

Prüfbericht-Nr.: Test Report No.:	JP223Y4L 001	Auftrags-Nr.: Order No.:	150259454	Seite 1 von 274 Page 1 of 274
Kunden-Referenz-Nr.: Client Reference No.:	N/A	Auftragsdatum: Order Date:	2022-04-11	
Auftraggeber: Client:	NEC Corporation 1753 Shimonumabe, Nakahara-ku, Kawasaki City, Kanagawa, 211-8666 Japan			
Prüfgegenstand: Test Item:	5G NR FR1 Base Station Sub6 Massive MIMO RU			
Bezeichnung / Typ-Nr.: Identification / Type No.:	MB5440-m4770-52	Serien-Nr.: Serial No.:	5440D999996	
Auftrags-Inhalt: Order Content:	Radio Testing			
Prüfgrundlage: Test Specification:	FCC 47 CFR Part 2 FCC 47 CFR Part 27 ANSI C63.26-2015 KDB Publication No. 971168 D01 KDB Publication No. 662911 D01			
Wareneingangsdatum: Date of Receipt:	2022-05-30, 2022-07-06			
Prüfmuster-Nr.: Test Sample No.:	A003271240, A003294464			
Prüfzeitraum: Testing Period:	2022-06-06 - 2022-07-12			
Ort der Prüfung: Place of Testing:	Yokohama EMC Laboratory			
Prüflaboratorium: Testing Laboratory:	TÜV Rheinland Japan Ltd.			
Prüfergebnis*: Test Result*:	Pass			
Überprüft von: Reviewed by:		Genehmigt von: Authorized by:		
Datum: 2022-08-05 Date:	Daisuke Watanuki	Datum: 2022-08-05 Date:	Pin Zhang	
Stellung / Position:	Inspector	Stellung / Position:	Reviewer	
Sonstiges / Other:				
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the Test Item at Delivery:				
		Prüfmuster vollständig und unbeschädigt Test item complete and undamaged		
* Legende: P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet * Legend: P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested				
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Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 2 von 274
Page 2 of 274

REVISIONS

Report No.	Issue date	Changes / Remarks
JP223Y4L 001	2022-08-05	Original document

Contents

1.	GENERAL REMARKS.....	5
1.1	TEST SPECIFICATIONS	5
1.2	TEST REPORT PURPOSE.....	5
1.3	COMPLEMENTARY MATERIALS	5
2.	TEST SITES.....	6
2.1	TEST FACILITIES	6
2.2	LIST OF TEST AND MEASUREMENT INSTRUMENTS	7
2.3	MEASUREMENT UNCERTAINTY	8
3.	GENERAL PRODUCT INFORMATION	9
3.1	PRODUCT FUNCTION AND INTENDED USE.....	9
3.2	RATINGS AND SYSTEM DETAILS	9
3.3	NOISE GENERATING AND NOISE SUPPRESSING PARTS.....	10
3.4	SUBMITTED DOCUMENTS AND INFORMATION	10
4.	TEST SETUP AND OPERATION MODES	11
4.1	TEST METHODOLOGY	11
4.2	OPERATION MODES.....	11
4.3	PHYSICAL CONFIGURATION FOR TESTING	12
4.4	TEST SOFTWARE.....	13
4.5	SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....	14
4.6	COUNTERMEASURES TO ACHIEVE COMPLIANCE.....	15
5.	TEST RESULTS RADIO	16
5.1	CONDUCTED MEASUREMENTS AT ANTENNA PORT	16
5.1.1	RF Output Power (Power Density).....	16
5.1.2	RF Output Power (Channel Power)	37
5.1.3	Modulation Characteristics.....	55
5.1.4	99% Occupied Bandwidth	80
5.1.5	Out-of-Band Emission	190
5.1.6	Conducted Spurious Emission	207
5.1.7	Frequency Stability.....	247
5.1.8	Duty Cycle	249
5.2	RADIATED MEASUREMENTS	261
5.2.1	Radiated Spurious Emissions of Transmitter	261
6.	LIST OF TABLES.....	262

7.	LIST OF FIGURES.....	265
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1. General Remarks

1.1 Test Specifications

Table 1: Test Summary

Test	Specifications	Result
Radio: FCC 47 CFR Part 2 FCC 47 CFR Part 27 ANSI C63.26-2015 KDB Publication No. 971168 D01 KDB Publication No. 662911 D01		
RF Output Power	FCC §2.1046, §27.50 (j)	Pass
Modulation Characteristics	FCC §2.1047	Pass
Occupied Bandwidth	FCC §2.1049	Pass
Out-of-Band Emission	FCC §2.1051, §27.53 (l)	Pass
Conducted Spurious Emission	FCC §2.1051, §27.53 (l)	Pass
Radiated Spurious Emissions	FCC §2.1053, §27.53 (l)	Pass
Frequency Stability	FCC §2.1055, §27.54	Pass

1.2 Test Report Purpose

The purpose of this test report is to show compliance of the EUT (Equipment Under Test) with the requirements of the FCC rules listed in section 1.1.

1.3 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

2. Test Sites

2.1 Test Facilities

TÜV Rheinland Japan Ltd. – Global Technology Assessment Center
4-25-2 Kita-Yamata, Tsuzuki-ku, Yokohama 224-0021, Japan

The used test equipment is in accordance with CISPR 16 for measurement of radio interference.

The test facility is recognized by the Federal Communications Commission (FCC) as Accredited Testing Laboratory under designation number JP0017.

The test facility is accredited by VLAC (member of ILAC) under number VLAC-017 according to ISO/IEC 17025:2017.

2.2 List of Test and Measurement Instruments

Table 2: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Model Name	Serial Number	Equip. ID	Cal. Interval	Cal. Date	Next Cal.
For Conducted Test							
Spectrum Analyzer	Agilent	E4447A	MY482500 05	G18002 74	1 year	2021-12-16	2022-12-16
Spectrum Analyzer	Rohde & Schwarz	FSW85	101545	9015254	1 year	2021-06-16	2022-06-16
Spectrum Analyzer	Rohde & Schwarz	ESW44	101751	G18220 72	1 year	2021-09-27	2022-09-27
30dB Attenuator	Weinschel Associates	WA89-30-11	1651	G18089 86	1 year	2022-06-06	2023-06-06
Temperature Chamber	Weiss-Voetsch	C-480/70/10	54260017 200010	G18152 37	1 year	2022-02-25	2023-02-25
For Radiated Radio Test							
Path Loss Correction Factors for RE below 1GHz	-	-	-	RF-0596	1 year	2022-02-14	2023-02-14
Path Loss Correction Factors for RE above 1GHz	-	-	-	RF-0995	1 year	2022-03-16	2023-03-16
Radiated Emission Measurement Software (above 30MHz)	Toyo Corporation	EP7/RE	VER. 8.0.90	RF-0026	N/A	2022-02-14	N/A
EMI Receiver	Rohde & Schwarz	ESU 8	100025	RF-0020	1 year	2022-03-16	2023-03-16
EMI Receiver	Rohde & Schwarz	ESU 40	100029	RF-0021	1 year	2021-08-25	2022-08-25
RF Selector (10m Chamber)	Toyo Corporation	NS4900	0703-182	RF-0029	N/A	N/A	N/A
Loop Antenna with Amplifier, 9kHz-30MHz	Rohde & Schwarz	HFH2-Z2	100139	RF-0048	1 year	2022-05-02	2023-05-02
Trilog Antenna No. 2, 30-1000MHz	Schwarzbeck	VULB 9168	9168-475	RF-0462	1 year	2022-05-19	2023-05-19
5dB Attenuator	Pasternack	PE7047-5	-	RF-0731	1 year	2022-05-20	2023-05-20
Low Noise Preamplifier, 9kHz-1GHz	TSJ	MLA-10K01-B01-35	1370750	RF-0253	1 year	2021-12-23	2022-12-23
Low Pass Filter, DC-1GHz	R&K	LP1000CH 3	12104001	RF-0515	1 year	2021-12-23	2022-12-23
Horn Antenna, 1-8GHz	Schwarzbeck	BBHA 9120 D	1059	RF-0553	1 year	2022-03-19	2023-03-19
Microwave Preamplifier, 1-8GHz	Toyo Corporation	TPA0108-40	0634	RF-0052	1 year	2021-12-23	2022-12-23
Horn Antenna with Preamplifier, 8-18GHz (RX)	Toyo Corporation	HAP06-18W	00000025	RF-0065	1 year	2022-04-10	2023-04-10

Kind of Equipment	Manufacturer	Model Name	Serial Number	Equip. ID	Cal. Interval	Cal. Date	Next Cal.
High Pass Filter, 8-18GHz	Micro-Tronics	HPM50107	006	RF-0334	1 year	2022-04-10	2023-04-10
Horn Antenna with Preamplifier, 18-26.5GHz (RX)	Toyo Corporation	HAP18-26N	00000010	RF-0070	1 year	2022-04-10	2023-04-10
Horn Antenna with Preamplifier, 26.5 -40GHz (RX)	Toyo Corporation	HAP26-40N	00000007	RF-0069	1 year	2022-04-10	2023-04-10
Constant Voltage Constant Frequency Stabilizers and Power Accessories							
True RMS Multimeter	Fluke	87V	97680445	RF-0281	1 year	2021-12-15	2022-12-15
DC Power Supply	Kikusui	PWR400L	NJ001950	G1804378	1 year	2021-10-19	2022-10-19
DC Power Supply	Kikusui	PWR1600L	SA002523	G1805000	1 year	2021-10-06	2022-10-06

Conformance of the used measurement and test equipment with the requirements of ISO/IEC 17025 has been confirmed before testing.

2.3 Measurement Uncertainty

Table 3: Emission Measurement Uncertainty

Measurement Type	Frequency	Uncertainty
Antenna Port Conducted Emission	20Hz - 40GHz	±1.5dB
Radiated Emission	30MHz - 1GHz	±3.6dB at 3m
Radiated Emission	Above 1GHz	±4.3dB at 3m

Note:

The measurement instrumentation uncertainty (MIU) was determined according to CISPR 16-4-2 and ETSI TR 100-028. All MIU values mentioned in the above table are smaller than the uncertainty budgets specified by CISPR 16-4-2 and ETSI TR 100-028, therefore compliance for all emission measurements is deemed to occur if no measured disturbance level exceeds the disturbance limit.

3. General Product Information

3.1 Product Function and Intended Use

The **EUT** (Equipment Under Test) is a 5G Sub6 Massive MIMO product supporting Full Digital Beamforming with 64 Antenna Elements. Fronthaul interface is compliant to O-RAN Option 7-2x Category B.

3.2 Ratings and System Details

FCC ID:	DI4A1355901
Radio standard:	3GPP TS 38.104 Rel-16
Frequency range:	3700 - 3900MHz
Carrier bandwidth:	40, 60, 80, 100MHz
Number of component carriers:	1 and 2 (in case of 2 carriers, they are contiguous)
Output power (conducted):	37dBm per port (rated)
Output power (EIRP):	75.4dBm
Antenna port:	32TRX
Antenna gain:	23.4dBi (Max.)
Antenna type:	Pattern array antenna (Embedded (AAS))
Antenna mounting type:	Internal
Beamforming:	Beam steering width (Azimuth): ± 60 degrees Beam steering width (Elevation): ± 8.2 degrees SRS based real time beamforming. Maximum antenna gain of 23.4dBi is achieved by pointing the array to the front direction.
Modulation type:	QPSK, 16QAM, 64QAM, 256QAM
Modulation / spreading:	TDD DL: OFDMA(CP-OFDM) UL: OFDMA(CP-OFDM)/SC FDMA(DFT Spread OFDM)
Occupied bandwidth:	40, 60, 80, 100MHz
Instantaneous bandwidth:	40 - 200MHz
Subcarrier spacing:	30kHz
Rated temperature:	-40 to +55°C
Rated voltage:	DC -48V
Rated input Power:	794W
Protection class:	III
Test voltage:	DC -48V

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 10 von 274
Page 10 of 274

Dimension (approx.):	H590mm x W396mm x D113.5mm
Environment:	Residential and commercial/industrial environment
Interfaces:	Fronthaul Interface: ORAN 7 2x CAT B EXT I/O interface Antenna Control RET(Remote Electrical Tilt): AISG v2.0

3.3 Noise Generating and Noise Suppressing Parts

The highest frequency generated or used by the EUT is 3900MHz as radio portion.

3.4 Submitted Documents and Information

Following documents have been submitted by the client:

Block Diagram, BOM, Label and location.

Following information provided in this test report has been submitted by the client:

- client name and address;
- EUT identification, ratings, system details, and description of product function and intended use;
- information related to noise generating and noise suppressing parts (if any).

4. Test Setup and Operation Modes

4.1 Test Methodology

The test methodology used is based on the requirements of 47 CFR Part 2 and Part 27.

The test methods, which have been used, are based on ANSI C63.26.

For details, see under each test item.

4.2 Operation Modes

The basic operation modes used for testing are:

A. EUT transmits a modulated signal in the table below with the highest power and the highest duty cycle.

- Configurations:
QPSK (NR-FR1-TM1.1)
16QAM (NR-FR1-TM3.2)
64QAM (NR-FR1-TM3.1)
256QAM (NR-FR1-TM3.1a)

Table 4: Test Signal Configuration

Signal Type	Occupied Bandwidth	Low Channel	Middle Channel	High Channel	Unit
1cc-1	40	3720.00	3800.01	3879.99	MHz
1cc-2	60	3729.99	3800.01	3870.00	MHz
1cc-3	80	3740.01	3800.01	3860.01	MHz
1cc-4	100	3750.00	3800.01	3849.99	MHz
2cc-1a	40+40	3720.00+3759.99	3780.00+3819.99	3840.00+3879.99	MHz
2cc-2a	60+60	3729.99+3789.99	3770.01+3830.01	3810.00+3870.00	MHz
2cc-3a	80+80	3740.01+3819.99	3759.99+3840.00	3780.00+3860.01	MHz
2cc-4a	100+100	3750.00+3849.99			MHz
2cc-1b	40+40	3720.00+3759.99		3840.00+3879.99	MHz
2cc-2b	60+60	3729.99+3789.99		3810.00+3870.00	MHz
2cc-3b	80+80	3740.01+3819.99		3780.00+3860.01	MHz
2cc-4b	100+100	3750.00+3849.99			MHz

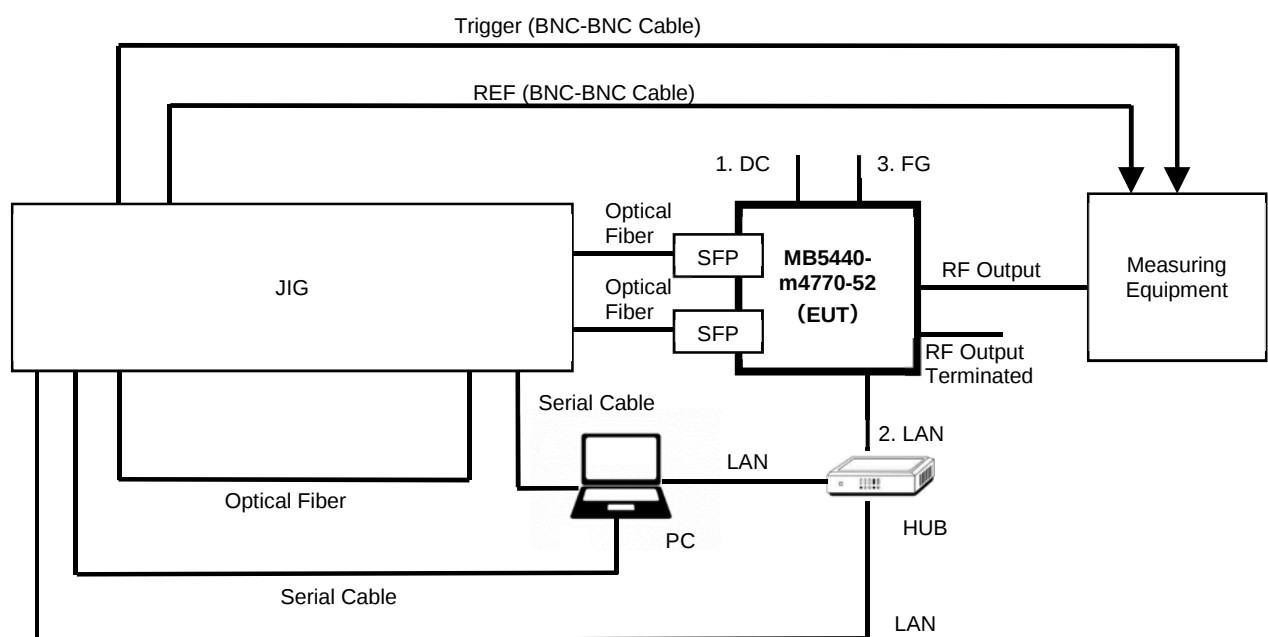
4.3 Physical Configuration for Testing

The test system was configured in a typical fashion (as a customer would normally use it).

The justification and manipulation of cables and equipment in order to simulate a worst-case behavior of the test setup has been carried out as prescribed in ANSI C63.10.

Figure 1: Block Diagram

1. Conducted test:



2. Radiated radio test:

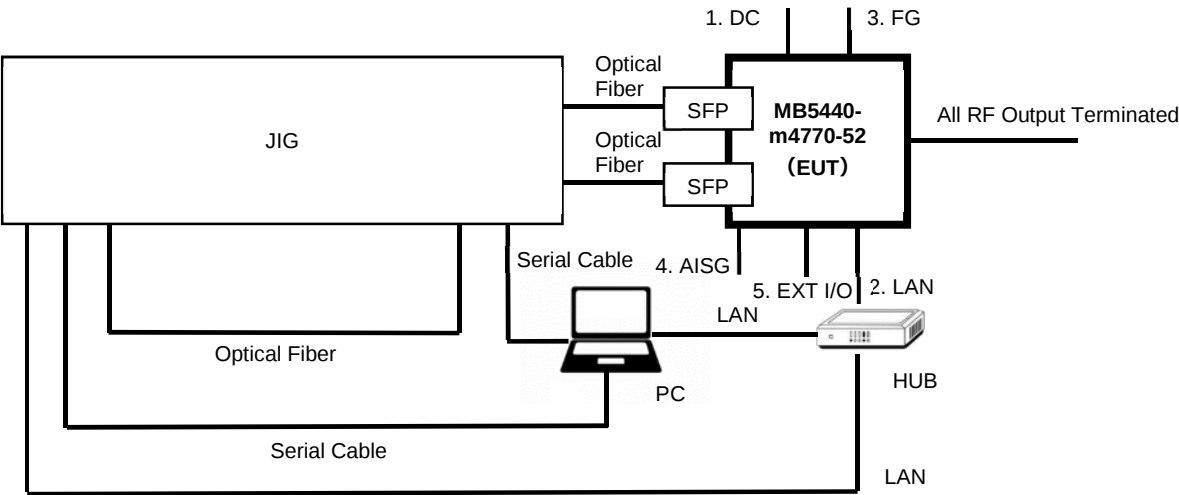


Table 5: Interfaces present on the EUT

EUT Interfaces (present during testing):	Cable Length (Measured)	Un-Shielded	Shielded
1. DC power cable	20.5 m	☒	☐
2. Ethernet cable	5.0 m	☒	☐
3. FG cable	5.1 m	☒	☐
4. AISG cable	5.2 m	☐	☒
5. EXT I/O cable	4.1 m	☒	☐

For more details, refer to section: Photographs of the Test Setup.

4.4 Test Software

Software used for testing:

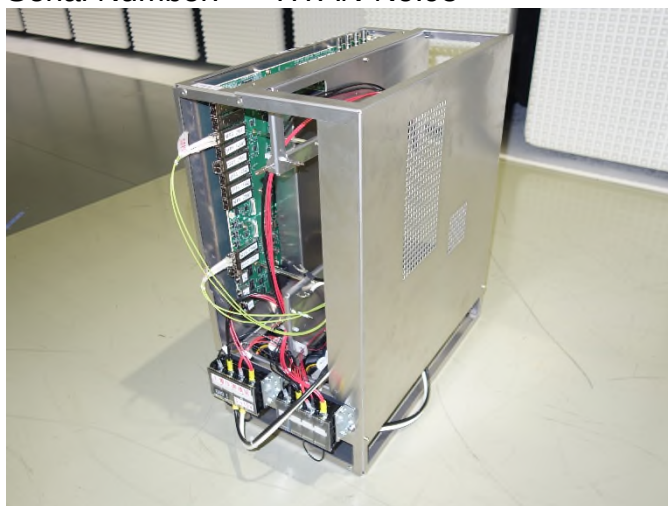
Tera Term version 4.106 (SVN# 9298) by Tera Term Project.

This software was running on the external PC to enable the operation mode listed in section 4.2 as appropriate.

4.5 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

1. Product: Jig
Serial Number: TITAN-No.95



2. Product: Network HUB
Manufacturer: BUFFALO
Model: LSW3-GT-5NS/BK
Rated Voltage: AC 100V
Input Current: 4.0W
Frequency: 50/60Hz
Protection Class: II
Serial Number: 16486034415880
3. Product: USB - serial converter cable
Manufacturer: RATOC Systems, Inc.
Model: REX-USB60F
Protection Class: III
Serial Number: US6F00324070
4. Product: USB - serial converter cable
Manufacturer: RATOC Systems, Inc.
Model: REX-USB60F
Protection Class: III
Serial Number: US6F00324074
5. Product: SFP
Manufacturer: Hisense
Model: LTF8505-BH+
Protection Class: III
Serial Number: U8BA3J00604

6. Product: SFP
Manufacturer: Hisense
Model: LTF8505-BH+
Protection Class: III
Serial Number: U8BA3J00287
7. Product: 5W 30dB Attenuator (32 pieces)
Manufacturer: MCL
Model: BW-S30W5+
8. Product: 10W 3dB Attenuator (32 pieces)
Manufacturer: MCL
Model: BW-S3W10+
9. Product: 1W 50 ohm terminator (32 pieces)
10. Product: Laptop PC
Manufacturer: FUJITSU LIMITED
Model: FMVWE3AB 12
Rated Voltage: DC 19V
Input Current: 3.42A
Protection Class: III
Serial Number: CP8045240-01
11. Product: AC adapter for Laptop PC
Manufacturer: FUJITSU LIMITED
Model: A11-065N5A
Rated Voltage: AC 100-240V
Input Current: 1.7A
Frequency: 50-60Hz
Protection Class: II

4.6 Countermeasures to achieve Compliance

No additional measures were employed to achieve compliance.

5. Test Results RADIO

5.1 Conducted Measurements at Antenna Port

5.1.1 RF Output Power (Power Density)

RESULT:

PASS

Date of testing: 2022-06-06, 2022-06-07, 2022-06-09

Ambient temperature: 23, 22, 25°C

Relative humidity: 66, 57, 57%

Atmospheric pressure: 1008, 998, 1010hPa

Requirements:

FCC 27.50 (j)(1)-(5)

(1) The power of each fixed or base station transmitting in the 3700-3980 MHz band and located in any county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, is limited to an equivalent isotropically radiated power (EIRP) of 3280 Watts/MHz. This limit applies to the aggregate power of all antenna elements in any given sector of a base station.

(2) The power of each fixed or base station transmitting in the 3700-3980 MHz band and situated in any geographic location other than that described in paragraph (j)(1) of this section is limited to an EIRP of 1640 Watts/MHz. This limit applies to the aggregate power of all antenna elements in any given sector of a base station.

(4) Equipment employed must be authorized in accordance with the provisions of §27.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (j)(5) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

(5) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, and any other relevant factors, so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 17 von 274
Page 17 of 274

Test procedure:

ANSI C63.26 §5.2.4

Note:

Test was performed on all RF ports for 1cc-1 (OBW=40MHz). The test for other test modes was performed on the RF port associated with the highest power during the test for 1cc-1 (OBW=40MHz).

Table 6: RF Output Power (Power Density), Average Power, 1cc-1 (OBW=40MHz), QPSK_TM1.1

TX Port	RF Power [dBm/MHz]		
	1cc-1 (OBW=40MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
0	14.36	14.52	14.54
1	14.33	14.57	14.67
2	14.41	14.48	14.57
3	14.31	14.52	14.68
4	14.42	14.54	14.64
5	14.42	14.51	14.68
6	14.45	14.51	14.60
7	14.43	14.59	14.66
8	14.54	14.43	14.37
9	14.44	14.43	14.59
10	14.54	14.43	14.48
11	14.60	14.40	14.43
12	14.62	14.52	14.53
13	14.58	14.32	14.35
14	14.65	14.52	14.72
15	14.63	14.54	14.48
16	14.55	14.60	14.56
17	14.33	14.59	14.73
18	14.49	14.53	14.63
19	14.43	14.59	14.56
20	14.38	14.48	14.56
21	14.40	14.52	14.57
22	14.48	14.56	14.54
23	14.47	14.66	14.62
24	14.65	14.60	14.46
25	14.59	14.48	14.51
26	14.69	14.54	14.54
27	14.55	14.60	14.55
28	14.61	14.59	14.60
29	14.78	14.61	14.44
30	14.56	14.57	14.48
31	14.62	14.50	14.53
Total Power [dBm/MHz]	29.56	29.58	29.61

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 19 von 274
Page 19 of 274

Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.96	52.98	53.01
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.19	9.17	9.14

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 7: RF Output Power (Power Density), Average Power, 1cc-1 (OBW=40MHz), 16QAM_TM3.2

TX Port	RF Power [dBm/MHz]		
	1cc-1 (OBW=40MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	16.47
23	-	16.68	-
29	16.45	-	-
Total Power [dBm/MHz]	31.50	31.73	31.52
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	54.90	55.13	54.92
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	7.25	7.02	7.23

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 8: RF Output Power (Power Density), Average Power, 1cc-1 (OBW=40MHz), 64QAM_TM3.1

TX Port	RF Power [dBm/MHz]		
	1cc-1 (OBW=40MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.72
23	-	14.76	-
29	14.68	-	-
Total Power [dBm/MHz]	29.73	29.81	29.77
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	53.13	53.21	53.17
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.02	8.94	8.98

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 9: RF Output Power (Power Density), Average Power, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm/MHz]		
	1cc-1 (OBW=40MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	14.65
23	-	14.85	-
29	14.58	-	-
Total Power [dBm/MHz]	29.63	29.90	29.70
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	53.03	53.30	53.10
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.12	8.85	9.05

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 10: RF Output Power (Power Density), Average Power, 1cc-2 (OBW=60MHz), QPSK_TM1.1

TX Port	RF Power [dBm/MHz]		
	1cc-2 (OBW=60MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.60
23	-	14.43	-
29	14.34	-	-
Total Power [dBm/MHz]	29.39	29.48	29.65
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.79	52.88	53.05
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.36	9.27	9.10

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 11: RF Output Power (Power Density), Average Power, 1cc-2 (OBW=60MHz), 16QAM_TM3.2

TX Port	RF Power [dBm/MHz]		
	1cc-2 (OBW=60MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	16.32
23	-	16.07	-
29	15.97	-	-
Total Power [dBm/MHz]	31.02	31.12	31.37
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	54.42	54.52	54.77
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	7.73	7.63	7.38

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 12: RF Output Power (Power Density), Average Power, 1cc-2 (OBW=60MHz), 64QAM_TM3.1

TX Port	RF Power [dBm/MHz]		
	1cc-2 (OBW=60MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.70
23	-	14.48	-
29	14.49	-	-
Total Power [dBm/MHz]	29.54	29.53	29.75
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.94	52.93	53.15
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.21	9.22	9.00

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 13: RF Output Power (Power Density), Average Power, 1cc-2 (OBW=60MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm/MHz]		
	1cc-2 (OBW=60MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	14.72
23	-	14.55	-
29	14.44	-	-
Total Power [dBm/MHz]	29.49	29.60	29.77
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.89	53.00	53.17
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.26	9.15	8.98

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 14: RF Output Power (Power Density), Average Power, 1cc-3 (OBW=80MHz), QPSK_TM1.1

TX Port	RF Power [dBm/MHz]		
	1cc-3 (OBW=80MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.42
23	-	14.27	-
29	14.17	-	-
Total Power [dBm/MHz]	29.22	29.32	29.47
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.62	52.72	52.87
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.53	9.43	9.28

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 15: RF Output Power (Power Density), Average Power, 1cc-3 (OBW=80MHz), 16QAM_TM3.2

TX Port	RF Power [dBm/MHz]		
	1cc-3 (OBW=80MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	16.31
23	-	16.15	-
29	16.06	-	-
Total Power [dBm/MHz]	31.11	31.20	31.36
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	54.51	54.60	54.76
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	7.64	7.55	7.39

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 16: RF Output Power (Power Density), Average Power, 1cc-3 (OBW=80MHz), 64QAM_TM3.1

TX Port	RF Power [dBm/MHz]		
	1cc-3 (OBW=80MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.54
23	-	14.39	-
29	14.25	-	-
Total Power [dBm/MHz]	29.30	29.44	29.59
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.70	52.84	52.99
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.45	9.31	9.16

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 17: RF Output Power (Power Density), Average Power, 1cc-3 (OBW=80MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm/MHz]		
	1cc-3 (OBW=80MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	14.52
23	-	14.40	-
29	14.18	-	-
Total Power [dBm/MHz]	29.23	29.45	29.57
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.63	52.85	52.97
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.52	9.30	9.18

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 18: RF Output Power (Power Density), Average Power, 1cc-4 (OBW=100MHz), QPSK_TM1.1

TX Port	RF Power [dBm/MHz]		
	1cc-4 (OBW=100MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	13.96
23	-	14.09	-
29	13.92	-	-
Total Power [dBm/MHz]	28.97	29.14	29.01
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.37	52.54	52.41
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.78	9.61	9.74

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 19: RF Output Power (Power Density), Average Power, 1cc-4 (OBW=100MHz), 16QAM_TM3.2

TX Port	RF Power [dBm/MHz]		
	1cc-4 (OBW=100MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	15.90
23	-	15.96	-
29	15.76	-	-
Total Power [dBm/MHz]	30.81	31.01	30.95
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	54.21	54.41	54.35
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	7.94	7.74	7.80

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 20: RF Output Power (Power Density), Average Power, 1cc-4 (OBW=100MHz), 64QAM_TM3.1

TX Port	RF Power [dBm/MHz]		
	1cc-4 (OBW=100MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.01
23	-	14.22	-
29	14.12	-	-
Total Power [dBm/MHz]	29.17	29.27	29.06
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.57	52.67	52.46
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.58	9.48	9.69

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 21: RF Output Power (Power Density), Average Power, 1cc-4 (OBW=100MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm/MHz]		
	1cc-4 (OBW=100MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	14.06
23	-	14.19	-
29	13.93	-	-
Total Power [dBm/MHz]	28.98	29.24	29.11
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.38	52.64	52.51
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.77	9.51	9.64

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 22: RF Output Power (Power Density), Average Power, 2cc-1a (OBW=40MHz+40MHz), QPSK_TM1.1

TX Port	RF Power [dBm/MHz]		
	2cc-1a (OBW=40MHz+40MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.65
23	-	14.48	-
29	14.40	-	-
Total Power [dBm/MHz]	29.45	29.53	29.70
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.85	52.93	53.10
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.30	9.22	9.05

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 23: RF Output Power (Power Density), Average Power, 2cc-1a (OBW=40MHz+40MHz), 16QAM_TM3.2

TX Port	RF Power [dBm/MHz]		
	2cc-1a (OBW=40MHz+40MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	16.63
23	-	16.53	-
29	16.39	-	-
Total Power [dBm/MHz]	31.44	31.58	31.68
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	54.84	54.98	55.08
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	7.31	7.17	7.07

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 24: RF Output Power (Power Density), Average Power, 2cc-1a (OBW=40MHz+40MHz), 64QAM_TM3.1

TX Port	RF Power [dBm/MHz]		
	2cc-1a (OBW=40MHz+40MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.81
23	-	14.66	-
29	14.55	-	-
Total Power [dBm/MHz]	29.60	29.71	29.86
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	53.00	53.11	53.26
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.15	9.04	8.89

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 25: RF Output Power (Power Density), Average Power, 2cc-1a (OBW=40MHz+40MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm/MHz]		
	2cc-1a (OBW=40MHz+40MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	14.88
23	-	14.50	-
29	14.43	-	-
Total Power [dBm/MHz]	29.48	29.55	29.93
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.88	52.95	53.33
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.27	9.20	8.82

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 26: RF Output Power (Power Density), Average Power, 2cc-2a (OBW=60MHz+60MHz), QPSK_TM1.1

TX Port	RF Power [dBm/MHz]		
	2cc-2a (OBW=60MHz+60MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.49
23	-	14.34	-
29	14.32	-	-
Total Power [dBm/MHz]	29.37	29.39	29.54
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.77	52.79	52.94
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.38	9.36	9.21

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 27: RF Output Power (Power Density), Average Power, 2cc-2a (OBW=60MHz+60MHz), 16QAM_TM3.2

TX Port	RF Power [dBm/MHz]		
	2cc-2a (OBW=60MHz+60MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	16.22
23	-	16.21	-
29	16.06	-	-
Total Power [dBm/MHz]	31.11	31.26	31.27
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	54.51	54.66	54.67
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	7.64	7.49	7.48

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 28: RF Output Power (Power Density), Average Power, 2cc-2a (OBW=60MHz+60MHz), 64QAM_TM3.1

TX Port	RF Power [dBm/MHz]		
	2cc-2a (OBW=60MHz+60MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.67
23	-	14.49	-
29	14.44	-	-
Total Power [dBm/MHz]	29.49	29.54	29.72
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.89	52.94	53.12
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.26	9.21	9.03

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 29: RF Output Power (Power Density), Average Power, 2cc-2a (OBW=60MHz+60MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm/MHz]		
	2cc-2a (OBW=60MHz+60MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	14.57
23	-	14.46	-
29	14.45	-	-
Total Power [dBm/MHz]	29.50	29.51	29.62
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.90	52.91	53.02
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.25	9.24	9.13

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

**Table 30: RF Output Power (Power Density), Average Power, 2cc-3a
(OBW=80MHz+80MHz), QPSK_TM1.1**

TX Port	RF Power [dBm/MHz]		
	2cc-3a (OBW=80MHz+80MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.18
23	-	14.09	-
29	14.10	-	-
Total Power [dBm/MHz]	29.15	29.14	29.23
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.55	52.54	52.63
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.60	9.61	9.52

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

**Table 31: RF Output Power (Power Density), Average Power, 2cc-3a
(OBW=80MHz+80MHz), 16QAM_TM3.2**

TX Port	RF Power [dBm/MHz]		
	2cc-3a (OBW=80MHz+80MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	16.01
23	-	15.99	-
29	16.09	-	-
Total Power [dBm/MHz]	31.14	31.04	31.06
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	54.54	54.44	54.46
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	7.61	7.71	7.69

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 32: RF Output Power (Power Density), Average Power, 2cc-3a (OBW=80MHz+80MHz), 64QAM_TM3.1

TX Port	RF Power [dBm/MHz]		
	2cc-3a (OBW=80MHz+80MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	14.29
23	-	14.19	-
29	14.23	-	-
Total Power [dBm/MHz]	29.28	29.24	29.34
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.68	52.64	52.74
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.47	9.51	9.41

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 33: RF Output Power (Power Density), Average Power, 2cc-3a (OBW=80MHz+80MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm/MHz]		
	2cc-3a (OBW=80MHz+80MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	14.37
23	-	14.14	-
29	14.10	-	-
Total Power [dBm/MHz]	29.15	29.19	29.42
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm/MHz]	52.55	52.59	52.82
Limit [W/MHz]	1640	1640	1640
Limit [dBm/MHz]	62.15	62.15	62.15
Margin [dB/MHz]	9.60	9.56	9.33

Note: EIPR [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 34: RF Output Power (Power Density), Average Power, 2cc-4a (OBW=100MHz+100MHz), QPSK_TM1.1

TX Port	RF Power [dBm/MHz]
	2cc-4a (OBW=100MHz+100MHz), QPSK_TM1.1
	1 Channel
23	13.96
Total Power [dBm/MHz]	29.01
Antenna Gain [dBi]	23.4
EIRP [dBm/MHz]	52.41
Limit [W/MHz]	1640
Limit [dBm/MHz]	62.15
Margin [dB/MHz]	9.74

Note: EIRP [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 35: RF Output Power (Power Density), Average Power, 2cc-4a (OBW=100MHz+100MHz), 16QAM_TM3.2

TX Port	RF Power [dBm/MHz]
	2cc-4a (OBW=100MHz+100MHz), 16QAM_TM3.2
	1 Channel
23	15.85
Total Power [dBm/MHz]	30.90
Antenna Gain [dBi]	23.4
EIRP [dBm/MHz]	54.30
Limit [W/MHz]	1640
Limit [dBm/MHz]	62.15
Margin [dB/MHz]	7.85

Note: EIRP [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 36: RF Output Power (Power Density), Average Power, 2cc-4a (OBW=100MHz+100MHz), 64QAM_TM3.1

TX Port	RF Power [dBm/MHz]
	2cc-4a (OBW=100MHz+100MHz), 64QAM_TM3.1
	1 Channel
23	14.05
Total Power [dBm/MHz]	29.10
Antenna Gain [dBi]	23.4
EIRP [dBm/MHz]	52.50
Limit [W/MHz]	1640
Limit [dBm/MHz]	62.15
Margin [dB/MHz]	9.65

Note: EIRP [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 37: RF Output Power (Power Density), Average Power, 2cc-4a (OBW=100MHz+100MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm/MHz]
	2cc-4a (OBW=100MHz+100MHz), 256QAM_TM3.1a
	1 Channel
23	14.06
Total Power [dBm/MHz]	29.11
Antenna Gain [dBi]	23.4
EIRP [dBm/MHz]	52.51
Limit [W/MHz]	1640
Limit [dBm/MHz]	62.15
Margin [dB/MHz]	9.64

Note: EIRP [dBm/MHz] = Total Power [dBm/MHz] + Antenna Gain [dBi]

Total Power [dBm/MHz] = Single Channel Power [dBm/MHz] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 38: Peak-to-Average Ratio (PAR), 1cc-1 (OBW=40MHz), Low Channel

TX Port	Peak-to-Average Ratio (PAR) [dB]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
Associated with highest RF Power	8.73	8.66	8.45	8.43
Associated with Lowest RF Power	8.60	8.64	8.43	8.44
Limit	≤13	≤13	≤13	≤13

Note: Refer to Modulation Characteristics for testing plots.

Table 39: Peak-to-Average Ratio (PAR), 1cc-1 (OBW=40MHz), Middle Channel

TX Port	Peak-to-Average Ratio (PAR) [dB]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
Associated with highest RF Power	8.63	8.76	8.41	8.44
Associated with Lowest RF Power	8.68	8.69	8.45	8.41
Limit	≤13	≤13	≤13	≤13

Note: Refer to Modulation Characteristics for testing plots.

Table 40: Peak-to-Average Ratio (PAR), 1cc-1 (OBW=40MHz), High Channel

TX Port	Peak-to-Average Ratio (PAR) [dB]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
Associated with highest RF Power	8.72	8.73	8.46	8.46
Associated with Lowest RF Power	8.61	8.72	8.44	8.50
Limit	≤13	≤13	≤13	≤13

Note: Refer to Modulation Characteristics for testing plots.

Table 41: Peak-to-Average Ratio (PAR), 1cc-2 (OBW=60MHz), Middle Channel

TX Port	Peak-to-Average Ratio (PAR) [dB]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
Associated with highest RF Power	8.58	8.53	8.50	8.40
Associated with Lowest RF Power	8.48	8.53	8.43	8.34
Limit	≤13	≤13	≤13	≤13

Note: Refer to Modulation Characteristics for testing plots.

Table 42: Peak-to-Average Ratio (PAR), 1cc-3 (OBW=80MHz), Middle Channel

TX Port	Peak-to-Average Ratio (PAR) [dB]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
Associated with highest RF Power	8.51	8.62	8.22	8.35
Associated with Lowest RF Power	8.50	8.61	8.25	8.34
Limit	≤13	≤13	≤13	≤13

Note: Refer to Modulation Characteristics for testing plots.

Table 43: Peak-to-Average Ratio (PAR), 1cc-4 (OBW=100MHz), Middle Channel

TX Port	Peak-to-Average Ratio (PAR) [dB]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
Associated with highest RF Power	8.52	8.41	8.35	8.31
Associated with Lowest RF Power	8.48	8.39	8.40	8.35
Limit	≤13	≤13	≤13	≤13

Note: Refer to Modulation Characteristics for testing plots.

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 37 von 274
Page 37 of 274

5.1.2 RF Output Power (Channel Power)

RESULT:

PERFORMED

Date of testing: 2022-06-06, 2022-06-07

Ambient temperature: 23, 22°C

Relative humidity: 66, 57%

Atmospheric pressure: 1008, 998hPa

Test procedure:

ANSI C63.26 §5.2.4

Note:

This test is for reference purpose.

Test was performed on all RF ports for 1cc-1 (OBW=40MHz). The test for other test modes was performed on the RF port associated with the highest power during the test for 1cc-1 (OBW=40MHz).

Prüfbericht-Nr.:
Test Report No.:

JP223Y4L 001

Seite 38 von 274
Page 38 of 274

Table 44: RF Output Power (Channel Power), Average Power, 1cc-1 (OBW=40MHz), QPSK_TM1.1

TX Port	RF Power [dBm]		
	1cc-1 (OBW=40MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
0	29.81	29.94	29.98
1	29.80	29.98	30.08
2	29.84	29.90	29.99
3	29.80	29.89	30.09
4	29.90	29.98	30.09
5	29.86	29.92	30.10
6	29.93	29.90	29.98
7	29.90	30.00	30.09
8	29.93	29.88	29.83
9	29.86	29.89	30.04
10	29.93	29.88	29.93
11	29.92	29.87	29.86
12	29.90	29.96	29.96
13	29.93	29.77	29.78
14	29.99	29.99	30.11
15	29.95	29.98	29.93
16	29.98	29.99	29.98
17	29.84	29.93	30.12
18	29.98	29.92	30.03
19	29.93	29.99	29.98
20	29.83	29.85	29.97
21	29.90	29.91	29.99
22	29.91	29.95	29.95
23	29.92	30.05	30.05
24	30.03	30.00	29.90
25	29.94	29.88	29.93
26	30.04	29.97	29.98
27	29.88	29.98	29.98
28	29.95	29.98	30.04
29	29.97	30.00	29.88
30	29.97	29.95	29.88
31	29.97	29.89	29.96
Total Power [dBm]	44.97	44.99	45.04

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 39 von 274
Page 39 of 274

Total Power [W]	31.39	31.54	31.88
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	68.37	68.39	68.44

Note: EIRP [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 45: RF Output Power (Channel Power), Average Power, 1cc-1 (OBW=40MHz), 16QAM_TM3.2

TX Port	RF Power [dBm]		
	1cc-1 (OBW=40MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	29.95
23	-	30.12	-
29	29.83	-	-
Total Power [dBm]	44.88	45.17	45.00
Total Power [W]	30.77	32.90	31.63
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	68.28	68.57	68.40

Note: EIRP [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 46: RF Output Power (Channel Power), Average Power, 1cc-1 (OBW=40MHz), 64QAM_TM3.1

TX Port	RF Power [dBm]		
	1cc-1 (OBW=40MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	30.03
23	-	30.07	-
29	29.84	-	-
Total Power [dBm]	44.89	45.12	45.08
Total Power [W]	30.84	32.52	32.22
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	68.29	68.52	68.48

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 47: RF Output Power (Channel Power), Average Power, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm]		
	1cc-1 (OBW=40MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	30.06
23	-	30.05	-
29	29.89	-	-
Total Power [dBm]	44.94	45.10	45.11
Total Power [W]	31.20	32.37	32.45
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	68.34	68.50	68.51

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 48: RF Output Power (Channel Power), Average Power, 1cc-2 (OBW=60MHz), QPSK_TM1.1

TX Port	RF Power [dBm]		
	1cc-2 (OBW=60MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	31.78
23	-	31.68	-
29	31.50	-	-
Total Power [dBm]	46.55	46.73	46.83
Total Power [W]	45.20	47.11	48.21
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	69.95	70.13	70.23

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 49: RF Output Power (Channel Power), Average Power, 1cc-2 (OBW=60MHz), 16QAM_TM3.2

TX Port	RF Power [dBm]		
	1cc-2 (OBW=60MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	31.80
23	-	31.62	-
29	31.41	-	-
Total Power [dBm]	46.46	46.67	46.85
Total Power [W]	44.27	46.47	48.43
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	69.86	70.07	70.25

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 50: RF Output Power (Channel Power), Average Power, 1cc-2 (OBW=60MHz), 64QAM_TM3.1

TX Port	RF Power [dBm]		
	1cc-2 (OBW=60MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	31.81
23	-	31.65	-
29	31.52	-	-
Total Power [dBm]	46.57	46.70	46.86
Total Power [W]	45.41	46.79	48.55
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	69.97	70.10	70.26

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 51: RF Output Power (Channel Power), Average Power, 1cc-2 (OBW=60MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm]		
	1cc-2 (OBW=60MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	31.79
23	-	31.72	-
29	31.48	-	-
Total Power [dBm]	46.53	46.77	46.84
Total Power [W]	44.99	47.55	48.32
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	69.93	70.17	70.24

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 52: RF Output Power (Channel Power), Average Power, 1cc-3 (OBW=80MHz), QPSK_TM1.1

TX Port	RF Power [dBm]		
	1cc-3 (OBW=80MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	32.87
23	-	32.81	-
29	32.63	-	-
Total Power [dBm]	47.68	47.86	47.92
Total Power [W]	58.63	61.12	61.97
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.08	71.26	71.32

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 53: RF Output Power (Channel Power), Average Power, 1cc-3 (OBW=80MHz), 16QAM_TM3.2

TX Port	RF Power [dBm]		
	1cc-3 (OBW=80MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	32.85
23	-	32.78	-
29	32.59	-	-
Total Power [dBm]	47.64	47.83	47.90
Total Power [W]	58.10	60.69	61.68
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.04	71.23	71.30

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 54: RF Output Power (Channel Power), Average Power, 1cc-3 (OBW=80MHz), 64QAM_TM3.1

TX Port	RF Power [dBm]		
	1cc-3 (OBW=80MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	32.83
23	-	32.82	-
29	32.62	-	-
Total Power [dBm]	47.67	47.87	47.88
Total Power [W]	58.50	61.26	61.40
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.07	71.27	71.28

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 55: RF Output Power (Channel Power), Average Power, 1cc-3 (OBW=80MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm]		
	1cc-3 (OBW=80MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	32.85
23	-	32.81	-
29	32.62	-	-
Total Power [dBm]	47.67	47.86	47.90
Total Power [W]	58.50	61.12	61.68
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.07	71.26	71.30

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 56: RF Output Power (Channel Power), Average Power, 1cc-4 (OBW=100MHz), QPSK_TM1.1

TX Port	RF Power [dBm]		
	1cc-4 (OBW=100MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	33.46
23	-	33.59	-
29	33.34	-	-
Total Power [dBm]	48.39	48.64	48.51
Total Power [W]	69.05	73.14	70.98
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.79	72.04	71.91

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 57: RF Output Power (Channel Power), Average Power, 1cc-4 (OBW=100MHz), 16QAM_TM3.2

TX Port	RF Power [dBm]		
	1cc-4 (OBW=100MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	33.47
23	-	33.50	-
29	33.28	-	-
Total Power [dBm]	48.33	48.55	48.52
Total Power [W]	68.10	71.64	71.15
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.73	71.95	71.92

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 58: RF Output Power (Channel Power), Average Power, 1cc-4 (OBW=100MHz), 64QAM_TM3.1

TX Port	RF Power [dBm]		
	1cc-4 (OBW=100MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	33.43
23	-	33.57	-
29	33.39	-	-
Total Power [dBm]	48.44	48.62	48.48
Total Power [W]	69.85	72.80	70.49
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.84	72.02	71.88

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 59: RF Output Power (Channel Power), Average Power, 1cc-4 (OBW=100MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm]		
	1cc-4 (OBW=100MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	33.46
23	-	33.62	-
29	33.31	-	-
Total Power [dBm]	48.36	48.67	48.51
Total Power [W]	68.57	73.65	70.98
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.76	72.07	71.91

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 60: RF Output Power (Channel Power), Average Power, 2cc-1a (OBW=40MHz+40MHz), QPSK_TM1.1

TX Port	RF Power [dBm]		
	2cc-1a (OBW=40MHz+40MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	32.97
23	-	32.91	-
29	32.81	-	-
Total Power [dBm]	47.86	47.96	48.02
Total Power [W]	61.12	62.54	63.41
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.26	71.36	71.42

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 61: RF Output Power (Channel Power), Average Power, 2cc-1a (OBW=40MHz+40MHz), 16QAM_TM3.2

TX Port	RF Power [dBm]		
	2cc-1a (OBW=40MHz+40MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	32.97
23	-	32.96	-
29	32.79	-	-
Total Power [dBm]	47.84	48.01	48.02
Total Power [W]	60.83	63.26	63.41
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.24	71.41	71.42

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 62: RF Output Power (Channel Power), Average Power, 2cc-1a (OBW=40MHz+40MHz), 64QAM_TM3.1

TX Port	RF Power [dBm]		
	2cc-1a (OBW=40MHz+40MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	32.98
23	-	32.92	-
29	32.76	-	-
Total Power [dBm]	47.81	47.97	48.03
Total Power [W]	60.42	62.68	63.56
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.21	71.37	71.43

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 63: RF Output Power (Channel Power), Average Power, 2cc-1a (OBW=40MHz+40MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm]		
	2cc-1a (OBW=40MHz+40MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	32.95
23	-	32.86	-
29	32.77	-	-
Total Power [dBm]	47.82	47.91	48.00
Total Power [W]	60.55	61.82	63.12
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	71.22	71.31	71.40

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 64: RF Output Power (Channel Power), Average Power, 2cc-2a (OBW=60MHz+60MHz), QPSK_TM1.1

TX Port	RF Power [dBm]		
	2cc-2a (OBW=60MHz+60MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	34.65
23	-	34.60	-
29	34.43	-	-
Total Power [dBm]	49.48	49.65	49.70
Total Power [W]	88.75	92.29	93.36
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	72.88	73.05	73.10

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 65: RF Output Power (Channel Power), Average Power, 2cc-2a (OBW=60MHz+60MHz), 16QAM_TM3.2

TX Port	RF Power [dBm]		
	2cc-2a (OBW=60MHz+60MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	34.61
23	-	34.63	-
29	34.46	-	-
Total Power [dBm]	49.51	49.68	49.66
Total Power [W]	89.36	92.93	92.50
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	72.91	73.08	73.06

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 66: RF Output Power (Channel Power), Average Power, 2cc-2a (OBW=60MHz+60MHz), 64QAM_TM3.1

TX Port	RF Power [dBm]		
	2cc-2a (OBW=60MHz+60MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	34.67
23	-	34.60	-
29	34.44	-	-
Total Power [dBm]	49.49	49.65	49.72
Total Power [W]	88.95	92.29	93.79
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	72.89	73.05	73.12

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 67: RF Output Power (Channel Power), Average Power, 2cc-2a (OBW=60MHz+60MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm]		
	2cc-2a (OBW=60MHz+60MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	34.68
23	-	34.62	-
29	34.45	-	-
Total Power [dBm]	49.50	49.67	49.73
Total Power [W]	89.16	92.71	94.00
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	72.90	73.07	73.13

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 68: RF Output Power (Channel Power), Average Power, 2cc-3a (OBW=80MHz+80MHz), QPSK_TM1.1

TX Port	RF Power [dBm]		
	2cc-3a (OBW=80MHz+80MHz), QPSK_TM1.1		
	Low Channel	Middle Channel	High Channel
17	-	-	35.71
23	-	35.62	-
29	35.50	-	-
Total Power [dBm]	50.55	50.67	50.76
Total Power [W]	113.54	116.72	119.17
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	73.95	74.07	74.16

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 69: RF Output Power (Channel Power), Average Power, 2cc-3a (OBW=80MHz+80MHz), 16QAM_TM3.2

TX Port	RF Power [dBm]		
	2cc-3a (OBW=80MHz+80MHz), 16QAM_TM3.2		
	Low Channel	Middle Channel	High Channel
17	-	-	35.64
23	-	35.66	-
29	35.53	-	-
Total Power [dBm]	50.58	50.71	50.69
Total Power [W]	114.33	117.80	117.26
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	73.98	74.11	74.09

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 70: RF Output Power (Channel Power), Average Power, 2cc-3a (OBW=80MHz+80MHz), 64QAM_TM3.1

TX Port	RF Power [dBm]		
	2cc-3a (OBW=80MHz+80MHz), 64QAM_TM3.1		
	Low Channel	Middle Channel	High Channel
17	-	-	35.67
23	-	35.62	-
29	35.51	-	-
Total Power [dBm]	50.56	50.67	50.72
Total Power [W]	113.80	116.72	118.07
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	73.96	74.07	74.12

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 71: RF Output Power (Channel Power), Average Power, 2cc-3a (OBW=80MHz+80MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm]		
	2cc-3a (OBW=80MHz+80MHz), 256QAM_TM3.1a		
	Low Channel	Middle Channel	High Channel
17	-	-	35.69
23	-	35.63	-
29	35.50	-	-
Total Power [dBm]	50.55	50.68	50.74
Total Power [W]	113.54	116.99	118.62
Antenna Gain [dBi]	23.4	23.4	23.4
EIRP [dBm]	73.95	74.08	74.14

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 72: RF Output Power (Channel Power), Average Power, 2cc-4a (OBW=100MHz+100MHz), QPSK_TM1.1

TX Port	RF Power [dBm]
	2cc-4a (OBW=100MHz+100MHz), QPSK_TM1.1
	1 Channel
23	36.51
Total Power [dBm]	51.56
Total Power [W]	143.27
Antenna Gain [dBi]	23.4
EIRP [dBm]	74.96

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 73: RF Output Power (Channel Power), Average Power, 2cc-4a (OBW=100MHz+100MHz), 16QAM_TM3.2

TX Port	RF Power [dBm]
	2cc-4a (OBW=100MHz+100MHz), 16QAM_TM3.2
	1 Channel
23	36.41
Total Power [dBm]	51.46
Total Power [W]	140.01
Antenna Gain [dBi]	23.4
EIRP [dBm]	74.86

Note: EIPR [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 74: RF Output Power (Channel Power), Average Power, 2cc-4a (OBW=100MHz+100MHz), 64QAM_TM3.1

TX Port	RF Power [dBm]
	2cc-4a (OBW=100MHz+100MHz), 64QAM_TM3.1
	1 Channel
23	36.42
Total Power [dBm]	51.47
Total Power [W]	140.33
Antenna Gain [dBi]	23.4
EIRP [dBm]	74.87

Note: EIRP [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Table 75: RF Output Power (Channel Power), Average Power, 2cc-4a (OBW=100MHz+100MHz), 256QAM_TM3.1a

TX Port	RF Power [dBm]
	2cc-4a (OBW=100MHz+100MHz), 256QAM_TM3.1a
	1 Channel
23	36.43
Total Power [dBm]	51.48
Total Power [W]	140.65
Antenna Gain [dBi]	23.4
EIRP [dBm]	74.88

Note: EIRP [dBm] = Total Power [dBm] + Antenna Gain [dBi]

Total Power [dBm] = Single Channel Power [dBm] + 10 x log (32) [dB]

Duty Cycle Factor (see clause 5.1.8) and measurement system path loss are accounted for the results.

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 55 von 274
Page 55 of 274

5.1.3 Modulation Characteristics

RESULT:

PASS

Date of testing: 2022-06-09

Ambient temperature: 25°C
Relative humidity: 57%
Atmospheric pressure: 1010hPa

Requirements:

FCC 2.1047(d)

A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

Test procedure:

ANSI C63.26 §5.3

Note:

Test was conducted on the TX Ports associated with the highest and lowest RF Power.

Figure 2: Modulation Characteristics, 1cc-1 (OBW=40MHz), QPSK_TM1.1, Low Channel, TX Port 29

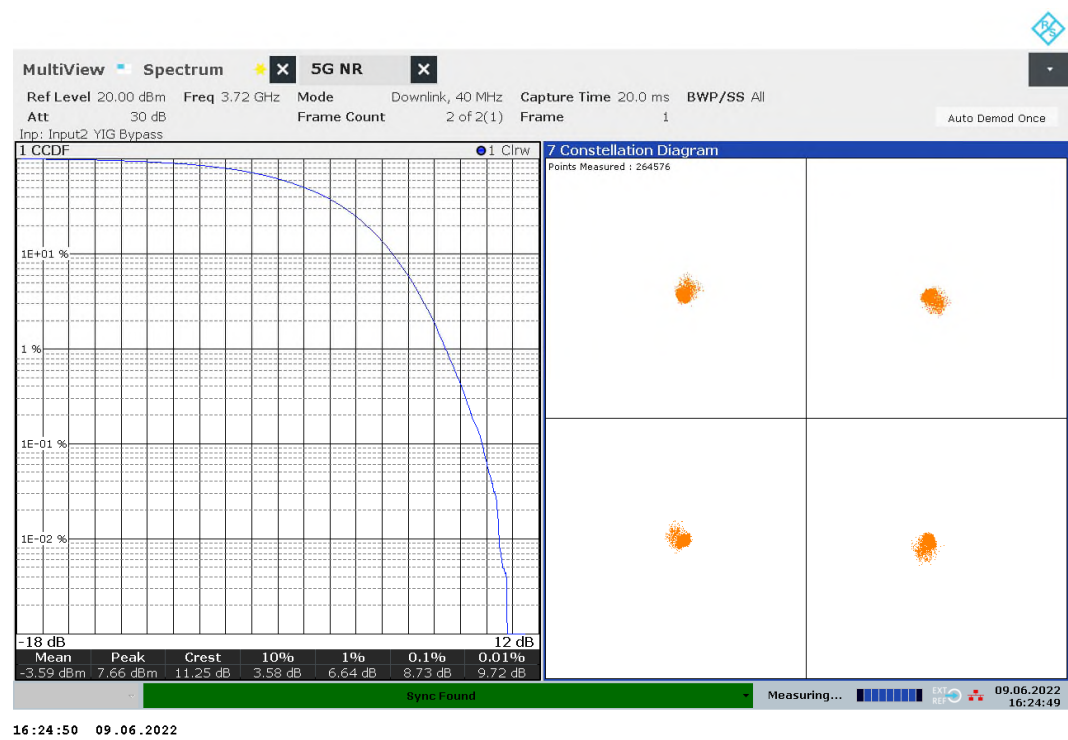


Figure 3: Modulation Characteristics, 1cc-1 (OBW=40MHz), QPSK_TM1.1, Low Channel, TX Port 3

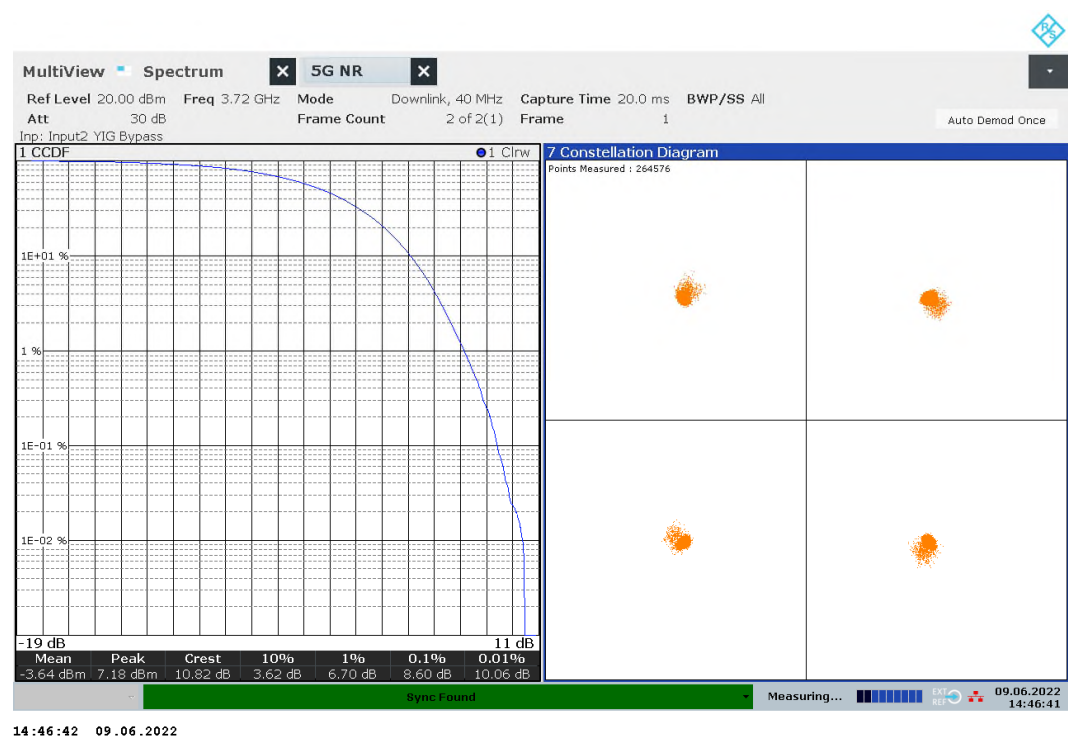


Figure 4: Modulation Characteristics, 1cc-1 (OBW=40MHz), QPSK_TM1.1, Middle Channel, TX Port 23

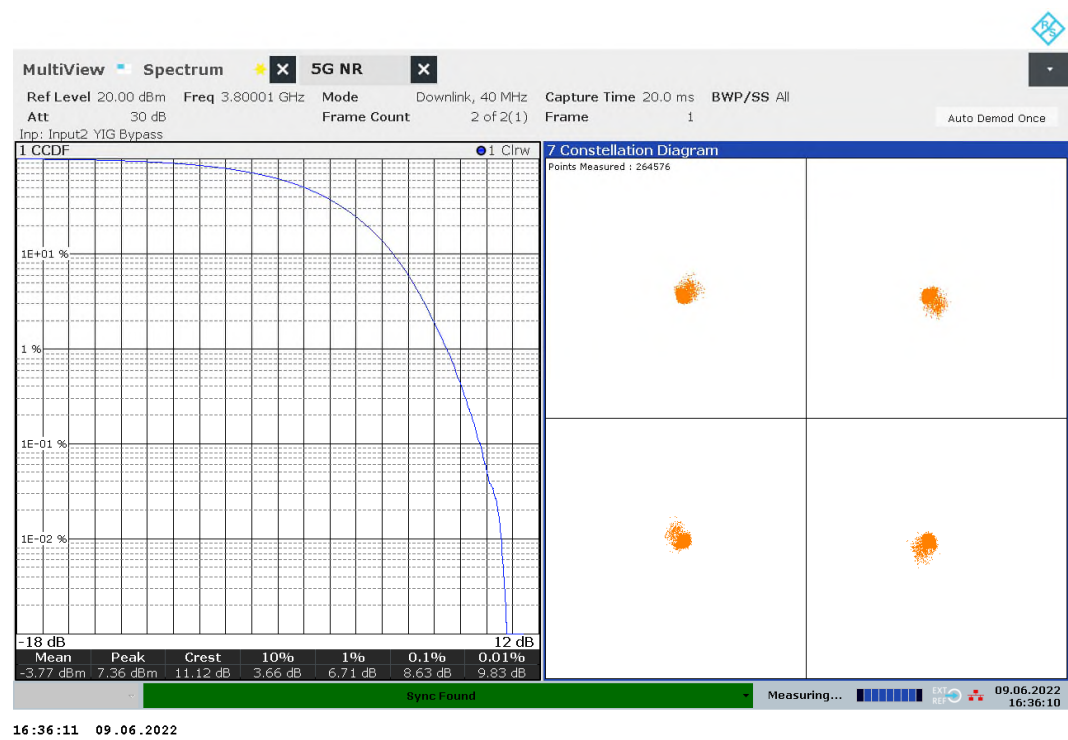


Figure 5: Modulation Characteristics, 1cc-1 (OBW=40MHz), QPSK_TM1.1, Middle Channel, TX Port 13

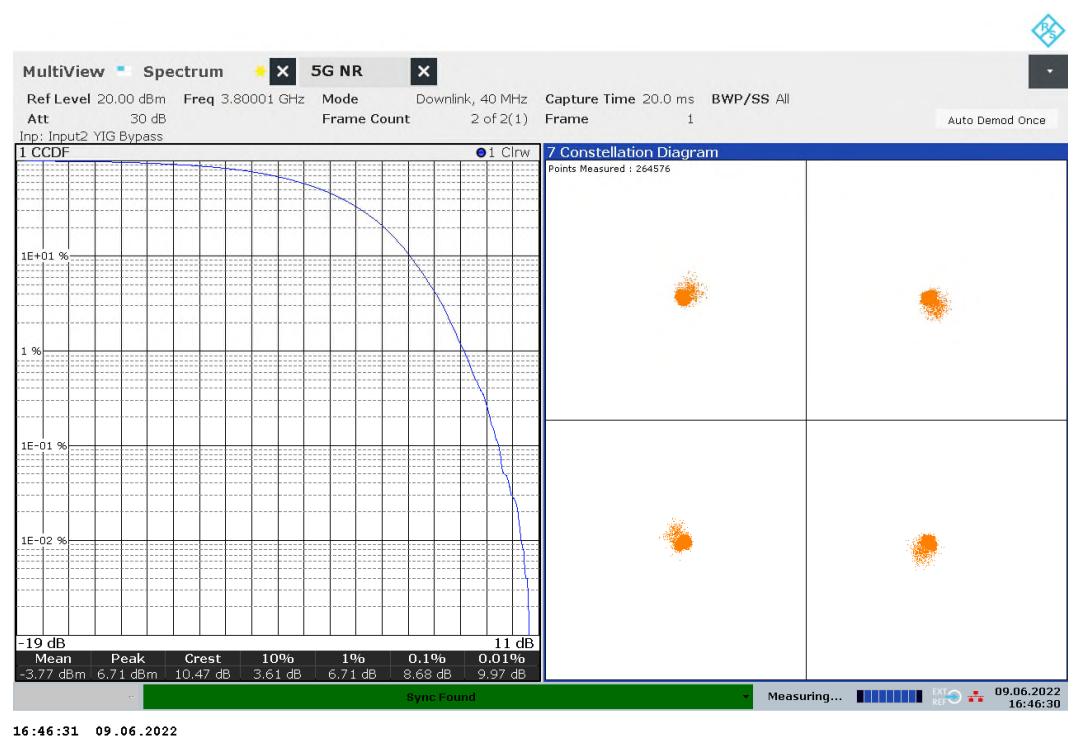


Figure 6: Modulation Characteristics, 1cc-1 (OBW=40MHz), QPSK_TM1.1, High Channel, TX Port 17

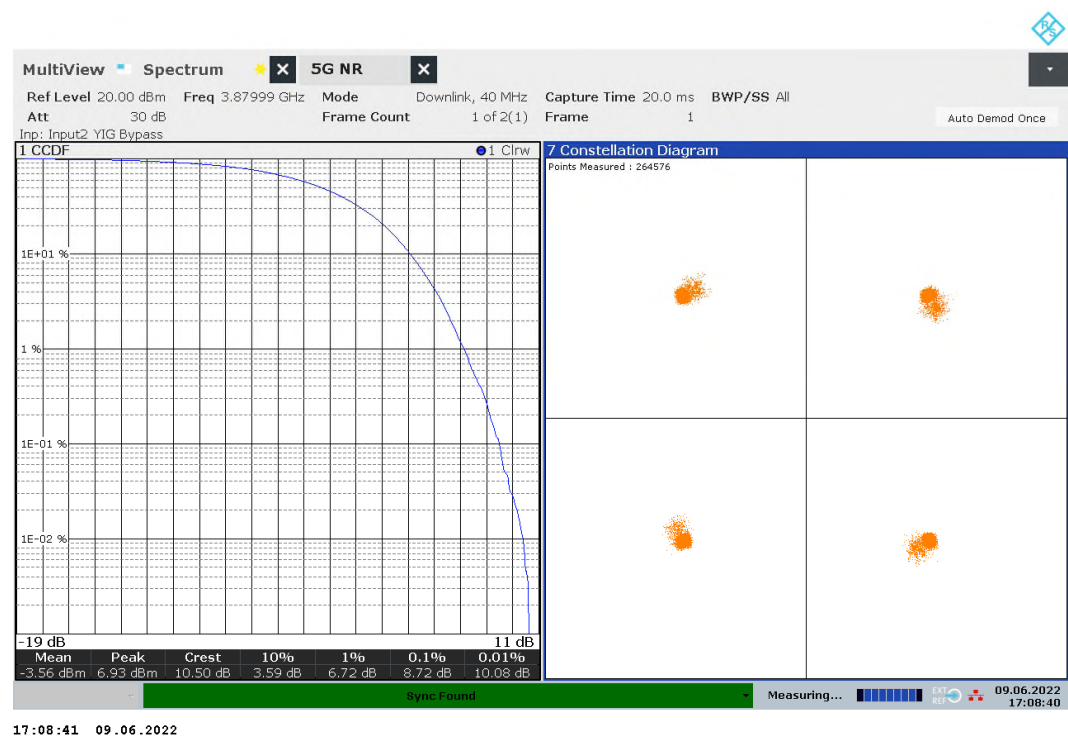


Figure 7: Modulation Characteristics, 1cc-1 (OBW=40MHz), QPSK_TM1.1, High Channel, TX Port 13

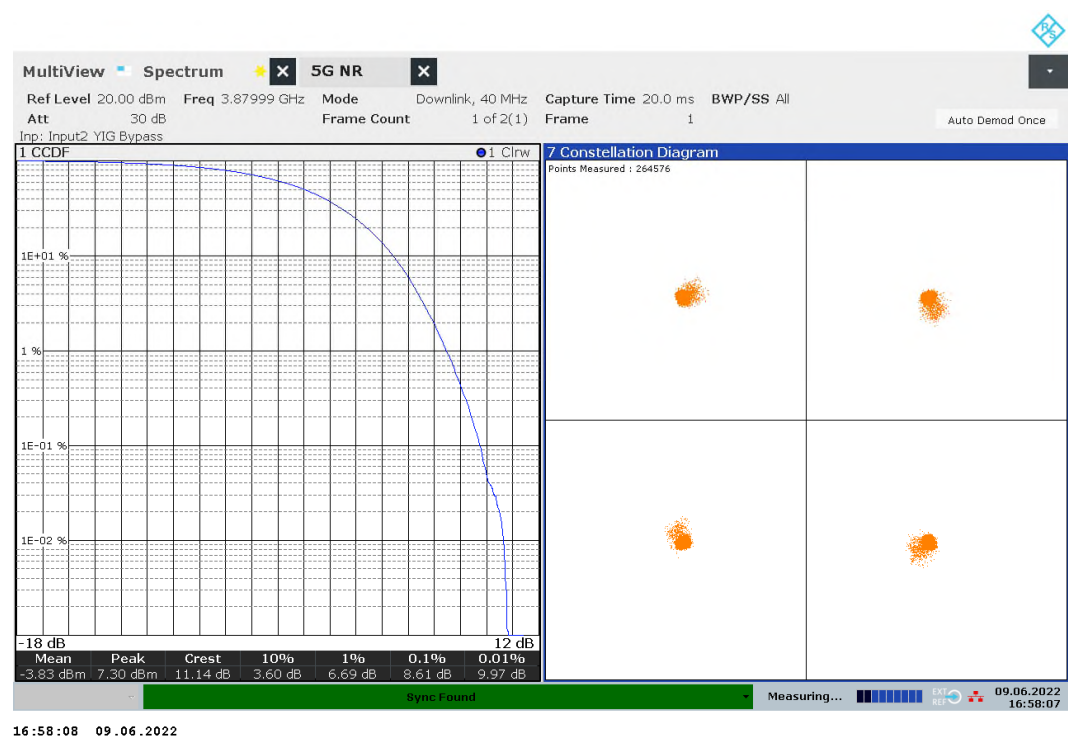


Figure 8: Modulation Characteristics, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, Low Channel, TX Port 29

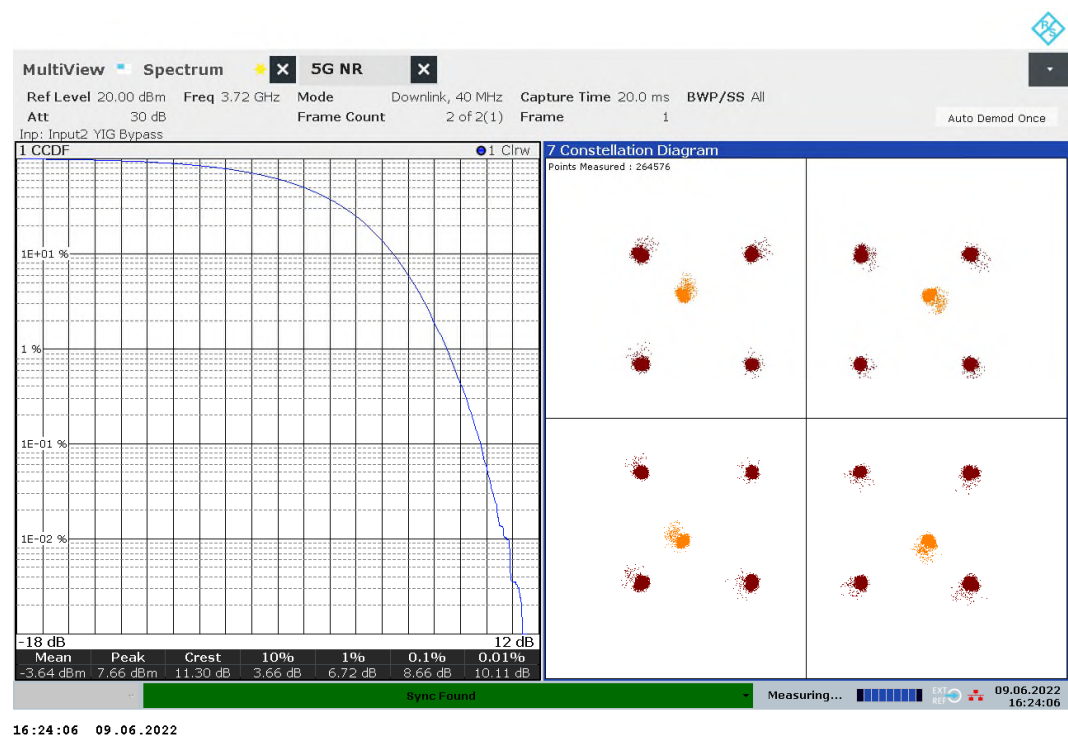
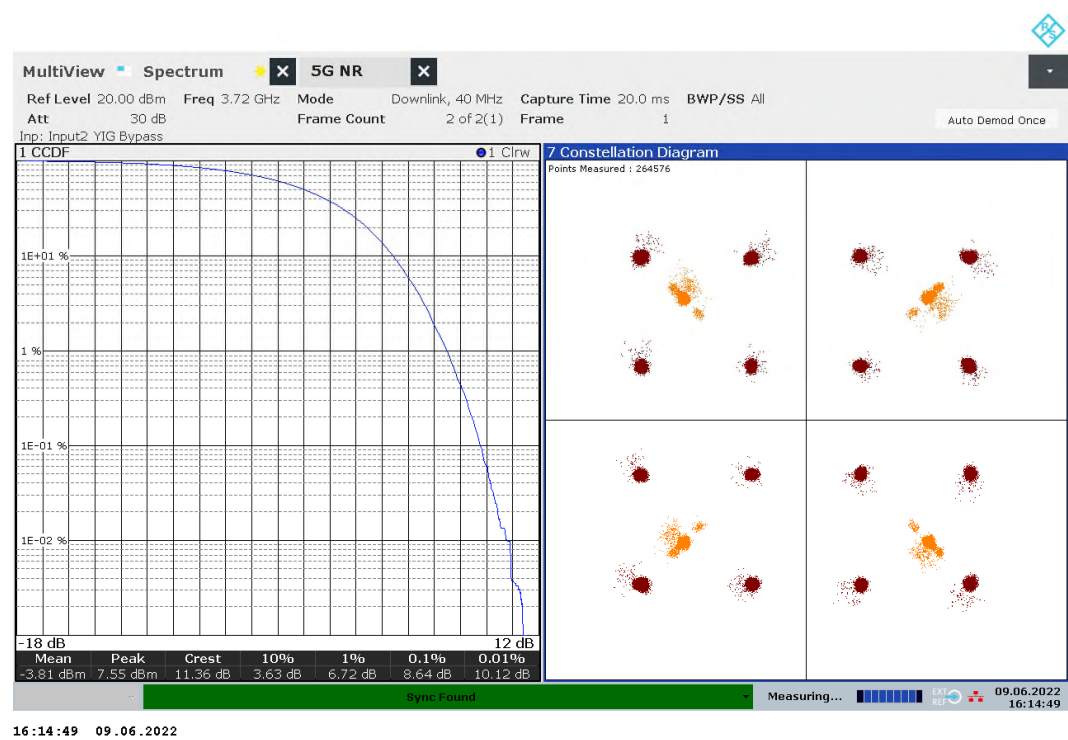


Figure 9: Modulation Characteristics, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, Low Channel, TX Port 3



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 60 von 274
Page 60 of 274

Figure 10: Modulation Characteristics, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, Middle Channel, TX Port 23

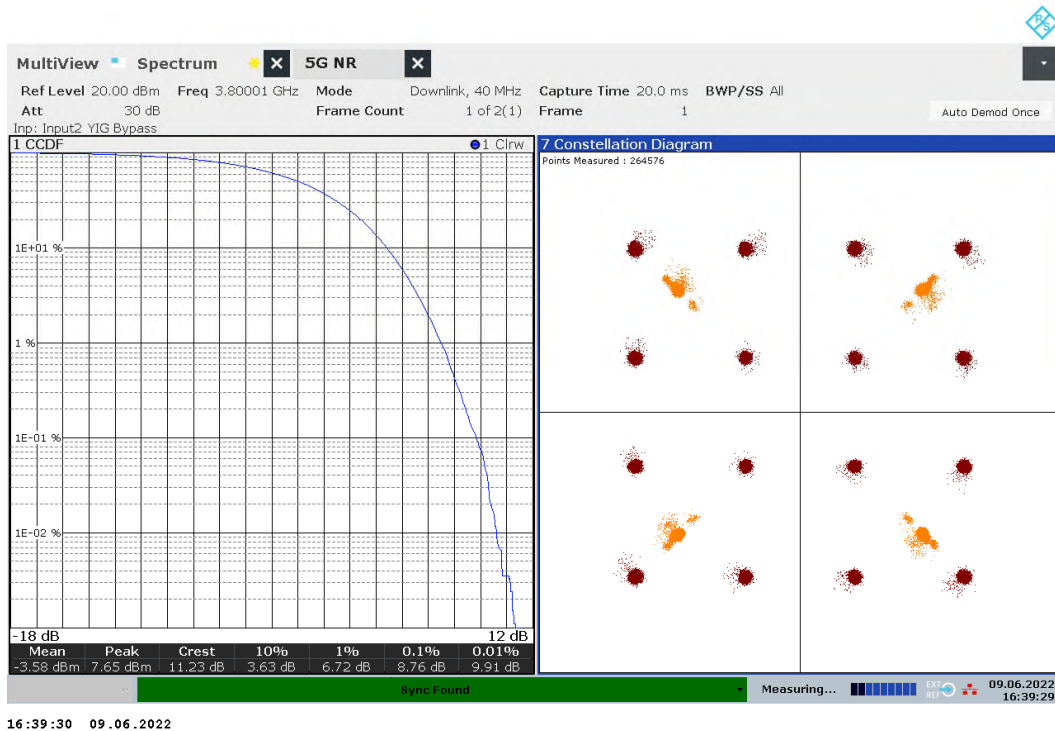


Figure 11: Modulation Characteristics, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, Middle Channel, TX Port 13

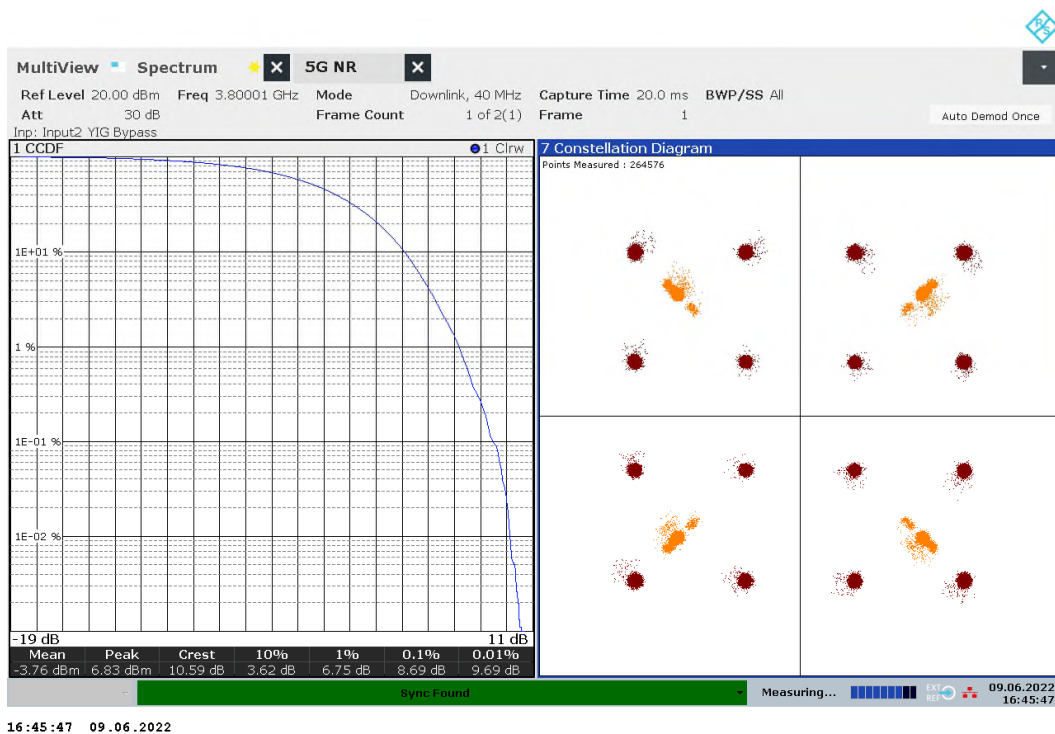


Figure 12: Modulation Characteristics, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, High Channel, TX Port 17

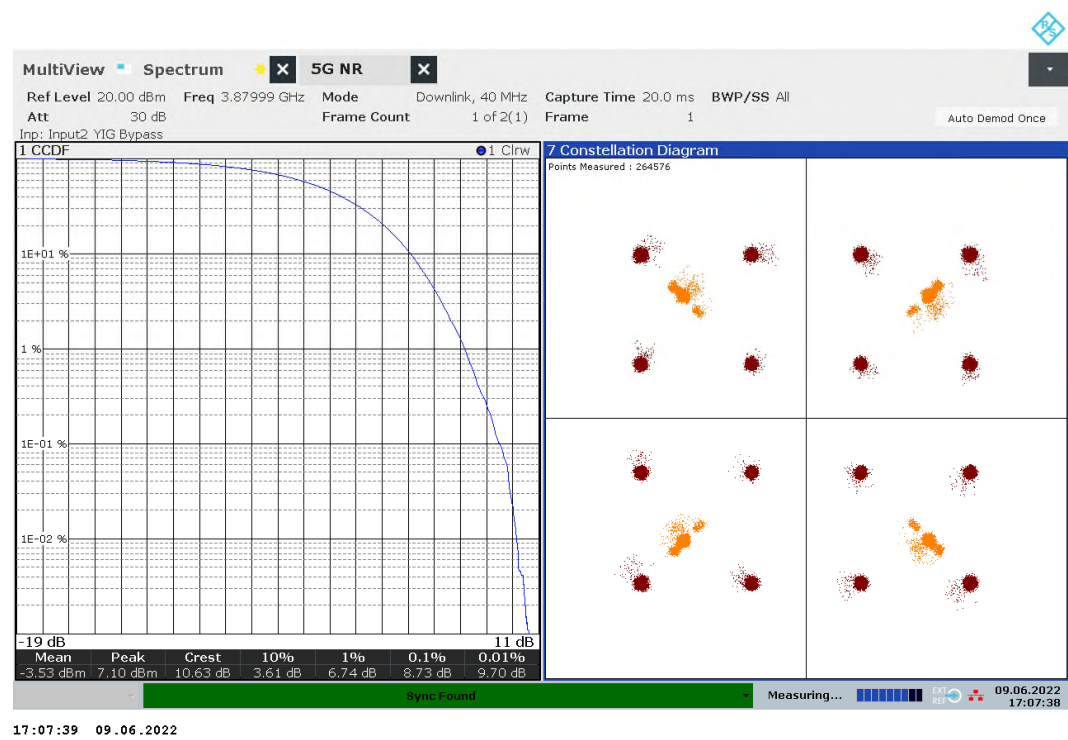


Figure 13: Modulation Characteristics, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, High Channel, TX Port 13

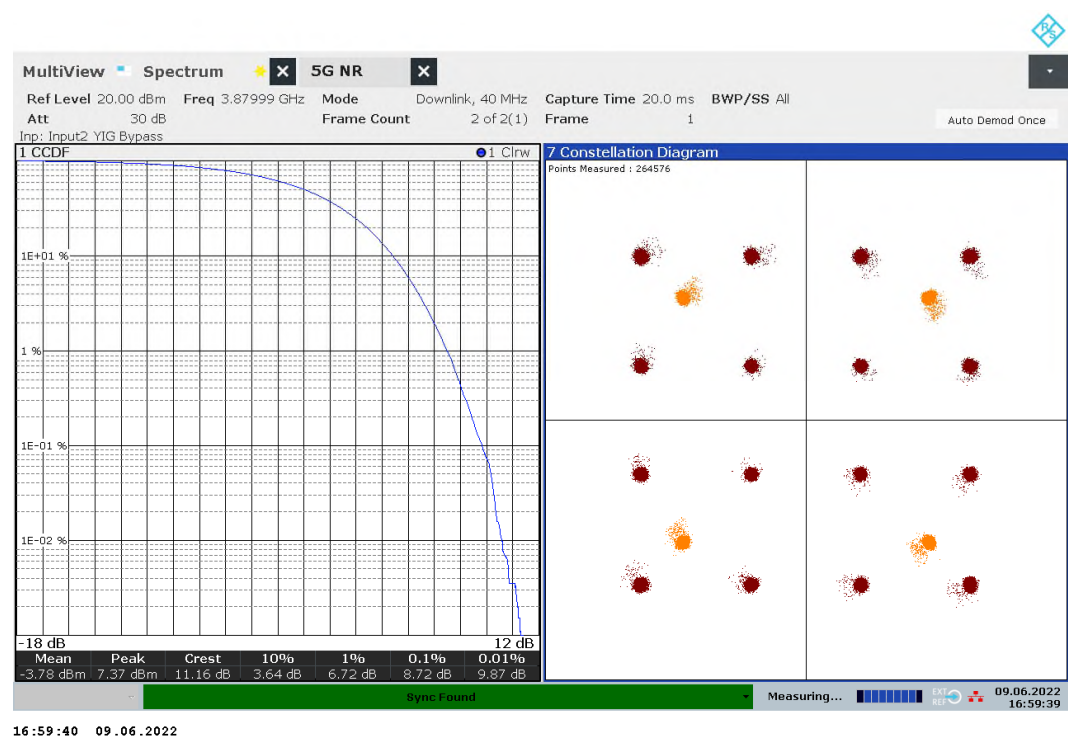


Figure 14: Modulation Characteristics, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, Low Channel, TX Port 29

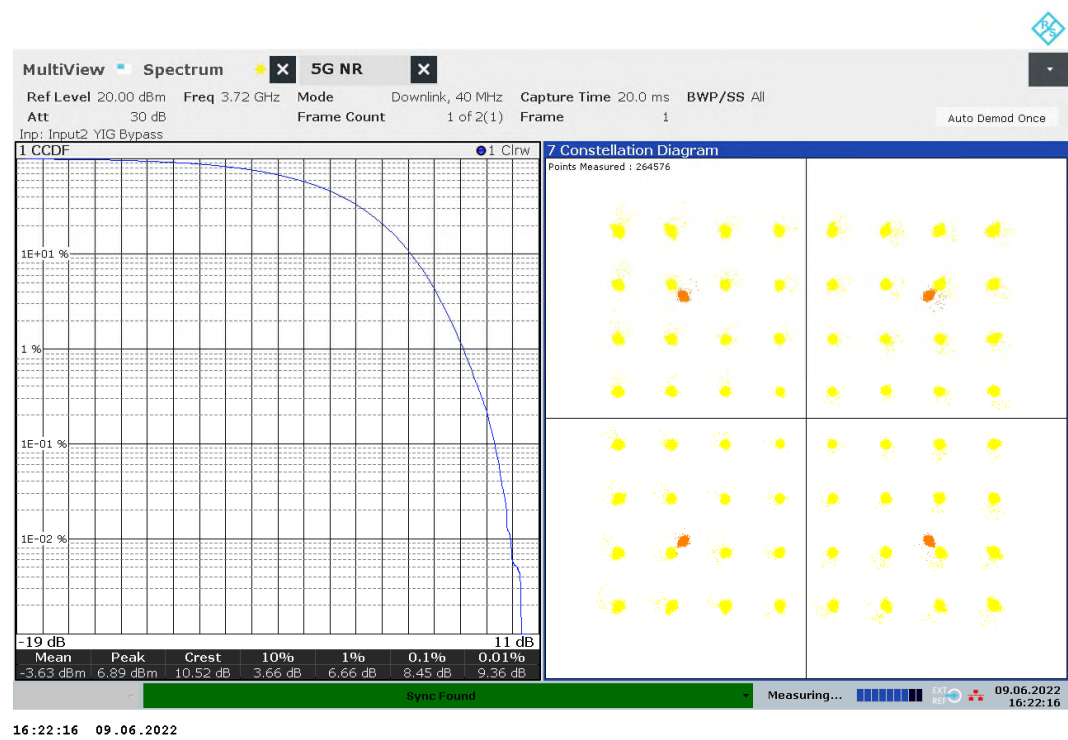
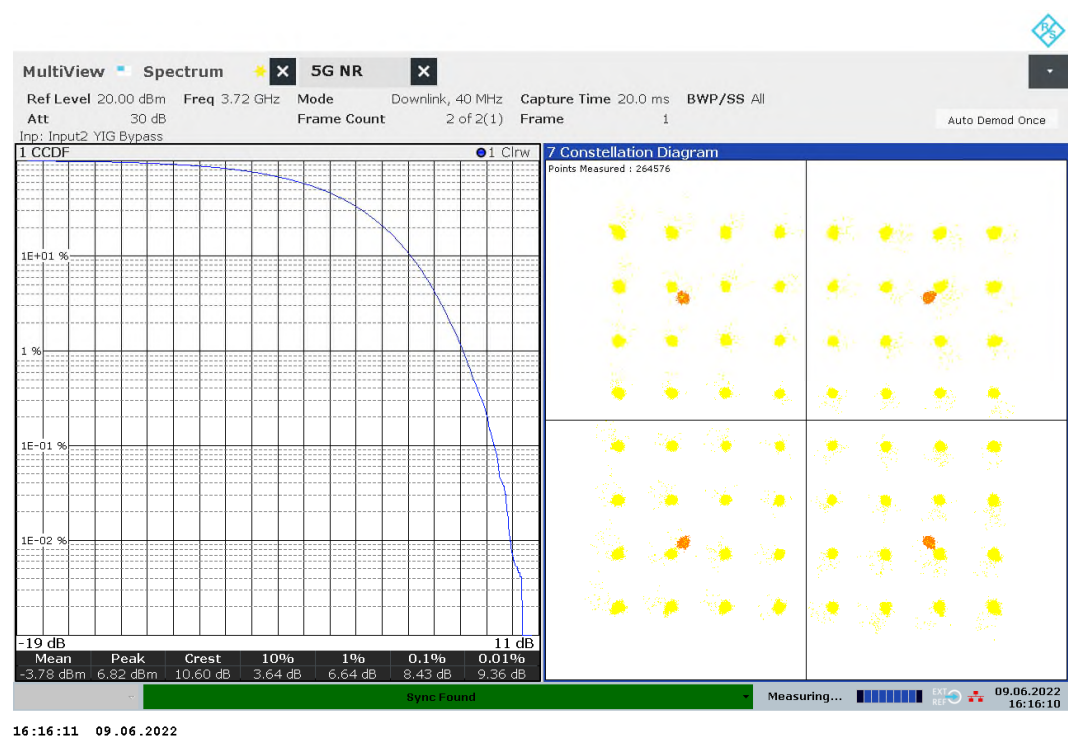


Figure 15: Modulation Characteristics, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, Low Channel, TX Port 3



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 63 von 274
Page 63 of 274

Figure 16: Modulation Characteristics, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, Middle Channel, TX Port 23

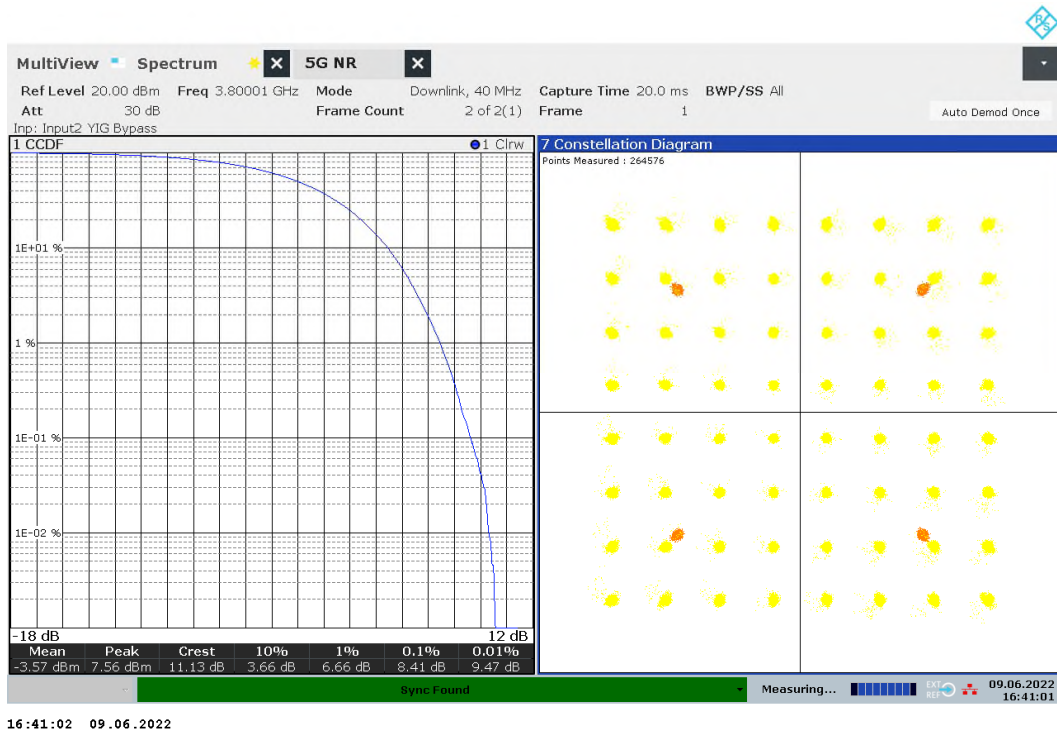


Figure 17: Modulation Characteristics, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, Middle Channel, TX Port 13

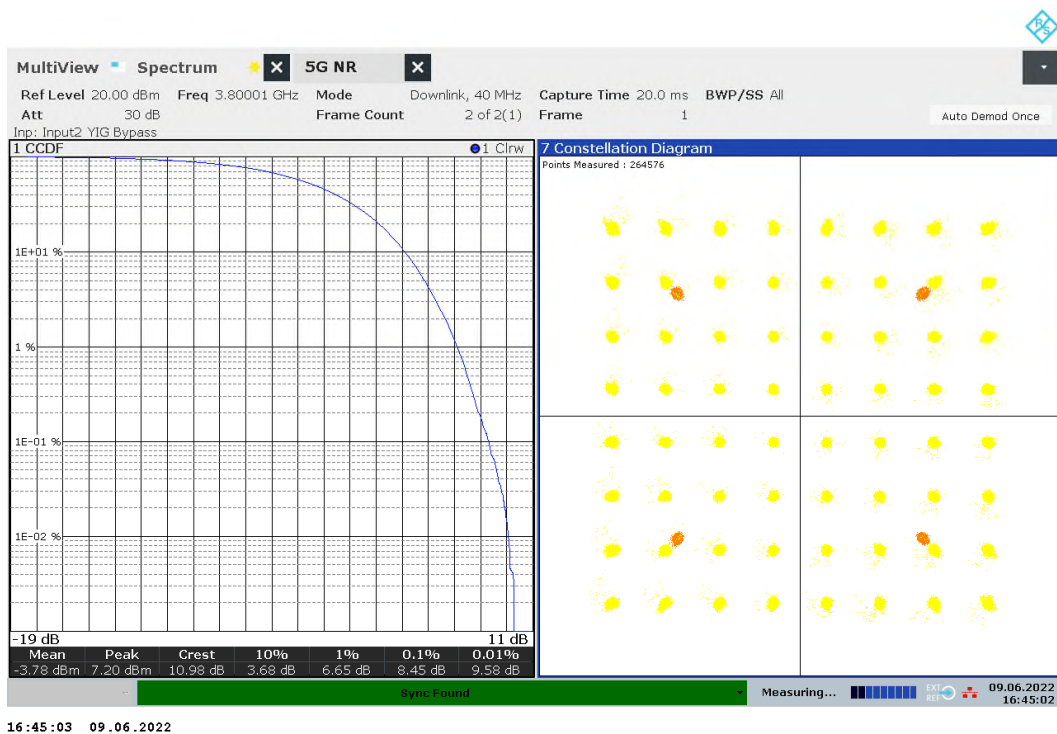


Figure 18: Modulation Characteristics, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, High Channel, TX Port 17

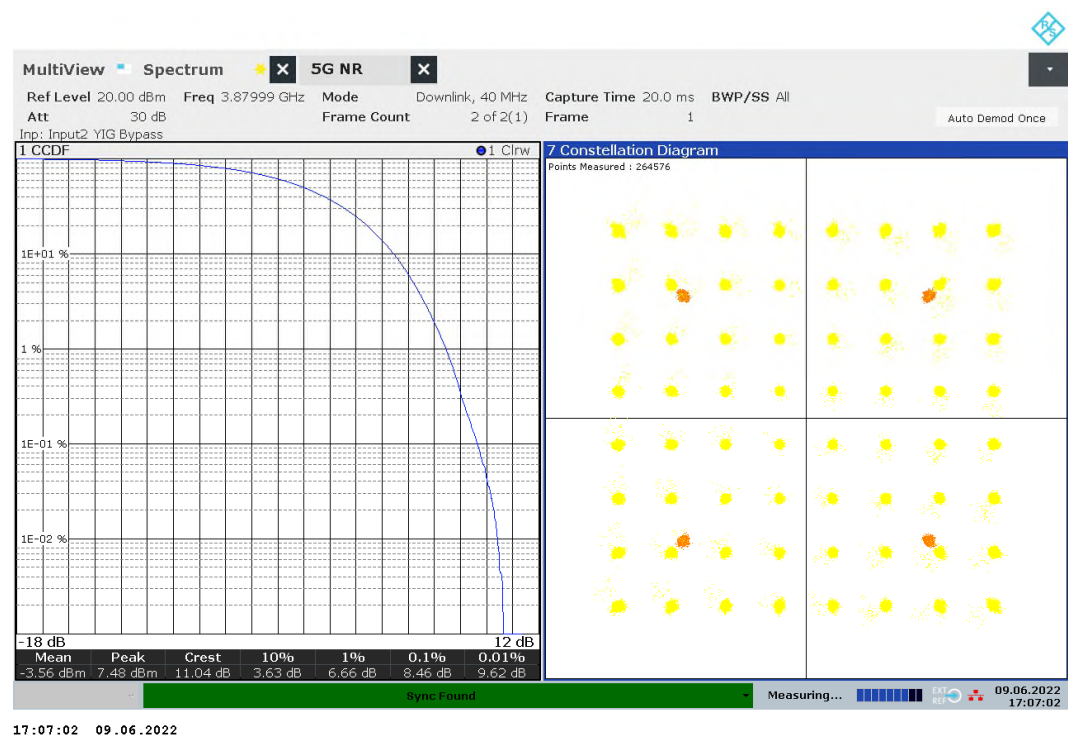
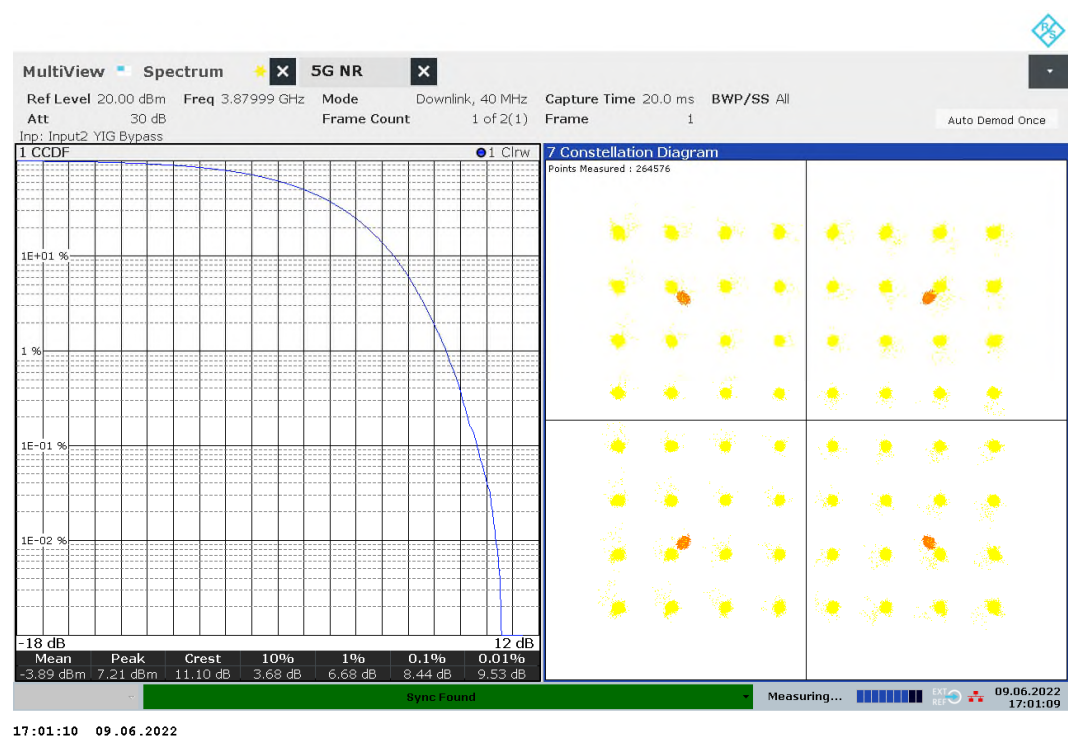


Figure 19: Modulation Characteristics, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, High Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 65 von 274
Page 65 of 274

Figure 20: Modulation Characteristics, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, Low Channel, TX Port 29

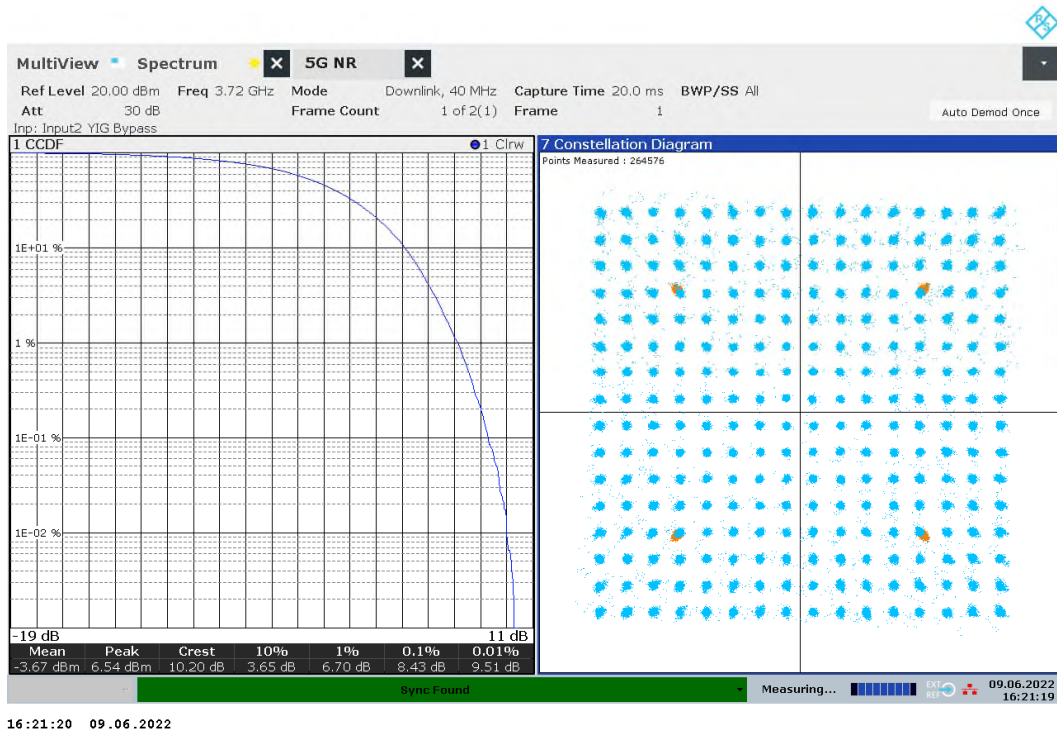
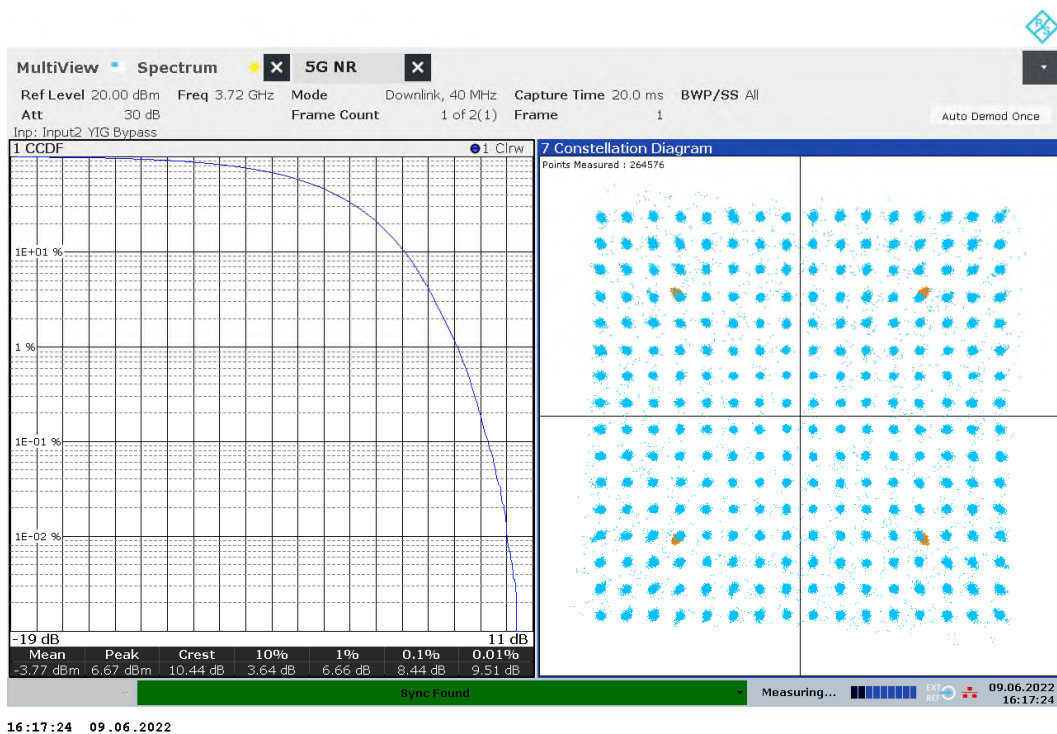


Figure 21: Modulation Characteristics, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, Low Channel, TX Port 3



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 66 von 274
Page 66 of 274

Figure 22: Modulation Characteristics, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, Middle Channel, TX Port 23

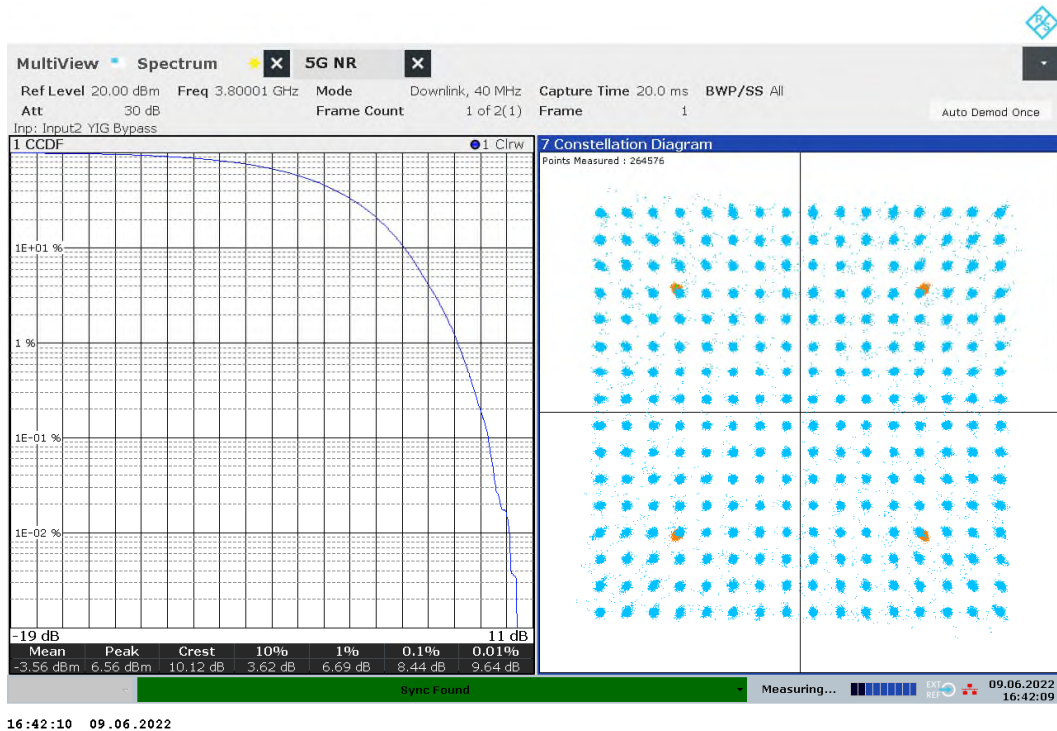
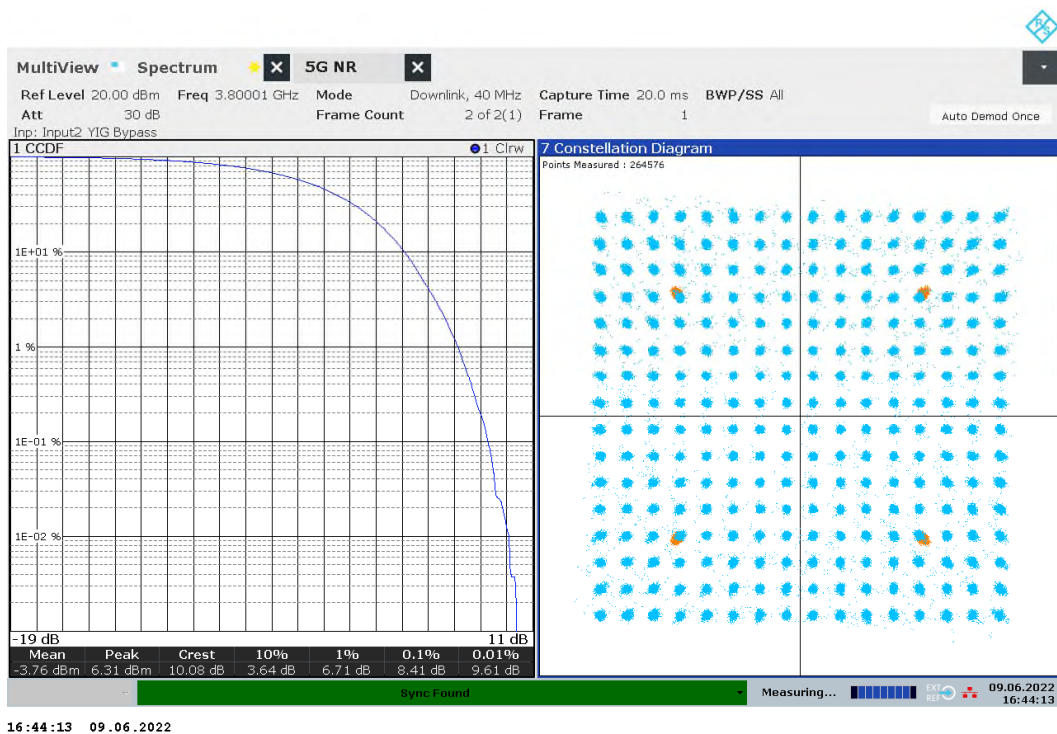


Figure 23: Modulation Characteristics, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 67 von 274
Page 67 of 274

Figure 24: Modulation Characteristics, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, High Channel, TX Port 17

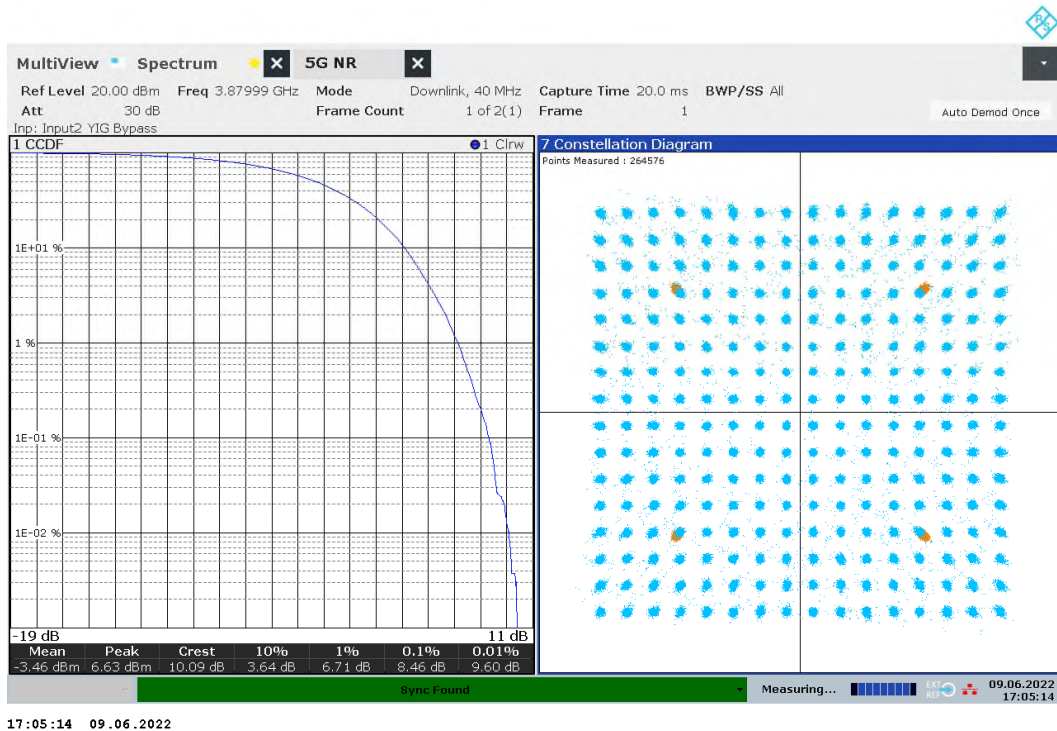


Figure 25: Modulation Characteristics, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, High Channel, TX Port 13

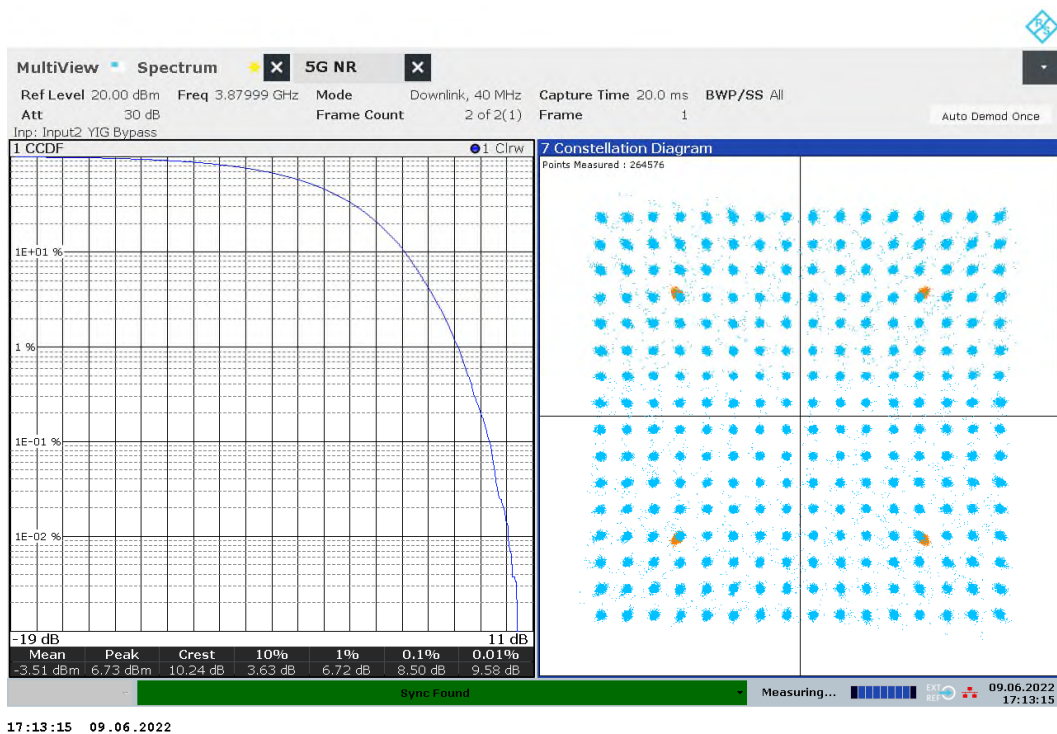


Figure 26: Modulation Characteristics, 1cc-2 (OBW=60MHz), QPSK_TM1.1, Middle Channel, TX Port 23

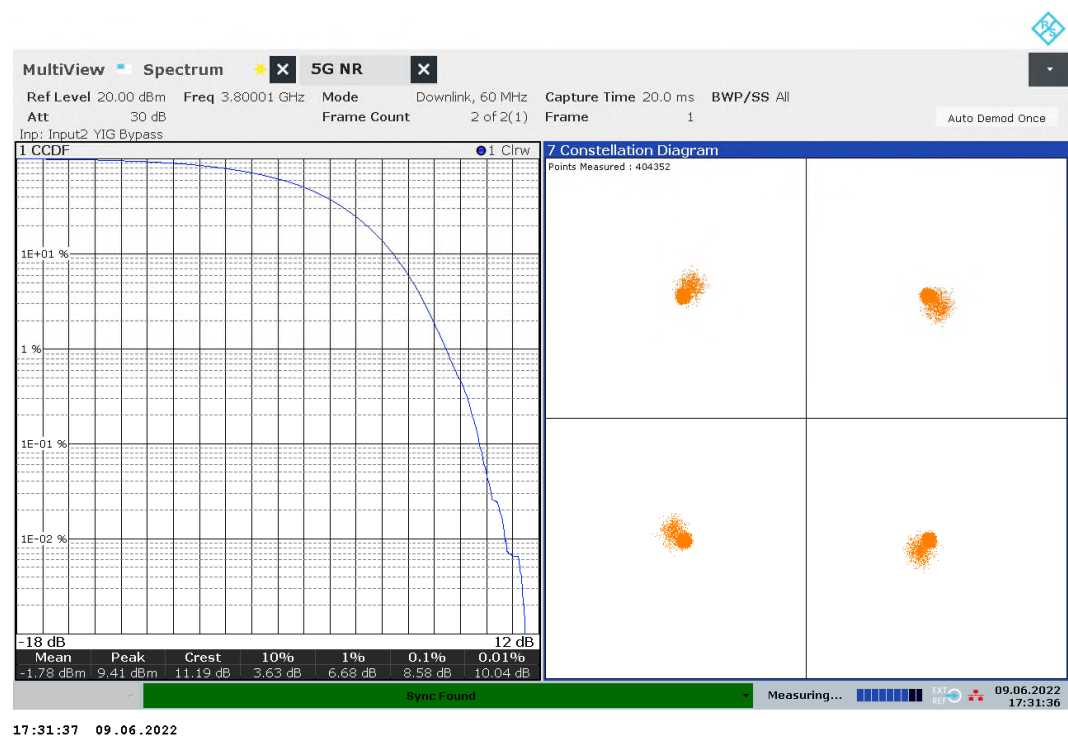
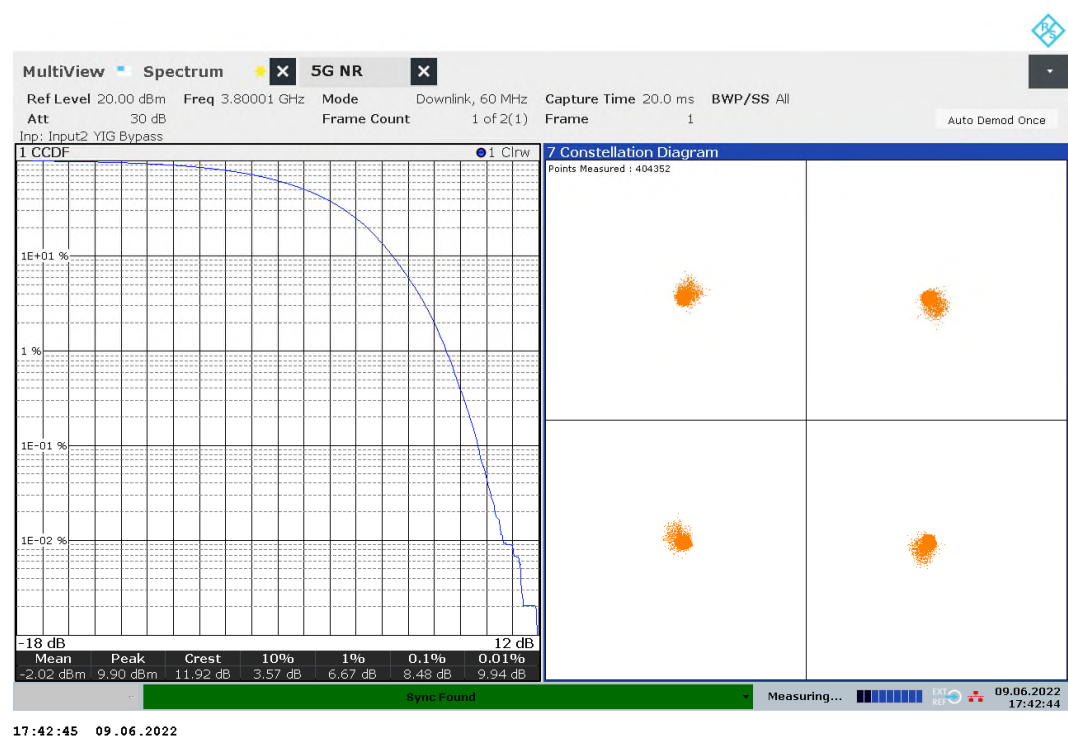


Figure 27: Modulation Characteristics, 1cc-2 (OBW=60MHz), QPSK_TM1.1, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 69 von 274
Page 69 of 274

Figure 28: Modulation Characteristics, 1cc-2 (OBW=60MHz), 16QAM_TM3.2, Middle Channel, TX Port 23

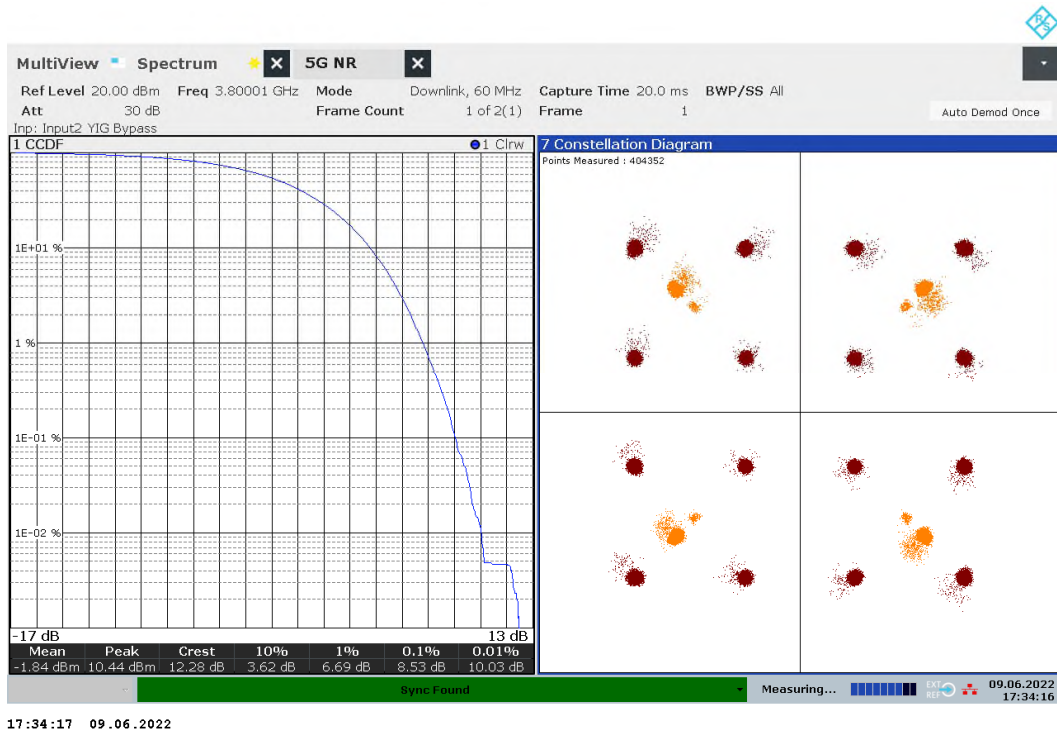
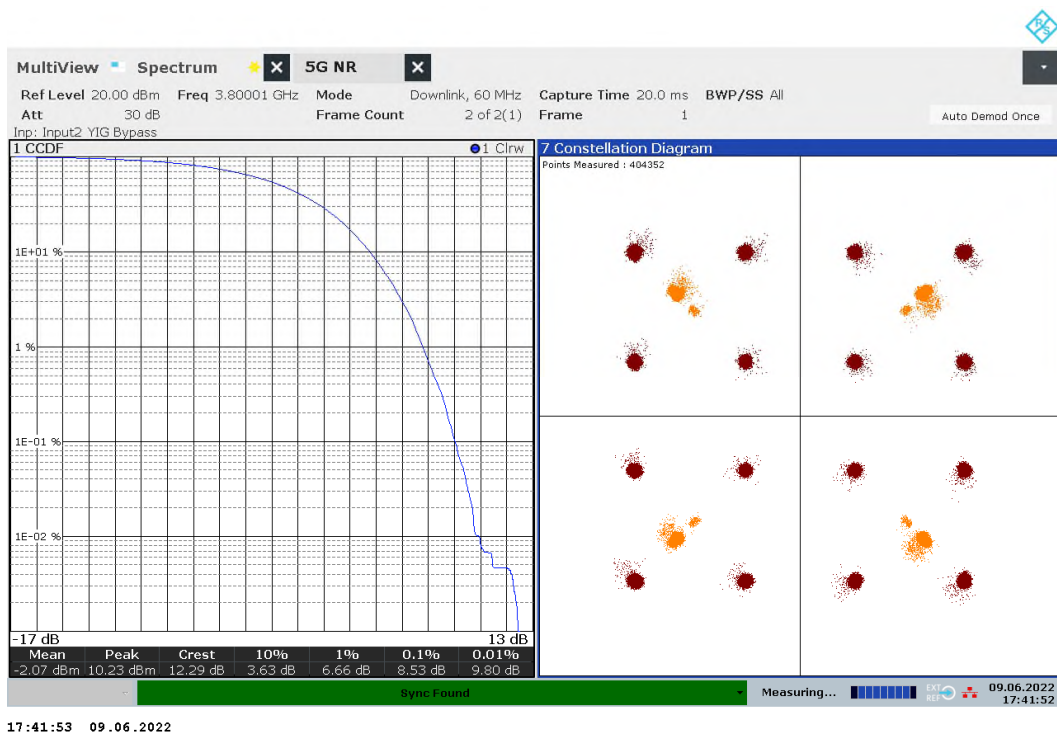


Figure 29: Modulation Characteristics, 1cc-2 (OBW=60MHz), 16QAM_TM3.2, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 70 von 274
Page 70 of 274

Figure 30: Modulation Characteristics, 1cc-2 (OBW=60MHz), 64QAM_TM3.1, Middle Channel, TX Port 23

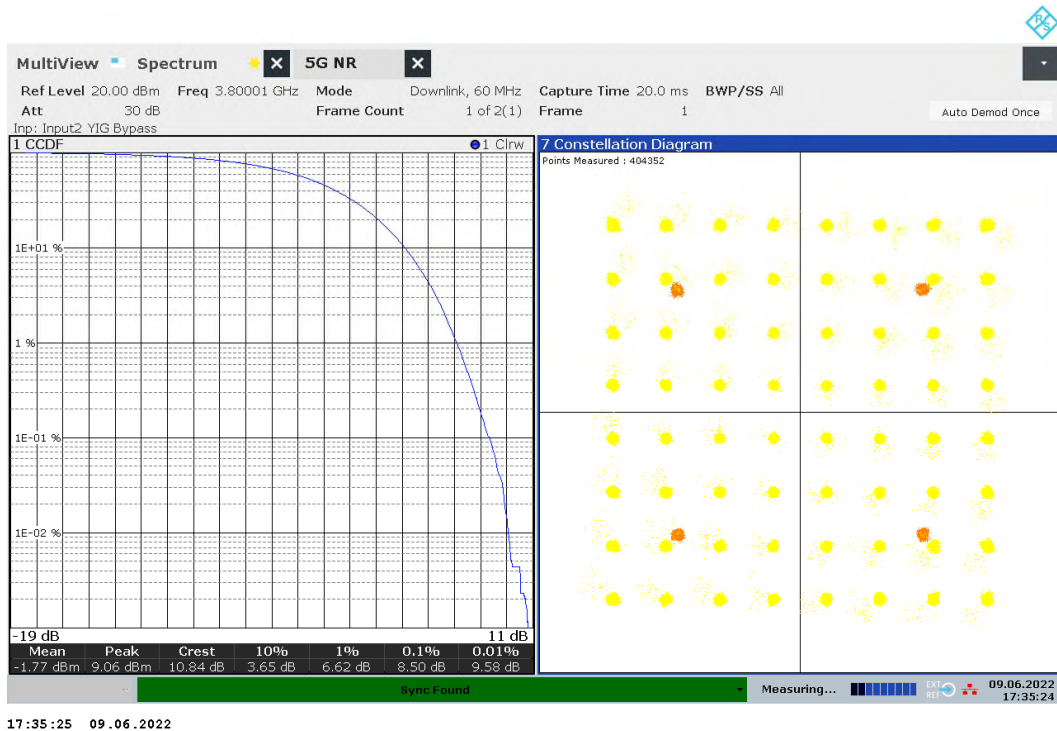
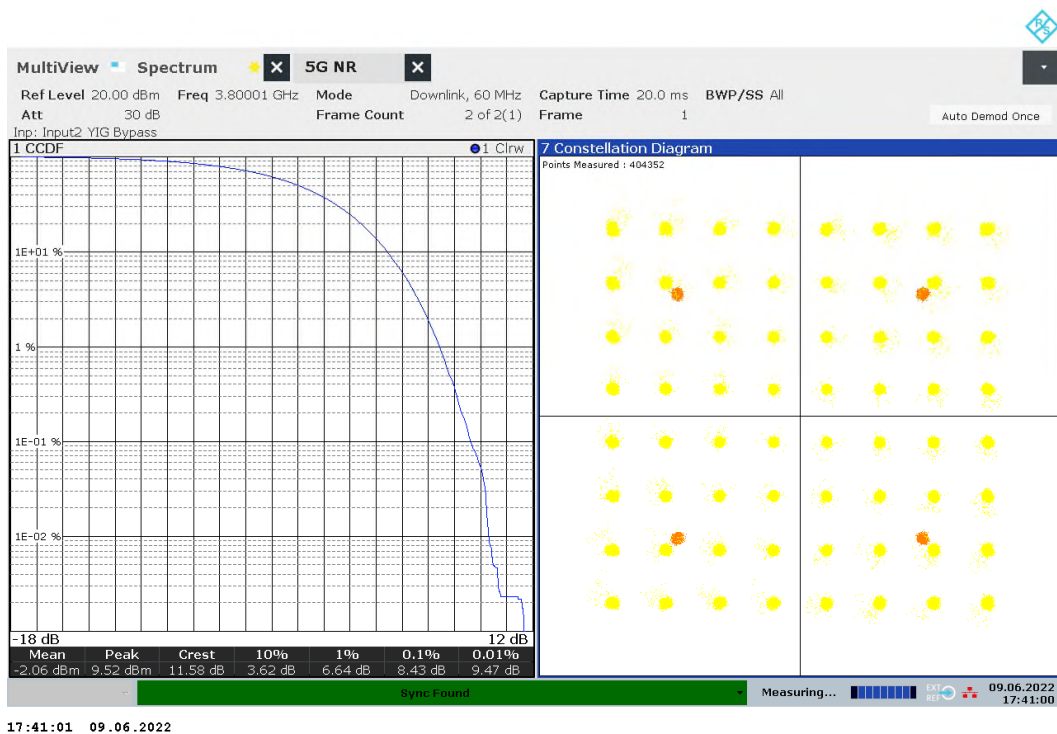


Figure 31: Modulation Characteristics, 1cc-2 (OBW=60MHz), 64QAM_TM3.1, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 71 von 274
Page 71 of 274

Figure 32: Modulation Characteristics, 1cc-2 (OBW=60MHz), 256QAM_TM3.1a, Middle Channel, TX Port 23

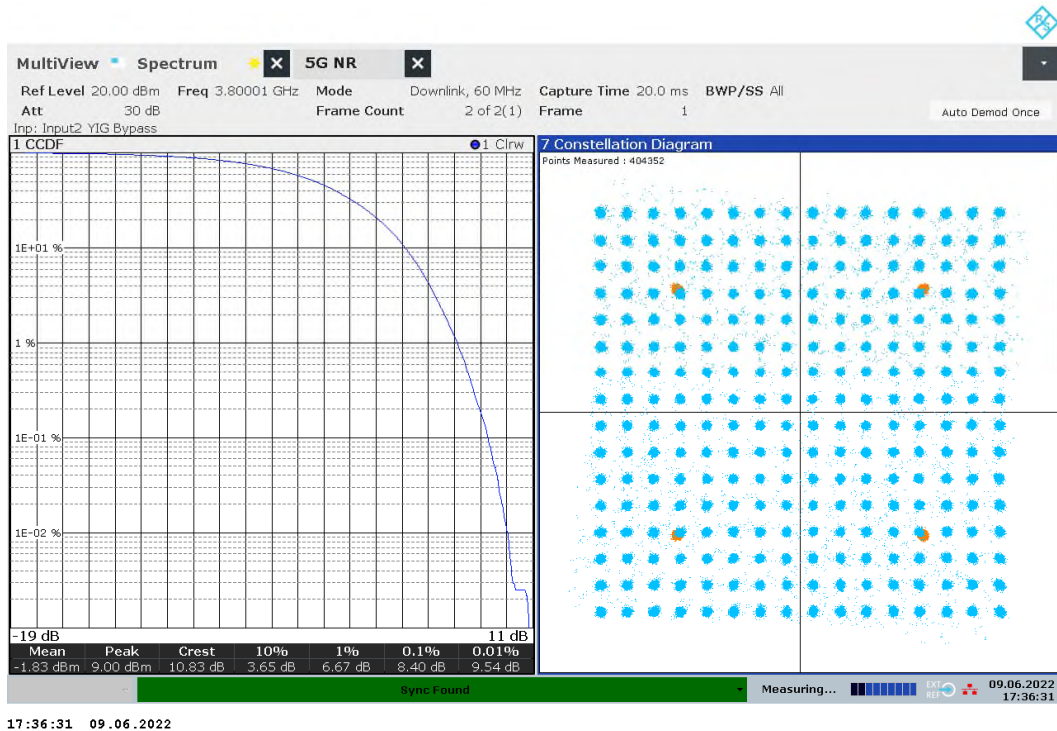
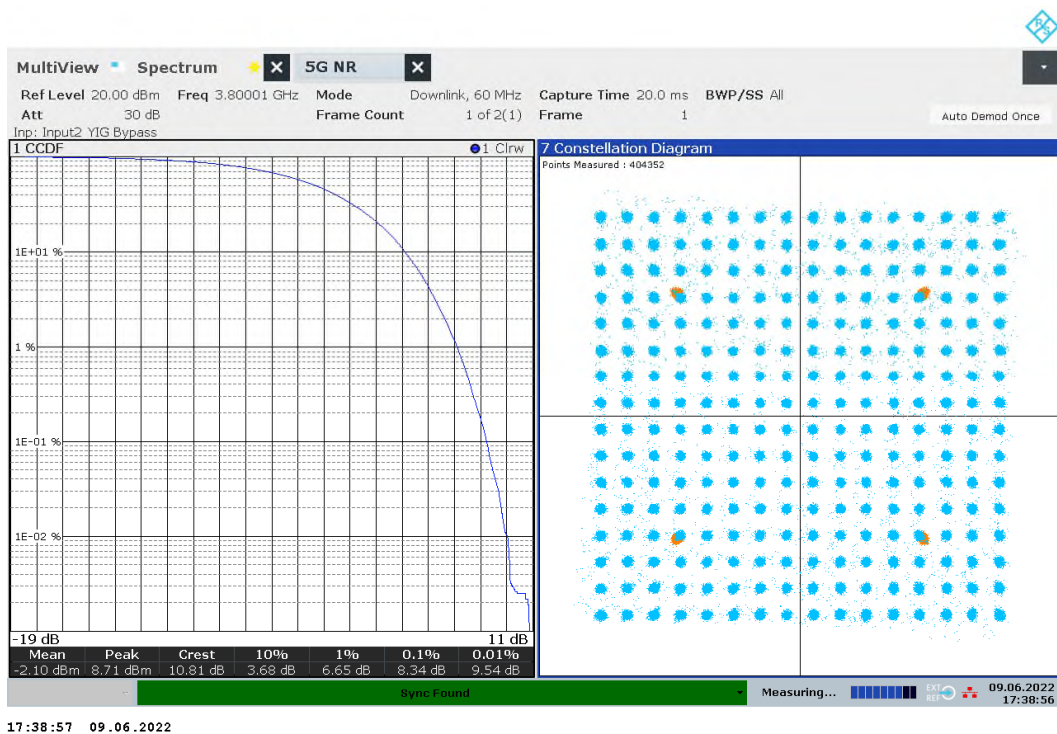


Figure 33: Modulation Characteristics, 1cc-2 (OBW=60MHz), 256QAM_TM3.1a, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 72 von 274
Page 72 of 274

Figure 34: Modulation Characteristics, 1cc-3 (OBW=80MHz), QPSK_TM1.1, Middle Channel, TX Port 23

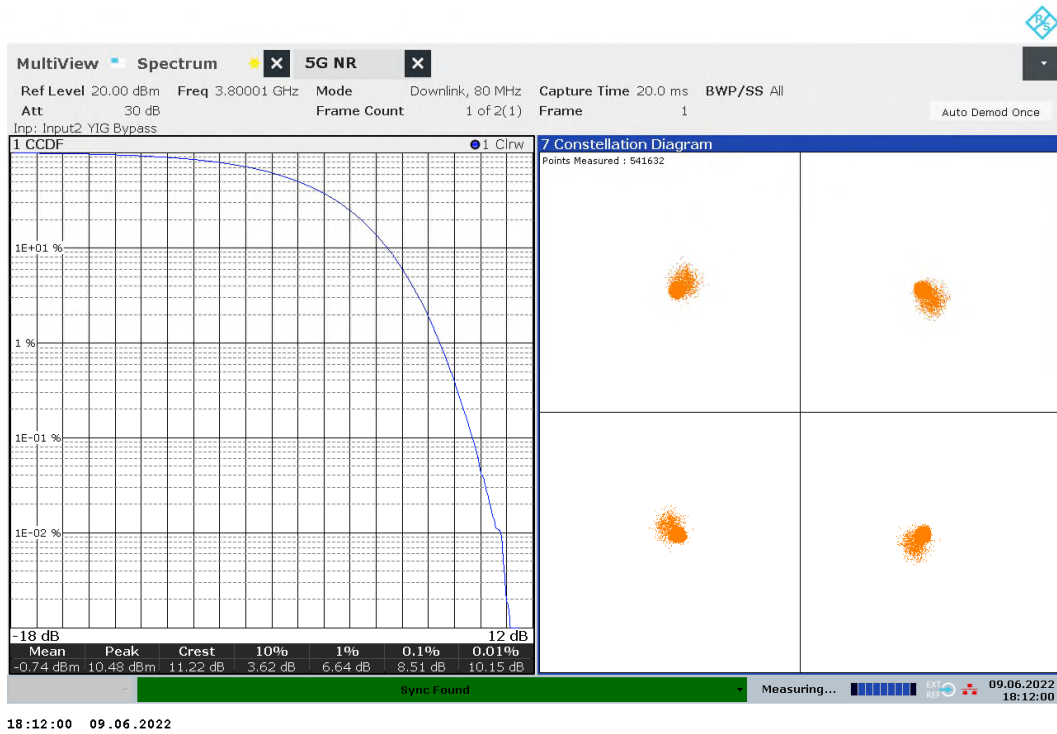
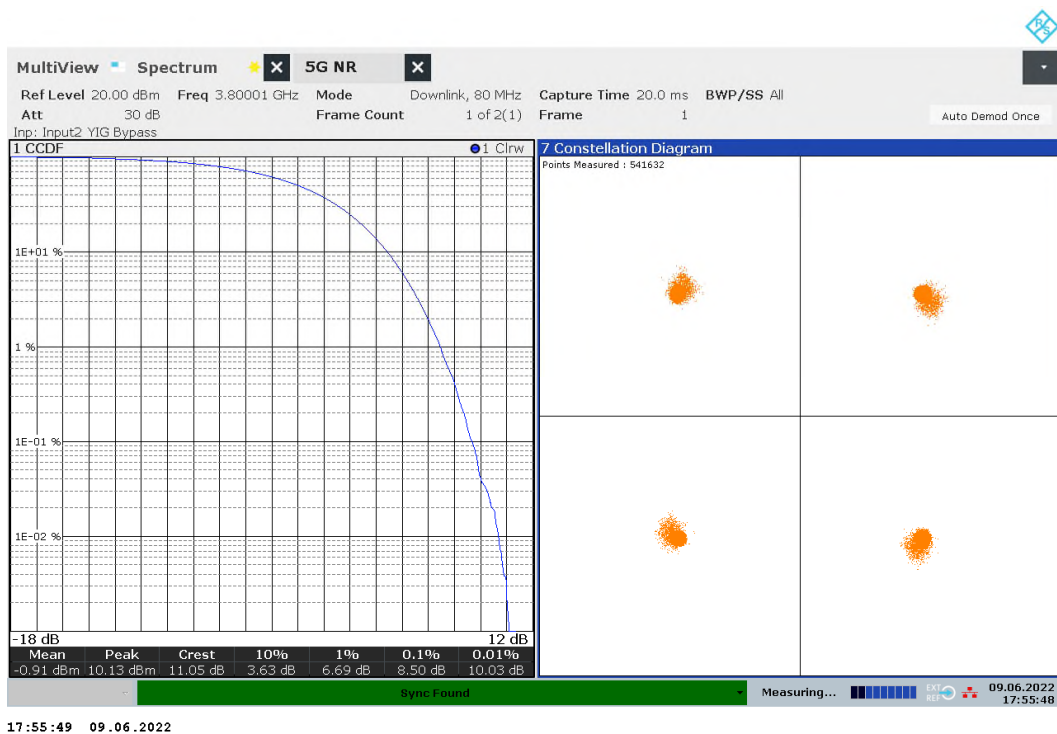


Figure 35: Modulation Characteristics, 1cc-3 (OBW=80MHz), QPSK_TM1.1, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 73 von 274
Page 73 of 274

Figure 36: Modulation Characteristics, 1cc-3 (OBW=80MHz), 16QAM_TM3.2, Middle Channel, TX Port 23

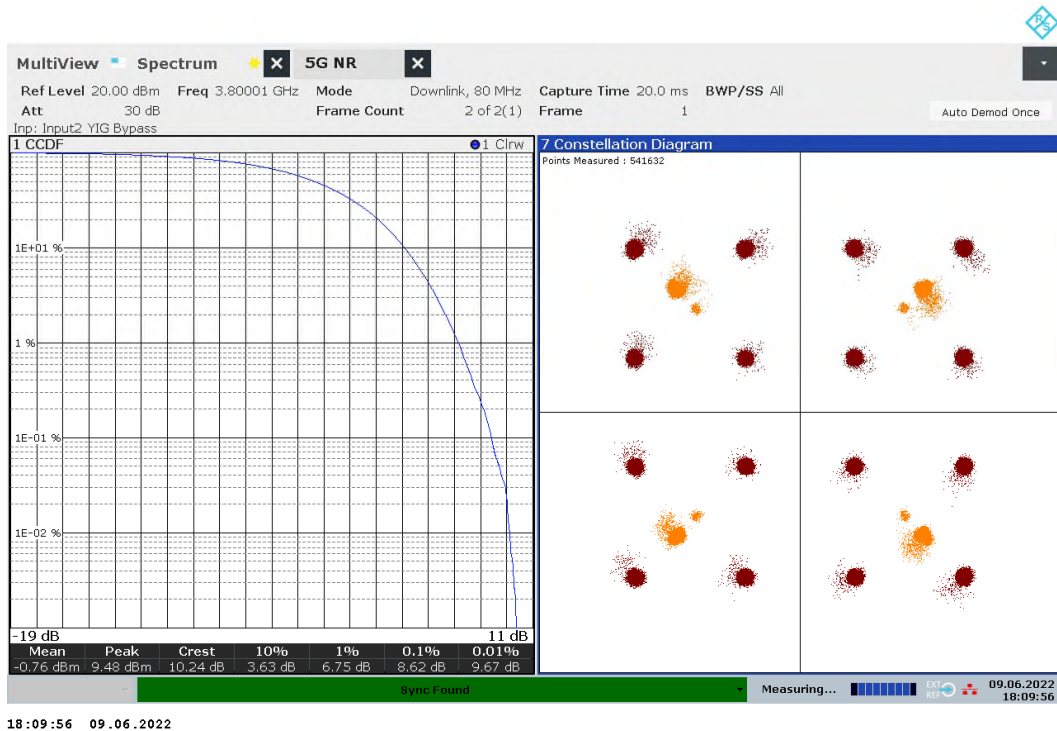
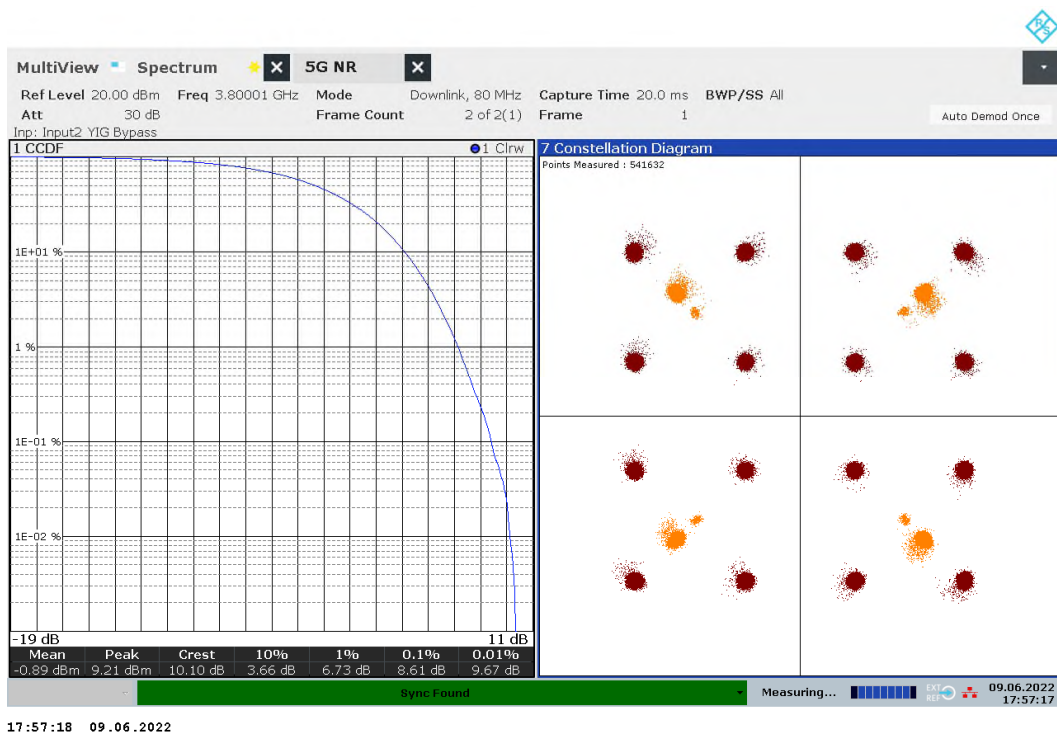


Figure 37: Modulation Characteristics, 1cc-3 (OBW=80MHz), 16QAM_TM3.2, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 74 von 274
Page 74 of 274

Figure 38: Modulation Characteristics, 1cc-3 (OBW=80MHz), 64QAM_TM3.1, Middle Channel, TX Port 23

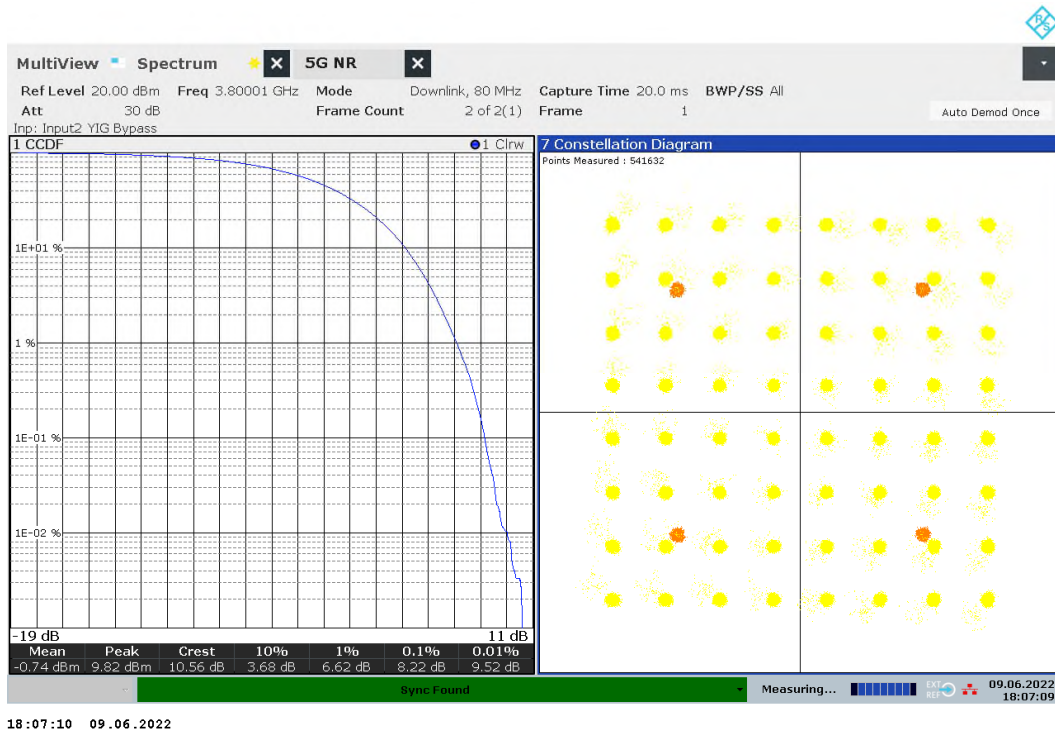
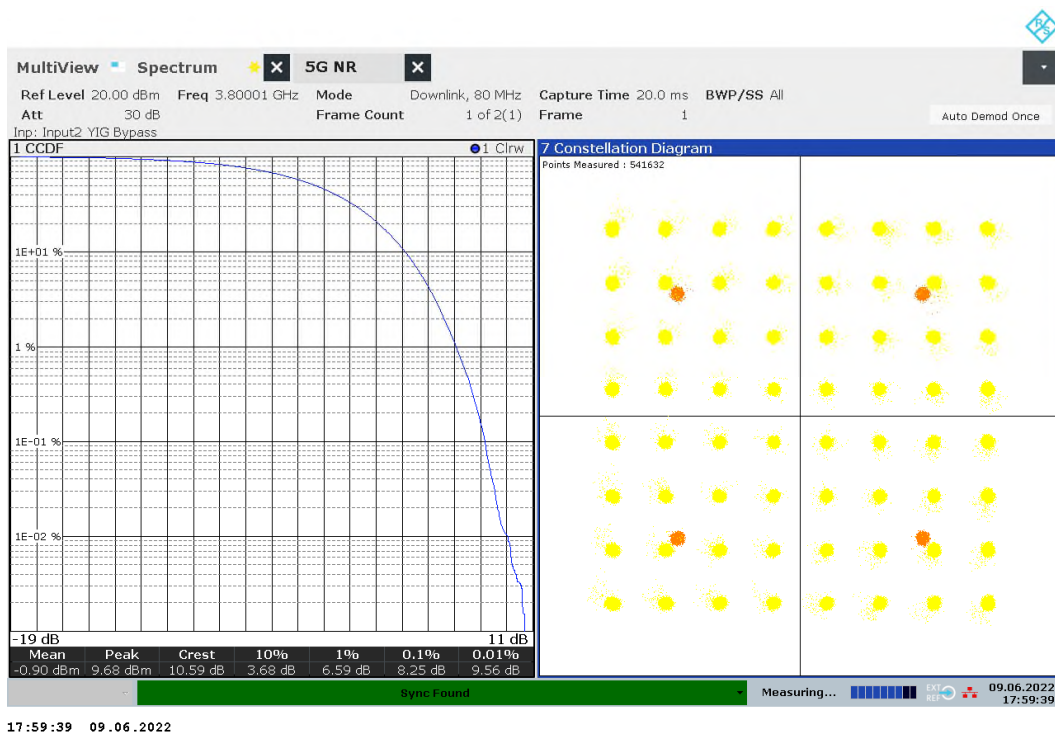


Figure 39: Modulation Characteristics, 1cc-3 (OBW=80MHz), 64QAM_TM3.1, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 75 von 274
Page 75 of 274

Figure 40: Modulation Characteristics, 1cc-3 (OBW=80MHz), 256QAM_TM3.1a, Middle Channel, TX Port 23

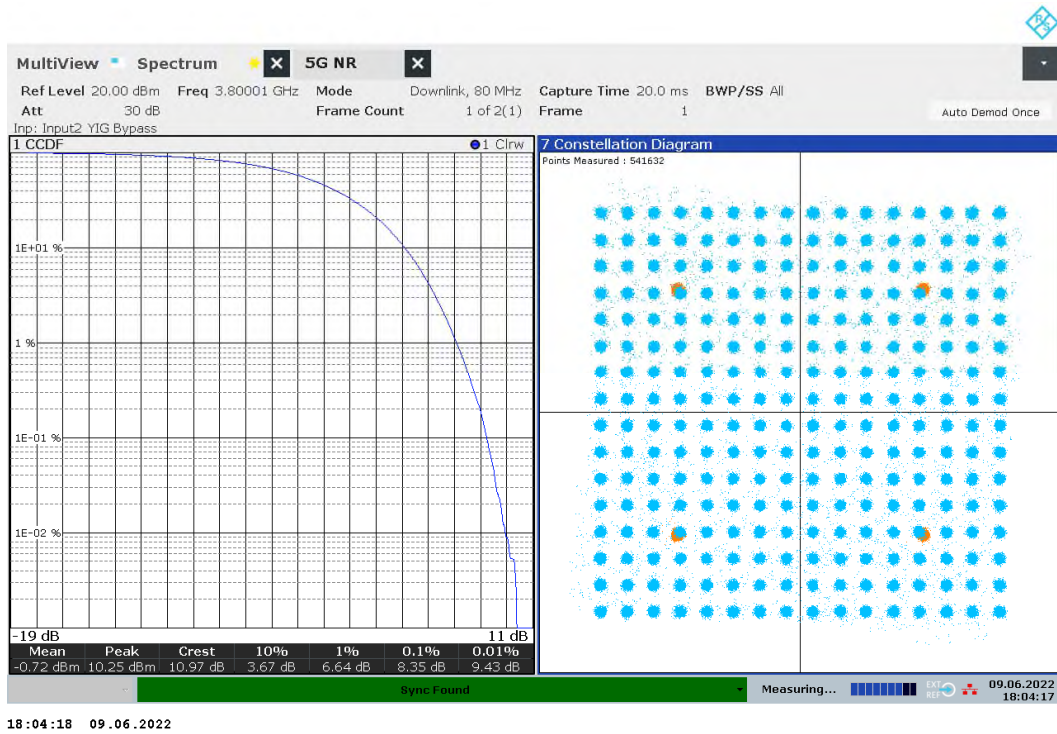


Figure 41: Modulation Characteristics, 1cc-3 (OBW=80MHz), 256QAM_TM3.1a, Middle Channel, TX Port 13

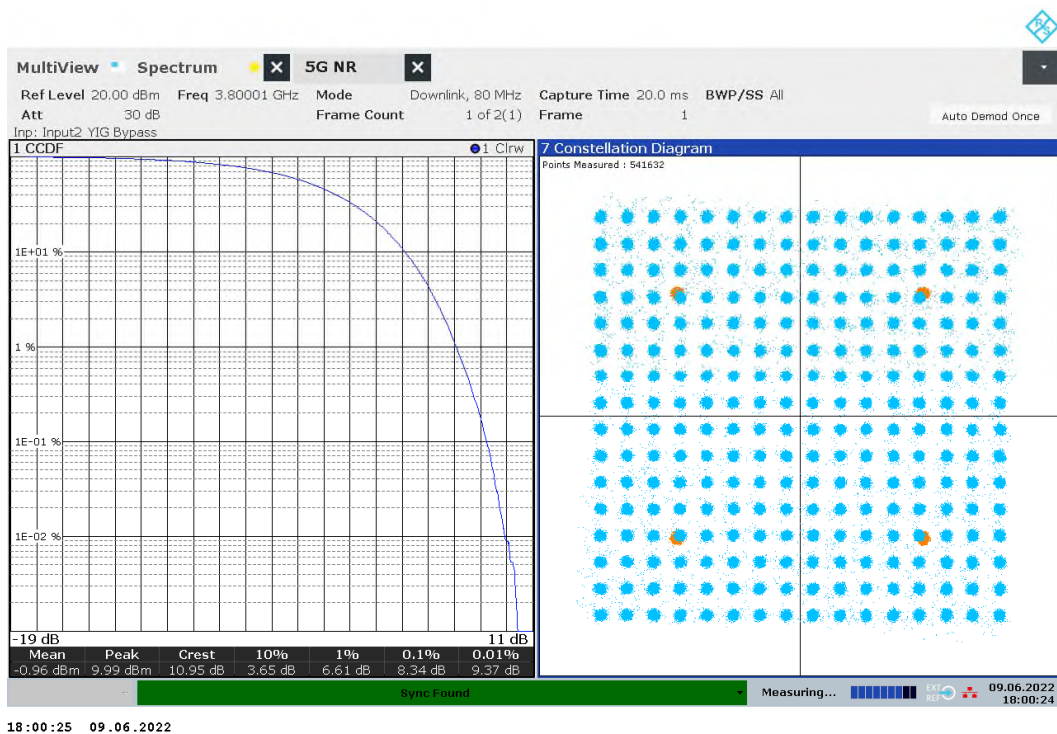


Figure 42: Modulation Characteristics, 1cc-4 (OBW=100MHz), QPSK_TM1.1, Middle Channel, TX Port 23

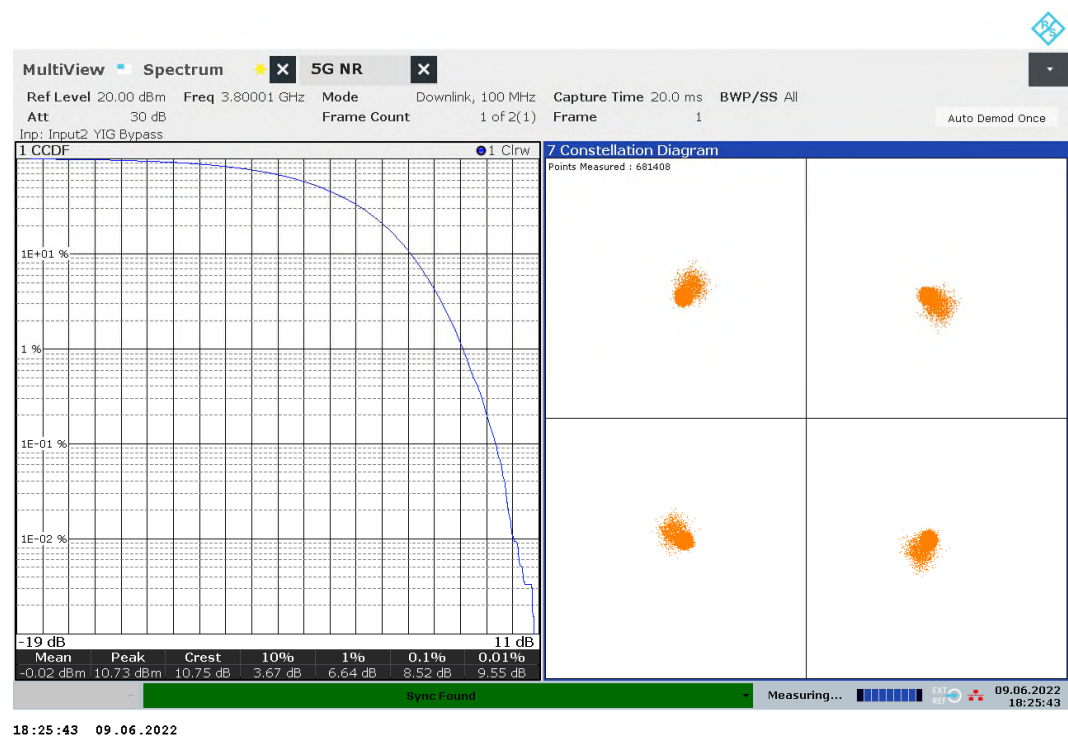
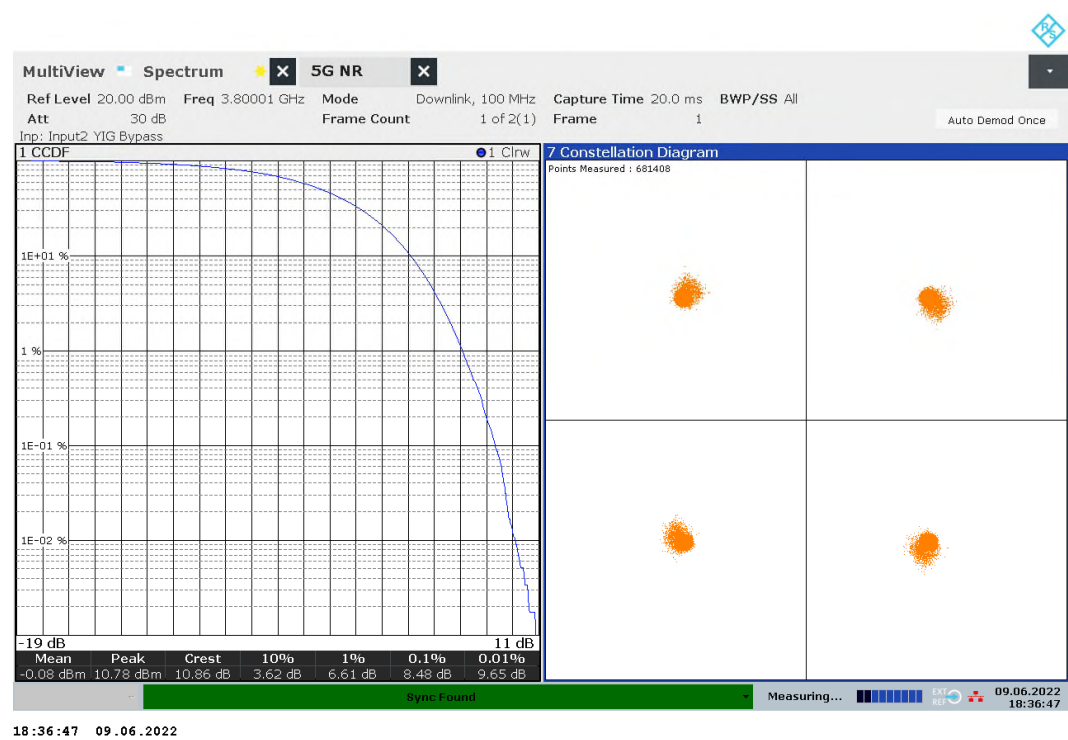


Figure 43: Modulation Characteristics, 1cc-4 (OBW=100MHz), QPSK_TM1.1, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 77 von 274
Page 77 of 274

Figure 44: Modulation Characteristics, 1cc-4 (OBW=100MHz), 16QAM_TM3.2, Middle Channel, TX Port 23

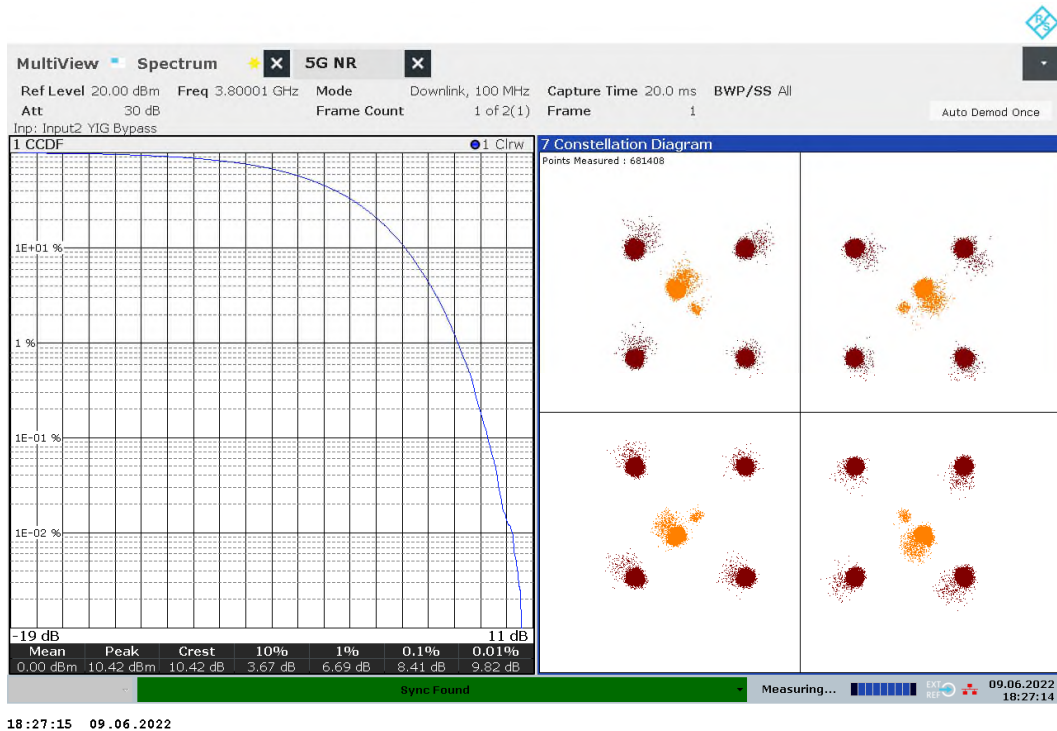
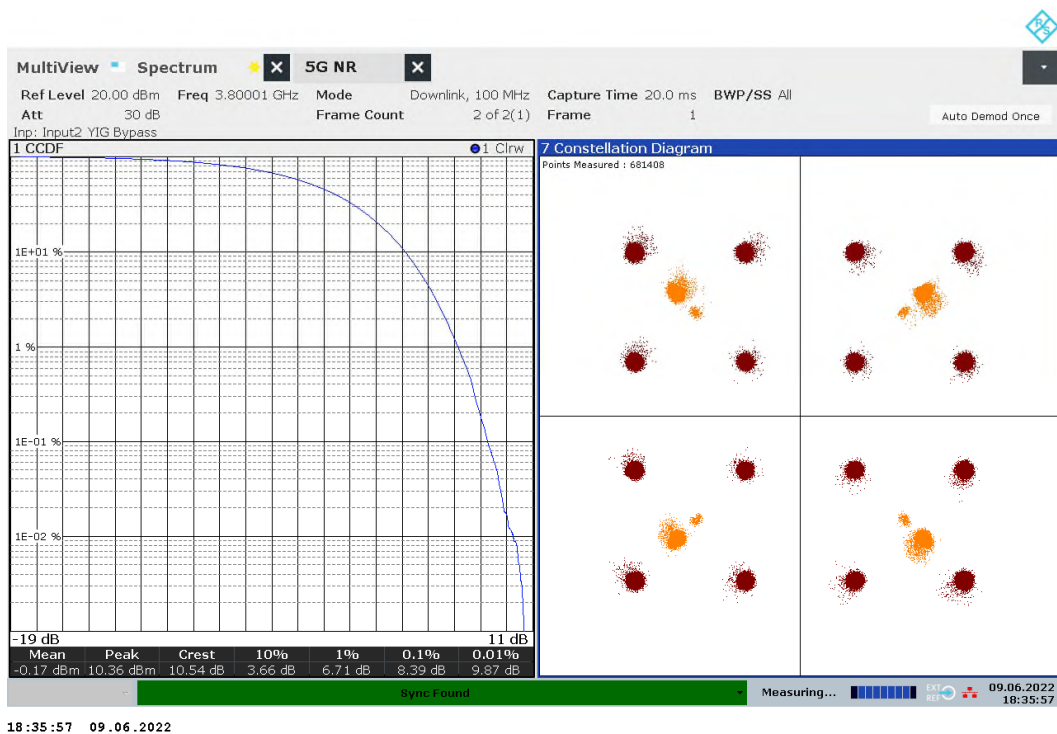


Figure 45: Modulation Characteristics, 1cc-4 (OBW=100MHz), 16QAM_TM3.2, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 78 von 274
Page 78 of 274

Figure 46: Modulation Characteristics, 1cc-4 (OBW=100MHz), 64QAM_TM3.1, Middle Channel, TX Port 23

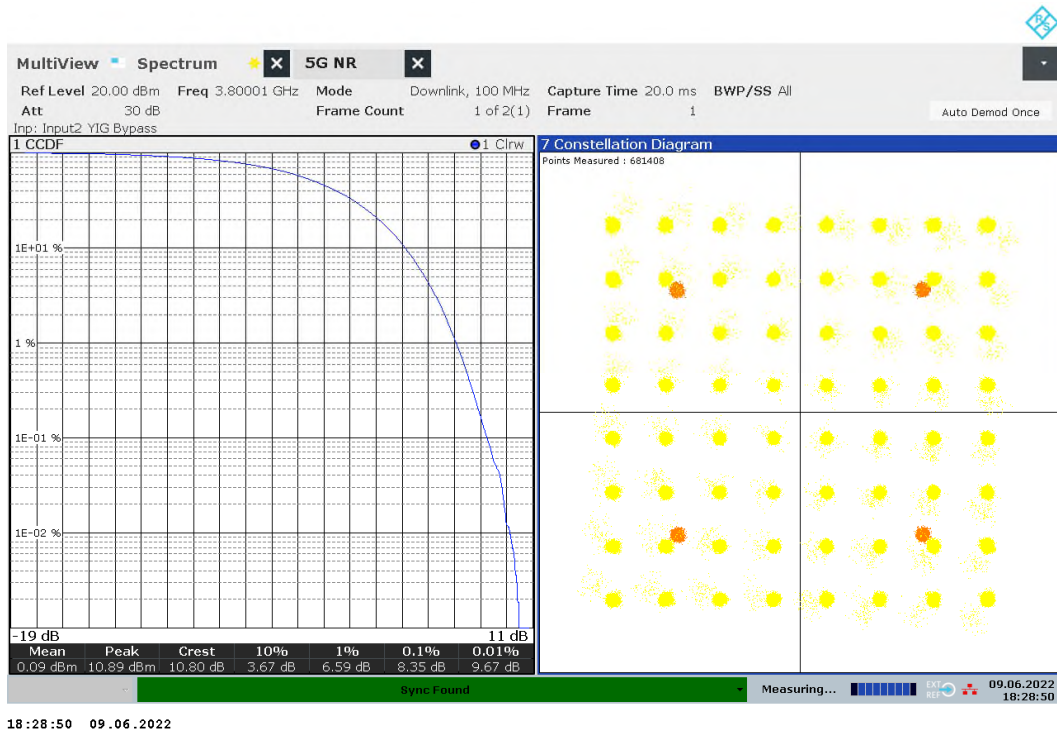
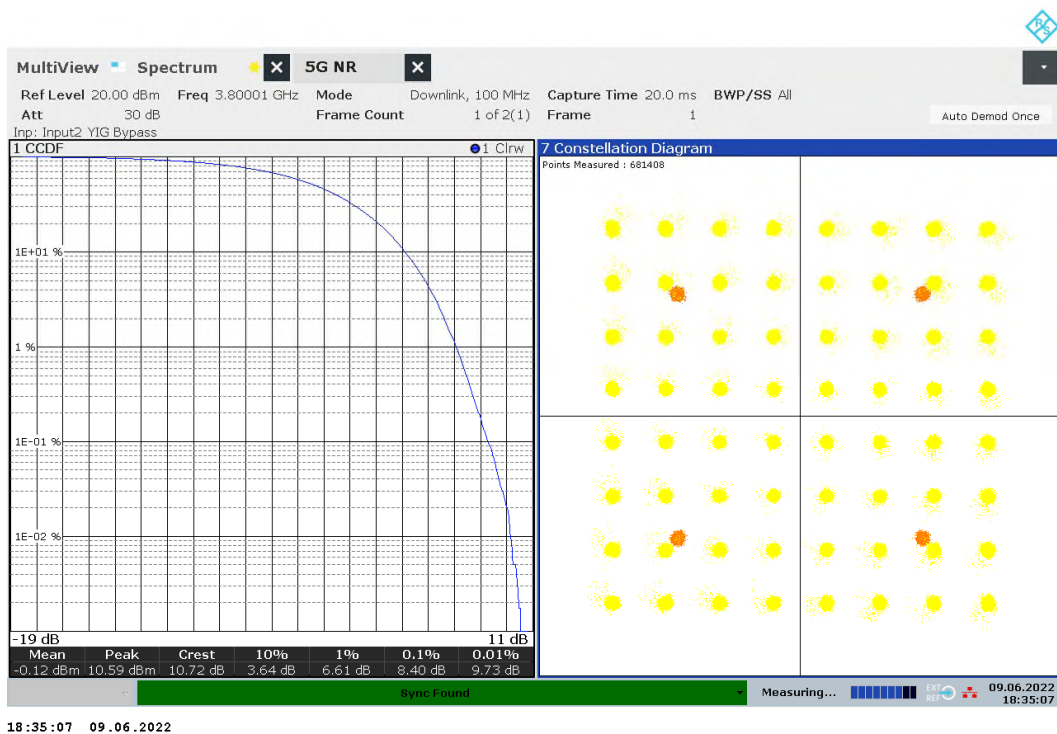


Figure 47: Modulation Characteristics, 1cc-4 (OBW=100MHz), 64QAM_TM3.1, Middle Channel, TX Port 13



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 79 von 274
Page 79 of 274

Figure 48: Modulation Characteristics, 1cc-4 (OBW=100MHz), 256QAM_TM3.1a, Middle Channel, TX Port 23

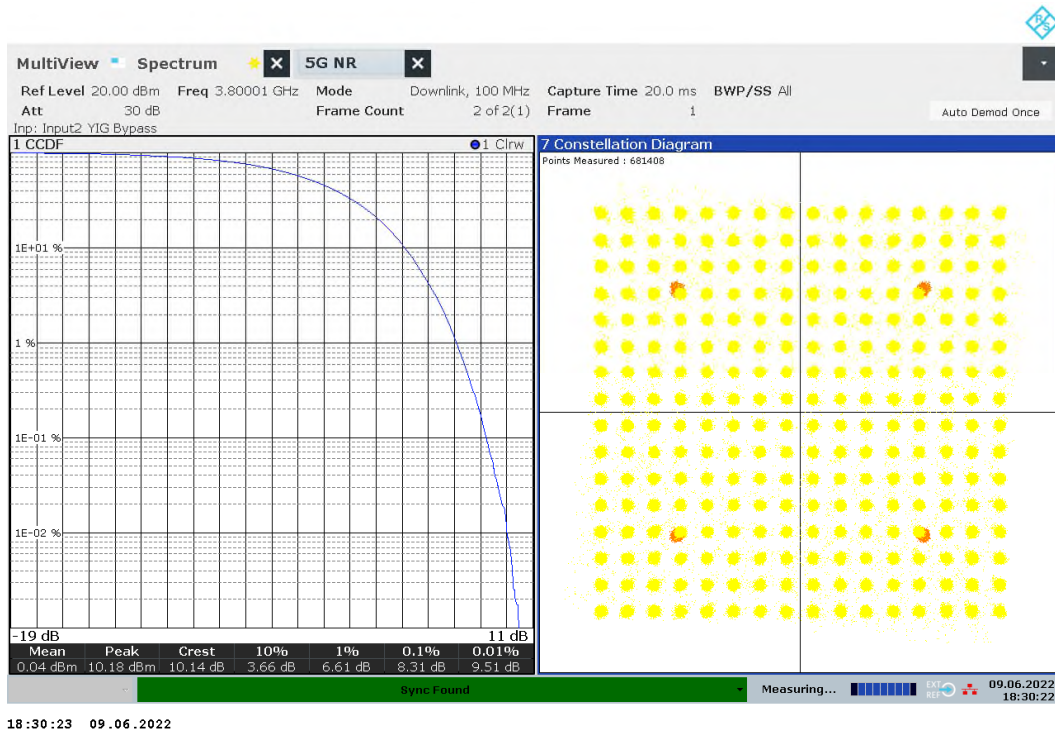
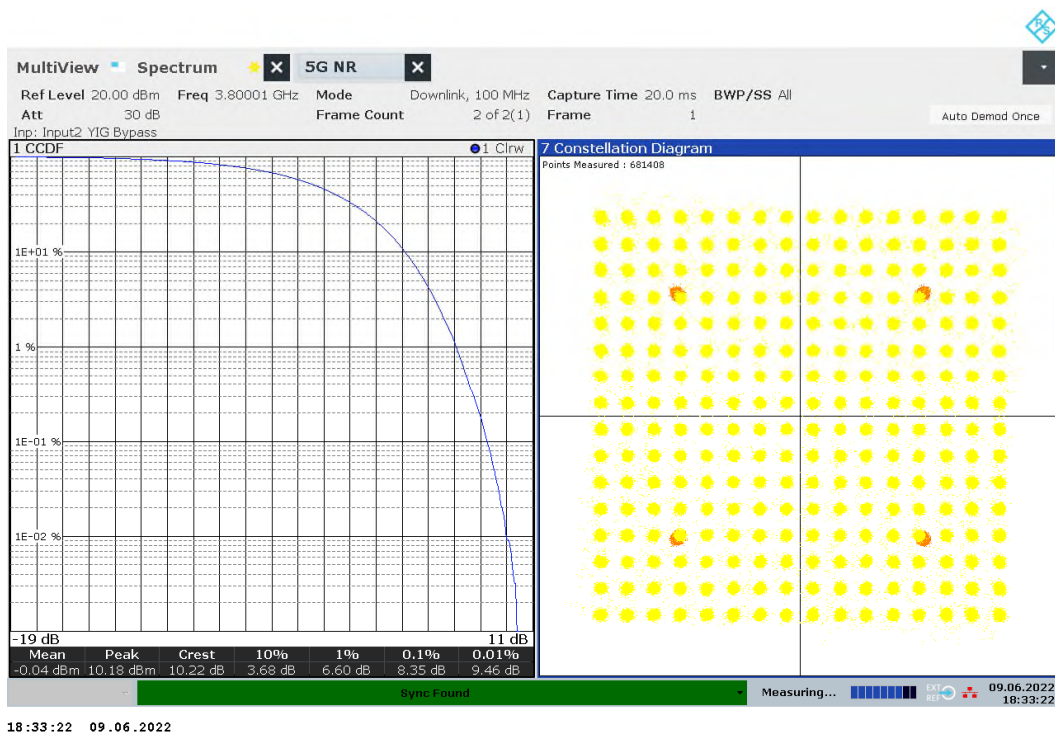


Figure 49: Modulation Characteristics, 1cc-4 (OBW=100MHz), 256QAM_TM3.1a, Middle Channel, TX Port 13



5.1.4 99% Occupied Bandwidth

RESULT:

PASS

Date of testing: 2022-06-15, 2022-06-16, 2022-06-20
2022-06-21, 2022-06-27, 2022-06-28

Ambient temperature: 22, 22, 23, 23, 25, 25°C
Relative humidity: 63, 52, 54, 60, 42, 44%
Atmospheric pressure: 1012, 1005, 1000, 1003, 1013, 1013hPa

Requirements:

FCC 2.1049

The occupied bandwidth, that 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 shall be measured under the following conditions as applicable:

Transmitters employing digital modulation techniques—when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudo-random generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at the discretion of the user.

Test procedure:

ANSI C63.26 §5.4.4

Note:

The test was performed on 2 randomly chosen TX Ports.

Table 76: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), Low Channel

TX Port	99% Occupied Bandwidth [MHz]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
12	37.980	38.207	38.088	38.036
28	37.986	38.231	38.039	38.060

Figure 50: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), QPSK_TM1.1, Low Channel, TX Port 12

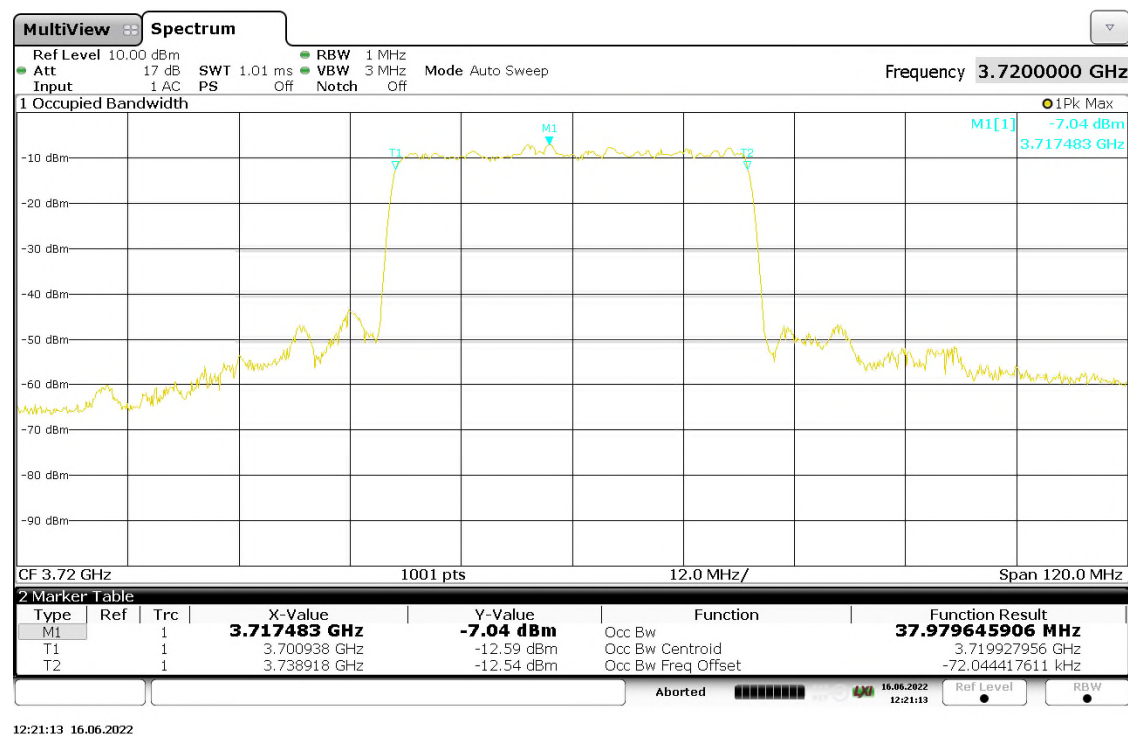


Figure 51: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), QPSK_TM1.1, Low Channel, TX Port 28

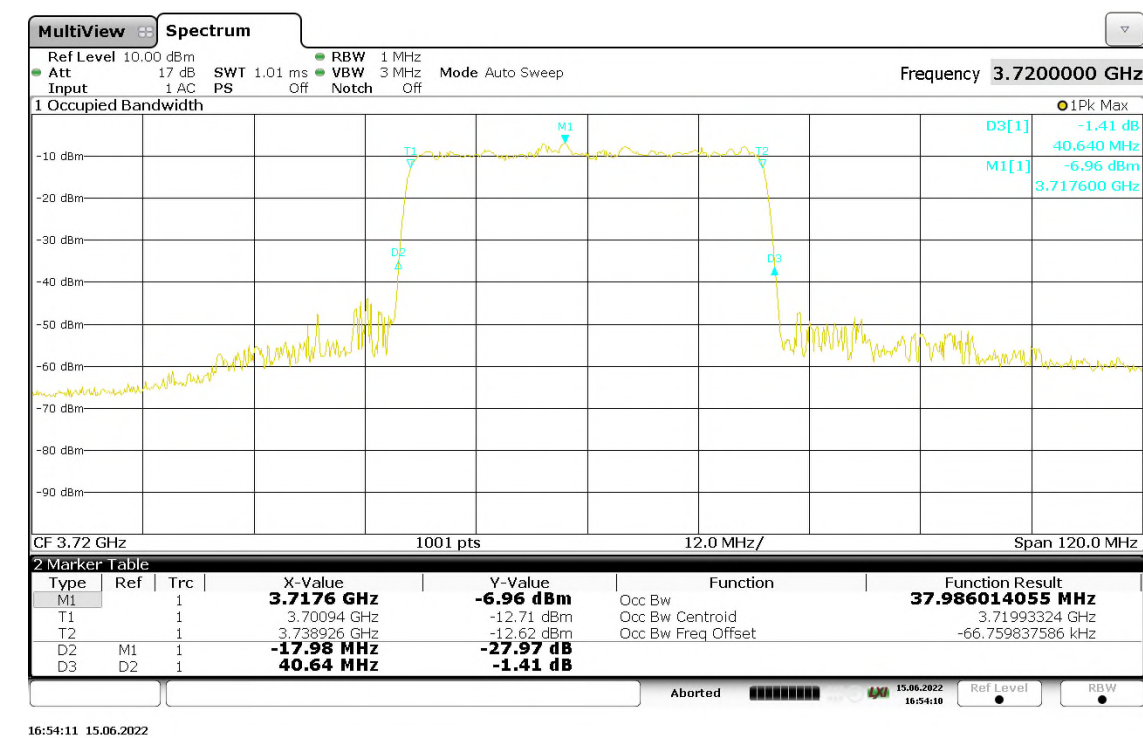


Figure 52: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, Low Channel, TX Port 12

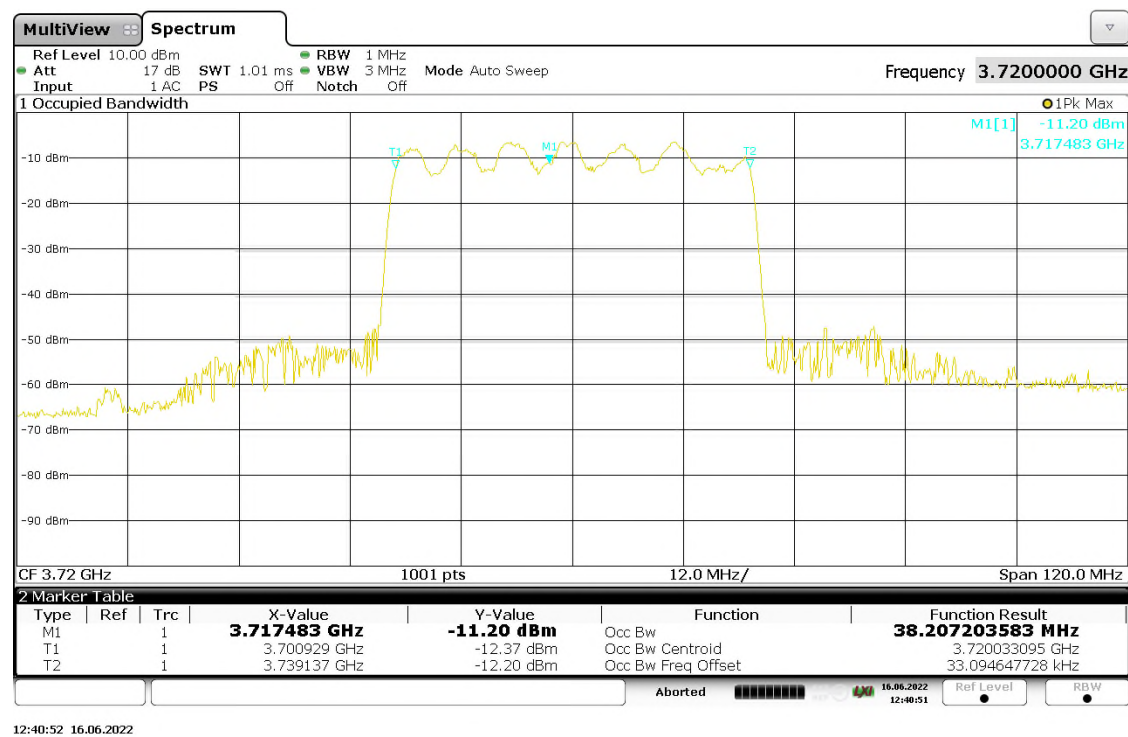
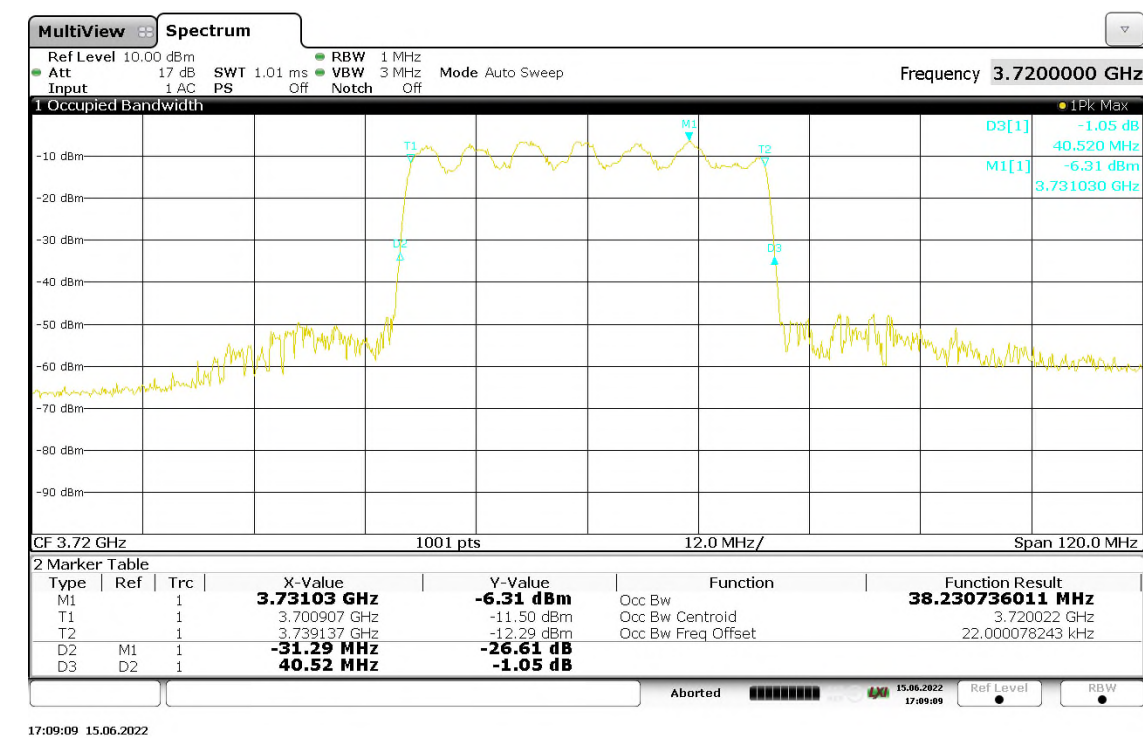


Figure 53: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, Low Channel, TX Port 28



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 83 von 274
Page 83 of 274

Figure 54: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, Low Channel, TX Port 12

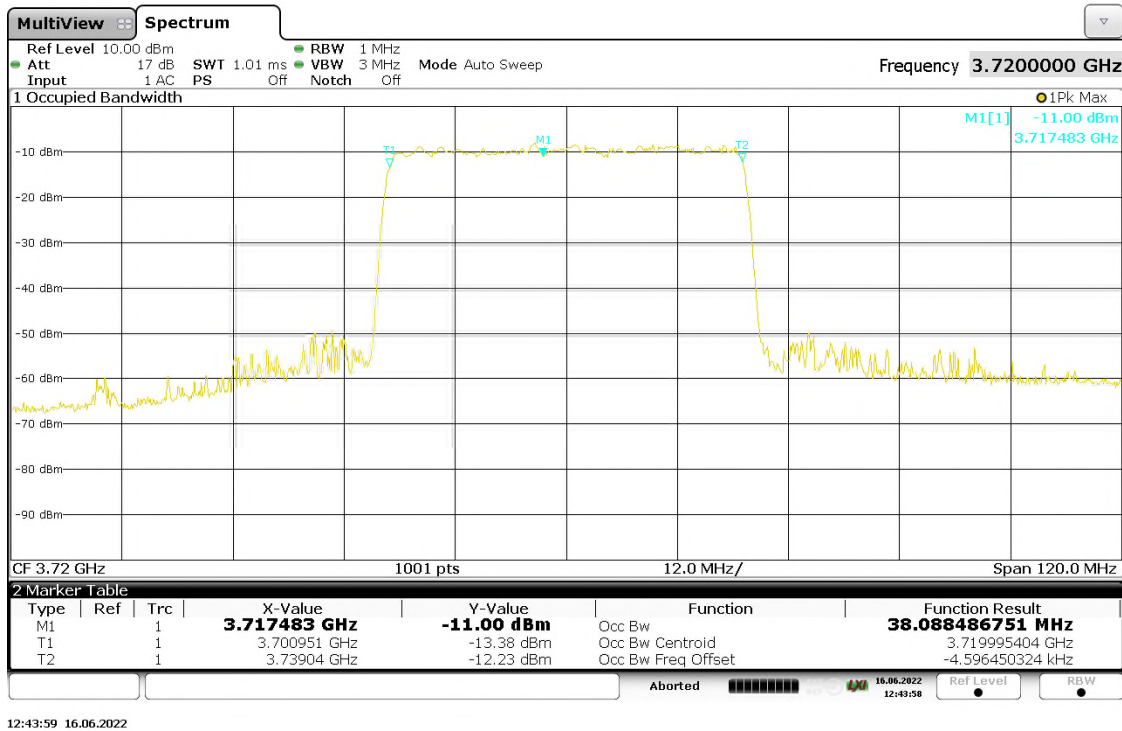
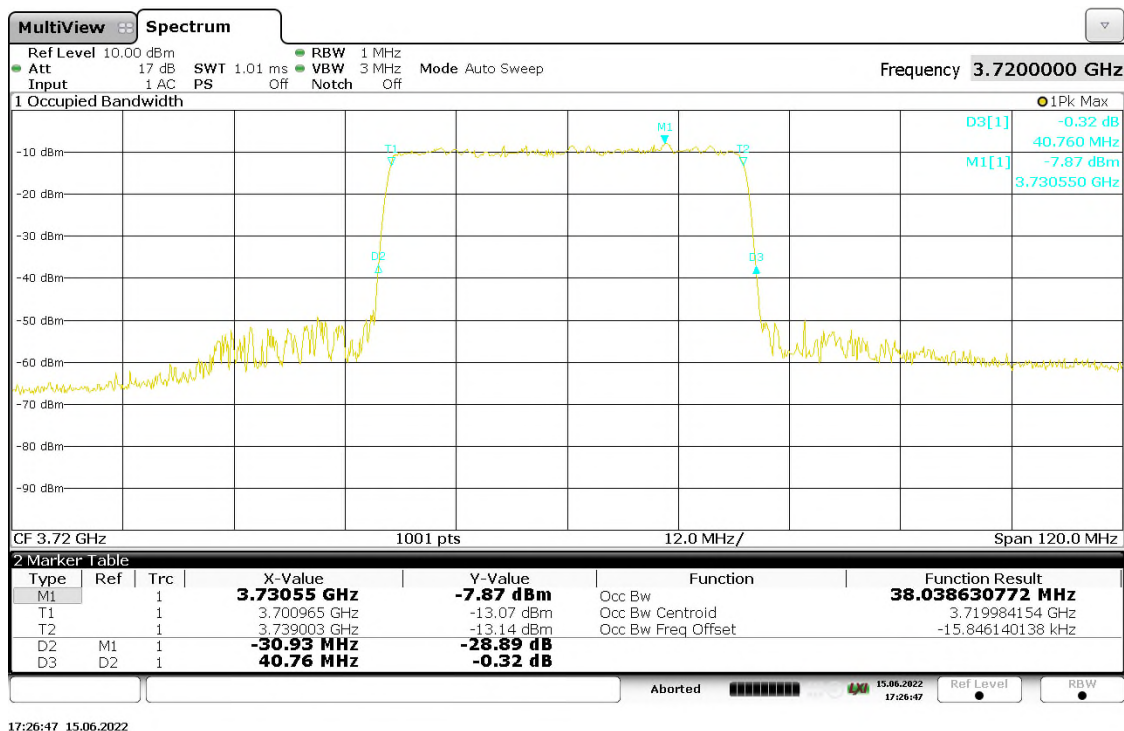


Figure 55: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, Low Channel, TX Port 28



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 84 von 274
Page 84 of 274

Figure 56: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, Low Channel, TX Port 12

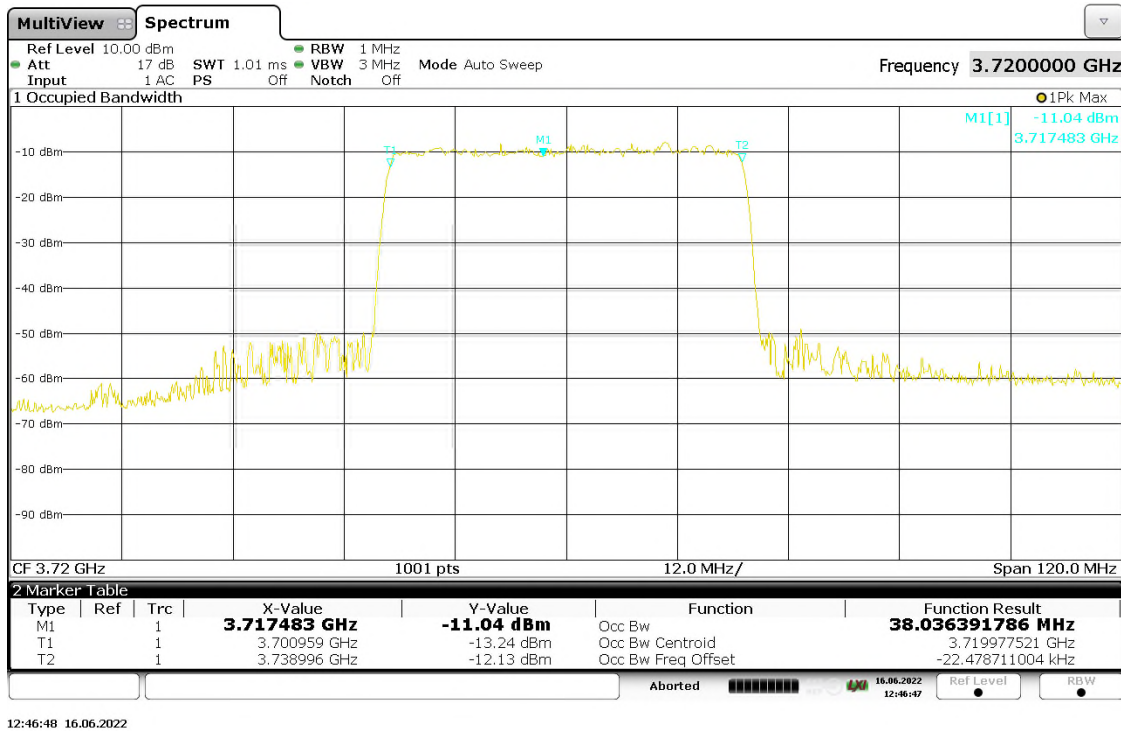
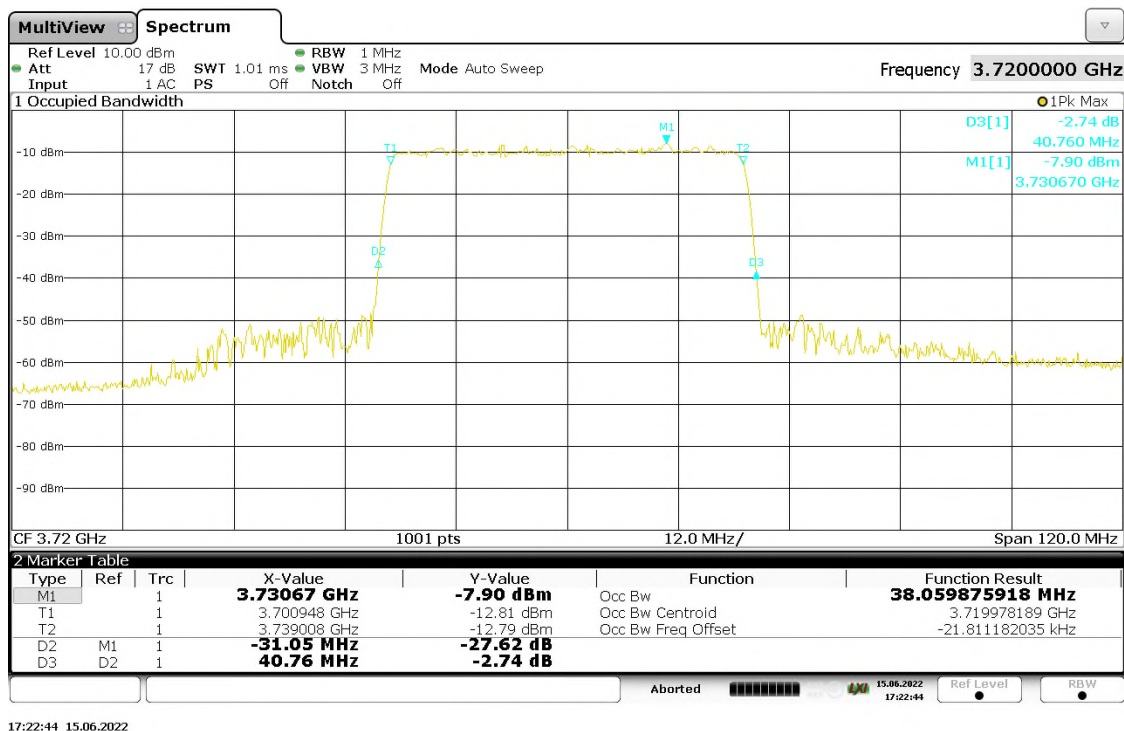


Figure 57: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, Low Channel, TX Port 28



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 85 von 274
Page 85 of 274

Table 77: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), Middle Channel

TX Port	99% Occupied Bandwidth [MHz]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
23	37.905	38.190	37.997	37.976
31	37.936	38.170	37.986	38.005

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 86 von 274
Page 86 of 274

Figure 58: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), QPSK_TM1.1, Middle Channel, TX Port 23

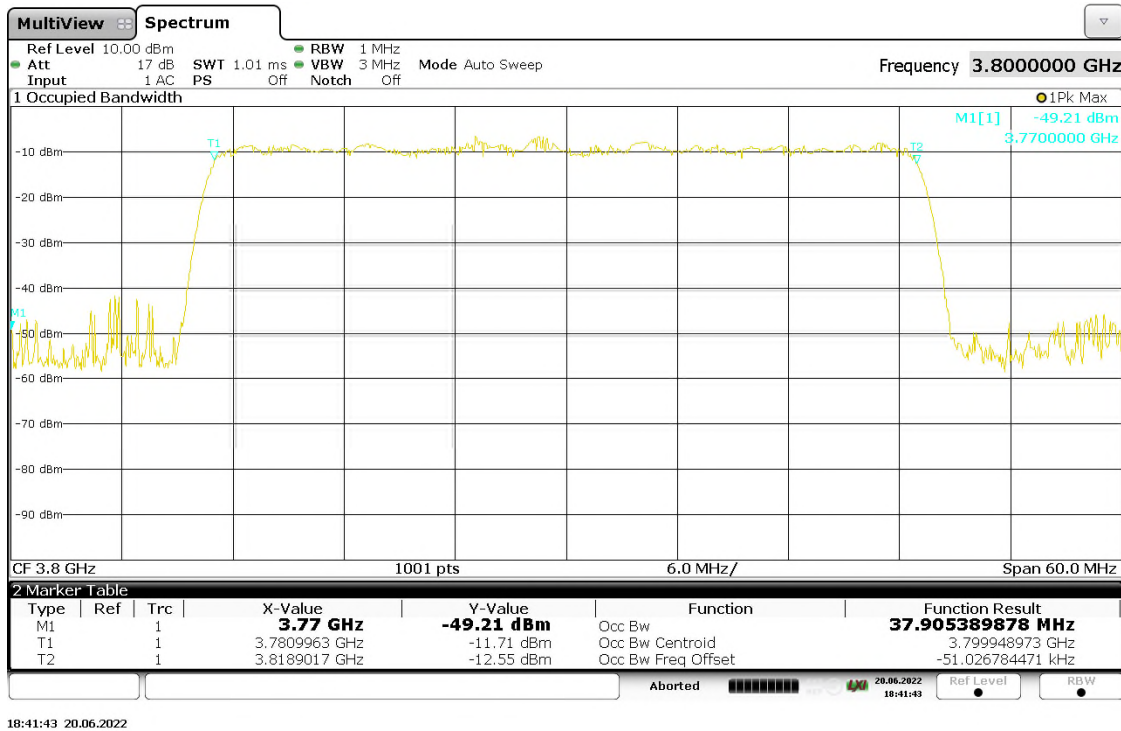
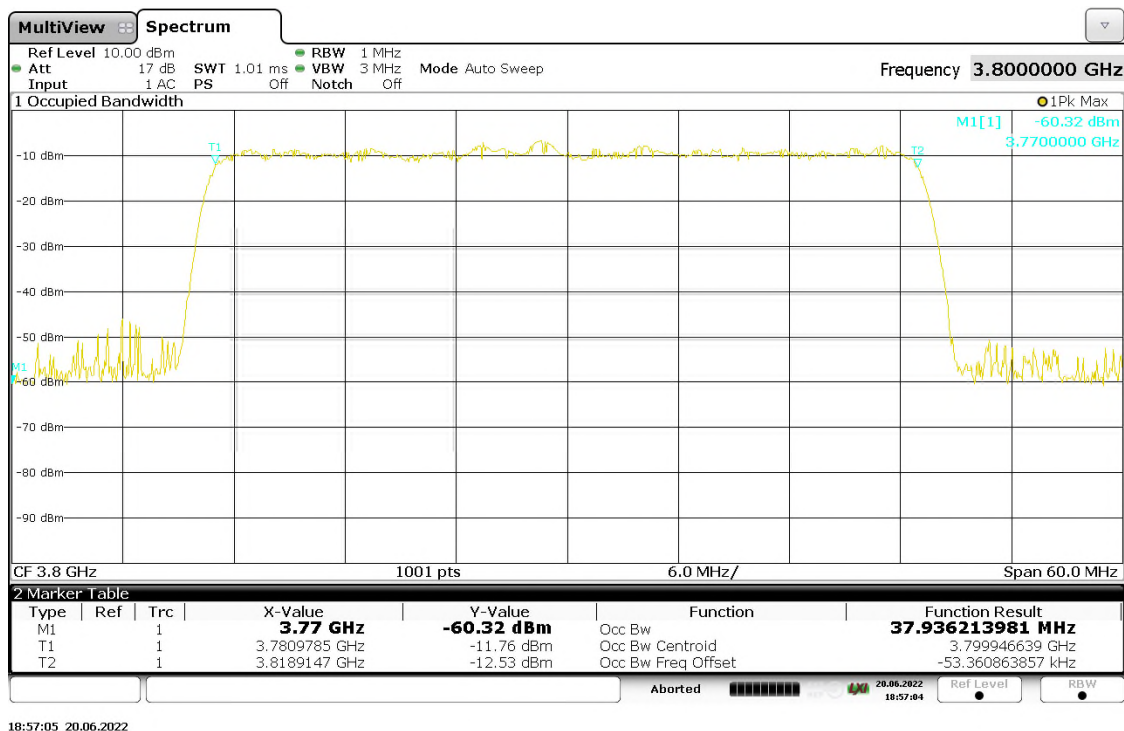


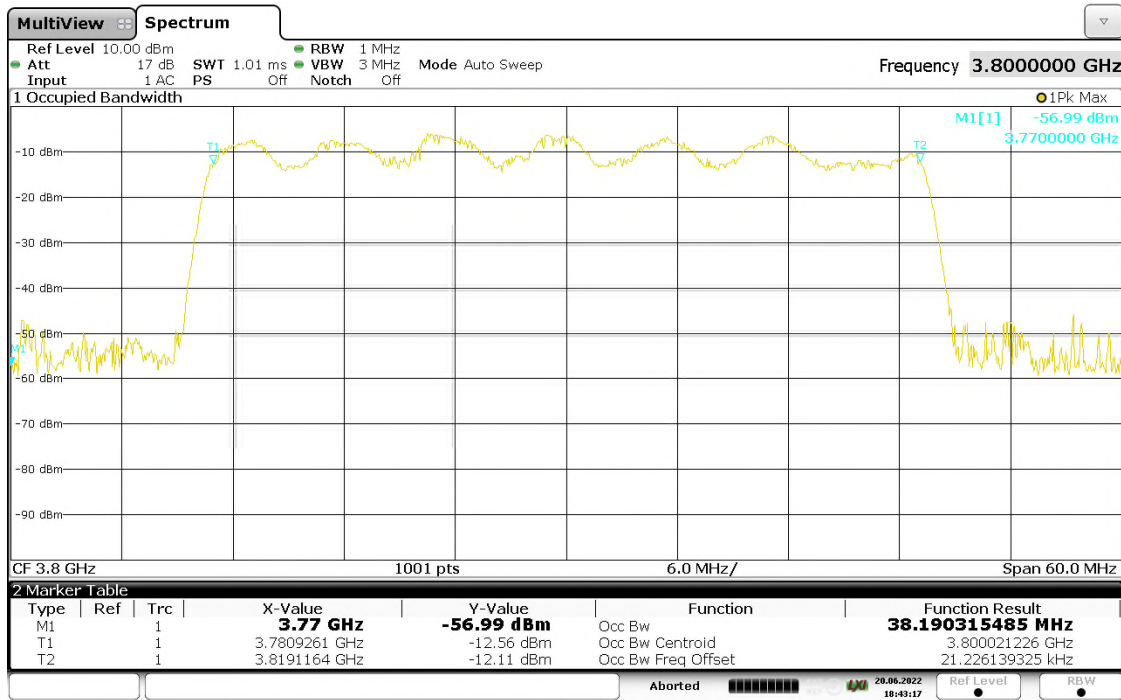
Figure 59: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), QPSK_TM1.1, Middle Channel, TX Port 31



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

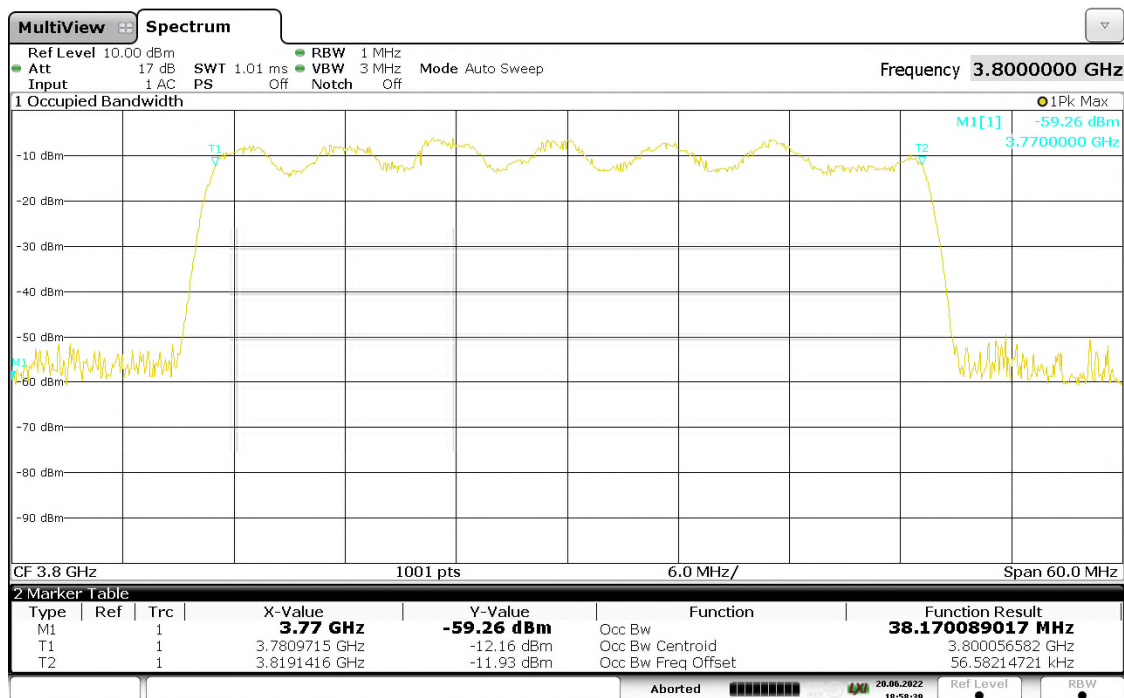
Seite 87 von 274
Page 87 of 274

Figure 60: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, Middle Channel, TX Port 23



18:43:18 20.06.2022

Figure 61: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, Middle Channel, TX Port 31

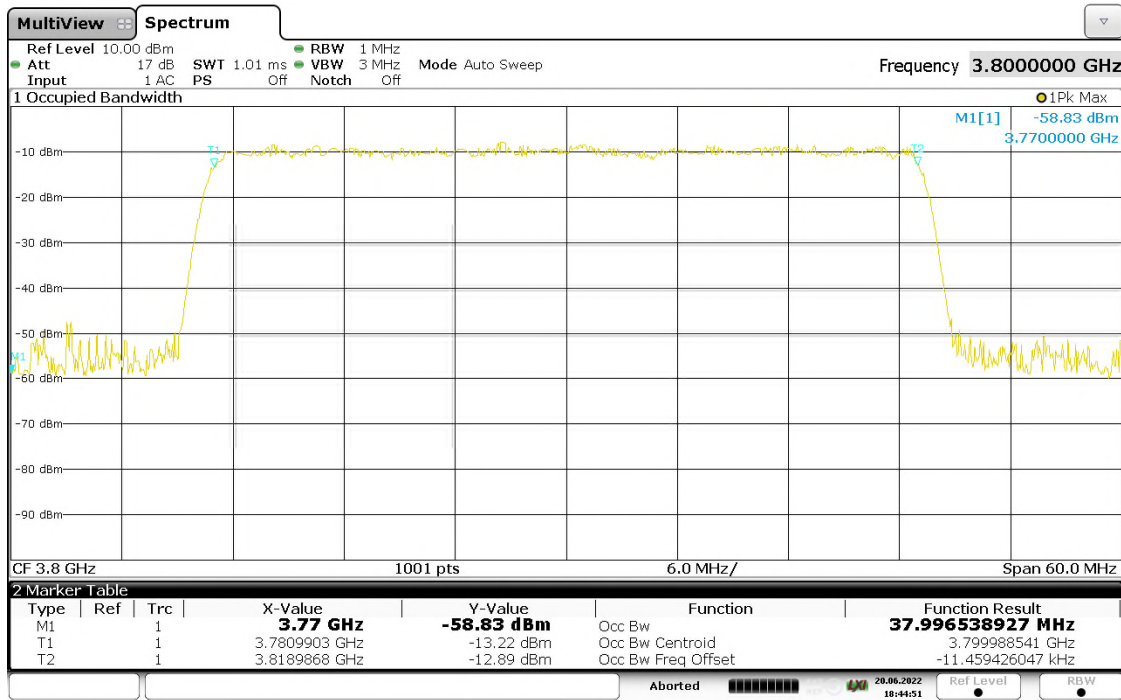


18:58:39 20.06.2022

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

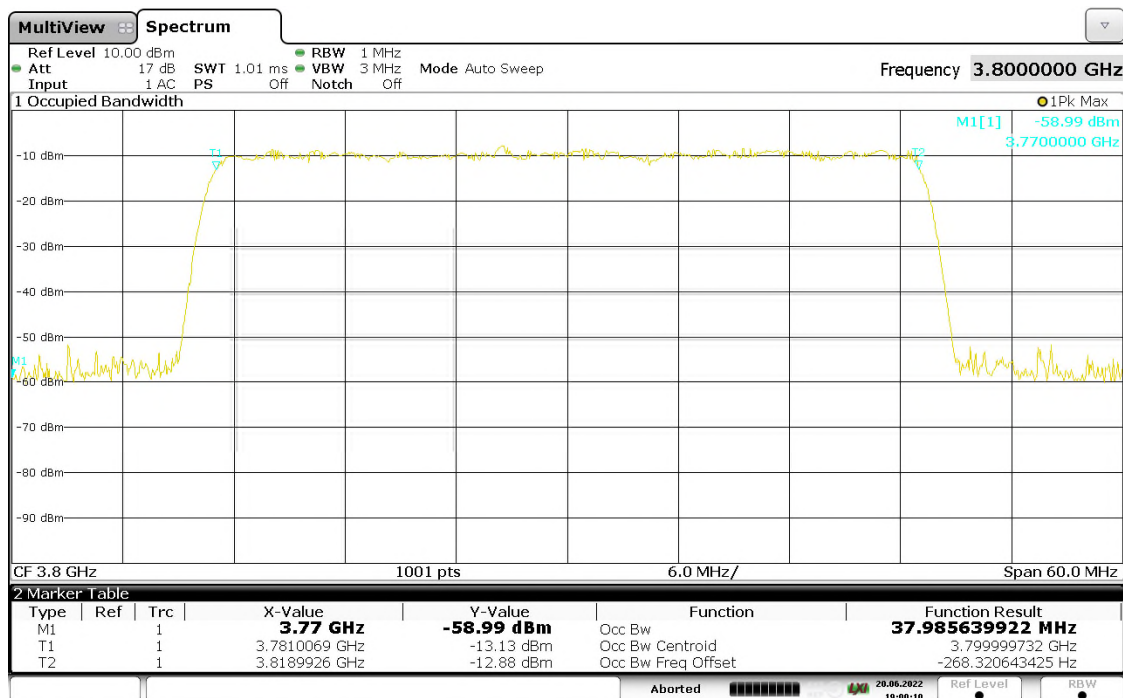
Seite 88 von 274
Page 88 of 274

Figure 62: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, Middle Channel, TX Port 23



18:44:52 20.06.2022

Figure 63: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, Middle Channel, TX Port 31



19:00:10 20.06.2022

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 89 von 274
Page 89 of 274

Figure 64: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, Middle Channel, TX Port 23

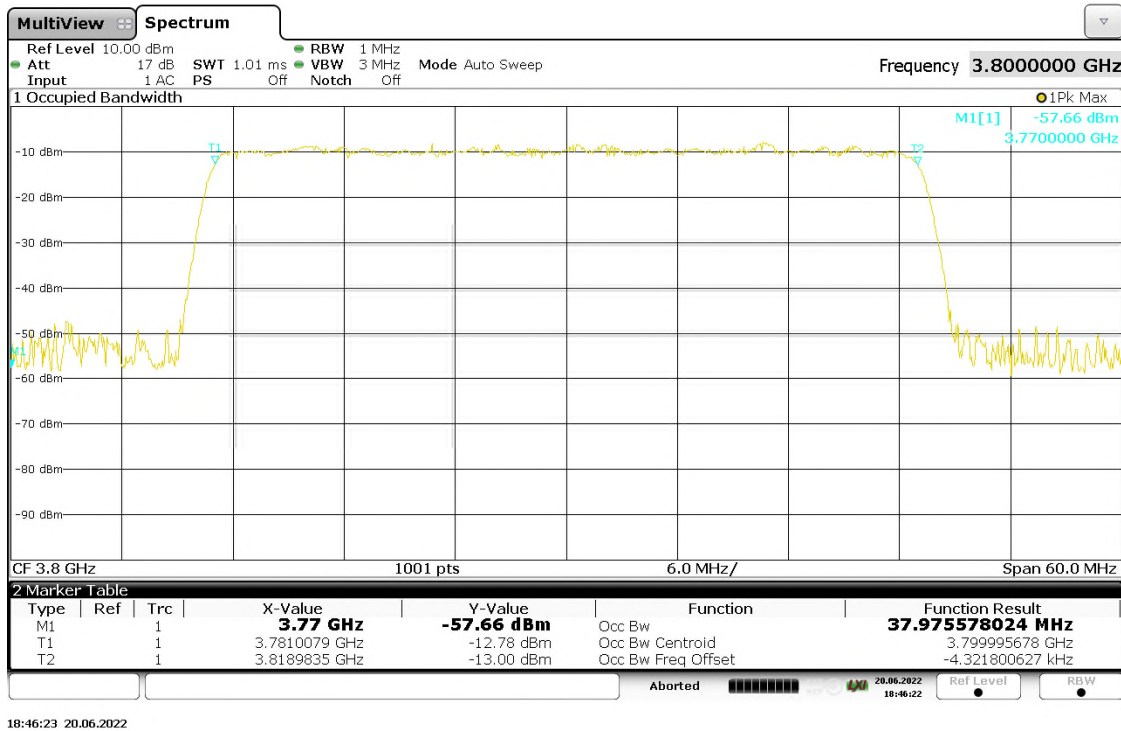
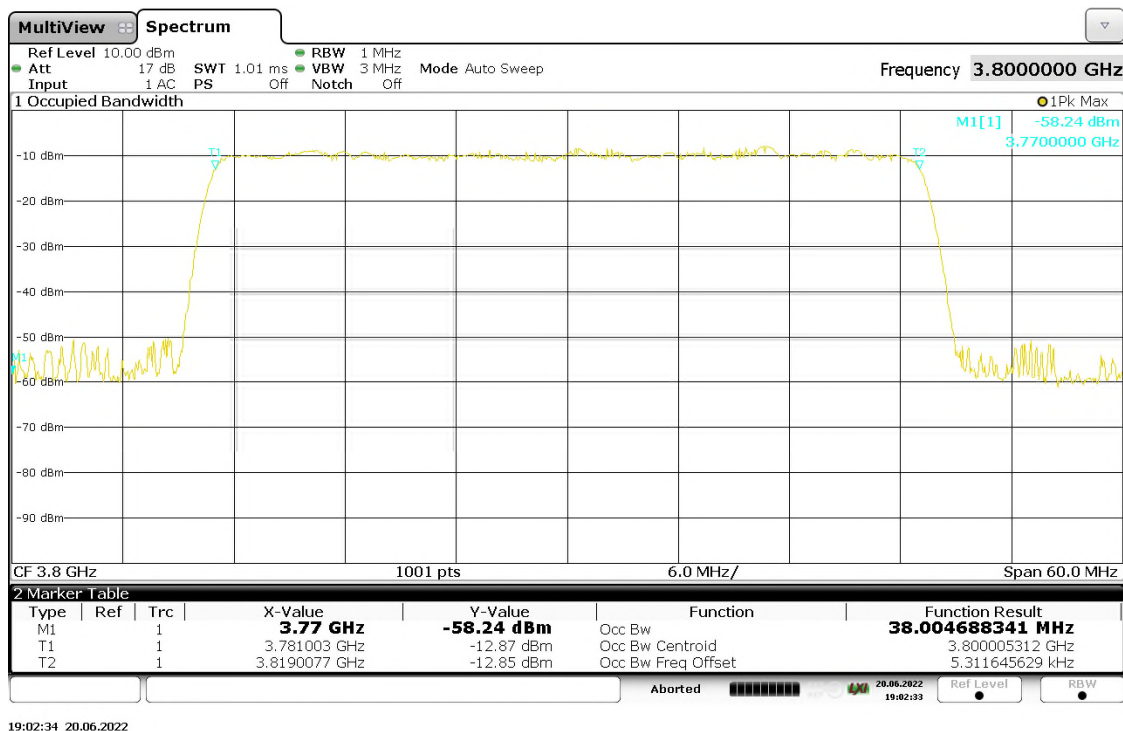


Figure 65: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, Middle Channel, TX Port 31



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 90 von 274
Page 90 of 274

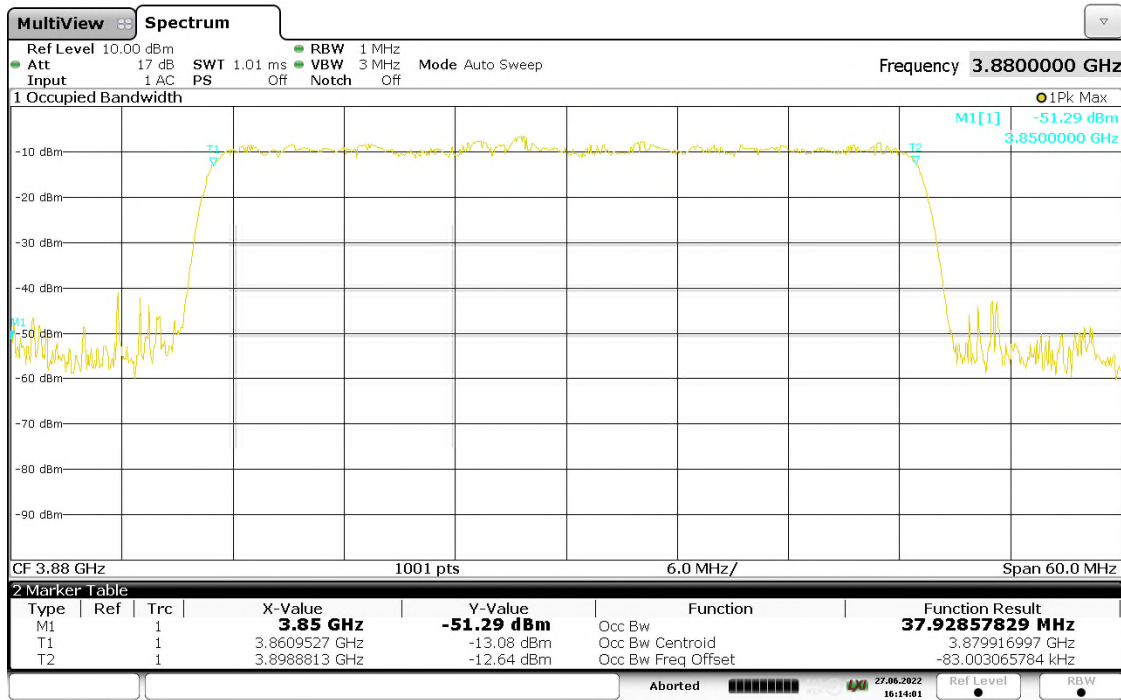
Table 78: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), High Channel

TX Port	99% Occupied Bandwidth [MHz]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
17	37.929	38.168	37.986	37.983
25	38.129	38.177	37.999	38.015

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

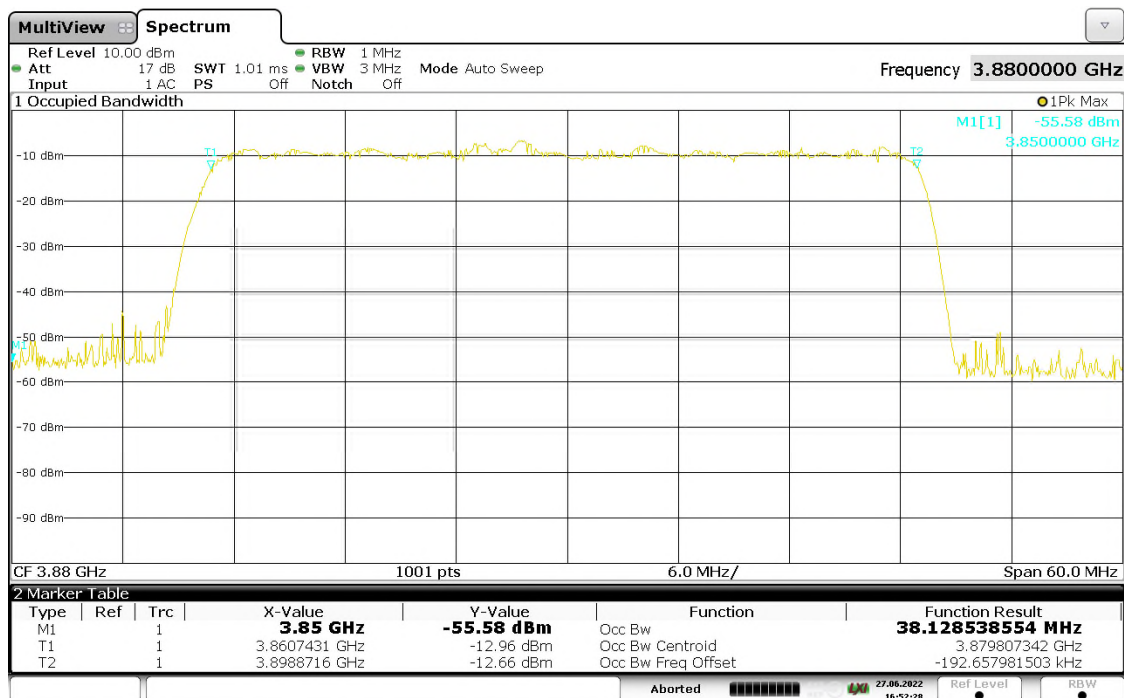
Seite 91 von 274
Page 91 of 274

Figure 66: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), QPSK_TM1.1, High Channel, TX Port 17



16:14:01 27.06.2022

Figure 67: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), QPSK_TM1.1, High Channel, TX Port 25



16:52:28 27.06.2022

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 92 von 274
Page 92 of 274

Figure 68: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, High Channel, TX Port 17

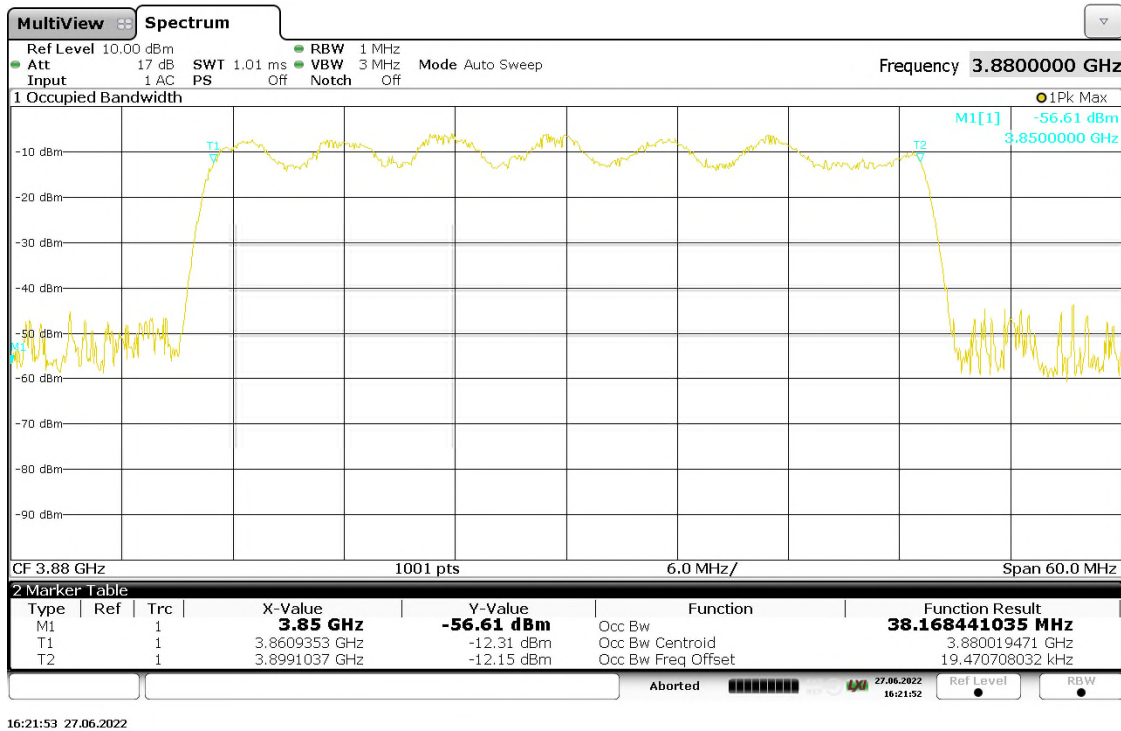
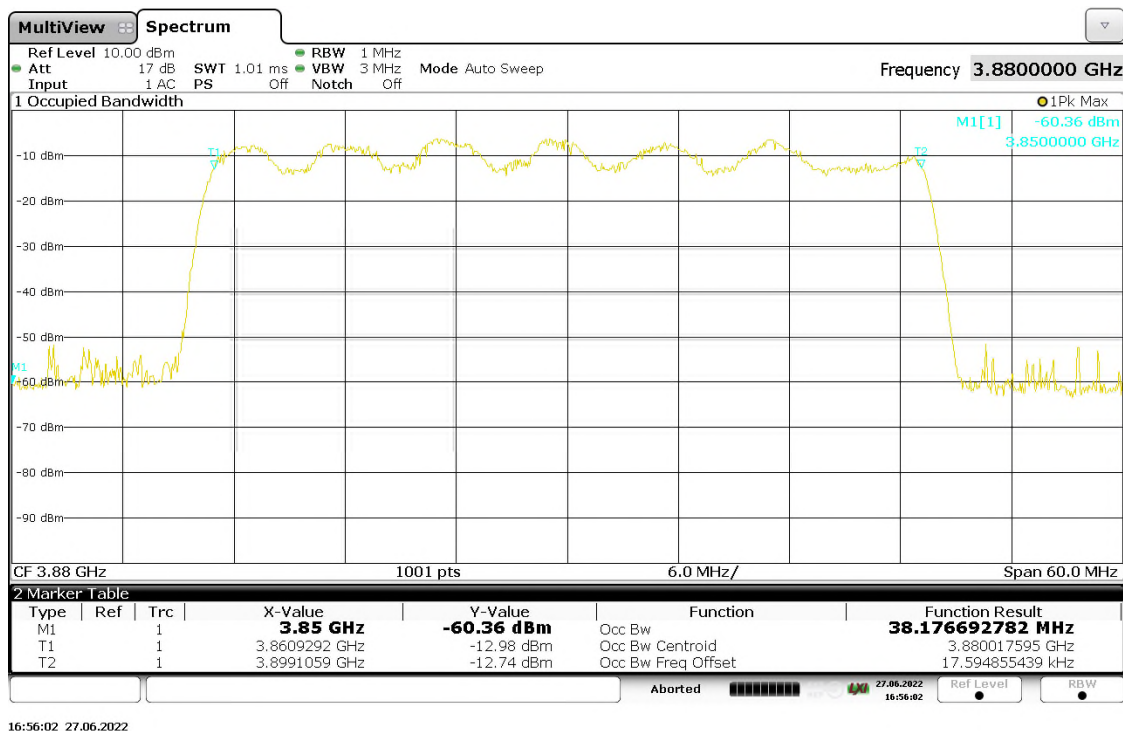


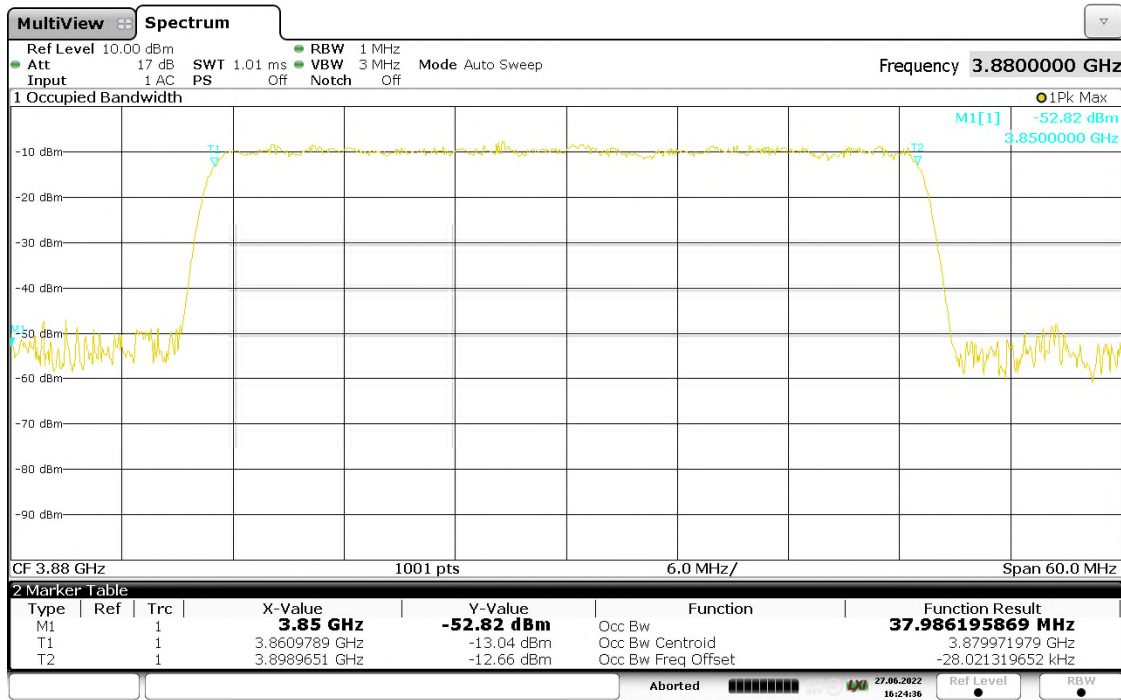
Figure 69: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 16QAM_TM3.2, High Channel, TX Port 25



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

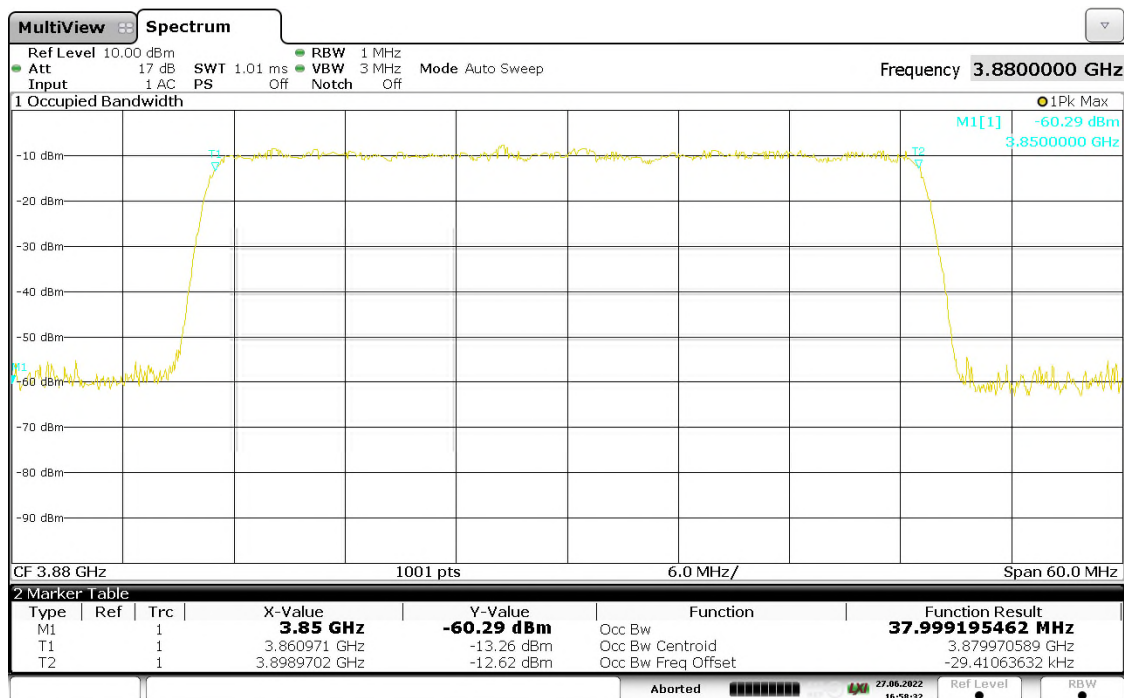
Seite 93 von 274
Page 93 of 274

Figure 70: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, High Channel, TX Port 17



16:24:37 27.06.2022

Figure 71: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 64QAM_TM3.1, High Channel, TX Port 25



16:58:32 27.06.2022

Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 94 von 274
Page 94 of 274

Figure 72: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, High Channel, TX Port 17

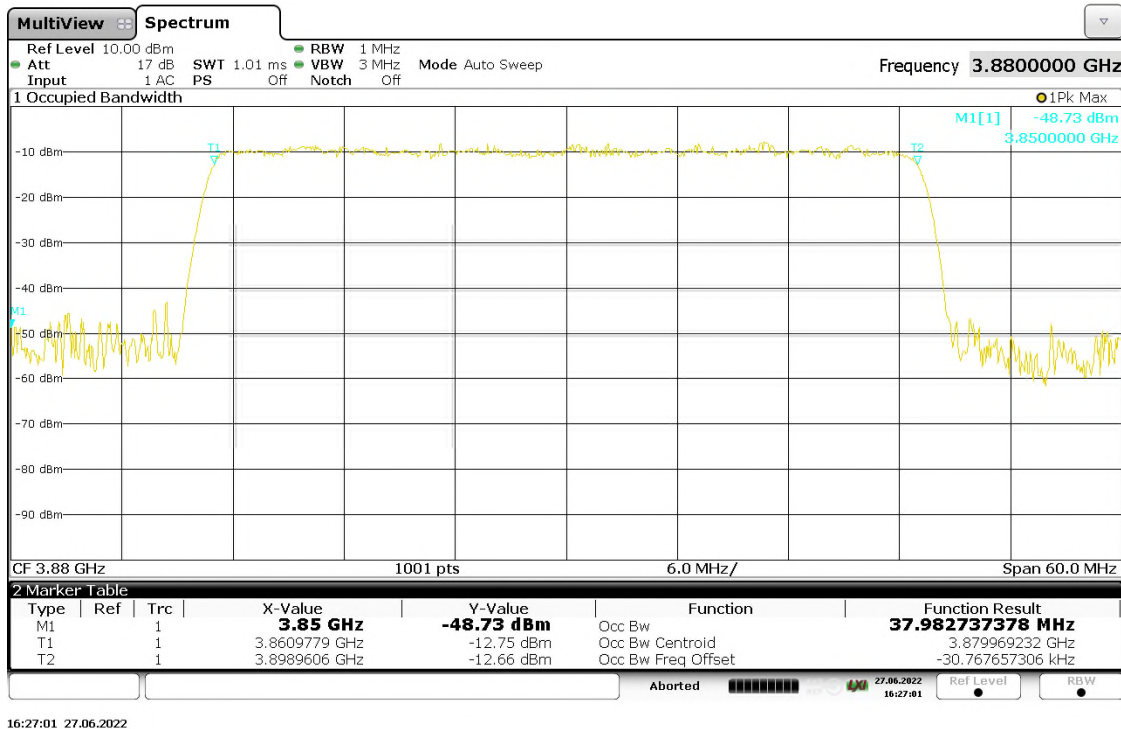
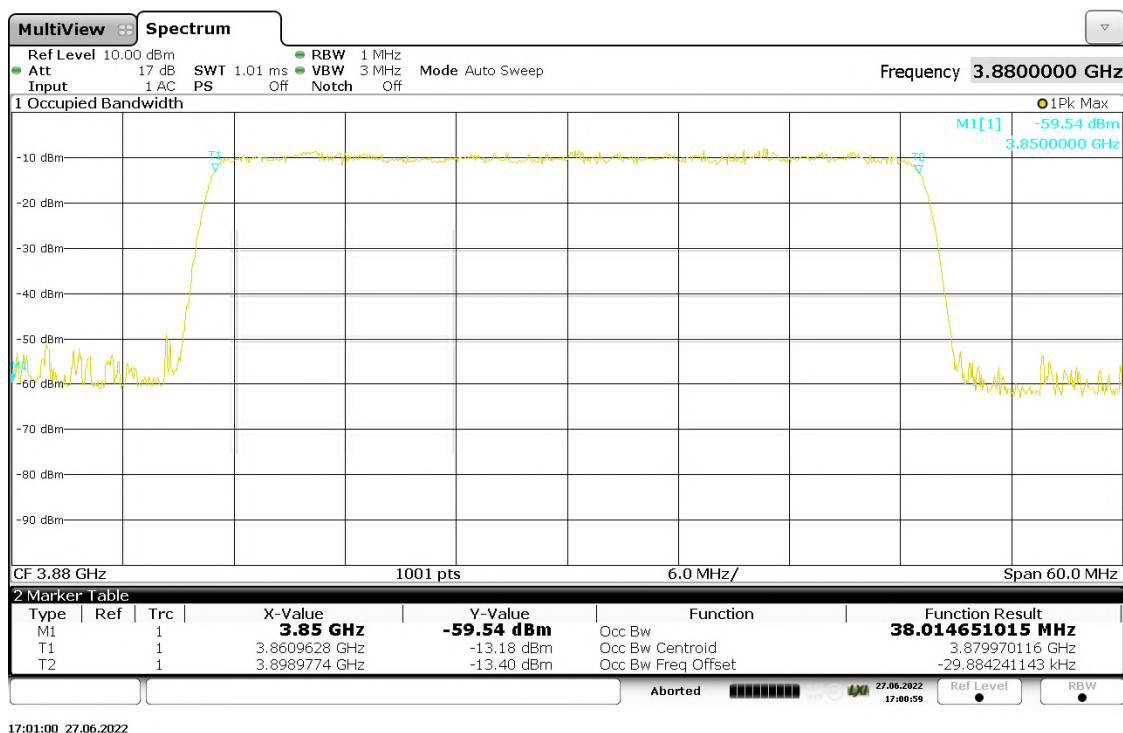


Figure 73: 99% Occupied Bandwidth, 1cc-1 (OBW=40MHz), 256QAM_TM3.1a, High Channel, TX Port 25



Prüfbericht-Nr.: **JP223Y4L 001**
Test Report No.:

Seite 95 von 274
Page 95 of 274

Table 79: 99% Occupied Bandwidth, 1cc-2 (OBW=60MHz), Low Channel

TX Port	99% Occupied Bandwidth [MHz]			
	QPSK_TM1.1	16QAM_TM3.2	64QAM_TM3.1	256QAM_TM3.1a
12	57.843	58.103	57.837	57.849
28	57.834	58.089	57.842	57.837

Figure 74: 99% Occupied Bandwidth, 1cc-2 (OBW=60MHz), QPSK_TM1.1, Low Channel, TX Port 12

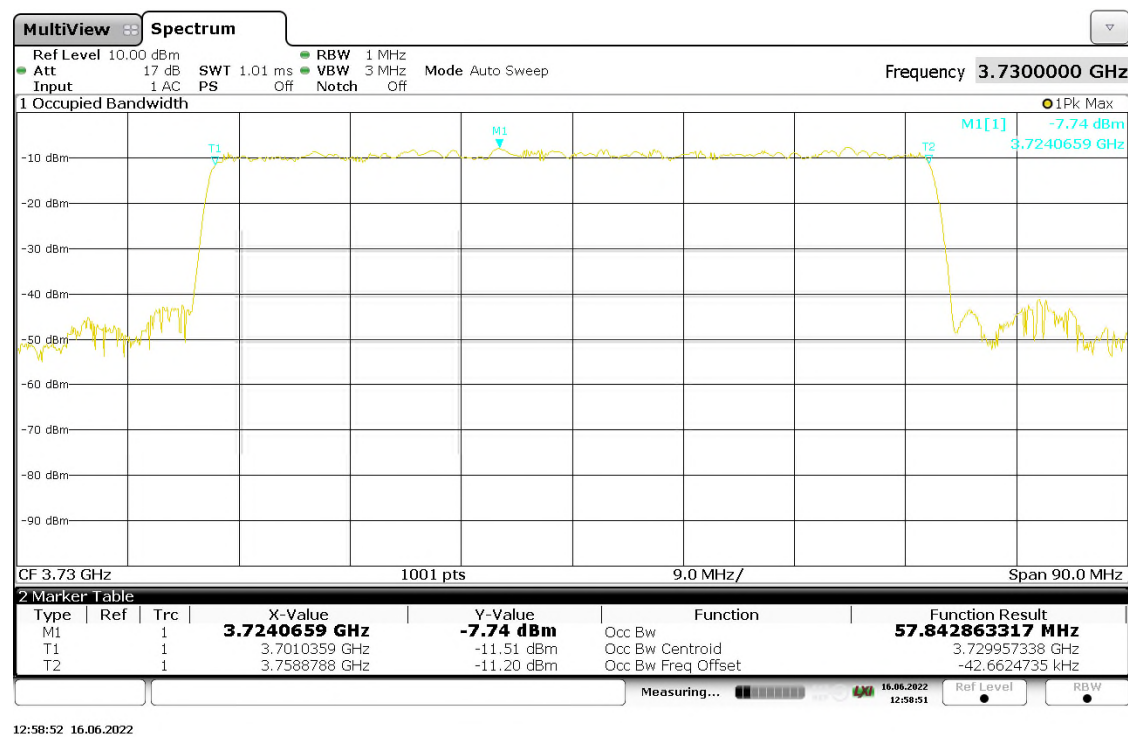


Figure 75: 99% Occupied Bandwidth, 1cc-2 (OBW=60MHz), QPSK_TM1.1, Low Channel, TX Port 28

