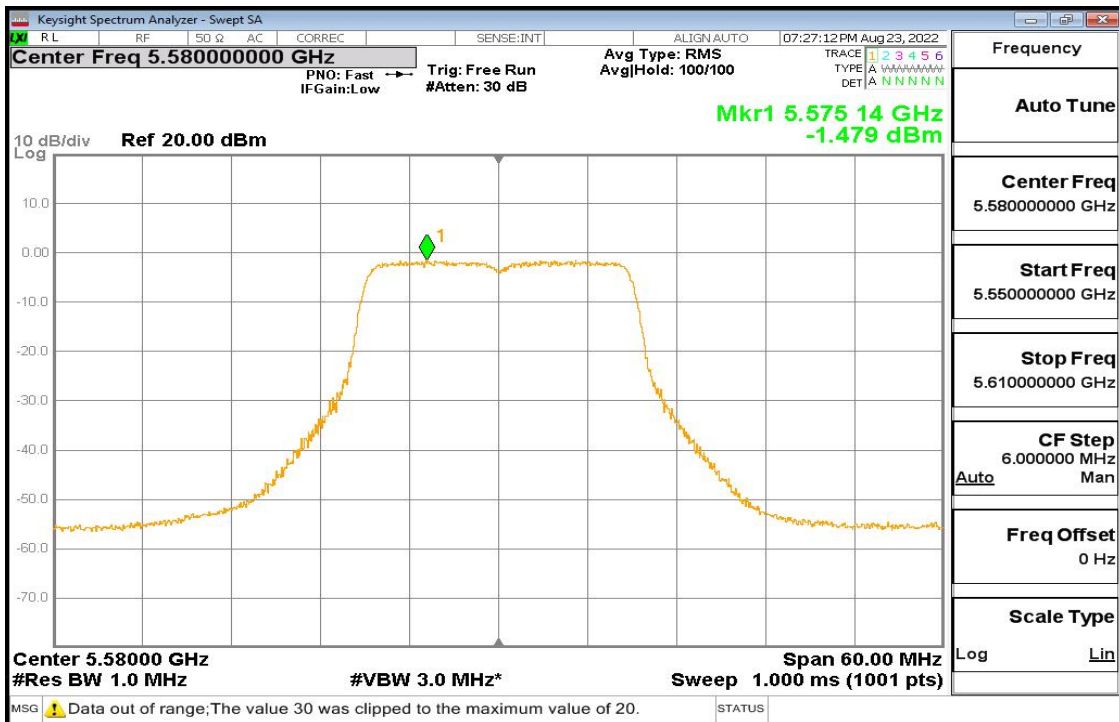


11n-20 Pic7

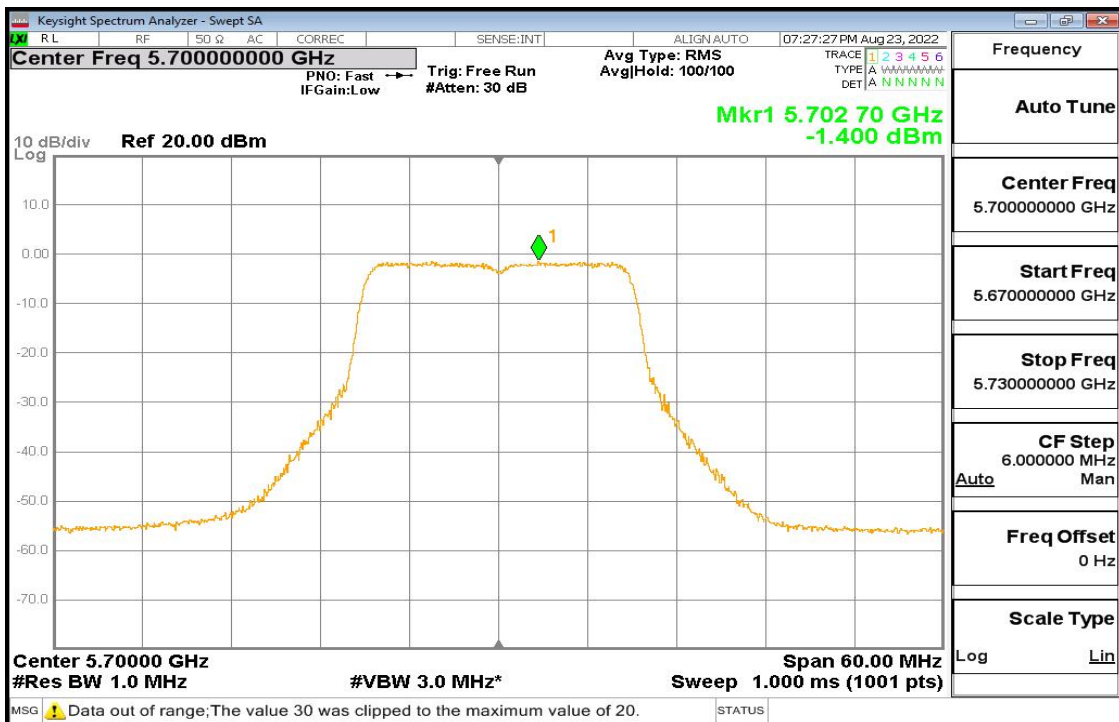
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11n-20 Pic8

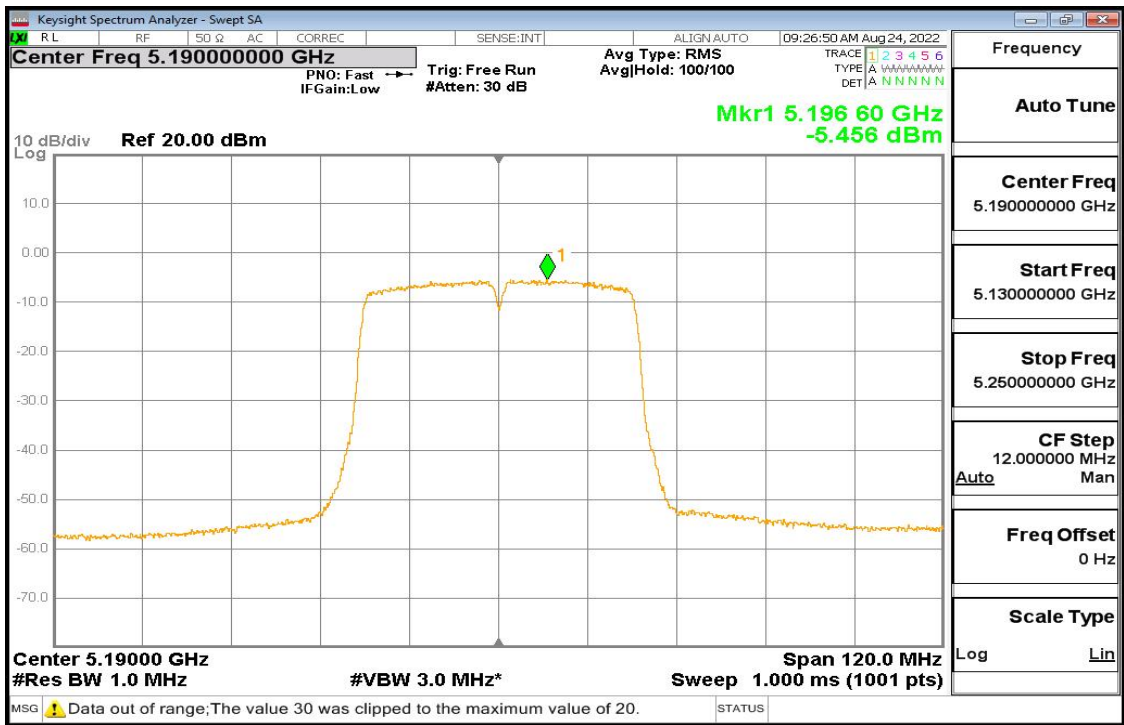


11n-20 Pic9

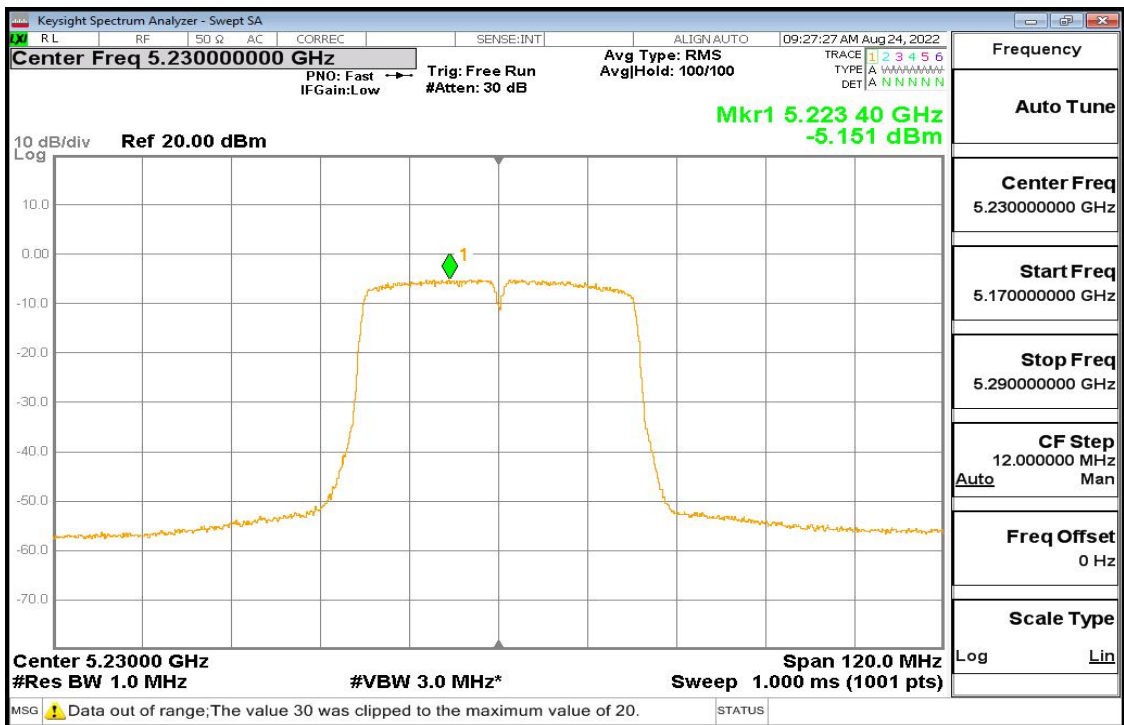
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11n-40 Pic1



11n-40 Pic2

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