TEST REPORT

APPLICANT	:	Reliance Communications, LLC
PRODUCT NAME	:	Orbic Speed Pro 5G
MODEL NAME	:	R575L5
BRAND NAME	:	Orbic
FCC ID	:	2ABGH-R575L5
STANDARD(S)	:	47 CFR Part 2 47 CFR Part 30, Subpart C
RECEIPT DATE	:	2024-07-23
TEST DATE	:	2024-07-29 to 2024-08-08
ISSUE DATE	:	2025-01-24

Edited by: Liu Yuanxin (Rapporteur)

Approved by: Shen Junsheng (Supervisor)

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DIRECTORY

Change History		
Version	Date	Reason for change
1.0	2025-01-24	First edition

1. Technical Information

Note: Provide by applicant.

1.1. Applicant and Manufacturer Information

Applicant:	Reliance Communications, LLC
Applicant Address:	555 Wireless Blvd. Hauppauge, NY 11788, USA
Manufacturer:	MeiG Smart Technology Co., Ltd
Manufacturer Address:	2nd Floor,Office Building,No.5 Lingxia Road,Fenghuang,Fuyong Street,Bao'an District,Shenzhen

1.2. Equipment Under Test (EUT) Description

Product Name:	Orbic Speed Pro 5G	
EUT Serial No:	10#	
Hardware Version:	R575L5_MB_V1.02	
Software Version:	N/A	
Operation Band:	n260, n261	
Subcarrier Spacing (SCS):	120 kHz	
Modulation Type:	DFT-s-OFDM	BPSK, QPSK, 16QAM, 64QAM
	CP-OFDM	QPSK, 16QAM, 64QAM
Frequency Range:	n260	Tx: 37 GHz – 40 GHz
		Rx: 37 GHz – 40 GHz
	n261	Tx: 27.50 GHz - 28.35 GHz
		Rx: 27.50 GHz - 28.35 GHz
Channel Bandwidth:	n260	50 MHz,100 MHz
	n261	50 MHz,100 MHz
Antenna Type:	Fixed Internal Antenna	
Accessory Information:	**AC Adapter**	
	Brand Name:	Orbic
	Model No.:	OACH023US1
	Serial No.:	N/A
	Rated Input:	100~240V~50/60Hz; 0.5A
	Rated Output:	5.0V⎓3.0A; 9.0V⎓2.0A; 12.0V⎓1.5A;
	Manufacturer 1:	WATAI ELECTRONICS PRIVATE LIMITED
	Manufacturer 2:	N/A
	Battery	
	Brand Name:	Orbic

	Model No.:	OABA014GL1
	Serial No.:	N/A
	Capacity:	5000mAh
	Rated Voltage:	3.85V
	Charge Limit:	4.40V
	Manufacturer：	Shenzhen Aerospace Electronic Co.,Ltd

Note 1: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

1.3. Maximum EIRP and Emission Designator

Band	Maximum EIRP（dBm）	Maximum EIRP（W）
n260	33.83	2.415
n261	32.31	1.702

n260	Emission Designator (99%OBW)				
BW(MHz)	Modulation	Pi/2 BPSK	QPSK	16QAM	64QAM
50	DFT-s-OFDM	46M3G7D	46M3G7D	46M4W7D	46M4W7D
	CP-OFDM	/	46M9G7D	47M2W7D	46M4W7D
100	DFT-s-OFDM	91M5G7D	91M6G7D	91M6W7D	91M6W7D
	CP-OFDM	/	94M8G7D	95M1W7D	94M5W7D

n261	Emission Designator (99%OBW)				
BW(MHz)	Modulation	Pi/2 BPSK	QPSK	16QAM	64QAM
50	DFT-s-OFDM	46M1G7D	46M3G7D	46M4W7D	46M1W7D
	CP-OFDM	/	46M7G7D	47M4W7D	46M0W7D
100	DFT-s-OFDM	91M5G7D	91M7G7D	91M8W7D	91M4W7D
	CP-OFDM	/	94M7G7D	94M9W7D	94M3W7D

1.4. Test Standards and Results

The objective of the report is to perform testing according to Part 2, Part 30 for the EUT FCC ID Certification:

No	Identity	Document Title
1	47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 30	Upper Microwave Flexible Use Service
3	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
4	KDB 842590 D01	Upper Microwave Flexible Use Service v01r02
5	KDB 971168 D01	Power Meas License Digital Systems v03r01

Test detailed items/section required by FCC rules and results are as below:

Section	Description	Test Engineer	Result	Method Determination /Remark
2.1046 30.202	EIRP Measurement	Liu Yuanxin	PASS	No deviation
2.1049	Occupied Bandwidth	Liu Yuanxin	PASS	No deviation
2.1055	Frequency Stability	Liu Yuanxin	PASS	No deviation
2.1053 30.203	Radiated Spurious Emissions	Gao Jianrou	PASS	No deviation
2.1053 30.203	Band Edge Emissions	Gao Jianrou	PASS	No deviation

Note 1: The tests were performed according to the method of measurements prescribed in ANSI C63.26-2015 and KDB 842590 D01.

Note 2: All modes of operation and modulation modes were assessed. The test results shown in the following sections represent the worst-case emissions.

Note 3: Beam ID was selected according to the maximum EIRP in the EIRP simulation.

Note 4: The DFT-s-OFDM and CP-OFDM transmission schemes were evaluated for each test type, and only the worst-case data were included.

Note 5: When the test result is a critical value, we will use the measurement uncertainty give the judgment result based on the 95% confidence intervals.

Note 6: Additions to, deviation, or exclusions from the method shall be judged in the “method determination" column of add, deviate or exclude from the specific method shall be explained in the "Remark" of the above table.

1.5. Environmental Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15 - 35
Relative Humidity (%):	30 - 60
Atmospheric Pressure (kPa):	86 - 106

1.6. Minimum Measurement Distance for Final Radiated Measurements

All measurements of the fundamental emission, out of band, harmonics and spurious emissions shall be made in the far field of the measurement antenna. The far-field boundary for mmWave antennas is greater than or equal to $2D^2/\lambda$ (with D being the largest dimension of the antenna, and λ the wavelength of the emission). When the selected far-field measurement distance is different than the distance at which the applicable limit is specified, a linear inverse distance attenuation factor (20 dB/decade of distance change for field strength) shall be applied.

For fundamental and out-of-band emissions the largest far-field distance of either the EUT antenna or measurement antenna shall be used. For spurious emissions the far-field distance is based only on the measurement antenna.

Frequency Range (GHz)	Wavelength (m)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.0075	2.46	3
40-60	0.0050	0.588	1.5
60-90	0.0033	0.335	1.5
90-140	0.0021	0.685	1.5
140-200	0.0015	0.174	1.5

1.7. Calculations of Measurement Result

According to KDB 842590 D01 Upper Microwave Flexible Use Service.

EIRP Calculation:

EIRP (dBm)= Spectrum Analyzer Level(dBm) - Antenna Gain (dBi) + Converter Loss(dB) + Space Loss(dB) + Cable Loss(dB)

Radiated Spurious Emissions Calculation:

RSE EIRP (dBm)= Spectrum Analyzer Level(dBm) – Pre-amplifier Gain(dB) - Antenna Gain (dBi) + Converter Loss(dB) + Space Loss(dB) + Cable Loss(dB)

Note: For below 40GHz, since the test does not require the use of a mixer, so the test results do not require the calculation of Converter Loss.

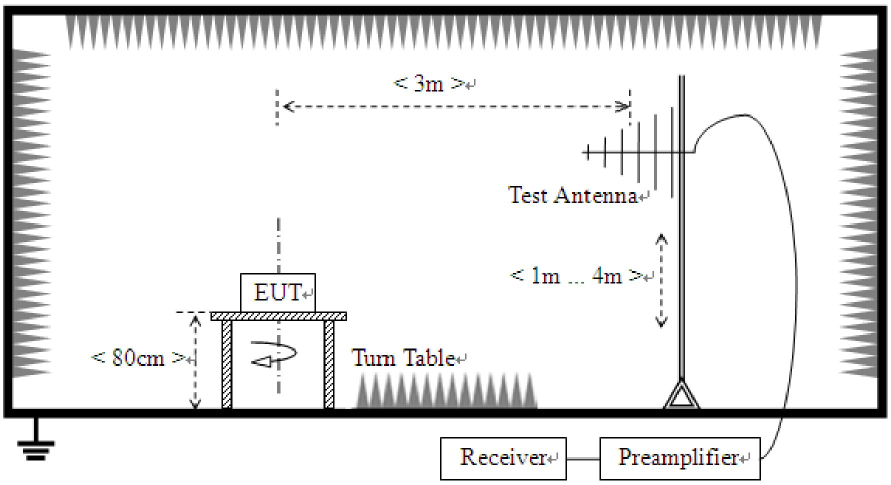
Radiated Spurious Emissions Calculation:

RSE EIRP (dBm)= Spectrum Analyzer Level(dBm) - Antenna Gain (dBi) + Converter Loss(dB) + Space Loss(dB) + Cable Loss(dB)

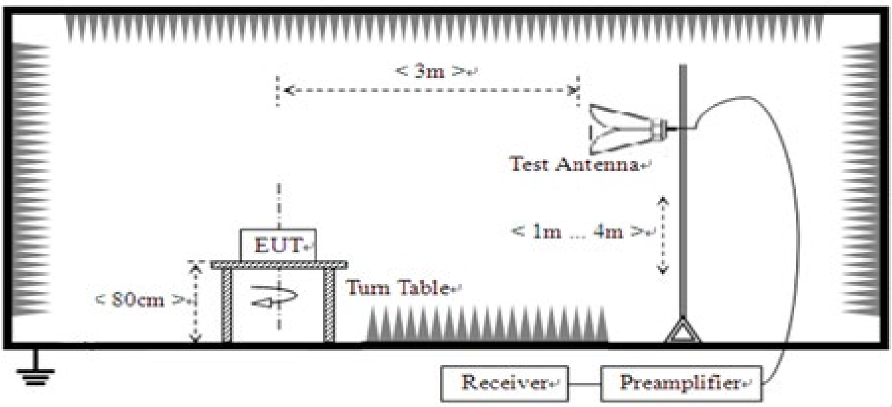
Note: The test results in the screenshot already includes this offset.

1.8. Radiated Test Items

The EUT is located in a 3m Full-Anechoic Chamber, the cable loss, air loss and so on of the site as factors are pre-calibrated using the "Substitution" method, and calculated to correct the reading. In the frequency range above 30MHz, Bi-Log Test Antenna (30MHz to 1GHz) and Horn Test Antenna (1GHz to 40GHz) are used. Test Antenna is 3m away from the EUT. Test Antenna height is varied from 1m to 4m above the ground and the Turn Table is actuated to turn from 0° to 360°to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of Notch Filters and High Pass Filter.

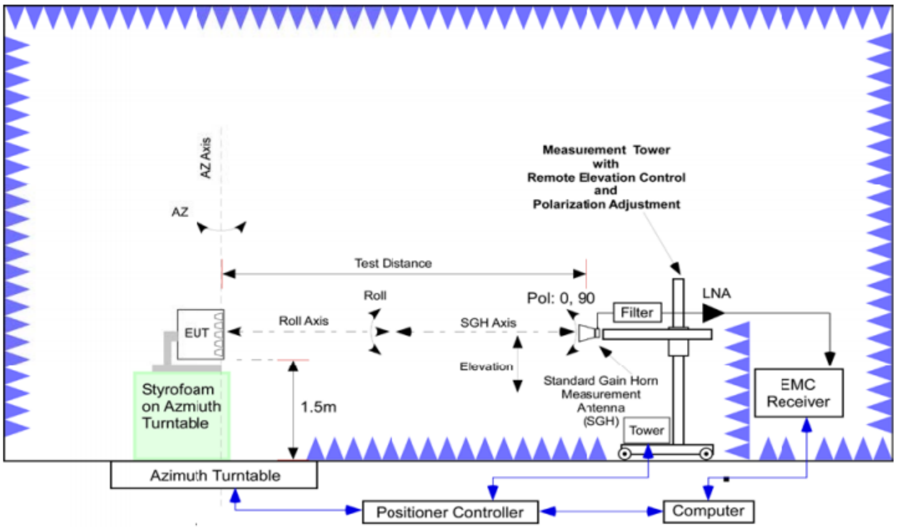


(For the test frequency from 30MHz to 1GHz)



(For the test frequency from 1GHz to 40GHz)

Test Antenna is 1.5m away from the EUT. Test Antenna height is varied from 1m to 2.5m above the ground and the Turn Table is actuated to turn from 0° to 360° to determine the maximum value of the radiated power. The emission levels at both horizontal and vertical polarizations should be tested. The Filters consists of reject filter. The LNA can be used to increase the dynamic range for the measurement receiver.



(For the test frequency from 40GHz to 220GHz)

Note: When doing measurements above 1GHz, the EUT has been within the 3dB cone width of the horn antenna.

2. 47 CFR Part 2, Part 30 Requirements

2.1. Equivalent Isotropic Radiated Power

2.1.1. Requirement

According to FCC section 2.1046(a), for mobile stations, the average power of the sum of all antenna is limited to a maximum EIRP of +43 dBm.

2.1.2. Test procedure

ANSI C63.26-2015 - Section 5.2.4.4.1
KDB 842590 D01 v01r02 Section 4.2

2.1.3. Test Settings

1. Set the EUT power to the maximum
2. Enter the channel power function of the spectrometer
3. Set the center frequency to be tested
4. Detector = RMS
5. Trace mode = Trace average
6. Span = 2*OBW
7. Sweep time = Auto
8. Number of sweep point ≧ 2*span / RBW
9. RBW = 1~5%BW
10. VBW ≧ 3*RBW
11. Integ BW = BW

Note 1: The average EIRP reported calculated is according to KDB 842590:
EIRP (dBm)= Spectrum Analyzer Level (dBm) - Antenna Gain (dBi) + Space Loss(dB) + Path Loss (dB)
The test results in the screenshot already includes this offset.
Note 2: The measurement (resolution) bandwidth of the signal analyzer (or measurement device) is less than the bandwidth of the transmitted signal then power integration method may be used to integrate power over the occupied bandwidth of the transmitted signal (in case of power measurement) or over the reference bandwidth (in case of power spectral density measurement).

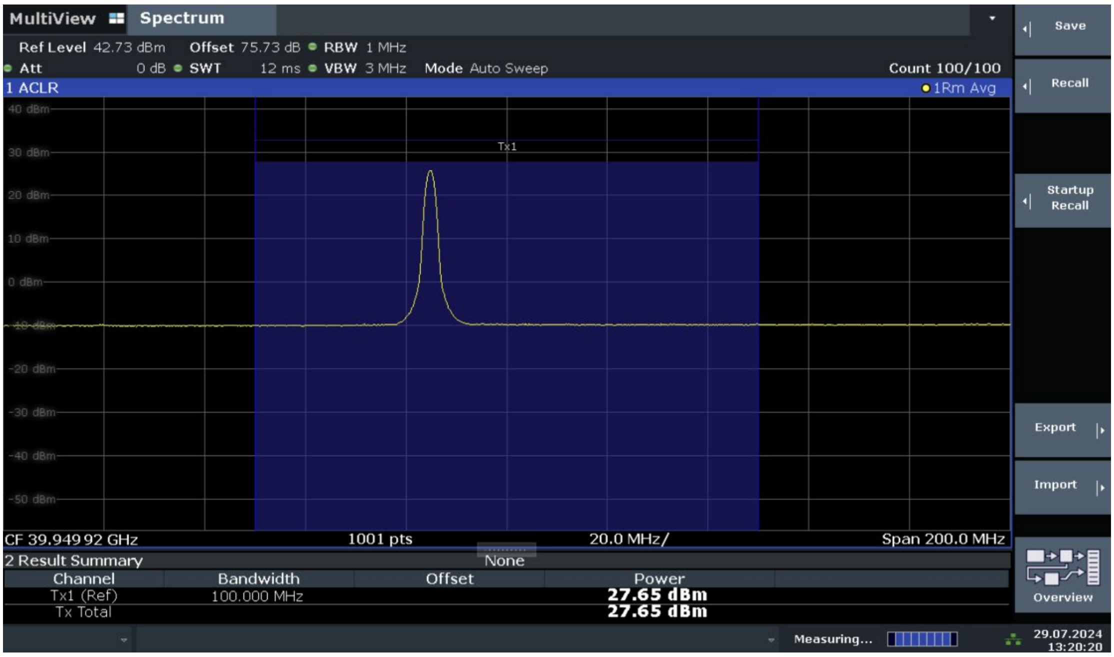
2.1.4. Test result

Note: We choose the worst modulation by the EIRP of middle channel, the high channel and low channel measure the EIRP only with the worst modulation.

n260, Module 0, SCS=120kHz, Beam ID: 13 PUSCH DFT-s-OFDM						
Bandwidth	RB allocation	Frequency (MHz)	Power (dBm)			
			Pi/2 BPSK	QPSK	16QAM	64QAM
50MHz	10@11	37025.04	/	26.38	/	/
		38499.96	25.66	25.53	25.54	22.56
		39975	/	26.97	/	/
	1@11	37025.04	/	26.36	/	/
		38499.96	25.76	25.73	25.71	22.69
		39975	/	26.83	/	/
100MHz	20@22	37050	/	27.30	/	/
		38499.96	26.82	26.68	26.67	23.74
		39949.92	/	27.35	/	/
	1@22	37050	/	27.52	/	/
		38499.96	26.98	26.97	26.93	23.99
		39949.92	/	27.65	/	/

Worst Case:

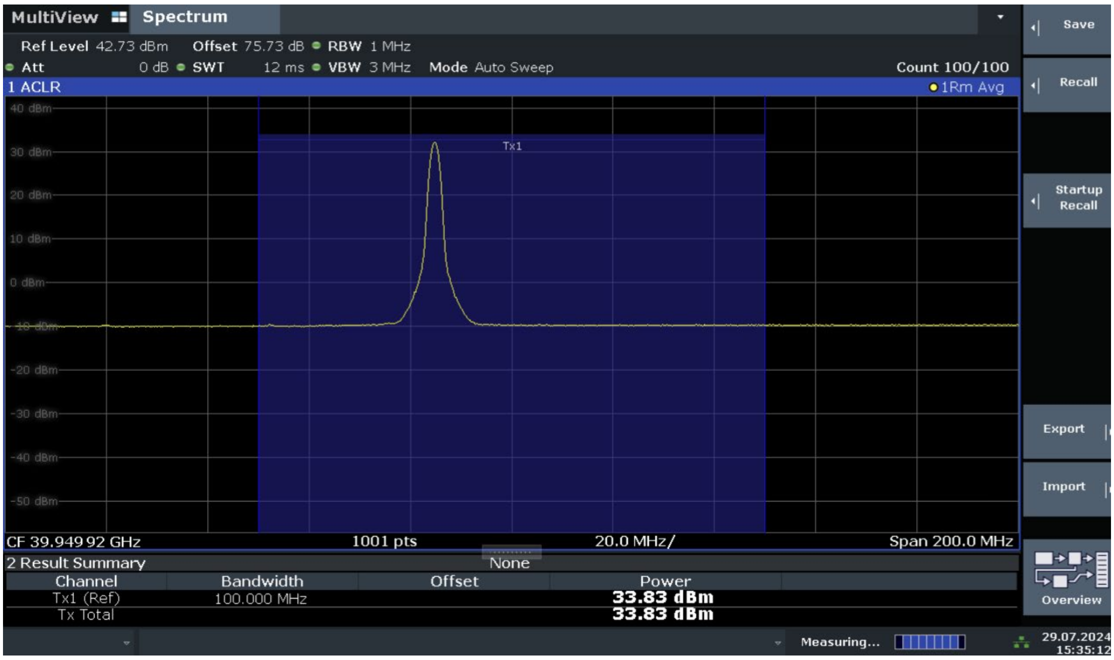
n260, Module 0, 100MHz, RB: 1@22, HIGH CH, PUSCH DFT QPSK



n260, Module 0, SCS=120kHz, Beam ID: 13+269 PUSCH DFT-s-OFDM						
Bandwidth	RB allocation	Frequency (MHz)	Power (dBm)			
			Pi/2 BPSK	QPSK	16QAM	64QAM
50MHz	10@11	37025.04	/	30.14	/	/
		38499.96	29.92	29.73	29.62	26.73
		39975	/	30.27	/	/
	1@11	37025.04	/	27.88	/	/
		38499.96	31.33	31.25	31.24	28.39
		39975	/	28.14	/	/
100MHz	20@22	37050	/	29.78	/	/
		38499.96	30.18	29.98	29.91	26.88
		39949.92	/	31.05	/	/
	1@22	37050	/	32.21	/	/
		38499.96	32.15	31.91	31.95	28.96
		39949.92	/	33.83	/	/

Worst Case:

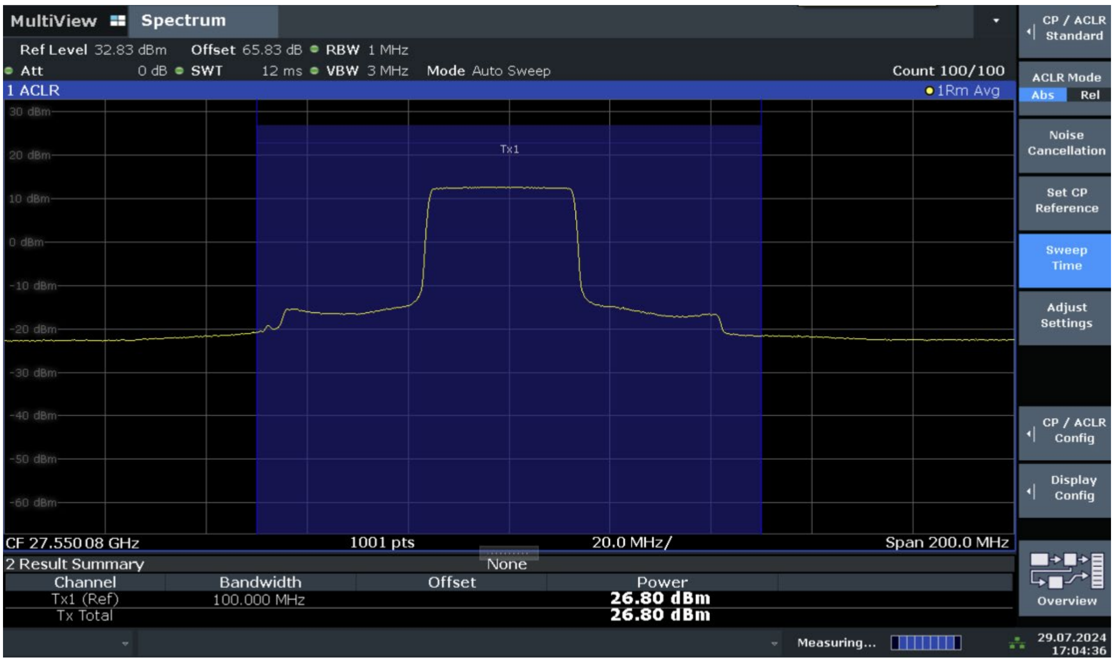
n260, Module 0, 100MHz, RB: 1@22, HIGH CH, PUSCH DFT QPSK



n261, Module 0, SCS=120kHz, Beam ID: 274 PUSCH DFT-s-OFDM						
Bandwidth	RB allocation	Frequency (MHz)	Power (dBm)			
			Pi/2 BPSK	QPSK	16QAM	64QAM
50MHz	10@11	27525	/	26.21	/	/
		27924.96	26.01	26.02	26.00	22.96
		28324.92	/	25.13	/	/
	1@11	27525	/	25.90	/	/
		27924.96	26.09	26.17	26.01	22.94
		28324.92	/	25.35	/	/
100MHz	20@22	27550.08	/	26.80	/	/
		27924.96	26.73	26.73	26.74	23.65
		28299.96	/	26.17	/	/
	1@22	27550.08	/	26.75	/	/
		27924.96	26.55	26.58	26.64	23.55
		28299.96	/	26.02	/	/

Worst Case:

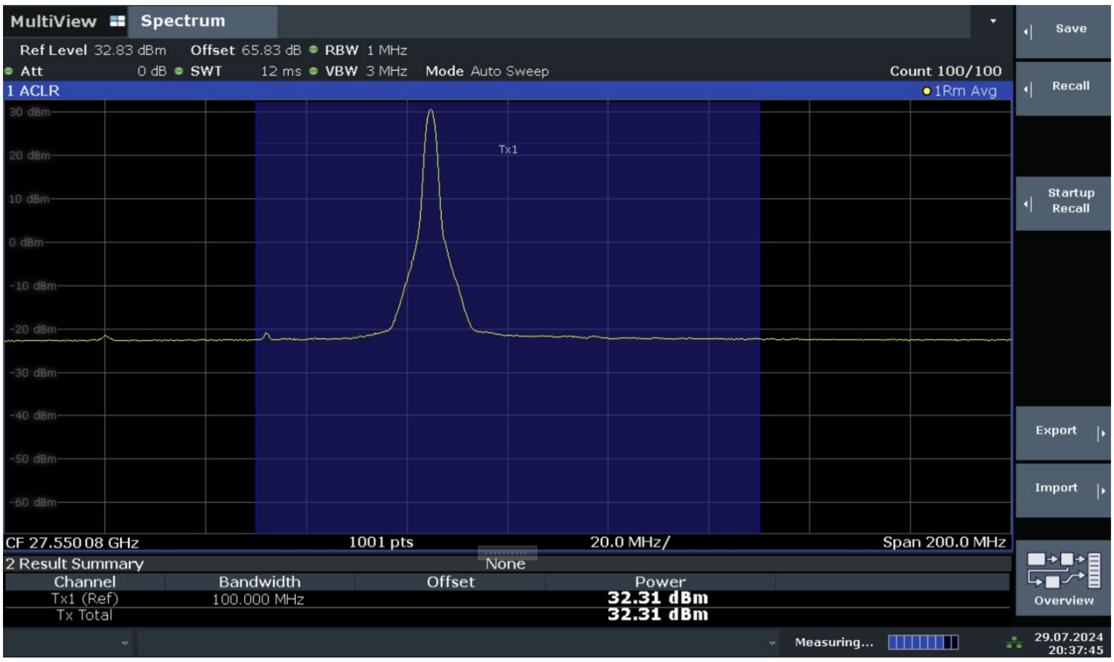
n261, Module 0, 100MHz, RB: 20@22, LOW CH, PUSCH DFT QPSK



n261, Module 0, SCS=120kHz, Beam ID: 274+18 PUSCH DFT-s-OFDM						
Bandwidth	RB allocation	Frequency (MHz)	Power (dBm)			
			Pi/2 BPSK	QPSK	16QAM	64QAM
50MHz	10@11	27525	/	29.34	/	/
		27924.96	29.41	29.39	29.42	26.32
		28324.92	/	28.47	/	/
	1@11	27525	/	23.73	/	/
		27924.96	24.03	24.05	24.15	21.37
		28324.92	/	23.67	/	/
100MHz	20@22	27550.08	/	29.63	/	/
		27924.96	29.98	30.03	29.99	26.90
		28299.96	/	26.35	/	/
	1@22	27550.08	/	32.31	/	/
		27924.96	29.89	29.98	30.05	26.77
		28299.96	/	28.92	/	/

Worst Case:

n261, Module 0, 100MHz, RB: 1@22, LOW CH, PUSCH DFT QPSK



2.2. Occupied Bandwidth

2.2.1. Requirement

According to FCC section 2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission. Occupied bandwidth is also known as the 99% emission bandwidth.

2.2.2. Test procedure

ANSI C63.26-2015 - Section 5.4.3

2.2.3. Test Settings

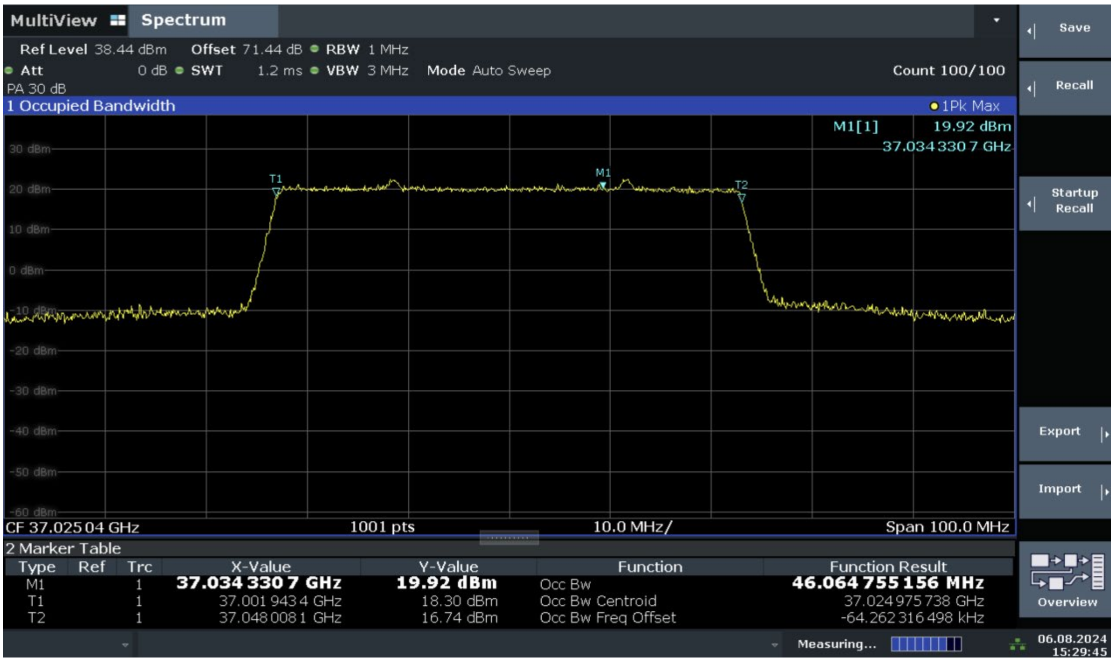
1. Enter the Occupied Bandwidth function of the spectrometer
2. Set the center frequency to be tested
3. Detector = Peak
4. Trace mode = Max hold
5. Span = 2*OBW
6. Sweep time = Auto
7. RBW = 1~5%OBW
8. VBW ≧ 3*RBW
9. Report the value of 99% bandwidth

2.2.4. Test Result

n260, Module 0, SCS=120kHz, Beam ID: 13							
BW (MHz)	RB allocation	Modulation	Frequency (MHz)	99% BW(MHz)			
				Pi/2 BPSK	QPSK	16QAM	64QAM
50	Full RB	DFT-s-OFDM	37025.04	46.03	46.06	46.12	45.96
			38499.96	46.11	46.16	46.23	46.03
			39975	45.96	46.11	46.25	46.27
	Full RB	CP-OFDM	37025.04	/	46.43	46.60	46.00
			38499.96	/	46.31	46.41	46.43
			39975	/	46.28	46.31	46.02
100	Full RB	DFT-s-OFDM	37050	91.38	91.52	91.55	91.45
			38499.96	91.38	91.58	91.59	91.60
			39949.92	91.51	91.60	91.63	91.55
	Full RB	CP-OFDM	37050	/	94.61	94.74	94.26
			38499.96	/	94.74	95.14	94.47
			39949.92	/	94.78	95.08	94.47

n260, Module 0, 50MHz, LOW CH, PUSCH DFT BPSK (99% BW)

n260, Module 0, 50MHz, LOW CH, PUSCH DFT QPSK (99% BW)

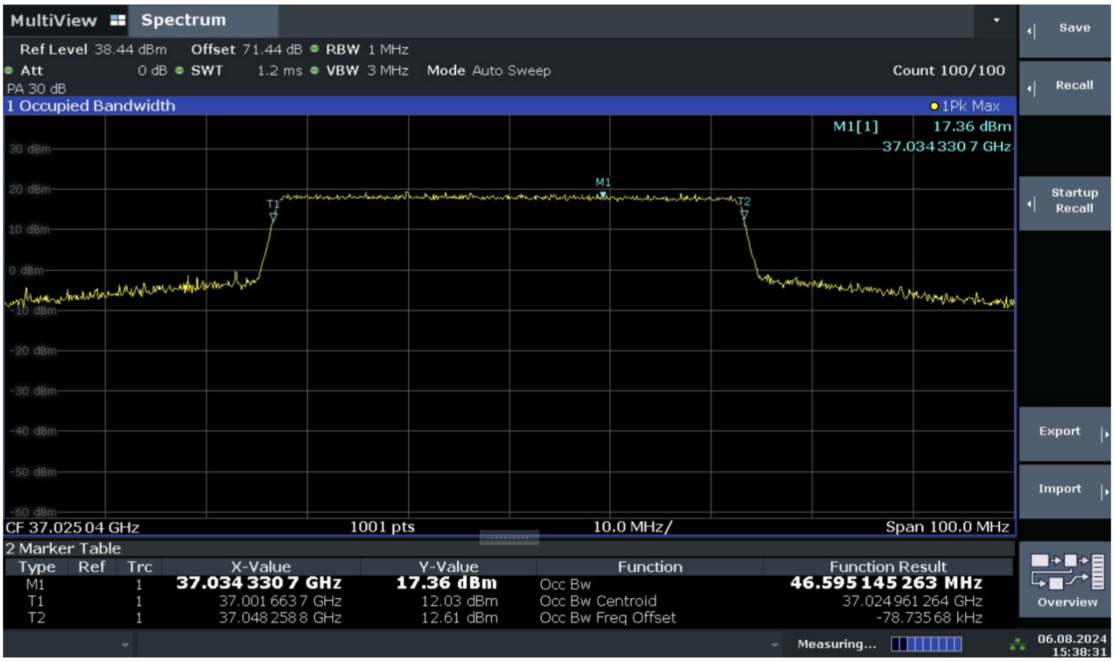


n260, Module 0, 50MHz, LOW CH, PUSCH DFT 16QAM (99% BW)

n260, Module 0, 50MHz, LOW CH, PUSCH DFT 64QAM (99% BW)

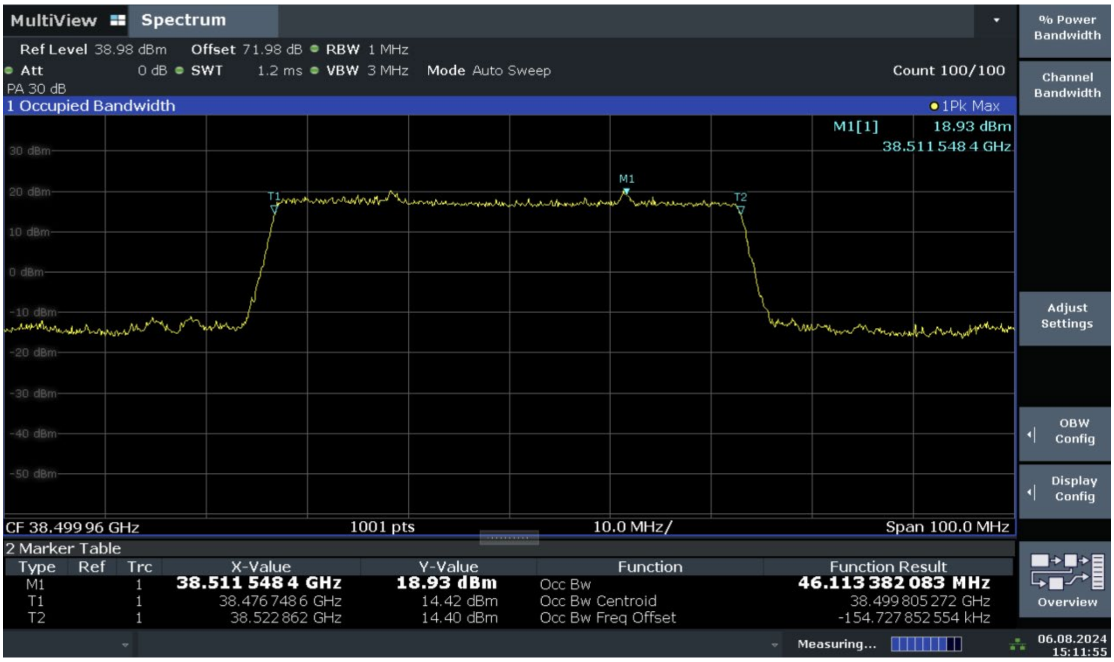
n260, Module 0, 50MHz, LOW CH, CP-OFDM QPSK (99% BW)

n260, Module 0, 50MHz, LOW CH, CP-OFDM 16QAM (99% BW)

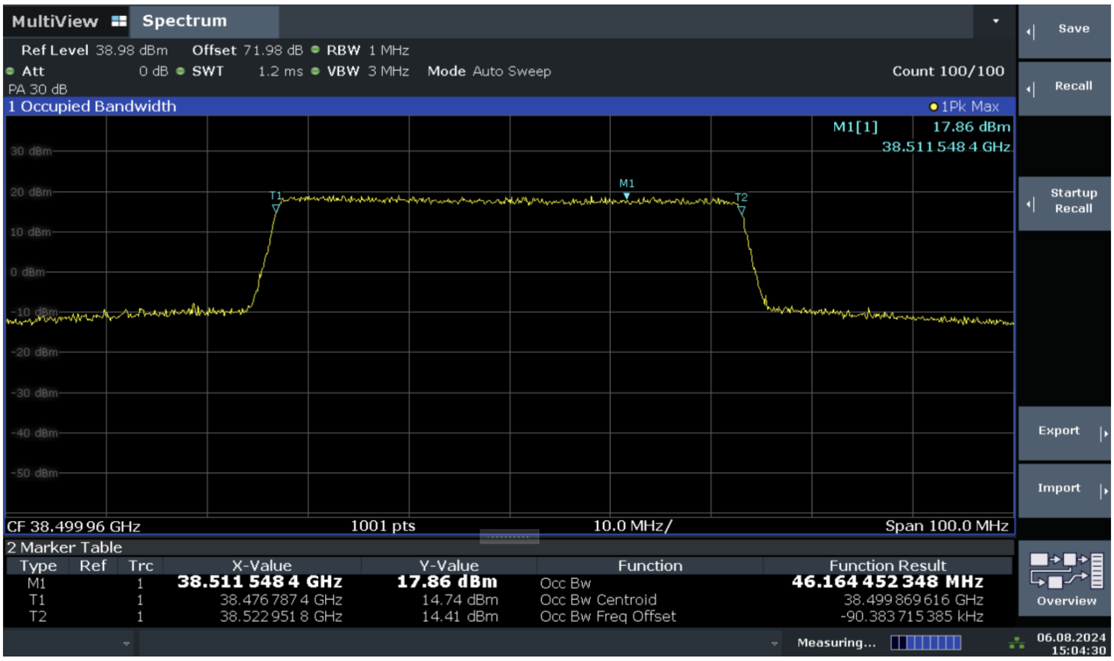


n260, Module 0, 50MHz, LOW CH, CP-OFDM 64QAM (99% BW)

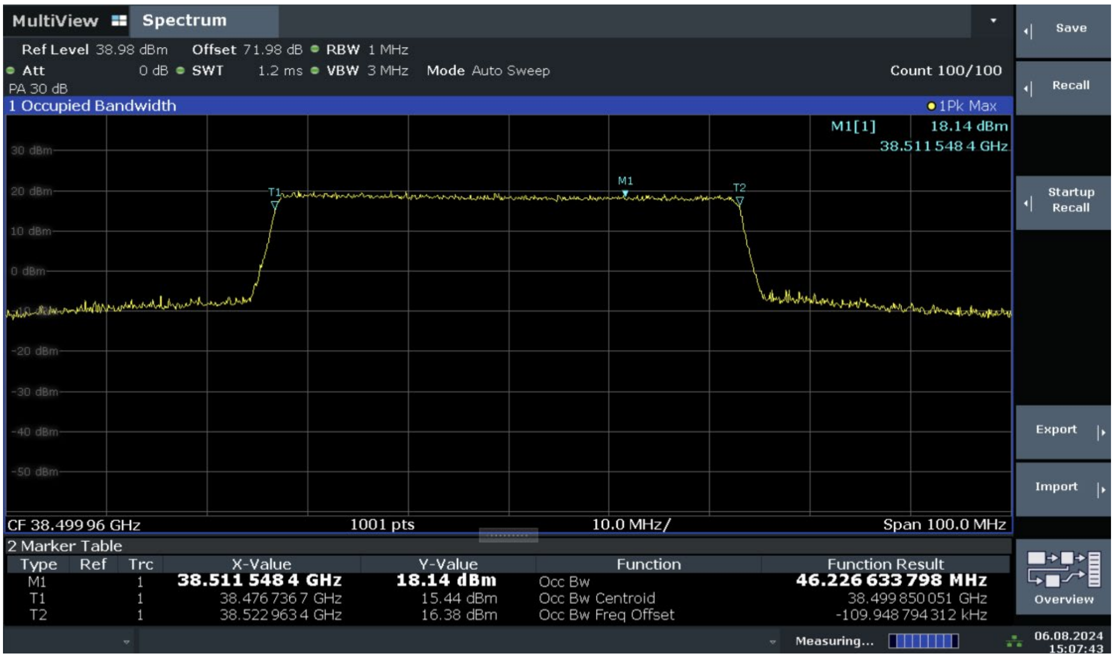
n260, Module 0, 50MHz, MID CH, PUSCH DFT BPSK (99% BW)



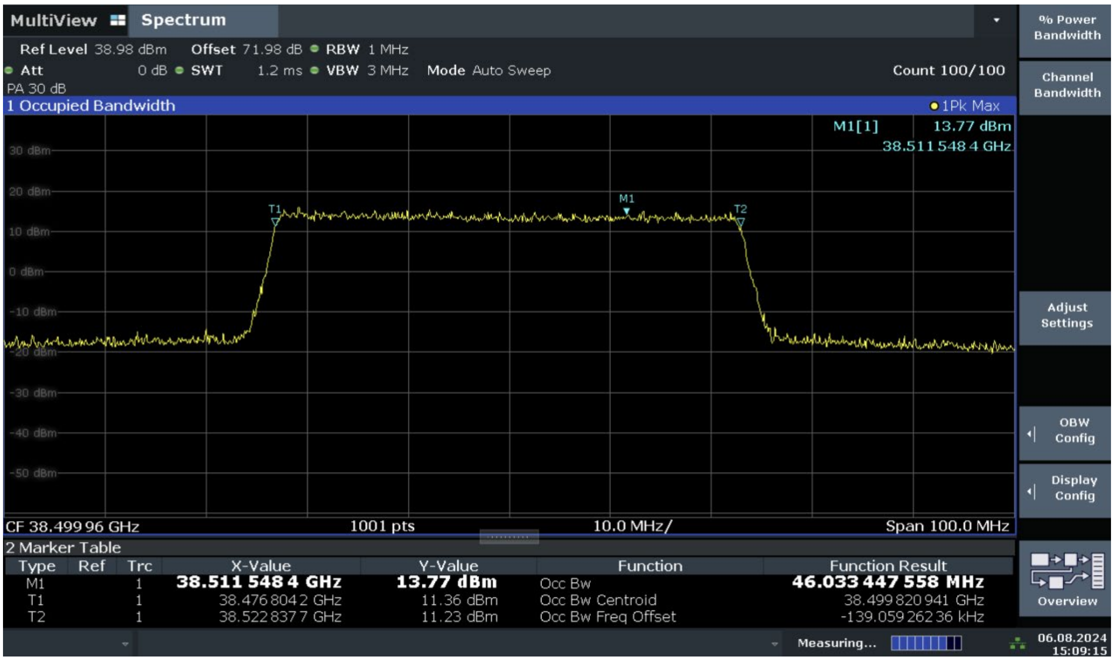
n260, Module 0, 50MHz, MID CH, PUSCH DFT QPSK (99% BW)



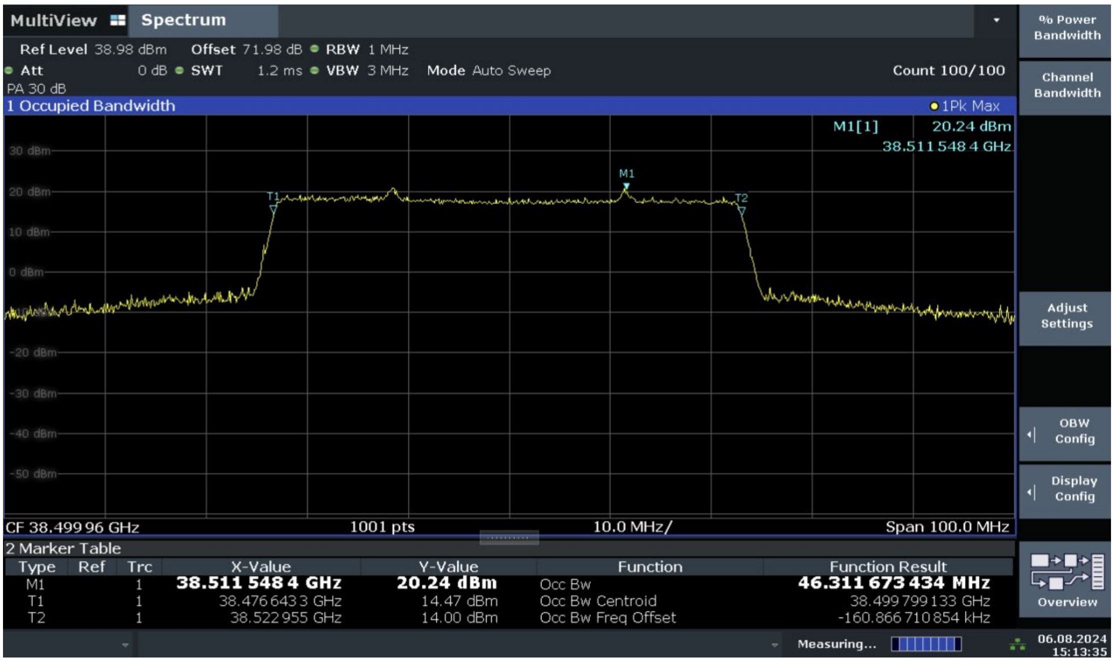
n260, Module 0, 50MHz, MID CH, PUSCH DFT 16QAM (99% BW)



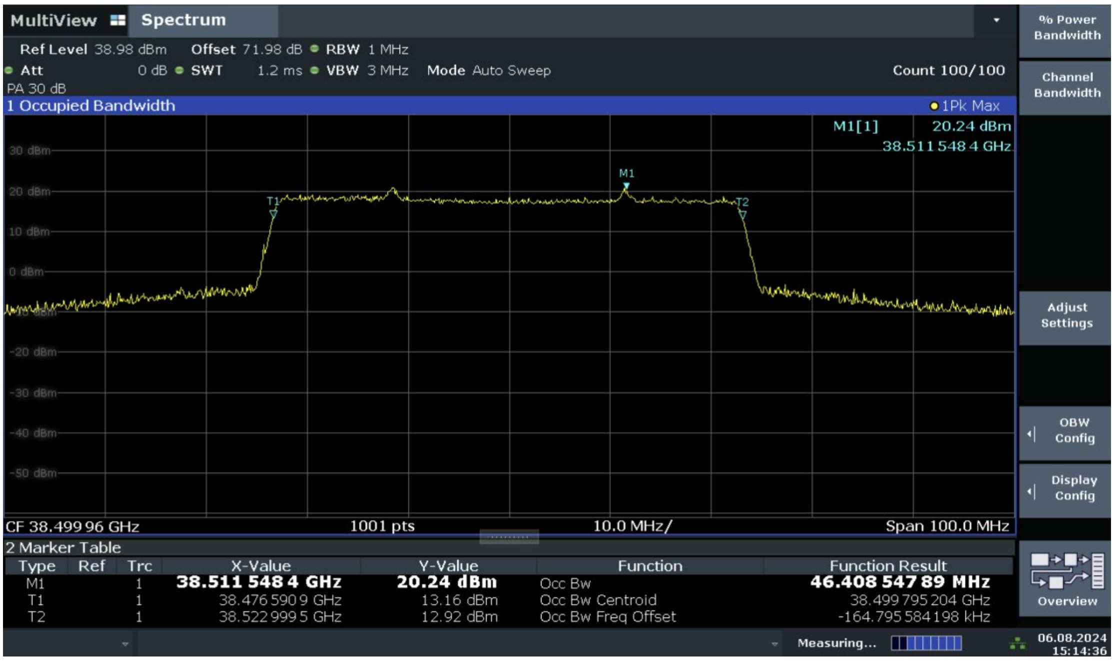
n260, Module 0, 50MHz, MID CH, PUSCH DFT 64QAM (99% BW)



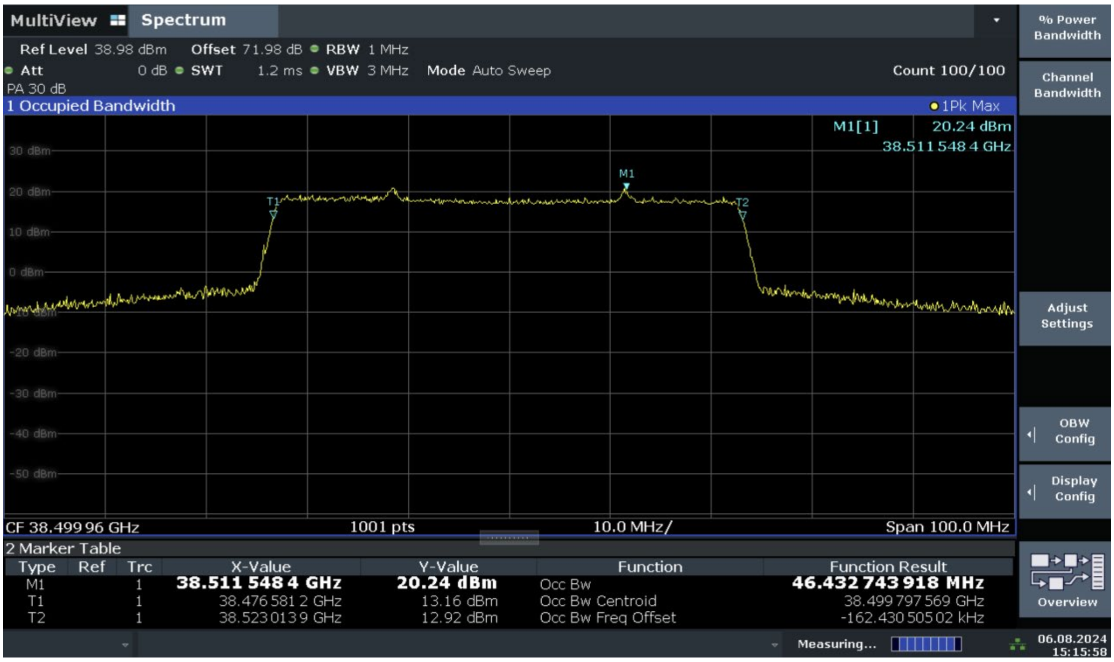
n260, Module 0, 50MHz, MID CH, CP-OFDM QPSK (99% BW)



n260, Module 0, 50MHz, MID CH, CP-OFDM 16QAM (99% BW)

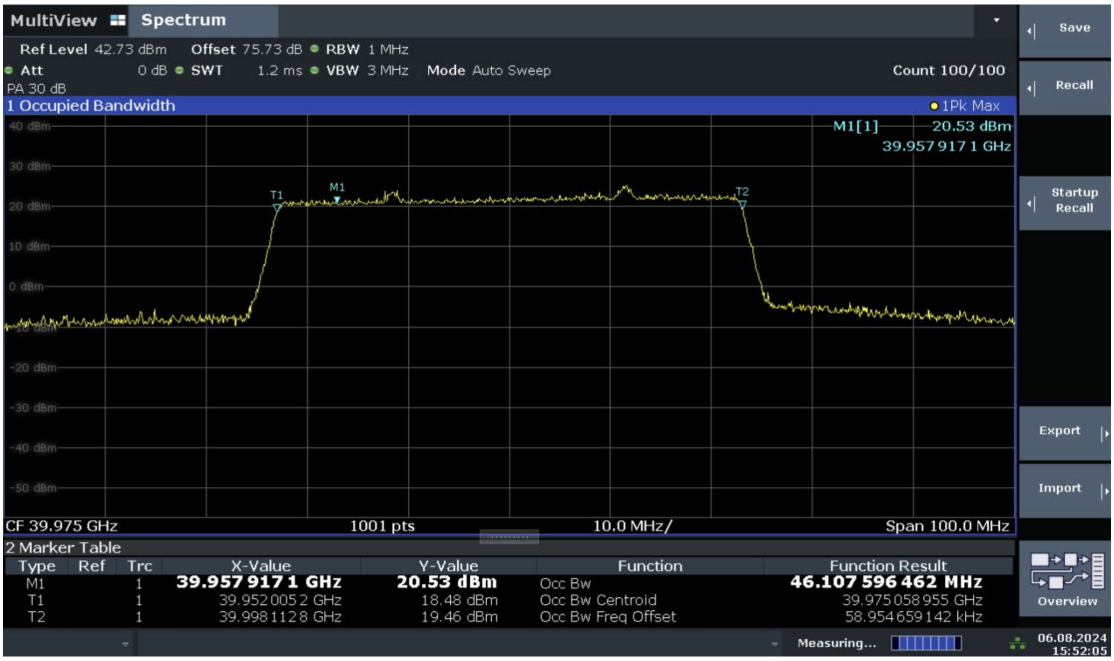


n260, Module 0, 50MHz, MID CH, CP-OFDM 64QAM (99% BW)

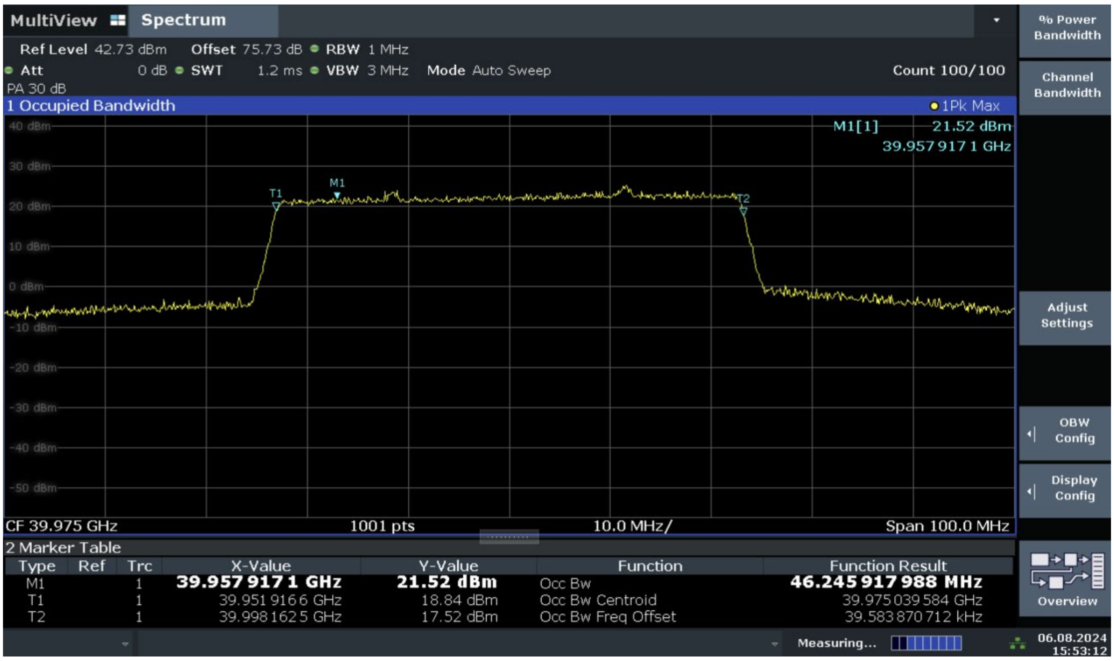


n260, Module 0, 50MHz, HIGH CH, PUSCH DFT BPSK (99% BW)

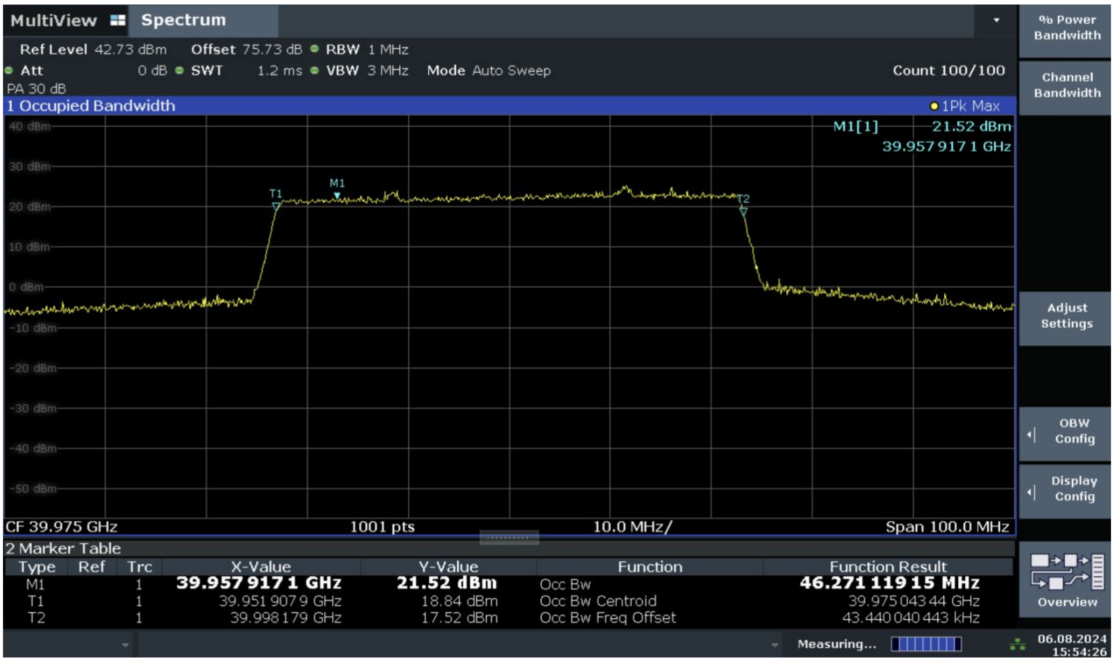
n260, Module 0, 50MHz, HIGH CH, PUSCH DFT QPSK (99% BW)



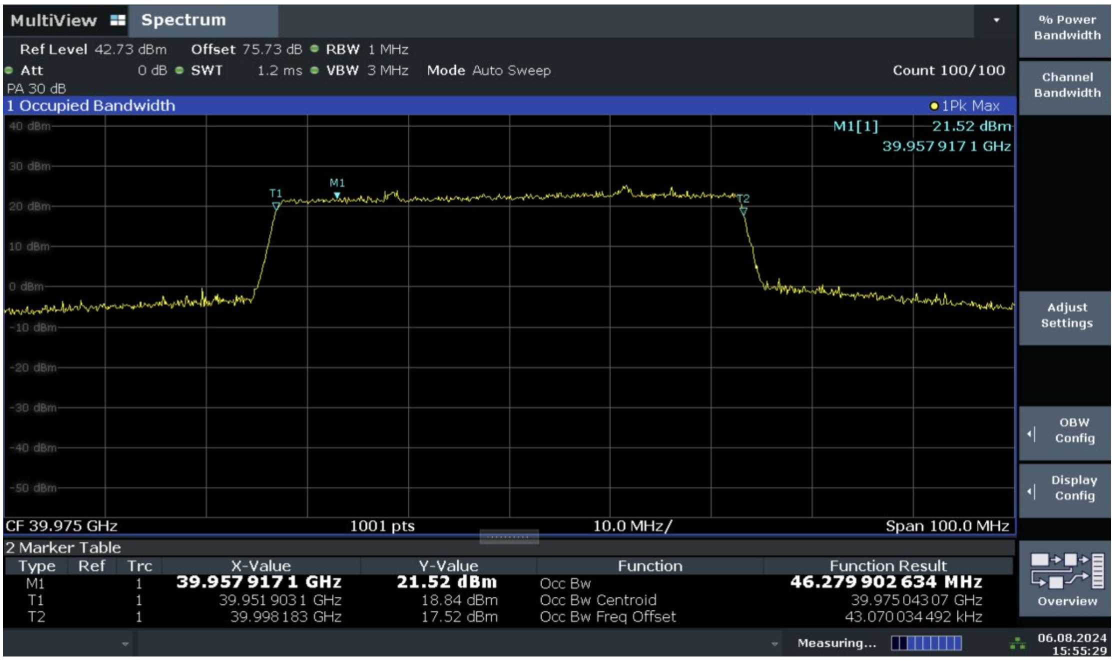
n260, Module 0, 50MHz, HIGH CH, PUSCH DFT 16QAM (99% BW)



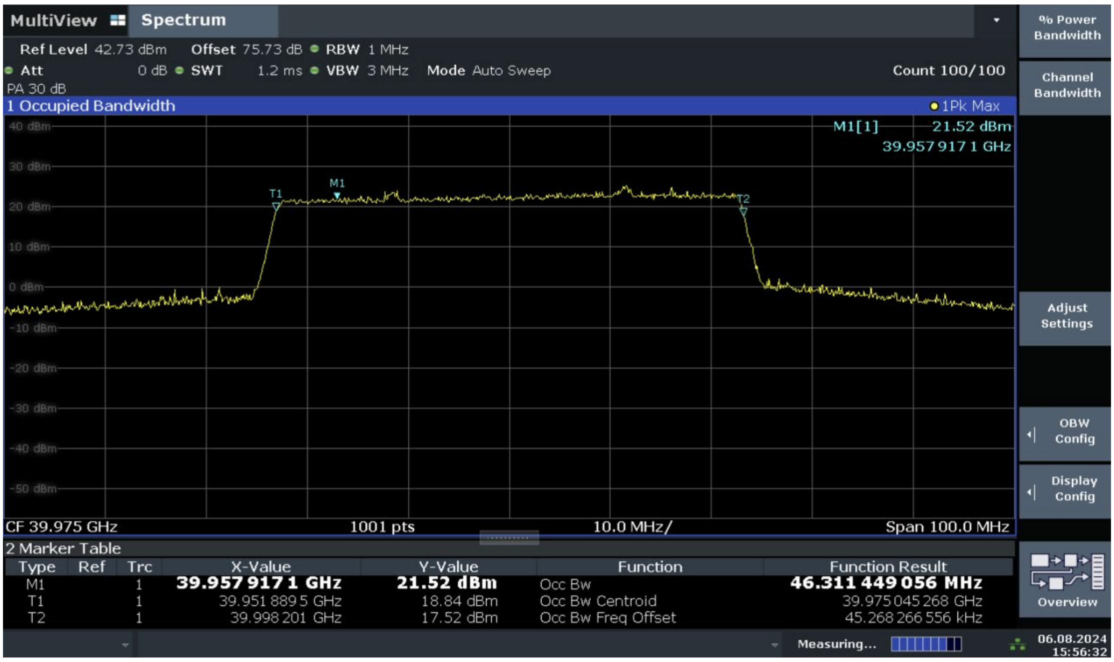
n260, Module 0, 50MHz, HIGH CH, PUSCH DFT 64QAM (99% BW)



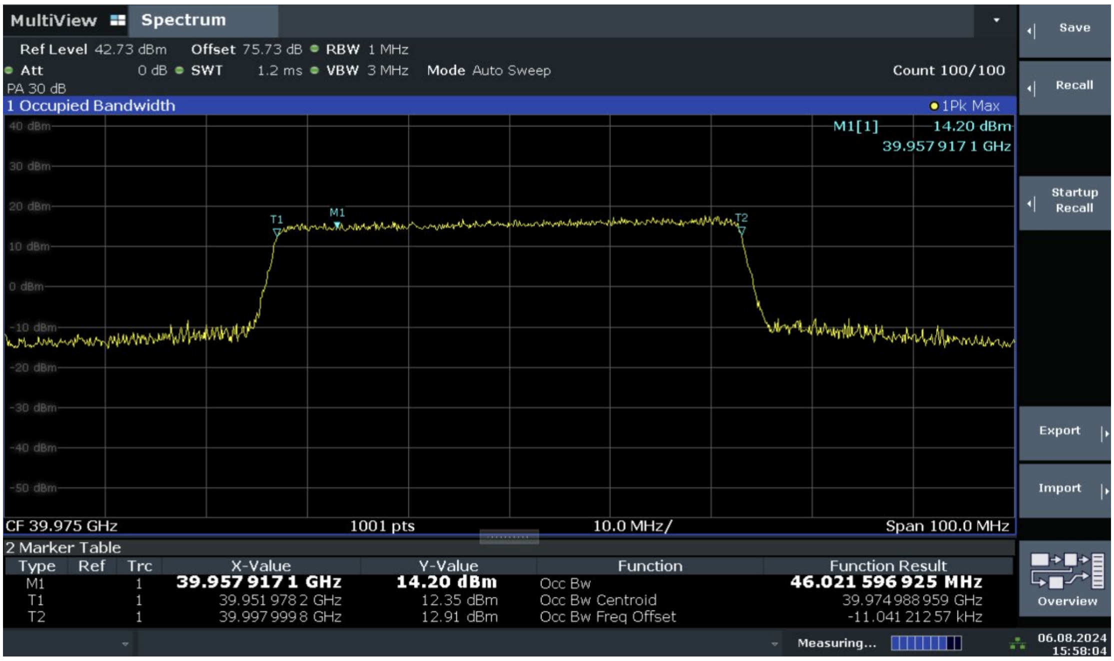
n260, Module 0, 50MHz, HIGH CH, CP-OFDM QPSK (99% BW)



n260, Module 0, 50MHz, HIGH CH, CP-OFDM 16QAM (99% BW)

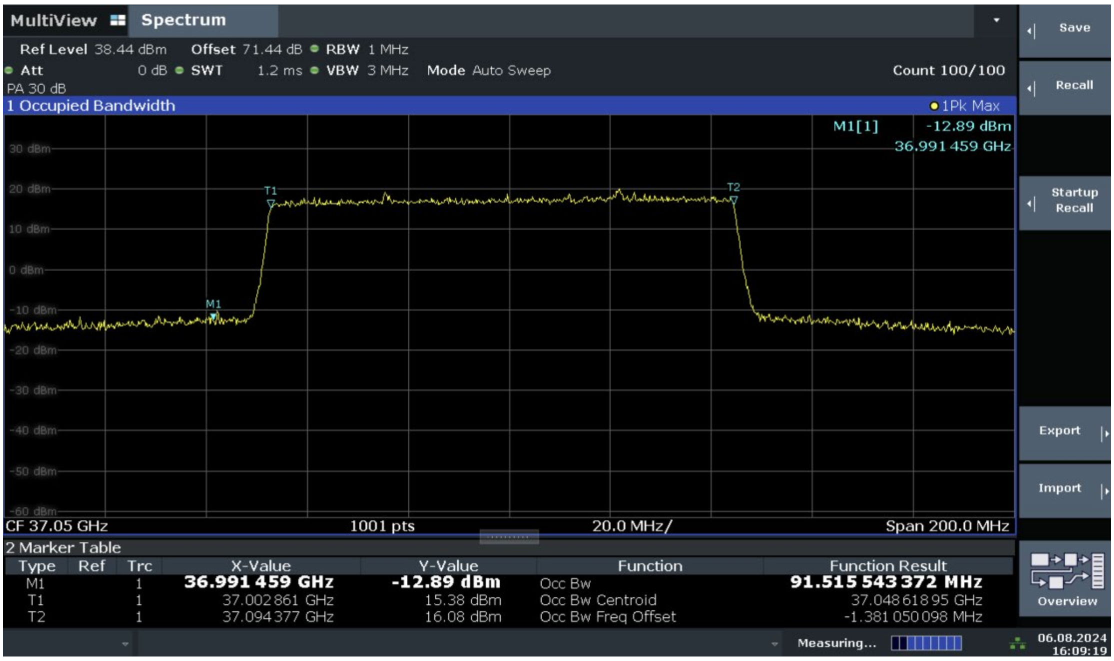


n260, Module 0, 50MHz, HIGH CH, CP-OFDM 64QAM (99% BW)

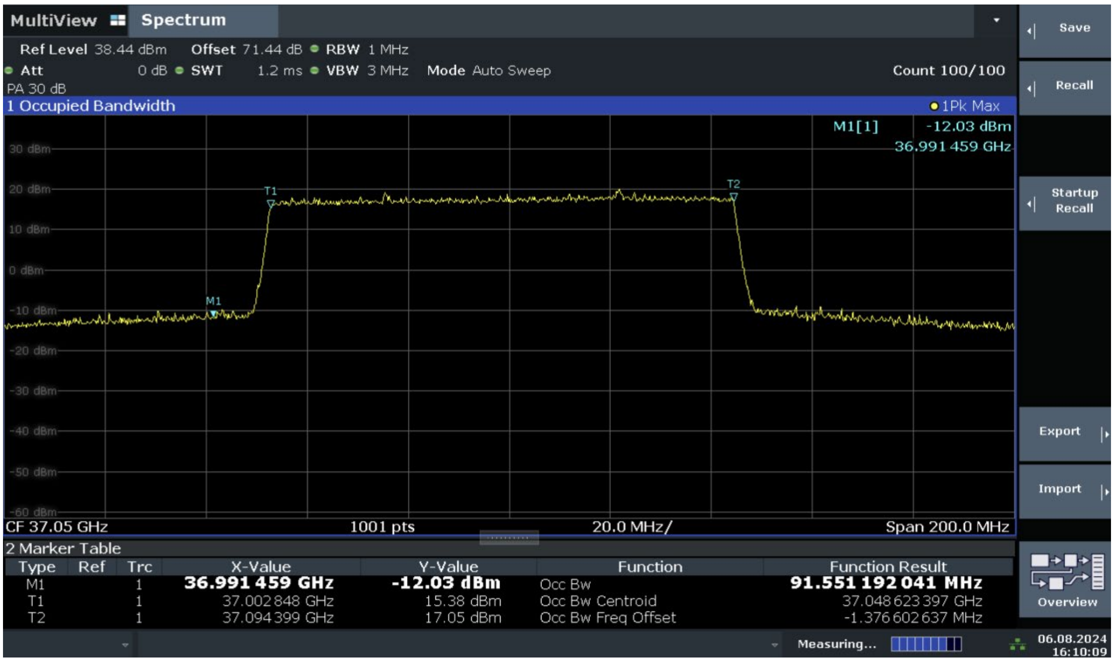


n260, Module 0, 100MHz, LOW CH, PUSCH DFT BPSK (99% BW)

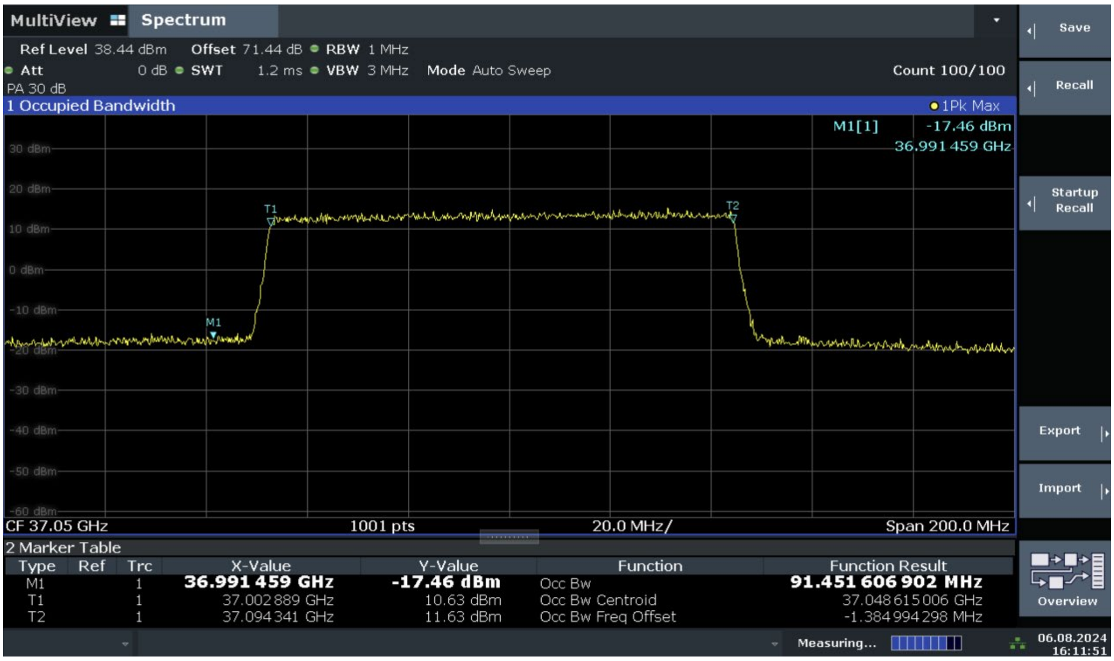
n260, Module 0, 100MHz, LOW CH, PUSCH DFT QPSK (99% BW)



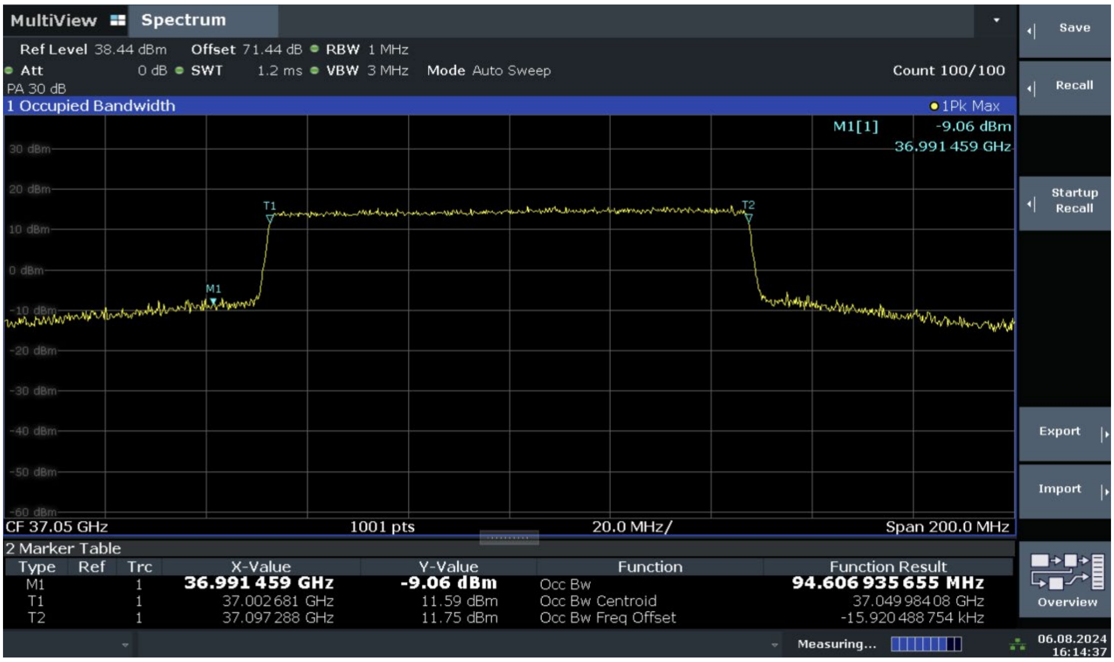
n260, Module 0, 100MHz, LOW CH, PUSCH DFT 16QAM (99% BW)



n260, Module 0, 100MHz, LOW CH, PUSCH DFT 64QAM (99% BW)

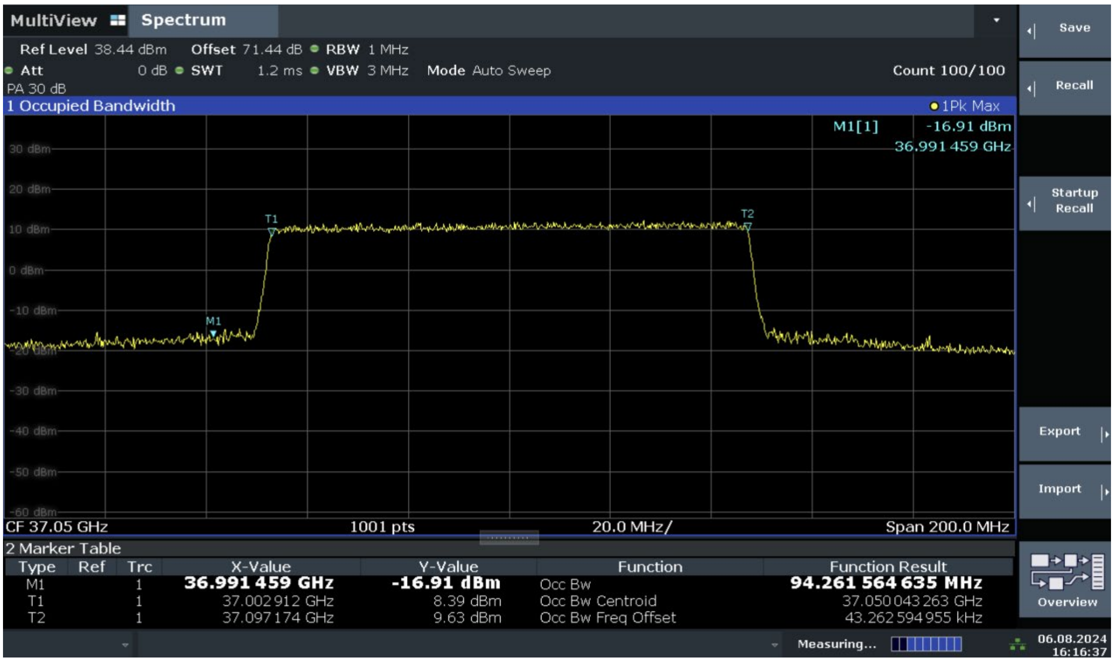


n260, Module 0, 100MHz, LOW CH, CP-OFDM QPSK (99% BW)



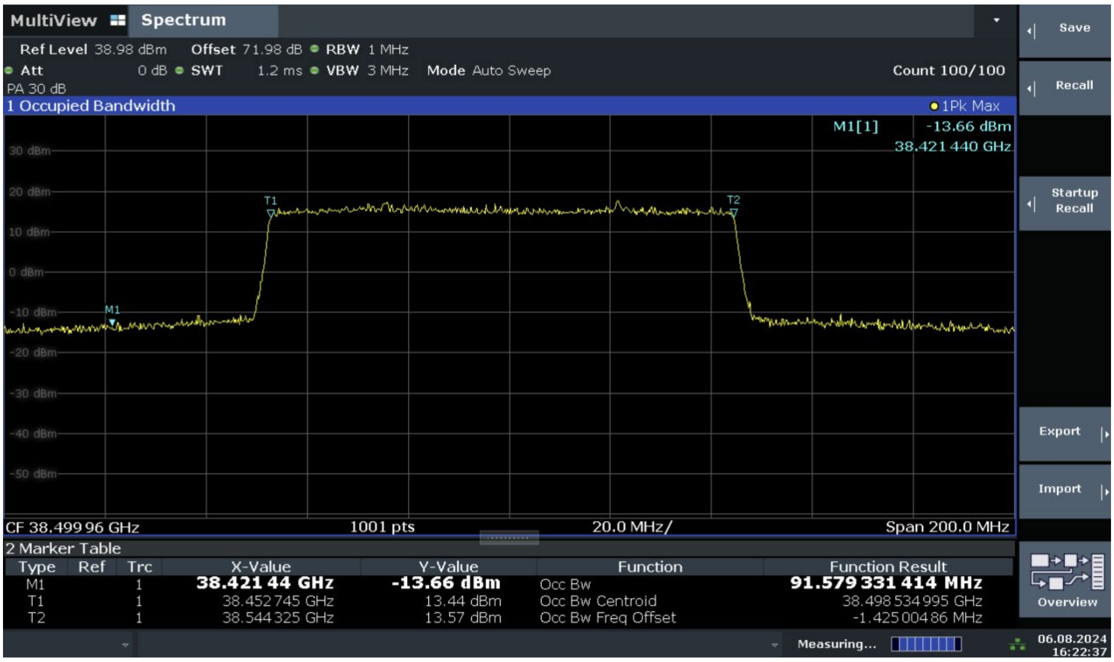
n260, Module 0, 100MHz, LOW CH, CP-OFDM 16QAM (99% BW)

n260, Module 0, 100MHz, LOW CH, CP-OFDM 64QAM (99% BW)



n260, Module 0, 100MHz, MID CH, PUSCH DFT BPSK (99% BW)

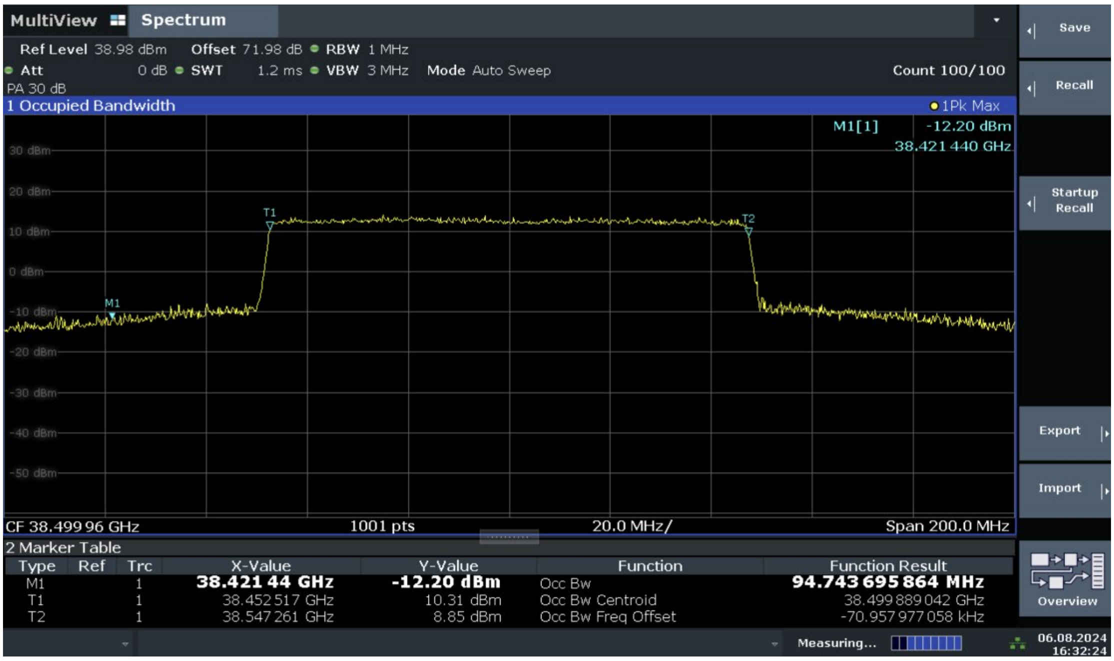
n260, Module 0, 100MHz, MID CH, PUSCH DFT QPSK (99% BW)



n260, Module 0, 100MHz, MID CH, PUSCH DFT 16QAM (99% BW)

n260, Module 0, 100MHz, MID CH, PUSCH DFT 64QAM (99% BW)

n260, Module 0, 100MHz, MID CH, CP-OFDM QPSK (99% BW)



n260, Module 0, 100MHz, MID CH, CP-OFDM 16QAM (99% BW)