



TEST REPORT

Applicant Name : SHENZHEN HUAPTEC CO., LTD
Address : 3rd FL,E BLDG, Sogood Science Park, SanWei community,
Hangcheng Street, Bao'an District, Shenzhen, China
Report Number : RA221107-52053E-RF-00
FCC ID: OWWF27K6S

Test Standard (s)

FCC Part 27, FCC Part 22H/24E

Sample Description

Product Type: Industrial 100K Signal Booster
Model No.: F27K-6S-IOT
Multiple Model(s) No.: F27-6S-IoT, F23K-6S-IoT,F23-6S-IoT
Trade Mark: HiBoost
Date Received: 2022/11/07
Report Date: 2023/02/01

Test Result:	Pass*
--------------	-------

* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Roger Ling

Roger Ling
EMC Engineer

Approved By:

Candy Li

Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk "*". Customer model name, addresses, names, trademarks etc. are not considered data.

This report cannot be reproduced except in full, without prior written approval of the Company. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.

Shenzhen Accurate Technology Co., Ltd.

1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China
Tel: +86 755-26503290 Fax: +86 755-26503396 Web: www.atc-lab.com

TABLE OF CONTENTS

GENERAL INFORMATION.....	4
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	4
OBJECTIVE	4
TEST METHODOLOGY	4
SYSTEM TEST CONFIGURATION.....	6
DESCRIPTION OF TEST CONFIGURATION	6
EQUIPMENT MODIFICATIONS	6
SUPPORT EQUIPMENT LIST AND DETAILS	7
EXTERNAL I/O CABLE.....	7
BLOCK DIAGRAM OF TEST SETUP	7
SUMMARY OF TEST RESULTS.....	8
TEST EQUIPMENT LIST	9
FCC §2.1047 - MODULATION CHARACTERISTIC	11
FCC § 2.1046, § 22.913 (A) & § 24.232 (C) & § 27.50 (B) (C) (D) - RF OUTPUT POWER AND AMPLIFIER GAIN.....	12
APPLICABLE STANDARD	12
TEST PROCEDURE	12
TEST DATA	13
FCC §2.1049, §22.917 & §24.238 & §27.53 - BANDWIDTH.....	20
APPLICABLE STANDARD	20
TEST PROCEDURE	20
TEST DATA	20
FCC §2.1051, §22.917 & §24.238 & §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS	122
APPLICABLE STANDARD	122
TEST PROCEDURE	122
TEST DATA	122
FCC §2.1053, §22.917 & §24.238 & §27.53 - SPURIOUS RADIATED EMISSIONS	233
APPLICABLE STANDARD	233
TEST PROCEDURE	233
TEST DATA	233
CC §2.1053, §22.917 & §24.238 & §27.53 - BAND EDGES & INTERMODULATION	238
APPLICABLE STANDARD	238
TEST PROCEDURE	238
TEST DATA	238
FCC §20.21 - OUT OF BAND REJECTION	335
APPLICABLE STANDARD	335
TEST PROCEDURE	335
TEST DATA	335

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RA221107-52053E-RF-00	Original Report	2023-02-01

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product Type	Industrial 100K Signal Booster
Model No.	F27K-6S-IOT
Multiple Model(s) No.	F27-6S-IoT, F23K-6S-IoT, F23-6S-IoT (Please refer to DOH S for Model difference)
Voltage Range	DC12V from adapter
Sample serial number	1P75-1 (Assigned by ATC)
Sample/EUT Status	Good condition
Adapter information	Model: GST120A12 Input: AC 100-240V, 50/60Hz, 1.4A Output: DC 12V, 8.5A, 102W Max

This device is a fixed industrial signal booster and the Booster Operating frequency bands list below:

Electrical specification	Uplink	Downlink
Frequency Range	663 ~ 698MHz	617 ~ 652MHz
	698 ~ 716MHz	728 ~ 746MHz
	776 ~ 787MHz	746 ~ 757MHz
	824 ~ 849 MHz	869 ~ 894 MHz
	1850 ~ 1915MHz	1930 ~ 1995MHz
	1710 ~ 1755MHz	2110 ~ 2155MHz

Objective

This test report is prepared in accordance with Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, Part 27 and Part 20.21 of the Federal Communication Commissions rules.

The objective is to determine the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

Part 20.21 – Signal Boosters

Part 22 Subpart H - Public Mobile Services

Part 24 Subpart E - Personal Communication Services

Part 27 – Miscellaneous wireless communications services

Applicable Standards: ANSI C63.26-2015, FCC KDB 935210 D05 Indus Booster Basic Meas v01r04.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		0.082×10^{-7}
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Audio Frequency Response		0.1dB
Low Pass Filter Response		1.2dB
Modulation Limiting		1%
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz - 26.5GHz	5.06dB
	26.5GHz - 40GHz	4.72dB
Temperature		1 °C
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISED), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing according to ANSI C63.26-2015.

The final qualification test was performed with the EUT operating at normal mode.

Cable loss and antenna gain:

Indoor:

Frequency Range (MHz)	Panel antenna* (dBi)	Cable loss* (dB)
617-652	6.5	4.97
728-746	6.5	4.97
746-756	6.5	4.97
869-894	6.5	5.17
1930-1995	8.5	7.51
2110-2155	8.5	7.51

Outdoor:

Frequency Range (MHz)	Panel antenna* (dBi)	Cable loss* (dB)
663-698	7.5	4.97
698-716	7.5	4.97
777-787	7.5	4.97
824-849	8	5.17
1850-1915	9	7.51
1710-1755	9	7.51

Note: The antenna gain and cable loss was provided by applicant.

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

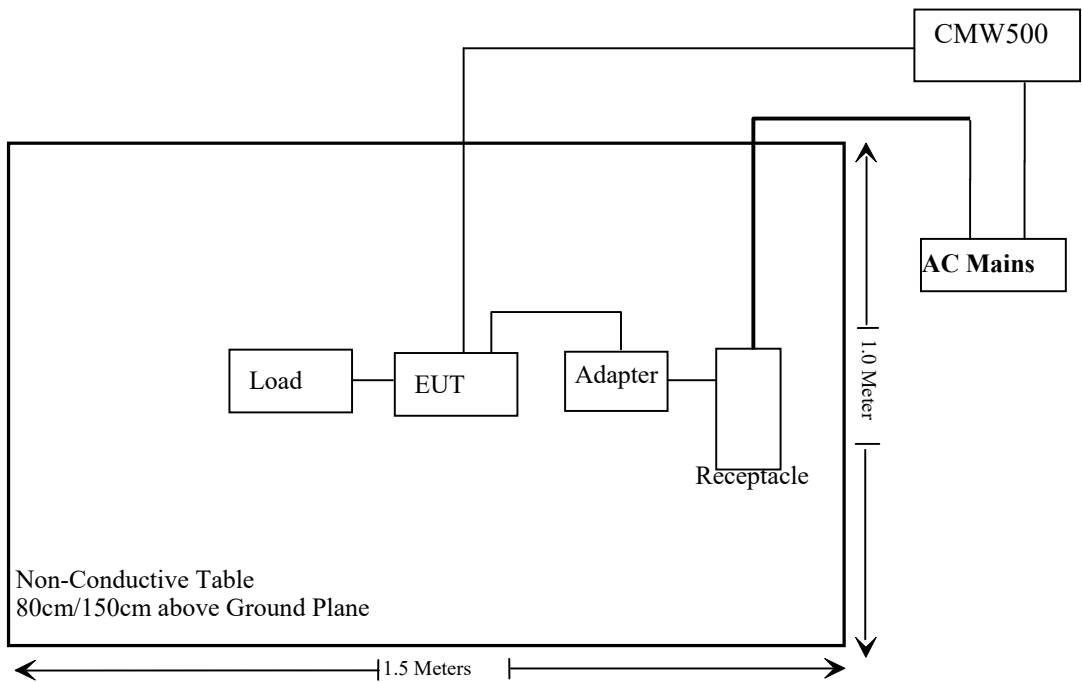
Manufacturer	Description	Model	Serial Number
Unknown	Load	50Ω	Unknown
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606

External I/O Cable

Cable Description	Length (m)	From/Port	To
Un-shielded Un-Detachable DC cable	1.2	Adapter	EUT
Shielded Detachable RF cable	5.0	CMW500	EUT
Shielded Detachable RF cable	1.0	EUT	Load

Block Diagram of Test Setup

For Radiated Emissions:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 2.1046; § 22.913; § 24.232; § 22.913; § 27.50	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.917; § 24.238; §27.53	Bandwidth	Compliant
§ 2.1051; § 22.917; § 24.238; §27.53	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917; § 24.238; §27.53	Field Strength of Spurious Radiation	Compliant
§ 2.1053; § 22.917; § 24.238; §27.53	Band Edge & Intermodulation	Compliant
§ 2.1055; § 22.355; § 24.235; § 27.54	Frequency stability	Not Applicable*
§ 20.21	Out of Band Rejection	Compliant

Not Applicable*: EUT was a signal booster.

Note: This device is an Industrial Signal Booster

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emissions Test					
Rohde& Schwarz	Test Receiver	ESR	102725	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2022/11/25	2023/11/24
SONOMA INSTRUMENT	Amplifier	310 N	186131	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2022/11/08	2023/11/07
Unknown	RF Coaxial Cable	No.10	N050	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.11	N1000	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.12	N040	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.13	N300	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.14	N800	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.15	N600	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.16	N650	2022/11/25	2023/11/24
Schwarzbeck	Bilog Antenna	VULB9163	9163-194	2022/11/30	2025/11/29
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-655	2022/12/26	2025/12/25
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2022/11/30	2025/11/29
PASTERNAK	Horn Antenna	PE9852/2F-20	1120 (ATC-BA-024-1)	2020/01/06	2023/01/05
PASTERNAK	Horn Antenna	PE9852/2F-20	1120 (ATC-BA-025-1)	2020/01/06	2023/01/05
PASTERNAK	Horn Antenna	PE9850/2F-20	720 (ATC-BA-024)	2020/01/06	2023/01/05
PASTERNAK	Horn Antenna	PE9850/2F-20	720 (ATC-BA-025)	2020/01/06	2023/01/05
Unknown	RF Coaxial Cable	No.16	N200	2022/11/25	2023/11/24
Agilent	Signal Generator	N5183A	MY51040755	2022/11/25	2023/11/24

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101948	2022/11/25	2023/11/24
SPECTRUM ANALYZER	Rohde & Schwarz	FSU26	200982	2022/07/04	2023/07/03
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	154606	2022/11/25	2023/11/24
WEINSCHTEL	10dB Attenuator	5324	AU 3842	2022/11/25	2023/11/24
AGILENT	Vector Signal Generator	N5182B	MY53052129	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.31	RF-01	Each time	
Unknown	RF Coaxial Cable	No.32	RF-02	Each time	

* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H & 24E and Part 27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50 (b) (c) (d) - RF OUTPUT POWER and AMPLIFIER GAIN

Applicable Standard

According to FCC §2.1046 and §22.913 (a), the maximum effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts.

According to FCC §2.1046 and §24.232(a)(1) Base stations with an emission bandwidth of 1 MHz or less are limited to 1640 watts equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(2) Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(3) Base station antenna heights may exceed 300 meters HAAT with a corresponding reduction in power; see Tables 1 and 2 of this section.

According to §27.50(b), Fixed and base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section.

According to §27.50(c), Fixed and base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section.

Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

According to §27.50(d)(2), The power of each fixed or base station transmitting in the 1995-2000 MHz, the 2110-2155 MHz 2155-2180 MHz band, or 2180-2200 MHz band and situated in any geographic location other than that described in paragraph (d)(1) of this section is limited to:

(i) An equivalent isotropically radiated power (EIRP) of 1640 watts when transmitting with an emission bandwidth of 1 MHz or less;

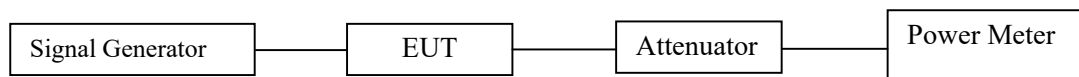
(ii) An EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

According to §27.50(d)(4), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP. Fixed stations operating in the 1710-1755 MHz band are limited to a maximum antenna height of 10 meters above ground. Mobile and portable stations operating in these bands must employ a means for limiting power to the minimum necessary for successful communications.

Test Procedure

Conducted method:

According to KDB 935210 D05 Indus Booster Basic Meas v01r04 clause 3.5



Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn.Jiang on 2023-01-14 and 2023-02-01.

AGC Level:

Mode	Operation Band	Signal type	AGC level	Mode	Operation Band	Signal type	AGC level
			dBm				dBm
Uplink	600MHz Band	AWGN	-54.5	Downlink	600MHz Band	AWGN	-55.5
		GSM	-55.5			GSM	-56.5
	Lower 700 MHz	AWGN	-54.5		Lower 700 MHz	AWGN	-54.5
		GSM	-55.5			GSM	-56.5
	Upper 700 MHz	AWGN	-55.5		Upper 700 MHz	AWGN	-58.5
		GSM	-56.5			GSM	-58.5
	cellular	AWGN	-55.5		cellular	AWGN	-58.5
		GSM	-56.5			GSM	-58.5
	PCS	AWGN	-56.5		PCS	AWGN	-55.5
		GSM	-56.5			GSM	-56.0
	AWS	AWGN	-52.5		AWS	AWGN	-56.5
		GSM	-52.5			GSM	-57.5

600MHz Band

Modes	Frequency (MHz)	Signal Type	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dB)	ERP (dBm)
Uplink	680.78	AWGN	Pre-AGC	-55	24.31	79.31	24.69
			3dB above AGC	-51.5	24.91	76.41	25.29
		GSM	Pre-AGC	-56	24.63	80.63	25.01
			3dB above AGC	-52.5	24.01	76.51	24.39
Downlink	633.659	AWGN	Pre-AGC	-56	27.52	83.52	26.90
			3dB above AGC	-52.5	27.89	80.39	27.27
		GSM	Pre-AGC	-57	27.31	84.31	26.69
			3dB above AGC	-53.5	27.6	81.1	26.98

Note:

ERP=Conducted Output Power(dBm) +AntennaGain(dBd)-Cable loss(dB)

For 600MHz band, the antenna gain is 7.5dBi (5.35dBd) for Uplink, 6.5dBi (4.35dBd) for Downlink
0dBd=2.15dBi

Cable loss=4.97dB for uplink and downlink

ERP Limit: $\leq 3W(34.77dBm)$

The frequency which selected to test was according to the peak of the frequency point from out-of- band rejection test band rejection test.

Lower 700MHz (A+B+C Block) Band:

Modes	Frequency (MHz)	Signal Type	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dB)	ERP (dBm)
Uplink	700.43	AWGN	Pre-AGC	-55	24.36	79.36	24.74
			3dB above AGC	-51.5	24.63	76.13	25.01
		GSM	Pre-AGC	-56	24.02	80.02	24.40
			3dB above AGC	-52.5	24.31	76.81	24.69
Downlink	735.125	AWGN	Pre-AGC	-55	28.06	83.06	27.44
			3dB above AGC	-51.5	28.63	80.13	28.01
		GSM	Pre-AGC	-57	27.16	84.16	26.54
			3dB above AGC	-53.5	27.86	81.36	27.24

Note:

ERP=Conducted Output Power(dBm) +AntennaGain(dBd)-Cable loss(dB)

For 700MHz band, the antenna gain is 7.5dBi (5.35dBd) for Uplink, 6.5dBi (4.35dBd) for Downlink
0dBd=2.15dBi

Cable loss=4.97dB for uplink and downlink

ERP Limit: $\leq 1000\text{W/MHz}$

The frequency which selected to test was according to the peak of the frequency point from out-of- band rejection test band rejection test.

Upper 700MHz (C Block) Band:

Modes	Frequency (MHz)	Signal Type	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dB)	ERP (dBm)
Uplink	779.12	AWGN	Pre-AGC	-56	24.86	80.86	25.24
			3dB above AGC	-52.5	24.99	77.49	25.37
		GSM	Pre-AGC	-57	24.63	81.63	25.01
			3dB above AGC	-53.5	24.96	78.46	25.34
Downlink	749.825	AWGN	Pre-AGC	-59	27.69	86.69	27.07
			3dB above AGC	-55.5	27.99	83.49	27.37
		GSM	Pre-AGC	-59	27.63	86.63	27.01
			3dB above AGC	-55.5	27.69	83.19	27.07

Note:

ERP=Conducted Output Power(dBm) +AntennaGain(dBd)-Cable loss(dB)

For 700MHz band, the antenna gain is 7.5dBi (5.35dBd) for Uplink, 6.5dBi (4.35dBd) for Downlink
0dBd=2.15dBi

Cable loss=4.97dB for uplink and downlink

ERP Limit: $\leq 3W(34.77dBm)$ for Uplink, $\leq 1000W/MHz$ for downlink

The frequency which selected to test was according to the peak of the frequency point from out-of- band rejection test band rejection test.

Cellular Band:

Modes	Frequency (MHz)	Signal Type	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dB)	ERP (dBm)
Uplink	831.09	AWGN	Pre-AGC	-56	23.79	79.79	24.47
			3dB above AGC	-52.5	23.88	76.38	24.56
		GSM	Pre-AGC	-57	23.23	80.23	23.91
			3dB above AGC	-53.5	23.39	76.89	24.07
Downlink	882.1	AWGN	Pre-AGC	-59	28.55	87.55	27.73
			3dB above AGC	-55.5	28.96	84.46	28.14
		GSM	Pre-AGC	-59	28.12	87.12	27.30
			3dB above AGC	-55.5	28.56	84.06	27.74

Note:

ERP=Conducted Output Power(dBm) +AntennaGain(dBd)-Cable loss(dB)

For Cellular band, the antenna gain is 8.0dBi (5.85dBd) for Uplink, 6.5dBi (4.35dBd) for Downlink
0dBd=2.15dBi

Cable loss=5.17dB for uplink and downlink

ERP Limit: ≤ 500W

The frequency which selected to test was according to the peak of the frequency point from out-of- band rejection test band rejection test.

PCS Band:

Modes	Frequency (MHz)	Signal Type	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dB)	EIRP (dBm)
Uplink	1874.69	AWGN	Pre-AGC	-57	23.01	80.01	24.5
			3dB above AGC	-53.5	23.65	77.15	25.14
		GSM	Pre-AGC	-57	23.56	80.56	25.05
			3dB above AGC	-53.5	23.32	76.82	24.81
Downlink	1945.31	AWGN	Pre-AGC	-56	28.96	84.96	29.95
			3dB above AGC	-52.5	28.92	81.42	29.91
		GSM	Pre-AGC	-56.5	28.86	85.36	29.85
			3dB above AGC	-53	28.93	81.93	29.92

Note:

$EIRP = \text{Conducted Output Power (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable loss (dB)}$

For PCS band, the antenna gain is 9.0dBi for Uplink, 8.5dBi for Downlink

Cable loss=7.51dB for uplink and downlink

EIRP Limit: $\leq 1640\text{W}$ or 1640W/MHz

The frequency which selected to test was according to the peak of the frequency point from out-of- band rejection test band rejection test.

AWS Band:

Modes	Frequency (MHz)	Signal Type	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dB)	EIRP (dBm)
Uplink	1732.66	AWGN	Pre-AGC	-53	23.47	76.47	24.96
			3dB above AGC	-49.5	23.69	73.19	25.18
		GSM	Pre-AGC	-53	23.21	76.21	24.7
			3dB above AGC	-49.5	23.42	72.92	24.91
Downlink	2153.97	AWGN	Pre-AGC	-57	28.6	85.6	29.59
			3dB above AGC	-53.5	28.7	82.2	29.69
		GSM	Pre-AGC	-58	28.24	86.24	29.23
			3dB above AGC	-54.5	28.42	82.92	29.41

Note:

$EIRP = \text{Conducted Output Power (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable loss (dB)}$

For AWS band, the antenna gain is 9.0dBi for Uplink, 8.5dBi for Downlink

Cable loss=7.51dB for uplink and downlink

EIRP Limit: $\leq 1W(30\text{dBm})$ for Uplink, $\leq 1640W$ for downlink

The frequency which selected to test was according to the peak of the frequency point from out-of- band rejection test band rejection test.

FCC §2.1049, §22.917 & §24.238 & §27.53 - BANDWIDTH

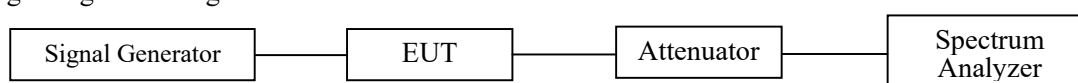
Applicable Standard

FCC §2.1049, §22.917, §22.905, §24.238 & §27.53.

Test Procedure

According to KDB 935210 D05 Indus Booster Basic Meas v01r04 clause 3.4

A 26 dB bandwidth measurement shall be performed on the input signal and the output signal (alternatively, the 99% OBW can be measured and used) to demonstrate compliance to the technical requirements specified in §90.219(e)(4)(i) and (ii). See KDB Publication 971168 for more information regarding measuring the OBW.



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Glenn.Jiang on 2022-12-19.

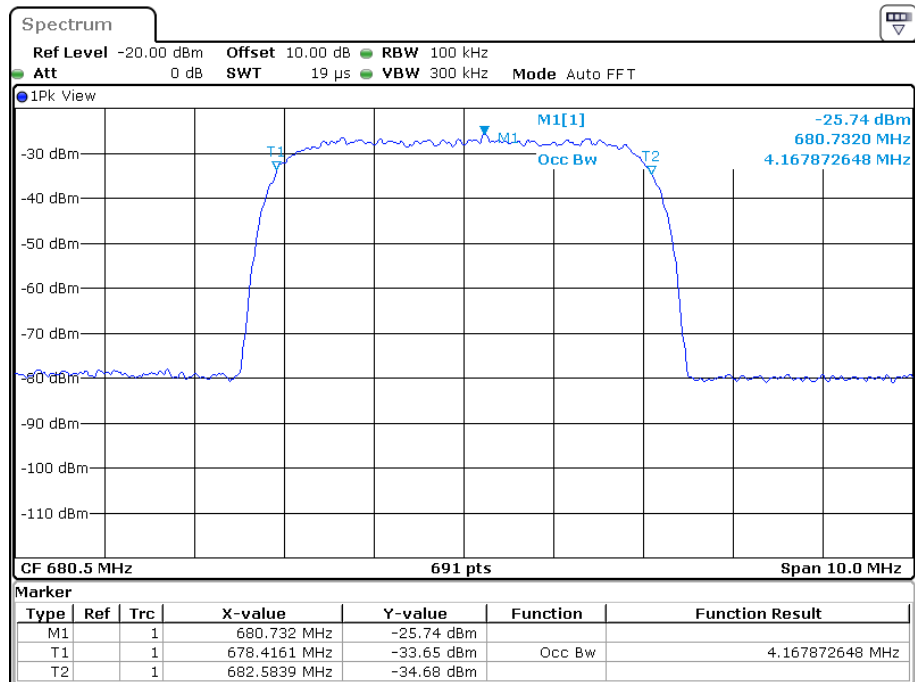
EUT operation mode: Transmitting

Test Result: Compliance. Please refer to the following tables and plots.

600MHz Band

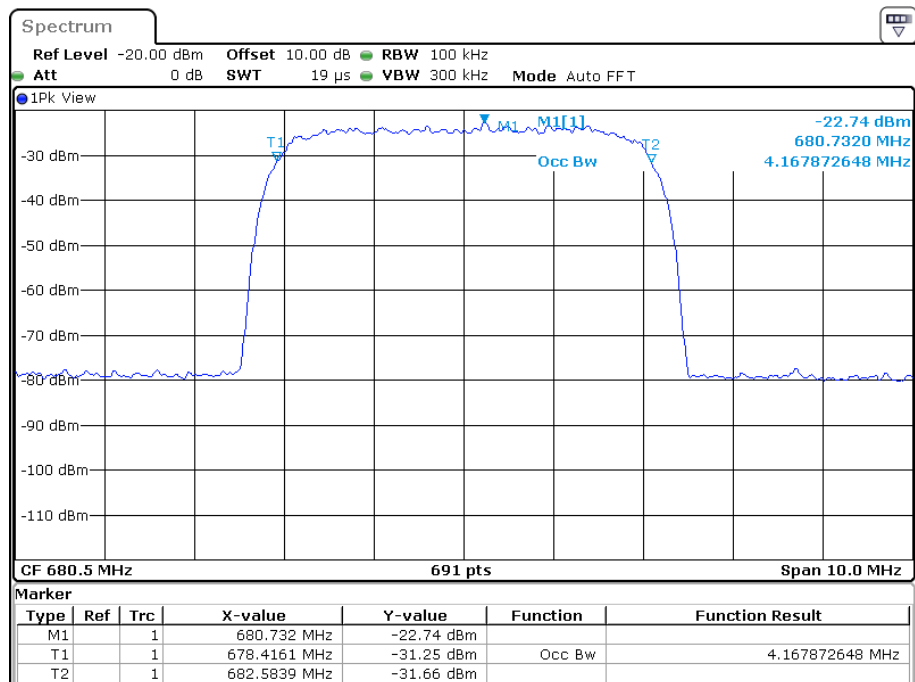
Mode	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	680.5	4.168	4.197	4.696	4.754
		3dB above AGC	680.5	4.168	4.197	4.710	4.913
	GSM	Pre-AGC	680.5	0.246	0.246	0.322	0.322
		3dB above AGC	680.5	0.246	0.246	0.322	0.322
Downlink	AWGN	Pre-AGC	634.5	4.168	4.168	4.696	4.710
		3dB above AGC	634.5	4.168	4.153	4.710	4.696
	GSM	Pre-AGC	634.5	0.246	0.245	0.322	0.322
		3dB above AGC	634.5	0.246	0.245	0.322	0.323

99% Bandwidth-UL-AWGN-Pre AGC-Input



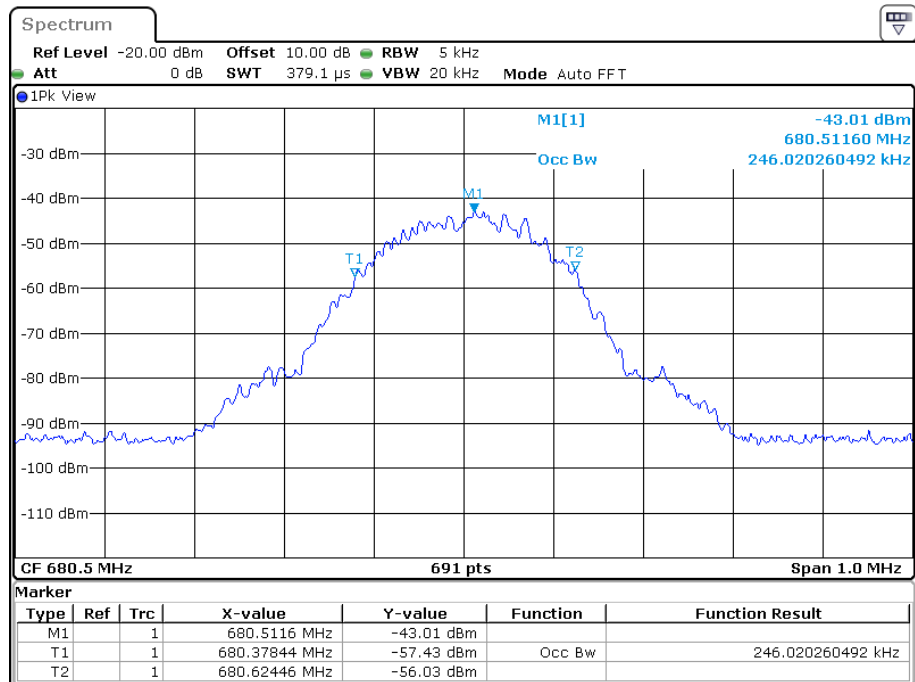
Date: 19.DEC.2022 18:01:03

99% Bandwidth-UL- AWGN-3dB above AGC-Input



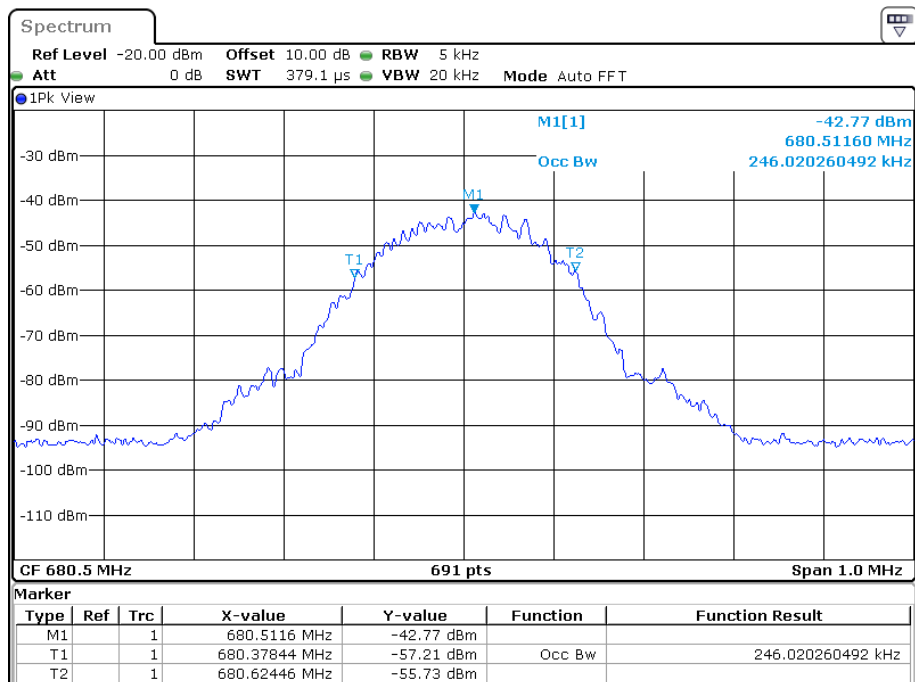
Date: 19.DEC.2022 18:08:01

99% Bandwidth-UL-GSM-Pre AGC-Input

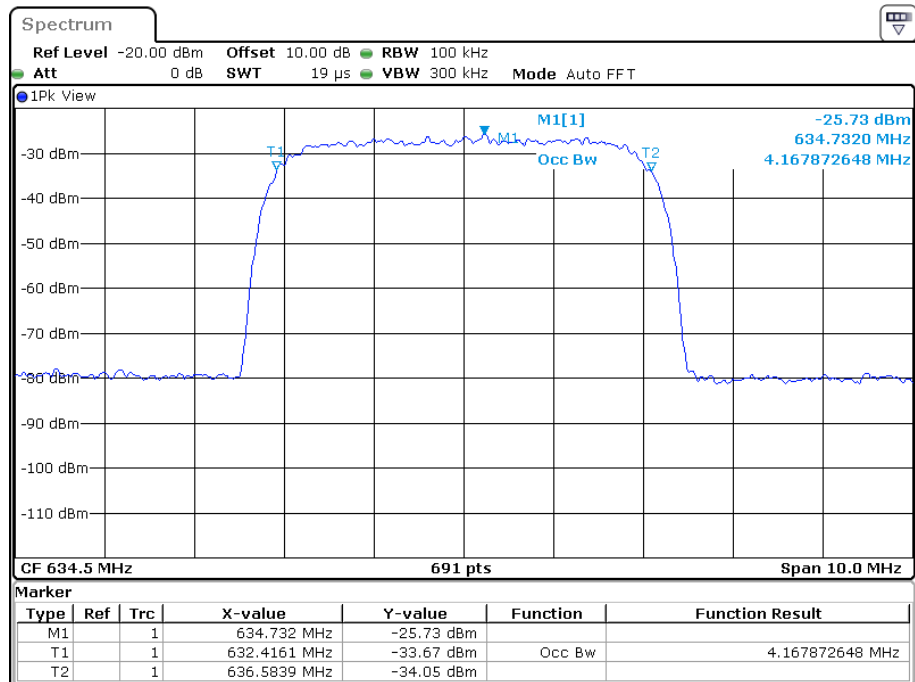


Date: 19.DEC.2022 17:47:17

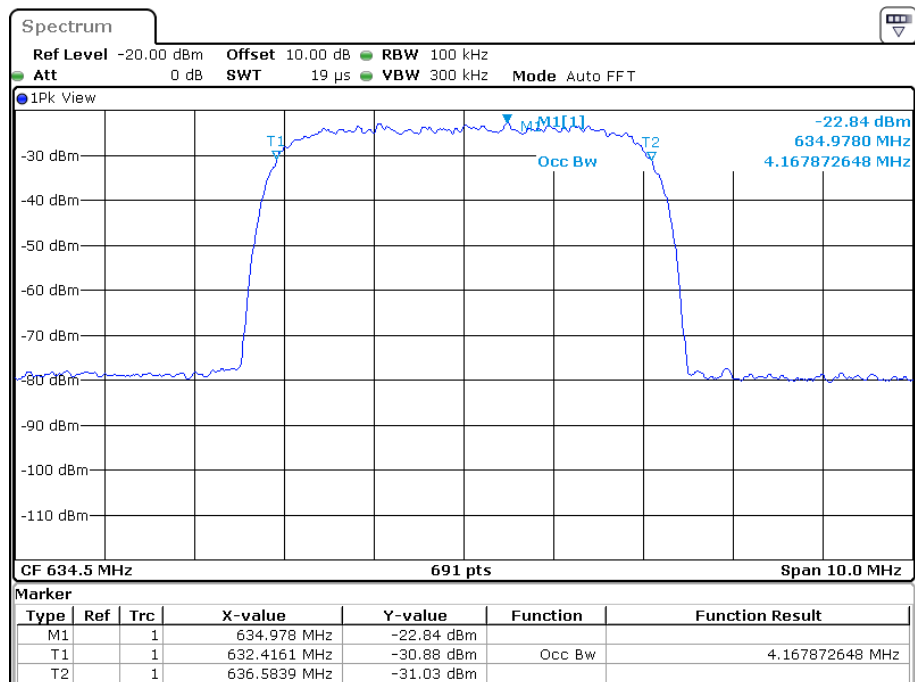
99% Bandwidth-UL- GSM-3dB above AGC-Input



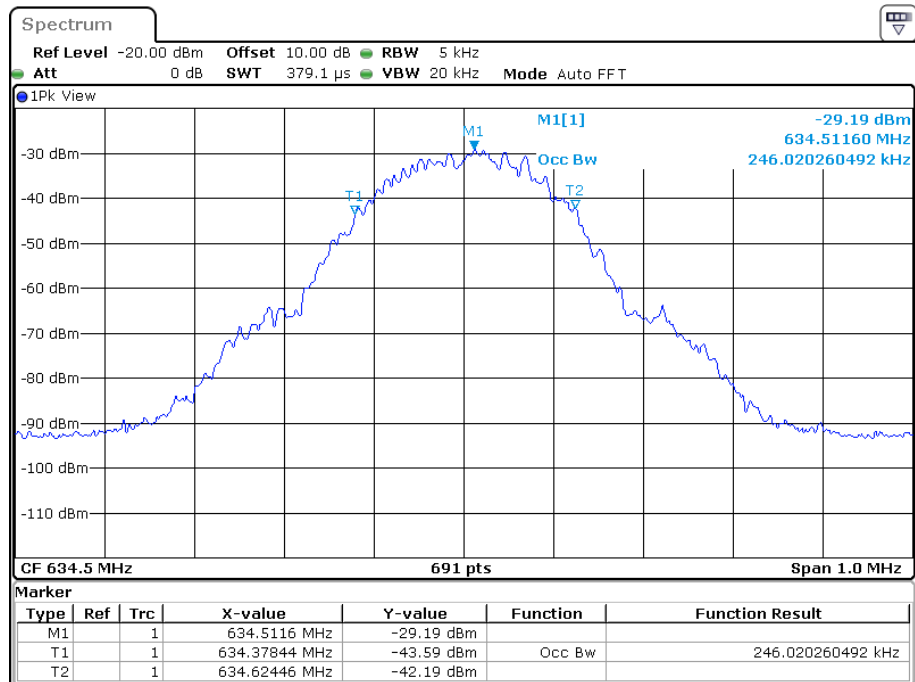
Date: 19.DEC.2022 17:54:05

99% Bandwidth-DL- AWGN- Pre AGC -Input

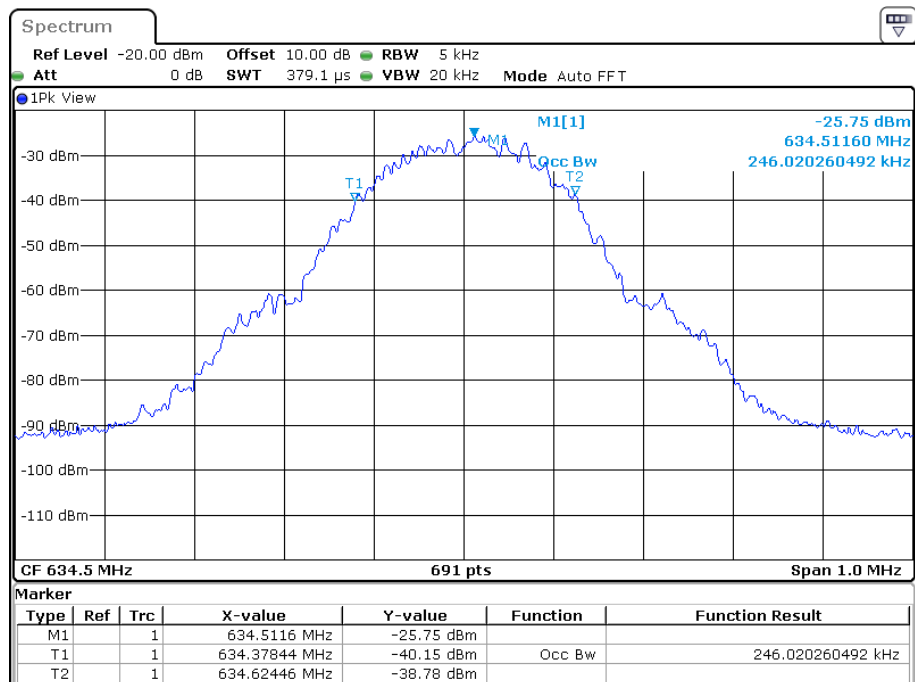
Date: 19.DEC.2022 17:57:43

99% Bandwidth-DL- AWGN- 3dB Above AGC -Input

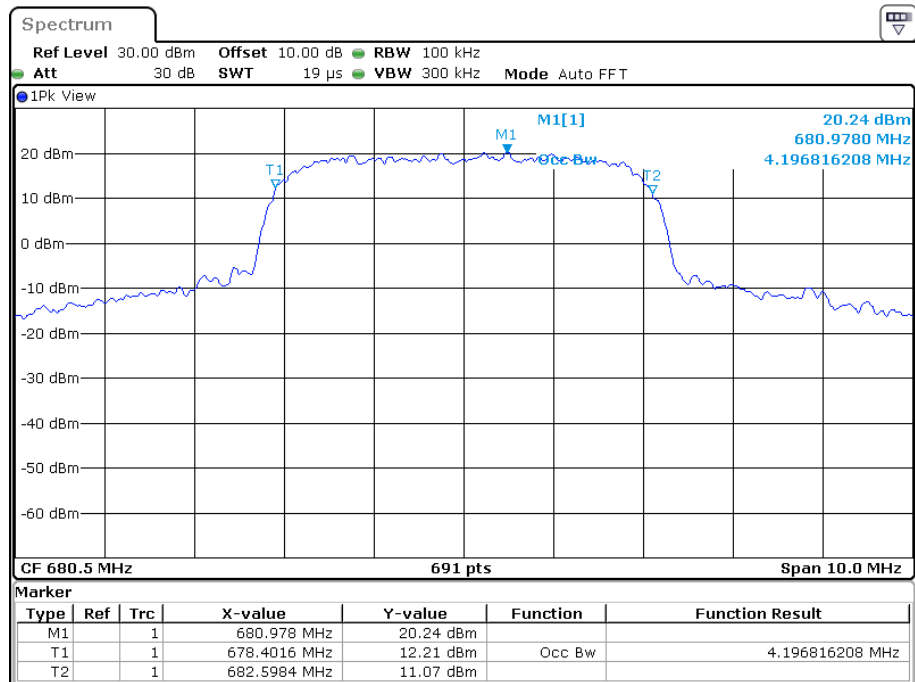
Date: 19.DEC.2022 18:04:32

99% Bandwidth-DL- GSM- Pre AGC -Input

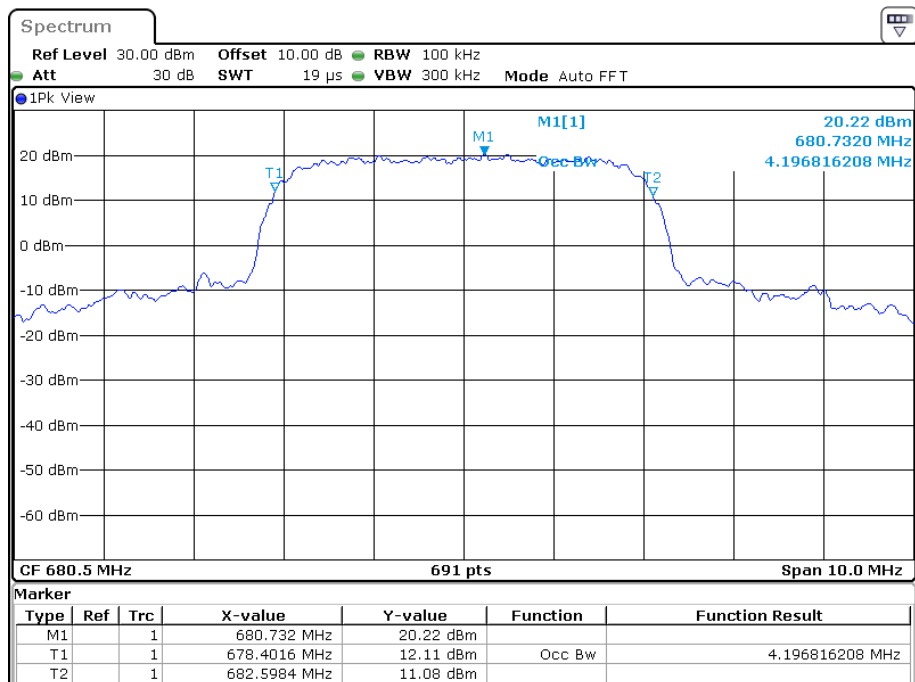
Date: 19.DEC.2022 17:43:48

99% Bandwidth-DL- GSM- 3dB Above AGC -Input

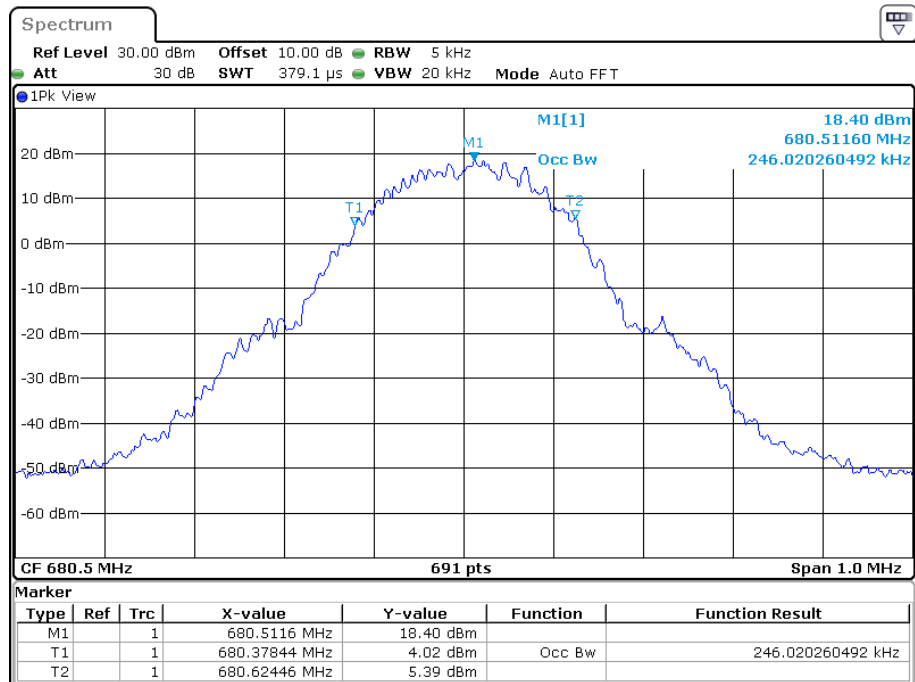
Date: 19.DEC.2022 17:50:35

99% Bandwidth-UL- AWGN- Pre AGC -Output

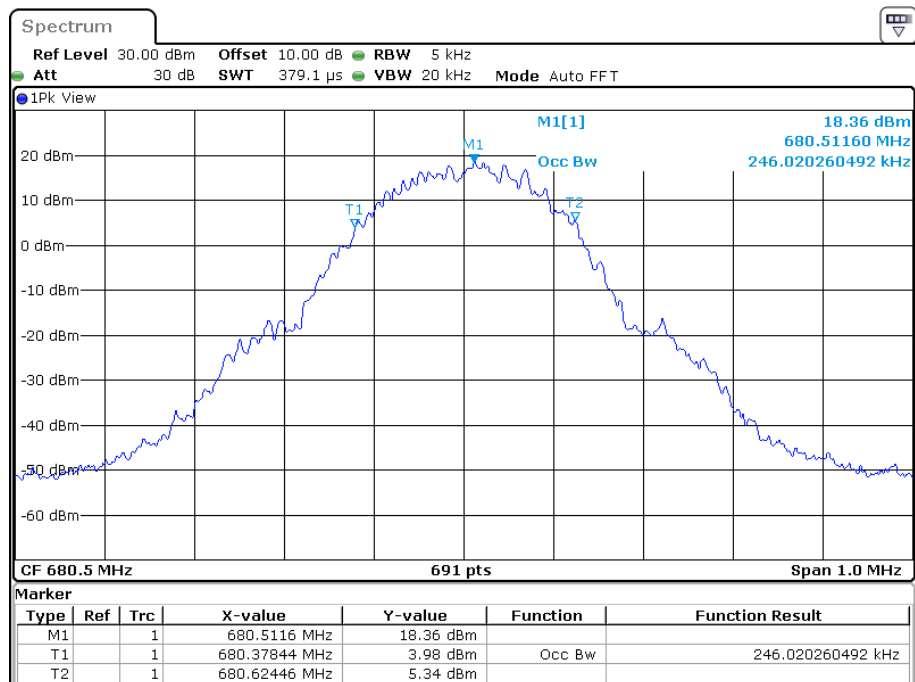
Date: 19.DEC.2022 17:10:18

99% Bandwidth-UL- AWGN-3dB above AGC-Output

Date: 19.DEC.2022 17:14:36

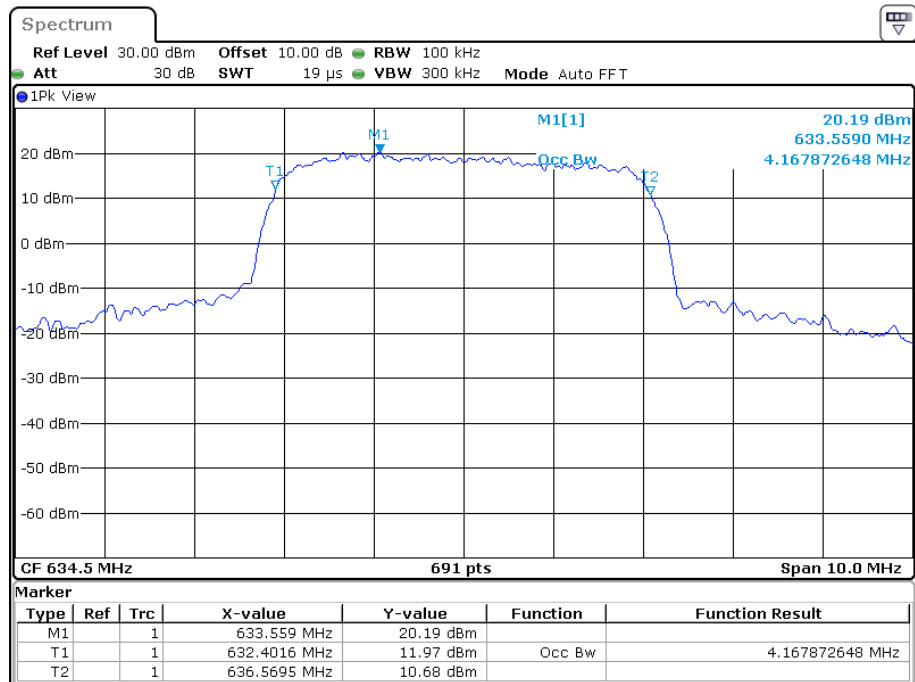
99% Bandwidth-UL- GSM- Pre AGC -Output

Date: 19.DEC.2022 16:34:56

99% Bandwidth-UL- GSM-3dB above AGC-Output

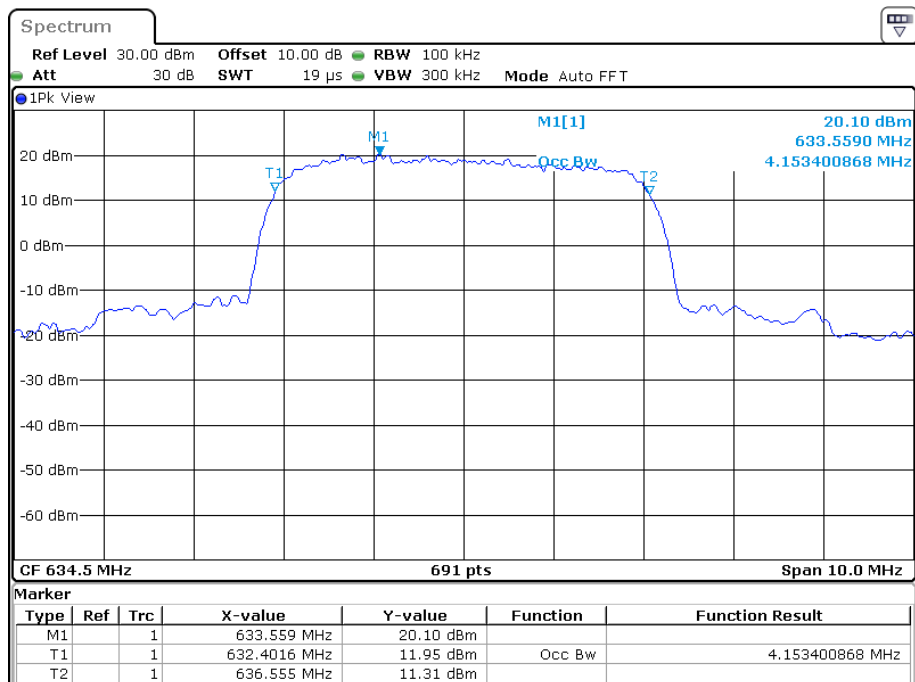
Date: 19.DEC.2022 16:38:32

99% Bandwidth-DL- AWGN- Pre AGC -Output

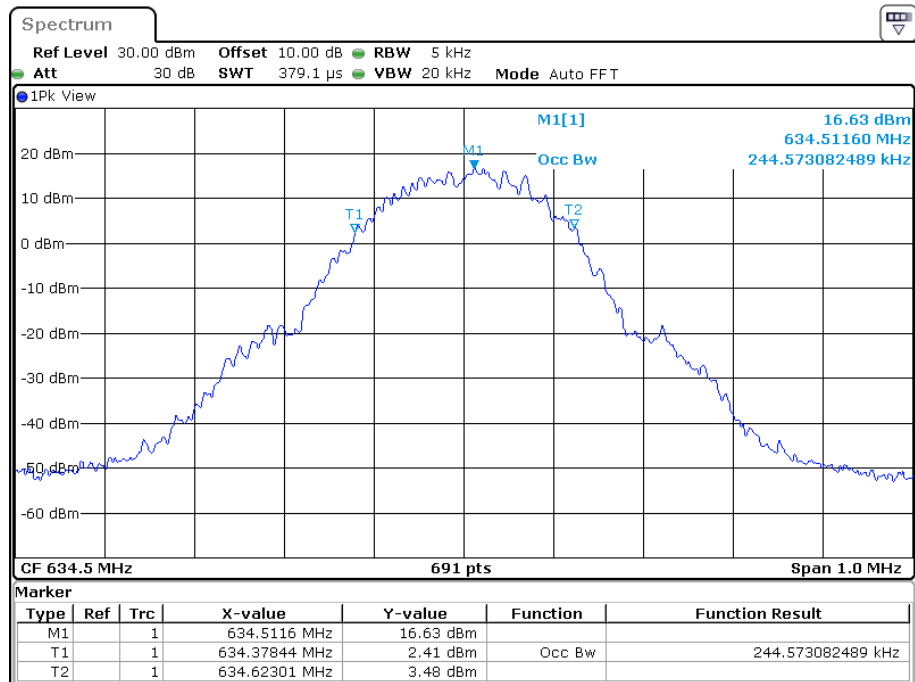


Date: 19.DEC.2022 17:31:08

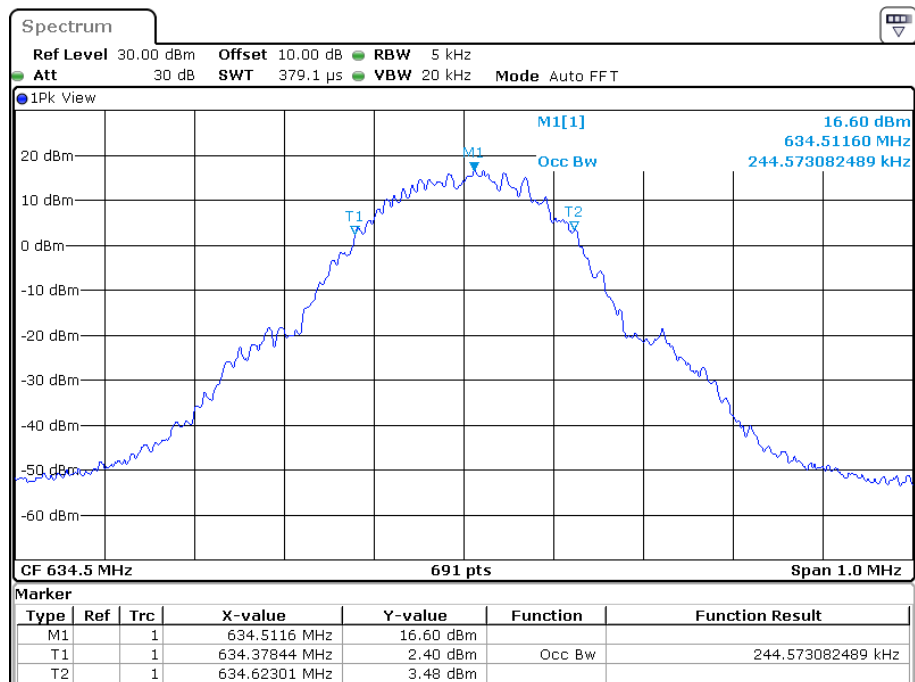
99% Bandwidth-DL- AWGN- 3dB Above AGC -Output



Date: 19.DEC.2022 17:36:14

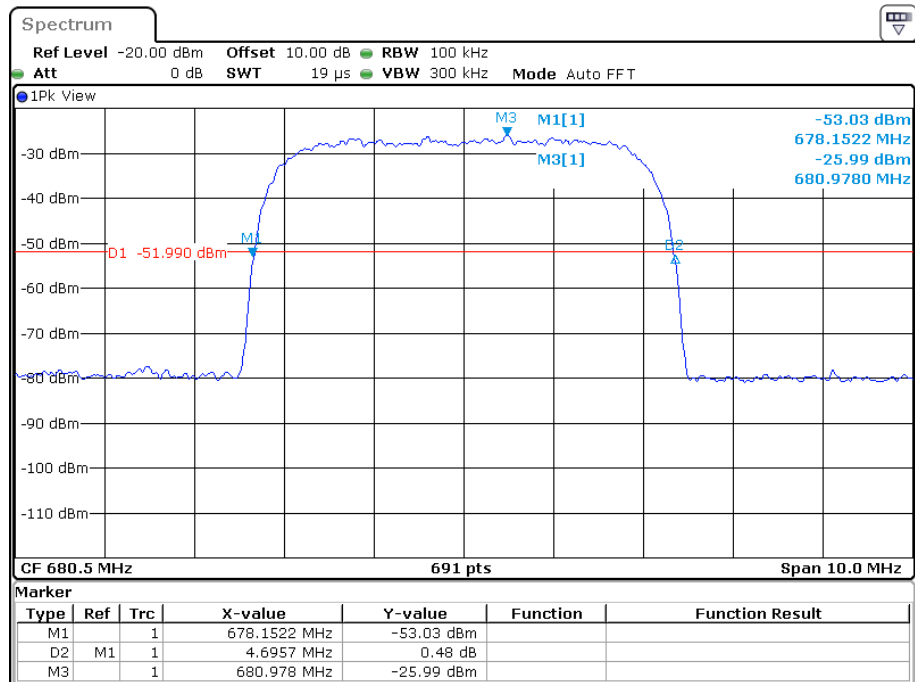
99% Bandwidth-DL- GSM- Pre AGC -Output

Date: 19.DEC.2022 17:24:05

99% Bandwidth-DL- GSM- 3dB Above AGC -Output

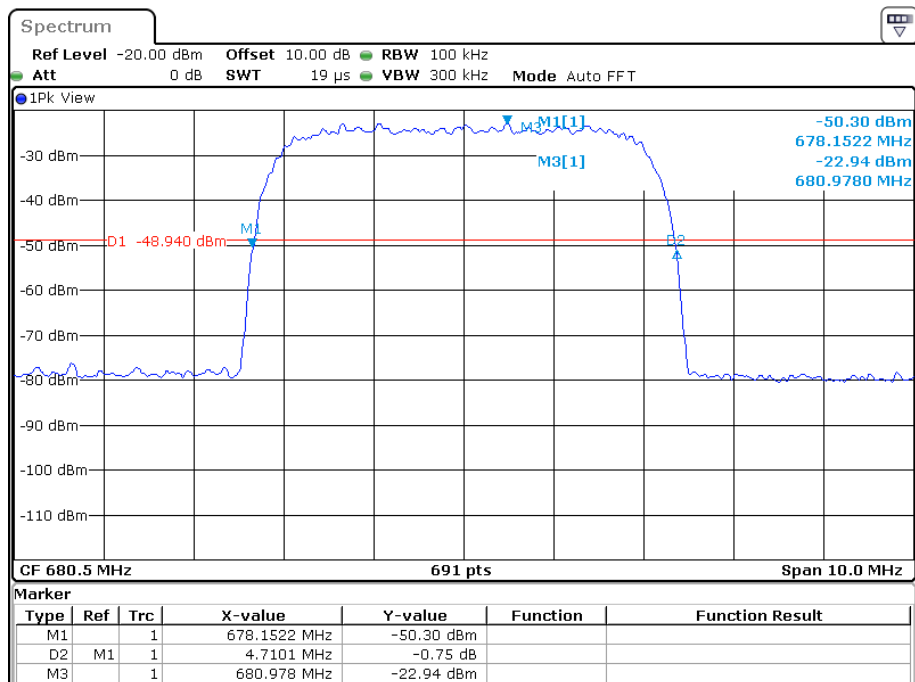
Date: 19.DEC.2022 17:27:23

26 dB Bandwidth-UL-AWGN-Pre AGC-Input



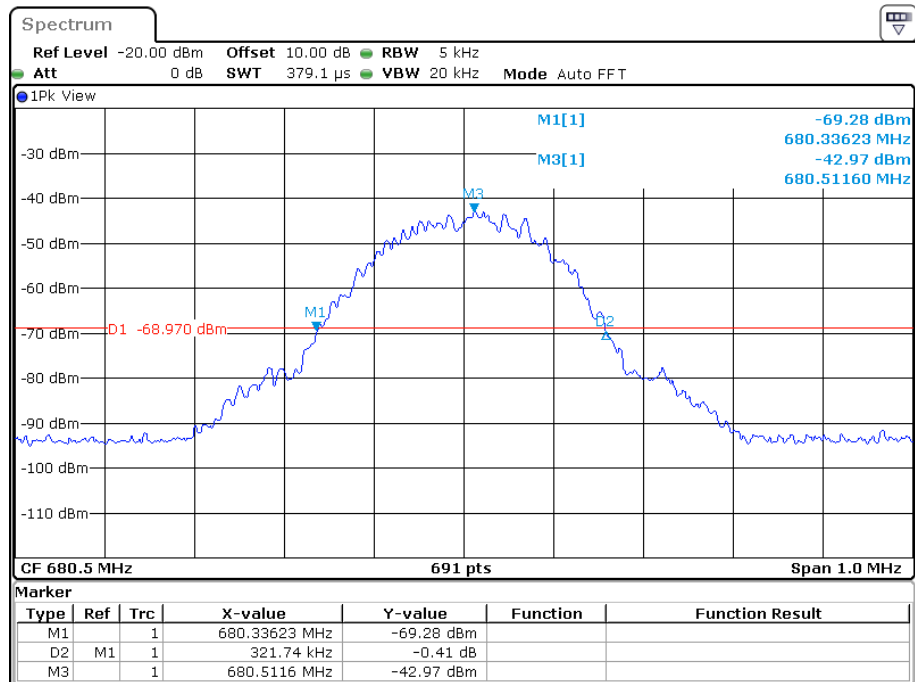
Date: 19.DEC.2022 18:01:18

26 dB Bandwidth-UL- AWGN-3dB above AGC-Input



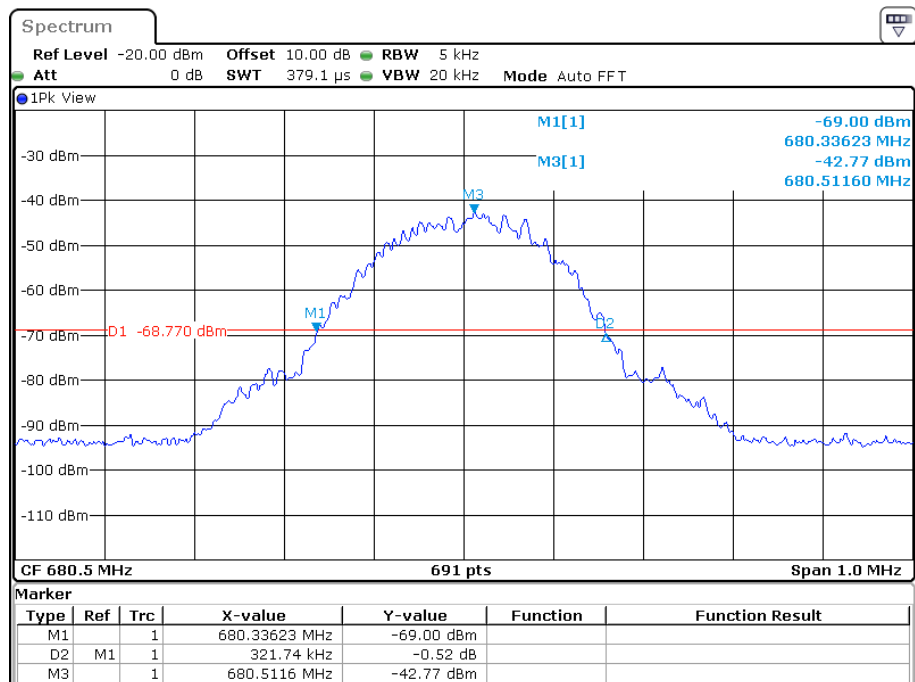
Date: 19.DEC.2022 18:08:16

26 dB Bandwidth-UL-GSM-Pre AGC-Input



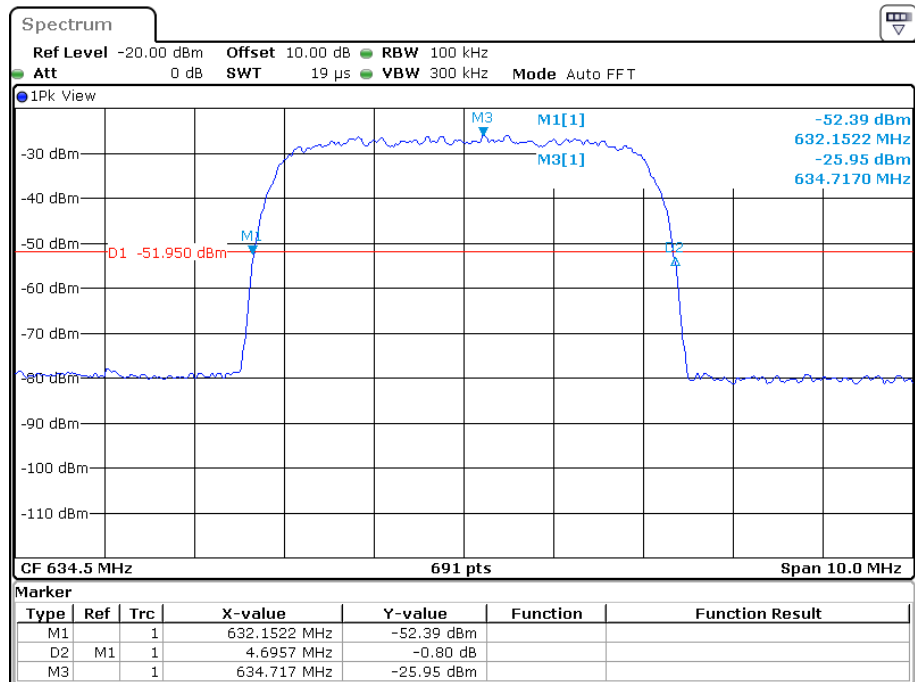
Date: 19.DEC.2022 17:47:32

26 dB Bandwidth-UL- GSM-3dB above AGC-Input



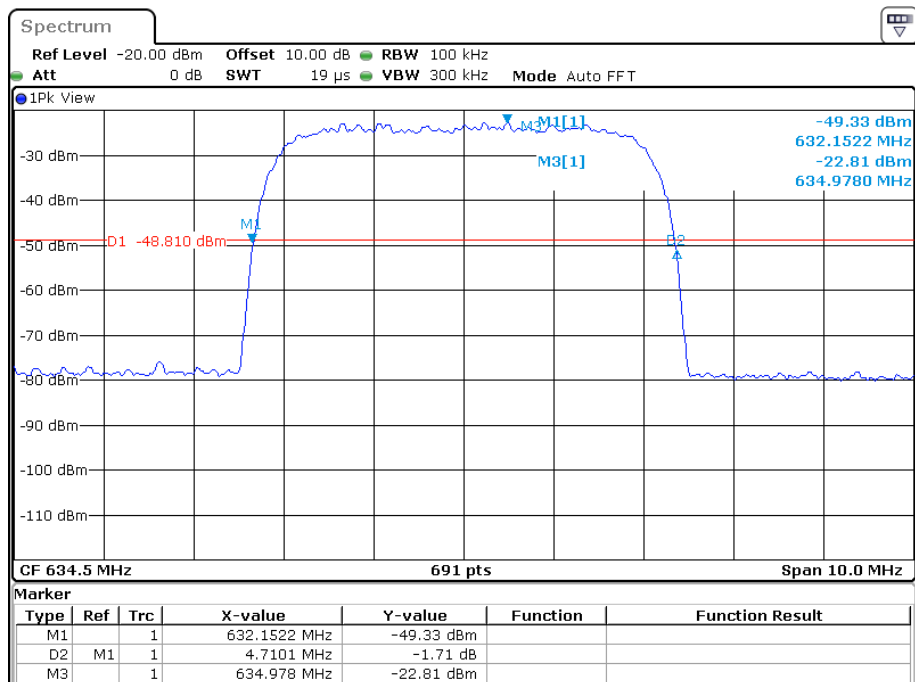
Date: 19.DEC.2022 17:54:20

26 dB Bandwidth-DL- AWGN- Pre AGC -Input



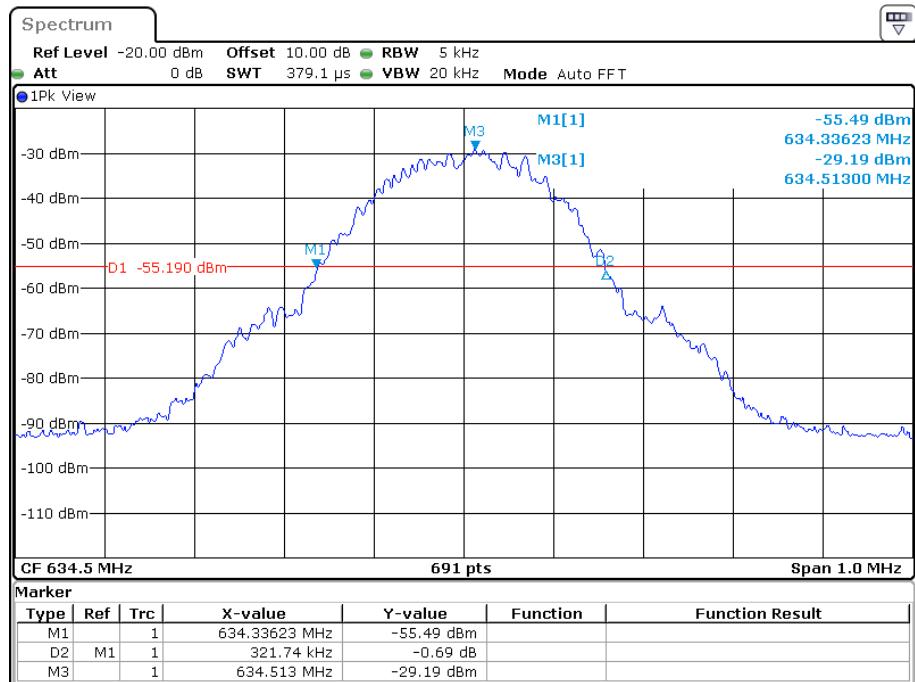
Date: 19.DEC.2022 17:57:58

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Input



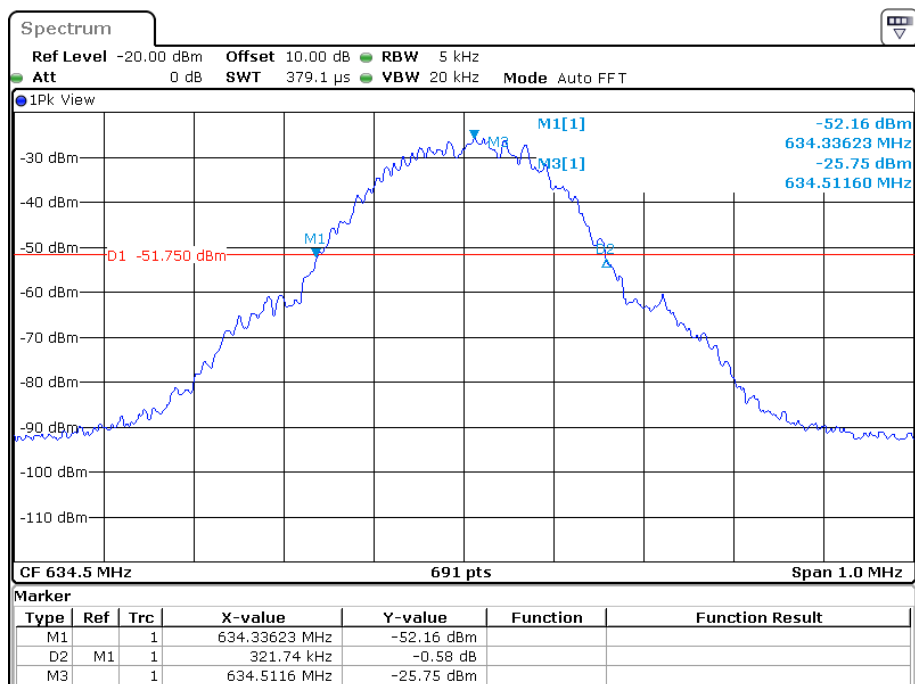
Date: 19.DEC.2022 18:04:57

26 dB Bandwidth-DL- GSM- Pre AGC -Input



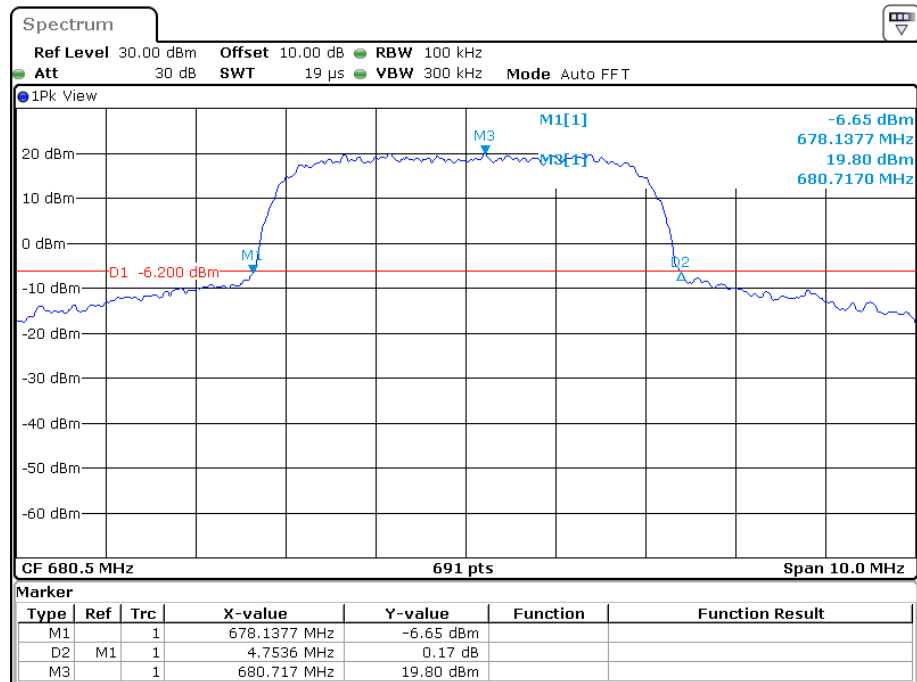
Date: 19.DEC.2022 17:44:03

26 dB Bandwidth-DL- GSM- 3dB Above AGC -Input



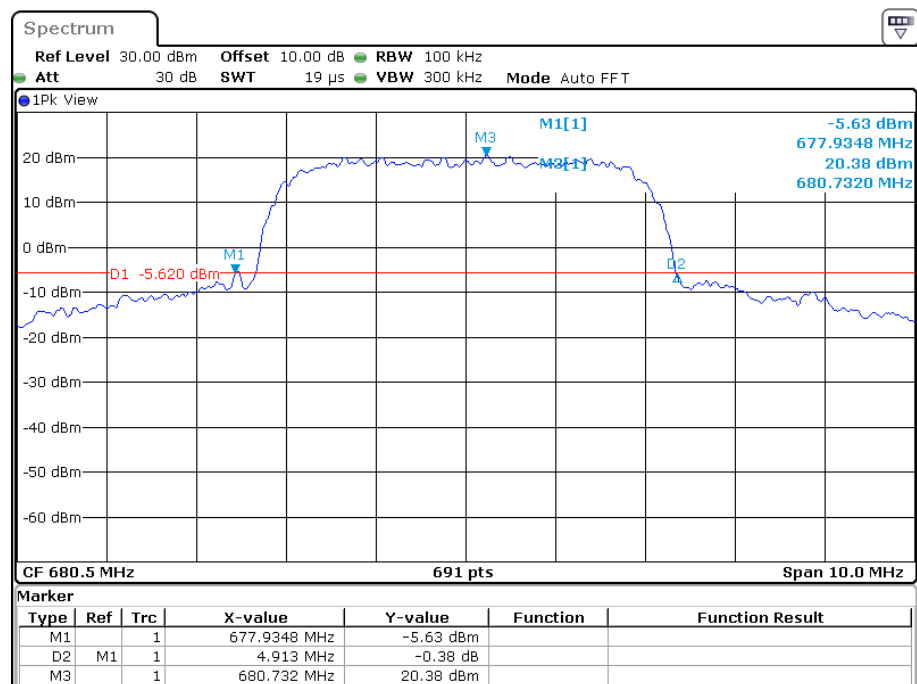
Date: 19.DEC.2022 17:50:50

26 dB Bandwidth-UL- AWGN- Pre AGC -Output



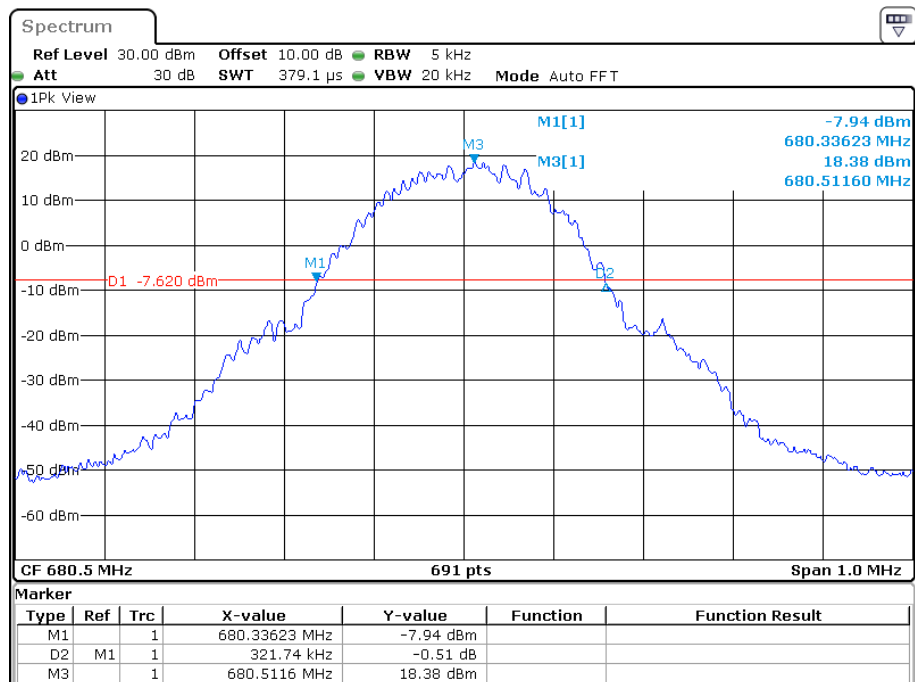
Date: 19.DEC.2022 17:10:33

26 dB Bandwidth-UL- AWGN-3dB above AGC-Output



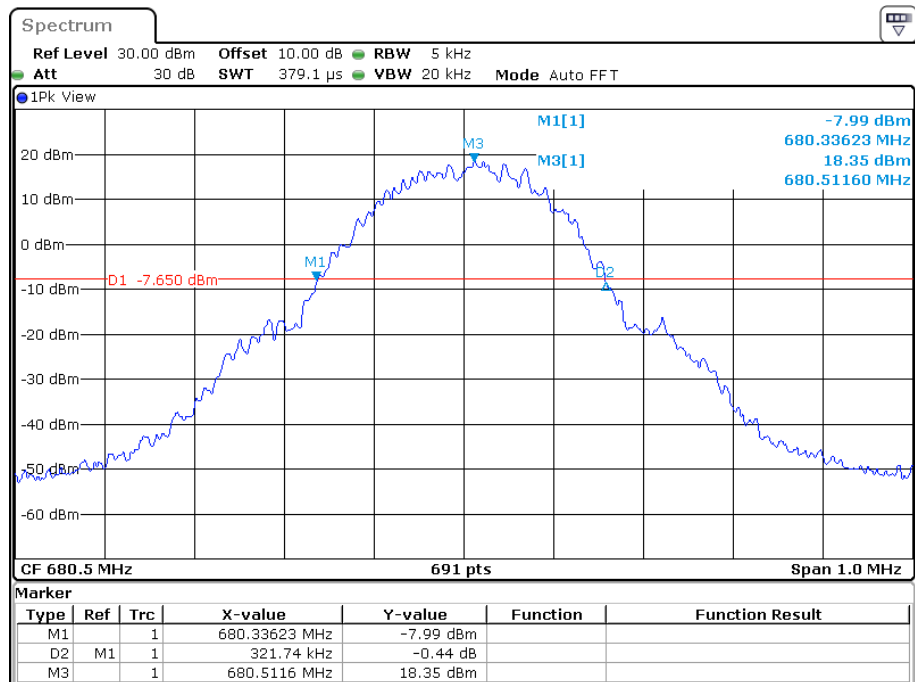
Date: 19.DEC.2022 17:14:51

26 dB Bandwidth-UL- GSM- Pre AGC -Output



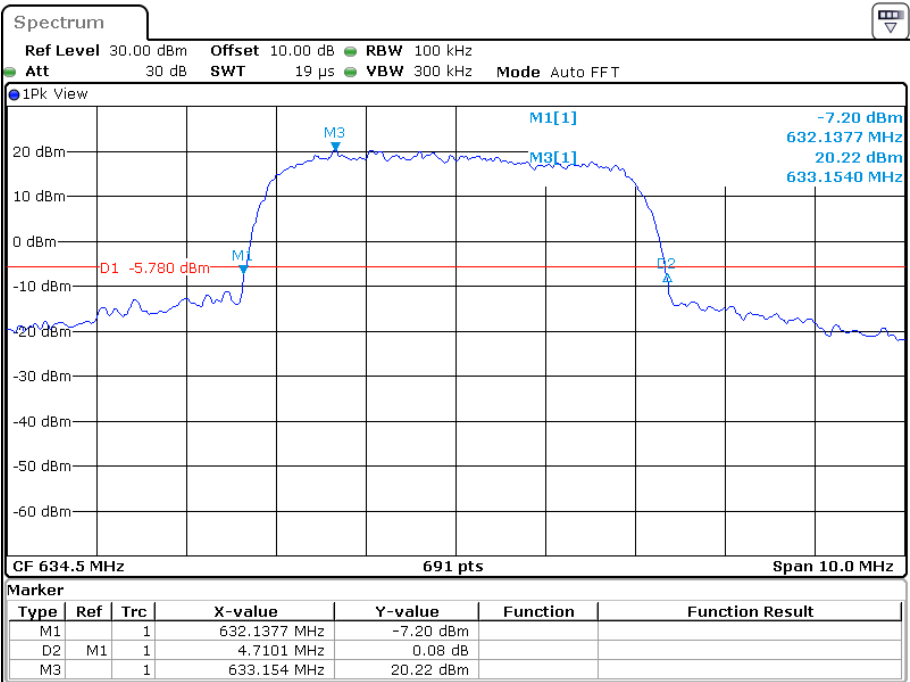
Date: 19.DEC.2022 16:35:11

26 dB Bandwidth-UL- GSM-3dB above AGC-Output



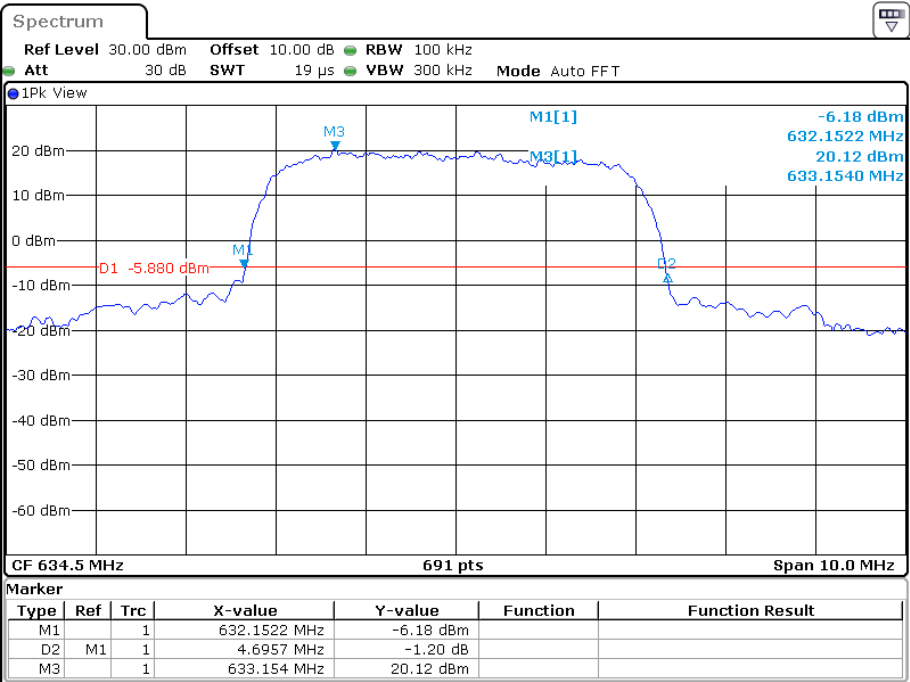
Date: 19.DEC.2022 16:38:47

26 dB Bandwidth-DL- AWGN- Pre AGC -Output



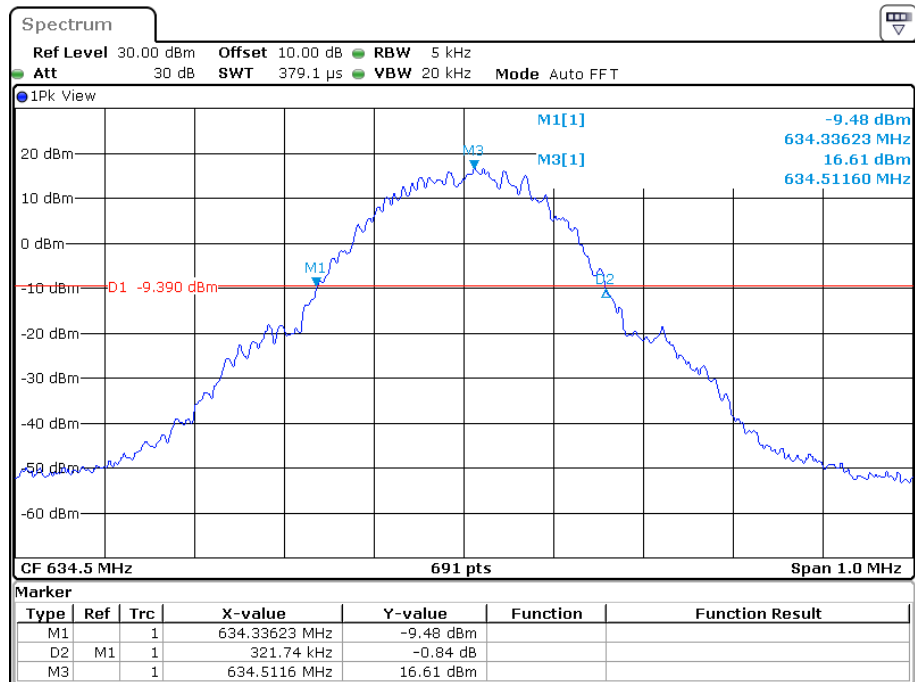
Date: 19.DEC.2022 17:31:32

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Output



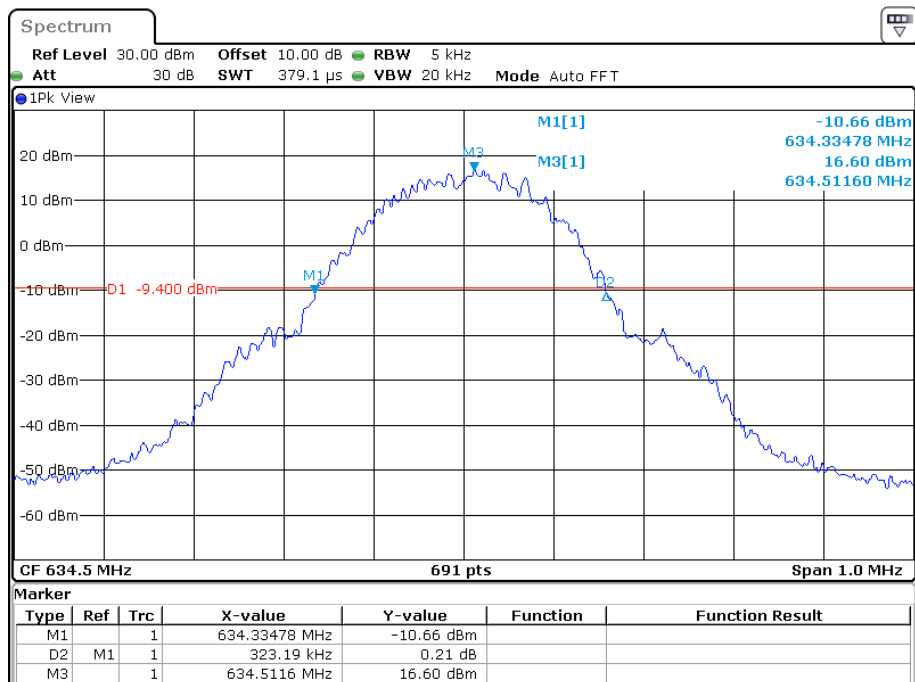
Date: 19.DEC.2022 17:36:50

26 dB Bandwidth-DL- GSM- Pre AGC -Output



Date: 19.DEC.2022 17:24:20

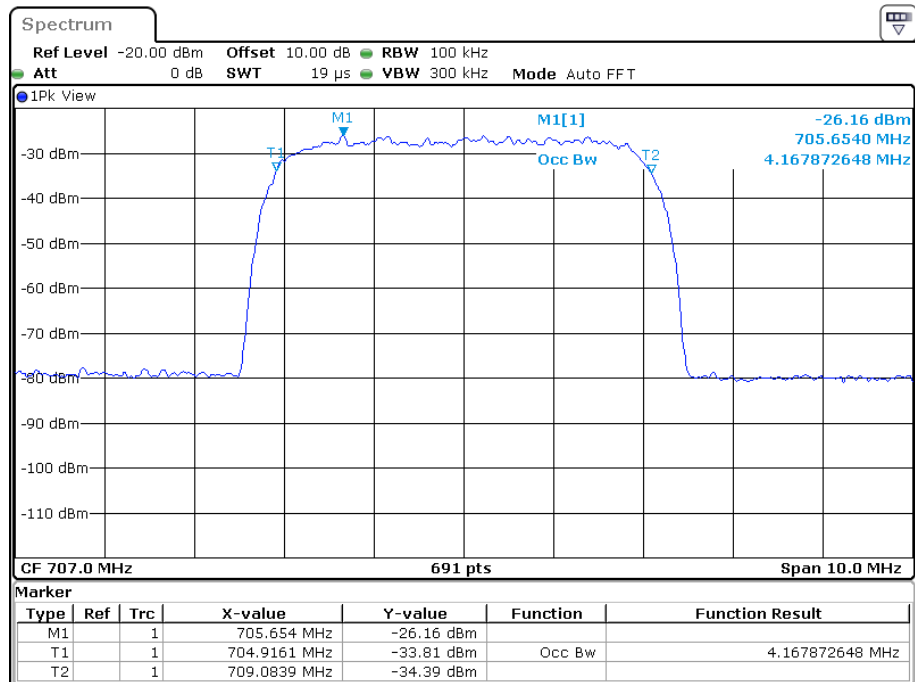
26 dB Bandwidth-DL- GSM- 3dB Above AGC -Output



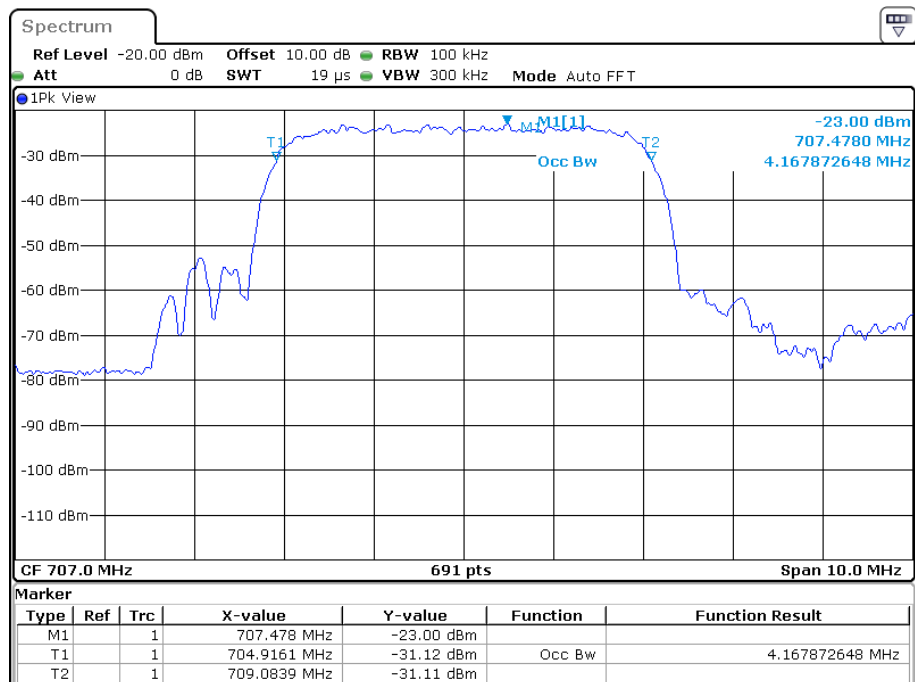
Date: 19.DEC.2022 17:27:38

Lower 700MHz (A+B+C Block) Band

Mode	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	707	4.168	4.211	4.696	5.377
		3dB above AGC	707	4.168	4.197	4.710	5.203
	GSM	Pre-AGC	707	0.246	0.246	0.322	0.322
		3dB above AGC	707	0.246	0.246	0.322	0.322
Downlink	AWGN	Pre-AGC	737	4.168	4.240	4.696	6.174
		3dB above AGC	737	4.168	4.226	4.696	6.703
	GSM	Pre-AGC	737	0.246	0.246	0.322	0.322
		3dB above AGC	737	0.246	0.245	0.322	0.322

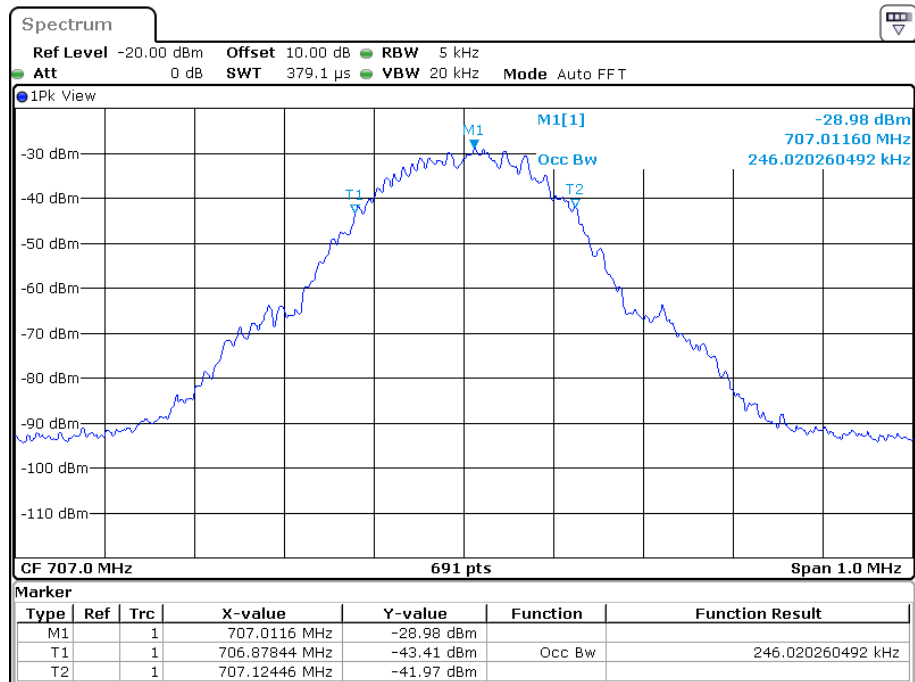
99% Bandwidth-UL-AWGN-Pre AGC-Input

Date: 19.DEC.2022 18:01:36

99% Bandwidth-UL- AWGN-3dB above AGC-Input

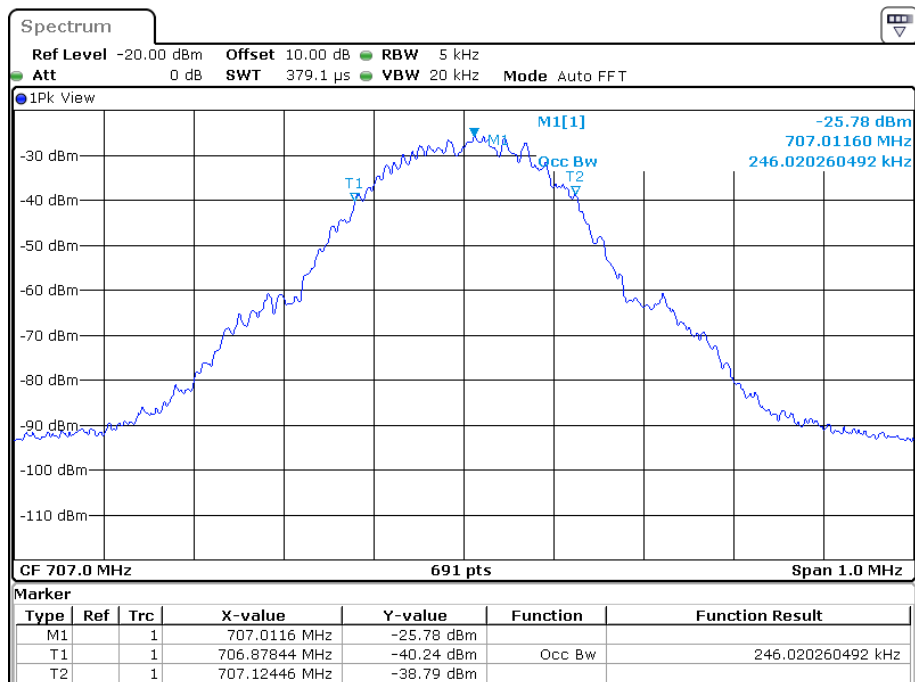
Date: 19.DEC.2022 18:08:54

99% Bandwidth-UL-GSM-Pre AGC-Input



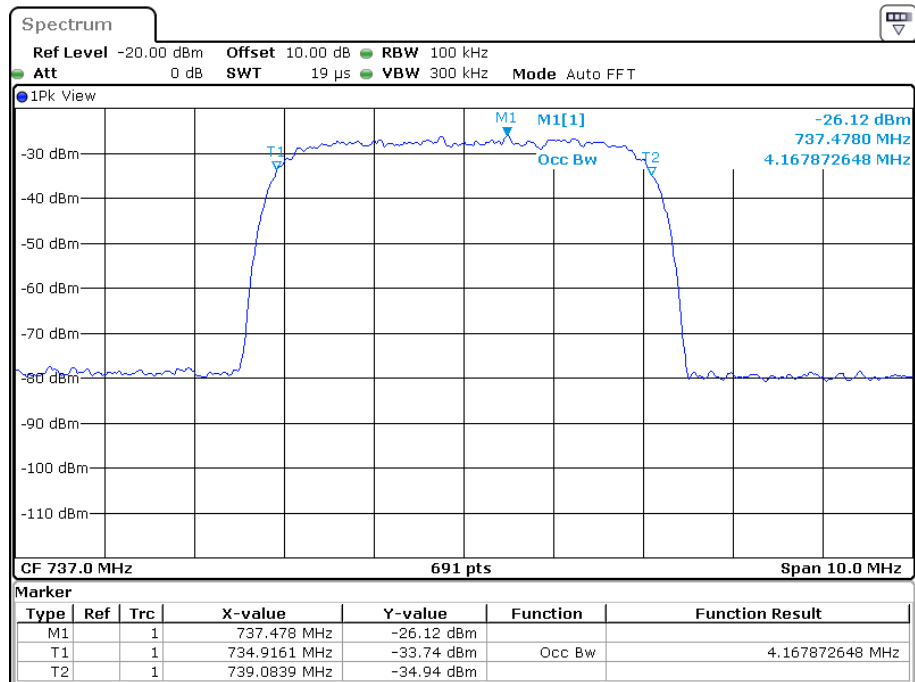
Date: 19.DEC.2022 17:47:50

99% Bandwidth-UL- GSM-3dB above AGC-Input



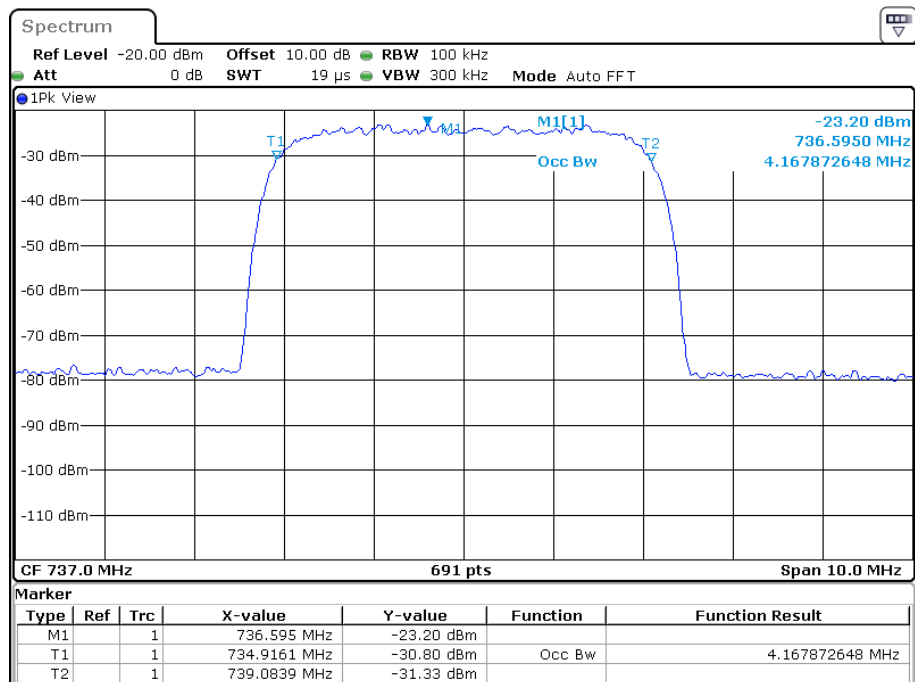
Date: 19.DEC.2022 17:54:38

99% Bandwidth-DL- AWGN- Pre AGC -Input

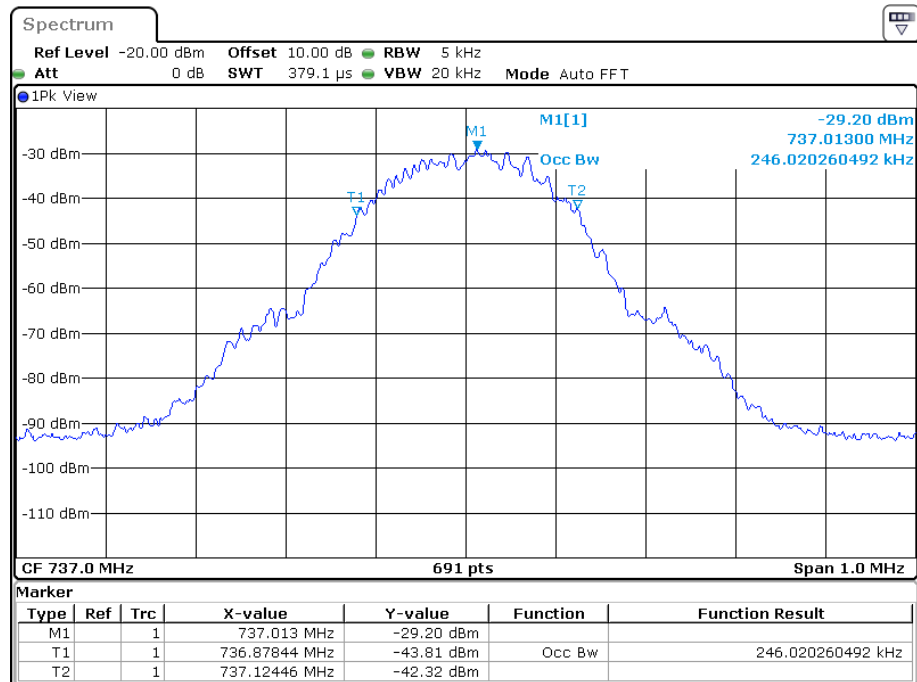


Date: 19.DEC.2022 17:58:16

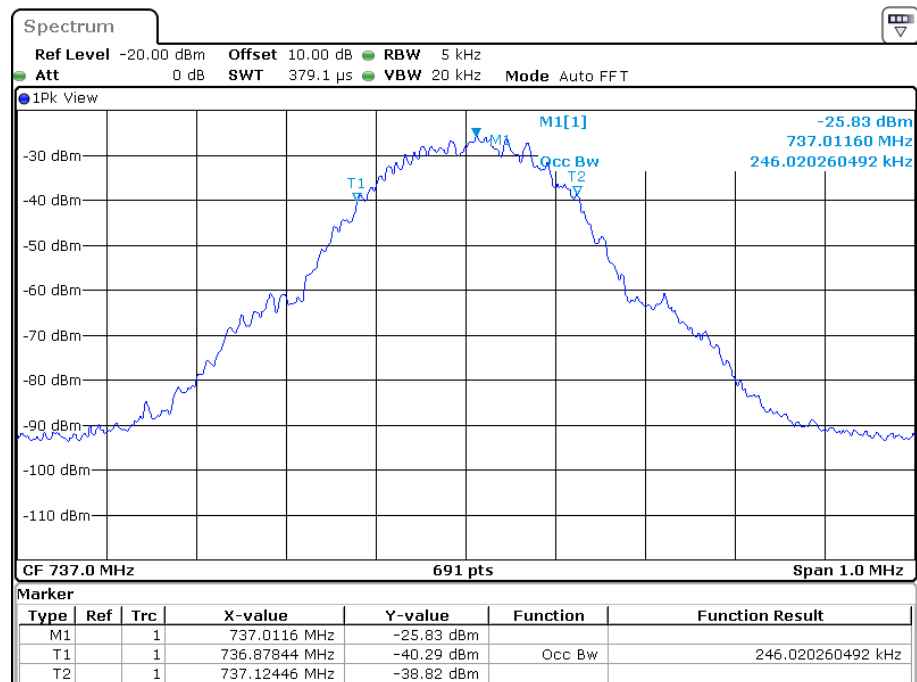
99% Bandwidth-DL- AWGN- 3dB Above AGC -Input



Date: 19.DEC.2022 18:05:14

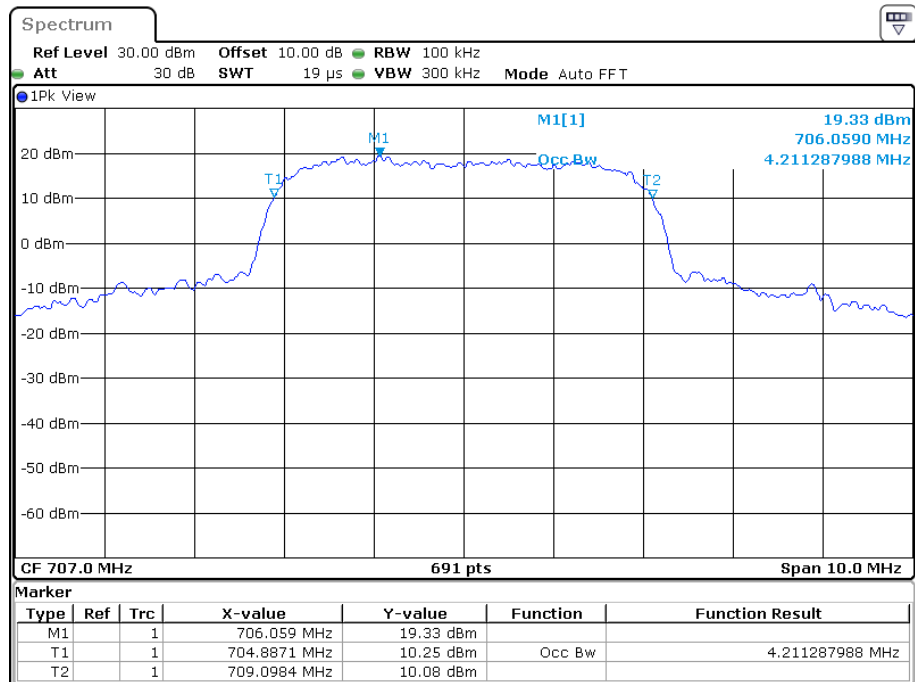
99% Bandwidth-DL- GSM- Pre AGC -Input

Date: 19.DEC.2022 17:44:21

99% Bandwidth-DL- GSM- 3dB Above AGC -Input

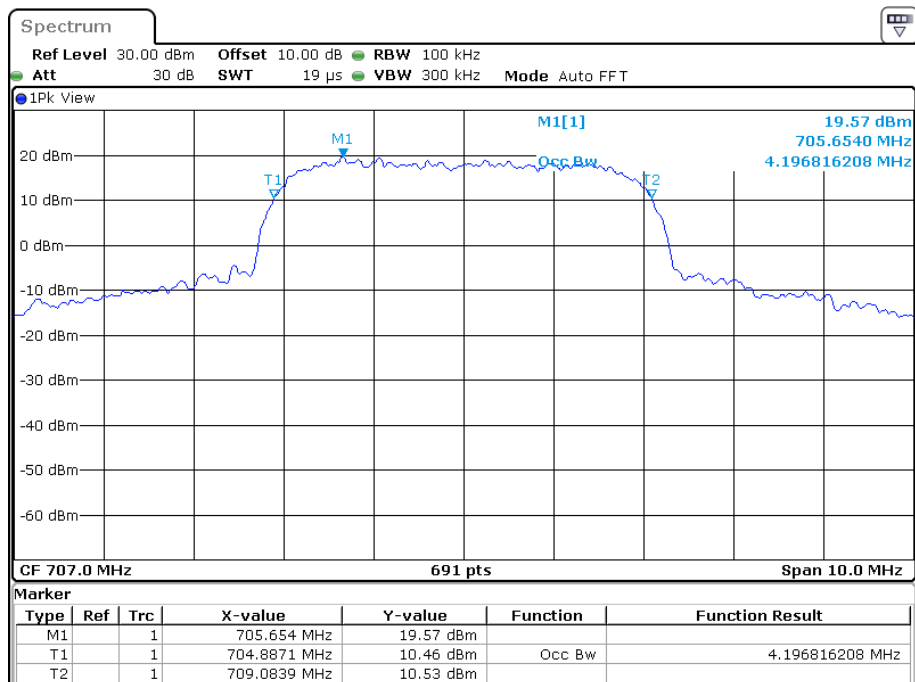
Date: 19.DEC.2022 17:51:08

99% Bandwidth-UL- AWGN- Pre AGC -Output

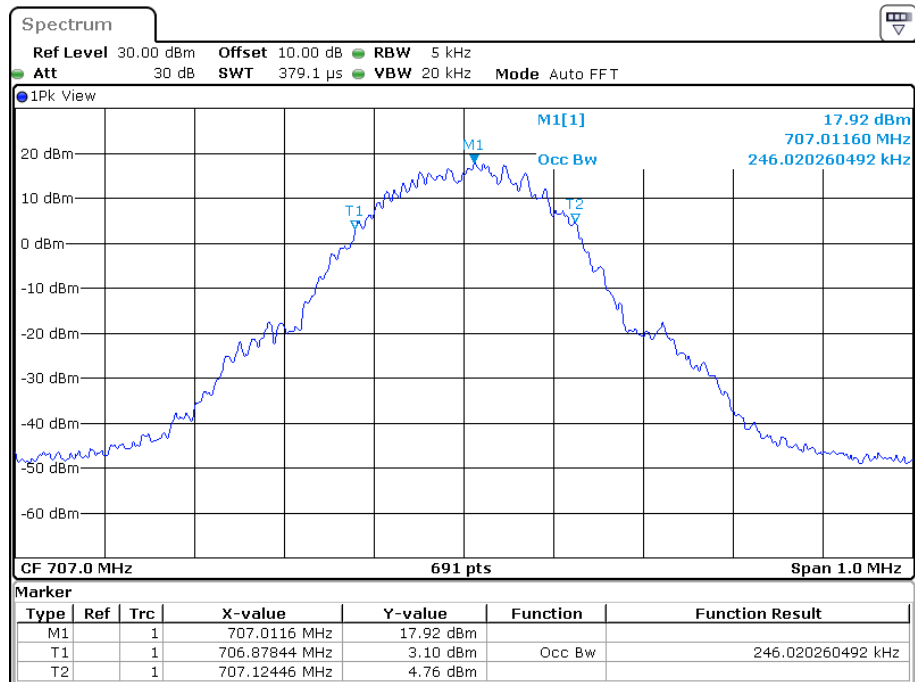


Date: 19.DEC.2022 17:10:51

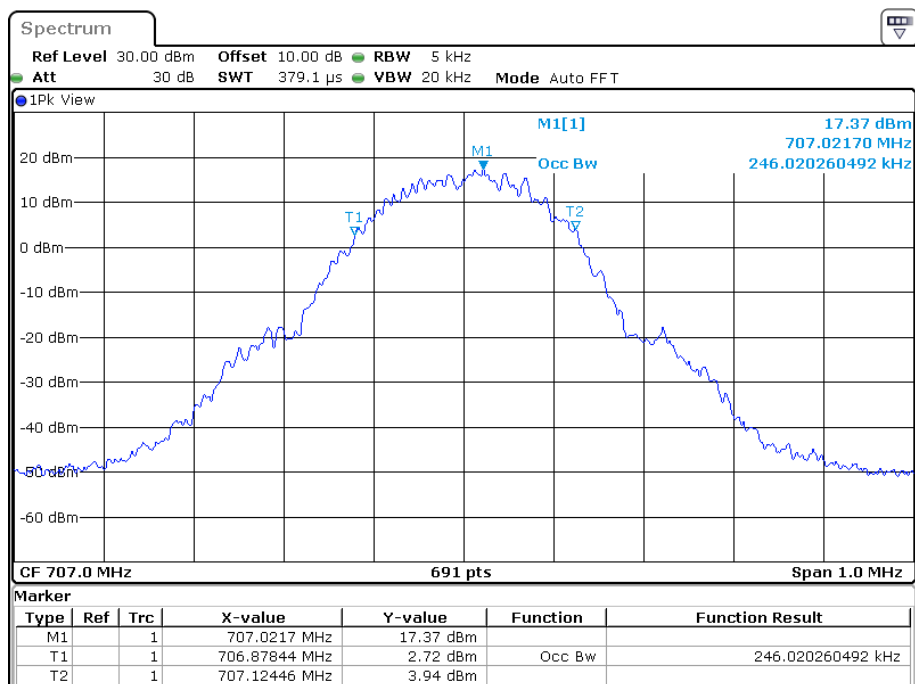
99% Bandwidth-UL- AWGN-3dB above AGC-Output



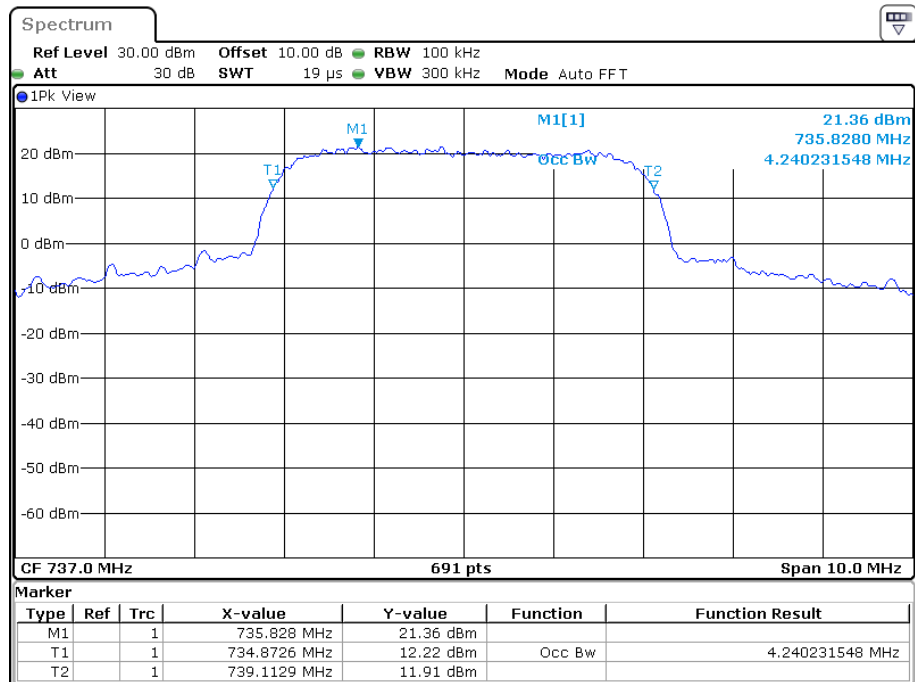
Date: 19.DEC.2022 17:15:20

99% Bandwidth-UL- GSM- Pre AGC -Output

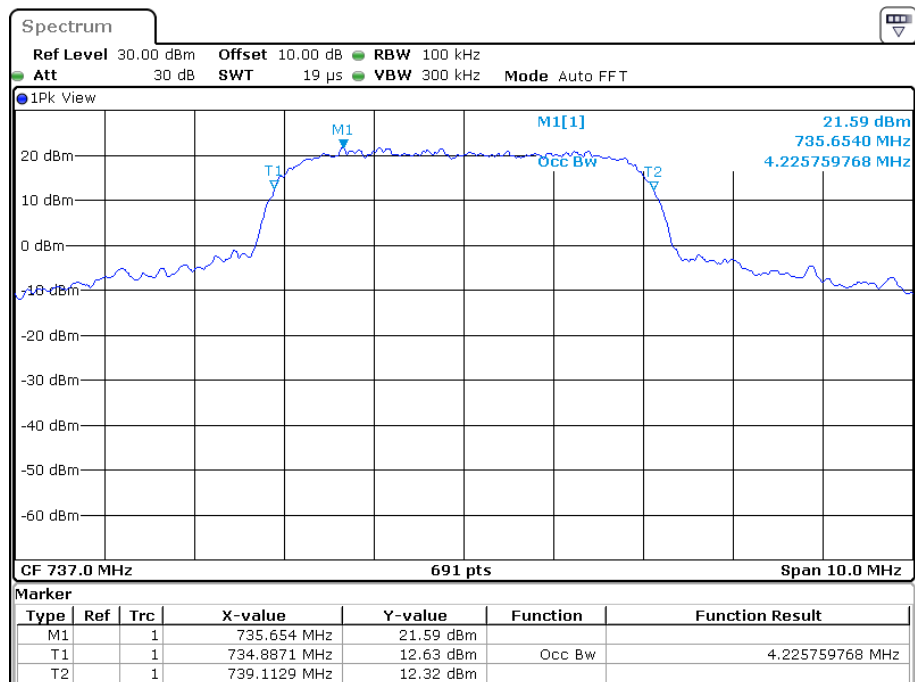
Date: 19.DEC.2022 16:35:28

99% Bandwidth-UL- GSM-3dB above AGC-Output

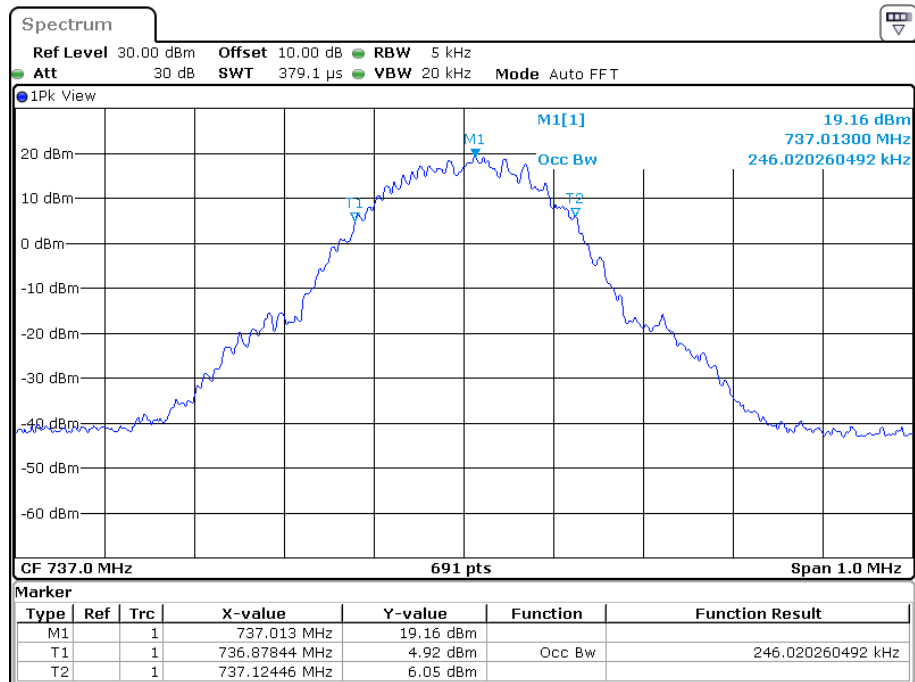
Date: 19.DEC.2022 16:39:05

99% Bandwidth-DL- AWGN- Pre AGC -Output

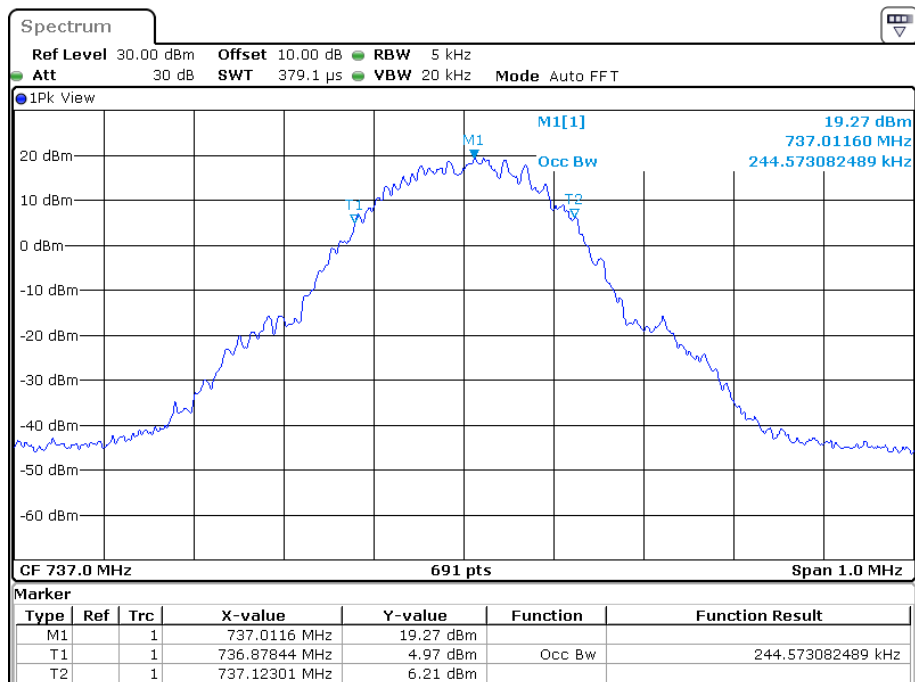
Date: 19.DEC.2022 17:31:59

99% Bandwidth-DL- AWGN- 3dB Above AGC -Output

Date: 19.DEC.2022 17:37:19

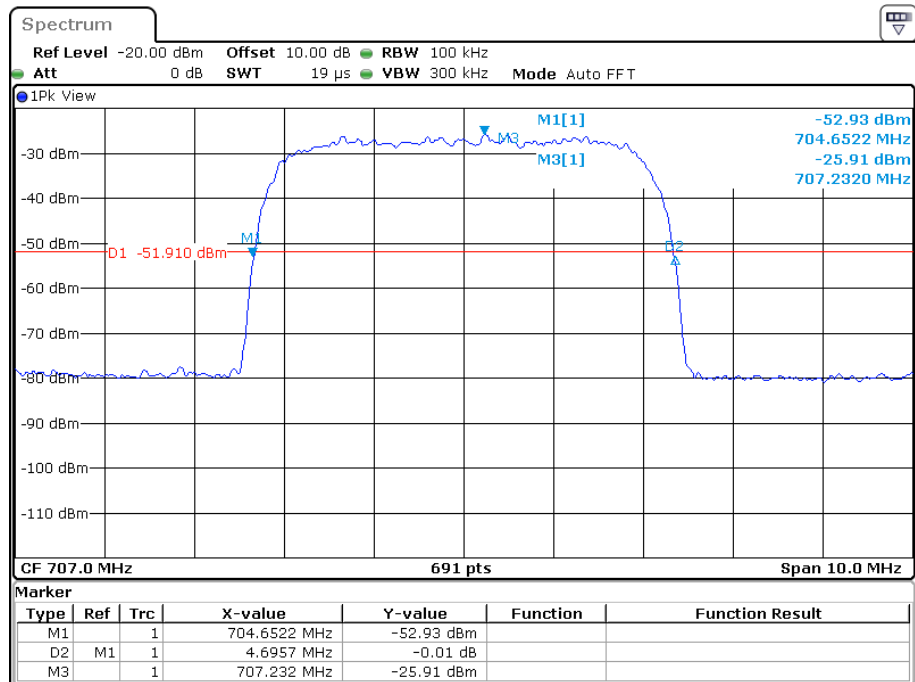
99% Bandwidth-DL- GSM- Pre AGC -Output

Date: 19.DEC.2022 17:24:39

99% Bandwidth-DL- GSM- 3dB Above AGC -Output

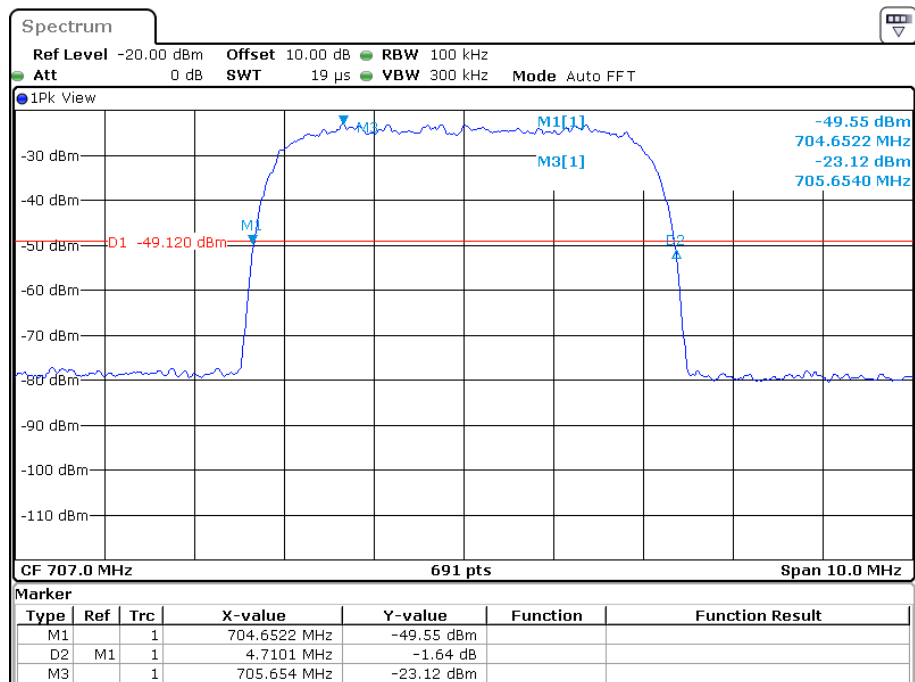
Date: 19.DEC.2022 17:27:56

26 dB Bandwidth-UL-AWGN-Pre AGC-Input



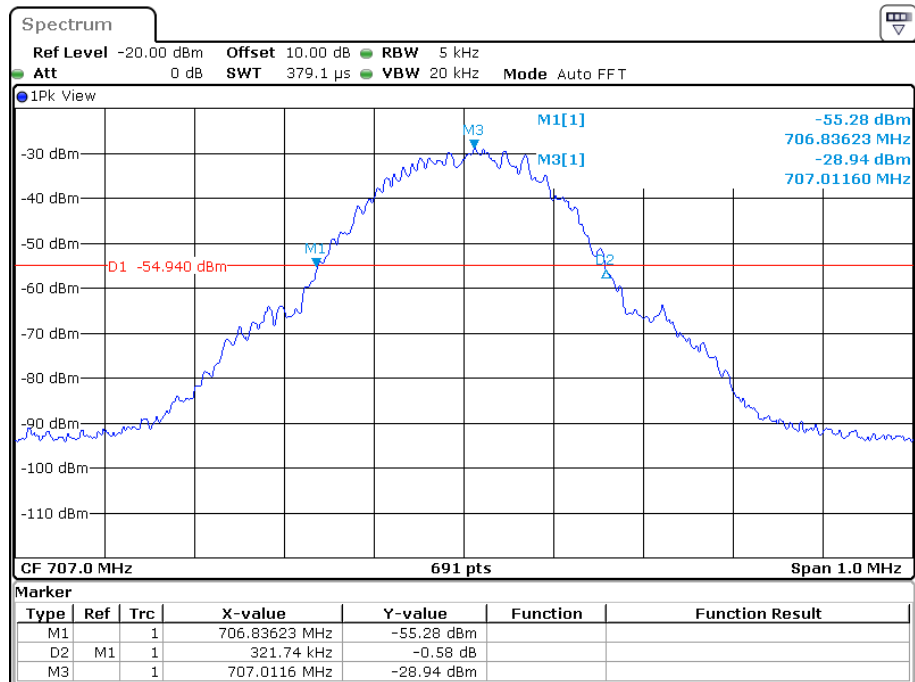
Date: 19.DEC.2022 18:01:51

26 dB Bandwidth-UL- AWGN-3dB above AGC-Input



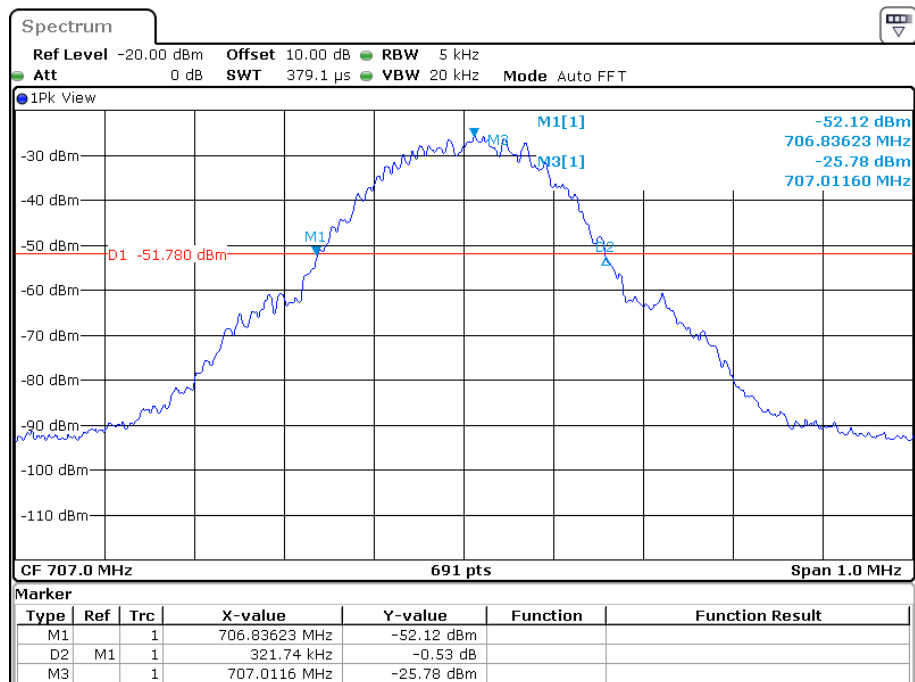
Date: 19.DEC.2022 18:09:09

26 dB Bandwidth-UL-GSM-Pre AGC-Input



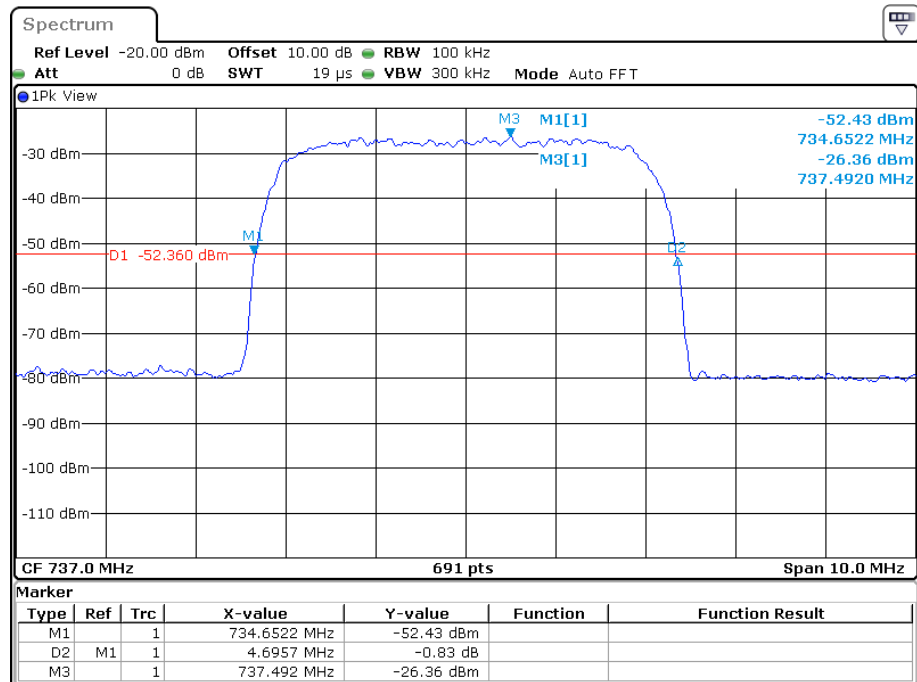
Date: 19.DEC.2022 17:48:05

26 dB Bandwidth-UL- GSM-3dB above AGC-Input



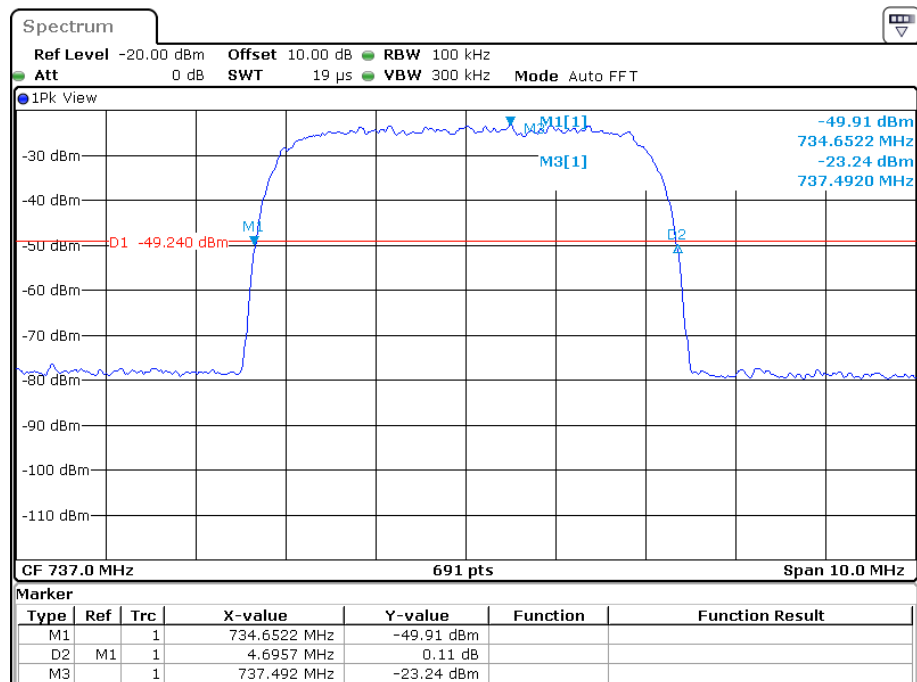
Date: 19.DEC.2022 17:54:53

26 dB Bandwidth-DL- AWGN- Pre AGC -Input



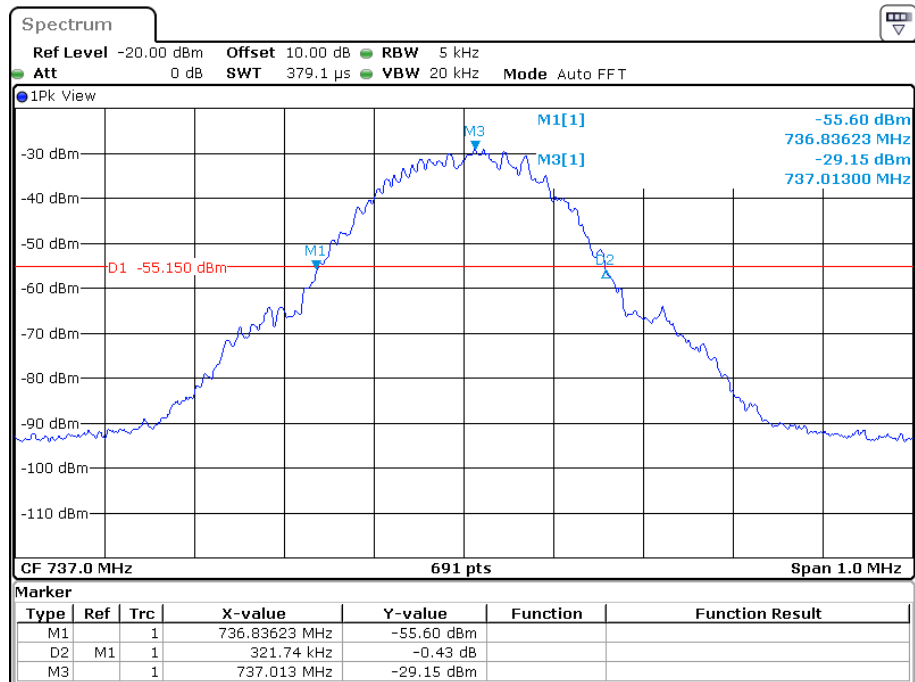
Date: 19.DEC.2022 17:58:32

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Input



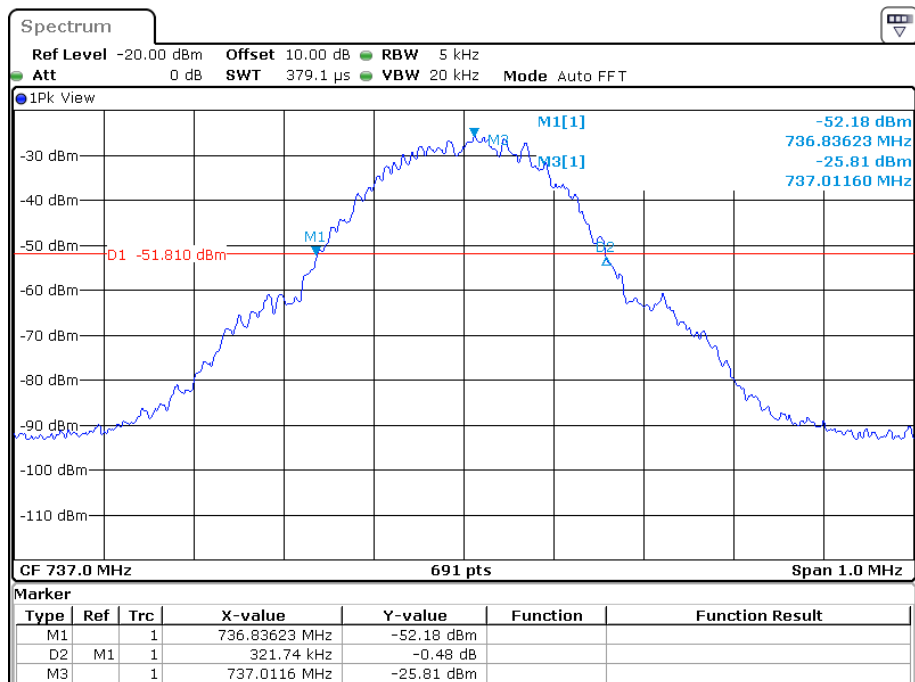
Date: 19.DEC.2022 18:05:29

26 dB Bandwidth-DL- GSM- Pre AGC -Input



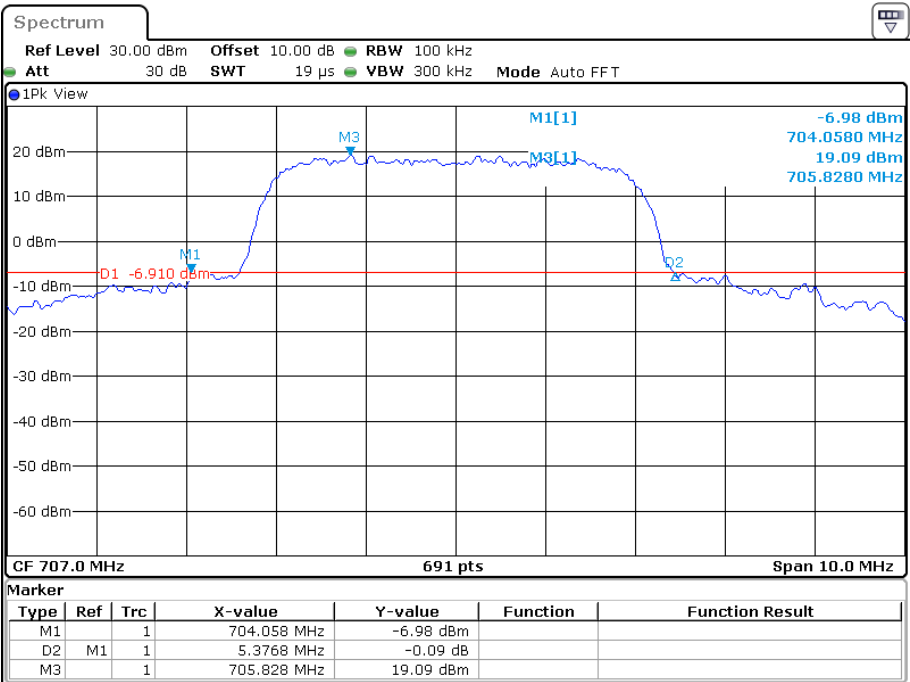
Date: 19.DEC.2022 17:44:36

26 dB Bandwidth-DL- GSM- 3dB Above AGC -Input



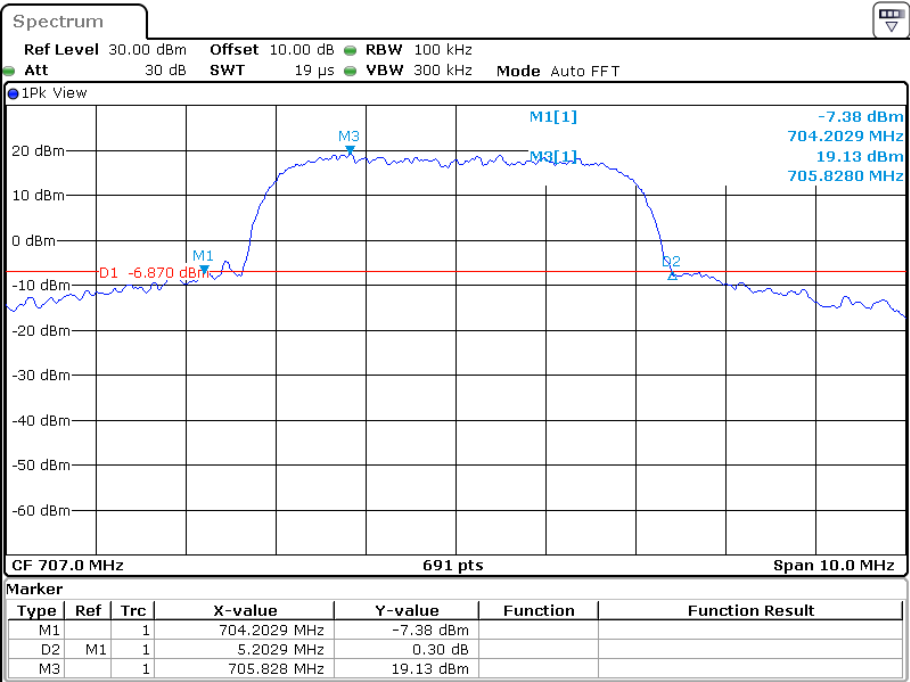
Date: 19.DEC.2022 17:51:23

26 dB Bandwidth-UL- AWGN- Pre AGC -Output



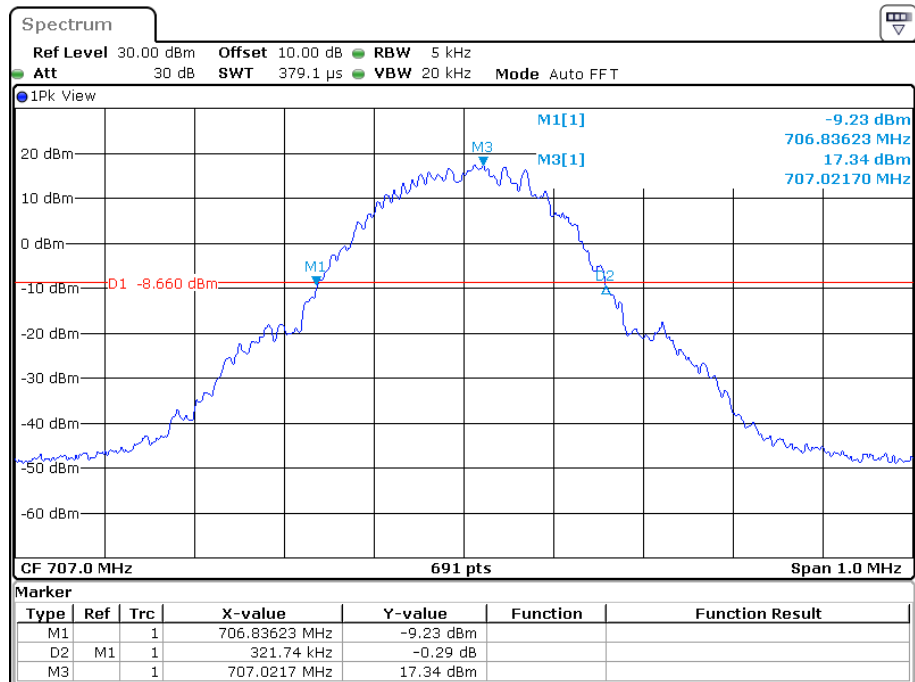
Date: 19.DEC.2022 17:11:06

26 dB Bandwidth-UL- AWGN-3dB above AGC-Output



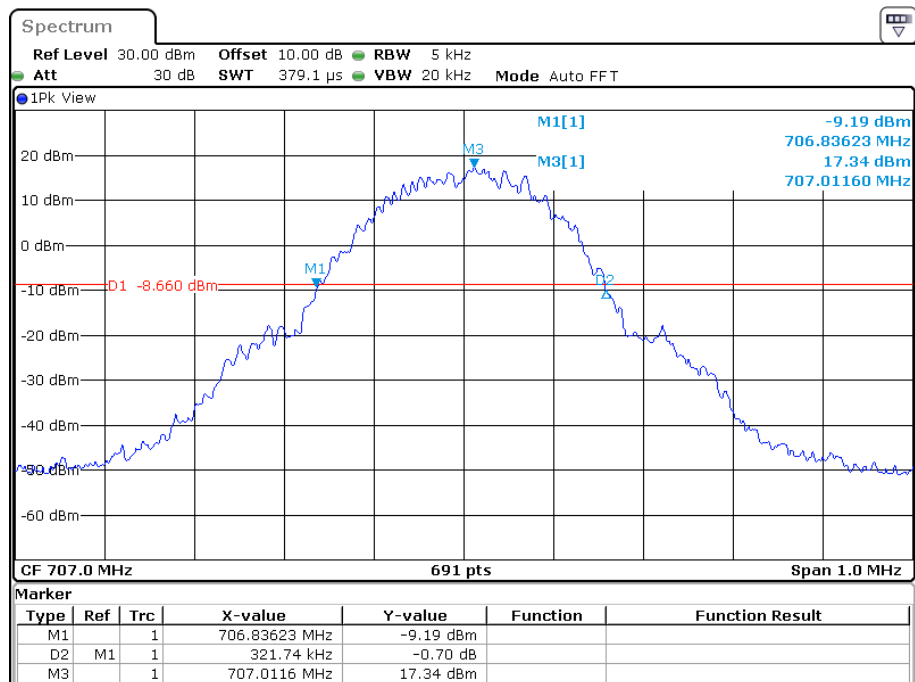
Date: 19.DEC.2022 17:15:36

26 dB Bandwidth-UL- GSM- Pre AGC -Output



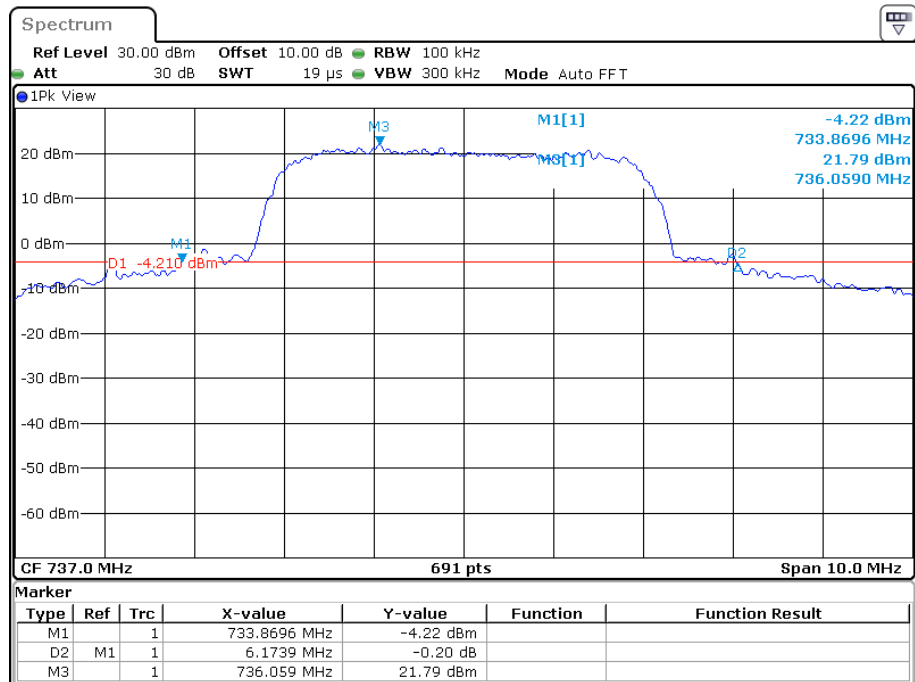
Date: 19.DEC.2022 16:35:43

26 dB Bandwidth-UL- GSM-3dB above AGC-Output



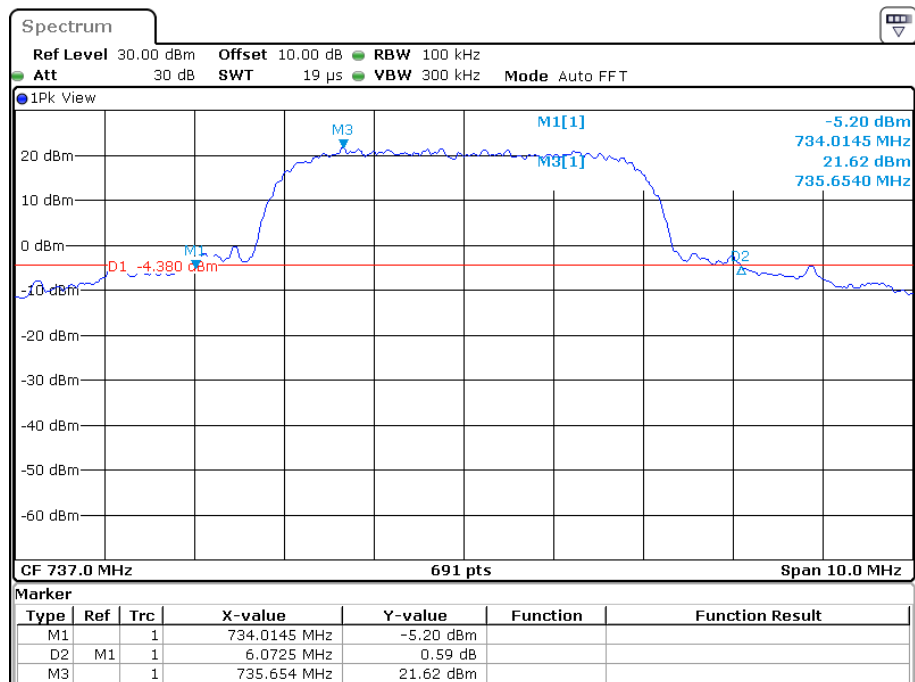
Date: 19.DEC.2022 16:39:20

26 dB Bandwidth-DL- AWGN- Pre AGC -Output



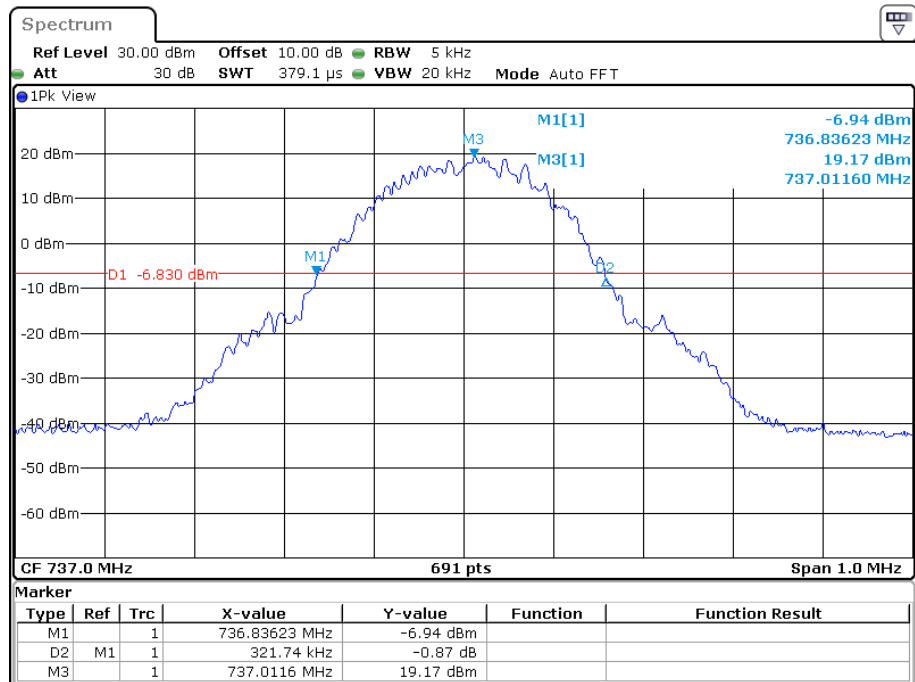
Date: 19.DEC.2022 17:32:15

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Output



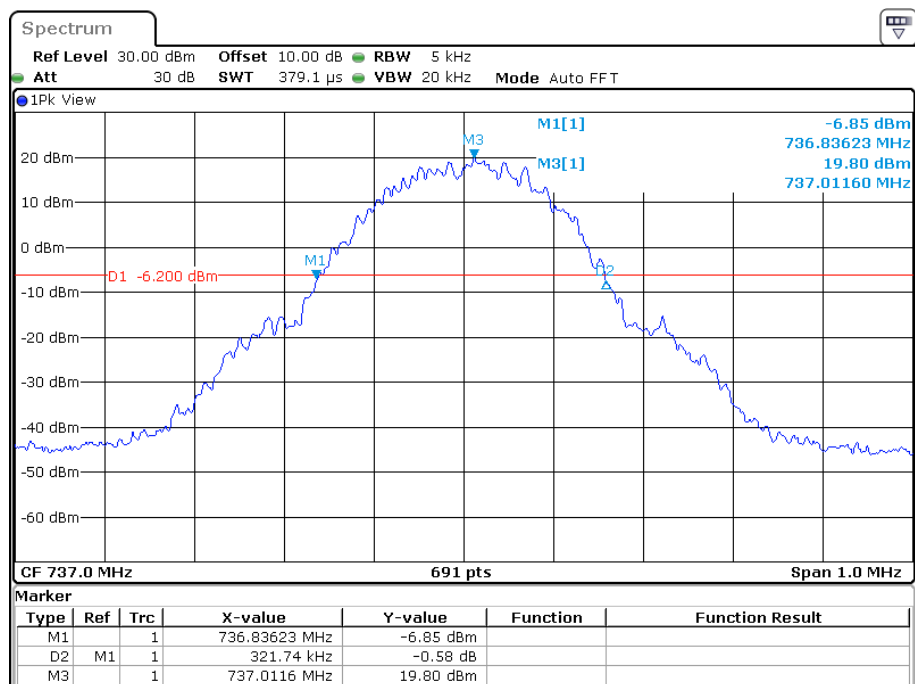
Date: 19.DEC.2022 17:37:44

26 dB Bandwidth-DL- GSM- Pre AGC -Output



Date: 19.DEC.2022 17:24:54

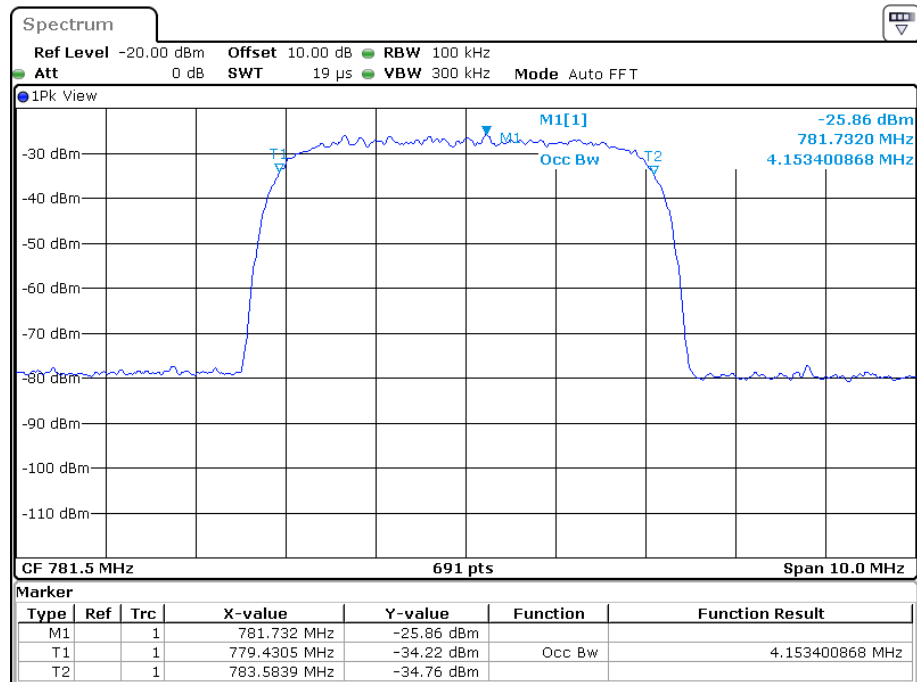
26 dB Bandwidth-DL- GSM- 3dB Above AGC -Output



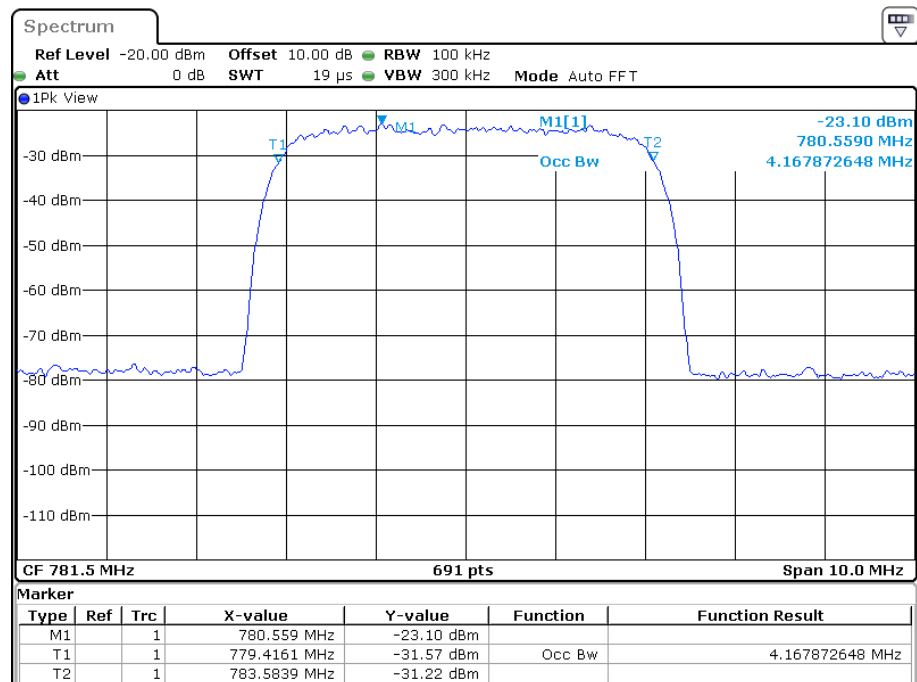
Date: 19.DEC.2022 17:28:11

Upper 700MHz (C Block) Band:

Mode	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	781.5	4.153	4.240	4.696	5.986
		3dB above AGC	781.5	4.168	4.226	4.696	5.580
	GSM	Pre-AGC	781.5	0.246	0.246	0.322	0.322
		3dB above AGC	781.5	0.246	0.245	0.322	0.322
Downlink	AWGN	Pre-AGC	751.5	4.168	4.153	4.696	4.696
		3dB above AGC	751.5	4.153	4.168	4.710	4.725
	GSM	Pre-AGC	751.5	0.246	0.246	0.322	0.323
		3dB above AGC	751.5	0.246	0.245	0.322	0.322

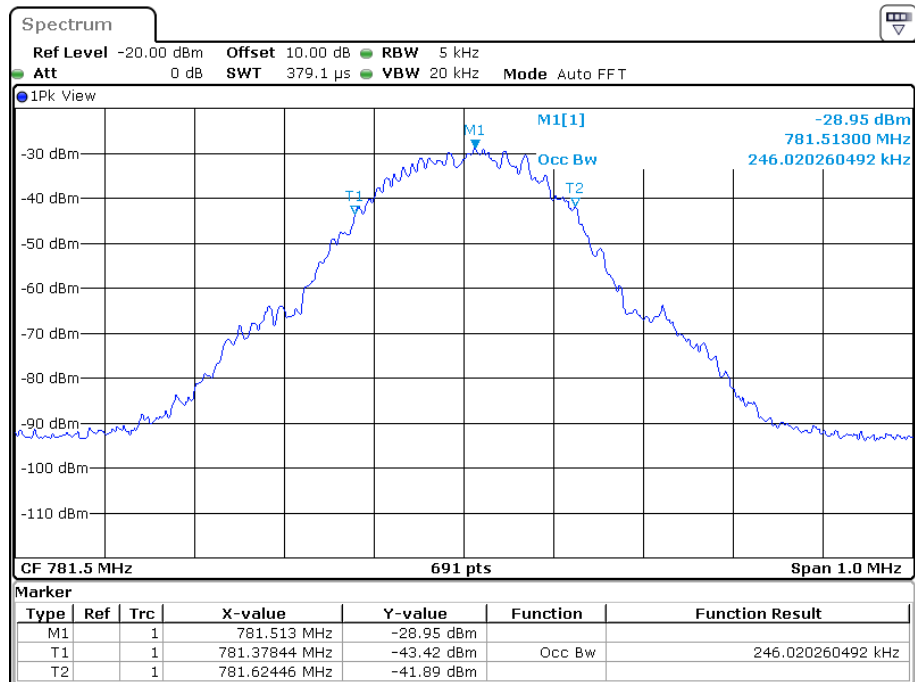
99% Bandwidth-UL-AWGN-Pre AGC-Input

Date: 19.DEC.2022 18:02:08

99% Bandwidth-UL- AWGN-3dB above AGC-Input

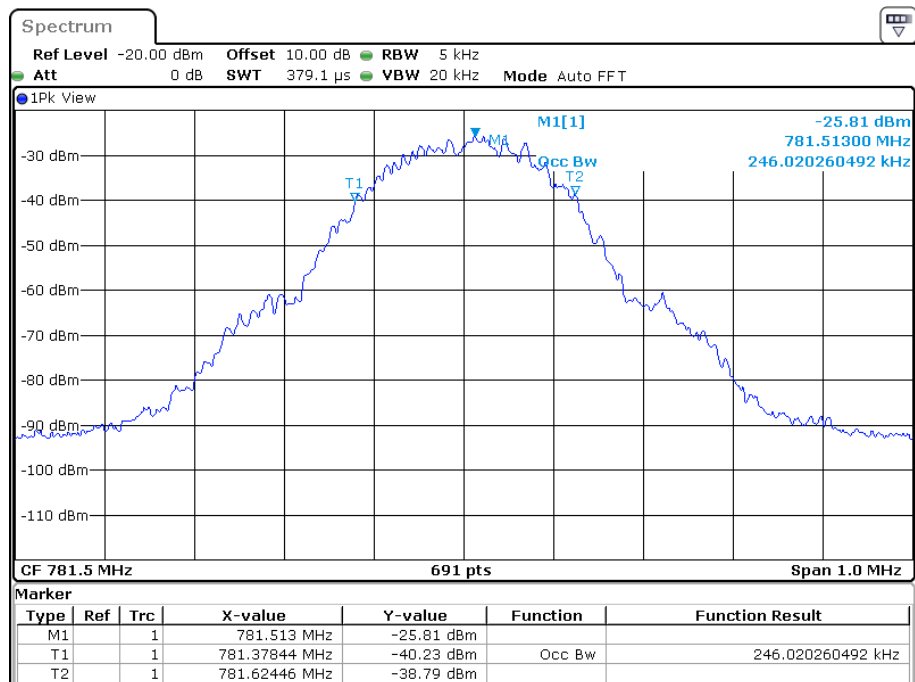
Date: 19.DEC.2022 18:09:27

99% Bandwidth-UL-GSM-Pre AGC-Input



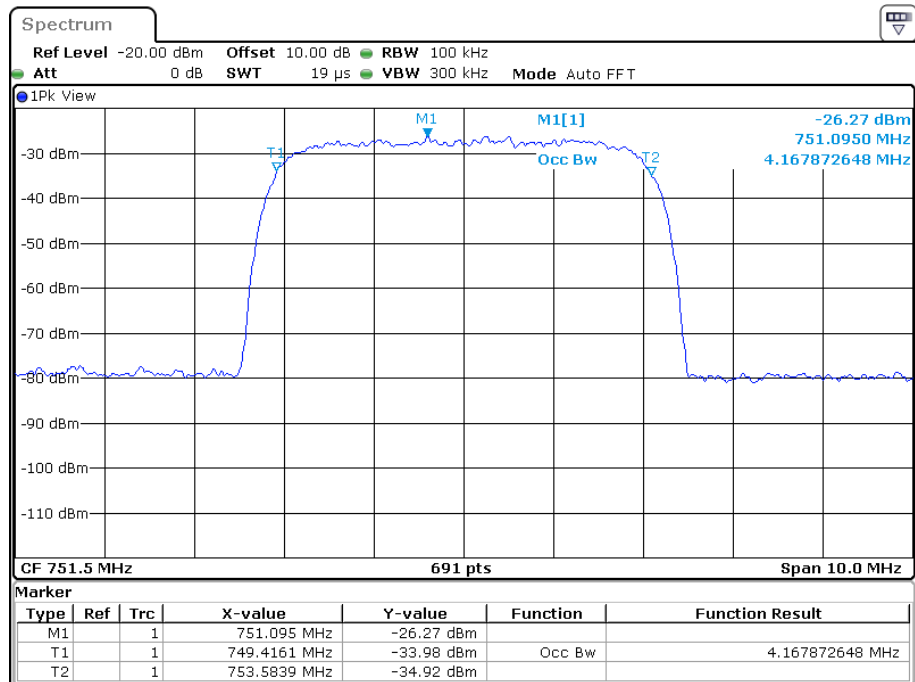
Date: 19.DEC.2022 17:48:23

99% Bandwidth-UL- GSM-3dB above AGC-Input



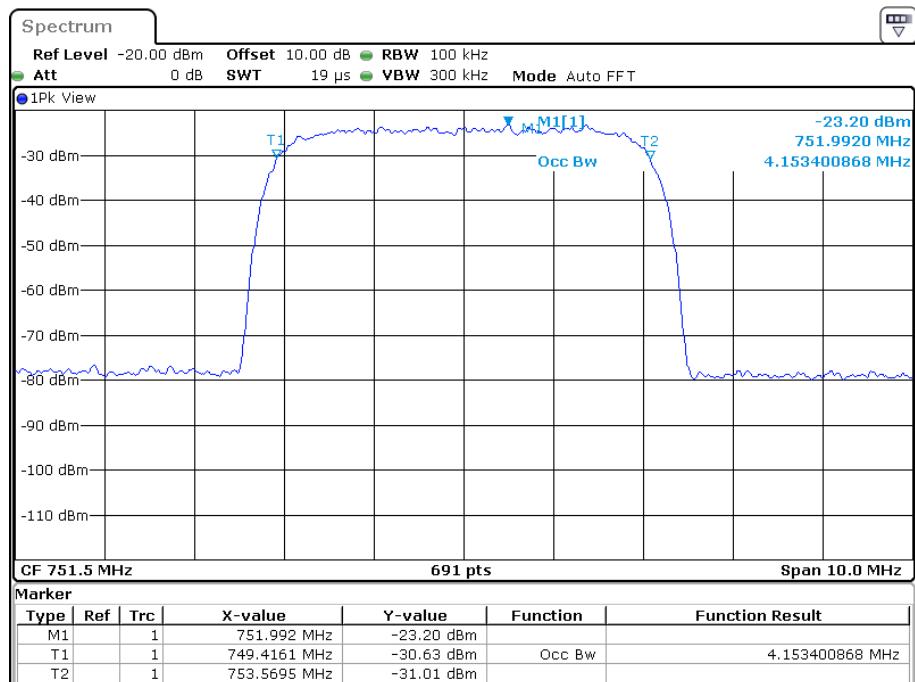
Date: 19.DEC.2022 17:55:11

99% Bandwidth-DL- AWGN- Pre AGC -Input

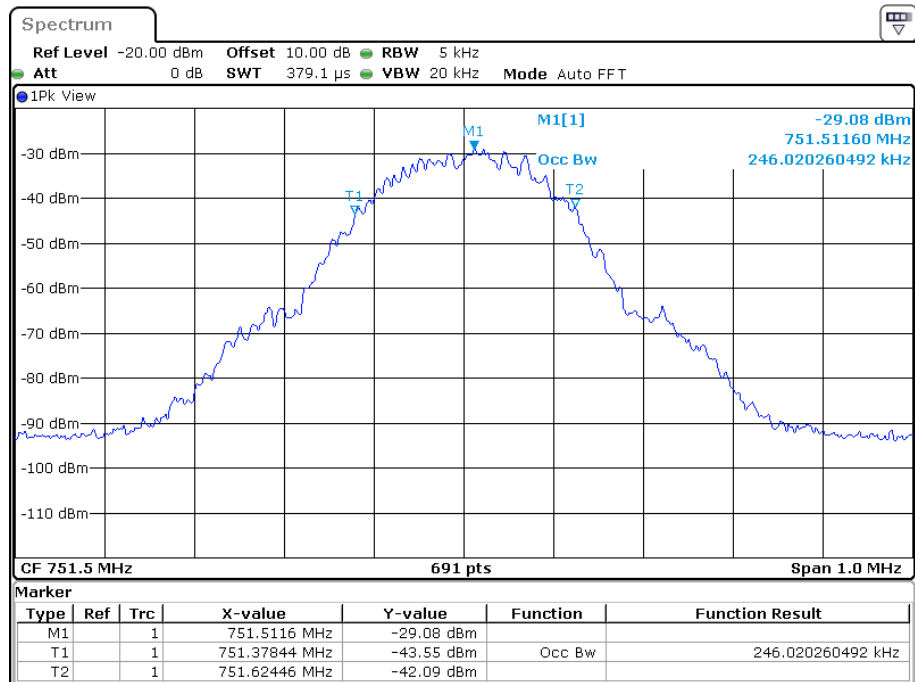


Date: 19.DEC.2022 17:58:51

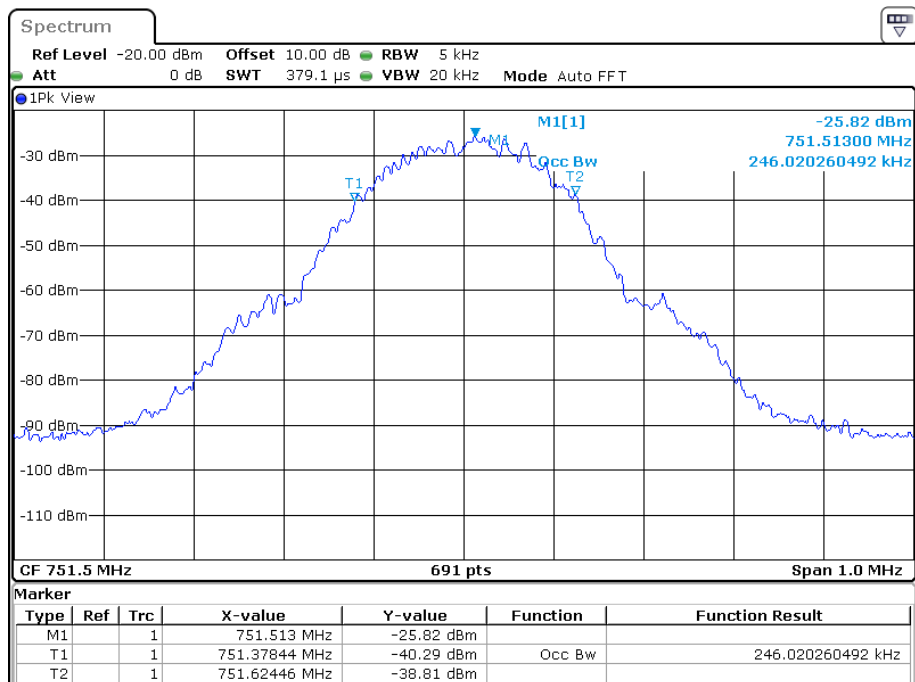
99% Bandwidth-DL- AWGN- 3dB Above AGC -Input



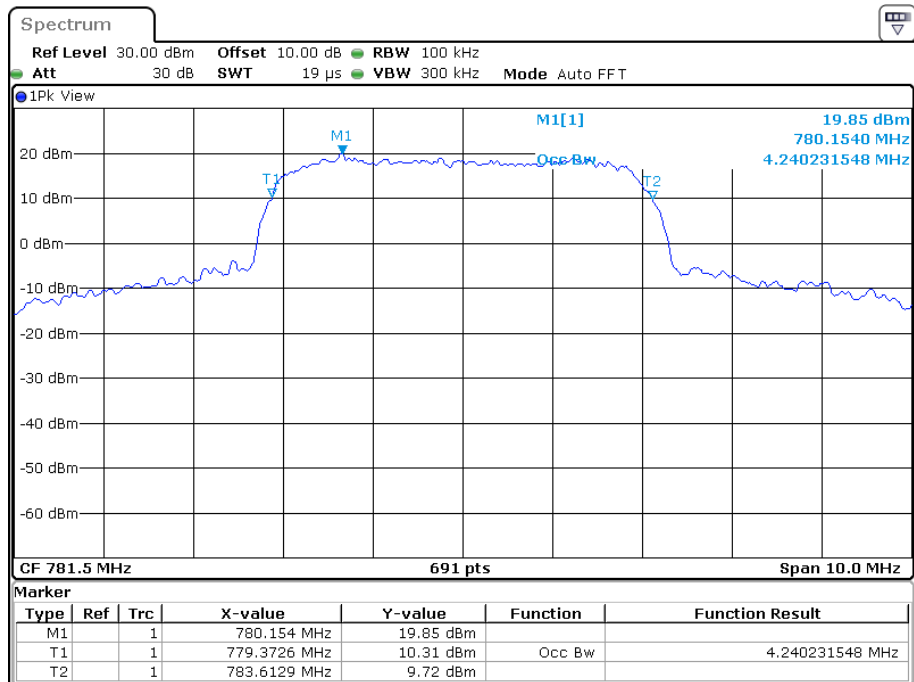
Date: 19.DEC.2022 18:05:48

99% Bandwidth-DL- GSM- Pre AGC -Input

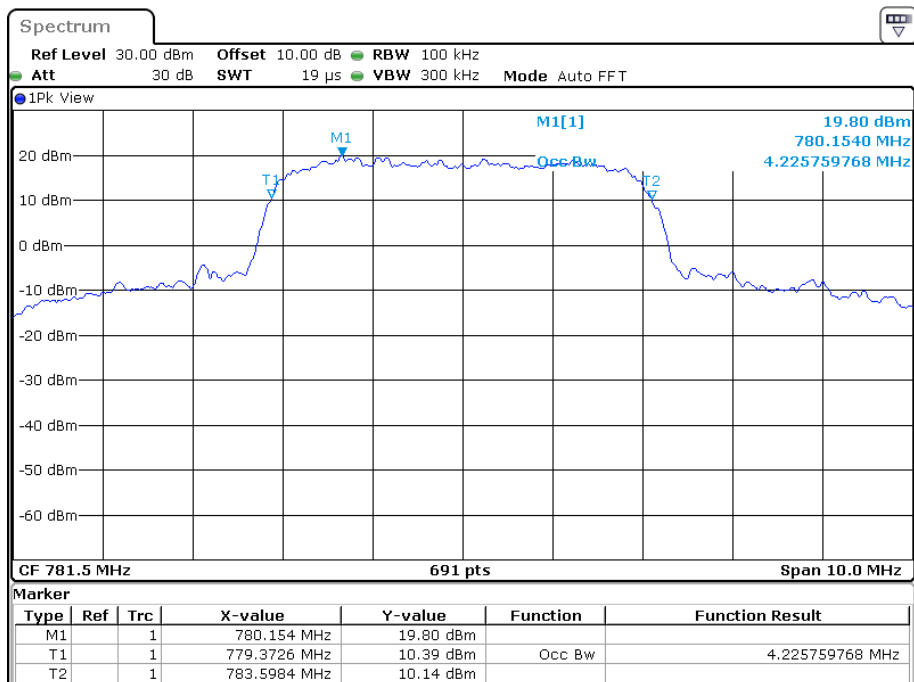
Date: 19.DEC.2022 17:44:55

99% Bandwidth-DL- GSM- 3dB Above AGC -Input

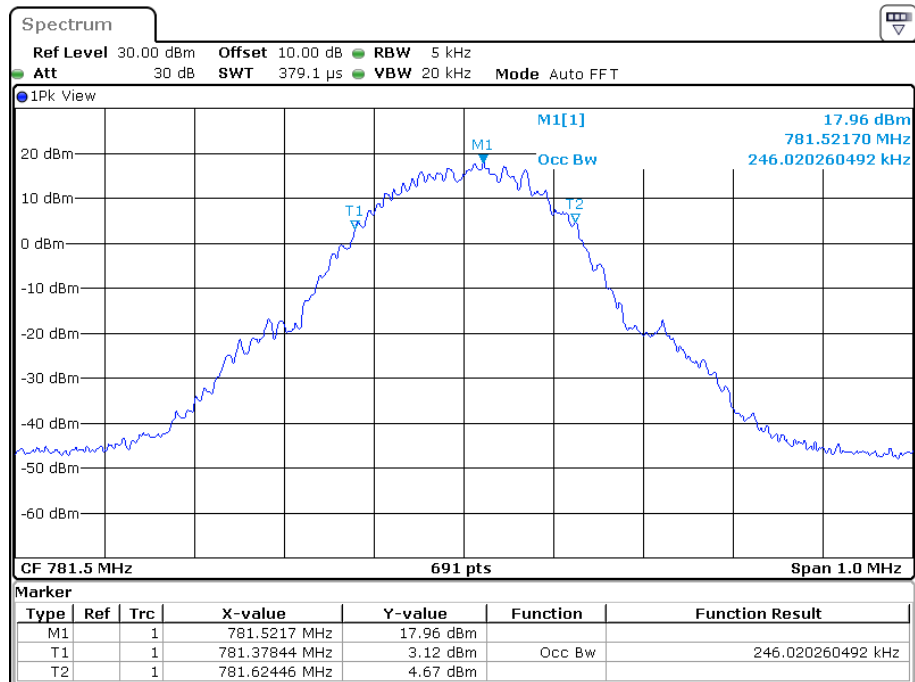
Date: 19.DEC.2022 17:51:41

99% Bandwidth-UL- AWGN- Pre AGC -Output

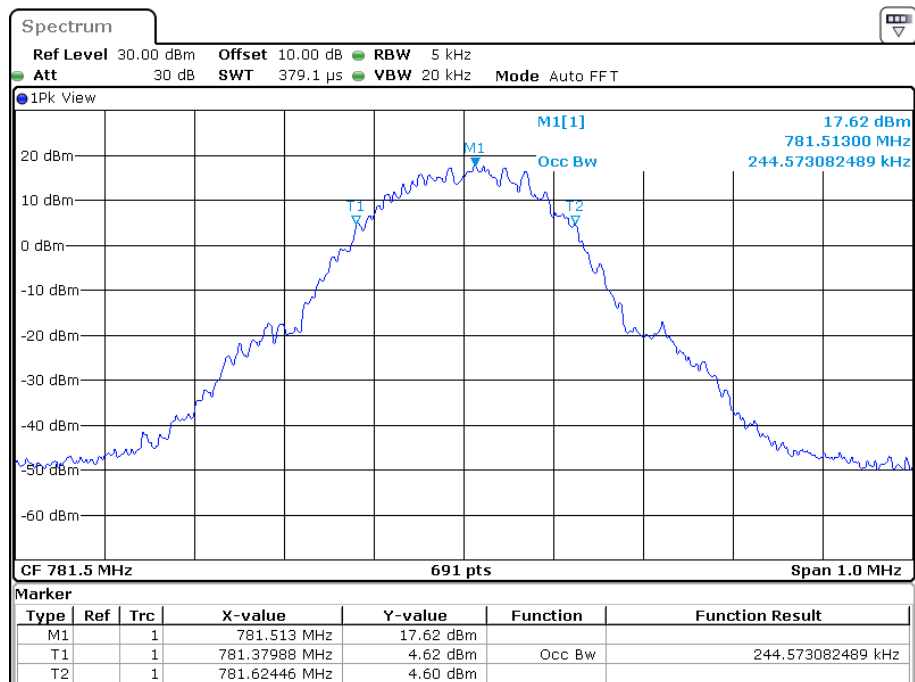
Date: 19.DEC.2022 17:11:24

99% Bandwidth-UL- AWGN-3dB above AGC-Output

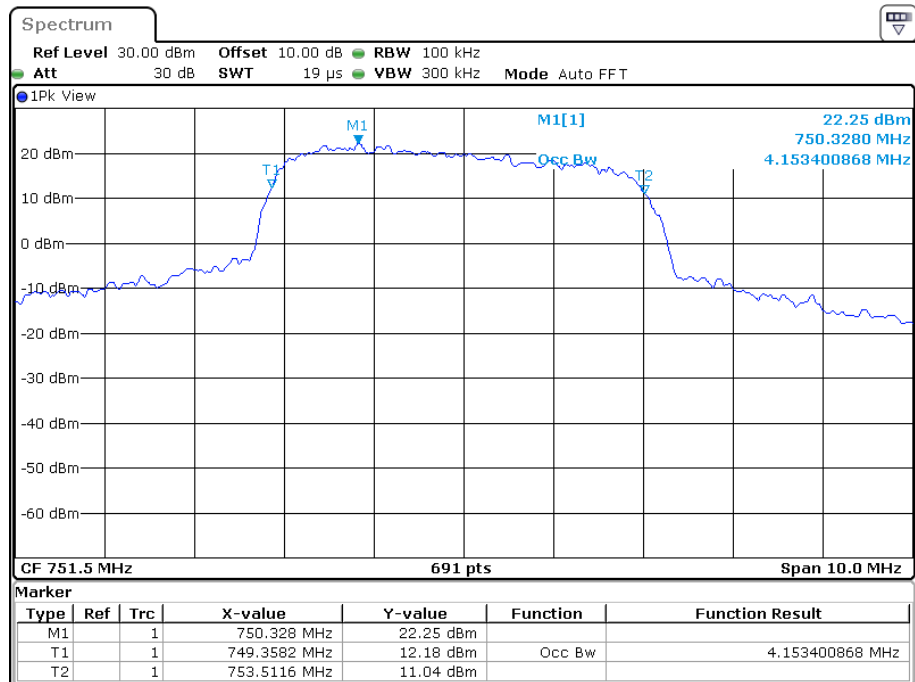
Date: 19.DEC.2022 17:16:04

99% Bandwidth-UL- GSM- Pre AGC -Output

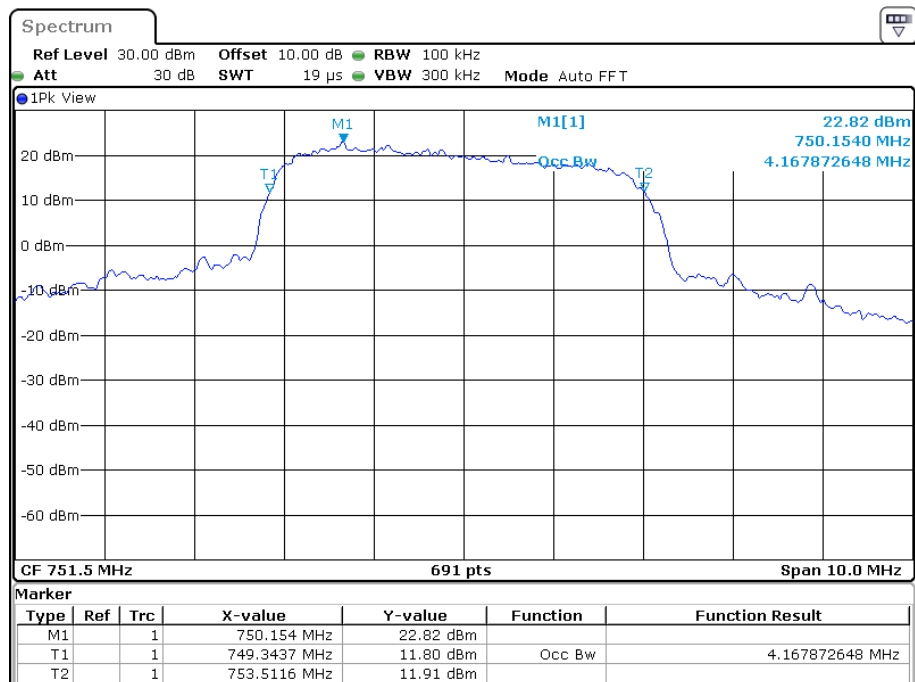
Date: 19.DEC.2022 16:36:00

99% Bandwidth-UL- GSM- 3dB Above AGC -Output

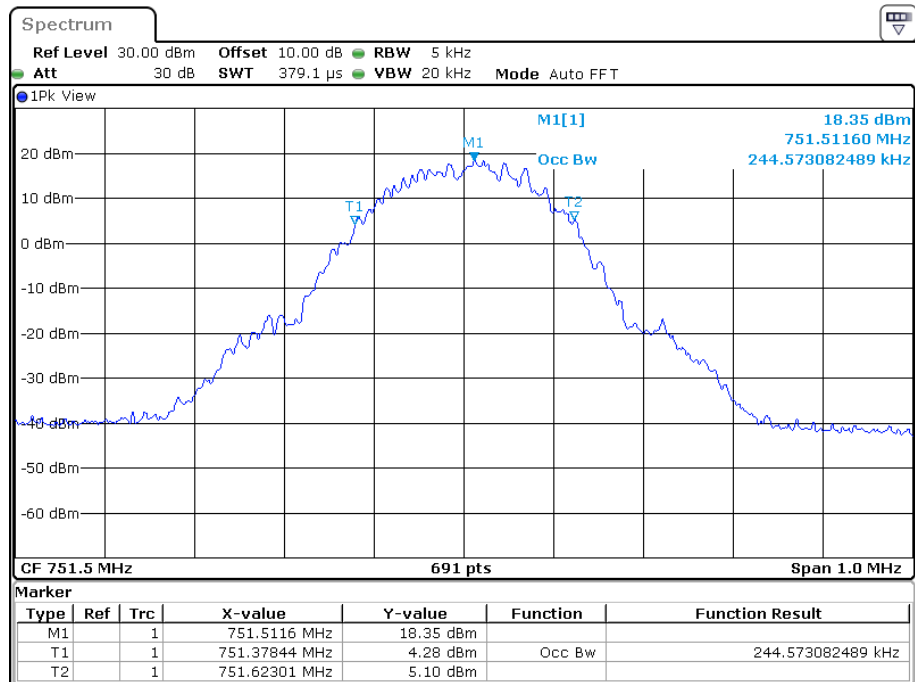
Date: 19.DEC.2022 16:39:38

99% Bandwidth-DL- AWGN- Pre AGC -Output

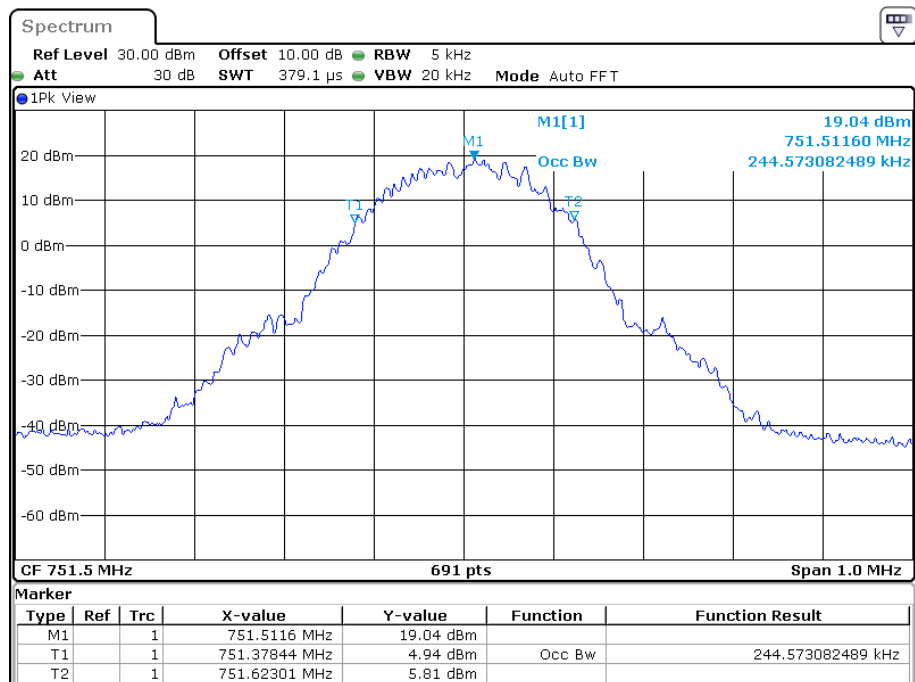
Date: 19.DEC.2022 17:32:34

99% Bandwidth-DL- AWGN- 3dB Above AGC -Output

Date: 19.DEC.2022 17:38:11

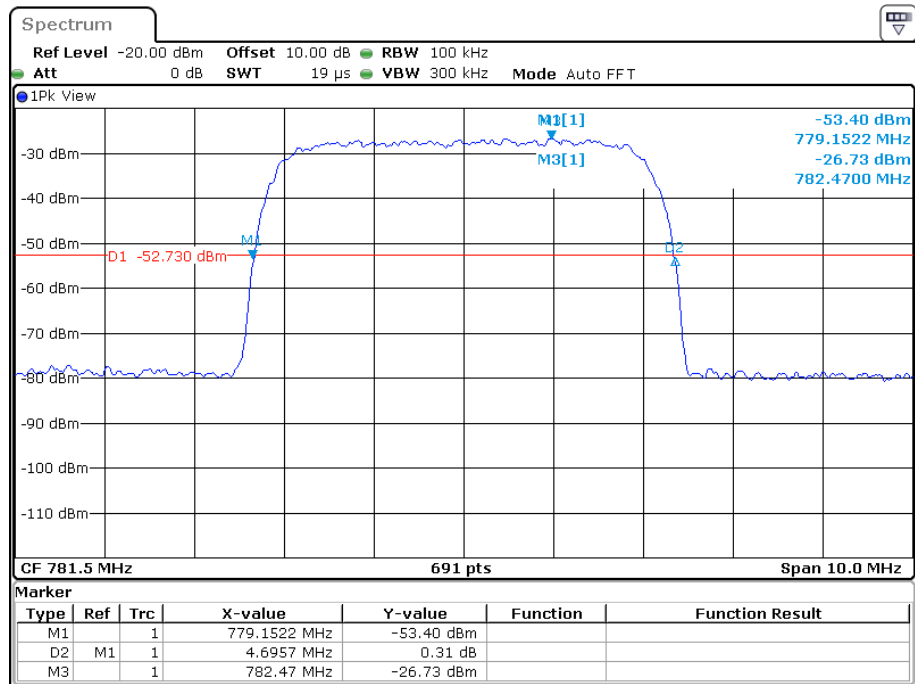
99% Bandwidth-DL- GSM- Pre AGC -Output

Date: 19.DEC.2022 17:25:11

99% Bandwidth-DL- GSM- 3dB Above AGC -Output

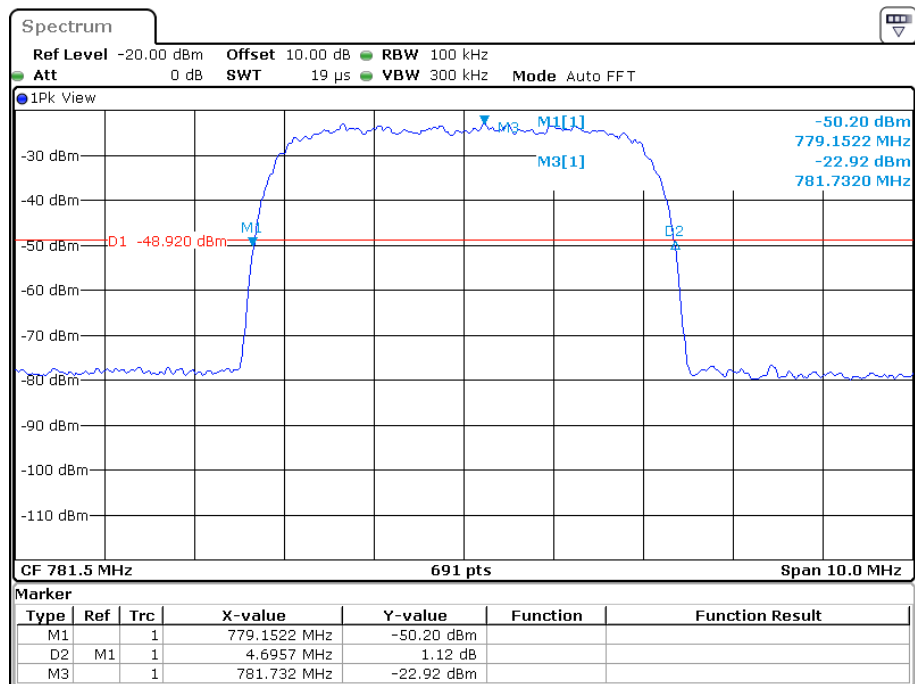
Date: 19.DEC.2022 17:28:29

26 dB Bandwidth-UL-AWGN-Pre AGC-Input



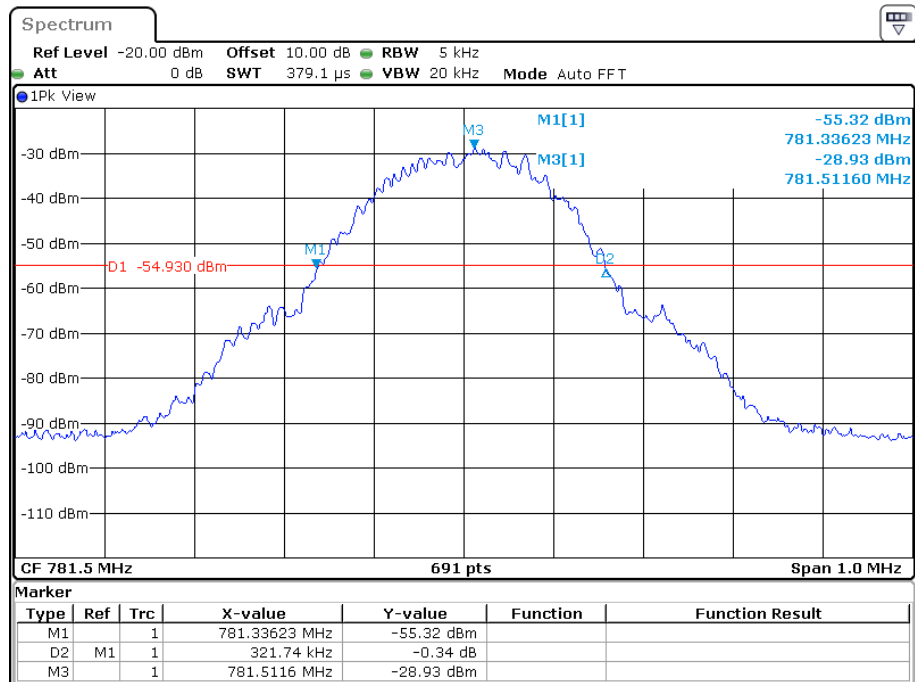
Date: 19.DEC.2022 18:02:23

26 dB Bandwidth-UL- AWGN-3dB above AGC-Input



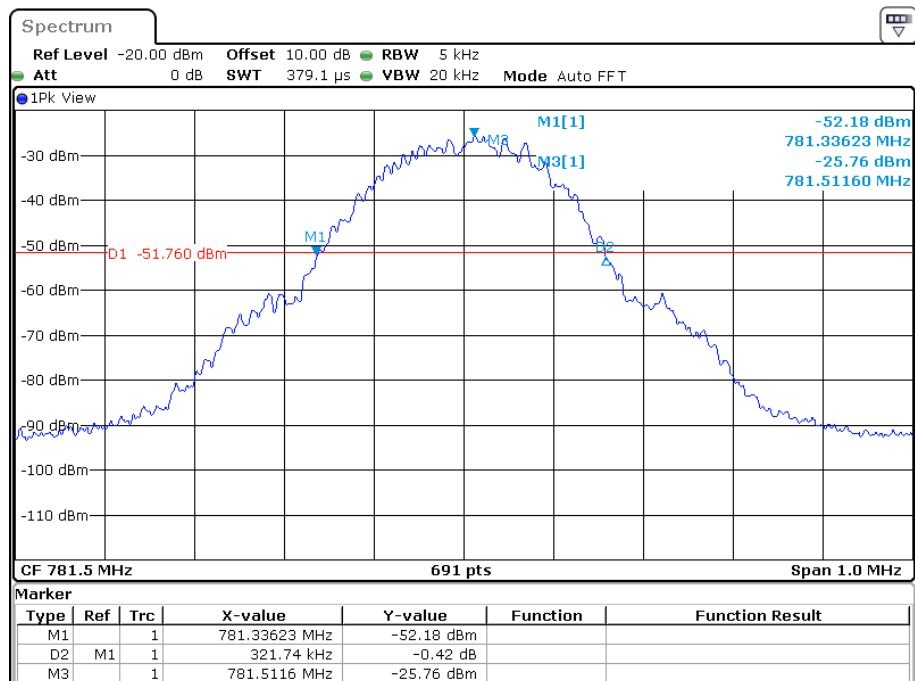
Date: 19.DEC.2022 18:09:42

26 dB Bandwidth-UL-GSM-Pre AGC-Input



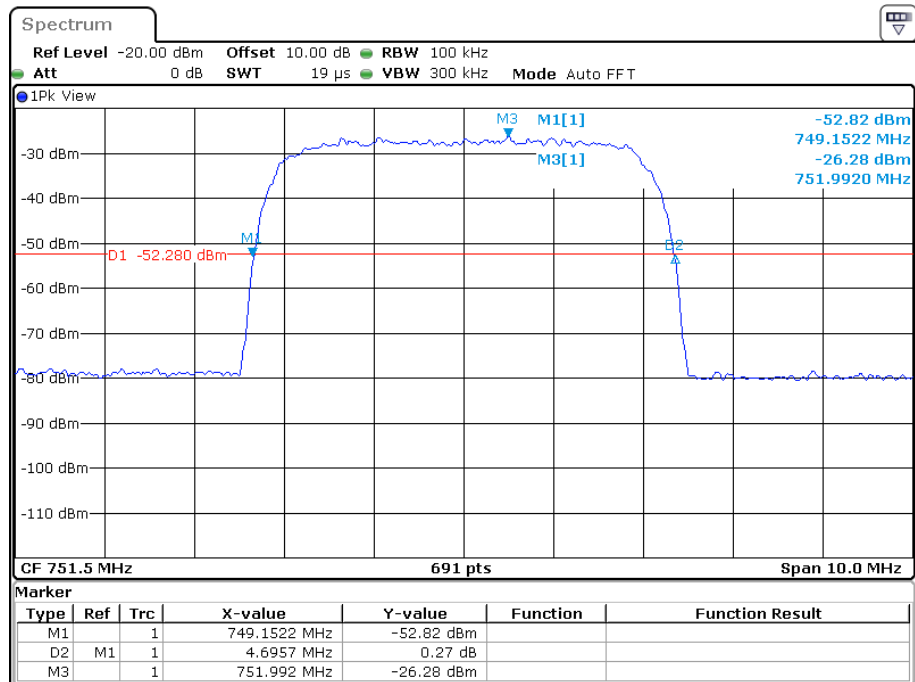
Date: 19.DEC.2022 17:48:38

26 dB Bandwidth-UL- GSM-3dB above AGC-Input



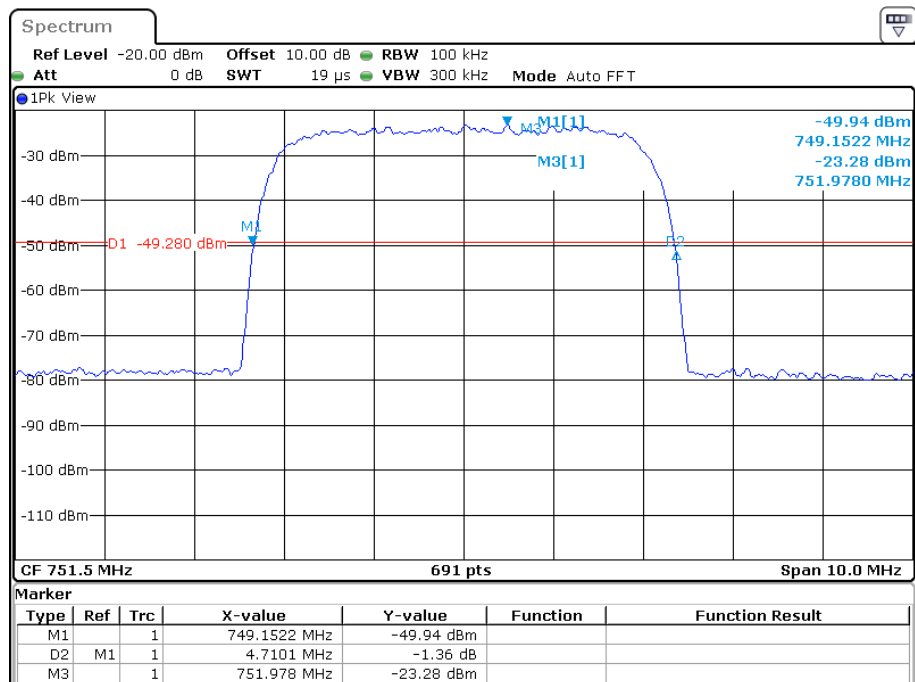
Date: 19.DEC.2022 17:55:36

26 dB Bandwidth-DL- AWGN- Pre AGC -Input



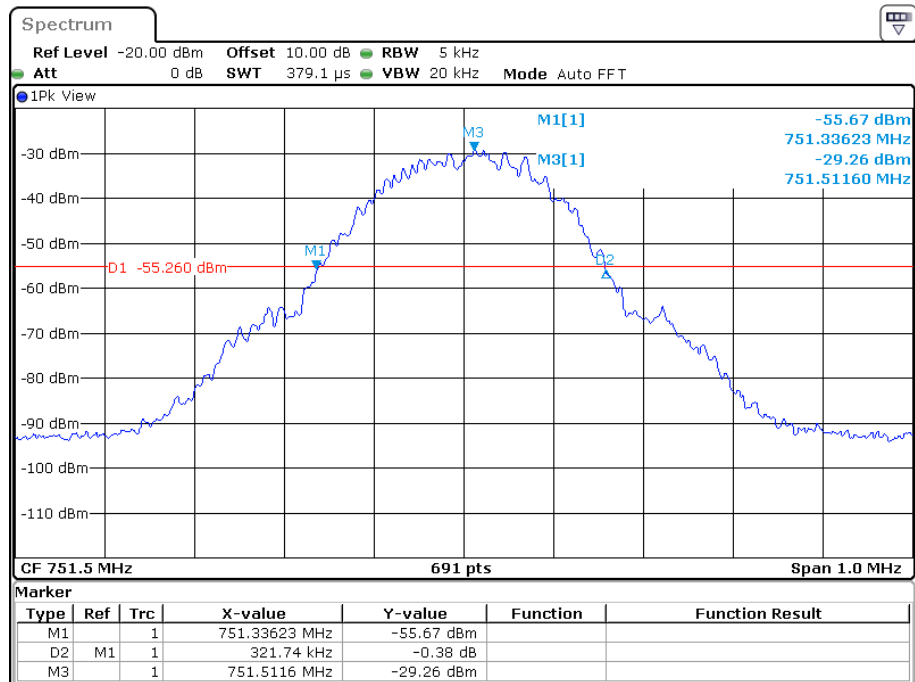
Date: 19.DEC.2022 17:59:06

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Input



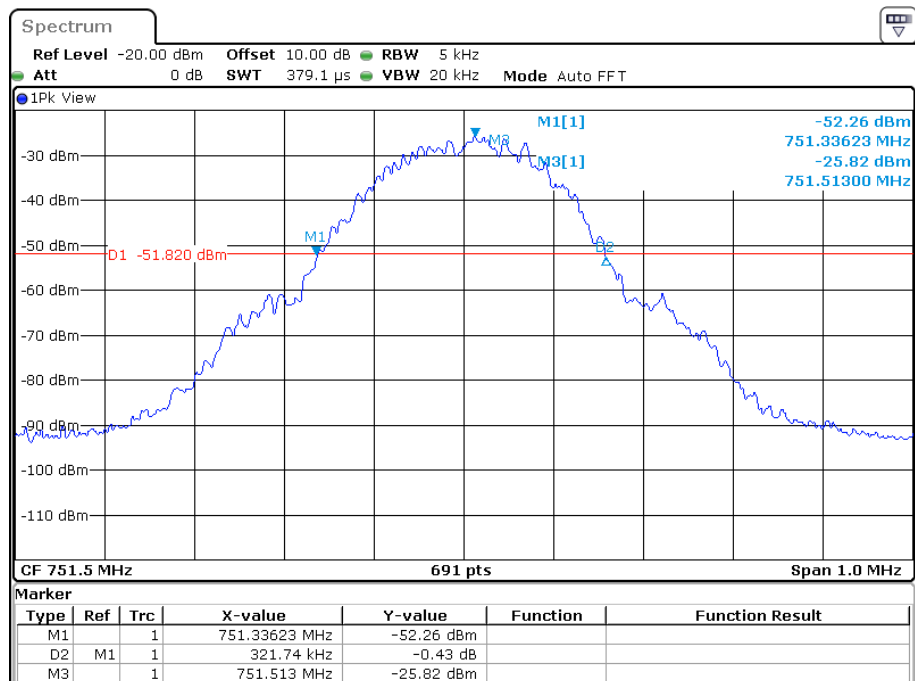
Date: 19.DEC.2022 18:06:03

26 dB Bandwidth-DL- GSM- Pre AGC -Input

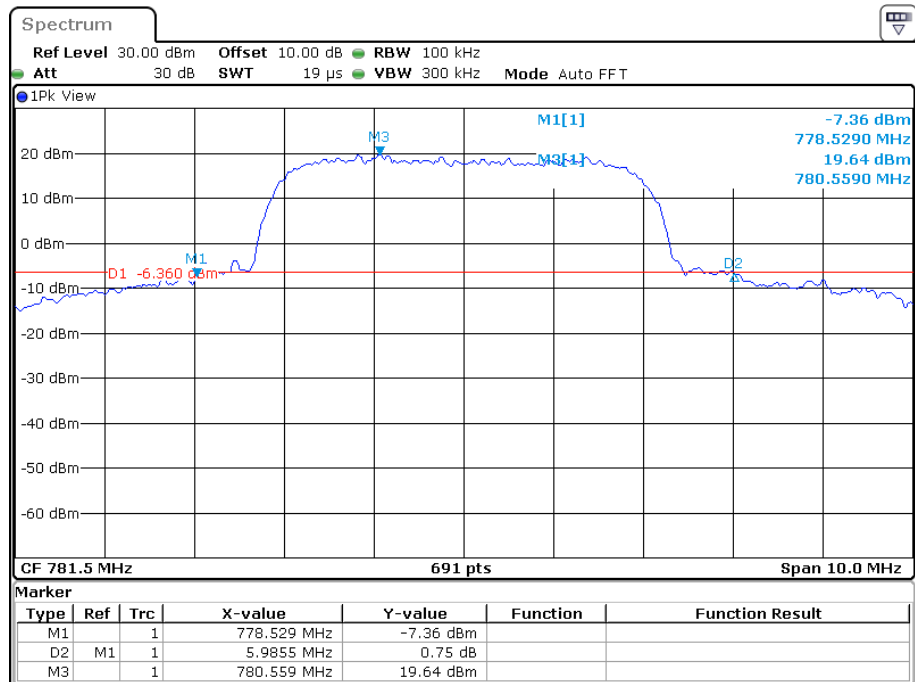


Date: 19.DEC.2022 17:45:10

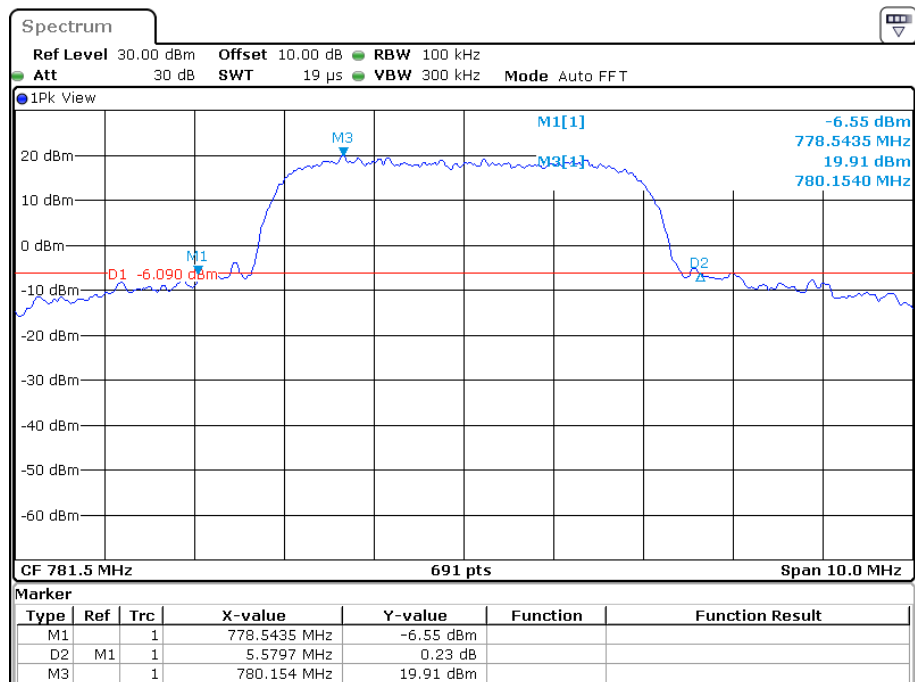
26 dB Bandwidth-DL- GSM- 3dB Above AGC -Input



Date: 19.DEC.2022 17:51:56

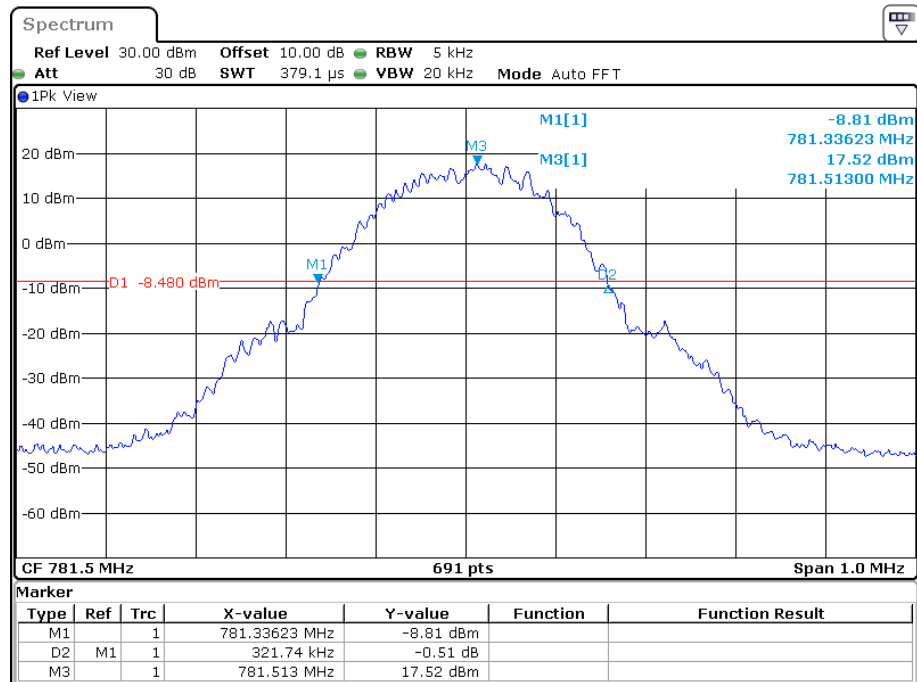
26 dB Bandwidth-UL- AWGN- Pre AGC -Output

Date: 19.DEC.2022 17:11:49

26 dB Bandwidth-UL- AWGN-3dB above AGC-Output

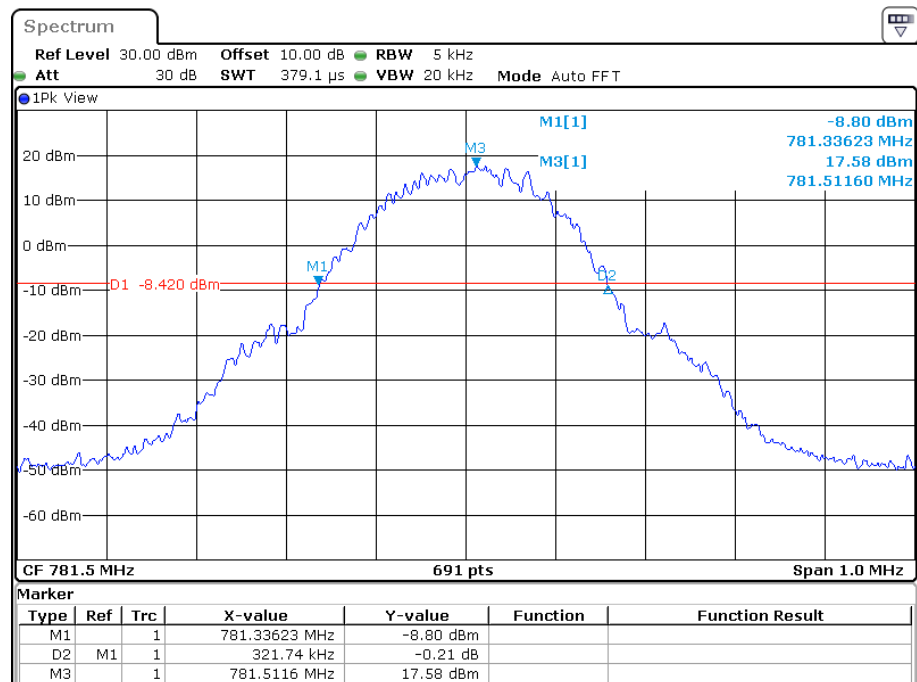
Date: 19.DEC.2022 17:16:29

26 dB Bandwidth-UL- GSM- Pre AGC -Output



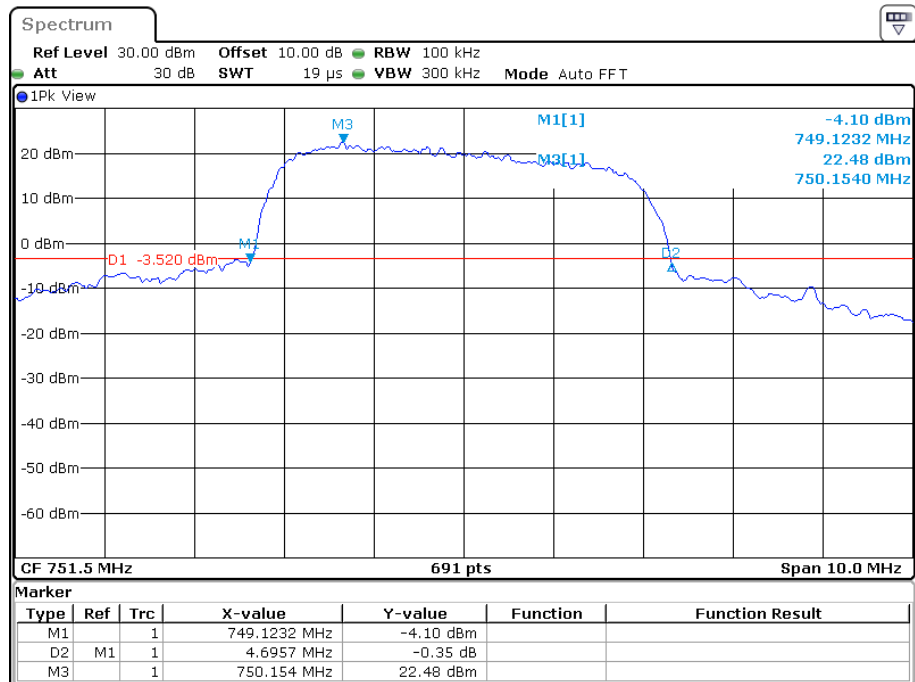
Date: 19.DEC.2022 16:36:15

26 dB Bandwidth-UL- GSM-3dB above AGC-Output



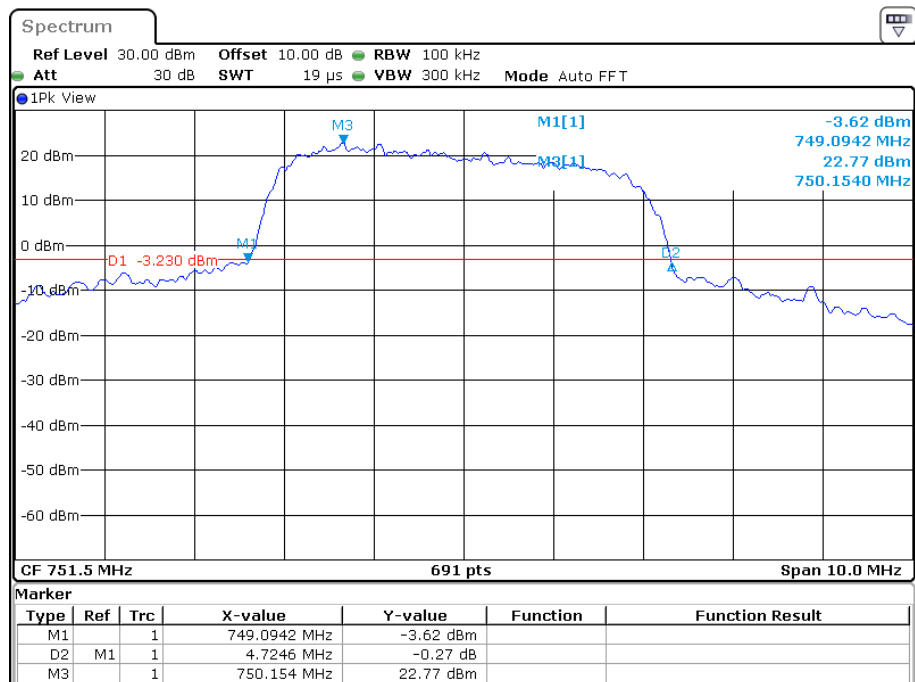
Date: 19.DEC.2022 16:39:53

26 dB Bandwidth-DL- AWGN- Pre AGC -Output



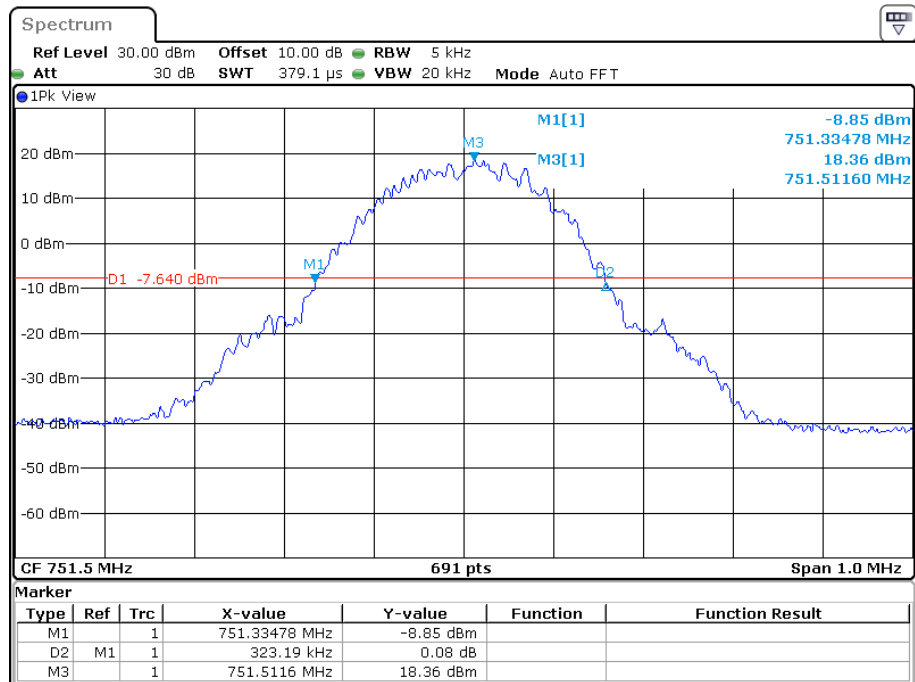
Date: 19.DEC.2022 17:32:59

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Output



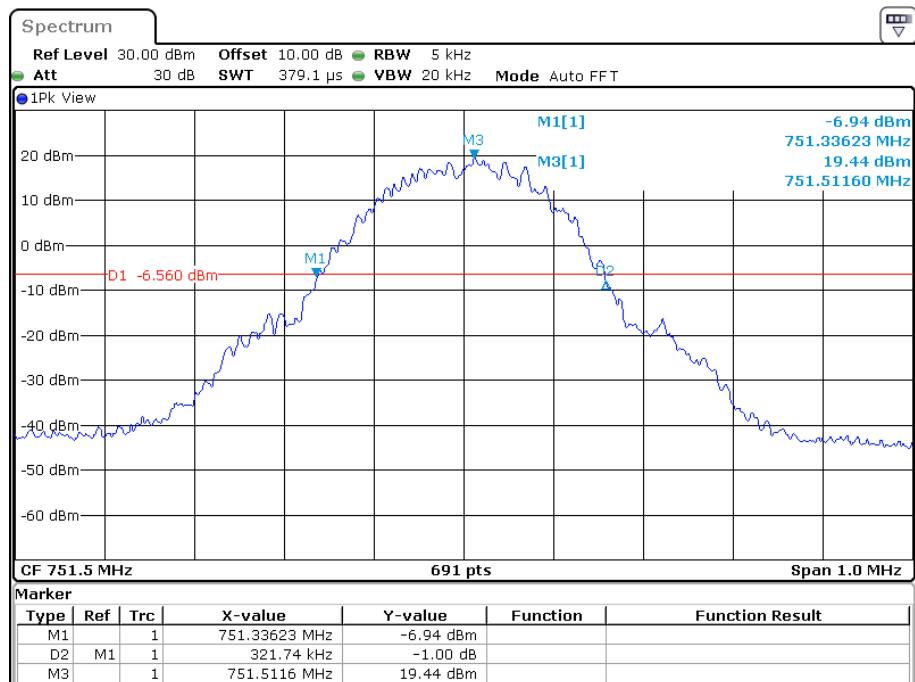
Date: 19.DEC.2022 17:38:26

26 dB Bandwidth-DL- GSM- Pre AGC -Output



Date: 19.DEC.2022 17:25:26

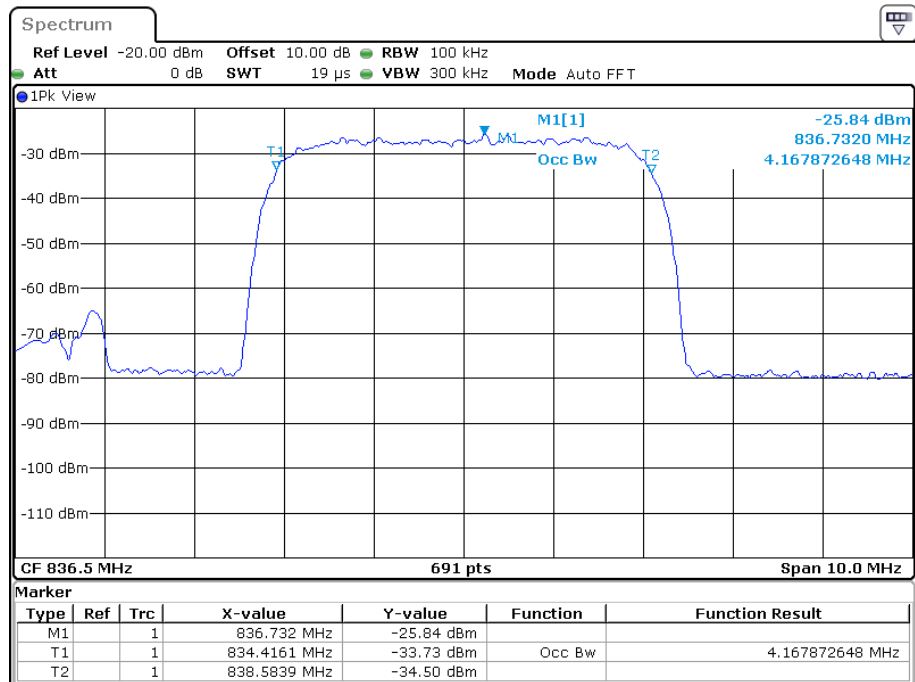
26 dB Bandwidth-DL- GSM- 3dB Above AGC -Output



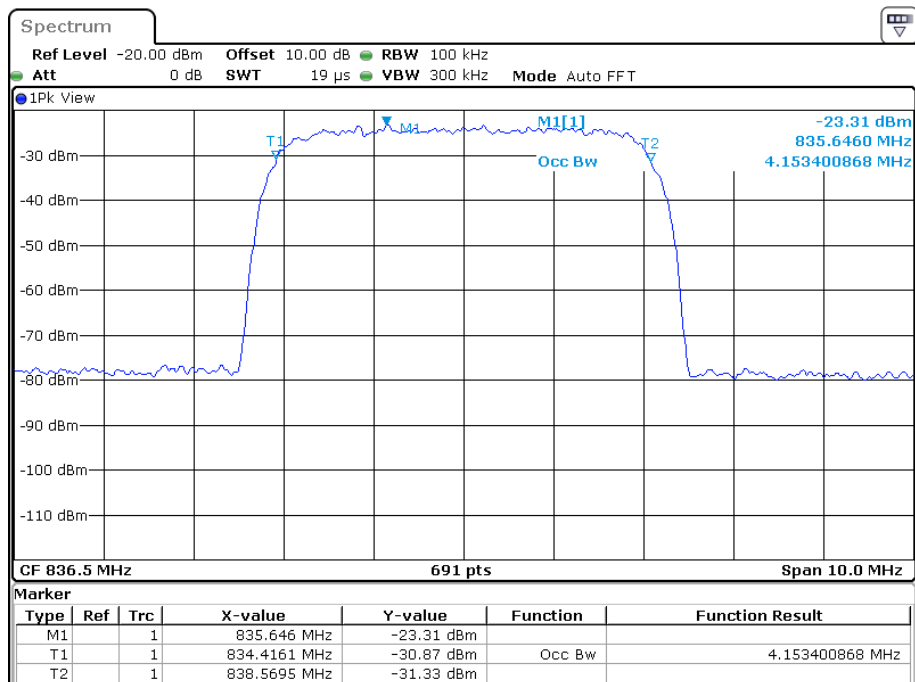
Date: 19.DEC.2022 17:28:45

Cellular Band

Mode	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	836.5	4.168	4.197	4.710	4.710
		3dB above AGC	836.5	4.153	4.182	4.710	4.710
	GSM	Pre-AGC	836.5	0.246	0.246	0.322	0.322
		3dB above AGC	836.5	0.246	0.246	0.322	0.322
Downlink	AWGN	Pre-AGC	881.5	4.153	4.182	4.710	5.493
		3dB above AGC	881.5	4.168	4.182	4.696	5.551
	GSM	Pre-AGC	881.5	0.246	0.246	0.322	0.322
		3dB above AGC	881.5	0.246	0.245	0.322	0.322

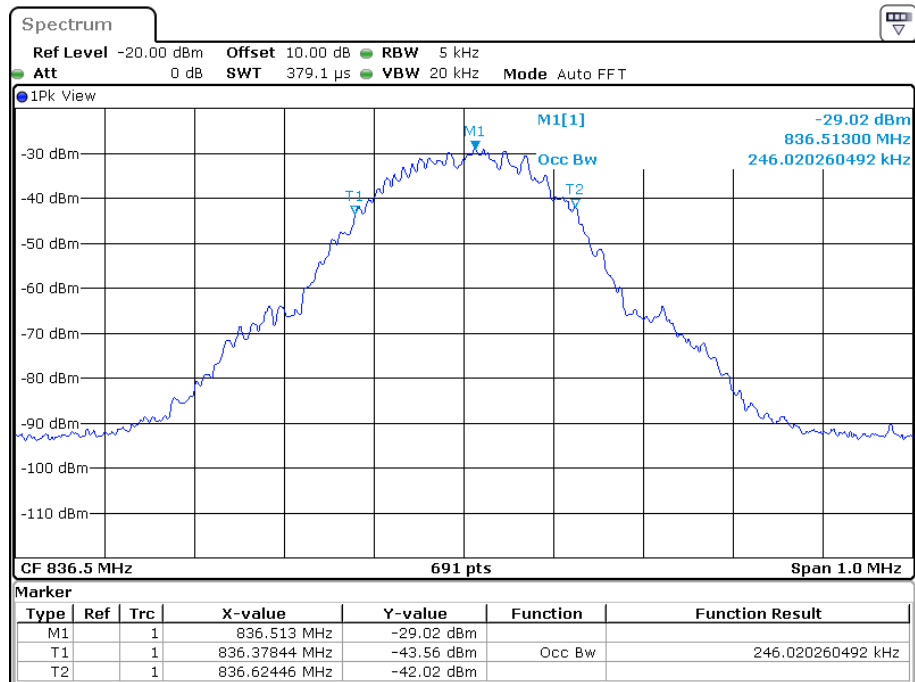
99% Bandwidth-UL-AWGN-Pre AGC-Input

Date: 19.DEC.2022 18:02:51

99% Bandwidth-UL- AWGN-3dB above AGC-Input

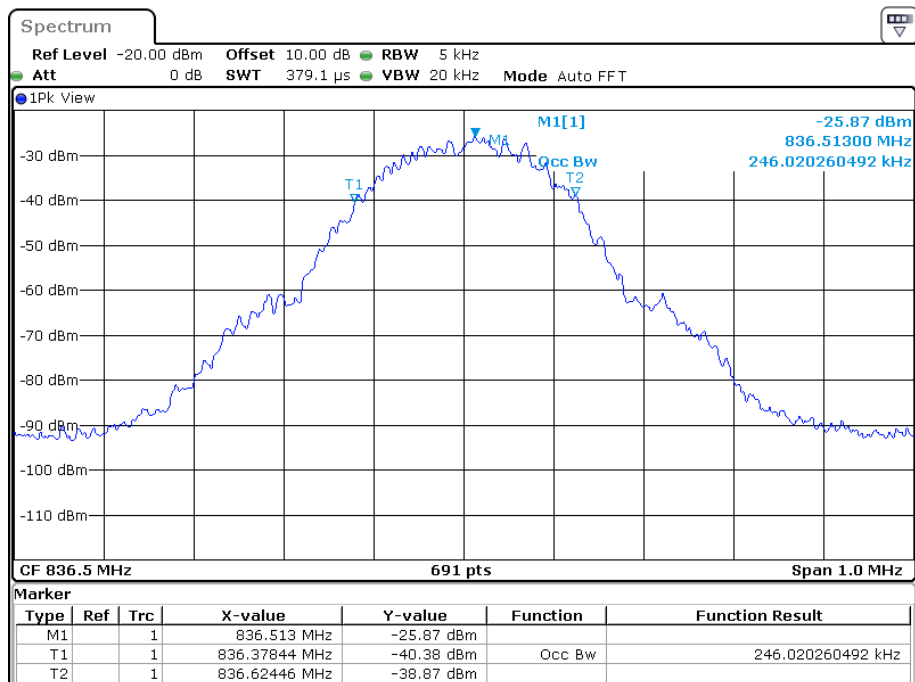
Date: 19.DEC.2022 18:10:00

99% Bandwidth-UL-GSM-Pre AGC-Input

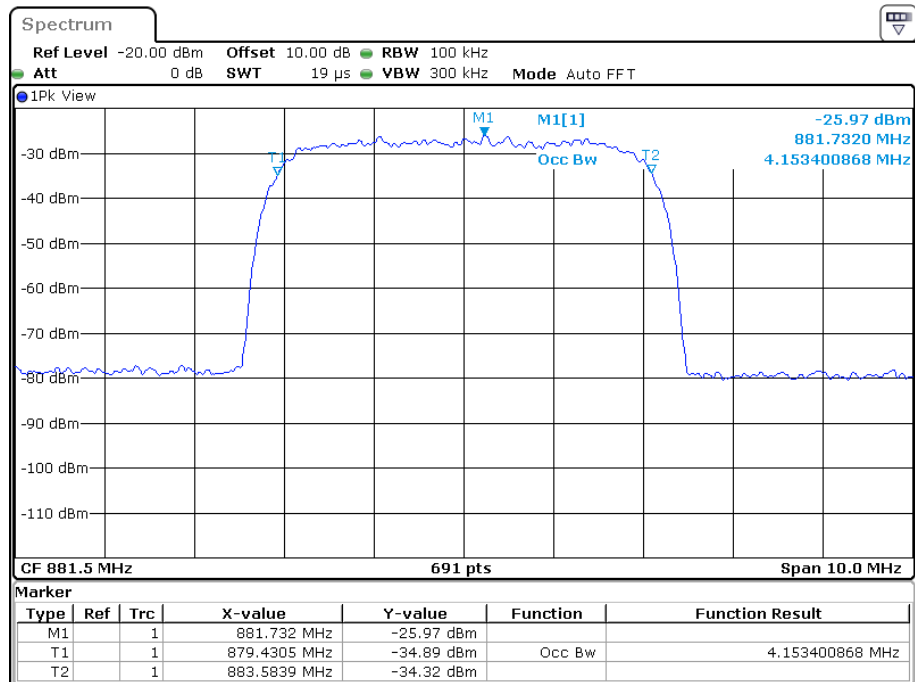


Date: 19.DEC.2022 17:48:56

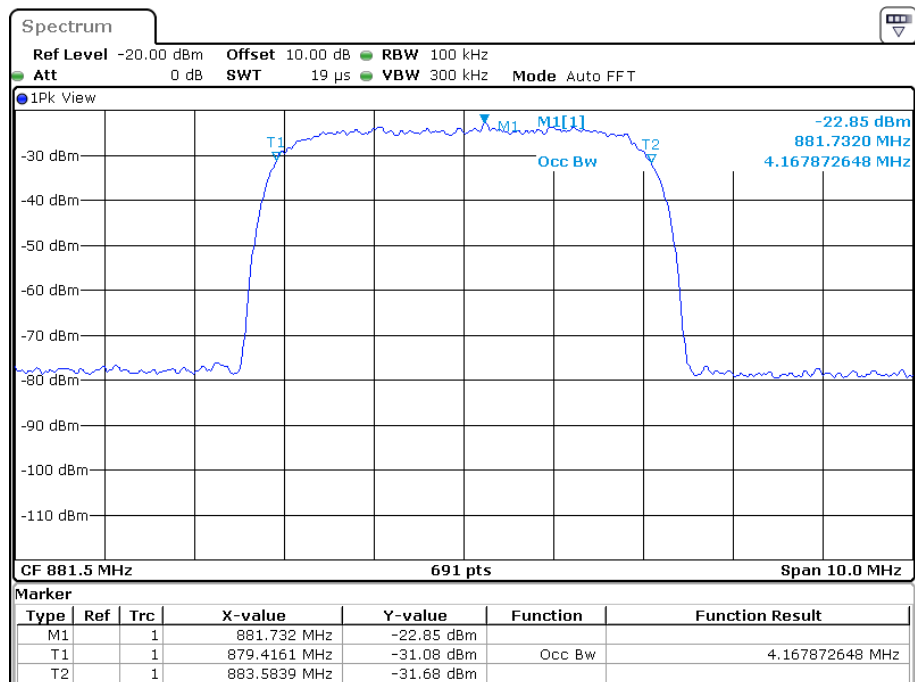
99% Bandwidth-UL- GSM-3dB above AGC-Input



Date: 19.DEC.2022 17:55:53

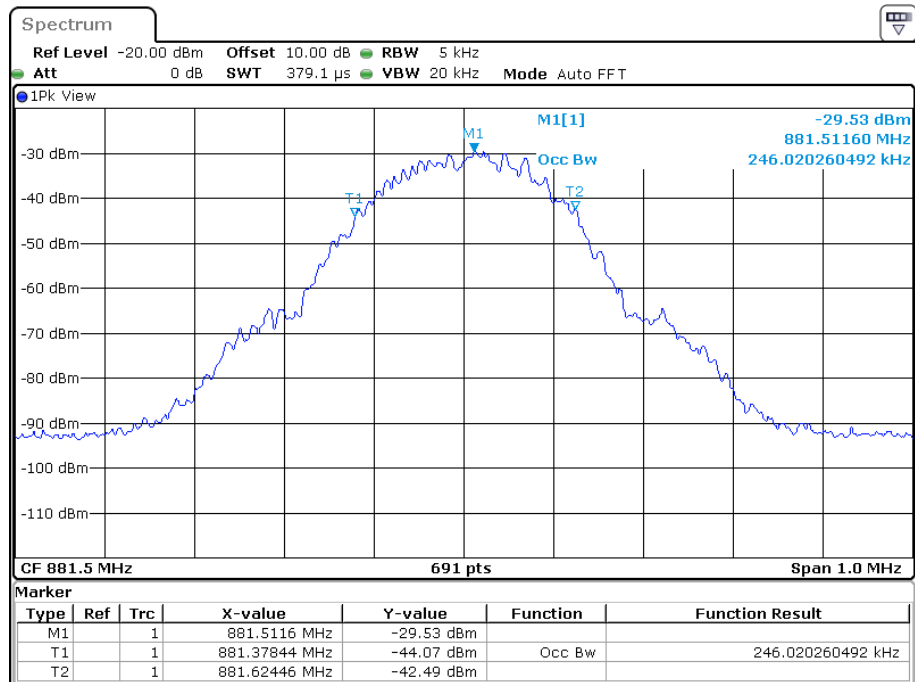
99% Bandwidth-DL- AWGN- Pre AGC -Input

Date: 19.DEC.2022 17:59:24

99% Bandwidth-DL- AWGN- 3dB Above AGC -Input

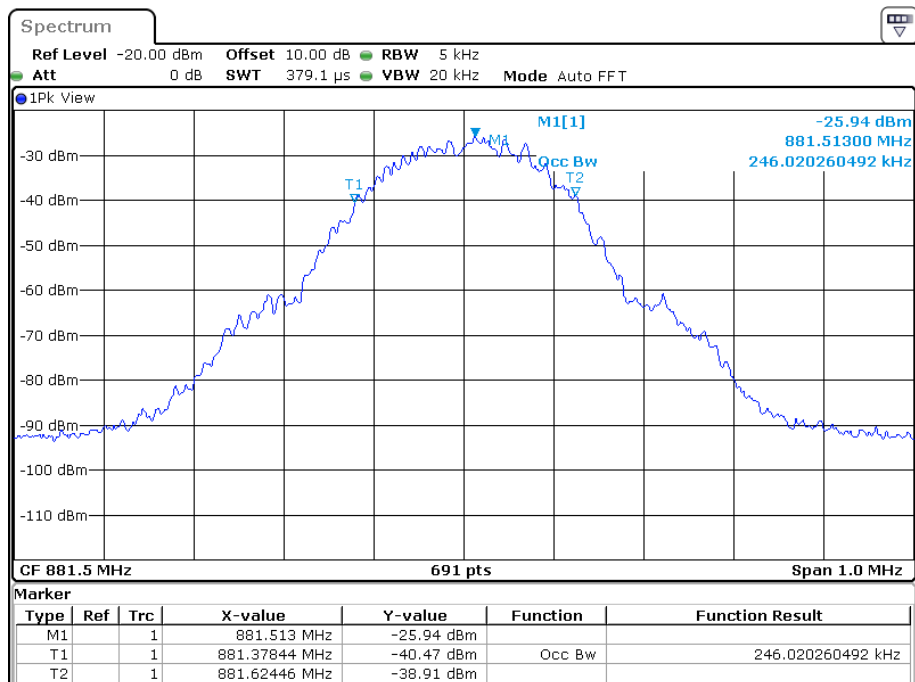
Date: 19.DEC.2022 18:06:21

99% Bandwidth-DL- GSM- Pre AGC -Input

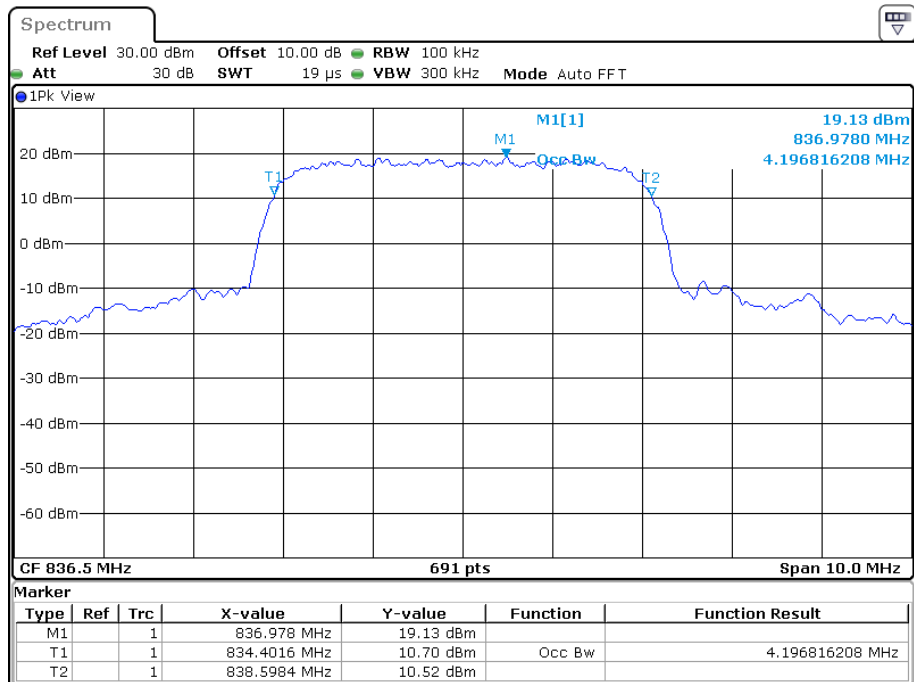


Date: 19.DEC.2022 17:45:28

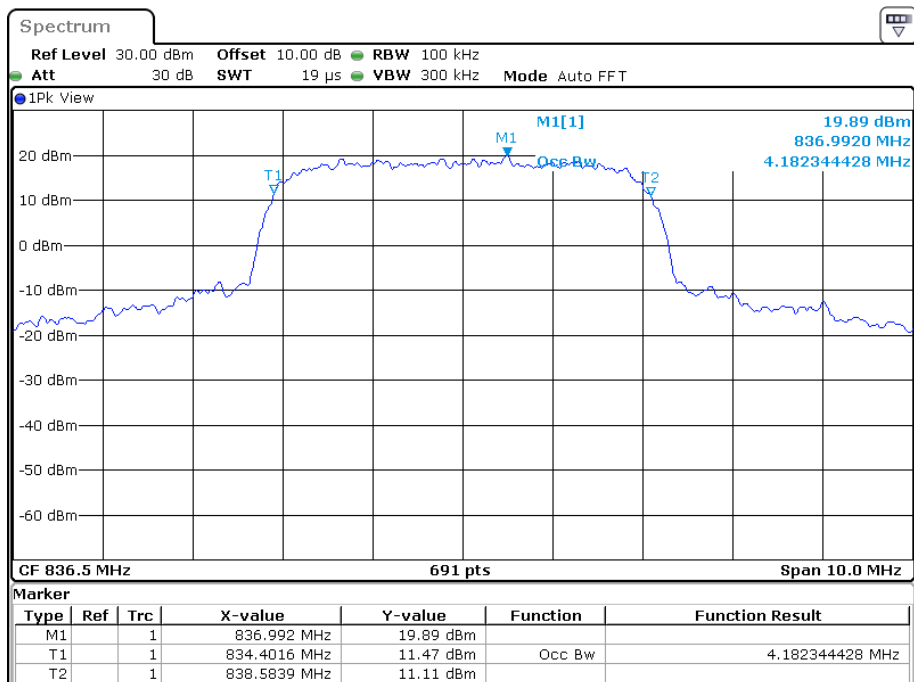
99% Bandwidth-DL- GSM- 3dB Above AGC -Input



Date: 19.DEC.2022 17:52:14

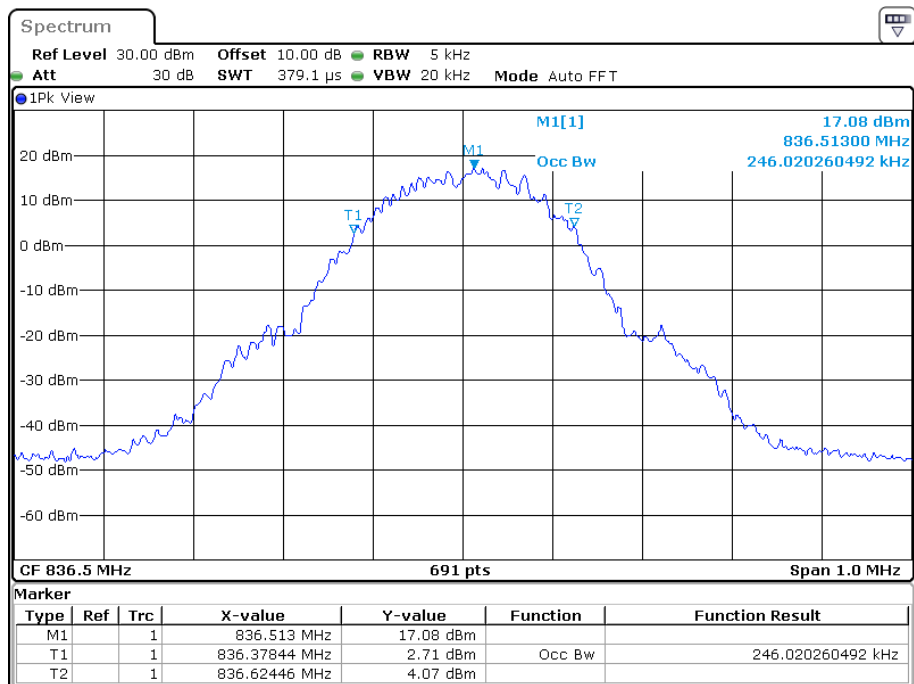
99% Bandwidth-UL- AWGN- Pre AGC -Output

Date: 19.DEC.2022 17:12:17

99% Bandwidth-UL- AWGN-3dB above AGC-Output

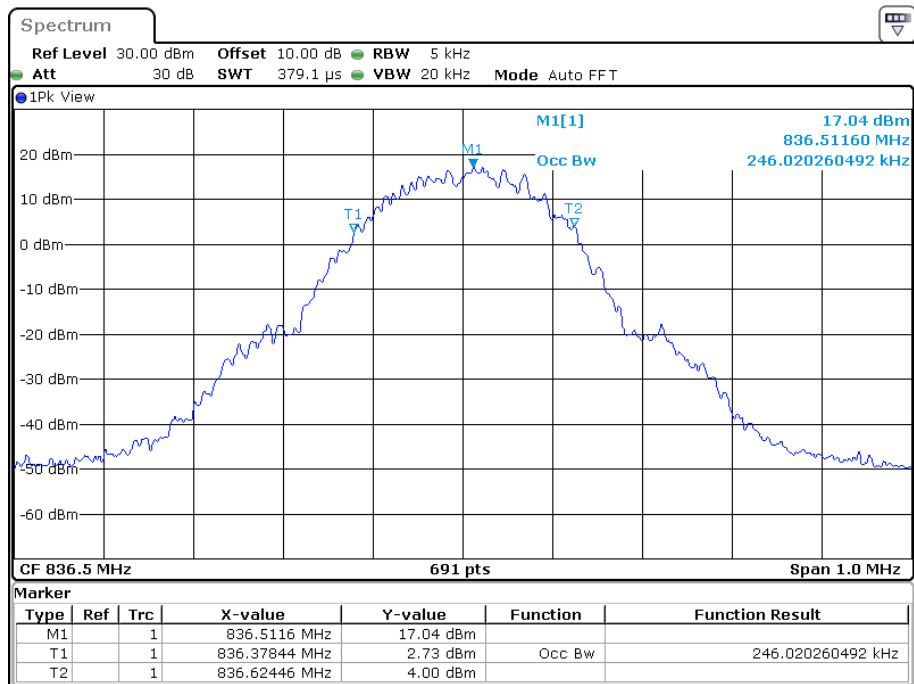
Date: 19.DEC.2022 17:16:57

99% Bandwidth-UL- GSM- Pre AGC -Output

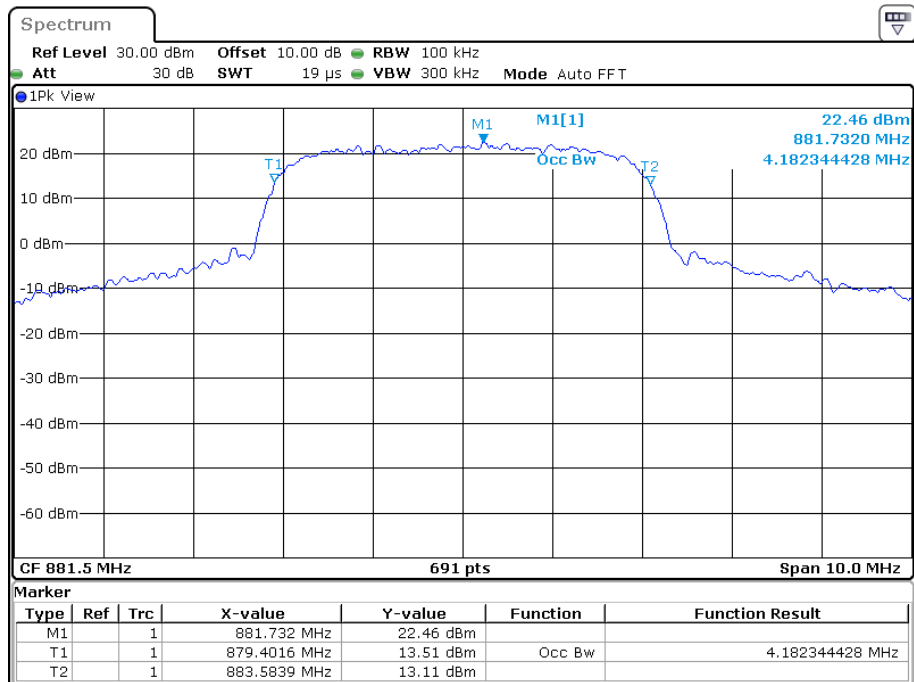


Date: 19.DEC.2022 16:36:34

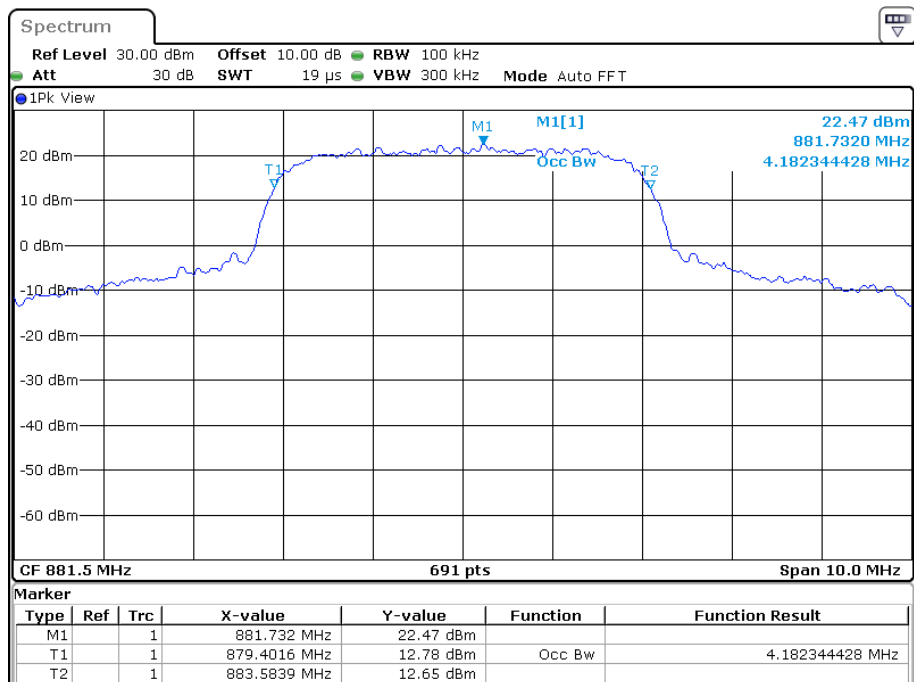
99% Bandwidth-UL- GSM-3dB above AGC-Output



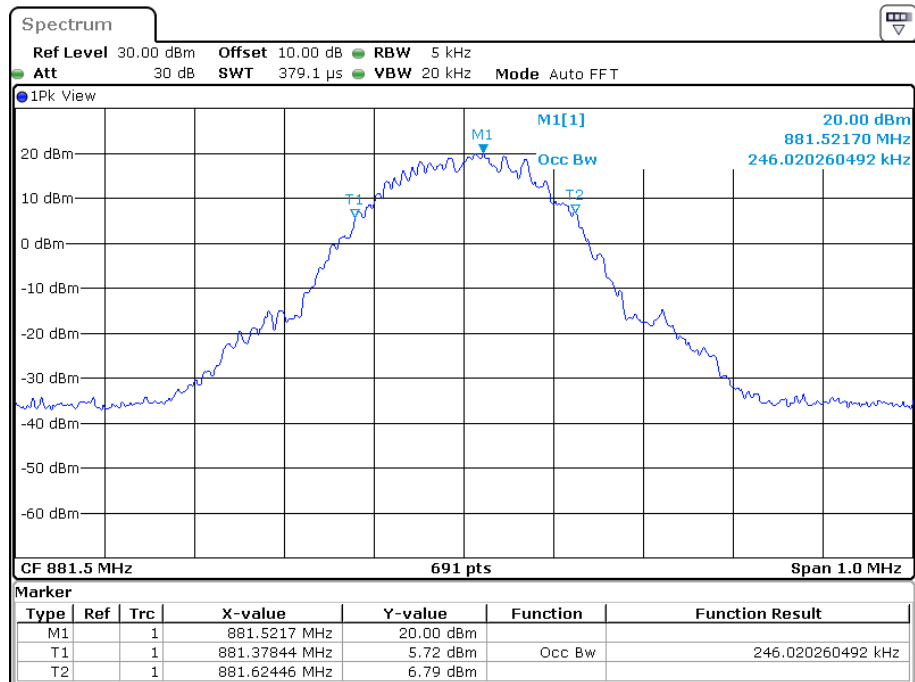
Date: 19.DEC.2022 16:40:20

99% Bandwidth-DL- AWGN- Pre AGC -Output

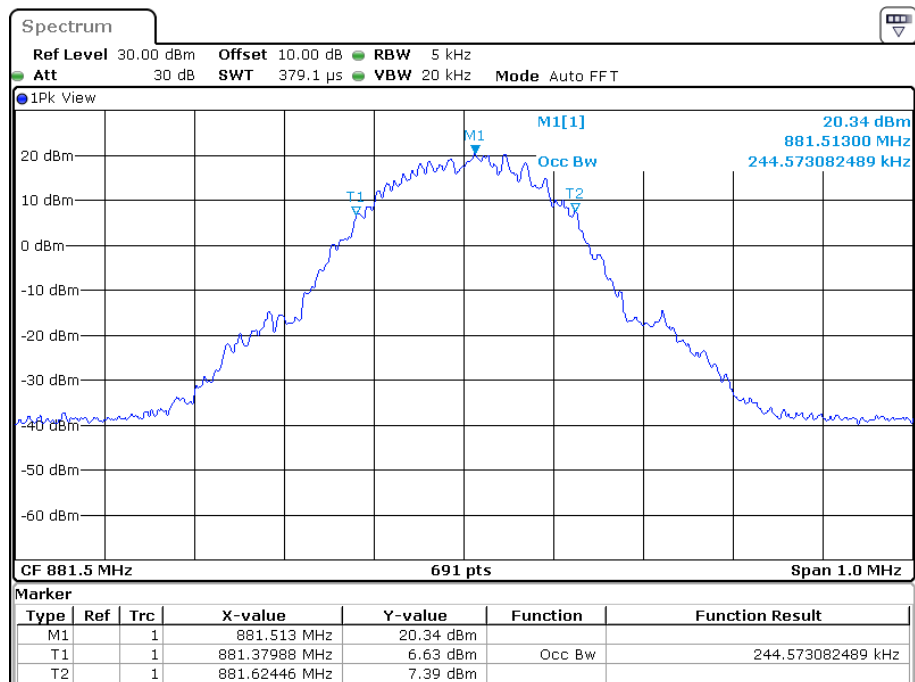
Date: 19.DEC.2022 17:33:27

99% Bandwidth-DL- AWGN- 3dB Above AGC -Output

Date: 19.DEC.2022 17:38:45

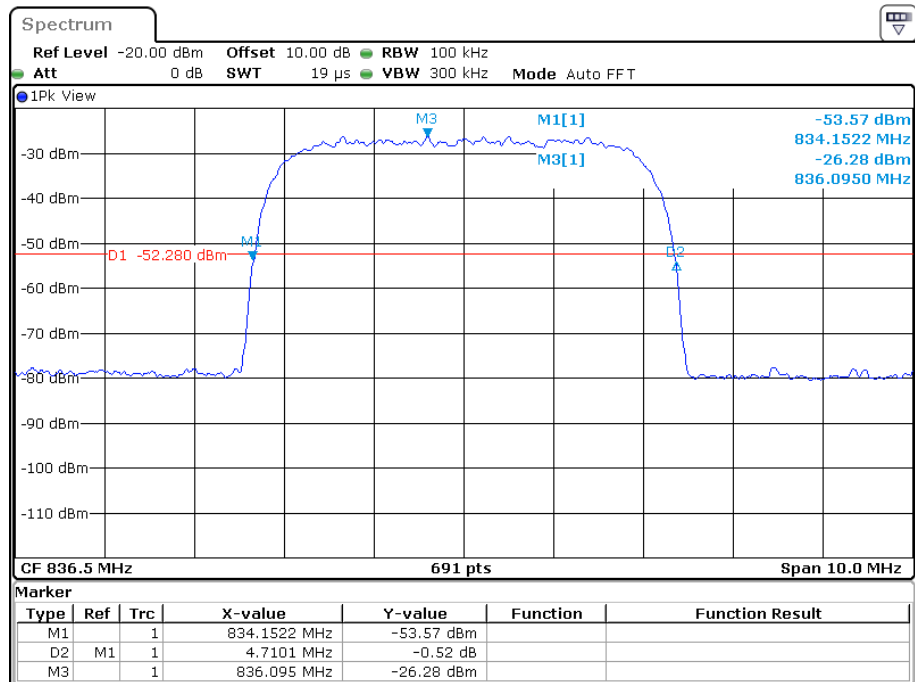
99% Bandwidth-DL- GSM- Pre AGC -Output

Date: 19.DEC.2022 17:25:44

99% Bandwidth-DL- GSM- 3dB Above AGC -Output

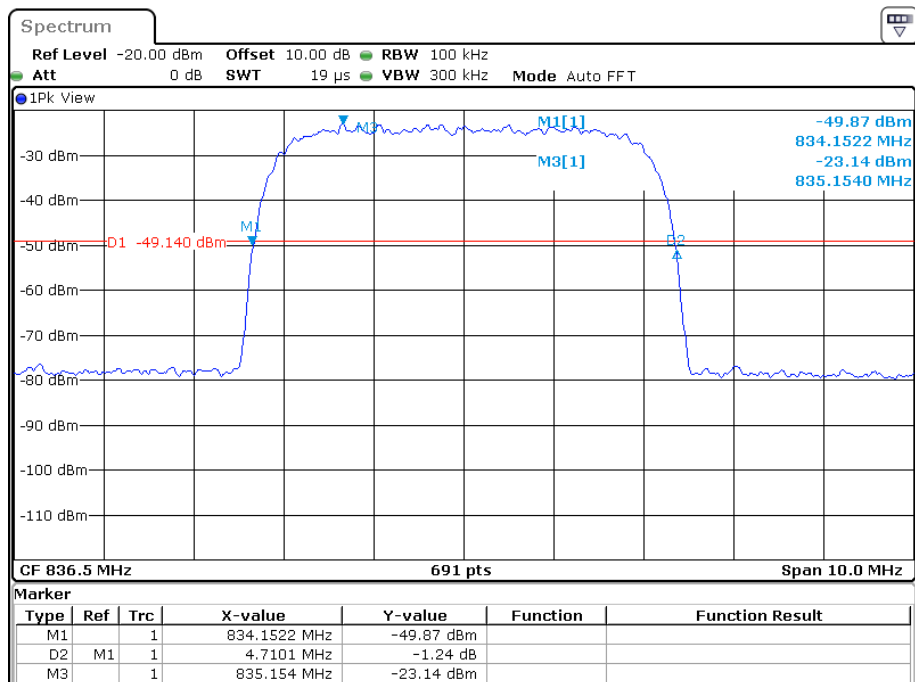
Date: 19.DEC.2022 17:29:03

26 dB Bandwidth-UL-AWGN-Pre AGC-Input



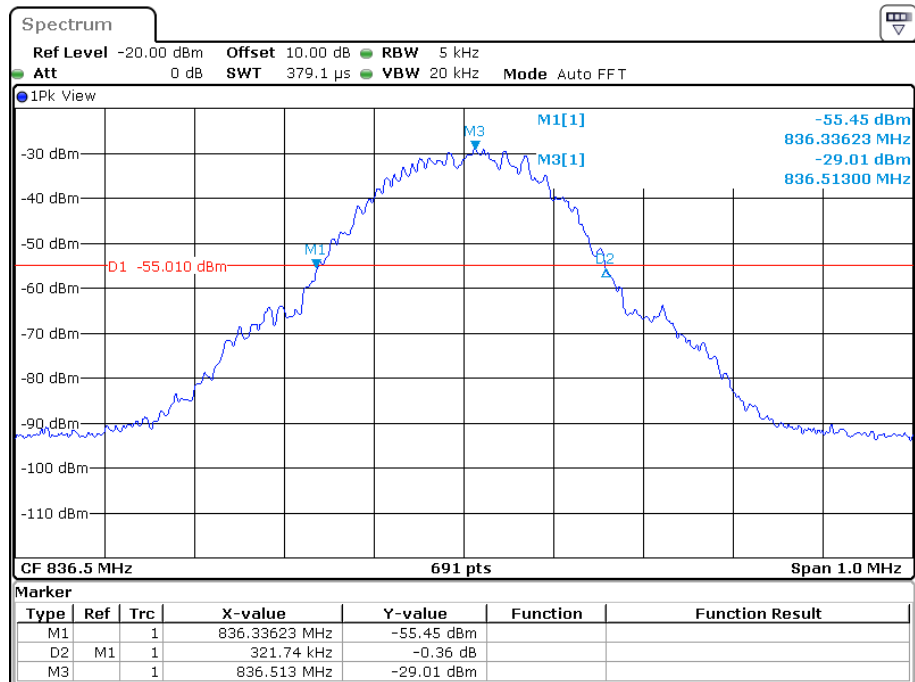
Date: 19.DEC.2022 18:03:06

26 dB Bandwidth-UL- AWGN-3dB above AGC-Input



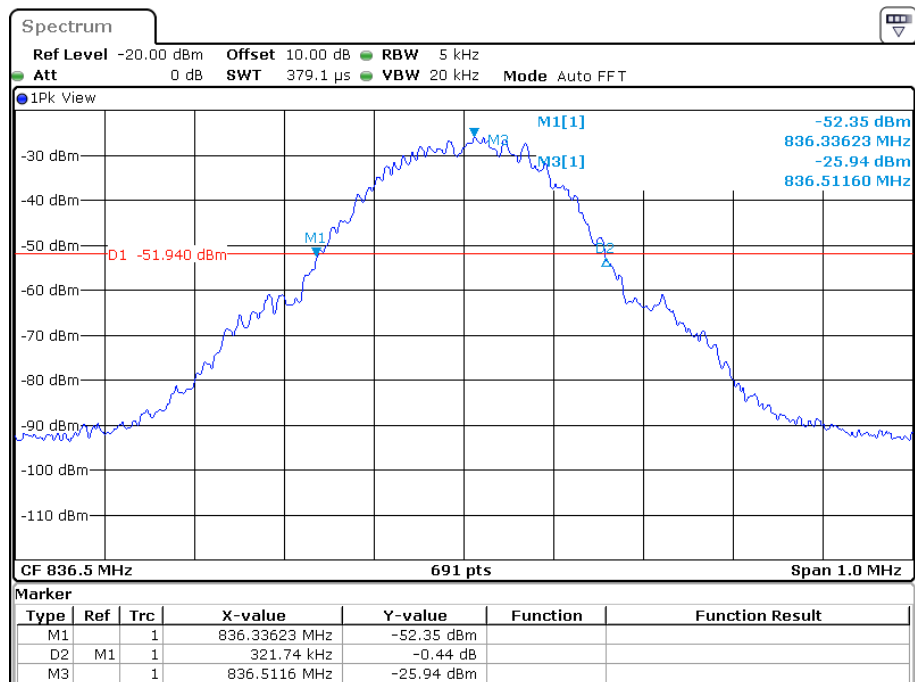
Date: 19.DEC.2022 18:10:15

26 dB Bandwidth-UL-GSM-Pre AGC-Input



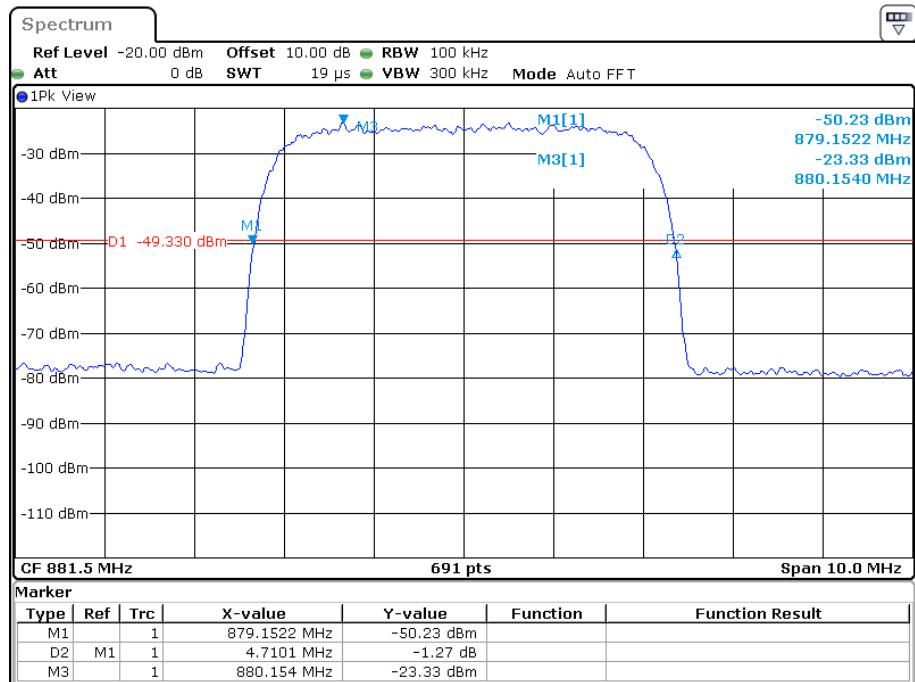
Date: 19.DEC.2022 17:49:11

26 dB Bandwidth-UL- GSM-3dB above AGC-Input



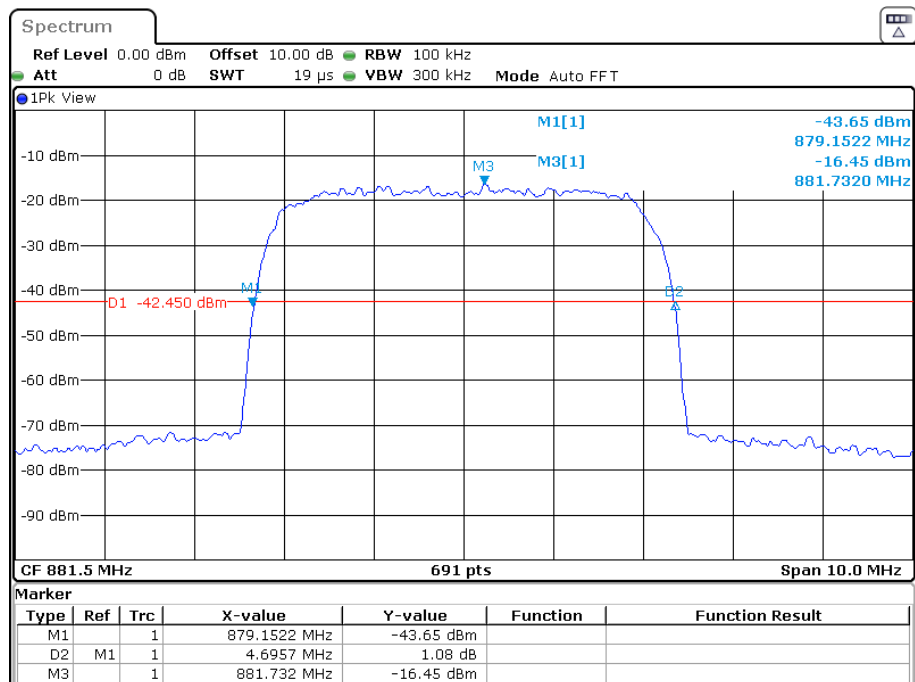
Date: 19.DEC.2022 17:56:08

26 dB Bandwidth-DL- AWGN- Pre AGC -Input



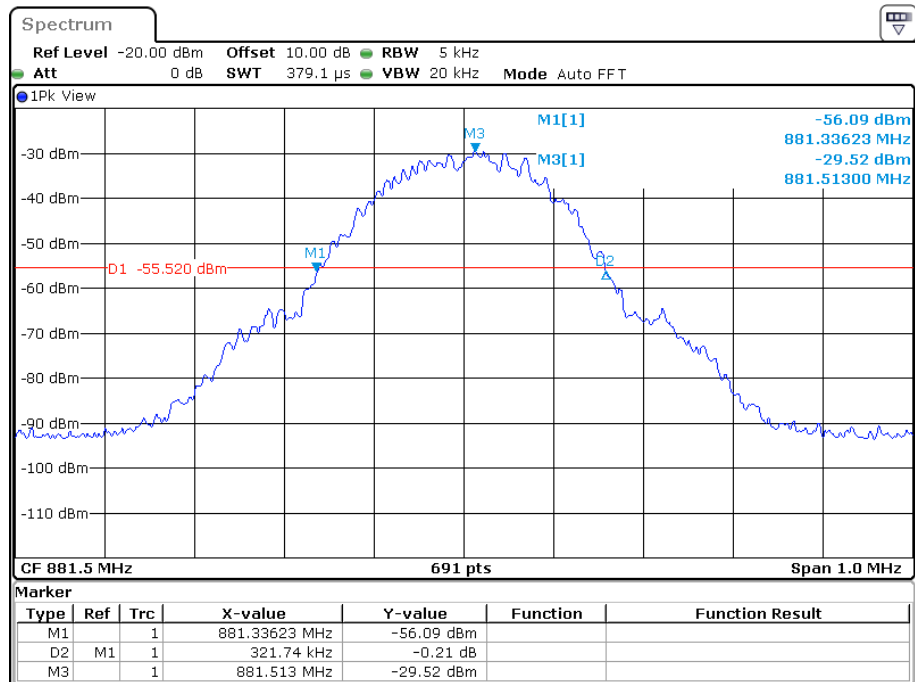
Date: 19.DEC.2022 18:06:36

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Input



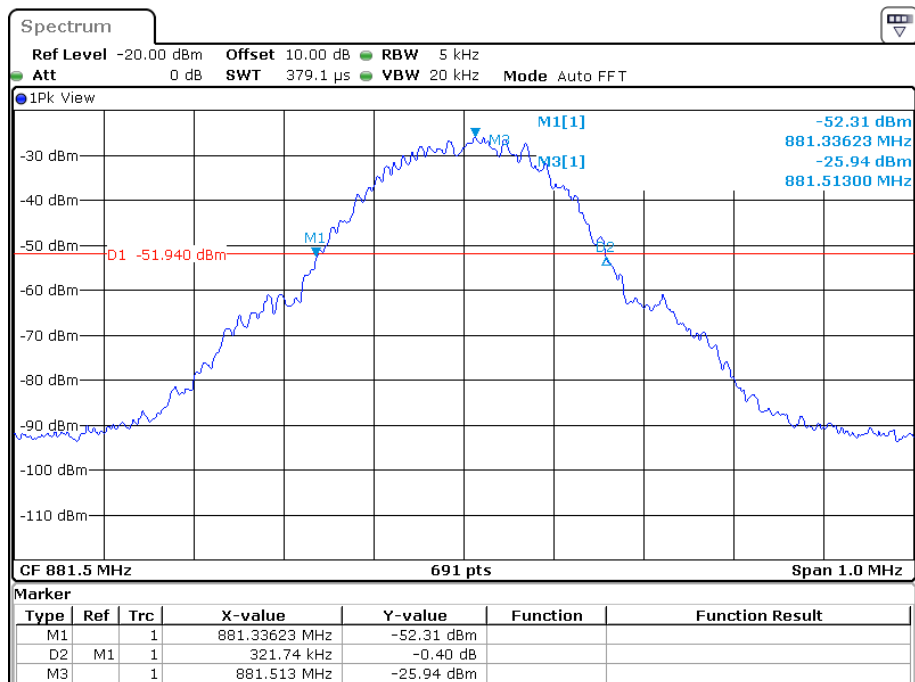
Date: 1.DEC.2022 14:26:29

26 dB Bandwidth-DL- GSM- Pre AGC -Input



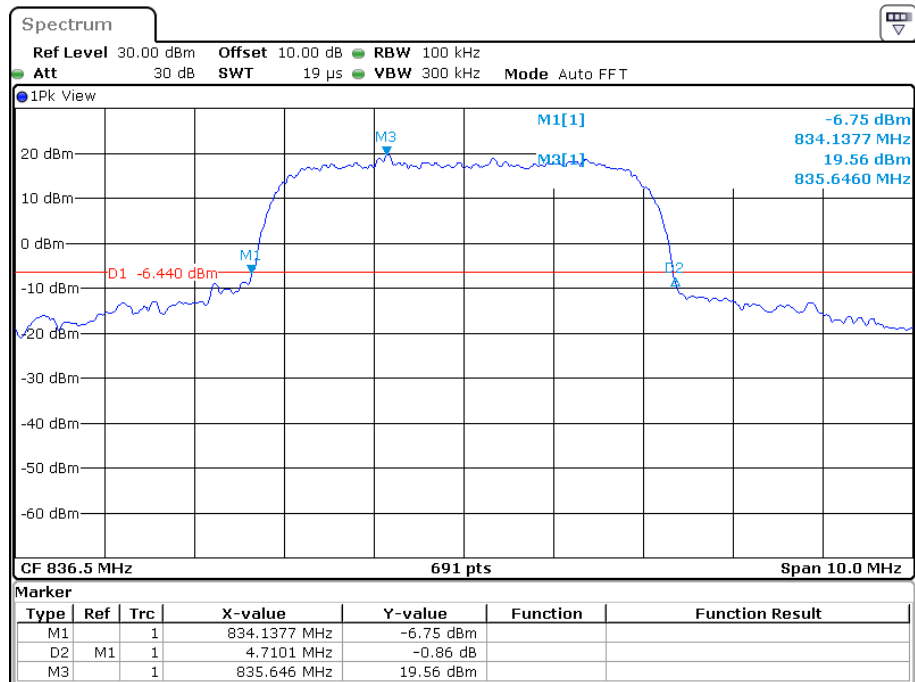
Date: 19.DEC.2022 17:45:43

26 dB Bandwidth-DL- GSM- 3dB Above AGC -Input



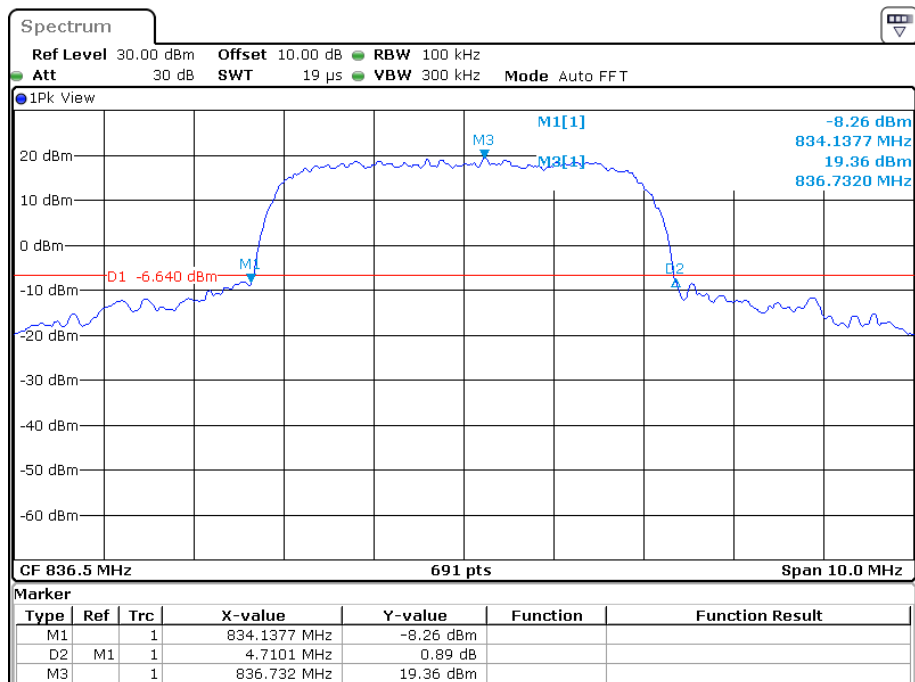
Date: 19.DEC.2022 17:52:30

26 dB Bandwidth-UL- AWGN- Pre AGC -Output



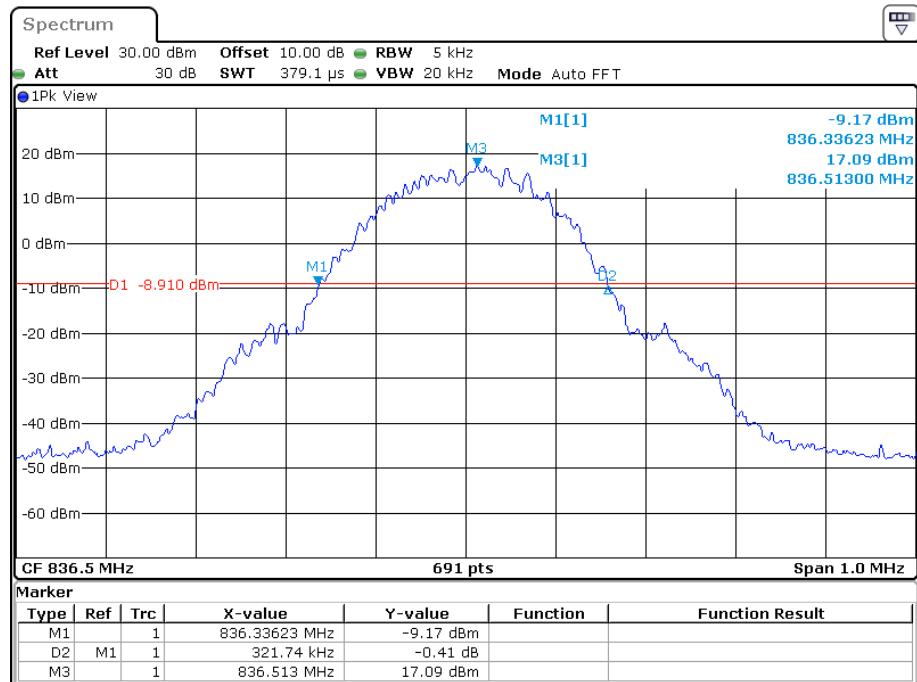
Date: 19.DEC.2022 17:12:32

26 dB Bandwidth-UL- AWGN-3dB above AGC-Output



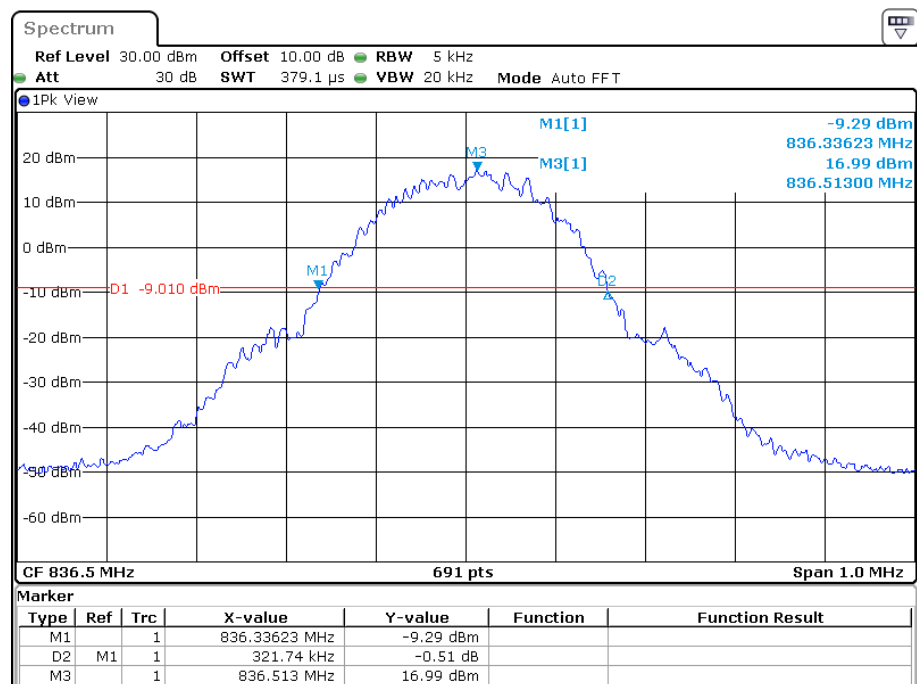
Date: 19.DEC.2022 17:17:22

26 dB Bandwidth-UL- GSM- Pre AGC -Output



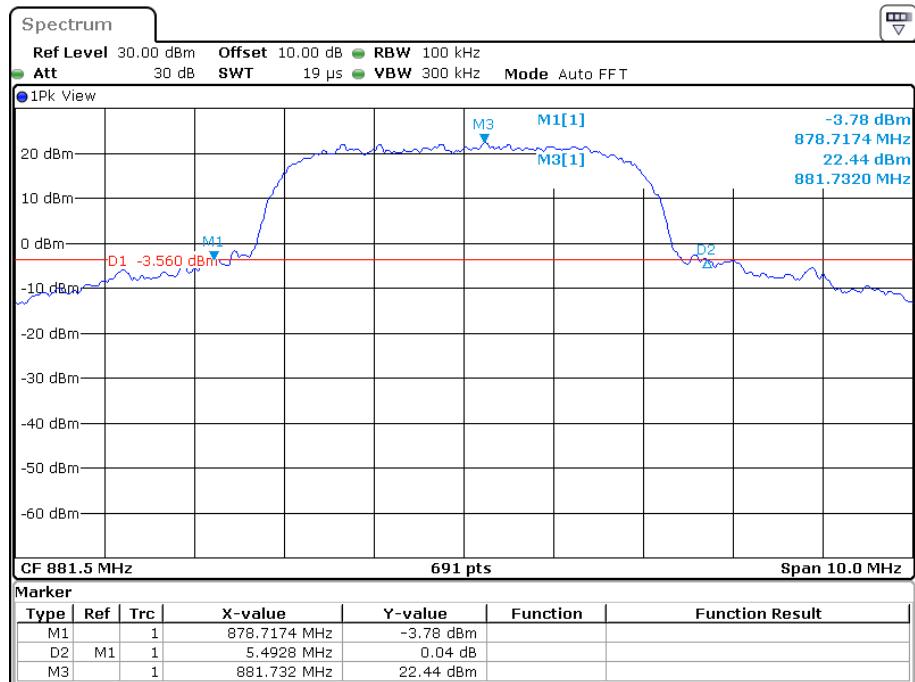
Date: 19.DEC.2022 16:36:49

26 dB Bandwidth-UL- GSM-3dB above AGC-Output



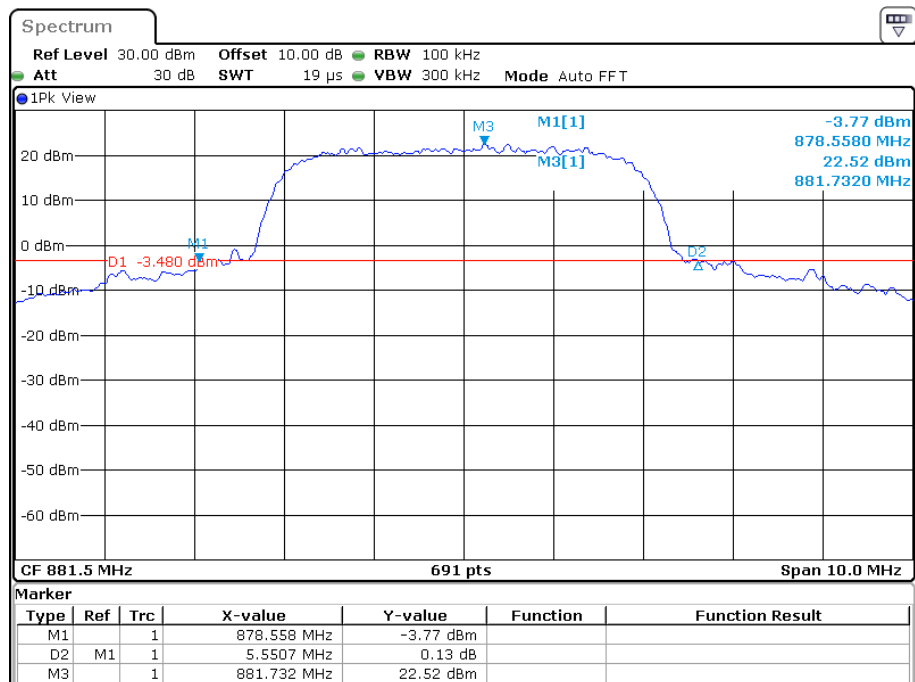
Date: 19.DEC.2022 16:40:36

26 dB Bandwidth-DL- AWGN- Pre AGC -Output



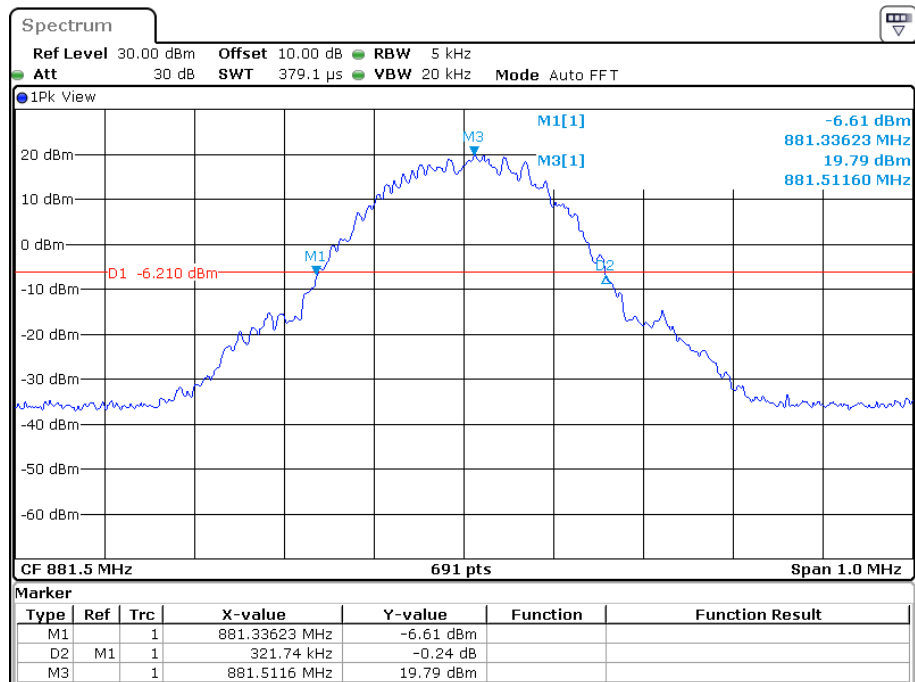
Date: 19.DEC.2022 17:33:52

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Output



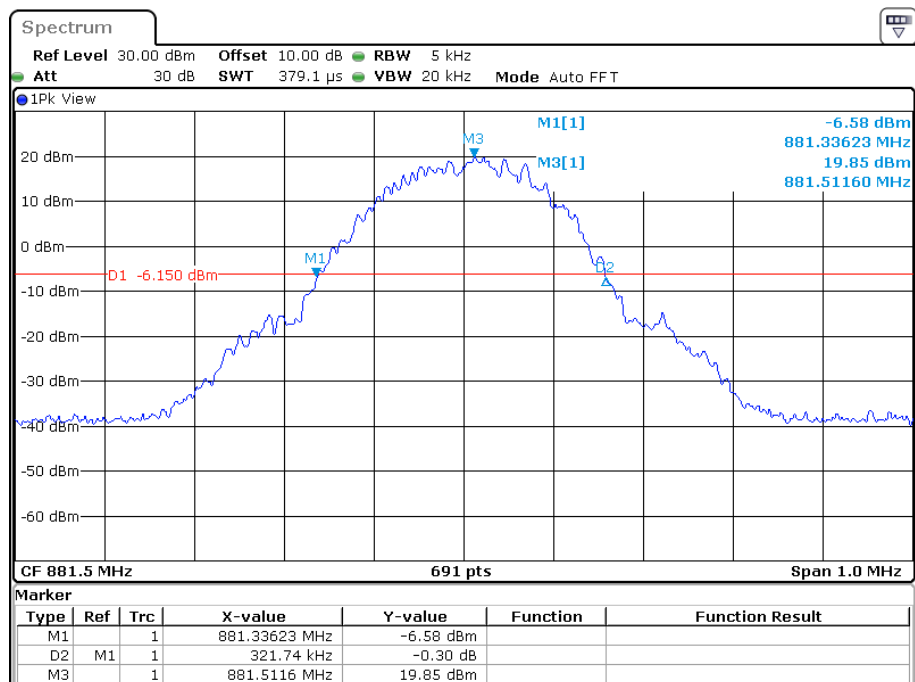
Date: 19.DEC.2022 17:39:11

26 dB Bandwidth-DL- GSM- Pre AGC -Output



Date: 19.DEC.2022 17:25:59

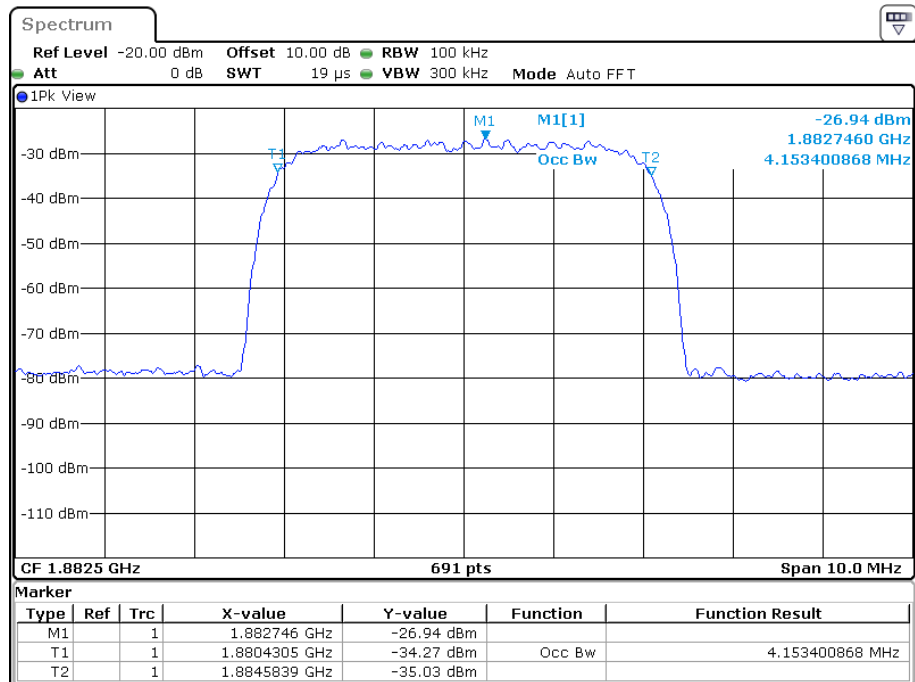
26 dB Bandwidth-DL- GSM- 3dB Above AGC -Output



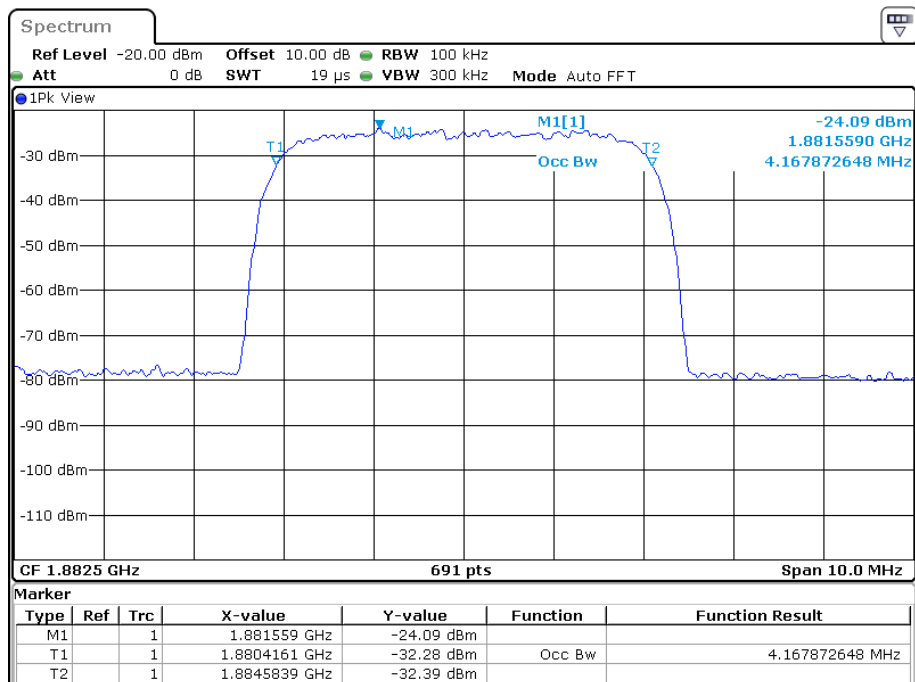
Date: 19.DEC.2022 17:29:18

PCS Band

Mode	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	1882.5	4.153	4.168	4.710	4.696
		3dB above AGC	1882.5	4.168	4.168	4.696	4.710
	GSM	Pre-AGC	1882.5	0.245	0.245	0.323	0.323
		3dB above AGC	1882.5	0.245	0.245	0.323	0.323
Downlink	AWGN	Pre-AGC	1962.5	4.168	4.168	4.710	4.725
		3dB above AGC	1962.5	4.168	4.168	4.710	4.725
	GSM	Pre-AGC	1962.5	0.245	0.245	0.323	0.323
		3dB above AGC	1962.5	0.245	0.245	0.323	0.323

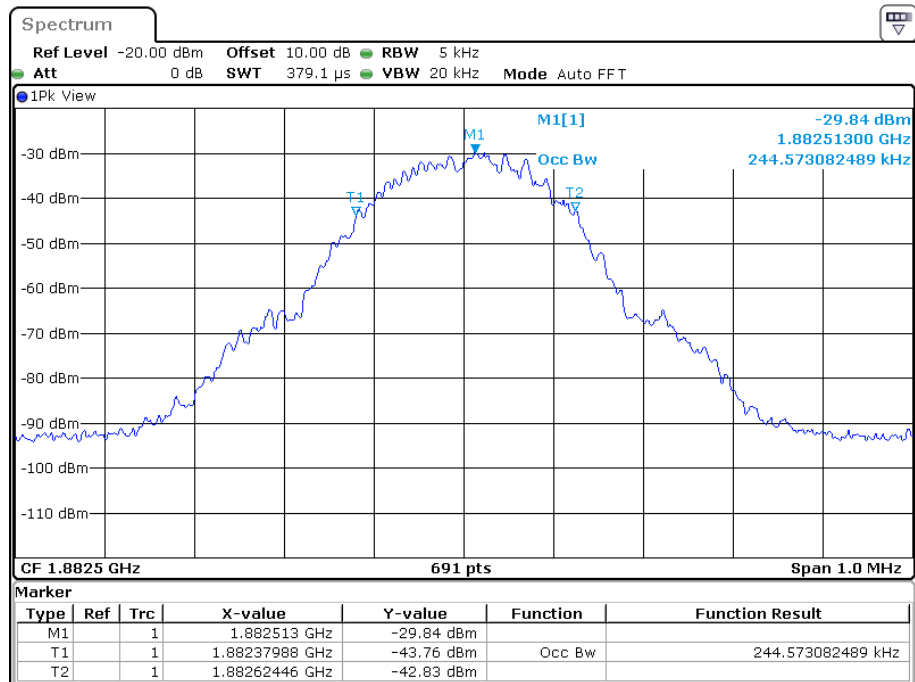
99% Bandwidth-UL-AWGN-Pre AGC-Input

Date: 19.DEC.2022 18:03:25

99% Bandwidth-UL- AWGN-3dB above AGC-Input

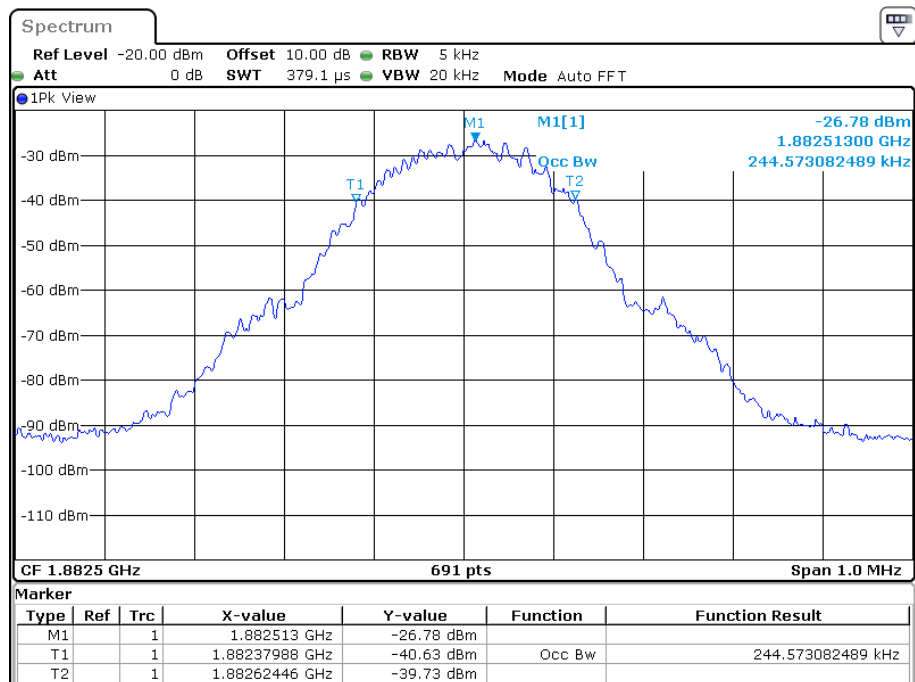
Date: 19.DEC.2022 18:10:33

99% Bandwidth-UL-GSM-Pre AGC-Input



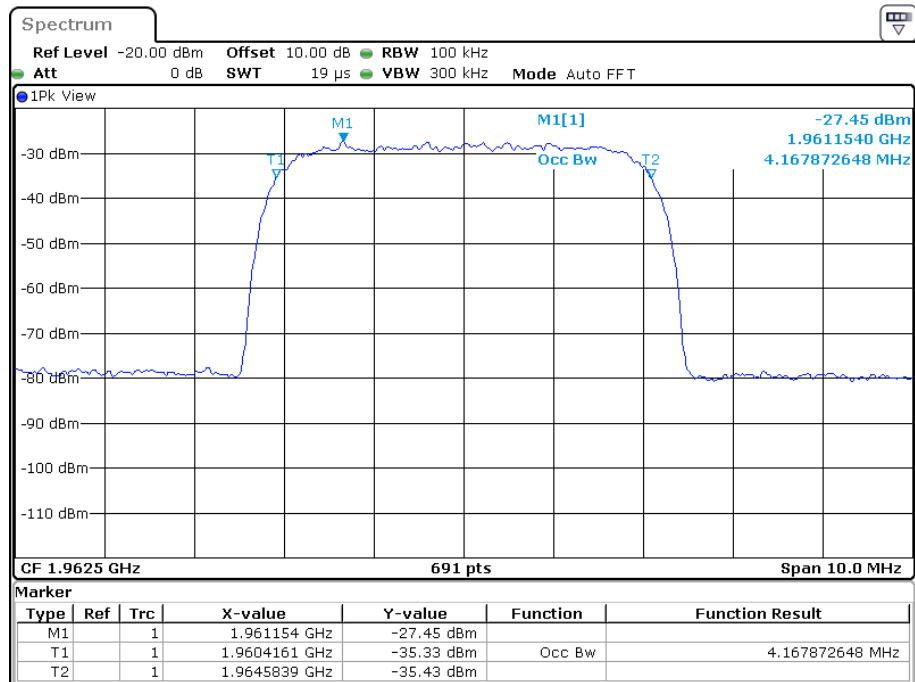
Date: 19.DEC.2022 17:49:29

99% Bandwidth-UL- GSM-3dB above AGC-Input



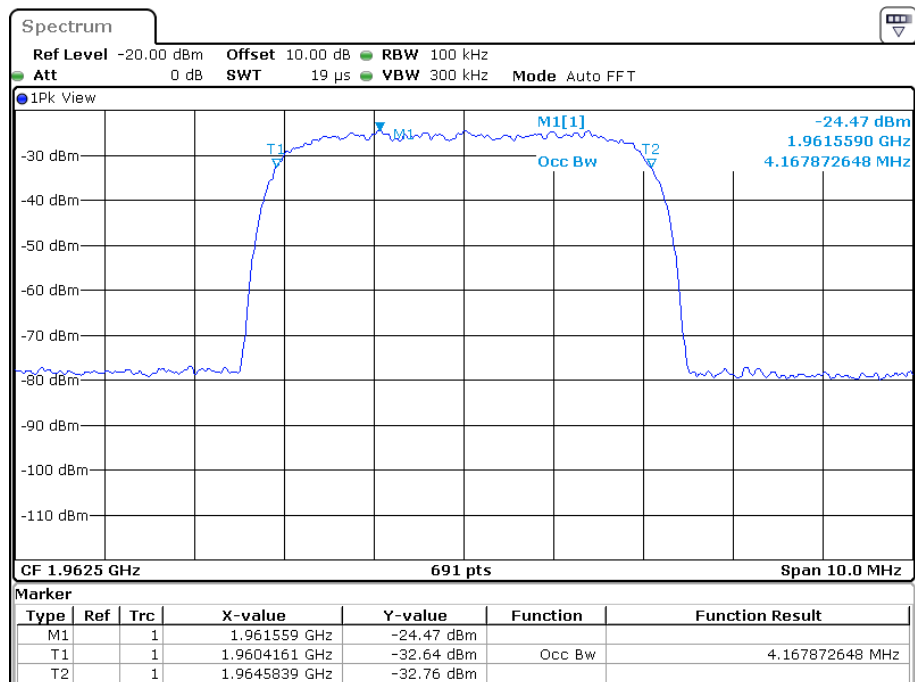
Date: 19.DEC.2022 17:56:26

99% Bandwidth-DL- AWGN- Pre AGC -Input

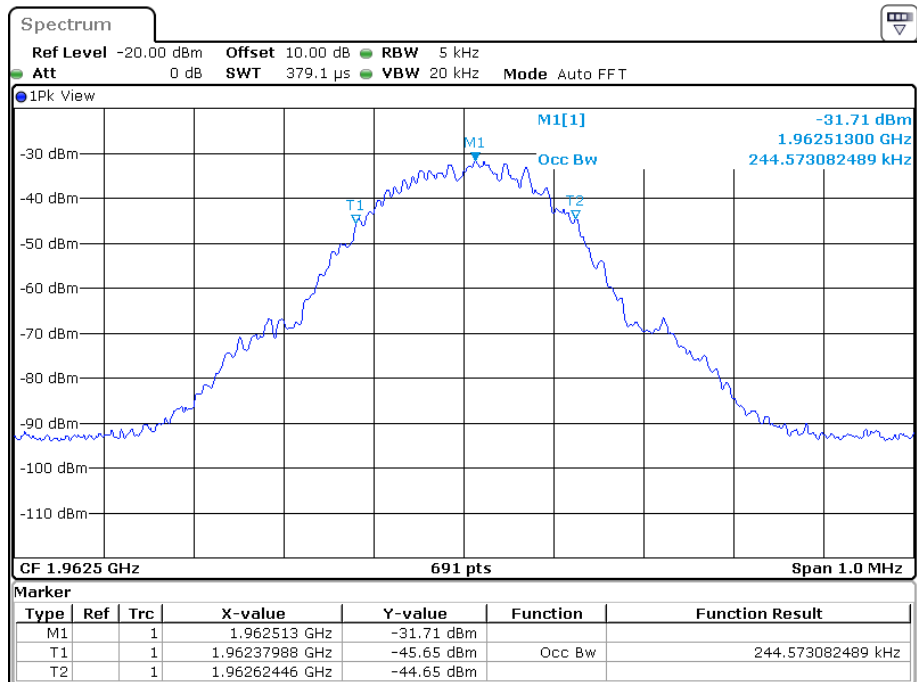


Date: 19.DEC.2022 17:59:57

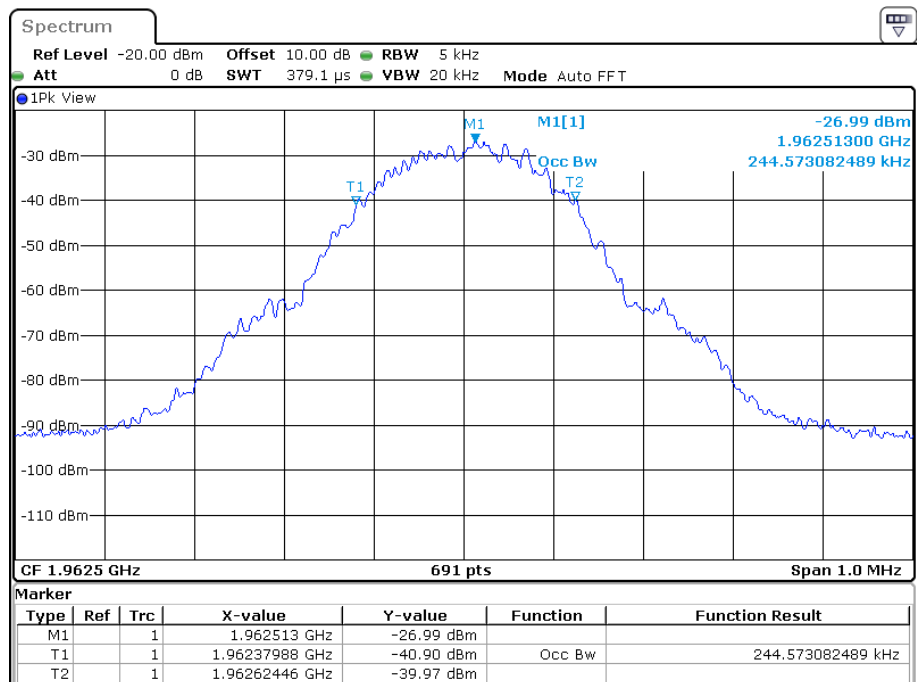
99% Bandwidth-DL- AWGN- 3dB Above AGC -Input



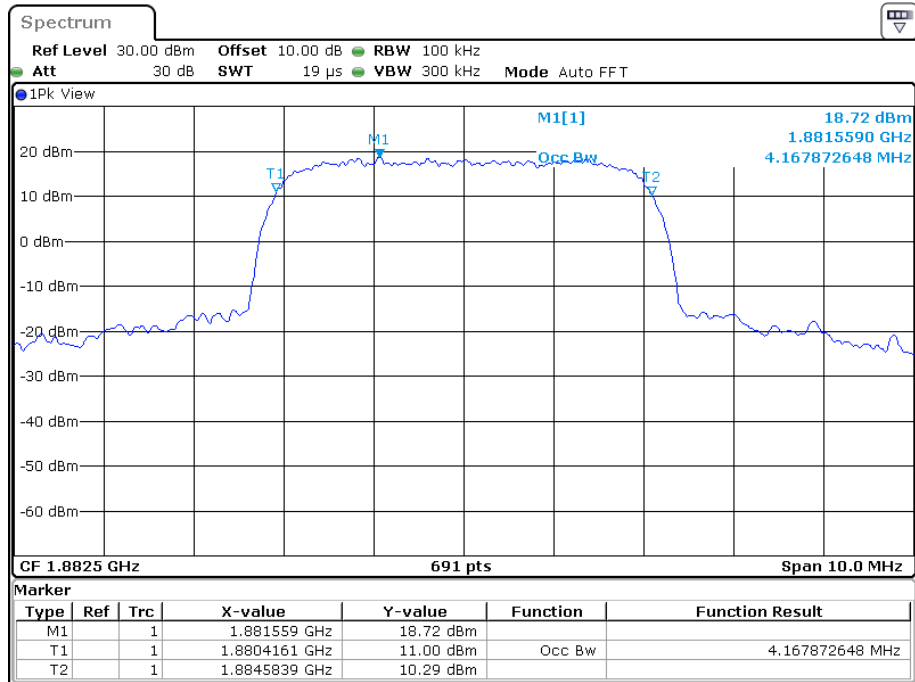
Date: 19.DEC.2022 18:06:54

99% Bandwidth-DL- GSM- Pre AGC -Input

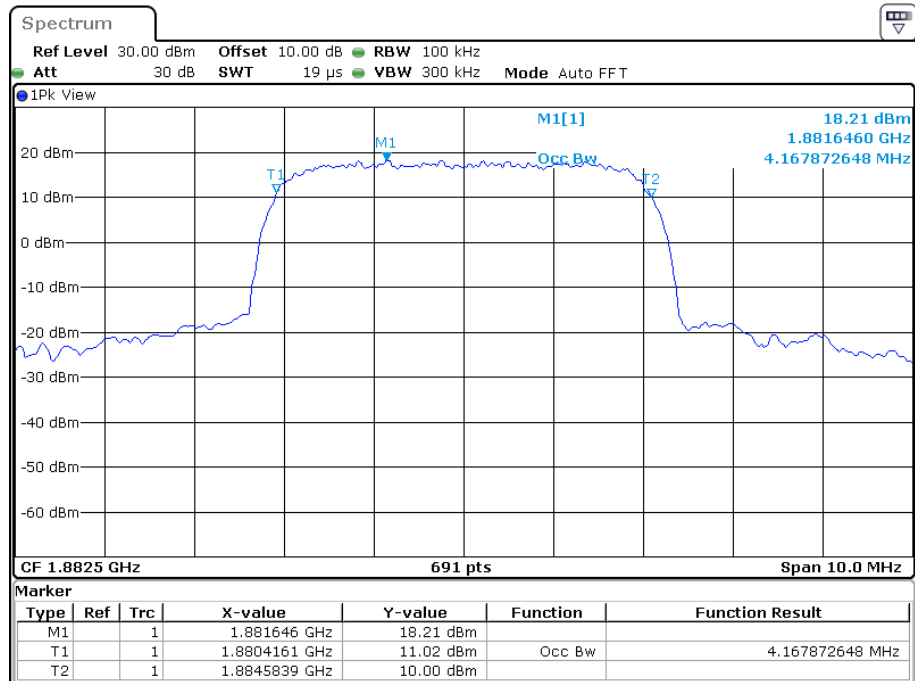
Date: 19.DEC.2022 17:46:01

99% Bandwidth-DL- GSM- 3dB Above AGC -Input

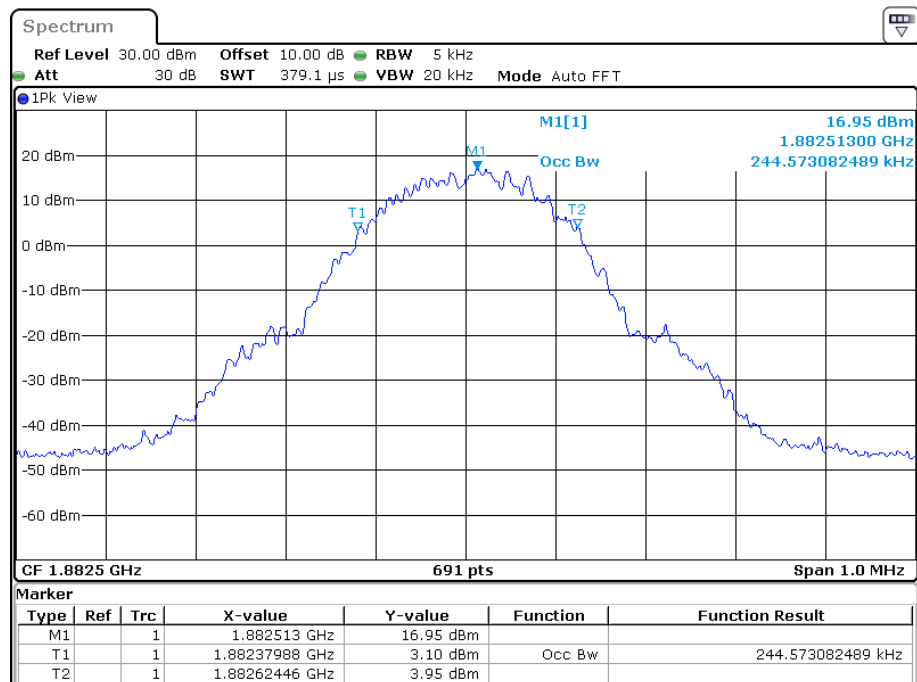
Date: 19.DEC.2022 17:52:58

99% Bandwidth-UL- AWGN- Pre AGC -Output

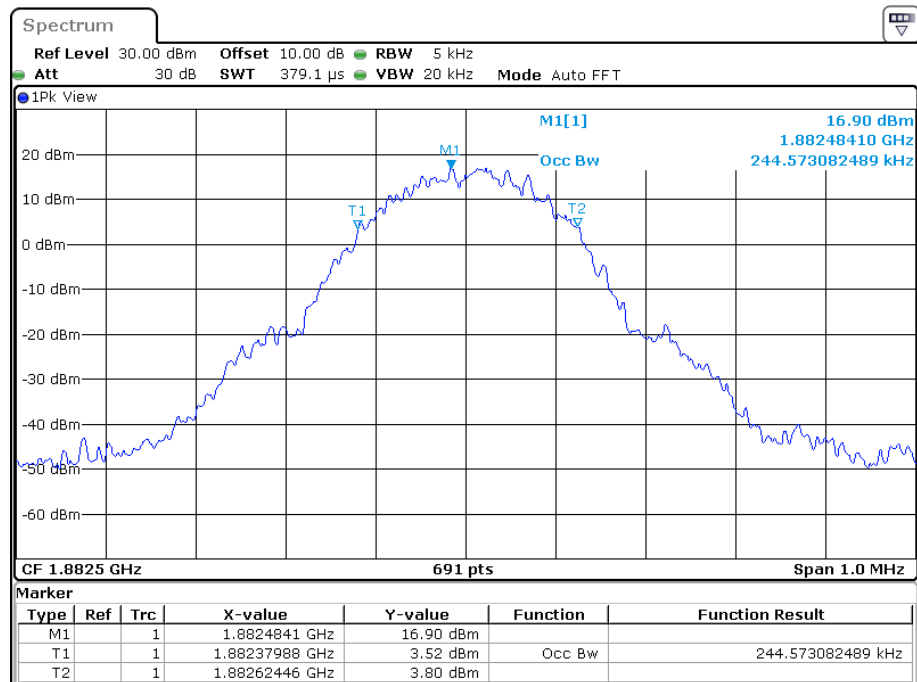
Date: 19.DEC.2022 17:13:00

99% Bandwidth-UL- AWGN-3dB above AGC-Output

Date: 19.DEC.2022 17:17:50

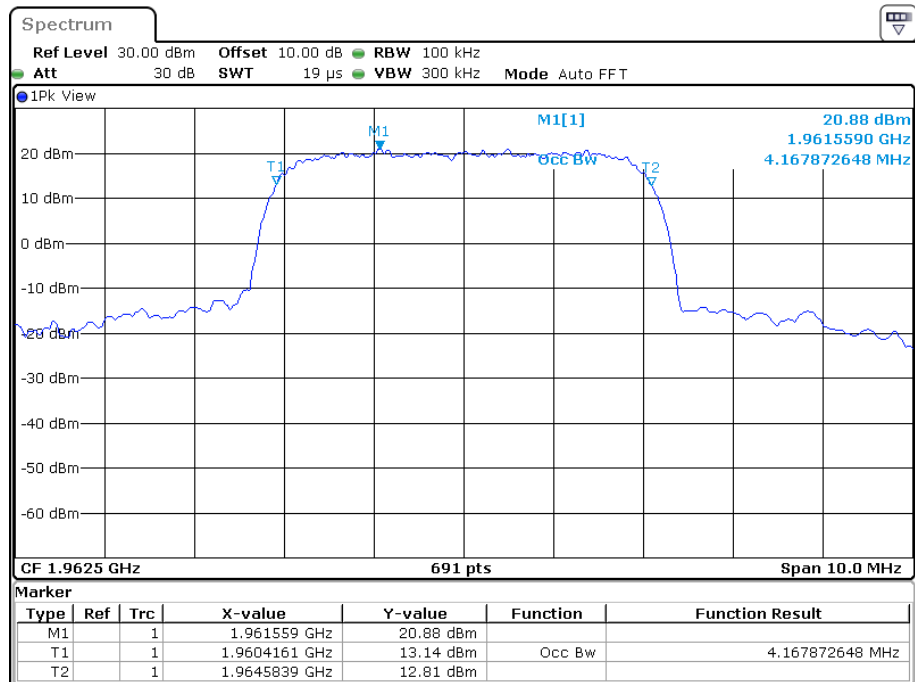
99% Bandwidth-UL- GSM- Pre AGC -Output

Date: 19.DEC.2022 16:37:17

99% Bandwidth-UL- GSM-3dB above AGC-Output

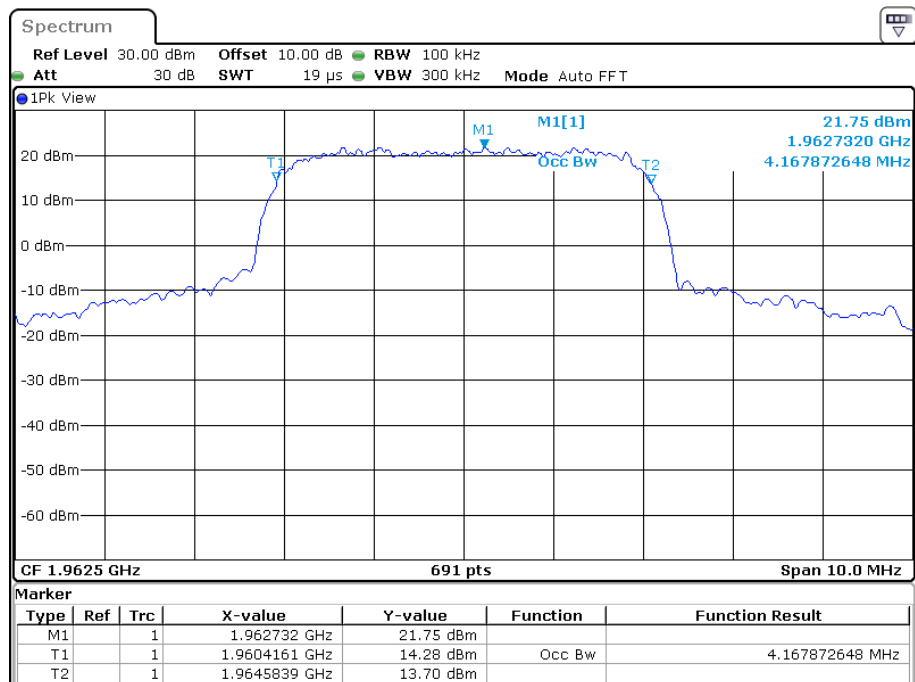
Date: 19.DEC.2022 16:41:03

99% Bandwidth-DL- AWGN- Pre AGC -Output

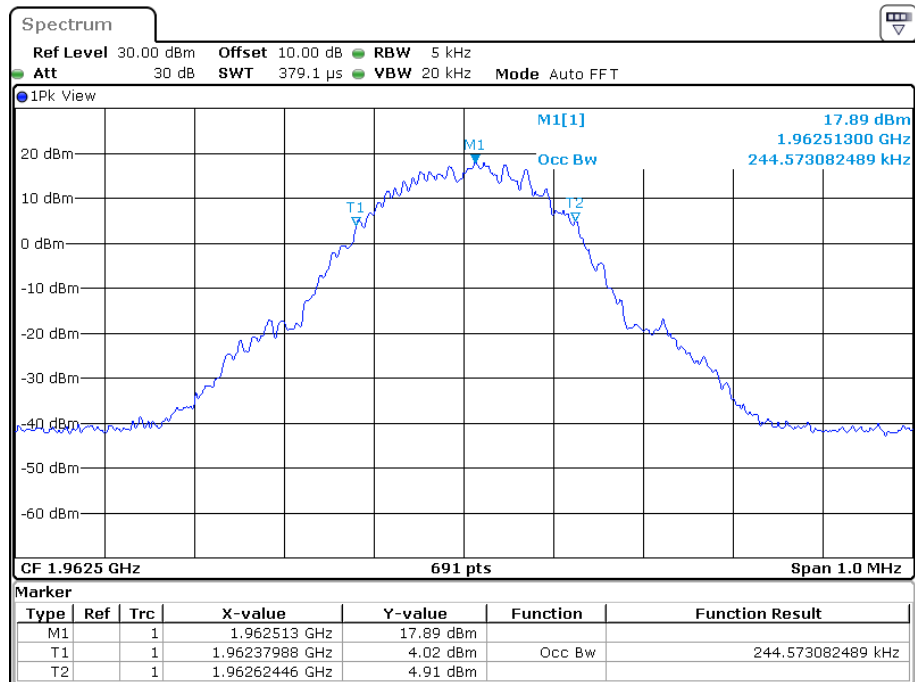


Date: 19.DEC.2022 17:34:19

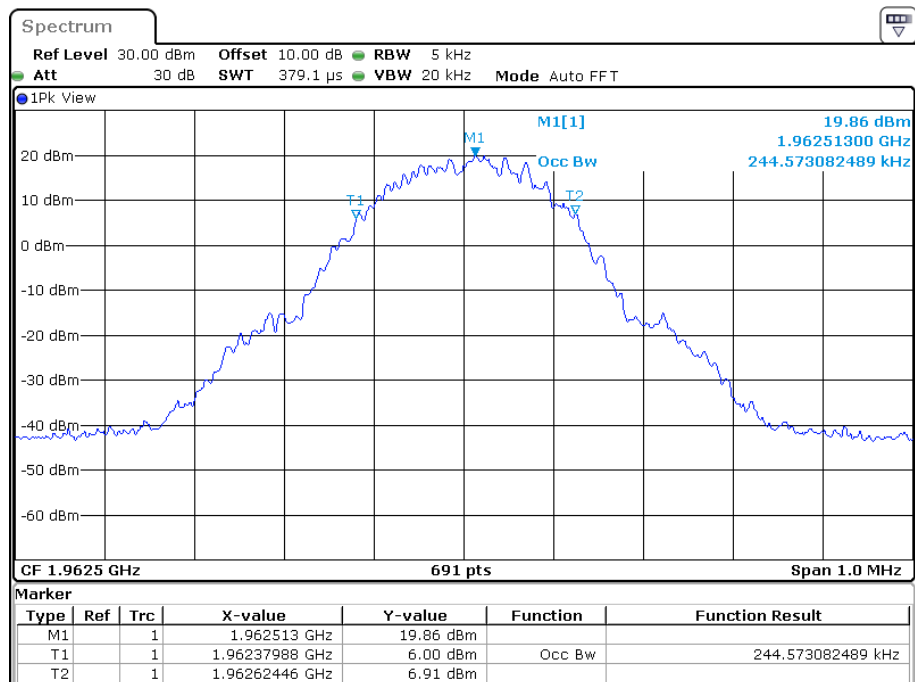
99% Bandwidth-DL- AWGN- 3dB Above AGC -Output



Date: 19.DEC.2022 17:39:39

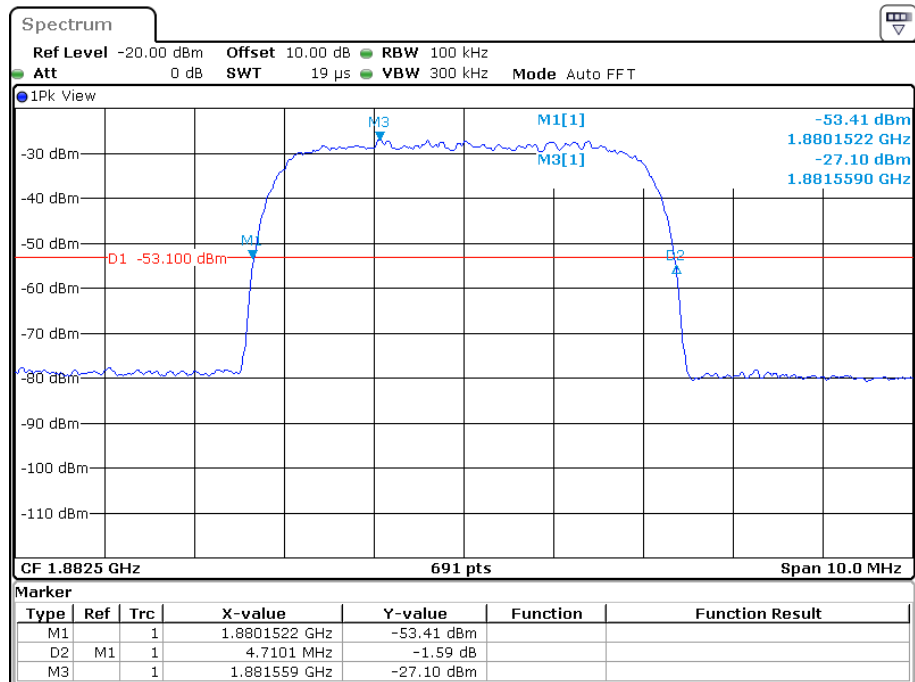
99% Bandwidth-DL- GSM- Pre AGC -Output

Date: 19.DEC.2022 17:26:17

99% Bandwidth-DL- GSM- 3dB Above AGC -Output

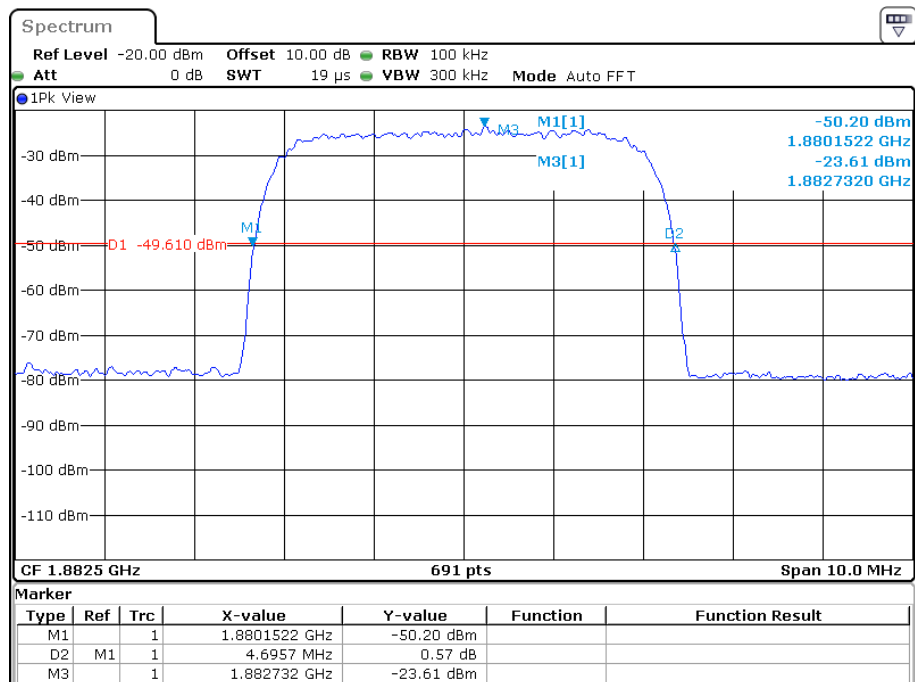
Date: 19.DEC.2022 17:29:36

26 dB Bandwidth-UL-AWGN-Pre AGC-Input



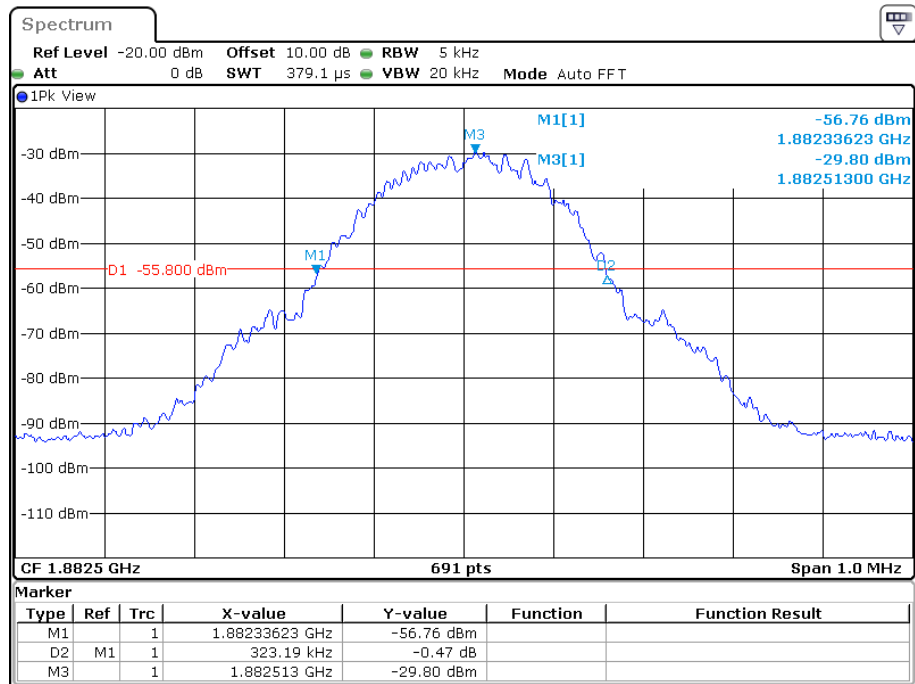
Date: 19.DEC.2022 18:03:40

26 dB Bandwidth-UL- AWGN-3dB above AGC-Input



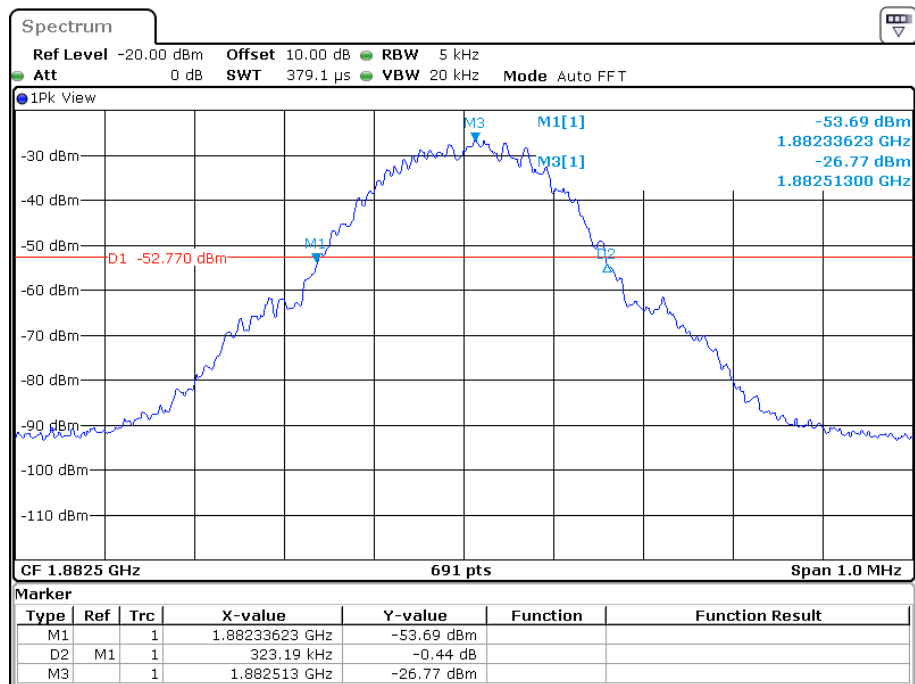
Date: 19.DEC.2022 18:10:49

26 dB Bandwidth-UL-GSM-Pre AGC-Input



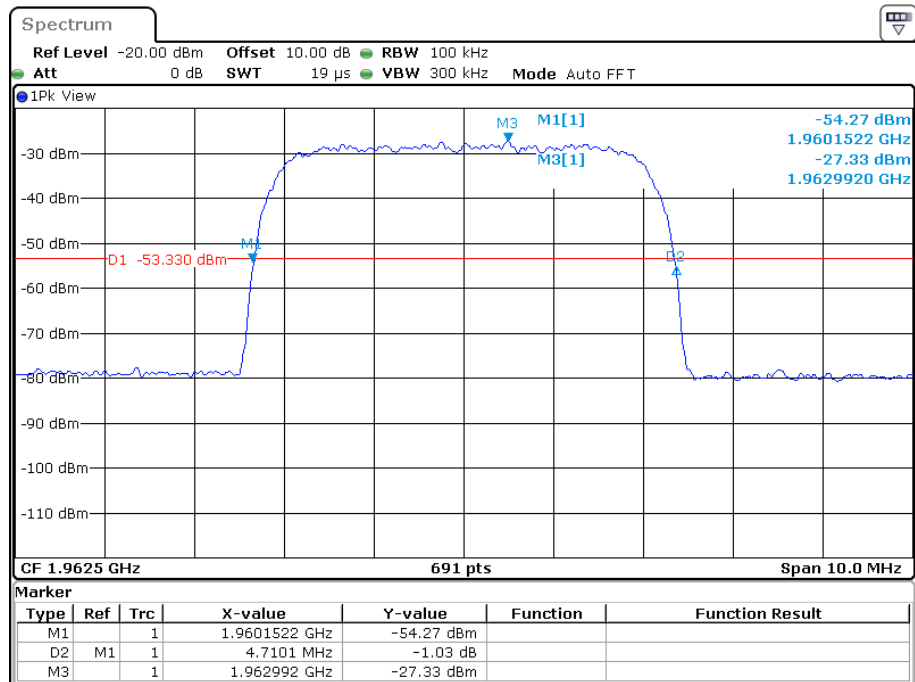
Date: 19.DEC.2022 17:49:44

26 dB Bandwidth-UL- GSM-3dB above AGC-Input



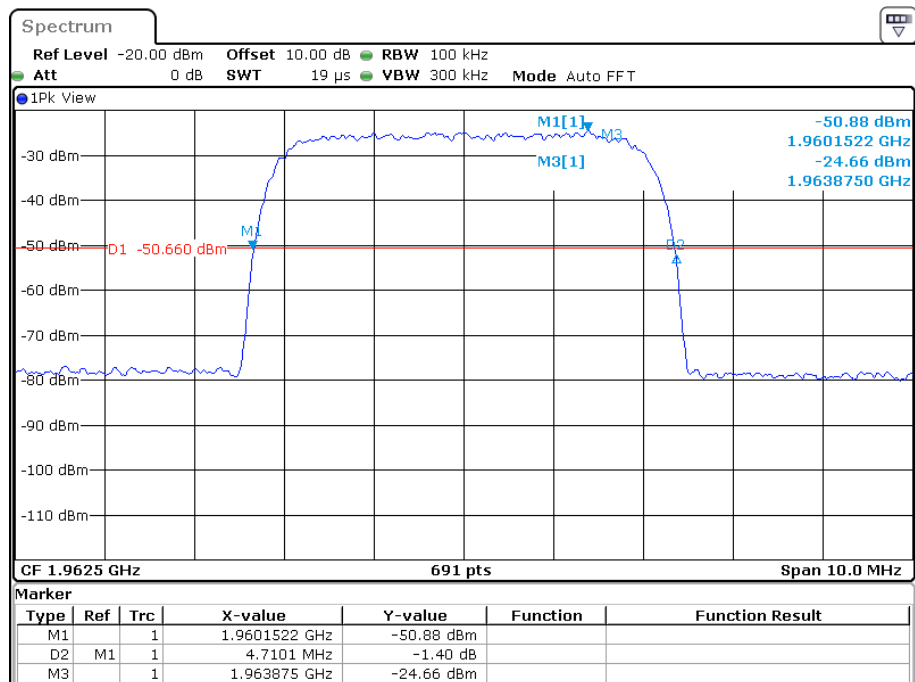
Date: 19.DEC.2022 17:56:51

26 dB Bandwidth-DL- AWGN- Pre AGC -Input



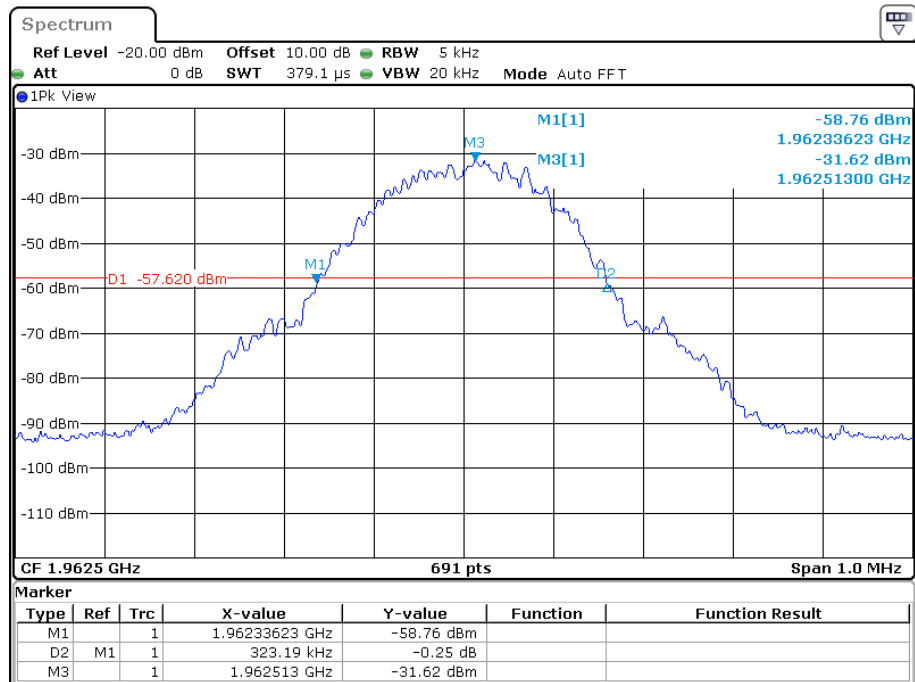
Date: 19.DEC.2022 18:00:12

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Input



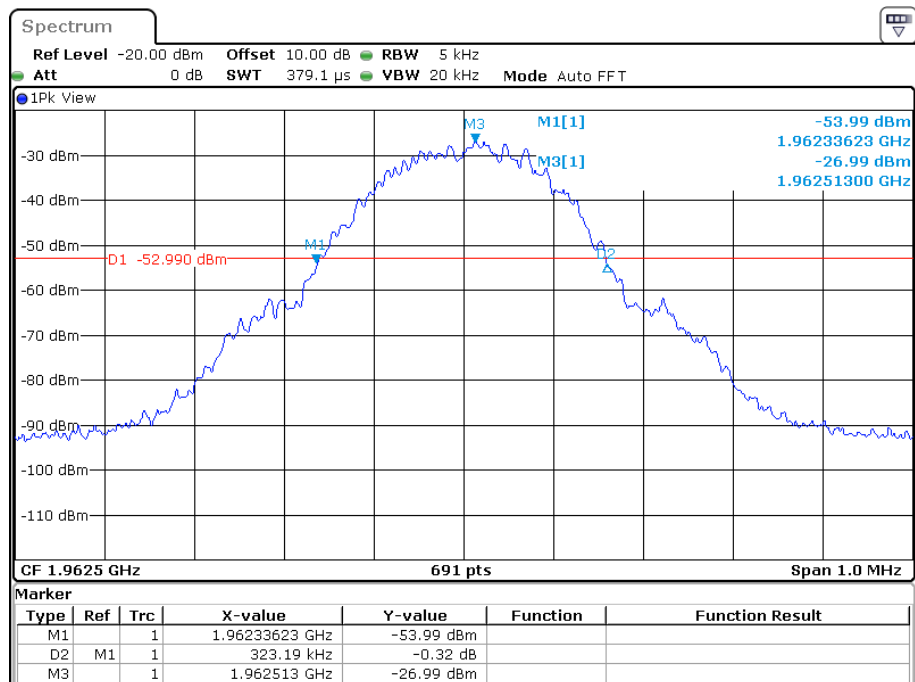
Date: 19.DEC.2022 18:07:10

26 dB Bandwidth-DL- GSM- Pre AGC -Input



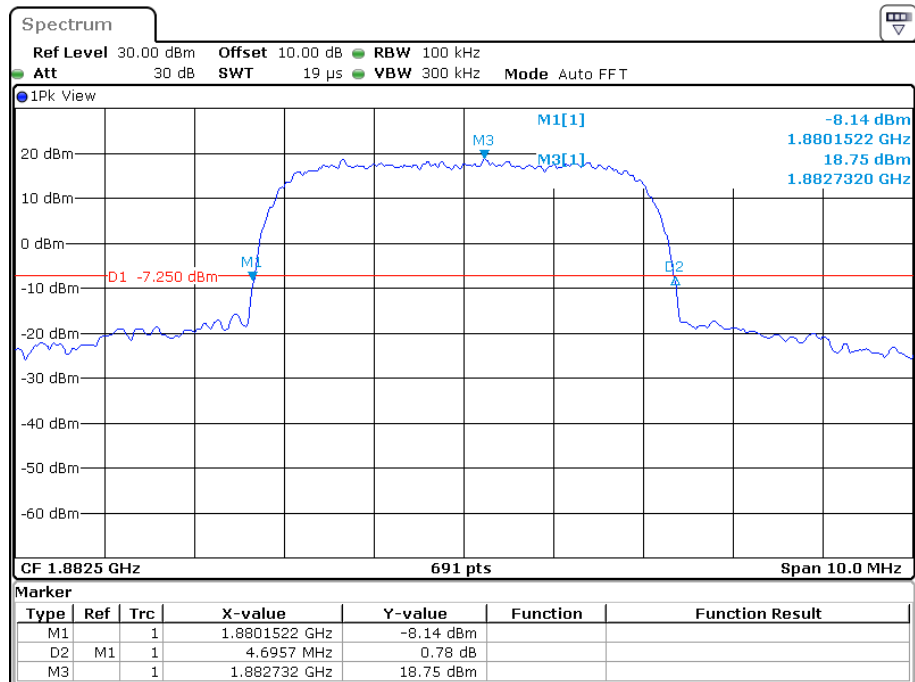
Date: 19.DEC.2022 17:46:16

26 dB Bandwidth-DL- GSM- 3dB Above AGC -Input



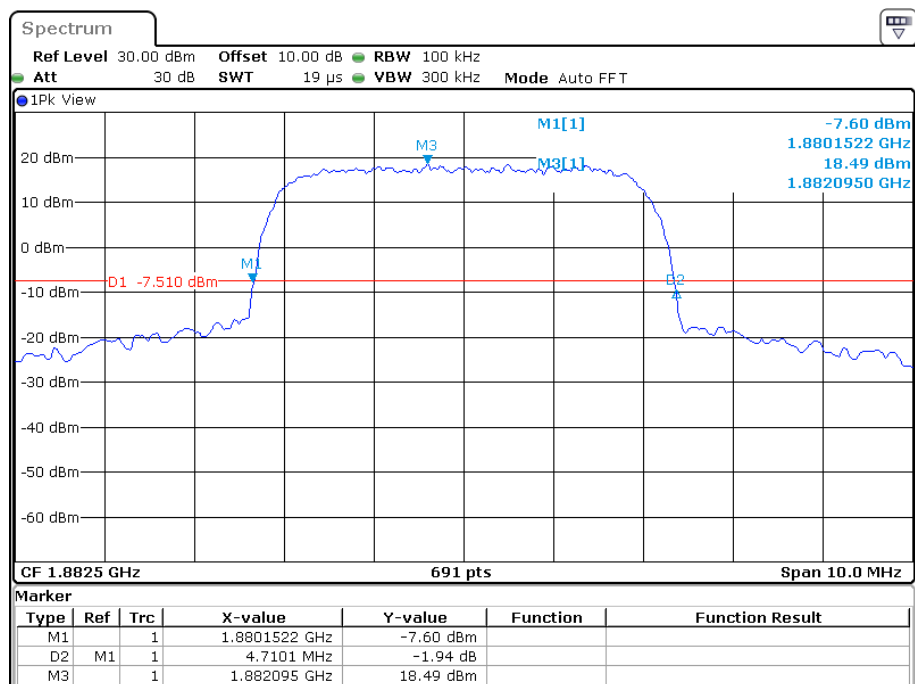
Date: 19.DEC.2022 17:53:13

26 dB Bandwidth-UL- AWGN- Pre AGC -Output



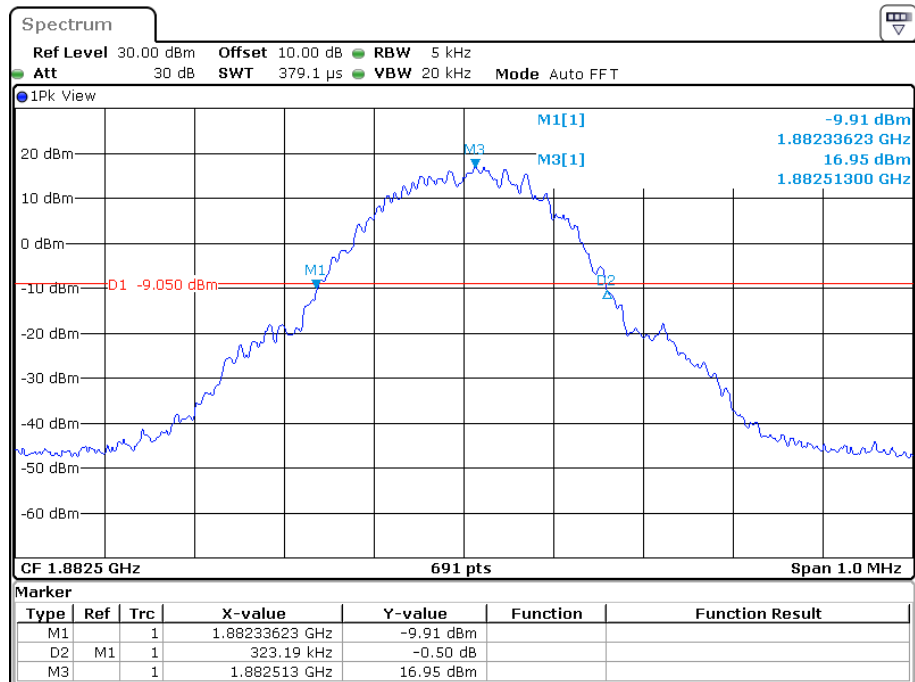
Date: 19.DEC.2022 17:13:26

26 dB Bandwidth-UL- AWGN-3dB above AGC-Output



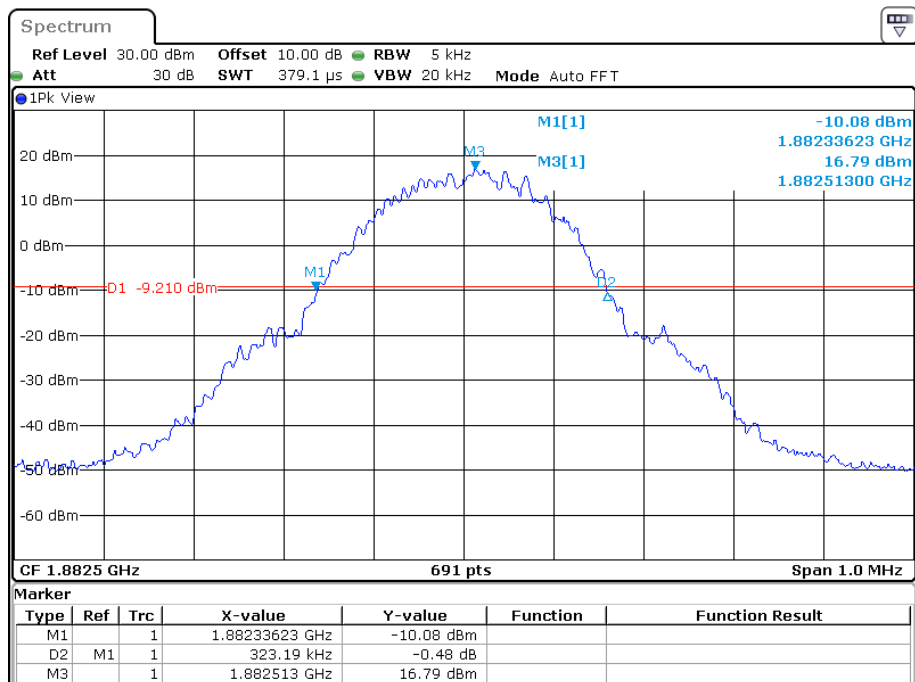
Date: 19.DEC.2022 17:18:21

26 dB Bandwidth-UL- GSM- Pre AGC -Output



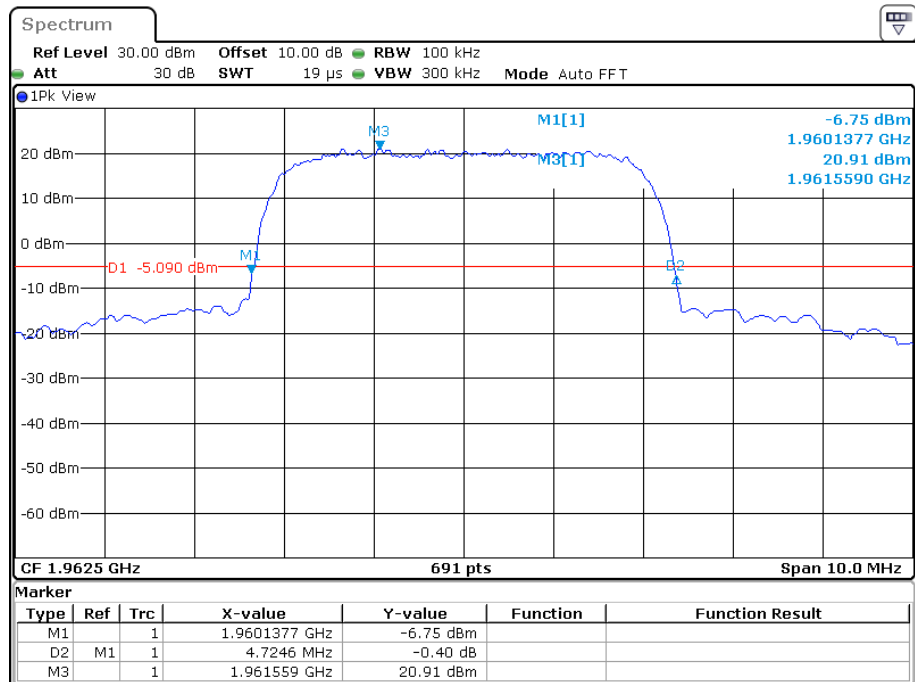
Date: 19.DEC.2022 16:37:32

26 dB Bandwidth-UL- GSM-3dB above AGC-Output



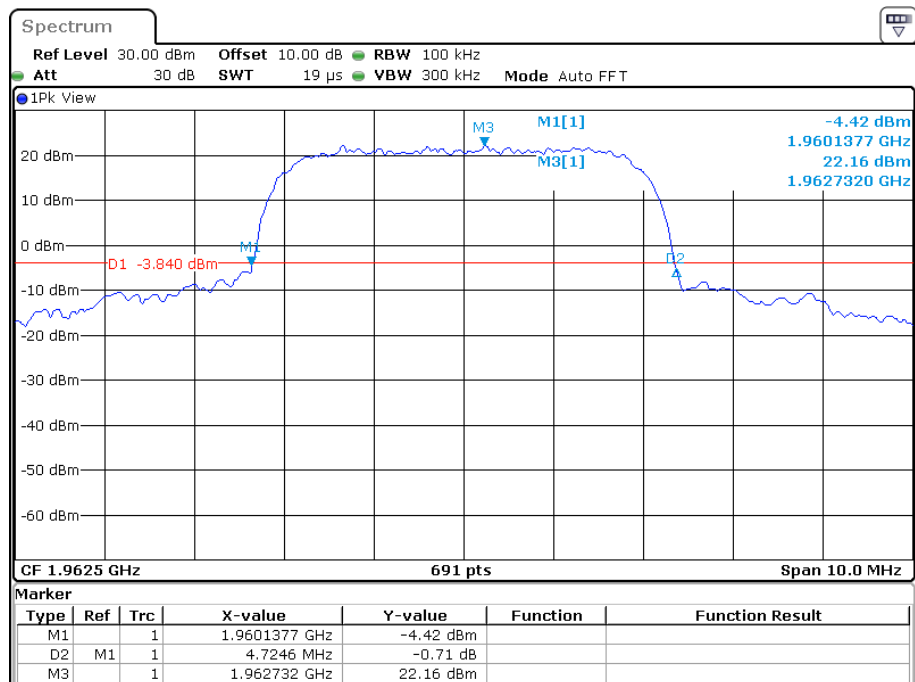
Date: 19.DEC.2022 16:41:18

26 dB Bandwidth-DL- AWGN- Pre AGC -Output



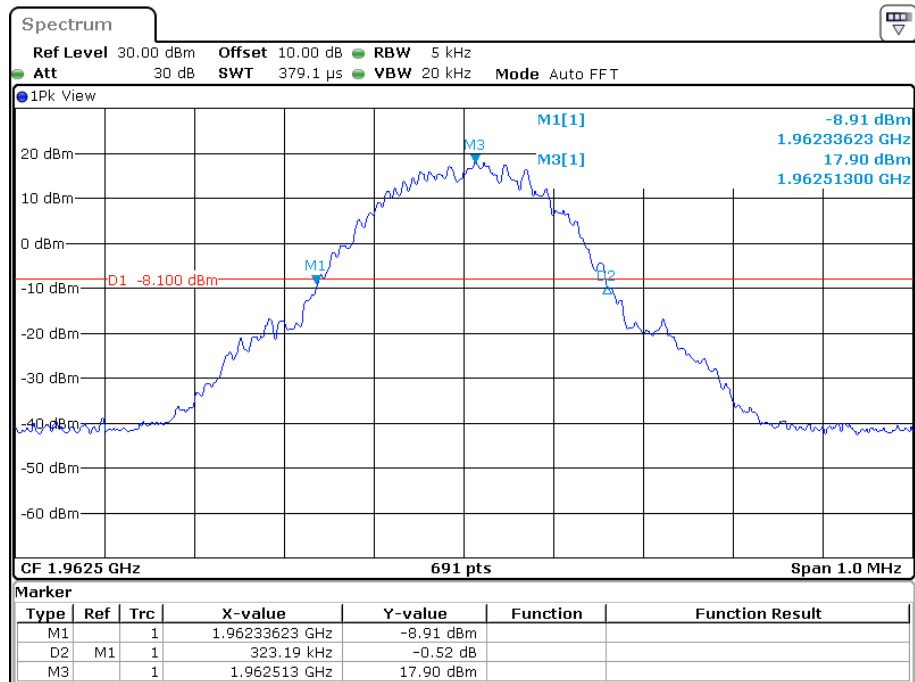
Date: 19.DEC.2022 17:34:45

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Output



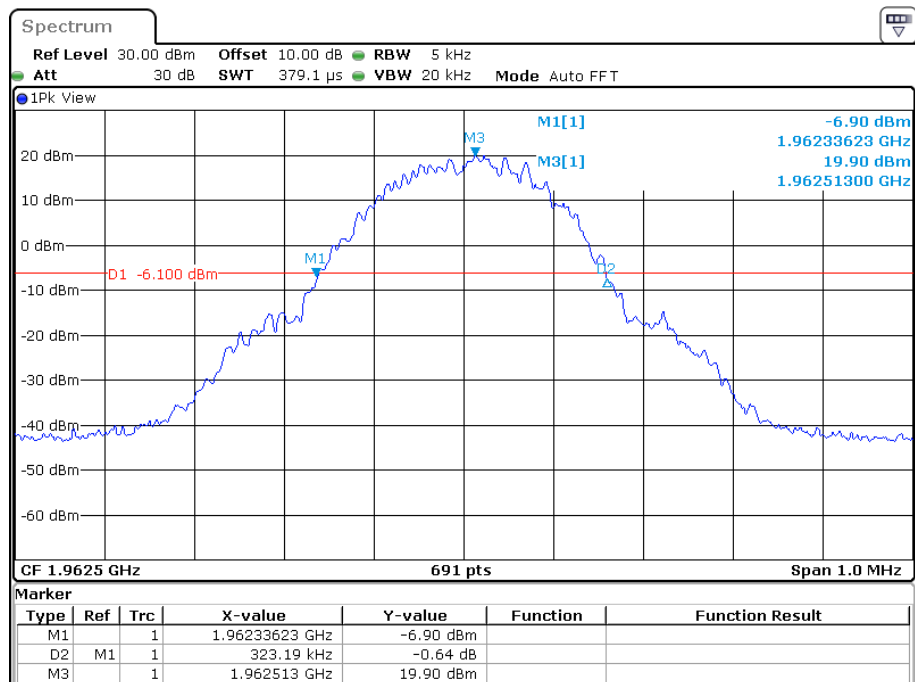
Date: 19.DEC.2022 17:40:04

26 dB Bandwidth-DL- GSM- Pre AGC -Output



Date: 19.DEC.2022 17:26:32

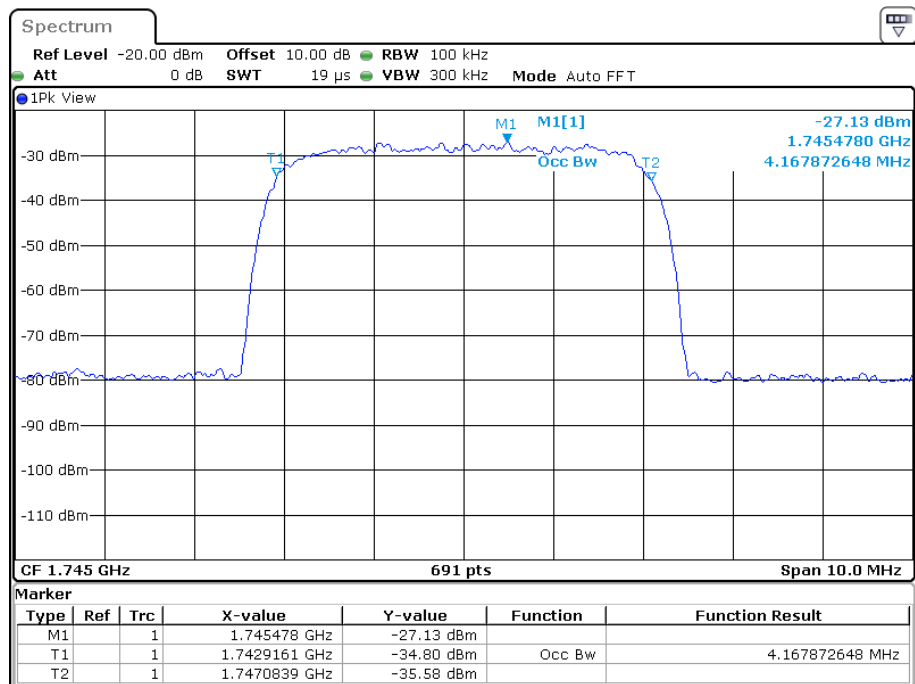
26 dB Bandwidth-DL- GSM- 3dB Above AGC -Output



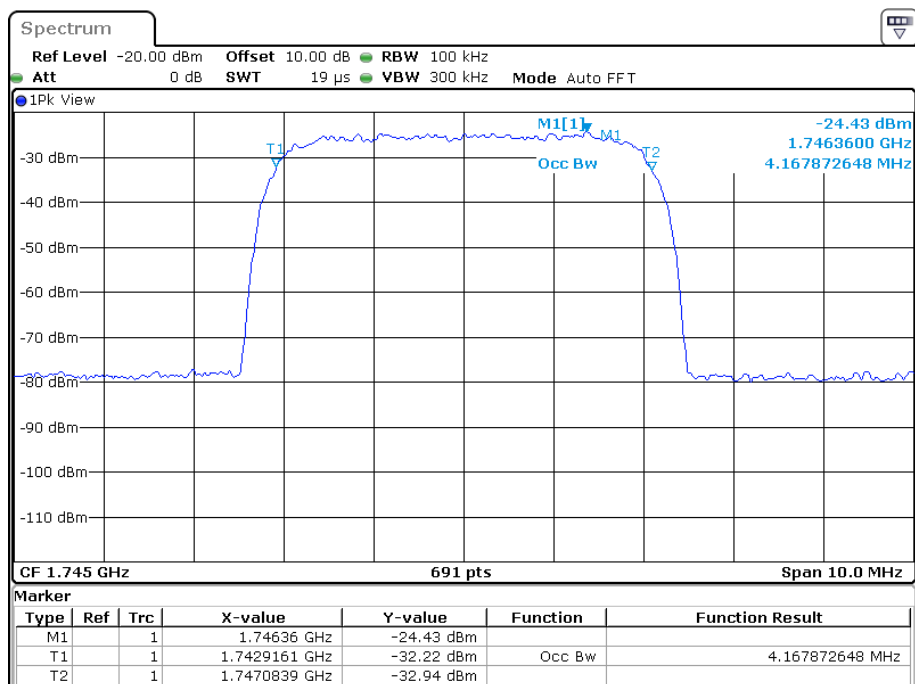
Date: 19.DEC.2022 17:29:51

AWS Band

Mode	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	1745	4.168	4.168	4.696	4.710
		3dB above AGC	1745	4.168	4.168	4.696	4.710
	GSM	Pre-AGC	1745	0.245	0.245	0.322	0.323
		3dB above AGC	1745	0.245	0.245	0.323	0.323
Downlink	AWGN	Pre-AGC	2145	4.168	4.182	4.696	4.710
		3dB above AGC	2145	4.168	4.182	4.710	4.710
	GSM	Pre-AGC	2145	0.245	0.245	0.323	0.323
		3dB above AGC	2145	0.245	0.246	0.323	0.323

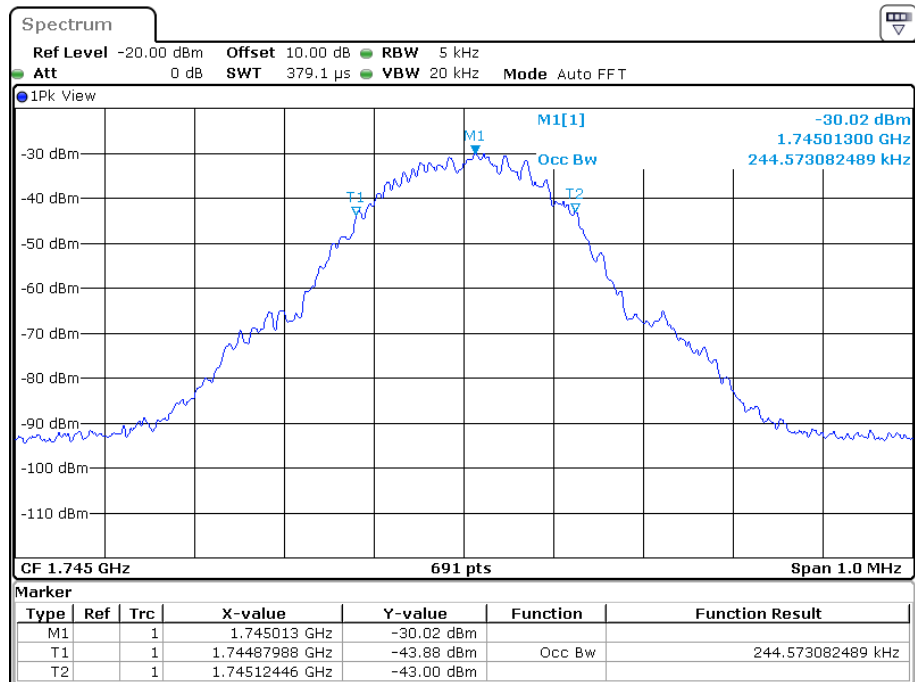
99% Bandwidth-UL-AWGN-Pre AGC-Input

Date: 19.DEC.2022 18:03:59

99% Bandwidth-UL- AWGN-3dB above AGC-Input

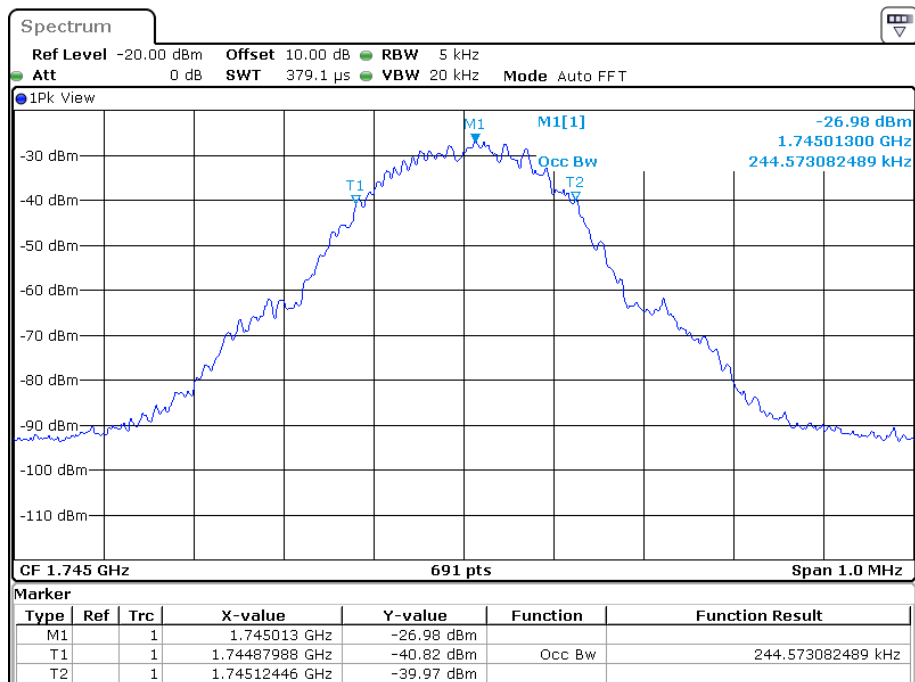
Date: 19.DEC.2022 18:11:07

99% Bandwidth-UL-GSM-Pre AGC-Input

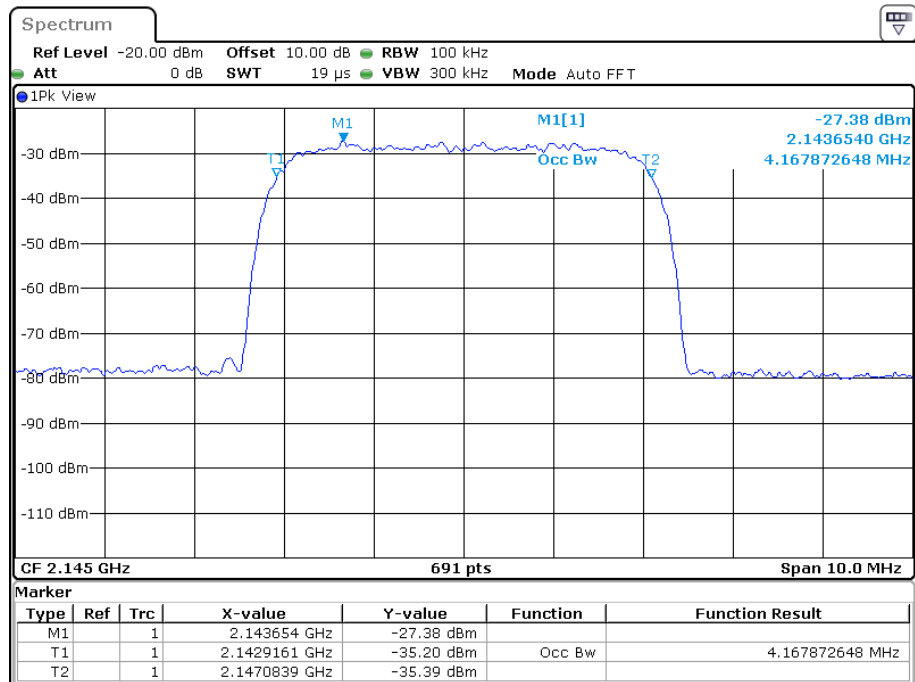


Date: 19.DEC.2022 17:50:02

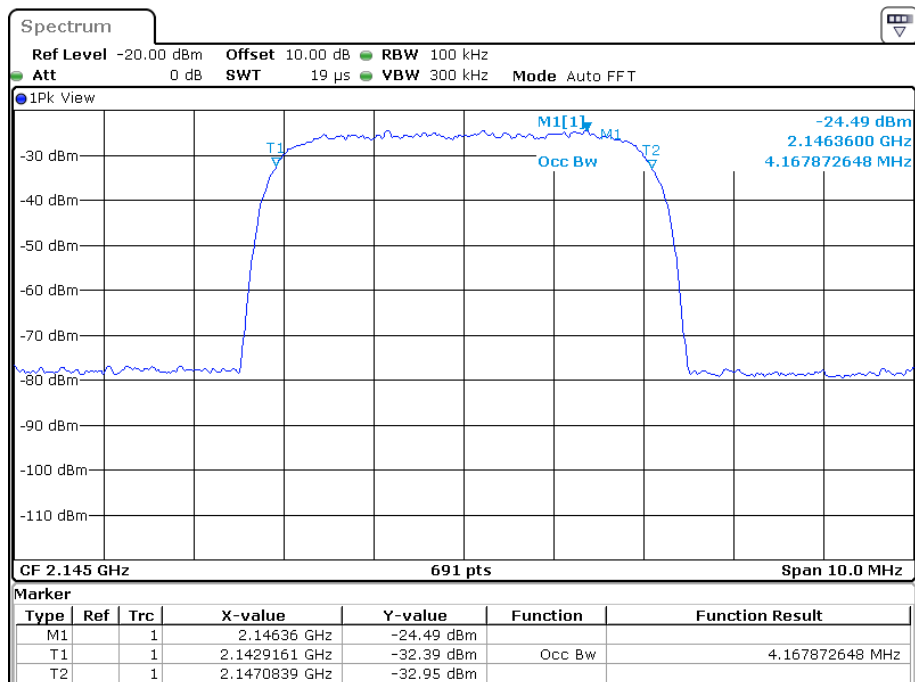
99% Bandwidth-UL- GSM-3dB above AGC-Input



Date: 19.DEC.2022 17:57:09

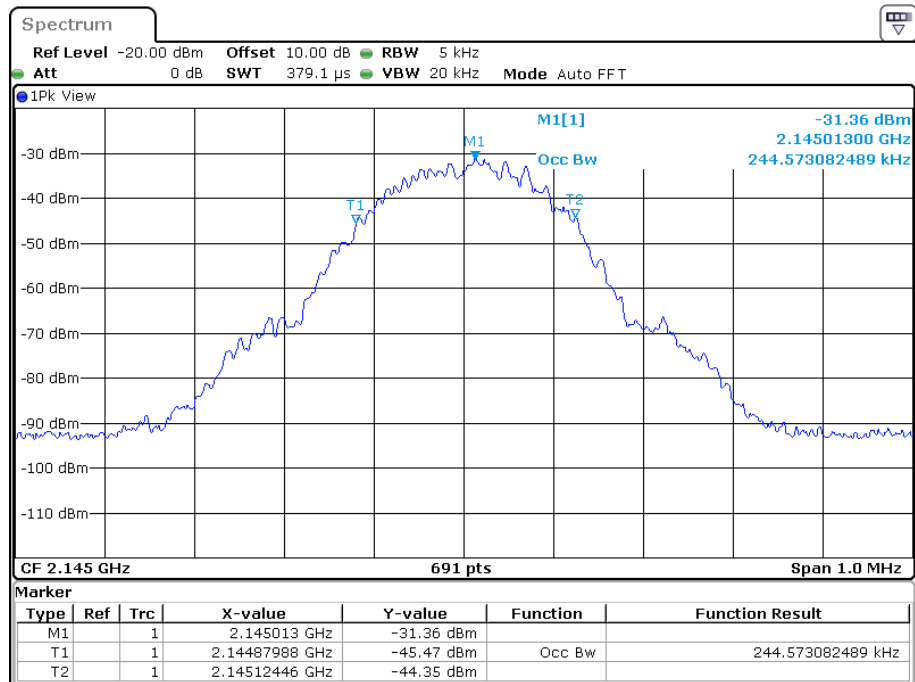
99% Bandwidth-DL- AWGN- Pre AGC -Input

Date: 19.DEC.2022 18:00:30

99% Bandwidth-DL- AWGN- 3dB Above AGC -Input

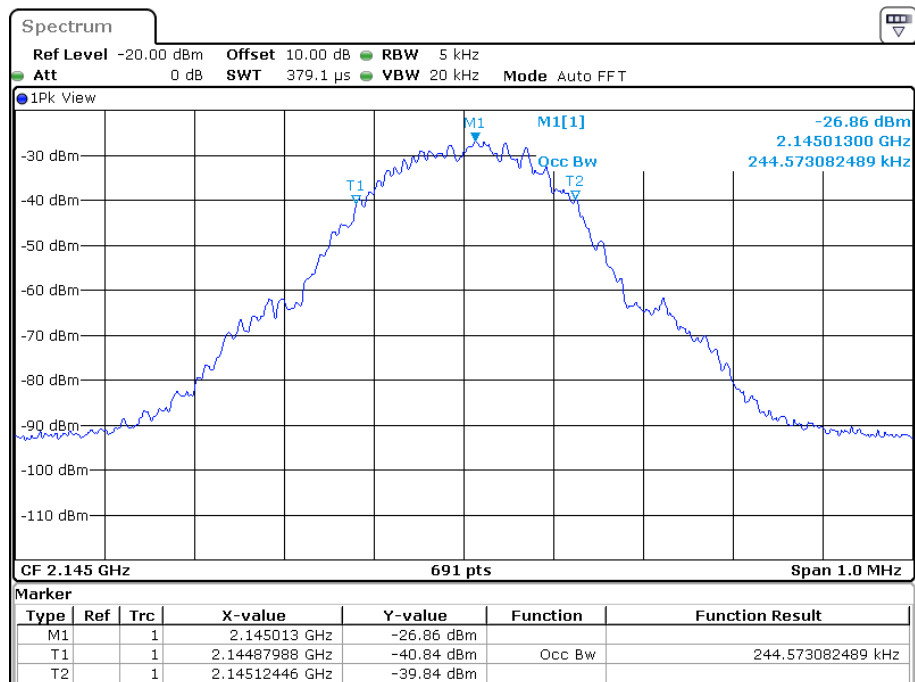
Date: 19.DEC.2022 18:07:28

99% Bandwidth-DL- GSM- Pre AGC -Input



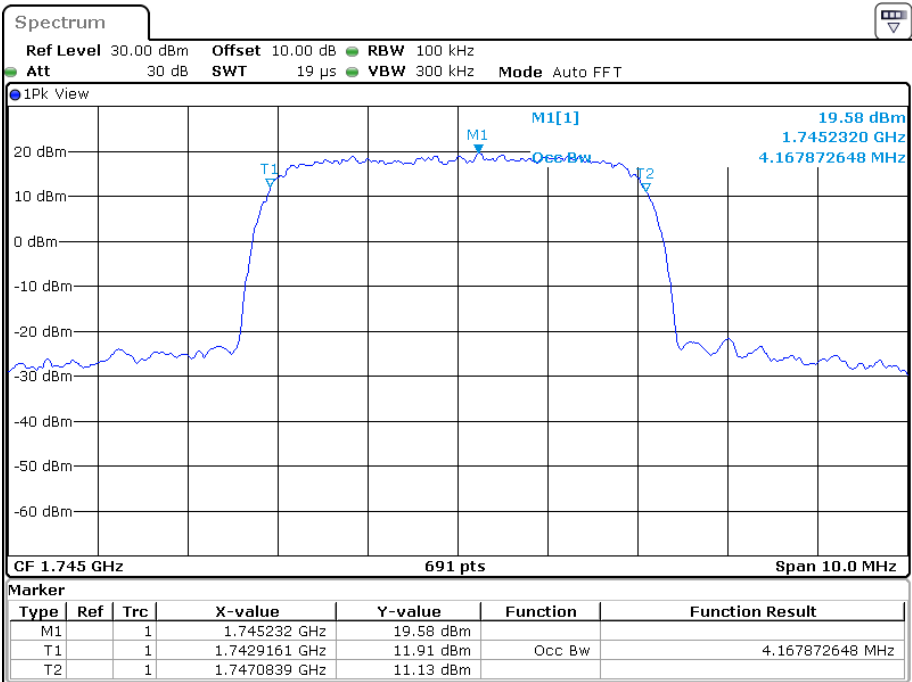
Date: 19.DEC.2022 17:46:34

99% Bandwidth-DL- GSM- 3dB Above AGC -Input



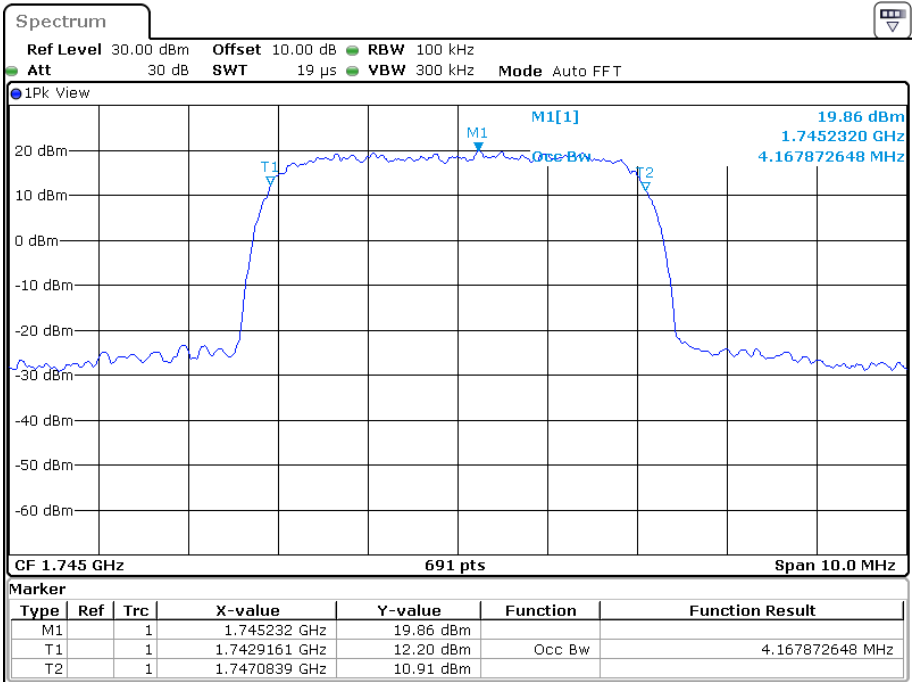
Date: 19.DEC.2022 17:53:32

99% Bandwidth-UL- AWGN- Pre AGC -Output

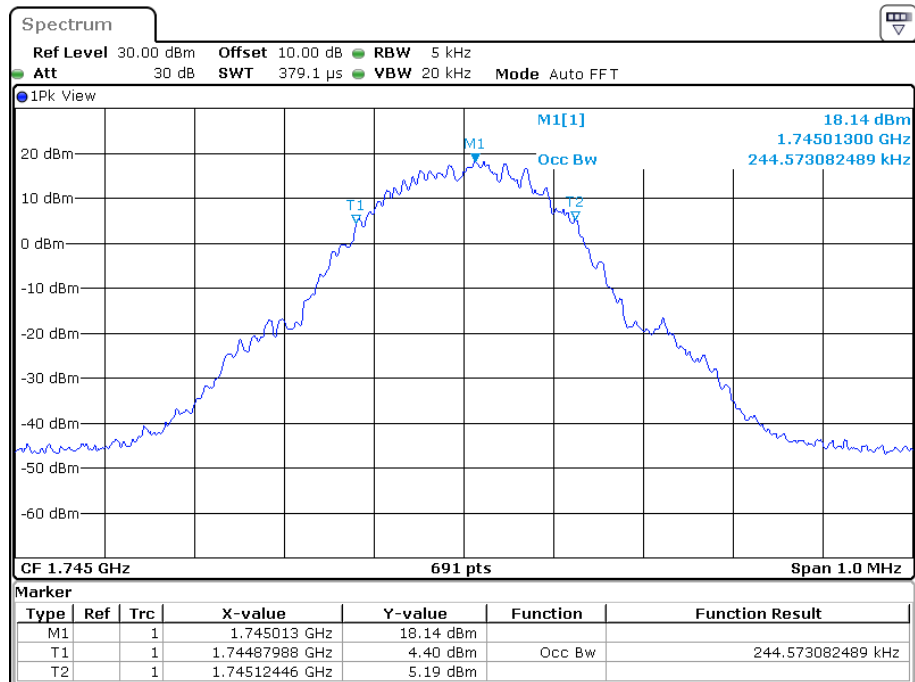
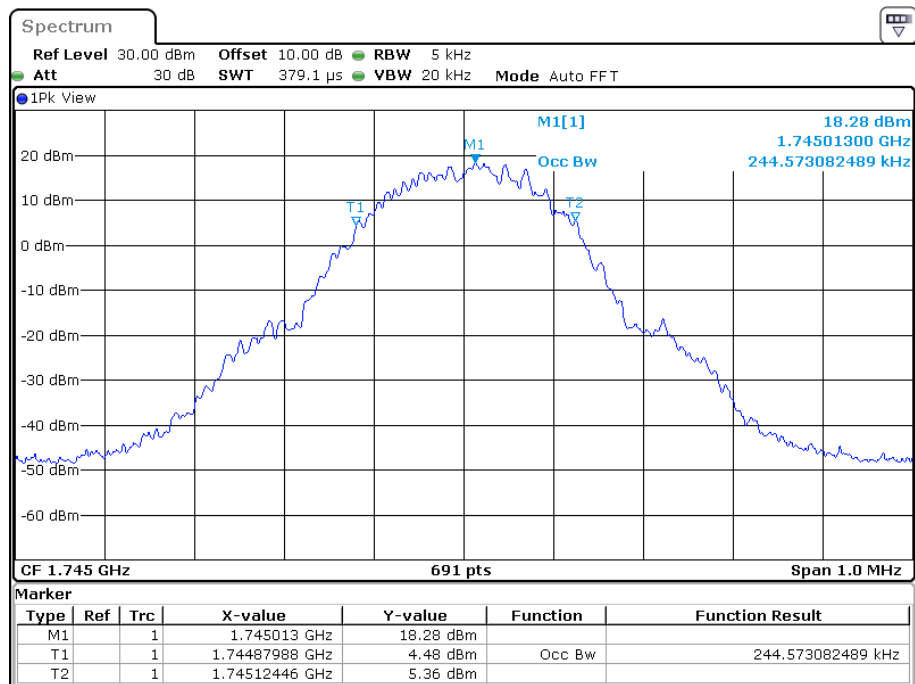


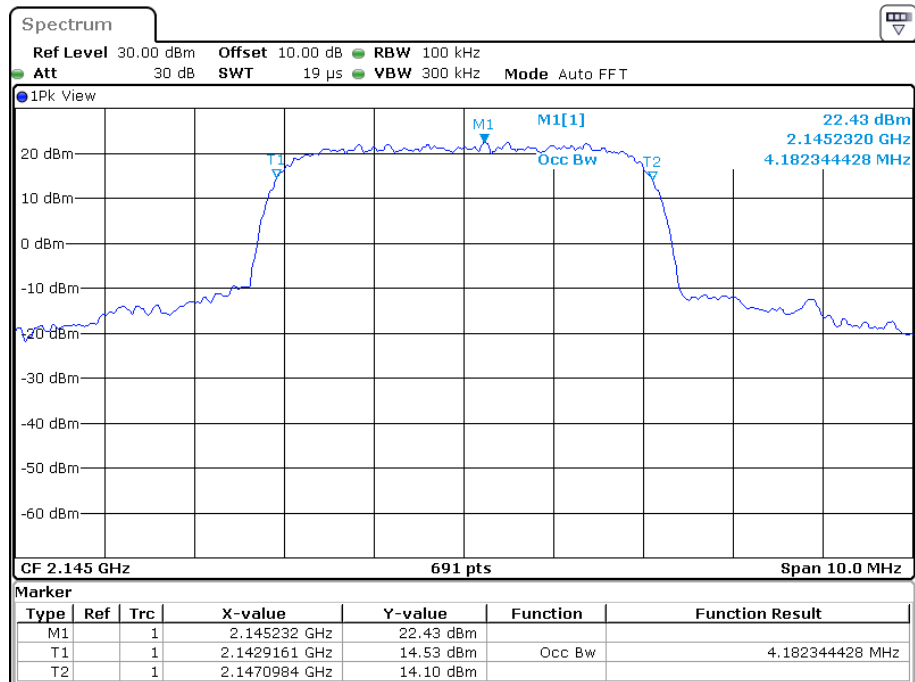
Date: 19.DEC.2022 17:13:54

99% Bandwidth-UL- AWGN-3dB above AGC-Output

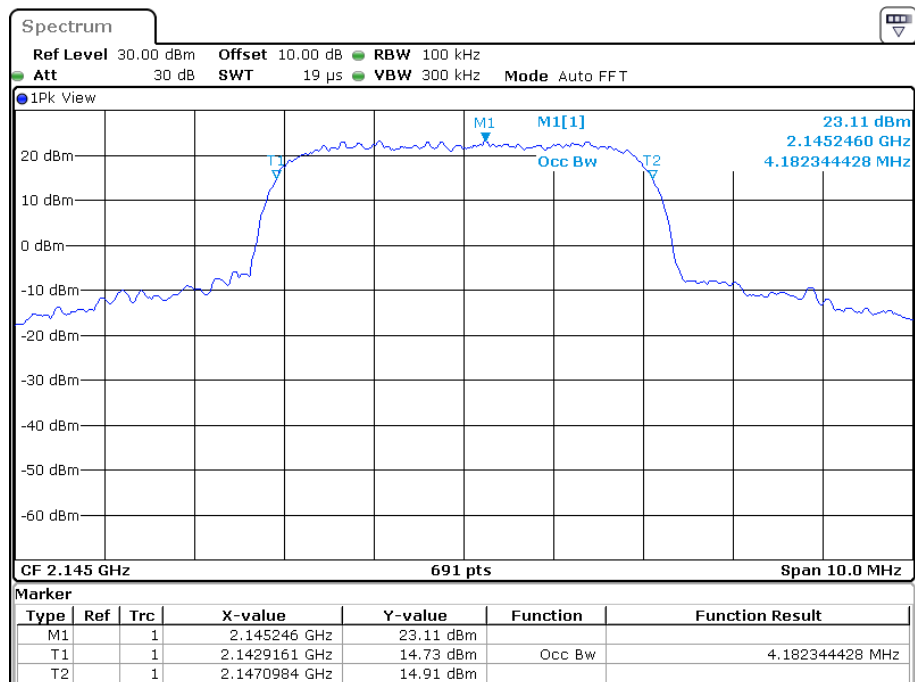


Date: 19.DEC.2022 17:18:53

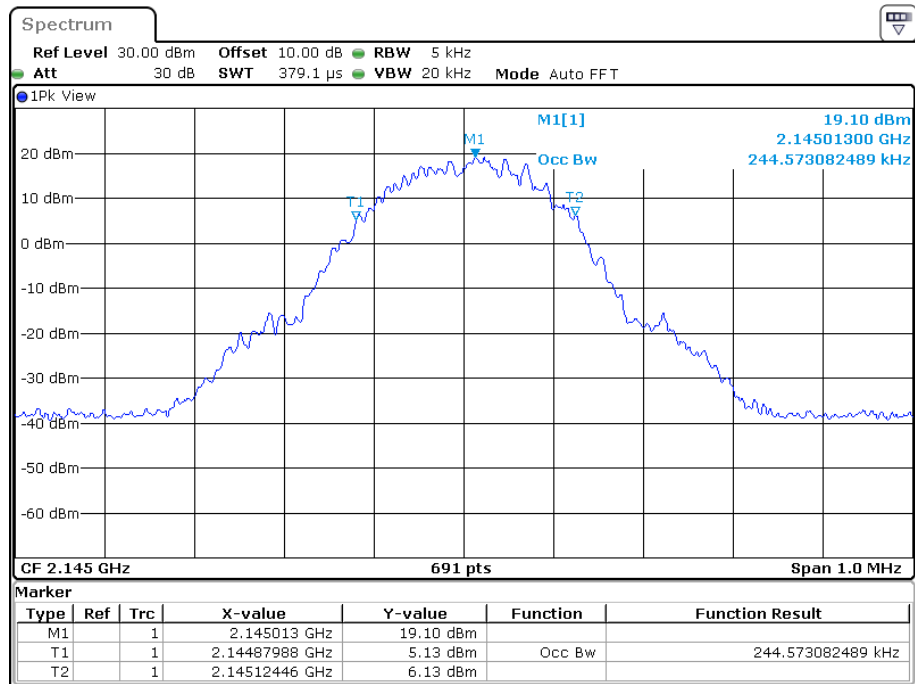
99% Bandwidth-UL- GSM- Pre AGC -Output**99% Bandwidth-UL- GSM-3dB above AGC-Output**

99% Bandwidth-DL- AWGN- Pre AGC -Output

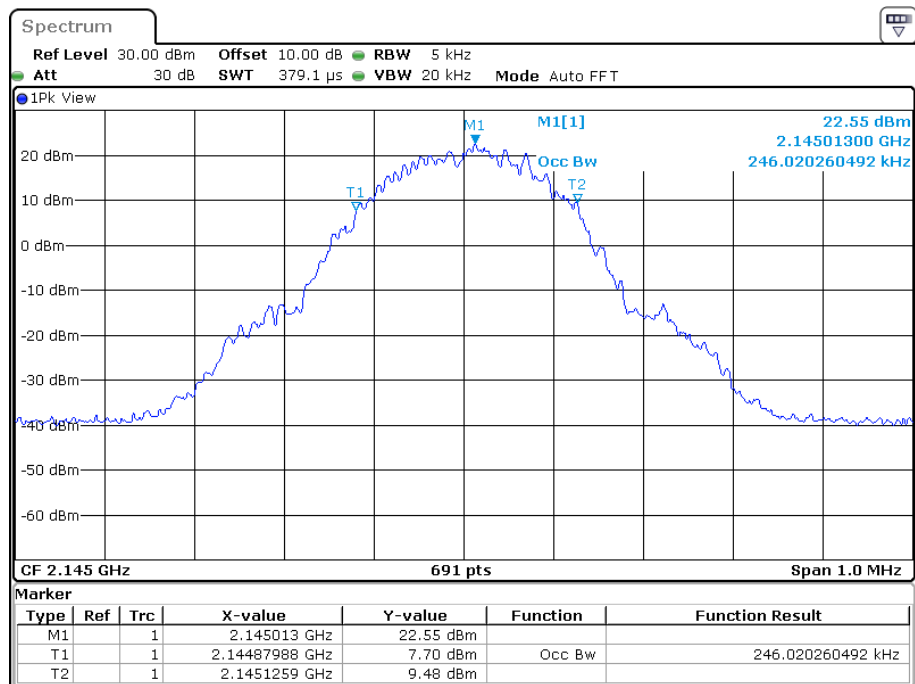
Date: 19.DEC.2022 17:35:14

99% Bandwidth-DL- AWGN- 3dB Above AGC -Output

Date: 19.DEC.2022 17:40:31

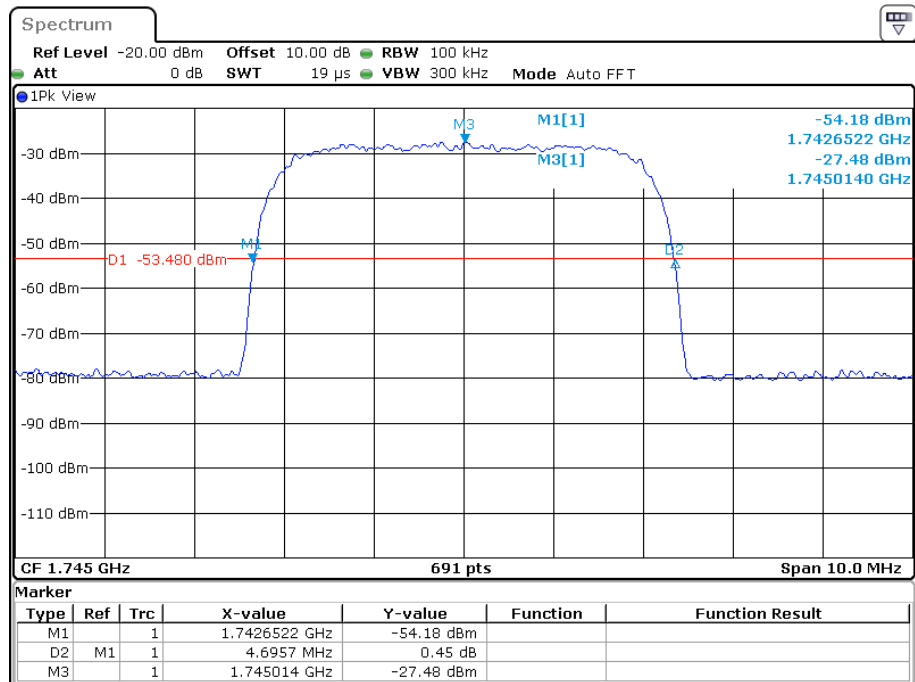
99% Bandwidth-DL- GSM- Pre AGC -Output

Date: 19.DEC.2022 17:26:50

99% Bandwidth-DL- GSM- 3dB Above AGC -Output

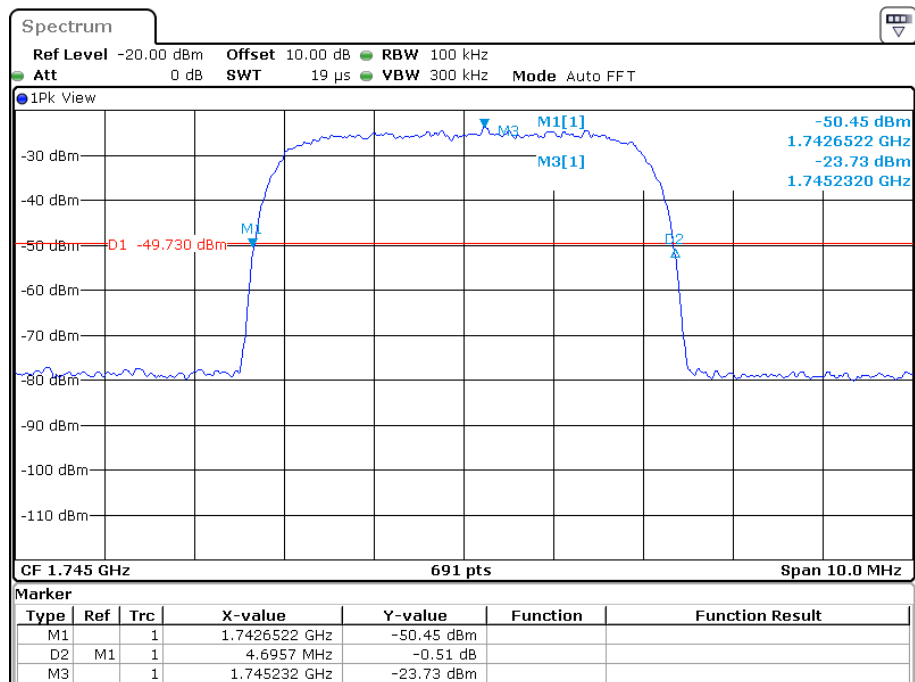
Date: 19.DEC.2022 17:30:09

26 dB Bandwidth-UL-AWGN-Pre AGC-Input



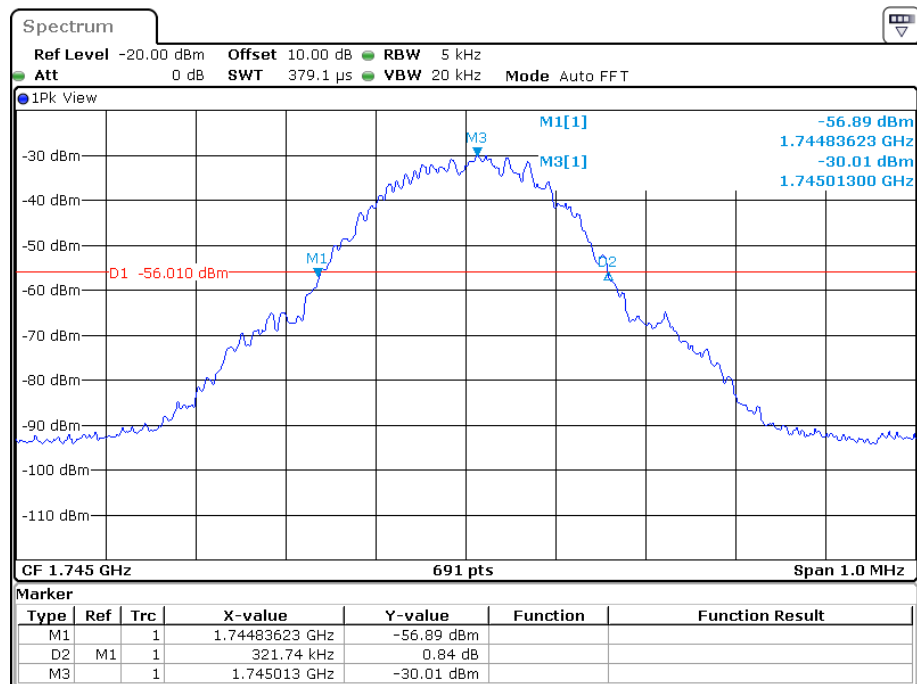
Date: 19.DEC.2022 18:04:14

26 dB Bandwidth-UL- AWGN-3dB above AGC-Input



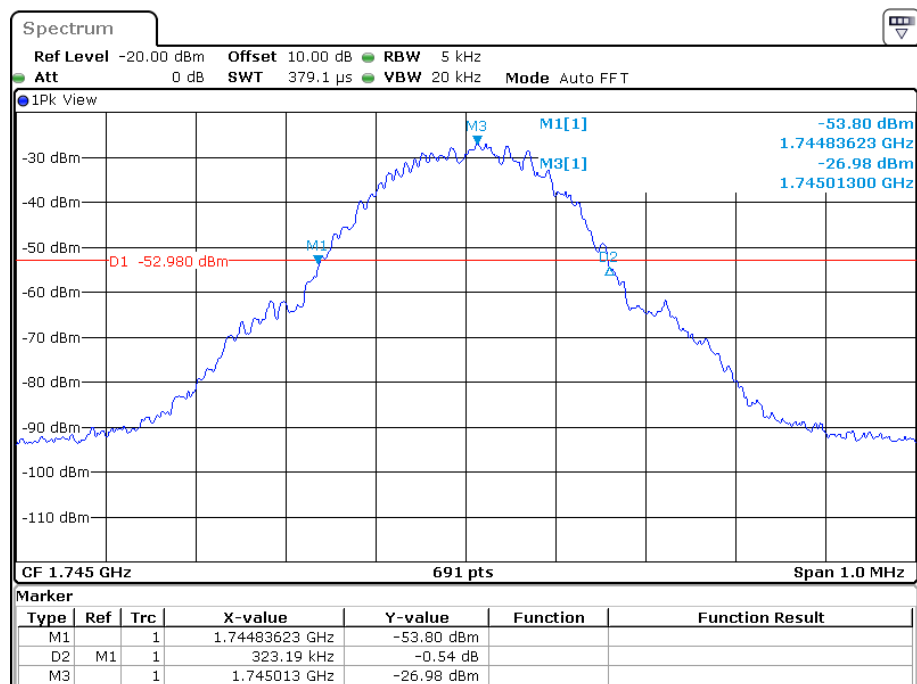
Date: 19.DEC.2022 18:11:22

26 dB Bandwidth-UL-GSM-Pre AGC-Input



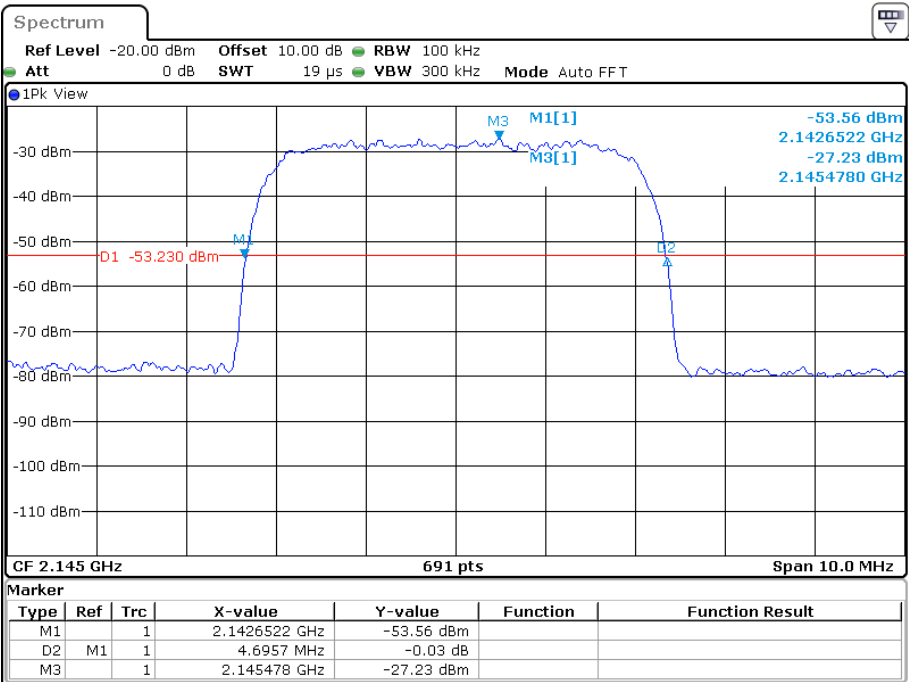
Date: 19.DEC.2022 17:50:17

26 dB Bandwidth-UL- GSM-3dB above AGC-Input



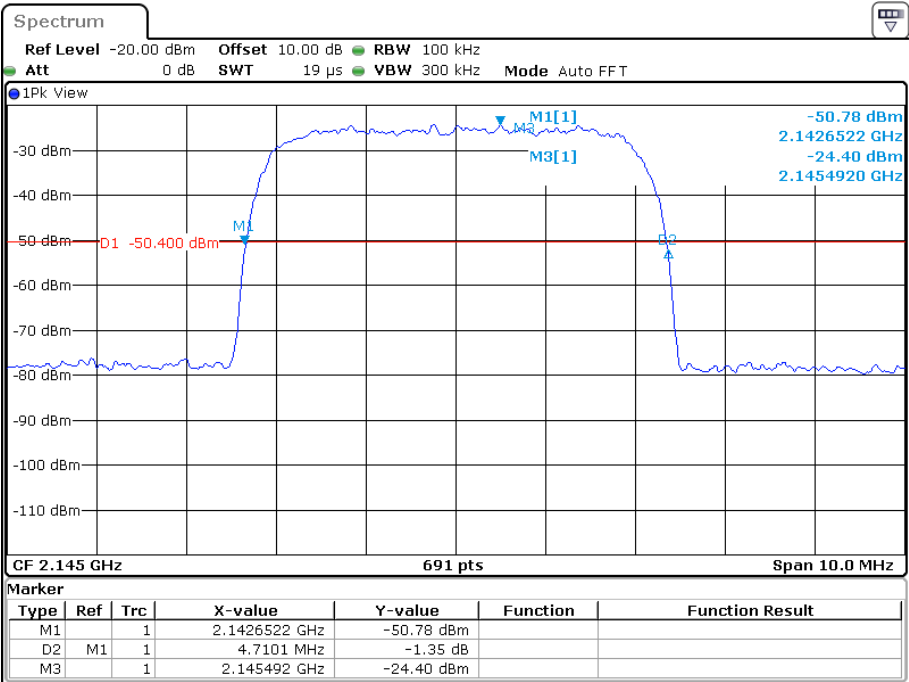
Date: 19.DEC.2022 17:57:24

26 dB Bandwidth-DL- AWGN- Pre AGC -Input



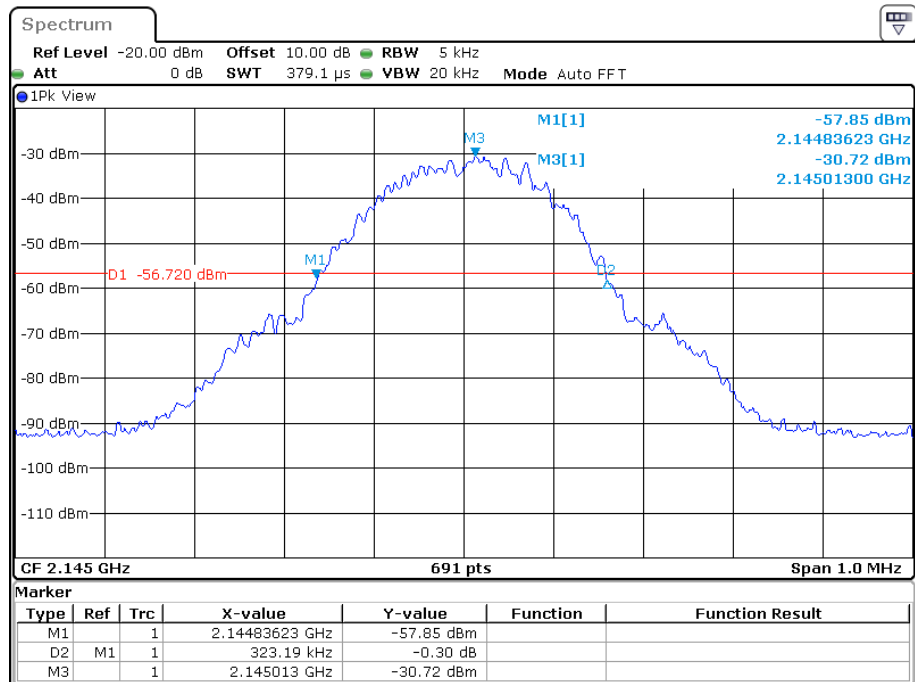
Date: 19.DEC.2022 18:00:45

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Input



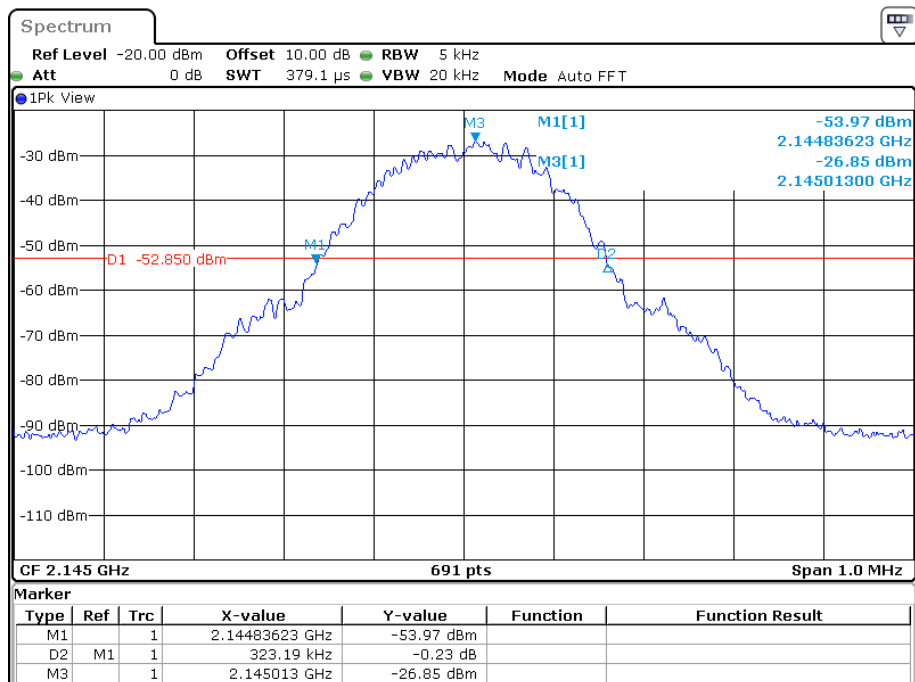
Date: 19.DEC.2022 18:07:43

26 dB Bandwidth-DL- GSM- Pre AGC -Input



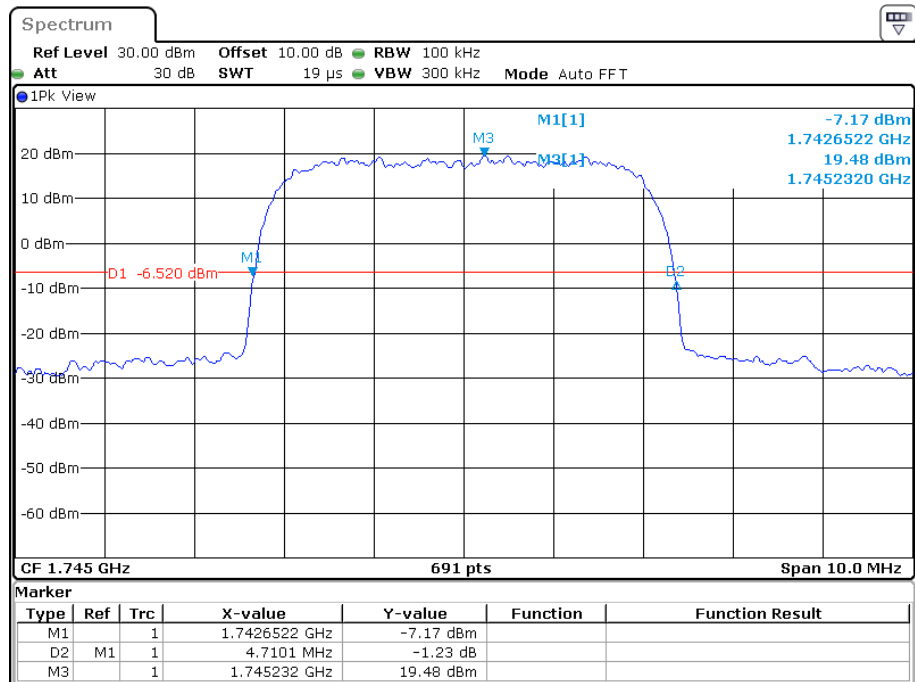
Date: 19.DEC.2022 17:46:59

26 dB Bandwidth-DL- GSM- 3dB Above AGC -Input



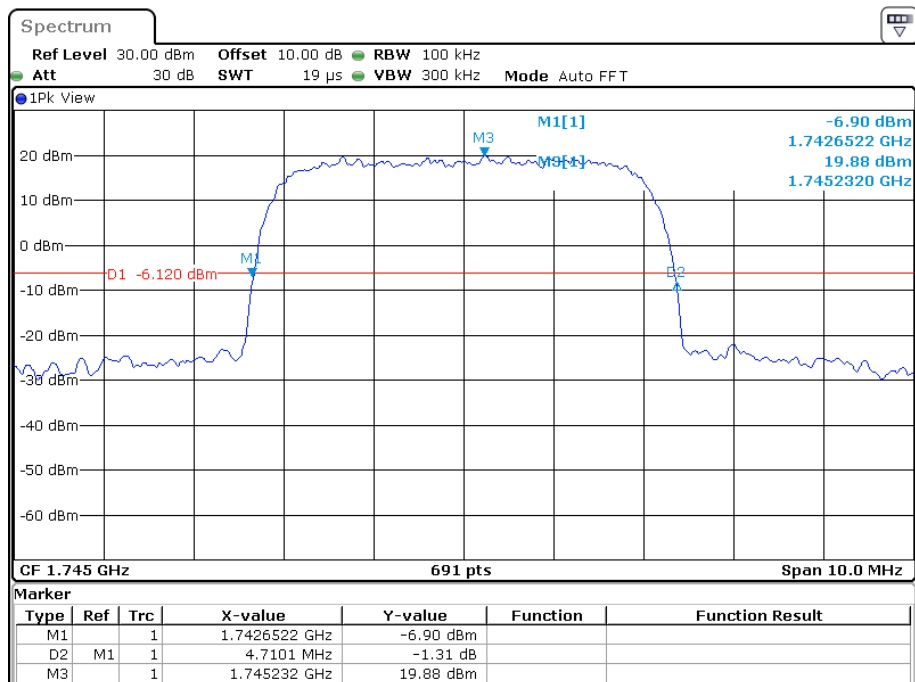
Date: 19.DEC.2022 17:53:47

26 dB Bandwidth-UL- AWGN- Pre AGC -Output



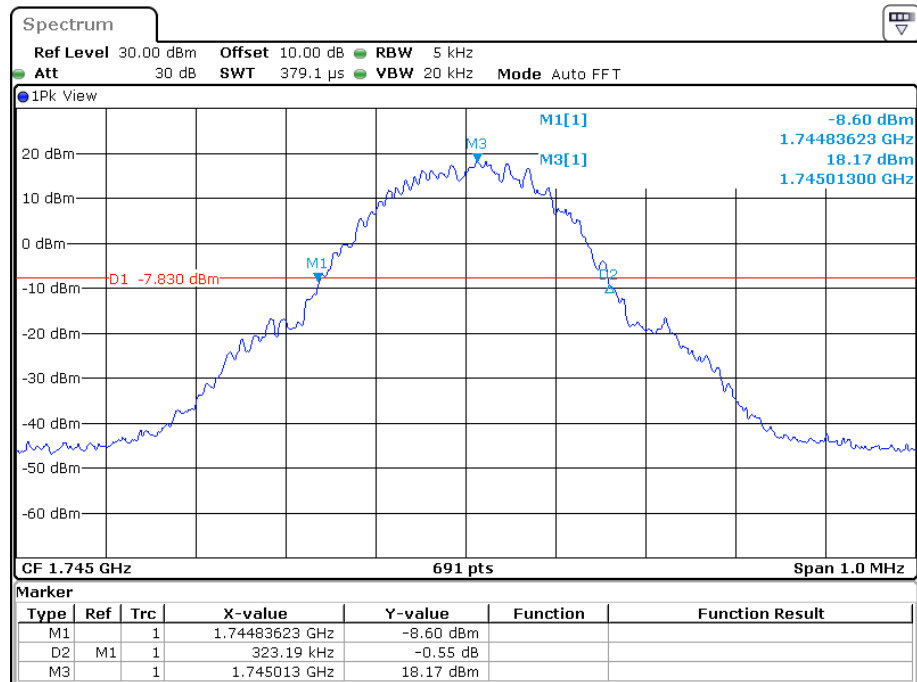
Date: 19.DEC.2022 17:14:09

26 dB Bandwidth-UL- AWGN-3dB above AGC-Output



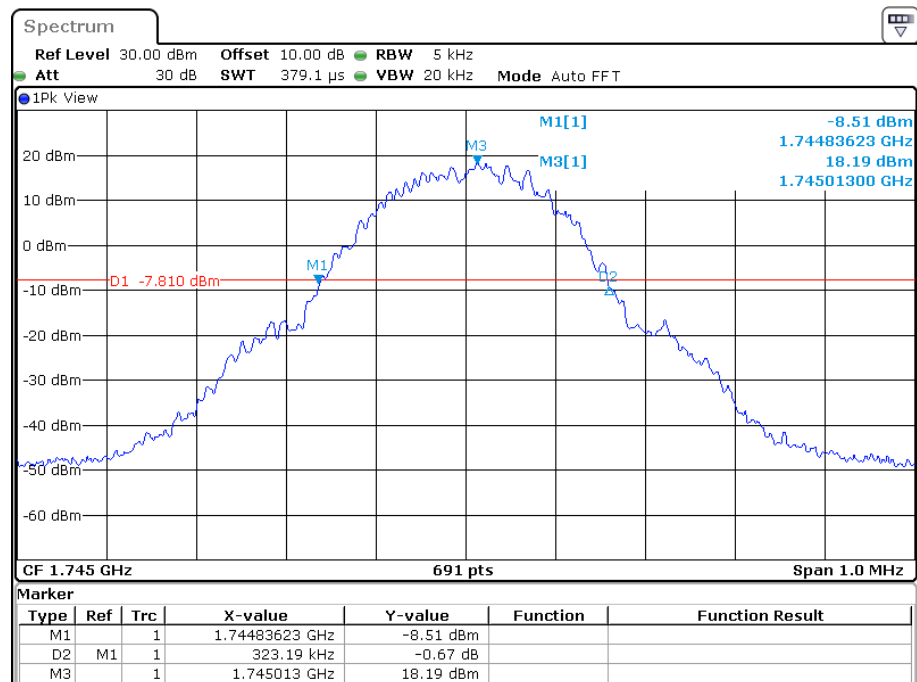
Date: 19.DEC.2022 17:19:18

26 dB Bandwidth-UL- GSM- Pre AGC -Output



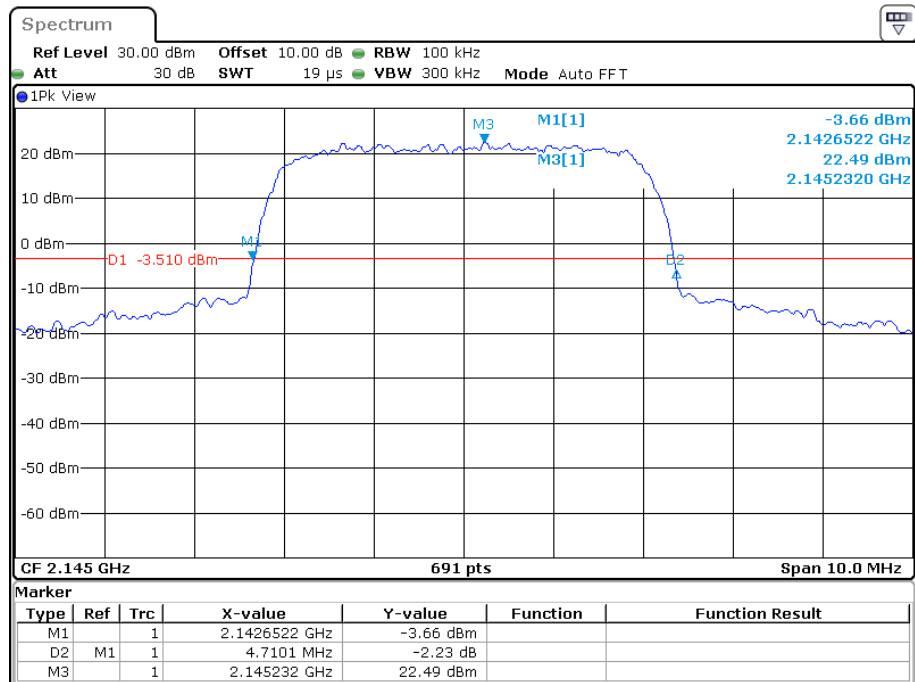
Date: 19.DEC.2022 16:38:15

26 dB Bandwidth-UL- GSM-3dB above AGC-Output



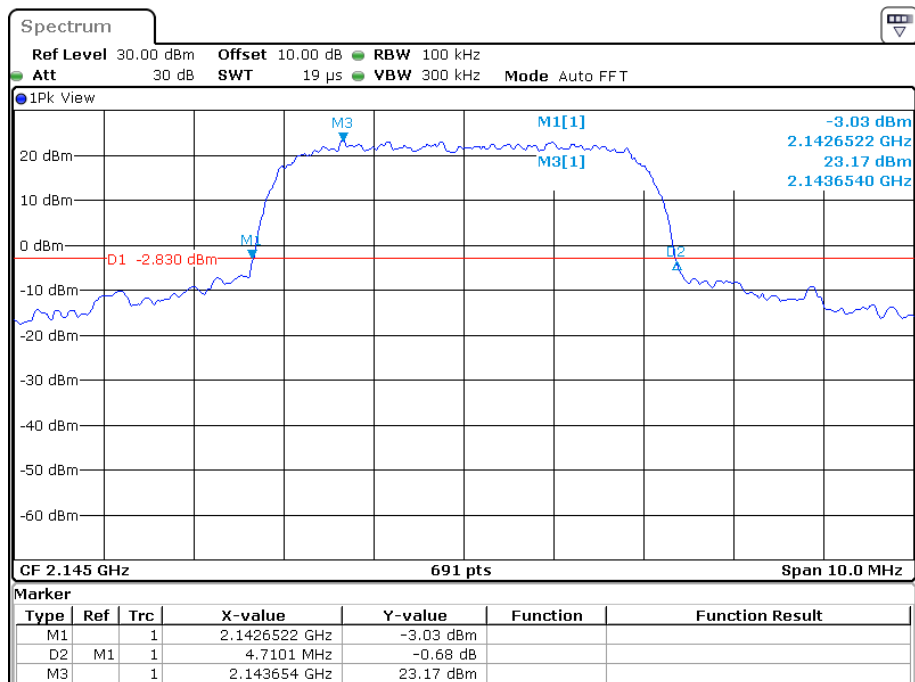
Date: 19.DEC.2022 16:42:02

26 dB Bandwidth-DL- AWGN- Pre AGC -Output



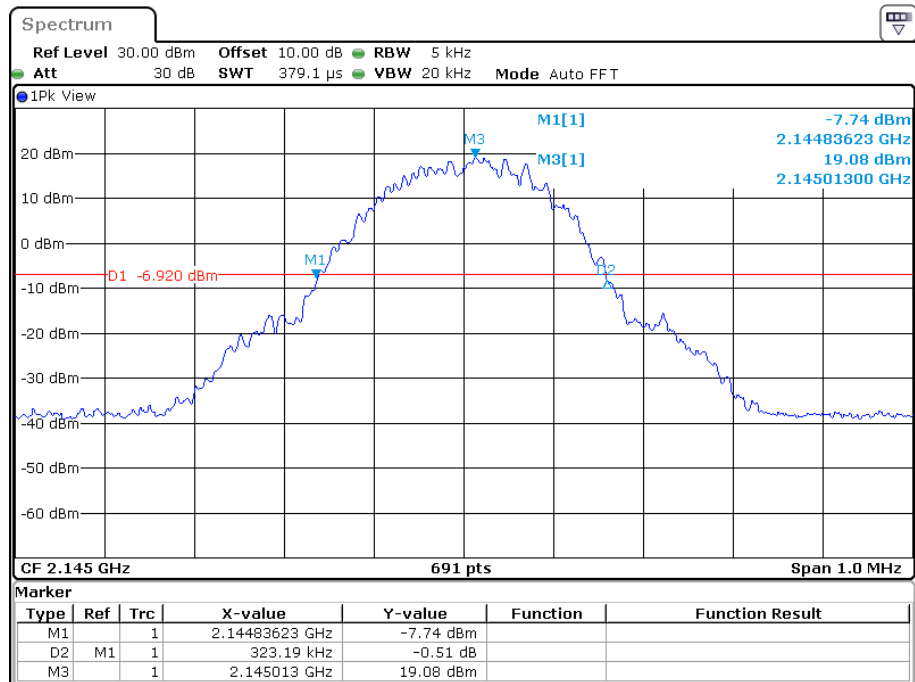
Date: 19.DEC.2022 17:35:39

26 dB Bandwidth-DL- AWGN- 3dB Above AGC -Output



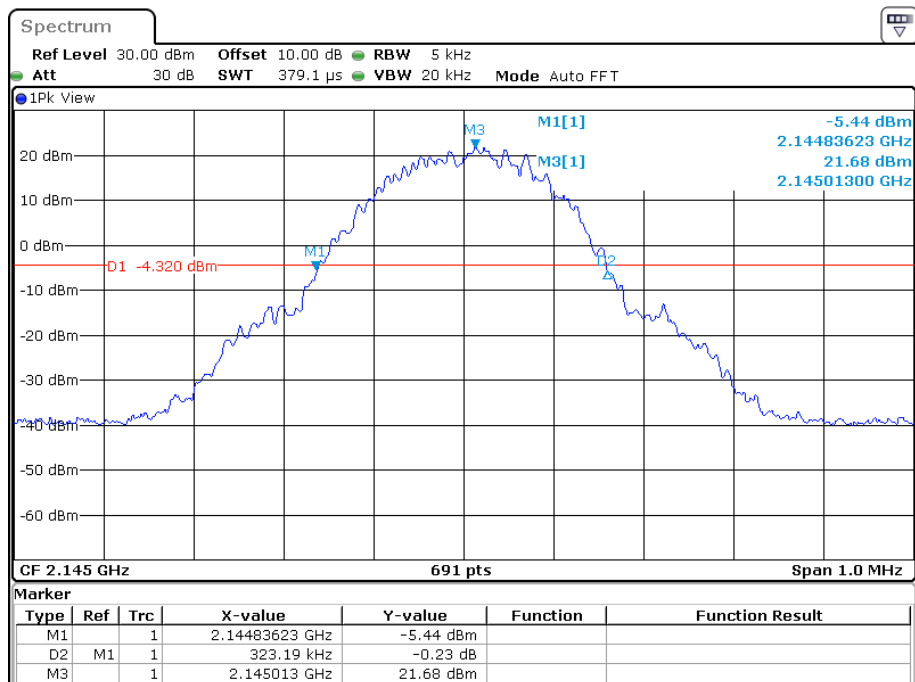
Date: 19.DEC.2022 17:40:47

26 dB Bandwidth-DL- GSM- Pre AGC -Output



Date: 19.DEC.2022 17:27:05

26 dB Bandwidth-DL- GSM- 3dB Above AGC -Output



Date: 19.DEC.2022 17:30:24

FCC §2.1051, §22.917 & §24.238 & §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

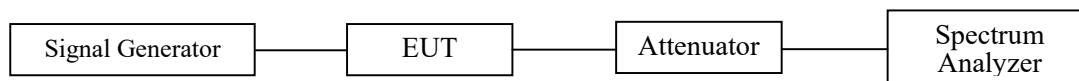
FCC §2.1051, §22.917, §24.238 and §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

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

Test Procedure

Please refer to KDB 935210 D05 Indus Booster Basic Meas v01r04 clause 3.6.3



Test Data

Environmental Conditions

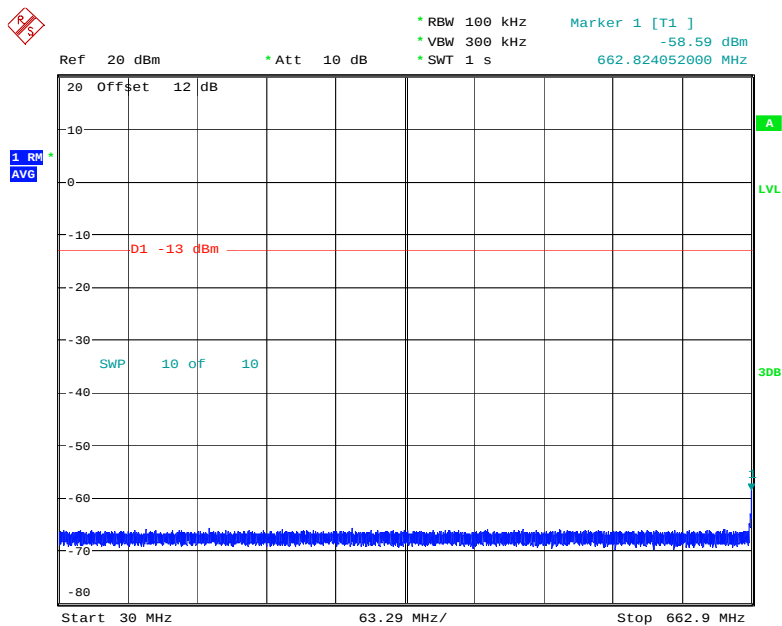
Temperature:	23~25 °C
Relative Humidity:	50~52 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Glenn.Jiang on 2023-01-14 and 2023-02-01.

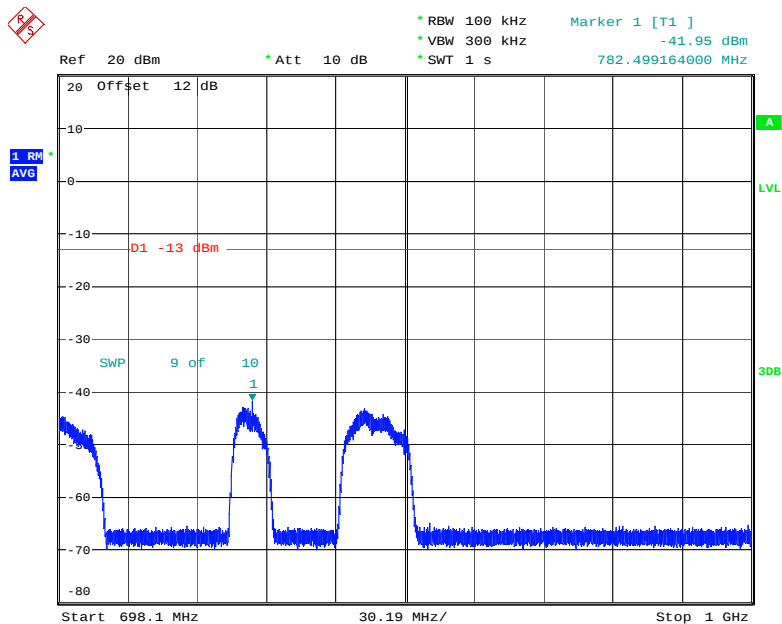
Test result: Compliance, please refer to the following plots.

Uplink:

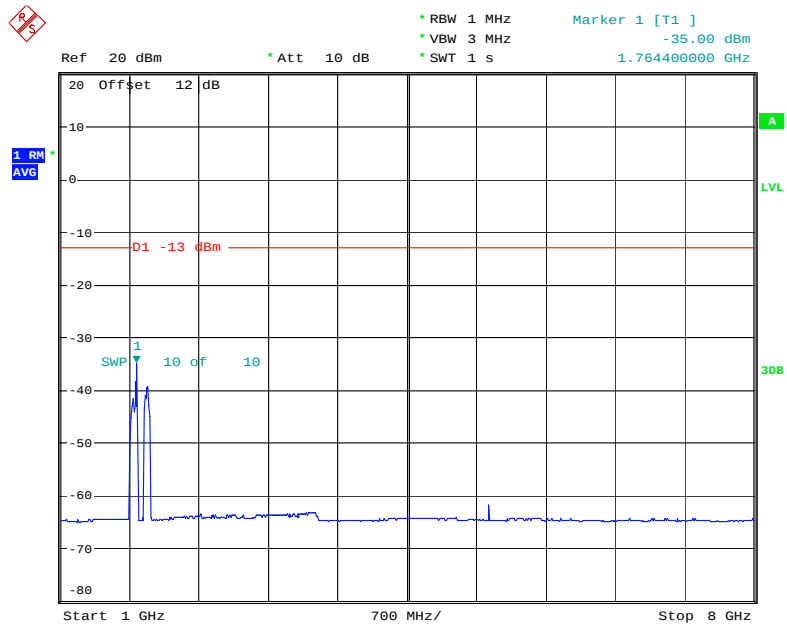
600MHz Band -AWGN-Pre AGC-Low Channel



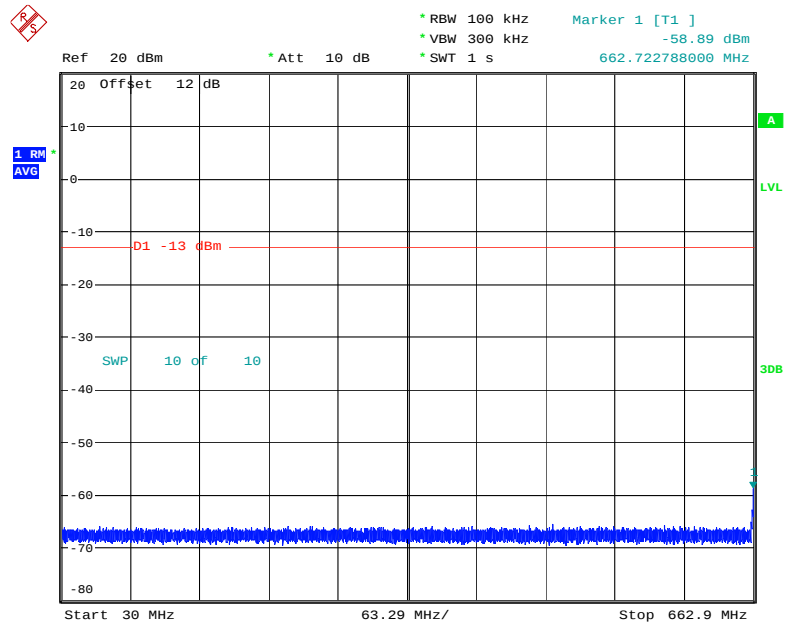
Date: 14.JAN.2023 11:22:23



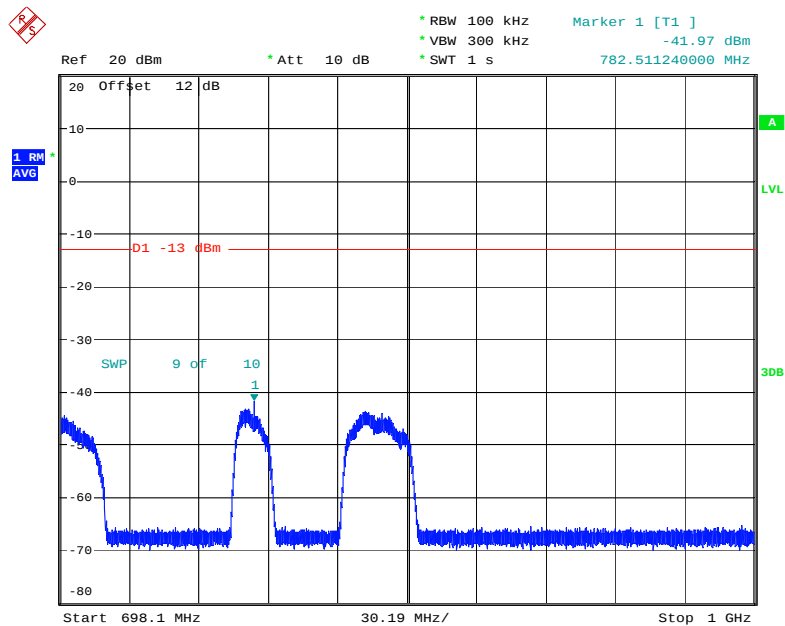
Date: 14.JAN.2023 11:22:43



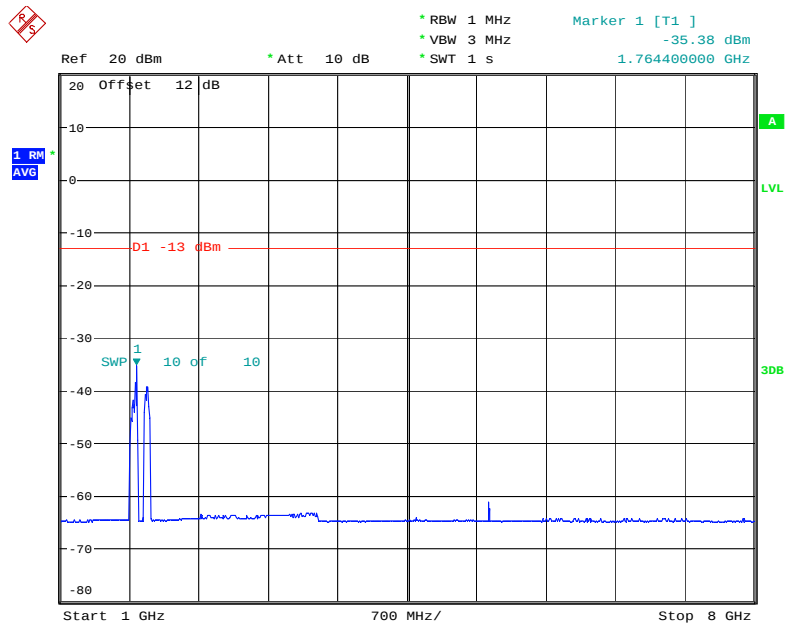
Date: 14.JAN.2023 11:22:03

600MHz Band - AWGN-Pre AGC-Middle Channel

Date: 14.JAN.2023 11:28:17

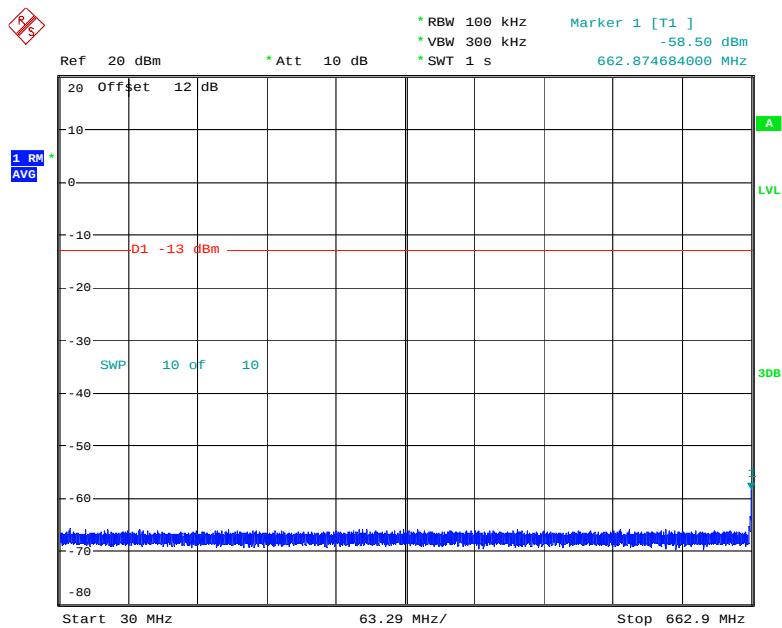


Date: 14.JAN.2023 11:28:37

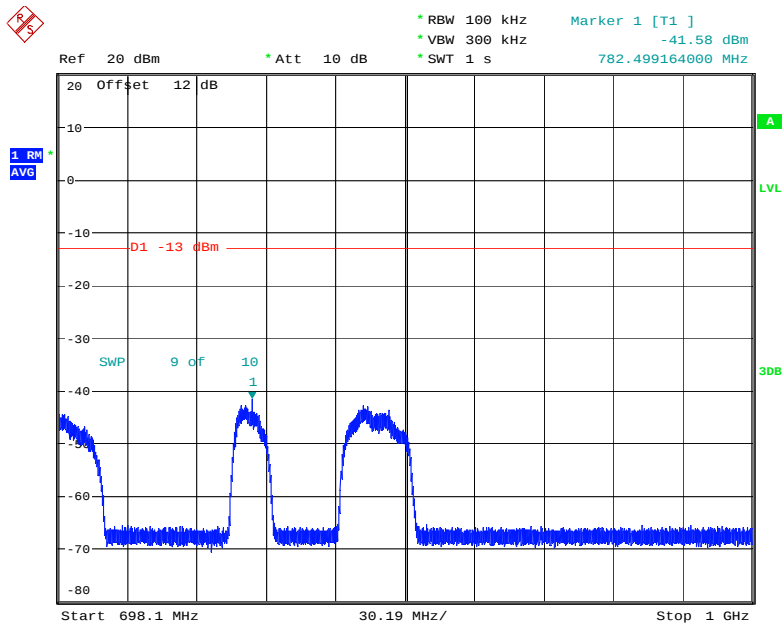


Date: 14.JAN.2023 11:27:58

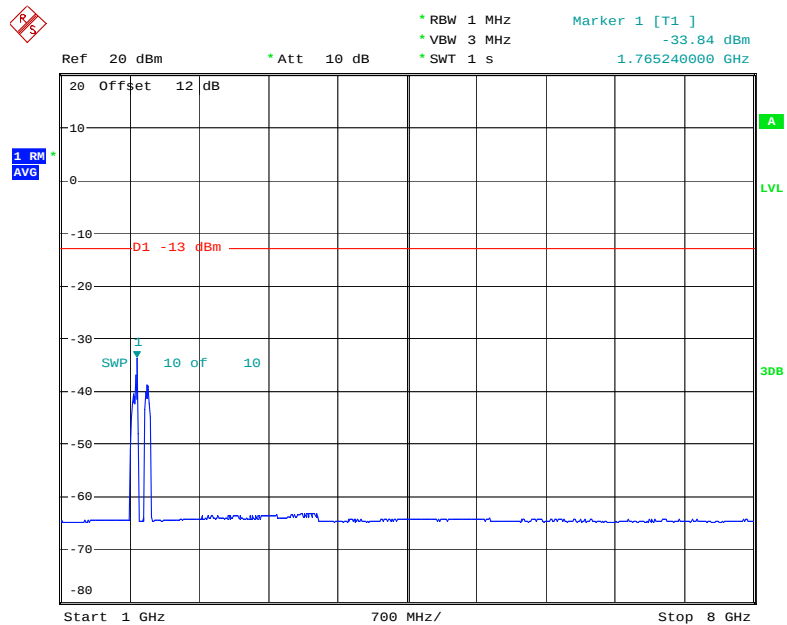
600MHz Band - AWGN-Pre AGC-High Channel



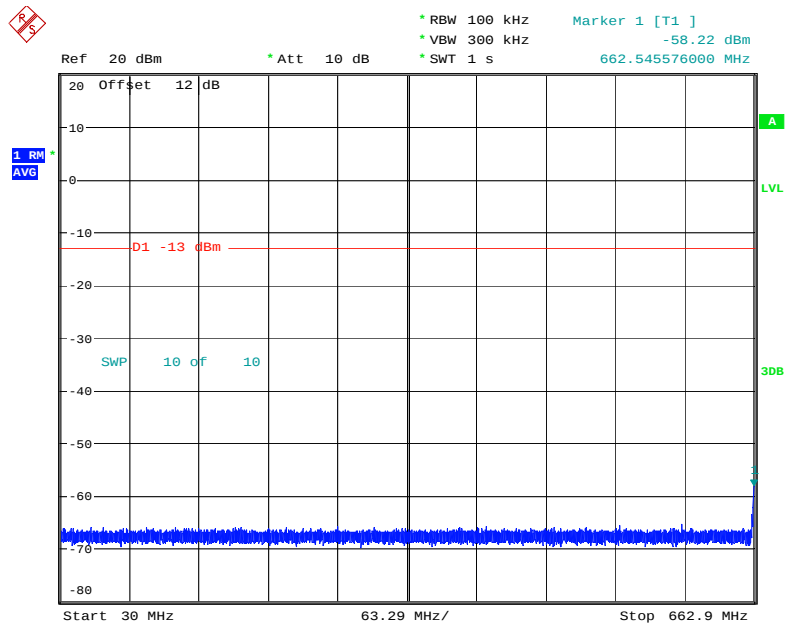
Date: 14.JAN.2023 11:06:20



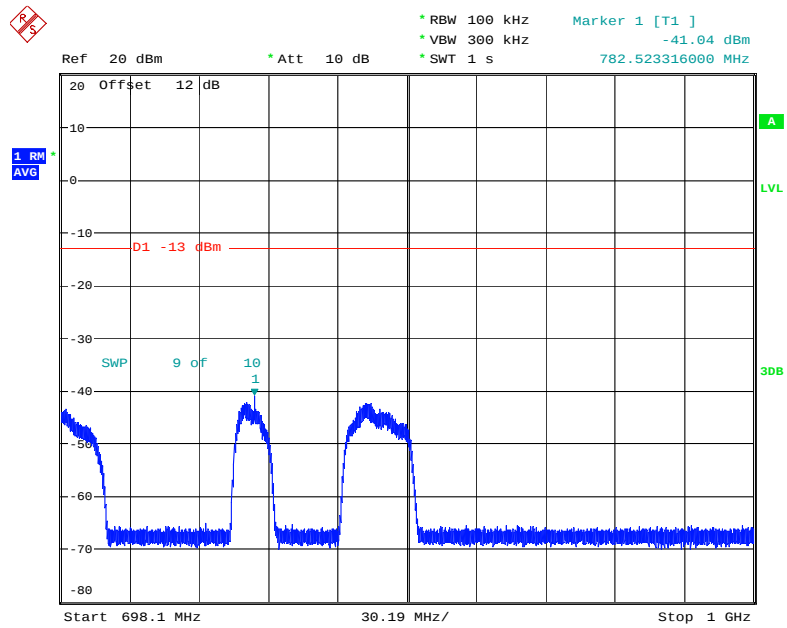
Date: 14.JAN.2023 11:06:39



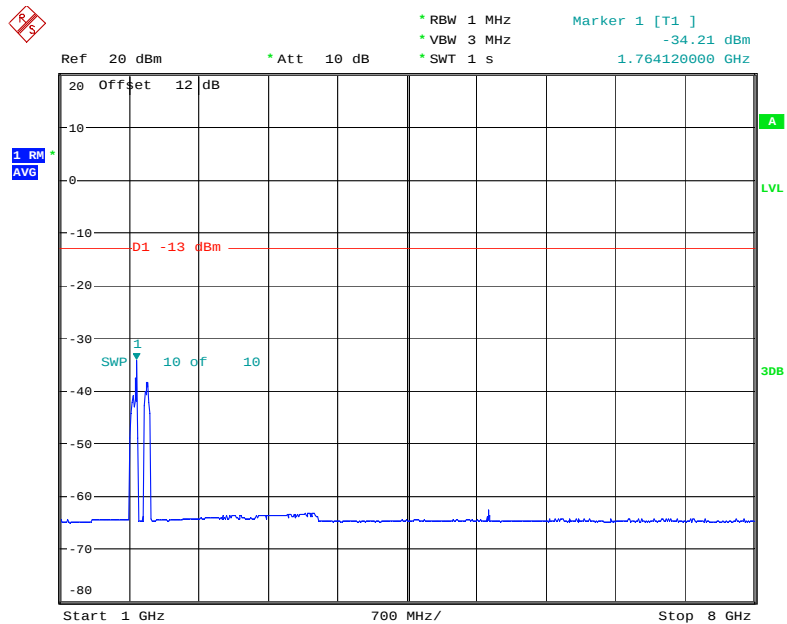
Date: 14.JAN.2023 11:06:00

600MHz Band - GSM-Pre AGC-Low Channel

Date: 14.JAN.2023 11:54:42

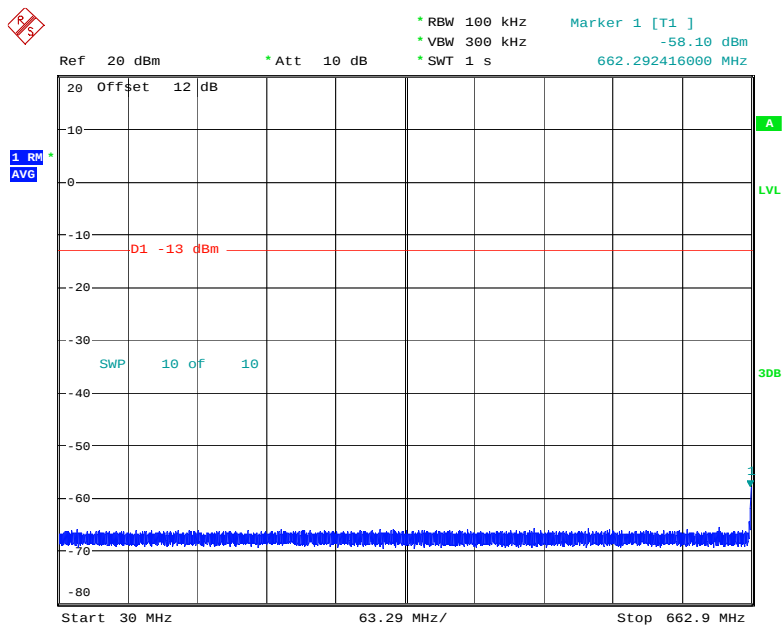


Date: 14.JAN.2023 11:55:02

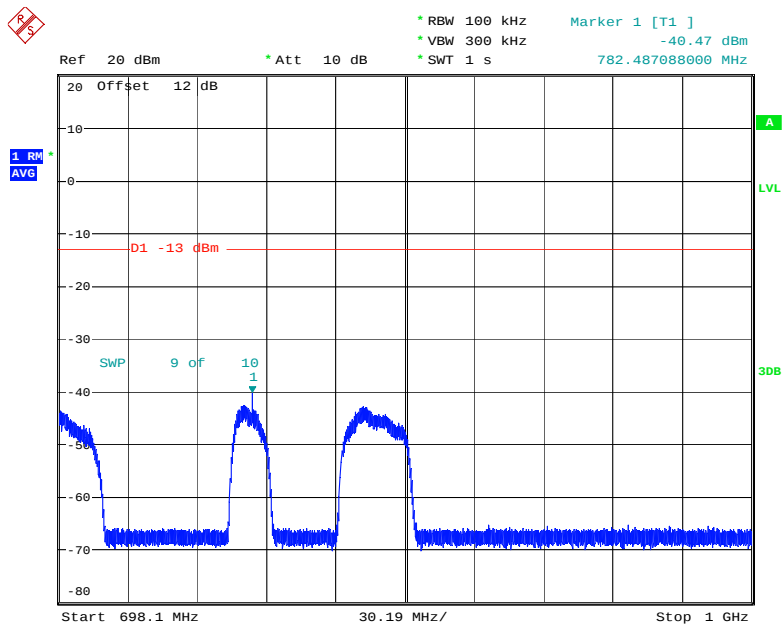


Date: 14.JAN.2023 11:54:23

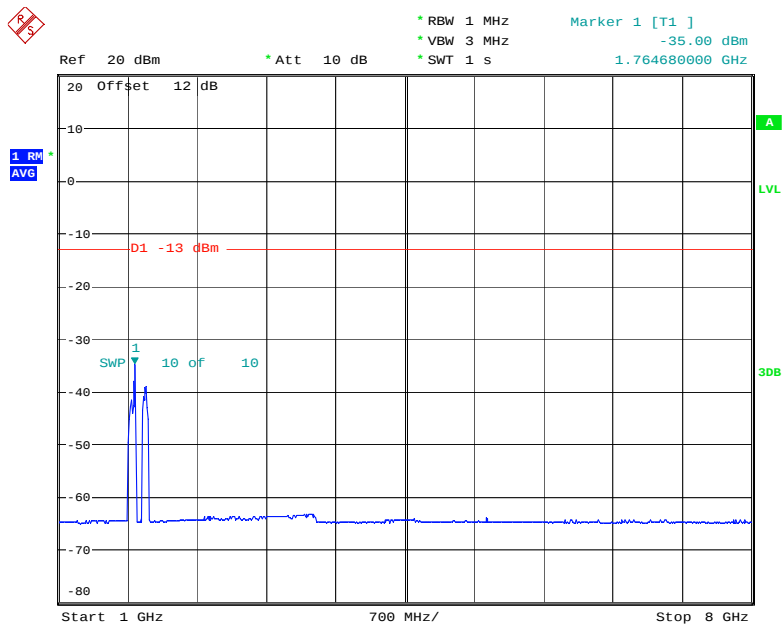
600MHz Band - GSM-Pre AGC-Middle Channel



Date: 14.JAN.2023 13:03:11

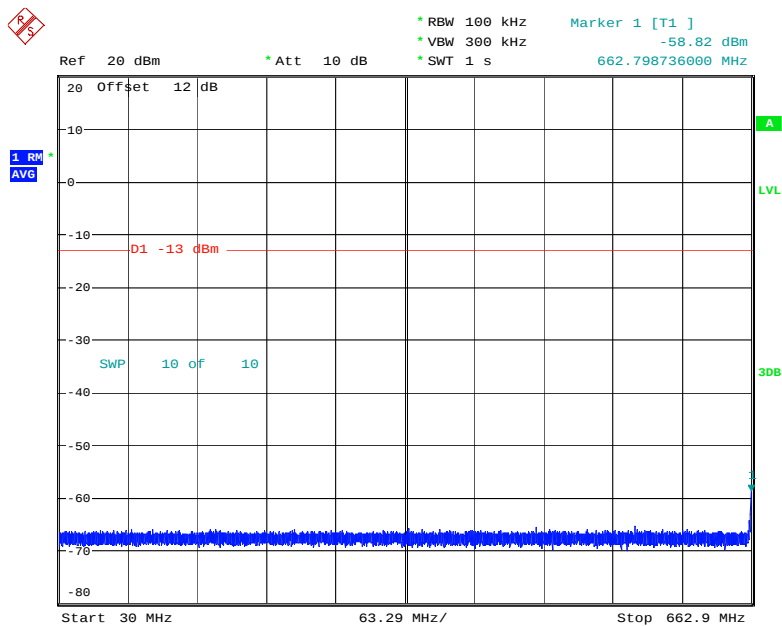


Date: 14.JAN.2023 13:03:31

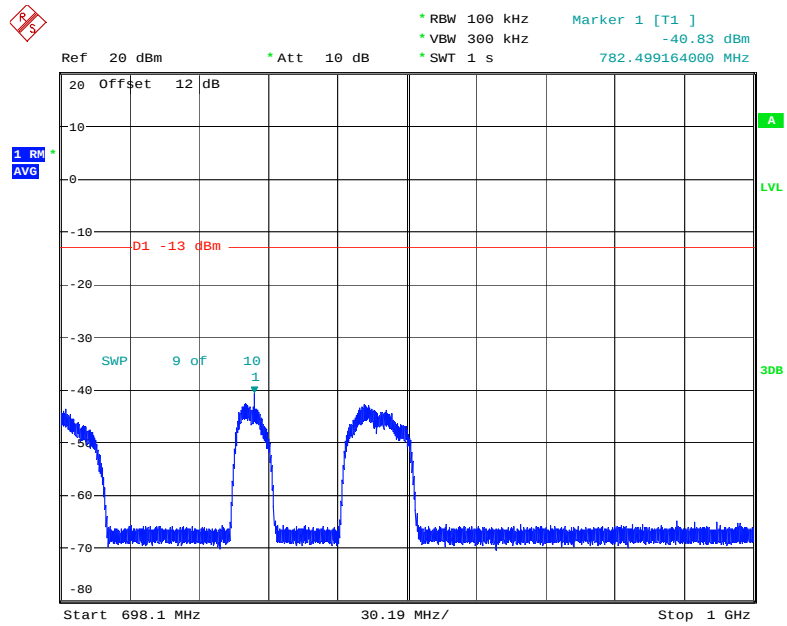


Date: 14.JAN.2023 13:02:53

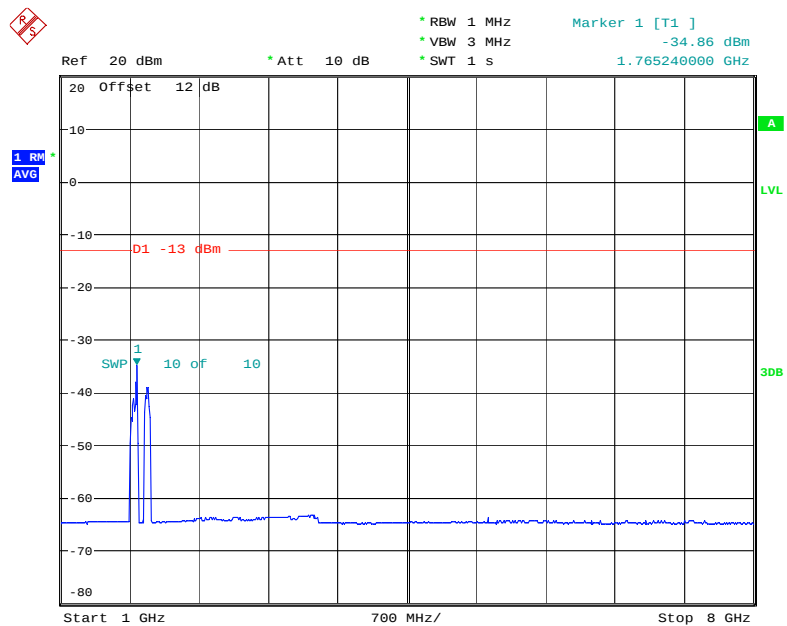
600MHz Band - GSM-Pre AGC-High Channel



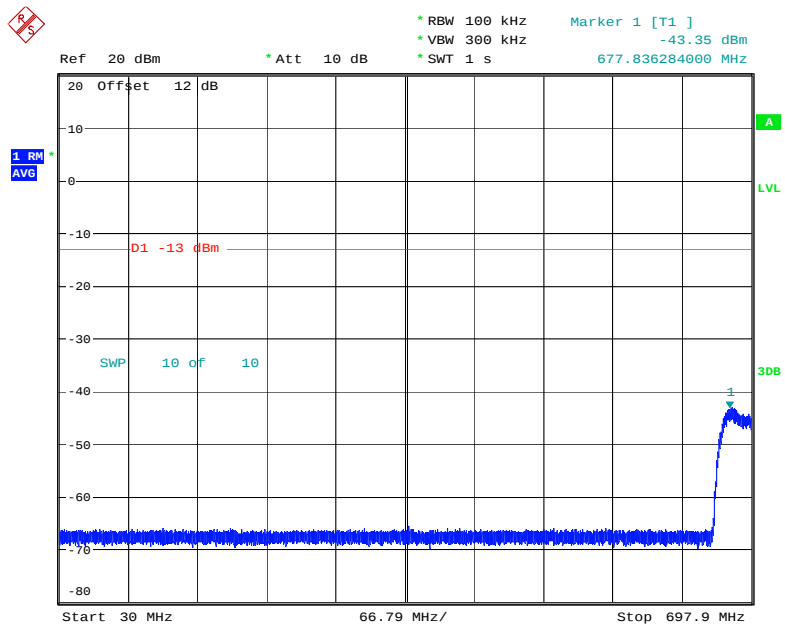
Date: 14.JAN.2023 11:47:47



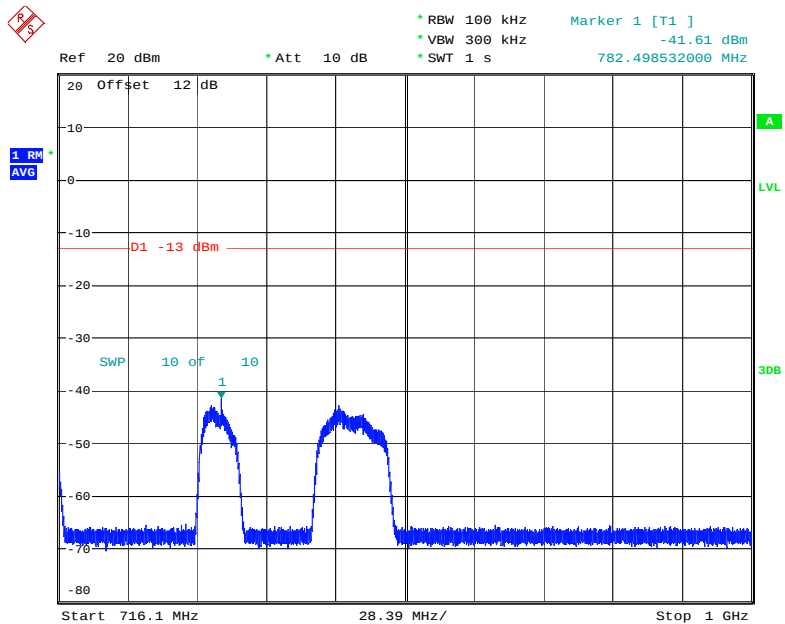
Date: 14.JAN.2023 11:48:08



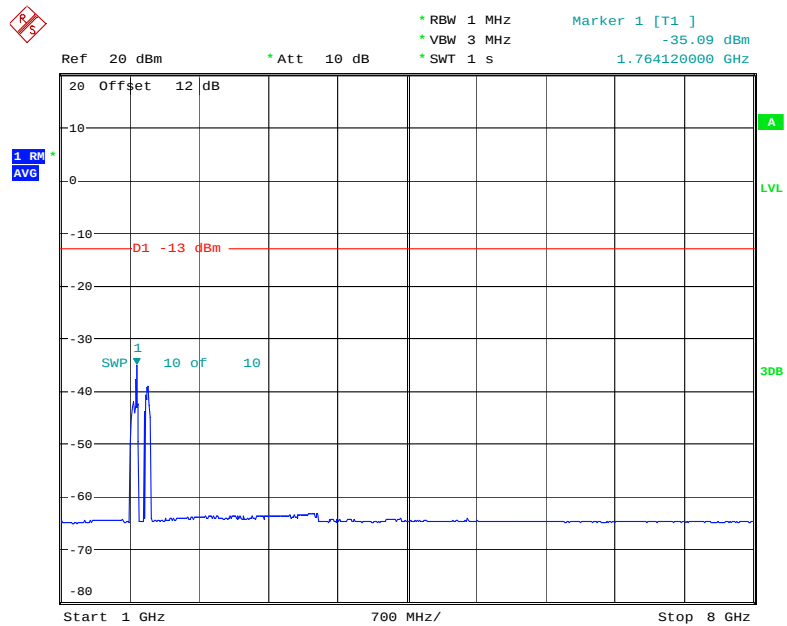
Date: 14.JAN.2023 11:47:28

Lower 700MHz (A+B+C Block)-AWGN-Pre AGC-Low Channel

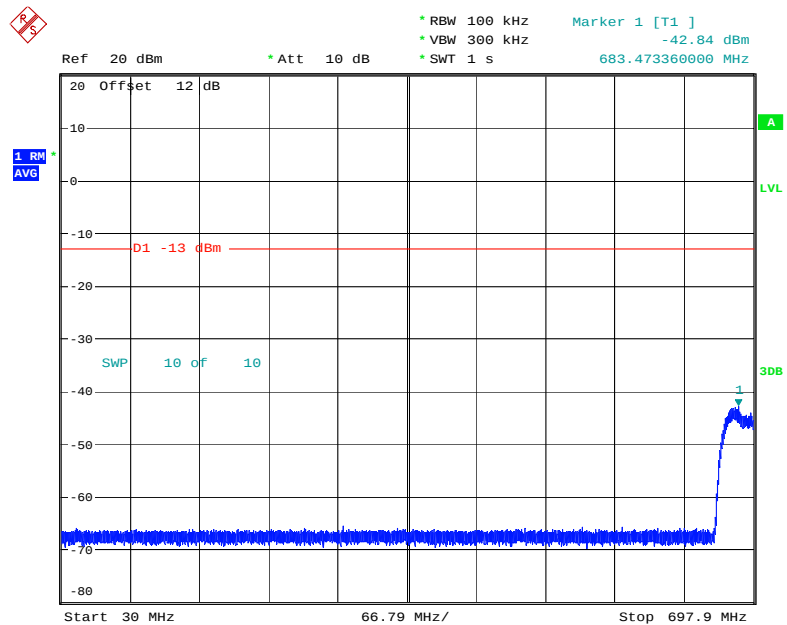
Date: 14.JAN.2023 11:23:22



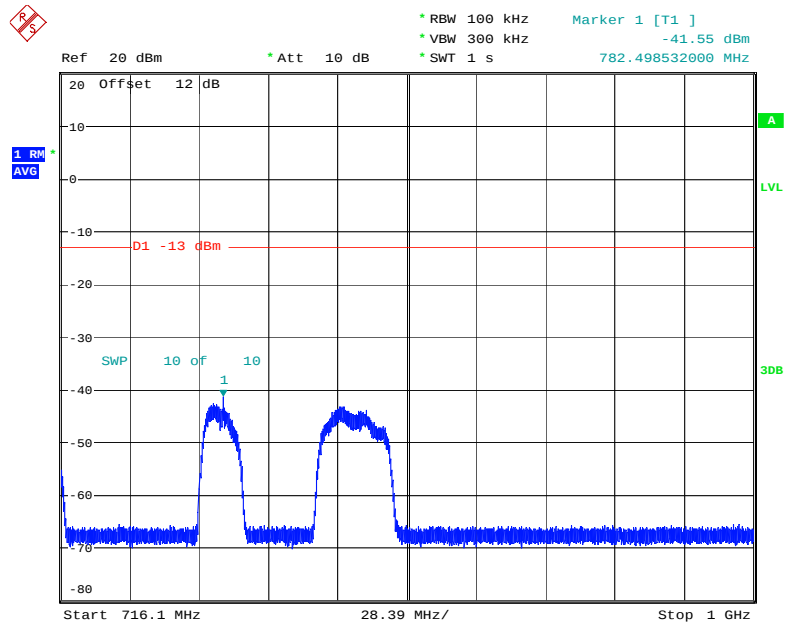
Date: 14.JAN.2023 11:23:42



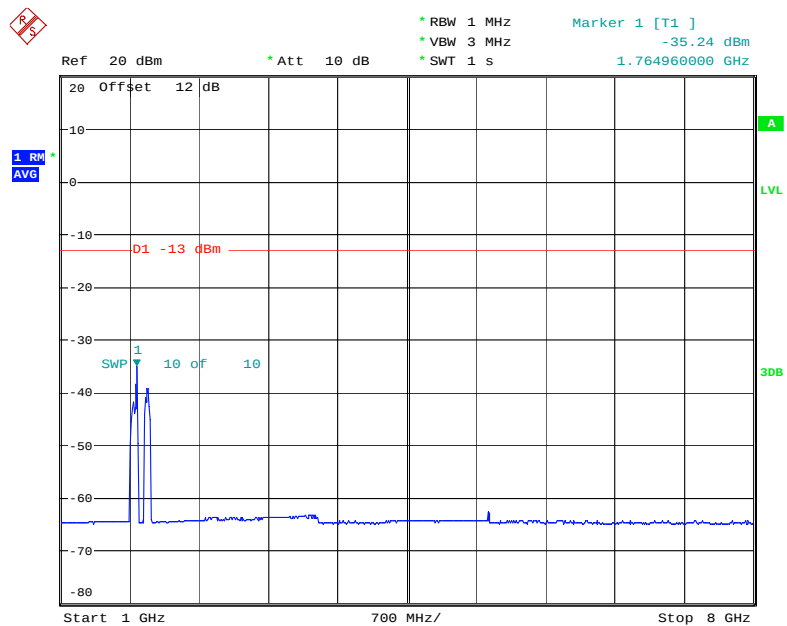
Date: 14. JAN. 2023 11:23:02

Lower 700MHz (A+B+C Block) - AWGN-Pre AGC-Middle Channel

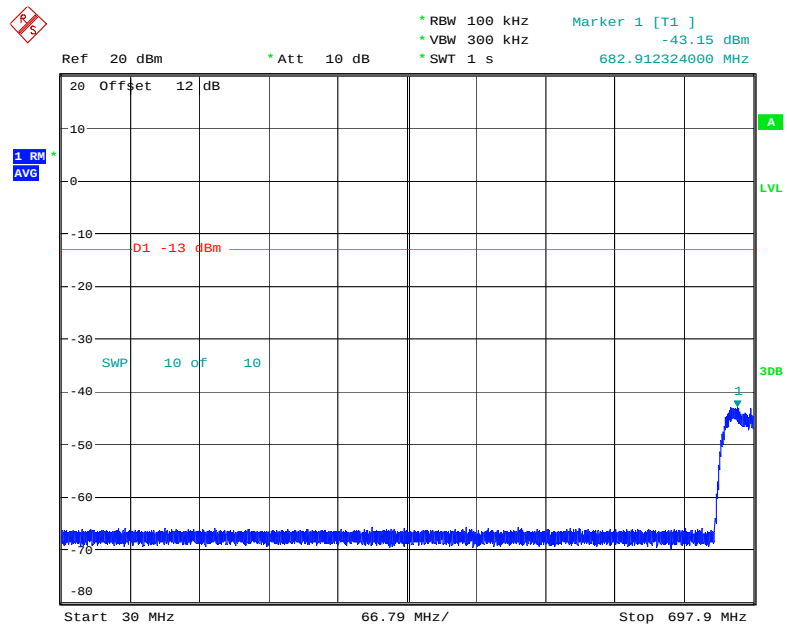
Date: 14. JAN. 2023 11:29:16



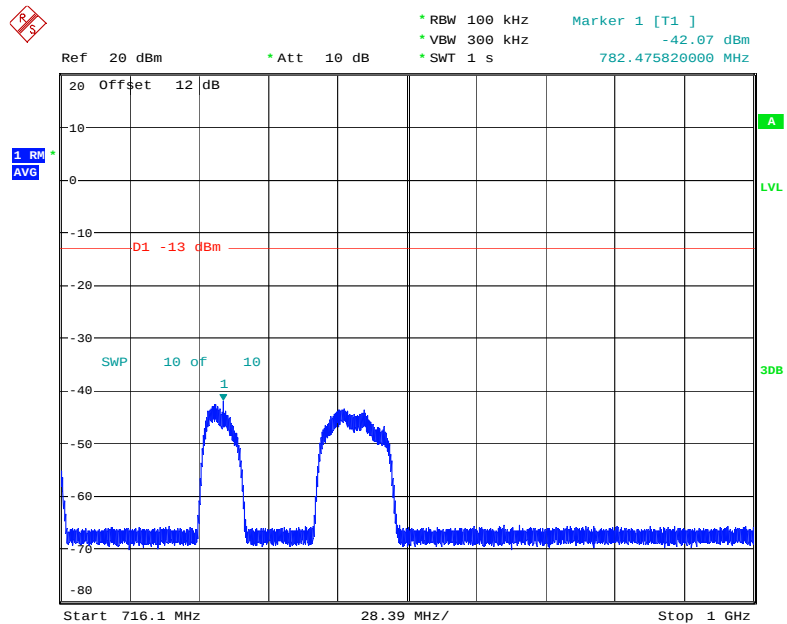
Date: 14.JAN.2023 11:29:36



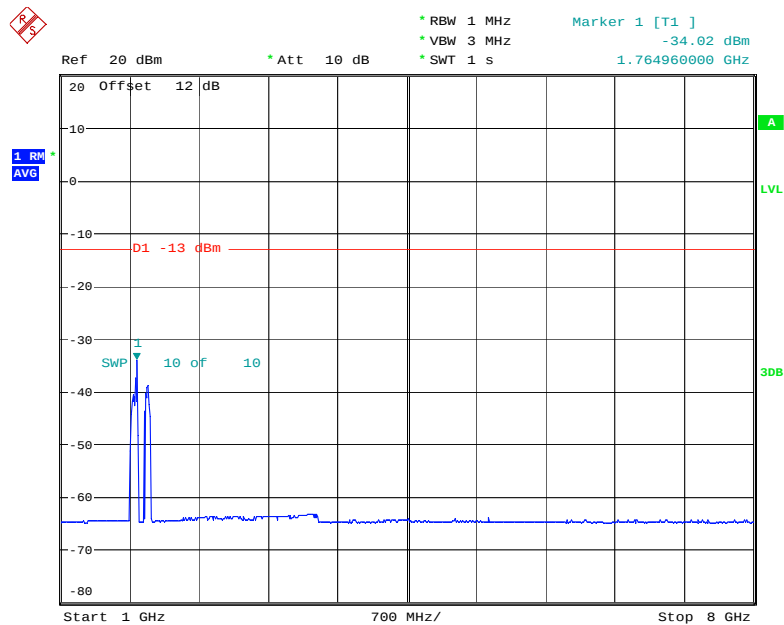
Date: 14.JAN.2023 11:28:57

Lower 700MHz (A+B+C Block) - AWGN-Pre AGC-High Channel

Date: 14.JAN.2023 11:07:19

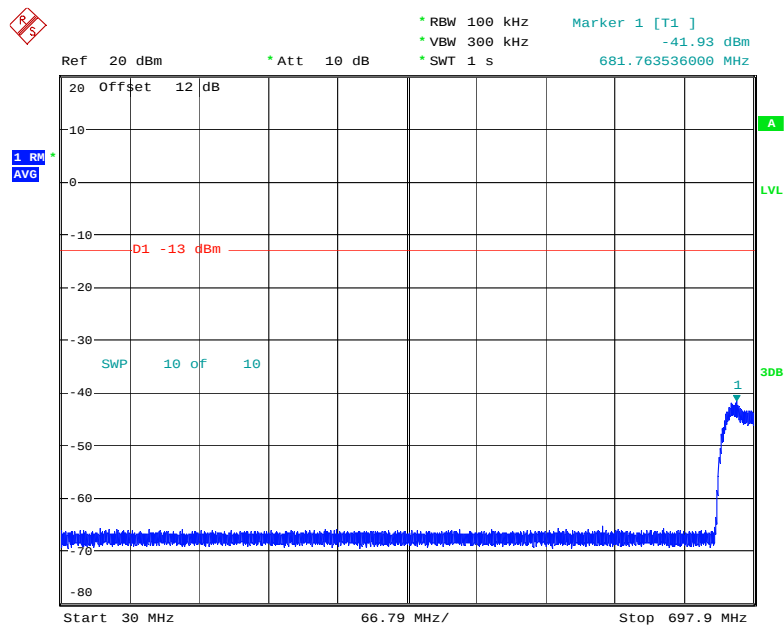


Date: 14.JAN.2023 11:07:38

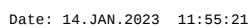
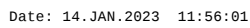


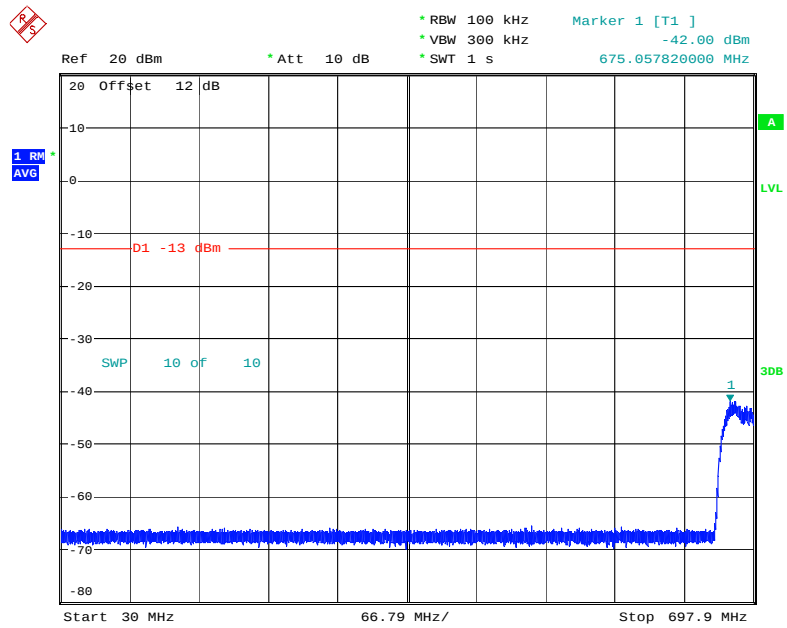
Date: 14.JAN.2023 11:06:59

Lower 700MHz (A+B+C Block)-GSM-Pre AGC-Low Channel

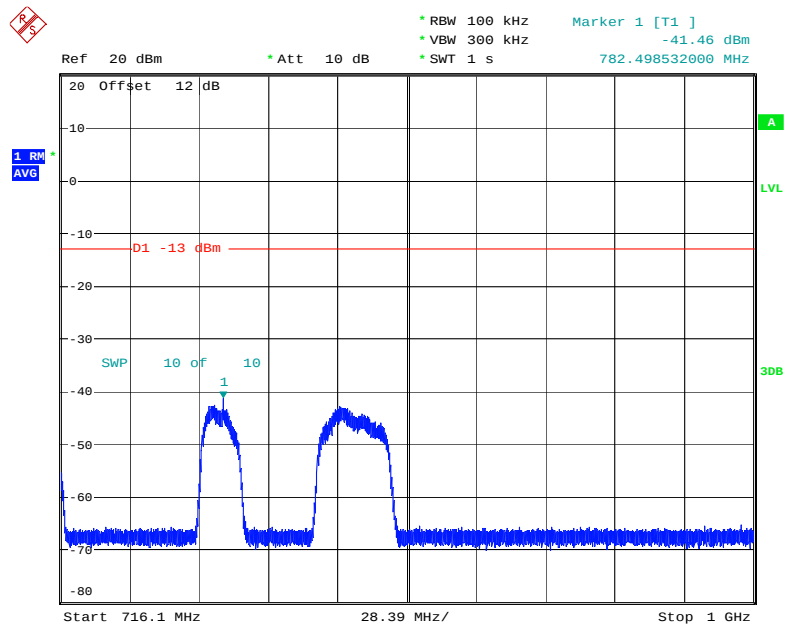


Date: 14.JAN.2023 11:55:42

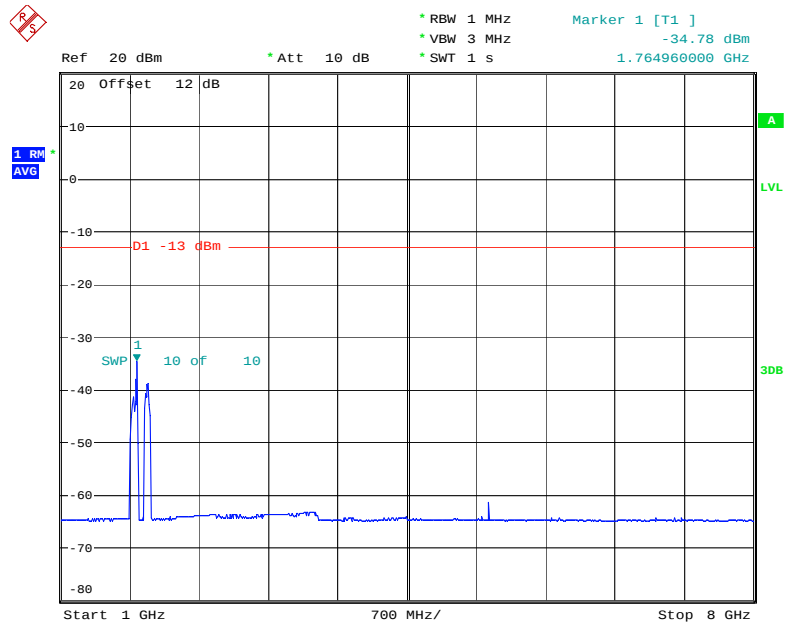


Lower 700MHz (A+B+C Block) - GSM-Pre AGC-Middle Channel

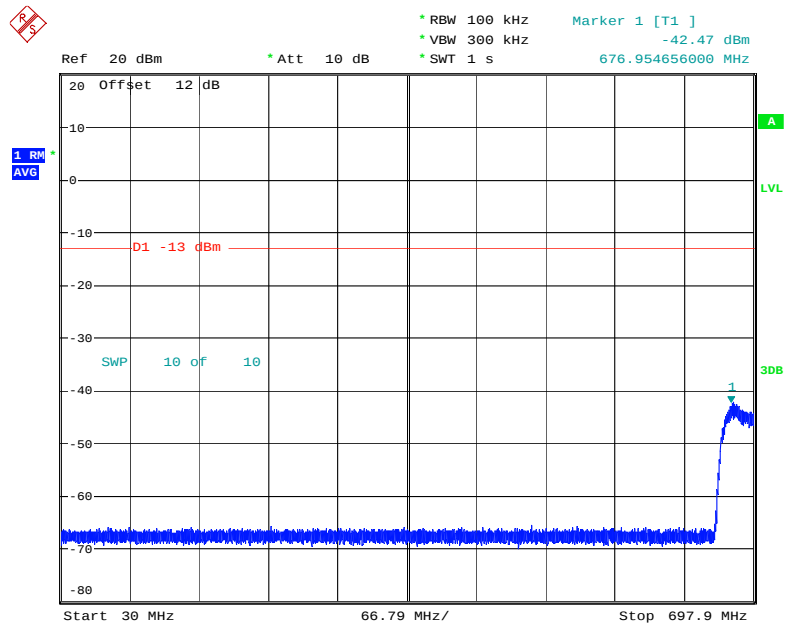
Date: 14. JAN. 2023 13:04:10



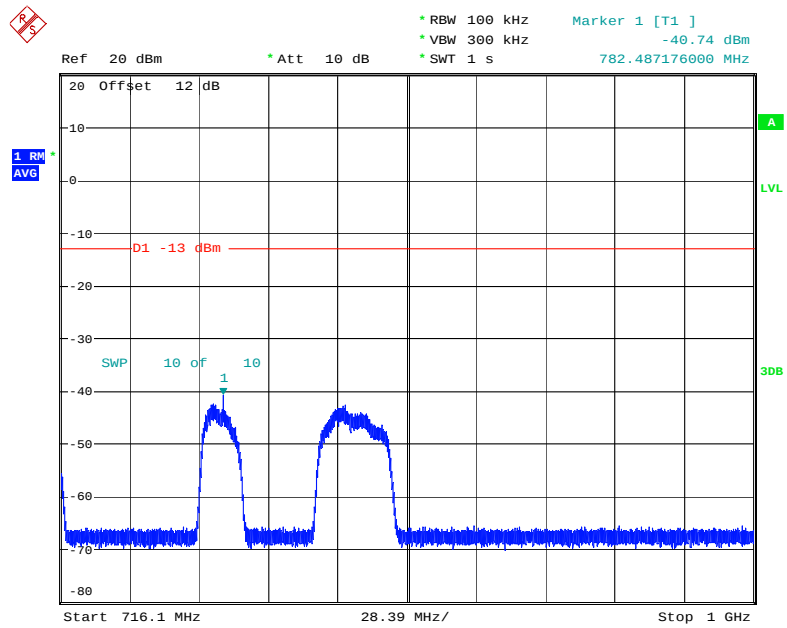
Date: 14. JAN. 2023 13:04:30



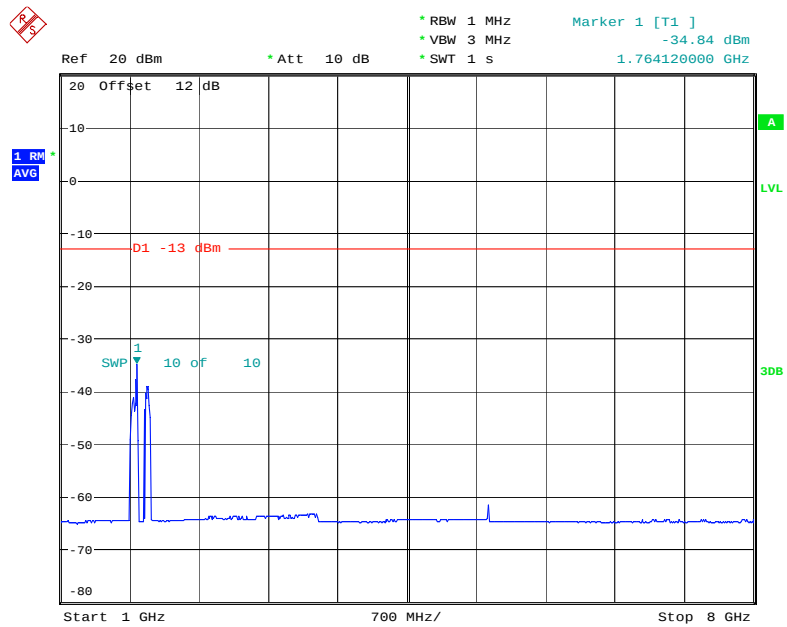
Date: 14.JAN.2023 13:03:52

Lower 700MHz (A+B+C Block) - GSM -Pre AGC-High Channel

Date: 14.JAN.2023 11:48:47

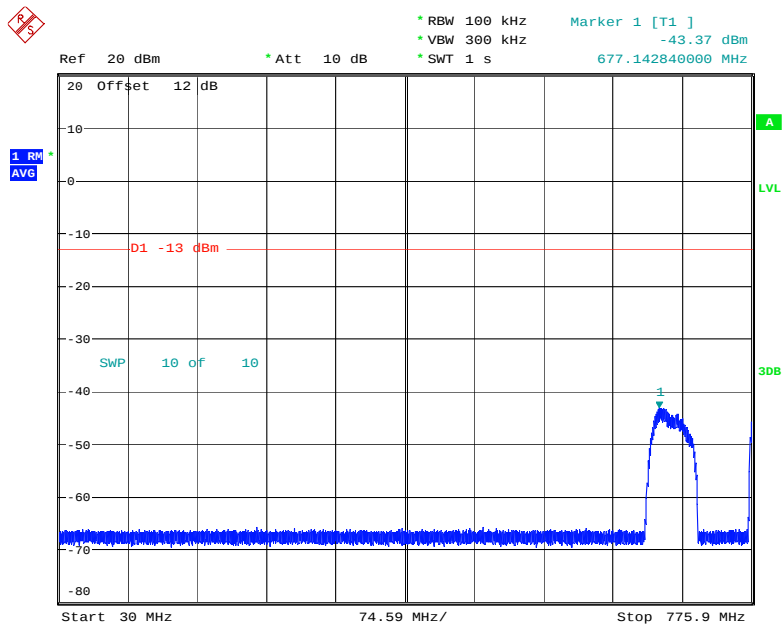


Date: 14. JAN. 2023 11:49:07

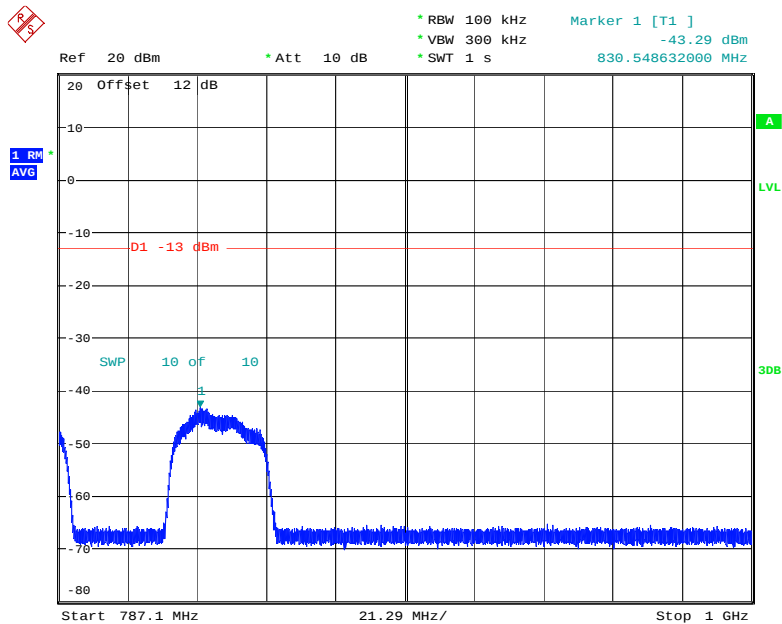


Date: 14. JAN. 2023 11:48:27

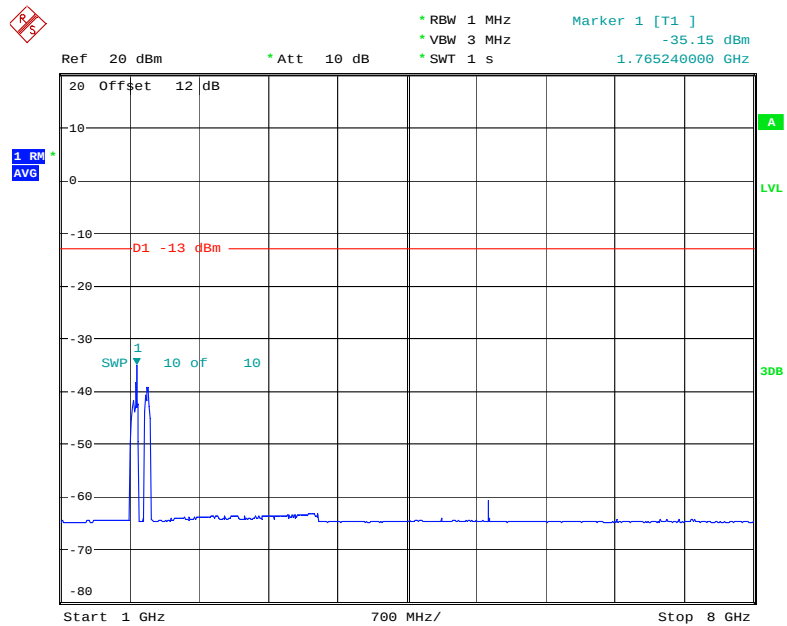
Upper 700MHz (C Block) - AWGN-Pre AGC-Low Channel



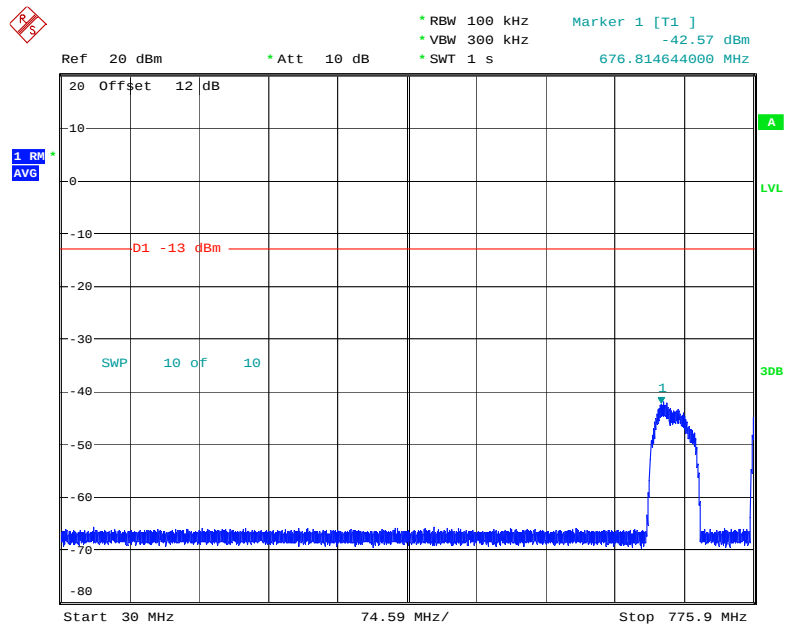
Date: 14.JAN.2023 11:24:21



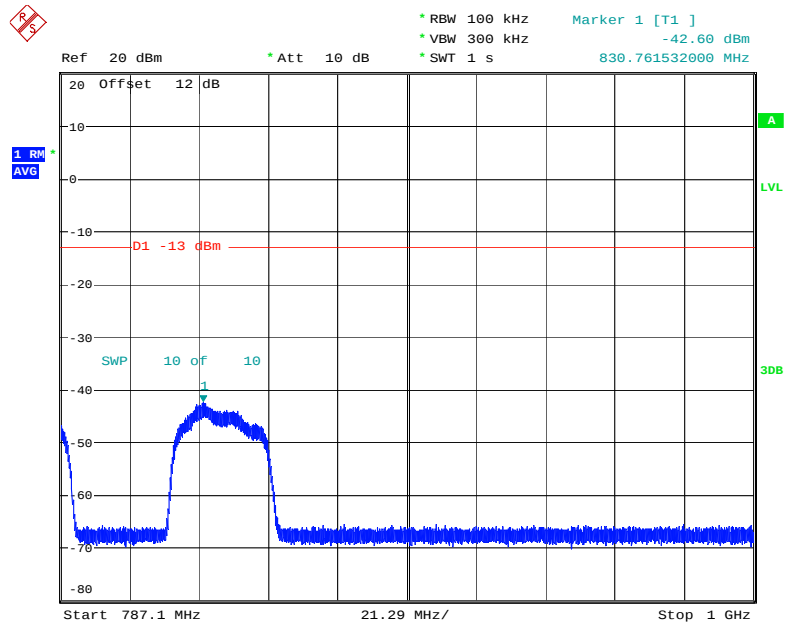
Date: 14.JAN.2023 11:24:41



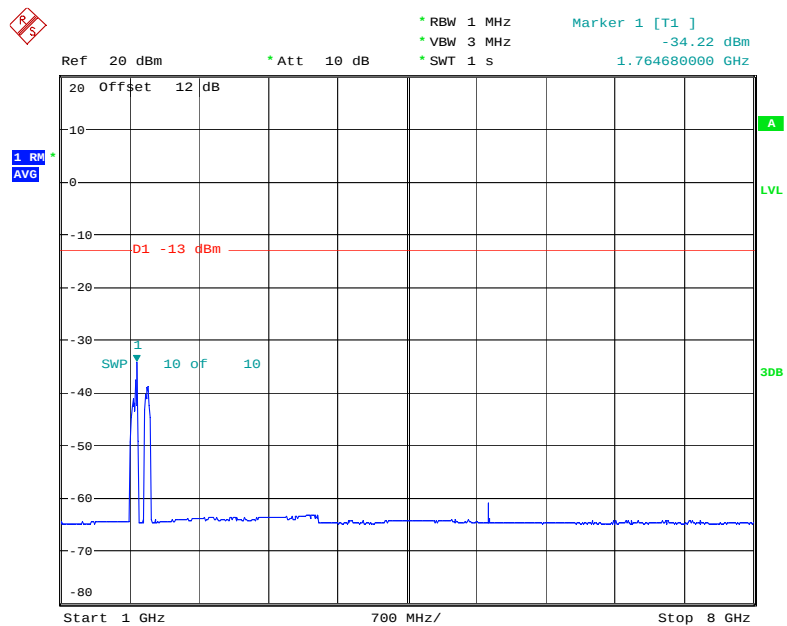
Date: 14. JAN. 2023 11:24:01

Upper 700MHz (C Block) - AWGN-Pre AGC-Middle Channel

Date: 14. JAN. 2023 11:30:15

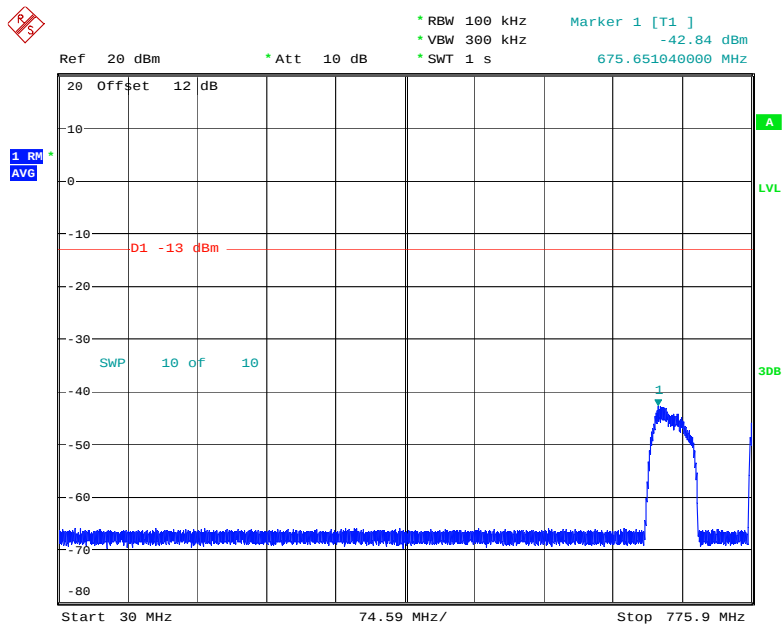


Date: 14.JAN.2023 11:30:35

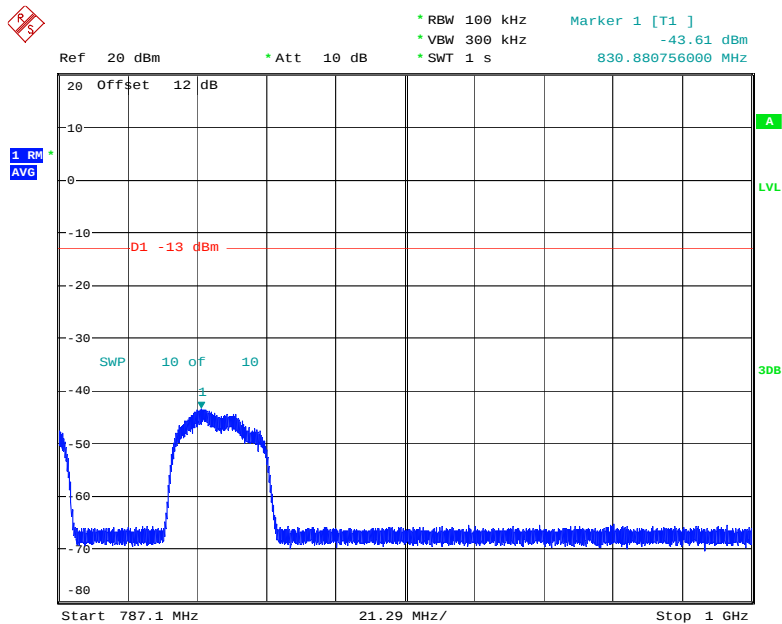


Date: 14.JAN.2023 11:29:55

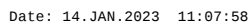
Upper 700MHz (C Block) - AWGN-Pre AGC-High Channel



Date: 14.JAN.2023 11:08:18



Date: 14.JAN.2023 11:08:38



Ref 20 dBm * Att 10 dB * RBW 100 kHz * VBW 300 kHz * SWT 1 s Marker 1 [T1] -42.08 dBm 680.544144000 MHz

20 Offset 12 dB

1 RM AVG

D1 -13 dBm

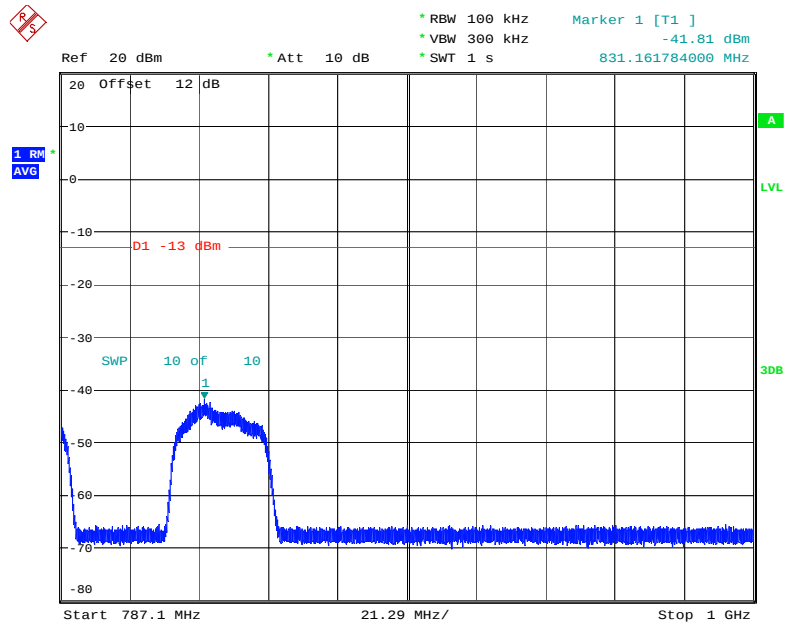
SWP 10 of 10

1

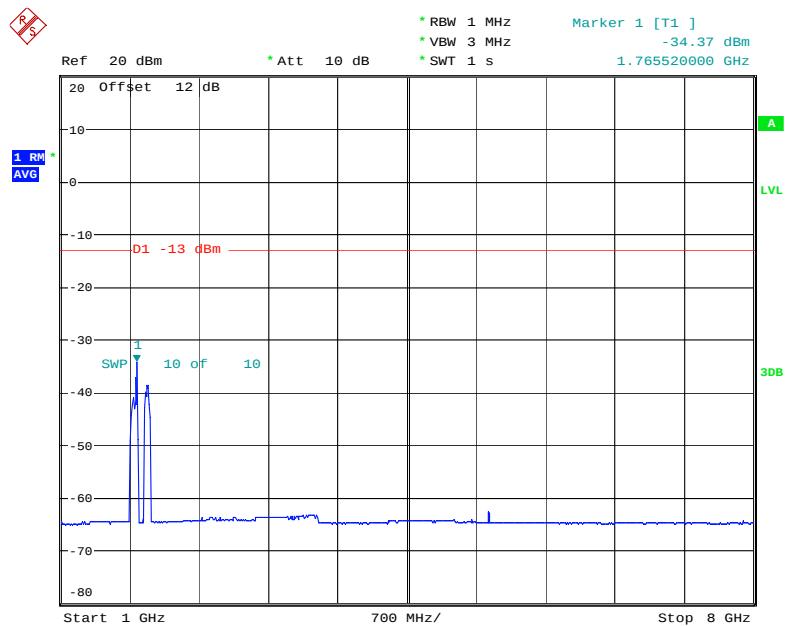
30 dB

Start 30 MHz 74.59 MHz/ Stop 775.9 MHz

Date: 14.JAN.2023 11:56:41

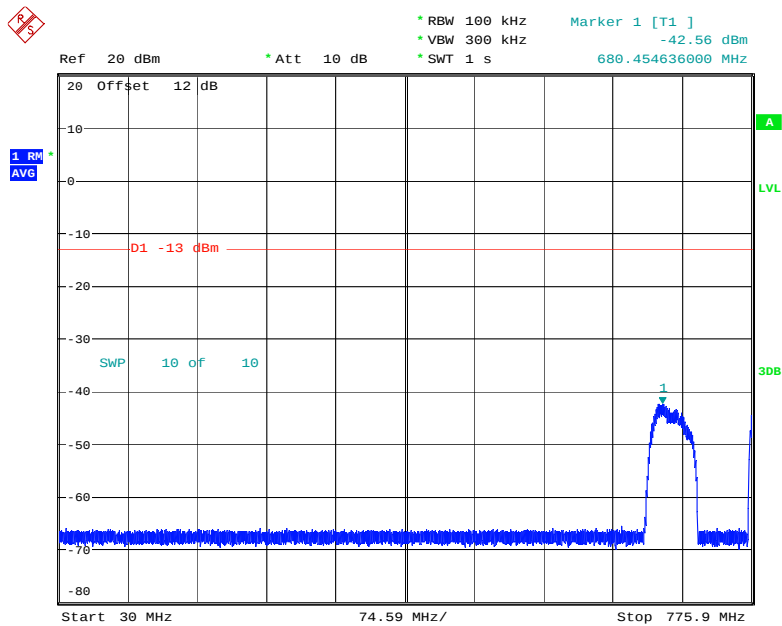


Date: 14.JAN.2023 11:57:00

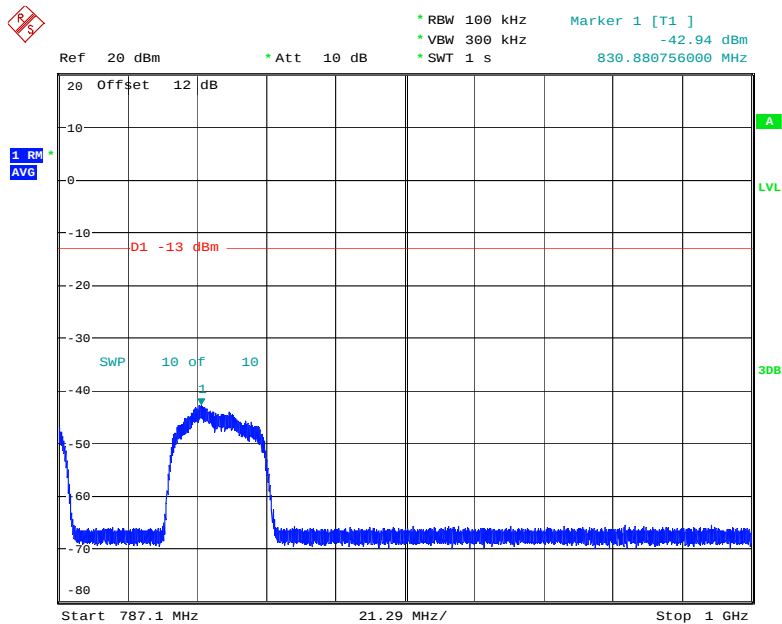


Date: 14.JAN.2023 11:56:20

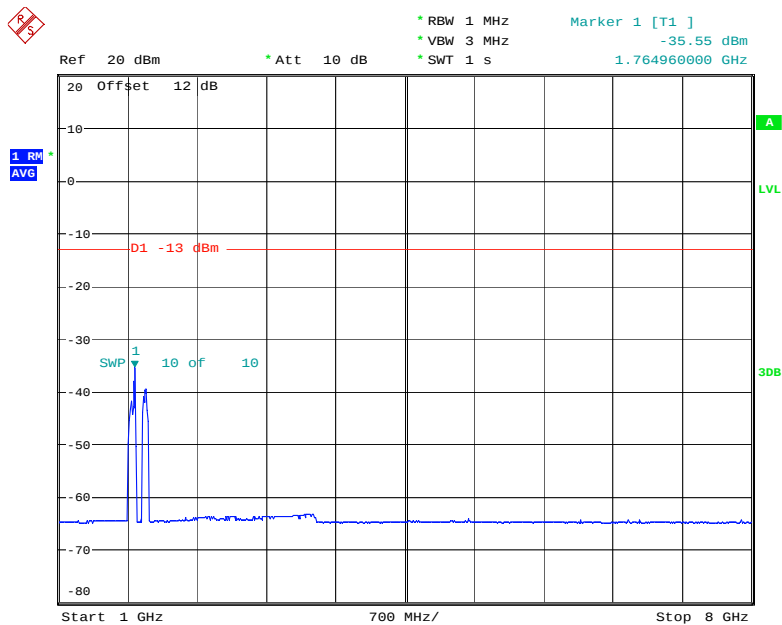
Upper 700MHz (C Block) - GSM-Pre AGC-Middle Channel



Date: 14.JAN.2023 13:05:10

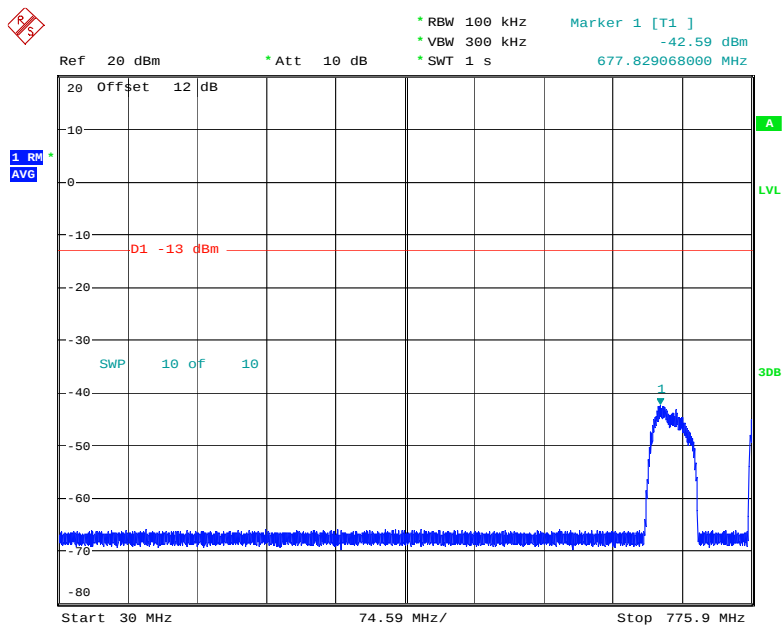


Date: 14.JAN.2023 13:05:29

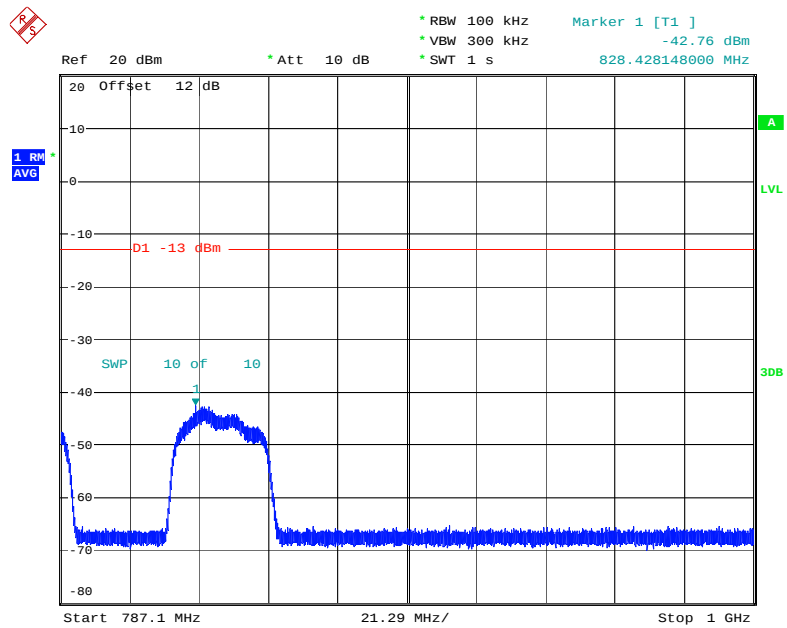


Date: 14.JAN.2023 13:04:51

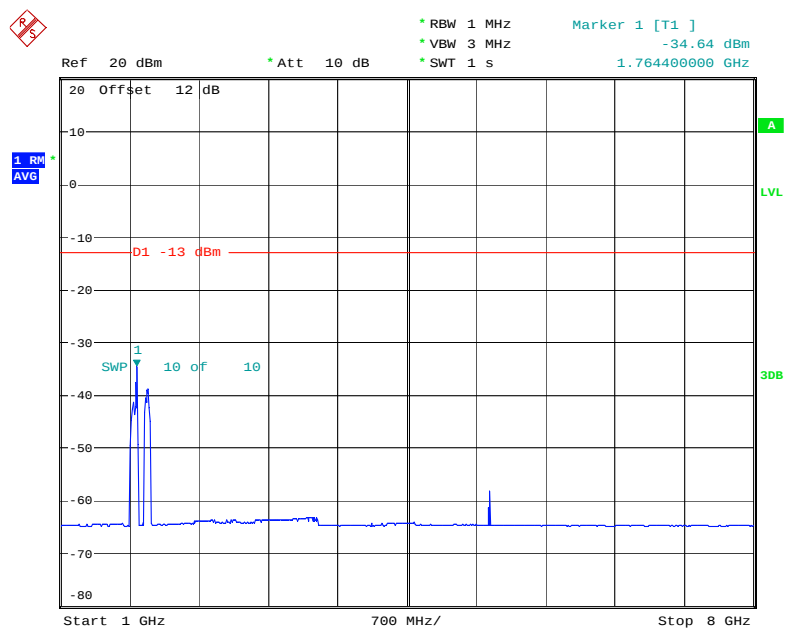
Upper 700MHz (C Block) - GSM-Pre AGC- High Channel



Date: 14.JAN.2023 11:49:46

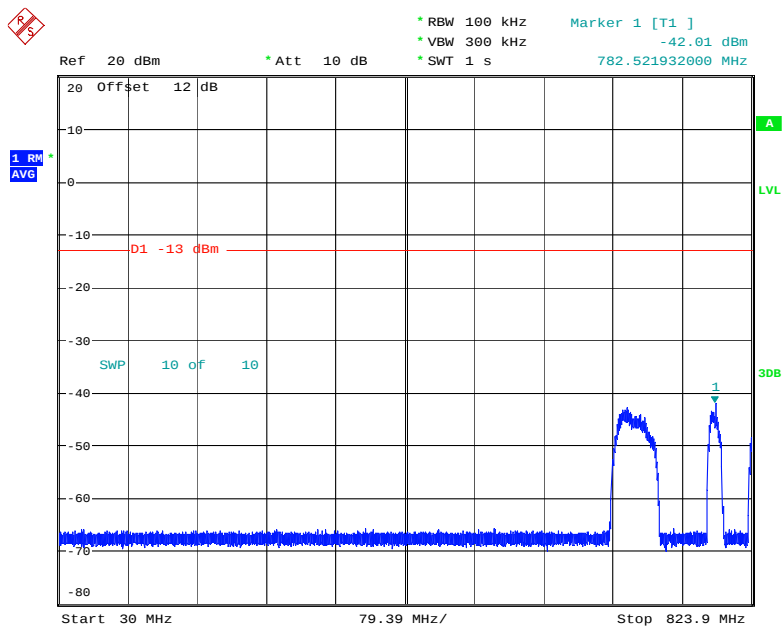


Date: 14.JAN.2023 11:50:06

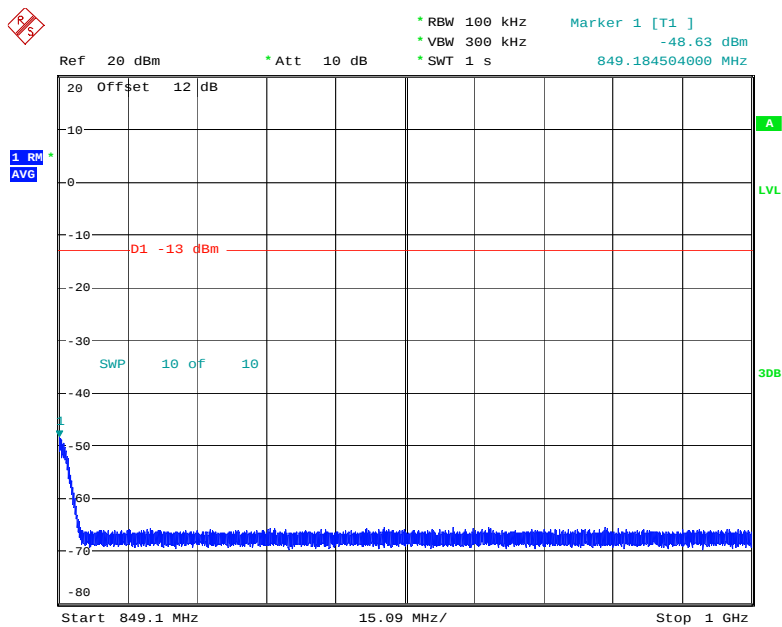


Date: 14.JAN.2023 11:49:27

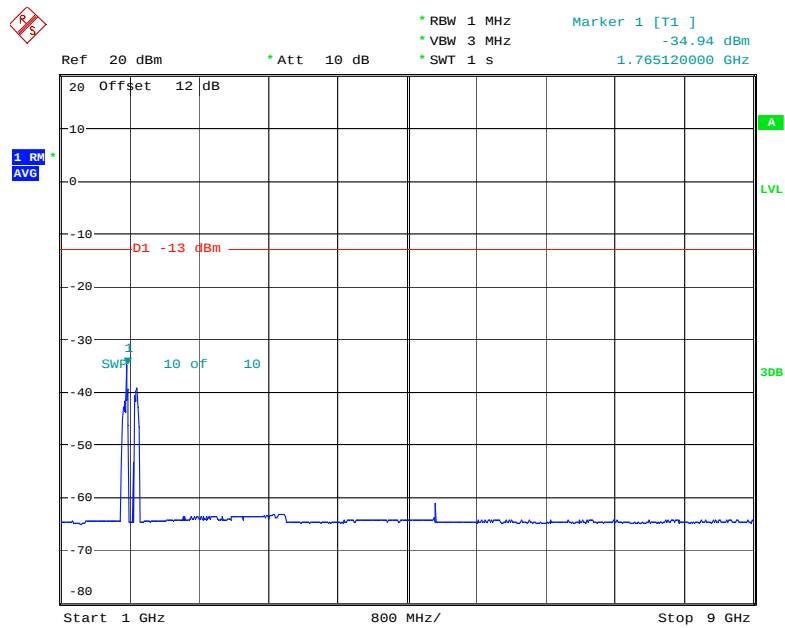
Cellular - AWGN-Pre AGC-Low Channel



Date: 14.JAN.2023 11:25:19

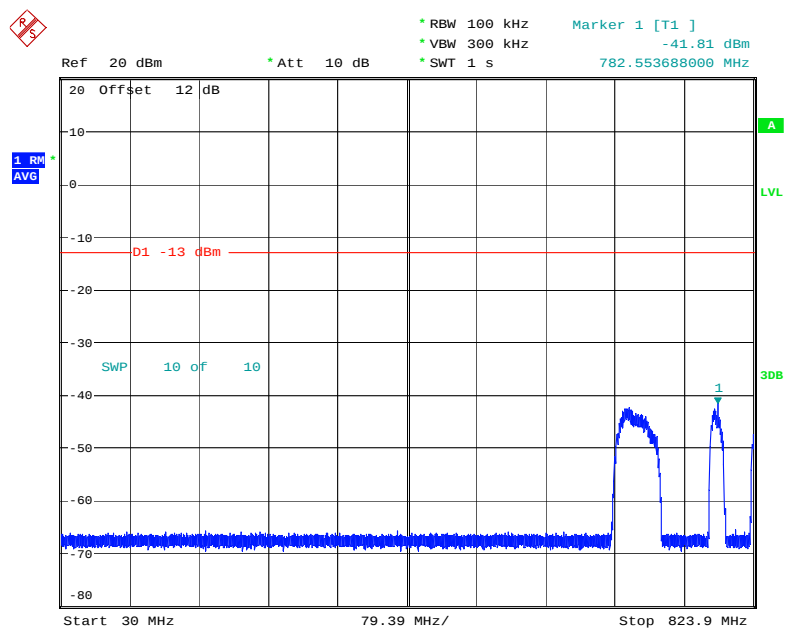


Date: 14.JAN.2023 11:25:40

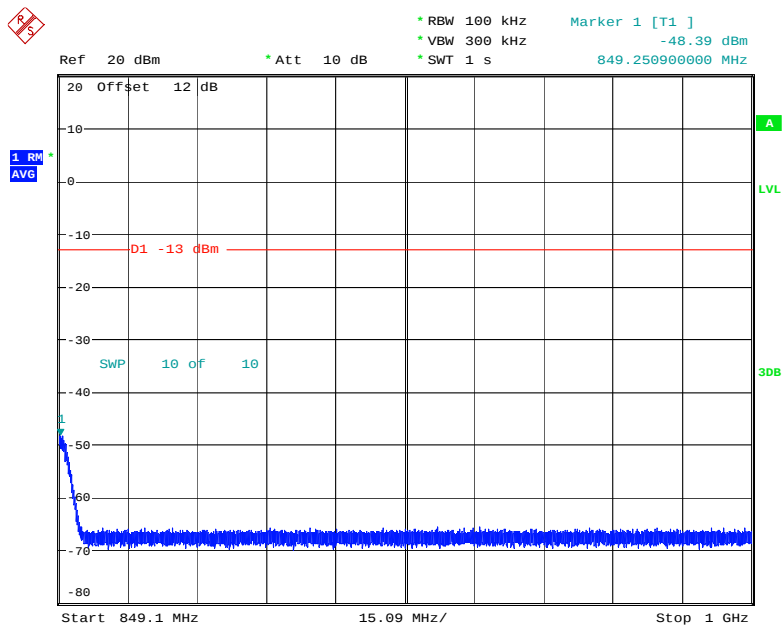


Date: 14.JAN.2023 11:25:00

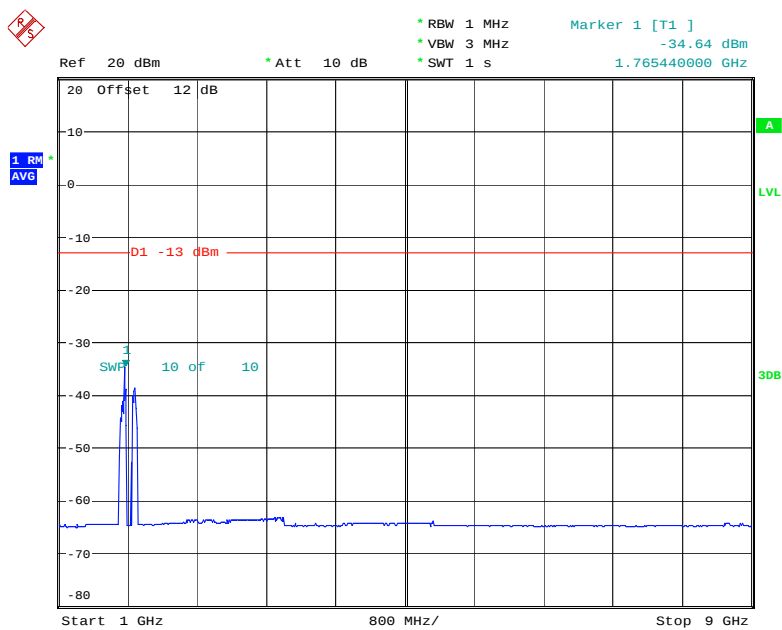
Cellular - AWGN-Pre AGC-Middle Channel



Date: 14.JAN.2023 11:31:15

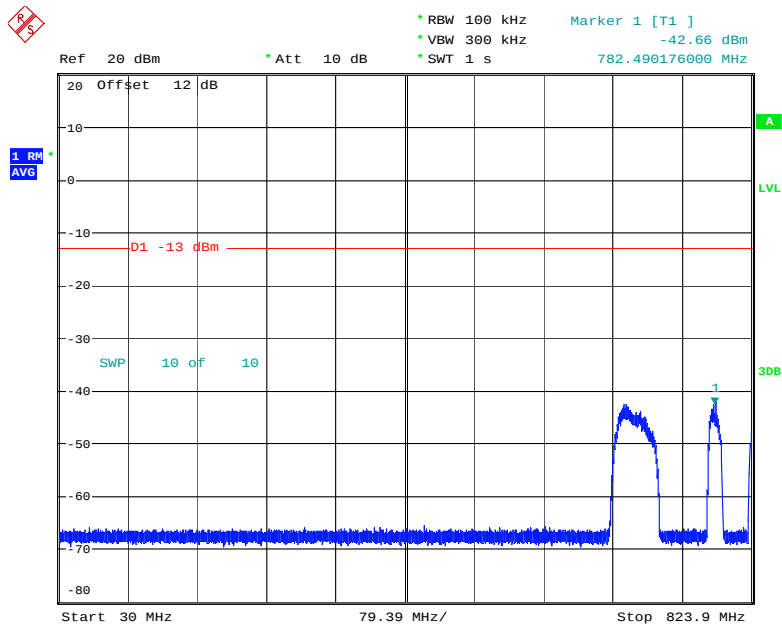


Date: 14.JAN.2023 11:31:34

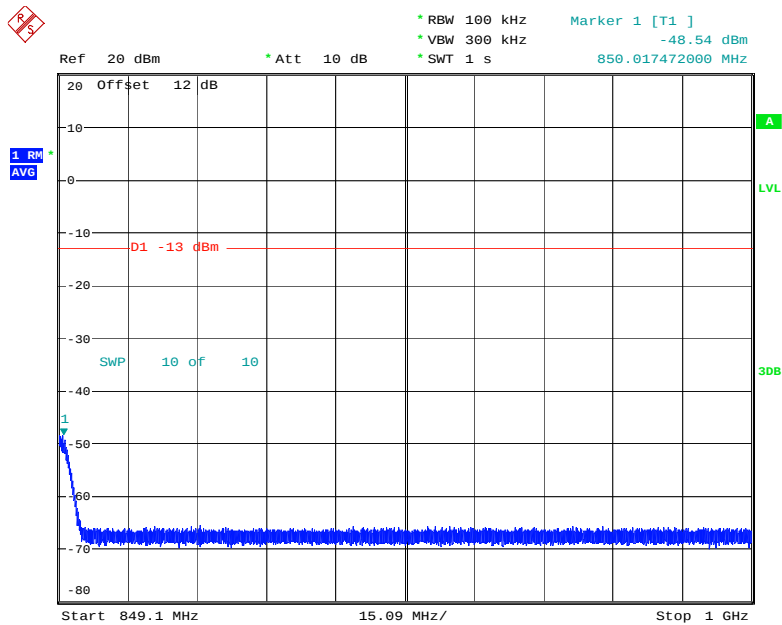


Date: 14.JAN.2023 11:30:54

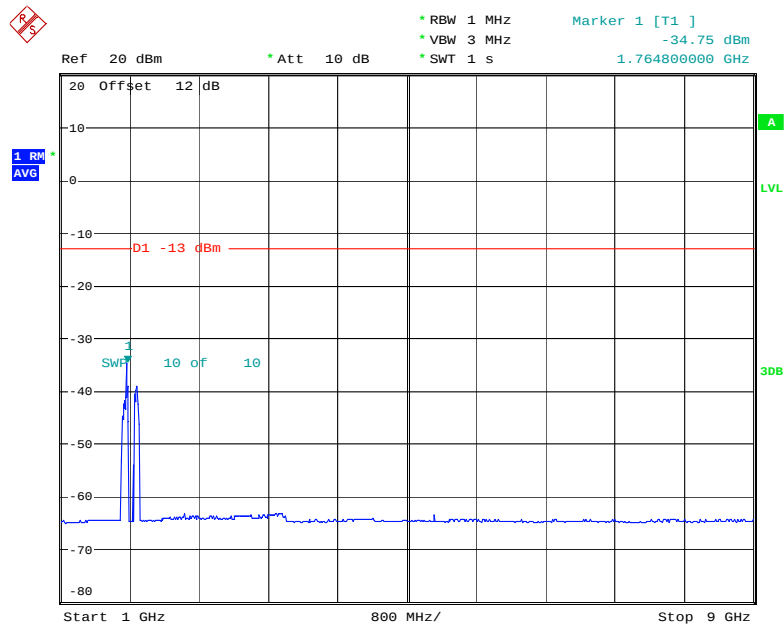
Cellular - AWGN-Pre AGC-High Channel



Date: 14.JAN.2023 11:09:17

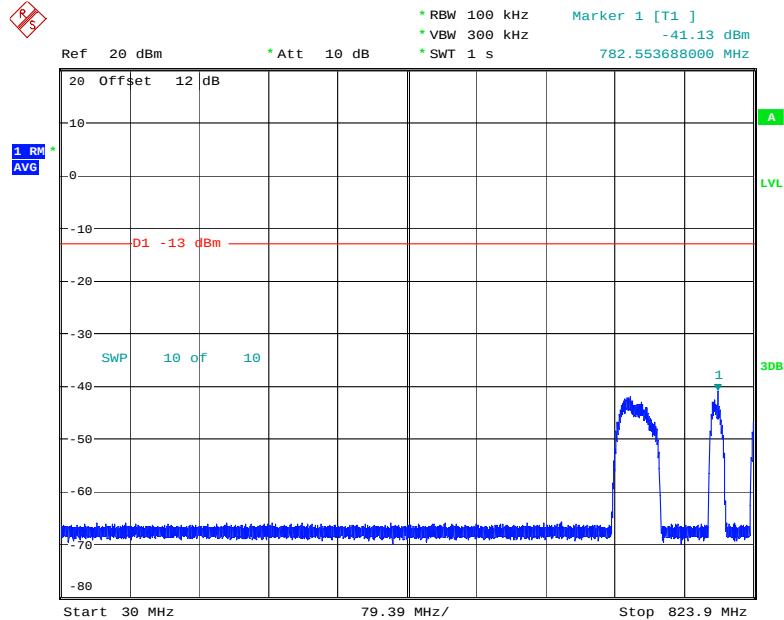


Date: 14.JAN.2023 11:09:37

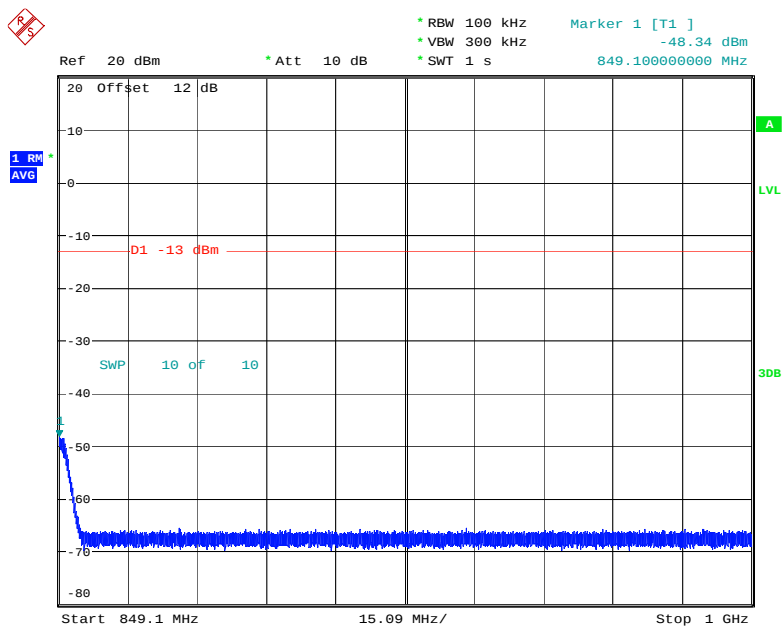


Date: 14.JAN.2023 11:08:57

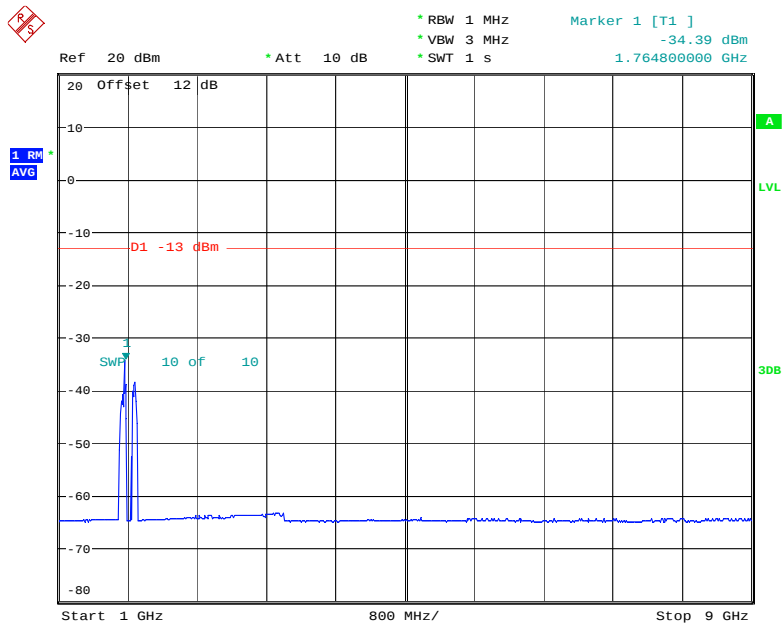
Cellular -GSM-Pre AGC-Low Channel



Date: 14.JAN.2023 11:57:40

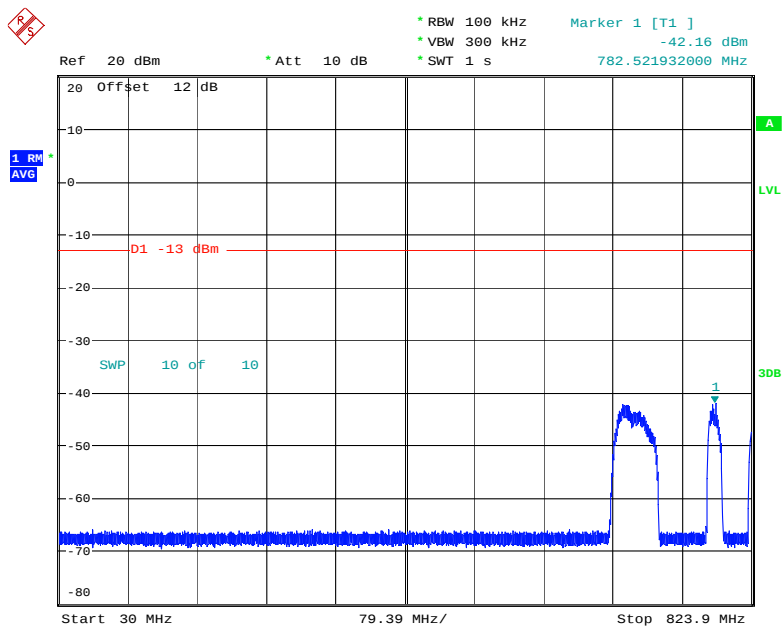


Date: 14.JAN.2023 11:51:05

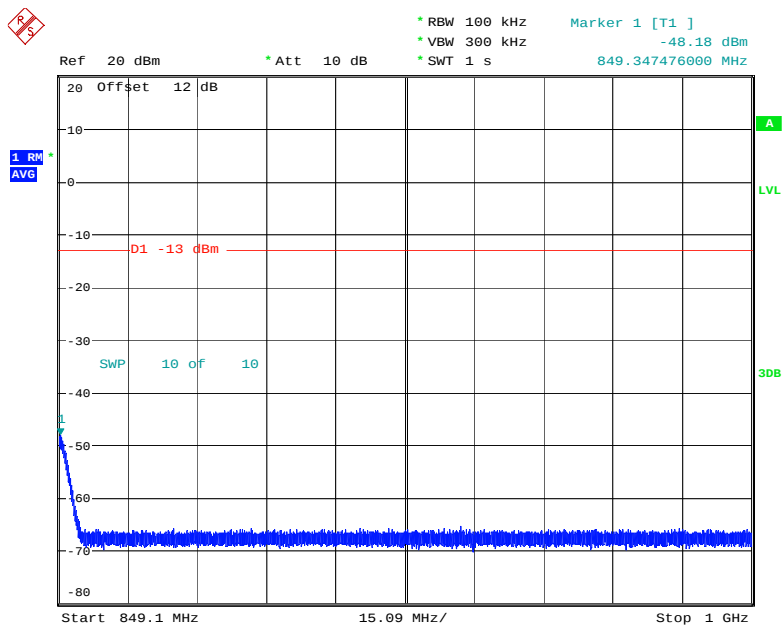


Date: 14.JAN.2023 11:57:20

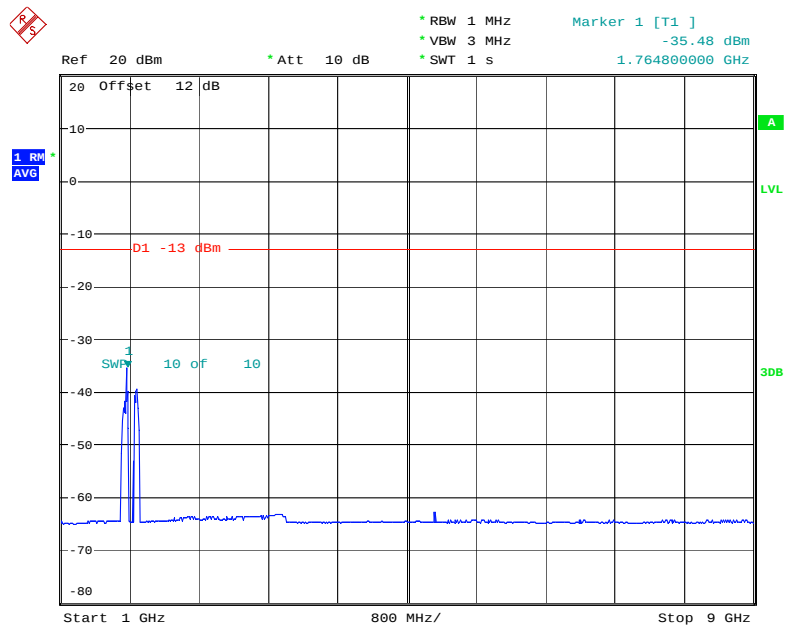
Cellular - GSM-Pre AGC-Middle Channel



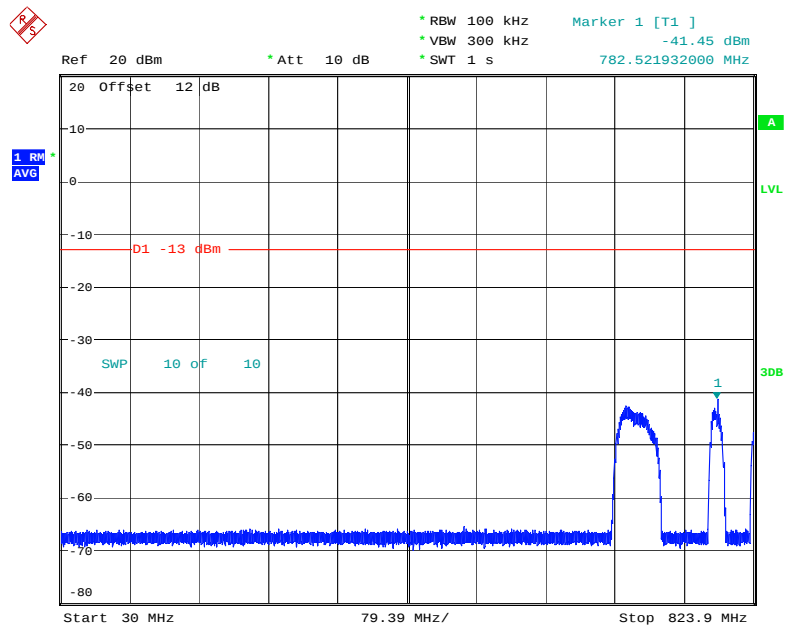
Date: 14. JAN. 2023 13:06:10



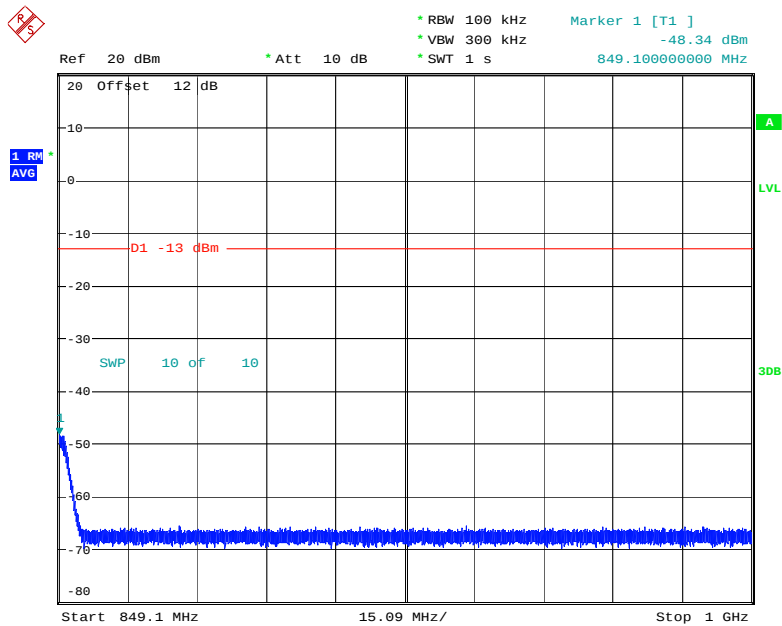
Date: 14. JAN. 2023 13:06:28



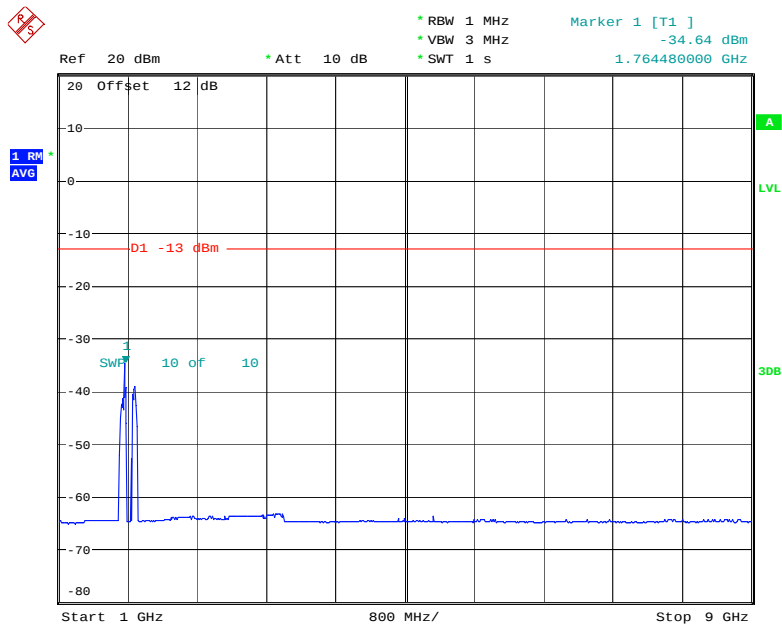
Date: 14.JAN.2023 13:05:50

Cellular – GSM -Pre AGC- High Channel

Date: 14.JAN.2023 11:50:45

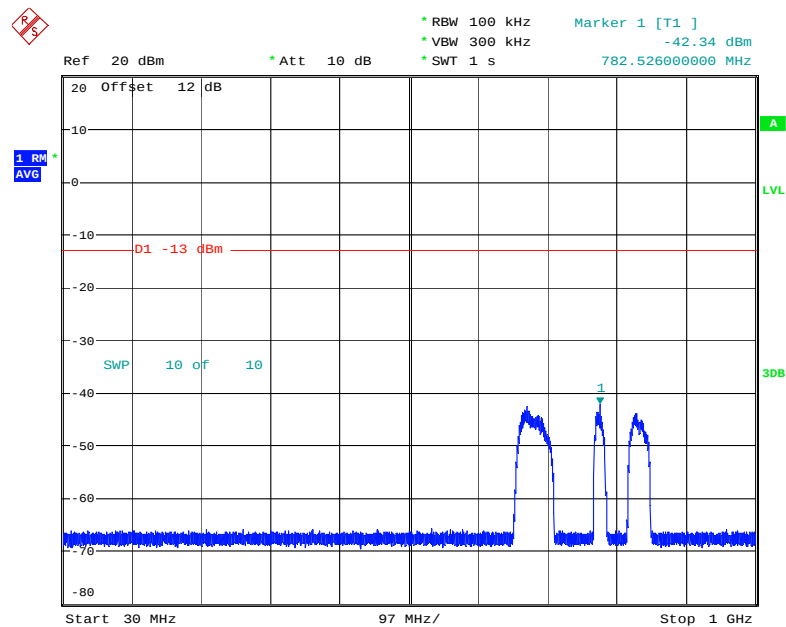


Date: 14.JAN.2023 11:51:05

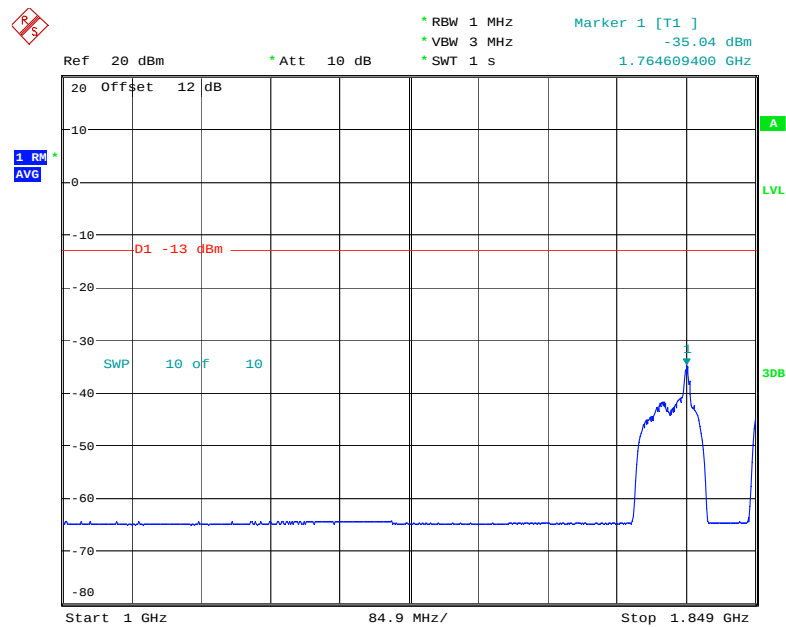


Date: 14.JAN.2023 11:50:26

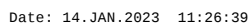
PCS- AWGN-Pre AGC-Low Channel



Date: 14.JAN.2023 11:26:19



Date: 14.JAN.2023 11:25:59



Ref 20 dBm * Att 10 dB * RBW 100 kHz * VBW 300 kHz * SWT 1 s Marker 1 [T1] -41.54 dBm 782.487200000 MHz

20 Offset 12 dB

1 RM AVG

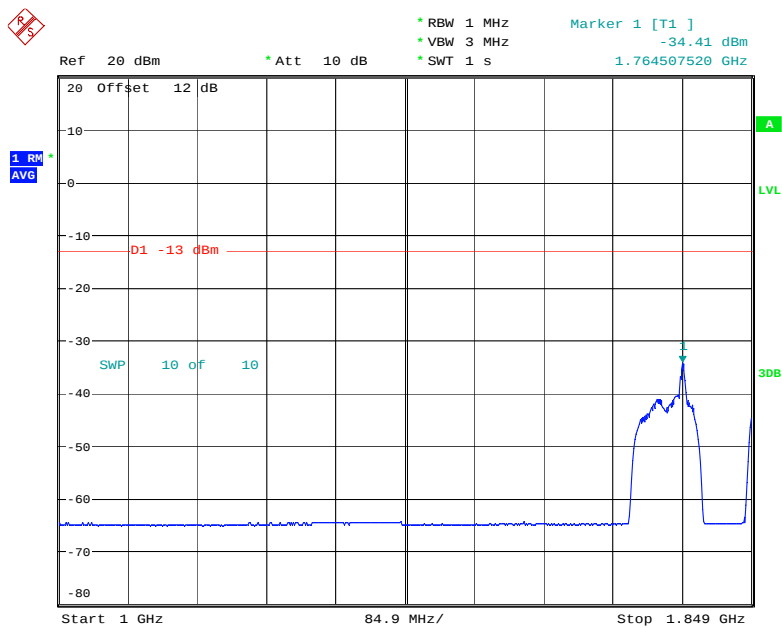
D1 -13 dBm

SWP 10 of 10

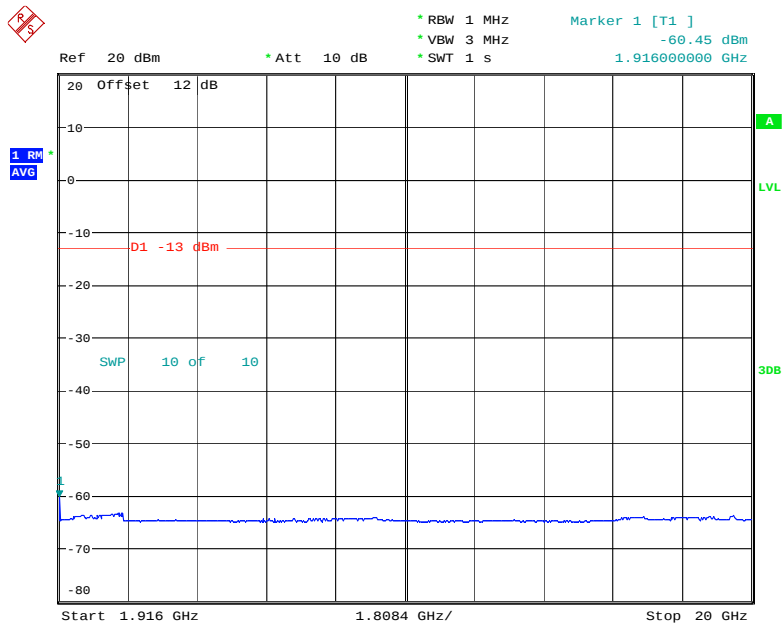
1

Start 30 MHz 97 MHz/ Stop 1 GHz

Date: 14.JAN.2023 11:32:14

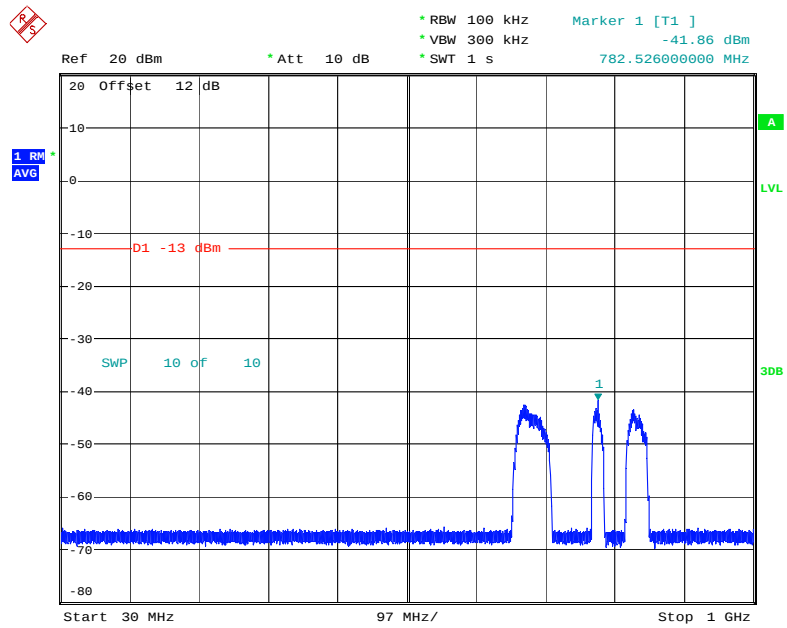


Date: 14.JAN.2023 11:31:54

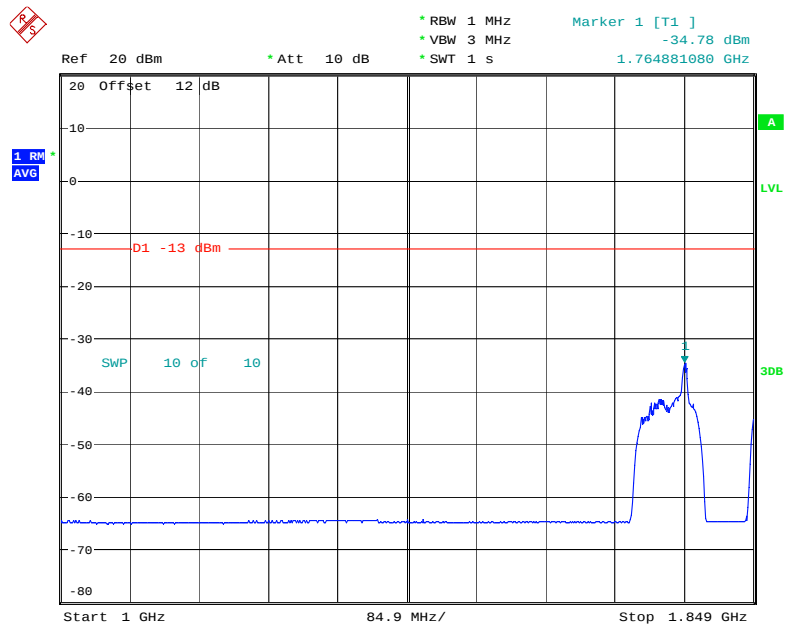


Date: 14.JAN.2023 11:32:34

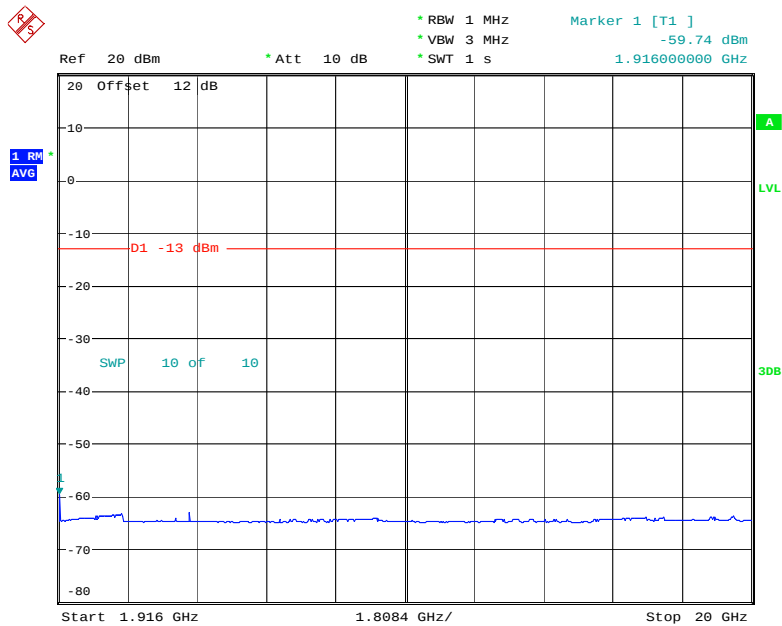
PCS- AWGN-Pre AGC-High Channel



Date: 14.JAN.2023 11:10:16

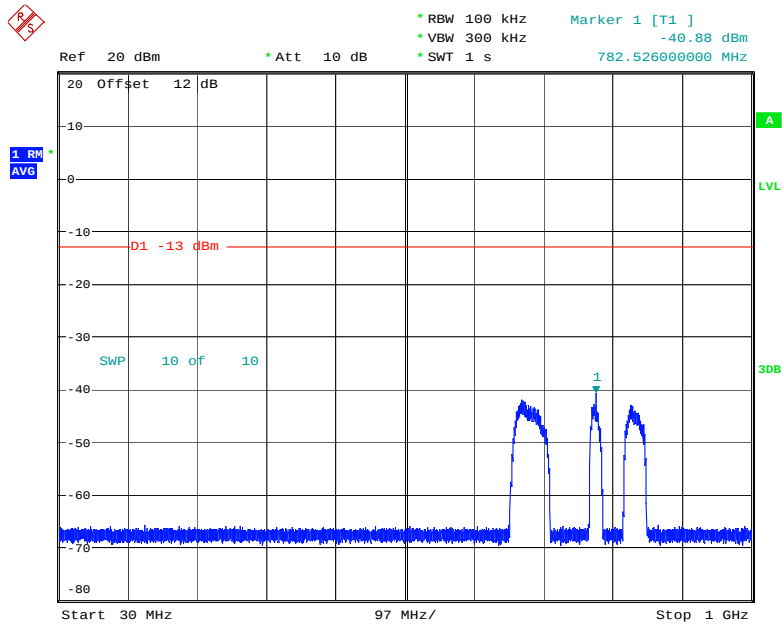


Date: 14.JAN.2023 11:09:57

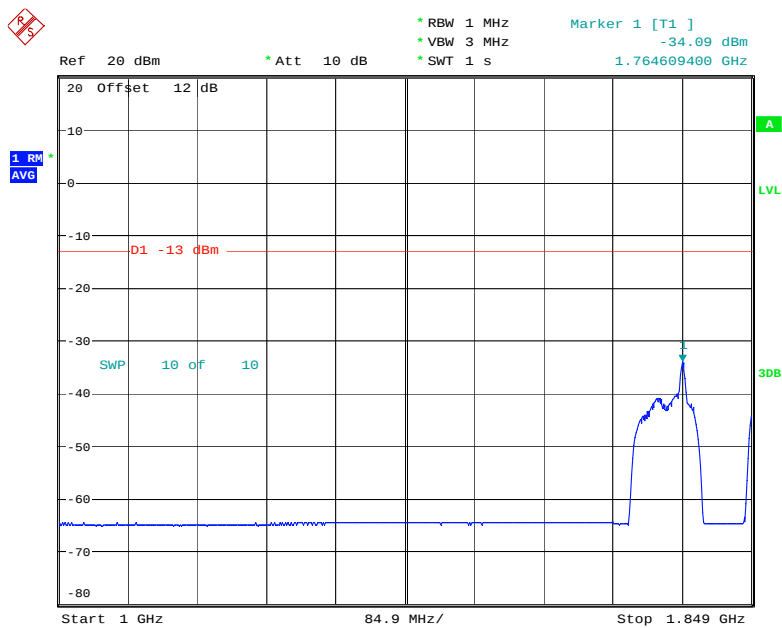


Date: 14. JAN. 2023 11:10:35

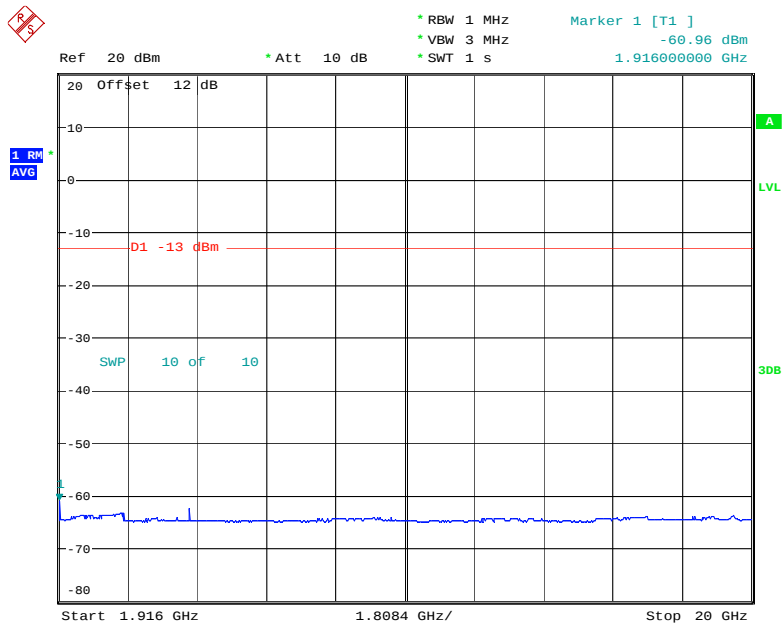
PCS- GSM-Pre AGC-Low Channel



Date: 14. JAN. 2023 11:58:39

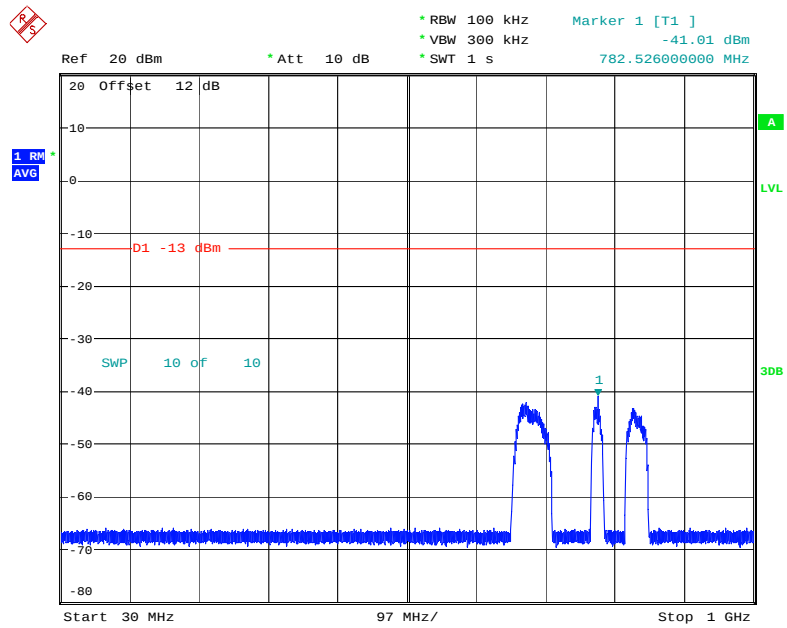


Date: 14.JAN.2023 11:58:19

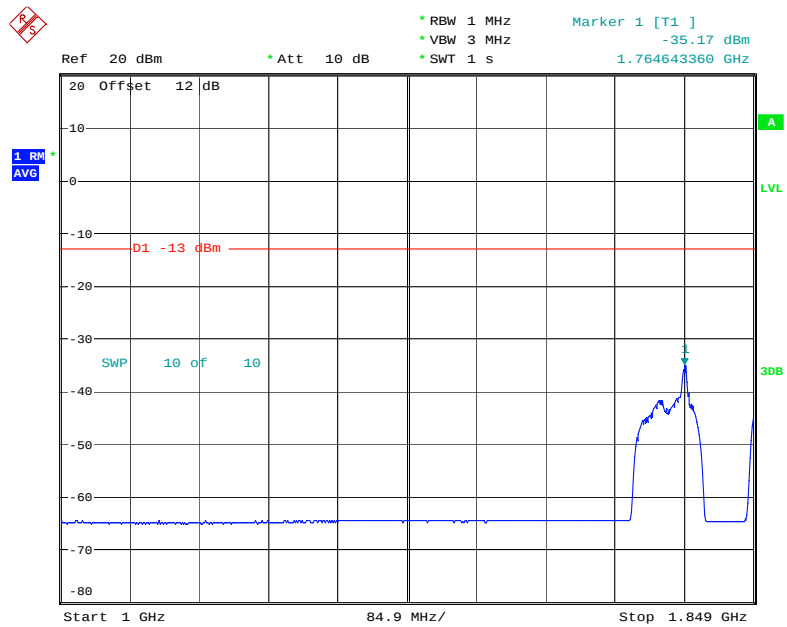


Date: 14.JAN.2023 11:58:59

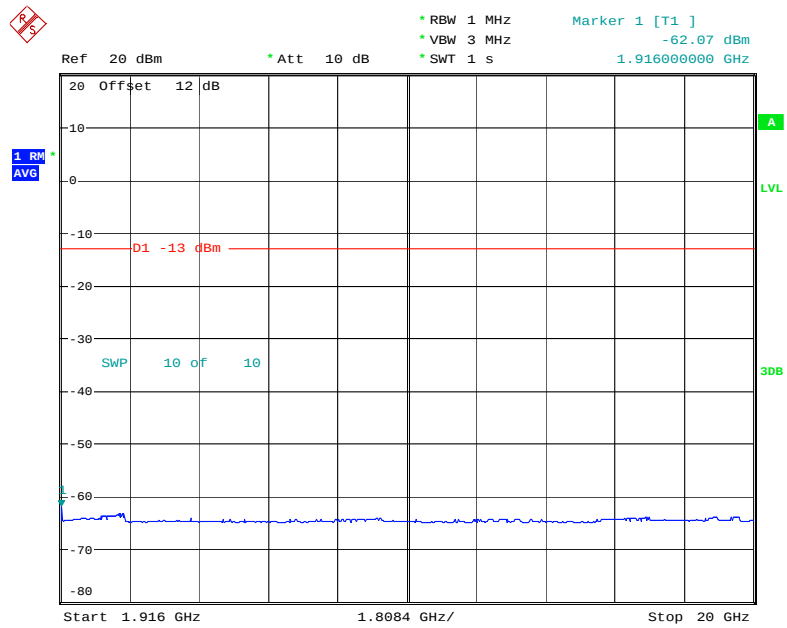
PCS- GSM-Pre AGC-Middle Channel



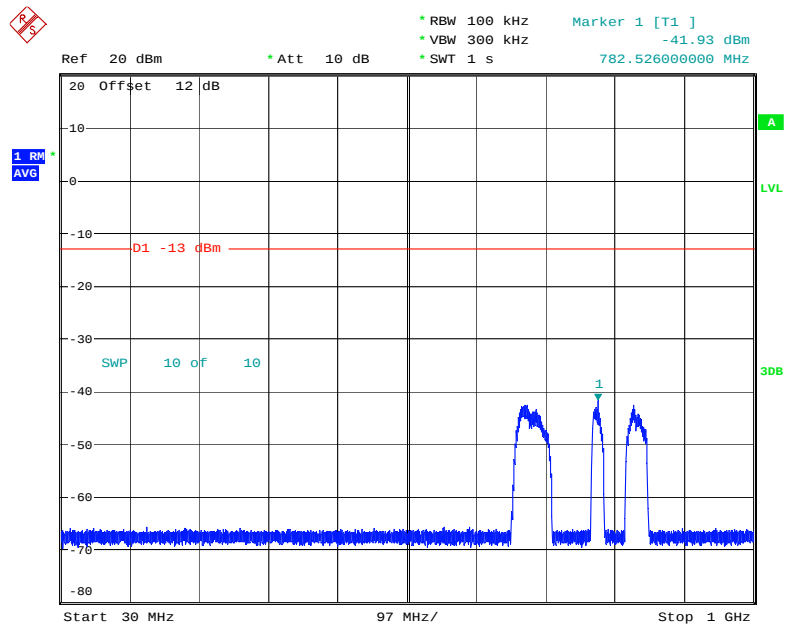
Date: 14. JAN. 2023 13:07:09



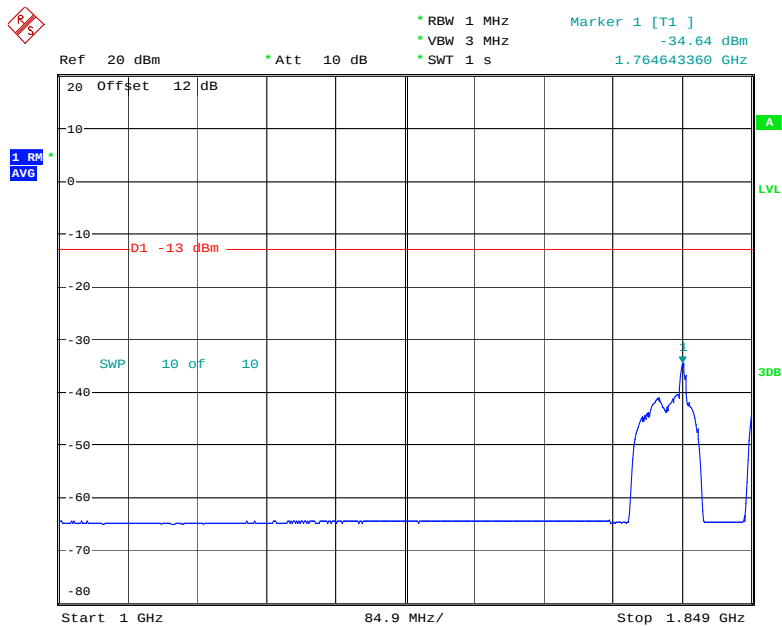
Date: 14. JAN. 2023 13:06:48



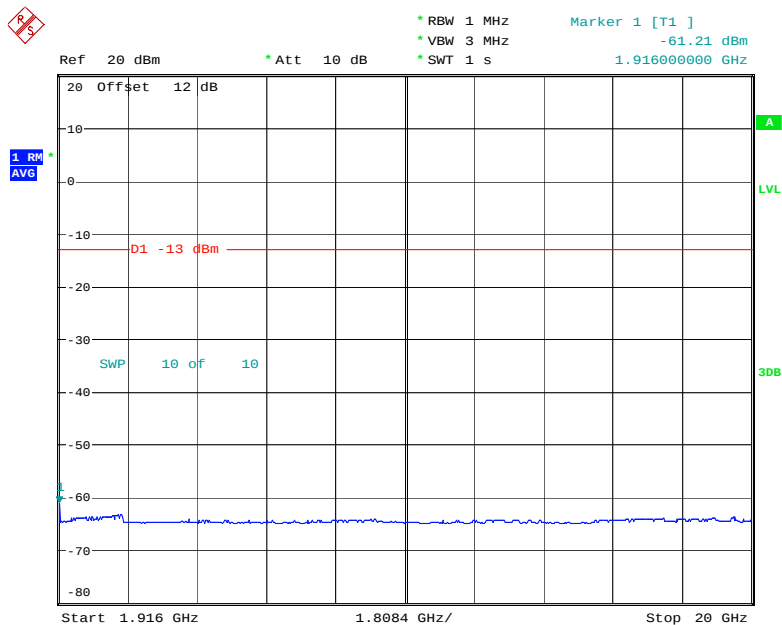
Date: 14. JAN. 2023 13:07:28

PCS- GSM-Pre AGC-High Channel

Date: 14. JAN. 2023 11:51:44

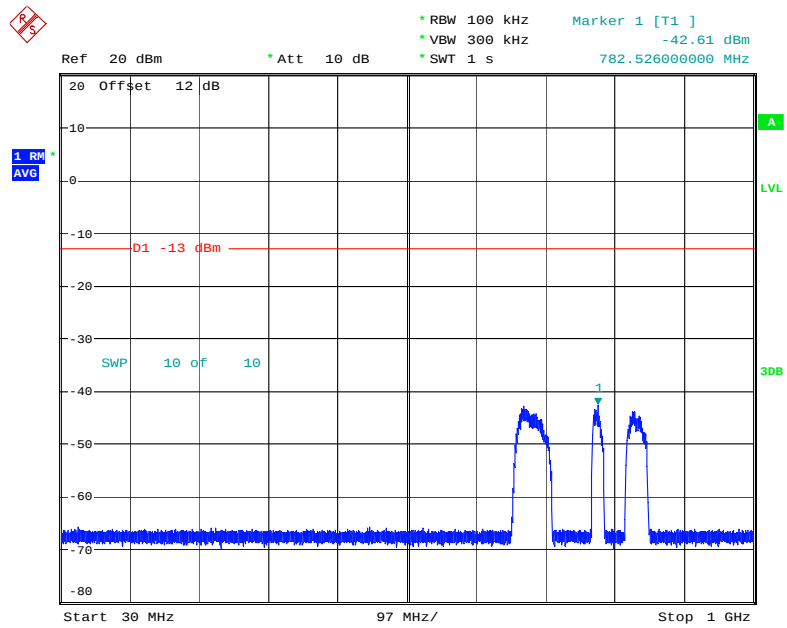


Date: 14.JAN.2023 11:51:25

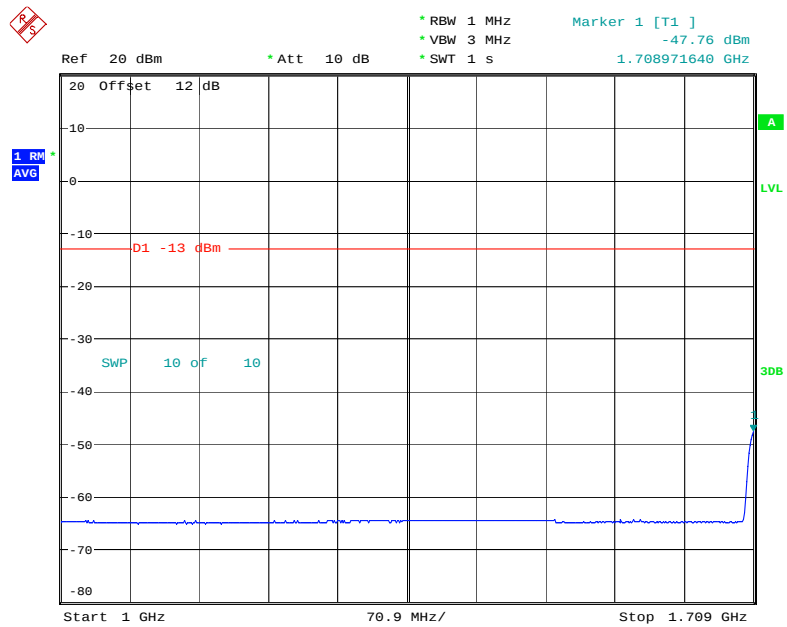


Date: 14.JAN.2023 11:52:04

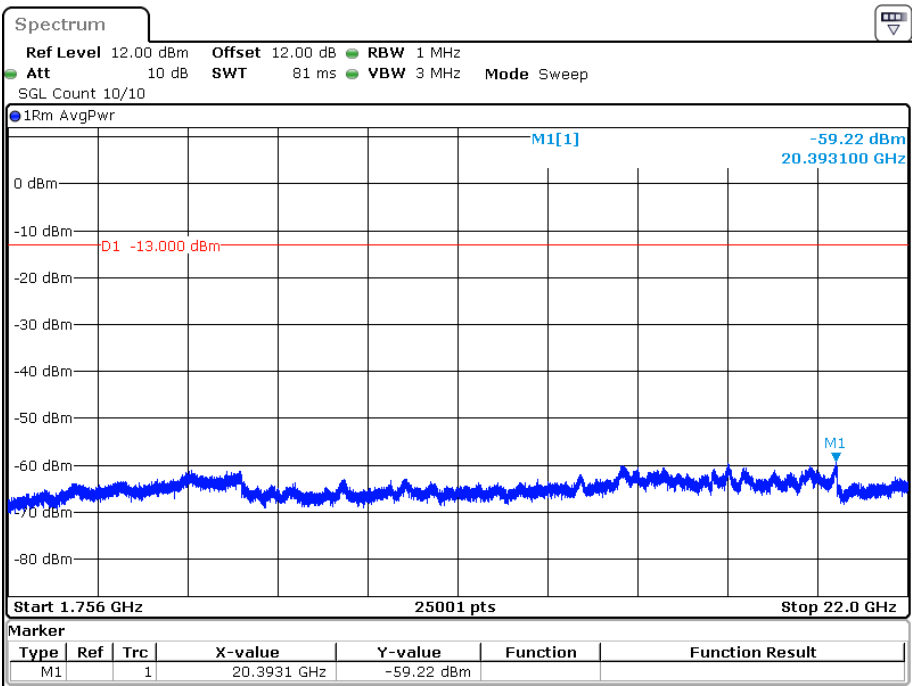
AWS- AWGN-Pre AGC-Low Channel



Date: 14.JAN.2023 11:27:18

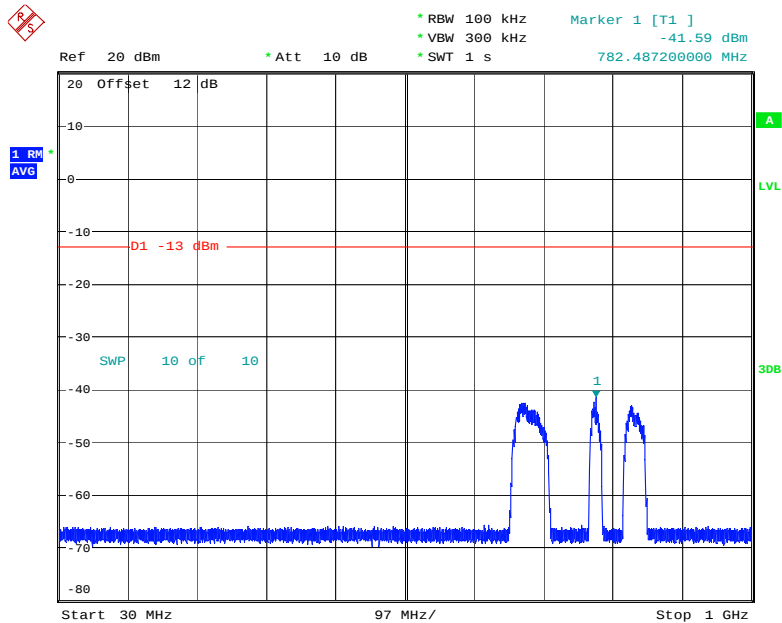


Date: 14.JAN.2023 11:26:59

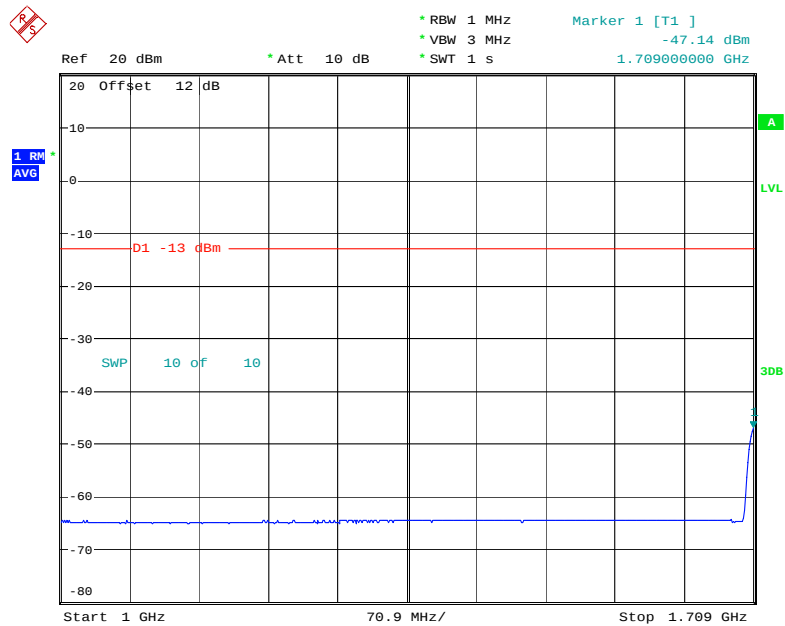


Date: 1.FEB.2023 13:21:51

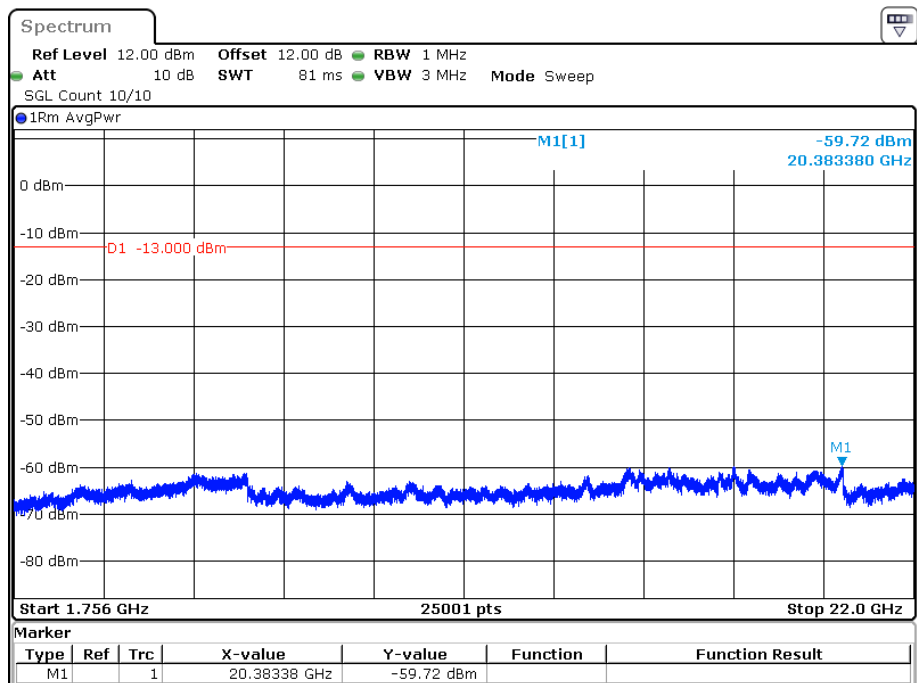
AWS- AWGN-Pre AGC-Middle Channel



Date: 14.JAN.2023 11:33:12

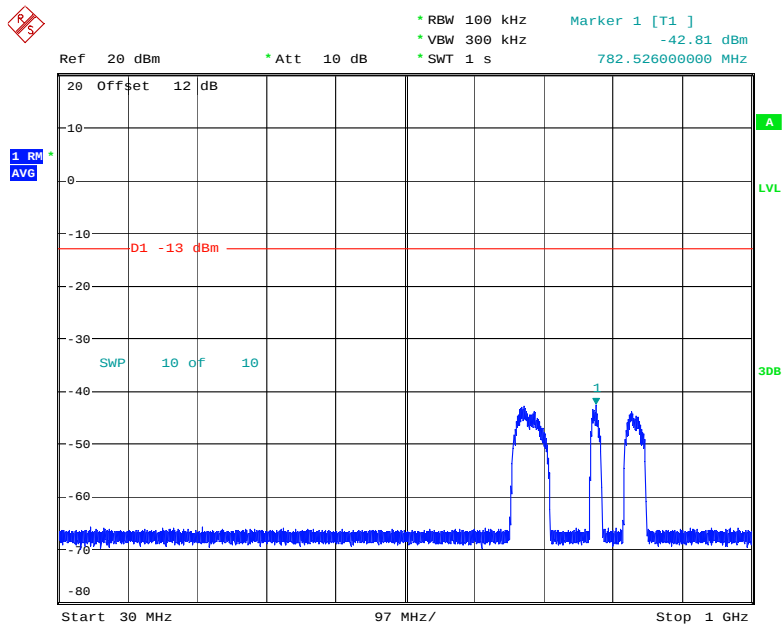


Date: 14. JAN. 2023 11:32:53

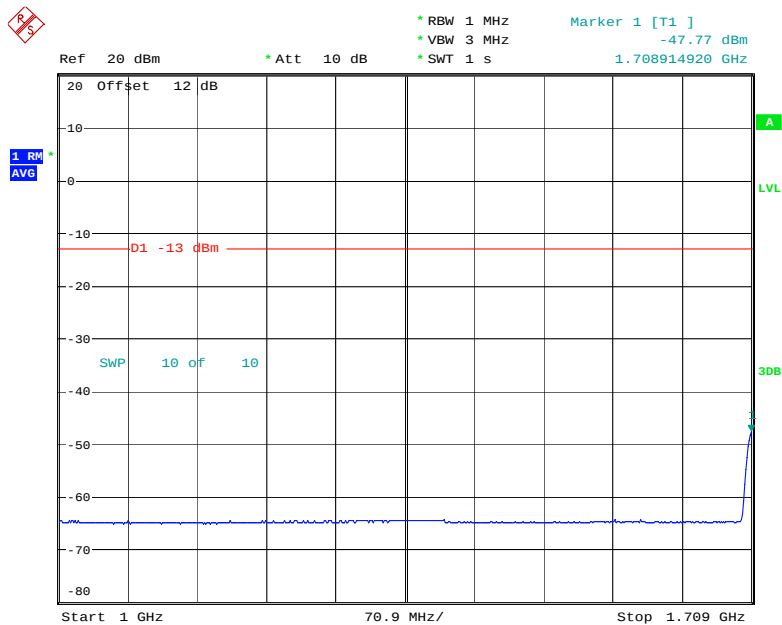


Date: 1. FEB. 2023 13:21:59

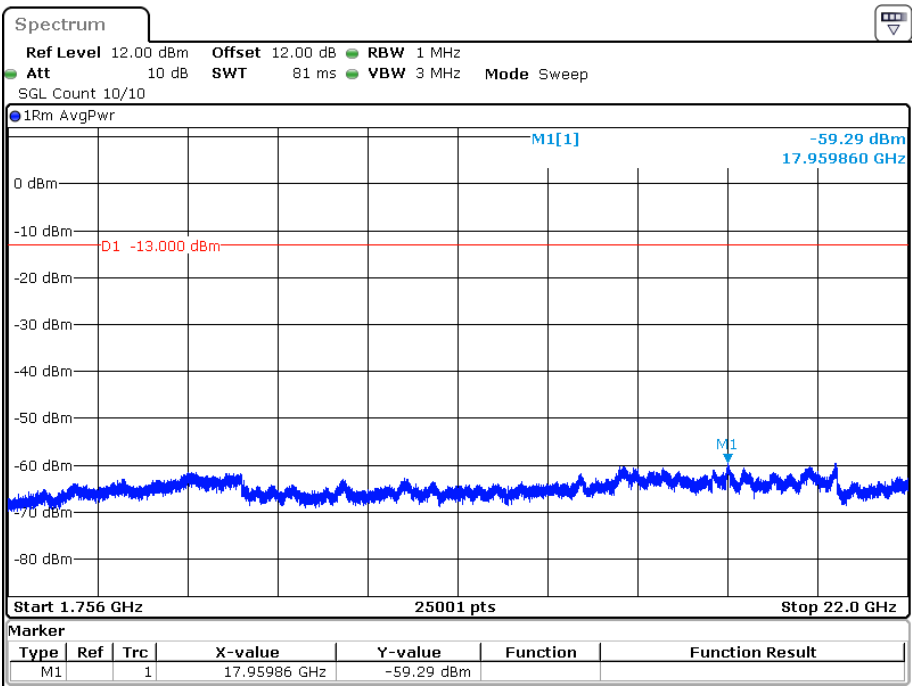
AWS- AWGN-Pre AGC-High Channel



Date: 14. JAN. 2023 11:11:15

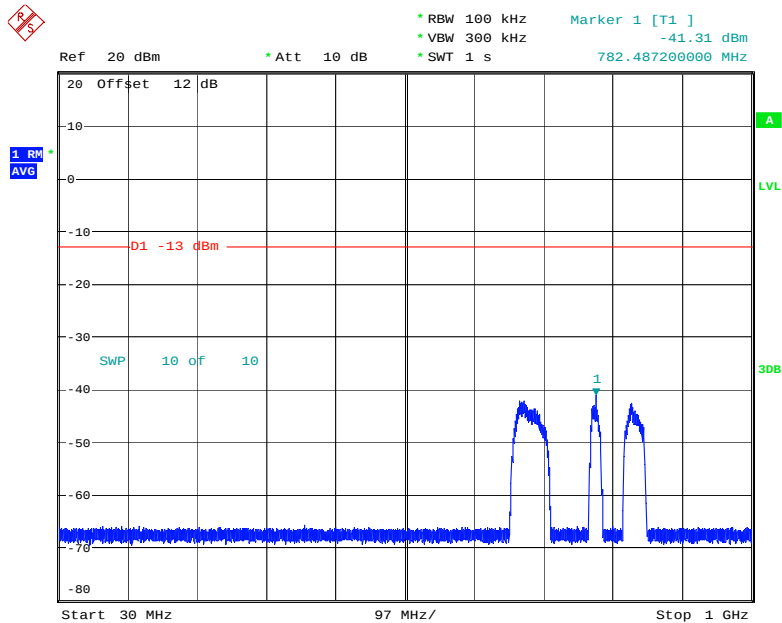


Date: 14. JAN. 2023 11:10:56

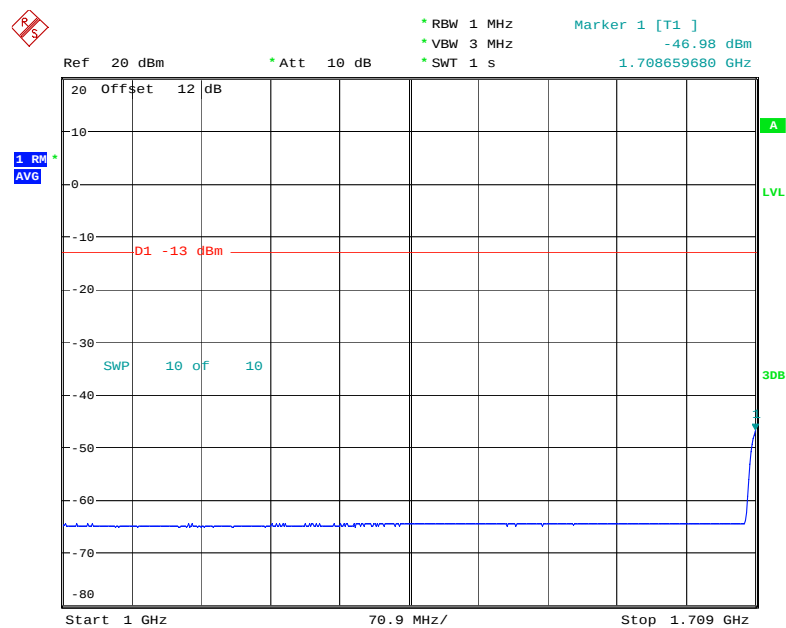


Date: 1.FEB.2023 13:21:41

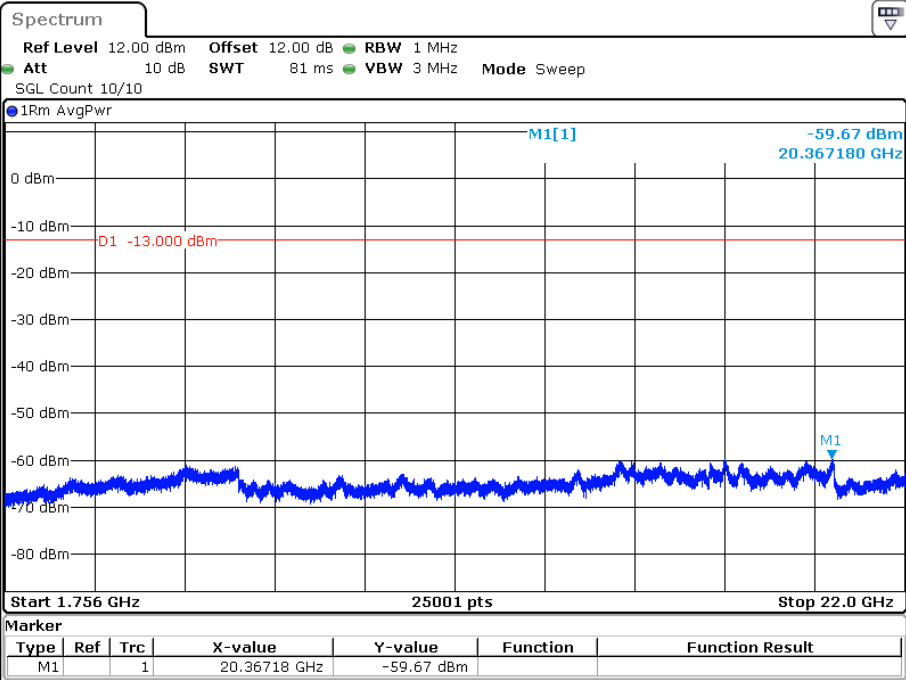
AWS- GSM-Pre AGC-Low Channel



Date: 14.JAN.2023 11:59:37



Date: 14.JAN.2023 11:59:18



Date: 1.FEB.2023 11:47:37

Ref 20 dBm * Att 10 dB * RBW 100 kHz * VBW 300 kHz * SWT 1 s Marker 1 [T1] -41.37 dBm 782.526000000 MHz

20 Offset 12 dB

1 RM *
AVG

D1 -13 dBm

SWP 10 of 10

1

Start 30 MHz 97 MHz/ Stop 1 GHz

20 Offset 12 dB

Ref 20 dBm

* Att 10 dB

* RBW 1 MHz

* VBW 3 MHz

* SWT 1 s

Marker 1 [T1]

-47.41 dBm

1.708914920 GHz

1 RM

AVG

D1 -13 dBm

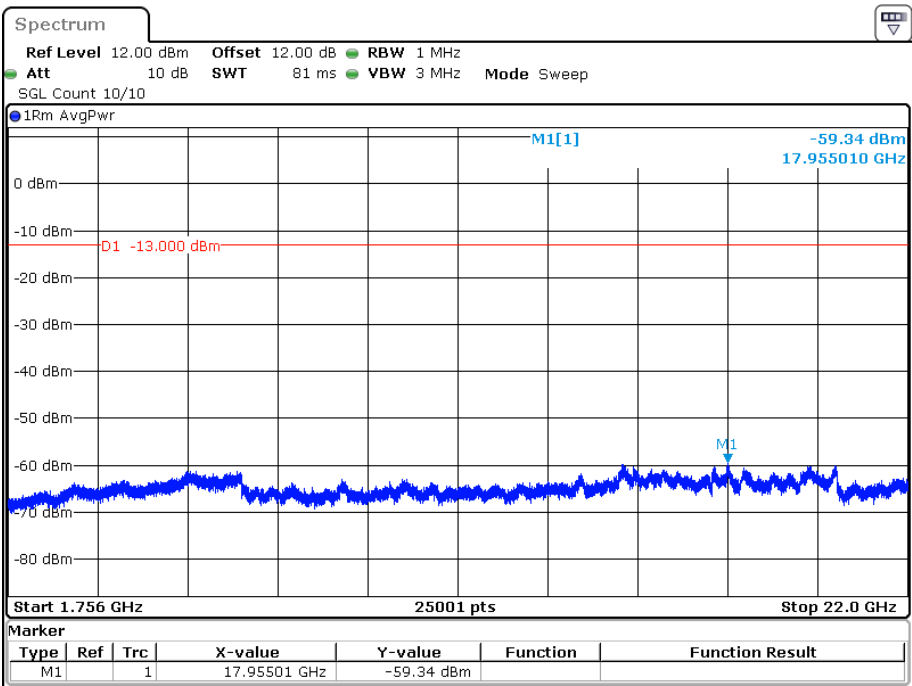
SWP 10 of 10

Start 1 GHz

70.9 MHz/

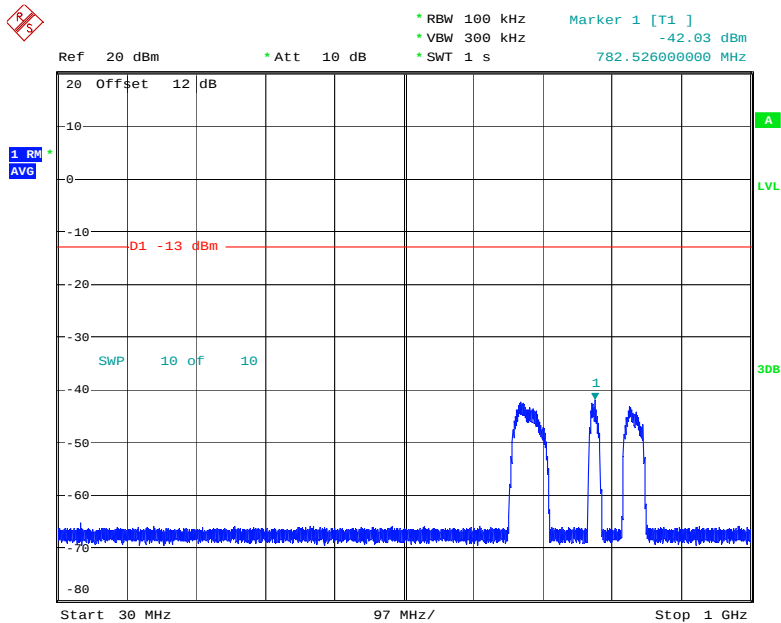
Stop 1.709 GHz

FCC- INDUSTRIALBOOSTER

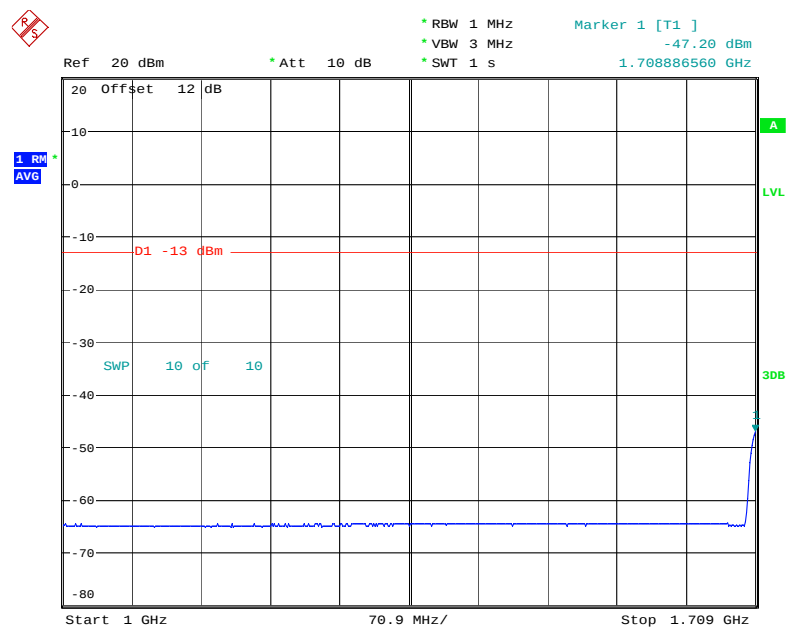


Date: 1.FEB.2023 11:47:10

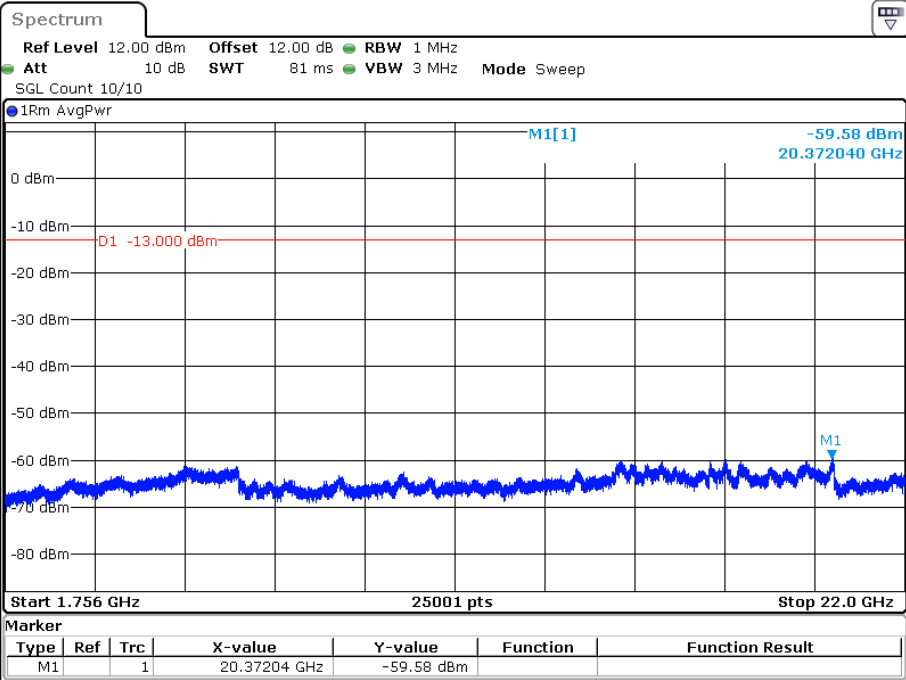
AWS- GSM-Pre AGC-High Channel



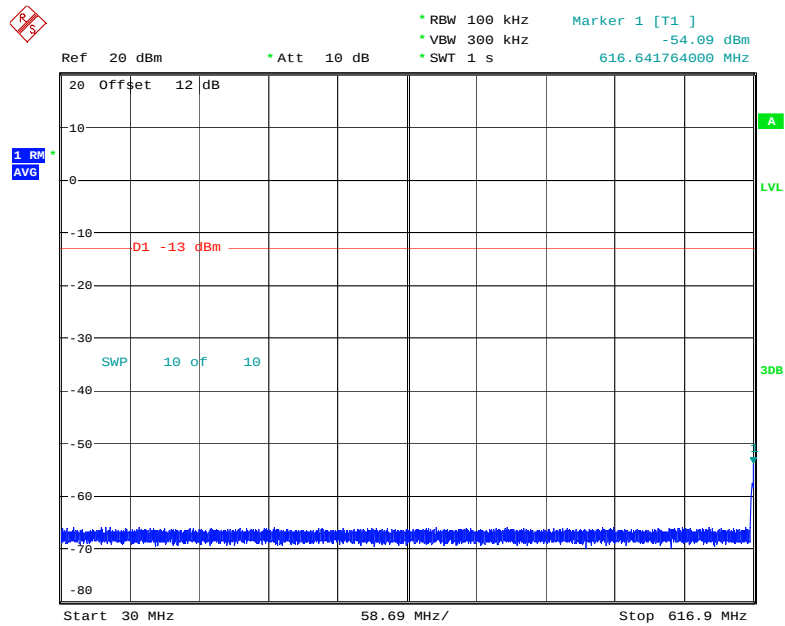
Date: 14.JAN.2023 11:52:44



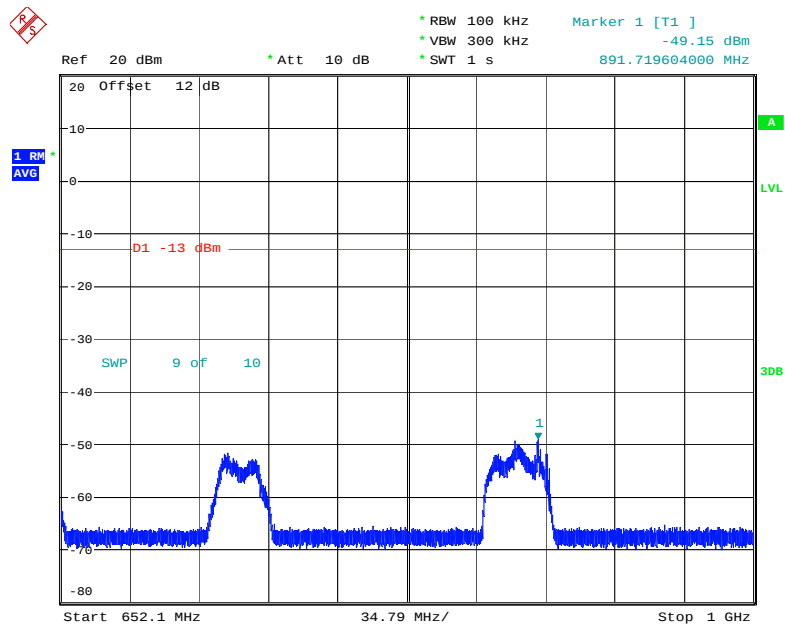
Date: 14.JAN.2023 11:52:23



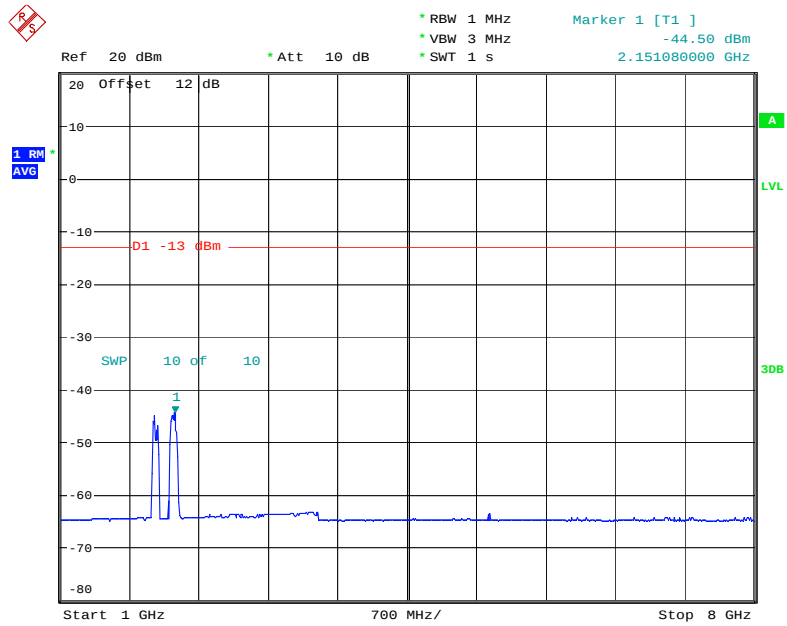
Date: 1.FEB.2023 11:46:37

Downlink:**600MHz Band -AWGN-Pre AGC-Low Channel**

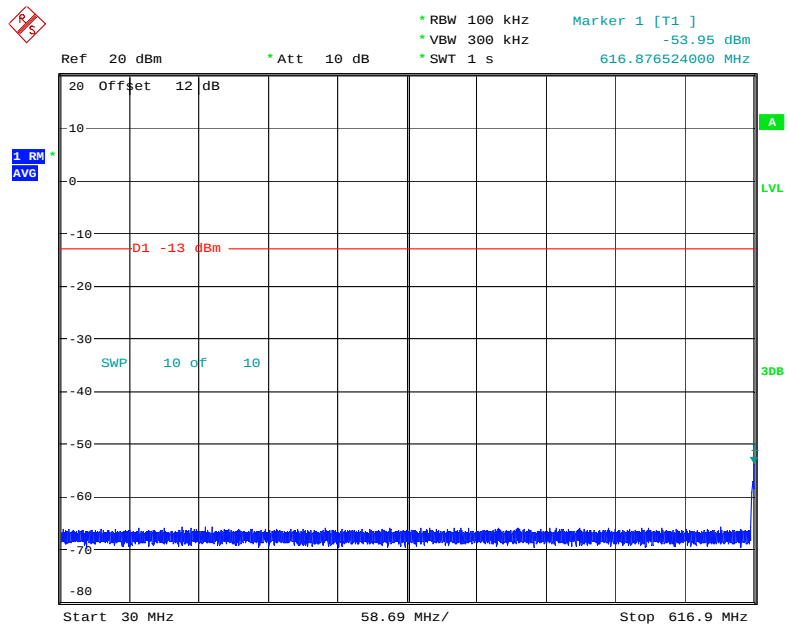
Date: 14.JAN.2023 13:40:03



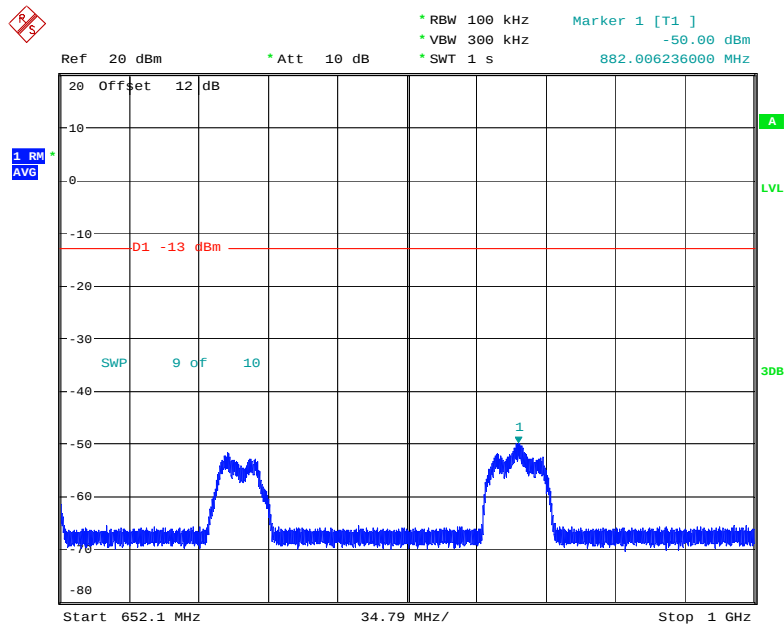
Date: 14.JAN.2023 13:40:22



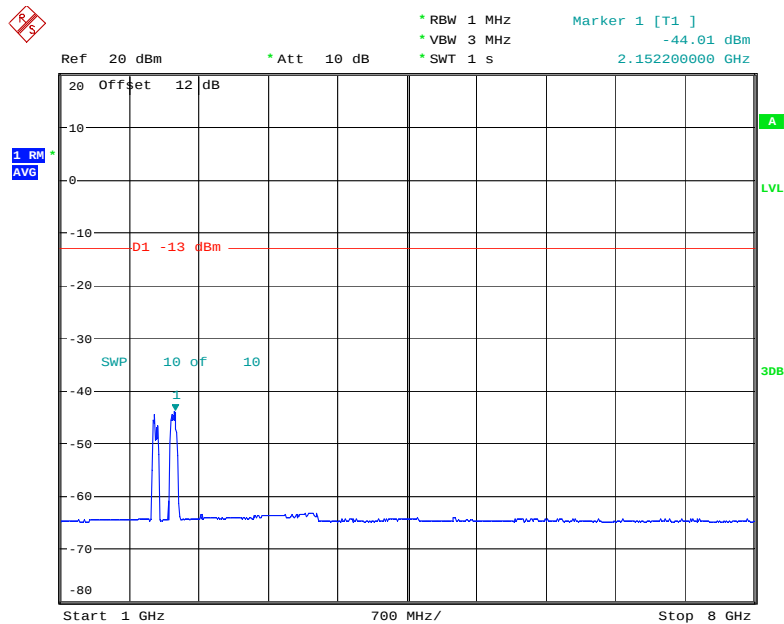
Date: 14.JAN.2023 13:39:42

600MHz Band - AWGN-Pre AGC-Middle Channel

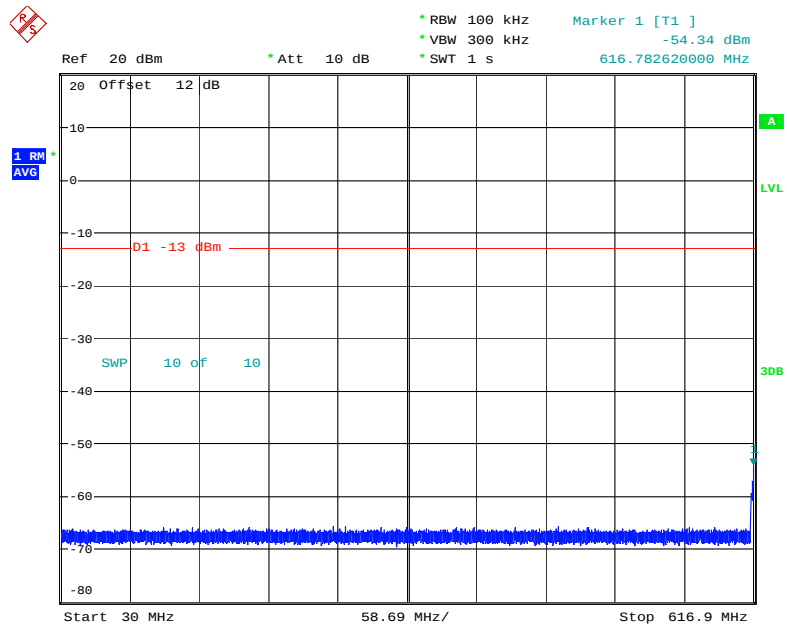
Date: 14.JAN.2023 13:45:37



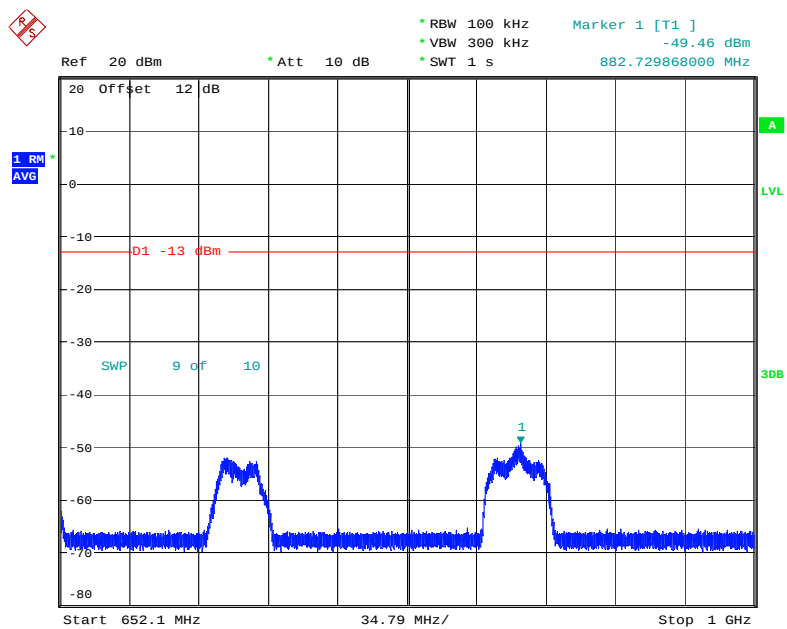
Date: 14.JAN.2023 13:45:58



Date: 14.JAN.2023 13:45:18

600MHz Band - AWGN-Pre AGC-High Channel

Date: 14.JAN.2023 13:51:53



Date: 14.JAN.2023 13:52:13