TEST REPORT

No. I21Z62027-EMC01

for

Tablet PC

Model Name: 9198S

FCC ID: 2ACCJB155

with

Hardware Version: 03

Software Version: 2C6Q

Issued Date: 2021-11-22

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S.Government.

Test Laboratory:

CTTL, Telecommunication Technology Labs, CAICT

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REPORT HISTORY

Revision	Description	Issue Date
Rev.0	1st edition	2021-11-09
Rev.1	2st edition, edited the EUT information at 3.2	2021-11-12
Rev.2	3st edition, updated the test results after the re-testing according to the new request from applicant. The measured maximum output power was updated.	2021-11-22

Note: the latest revision of the test report supersedes all previous version.

CONTENTS

1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0 and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#:24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Location 1: CTTL (huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191

1.3. Testing Environment

Normal Temperature: 15-35℃

Relative Humidity: 20-75%

1.4. Project Data

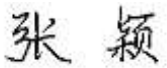
Testing Start Date: 2021-10-12

Testing End Date: 2021-11-22

1.5. Signature

Zhang Xia

(Prepared this test report)



Zhang Ying

(Reviewed this test report)

Zang Qi

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Gong Zhizhou
Email:	zhizhou.gong@tcl.com
Telephone:	0086-755-36611722

2.2. Manufacturer Information

Company Name:	TCL Communication Ltd.
Address /Post:	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Contact:	Gong Zhizhou
Email:	zhizhou.gong@tcl.com
Telephone:	TCL Communication Ltd.

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	Tablet PC
Model Name	9198S
FCC ID	2ACCJB155
Antenna	Embedded
Output power	15.23dBm maximum EIRP measured for n260
Extreme vol. Limits	3.5VDC to 4.4VDC (nominal: 3.85VDC)
Extreme temp. Tolerance	-10°C to +50°C

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of CTTL.

The EUT supports n260 and n261 bands, 50MHz and 100MHz bandwidth for 1CC, 100MHz+100MHz for 2CC, SCS 120kHz. For uplink modulation, in CP-OFDM, the EUT supports QPSK, 16QAM, 64QAM, and in DFT-s-OFDM, the EUT supports PI/2 BPSK, QPSK, 16QAM, 64QAM.

The EUT has two antenna modules. Each antenna module has two chains, and supports 2x2 MIMO working mode under CP-OFDM. The two modules did not support transmitting simultaneously. Every chain supports 15 kinds of Beamforming which was identified by Beam ID.

3.2. Internal Identification of EUT used during the test

EUT ID*	IMEI / Serial Number	HW Version	SW Version
UT01a	358861400000827 / 62f0bde2	03	2C6Q
UT03a	358861400000835 / e777d42d	03	2C6Q

*EUT ID: is used to identify the test sample in the lab internally.

The IMEI and SW version information were provided by the applicant.

The frequency stability was performed on UT03a, the others were performed on UT01a.

4. Reference Documents

4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, is supplied by the client or manufacturer, which is the basis of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 30	UPPER MICROWAVE FLEXIBLE USE SERVICE	10-1-20 Edition
ANSI C63.26	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services	2015
KDB 842590	Upper Microwave Flexible Use Service v01r01	April 3, 2020

5. Laboratory Environment

Semi/Full-anechoic chamber SAC-1 (23 meters × 17meters × 10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ˚C, Max. = 35 ˚C
Relative humidity	Min. = 15 %, Max. = 75 %
Shielding effectiveness	0.014MHz - 1MHz, >60dB; 1MHz - 1000MHz, >90dB.
Electrical insulation	> 2 M
Ground system resistance	< 4
Normalised site attenuation (NSA)	**<** ± 4 dB, 3m/10m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz

6. Summary Of Test Result

n260

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	2.1046, 30.202	Pass
2	Unwanted Emission	30.203	Pass
3	Frequency Stability	2.1055	Pass
4	Occupied Bandwidth	2.1049	Pass
5	Band Edge Compliance	2.1051, 30.203	Pass

n261

Items	Test Name	Clause in FCC rules	Verdict
1	Output Power	2.1046, 30.202	Pass
2	Unwanted Emission	30.203	Pass
3	Frequency Stability	2.1055	Pass
4	Occupied Bandwidth	2.1049	Pass
5	Band Edge Compliance	2.1051, 30.203	Pass

Terms used in Verdict column

P	Pass. The EUT complies with the essential requirements in the standard.
NP	Not Performed. The test was not performed by CTTL.
NA	Not Applicable.The test was not applicable.
BR	Re-use test data from basic model report.
F	Fail. The EUT does not comply with the essential requirements in the standard.

Explanation of worst-case configuration

The worst-case scenario for all measurements is based on the output power, occupied bandwidth, band edge emission measurement investigation results. The test results shown in the following sections represent the worst case measurement results. For each frequency only the maximum measurement results of Beam ID were represent in the report. The Beam ID of maximum results for low, center and high frequency of different chains maybe vary.

Note: This report is for 2CC test results of the EUT. The 1CC test results of the EUT were in report I21Z60861-EMC02.

7. Measurement Uncertainty

Measurement Uncertainty:

Frequency Range	Uncertainty(dB) (k=2)
30MHz-1GHz	5.18
1GHz-18GHz	5.54
18GHz-40GHz	5.26
40GHz-60GHz	3.80
60GHz-75GHz	3.76
75GHz-110GHz	3.80

8. Test Equipment Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL. DUE DATE	CAL. INTERVAL
1	Signal Generator	SMF100A	104940	R&S	2021-12-09	1 year
2	Signal Generator	E8257D（60GHz）	MY59140557	Keysight	2022-01-19	1 year
3	Antenna	VULB 9163	01223	SCHWARZBECK	2022-03-22	1 year
4	Antenna	3115	6914	ETS-Lindgren	2022-02-03	1 year
5	Upconverter(50GHz-75GHz)	SMZ-75	101309	R&S	2022-01-14	1 year
6	Upconverter(75GHz-110GHz)	SMZ-110	101357	R&S	2022-01-14	1 year
7	Upconverter(110GHz-170GHz)/	82406B	ZEI00141	Ceyear	2022-02-04	1 year
8	Upconverter(170GHz-220GHz)/	82406C	ZEI00164	Ceyear	2022-02-04	1 year
9	Spectrum Analyzer	FSW67	103290	R&S	2022-02-04	1 year
10	(downconverter)Harmonic Mixer(60GHz-90GHz)	FS-Z90	101655	R&S	2022-02-04	1 year
11	(downconverter)Harmonic Mixer(75GHz-110GHz)	FS-Z110	101463	R&S	2022-01-19	1 year
12	(downconverter)Harmonic Mixer(110GHz-170GHz)/	FS-Z170	101008	R&S	2022-02-17	1 year
13	(downconverter)Harmonic Mixer(170GHz-220GHz)/	FS-Z220	101054	R&S	2021-12-14	1 year
14	Standard Gain Horn（40GHz-60GHz）	LB-19-25	J202024086	A-INFO	2022-01-14	1 year
15	Standard Gain Horn（40GHz-60GHz）	LB-19-25	J202024087	A-INFO	2022-01-14	1 year
16	Standard Gain Horn（60GHz-90GHz）	LB-12-25	J202062912	A-INFO	2022-02-17	1 year
17	Standard Gain Horn（50GHz-75GHz）	LB-15-25	J202062019	A-INFO	2021-12-14	1 year
18	Standard Gain Horn（75GHz-110GHz）	LB-10-25	J202023231	A-INFO	2022-01-27	1 year
19	Standard Gain Horn（75GHz-110GHz）	LB-10-25	J202023232	A-INFO	2022-01-27	1 year
24	DC power supply	PAS20-18	UH000695	Kikusui	2022-08-14	1 year
25	Incubator	SH-641	92009470	ESPEC	2022-02-14	1 year
26	Receiver	ESP40	100012	R&S	2022-01-03	1 year

Annex A: Measurement Results

A.1 Radiated Output Power

A.1.1 Summary

During the process of testing, the EUT was controlled via communication tester to ensure max power transmission and proper modulation.

In all cases, output power is within the specified limits.

30.202 (b) For mobile stations, the average power of the sum of all antenna elements is limited to a maximum EIRP of +43 dBm.

A.1.2.1 Method of Measurements

According to ANSI C63.26 chapter 5.2, the test site was validated to ANSI C63.4 requirements, the radiated output power were measured using the direct radiated field strength method.

The EUT was set up for the max output power with pseudo random data modulation.

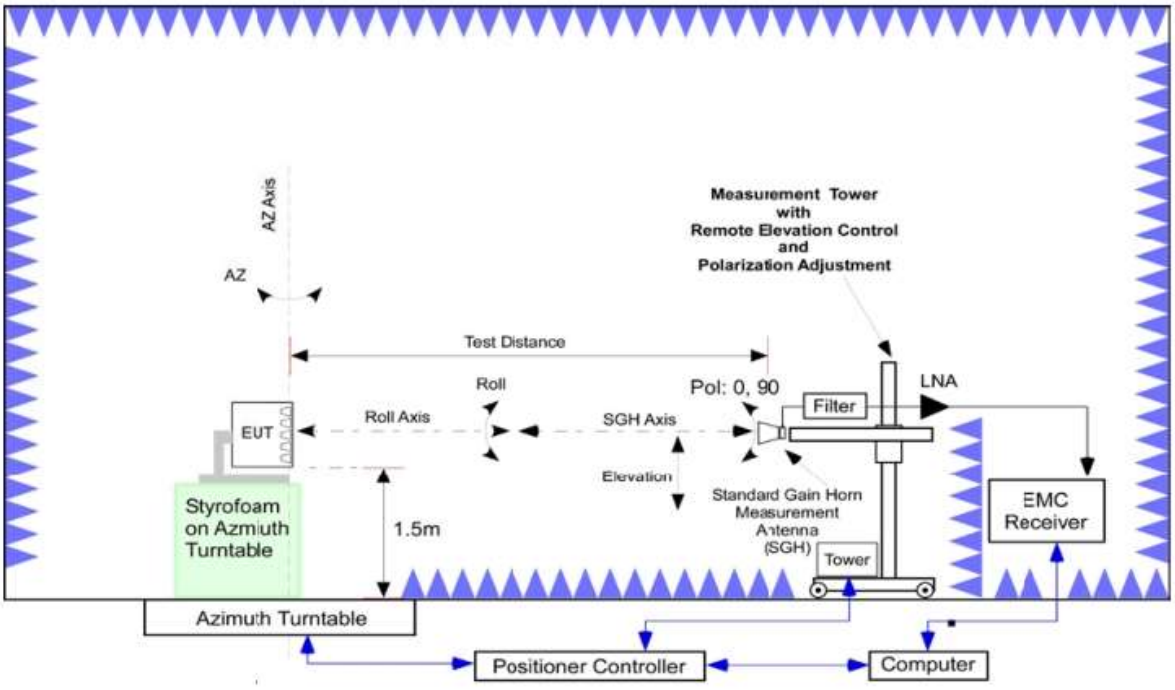
The measurements were done at 3 frequencies (bottom, middle and top of operational frequency range) for each bandwidth.

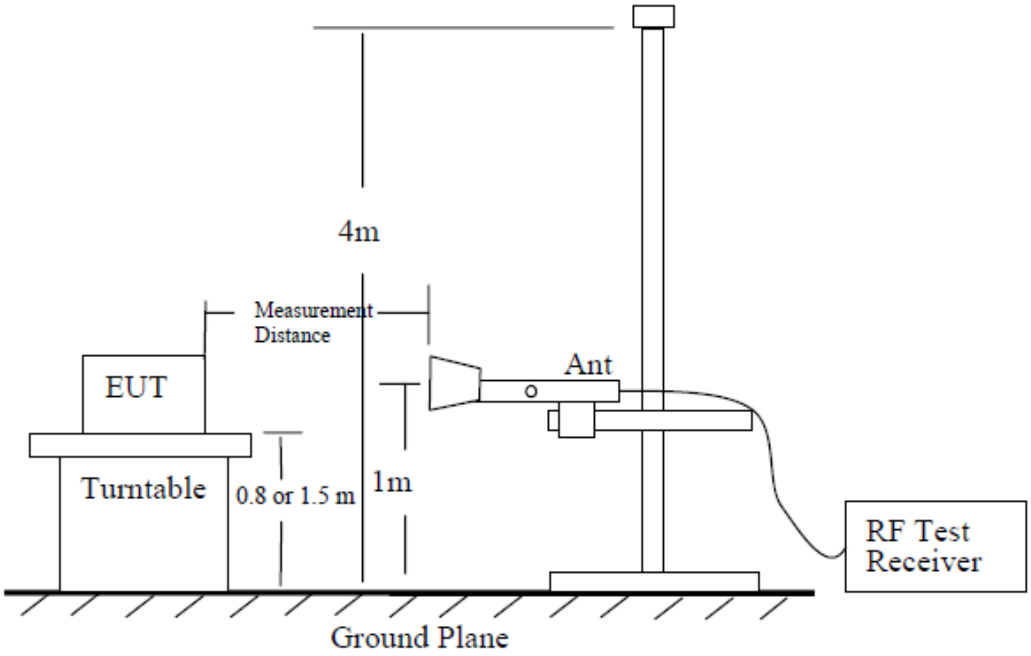
The average RF output power measurements were performed. During the measurements, the active transmission of EUT was keeping at the maximum output power level continuously.

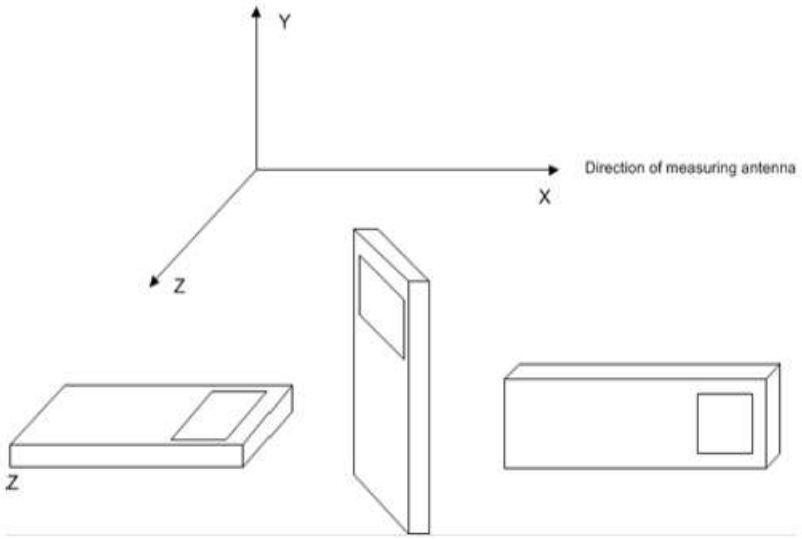
The EIRP measurement used integration method and the bandwidth was the EUT specified bandwidth, e.g, 50MHz, 100MHz.

The procedure is as follows:

Using the test configuration as follow, measure the radiated output power from the EUT and convert the measured received power to EIRP, as required, for comparison to the applicable limits.







The emission characteristics of the EUT can be identified from the pre-scan measurement information.

Exploratory radiated measurements (pre-scans) may be performed to determine the general EUT radiated emissions characteristics and, when necessary, the EUT-to-measurement antenna orientation that produces the maximum emission amplitude. Pre-scans shall only be used to determine the emission frequencies (i.e., not amplitude levels). The information garnered from a pre-scan can then be used to perform final compliance measurements using either the substitution or direct field strength method.

For radiated measurements performed, the EUT shall be placed on a RF-transparent table or support at a specified height above the reference ground plane with absorbers. Radiated measurements shall be made with the measurement antenna positioned at both horizontal and vertical polarization. The measurement antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated

signal level (i.e., field strength or received power). When orienting the measurement antenna in vertical polarization, the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25 cm.
For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table or support at a specified height above the ground plane with absorbers. To get the maximum power from the EUT for measurement, the EUT and its transmitting antenna(s) shall be rotated through 360°. For each mode of transmit operation to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.

Test Note:
The average EIRP reported below is calculated by:
EIRP(dBm)=Spectrum Analyzer Channel Power Level(dBm)-Antenna Factor(dBi) + Cable Loss(dB) + 20log(F)+20log(D)-27.56
Where:
F:frequency (MHz)
D:Distance(m) = 3m

A.1.2.2 Measurement Result

n260, Module0, SCS=120kHz, SISO Tx Chain 0

DFT

Bandwidth	Modulation	RB size	Centre Frequency (MHz)		Beam ID	Power (dBm)
			CC1	CC2		
100MHz + 100MHz	Pi/2 BPSK	100% RB	37050	37150	24	12.25
		1 RB	37050	37150	24	8.00
		100% RB	38497.44	38597.44	24	13.39
		100% RB	39849.96	39949.92	21	14.50
		1 RB	39849.96	39949.92	21	13.80
	QPSK	100% RB	39849.96	39949.92	21	14.36
	16QAM	100% RB	39849.96	39949.92	21	14.93
	64QAM	100% RB	39849.96	39949.92	21	14.96
	QPSK	100% RB	39849.96	39949.92	29	12.46

Note: The power at the low, middle high frequency channel, 1RB and 100%RB in Pi/2 BPSK was measured. The channel with the maximum power was chose, and the power of QPSK, 16QAM, 64QAM, the other Beam ID were measured on that channel.

n260, Module0, SCS=120kHz, SISO Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)		Beam ID	Power (dBm)
				CC1	CC2		
100MHz + 100MHz	DFT	QPSK	100% RB	37050	37150	152	10.20
	DFT	QPSK	100% RB	38497.44	38597.44	152	12.59
	DFT	QPSK	100% RB	39849.96	39949.92	150	14.82

Note: According to the measurement resuls of Chain 0, the set of OFDM, modulation and RB size with higher power was measured on low, middle and high frequency channel of Chain 1.

n260, Module0, SCS=120kHz, MIMO Tx Chain 0 Beam ID 24 + Tx Chain 1 Beam ID 152

Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)		Power (dBm)
				CC1	CC2	
100MHz+100MHz	CP	QPSK	100% RB	39849.96	39949.92	13.39

Note: According to the measurement resuls in Chain 0 and Chain 1, the set of modulation, RB size and channel with higher power was measured on MIMO working mode.

n260, Module1, SCS=120kHz, SISO Tx Chain 0

CP-OFDM

Bandwidth	Modulation	RB size	Centre Frequency (MHz)		Beam ID	Power (dBm)
			CC1	CC2		
100MHz + 100MHz	QPSK	100% RB	37050	37150	25	14.02
		1 RB	37050	37150	25	11.83
		100% RB	38497.44	38597.44	25	14.20
		100% RB	39849.96	39949.92	27	15.23
		1 RB	39849.96	39949.92	27	13.47
	16QAM	100% RB	39849.96	39949.92	27	14.40
	64QAM	100% RB	39849.96	39949.92	27	7.94
	64QAM	100% RB	39849.96	39949.92	18	7.09

Note:The channel with the maximum power of QPSK was chose, and the power of 16QAM, 64QAM and the other Beam ID were measured on that channel.

n260, Module1, SCS=120kHz, SISO Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)		Beam ID	Power (dBm)
				CC1	CC2		
100MHz + 100MHz	CP	QPSK	100% RB	37050	37150	146	11.64
	CP	QPSK	100% RB	38497.44	38597.44	146	14.94
	CP	QPSK	100% RB	39849.96	39949.92	155	14.61

Note: According to the measurement results for Chain 0, the set of modulation and RB size with higher power was measured on low, middle and high channel of Chain 1.

n260, Module0, SCS=120kHz, MIMO Tx Chain 0 Beam ID 27 +Tx Chain 1 Beam ID 155

Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)		Power (dBm)
				CC1	CC2	
100MHz+100MHz	CP	QPSK	100% RB	39849.96	39949.92	14.90

Note: According to the measurement results for Chain 0 and Chain 1, the set of modulation, RB size and channel with higher power was measured on MIMO working mode.

n261, Module0, SCS=120kHz, SISO Tx Chain 0

DFT

Bandwidth	Modulation	RB size	Centre Frequency (MHz)		Beam ID	Power (dBm)
			CC1	CC2		
100MHz + 100MHz	Pi/2 BPSK	100% RB	27550.08	27650.08	20	12.35
		1 RB	27550.08	27650.08	20	13.19
		100% RB	27922.44	28022.44	20	10.83
		100% RB	28200.02	28299.96	20	10.08
		1 RB	28200.02	28299.96	20	8.97
	QPSK	1 RB	27550.08	27650.08	20	12.88
	16QAM	1 RB	27550.08	27650.08	20	12.34
	64QAM	1 RB	27550.08	27650.08	20	13.25
	64QAM	1 RB	27550.08	27650.08	28	11.47

Note: The power at the low, middle high frequency channel, 1RB and 100%RB in Pi/2 BPSK was measured. The channel with the maximum power was chose, and the power of QPSK, 16QAM, 64QAM, the other Beam ID were measured on that channel.

n261, Module0, SCS=120kHz, SISO Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)		Beam ID	Power (dBm)
				CC1	CC2		
100MHz + 100MHz	DFT	64QAM	1 RB	27550.08	27650.08	148	12.24
	DFT	Pi/2 BPSK	100% RB	27922.44	28022.44	148	13.28
	DFT	Pi/2 BPSK	100% RB	28200.02	28299.96	148	10.40

Note: According to the measurement resuls of Chain 0, the set of OFDM, modulation and RB size with higher power was measured on low, middle and high frequency channel of Chain 1.

n261, Module0, SCS=120kHz, MIMO Tx Chain 0 Beam ID 20 + Tx Chain 1 Beam ID 148

Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)		Power (dBm)
				CC1	CC2	
100MHz+100MHz	CP	64QAM	1 RB	27550.08	27650.08	10.80

Note: According to the measurement resuls in Chain 0 and Chain 1, the set of modulation, RB size and channel with higher power was measured on MIMO working mode.

n261, Module1, SCS=120kHz, SISO Tx Chain 0

CP-OFDM

Bandwidth	Modulation	RB size	Centre Frequency (MHz)		Beam ID	Power (dBm)
			CC1	CC2		
100MHz + 100MHz	QPSK	100% RB	27550.08	27650.08	15	12.72
		1 RB	27550.08	27650.08	15	11.89
		100% RB	27922.44	28022.44	15	12.13
		100% RB	28200.02	28299.96	15	9.79
		1 RB	28200.02	28299.96	15	7.79
	16QAM	100% RB	28200.02	28299.96	15	12.32
	64QAM	100% RB	28200.02	28299.96	15	11.62
	QPSK	100% RB	28200.02	28299.96	25	11.66

Note:The channel with the maximum power of QPSK was chose, and the power of 16QAM, 64QAM and the other Beam ID were measured on that channel.

n261, Module1, SCS=120kHz, SISO Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)		Beam ID	Power (dBm)
				CC1	CC2		
100MHz + 100MHz	CP	QPSK	100% RB	27550.08	27650.08	153	12.35
	CP	QPSK	100% RB	27922.44	28022.44	153	11.55
	CP	QPSK	100% RB	28200.02	28299.96	153	10.70

Note: According to the measurement results for Chain 0, the set of modulation and RB size with higher power was measured on low, middle and high channel of Chain 1.

n261, Module1, SCS=120kHz, MIMO Tx Chain 0 Beam ID 16 +Tx Chain 1 Beam ID 144

Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)		Power (dBm)
				CC1	CC2	
100MHz+100MHz	CP	QPSK	100% RB	27550.08	27650.08	13.13

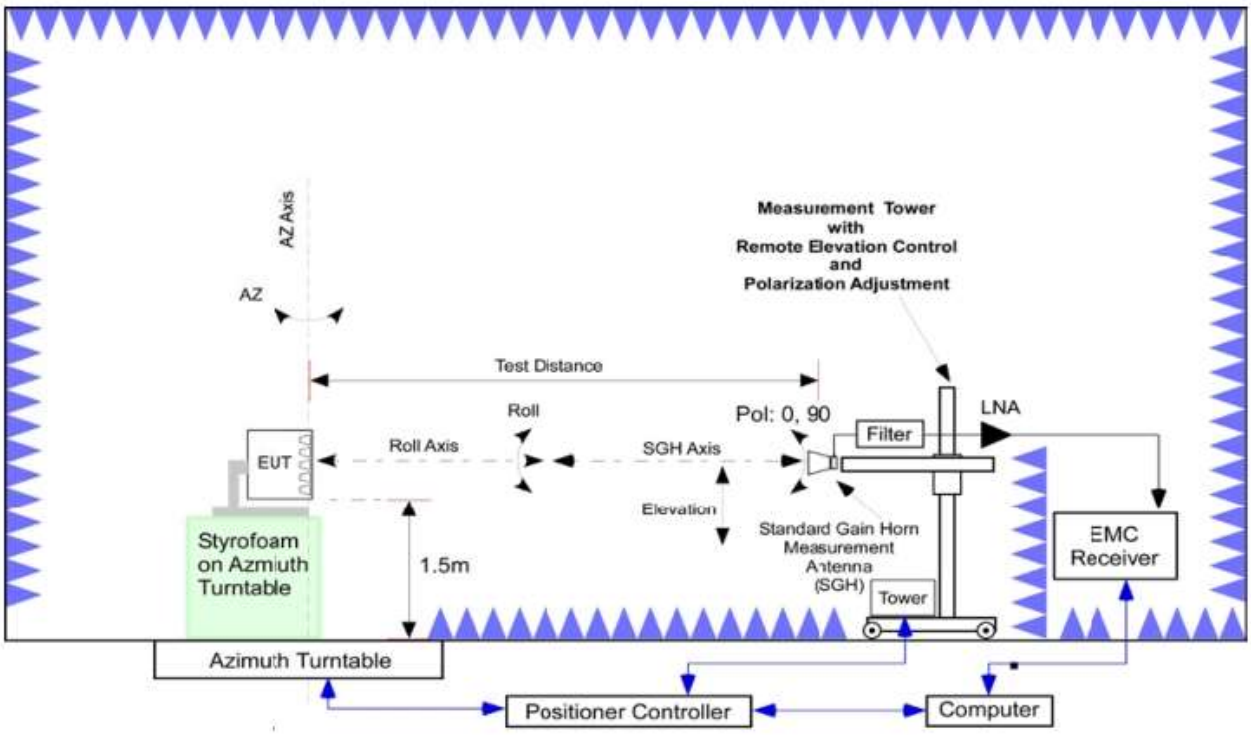
Note: According to the measurement results for Chain 0 and Chain 1, the set of modulation, RB size and channel with higher power was measured on MIMO working mode.**0**

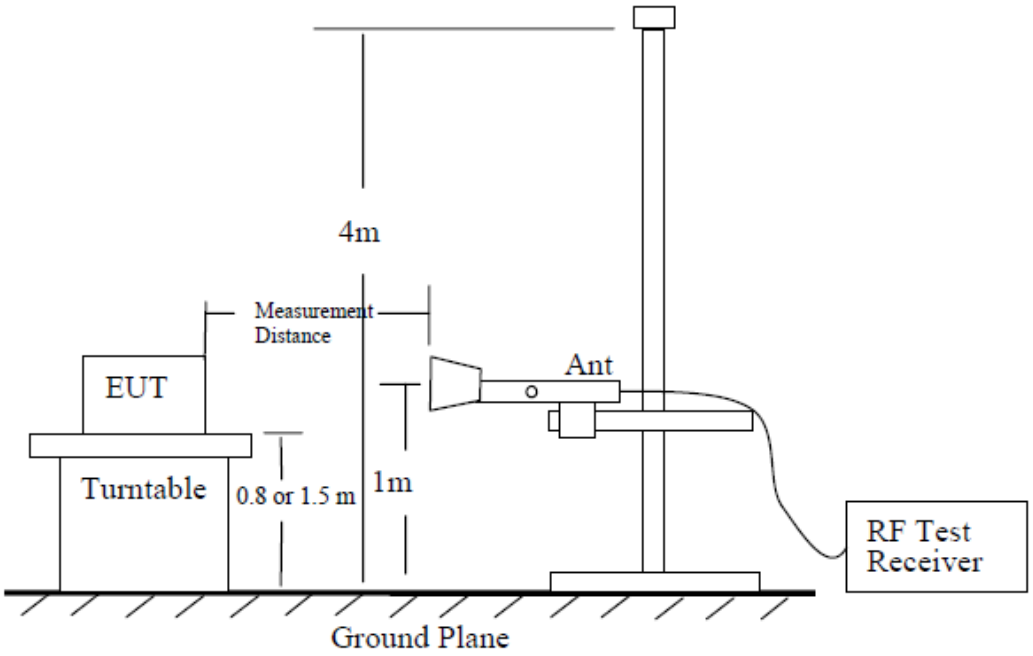
A.2 Emission Limit

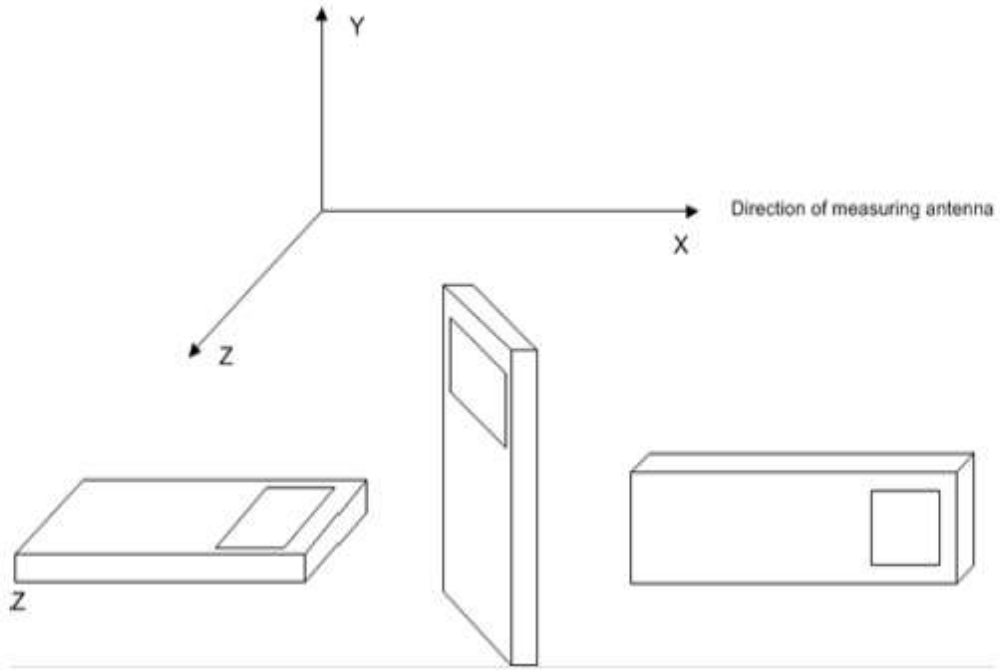
A.2.1 Measurement Method

The measurement procedures in ANSI C63.26 are used.
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set as outlined in Part 30.203.
The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of FR2 n260 and FR2 n261.
NASI C63.26 chapter 5.5.2.1: Such radiated measurements shall use substitution methods unless a test site validated to ANSI C63.4 requirements is utilized, in which case, radiated fundamental and/or unwanted emissions can be measured using the direct radiated field strength method.

The procedure of radiated spurious emissions is as follows:
Using the test configuration as follow, measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits.







The emission characteristics of the EUT can be identified from the pre-scan measurement information.

Exploratory radiated measurements (pre-scans) may be performed to determine the general EUT radiated emissions characteristics and, when necessary, the EUT-to-measurement antenna orientation that produces the maximum emission amplitude. Pre-scans shall only be used to determine the emission frequencies (i.e., not amplitude levels). The information garnered from a pre-scan can then be used to perform final compliance measurements using either the substitution or direct field strength method.

For radiated emissions measurements performed at frequencies less than or equal to 1 GHz, the EUT shall be placed on a RF-transparent table or support at a nominal height of 80 cm above the

reference ground plane. Radiated measurements shall be made with the measurement antenna positioned in both horizontal and vertical polarization. The measurement antenna shall be varied from 1 m to 4 m in height above the reference ground in a search for the relative positioning that produces the maximum radiated signal level (i.e., field strength or received power). When orienting the measurement antenna in vertical polarization, the minimum height of the lowest element of the antenna shall clear the site reference ground plane by at least 25 cm.
The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.
For radiated measurements performed at frequencies above 1 GHz, the EUT shall be placed on an RF transparent table or support at a nominal height of 1.5 m above the ground plane.
When maximizing the emissions from the EUT for measurement, the EUT and its transmitting antenna(s) shall be rotated through 360°. For each mode of operation to be tested, the frequency spectrum (based on findings from exploratory measurements) shall be monitored.
Final measurements shall be performed for the worst case combination(s) of variable technical parameters that result in the maximum measured emission amplitude, record the frequency and amplitude of the highest fundamental emission (if applicable), and the frequency and amplitude data for the six highest-amplitude spurious emissions.

Test Setting:
Detector=RMS
Trace mode=trace average
Sweep time= auto couple
Number of sweep points ≥2*span/RBW
The trace was allowed to stabilize
RBW=1MHz, VBW=3MHz

The average EIRP reported below is canculated by:
30M-1GHz:
ERP(dBm)=Spectrum Analyzer Level(dBm)+Total loss(dB)-2.15
1GHz-18GHz：
EIRP(dBm)= Spectrum Analyzer Level(dBm)+Total loss(dB)
18GHz-60GHz:
EIRP(dBm)= Spectrum Analyzer Level(dBm)-Antenna Factor(dBi) + Cable Loss(dB) + 20log(F)+20log(D)-27.56
60GHz-110GHz:
EIRP(dBm)= Spectrum Analyzer Level(dBm)-Antenna Factor(dBi) + converter Loss(dB) + 20log(F)+20log(D)-27.56
Where: F:frequency (MHz), D:Distance(m)

Frequency Range	Distance(m)	Frequency Range	Distance(m)
30MHz-1GHz	3	60GHz-75GHz	3
1GHz-18GHz	3	75GHz-110GHz	3
18GHz-40GHz	3	110GHz-170GHz	1
40GHz-60GHz	3	170GHz-200GHz	0.5

A.2.2 Measurement Limit

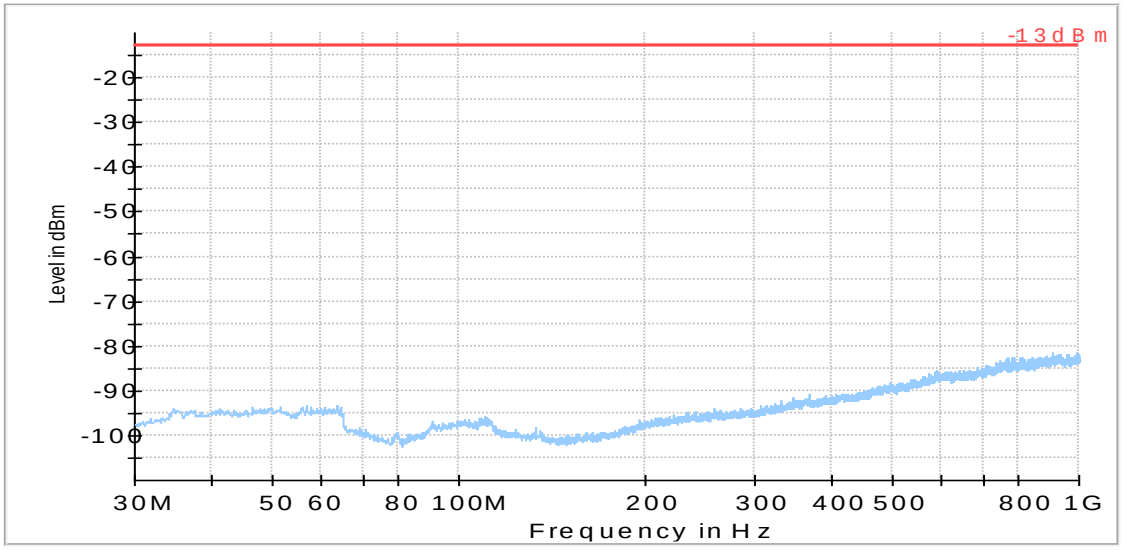
Part 30.203 specify that the total radiated power of any emission outside a licensee's frequency block shall be −13 dBm/MHz or lower. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be −5 dBm/MHz or lower.

A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the FR2 n260 and n261. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the FR2 n260 and n261 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.The evaluated frequency range is from 30MHz to 100GHz for n261 and n260.

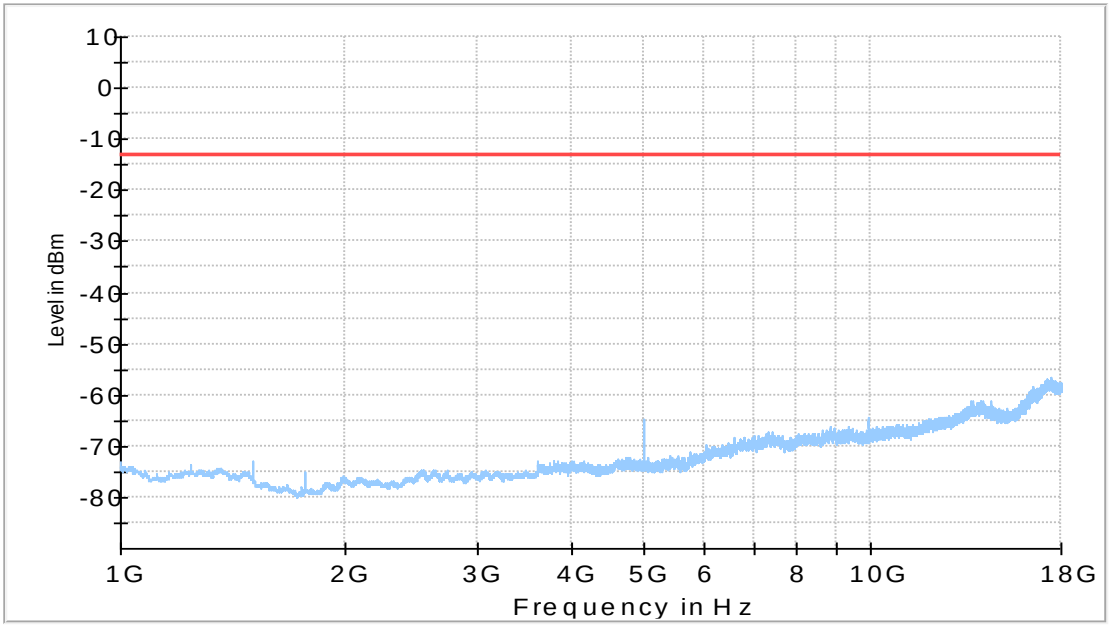
A.2.4 Measurement Results Table (worse case of the power measured)

Band	Antenna	Modulation	Band-width	Channel	Frequency Range	Result
n260	Module 1 MIMO BeamID 27+155	CP-OFDM QPSK Full RB	100MHz + 100MHz	Low	30MHz-200GHz	Pass
				Middle		Pass
				High		Pass
n261	Module 0 Chain 1 Beam ID 148	DFT Pi/2 BPSK Full RB	100MHz + 100MHz	Low	30MHz-100GHz	Pass
				Middle		Pass
				High		Pass



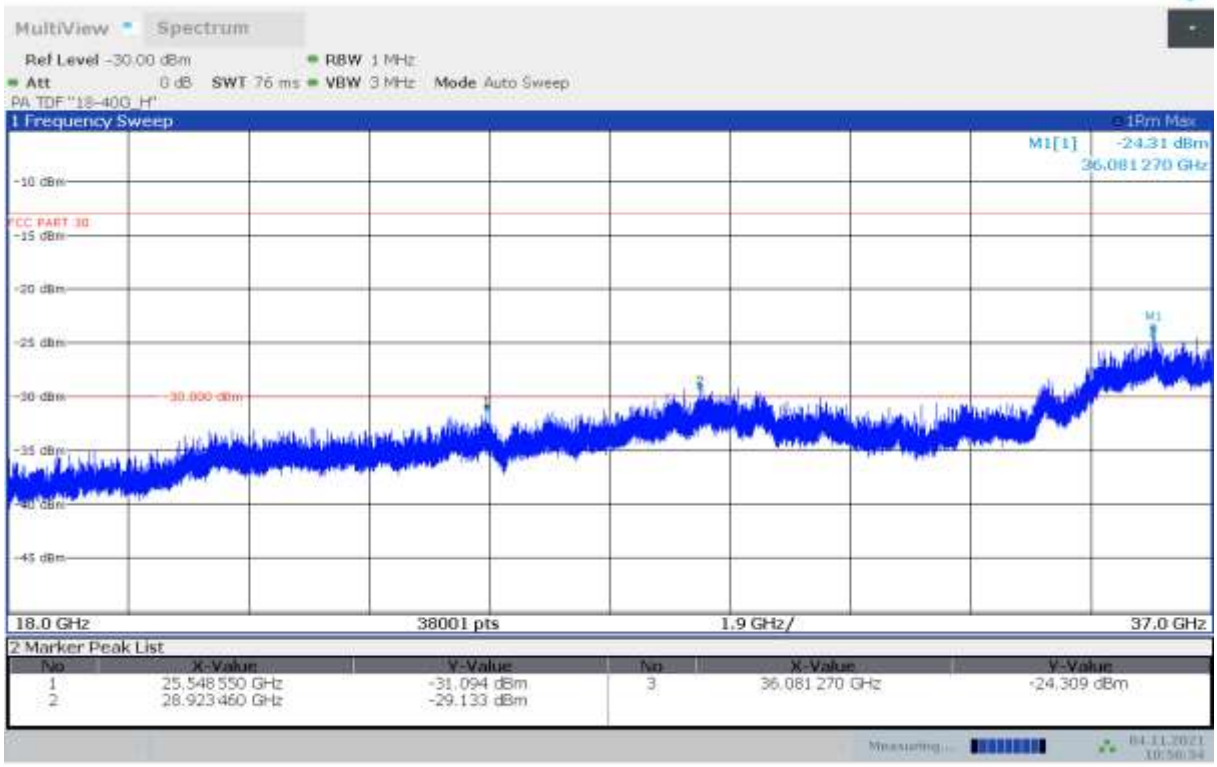
Preview Result 1-RMS [Preview Result 1.Result:1]
Critical_Freqs RMS [Critical_Freqs.Result:4]
-13dBm [..\]
Final_Result PK+ [Final_Result.Result:4]

n260, 30MHz-1GHz

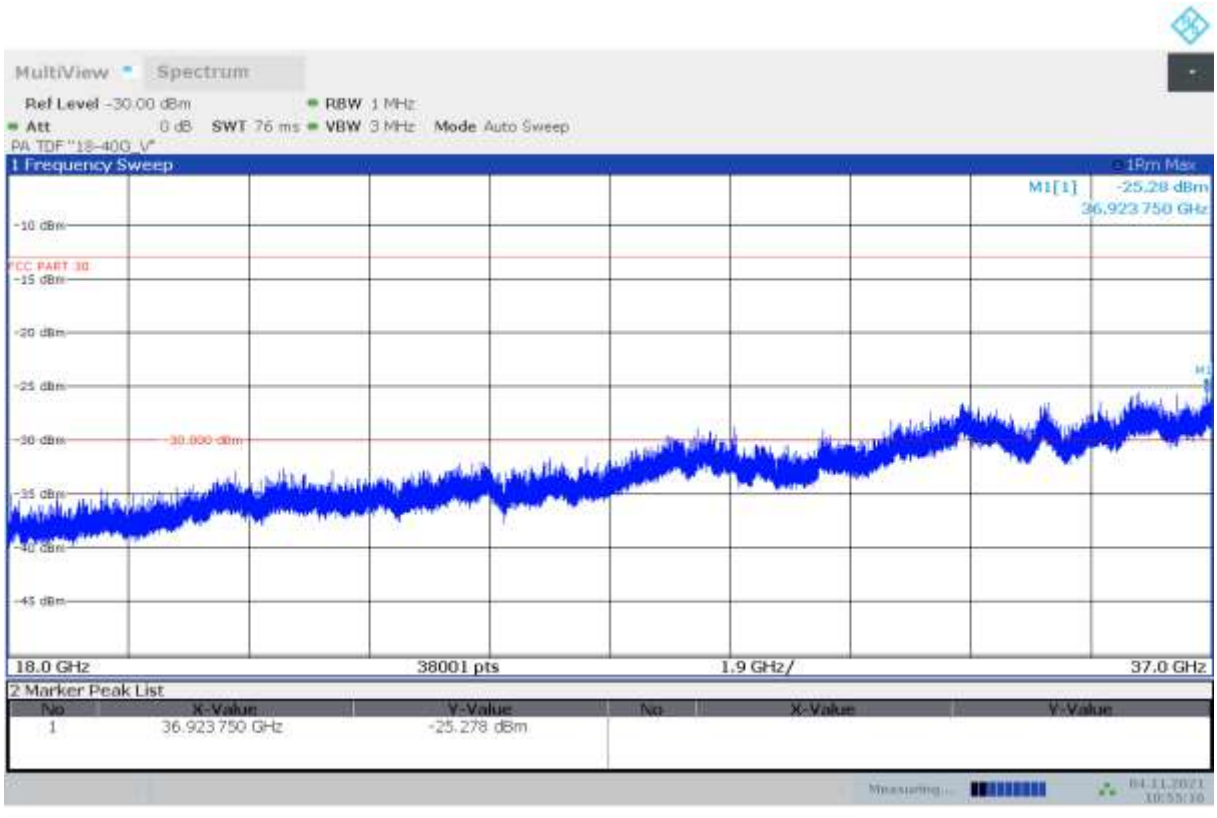


Preview Result 1-RMS [Preview Result 1.Result:1]
Critical_Freqs RMS [Critical_Freqs.Result:4]
-13dBm [..\]
Final_Result RMS [Final_Result.Result:4]

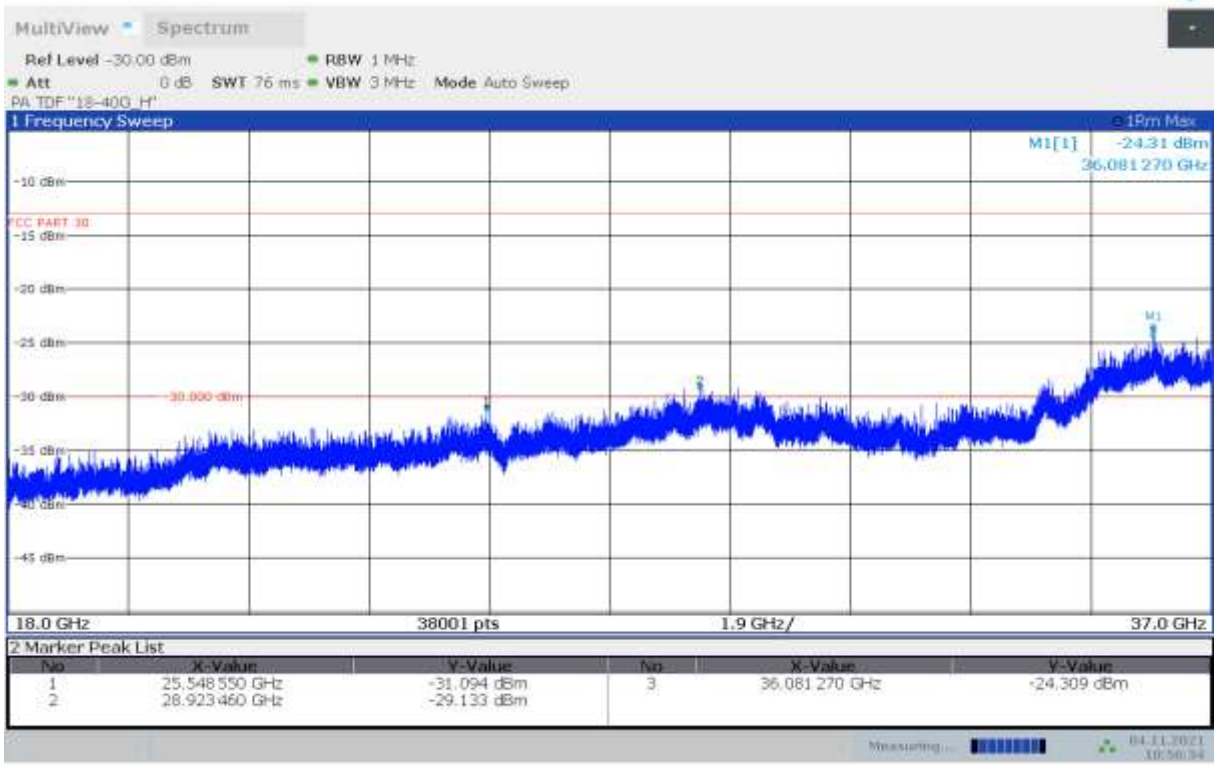
n260, 1GHz-18GHz



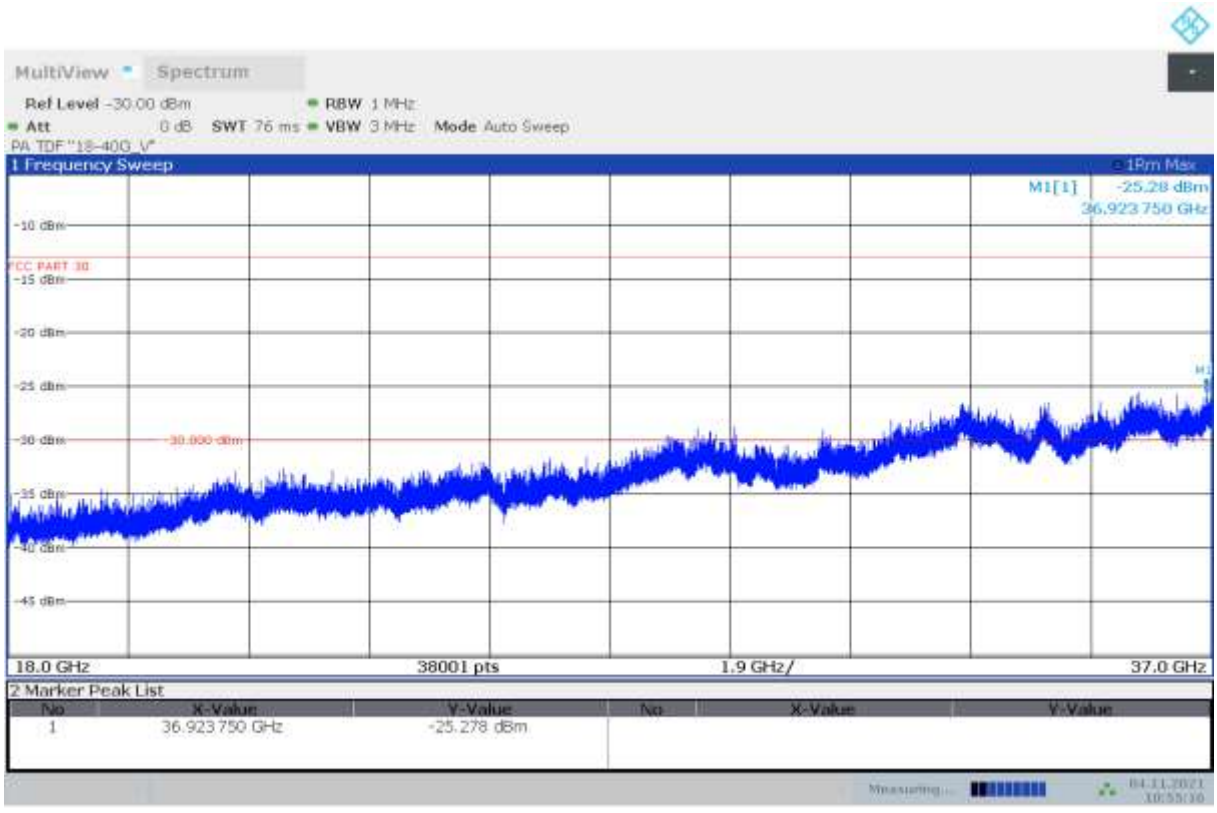
n260, Low Channel, 18GHz-37GHz, Horizontal



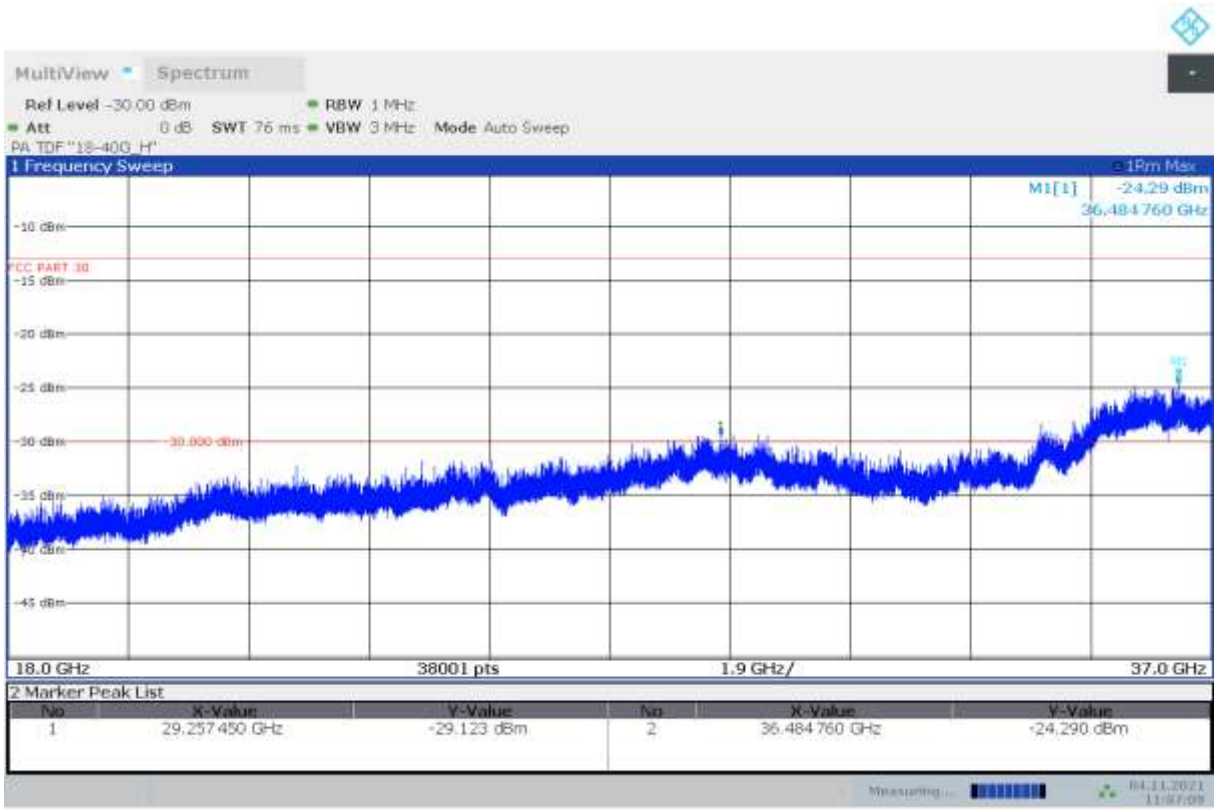
n260, Low Channel, 18GHz-37GHz, Vertical



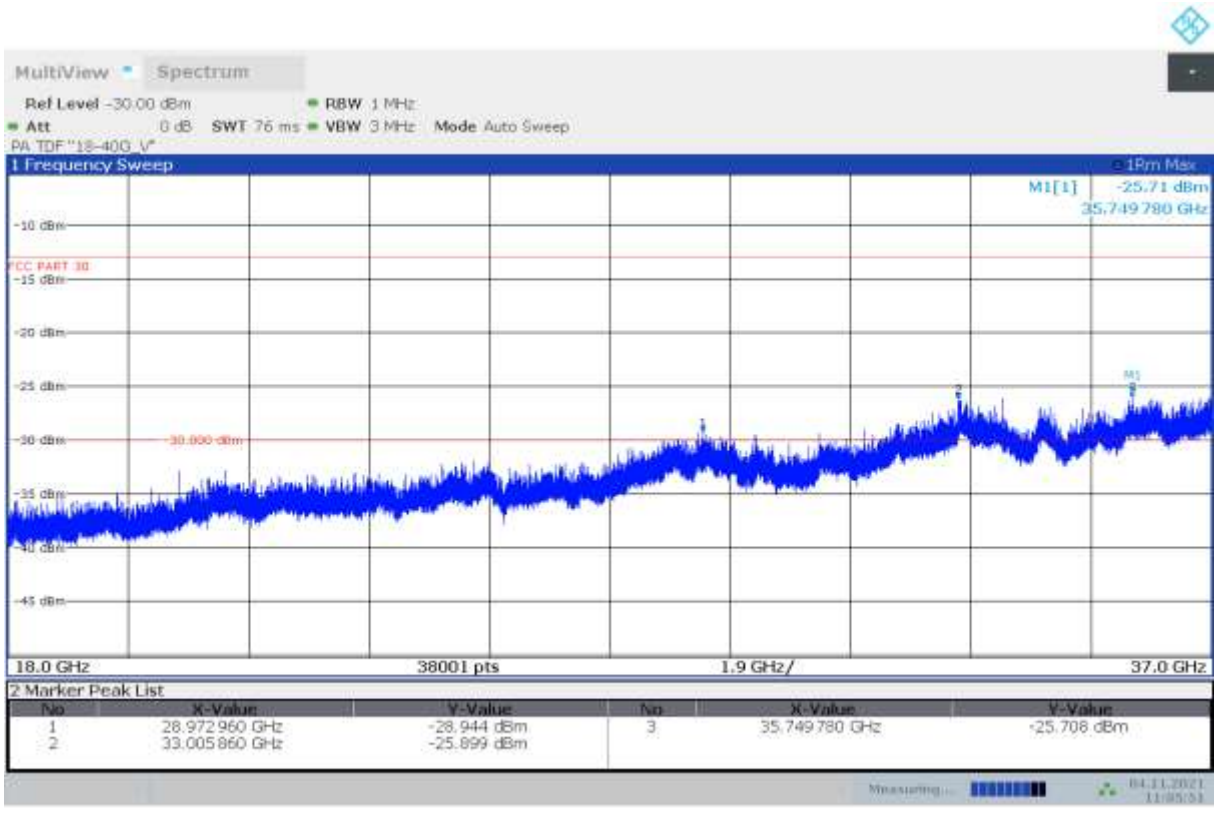
n260, Middle Channel, 18GHz-37GHz, Horizontal



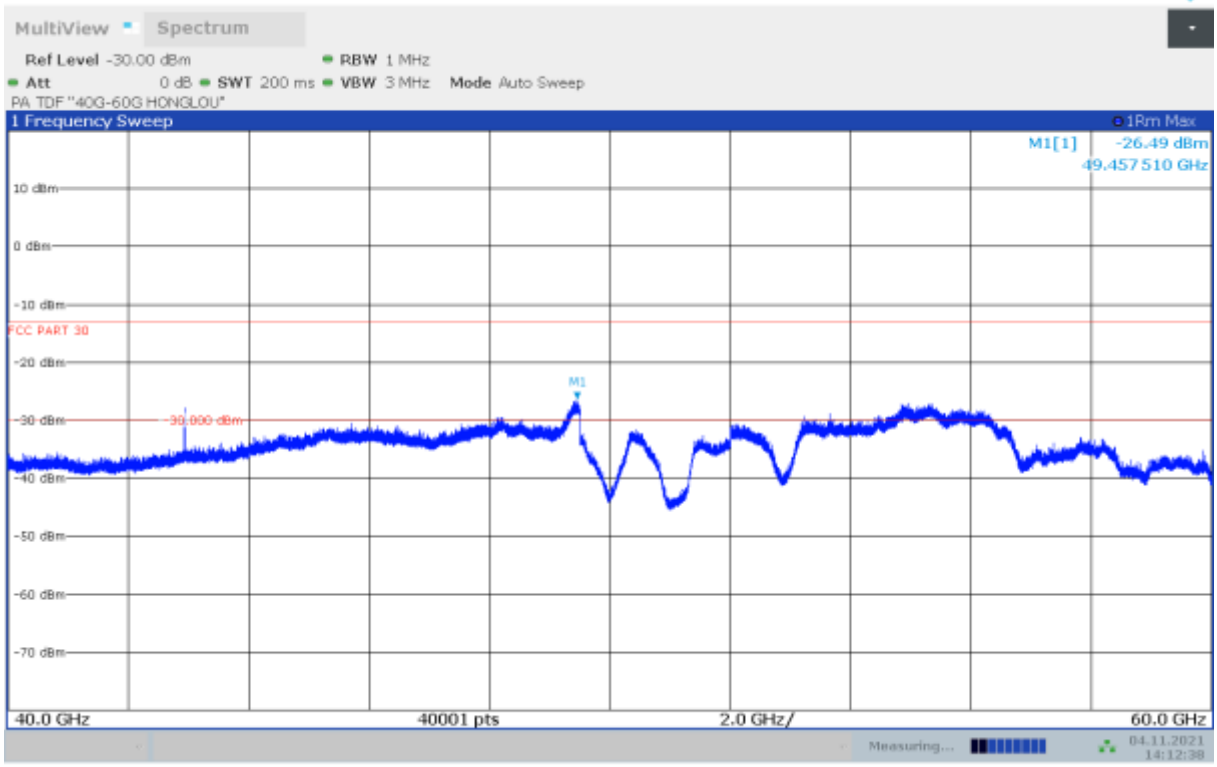
n260, Middle Channel, 18GHz-37GHz, Vertical



n260, High Channel, 18GHz-37GHz, Horizontal

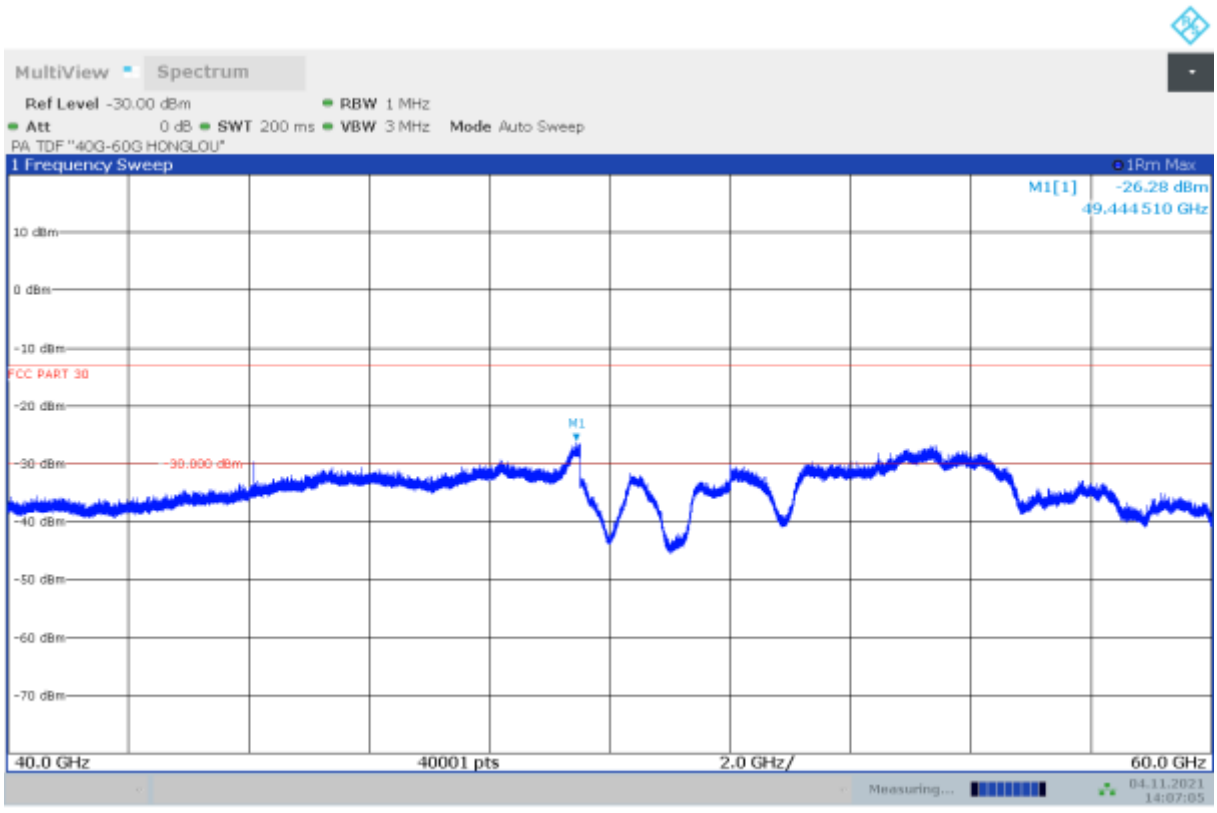


n260, High Channel, 18GHz-37GHz, Vertical



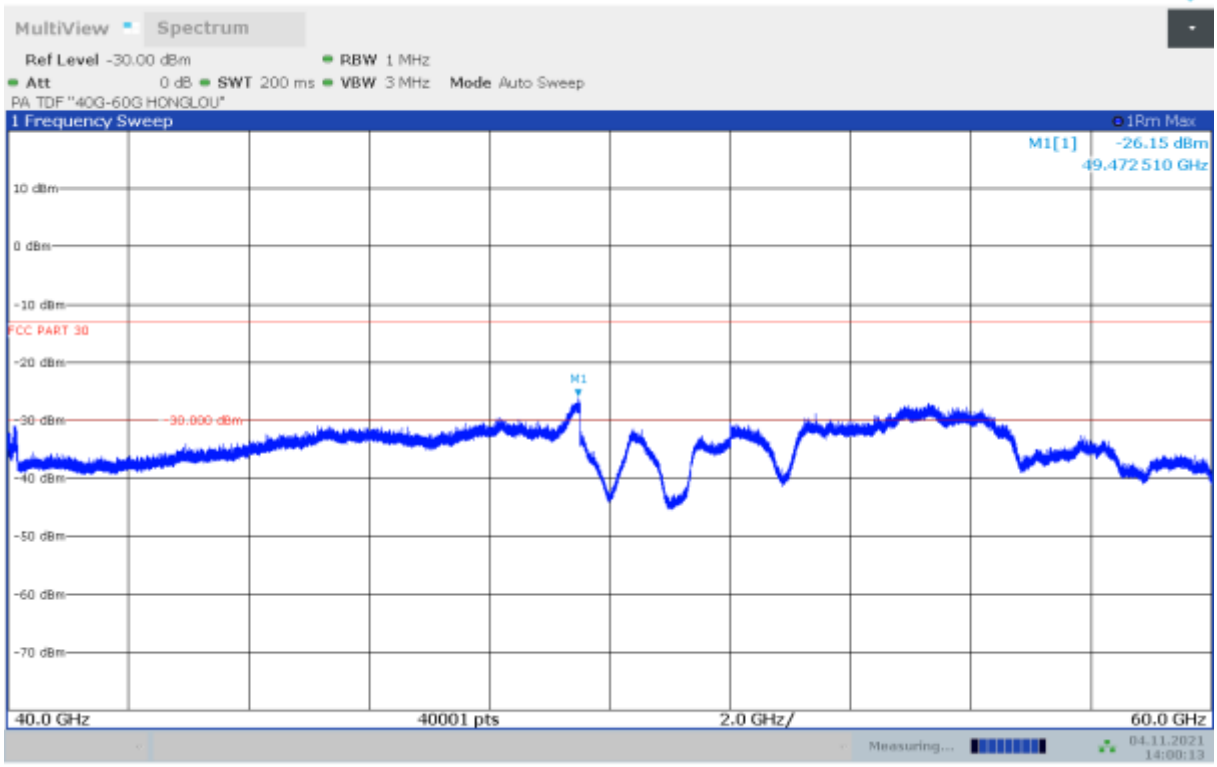
14:12:38 04.11.2021

n260, Low Channel, 40GHz-60GHz



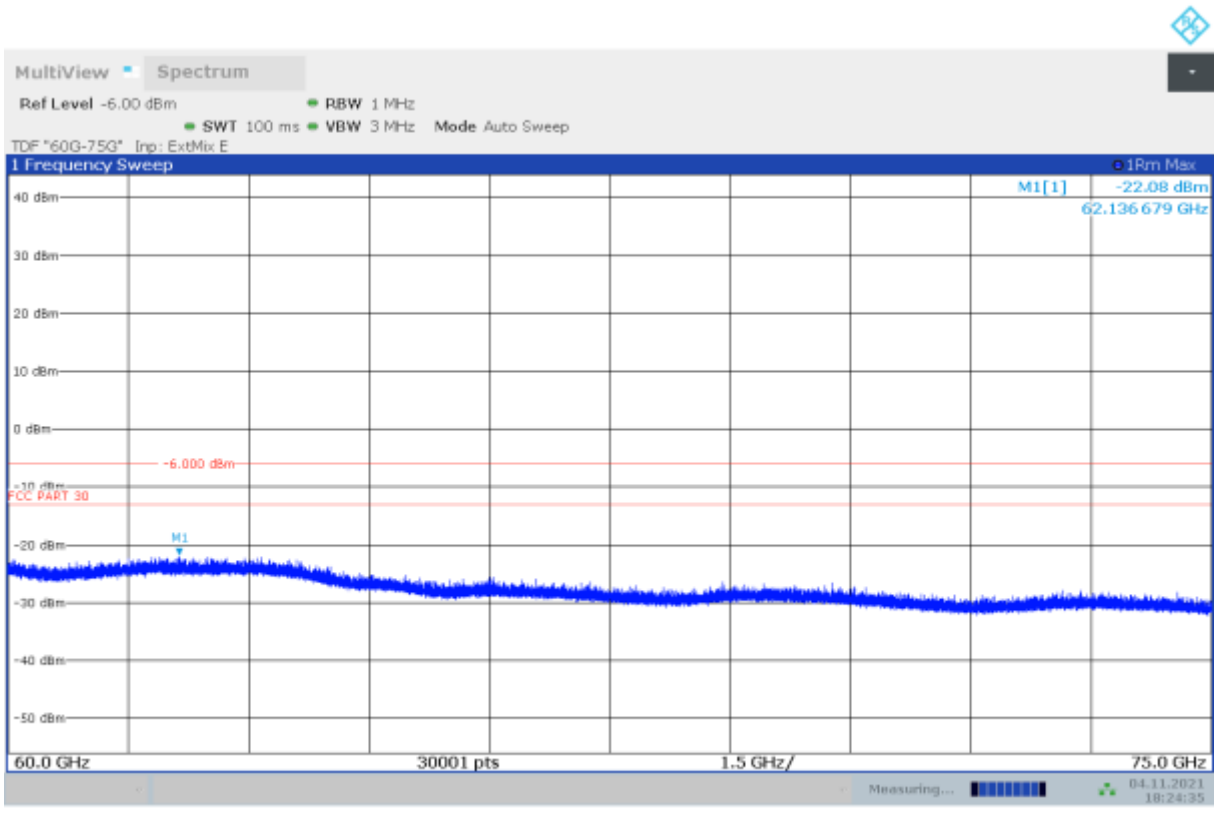
14:07:06 04.11.2021

n260, Middle Channel, 40GHz-60GHz



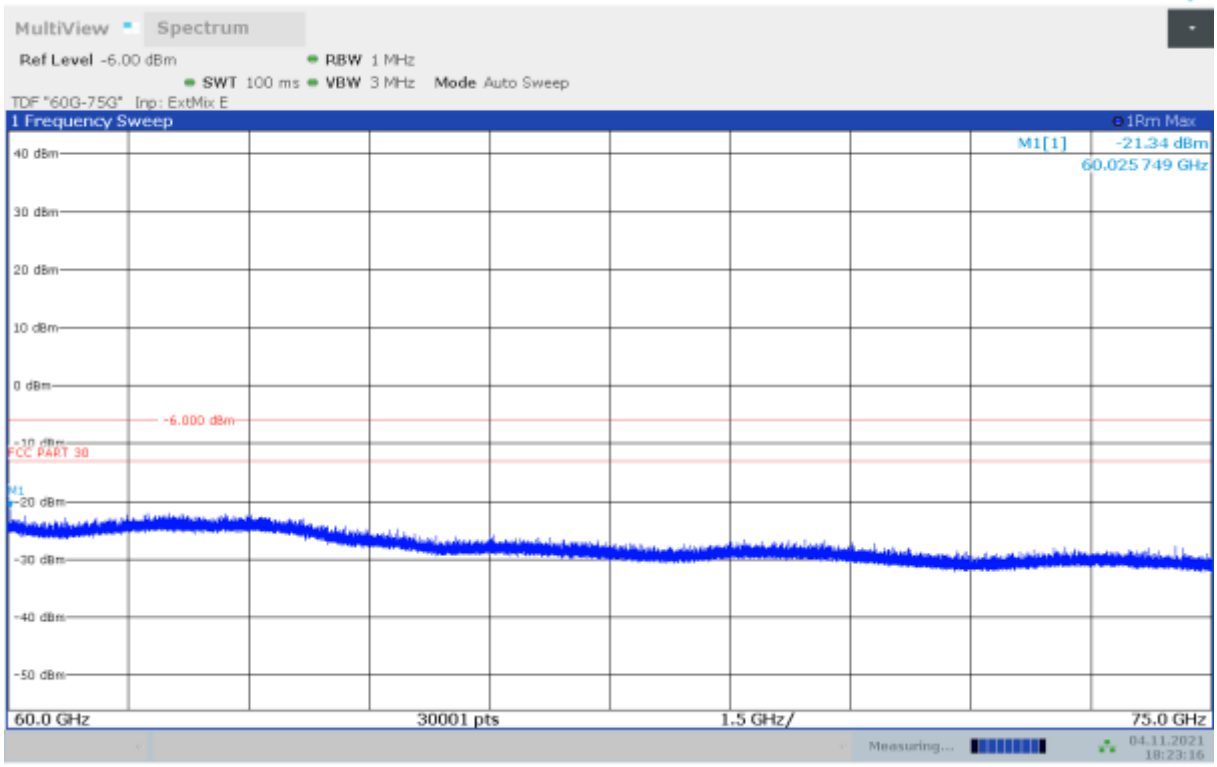
14:00:14 04.11.2021

n260, High Channel, 40GHz-60GHz



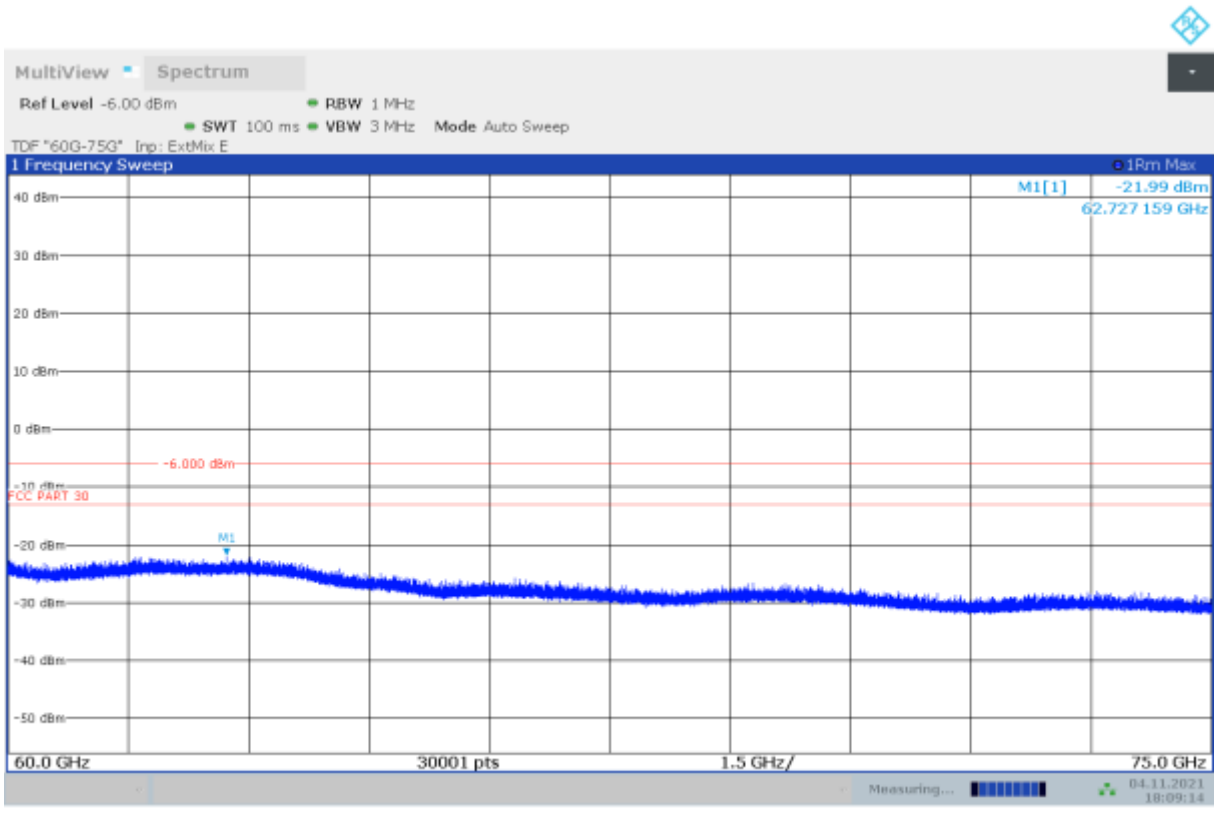
18:24:36 04.11.2021

n260, Low Channel, 60GHz-75GHz, Horizontal



18:23:16 04.11.2021

n260, Low Channel, 60GHz-75GHz, Vertical



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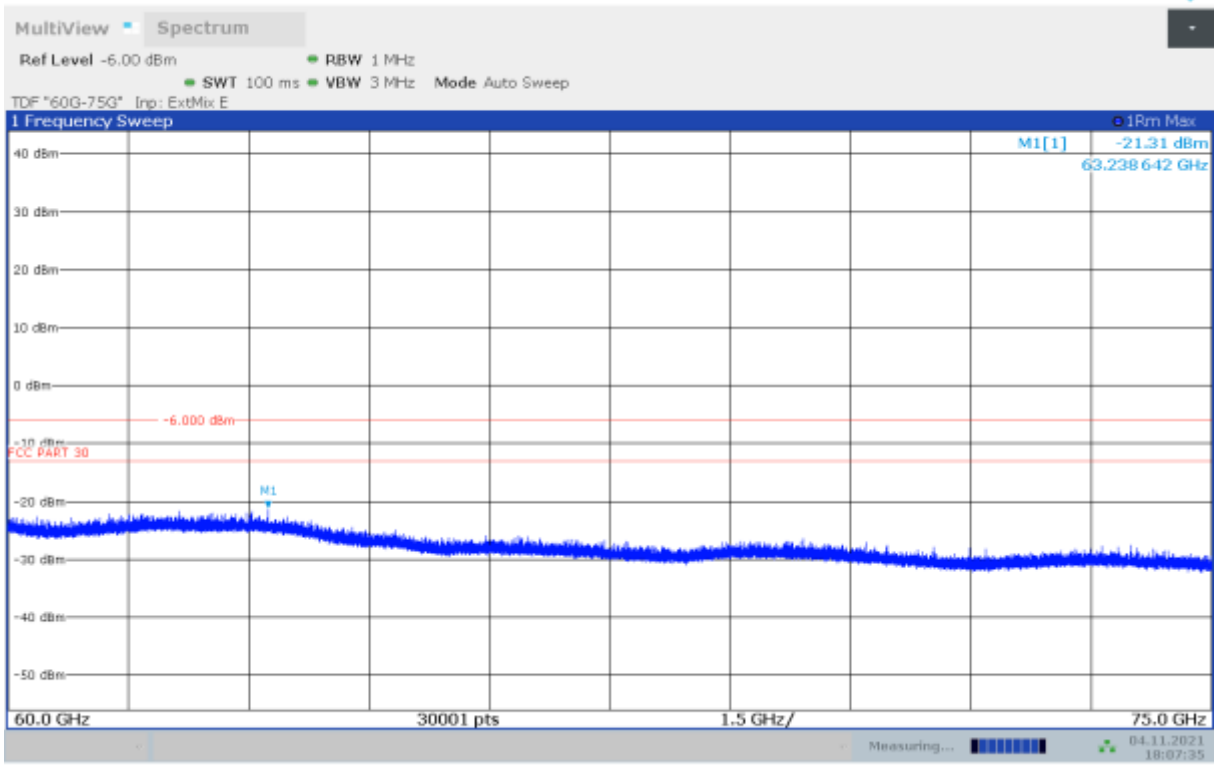
n260, Middle Channel, 60GHz-75GHz, Horizontal



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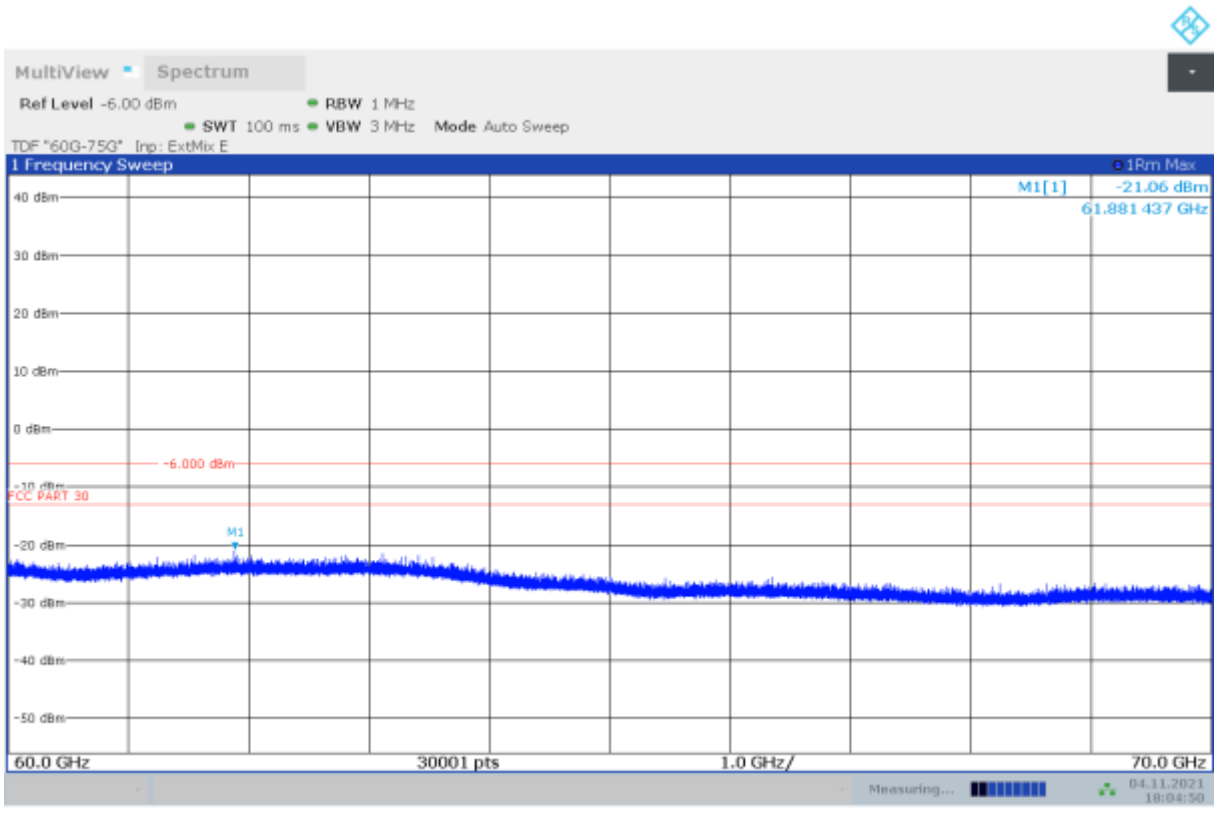
n260, Middle Channel, 60GHz-75GHz, Vertical



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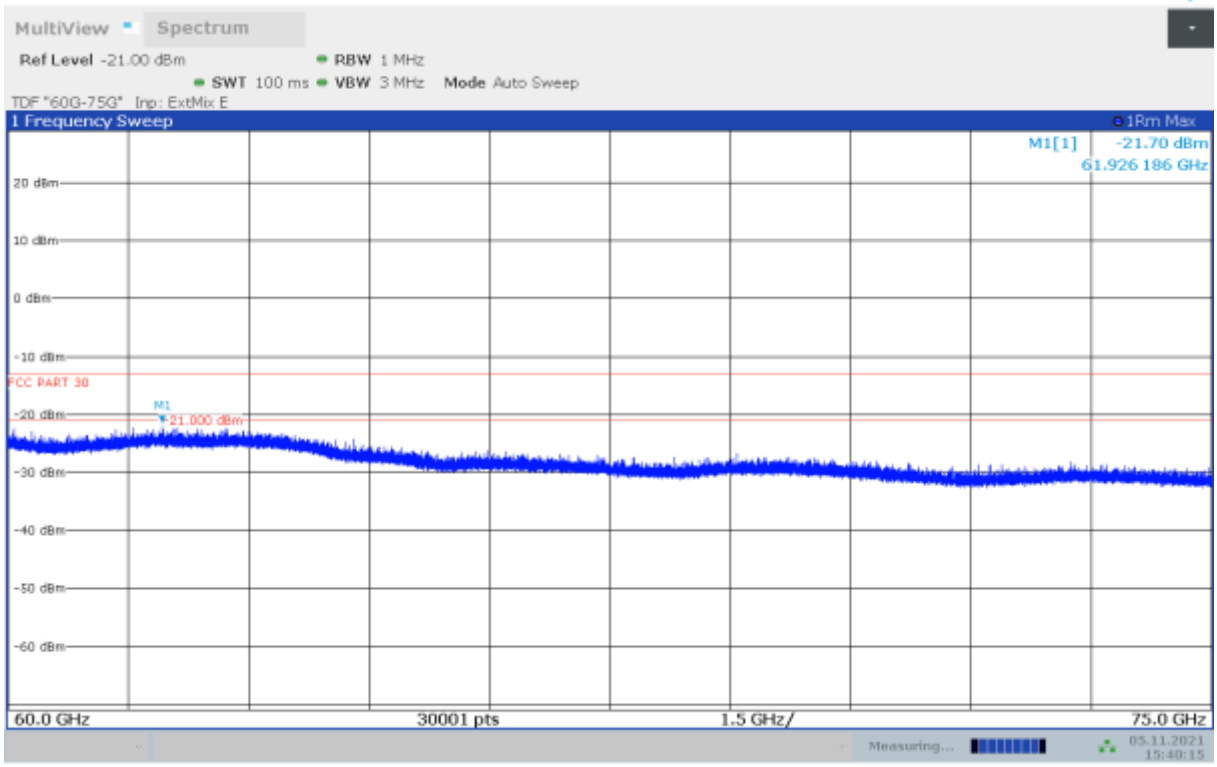

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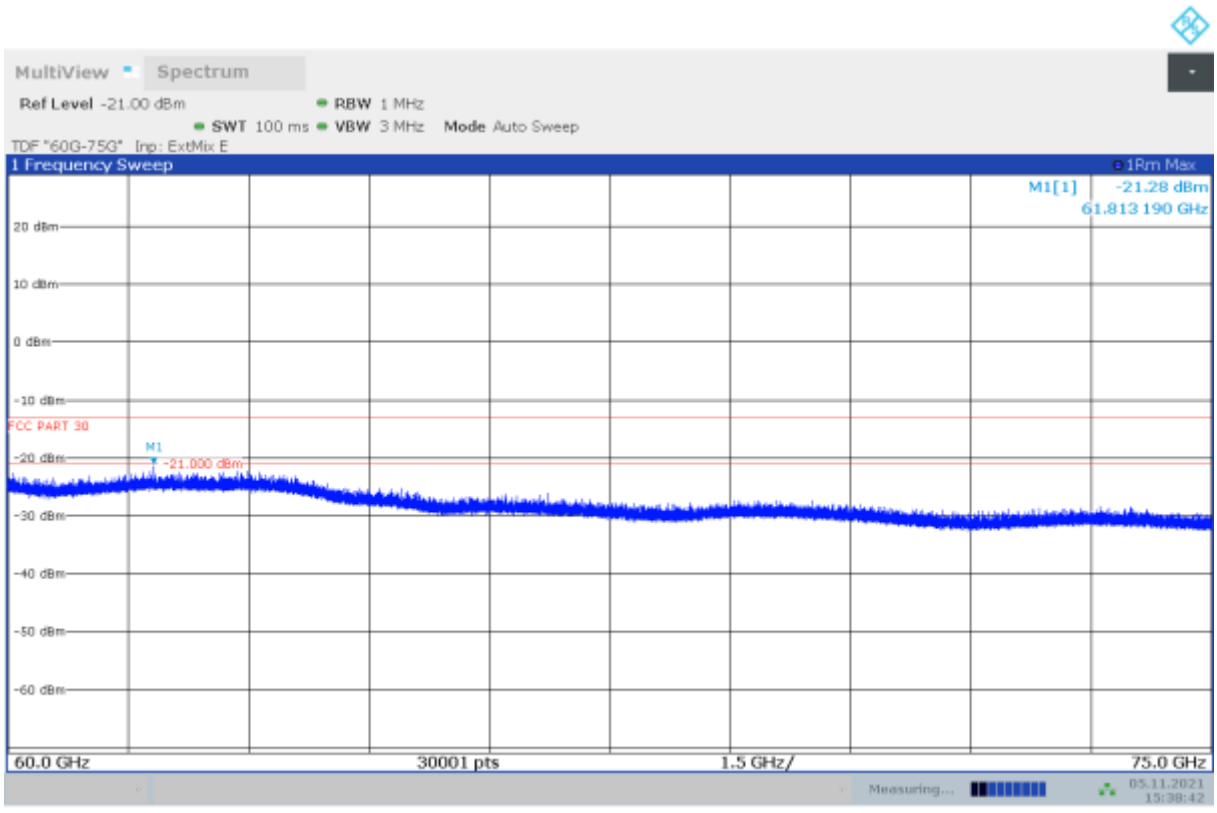
n260, High Channel, 60GHz-75GHz, Horizontal



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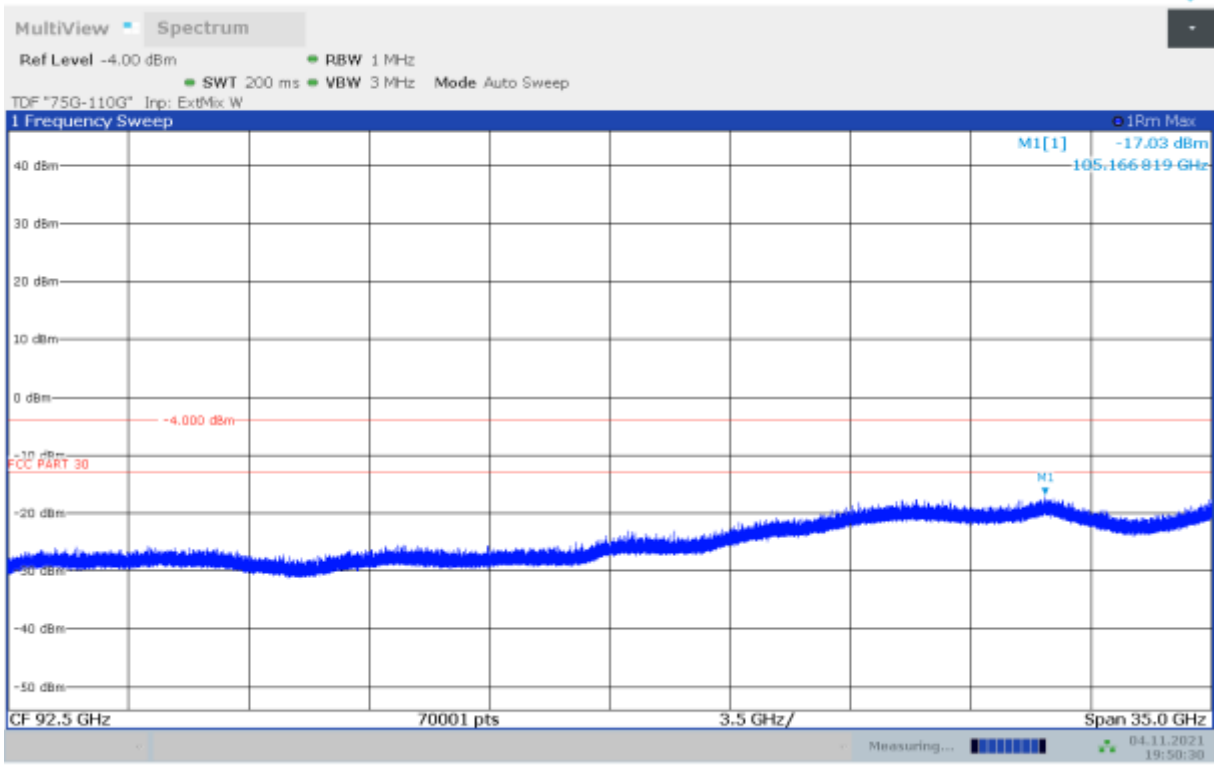
n260, High Channel, 60GHz-75GHz, Vertical



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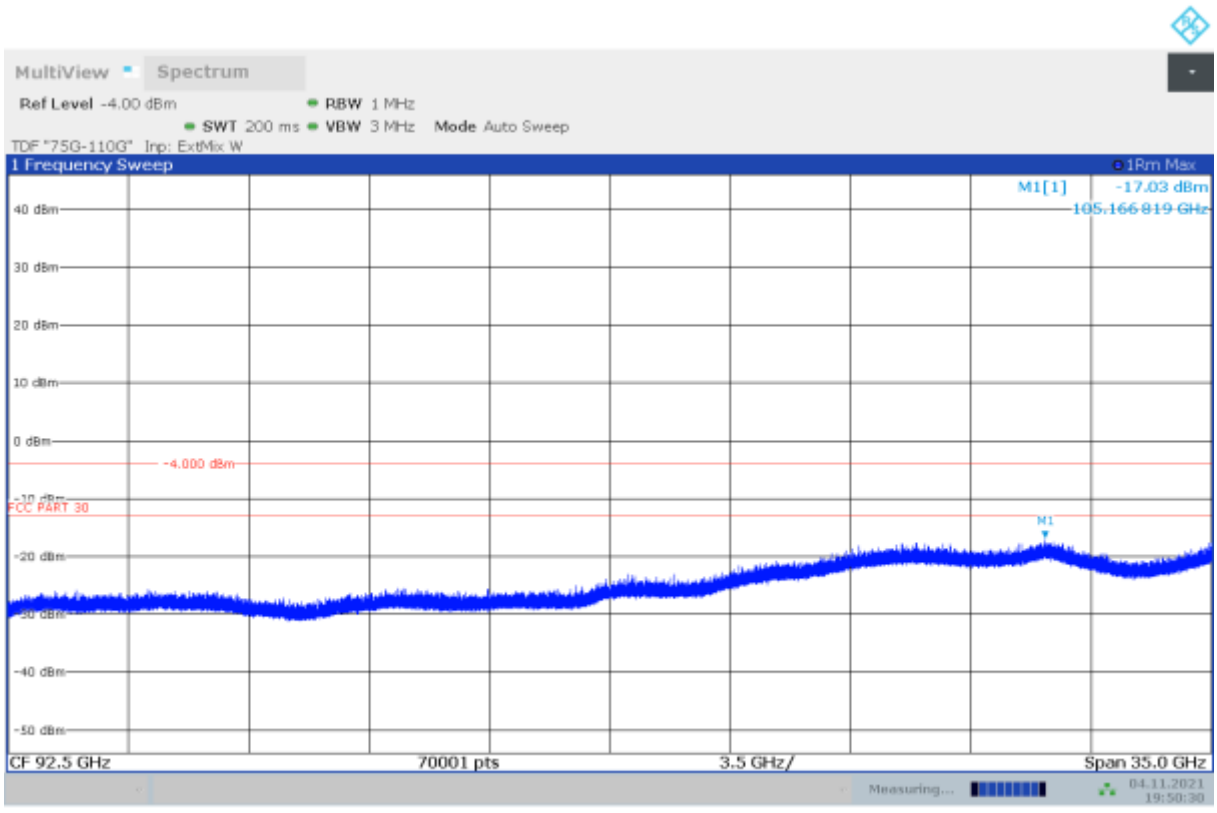
n260, Low Channel, 75GHz-110GHz, Horizontal



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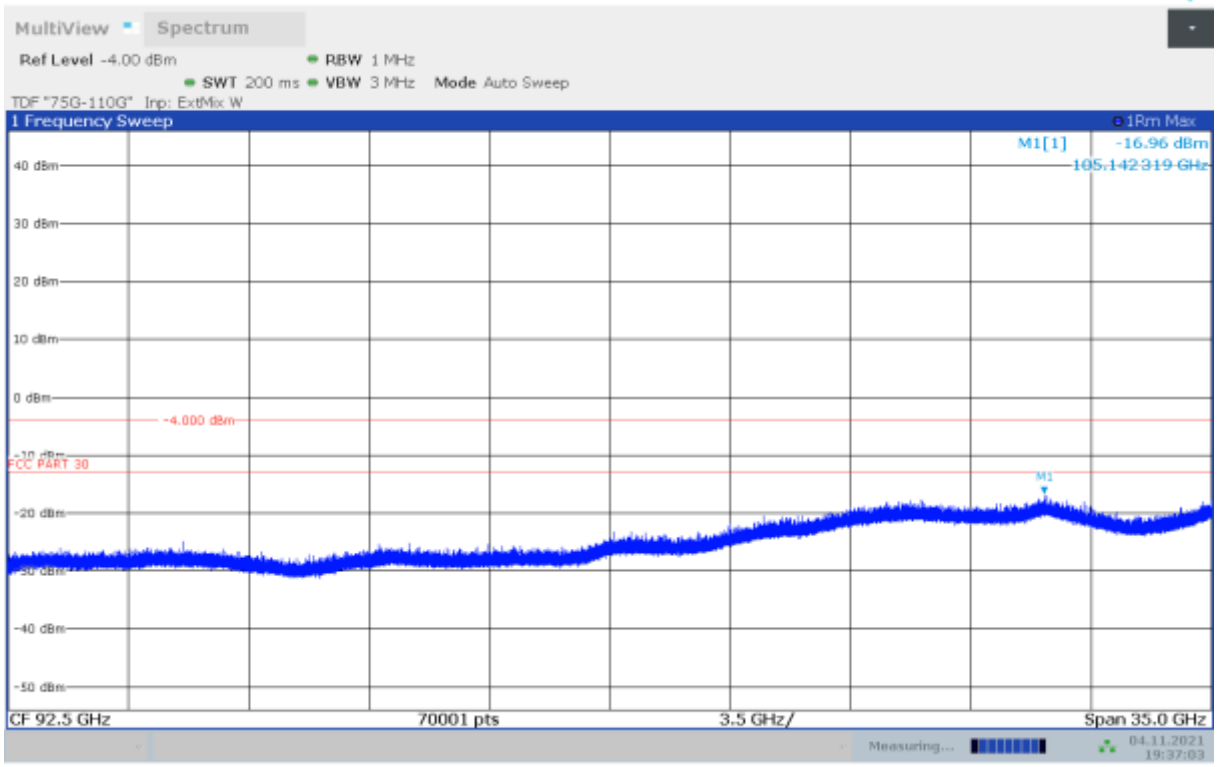
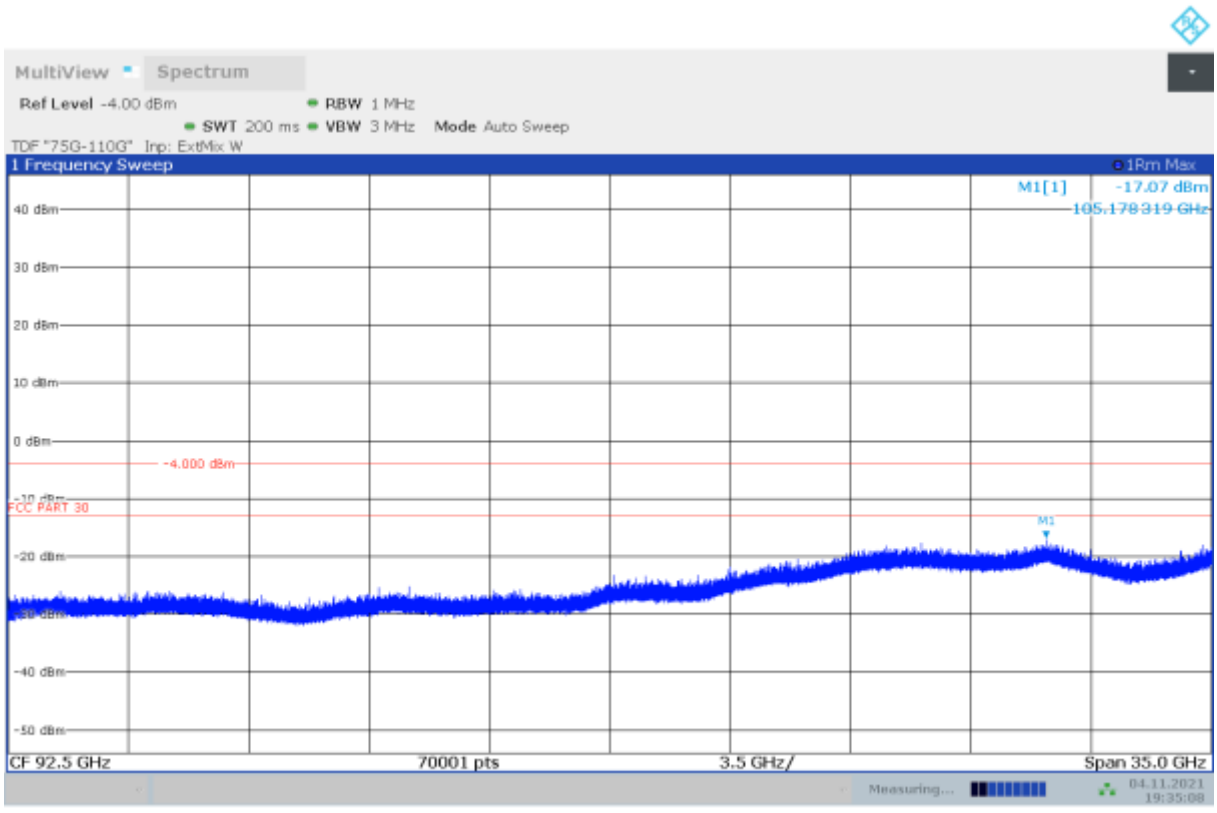
n260, Low Channel, 75GHz-110GHz, Vertical



19:37:04 04.11.2021

n260, Middle Channel, 75GHz-110GHz, Horizontal



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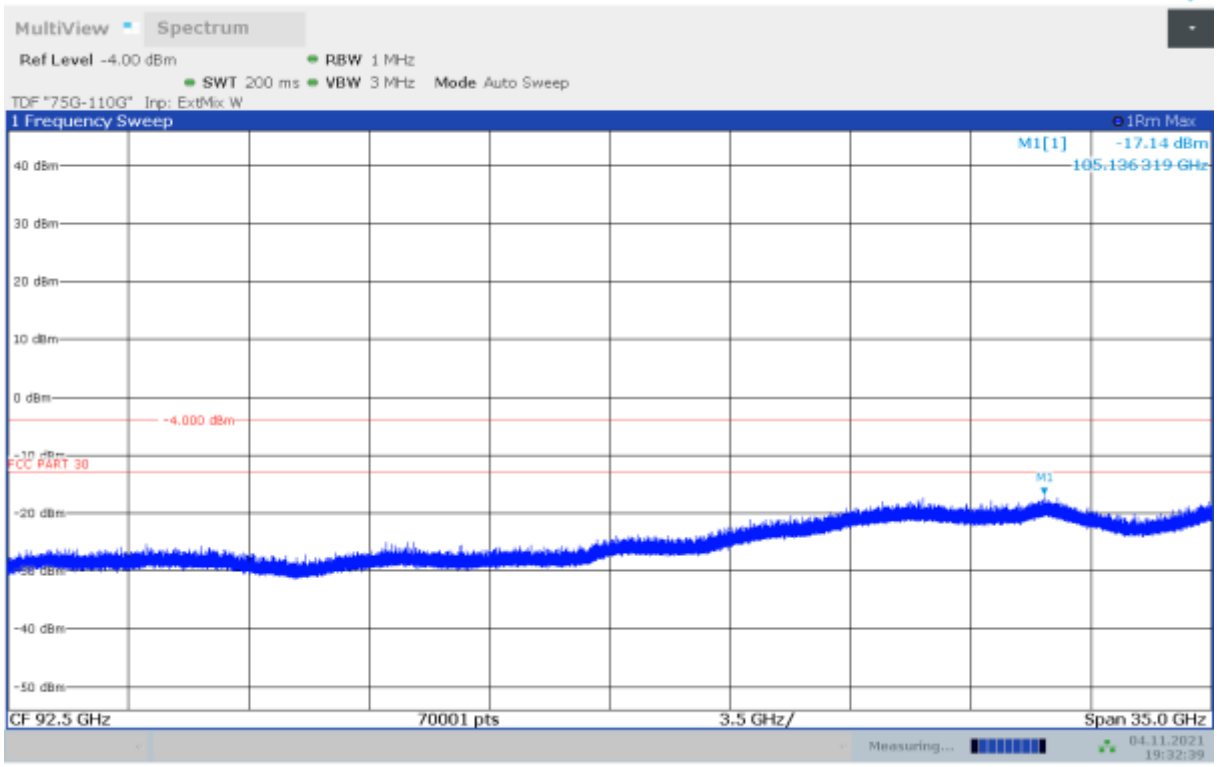
n260, Middle Channel, 75GHz-110GHz, Vertical



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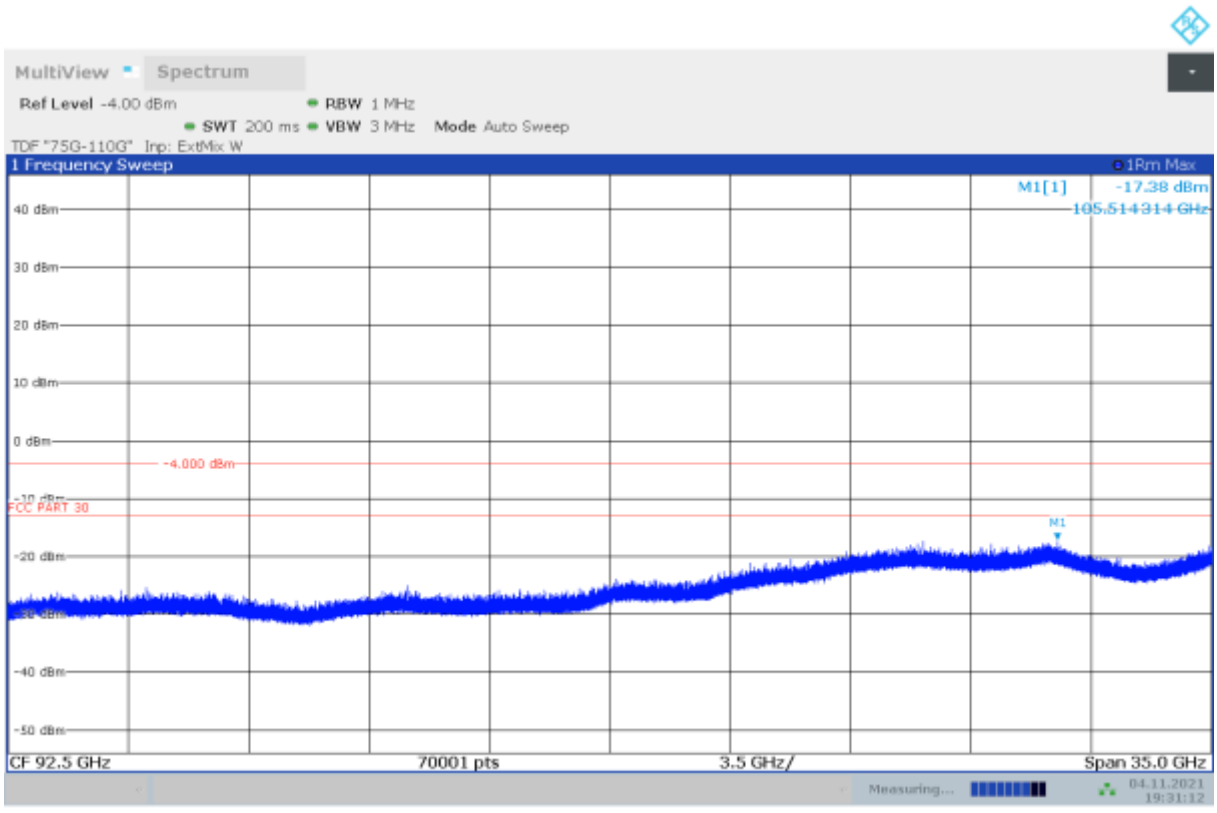
n260, High Channel, 75GHz-110GHz, Horizontal



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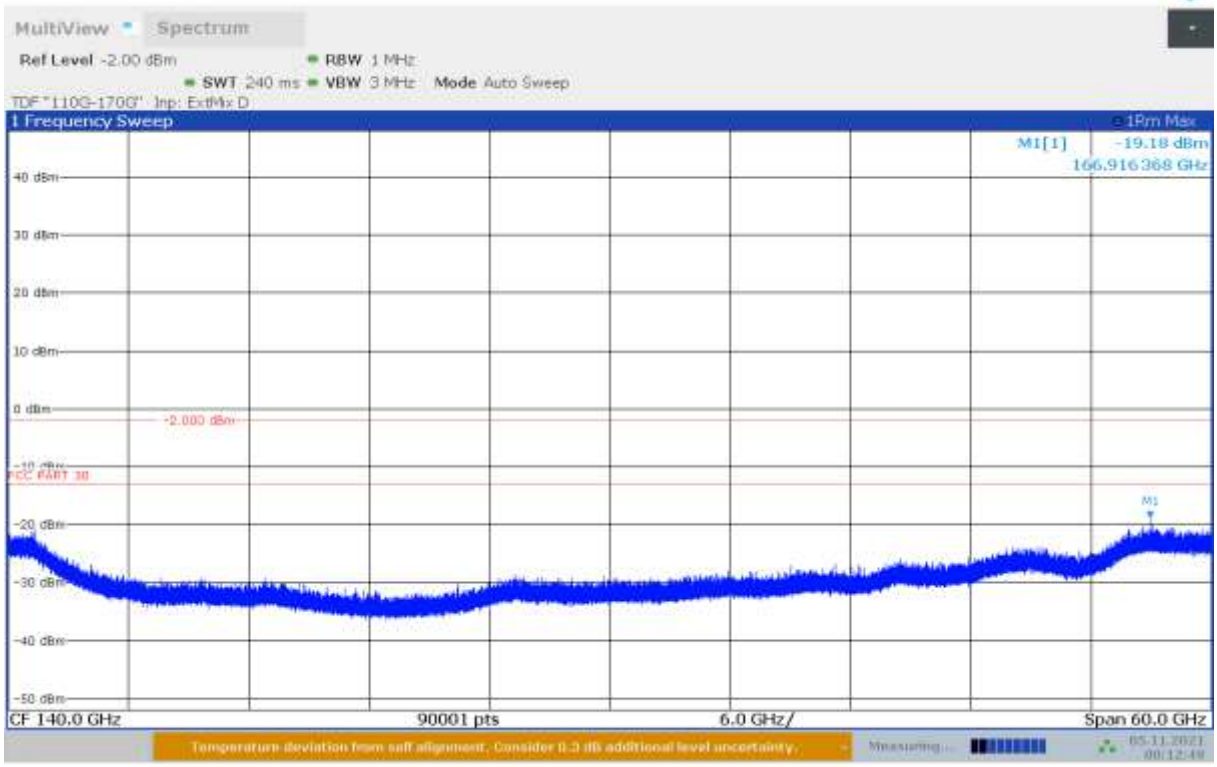
n260, High Channel, 75GHz-110GHz, Vertical



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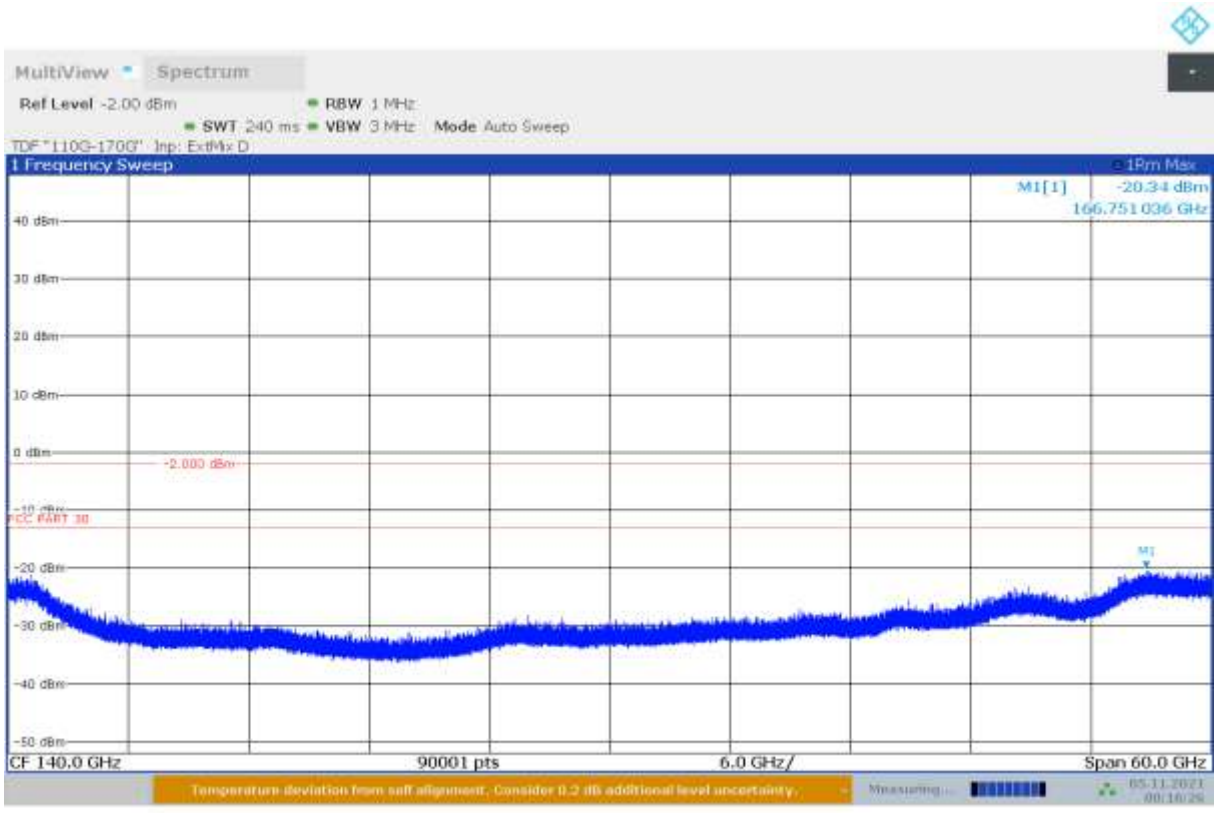
n260, Low Channel, 110GHz-170GHz



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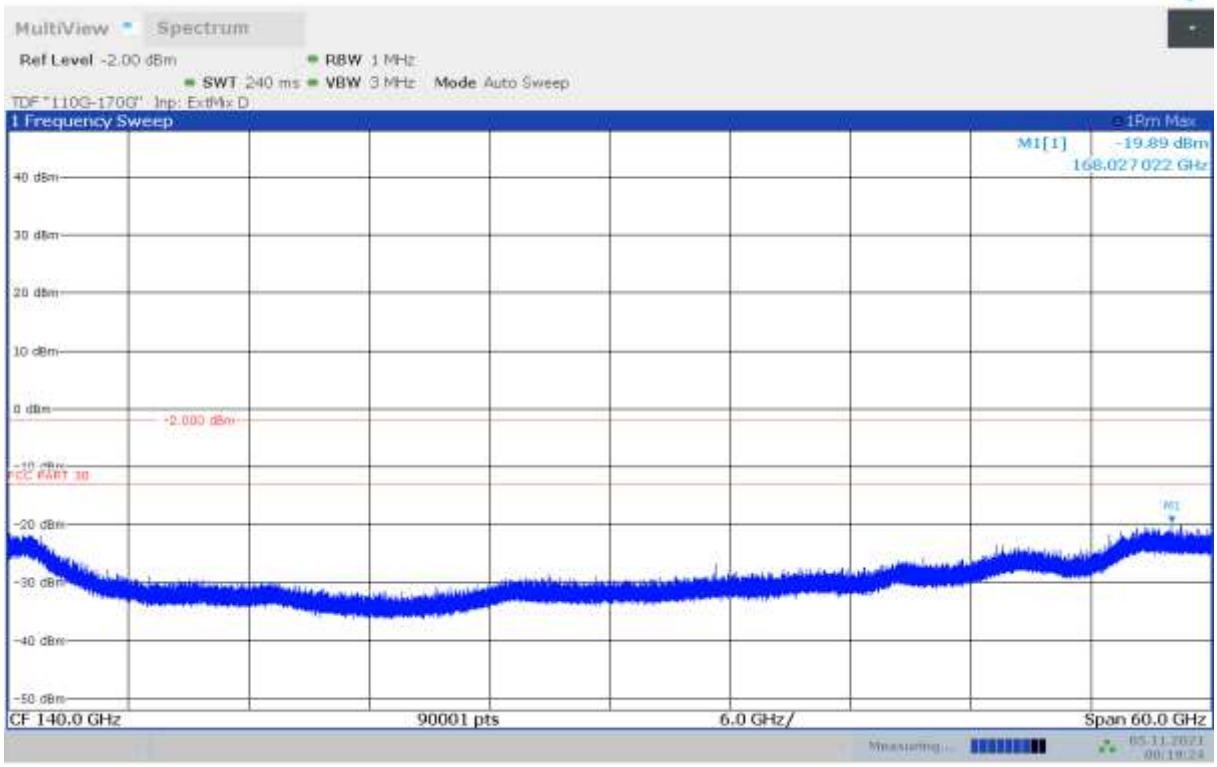
n260, Middle Channel, 110GHz-170GHz



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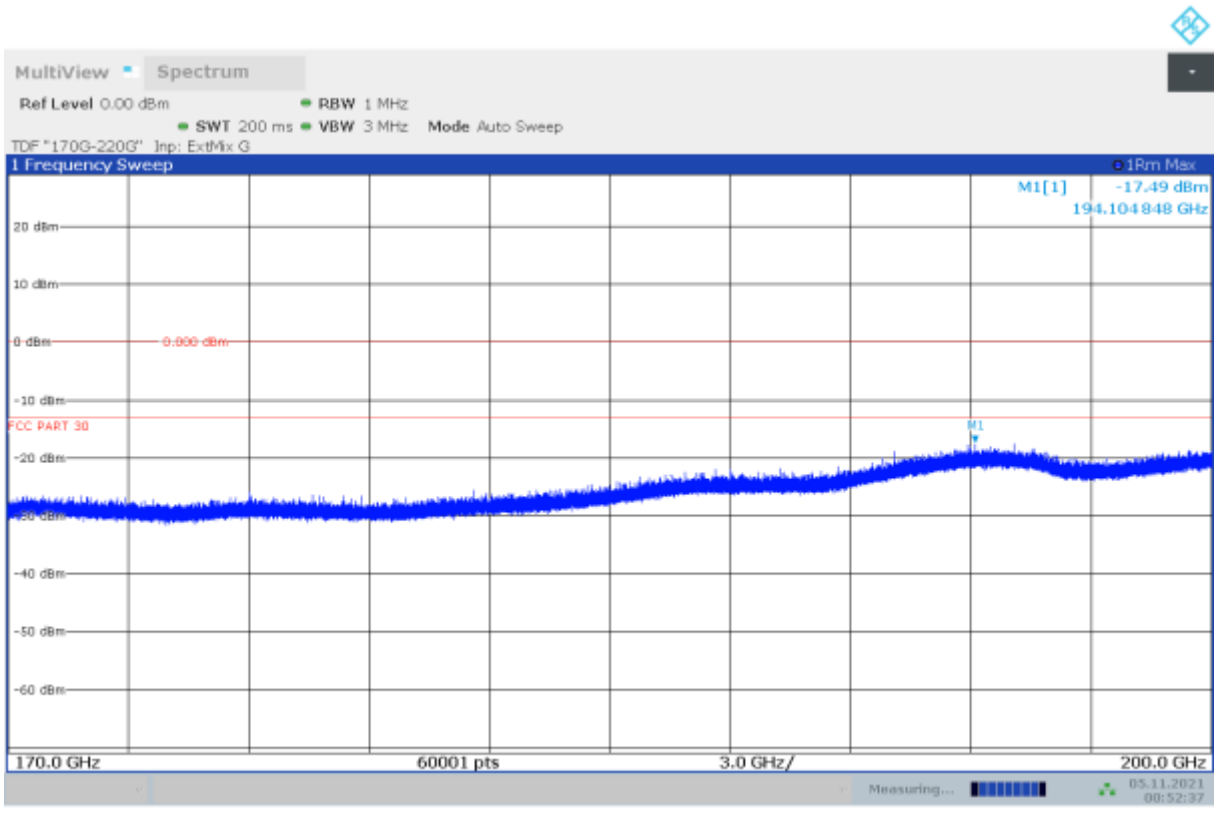
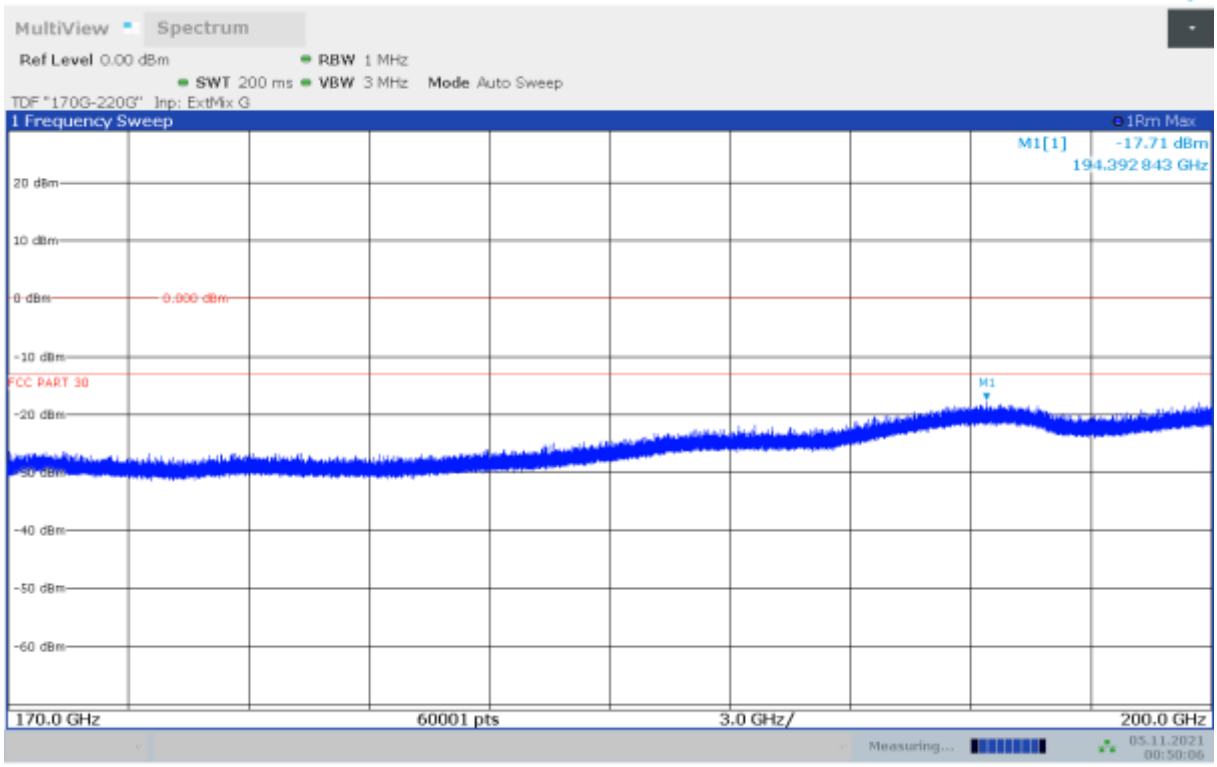
n260, High Channel, 110GHz-170GHz



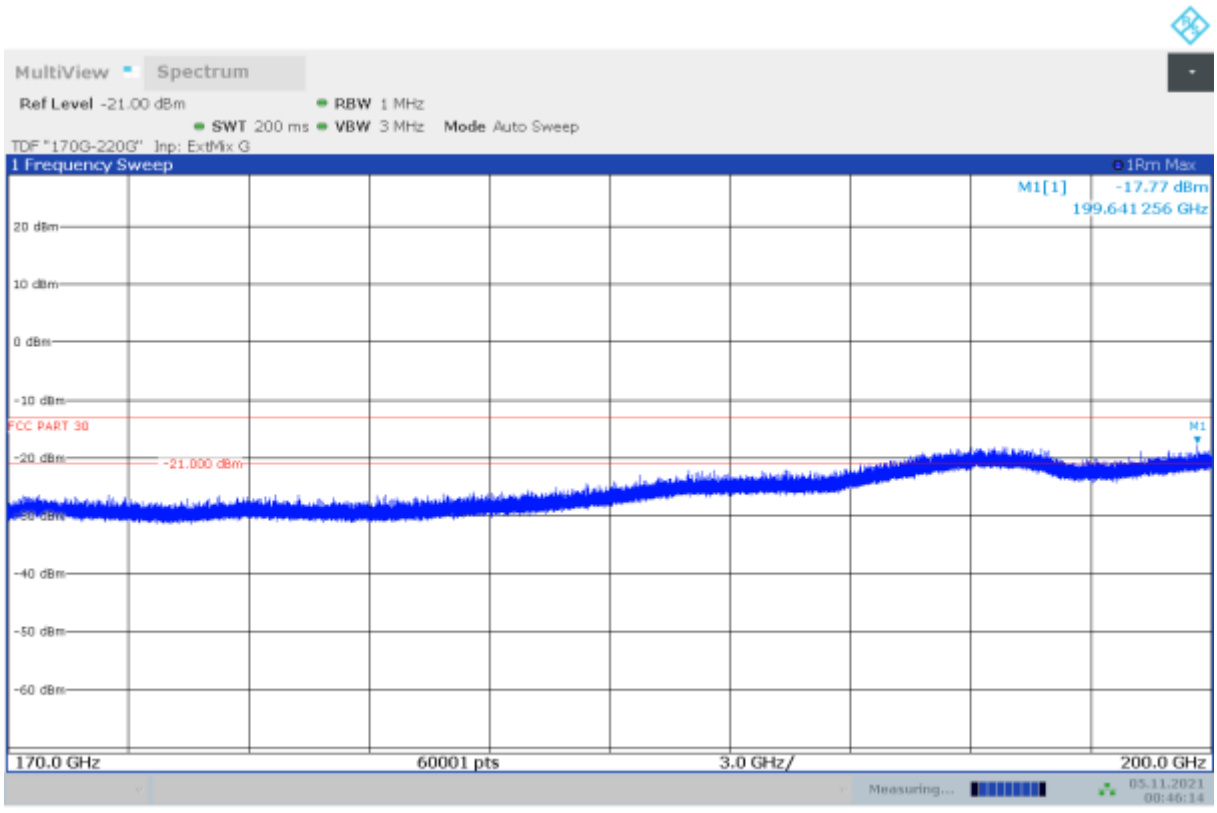
00:52:37 05.11.2021

n260, Low Channel, 170GHz-200GHz



00:50:06 05.11.2021

n260, Middle Channel, 170GHz-200GHz



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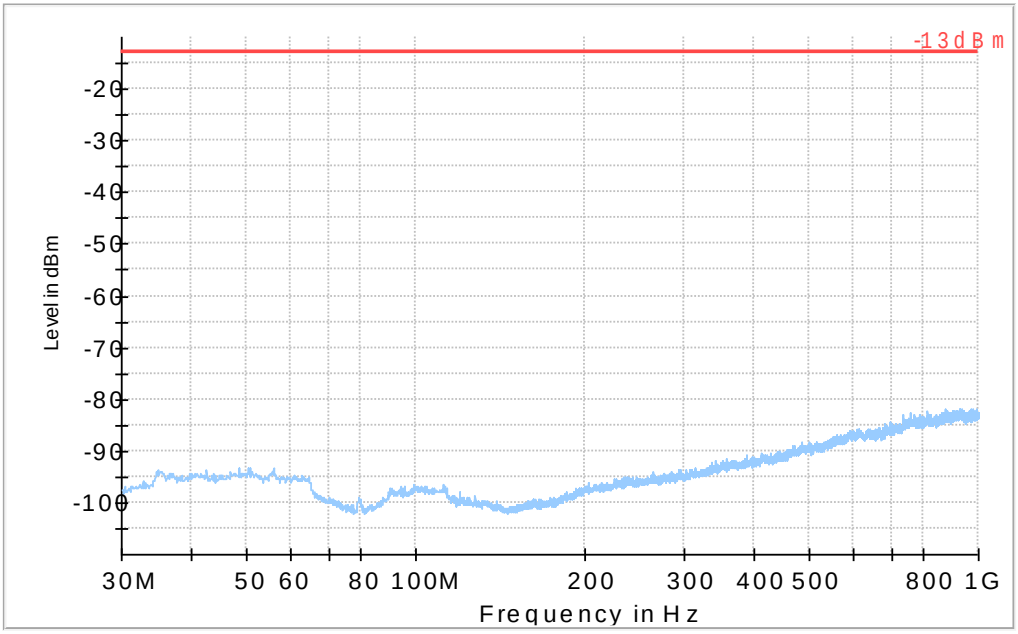
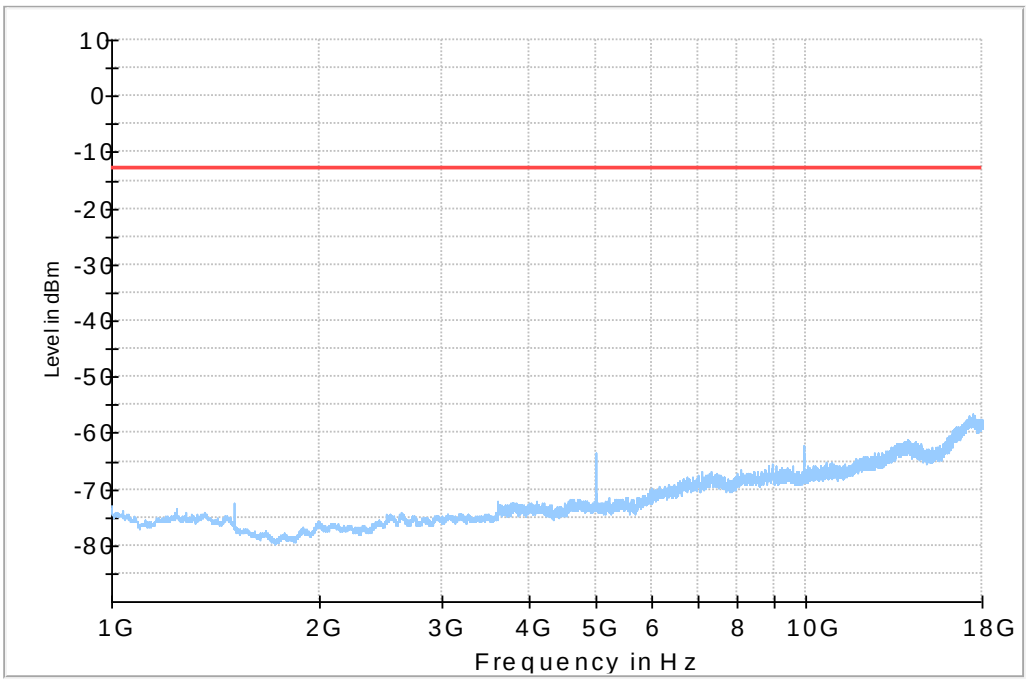
n260, High Channel, 170GHz-200GHz



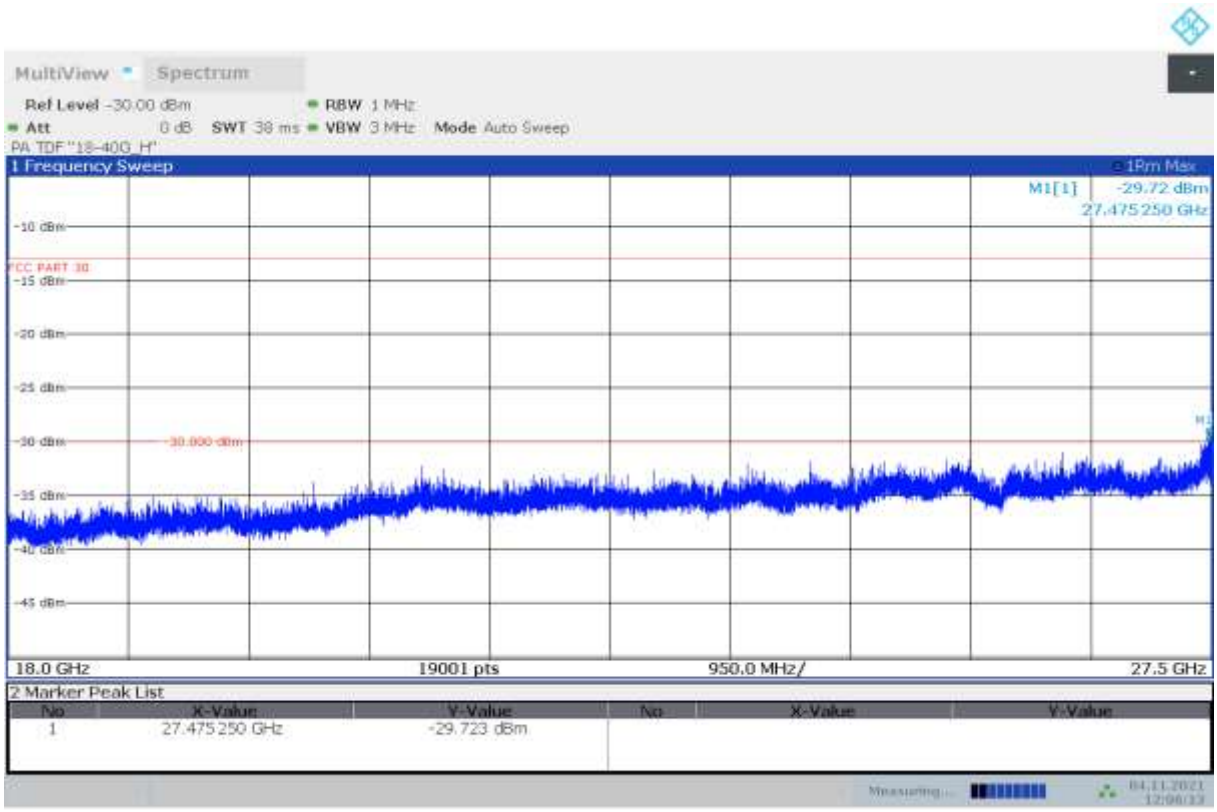
Preview Result 1-RMS [Preview Result 1.Result:1]
Critical_Freqs RMS [Critical_Freqs.Result:4]
-13dBm [..\]
Final_Result PK+ [Final_Result.Result:4]

n261, 30MHz-1GHz

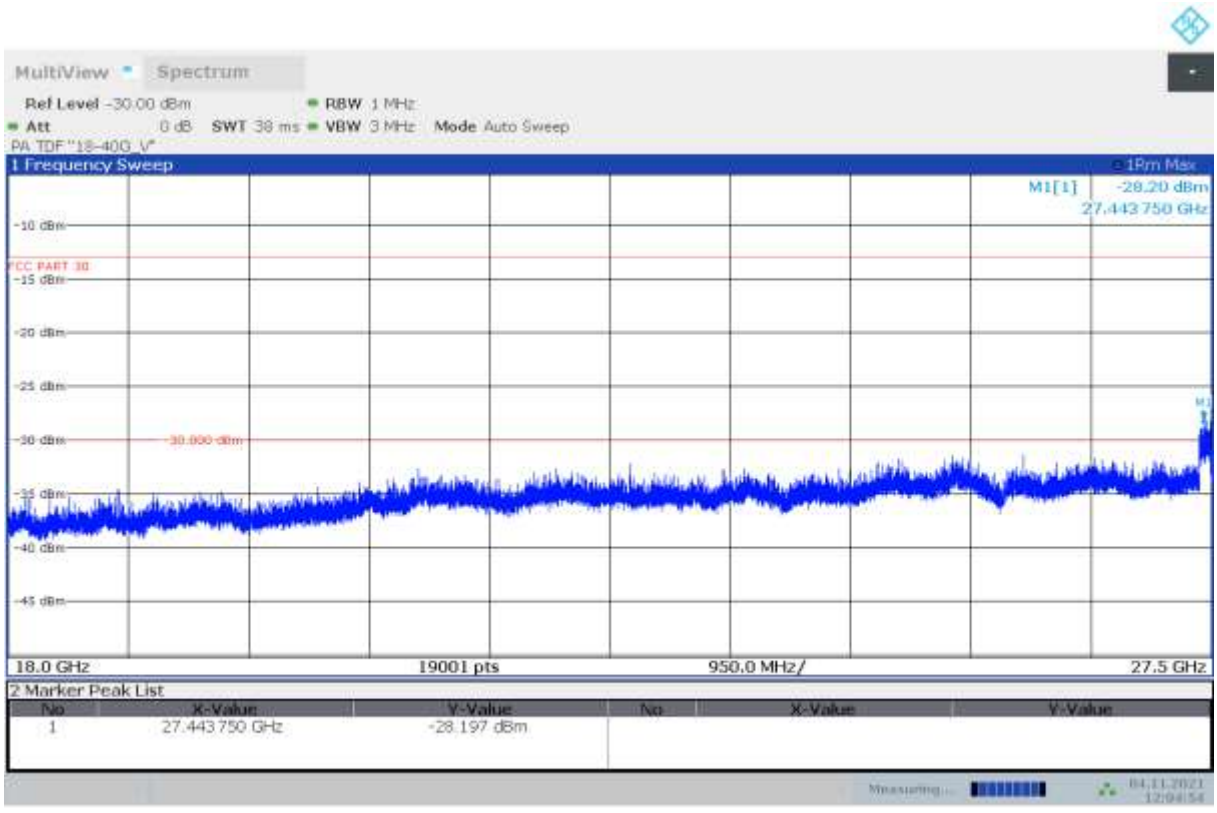


Preview Result 1-RMS [Preview Result 1.Result:1]
Critical_Freqs RMS [Critical_Freqs.Result:4]
-13dBm [..\]
Final_Result RMS [Final_Result.Result:4]

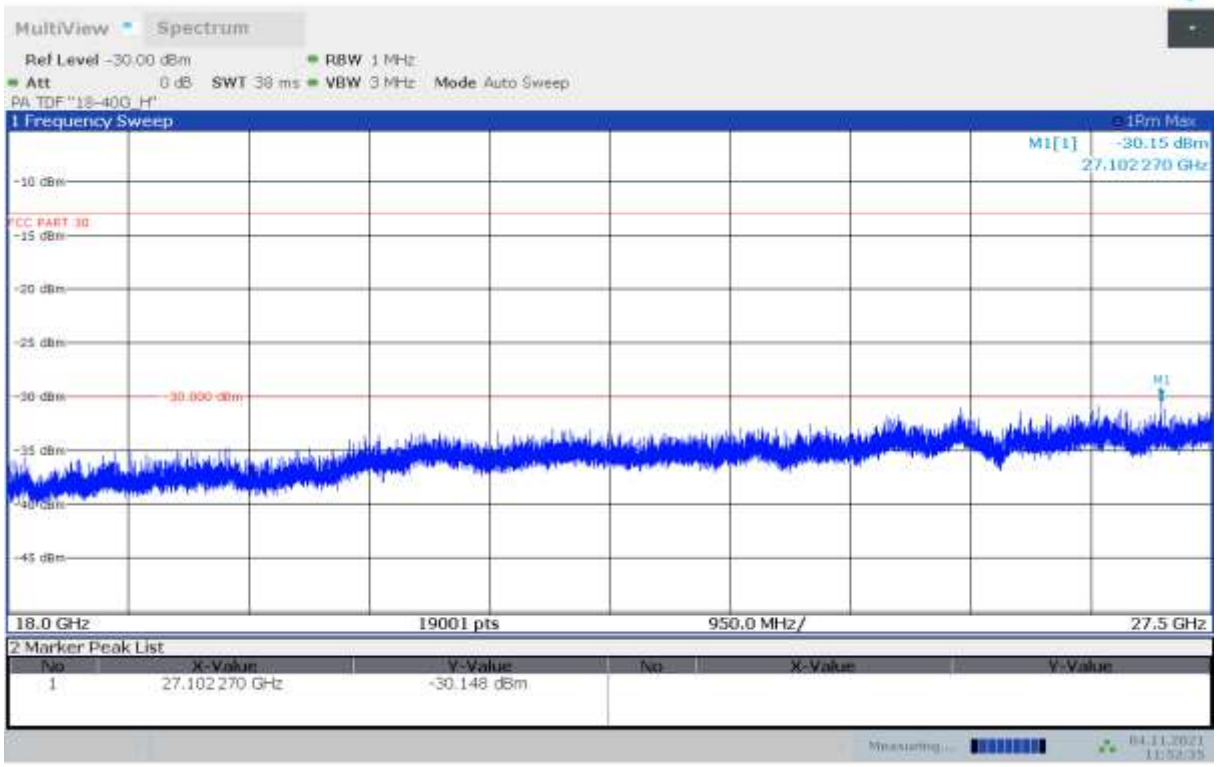
n261, 1GHz-18GHz



n261, Low Channel, 18GHz-27.5GHz, Horizontal

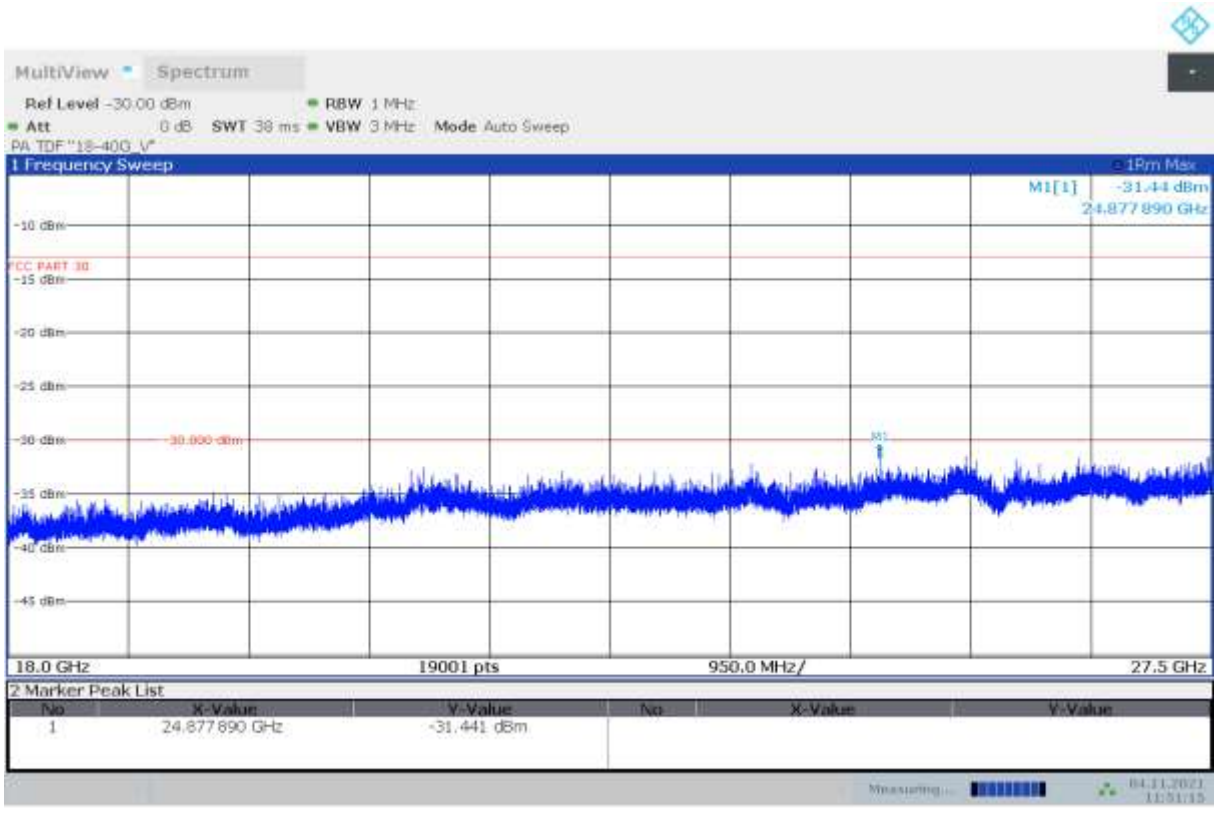


n261, Low Channel, 18GHz-27.5GHz, Vertical



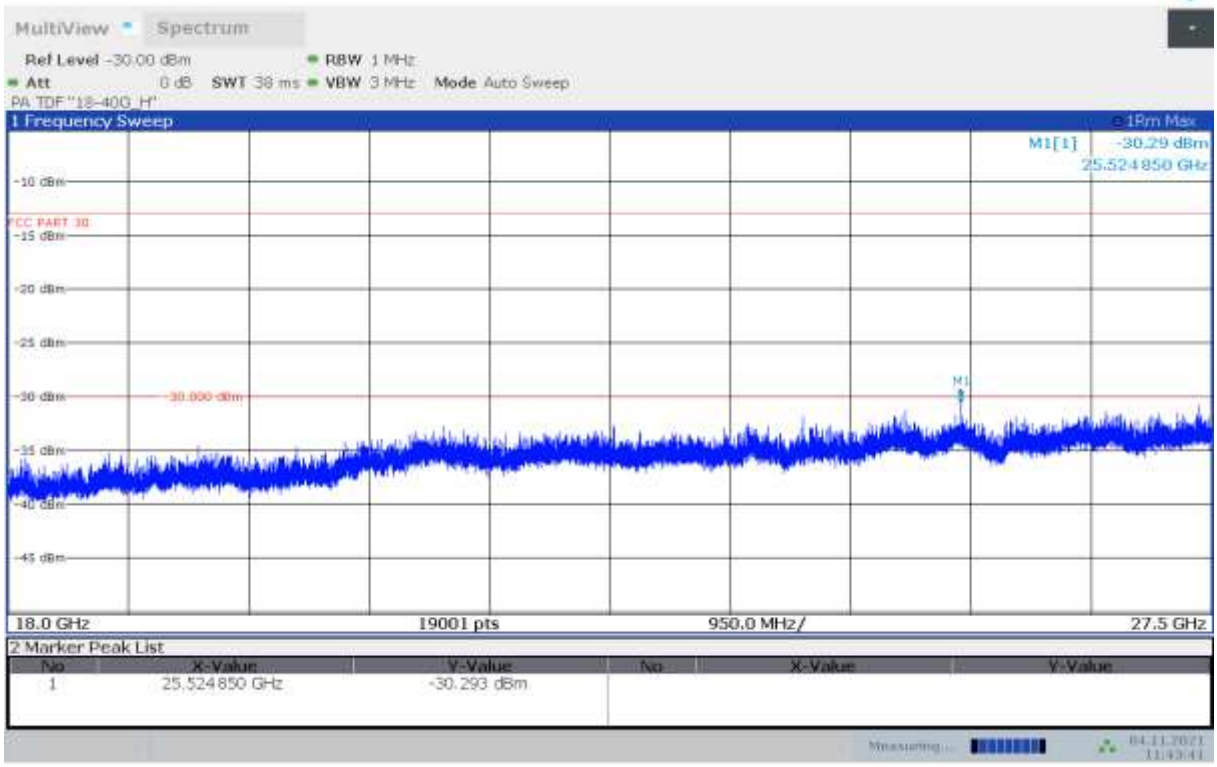
11:52:35 04.11.2021

n261, Middle Channel, 18GHz-27.5GHz, Horizontal



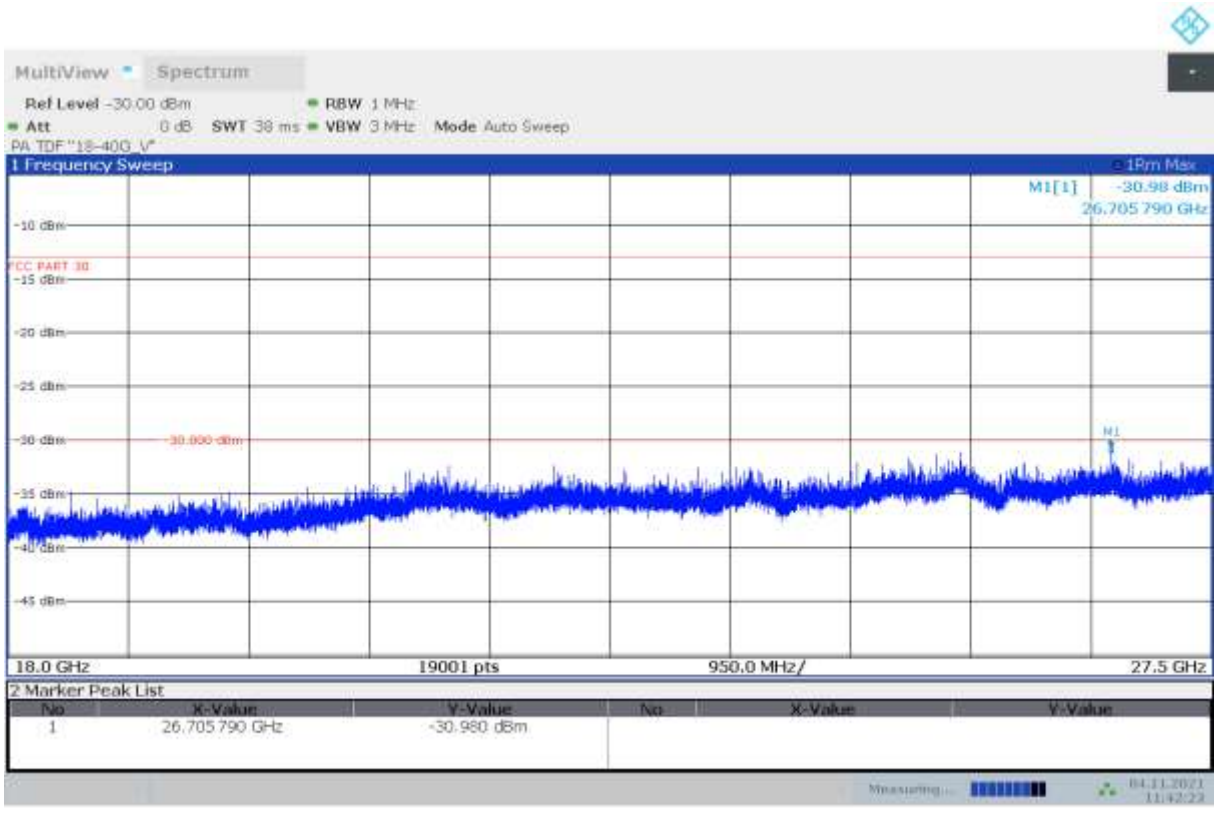
11:51:16 04.11.2021

n261, Middle Channel, 18GHz-27.5GHz, Vertical



11:43:42 04.11.2021

n261, High Channel, 18GHz-27.5GHz, Horizontal



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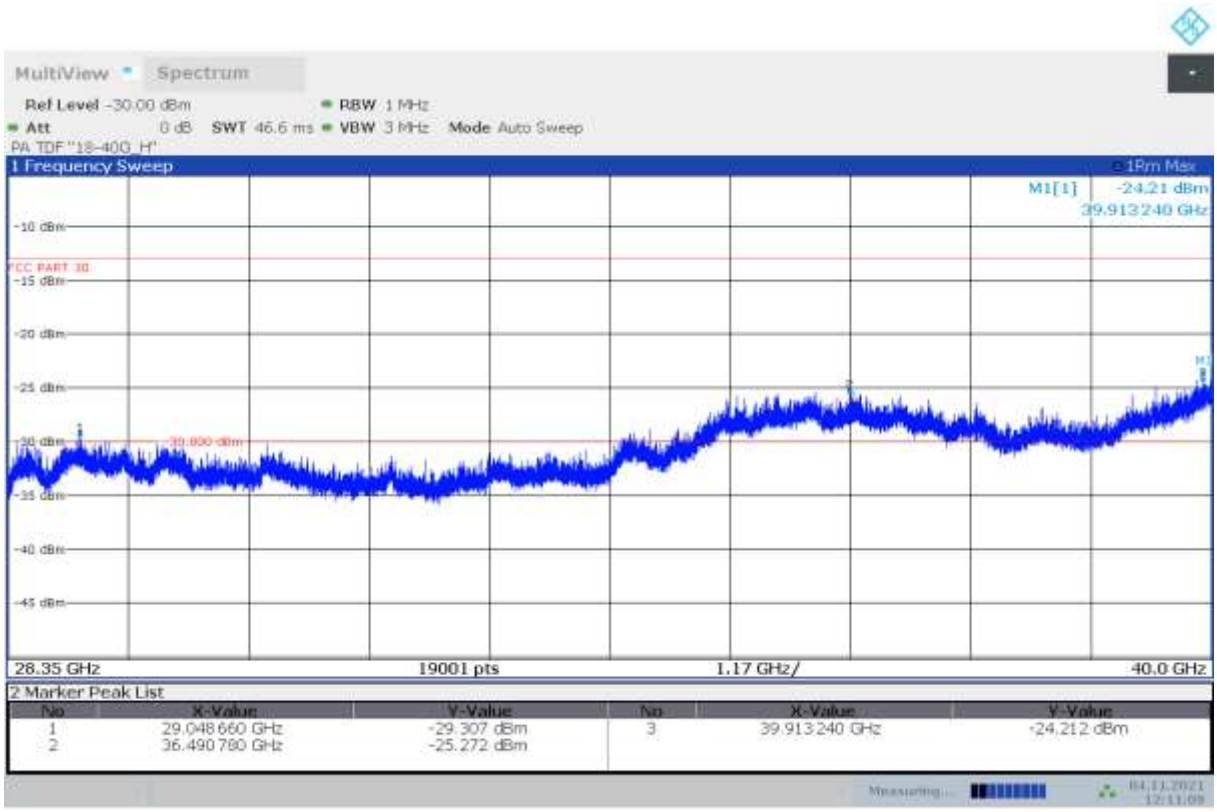
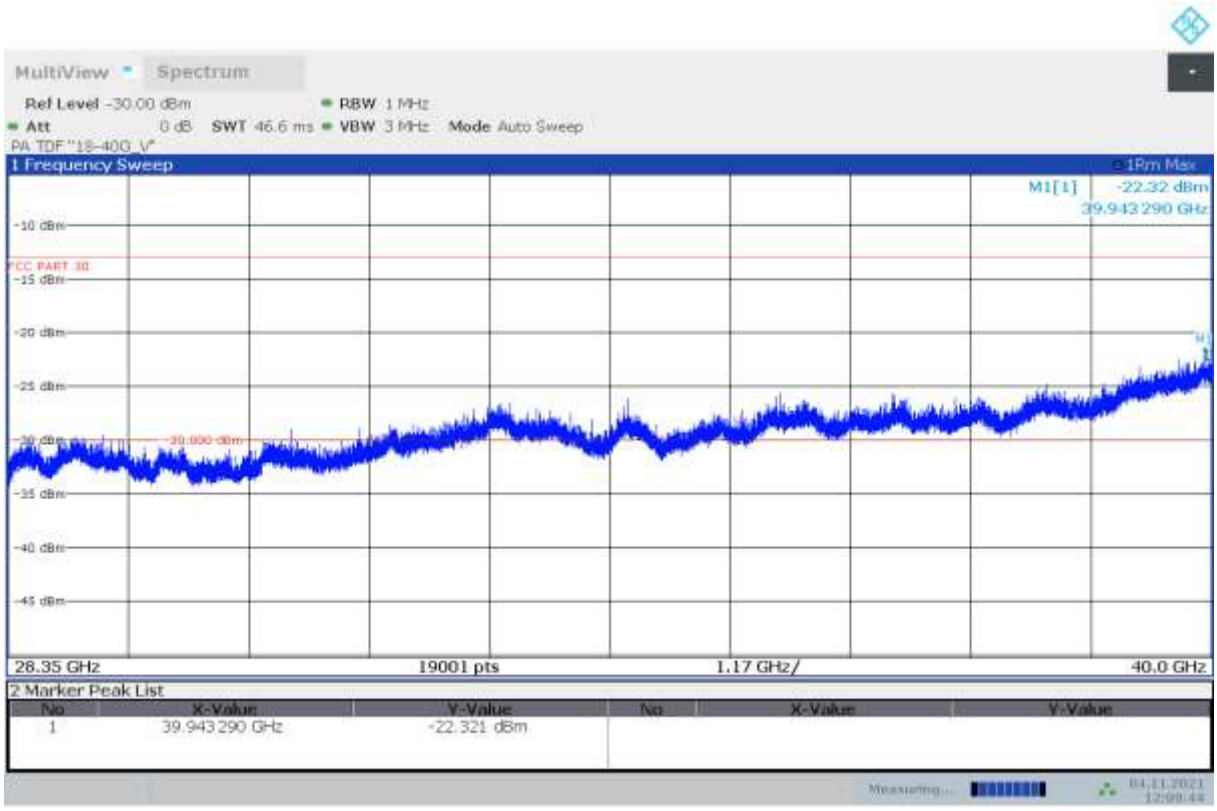
n261, High Channel, 18GHz-27.5GHz, Vertical



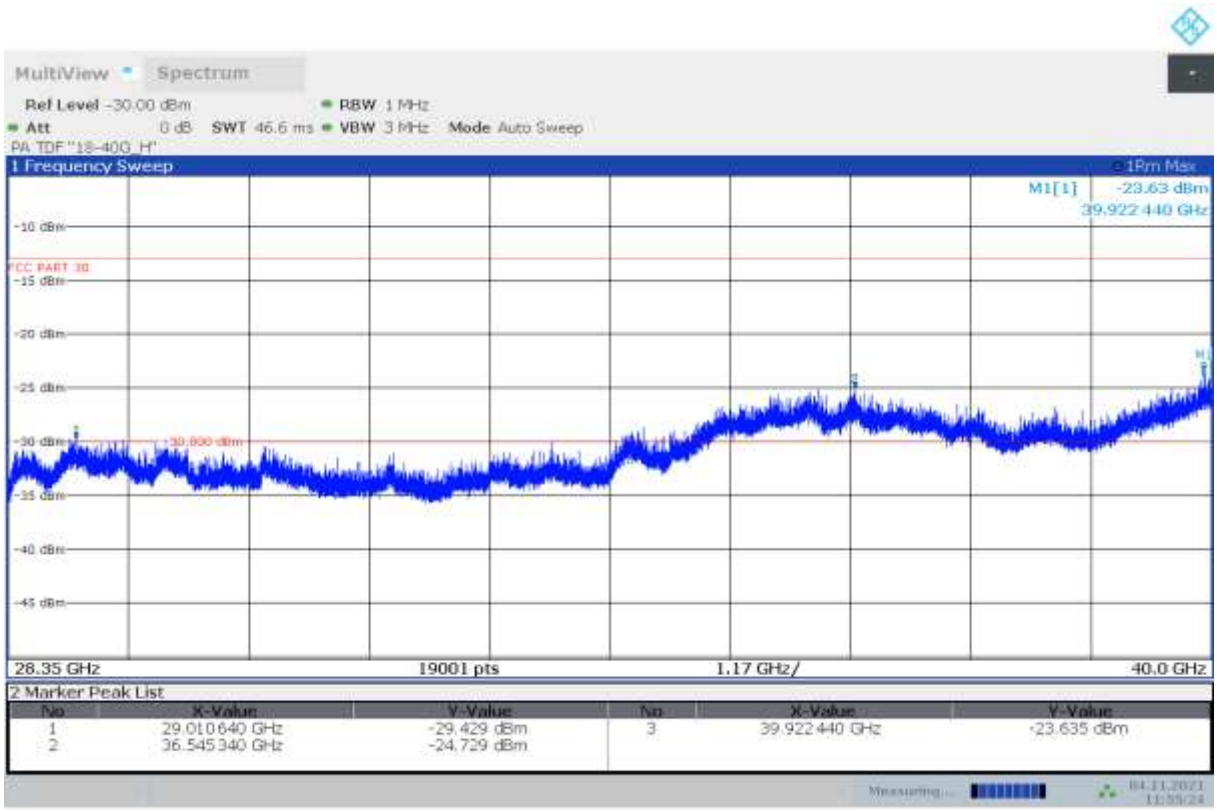
12:11:09 04.11.2021

n261, Low Channel, 28.35GHz-40GHz, Horizontal



12:09:44 04.11.2021

n261, Low Channel, 28.35GHz-40GHz, Vertical



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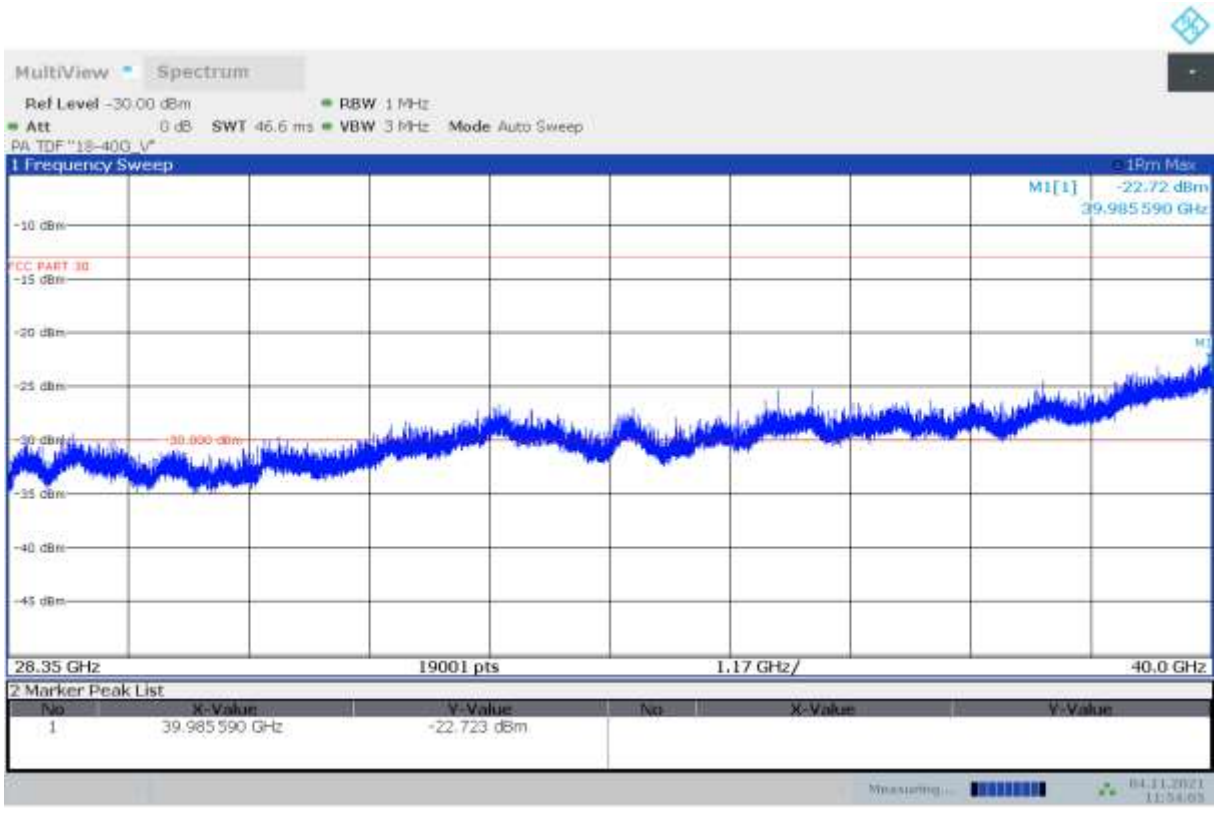
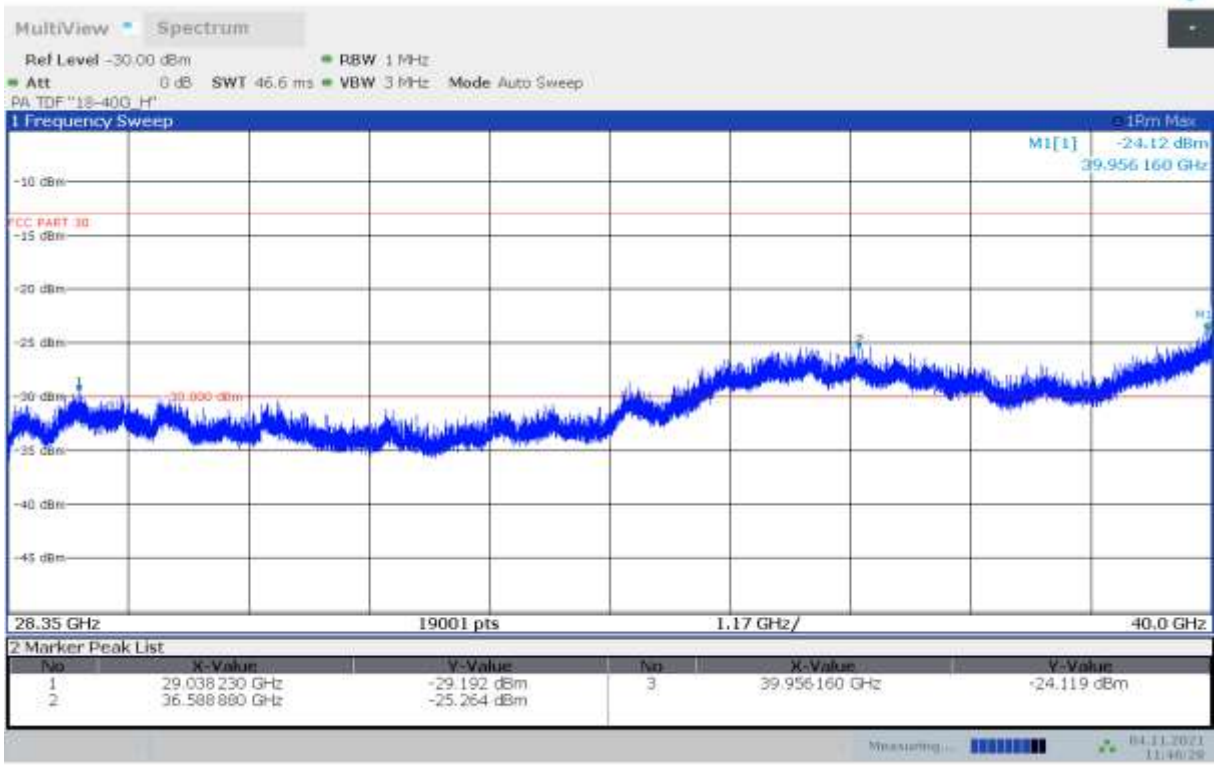
n261, Middle Channel, 28.35GHz-40GHz, Horizontal



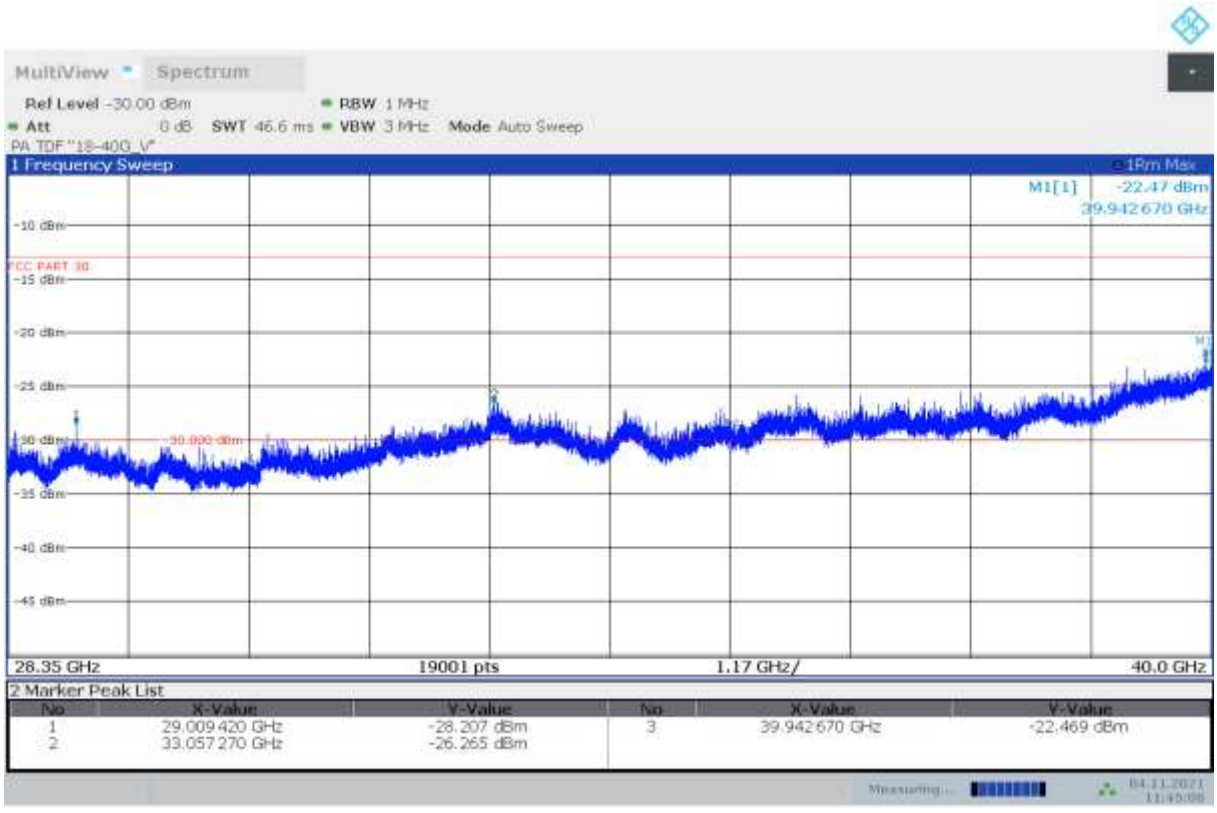
11:54:06 04.11.2021

n261, Middle Channel, 28.35GHz-40GHz, Vertical



11:46:28 04.11.2021

n261, High Channel, 28.35GHz-40GHz, Horizontal



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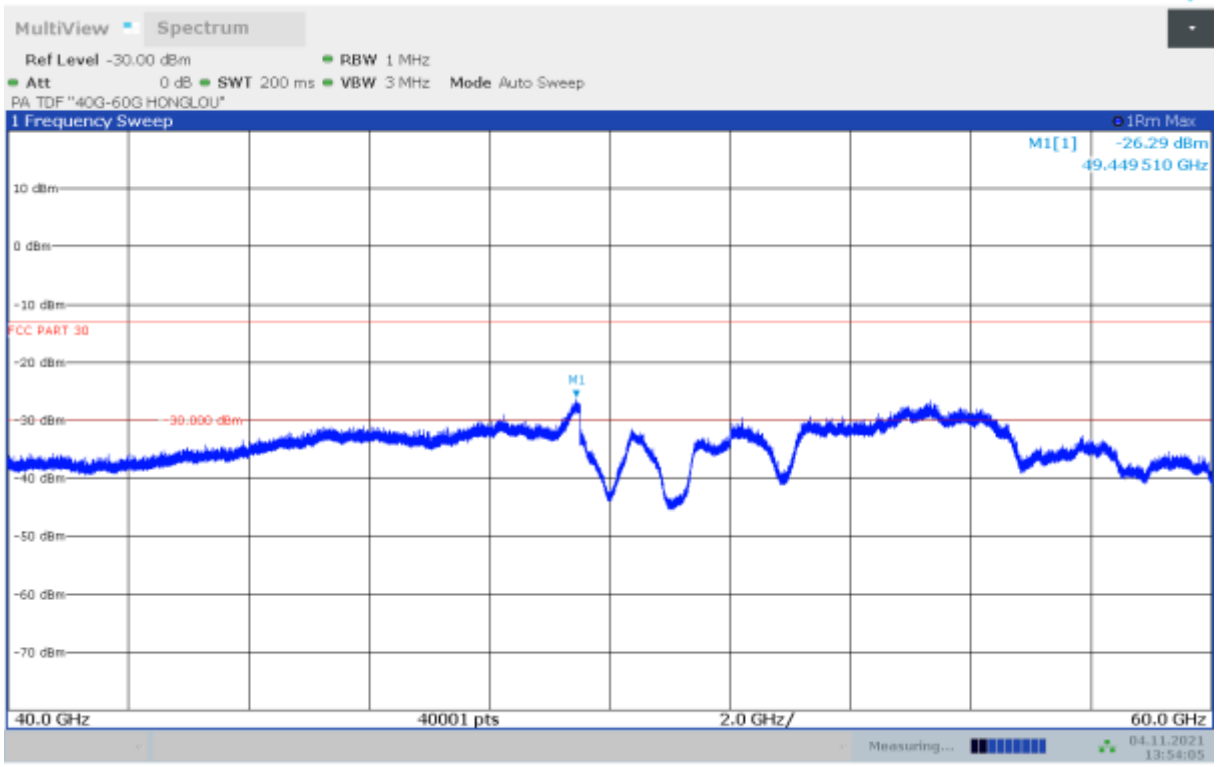
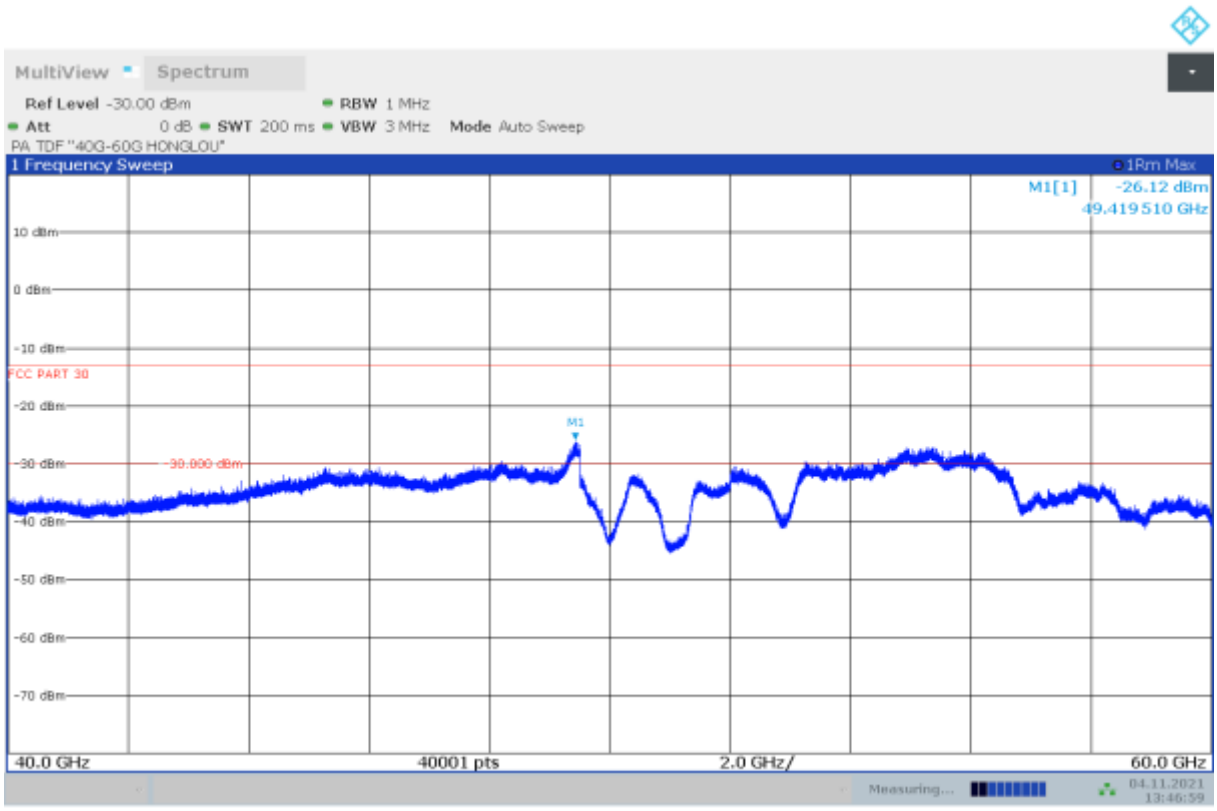
n261, High Channel, 28.35GHz-40GHz, Vertical



13:54:06 04.11.2021

n261, Low Channel, 40GHz-60GHz



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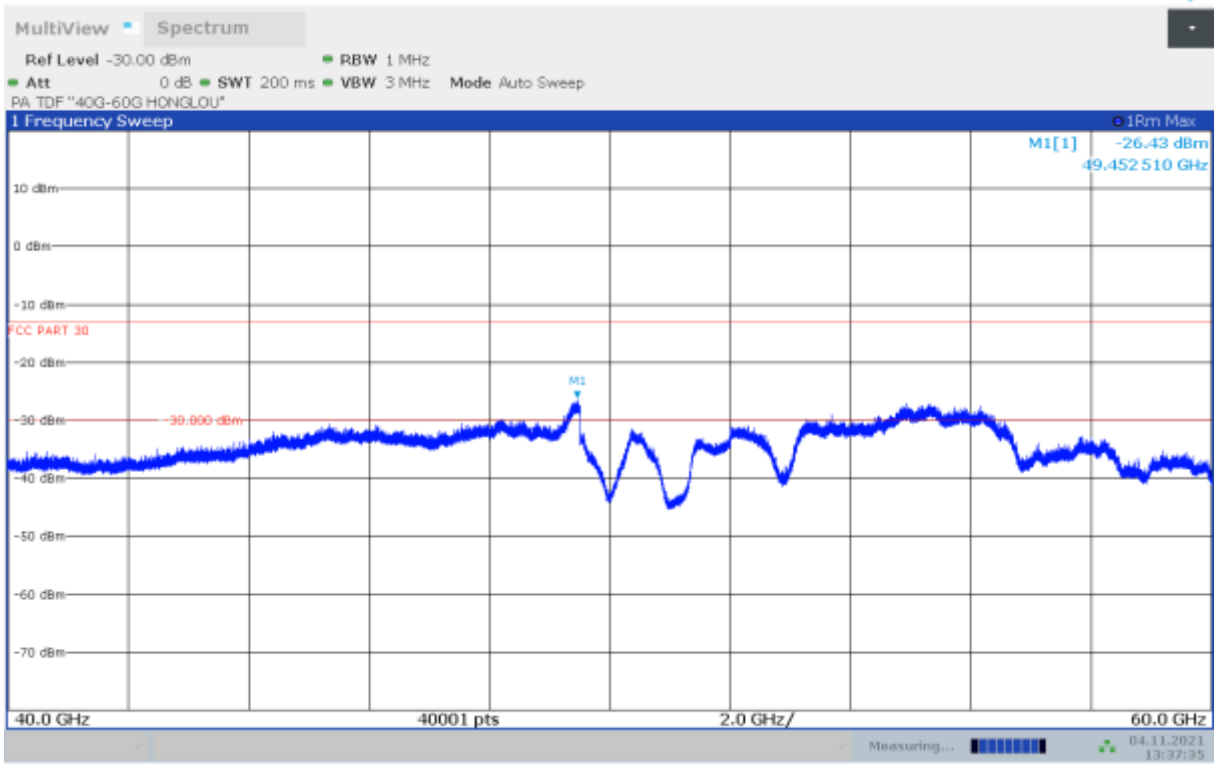
n261, Middle Channel, 40GHz-60GHz



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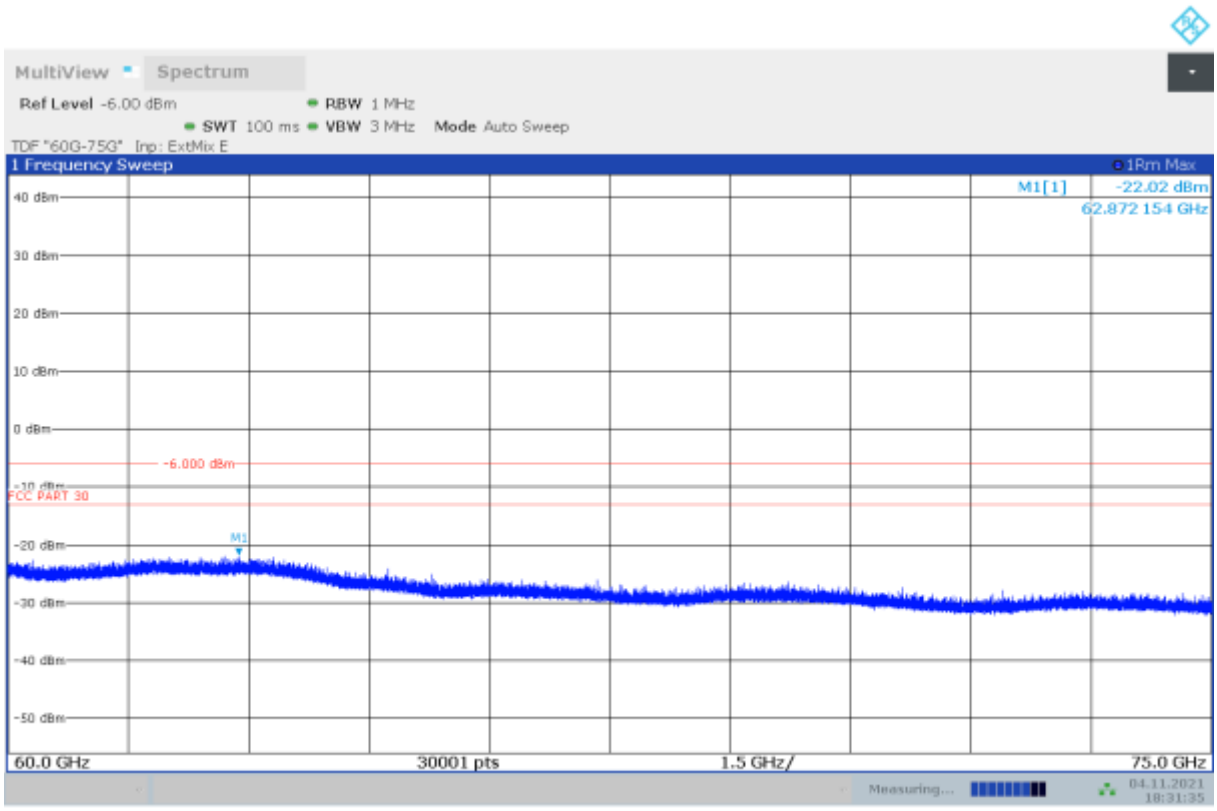
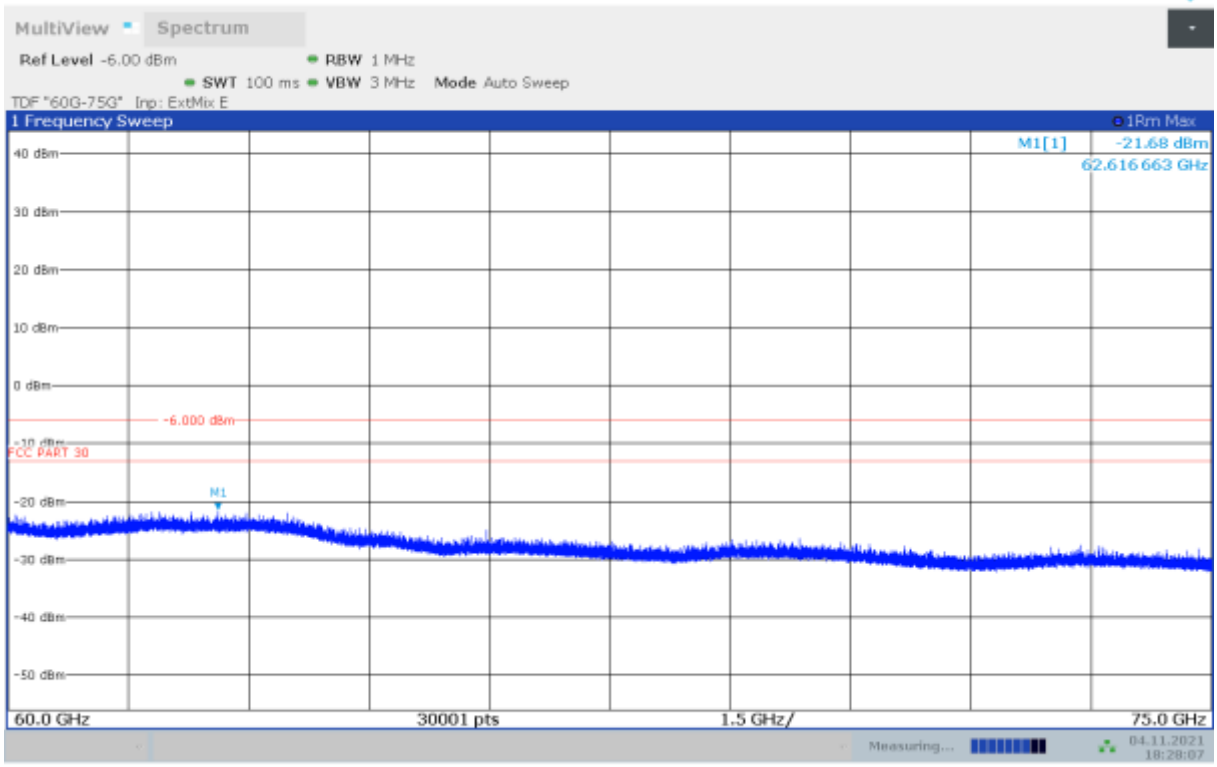
n261, High Channel, 40GHz-60GHz



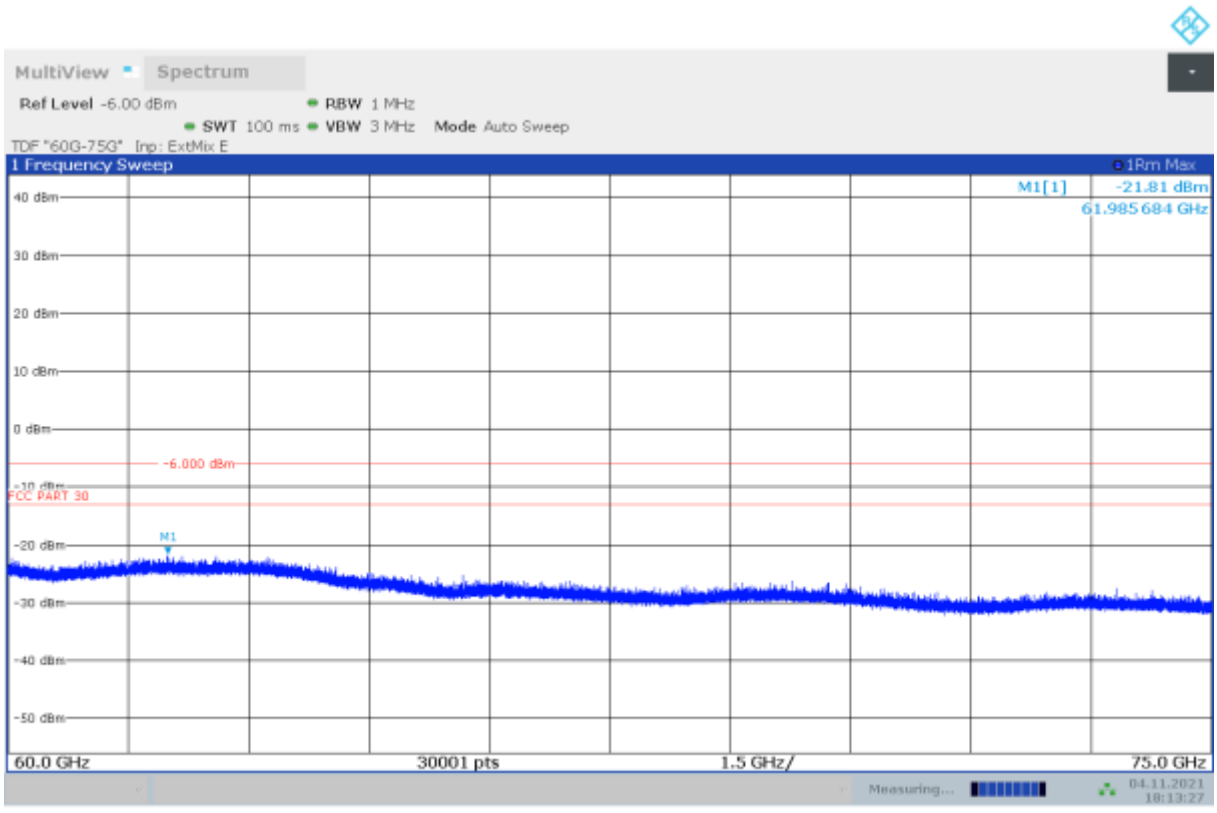
18:31:35 04.11.2021

n261, Low Channel, 60GHz-75GHz, Horizontal



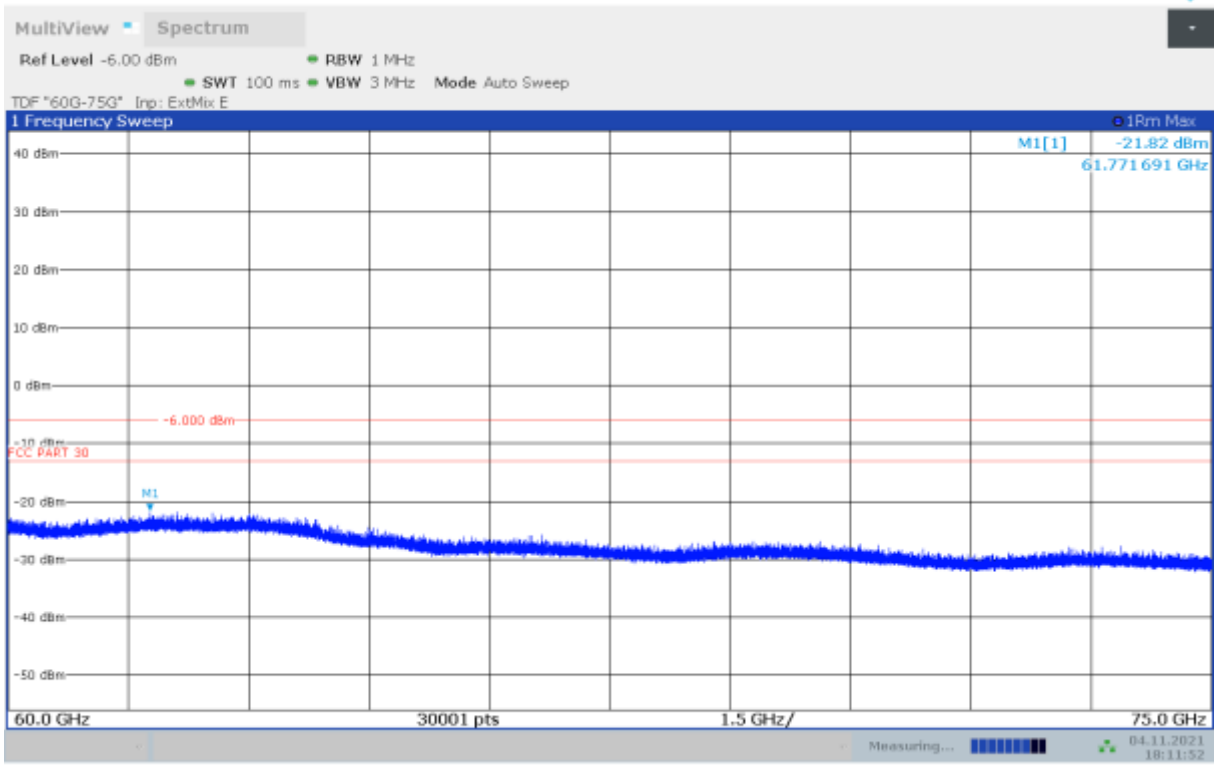
18:28:08 04.11.2021

n261, Low Channel, 60GHz-75GHz, Vertical



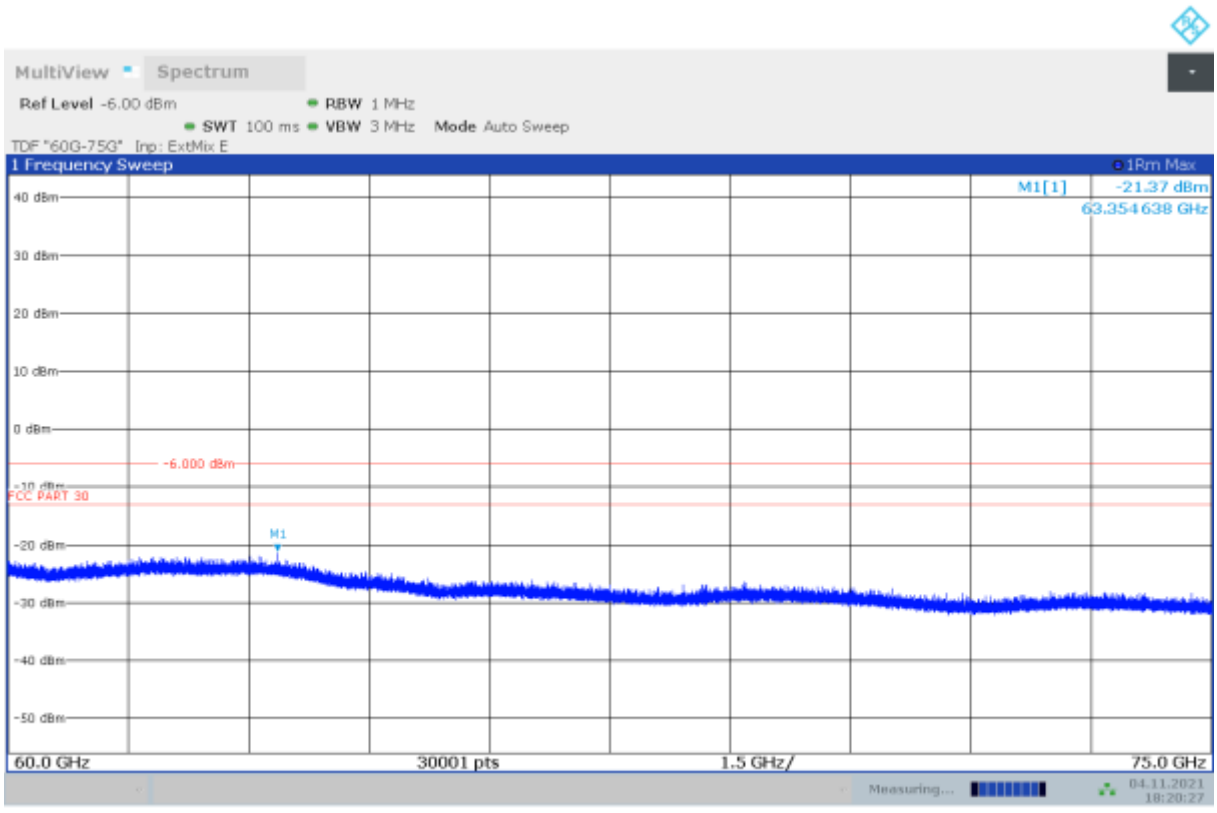
18:13:28 04.11.2021

n261, Middle Channel, 60GHz-75GHz, Horizontal



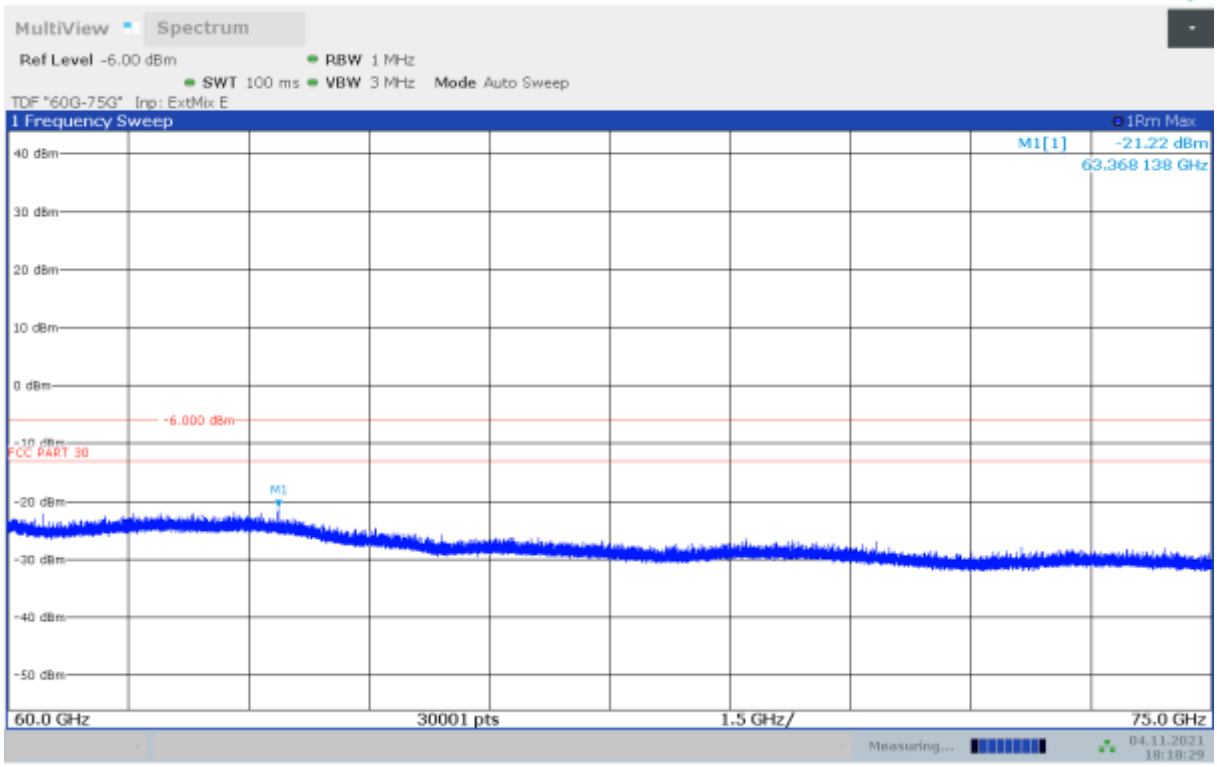
18:11:52 04.11.2021

n261, Middle Channel, 60GHz-75GHz, Vertical



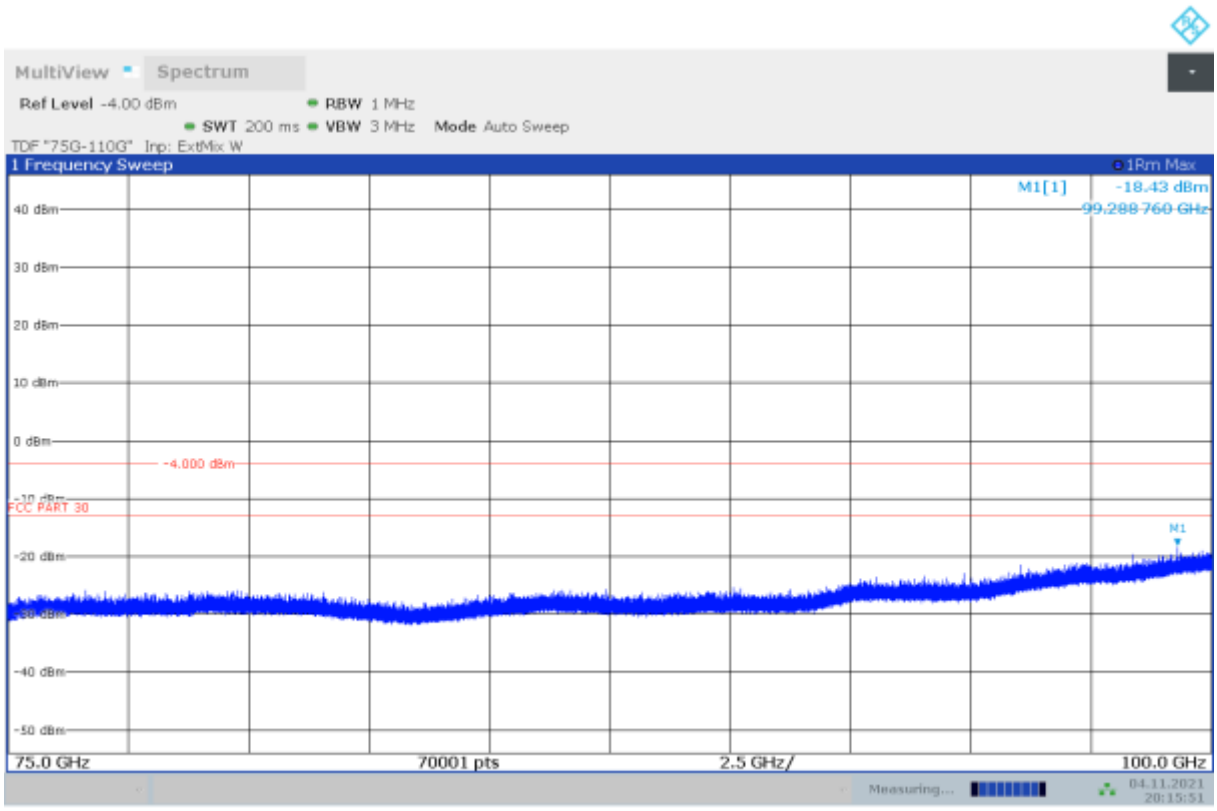
18:20:27 04.11.2021

n261, High Channel, 60GHz-75GHz, Horizontal



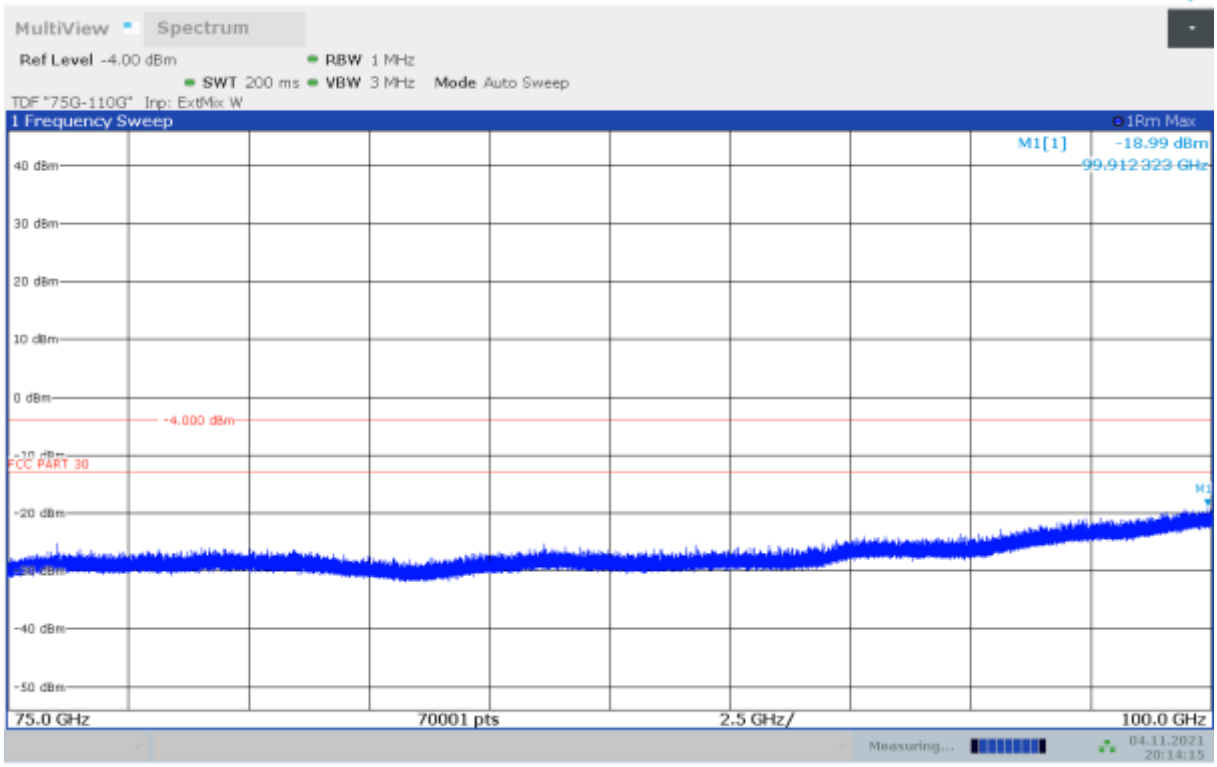
18:18:29 04.11.2021

n261, High Channel, 60GHz-75GHz, Vertical



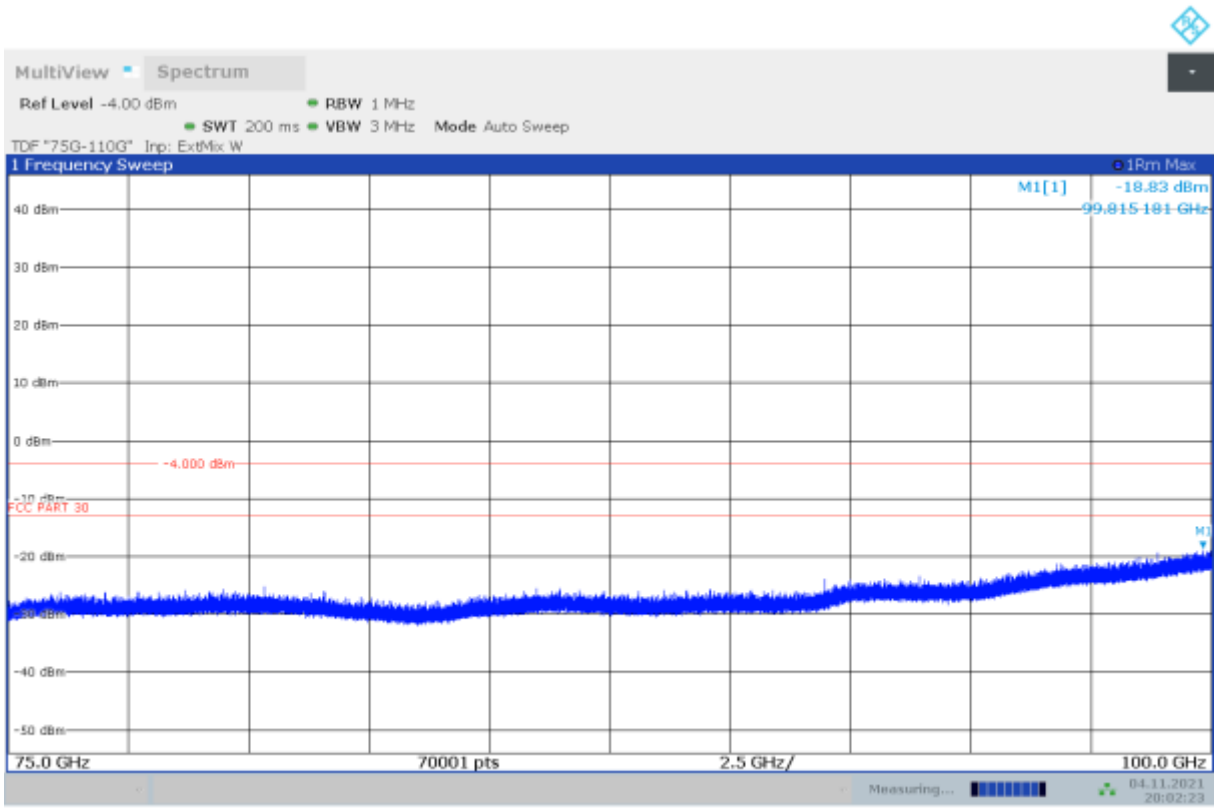
20:15:51 04.11.2021

n261, Low Channel, 75GHz-100GHz, Horizontal



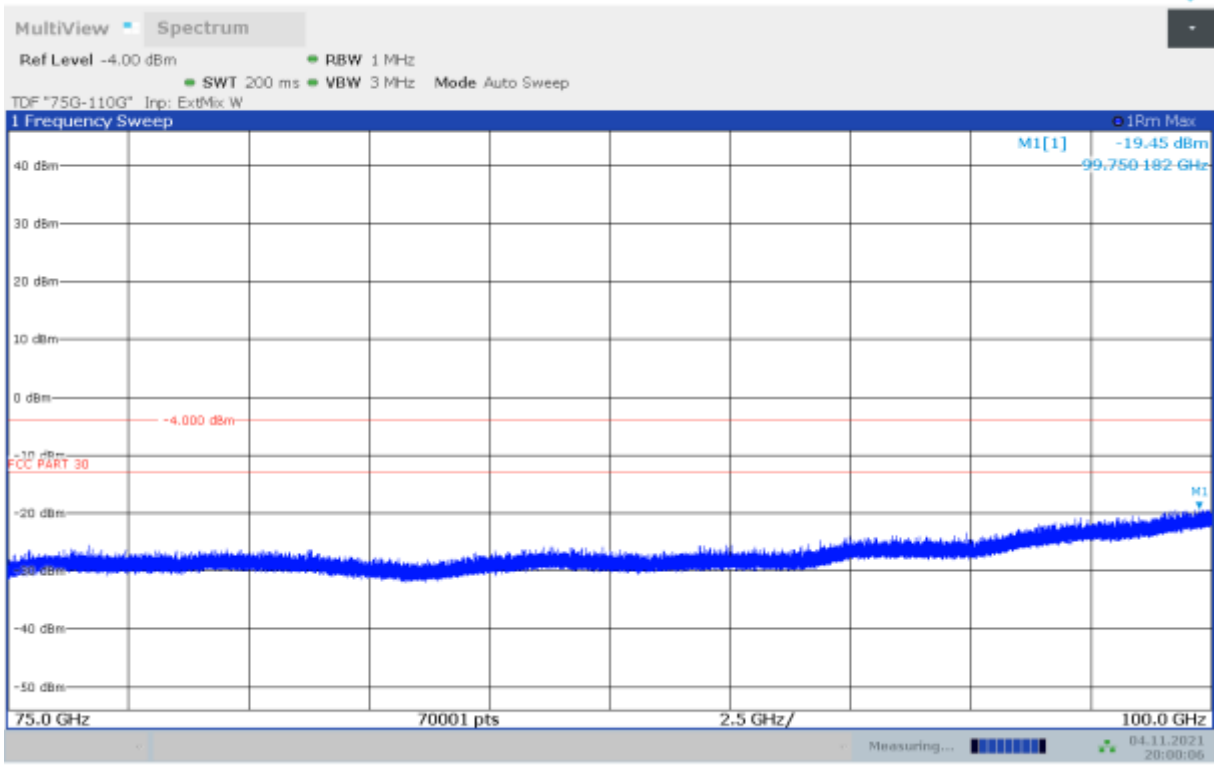
20:14:15 04.11.2021

n261, Low Channel, 75GHz-100GHz, Vertical



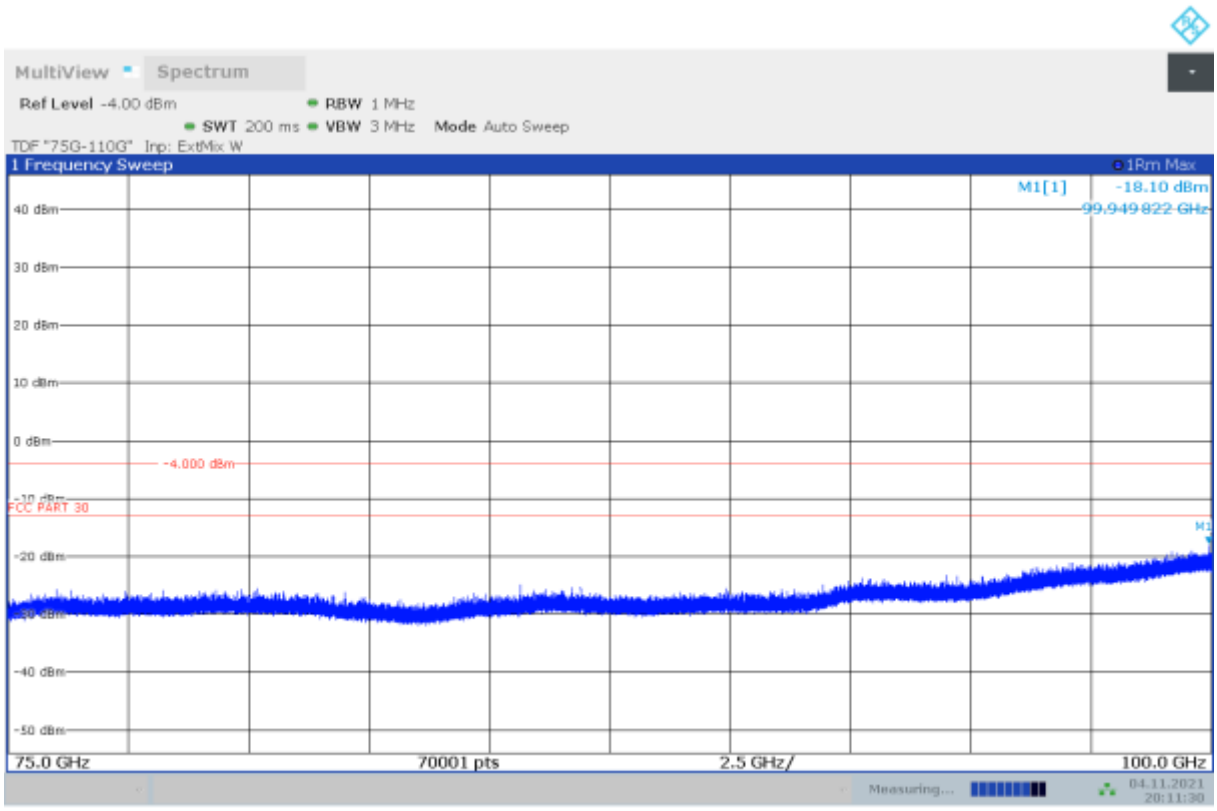
20:02:24 04.11.2021

n261, Middle Channel, 75GHz-100GHz, Horizontal



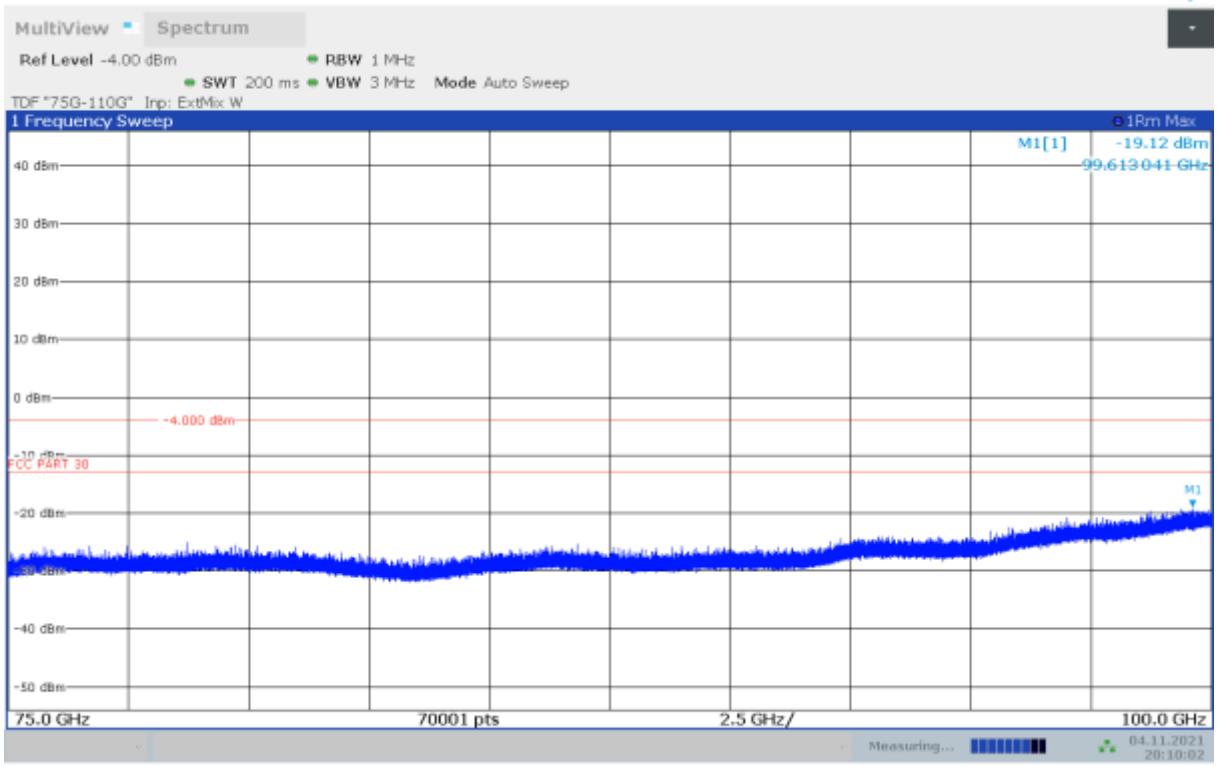
20:00:07 04.11.2021

n261, Middle Channel, 75GHz-100GHz, Vertical



20:11:30 04.11.2021

n261, High Channel, 75GHz-100GHz, Horizontal



20:10:02 04.11.2021

n261, High Channel, 75GHz-100GHz, Vertical

A.3 Frequency Stability

$2.1055

A.3.1 Method of Measurement

Frequency stability is a measure of the frequency drift due to temperature and supply voltage variations, with reference to the frequency measured at +20 °C and rated supply voltage. Two reference points are established at the applicable unwanted emissions limit using a RBW equal to the RBW required by the unwanted emissions specification of the applicable regulatory standard. These reference points measured using the lowest and highest channel of operation shall be identified as F_L and F_H respectively.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃.
3. With the EUT, powered via nominal voltage, connected to the simulator or working in non-signaling mode, and in a simulated call on middle channel for each frequency band, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the center channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 ℃increments from -30℃ to +50℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of the lower, higher and nominal voltage. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress.

A.3.2 Measurement results

n260, DFT Pi/2 BPSK, 1RB, 100MHz+100MHz
Frequency Error vs Temperature

CC1 OPERATING Band Centre FREQUENCY: 38450040000Hz

POWER (VDC)	TEMP (℃)	FREQUENCY (Hz)	Freq. Dev (Hz)	Deviation
3.85	+20(REF)	38447550000	/	/
	-30	38447550000	0	0
	-20	38448060000	510000	0.0013265%
	-10	38447920000	370000	0.0009624%
	+0	38447970000	420000	0.0010924%
	+10	38447830000	280000	0.0007283%
	+20	38447690000	140000	0.0003641%
	+30	38447830000	280000	0.0007283%
	+40	38447550000	0	0
	+50	38447690000	140000	0.0003641%
3.00	+20	38447700000	150000	0.0003901%
4.40	+20	38447850000	300000	0.0007803%

CC2 OPERATING Band Centre FREQUENCY: 38550000000Hz

POWER (VDC)	TEMP (℃)	FREQUENCY (Hz)	Freq. Dev (Hz)	Deviation
3.85	+20(REF)	38547800000	/	/
	-30	38547950000	150000	0.0003891%
	-20	38547920000	120000	0.0003113%
	-10	38548200000	400000	0.0010377%
	+0	38548250000	450000	0.0011674%
	+10	38547830000	30000	0.0000778%
	+20	38547830000	30000	0.0000778%
	+30	38547550000	-250000	-0.0006485%
	+40	38547410000	-390000	-0.0010117%
	+50	38547550000	-250000	-0.0006485%
3.00	+20	38547500000	-300000	-0.0007783%
4.40	+20	38547800000	0	0

n261, DFT QPSK, 1RB, 100MHz+100MHz
Frequency Error vs Temperature

CC1 OPERATING Band Centre FREQUENCY: 27875040000Hz

POWER (VDC)	TEMP (℃)	FREQUENCY (Hz)	Freq. Dev (Hz)	Deviation
3.85	+20(REF)	27872350000	/	/
	-30	27872890000	540000	0.0019374%
	-20	27872740000	390000	0.0013992%
	-10	27872870000	520000	0.0018656%
	+0	27872730000	380000	0.0013634%
	+10	27872670000	320000	0.0011481%
	+20	27872810000	460000	0.0016504%
	+30	27872600000	250000	0.0008969%
	+40	27872520000	170000	0.0006099%
	+50	27872380000	30000	0.0001076%
3.00	+20	27872500000	150000	0.0005382%
4.40	+20	27872350000	0	0

CC2 OPERATING Band Centre FREQUENCY: 27975000000Hz

POWER (VDC)	TEMP (℃)	FREQUENCY (Hz)	Freq. Dev (Hz)	Deviation
3.85	+20(REF)	27972750000	/	/
	-30	27972840000	90000	0.0003217%
	-20	27972840000	90000	0.0003217%
	-10	27972590000	-160000	-0.0005720%
	+0	27972730000	-20000	-0.0000715%
	+10	27972670000	-80000	-0.0002860%
	+20	27972810000	60000	0.0002145%
	+30	27972660000	-90000	-0.0003217%
	+40	27972380000	-370000	-0.0013227%
	+50	27972660000	-90000	-0.0003217%
3.00	+20	27972900000	150000	0.0005362%
4.40	+20	27972600000	-150000	-0.0005362%

A.4 Occupied Bandwidth

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the specified frequencies and modulation. The table below lists the measured 99% BW. Spectrum analyzer plots are included on the following pages.

The measurement method is from ANSI C63.26:

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.

b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set ≥ 3 × RBW.

c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation.

d) Set the detection mode to peak, and the trace mode to max-hold.

The average EIRP reported below is canculated by:

EIRP(dBm)=Spectrum Analyzer Channel Power Level(dBm)-Antenna Factor(dBi) + Cable Loss(dB) + 20log(F)+20log(D)-27.56

Where:

F:frequency (MHz)

D:Distance(m)=3m

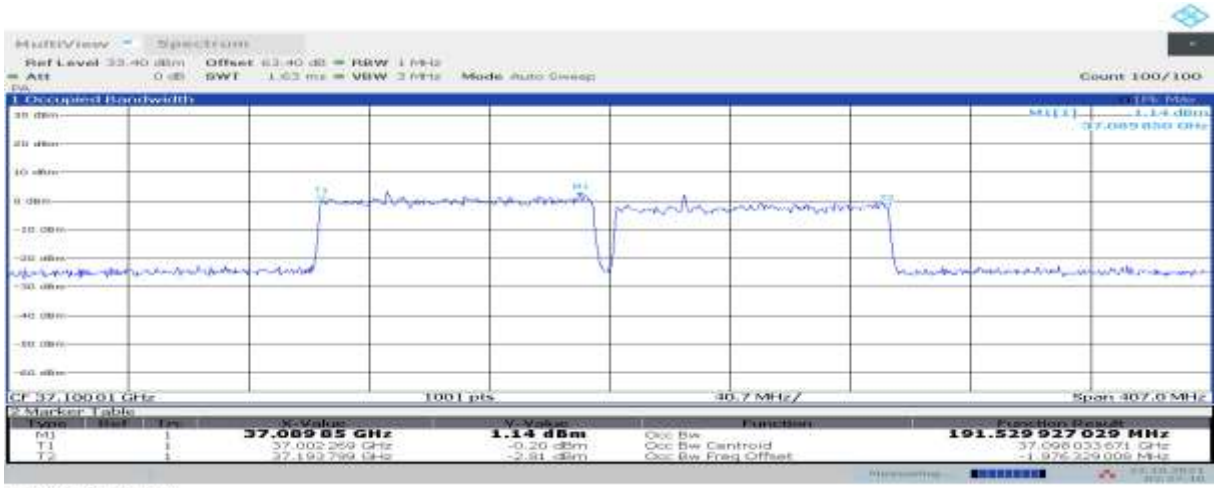
n260, Module0, SCS=120kHz, SISO Tx Chain 0

DFT

Bandwidth	Modulation	Frequency Range	Beam ID	Occupied Bandwidth (99%) (MHz)
100MHz + 100MHz	Pi/2 BPSK	Low	24	**191.53**
		Middle	24	**191.03**
		High	21	190.43
	QPSK	High	21	191.01
	16QAM	High	21	**192.30**
	64QAM	High	21	191.81
	QPSK	High	29	190.95

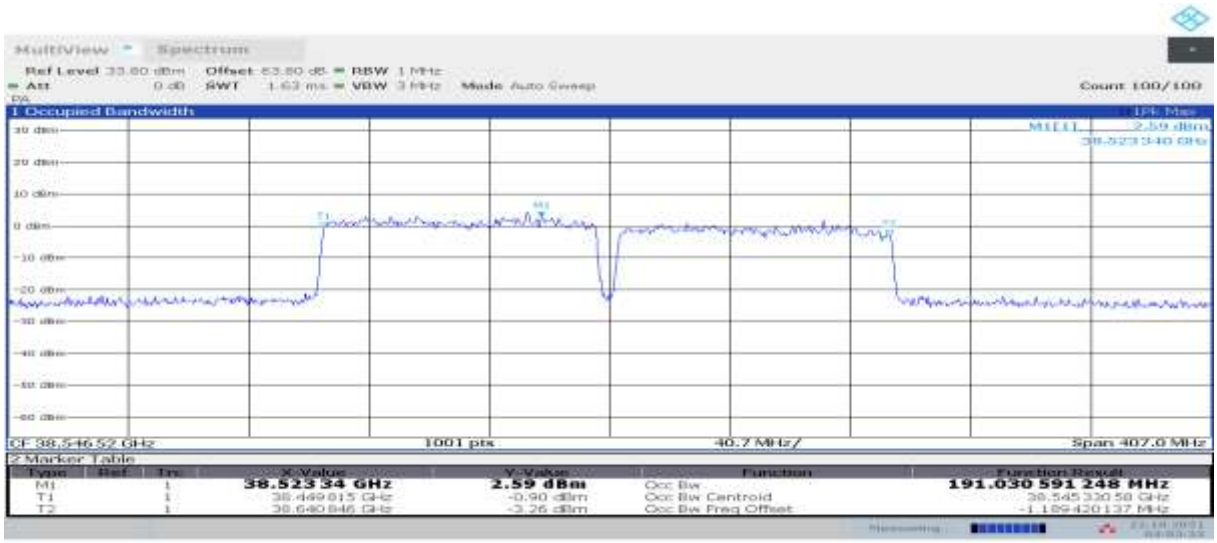
Note:The channel with the maximum power of Pi/2 BPSK was chose, and the QPSK, 16QAM, 64QAM and the other Beam ID were measured on that channel. The maximum occupied bandwidth figures were showed in the following page.

n260, 100MHz+100MHz Bandwidth, DFT, Low Channel, CC1 37050MHz CC2 37150MHz, Pi/2 BPSK (99% BW)



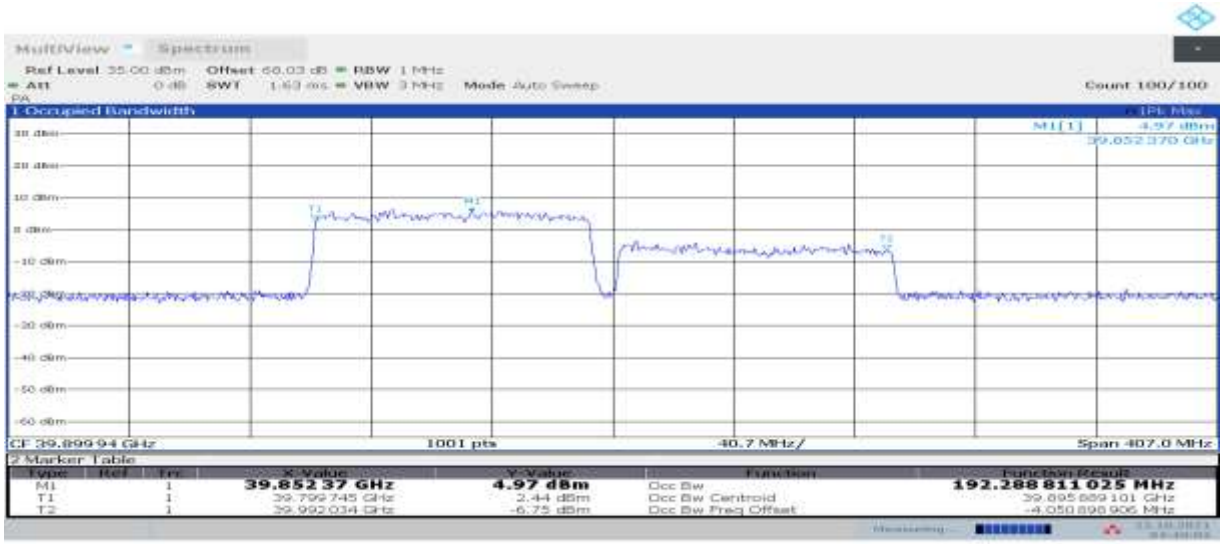
02:27:41 22.10.2021

n260, 100MHz+100MHz Bandwidth, DFT, Middle Channel CC1 38497.44MHz CC2 38597.44MHz, Pi/2 BPSK (99% BW)



04:03:22 22.10.2021

n260, 100MHz+100MHz Bandwidth,DFT,High Channel CC1 39849.96MHz CC2 39949.92MHz, 16QAM (99% BW)



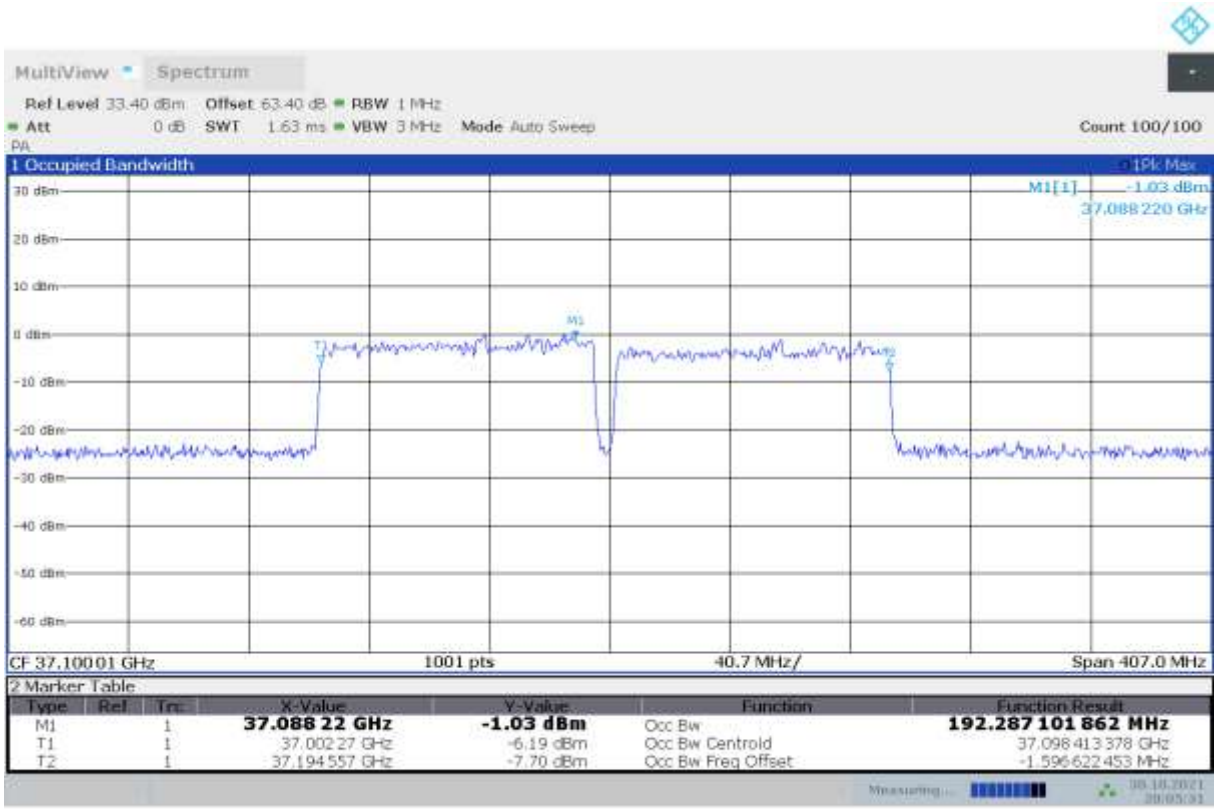
04:40:03 22.10.2021

n260, Module0, SCS=120kHz, SISO Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Beam ID	Occupied Bandwidth (99%) (MHz)
100MHz + 100MHz	DFT	QPSK	100% RB	Low	152	**192.29**
	DFT	QPSK	100% RB	Middle	152	191.39
	DFT	QPSK	100% RB	High	150	191.52

Note: According to the results in Chain 0, the set of modulation and RB size with higher power was measured on low, middle and high channel of Chain 1. The maxium occupied bandwidth figure was showed in the following.

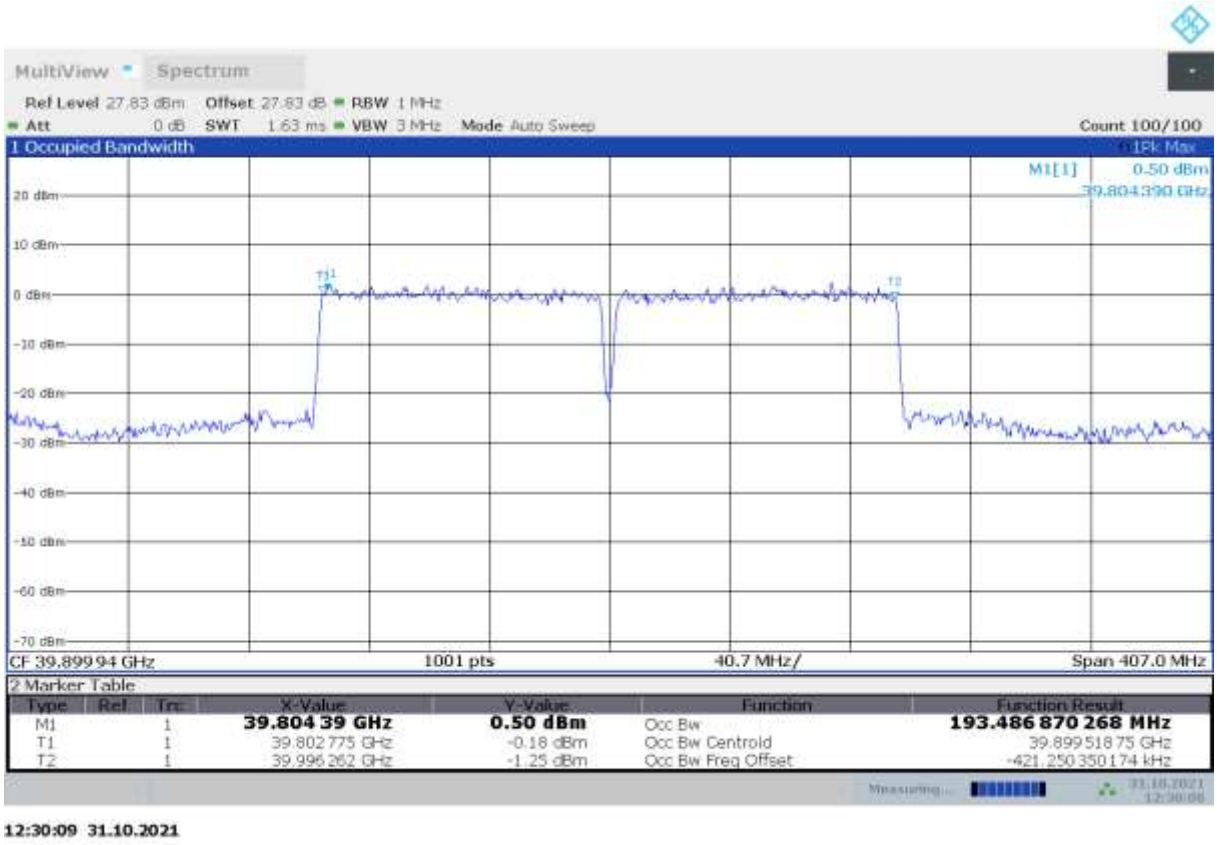
n260, 100MHz+100MHz Bandwidth, DFT, Low Channel, CC1 37050MHz CC2 37150MHz, QPSK (99% BW)



n260, Module0, SCS=120kHz, MIMO Tx Chain 0 Beam ID 24 + Tx Chain 1 Beam ID 152

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Occupied Bandwidth (99%) (MHz)
100MHz+100MHz	CP	QPSK	100% RB	High	193.49

Note: According to the results of Chain 0 and Chain 1, the set of modulation, RB size and channel with higher power was measured and the figure was showed in the following:



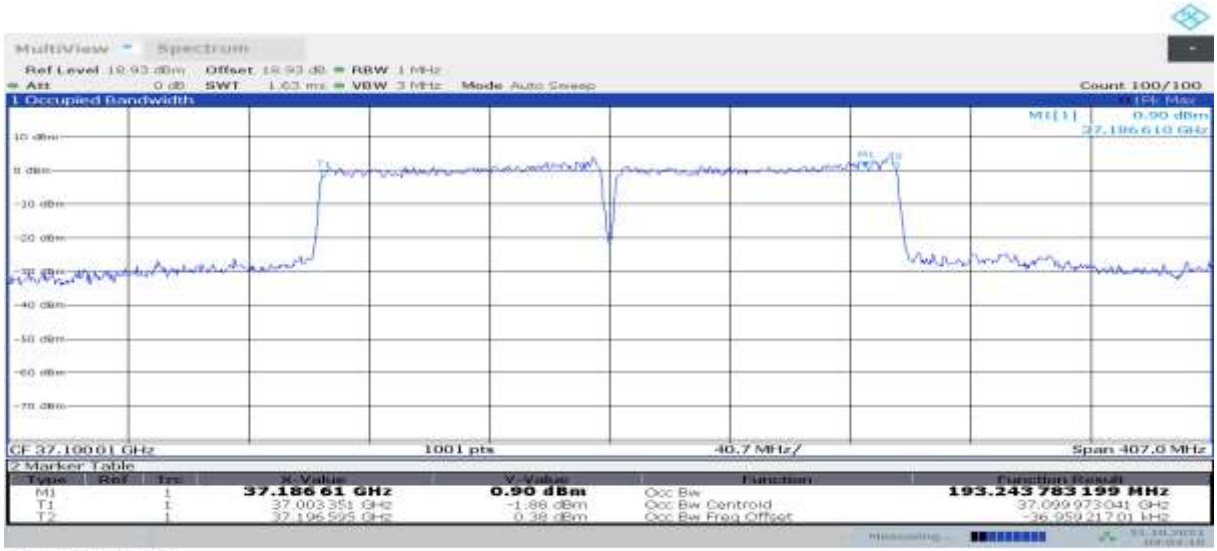
n260, Module1, SCS=120kHz, SISO Tx Chain 0

CP-OFDM

Bandwidth	Modulation	Frequency Range	Beam ID	Occupied Bandwidth (99%) (MHz)
100MHz + 100MHz	QPSK	Low	25	**193.24**
		Middle	25	**192.86**
		High	27	192.86
	16QAM	High	27	**193.57**
	64QAM	High	27	193.44
	64QAM	High	18	193.50

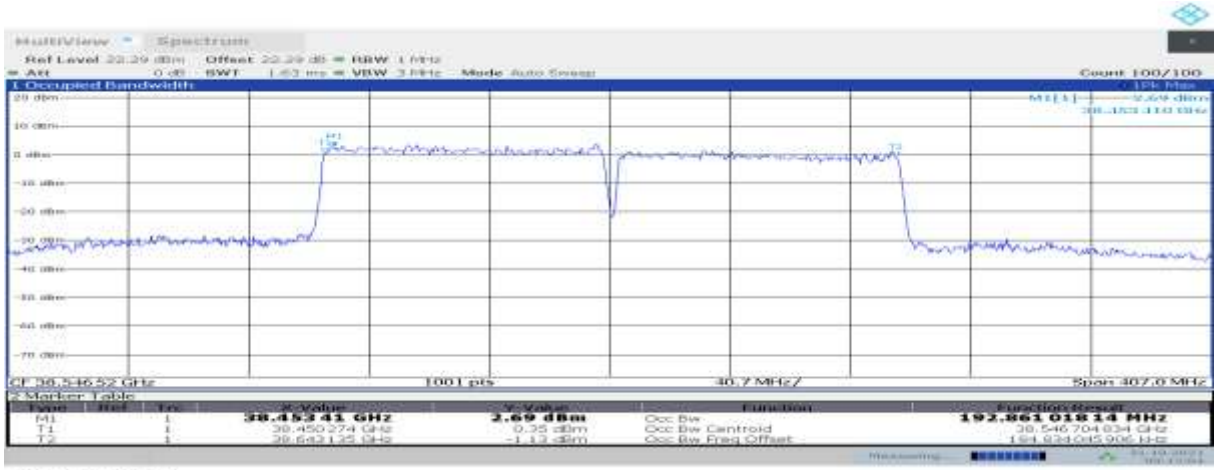
Note:The channel with the maximum power of QPSK was chose, and the 16QAM, 64QAM and the other Beam ID were measured on that channel. The maximum occupied bandwidth figures were showed in the following page.

n260, 100MHz+100MHz Bandwidth, CP-OFDM, Low Channel, CC1 37050MHz CC2 37150MHz, QPSK (99% BW)



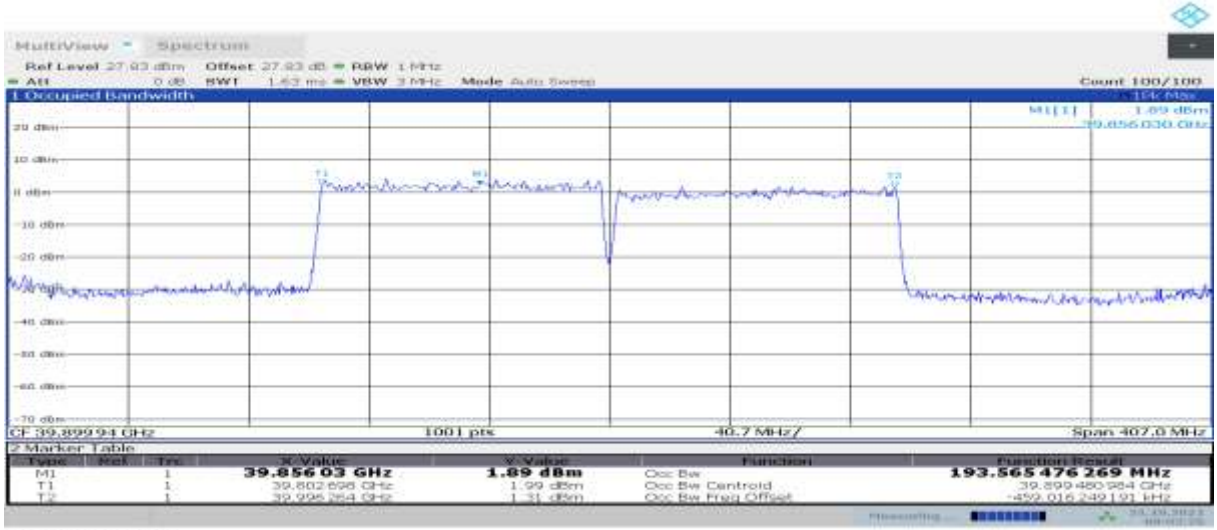
09:04:18 31.10.2021

n260, 100MHz+100MHz Bandwidth, CP-OFDM, Middle Channel CC1 38497.44MHz CC2 38597.44MHz, QPSK (99% BW)



09:12:04 31.10.2021

n260, 100MHz+100MHz Bandwidth,CP-OFDM, High Channel CC1 39849.96MHz CC2 39949.92MHz, 16QAM (99% BW)



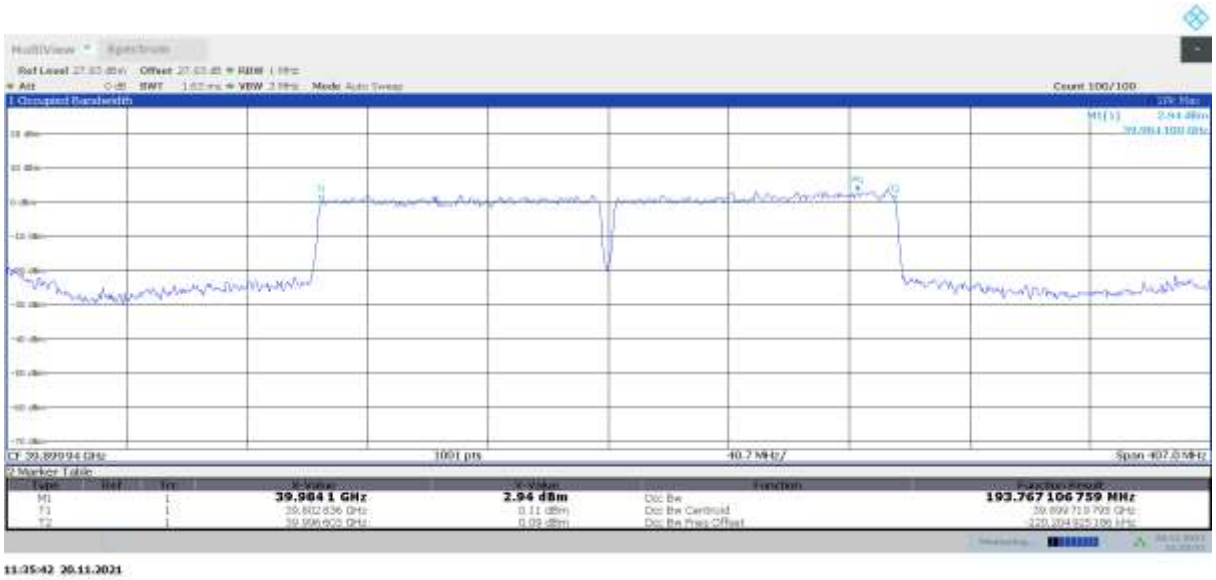
08:02:27 31.10.2021

n260, Module1, SCS=120kHz, SISO Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Beam ID	Occupied Bandwidth (99%) (MHz)
100MHz + 100MHz	CP	QPSK	100% RB	Low	146	193.78
	CP	QPSK	100% RB	Middle	146	193.45
	CP	QPSK	100% RB	High	155	**193.77**

Note: According to the results of Chain 0, the set of modulation and RB size with higher power was measured on low, middle and high channel. The maxium occupied bandwidth figure was showed in the following.

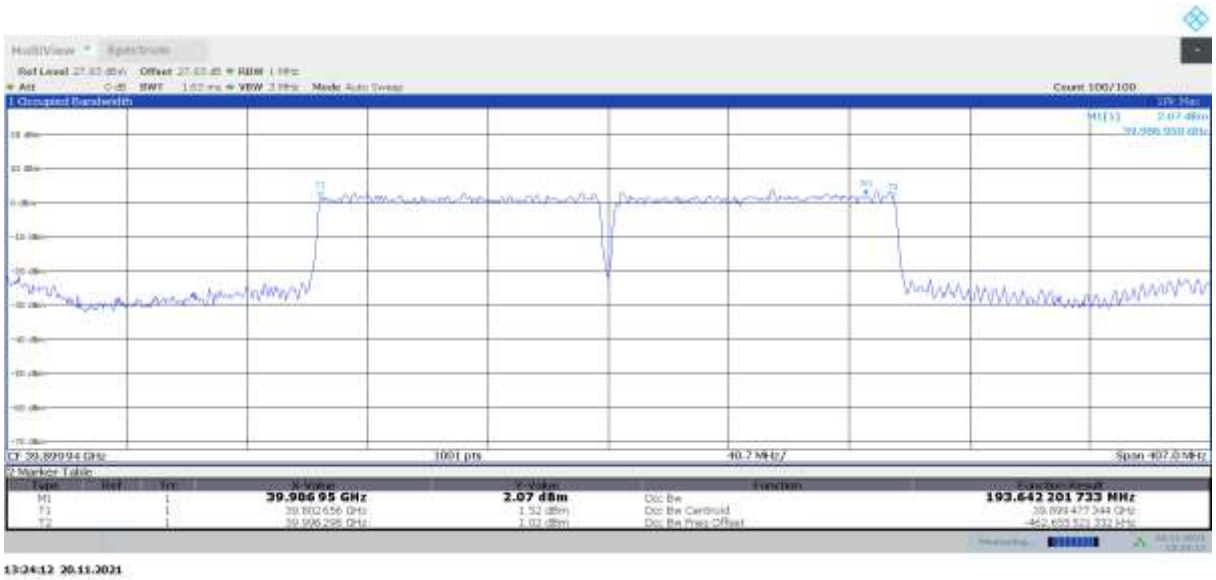
n260, 100MHz+100MHz Bandwidth, CP-OFDM, CC1 39849.96MHz CC2 39949.92MHz, QPSK (99% BW)



n260, Module1, SCS=120kHz, MIMO Tx Chain 0 Beam ID 27 + Tx Chain 1 Beam ID 155

Bandwidth	OFDM	Modulation	RB size/offset	Frequency Range	Occupied Bandwidth (99%) (MHz)
100MHz+100MHz	CP	QPSK	100% RB	High	193.64

Note: According to the resules of Chain 0 and Chain 1, the set of modulation, RB size and channel with higher power was measured and the figure was showed in the following:



n261, Module0, SCS=120kHz, SISO Tx Chain 0

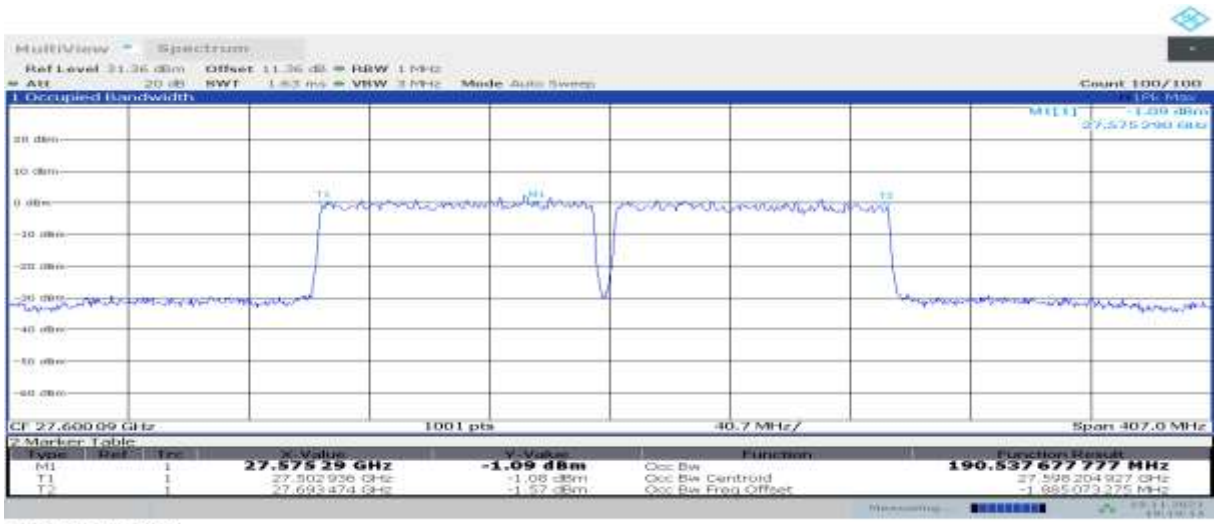
DFT

Bandwidth	Modulation	Frequency Range	Beam ID	Occupied Bandwidth (99%) (MHz)
100MHz + 100MHz	Pi/2 BPSK	Low	20	**190.54**
		Middle	20	**190.69**
		High	20	**190.51**

Note:The channel with the maximum power of Pi/2 BPSK was chose, and the QPSK, 16QAM, 64QAM and the other Beam ID were measured on that channel. The maximum occupied bandwidth figures were showed in the following page.

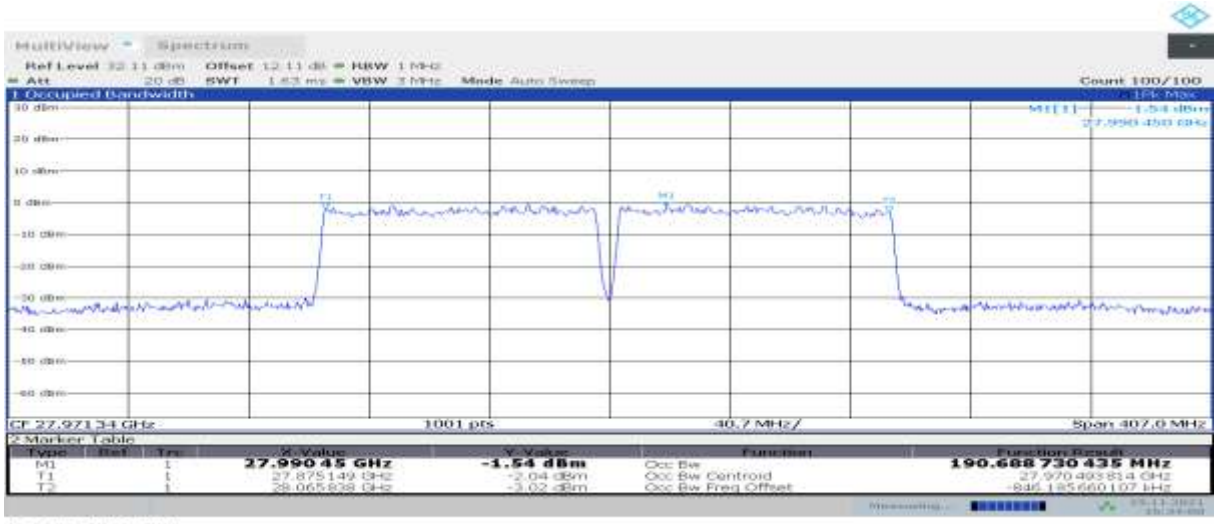
n261, 100MHz+100MHz Bandwidth, DFT

Low Channel,CC1 27550.08MHz,CC2 27650.08MHz, Pi/2 BPSK (99% BW)



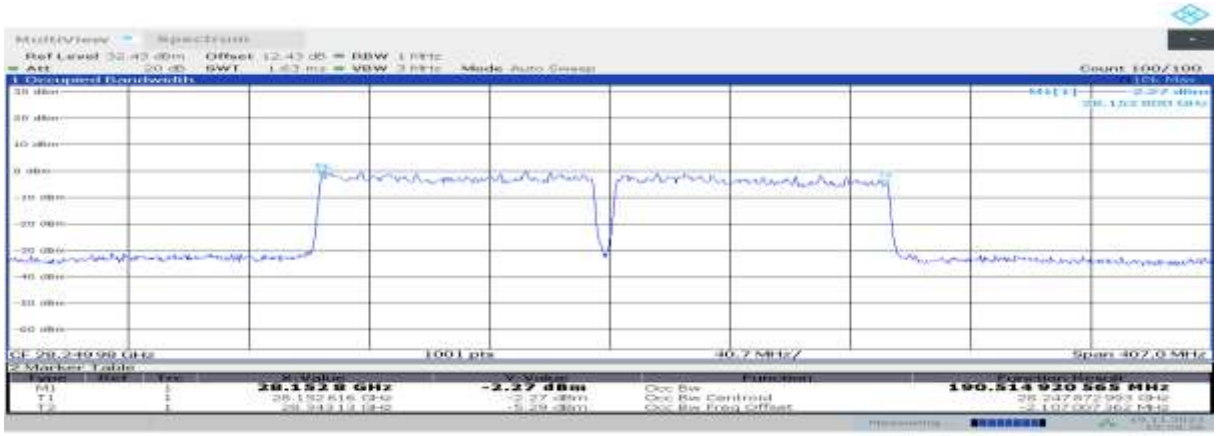
19:19:14 19.11.2021

Middle Channel, CC1 27922.44MHz, CC2 28022.44MHz Pi/2 BPSK (99% BW)



16:34:00 19.11.2021

High Channel, CC1 28200.02MHz, CC2 28299.96MHz, Pi/2 BPSK (99% BW)



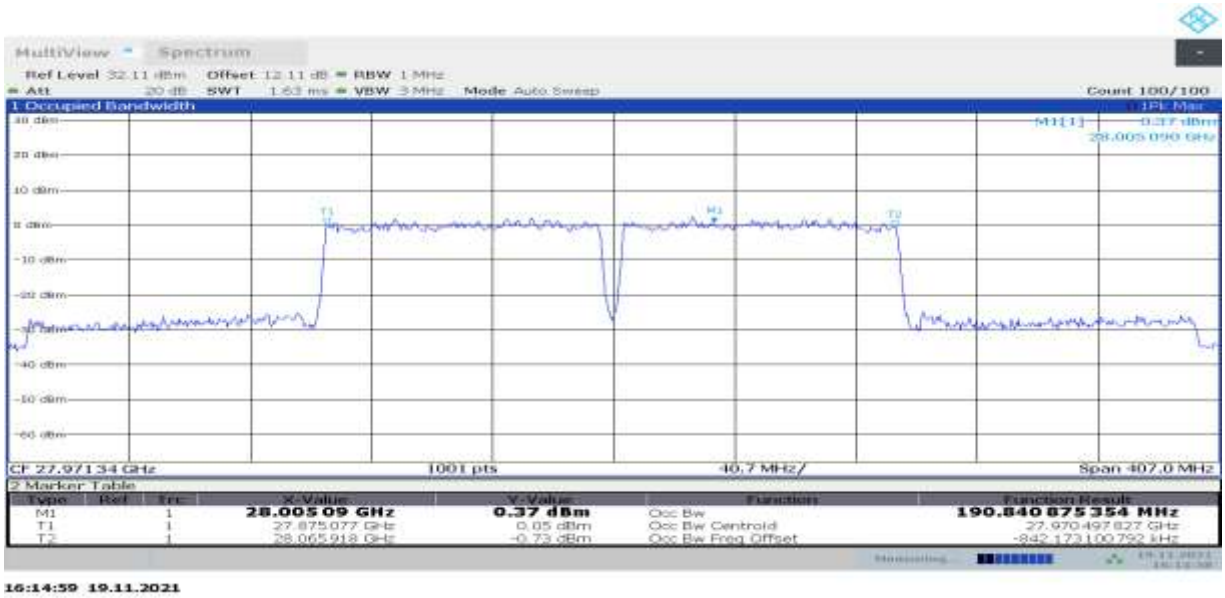
19:26:26 19.11.2021

n261, Module0, SCS=120kHz, SISO Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Beam ID	Occupied Bandwidth (99%) (MHz)
100MHz + 100MHz	DFT	QPSK	100% RB	Low	148	190.30
	DFT	PI/2 BPSK	100% RB	Middle	148	**190.84**
	DFT	PI/2 BPSK	100% RB	High	148	190.63

Note: the set of OFDM, modulation and RB size with higher power was measured on low, middle and high channel. The maxium occupied bandwidth figure were showed in the following.

Middle Channel, CC1 27922.44MHz, CC2 28022.44MHz Pi/2 BPSK (99% BW)

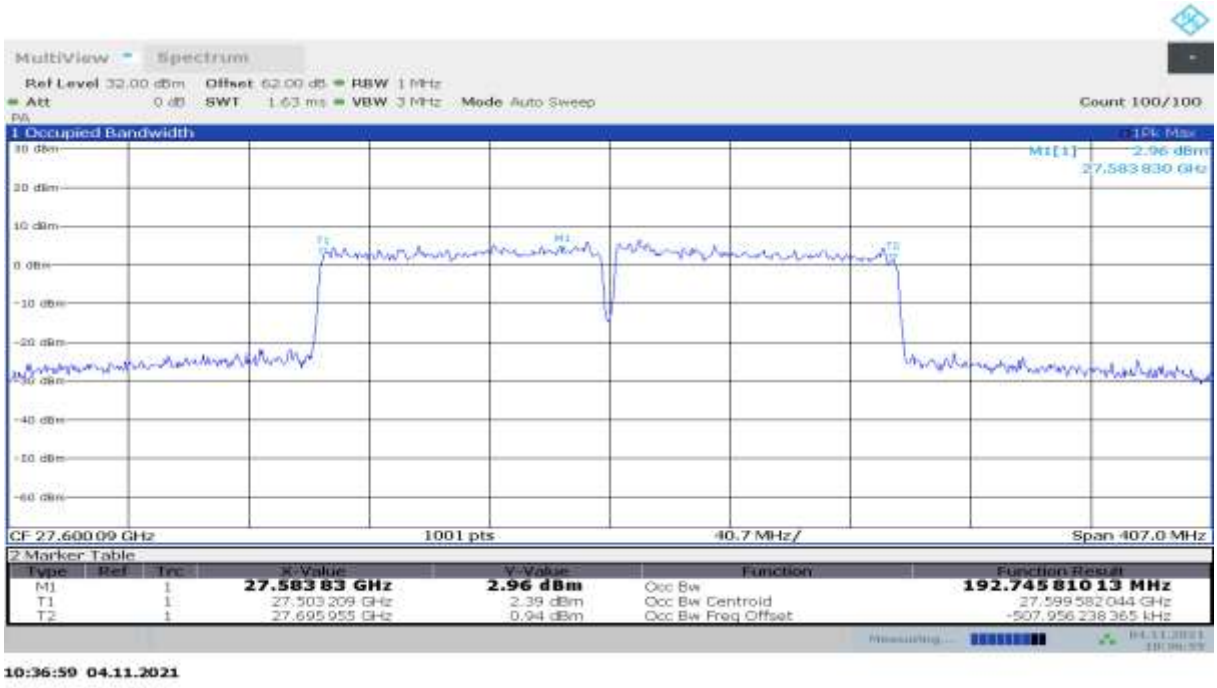


n261, Module0, SCS=120kHz, MIMO Tx Chain 0 + Tx Chain 1

Bandwidth	OFDM	Modulation	RB size/offset	Frequency Range	Beam ID Chain0+Chain1	Occupied Bandwidth (99%) (MHz)
100MHz +100MHz	CP	QPSK	100% RB	Low	20+148	192.75

Note: the set of OFDM, modulation, RB size and channel with higher power at the specified bandwidth was measured and the figure was showed in the following:

Low Channel,CC1 27550.08MHz,CC2 27650.08MHz, QPSK (99% BW)



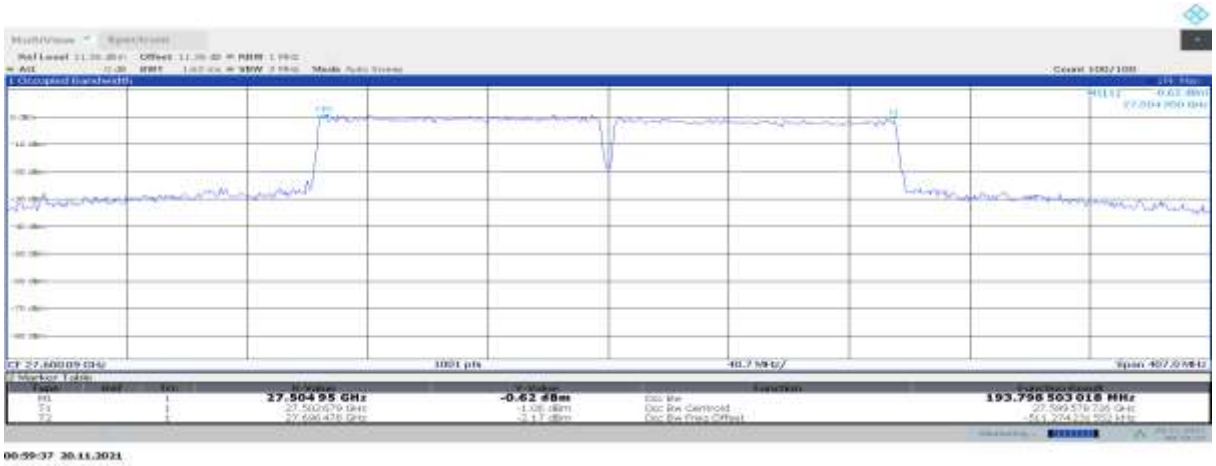
n261, Module1, SCS=120kHz, SISO Tx Chain 0

CP-OFDM

Bandwidth	Modulation	Frequency Range	Beam ID	Occupied Bandwidth (99%) (MHz)
100MHz + 100MHz	QPSK	Low	15	**193.80**
		Middle	15	**193.47**
		High	15	**193.80**
	16QAM	Low	15	193.35
	64QAM	Low	15	192.39
	QPSK	Low	25	193.29

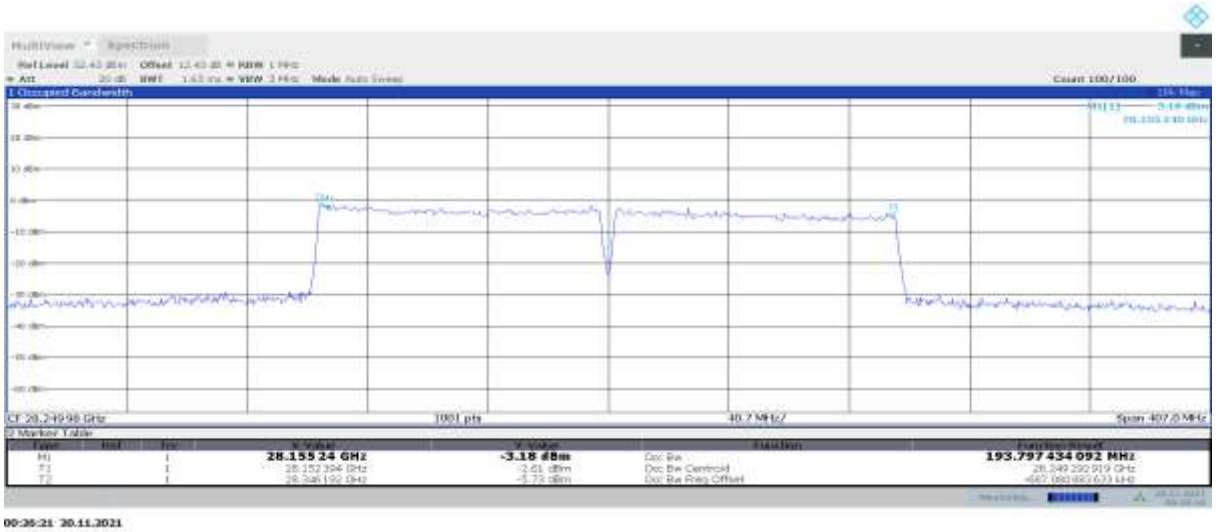
Note:The channel with the maximum power of QPSK was chose, and the 16QAM, 64QAM and the other Beam ID were measured on that channel. The maximum occupied bandwidth figures were showed in the following page.

n261, 100MHz+100MHz Bandwidth,CP-OFDM,
Low Channel,CC1 27550.08MHz,CC2 27650.08MHz, QPSK (99% BW)



Middle Channel, CC1 27922.44MHz, CC2 28022.44MHz QPSK (99% BW)

High Channel, CC1 28200.02MHz, CC2 28299.96MHz, QPSK(99% BW)

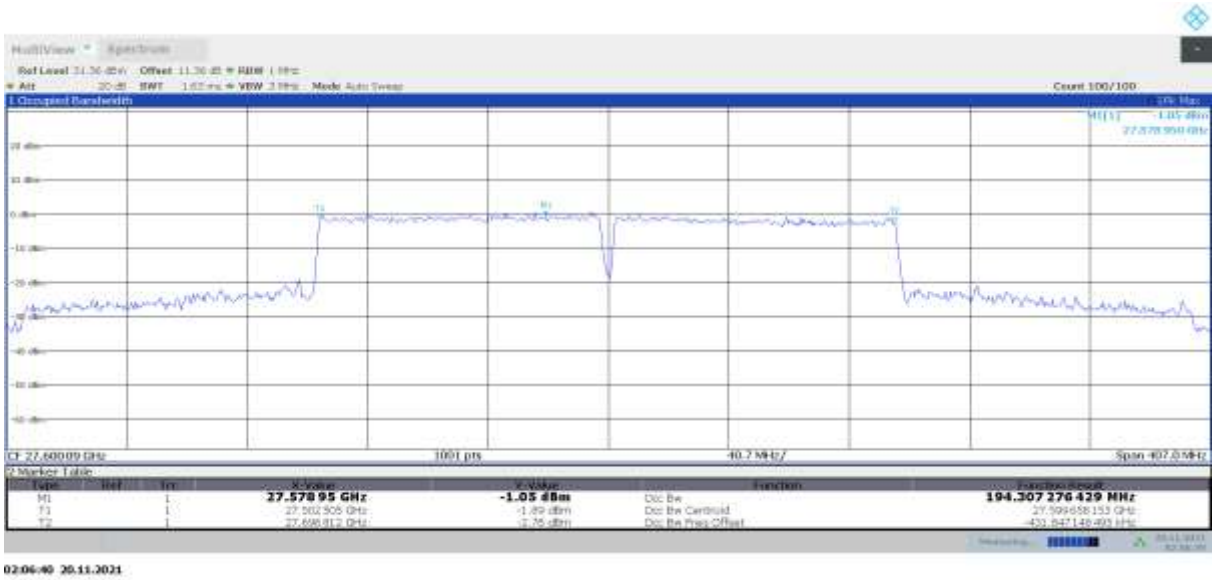


n261, Module1, SCS=120kHz, SISO Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Beam ID	Occupied Bandwidth (99%) (MHz)
100MHz + 100MHz	CP-OFDM	QPSK	100% RB	Low	153	**194.31**
	CP-OFDM	QPSK	100% RB	Middle	153	193.96
	CP-OFDM	QPSK	100% RB	High	153	194.22

Note: the set of OFDM, modulation and RB size with higher power was measured on low, middle and high channel. The maxium occupied bandwidth figure was showed in the following.

Low Channel, CC1 27550.08MHz,CC2 27650.08MHz, QPSK (99% BW)

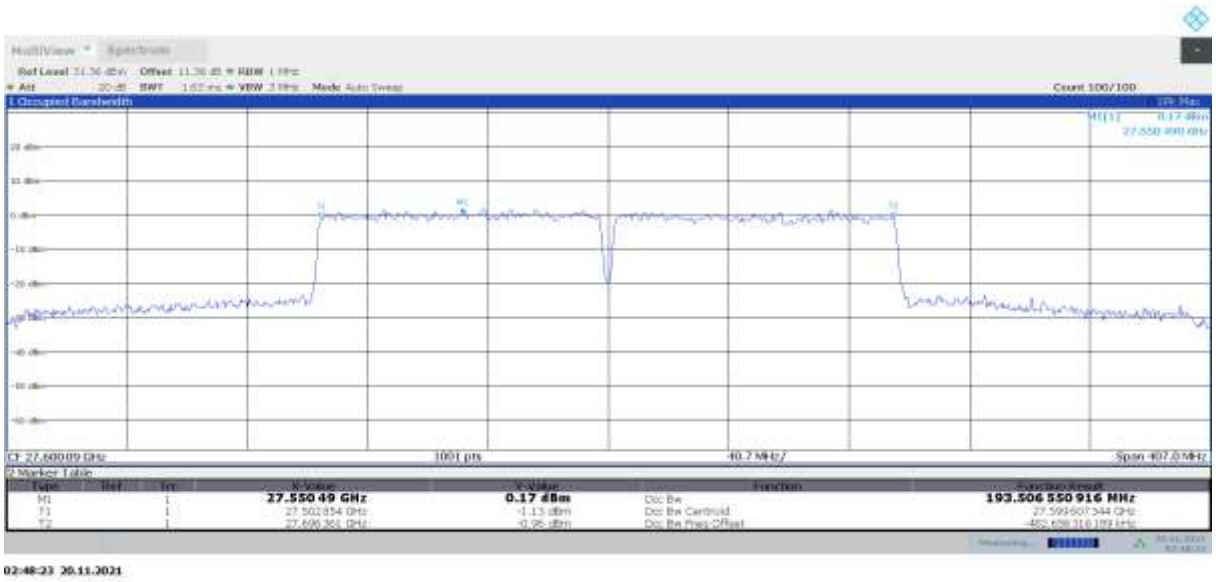


n261, Module1, SCS=120kHz, MIMO Tx Chain 0 + Tx Chain 1

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Beam ID Chain0+Chain1	Occupied Bandwidth (99%) (MHz)
100MHz +100MHz	CP	QPSK	100% RB	Low	16+144	193.51

Note: the set of modulation, RB size and channel with higher power at the specified bandwidth was measured and the figure was showed in the following:

Low Channel, CC1 27550.08MHz,CC2 27650.08MHz, QPSK (99% BW)



A.5 Band Edge Compliance

A.5.1 Measurement limit

Part 30.203 the total radiated power of any emission outside a licensee's frequency block shall be −13 dBm/MHz or lower. However, in the bands immediately outside and adjacent to the licensee's frequency block, having a bandwidth equal to 10 percent of the channel bandwidth, the conductive power or the total radiated power of any emission shall be −5 dBm/MHz or lower.

A.5.2 Measurement result

Only the worst case result is given below

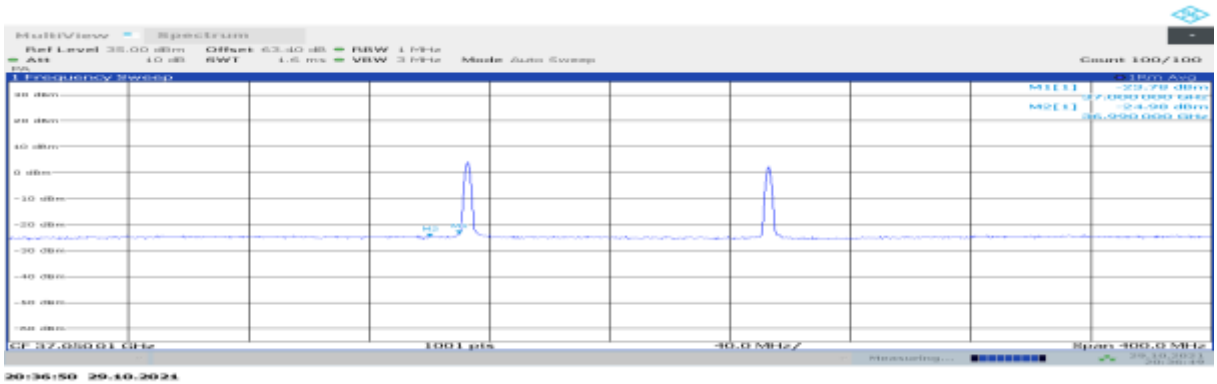
n260

Module0, SCS=120kHz, SISO Tx Chain 0, DFT, 100MHz+100MHz

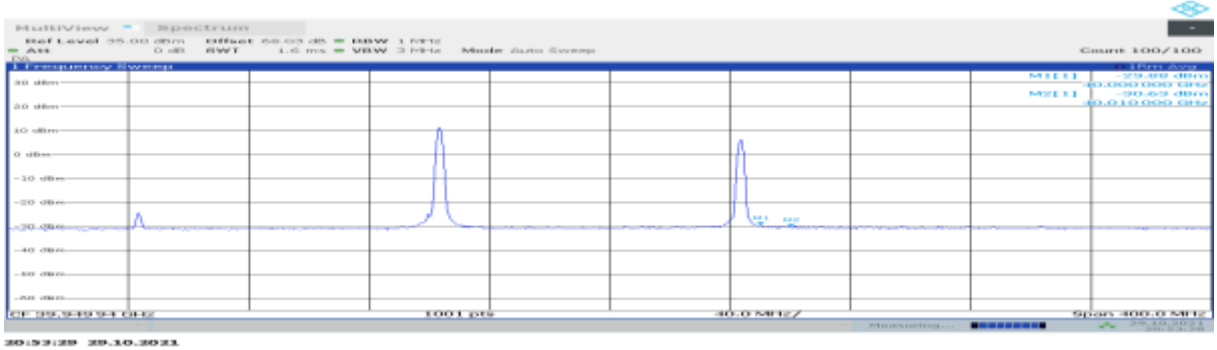
Bandwidth	Modulation	RB size	Frequency Range	Beam ID	Peak (dBm)	
					Limit: -5dBm	Limit: -13dBm
100MHz +100MHz	Pi/2 BPSK	100% RB	Low	24	-33.34	-33.97
		1 RB	Low	24	**-23.78**	**-24.98**
		100% RB	High	21	-30.37	-30.89
		1 RB	High	21	**-29.88**	**-30.63**
	QPSK	100% RB	High	21	-30.22	-30.57
	16QAM	100% RB	High	21	-30.42	-30.42
	64QAM	100% RB	High	21	-30.28	-30.57
	QPSK	100% RB	High	29	-31.12	-30.62

Note:The channel with the maximum power of Pi/2 BPSK was chose, and the band edge of QPSK, 16QAM, 64QAM and the other Beam ID were measured on that channel.

The left band edge worse case figure:



The right band edge worse case figure:

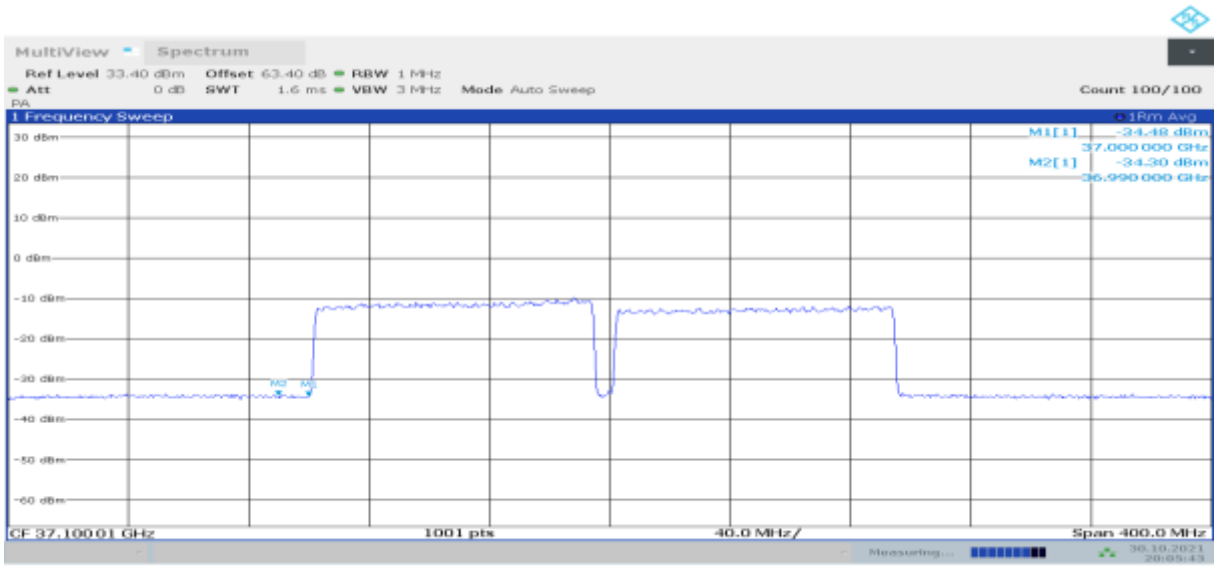


n260, Module0, SCS=120kHz, SISO Tx Chain 1

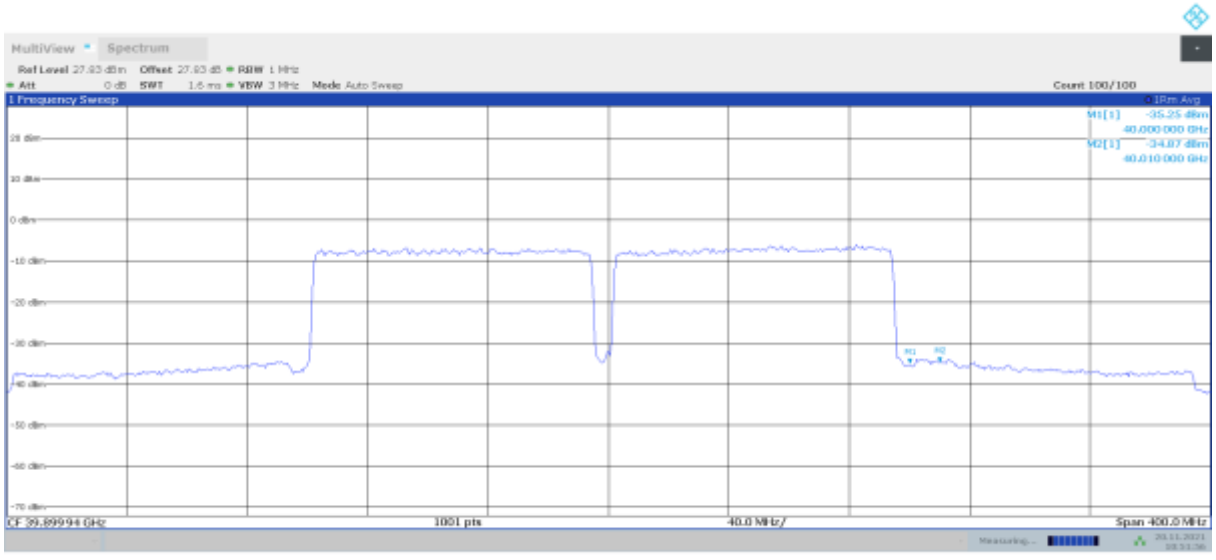
Bandwidth	OFDM	Modulation	RB size	Frequency Range	Beam ID	Peak (dBm)	
						Limit: -5dBm	Limit: -13dBm
100MHz	DFT	QPSK	100% RB	Low	152	-34.48	-34.30
+100MHz	DFT	QPSK	100% RB	High	150	-35.25	-34.87

Note: the set of modulation and RB size with higher power of Chain 0 were chose and measured on low channel and high channel of Chain 1.

The left band edge worse case figure:



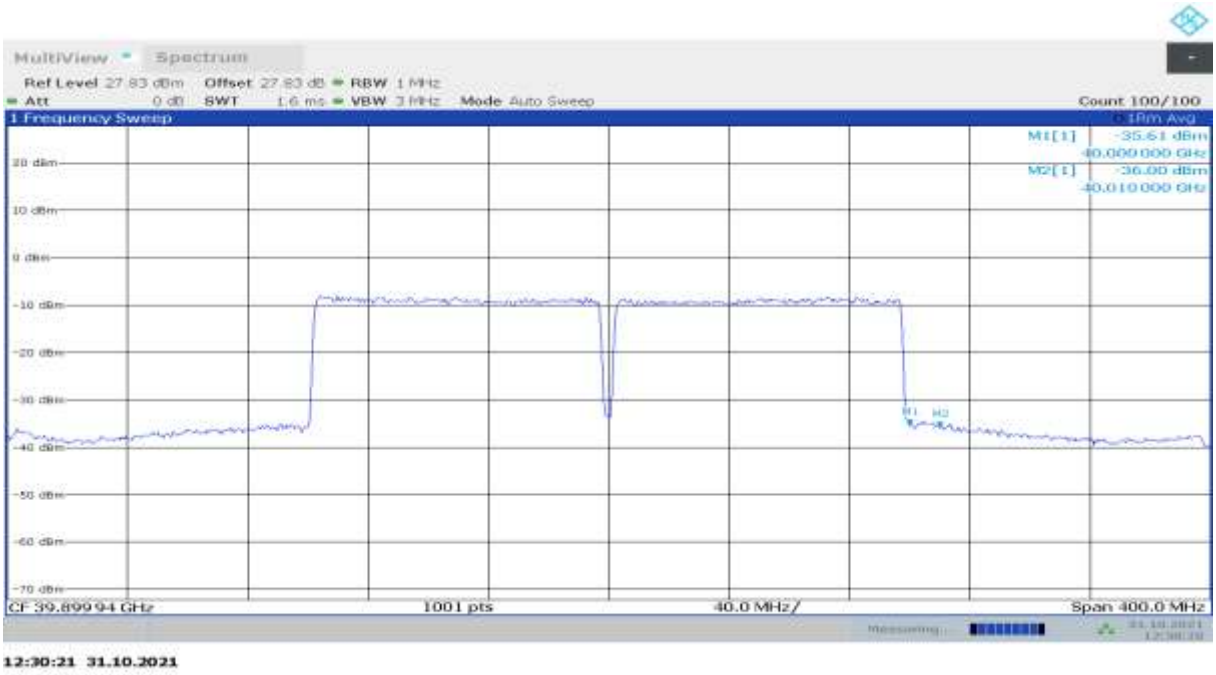
The right band edge worse case figure:



n260, Module0, SCS=120kHz, MIMO Tx Chain 0 Beam ID 24 + Tx Chain 1 Beam ID 152

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Peak (dBm)	
					Limit:-5dBm	Limit:-13dBm
100MHz+100MHz	CP	QPSK	100%RB	High	**-35.61**	**-36.00**

Note: the set of modulation, RB size and channel with higher power of Chain 0 and Chain 1 was chose and was measured at MIMO.



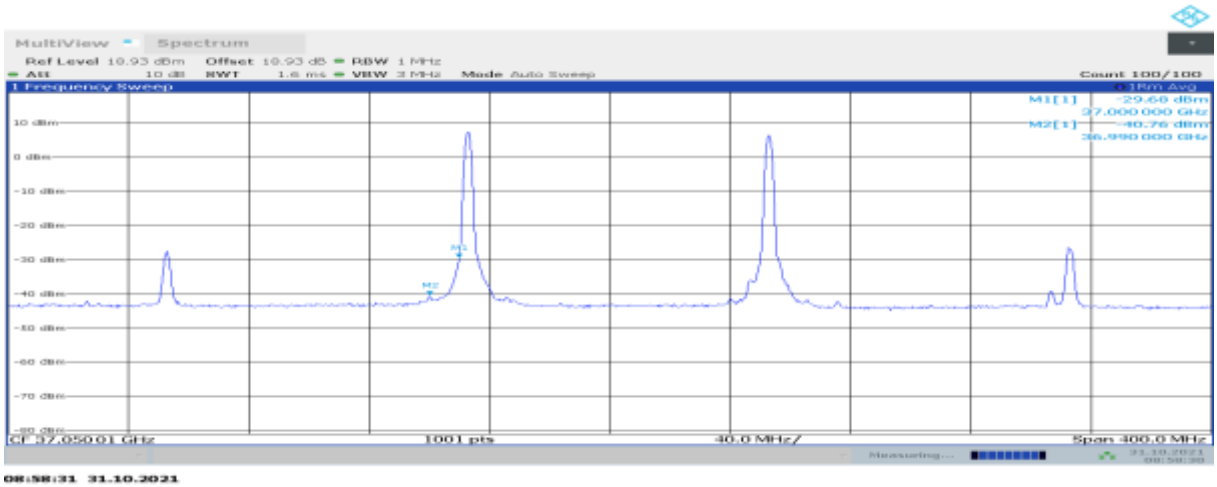
n260

Module1, SCS=120kHz, SISO Tx Chain 0, CP-OFDM, 100MHz

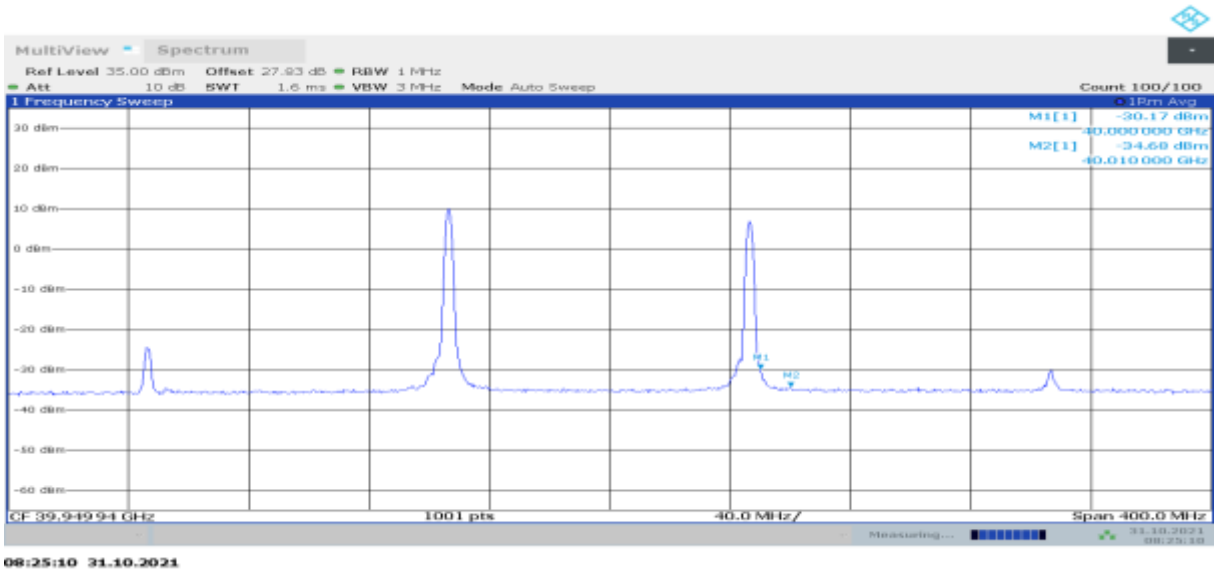
Bandwidth	Modulation	RB size	Frequency Range	Beam ID	Peak (dBm)	
					Limit: -5dBm	Limit: -13dBm
100MHz + 100MHz	QPSK	100% RB	Low	25	-36.39	-38.3
		1 RB	Low	25	**-29.68**	**-40.76**
		100% RB	High	27	-38.4	-40.34
		1 RB	High	27	**-30.17**	**-34.68**
	16QAM	100% RB	High	27	-40.41	-42.29
	64QAM	100% RB	High	27	-42.41	-43.44
	64QAM	100% RB	High	18	-42.43	-43.27

Note:The channel with the maximum power of QPSK and RB size was chose, and the band edge of 16QAM, 64QAM and the other Beam ID were measured on that channel.

The left band edge worse case figure:



The right band edge worse case figure:

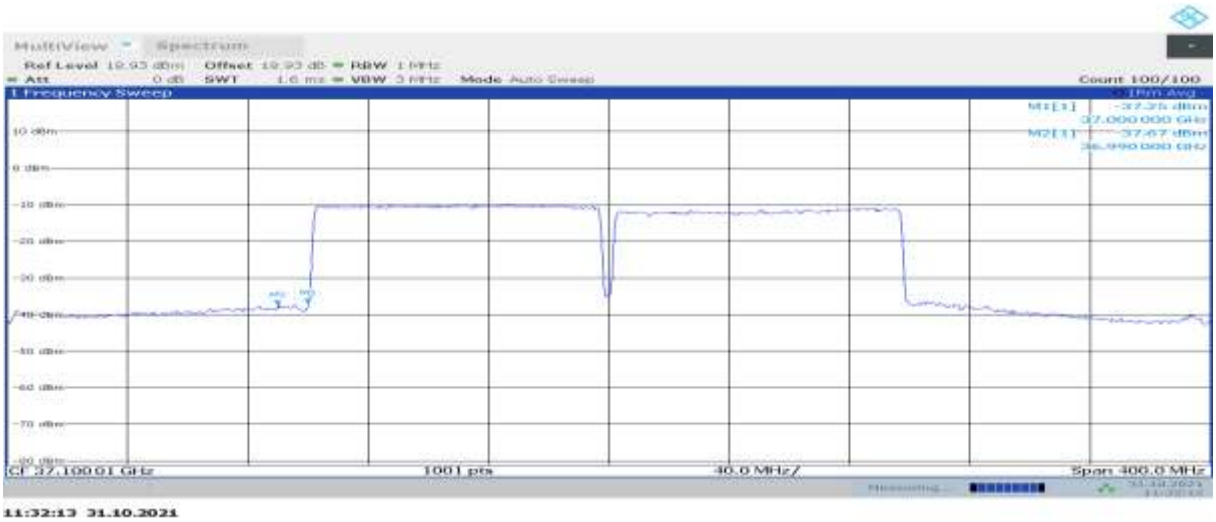


n260, Module1, SCS=120kHz, SISO Tx Chain 1

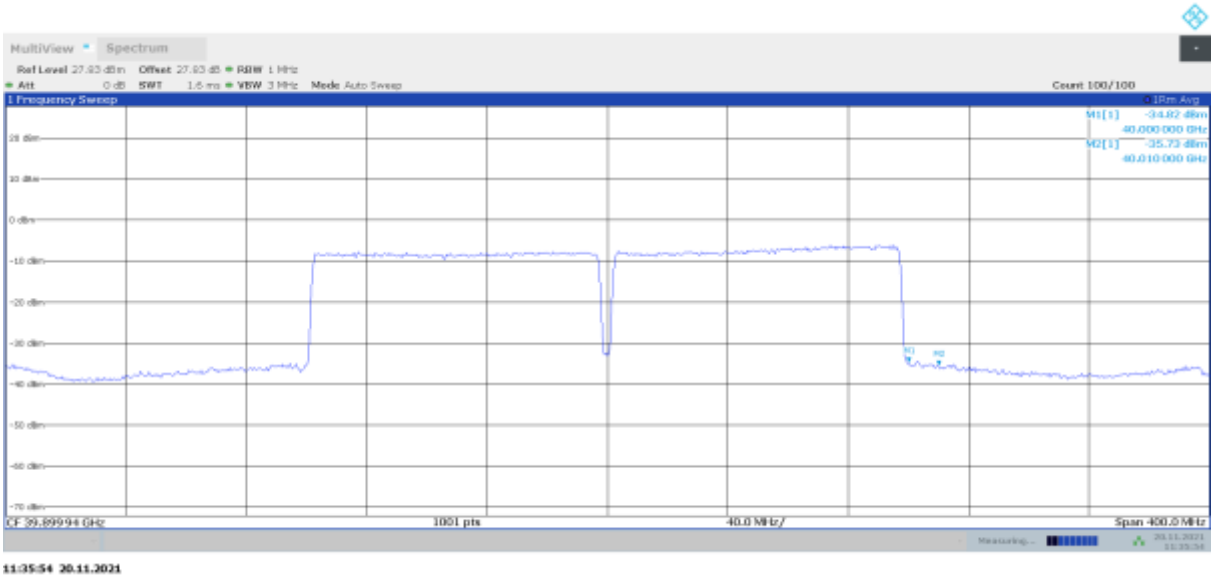
Bandwidth	OFDM	Modulation	RB size	Frequency Range	Beam ID	Peak (dBm)	
						Limit: -5dBm	Limit: -13dBm
100MHz	CP	QPSK	100% RB	Low	146	-37.25	-37.67
+100MHz	CP	QPSK	100% RB	High	155	-34.82	-35.73

Note: the set of modulation and RB size with higher power was measured on low and high channels.

The left band edge worse case figure:



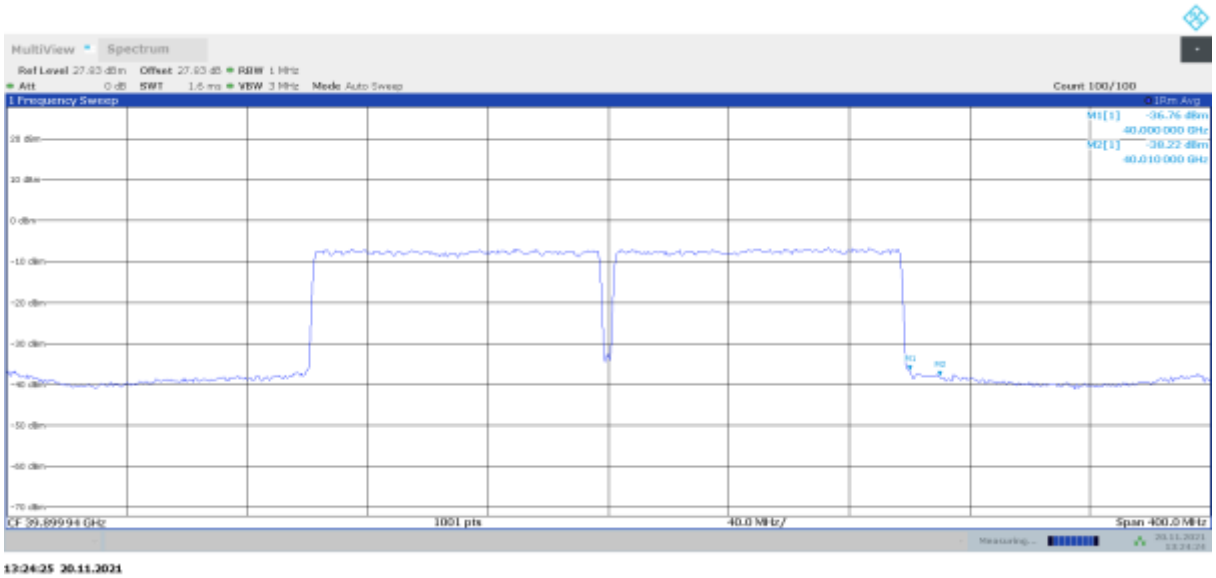
The right band edge worse case figure:



n260, Module1, SCS=120kHz, MIMO Tx Chain 0 Beam ID 27 + Tx Chain 1 Beam ID 155

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Peak (dBm)	
					Limit: -5dBm	Limit: -13dBm
100MHz+100MHz	CP	QPSK	100%RB	High	-36.76	-38.22

Note: the set of modulation, RB size and channel with higher power at the specified bandwidth was measured.

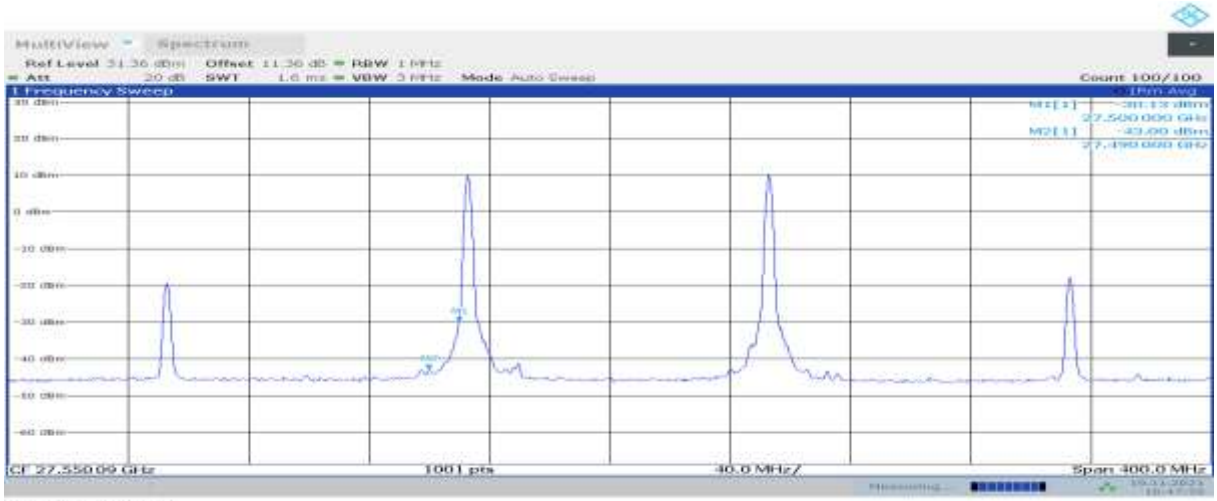


n261, Module0, SCS=120kHz, SISO Tx Chain 0, DFT, 100MHz+100MHz

Bandwidth	Modulation	RB size	Frequency Range	Beam ID	Peak (dBm)	
					Limit: -5dBm	Limit: -13dBm
100MHz + 100MHz	Pi/2 BPSK	100% RB	Low	20	-38.08	-40.84
		1 RB	Low	20	**-30.13**	**-43.00**
		100% RB	High	20	**-42.59**	**-43.58**
		1 RB	High	20	-43.37	-44.88
	QPSK	100% RB	Low	20	-31.53	-43.41
	16QAM	100% RB	Low	20	-32.11	-43.90
	64QAM	100% RB	Low	20	-31.38	-44.00
	QPSK	100% RB	Low	28	-32.32	-44.83

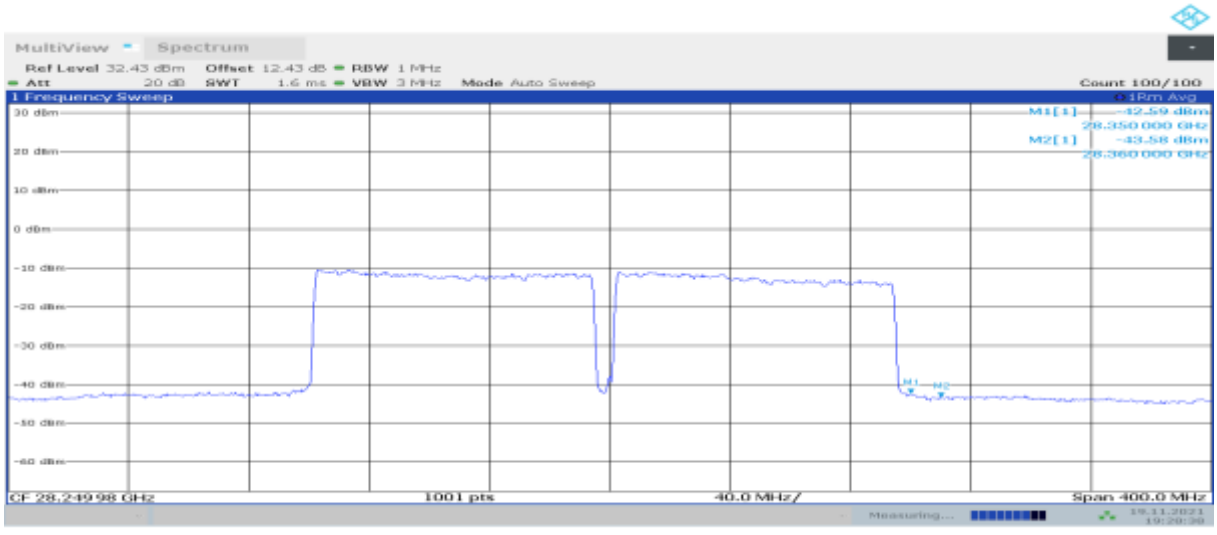
Note:The channel with the maximum power of Pi/2 BPSK and RB size was chose, and the band edge of QPSK, 16QAM, 64QAM and the other Beam ID were measured on that channel.

The left band edge worse case figure:



16:47:59 19.11.2021

The right band edge worse case figure:



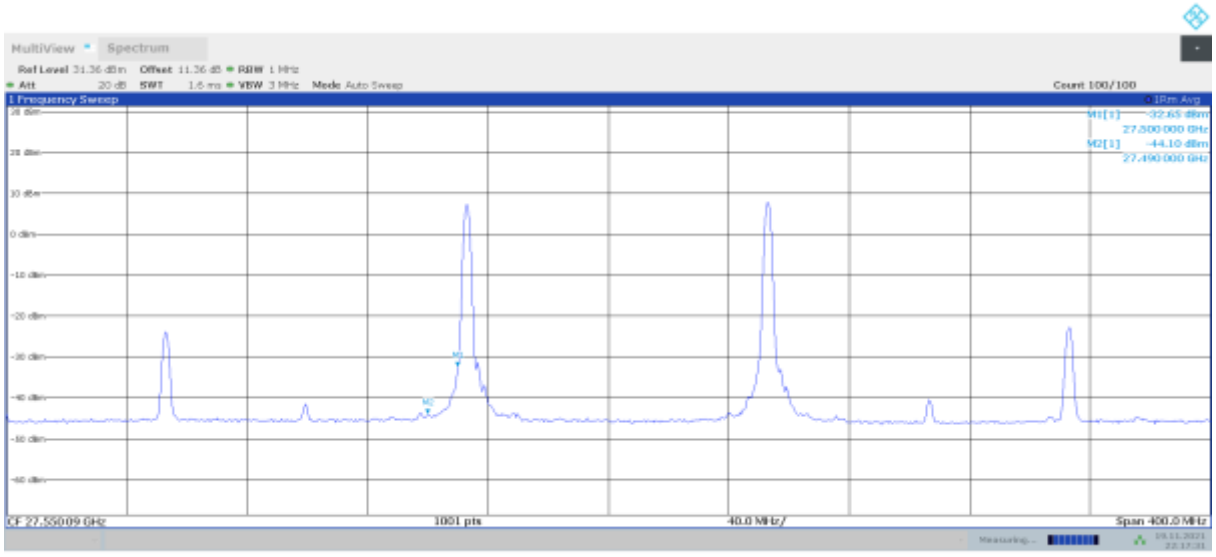
19:28:39 19.11.2021

n261, Module0, SCS=120kHz, SISO Tx Chain 1

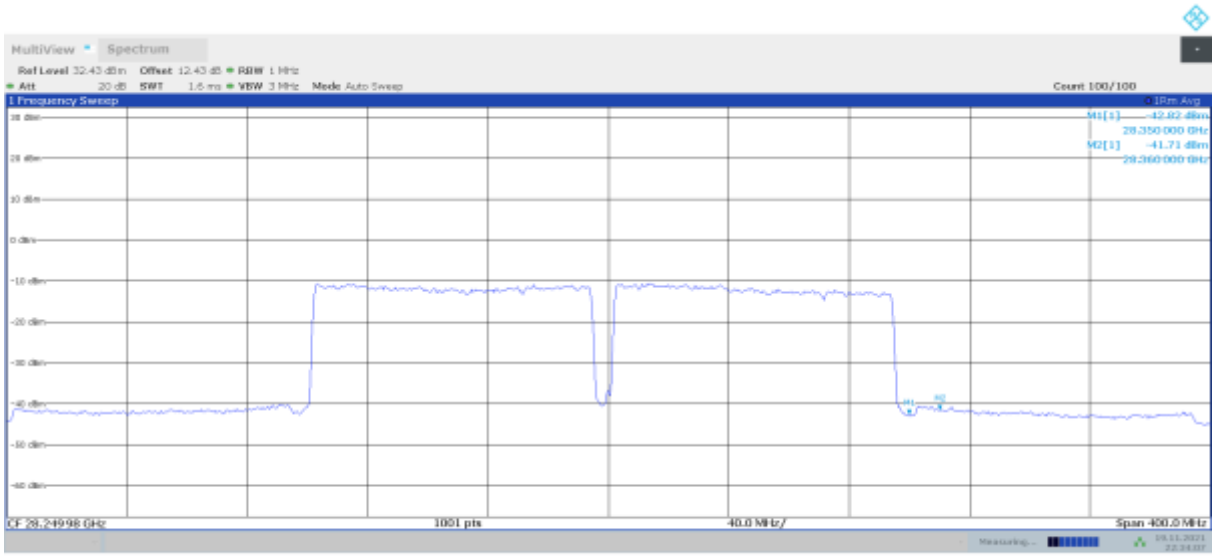
Bandwidth	OFDM	Modulation	RB size/offset	Frequency Range	Beam ID	Peak (dBm)	
						Limit: -5dBm	Limit: -13dBm
100MHz	DFT	64QAM	1 RB	Low	148	**-32.65**	**-44.10**
+100MHz	DFT	Pi/2 BPSK	100% RB	High	148	**-42.82**	**-41.71**

Note: the set of modulation and RB size with higher power was measured on low and high channels.

The left band edge worse case figure:



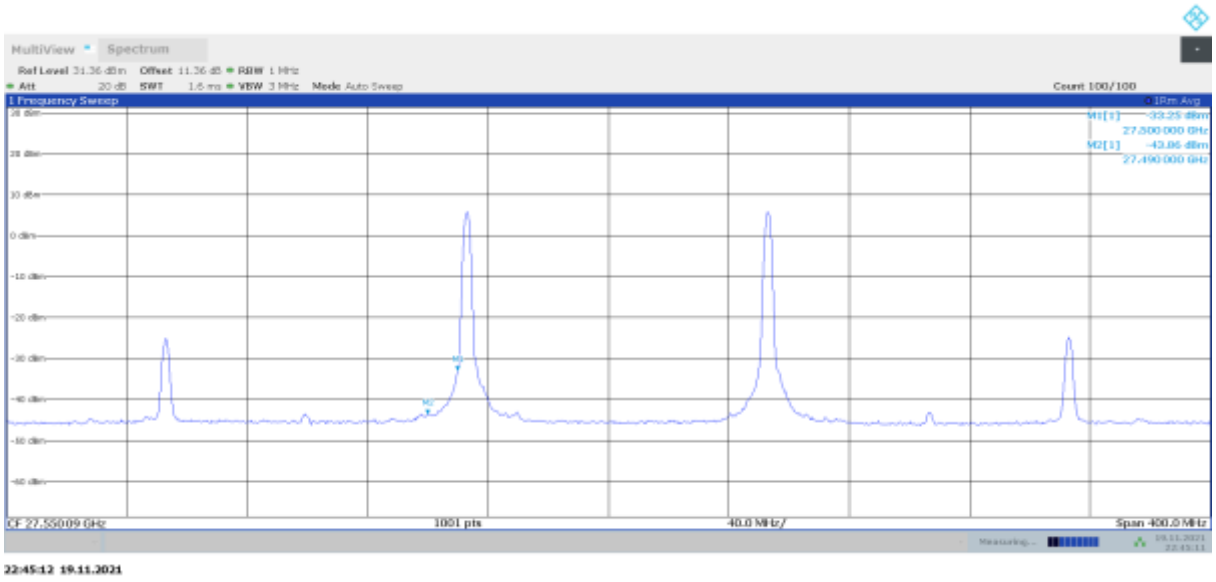
The right band edge worse case figure:



n261, Module0, SCS=120kHz, MIMO Tx Chain 0 Beam ID 20 + Tx Chain 1 Beam ID 148

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Peak (dBm)	
					Limit: -5dBm	Limit: -13dBm
100MHz+100MHz	CP	64QAM	1 RB	Low	-33.25	-43.86

Note: the set of modulation, RB size and channel with higher power was measured.



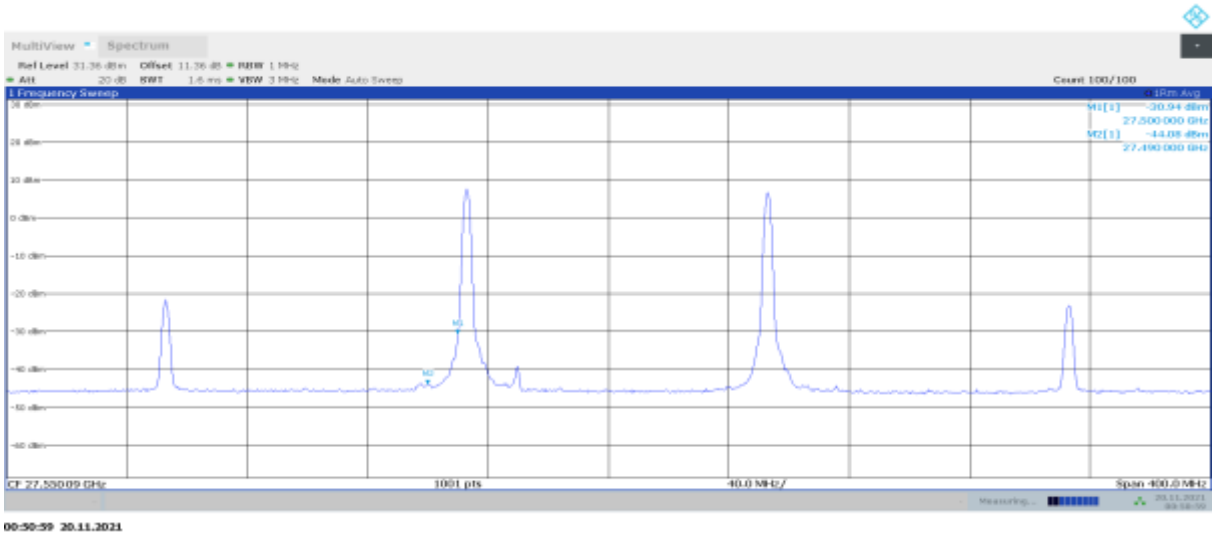
n261

Module1, SCS=120kHz, SISO Tx Chain 0, CP-OFDM, 100MHz+100MHz

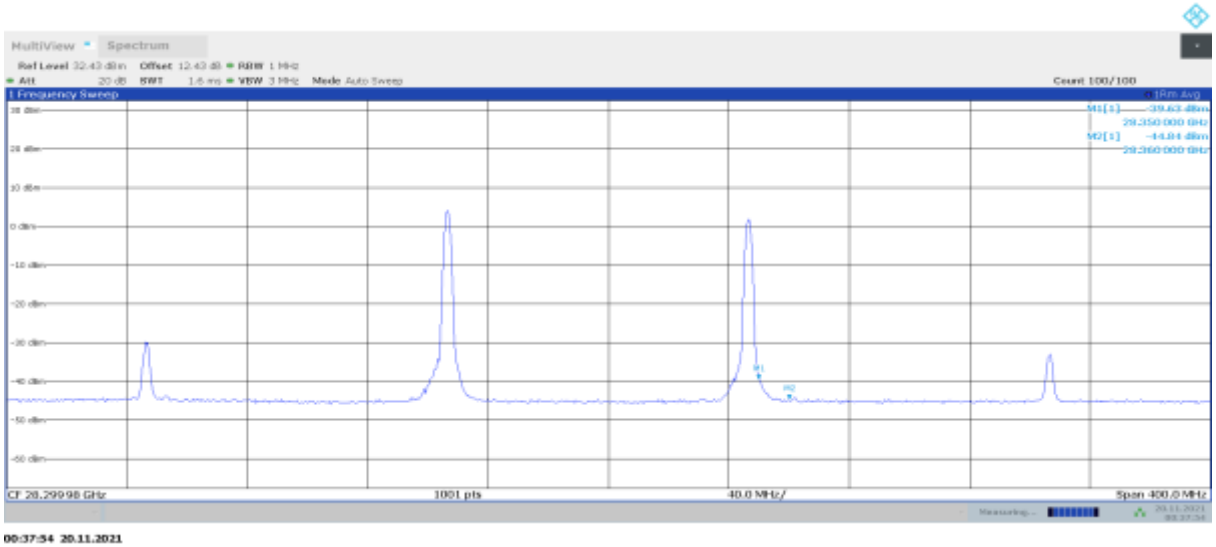
Bandwidth	Modulation	RB size	Frequency Range	Beam ID	Peak (dBm)	
					Limit: -5dBm	Limit: -13dBm
100MHz + 100MHz	QPSK	100% RB	Low	15	-36.46	-39.07
		1 RB	Low	15	**-30.94**	**-44.08**
		100% RB	High	15	-41.95	-42.74
		1 RB	High	15	**-39.63**	**-44.84**
	16QAM	100% RB	Low	15	-36.04	-37.53
	64QAM	100% RB	Low	15	-36.32	-38.68
	QPSK	100% RB	Low	25	-37.75	-38.99

Note:The channel with the maximum power of QPSK was chose, and the band edge of 16QAM, 64QAM and the other Beam ID were measured on that channel.

The left band edge worse case figure:



The right band edge worse case figure:

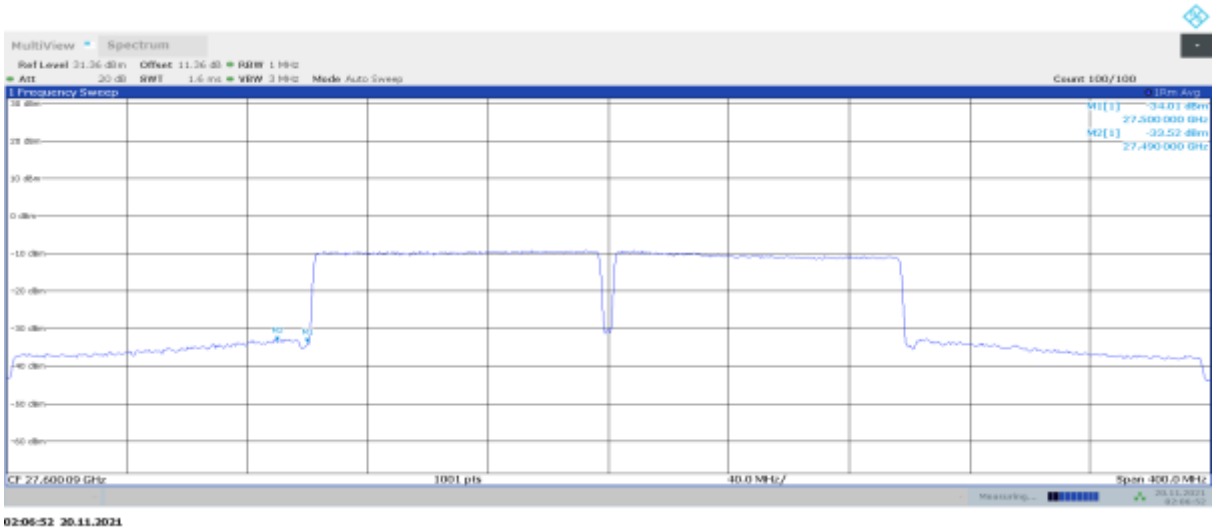


n261, Module1, SCS=120kHz, SISO Tx Chain 1

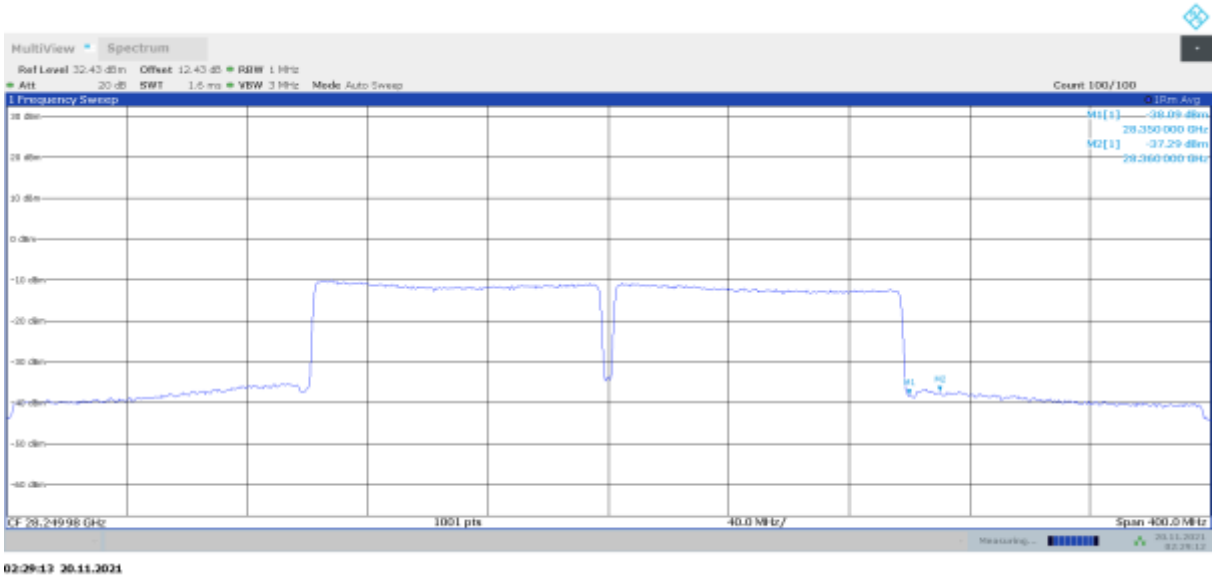
Bandwidth	OFDM	Modulation	RB size	Frequency (MHz)	Beam ID	Peak (dBm)	
						Limit: -5dBm	Limit: -13dBm
100MHz	CP	QPSK	100% RB	Low	153	**-34.01**	**-33.52**
+100MHz	CP	QPSK	100% RB	High	153	**-38.09**	**-37.29**

Note: the set of modulation and RB size with higher power of Chain 0 was chose, and measured on low and high channels of Chain 1.

The left band edge worse case figure:



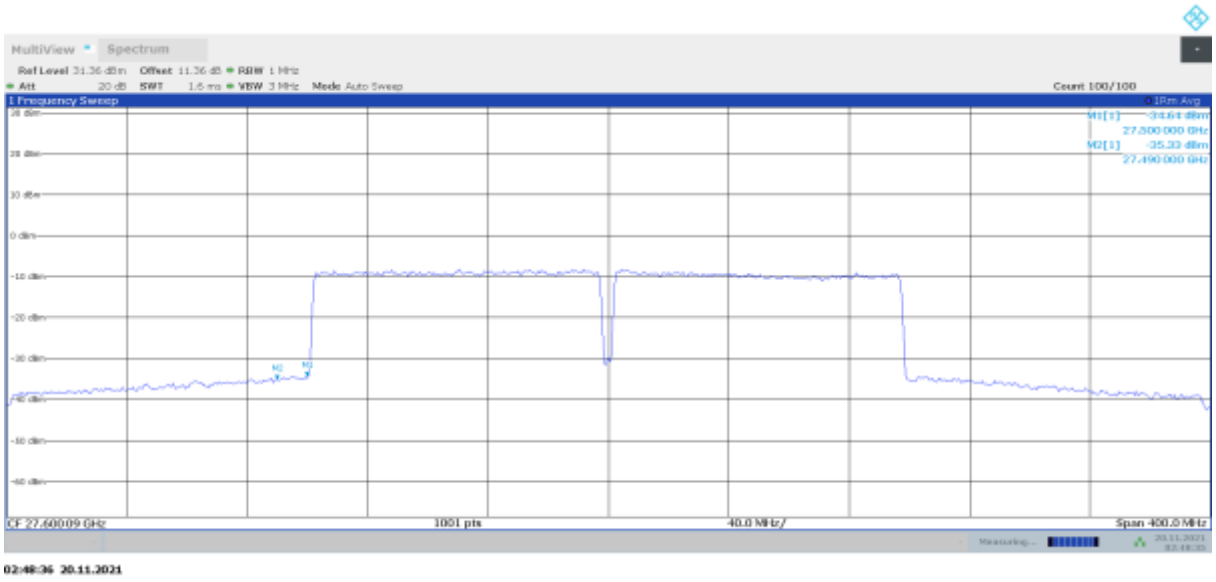
The right band edge worse case figure:



n261, Module1, SCS=120kHz, MIMO Tx Chain 0 Beam ID 16 + Tx Chain 1 Beam ID 144

Bandwidth	OFDM	Modulation	RB size	Frequency Range	Peak (dBm)	
					Limit: -5dBm	Limit: -13dBm
100MHz+100MHz	CP	QPSK	100% RB	High	-34.64	-35.33

Note: the set of modulation, RB size and channel with higher power was measured.



Annex B: Calibration Certificates List

Signal Generator	SMF100A	104940	R&S	2021-12-09	1 year

中国泰尔实验室 China Telecommunication Technology Labs

中国认可 国际互认 校准 CALIBRATION CNAS L0570

校 准 证 书

证书编号： J20X12055

客 户 名 称	中国泰尔实验室
客 户 地 址	北京市海淀区花园北路 52 号
器 具 名 称	信号发生器
型 号/规 格	SMF100A
出 厂 编 号	104940
制 造 单 位	ROHDE&SCHWARZ 公司
校 准 日 期	2020 年 12 月 10 日

所测数据符合该仪表说明书技术指标要求。

批准人：

核验员：

校准员：

地址：北京海淀区花园北路 52 号通信计量中心 电话：+86-10-62301383
邮编：100191 传真：+86-10-62304104
网址：www. chinattl.com Email：cal@caict.ac.cn

第 1 页 共 8 页

Signal Generator	E8257D（60GHz）	MY59140557	Keysight	2022-01-19	1 year

No. RAG202101178

第 1 页 共 8 页
Page 1 This certificate include 8 Pages

北京无线电计量测试研究所

Beijing Institute of Radio Metrology and Measurement

中国航天科工集团第二研究院二〇三所

国防科技工业第二计量测试研究中心

中国认可
校准
CALIBRATION
CNAS L1665

校 准 证 书

Certificate of Calibration

委托单位： 中国泰尔实验室
Customer

地址： 海淀区花园北路 52 号
Address

被测样品： 信号发生器
EUT/DUT

编号： MY59140557
No.

型号： E8257D
Type

制造商： 是德
Manufacturer

校准人： *Operator*

接收日期： 2021 年 1 月 18 日
Acceptance date *Year* *Month* *Day*

核验人： *Inspector*

校准日期： 2021 年 1 月 20 日
Calibration date *Year* *Month* *Day*

批准人： 吴远征
Approver

发证单位：
Issued by (stamp)

本实验室地址(Add)：北京市海淀区永定路 50 号
No.50 Yongding Road , Haidian District ,Beijing

通信地址：北京 142 信箱 408 分箱
P. O. Box: 3930 ,Beijing China

服务电话(Tel)：010-68385358 监督电话(Tel)：010-68387448

邮政编码(Post Code)：100854 传真(Fax)： 86-10-68385470

Antenna	3115	6914	ETS-Lindgren	2022/2/3	1 year

中 国 计 量 科 学 研 究 院

校 准 证 书
Calibration Certificate

证书编号 XDtx2021-10054
Certificate No.

客户名称 Client	中国泰尔实验室
器具名称 Instrument	喇叭天线
型号/规格 Type/Model	3115
出厂编号 Serial No.	6914
生产厂商 Manufacturer	ETS
联络信息 Contact Information	北京市海淀区花园北路 52 号
校准日期 Date of Calibration	2021-02-03
接收日期 Date of Receiving	2021-01-21

批准人：
Approved by

中国计量科学研究院 校准专用章

发布日期：2021 年 02 月 03 日
Date of Issue

地址：中国北京北三环东路 18 号
Address：No.18 Bei San Huan Dong Lu,Beijing,P.R.China
邮编：100029
Post Code
电话：+86-10-64525569/74
Tel
传真：+86-10-64271948
Fax
网址：http://www.nim.ac.cn
Website
电子邮箱：kehufuwu@nim.ac.cn
Email

2019-jz-R0520

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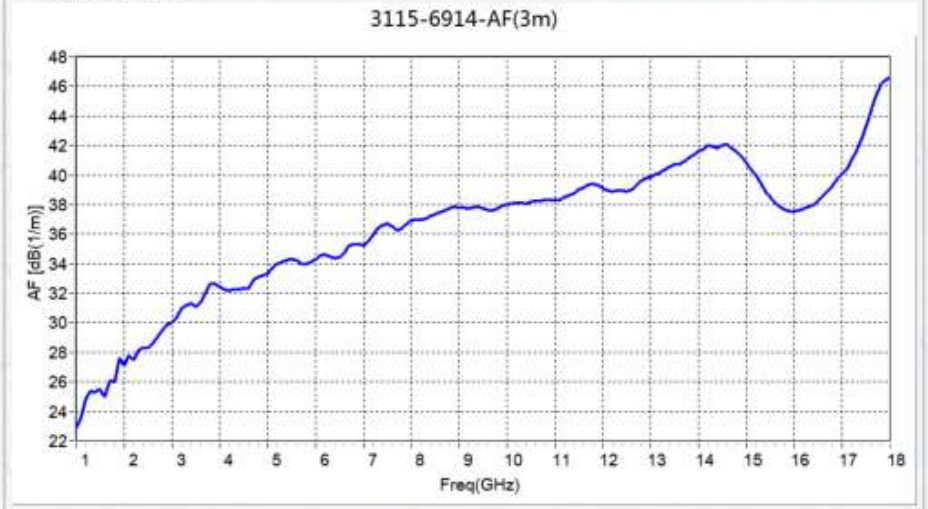
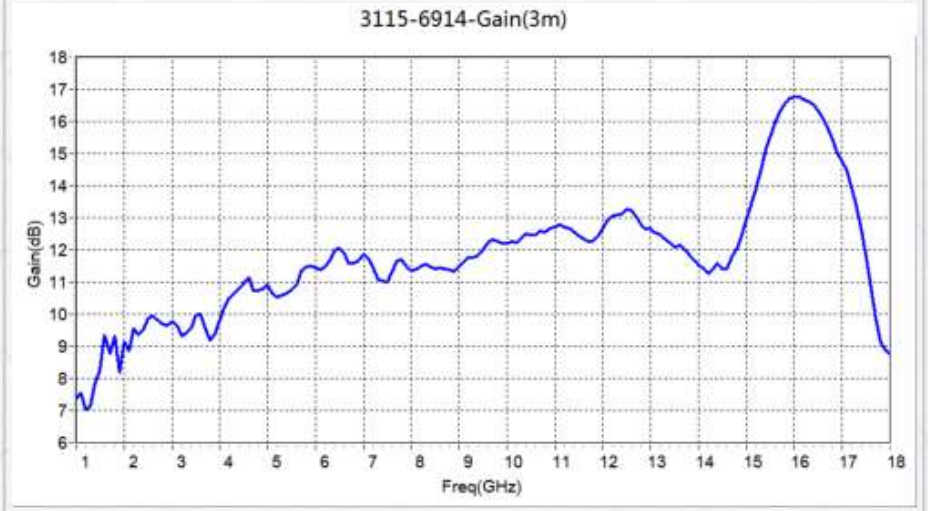
中 国 计 量 科 学 研 究 院

证书编号 XDtx2021-10054
Certificate No.

校 准 结 果
Calibration Results

校准曲线
Calibration Curve





2019-jz-R0520

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Upconverter(50GHz-75GHz)	SMZ-75	101309	R&S	2022-01-14	1 year

中国计量科学研究院

校准证书

证书编号 XDxh2021-10059

客户名称	中国泰尔实验室
器具名称	SMZ75 倍频源
型号/规格	SMZ75
出厂编号	101309
生产厂商	Rohde & Schwarz
联络信息	北京市海淀区花园北路 52 号
校准日期	2021-01-15
接收日期	2021-01-08

批准人：

中国计量科学研究院 校准专用章

发布日期： 2021 年 03 月 16 日

地址：北京北三环东路 18 号 邮编：100029
电话：010-64525569/74 传真：010-64271948
网址：http://www.nim.ac.cn 电子邮箱：kehufuwu@nim.ac.cn

2019-jz-R0520

第1页共4页

Upconverter(75GHz-110GHz)	SMZ-110	101357	R&S	2022-01-14	1 year

中国计量科学研究院

校 准 证 书

证书编号 XDxh2021-10060

客户名称	中国泰尔实验室
器具名称	SMZ110 倍频源
型号/规格	SMZ110
出厂编号	101357
生产厂商	Rohde & Schwarz
联络信息	北京市海淀区花园北路 52 号
校准日期	2021-01-15
接收日期	2021-01-08

批准人：

中国计量科学研究院 校准专用章

发布日期： 2021 年 03 月 16 日

地址：北京北三环东路 18 号 邮编：100029
电话：010-64525569/74 传真：010-64271948
网址：http://www.nim.ac.cn 电子邮箱：kehufuwu@nim.ac.cn

2019-jz-R0520

第1页共4页

Upconverter(110GHz-170GHz)/	82406B	ZEI00141	Ceyear	2022-02-04	1 year

中国计量科学研究院

校准证书

证书编号 XDgp2021-10237

客户名称	中国泰尔实验室
器具名称	信号源倍频器
型号/规格	82406B
出厂编号	ZEI00141
生产厂商	中电科仪器仪表有限公司
联络信息	北京市海淀区花园北路 52 号
校准日期	2021 年 02 月 05 日
接收日期	2021 年 01 月 08 日

批准人：

中国计量科学研究院 校准专用章

发布日期： 2021 年 02 月 08 日

地址：北京北三环东路 18 号 邮编：100029
电话：010-64525569/74 传真：010-64271948
网址：http://www.nim.ac.cn 电子邮箱：kehufuwu@nim.ac.cn

2019-jz-R0520

第1页共6页

Upconverter(170GHz-220GHz)/	82406C	ZEI00164	Ceyear	2022-02-04	1 year

中国计量科学研究院

校准证书

证书编号 XDgp2021-10238

客户名称	中国泰尔实验室
器具名称	信号源倍频器
型号/规格	82406C
出厂编号	ZEI00164
生产厂商	中电科仪器仪表有限公司
联络信息	北京市海淀区花园北路 52 号
校准日期	2021 年 02 月 05 日
接收日期	2021 年 01 月 08 日

批准人：

中国计量科学研究院 校准专用章

发布日期： 2021 年 02 月 08 日

地址：北京北三环东路 18 号 邮编：100029
电话：010-64525569/74 传真：010-64271948
网址：http://www.nim.ac.cn 电子邮箱：kehufuwu@nim.ac.cn

2019-jz-R0520

第1页共5页

Spectrum Analyzer	FSW67	103290	R&S	2022-02-04	1 year

No. RSA202101150

第 1 页 共 11 页
Page 1 This certificate include 11 Pages

北京无线电计量测试研究所

Beijing Institute of Radio Metrology and Measurement
中国航天科工集团第二研究院二〇三所
国防科技工业第二计量测试研究中心

中国认可
校准
CALIBRATION
CNAS L1665

校 准 证 书
Certificate of Calibration

委托单位： 中国泰尔实验室
Customer

地址： 海淀区花园北路 52 号
Address

被测样品： 频谱分析仪
EUT/DUT

编号： 103290
No.

型号： FSW67
Type

制造商： R/S
Manufacturer

校准人： 武卫平
Operator

接收日期： 2021 年 1 月 18 日
Acceptance date *Year* *Month* *Day*

核验人： 吴远任
Inspector

校准日期： 2021 年 1 月 20 日
Calibration date *Year* *Month* *Day*

批准人： 陈云格
Approver

发证单位：
Issued by (stamp)

北京无线电计量测试研究所 校准 专用章

本实验室地址(Add)：北京市海淀区永定路 50 号
No.50 Yongding Road , Haidian District ,Beijing
通信地址：北京 142 信箱 408 分箱
P. O. Box: 3930 ,Beijing China
服务电话(Tel)：010-68385358 监督电话(Tel)：010-68387448
邮政编码(Post Code)：100854 传真(Fax)： 86-10-68385470

(downconverter)Harmonic Mixer(60GHz-90GHz)	FS-Z90	101655	R&S	2022-02-04	1 year

中国计量科学研究院

校 准 证 书

证书编号 XDxh2021-10057

客户名称 中国泰尔实验室

器具名称 FS-Z90 混频器

型号/规格 FS-Z90

出厂编号 101655

生产厂商 Rohde & Schwarz

联络信息 北京市海淀区花园北路 52 号

校准日期 2021-01-15

接收日期 2021-01-08

批准人：

中国计量科学研究院 校准专用章

发布日期： 2021 年 01 月 20 日

地址：北京北三环东路 18 号 邮编：100029

电话：010-64525569/74 传真：010-64271948

网址：http://www.nim.ac.cn 电子邮箱：kehufuwu@nim.ac.cn

2019-jz-R0520

第1页共4页

(downconverter)Harmonic Mixer(75GHz-110GHz)	FS-Z110	101463	R&S	2022-01-19	1 year

中国计量科学研究院

校 准 证 书

证书编号 XDxh2021-10058

客户名称 中国泰尔实验室

器具名称 FS-Z110 混频器

型号/规格 FS-Z110

出厂编号 101463

生产厂商 Rohde & Schwarz

联络信息 北京市海淀区花园北路 52 号

校准日期 2021-01-15

接收日期 2021-01-08

批准人：

中国计量科学研究院 校准专用章

发布日期： 2021 年 01 月 20 日

地址：北京北三环东路 18 号 邮编：100029

电话：010-64525569/74 传真：010-64271948

网址：http://www.nim.ac.cn 电子邮箱：kehufuwu@nim.ac.cn

2019-jz-R0520

第1页共4页

(downconverter)Harmonic Mixer(110GHz-170GHz)/	FS-Z170	101008	R&S	2022-02-17	1 year

Radiometer Physics
A Rohde & Schwarz Company

Calibration Certificate
Kalibrierschein

Certificate Number 24-0170-101008-01
Zertifikatsnummer

Unit Data

Item / Gegenstand: **Harmonic Mixer, 110 GHz to 170 GHz**

Manufacturer / Hersteller: **RPG Radiometer-Physics GmbH**

Type / Typ: **RPG FS-Z170**

Material Number / Materialnummer: **3622.0714.02** **Serial Number** / Seriennummer: **101008**

Asset Number / Inventarnummer:

Order Data

Customer / Auftraggeber:

Order Number / Bestellnummer:

Date of Receipt / Eingangsdatum:

Performance

Place and Date of Calibration / Ort und Datum der Kalibrierung: **Meckenheim, 2021-02-18**

Scope of Calibration / Umfang der Kalibrierung: **Standard Calibration**

Statement of Compliance (Incoming) / Konformitätsaussage (Anlieferung): **New device**

Statement of Compliance (Outgoing) / Konformitätsaussage (Auslieferung): **All measured values are within the data sheet specifications.**

Extend of Calibration Documents / Umfang des Kalibrierdokuments: **2 pages Calibration Certificate**
4 pages Outgoing Results

This calibration certificate documents, that the named item is tested and measured against defined specifications. Measurement results are located usually in the corresponding interval with a probability of approx. 95% (coverage factor k = 2). Calibration is performed with test equipment and standards directly or indirectly traceable by means of approved calibration techniques to the PTB/DKD or other national/international standards, which realize the physical units of measurement according to the International System of Units (SI). In all cases where no standards are available, measurements are referenced to standards of the R&S laboratories. Principles and methods of calibration correspond with EN ISO/IEC 17025. This calibration certificate may not be reproduced other than in full. Calibration certificates without signatures are not valid. The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein dokumentiert, dass der genannte Gegenstand nach festgelegten Vorgaben geprüft und gemessen wurde. Die Messwerte lagen im Regelfall mit einer Wahrscheinlichkeit von annähernd 95% im zugeordneten Werteintervall (Erweiterte Messunsicherheit mit k = 2). Die Kalibrierung erfolgte mit Messmitteln und Normalen, die direkt oder indirekt durch Ableitung mittels anerkannter Kalibriertechniken rückgeführt sind auf Normale der PTB/DKD oder anderer nationaler/internationaler Standards zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI). Wenn keine Normale existieren, erfolgt die Rückführung auf Bezugsnormale der R&S-Laboratorien. Grundsätze und Verfahren der Kalibrierung beziehen sich auf EN ISO/IEC 17025. Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Kalibrierscheine ohne Unterschriften sind ungültig. Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

RPG Radiometer-Physics GmbH; Meckenheim

Date of Issue / Ausstellungsdatum: **2021-02-22**

Head of Laboratory / Laborleitung: Schulze

Person Responsible / Bearbeiter: Heinze

Page (Seite) **1/2**
Vers2010-05-05/
RPG2014-02-28

RPG Radiometer-Physics GmbH • Werner-von-Siemens-Str. 4 • 53340 Meckenheim • Telephone national: 02225/99981-0 international: 0049 2225-99981-0
Fax: 02225/99981-99 • Managing Director: Achim Walber • Company's Place of Business: Meckenheim
Commercial Register No.: Bonn, HRB 10291 • VAT Identification No.: DE 123 377 395

(downconverter)Harmonic Mixer(170GHz-220GHz)/	FS-Z220	101054	R&S	2021-12-14	1 year

Radiometer Physics
A Rohde & Schwarz Company

Calibration Certificate
Kalibrierschein

Certificate Number 24-0220-101054-01
Zertifikatsnummer

Unit Data

Item Gegenstand: **Harmonic Mixer, 140 GHz to 220 GHz**

Manufacturer Hersteller: **RPG Radiometer-Physics GmbH**

Type Typ: **RPG FS-Z220**

Material Number Materialnummer: **3593.3250.02** **Serial Number** Seriennummer: **101054**

Asset Number Inventarnummer:

Order Data

Customer Auftraggeber:

This calibration certificate documents, that the named item is tested and measured against defined specifications. Measurement results are located usually in the corresponding interval with a probability of approx. 95% (coverage factor k = 2). Calibration is performed with test equipment and standards directly or indirectly traceable by means of approved calibration techniques to the PTB/DKD or other national/international standards, which realize the physical units of measurement according to the International System of Units (SI). In all cases where no standards are available, measurements are referenced to standards of the R&S laboratories. Principles and methods of calibration correspond with EN ISO/IEC 17025. This calibration certificate may not be reproduced other than in full. Calibration certificates without signatures are not valid. The user is obliged to have the object recalibrated at appropriate intervals.

Order Number Bestellnummer:

Date of Receipt Eingangsdatum:

Performance

Place and Date of Calibration Ort und Datum der Kalibrierung: **Meckenheim, 2020-12-15**

Scope of Calibration Umfang der Kalibrierung: **Standard Calibration**

Statement of Compliance (Incoming) Konformitätsaussage (Anlieferung): **New device**

Statement of Compliance (Outgoing) Konformitätsaussage (Auslieferung): **All measured values are within the data sheet specifications.**

Extend of Calibration Documents Umfang des Kalibrierdokuments: **2 pages Calibration Certificate**
4 pages Outgoing Results

Dieser Kalibrierschein dokumentiert, dass der genannte Gegenstand nach festgelegten Vorgaben geprüft und gemessen wurde. Die Messwerte lagen im Regelfall mit einer Wahrscheinlichkeit von annähernd 95% im zugeordneten Werteintervall (Erweiterte Messunsicherheit mit k = 2). Die Kalibrierung erfolgte mit Messmitteln und Normalen, die direkt oder indirekt durch Ableitung mittels anerkannter Kalibriertechniken rückgeführt sind auf Normale der PTB/DKD oder anderer nationaler/internationaler Standards zur Darstellung der physikalischen Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI). Wenn keine Normale existieren, erfolgt die Rückführung auf Bezugsnormale der R&S-Laboratorien. Grundsätze und Verfahren der Kalibrierung beziehen sich auf EN ISO/IEC 17025. Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Kalibrierscheine ohne Unterschriften sind ungültig. Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.

RPG Radiometer-Physics GmbH; Meckenheim

Date of Issue Ausstellungsdatum: **2020-12-17**

Head of Laboratory Laborleitung: Schulze

Person Responsible Bearbeiter: Dick

Page (Seite) **1/2**
Vers2010-05-05/
RPG2014-02-28

RPG Radiometer-Physics GmbH • Werner-von-Siemens-Str. 4 • 53340 Meckenheim • Telephone national: 02225/99981-0 international: 0049 2225-99981-0
Fax: 02225/99981-99 • Managing Director: Achim Walber • Company's Place of Business: Meckenheim
Commercial Register No.: Bonn, HRB 10291 • VAT Identification No.: DE 123 377 395

Standard Gain Horn （40GHz-60GHz）	LB-19-25	J202024086	A-INFO	2022-01-14	1 year

A-INFO 英联微波

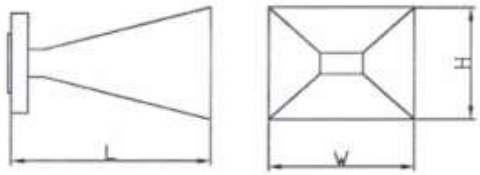
LB-19-25
40.0 - 60.0GHz 标准增益喇叭天线

技术指标

频率(GHz)	A 型, 波导输出	40.0 - 60.0
	C 型, 2.4mm-50K 输出	40.0 - 50.0
	C 型, 1.85mm-50K 输出	40.0 - 60.0
增益(dB)	25 典型值	
驻波	1.6 最大值	
3dB 波束宽度(°)	10 典型值	
波导型号	BJ500(WR19)	
材料	铜	
输出形式	A 型 FUGP500	
	C 型 2.4mm-50K 或 1.85mm-50K	
尺寸(mm) 宽 x 高 x 长	A 型, 波导输出	49x41x130
	C 型, 2.4mm-50K 输出	49x41x155
	C 型, 1.85mm-50K 输出	49x41x157
净重(Kg)	A 型, 波导输出	约 0.15
	C 型, 2.4mm-50K 输出	约 0.18
	C 型, 1.85mm-50K 输出	约 0.18

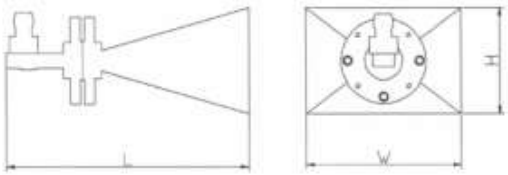
外形图 (尺寸: mm)

A 型



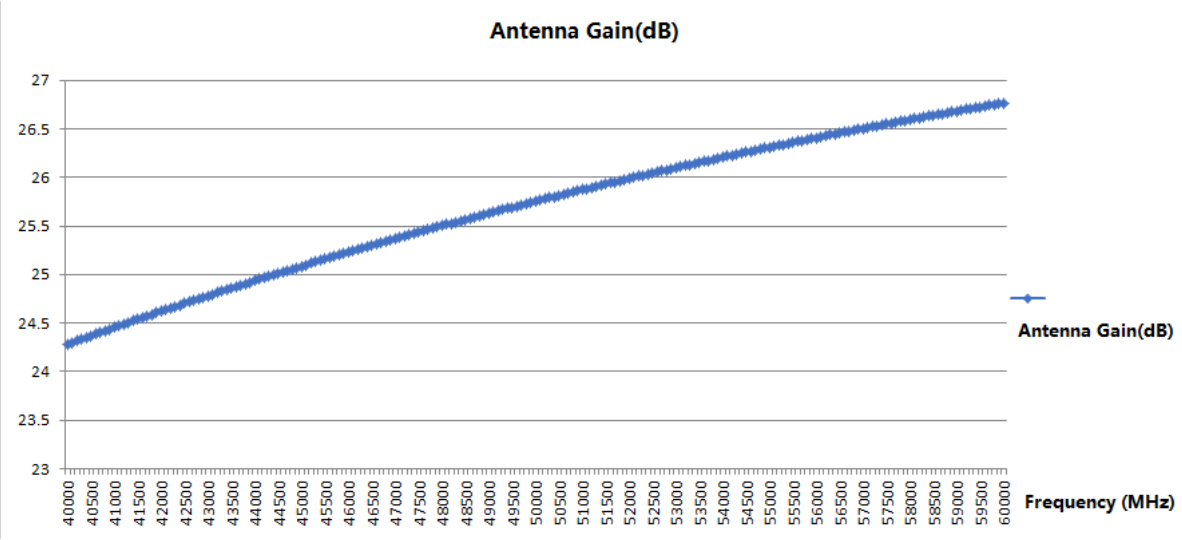
宽 x 高 x 长: 49x41x130

C 型



宽 x 高 x 长: 49x41x157

英联微波
第 1 页 / 共 7 页
北京 电话: 010-6266-7326 或 010-6266-7327 传真: 010-6266-7379 网址:www.ainfoinc.com
成都 电话: 028-8519-2786 或 028-8519-3047 传真: 028-8519-3068 www.ainfoinc.cn
测试报告仅供参考。详情请咨询: Sales@ainfoinc.com



Standard Gain Horn （40GHz-60GHz）	LB-19-25	J202024087	A-INFO	2022-01-14	1 year

A-INFO 英联微波

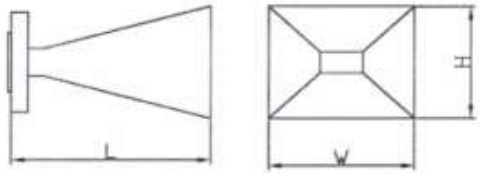
LB-19-25
40.0 - 60.0GHz 标准增益喇叭天线

技术指标

频率(GHz)	A 型, 波导输出	40.0 - 60.0
	C 型, 2.4mm-50K 输出	40.0 - 50.0
	C 型, 1.85mm-50K 输出	40.0 - 60.0
增益(dB)	25 典型值	
驻波	1.6 最大值	
3dB 波束宽度(°)	10 典型值	
波导型号	BJ500(WR19)	
材料	铜	
输出形式	A 型 FUGP500	
	C 型 2.4mm-50K 或 1.85mm-50K	
尺寸(mm) 宽 x 高 x 长	A 型, 波导输出	49x41x130
	C 型, 2.4mm-50K 输出	49x41x155
	C 型, 1.85mm-50K 输出	49x41x157
净重(Kg)	A 型, 波导输出	约 0.15
	C 型, 2.4mm-50K 输出	约 0.18
	C 型, 1.85mm-50K 输出	约 0.18

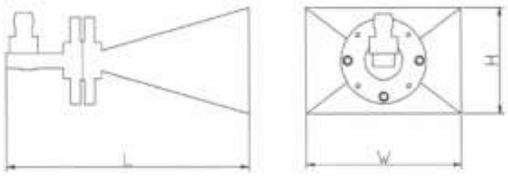
外形图 (尺寸: mm)

A 型



宽 x 高 x 长: 49x41x130

C 型



宽 x 高 x 长: 49x41x157

英联微波
第 1 页 / 共 7 页
北京 电话: 010-6266-7326 或 010-6266-7327 传真: 010-6266-7379 网址:www.ainfoinc.com
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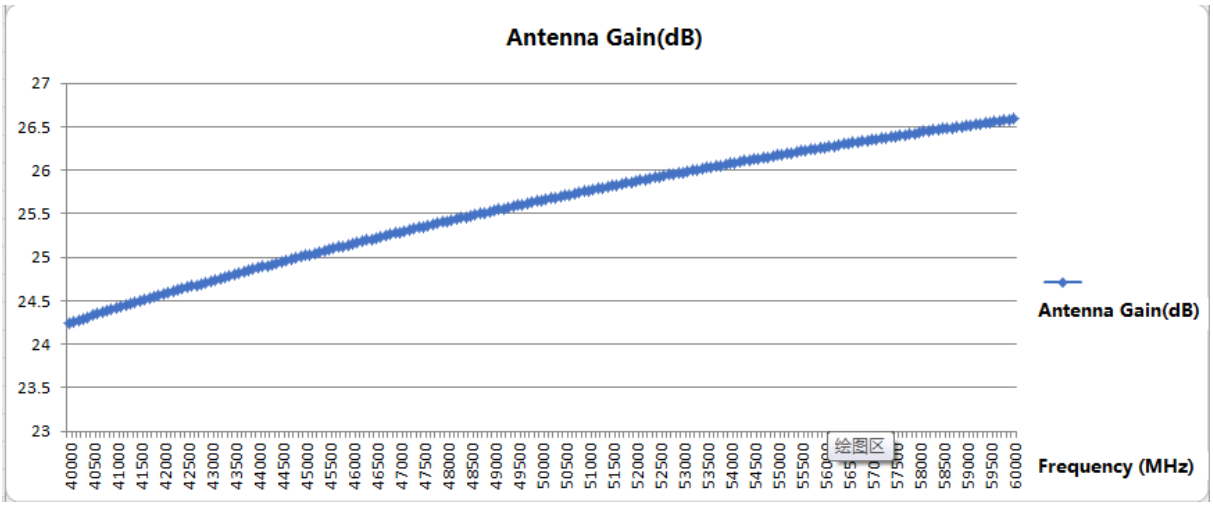
测试报告仅供参考。详情请咨询: Sales@ainfoinc.com



Standard Gain Horn （50GHz-75GHz）	LB-15-25	J202062019	A-INFO	2021-12-14	1 year

A-INFO 英联微波

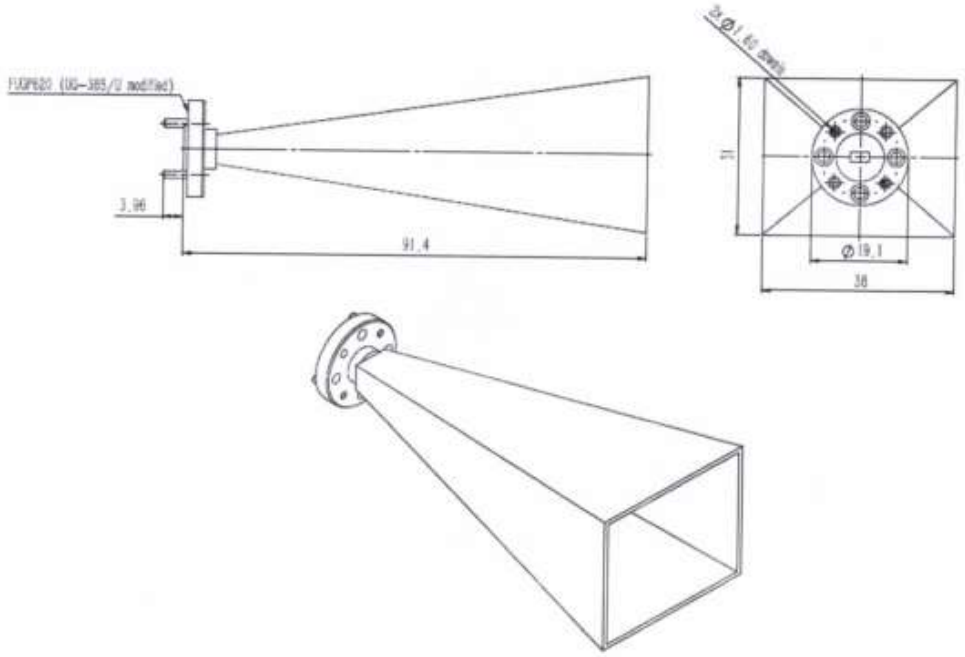
LB-15-25
50.0 - 75.0GHz 标准增益喇叭天线

技术指标

频率(GHz)	A 型，波导输出	50.0 - 75.0
	C 型，1.85mm-50K 输出	50.0 - 65.0
增益(dB)	25 典型值	
驻波	1.6 最大值	
3dB 波束宽度(°)	10 典型值	
波导型号	BJ620(WR15)	
材料	铜	
输出形式	A 型 FUGP620	
	C 型 1.85mm-50K	
尺寸(mm) 宽 x 高 x 长	A 型，波导输出	38x31x91.4
	C 型，1.85mm-50K 输出	38x32.6x118.4
净重(Kg)	A 型，波导输出	约 0.07
	C 型，1.85mm-50K 输出	约 0.10

外形图 (尺寸: mm)

A 型(FUGP620 法兰输出)

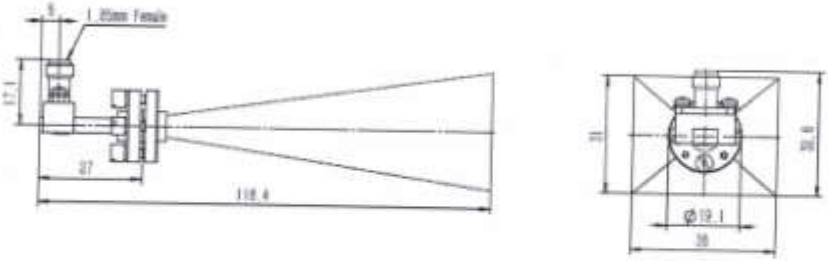


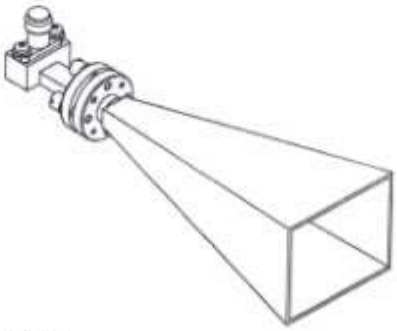
英联微波
北京 电话: 010-6266-7326 或 010-6266-7327 传真: 010-6266-7379 网址: www.ainfoinc.com
成都 电话: 028-8519-2786 或 028-8519-3047 传真: 028-8519-3068 www.ainfoinc.cn

A-INFO 英联微波

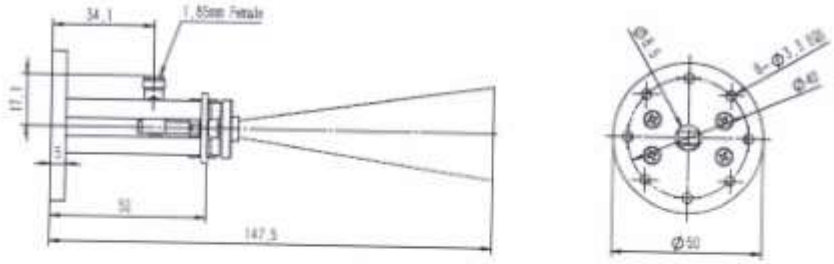
LB-15-25
50.0 - 75.0GHz 标准增益喇叭天线

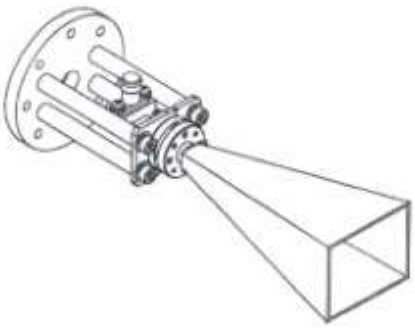
C 型(1.85mm-50K 输出)





C 型(1.85mm-50K 输出，配圆形背夹)

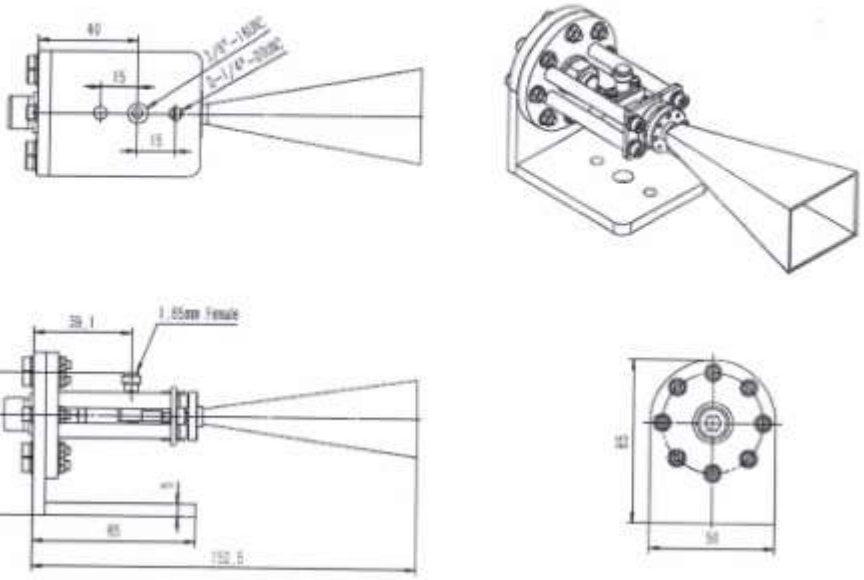




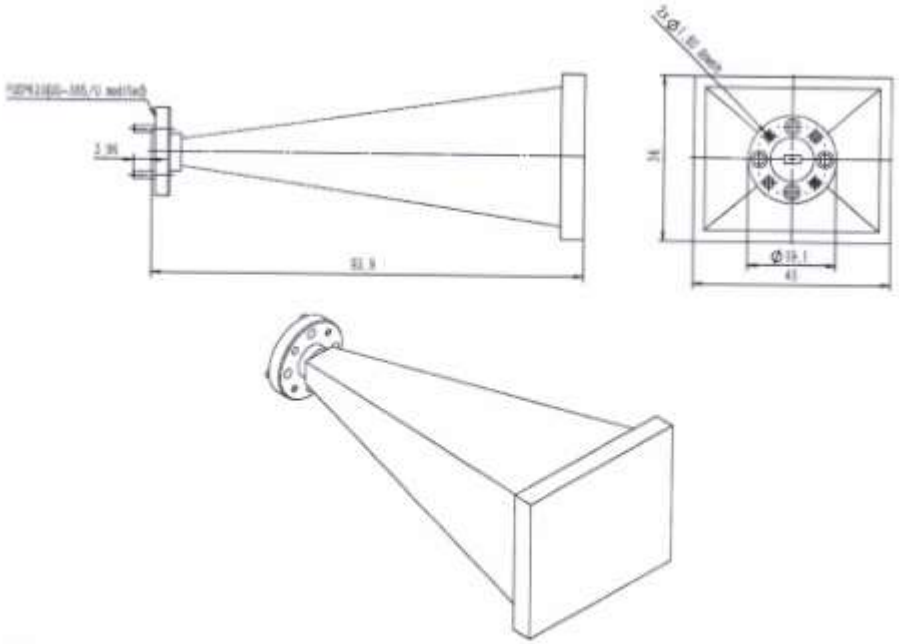
A-INFO 英联微波

LB-15-25
50.0 - 75.0GHz 标准增益喇叭天线

C 型(1.85mm-50K 输出，配 L 形背夹)



A 型(配天线罩)

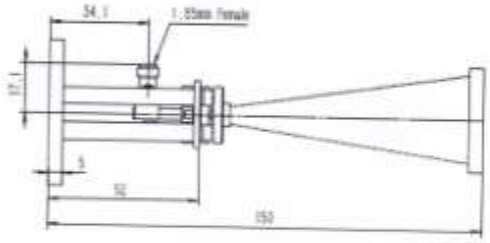


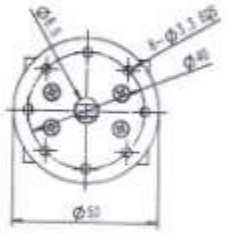
英联微波
北京 电话: 010-6266-7326 或 010-6266-7327 传真: 010-6266-7379 网址:www.ainfoinc.com
成都 电话: 028-8519-2786 或 028-8519-3047 传真: 028-8519-3068 www.ainfoinc.cn

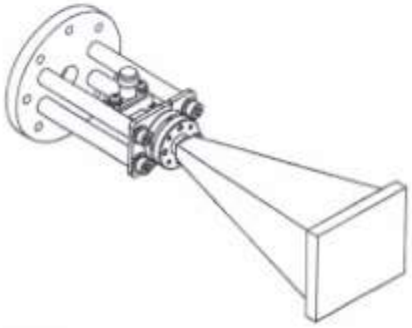
A-INFO 英联微波

LB-15-25
50.0 - 75.0GHz 标准增益喇叭天线

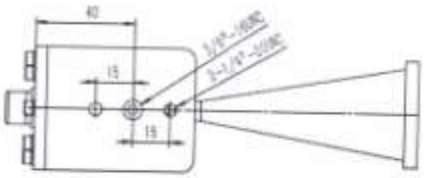
C 型(1.85mm-50K 输出，配圆形背夹和天线罩)

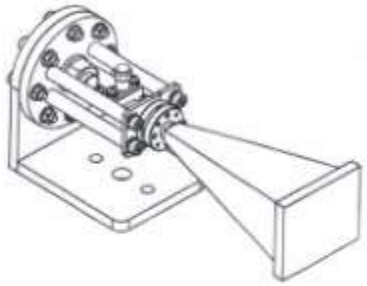


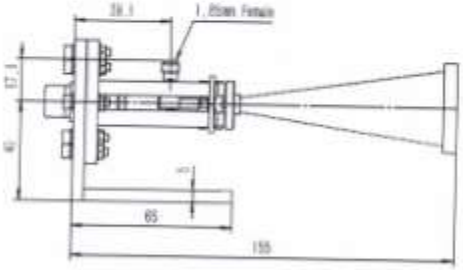


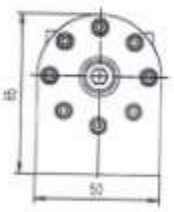


C 型(1.85mm-50K 输出，配 L 形背夹和天线罩)









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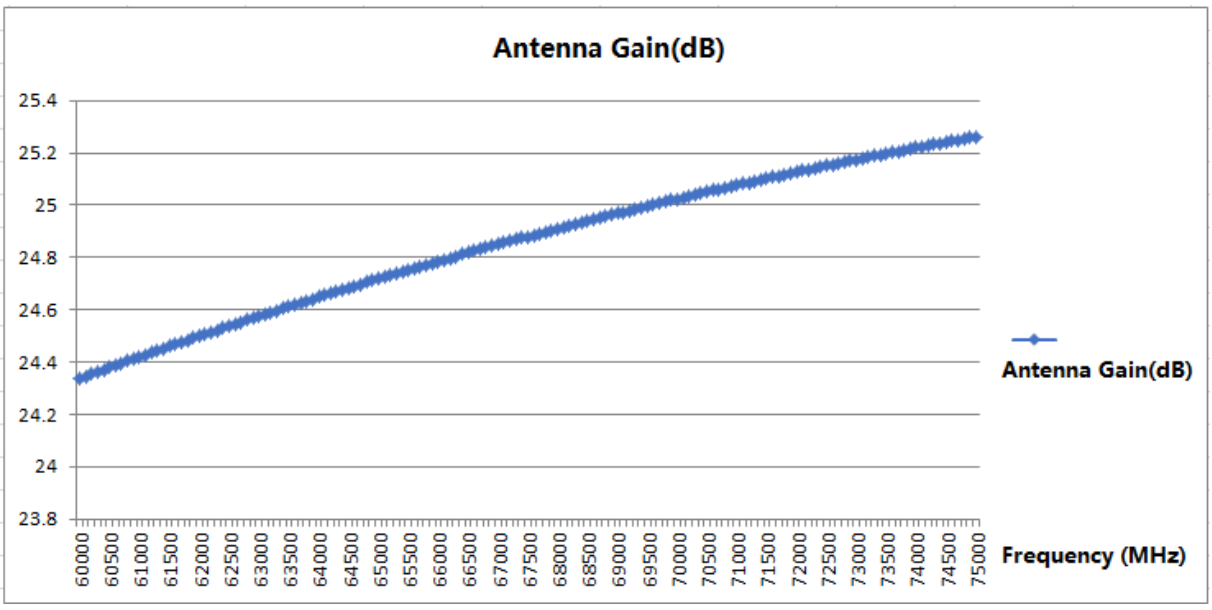


Standard Gain Horn （60GHz-90GHz）	LB-12-25	J202062912	A-INFO	2022-02-17	1 year

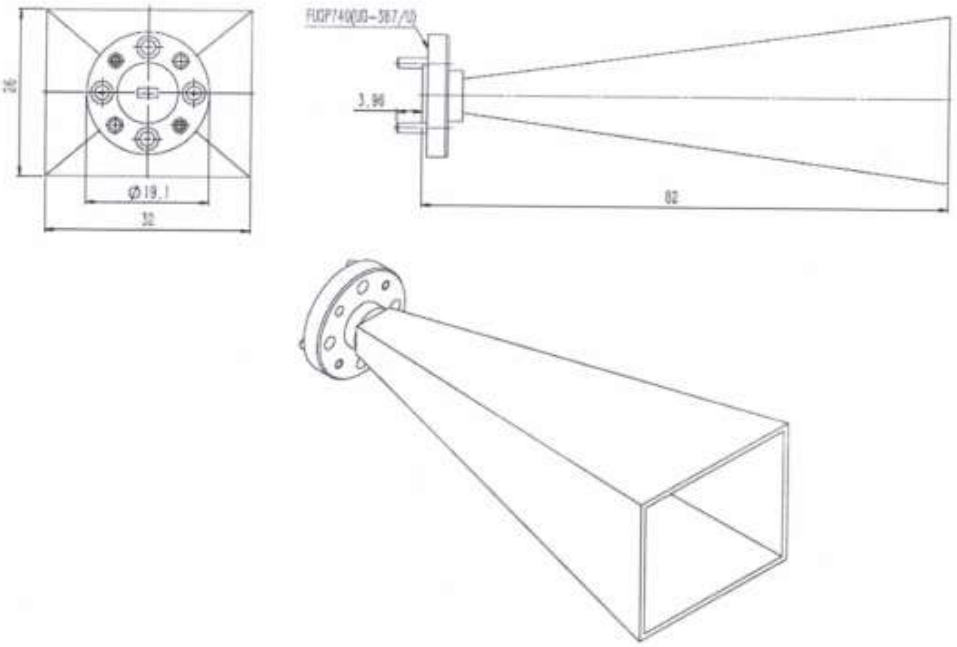
A-INFO 英联微波

LB-12-25
60.0 - 90.0GHz 标准增益喇叭天线

技术指标

频率(GHz)	60.0 - 90.0
增益(dBi)	25 典型值
驻波	1.6 最大值
3dB 波束宽度(°)	10 典型值
波导型号	BJ740(WR12)
材料	铜
输出形式	A 型: FUGP740
尺寸(mm) 宽 x 高 x 长	A 型: 32x26x82
净重(Kg)	A 型: 约 0.05

外形图 (尺寸: mm)



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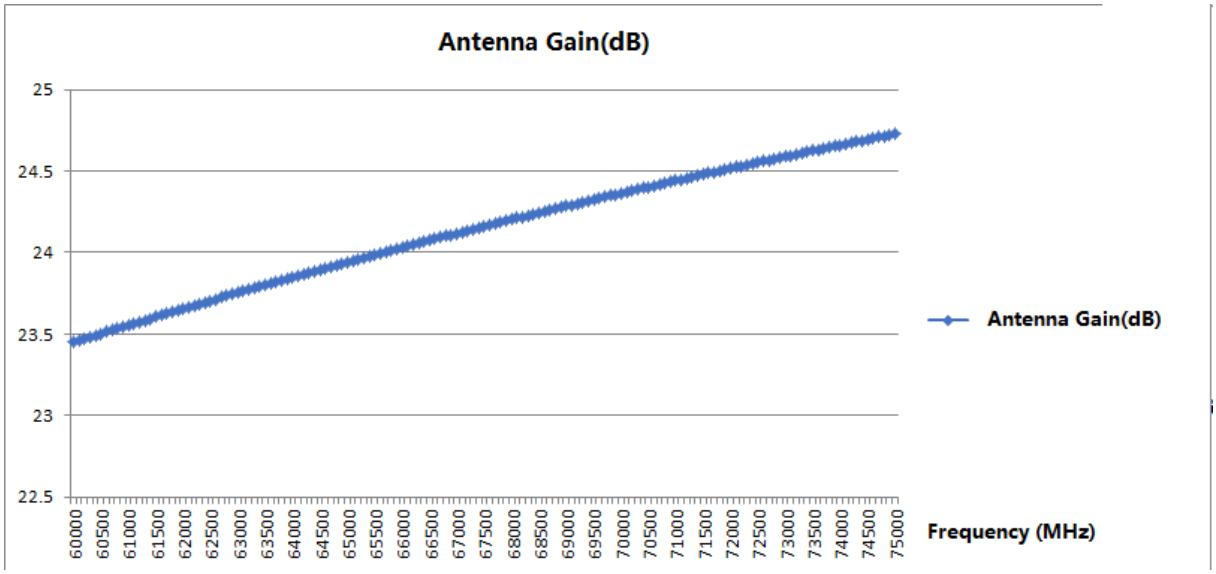
北京 电话: 010-6266-7326 或 010-6266-7327 传真: 010-6266-7379 网址: www.ainfoinc.com
成都 电话: 028-8519-2786 或 028-8519-3047 传真: 028-8519-3068 www.ainfoinc.cn



Standard Gain Horn （75GHz-110GHz）	LB-10-25	J202023231	A-INFO	2022-01-27	1 year

A-INFO 英联微波

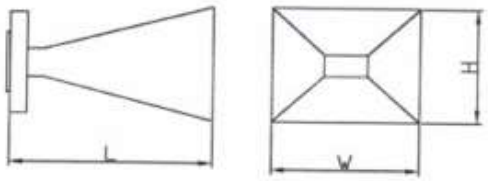
LB-10-25
75.0 - 110.0GHz 标准增益喇叭天线

技术指标

频率(GHz)	75.0 - 110.0
增益(dB)	25 典型值
驻波	1.6 最大值
3dB 波束宽度(°)	10 典型值
波导型号	BJ900(WR10)
材料	铜
输出形式	A 型: FUGP900
尺寸(mm) 宽 x 高 x 长	A 型: 28x22x70
净重(Kg)	A 型: 约 0.05

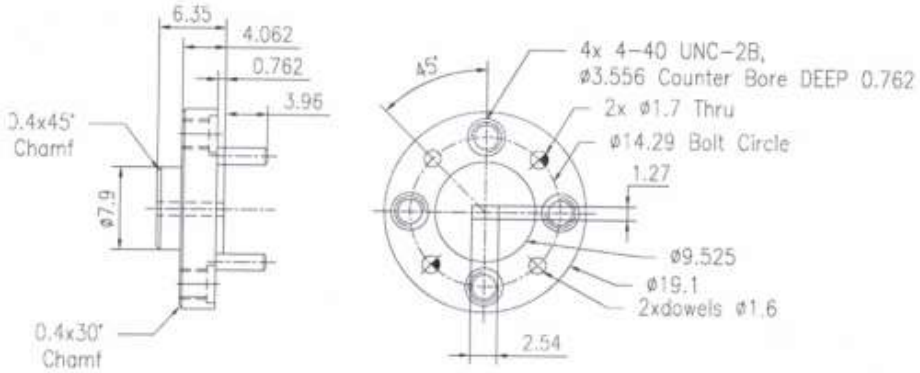
外形图 (尺寸: mm)

A 型

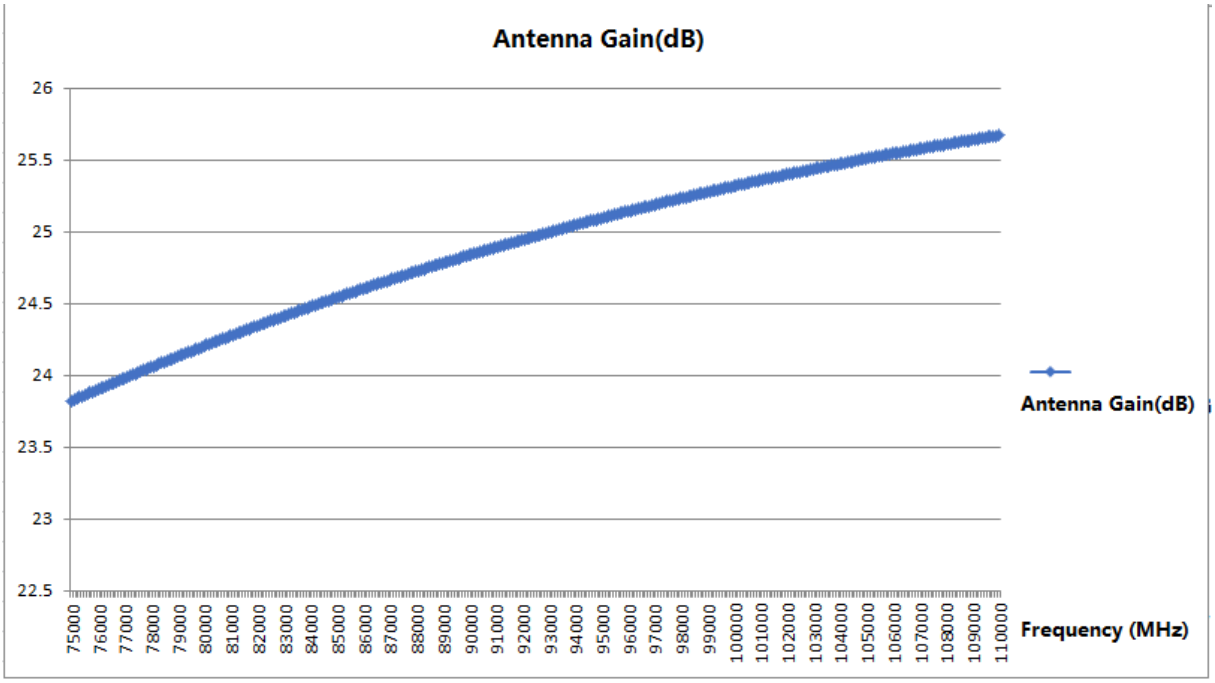


宽 x 高 x 长: 28x22x70

法兰外形图 (尺寸: mm)



FUGP900
(equivalent to UG-387/U modified)



Standard Gain Horn （75GHz-110GHz）	LB-10-25	J202023232	A-INFO	2022-01-27	1 year

A-INFO 英联微波

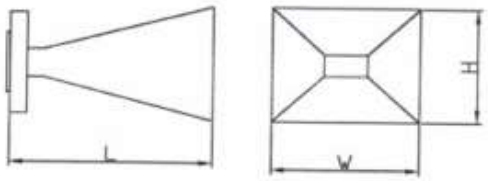
LB-10-25
75.0 - 110.0GHz 标准增益喇叭天线

技术指标

频率(GHz)	75.0 - 110.0
增益(dB)	25 典型值
驻波	1.6 最大值
3dB 波束宽度(°)	10 典型值
波导型号	BJ900(WR10)
材料	铜
输出形式	A 型: FUGP900
尺寸(mm) 宽 x 高 x 长	A 型: 28x22x70
净重(Kg)	A 型: 约 0.05

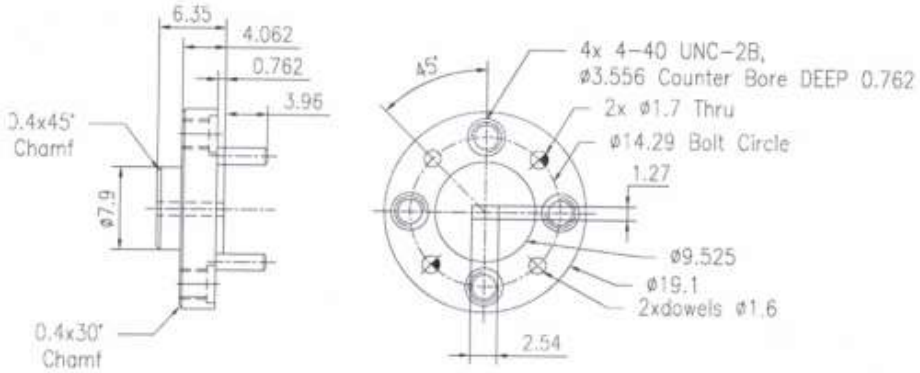
外形图 (尺寸: mm)

A 型

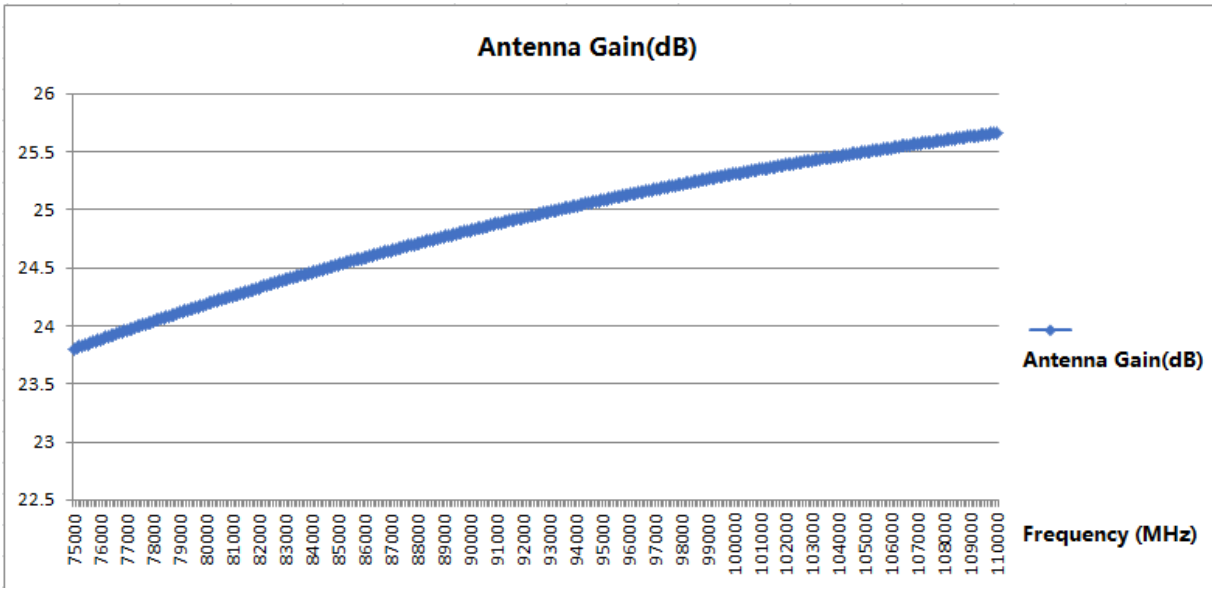


宽 x 高 x 长: 28x22x70

法兰外形图 (尺寸: mm)



FUGP900
(equivalent to UG-387/U modified)



*****END OF REPORT*****