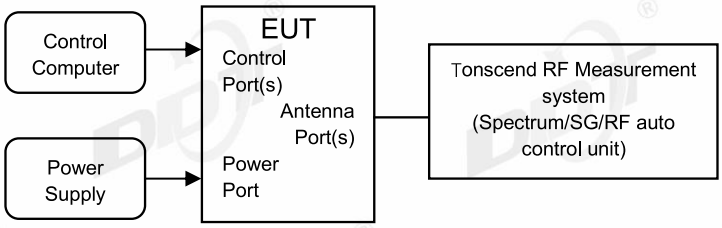
7. Duty Cycle

7.1. Block diagram of test setup



7.2. Limit

Just for Report.

7.3. Test procedure

(1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.
set the Spectrum Analyzer as below:
Centre Frequency: The centre frequency of the middle hopping channel.
Resolution BW: 10 MHz.
Video BW: 10 MHz.
Span: Zero span.
Detector: Peak.
Trace Mode: Clear Write.
Sweep: Video Trigger

(2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.

(3) Calculate dwell time follow below formula:
Duty cycle= Pulse's on time / Burst cycle

7.4. Test result

Test Engineer:	Zora Zhang	Test Site:	RF Measurement System 1#
Ambient Condition:	22.3℃,44.8%RH	Test Date:	2024.01.22-2024.03.12
Test Power Supply:	Battery	EUT:	Braille eMotion 40
Sample Number:	S23110312-01	Model No.:	B340T

Test Mode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11A	Ant1	5180	2.04	2.08	98.08
		5200	2.04	2.08	98.08
		5240	2.05	2.08	98.56
		5260	2.04	2.08	98.08
		5280	2.04	2.08	98.08
		5320	2.04	2.08	98.08
		5500	2.05	2.08	98.56
		5580	2.04	2.08	98.08
		5700	2.04	2.08	98.08
		5720	2.04	2.08	98.08
		5745	2.04	2.08	98.08
		5785	2.04	2.08	98.08
		5825	2.04	2.08	98.08
11N20SISO	Ant1	5180	1.90	1.94	97.94
		5200	1.90	1.94	97.94
		5240	1.90	1.94	97.94
		5260	1.90	1.93	98.45
		5280	1.90	1.94	97.94
		5320	1.90	1.94	97.94
		5500	1.90	1.93	98.45
		5580	1.90	1.94	97.94
		5700	1.90	1.94	97.94
		5720	1.90	1.94	97.94
		5745	1.90	1.94	97.94
		5785	1.90	1.94	97.94
		5825	1.90	1.94	97.94
11N40SISO	Ant1	5190	0.93	0.97	95.88
		5230	0.93	0.97	95.88
		5270	0.94	0.97	96.91
		5310	0.94	0.97	96.91
		5510	0.94	0.97	96.91
		5550	0.94	0.97	96.91
		5670	0.94	0.97	96.91
		5710	0.94	0.97	96.91
		5755	0.94	0.97	96.91
		5795	0.93	0.97	95.88
11AC20SISO	Ant1	5180	1.91	1.95	97.95
		5200	1.92	1.95	98.46
		5240	1.91	1.95	97.95
		5260	1.91	1.95	97.95
		5280	1.91	1.95	97.95
		5320	1.91	1.95	97.95
		5500	1.91	1.95	97.95
		5580	1.91	1.94	98.45
		5700	1.92	1.95	98.46
		5720	1.91	1.95	97.95
		5745	1.91	1.95	97.95
		5785	1.91	1.95	97.95
		5825	1.91	1.95	97.95
11AC40SISO	Ant1	5190	0.94	0.98	95.92
		5230	0.94	0.98	95.92
		5270	0.94	0.97	96.91
		5310	0.94	0.98	95.92
		5510	0.94	0.98	95.92

		5550	0.94	0.98	95.92
		5670	0.94	0.98	95.92
		5710	0.94	0.98	95.92
		5755	0.94	0.97	96.91
		5795	0.94	0.97	96.91
11AC80SISO	Ant1	5210	0.45	0.49	91.84
		5290	0.46	0.49	93.88
		5530	0.46	0.49	93.88
		5610	0.46	0.50	92.00
		5690	0.46	0.49	93.88
		5775	0.46	0.49	93.88

7.5. Test graphs

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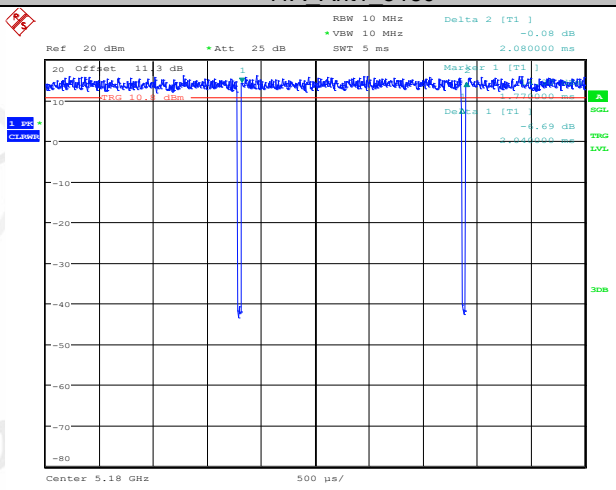

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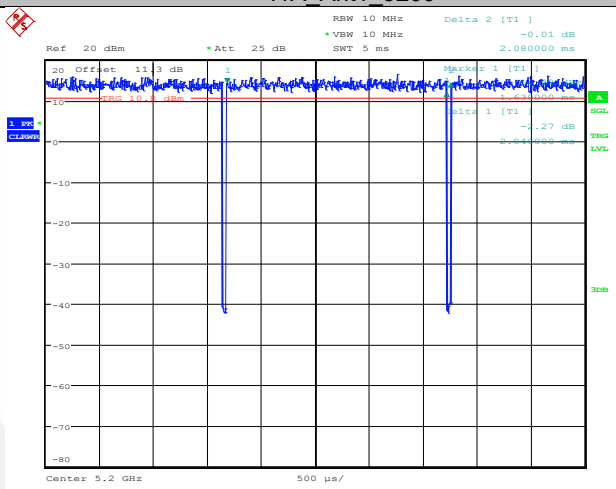

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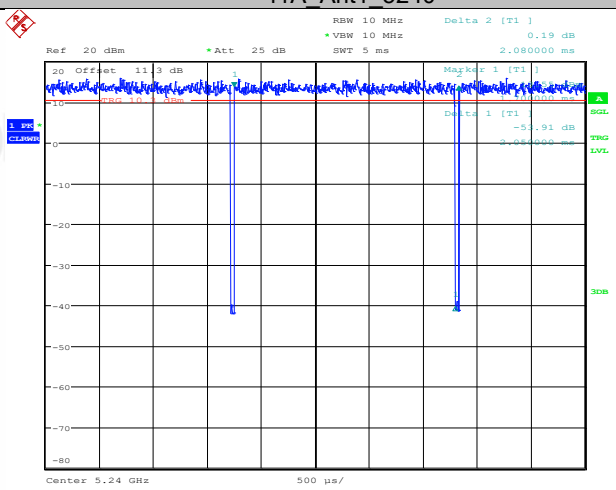

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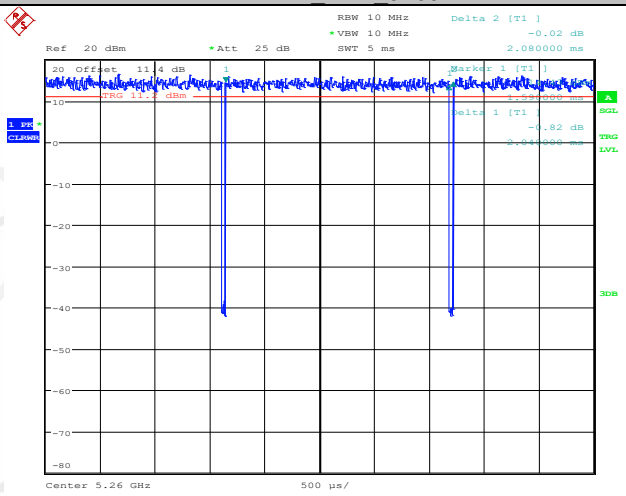

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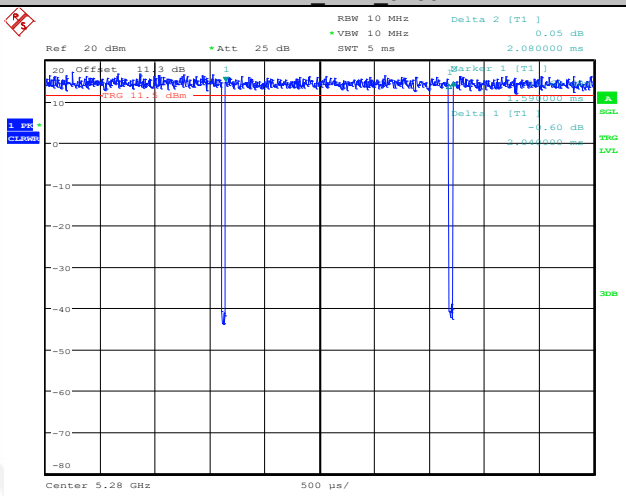

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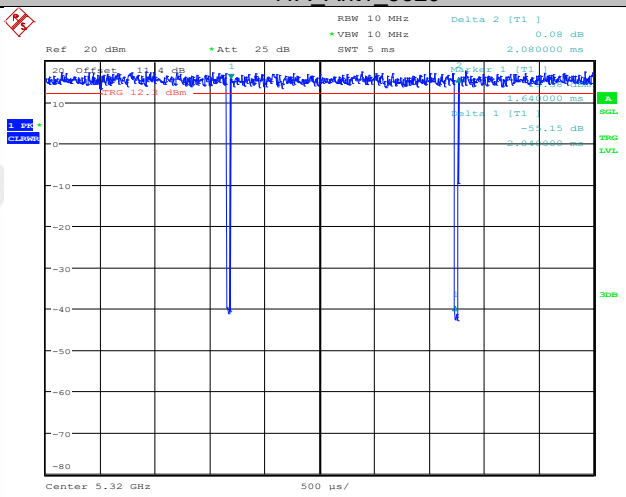

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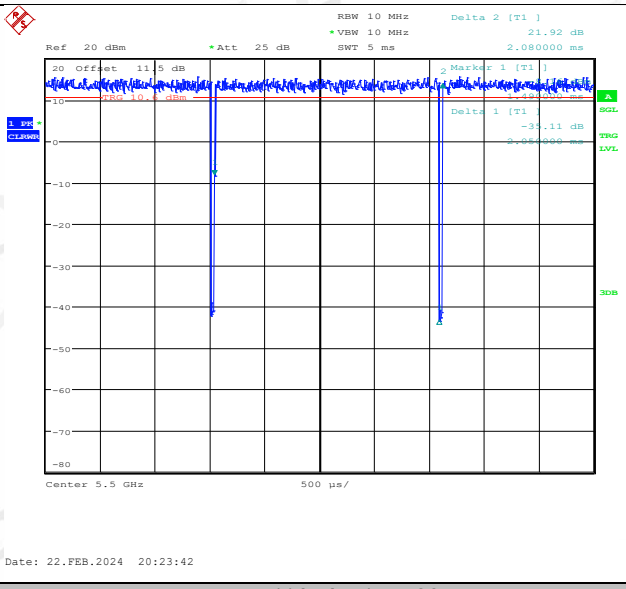

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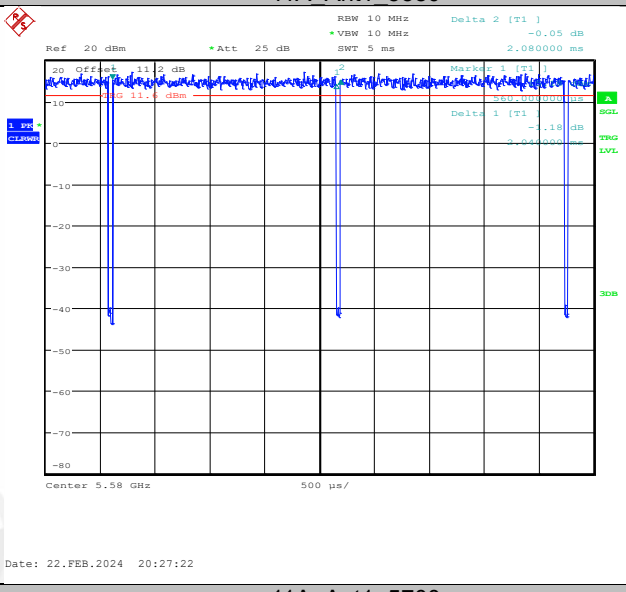

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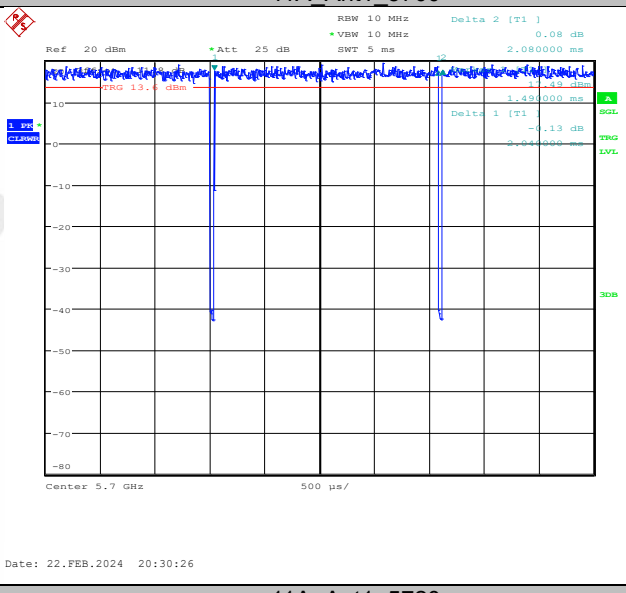

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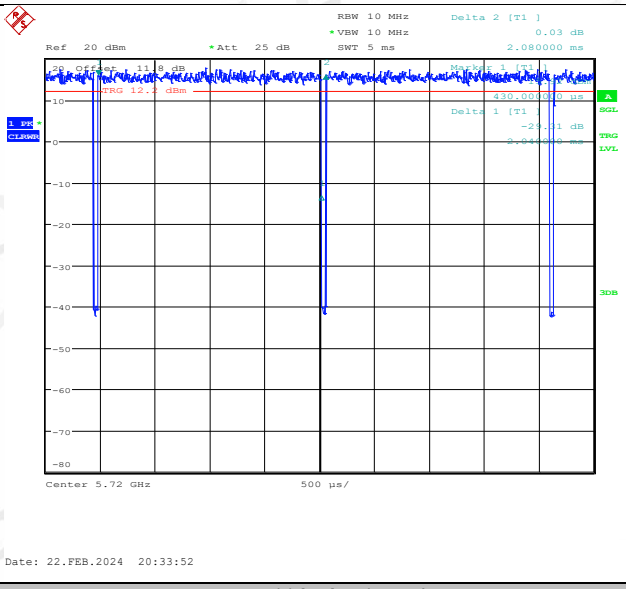

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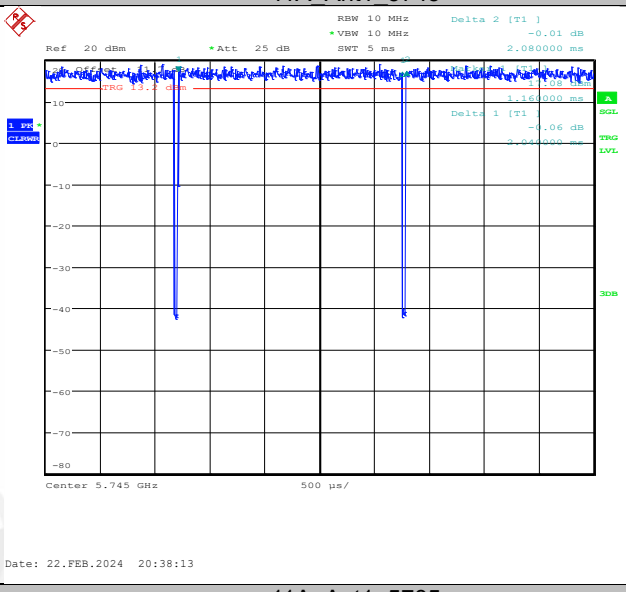

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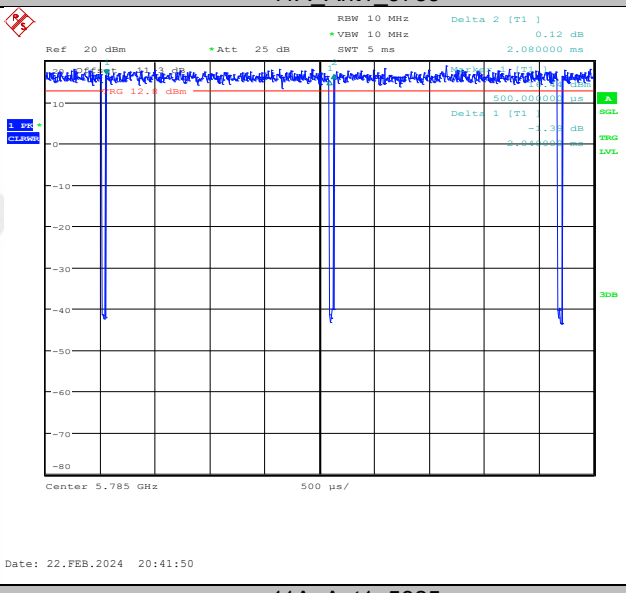

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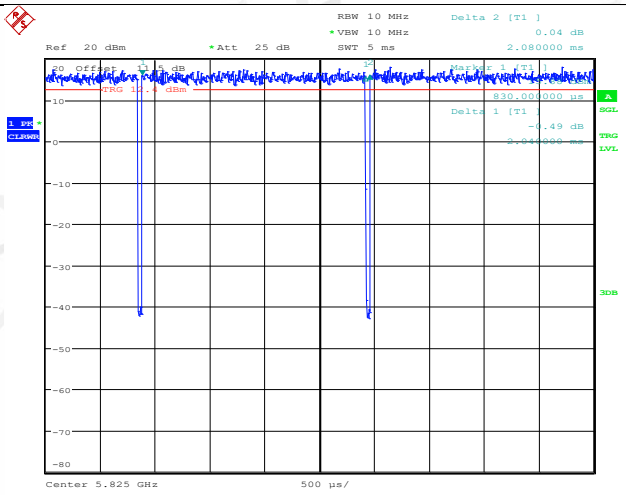

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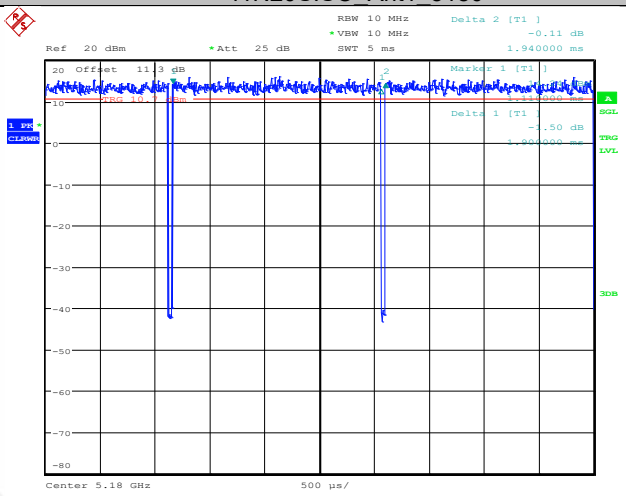

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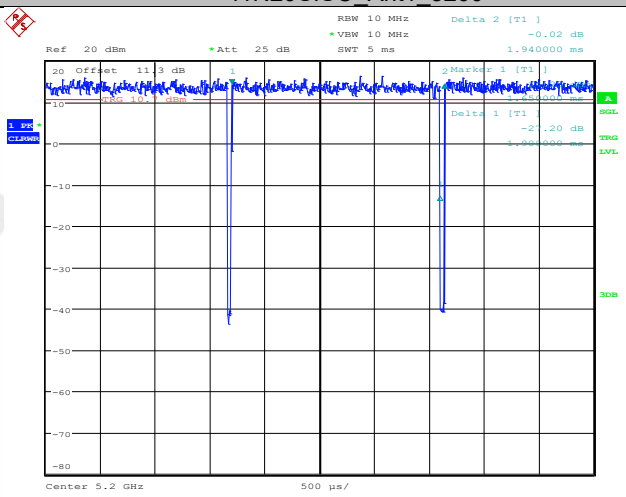

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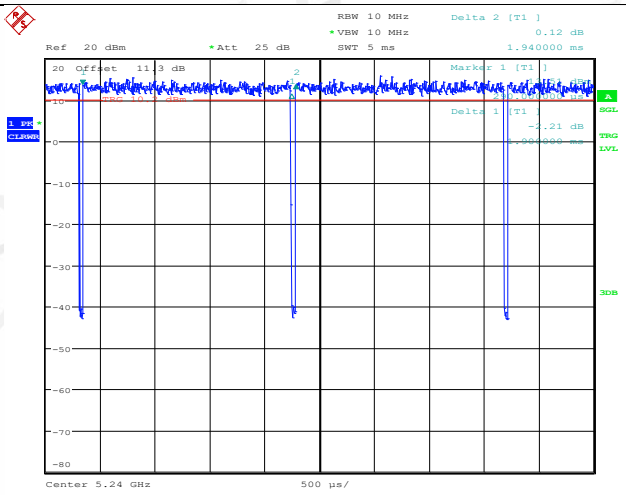

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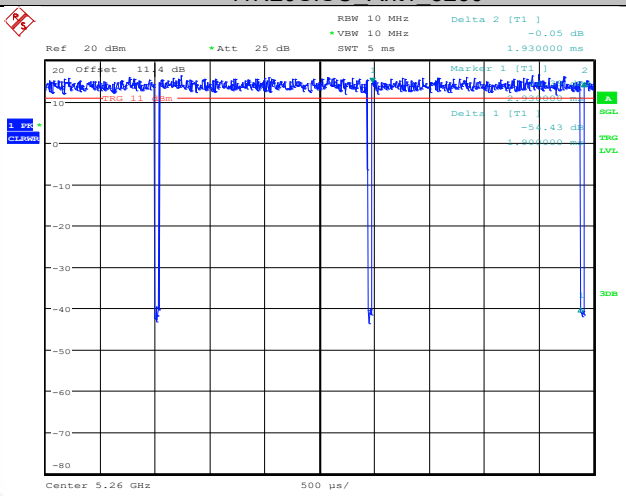

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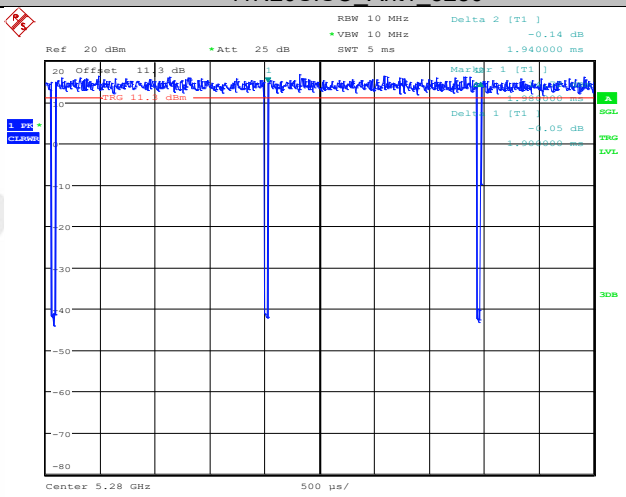

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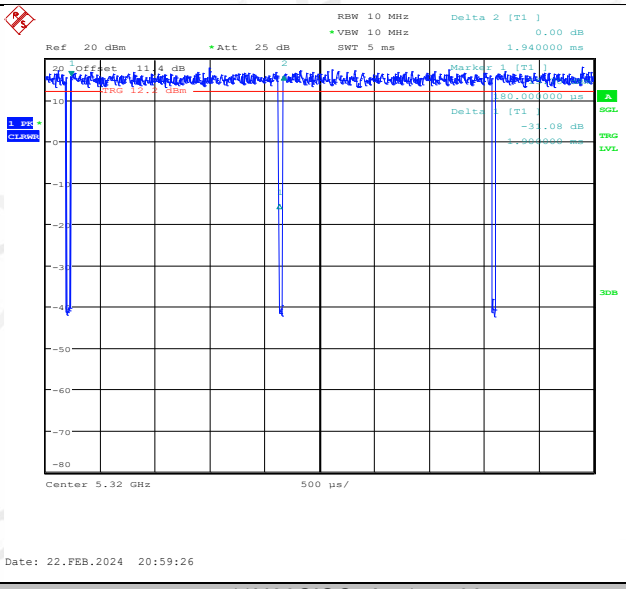

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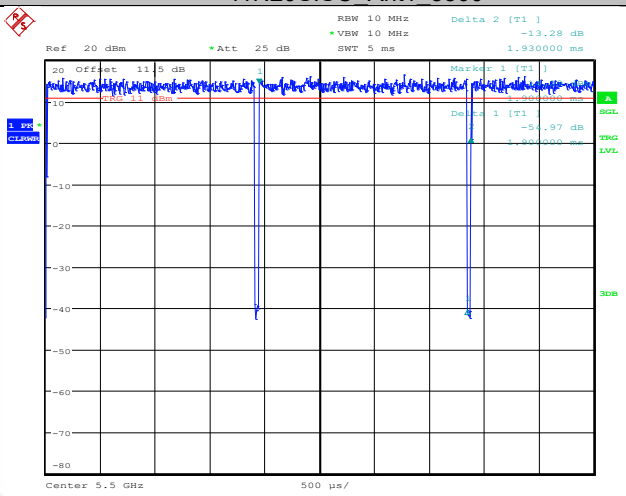

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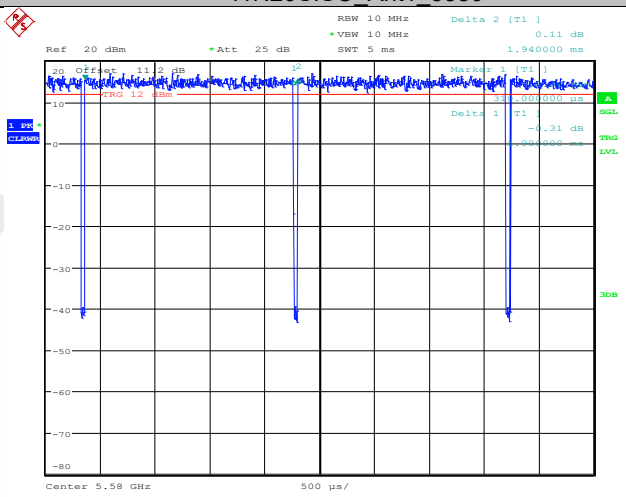

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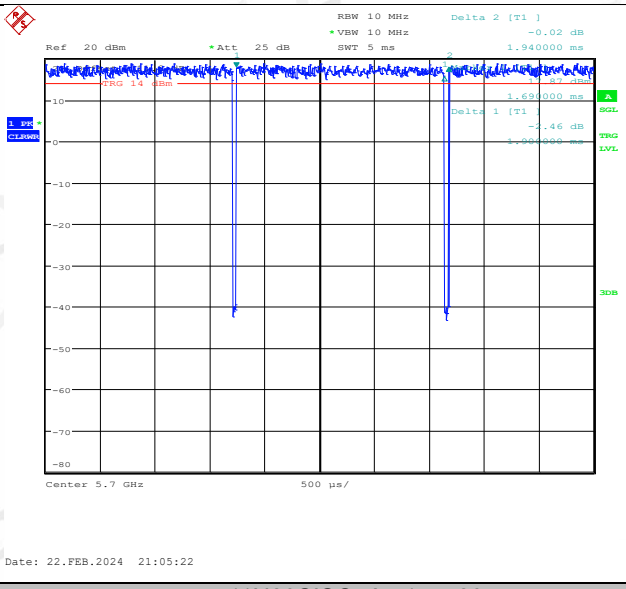

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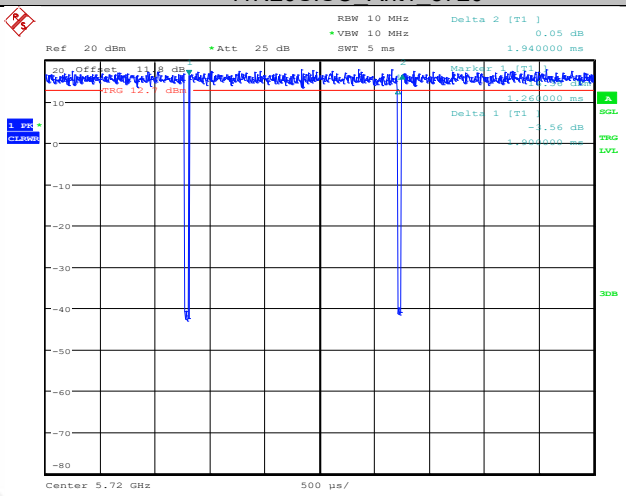

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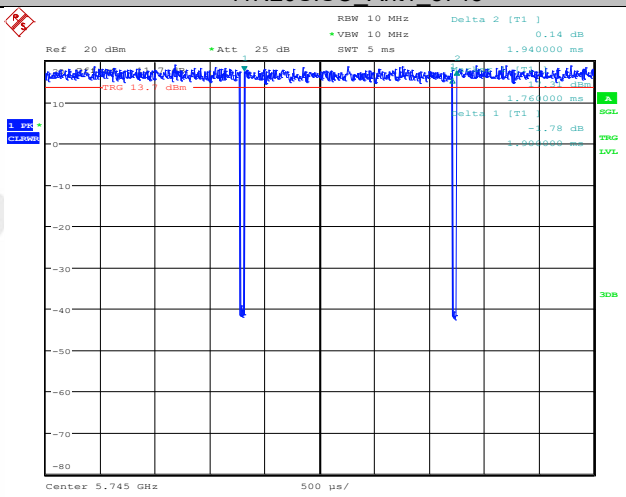

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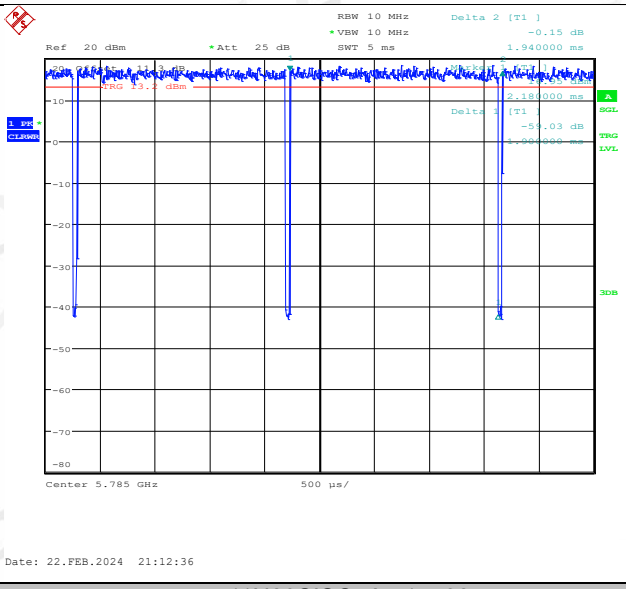

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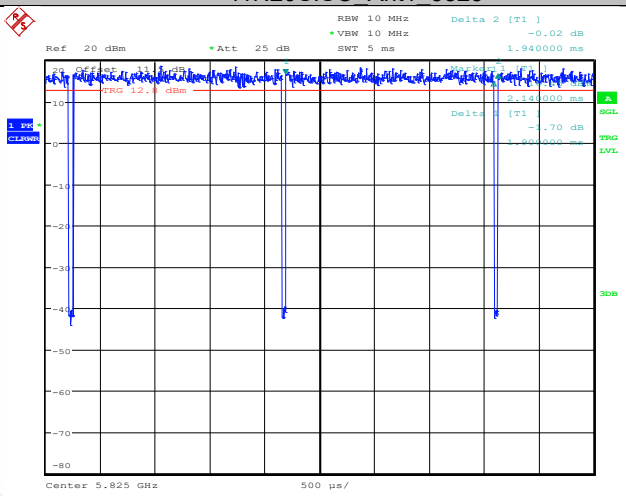

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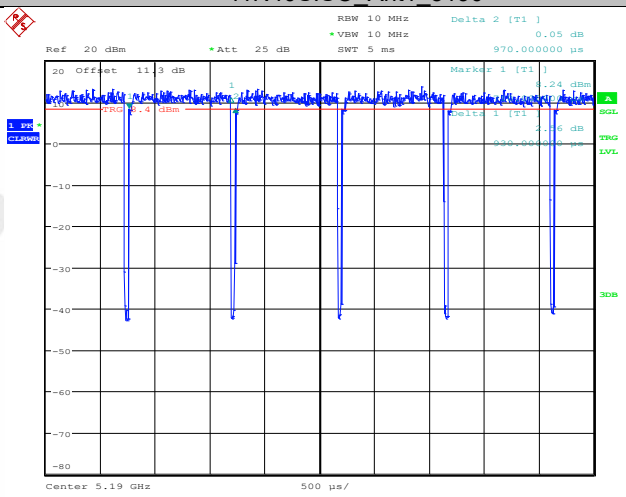

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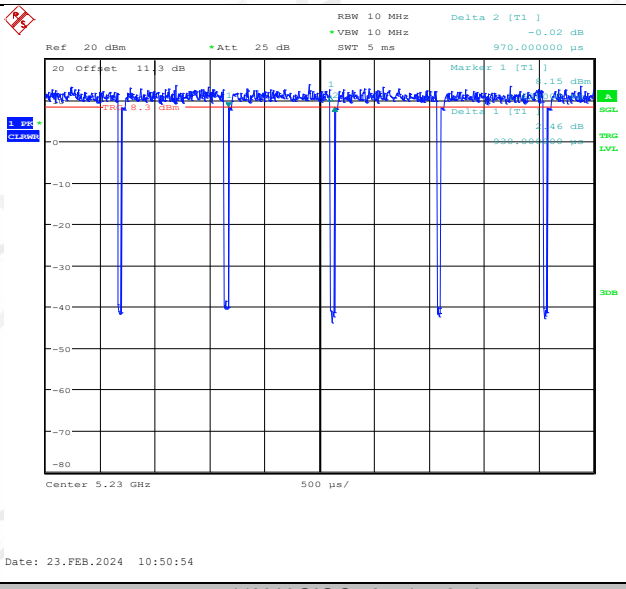

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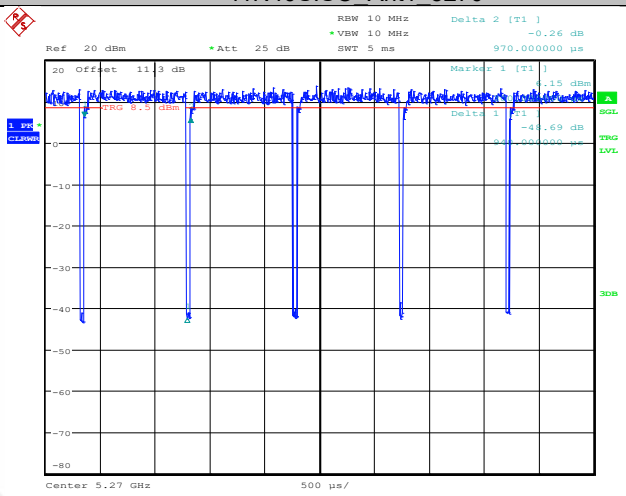

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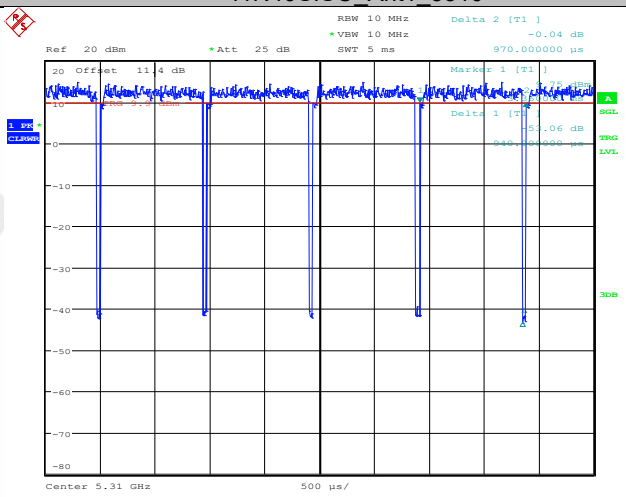

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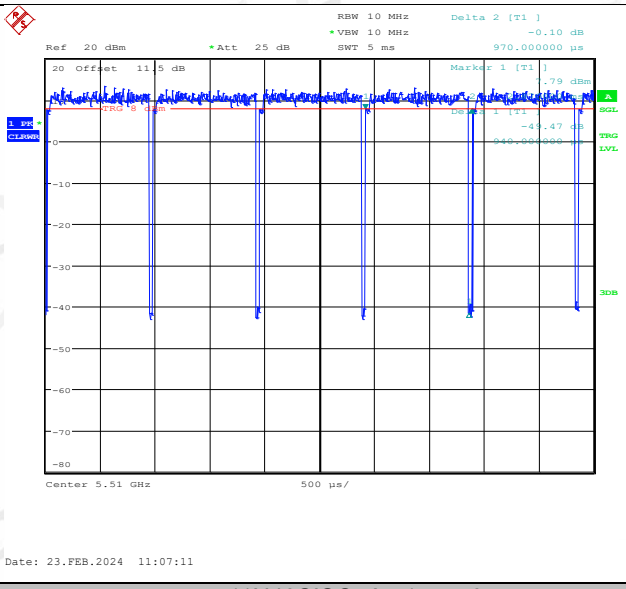

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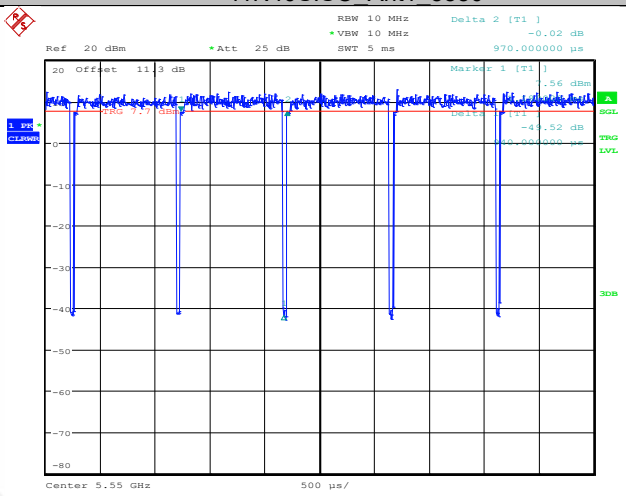

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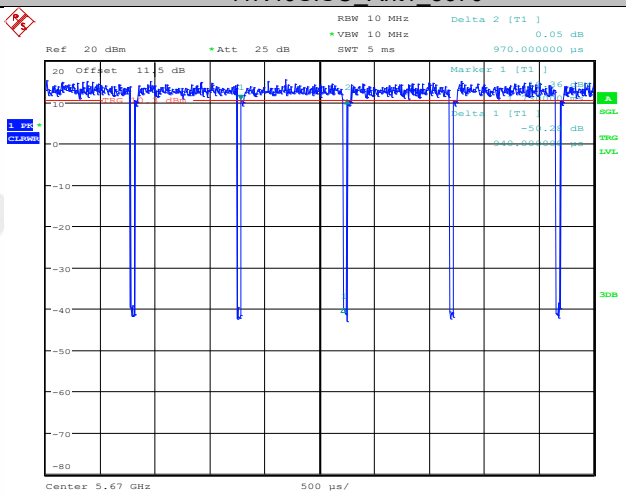

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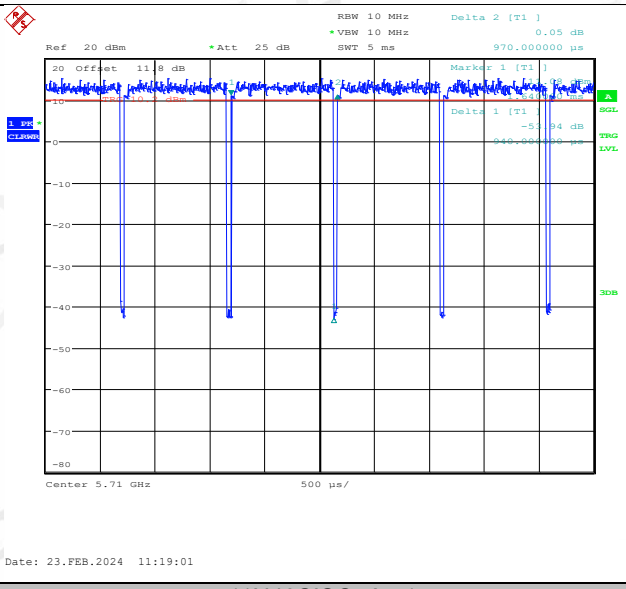

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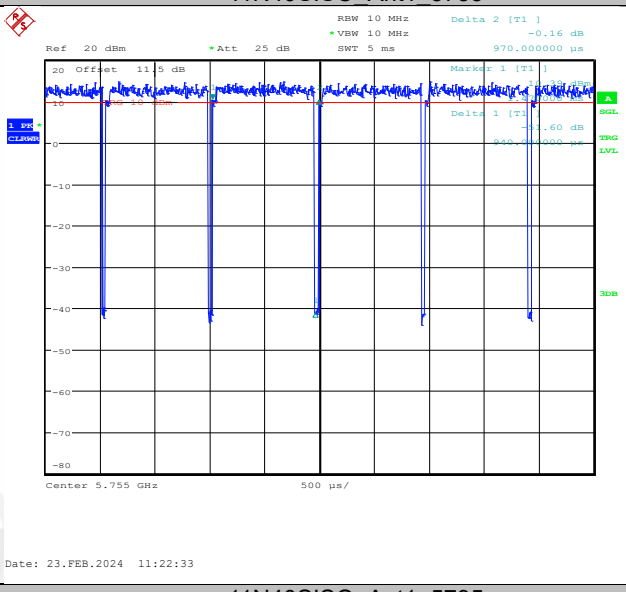

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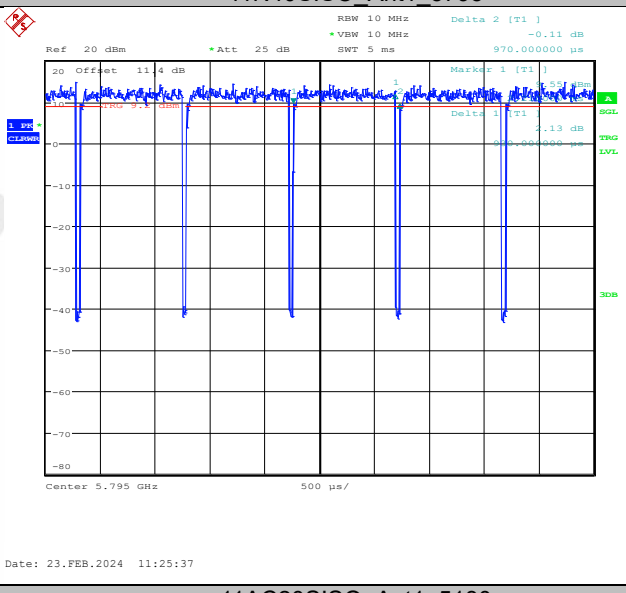

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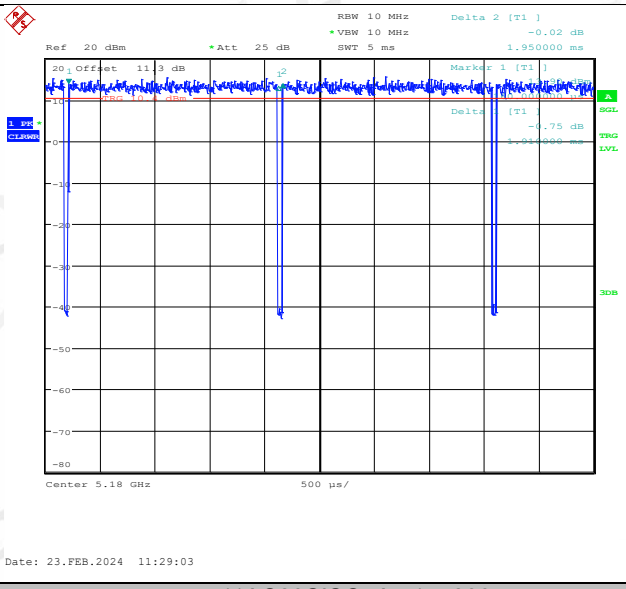

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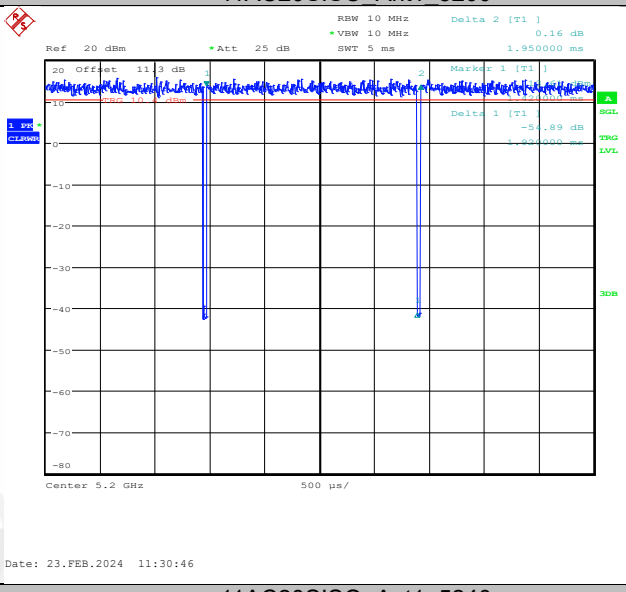

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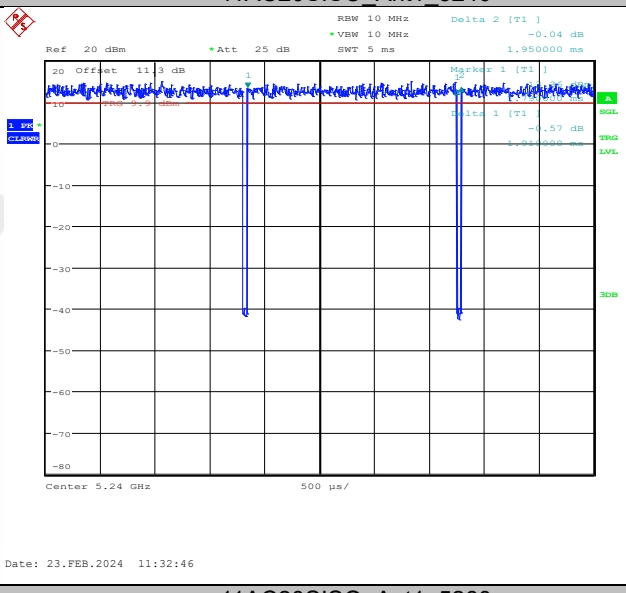

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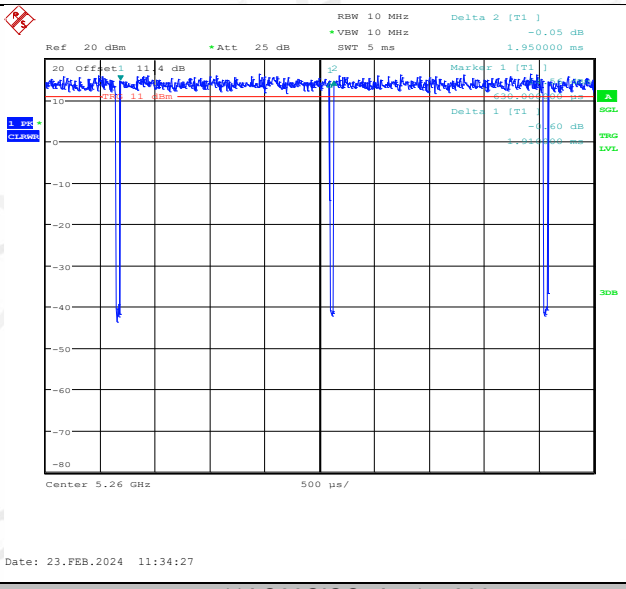

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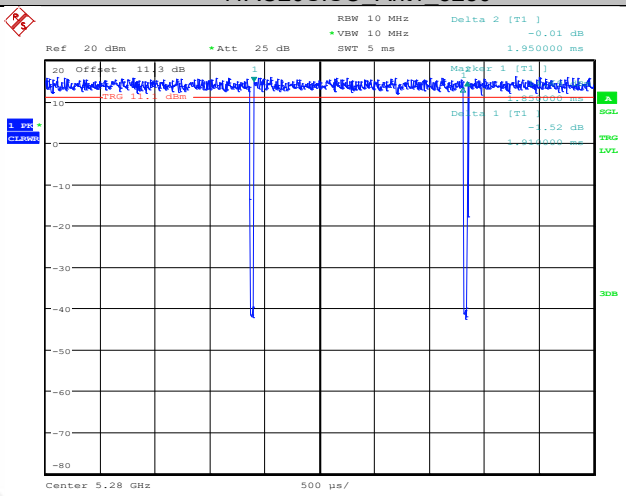

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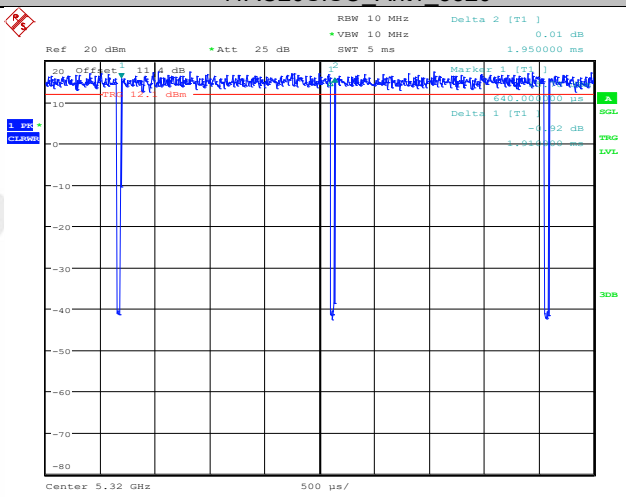

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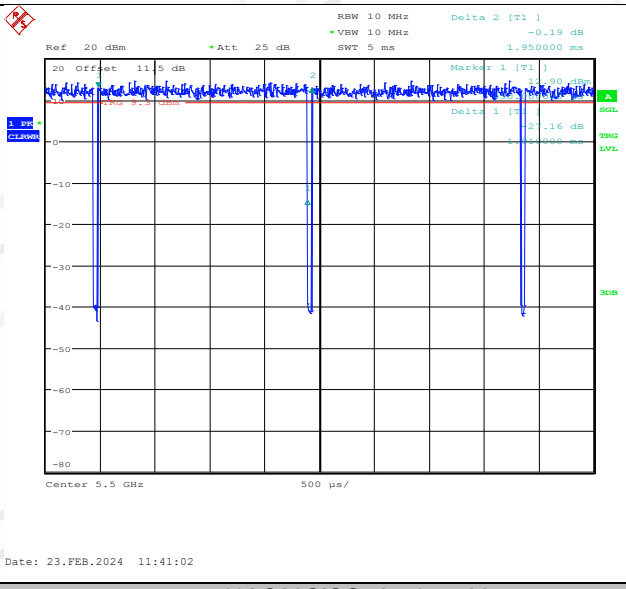

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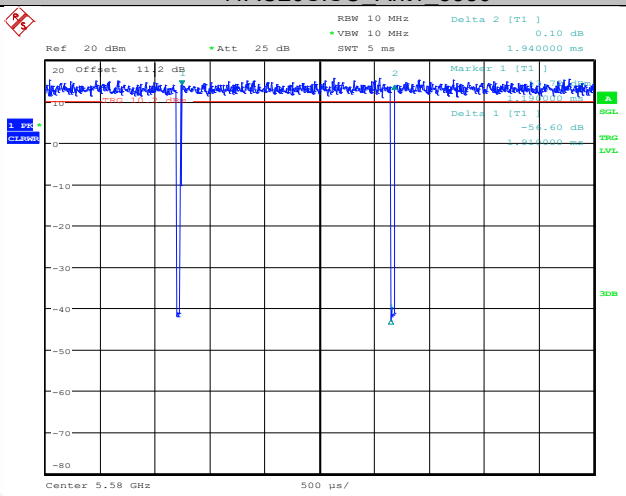

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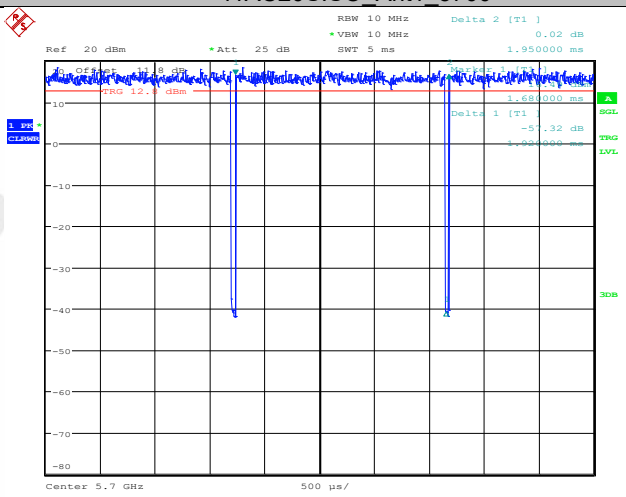
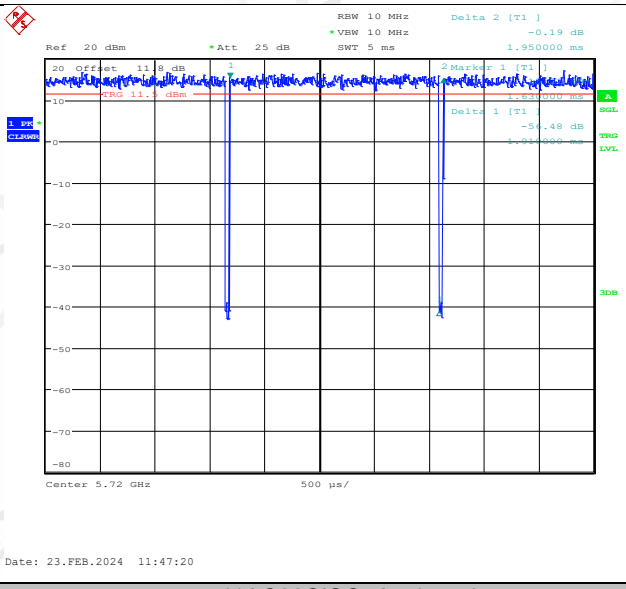
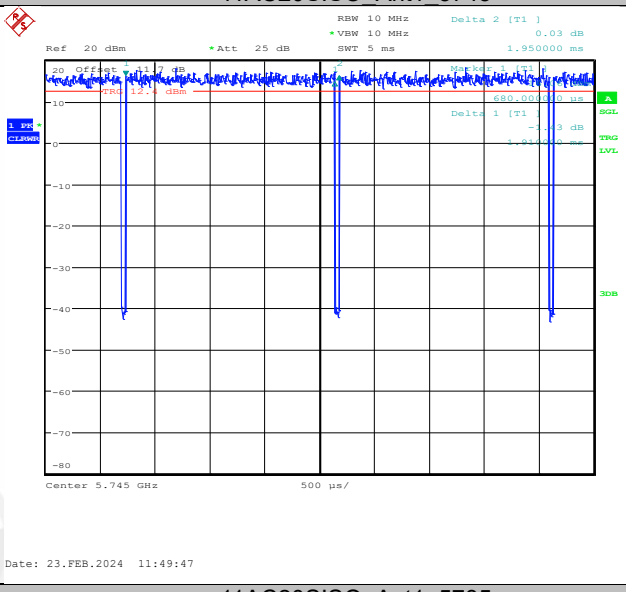


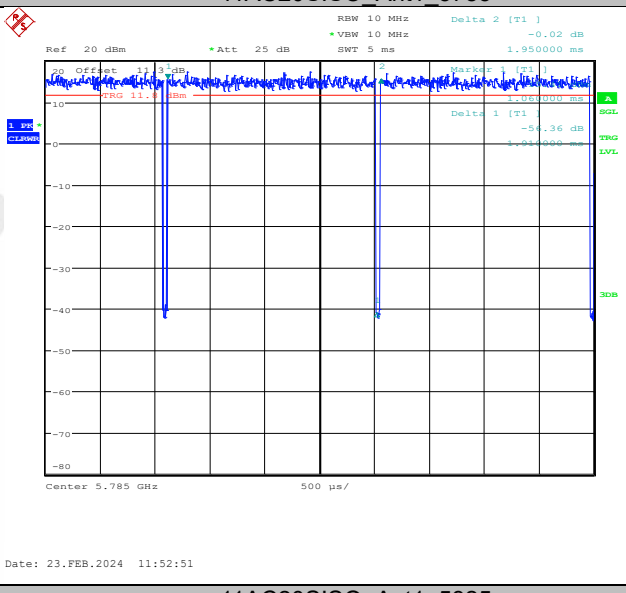
11AC20SISO_Ant1_5720



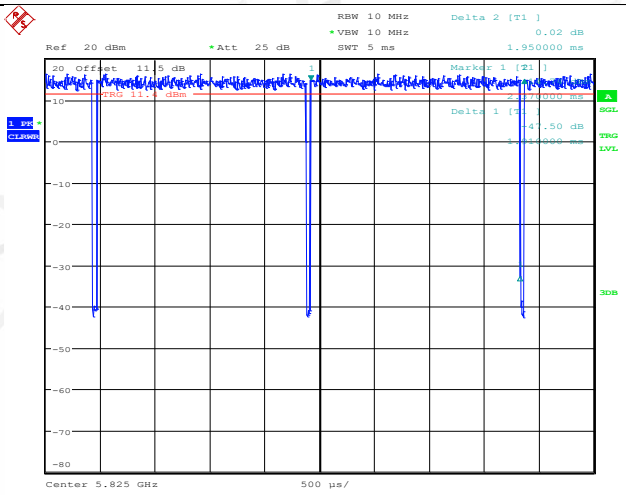
11AC20SISO_Ant1_5745



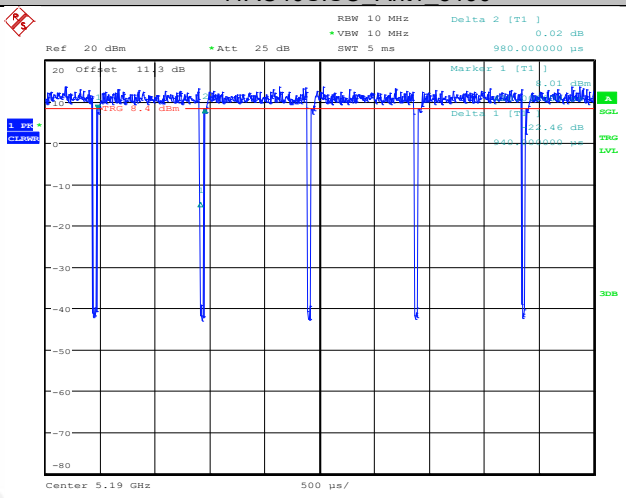
11AC20SISO_Ant1_5785



11AC20SISO_Ant1_5825



11AC40SISO_Ant1_5190



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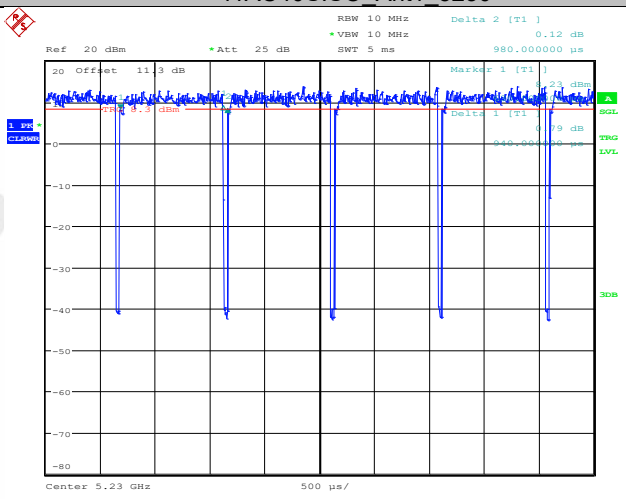

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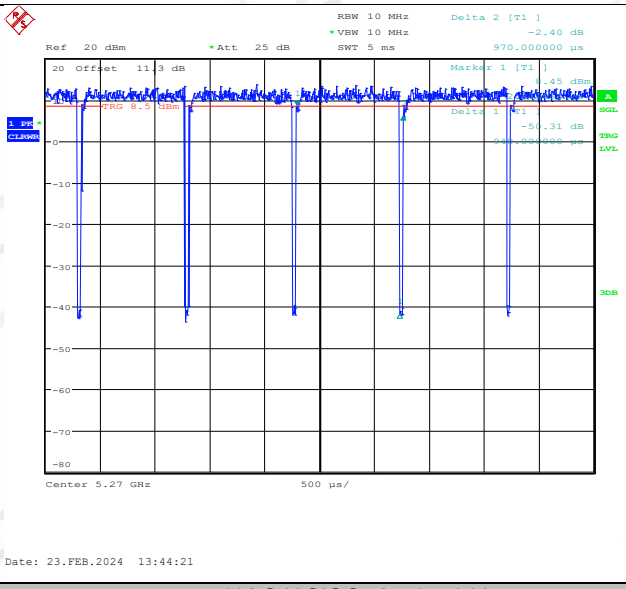

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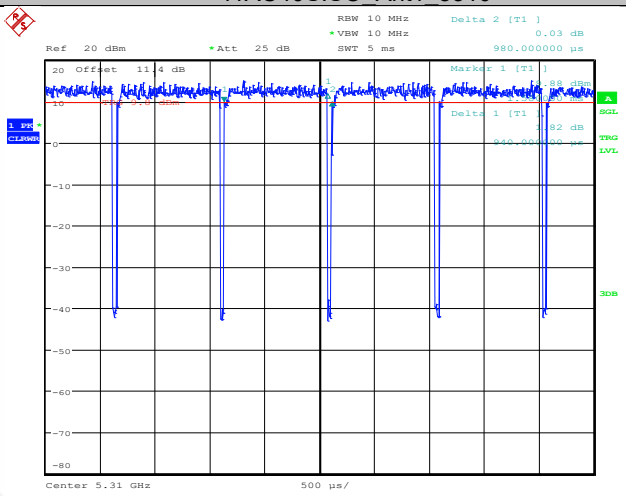
11AC40SISO_Ant1_5310



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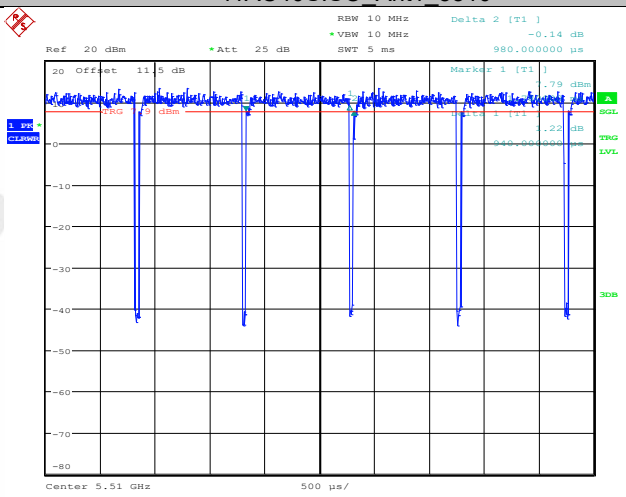
11AC40SISO_Ant1_5510



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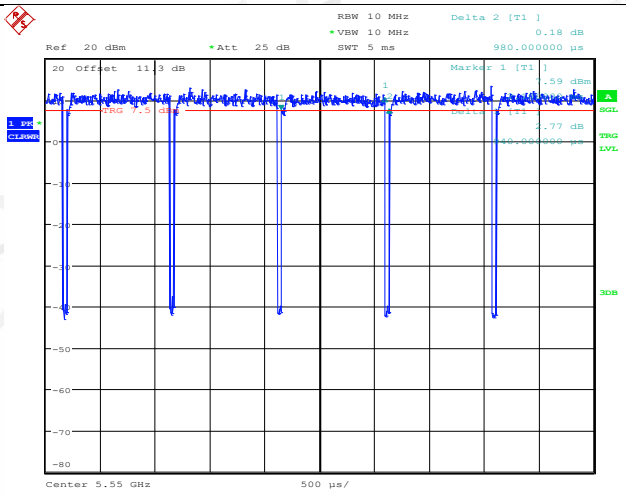

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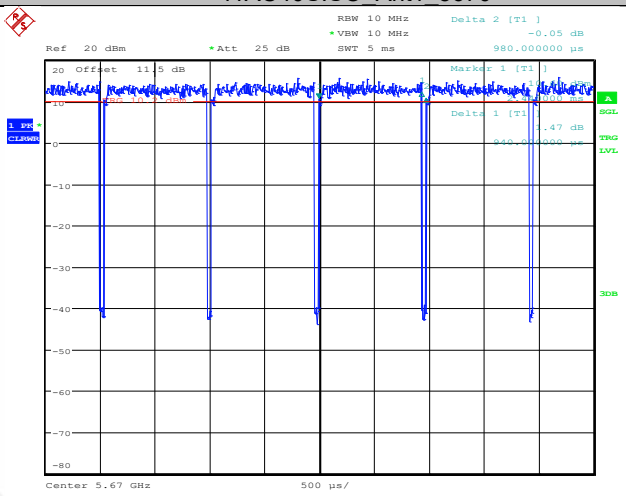

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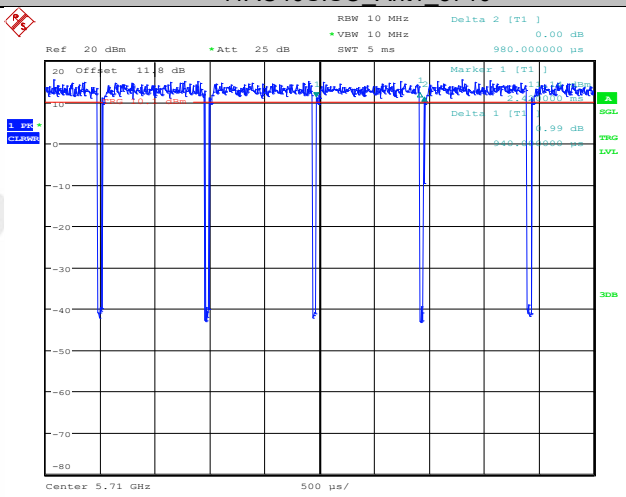

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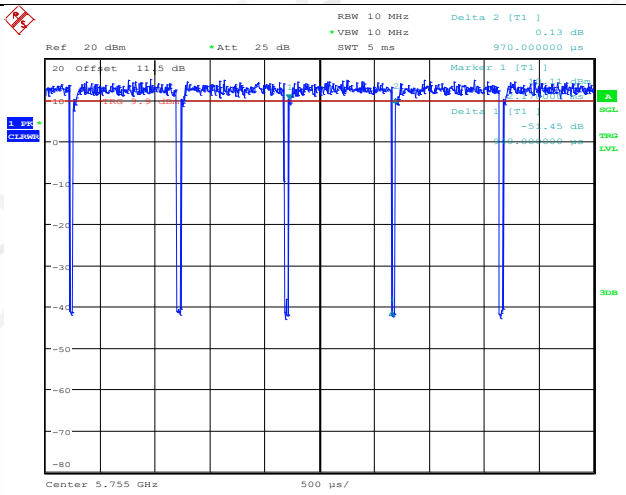

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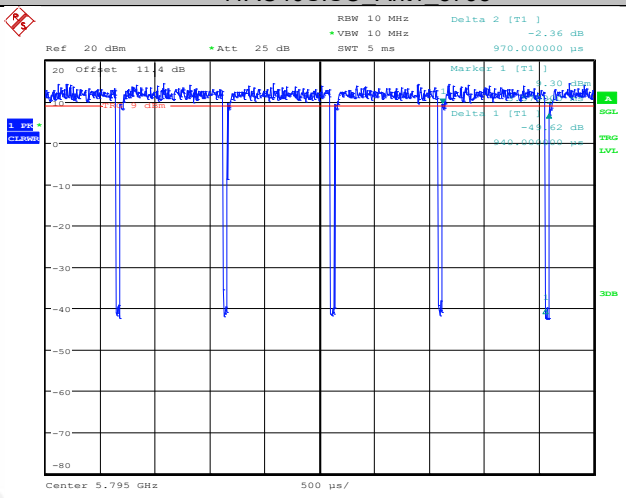

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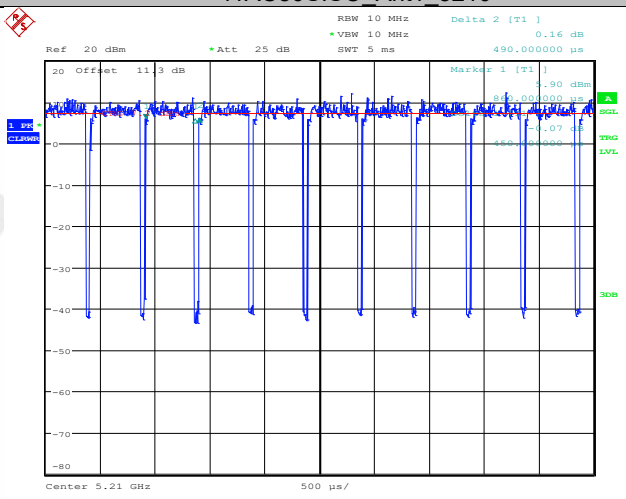
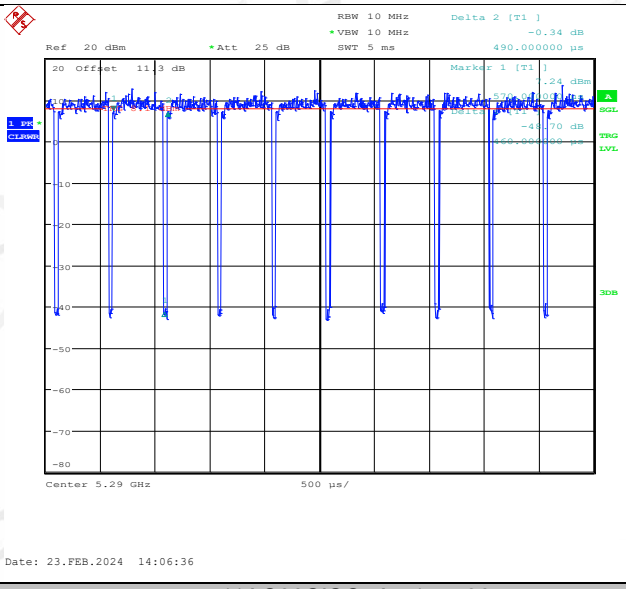


11AC80SISO_Ant1_5290



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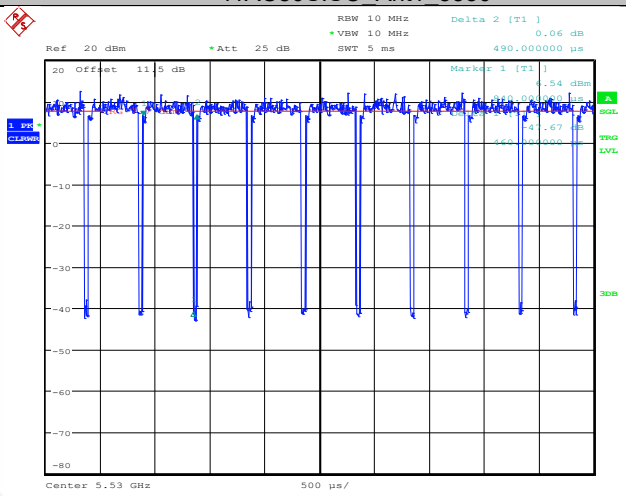

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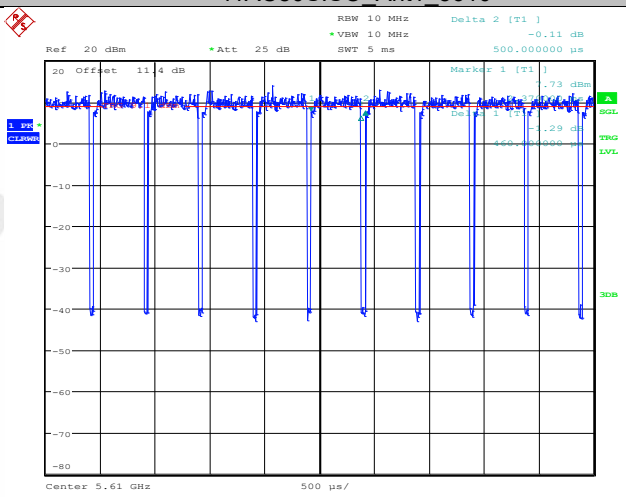

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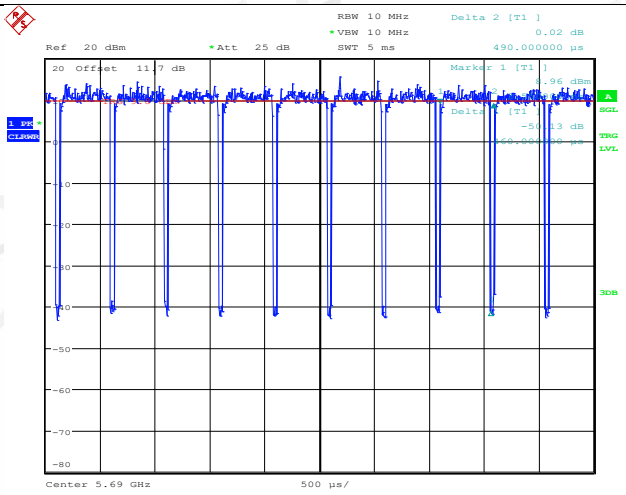

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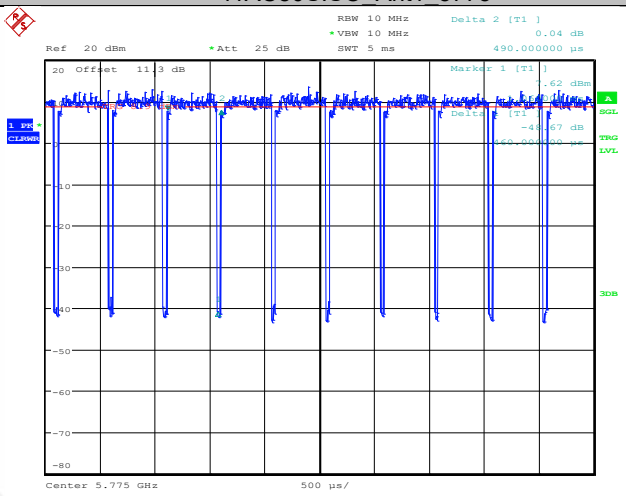
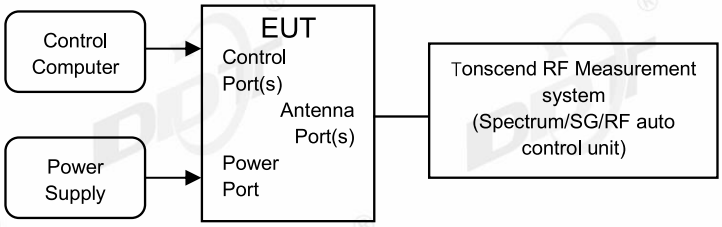
11AC80SISO_Ant1_5775



Date: 23.FEB.2024 14:23:33

8. Maximum Output Power

8.1. Block diagram of test setup



8.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Maximum Output Power	outdoor access point: 1 W(30 dBm) indoor access point: 1 W(30 dBm) fixed point-to-point access points1 W(30 dBm) client devices: 250 mW (24 dBm)	5150-5250
	250 mW (24 dBm) or 11 + 10 $\log_{10}$ B	5250-5350
	250 mW (24 dBm) or 11 + 10 $\log_{10}$ B	FCC:5470 - 5725
	1 Watt (30 dBm)	5725-5850
Note: B=26 bandwidth		

8.3. Test procedure

Connect each EUT's antenna output to power sensor by RF cable and attenuator
Measure the output power of each antenna port by power sensor.

8.4. Test result channel power

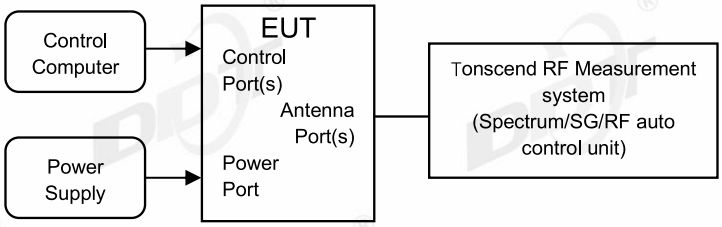
Test Engineer:	Zora Zhang	Test Site:	RF Measurement System 1#
Ambient Condition:	22.3℃,44.8%RH	Test Date:	2024.01.22-2024.03.12
Test Power Supply:	Battery	EUT:	Braille eMotion 40
Sample Number:	S23110312-01	Model No.:	B340T

Test Mode	Antenna	Frequency [MHz]	Duty Cycle [%]	DC Factor [dB]	Result [dBm]	Limit [dBm]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11A	Ant1	5180	98.08	0.08	11.50	≤23.98	8.39	---	PASS
		5200	98.08	0.08	12.66	≤23.98	9.55	---	PASS
		5240	98.56	0.06	12.56	≤23.98	9.45	---	PASS
		5260	98.08	0.08	13.08	≤23.98	12.41	---	PASS
		5280	98.08	0.08	13.48	≤23.98	12.81	---	PASS
		5320	98.08	0.08	14.39	≤23.98	13.72	---	PASS
		5500	98.56	0.06	12.75	≤23.98	16.65	---	PASS
		5580	98.08	0.08	12.07	≤23.98	15.97	---	PASS
		5700	98.08	0.08	10.97	≤23.98	14.87	---	PASS
		5720	98.08	0.08	10.68	≤23.98	14.58	---	PASS
		5745	98.08	0.08	10.20	≤30.00	15.07	---	PASS
		5785	98.08	0.08	9.38	≤30.00	14.25	---	PASS
		5825	98.08	0.08	9.79	≤30.00	14.66	---	PASS
11N20SISO	Ant1	5180	97.94	0.09	11.13	≤23.98	8.02	---	PASS
		5200	97.94	0.09	11.19	≤23.98	8.08	---	PASS
		5240	97.94	0.09	11.40	≤23.98	8.29	---	PASS
		5260	98.45	0.07	11.87	≤23.98	11.20	---	PASS
		5280	97.94	0.09	12.31	≤23.98	11.64	---	PASS
		5320	97.94	0.09	13.42	≤23.98	12.75	---	PASS
		5500	98.45	0.07	11.50	≤23.98	15.40	---	PASS
		5580	97.94	0.09	10.87	≤23.98	14.77	---	PASS
		5700	97.94	0.09	10.05	≤23.98	13.95	---	PASS
		5720	97.94	0.09	9.79	≤23.98	13.69	---	PASS
		5745	97.94	0.09	9.24	≤30.00	14.11	---	PASS
		5785	97.94	0.09	8.37	≤30.00	13.24	---	PASS
		5825	97.94	0.09	8.78	≤30.00	13.65	---	PASS
11N40SISO	Ant1	5190	95.88	0.18	6.79	≤23.98	3.68	---	PASS
		5230	95.88	0.18	6.68	≤23.98	3.57	---	PASS
		5270	96.91	0.14	7.66	≤23.98	6.99	---	PASS
		5310	96.91	0.14	8.83	≤23.98	8.16	---	PASS
		5510	96.91	0.14	7.26	≤23.98	11.16	---	PASS
		5550	96.91	0.14	7.18	≤23.98	11.08	---	PASS
		5670	96.91	0.14	6.76	≤23.98	10.66	---	PASS
		5710	96.91	0.14	6.09	≤23.98	9.99	---	PASS
		5755	96.91	0.14	8.64	≤30.00	13.51	---	PASS
		5795	95.88	0.18	8.19	≤30.00	13.06	---	PASS
11AC20SISO	Ant1	5180	97.95	0.09	10.11	≤23.98	7.00	---	PASS
		5200	98.46	0.07	10.17	≤23.98	7.06	---	PASS
		5240	97.95	0.09	10.47	≤23.98	7.36	---	PASS
		5260	97.95	0.09	10.92	≤23.98	10.25	---	PASS
		5280	97.95	0.09	11.34	≤23.98	10.67	---	PASS
		5320	97.95	0.09	12.46	≤23.98	11.79	---	PASS
		5500	97.95	0.09	10.44	≤23.98	14.34	---	PASS
		5580	98.45	0.07	9.69	≤23.98	13.59	---	PASS
		5700	98.46	0.07	9.14	≤23.98	13.04	---	PASS
		5720	97.95	0.09	8.91	≤23.98	12.81	---	PASS
		5745	97.95	0.09	8.15	≤30.00	13.02	---	PASS
		5785	97.95	0.09	7.32	≤30.00	12.19	---	PASS
		5825	97.95	0.09	7.77	≤30.00	12.64	---	PASS
11AC40SISO	Ant1	5190	95.92	0.18	6.75	≤23.98	3.64	---	PASS
		5230	95.92	0.18	6.65	≤23.98	3.54	---	PASS
		5270	96.91	0.14	7.68	≤23.98	7.01	---	PASS
		5310	95.92	0.18	8.86	≤23.98	8.19	---	PASS

		5510	95.92	0.18	7.30	≤23.98	11.20	---	PASS
		5550	95.92	0.18	7.21	≤23.98	11.11	---	PASS
		5670	95.92	0.18	6.79	≤23.98	10.69	---	PASS
		5710	95.92	0.18	6.13	≤23.98	10.03	---	PASS
		5755	96.91	0.14	8.05	≤30.00	12.92	---	PASS
		5795	96.91	0.14	7.26	≤30.00	12.13	---	PASS
11AC80 SISO	Ant1	5210	91.84	0.37	6.36	≤23.98	3.25	---	PASS
		5290	93.88	0.27	7.94	≤23.98	7.27	---	PASS
		5530	93.88	0.27	7.26	≤23.98	11.16	---	PASS
		5610	92.00	0.36	6.68	≤23.98	10.58	---	PASS
		5690	93.88	0.27	6.36	≤23.98	10.26	---	PASS
		5775	93.88	0.27	6.59	≤30.00	11.46	---	PASS

9. Power Spectral Density

9.1. Block diagram of test setup



9.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	Other than Mobile and portable:17 dBm/MHz Mobile and portable client devices:11 dBm/MHz	5150-5250
	11 dBm/MHz	5250-5350
	11 dBm/MHz	For FCC: 5470 - 5725 For ISED: 5470 - 5600 5650 - 5725
	30 dBm/500 kHz	5725-5850

9.3. Test procedure

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW.
Connect the UUT to the spectrum analyser and use the following settings:
5150 MHz~5250 MHz, 5250 MHz~5350 MHz, 5470 MHz~5725 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

5725 MHz-5850 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500 kHz

VBW	≥3 × RBW
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

9.4. Test result

Test Engineer:	Zora Zhang	Test Site:	RF Measurement System 1#
Ambient Condition:	22.3℃,44.8%RH	Test Date:	2024.01.22-2024.03.12
Test Power Supply:	Battery	EUT:	Braille eMotion 40
Sample Number:	S23110312-01	Model No.:	B340T

Test Mode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	0.41	≤11.00	PASS
		5200	1.70	≤11.00	PASS
		5240	1.65	≤11.00	PASS
		5260	2.30	≤11.00	PASS
		5280	2.70	≤11.00	PASS
		5320	3.60	≤11.00	PASS
		5500	1.98	≤11.00	PASS
		5580	1.04	≤11.00	PASS
		5700	0.08	≤11.00	PASS
		5720_UNII-2C	-0.40	≤11.00	PASS
		5720_UNII-3	-5.01	≤30.00	PASS
		5745	-3.29	≤30.00	PASS
		5785	-4.07	≤30.00	PASS
		5825	-3.86	≤30.00	PASS
11N20SISO	Ant1	5180	0.06	≤11.00	PASS
		5200	0.20	≤11.00	PASS
		5240	0.31	≤11.00	PASS
		5260	0.83	≤11.00	PASS
		5280	1.37	≤11.00	PASS
		5320	2.43	≤11.00	PASS
		5500	0.47	≤11.00	PASS
		5580	-0.47	≤11.00	PASS
		5700	-1.23	≤11.00	PASS
		5720_UNII-2C	-1.63	≤11.00	PASS
		5720_UNII-3	-6.01	≤30.00	PASS
		5745	-4.49	≤30.00	PASS
		5785	-5.17	≤30.00	PASS
		5825	-5.14	≤30.00	PASS
11N40SISO	Ant1	5190	-6.83	≤11.00	PASS
		5230	-6.97	≤11.00	PASS
		5270	-5.86	≤11.00	PASS
		5310	-4.74	≤11.00	PASS
		5510	-6.39	≤11.00	PASS
		5550	-6.32	≤11.00	PASS
		5670	-7.20	≤11.00	PASS
		5710_UNII-2C	-7.57	≤11.00	PASS
		5710_UNII-3	-14.13	≤30.00	PASS
		5755	-7.80	≤30.00	PASS
		5795	-8.02	≤30.00	PASS
11AC20SISO	Ant1	5180	-0.89	≤11.00	PASS
		5200	-0.86	≤11.00	PASS
		5240	-0.62	≤11.00	PASS
		5260	-0.15	≤11.00	PASS
		5280	0.27	≤11.00	PASS
		5320	1.31	≤11.00	PASS
		5500	-0.62	≤11.00	PASS
		5580	-1.38	≤11.00	PASS
		5700	-2.13	≤11.00	PASS
		5720_UNII-2C	-2.47	≤11.00	PASS
		5720_UNII-3	-6.85	≤30.00	PASS
		5745	-5.39	≤30.00	PASS
		5785	-6.29	≤30.00	PASS
		5825	-6.18	≤30.00	PASS
11AC40SISO	Ant1	5190	-6.92	≤11.00	PASS

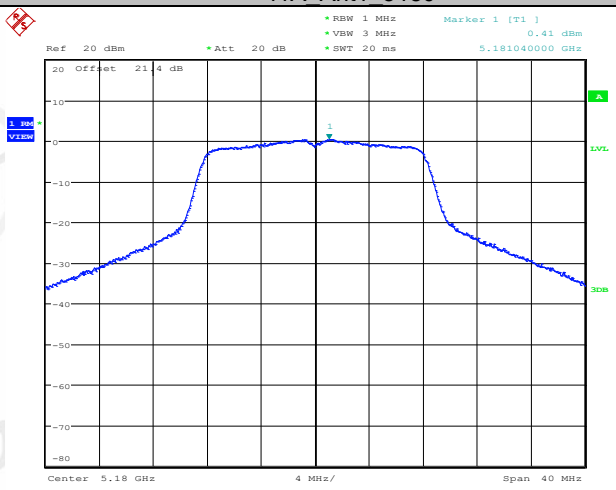
		5230	-7.03	≤11.00	PASS
		5270	-5.97	≤11.00	PASS
		5310	-4.72	≤11.00	PASS
		5510	-6.54	≤11.00	PASS
		5550	-6.20	≤11.00	PASS
		5670	-7.27	≤11.00	PASS
		5710_UNII-2C	-7.58	≤11.00	PASS
		5710_UNII-3	-14.15	≤30.00	PASS
		5755	-8.31	≤30.00	PASS
		5795	-8.79	≤30.00	PASS
11AC80SISO	Ant1	5210	-9.50	≤11.00	PASS
		5290	-7.78	≤11.00	PASS
		5530	-8.55	≤11.00	PASS
		5610	-9.50	≤11.00	PASS
		5690_UNII-2C	-9.77	≤11.00	PASS
		5690_UNII-3	-19.16	≤30.00	PASS
		5775	-12.33	≤30.00	PASS

Note：1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

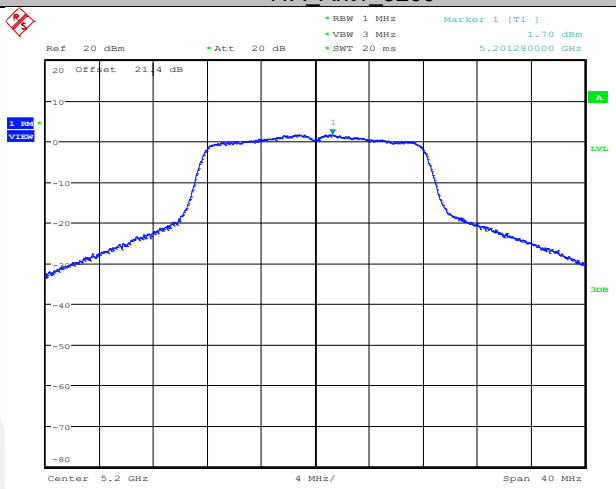
2.The Duty Cycle Factor is compensated in the graph.

9.5. Test graphs

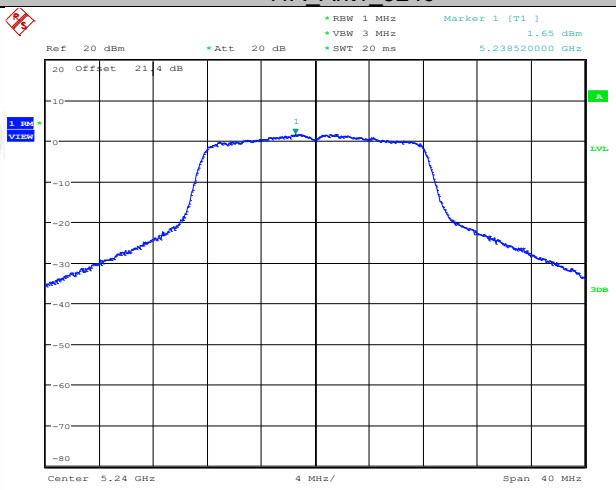
11A_Ant1_5180



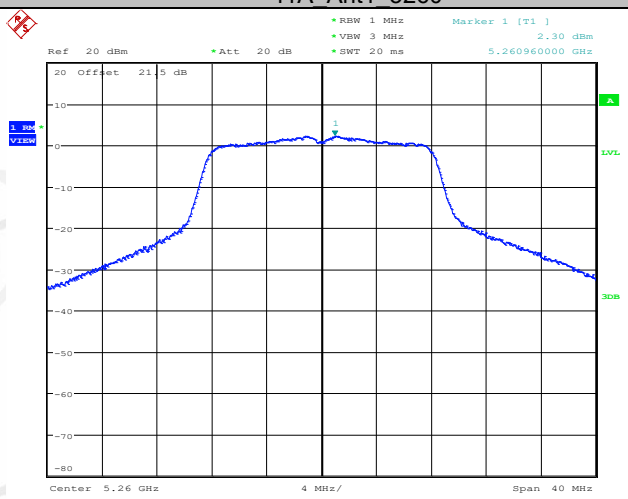
11A_Ant1_5200



11A_Ant1_5240



11A_Ant1_5260



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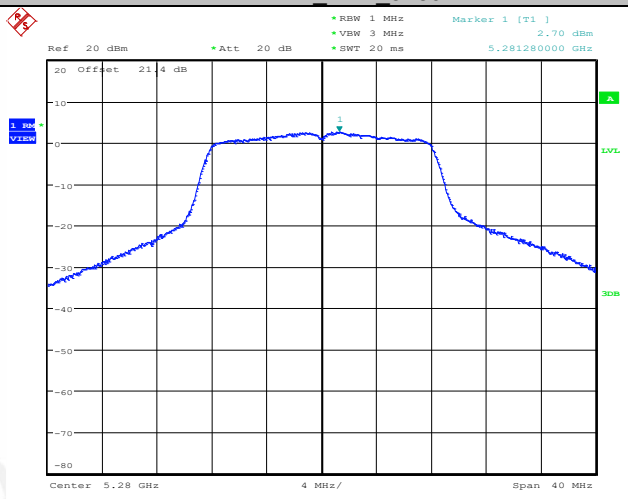
11A_Ant1_5280



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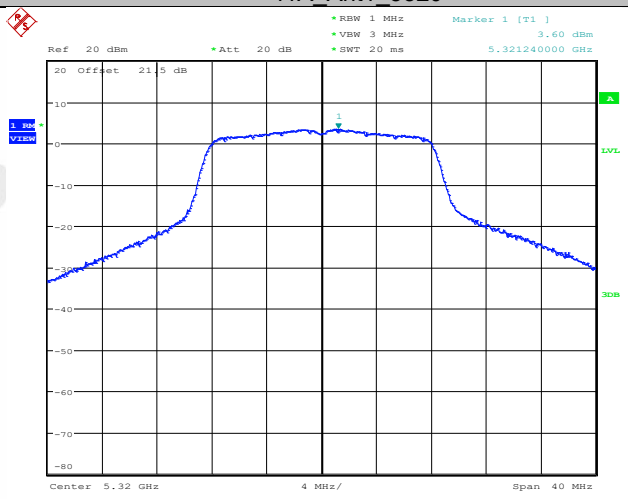

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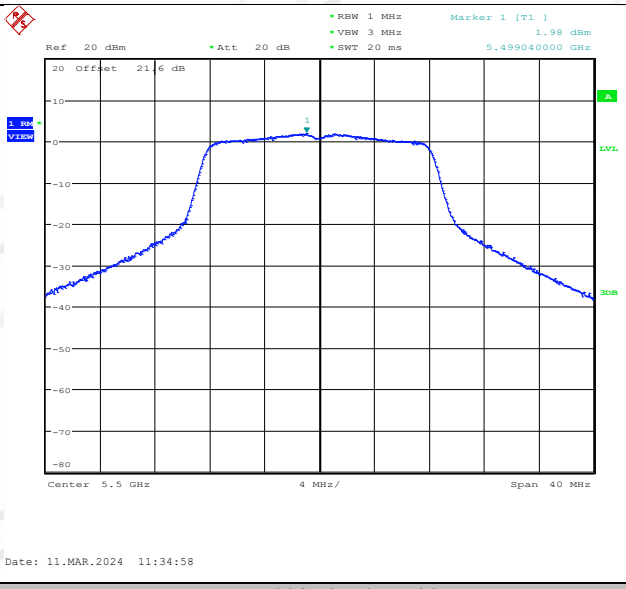
11A_Ant1_5500



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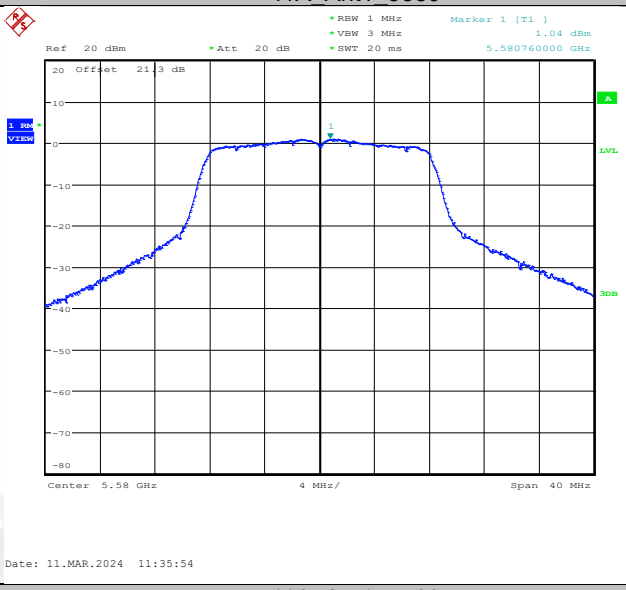
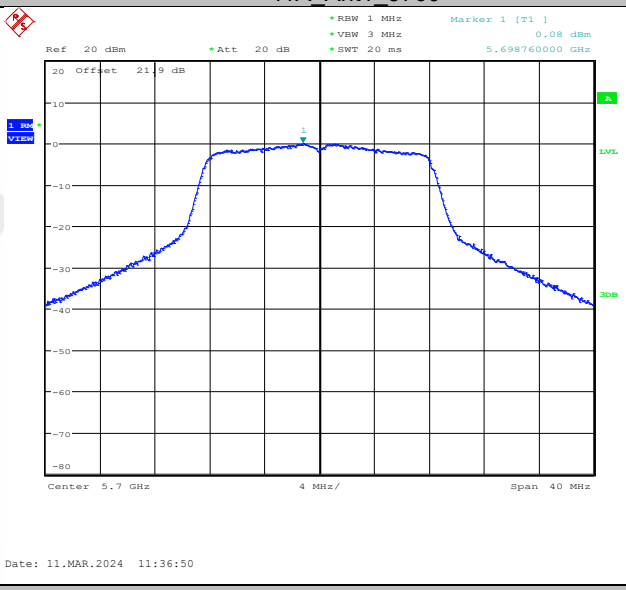
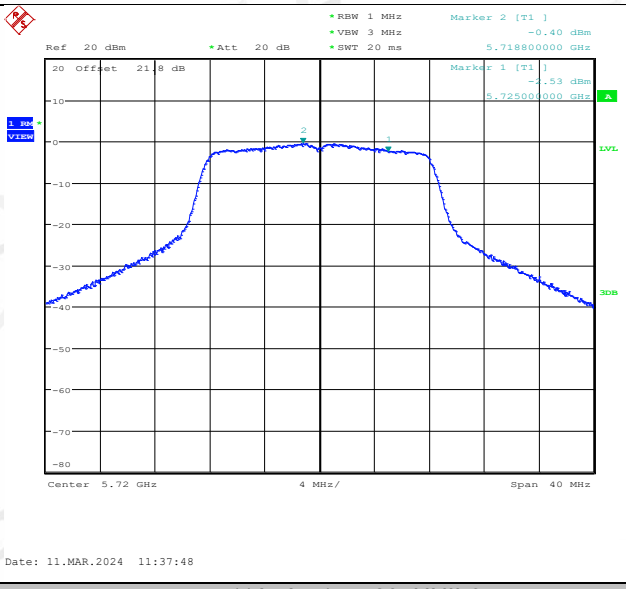


11A_Ant1_5700



11A_Ant1_5720_UNII-2C



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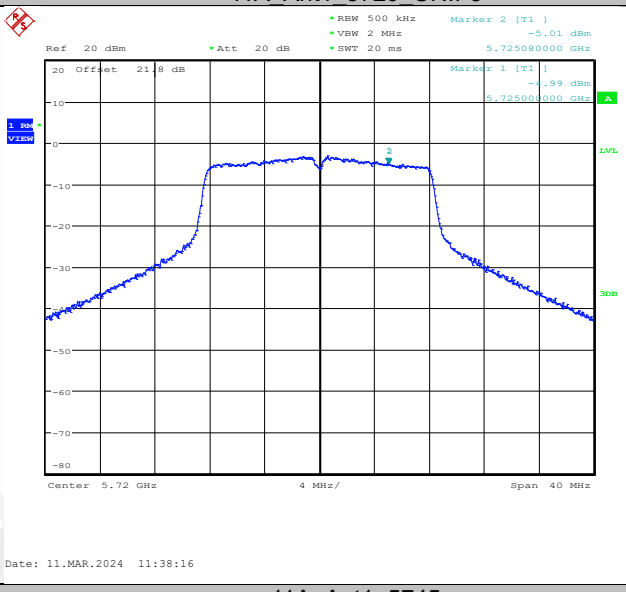

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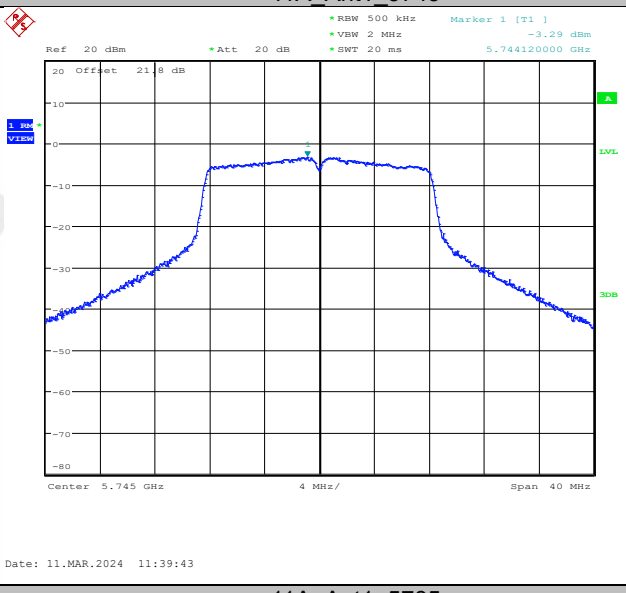

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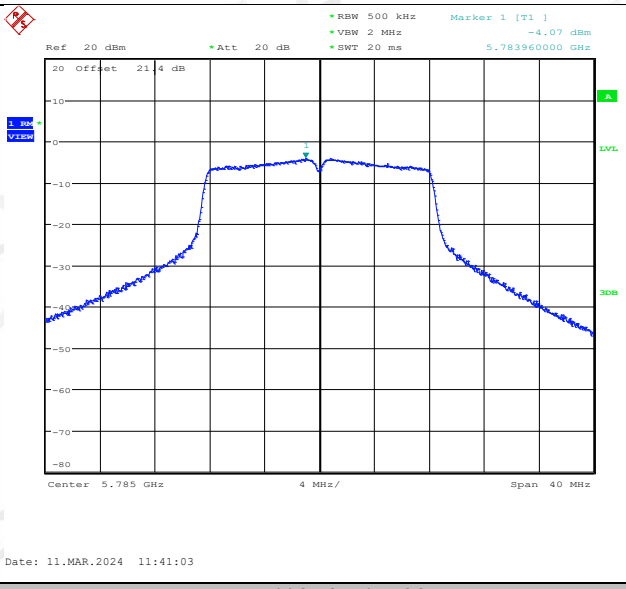

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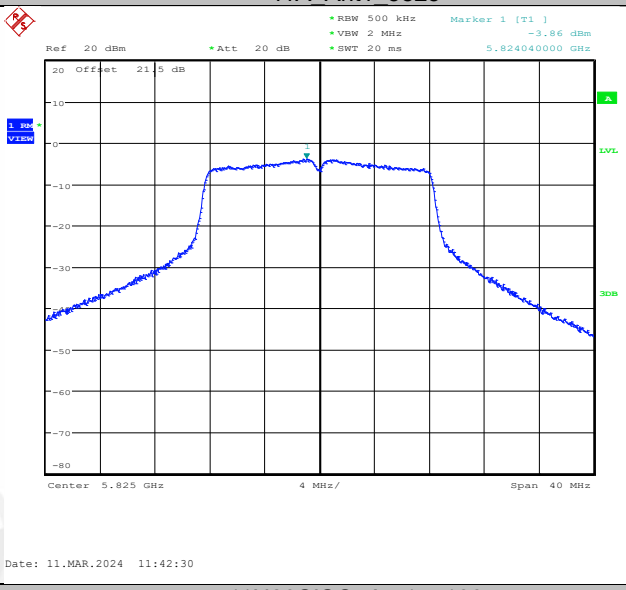

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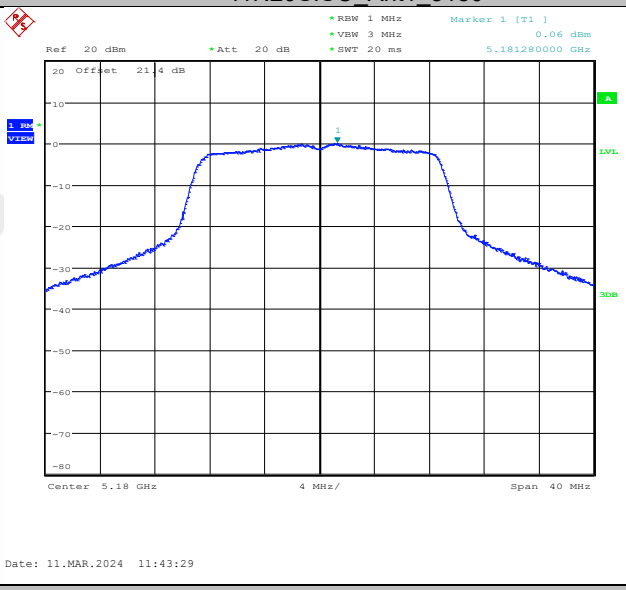

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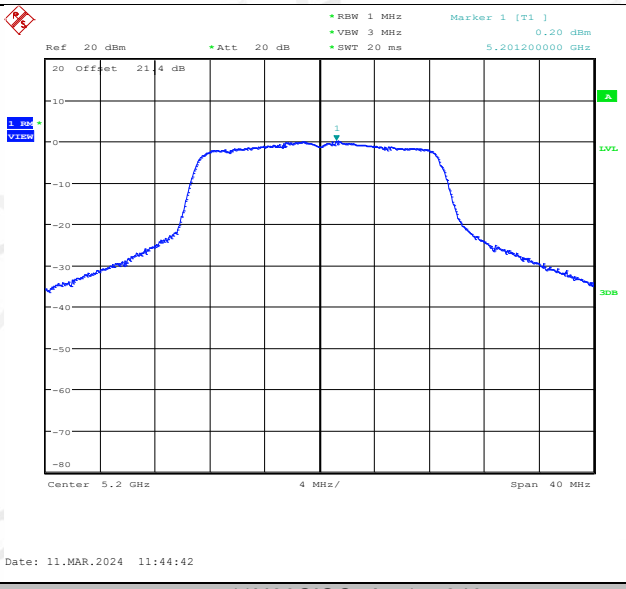

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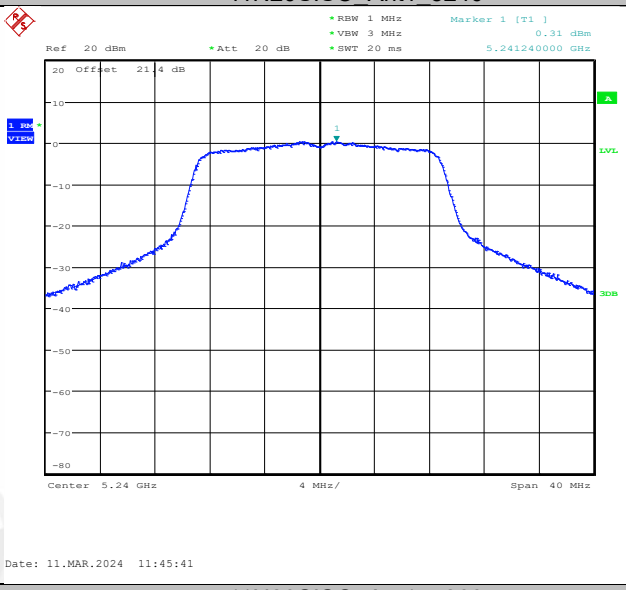

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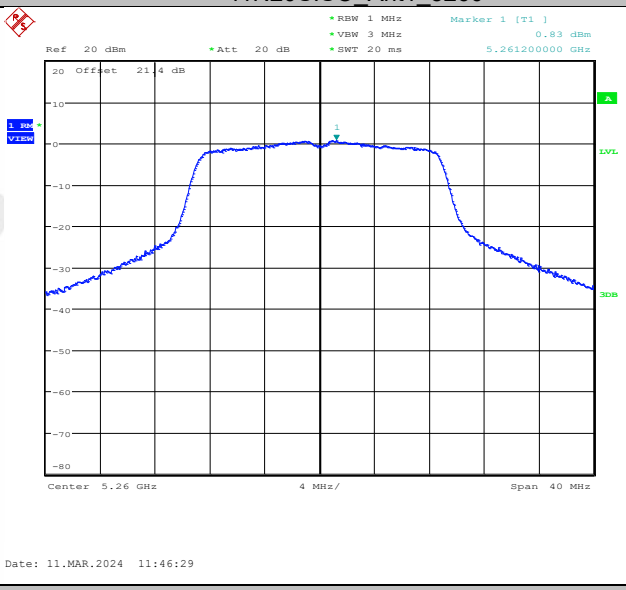

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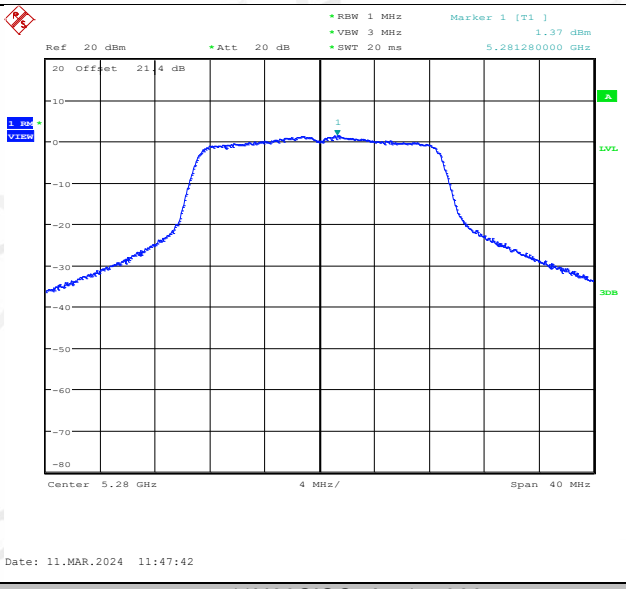

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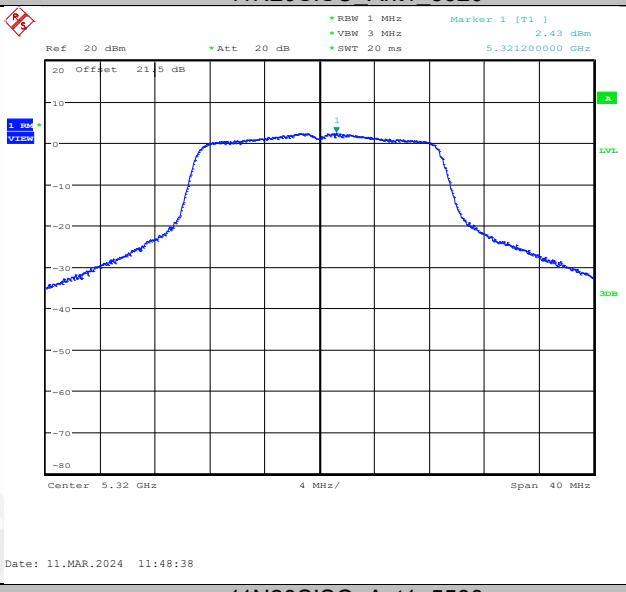

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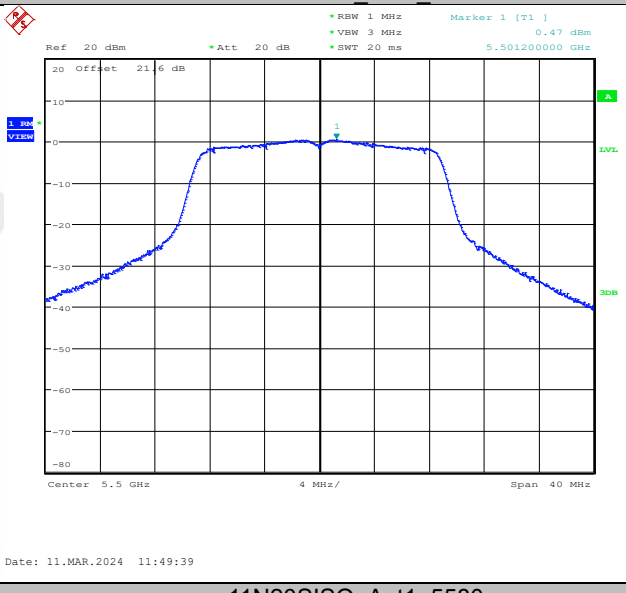

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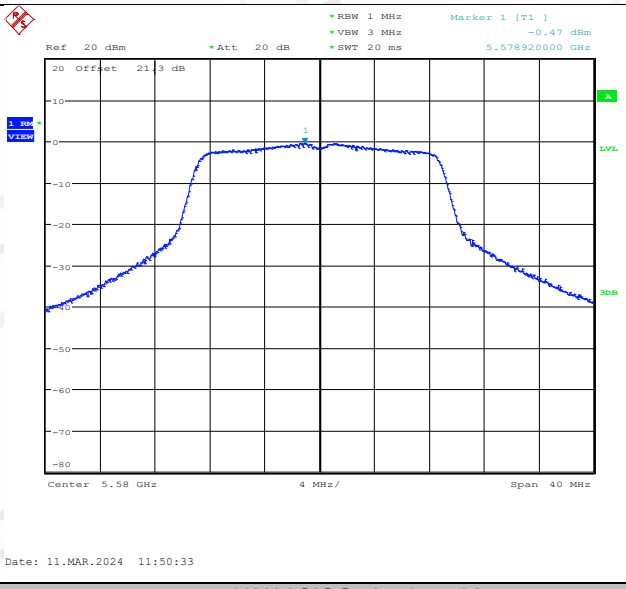

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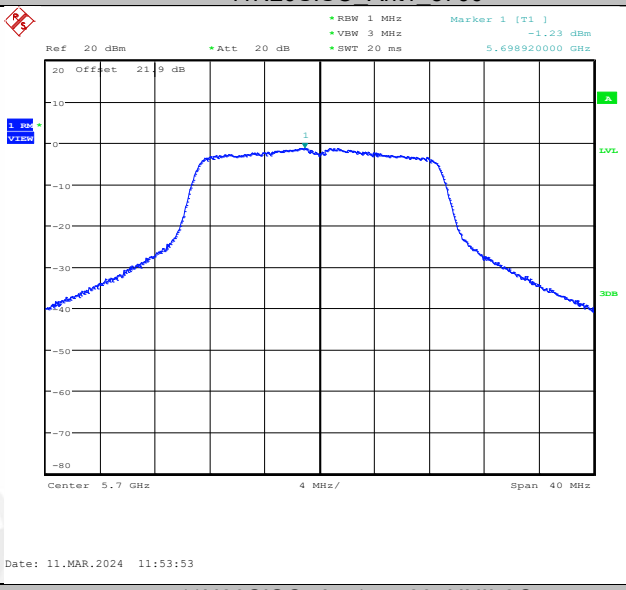
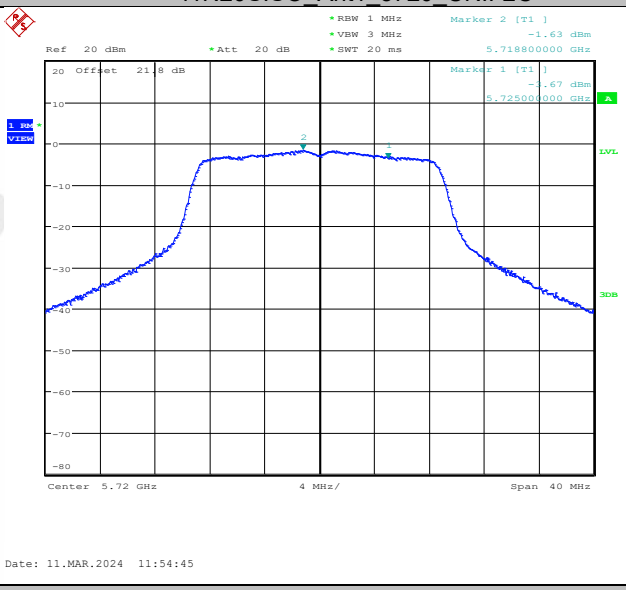


11N20SISO_Ant1_5720_UNII-2C



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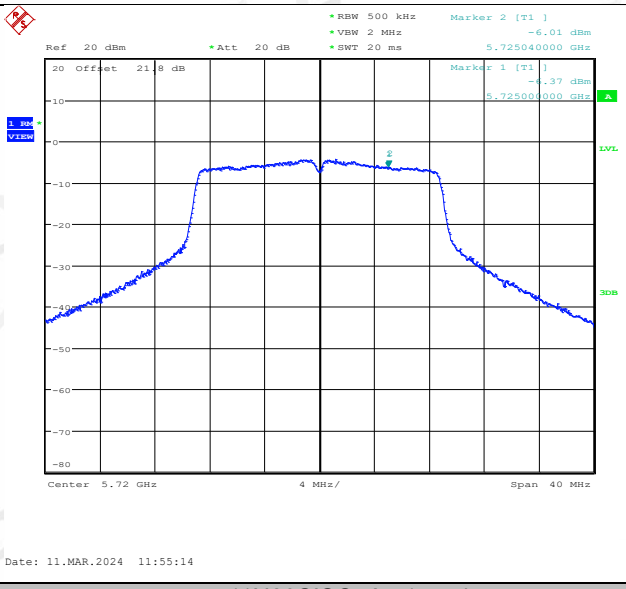

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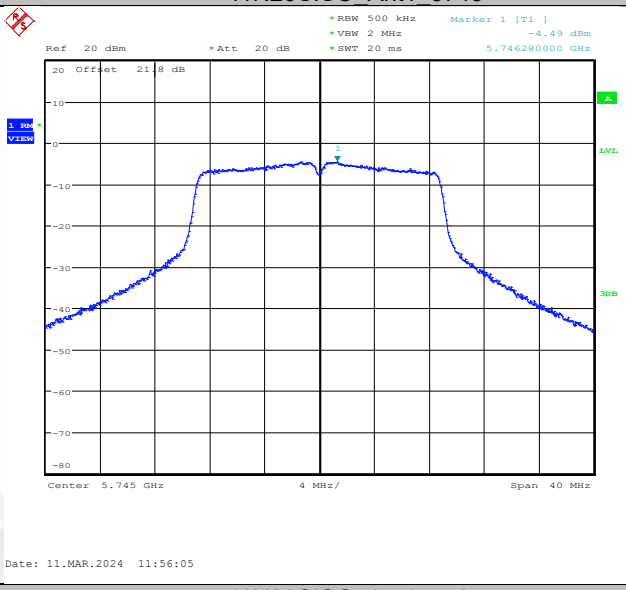

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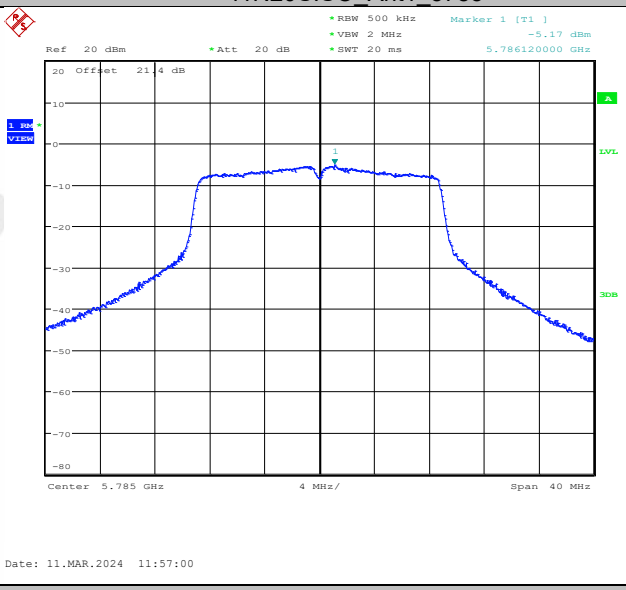

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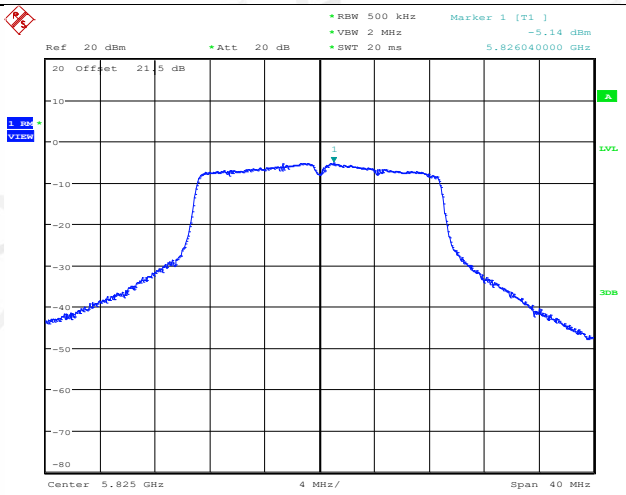

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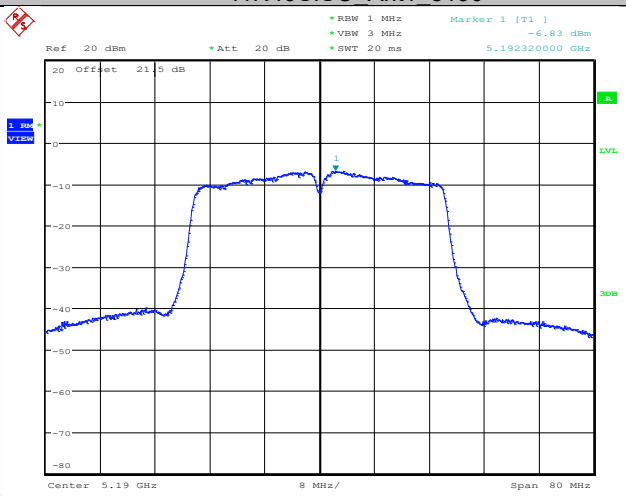

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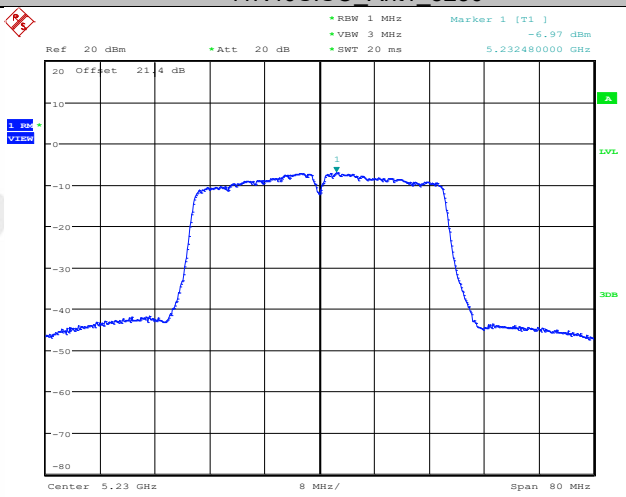

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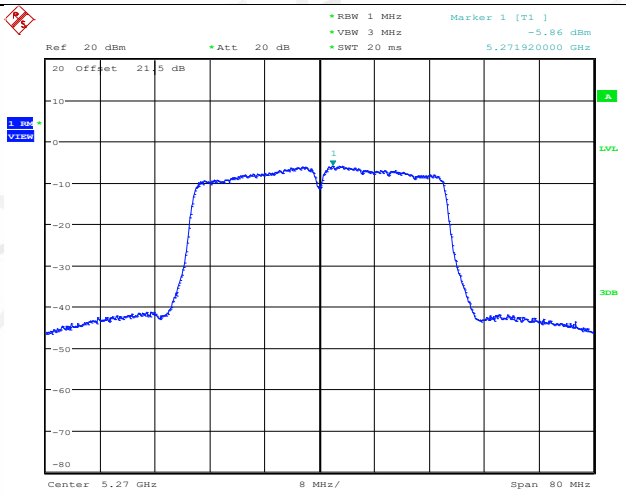

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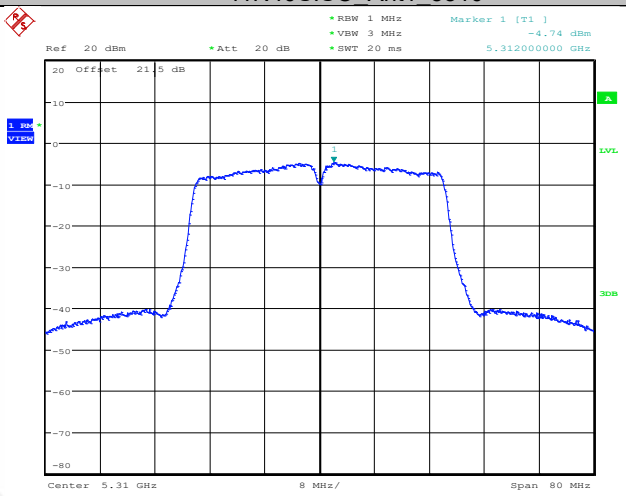

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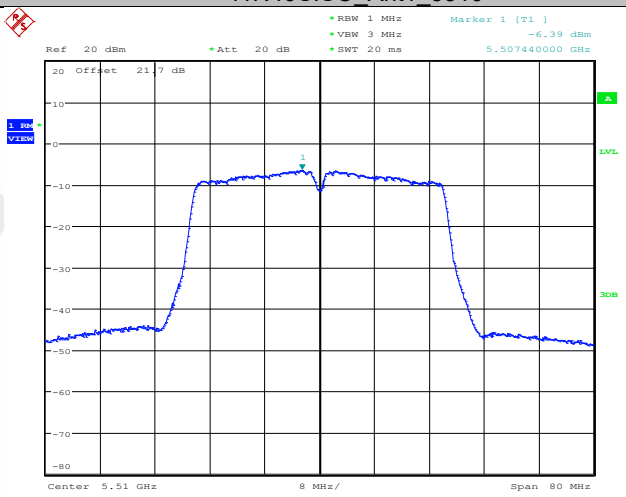

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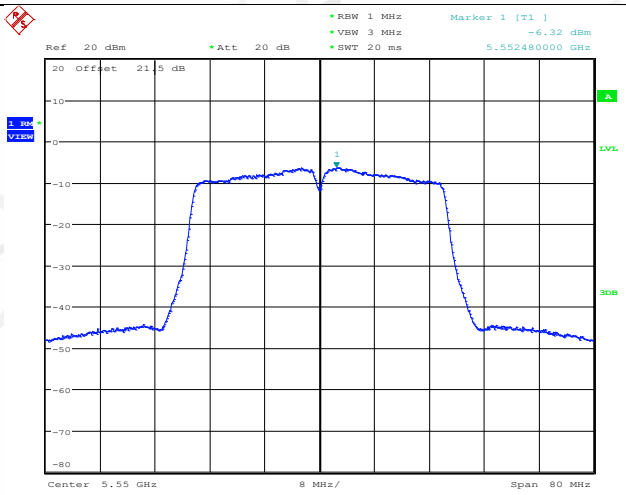

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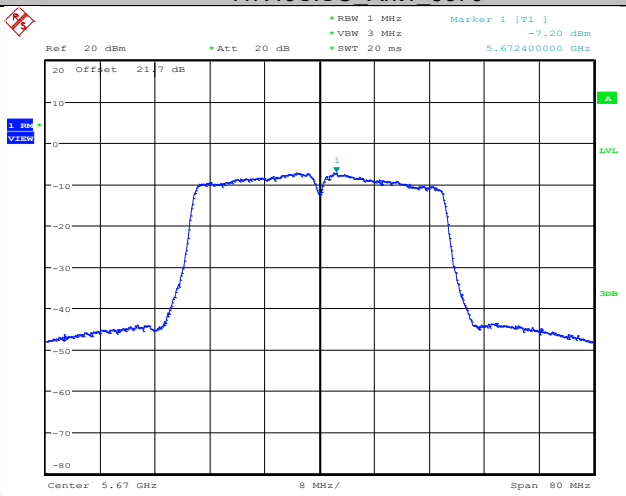
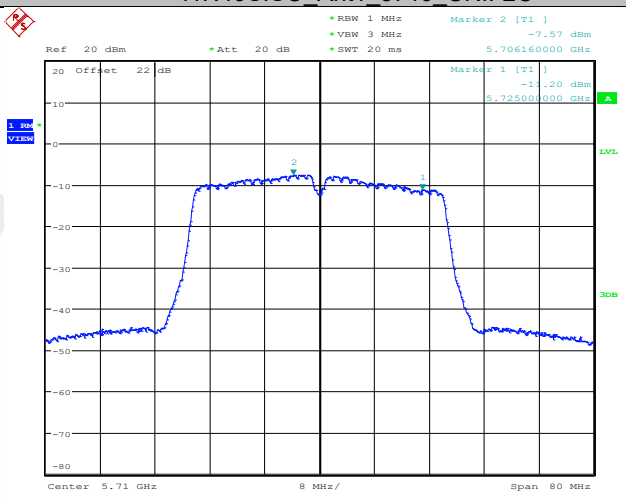


11N40SISO_Ant1_5710_UNII-2C



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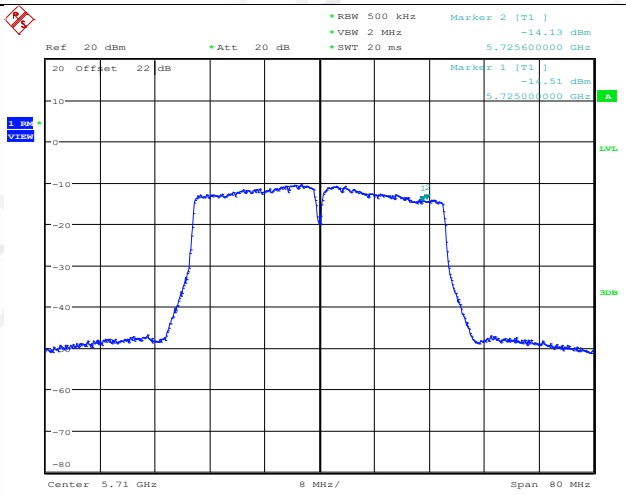

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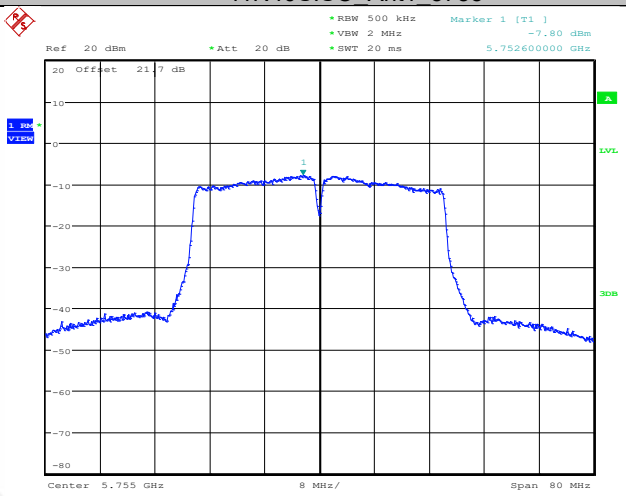

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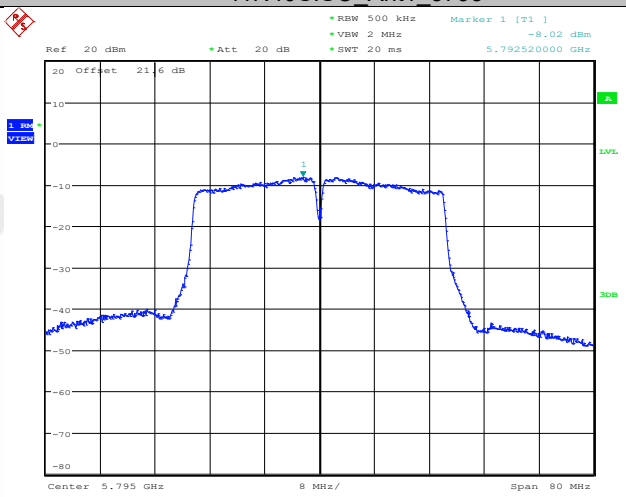
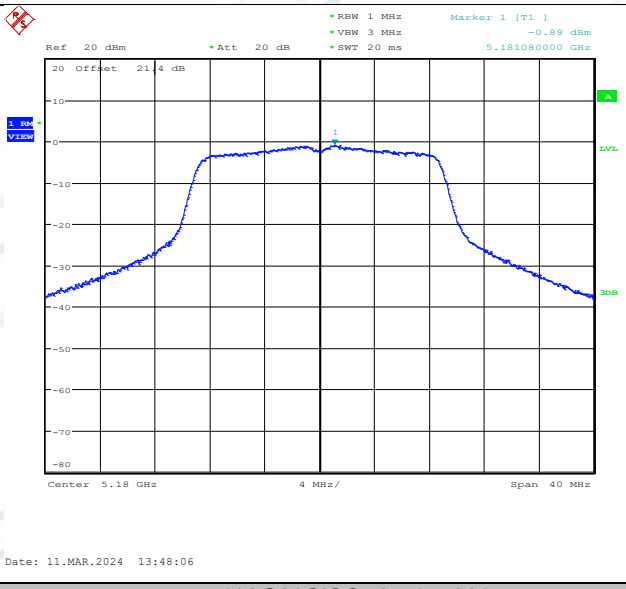


11AC20SISO_Ant1_5180



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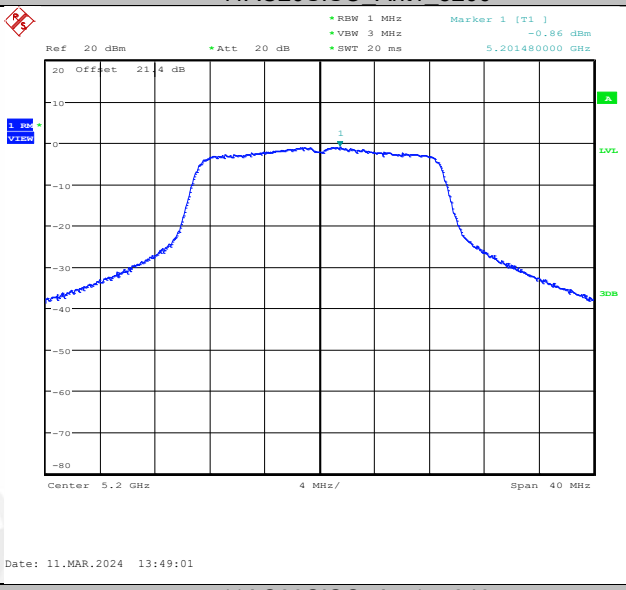

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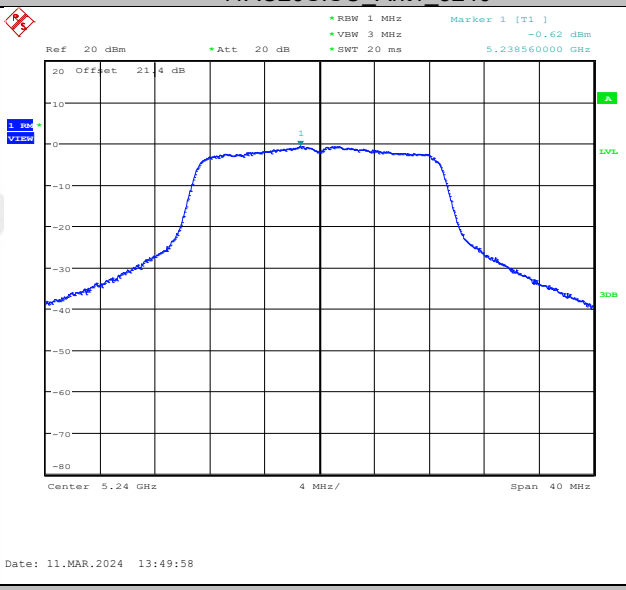

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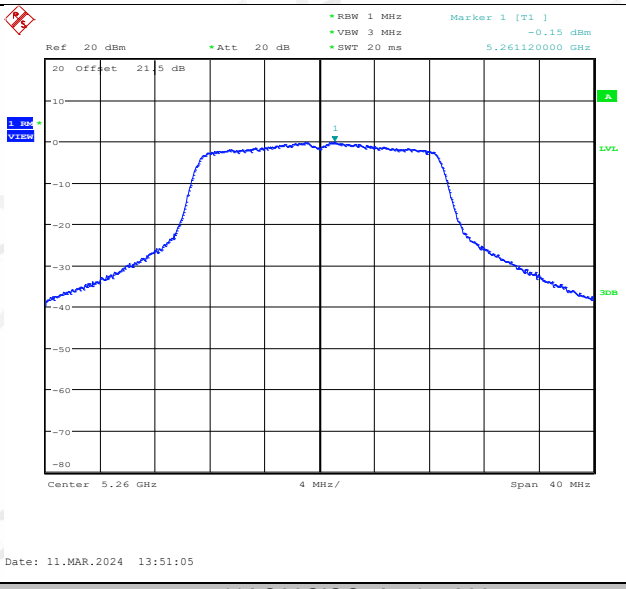

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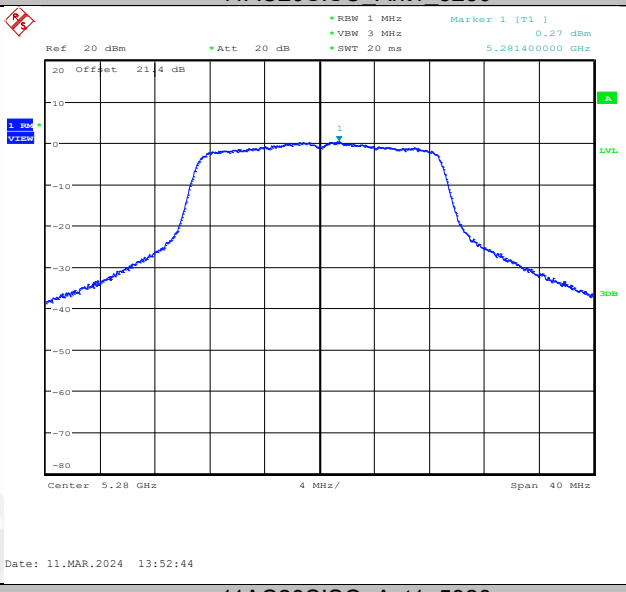

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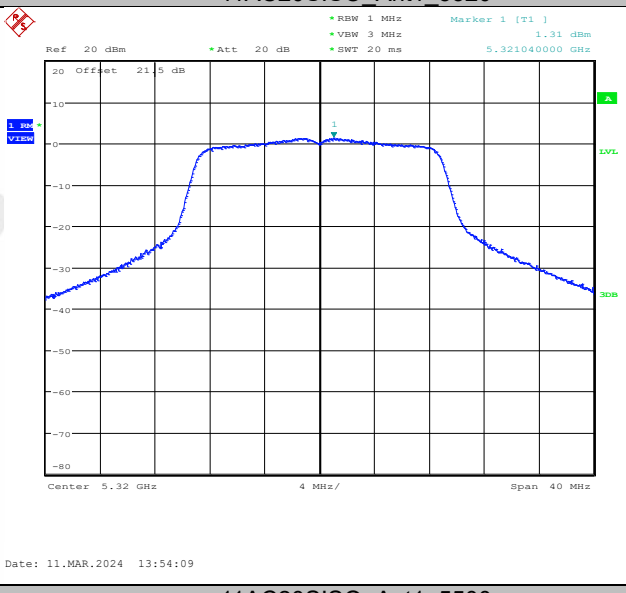

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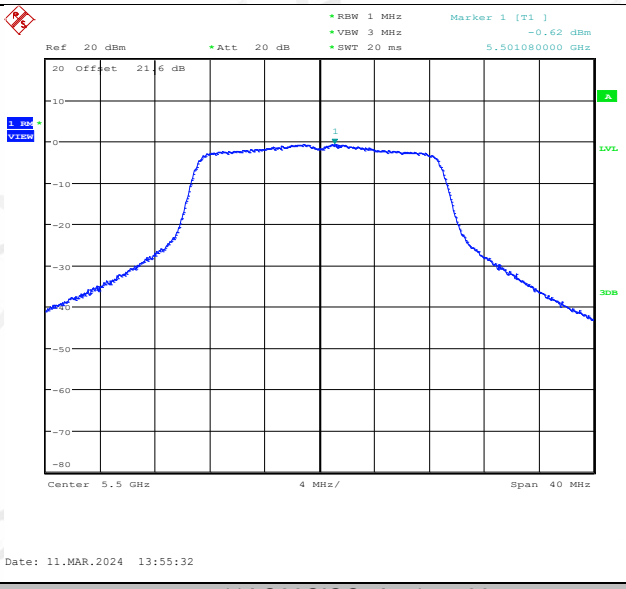

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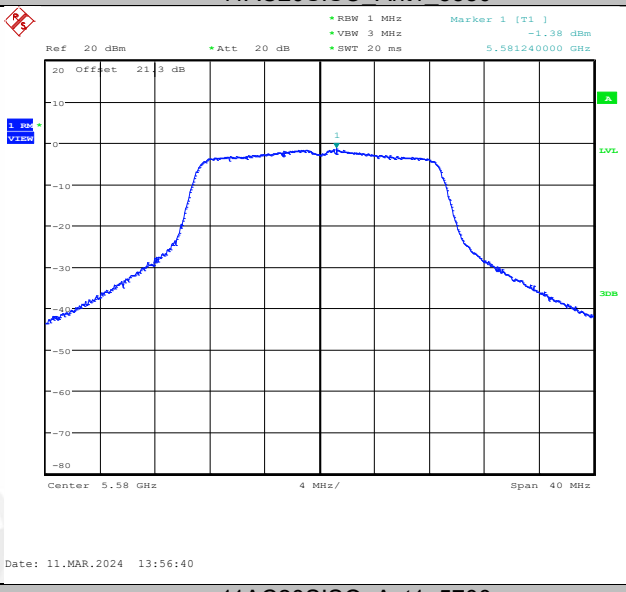

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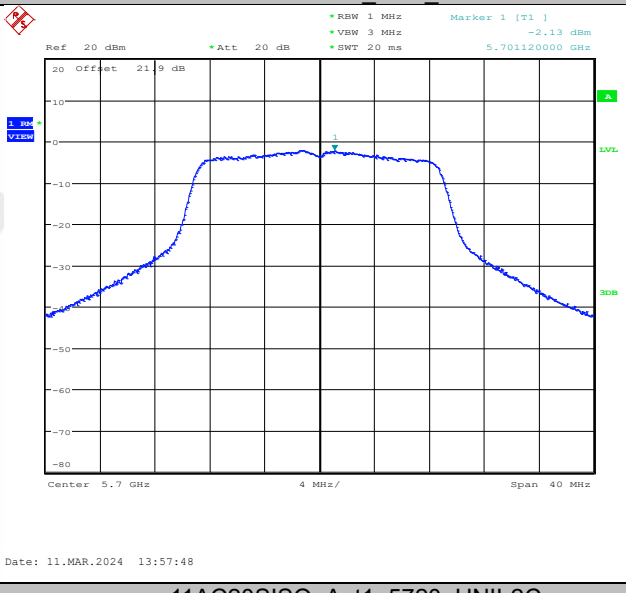
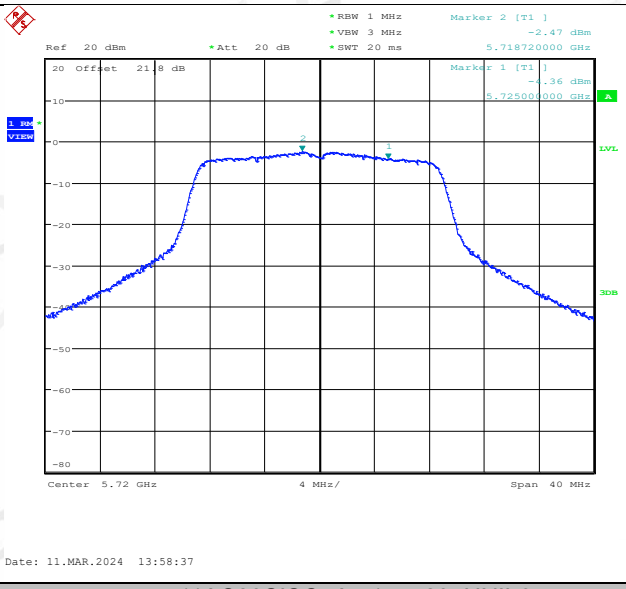


11AC20SISO_Ant1_5720_UNII-2C



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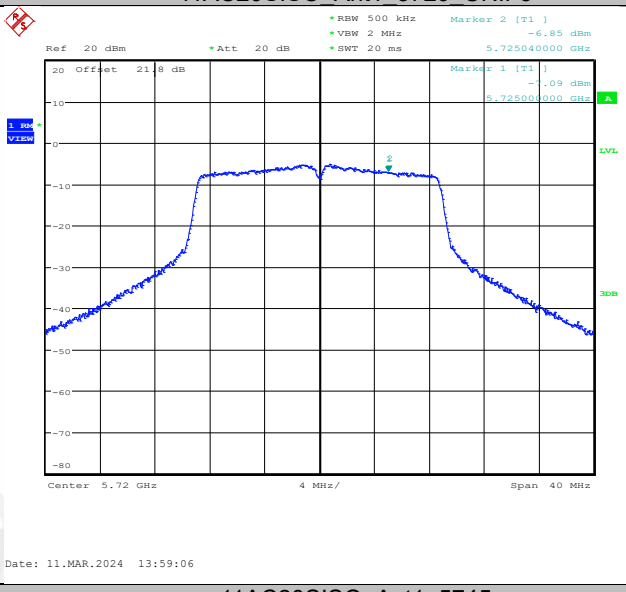

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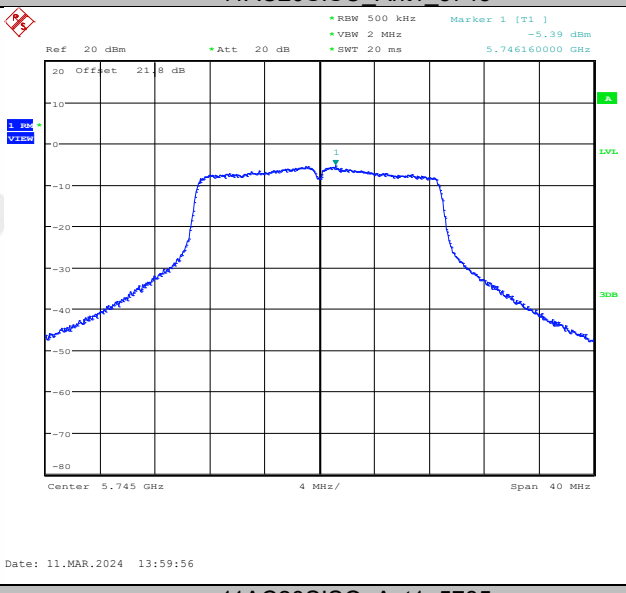

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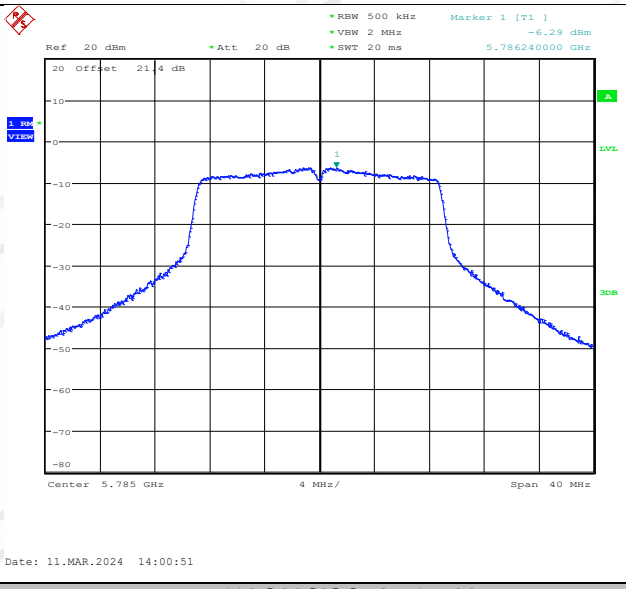

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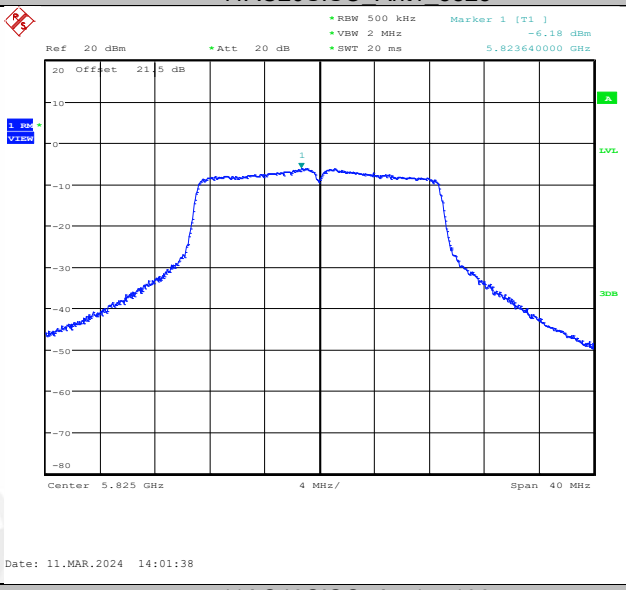

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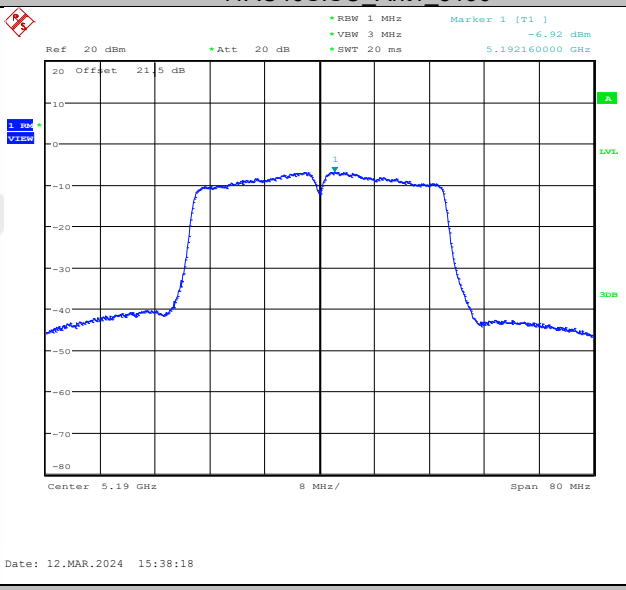

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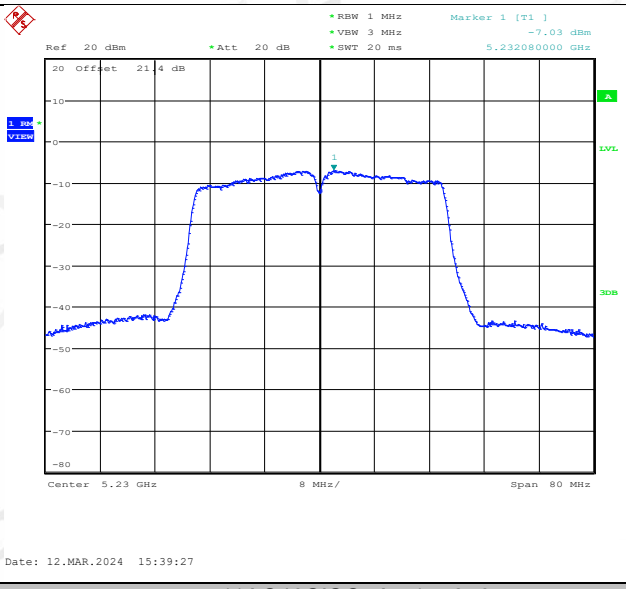
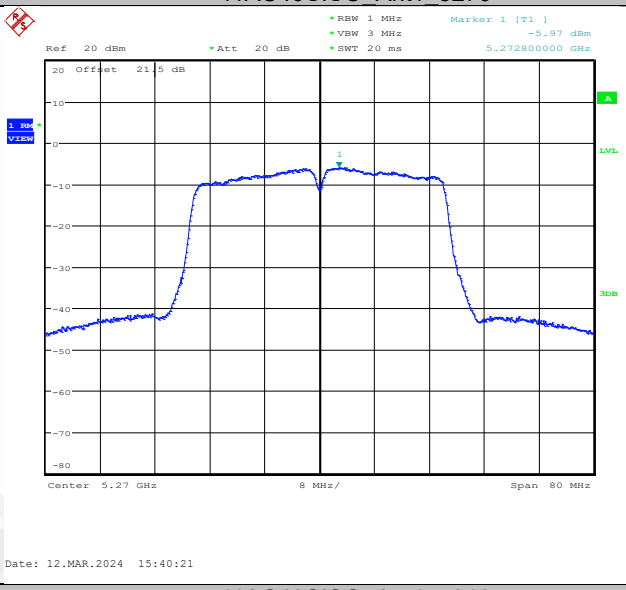


11AC40SISO_Ant1_5270



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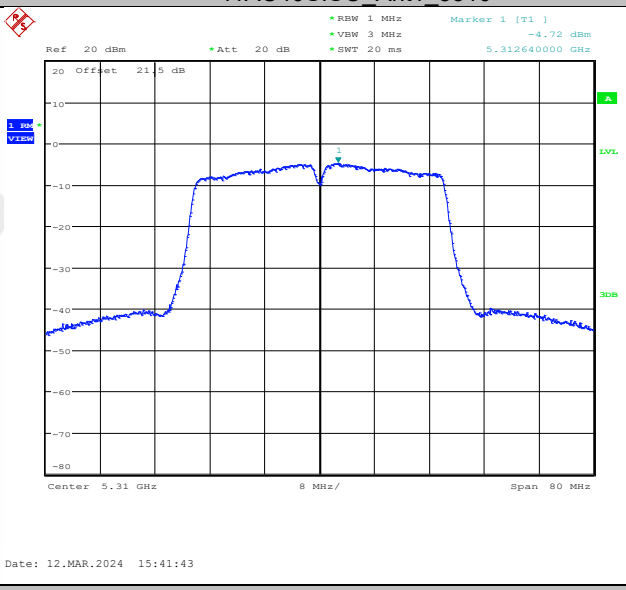

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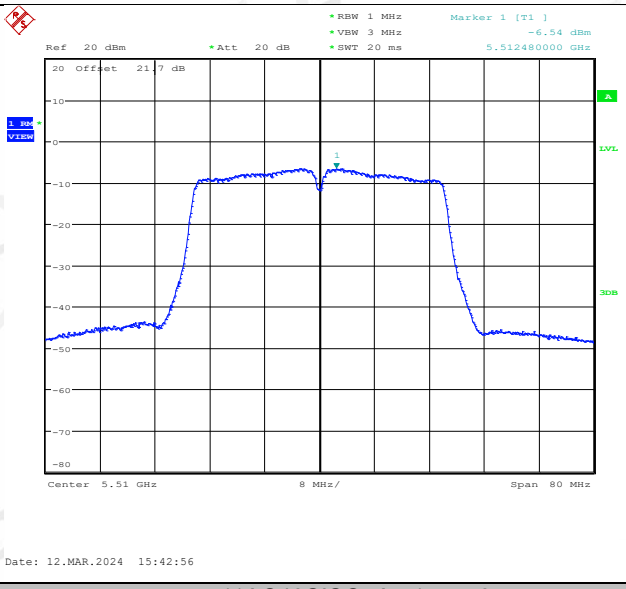

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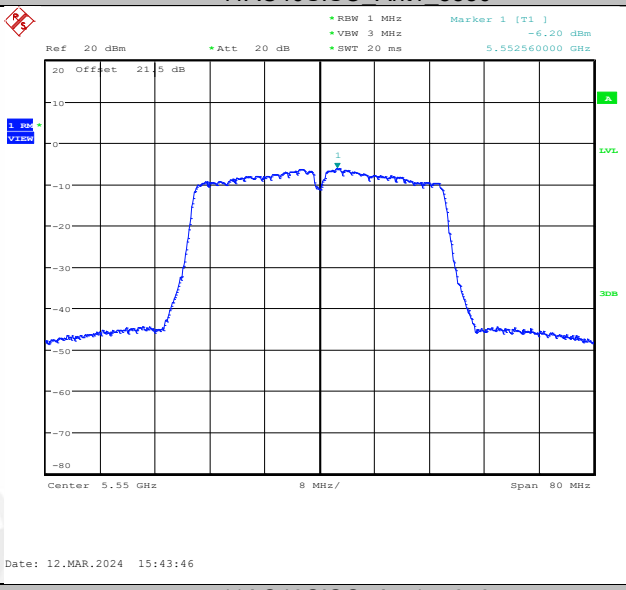
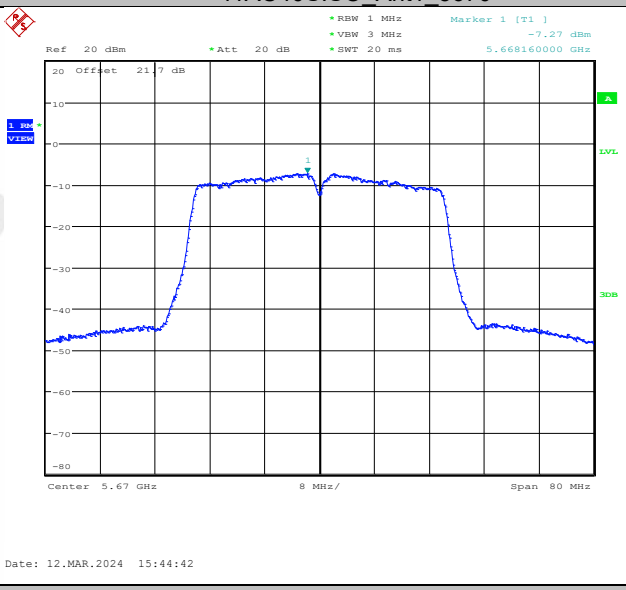
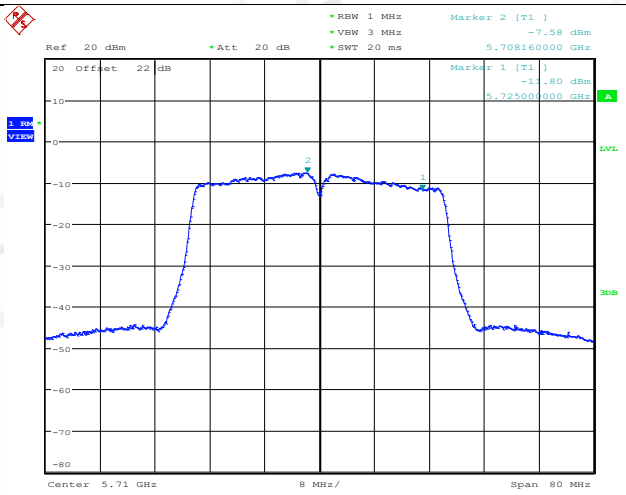


11AC40SISO_Ant1_5670



11AC40SISO_Ant1_5710_UNII-2C



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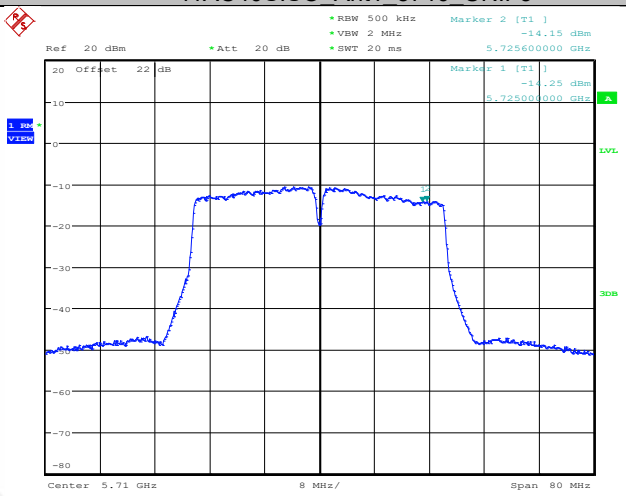

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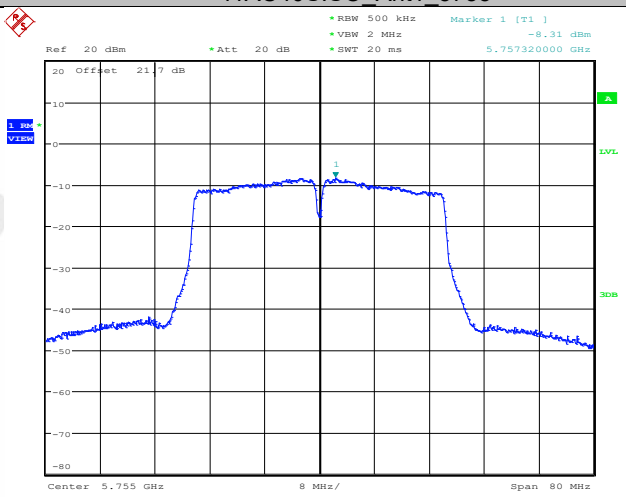

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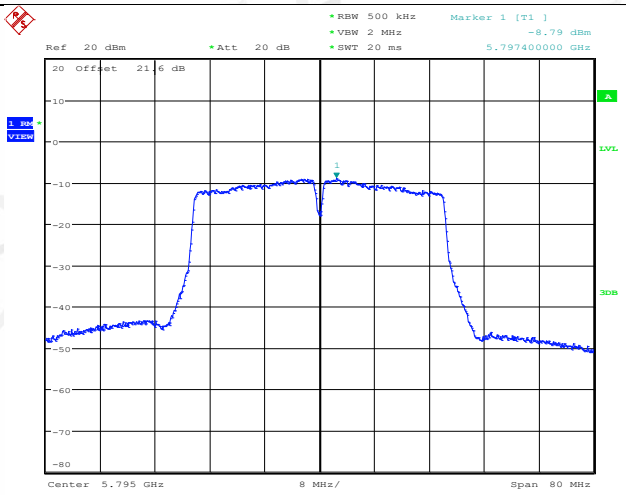

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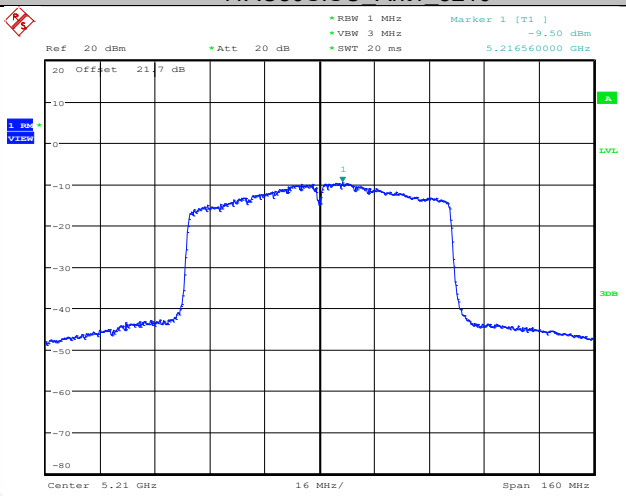

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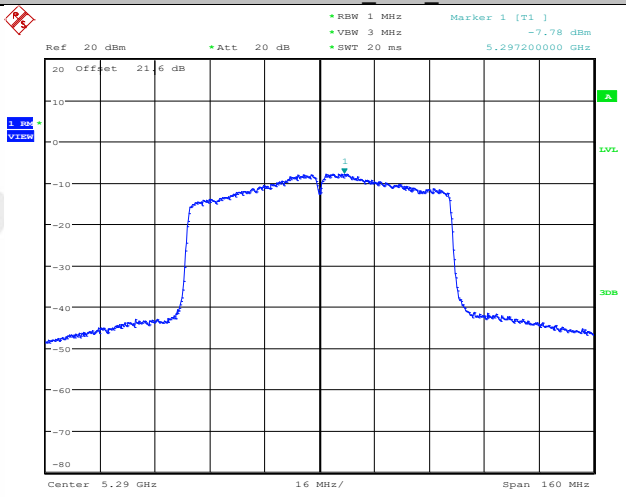

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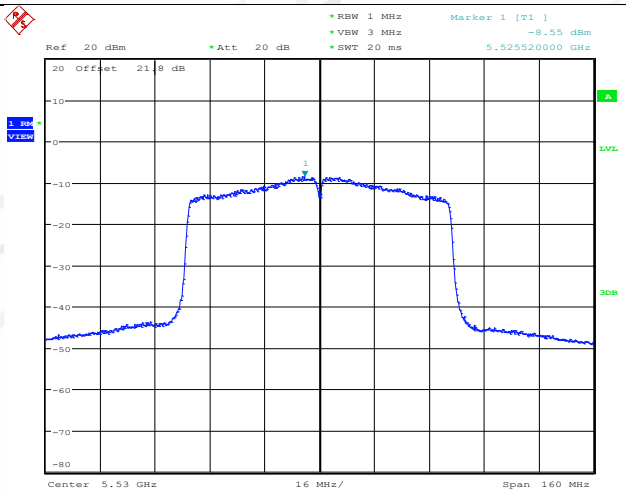

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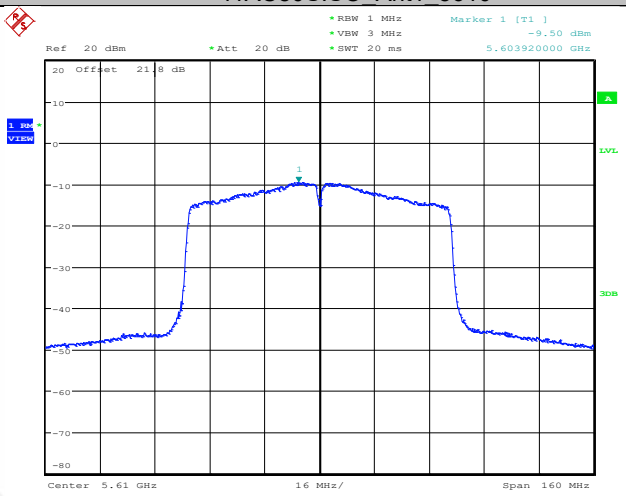
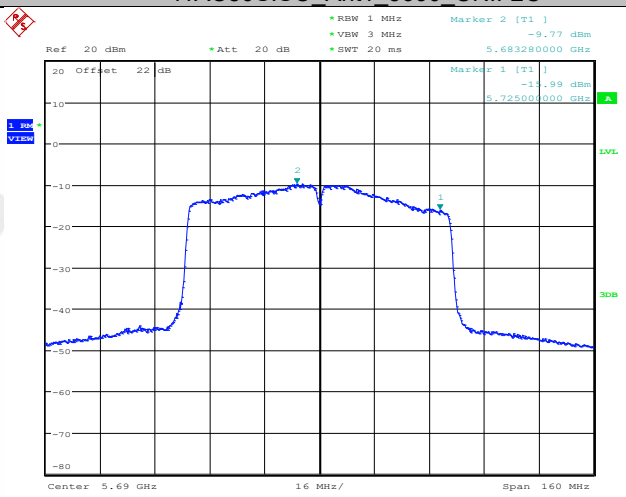


11AC80SISO_Ant1_5690_UNII-2C



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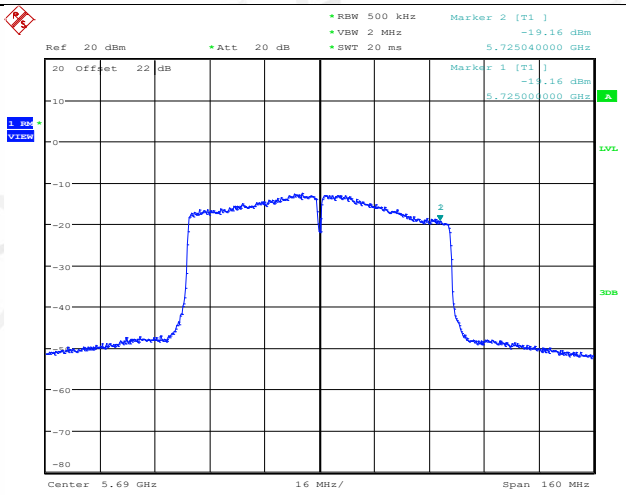
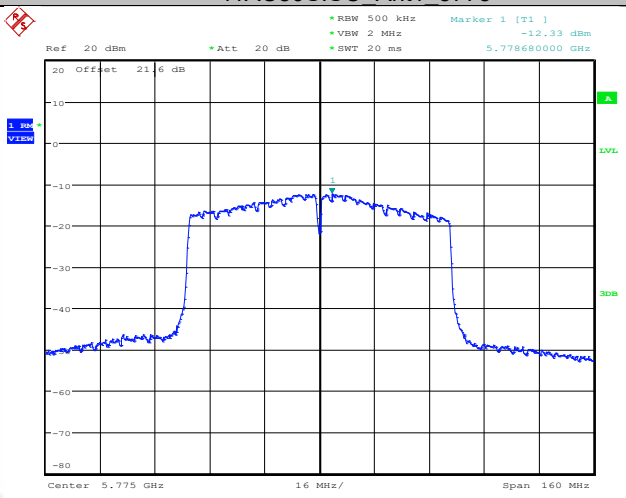


11AC80SISO_Ant1_5775



10. Frequency Stability Measurement

10.1. Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

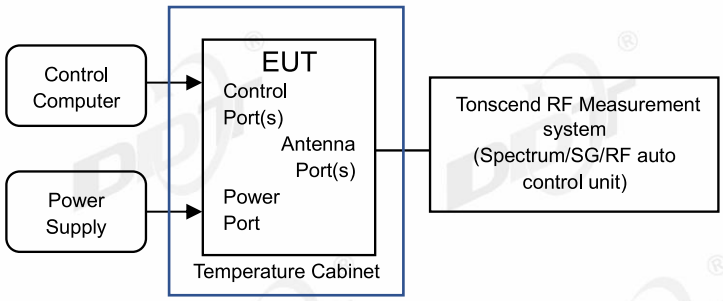
10.2. Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

10.3. Test procedures

(1) To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
(2) The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10 dB lower than the measured peak value.
(3) The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

10.4. Test setup



10.5. Test result

Test Engineer:	Zora Zhang	Test Site:	RF Measurement System 1#
Ambient Condition:	22.3℃,44.8%RH	Test Date:	2024.01.22-2024.03.12
Test Power Supply:	Battery	EUT:	Braille eMotion 40
Sample Number:	S23110312-01	Model No.:	B340T

Voltage								
Test Mode	Antenna	Frequency[MHz]	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	NT	-40000.00	-7.722008	20	PASS
			LV	NT	-60000.00	-11.583012	20	PASS
			HV	NT	-60000.00	-11.583012	20	PASS
		5200	NV	NT	-60000.00	-11.538462	20	PASS
			LV	NT	-60000.00	-11.538462	20	PASS
			HV	NT	-40000.00	-7.692308	20	PASS
		5240	NV	NT	-60000.00	-11.450382	20	PASS
			LV	NT	-60000.00	-11.450382	20	PASS
			HV	NT	-60000.00	-11.450382	20	PASS
		5260	NV	NT	-60000.00	-11.406844	20	PASS
			LV	NT	-60000.00	-11.406844	20	PASS
			HV	NT	-20000.00	-3.802281	20	PASS
		5280	NV	NT	-60000.00	-11.363636	20	PASS
			LV	NT	-40000.00	-7.575758	20	PASS
			HV	NT	-60000.00	-11.363636	20	PASS
		5320	NV	NT	-60000.00	-11.278195	20	PASS
			LV	NT	-60000.00	-11.278195	20	PASS
			HV	NT	-60000.00	-11.278195	20	PASS
		5500	NV	NT	-60000.00	-10.909091	20	PASS
			LV	NT	-60000.00	-10.909091	20	PASS
			HV	NT	-80000.00	-14.545455	20	PASS
		5580	NV	NT	-60000.00	-10.752688	20	PASS
			LV	NT	-60000.00	-10.752688	20	PASS
			HV	NT	-60000.00	-10.752688	20	PASS
		5700	NV	NT	-60000.00	-10.526316	20	PASS
			LV	NT	-60000.00	-10.526316	20	PASS
			HV	NT	-60000.00	-10.526316	20	PASS
		5720	NV	NT	-60000.00	-10.489510	20	PASS
			LV	NT	-60000.00	-10.489510	20	PASS
			HV	NT	-40000.00	-6.993007	20	PASS
		5745	NV	NT	-60000.00	-10.443864	20	PASS
			LV	NT	-60000.00	-10.443864	20	PASS
			HV	NT	-60000.00	-10.443864	20	PASS
		5785	NV	NT	-80000.00	-13.828868	20	PASS
			LV	NT	-60000.00	-10.371651	20	PASS
			HV	NT	-80000.00	-13.828868	20	PASS
		5825	NV	NT	-60000.00	-10.300429	20	PASS
			LV	NT	-60000.00	-10.300429	20	PASS
			HV	NT	-40000.00	-6.866953	20	PASS
11N40SISO	Ant1	5190	NV	NT	-80000.00	-15.414258	20	PASS
			LV	NT	-80000.00	-15.414258	20	PASS
			HV	NT	-80000.00	-15.414258	20	PASS
		5230	NV	NT	-40000.00	-7.648184	20	PASS
			LV	NT	-40000.00	-7.648184	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5270	NV	NT	-40000.00	-7.590133	20	PASS
			LV	NT	-40000.00	-7.590133	20	PASS
			HV	NT	-40000.00	-7.590133	20	PASS
		5310	NV	NT	-80000.00	-15.065913	20	PASS
			LV	NT	-80000.00	-15.065913	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5510	NV	NT	-40000.00	-7.259528	20	PASS
			LV	NT	-40000.00	-7.259528	20	PASS

			HV	NT	-40000.00	-7.259528	20	PASS
		5550	NV	NT	-40000.00	-7.207207	20	PASS
			LV	NT	-40000.00	-7.207207	20	PASS
			HV	NT	-40000.00	-7.207207	20	PASS
		5670	NV	NT	-80000.00	-14.109347	20	PASS
			LV	NT	-80000.00	-14.109347	20	PASS
			HV	NT	-80000.00	-14.109347	20	PASS
		5710	NV	NT	-40000.00	-7.005254	20	PASS
			NV	NT	-40000.00	-7.005254	20	PASS
			HV	NT	-40000.00	-7.005254	20	PASS
		5755	NV	NT	0.00	0.000000	20	PASS
			LV	NT	-40000.00	-6.950478	20	PASS
			HV	NT	-40000.00	-6.950478	20	PASS
		5795	NV	NT	-80000.00	-13.805004	20	PASS
			LV	NT	-80000.00	-13.805004	20	PASS
			HV	NT	-80000.00	-13.805004	20	PASS
11AC80S ISO	Ant1	5210	NV	NT	-80000.00	-15.355086	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			LV	NT	0.00	0.000000	20	PASS
		5290	NV	NT	-80000.00	-15.122873	20	PASS
			LV	NT	-80000.00	-15.122873	20	PASS
			HV	NT	-80000.00	-15.122873	20	PASS
		5530	NV	NT	-80000.00	-14.466546	20	PASS
			LV	NT	-80000.00	-14.466546	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5610	NV	NT	-80000.00	-14.260250	20	PASS
			LV	NT	0.00	0.000000	20	PASS
			HV	NT	0.00	0.000000	20	PASS
		5690	NV	NT	-80000.00	-14.260250	20	PASS
			LV	NT	-80000.00	-14.059754	20	PASS
			NV	NT	-80000.00	-14.260250	20	PASS
		5775	NV	NT	-80000.00	-13.852814	20	PASS
			LV	NT	-80000.00	-13.852814	20	PASS
			HV	NT	0.00	0.000000	20	PASS

Temperature								
Test Mode	Antenna	Frequency[MHz]	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11A	Ant1	5180	NV	-30	-60000.00	-11.583012	20	PASS
			NV	-20	-40000.00	-7.722008	20	PASS
			NV	-10	-60000.00	-11.583012	20	PASS
			NV	0	-40000.00	-7.722008	20	PASS
			NV	10	-40000.00	-7.722008	20	PASS
			NV	20	-60000.00	-11.583012	20	PASS
			NV	30	-60000.00	-11.583012	20	PASS
			NV	40	-60000.00	-11.583012	20	PASS
			NV	50	-60000.00	-11.583012	20	PASS
		5200	NV	-30	-60000.00	-11.538462	20	PASS
			NV	-20	-60000.00	-11.538462	20	PASS
			NV	-10	-40000.00	-7.692308	20	PASS
			NV	0	-80000.00	-15.384615	20	PASS
			NV	10	-40000.00	-7.692308	20	PASS
			NV	20	-60000.00	-11.538462	20	PASS
			NV	30	-80000.00	-15.384615	20	PASS
			NV	40	-40000.00	-7.692308	20	PASS
			NV	50	-60000.00	-11.538462	20	PASS
		5240	NV	-30	-60000.00	-11.450382	20	PASS
			NV	-20	-40000.00	-7.633588	20	PASS
			NV	-10	-60000.00	-11.450382	20	PASS
			NV	0	-40000.00	-7.633588	20	PASS
			NV	10	-40000.00	-7.633588	20	PASS
			NV	20	-60000.00	-11.450382	20	PASS
			NV	30	-60000.00	-11.450382	20	PASS
			NV	40	-60000.00	-11.450382	20	PASS

			NV	50	-60000.00	-11.450382	20	PASS
		5260	NV	-30	-40000.00	-7.604563	20	PASS
			NV	-20	-60000.00	-11.406844	20	PASS
			NV	-10	-60000.00	-11.406844	20	PASS
			NV	0	-60000.00	-11.406844	20	PASS
			NV	10	-60000.00	-11.406844	20	PASS
			NV	20	-60000.00	-11.406844	20	PASS
			NV	30	-60000.00	-11.406844	20	PASS
			NV	40	-60000.00	-11.406844	20	PASS
			NV	50	-40000.00	-7.604563	20	PASS
		5280	NV	-30	-60000.00	-11.363636	20	PASS
			NV	-20	-60000.00	-11.363636	20	PASS
			NV	-10	-40000.00	-7.575758	20	PASS
			NV	0	-60000.00	-11.363636	20	PASS
			NV	10	-60000.00	-11.363636	20	PASS
			NV	20	-60000.00	-11.363636	20	PASS
			NV	30	-60000.00	-11.363636	20	PASS
			NV	40	-60000.00	-11.363636	20	PASS
			NV	50	-40000.00	-7.575758	20	PASS
		5320	NV	-30	-60000.00	-11.278195	20	PASS
			NV	-20	-60000.00	-11.278195	20	PASS
			NV	-10	-60000.00	-11.278195	20	PASS
			NV	0	-60000.00	-11.278195	20	PASS
			NV	10	-60000.00	-11.278195	20	PASS
			NV	20	-40000.00	-7.518797	20	PASS
			NV	30	-60000.00	-11.278195	20	PASS
			NV	40	-60000.00	-11.278195	20	PASS
			NV	50	-60000.00	-11.278195	20	PASS
		5500	NV	-30	-60000.00	-10.909091	20	PASS
			NV	-20	-40000.00	-7.272727	20	PASS
			NV	-10	-60000.00	-10.909091	20	PASS
			NV	0	-60000.00	-10.909091	20	PASS
			NV	10	-60000.00	-10.909091	20	PASS
			NV	20	-60000.00	-10.909091	20	PASS
			NV	30	-80000.00	-14.545455	20	PASS
			NV	40	-60000.00	-10.909091	20	PASS
			NV	50	-60000.00	-10.909091	20	PASS
		5580	NV	-30	-60000.00	-10.752688	20	PASS
			NV	-20	-60000.00	-10.752688	20	PASS
			NV	-10	-60000.00	-10.752688	20	PASS
			NV	0	-60000.00	-10.752688	20	PASS
			NV	10	-60000.00	-10.752688	20	PASS
			NV	20	-60000.00	-10.752688	20	PASS
			NV	30	-60000.00	-10.752688	20	PASS
			NV	40	-60000.00	-10.752688	20	PASS
			NV	50	-80000.00	-14.336918	20	PASS
		5700	NV	-30	-60000.00	-10.526316	20	PASS
			NV	-20	-60000.00	-10.526316	20	PASS
			NV	-10	-60000.00	-10.526316	20	PASS
			NV	0	-60000.00	-10.526316	20	PASS
			NV	10	-60000.00	-10.526316	20	PASS
			NV	20	-60000.00	-10.526316	20	PASS
			NV	30	-80000.00	-14.035088	20	PASS
			NV	40	-60000.00	-10.526316	20	PASS
			NV	50	-80000.00	-14.035088	20	PASS
		5720	NV	-30	-80000.00	-13.986014	20	PASS
			NV	-20	-60000.00	-10.489510	20	PASS
			NV	-10	-60000.00	-10.489510	20	PASS
			NV	0	-60000.00	-10.489510	20	PASS
			NV	10	-80000.00	-13.986014	20	PASS
			NV	20	-60000.00	-10.489510	20	PASS
			NV	30	-60000.00	-10.489510	20	PASS
			NV	40	-60000.00	-10.489510	20	PASS
			NV	50	-40000.00	-6.993007	20	PASS

		5745	NV	-30	-60000.00	-10.443864	20	PASS
			NV	-20	-60000.00	-10.443864	20	PASS
			NV	-10	-60000.00	-10.443864	20	PASS
			NV	0	-60000.00	-10.443864	20	PASS
			NV	10	-60000.00	-10.443864	20	PASS
			NV	20	-60000.00	-10.443864	20	PASS
			NV	30	-60000.00	-10.443864	20	PASS
			NV	40	-80000.00	-13.925152	20	PASS
			NV	50	-60000.00	-10.443864	20	PASS
		5785	NV	-30	-80000.00	-13.828868	20	PASS
			NV	-20	-80000.00	-13.828868	20	PASS
			NV	-10	-80000.00	-13.828868	20	PASS
			NV	0	-60000.00	-10.371651	20	PASS
			NV	10	-60000.00	-10.371651	20	PASS
			NV	20	-60000.00	-10.371651	20	PASS
			NV	30	-60000.00	-10.371651	20	PASS
			NV	40	-80000.00	-13.828868	20	PASS
			NV	50	-60000.00	-10.371651	20	PASS
		5825	NV	-30	-80000.00	-13.733906	20	PASS
			NV	-20	-80000.00	-13.733906	20	PASS
			NV	-10	-80000.00	-13.733906	20	PASS
			NV	0	-60000.00	-10.300429	20	PASS
			NV	10	-60000.00	-10.300429	20	PASS
			NV	20	-60000.00	-10.300429	20	PASS
			NV	30	-60000.00	-10.300429	20	PASS
			NV	40	-60000.00	-10.300429	20	PASS
			NV	50	-60000.00	-10.300429	20	PASS
11N40SISO	Ant1	5190	NV	-30	-80000.00	-15.414258	20	PASS
			NV	-20	-40000.00	-7.707129	20	PASS
			NV	-10	-80000.00	-15.414258	20	PASS
			NV	0	-80000.00	-15.414258	20	PASS
			NV	10	-40000.00	-7.707129	20	PASS
			NV	20	-80000.00	-15.414258	20	PASS
			NV	30	-40000.00	-7.707129	20	PASS
			NV	40	-40000.00	-7.707129	20	PASS
			NV	50	-40000.00	-7.707129	20	PASS
		5230	NV	-30	-40000.00	-7.648184	20	PASS
			NV	-20	-80000.00	-15.296367	20	PASS
			NV	-10	-80000.00	-15.296367	20	PASS
			NV	0	-40000.00	-7.648184	20	PASS
			NV	10	-40000.00	-7.648184	20	PASS
			NV	20	-80000.00	-15.296367	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	-80000.00	-15.296367	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5270	NV	-30	-80000.00	-15.180266	20	PASS
			NV	-20	0.00	0.000000	20	PASS
			NV	-10	-40000.00	-7.590133	20	PASS
			NV	0	-40000.00	-7.590133	20	PASS
			NV	10	-40000.00	-7.590133	20	PASS
			NV	20	-40000.00	-7.590133	20	PASS
			NV	30	-40000.00	-7.590133	20	PASS
			NV	40	-40000.00	-7.590133	20	PASS
			NV	50	0.00	0.000000	20	PASS
		5310	NV	-30	0.00	0.000000	20	PASS
			NV	-20	-40000.00	-7.532957	20	PASS
			NV	-10	-40000.00	-7.590133	20	PASS
			NV	0	-40000.00	-7.532957	20	PASS
			NV	10	-80000.00	-15.065913	20	PASS
			NV	20	-40000.00	-7.532957	20	PASS
			NV	30	-40000.00	-7.532957	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	-40000.00	-7.532957	20	PASS
		5510	NV	-30	-40000.00	-7.259528	20	PASS

			NV	-20	-40000.00	-7.259528	20	PASS
			NV	-10	-40000.00	-7.259528	20	PASS
			NV	0	-40000.00	-7.259528	20	PASS
			NV	10	-80000.00	-14.519056	20	PASS
			NV	20	-40000.00	-7.259528	20	PASS
			NV	30	-40000.00	-7.259528	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	-80000.00	-14.519056	20	PASS
		5550	NV	-30	-80000.00	-14.414414	20	PASS
			NV	-20	-40000.00	-7.207207	20	PASS
			NV	-10	-40000.00	-7.207207	20	PASS
			NV	0	-80000.00	-14.414414	20	PASS
			NV	10	-40000.00	-7.207207	20	PASS
			NV	20	-40000.00	-7.207207	20	PASS
			NV	30	-80000.00	-14.414414	20	PASS
			NV	40	-80000.00	-14.414414	20	PASS
			NV	50	-40000.00	-7.207207	20	PASS
		5670	NV	-30	-80000.00	-14.109347	20	PASS
			NV	-20	-40000.00	-7.054674	20	PASS
			NV	-10	-40000.00	-7.054674	20	PASS
			NV	0	-80000.00	-14.109347	20	PASS
			NV	10	-80000.00	-14.109347	20	PASS
			NV	20	-40000.00	-7.054674	20	PASS
			NV	30	-40000.00	-7.054674	20	PASS
			NV	40	-40000.00	-7.054674	20	PASS
			NV	50	-80000.00	-14.109347	20	PASS
		5710	NV	-30	-40000.00	-7.005254	20	PASS
			NV	-20	-80000.00	-14.010508	20	PASS
			NV	-10	-40000.00	-7.005254	20	PASS
			NV	0	-80000.00	-14.010508	20	PASS
			NV	10	-80000.00	-14.010508	20	PASS
			NV	20	-80000.00	-14.010508	20	PASS
			NV	30	-80000.00	-14.010508	20	PASS
			NV	40	-40000.00	-7.005254	20	PASS
			NV	50	-80000.00	-14.010508	20	PASS
		5755	NV	-30	-80000.00	-13.900956	20	PASS
			NV	-20	-80000.00	-13.900956	20	PASS
			NV	-10	-40000.00	-6.950478	20	PASS
			NV	0	-40000.00	-6.950478	20	PASS
			NV	10	-80000.00	-13.900956	20	PASS
			NV	20	-80000.00	-13.900956	20	PASS
			NV	30	-40000.00	-6.950478	20	PASS
			NV	40	-40000.00	-6.950478	20	PASS
			NV	50	-80000.00	-13.900956	20	PASS
		5795	NV	-30	-40000.00	-6.902502	20	PASS
			NV	-20	-40000.00	-6.902502	20	PASS
			NV	-10	-80000.00	-13.805004	20	PASS
			NV	0	-80000.00	-13.805004	20	PASS
			NV	10	-40000.00	-6.902502	20	PASS
			NV	20	-80000.00	-13.805004	20	PASS
			NV	30	-40000.00	-6.902502	20	PASS
			NV	40	-80000.00	-13.805004	20	PASS
			NV	50	-40000.00	-6.902502	20	PASS
11AC20S ISO	Ant1	5785	NV	-30	-60000.00	-10.371651	20	PASS
			NV	-20	-80000.00	-13.828868	20	PASS
			NV	-10	-100000.00	-17.286085	20	PASS
			NV	0	-80000.00	-13.828868	20	PASS
			NV	10	-60000.00	-10.371651	20	PASS
			NV	20	-80000.00	-13.828868	20	PASS
			NV	30	-60000.00	-10.371651	20	PASS
			NV	40	-80000.00	-13.828868	20	PASS
			NV	50	-60000.00	-10.371651	20	PASS
11AC80S	Ant1	5210	NV	-30	-80000.00	-15.355086	20	PASS

ISO			NV	-20	-40000.00	-7.005254	20	PASS
			NV	-10	0.00	0.000000	20	PASS
			NV	0	-80000.00	-15.355086	20	PASS
			NV	10	-80000.00	-15.355086	20	PASS
			NV	20	0.00	0.000000	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	-40000.00	-7.005254	20	PASS
			NV	50	-80000.00	-15.355086	20	PASS
		5290	NV	-30	-40000.00	-7.005254	20	PASS
			NV	-20	80000.00	15.122873	20	PASS
			NV	-10	-40000.00	-7.005254	20	PASS
			NV	0	-40000.00	-7.005254	20	PASS
			NV	10	-80000.00	-15.122873	20	PASS
			NV	20	-80000.00	-15.122873	20	PASS
			NV	30	0.00	0.000000	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	80000.00	15.122873	20	PASS
		5530	NV	-30	-80000.00	-14.466546	20	PASS
			NV	-20	80000.00	14.466546	20	PASS
			NV	-10	80000.00	14.466546	20	PASS
			NV	0	-80000.00	-15.122873	20	PASS
			NV	10	-40000.00	-7.207207	20	PASS
			NV	20	-40000.00	-7.207207	20	PASS
			NV	30	-80000.00	-14.414414	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	-80000.00	-14.466546	20	PASS
		5610	NV	-30	-80000.00	-14.260250	20	PASS
			NV	-20	-80000.00	-14.260250	20	PASS
			NV	-10	0.00	0.000000	20	PASS
			NV	0	-80000.00	-14.260250	20	PASS
			NV	10	80000.00	14.260250	20	PASS
			NV	20	-80000.00	-14.010508	20	PASS
			NV	30	-80000.00	-14.260250	20	PASS
			NV	40	80000.00	14.260250	20	PASS
			NV	50	-80000.00	-14.260250	20	PASS
		5690	NV	-30	-80000.00	-14.010508	20	PASS
			NV	-20	80000.00	14.059754	20	PASS
			NV	-10	-80000.00	-14.059754	20	PASS
			NV	0	-80000.00	-14.010508	20	PASS
			NV	10	-80000.00	-14.059754	20	PASS
			NV	20	-80000.00	-14.059754	20	PASS
			NV	30	-80000.00	-14.010508	20	PASS
			NV	40	-80000.00	-14.010508	20	PASS
			NV	50	-80000.00	-14.059754	20	PASS
		5775	NV	-30	-80000.00	-14.010508	20	PASS
			NV	-20	-80000.00	-14.010508	20	PASS
			NV	-10	-80000.00	-13.852814	20	PASS
			NV	0	-80000.00	-14.010508	20	PASS
			NV	10	-80000.00	-14.010508	20	PASS
			NV	20	-80000.00	-14.010508	20	PASS
			NV	30	-80000.00	-13.852814	20	PASS
			NV	40	0.00	0.000000	20	PASS
			NV	50	-80000.00	-13.852814	20	PASS

11. Dynamic Frequency Selection

11.1. Applicability of DFS requirements

Table 1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode		
	☐Master	☒Client Without Radar Detection	☐Client with Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode	
	☐Master Device or Client with Radar Detection	☒Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	☐Master Device or Client with Radar Detection	☒Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

11.2. Limit

(1) DFS Detection Thresholds

Table 3: DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

(2) DFS Response Requirements

Table 4: DFS Response Requirement Values

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.	

11.3. Parameters of radar test waveforms

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Table 5 Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot10^6}{\text{PRI}_{\mu\text{sec}}}\right)\right\}$	60%	30
		Test B			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.
Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a
Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A

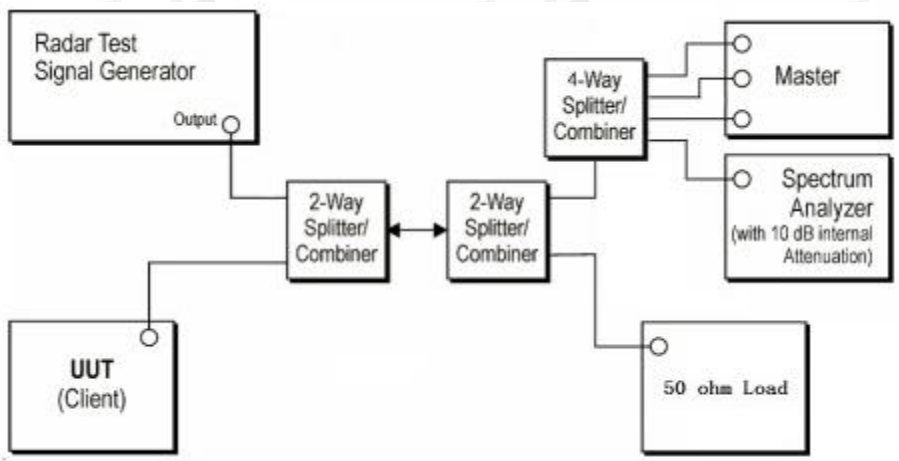
A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B. Test aggregate is average of the percentage of successful detections of short pulse radar types 1-4

11.4. Calibration of radar waveform

Radar Waveform Calibration Procedure:

(1) A 50 ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected to place of the master
(2) The interference Radar Detection Threshold Level is -62dBm + 0dBi +1dB = -61dBm that had been taken into account the output power range and antenna gain.
(3) The following equipment setup was used to calibrate the conducted radar waveform. A vector signal generator was utilized to establish the test signal level for radar type 0. During this process there were no transmissions by either the master or client device. The spectrum analyzer was switched to the zero spans (time domain) at the frequency of the radar waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3 MHz. The spectrum analyzer had offset -1.0dB to compensate RF cable loss 1.0dB.
(4) The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was - -62dBm + 0dBi +1dB = -61dBm. Capture the spectrum analyzer plots on short pulse radar waveform.

Conducted Calibration Setup:



Note: 1. Use the software "Web" to set the frequency channel.
2. EUT is not support TPC and not with Radar detection.

11.5. Channel closing transmission time, channel move time and non-occupancy period

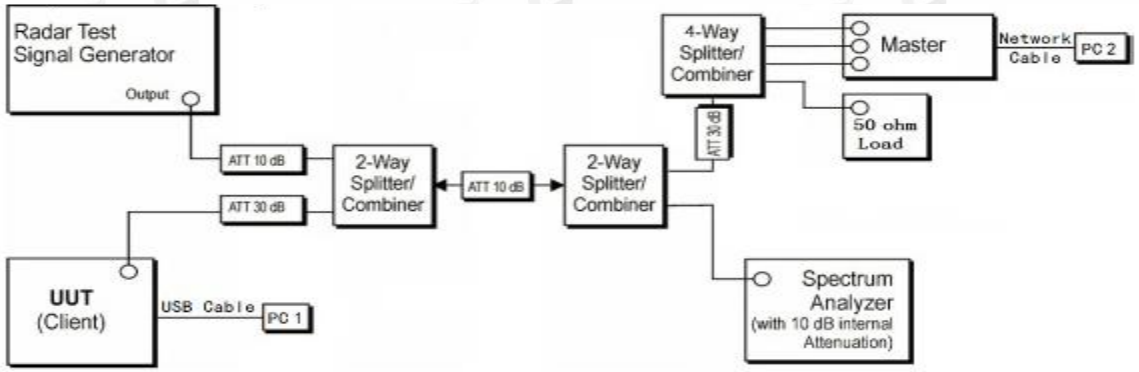
Block diagram of test setup Test Procedure:

(1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
(2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
(3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
(4) EUT will associate with the master at channel. The file “iperf.exe” specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Test Software in order to properly load the network for the entire period of the test.
(5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
(6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
(7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the
(8) spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (0.3ms) =S (12000ms) / B (4000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C (ms)= N X Dwell (0.3ms); where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.

Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

11.6. Test setup

Setup for Client with injection at the Master


Radar Test
Signal Generator
Output
ATT 10 dB
ATT 30 dB
2-Way
Splitter/
Combiner
ATT 10 dB
2-Way
Splitter/
Combiner
4-Way
Splitter/
Combiner
ATT 30 dB
Master
Network
Cable
PC 2
50 ohm
Load
UUT
(Client)
USB Cable
PC 1
Spectrum
Analyzer
(with 10 dB internal
Attenuation)

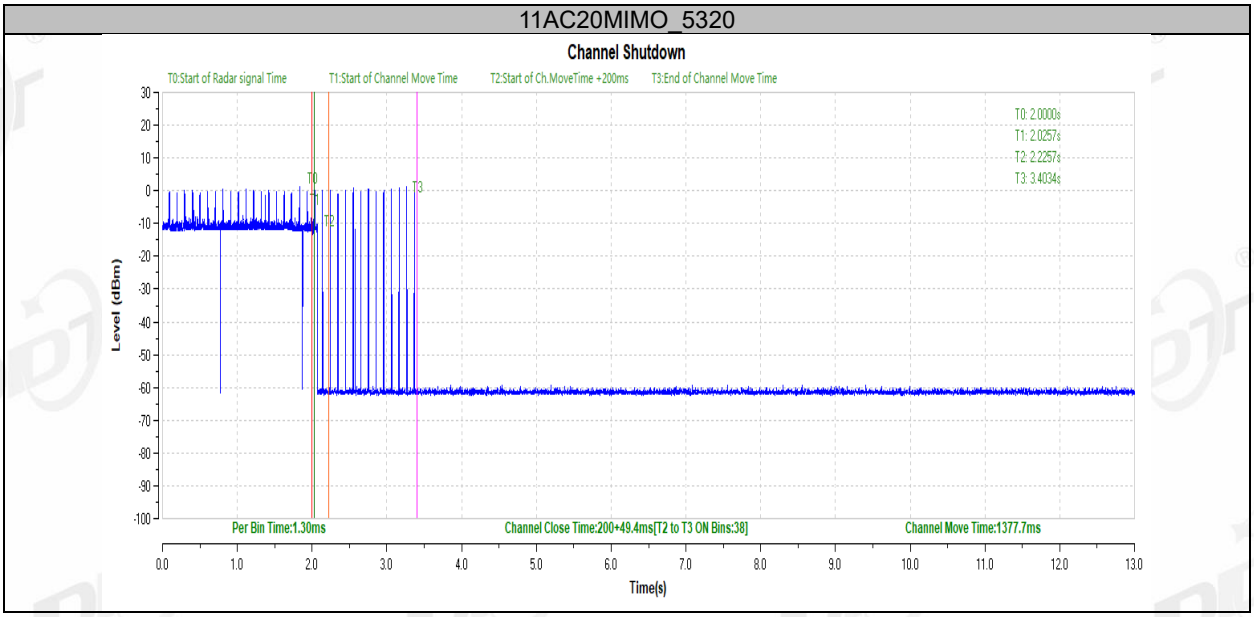
11.7. Test result

Test Engineer:	Zora Zhang	Test Site:	RF Measurement System 1#
Ambient Condition:	22.3℃,44.8%RH	Test Date:	2024.01.22-2024.03.12
Test Power Supply:	Battery	EUT:	Braille eMotion 40
Sample Number:	S23110312-01	Model No.:	B340T

TestMode	Frequency[MHz]	CCTT[ms]	Limit[ms]	CMT[ms]	Limit[ms]	Verdict
11AC20MIMO	5320	200+49.4	200+60	1377.7	10000	PASS

Test plots as follows:

11AC20MIMO_5320



12. Antenna Requirements

12.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

12.2. Result

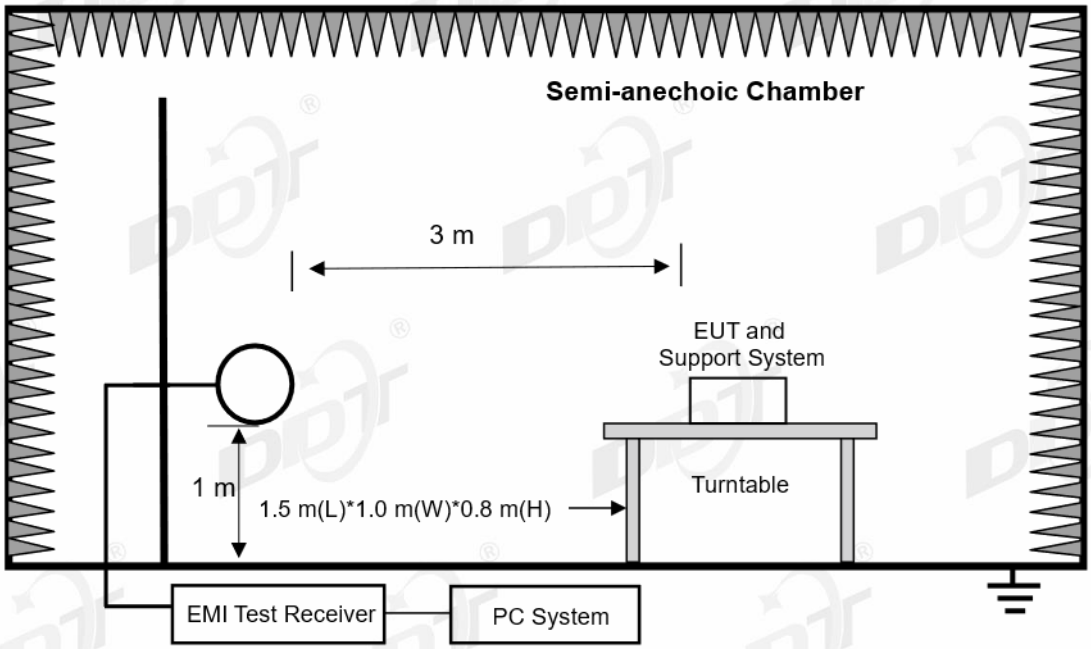
The antenna used for this product as Antenna information described in section 2.1 of the report, and there is no other antenna than that furnished by the responsible party shall be used with the device.

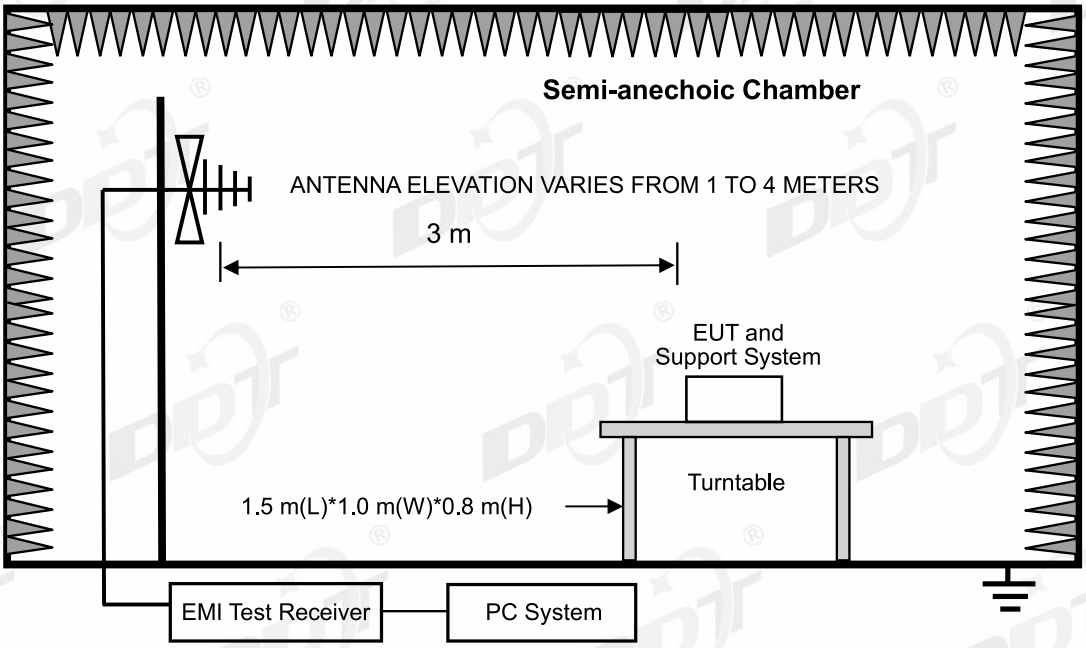
13.Radiated Emission

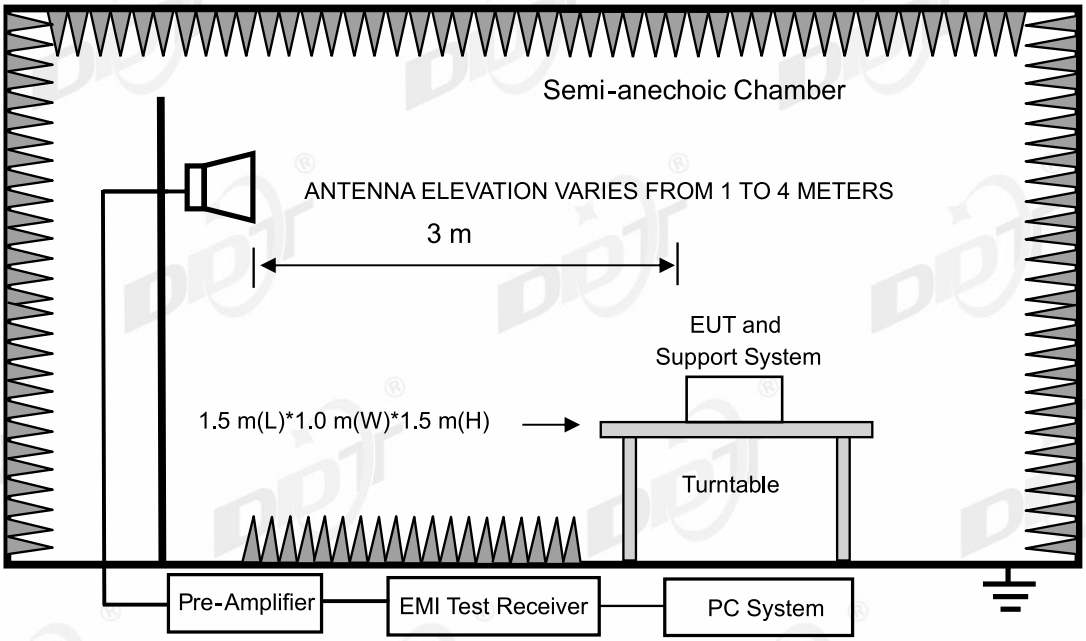
13.1. Test equipment

Equipment	Manufacturer	Model No.	Serial No.	Cal Due To
Hochgewinn-Hornantenne	Schwarzbeck Mess-Elektronik	BBHA 9120 D	DDT-ZC02129	2024/09/17
EMI TEST RECEIVER	R&S	ESU26	DDT-ZC01909	2024/04/23
RF Cable	N/A	W24.02 HL-562	DDT-ZC04022	2024/04/21
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	DDT-ZC02050	2024/07/11
PSA Series Spectrum Analyzer	Agilent	E4447A	DDT-ZC00517	2024/04/23
Micro-Tronics filters	REBES	BRM50702	DDT-ZC03242	/
Micro-Tronics filters	REBES	BRM50716	DDT-ZC03240	/
RF Cable	N/A	W13.02 AP1-X2	DDT-ZC04023	2024/04/21
RF cable	Yuhu Technology	ZT26S-SMAJ-SMAJ-1M	DDT-ZC02037	2024/04/23
High pass filter	Micro-Tronics	HPM50108	DDT-ZC00560	2024/05/14
High pass filter	Micro-Tronics	HPM50102	DDT-ZC00561	2024/05/14
High Pass filter	XIANXINGBO	XBLBQ-GTA67	DDT-ZC02179	2024/05/14
RF cable	Yuhu Technology	JCTB810-NJ-NJ-9M	DDT-ZC02538	2024/04/23
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	DDT-ZC00506	2024/04/26
Pre-amplifier	COM-POWER	PAM-118A	DDT-ZC01293	2024/07/14
Active Loop Antenna	Schwarzbeck	FMZB1519	DDT-ZC00524	2024/09/10
RF cable	Zhongke Junchuang	JCT26S-NJ-NJ-1.5M	DDT-ZC02762	2024/04/20
Pre-amplifier	COM-POWER	PAM-840A	DDT-ZC01693	2024/04/27

13.2. Block diagram of test setup







13.3. Limits

(1) FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.1772&4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.2072&4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

1Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2Above 38.6

(2) FCC 15.209 Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		mV/m	dB(mV)/m
0.009 ~ 0.490	300	2400/F(kHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(kHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(mV)/m (Peak) 54.0 dB(mV)/m (Average)	

Note:

(1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz and above 1000 MHz, radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30 MHz, measurement may be performed at a distance closer than that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$$Limit_{3m}(dBuV/m) = Limit_{30m}(dBuV/m) + 40Log(30m/3m)$$

(3) Limit for this EUT

The emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, , all the other emissions shall be at least 20 dB below the fundamental emissions or comply with 15.209 limits.

13.4. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	Description	other
Adapter	SOLUM VINA COMPANY LIMITED	EP-TA200	Input:100-240V 50-60Hz, 0.5A Output:9V/1.67A or 5V/2A	R37N4ER2G01 SE3
USB cable	N/A	N/A	N/A	N/A

13.5. Test procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber for below 1G and 150 cm above the ground plane inside a fully-anechoic chamber for above 1G.

(2) Test antenna was located 3 m from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used	Test antenna distance
9 kHz - 30 MHz	Active Loop antenna	3 m

30 MHz - 1 GHz	Trilog Broadband Antenna	3 m
1 GHz - 18 GHz	Double Ridged Horn Antenna(1 GHz-18 GHz)	3 m
18 GHz - 40 GHz	Horn Antenna(18 GHz-40 GHz)	1 m

According ANSI C63.10:2013 clause 6.4.6 and 6.5.3, for measurements below 30 MHz, Antenna was located 3 m from EUT, the loop antenna was positioned in three antenna orientations (parallel, perpendicular, and round-parallel), for each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable, and the lowest height of the magnetic antenna shall be 1 m above the ground. For measurement above 30MHz, the trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(3) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9 kHz to 25 GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1 m to 4 m (Except loop antenna, it's fixed 1 m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) Change power supply range from 85% to 115% of the rated supply voltage

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9 kHz to 25 GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 18 GHz to 25 GHz, so below final test was performed with frequency range from 9 kHz to 18 GHz.

(4) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed according to ANSI C63.10:2013 on Radiated Emission test.

(5) The emissions from 9 kHz to 1 GHz were measured based on CISPR QP detector except for the frequency bands 9 - 90 kHz, 110 - 490 kHz, for emissions from 9 kHz - 90 kHz,110 kHz - 490 kHz and above 1 GHz were measured based on average detector, for emissions above 1 GHz, peak emissions also be measured and need comply with Peak limit.

(6) The emissions from 9 kHz to 1 GHz, QP or average values were measured with EMI receiver with below RBW.

Frequency band	RBW
9 kHz - 150 kHz	200 Hz
150 kHz - 30 MHz	9 kHz
30 MHz - 1 GHz	120 kHz

(7) For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1 MHz, VBW is set at 3 MHz for Peak measure; According ANSI C63.10:2013 clause 4.1.4.2.2 procedure for average measure.

13.6. Test result

PASS. (See below detailed test result)