

RF Test Data for 5G Wi-Fi (Conducted Measurements)

General Description of EUT	
EUT Name:	Dash cam
Model:	Z4C
Sample ID:	HC-C-202512-0340-01-01#
Environmental Conditions	
Ambient Temperature:	25°C
Ambient Humidity:	55%
Test Power Supply:	DC 12V
Test Engineer:	Kael Li
Note: For a more detailed features description, please refer to the report TBR-C-202512-0340-31	

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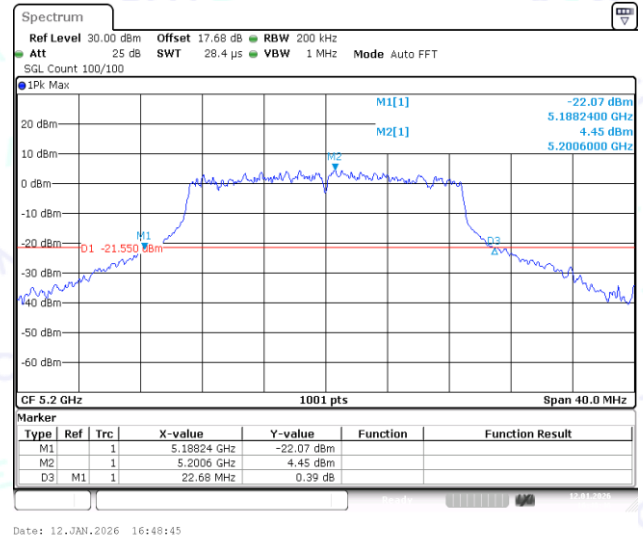
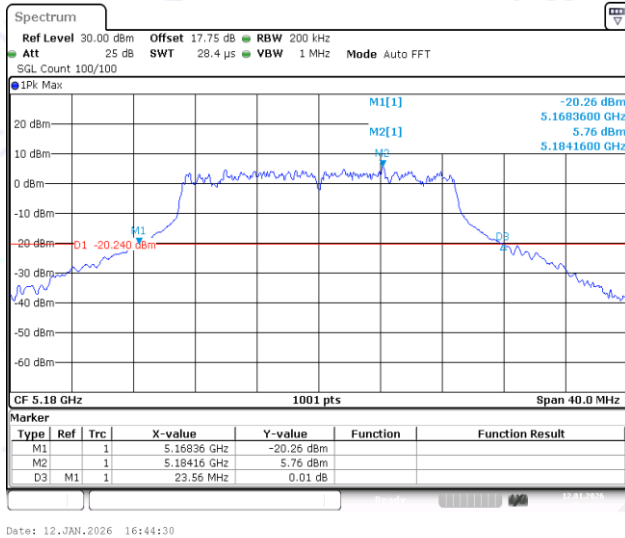
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1: Emission Bandwidth

1.1 Test Result

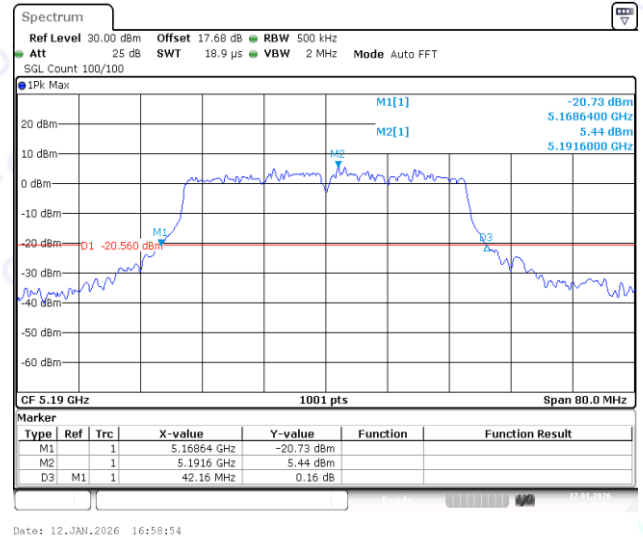
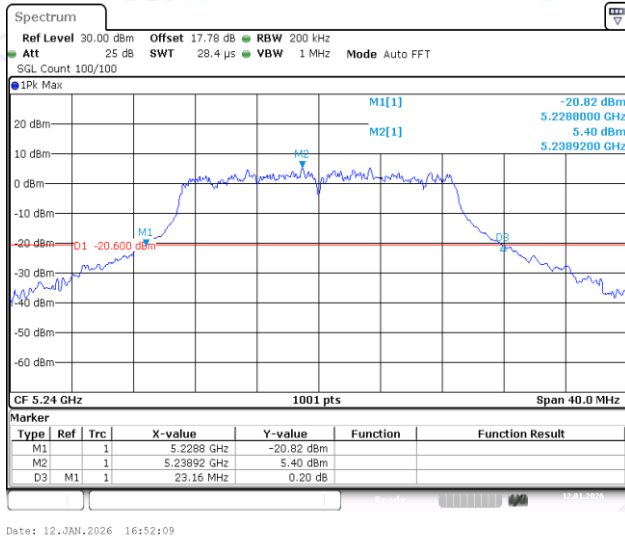
TestMode	Antenna	Frequency[MHz]	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11AC20SISO	Ant1	5180	23.56	5168.36	5191.92	---	---
11AC20SISO	Ant1	5200	22.68	5188.24	5210.92	---	---
11AC20SISO	Ant1	5240	23.16	5228.80	5251.96	---	---
11AC40SISO	Ant1	5190	42.16	5168.64	5210.80	---	---
11AC40SISO	Ant1	5230	44.08	5208.56	5252.64	---	---

1.2 Test Graphs



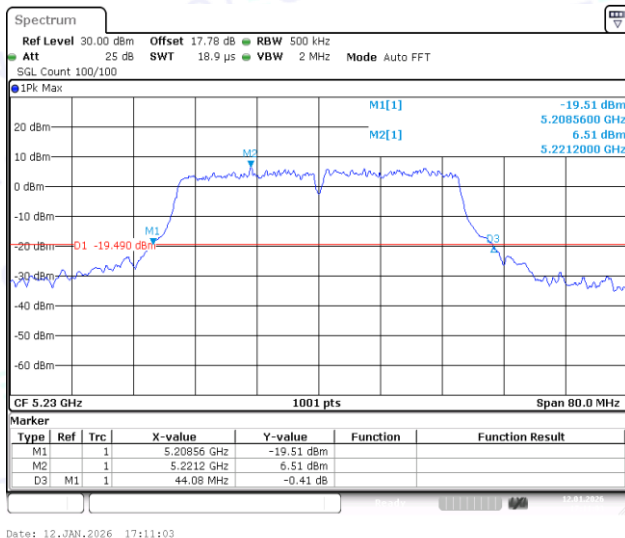
11AC20SISO-Ant1-5180

11AC20SISO-Ant1-5200



11AC20SISO-Ant1-5240

11AC40SISO-Ant1-5190



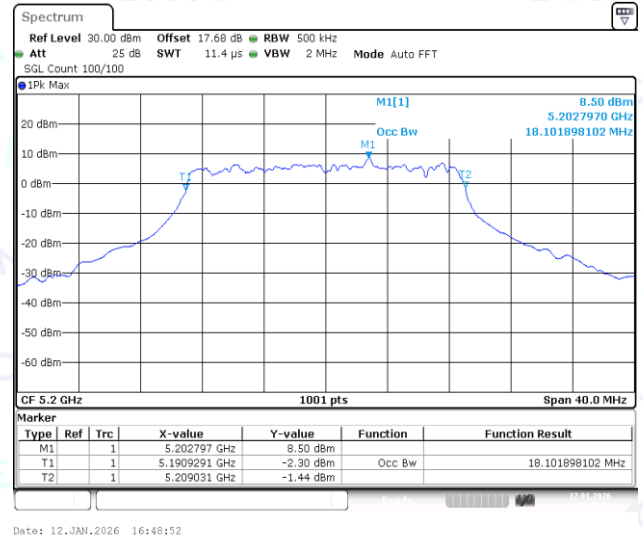
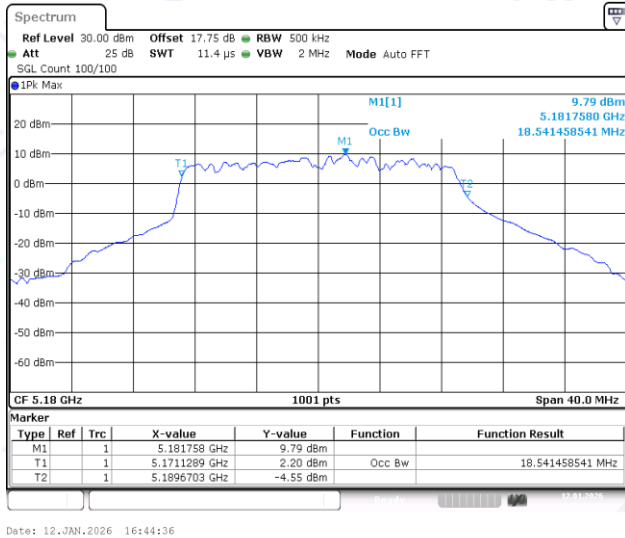
11AC40SISO-Ant1-5230

2: Occupied channel bandwidth

2.1 Test Result

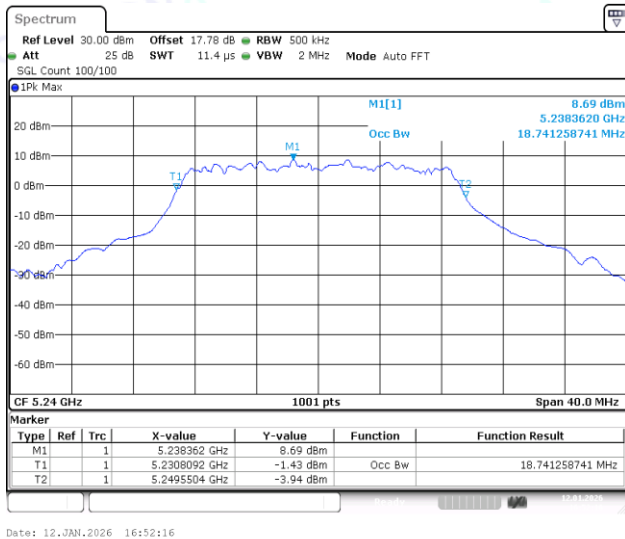
TestMode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11AC20SISO	Ant1	5180	18.541	5171.1289	5189.6703	---	---
11AC20SISO	Ant1	5200	18.102	5190.9291	5209.0310	---	---
11AC20SISO	Ant1	5240	18.741	5230.8092	5249.5504	---	---
11AC40SISO	Ant1	5190	36.683	5171.6983	5208.3816	---	---
11AC40SISO	Ant1	5230	36.843	5211.4585	5248.3017	---	---

2.2 Test Graphs



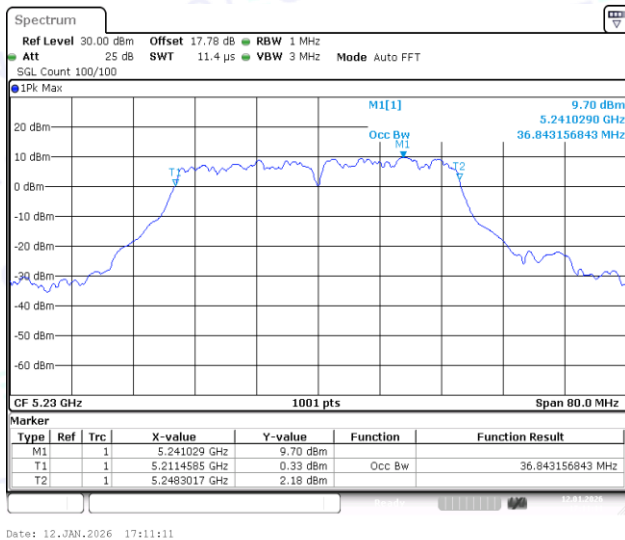
11AC20SISO-Ant1-5180

11AC20SISO-Ant1-5200



11AC20SISO-Ant1-5240

11AC40SISO-Ant1-5190



11AC40SISO-Ant1-5230

4: Duty Cycle

4.1 Test Result

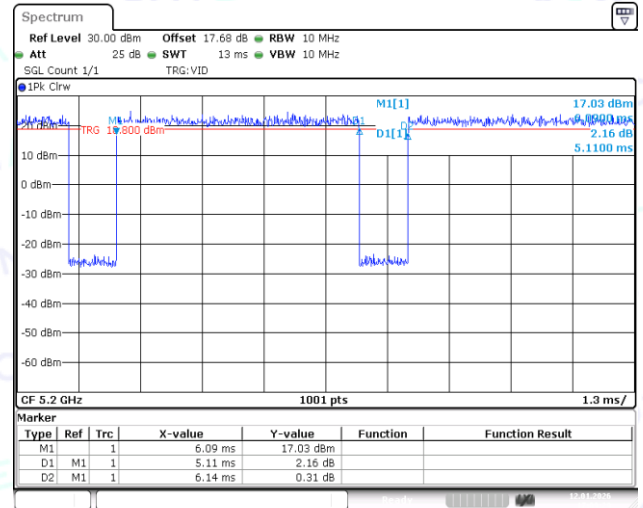
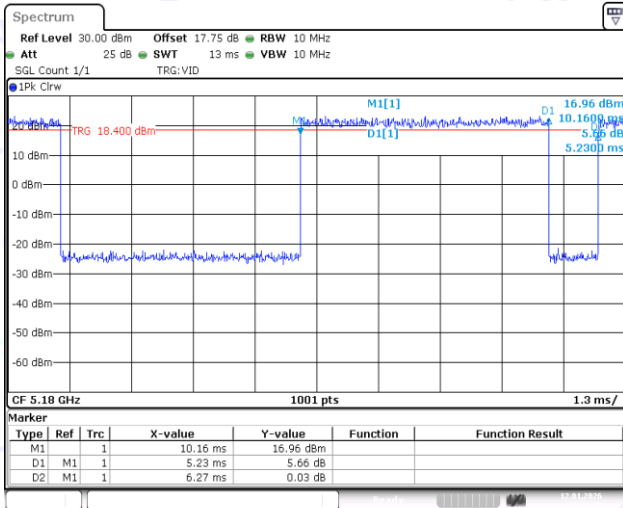
TestMode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	DC Factor	1/T [kHz]
11AC20SISO	Ant1	5180	5.23	6.27	83.41	0.79	0.19
11AC20SISO	Ant1	5200	5.11	6.14	83.22	0.80	0.20
11AC20SISO	Ant1	5240	5.09	6.12	83.17	0.80	0.20
11AC40SISO	Ant1	5190	4.90	5.93	82.63	0.83	0.20
11AC40SISO	Ant1	5230	4.92	5.95	82.69	0.83	0.20

Note: 1, Duty Cycle= Transmission Duration/ Transmission Period

2, DC Factor= $10 \cdot \log_{10}(1/\text{Duty Cycle})$

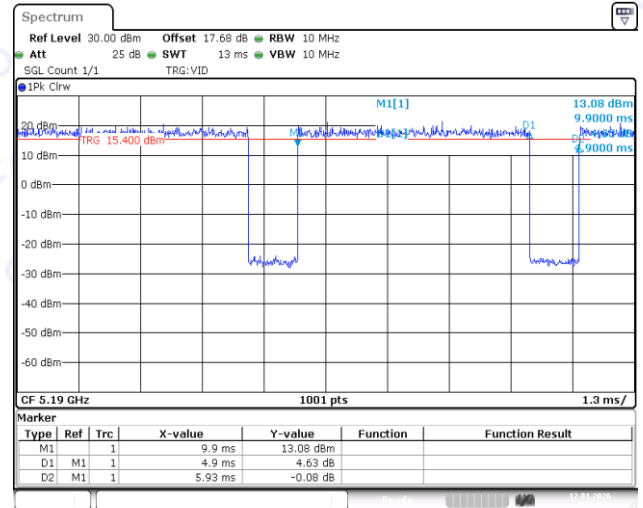
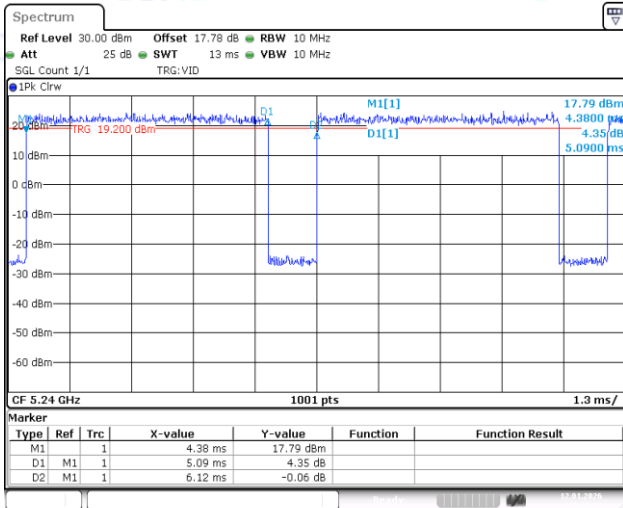
3, $1/T=1/\text{Transmission Duration}$

4.2 Test Graphs



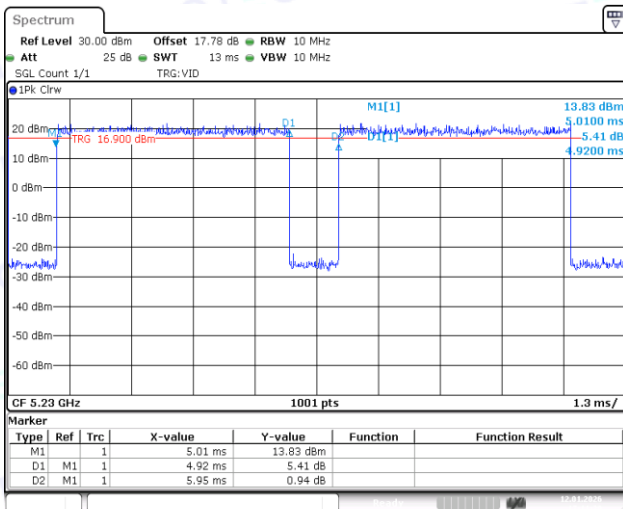
NTNV-11AC20SISO-Ant1-5180

NTNV-11AC20SISO-Ant1-5200



NTNV-11AC20SISO-Ant1-5240

NTNV-11AC40SISO-Ant1-5190



NTNV-11AC40SISO-Ant1-5230

5: Maximum conducted output power

5.1 Test Result

TestMode	Antenna	Frequency [MHz]	Raw Power [dBm]	DC Factor	Result [dBm]	Limit[dBm]	Verdict
11AC20SISO	Ant1	5180	12.37	0.79	13.16	≤23.98	PASS
11AC20SISO	Ant1	5200	13.99	0.80	14.79	≤23.98	PASS
11AC20SISO	Ant1	5240	14.61	0.80	15.41	≤23.98	PASS
11AC40SISO	Ant1	5190	13.58	0.83	14.41	≤23.98	PASS
11AC40SISO	Ant1	5230	14.21	0.83	15.04	≤23.98	PASS

6: Maximum power spectral density

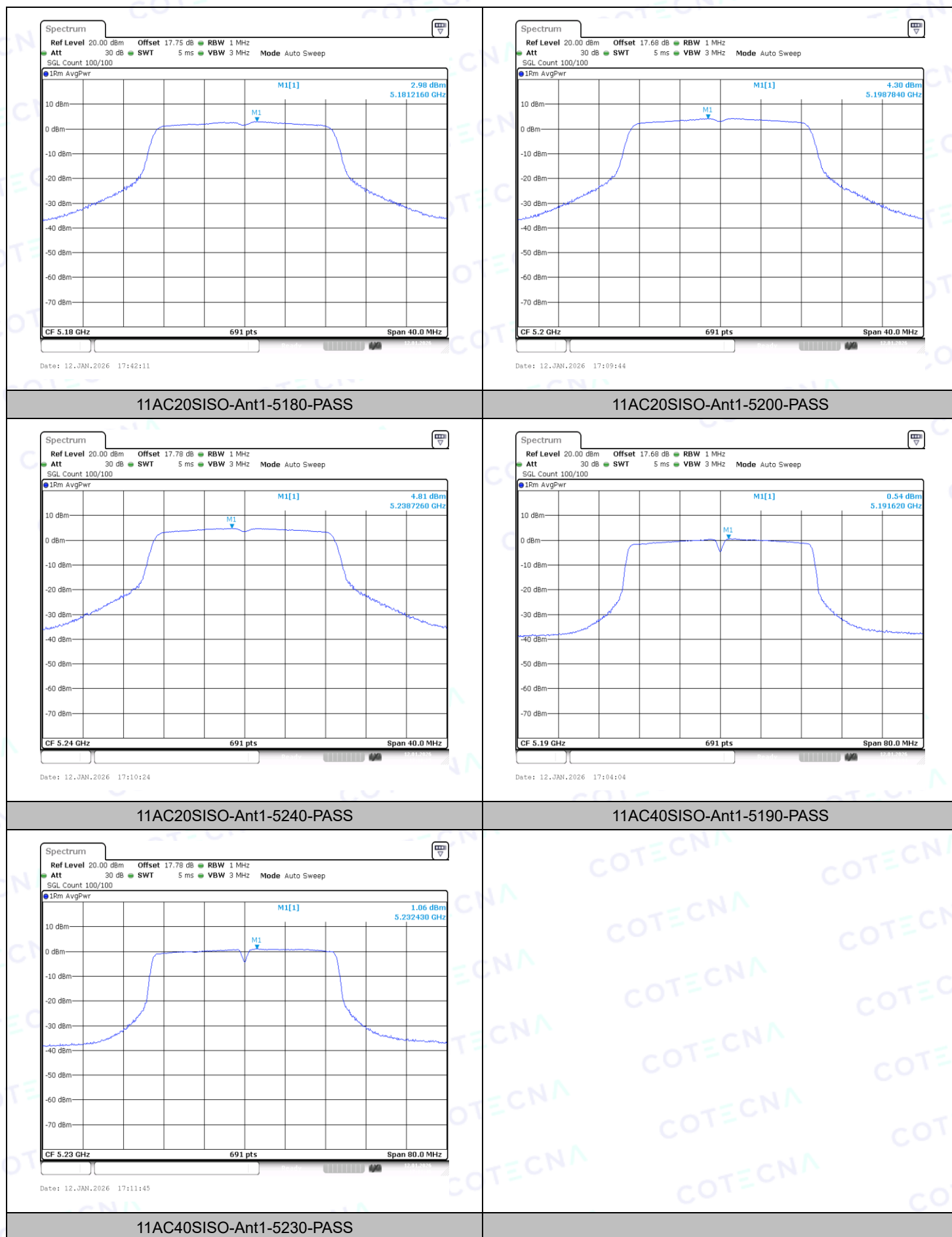
6.1 Test Result

Test Mode	Ant.	Frequency [MHz]	RawData [dBm/3kHz]	DC Factor	Result [dBm/MHz] Result [dBm/500kHz]	Limit[dBm/MHz] Limit[dBm/500kHz]	Verdict
11AC20SISO	Ant1	5180	2.98	0.79	3.77	≤11.00	PASS
11AC20SISO	Ant1	5200	4.3	0.80	5.10	≤11.00	PASS
11AC20SISO	Ant1	5240	4.81	0.80	5.61	≤11.00	PASS
11AC40SISO	Ant1	5190	0.54	0.83	1.37	≤11.00	PASS
11AC40SISO	Ant1	5230	1.06	0.83	1.89	≤11.00	PASS

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

2.RF Conducted test Offset= cable loss+ Attenuator

6.2 Test Graphs

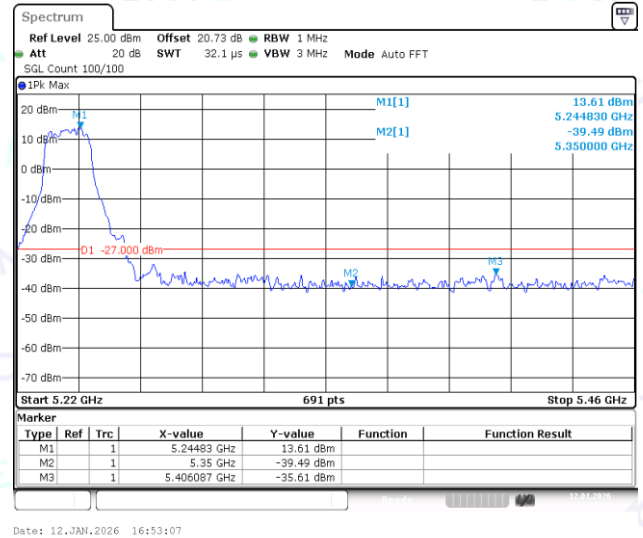
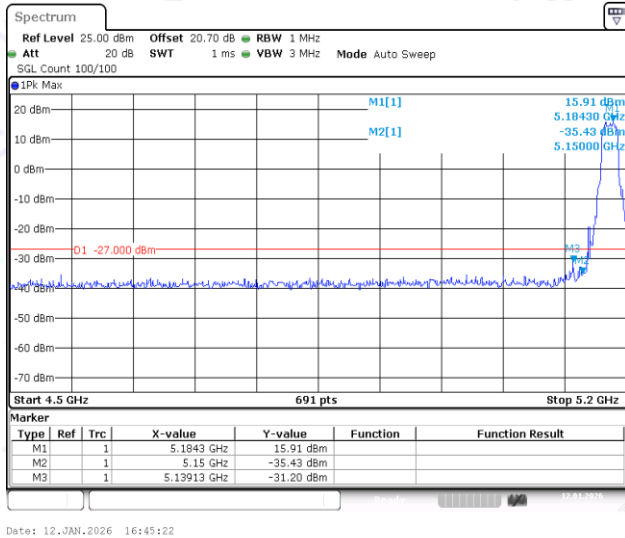


7: Band edge measurements

7.1 Test Result B1

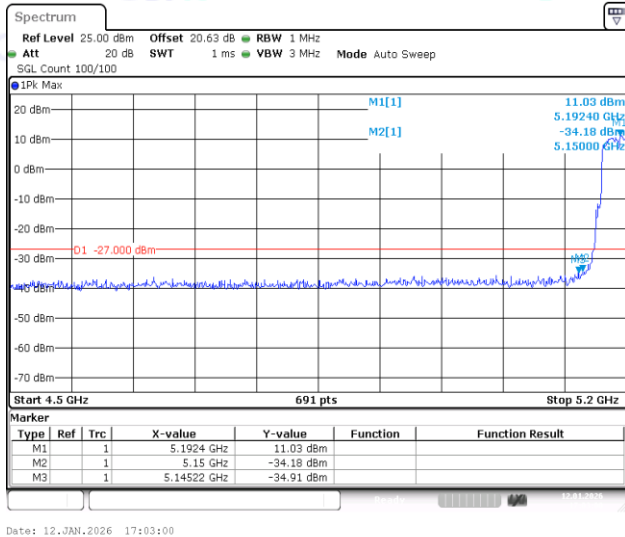
TestMode	Antenna	ChName	Frequency[MHz]	Result[dBm]	Limit[dBm]	Verdict
11AC20SISO	Ant1	Low	5180	-31.2	≤ -27	PASS
11AC20SISO	Ant1	High	5240	-35.61	≤ -27	PASS
11AC40SISO	Ant1	Low	5190	-34.91	≤ -27	PASS
11AC40SISO	Ant1	High	5230	-33.35	≤ -27	PASS

7.3 Test Graphs B1



11AC20SISO-Ant1-5180-PASS

11AC20SISO-Ant1-5240-PASS



11AC40SISO-Ant1-5190-PASS

11AC40SISO-Ant1-5230-PASS

8: Frequency Stability

8.1 Test Result

TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20SISO	Ant1	5180	NV	NT	-20000.00	-3.861004	20	PASS
11AC20SISO	Ant1	5180	LV	NT	-40000.00	-7.722008	20	PASS
11AC20SISO	Ant1	5180	HV	NT	-40000.00	-7.722008	20	PASS
11AC20SISO	Ant1	5200	NV	NT	0.00	0.000000	20	PASS
11AC20SISO	Ant1	5200	LV	NT	-20000.00	-3.846154	20	PASS
11AC20SISO	Ant1	5200	HV	NT	-20000.00	-3.846154	20	PASS
11AC20SISO	Ant1	5240	NV	NT	-20000.00	-3.816794	20	PASS
11AC20SISO	Ant1	5240	LV	NT	-40000.00	-7.633588	20	PASS
11AC20SISO	Ant1	5240	HV	NT	-20000.00	-3.816794	20	PASS
11AC40SISO	Ant1	5190	NV	NT	-40000.00	-7.707129	20	PASS
11AC40SISO	Ant1	5190	LV	NT	-40000.00	-7.707129	20	PASS
11AC40SISO	Ant1	5190	HV	NT	-40000.00	-7.707129	20	PASS
11AC40SISO	Ant1	5230	NV	NT	-40000.00	-7.648184	20	PASS
11AC40SISO	Ant1	5230	LV	NT	-40000.00	-7.648184	20	PASS
11AC40SISO	Ant1	5230	HV	NT	-40000.00	-7.648184	20	PASS

TestMode	Antenna	Frequency [MHz]	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
11AC20SISO	Ant1	5180	NV	0	-20000.00	-3.861004	20	PASS
11AC20SISO	Ant1	5180	NV	10	-40000.00	-7.722008	20	PASS
11AC20SISO	Ant1	5180	NV	20	-20000.00	-3.861004	20	PASS
11AC20SISO	Ant1	5180	NV	30	-20000.00	-3.861004	20	PASS
11AC20SISO	Ant1	5180	NV	45	-40000.00	-7.722008	20	PASS
11AC20SISO	Ant1	5200	NV	0	-20000.00	-3.846154	20	PASS
11AC20SISO	Ant1	5200	NV	10	-20000.00	-3.846154	20	PASS
11AC20SISO	Ant1	5200	NV	20	-40000.00	-7.692308	20	PASS
11AC20SISO	Ant1	5200	NV	30	-20000.00	-3.846154	20	PASS
11AC20SISO	Ant1	5200	NV	45	-20000.00	-3.846154	20	PASS
11AC20SISO	Ant1	5240	NV	0	-40000.00	-7.633588	20	PASS
11AC20SISO	Ant1	5240	NV	10	0.00	0.000000	20	PASS
11AC20SISO	Ant1	5240	NV	20	-20000.00	-3.816794	20	PASS
11AC20SISO	Ant1	5240	NV	30	-40000.00	-7.633588	20	PASS
11AC20SISO	Ant1	5240	NV	45	-20000.00	-3.816794	20	PASS
11AC40SISO	Ant1	5190	NV	0	-40000.00	-7.707129	20	PASS
11AC40SISO	Ant1	5190	NV	10	-40000.00	-7.707129	20	PASS
11AC40SISO	Ant1	5190	NV	20	-80000.00	-15.414258	20	PASS
11AC40SISO	Ant1	5190	NV	30	-40000.00	-7.707129	20	PASS
11AC40SISO	Ant1	5190	NV	45	-40000.00	-7.707129	20	PASS
11AC40SISO	Ant1	5230	NV	0	-40000.00	-7.648184	20	PASS
11AC40SISO	Ant1	5230	NV	10	-40000.00	-7.648184	20	PASS
11AC40SISO	Ant1	5230	NV	20	0.00	0.000000	20	PASS
11AC40SISO	Ant1	5230	NV	30	-40000.00	-7.648184	20	PASS
11AC40SISO	Ant1	5230	NV	45	-40000.00	-7.648184	20	PASS

9: Emissions in Restricted Bands

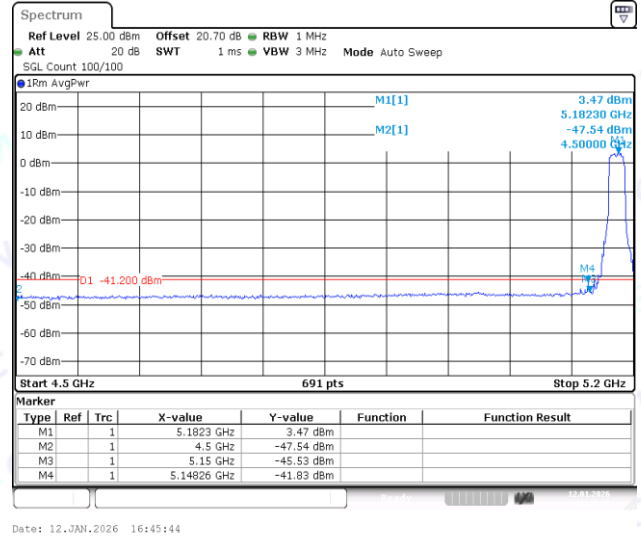
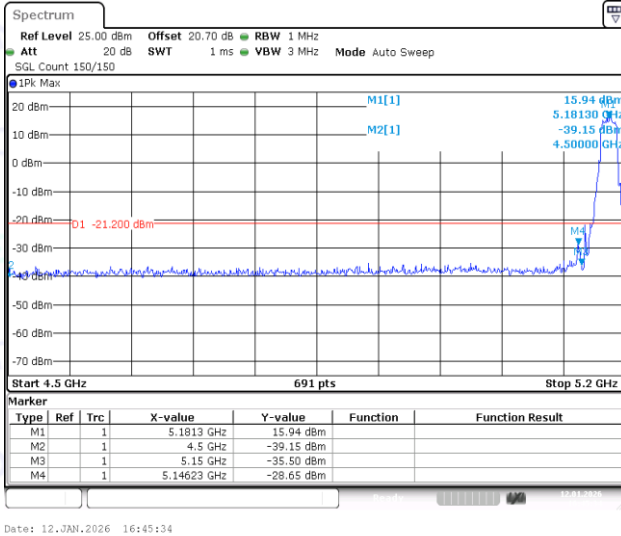
9.1 Test Result

TestMode	Ant.	ChName	Frequency [MHz]	Detector	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [dBuV/m]	Limit [dBuV/m]	Verdict
11AC20SISO	Ant1	Low	5180	Peak	4500.000	-39.15	≤-21.20	56.05	≤74	PASS
11AC20SISO	Ant1	Low	5180	Peak	5150.000	-35.5	≤-21.20	59.70	≤74	PASS
11AC20SISO	Ant1	Low	5180	Peak	5146.232	-28.65	≤-21.20	66.55	≤74	PASS
11AC20SISO	Ant1	Low	5180	AV	4500.000	-47.54	≤-41.20	47.66	≤54	PASS
11AC20SISO	Ant1	Low	5180	AV	5150.000	-45.53	≤-41.20	49.67	≤54	PASS
11AC20SISO	Ant1	Low	5180	AV	5148.261	-41.83	≤-41.20	53.37	≤54	PASS
11AC20SISO	Ant1	High	5240	Peak	5350.000	-40.23	≤-21.20	54.97	≤74	PASS
11AC20SISO	Ant1	High	5240	Peak	5460.000	-38.14	≤-21.20	57.06	≤74	PASS
11AC20SISO	Ant1	High	5240	Peak	5446.783	-34.34	≤-21.20	60.86	≤74	PASS
11AC20SISO	Ant1	High	5240	AV	5350.000	-45.27	≤-41.20	49.93	≤54	PASS
11AC20SISO	Ant1	High	5240	AV	5460.000	-45.65	≤-41.20	49.55	≤54	PASS
11AC20SISO	Ant1	High	5240	AV	5447.130	-43.76	≤-41.20	51.44	≤54	PASS
11AC40SISO	Ant1	Low	5190	Peak	4500.000	-39.04	≤-21.20	56.16	≤74	PASS
11AC40SISO	Ant1	Low	5190	Peak	5150.000	-31.76	≤-21.20	63.44	≤74	PASS
11AC40SISO	Ant1	Low	5190	Peak	5144.203	-28.45	≤-21.20	66.75	≤74	PASS
11AC40SISO	Ant1	Low	5190	AV	4500.000	-47.65	≤-41.20	47.55	≤54	PASS
11AC40SISO	Ant1	Low	5190	AV	5150.000	-44.42	≤-41.20	50.78	≤54	PASS
11AC40SISO	Ant1	Low	5190	AV	5146.232	-44.32	≤-41.20	50.88	≤54	PASS
11AC40SISO	Ant1	High	5230	Peak	5350.000	-38.26	≤-21.20	56.94	≤74	PASS
11AC40SISO	Ant1	High	5230	Peak	5460.000	-34.25	≤-21.20	60.95	≤74	PASS
11AC40SISO	Ant1	High	5230	AV	5350.000	-45.69	≤-41.20	49.51	≤54	PASS
11AC40SISO	Ant1	High	5230	AV	5460.000	-44.86	≤-41.20	50.34	≤54	PASS
11AC40SISO	Ant1	High	5230	AV	5458.870	-43.76	≤-41.20	51.44	≤54	PASS

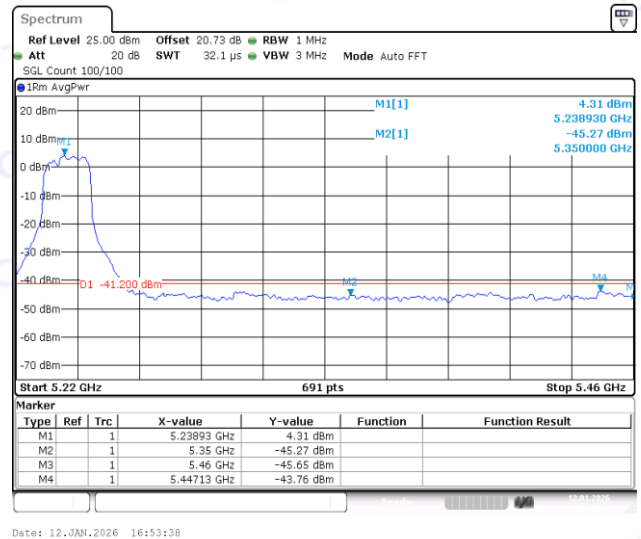
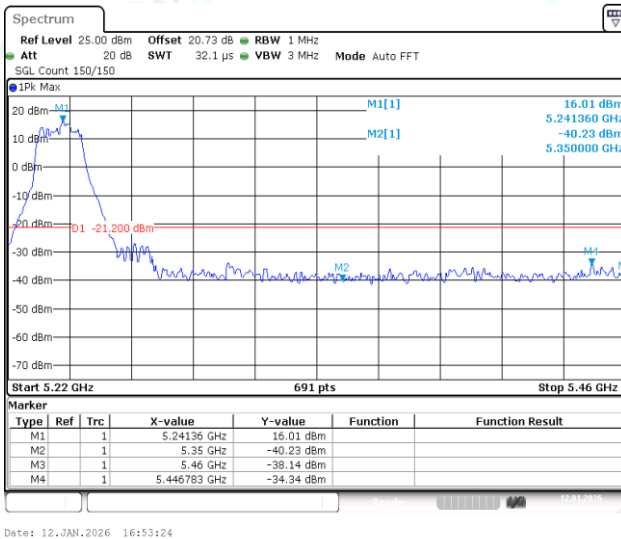
Note:

1. The Antenna Gain is compensated in the graph.
2. For transmitters operating in 5150-5350 GHz band and 5470-5725 GHz band: The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

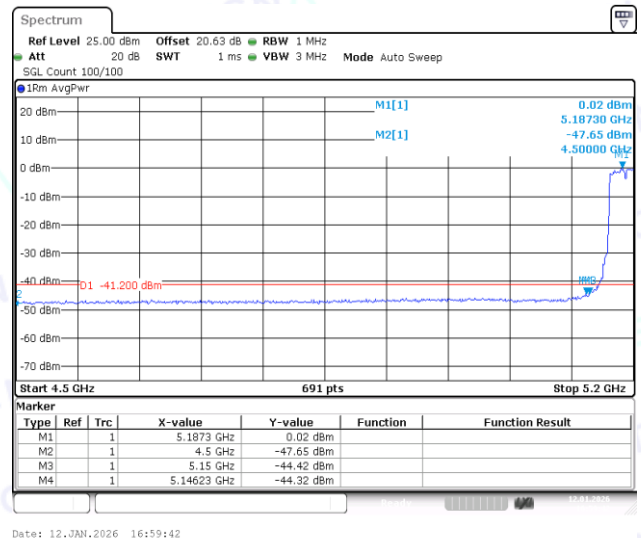
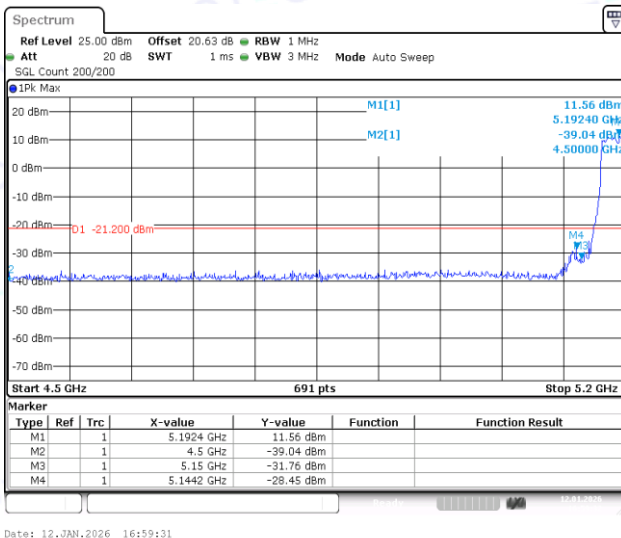
9.2 Test Graphs



11AC20SISO-Ant1-5180-PASS

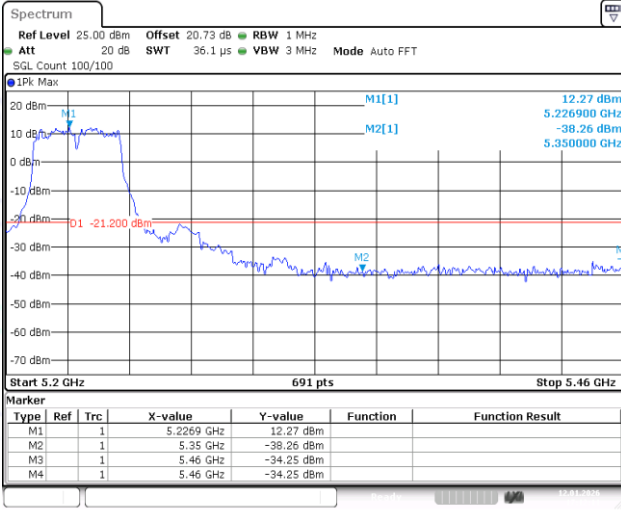


11AC20SISO-Ant1-5240-PASS

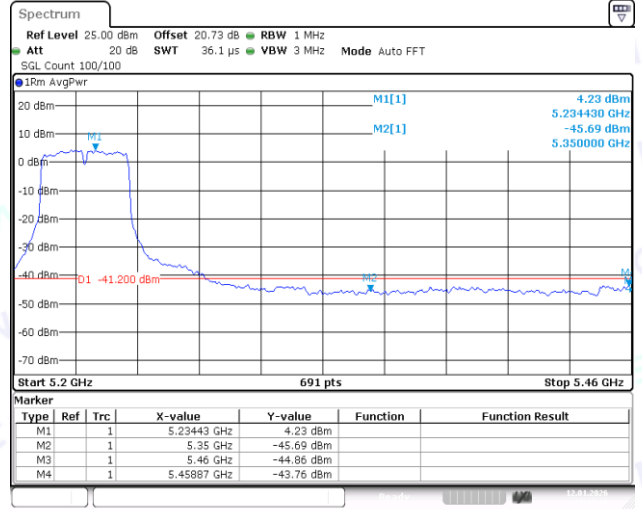


11AC40SISO-Ant1-5190-PASS

11AC40SISO-Ant1-5190-PASS



11AC40SISO-Ant1-5230-PASS



11AC40SISO-Ant1-5230-PASS

-----END OF THE REPORT-----