TEST REPORT

Report Number:		R14417832-E1
Customer	:	Bureau Veritas 100 Northpointe Pkwy Buffalo, NY 14228-1884 USA
Manufacturer	:	JMA Wireless 140 Cortland Ave. Syracuse, NY 13202 USA
Model	:	PI-B260-DF10400A
FCC ID	:	2A9VB-PIB260
EUT Description	:	5G-NR base station
Test Standard	:	FCC 47 CFR PART 30

Date Of Issue:
August 14, 2023

Prepared by:
UL LLC
12 Laboratory Dr.
Research Triangle Park, NC 27709 U.S.A.
TEL: (919) 549-1400

ACCREDITED
CERT #0751.06

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2023-05-10	Initial Release	Mike Heckrotte
V2	2023-08-14	Misc. editorial updates	Mike Antola

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1. ATTESTATION OF TEST RESULTS

CUSTOMER NAME:	Bureau Veritas 100 Northpointe Pkwy Buffalo, NY 14228-1884 USA
EUT DESCRIPTION:	5G-NR base station
MANUFACTURER:	JMA Wireless 140 Cortland Ave. Syracuse, NY 13202 USA
MODEL:	PI-B260-DF10400A
SERIAL NUMBERS:	J2232200294
SAMPLE RECEIVE DATE:	2022-10-13
DATE TESTED:	2022-10-18 to 2022-11-17

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 30 Base Station Transmitter (5G)	Complies

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document.

Approved & Released For
UL LLC By:

Michael Heckrotte
Principal Engineer
Consumer Technology Division
UL LLC

Tested By:

Henry Lindbo
Laboratory Engineer
Consumer Technology Division
UL LLC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with following methods.

1. FCC CFR 47 Part 2
2. FCC CFR 47 Part 30
3. ANSI C63.26-2015
4. KDB 842590 D01 Upper Microwave Flexible Use Service v01r02
5. KDB 971168 D01 Power Meas. License Digital Systems v03r01
6. KDB 662911 D01 Multiple Transmitter Output v02r01

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Dr., RTP, NC 27709, USA and 2800 Perimeter Park Dr., Suite B, Morrisville, NC 27560, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

2800 Perimeter Park Dr.	12 Laboratory Dr.
☒ Chamber 3 - mmWave	☐ Chamber A
☐ Chamber 1	☐ Chamber C
☒ Chamber 2	
☒ Chamber 4	

UL LLC is accredited by A2LA, Cert. No. 751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☐	12 Laboratory Drive Research Triangle Park, NC 27709, U.S.A.	US0067	2180C	825374
☒	2800 Perimeter Dr., Suite B, Morrisville, NC 27560, U.S.A.		27265	

Chamber 3 is a fully anechoic chamber dedicated to make measurements to TRP limits from 18-40 GHz, and field strength, EIRP and TRP measurements at and above 40 GHz. The measurement antenna is nominally 1.5 m high in accordance with C63.10-2013 procedures developed by the C63 mmWave Joint Task Group for inclusion in the next editions of C63.10 and C63.26, and applicable FCC KDB documents. The absorber reflectivity fully supports chamber performance over this frequency range. The dimensions of the chamber are approximately 6.7m (L) by 3.7m (W) by 3.1m (H).

4. CALIBRATION AND UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

4.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{LAB}
Radiated Disturbance, Worst-case Below 40 GHz	6.2 dB *
Radiated Disturbance Above 40 GHz	2.9 dB
Temperature	0.3 %

*MU includes the additional level uncertainty of the instrument due to temperature deviations from self alignment

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an integrated, compact form factor 5G-NR base station which operates between 37.0 and 37.6 GHz in the n260 band.

5.2. SOFTWARE AND FIRMWARE

EUT Firmware version: 3.x

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The EUT utilizes 4 TX and 4 RX dual circular polarized patch antenna array with 2 x 5 elements per antenna. Its dimensions are 22.3 x 5.3 mm with a normal gain of 12.0 dB at 37 GHz.

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5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Ethernet-fiber switch	Fibrolan	uFalcon-MX	708317090023	NA
DC power supply	Mean Well	UHP-350-48	HB84738361	NA
Laptop charger	Dell	LA65NS2-01	CN-0MGJN9-LOC00-762-4B9E-A04	NA
Support laptop	Dell	P75F	HKPMYL2	PD93165NG

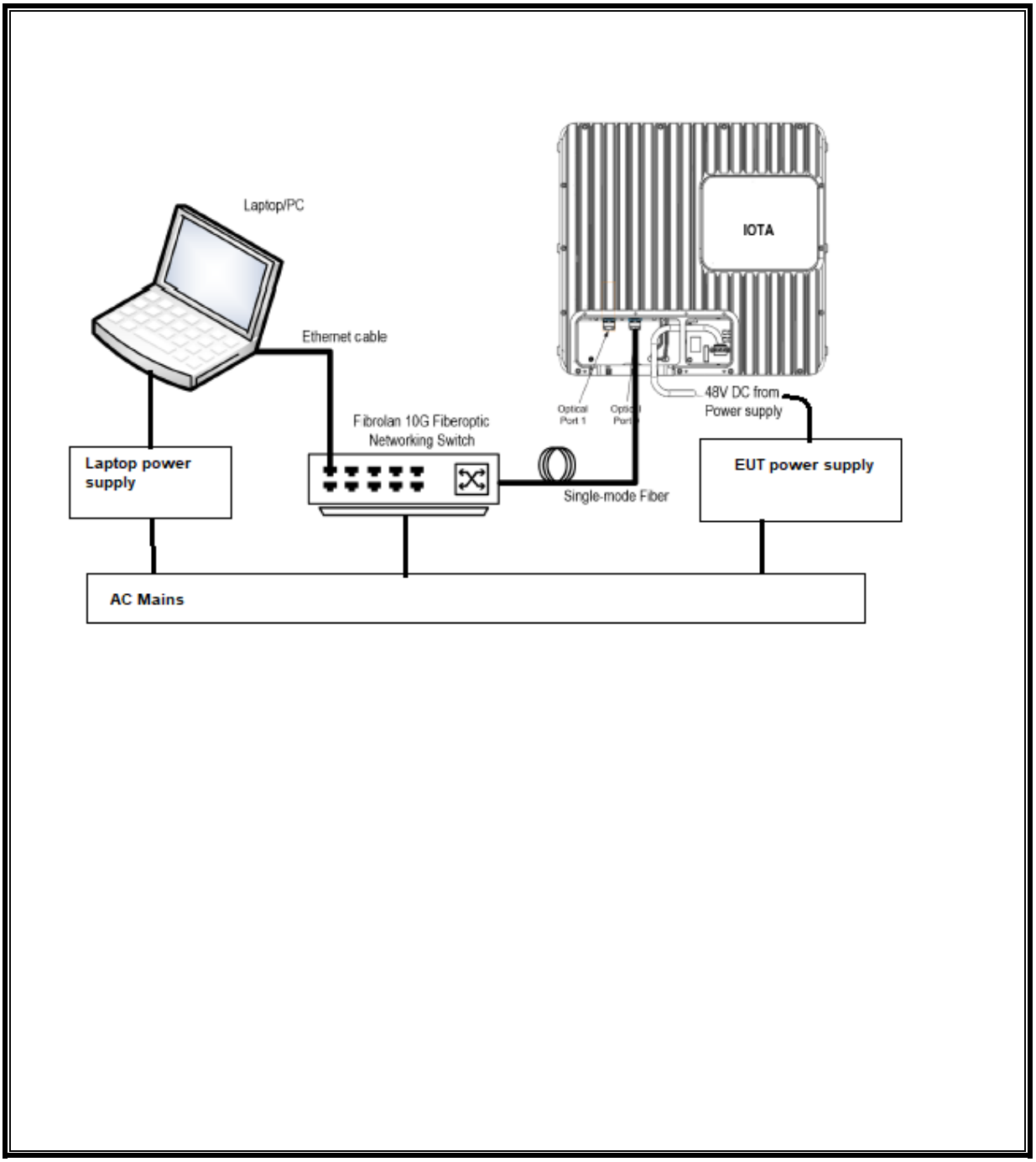
I/O CABLES

Cable No.	Cable Type	Cable Length (m)	Remarks
1	Fiber-optic	< 3	Data connection between Ethernet Switch and EUT
2	AC mains power	< 3	Power for Ethernet Switch
3	AC mains power	< 3	Power for EUT power supply
4	Ethernet	> 3	Data connection between Support Laptop and Ethernet Switch
5	DC	< 3	48 V DC for EUT

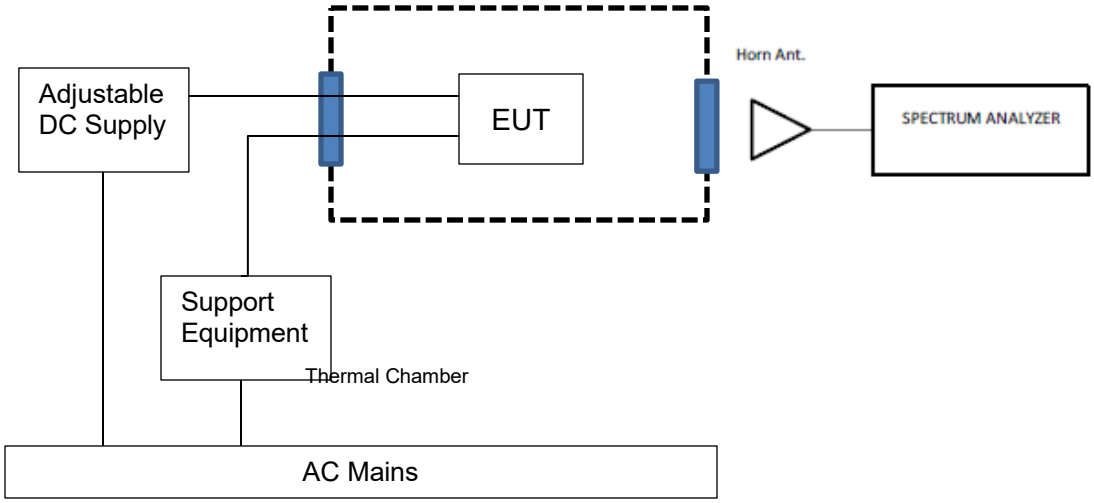
TEST SETUP

All testing was performed using FTM (Factory Test Mode) software at continuous Tx operation (with a duty cycle of 100%).

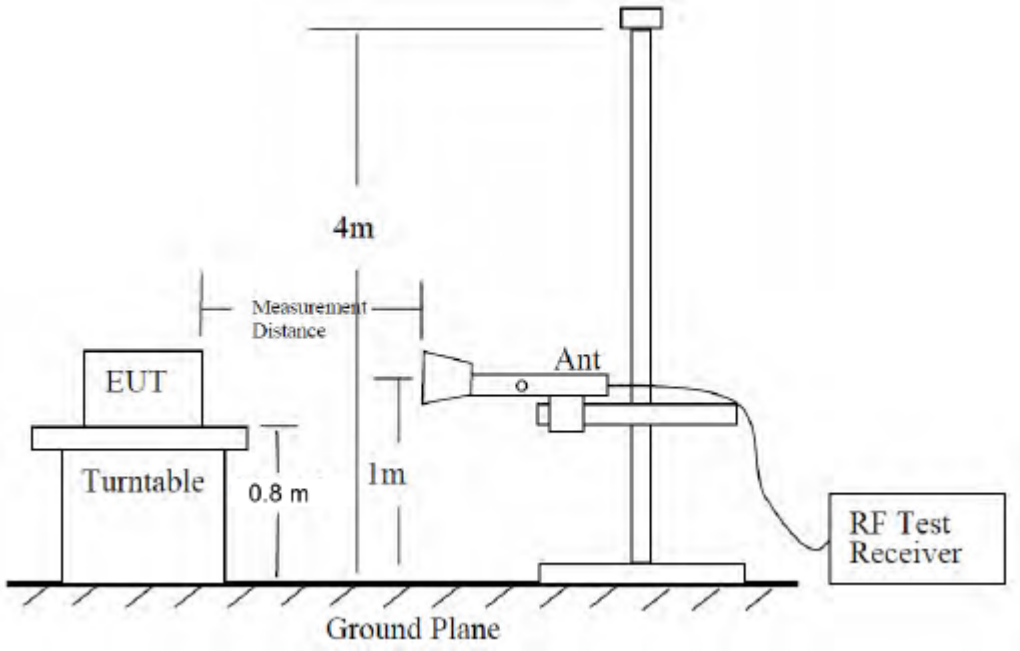
SETUP DIAGRAM FOR TESTS



FREQUENCY STABILITY



TEST SITE DIAGRAM – Below 1 GHz



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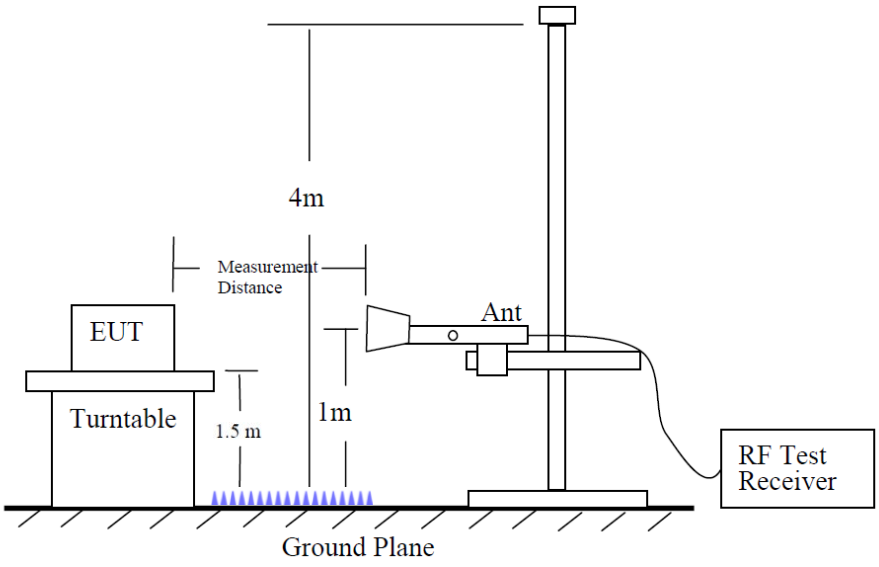
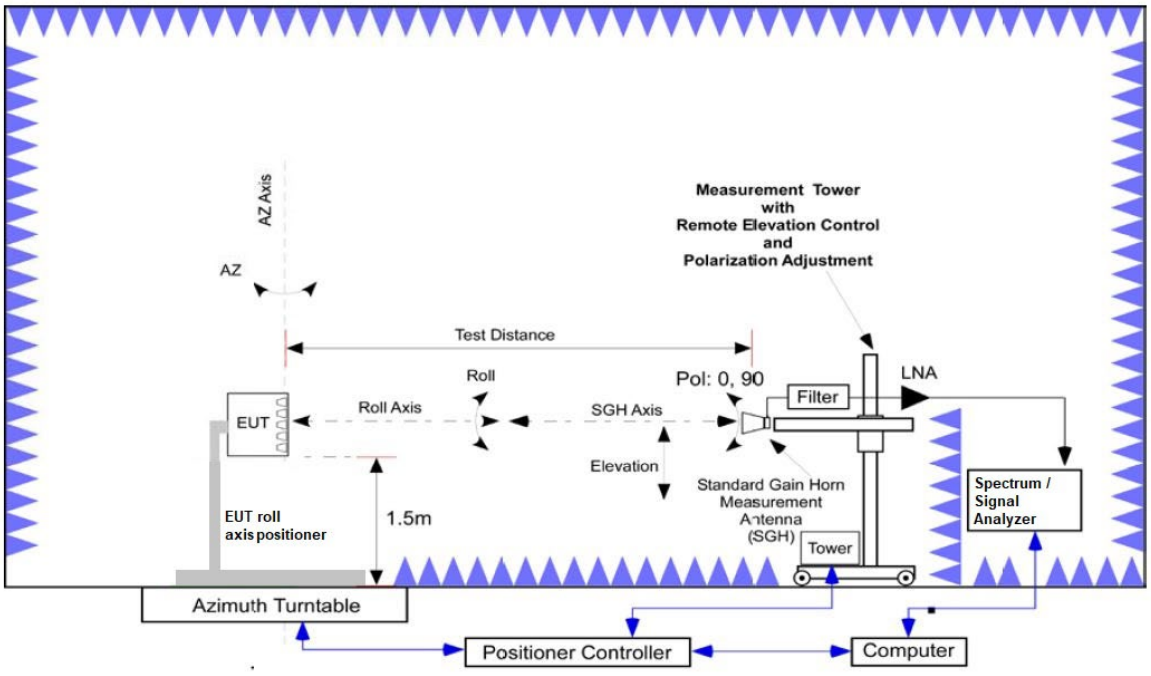
TEST SITE DIAGRAM – 1-18 GHz



TEST SITE DIAGRAM – TRP Above 18 GHz



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	30-1000 MHz				
AT0074	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2022-09-07	2023-09-07
	1-18 GHz				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-03-21	2023-03-21
	Gain-Loss Chains				
C2-SAC02	Gain-loss string: 25-1000MHz	Various	Various	2022-05-10	2023-05-10
C2-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-10	2023-05-10
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-03-08	2023-03-08
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
HI0092	Environmental Meter	Fisher Scientific	14-650-118 s/n 160938893	2022-03-17	2023-03-17

Test Equipment Used - mmWave Test Equipment (Morrisville – Chamber 3)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	18-40 GHz				
204907	Horn Antenna, 18-26.5GHz	Com Power	AH-826	2022-03-16	See note *
204908	Horn Antenna, 26.5-40GHz	Com Power	AH-640	2022-03-16	See note *
	40-50 GHz				
206209	Standard Gain Horn, 40-50GHz	Custom Microwave Inc.	HO22R	2022-03-16	See note *
205910	Low Noise Amplifier	Eravant	SBL-3335033040-2222-E1	2022-01-07	2023-01-07
207949	Band Pass Filter	Eravant	SWF-4510460-2F2F-B1	2022-01-07	2023-01-07

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	50-75 GHz				
206203	Standard Gain Horn, 50-75GHz	Custom Microwave Inc.	HO15R	2022-03-16	See note *
206607	WR15 Downconverter	VDI	WR15.0SAX-F	2022-06-17	2023-06-17
205911	Low Noise Amplifier	Eravant	SBL-5037531850-1515-E1	2022-01-14	2023-01-14
	75-110 GHz				
206222	Standard Gain Horn, 75-110GHz	Custom Microwave Inc.	HO10R	2022-03-16	See note *
207249	WR10 Downconverter	VDI	WR10.0SAX-F	2022-06-17	2023-06-17
205913	Low Noise Amplifier	Eravant	SBL-7531142050-1010-E1	2022-01-11	2023-01-11
	110-170 GHz				
206242	Standard Gain Horn, 110-170GHz	Custom Microwave Inc.	HO6R	2022-03-16	See note *
206555	WR6.5 Downconverter	VDI	WR6.5SAX-F	2022-06-17	2023-06-17
205912	Low Noise Amplifier	Eravant	SBL-1141741860-0606-E1	2022-06-30	2023-06-30
	170-260 GHz				
206244	Standard Gain Horn, 170-260GHz	Custom Microwave Inc.	HO4R	2022-03-16	See note *
206556	WR4.3 Downconverter	VDI	WR4.3SAX-F	2022-06-17	2023-06-17
	Receiver & Software				
206459	Spectrum Analyzer	Rohde & Schwarz	FSW50	2022-03-23	2023-03-23
mmWave	mmWave Software	UL	V2022.1.25		
	Additional Equipment used				
210643	Environmental Meter	Fisher Scientific	15-077-963	2021-08-16	2023-08-16

*- All horn antennas are standard gain horns. In accordance with C63.26 clause 4.5.3 (a) these antennas do not need to be annually calibrated. UL measures the critical dimensions on an annual basis and checks for damage and deterioration before each test.

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	Conducted Room 1				
214284	Spectrum Analyzer	Rohde & Schwarz	FSW50	2022-01-11	2023-01-11
204705	Horn Antenna, 26.5-40GHz	Com Power	AH-640	2022-07-11	2023-07-11
207726	Temp/Humid Chamber	Thermotron	SM-32-8200	2022-01-25	2023-01-25
HI0091	Environmental Meter	Fisher Scientific	15-077-963	2022-07-20	2023-07-20
	Additional Equipment used				
MM0166	True RMS Multimeter	Agilent	U1232A	2022-07-12	2023-07-12
ZPS025	DC Power Supply	Sorensen	DCS60-18E	N/A	NA

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2022-09-12	2023-09-12
	Gain-Loss Chains				
C4-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2022-05-20	2023-05-20
	Receiver & Software				
206496	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-02-15	2023-02-15
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
21642	Environmental Meter	Fisher Scientific	15-077-963 (s/n 210701692)	2021-08-16	2023-08-16

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
2.1049	Occupied Bandwidth	N/A	Radiated	Compliant
2.1046 30.202	Equivalent Isotropic Radiated Power (EIRP)	+75 dBm / 100 MHz EIRP	Radiated	Compliant
2.1051 30.203	Out-of-Band Emissions at the Band Edge	-13 dBm/MHz for All out-of-band emissions. -5 dBm/MHz from the band edge up to 10% of the channel BW	Radiated	Compliant
2.1051 30.203	Spurious Emissions	-13 dBm/MHz for all out-of-band emissions	Radiated	Compliant
2.1055	Frequency Stability	N/A	Radiated	Compliant

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8. APPLICABLE LIMITS AND TEST RESULTS

8.1. FAR-FIELD DISTANCE AND MEASUREMENT DISTANCE

The equipment under test was transmitting while connected to its integral antenna and is mounted to a roll-axis positioner, placed on a turntable.

The measurement distance is in the far field per formula $2D^2/\lambda$ where D is the larger dimension of the antenna.

For fundamental & band edge emissions, the largest far-field distance of the EUT antenna shall be used. The largest dimension of the integral antenna is approximately 100 mm, which yields a far field measurement distance of approximately 2.5 meters at 37 GHz. As such, all in-band testing was performed at a 3-meter distance.

For above 18 GHz spurious emissions, the far-field distance is based on the measurement antenna. The EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest EIRP reading on the receive spectrum analyzer.

Frequency Range (GHz)	Wavelength (m)	Far Field Distance (m)	Measurement Distance Used (m)
18-26.5	0.0113	2.10	3.00
26.5-40	0.0075	1.66	3.00
40-50	0.0060	0.59	3.00
50-75	0.0040	0.39	3.00
75-110	0.0027	0.26	3.00
110-170	0.0018	0.16	3.00
170-200	0.0015	0.11	2.00

Radiated power levels are investigated while the receive antenna was rotated through all polarization angles to determine the worst-case polarization/positioning.

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8.2. WORST CASE CONFIGURATION AND MODE

For all 5G NR FR2 Bands, the worst-case scenario for all measurements is based on the EIRP measurement investigation results, comparing to TRP limits to demonstrate compliance. Testing was performed at all of the supported bandwidth / CC configurations (100 MHz 1CC, 100 MHz 2CC, 100 MHz 3CC, and 100 MHz 4CC) and the highest and lowest MCS level for all supported modulations (64QAM MCS28, 64QAM MCS17, 16QAM MCS16, 16QAM MCS10, QPSK MCS9, and QPSK MCS0).

For Bandedge and spurious emissions the EIRP is compared to the TRP limit to demonstrate compliance.

The fundamental and radiated spurious emission were investigated in all orthogonal orientations X (landscape), Y (portrait), Z (flatbed) and Roll, where applicable. The final optimum position resulting in the highest EIRP for the frequency or band under investigation is placed on an open-air fixture allowing no blockage of the signal as measured by the receiving antenna.

The EUT was tested with the following maximum power settings:

Modulation	Power Setting	Worst Case Channel / CC Configuration	Worst Case Power (dBm)
QPSK MCS0	max power	3CC high channel	41.52
QPSK MCS9	max power	4CC high channel	40.53
16QAM MCS10	max power	3CC high channel	41.40
16QAM MCS16	max power	4CC high channel	40.52
64QAM MCS17	max power	4CC high channel	40.49
64QAM MCS28	max power	4CC high channel	41.18

8.3. OCCUPIED BANDWITH

RULE PART

FCC: §2.1049

LIMIT

For reporting purposes only

TEST PROCEDURES

99% bandwidth measurement function of the signal analyzer was used to measure 99% occupied.

- RBW = 1 – 5% of OBW
- VBW ≥ 3 x RBW
- Detector = Peak
- Trace mode = Max Hold
- Sweep = Auto Couple
- The trace was allowed to stabilize

KDB 842590 D01 Upper Microwave Flexible Use Service v01 Section 4.3
ANSI C63.26-2015 Clause 5.4.3.

All supported CC configurations and modulations were tested at low, middle, and high channels, except for 4CC which was only tested at low and high channels.

RESULTS

See the following pages.

TESTED BY

Employee IDs: 84445, 23854, 11322
Test Dates: 2022-10-18 to 2022-11-17
Test Location: Chamber 3

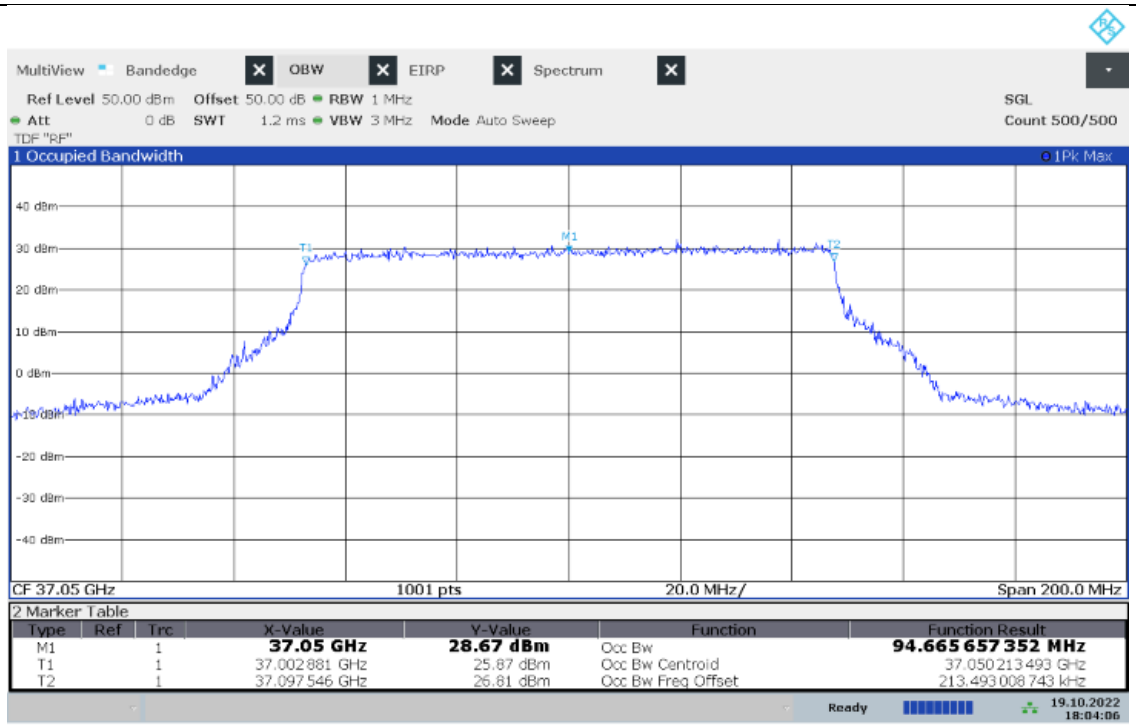
8.3.1. OCCUPIED BANDWIDTH RESULTS

Modulation	Channel	Frequency (GHz)	Channel BW (MHz)	No. of Active CC's	Measurement Distance (m)	OBW (MHz)
QPSK MCS0	L	37.05	100	1	3	94.666
	M	37.3				94.618
	H	37.55				94.510
	L	37.1		2		193.519
	M	37.3				193.408
	H	37.5				193.213
	L	37.15		3		292.400
	M	37.3				292.237
	H	37.45				291.213
	L	37.2		4		391.842
	H	37.4				389.217
QPSK MCS9	L	37.05	100	1	3	94.716
	M	37.3				94.852
	H	37.55				94.597
	L	37.1		2		193.646
	M	37.3				193.880
	H	37.5				193.730
	L	37.15		3		292.698
	M	37.3				292.510
	H	37.45				291.552
	L	37.2		4		392.251
	H	37.4				389.764

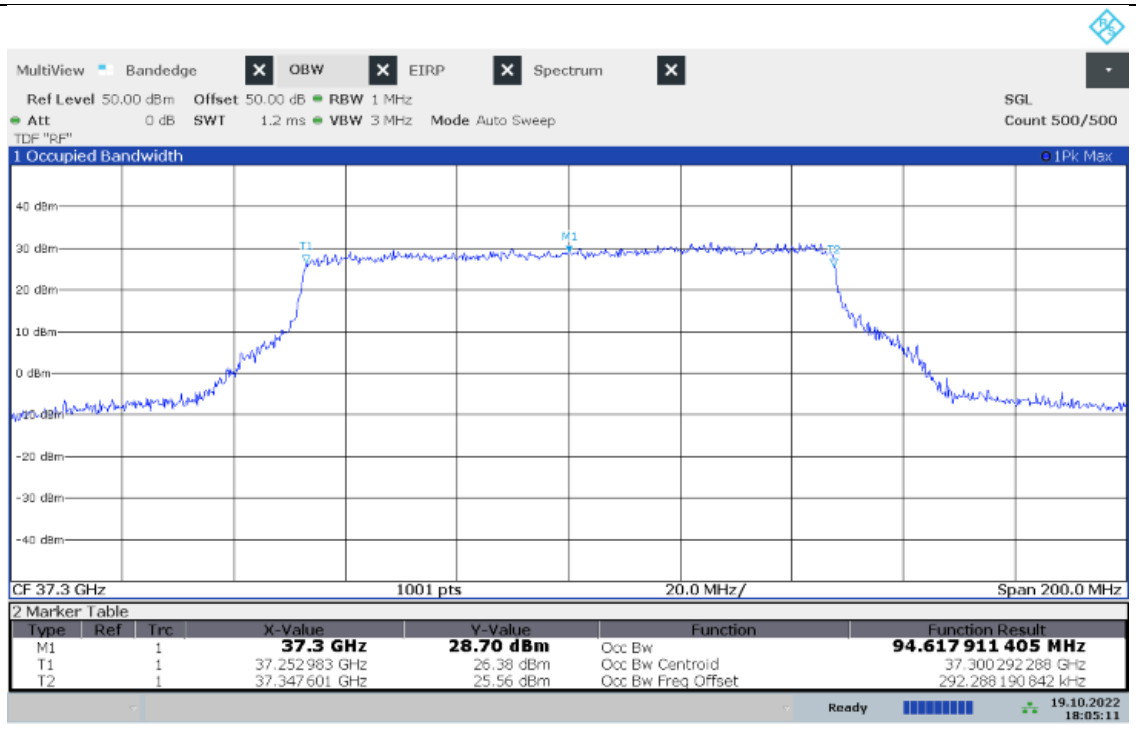
Modulation	Channel	Frequency (GHz)	Channel BW (MHz)	No. of Active CC's	Measurement Distance (m)	OBW (MHz)
16QAM MCS10	L	37.05	100	1	3	94.925
	M	37.3				94.842
	H	37.55				94.868
	L	37.1		2		193.926
	M	37.3				193.875
	H	37.5				193.487
	L	37.15		3		292.426
	M	37.3				292.892
	H	37.45				291.897
	L	37.2		4		391.107
	H	37.4				390.523
16QAM MCS16	L	37.05	100	1	3	94.646
	M	37.3				94.685
	H	37.55				94.720
	L	37.1		2		193.744
	M	37.3				193.858
	H	37.5				193.476
	L	37.15		3		292.569
	M	37.3				292.675
	H	37.45				291.441
	L	37.2		4		391.805
	H	37.4				389.942

Modulation	Channel	Frequency (GHz)	Channel BW (MHz)	No. of Active CC's	Measurement Distance (m)	OBW (MHz)
64QAM MCS17	L	37.05	100	1	3	94.648
	M	37.3				94.816
	H	37.55				94.783
	L	37.1		2		193.578
	M	37.3				193.779
	H	37.5				193.431
	L	37.15		3		292.697
	M	37.3				292.554
	H	37.45				291.441
	L	37.2		4		391.988
	H	37.4				390.121
64QAM MCS28	L	37.05	100	1	3	94.832
	M	37.3				94.810
	H	37.55				94.809
	L	37.1		2		193.800
	M	37.3				193.772
	H	37.5				193.571
	L	37.15		3		292.669
	M	37.3				292.782
	H	37.45				292.192
	L	37.2		4		391.878
	H	37.4				390.195

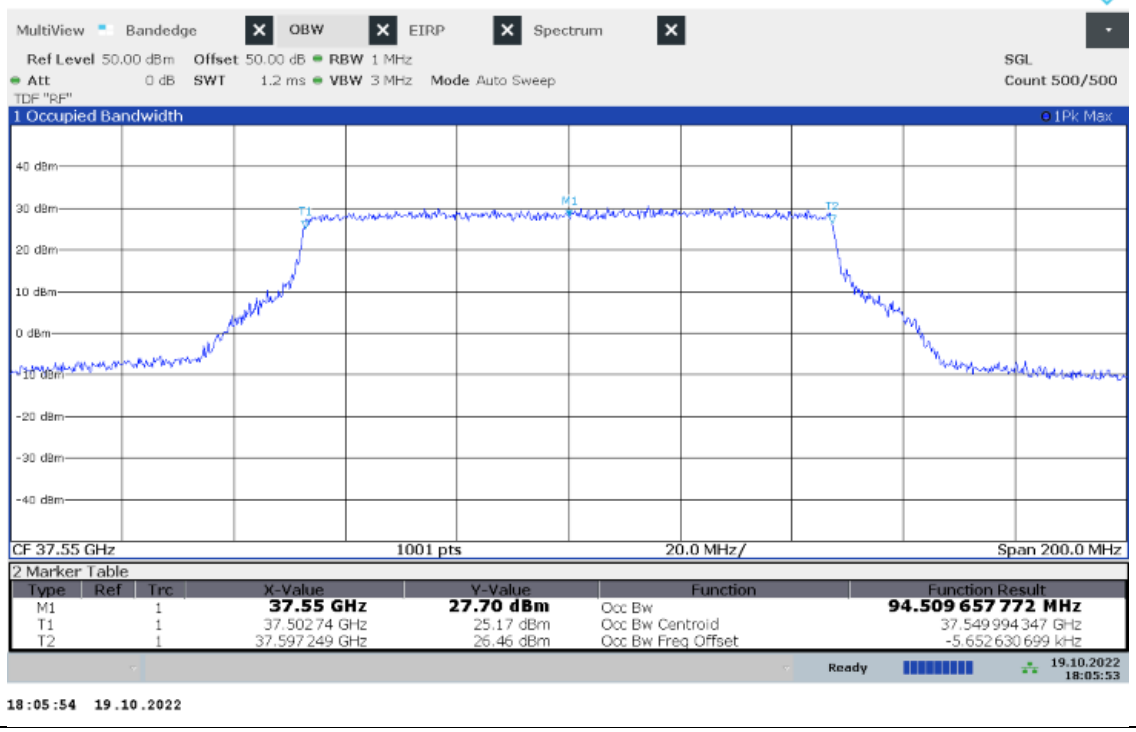
QPSK MCS0 1CC



Low Channel



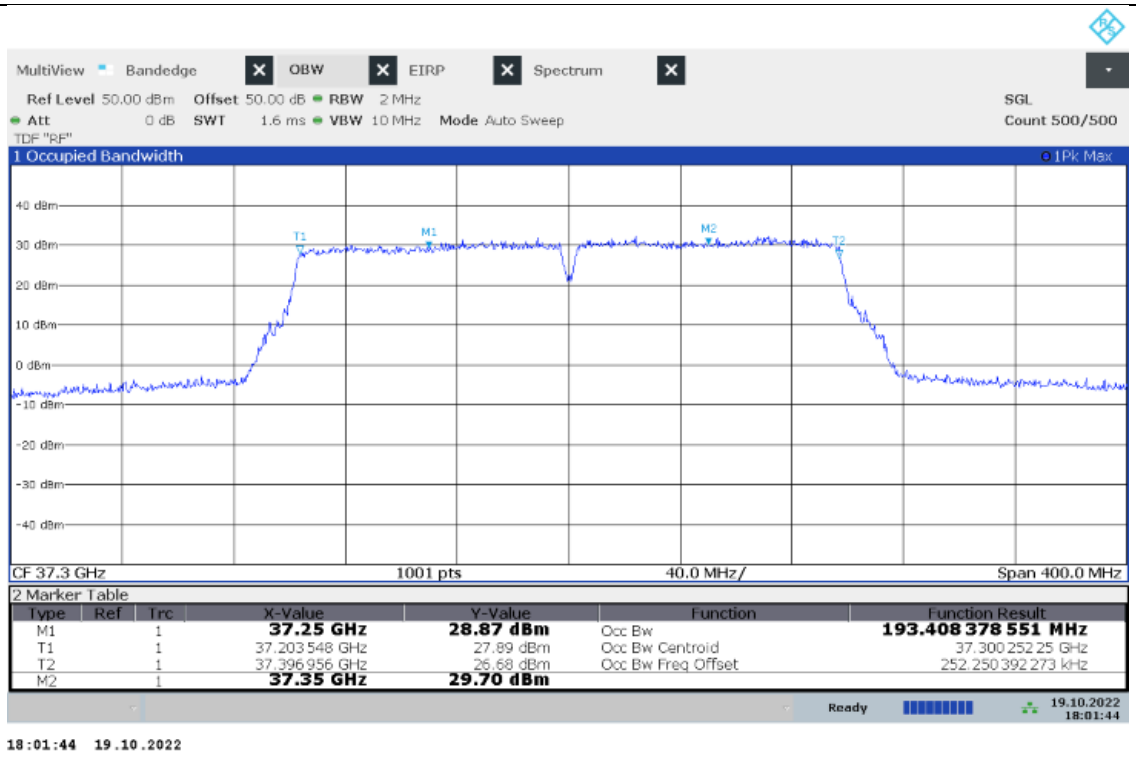
Mid Channel



High Channel

QPSK MCS0 2CC

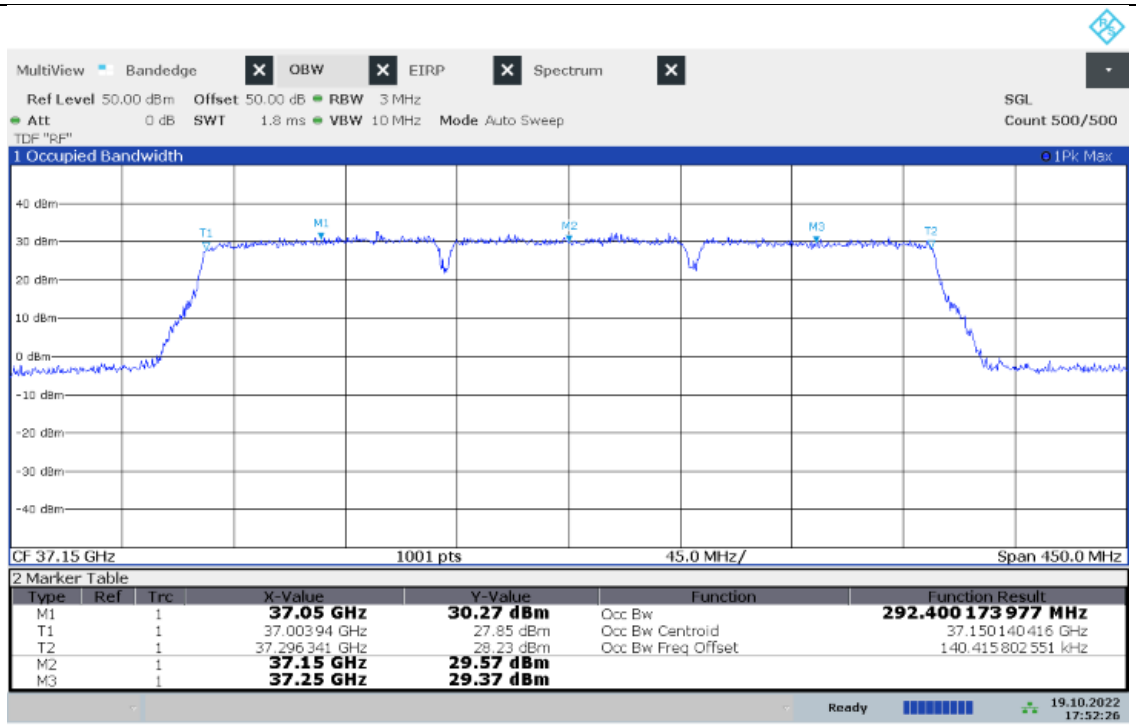
Low Channel



Mid Channel

High Channel

QPSK MCS0 3CC

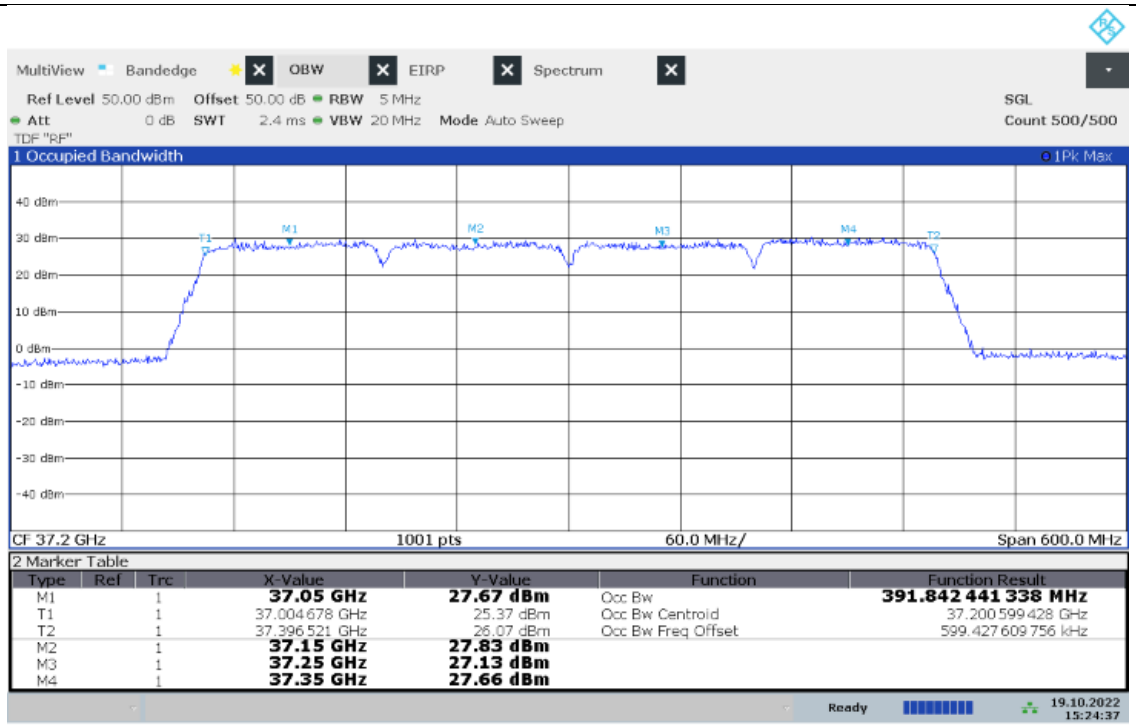


Low Channel

Mid Channel

High Channel

QPSK MCS0 4CC



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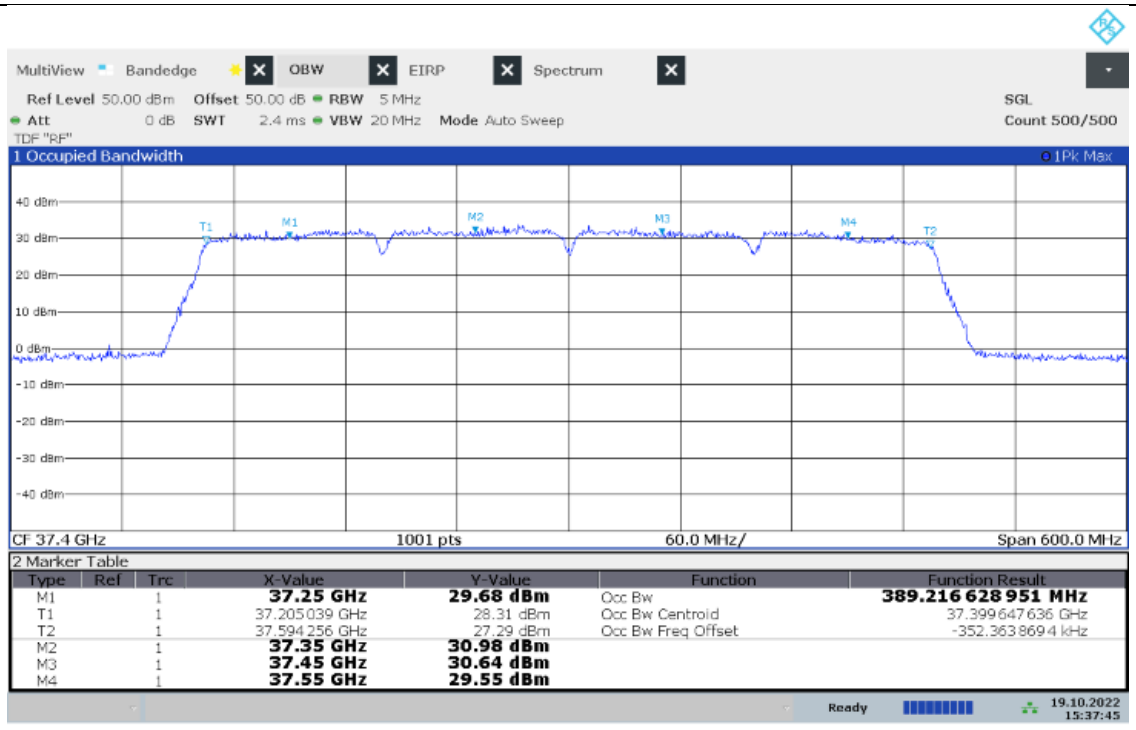
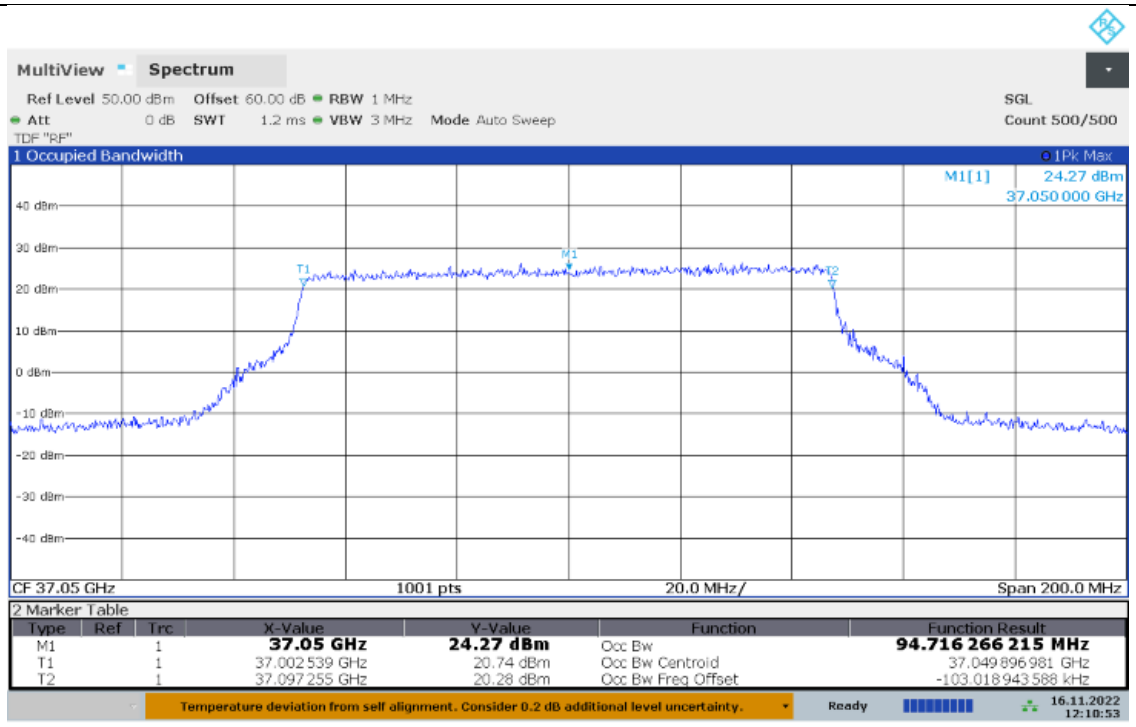
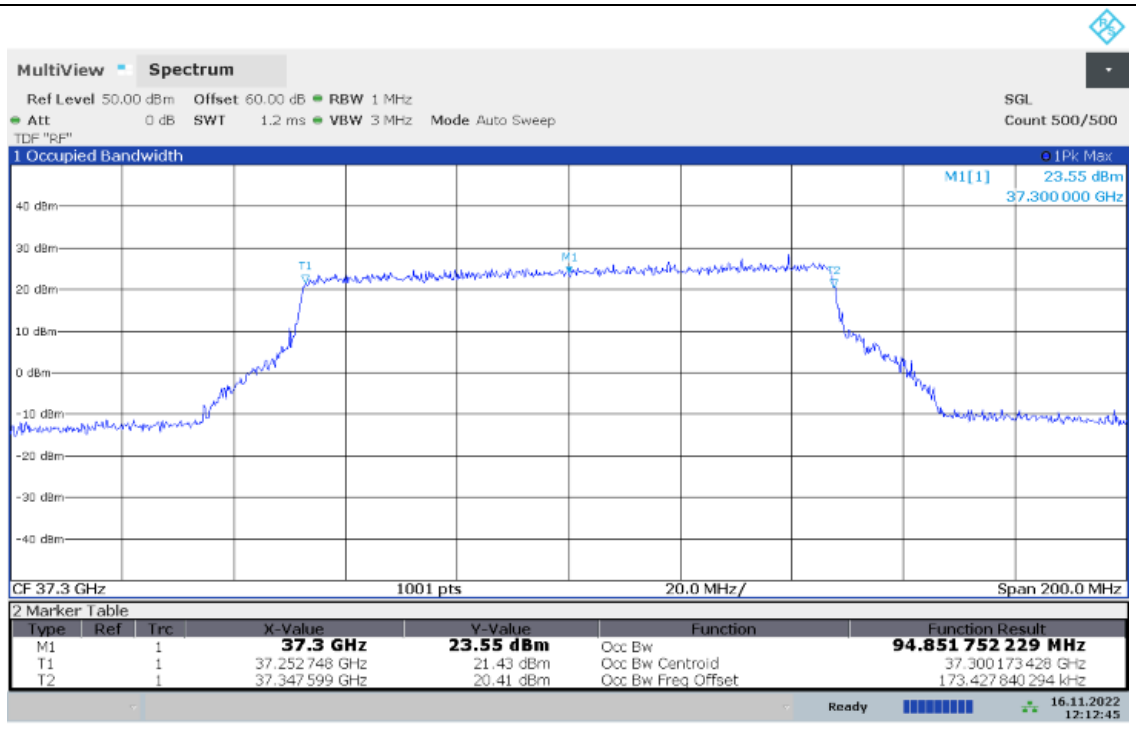


High Channel

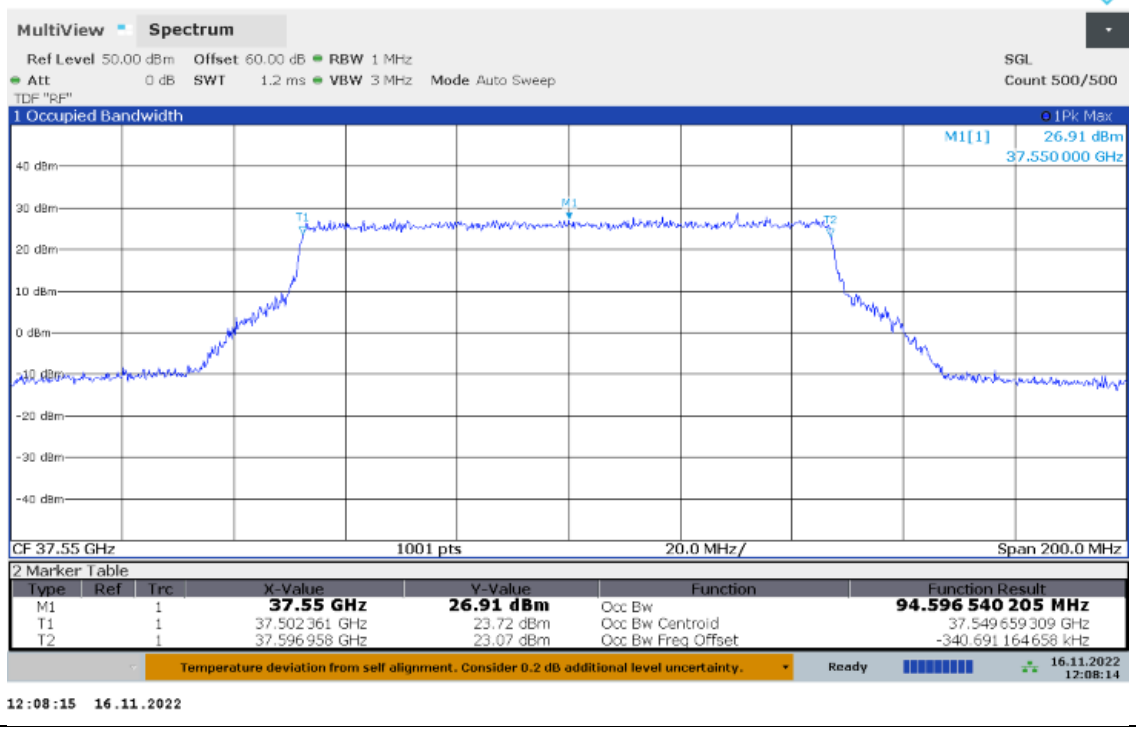
QPSK MCS9 1CC



Low Channel

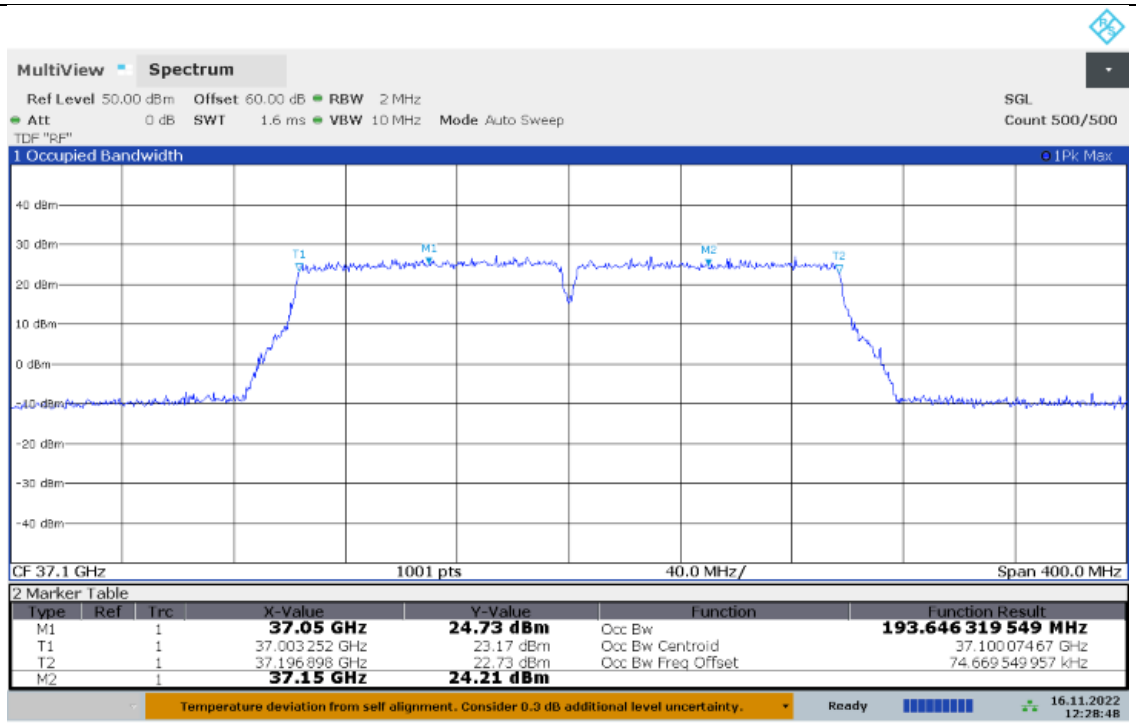


Mid Channel



High Channel

QPSK MCS9 2CC



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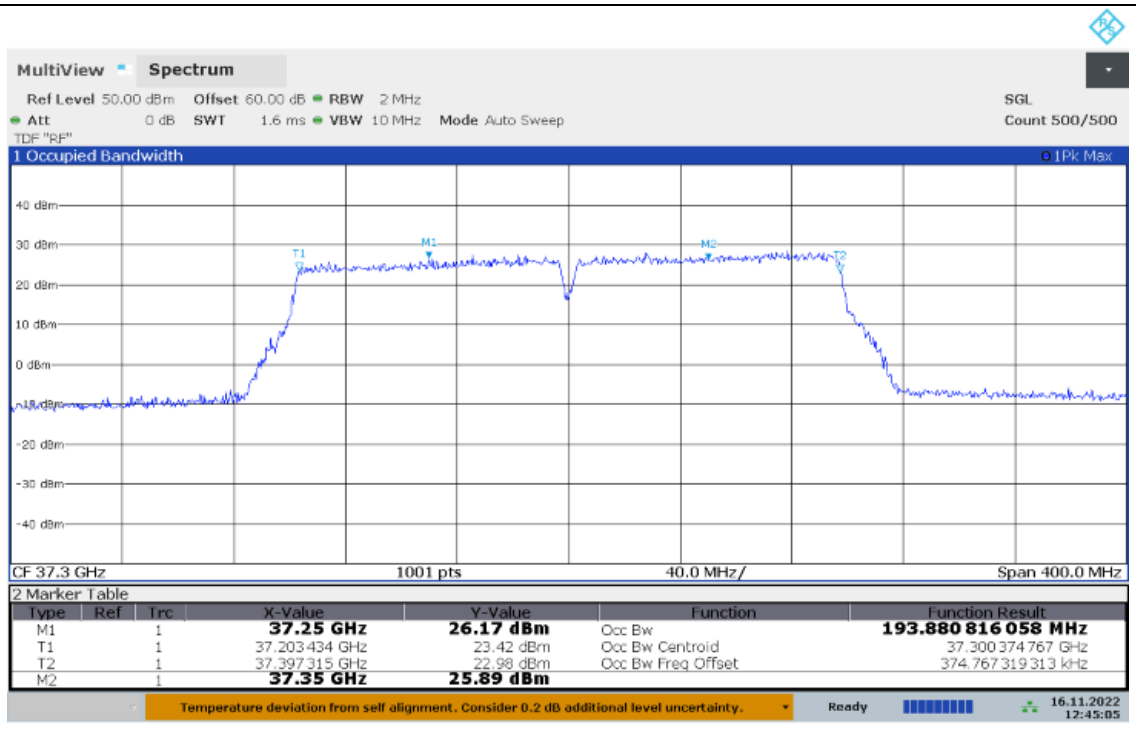

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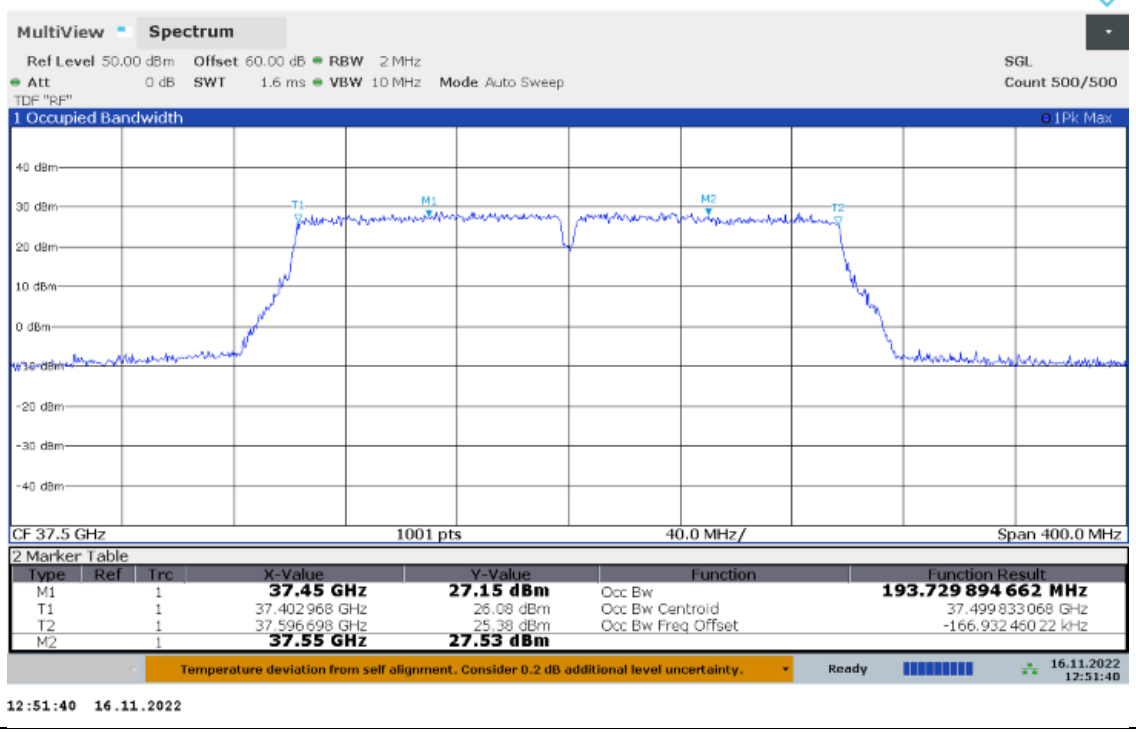

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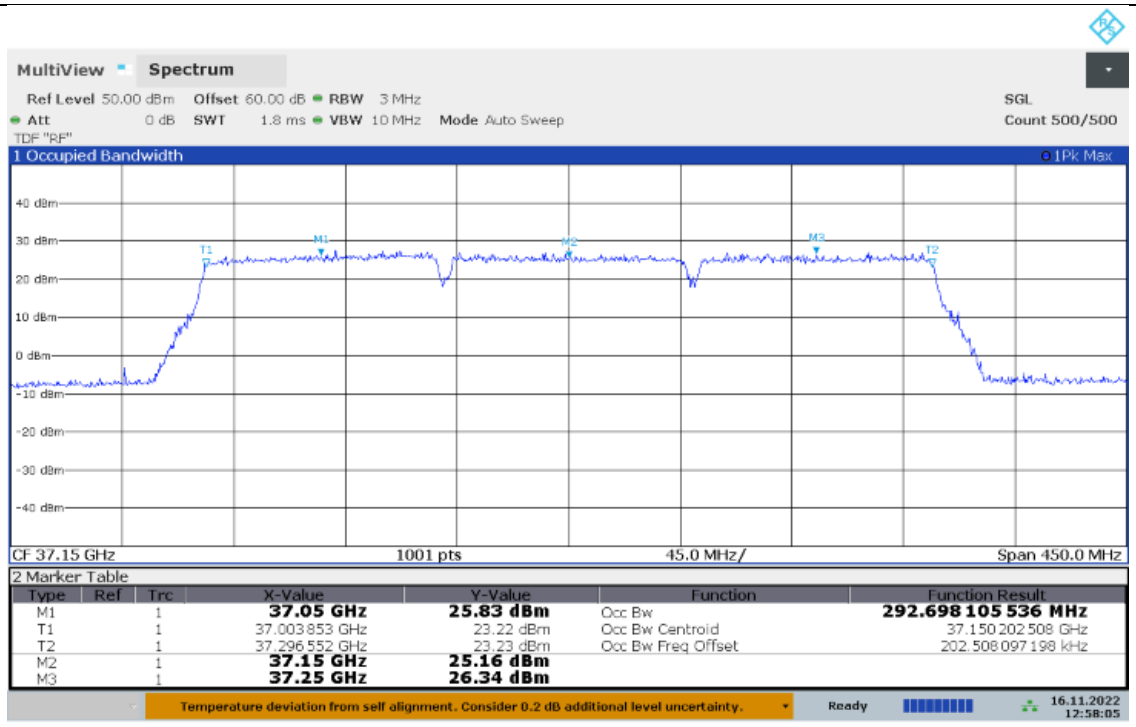

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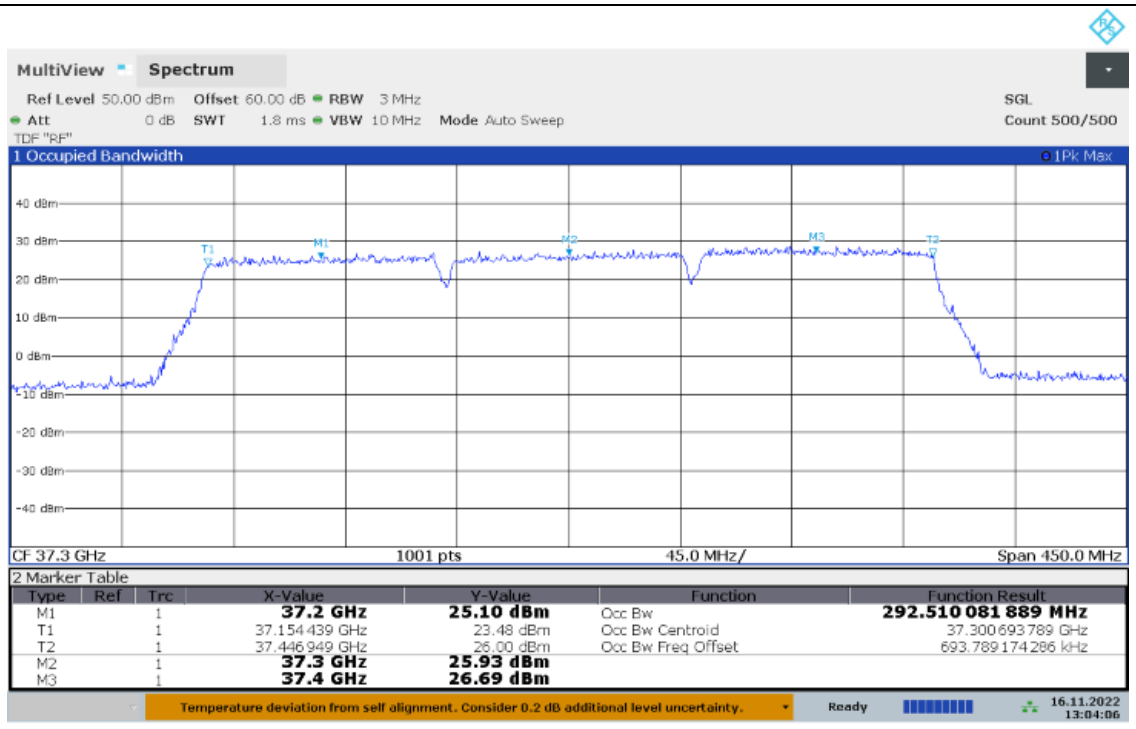

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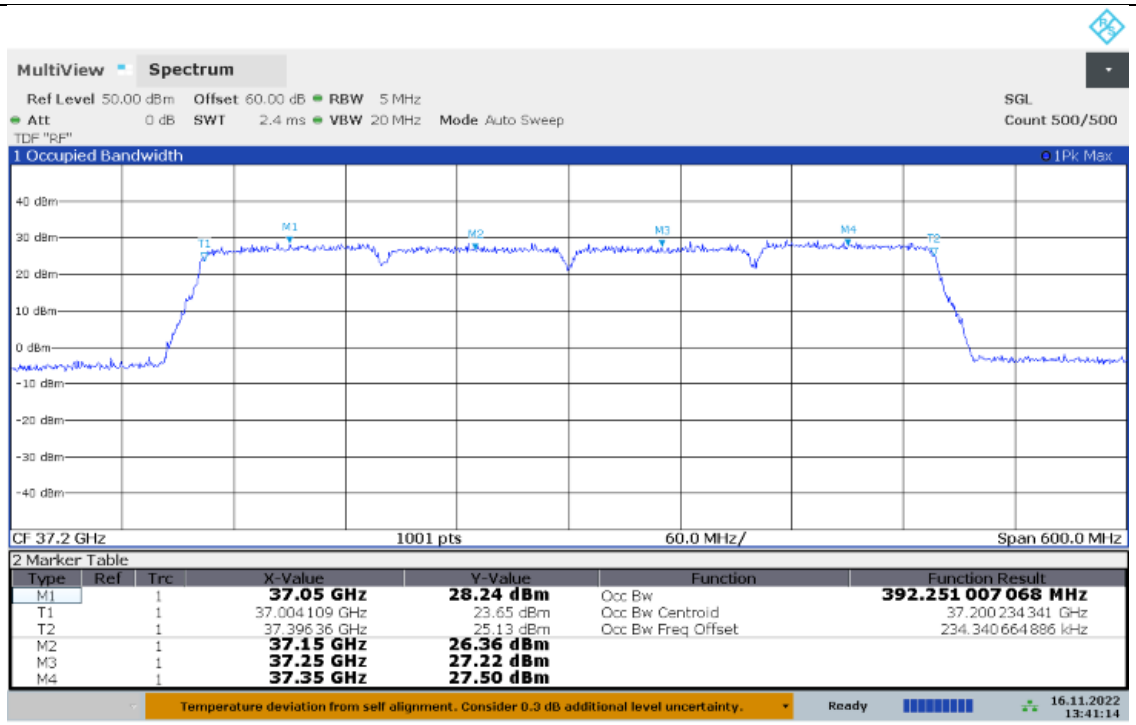

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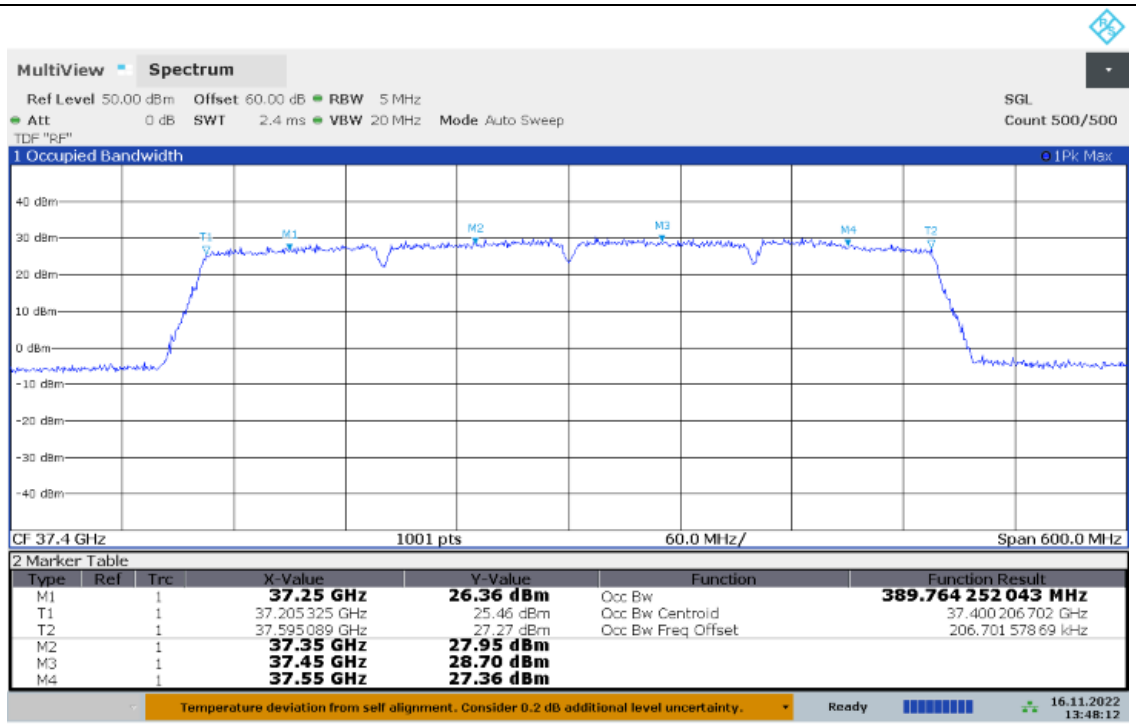

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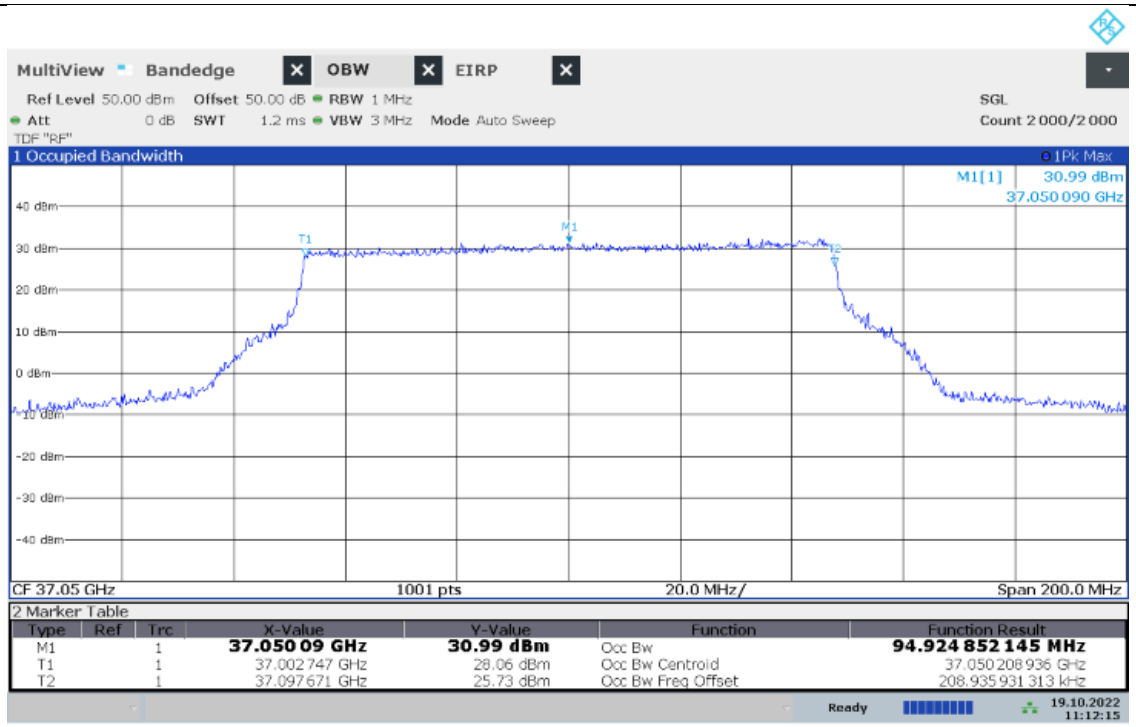

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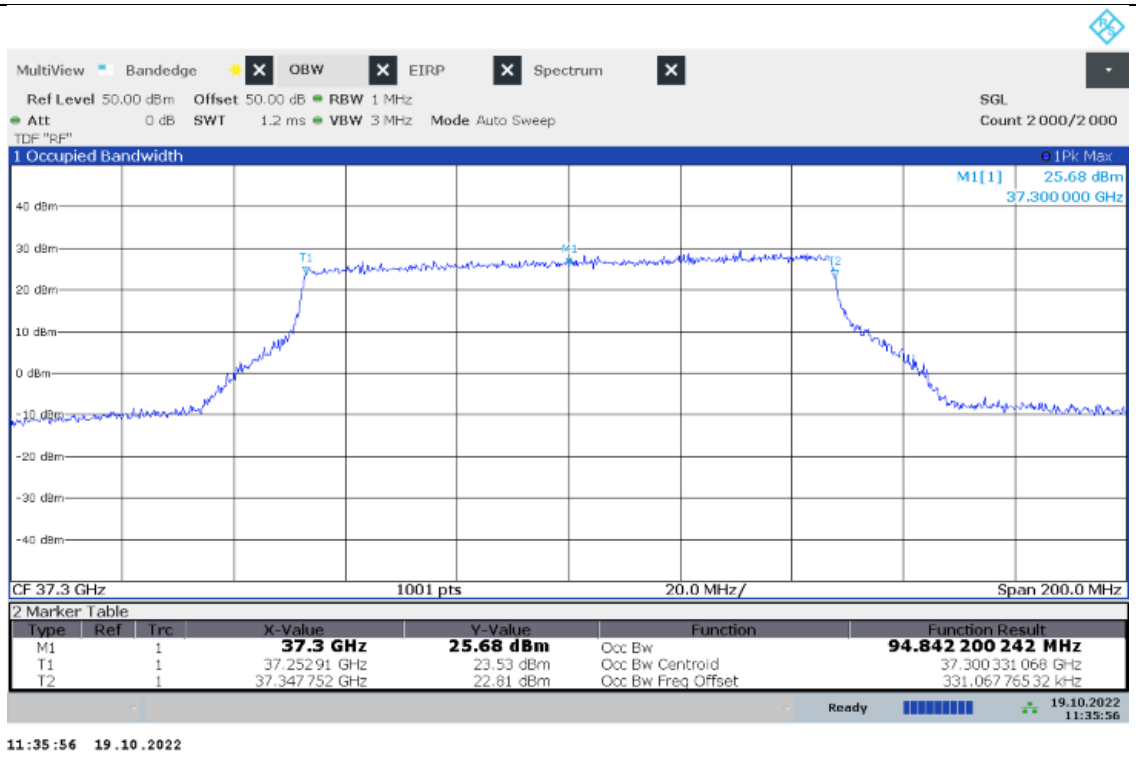

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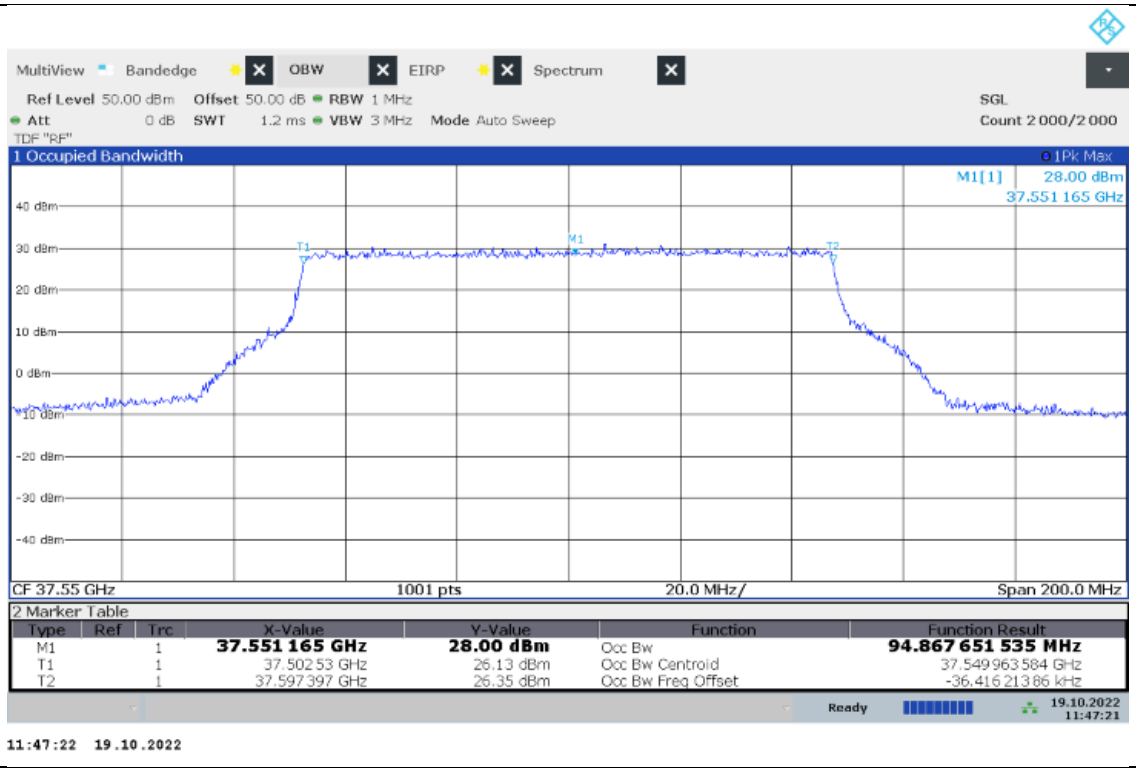

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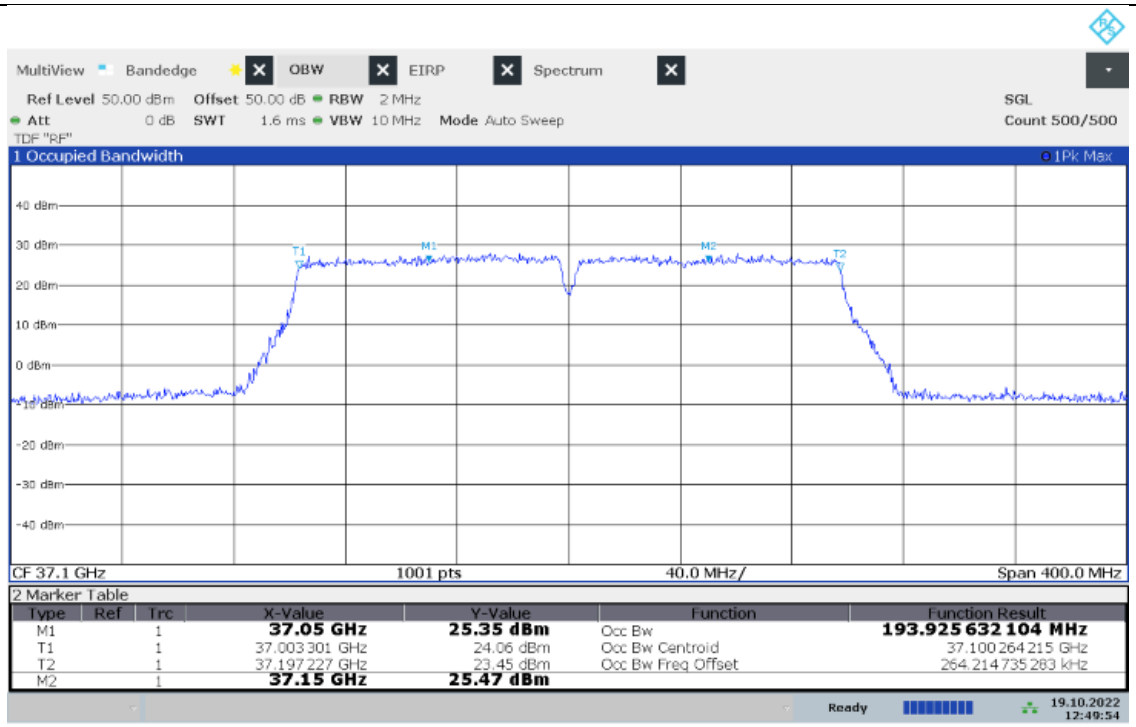

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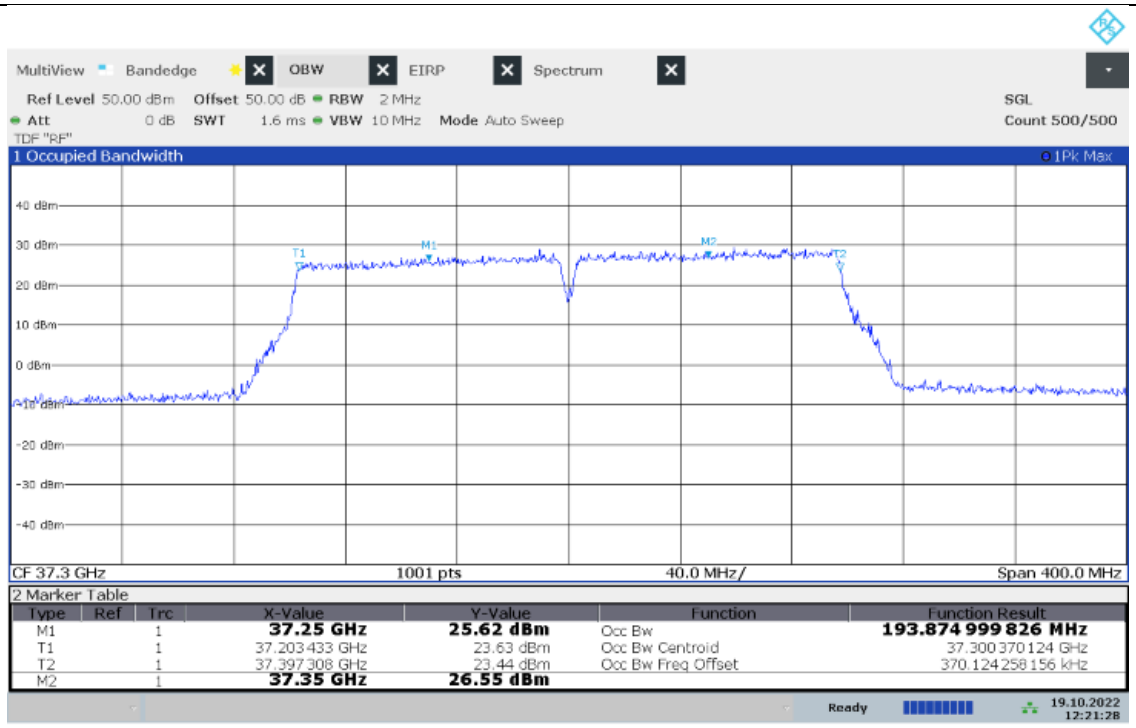

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High Channel

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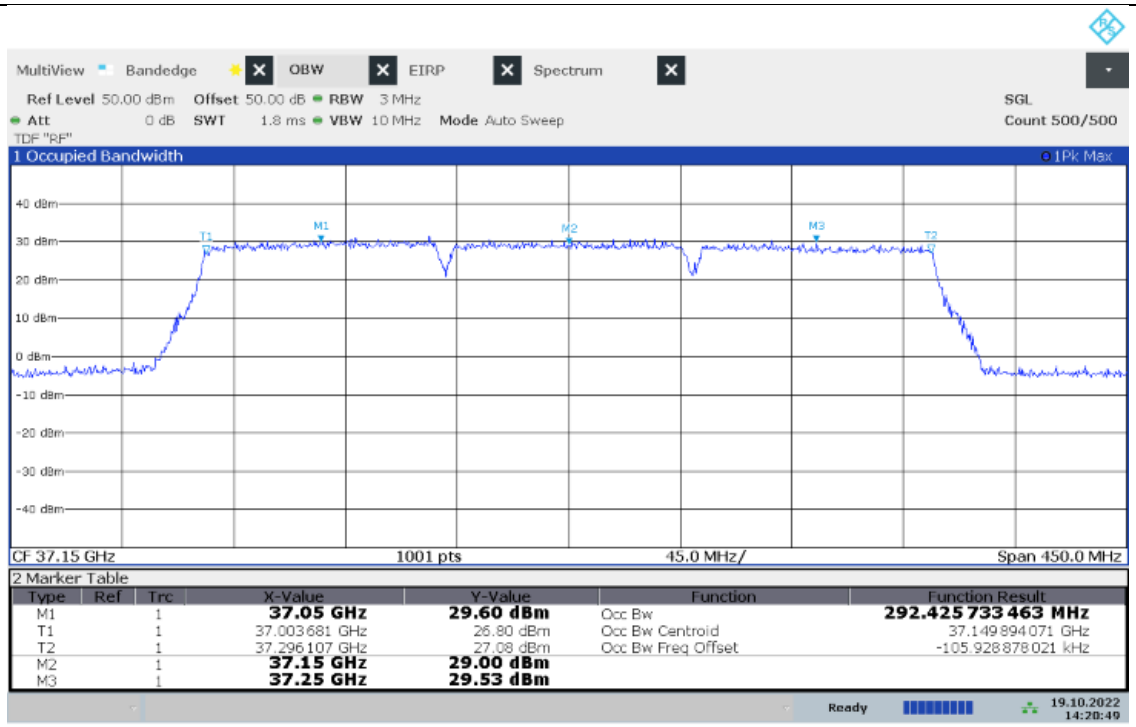

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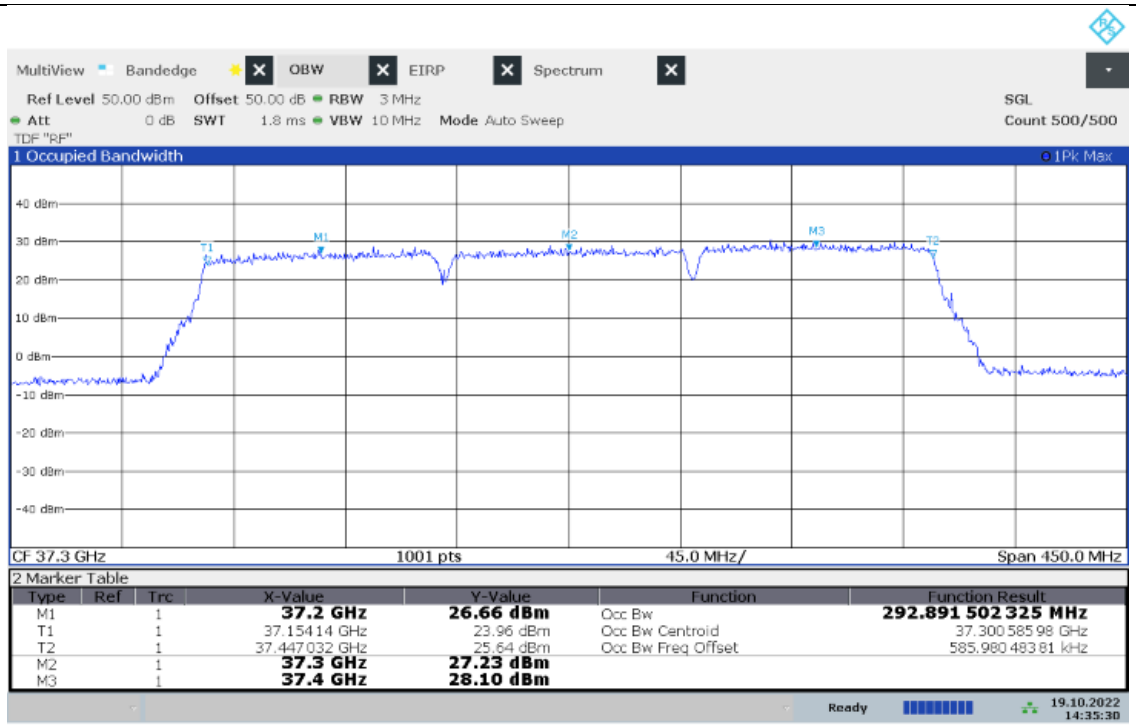

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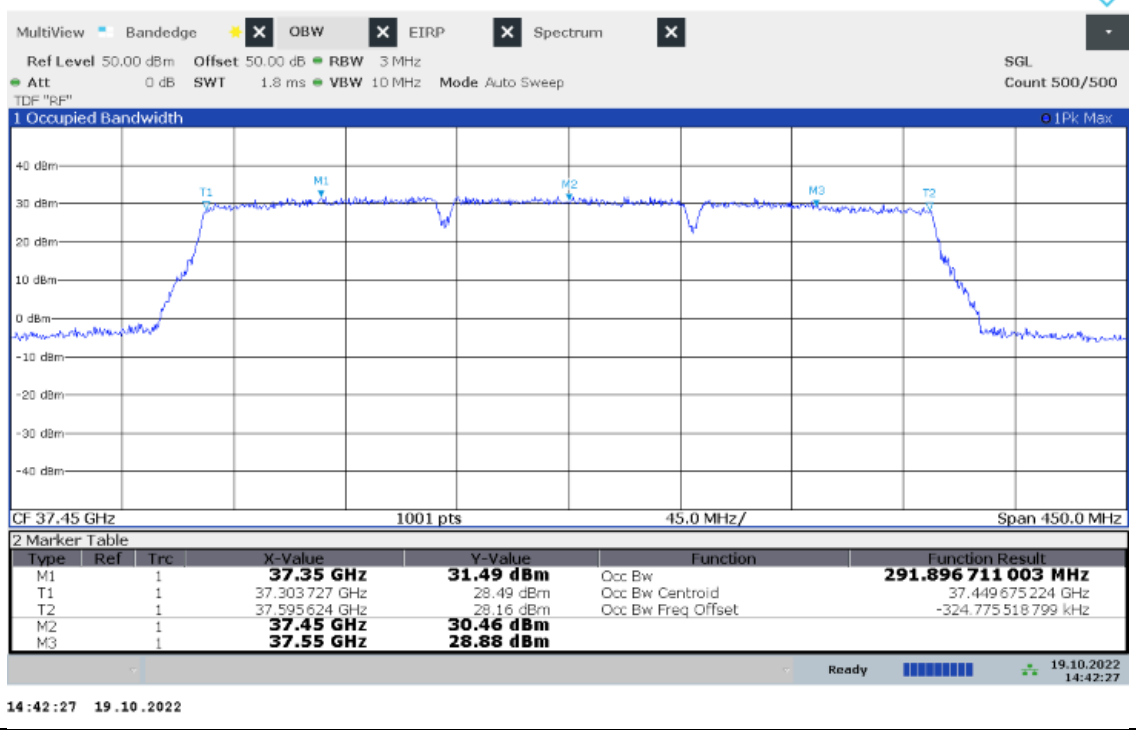
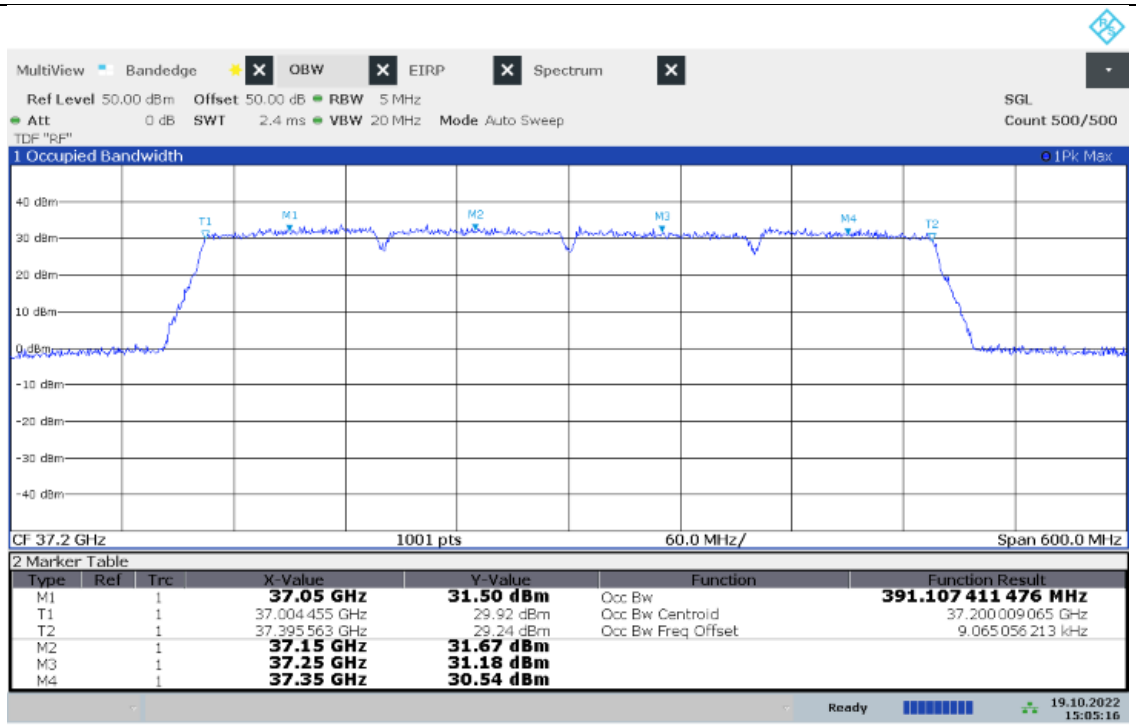


High Channel

16QAM MCS10 4CC



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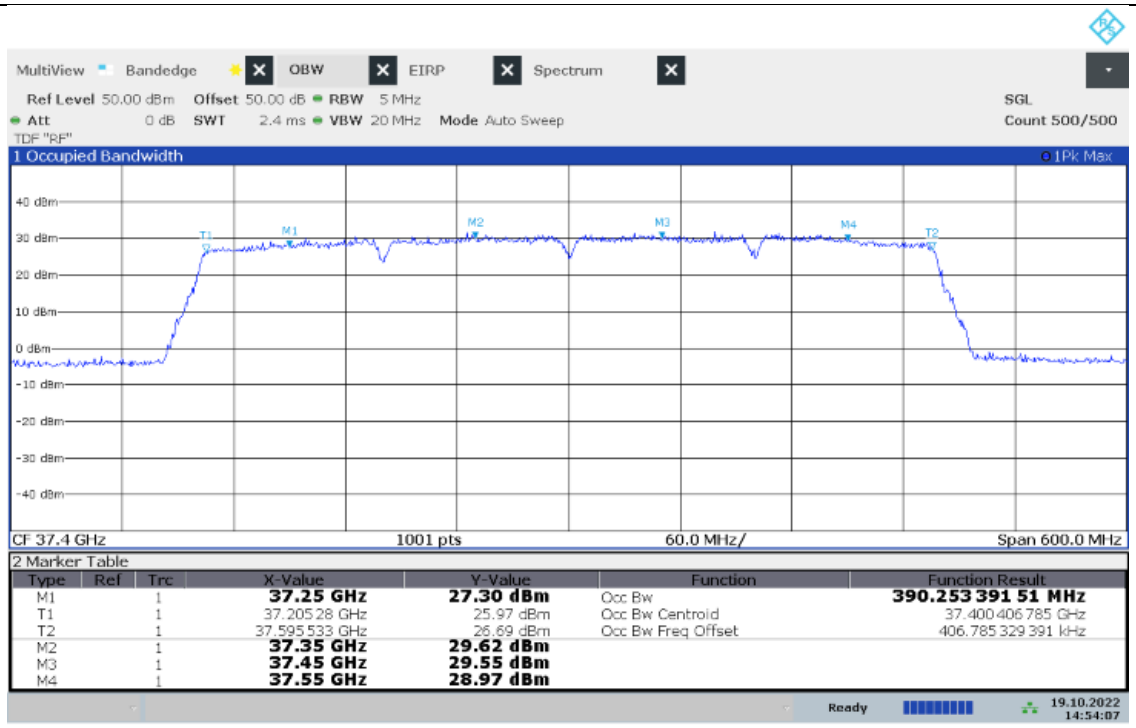

High Channel

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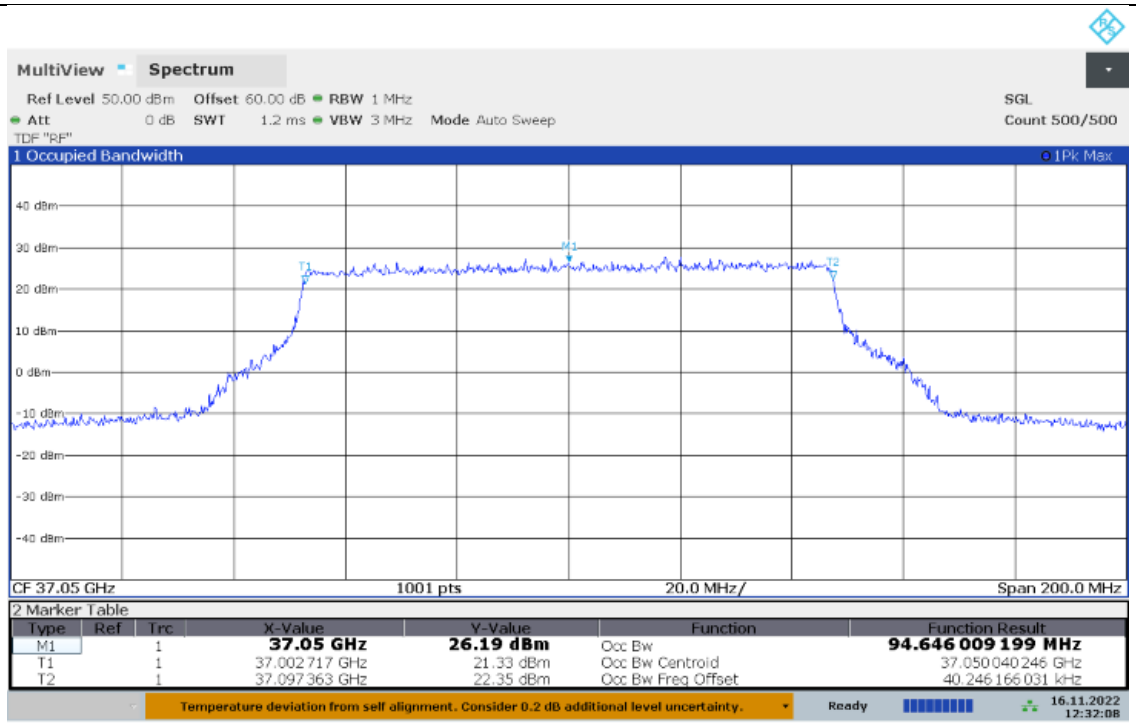

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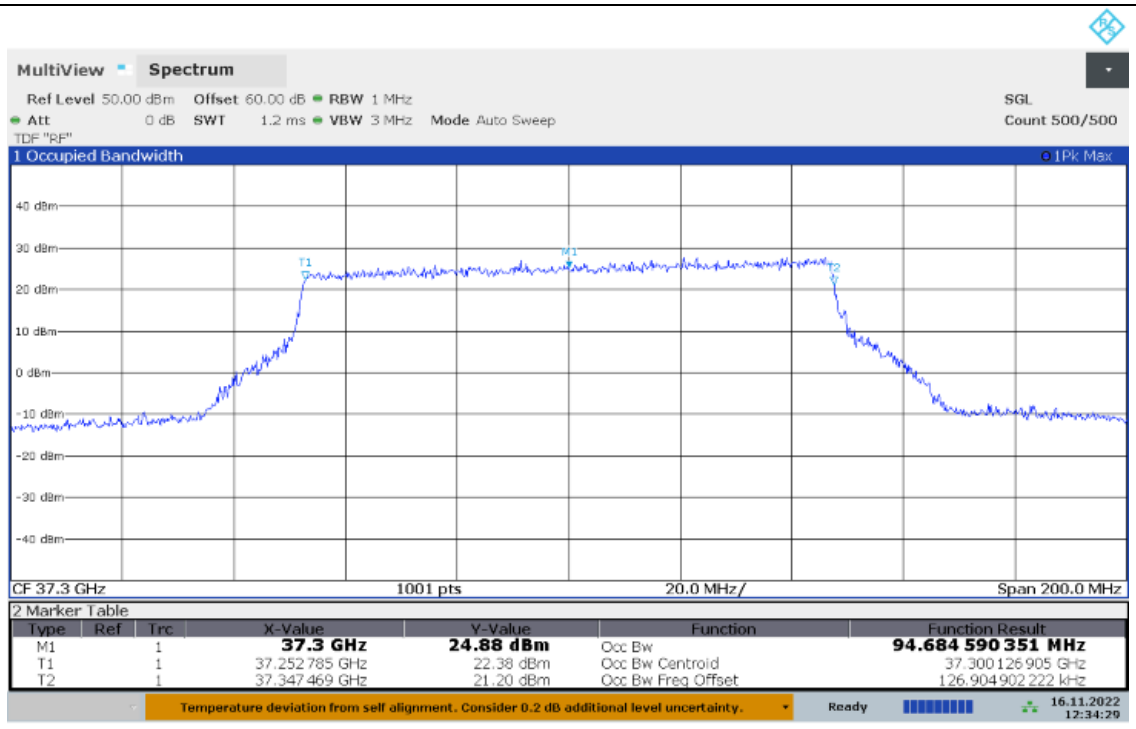

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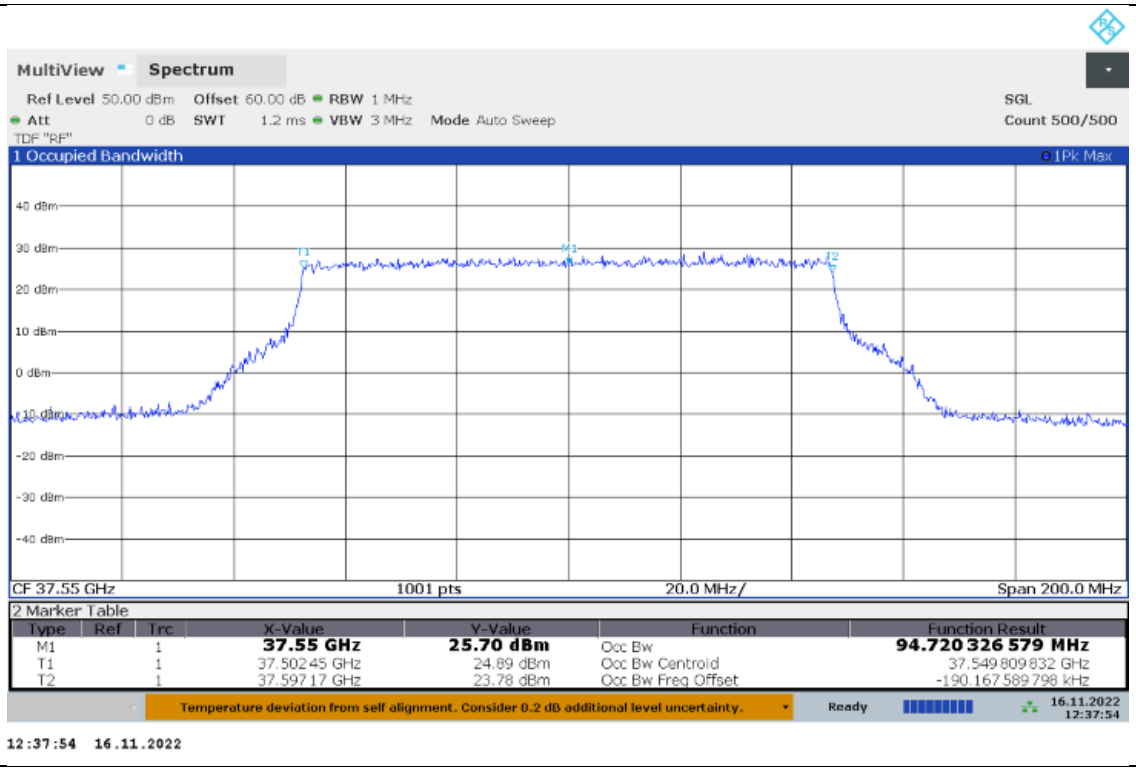

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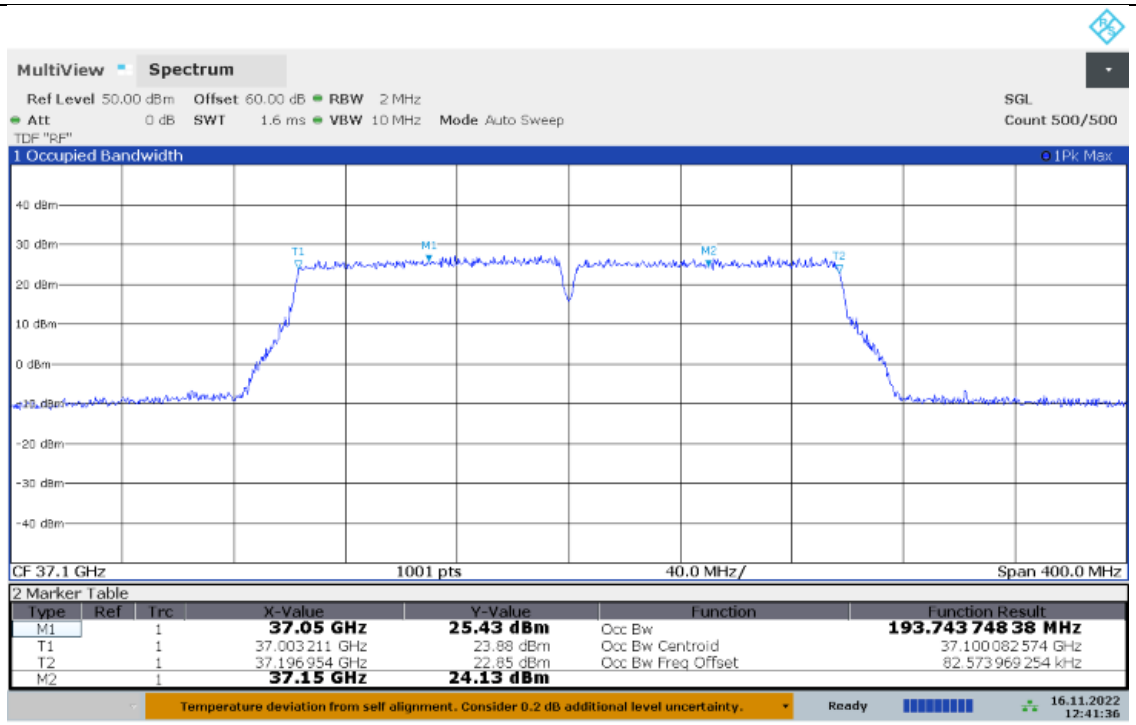
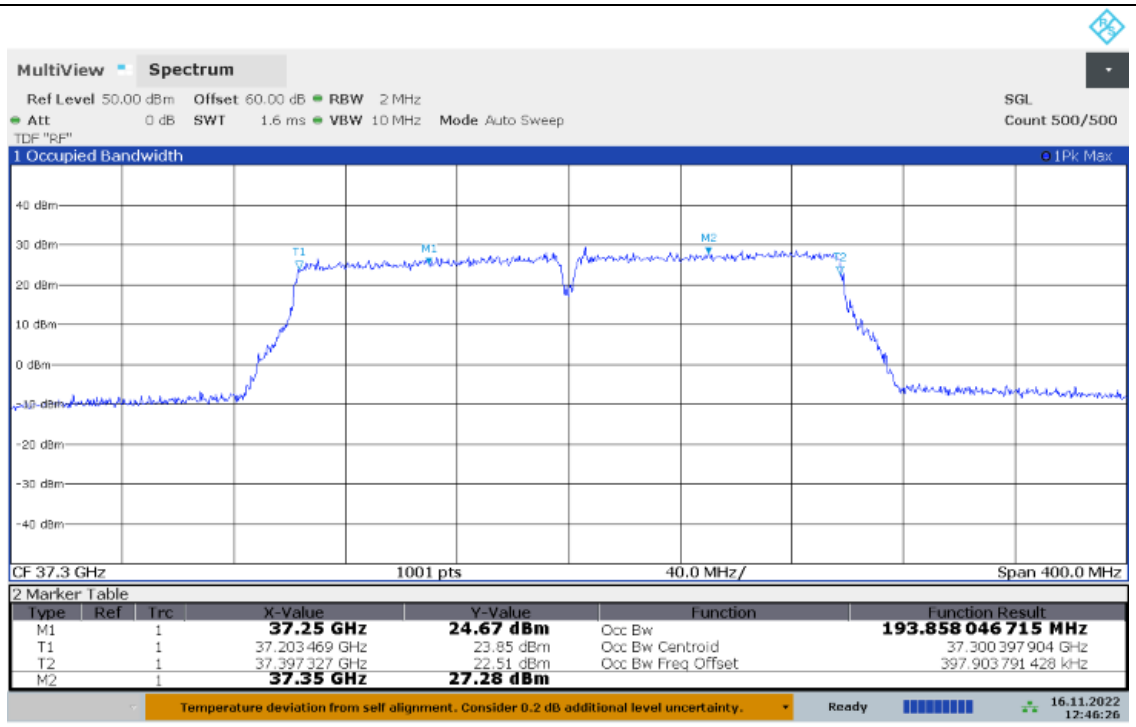


Low Channel



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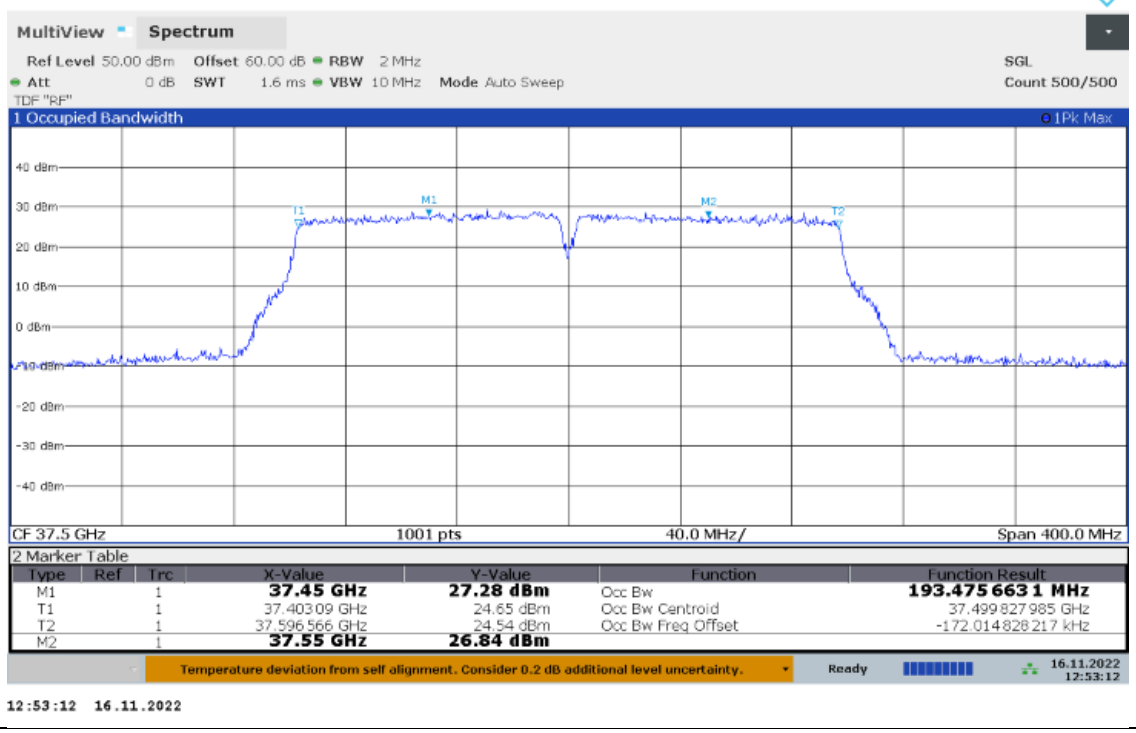

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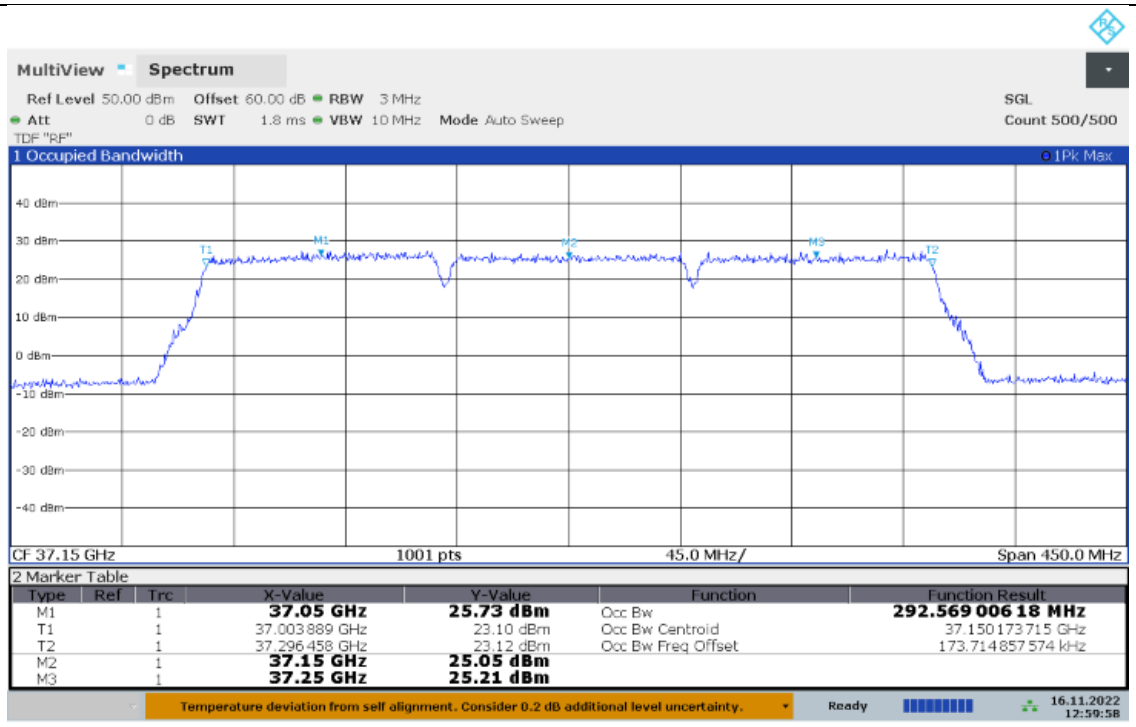

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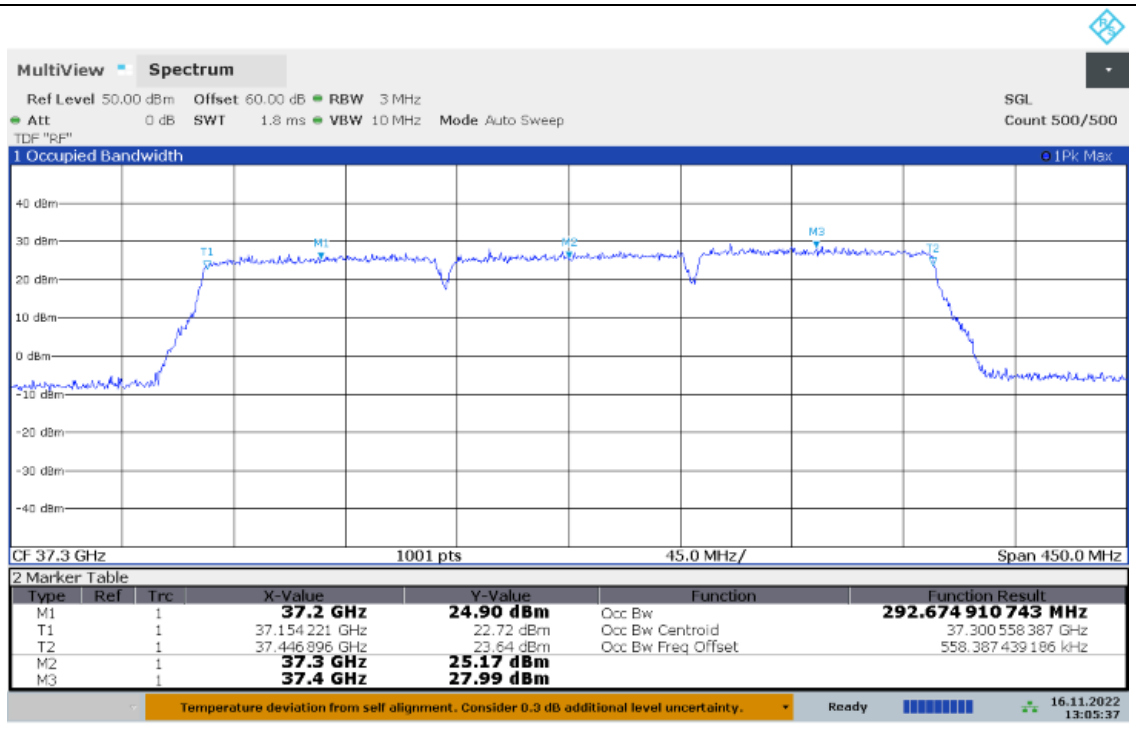

Mid Channel

High Channel

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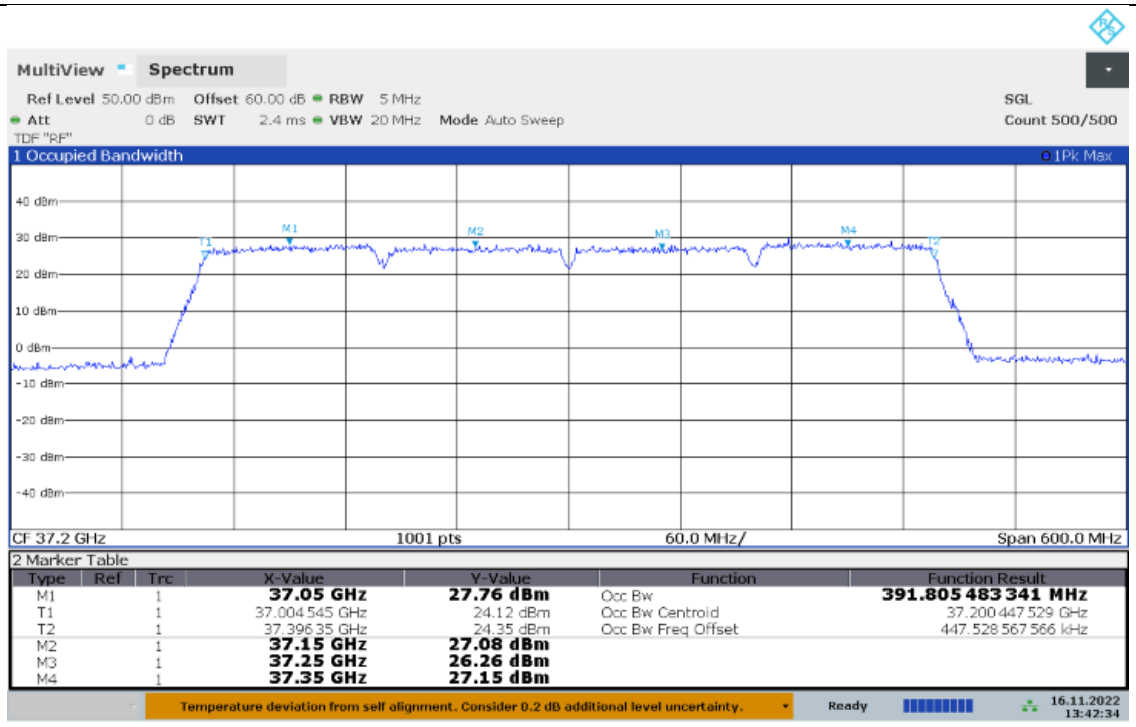

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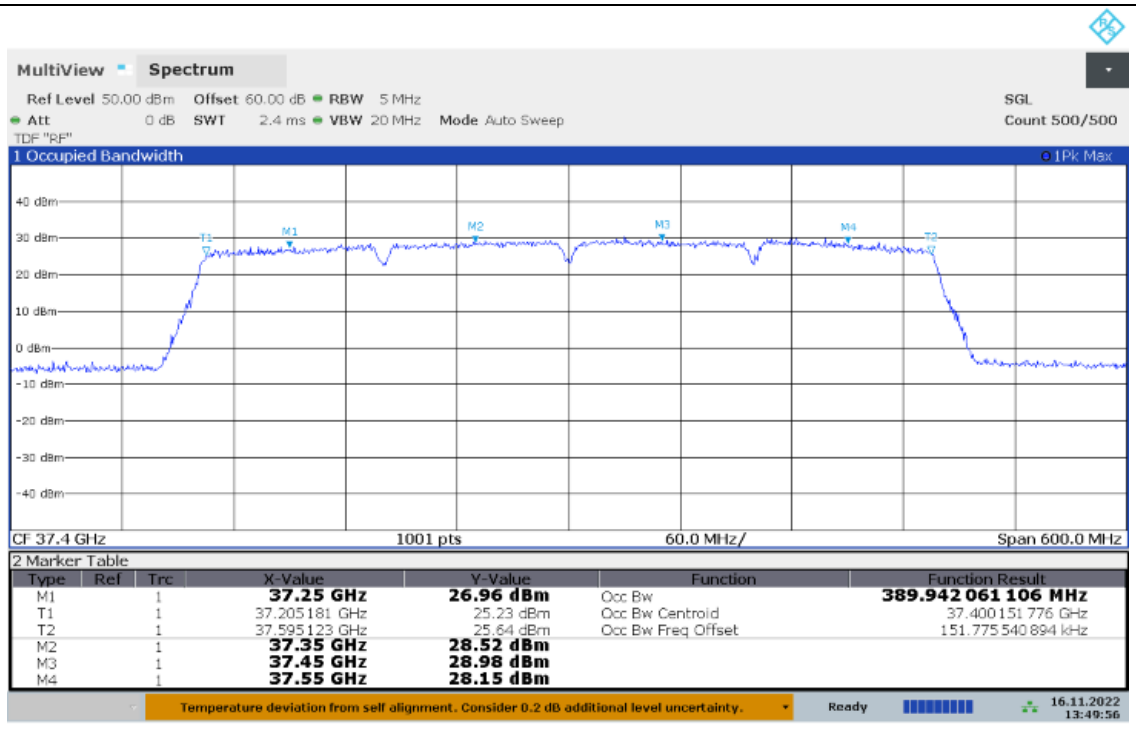

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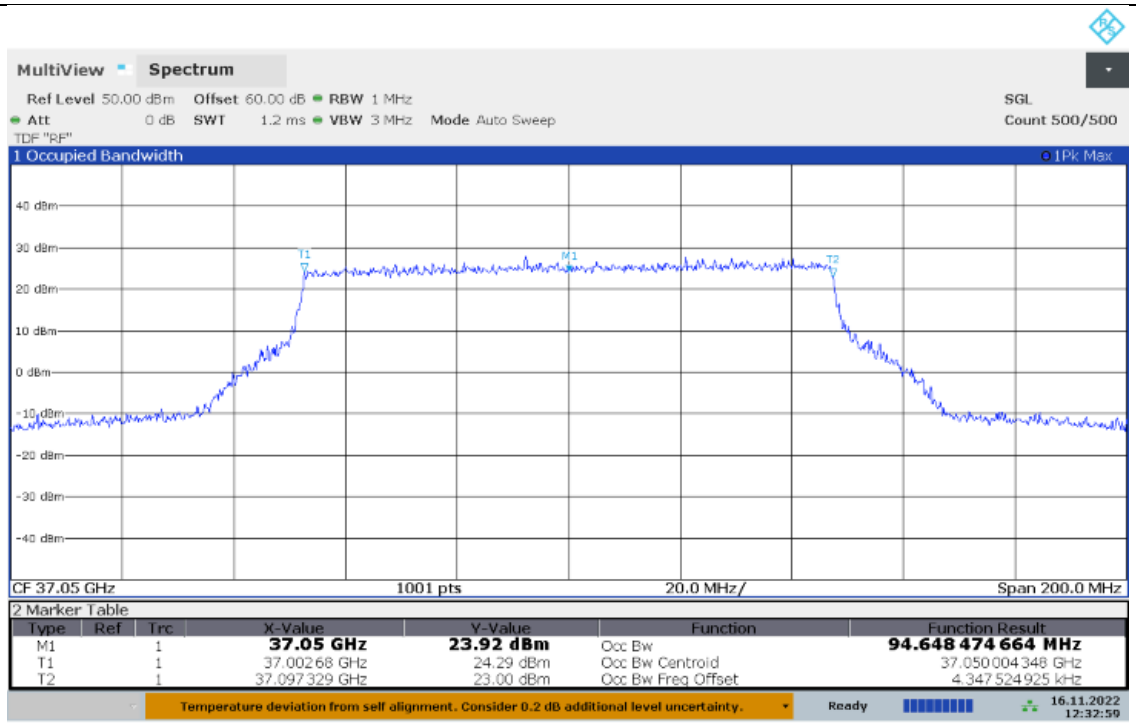
64QAM MCS17 1CC



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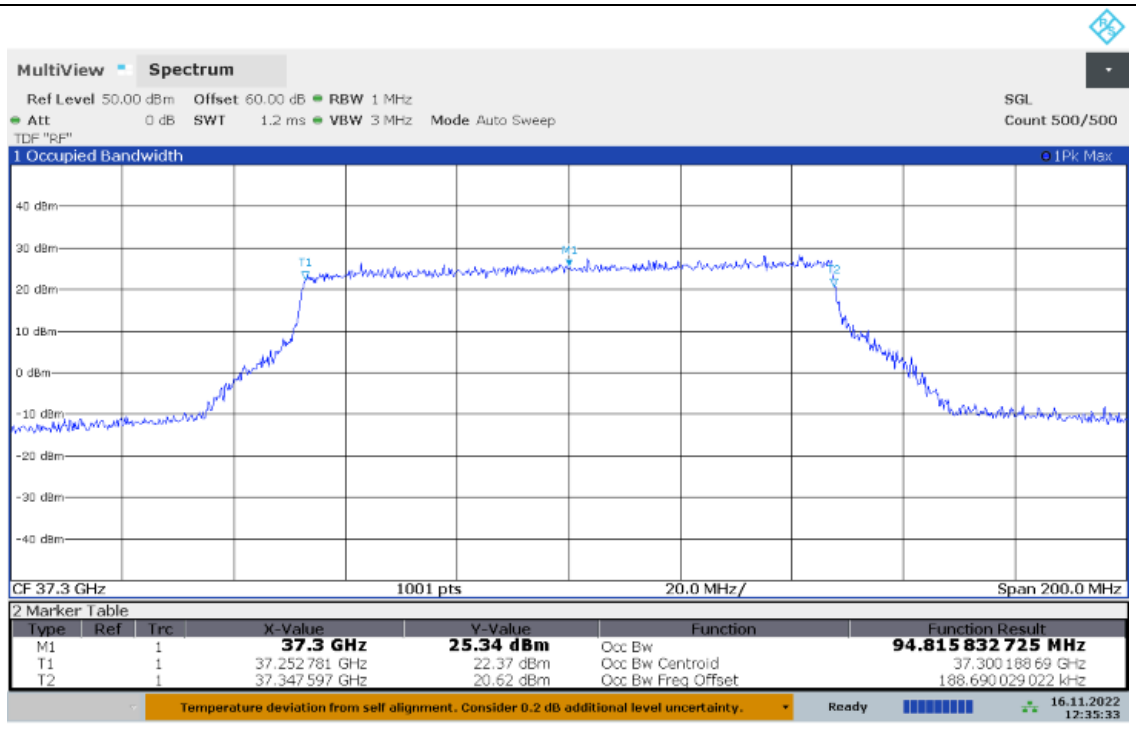
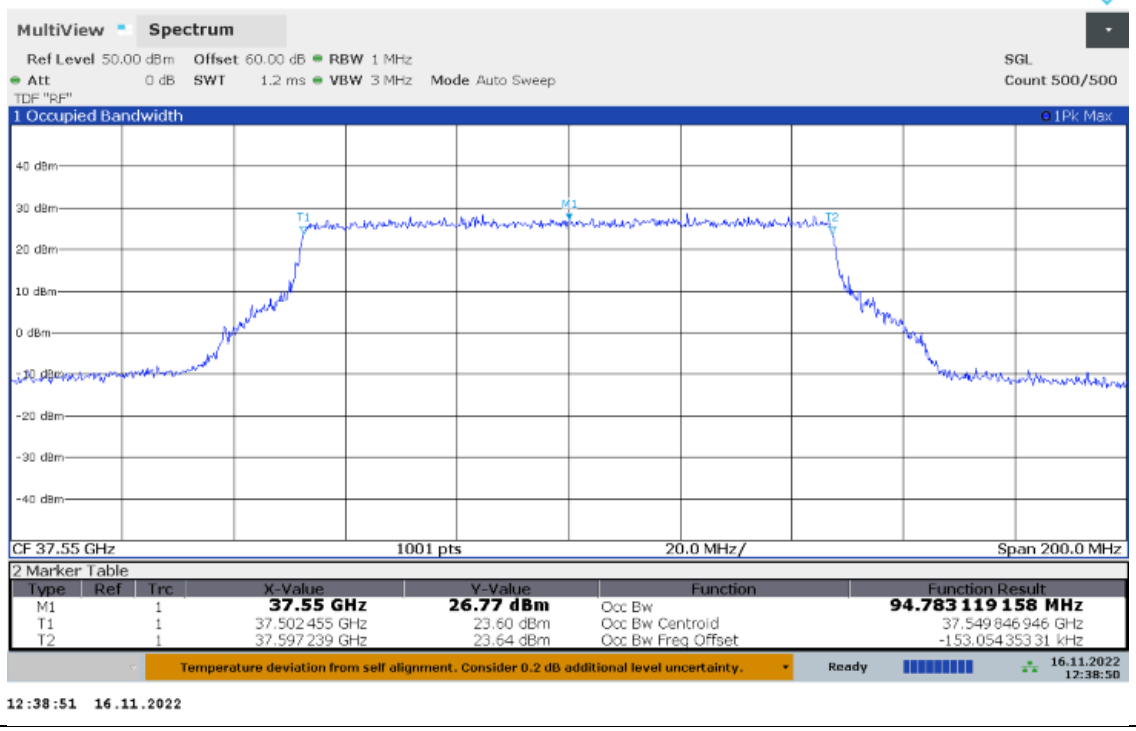


Mid Channel



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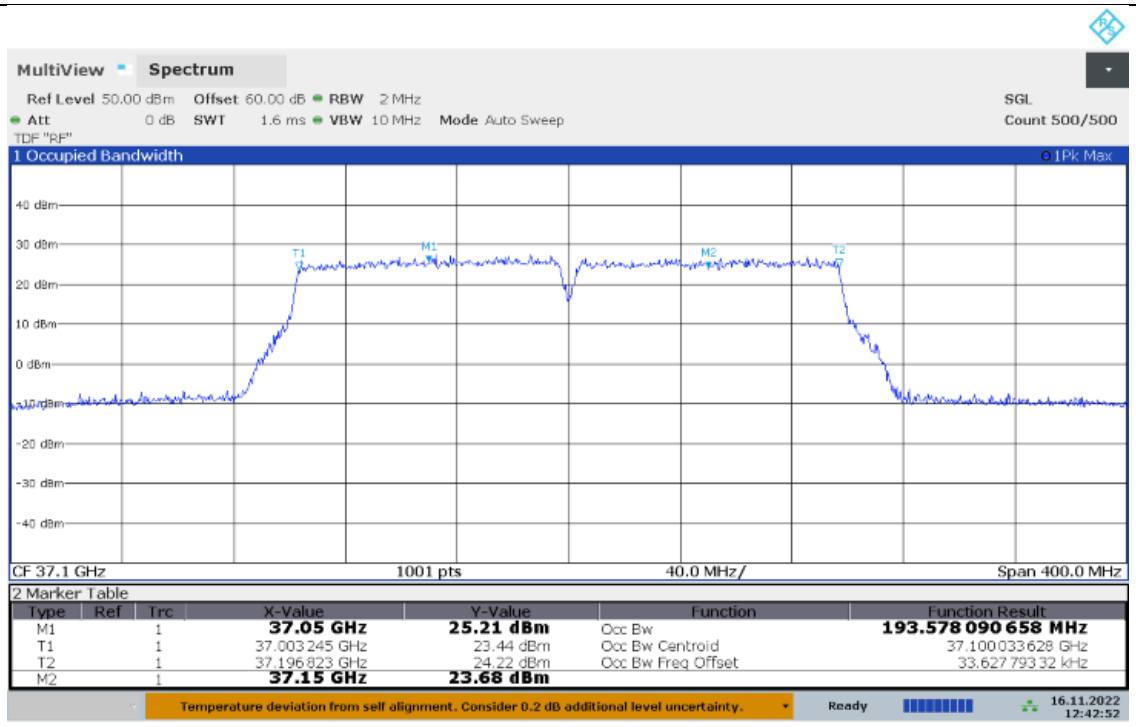

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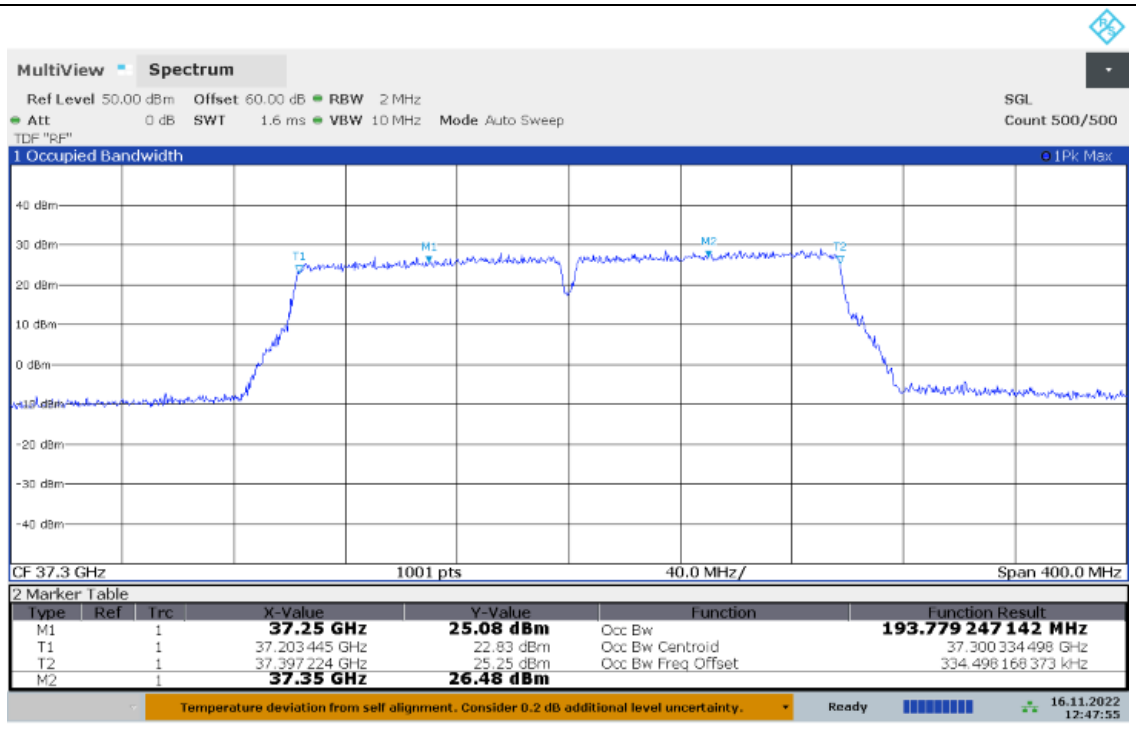

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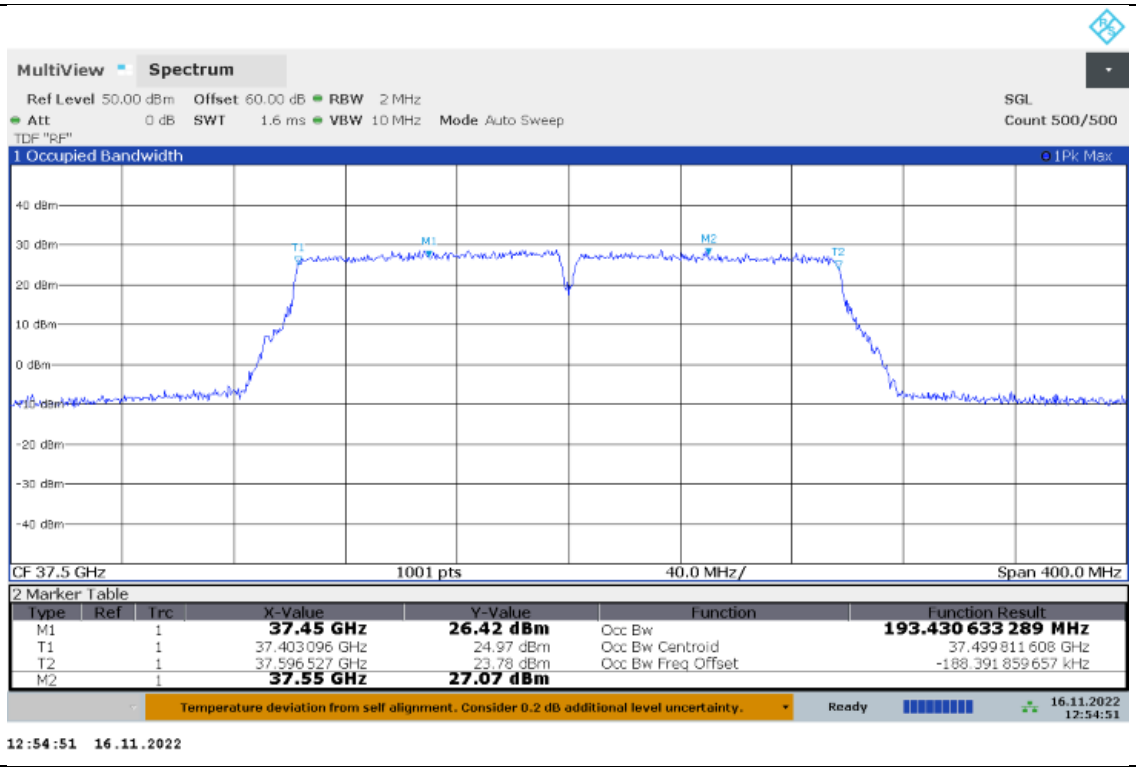

High Channel

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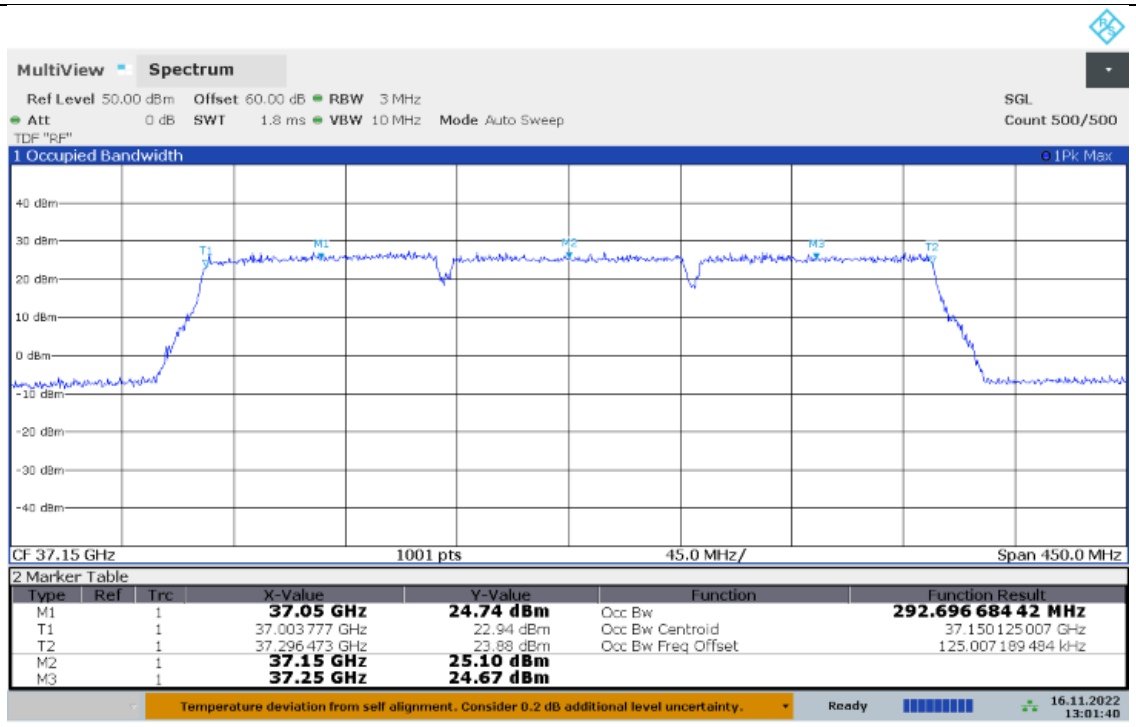

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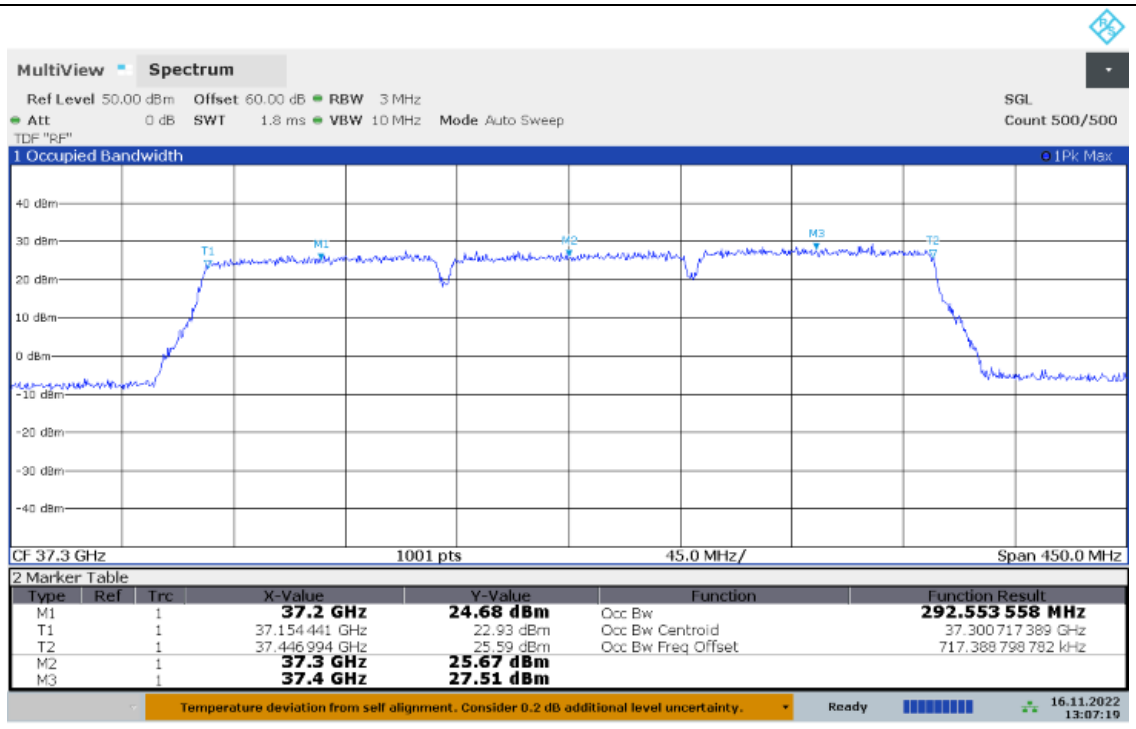

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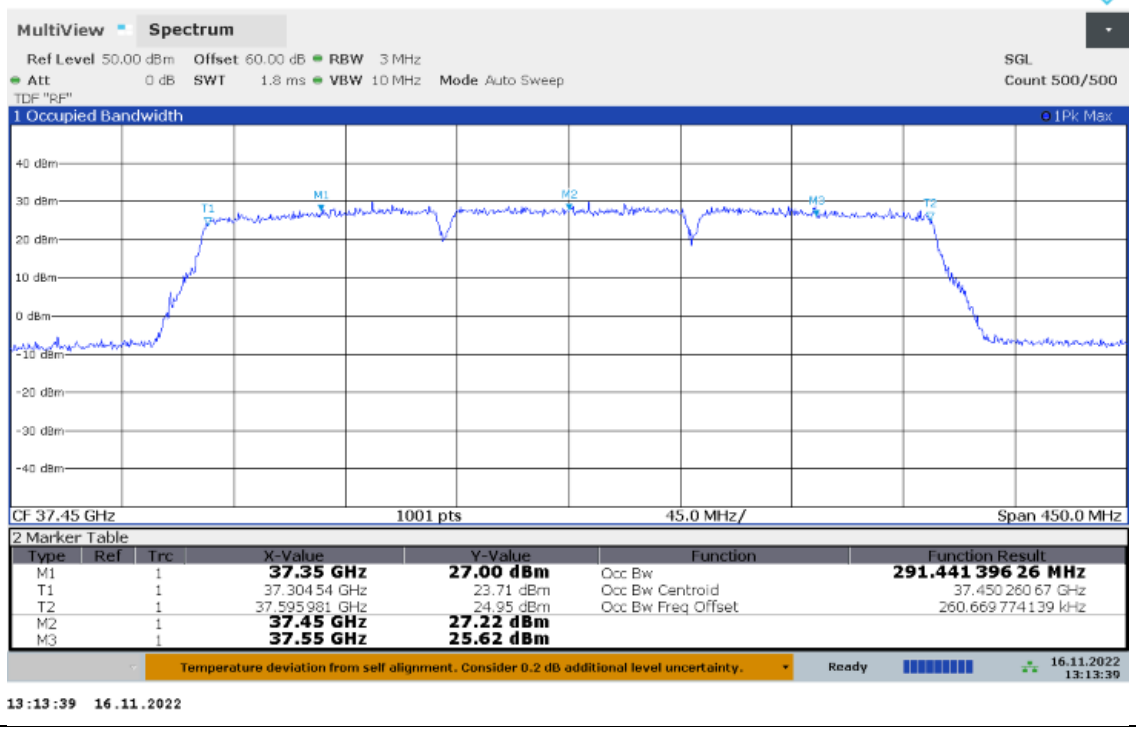

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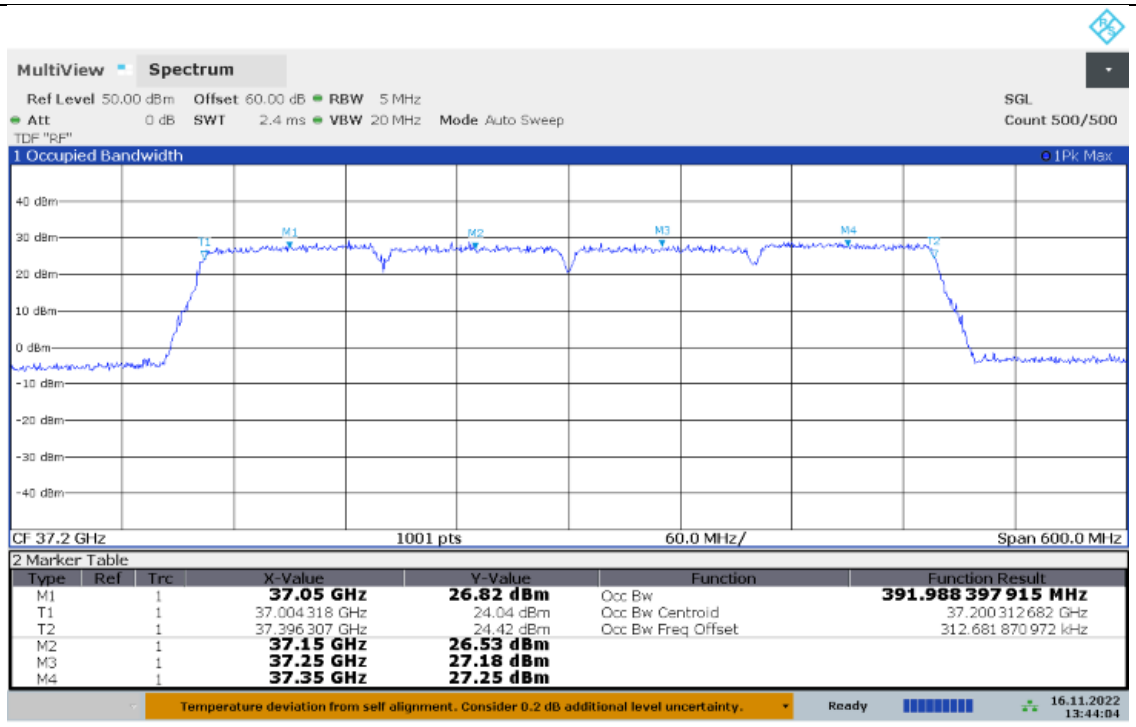
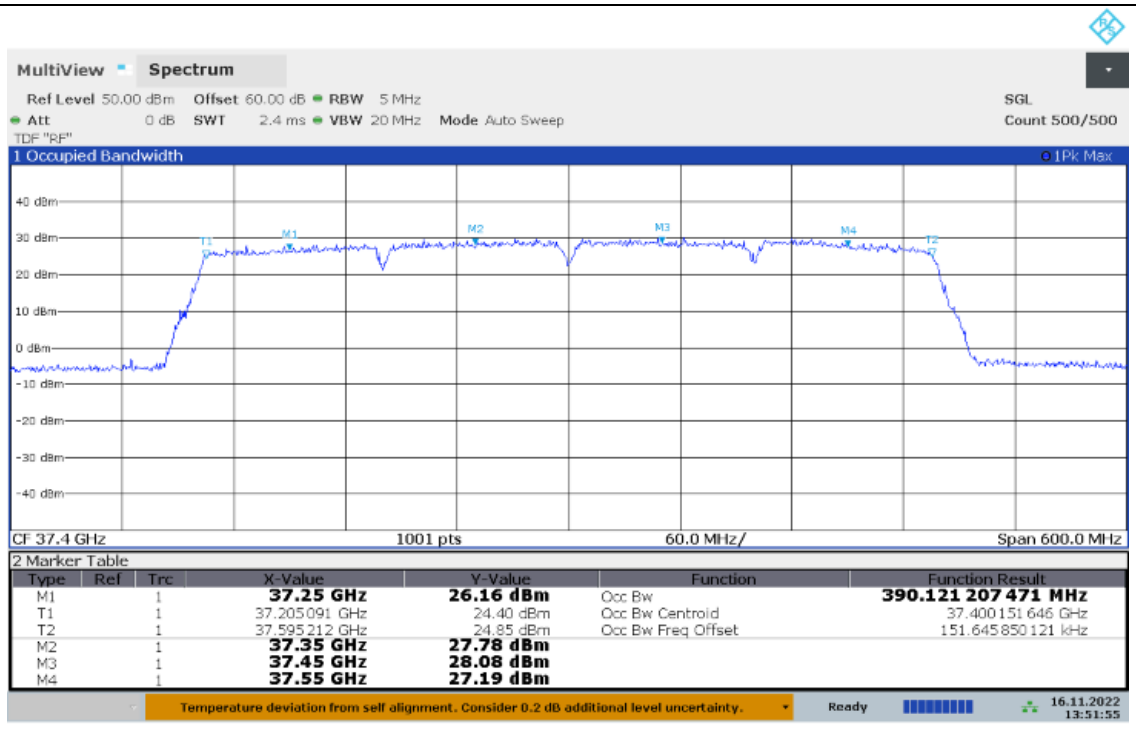


Low Channel



High Channel

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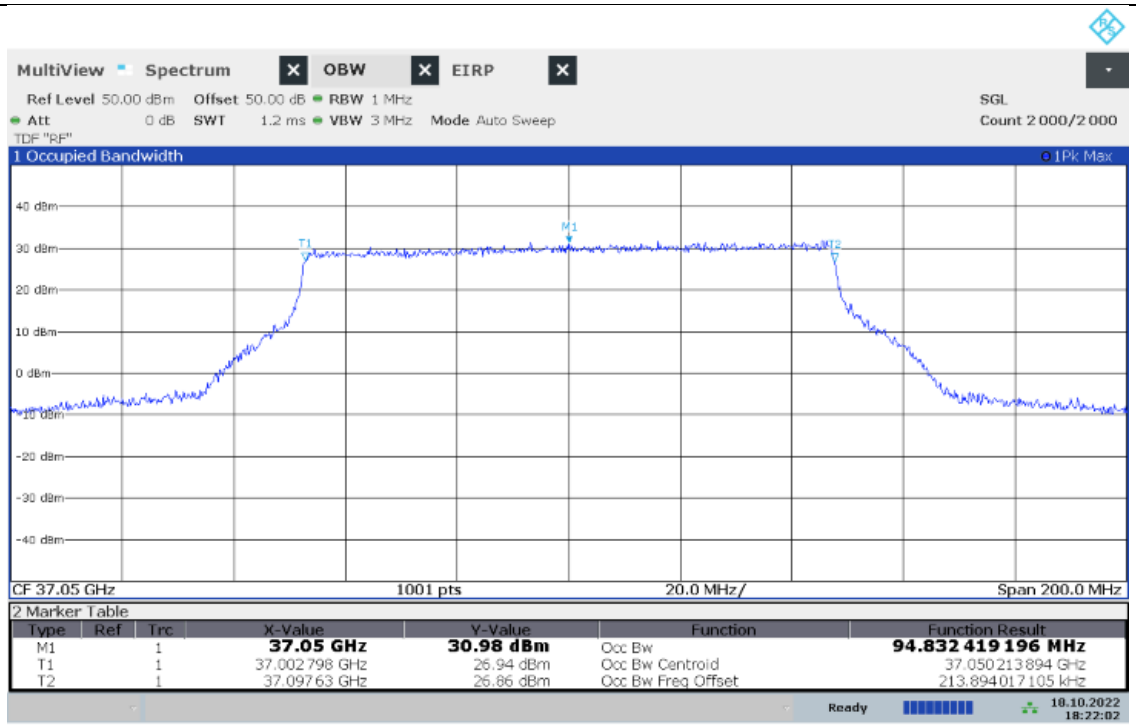

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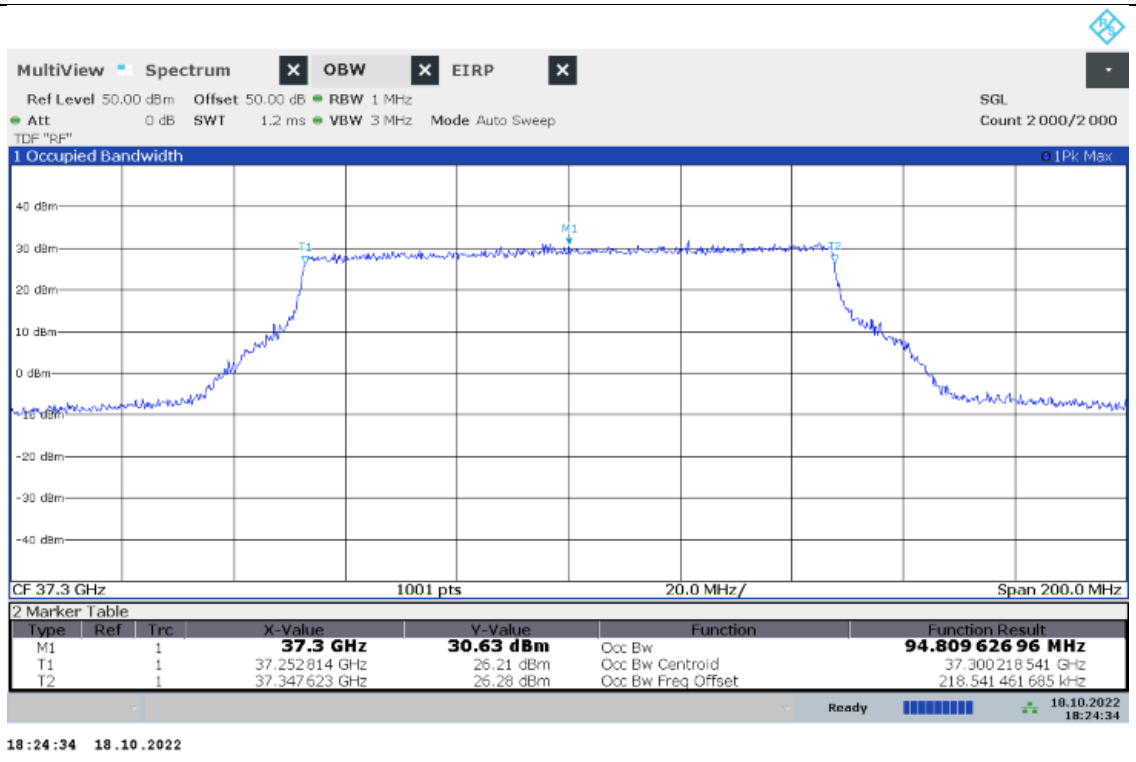

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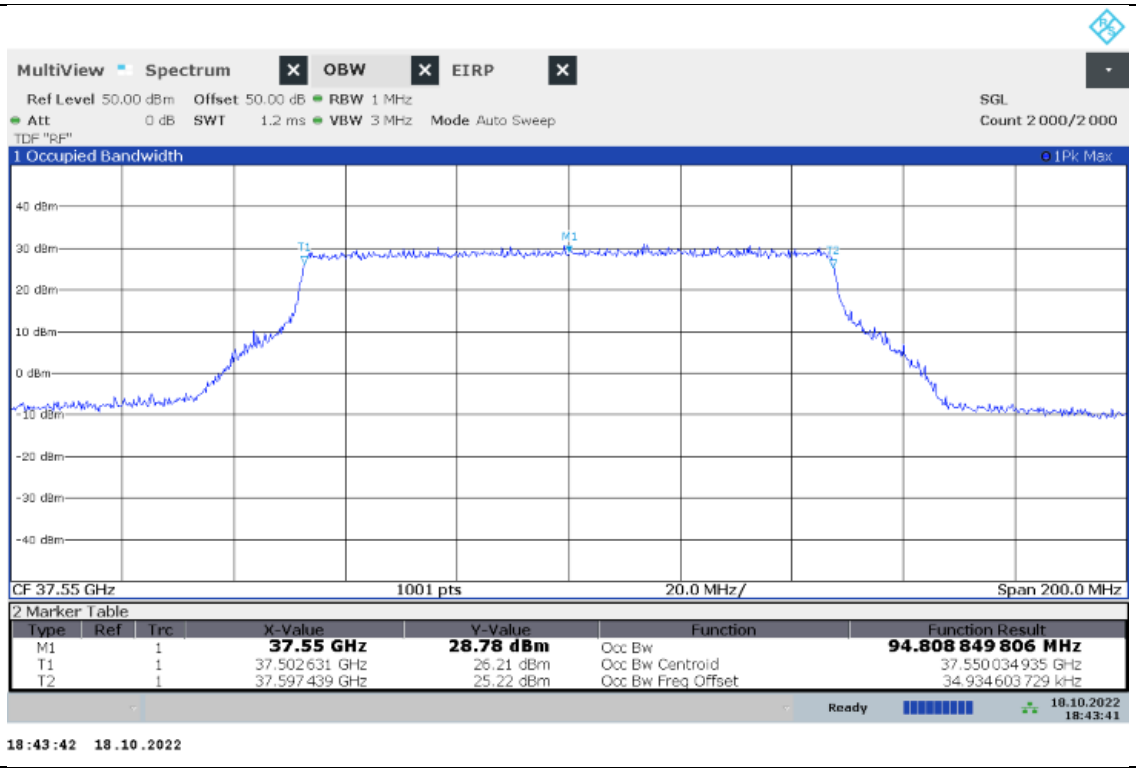

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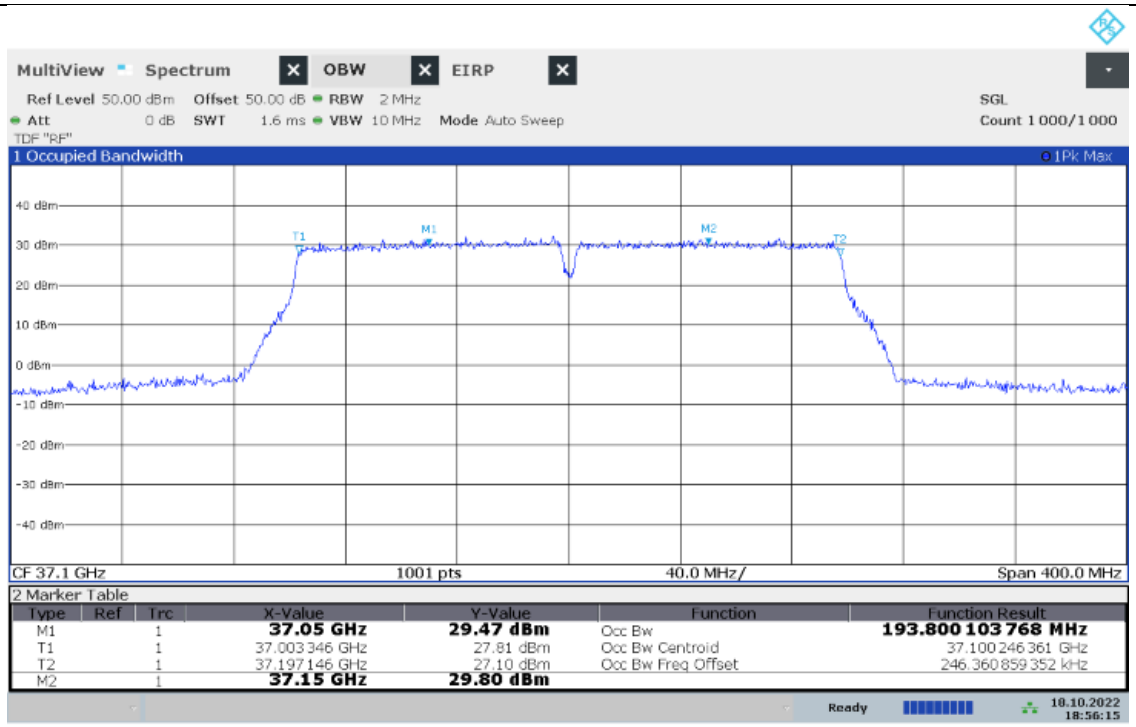
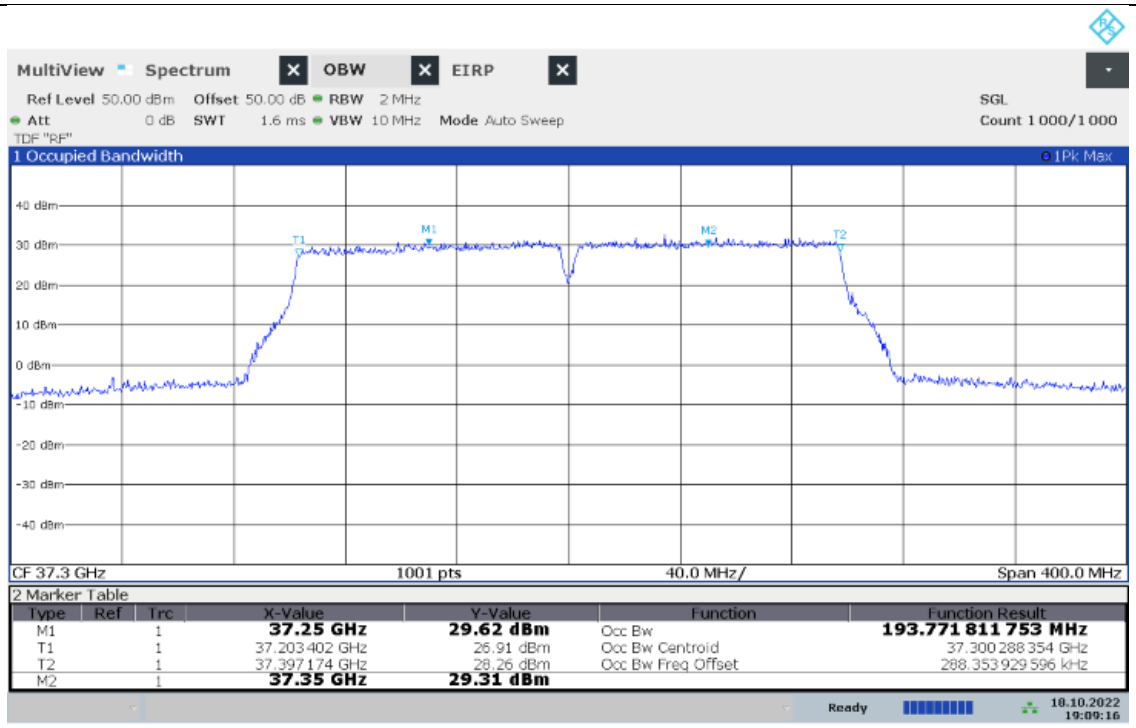


Low Channel



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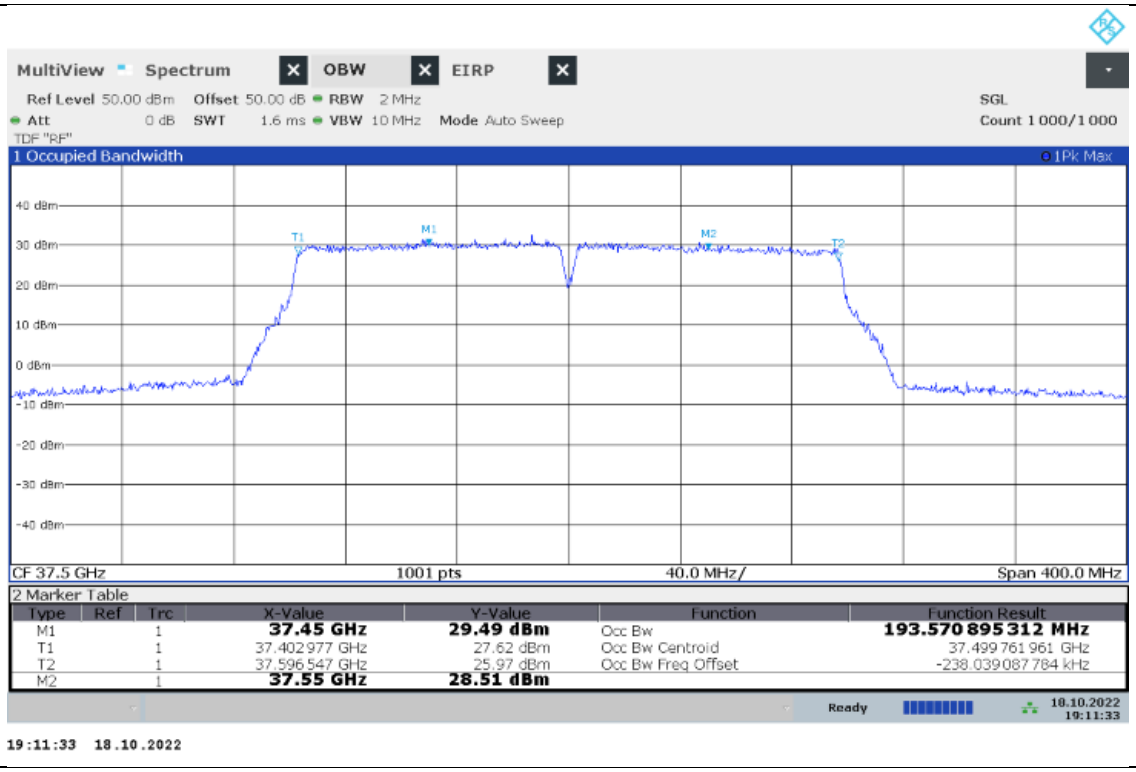

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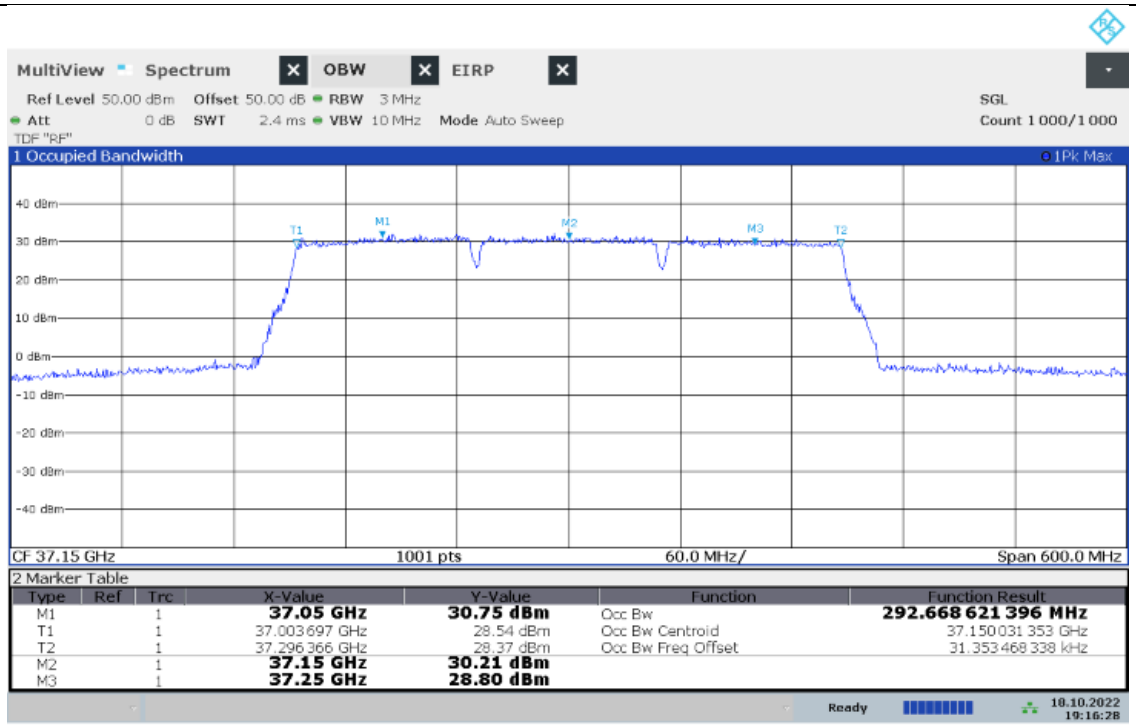
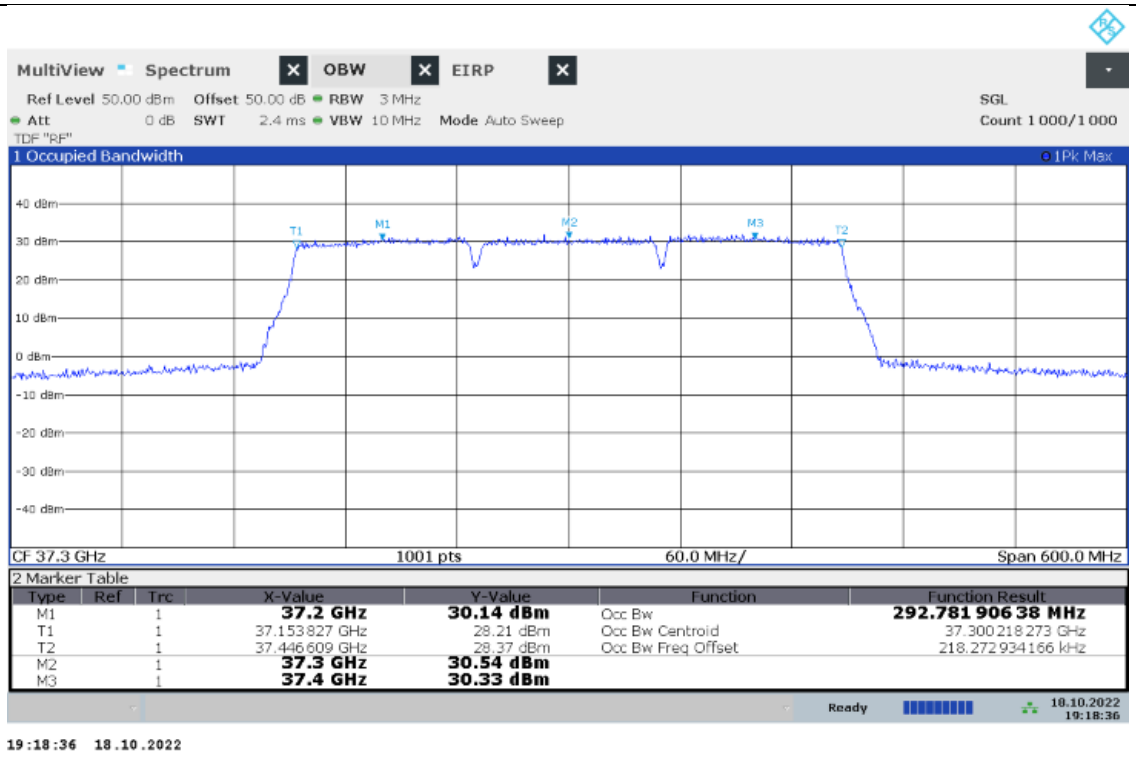
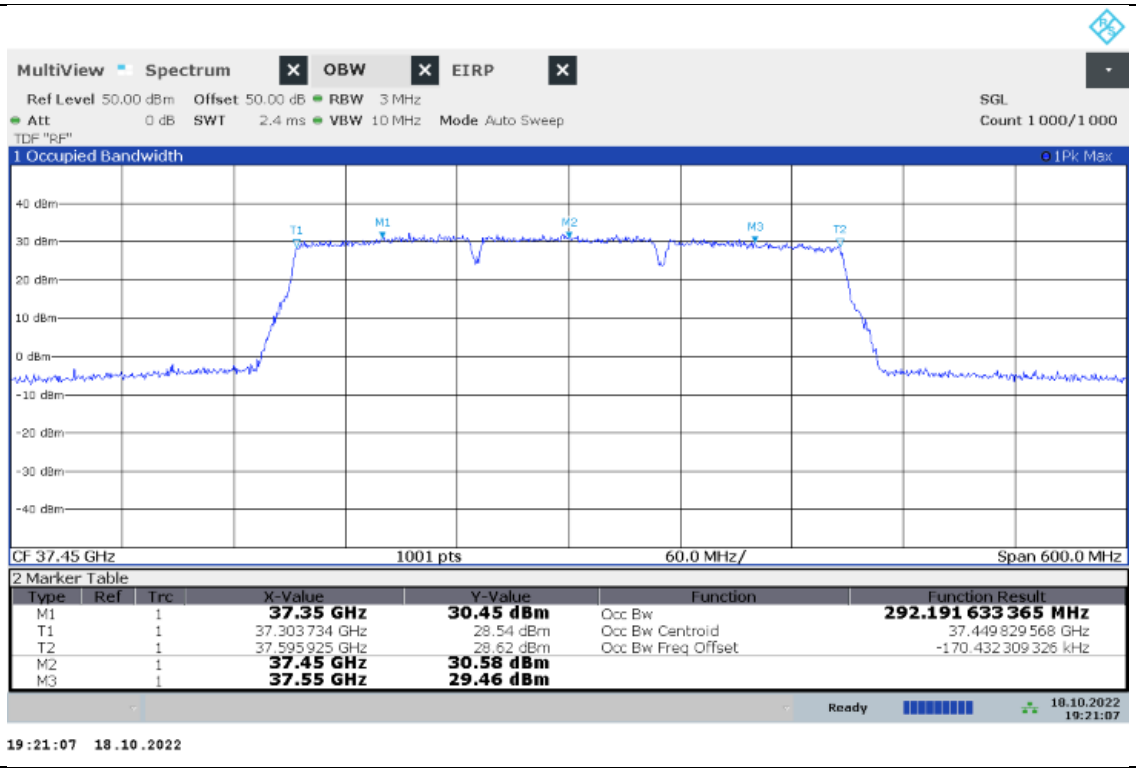


Low Channel



Mid Channel



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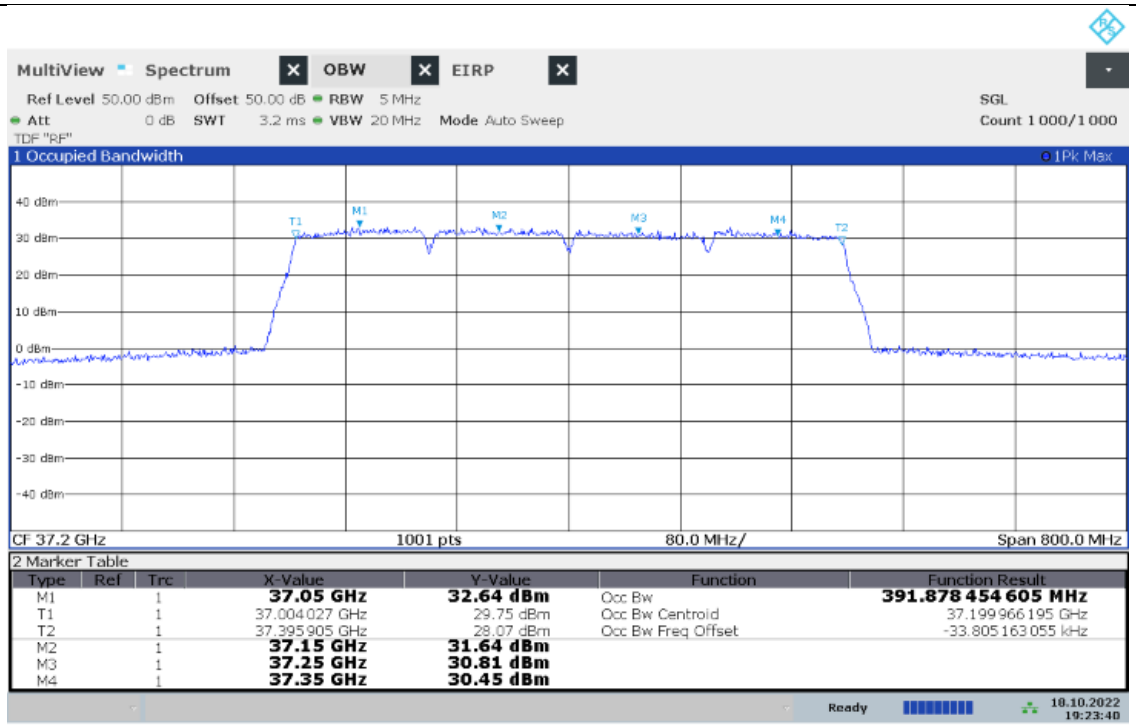
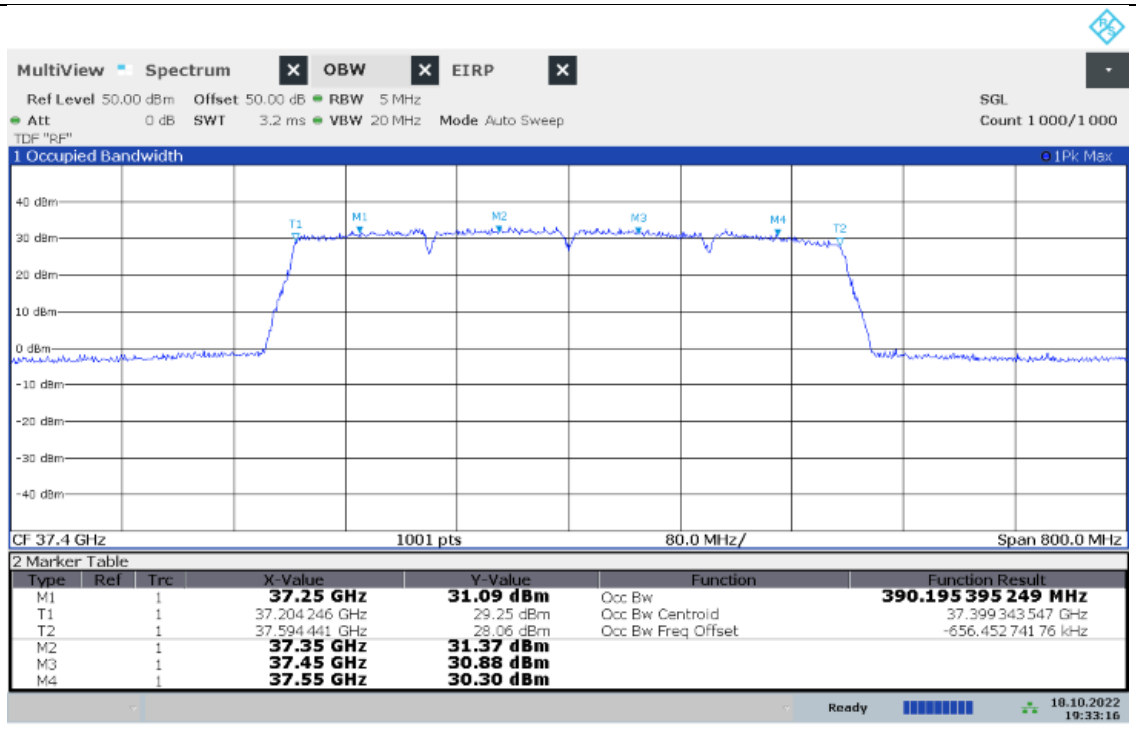


Low Channel



High Channel

8.4. EQUIVALENT ISOTROPIC RADIATED POWER

RULE PART(S)

FCC: §2.1046, §30.202

LIMIT

30.202 (a) – For fixed and base stations operating in connection with mobile systems, the average power of the sum of all antenna elements is limited to an equivalent isotropic radiated power (EIRP) density of +75 dBm/100 MHz. For channel bandwidths less than 100 megahertz the EIRP must be reduced proportionally and linearly based on the bandwidth relative to 100 megahertz.

TEST PROCEDURES

Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.

- RBW = 1 – 5% of the OBW
- VBW ≥ 3 x RBW
- Span = 2x to 3x the OBW
- Number of measurement points in sweep > 2 x span / RBW
- Sweep time = auto-couple
- Detector = RMS
- Trace mode = Average over 100 sweeps

KDB 842590 D01 Upper Microwave Flexible Use Service v01 Section 4.2
ANSI C63.26-2015 Clause 5.2, Clause 5.5, Clause 6.4, and Annex C.5.2

EIRP measurements were performed at the far field test distance listed in Section 8.1.

EIRP was calculated using the equations on ANSI C63.26-2015 Annex C.5.2. The total correction factors of horn antenna gain, cable loss and far-field path loss were calculated using equation C.8 and C.9 and pre-loaded into spectrum analyzer.

Sample calculation of EIRP:

Total Correction Factor = Cable Loss (dB) – Horn Ant Gain (dBi) + Path Loss (dB)
= 4 – 23 + 71
= 52 dB

EIRP = $P_{measured}$ (dBm), where Total Correction Factor preloaded

To properly display signal levels on the plots, the pre-loaded correction factors were intentionally lowered by 50 dB and an offset factor of 50 dB was applied on the spectrum analyzer to compensate the true correction factors across the frequency range of measurement.

Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst-case polarization/positioning.

Worse-Case Configurations

All supported CC configurations and modulations were tested at low, middle, and high channels, except for 4CC which was only tested at low and high channels. All channels were tested at maximum power.

RESULTS

See the following pages.

TESTED BY

Employee IDs: 84445, 23854, 11322
Test Dates: 2022-10-18 to 2022-11-17
Test Locations: Chamber 3

8.4.1. EIRP RESULTS

Modulation	Channel	Frequency (GHz)	Bandwidth (MHz)	No. of CC's	Polarity (H/V)	Meas Distance (m)	Measured Avg EIRP (dBm)	Summed Avg EIRP (dBm)	EIRP Limit (dBm/100MHz)	Margin (dB)
QPSK MCS0	L	37.05	100	1	H	3	38.65	40.35	75	-34.65
					V		35.45			
	M	37.3	100	1	H	3	38.37	40.28	75	-34.72
					V		35.78			
	H	37.55	100	1	H	3	37.98	40.60	75	-34.40
					V		37.16			
	L	37.1	100	2	H	3	39.16	40.80	75	-34.20
					V		35.79			
	M	37.3	100	2	H	3	39.21	41.08	75	-33.92
					V		36.53			
	H	37.5	100	2	H	3	38.87	41.30	75	-33.70
					V		37.62			
	L	37.15	100	3	H	3	39.06	40.74	75	-34.26
					V		35.79			
	M	37.3	100	3	H	3	39.37	41.24	75	-33.76
					V		36.69			
	H	37.45	100	3	H	3	39.25	41.52	75	-33.48
					V		37.62			
	L	37.2	100	4	H	3	38.88	40.71	75	-34.29
					V		36.08			
	H	37.4	100	4	H	3	38.85	41.00	75	-34.00
					V		36.91			

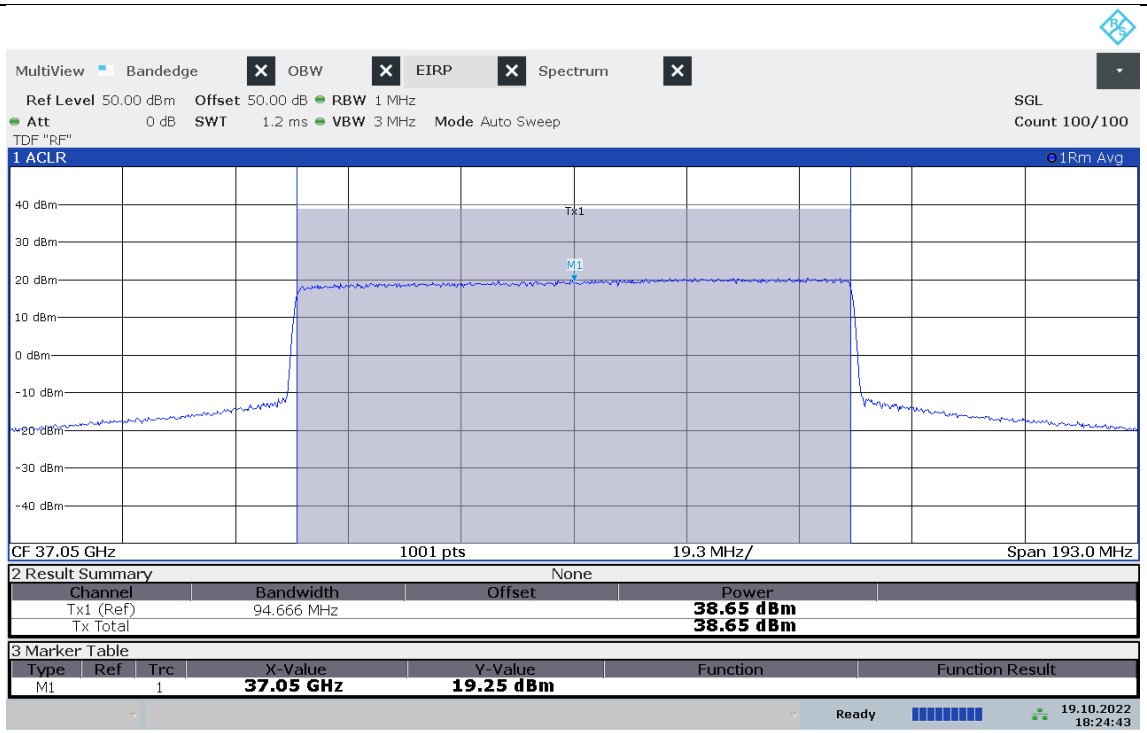
Modulation	Channel	Frequency (GHz)	Bandwidth (MHz)	No. of CC's	Polarity (H/V)	Meas Distance (m)	Measured Avg EIRP (dBm)	Summed Avg EIRP (dBm)	EIRP Limit (dBm/100MHz)	Margin (dB)
QPSK MCS9	L	37.05	100	1	H	3	37.5	39.21	75	-35.79
					V		34.34			
	M	37.3	100	1	H	3	37.04	39.02	75	-35.98
					V		34.66			
	H	37.55	100	1	H	3	36.75	39.41	75	-35.59
					V		36.02			
	L	37.1	100	2	H	3	38.11	39.80	75	-35.20
					V		34.88			
	M	37.3	100	2	H	3	37.94	39.93	75	-35.07
					V		35.57			
	H	37.5	100	2	H	3	37.64	40.11	75	-34.89
					V		36.48			
	L	37.15	100	3	H	3	37.88	39.64	75	-35.36
					V		34.88			
	M	37.3	100	3	H	3	38.07	40.06	75	-34.94
					V		35.72			
	H	37.45	100	3	H	3	37.92	40.25	75	-34.75
					V		36.44			
	L	37.2	100	4	H	3	38.47	40.34	75	-34.66
					V		35.77			
	H	37.4	100	4	H	3	38.25	40.53	75	-34.47
					V		36.64			

Modulation	Channel	Frequency (GHz)	Bandwidth (MHz)	No. of CC's	Polarity (H/V)	Meas Distance (m)	Measured Avg EIRP (dBm)	Summed Avg EIRP (dBm)	EIRP Limit (dBm/100MHz)	Margin (dB)
16QAM MCS10	L	37.05	100	1	H	3	38.96	40.55	75	-34.45
					V		35.42			
	M	37.3	100	1	H	3	38.31	40.20	75	-34.80
					V		35.67			
	H	37.55	100	1	H	3	37.86	40.50	75	-34.50
					V		37.08			
	L	37.1	100	2	H	3	38.08	39.90	75	-35.10
					V		35.24			
	M	37.3	100	2	H	3	38.48	40.44	75	-34.56
					V		36.03			
	H	37.5	100	2	H	3	38.64	40.96	75	-34.04
					V		37.14			
	L	37.15	100	3	H	3	38.95	40.63	75	-34.37
					V		35.69			
	M	37.3	100	3	H	3	39.26	41.15	75	-33.85
					V		36.63			
	H	37.45	100	3	H	3	39.1	41.40	75	-33.60
					V		37.54			
	L	37.2	100	4	H	3	39.29	41.06	75	-33.94
					V		36.3			
	H	37.4	100	4	H	3	38.98	41.19	75	-33.81
					V		37.21			

Modulation	Channel	Frequency (GHz)	Bandwidth (MHz)	No. of CC's	Polarity (H/V)	Meas Distance (m)	Measured Avg EIRP (dBm)	Summed Avg EIRP (dBm)	EIRP Limit (dBm/100MHz)	Margin (dB)
16QAM MCS16	L	37.05	100	1	H	3	37.43	39.18	75	-35.82
					V		34.38			
	M	37.3	100	1	H	3	37.01	38.99	75	-36.01
					V		34.63			
	H	37.55	100	1	H	3	36.72	39.39	75	-35.61
					V		36.01			
	L	37.1	100	2	H	3	38.07	39.79	75	-35.21
					V		34.94			
	M	37.3	100	2	H	3	38	39.95	75	-35.05
					V		35.54			
	H	37.5	100	2	H	3	37.67	40.10	75	-34.90
					V		36.42			
	L	37.15	100	3	H	3	37.85	39.64	75	-35.36
					V		34.93			
	M	37.3	100	3	H	3	38.09	40.06	75	-34.94
					V		35.68			
	H	37.45	100	3	H	3	37.87	40.23	75	-34.77
					V		36.45			
	L	37.2	100	4	H	3	38.41	40.32	75	-34.68
					V		35.82			
	H	37.4	100	4	H	3	38.29	40.52	75	-34.48
					V		36.55			

Modulation	Channel	Frequency (GHz)	Bandwidth (MHz)	No. of CC's	Polarity (H/V)	Meas Distance (m)	Measured Avg EIRP (dBm)	Summed Avg EIRP (dBm)	EIRP Limit (dBm/100MHz)	Margin (dB)
64QAM MCS17	L	37.05	100	1	H	3	37.39	39.15	75	-35.85
					V		34.37			
	M	37.3	100	1	H	3	37.02	38.97	75	-36.03
					V		34.55			
	H	37.55	100	1	H	3	36.68	39.37	75	-35.63
					V		36.02			
	L	37.1	100	2	H	3	38.1	39.79	75	-35.21
					V		34.86			
	M	37.3	100	2	H	3	37.91	39.92	75	-35.08
					V		35.61			
	H	37.5	100	2	H	3	37.63	40.10	75	-34.90
					V		36.48			
	L	37.15	100	3	H	3	37.88	39.64	75	-35.36
					V		34.88			
	M	37.3	100	3	H	3	38.03	40.04	75	-34.96
					V		35.73			
	H	37.45	100	3	H	3	37.84	40.24	75	-34.76
					V		36.51			
	L	37.2	100	4	H	3	38.46	40.32	75	-34.68
					V		35.75			
	H	37.4	100	4	H	3	38.21	40.49	75	-34.51
					V		36.59			
Modulation	**Channel**	**Frequency (GHz)**	**Bandwidth (MHz)**	**No. of CC's**	**Polarity (H/V)**	**Meas Distance (m)**	**Measured Avg EIRP (dBm)**	**Summed Avg EIRP (dBm)**	**EIRP Limit (dBm/100MHz)**	**Margin (dB)**
64QAM MCS28	L	37.05	100	1	H	3	38.51	40.12	75	-34.88
					V		35.03			
	M	37.3	100	1	H	3	37.88	39.77	75	-35.23
					V		35.24			
	H	37.55	100	1	H	3	37.5	40.10	75	-34.90
					V		36.63			
	L	37.1	100	2	H	3	38.91	40.50	75	-34.50
					V		35.36			
	M	37.3	100	2	H	3	38.82	40.68	75	-34.32
					V		36.1			
	H	37.5	100	2	H	3	38.41	40.83	75	-34.17
					V		37.13			
	L	37.15	100	3	H	3	38.9	40.53	75	-34.47
					V		35.5			
	M	37.3	100	3	H	3	38.84	40.73	75	-34.27
					V		36.22			
	H	37.45	100	3	H	3	38.67	40.91	75	-34.09
					V		36.97			
	L	37.2	100	4	H	3	39.13	40.91	75	-34.09
					V		36.19			
	H	37.4	100	4	H	3	39	41.18	75	-33.82
					V		37.15			

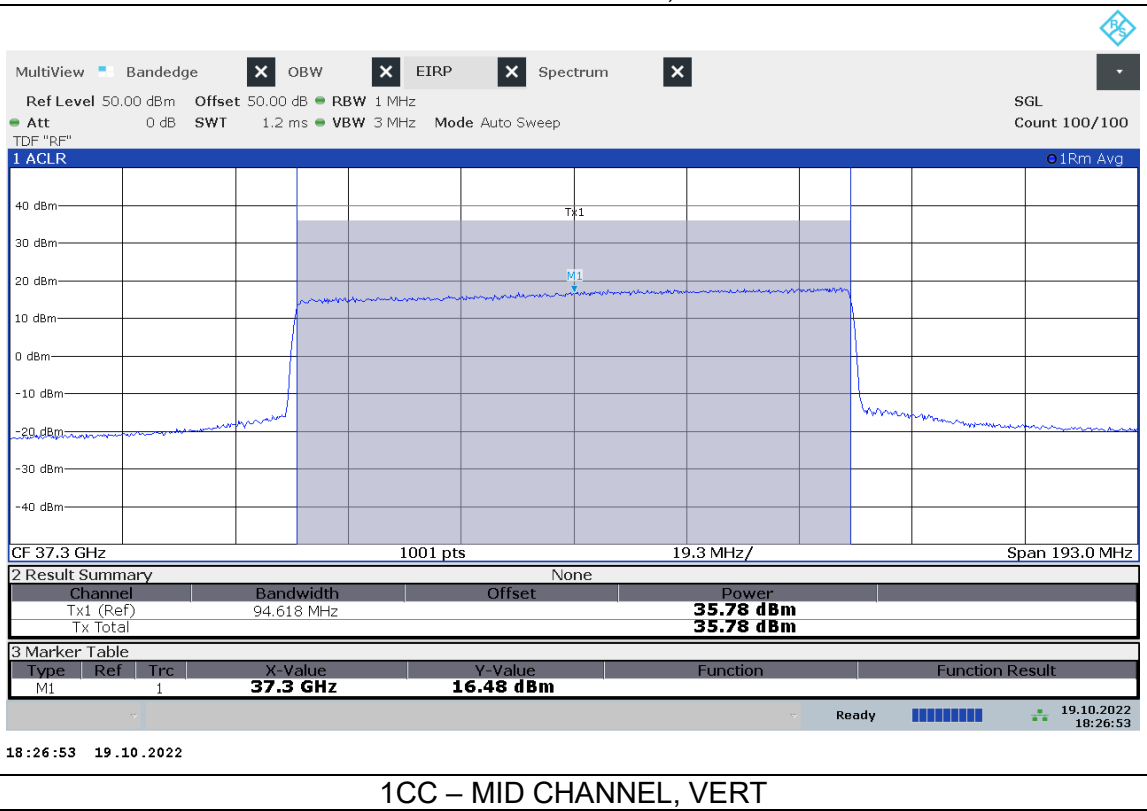
QPSK MCS0



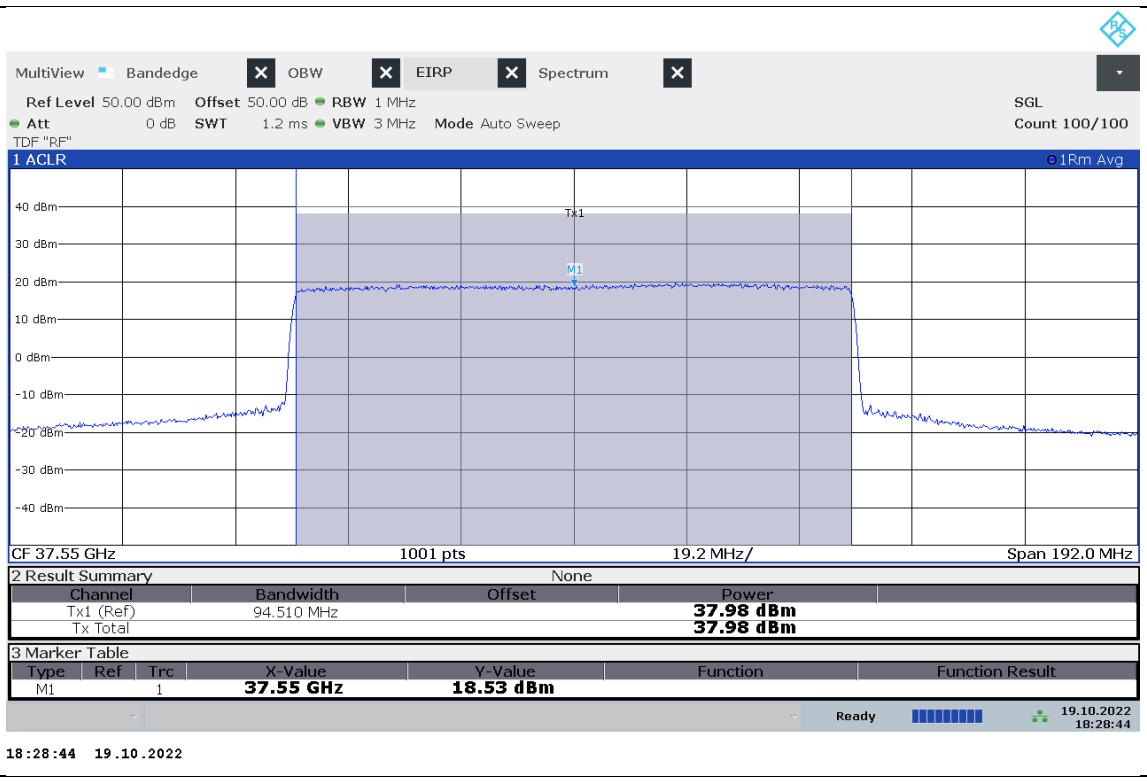
1CC – LOW CHANNEL, HORIZ

1CC – LOW CHANNEL, VERT

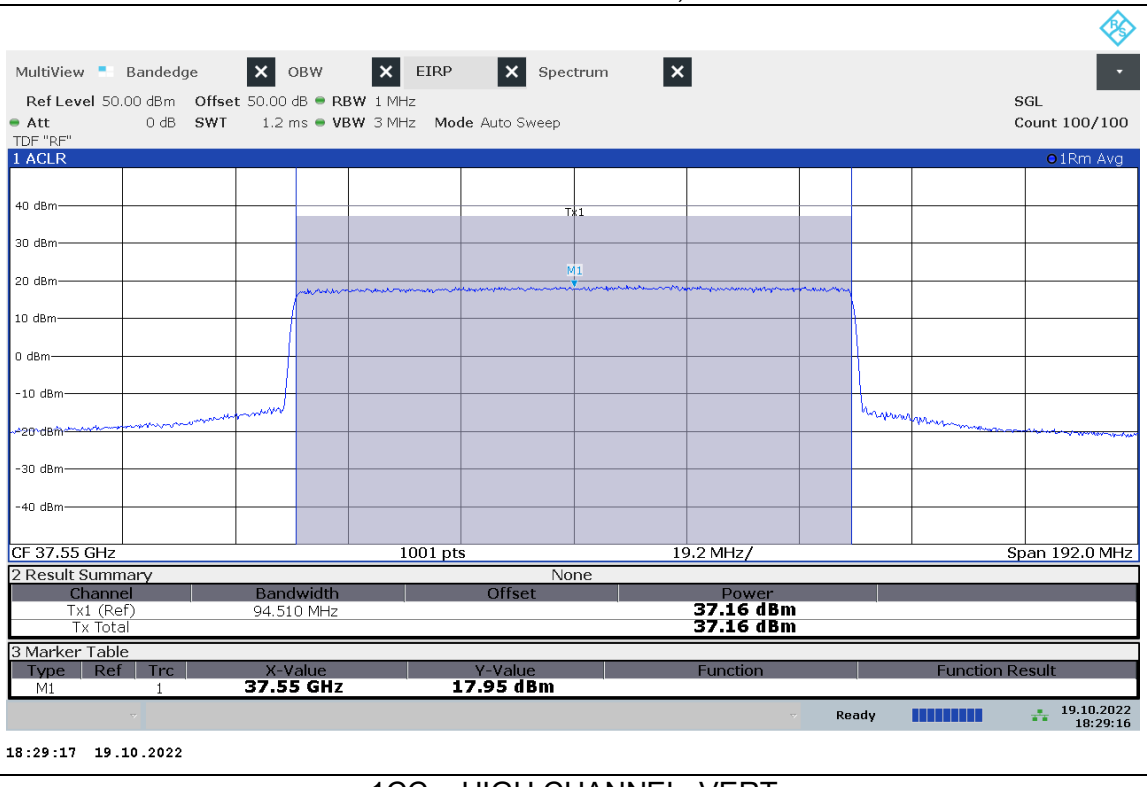
1CC – MID CHANNEL, HORIZ



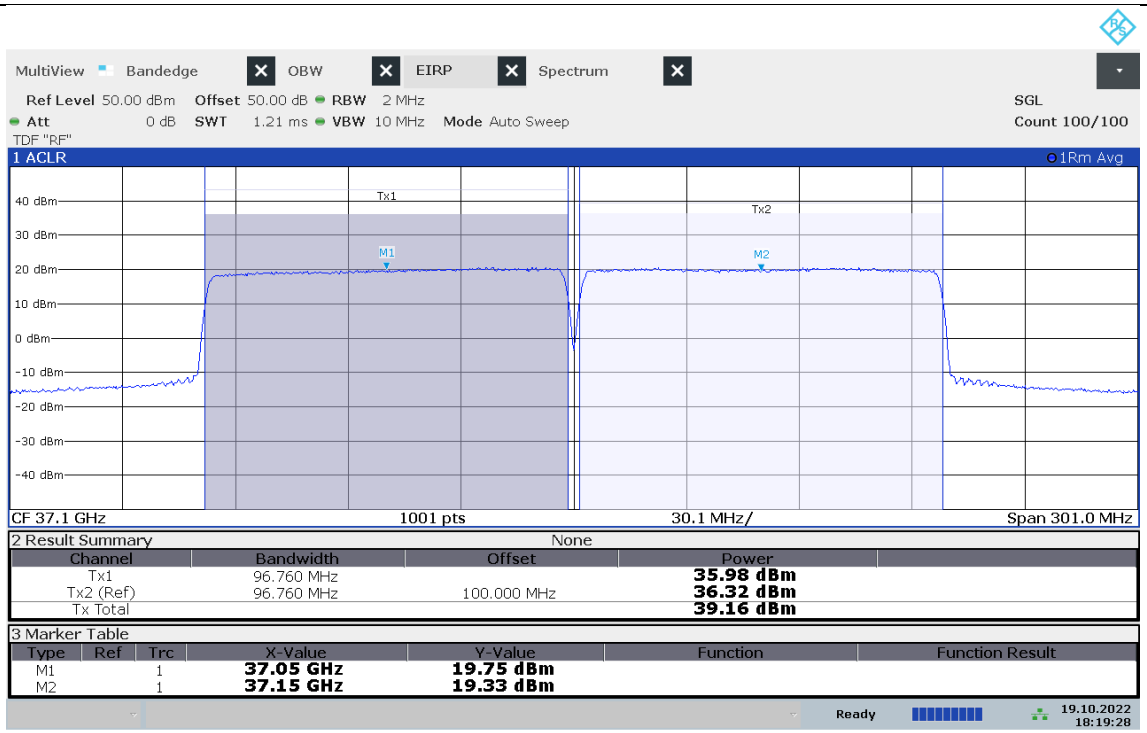
1CC – MID CHANNEL, VERT



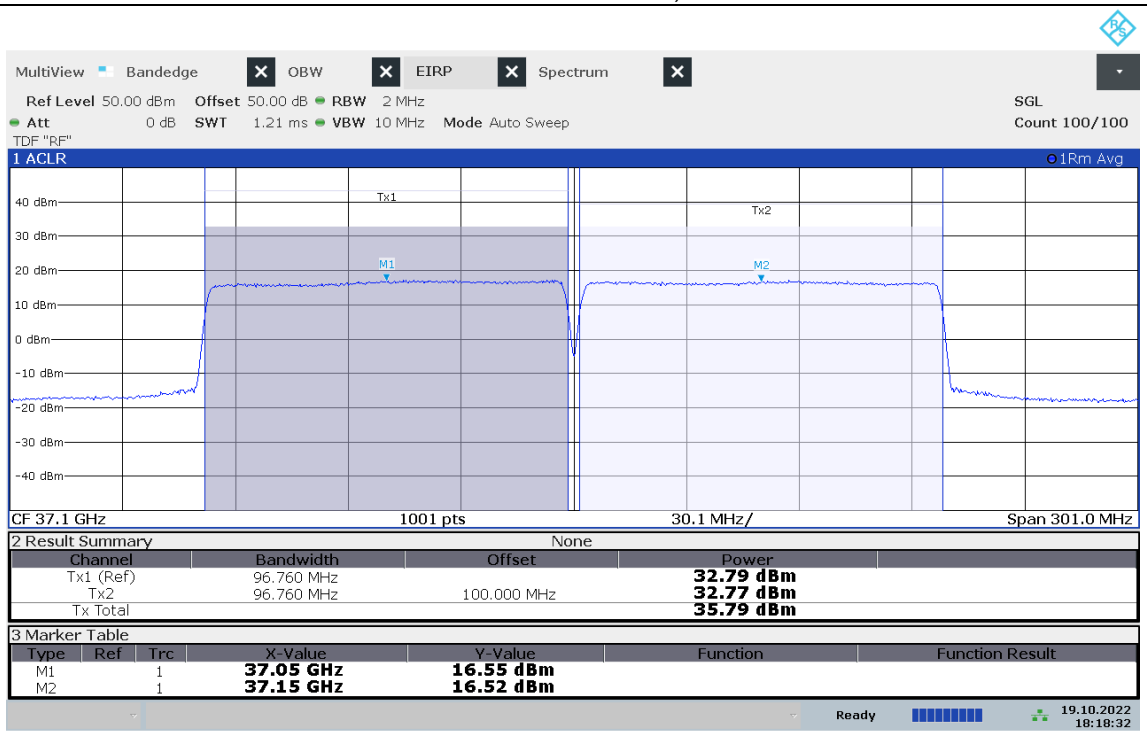
1CC – HIGH CHANNEL, HORIZ



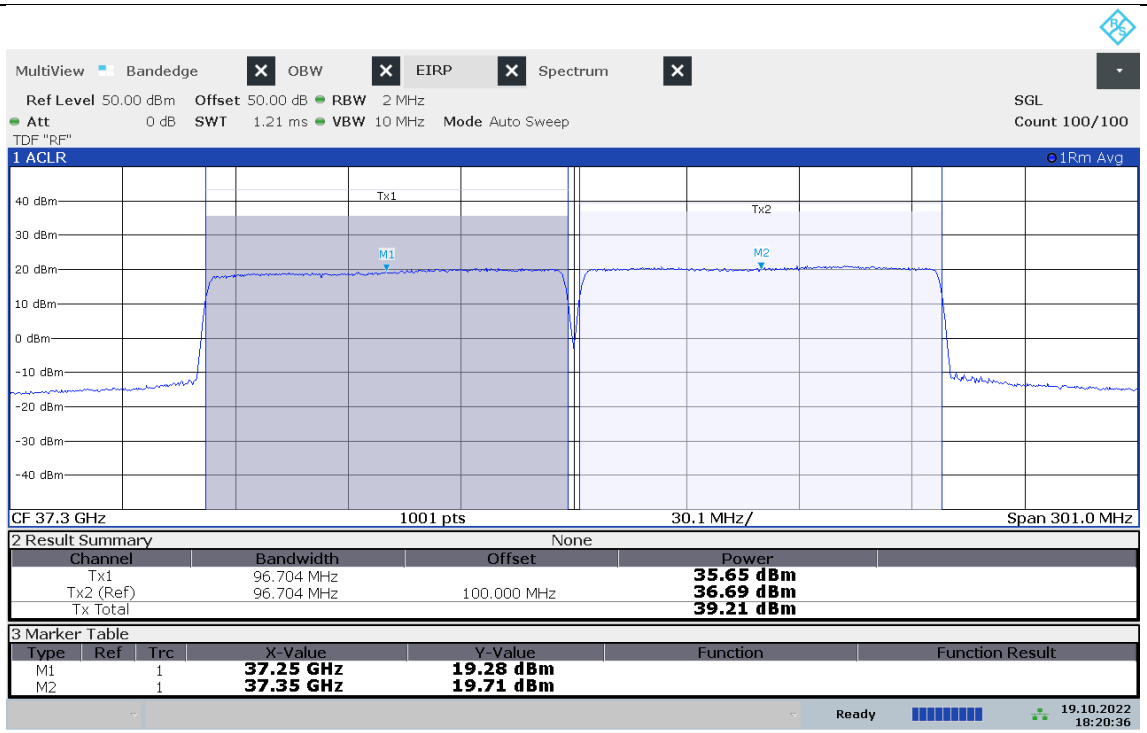
1CC – HIGH CHANNEL, VERT



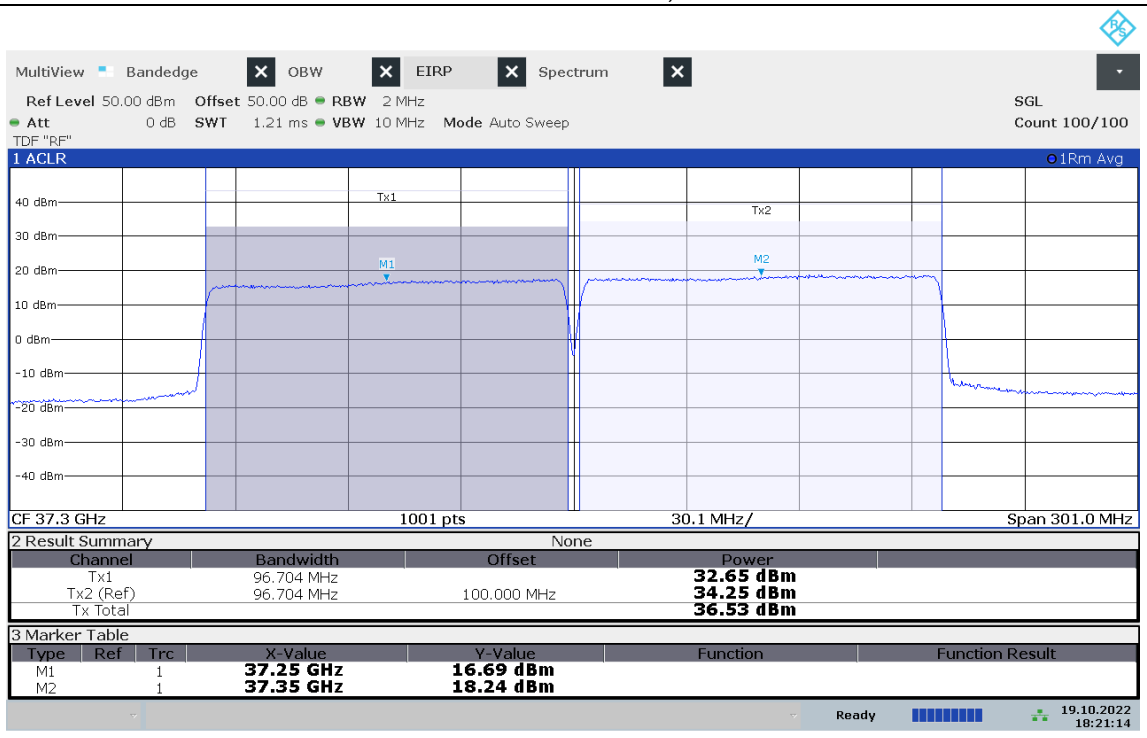
2CC – LOW CHANNEL, HORIZ



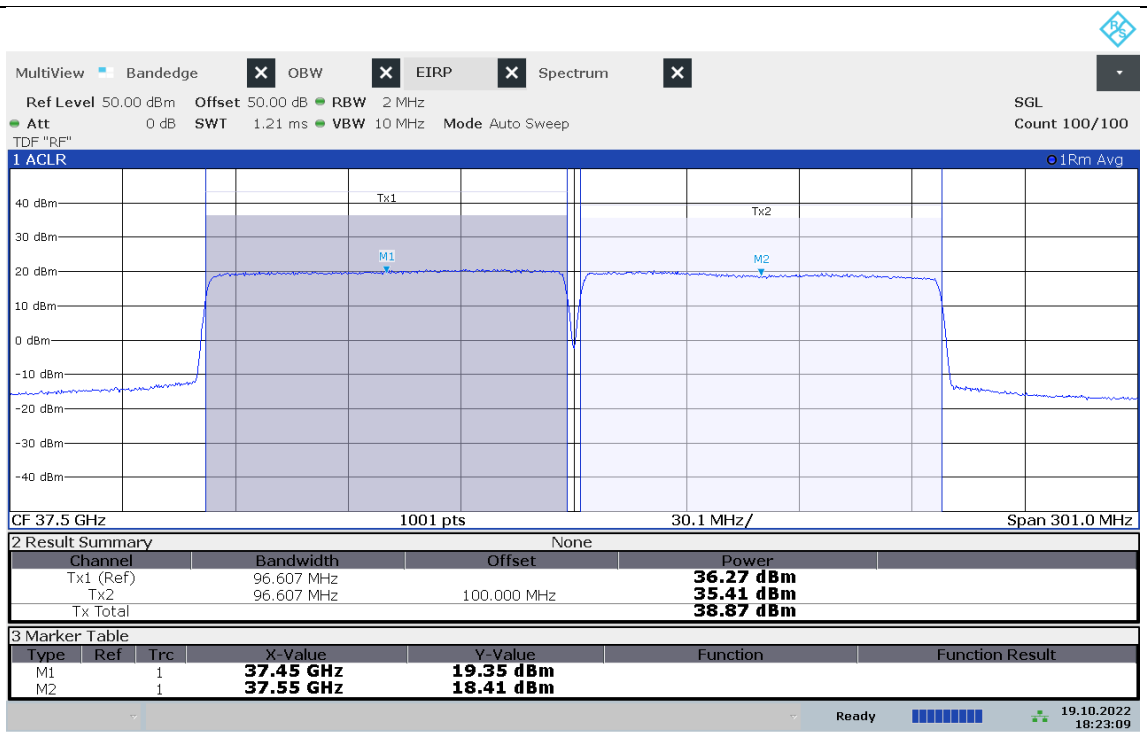
2CC – LOW CHANNEL, VERT



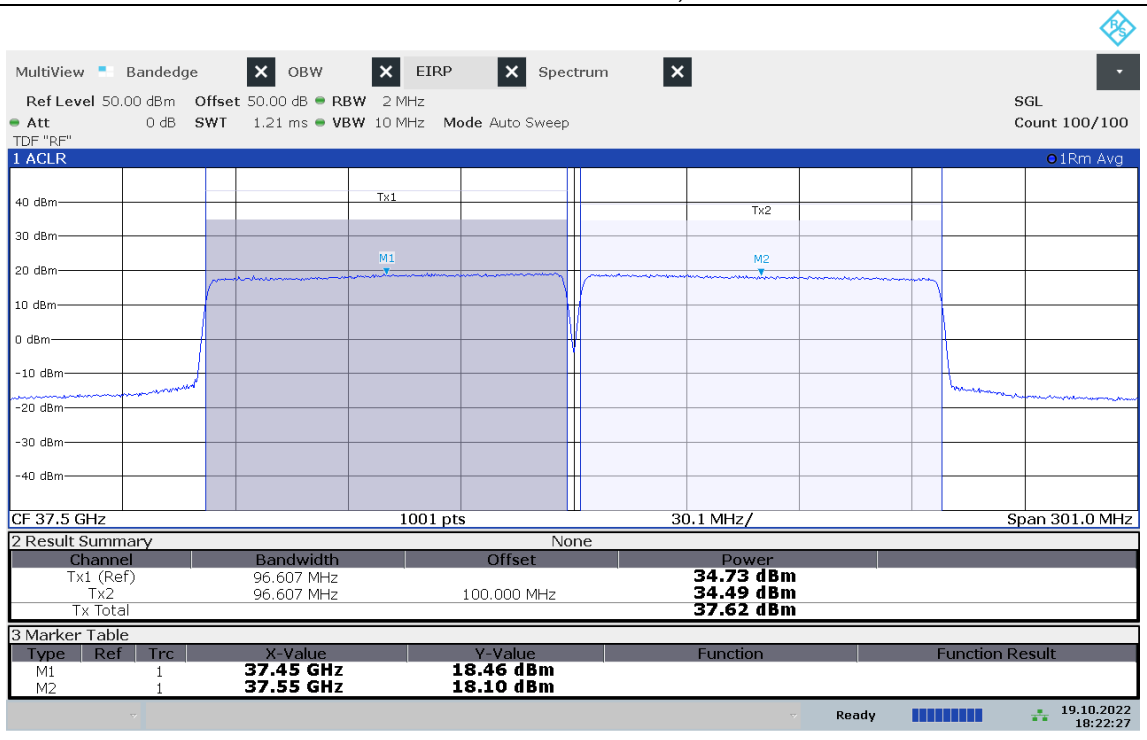
2CC – MID CHANNEL, HORIZ



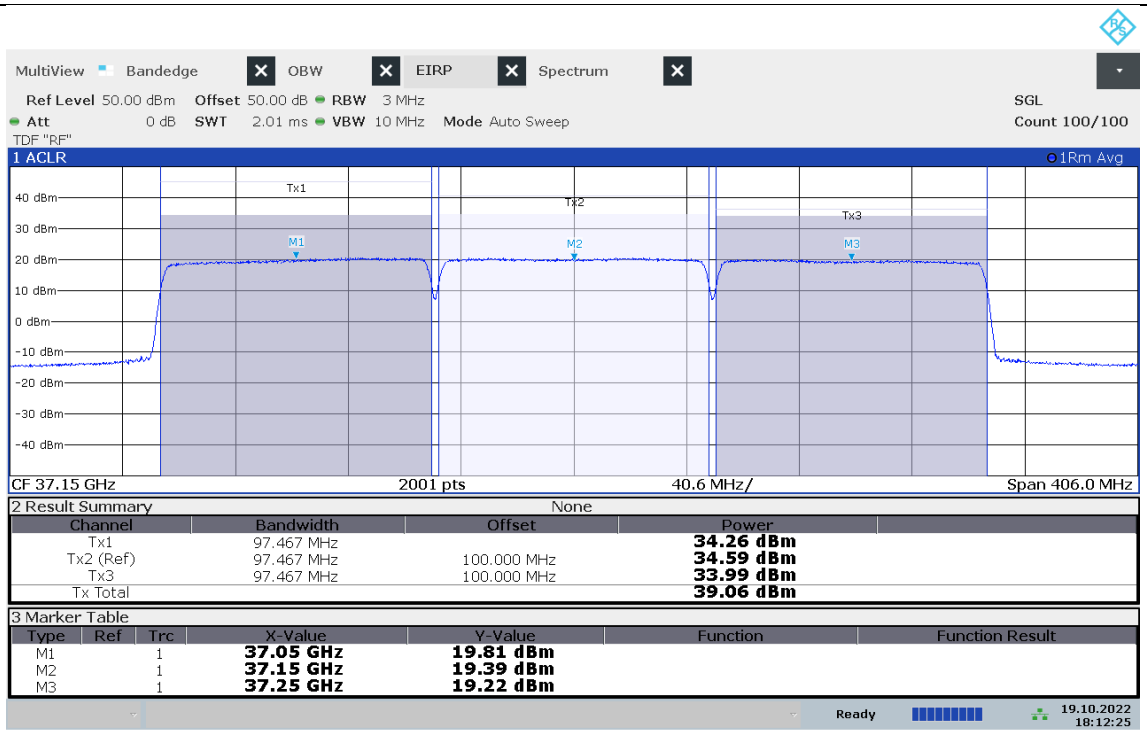
2CC – MID CHANNEL, VERT



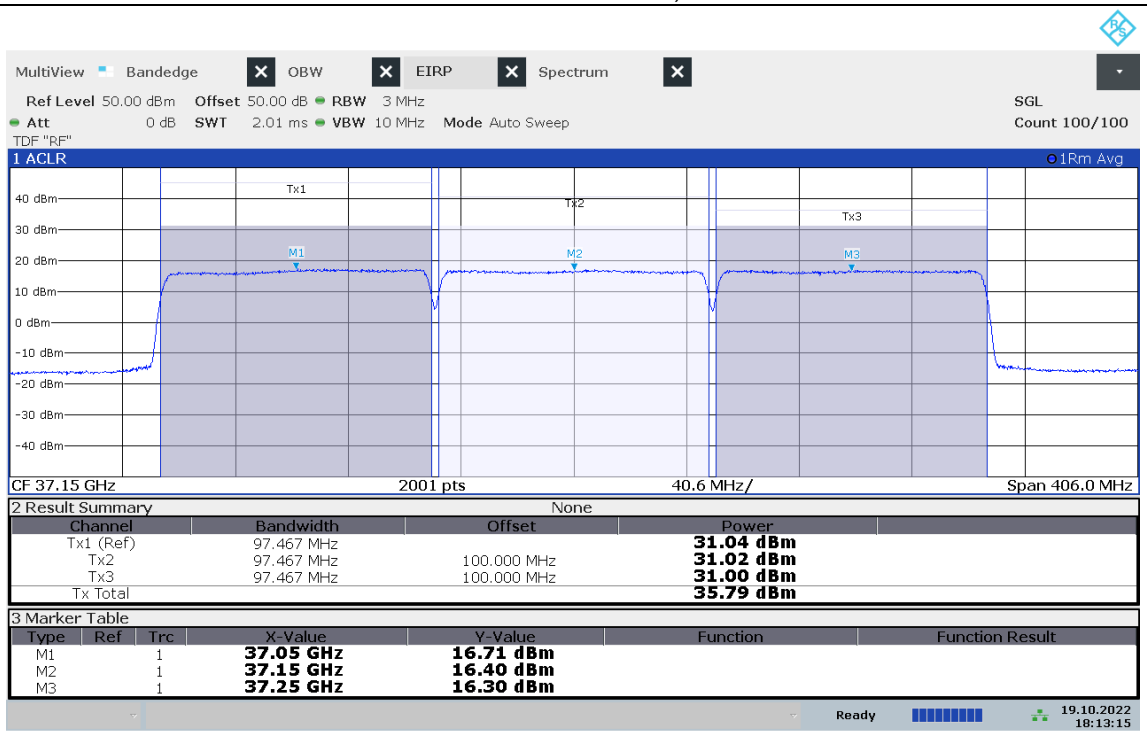
2CC – HIGH CHANNEL, HORIZ



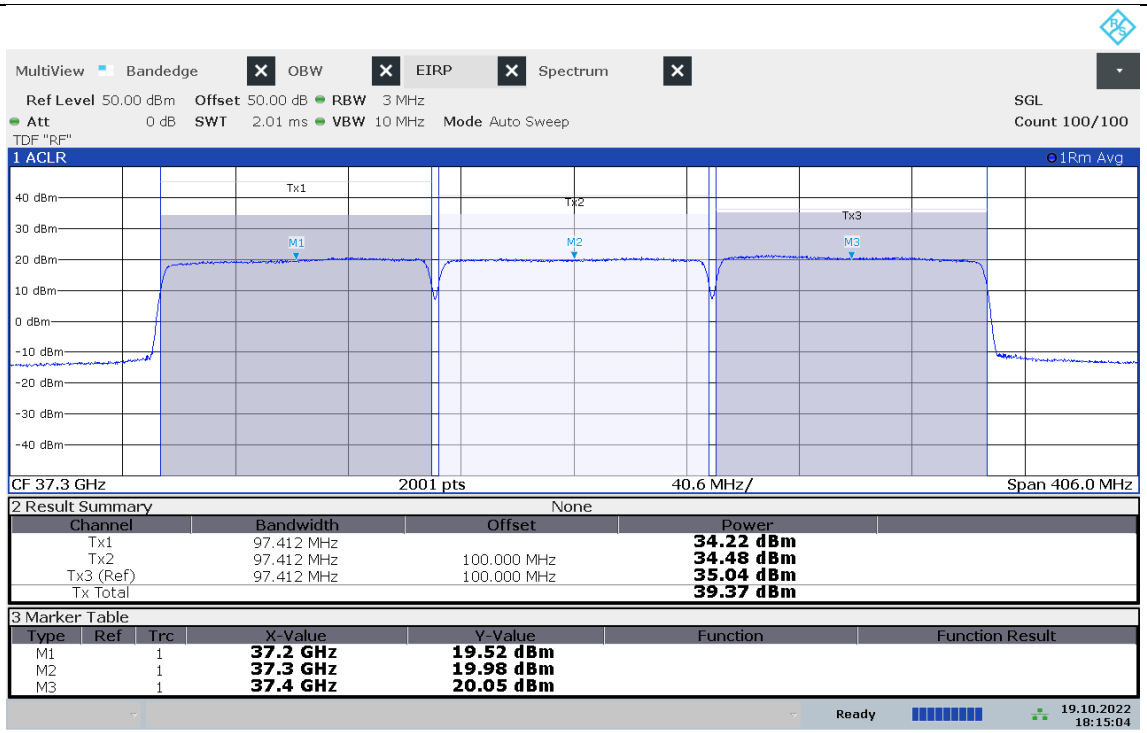
2CC – HIGH CHANNEL, VERT



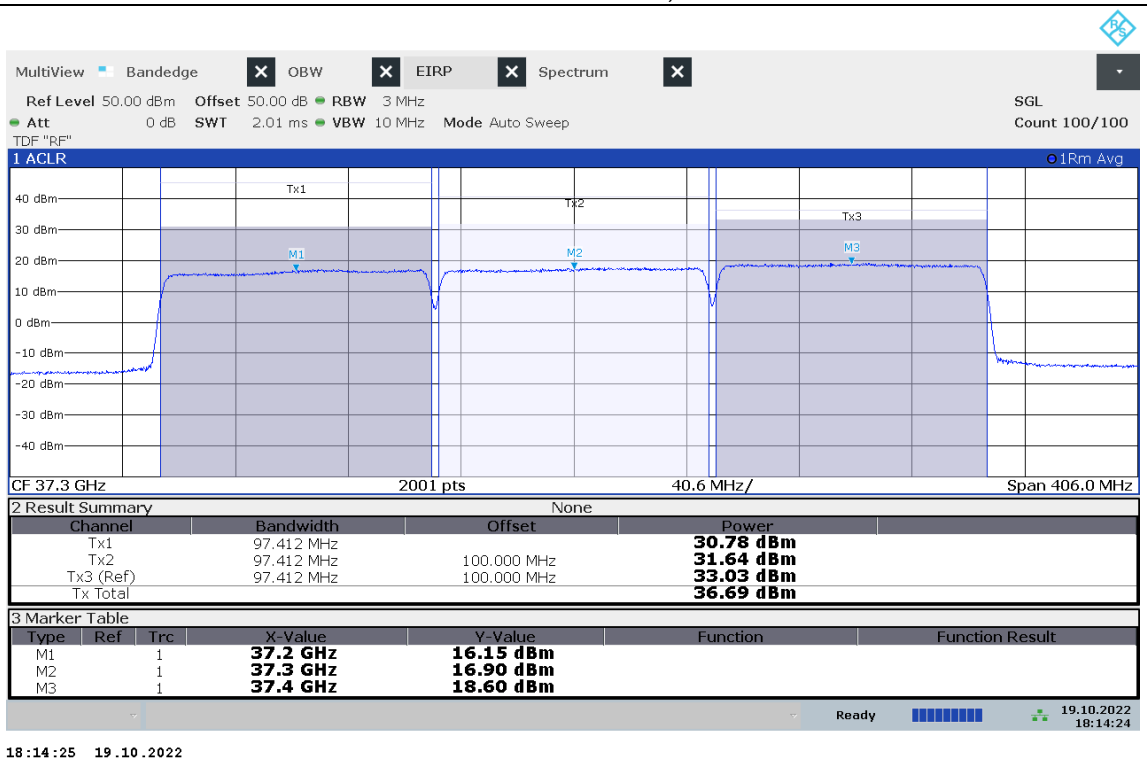
3CC – LOW CHANNEL, HORIZ



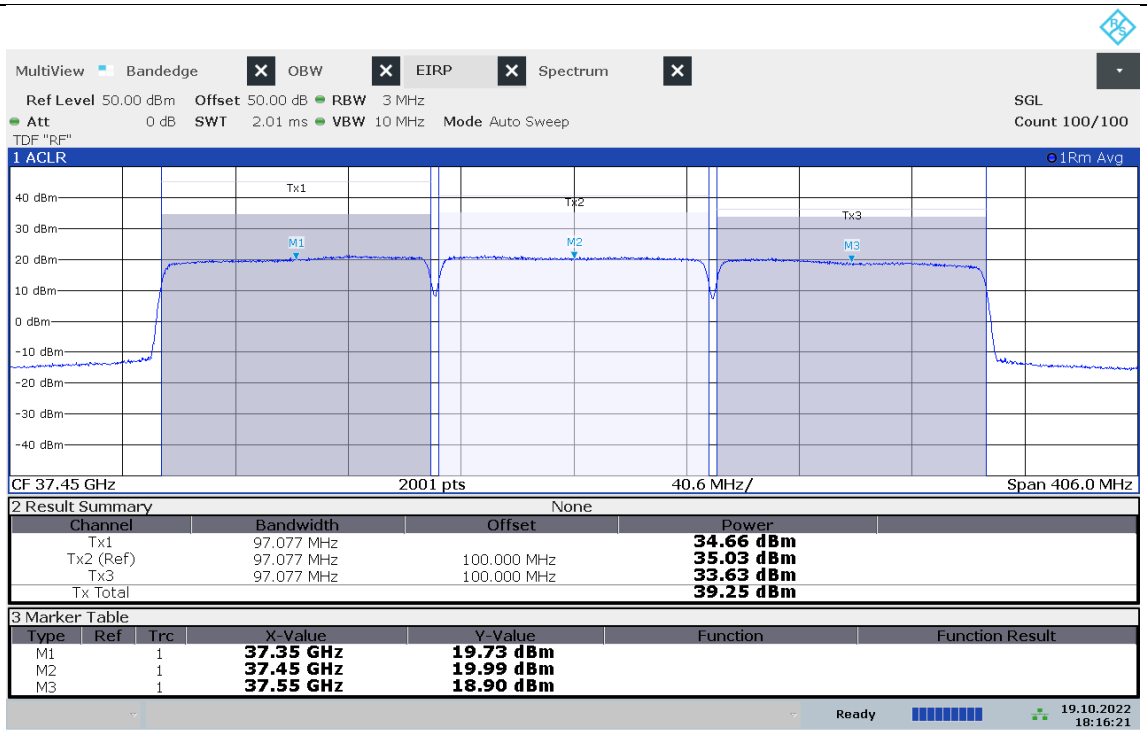
3CC – LOW CHANNEL, VERT



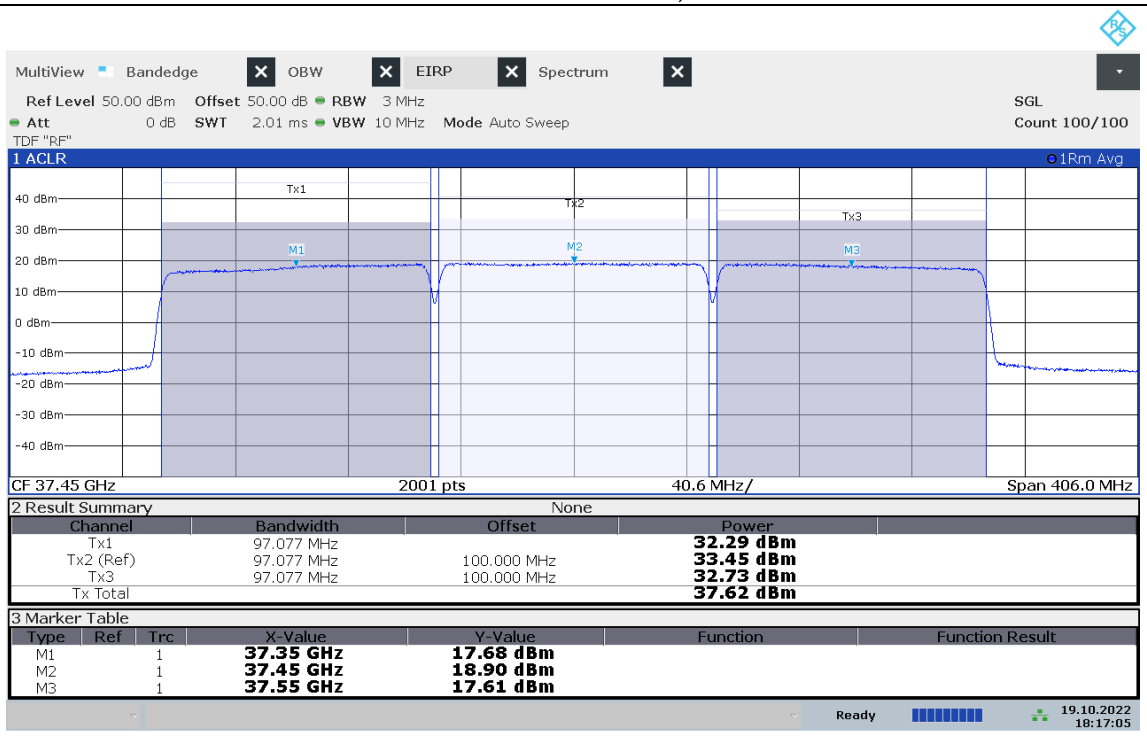
3CC – MID CHANNEL, HORIZ



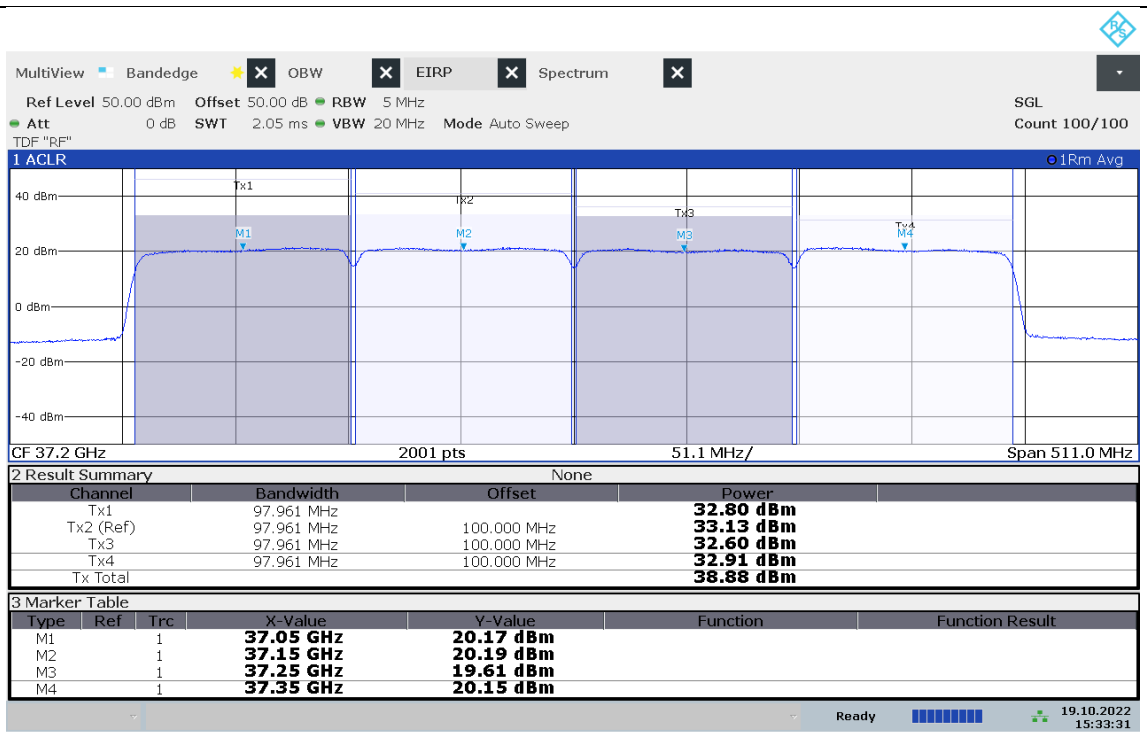
3CC – MID CHANNEL, VERT



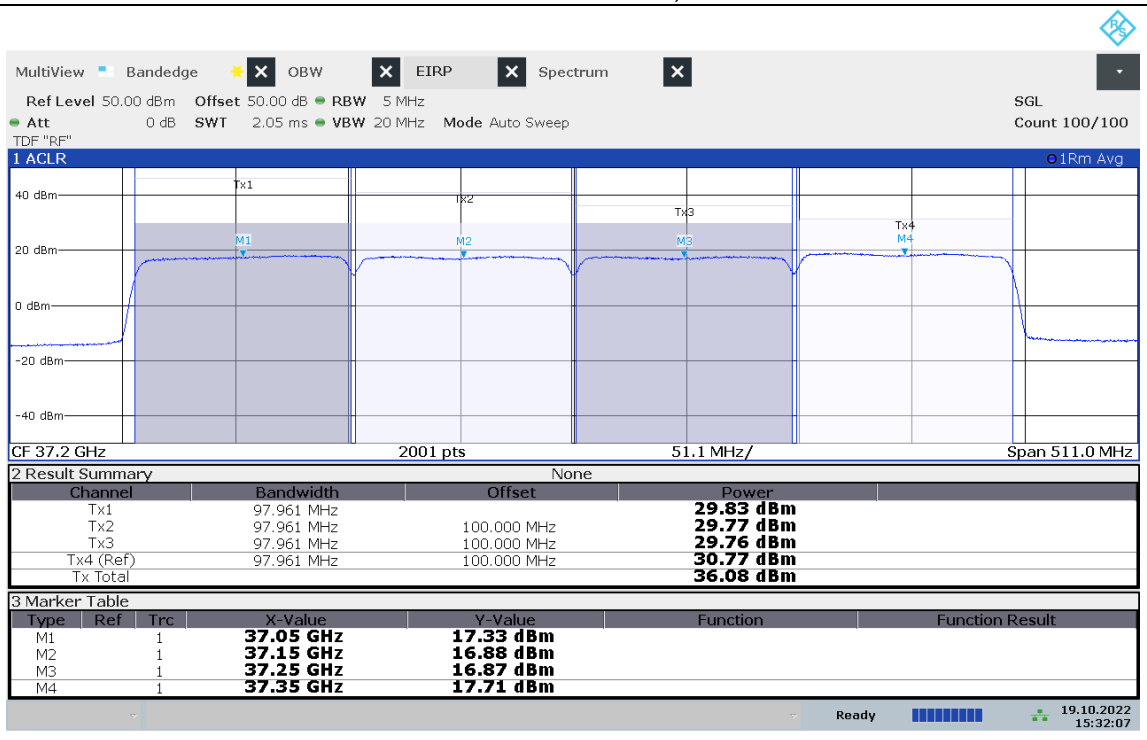
3CC – HIGH CHANNEL, HORIZ



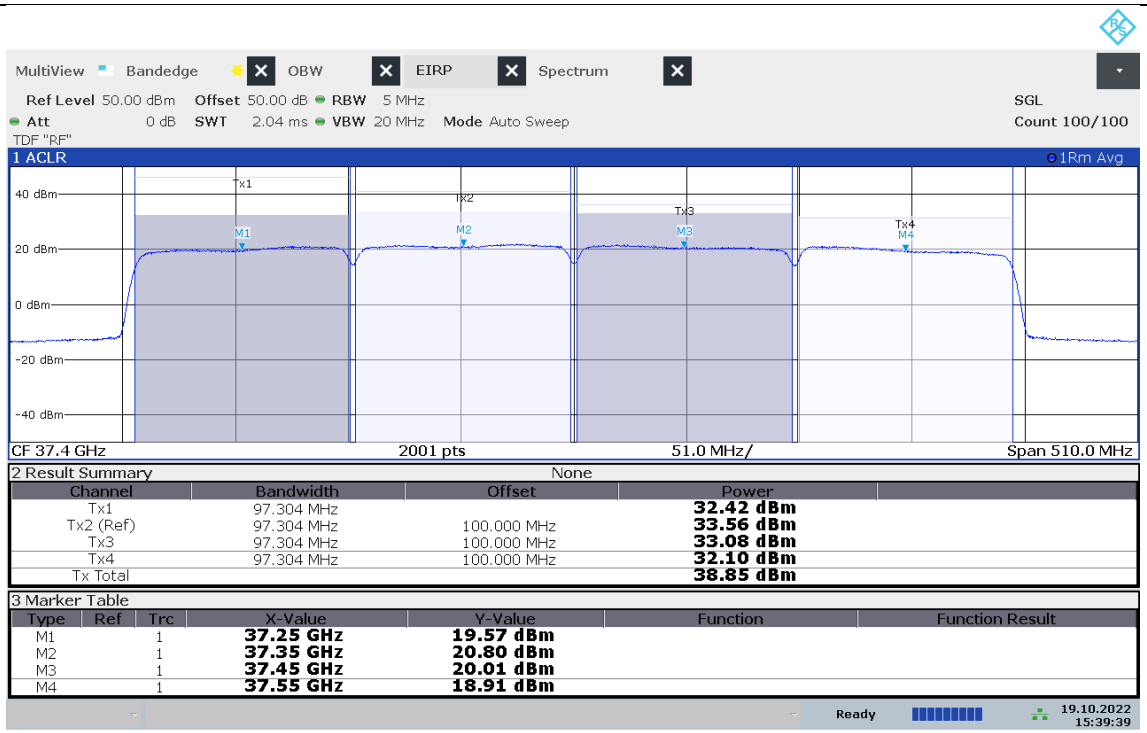
3CC – HIGH CHANNEL, VERT



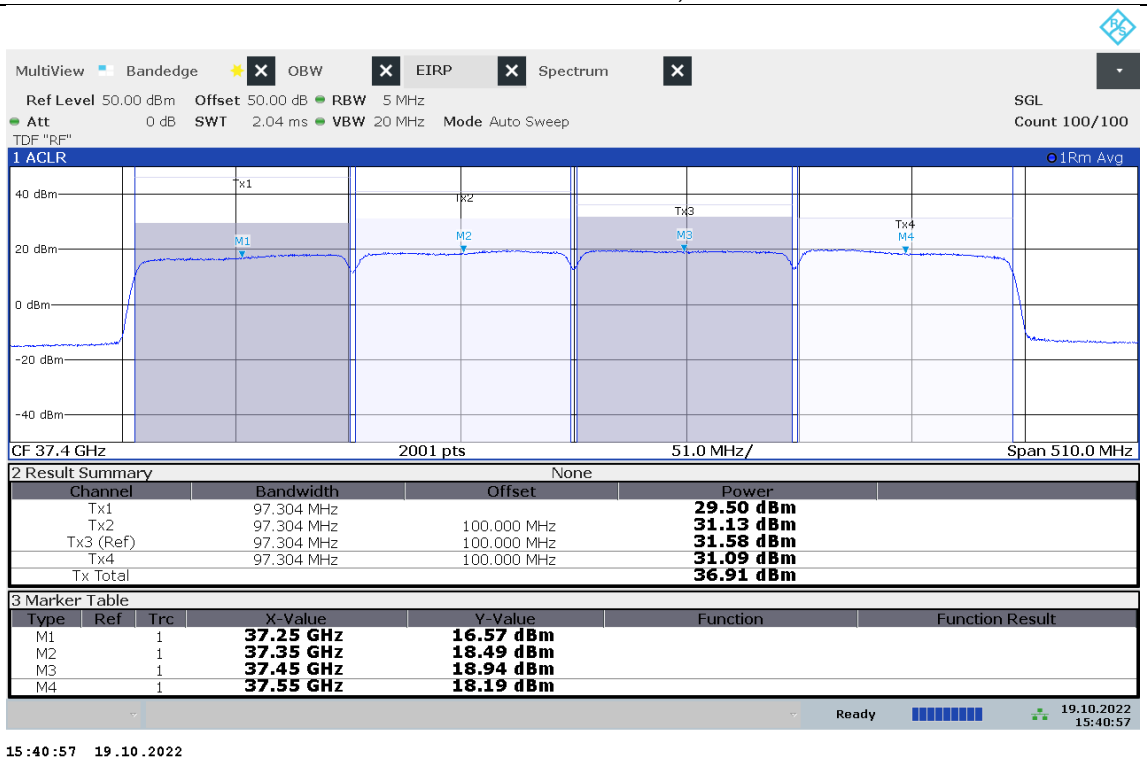
4CC – LOW CHANNEL, HORIZ



4CC – LOW CHANNEL, VERT



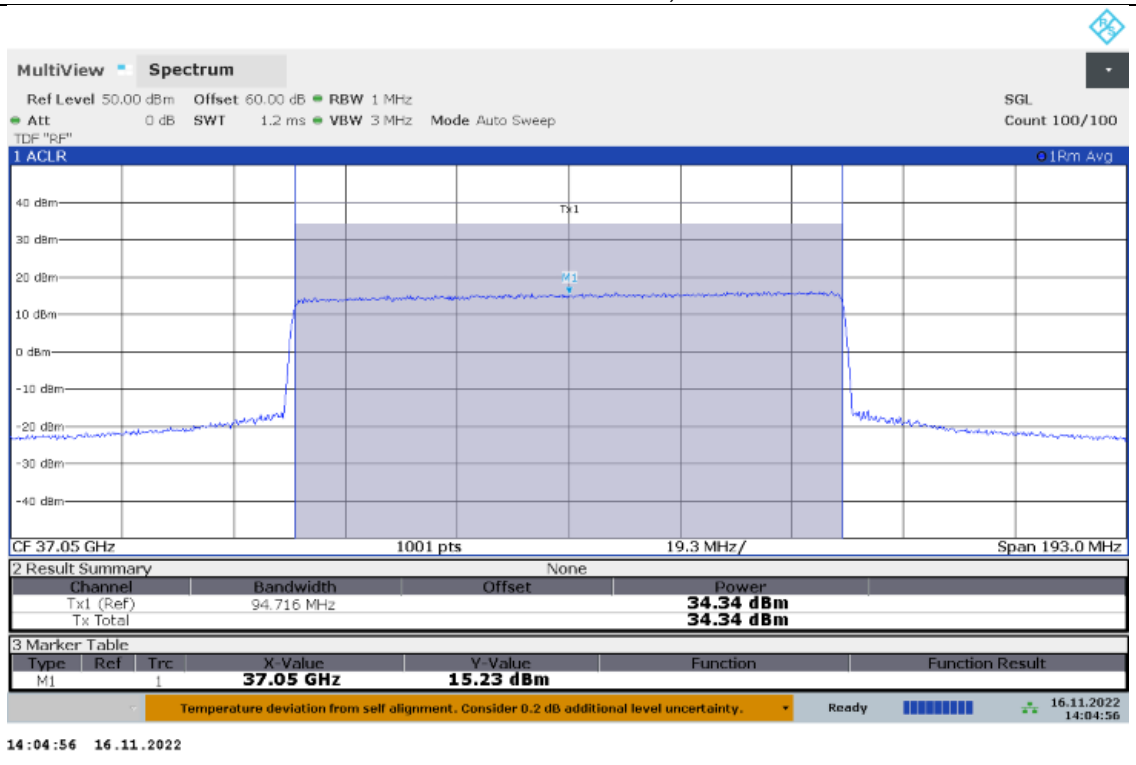
4CC – HIGH CHANNEL, HORIZ



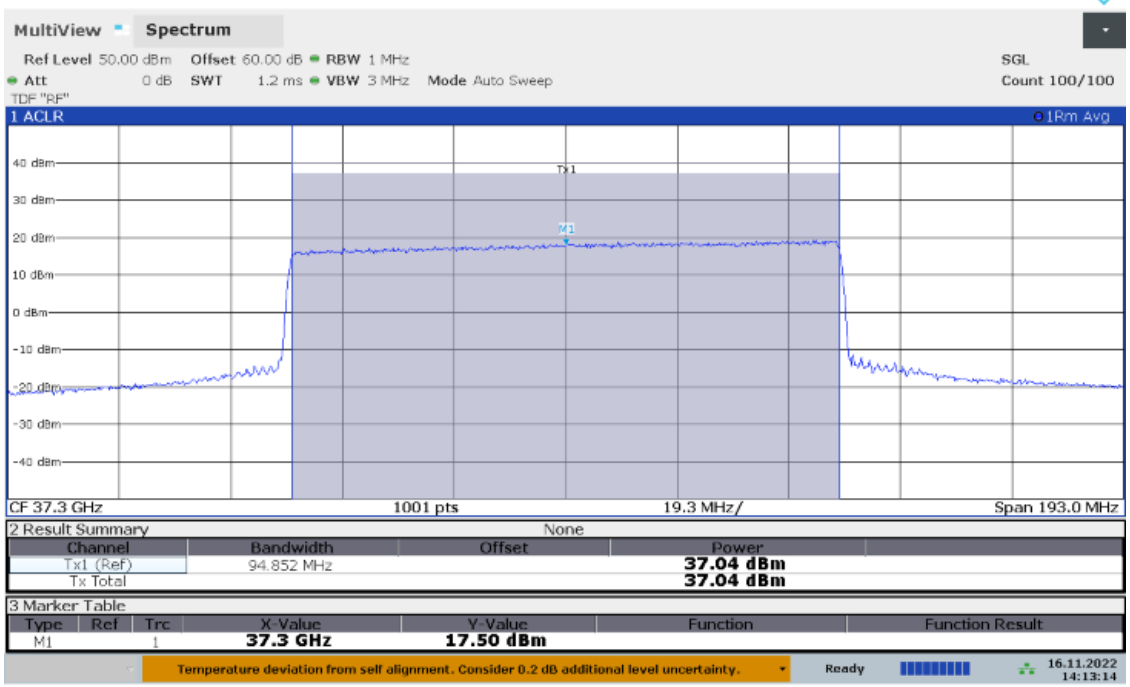
4CC – HIGH CHANNEL, VERT

QPSK MCS9

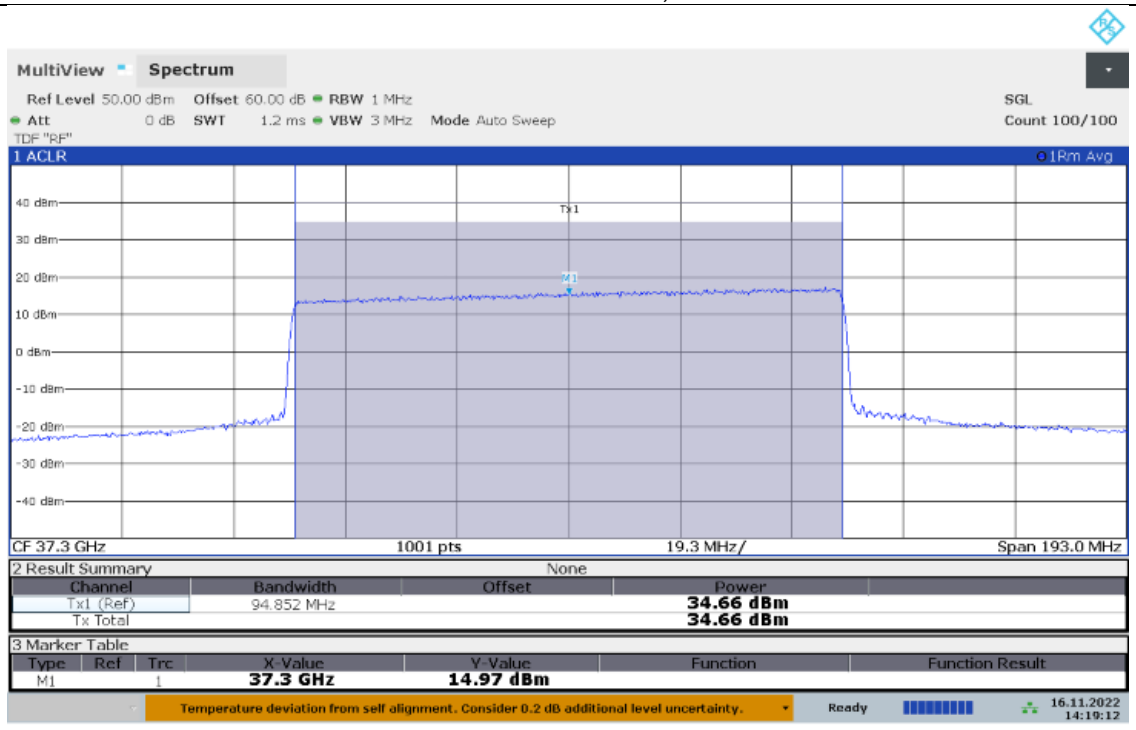
1CC – LOW CHANNEL, HORIZ



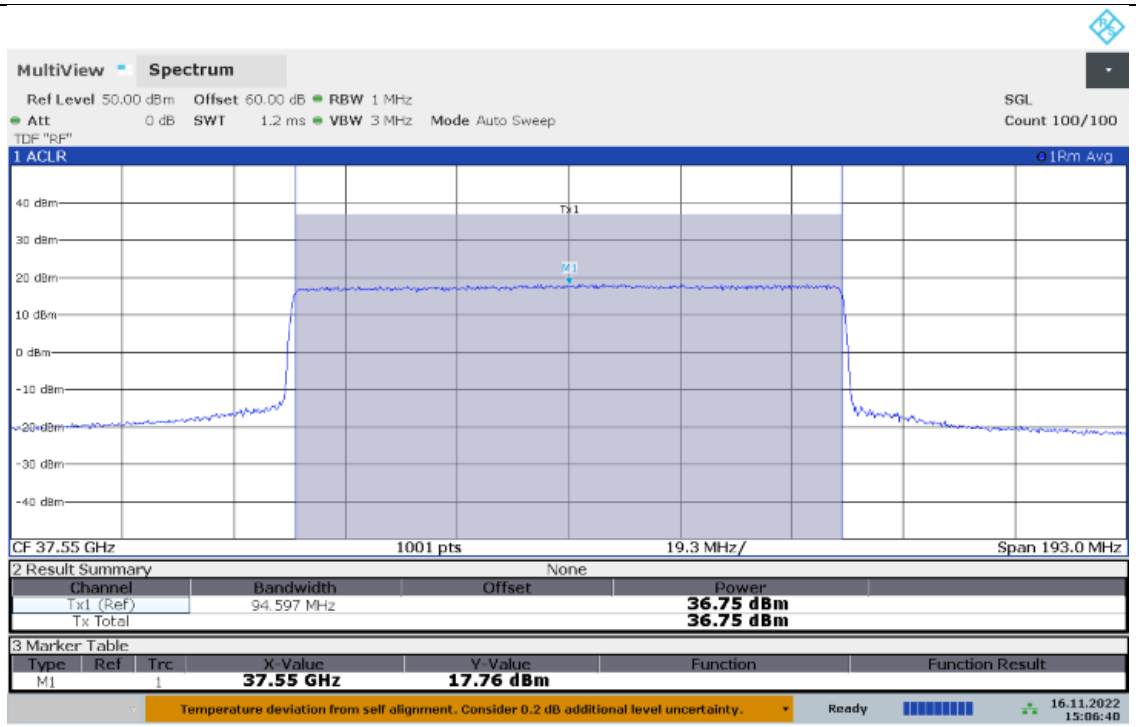
1CC – LOW CHANNEL, VERT



1CC – MID CHANNEL, HORIZ

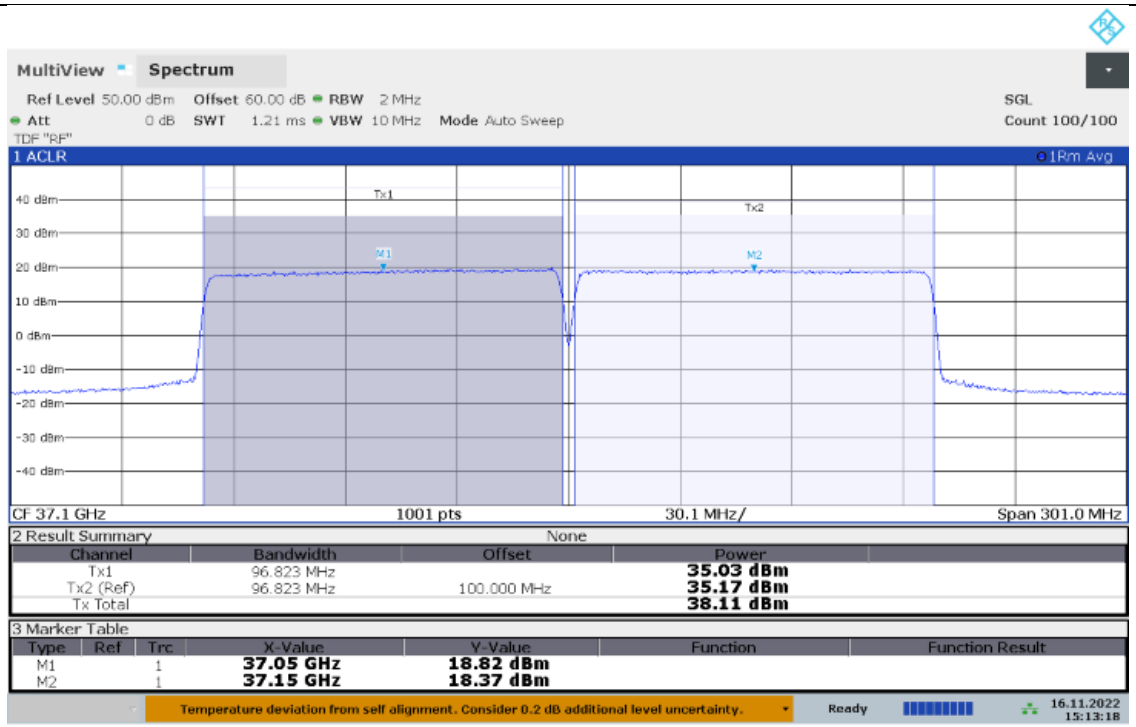


1CC – MID CHANNEL, VERT

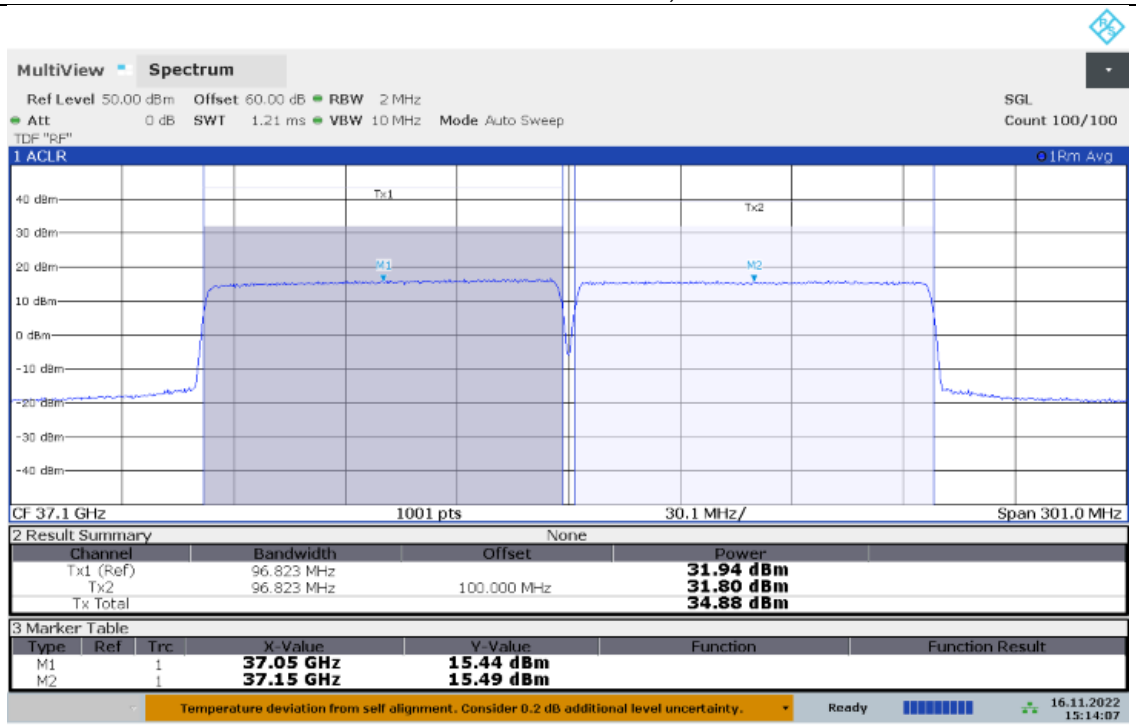


1CC – HIGH CHANNEL, HORIZ

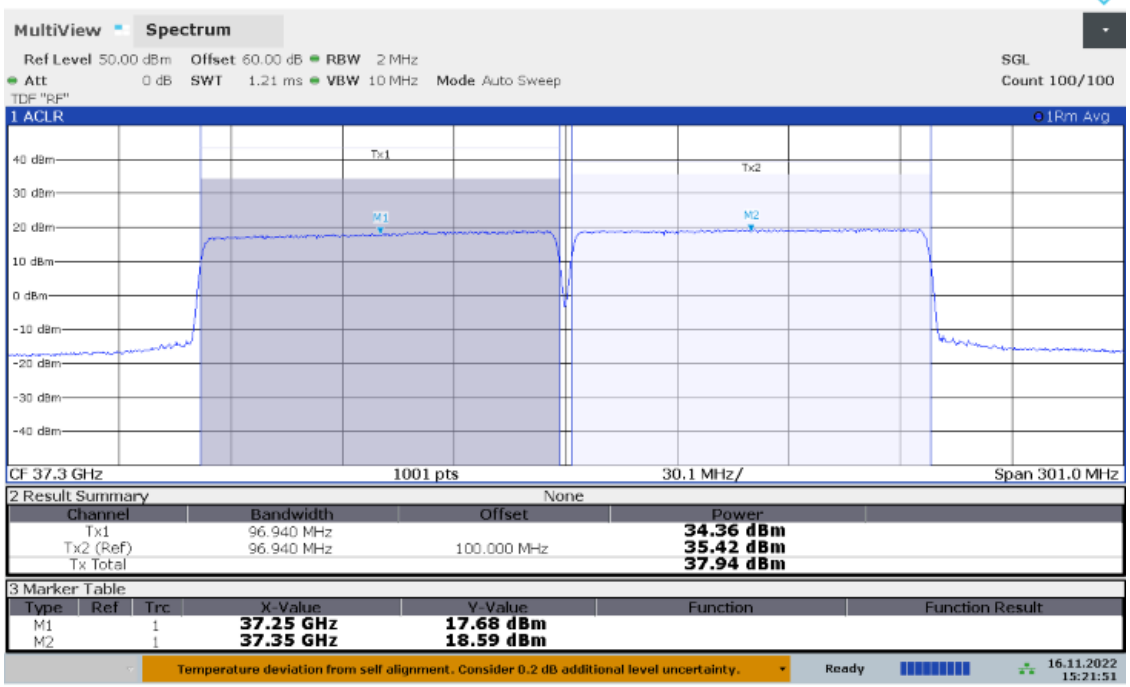
1CC – HIGH CHANNEL, VERT



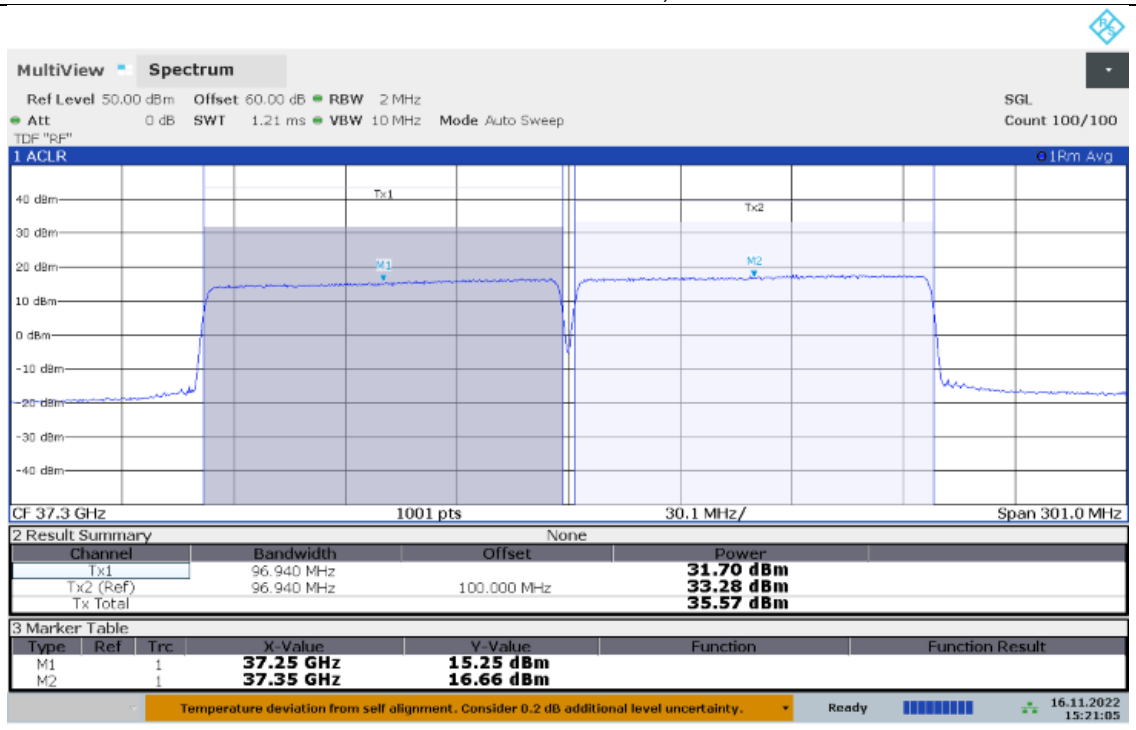
2CC – LOW CHANNEL, HORIZ



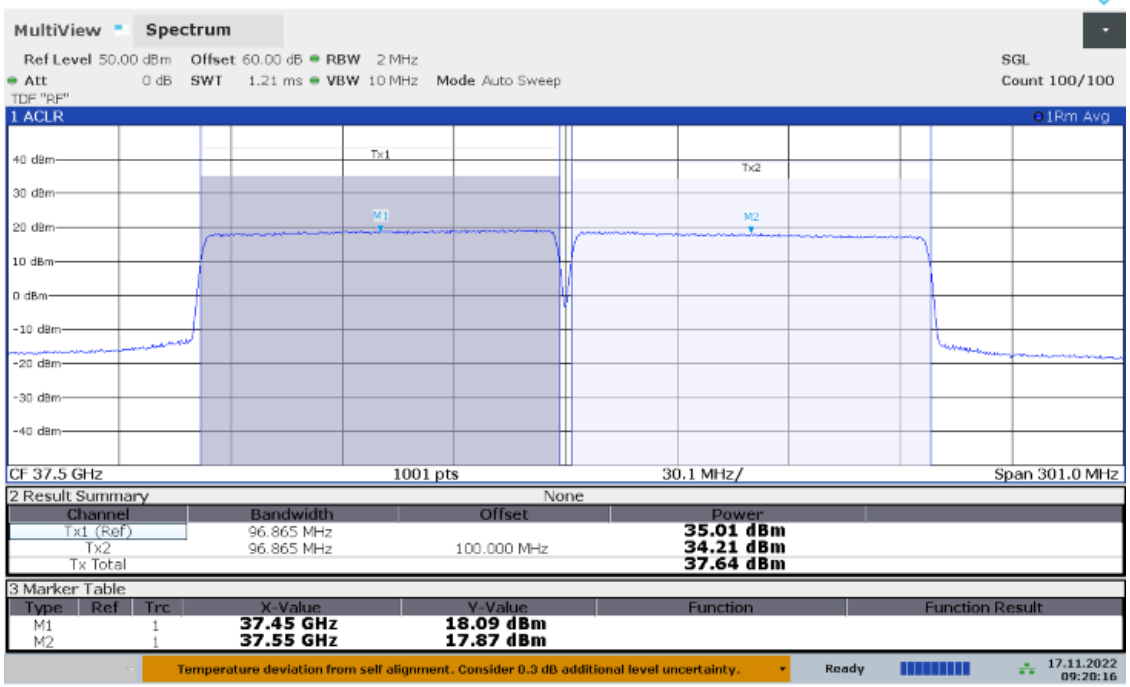
2CC – LOW CHANNEL, VERT



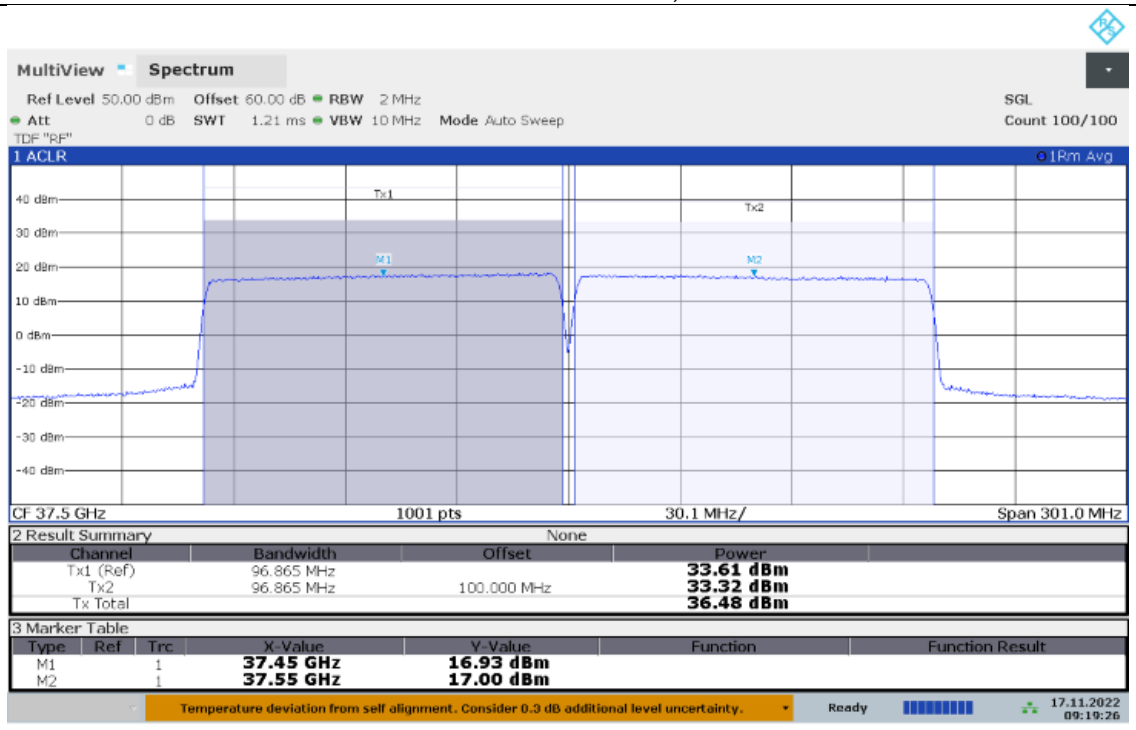
2CC – MID CHANNEL, HORIZ



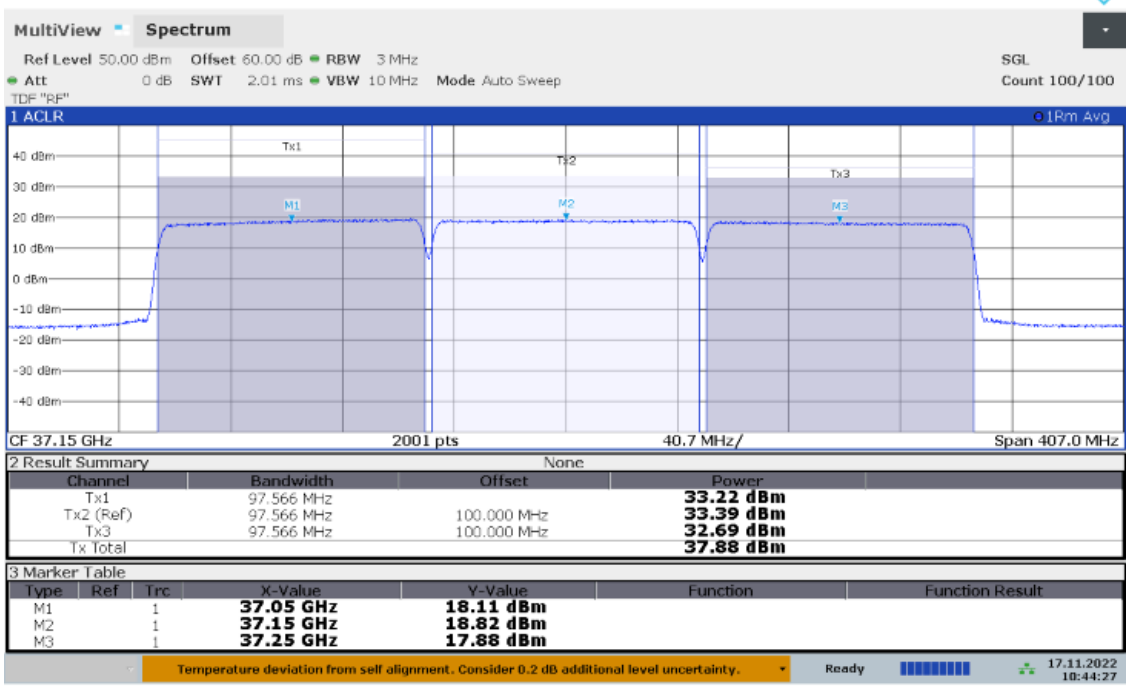
2CC – MID CHANNEL, VERT



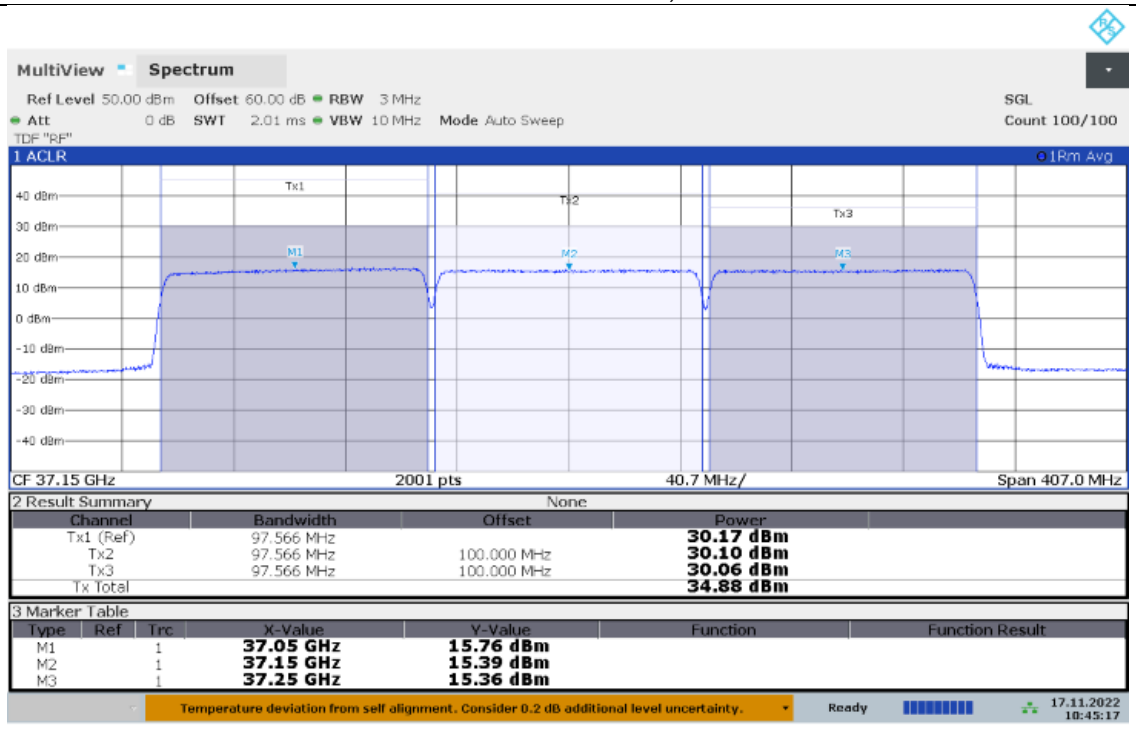
2CC – HIGH CHANNEL, HORIZ



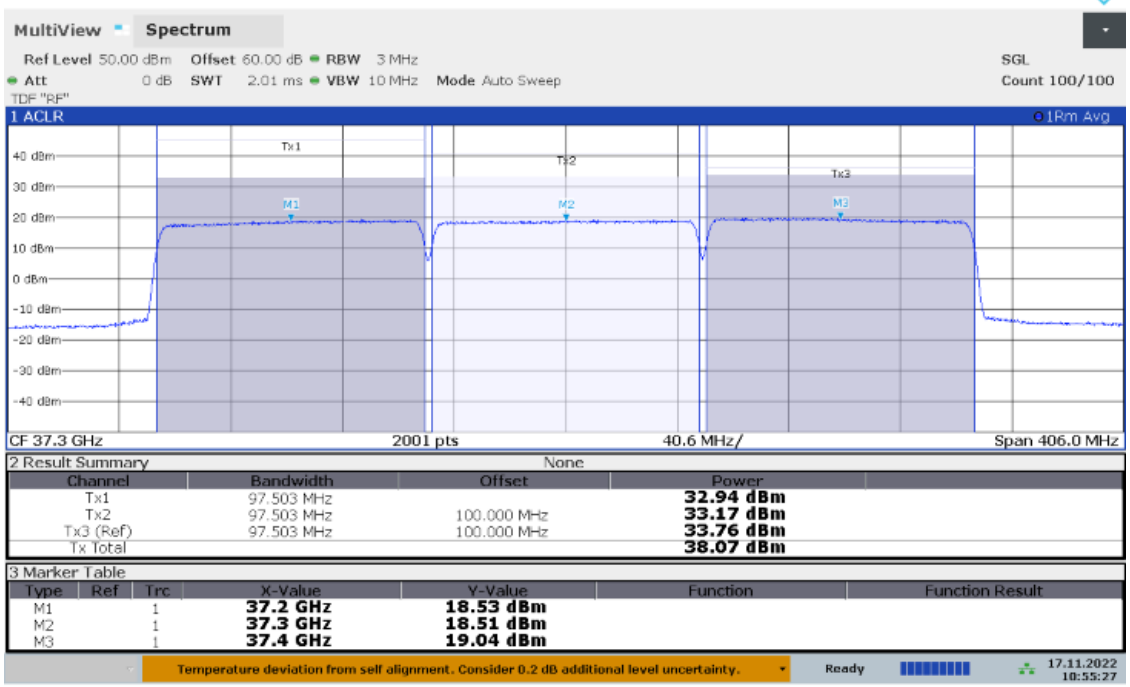
2CC – HIGH CHANNEL, VERT



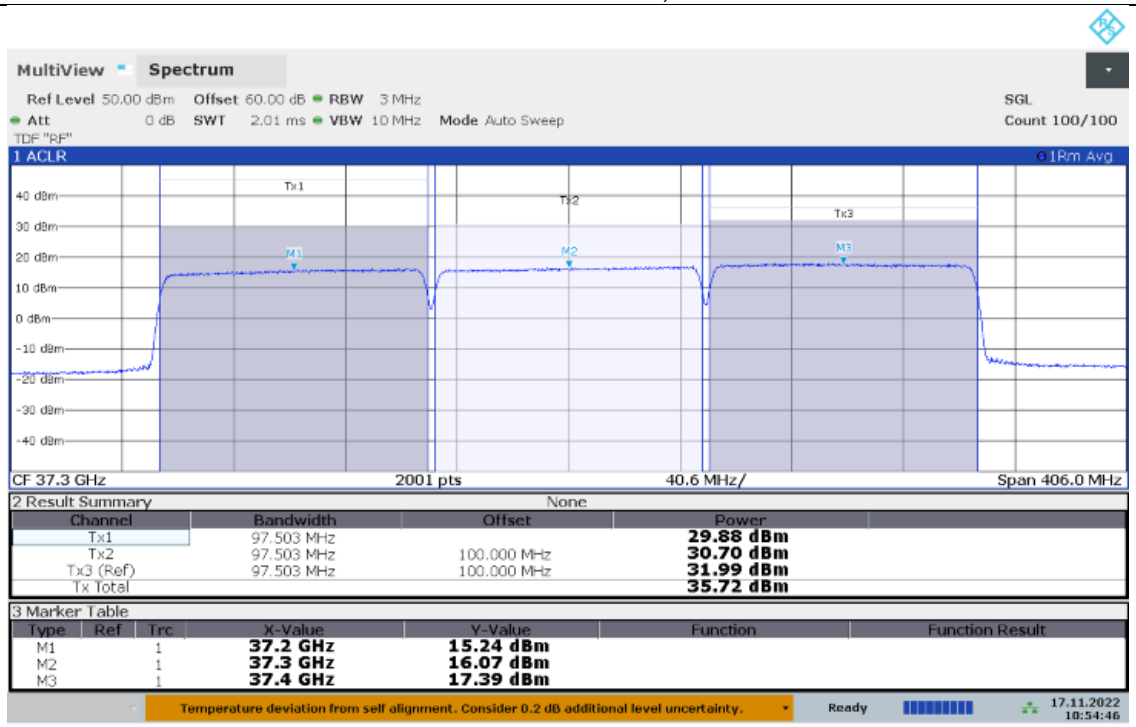
3CC – LOW CHANNEL, HORIZ



3CC – LOW CHANNEL, VERT



3CC – MID CHANNEL, HORIZ



3CC – MID CHANNEL, VERT