

Ericsson AB

RF TEST REPORT

Report Type:

RF report

PRODUCT NAME:

Radio 4402 B66

REPORT NUMBER:

230600436SHA-001

ISSUE DATE:

June 19, 2023

DOCUMENT CONTROL NUMBER:

TTRFFCC Part 27_V1 © 2018 Intertek



TEST REPORT

Applicant: Ericsson AB
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Manufacturer: Ericsson AB
Isafjordsgatan 10 SE-164 80 Stockholm 16480 Sweden

FCC ID: TA8AKRC161738-1

IC: 287AB-AS1617381

SUMMARY:

The equipment is tested according to the following standard(s) or Specification:

FCC CFR 47 Part 27: MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES

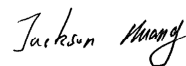
ISED RSS-139 Issue 4: Advanced Wireless Services Equipment Operating in the Bands 1710-1780 MHz and 2110-2200 MHz

PREPARED BY:

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TEST REPORT

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Revision History

Report No.	Version	Description	Issued Date
230600436SHA-001	Rev. 01	Initial issue of report	June 19, 2023

Measurement result summary

TEST ITEM	FCC REFERENCE	IC REFERENCE	RESULT
Max Output Power and Peak to Average Power Ratio and EIRP	27.50(d)	RSS-139 5.5	Pass
Occupied Bandwidth	27.53(h) 2.1049	RSS-GEN 6.7	Pass
Unwanted Emissions at Band Edge	27.53(h)	RSS-139 5.6	Pass
Conducted Unwanted Emission	27.53(h)	RSS-139 5.6	Pass
Frequency Stability	27.54	RSS-139 5.4	Pass

Note: The requirement of additional filtering in the band 2180-2200 MHz is for implementation and is enforced at the time of licensing. Therefore results are not included in this report. For operation in the Band 66 (AWS-4) upper 20MHz (DL: 2180 – 2200MHz), operation is permitted by Industry Canada under a specific Industry Canada/Telco Licensing Agreement: P9 - AWS-4 (Ancillary Terrestrial Component) Subordinate Spectrum Licences

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test (EUT)

Description:	Remote Radio Unit
Product name:	Radio 4402 B66
Product number:	KRC 161 738/1
HVIN	AS1617381
Serial Number(s)	CF89106150
Rating:	36V DC
Software Version:	ngr2_app-CXP9013268_15-R94BX.xlf
Hardware Version:	R1A
Sample received date:	June 5, 2023
Date of test:	June 5, 2023 ~ June 9, 2023

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1.2 Technical Specification

Frequency Range:	RX: 1710-1780 MHz, TX: 2110-2200 MHz (LTE, NR, NB-IoT) RX: 1710-1755 MHz, TX: 2110-2155 MHz (WCDMA)
Number of Antenna ports:	4 TX/RX
Supported RAT:	SR/MR: WCDMA+LTE+NB-IoT+NR
Supported other mode:	/
Max RF bandwidth (IBW):	WCDMA SR: 45MHz LTE/NR SR: 90MHz (valid for LTE BW $\geq$ 5 MHz) NB-IoT Standalone & LTE 1.4MHz,3MHz: 20MHz MR W+L+NB-IoT+NR: 90MHz
Supported Number of Carriers:	Maximum 6 carriers per port for all configuration
Supported modulation:	WCDMA: QPSK, 16QAM, 64QAM LTE&NR: QPSK, 16QAM, 64QAM, 256QAM NB-IoT: QPSK
Supported Channel Bandwidth:	WCDMA: 5 MHz LTE: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz NB-IoT Standalone: 200 kHz NR: 5MHz, 10MHz, 15MHz, 20MHz, 25MHz, 30MHz, 40MHz with 15kHz SCS
Declaration output power:	Maximum 37.0 dBm (5W) per port (Maximum 34.0 dBm (2.5W) for LTE 1.4MHz and 3MHz per carrier; Maximum 33.0 dBm (2W) for NB-IoT-Standalone per carrier
Antenna Gain:	KRE 105 280/1, Gain: 9.9dBi

1.3 Description of Test Facility

Name:	Intertek Testing Services Shanghai
Address 1:	Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
Address 2:	F9&F8&F7, Tianfu Software Park E7 Tower, No. 1366 Tianfu Avenue Middle, Hightech Zone, Chengdu City, Sichuan Province, P.R. of China
Telephone:	+86 21 61278200
Telefax:	+86 21 54262353
The test facility is recognized, certified, or accredited by these organizations:	FCC Accredited Lab Designation Number: CN0175
	IC Registration Lab CAB identifier.: CN0014
	A2LA Accreditation Lab Certificate Number: 3309.02

2 TEST SPECIFICATIONS

2.1 Related documents

FCC Part 27 (2021)

FCC Part 2 (2021)

ISED RSS-139 issue 4 September 29, 2022

ISED RSS-Gen issue 5 March 2019 Amendment 1

ANSI C63.26:2015

KDB 971168 D01 v03r01

KDB 662911 D01 v02r01

2.2 Product Information

The Equipment Under Test (EUT) is an Ericsson Antenna Integrated Radio Unit working in the wireless communications services 2100MHz band which provides communication connections to network in WCDMA / LTE / NB-IoT / NR modes and MSR modes. The Radio 4402 B66 KRC 161 738/1 operates from a -48V DC.

The EUT includes 4 TX/RX ports and it can be configured to transmit in MIMO mode, and MIMO mode was used for measurements as the worst configuration. The complete testing was performed with the EUT transmitting at maximum RF power unless otherwise stated.

A full technical description can be found in the Manufacturer's documentation.

2.3 Configuration Description

Initial pre-testing was carried out to determine the worst case modulation scheme by measuring the output power from QPSK, 16QAM, 64QAM and 256QAM on the middle channel of one antenna port. From these tests, it was determined that 64QAM was the worst case modulation scheme and was used for all testing.

Complete testing was carried out on the worst case antenna port which was determined by the highest output power from the 4 measured ports on worst case modulation scheme and worst bandwidth. The worst antenna port was antenna B.

The settings below were used for all measurements unless otherwise noted:

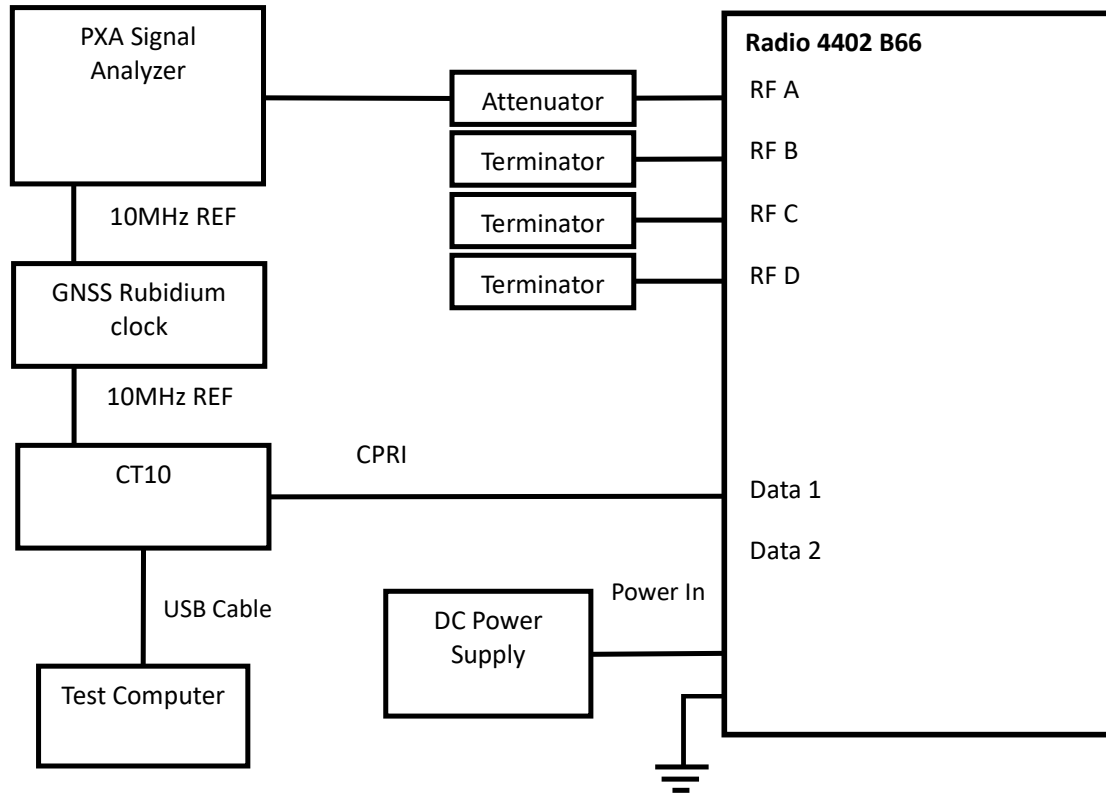
NR

Configuration	No. of Carriers	NR Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)		
			Bottom	Middle	Top
NR-1C	1NR	25	2122.5	2155	2187.5
		30	2125	2155	2185
		40	2130	2155	2180
NR-2C	2NR	25	-	2122.5+2187.5	-
		30	-	2125+2185	-
		40	-	2130+2180	-
NR-3C	3NR	25	-	2122.5+2155+2187.5	-
		40	-	2125+2155+2185	-

Configuration	No. of Carriers	NR Carrier Bandwidth (MHz)	Carrier Frequency Configuration (MHz)		
			Bottom	Middle	Top
NR-1C-BE	1NR	25	2122.5	-	2187.5
		30	2125	-	2185
		40	2130	-	2180
NR-2C-BE	2NR	25	2122.5+2147.5	-	2162.5+2187.5
		30	2125+2155	-	2155+2185
		40	2130+2170	-	2140+2180
NR-3C-BE	3NR	25	2122.5+2147.5 +2172.5	-	2137.5+2162.5 +2187.5
		30	-	2125+2155+2185	-

2.4 Test Setup

Conducted Measurement:



No.	Auxiliary Equipment	Product Number / Model Type	Version
1	Test computer	HP EliteBook 8470	-
2	CT10	LPC102487/1	R1C
3	GNSS Rubidium clock	HJ5418A-V1	-
4	DC Power Supply	US17N731P	-
5	Attenuator	2.4ts20-20-40G	-
6	Attenuator	TSG50-4-20N5	-
7	Terminator	WTF100-6G-A-NJ	-

2.5 Test environment condition:

Test items	Temperature	Humidity
Max Output Power and Peak to Average Power Ratio and EIRP	23°C	54% RH
Occupied Bandwidth		
Unwanted Emissions at Band Edge		
Conducted Unwanted Emission		
Frequency Stability	Please refer to clause 8	

2.6 Instrument list

RF test					
Used	Equipment	Manufacturer	Type	Internal no.	Due date
☒	Signal Analyzer	Rohde & Schwarz	FSVA3044	101087	2023-07-09
☒	Signal Analyzer	Keysight	N9030B	MY57140894	2023-07-09
☐	Signal Generator	Rohde & Schwarz	SMW200A	105850	2023-12-09
☐	Signal Generator	Rohde & Schwarz	SMU200A	103211	2023-12-09
☒	Climatic Chamber	Chongqing Yinhe	SDJ61F	101087	2023-06-30
☐	Climatic Chamber	Chongqing Yinhe	SDJ61F	201700268	2023-12-09
☐	TRUE RMS CLAMP METER	FLUKE	317	40500136WS	2023-07-22
☒	Hygrometer	TESTO	608-H1	1745127471	2023-12-09
☒	Hygrometer	TESTO	608-H1	1745127476	2023-12-09

2.7 Measurement uncertainty

The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Test item	Measurement uncertainty
Maximum output power	0.73dB
Occupied Bandwidth	0.88%
Unwanted Emissions at Band Edge	3.03dB
Conducted Unwanted Emission	3.03dB
Frequency stability	0.77×10^{-7}

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3 Maximum Output Power and Peak to Average Power Ratio and EIRP

Test result: Pass

3.1 Limit

Output Power:

(EIRP) 1640 W(62.15dBm) or 3280W(65.16dBm) for emission bandwidth ≤ 1 MHz
1640 W/MHz(62.15dBm/MHz) or 3280W/MHz(65.16dBm/MHz) for emission bandwidth > 1 MHz

Peak to Average Ratio: ≤ 13 dB

3.2 Measurement Procedure

The EUT was configured to transmit on maximum power and proper modulation. The transmitter power shall be measured in terms of a root-mean-square (RMS) average value. In case of the EUT was configured to MIMO mode, since the EUT transmits on all antennas simultaneously in the same frequency range, using the Measure-and-Sum approach, the output power at all antennas were tested, and the total output power were then summed mathematically in linear power units according to FCC KDB 662911 D01.

A peak to average ratio measurement is performed at the conducted ports of the EUT for single carrier for single RAT mode. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) was used and 0.1% probability value recorded.

3.3 Measurement result

NR mode:

NR-1C

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	64QAM	25	36.91	23.65	7.34	36.88	23.59	7.38	36.83	23.74	7.26
B	64QAM	25	36.92	23.58	7.31	36.86	23.58	7.37	36.85	23.81	7.26
C	64QAM	25	36.63	23.31	7.34	36.60	23.36	7.38	36.57	23.53	7.32
D	64QAM	25	36.85	23.59	7.33	36.88	23.57	7.37	36.82	23.77	7.20
Total			42.85	29.56	-	42.83	29.55	-	42.79	29.73	-
Total Power+9.9dBi			52.75	39.46	-	52.73	39.45	-	52.69	39.63	-

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	64QAM	30	36.94	22.93	7.32	36.94	22.89	7.31	36.90	23.09	7.31
B	64QAM	30	36.95	22.86	7.33	36.95	22.87	7.35	36.91	23.14	7.33
C	64QAM	30	36.68	22.62	7.35	36.69	22.63	7.34	36.65	22.88	7.34
D	64QAM	30	36.82	22.88	7.33	36.94	22.85	7.34	36.91	23.13	7.30
Total			42.87	28.84	-	42.90	28.83	-	42.86	29.08	-
Total Power+9.9dBi			52.77	38.74	-	52.80	38.73	-	52.76	38.98	-

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	64QAM	40	36.95	21.57	7.39	36.94	21.51	7.36	36.93	21.74	7.47
B	64QAM	40	36.88	21.51	7.40	36.87	21.42	7.35	36.89	21.68	7.51
C	64QAM	40	36.63	21.21	7.43	36.65	21.22	7.36	36.65	21.47	7.52
D	64QAM	40	36.87	21.44	7.41	36.87	21.43	7.36	36.86	21.71	7.48
Total			42.85	27.46	-	42.85	27.42	-	42.85	27.67	-
Total Power+9.9dBi			52.75	37.36	-	52.75	37.32	-	52.75	37.57	-

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NR-2C

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	64QAM	25	-	-	-	36.91	20.65	-	-	-	-
B	64QAM	25	-	-	-	36.84	20.67	-	-	-	-
C	64QAM	25	-	-	-	36.67	20.46	-	-	-	-
D	64QAM	25	-	-	-	36.82	20.64	-	-	-	-
Total			-	-	-	42.83	26.63	-	-	-	-
Total Power+9.9dBi			-	-	-	52.73	36.53	-	-	-	-

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	64QAM	30	-	-	-	36.92	19.90	-	-	-	-
B	64QAM	30	-	-	-	36.93	19.94	-	-	-	-
C	64QAM	30	-	-	-	36.70	19.70	-	-	-	-
D	64QAM	30	-	-	-	36.87	19.86	-	-	-	-
Total			-	-	-	42.88	25.87	-	-	-	-
Total Power+9.9dBi			-	-	-	52.78	35.77	-	-	-	-

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	64QAM	40	-	-	-	36.89	18.60	-	-	-	-
B	64QAM	40	-	-	-	36.88	18.60	-	-	-	-
C	64QAM	40	-	-	-	36.67	18.38	-	-	-	-
D	64QAM	40	-	-	-	36.82	18.59	-	-	-	-
Total			-	-	-	42.84	24.56	-	-	-	-
Total Power+9.9dBi			-	-	-	52.74	34.46	-	-	-	-

TEST REPORT

NR-3C

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	64QAM	25	-	-	-	36.85	18.90	-	-	-	-
B	64QAM	25	-	-	-	36.85	18.97	-	-	-	-
C	64QAM	25	-	-	-	36.67	18.75	-	-	-	-
D	64QAM	25	-	-	-	36.79	18.89	-	-	-	-
Total			-	-	-	42.81	24.90	-	-	-	-
Total Power+9.9dBi			-	-	-	52.71	34.80	-	-	-	-

Antenna Port	NR Modulation	NR Carrier Bandwidth (MHz)	Output power / Peak-to-Average Ratio (PAR)								
			Channel position B			Channel position M			Channel position T		
			Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)	Power (dBm)	Power (dBm /MHz)	PAR (dB)
A	64QAM	30	-	-	-	36.87	18.10	-	-	-	-
B	64QAM	30	-	-	-	36.89	18.15	-	-	-	-
C	64QAM	30	-	-	-	36.72	17.97	-	-	-	-
D	64QAM	30	-	-	-	36.83	18.12	-	-	-	-
Total			-	-	-	42.85	24.11	-	-	-	-
Total Power+9.9dBi			-	-	-	52.75	34.01	-	-	-	-

TEST REPORT

4 Occupied Bandwidth

Test result: Pass

4.1 Measurement Procedure

The EUT was set to transmit at maximum power and testing was carried out on bottom, middle and top channels. Using the Occupied Bandwidth measurement function in the spectrum analyzer, the 26dB bandwidth was measured in accordance with FCC KDB 971168 D01 Clause 4.2.

The measurement method is from KDB 971168 4.2:

- a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (i.e., two to five times the OBW).
- b) The nominal IF filter bandwidth (3 dB 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.
- c) Set the reference level of the instrument as required to keep the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope must be at least $10\log(\text{OBW} / \text{RBW})$ below the reference level.
- d) Set the detection mode to peak, and the trace mode to max hold.
- e) Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.

4.2 Measurement result

NR-MIMO-1C

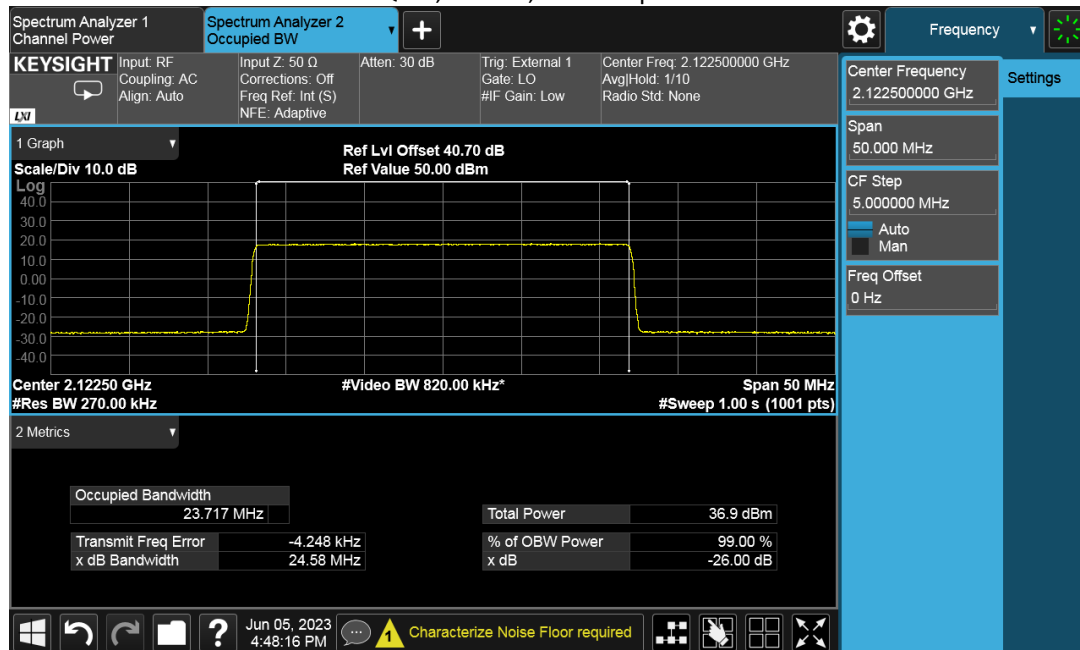
99% Occupied Bandwidth

Antenna Port	Modulation	Bandwidth	Occupied Bandwidth (MHz)		
			Channel Position B	Channel Position M	Channel Position T
B	64QAM	25MHz	23.717	23.719	23.701
B	64QAM	30MHz	28.523	28.527	28.501
B	64QAM	40MHz	38.526	38.527	38.480

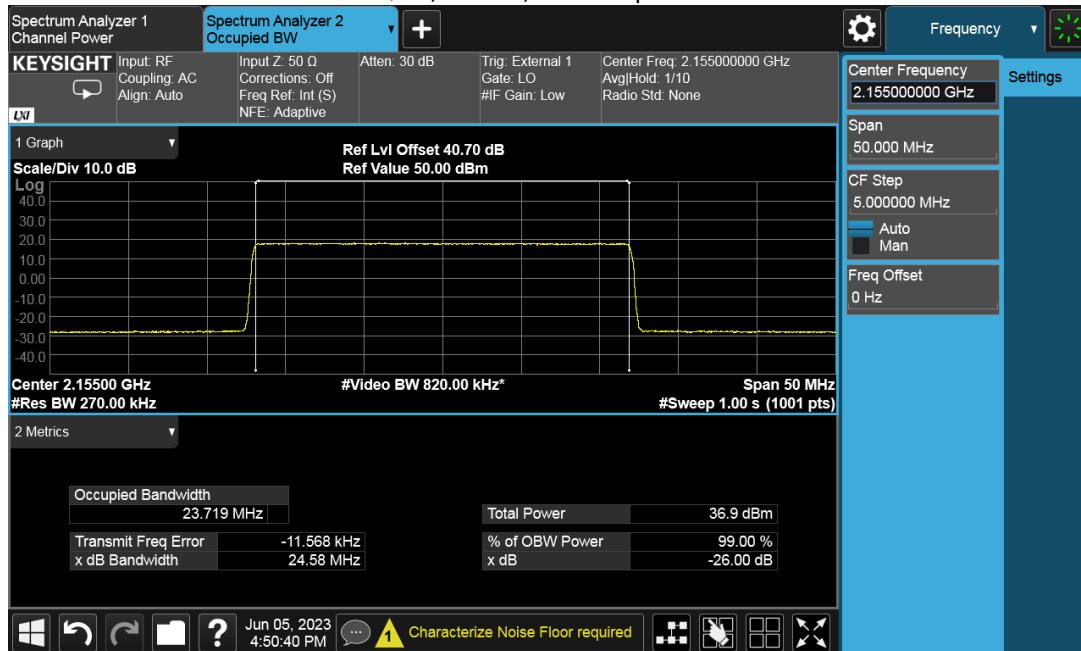
-26dBc Occupied Bandwidth

Antenna Port	Modulation	Bandwidth	Occupied Bandwidth (MHz)		
			Channel Position B	Channel Position M	Channel Position T
B	64QAM	25MHz	24.58	24.58	24.57
B	64QAM	30MHz	29.50	29.50	29.49
B	64QAM	40MHz	39.90	39.91	39.88

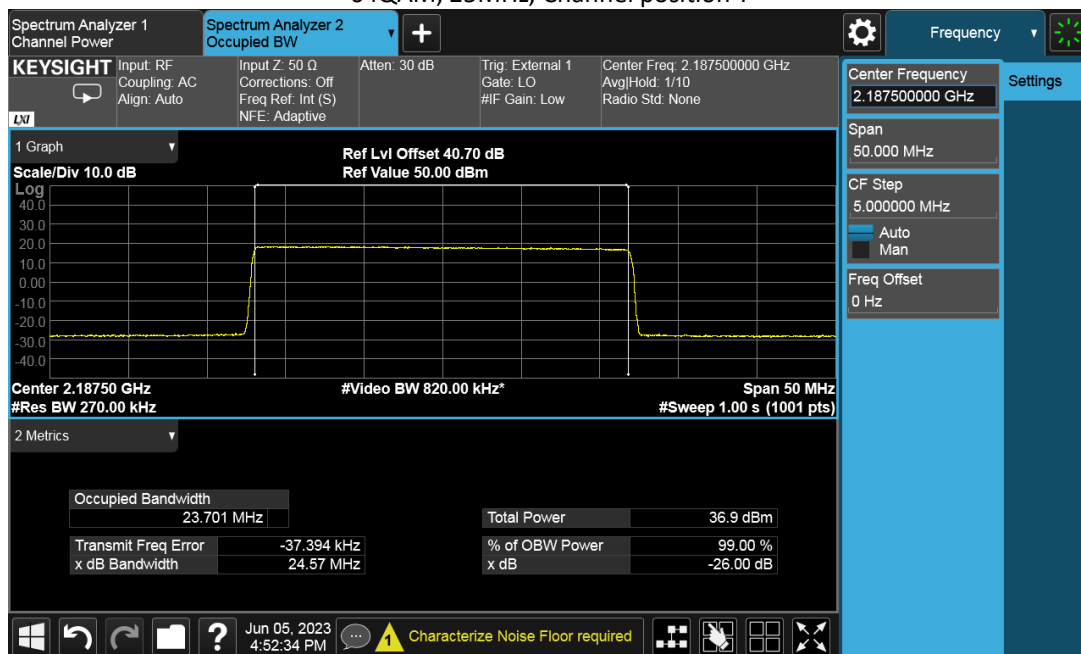
64QAM, 25MHz, Channel position B



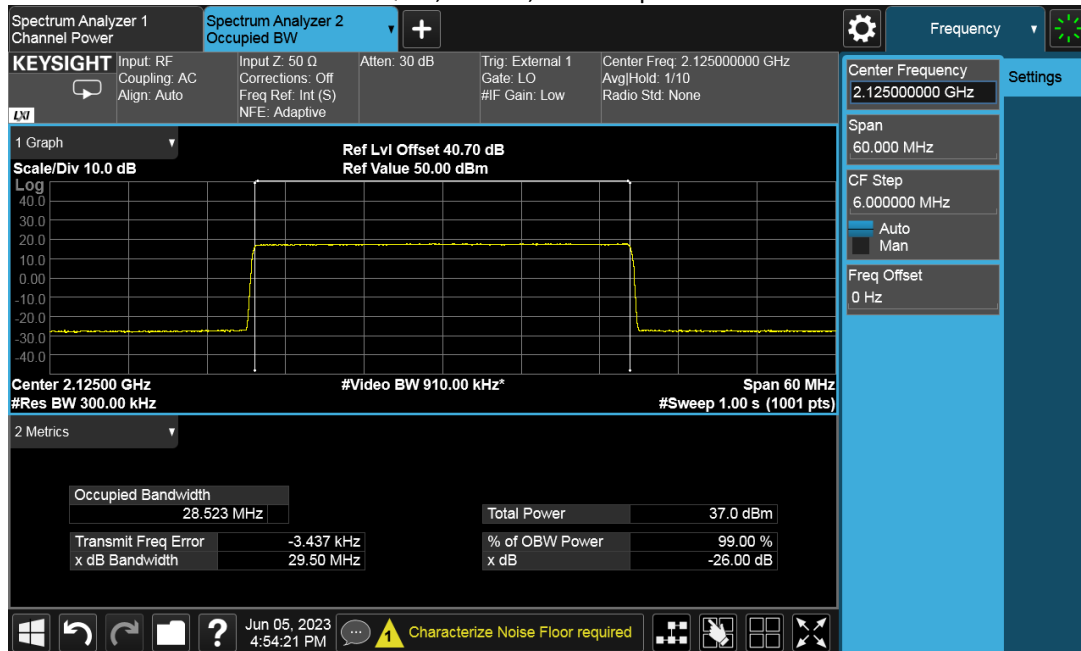
64QAM, 25MHz, Channel position M



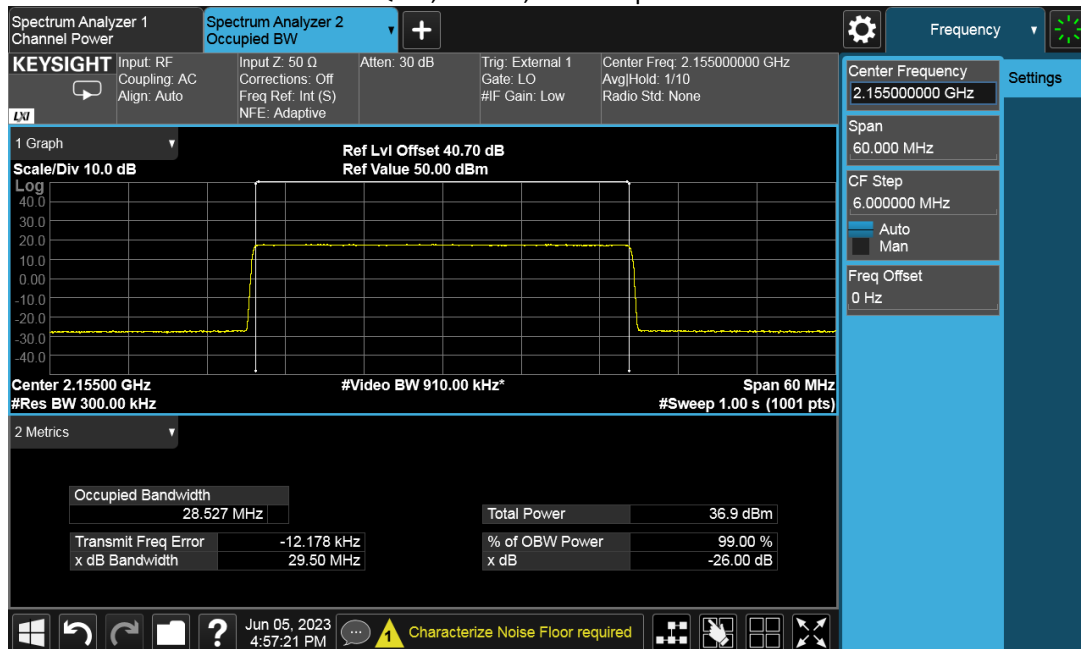
64QAM, 25MHz, Channel position T



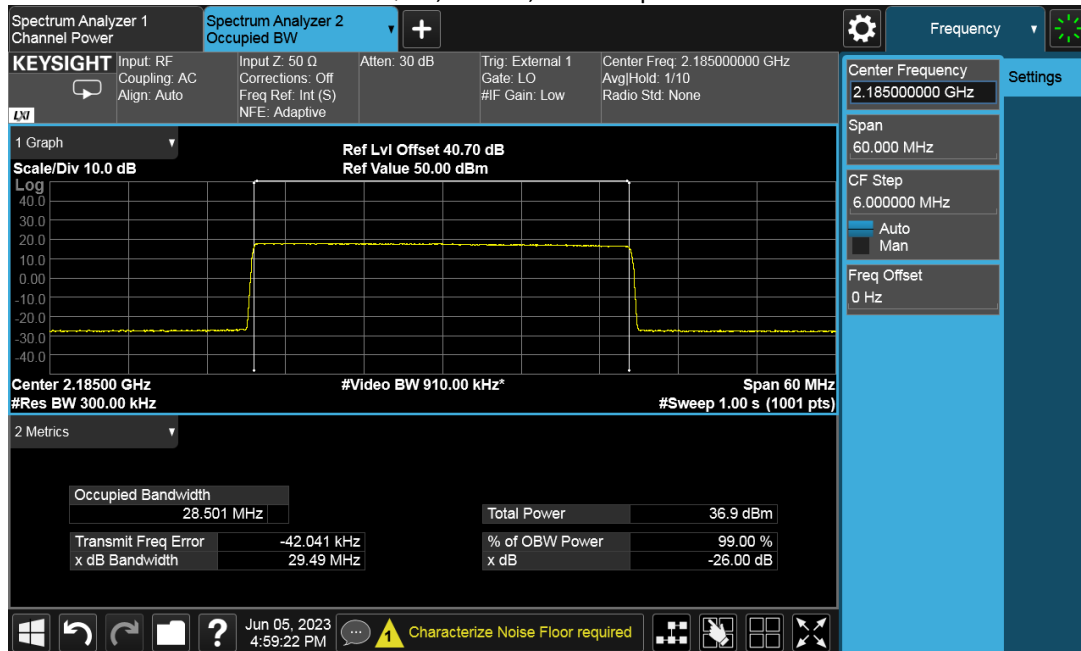
64QAM, 30MHz, Channel position B



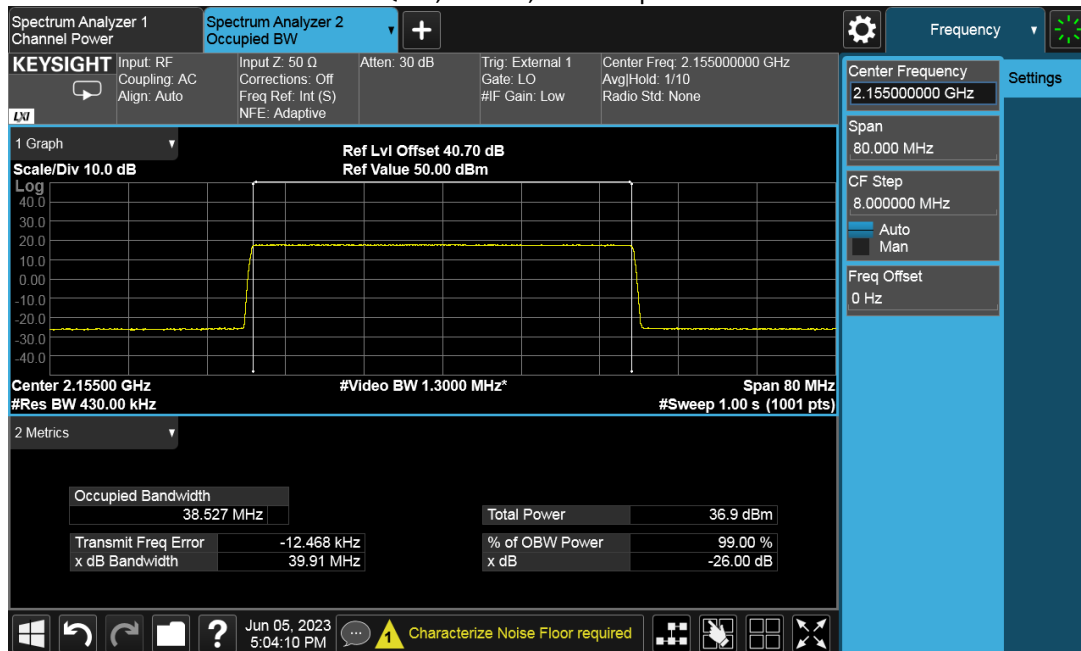
64QAM, 30MHz, Channel position M



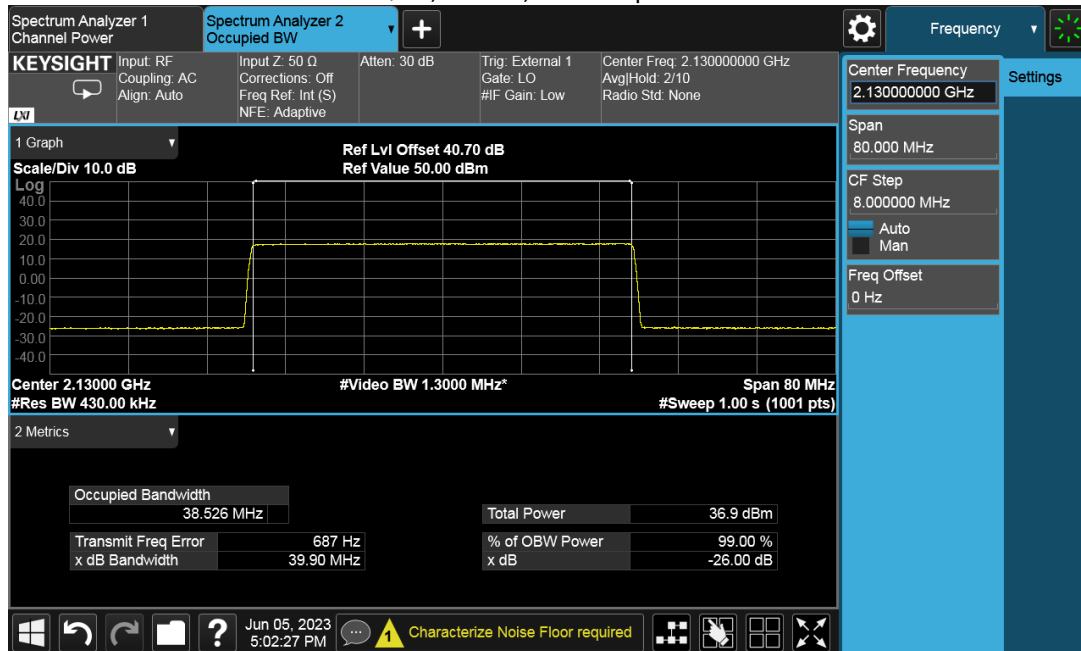
64QAM, 30MHz, Channel position T



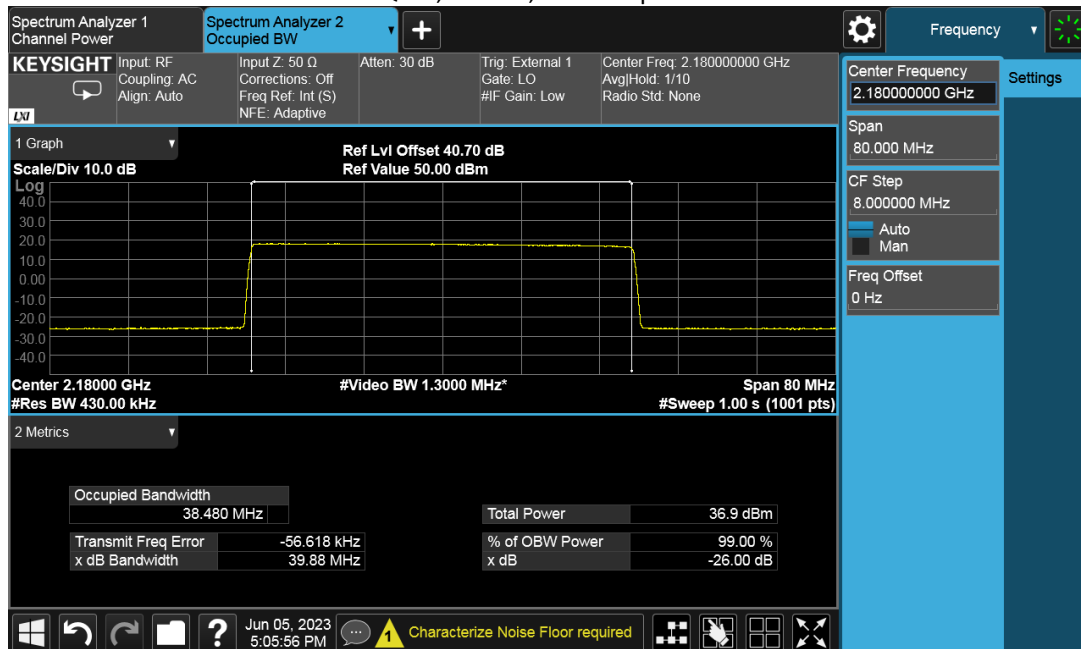
64QAM, 40MHz, Channel position B



64QAM, 40MHz, Channel position M



64QAM, 40MHz, Channel position T



TEST REPORT**5 Unwanted Emissions at Band Edge**

Test result: Pass

5.1 Limit

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

5.2 Measurement Procedure

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB [$10\log(1/4)$] by using the Measure and Add $10\log(N)$ dB technique according to KDB 662911 D01 Multiple Transmitter Output accounting for simultaneous transmission from antenna ports . Then the limit was adjusted to -19.02dBm.

Spectrum analyzer detector was set as RMS.

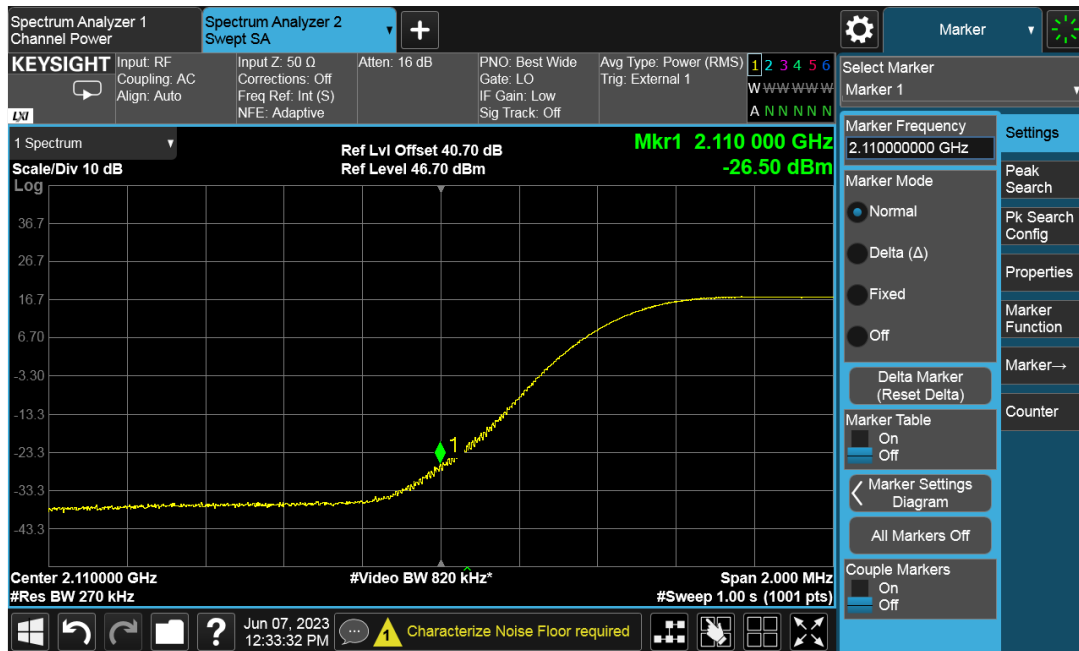
TEST REPORT

5.3 Measurement result

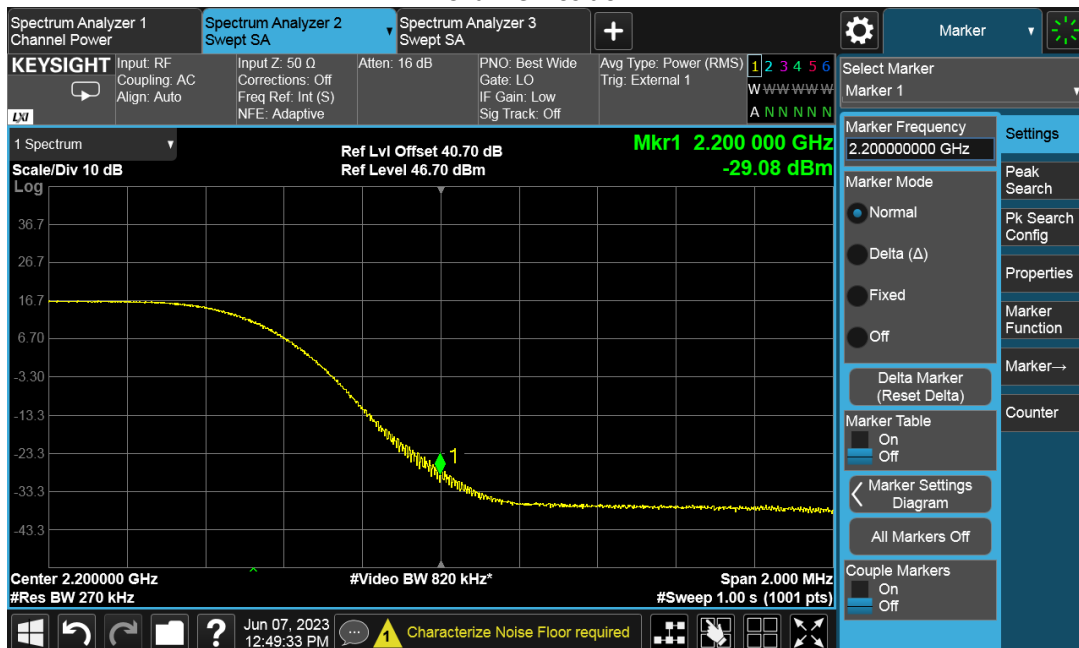
NR-1C-BE

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	25	270	-19.02
B	T	64QAM	25	270	-19.02

Channel Position B



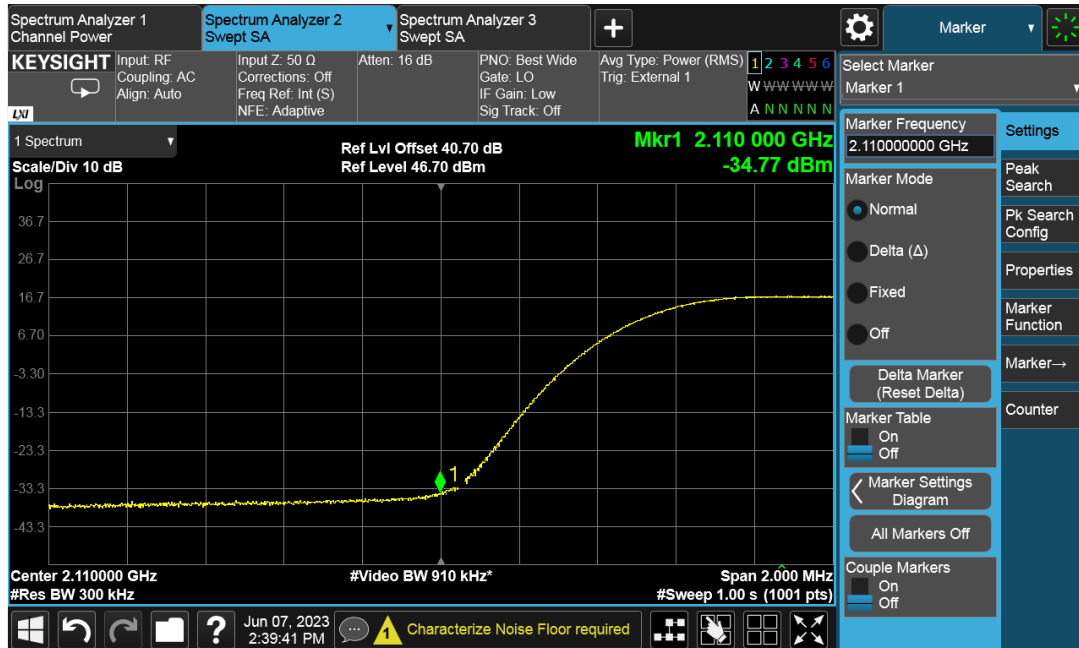
Channel Position T



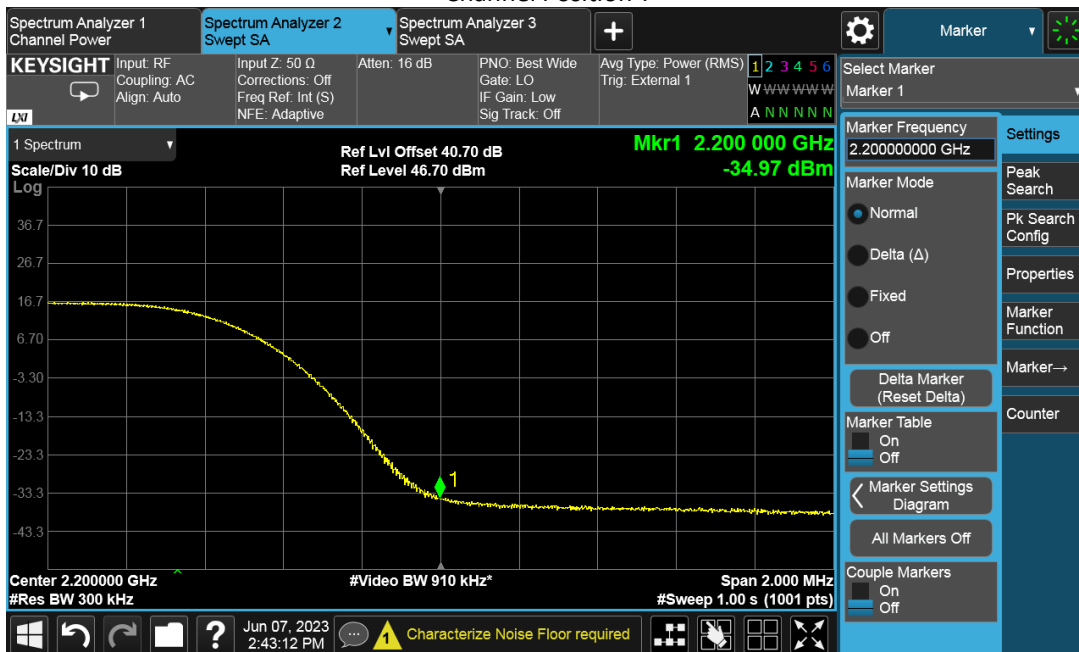
TEST REPORT

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	30	300	-19.02
B	T	64QAM	30	300	-19.02

Channel Position B



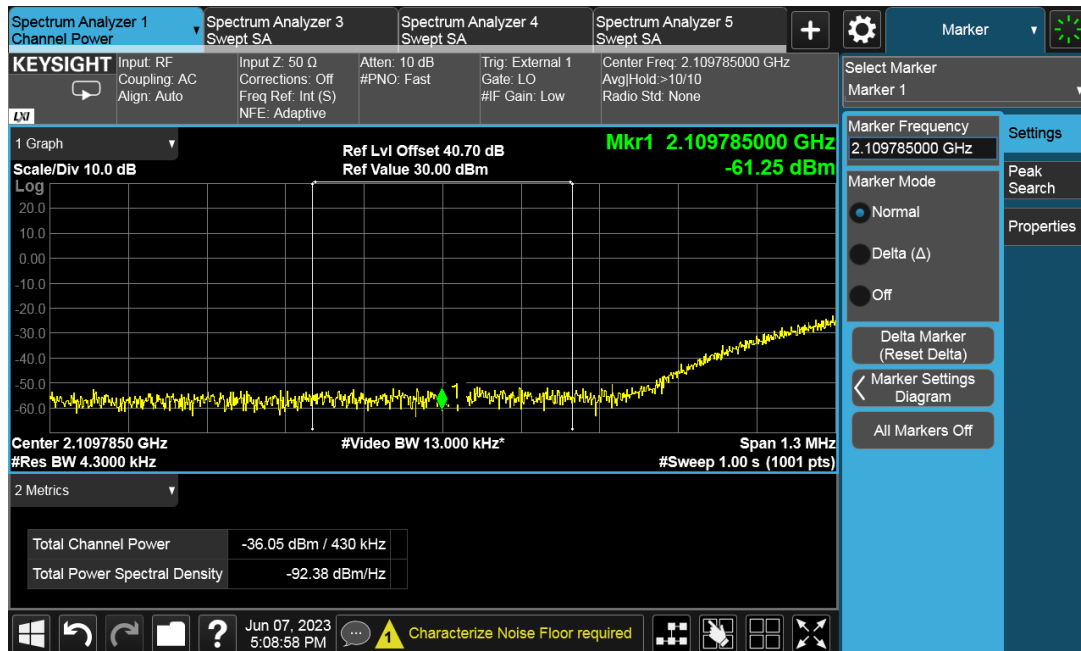
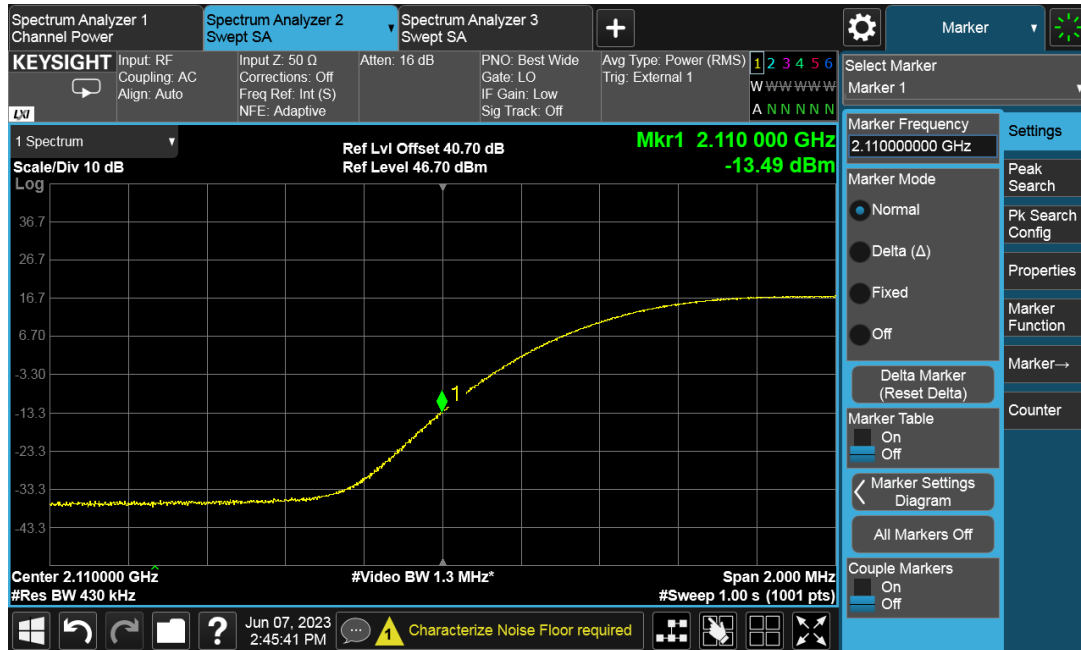
Channel Position T



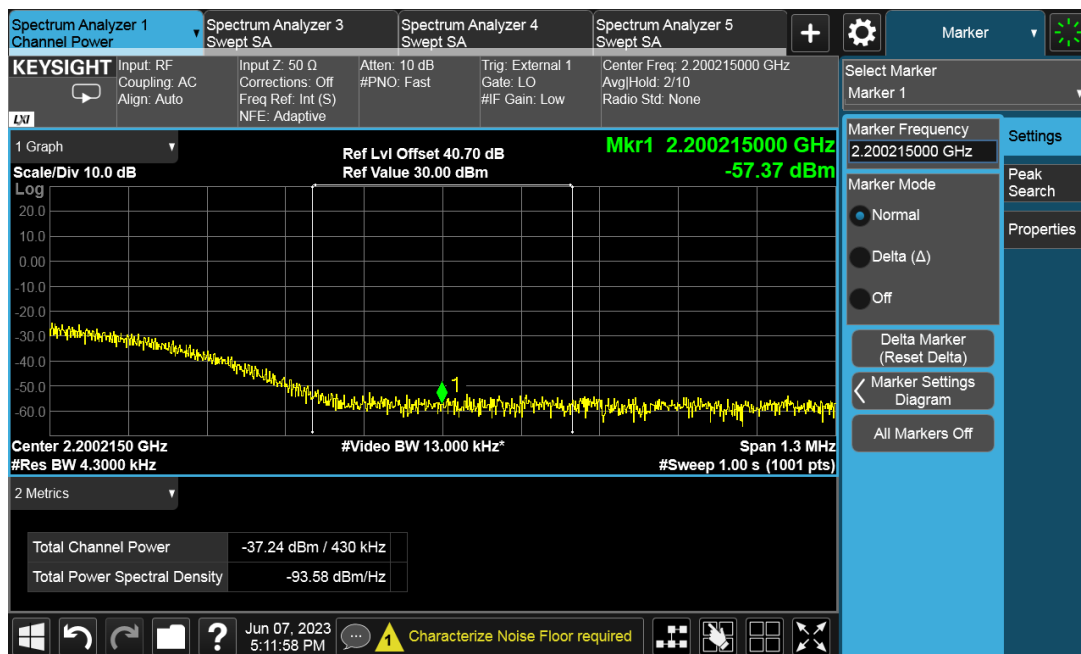
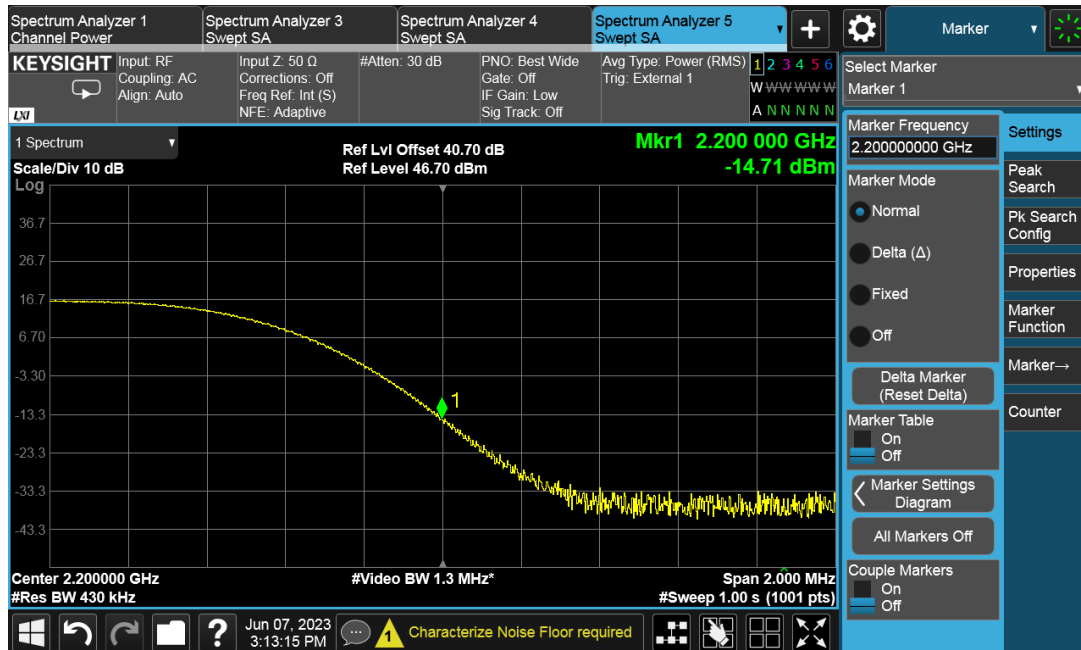
TEST REPORT

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	40	430	-19.02
B	T	64QAM	40	430	-19.02

Channel Position B



Channel Position T

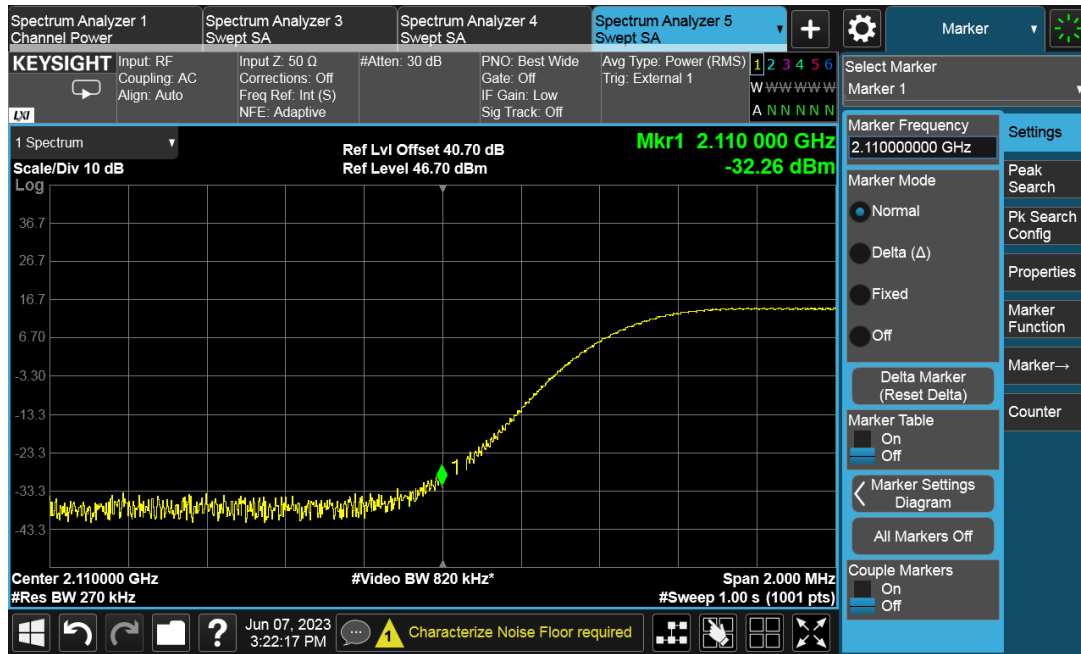


TEST REPORT

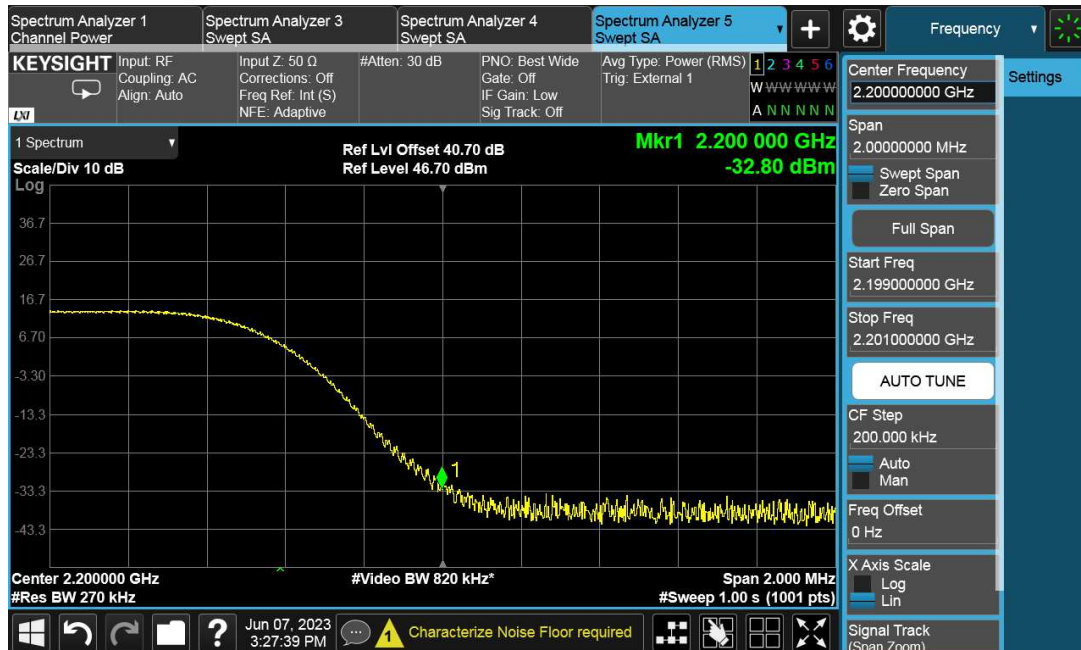
NR-2C-BE

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	25	270	-19.02
B	T	64QAM	25	270	-19.02

Channel Position B



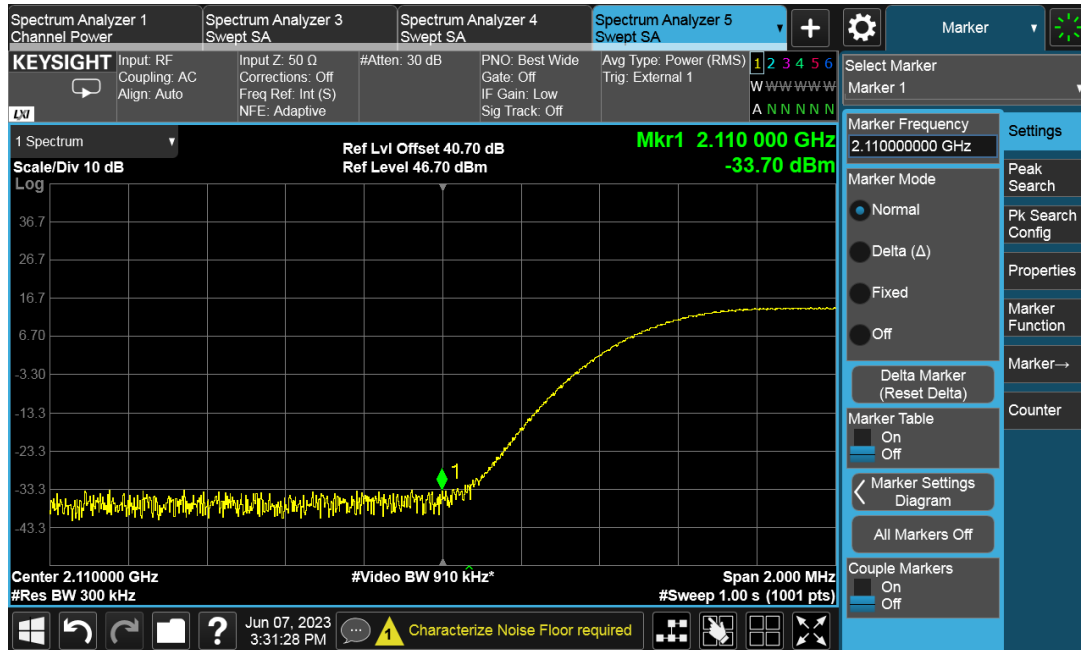
Channel Position T



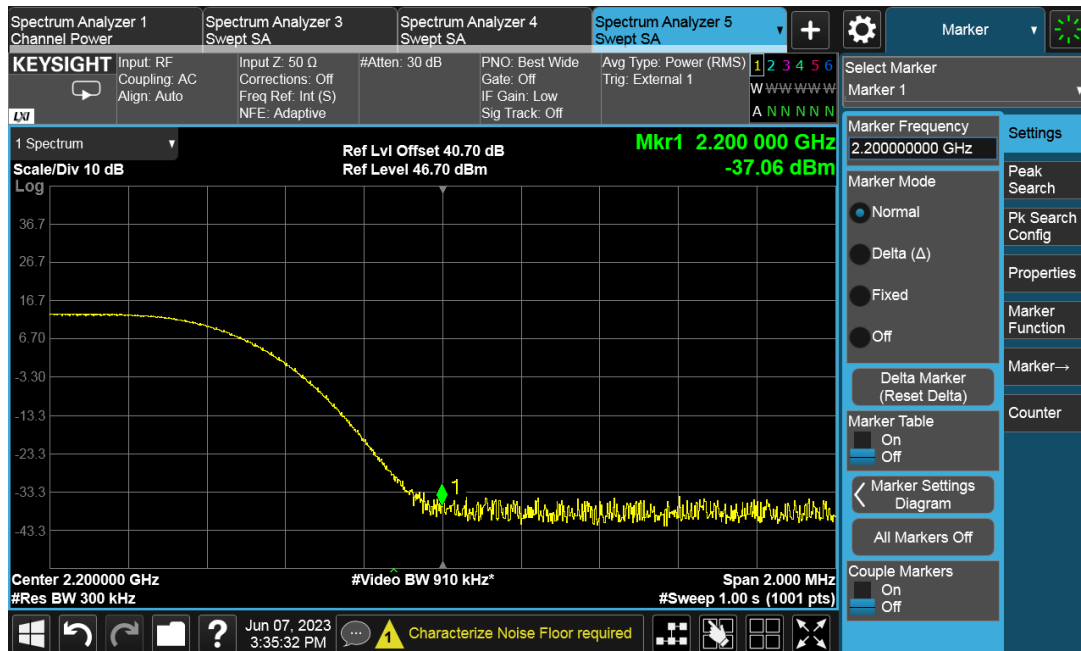
TEST REPORT

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	30	300	-19.02
B	T	64QAM	30	300	-19.02

Channel Position B



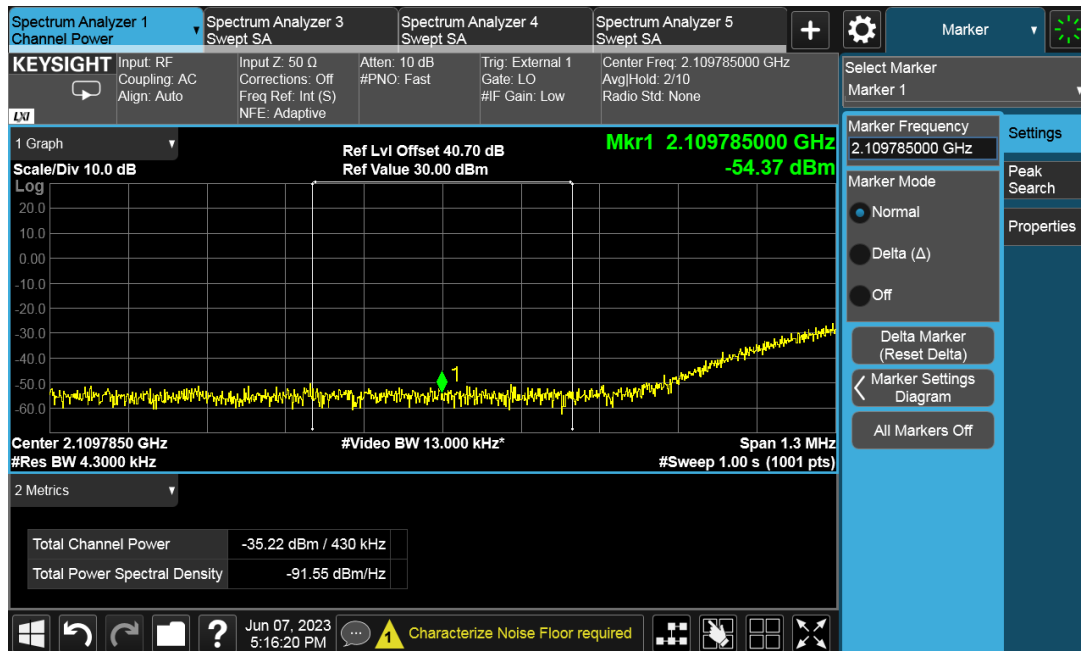
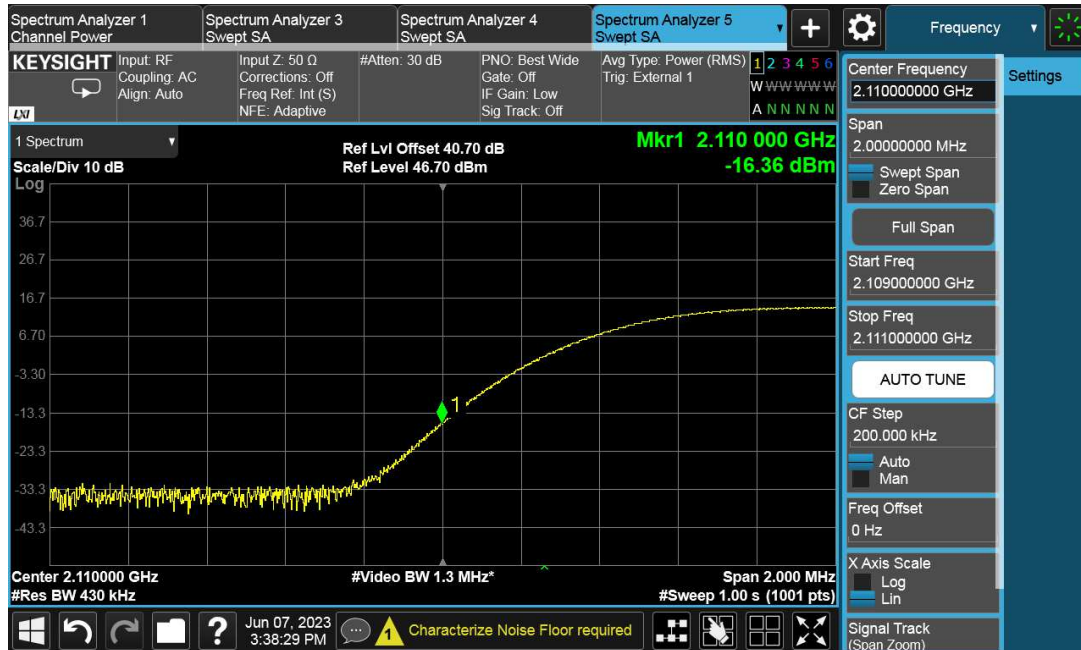
Channel Position T



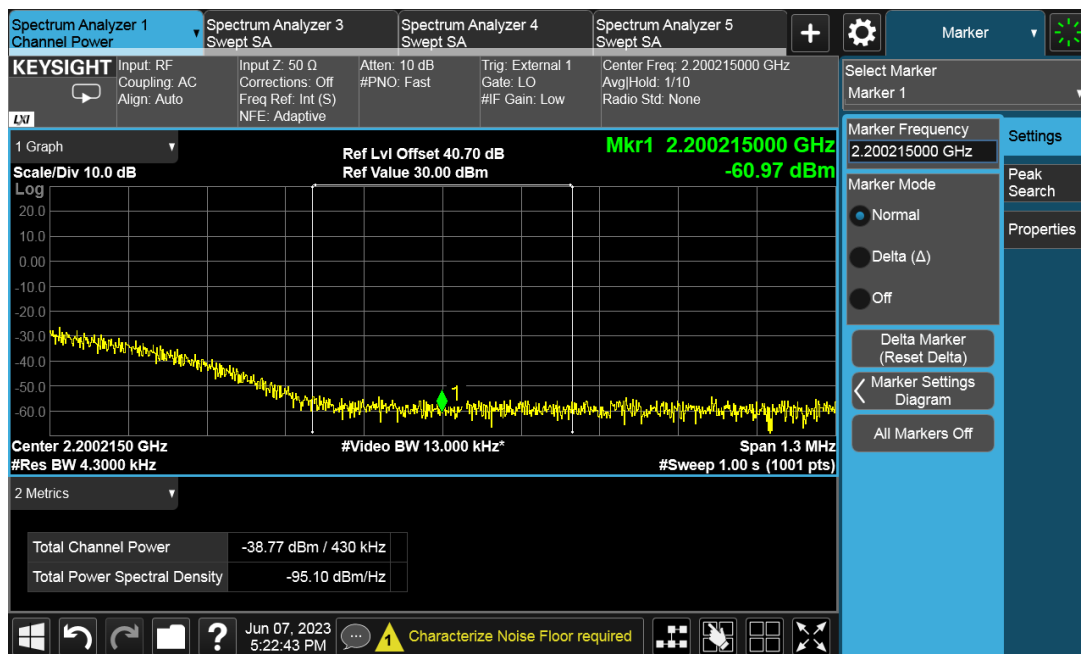
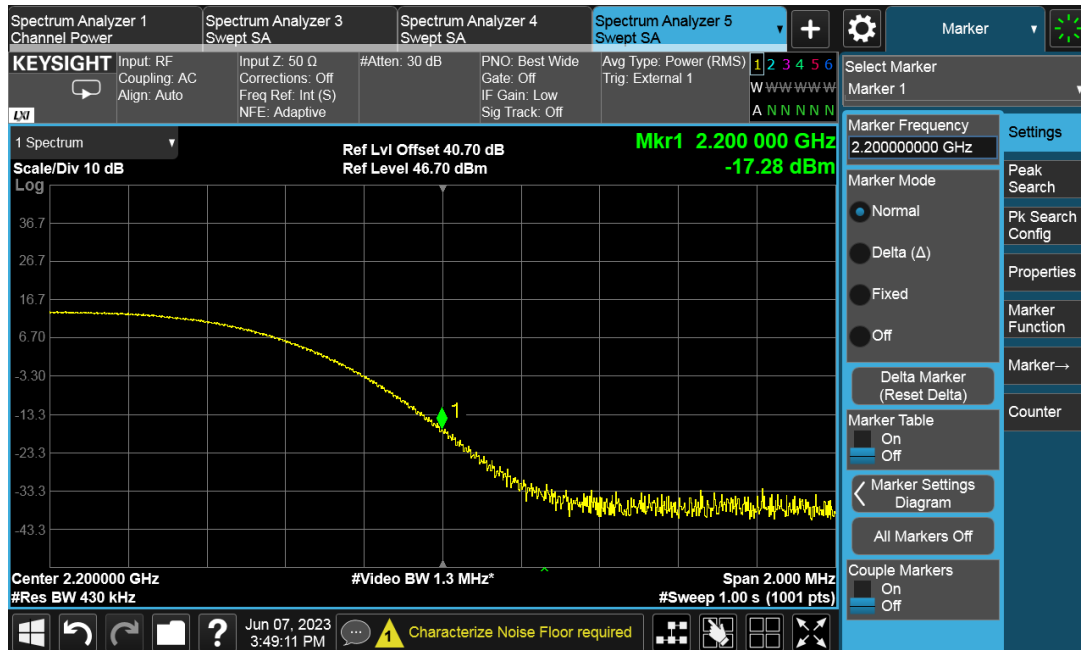
TEST REPORT

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	40	430	-19.02
B	T	64QAM	40	430	-19.02

Channel Position B



Channel Position T

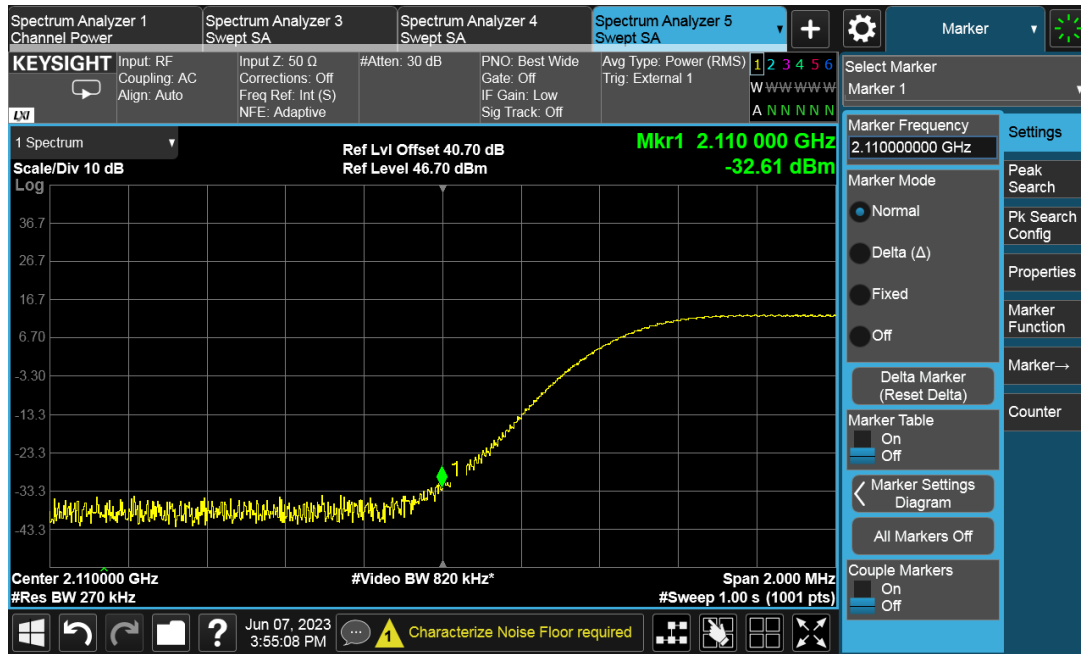


TEST REPORT

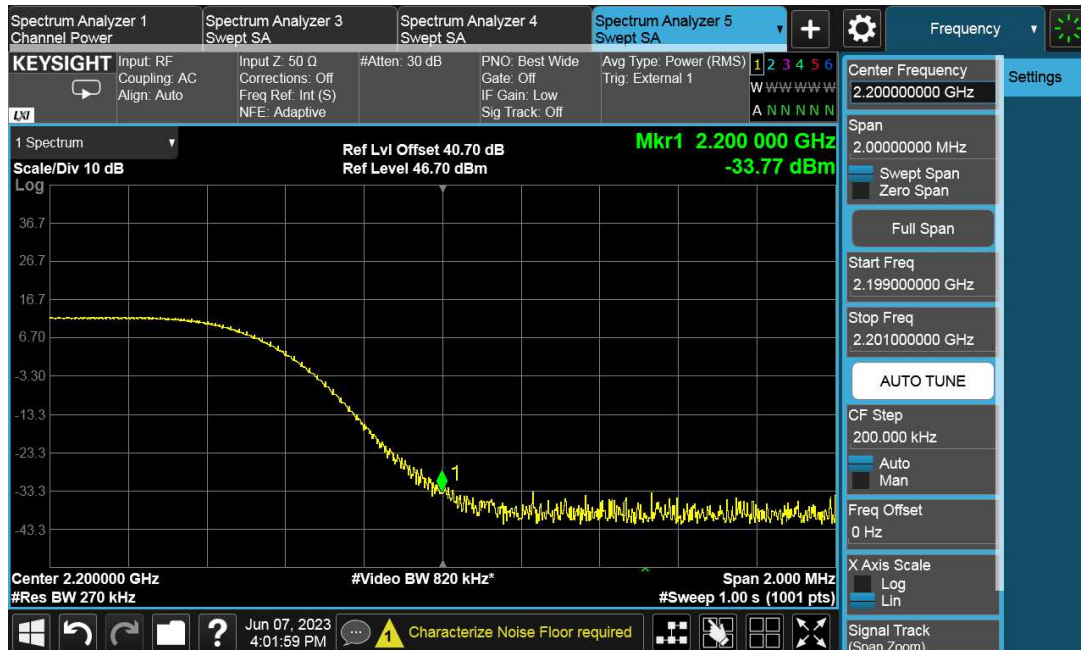
NR-3C-BE

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	25	270	-19.02
B	T	64QAM	25	270	-19.02

Channel Position B



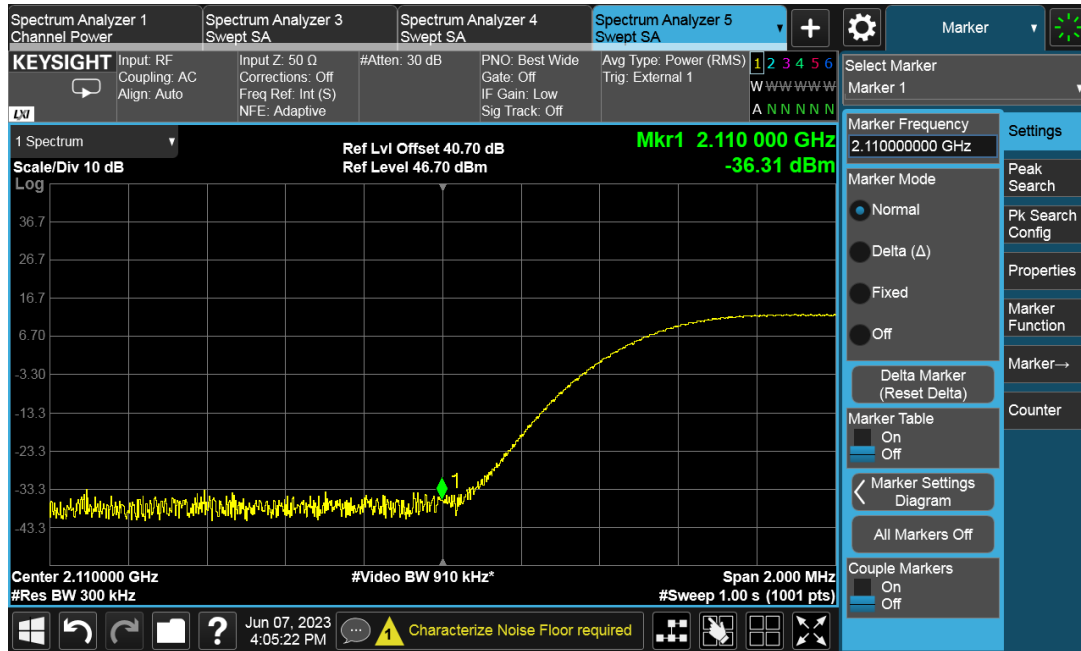
Channel Position T



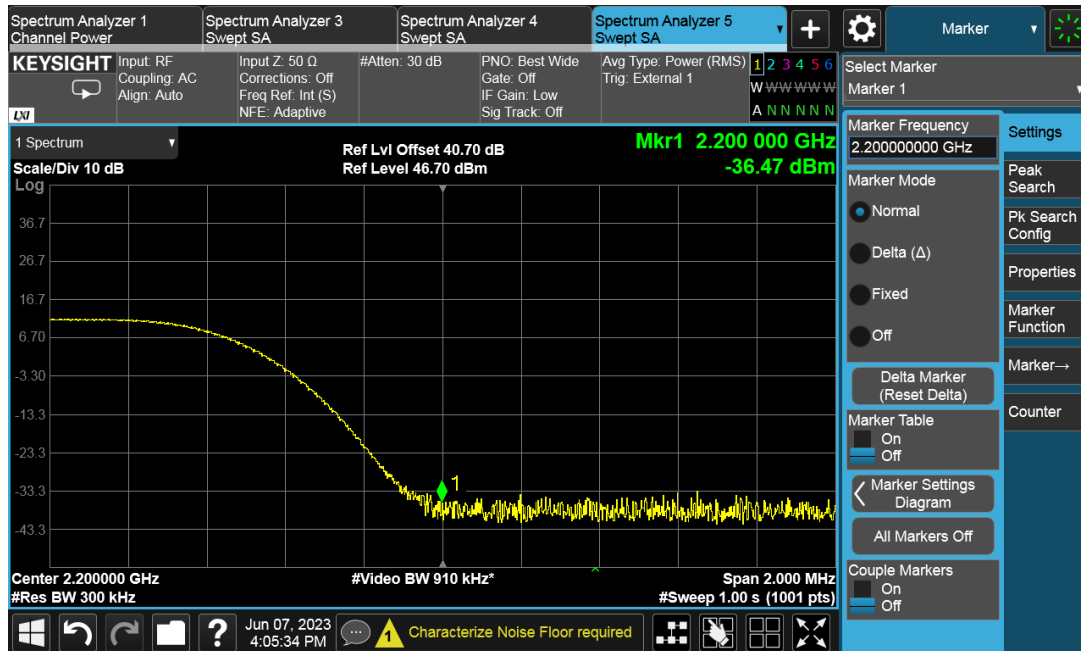
TEST REPORT

Antenna Port	Channel Position	Modulation	Carrier Bandwidth (MHz)	RBW (kHz)	Limit (dBm)
B	M	64QAM	30	300	-19.02

Channel Position M



Channel Position T



TEST REPORT**6 Conducted Unwanted Emission****Test result:** Pass**6.1 Limit**

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

6.2 Measurement Procedure

In accordance with FCC rules, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10\log(P)$ dB.

The spurious emissions from the antenna terminal were measured. The transmitter output power was attenuated using an attenuator and the frequency spectrum investigated from 9kHz to 23GHz. The resolution bandwidth of 1MHz was employed for frequency band 9kHz to 23GHz. The spectrum analyzer detector was set to RMS.

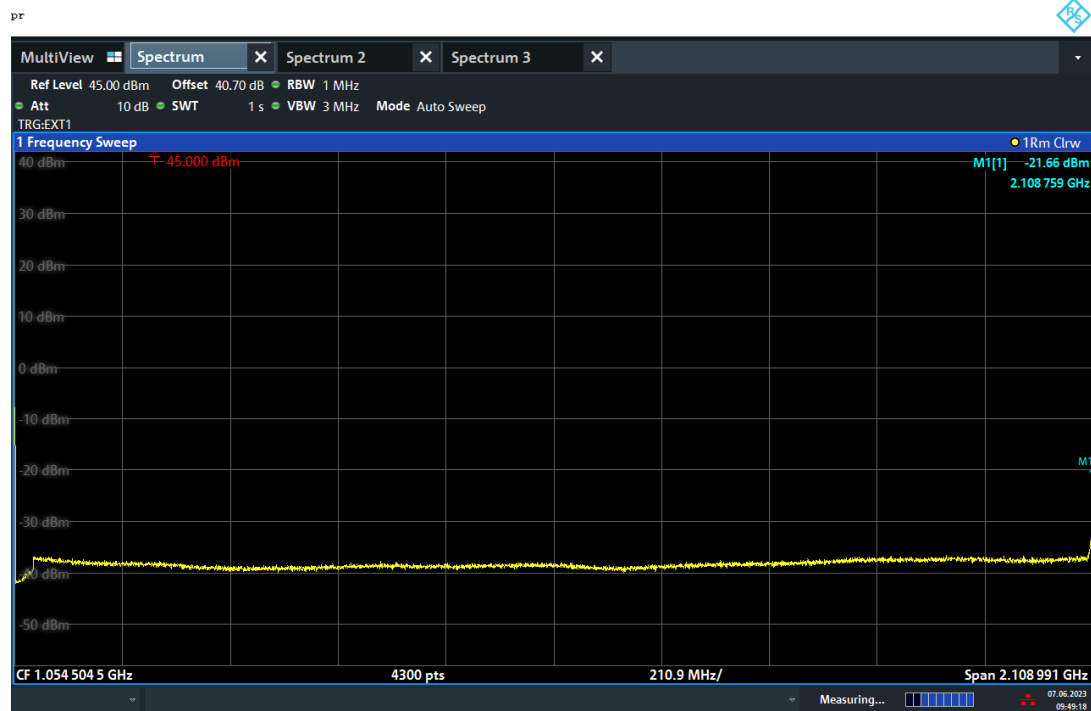
For MIMO mode configurations, the limit was adjusted with a correction of -6.02dB [$10\log(1/4)$] by using the Measure and Add $10\log(N)$ dB technique according to KDB 662911 D01 Multiple Transmitter Output accounting for simultaneous transmission from antenna ports. Then the limit was adjusted to -19.02dBm.

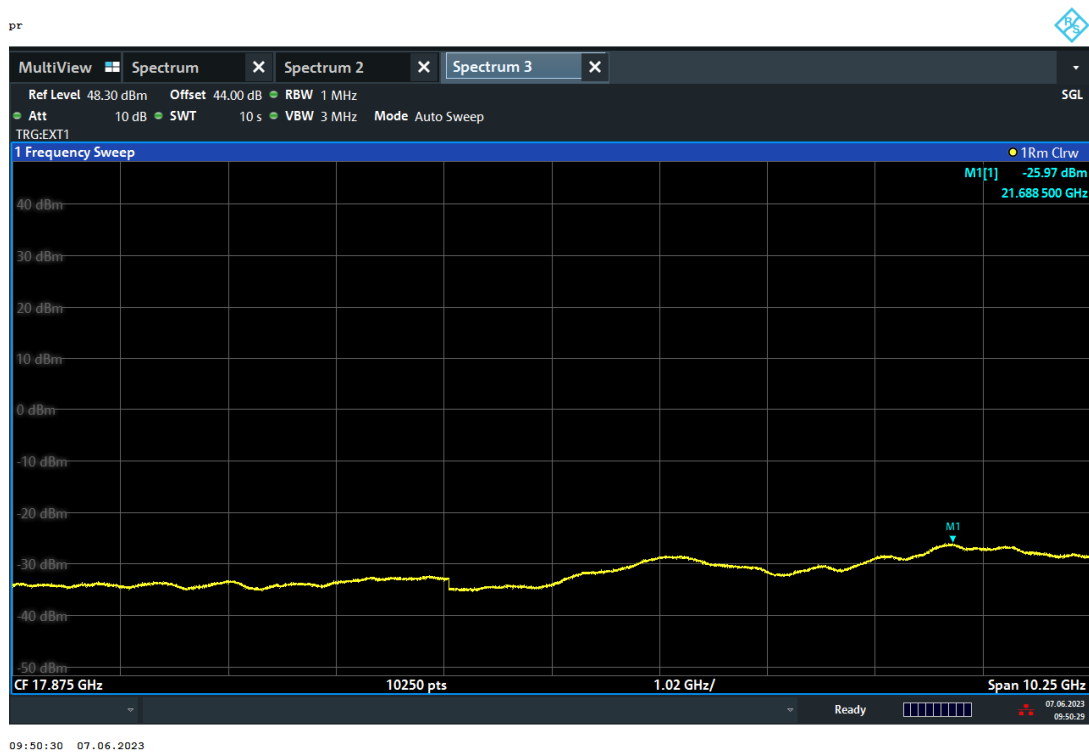
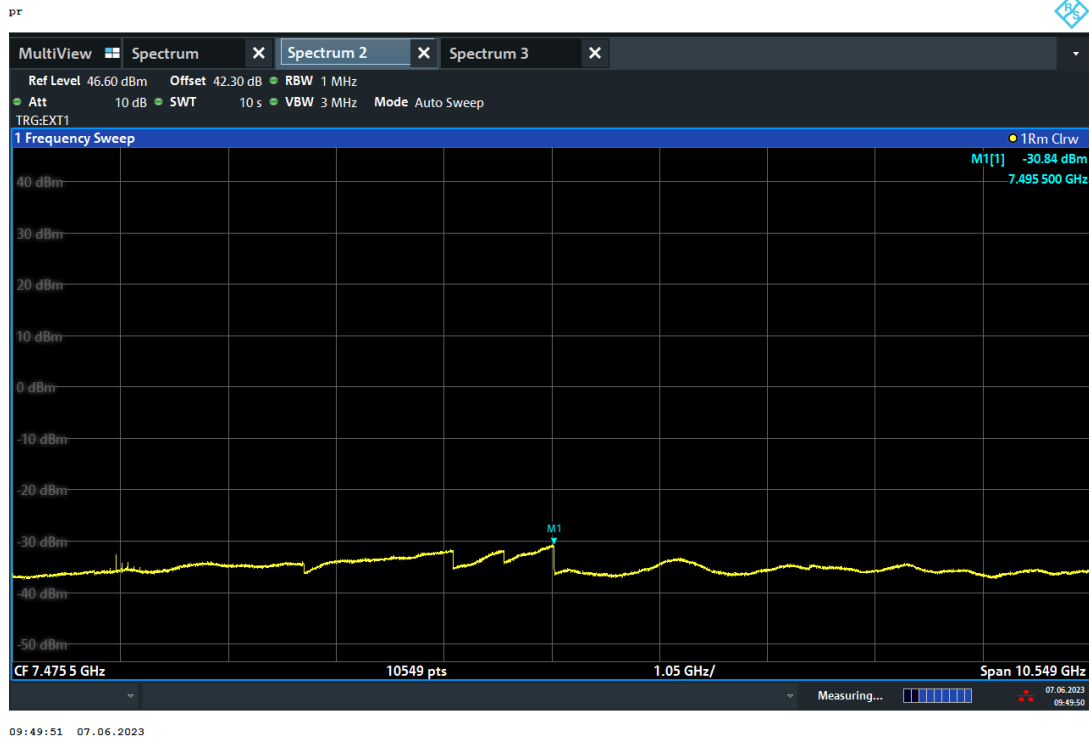
6.3 Measurement result

NR-1C

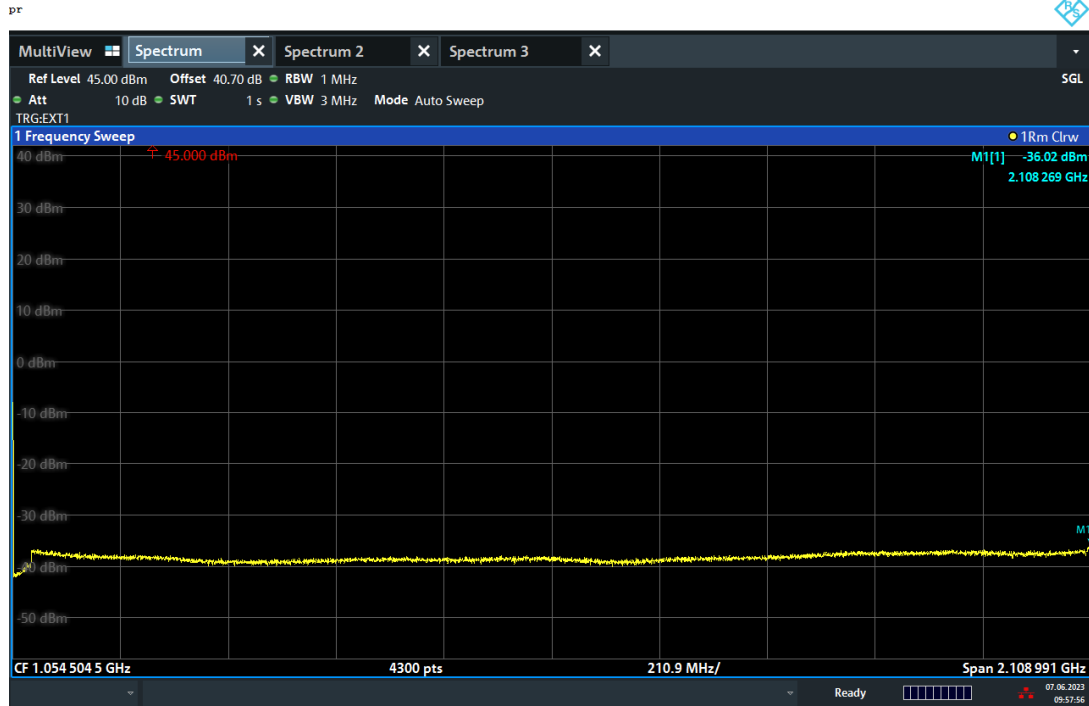
Antenna Port	Channel Position	NR Modulation	NR Channel BW (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	25	1000	-19.02
B	M	64QAM	25	1000	-19.02
B	T	64QAM	25	1000	-19.02

Channel Position B

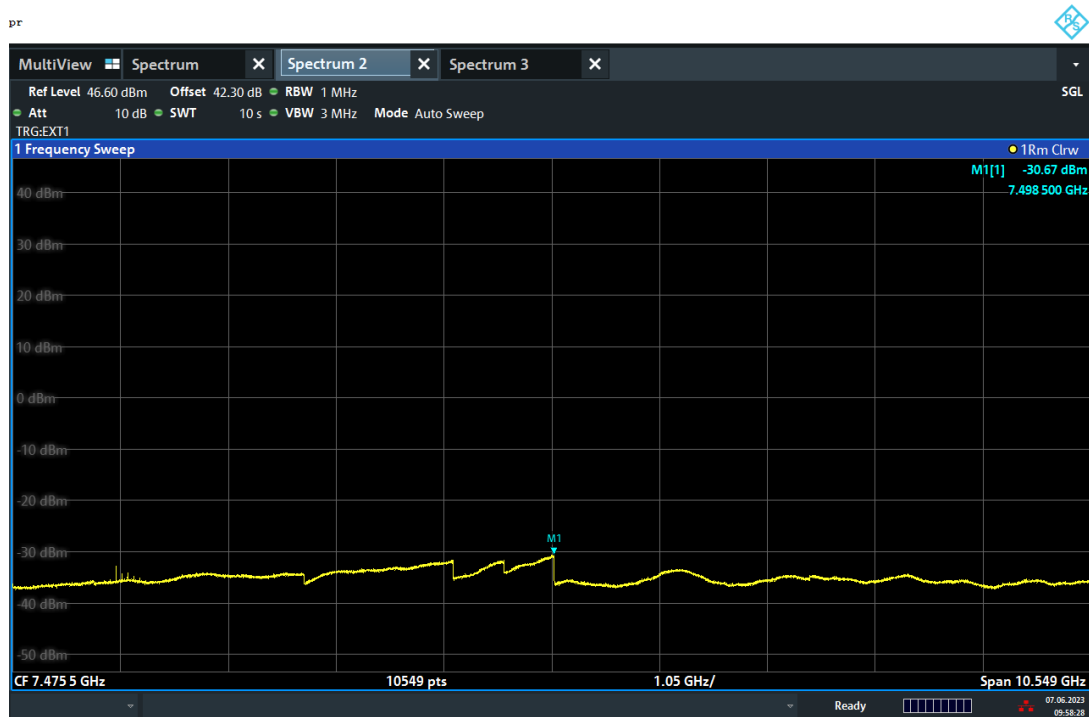




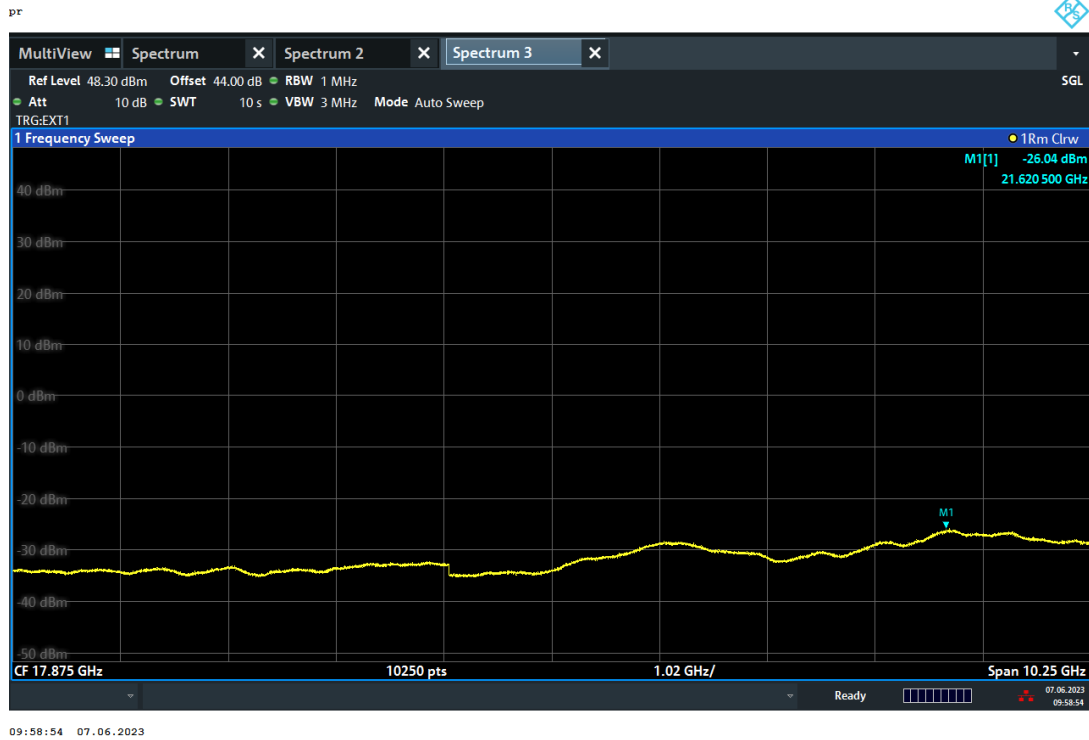
Channel Position M



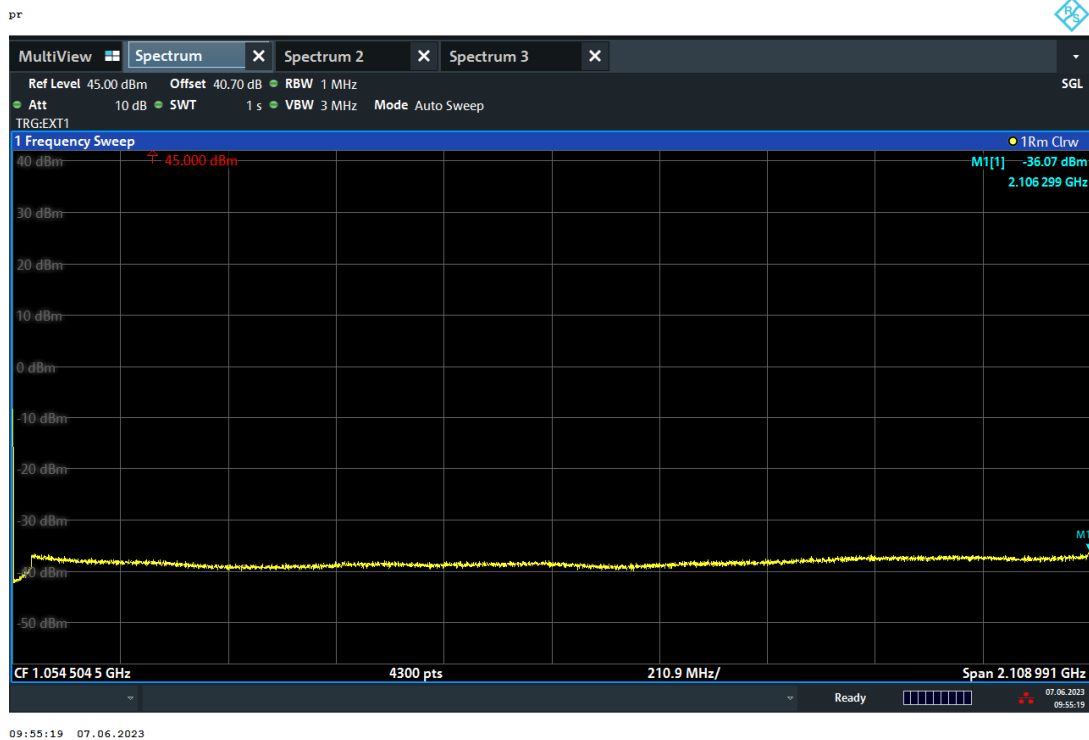
09:57:56 07.06.2023

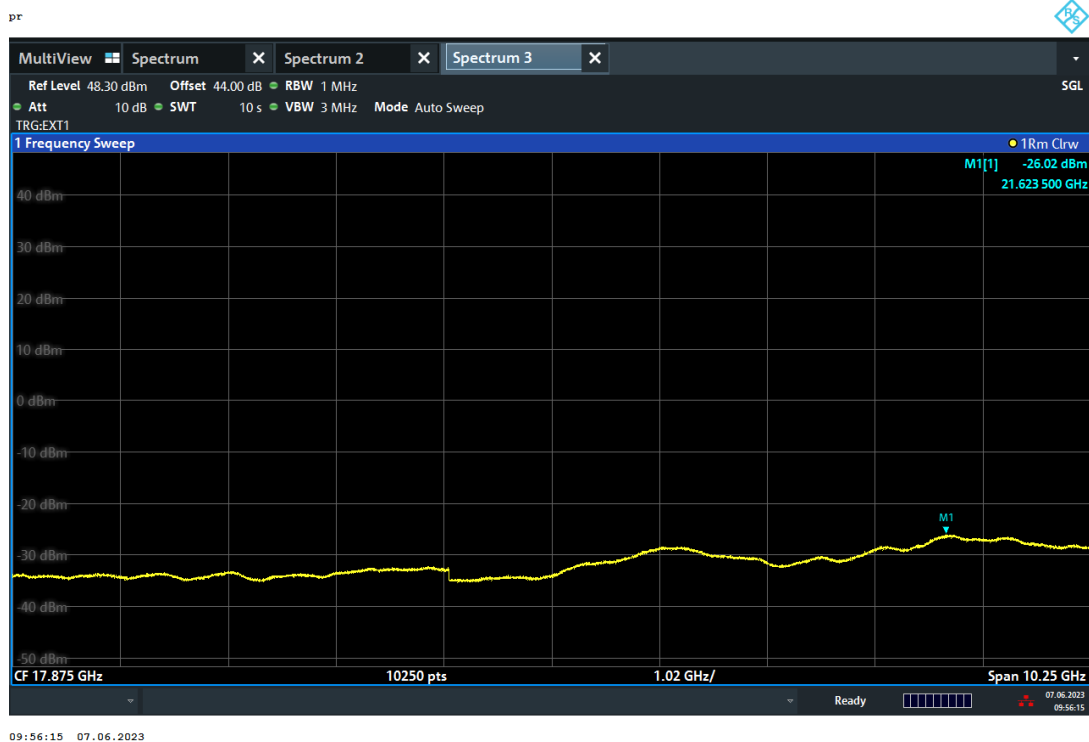
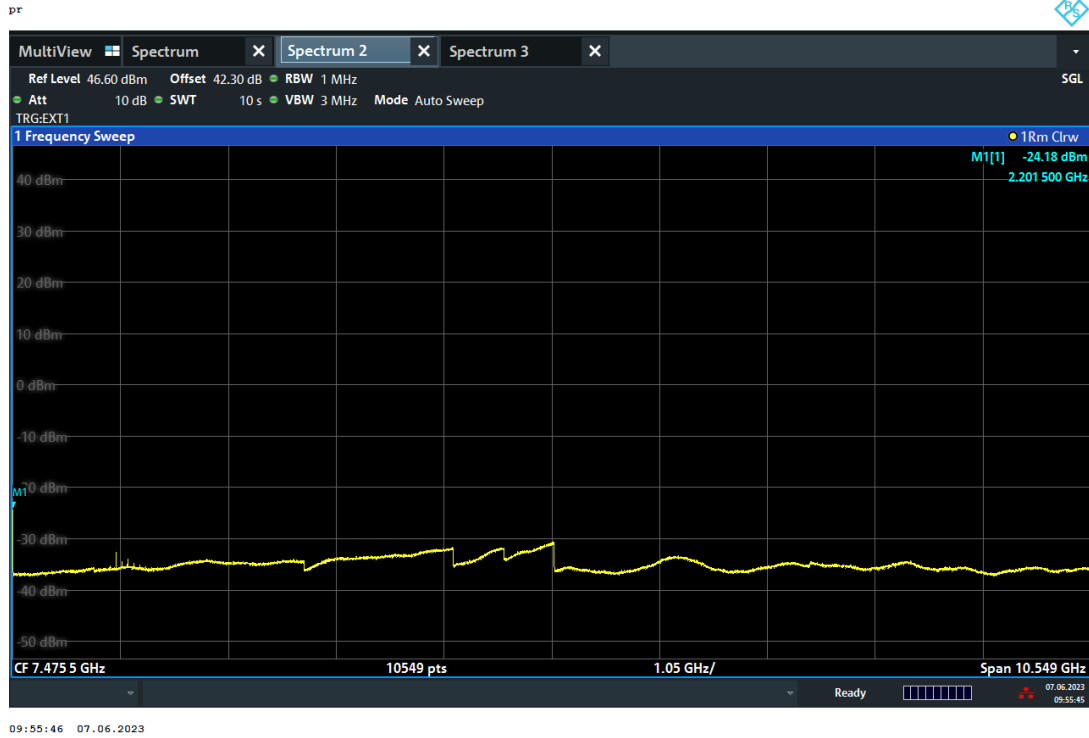


09:58:28 07.06.2023



Channel Position T



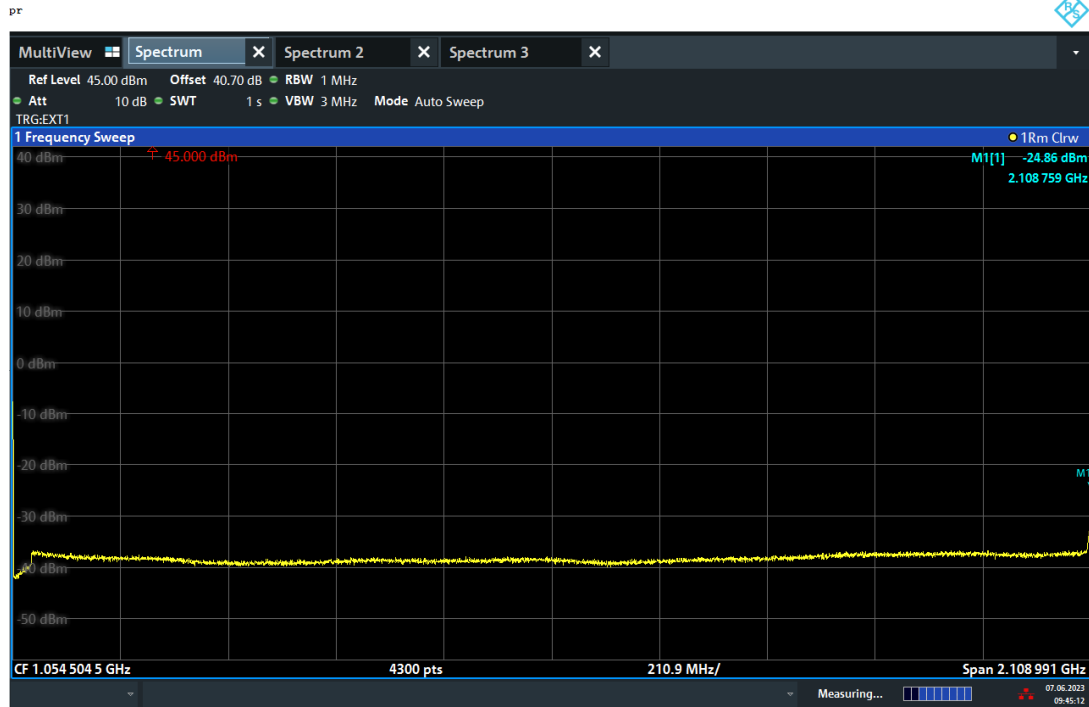


TEST REPORT

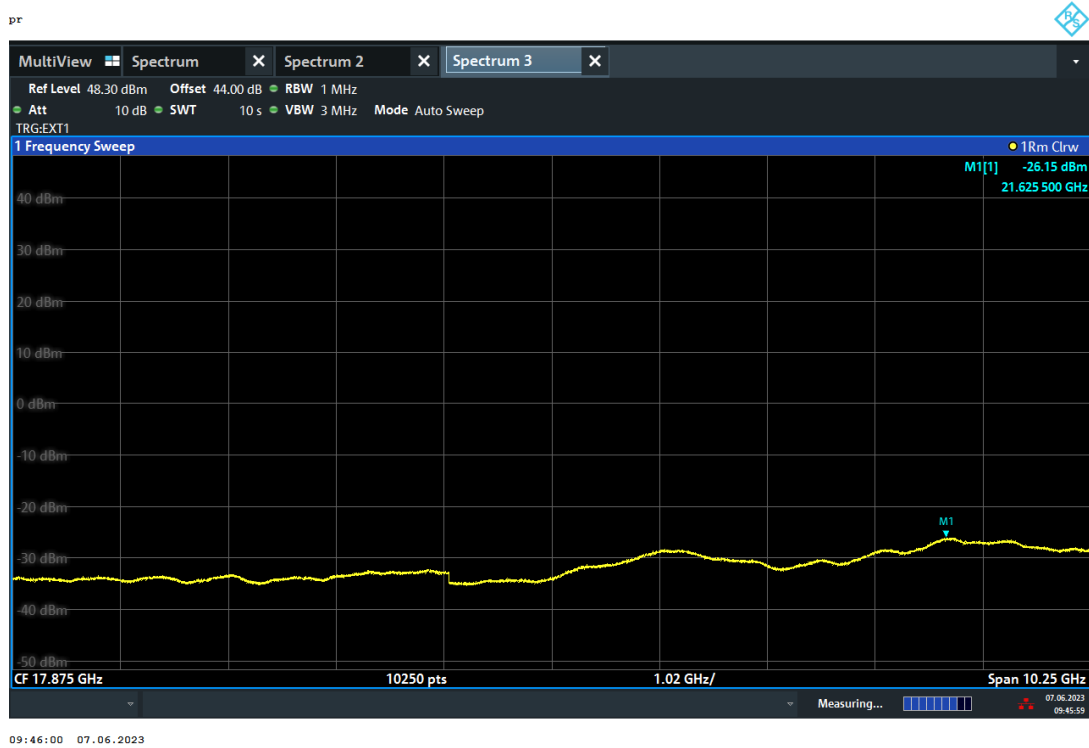
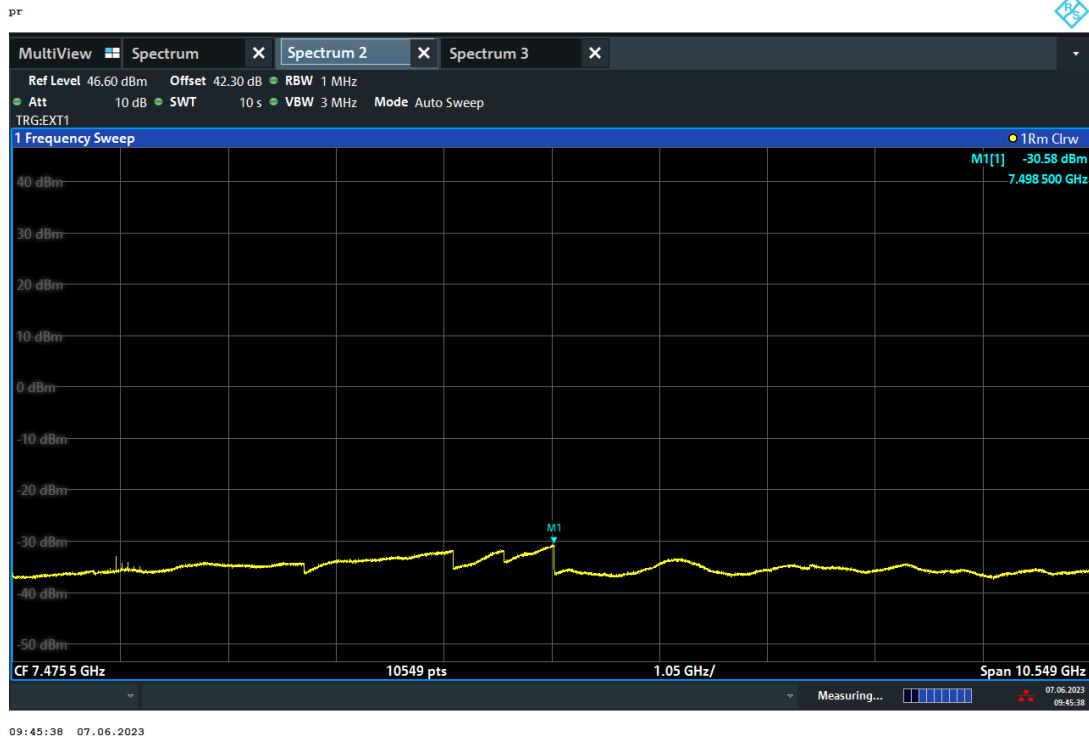
NR-1C

Antenna Port	Channel Position	NR Modulation	NR Channel BW (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	30	1000	-19.02
B	M	64QAM	30	1000	-19.02
B	T	64QAM	30	1000	-19.02

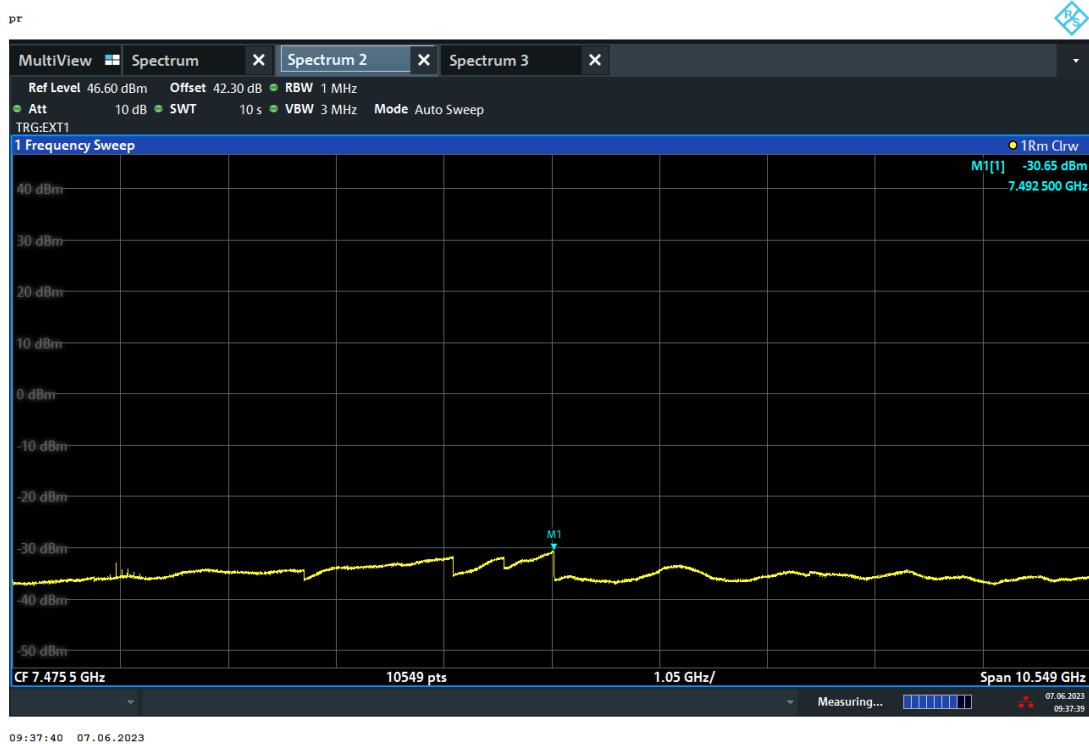
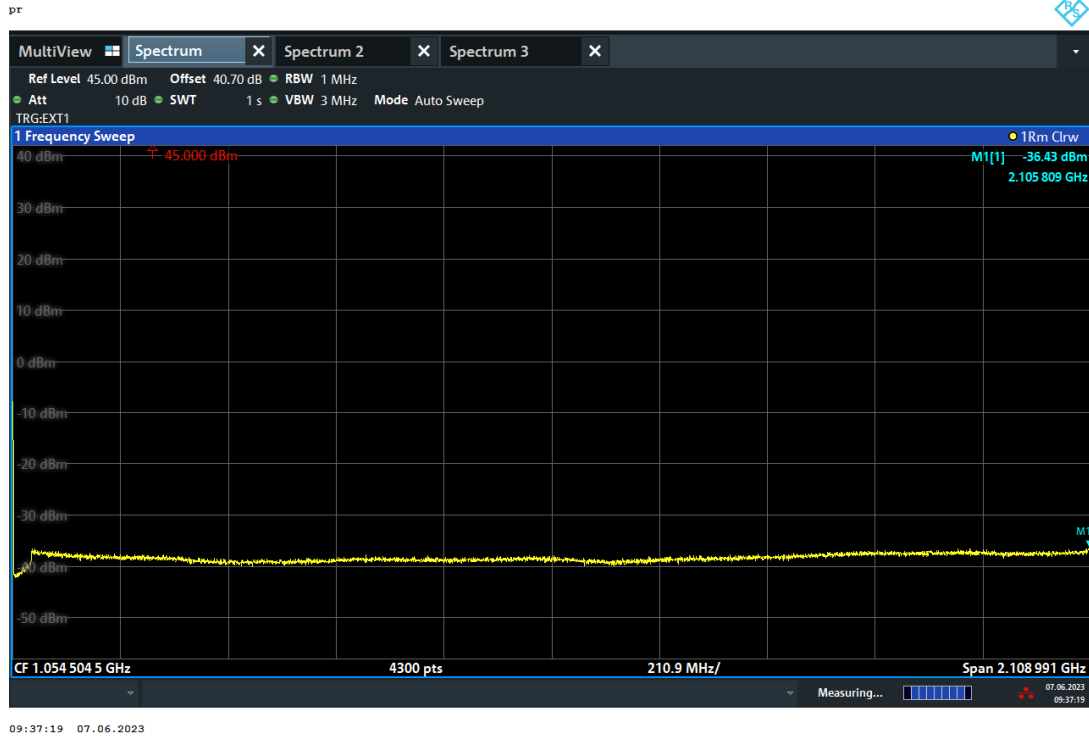
Channel Position B

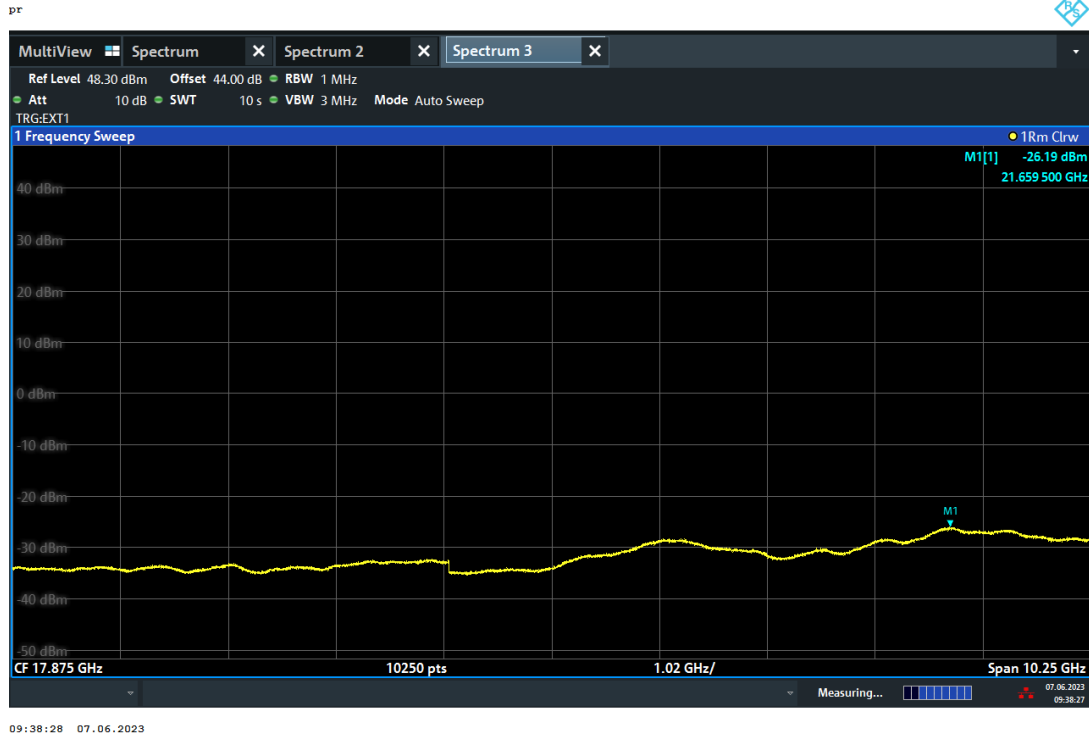


09:45:12 07.06.2023

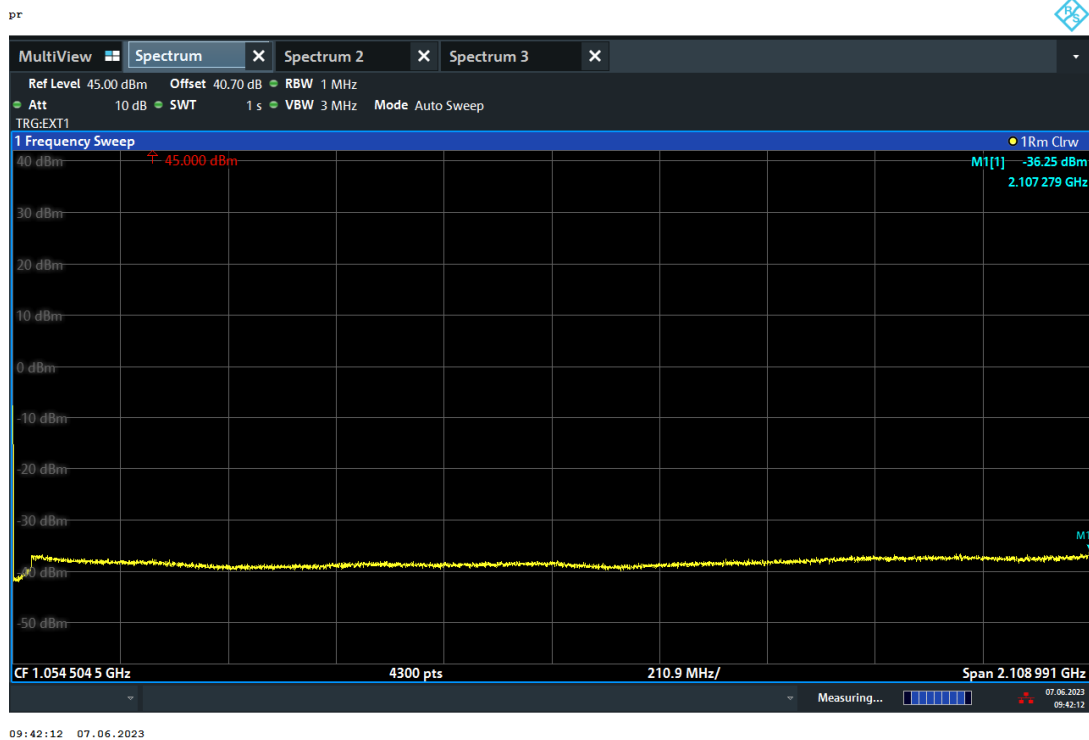


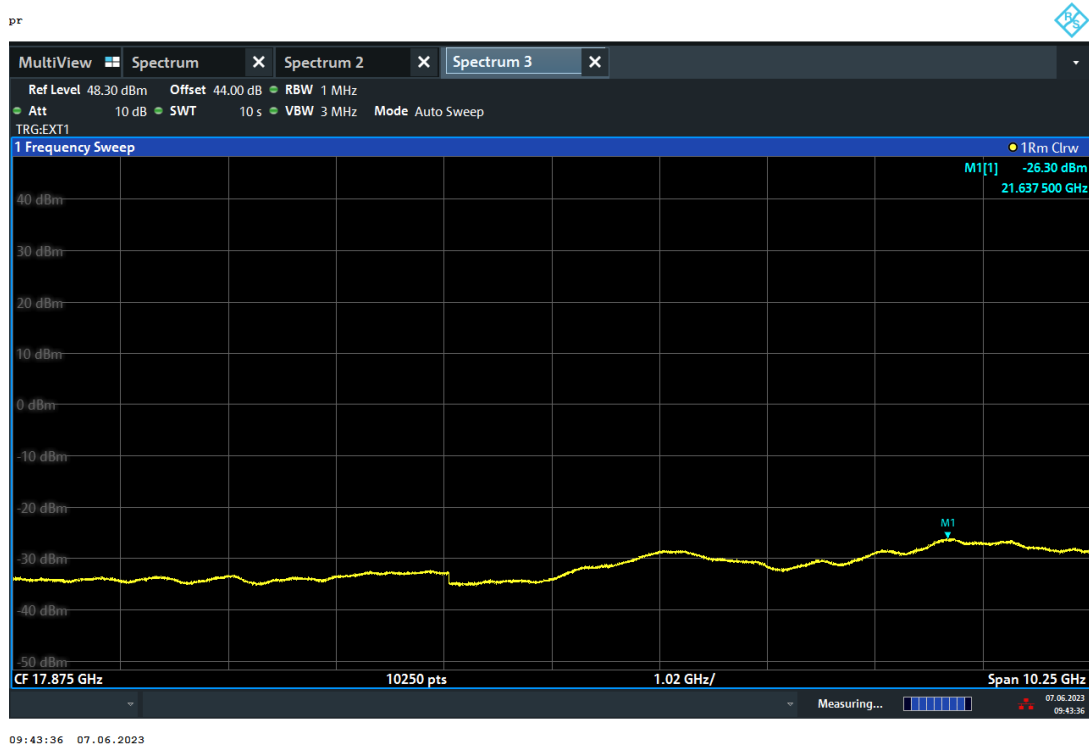
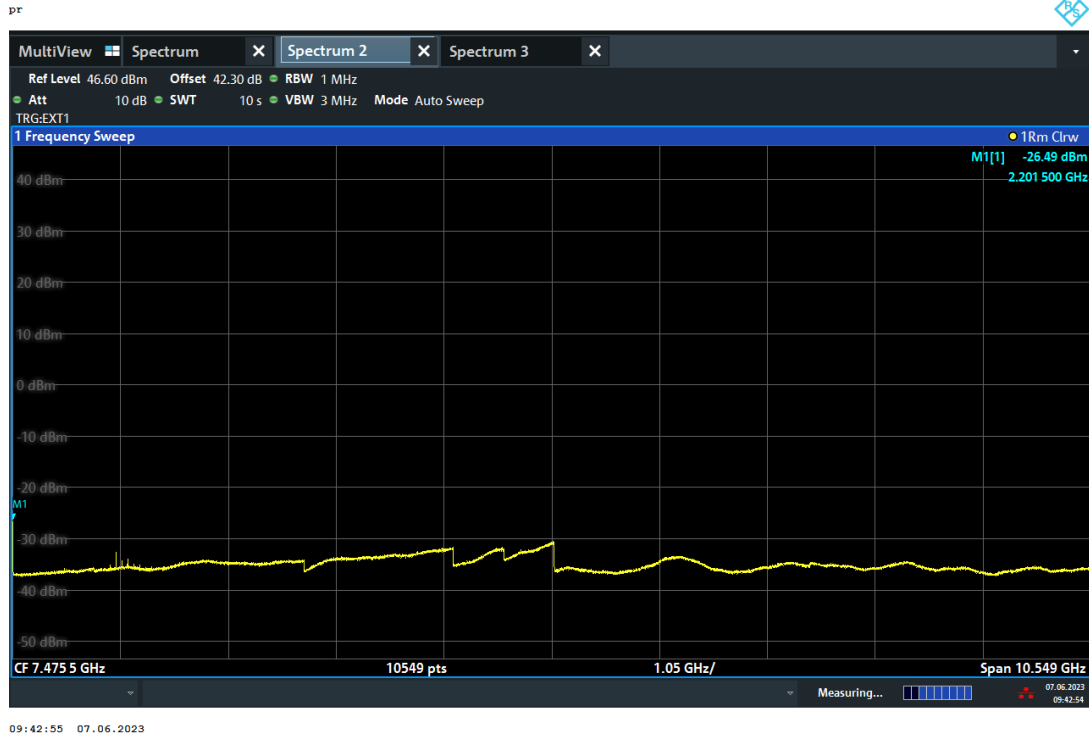
Channel Position M





Channel Position T



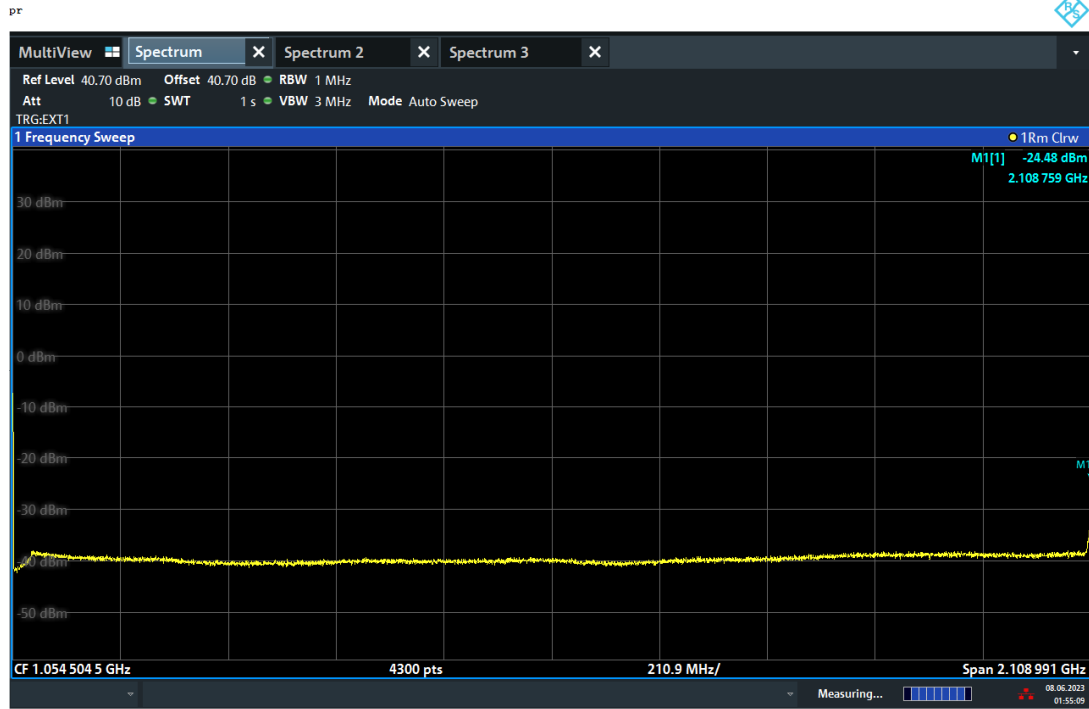


TEST REPORT

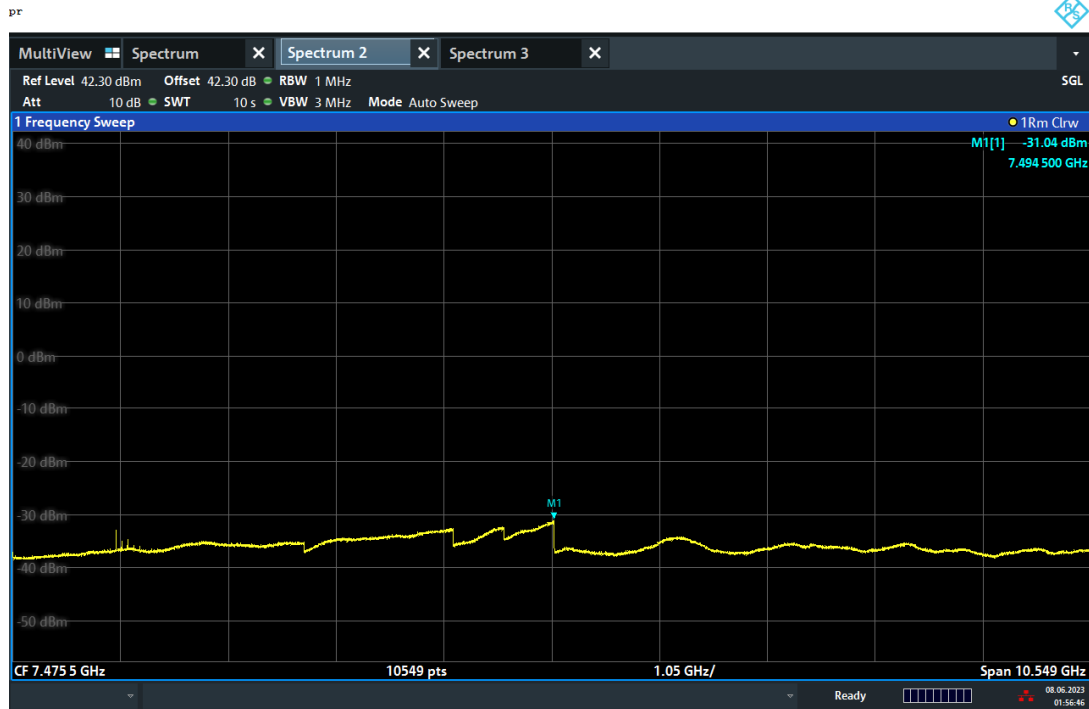
NR-1C

Antenna Port	Channel Position	NR Modulation	NR Channel BW (MHz)	RBW (kHz)	Limit (dBm)
B	B	64QAM	40	1000	-19.02
B	M	64QAM	40	1000	-19.02
B	T	64QAM	40	1000	-19.02

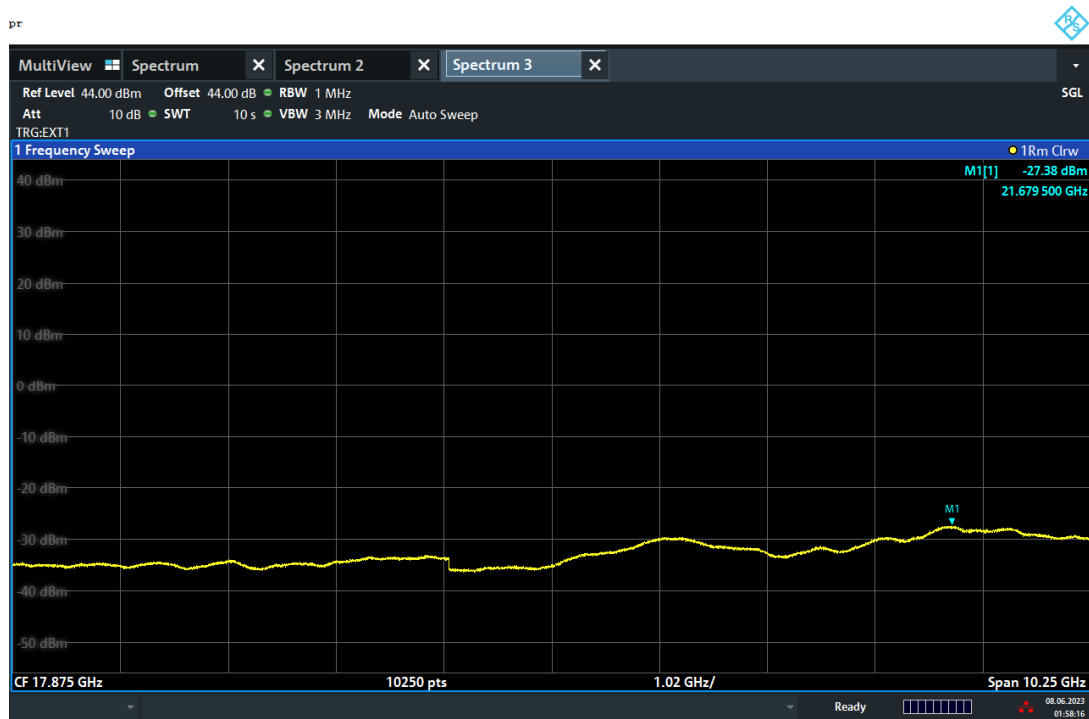
Channel Position B



01:55:09 08.06.2023

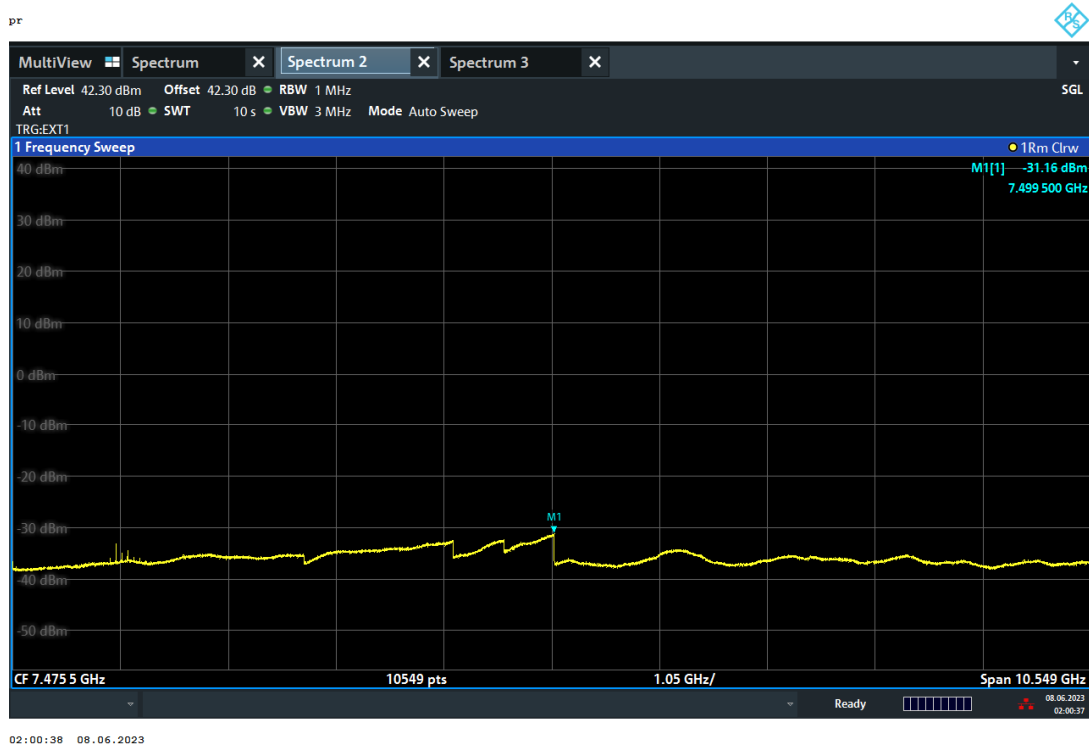
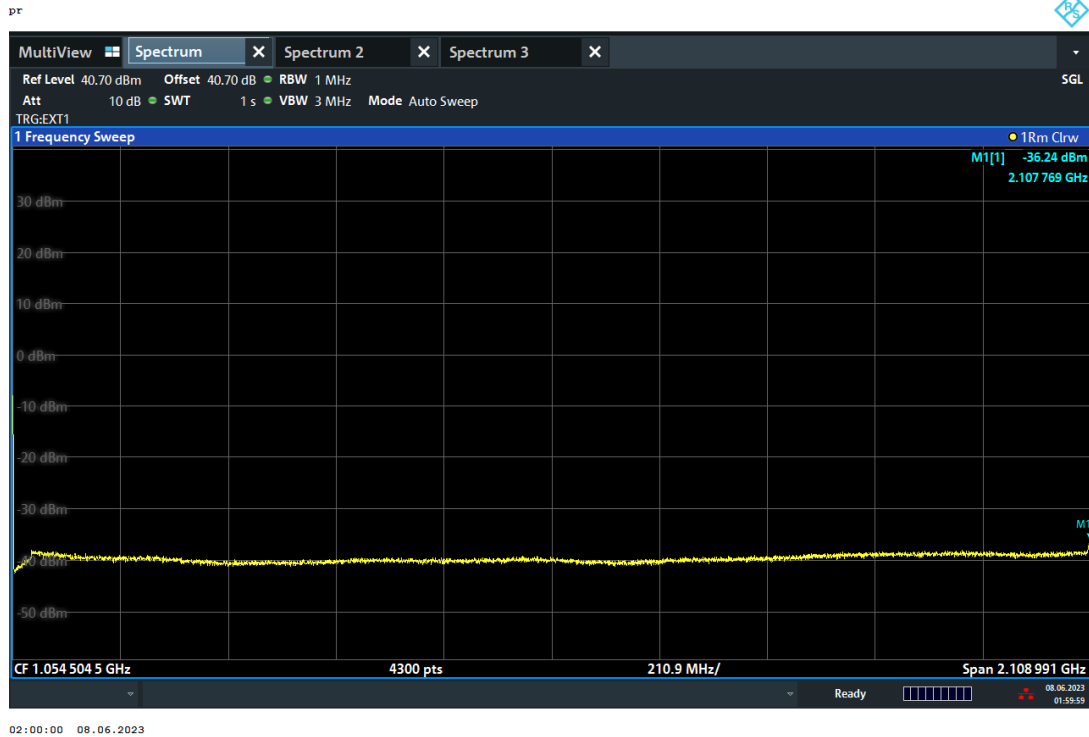


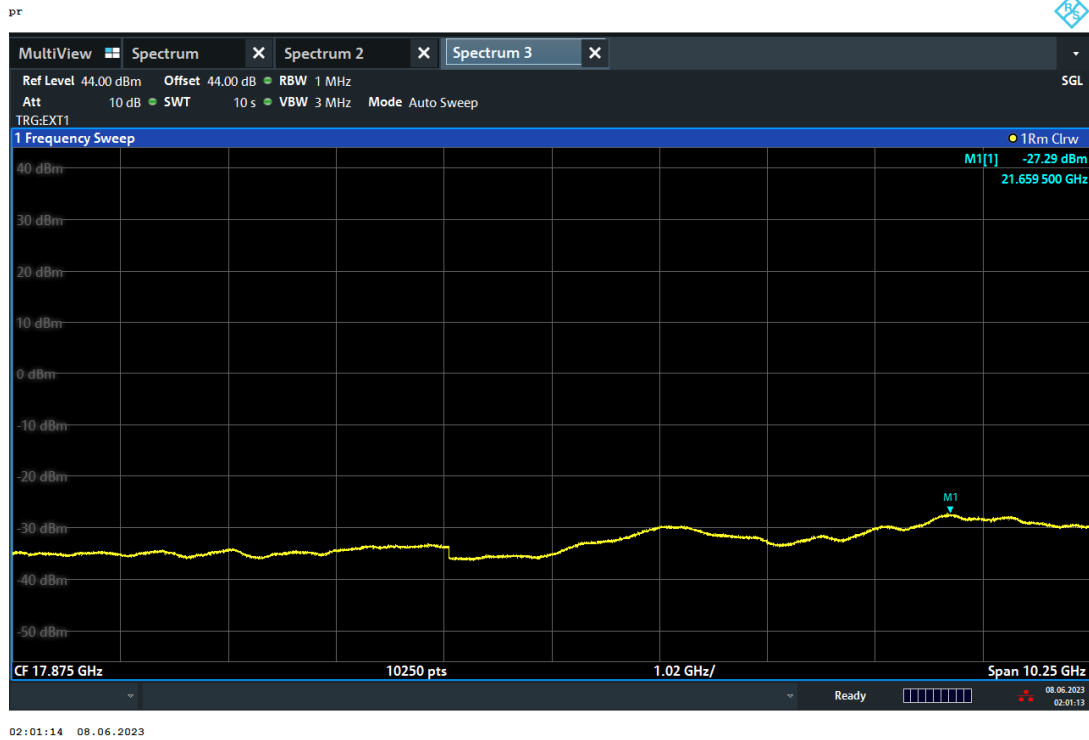
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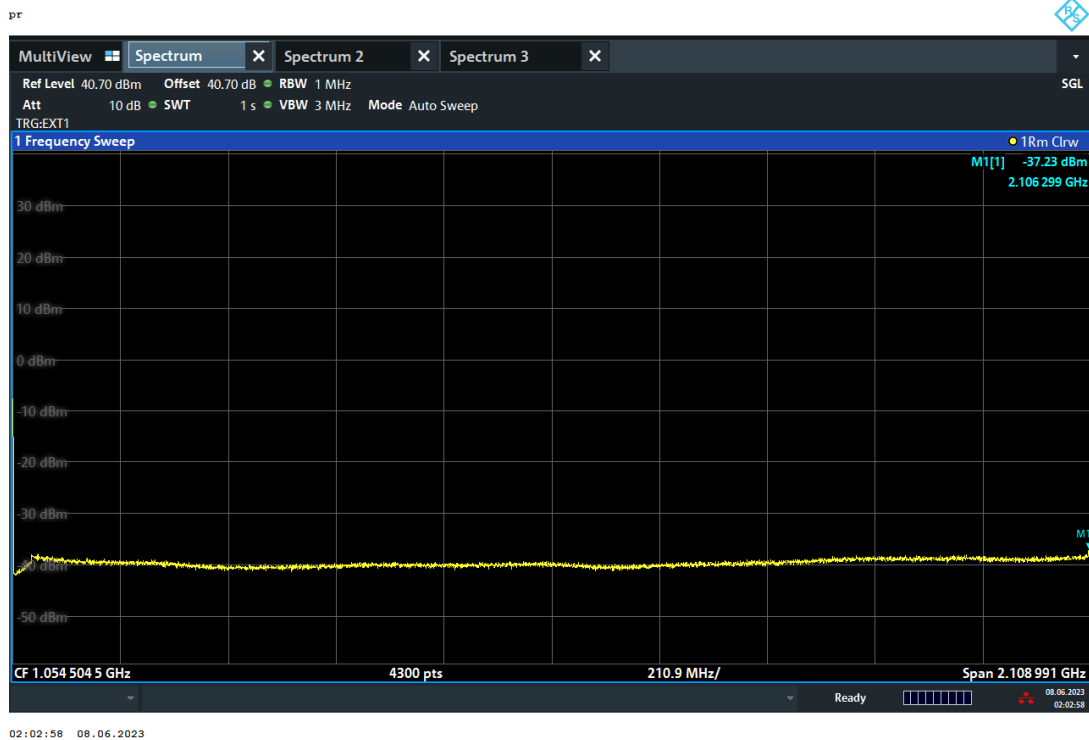
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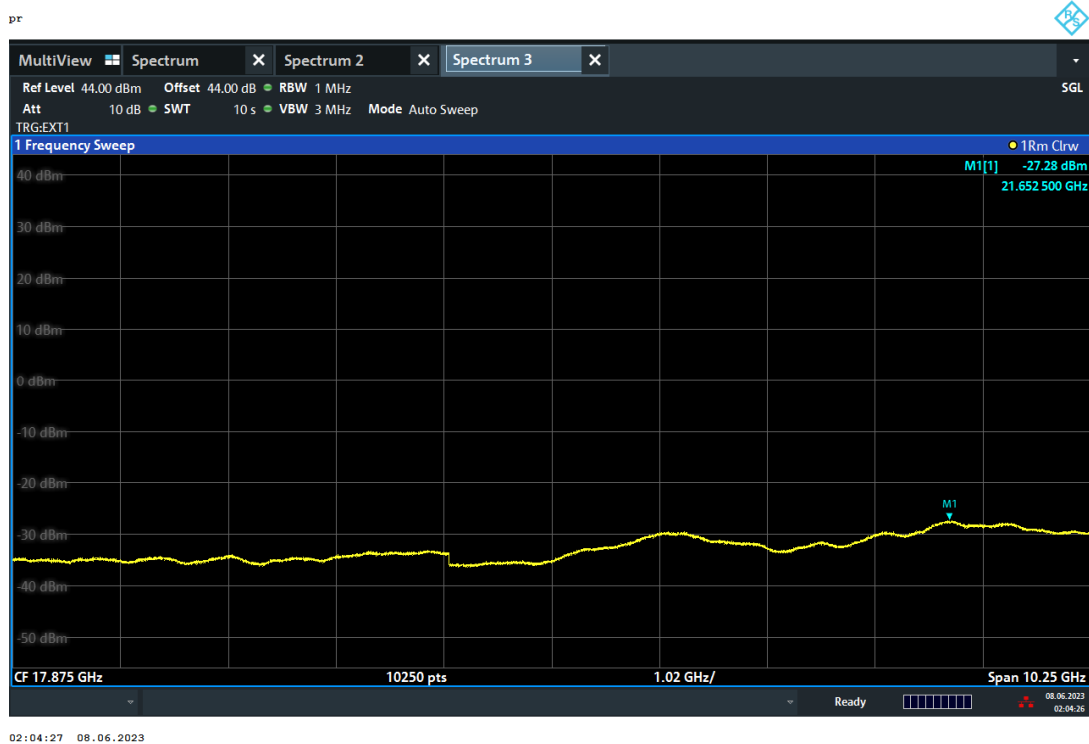
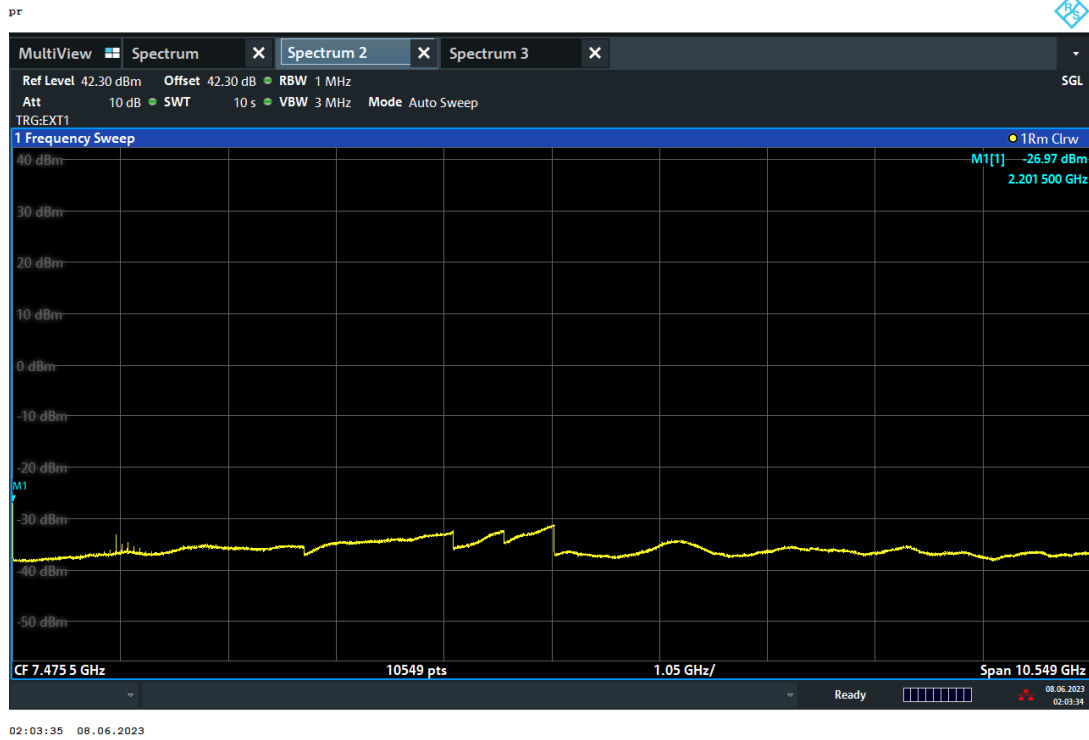
Channel Position M





Channel Position T



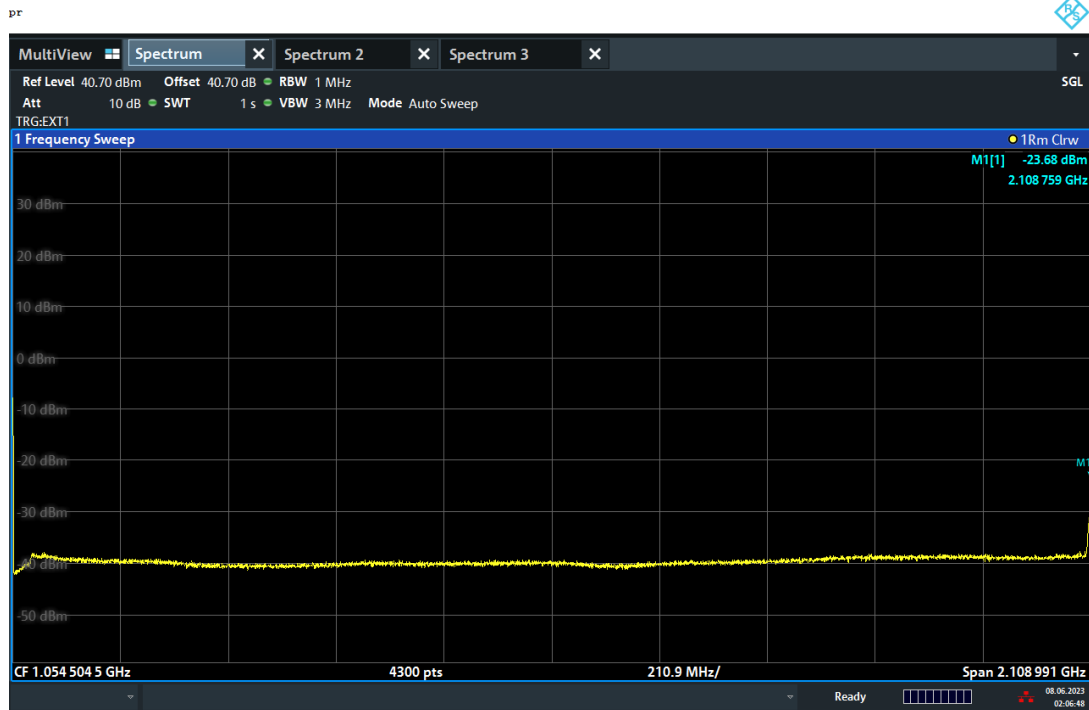


TEST REPORT

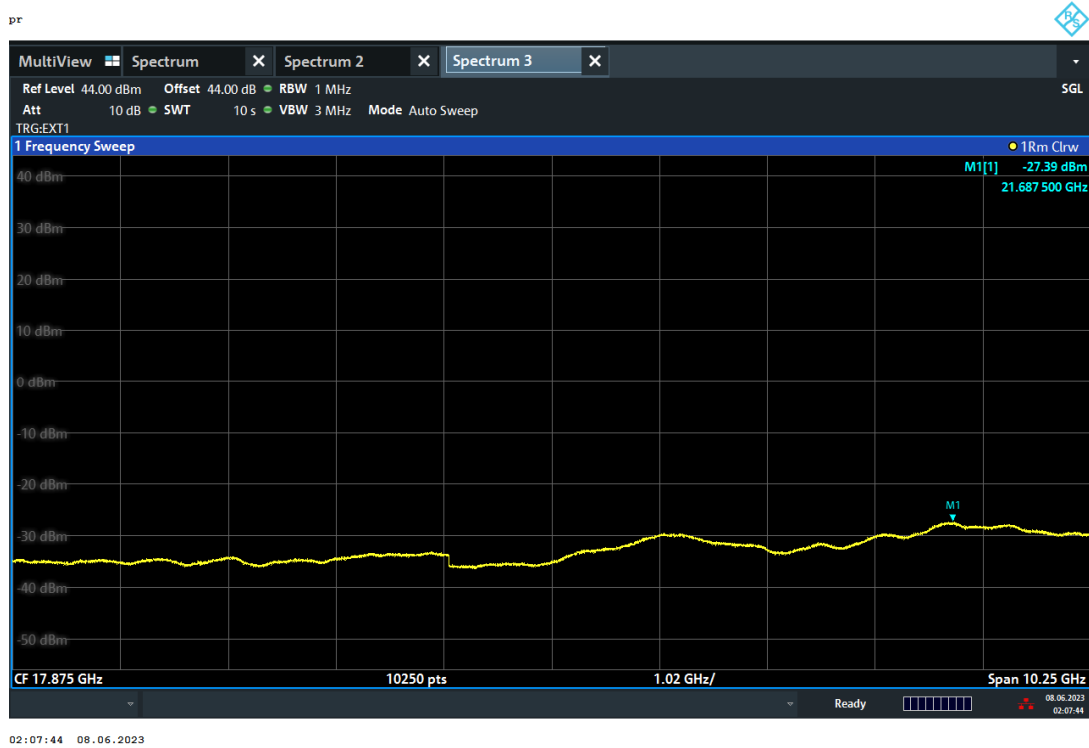
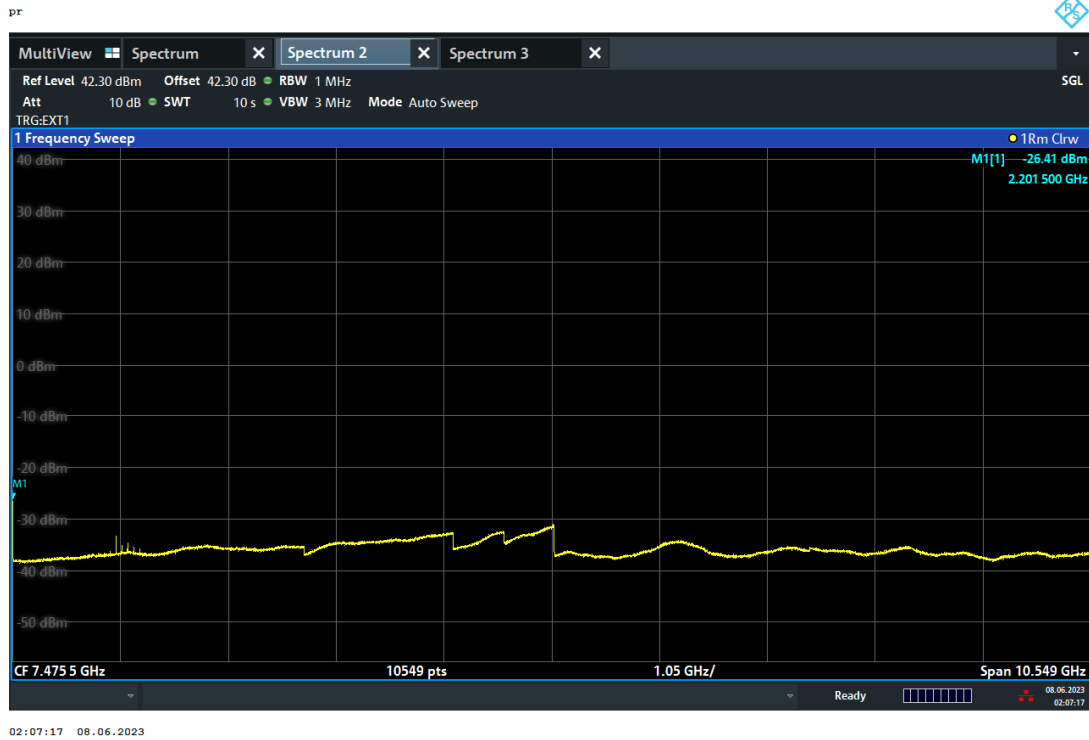
NR-2C

Antenna Port	Channel Position	NR Modulation	NR Channel BW (MHz)	RBW (kHz)	Limit (dBm)
B	M	64QAM	25	1000	-19.02

Channel Position M



02:06:49 08.06.2023

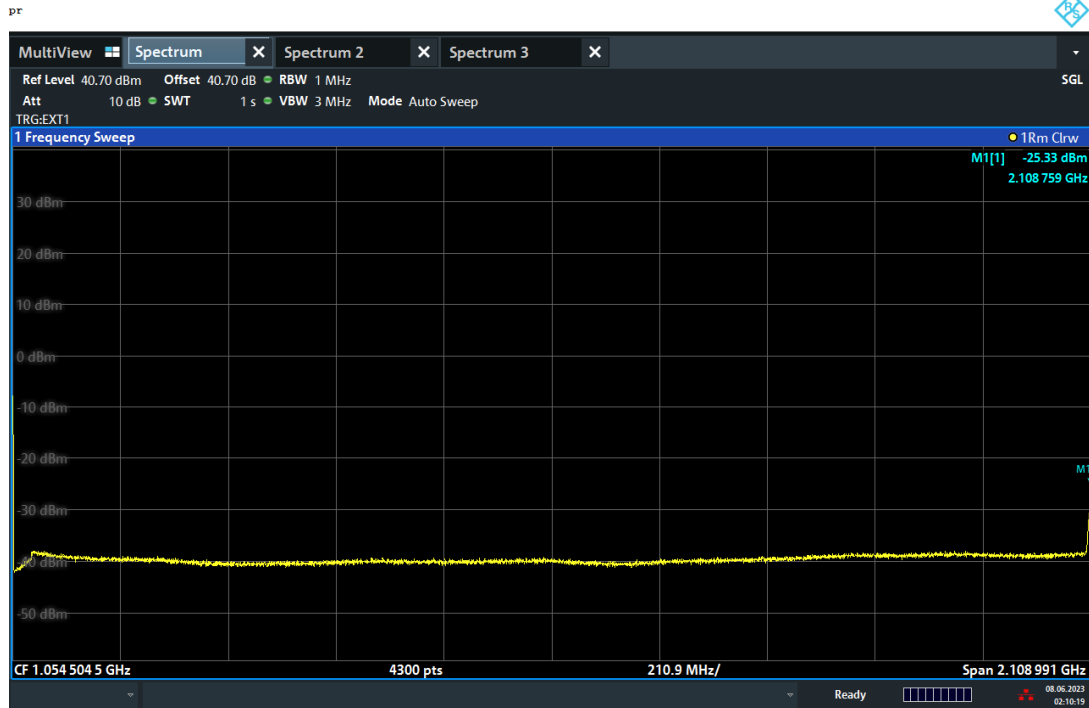


TEST REPORT

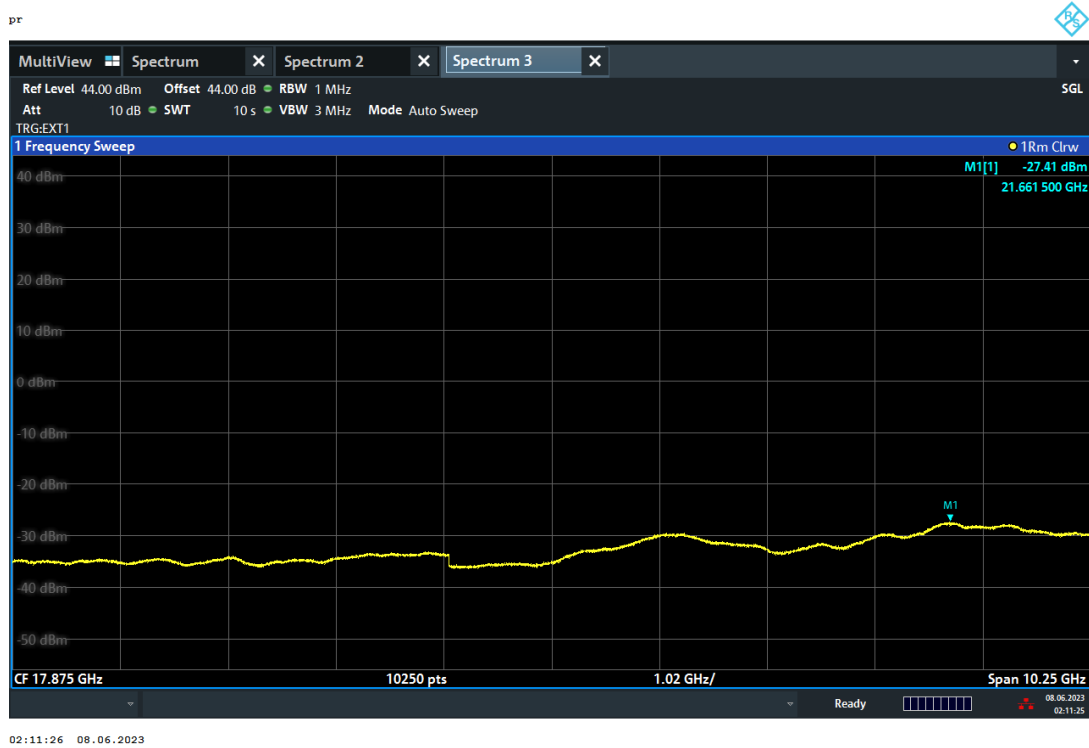
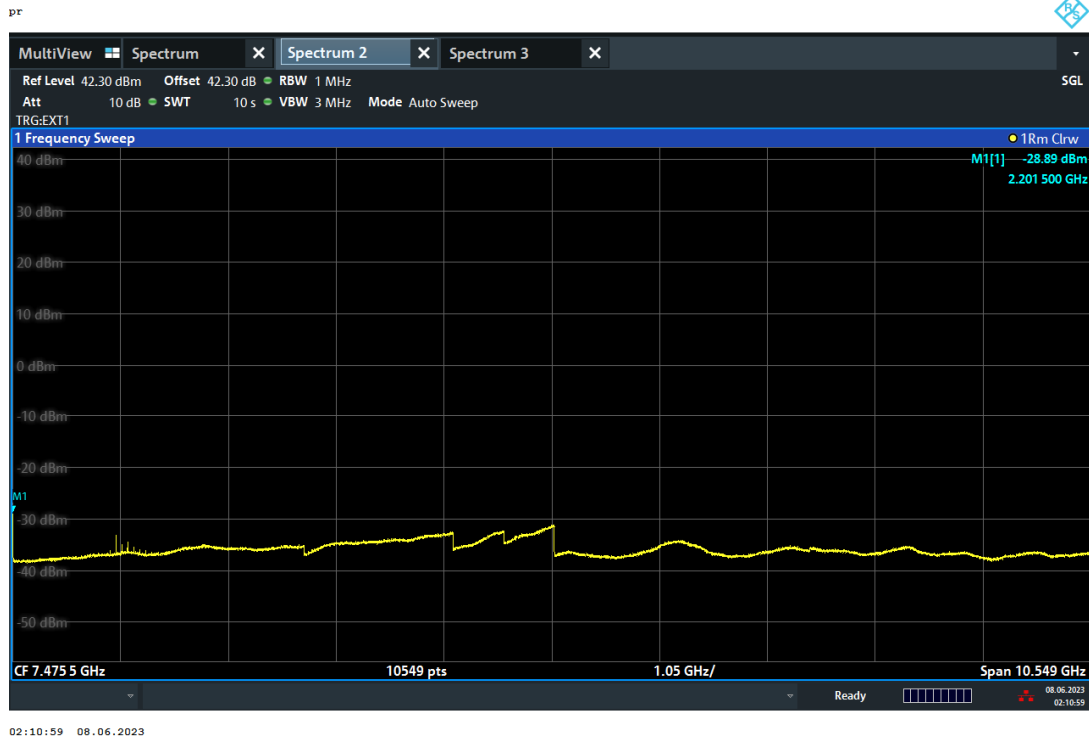
NR-2C

Antenna Port	Channel Position	NR Modulation	NR Channel BW (MHz)	RBW (kHz)	Limit (dBm)
B	M	64QAM	30	1000	-19.02

Channel Position M



TEST REPORT

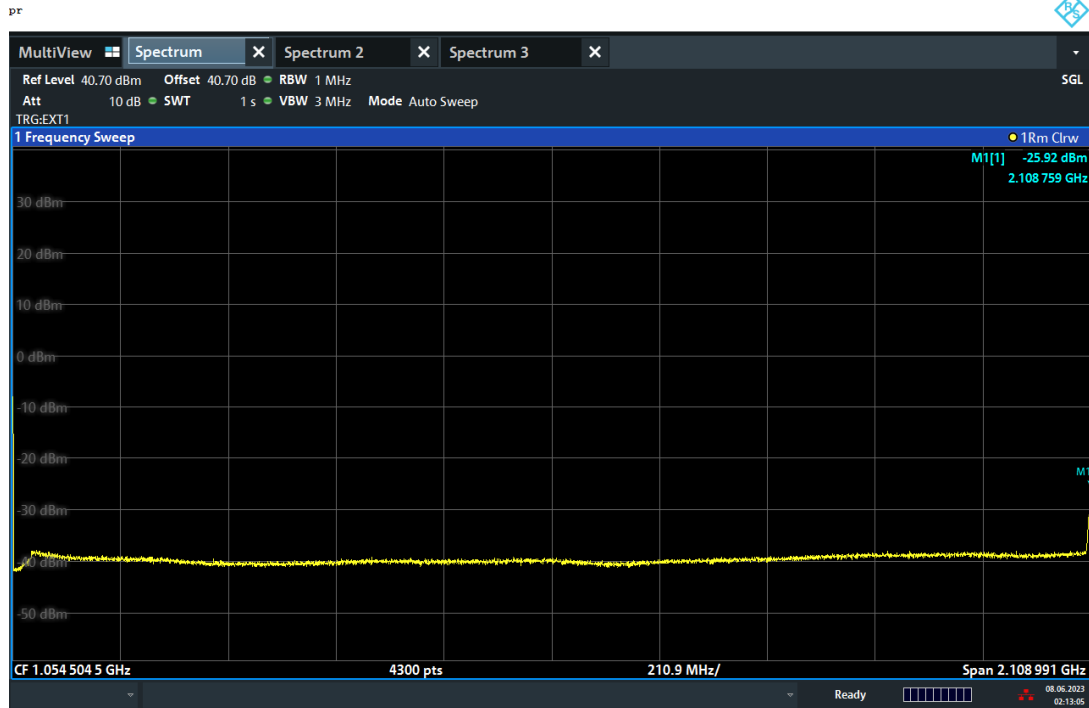


TEST REPORT

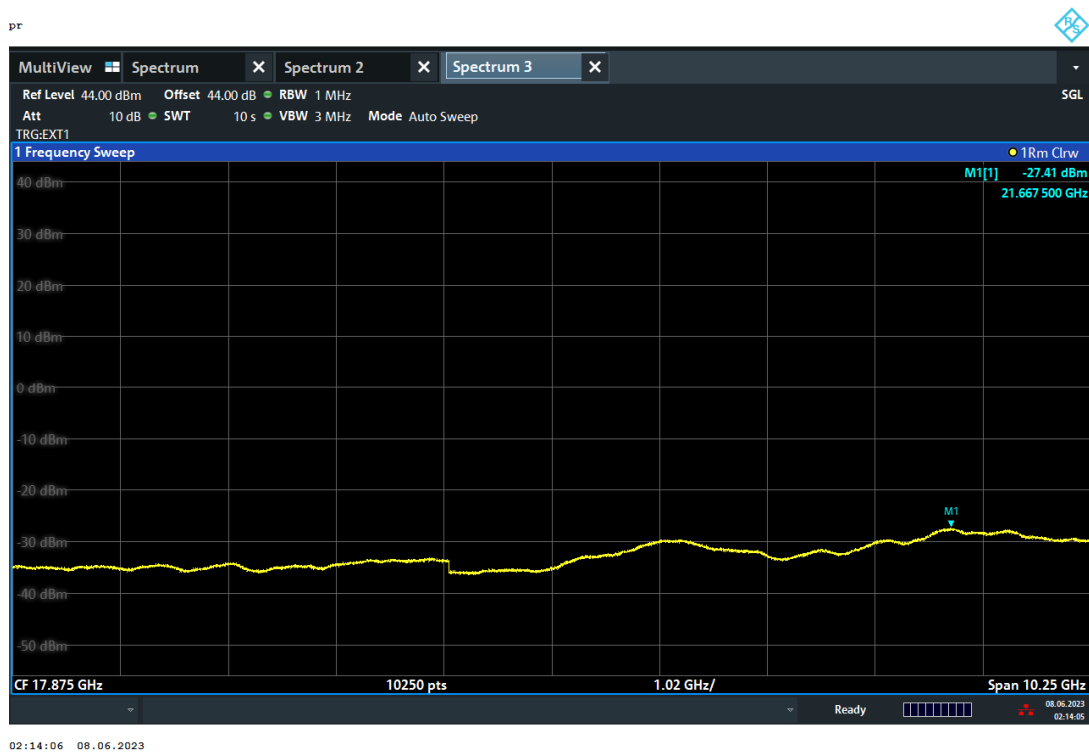
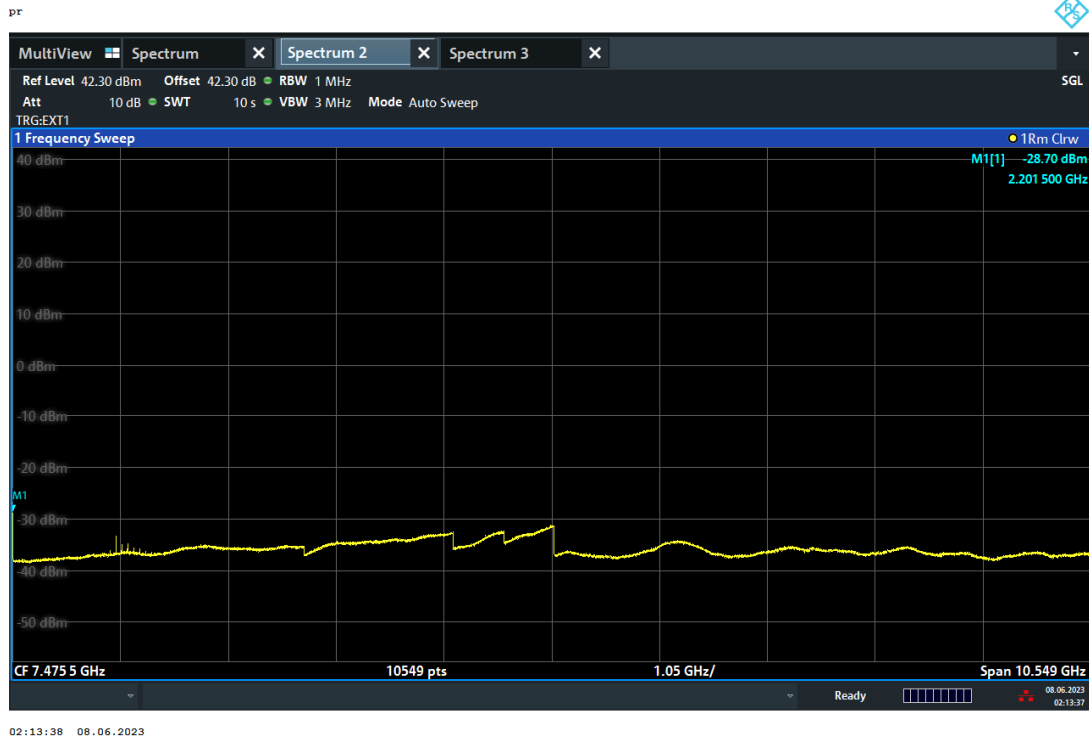
NR-2C

Antenna Port	Channel Position	NR Modulation	NR Channel BW (MHz)	RBW (kHz)	Limit (dBm)
B	M	64QAM	40	1000	-19.02

Channel Position M



02:13:05 08.06.2023

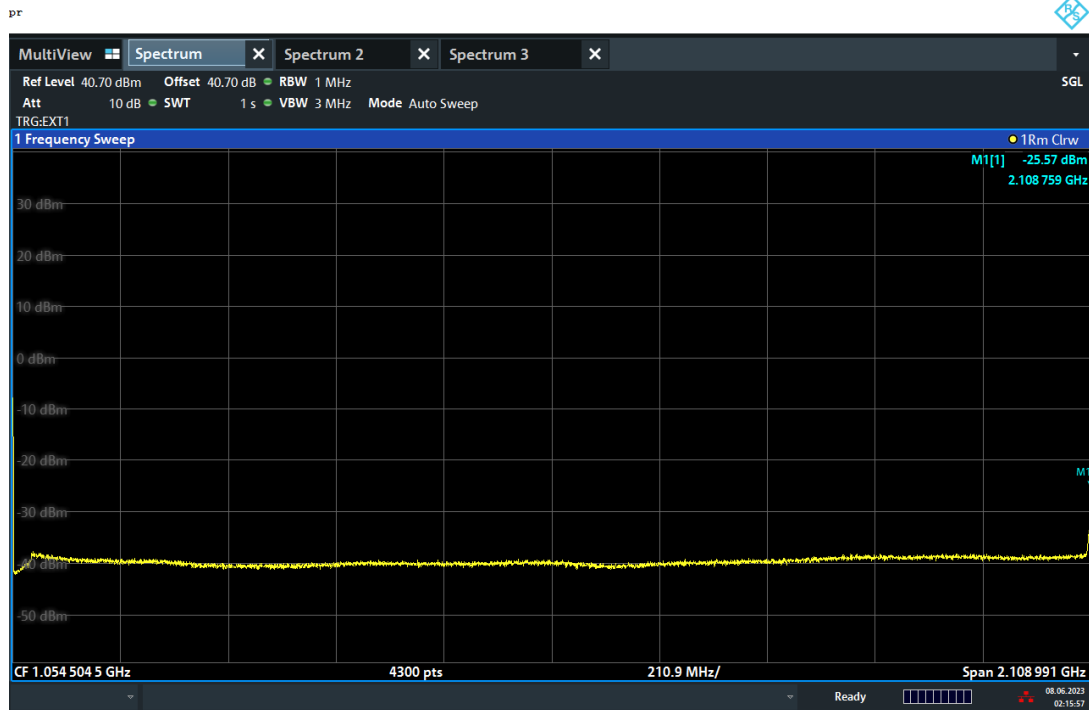


TEST REPORT

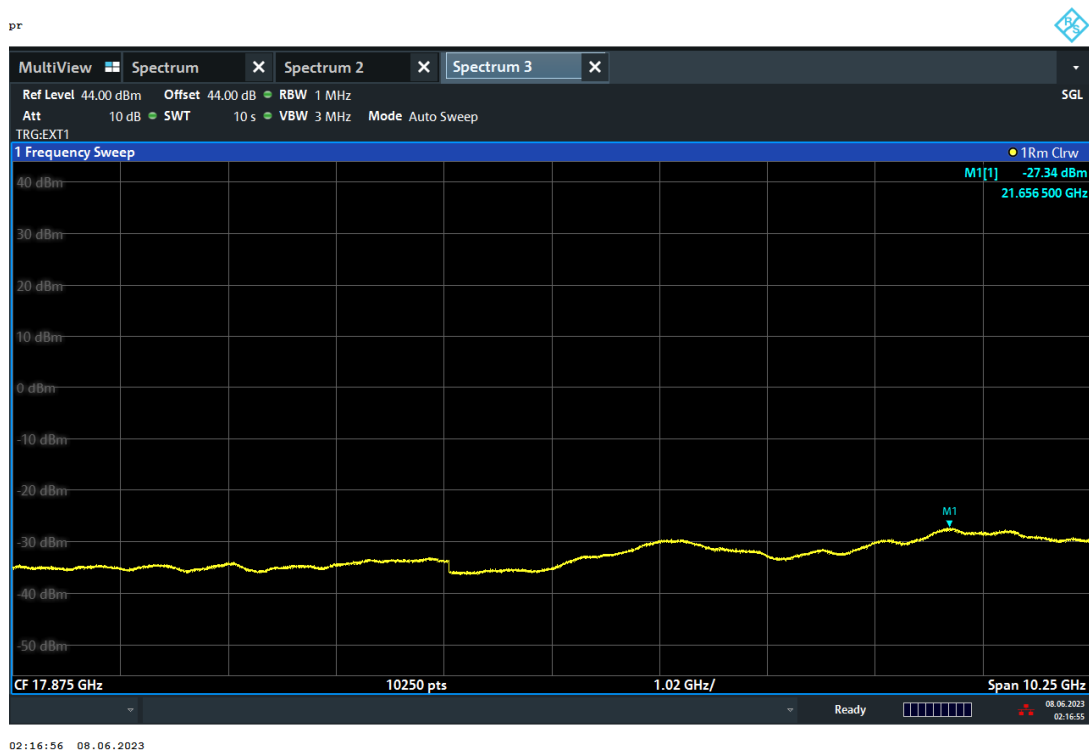
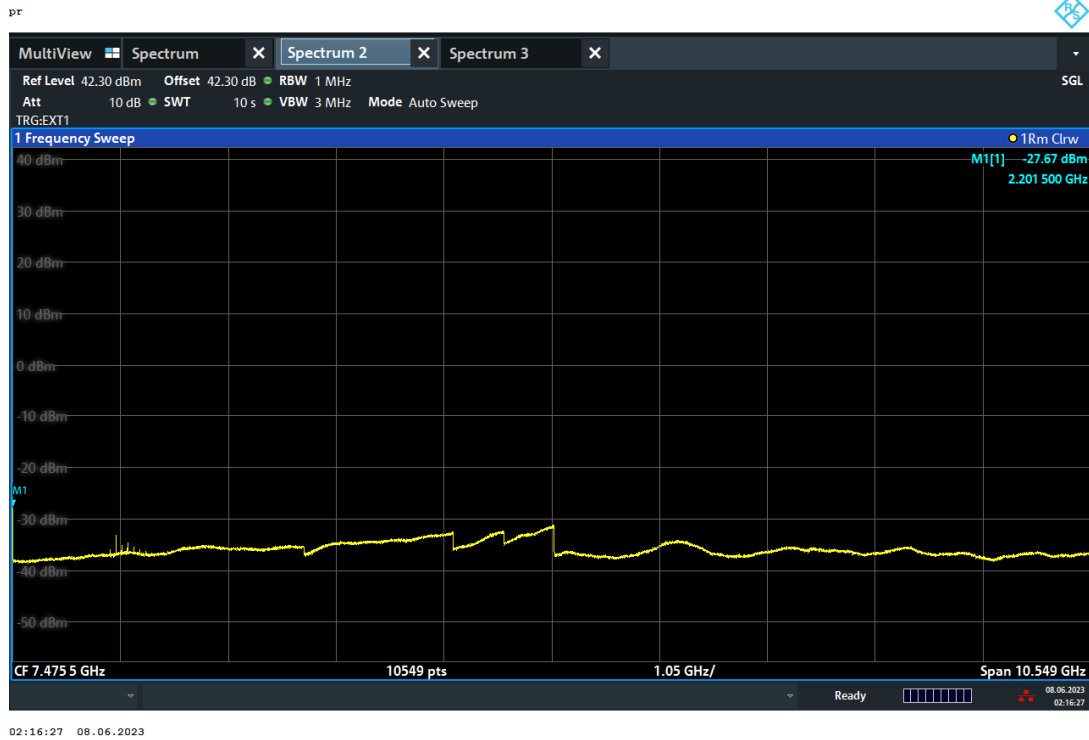
NR-3C

Antenna Port	Channel Position	NR Modulation	NR Channel BW (MHz)	RBW (kHz)	Limit (dBm)
B	M	64QAM	25	1000	-19.02

Channel Position M



02:15:58 08.06.2023

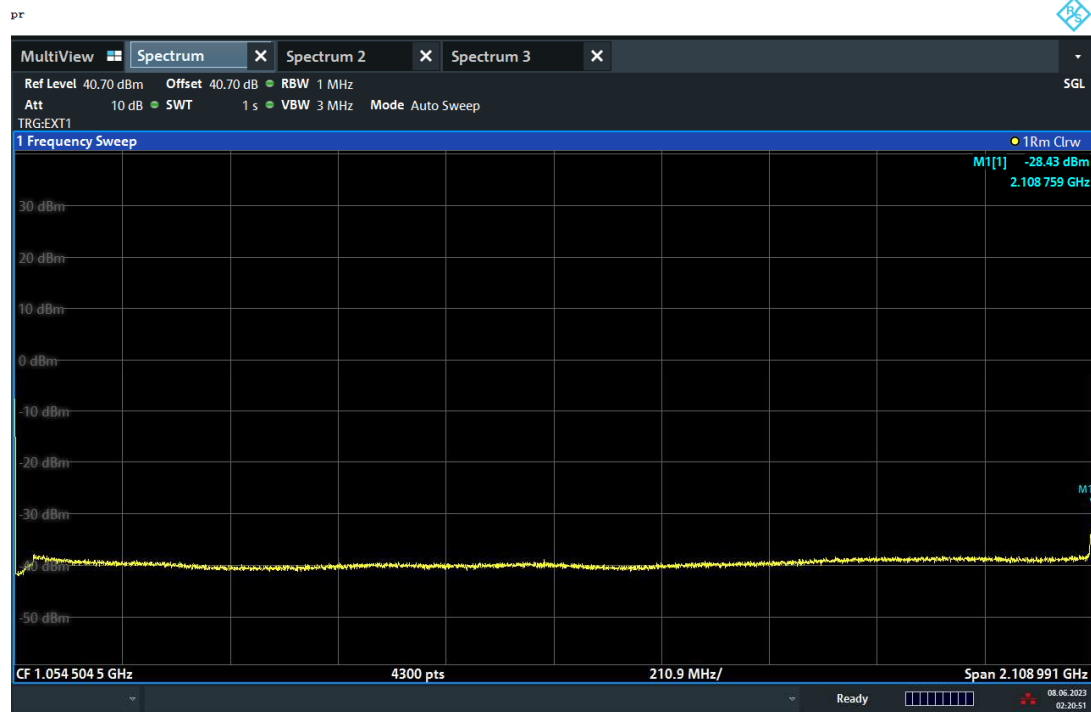


TEST REPORT

NR-3C

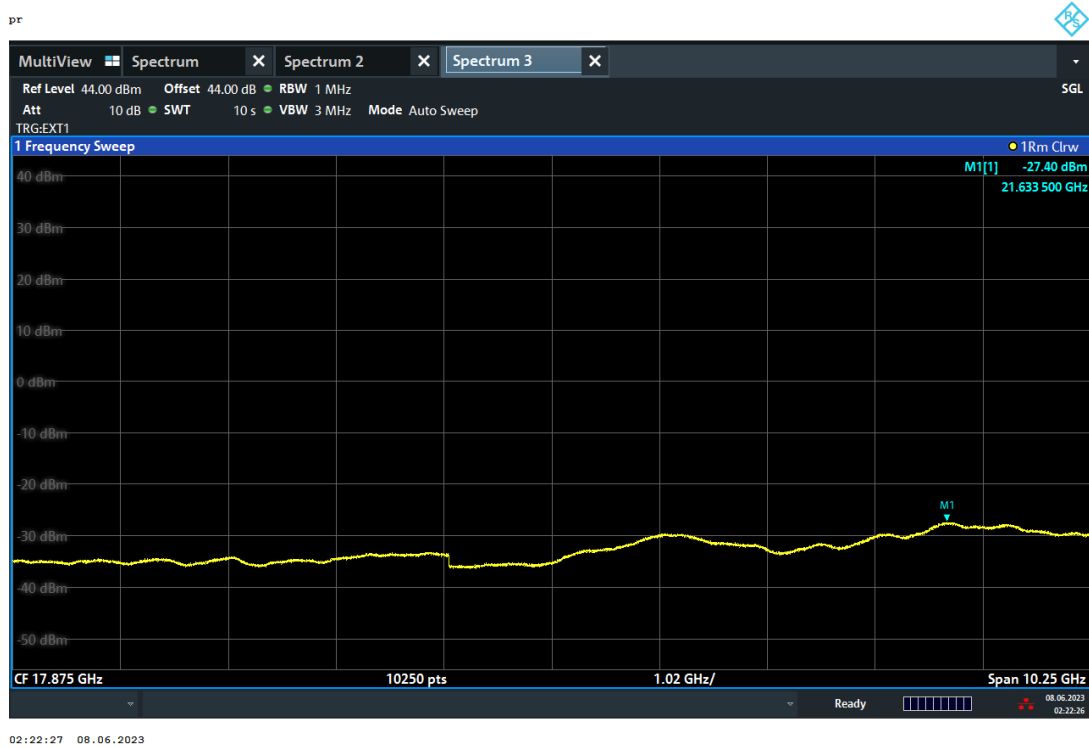
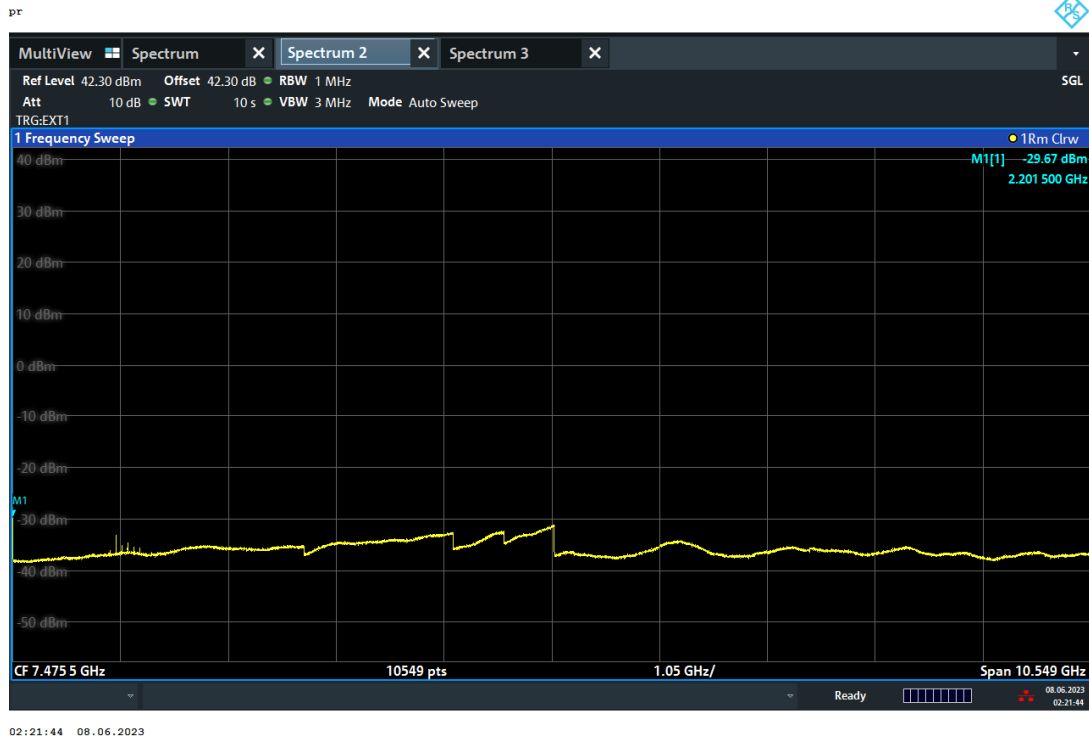
Antenna Port	Channel Position	NR Modulation	NR Channel BW (MHz)	RBW (kHz)	Limit (dBm)
B	M	64QAM	30	1000	-19.02

Channel Position M



02:20:52 08.06.2023

TEST REPORT



TEST REPORT**7 Frequency Stability****Test result: Tested****7.1 Limit**

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

7.2 Measurement Procedure**Temperature Variation**

The EUT was tested over the temperature range -40°C to +55°C in 10°C steps with -48 VDC Power Supply. At each temperature step, the Base Station was configured to transmit at maximum power on the middle channel of the operating band.

Voltage Variation

The EUT was tested at the supplied voltages varied from 85 to 115 percent of the nominal values of -48 VDC. At +20°C, the Base Station was configured to transmit at maximum power on the middle channel of the frequency block.

7.3 Measurement result

Frequency Error – Temperature Variation

Configuration NR-1C, Channel Bandwidth: 40MHz

Antenna Port	Modulation	Temperature (°C)	Frequency Stability (Hz)		
			Channel Position B	Channel Position M	Channel Position T
B	64QAM	-40	-0.09	-0.13	-0.50
		-30	-0.05	0.57	1.05
		-20	-0.79	-0.31	0.50
		-10	-0.17	0.07	-0.34
		0	0.49	1.01	-0.66
		10	-0.03	0.99	-1.17
		20	-1.14	0.18	0.41
		30	0.23	0.21	-0.19
		40	0.29	0.34	-0.77
		50	0.02	0.06	0.29
		55	0.16	-0.12	-0.12

Frequency Error – Voltage Variation

Configuration NR-1C, Channel Bandwidth: 40MHz

Antenna Port	Modulation	Temperature (°C)	Supply Voltage (V)	Frequency Stability (Hz)		
				Channel Position B	Channel Position M	Channel Position T
B	64QAM	20	-40.8	0.21	0.37	0.82
			-48.0	-1.14	0.18	0.41
			-55.2	0.47	0.29	0.02

***** END *****