FCC RF Test Report

APPLICANT	:	**SHANGHAI KINGNUO INTELLICOM TECHNOLOGY CO., LTD**
EQUIPMENT	:	**WiFi6 Wireless Bridge Core Board**
BRAND NAME	:	**KingNuo IntelliCom**
MODEL NAME	:	**XPC660-PIE-U**
FCC ID	:	**2BNUI-XPC660PIEU**
STANDARD	:	**FCC Part 15 Subpart E §15.407**
CLASSIFICATION	:	**(NII) Unlicensed National Information Infrastructure**
TEST DATE(S)	:	**Jan. 09, 2025 ~ Feb. 11, 2025**

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR4D1004B	Rev. 01	Initial issue of report	Mar. 19, 2025

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit for U-NII-1/2A/2C	Limit for U-NII-3	Result	Remark
3.1	2.1049 & 15.403(i)	6dB, 26dB & 99% Bandwidth	-	6dB Bandwidth > 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm/MHz	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	15.407(b)(4)(i) &15.209(a)	Pass	Under limit 3.03 dB at 15900.00 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	15.207(a)	Pass	Under limit 12.36 dB at 0.186 MHz
3.6	15.203 & 15.407(a)	Antenna Requirement	15.203 & 15.407(a)	15.203 & 15.407(a)	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Applicant

SHANGHAI KINGNUO INTELLICOM TECHNOLOGY CO., LTD
Floor 5, building 11, No. 6055, Jinhai highway, Fengxian District,Shanghai

1.2 Manufacturer

SHANGHAI KINGNUO INTELLICOM TECHNOLOGY CO., LTD
Floor 5, building 11, No. 6055, Jinhai highway, Fengxian District,Shanghai

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	WiFi6 Wireless Bridge Core Board
Brand Name	KingNuo IntelliCom
Model Name	XPC660-PIE-U
FCC ID	2BNUI-XPC660PIEU
SN Code	Conducted/Conduction/Radiation: XPC660CN900001
SW Version	V300R24C02B025
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. EUT is a client device.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz 5745 MHz ~ 5825 MHz
Maximum Output Power to Antenna	**MIMO <Ant. 0 + 1>** **<5180 MHz ~ 5240 MHz>** 802.11a : 15.49 dBm / 0.0354 W 802.11n HT20 : 15.48 dBm / 0.0353 W 802.11n HT40 : 17.92 dBm / 0.0619 W 802.11ac VHT20: 15.16 dBm / 0.0328 W 802.11ac VHT40: 16.94 dBm / 0.0494 W 802.11ax HE20: 15.64 dBm / 0.0366 W 802.11ax HE40: 16.97 dBm / 0.0498 W **<5260 MHz ~ 5320 MHz>** 802.11a : 17.61 dBm / 0.0577 W 802.11n HT20 : 18.25 dBm / 0.0668 W 802.11n HT40 : 20.47 dBm / 0.1114 W 802.11ac VHT20: 17.03 dBm / 0.0505 W 802.11ac VHT40: 17.15 dBm / 0.0519 W 802.11ax HE20: 17.08 dBm / 0.0511 W 802.11ax HE40: 17.20 dBm / 0.0525 W **<5500 MHz ~ 5720 MHz >** 802.11a : 18.45 dBm / 0.0700 W 802.11n HT20 : 18.15 dBm / 0.0653 W 802.11n HT40 : 18.33 dBm / 0.0681 W 802.11ac VHT20: 17.38 dBm / 0.0547 W 802.11ac VHT40: 17.48 dBm / 0.0560 W 802.11ax HE20: 17.46 dBm / 0.0557 W 802.11ax HE40: 17.52 dBm / 0.0565 W **<5745 MHz ~ 5825 MHz>** 802.11a : 18.36 dBm / 0.0685 W 802.11n HT20 : 18.32 dBm / 0.0679 W 802.11n HT40 : 18.38 dBm / 0.0689 W 802.11ac VHT20: 17.04 dBm / 0.0506 W 802.11ac VHT40: 17.09 dBm / 0.0512 W 802.11ax HE20: 17.11 dBm / 0.0514 W 802.11ax HE40: 17.14 dBm / 0.0518 W

99% Occupied Bandwidth	**MIMO <Ant. 0 + 1>** **<5180 MHz ~ 5240 MHz>** 802.11a : 19.143 MHz 802.11n HT20 : 18.990 MHz 802.11n HT40 : 38.171 MHz 802.11ax HE20: 18.990 MHz 802.11ax HE40: 37.943 MHz **<5260 MHz ~ 5320 MHz>** 802.11a : 19.162 MHz 802.11n HT20 : 19.676 MHz 802.11n HT40 : 37.790 MHz 802.11ax HE20: 18.990 MHz 802.11ax HE40: 37.905 MHz **<5500 MHz ~ 5720 MHz>** 802.11a : 18.305 MHz 802.11n HT20 : 19.067 MHz 802.11n HT40 : 37.752 MHz 802.11ax HE20: 19.257 MHz 802.11ax HE40: 38.629 MHz **<5745 MHz ~ 5825 MHz>** 802.11a : 19.505 MHz 802.11n HT20 : 18.990 MHz 802.11n HT40 : 39.010 MHz 802.11ax HE20: 19.295 MHz 802.11ax HE40: 38.552 MHz
Antenna Type / Gain	**<5180 MHz ~ 5240 MHz>** **<Ant. 0> :** Dipole Antenna with gain 2.75 dBi **<Ant. 1> :** Dipole Antenna with gain 2.75 dBi **<5260 MHz ~ 5320 MHz>** **<Ant. 0> :** Dipole Antenna with gain 2.30 dBi **<Ant. 1> :** Dipole Antenna with gain 2.30 dBi **<5500 MHz ~ 5720 MHz>** **<Ant. 0> :** Dipole Antenna with gain 2.60 dBi **<Ant. 1> :** Dipole Antenna with gain 2.60 dBi **<5745 MHz ~ 5825 MHz>** **<Ant. 0> :** Dipole Antenna with gain 2.02 dBi **<Ant. 1> :** Dipole Antenna with gain 2.02 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)

Note:

1. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to the higher normal output power.
2. The device supports WLAN MIMO CDD mode.
3. For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing has assessed only 802.11n HT20/ HT40 by referring to their higher conducted power.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	CO01-KS 03CH08-KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	Tonscend	JS1120-3 test system China_210602	3.3.10
2.	03CH08-KS	AUDIX	E3	210616
3.	CO01-KS	AUDIX	E3	6.2009-8-24

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart E
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5180-5240 MHz U-NII-1	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42#	5210	-	-

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5260-5320 MHz U-NII-2A	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58#	5290	-	-

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5500-5720MHz U-NII-2C	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106#	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5745-5825 MHz U-NII-3	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155#	5775	165	5825

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
TDWR Channel	118*	5590	124	5620
	120	5600	126*	5630
	122#	5610	128	5640

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	138#	5690	144	5720
	142*	5710	-	-

Note: The above Frequency and Channel in "*" are 40MHz bandwidth.

2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20 (Covered by HT20)	MCS0
802.11ac VHT40 (Covered by HT40)	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0

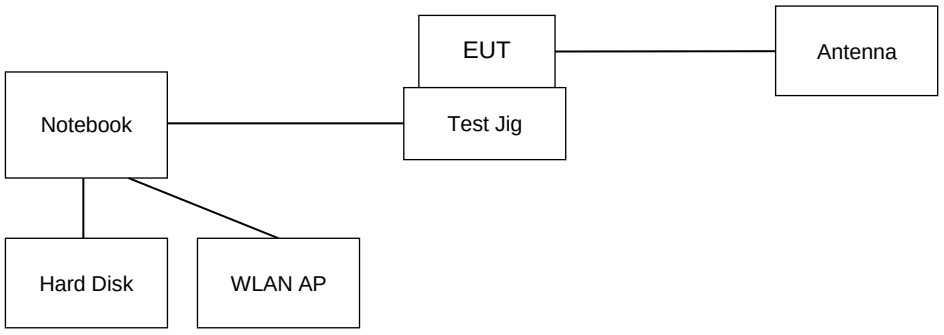
AC Conducted Emission	Mode 1 : WLAN TX(5G) + Charging from NB + Test Jig
Remark:	
1. For Radiated Test Cases, The tests were performance with Adapter and USB Cable.	

Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		20M BW	20M BW	20M BW	20M BW
L	Low	36	52	100	149
M	Middle	44	60	116	157
H	High	48	64	140	165
Straddle		-	-	144	-

Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		40M BW	40M BW	40M BW	40M BW
L	Low	38	54	102	151
M	Middle	-	-	110	-
H	High	46	62	134	159
Straddle		-	-	142	-

2.3 Connection Diagram of Test System

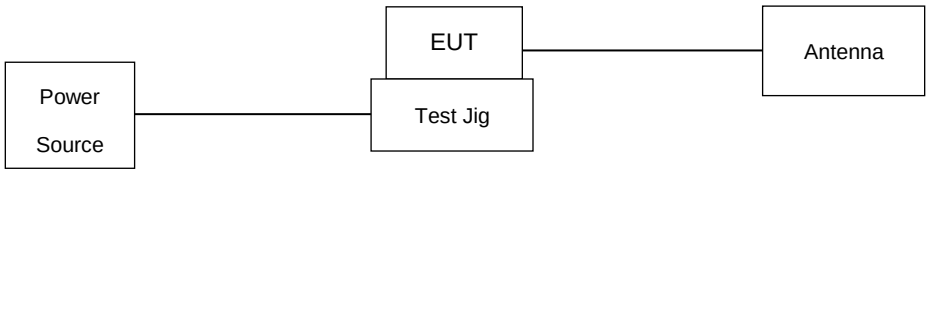
AC Conducted Emission:



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

Radiated Emission:



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
2.	Hard DISK	WD	C6B	N/A	N/A	N/A
3.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
4.	Adapter	N/A	N/A	N/A	N/A	N/A
5.	Antenna	N/A	N/A	N/A	N/A	N/A
6.	Test Jig	N/A	N/A	N/A	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 14.58 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 14.58 + 10 = 24.58 (dB)

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

26dB and 99% Occupied bandwidth are reporting only.

3.1.2 Measuring Instruments

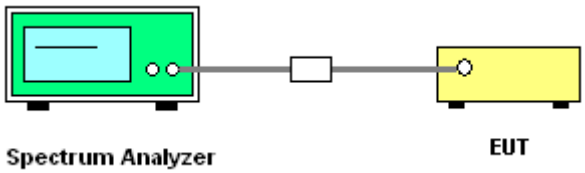
The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

☒	Section C) Bandwidth Measurement 1. Emission Bandwidth (EBW) and 99% OBW
	1. Set RBW = approximately 1% of the emission bandwidth. **2.** Set the VBW > RBW. **3.** Detector = Peak. **4.** Trace mode = max hold **5.** Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%. **6.** For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set to 1%~5% of the OBW and set the Video bandwidth (VBW) ≥ 3 * RBW. **7.** Measure and record the results in the test report.
☒	Section C) Bandwidth Measurement 2. Minimum Emission Bandwidth for the band 5.725 - 5.85 GHz
	1. Set RBW = 100kHz. **2.** Set the VBW ≥ 3 x RBW. **3.** Detector = Peak. **4.** Trace mode = max hold **5.** Measure the maximum width of the emission that is 6 dB down from the peak of the emission. **6.** Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm +10 $\log_{10}$ B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

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3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

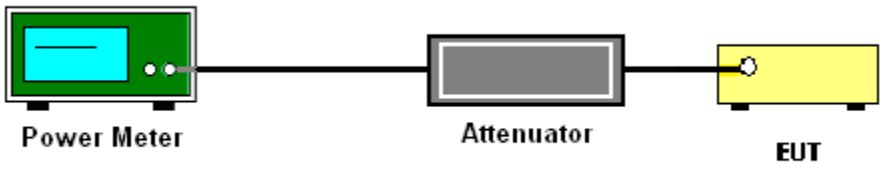
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method PM (Measurement using an RF average power meter):

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.
4. For MIMO mode, the measure-and-sum technique should be used for measuring the in-band transmit power of a device.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

FCC<5180 MHz ~ 5240 MHz> MIMO																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail	Power Setting	
					Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1		Ant 0	Ant 1
11a	6Mbps	2	36	5180	0.00	0.00	11.80	12.82	15.35	24.00		2.75		Pass	18	
11a	6Mbps	2	44	5220	0.00	0.00	12.23	12.71	15.49	24.00		2.75		Pass	17	
11a	6Mbps	2	48	5240	0.00	0.00	11.98	12.26	15.13	24.00		2.75		Pass	17	
HT20	MCS0	2	36	5180	0.00	0.00	11.99	12.91	15.48	24.00		2.75		Pass	18	
HT20	MCS0	2	44	5220	0.00	0.00	12.18	12.70	15.46	24.00		2.75		Pass	17	
HT20	MCS0	2	48	5240	0.00	0.00	12.10	12.42	15.27	24.00		2.75		Pass	17	
HT40	MCS0	2	38	5190	0.00	0.00	8.31	9.30	11.84	24.00		2.75		Pass	26	
HT40	MCS0	2	46	5230	0.00	0.00	14.78	15.03	17.92	24.00		2.75		Pass	11	
VHT20	MCS0	2	36	5180	0.00	0.00	10.95	12.41	14.75	24.00		2.75		Pass	18	
VHT20	MCS0	2	44	5220	0.00	0.00	11.24	12.91	15.16	24.00		2.75		Pass	17	
VHT20	MCS0	2	48	5240	0.00	0.00	11.15	12.81	15.07	24.00		2.75		Pass	17	
VHT40	MCS0	2	38	5190	0.00	0.00	7.51	9.10	11.39	24.00		2.75		Pass	26	
VHT40	MCS0	2	46	5230	0.00	0.00	14.00	13.86	16.94	24.00		2.75		Pass	13	

FCC<5180 MHz ~ 5240 MHz> MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail	Power Setting	
						Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1		Ant 0	Ant 1
HE20	MCS0	2	36	5180	Full	0.00	0.00	12.08	13.12	15.64	24.00		2.75		Pass	17	
HE20	MCS0	2	44	5220	Full	0.00	0.00	12.05	12.51	15.30	24.00		2.75		Pass	17	
HE20	MCS0	2	48	5240	Full	0.00	0.00	12.23	12.63	15.45	24.00		2.75		Pass	16	
HE40	MCS0	2	38	5190	Full	0.00	0.00	9.05	9.88	12.50	24.00		2.75		Pass	23	
HE40	MCS0	2	46	5230	Full	0.00	0.00	14.04	13.88	16.97	24.00		2.75		Pass	13	

FCC <5260 MHz ~ 5320 MHz> MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail	Power Setting	
					Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1			Ant 0	Ant 1
11a	6Mbps	2	52	5260	0.00	0.00	13.98	13.39	16.70	23.98		2.30		26.99	Pass	14	
11a	6Mbps	2	60	5300	0.00	0.00	12.68	12.02	15.37	23.98		2.30		26.99	Pass	16	
11a	6Mbps	2	64	5320	0.00	0.00	15.00	14.17	17.61	23.98		2.30		26.99	Pass	10	
HT20	MCS0	2	52	5260	0.00	0.00	15.49	14.98	18.25	23.98		2.30		26.99	Pass	10	
HT20	MCS0	2	60	5300	0.00	0.00	15.20	14.43	17.84	23.98		2.30		26.99	Pass	10	
HT20	MCS0	2	64	5320	0.00	0.00	14.32	13.48	16.93	23.98		2.30		26.99	Pass	12	
HT40	MCS0	2	54	5270	0.00	0.00	17.75	17.15	20.47	23.98		2.30		26.99	Pass	0	
HT40	MCS0	2	62	5310	0.00	0.00	11.00	10.34	13.69	23.98		2.30		26.99	Pass	20	
VHT20	MCS0	2	52	5260	0.00	0.00	14.47	13.52	17.03	23.98		2.30		26.99	Pass	14	
VHT20	MCS0	2	60	5300	0.00	0.00	13.92	13.10	16.54	23.98		2.30		26.99	Pass	14	
VHT20	MCS0	2	64	5320	0.00	0.00	13.98	13.06	16.55	23.98		2.30		26.99	Pass	13	
VHT40	MCS0	2	54	5270	0.00	0.00	14.45	13.81	17.15	23.98		2.30		26.99	Pass	14	
VHT40	MCS0	2	62	5310	0.00	0.00	9.95	9.38	12.69	23.98		2.30		26.99	Pass	22	

FCC<5260 MHz ~ 5320 MHz> MIMO																		
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail	Power Setting	
						Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1			Ant 0	Ant 1
HE20	MCS0	2	52	5260	Full	0.00	0.00	14.51	13.58	17.08	23.98		2.30		26.99	Pass	14	
HE20	MCS0	2	60	5300	Full	0.00	0.00	13.98	13.18	16.61	23.98		2.30		26.99	Pass	14	
HE20	MCS0	2	64	5320	Full	0.00	0.00	14.04	13.15	16.63	23.98		2.30		26.99	Pass	13	
HE40	MCS0	2	54	5270	Full	0.00	0.00	14.51	13.84	17.20	23.98		2.30		26.99	Pass	14	
HE40	MCS0	2	62	5310	Full	0.00	0.00	9.91	9.23	12.59	23.98		2.30		26.99	Pass	22	

FCC <5500 MHz ~ 5720 MHz > MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail	Power Setting	
					Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1			Ant 0	Ant 1
11a	6Mbps	2	100	5500	0.00	0.00	16.29	14.38	18.45	23.98		2.60		26.99	Pass	0	
11a	6Mbps	2	116	5580	0.00	0.00	15.16	14.00	17.63	23.98		2.60		26.99	Pass	0	
11a	6Mbps	2	140	5700	0.00	0.00	12.57	12.80	15.70	23.98		2.60		26.99	Pass	10	
HT20	MCS0	2	100	5500	0.00	0.00	15.97	14.12	18.15	23.98		2.60		26.99	Pass	0	
HT20	MCS0	2	116	5580	0.00	0.00	14.65	13.66	17.19	23.98		2.60		26.99	Pass	0	
HT20	MCS0	2	140	5700	0.00	0.00	12.23	12.55	15.40	23.98		2.60		26.99	Pass	10	
HT40	MCS0	2	102	5510	0.00	0.00	12.28	10.30	14.41	23.98		2.60		26.99	Pass	14	
HT40	MCS0	2	110	5550	0.00	0.00	16.04	14.45	18.33	23.98		2.60		26.99	Pass	0	
HT40	MCS0	2	134	5670	0.00	0.00	14.33	14.12	17.24	23.98		2.60		26.99	Pass	7	
VHT20	MCS0	2	100	5500	0.00	0.00	14.11	12.98	16.59	23.98		2.60		26.99	Pass	10	
VHT20	MCS0	2	116	5580	0.00	0.00	14.14	13.41	16.80	23.98		2.60		26.99	Pass	7	
VHT20	MCS0	2	140	5700	0.00	0.00	12.24	12.43	15.34	23.98		2.60		26.99	Pass	10	
VHT40	MCS0	2	102	5510	0.00	0.00	11.62	9.69	13.77	23.98		2.60		26.99	Pass	15	
VHT40	MCS0	2	110	5550	0.00	0.00	14.16	12.66	16.49	23.98		2.60		26.99	Pass	9	
VHT40	MCS0	2	134	5670	0.00	0.00	12.14	12.14	15.15	23.98		2.60		26.99	Pass	10	

FCC <5500 MHz ~ 5720 MHz > straddle channel MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail	Power Setting	
					Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1			Ant 0	Ant 1
11a	6Mbps	2	144	5720	0.00	0.00	14.60	14.69	17.65	23.98		2.60		26.99	Pass	0	
HT20	MCS0	2	144	5720	0.00	0.00	14.39	14.49	17.45	23.98		2.60		26.99	Pass	0	
HT40	MCS0	2	142	5710	0.00	0.00	14.68	14.62	17.66	23.98		2.60		26.99	Pass	0	
VHT20	MCS0	2	144	5720	0.00	0.00	14.29	14.46	17.38	23.98		2.60		26.99	Pass	6	
VHT40	MCS0	2	142	5710	0.00	0.00	14.45	14.48	17.48	23.98		2.60		26.99	Pass	5	

FCC <5500 MHz ~ 5720 MHz > MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail	Power Setting	
						Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1			Ant 0	Ant 1
HE20	MCS0	2	100	5500	Full	0.00	0.00	14.15	13.05	16.65	23.98		2.60		26.99	Pass	10	
HE20	MCS0	2	116	5580	Full	0.00	0.00	14.19	13.49	16.86	23.98		2.60		26.99	Pass	7	
HE20	MCS0	2	140	5700	Full	0.00	0.00	12.37	12.65	15.52	23.98		2.60		26.99	Pass	10	
HE40	MCS0	2	102	5510	Full	0.00	0.00	11.59	9.56	13.70	23.98		2.60		26.99	Pass	15	
HE40	MCS0	2	110	5550	Full	0.00	0.00	14.17	12.67	16.49	23.98		2.60		26.99	Pass	9	
HE40	MCS0	2	134	5670	Full	0.00	0.00	12.10	12.03	15.08	23.98		2.60		26.99	Pass	10	

FCC <5500 MHz ~ 5720 MHz > straddle channel MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail	Power Setting	
						Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1			Ant 0	Ant 1
HE20	MCS0	2	144	5720	Full	0.00	0.00	14.36	14.54	17.46	23.98		2.60		26.99	Pass	6	
HE40	MCS0	2	142	5710	Full	0.00	0.00	14.52	14.50	17.52	23.98		2.60		26.99	Pass	5	

<5745 MHz ~ 5825 MHz>MIMO																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail	Power Setting	
					Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1		Ant 0	Ant 1
11a	6Mbps	2	149	5745	0.00	0.00	14.29	15.27	17.82	30.00		2.02		Pass	0	
11a	6Mbps	2	157	5785	0.00	0.00	14.63	15.60	18.15	30.00		2.02		Pass	0	
11a	6Mbps	2	165	5825	0.00	0.00	14.88	15.77	18.36	30.00		2.02		Pass	0	
HT20	MCS0	2	149	5745	0.00	0.00	14.09	15.11	17.64	30.00		2.02		Pass	0	
HT20	MCS0	2	157	5785	0.00	0.00	14.50	15.51	18.04	30.00		2.02		Pass	0	
HT20	MCS0	2	165	5825	0.00	0.00	14.73	15.82	18.32	30.00		2.02		Pass	0	
HT40	MCS0	2	151	5755	0.00	0.00	14.44	15.42	17.97	30.00		2.02		Pass	0	
HT40	MCS0	2	159	5795	0.00	0.00	14.82	15.86	18.38	30.00		2.02		Pass	0	
VHT20	MCS0	2	149	5745	0.00	0.00	13.55	14.47	17.04	30.00		2.02		Pass	7	
VHT20	MCS0	2	157	5785	0.00	0.00	13.14	14.27	16.75	30.00		2.02		Pass	9	
VHT20	MCS0	2	165	5825	0.00	0.00	13.51	14.49	17.04	30.00		2.02		Pass	9	
VHT40	MCS0	2	151	5755	0.00	0.00	13.47	14.45	17.00	30.00		2.02		Pass	7	
VHT40	MCS0	2	159	5795	0.00	0.00	13.53	14.56	17.09	30.00		2.02		Pass	8	

<5745 MHz ~ 5825 MHz>MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail	Power Setting	
						Ant 0	Ant 1	Ant 0	Ant 1	SUM	Ant 0	Ant 1	Ant 0	Ant 1		Ant 0	Ant 1
HE20	MCS0	2	149	5745	Full	0.00	0.00	13.60	14.54	17.11	30.00		2.02		Pass	7	
HE20	MCS0	2	157	5785	Full	0.00	0.00	13.21	14.35	16.83	30.00		2.02		Pass	9	
HE20	MCS0	2	165	5825	Full	0.00	0.00	13.54	14.55	17.08	30.00		2.02		Pass	9	
HE40	MCS0	2	151	5755	Full	0.00	0.00	13.49	14.46	17.01	30.00		2.02		Pass	7	
HE40	MCS0	2	159	5795	Full	0.00	0.00	13.58	14.61	17.14	30.00		2.02		Pass	8	

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04. Section F) Maximum power spectral density.

For devices operating in the bands UNII-1/2A/2C

 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.

For devices operating in the band UNII-3

 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 500KHz (or 300 kHz if the SA can’t set RBW=500KHz).
- Set VBW ≥ 1 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- If the SA can’t set RBW=500KHz, then add 10 log(500kHz/RBW) to the test result.
- Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.

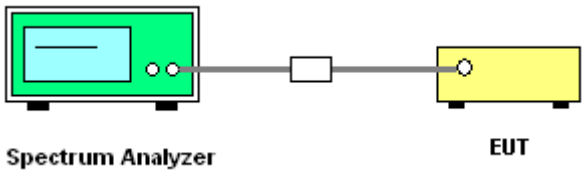
1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (a): Measure and sum the spectra across the outputs.
The total final Power Spectral Density is the bin-by-bin summation to obtain the combined spectrum. For the device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

Method (b): Measure and sum spectral maxima across the outputs.
The measurement on each individual output were performed with the same span and number on each individual output. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs.

Method (c): Measure and add 10 log(N_{ANT}) dB, where N_{ANT} is the number of outputs.
The measurement on each individual output were performed with the same span and number on each individual output. The quantity 10 log(N_{ANT}) dB is added to each spectrum value before comparing to the emission limit.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

3.4 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of –27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

(2) For transmitters operating in the 5.725-5.85 GHz band:
15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(3) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table,

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

(4) EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.2

Note: The following formula is used to convert the EIRP to field strength.

$$EIRP = E_{Meas} + 20\log(d_{Meas}) - 104.7$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m

d_{Meas} is the measurement distance, in m

(4) ANSI C63.10-2013 clause 12.7.3 note 97

As specified by regulatory requirements, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit. However, an out-of-band emission that complies with both the average and peak general regulatory limits is not required to satisfy the peak emission limit.

3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04. Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

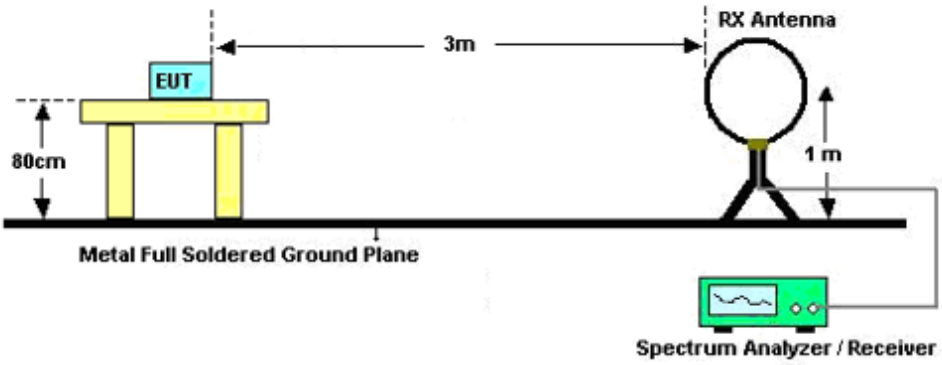
   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

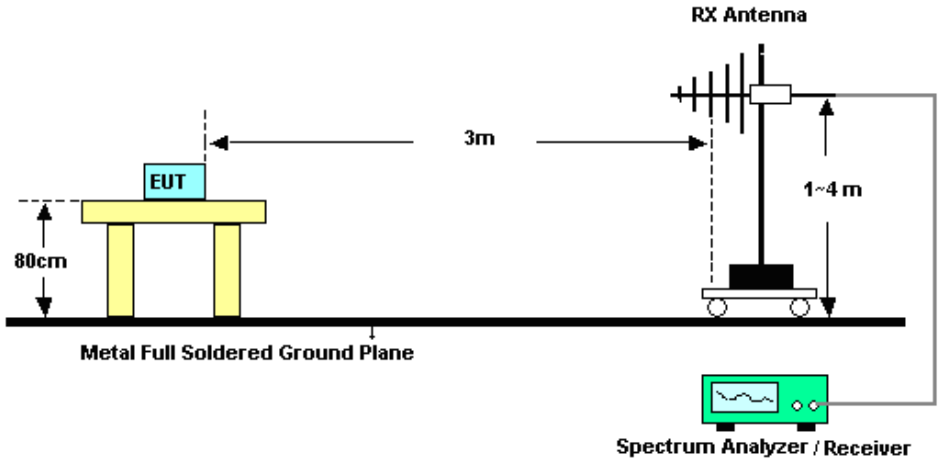
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

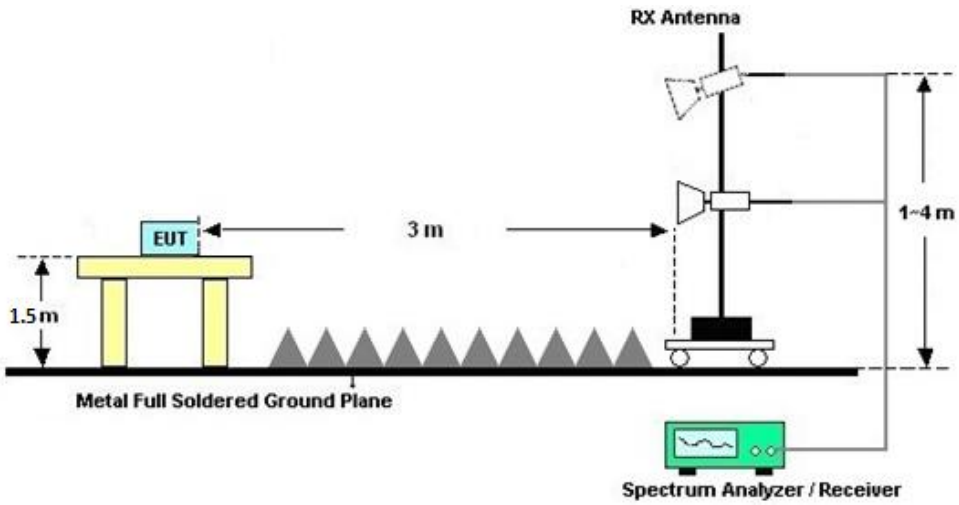
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

3.4.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix C.

3.5 AC Conducted Emission Measurement

3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

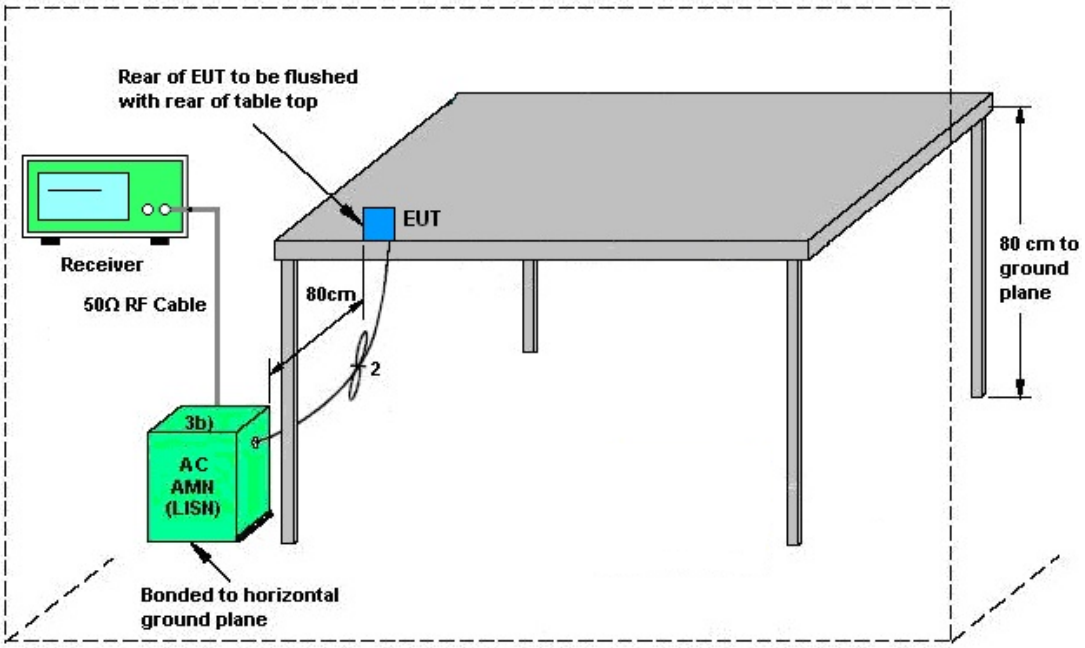
3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.5.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = GANT + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(NANT/NSS=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain GANT is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

	Ant. 0 (dBi)	Ant. 1 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
UNII-1	2.75	2.75	2.75	5.76	0.00	0.00
UNII-2A	2.30	2.30	2.30	5.31	0.00	0.00
UNII-2C	2.60	2.60	2.60	5.61	0.00	0.00
UNII-3	2.02	2.02	2.02	5.03	0.00	0.00

Power limit reduction = Composite gain – 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain – 6dBi, (min = 0)

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A	MY57290151	3Hz~8.5GHz;Max 30dBm	Jul. 04, 2024	Feb. 08, 2025	Jul. 03, 2025	Radiation (03CH08-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57441079	10Hz-44GHz	Oct. 09, 2024	Feb. 08, 2025	Oct. 08, 2025	Radiation (03CH08-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 08, 2024	Feb. 08, 2025	Sep. 07, 2025	Radiation (03CH08-KS)
Bilog Antenna	TESEQ	CBL 6111D	59915	30MHz-1GHz	Aug. 18, 2024	Feb. 08, 2025	Aug.17, 2025	Radiation (03CH08-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00240138	1GHz~18GHz	Jul. 06, 2024	Feb. 08, 2025	Jul. 05, 2025	Radiation (03CH08-KS)
high gain Amplifier	EM	EM01G18GA	060890	1Ghz-18Ghz	Jul. 23, 2024	Feb. 08, 2025	Jul. 22, 2025	Radiation (03CH08-KS)
SHF-EHF Horn	Com-power	AH-840	101116	18GHz~40GHz	Oct. 22, 2024	Feb. 08, 2025	Oct. 21, 2025	Radiation (03CH08-KS)
Amplifier	SONOMA	310N	380826	9KHz-1GHz	Jul. 03, 2024	Feb. 08, 2025	Jul. 02, 2025	Radiation (03CH08-KS)
Amplifier	Keysight	83017A	MY53270417	500MHz~26.5GHz	Oct. 09, 2024	Feb. 08, 2025	Oct. 08, 2025	Radiation (03CH08-KS)
Amplifier	EM	EM18G40GGA	060737	18~40GHz	Jan. 03, 2025	Feb. 08, 2025	Jan. 02, 2026	Radiation (03CH08-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Feb. 08, 2025	NCR	Radiation (03CH08-KS)
Turn Table	EM	EM 1000-T	N/A	0~360 degree	NCR	Feb. 08, 2025	NCR	Radiation (03CH08-KS)
Antenna Mast	EM	EM 1000-A	N/A	1 m~4 m	NCR	Feb. 08, 2025	NCR	Radiation (03CH08-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 18, 2024	Jan. 09, 2025	Apr. 17, 2025	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Aug. 20, 2024	Jan. 09, 2025	Aug. 19, 2025	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Apr. 18, 2024	Jan. 09, 2025	Apr. 17, 2025	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 09, 2024	Jan. 09, 2025	Oct. 08, 2025	Conduction (CO01-KS)
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 10, 2024	Jan. 10, 2025~ Feb. 11, 2025	Oct. 09, 2025	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2025	Jan. 10, 2025~ Feb. 11, 2025	Jan. 01, 2026	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2025	Jan. 10, 2025~ Feb. 11, 2025	Jan. 01, 2026	Conducted (TH01-KS)

NCR: No Calibration Required

5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Conducted Spurious Emission & Bandedge	**±2.22 dB**
Occupied Channel Bandwidth	**±0.1%**
Conducted Power	**±0.50 dB**
Conducted Power Spectral Density	**±0.90 dB**
Frequency	**±0.04 Hz**

Uncertainty of AC Conducted Emission Measurement (0.15 MHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.84 dB**

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.30 dB**

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**6.04 dB**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.26 dB**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.40 dB**

---------- THE END ----------

Appendix A. Conducted Test Results

Ambient Condition: 25 ℃, 45 %RH	
According Standard: ■Part15E	
Test Date: 2025/1/10~2025/2/11	**Test Engineer:** Jacob Zhang

Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A-CDD	Ant0	5180	20.68	5169.83	5190.51	---	---
	Ant1	5180	20.25	5170.07	5190.31	---	---
	Ant0	5220	20.87	5209.30	5230.17	---	---
	Ant1	5220	19.77	5210.11	5229.89	---	---
	Ant0	5240	20.63	5229.83	5250.46	---	---
	Ant1	5240	20.44	5229.97	5250.41	---	---
	Ant0	5260	21.77	5249.11	5270.89	---	---
	Ant1	5260	20.44	5250.02	5270.46	---	---
	Ant0	5300	20.53	5289.97	5310.51	---	---
	Ant1	5300	20.25	5289.78	5310.03	---	---
	Ant0	5320	22.49	5309.21	5331.70	---	---
	Ant1	5320	21.30	5308.73	5330.03	---	---
	Ant0	5500	24.82	5488.16	5512.98	---	---
	Ant1	5500	21.53	5489.88	5511.41	---	---
	Ant0	5580	22.53	5569.16	5591.70	---	---
	Ant1	5580	23.73	5569.64	5593.36	---	---
	Ant0	5700	22.20	5689.97	5712.17	---	---
	Ant1	5700	23.96	5688.97	5712.93	---	---
	Ant0	5720	35.25	5703.73	5738.99	---	---
	Ant1	5720	35.73	5703.87	5739.60	---	---
	Ant0	5720_UNII-2C	21.27	5703.73	5725	---	---
	Ant1	5720_UNII-2C	21.13	5703.87	5725	---	---
	Ant0	5720_UNII-3	13.99	5725	5738.99	---	---
	Ant1	5720_UNII-3	14.6	5725	5739.60	---	---
	Ant0	5745	22.30	5734.45	5756.74	---	---
	Ant1	5745	25.87	5732.02	5757.89	---	---
	Ant0	5785	29.11	5771.73	5800.84	---	---
	Ant1	5785	31.40	5770.11	5801.51	---	---
	Ant0	5825	29.97	5812.07	5842.03	---	---

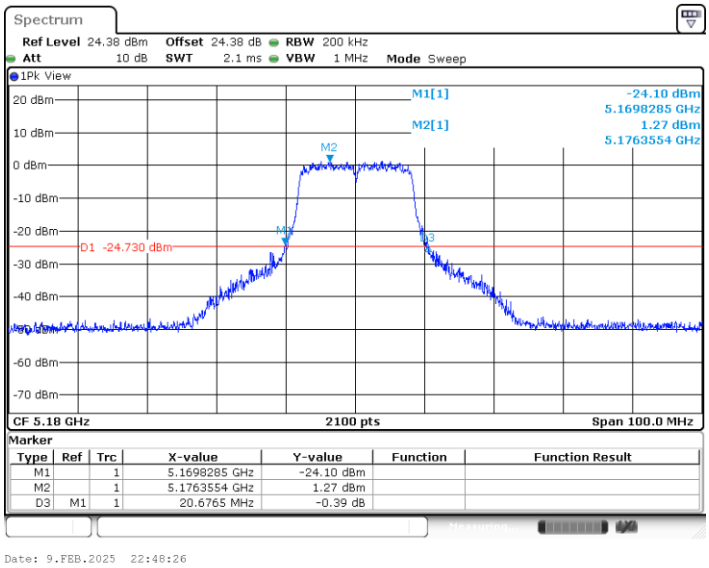
	Ant1	5825	31.06	5810.16	5841.22	---	---
11N20MIMO	Ant0	5180	21.53	5169.59	5191.12	---	---
	Ant1	5180	20.01	5169.97	5189.98	---	---
	Ant0	5220	20.25	5209.83	5230.08	---	---
	Ant1	5220	20.01	5209.97	5229.98	---	---
	Ant0	5240	20.53	5229.73	5250.27	---	---
	Ant1	5240	20.30	5229.83	5250.12	---	---
	Ant0	5260	30.92	5245.11	5276.03	---	---
	Ant1	5260	26.68	5246.68	5273.36	---	---
	Ant0	5300	24.49	5287.83	5312.32	---	---
	Ant1	5300	20.96	5289.73	5310.70	---	---
	Ant0	5320	21.34	5309.21	5330.55	---	---
	Ant1	5320	21.39	5309.07	5330.46	---	---
	Ant0	5500	29.97	5484.30	5514.27	---	---
	Ant1	5500	25.39	5488.49	5513.89	---	---
	Ant0	5580	27.97	5568.54	5596.51	---	---
	Ant1	5580	26.16	5568.83	5594.98	---	---
	Ant0	5700	24.96	5689.45	5714.41	---	---
	Ant1	5700	28.25	5687.68	5715.94	---	---
	Ant0	5720	27.44	5708.45	5735.89	---	---
	Ant1	5720	30.59	5706.64	5737.22	---	---
	Ant0	5720_UNII-2C	16.55	5708.45	5725	---	---
	Ant1	5720_UNII-2C	18.36	5706.64	5725	---	---
	Ant0	5720_UNII-3	10.89	5725	5735.89	---	---
	Ant1	5720_UNII-3	12.22	5725	5737.22	---	---
	Ant0	5745	30.97	5729.64	5760.60	---	---
	Ant1	5745	32.92	5729.73	5762.65	---	---
	Ant0	5785	32.68	5769.06	5801.75	---	---
	Ant1	5785	34.54	5768.83	5803.37	---	---
	Ant0	5825	34.02	5808.54	5842.56	---	---
	Ant1	5825	35.68	5808.25	5843.94	---	---
11N40MIMO	Ant0	5190	43.74	5168.32	5212.06	---	---
	Ant1	5190	41.83	5168.89	5210.72	---	---
	Ant0	5230	58.22	5202.61	5260.82	---	---
	Ant1	5230	44.97	5208.32	5253.30	---	---
	Ant0	5270	59.46	5242.32	5301.78	---	---
	Ant1	5270	49.45	5248.89	5298.35	---	---
	Ant0	5310	42.59	5288.61	5331.20	---	---

	Ant1	5310	41.73	5289.09	5330.82	---	---
	Ant0	5510	54.22	5482.51	5536.73	---	---
	Ant1	5510	49.45	5484.42	5533.87	---	---
	Ant0	5550	61.36	5517.65	5579.01	---	---
	Ant1	5550	58.03	5525.27	5583.30	---	---
	Ant0	5670	43.54	5648.61	5692.15	---	---
	Ant1	5670	48.21	5648.51	5696.73	---	---
	Ant0	5710	52.98	5688.70	5741.68	---	---
	Ant1	5710	59.27	5687.18	5746.45	---	---
	Ant0	5710_UNII-2C	36.3	5688.70	5725	---	---
	Ant1	5710_UNII-2C	37.82	5687.18	5725	---	---
	Ant0	5710_UNII-3	16.68	5725	5741.68	---	---
	Ant1	5710_UNII-3	21.45	5725	5746.45	---	---
	Ant0	5755	52.88	5733.23	5786.11	---	---
	Ant1	5755	55.36	5733.13	5788.49	---	---
	Ant0	5795	57.84	5766.37	5824.20	---	---
	Ant1	5795	57.46	5765.61	5823.06	---	---
11AX20MIMO	Ant0	5180	23.20	5168.45	5191.65	---	---
	Ant1	5180	21.82	5168.97	5190.79	---	---
	Ant0	5220	25.20	5206.59	5231.79	---	---
	Ant1	5220	21.25	5209.35	5230.60	---	---
	Ant0	5240	22.20	5229.02	5251.22	---	---
	Ant1	5240	21.82	5229.26	5251.08	---	---
	Ant0	5260	24.87	5248.92	5273.79	---	---
	Ant1	5260	21.72	5249.45	5271.17	---	---
	Ant0	5300	23.25	5289.11	5312.36	---	---
	Ant1	5300	21.77	5289.21	5310.98	---	---
	Ant0	5320	22.01	5309.26	5331.27	---	---
	Ant1	5320	21.39	5309.35	5330.74	---	---
	Ant0	5500	21.49	5489.26	5510.74	---	---
	Ant1	5500	21.39	5489.35	5510.74	---	---
	Ant0	5580	22.20	5569.07	5591.27	---	---
	Ant1	5580	22.63	5569.45	5592.08	---	---
	Ant0	5700	27.30	5689.02	5716.32	---	---
	Ant1	5700	29.16	5687.88	5717.03	---	---
	Ant0	5720	26.73	5708.16	5734.89	---	---
	Ant1	5720	28.11	5707.73	5735.84	---	---
	Ant0	5720_UNII-2C	16.84	5708.16	5725	---	---

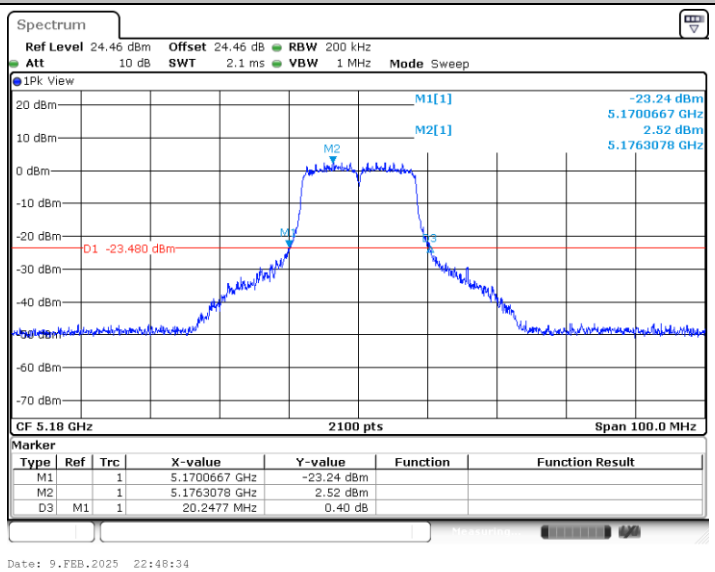
	Ant1	5720_UNII-2C	17.27	5707.73	5725	---	---
	Ant0	5720_UNII-3	9.89	5725	5734.89	---	---
	Ant1	5720_UNII-3	10.84	5725	5735.84	---	---
	Ant0	5745	30.40	5731.02	5761.41	---	---
	Ant1	5745	30.97	5731.02	5761.98	---	---
	Ant0	5785	32.63	5768.73	5801.36	---	---
	Ant1	5785	26.87	5772.30	5799.17	---	---
	Ant0	5825	27.54	5813.45	5840.98	---	---
	Ant1	5825	30.63	5811.06	5841.70	---	---
11AX40MIMO	Ant0	5190	51.26	5162.61	5213.87	---	---
	Ant1	5190	46.50	5167.37	5213.87	---	---
	Ant0	5230	47.17	5206.61	5253.77	---	---
	Ant1	5230	46.88	5206.89	5253.77	---	---
	Ant0	5270	46.97	5246.70	5293.68	---	---
	Ant1	5270	46.21	5247.18	5293.39	---	---
	Ant0	5310	47.17	5286.61	5333.77	---	---
	Ant1	5310	46.69	5287.08	5333.77	---	---
	Ant0	5510	46.78	5486.89	5533.68	---	---
	Ant1	5510	46.40	5487.08	5533.49	---	---
	Ant0	5550	45.64	5527.66	5573.30	---	---
	Ant1	5550	51.26	5527.08	5578.35	---	---
	Ant0	5670	44.02	5649.37	5693.39	---	---
	Ant1	5670	47.74	5649.85	5697.58	---	---
	Ant0	5710	59.93	5682.51	5742.44	---	---
	Ant1	5710	60.89	5681.94	5742.83	---	---
	Ant0	5710_UNII-2C	42.49	5682.51	5725	---	---
	Ant1	5710_UNII-2C	43.06	5681.94	5725	---	---
	Ant0	5710_UNII-3	17.44	5725	5742.44	---	---
	Ant1	5710_UNII-3	17.83	5725	5742.83	---	---
	Ant0	5755	51.64	5731.99	5783.63	---	---
	Ant1	5755	56.79	5727.03	5783.82	---	---
	Ant0	5795	56.79	5766.94	5823.73	---	---
	Ant1	5795	57.36	5767.22	5824.59	---	---

Test Graphs

11A-CDD_Ant0_5180



11A-CDD_Ant1_5180



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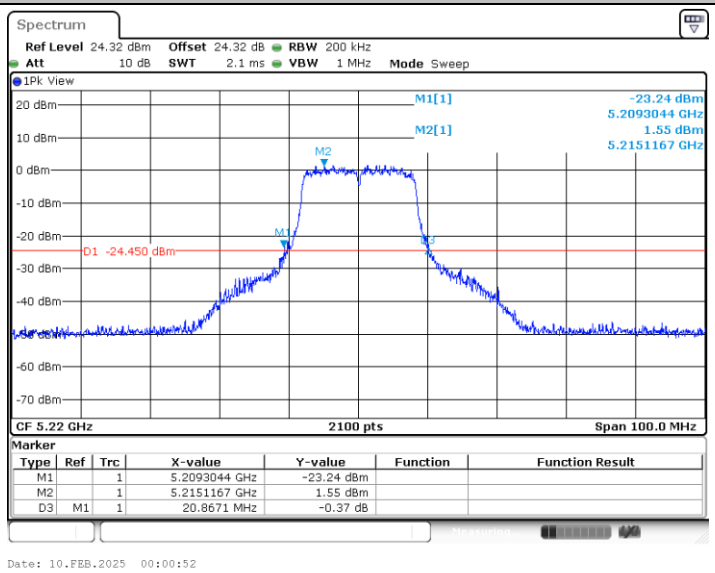

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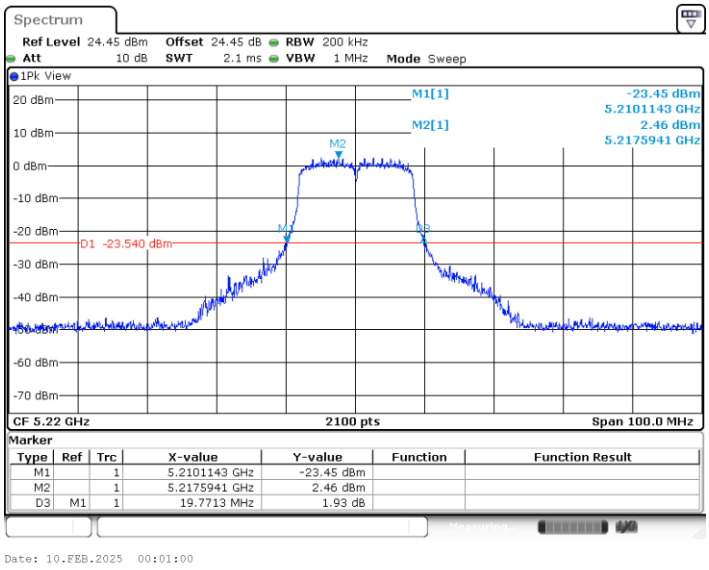

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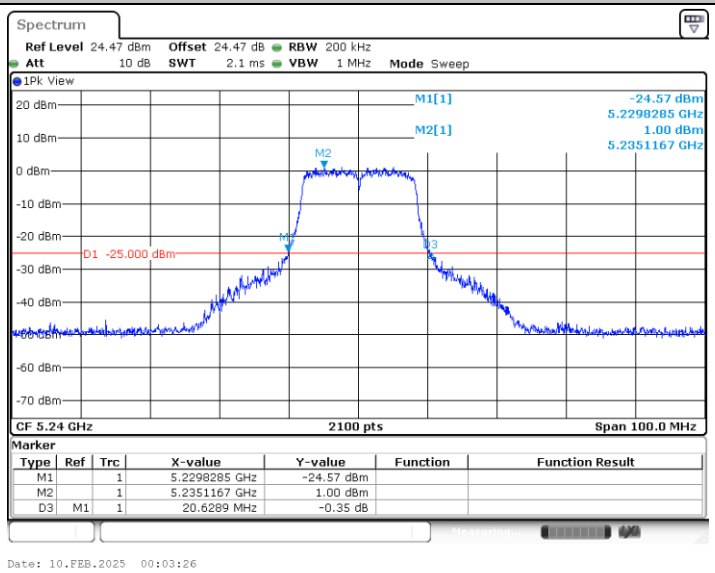

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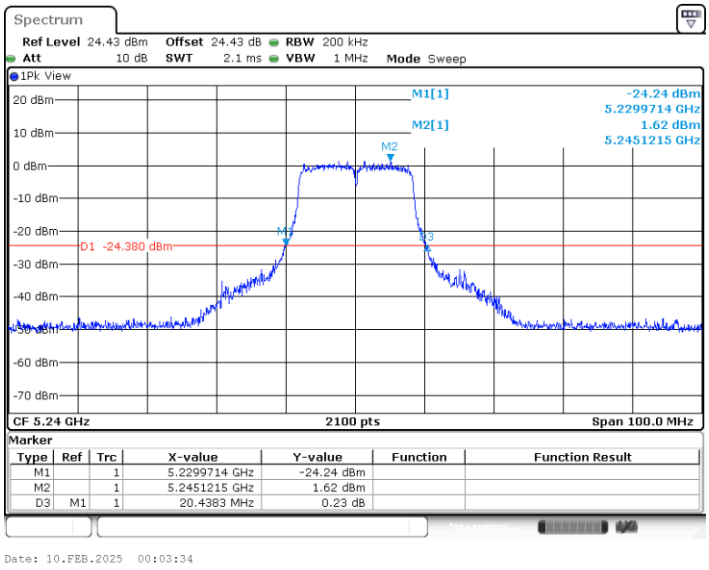

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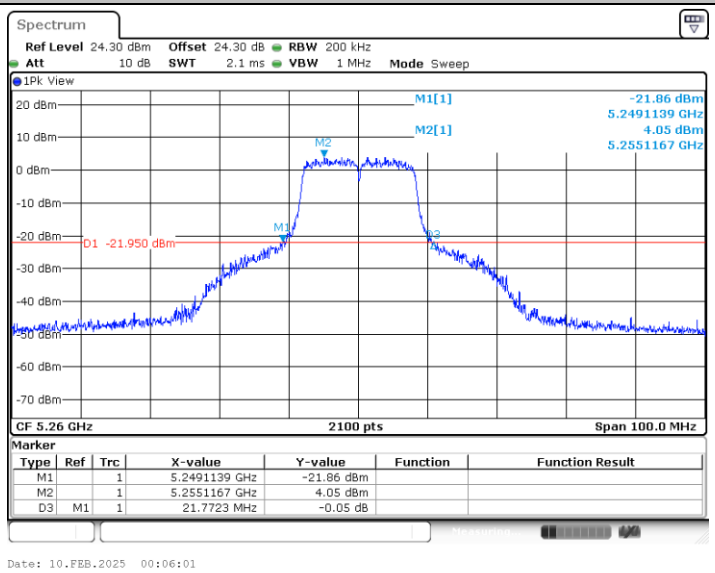

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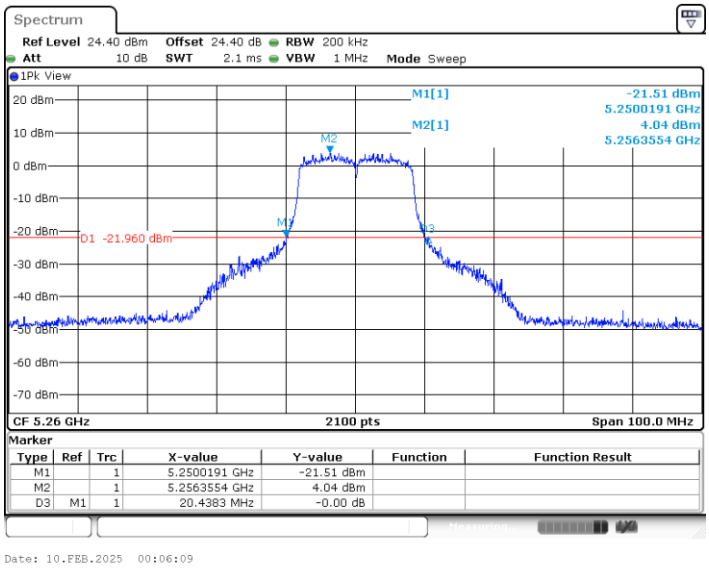

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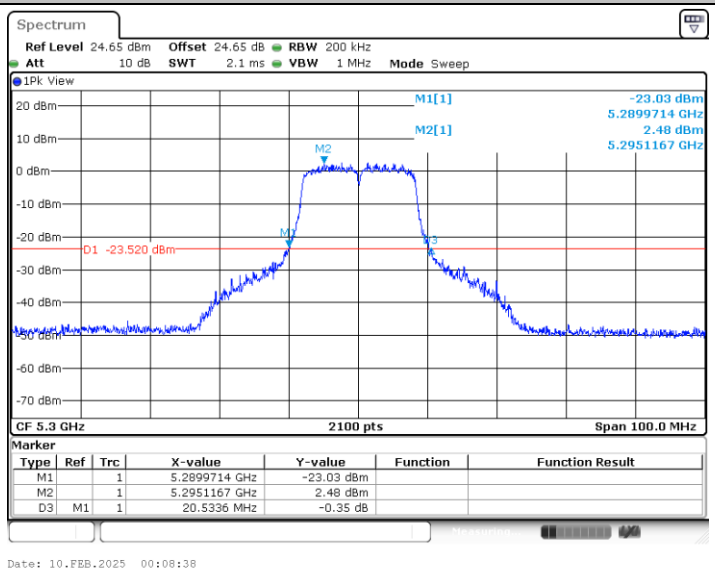

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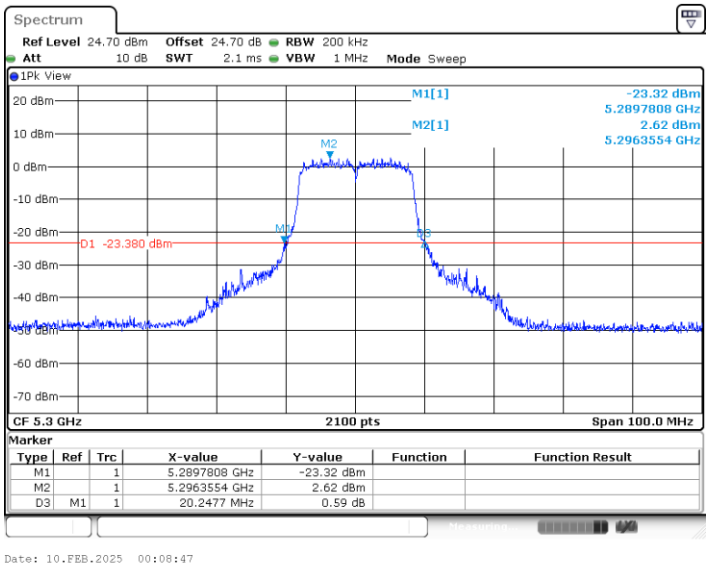

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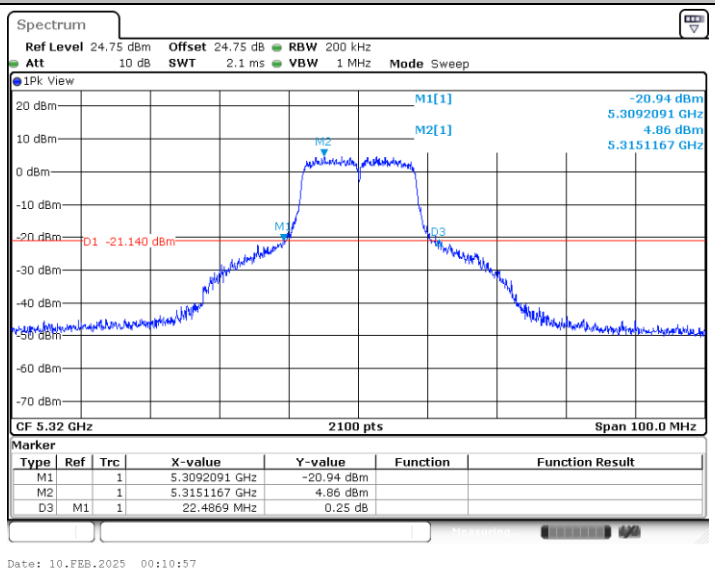

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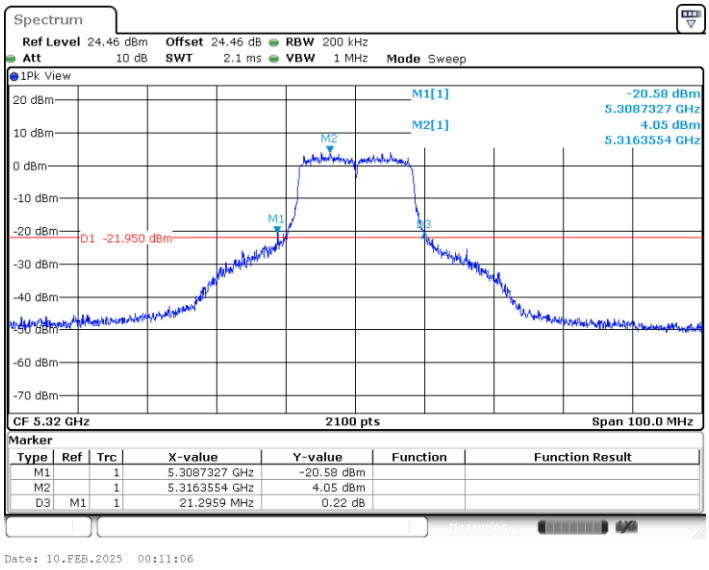

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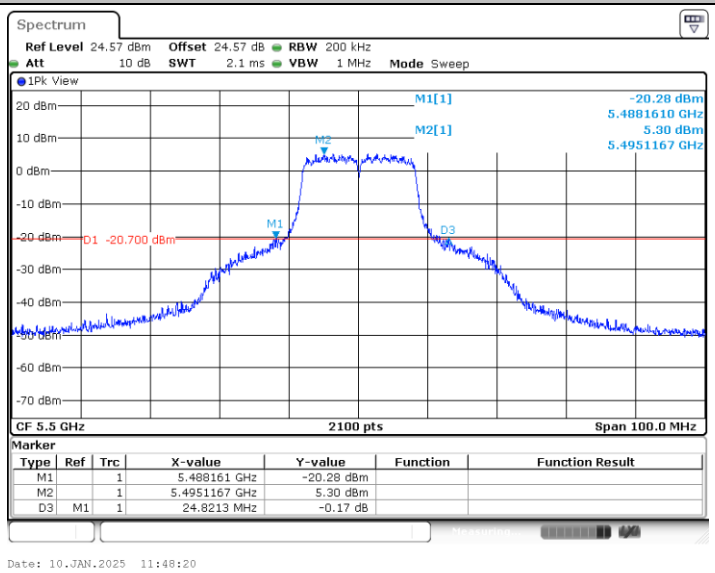

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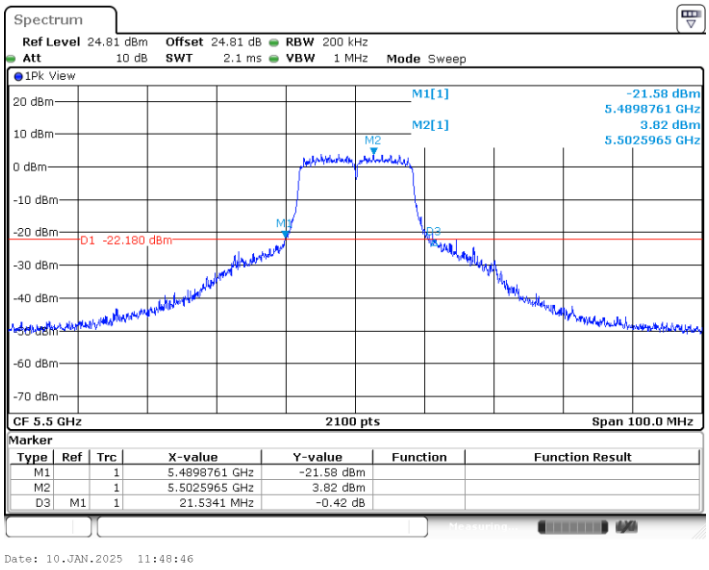

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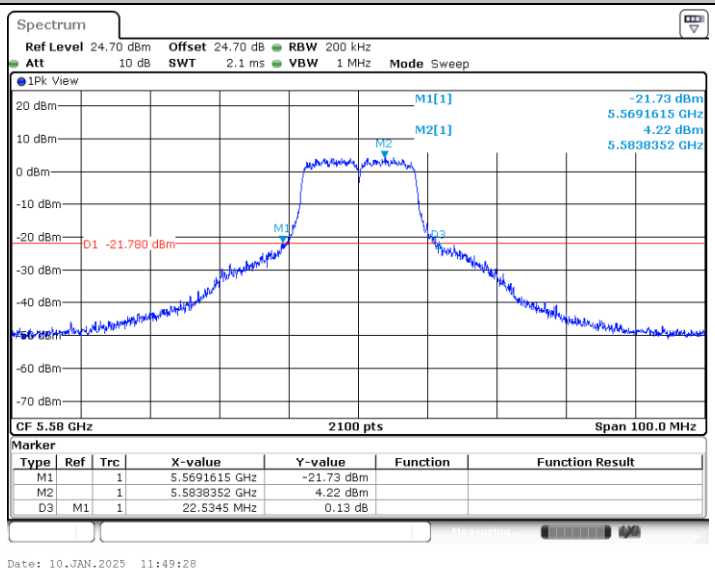

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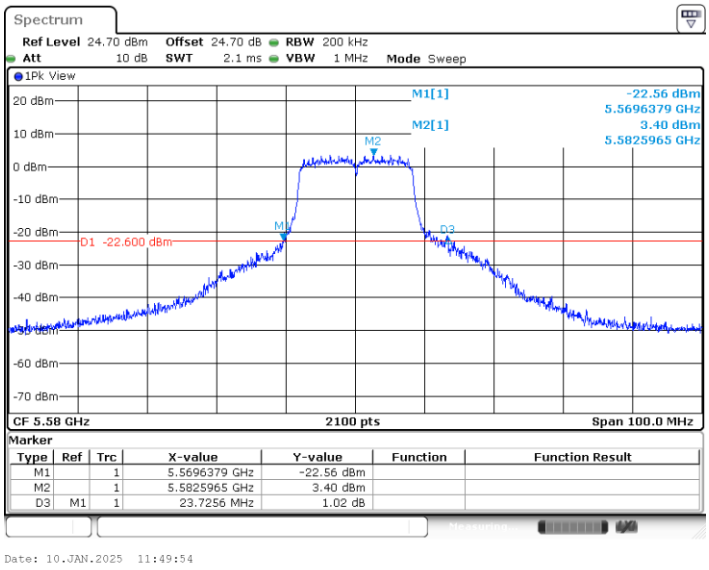

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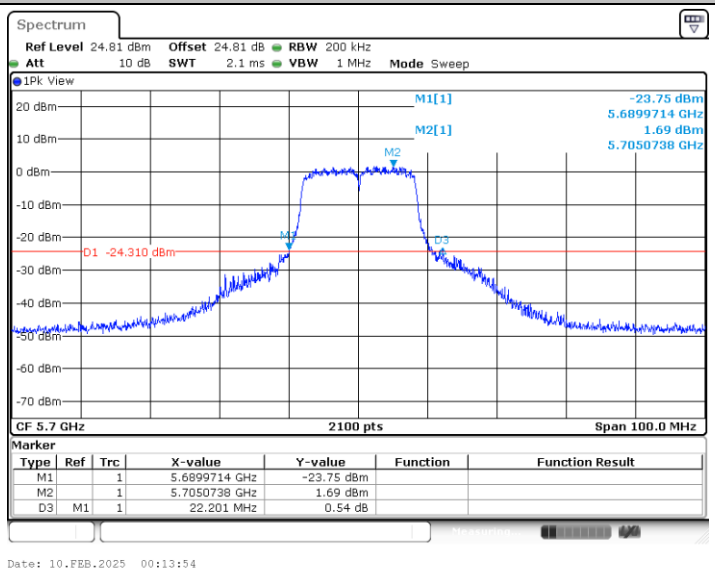

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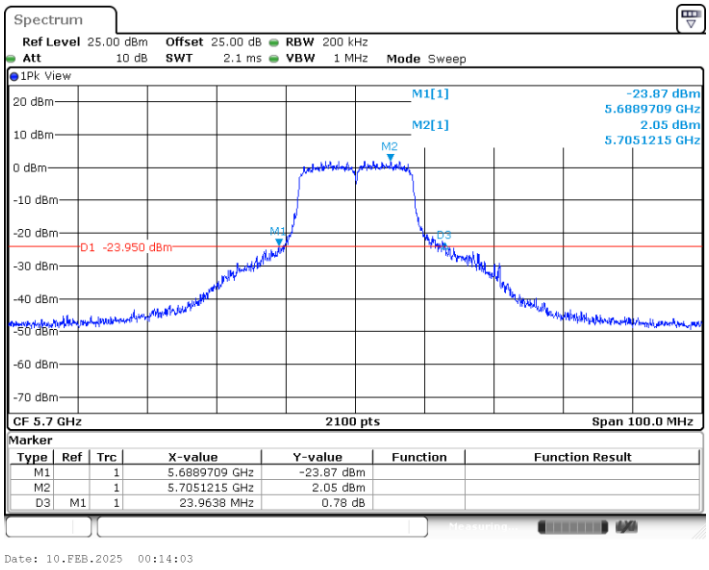

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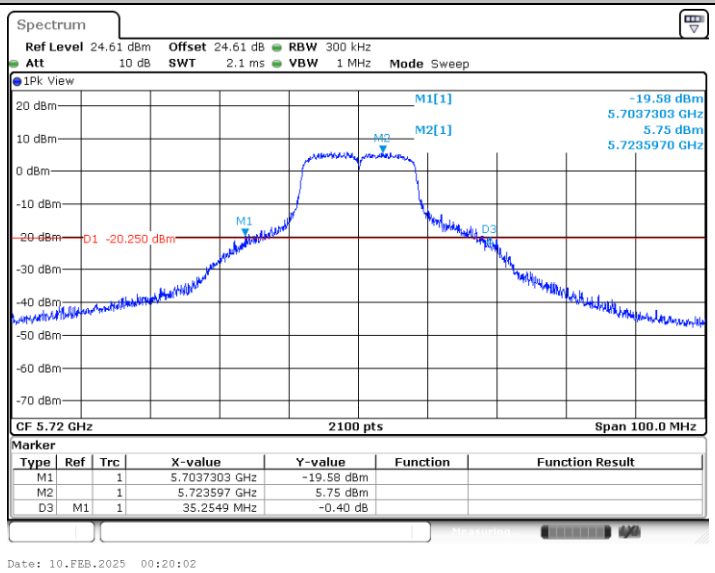

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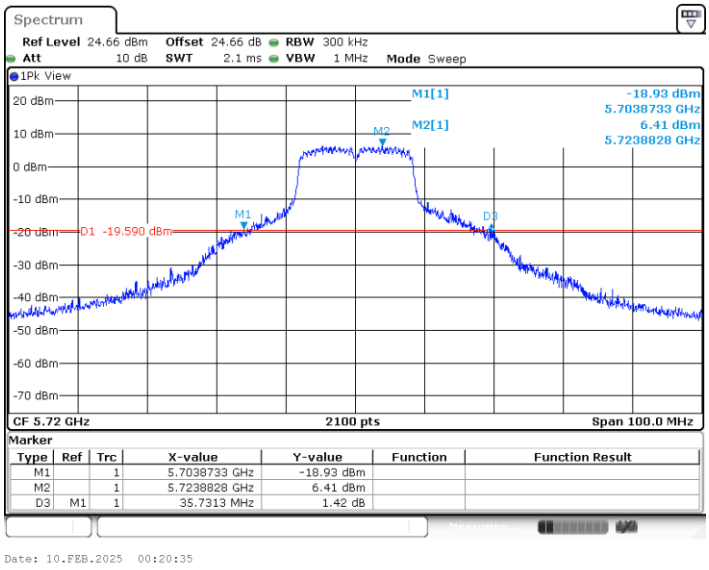

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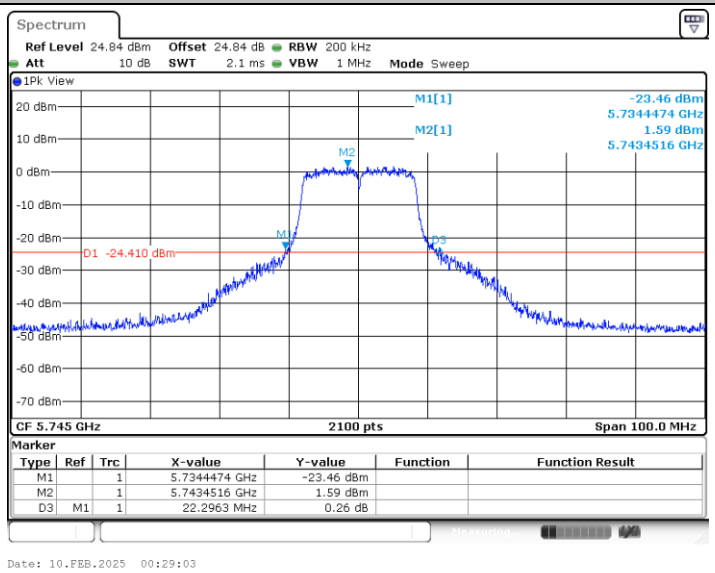

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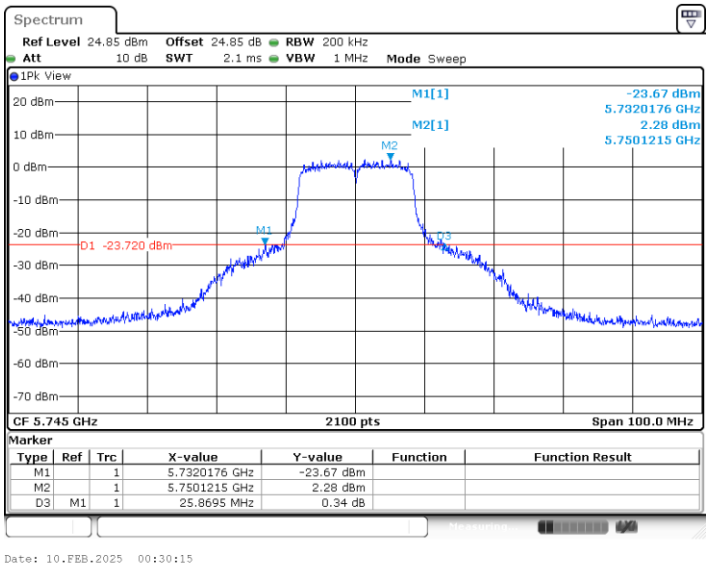

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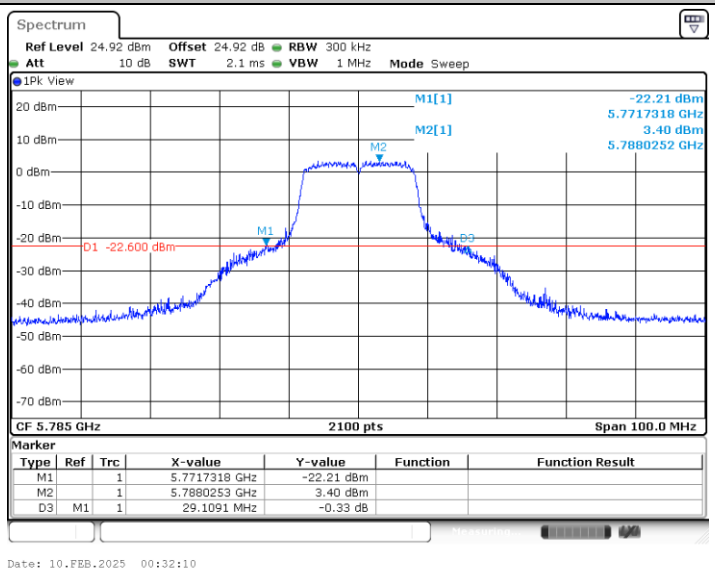

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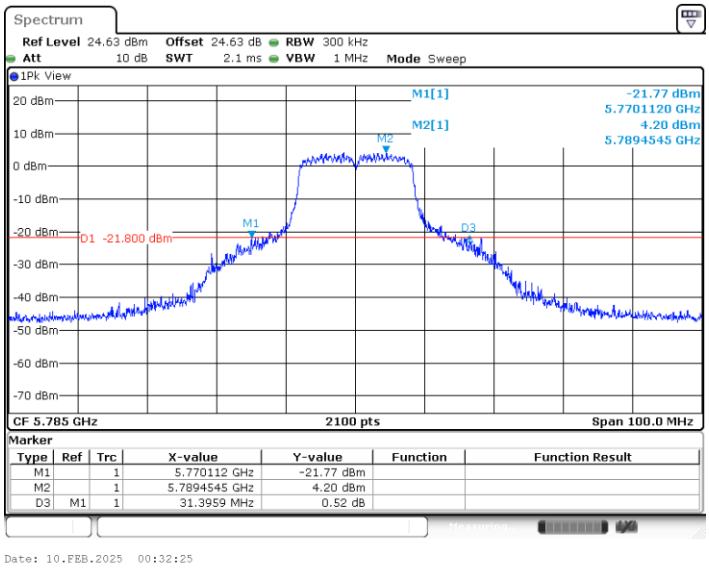

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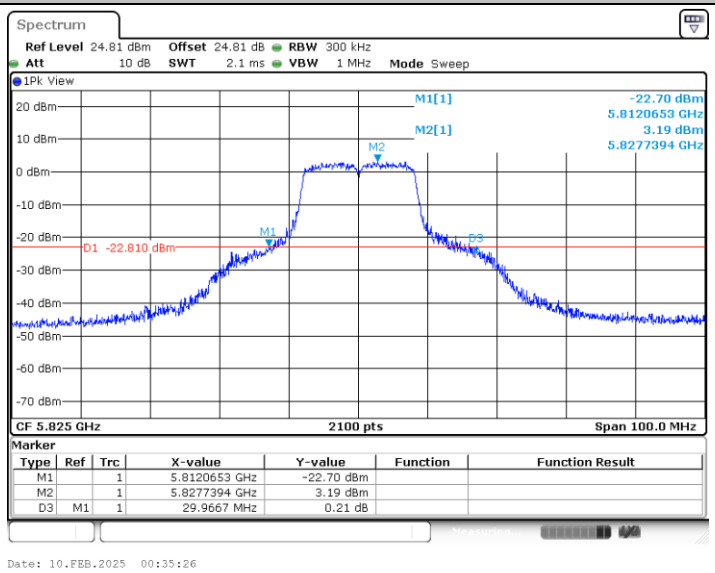

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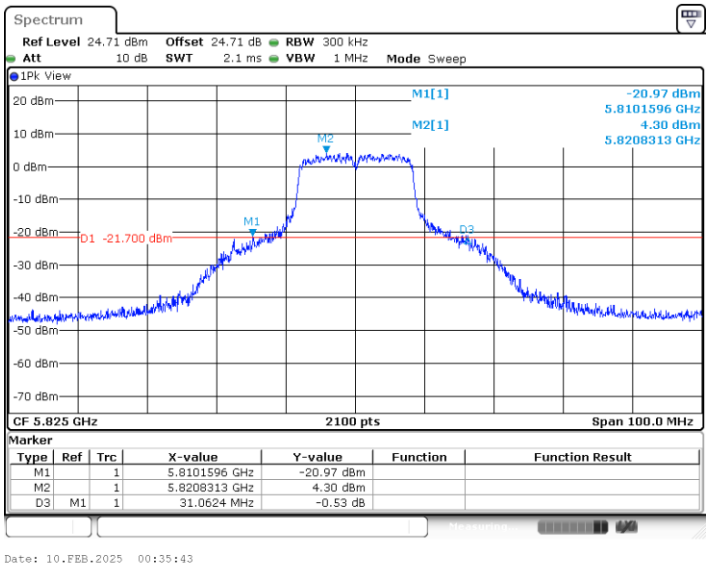

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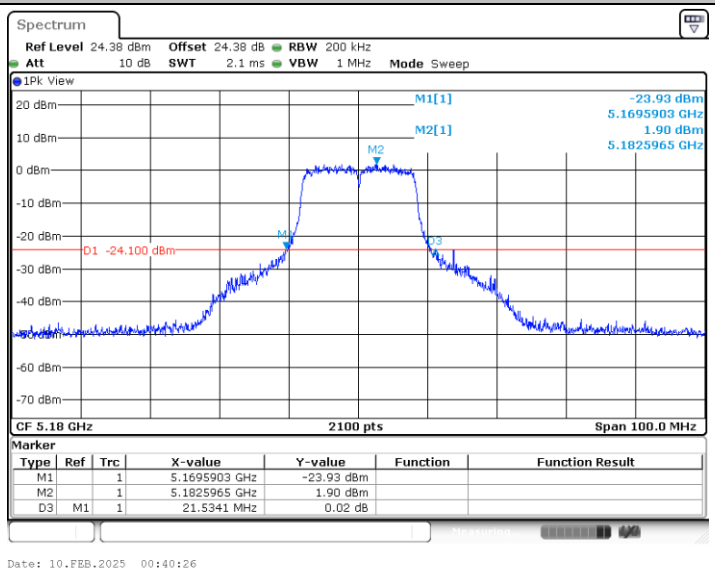

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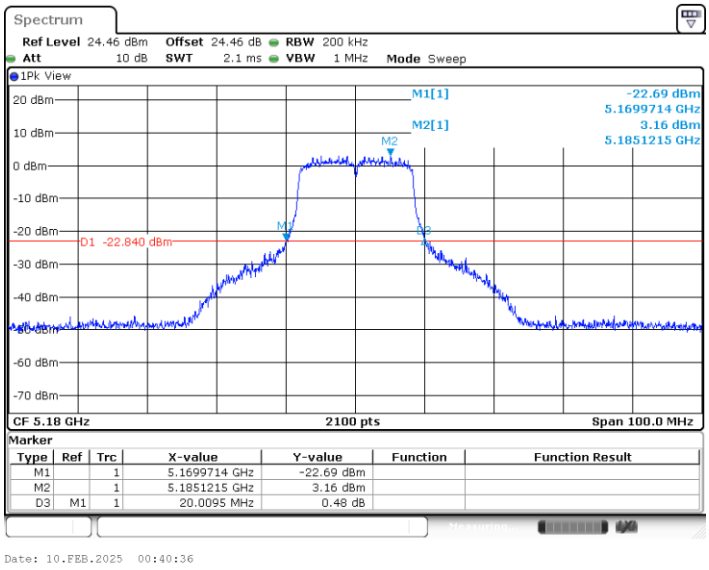

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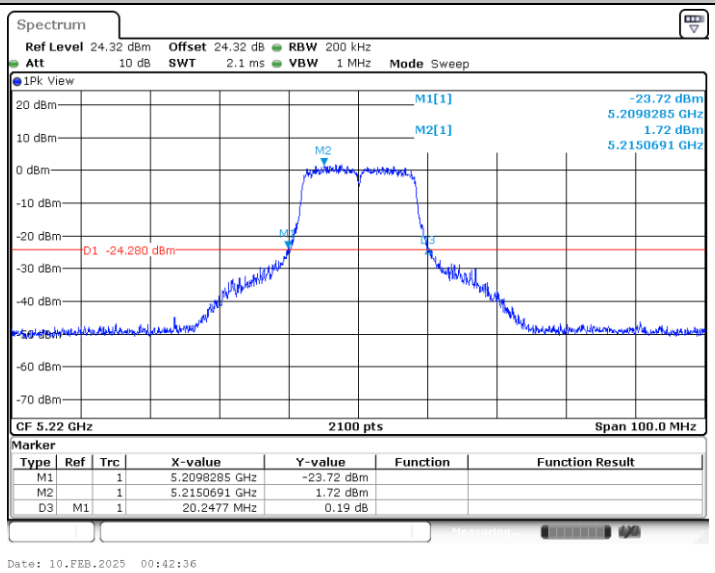

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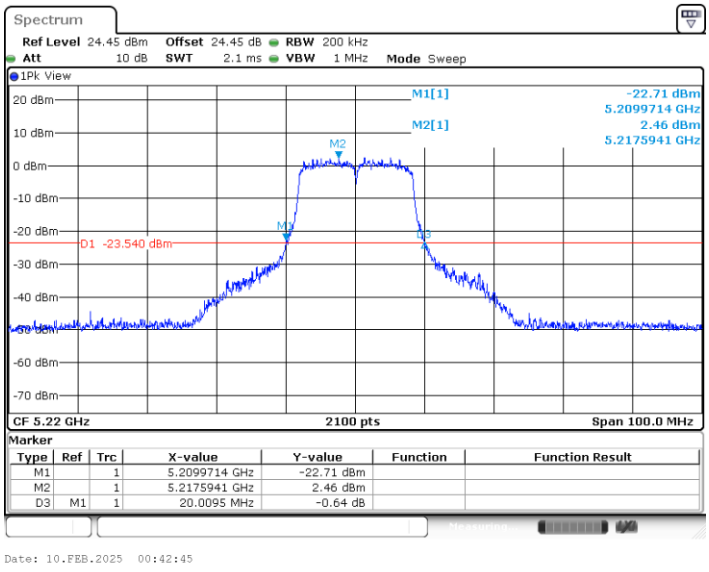

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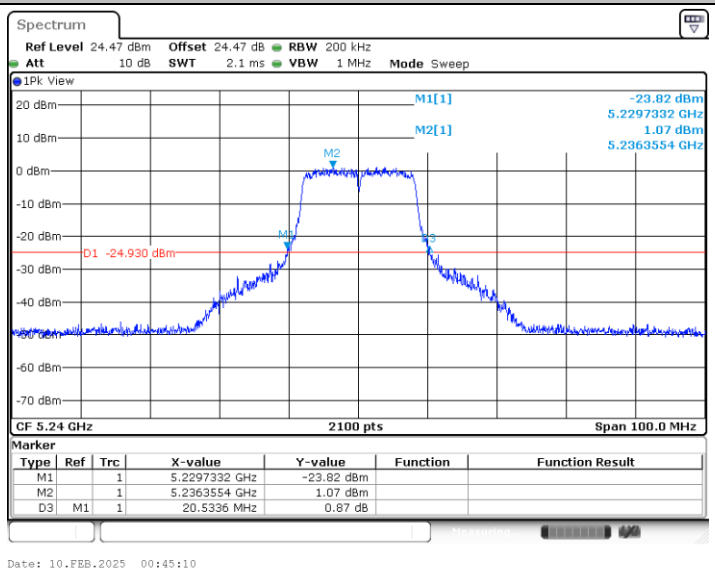

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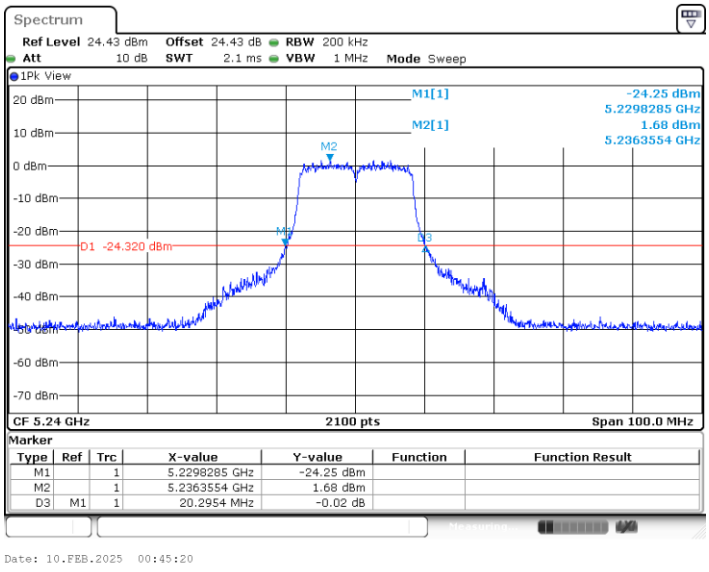

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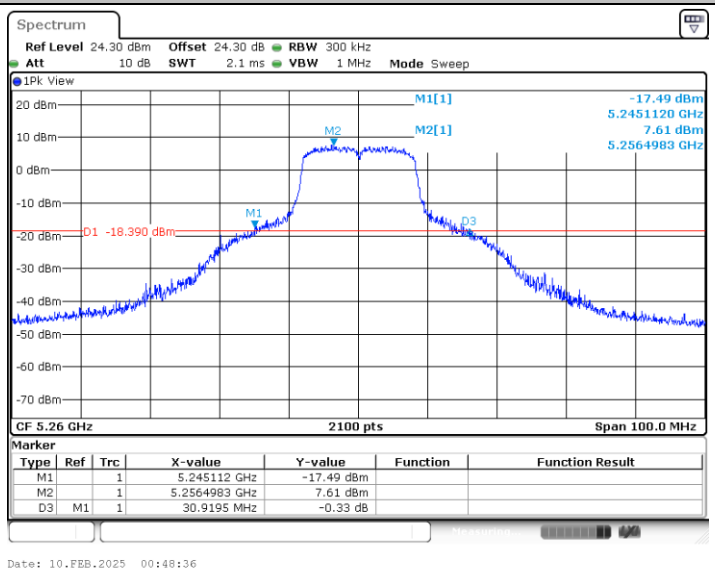

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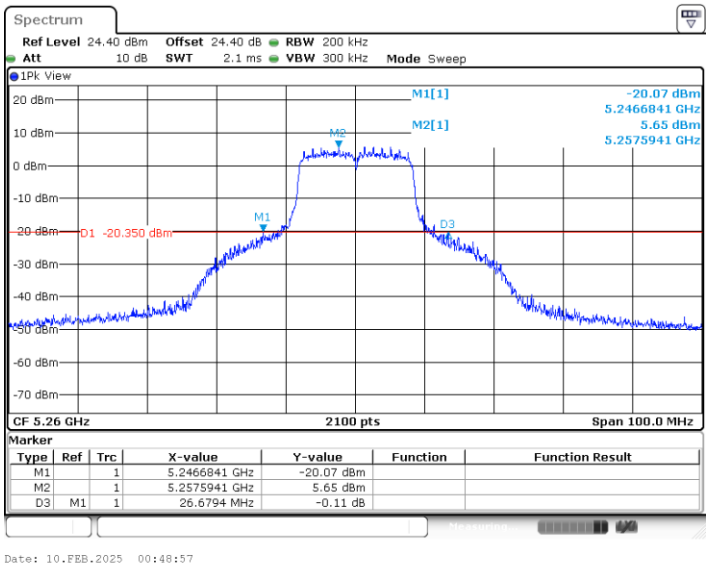

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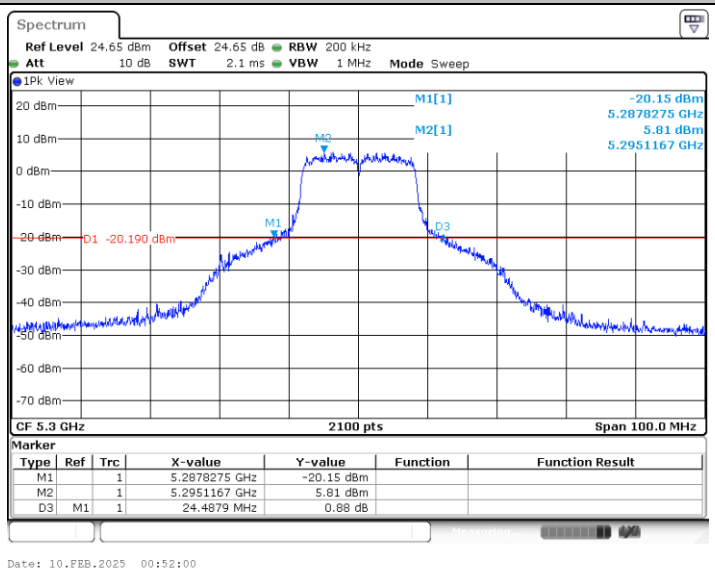

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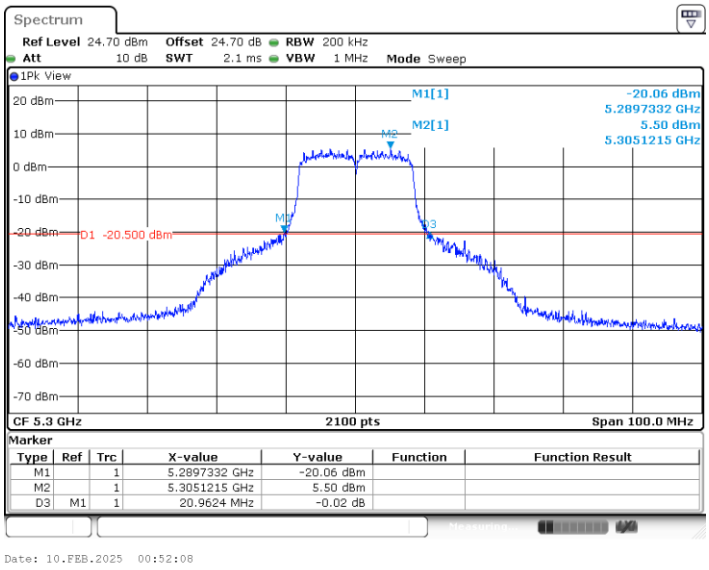

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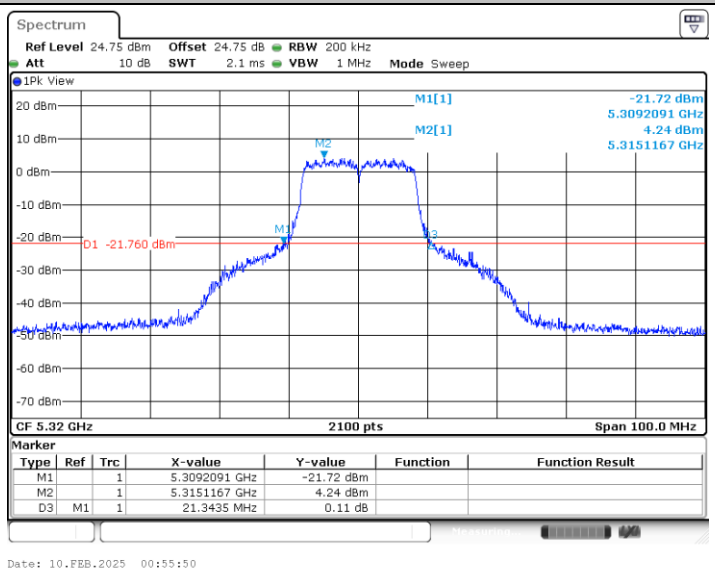

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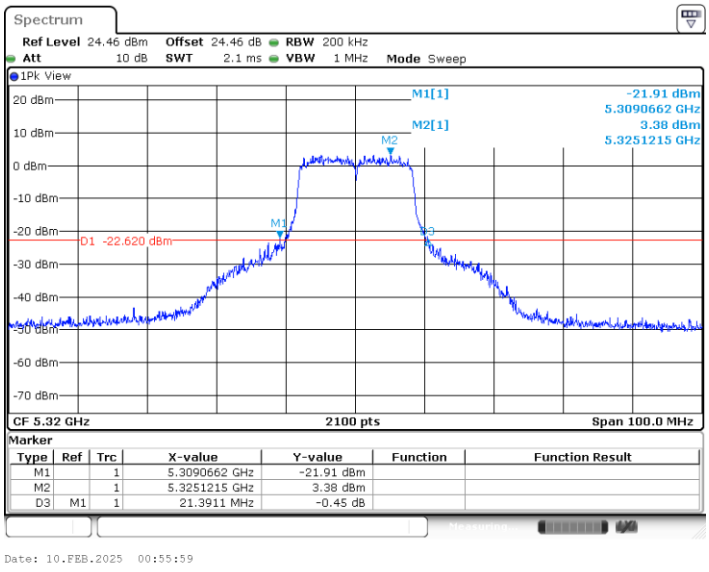

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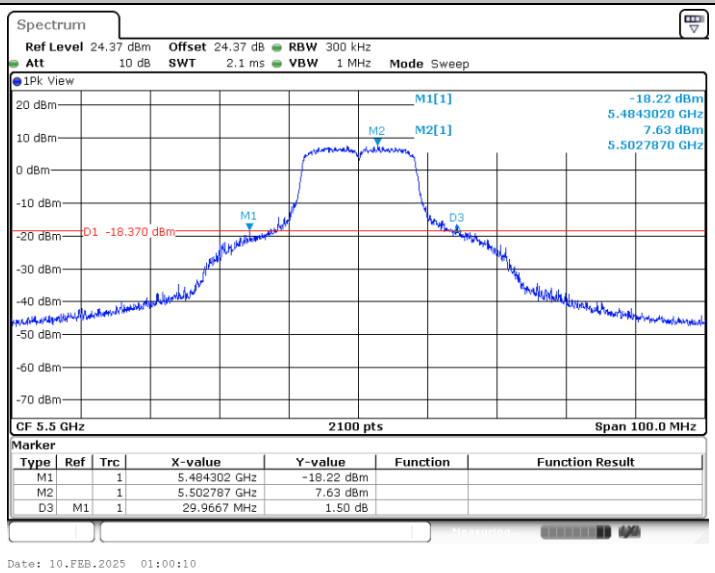

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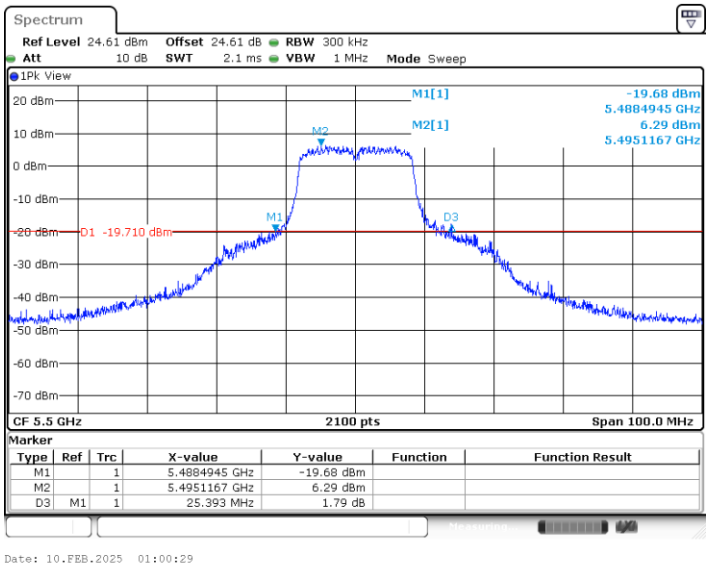

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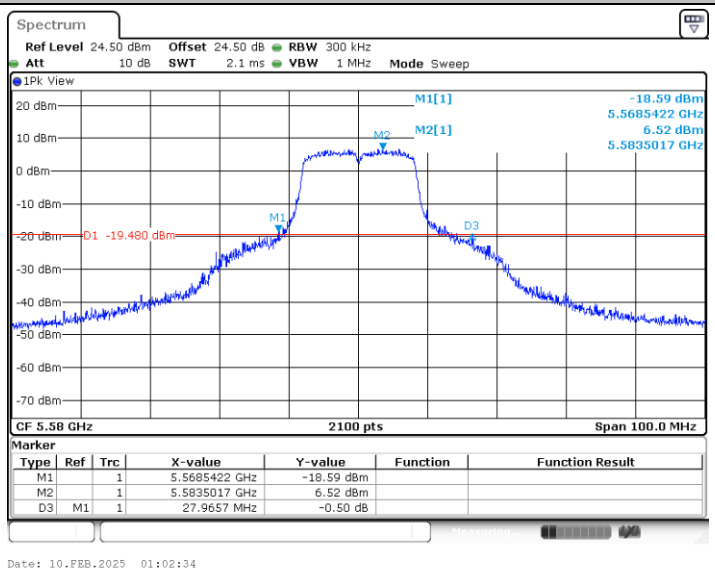

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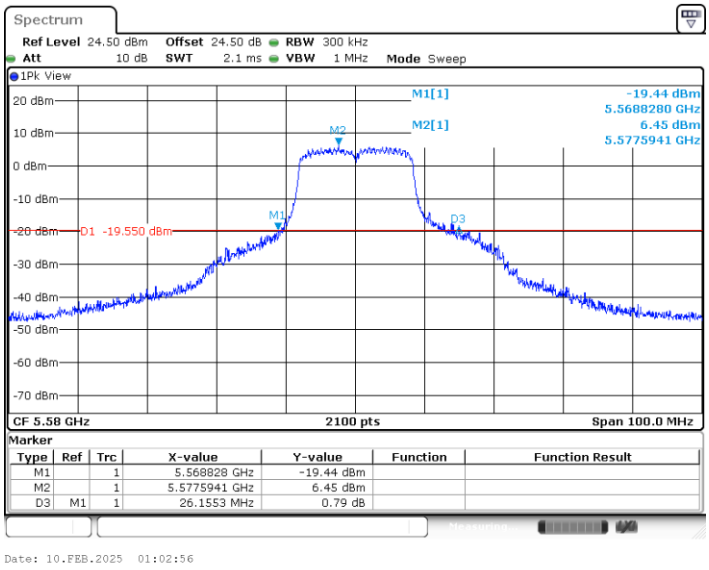

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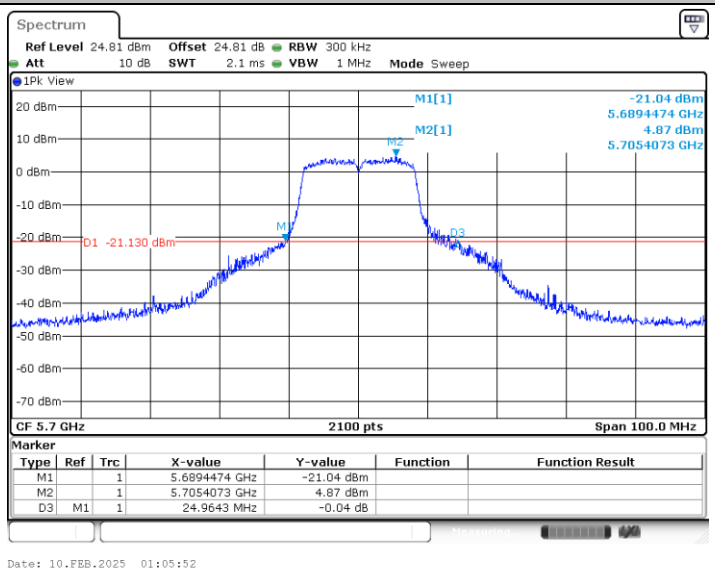

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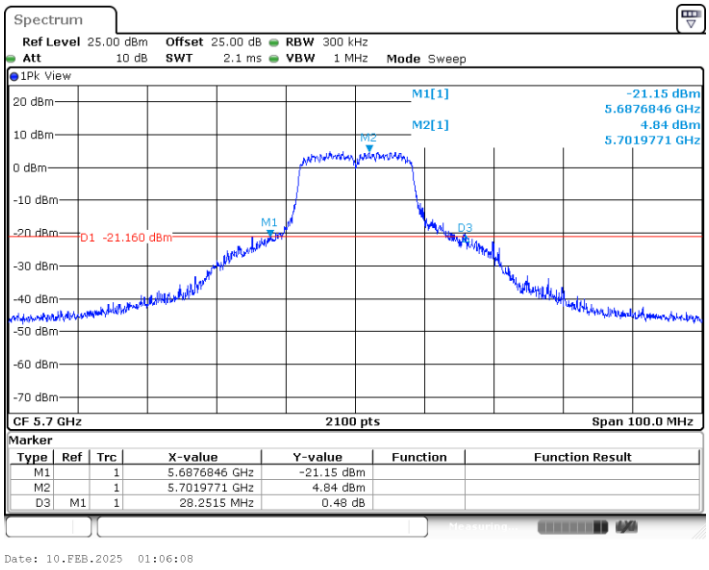

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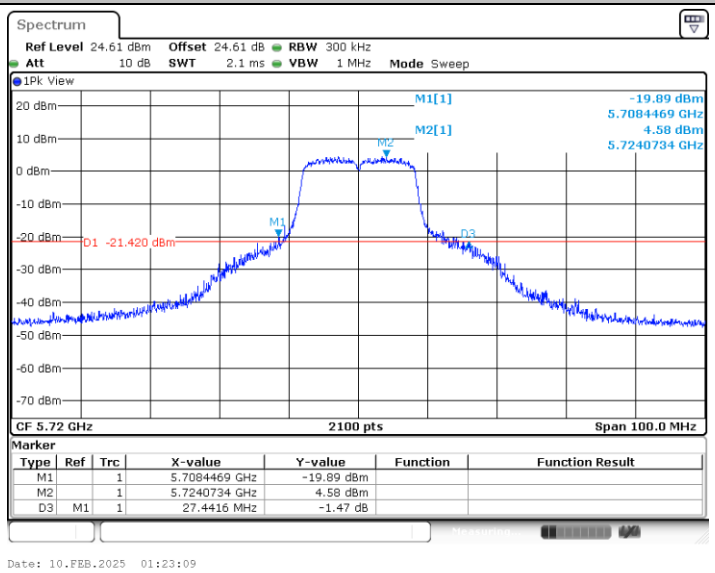

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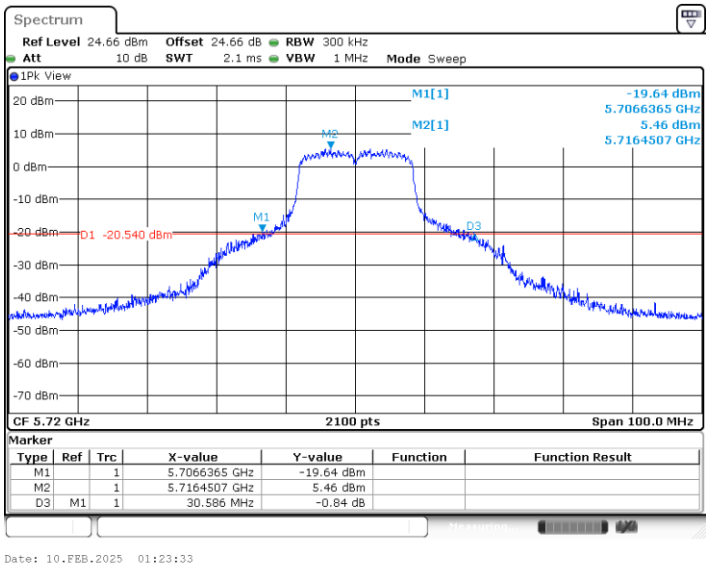

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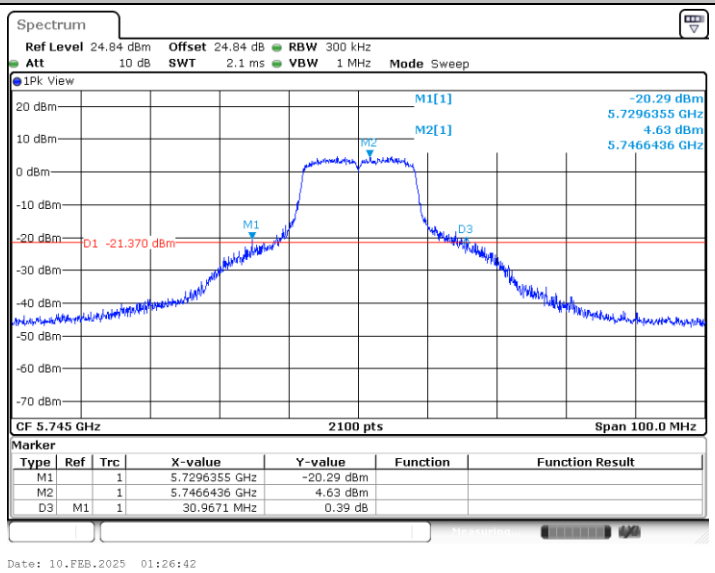

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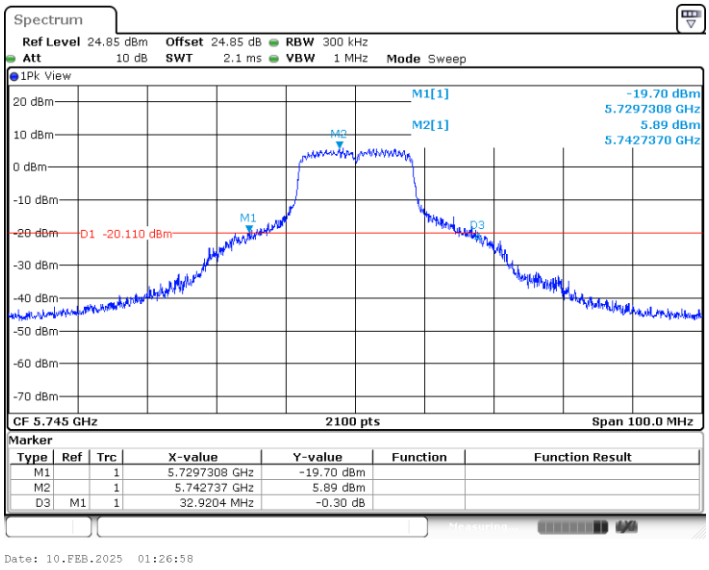

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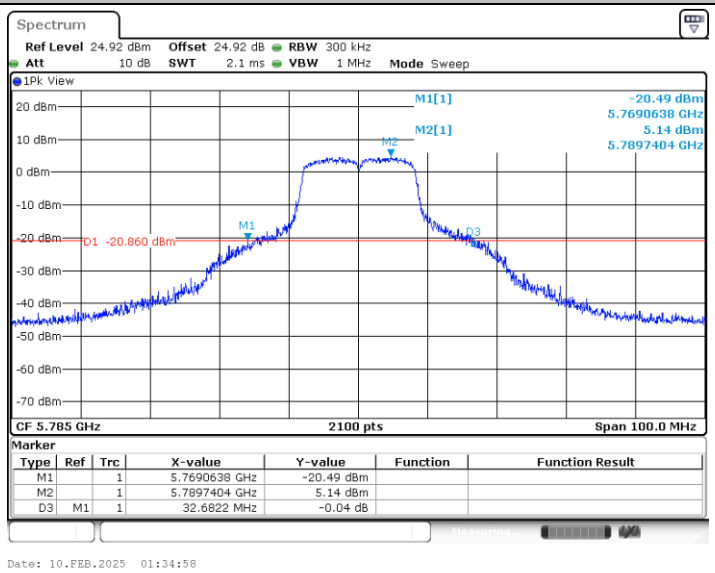

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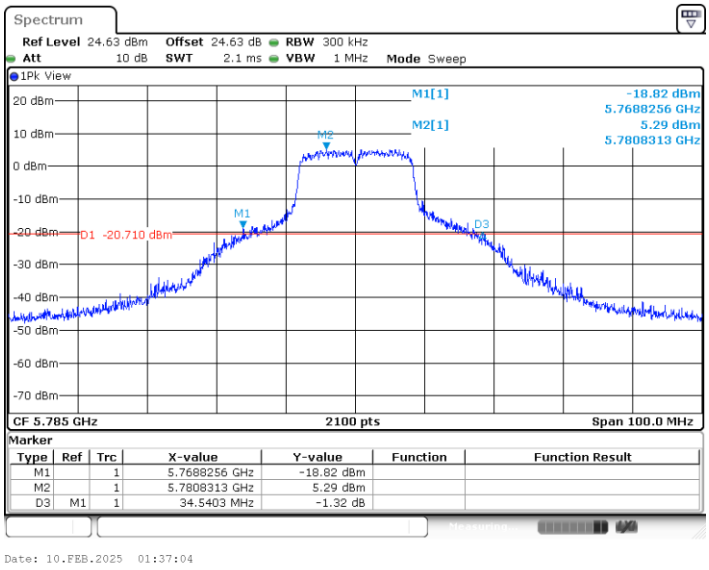

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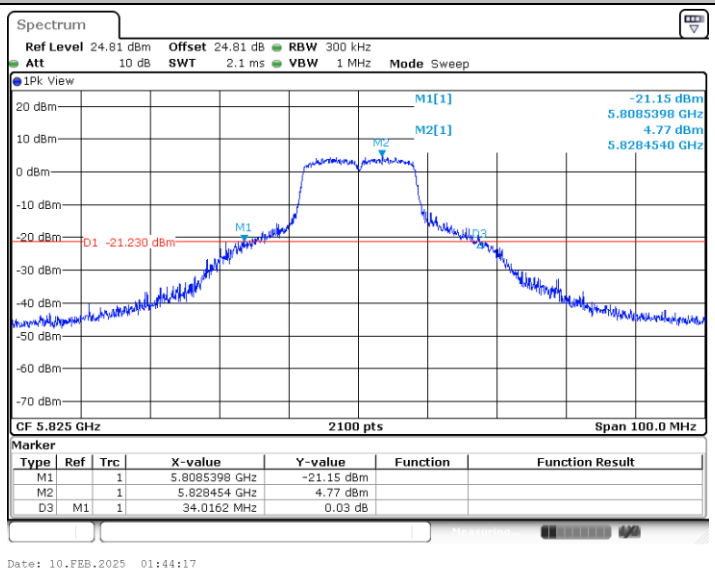

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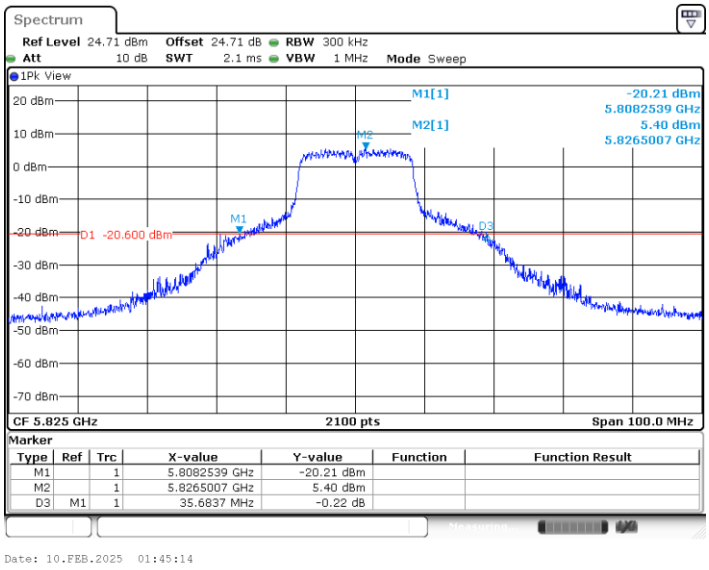

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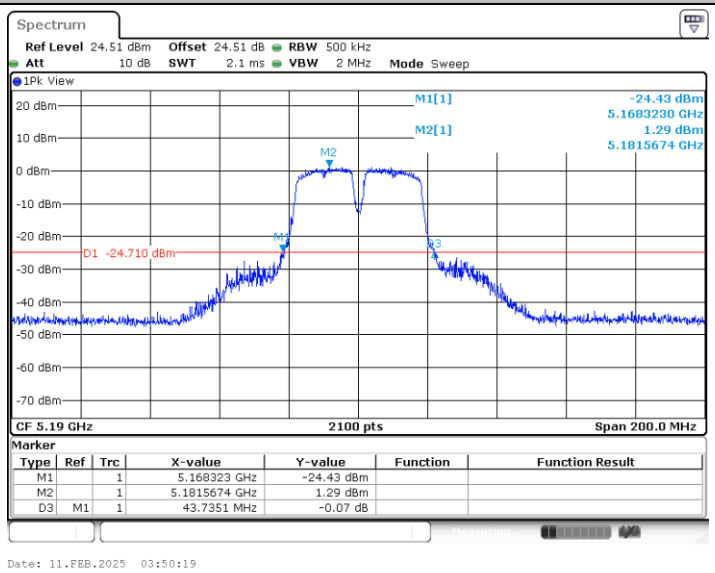

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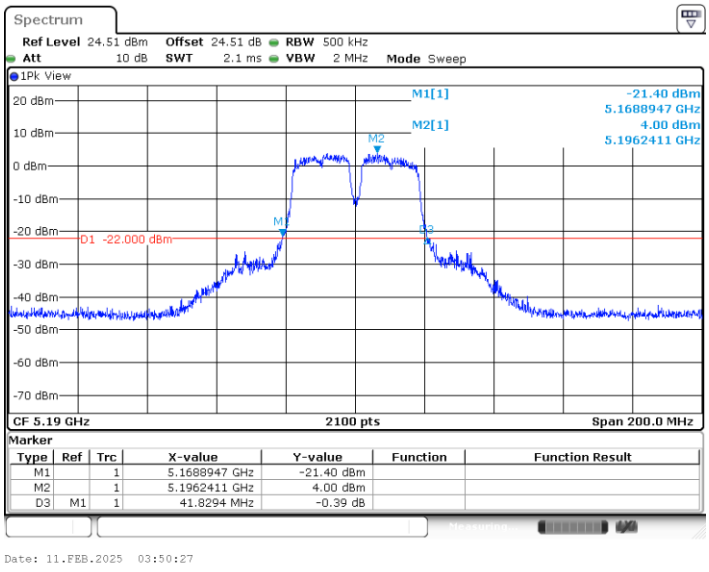

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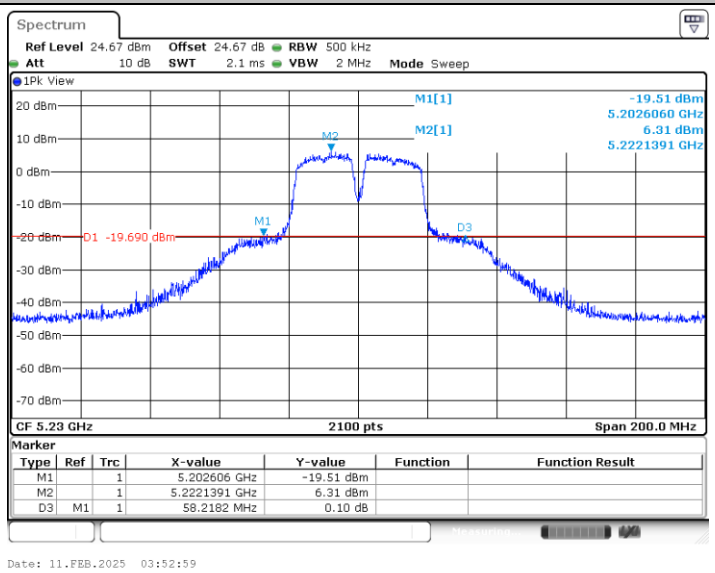

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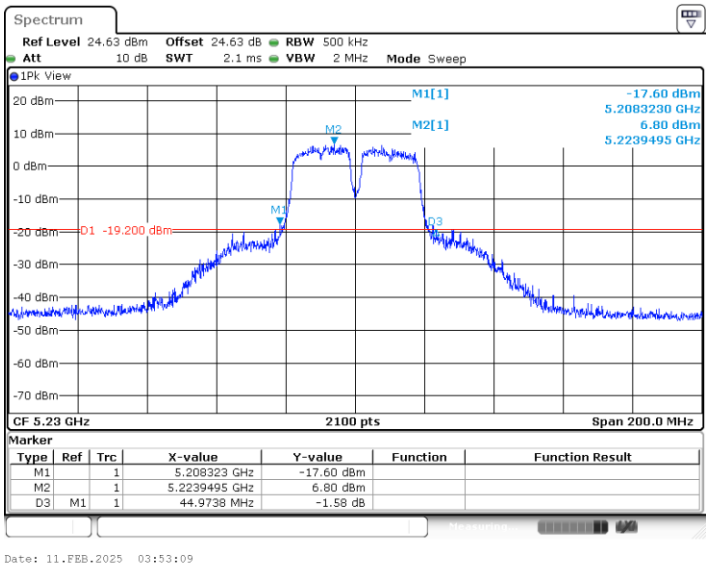

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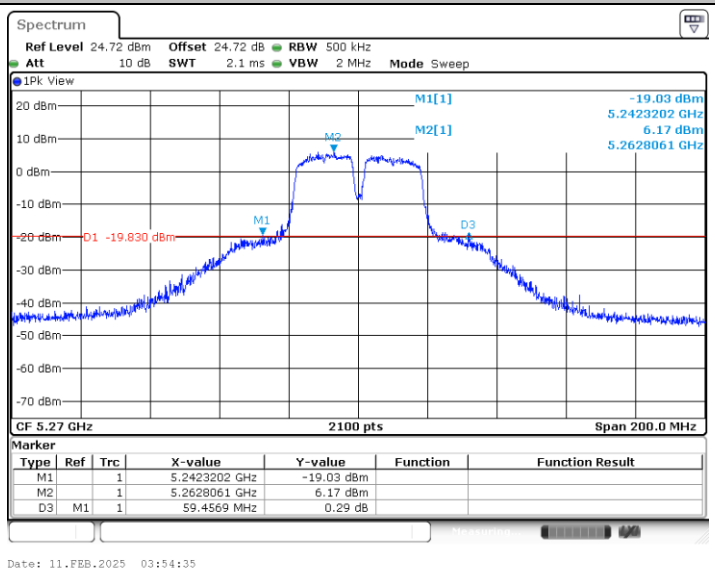

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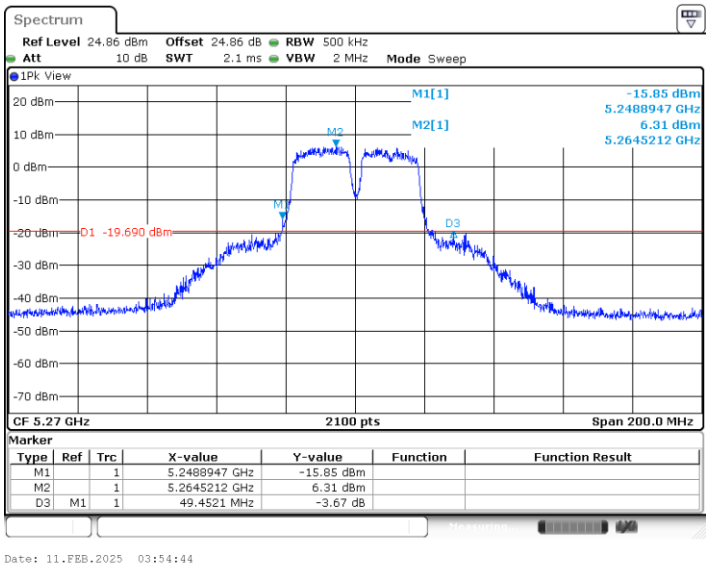

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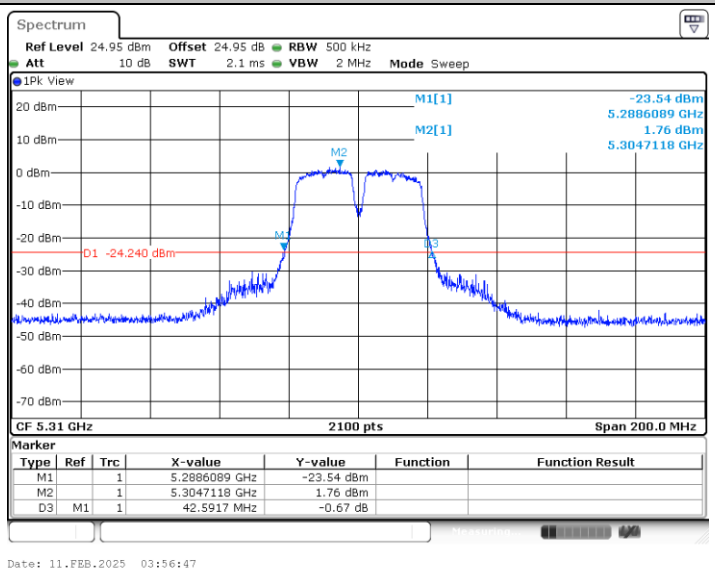

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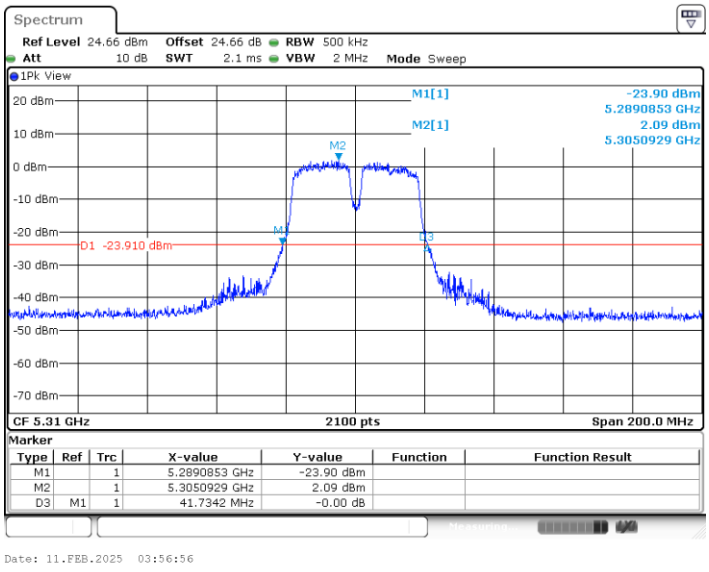

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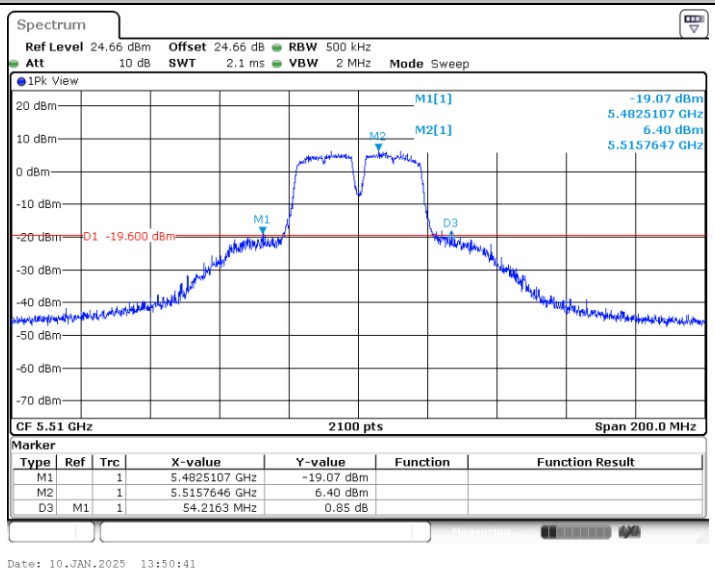

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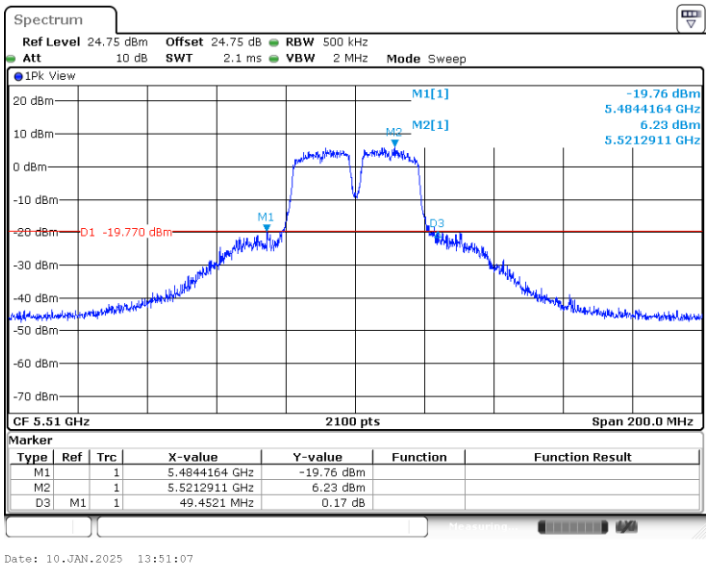

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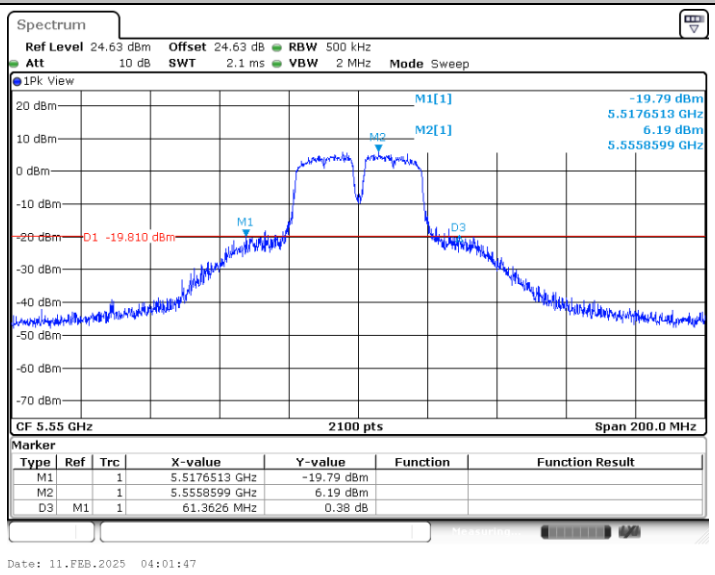

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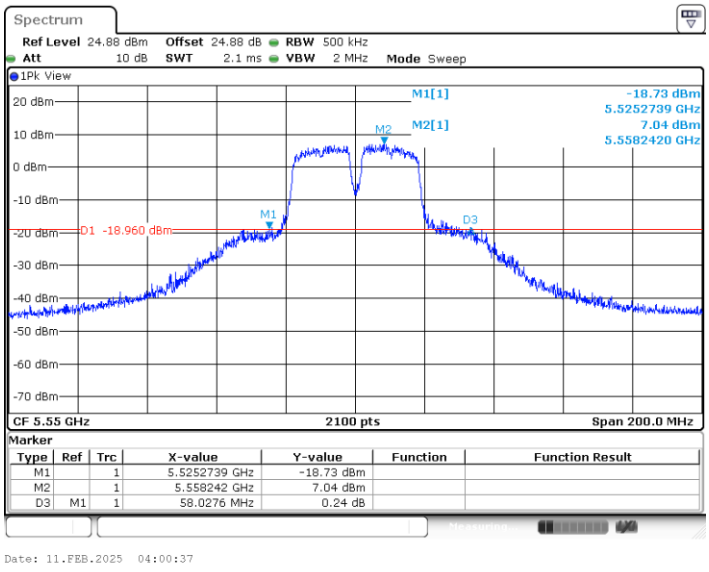

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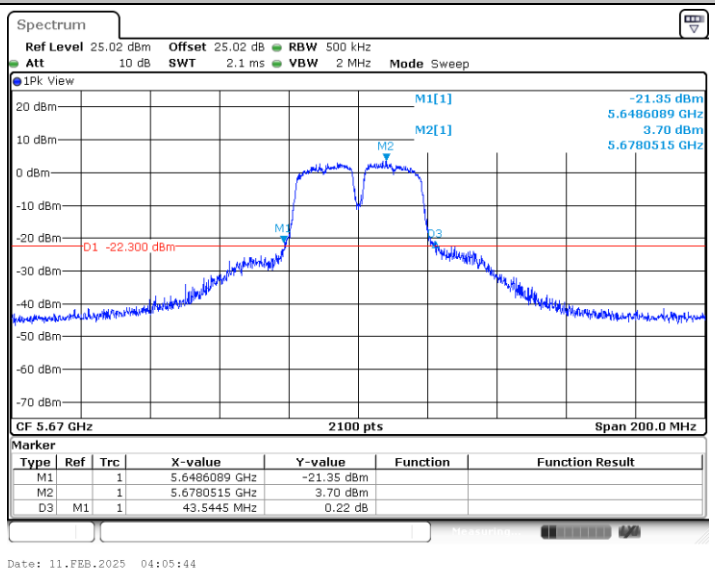

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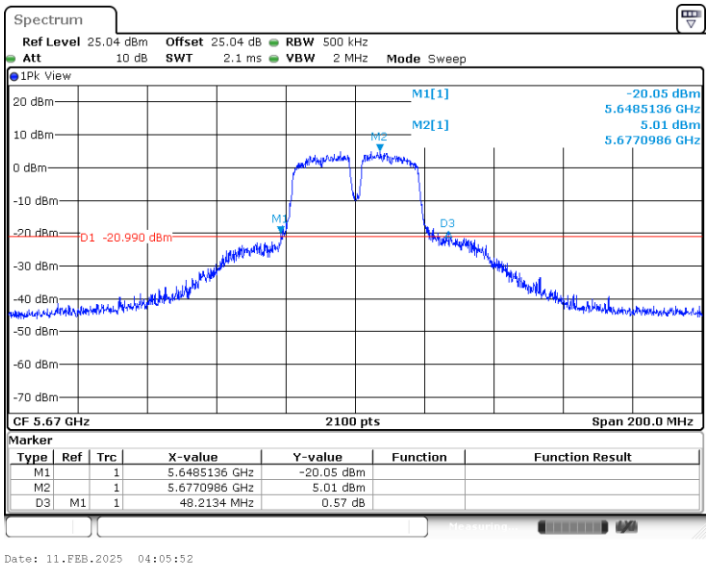

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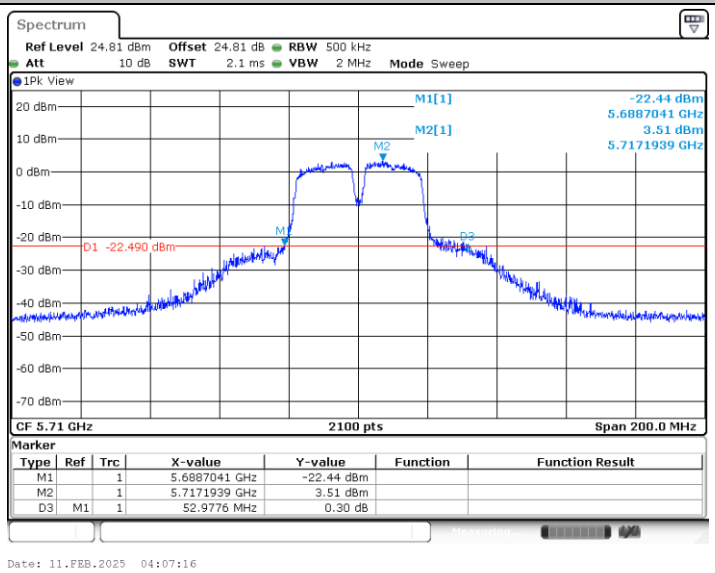

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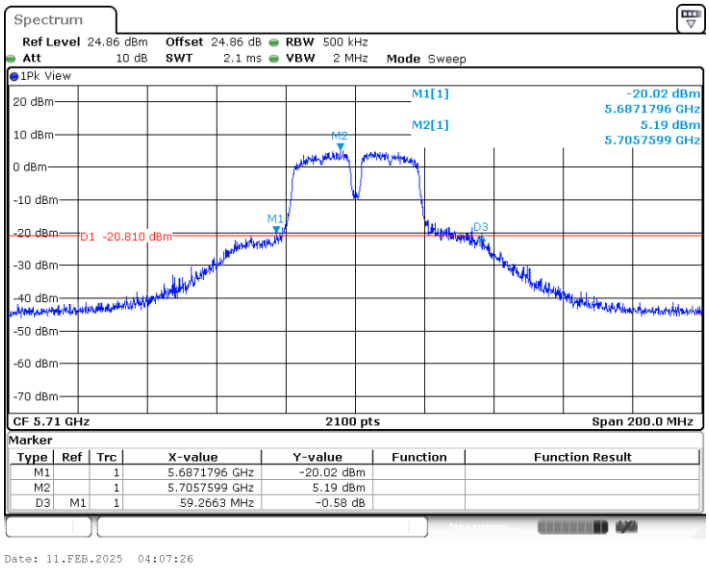

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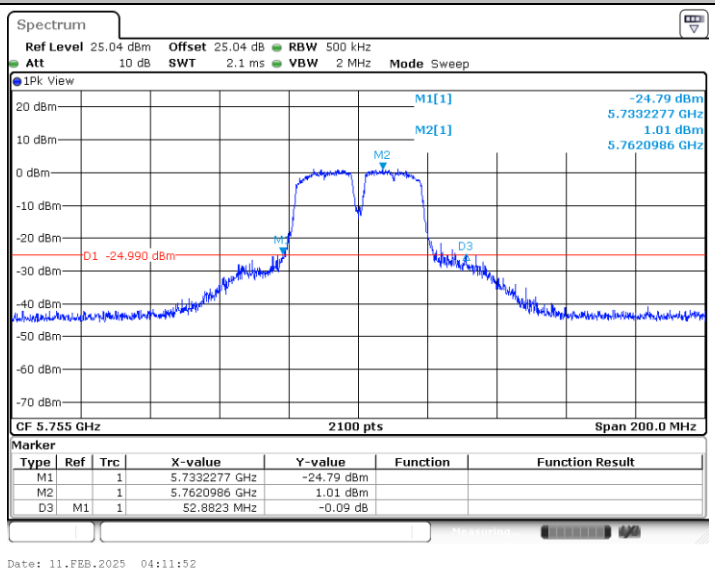

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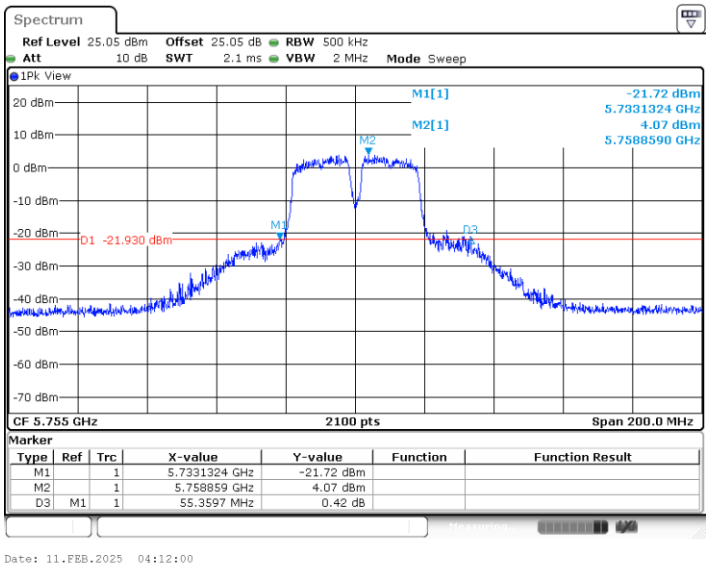

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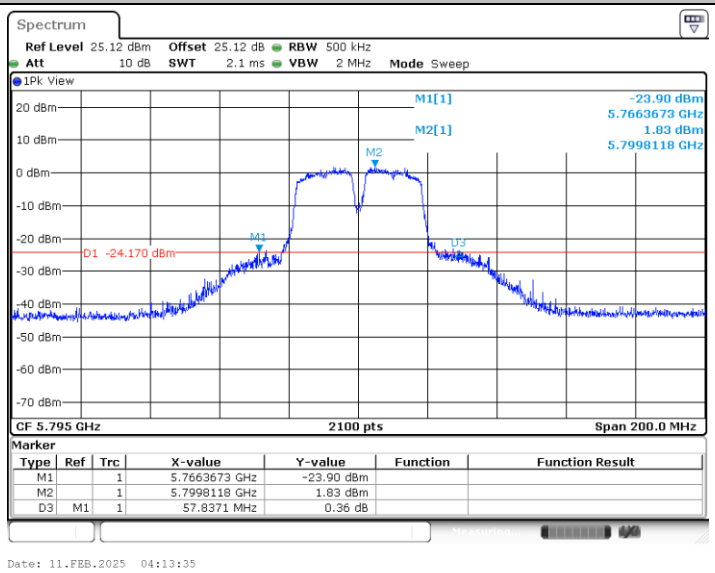

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