FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2075-3
FCC ID	:	IHDT56ZC3
STANDARD	:	47 CFR Part 2, 27(M)
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)

The product was received on May 11, 2020 and completely tested on May 30, 2020. We, Sporton International (Kunshan) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

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

Jason Jia

Reviewed by: Jason Jia / Supervisor

James Huang

Approved by: James Huang / Manager

ACCREDITED Cert #5145.02

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG051103D	Rev. 01	Initial issue of report	Jun. 11, 2020

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (5G NR n41)	EIRP < 2Watt		
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§27.53(m)(4)	Conducted Band Edge Measurement (5G NR n41)	§27.53(m)(4)	PASS	-
3.8	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (5G NR n41)	< $55+10\log_{10}$(P[Watts])	PASS	-
3.9	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (5G NR n41)	< $55+10\log_{10}$(P[Watts])	PASS	Under limit 19.77 dB at 7650.000 MHz

1 General Description

1.1 Applicant

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W, Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2075-3
FCC ID	IHDT56ZC3
EUT supports Radios application	CDMA/GSM/WCDMA/LTE/5G NR/NFC WLAN 2.4GHz 802.11b/g/n HT20 WLAN 5GHz 802.11a/n HT20/HT40 WLAN 5GHz 802.11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE GNSS/FM Receiver
IMEI Code	Conducted : 353617110019738/353617110019746 Radiation : 353617110020058/353617110020066
HW Version	DVT2
SW Version	QPN30.33-9
EUT Stage	Identical Prototype

Remark:

1. Only 5G NR bands are tested in this report, all the other RF bands are tested in the other reports separately.

2. For modulation of CP-OFDM and DFT-s-OFDM output power measurement, according to the maximum power of CP-OFDM is lower than DFT-s-OFDM modulation, therefore, CP-OFDM measurement is unnecessary. We always chose higher power (DFT-s-OFDM modulation) to perform all tests.

3. 5G NR supports SA mode.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n41: 2506 MHz ~ 2680 MHz
Rx Frequency	5G NR n41: 2506 MHz ~ 2680 MHz
Bandwidth	n41 : 20MHz / 40MHz / 50MHz / 60MHz / 80MHz / 90MHz / 100MHz
SCS	30kHz
Maximum Output Power to Antenna	5G NR n41 : 22.87 dBm
Antenna Gain	5G NR n41 : -3.00 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

1.5 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	**Brand Name**	Motorola (Chenyang)	**Model Name**	MC-201
AC Adapter 1(EU)	**Brand Name**	Motorola (Chenyang)	**Model Name**	MC-202
AC Adapter 1(UK)	**Brand Name**	Motorola (Chenyang)	**Model Name**	MC-203
AC Adapter 1(AU)	**Brand Name**	Motorola (Chenyang)	**Model Name**	MC-205
AC Adapter 2(US)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-201
AC Adapter 2(EU)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-202
AC Adapter 2(UK)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-203
AC Adapter 2(AU)	**Brand Name**	Motorola (Acbel)	**Model Name**	MC-205
Battery	**Brand Name**	Motorola(Amperex)	**Model Name**	LZ50
Earphone	**Brand Name**	Motorola(Lyand)	**Model Name**	MH191(SH38C81577)
USB Cable 1	**Brand Name**	Motorola (Luxshare)	**Model Name**	SC18C24368
USB Cable 2	**Brand Name**	Motorola (Saibao)	**Model Name**	SC18C24367

1.6 Modification of EUT

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

1.7 Maximum EIRP Power, Frequency Tolerance, and Emission Designator

5G NR n41		PI/2 BPSK		QPSK	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
20	2506.02 ~ 2679.99	18M7F9W	0.0923	18M5G7D	0.0971
40	2516.01 ~ 2670.00	36M3F9W	0.0967	36M8G7D	0.0947
50	2521.02 ~ 2664.99	46M5F9W	0.0919	46M6G7D	0.0902
60	2526.00 ~ 2659.98	60M1F9W	0.0896	58M1G7D	0.0919
80	2536.02 ~ 2649.99	77M2F9W	0.0919	77M7G7D	0.0884
90	2541.00 ~ 2644.98	87M9F9W	0.0904	87M8G7D	0.0896
100	2546.01 ~ 2640.00	98M5F9W	0.0880	98M3G7D	0.0871
5G NR n41		16QAM		64QAM	
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
20	2506.02 ~ 2679.99	18M7W7D	0.0580	18M7W7D	0.0750
40	2516.01 ~ 2670.00	36M2W7D	0.0551	36M8W7D	0.0694
50	2521.02 ~ 2664.99	46M3W7D	0.0904	46M2W7D	0.0747
60	2526.00 ~ 2659.98	59M8W7D	0.0873	59M9W7D	0.0598
80	2536.02 ~ 2649.99	77M8W7D	0.0896	76M7W7D	0.0342
90	2541.00 ~ 2644.98	87M8W7D	0.0858	87M2W7D	0.0629
100	2546.01 ~ 2640.00	98M3W7D	0.0863	98M1W7D	0.0666
5G NR n41		256QAM			
BW (MHz)	Frequency Range (MHz)	Emission Designator (99%OBW)		Maximum EIRP(W)	
20	2506.02 ~ 2679.99	18M5W7D		0.0452	
40	2516.01 ~ 2670.00	36M2W7D		0.0449	
50	2521.02 ~ 2664.99	46M5W7D		0.0401	
60	2526.00 ~ 2659.98	58M9W7D		0.0420	
80	2536.02 ~ 2649.99	77M4W7D		0.0395	
90	2541.00 ~ 2644.98	87M6W7D		0.0410	
100	2546.01 ~ 2640.00	98M3W7D		0.0580	
Frequency Tolerance (ppm)		0.0019			

1.8 Testing Location

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

Test Firm	Sporton International (Kunshan) Inc.		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-KS TH01-KS	CN1257	314309

1.9 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24a

1.10 Applicable Standards

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

- 47 CFR Part 2, 27(M)
- ANSI C63.26-2015
- FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

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

2 Test Configuration of Equipment Under Test

2.1 Test Mode

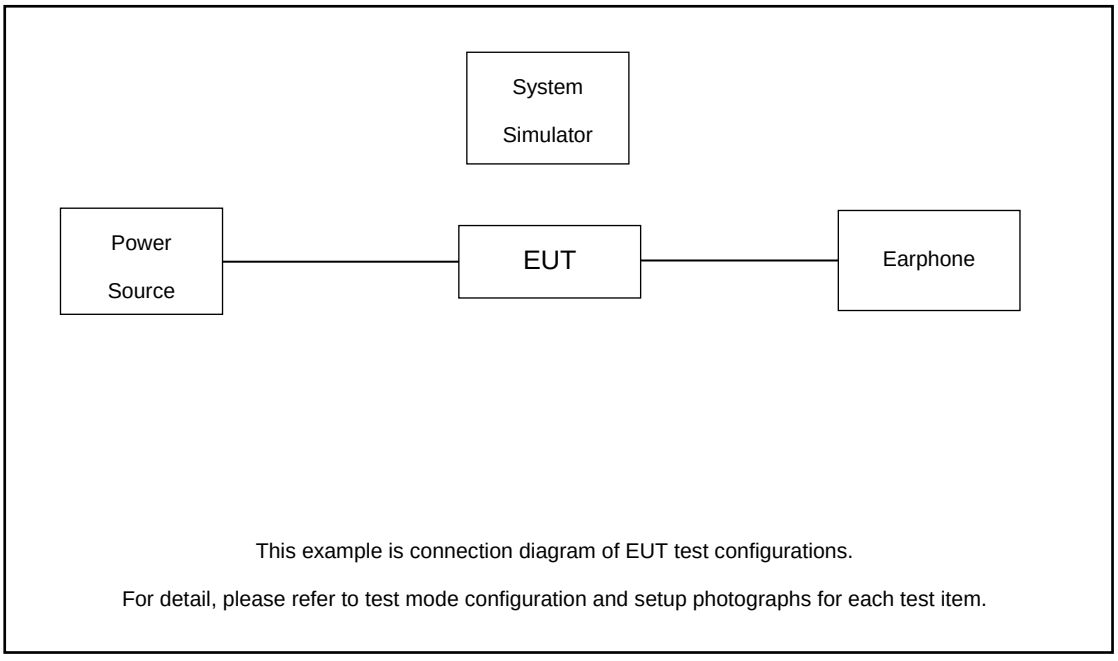
Antenna port conducted and radiated test items are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.

	X Plane	Y Plane	Z Plane
Orthogonal Planes of EUT			

2.2 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

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

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m

2.4 Measurement Results Explanation Example

For all conducted test items:

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

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 5.5dB.

Example :

Offset(dB) = RF cable loss(dB).

= 5.5 (dB)

2.5 Frequency List of Low/Middle/High Channels

5G NR n41 Channel and Frequency List		
NR Bandwidth (MHz)	**Channel**	**NR Frequncy (MHz)**
100	Low	2546.01
	Mid.	2592.99
	High	2640
90	Low	2541
	Mid.	2592.99
	High	2644.98
80	Low	2536.02
	Mid.	2592.99
	High	2649.99
60	Low	2526
	Mid.	2592.99
	High	2659.98
50	Low	2521.02
	Mid.	2592.99
	High	2664.99
40	Low	2516.01
	Mid.	2592.99
	High	2670
20	Low	2506.02
	Mid.	2592.99
	High	2679.99

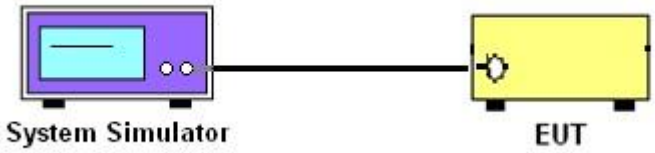
3 Conducted Test Items

3.1 Measuring Instruments

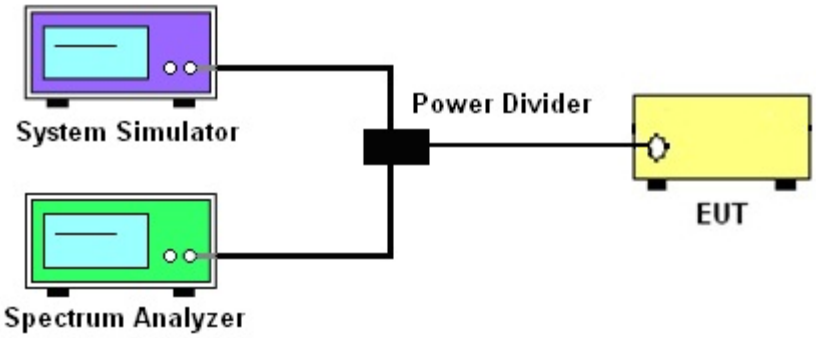
See list of measuring instruments of this test report.

3.2 Test Setup

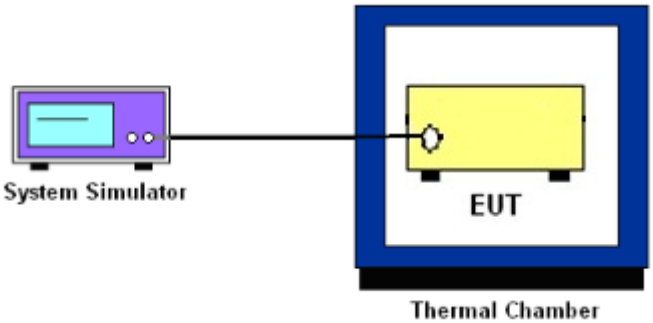
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The EIRP of mobile transmitters must not exceed 2 Watts for 5G NR n41.

According to KDB 412172 D01 Power Approach,

EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

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.

3.5.2 Test Procedures

1. The testing follows ANSI C63.26-2015.
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the RBW = 1MHz, VBW = 3MHz, Peak detector in spectrum analyzer.
4. Set the RBW = 1MHz, VBW = 3MHz, RMS detector in spectrum analyzer.
5. Record difference between steps 3 and 4 as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace. (this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “–X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

27.53(m)(4)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW >= 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used.
6. Set spectrum analyzer with RMS detector.
7. Offset has included the duty factor for 5G NR n41. Duty factor =10 log (1/x), where x is the measured duty cycle
8. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
9. Checked that all the results comply with the emission limit line.
   Example:
   The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
10. For 5G NR n41, the other 40 dB, and 55 dB have additionally applied same calculation above.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

For 5G NR n41:

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Offset has included the duty factor for 5G NR n41. Duty factor =10 log (1/x), where x is the measured duty cycle
9. Taking the record of maximum spurious emission.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
11. The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
12. For 5G NR n41
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [55+ 10log(P)] (dB)
    = [30+ 10log(P)] (dBm) - [55+ 10log(P)] (dB)
    = -25dBm.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5ppm) of the center frequency.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

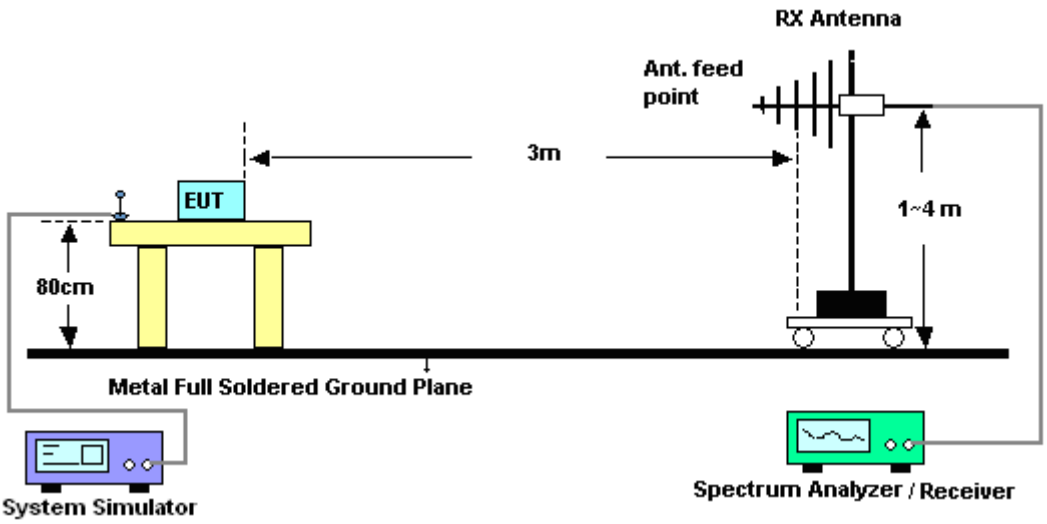
4 Radiated Test Items

4.1 Measuring Instruments

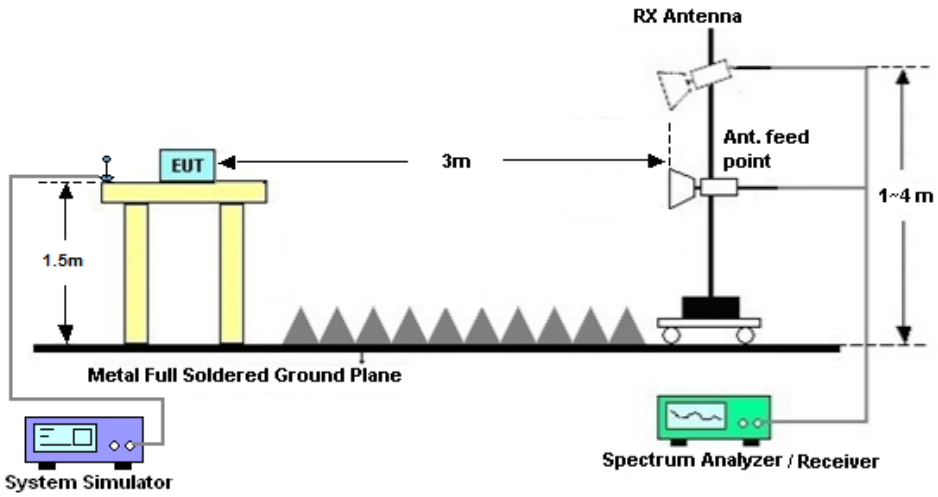
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26.

For 5G NR n41

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least 55 + 10 log (P) dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (dBm) = EIRP - 2.15
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
    The limit line is derived from 43 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
13. For 5G NR n41:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Nov. 02, 2019	May 28, 2020~ May 30, 2020	Nov. 01, 2020	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	-40~+150°C	Oct. 28, 2019	May 28, 2020~ May 30, 2020	Oct. 27, 2020	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Apr. 15, 2020	May 21, 2020	Apr. 14, 2021	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	May 30, 2019	May 21, 2020	May 29, 2020	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1356	1GHz~18GHz	Apr. 20, 2020	May 21, 2020	Apr. 19, 2021	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101115	18GHz~40GHz	Nov. 10, 2019	May 21, 2020	Nov. 09, 2020	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	187289	9KHz-1GHz	Aug. 06, 2019	May 21, 2020	Aug. 05, 2020	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 08, 2020	May 21, 2020	Jan. 07, 2021	Radiation (03CH04-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2025788	1Ghz-18Ghz	Aug. 16, 2019	May 21, 2020	Aug. 15, 2020	Radiation (03CH04-KS)
Amplifier	Keysight	83017A	MY57280106	500MHz~26.5GHz	Oct. 15, 2019	May 21, 2020	Oct. 14, 2020	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	May 21, 2020	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	May 21, 2020	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	May 21, 2020	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Uncertainty of Evaluation

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.3dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.8dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power and EIRP)

Modulation CP-OFDM

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	1	QPSK	21.76	21.63	21.82
20	1	49		21.63	21.52	21.65
20	25	12		21.85	21.87	21.89
20	1	0		20.69	20.78	20.85
20	1	50		20.55	20.63	20.68
20	51	0		20.63	20.58	20.65
20	1	1	16-QAM	21.22	21.13	21.19
20	1	49		21.52	21.46	21.55
20	25	12		21.45	21.39	21.46
20	1	0		21.32	21.28	21.36
20	1	50		20.33	20.26	20.41
20	51	0		20.63	20.53	20.44
20	1	1	64-QAM	19.55	19.52	19.62
20	1	49		19.44	19.36	19.52
20	25	12		19.85	19.82	19.78
20	1	0		19.78	19.73	19.85
20	1	50		19.26	19.22	19.36
20	51	0		20.11	20.13	20.21
20	1	1	256-QAM	17.23	17.26	19.31
20	1	49		17.02	17.15	17.25
20	25	12		17.11	17.16	17.26
20	1	0		17.42	17.56	17.44
20	1	50		16.83	16.78	16.87
20	51	0		17.33	17.36	17.44

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
40	1	1	QPSK	21.93	21.86	21.74
40	1	104		21.96	21.78	21.63
40	53	26		21.95	21.89	21.77
40	1	0		20.67	20.63	20.56
40	1	105		20.56	20.58	20.63
40	106	0		20.66	20.64	20.55
40	1	1	16-QAM	21.72	21.56	21.52
40	1	104		21.44	21.32	21.29
40	53	26		21.53	21.36	21.41
40	1	0		21.25	21.33	21.32
40	1	105		20.36	20.21	20.29
40	106	0		20.69	20.78	20.69
40	1	1	64-QAM	19.51	19.44	19.56
40	1	104		19.53	19.36	19.44
40	53	26		19.93	19.85	19.78
40	1	0		19.86	19.69	19.65
40	1	105		19.33	19.26	19.29
40	106	0		20.16	20.23	20.16
40	1	1	256-QAM	17.21	17.32	17.29
40	1	104		16.98	16.75	16.58
40	53	26		17.06	17.21	17.25
40	1	0		17.55	17.62	17.77
40	1	105		16.85	17.03	17.13
40	106	0		17.31	17.36	17.45

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
50	1	1	QPSK	21.88	21.78	21.75
50	1	131		21.44	21.36	21.39
50	67	33		21.76	21.62	21.56
50	1	0		20.66	20.53	20.44
50	1	132		20.23	20.25	20.31
50	133	0		20.06	20.12	20.15
50	1	1	16-QAM	21.32	21.26	21.44
50	1	131		21.03	21.18	21.22
50	67	33		21.25	21.33	21.54
50	1	0		20.63	20.56	20.62
50	1	132		20.13	20.26	20.33
50	133	0		20.44	20.56	20.54
50	1	1	64-QAM	19.62	19.58	19.68
50	1	131		19.03	19.11	19.15
50	67	33		19.59	19.63	19.75
50	1	0		19.56	19.62	19.77
50	1	132		18.93	18.78	18.79
50	133	0		19.79	19.85	19.69
50	1	1	256-QAM	17.03	17.12	17.32
50	1	131		16.52	16.65	16.78
50	67	33		16.95	17.03	17.12
50	1	0		16.81	16.93	16.95
50	1	132		16.71	16.78	16.86
50	133	0		17.03	17.13	17.22

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
60	1	1	QPSK	21.76	21.63	21.81
60	1	160		21.84	21.52	21.88
60	81	40		21.81	21.47	21.93
60	1	0		20.64	20.42	20.52
60	1	161		20.67	20.64	20.51
60	162	0		21.52	21.25	21.34
60	1	1	16-QAM	21.61	21.34	21.58
60	1	160		21.35	21.55	21.68
60	81	40		21.28	21.30	21.54
60	1	0		21.12	20.56	20.94
60	1	161		20.67	20.31	20.64
60	162	0		20.64	20.51	20.44
60	1	1	64-QAM	19.84	19.83	19.72
60	1	160		19.65	19.61	19.86
60	81	40		19.69	19.57	19.54
60	1	0		19.54	19.69	19.26
60	1	161		19.63	19.82	19.43
60	162	0		19.34	19.26	19.72
60	1	1	256-QAM	17.10	16.89	16.89
60	1	160		17.02	16.80	16.44
60	81	40		16.58	17.12	17.20
60	1	0		16.95	17.04	16.73
60	1	161		17.14	16.93	16.54
60	162	0		16.86	17.21	16.82

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
80	1	1	QPSK	21.64	21.57	21.82
80	1	215		21.68	21.66	21.67
80	109	54		21.89	21.74	21.92
80	1	0		21.92	20.47	21.56
80	1	216		20.65	20.23	20.63
80	217	0		20.51	20.40	20.64
80	1	1	16-QAM	21.56	21.31	21.23
80	1	215		21.51	21.54	21.64
80	109	54		21.36	21.29	21.66
80	1	0		20.51	20.40	20.24
80	1	216		20.26	20.24	20.64
80	217	0		20.17	20.35	20.37
80	1	1	64-QAM	19.82	19.69	19.82
80	1	215		19.54	19.45	19.55
80	109	54		19.54	19.62	19.54
80	1	0		19.62	19.57	19.72
80	1	216		19.71	19.42	19.35
80	217	0		19.58	19.71	19.77
80	1	1	256-QAM	16.91	16.80	16.88
80	1	215		16.76	16.91	16.41
80	109	54		16.61	17.12	17.23
80	1	0		17.14	17.23	17.16
80	1	216		16.82	16.84	16.96
80	217	0		16.94	16.97	16.82

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
90	1	1	QPSK	21.87	21.68	21.96
90	1	243		21.35	21.64	21.51
90	123	61		21.52	21.57	21.51
90	1	0		20.58	20.38	20.64
90	1	244		21.37	21.64	21.42
90	245	0		20.01	20.45	20.26
90	1	1	16-QAM	21.50	21.51	21.54
90	1	243		21.29	21.34	21.61
90	123	61		21.13	21.11	21.35
90	1	0		20.61	20.64	20.81
90	1	244		21.25	21.53	20.51
90	245	0		20.16	21.31	20.34
90	1	1	64-QAM	19.63	19.87	19.82
90	1	243		19.37	19.64	19.51
90	123	61		19.47	19.89	19.54
90	1	0		19.60	19.56	19.64
90	1	244		19.32	19.72	19.53
90	245	0		19.72	19.40	19.83
90	1	1	256-QAM	17.10	17.15	16.87
90	1	243		16.85	16.75	16.66
90	123	61		16.93	16.83	17.10
90	1	0		16.89	16.98	16.80
90	1	244		17.06	17.14	16.82
90	245	0		17.05	17.09	16.72

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
100	1	1	QPSK	21.91	21.63	21.96
100	1	271		21.88	21.58	21.84
100	137	68		21.82	21.73	21.70
100	1	0		20.69	20.64	20.61
100	1	272		20.61	20.52	20.41
100	273	0		20.51	21.34	20.44
100	1	1	16-QAM	21.64	21.36	21.56
100	1	271		21.69	21.41	21.51
100	137	68		21.51	21.54	21.37
100	1	0		20.92	20.72	20.80
100	1	272		20.55	20.34	20.63
100	273	0		20.48	20.17	20.57
100	1	1	64-QAM	19.66	19.53	19.58
100	1	271		19.54	19.35	19.35
100	137	68		19.73	19.66	19.61
100	1	0		19.58	19.71	19.51
100	1	272		19.32	19.15	19.44
100	273	0		19.57	19.61	19.40
100	1	1	256-QAM	16.74	16.45	16.87
100	1	271		16.91	16.86	16.87
100	137	68		16.82	16.90	16.79
100	1	0		17.13	17.22	16.96
100	1	272		16.59	17.07	17.16
100	273	0		16.86	17.13	16.89

Modulation DFT-s OFDM

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
20	1	1	PI/2 BPSK	22.52	22.41	22.36
20	1	49		22.32	22.52	22.65
20	25	12		22.51	22.63	22.42
20	1	0		22.63	22.55	22.32
20	1	50		22.26	22.31	22.42
20	50	0		22.41	22.55	22.63
20	1	1	QPSK	22.68	22.78	22.85
20	1	49		22.44	22.52	22.54
20	25	12		22.32	22.26	22.36
20	1	0		22.65	22.74	22.87
20	1	50		22.52	22.36	22.56
20	50	0		22.55	22.45	22.52
20	1	1	16-QAM	22.61	22.74	22.87
20	1	49		22.42	22.41	22.58
20	25	12		22.47	22.53	22.36
20	1	0		22.06	22.12	22.19
20	1	50		21.55	21.48	21.52
20	50	0		21.66	21.75	21.63
20	1	1	64-QAM	20.63	20.52	20.36
20	1	49		20.65	20.61	20.55
20	25	12		20.93	20.96	20.89
20	1	0		20.59	20.63	20.75
20	1	50		20.32	20.53	20.39
20	50	0		21.33	21.25	21.32
20	1	1	256-QAM	19.21	19.36	19.25
20	1	49		18.78	18.87	18.96
20	25	12		18.96	18.85	18.63
20	1	0		19.16	19.23	19.19
20	1	50		18.76	18.85	18.65
20	50	0		19.33	19.41	19.55

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
40	1	1	PI/2 BPSK	22.69	22.68	22.73
40	1	104		22.36	22.52	22.62
40	50	25		22.63	22.71	22.53
40	1	0		22.66	22.78	22.85
40	1	105		22.36	22.25	22.41
40	100	0		22.44	22.52	22.36
40	1	1	QPSK	22.76	22.73	22.52
40	1	104		22.56	22.36	22.44
40	50	25		22.44	22.48	22.58
40	1	0		22.73	22.69	22.63
40	1	105		22.55	22.46	22.62
40	100	0		22.56	22.53	22.36
40	1	1	16-QAM	22.63	22.77	22.52
40	1	104		22.46	22.53	22.49
40	50	25		22.45	22.41	22.52
40	1	0		22.16	22.21	22.32
40	1	105		21.56	21.63	21.71
40	100	0		21.63	21.52	21.73
40	1	1	64-QAM	20.66	20.74	20.82
40	1	104		20.63	20.78	20.71
40	50	25		20.98	20.85	20.83
40	1	0		20.58	20.63	20.55
40	1	105		20.32	20.44	20.36
40	100	0		21.23	21.32	21.41
40	1	1	256-QAM	19.18	19.23	19.32
40	1	104		18.76	18.86	18.93
40	50	25		18.97	18.87	18.85
40	1	0		19.13	19.25	19.36
40	1	105		18.77	18.63	18.79
40	100	0		19.36	19.42	19.52

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
50	1	1	PI/2 BPSK	22.52	22.47	22.63
50	1	131		22.21	22.16	22.25
50	64	32		22.36	22.23	22.13
50	1	0		22.44	22.36	22.44
50	1	132		22.22	22.10	22.25
50	128	0		22.23	22.15	22.32
50	1	1	QPSK	22.55	22.43	22.52
50	1	131		22.12	22.03	22.16
50	64	32		22.33	22.26	22.34
50	1	0		22.16	22.30	22.25
50	1	132		22.06	22.18	22.31
50	128	0		22.26	22.41	22.52
50	1	1	16-QAM	22.42	22.56	22.43
50	1	131		21.96	21.85	21.77
50	64	32		22.32	22.26	22.41
50	1	0		21.44	21.52	21.63
50	1	132		21.23	21.21	21.25
50	128	0		21.26	21.35	21.42
50	1	1	64-QAM	20.33	20.41	20.36
50	1	131		19.92	19.85	19.79
50	64	32		20.55	20.45	20.36
50	1	0		20.32	20.26	20.41
50	1	132		20.01	20.16	20.21
50	128	0		20.63	20.75	20.82
50	1	1	256-QAM	18.96	18.93	18.85
50	1	131		18.44	18.52	18.63
50	64	32		18.72	18.63	18.82
50	1	0		18.77	18.85	18.96
50	1	132		18.44	18.59	18.65
50	128	0		18.96	19.03	18.75

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
60	1	1	PI/2 BPSK	22.36	22.45	22.52
60	1	160		22.12	22.23	22.32
60	81	40		22.23	22.16	22.28
60	1	0		22.16	22.21	22.31
60	1	161		22.13	22.28	22.41
60	162	0		22.19	22.32	22.15
60	1	1	QPSK	22.36	22.41	22.58
60	1	160		22.03	22.15	22.21
60	81	40		22.06	22.19	22.36
60	1	0		22.52	22.63	22.41
60	1	161		21.89	21.96	21.63
60	162	0		22.23	22.32	22.33
60	1	1	16-QAM	22.29	22.41	22.25
60	1	160		21.78	21.85	21.82
60	81	40		22.03	22.18	22.26
60	1	0		21.32	21.41	21.52
60	1	161		21.23	21.36	21.44
60	162	0		21.02	21.13	21.26
60	1	1	64-QAM	20.32	20.45	20.52
60	1	160		20.13	20.32	20.41
60	81	40		20.65	20.75	20.63
60	1	0		20.23	20.36	20.54
60	1	161		20.16	20.22	20.19
60	162	0		20.56	20.63	20.76
60	1	1	256-QAM	19.06	19.15	19.23
60	1	160		18.56	18.63	18.78
60	81	40		18.72	18.85	18.91
60	1	0		18.85	18.72	18.82
60	1	161		18.53	18.46	18.63
60	162	0		18.77	18.63	18.75

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
80	1	1	PI/2 BPSK	22.56	22.63	22.46
80	1	215		21.96	21.87	21.93
80	108	54		22.23	22.16	22.32
80	1	0		22.32	22.21	22.41
80	1	216		22.13	22.32	22.25
80	216	0		22.25	22.52	22.44
80	1	1	QPSK	22.32	22.41	22.26
80	1	215		22.03	22.16	22.25
80	108	54		22.16	22.25	22.41
80	1	0		22.23	22.31	22.46
80	1	216		22.15	22.23	22.32
80	216	0		22.12	22.25	22.16
80	1	1	16-QAM	22.32	22.41	22.52
80	1	215		21.96	21.85	21.83
80	108	54		22.03	22.16	22.23
80	1	0		21.62	21.77	21.85
80	1	216		21.22	21.36	21.56
80	216	0		21.06	21.15	21.32
80	1	1	64-QAM	20.36	20.41	20.52
80	1	215		19.93	19.85	19.83
80	108	54		20.68	20.75	20.63
80	1	0		20.26	20.16	20.21
80	1	216		20.15	20.32	20.32
80	216	0		20.63	20.55	20.41
80	1	1	256-QAM	18.85	18.75	18.73
80	1	215		18.63	18.76	18.85
80	108	54		18.86	18.63	18.96
80	1	0		18.82	18.74	18.56
80	1	216		18.63	18.58	18.44
80	216	0		18.93	18.79	18.75

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
90	1	1	PI/2 BPSK	22.36	22.41	22.52
90	1	243		22.06	21.96	22.16
90	120	60		22.22	22.13	22.21
90	1	0		22.56	22.45	22.52
90	1	244		21.85	21.78	21.83
90	240	0		21.95	21.89	21.96
90	1	1	QPSK	22.35	22.33	22.52
90	1	243		22.13	22.19	22.26
90	120	60		22.03	22.12	22.21
90	1	0		21.95	21.88	21.82
90	1	244		22.02	22.15	22.26
90	240	0		22.11	22.16	2.25
90	1	1	16-QAM	22.13	22.22	22.33
90	1	243		22.06	22.12	22.25
90	120	60		22.01	22.08	22.15
90	1	0		21.55	21.63	21.71
90	1	244		22.06	22.11	22.15
90	240	0		21.21	21.23	21.31
90	1	1	64-QAM	20.53	20.65	20.74
90	1	243		19.82	19.72	19.79
90	120	60		20.77	20.86	20.83
90	1	0		20.31	20.33	20.41
90	1	244		20.26	20.19	20.29
90	240	0		20.71	20.82	20.98
90	1	1	256-QAM	18.72	18.85	18.93
90	1	243		18.26	18.33	18.41
90	120	60		18.63	18.59	18.65
90	1	0		18.95	19.03	19.12
90	1	244		18.33	18.44	18.53
90	240	0		18.52	18.44	18.56

NR n41 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
100	1	1	PI/2 BPSK	22.29	22.44	22.36
100	1	271		22.21	22.14	22.03
100	135	67		22.11	22.03	22.06
100	1	0		22.33	22.21	22.12
100	1	272		22.35	22.28	22.26
100	270	0		21.95	21.89	21.96
100	1	1	QPSK	22.25	22.33	22.15
100	1	271		22.26	22.15	22.23
100	135	67		22.32	22.29	22.21
100	1	0		22.40	22.31	22.36
100	1	272		22.19	22.33	22.23
100	270	0		22.12	22.09	22.02
100	1	1	16-QAM	21.85	21.92	21.95
100	1	271		22.13	22.36	22.22
100	135	67		22.31	22.34	22.21
100	1	0		21.55	21.36	21.32
100	1	272		21.56	21.41	21.36
100	270	0		21.16	21.13	21.06
100	1	1	64-QAM	21.23	20.22	20.16
100	1	271		20.13	20.06	20.01
100	135	67		20.63	20.56	20.65
100	1	0		20.56	20.41	20.32
100	1	272		20.22	20.15	20.06
100	270	0		20.63	20.59	20.65
100	1	1	256-QAM	18.63	18.65	18.59
100	1	271		18.56	18.66	18.56
100	135	67		18.33	18.21	18.12
100	1	0		18.62	18.52	18.63
100	1	272		18.52	18.59	18.56
100	270	0		18.85	18.86	18.79

ERP/EIRP

Modulation DFT-s OFDM

NR n41 / 20MHz (Average) (GT - LC = -3.0 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	49	22.32	0.1707	19.32	0.0856
Middle		1	49	22.52	0.1787	19.52	0.0896
Highest		1	49	22.65	0.1841	19.65	0.0923
Lowest	QPSK	1	0	22.65	0.1841	19.65	0.0923
Middle		1	0	22.74	0.1880	19.74	0.0942
Highest		1	0	22.87	0.1937	19.87	0.0971
Lowest	16QAM	1	1	20.63	0.1157	17.63	0.0580
Middle		1	1	20.52	0.1128	17.52	0.0565
Highest		1	1	20.36	0.1087	17.36	0.0545
Lowest	64QAM	50	0	21.66	0.1466	18.66	0.0735
Middle		50	0	21.75	0.1497	18.75	0.0750
Highest		50	0	21.63	0.1456	18.63	0.0730
Lowest	256QAM	50	0	19.33	0.0858	16.33	0.0430
Middle		50	0	19.41	0.0873	16.41	0.0438
Highest		50	0	19.55	0.0902	16.55	0.0452
Limit	EIRP < 2W			Result		PASS	

NR n41 / 40MHz (Average) (GT - LC = -3.0 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	0	22.66	0.1846	19.66	0.0925
Middle		1	0	22.78	0.1897	19.78	0.0951
Highest		1	0	22.85	0.1928	19.85	0.0967
Lowest	QPSK	1	1	22.76	0.1888	19.76	0.0947
Middle		1	1	22.73	0.1875	19.73	0.0940
Highest		1	1	22.52	0.1787	19.52	0.0896
Lowest	16QAM	1	1	20.33	0.1079	17.33	0.0541
Middle		1	1	20.41	0.1100	17.41	0.0551
Highest		1	1	20.36	0.1087	17.36	0.0545
Lowest	64QAM	100	0	21.23	0.1328	18.23	0.0666
Middle		100	0	21.32	0.1356	18.32	0.0680
Highest		100	0	21.41	0.1384	18.41	0.0694
Lowest	256QAM	100	0	19.36	0.0863	16.36	0.0433
Middle		100	0	19.42	0.0875	16.42	0.0439
Highest		100	0	19.52	0.0896	16.52	0.0449
Limit	EIRP < 2W			Result		PASS	

NR n41 / 50MHz (Average) (GT - LC = -3.0 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	22.52	0.1787	19.52	0.0896
Middle		1	1	22.47	0.1767	19.47	0.0886
Highest		1	1	22.63	0.1833	19.63	0.0919
Lowest	QPSK	1	1	22.55	0.1799	19.55	0.0902
Middle		1	1	22.43	0.1750	19.43	0.0878
Highest		1	1	22.52	0.1787	19.52	0.0896
Lowest	16QAM	1	1	22.42	0.1746	19.42	0.0875
Middle		1	1	22.56	0.1804	19.56	0.0904
Highest		1	1	22.43	0.1750	19.43	0.0878
Lowest	64QAM	100	0	21.63	0.1456	18.63	0.0730
Middle		100	0	21.52	0.1420	18.52	0.0712
Highest		100	0	21.73	0.1490	18.73	0.0747
Lowest	256QAM	128	0	18.96	0.0788	15.96	0.0395
Middle		128	0	19.03	0.0800	16.03	0.0401
Highest		128	0	18.75	0.0750	15.75	0.0376
Limit	EIRP < 2W			Result		PASS	

NR n41 / 60MHz (Average) (GT - LC = -3.0 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	22.36	0.1722	19.36	0.0863
Middle		1	1	22.45	0.1758	19.45	0.0882
Highest		1	1	22.52	0.1787	19.52	0.0896
Lowest	QPSK	1	0	22.52	0.1787	19.52	0.0896
Middle		1	0	22.63	0.1833	19.63	0.0919
Highest		1	0	22.41	0.1742	19.41	0.0873
Lowest	16QAM	1	1	22.29	0.1695	19.29	0.0850
Middle		1	1	22.41	0.1742	19.41	0.0873
Highest		1	1	22.25	0.1679	19.25	0.0842
Lowest	64QAM	162	0	20.56	0.1138	17.56	0.0571
Middle		162	0	20.63	0.1157	17.63	0.0580
Highest		162	0	20.76	0.1192	17.76	0.0598
Lowest	256QAM	1	1	19.06	0.0806	16.06	0.0404
Middle		1	1	19.15	0.0823	16.15	0.0413
Highest		1	1	19.23	0.0838	16.23	0.0420
Limit	EIRP < 2W			Result		PASS	

NR n41 / 80MHz (Average) (GT - LC = -3.0 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	22.56	0.1804	19.56	0.0904
Middle		1	1	22.63	0.1833	19.63	0.0919
Highest		1	1	22.46	0.1762	19.46	0.0884
Lowest	QPSK	1	0	22.23	0.1672	19.23	0.0838
Middle		1	0	22.31	0.1703	19.31	0.0854
Highest		1	0	22.46	0.1762	19.46	0.0884
Lowest	16QAM	1	1	22.32	0.1707	19.32	0.0856
Middle		1	1	22.41	0.1742	19.41	0.0873
Highest		1	1	22.52	0.1787	19.52	0.0896
Lowest	64QAM	135	67	18.33	0.0681	15.33	0.0342
Middle		135	67	18.21	0.0663	15.21	0.0332
Highest		135	67	18.12	0.0649	15.12	0.0326
Lowest	256QAM	108	54	18.86	0.0770	15.86	0.0386
Middle		108	54	18.63	0.0730	15.63	0.0366
Highest		108	54	18.96	0.0788	15.96	0.0395
Limit	EIRP < 2W			Result		PASS	

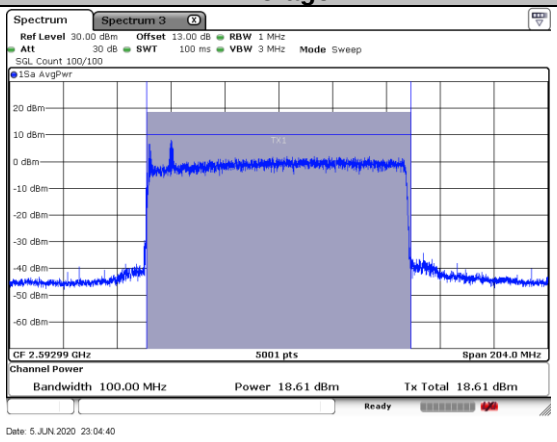
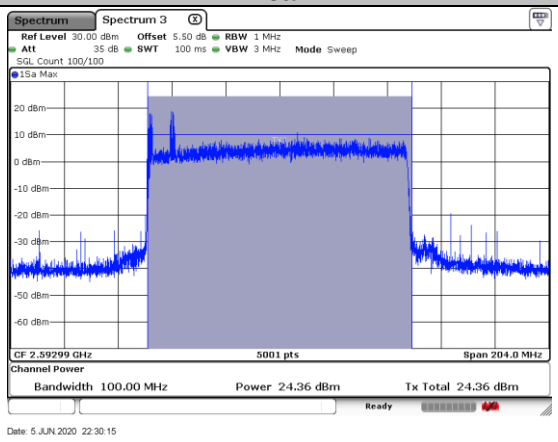
NR n41 / 90MHz (Average) (GT - LC = -3.0 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	0	22.56	0.1804	19.56	0.0904
Middle		1	0	22.45	0.1758	19.45	0.0882
Highest		1	0	22.52	0.1787	19.52	0.0896
Lowest	QPSK	1	1	22.35	0.1718	19.35	0.0861
Middle		1	1	22.33	0.1711	19.33	0.0858
Highest		1	1	22.52	0.1787	19.52	0.0896
Lowest	16QAM	1	1	22.13	0.1634	19.13	0.0819
Middle		1	1	22.22	0.1668	19.22	0.0836
Highest		1	1	22.33	0.1711	19.33	0.0858
Lowest	64QAM	240	0	20.71	0.1178	17.71	0.0591
Middle		240	0	20.82	0.1208	17.82	0.0606
Highest		240	0	20.98	0.1254	17.98	0.0629
Lowest	256QAM	1	0	18.95	0.0786	15.95	0.0394
Middle		1	0	19.03	0.0800	16.03	0.0401
Highest		1	0	19.12	0.0817	16.12	0.0410
Limit	EIRP < 2W			Result		PASS	

NR n41 / 100MHz (Average) (GT - LC = -3.0 dB)							
Channel	Mode	RB		Conducted		EIRP	
		Size	Offset	Power (dBm)	Power (Watts)	EIRP(dBm)	EIRP(W)
Lowest	PI/2 BPSK	1	1	22.29	0.1695	19.29	0.0850
Middle		1	1	22.44	0.1754	19.44	0.0880
Highest		1	1	22.36	0.1722	19.36	0.0863
Lowest	QPSK	1	0	22.40	0.1738	19.40	0.0871
Middle		1	0	22.31	0.1703	19.31	0.0854
Highest		1	0	22.36	0.1722	19.36	0.0863
Lowest	16QAM	1	271	22.13	0.1634	19.13	0.0819
Middle		1	271	22.36	0.1722	19.36	0.0863
Highest		1	271	22.22	0.1668	19.22	0.0836
Lowest	64QAM	1	1	21.23	0.1328	18.23	0.0666
Middle		1	1	20.22	0.1052	17.22	0.0528
Highest		1	1	20.16	0.1038	17.16	0.0520
Lowest	256QAM	216	0	20.63	0.1157	17.63	0.0580
Middle		216	0	20.55	0.1136	17.55	0.0569
Highest		216	0	20.41	0.1100	17.41	0.0551
Limit	EIRP < 2W			Result		PASS	

5G NR n41

Peak-to-Average Ratio

Mode	n41 / 100MHz				
Mod.	BPSK		QPSK		Limit: 13dB
RB Size	1RB	Full RB	1RB	Full RB	Result
Lowest CH	4.21	5.73	5.31	5.73	PASS
Middle CH	4.66	**5.75**	5.09	5.43	
Highest CH	4.50	5.66	4.73	5.70	

n41 / BPSK	
Average	Peak
	

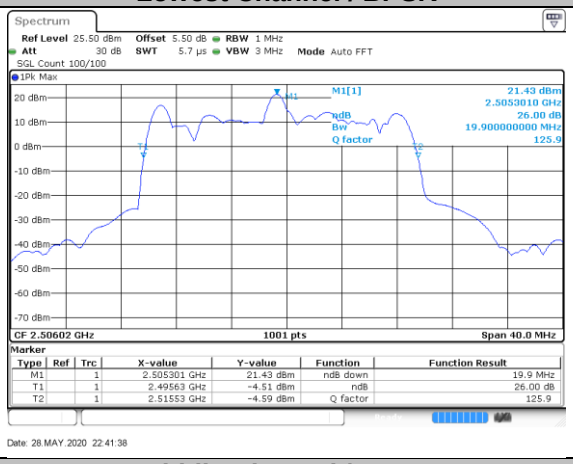
Note:
1. The PAR Maximum test value is calculated from Peak Power subtract Average Power.
2. The worst case is reported.

26dB Bandwidth

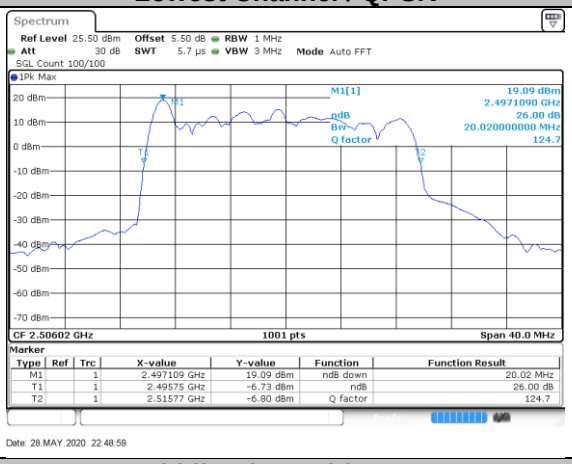
Mode	n41 : 26dB BW(MHz)											
BW	20MHz		40MHz		50MHz		60MHz		80MHz		90MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	20.02	20.06	37.96	38.12	48.15	48.05	61.74	62.58	82.00	81.68	90.27	90.09
Middle CH	20.30	19.78	38.04	38.44	48.35	47.75	62.34	62.70	81.36	80.56	89.55	90.99
Highest CH	20.06	20.10	39.00	38.04	48.15	48.05	62.46	63.06	81.20	82.16	89.19	90.99
Mode	n41 : 26dB BW(MHz)											
BW	20MHz		40MHz		50MHz		60MHz		80MHz		90MHz	
Mod.	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM	64QAM	256 QAM
Lowest CH	20.18	20.38	37.962	38.12	48.65	48.05	61.38	62.46	81.52	82.00	90.63	90.63
Middle CH	20.22	20.42	38.202	38.362	48.05	48.25	61.38	62.70	80.72	81.52	90.45	91.17
Highest CH	20.14	19.86	37.962	37.962	47.95	48.05	62.10	62.7	81.04	82.52	90.99	89.55
Mode	n41 : 26dB BW(MHz)											
BW	20MHz		40MHz		50MHz		60MHz		80MHz		90MHz	
Mod.	BPSK		BPSK		BPSK		BPSK		BPSK		BPSK	
Lowest CH	19.90		38.20		48.35		62.58		81.04		90.81	
Middle CH	20.42		38.04		47.65		62.82		82.00		90.81	
Highest CH	20.22		38.36		48.05		62.82		81.20		90.45	
Mode	n41 : 26dB BW(MHz)											
BW	100MHz											
Mod.	BPSK	QPSK	16QAM	64QAM	256 QAM							
Lowest CH	101.1	100.7	101.3	101.3	101.3							
Middle CH	101.7	101.3	101.3	101.7	101.1							
Highest CH	100.9	102.1	100.9	101.3	101.3							

n41 20MHz

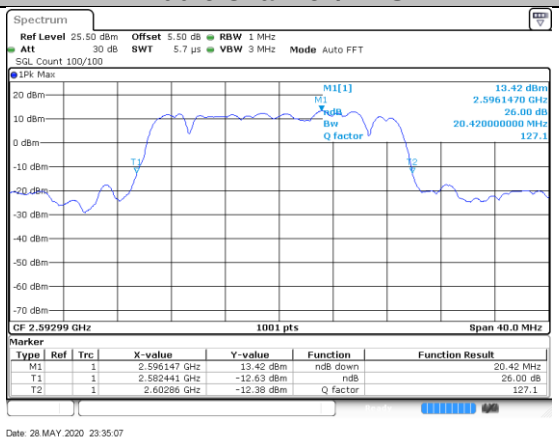
Lowest Channel / BPSK



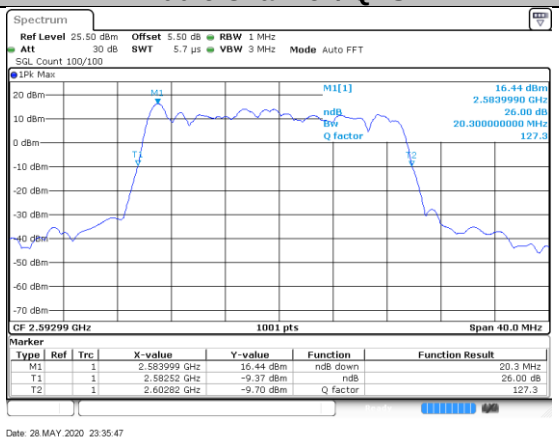
Lowest Channel / QPSK



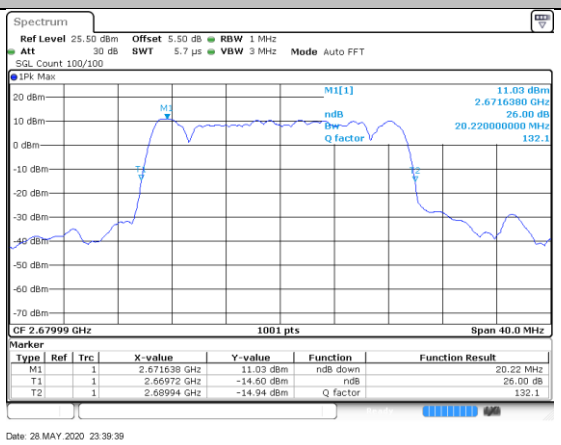
Middle Channel / BPSK



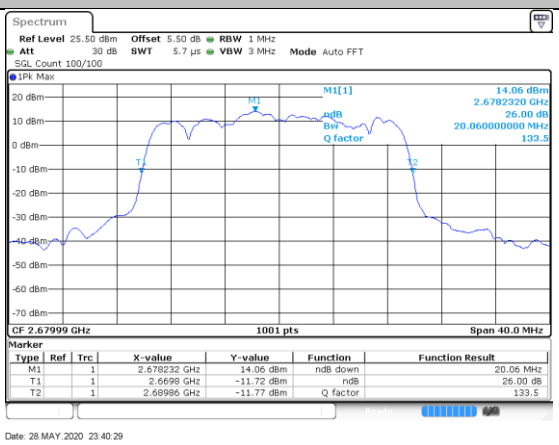
Middle Channel / QPSK



Highest Channel / BPSK

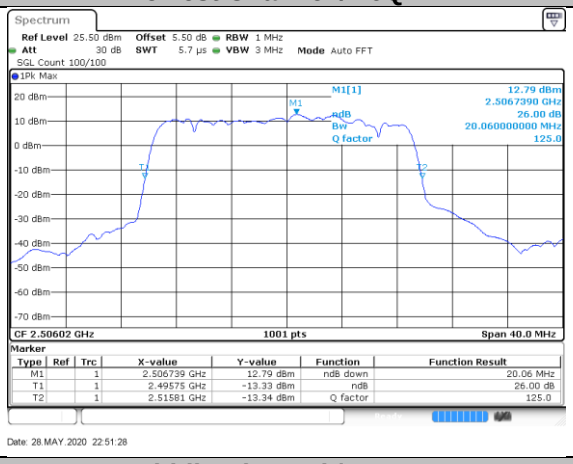


Highest Channel / QPSK

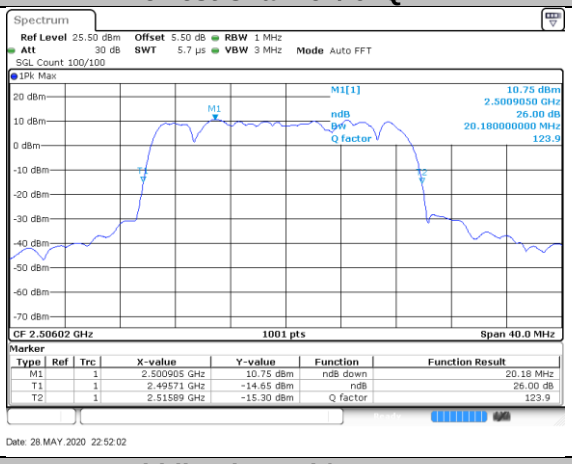


n41 20MHz

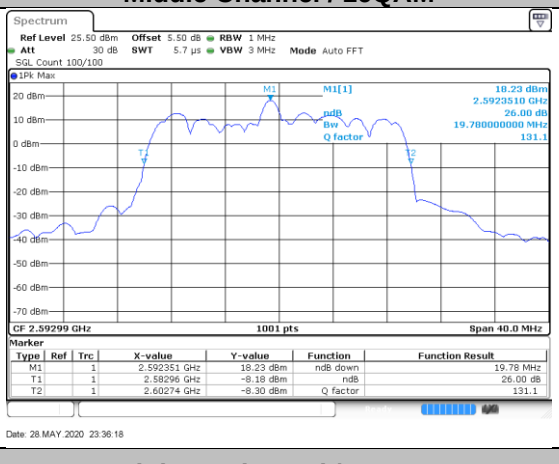
Lowest Channel / 16QAM



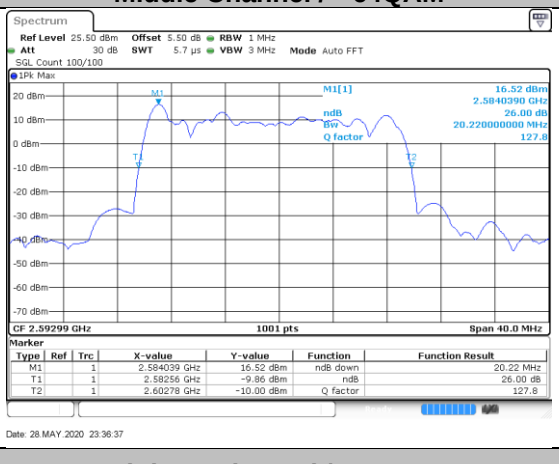
Lowest Channel / 64QAM



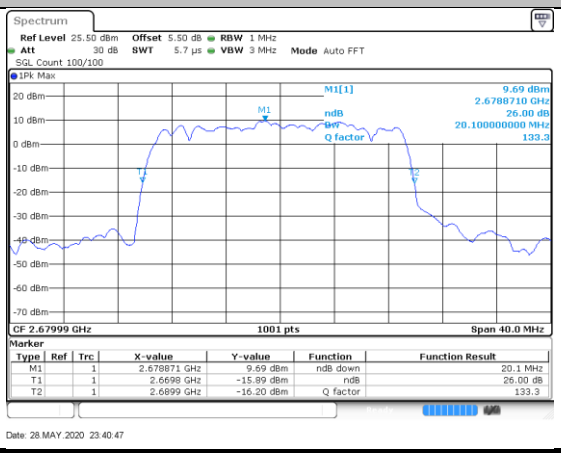
Middle Channel / 16QAM



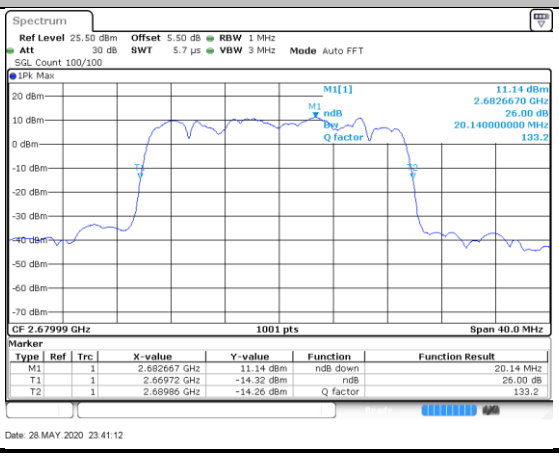
Middle Channel / 64QAM

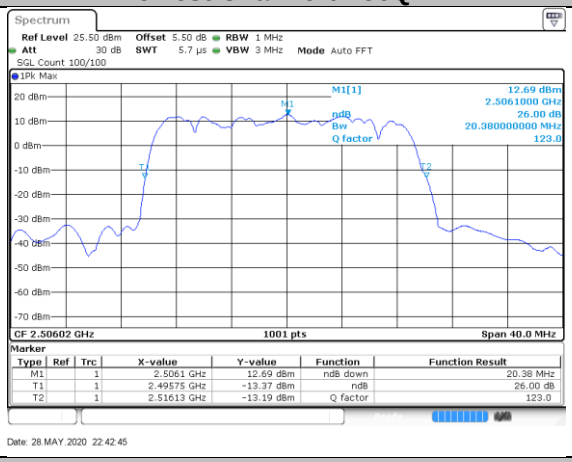
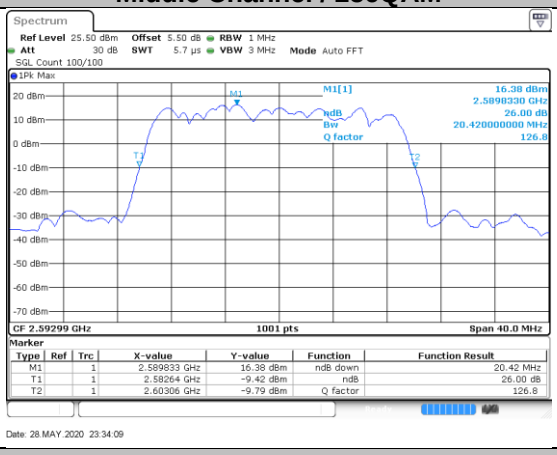
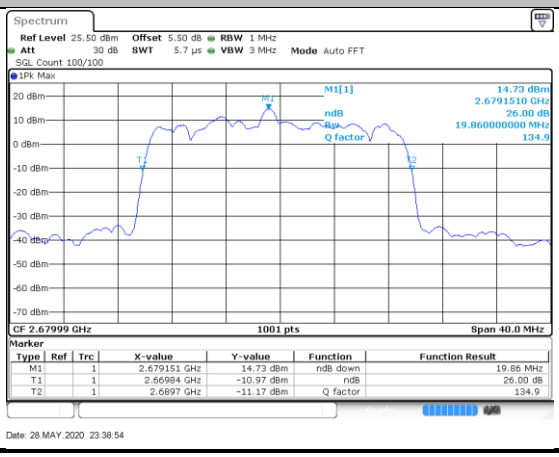


Highest Channel / 16QAM



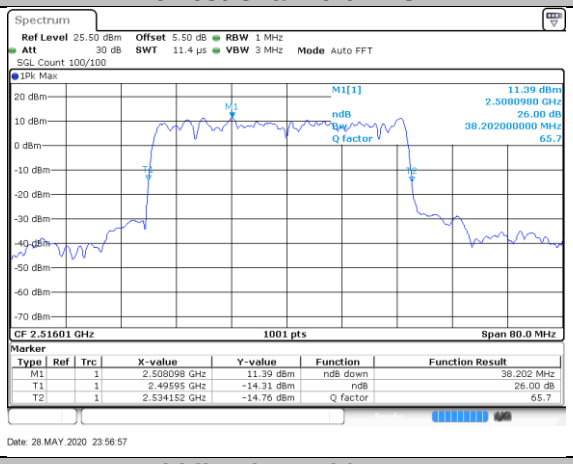
Highest Channel / 64QAM



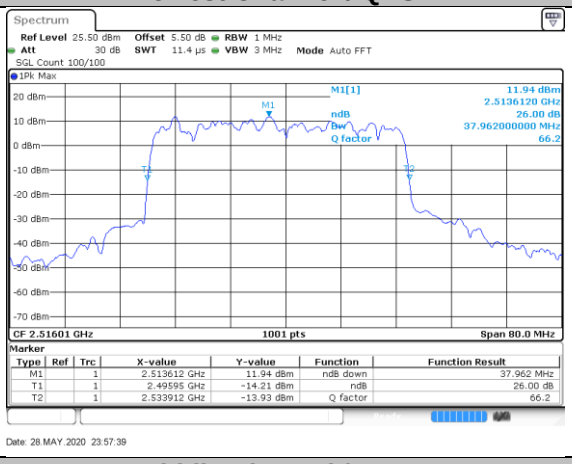
n41 20MHz	
Lowest Channel / 256QAM	
	
Middle Channel / 256QAM	
	
Highest Channel / 256QAM	
	

n41 40MHz

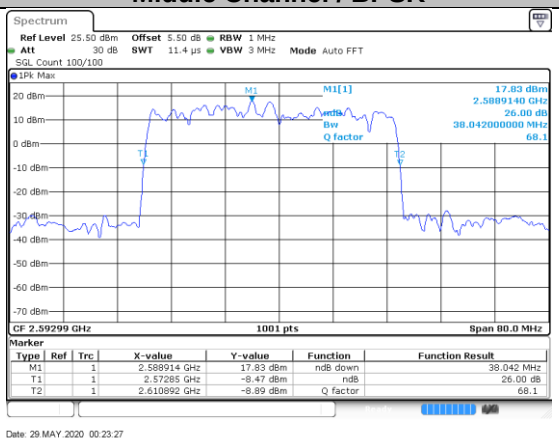
Lowest Channel / BPSK



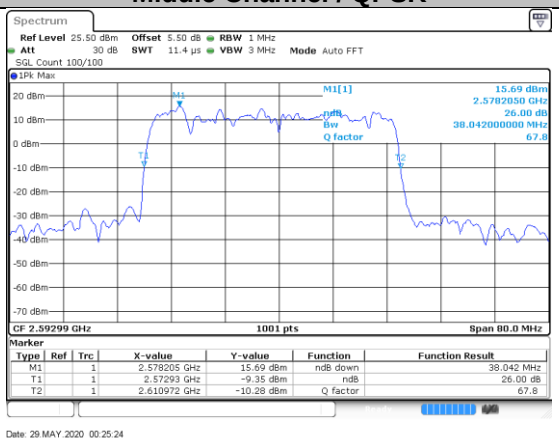
Lowest Channel / QPSK



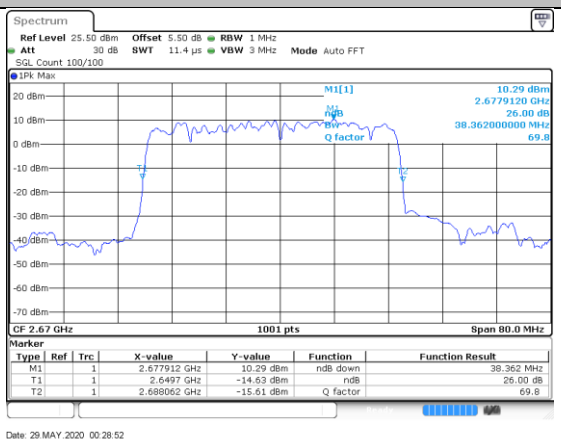
Middle Channel / BPSK



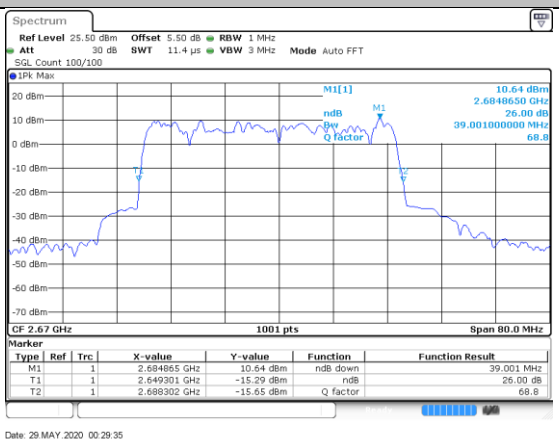
Middle Channel / QPSK



Highest Channel / BPSK

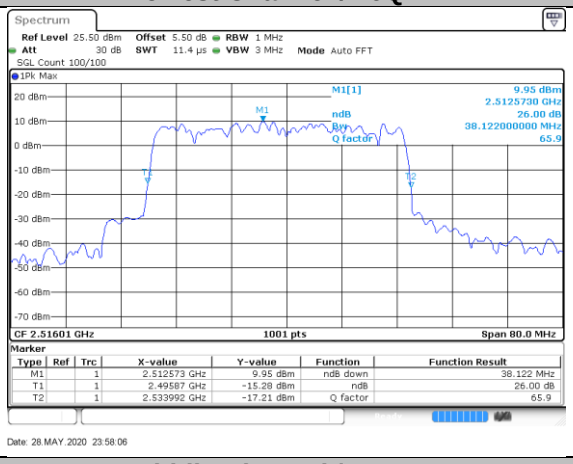


Highest Channel / QPSK

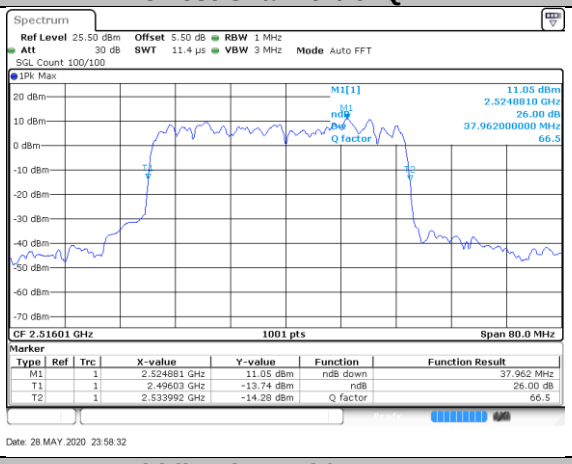


n41 40MHz

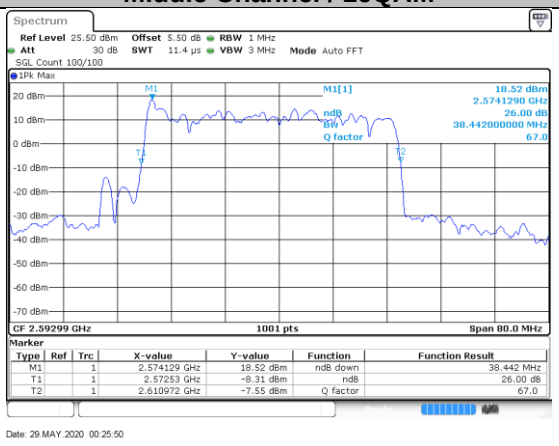
Lowest Channel / 16QAM



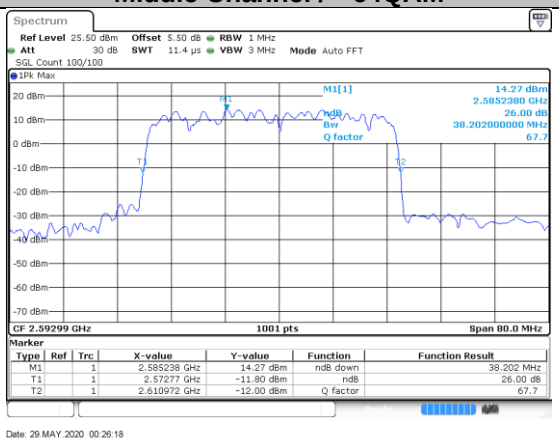
Lowest Channel / 64QAM



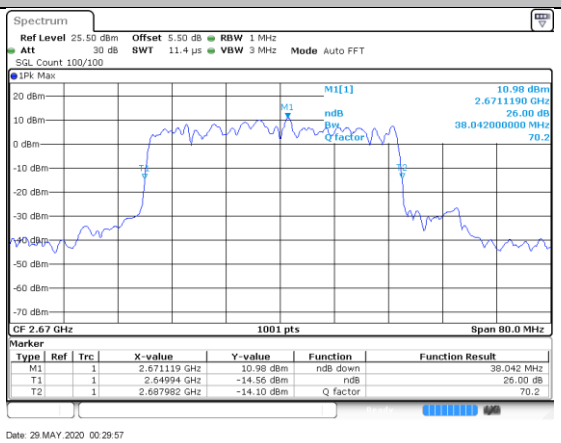
Middle Channel / 16QAM



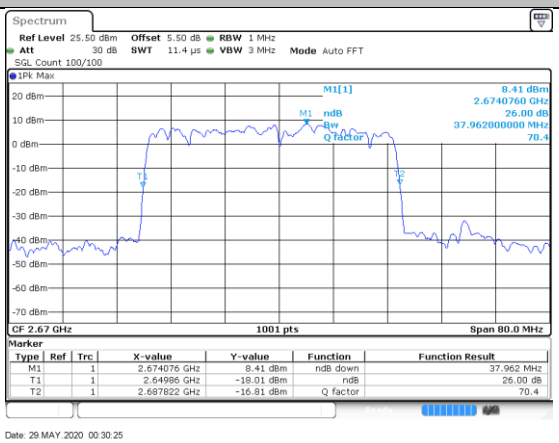
Middle Channel / 64QAM

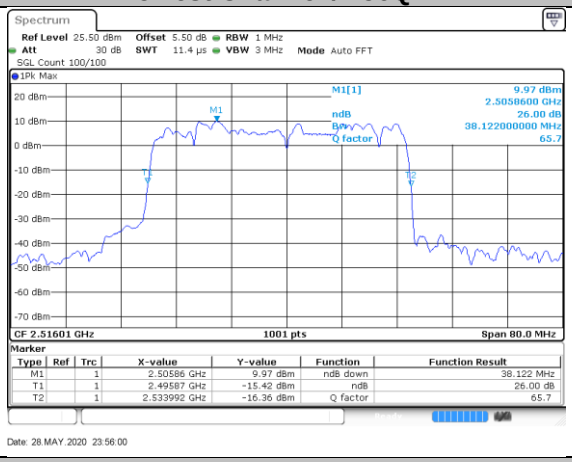
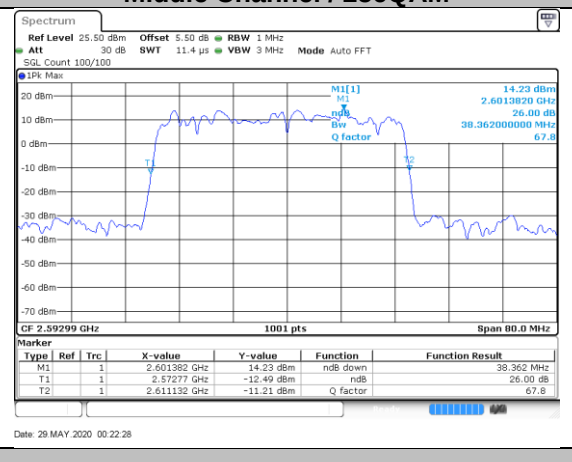
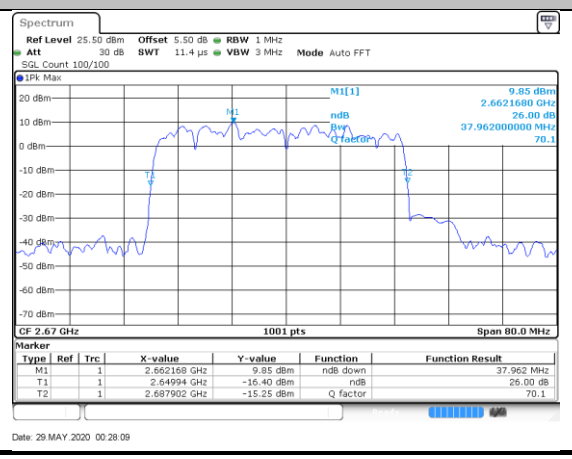


Highest Channel / 16QAM



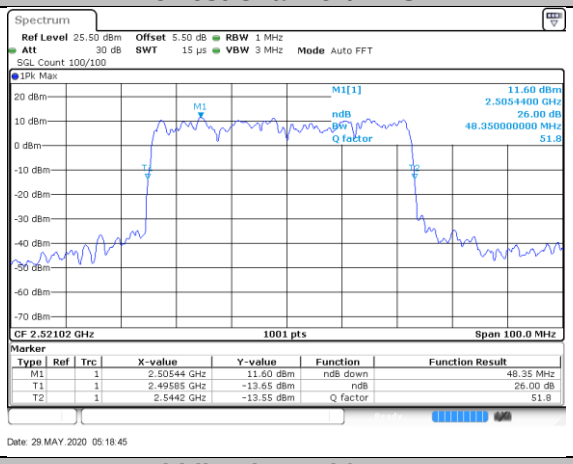
Highest Channel / 64QAM



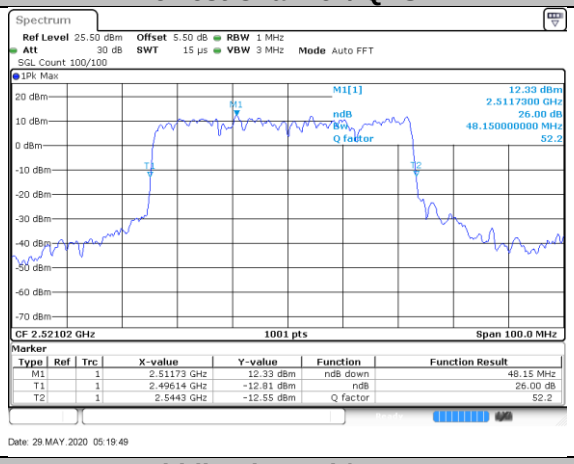
n41 40MHz	
Lowest Channel / 256QAM	
	
Middle Channel / 256QAM	
	
Highest Channel / 256QAM	
	

n41 50MHz

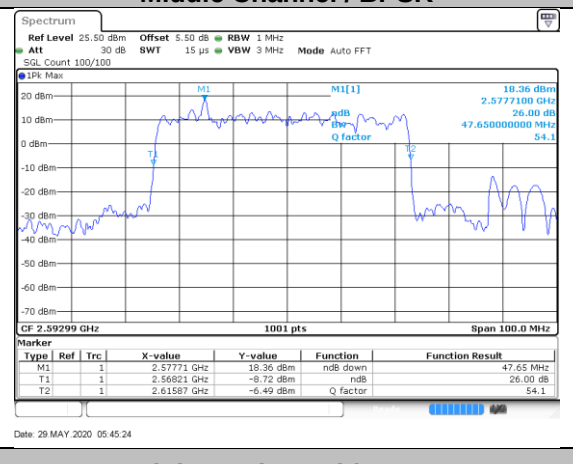
Lowest Channel / BPSK



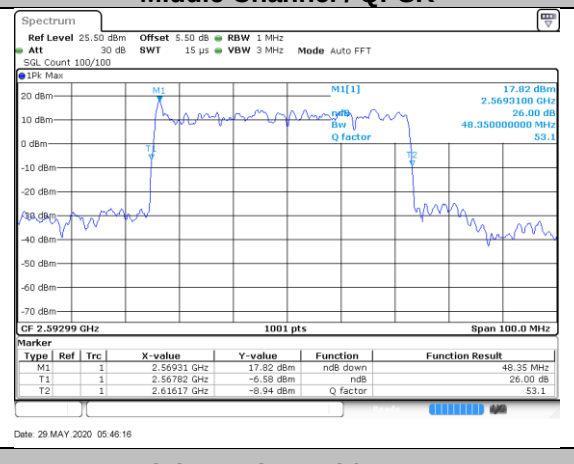
Lowest Channel / QPSK



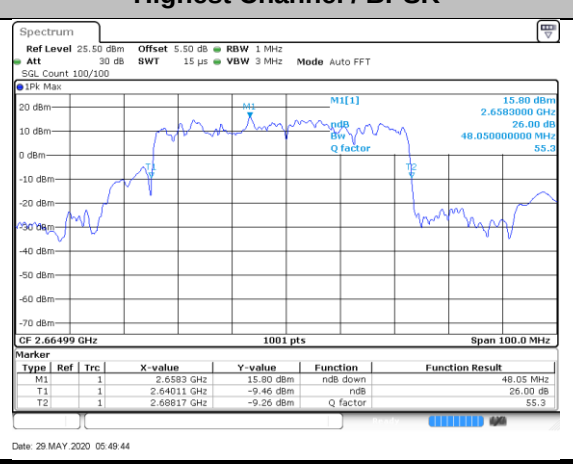
Middle Channel / BPSK



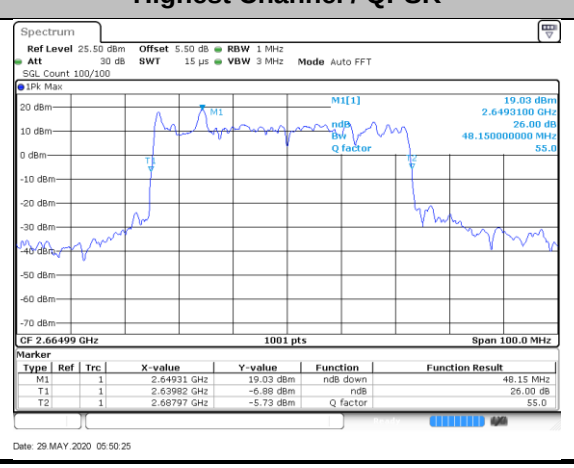
Middle Channel / QPSK



Highest Channel / BPSK

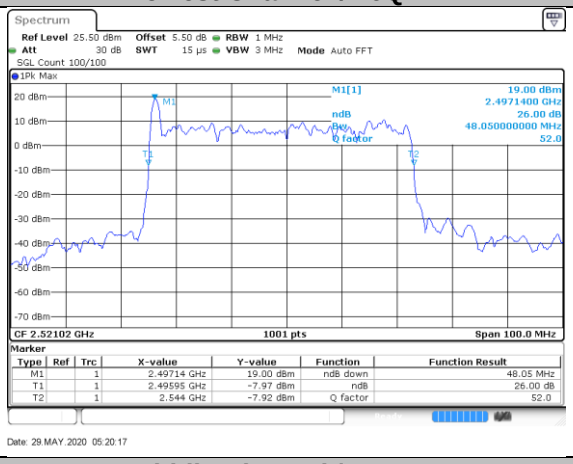


Highest Channel / QPSK

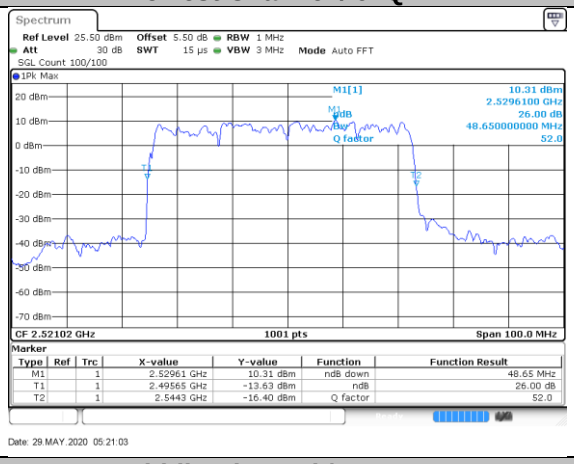


n41 50MHz

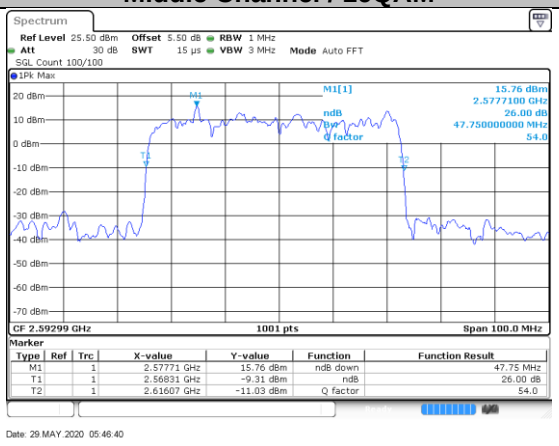
Lowest Channel / 16QAM



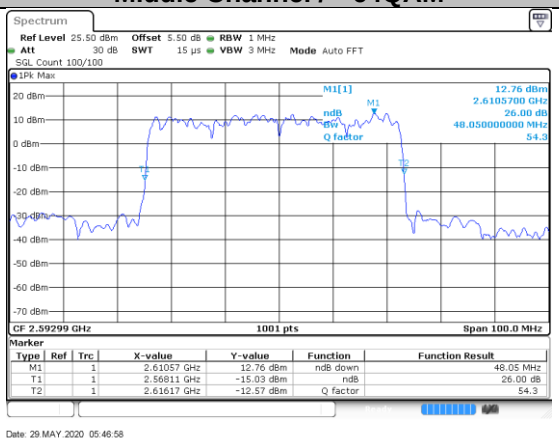
Lowest Channel / 64QAM



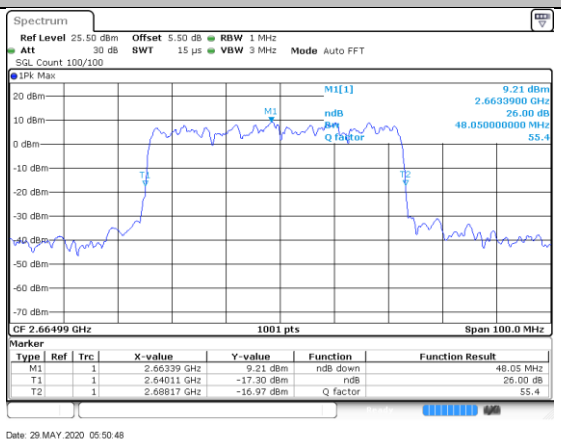
Middle Channel / 16QAM



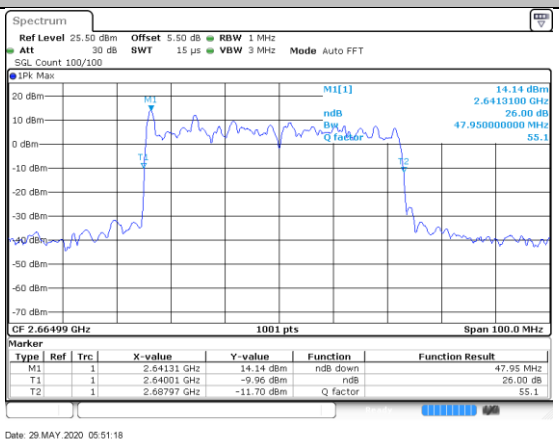
Middle Channel / 64QAM

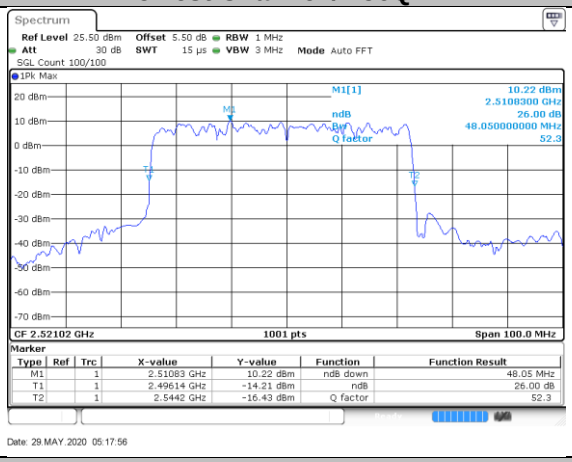
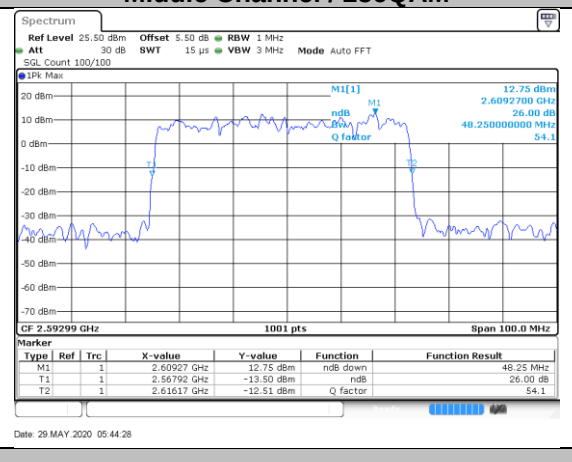
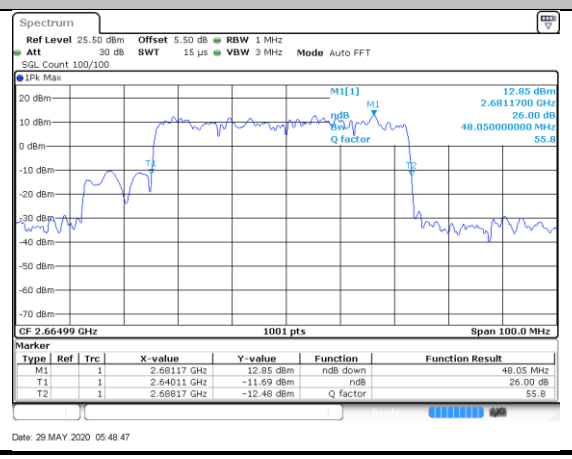


Highest Channel / 16QAM



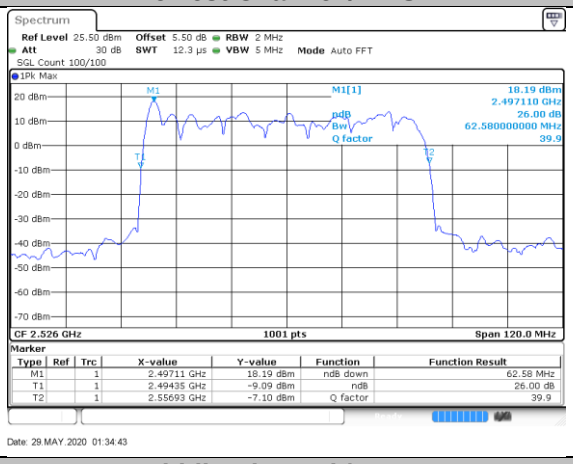
Highest Channel / 64QAM



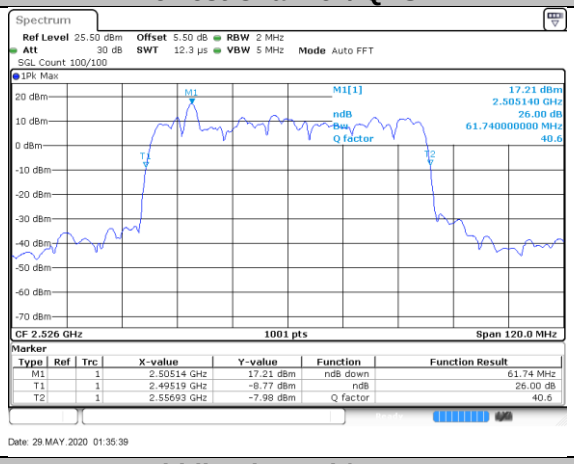
n41 50MHz	
Lowest Channel / 256QAM	
	
Middle Channel / 256QAM	
	
Highest Channel / 256QAM	
	

n41 60MHz

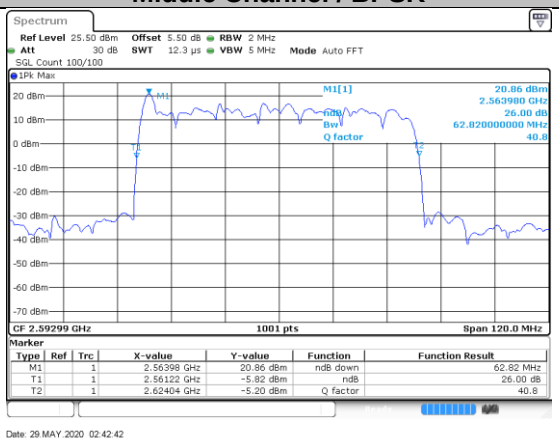
Lowest Channel / BPSK



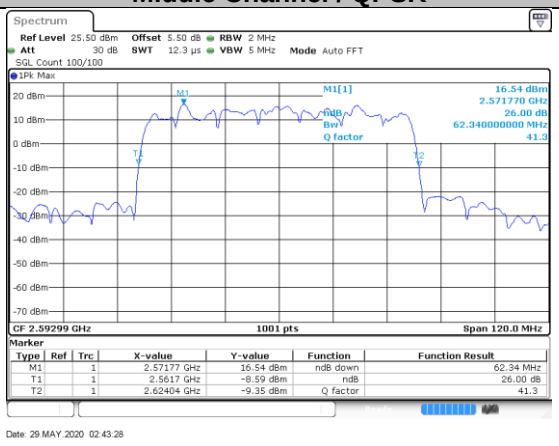
Lowest Channel / QPSK



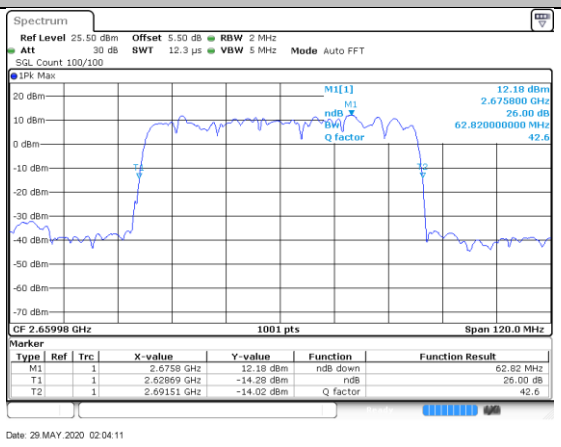
Middle Channel / BPSK



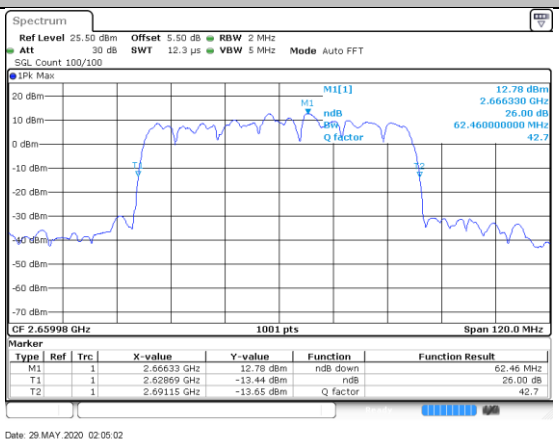
Middle Channel / QPSK



Highest Channel / BPSK

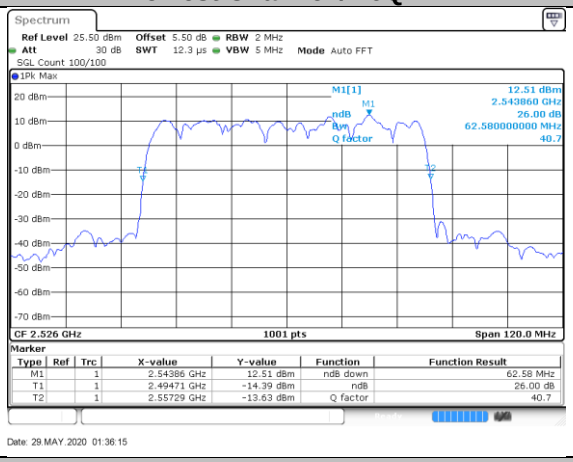


Highest Channel / QPSK

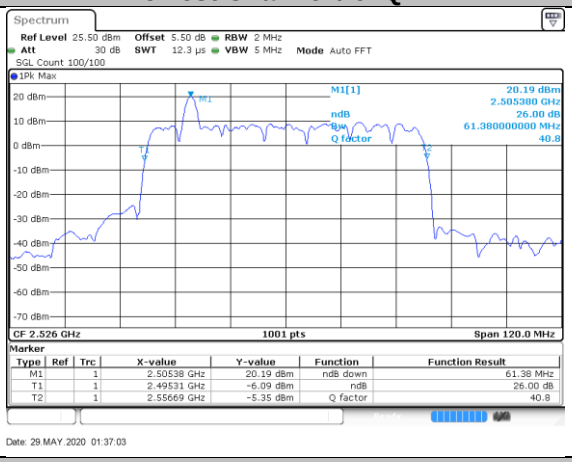


n41 60MHz

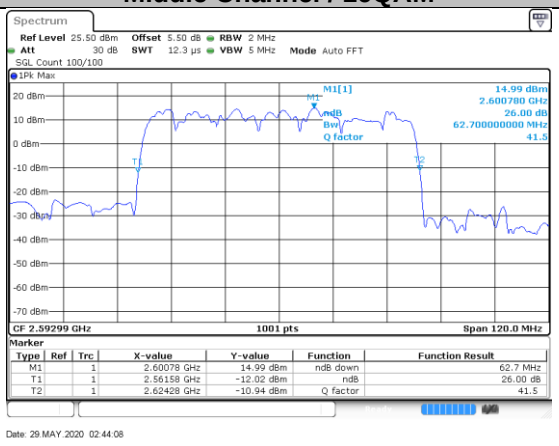
Lowest Channel / 16QAM



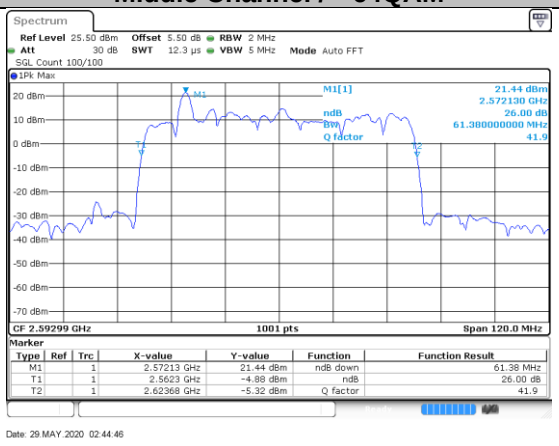
Lowest Channel / 64QAM



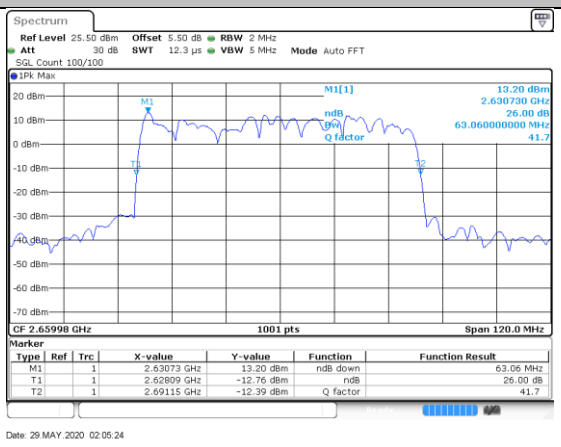
Middle Channel / 16QAM



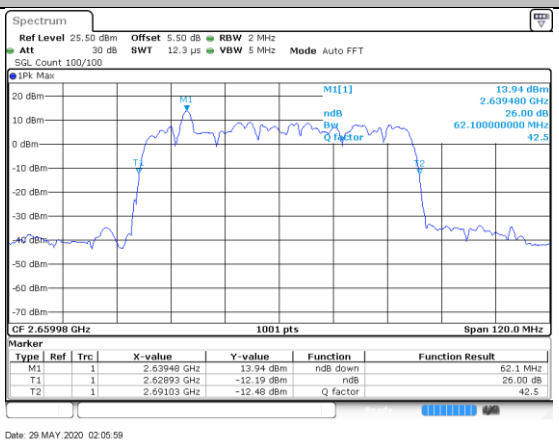
Middle Channel / 64QAM

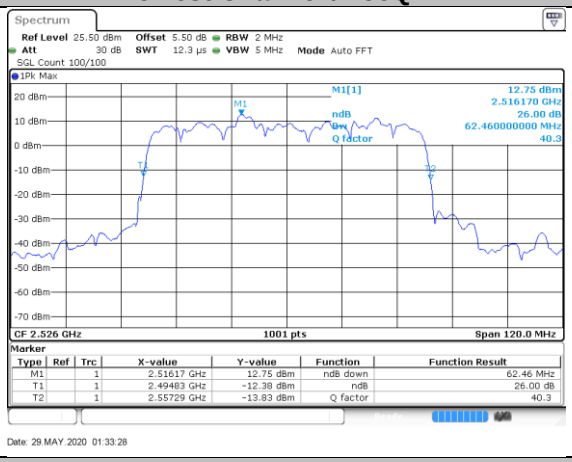
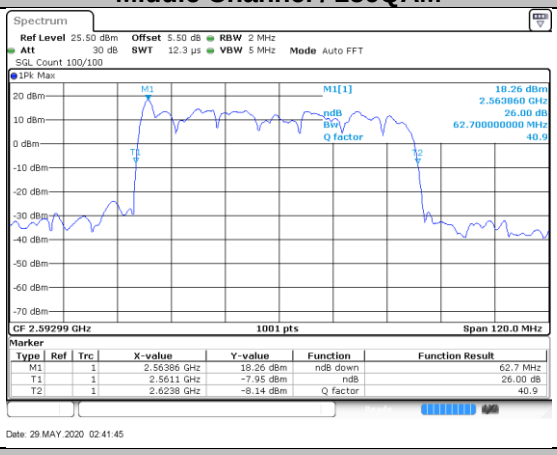
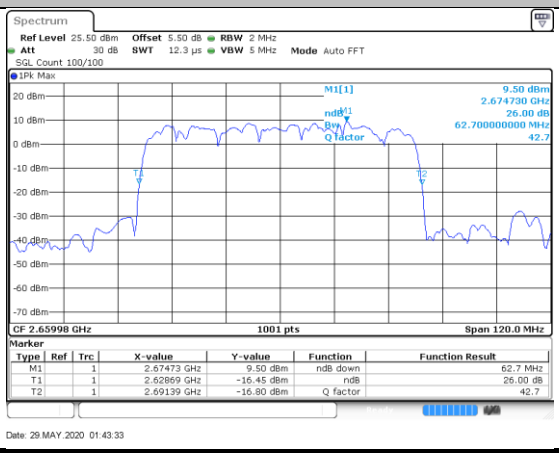


Highest Channel / 16QAM



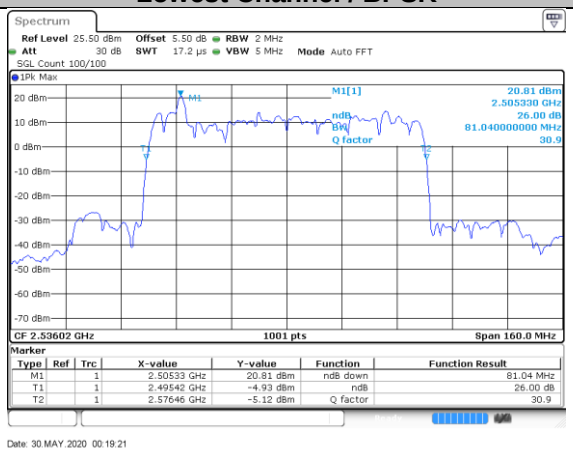
Highest Channel / 64QAM



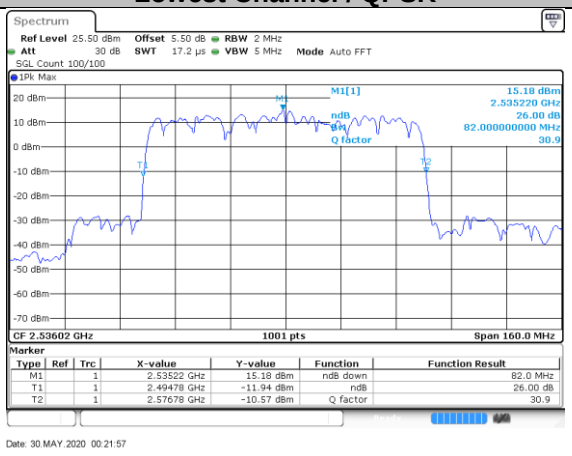
n41 60MHz	
Lowest Channel / 256QAM	
	
Middle Channel / 256QAM	
	
Highest Channel / 256QAM	
	

n41 80MHz

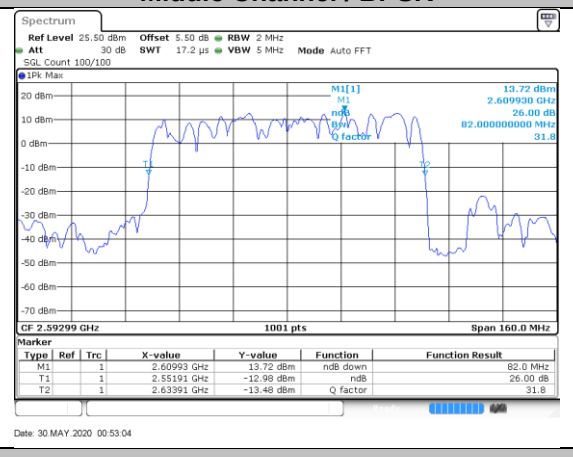
Lowest Channel / BPSK



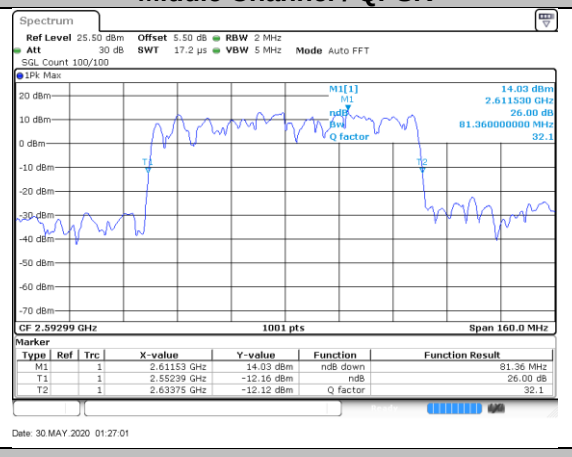
Lowest Channel / QPSK



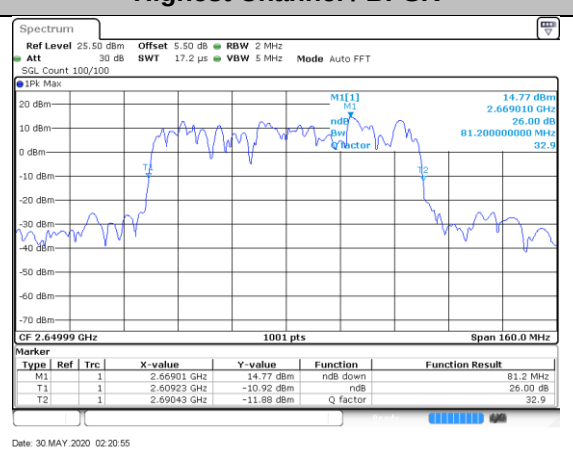
Middle Channel / BPSK



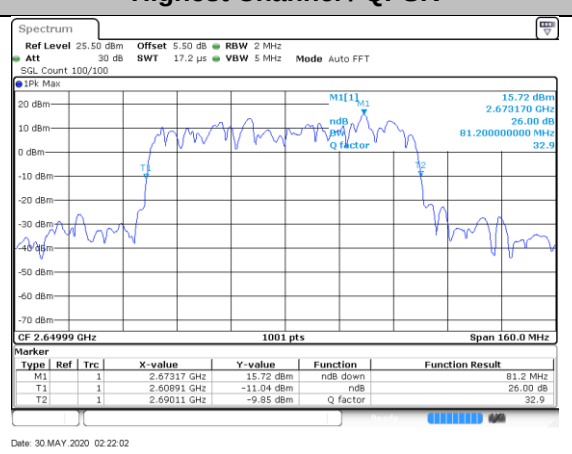
Middle Channel / QPSK



Highest Channel / BPSK

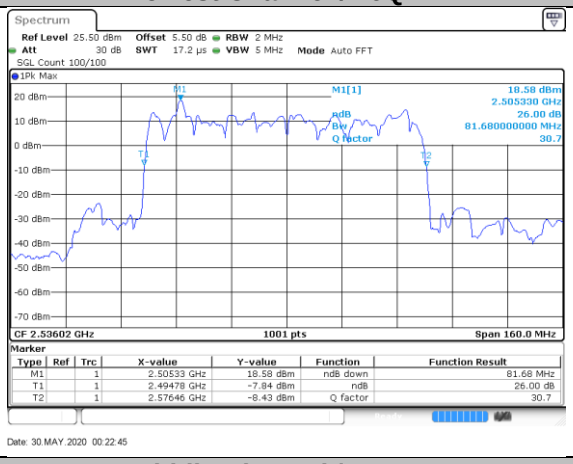


Highest Channel / QPSK

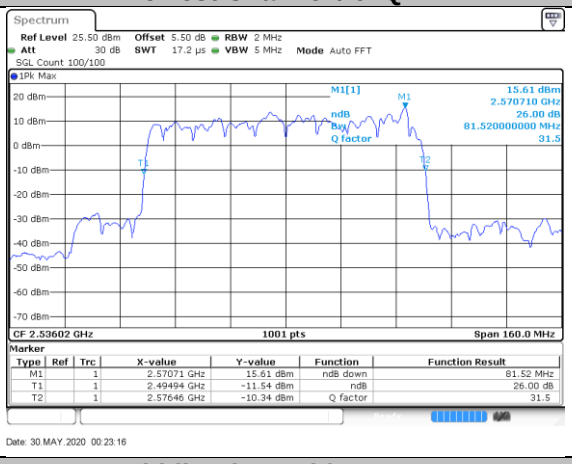


n41 80MHz

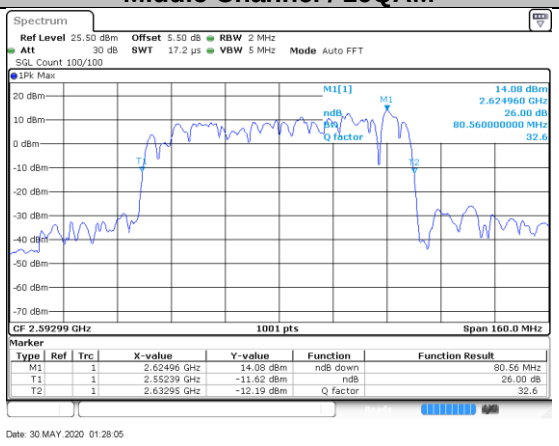
Lowest Channel / 16QAM



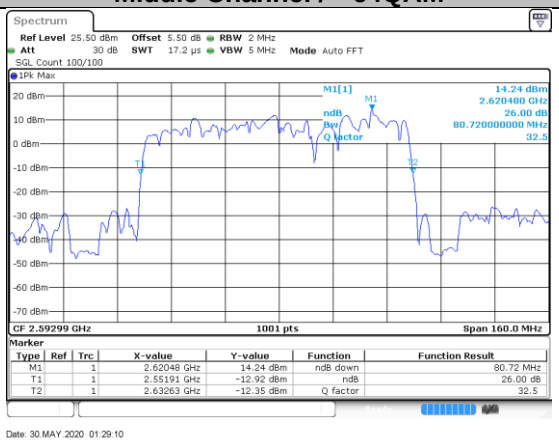
Lowest Channel / 64QAM



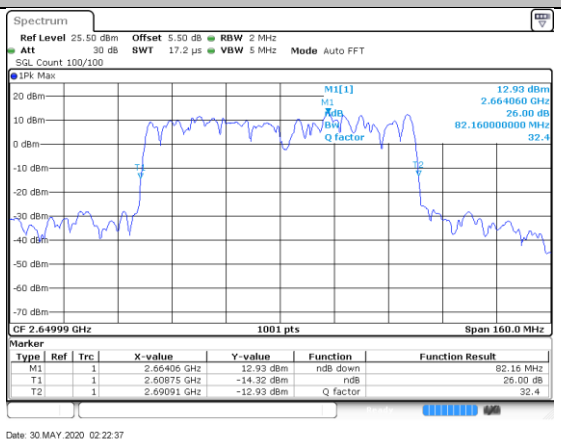
Middle Channel / 16QAM



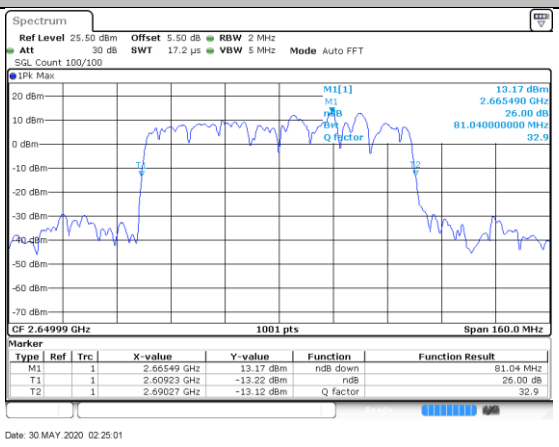
Middle Channel / 64QAM

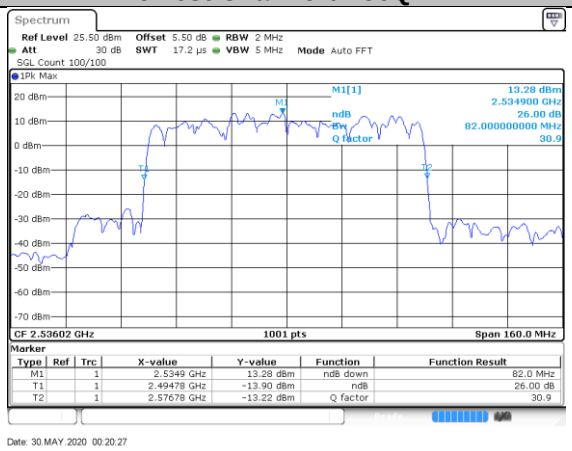
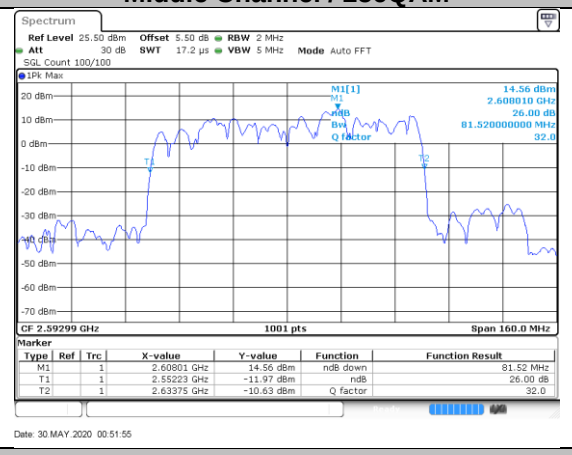
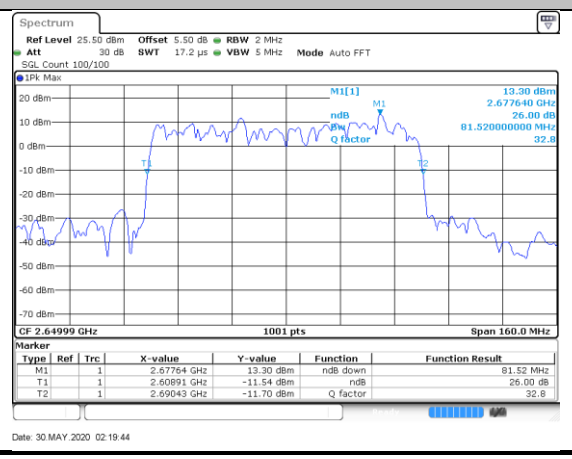


Highest Channel / 16QAM



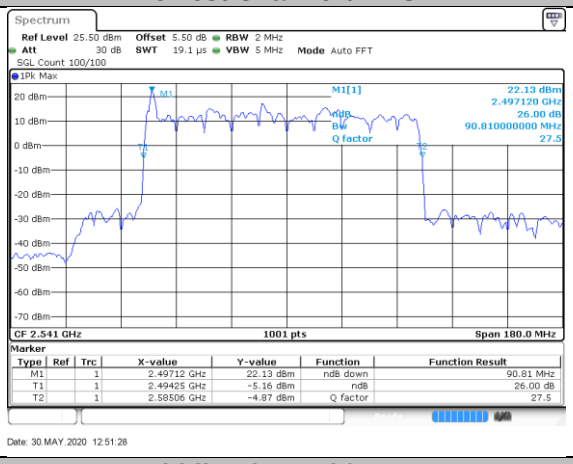
Highest Channel / 64QAM



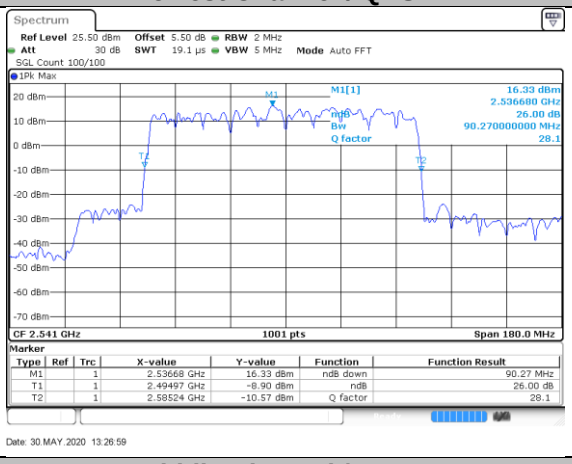
n41 80MHz	
Lowest Channel / 256QAM	
	
Middle Channel / 256QAM	
	
Highest Channel / 256QAM	
	

n41 90MHz

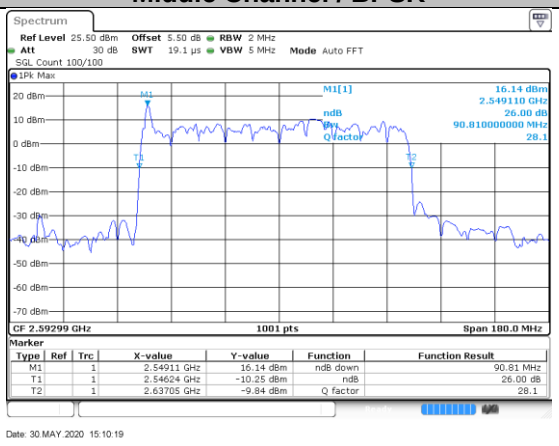
Lowest Channel / BPSK



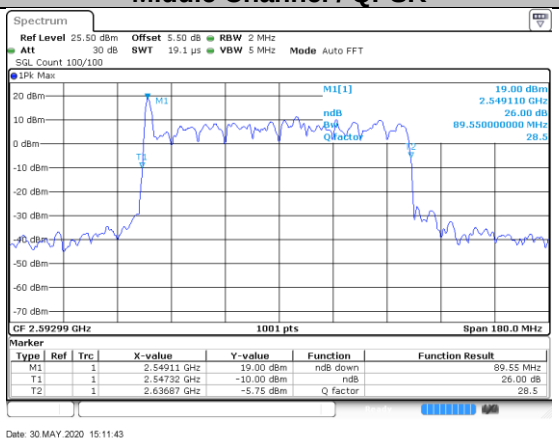
Lowest Channel / QPSK



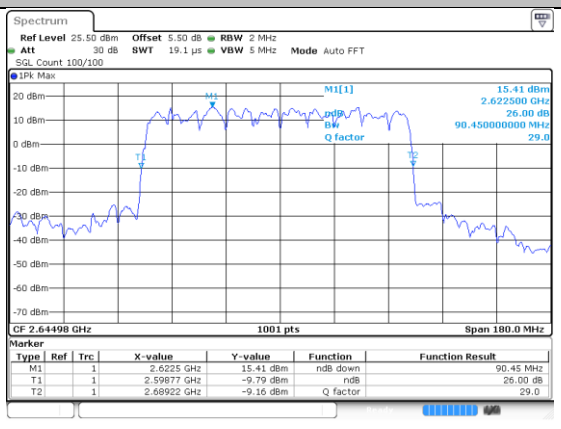
Middle Channel / BPSK



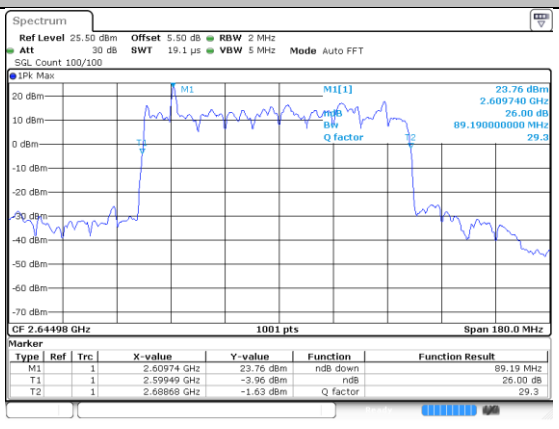
Middle Channel / QPSK



Highest Channel / BPSK

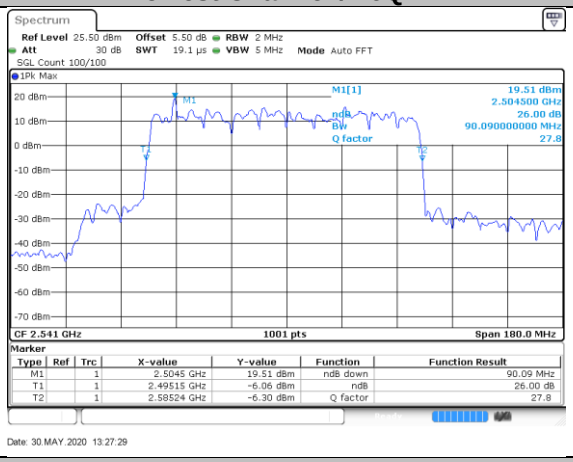


Highest Channel / QPSK

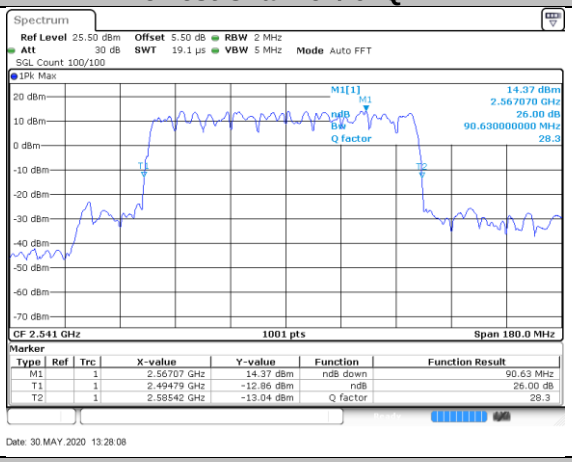


n41 90MHz

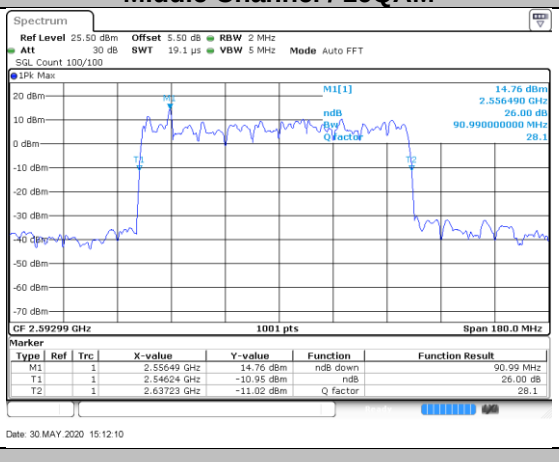
Lowest Channel / 16QAM



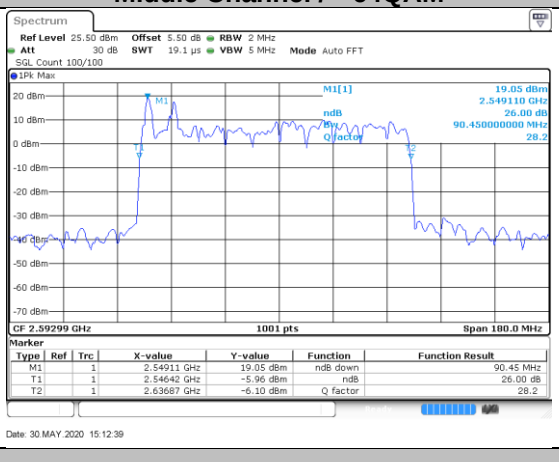
Lowest Channel / 64QAM



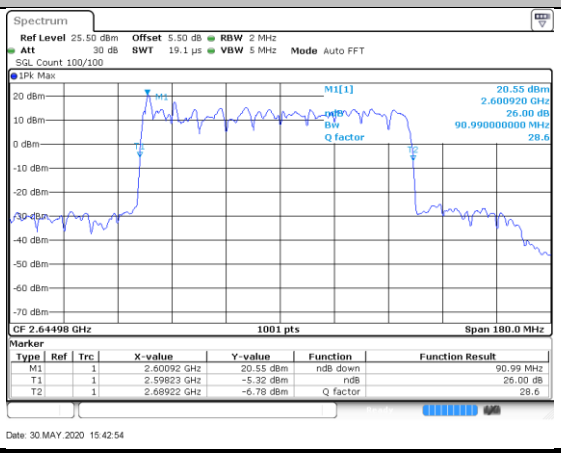
Middle Channel / 16QAM



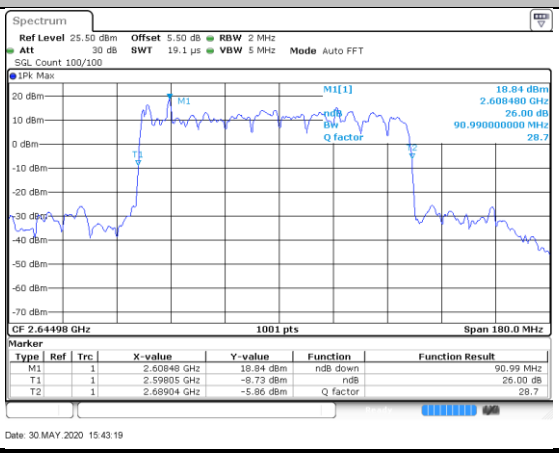
Middle Channel / 64QAM

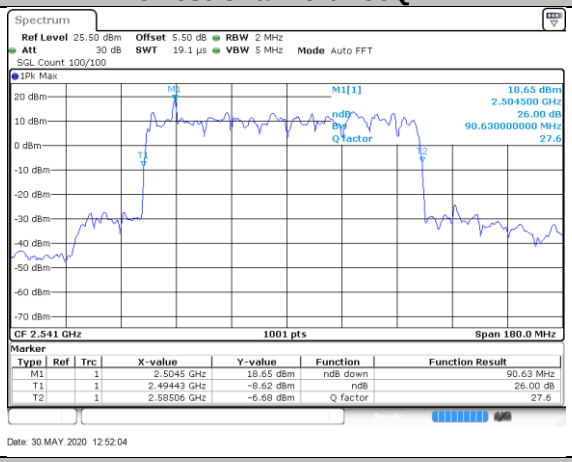
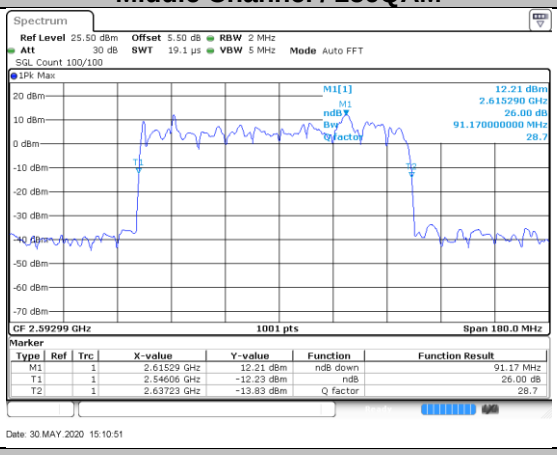
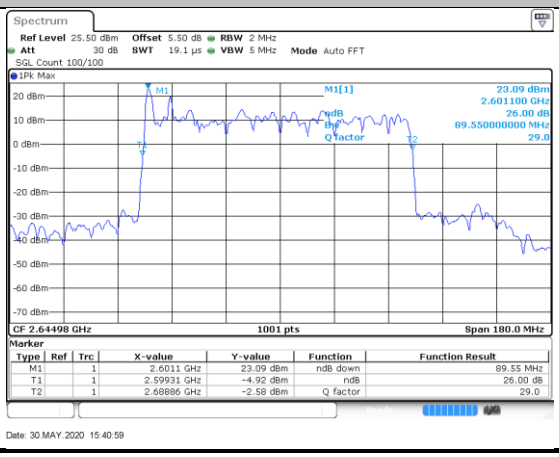


Highest Channel / 16QAM



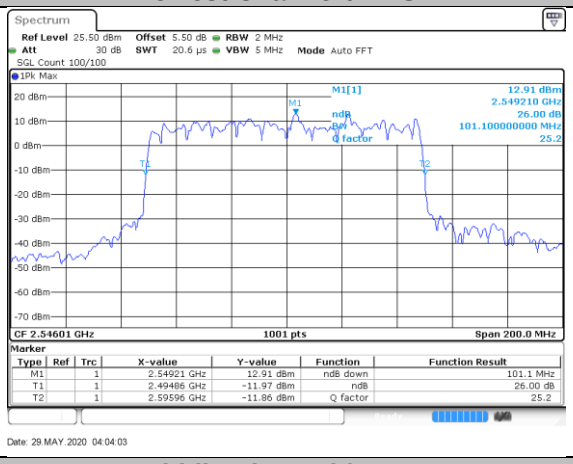
Highest Channel / 64QAM



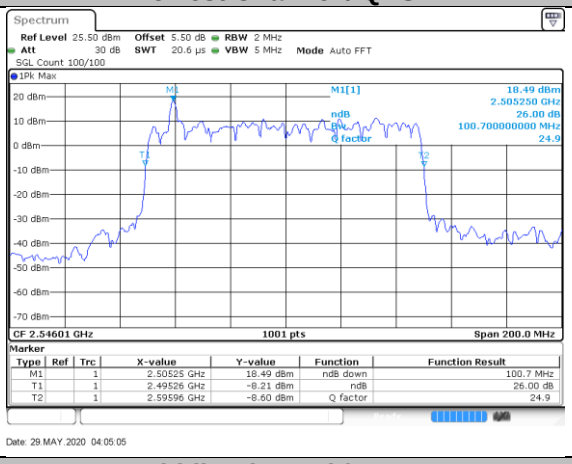
n41 90MHz	
Lowest Channel / 256QAM	
	
Middle Channel / 256QAM	
	
Highest Channel / 256QAM	
	

n41 100MHz

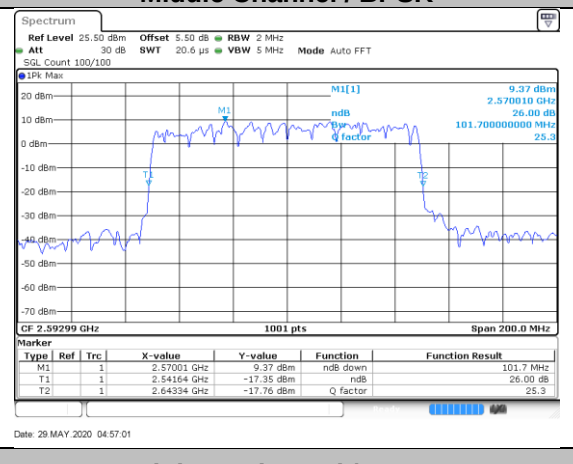
Lowest Channel / BPSK



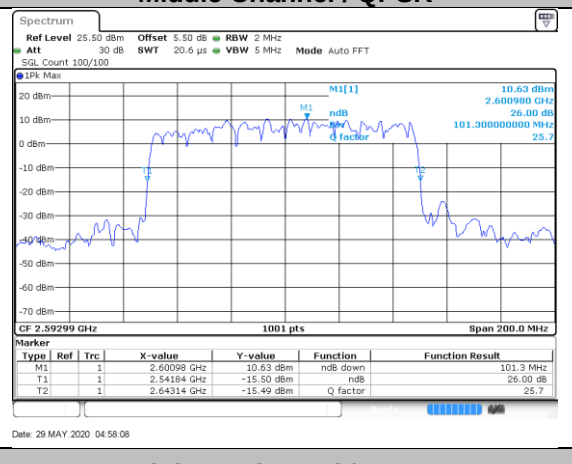
Lowest Channel / QPSK



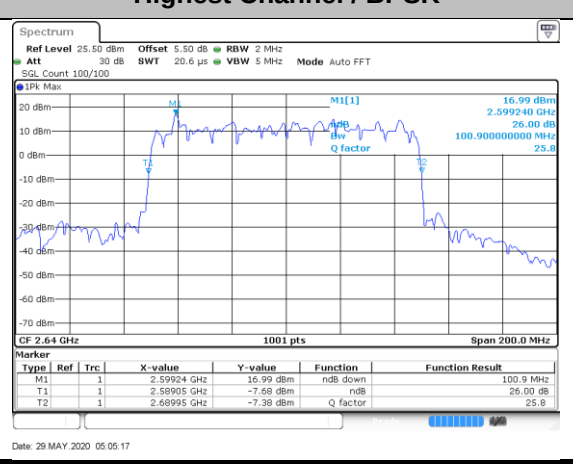
Middle Channel / BPSK



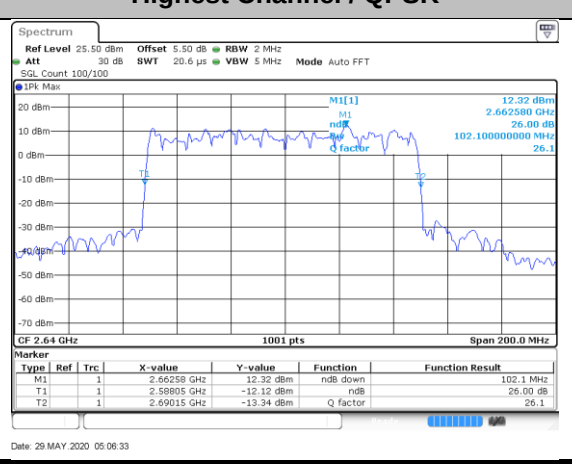
Middle Channel / QPSK



Highest Channel / BPSK

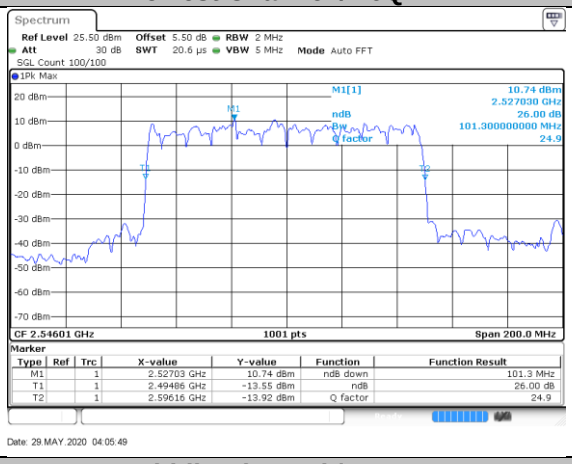


Highest Channel / QPSK

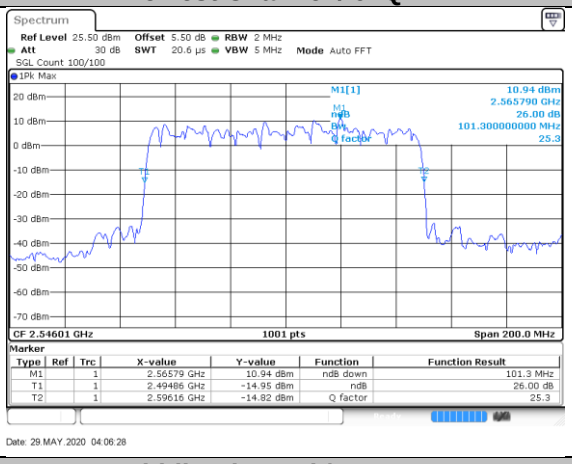


n41 100MHz

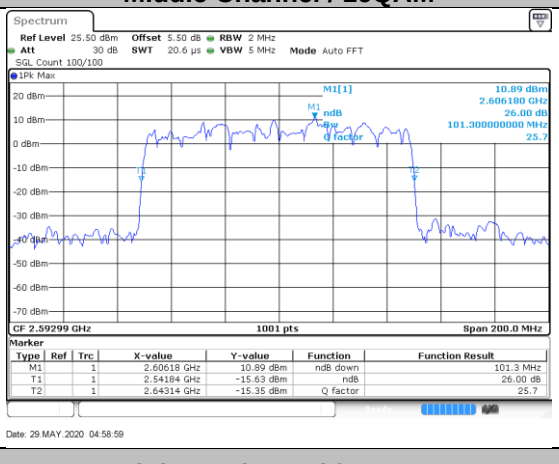
Lowest Channel / 16QAM



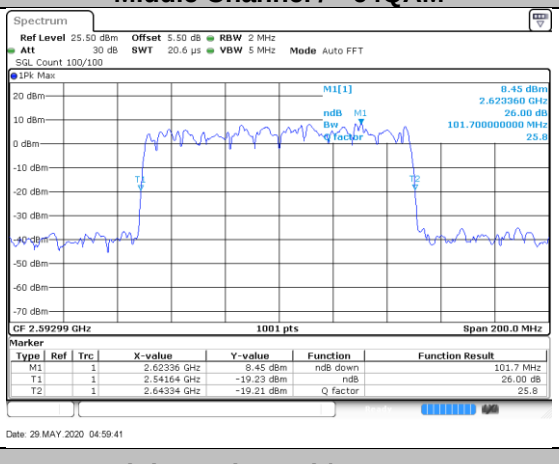
Lowest Channel / 64QAM



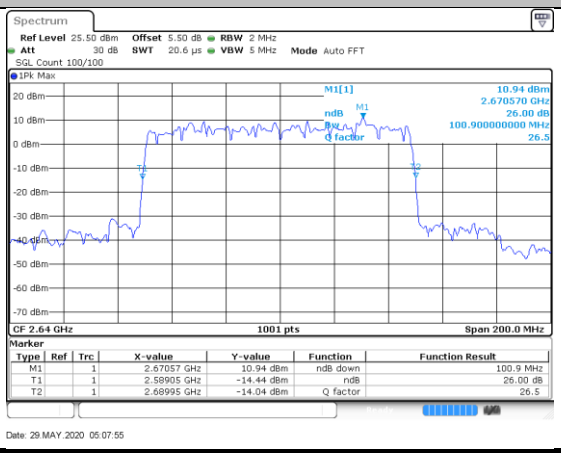
Middle Channel / 16QAM



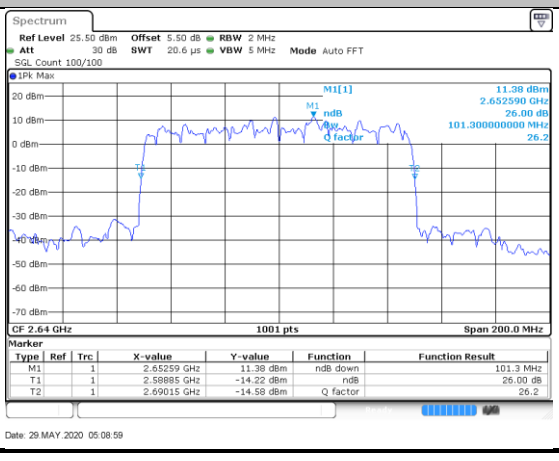
Middle Channel / 64QAM

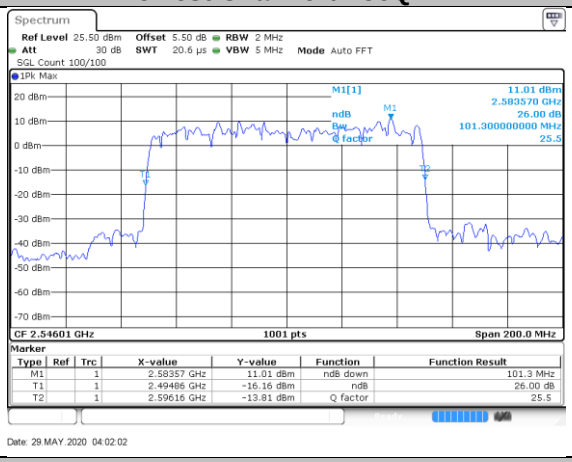
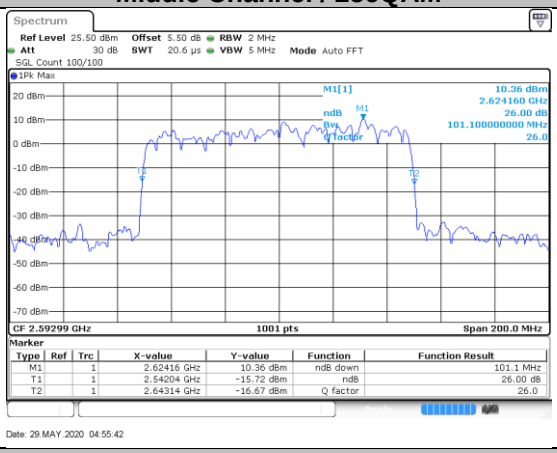
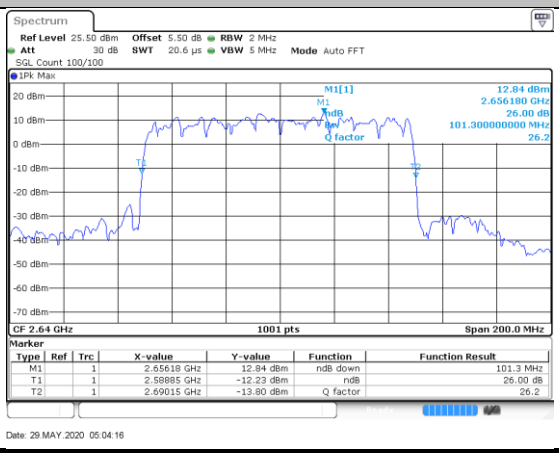


Highest Channel / 16QAM



Highest Channel / 64QAM



n41 100MHz	
Lowest Channel / 256QAM	
	
Middle Channel / 256QAM	
	
Highest Channel / 256QAM	
	

Occupied Bandwidth

Mode	n41 : OB BW(MHz)											
BW	20MHz		40MHz		50MHz		60MHz		80MHz		90MHz	
Mod.	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM	QPSK	16QAM
Lowest CH	18.50	18.50	36.04	36.20	46.55	46.15	57.90	59.82	77.68	76.40	87.75	87.57
Middle CH	18.34	18.66	36.76	35.96	46.55	45.95	58.14	58.86	76.24	77.36	87.21	86.67
Highest CH	18.42	18.38	36.52	36.12	45.95	46.25	57.90	58.02	76.40	77.84	87.57	87.75
Mode	n41 : OB BW(MHz)											
BW	20MHz		40MHz		50MHz		60MHz		80MHz		90MHz	
Mod.	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM	64QAM	256QAM
Lowest CH	18.26	18.18	35.96	35.64	45.85	46.15	59.82	57.54	75.92	77.36	85.59	85.41
Middle CH	18.66	18.50	35.72	36.20	45.65	45.85	59.94	58.50	76.72	76.88	87.21	84.87
Highest CH	18.54	18.46	36.76	35.88	46.15	46.45	57.90	58.86	74.16	77.36	87.21	87.57
Mode	n41 : OB BW(MHz)											
BW	20MHz		40MHz		50MHz		60MHz		80MHz		90MHz	
Mod.	BPSK		BPSK		BPSK		BPSK		BPSK		BPSK	
Lowest CH	18.74		36.04		46.45		60.06		77.20		85.41	
Middle CH	18.46		35.80		45.55		58.26		70.16		87.03	
Highest CH	18.22		36.28		45.75		58.38		77.20		87.93	
Mode	n41 : OB BW(MHz)											
BW	100MHz											
Mod.	BPSK	QPSK	16QAM	64QAM	256QAM							
Lowest CH	97.30	96.70	96.10	96.70	96.30							
Middle CH	96.70	98.30	96.70	96.90	98.30							
Highest CH	98.50	96.50	98.30	98.10	95.90							