



TESTING LABORATORY
CERTIFICATE #4820.01



FCC PART 27
FCC PART 22H, PART 24E
MEASUREMENT AND TEST REPORT

For

HONG KONG KONING INDUSTRIAL LIMITED

Unit 04,7/F Bright Way Tower No 33 Mong KOK RD KL Hong Kong

FCC ID: 2AT9LKN23

Report Type: Original Report	Product Type: Industrial Cellular Signal Booster
Report Number: RKSA190917001-00A	
Report Date: 2019-10-10	
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Reviewed By: EMC Manager	
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	HONG KONG KONING INDUSTRIAL LIMITED
Tested Model	W100
Product Type	Industrial Cellular Signal Booster
Dimension	248mm(L)*260mm(W)*48mm(H)
Power Supply	DC12V from adapter

Adapter Information:

Model: GST40A12

Input: AC100-240 V 50/60Hz 1.0A

Output: 12V, 3.34A 40W Max

**All measurement and test data in this report was gathered from production sample serial number: 20190917001. (Assigned by the BACL. The EUT supplied by the applicant was received on 2019-09-17)*

Objective

This type approval report is prepared on behalf of *HONG KONG KONING INDUSTRIAL LIMITED* in accordance with Part 2, Part 22-Subpart H, Part 24-Subpart E, Part 27 and Part 20.21 of the Federal Communication Commission's rules.

The objective is to determine the compliance of 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.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

Test Method: TIA/EIA 603-D, FCC KDB 935210 D05 Indus Booster Basic Meas v01r03.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	30MHz~1GHz	5.91dB
	1GHz~6GHz	4.68dB
	6GHz~18GHz	4.92dB
	18GHz~40GHz	5.21dB
Occupied Bandwidth		0.5kHz
Temperature		1.0℃
Humidity		6%

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to TIA/EIA-603-D.

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

Equipment Modifications

No modifications were made to the EUT.

Support Equipment List and Details

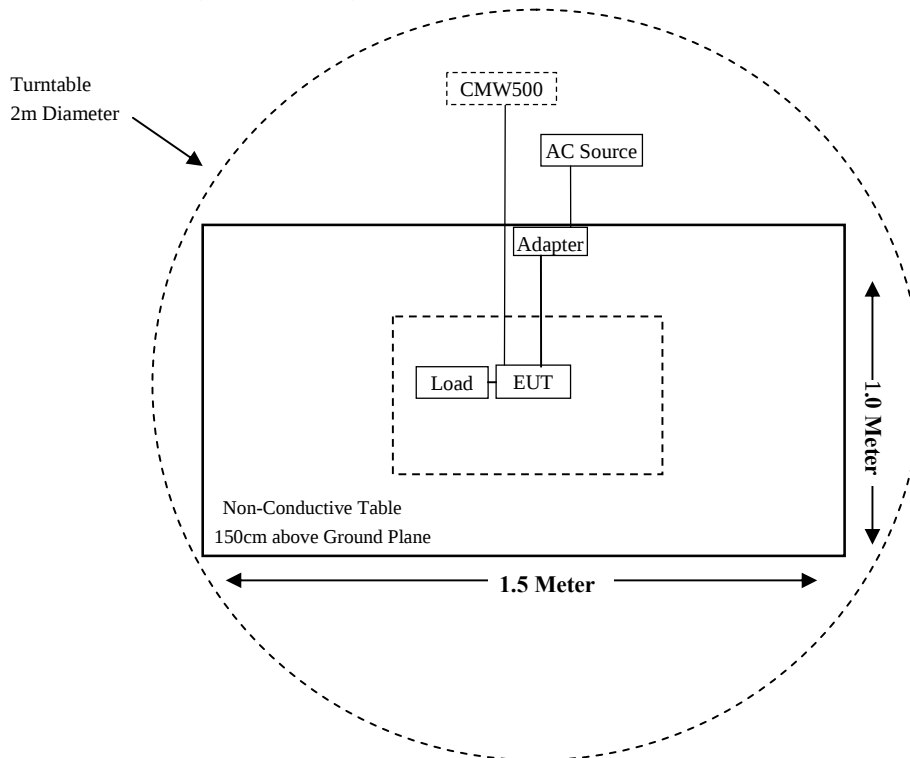
Manufacturer	Description	Model	Serial Number
N/A	Load	N/A	N/A
R & S	Wideband Radio Communication Tester	CMW500	104478

External I/O Cable

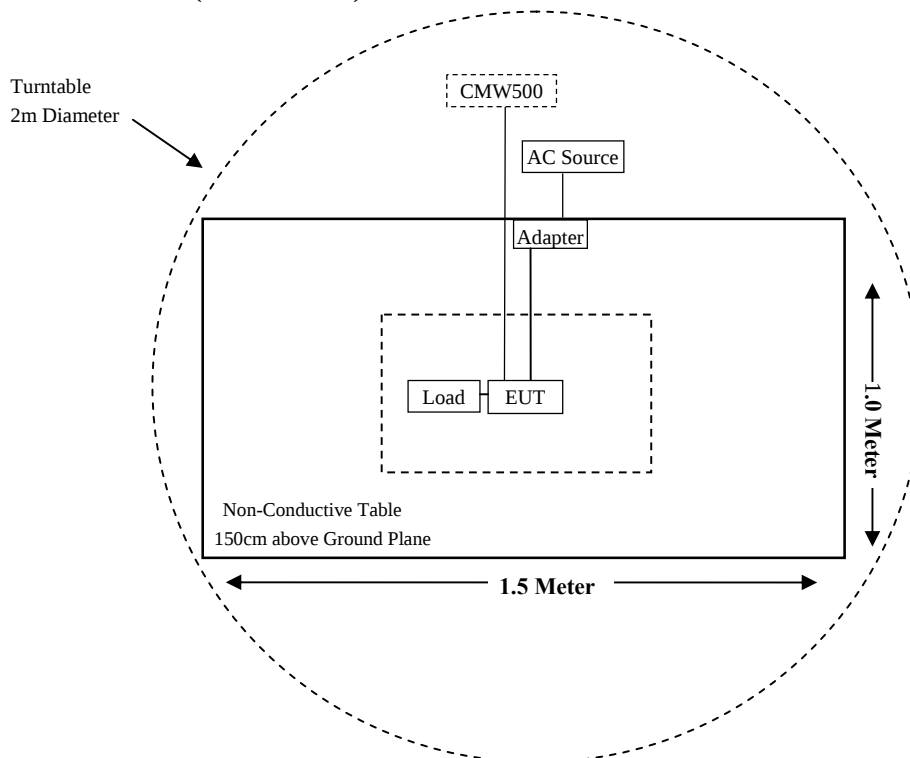
Cable Description	Length (m)	From Port	To
RF Cable	1.2	CMW500	EUT
RF Cable	1.5	EUT	Load

Block Diagram of Test Setup

For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1GHz):



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	Occupied 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 & Inter modulation	Compliant
§ 2.1055; § 22.355; § 24.235; § 27.54	Frequency stability	Not Applicable*
§ 20.21	Out of Band Rejection	Compliant

Note:

Not Applicable: This device is an Industrial Signal Booster

Not Applicable*: The EUT was a signal booster.

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber 1#)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2018-11-12	2019-11-11
HP	Signal Generator	HP 8341B	2624A00116	2018-11-30	2019-11-29
Sunol Sciences	Broadband Antenna	JB3	A090413-1	2016-12-26	2019-12-25
Sunol Sciences	Broadband Antenna	JB3	A090314-2	2019-01-09	2022-01-08
Sonoma Instrunent	Pre-amplifier	310N	171205	2019-08-15	2020-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-8	008	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-9	009	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-10	010	2019-08-15	2020-08-14
keysight	Vector signal source	N5182B	MY53051592	2018-11-30	2019-11-30
R & S	Wideband Radio Communication Tester	CMW500	104478	2019-08-05	2020-08-04
Radiated Emission Test (Chamber 2#)					
HP	Signal Generator	HP 8341B	2624A00116	2018-11-30	2019-11-29
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2019-05-30	2020-05-29
ETS-LINDGREN	Horn Antenna	3115	9311-4159	2019-01-11	2022-01-10
ETS-LINDGREN	Horn Antenna	3115	6229	2019-01-11	2022-01-10
ETS-LINDGREN	Horn Antenna	3116	00084159	2016-10-18	2019-10-17
ETS-LINDGREN	Horn Antenna	3116	2516	2016-12-12	2019-12-12
Mini-Circuits	Amplifier	ZVA-183W-S+	220701818	2019-05-20	2020-05-19
SELECTOR	Amplifier	EM18G40G	060726	2019-03-22	2020-03-21
Rohde & Schwarz	Auto test Software	EMC32	100361	/	/
MICRO-COAX	Coaxial Cable	Cable-6	006	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-11	011	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-12	012	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-13	013	2019-08-15	2020-08-14
MICRO-COAX	Coaxial Cable	Cable-16	016	2019-08-15	2020-08-14
keysight	Vector signal source	N5182B	MY53051592	2018-11-30	2019-11-30
R & S	Wideband Radio Communication Tester	CMW500	104478	2019-08-05	2020-08-04

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSIQ26	836131/009	2018-11-30	2019-11-29
Narda	Attenuator	6dB	006	2019-01-10	2020-01-09
Narda	Attenuator	10dB	010	2019-08-15	2020-08-14
keysight	Vector signal source	N5182B	MY53051592	2018-11-30	2019-11-30
R & S	Wideband Radio Communication Tester	CMW500	104478	2019-08-05	2020-08-04
Mini-Circuits	Power splitter	ZFRSC-14-S+	SF019411452	2018-11-10	2019-11-09
BACL	Temperature & Humidity Chamber	BTH-150	30023	2018-10-10	2019-10-09
KONING	RF Cable	KONING C01	C01	Each Time	/

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed in accordance to NIST and CNAS 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, 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 Standards

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)(9), control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP.

According to §27.50(c)(9), control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP.

According to §27.50(d)(3), A licensee operating a base or fixed station in the 2110-2155 MHz band utilizing a power greater than 1640 watts EIRP and greater than 1640 watts/MHz EIRP must coordinate such operations in advance with all Government and non-Government satellite entities in the 2025-2110 MHz band. A licensee operating a base or fixed station in the 2110-2180 MHz band utilizing power greater than 1640 watts EIRP and greater than 1640 watts/MHz EIRP must be coordinated in advance with the following licensees authorized to operate within 120 kilometers (75 miles) of the base or fixed station operating in this band: All Broadband Radio Service (BRS) licensees authorized under this part in the 2155-2160 MHz band and all advanced wireless services (AWS) licensees authorized to operate on adjacent frequency blocks in the 2110-2180 MHz band.

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 v01r03 clause 3.5

**Test Data****Environmental Conditions**

Temperature:	23.2°C
Relative Humidity:	51 %
ATM Pressure:	101.3kPa

The testing was performed by Carrie He on 2019-10-06.

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

Modes	Frequency (MHz)	Signal Type	AGC threshold level (dBm)	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dBi)	ERP(dBm)
Uplink	708.7	AWGN	-46.3	Pre-AGC	-46.70	19.23	65.93	26.08
				3dB above AGC	-43.70	19.67	63.37	26.52
		GSM	-46.0	Pre-AGC	-46.30	17.34	63.64	24.19
				3dB above AGC	-43.30	17.65	60.95	24.50
Downlink	735.3	AWGN	-50.5	Pre-AGC	-50.70	23.45	74.15	30.30
				3dB above AGC	-47.70	23.84	71.54	30.69
		GSM	-48.5	Pre-AGC	-48.80	21.25	70.05	28.10
				3dB above AGC	-45.80	21.56	67.36	28.41

Upper 700MHz (C Block) Band:

Modes	Frequency (MHz)	Signal Type	AGC threshold level (dBm)	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dBi)	ERP(dBm)
Uplink	777.7	AWGN	-46.2	Pre-AGC	-46.60	20.86	67.46	27.71
				3dB above AGC	-43.60	21.17	64.77	28.02
		GSM	-45.9	Pre-AGC	-46.10	18.30	64.40	25.15
				3dB above AGC	-43.10	18.64	61.74	25.49
Downlink	746.2	AWGN	-48.8	Pre-AGC	-49.10	22.94	72.04	29.79
				3dB above AGC	-46.10	23.45	69.55	30.30
		GSM	-47.1	Pre-AGC	-47.30	20.49	67.79	27.34
				3dB above AGC	-44.30	20.78	65.08	27.63

Cellular Band:

Modes	Frequency (MHz)	Signal Type	AGC threshold level (dBm)	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dBi)	ERP(dBm)
Uplink	824.8	AWGN	-47.0	Pre-AGC	-47.30	19.50	66.80	26.35
				3dB above AGC	-44.30	19.87	64.17	26.72
		GSM	-45.7	Pre-AGC	-46.00	17.44	63.44	24.29
				3dB above AGC	-43.00	17.86	60.86	24.71
Downlink	880.7	AWGN	-49.7	Pre-AGC	-49.90	22.11	72.01	28.96
				3dB above AGC	-46.90	22.84	69.74	29.69
		GSM	-46.8	Pre-AGC	-47.10	21.02	68.12	27.87
				3dB above AGC	-44.10	21.77	65.87	28.62

PCS Band:

Modes	Frequency (MHz)	Signal Type	AGC threshold level (dBm)	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dBi)	EIRP(dBm)
Uplink	1881.4	AWGN	-46.3	Pre-AGC	-46.70	22.12	68.82	31.12
				3dB above AGC	-43.70	22.37	66.07	31.37
		GSM	-46.5	Pre-AGC	-46.80	18.42	65.22	27.42
				3dB above AGC	-43.80	18.79	62.59	27.79
Downlink	1958.4	AWGN	-49.2	Pre-AGC	-49.50	23.35	72.85	32.35
				3dB above AGC	-46.50	23.77	70.27	32.77
		GSM	-48.0	Pre-AGC	-48.30	20.36	68.66	29.36
				3dB above AGC	-45.30	20.67	65.97	29.67

AWS Band:

Modes	Frequency (MHz)	Signal Type	AGC threshold level (dBm)	Signal Level	Input power (dBm)	Output Power (dBm)	Gain (dBi)	EIRP(dBm)
Uplink	1719.1	AWGN	-47.2	Pre-AGC	-47.50	19.68	67.18	28.68
				3dB above AGC	-44.50	20.31	64.81	29.31
		GSM	-46.4	Pre-AGC	-46.80	17.21	64.01	26.21
				3dB above AGC	-43.80	17.74	61.54	26.74
Downlink	2138.0	AWGN	-49.5	Pre-AGC	-49.80	22.98	72.78	31.98
				3dB above AGC	-46.80	23.29	70.09	32.29
		GSM	-47.8	Pre-AGC	-48.20	20.76	68.96	29.76
				3dB above AGC	-45.20	21.27	66.47	30.27

Note: ERP=Conducted Output Power (dBm) +Antenna Gain (dBi)-2.15 dB

EIRP=Conducted Output Power (dBm) +Antenna Gain (dBi)

The Maximum indoor and outdoor Gain for all Bands is 9 dBi

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

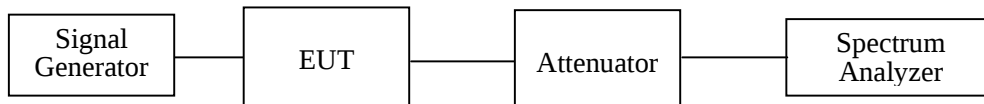
FCC §2.1049, §22.917, §24.238; §27.53- BANDWIDTH**Applicable Standards**

FCC 47 §2.1049, §22.917, & §24.238 and §27.53.

Test Procedure

According to KDB 935210 D05 Indus Booster Basic Meas v01r03 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:	24.6~25℃
Relative Humidity:	48~51%
ATM Pressure:	101.1~101.3kPa

The testing was performed by Carrie He from 2019-09-27 to 2019-09-29.

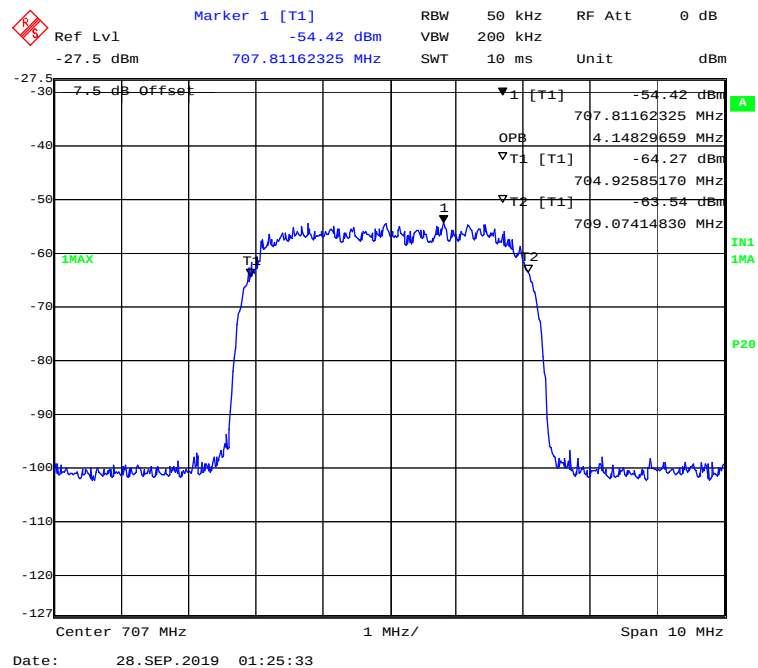
EUT operation mode: Transmitting

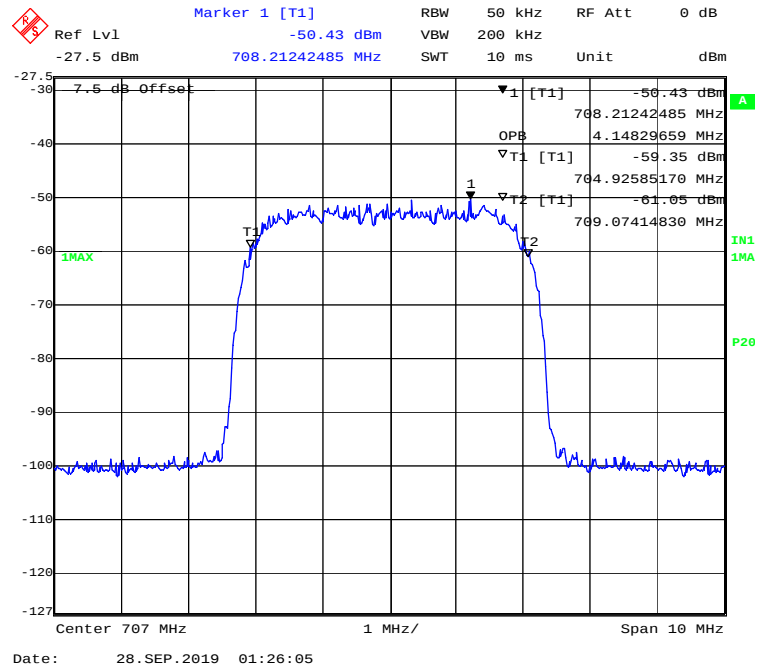
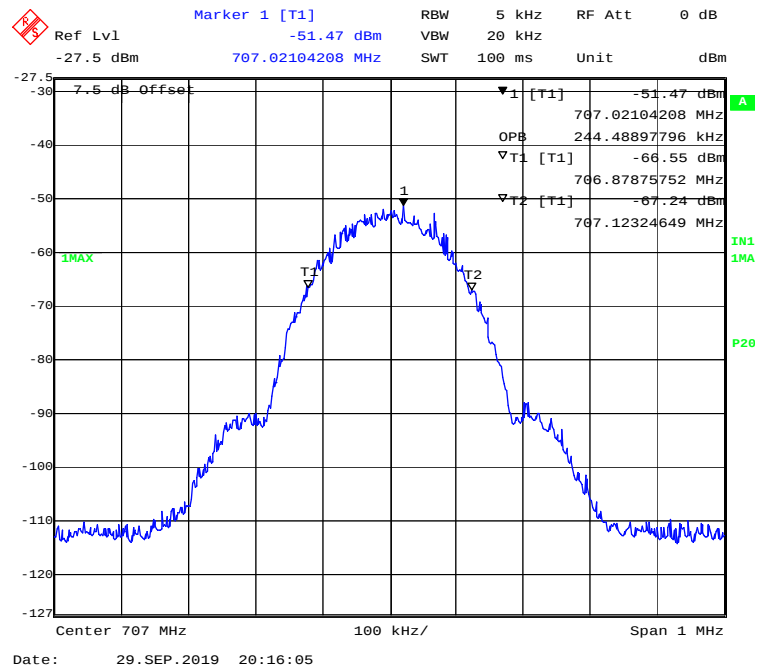
Test Result: Compliant.

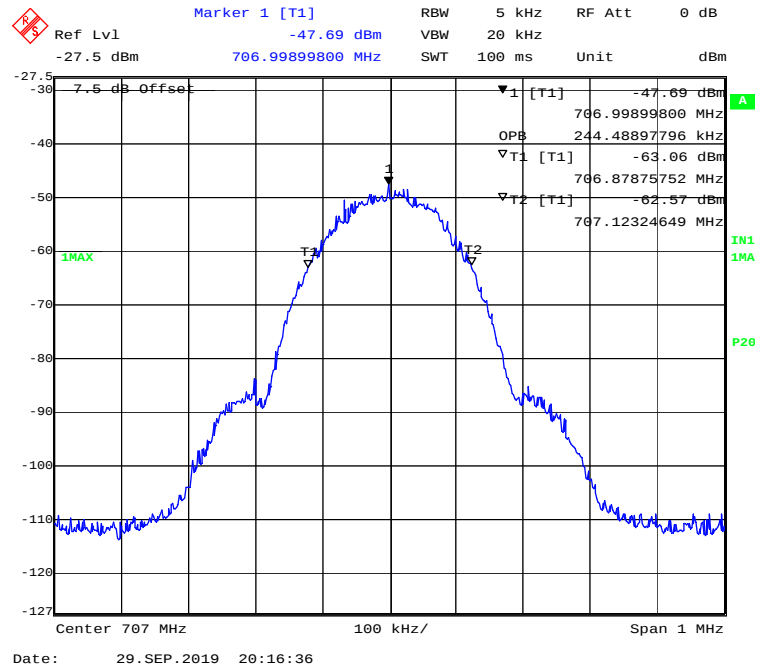
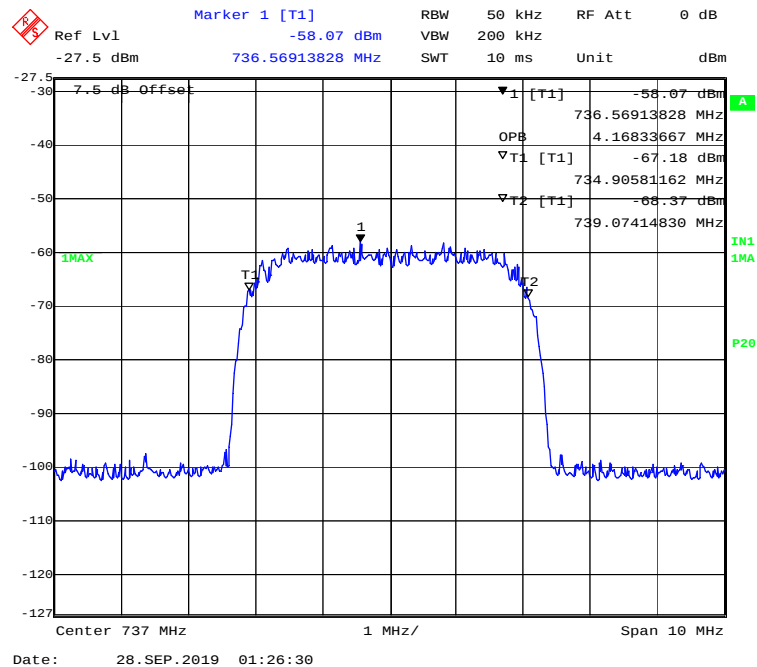
Lower 700MHz (A+B+C Block) Band:

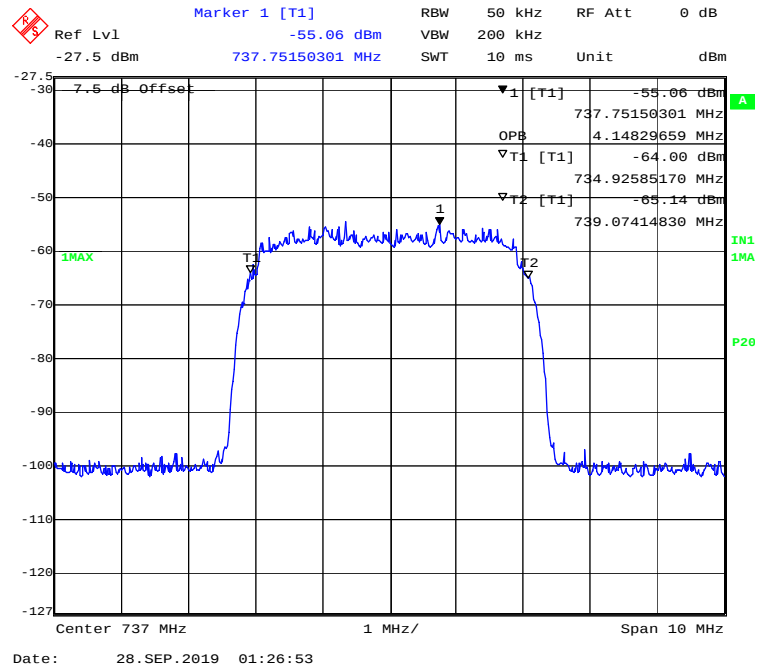
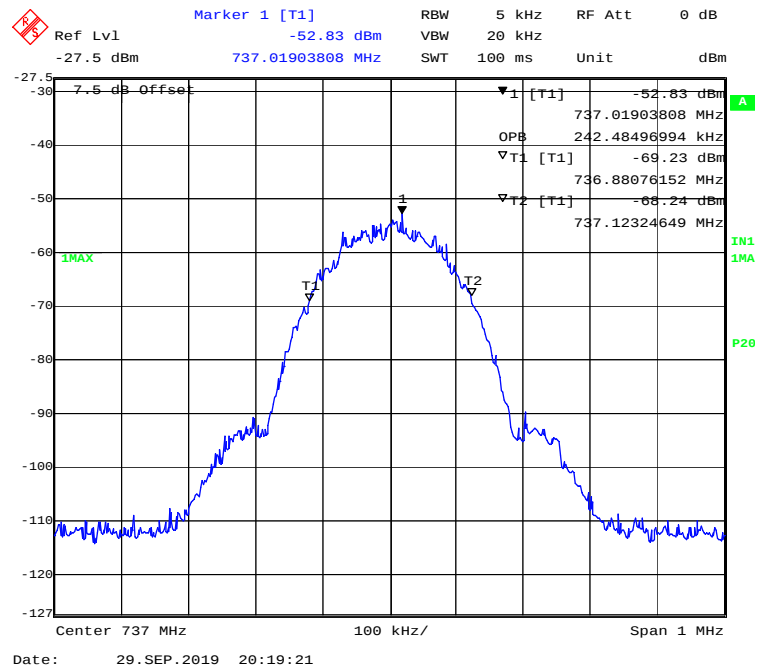
Modes	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	707	4.148	4.088	4.629	4.569
		3dB above AGC	707	4.148	4.048	4.609	4.589
	GSM	Pre-AGC	707	0.244	0.242	0.311	0.315
		3dB above AGC	707	0.244	0.244	0.315	0.317
Downlink	AWGN	Pre-AGC	737	4.168	4.108	4.629	4.629
		3dB above AGC	737	4.148	4.108	4.629	4.649
	GSM	Pre-AGC	737	0.242	0.240	0.311	0.307
		3dB above AGC	737	0.244	0.244	0.315	0.315

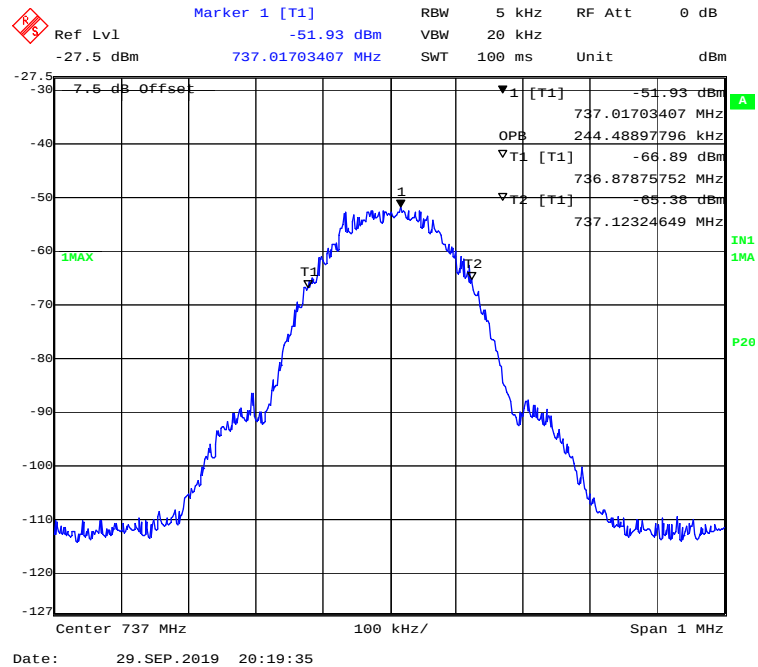
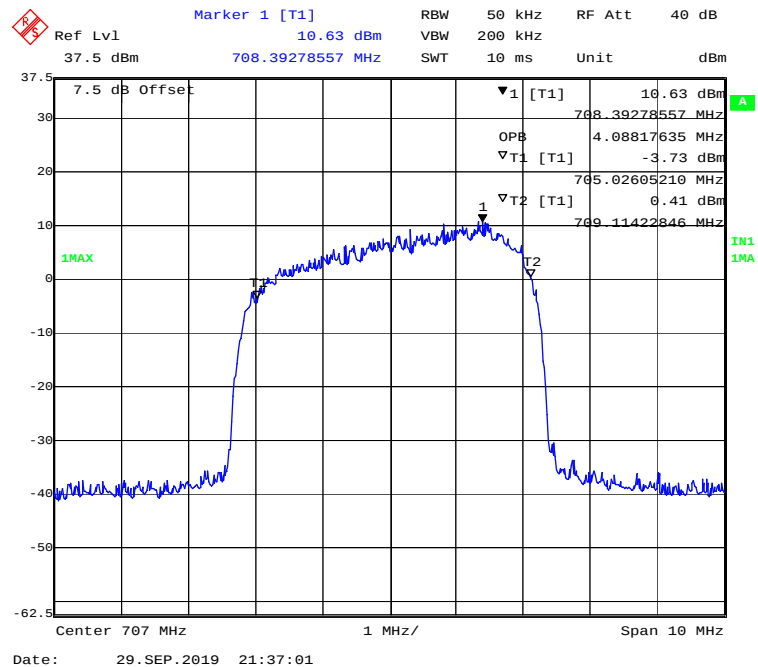
99% Bandwidth-UL-AWGN-Pre AGC-Input

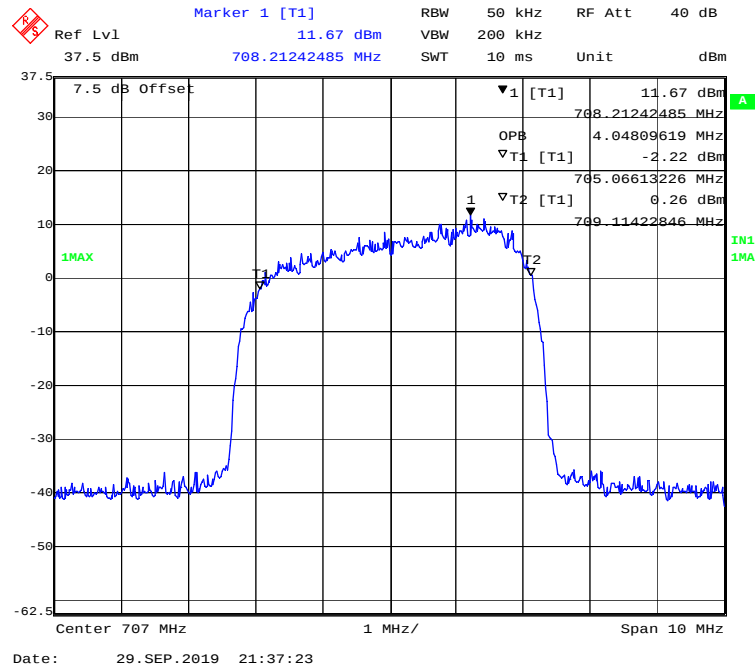
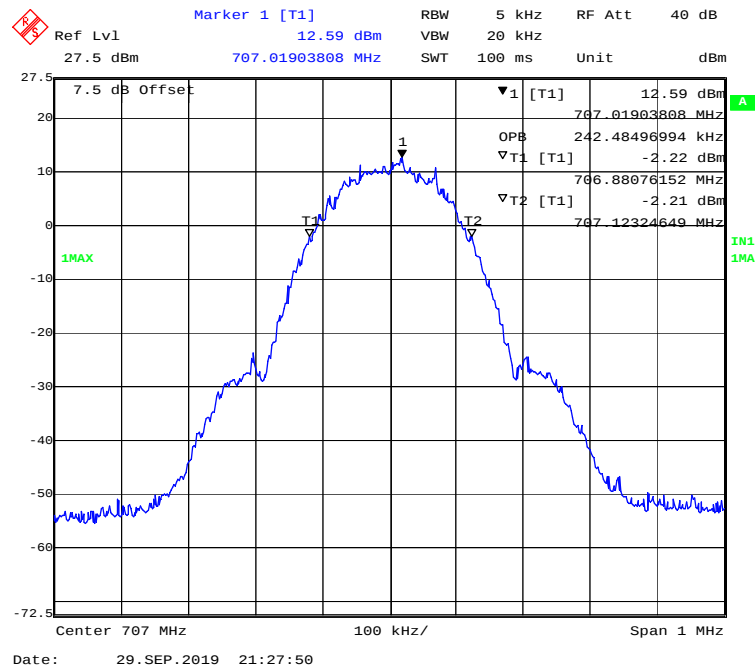


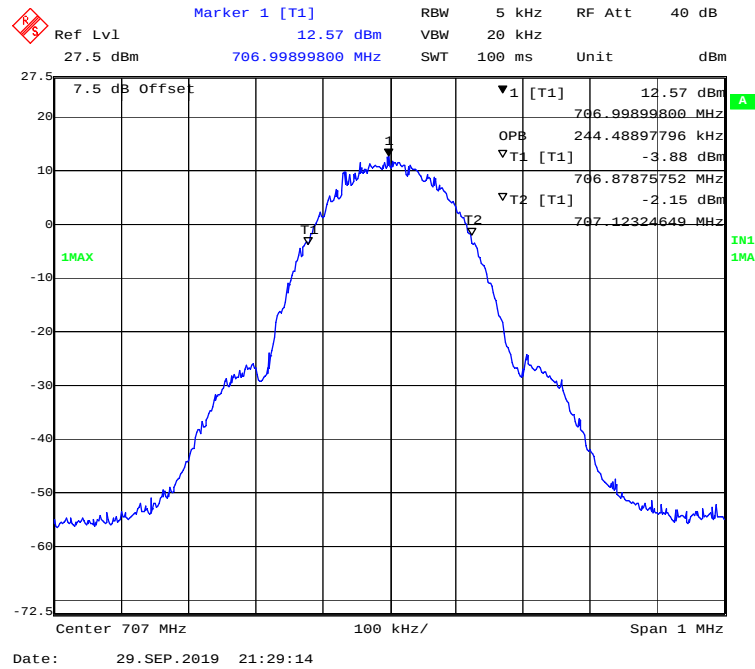
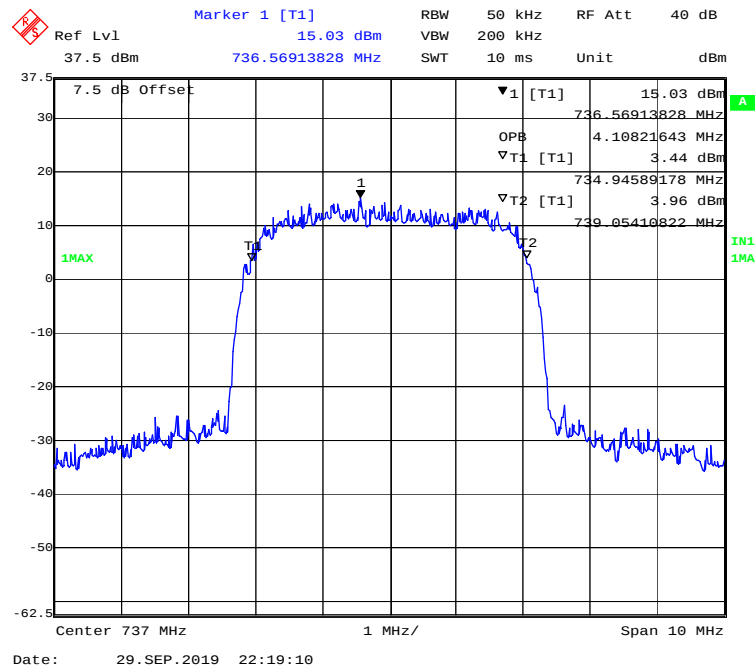
99% Bandwidth-UL- AWGN-3dB above AGC-Input**99% Bandwidth-UL-GSM-Pre AGC-Input**

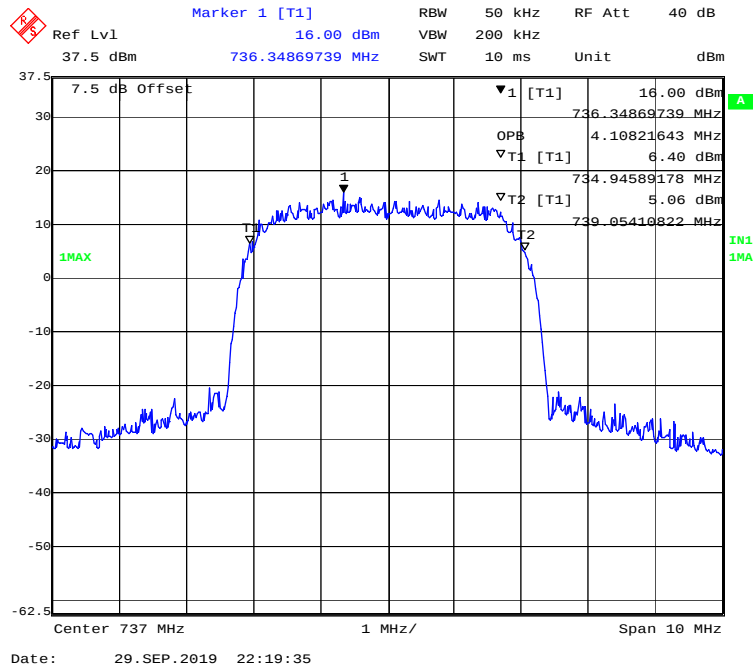
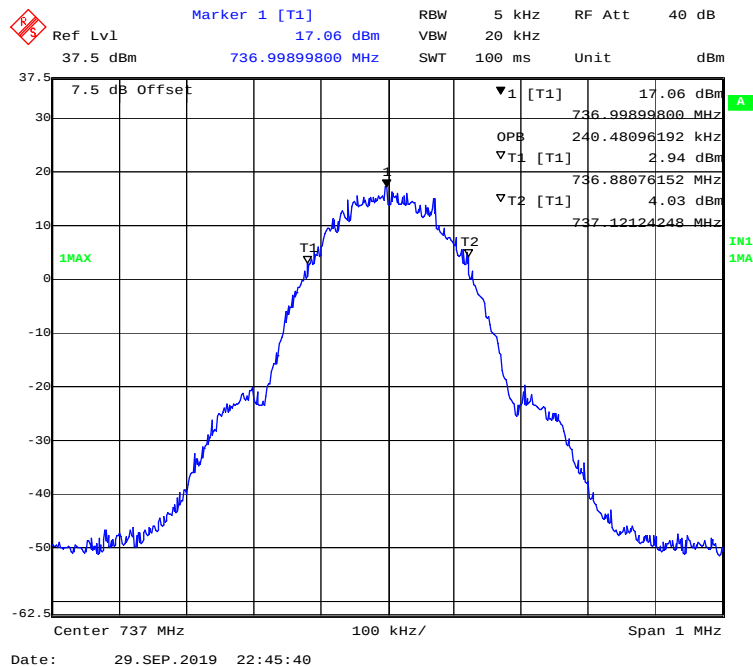
99% Bandwidth-UL- GSM-3dB above AGC-Input**99% Bandwidth-DL-AWGN-Pre AGC-Input**

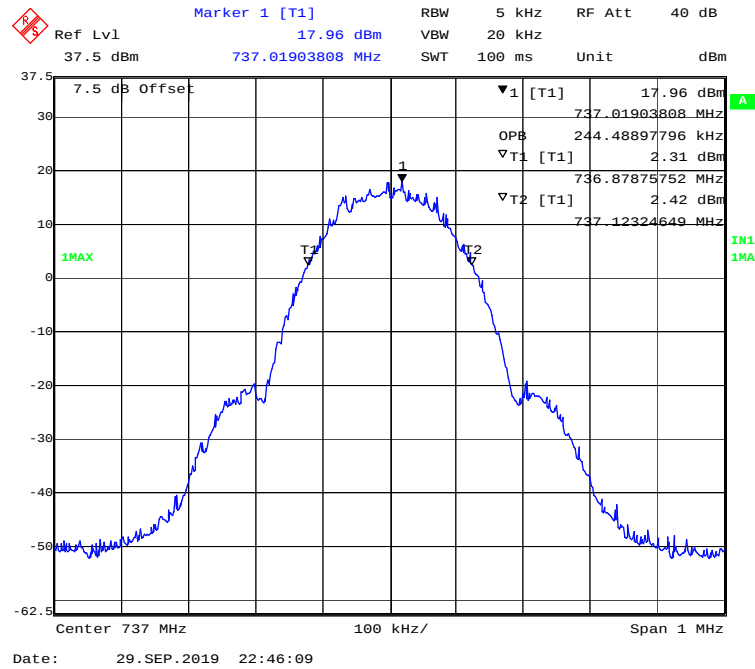
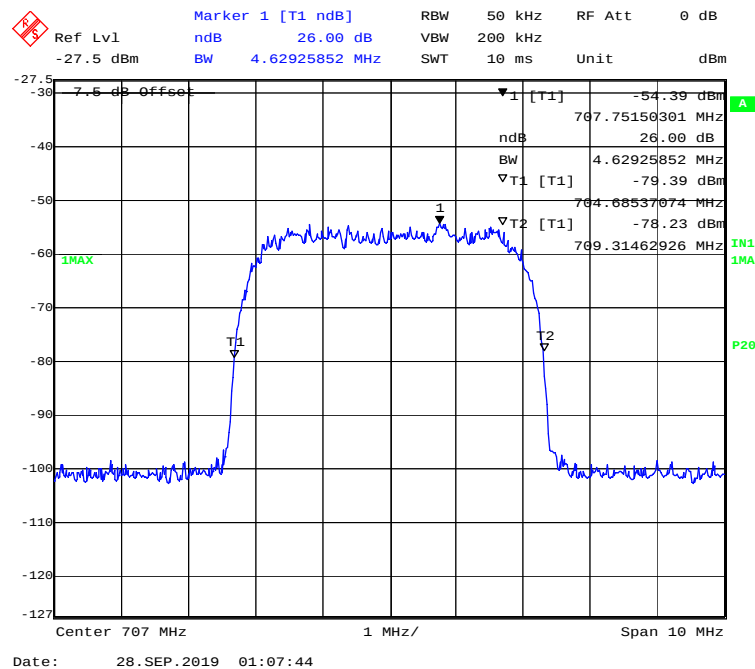
99% Bandwidth-DL- AWGN-3dB above AGC-Input**99% Bandwidth-DL-GSM-Pre AGC-Input**

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

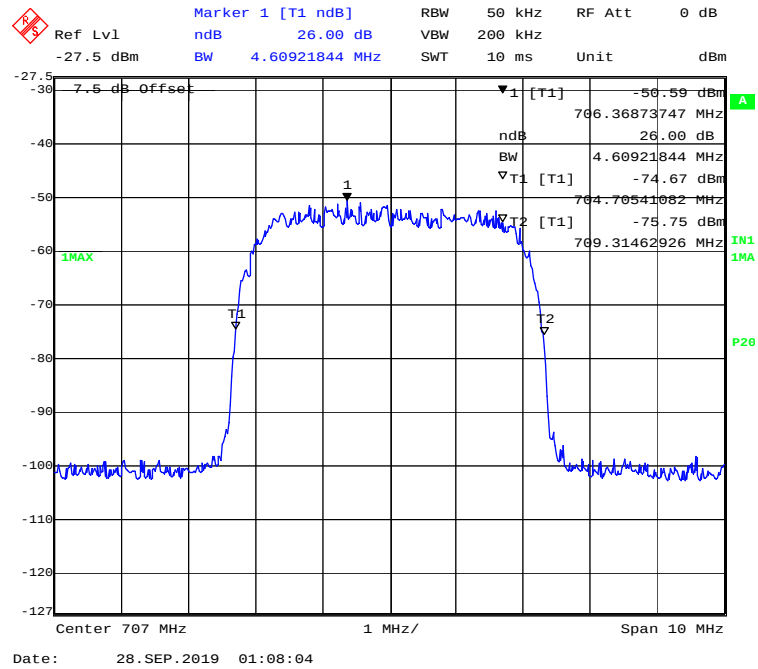
99% Bandwidth-UL- AWGN-3dB above AGC- Output**99% Bandwidth-UL-GSM-Pre AGC- Output**

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

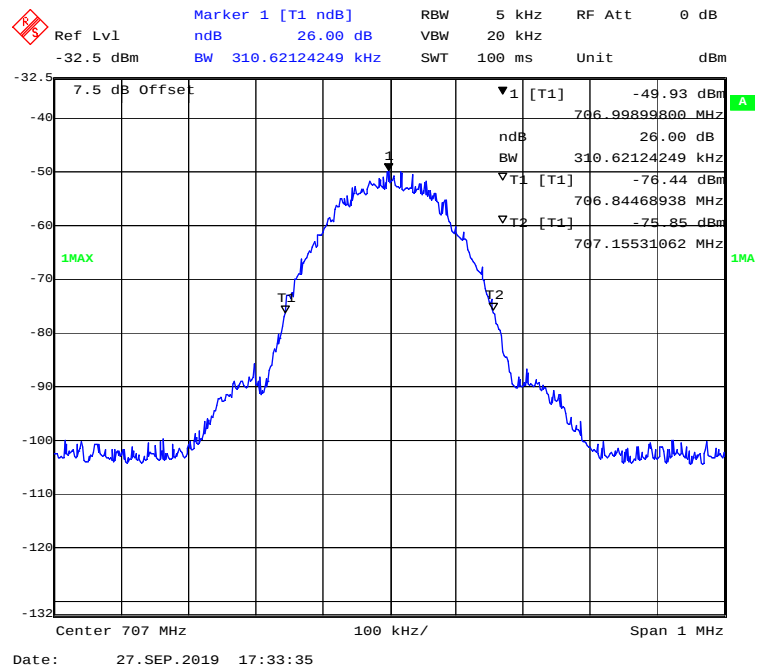
99% Bandwidth-DL- AWGN-3dB above AGC- Output**99% Bandwidth-DL-GSM-Pre AGC-Output**

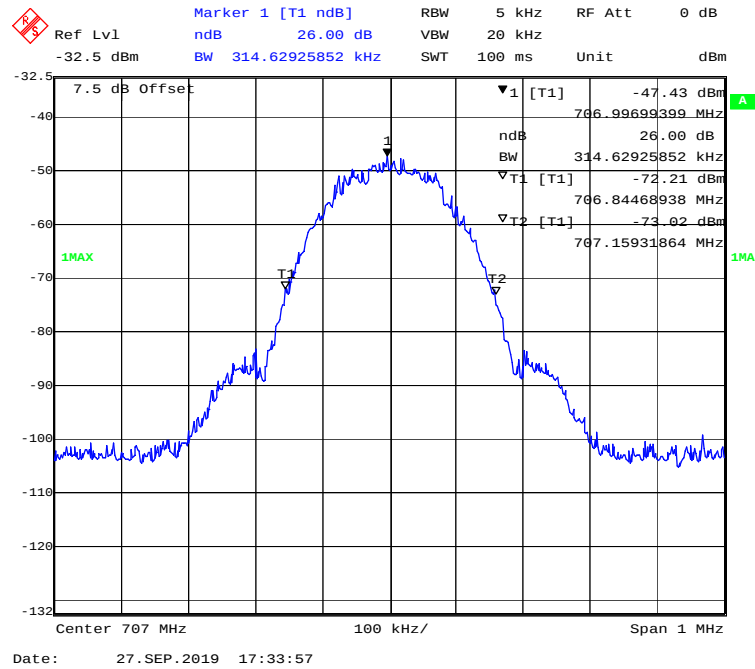
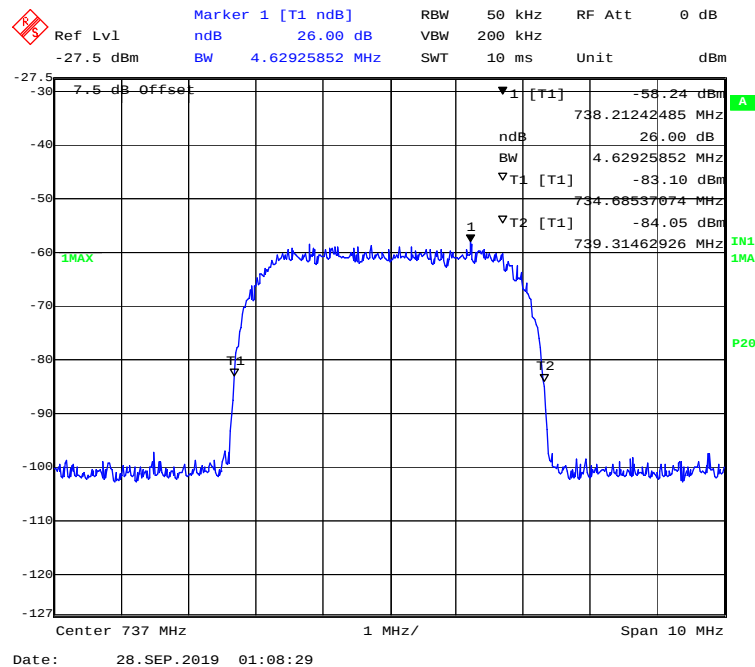
99% Bandwidth-DL- GSM-3dB above AGC-Output**26dB Bandwidth-UL-AWGN-Pre AGC-Input**

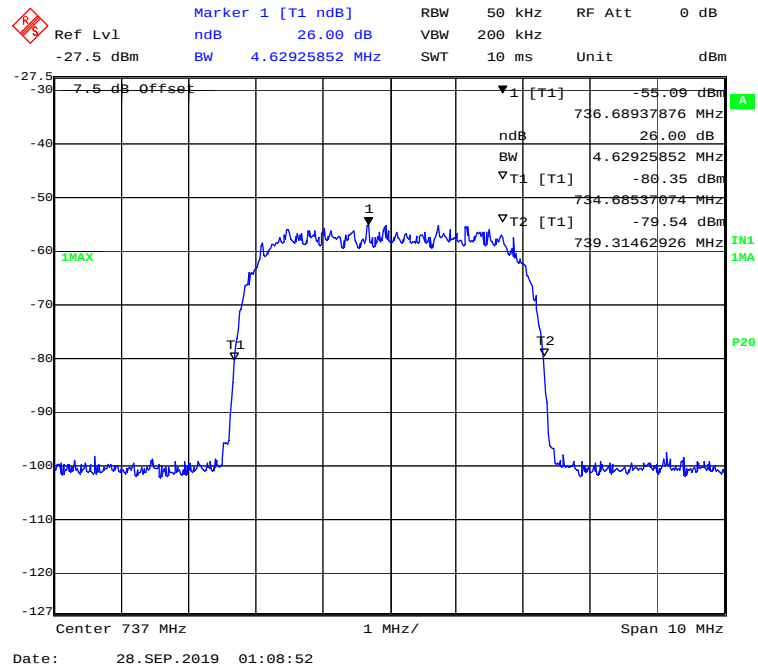
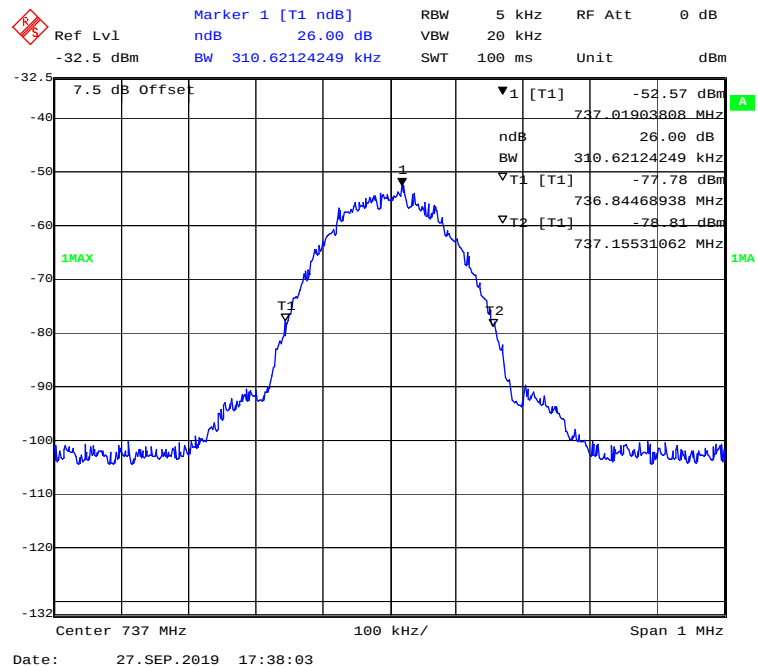
26dB Bandwidth-UL- AWGN-3dB above AGC-Input

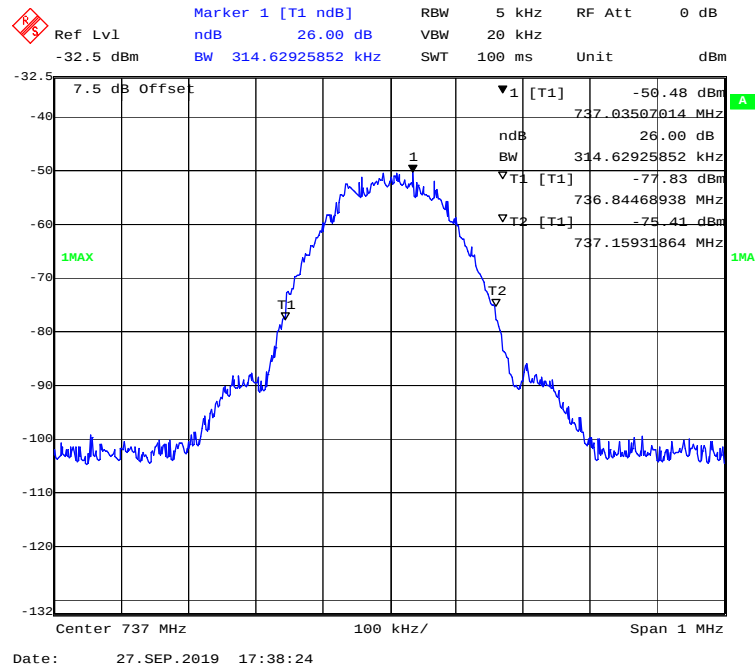
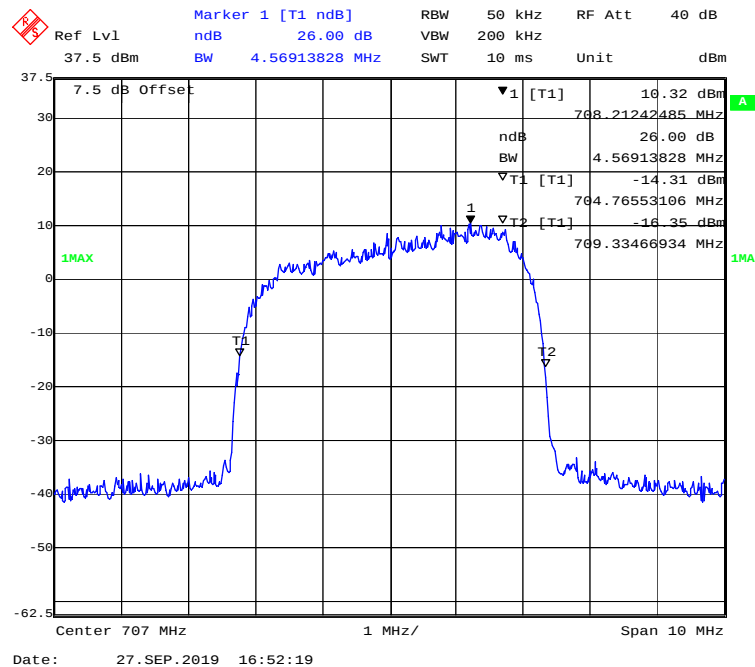


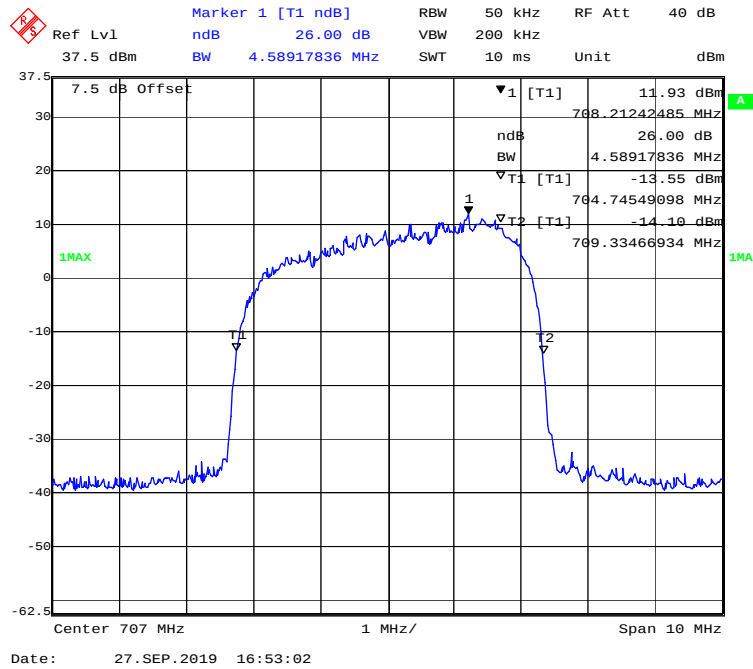
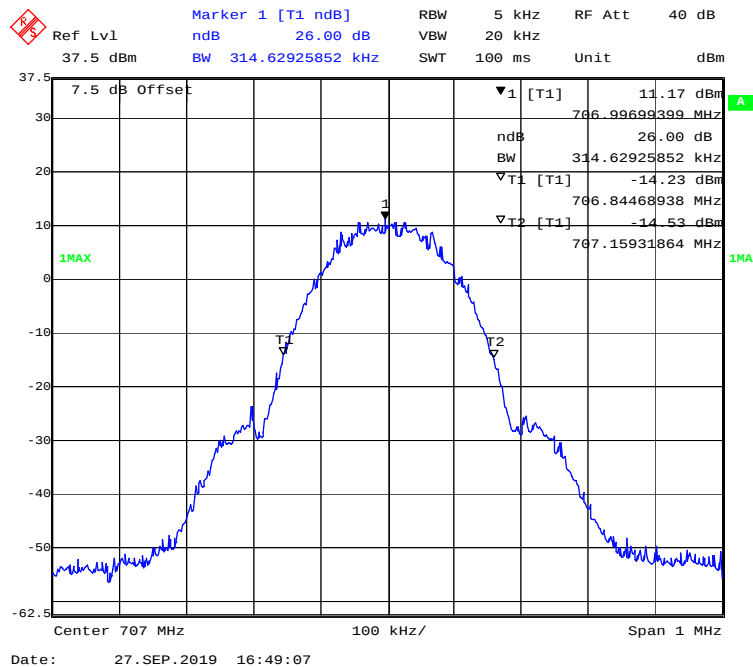
26dB Bandwidth-UL-GSM-Pre AGC-Input



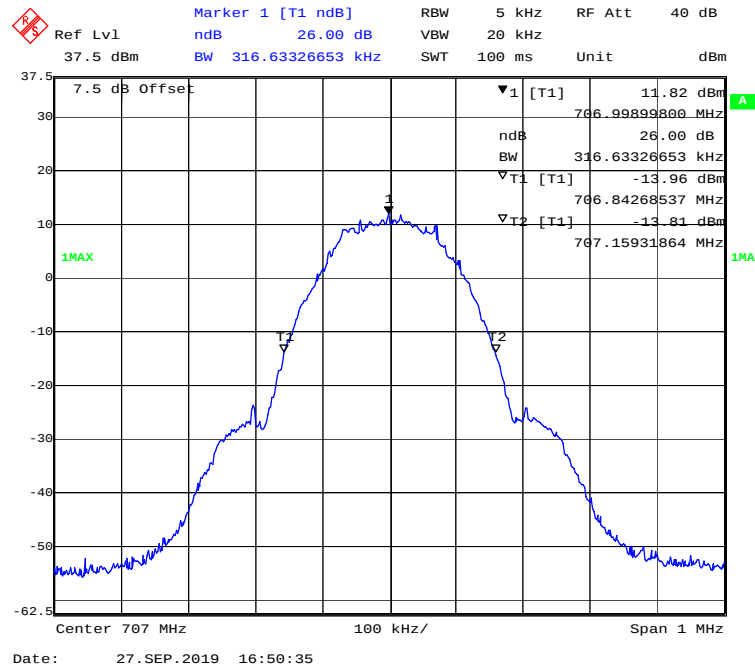
26dB Bandwidth-UL- GSM-3dB above AGC-Input**26dB Bandwidth-DL-AWGN-Pre AGC-Input**

26dB Bandwidth-DL- AWGN-3dB above AGC-Input**26dB Bandwidth-DL-GSM-Pre AGC-Input**

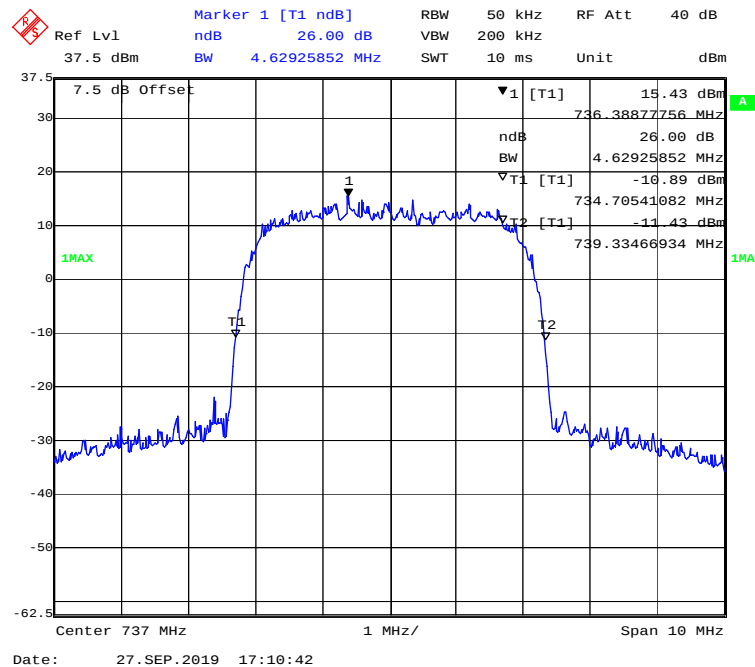
26dB Bandwidth-DL- GSM-3dB above AGC-Input**26dB Bandwidth-UL-AWGN-Pre AGC- Output**

26dB Bandwidth-UL- AWGN-3dB above AGC- Output**26dB Bandwidth-UL-GSM-Pre AGC- Output**

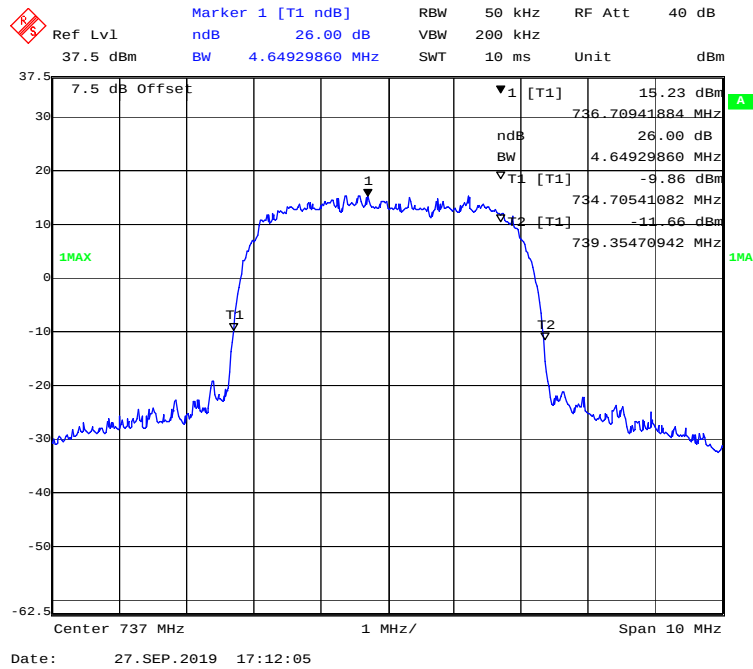
26dB Bandwidth-UL- GSM-3dB above AGC- Output



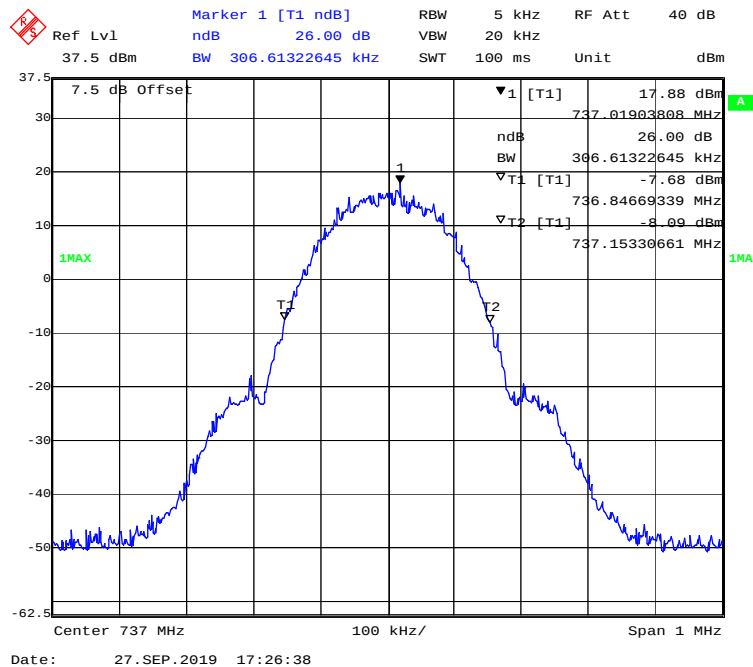
26dB Bandwidth-DL-AWGN-Pre AGC- Output



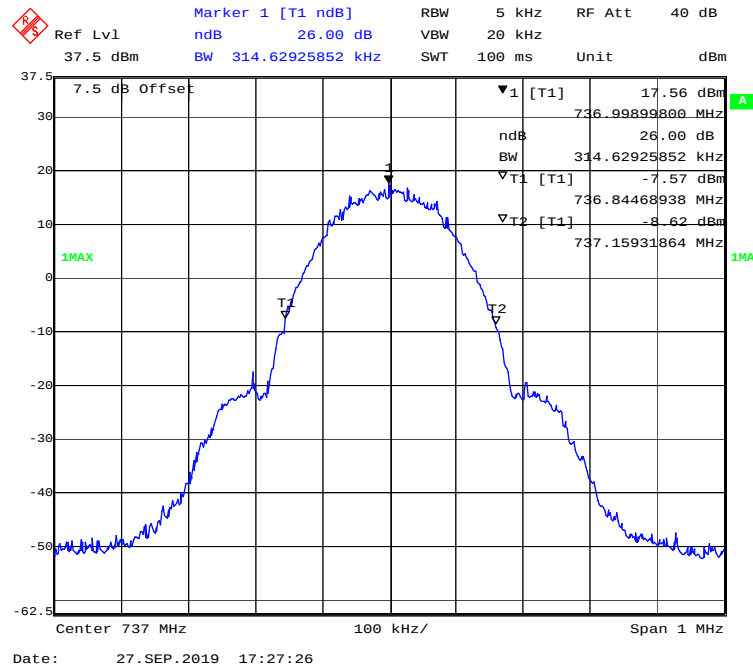
26dB Bandwidth-DL- AWGN-3dB above AGC- Output



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

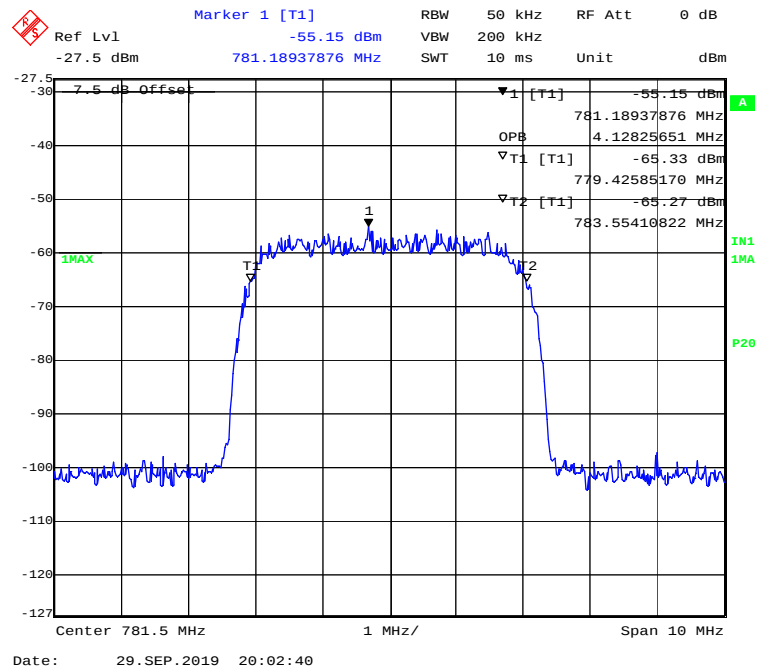
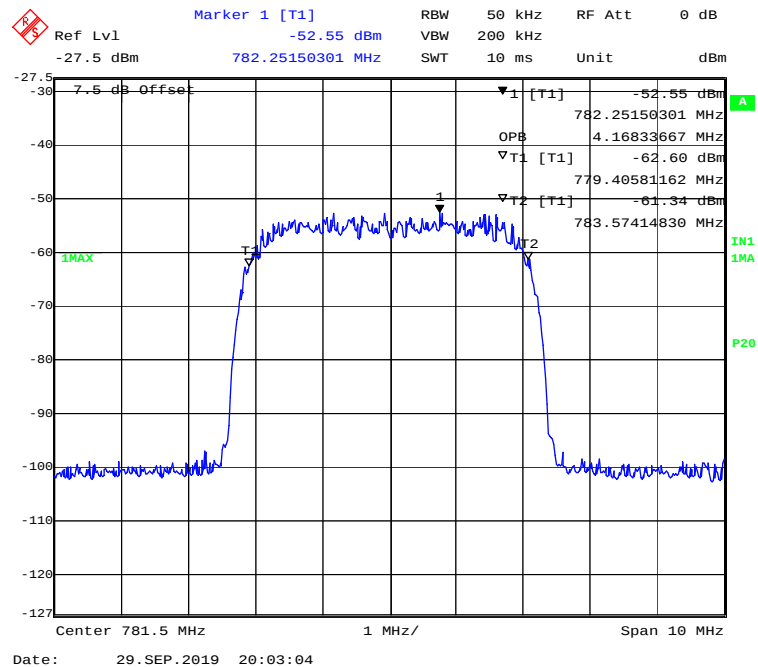


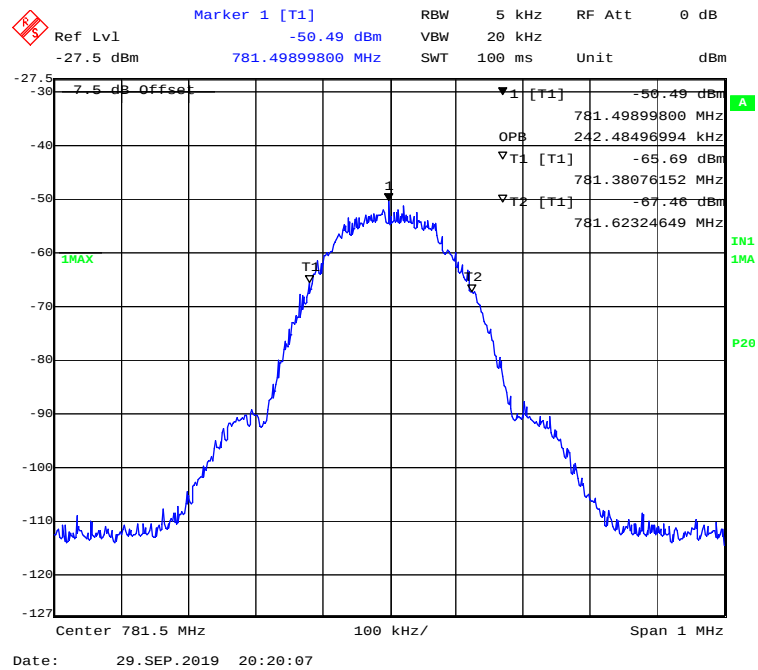
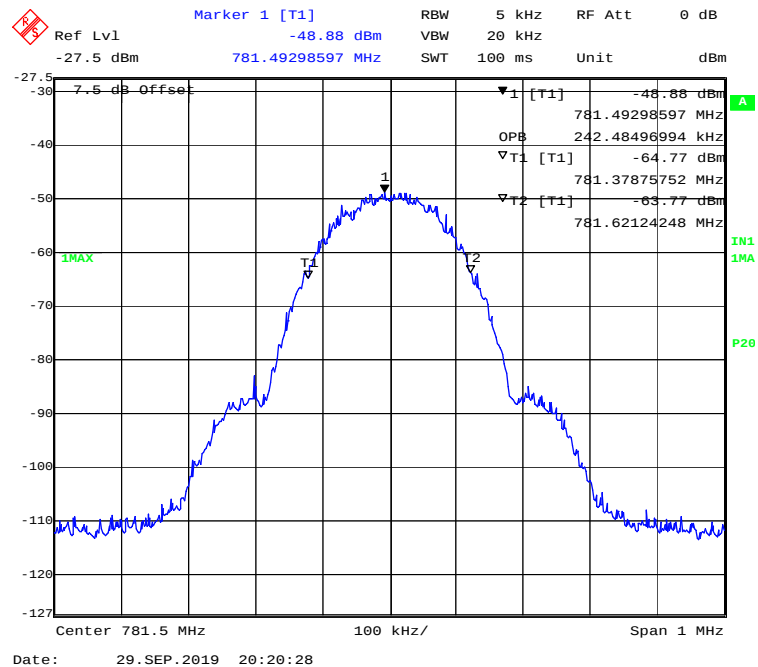
26dB Bandwidth-DL- GSM-3dB above AGC-Output

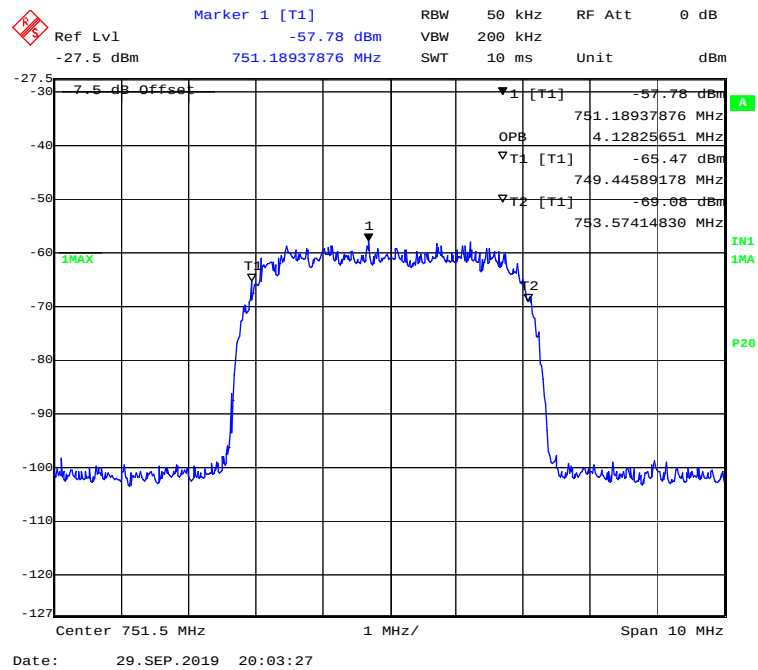
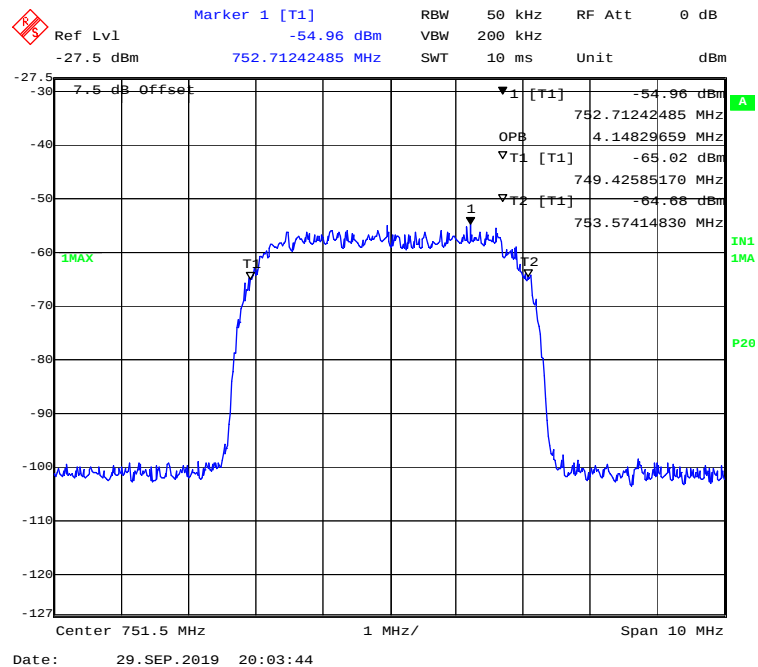


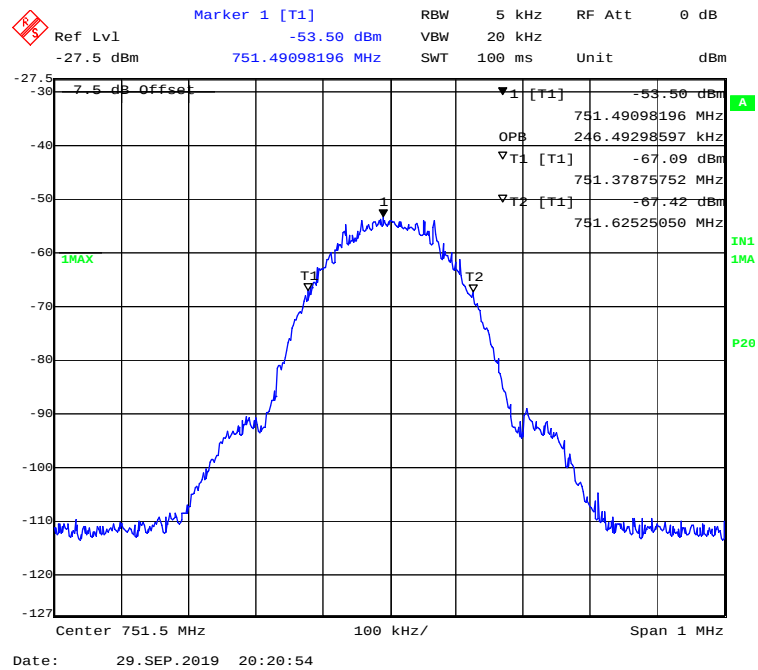
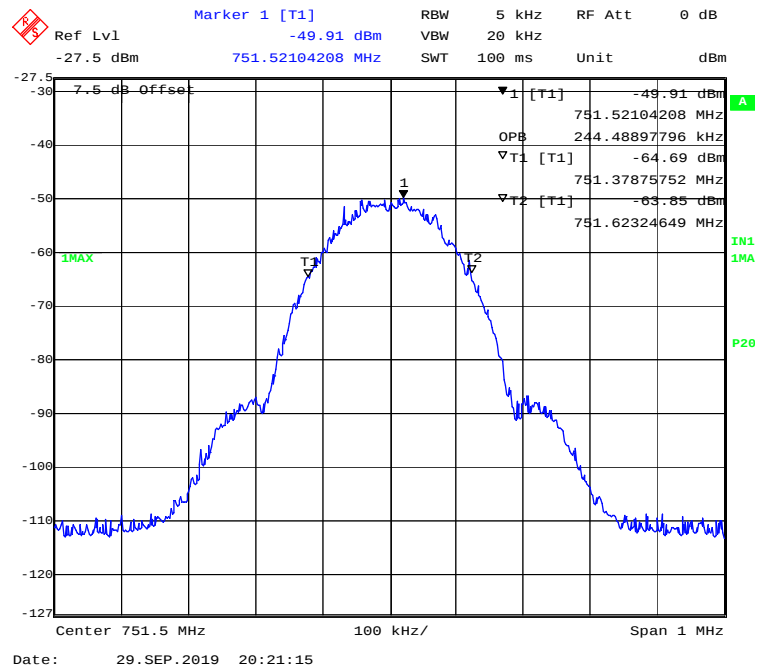
Upper 700MHz (C Block) Band:

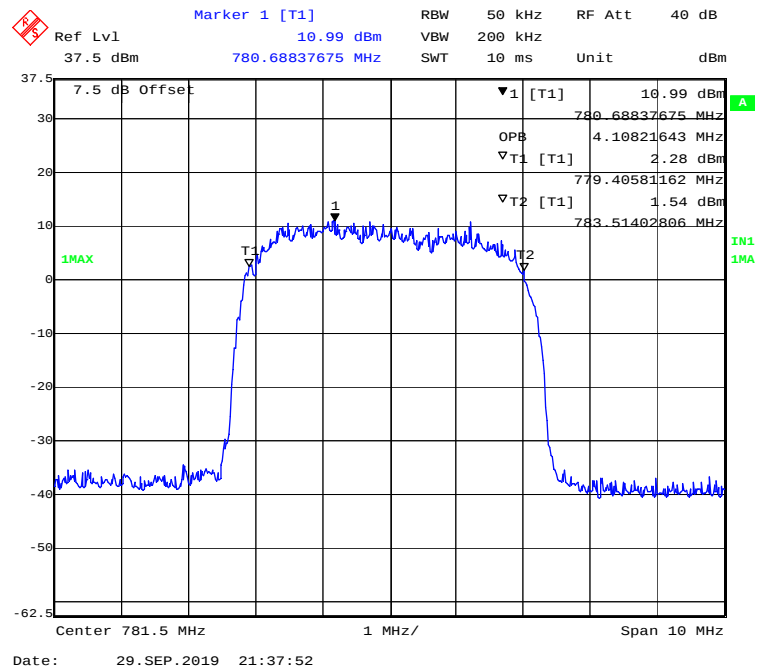
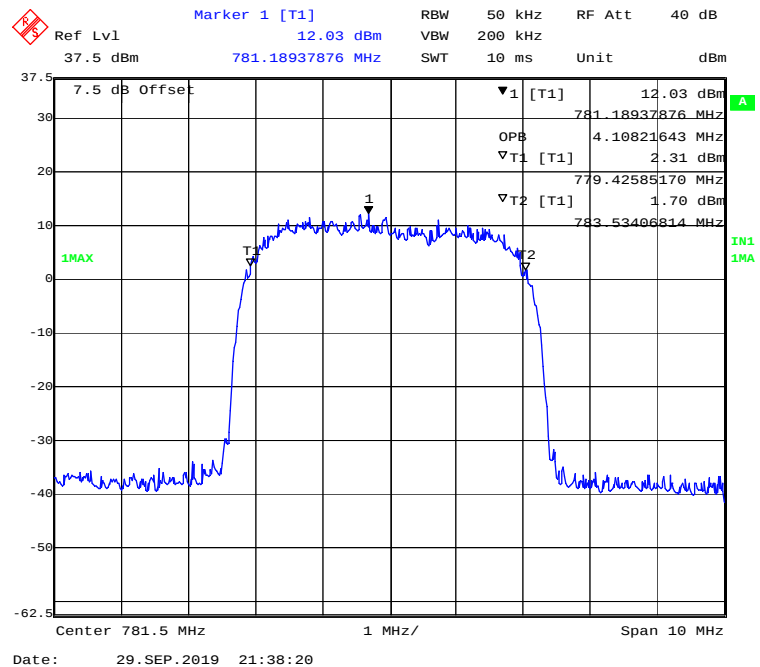
Modes	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	781.5	4.128	4.108	4.649	4.609
		3dB above AGC	781.5	4.168	4.108	4.649	4.629
	GSM	Pre-AGC	781.5	0.242	0.244	0.317	0.313
		3dB above AGC	781.5	0.242	0.242	0.319	0.317
Downlink	AWGN	Pre-AGC	751.5	4.128	4.108	4.629	4.609
		3dB above AGC	751.5	4.148	4.108	4.629	4.629
	GSM	Pre-AGC	751.5	0.246	0.244	0.315	0.315
		3dB above AGC	751.5	0.244	0.242	0.313	0.313

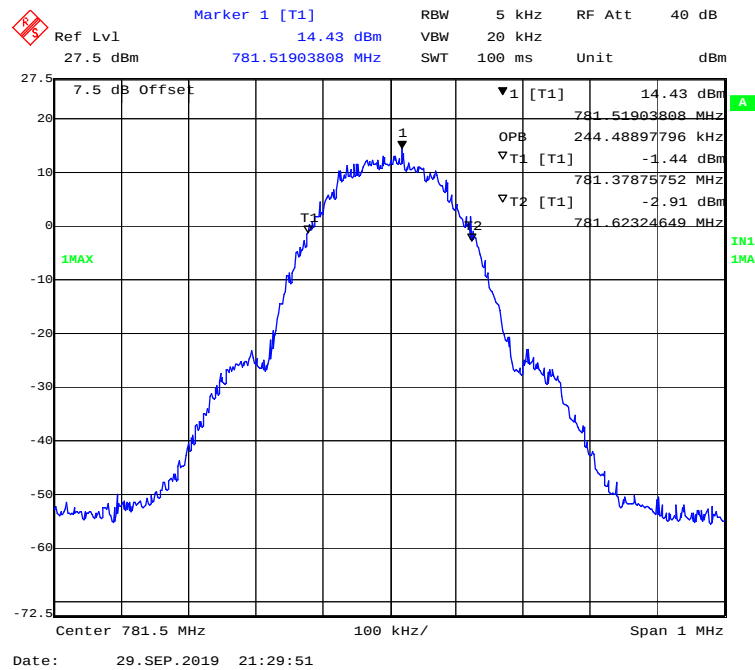
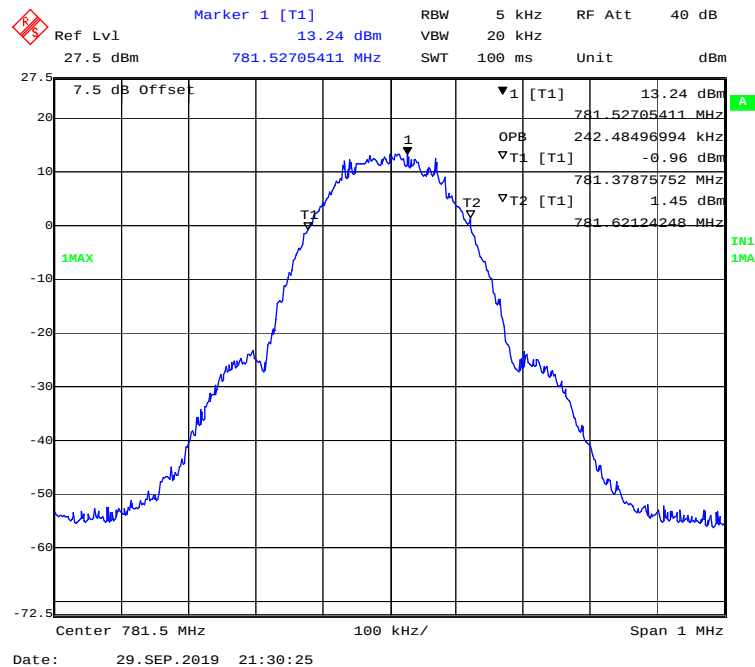
99% Bandwidth-UL-AWGN-Pre AGC-Input**99% Bandwidth-UL- AWGN-3dB above AGC-Input**

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

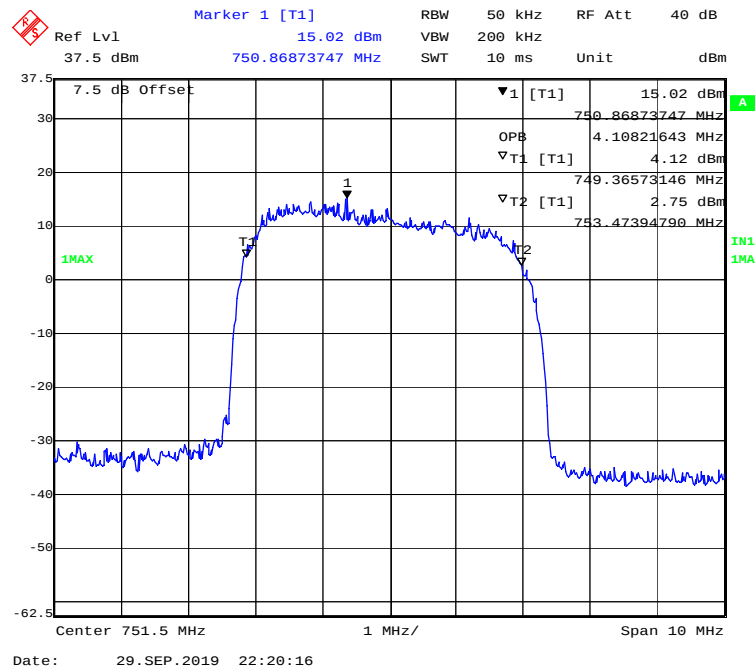
99% Bandwidth-DL-AWGN-Pre AGC-Input**99% Bandwidth-DL- AWGN-3dB above AGC-Input**

99% Bandwidth-DL-GSM-Pre AGC-Input**99% Bandwidth-DL- GSM-3dB above AGC-Input**

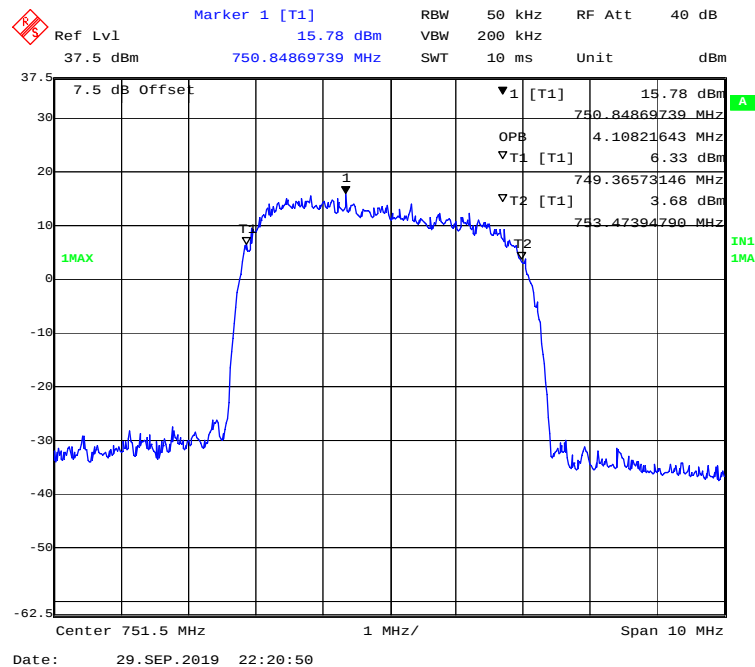
99% Bandwidth-UL-AWGN-Pre AGC- Output**99% Bandwidth-UL- AWGN-3dB above AGC- Output**

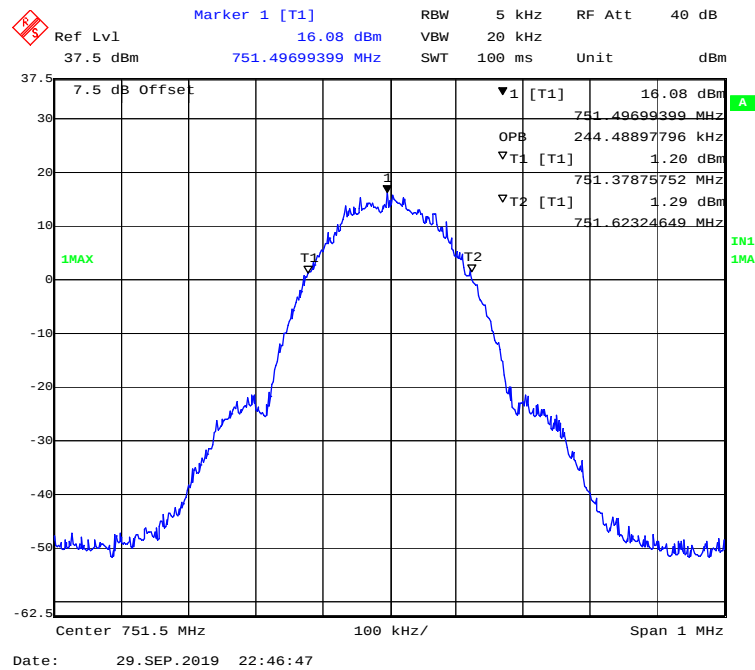
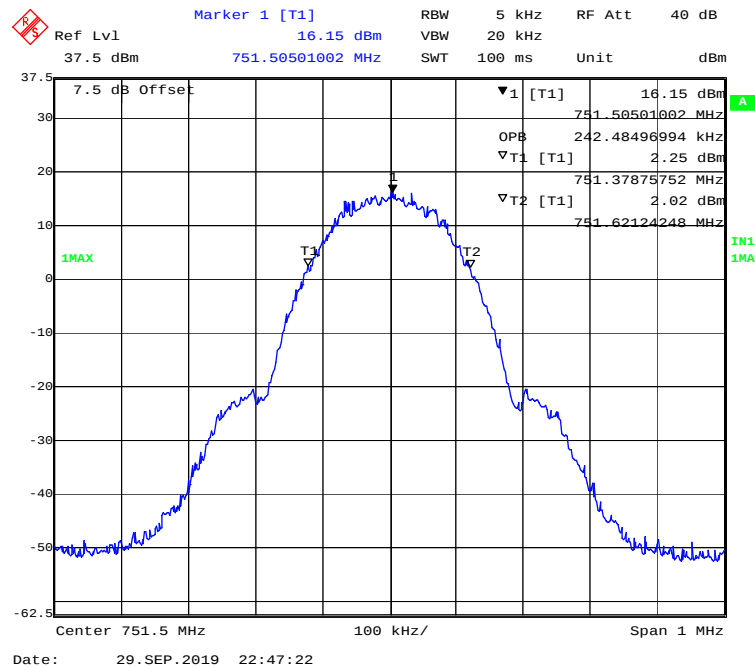
99% Bandwidth-UL-GSM-Pre AGC- Output**99% Bandwidth-UL- GSM-3dB above AGC- Output**

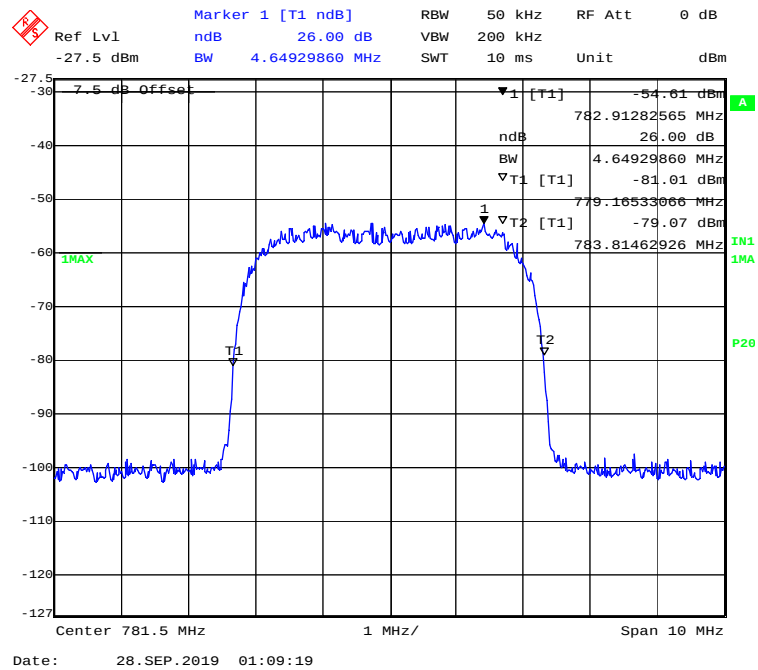
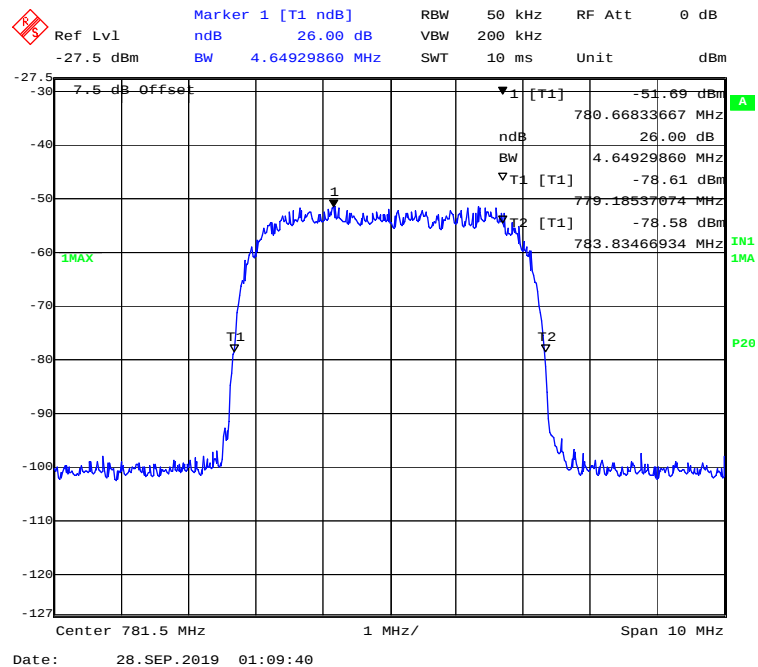
99% Bandwidth-DL-AWGN-Pre AGC- Output



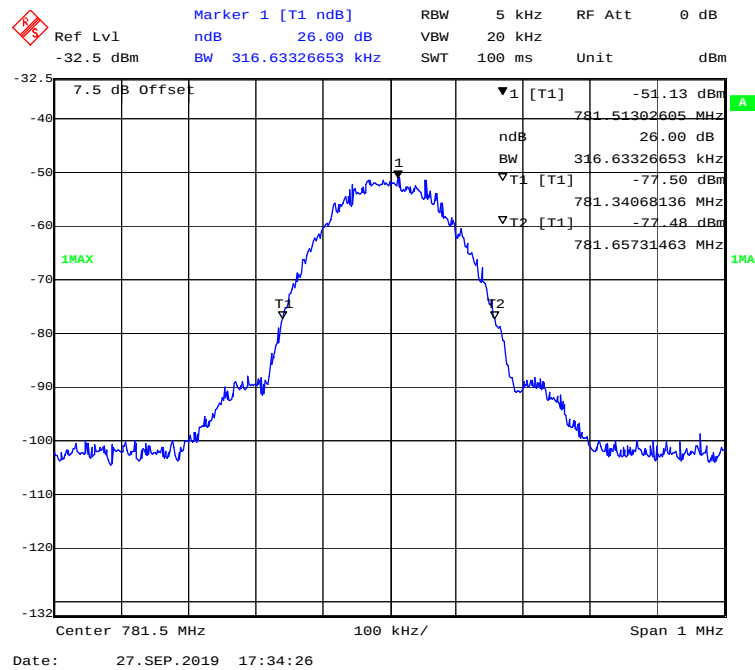
99% Bandwidth-DL- AWGN-3dB above AGC- Output



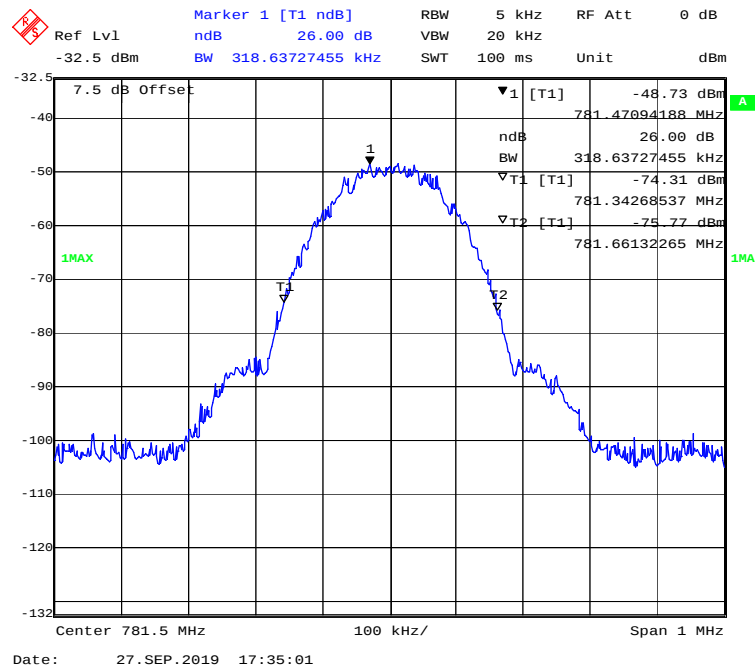
99% Bandwidth-DL-GSM-Pre AGC-Output**99% Bandwidth-DL- GSM-3dB above AGC-Output**

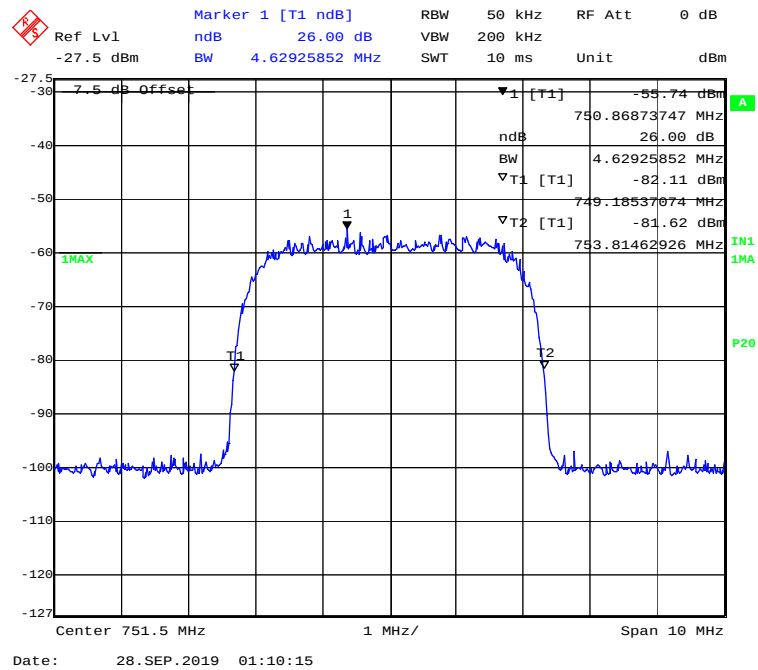
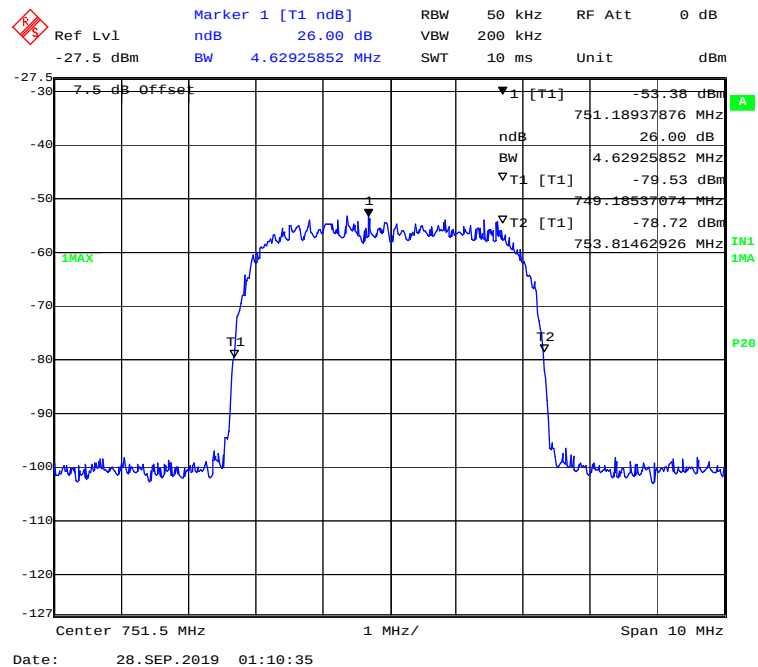
26dB Bandwidth-UL-AWGN-Pre AGC-Input**26dB Bandwidth-UL- AWGN-3dB above AGC-Input**

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

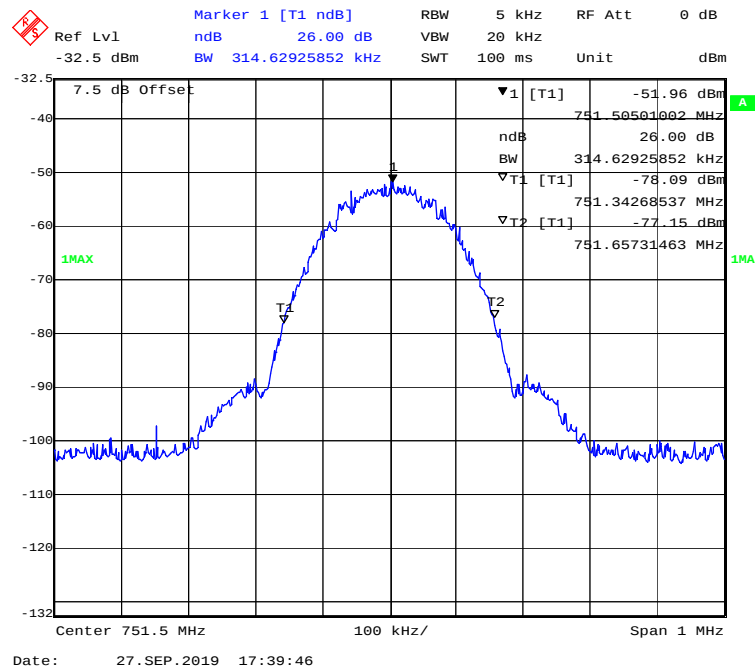


26dB Bandwidth-UL- GSM-3dB above AGC-Input

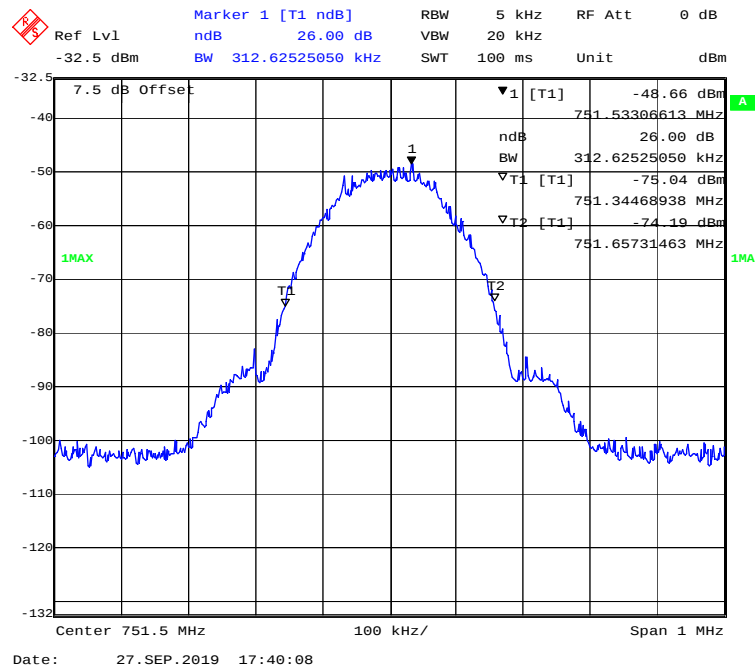


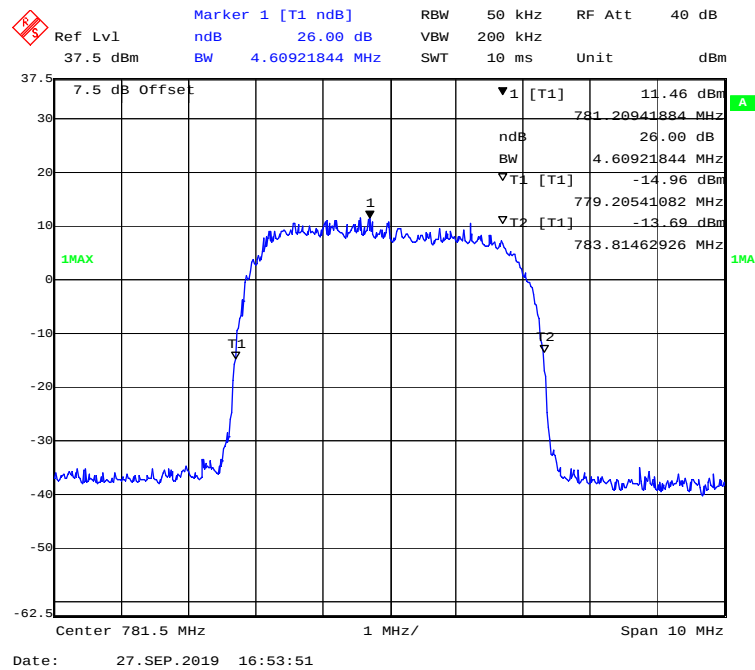
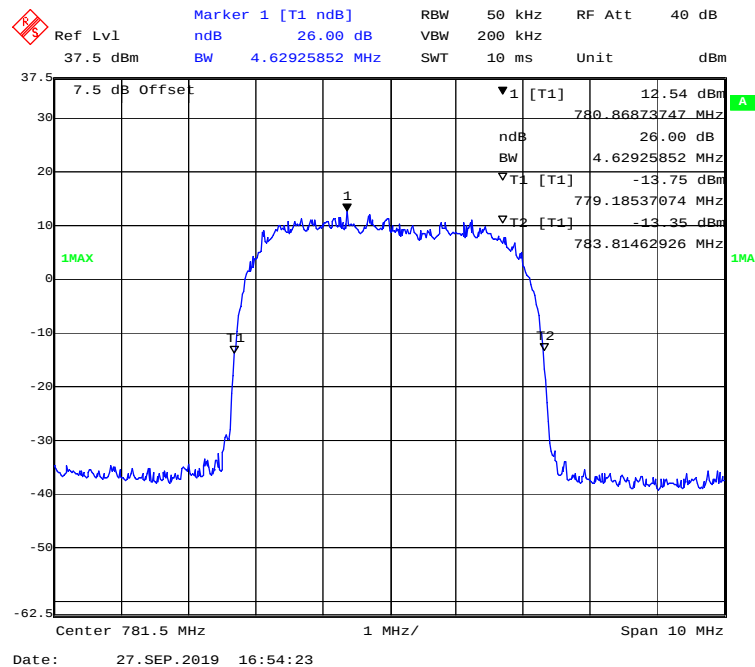
26dB Bandwidth-DL-AWGN-Pre AGC-Input**26dB Bandwidth-DL- AWGN-3dB above AGC-Input**

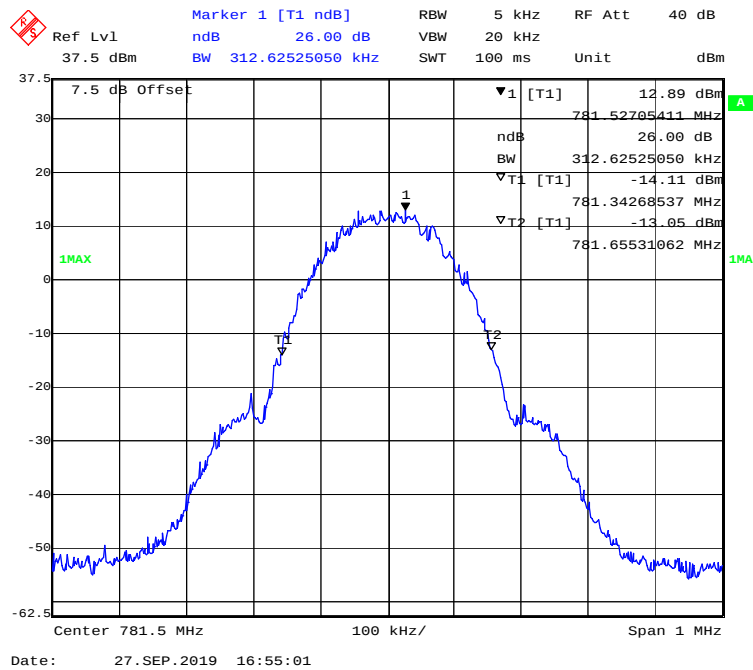
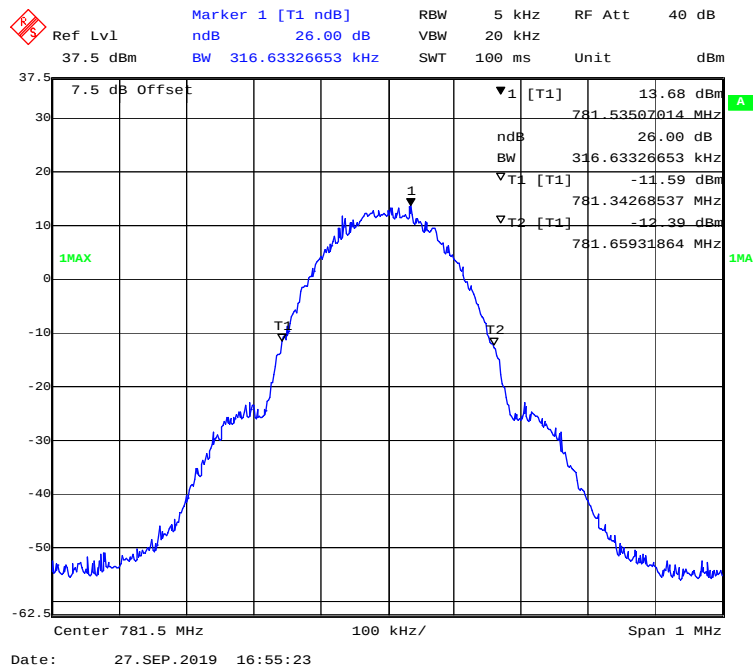
26dB Bandwidth-DL-GSM-Pre AGC-Input



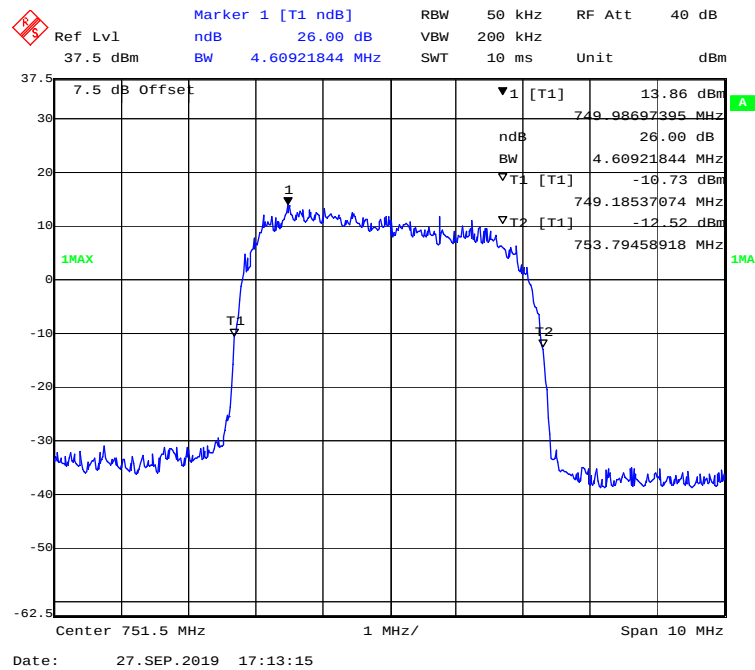
26dB Bandwidth-DL- GSM-3dB above AGC-Input



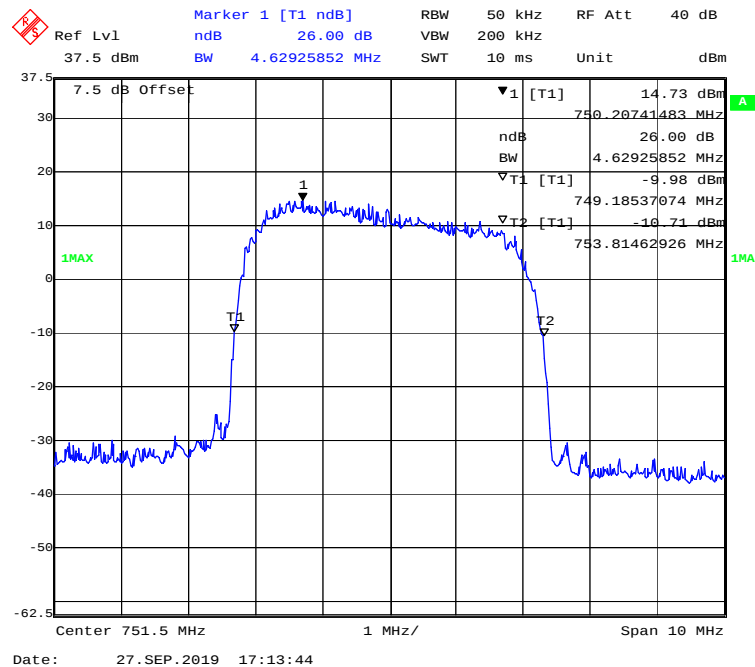
26dB Bandwidth-UL-AWGN-Pre AGC- Output**26dB Bandwidth-UL- AWGN-3dB above AGC- Output**

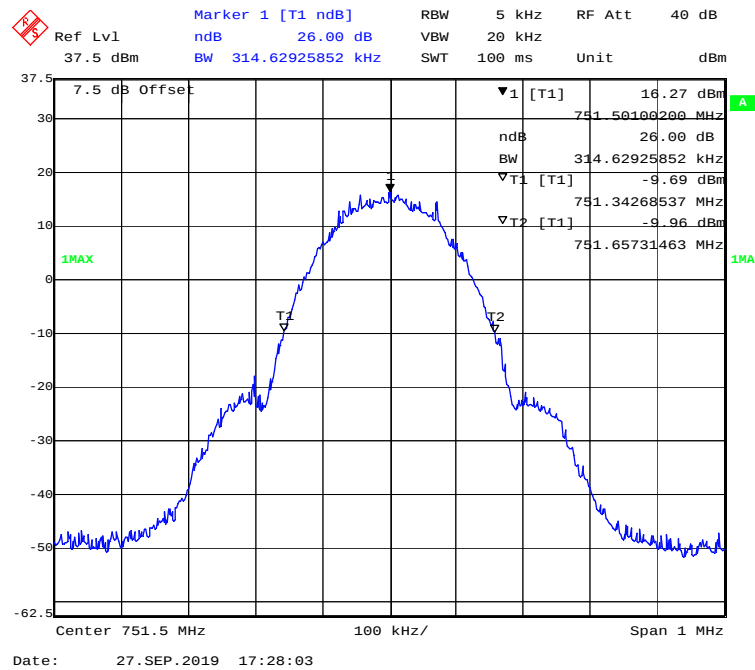
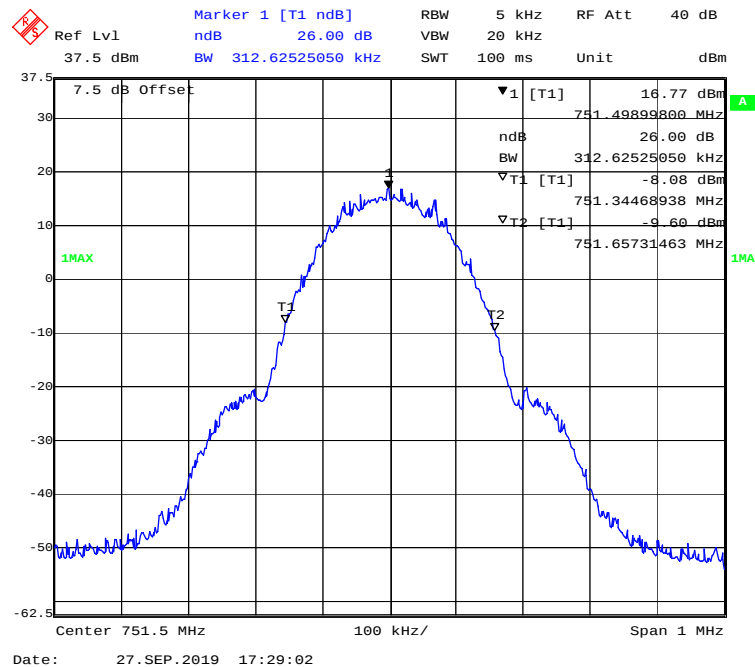
26dB Bandwidth-UL-GSM-Pre AGC- Output**26dB Bandwidth-UL- GSM-3dB above AGC- Output**

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



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

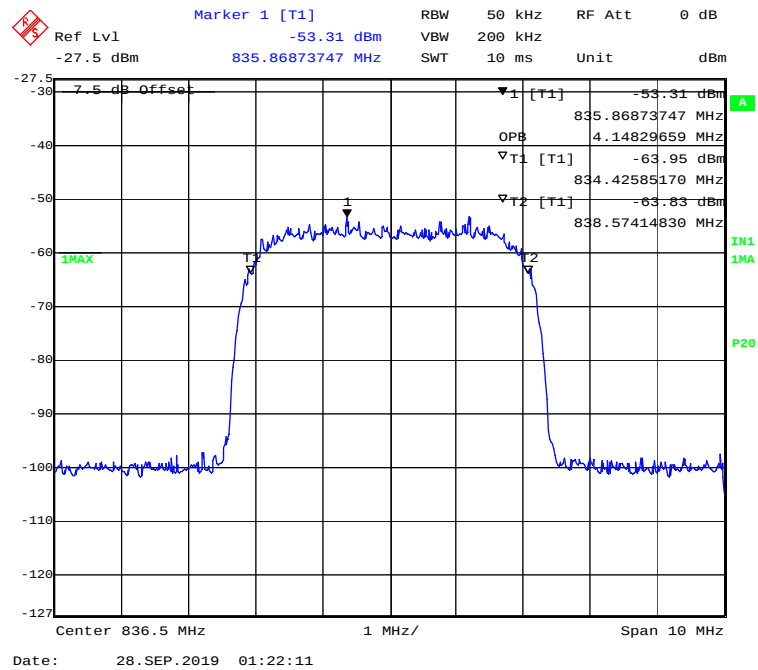


26dB Bandwidth-DL-GSM-Pre AGC-Output**26dB Bandwidth-DL- GSM-3dB above AGC-Output**

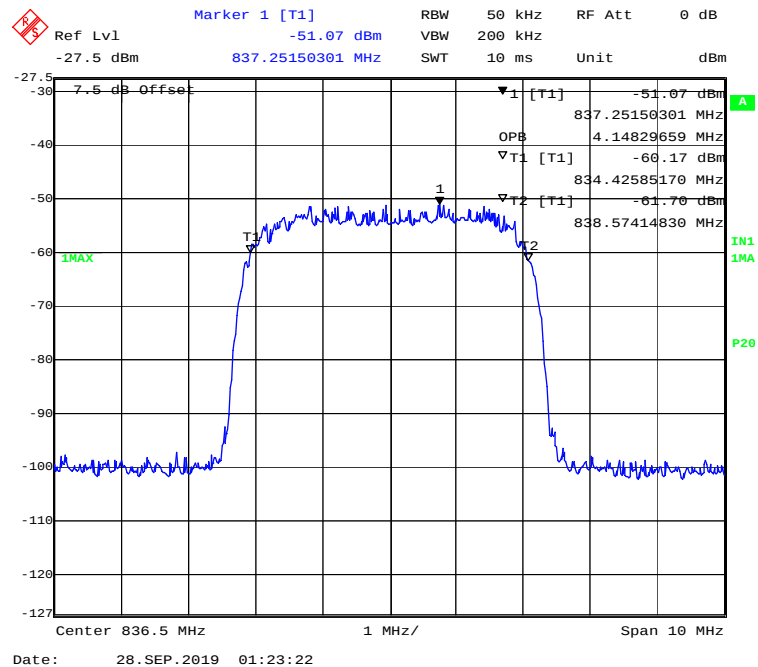
Cellular Band

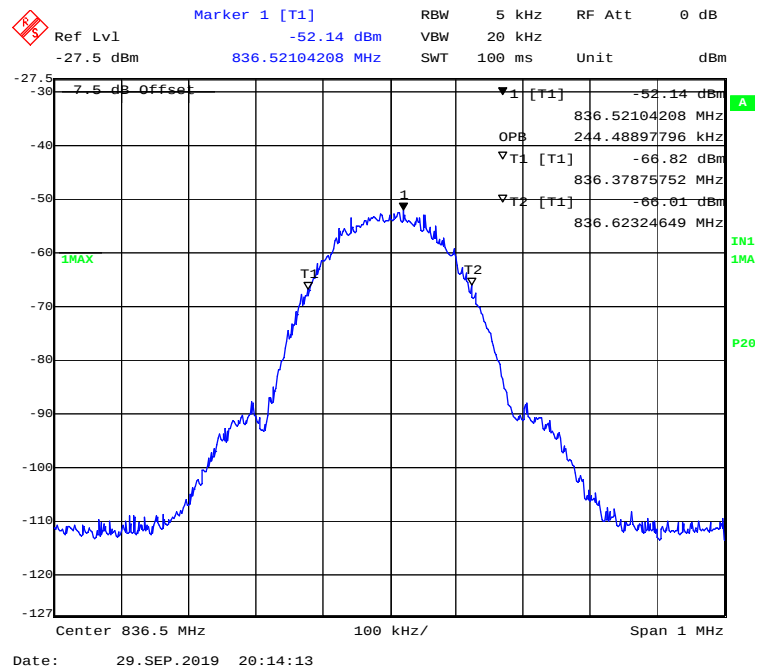
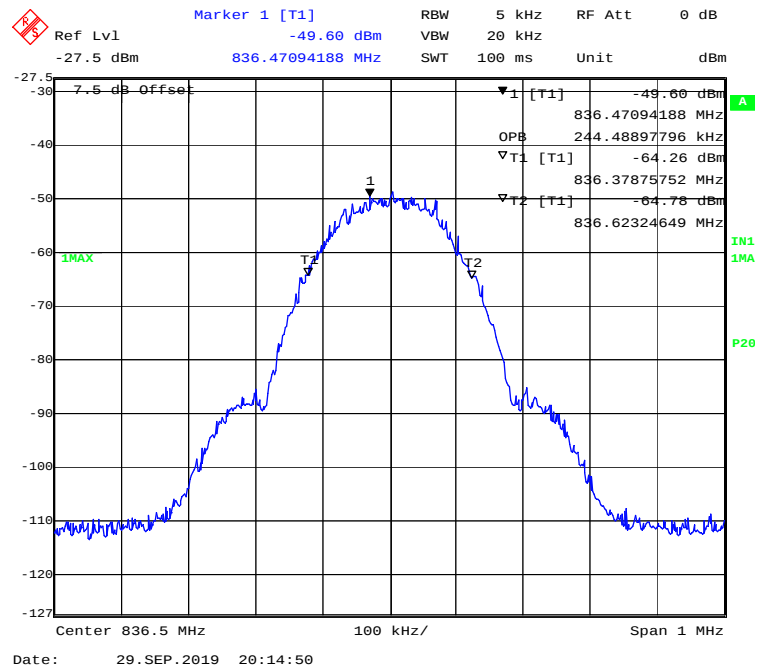
Modes	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	836.5	4.148	4.148	4.629	4.629
		3dB above AGC	836.5	4.148	4.128	4.629	4.629
	GSM	Pre-AGC	836.5	0.244	0.242	0.319	0.317
		3dB above AGC	836.5	0.244	0.246	0.317	0.317
Downlink	AWGN	Pre-AGC	881.5	4.128	4.128	4.629	4.609
		3dB above AGC	881.5	4.168	4.148	4.629	4.689
	GSM	Pre-AGC	881.5	0.246	0.244	0.321	0.315
		3dB above AGC	881.5	0.244	0.244	0.315	0.315

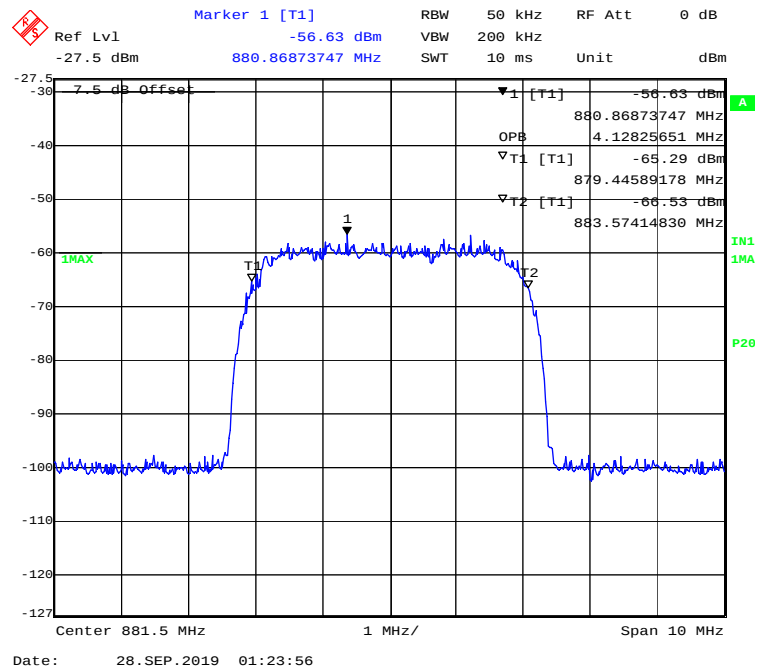
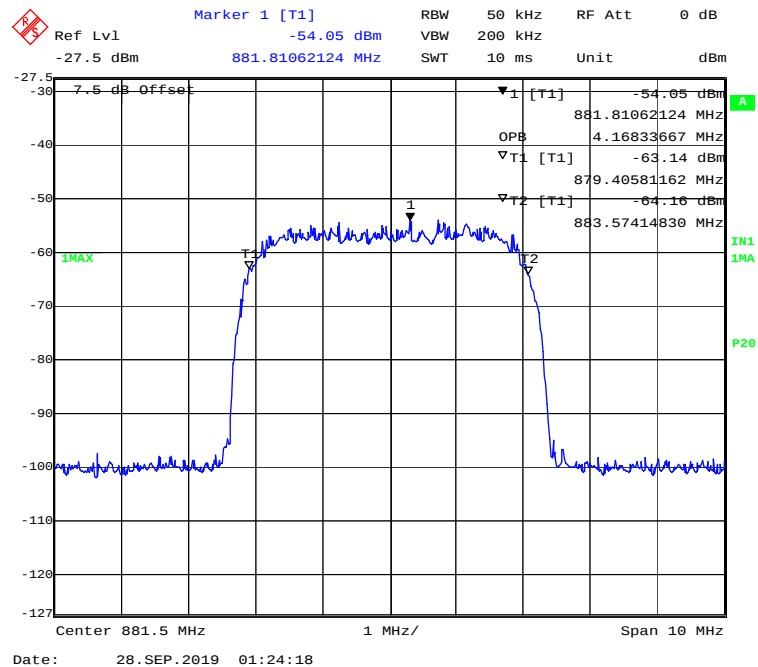
99% Bandwidth-UL-AWGN-Pre AGC-Input

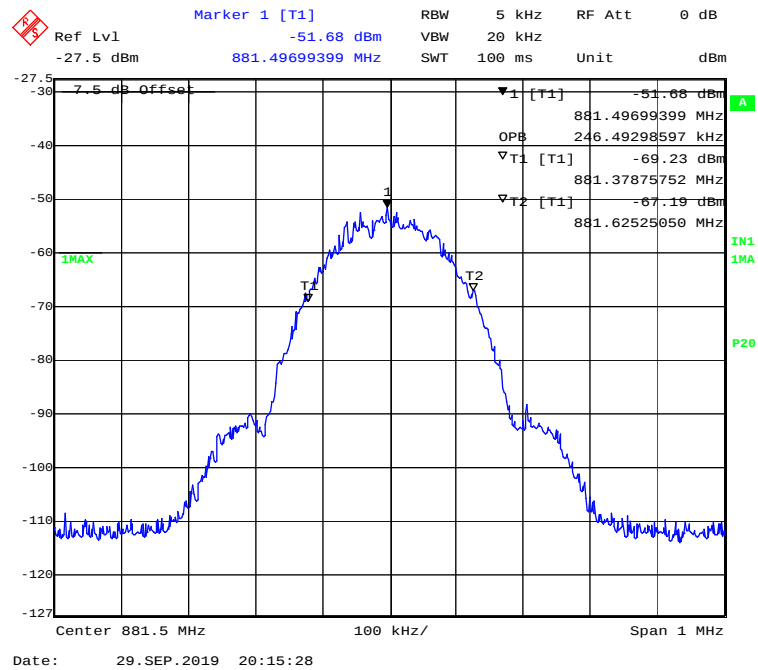
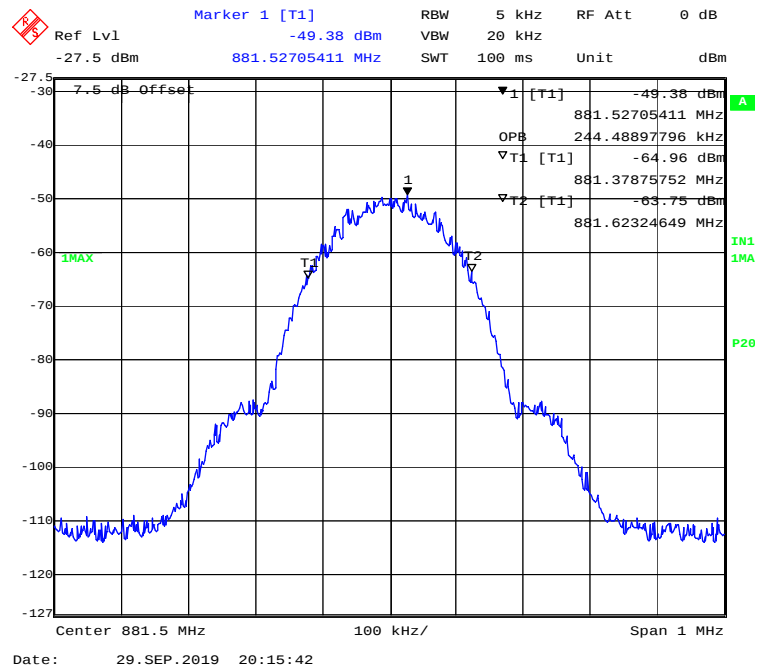


99% Bandwidth-UL- AWGN-3dB above AGC-Input

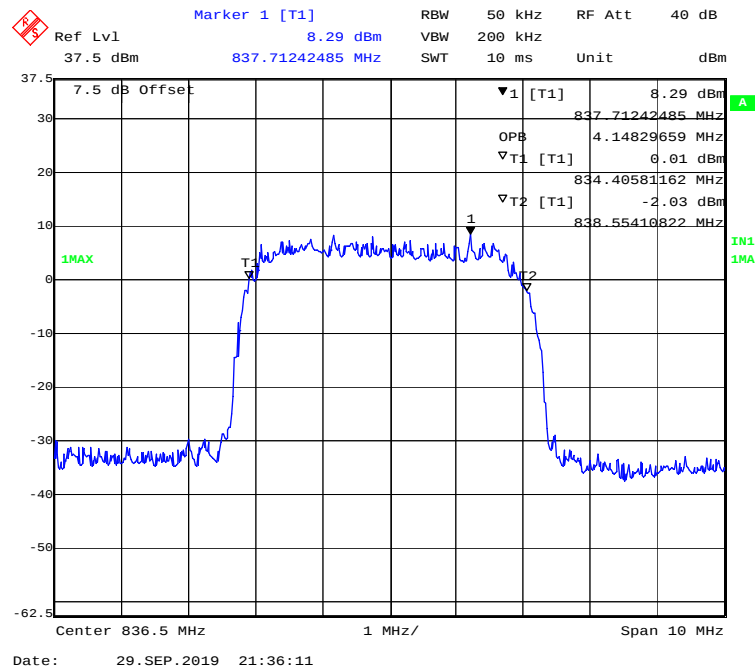


99% Bandwidth-UL-GSM-Pre AGC-Input**99% Bandwidth-UL- GSM-3dB above AGC-Input**

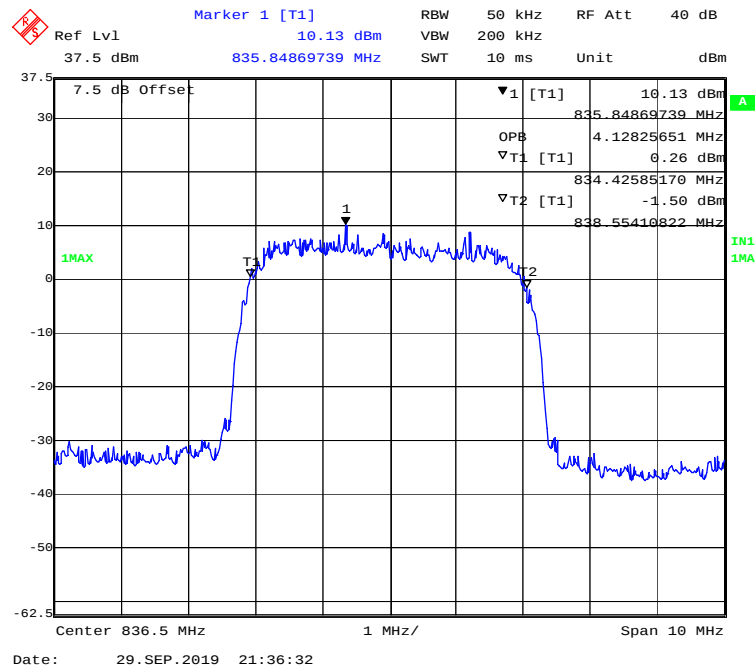
99% Bandwidth-DL-AWGN-Pre AGC-Input**99% Bandwidth-DL- AWGN-3dB above AGC-Input**

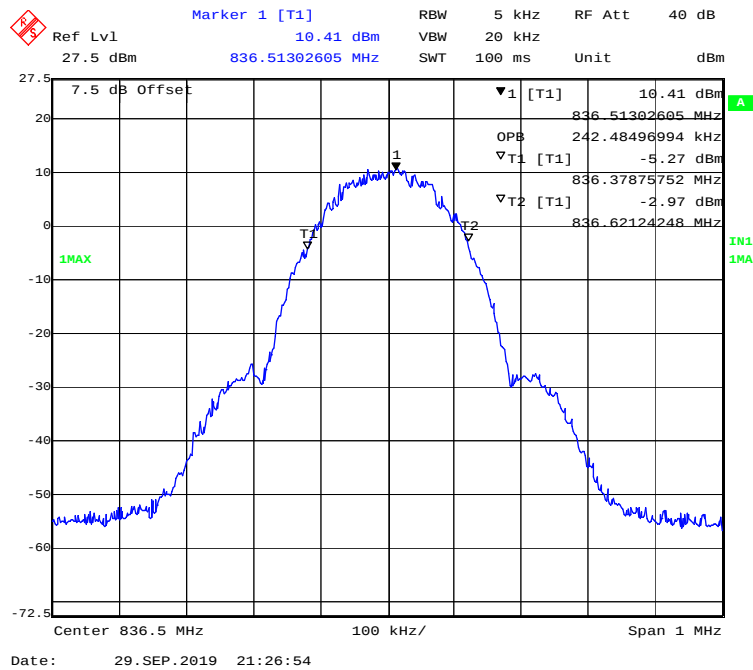
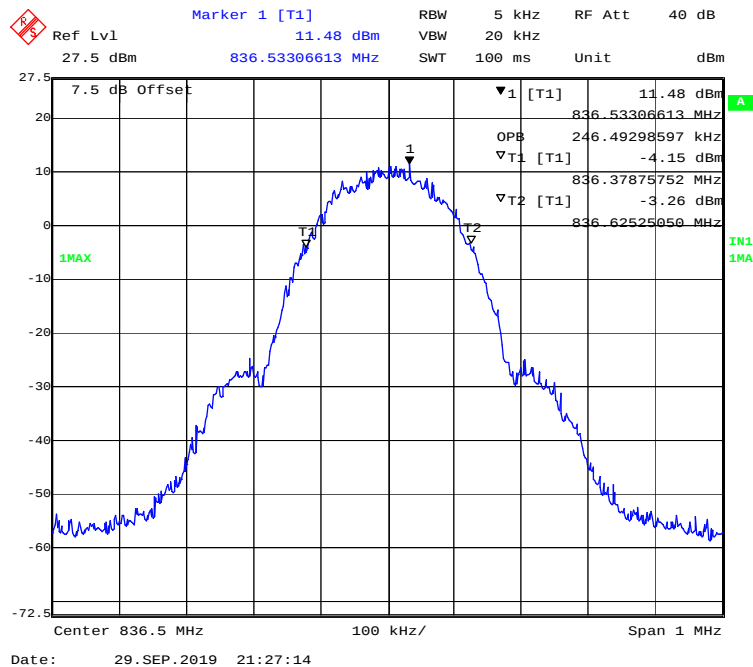
99% Bandwidth-DL-GSM-Pre AGC-Input**99% Bandwidth-DL- GSM-3dB above AGC-Input**

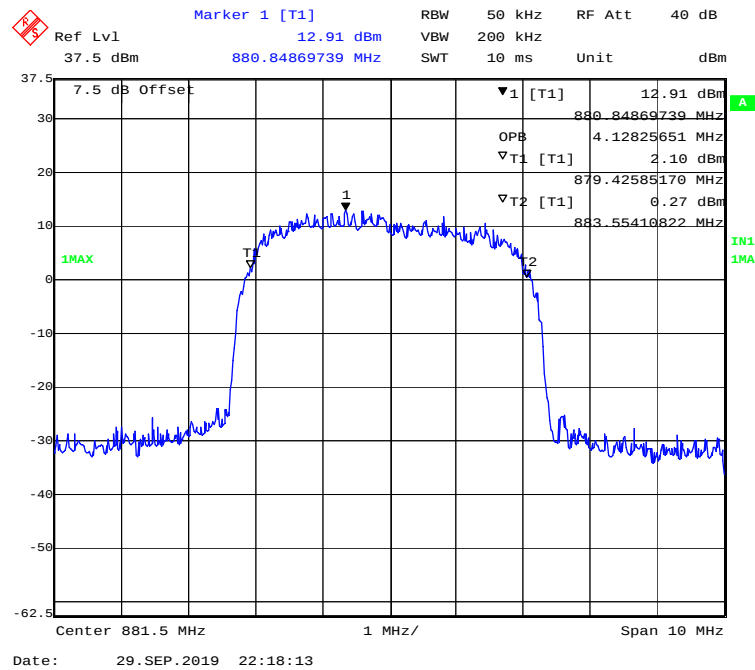
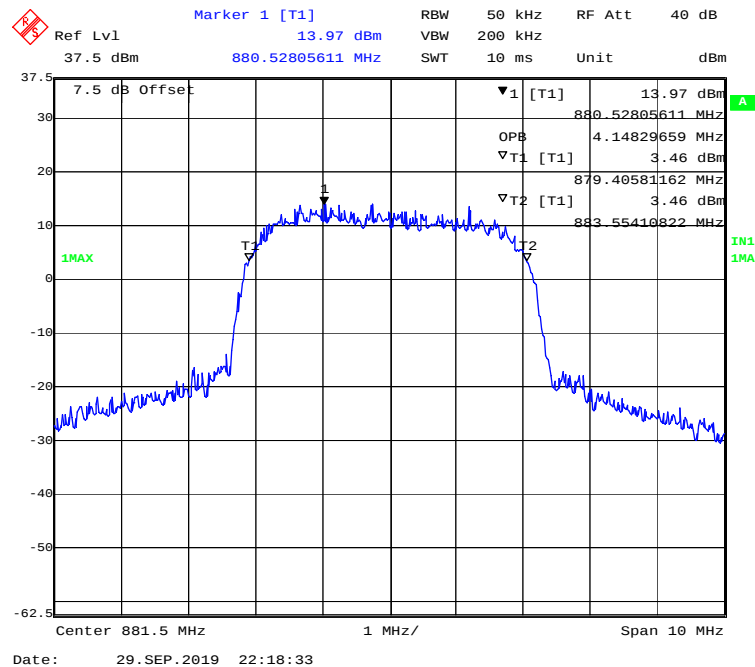
99% Bandwidth-UL-AWGN-Pre AGC- Output

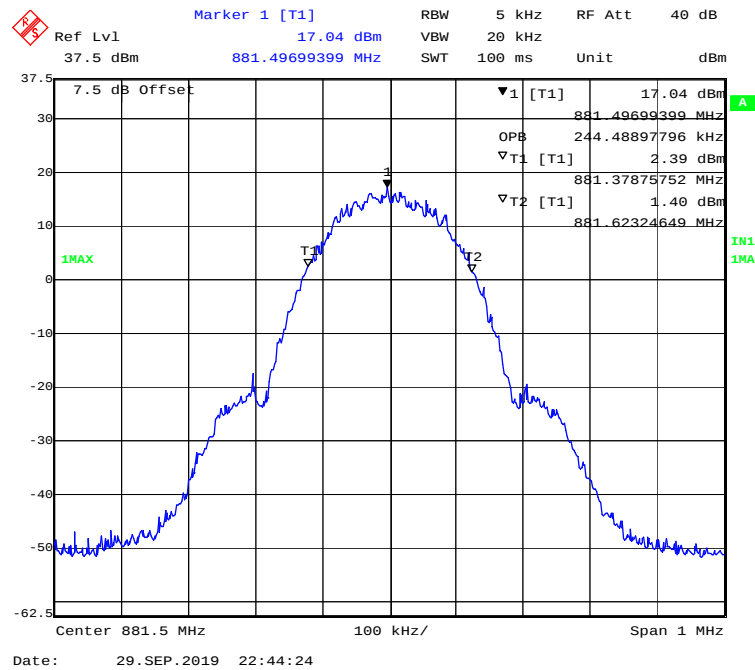
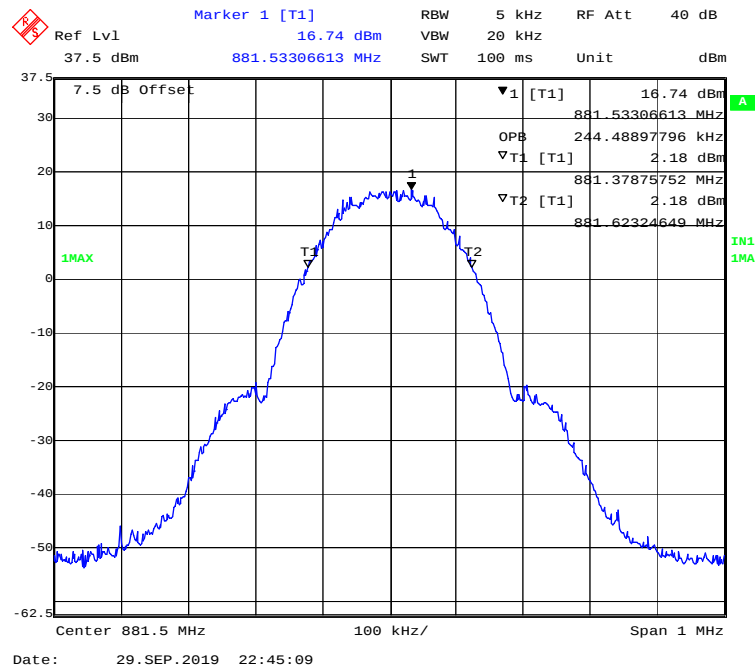


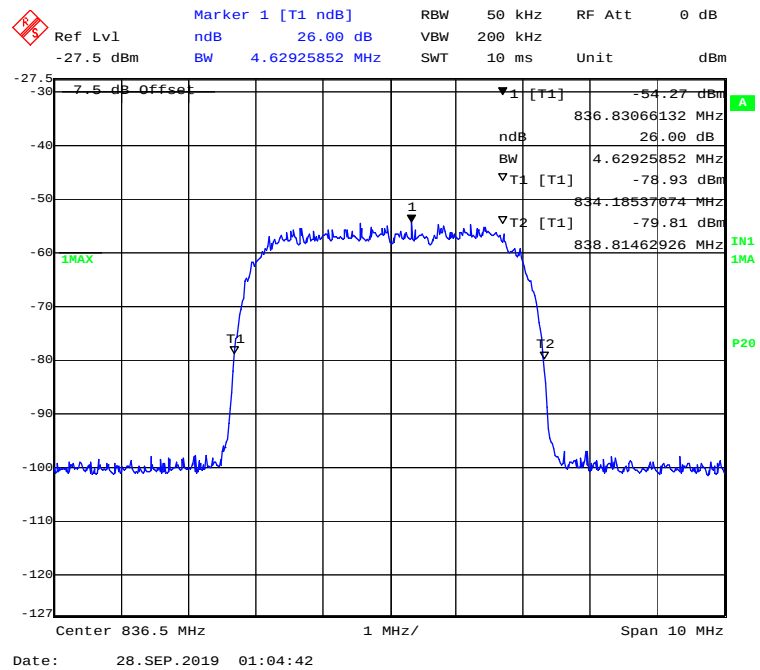
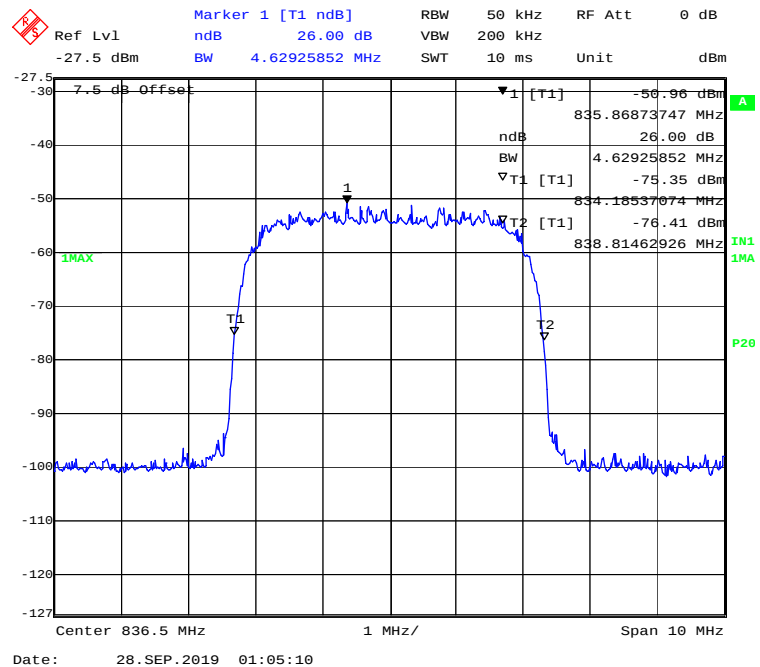
99% Bandwidth-UL- AWGN-3dB above AGC- Output

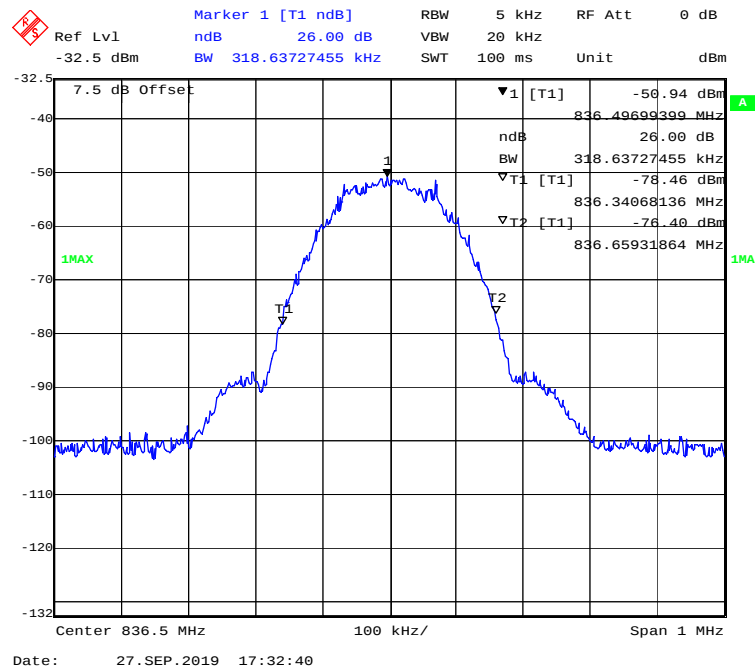
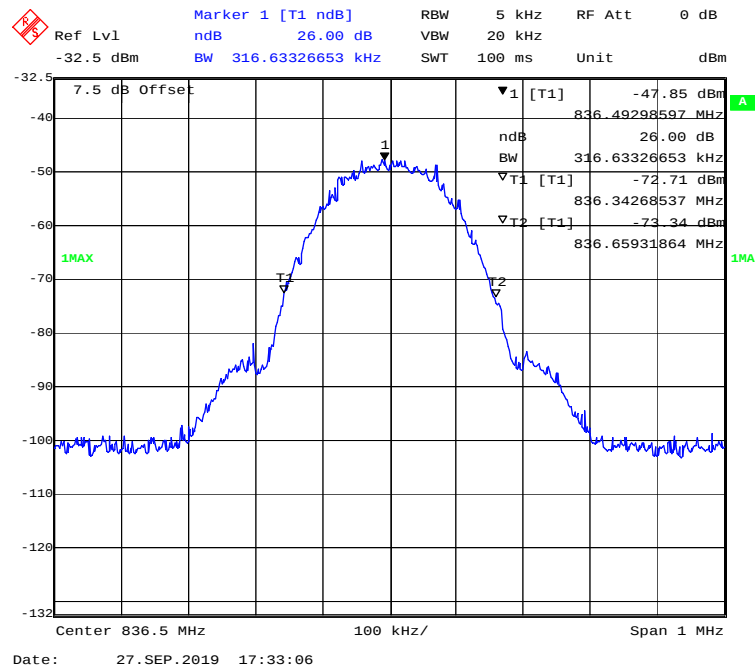


99% Bandwidth-UL-GSM-Pre AGC- Output**99% Bandwidth-UL- GSM-3dB above AGC- Output**

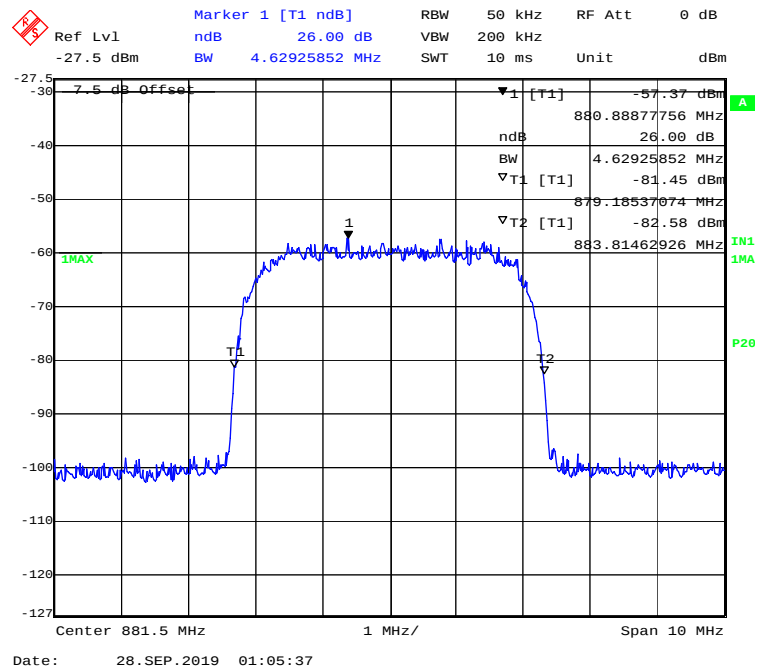
99% Bandwidth-DL-AWGN-Pre AGC- Output**99% Bandwidth-DL- AWGN-3dB above AGC- Output**

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

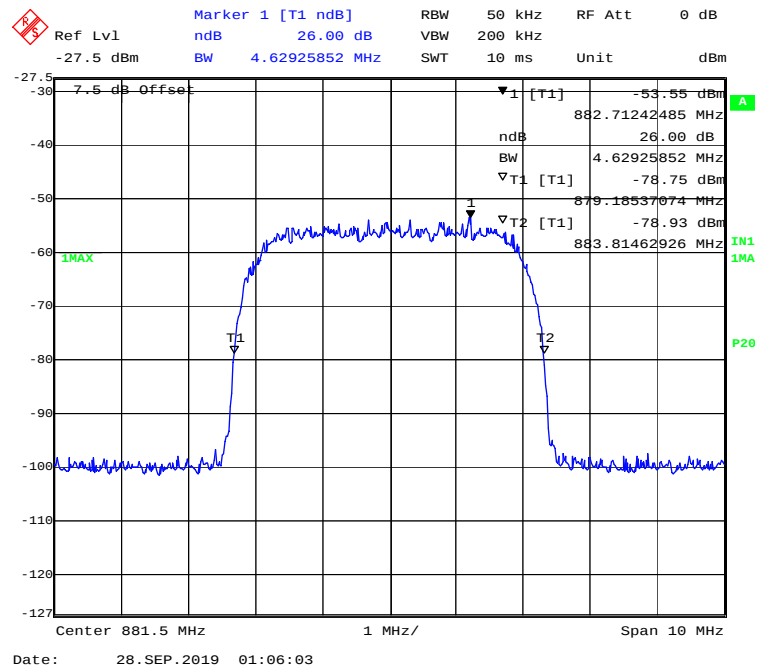
26dB Bandwidth-UL-AWGN-Pre AGC-Input**26dB Bandwidth-UL- AWGN-3dB above AGC-Input**

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

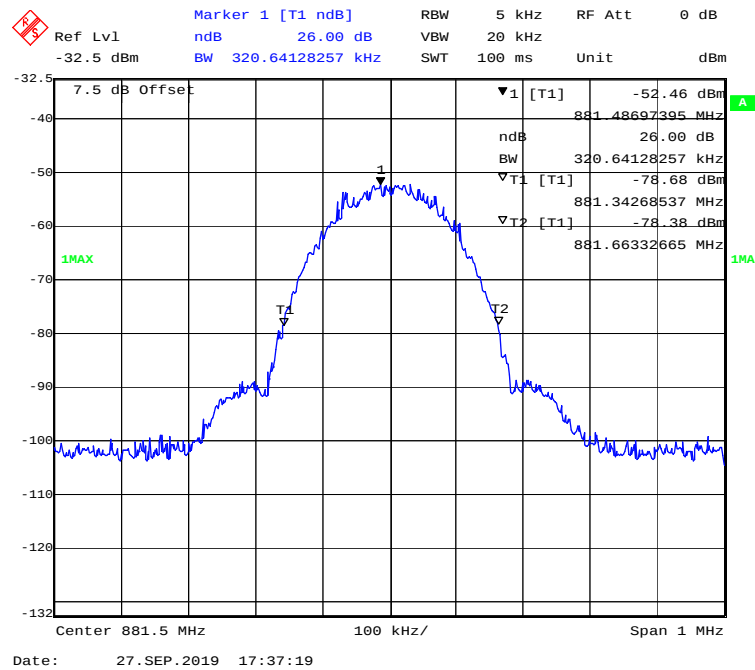
26dB Bandwidth-DL-AWGN-Pre AGC-Input



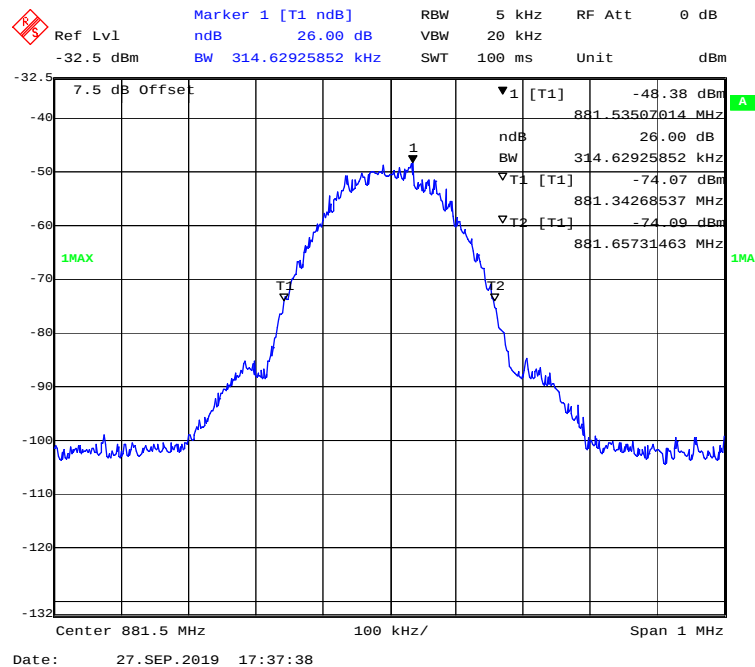
26dB Bandwidth-DL- AWGN-3dB above AGC-Input



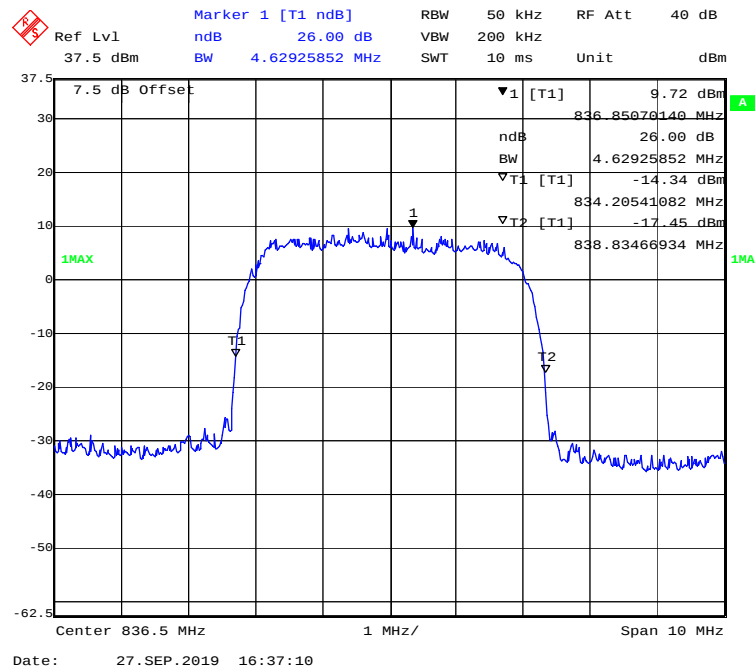
26dB Bandwidth-DL-GSM-Pre AGC-Input



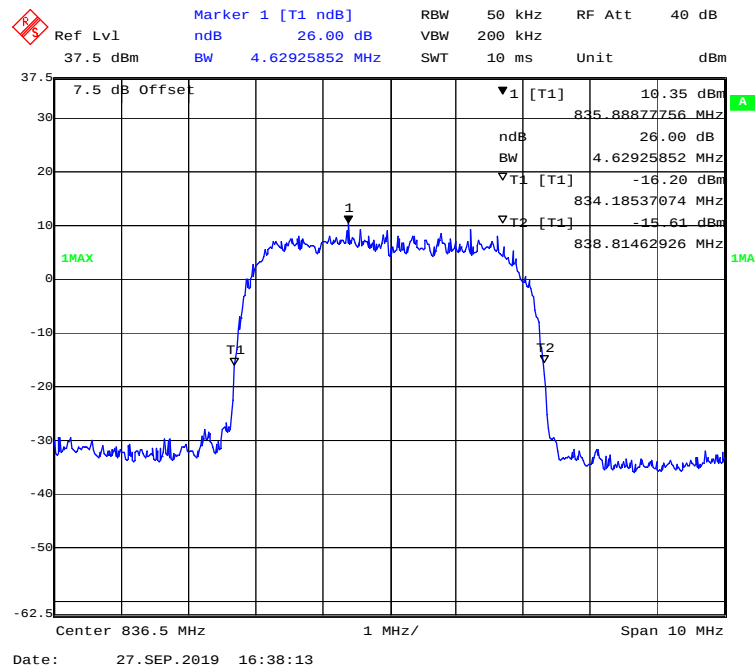
26dB Bandwidth-DL- GSM-3dB above AGC-Input



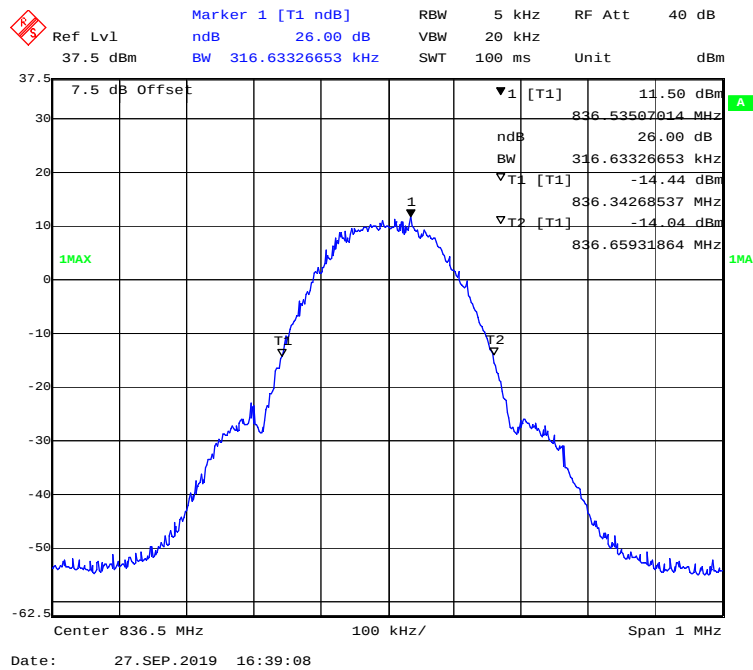
26dB Bandwidth-UL-AWGN-Pre AGC- Output



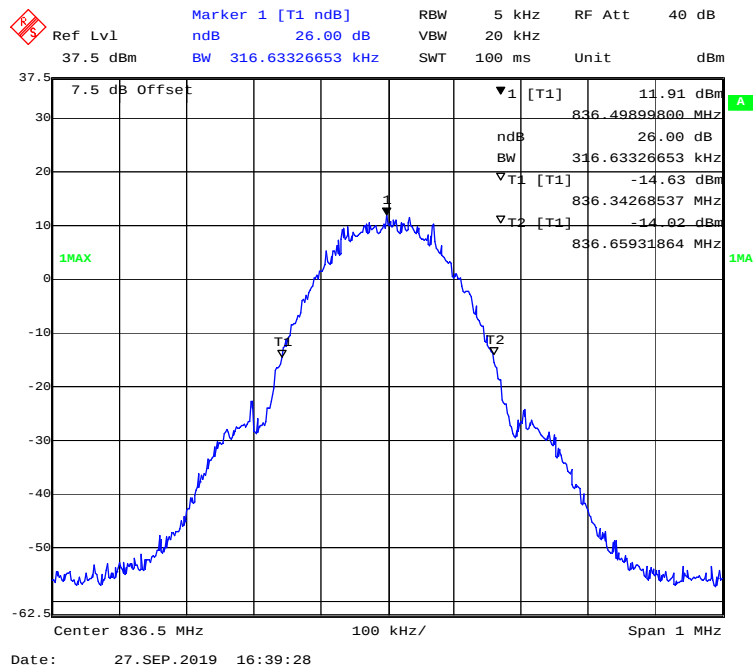
26dB Bandwidth-UL- AWGN-3dB above AGC- Output



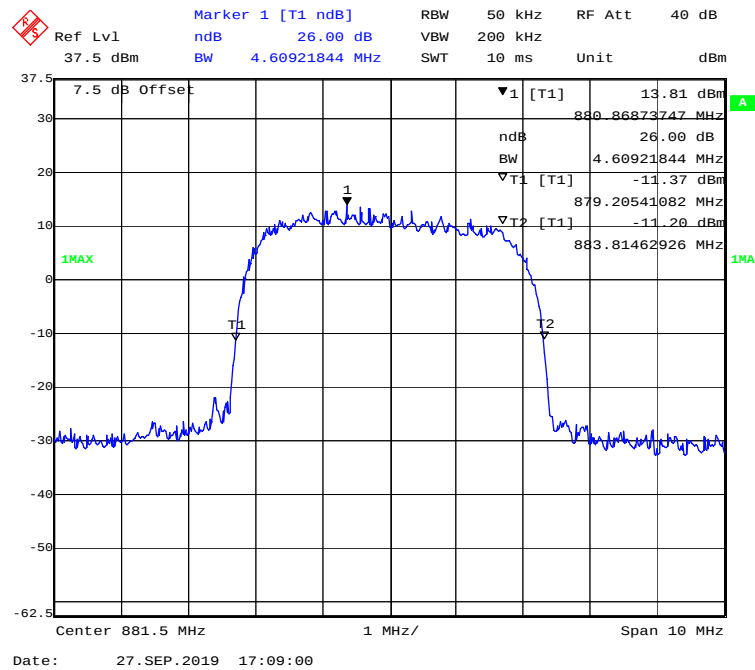
26dB Bandwidth-UL-GSM-Pre AGC- Output



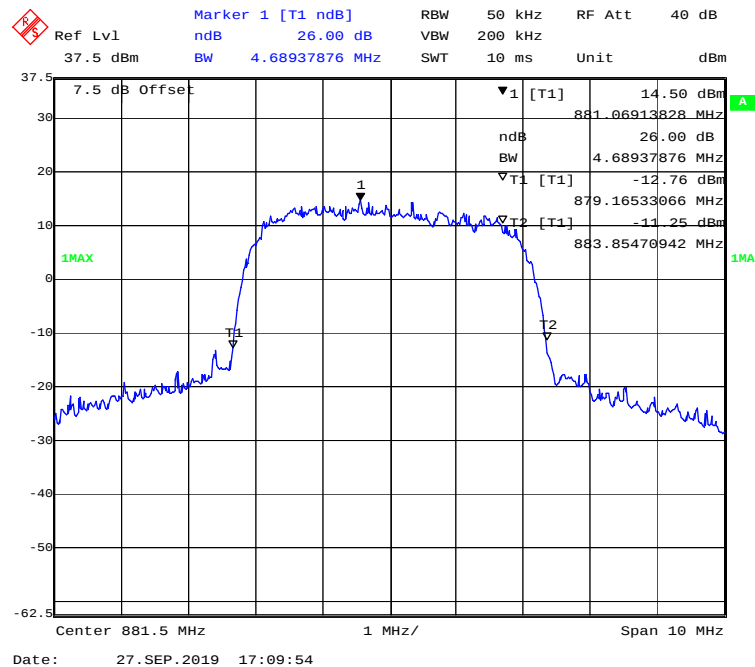
26dB Bandwidth-UL- GSM-3dB above AGC- Output



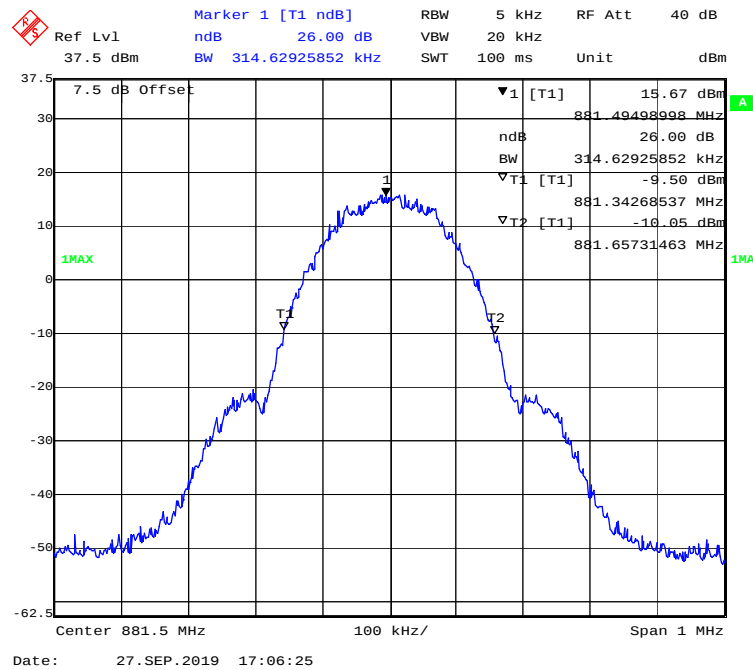
26dB Bandwidth-DL-AWGN-Pre AGC- Output



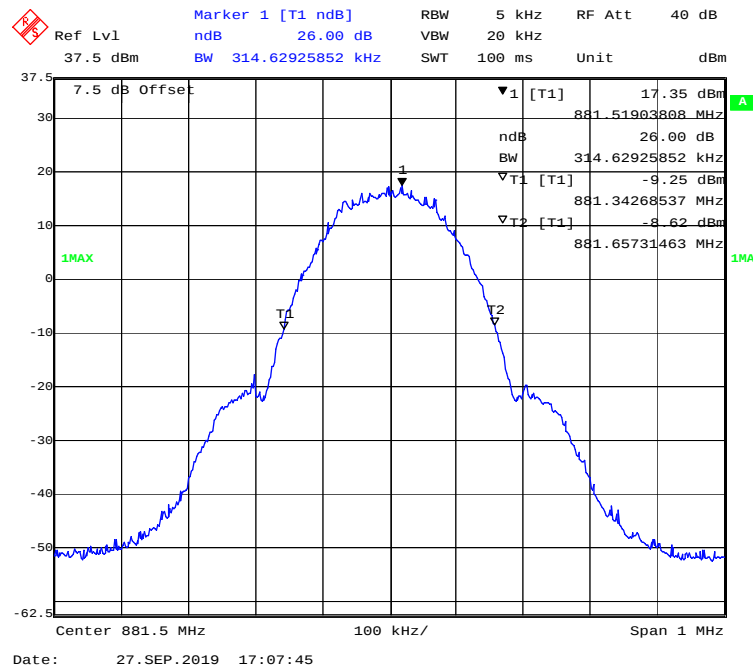
26dB Bandwidth-DL- AWGN-3dB above AGC- Output



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



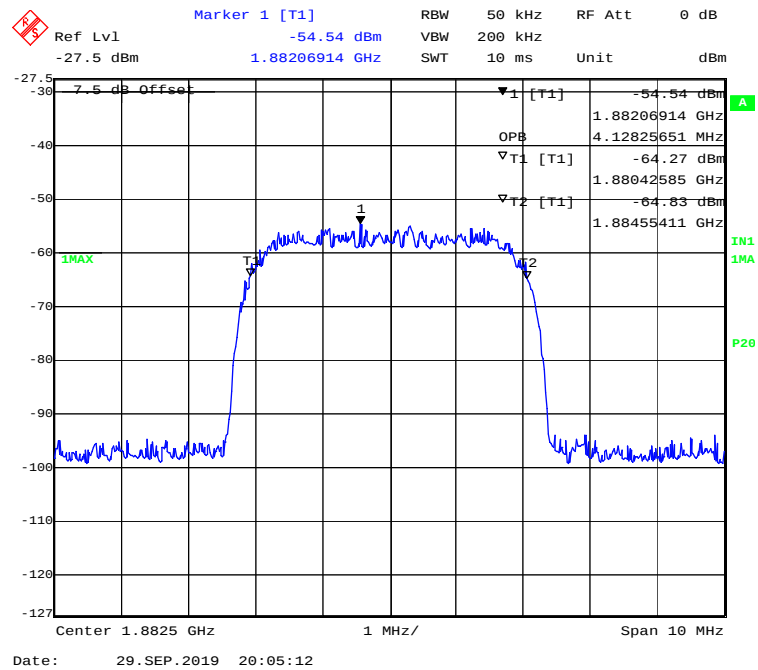
26dB Bandwidth-DL- GSM-3dB above AGC-Output



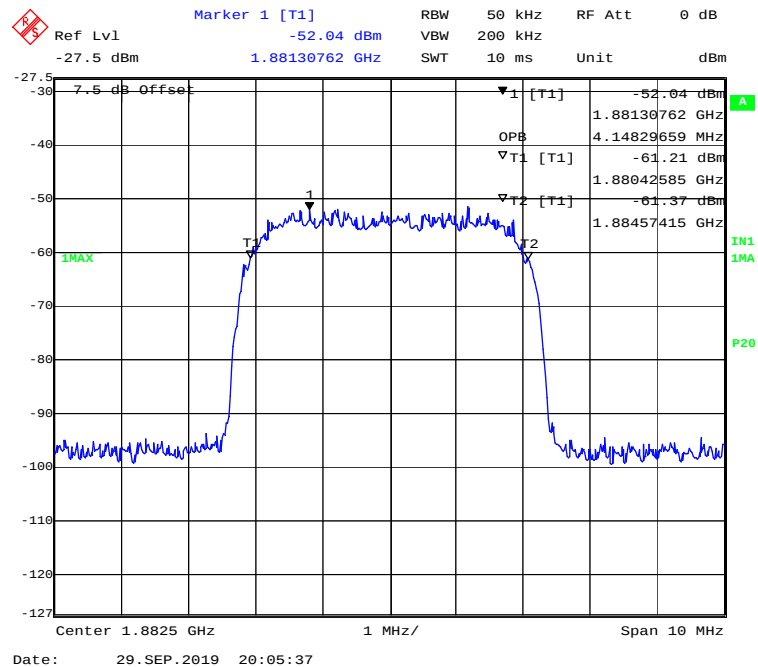
PCS Band

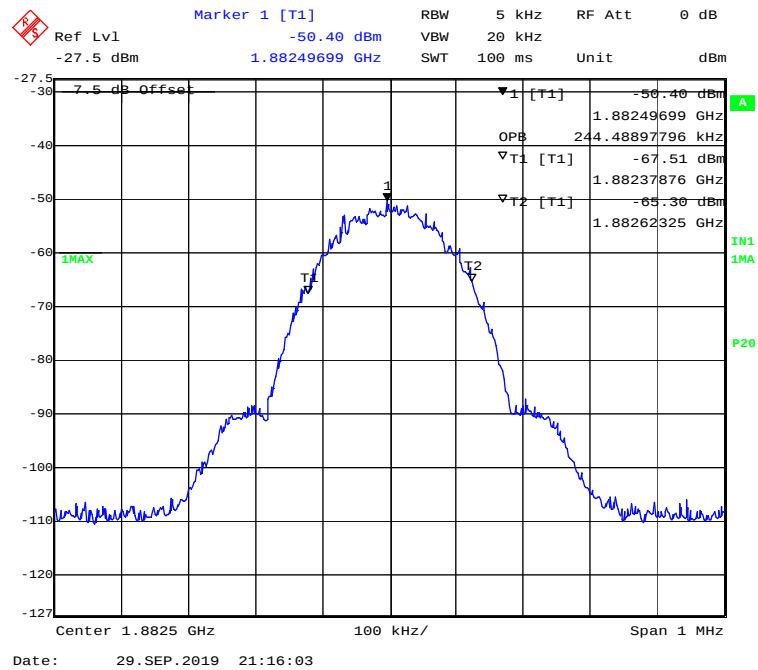
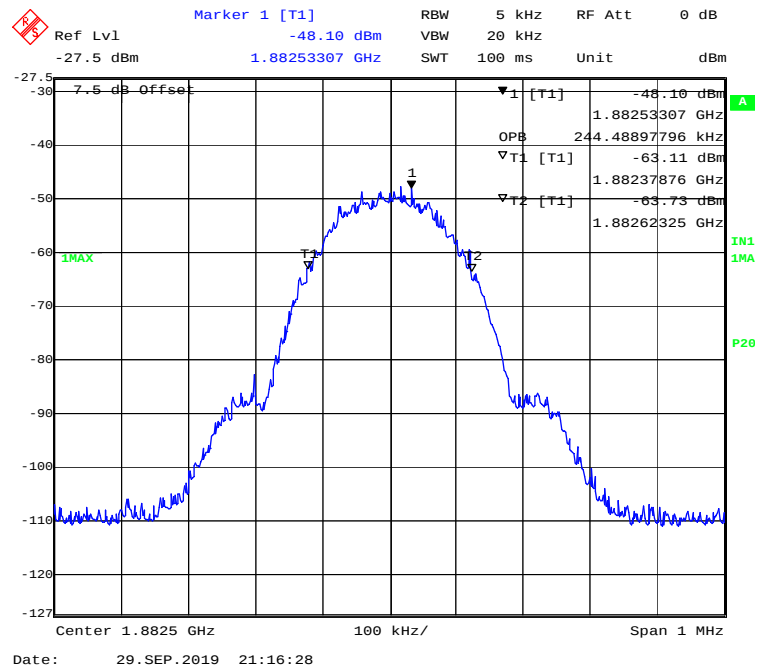
Modes	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	1882.5	4.128	4.128	4.669	4.629
		3dB above AGC	1882.5	4.148	4.148	4.649	4.629
	GSM	Pre-AGC	1882.5	0.244	0.244	0.317	0.313
		3dB above AGC	1882.5	0.244	0.242	0.311	0.315
Downlink	AWGN	Pre-AGC	1962.5	4.148	4.168	4.629	4.649
		3dB above AGC	1962.5	4.148	4.148	4.629	4.649
	GSM	Pre-AGC	1962.5	0.246	0.244	0.315	0.317
		3dB above AGC	1962.5	0.246	0.242	0.315	0.315

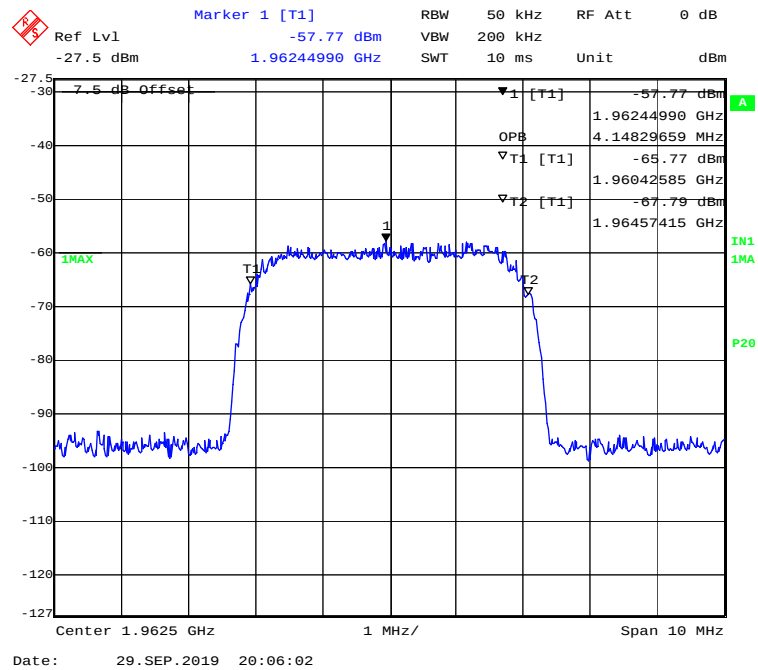
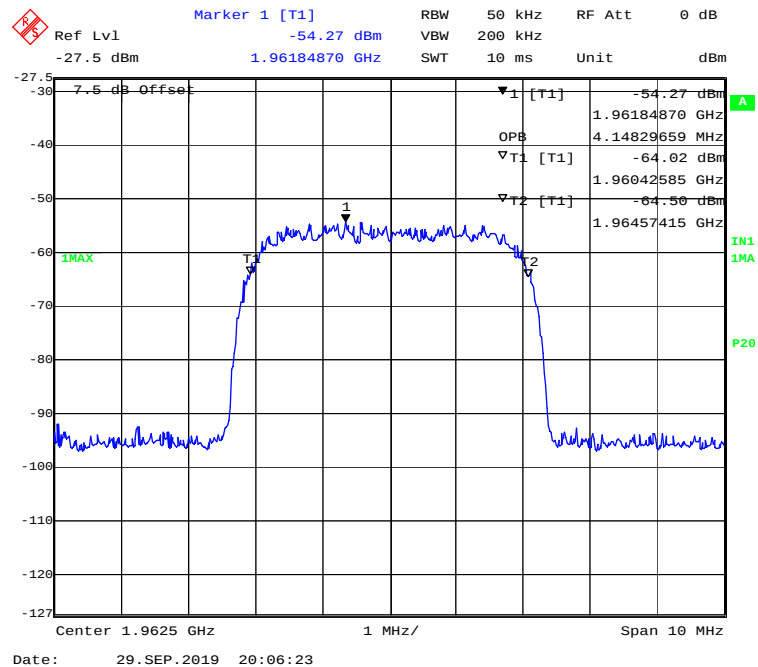
99% Bandwidth-UL-AWGN-Pre AGC-Input

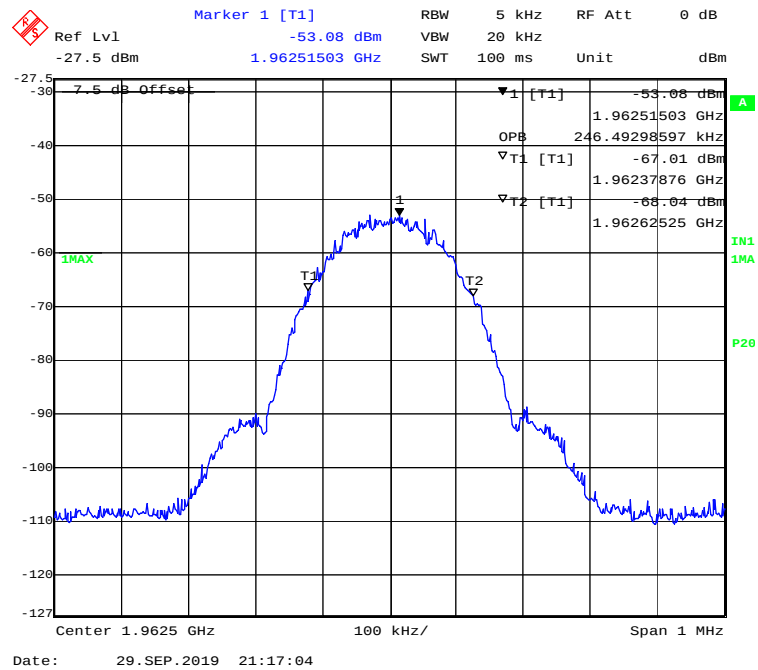
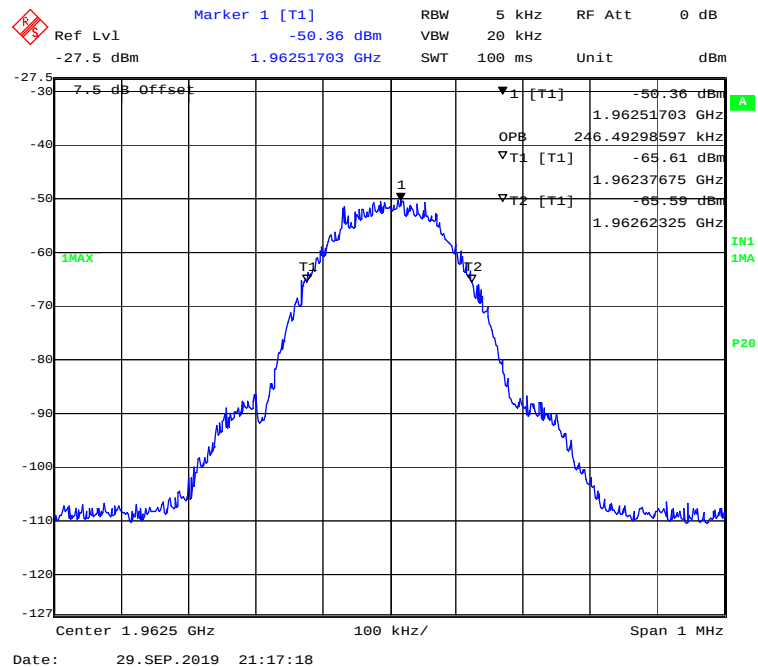


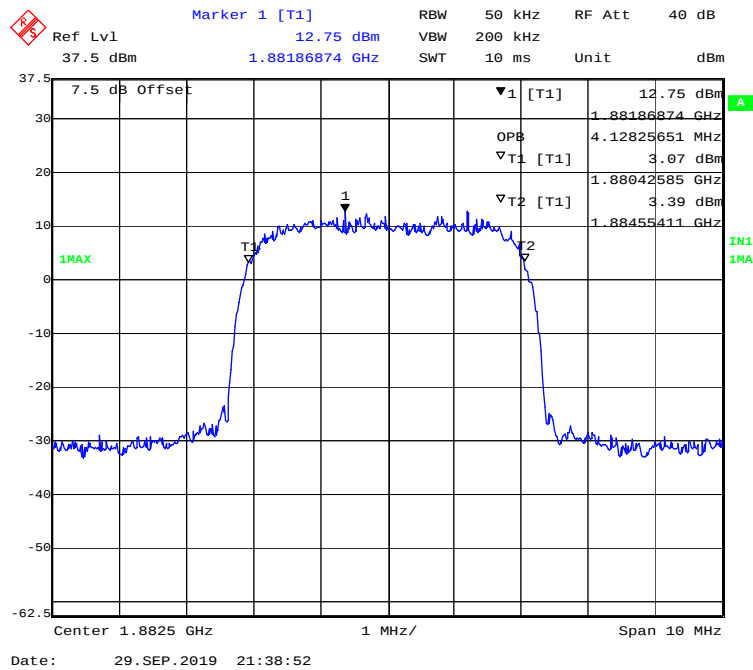
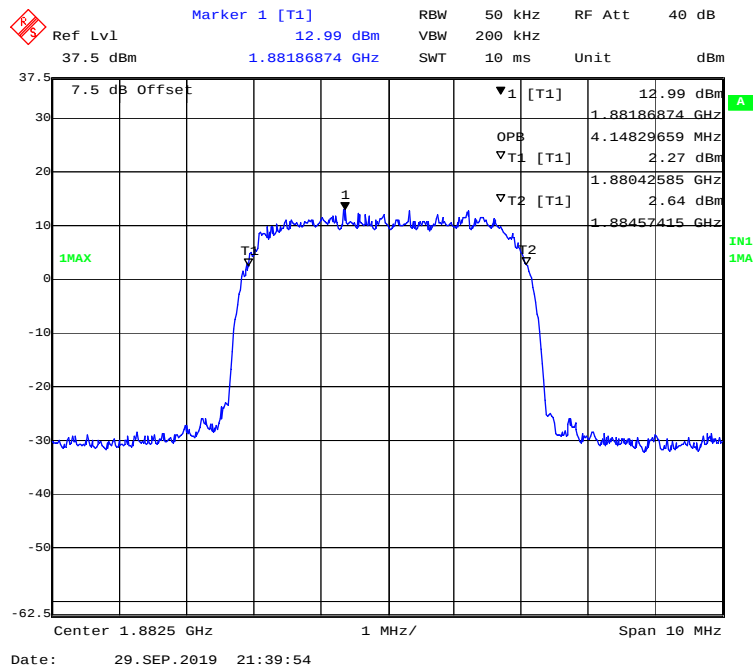
99% Bandwidth-UL- AWGN-3dB above AGC-Input

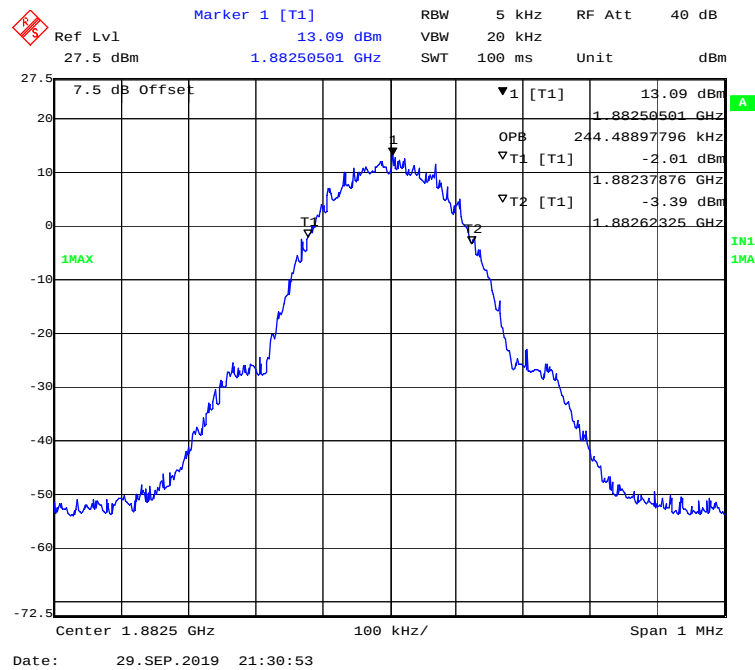
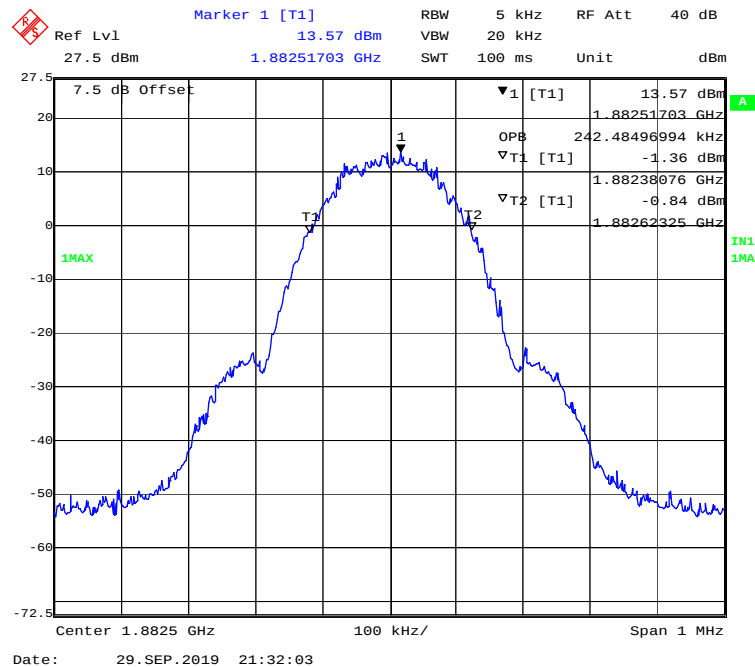


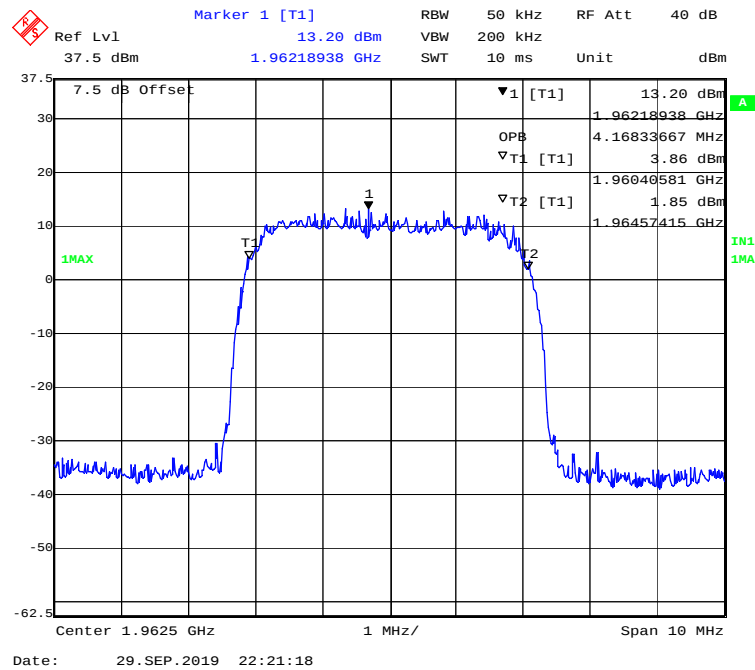
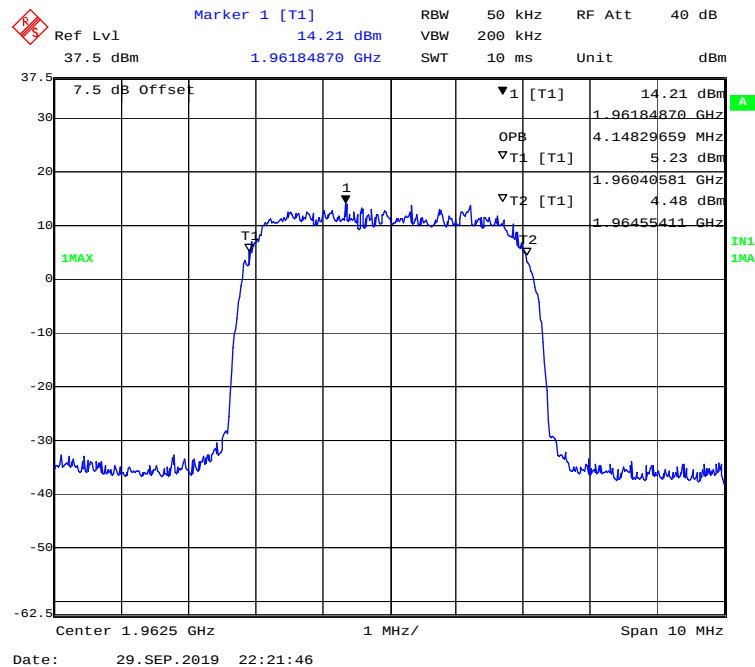
99% Bandwidth-UL-GSM-Pre AGC-Input**99% Bandwidth-UL- GSM-3dB above AGC-Input**

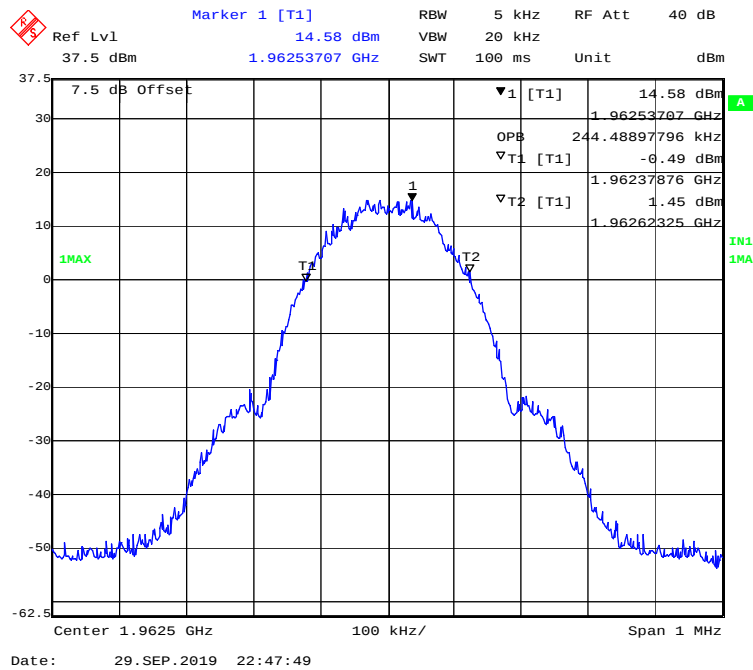
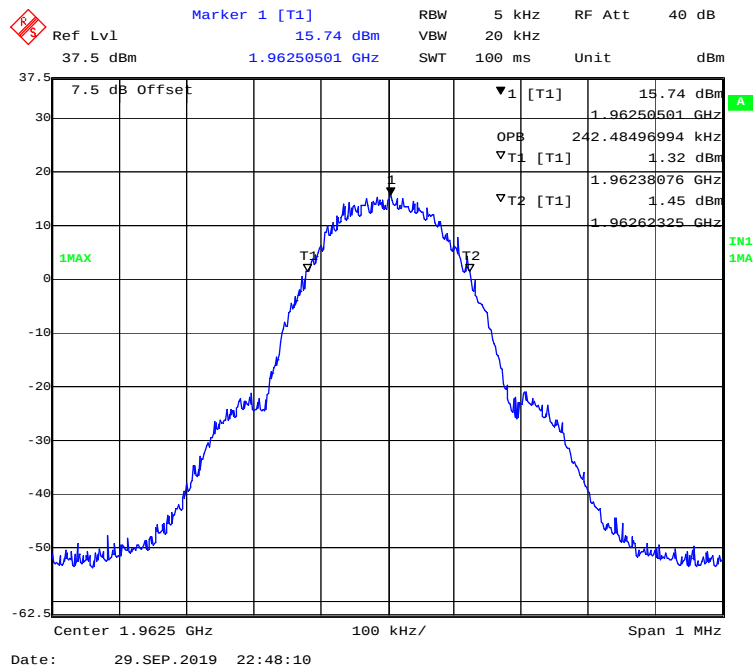
99% Bandwidth-DL-AWGN-Pre AGC-Input**99% Bandwidth-DL- AWGN-3dB above AGC-Input**

99% Bandwidth-DL-GSM-Pre AGC-Input**99% Bandwidth-DL- GSM-3dB above AGC-Input**

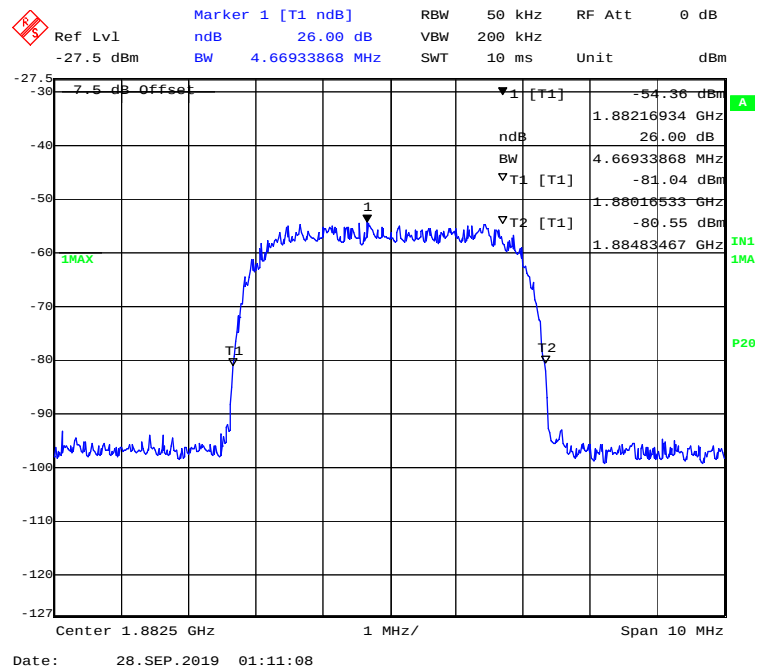
99% Bandwidth-UL-AWGN-Pre AGC- Output**99% Bandwidth-UL- AWGN-3dB above AGC- Output**

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

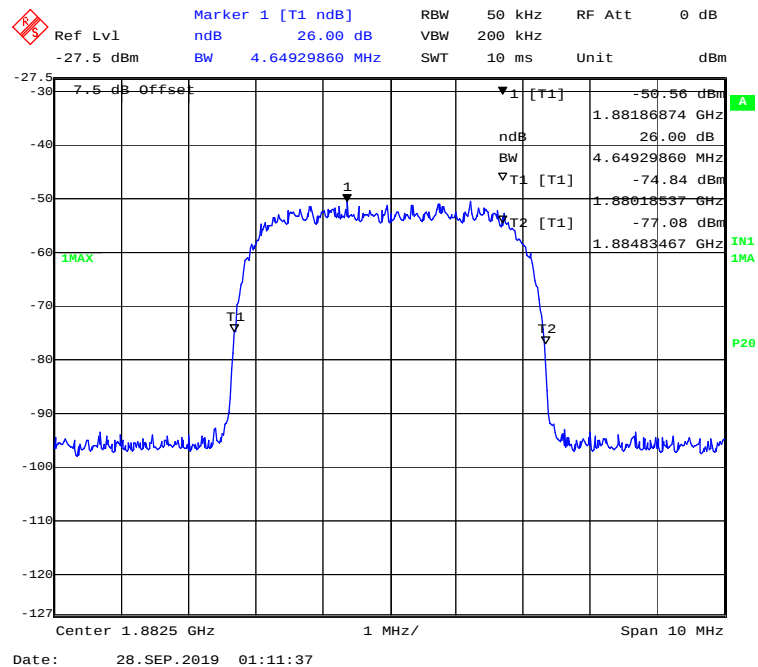
99% Bandwidth-DL-AWGN-Pre AGC- Output**99% Bandwidth-DL- AWGN-3dB above AGC- Output**

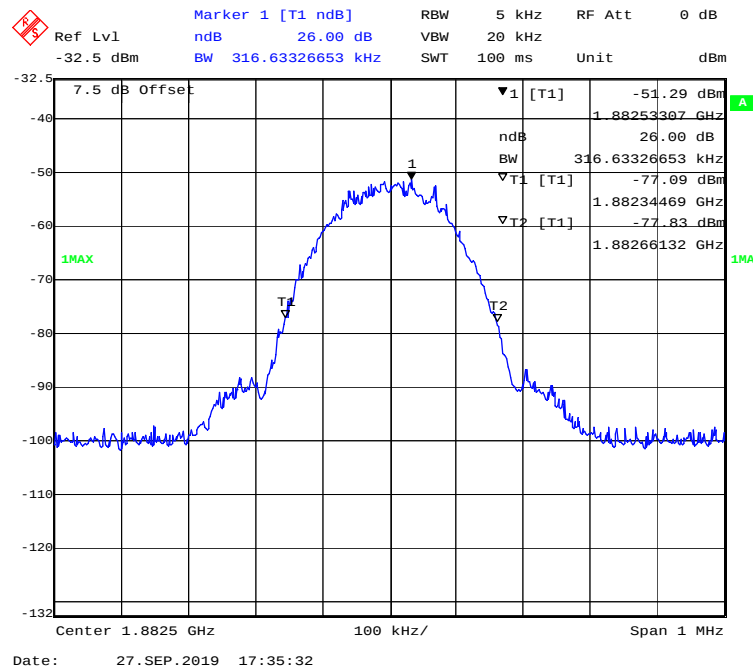
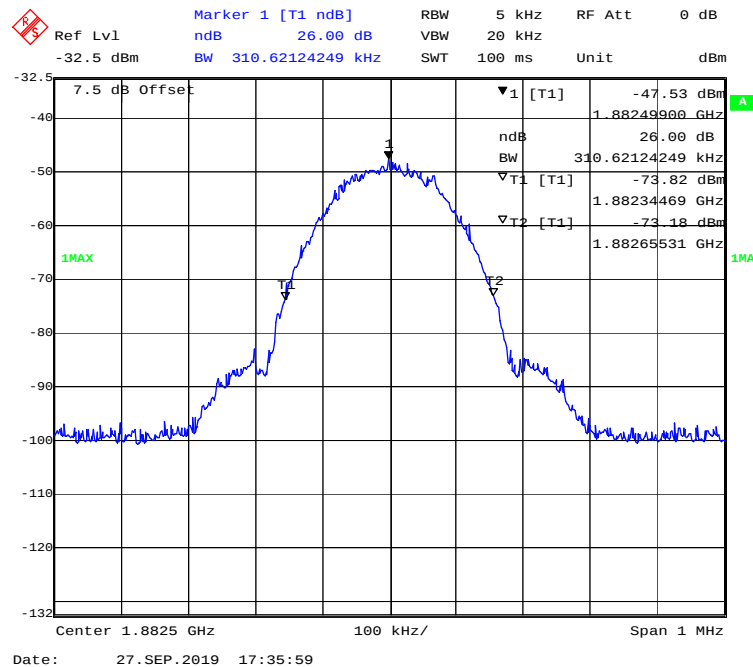
99% Bandwidth-DL-GSM-Pre AGC-Output**99% Bandwidth-DL- GSM-3dB above AGC-Output**

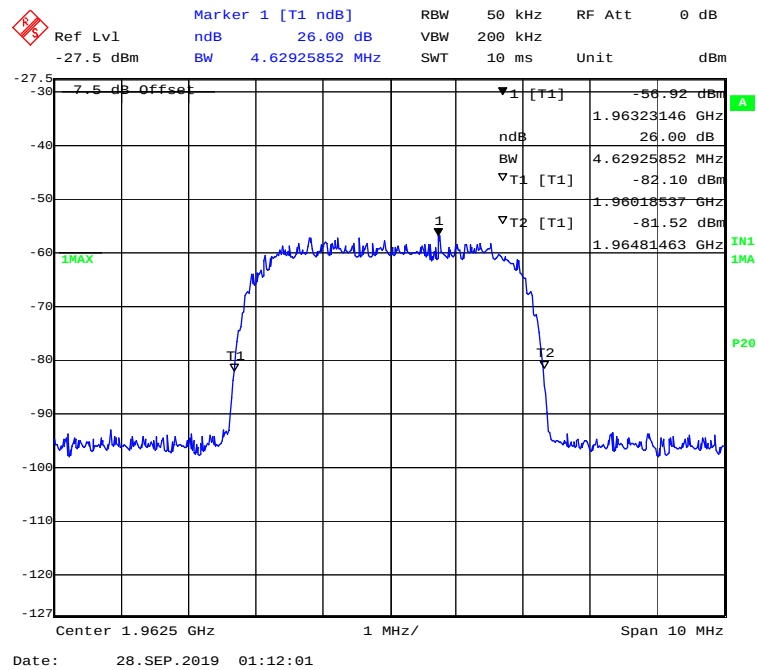
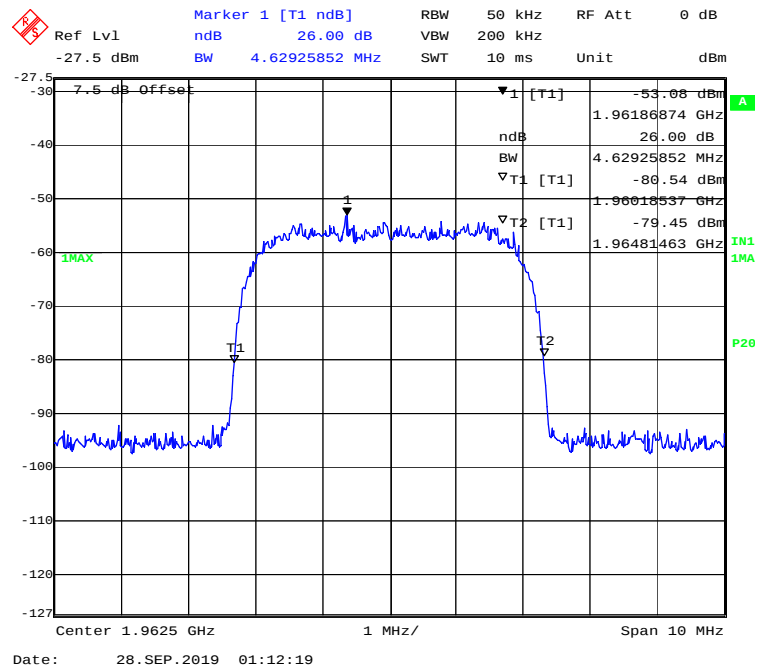
26dB Bandwidth-UL-AWGN-Pre AGC-Input



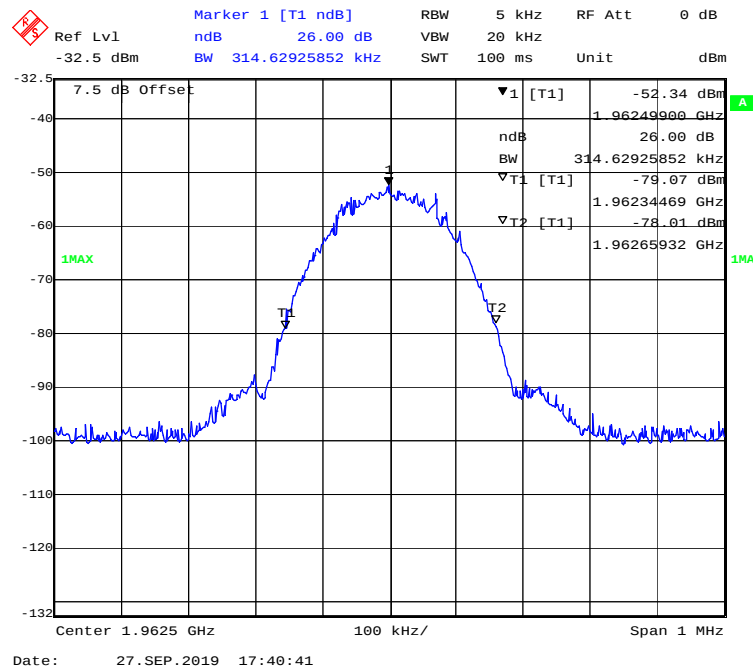
26dB Bandwidth-UL- AWGN-3dB above AGC-Input



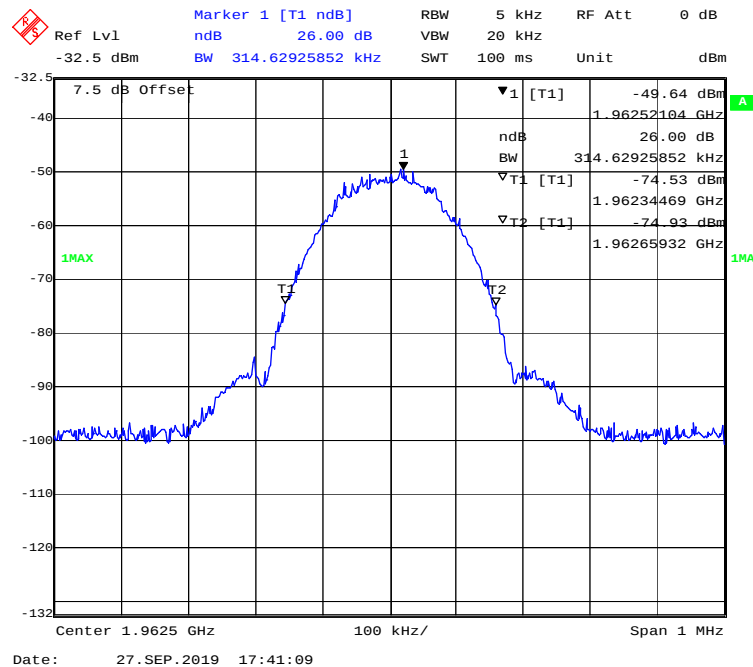
26dB Bandwidth-UL-GSM-Pre AGC-Input**26dB Bandwidth-UL- GSM-3dB above AGC-Input**

26dB Bandwidth-DL-AWGN-Pre AGC-Input**26dB Bandwidth-DL- AWGN-3dB above AGC-Input**

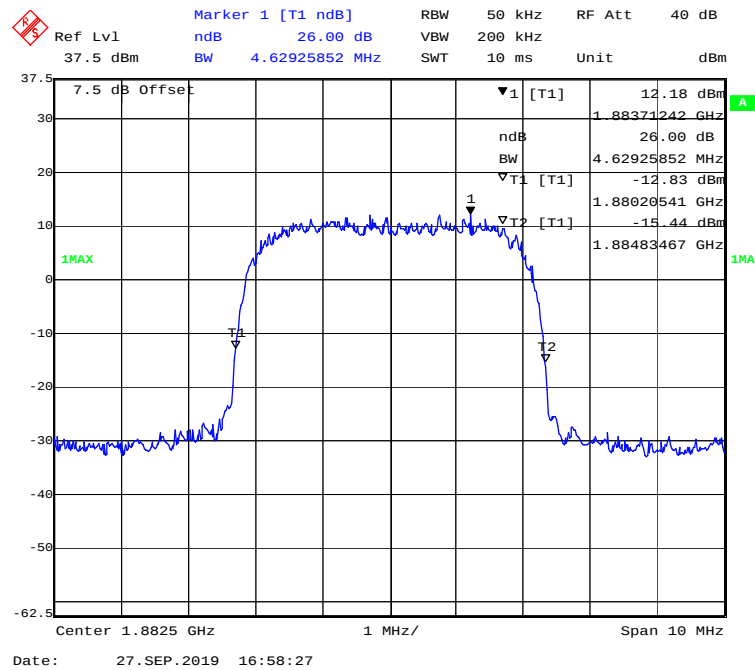
26dB Bandwidth-DL-GSM-Pre AGC-Input



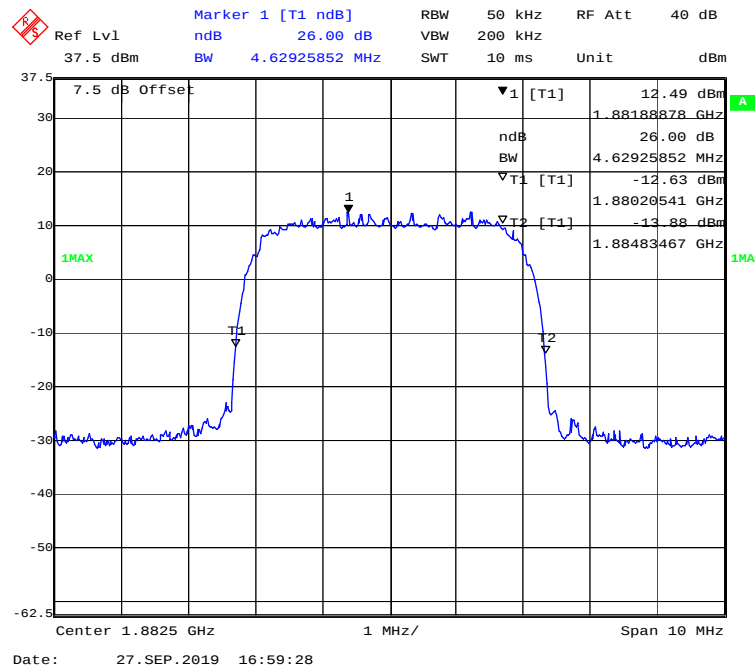
26dB Bandwidth-DL- GSM-3dB above AGC-Input



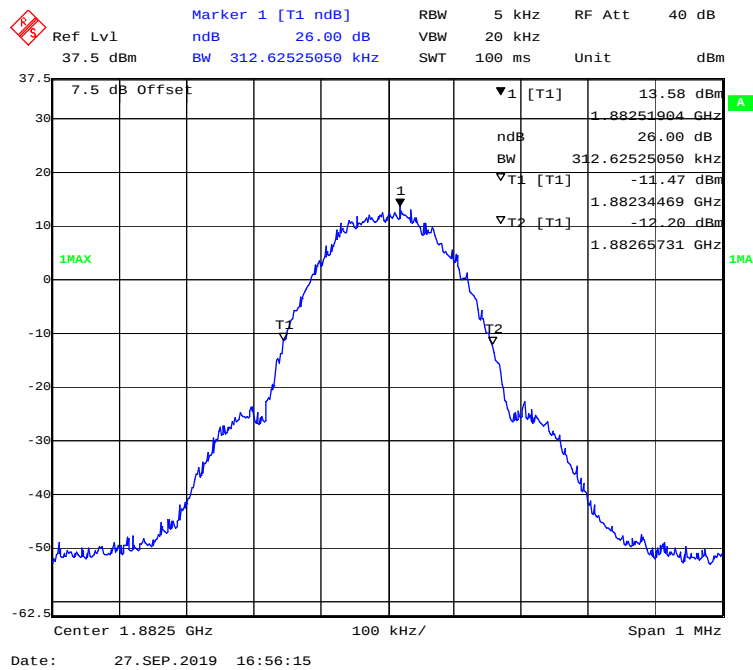
26dB Bandwidth-UL-AWGN-Pre AGC- Output



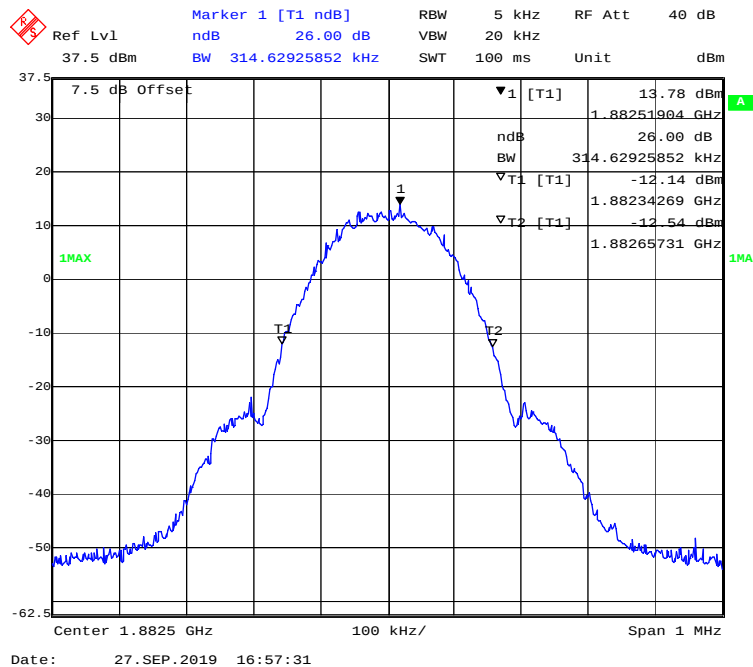
26dB Bandwidth-UL- AWGN-3dB above AGC- Output



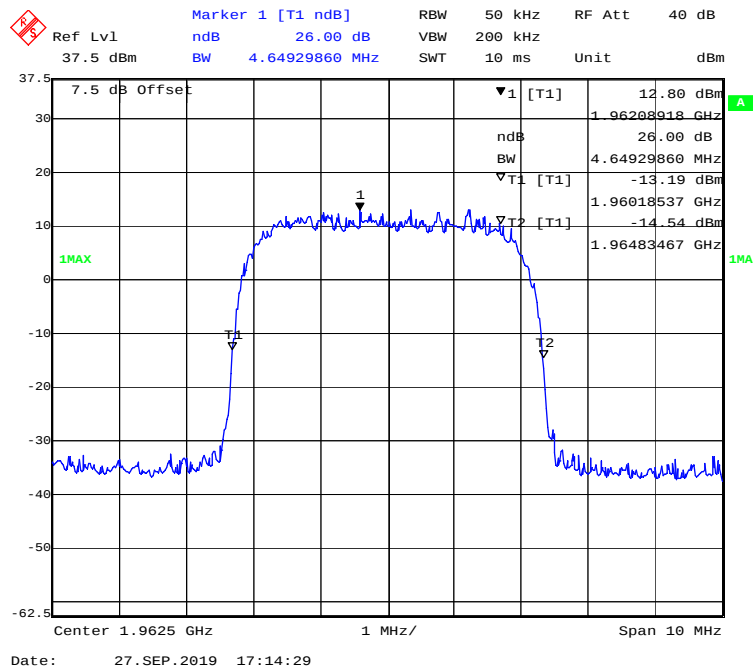
26dB Bandwidth-UL-GSM-Pre AGC- Output



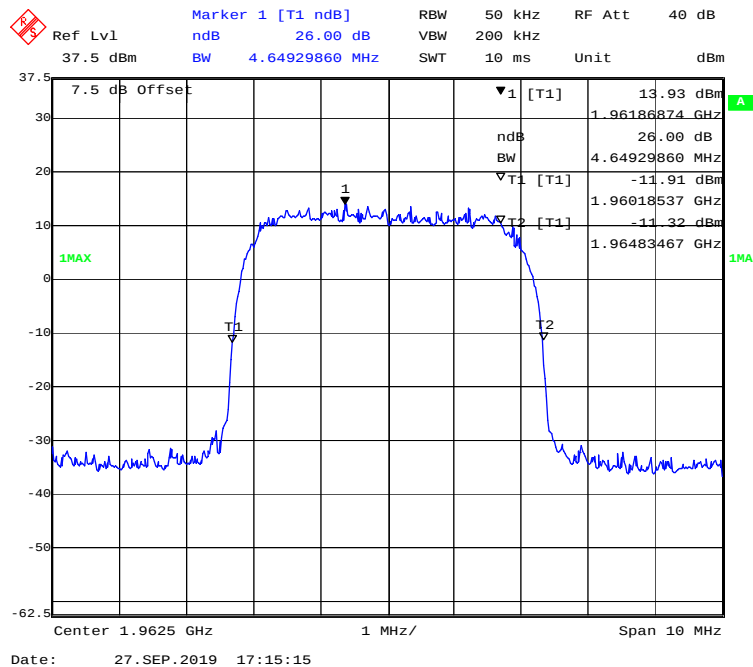
26dB Bandwidth-UL- GSM-3dB above AGC- Output



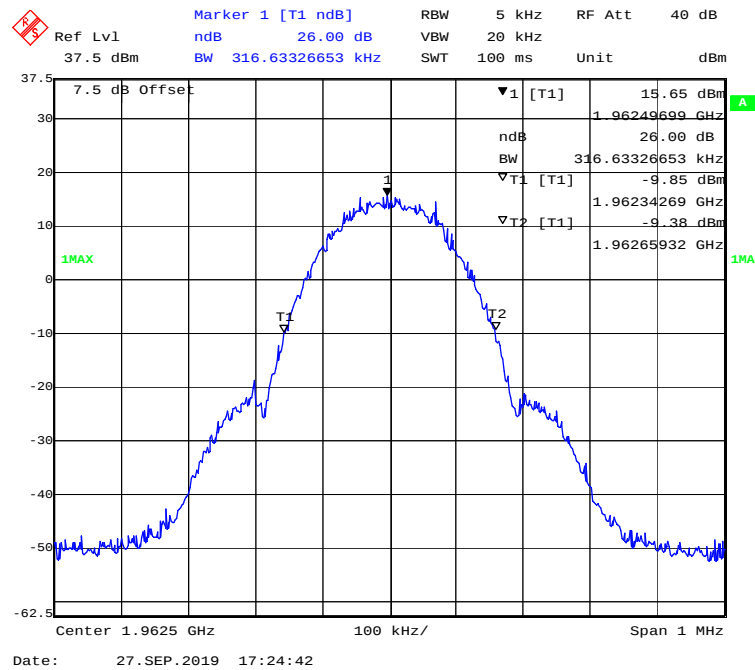
26dB Bandwidth-DL-AWGN-Pre AGC- Output



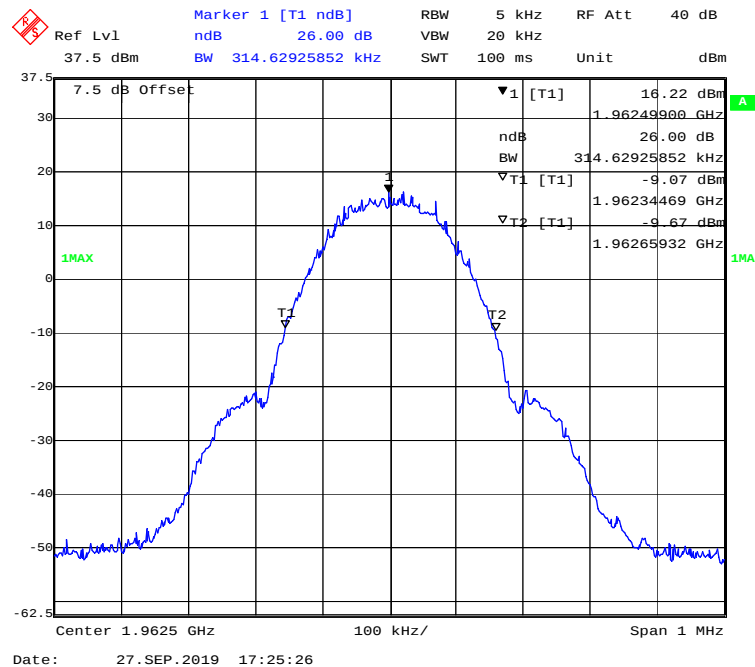
26dB Bandwidth-DL- AWGN-3dB above AGC- Output



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

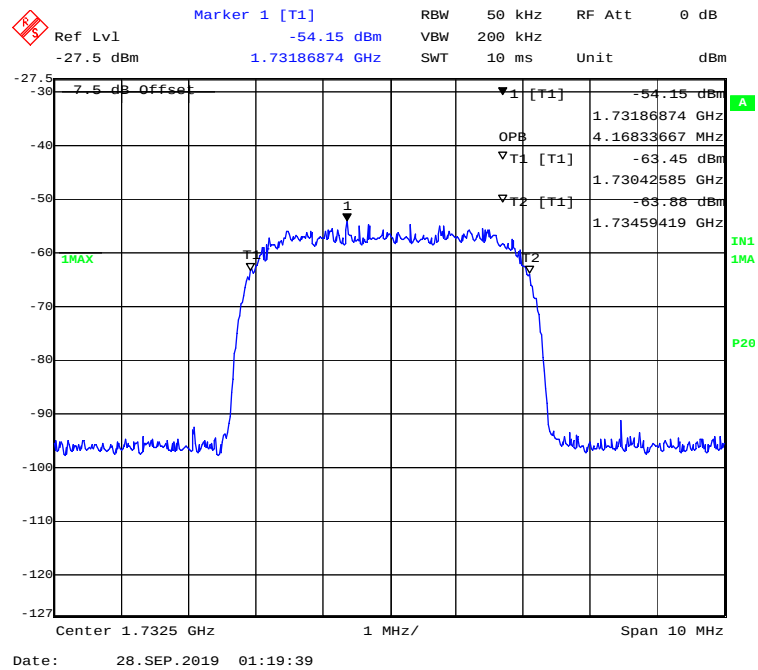
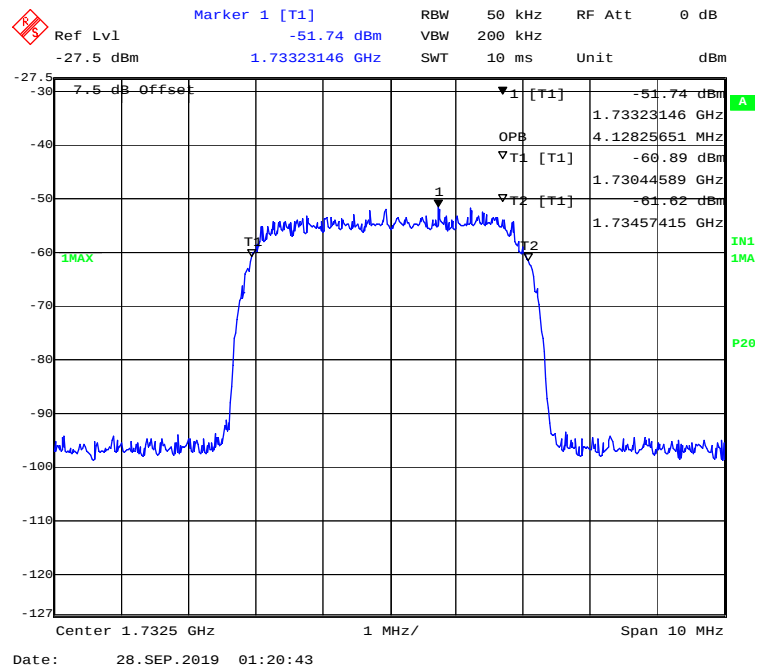


26dB Bandwidth-DL- GSM-3dB above AGC-Output

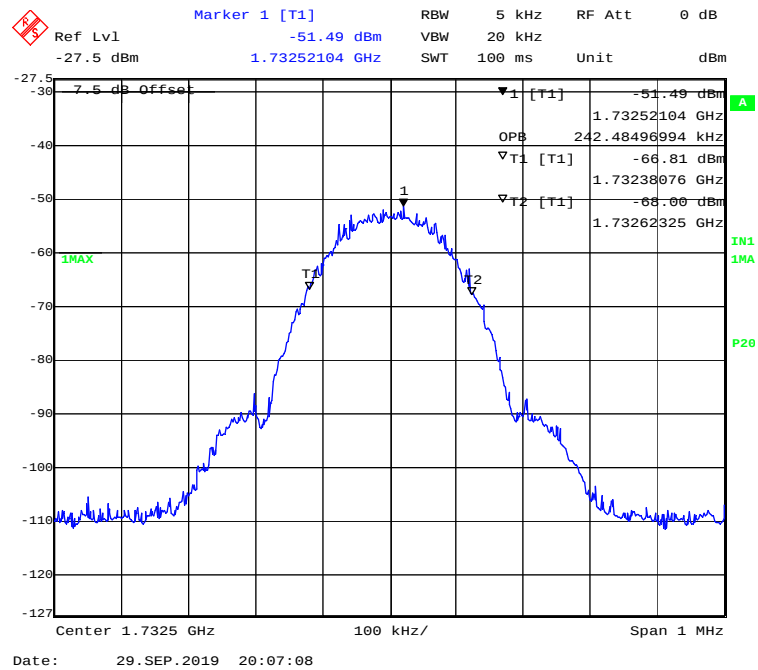


AWS Band

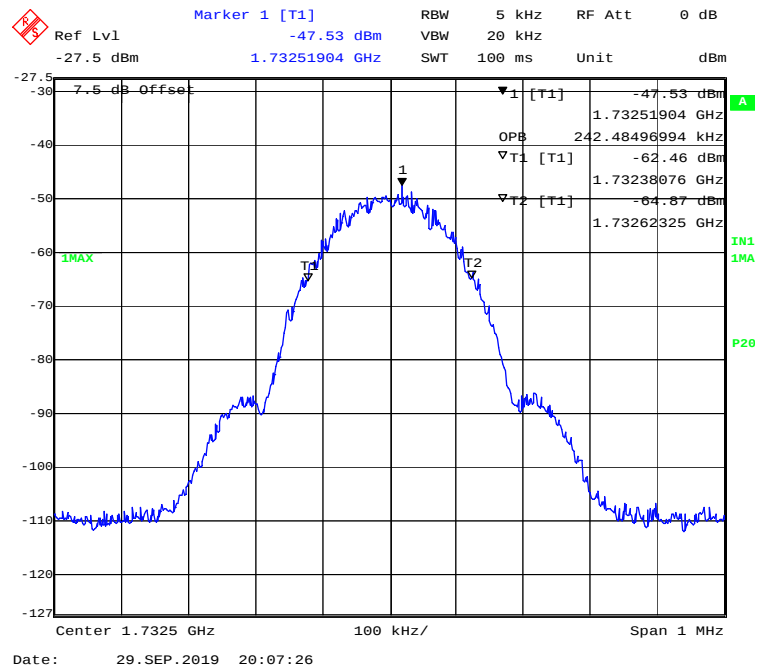
Modes	Signal Type	Signal Level	Frequency (MHz)	99% Bandwidth (MHz)		26dB Bandwidth (MHz)	
				Input	Output	Input	Output
Uplink	AWGN	Pre-AGC	1732.5	4.168	4.148	4.629	4.629
		3dB above AGC	1732.5	4.128	4.148	4.649	4.629
	GSM	Pre-AGC	1732.5	0.242	0.244	0.317	0.315
		3dB above AGC	1732.5	0.242	0.242	0.319	0.317
Downlink	AWGN	Pre-AGC	2132.5	4.168	4.148	4.629	4.649
		3dB above AGC	2132.5	4.148	4.148	4.649	4.669
	GSM	Pre-AGC	2132.5	0.242	0.246	0.313	0.315
		3dB above AGC	2132.5	0.242	0.244	0.315	0.313

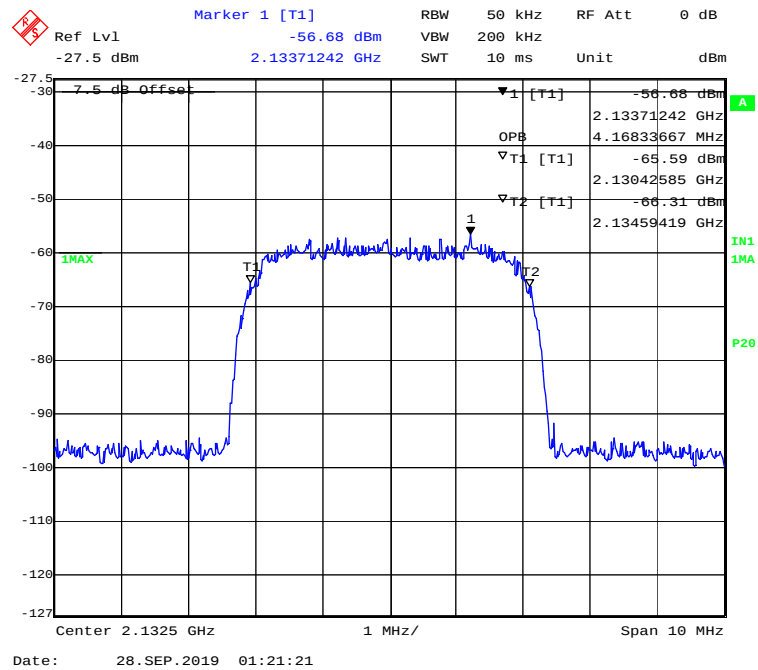
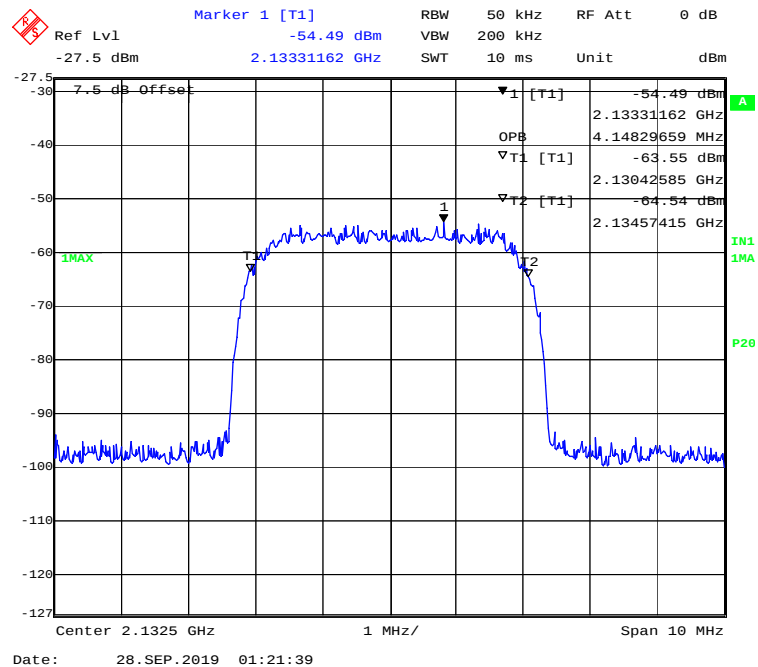
99% Bandwidth-UL-AWGN-Pre AGC-Input**99% Bandwidth-UL- AWGN-3dB above AGC-Input**

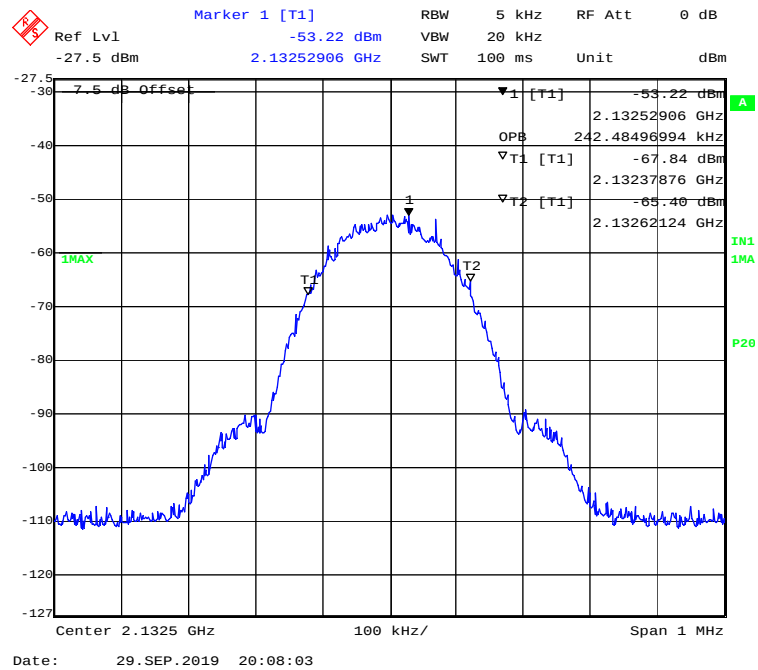
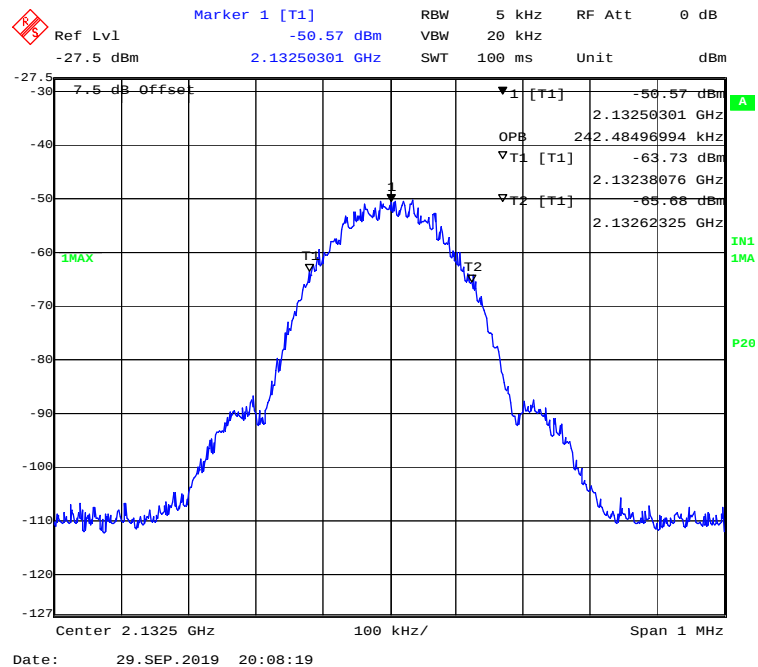
99% Bandwidth-UL-GSM-Pre AGC-Input

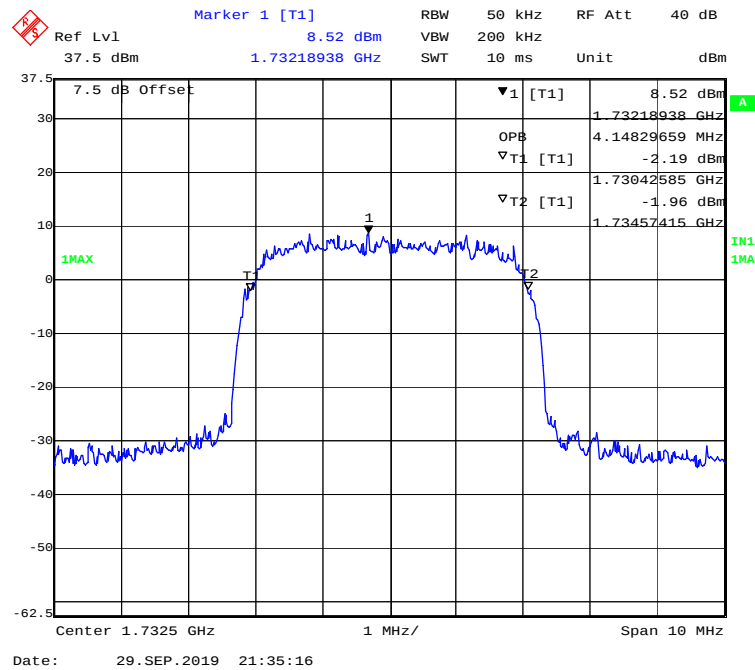
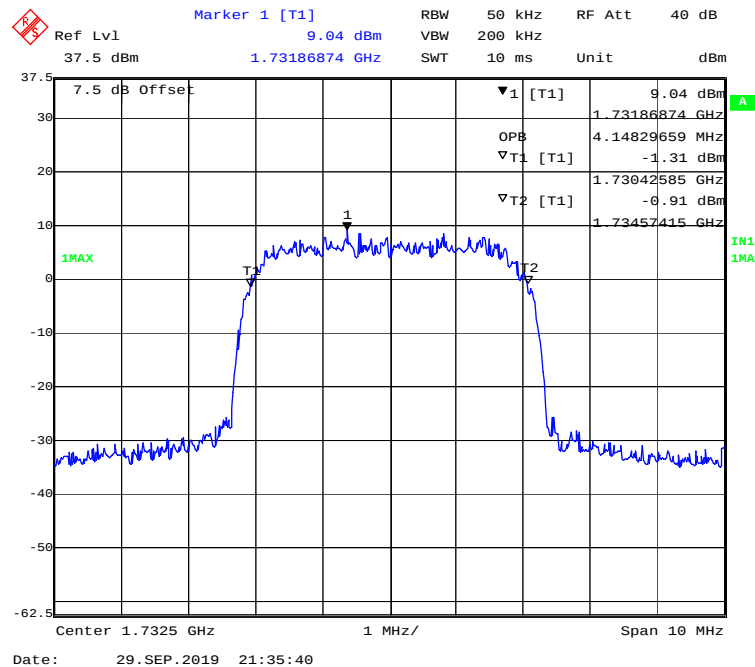


99% Bandwidth-UL- GSM-3dB above AGC-Input

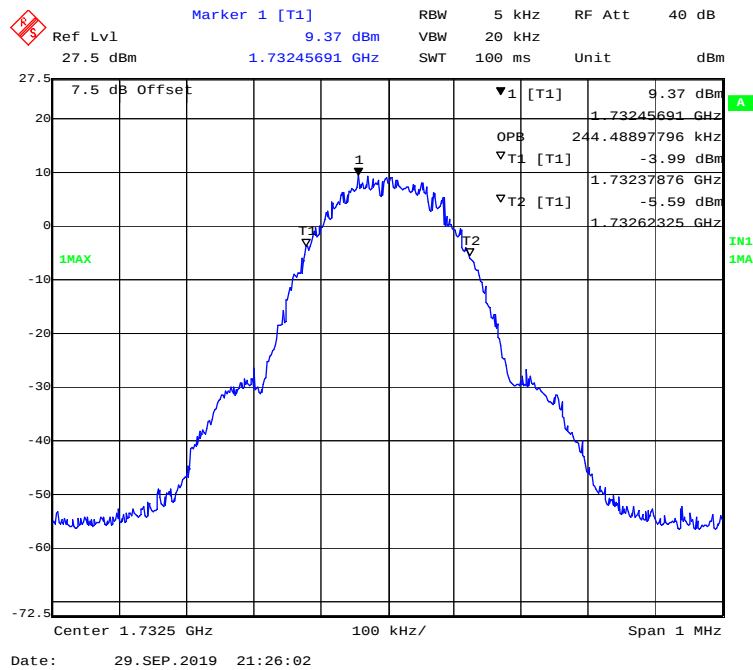


99% Bandwidth-DL-AWGN-Pre AGC-Input**99% Bandwidth-DL- AWGN-3dB above AGC-Input**

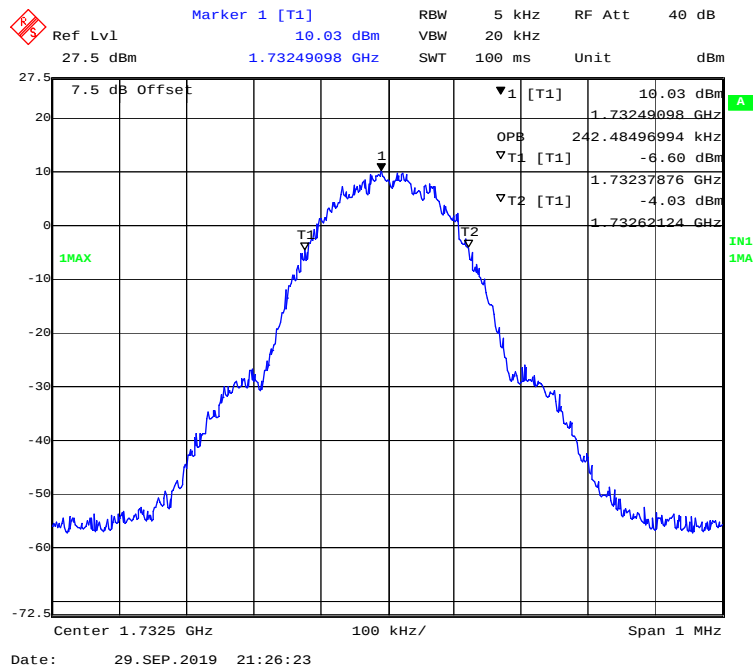
99% Bandwidth-DL-GSM-Pre AGC-Input**99% Bandwidth-DL- GSM-3dB above AGC-Input**

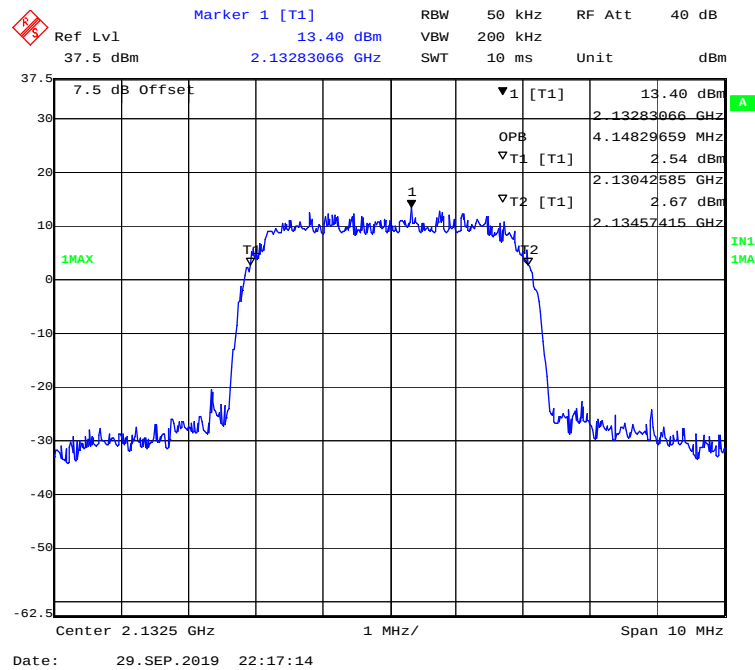
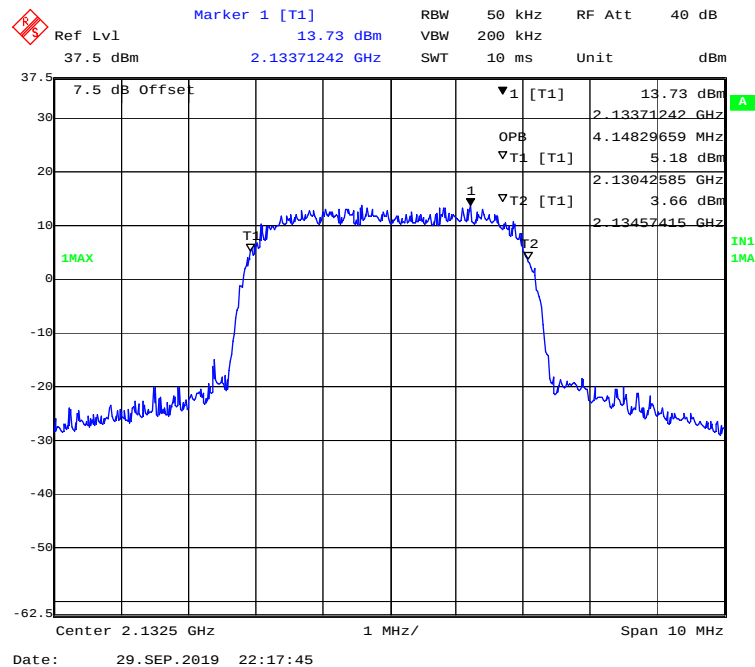
99% Bandwidth-UL-AWGN-Pre AGC- Output**99% Bandwidth-UL- AWGN-3dB above AGC- Output**

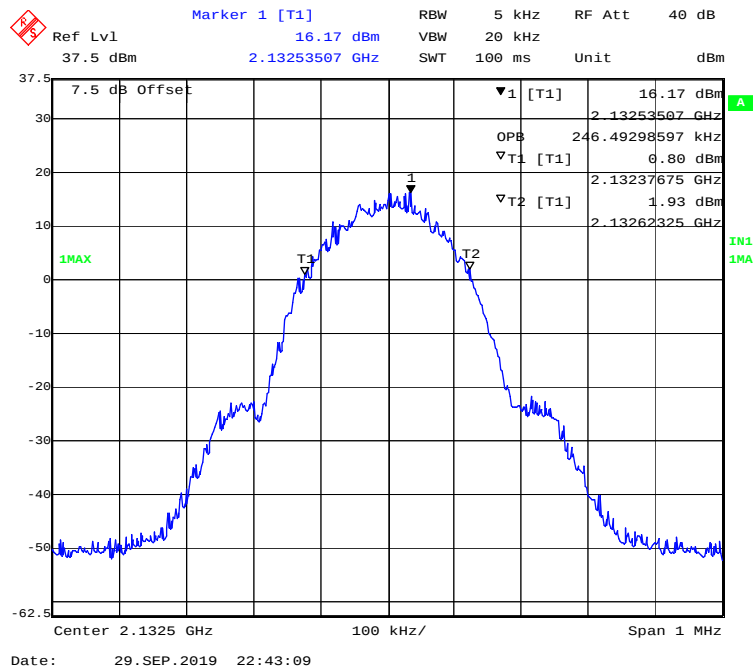
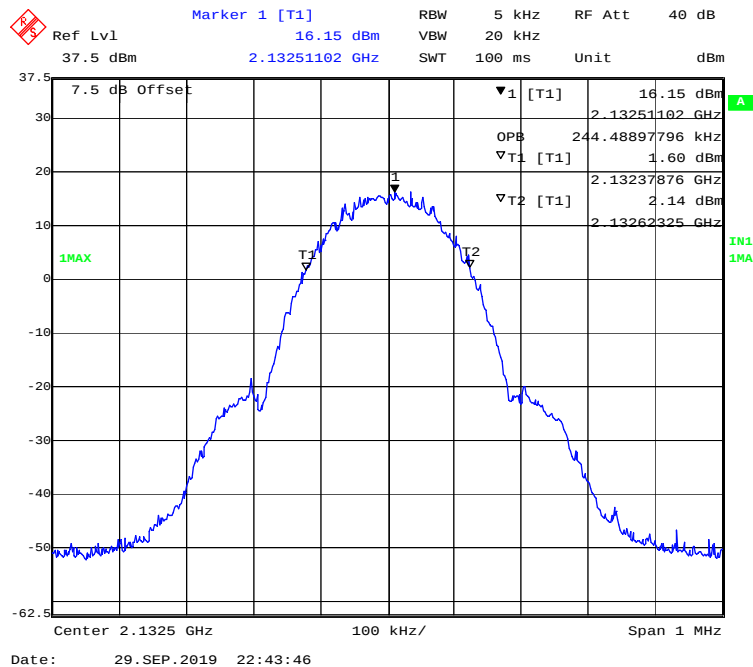
99% Bandwidth-UL-GSM-Pre AGC- Output

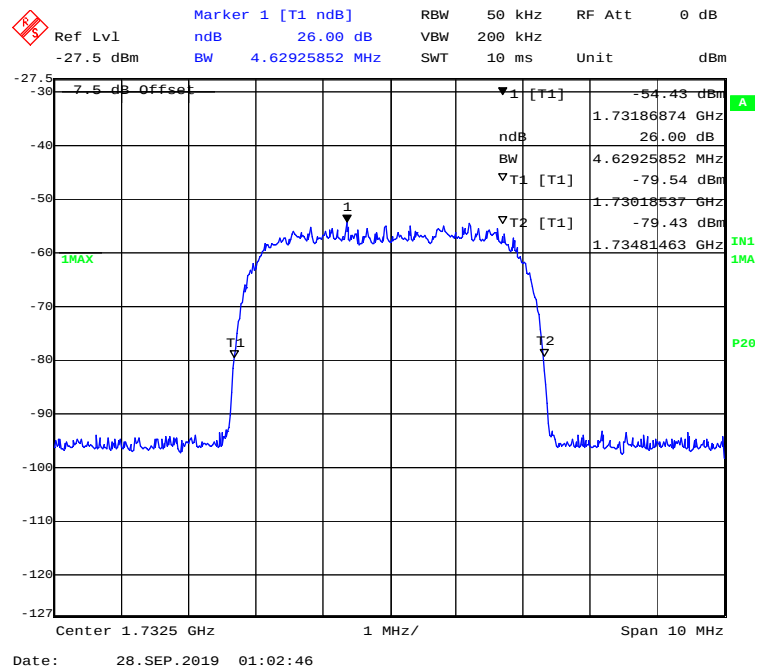
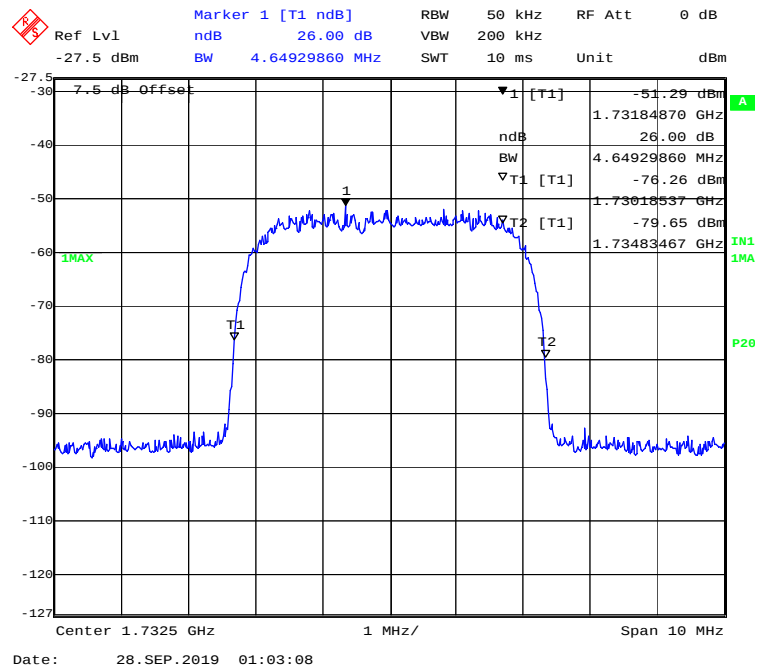


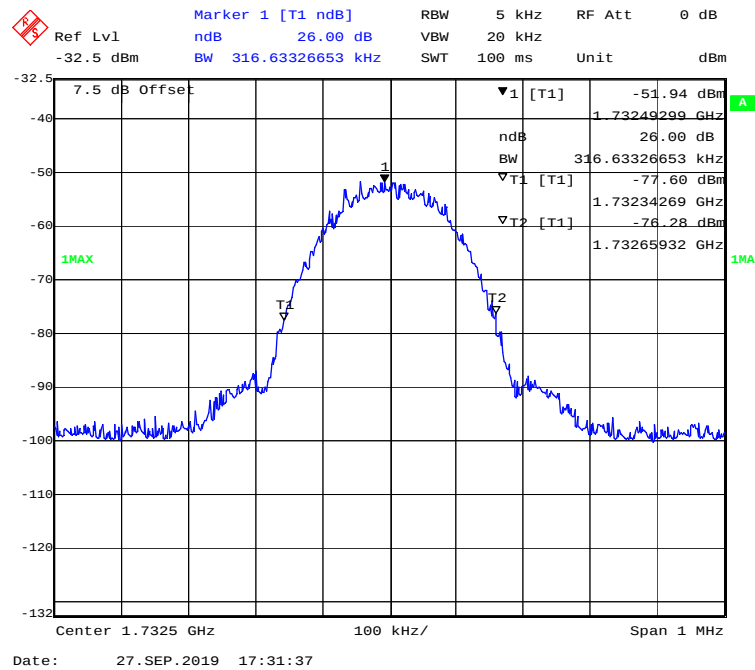
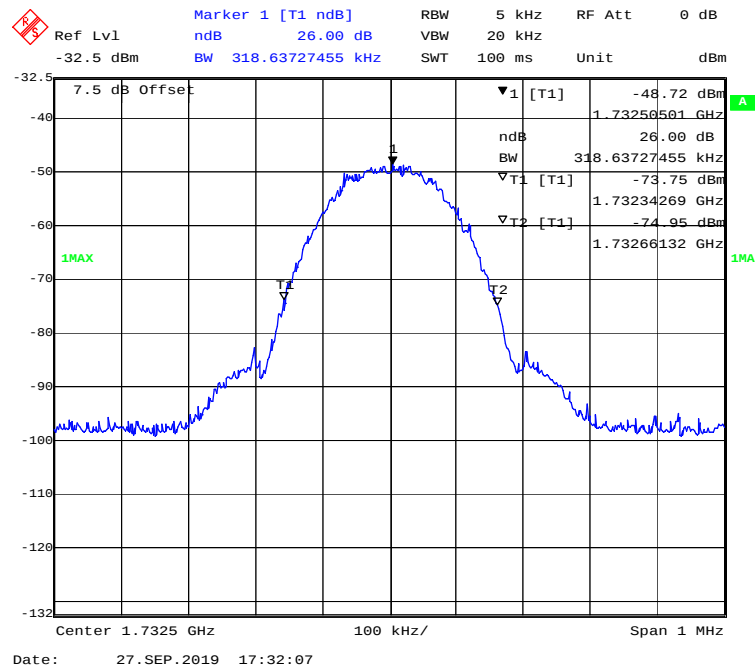
99% Bandwidth-UL- GSM-3dB above AGC- Output

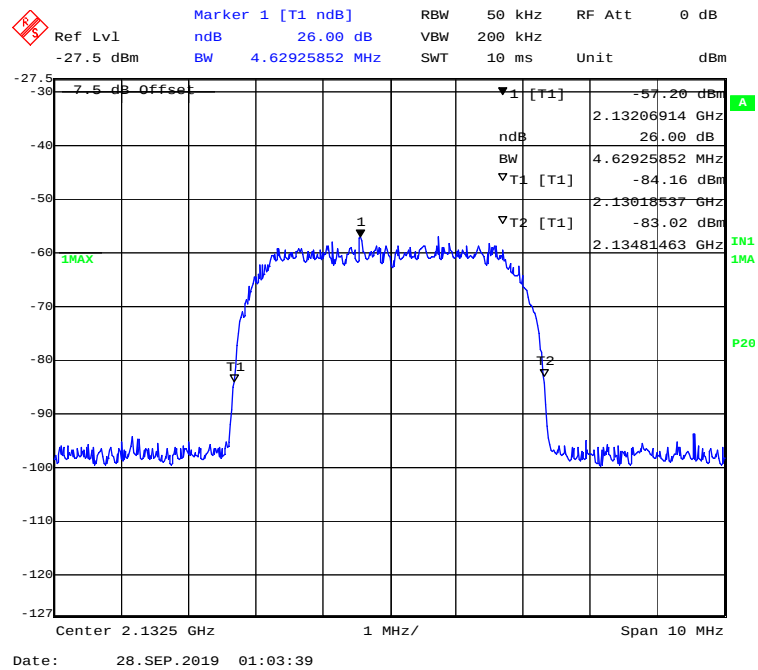
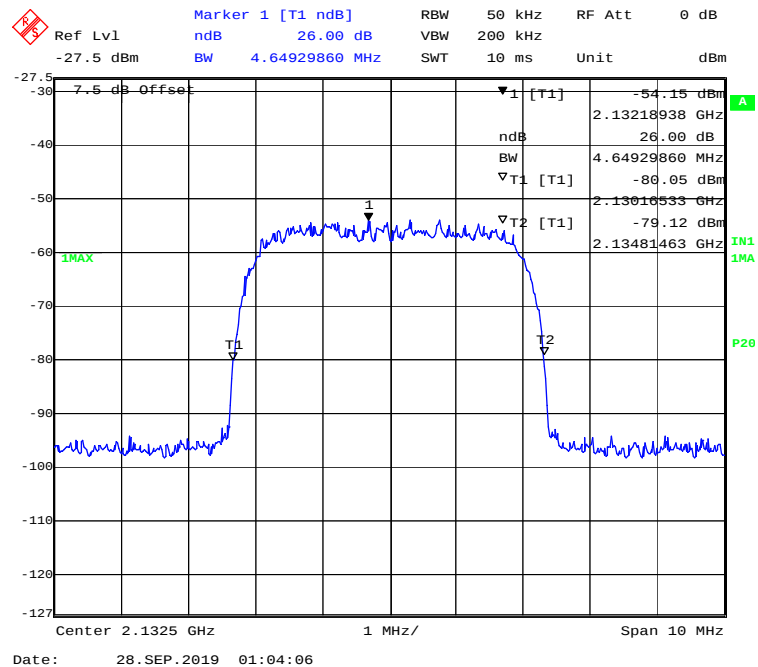


99% Bandwidth-DL-AWGN-Pre AGC- Output**99% Bandwidth-DL- AWGN-3dB above AGC- Output**

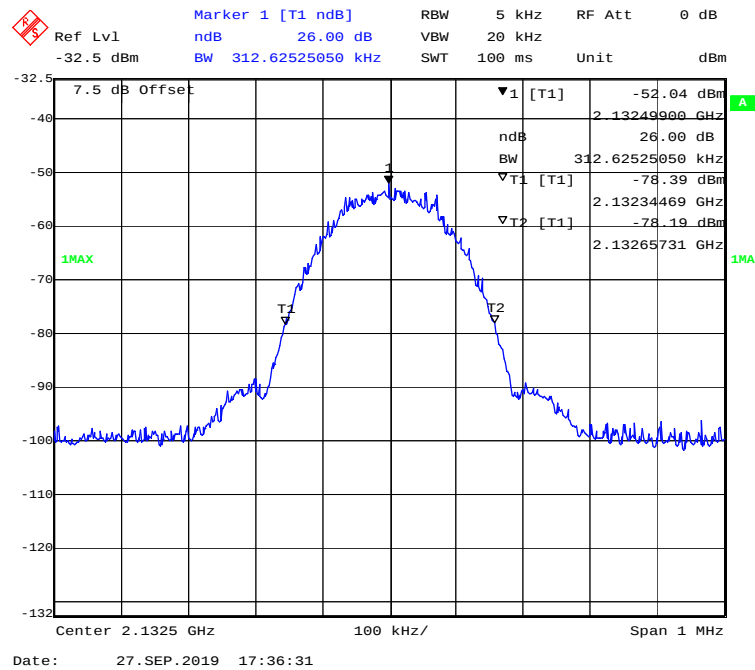
99% Bandwidth-DL-GSM-Pre AGC-Output**99% Bandwidth-DL- GSM-3dB above AGC-Output**

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

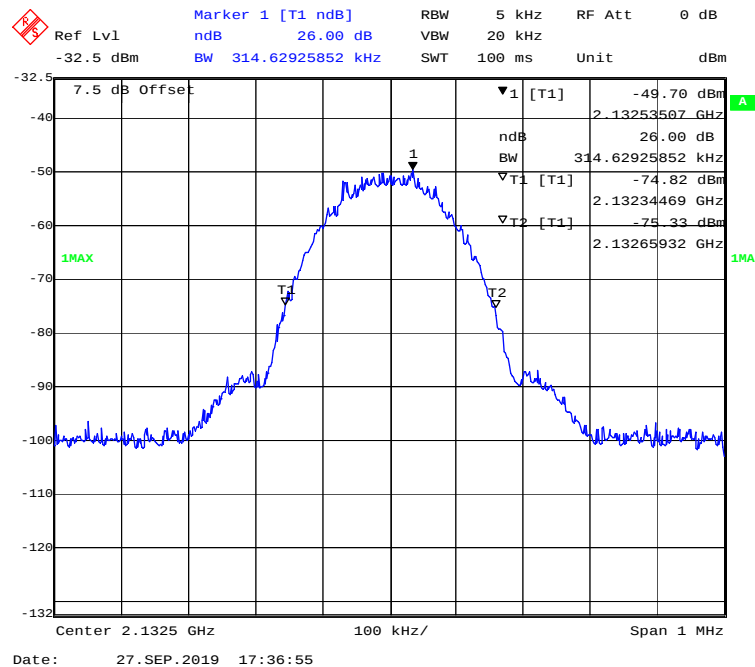
26dB Bandwidth-UL-GSM-Pre AGC-Input**26dB Bandwidth-UL- GSM-3dB above AGC-Input**

26dB Bandwidth-DL-AWGN-Pre AGC-Input**26dB Bandwidth-DL- AWGN-3dB above AGC-Input**

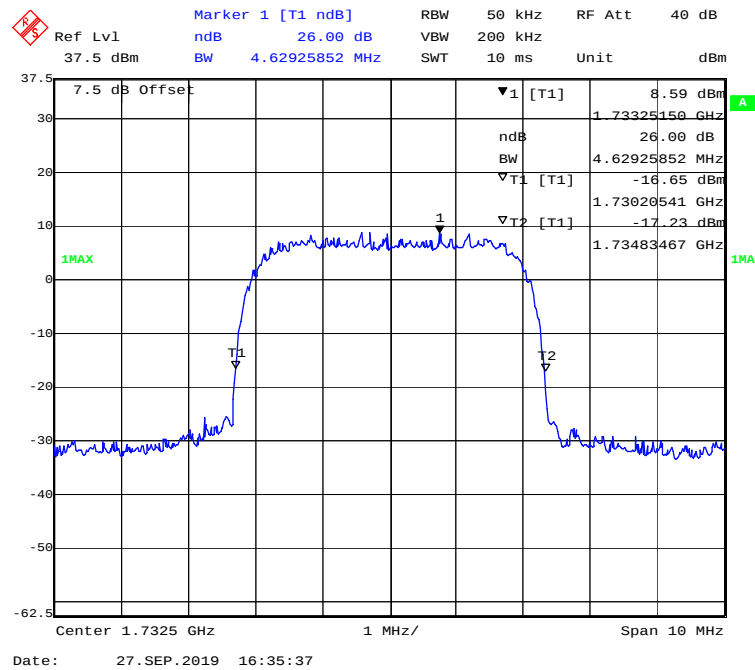
26dB Bandwidth-DL-GSM-Pre AGC-Input



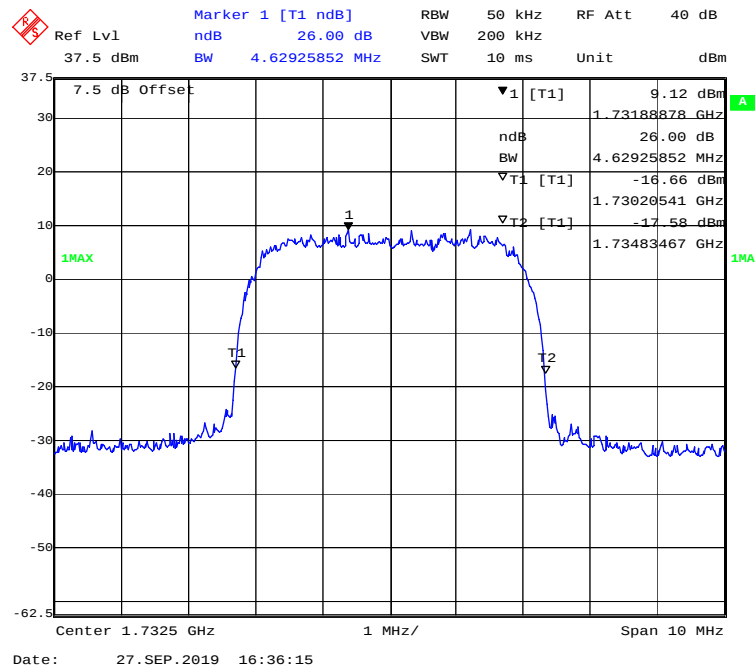
26dB Bandwidth-DL- GSM-3dB above AGC-Input

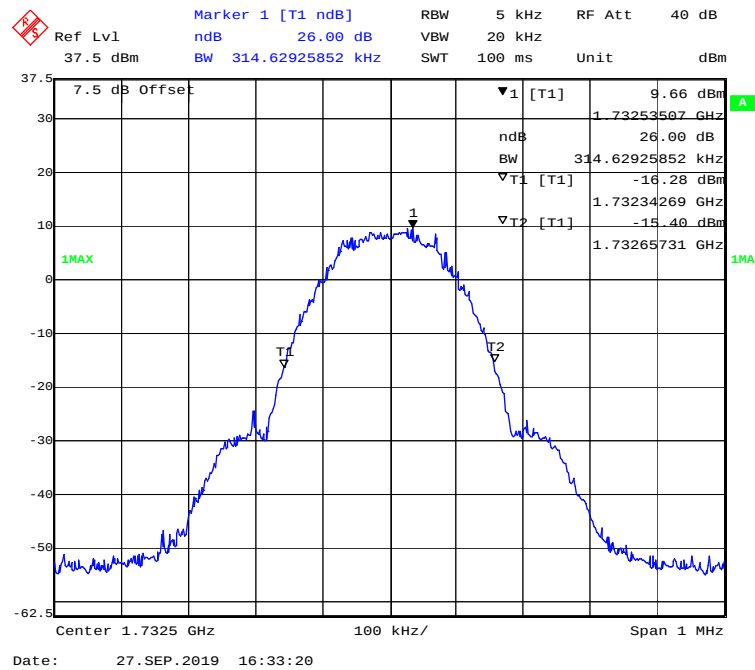
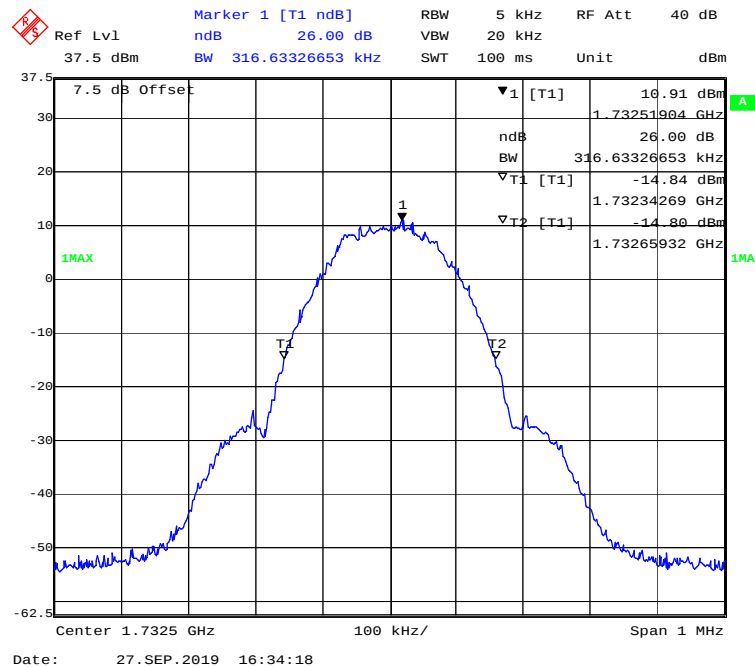


26dB Bandwidth-UL-AWGN-Pre AGC- Output

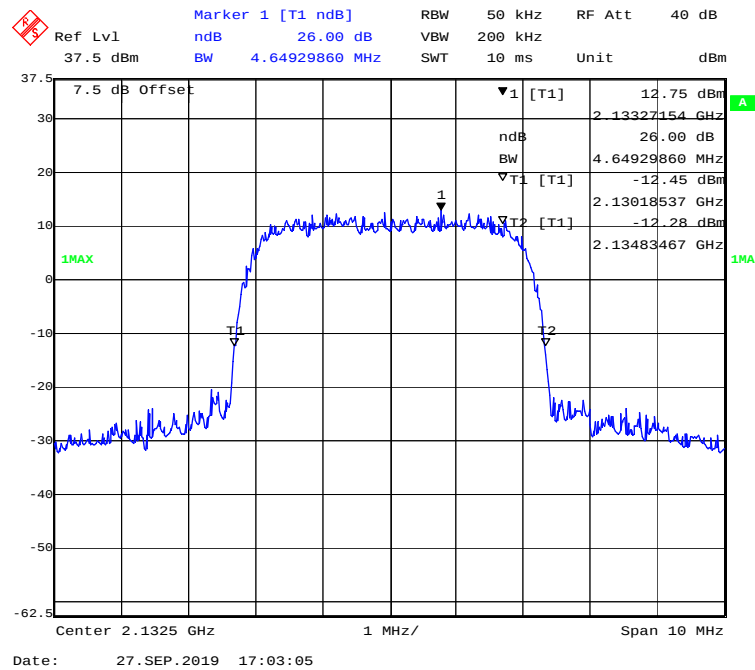


26dB Bandwidth-UL- AWGN-3dB above AGC- Output

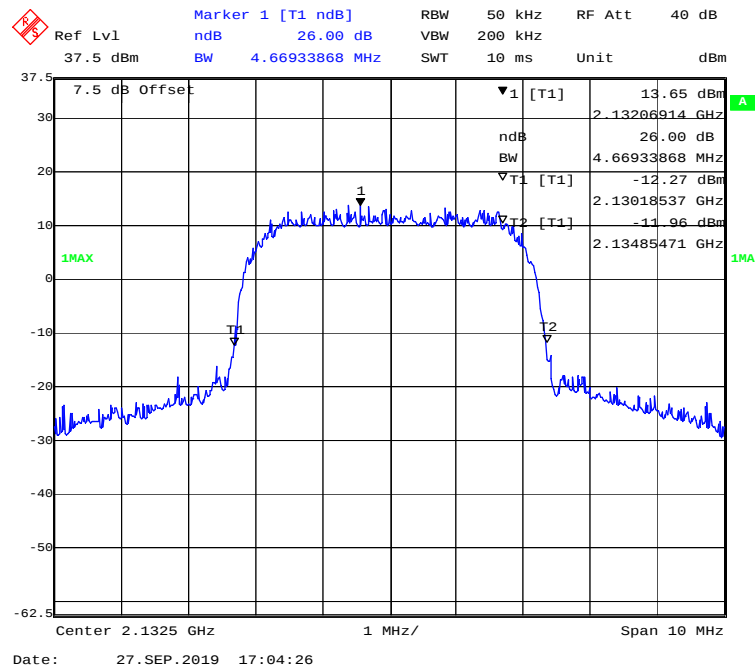


26dB Bandwidth-UL-GSM-Pre AGC- Output**26dB Bandwidth-UL- GSM-3dB above AGC- Output**

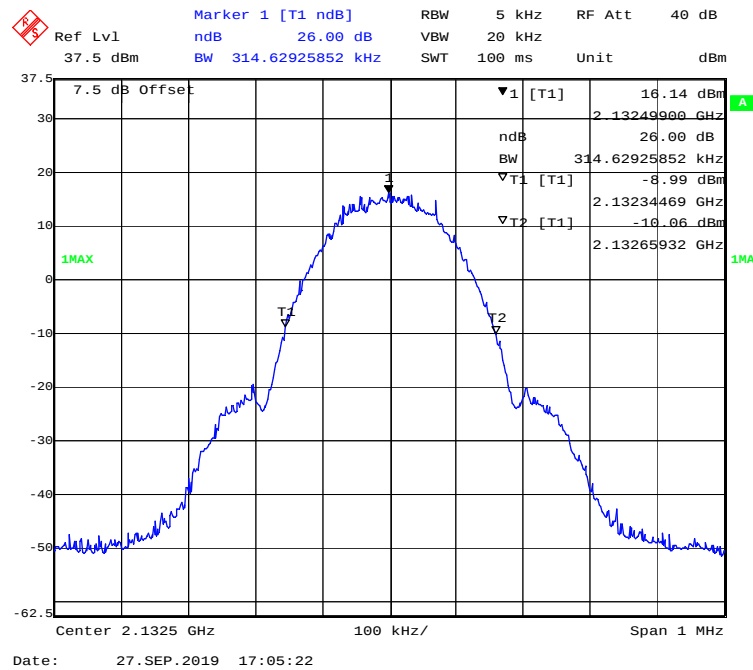
26dB Bandwidth-DL-AWGN-Pre AGC- Output



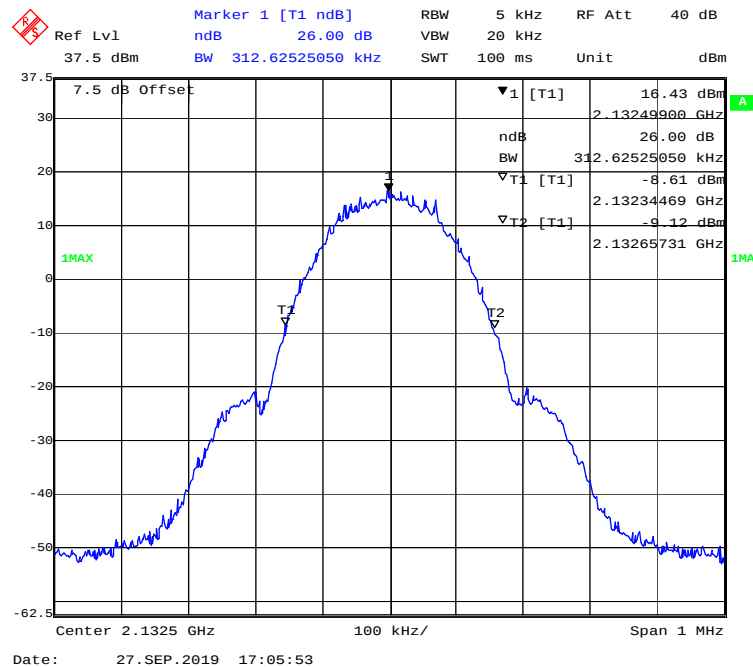
26dB Bandwidth-DL- AWGN-3dB above AGC- Output



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



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



FCC § 2.1051; § 22.917 (a); § 24.238 (a); §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS**Applicable Standards**

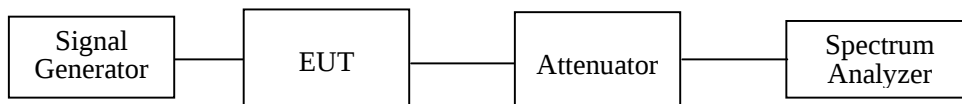
FCC §2.1051, §22.917, §24.238 and §27.53.

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 $43 + 10 \log_{10}(P)$ dB.

Test Procedure

Please refer to KDB 935210 D05 Indus Booster Basic Meas v01r03 clause 3.6.3

**Test Data****Environmental Conditions**

Temperature:	25°C
Relative Humidity:	51%
ATM Pressure:	101.3kPa

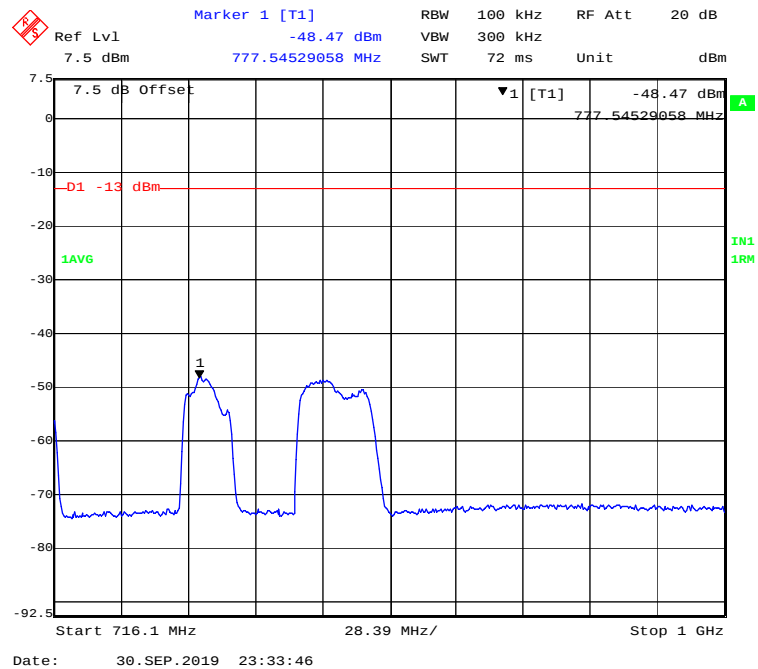
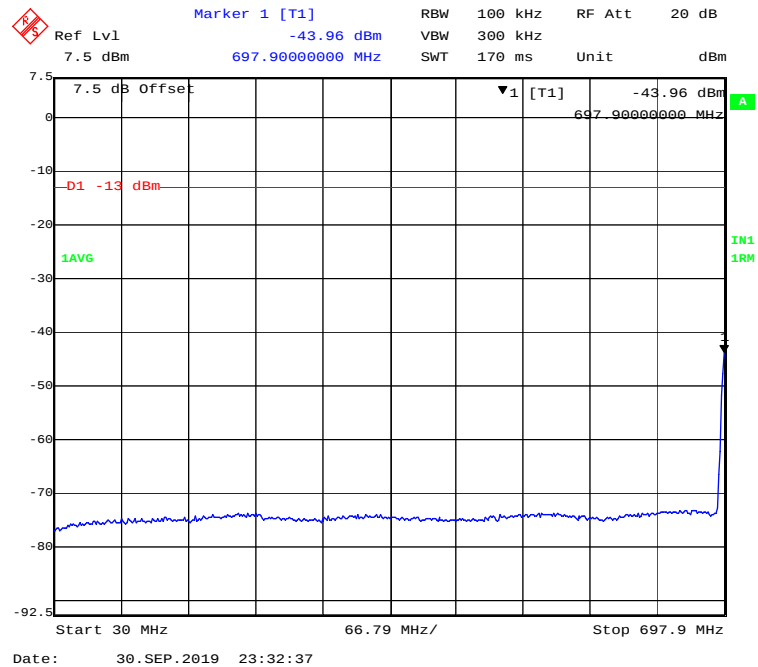
The testing was performed by Carrie He on 2019-09-30.

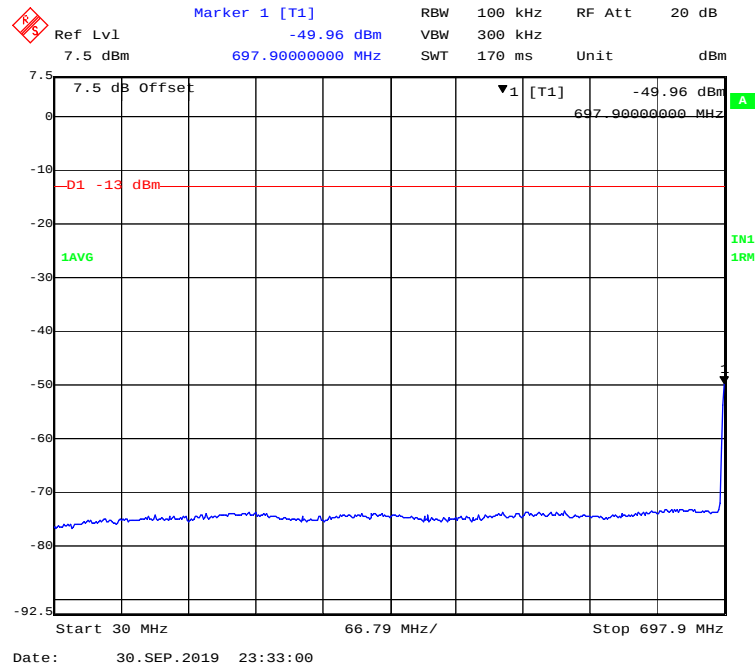
EUT operation mode: Transmitting

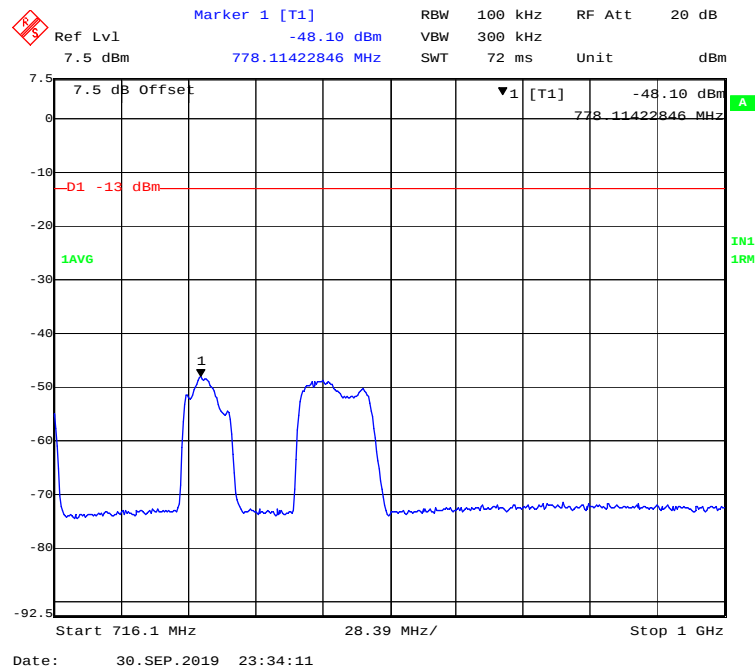
Test Result: Compliant.

Uplink:

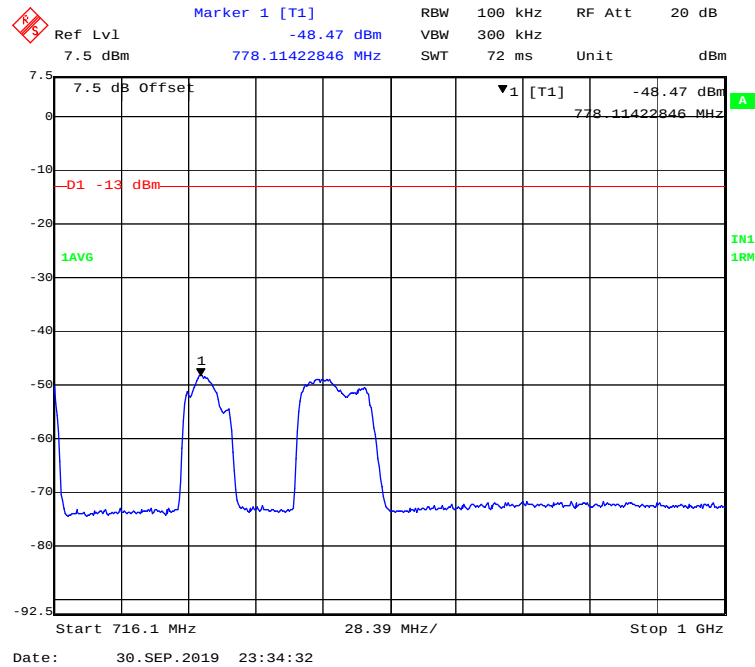
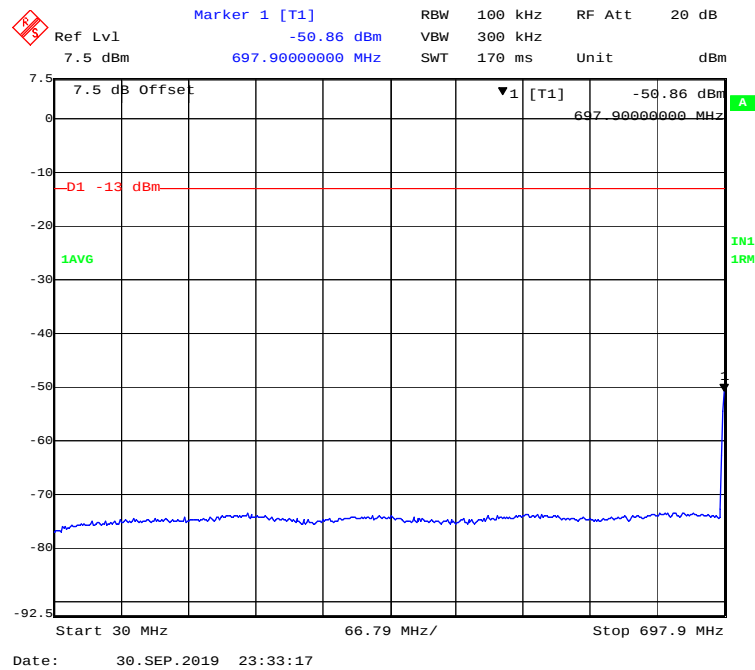
Lower 700MHz (A+B+C Block)-AWGN-Pre AGC-Low Channel



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

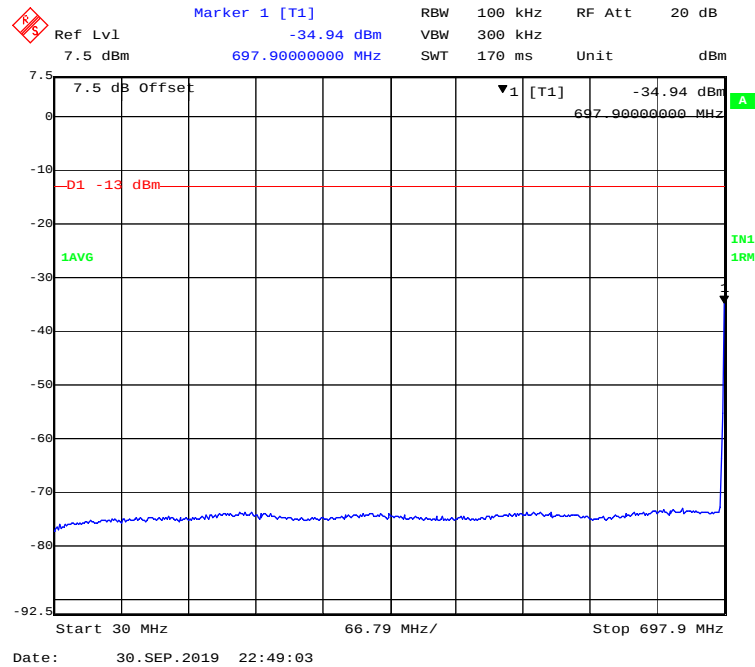


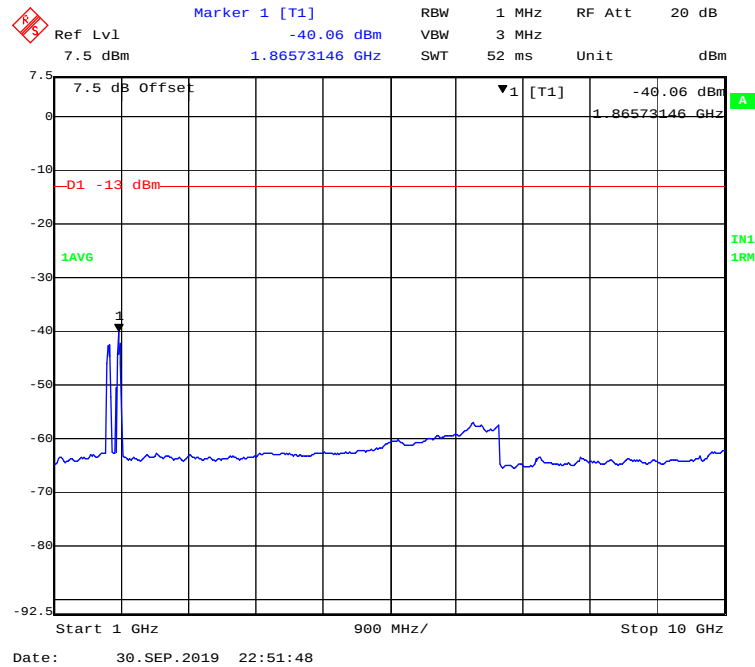
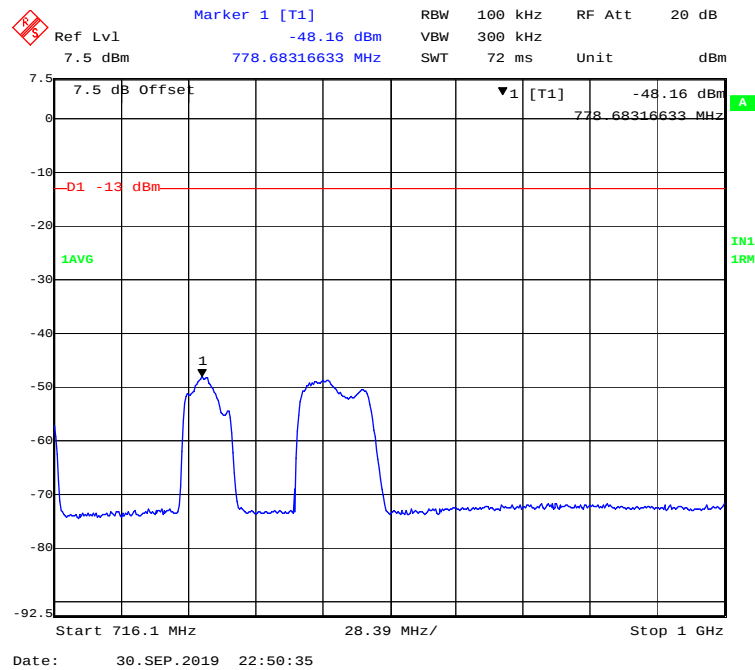
Lower 700MHz (A+B+C Block) - AWGN-Pre AGC-High Channel



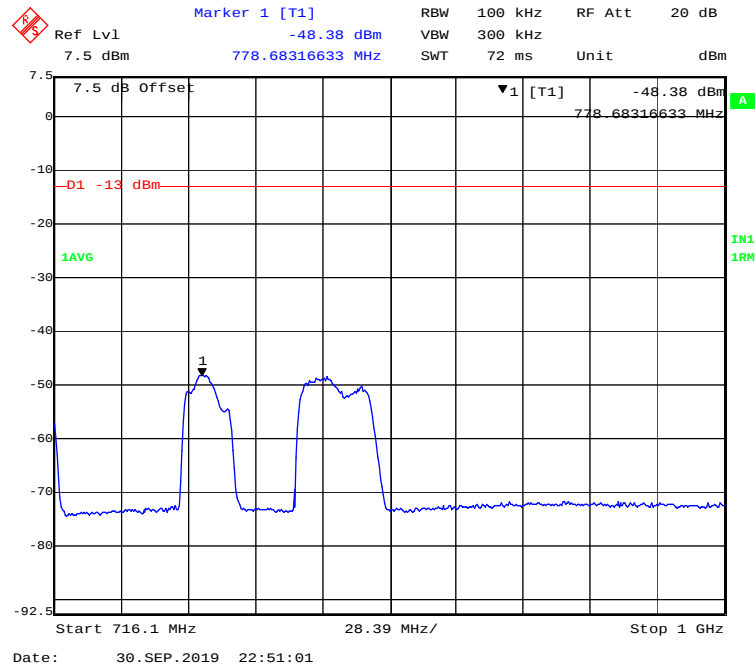
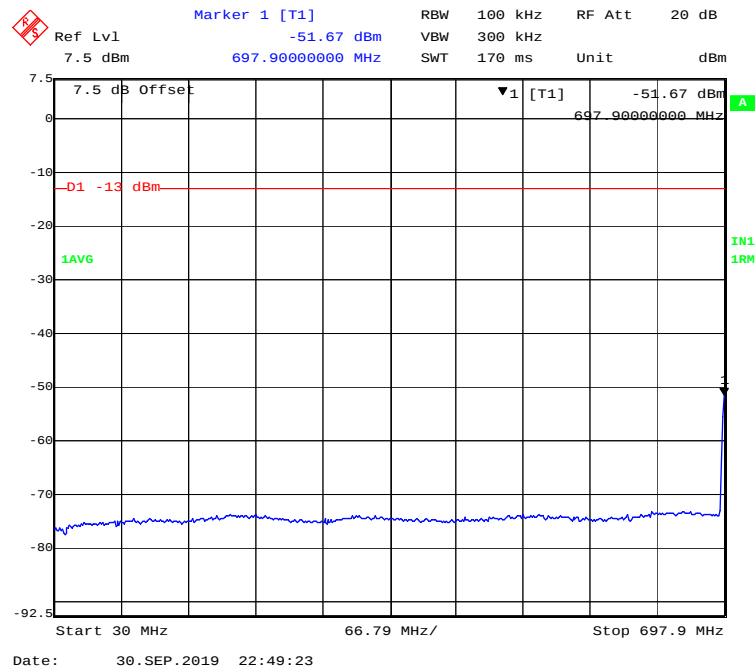


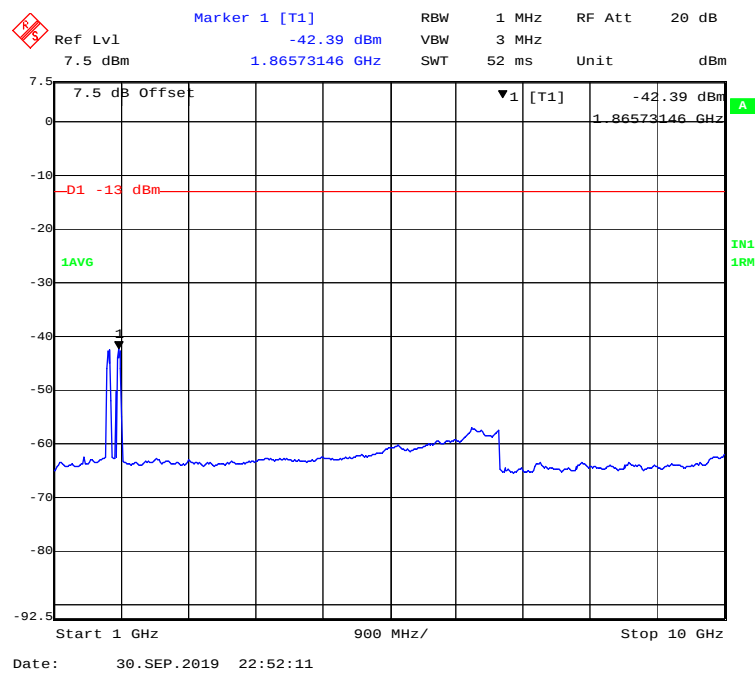
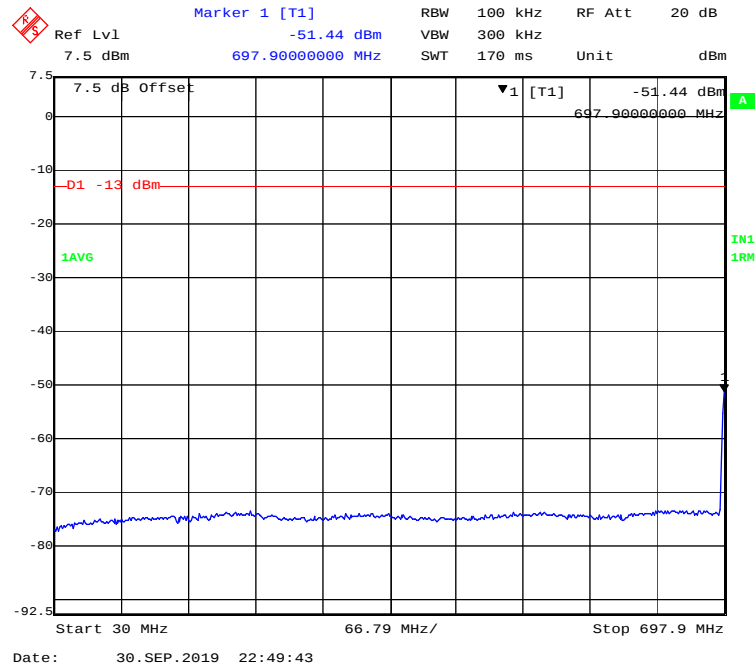
Lower 700MHz (A+B+C Block) - GSM-Pre AGC-Low Channel

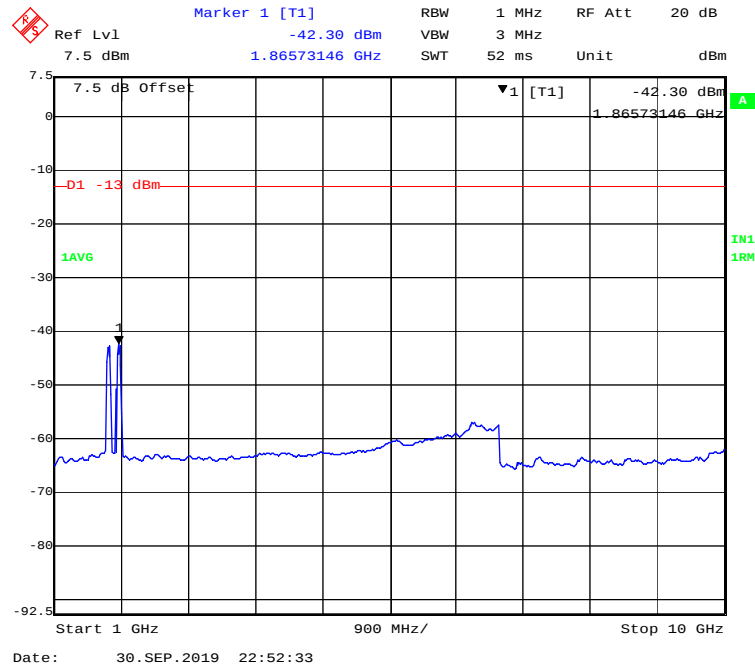
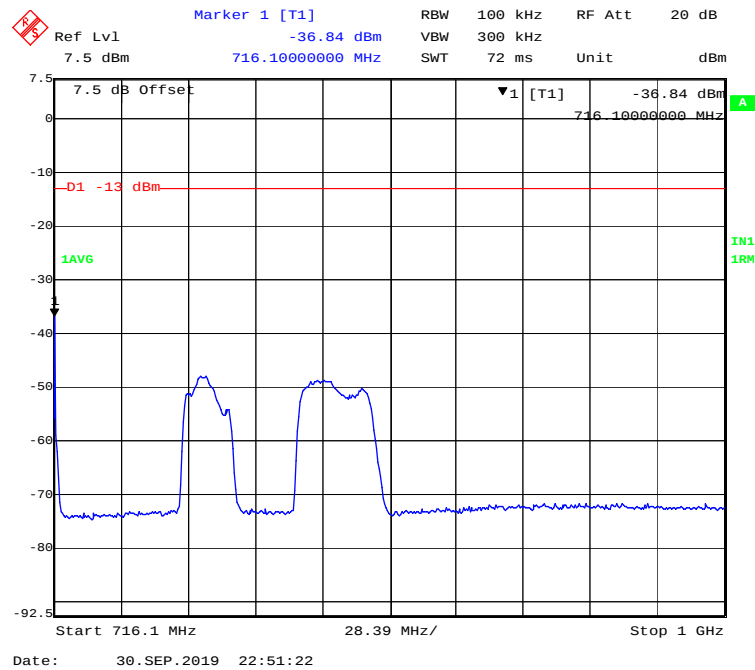




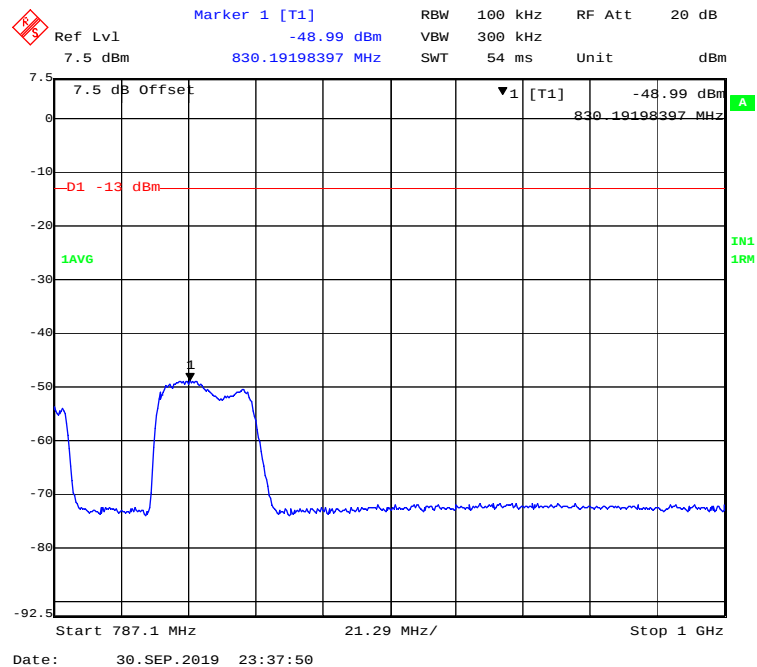
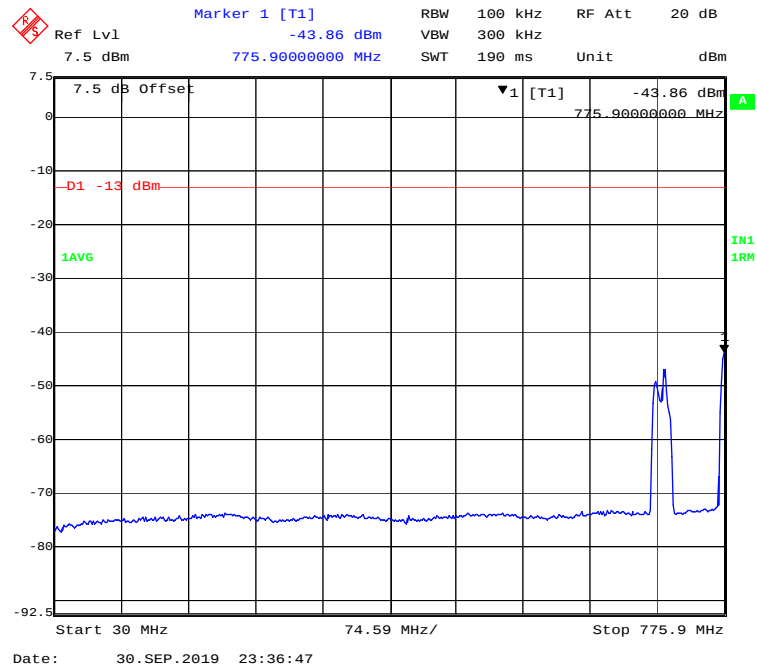
Lower 700MHz (A+B+C Block) - GSM-Pre AGC-Middle Channel

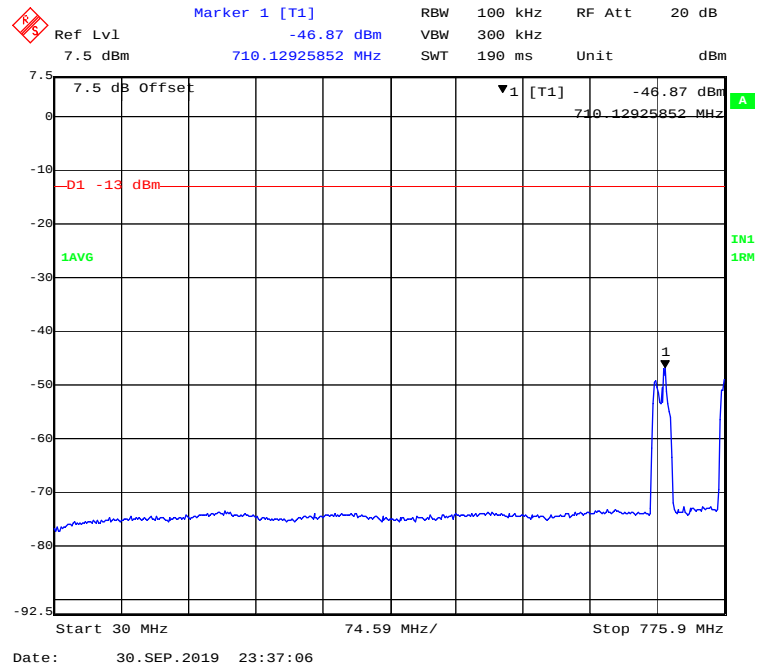


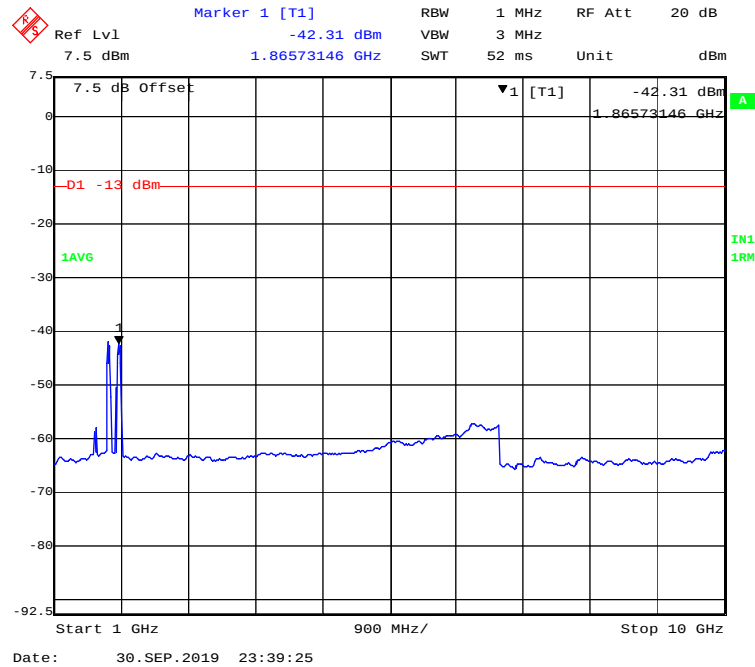
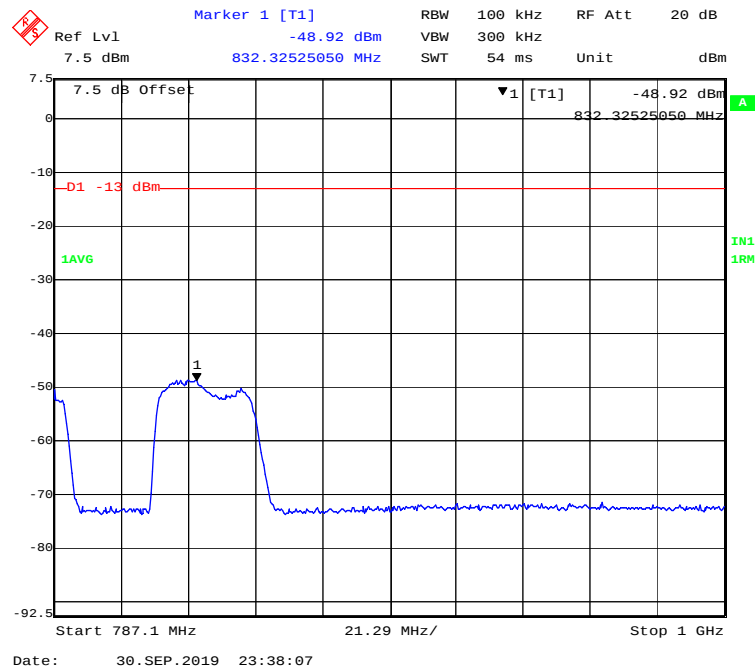
**Lower 700MHz (A+B+C Block) - GSM-Pre AGC-High Channel**



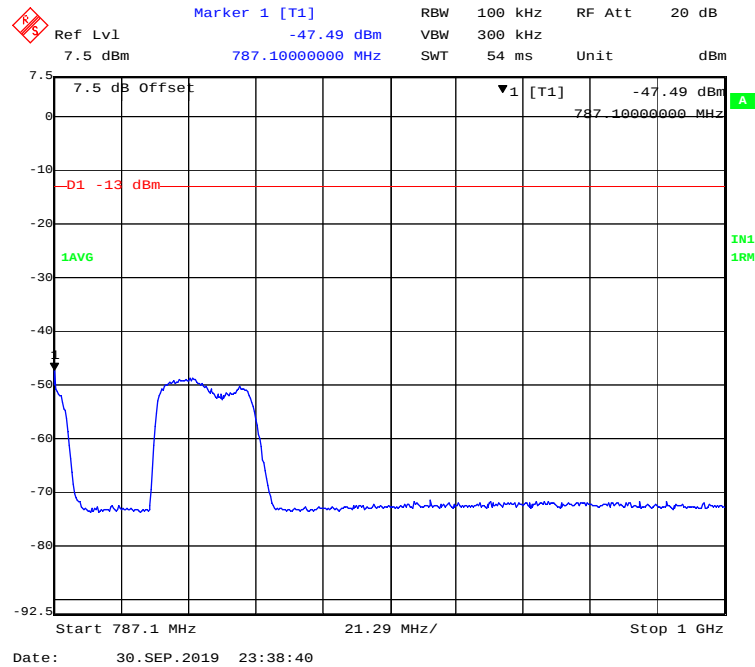
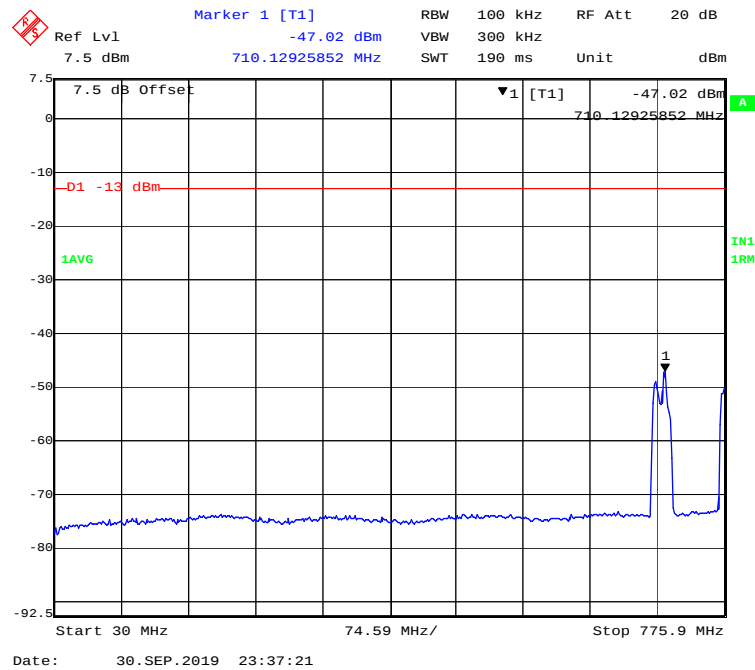
Upper 700MHz (C Block)-AWGN-Pre AGC-Low Channel

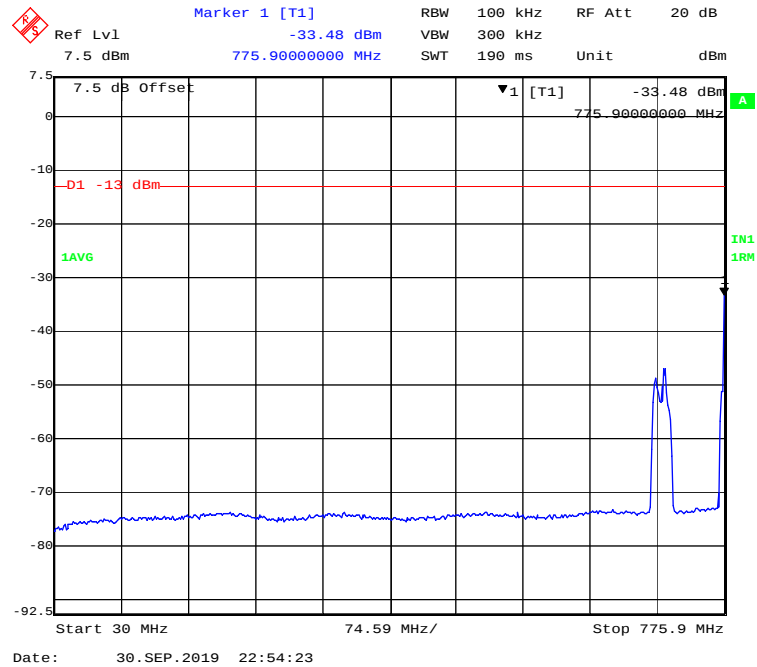


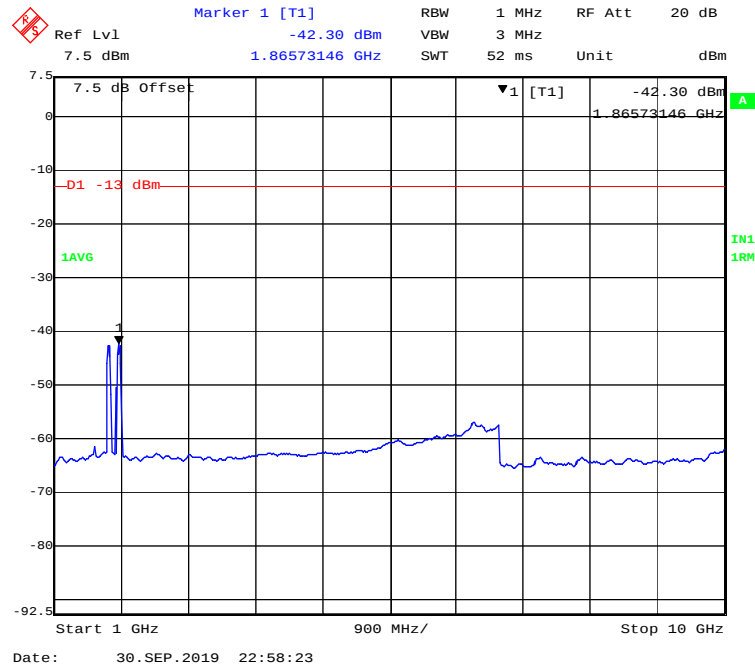
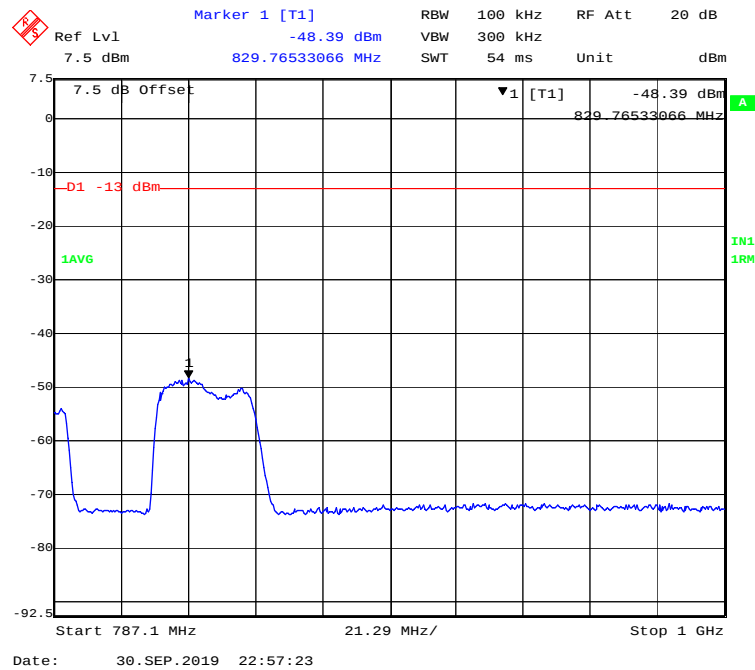
**Upper 700MHz (C Block) - AWGN-Pre AGC-Middle Channel**



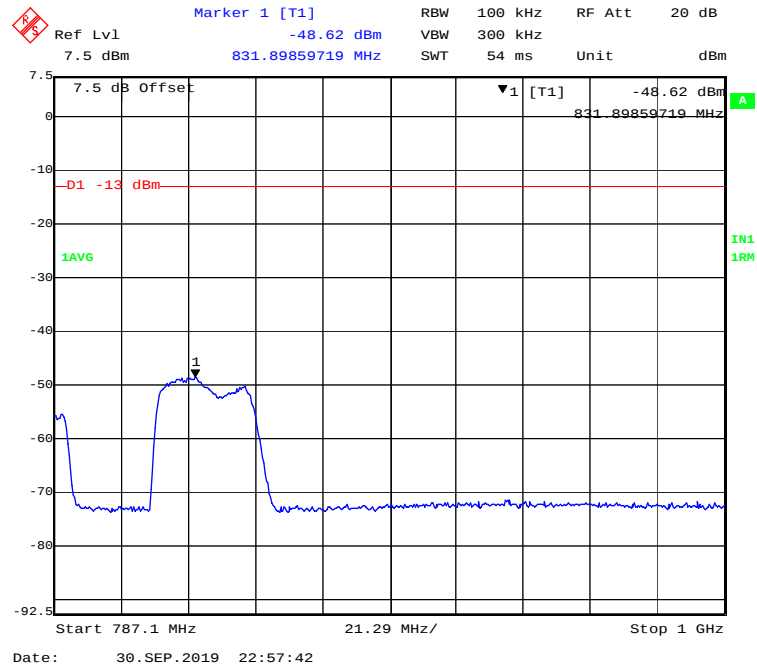
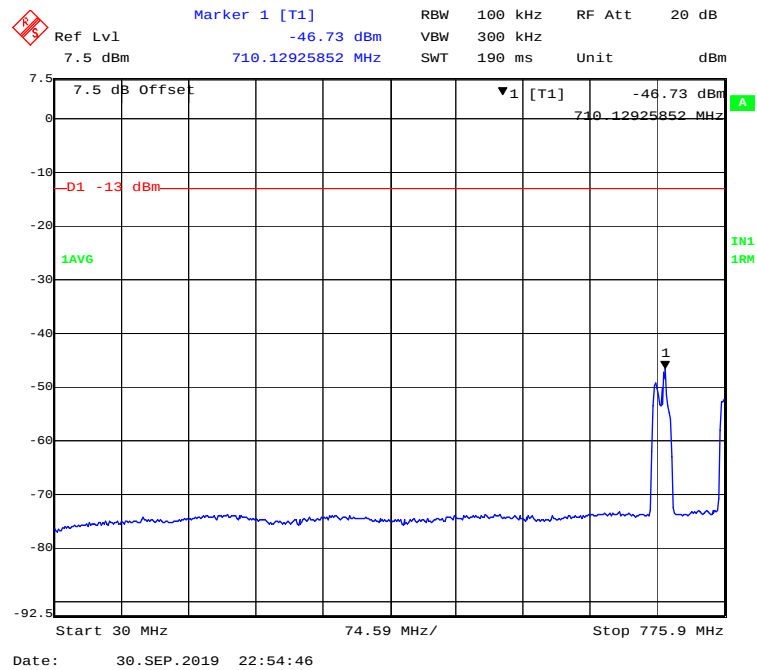
Upper 700MHz (C Block) - AWGN-Pre AGC-High Channel

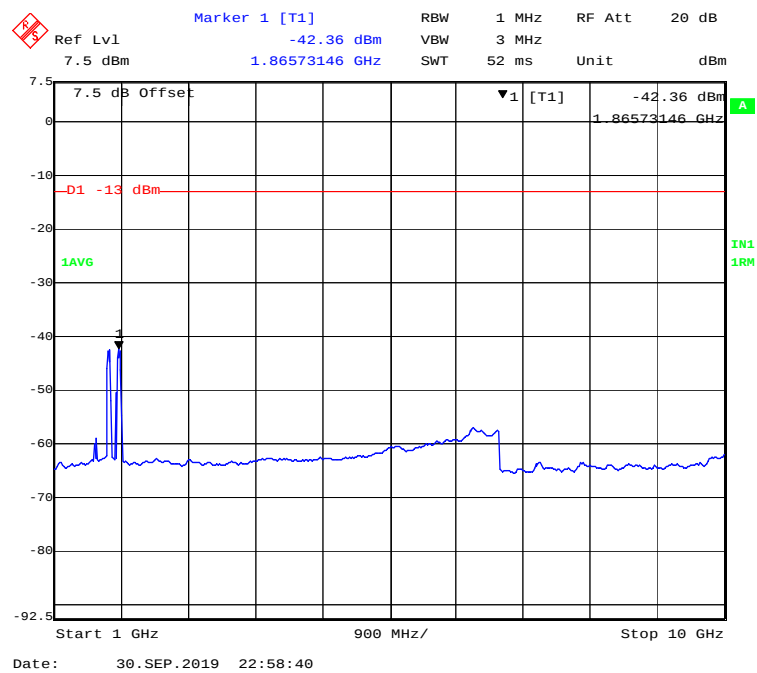
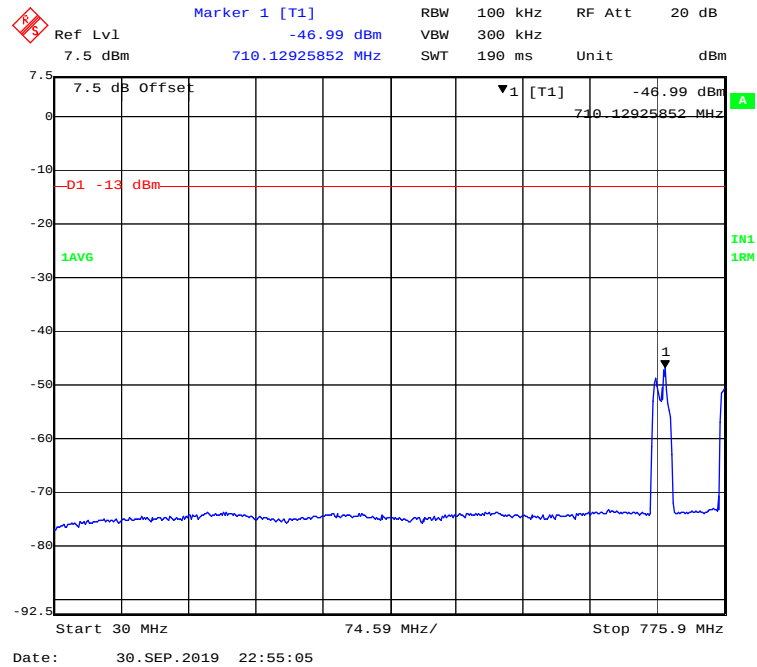


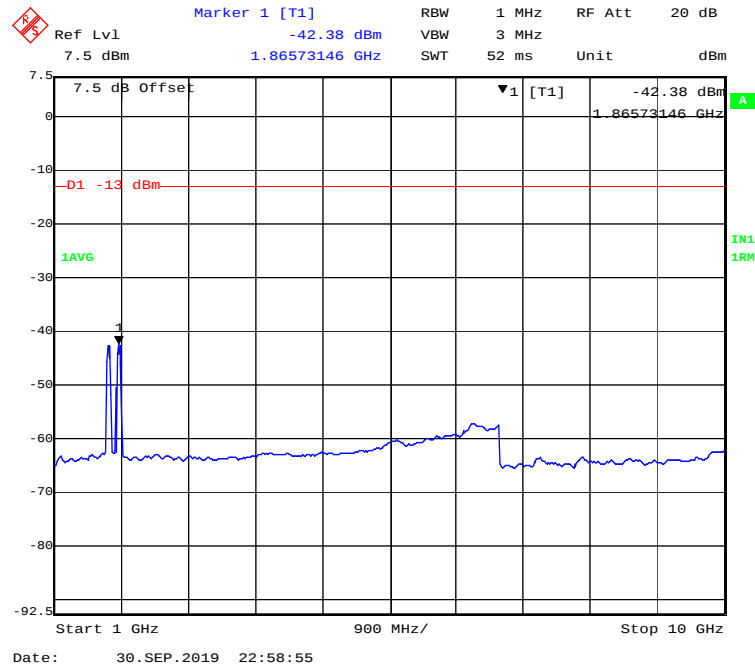
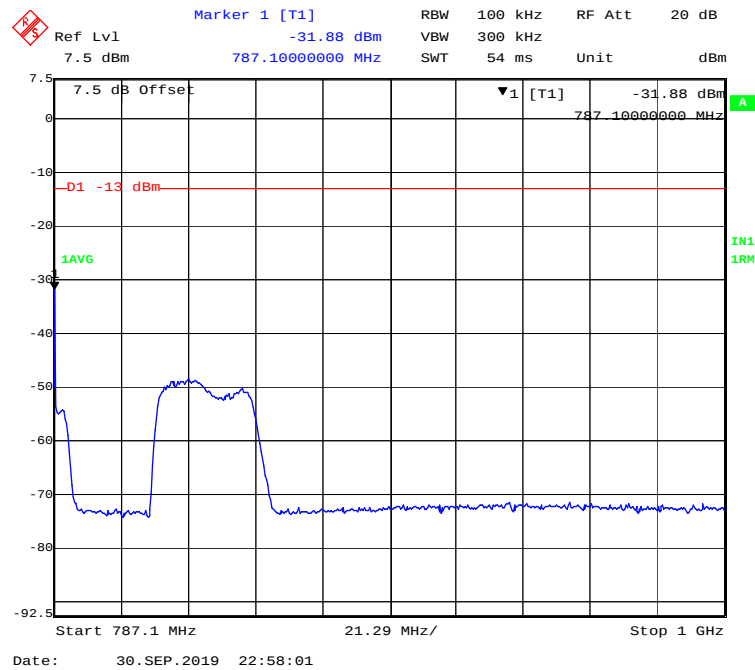
**Upper 700MHz (C Block) - GSM-Pre AGC-Low Channel**



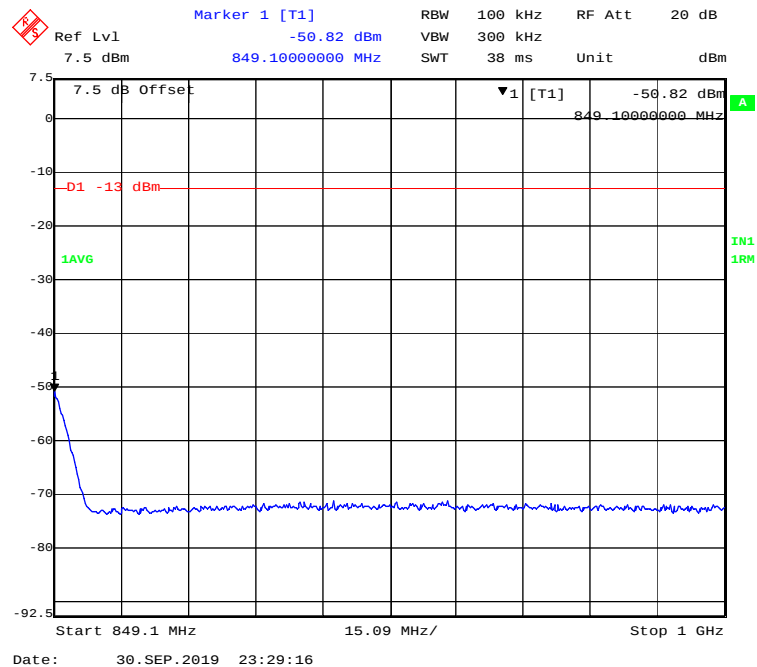
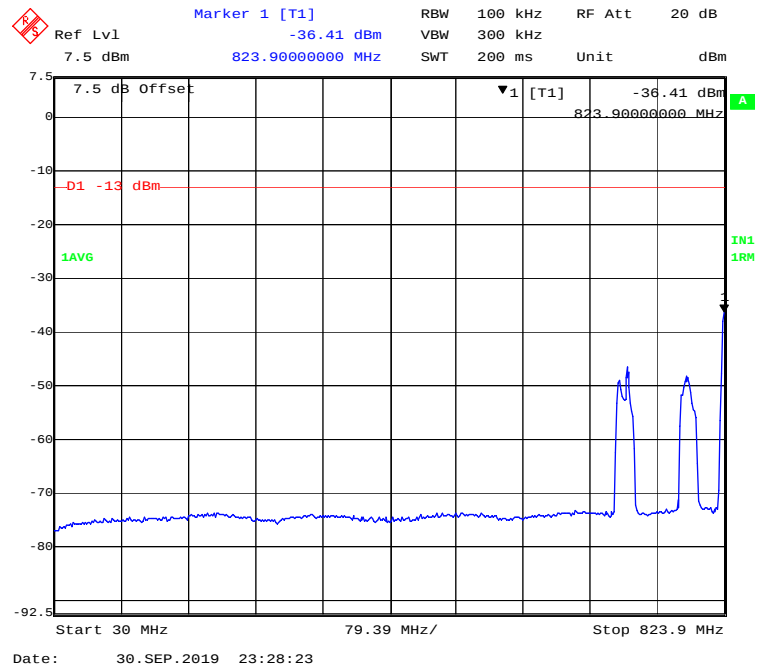
Upper 700MHz (C Block) - GSM-Pre AGC-Middle Channel

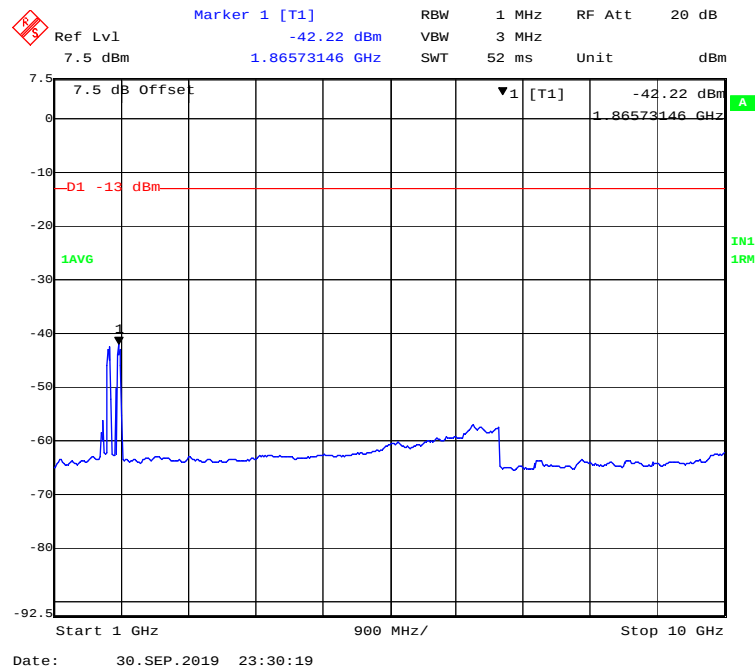


**Upper 700MHz (C Block) - GSM-Pre AGC-High Channel**

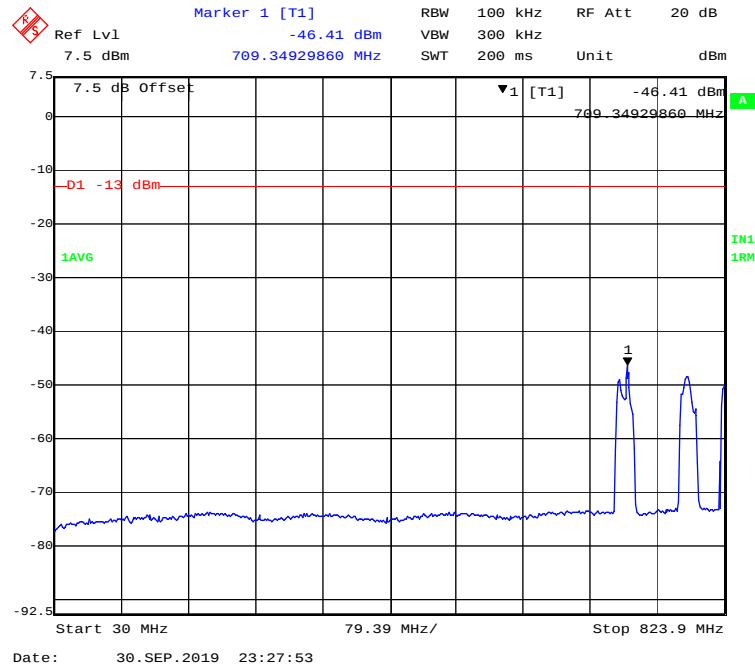


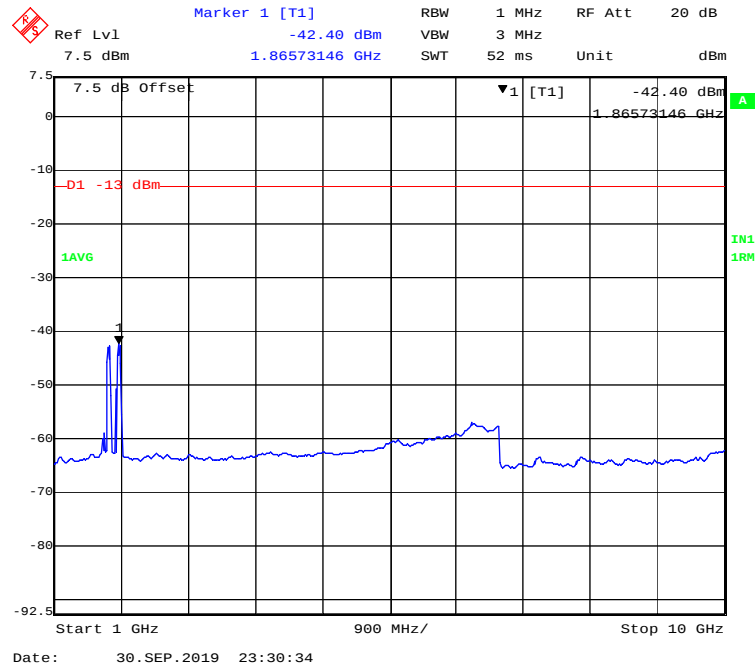
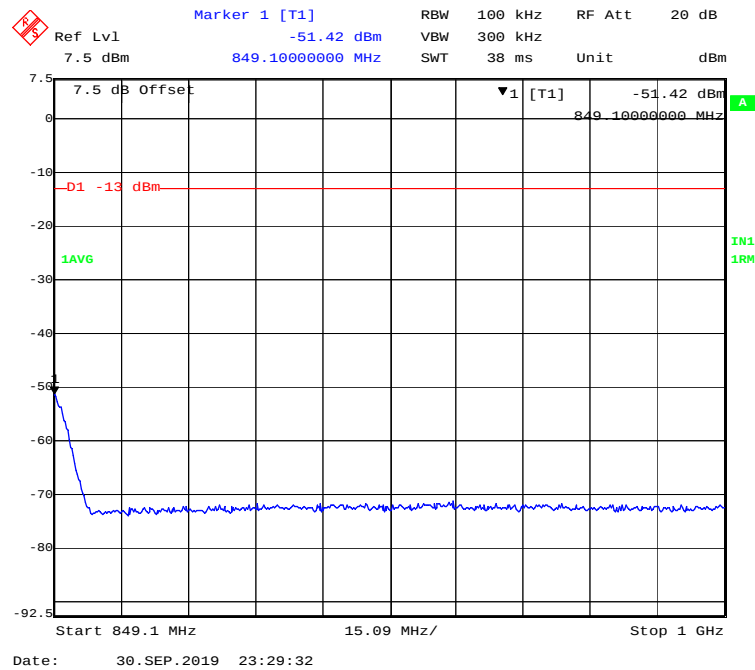
Cellular - AWGN-Pre AGC-Low Channel



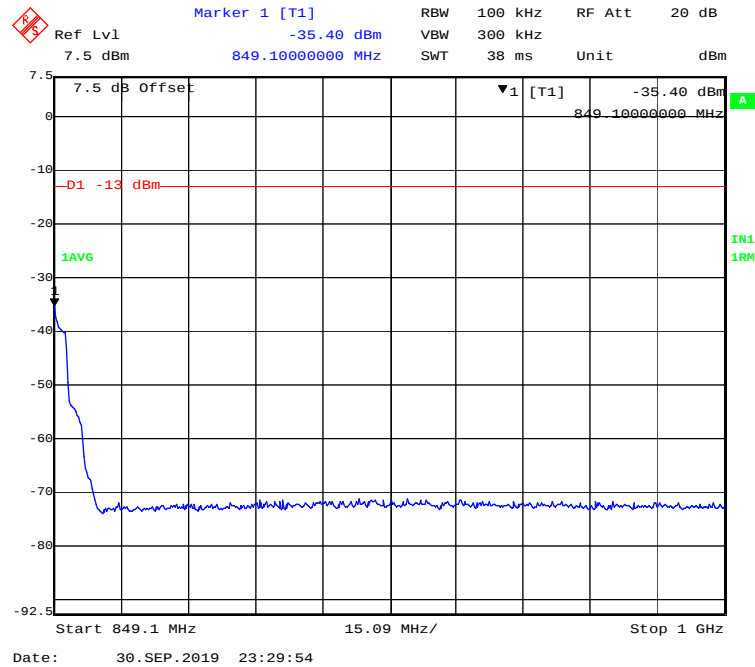
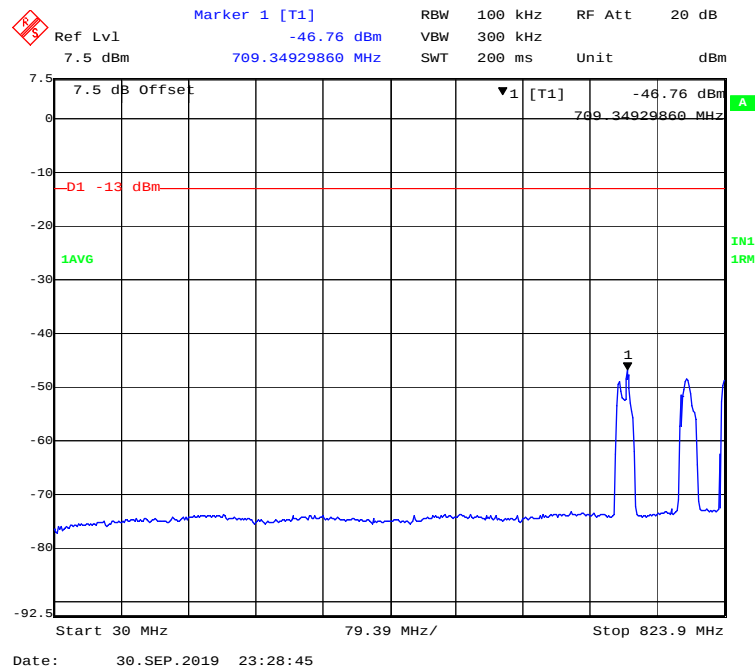


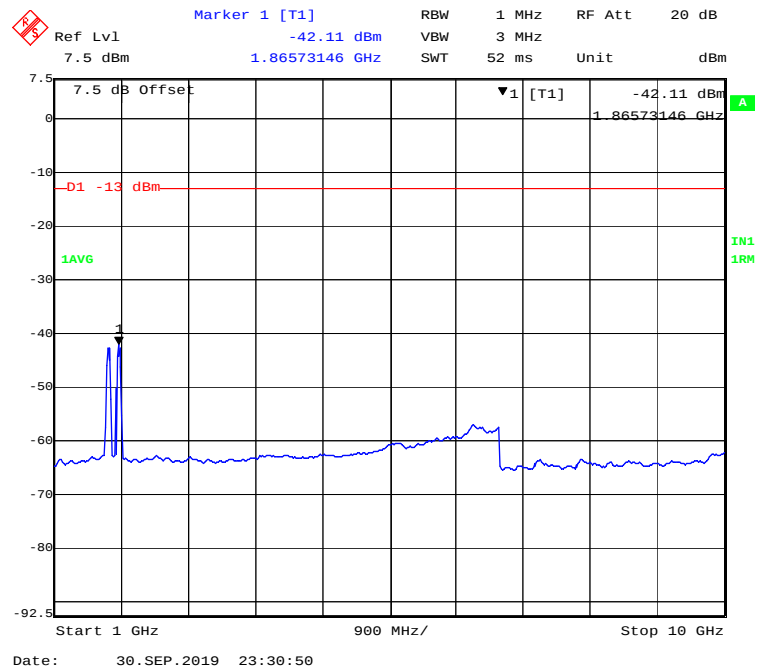
Cellular - AWGN-Pre AGC-Middle Channel



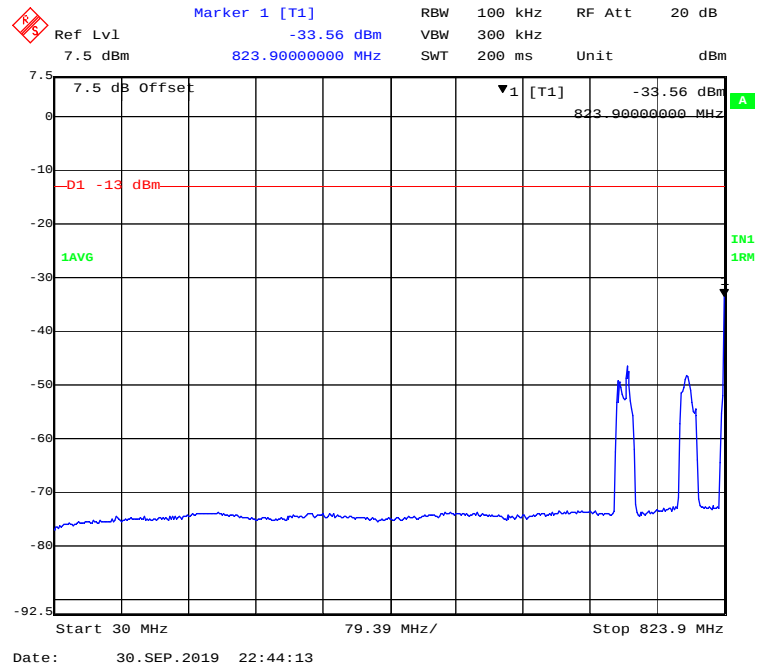


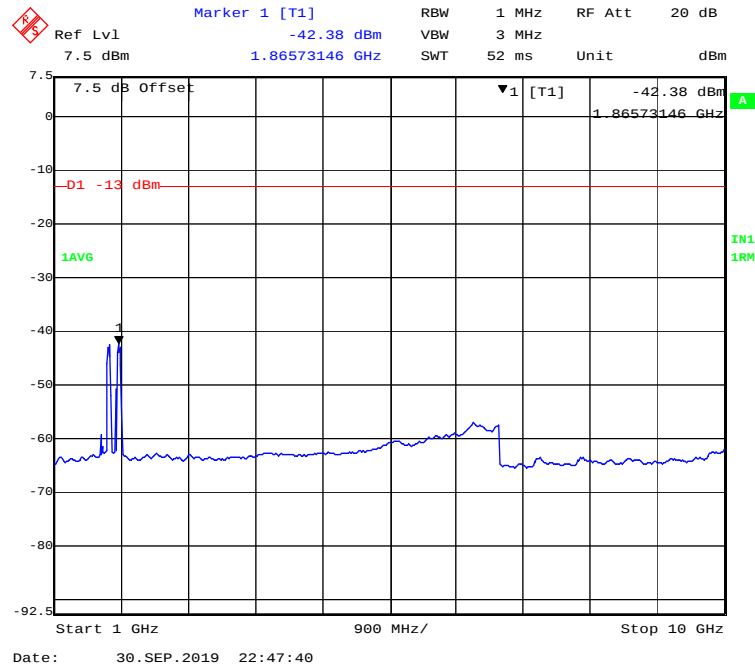
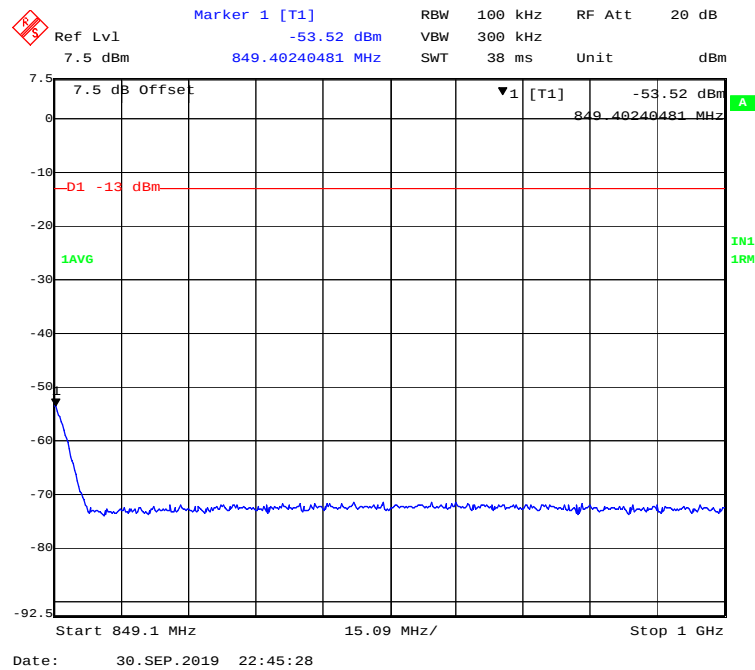
Cellular - AWGN-Pre AGC-High Channel



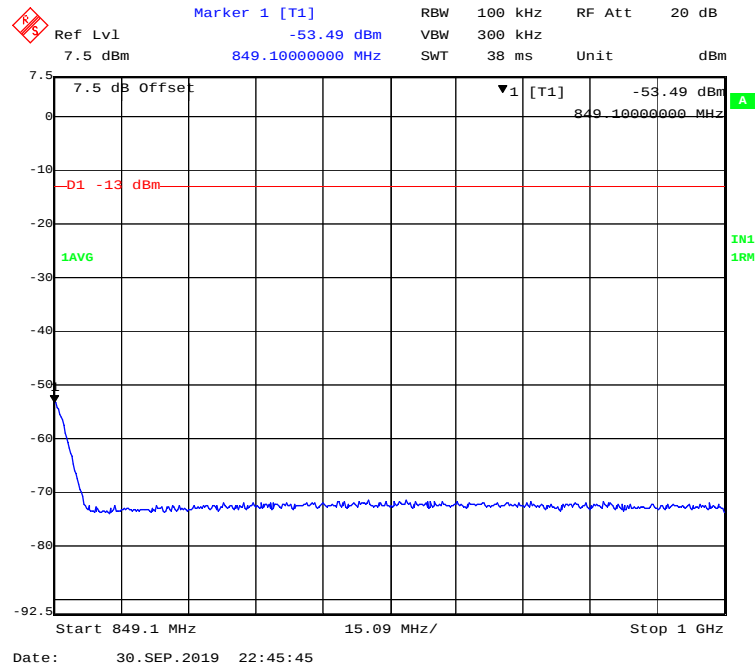
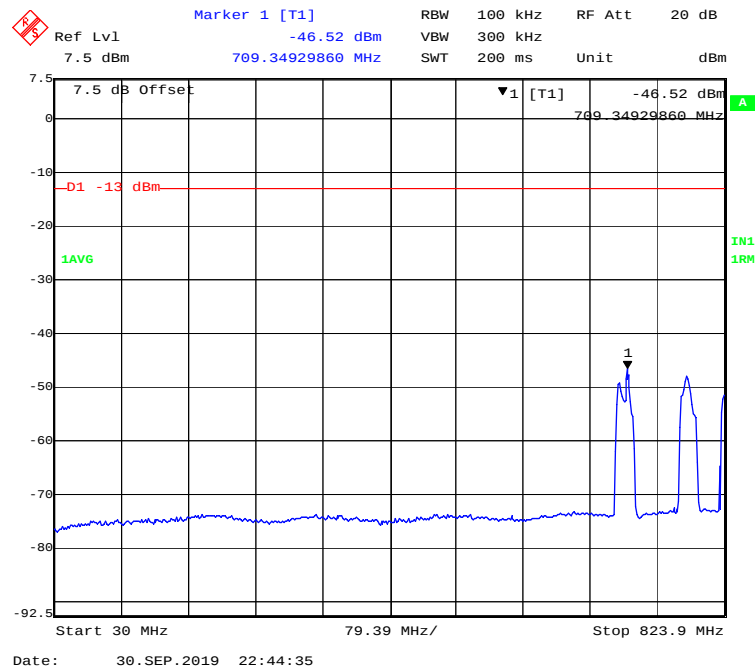


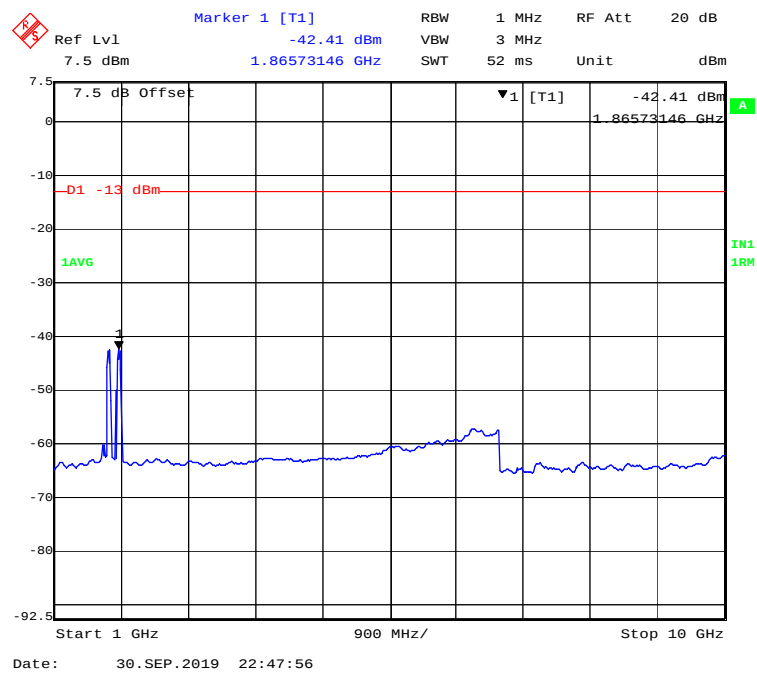
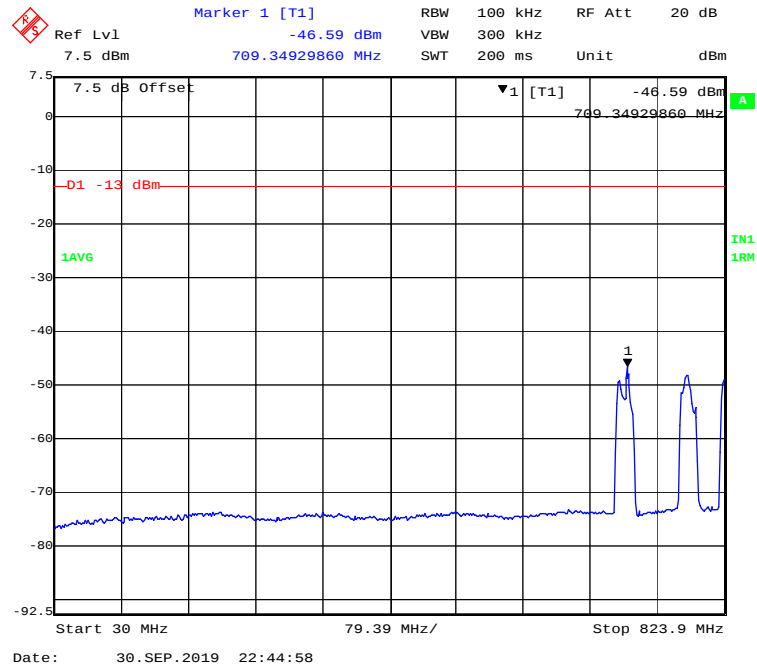
Cellular - GSM-Pre AGC-Low Channel

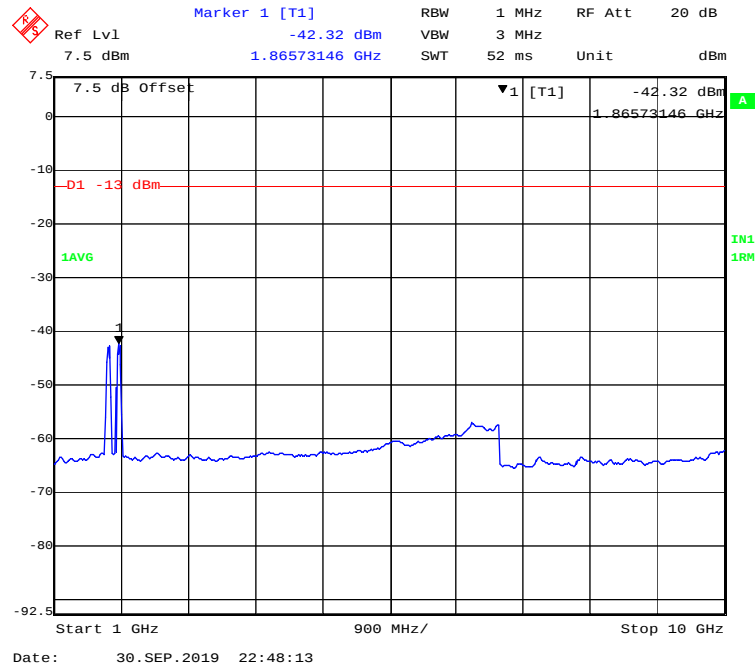
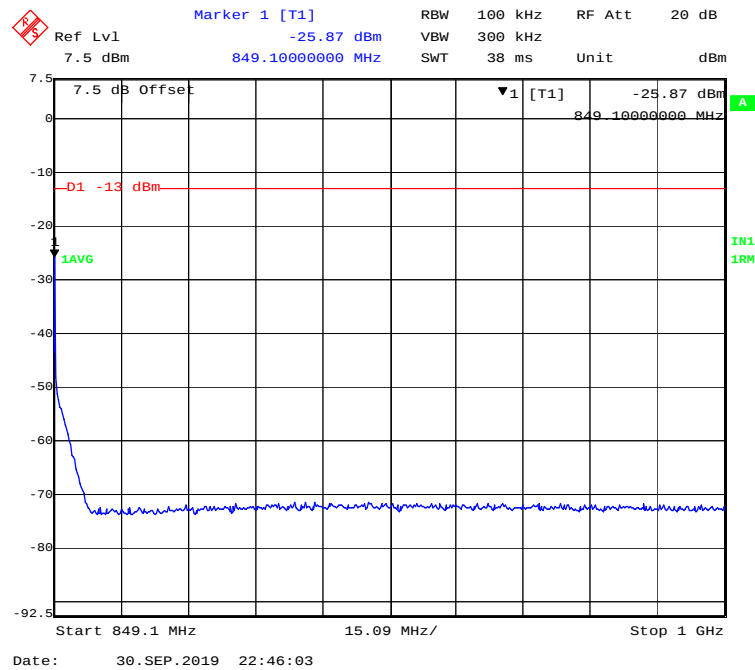




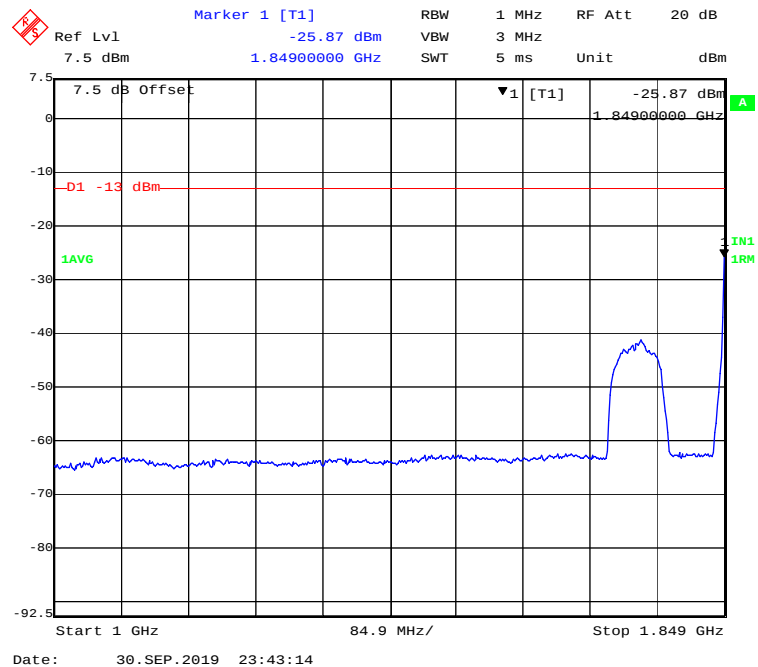
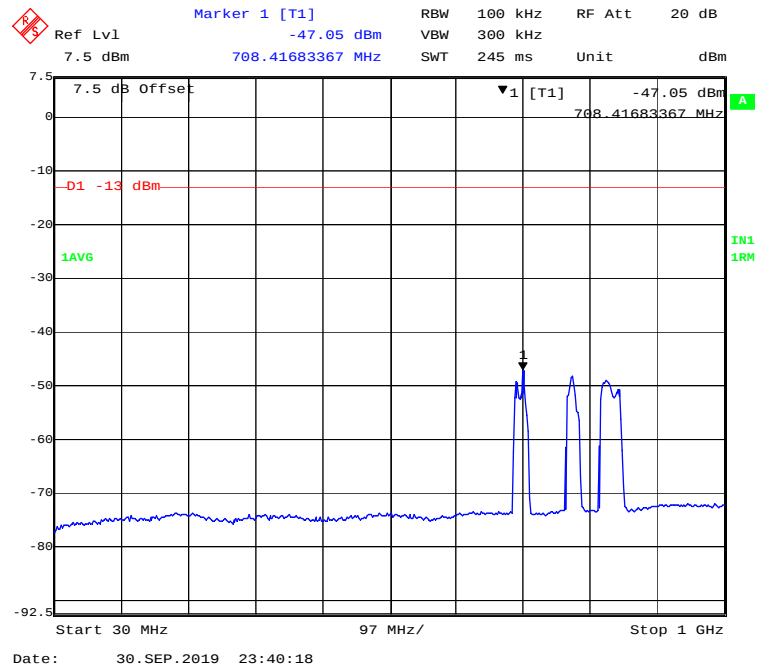
Cellular - GSM-Pre AGC-Middle Channel

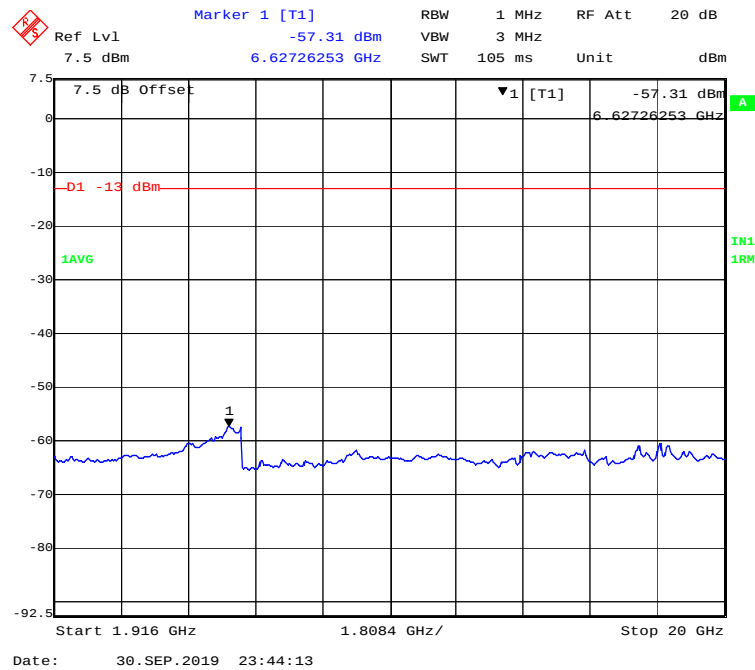


**Cellular - GSM-Pre AGC-High Channel**

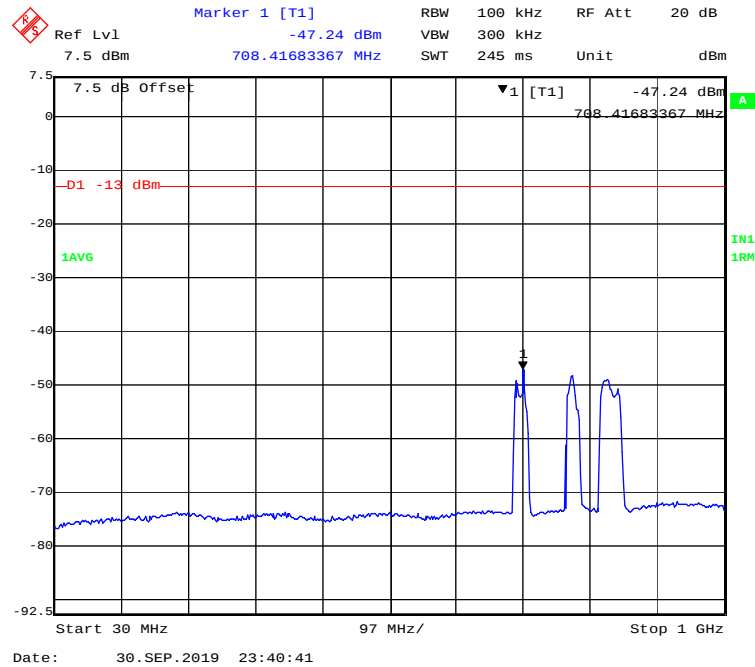


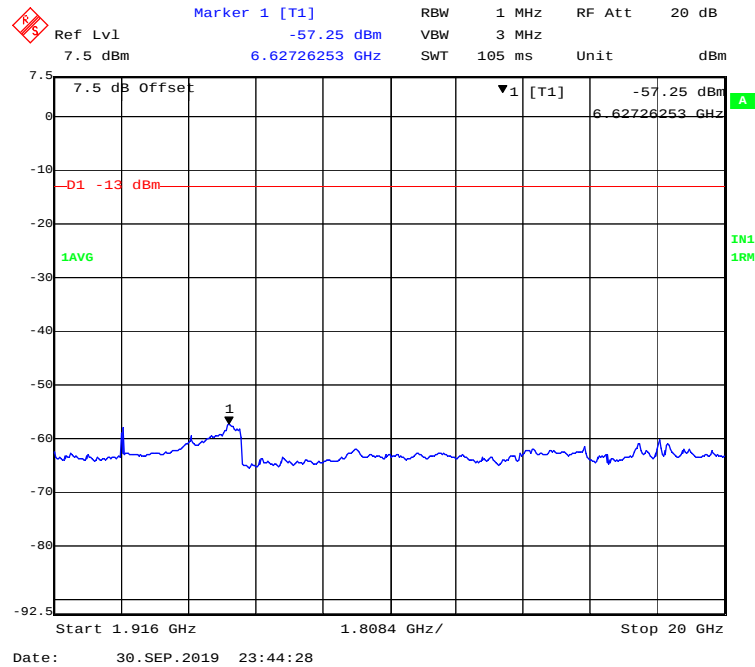
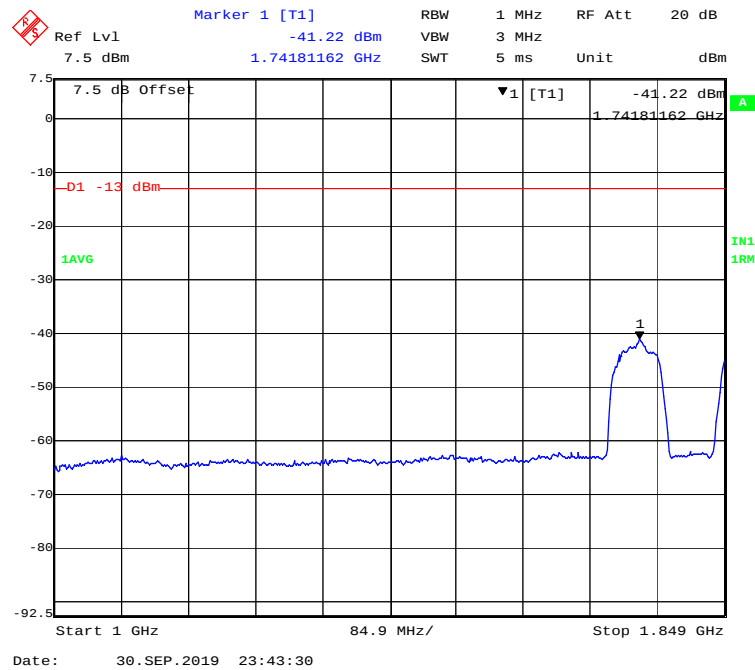
PCS- AWGN-Pre AGC-Low Channel



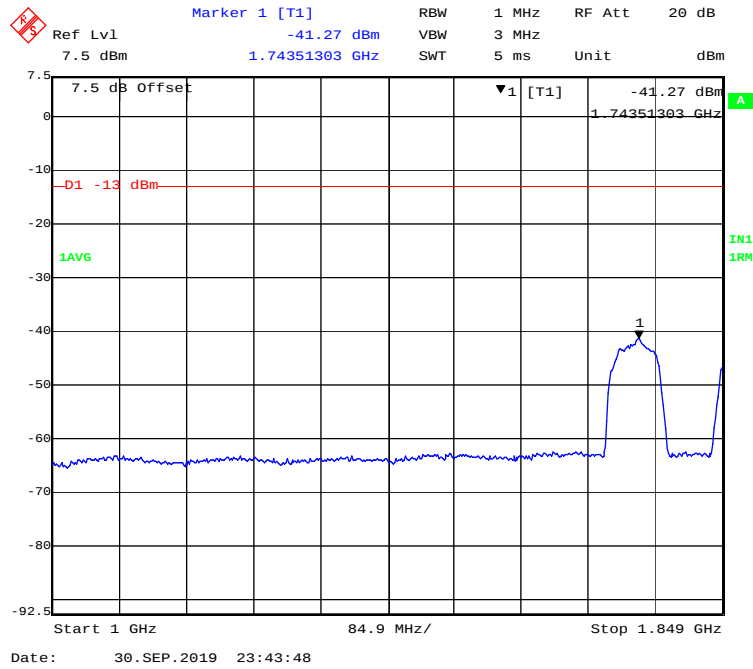
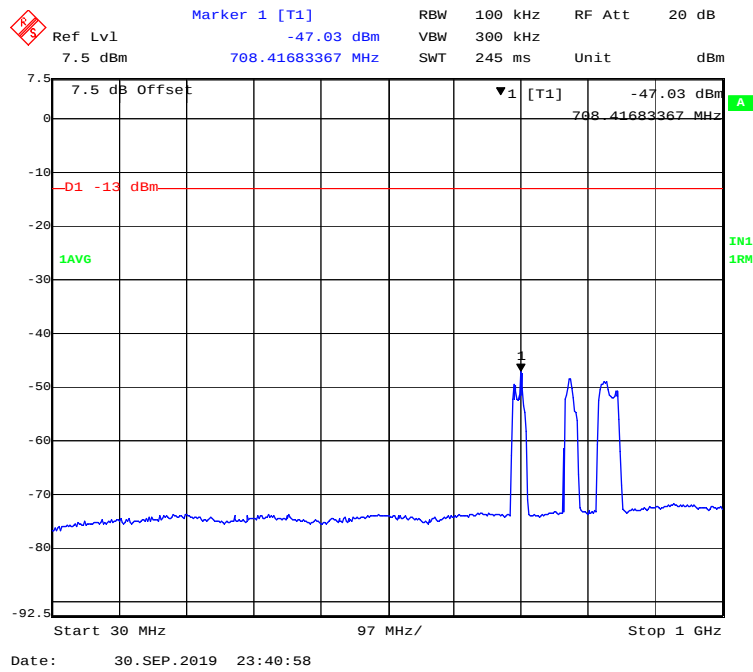


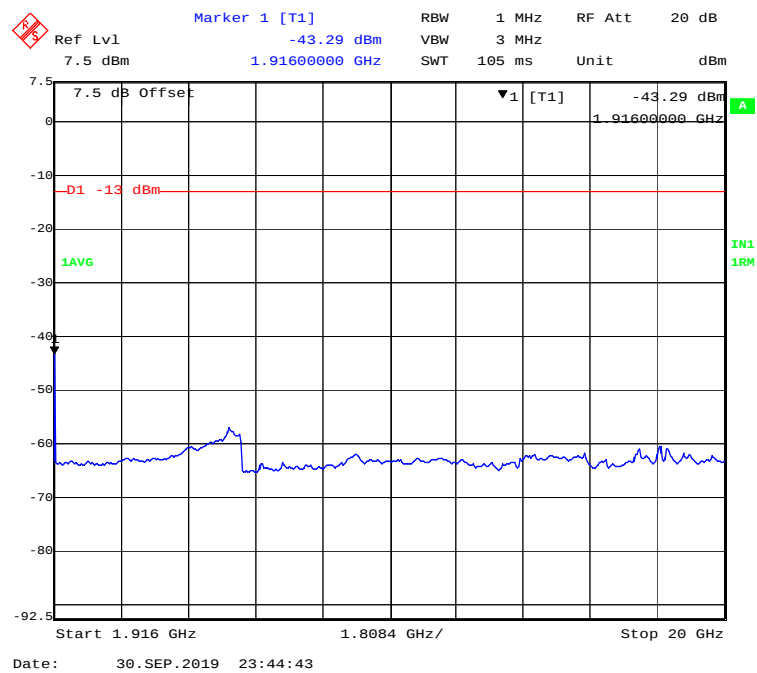
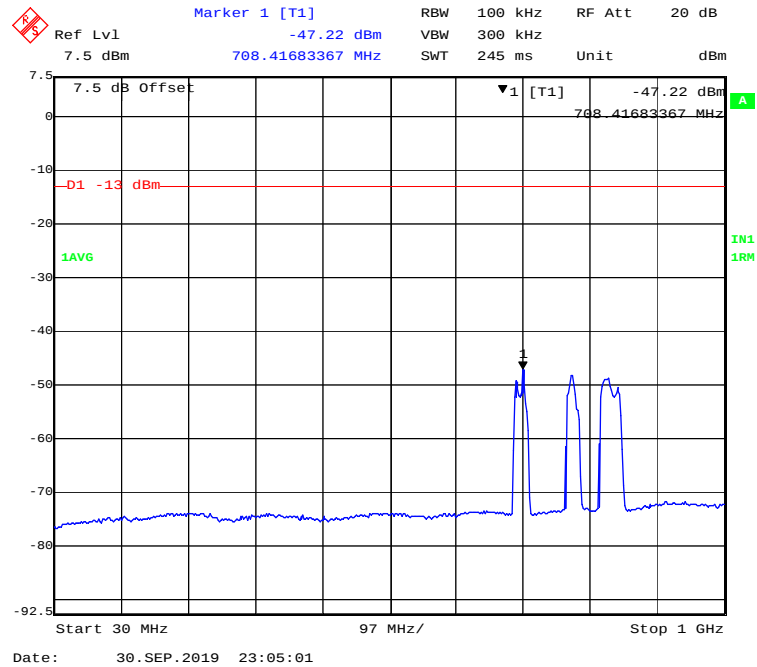
PCS- AWGN-Pre AGC-Middle Channel

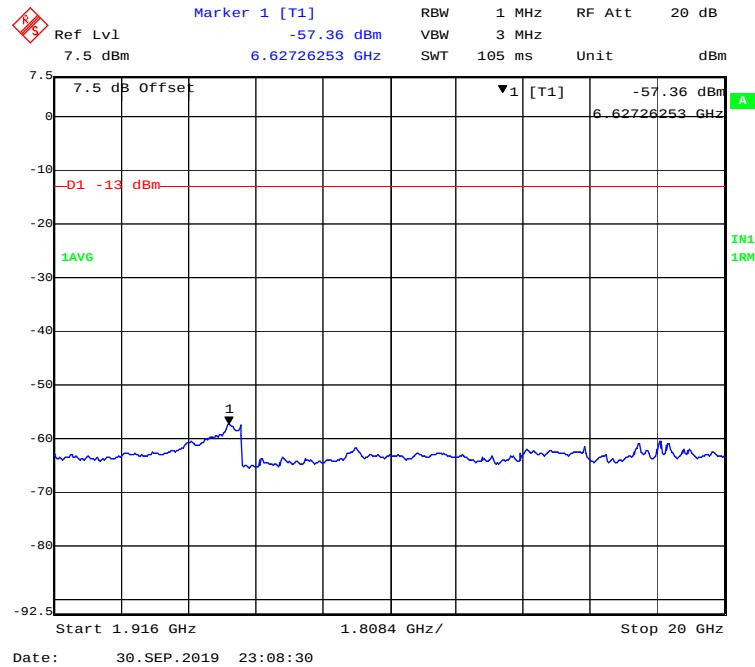
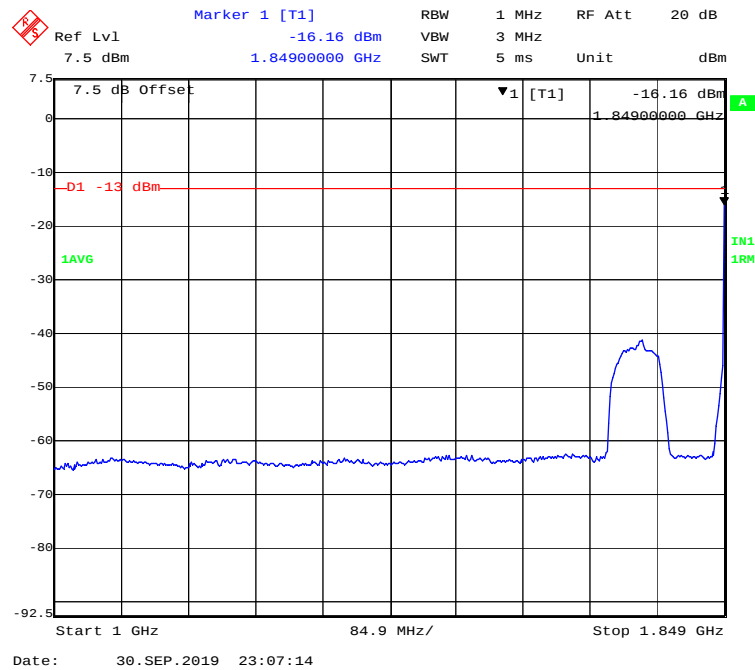




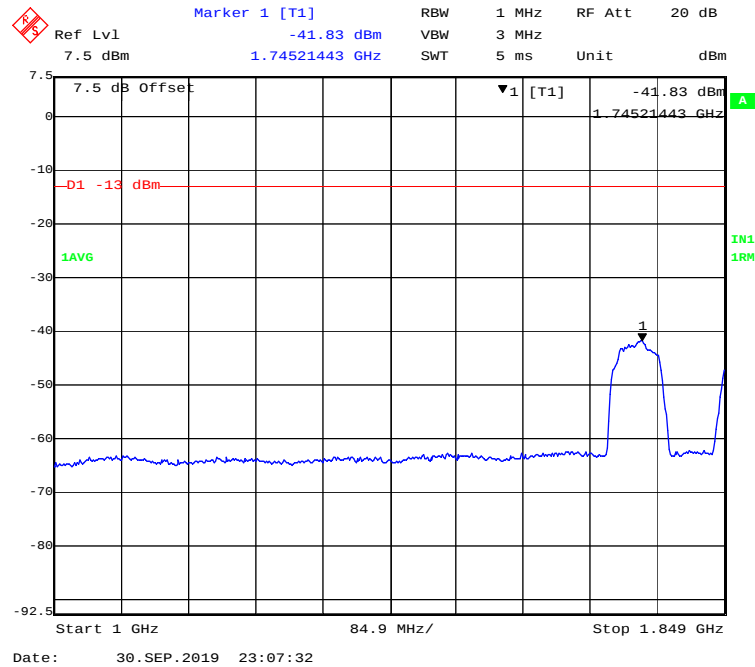
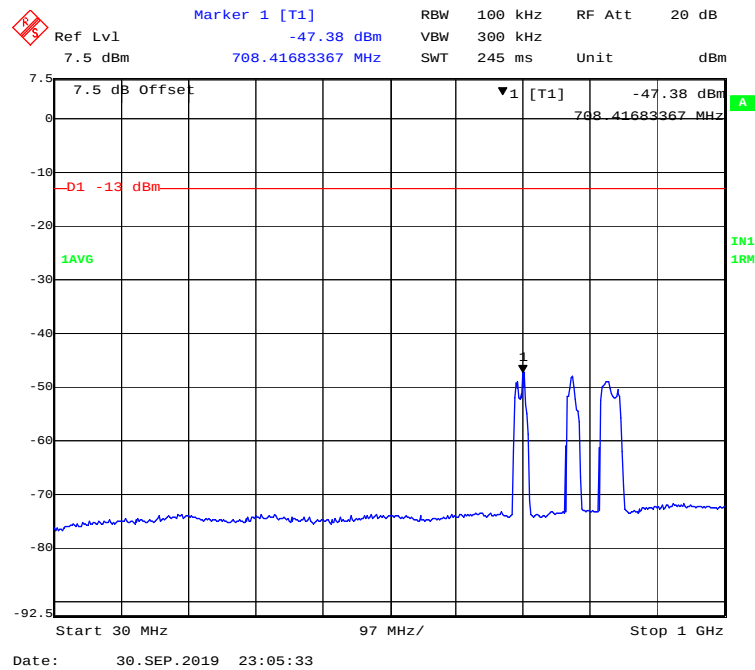
PCS- AWGN-Pre AGC-High Channel

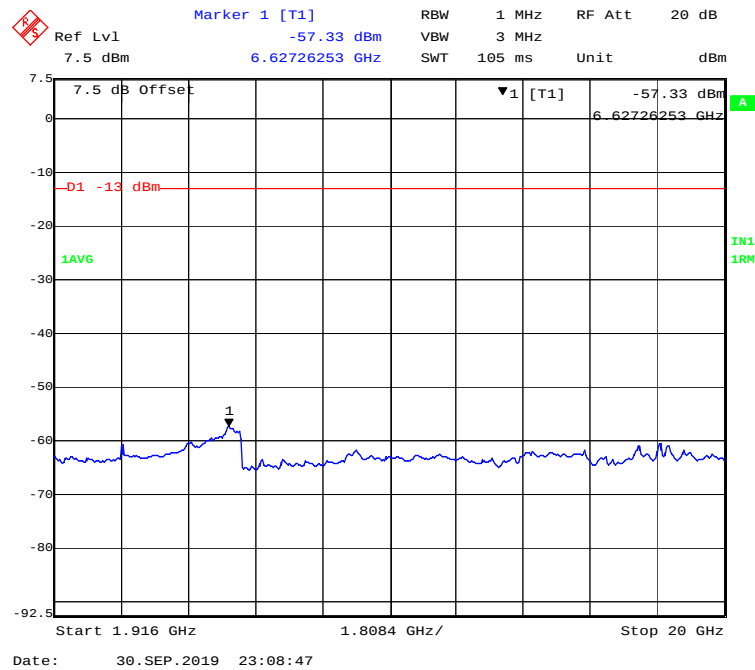


**PCS- GSM-Pre AGC-Low Channel**

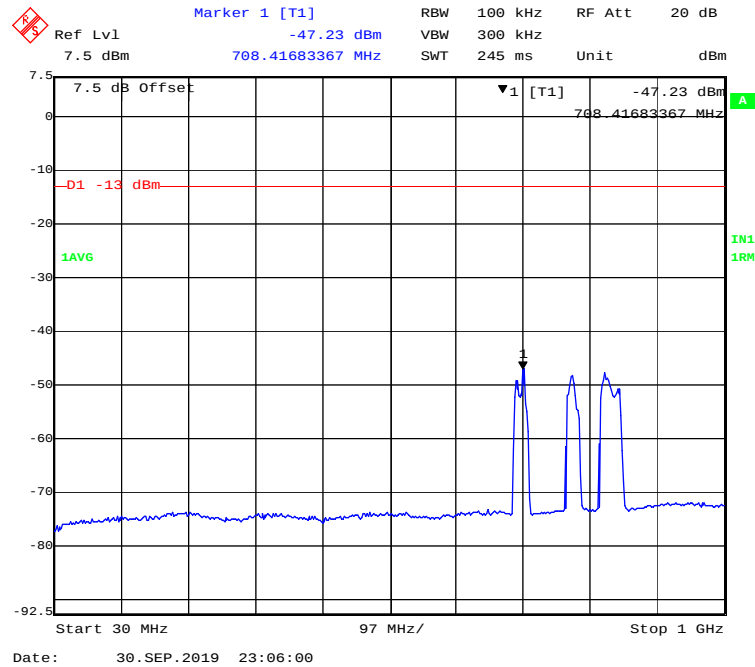


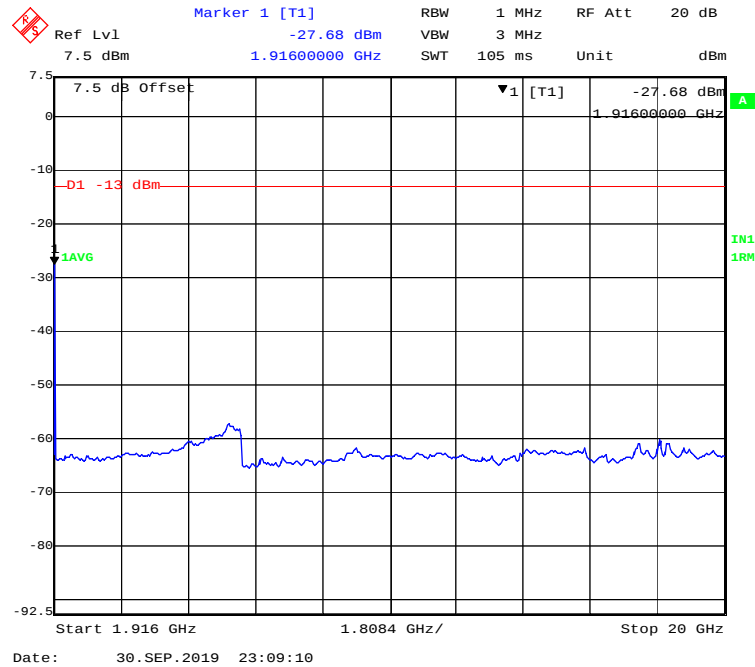
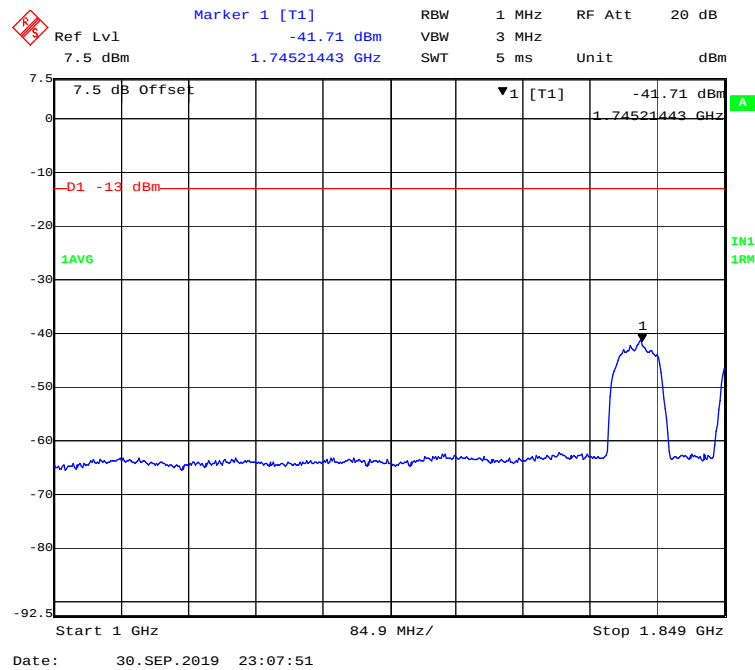
PCS- GSM-Pre AGC-Middle Channel



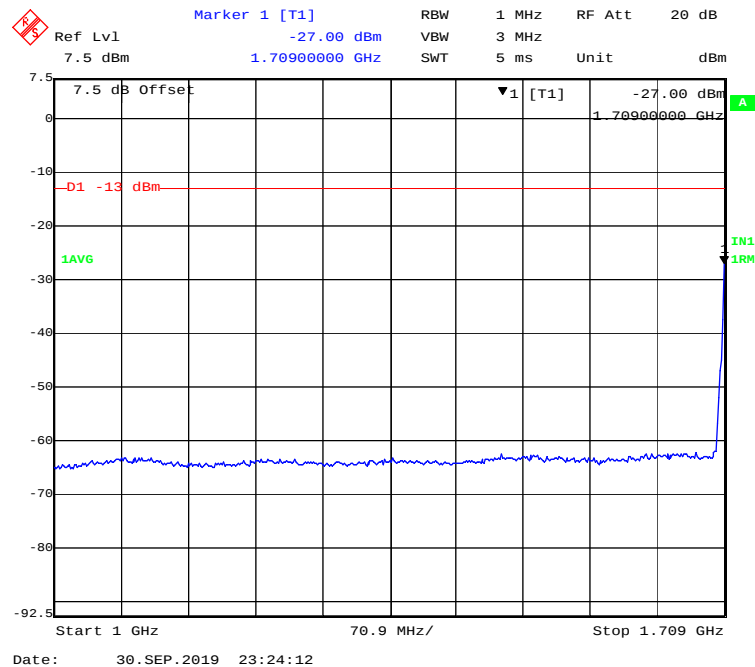
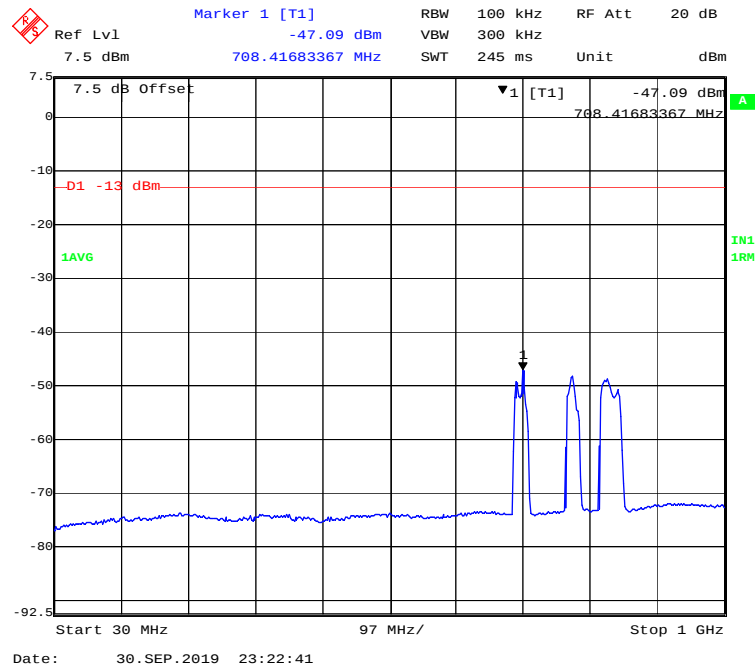


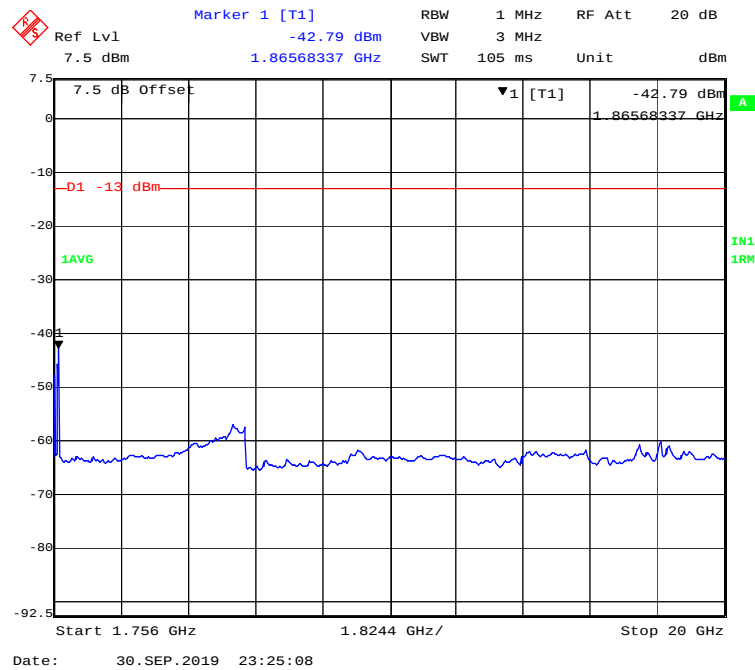
PCS- GSM-Pre AGC-High Channel



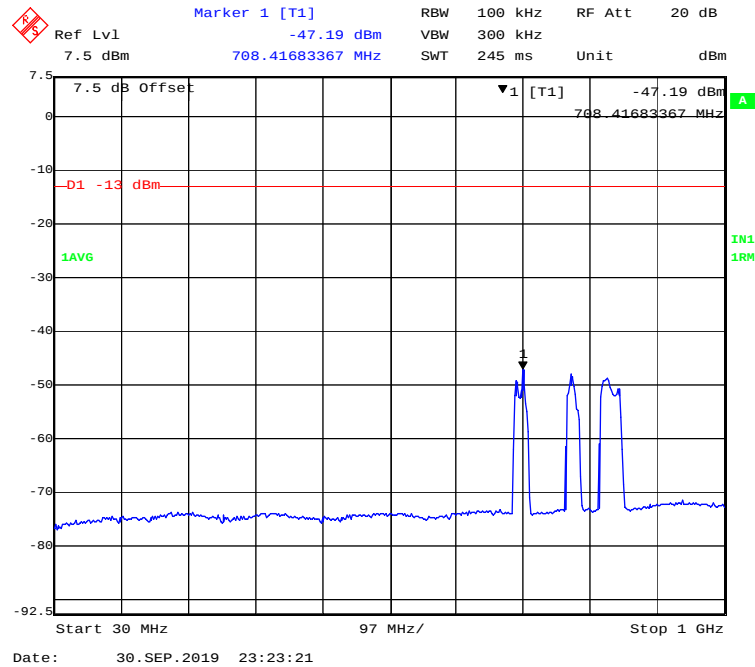


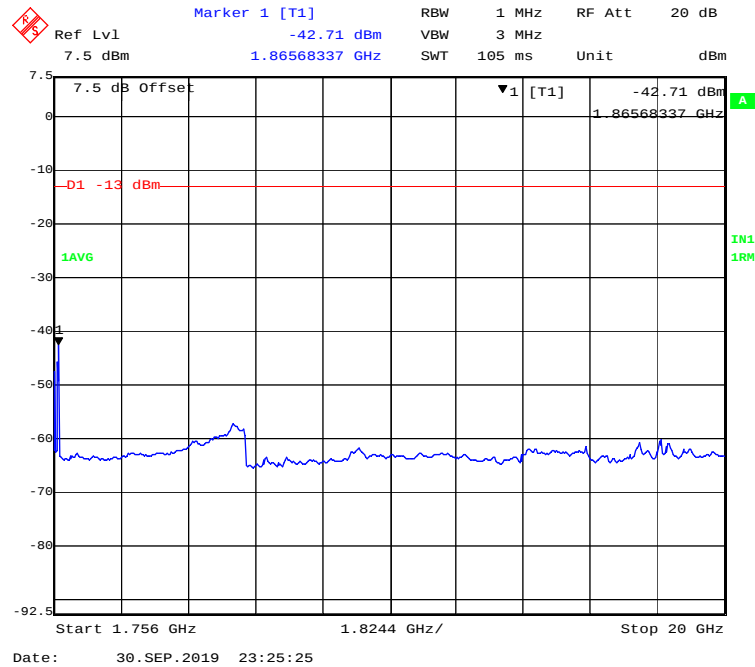
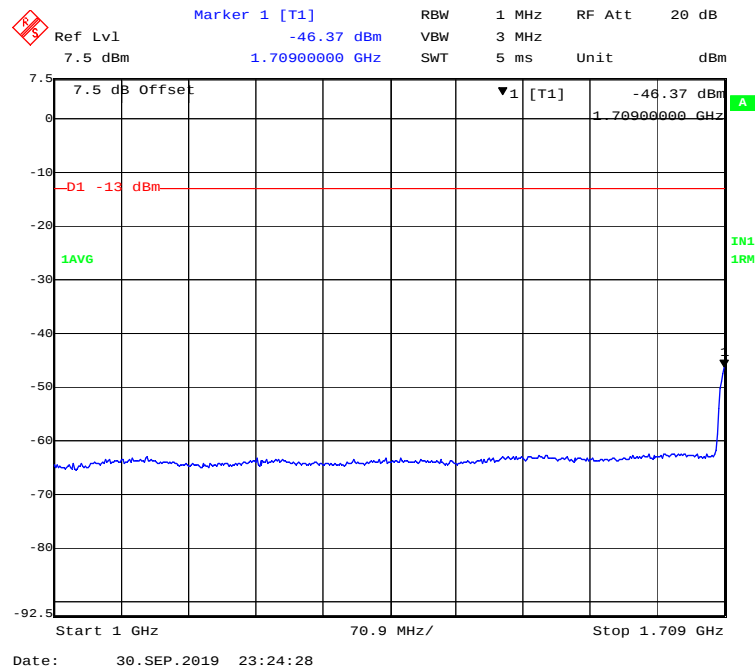
AWS- AWGN-Pre AGC-Low Channel



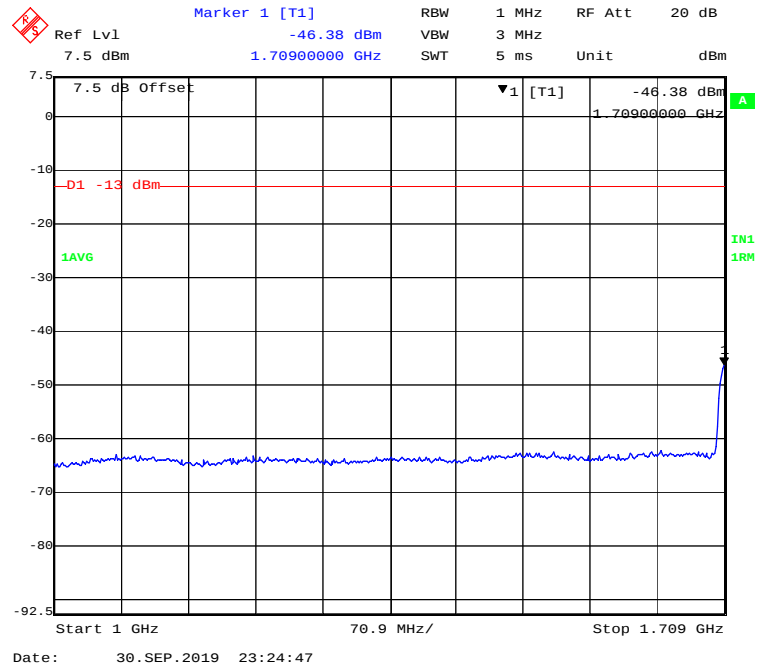
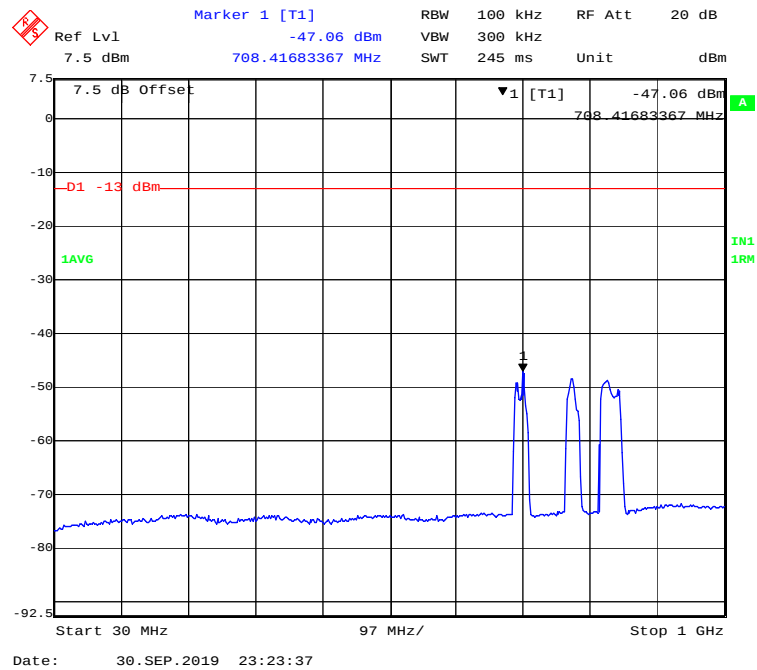


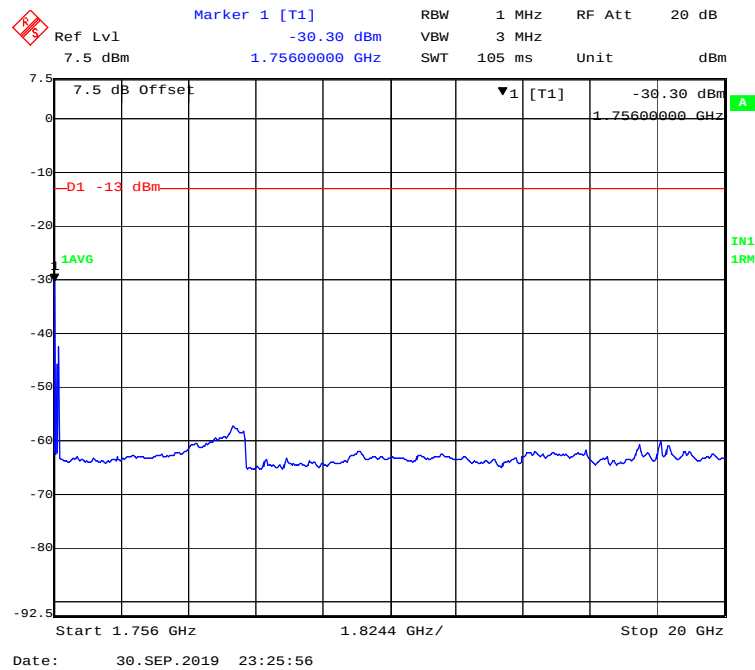
AWS- AWGN-Pre AGC-Middle Channel



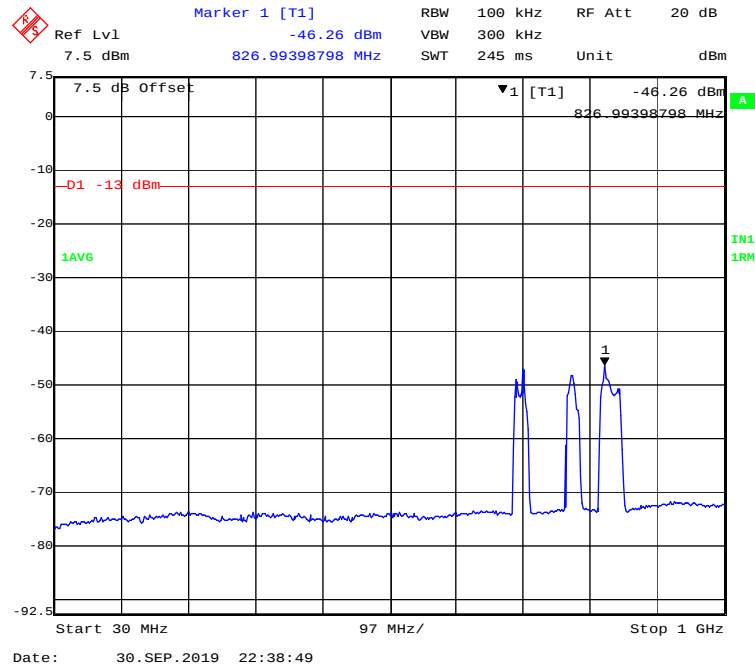


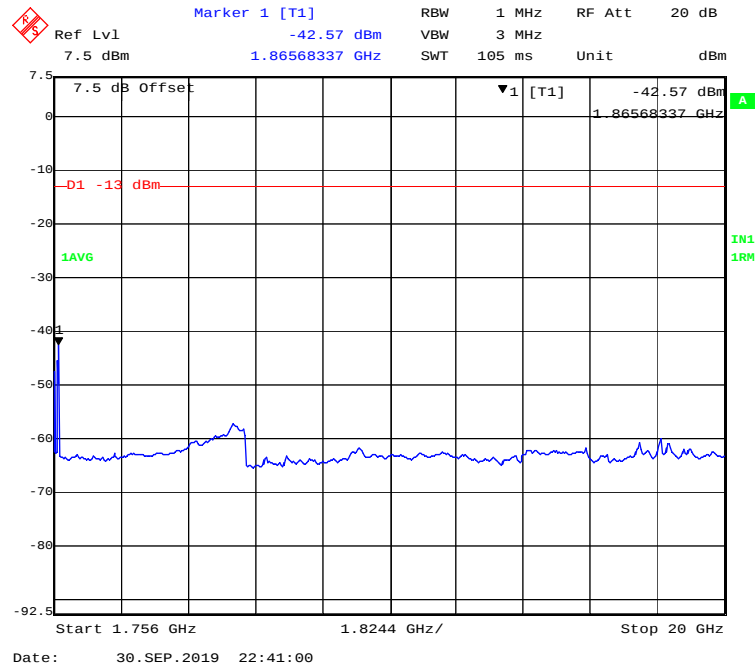
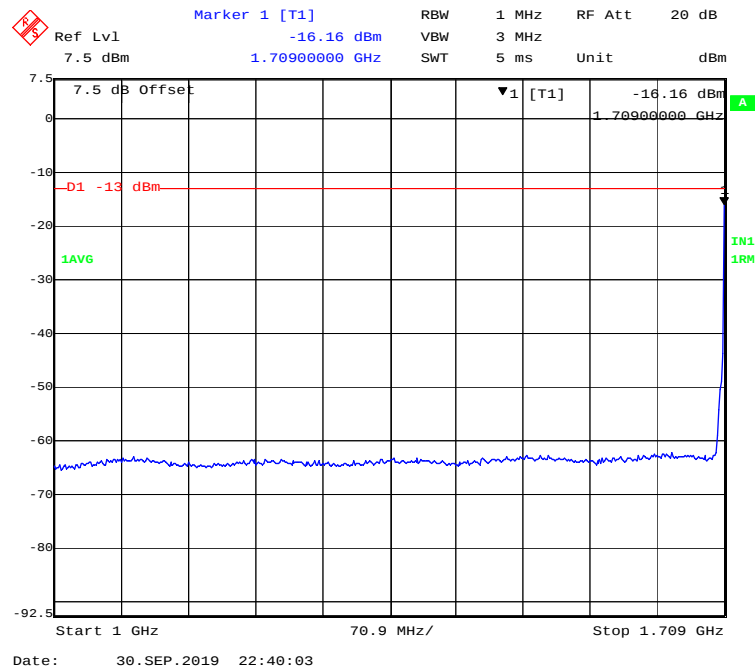
AWS- AWGN-Pre AGC-High Channel



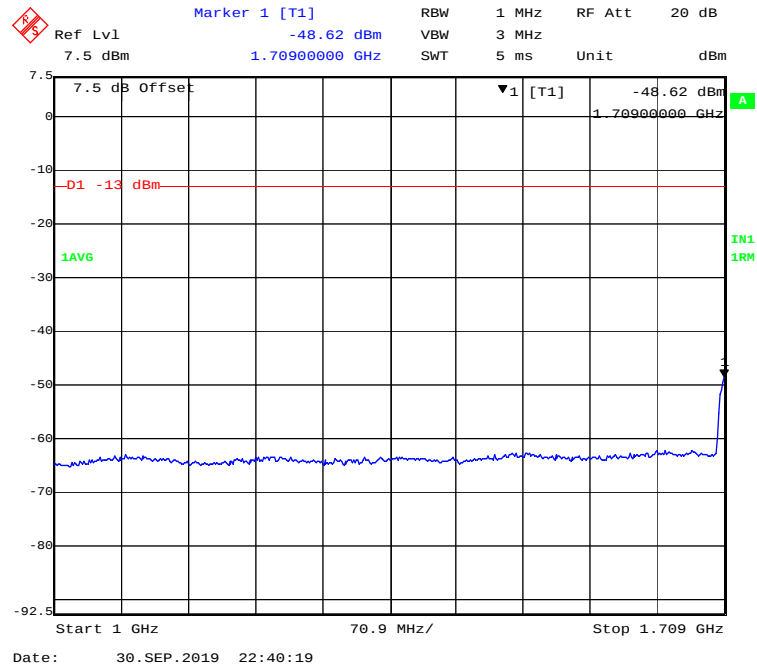
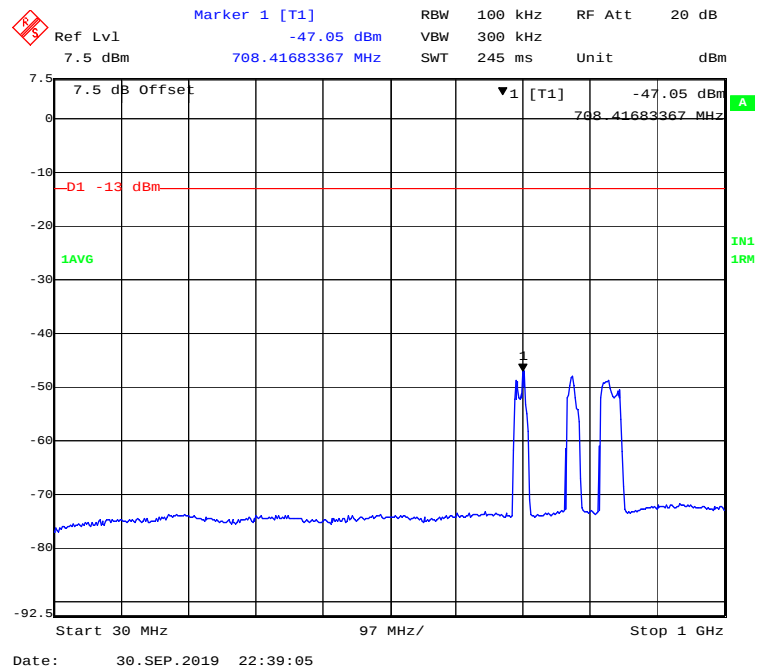


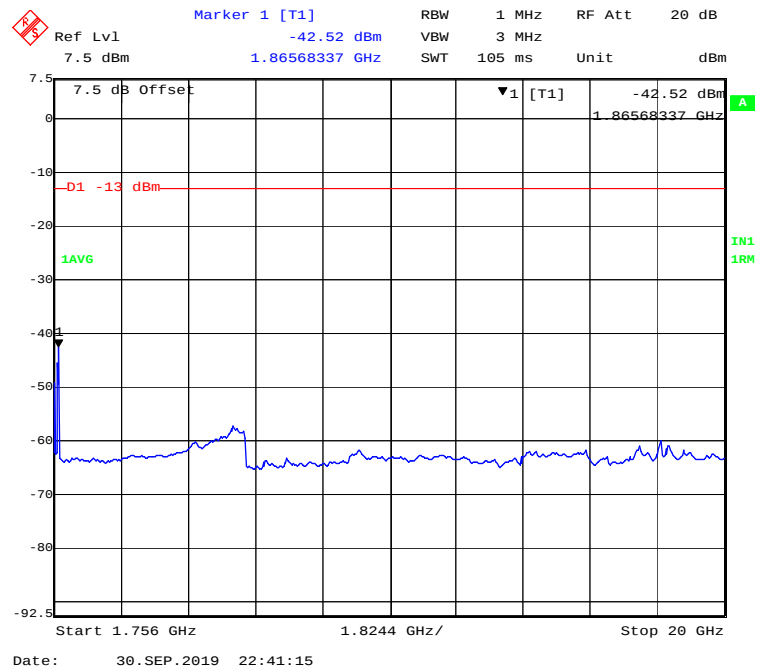
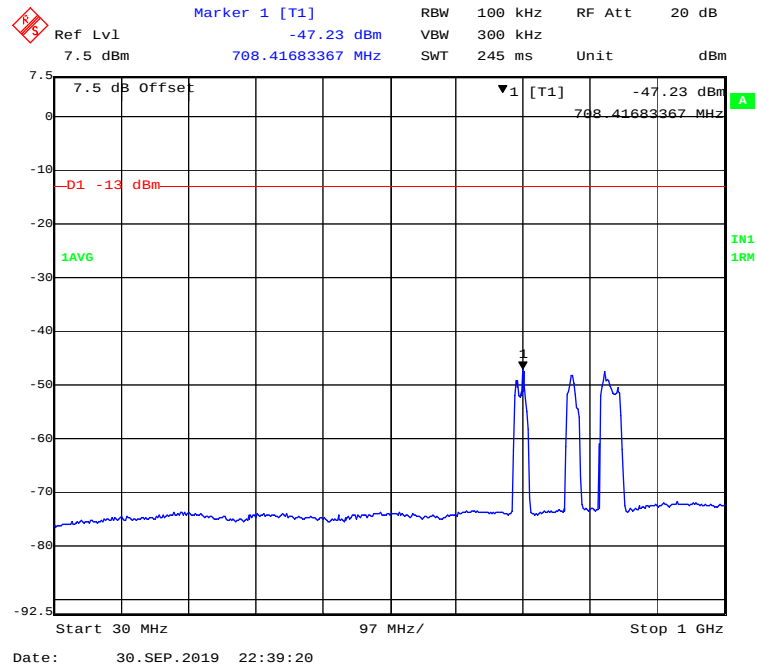
AWS- GSM-Pre AGC-Low Channel

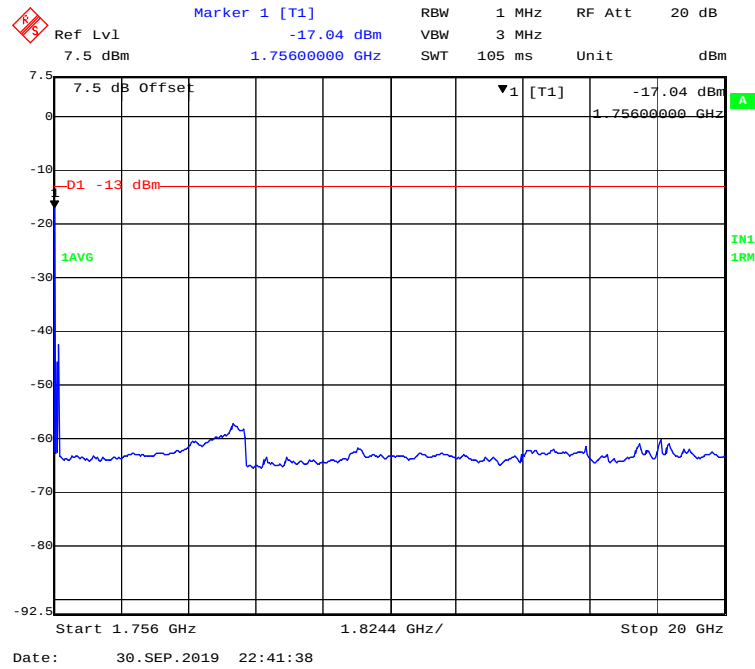
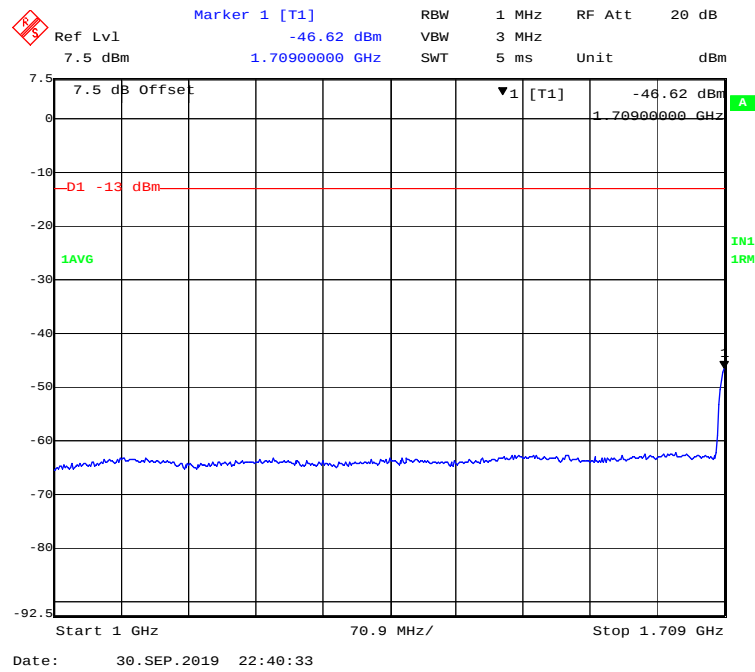


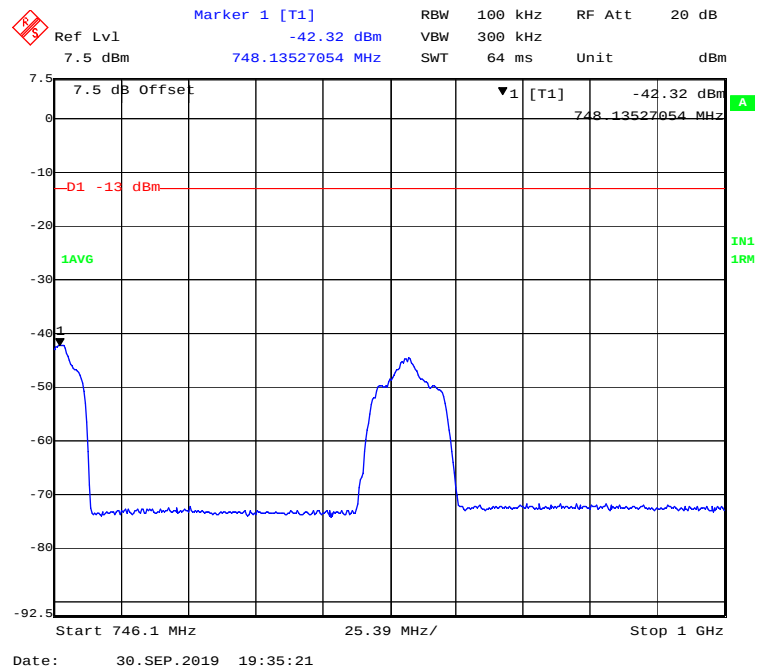
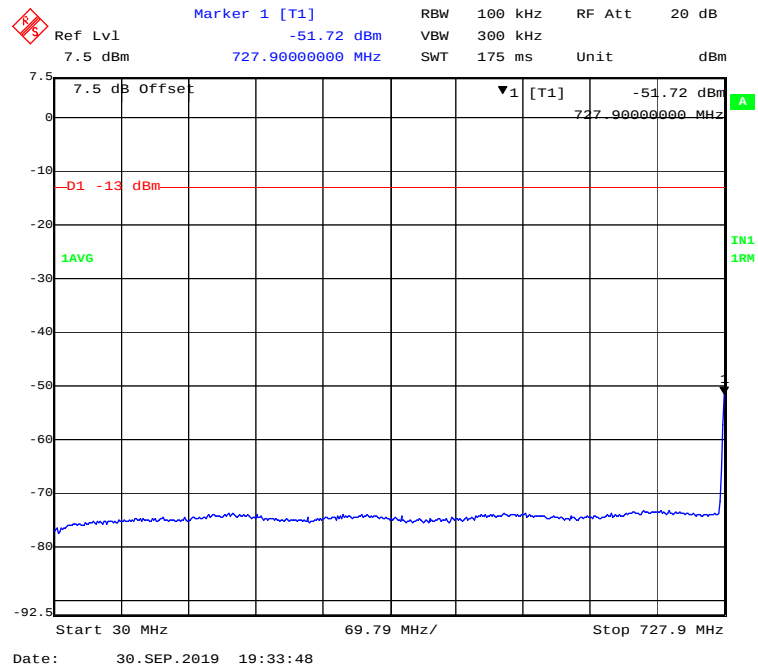


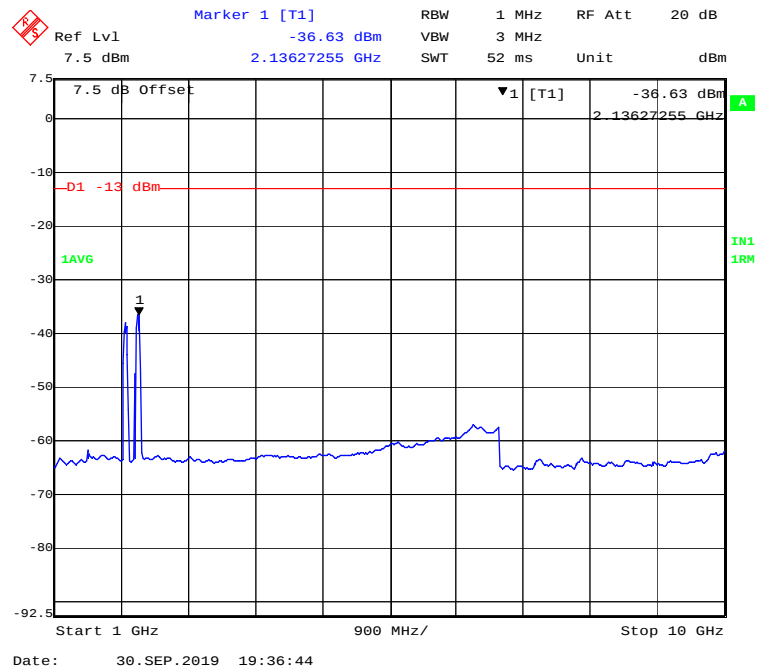
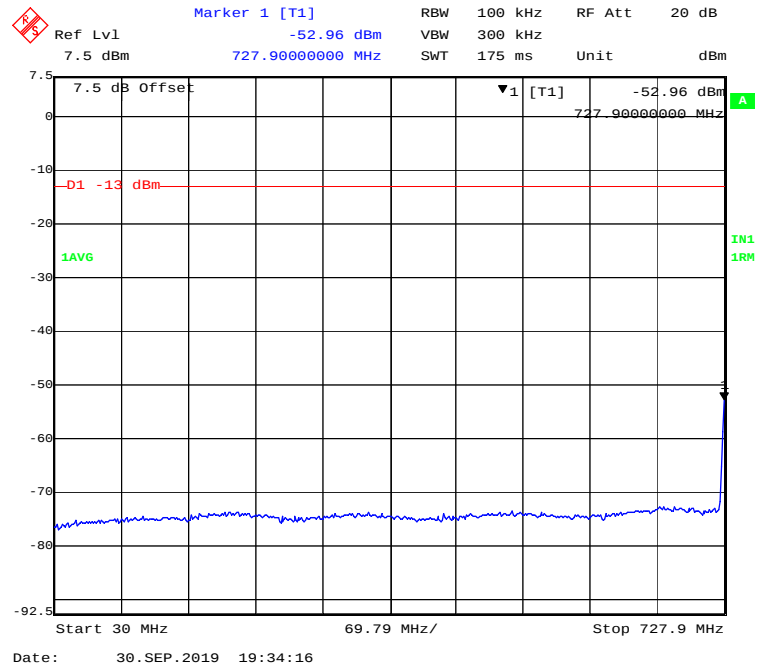
AWS- GSM-Pre AGC-Middle Channel

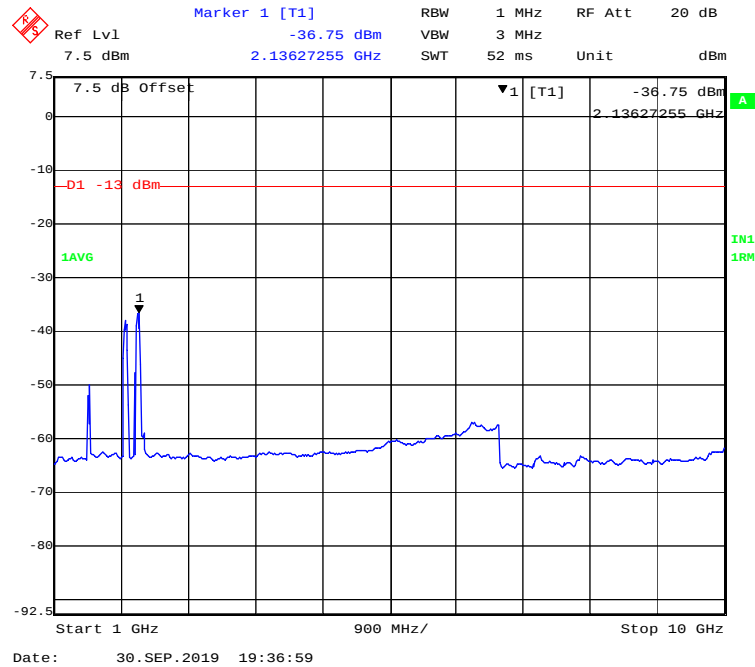
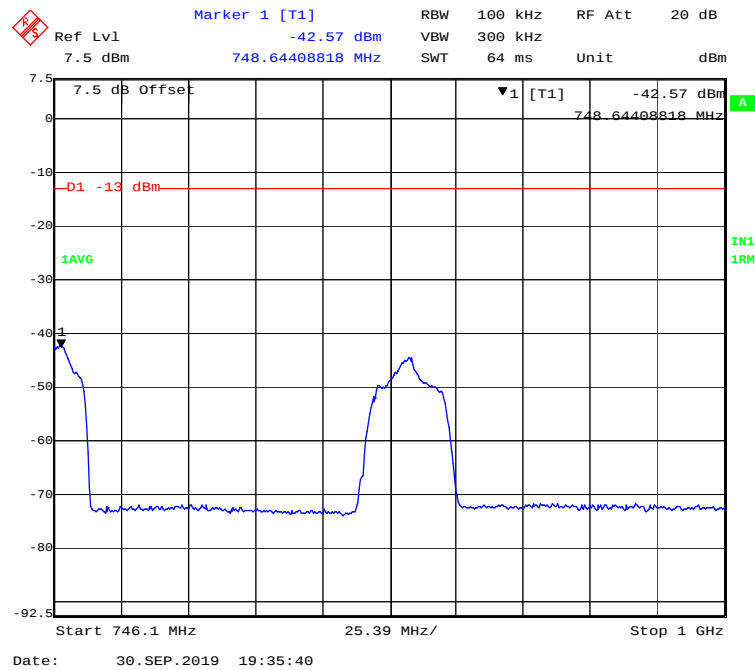


**AWS- GSM-Pre AGC-High Channel**

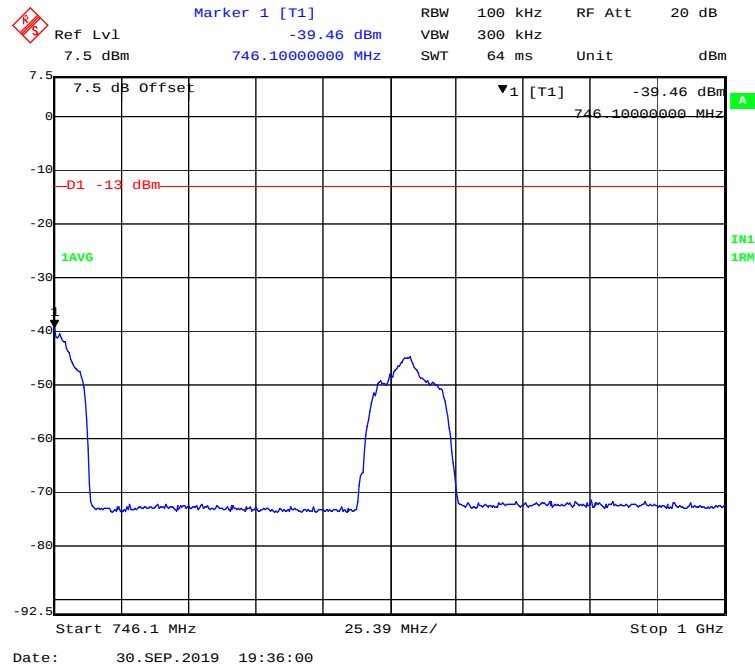
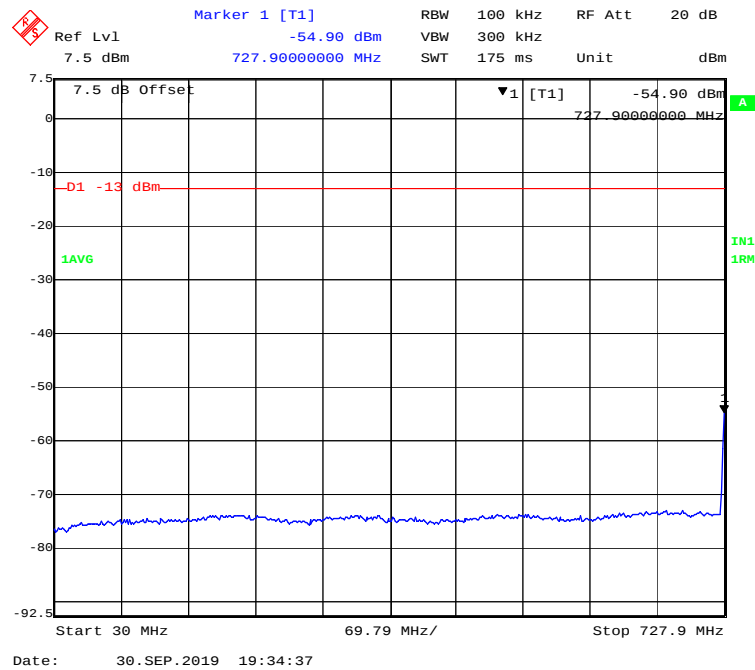


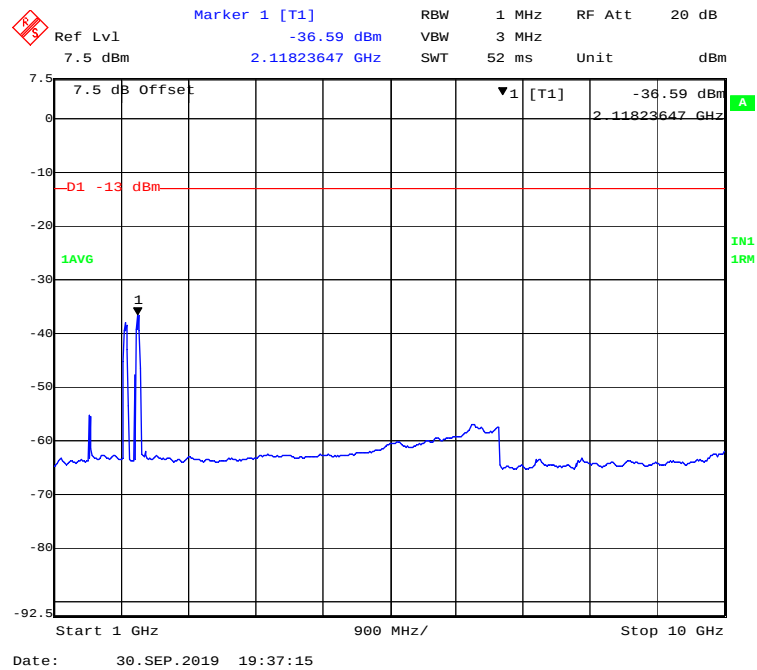
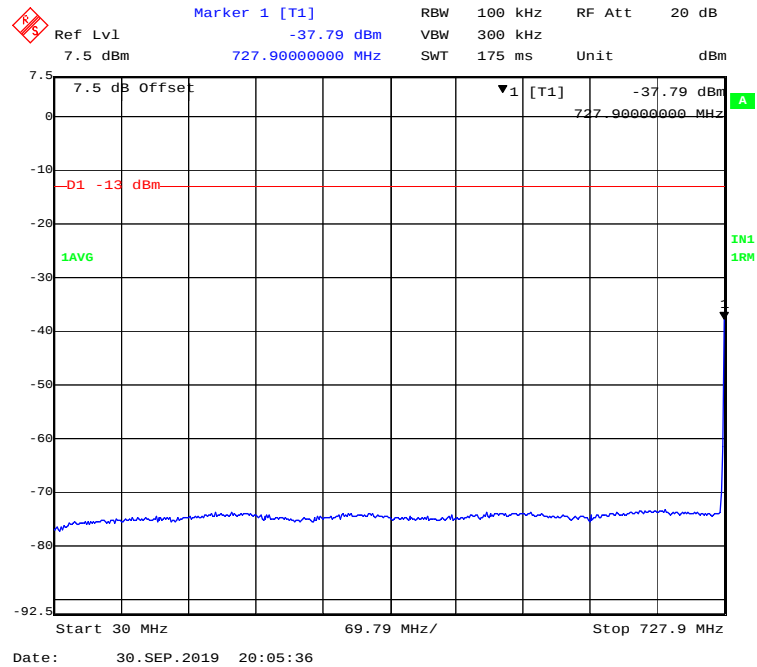
Downlink:**Lower 700MHz (A+B+C Block)-AWGN-Pre AGC-Low Channel**

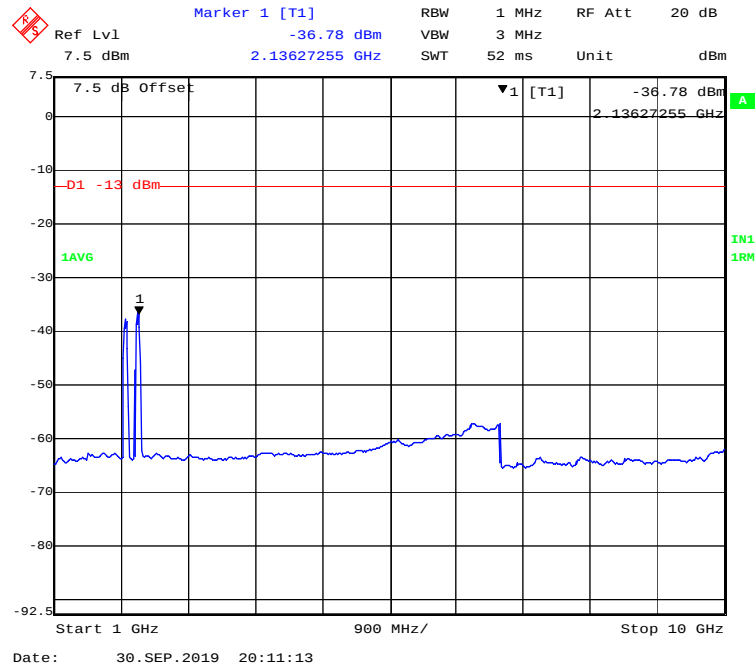
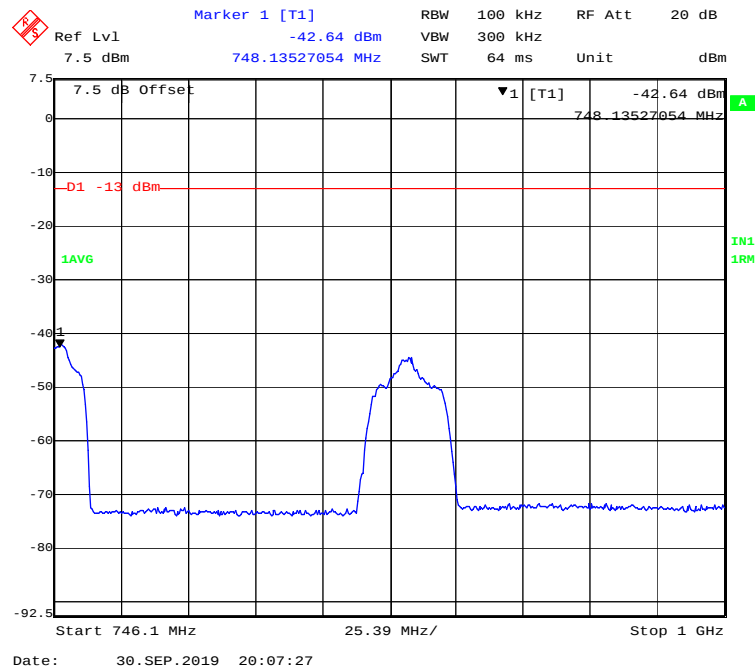
**Lower 700MHz (A+B+C Block) - AWGN-Pre AGC-Middle Channel**

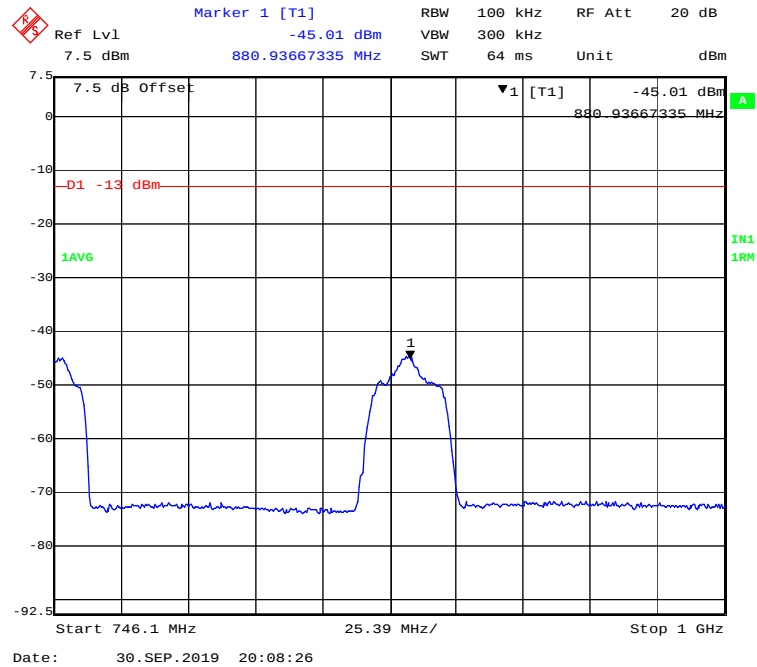
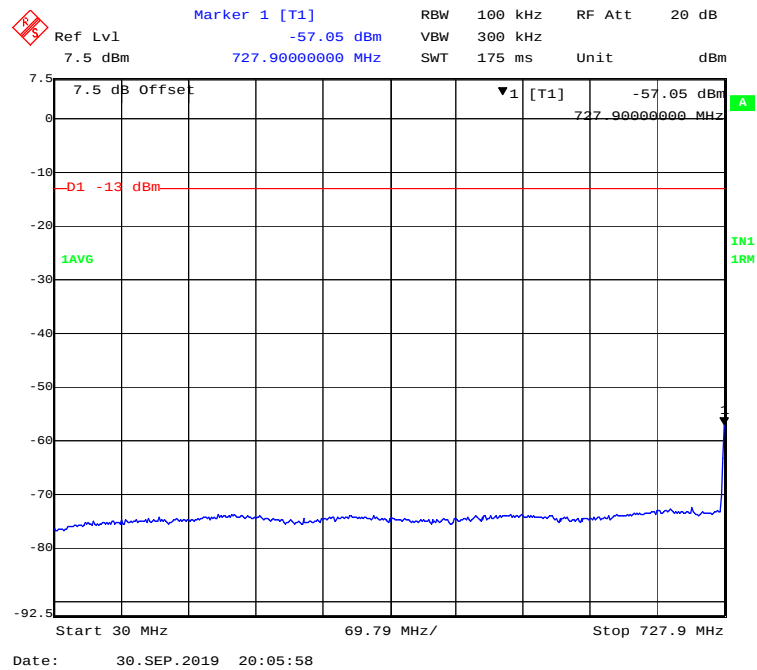


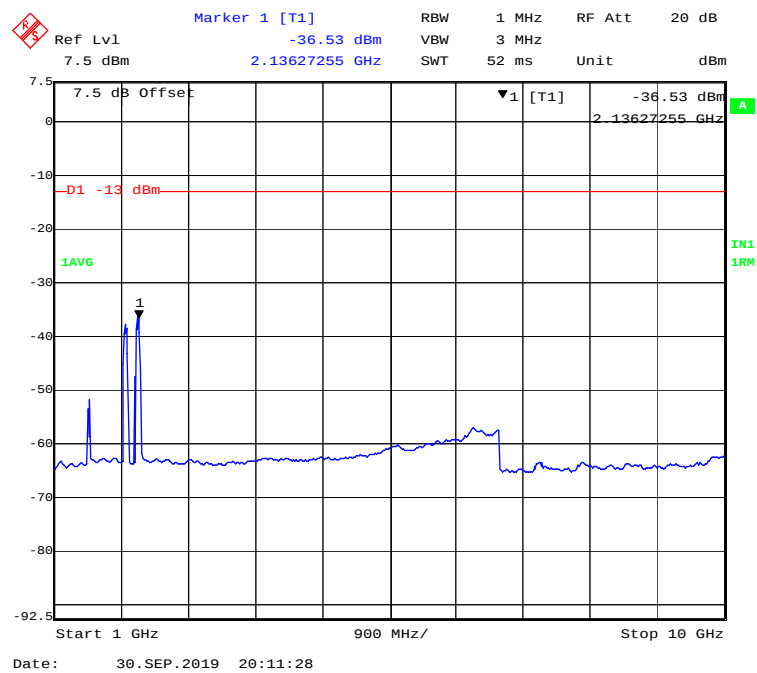
Lower 700MHz (A+B+C Block) - AWGN-Pre AGC-High Channel



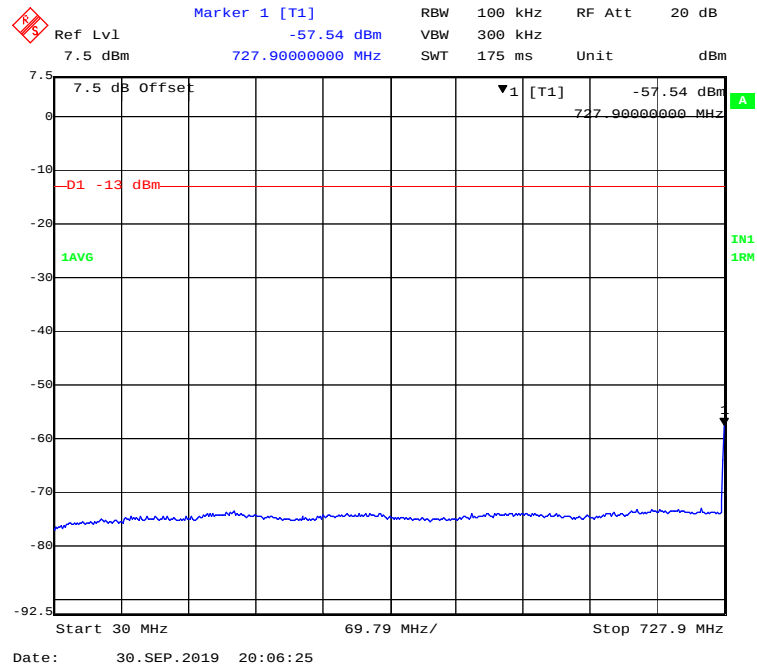
**Lower 700MHz (A+B+C Block) - GSM-Pre AGC-Low Channel**

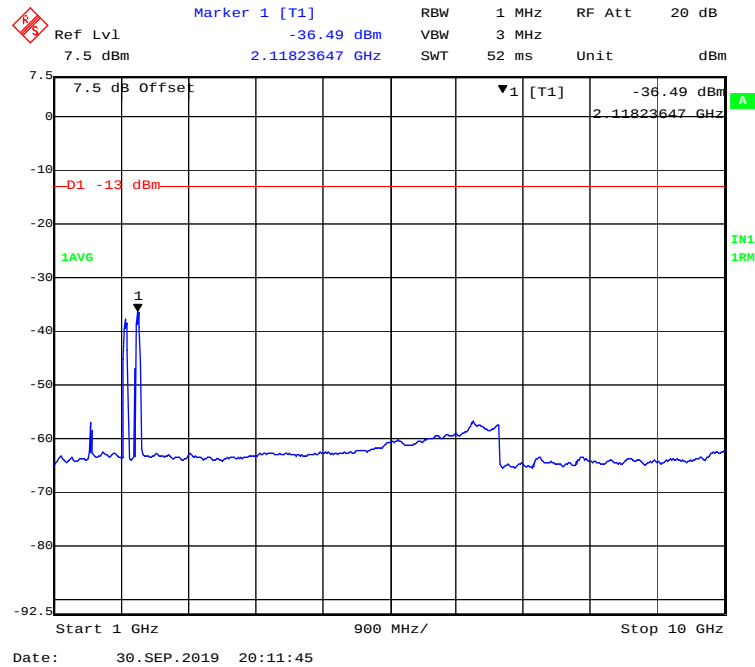
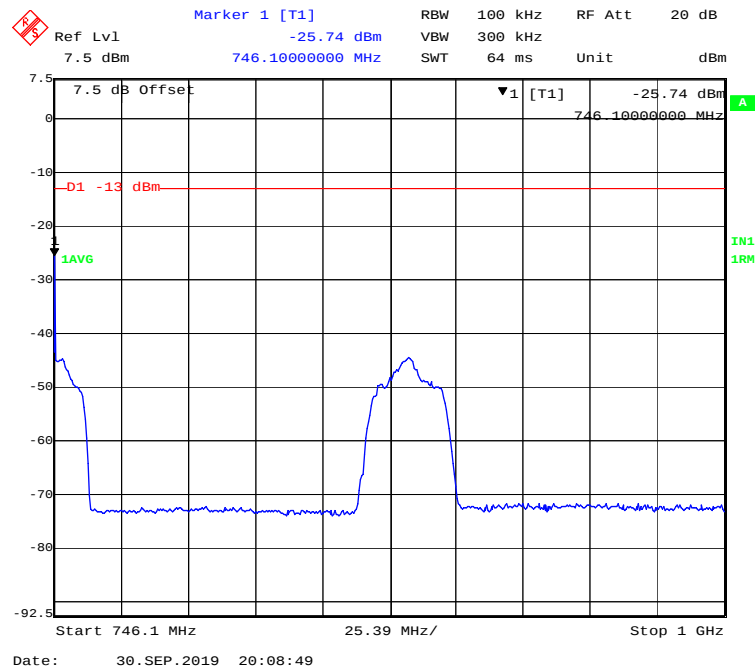


Lower 700MHz (A+B+C Block) - GSM-Pre AGC-Middle Channel

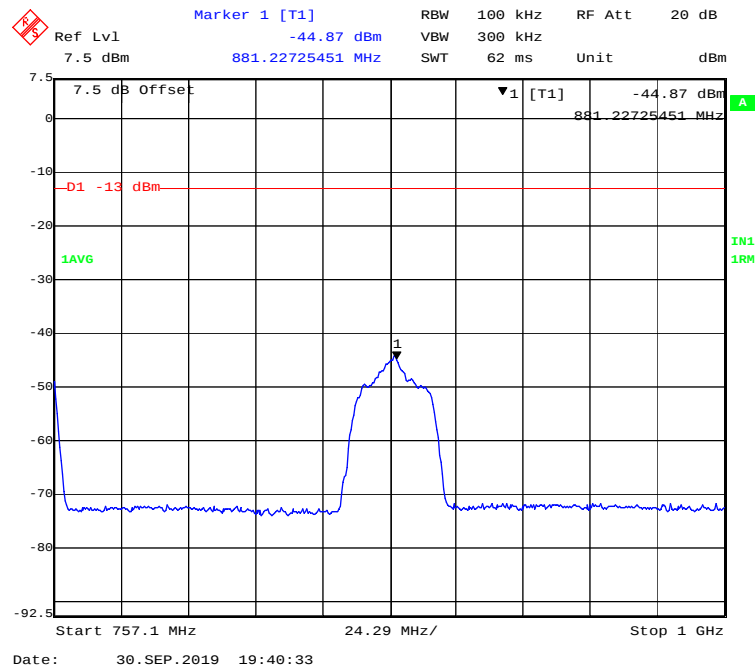


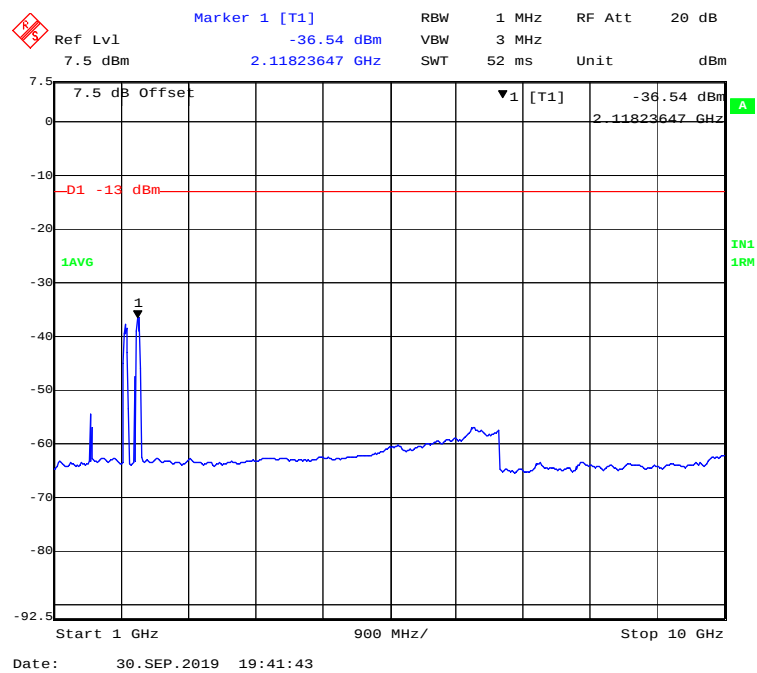
Lower 700MHz (A+B+C Block) - GSM-Pre AGC-High Channel



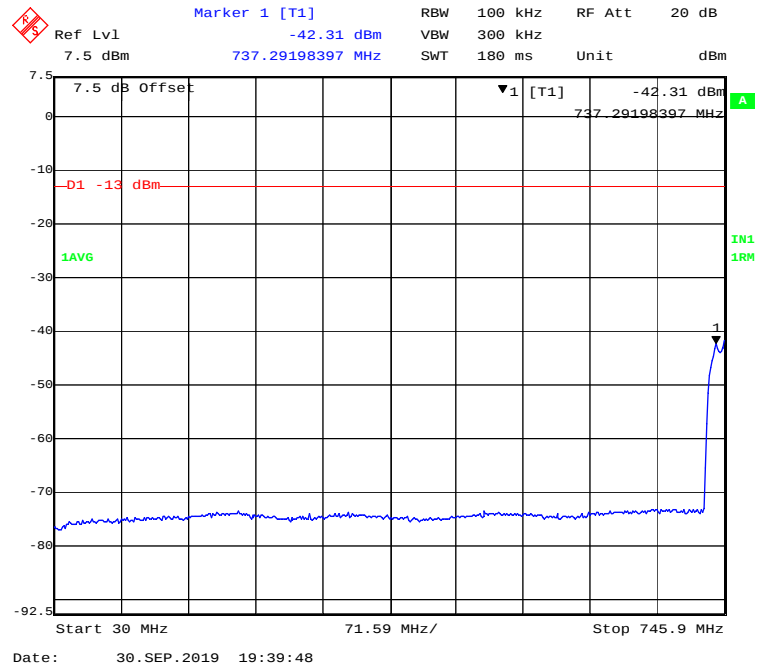


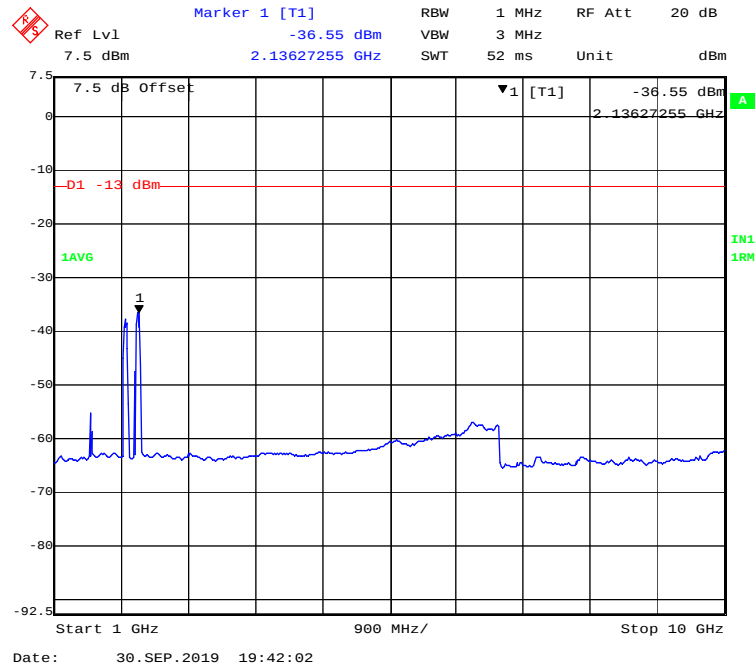
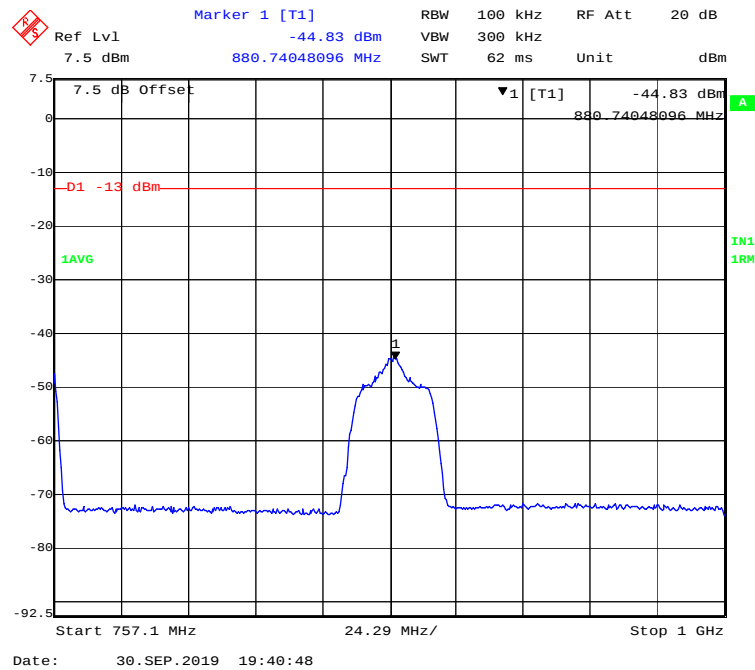
Upper 700MHz (C Block)-AWGN-Pre AGC-Low Channel



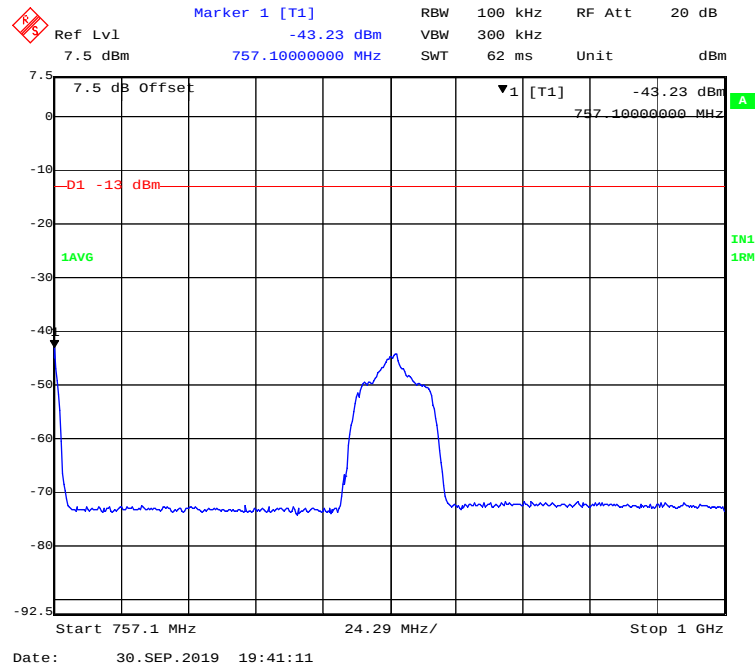
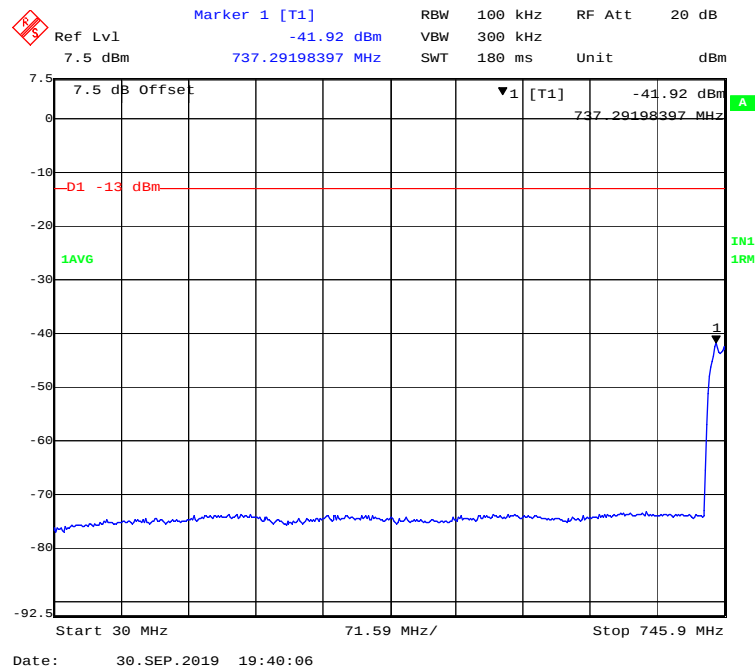


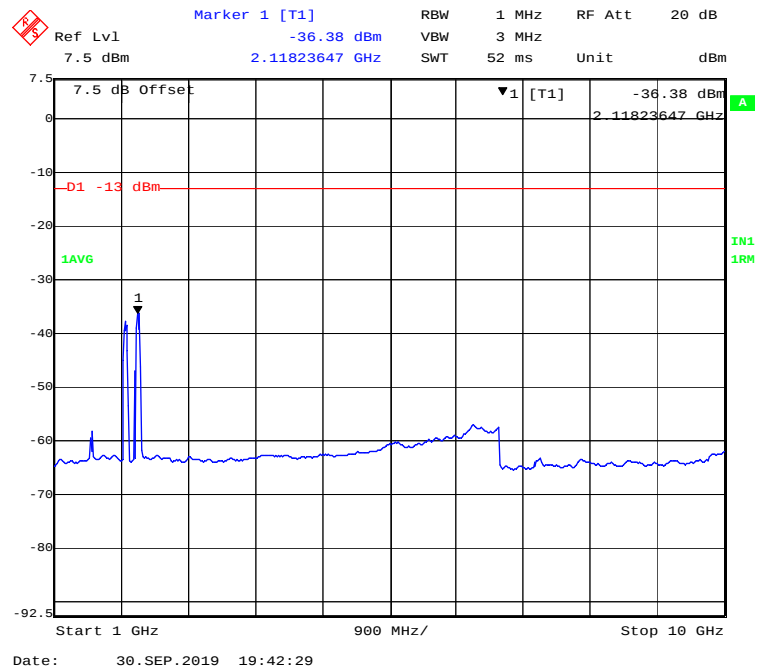
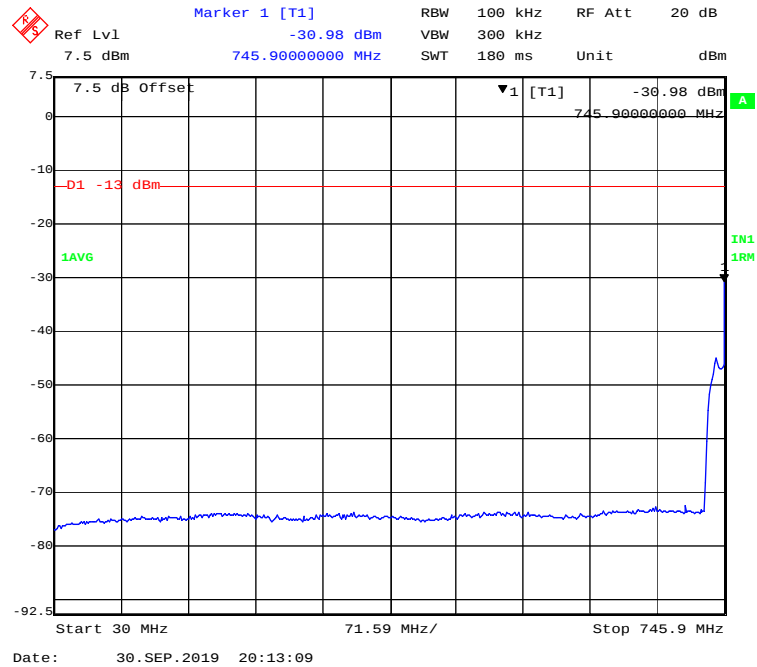
Upper 700MHz (C Block) - AWGN-Pre AGC-Middle Channel

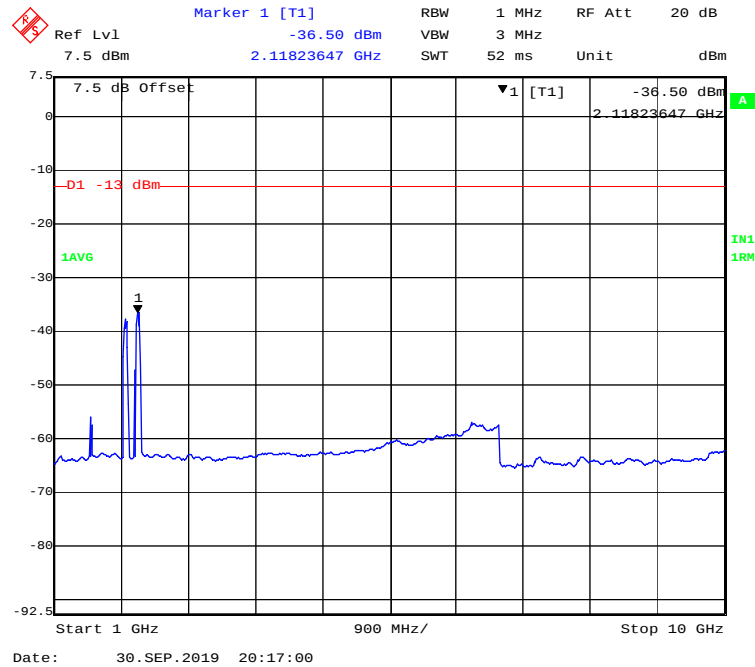
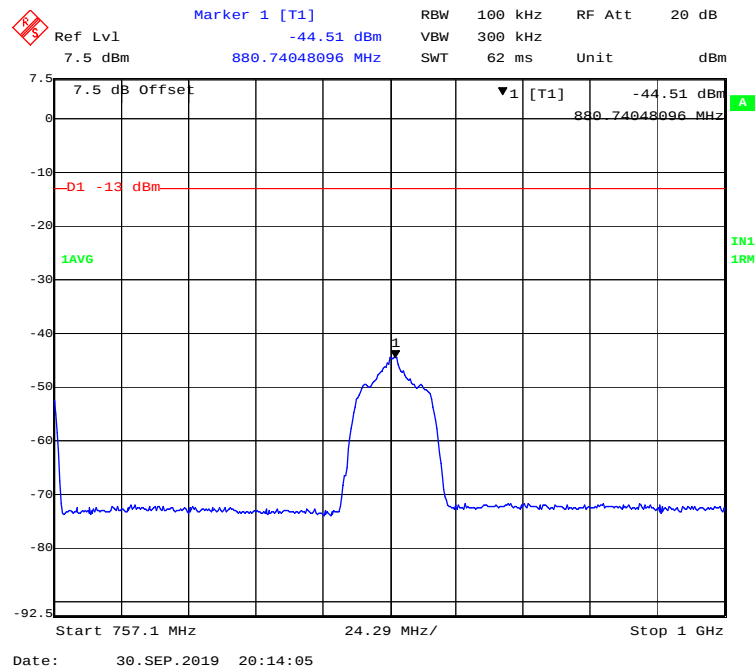


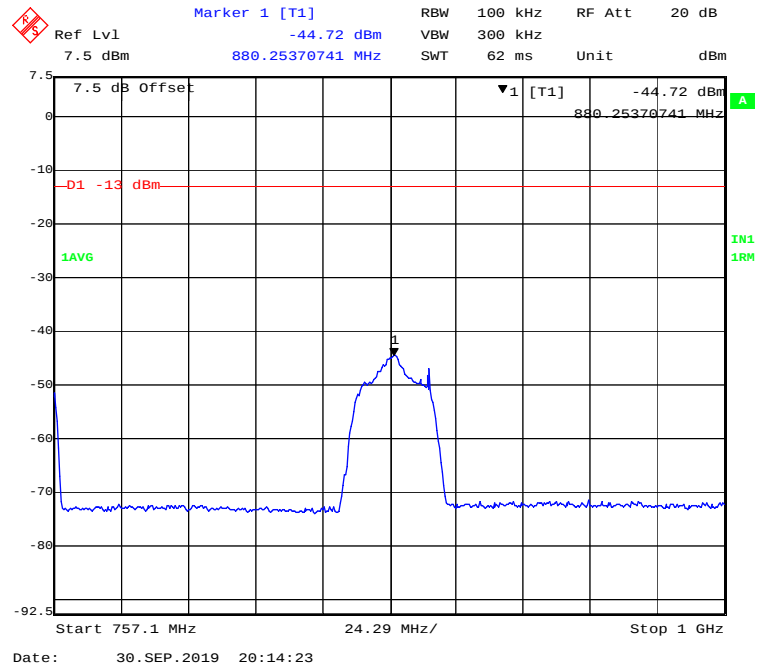
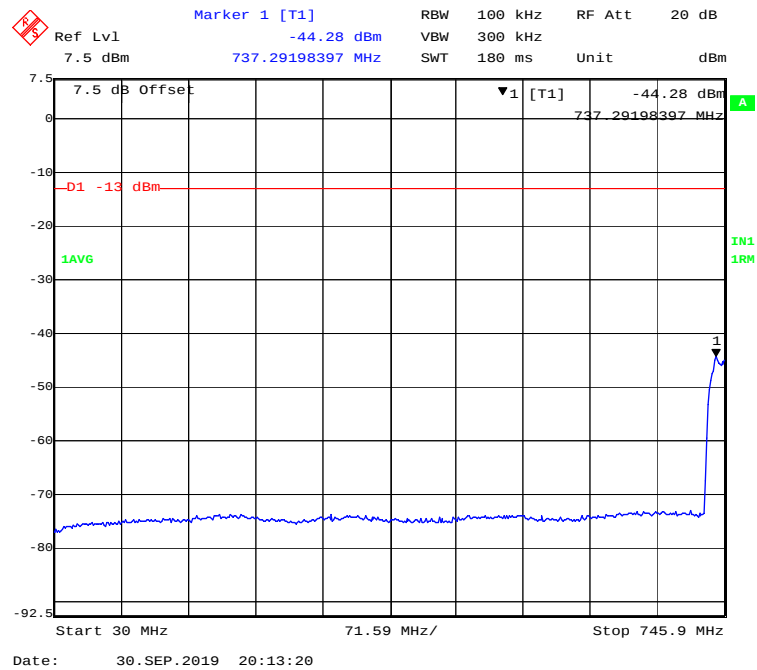


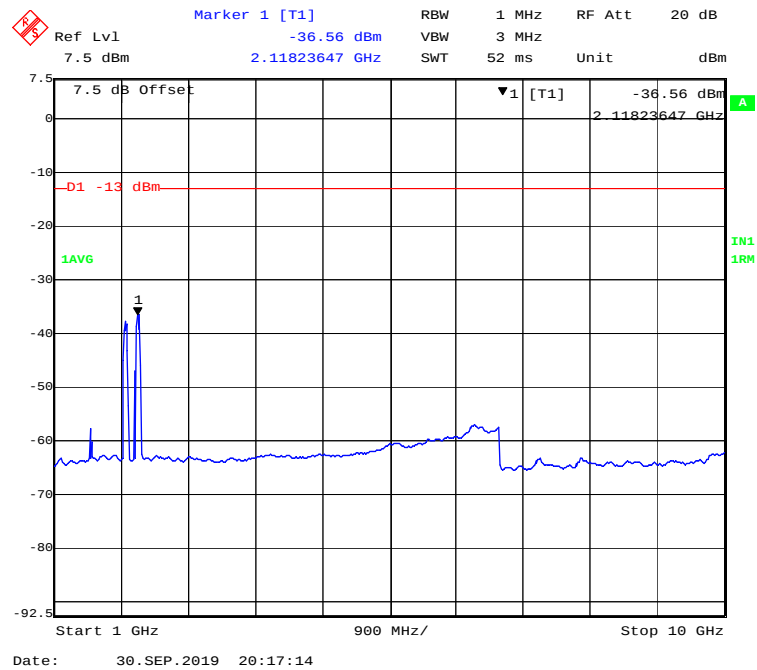
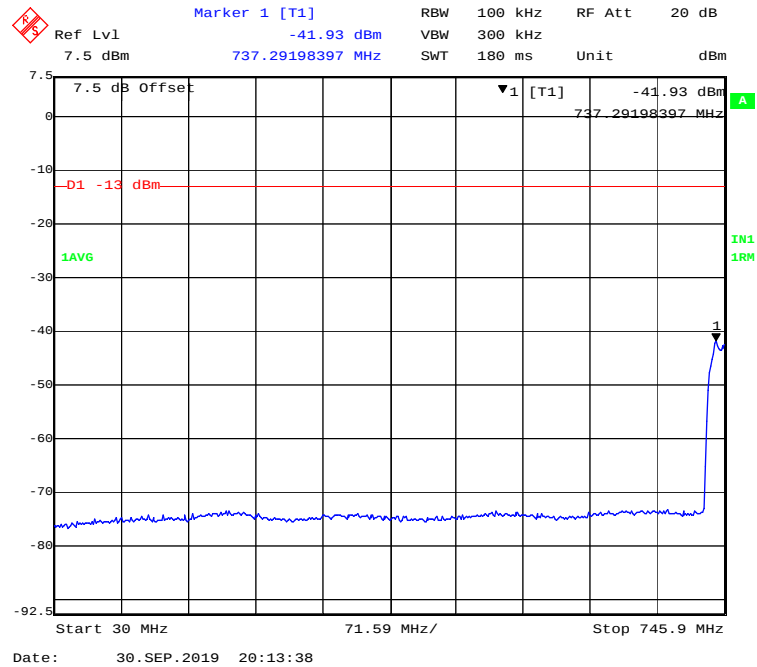
Upper 700MHz (C Block) - AWGN-Pre AGC-High Channel

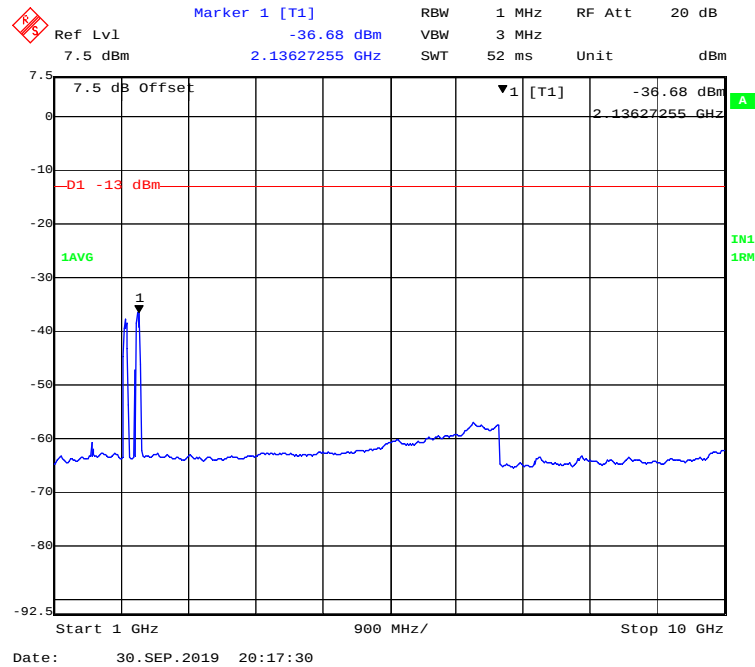
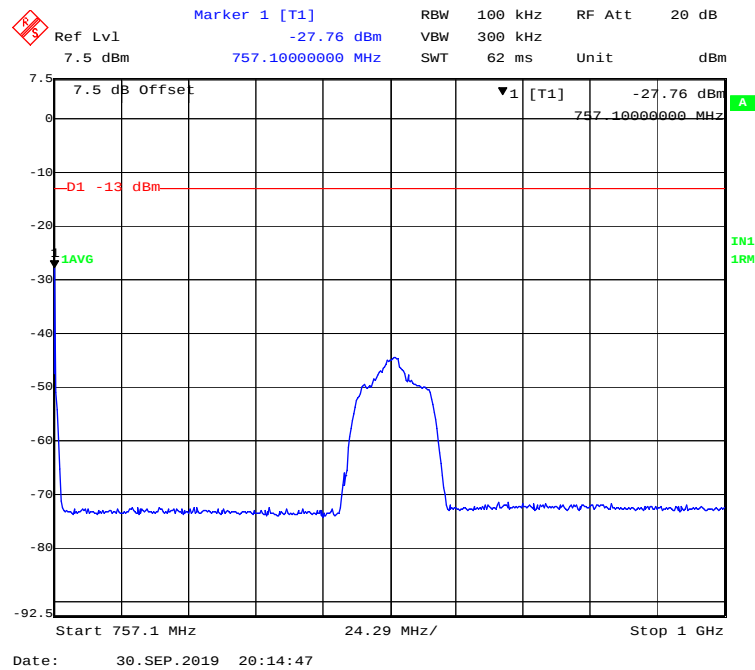


**Upper 700MHz (C Block) - GSM-Pre AGC-Low Channel**

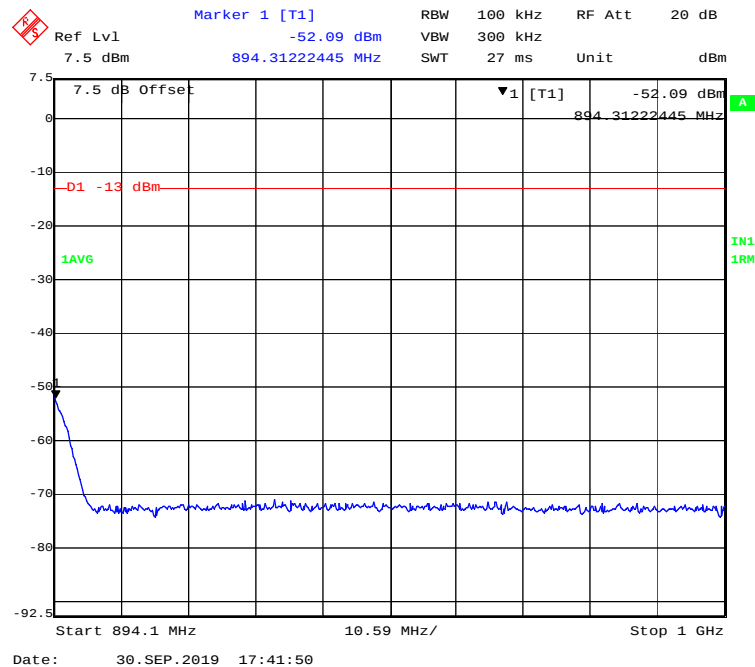
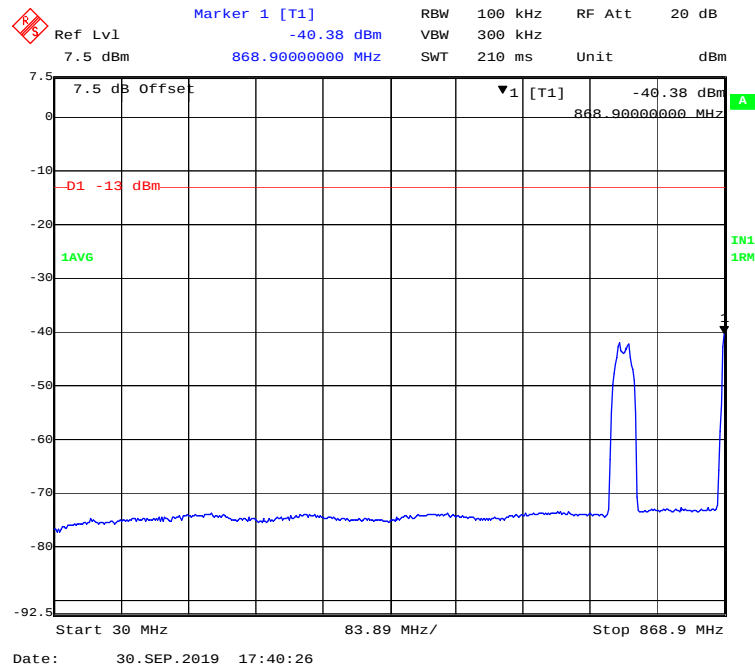


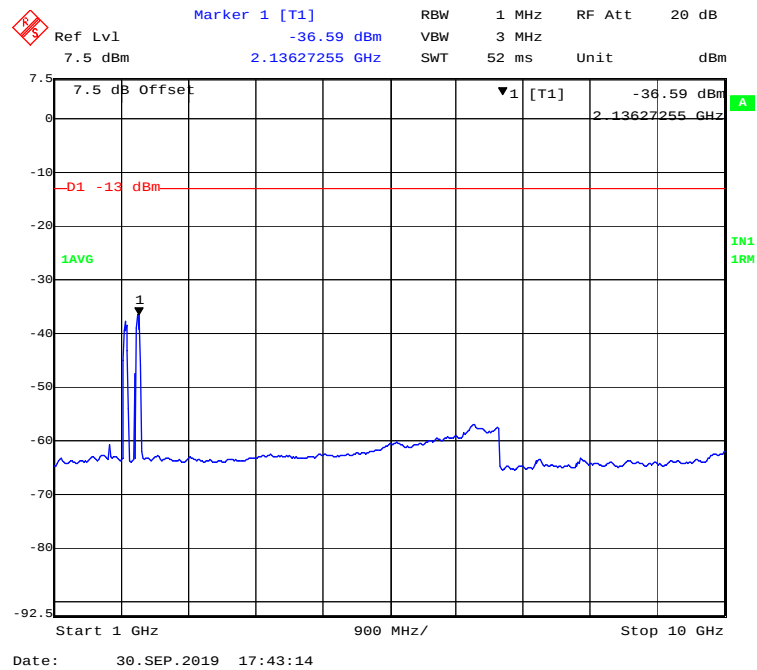
Upper 700MHz (C Block) - GSM-Pre AGC-Middle Channel

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

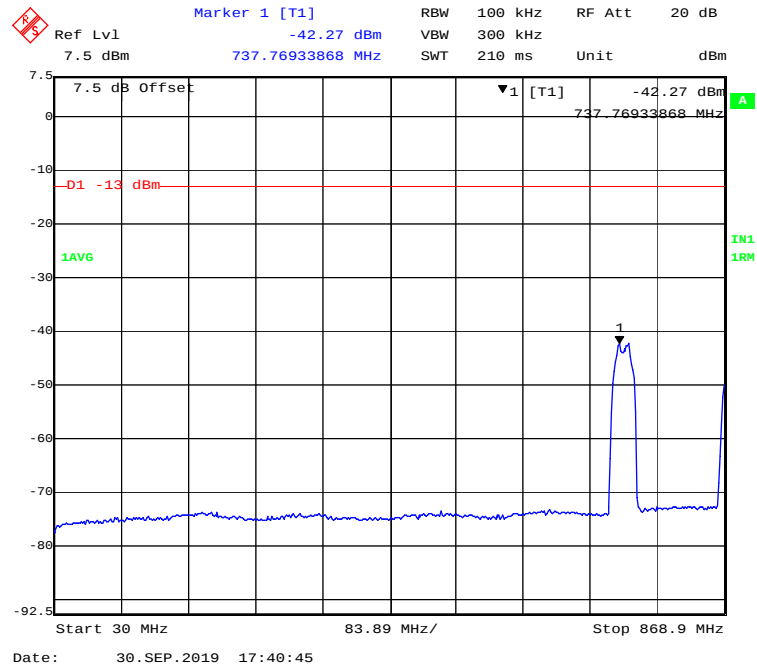


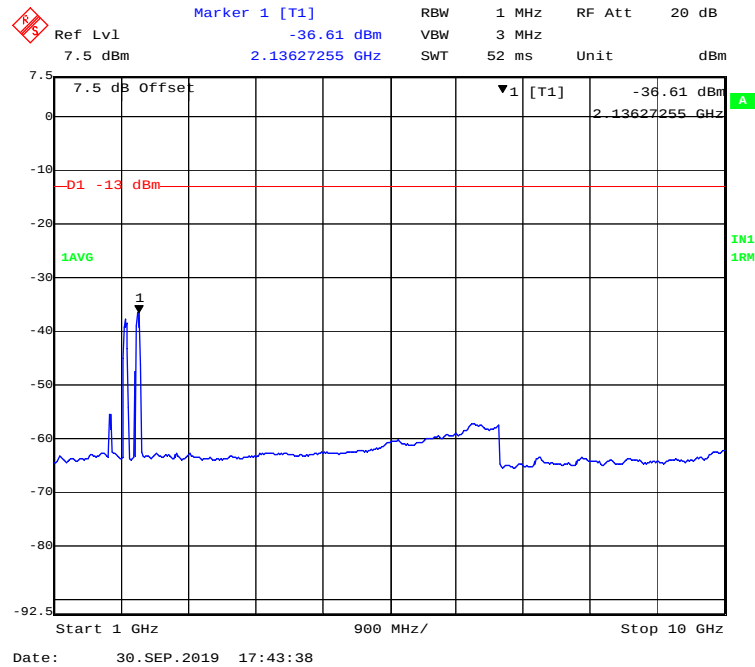
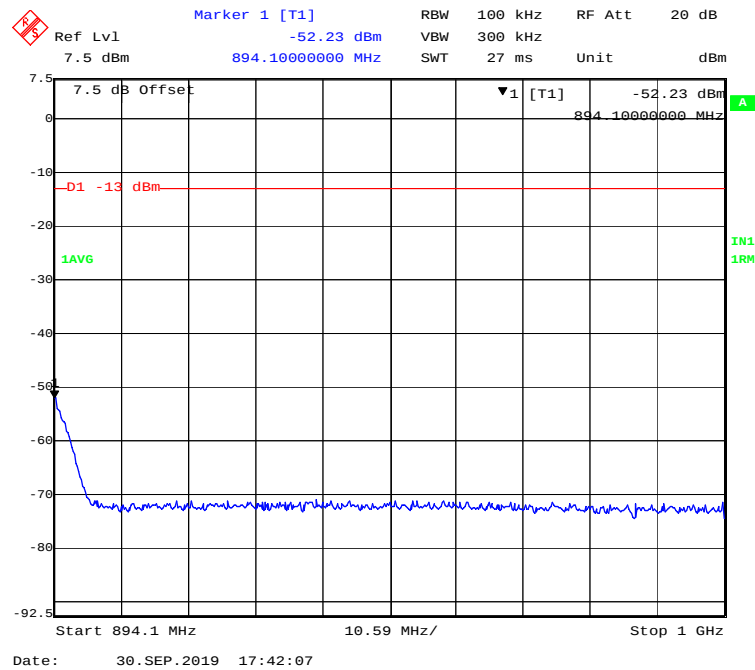
Cellular - AWGN-Pre AGC-Low Channel



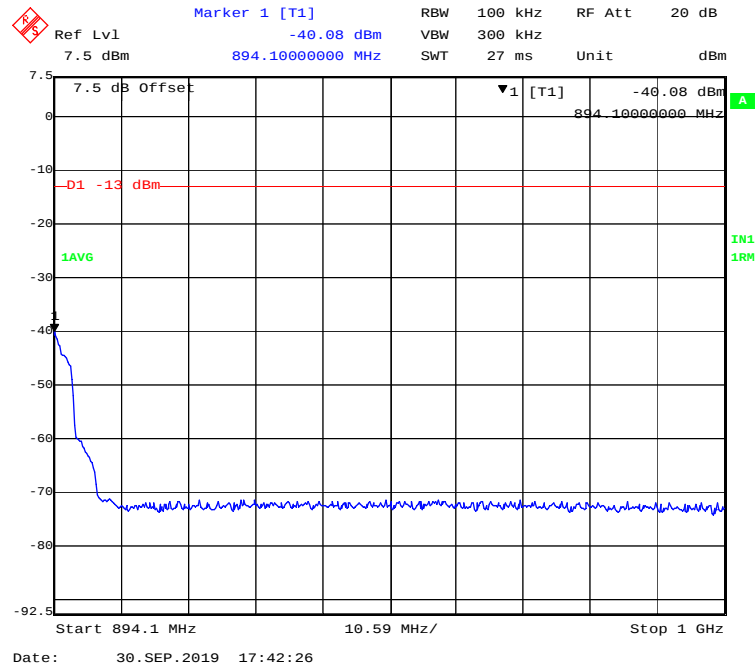
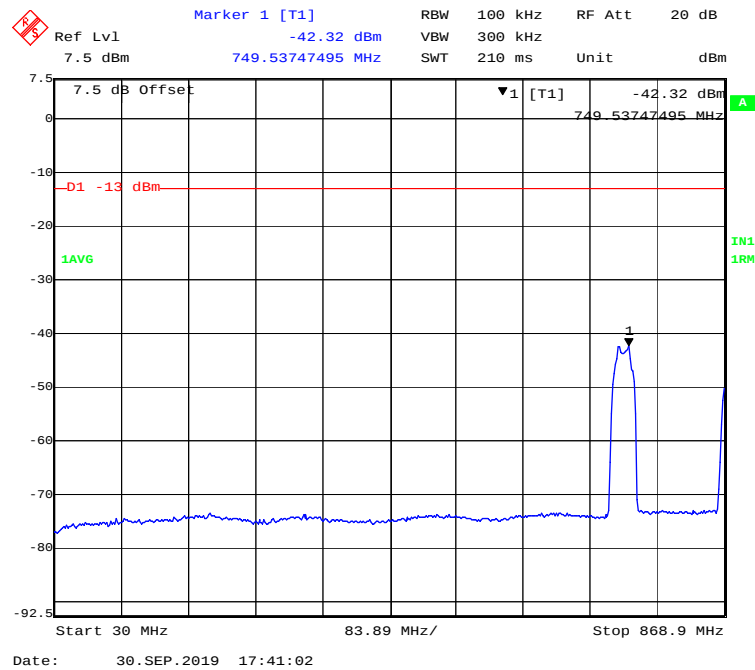


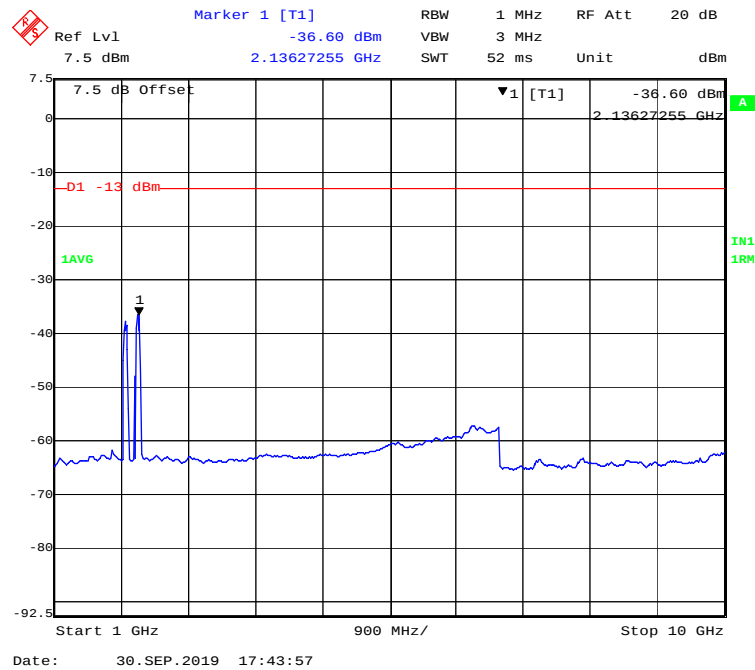
Cellular - AWGN-Pre AGC-Middle Channel



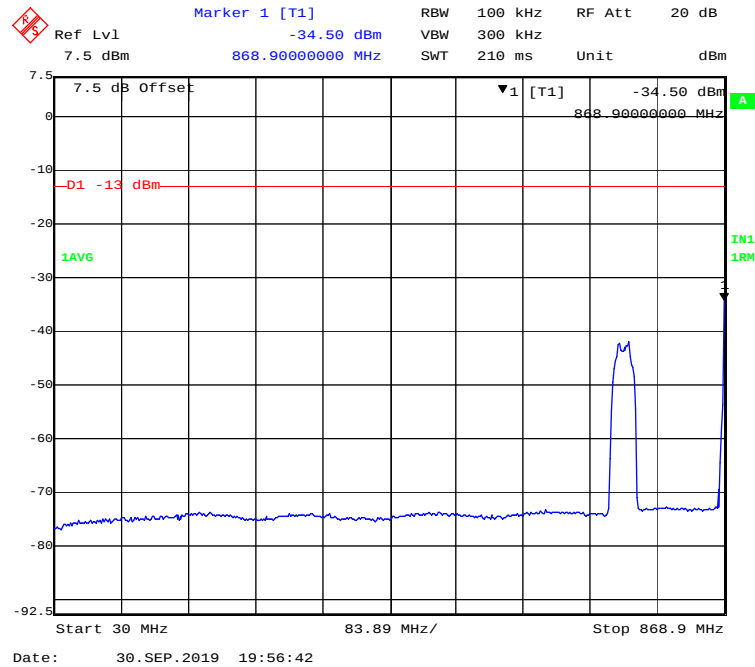


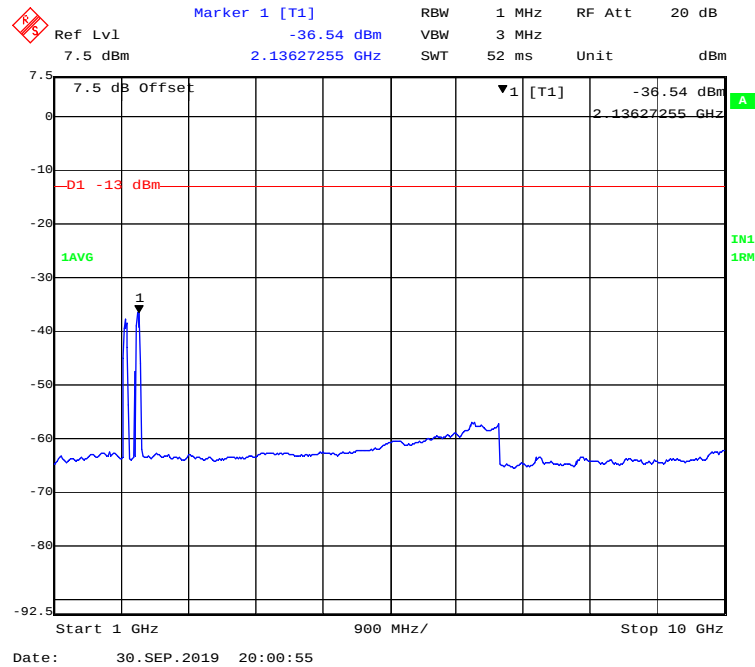
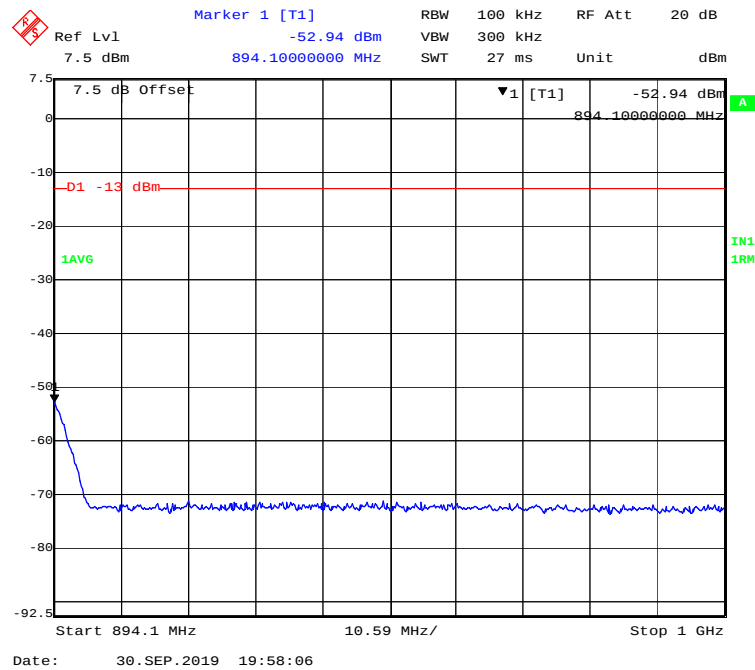
Cellular - AWGN-Pre AGC-High Channel



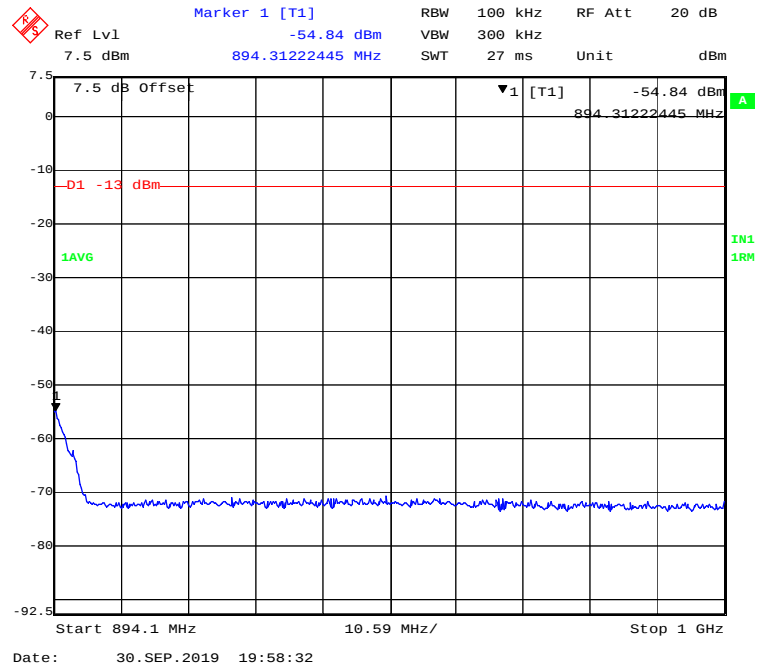
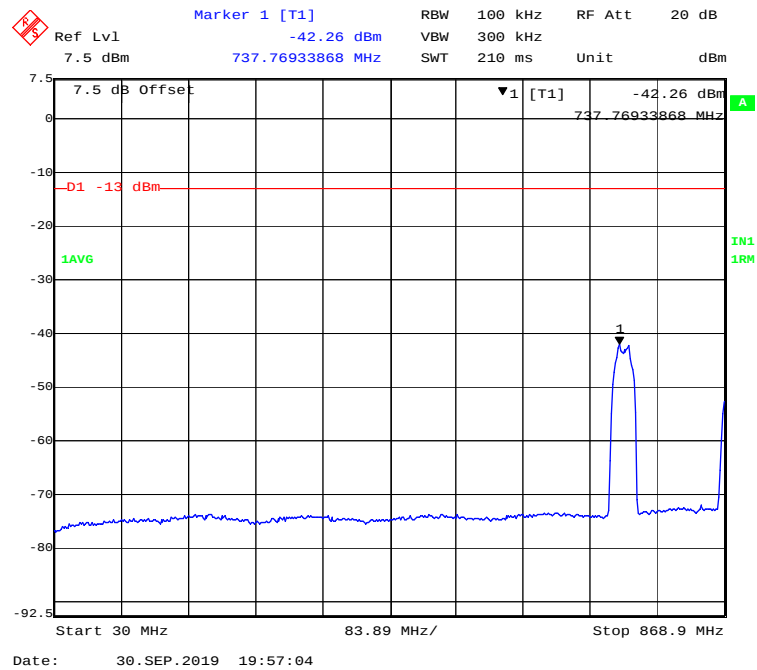


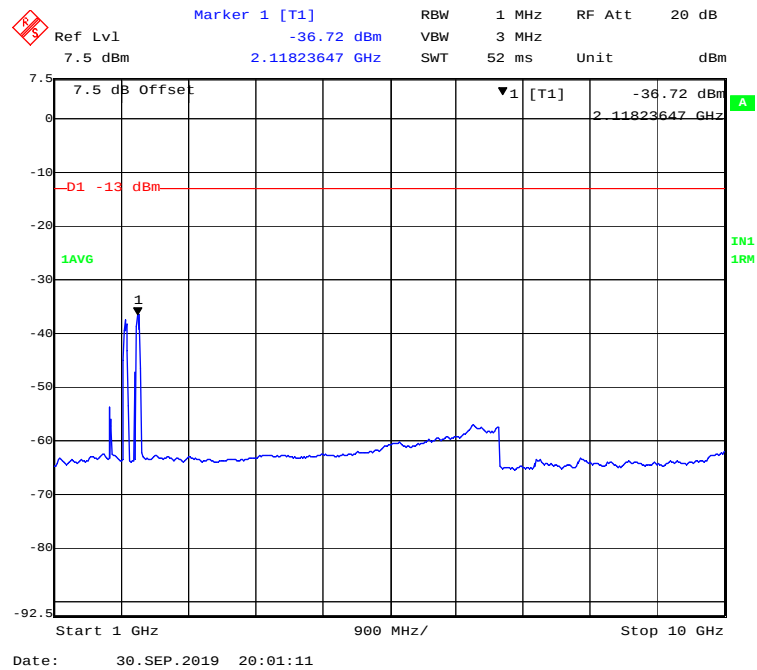
Cellular - GSM-Pre AGC-Low Channel



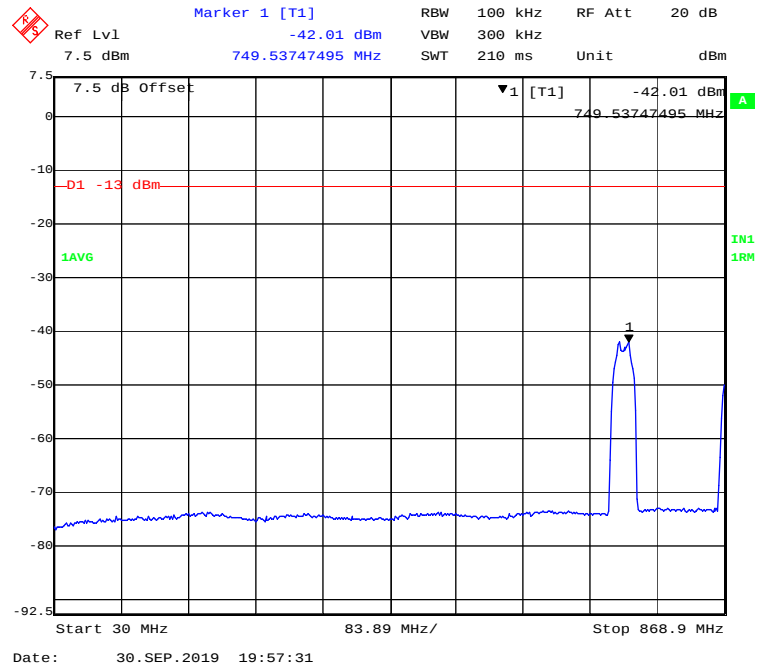


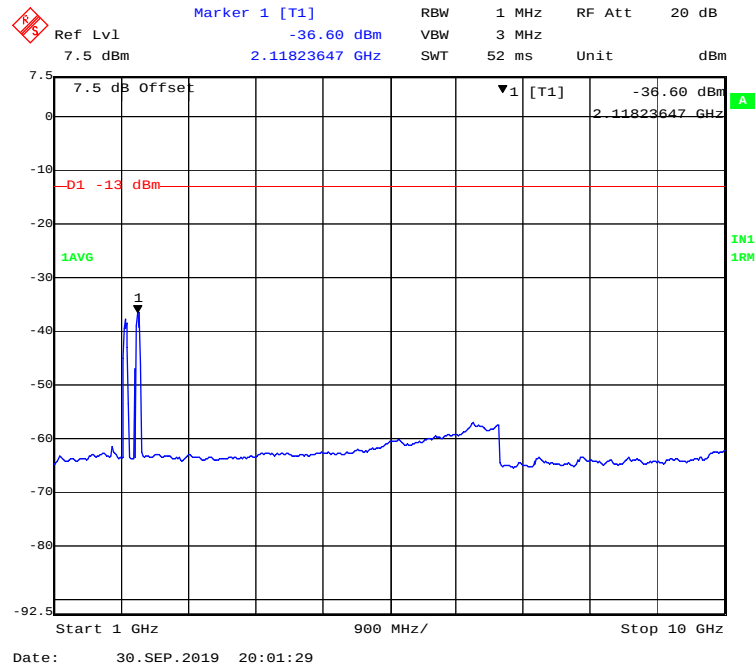
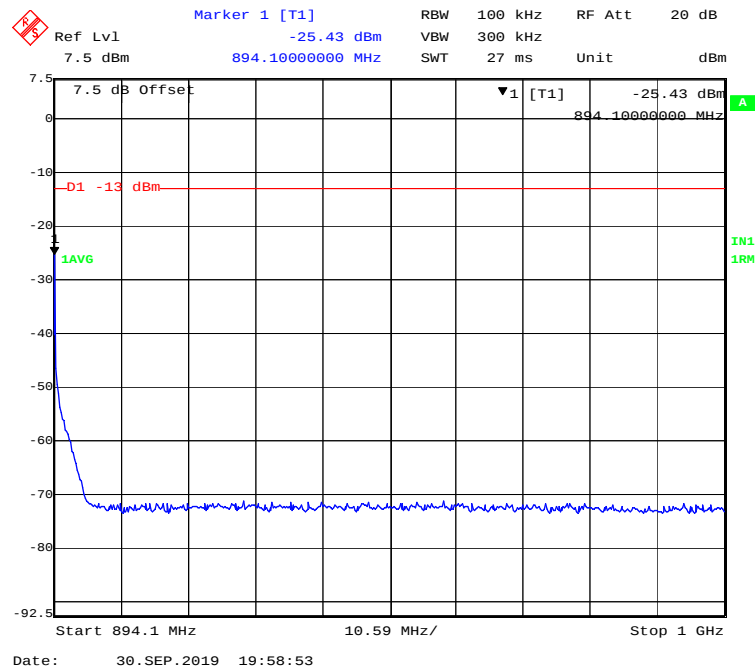
Cellular - GSM-Pre AGC-Middle Channel



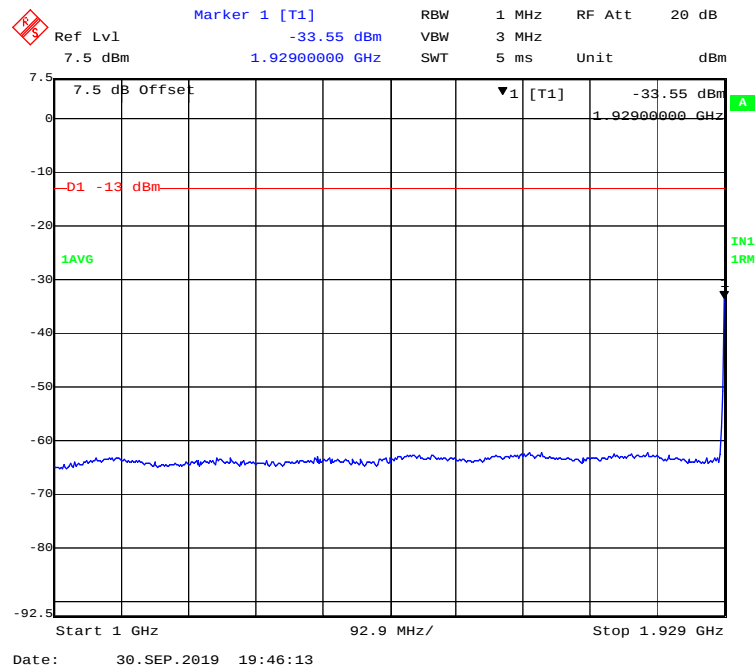
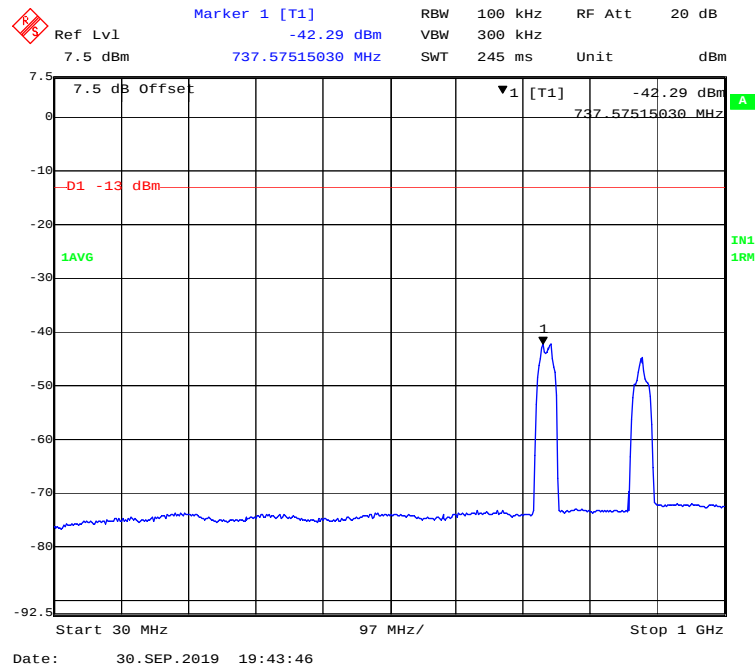


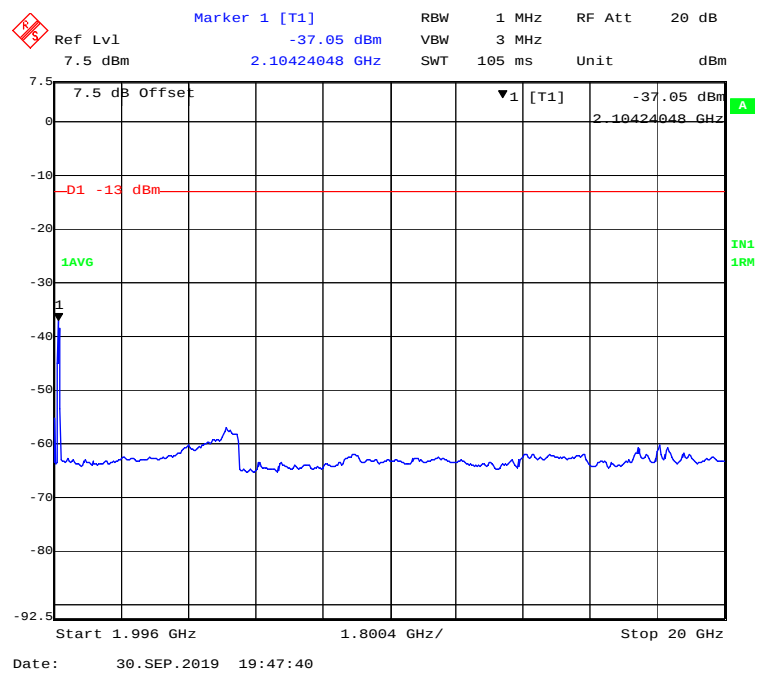
Cellular - GSM-Pre AGC-High Channel



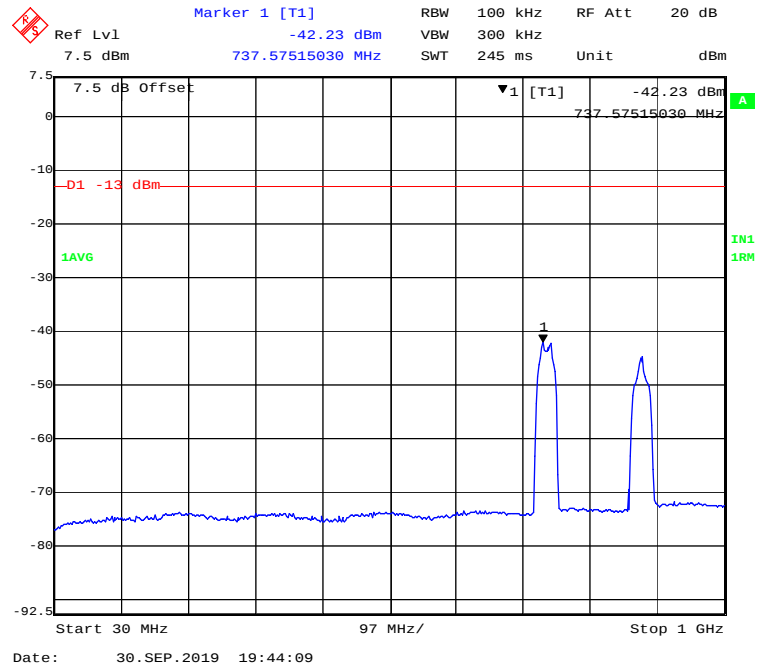


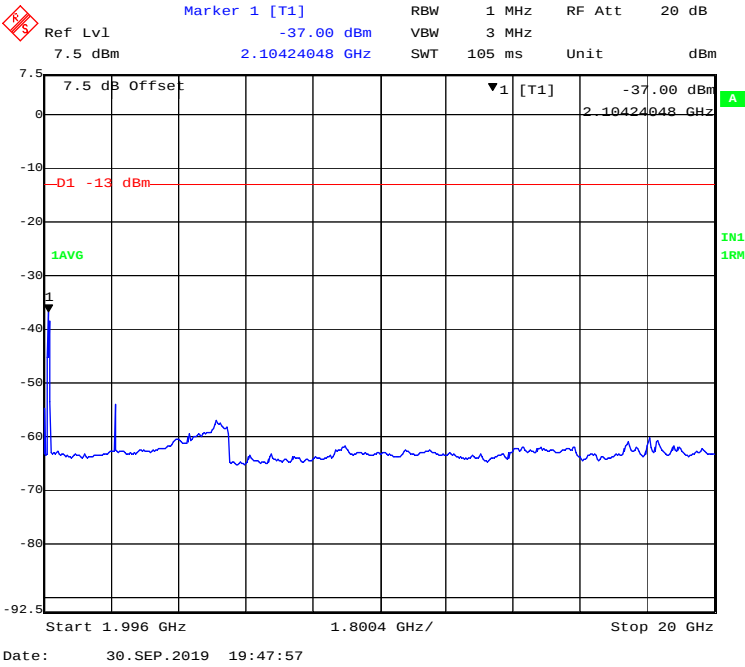
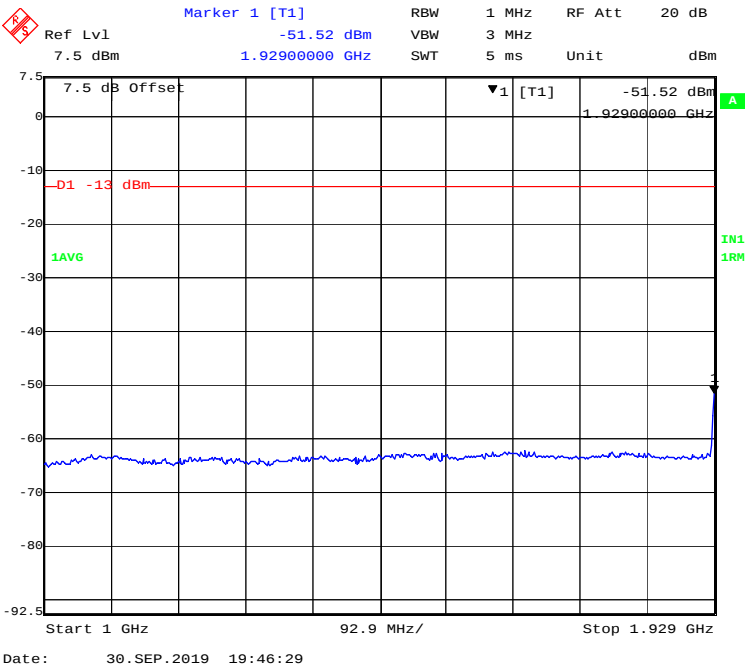
PCS- AWGN-Pre AGC-Low Channel



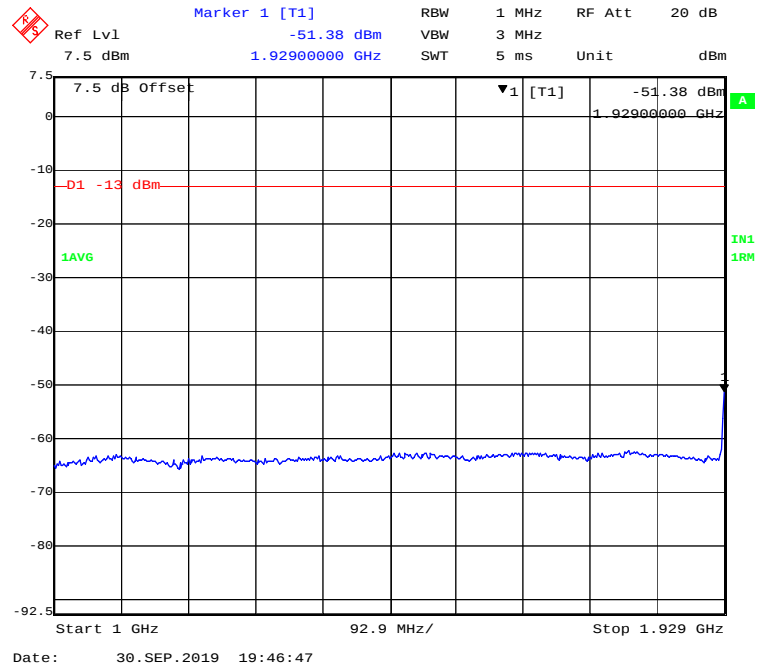
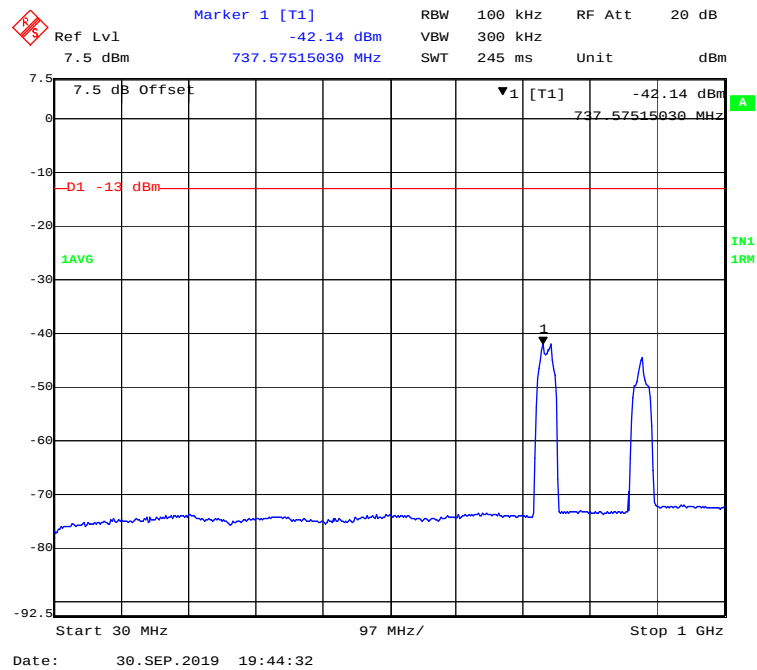


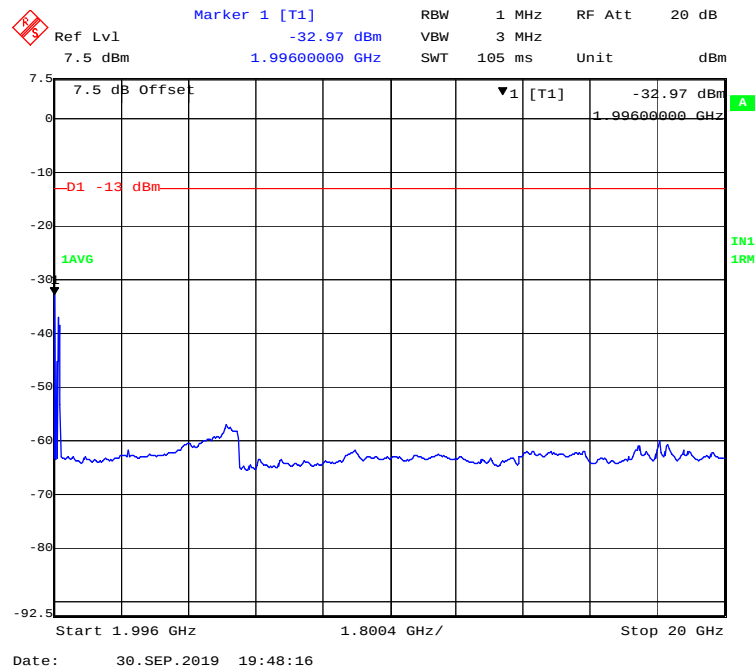
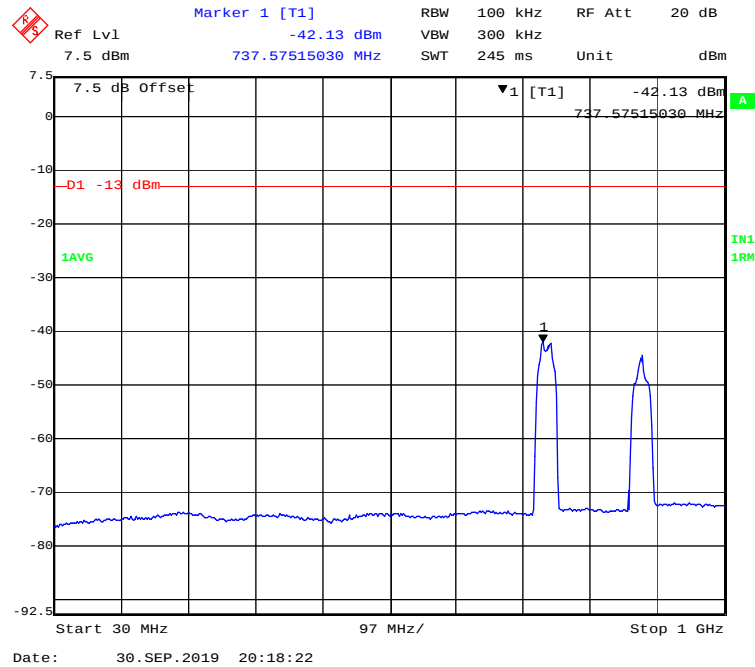
PCS- AWGN-Pre AGC-Middle Channel

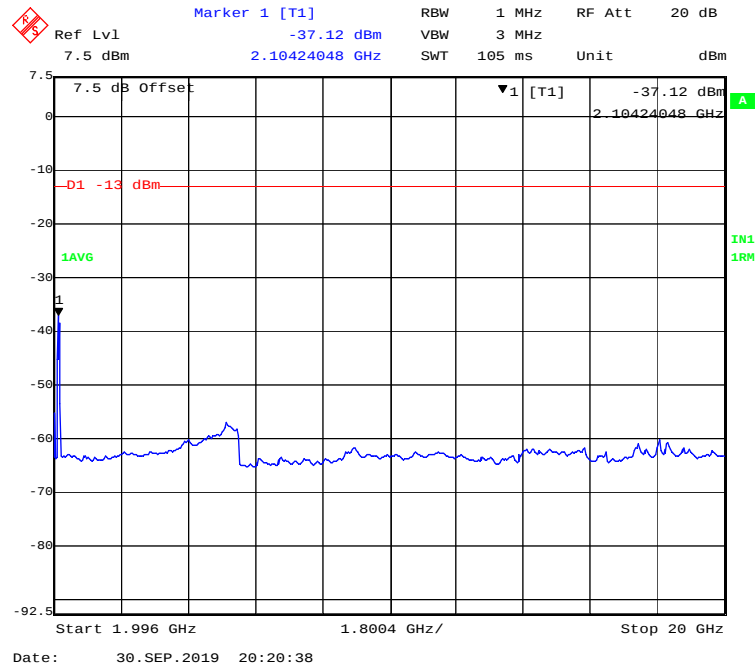
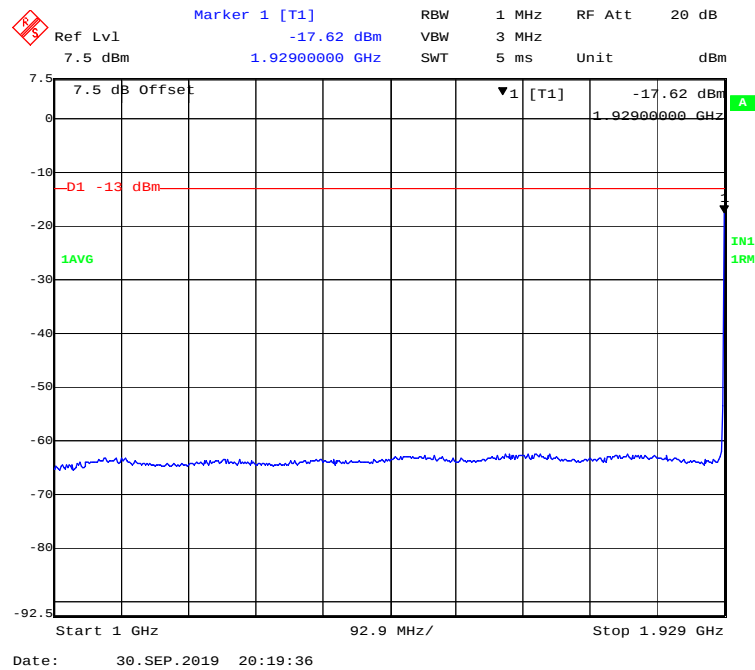




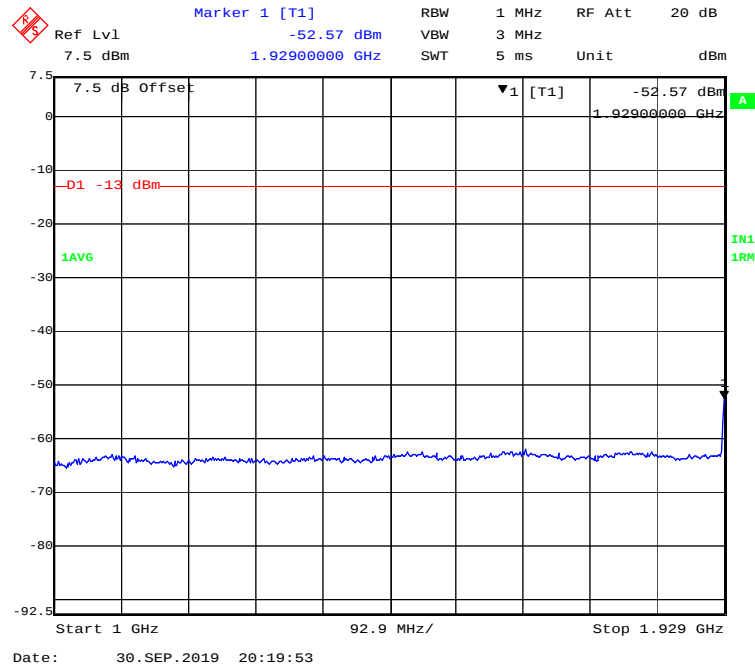
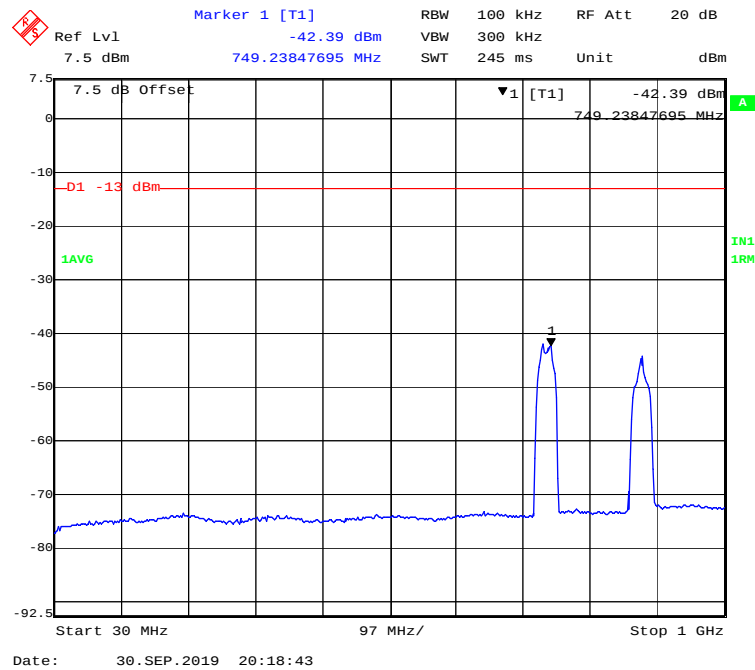
PCS- AWGN-Pre AGC-High Channel

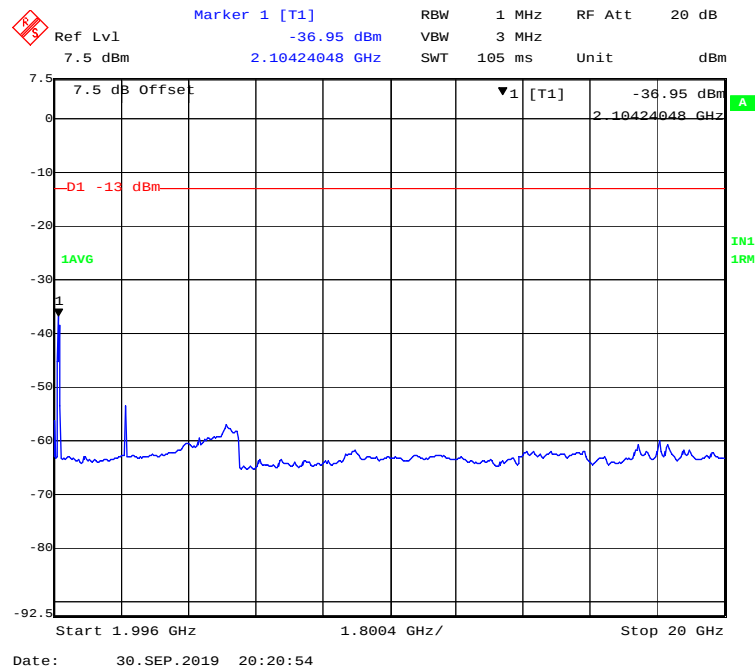
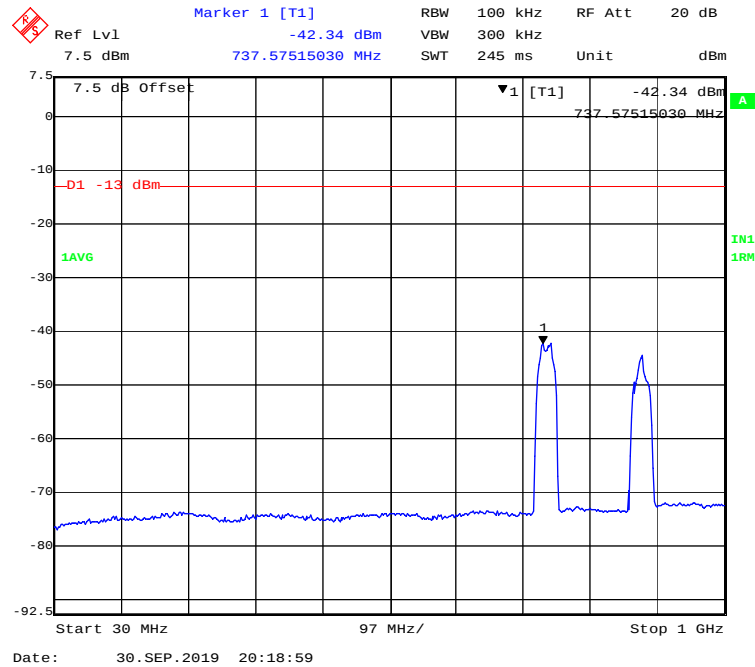


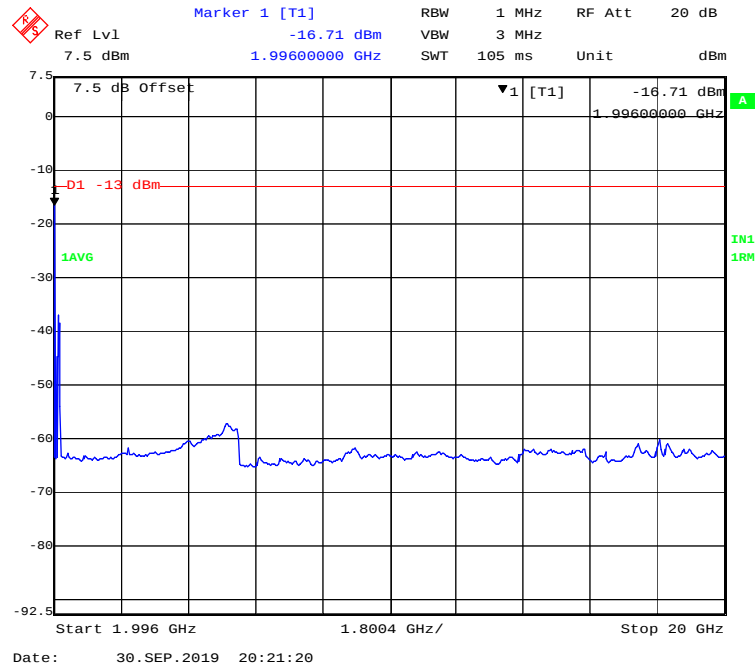
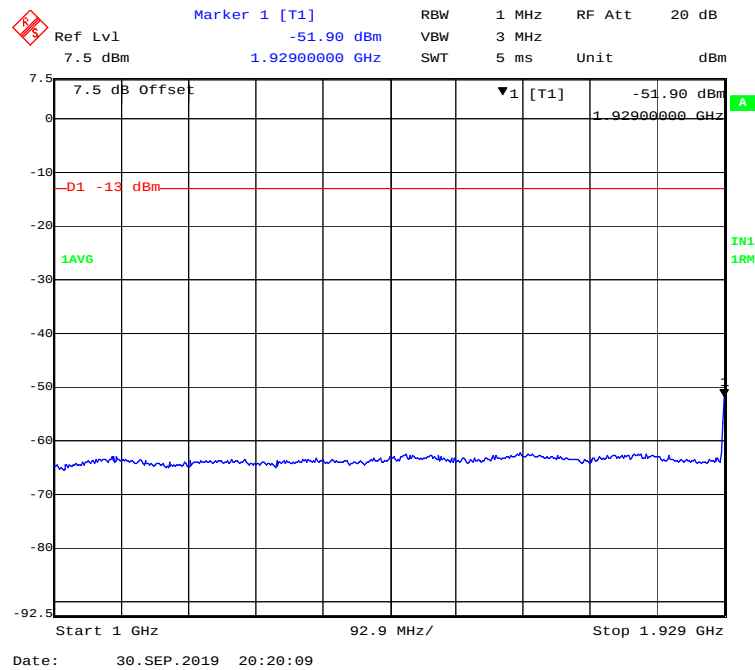
**PCS- GSM-Pre AGC-Low Channel**



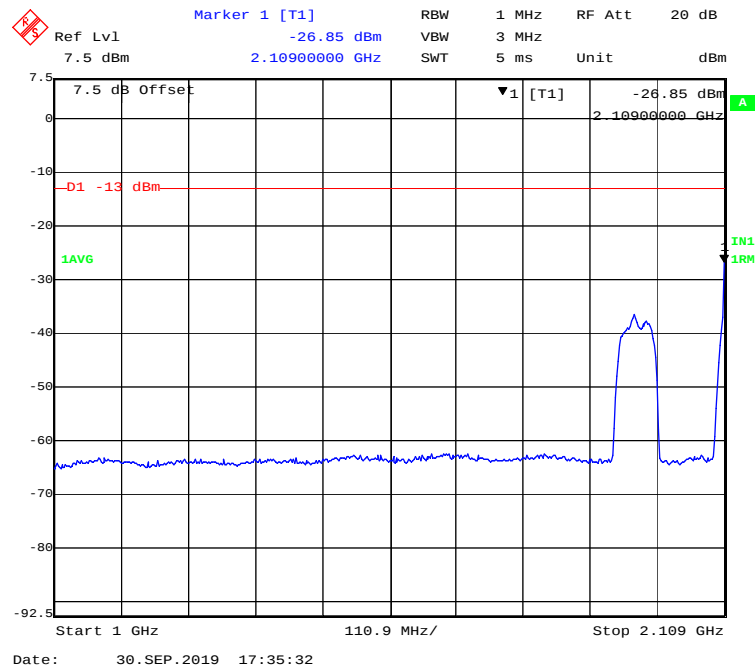
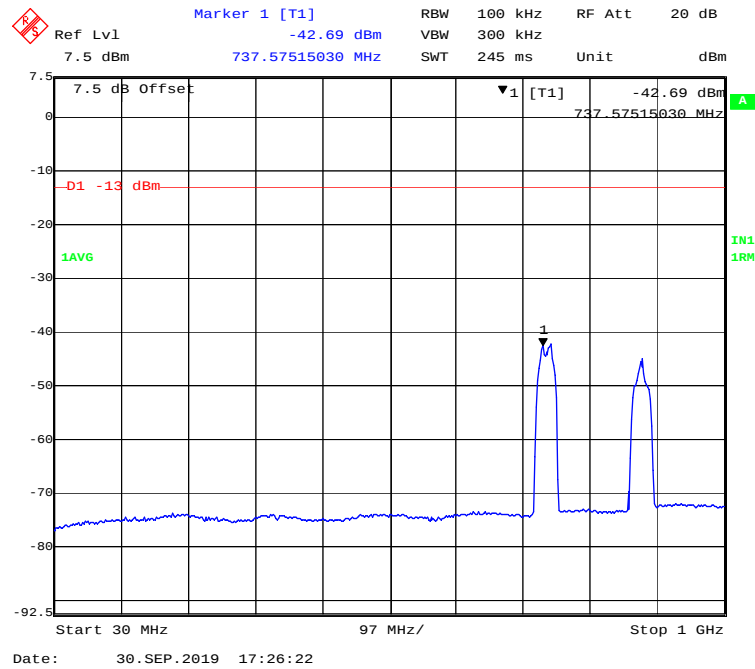
PCS- GSM-Pre AGC-Middle Channel

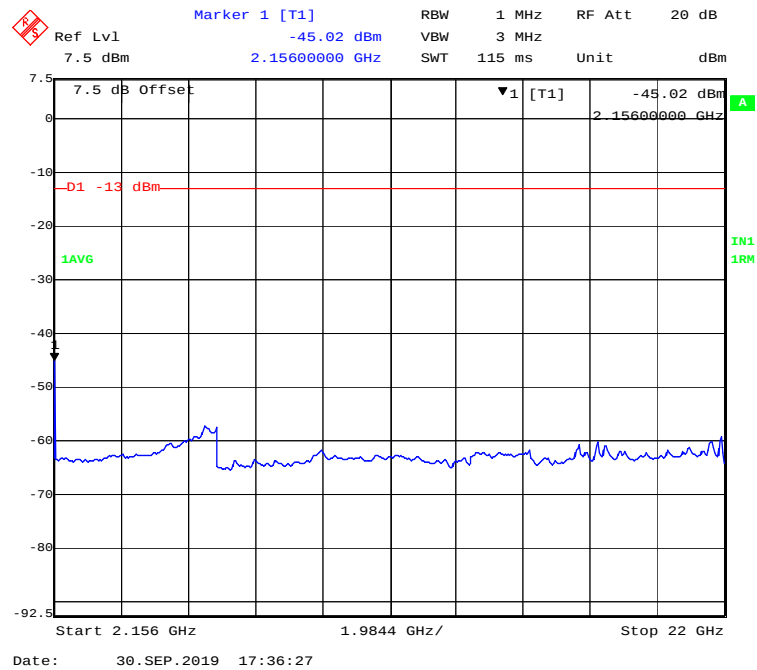


**PCS- GSM-Pre AGC-High Channel**

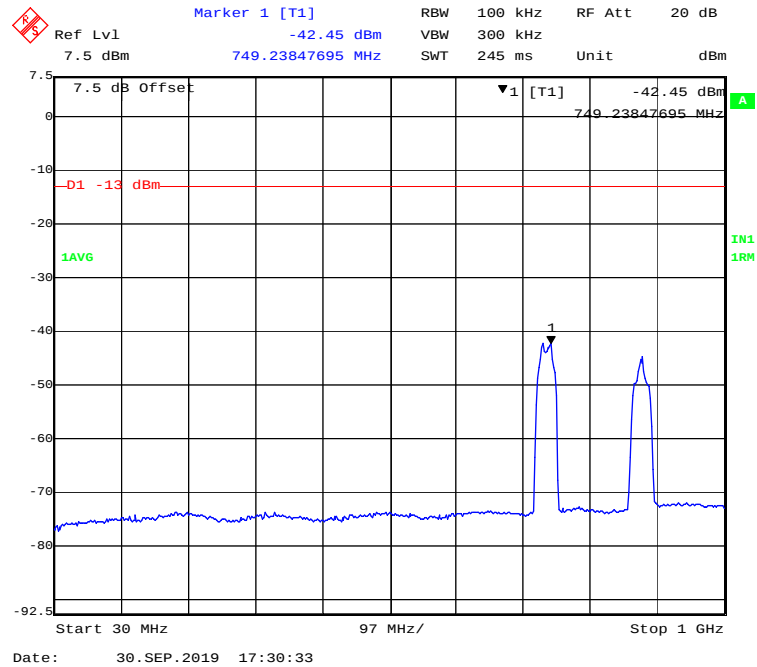


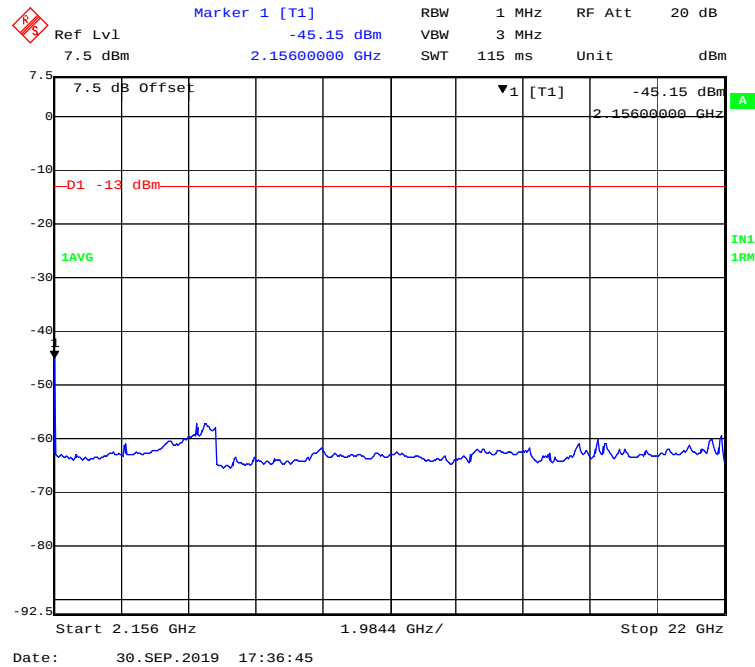
AWS- AWGN-Pre AGC-Low Channel



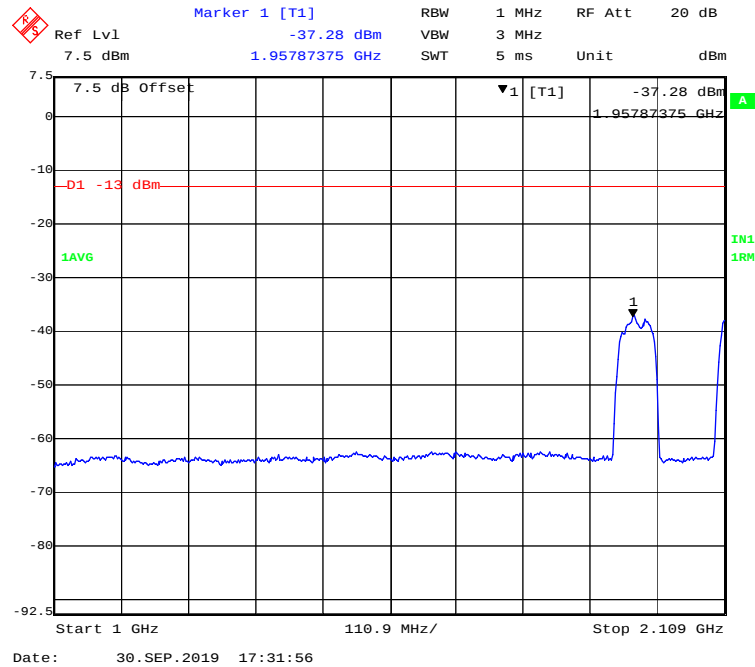
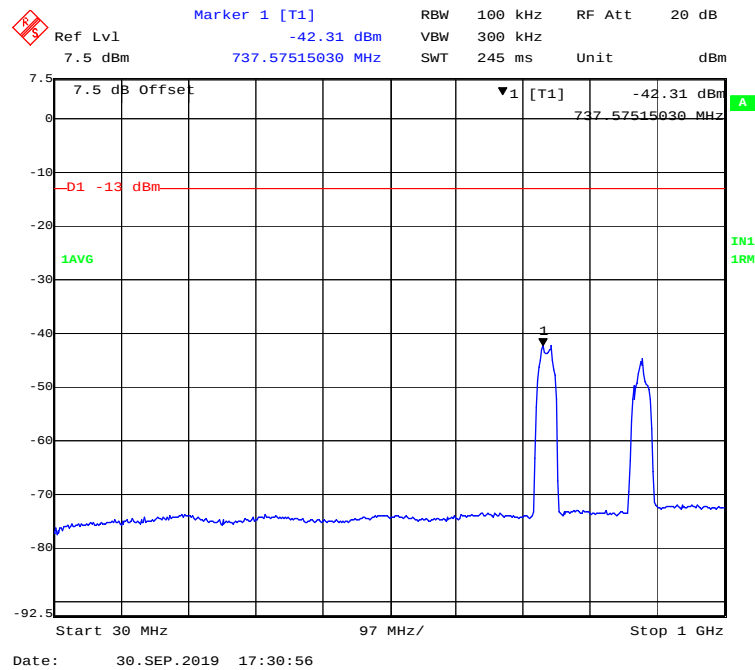


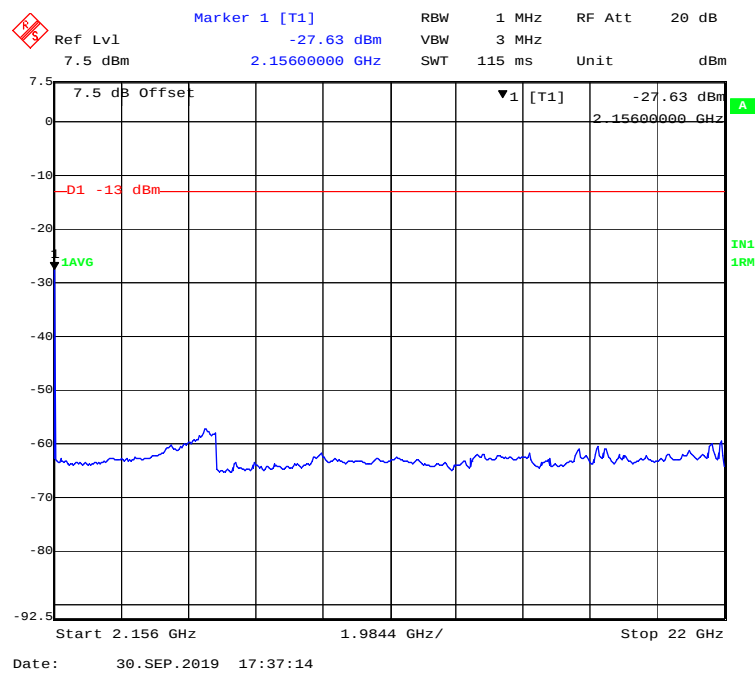
AWS- AWGN-Pre AGC-Middle Channel



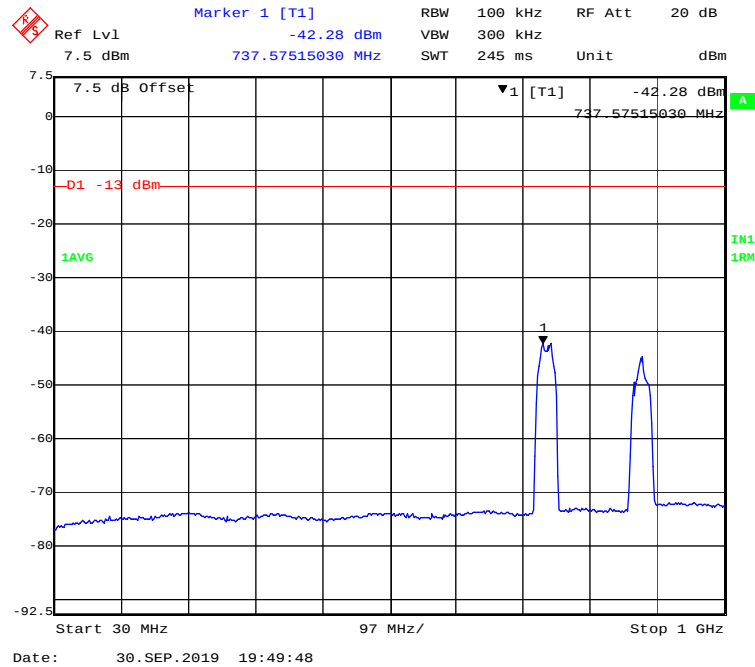


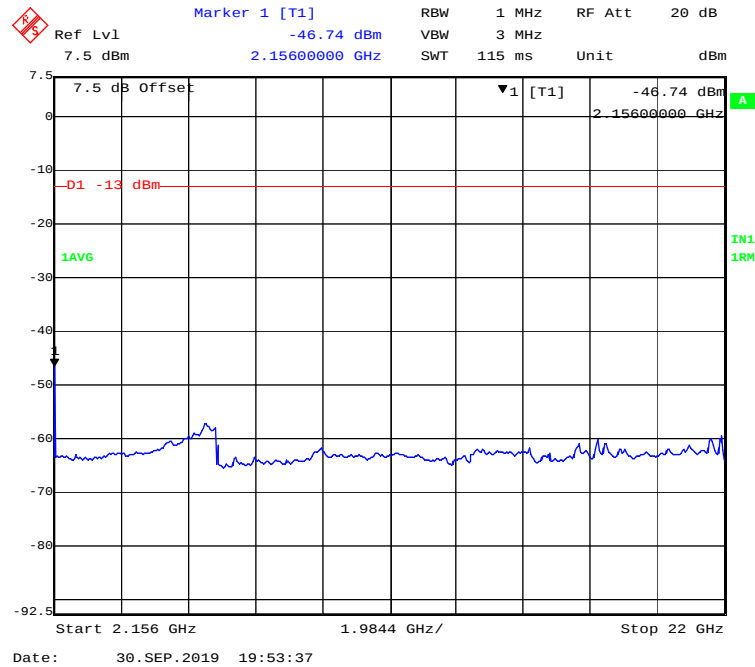
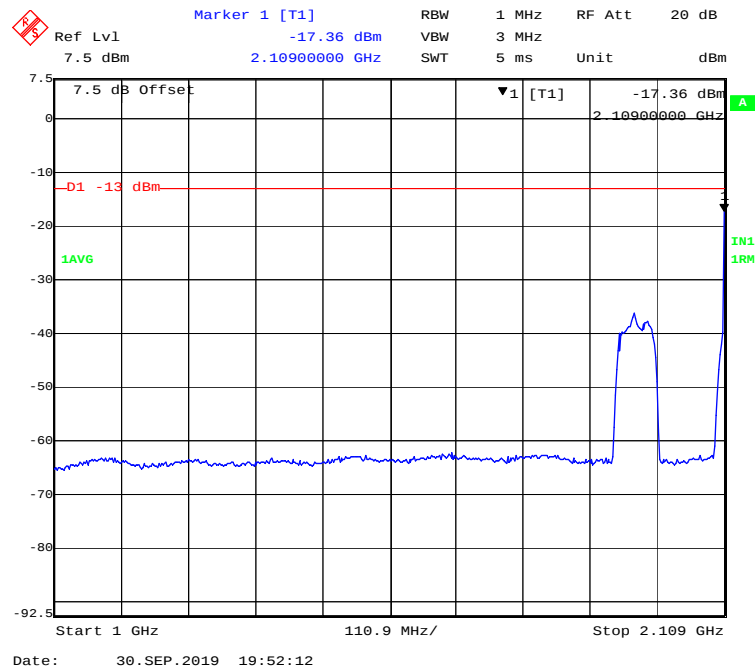
AWS- AWGN-Pre AGC-High Channel



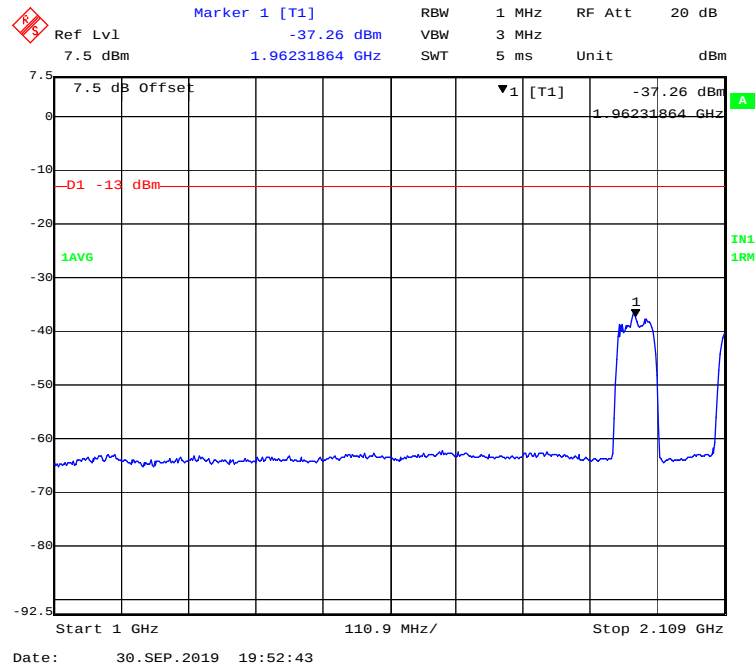
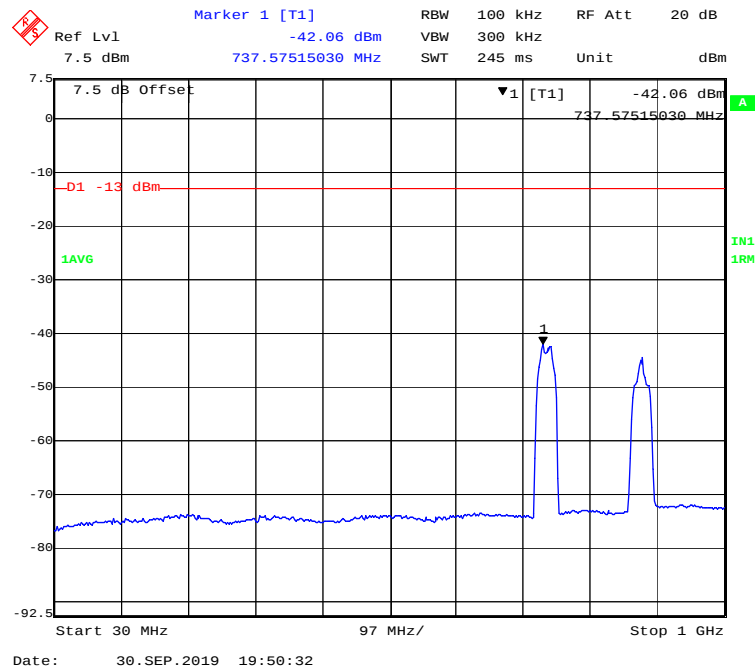


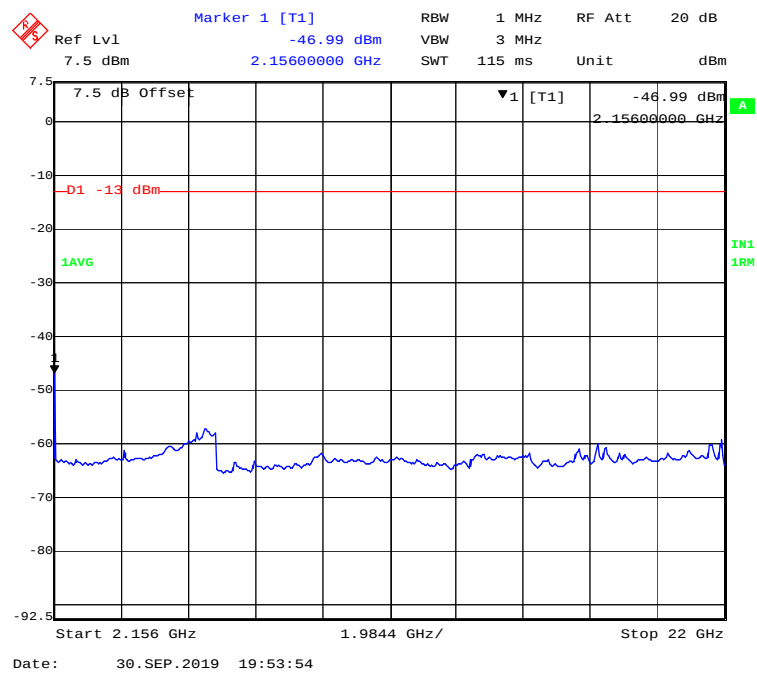
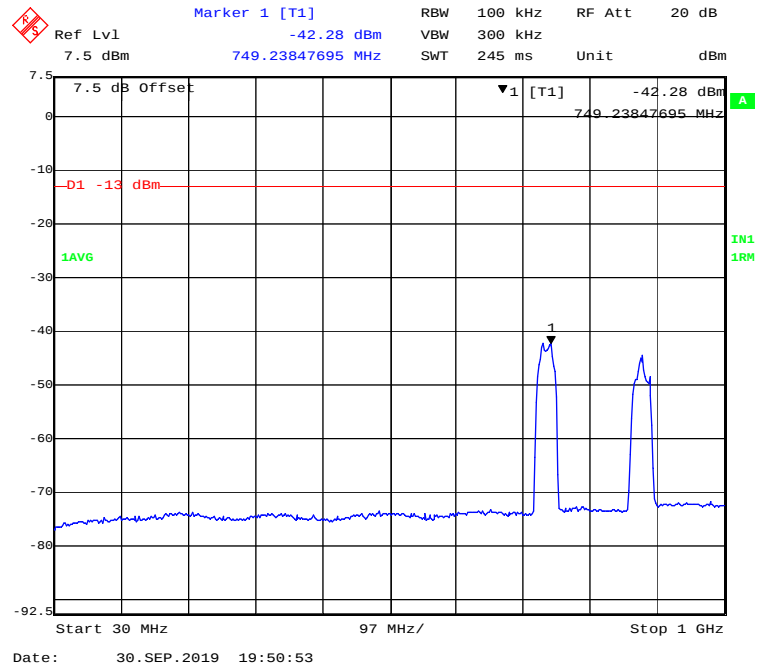
AWS- GSM-Pre AGC-Low Channel

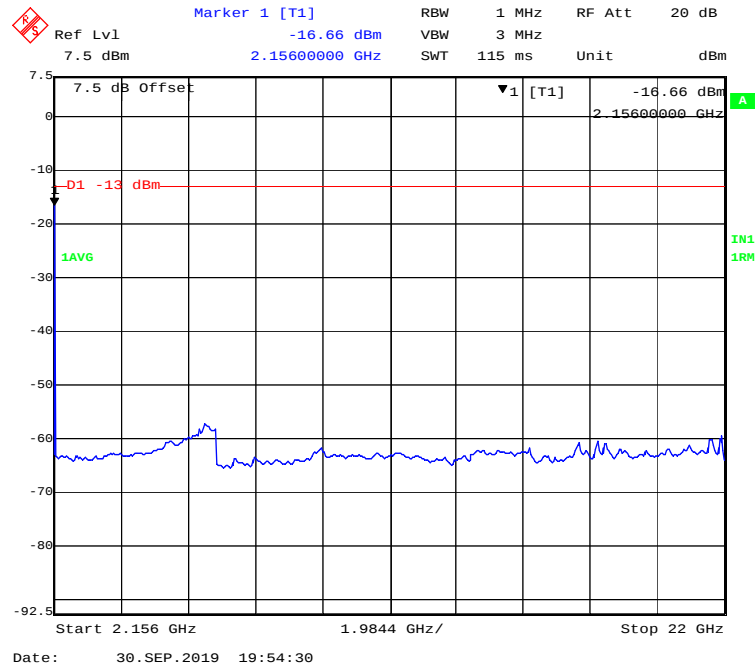
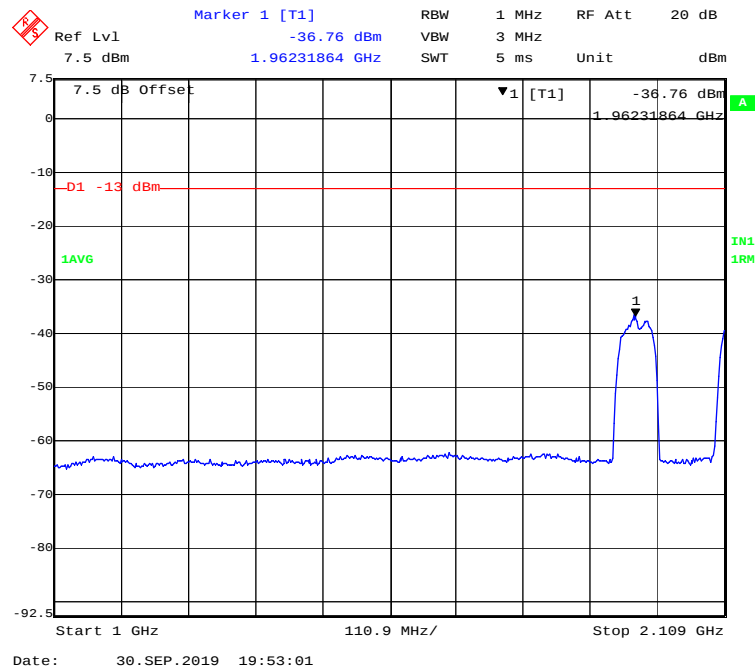




AWS- GSM-Pre AGC-Middle Channel



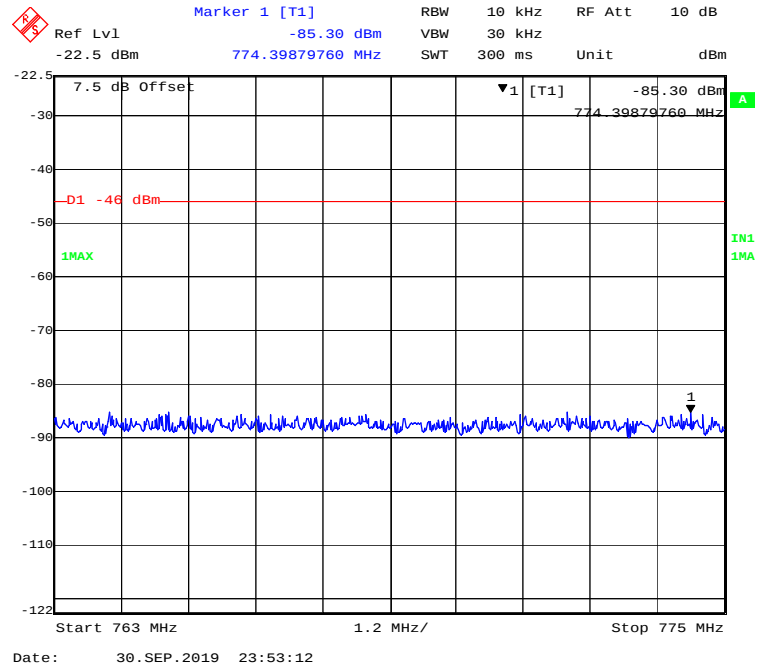
**AWS- GSM-Pre AGC-High Channel**



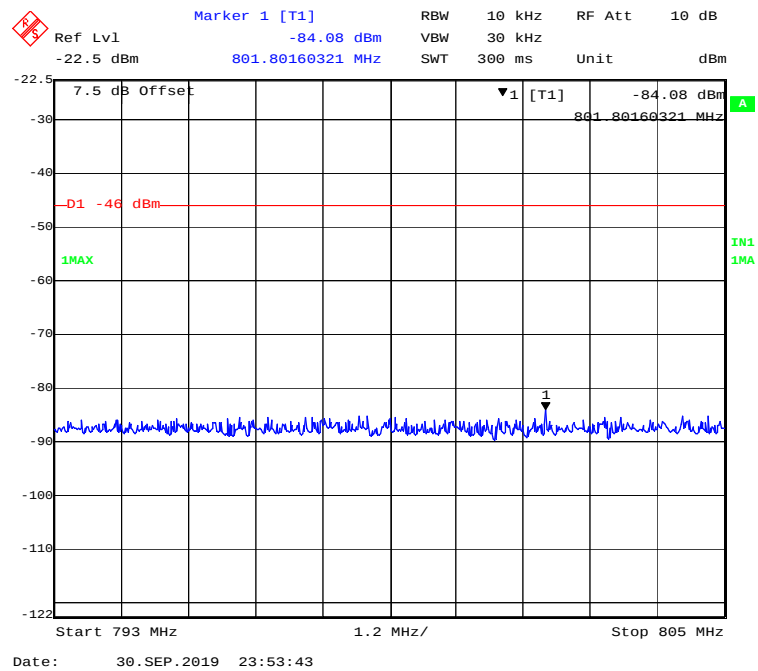
Downlink:

Additional requirement for upper 700MHz band

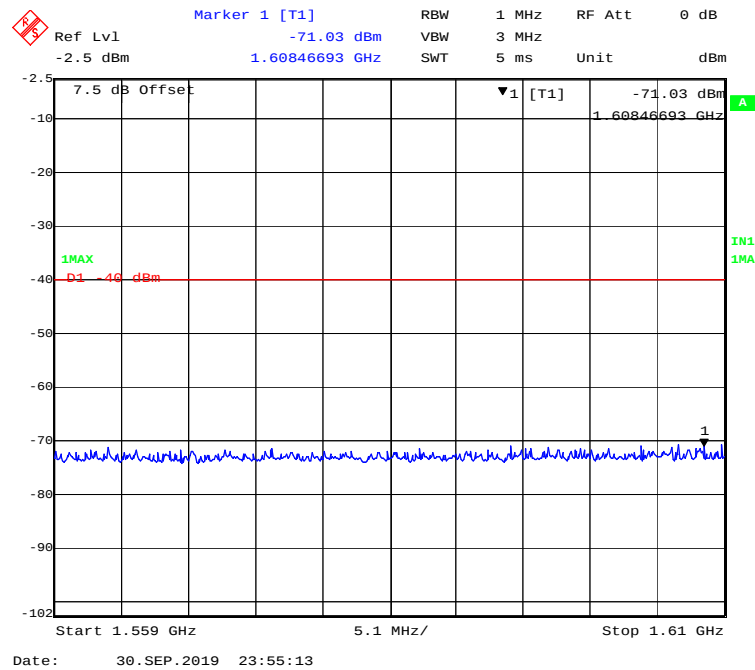
763 MHz~775 MHz



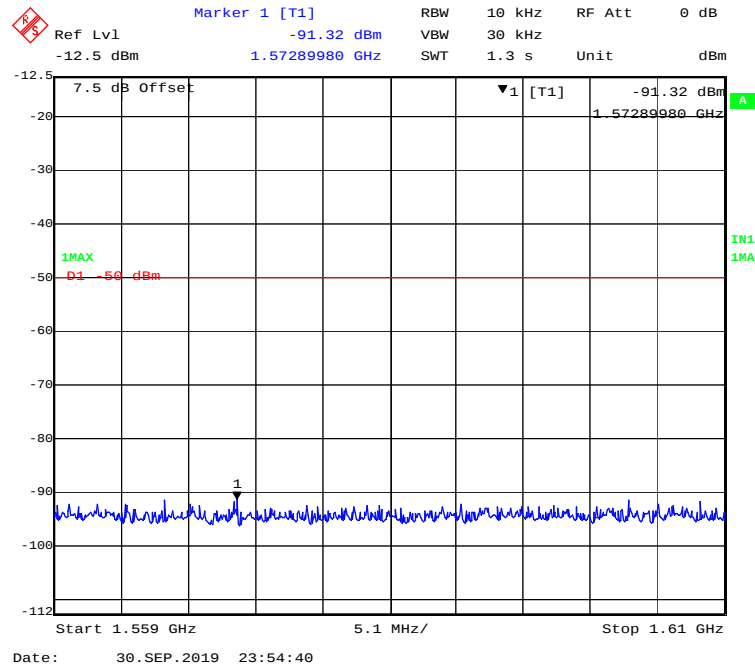
793 MHz~805 MHz



1559 MHz~1610 MHz (wide band)

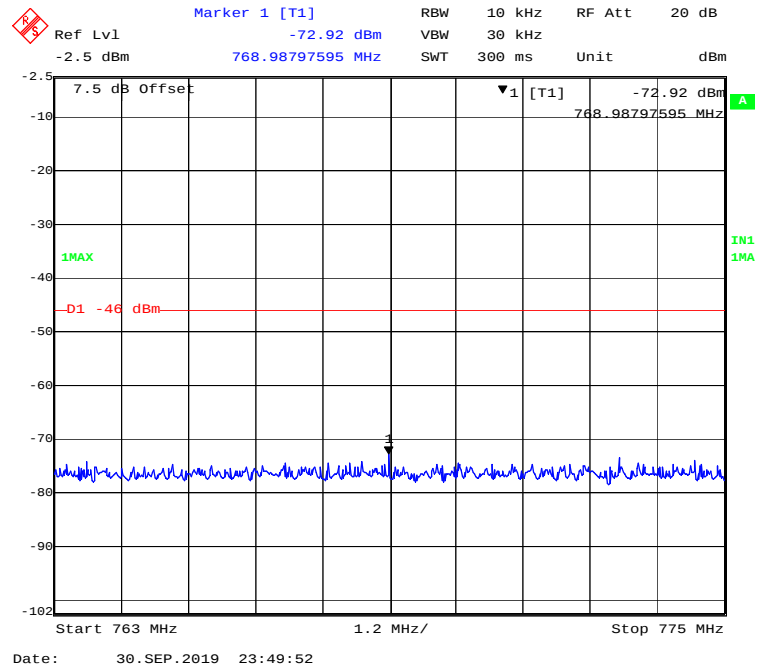


1559 MHz~1610 MHz (narrow band)

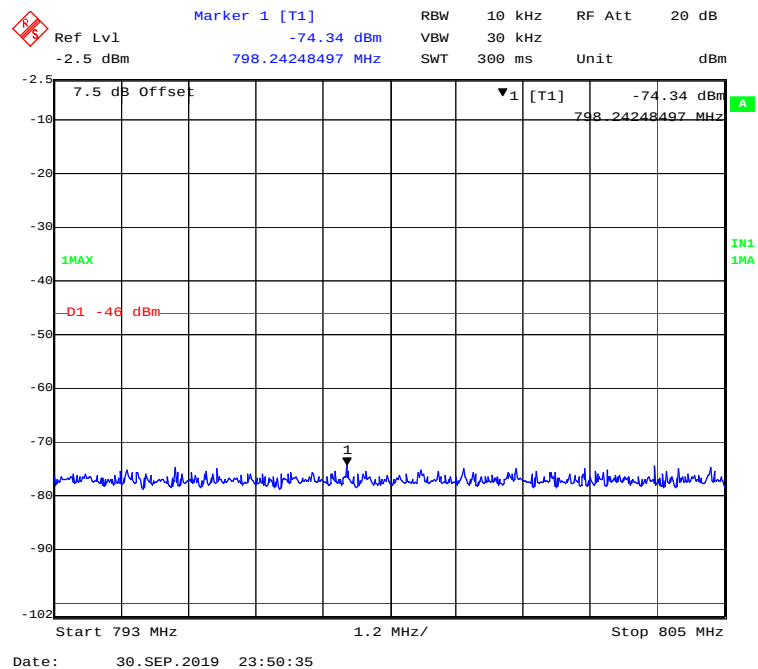


Uplink:

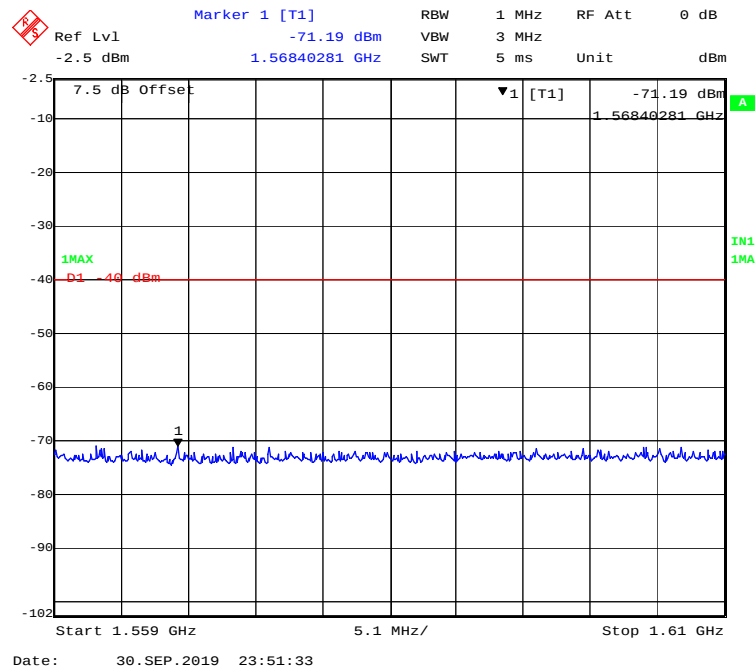
763 MHz~775 MHz



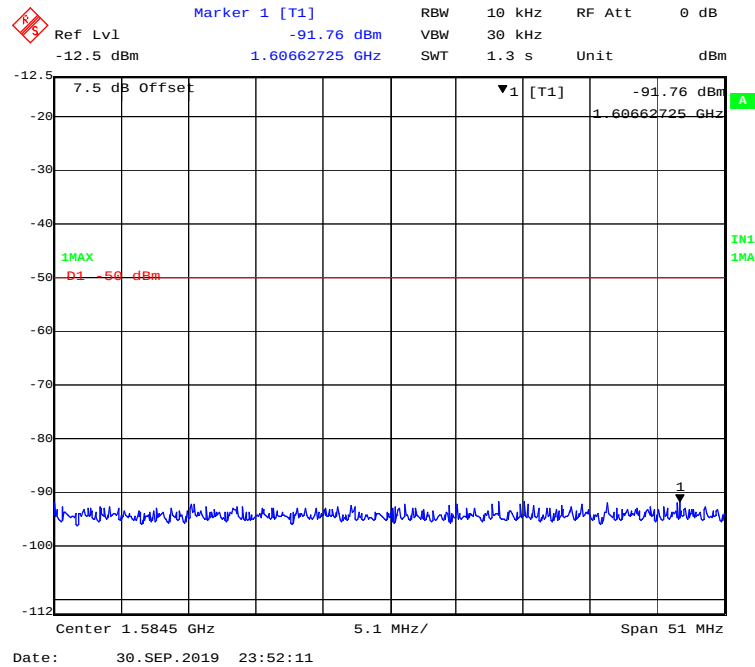
793 MHz~805 MHz



1559 MHz~1610 MHz (wide band)



1559 MHz~1610 MHz (narrow band)



FCC § 2.1053, § 22.917, § 24.238 & §27.53 - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053, §22.917, § 24.238 and & §27.53.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \text{Log}_{10} (\text{power out in Watts})$

Test Data**Environmental Conditions**

Temperature:	23.2°C
Relative Humidity:	51 %
ATM Pressure:	101.3kPa

The testing was performed by Carrie He on 2019-10-06.

Test mode: Transmitting (Pre-scan with low, middle and high channels, and the worse case data as below)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E/27	
			Height (cm)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
Uplink										
Lower 700MHz (A+B+C Block) Band										
Test frequency range: 30MHz - 8 GHz										
128.58	43.47	261	100	H	-62.50	0.35	-6.11	-68.96	-13	55.96
128.58	46.69	209	100	V	-52.98	0.35	-6.11	-59.44	-13	46.44
1414.00	54.54	150	200	H	-51.21	0.79	7.19	-44.81	-13	31.81
1414.00	51.47	49	200	V	-54.35	0.79	7.19	-47.95	-13	34.95
Upper 700MHz (C Block) Band										
Test frequency range: 30MHz - 8 GHz										
128.58	44.93	24	100	H	-61.04	0.35	-6.11	-67.50	-13	54.50
128.58	48.78	27	100	V	-50.89	0.35	-6.11	-57.35	-13	44.35
1563.00	57.54	211	100	H	-46.53	0.83	8.30	-39.06	-13	26.06
1563.00	54.13	279	100	V	-50.47	0.83	8.30	-43.00	-13	30.00
Cellular Band										
Test frequency range: 30MHz - 10 GHz										
128.58	44.19	159	100	H	-61.78	0.35	-6.11	-68.24	-13	55.24
128.58	49.12	297	100	V	-50.55	0.35	-6.11	-57.01	-13	44.01
1673.00	54.75	270	200	H	-49.14	0.84	8.48	-41.50	-13	28.50
1673.00	50.96	267	200	V	-52.43	0.84	8.48	-44.79	-13	31.79
PCS Band										
Test frequency range: 30MHz - 20 GHz										
128.58	42.57	176	200	H	-63.40	0.35	-6.11	-69.86	-13	56.86
128.58	47.89	324	200	V	-51.78	0.35	-6.11	-58.24	-13	45.24
3765.00	53.97	94	100	H	-42.73	0.95	9.74	-33.94	-13	20.94
3765.00	51.46	59	100	V	-45.40	0.95	9.74	-36.61	-13	23.61
AWS Band										
Test frequency range: 30MHz - 18 GHz										
128.58	43.36	114	100	H	-62.61	0.35	-6.11	-69.07	-13	56.07
128.58	48.91	238	100	V	-50.76	0.35	-6.11	-57.22	-13	44.22
3465.00	50.98	344	200	H	-46.63	0.93	9.87	-37.69	-13	24.69
3465.00	47.54	288	200	V	-50.61	0.93	9.87	-41.67	-13	28.67

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H/24E/27	
			Height (cm)	Polar (H/V)	SG Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
Downlink										
Lower 700MHz (A+B+C Block) Band										
Test frequency range: 30MHz - 8 GHz										
288.99	47.46	128	200	H	-58.48	0.46	-2.17	-61.11	-13	48.11
288.99	44.70	181	200	V	-62.14	0.46	-2.17	-64.77	-13	51.77
3383.40	54.39	174	200	H	-43.27	0.93	9.78	-34.42	-13	21.42
3383.40	51.63	164	200	V	-46.54	0.93	9.78	-37.69	-13	24.69
Upper 700MHz (C Block) Band										
Test frequency range: 30MHz - 8 GHz										
288.99	48.74	40	200	H	-57.20	0.46	-2.17	-59.83	-13	46.83
288.99	44.74	266	200	V	-62.10	0.46	-2.17	-64.73	-13	51.73
3199.80	49.89	164	100	H	-47.91	0.92	9.60	-39.23	-13	26.23
3199.80	46.58	158	100	V	-51.64	0.92	9.60	-42.96	-13	29.96
Cellular Band										
Test frequency range: 30MHz - 10 GHz										
288.99	48.13	136	100	H	-57.81	0.46	-2.17	-60.44	-13	47.44
288.99	44.69	290	100	V	-62.15	0.46	-2.17	-64.78	-13	51.78
3097.80	55.94	291	200	H	-41.93	0.92	9.50	-33.35	-13	20.35
3097.80	52.37	285	200	V	-45.88	0.92	9.50	-37.30	-13	24.30
PCS Band										
Test frequency range: 30MHz - 20 GHz										
288.99	47.85	74	200	H	-58.09	0.46	-2.17	-60.72	-13	47.72
288.99	45.12	325	200	V	-61.72	0.46	-2.17	-64.35	-13	51.35
3461.60	55.32	300	200	H	-42.29	0.93	9.86	-33.36	-13	20.36
3461.60	52.78	233	200	V	-45.37	0.93	9.86	-36.44	-13	23.44
AWS Band										
Test frequency range: 30MHz -22 GHz										
288.99	49.14	54	200	H	-56.80	0.46	-2.17	-59.43	-13	46.43
288.99	45.74	208	200	V	-61.10	0.46	-2.17	-63.73	-13	50.73
3519.40	56.57	238	200	H	-41.00	0.93	9.92	-32.01	-13	19.01
3519.40	53.64	255	200	V	-44.49	0.93	9.92	-35.50	-13	22.50

Note:

1) Antenna gain is dBd for frequency below 1GHz and is dBi for frequency above 1GHz.

2) Absolute Level = SG Level - Cable loss + Antenna Gain

3) Margin = Limit- Absolute Level

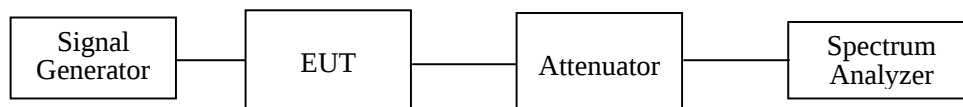
FCC § 22.917, § 24.238, §27.53 - BAND EDGES & INTERMODULATION**Applicable Standards**

FCC §2.1053, §22.917, §24.238 and §27.53.

The power of any emissions 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 v01r03 clause 3.6.2

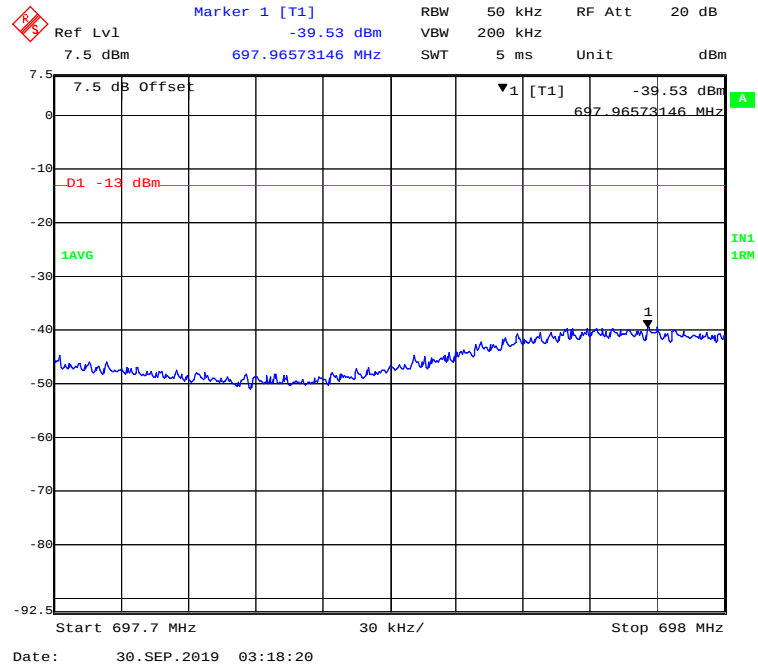
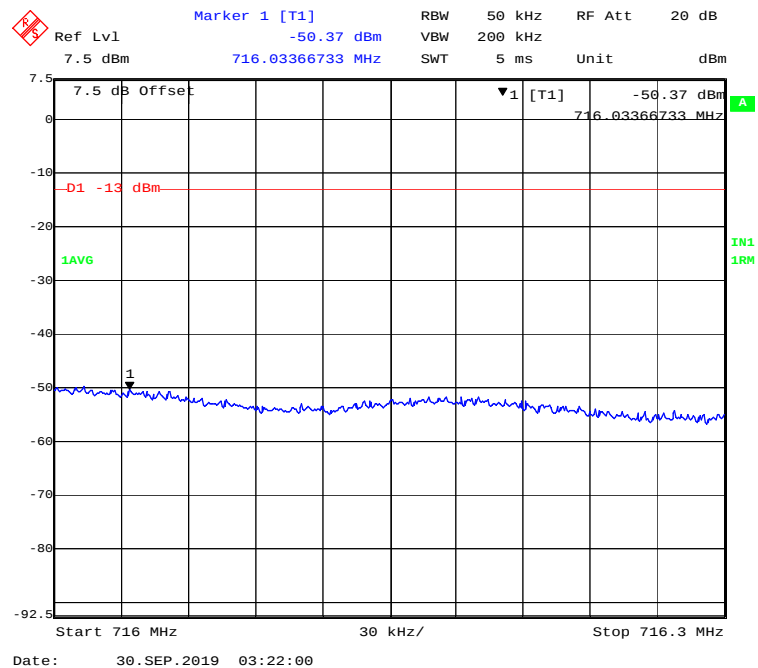
**Test Data****Environmental Conditions**

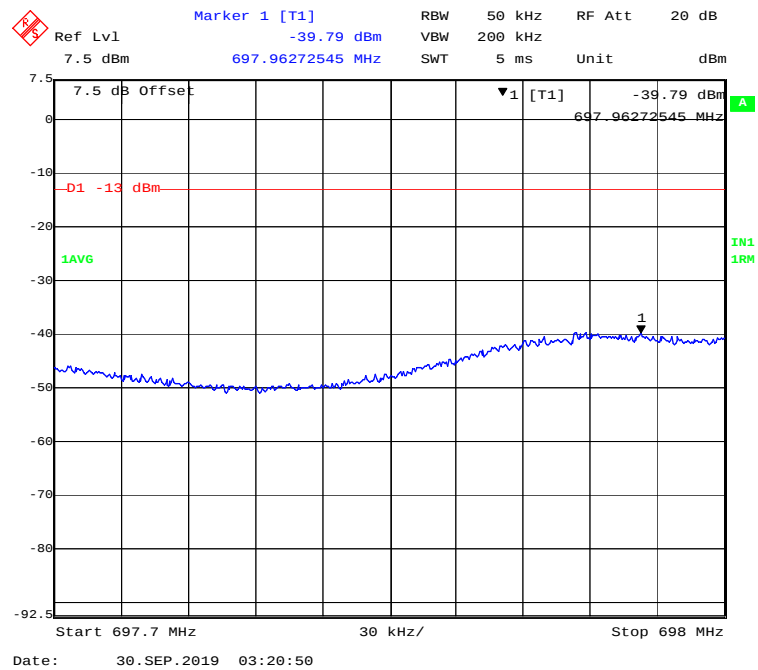
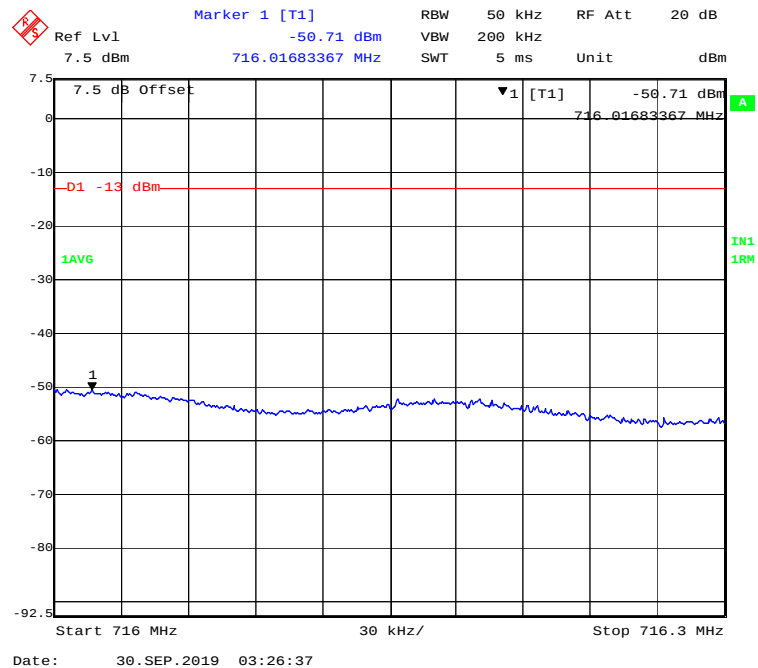
Temperature:	23.2°C-23.5°C
Relative Humidity:	51%-53%
ATM Pressure:	101.1kPa-103.3kPa

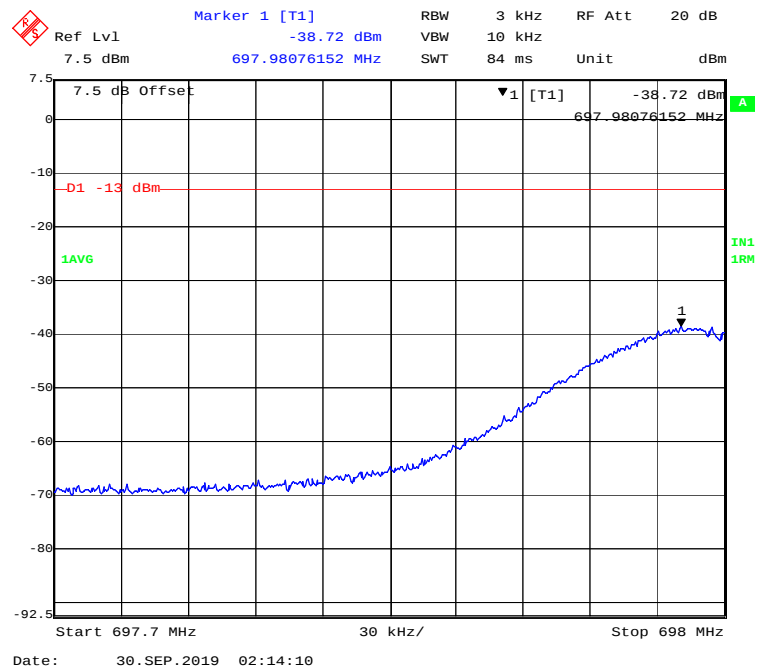
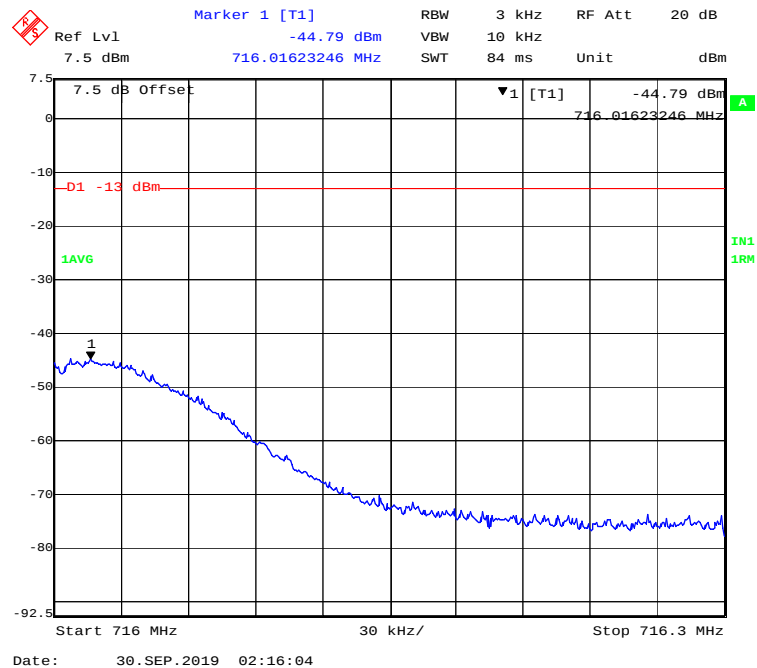
The testing was performed by Carrie He from 2019-09-29 to 2019-09-30.

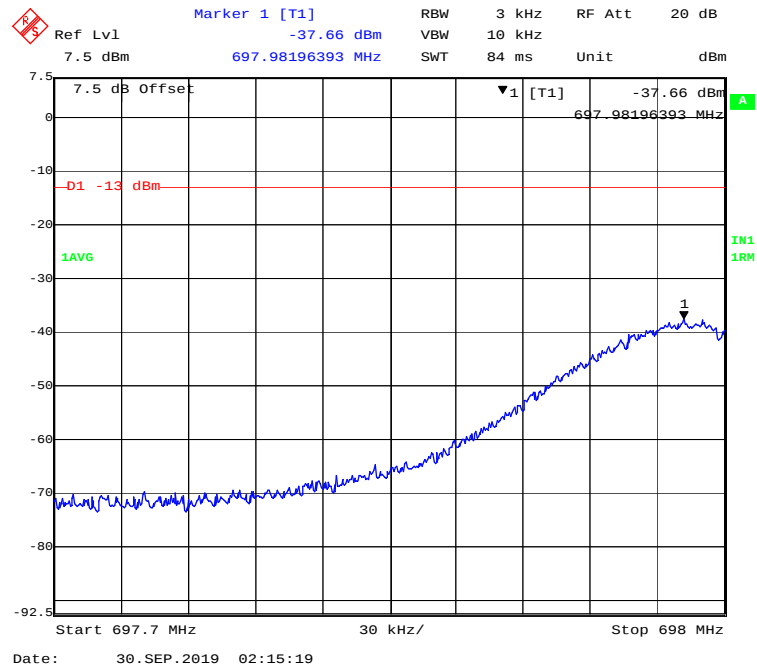
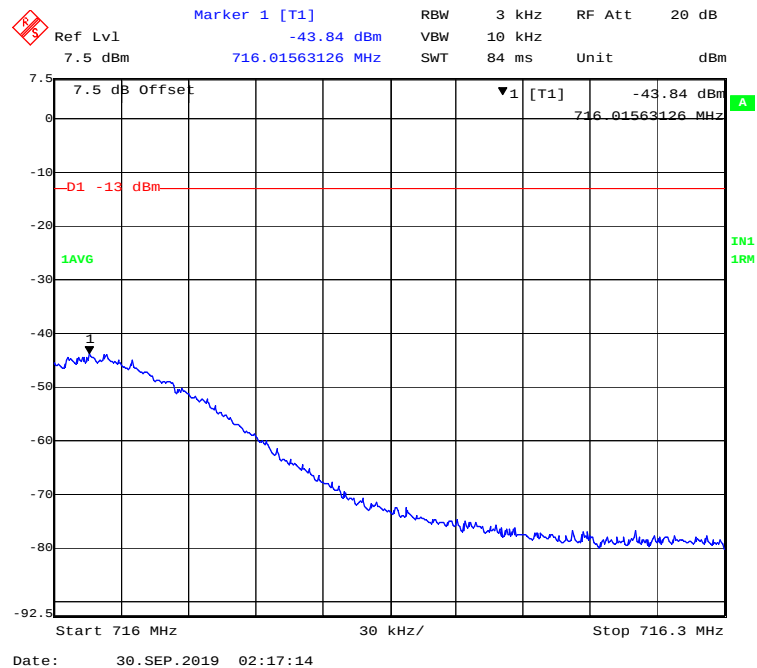
EUT operation mode: Transmitting

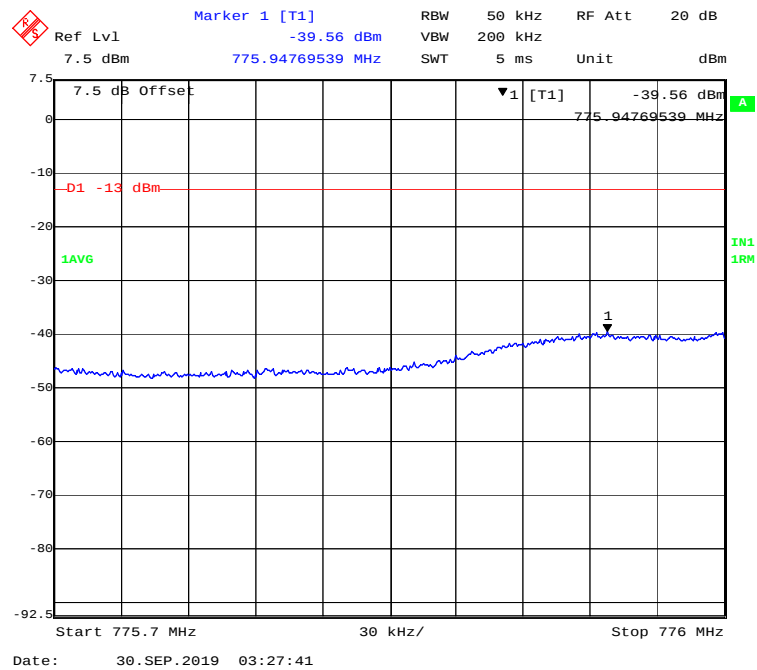
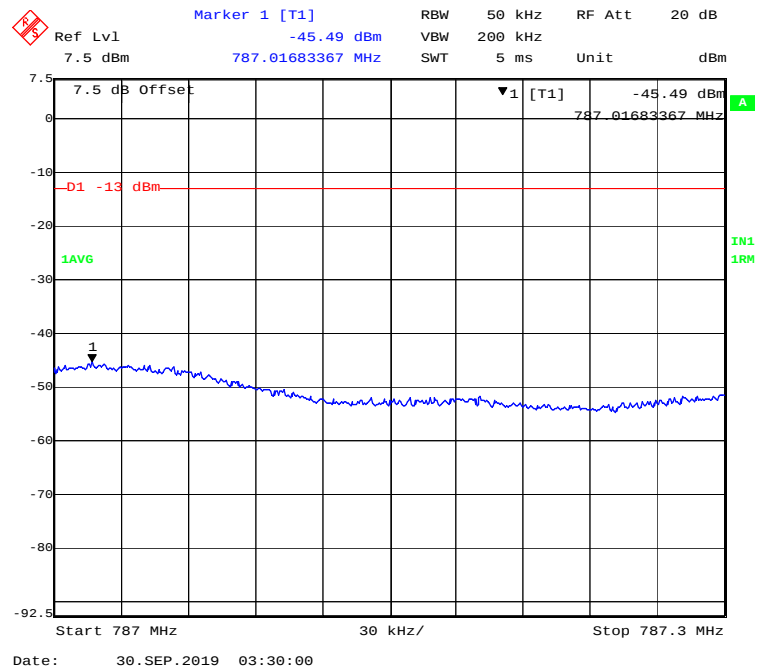
Test Result: Compliant.

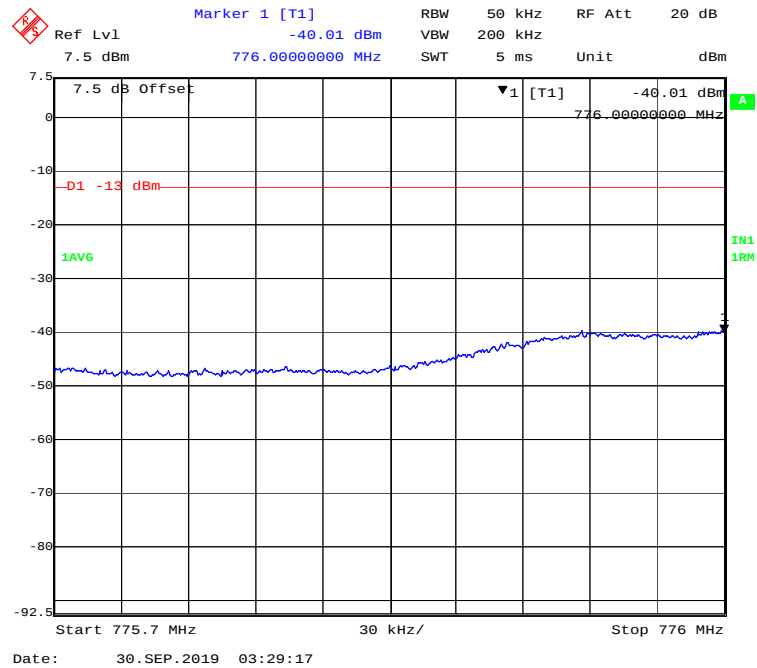
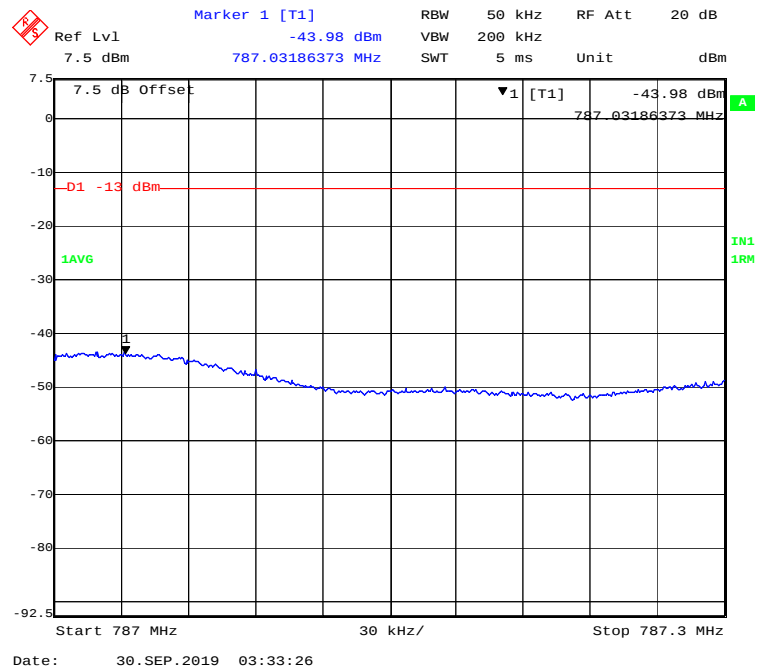
For Band Edge:**Uplink:****Lower 700MHz (A+B+C Block) Band, Left Band Edge for AWGN-Pre AGC****Lower 700MHz (A+B+C Block) Band, Right Band Edge for AWGN-Pre AGC**

Lower 700MHz (A+B+C Block) Band, Left Band Edge for AWGN-3dB Above AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for AWGN-3dB Above AGC**

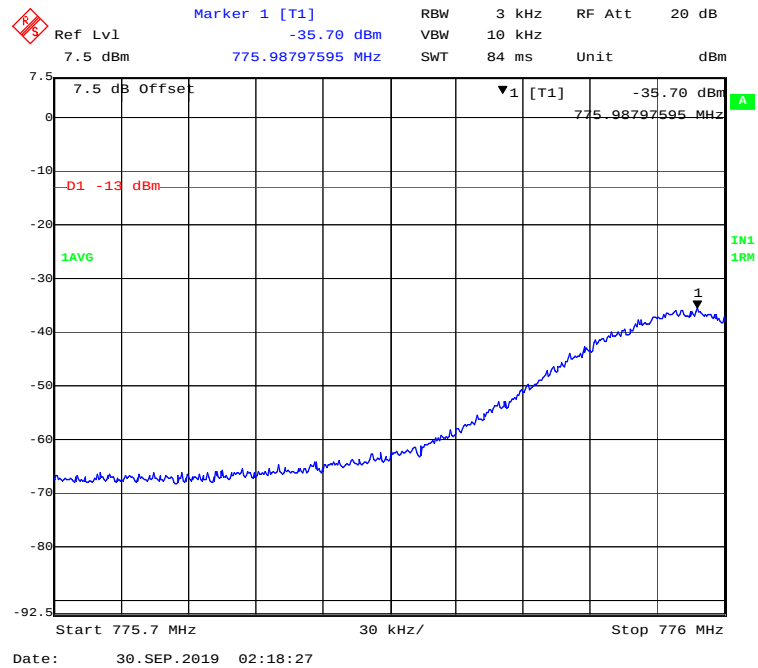
Lower 700MHz (A+B+C Block) Band, Left Band Edge for GSM-Pre AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for GSM-Pre AGC**

Lower 700MHz (A+B+C Block) Band, Left Band Edge for GSM-3dB Above AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for GSM-3dB Above AGC**

Upper 700MHz (C Block) Band, Left Band Edge for AWGN-Pre AGC**Upper 700MHz (C Block) Band, Right Band Edge for AWGN-Pre AGC**

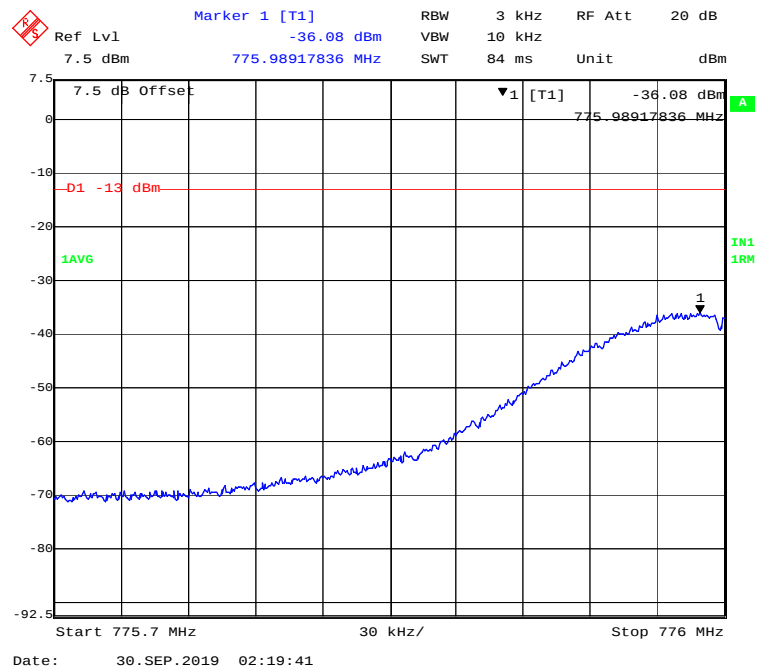
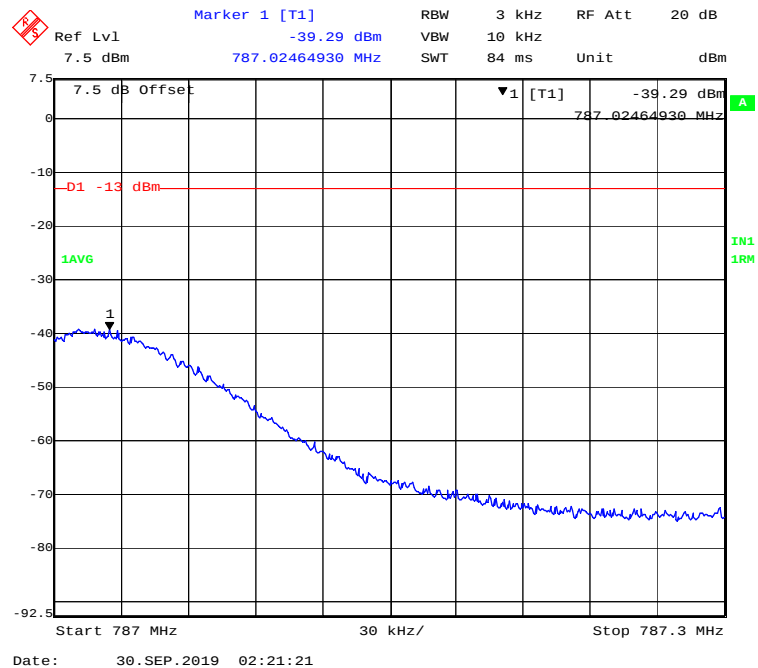
Upper 700MHz (C Block) Band, Left Band Edge for AWGN-3dB Above AGC**Upper 700MHz (C Block) Band, Right Band Edge for AWGN-3dB Above AGC**

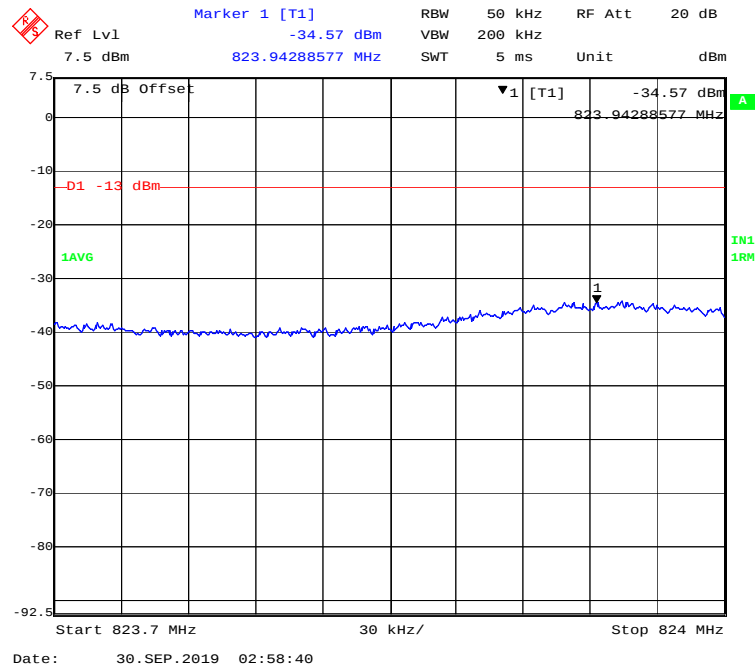
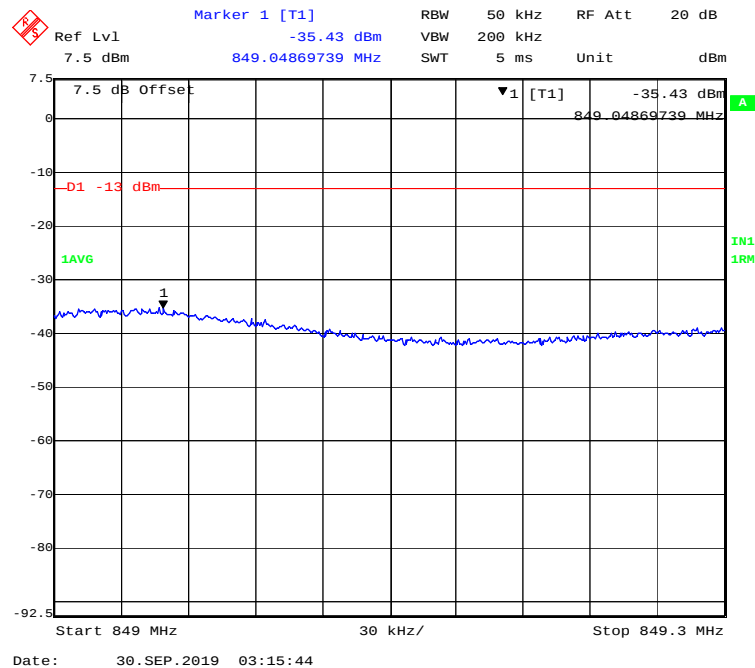
Upper 700MHz (C Block) Band, Left Band Edge for GSM-Pre AGC

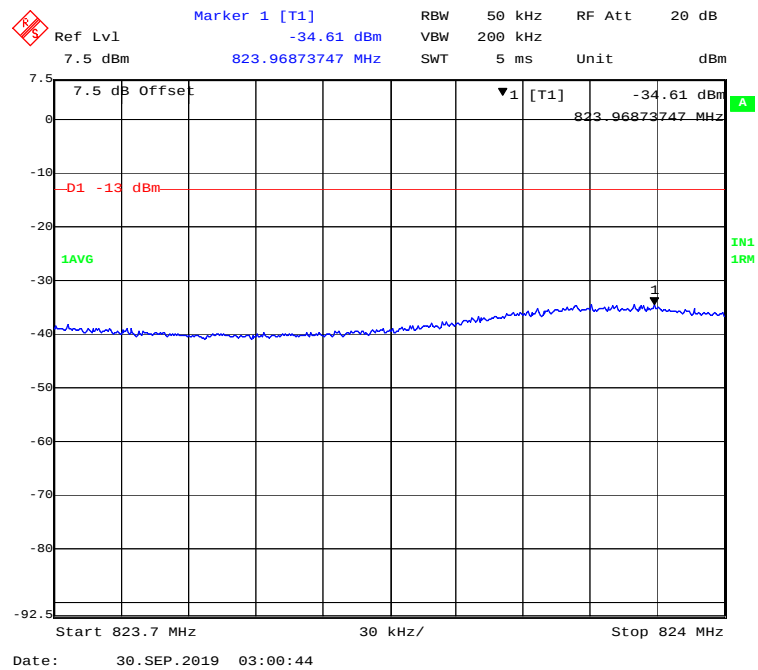
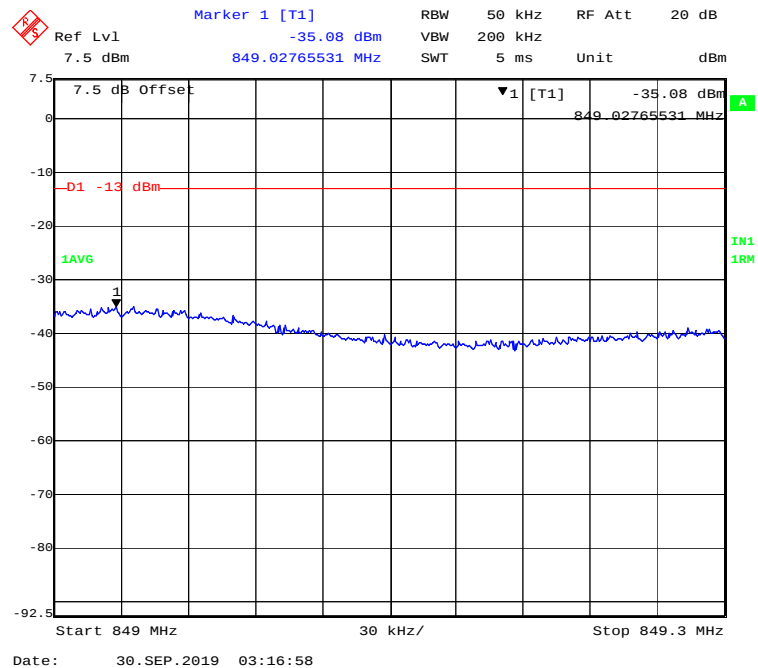


Upper 700MHz (C Block) Band, Right Band Edge for GSM-Pre AGC

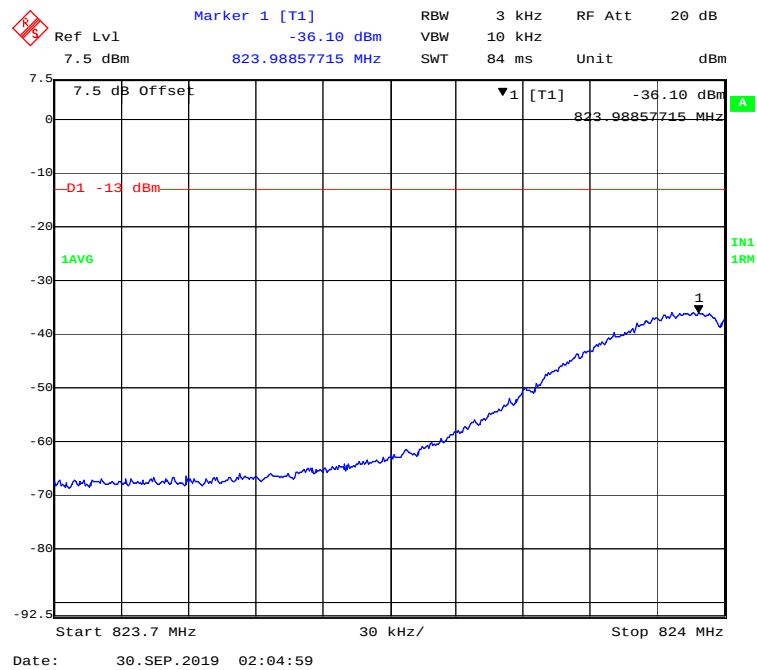


Upper 700MHz (C Block) Band, Left Band Edge for GSM-3dB Above AGC**Upper 700MHz (C Block) Band, Right Band Edge for GSM-3dB Above AGC**

Cellular Band, Left Band Edge for AWGN-Pre AGC**Cellular Band, Right Band Edge for AWGN-Pre AGC**

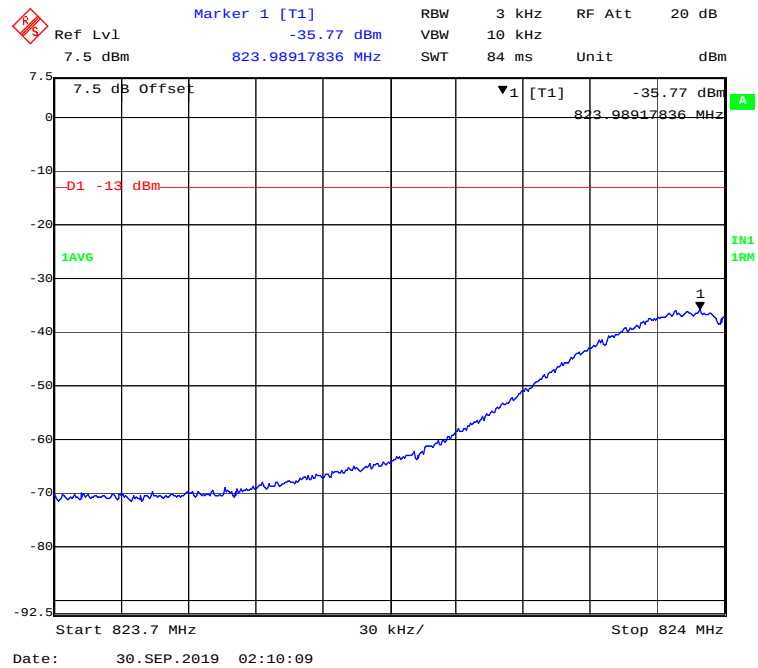
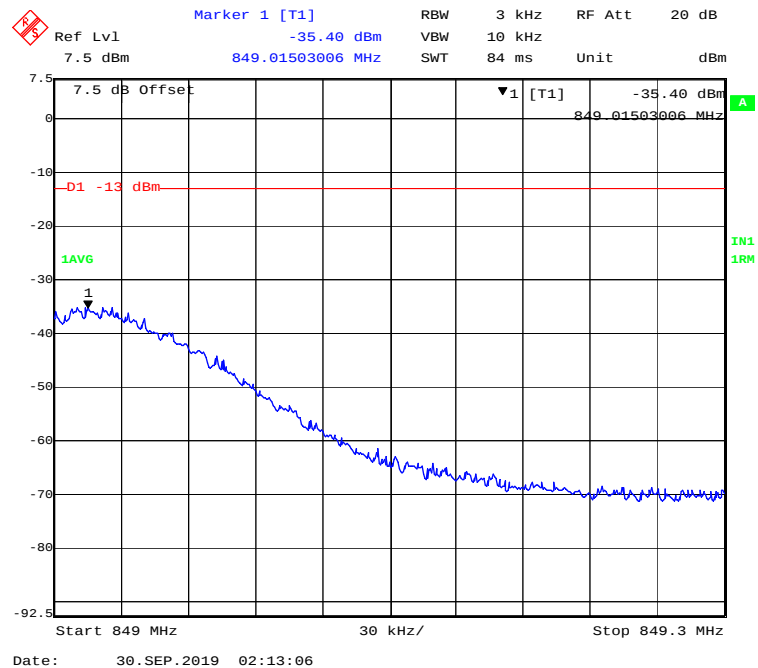
Cellular Band, Left Band Edge for AWGN-3dB Above AGC**Cellular Band, Right Band Edge for AWGN-3dB Above AGC**

Cellular Band, Left Band Edge for GSM-Pre AGC

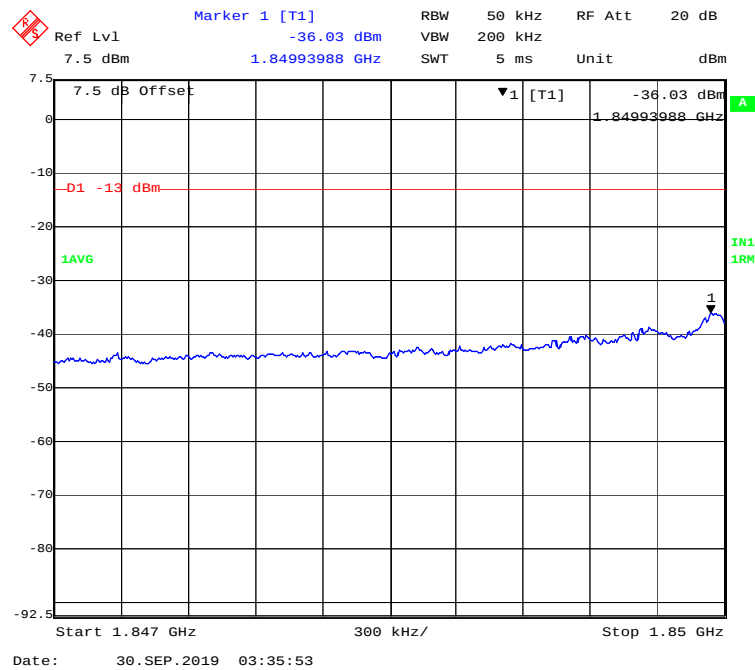


Cellular Band, Right Band Edge for GSM-Pre AGC

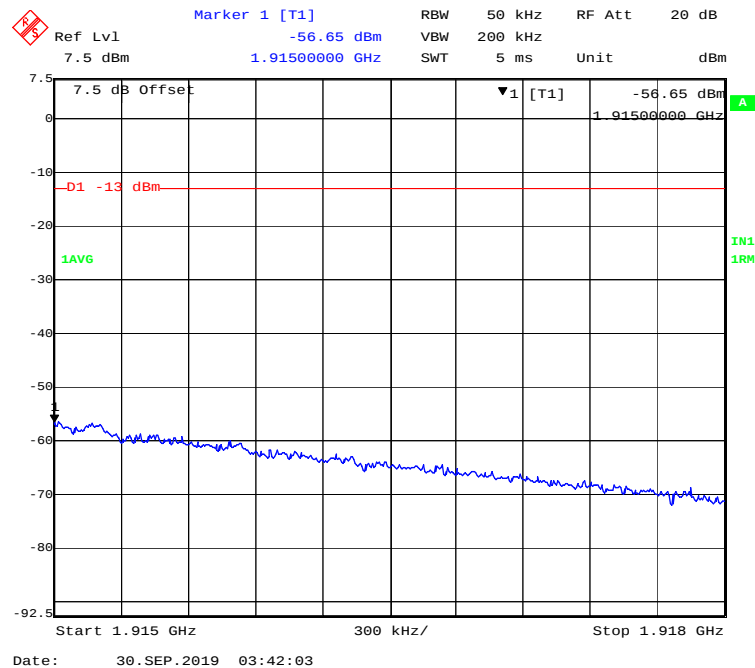


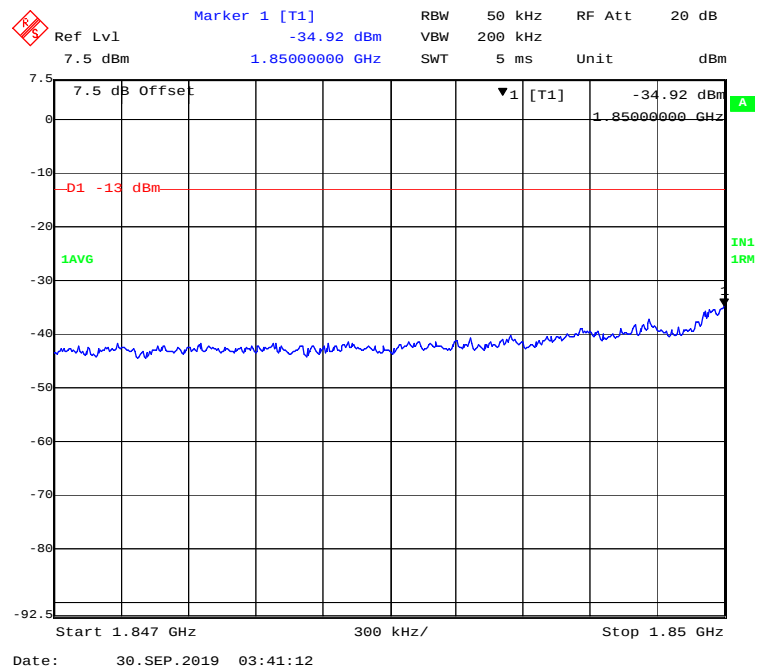
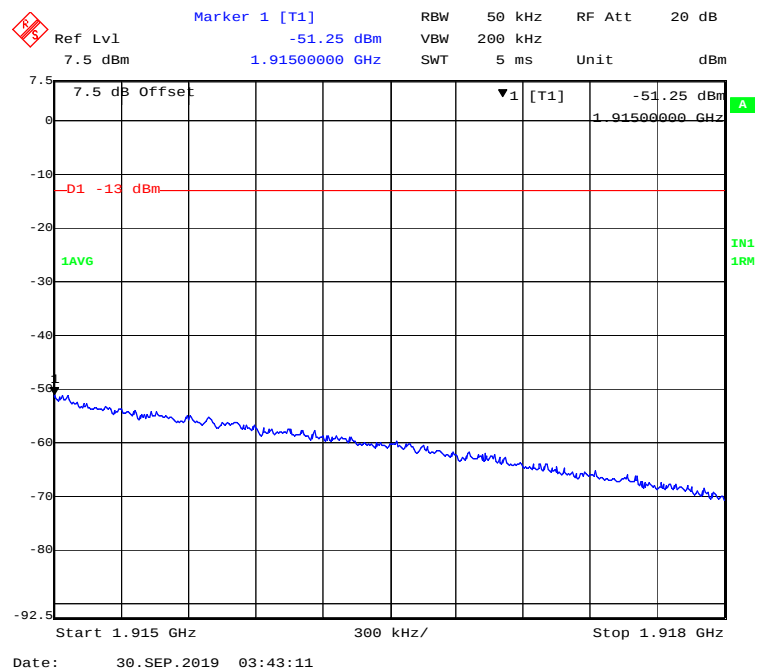
Cellular Band, Left Band Edge for GSM-3dB Above AGC**Cellular Band, Right Band Edge for GSM-3dB Above AGC**

PCS Band, Left Band Edge for AWGN-Pre AGC

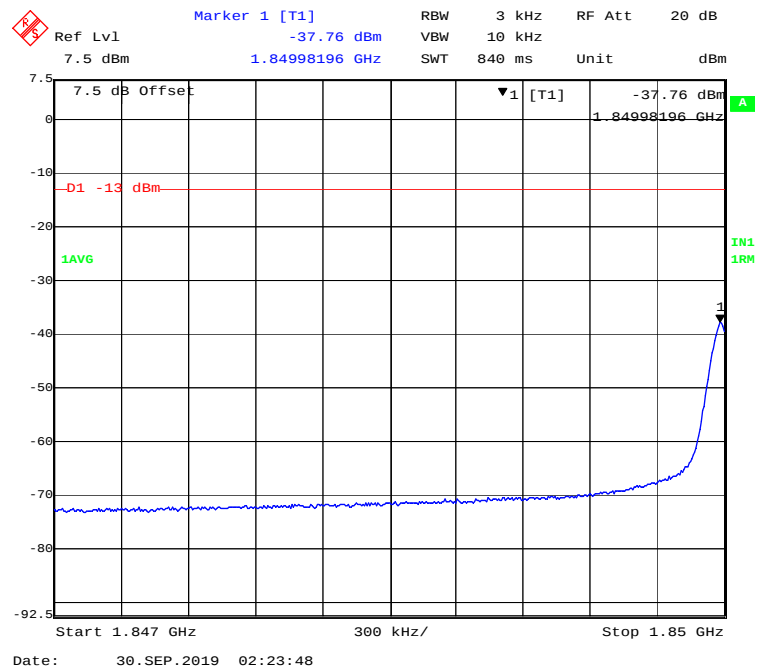


PCS Band, Right Band Edge for AWGN-Pre AGC

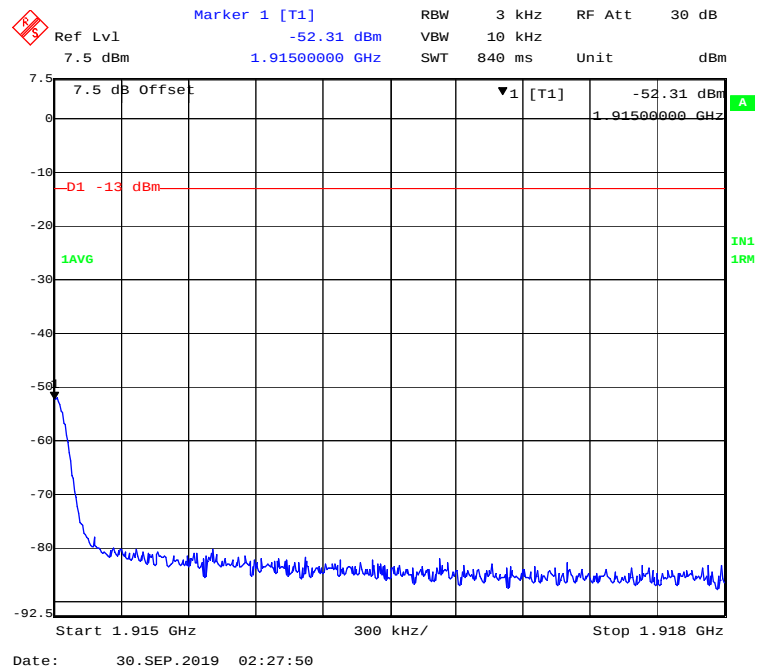


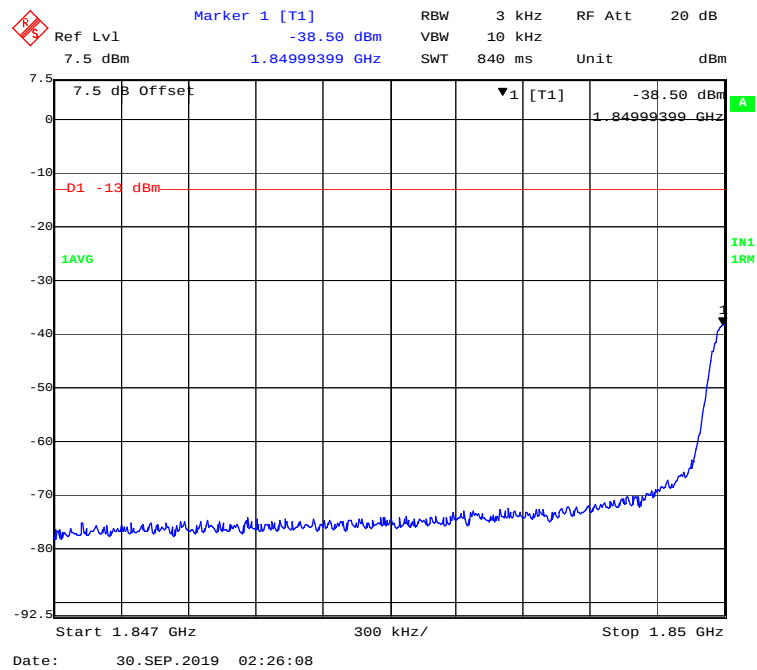
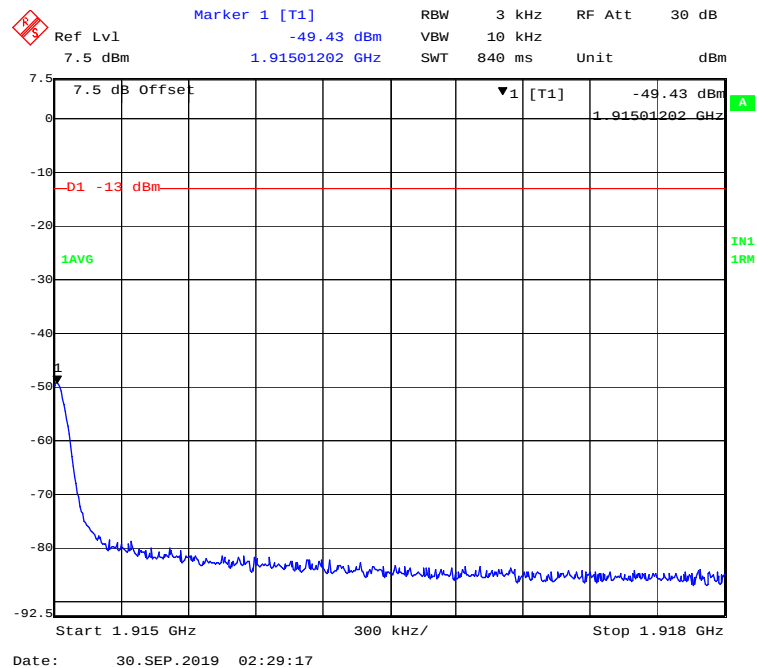
PCS Band, Left Band Edge for AWGN-3dB Above AGC**PCS Band, Right Band Edge for AWGN-3dB Above AGC**

PCS Band, Left Band Edge for GSM-Pre AGC

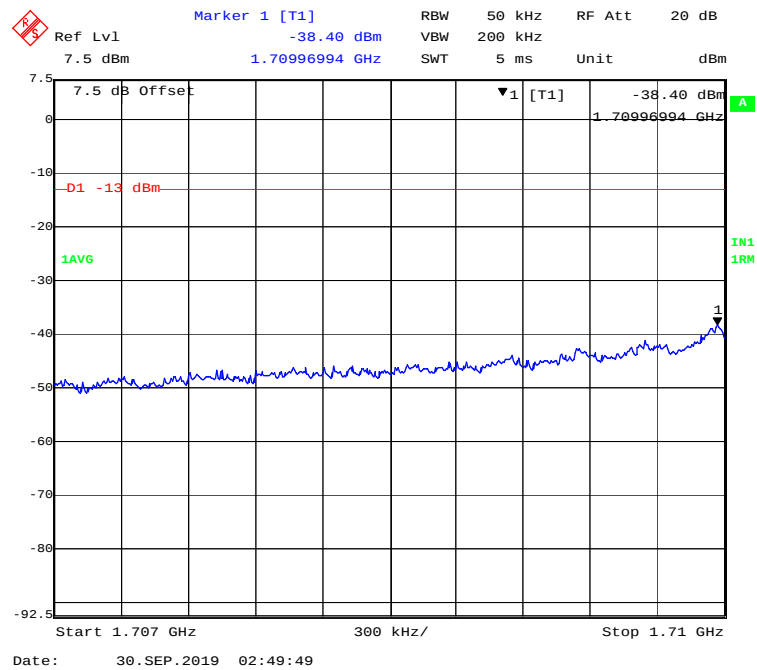


PCS Band, Right Band Edge for GSM-Pre AGC

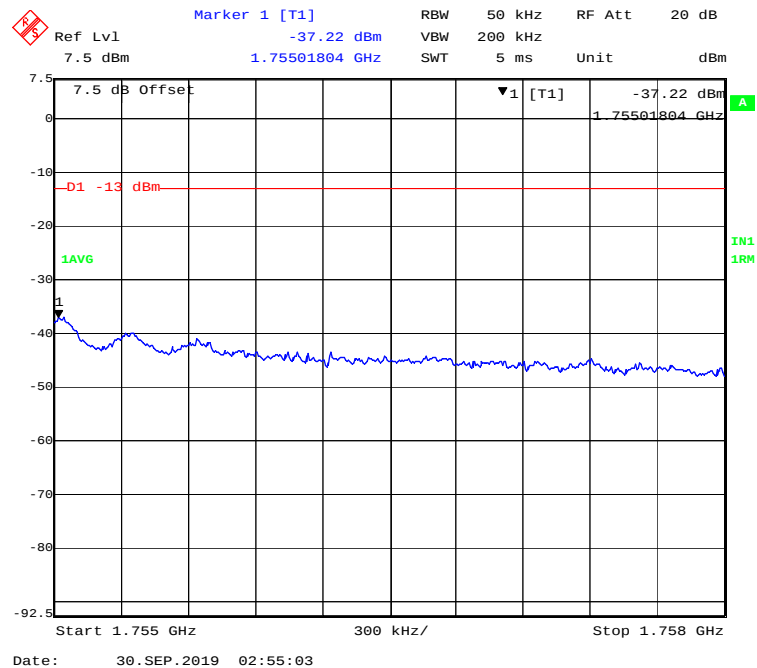


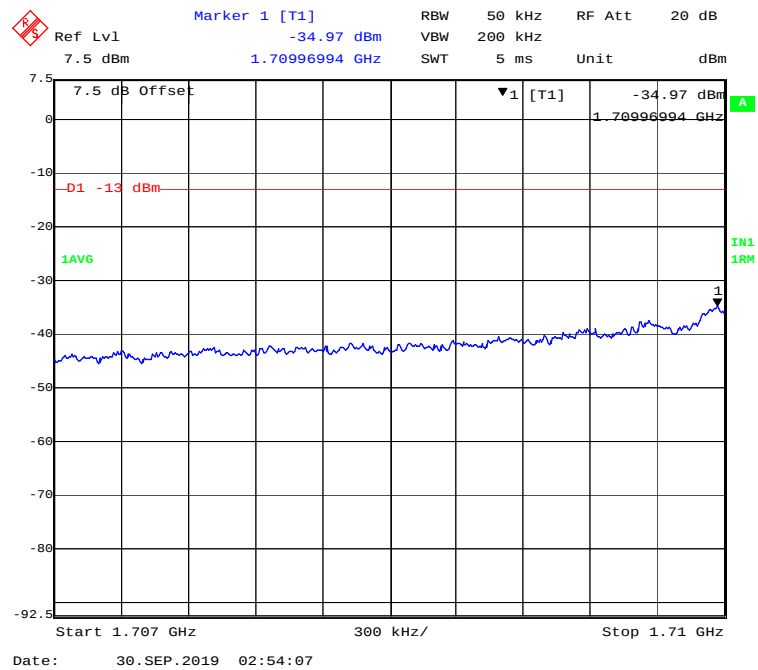
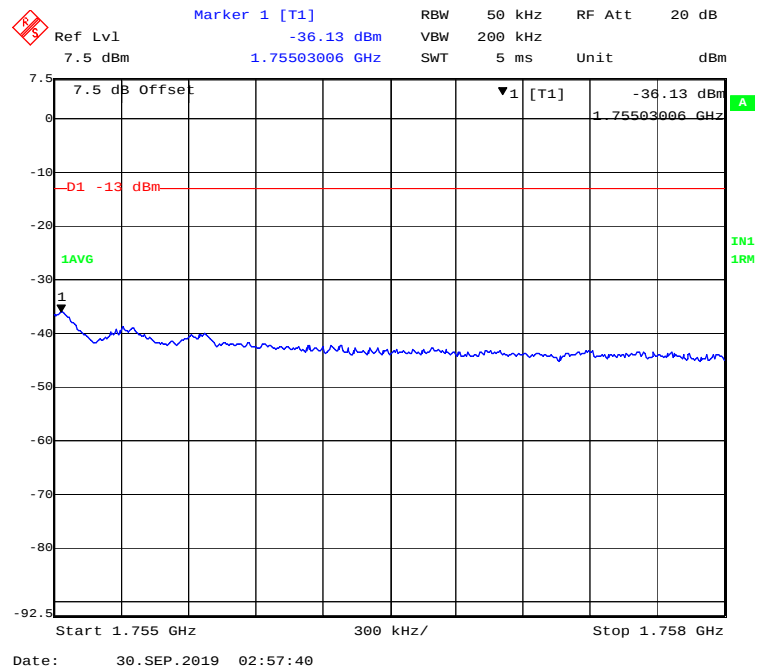
PCS Band, Left Band Edge for GSM-3dB Above AGC**PCS Band, Right Band Edge for GSM-3dB Above AGC**

AWS Band, Left Band Edge for AWGN-Pre AGC

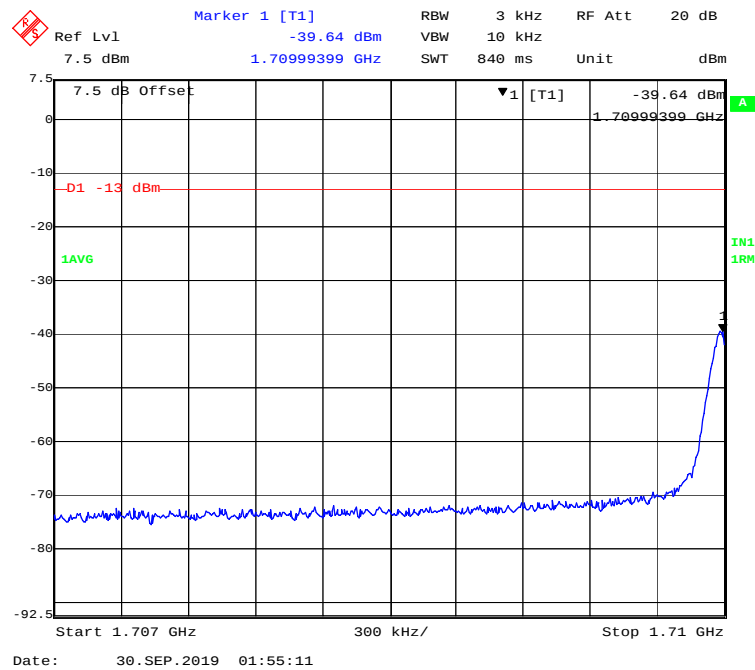


AWS Band, Right Band Edge for AWGN-Pre AGC

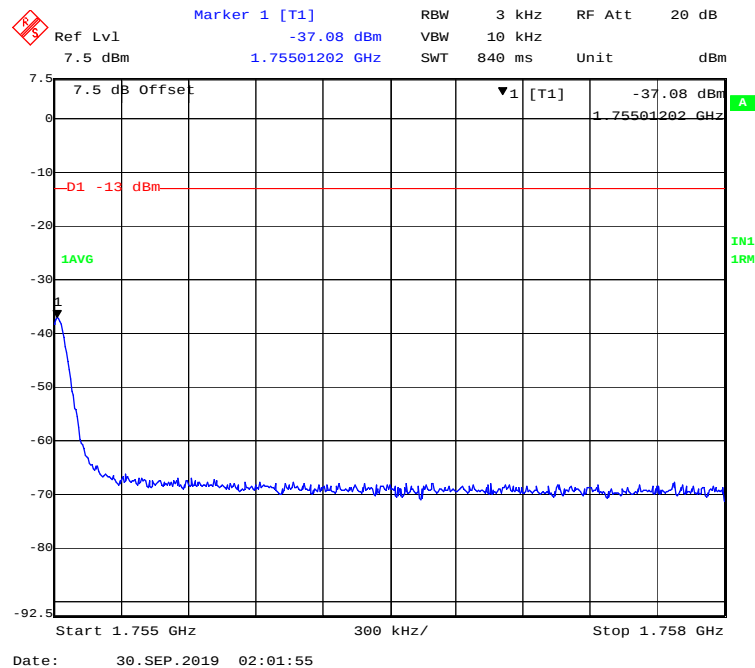


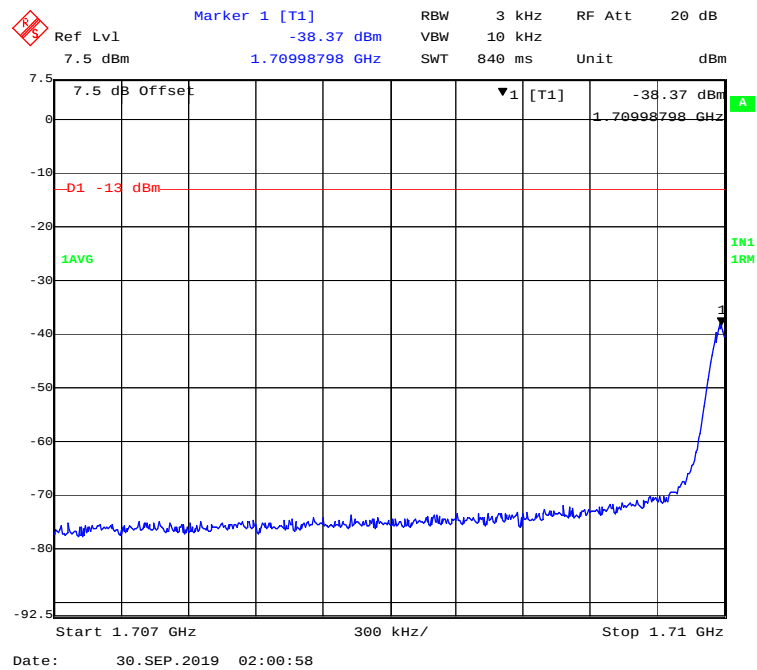
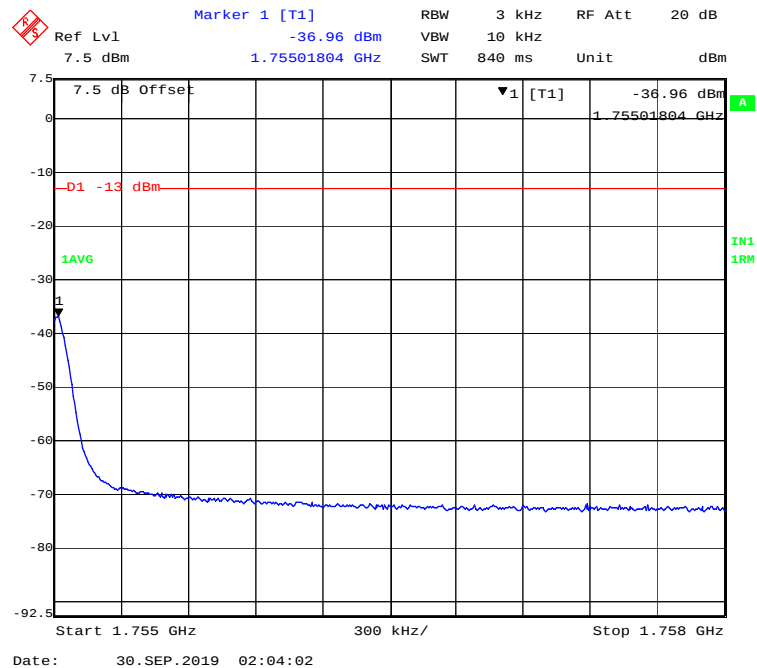
AWS Band, Left Band Edge for AWGN-3dB Above AGC**AWS Band, Right Band Edge for AWGN-3dB Above AGC**

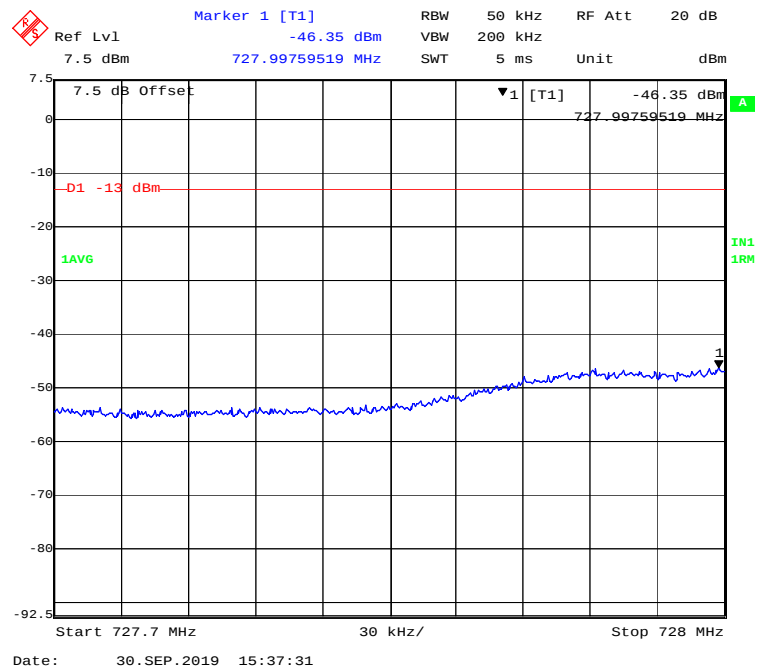
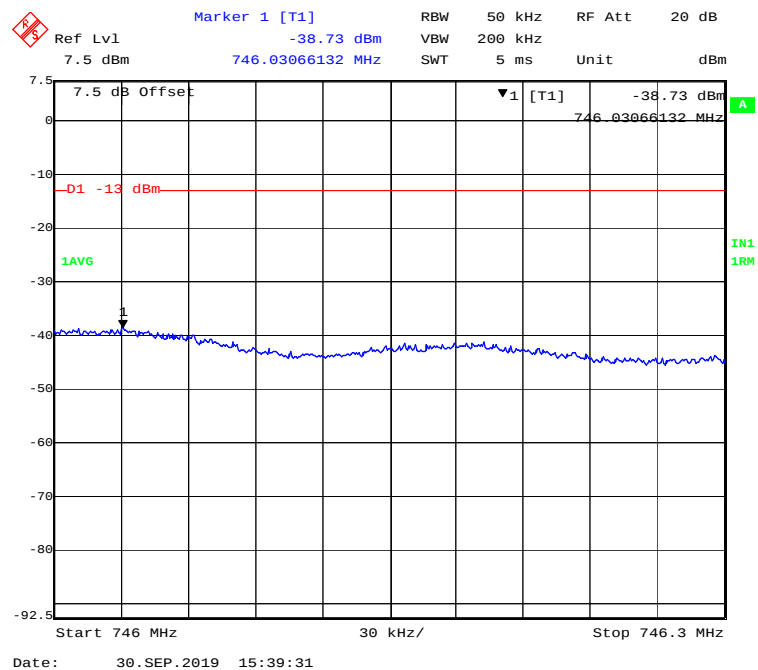
AWS Band, Left Band Edge for GSM-Pre AGC

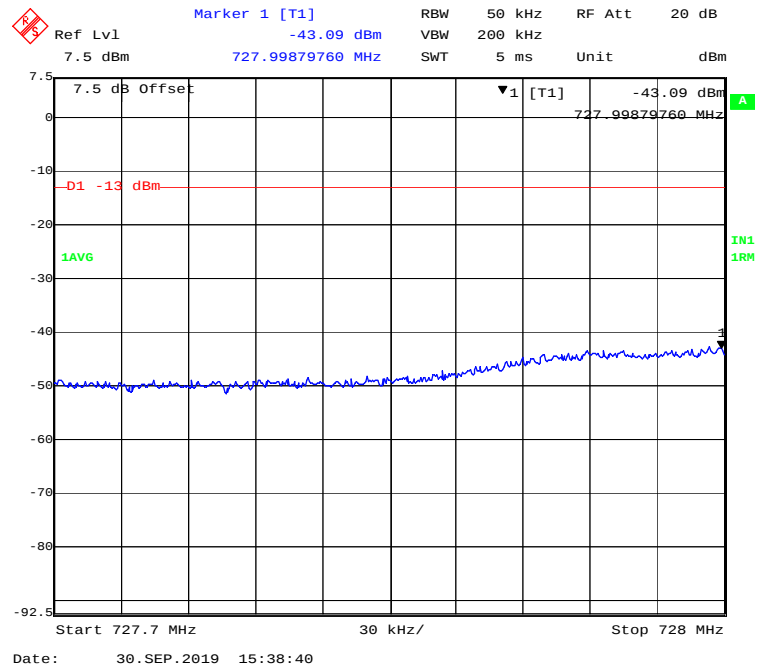
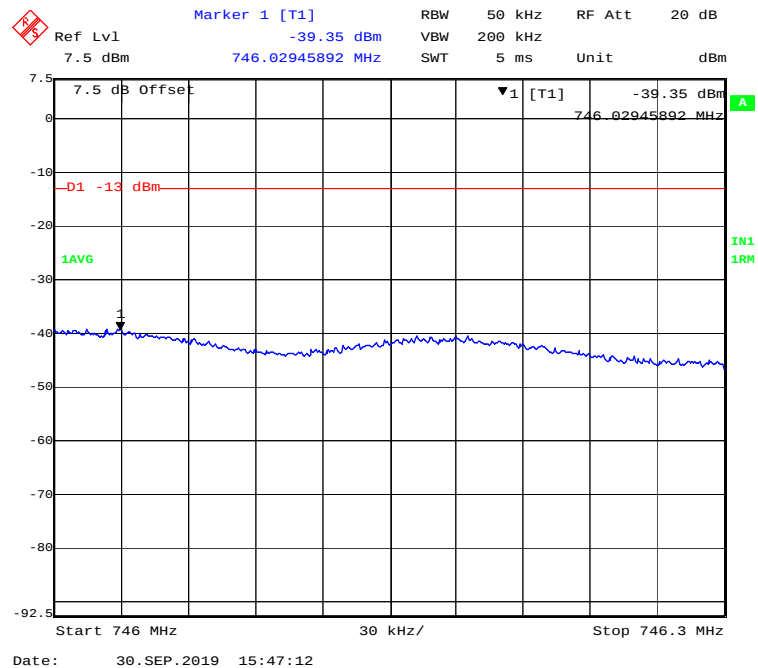


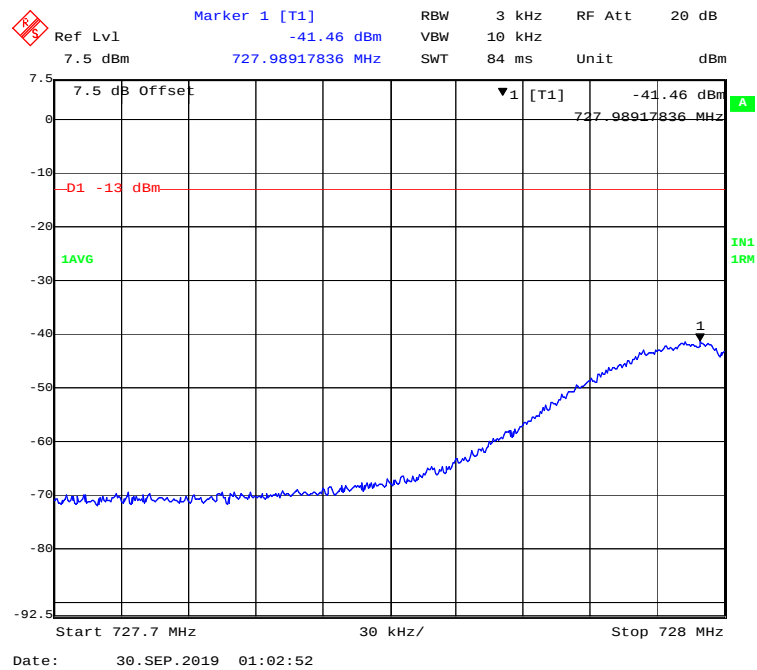
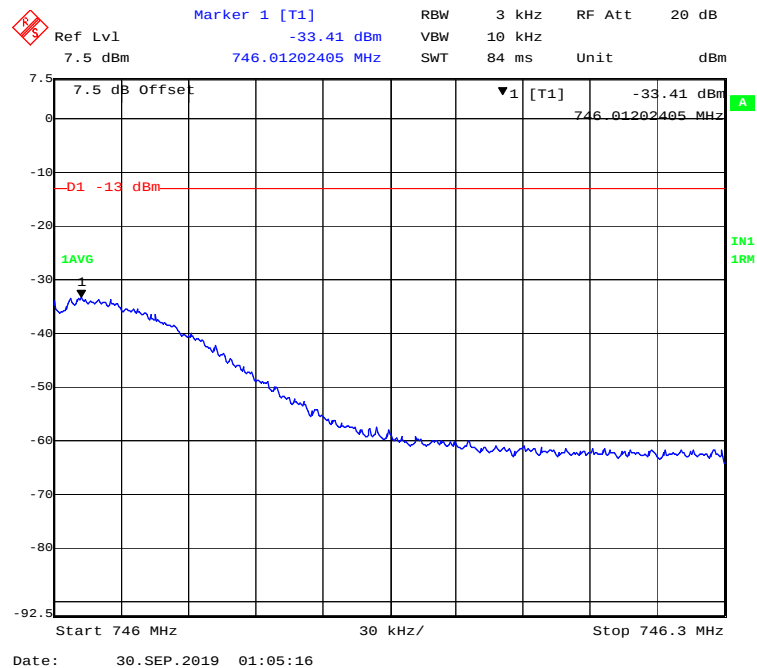
AWS Band, Right Band Edge for GSM-Pre AGC

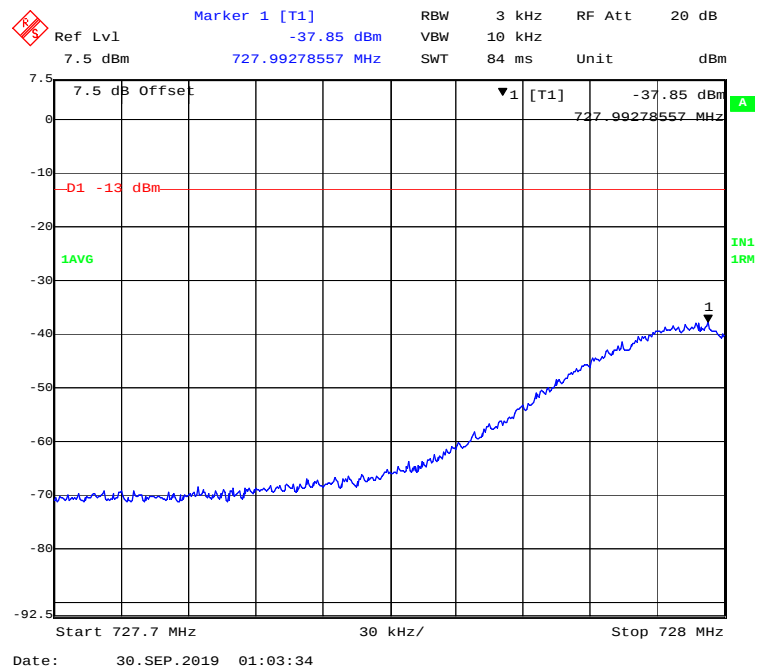
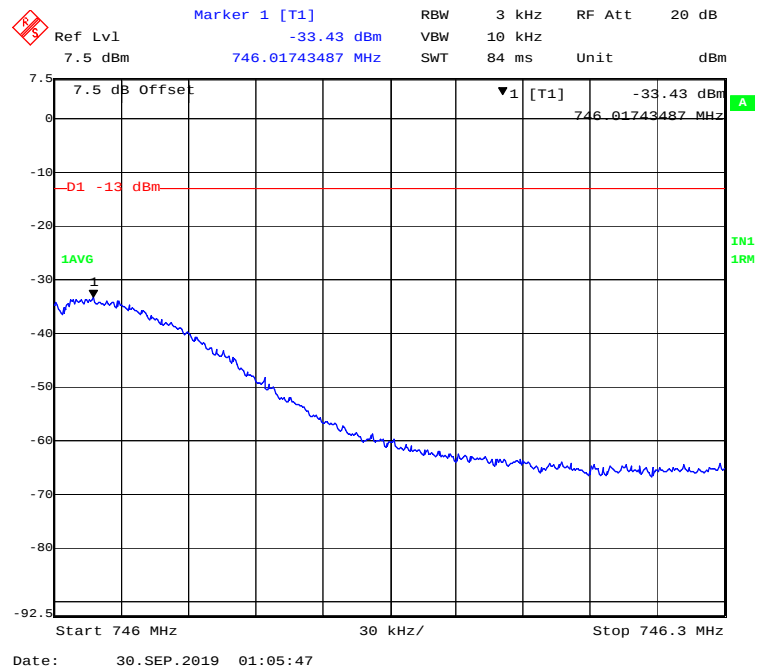


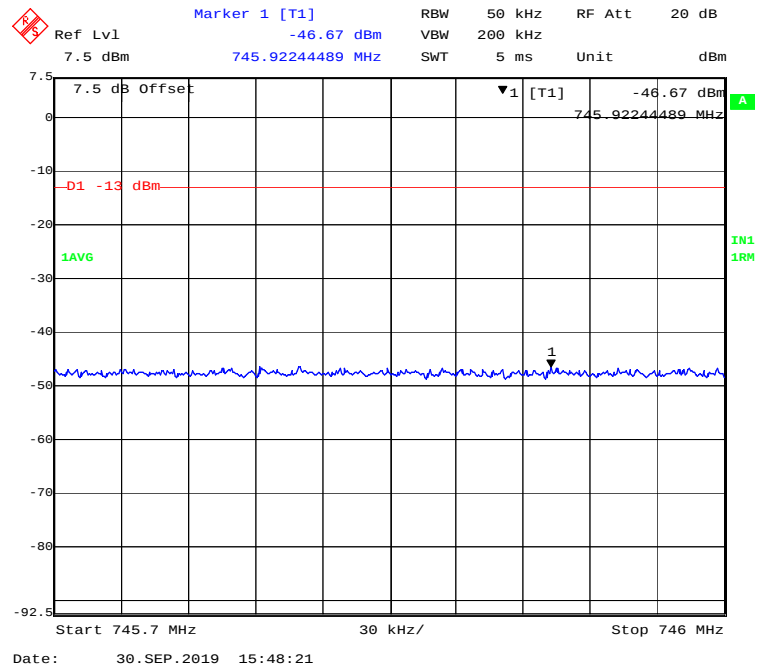
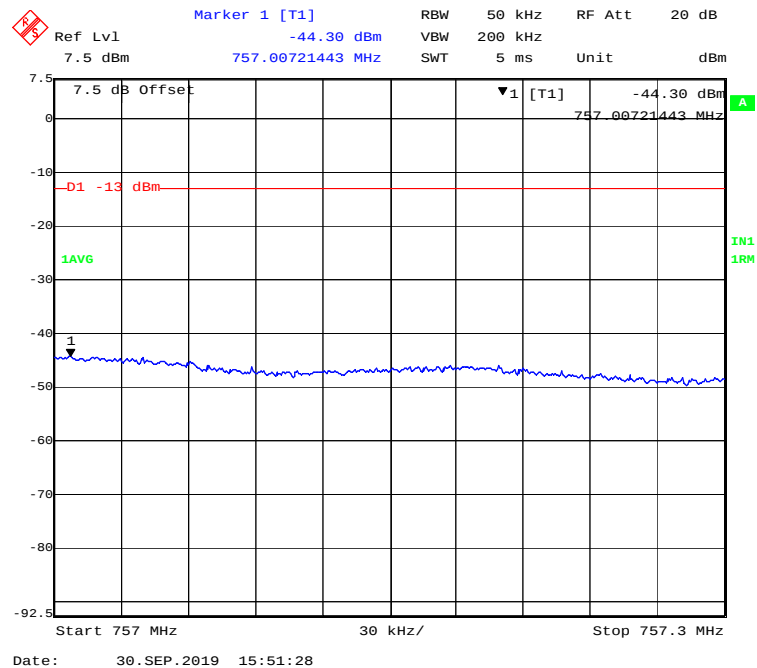
AWS Band, Left Band Edge for GSM-3dB Above AGC**AWS Band, Right Band Edge for GSM-3dB Above AGC**

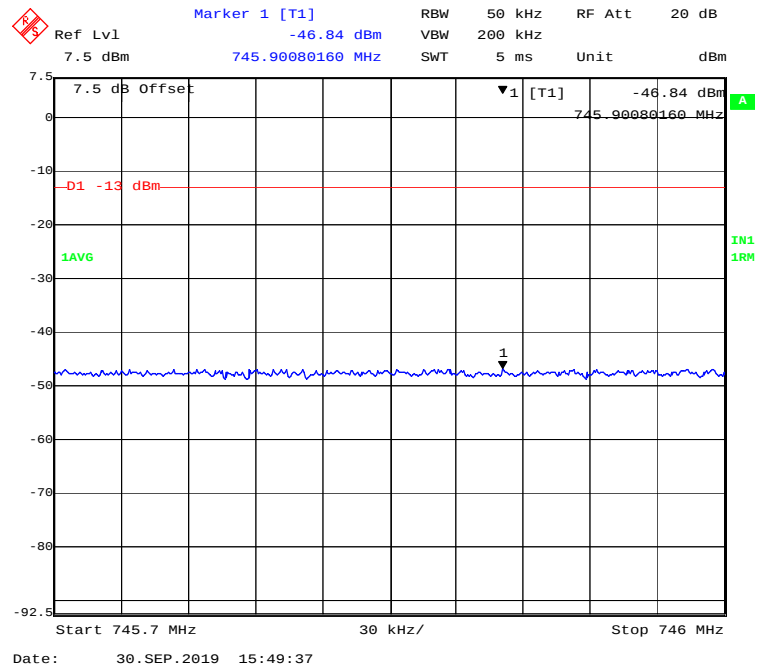
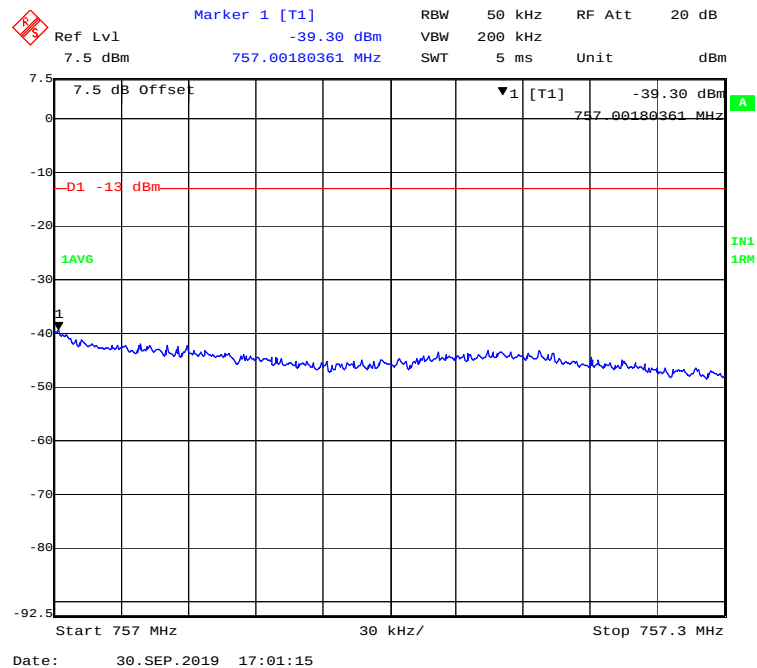
Downlink:**Lower 700MHz (A+B+C Block) Band, Left Band Edge for AWGN-Pre AGC****Lower 700MHz (A+B+C Block) Band, Right Band Edge for AWGN-Pre AGC**

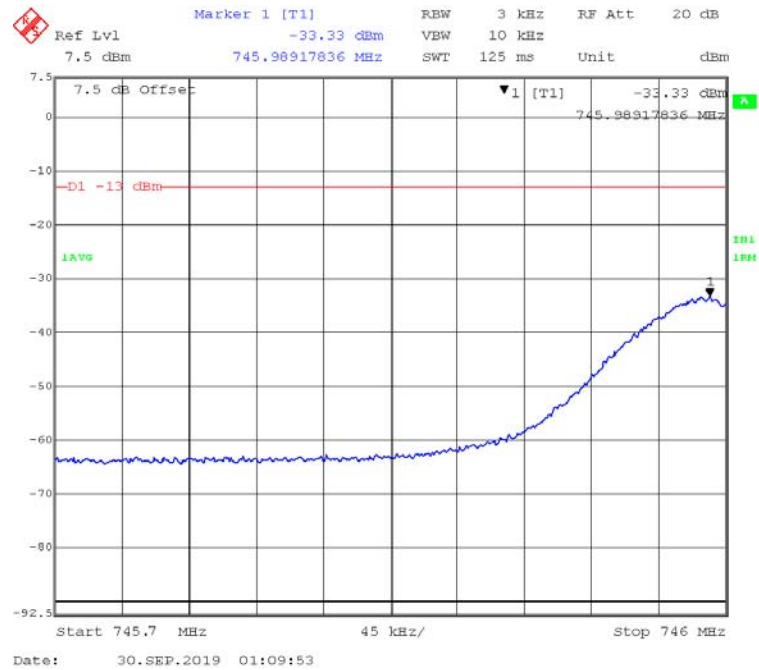
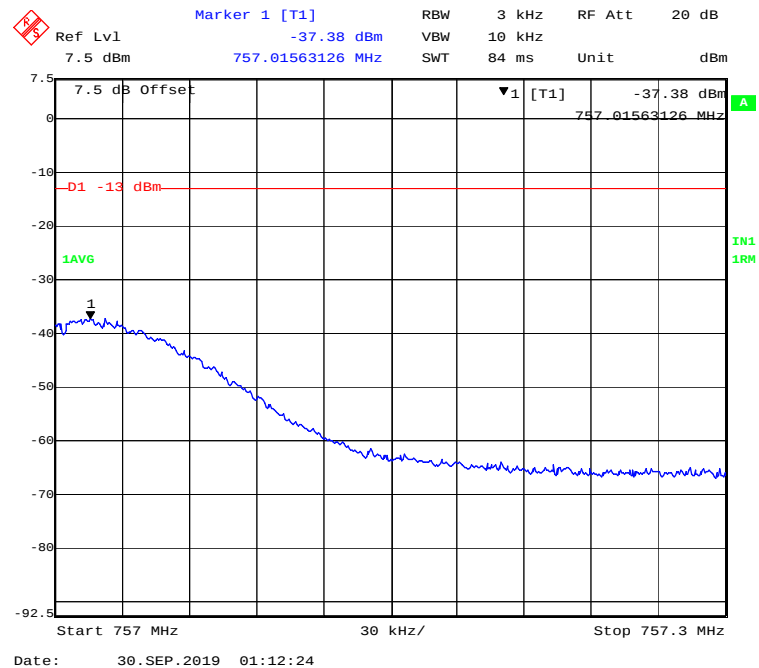
Lower 700MHz (A+B+C Block) Band, Left Band Edge for AWGN-3dB Above AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for AWGN-3dB Above AGC**

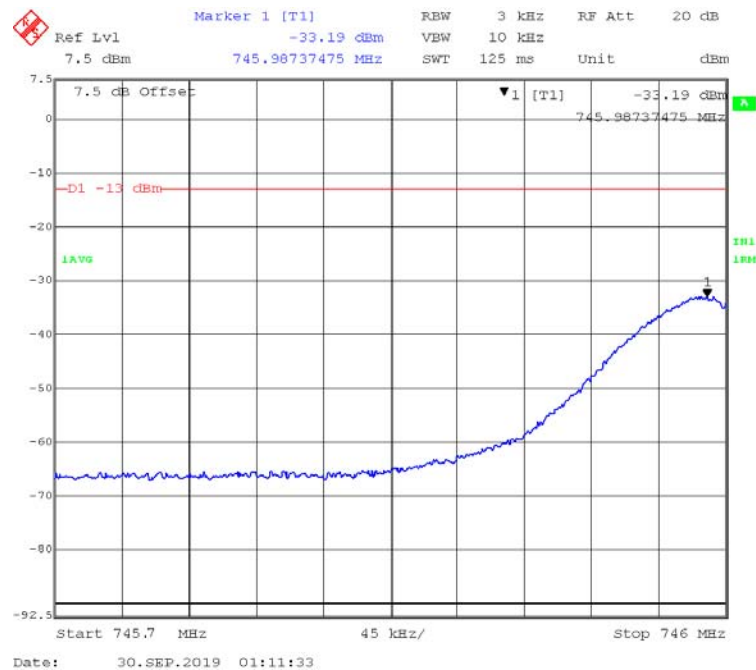
Lower 700MHz (A+B+C Block) Band, Left Band Edge for GSM-Pre AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for GSM-Pre AGC**

Lower 700MHz (A+B+C Block) Band, Left Band Edge for GSM-3dB Above AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for GSM-3dB Above AGC**

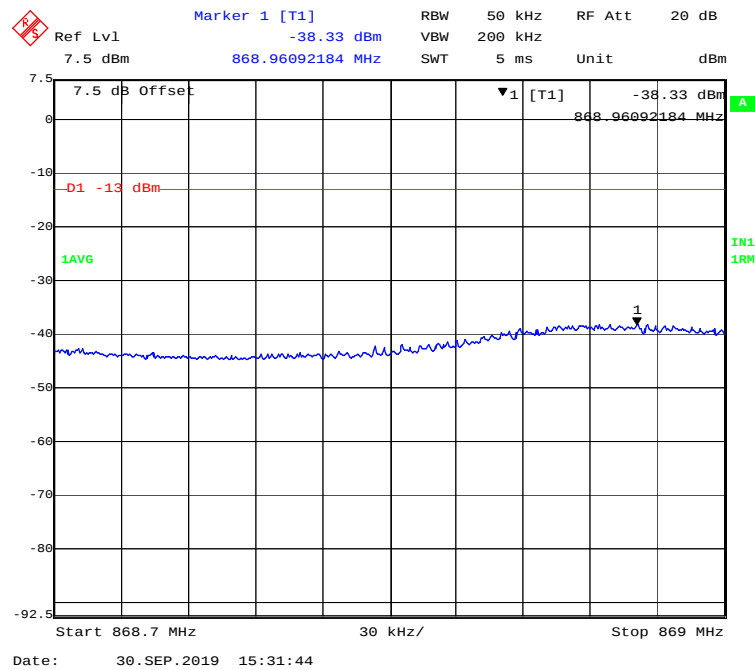
Upper 700MHz (C Block) Band, Left Band Edge for AWGN-Pre AGC**Upper 700MHz (C Block) Band, Right Band Edge for AWGN-Pre AGC**

Upper 700MHz (C Block) Band, Left Band Edge for AWGN-3dB Above AGC**Upper 700MHz (C Block) Band, Right Band Edge for AWGN-3dB Above AGC**

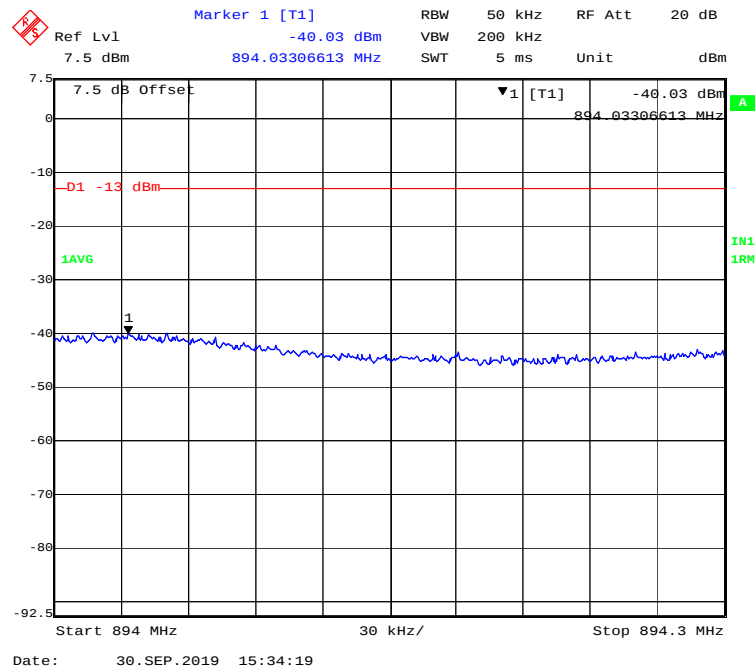
Upper 700MHz (C Block) Band, Left Band Edge for GSM-Pre AGC**Upper 700MHz (C Block) Band, Right Band Edge for GSM-Pre AGC**

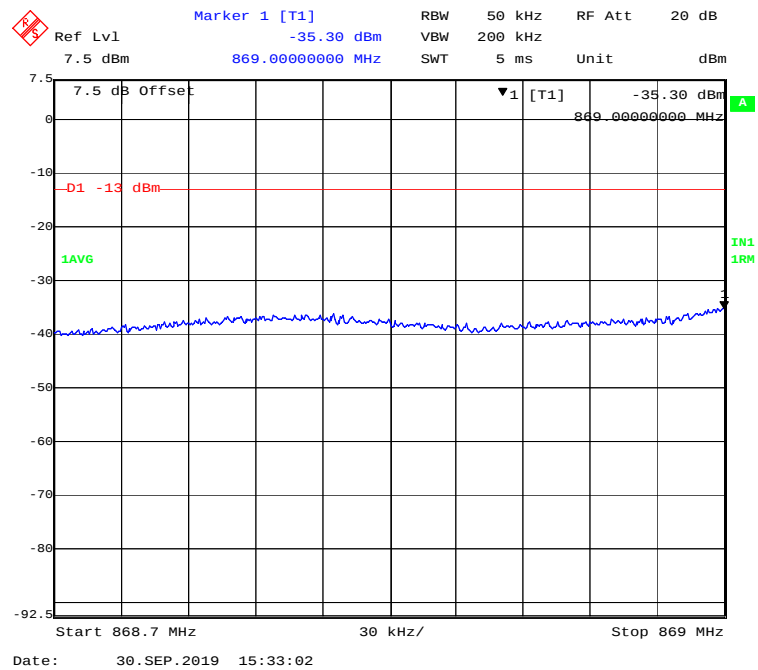
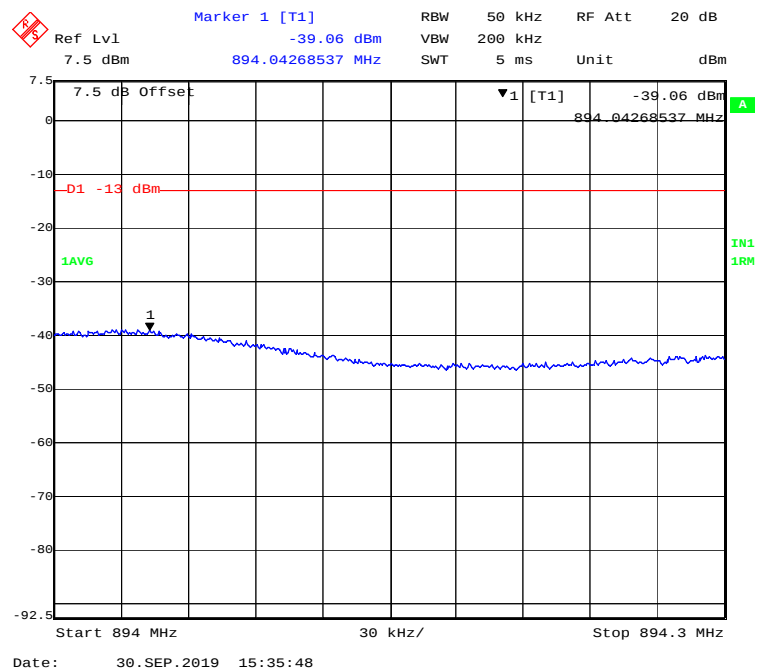
Upper 700MHz (C Block) Band, Left Band Edge for GSM-3dB Above AGC**Upper 700MHz (C Block) Band, Right Band Edge for GSM-3dB Above AGC**

Cellular Band, Left Band Edge for AWGN-Pre AGC

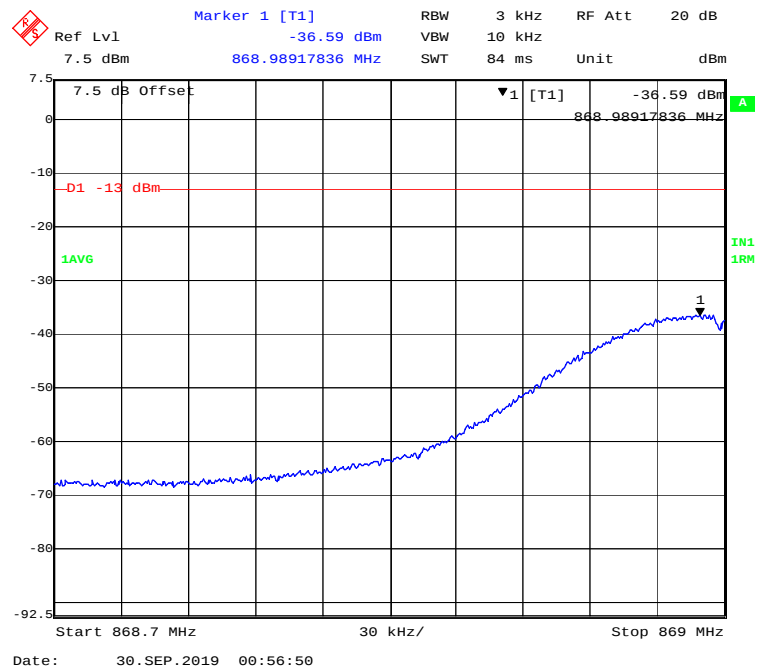


Cellular Band, Right Band Edge for AWGN-Pre AGC

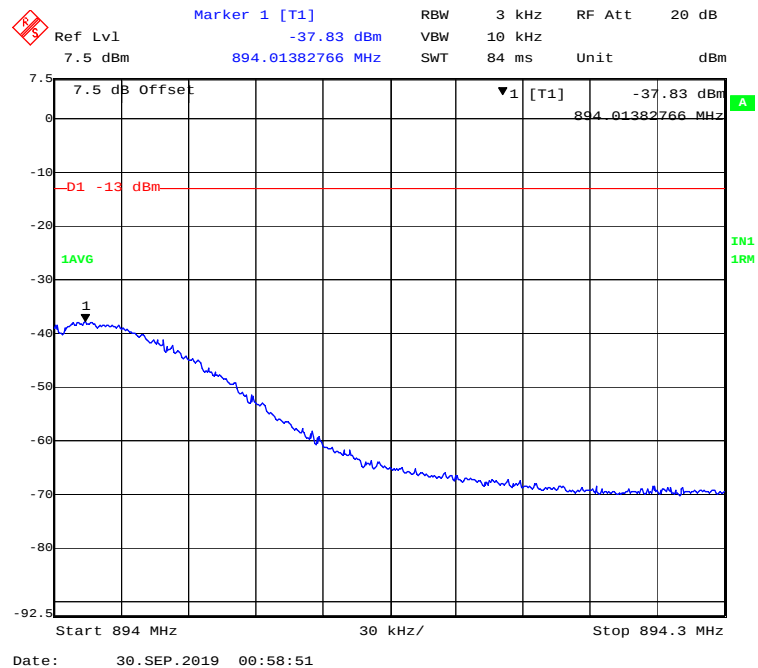


Cellular Band, Left Band Edge for AWGN-3dB Above AGC**Cellular Band, Right Band Edge for AWGN-3dB Above AGC**

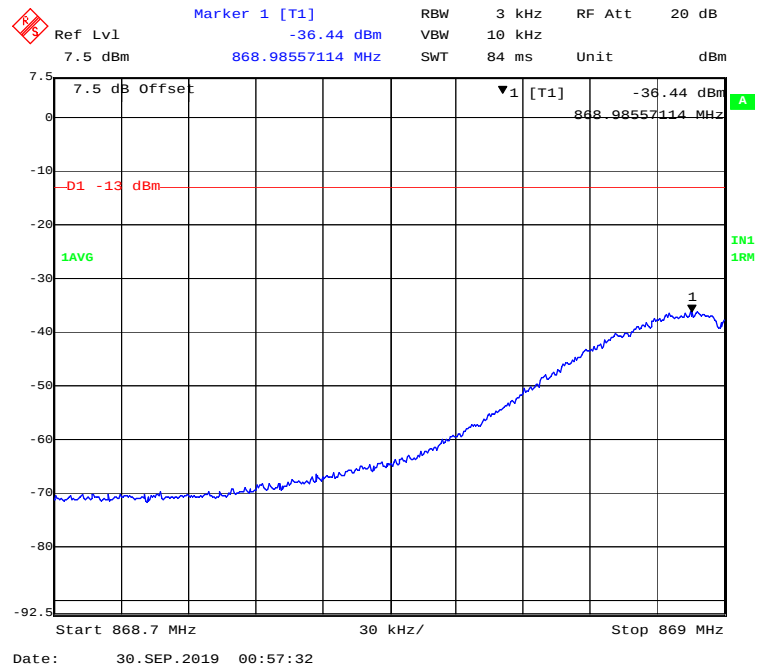
Cellular Band, Left Band Edge for GSM-Pre AGC



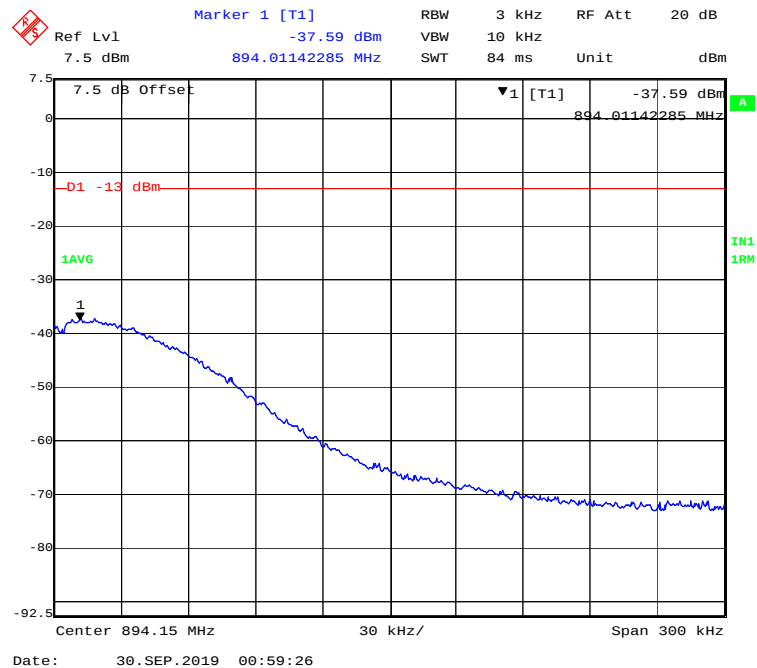
Cellular Band, Right Band Edge for GSM-Pre AGC



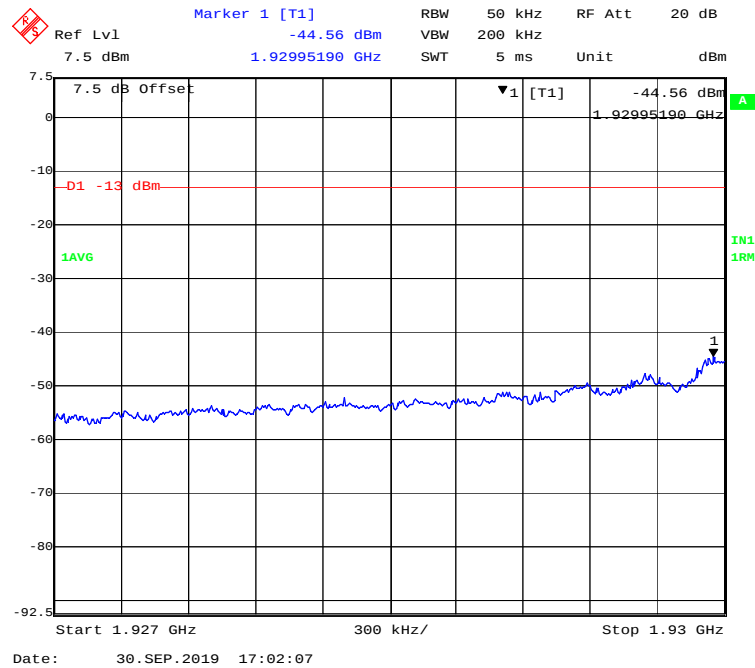
Cellular Band, Left Band Edge for GSM-3dB Above AGC



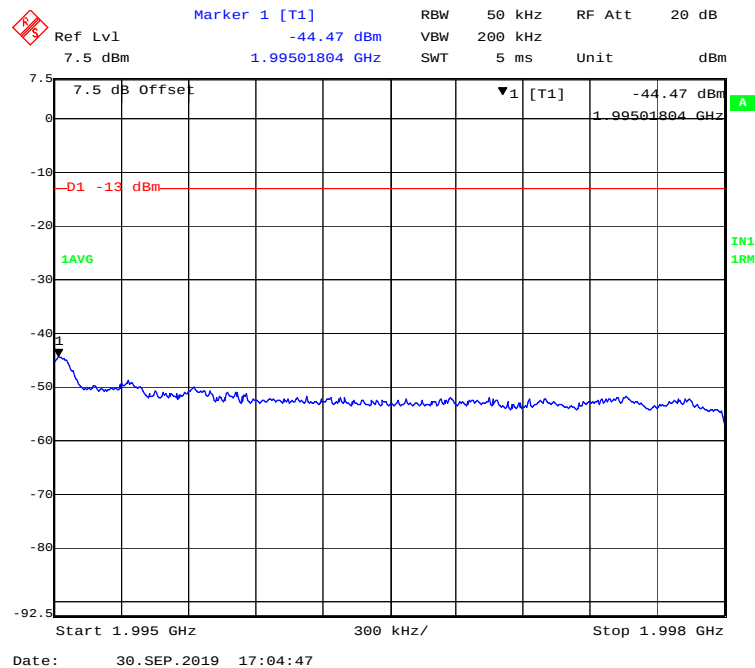
Cellular Band, Right Band Edge for GSM-3dB Above AGC

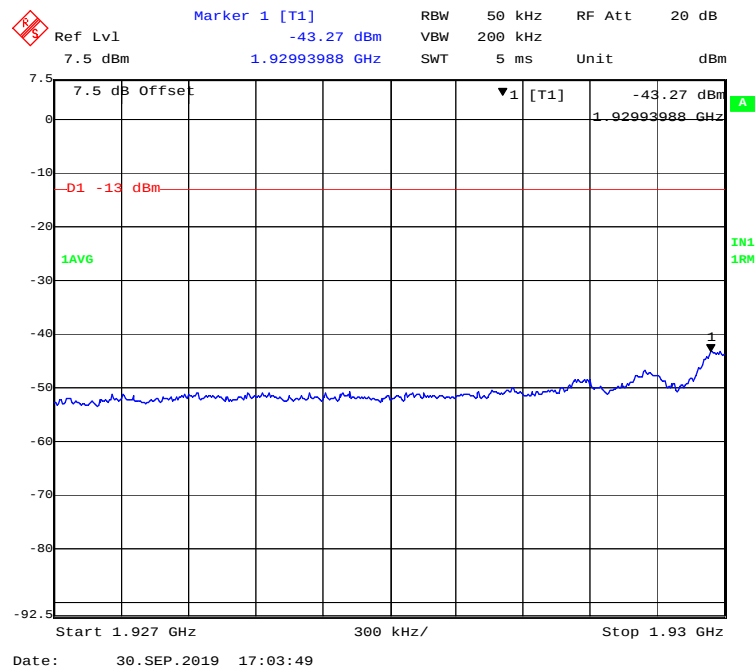
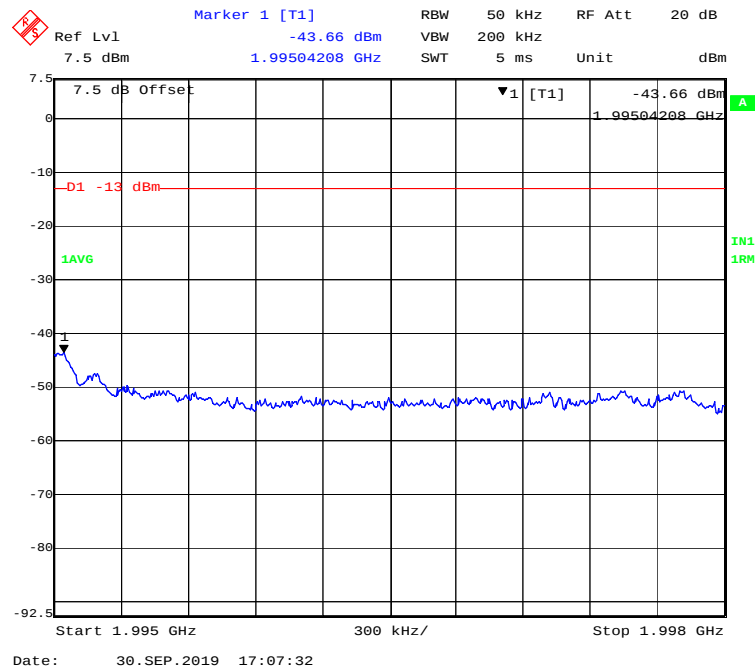


PCS Band, Left Band Edge for AWGN-Pre AGC

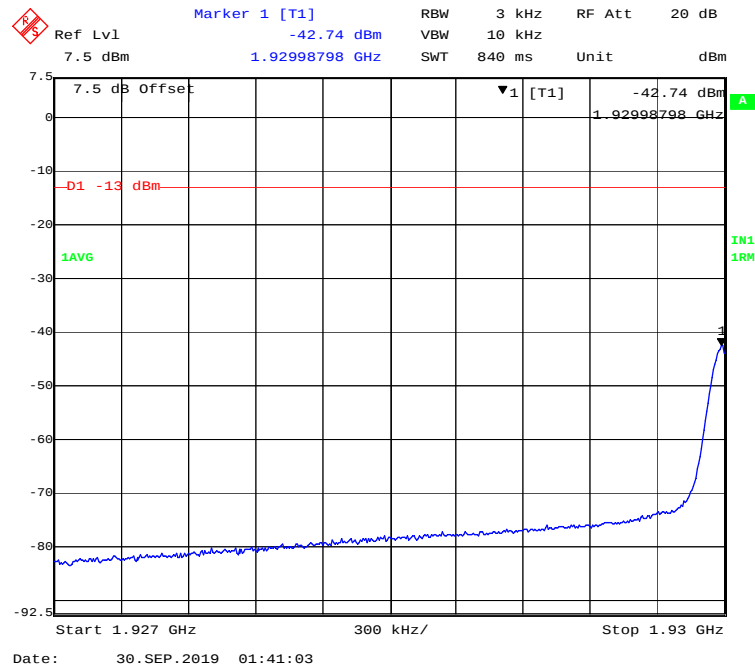


PCS Band, Right Band Edge for AWGN-Pre AGC

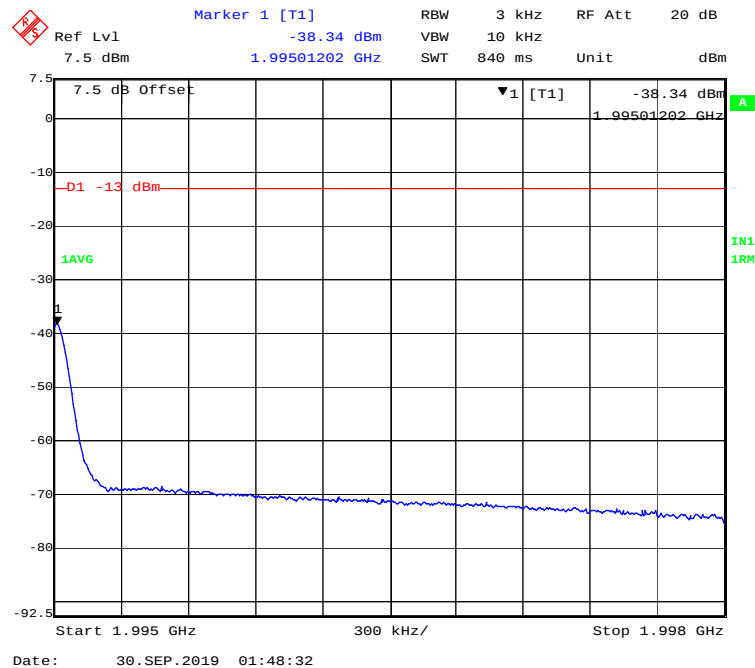


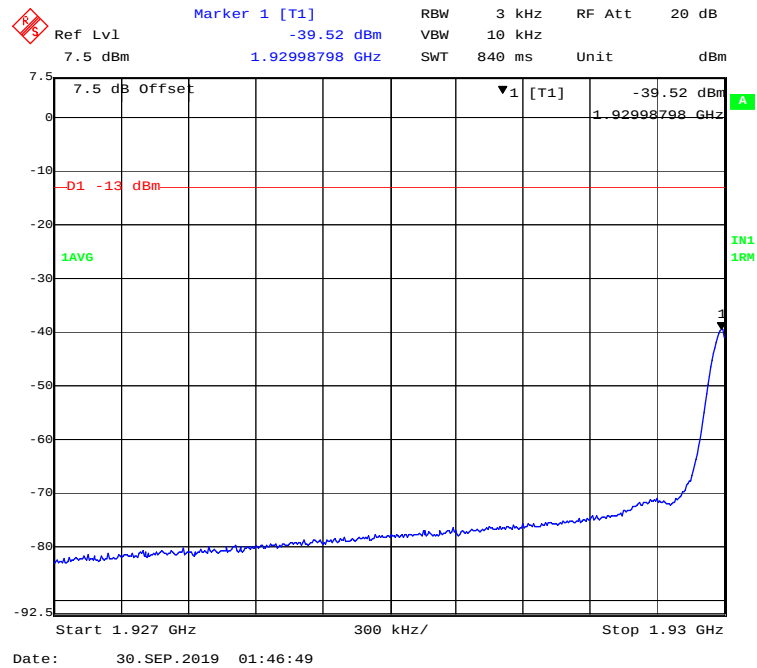
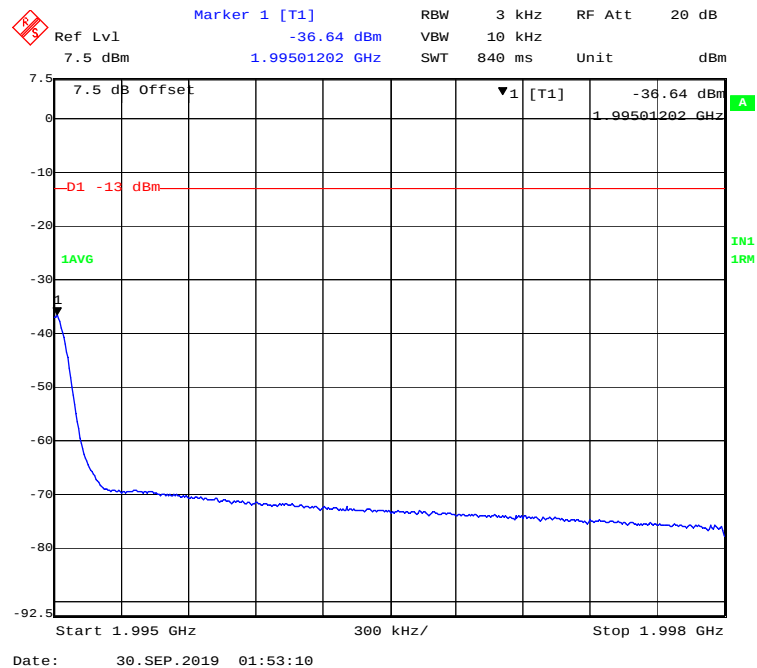
PCS Band, Left Band Edge for AWGN-3dB Above AGC**PCS Band, Right Band Edge for AWGN-3dB Above AGC**

PCS Band, Left Band Edge for GSM-Pre AGC

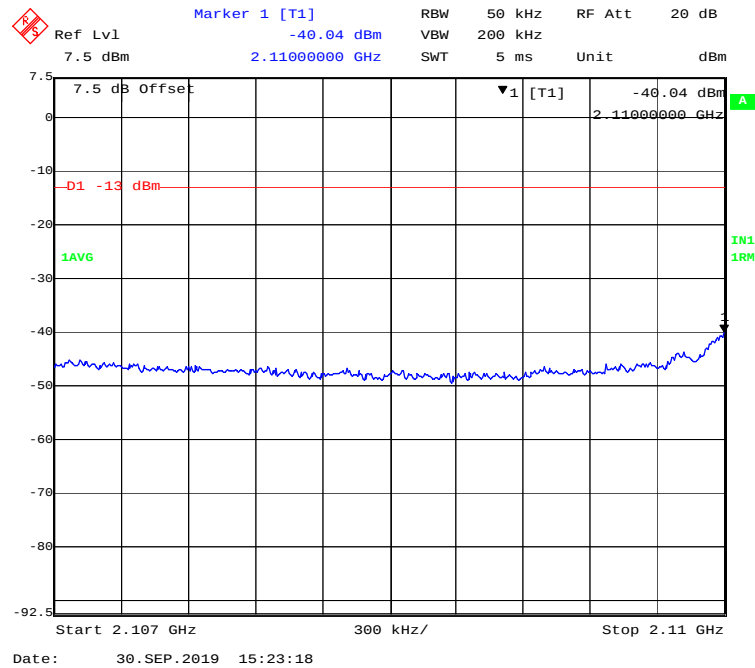


PCS Band, Right Band Edge for GSM-Pre AGC

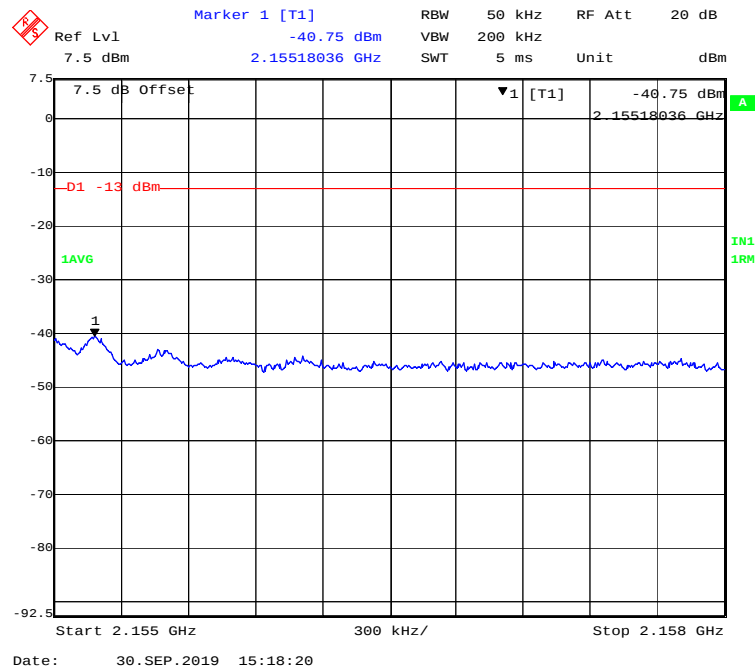


PCS Band, Left Band Edge for GSM-3dB Above AGC**PCS Band, Right Band Edge for GSM-3dB Above AGC**

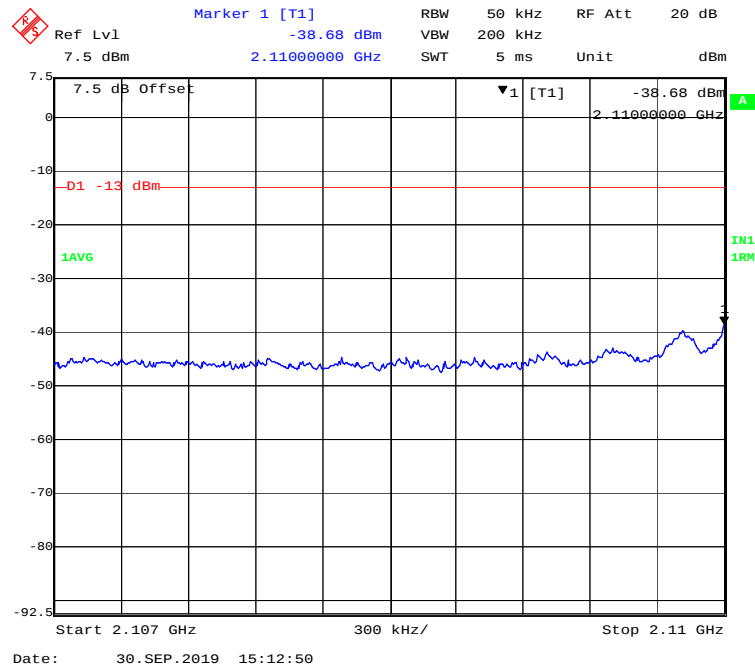
AWS Band, Left Band Edge for AWGN-Pre AGC



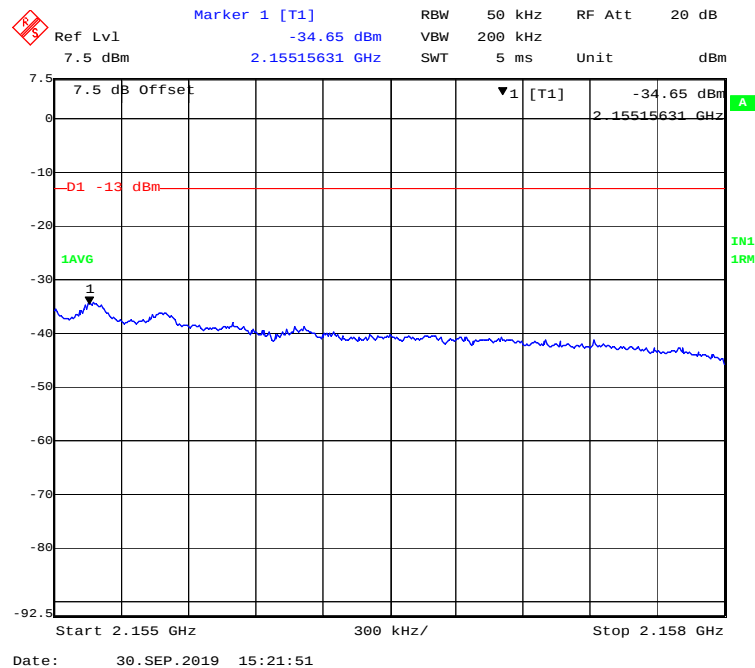
AWS Band, Right Band Edge for AWGN-Pre AGC



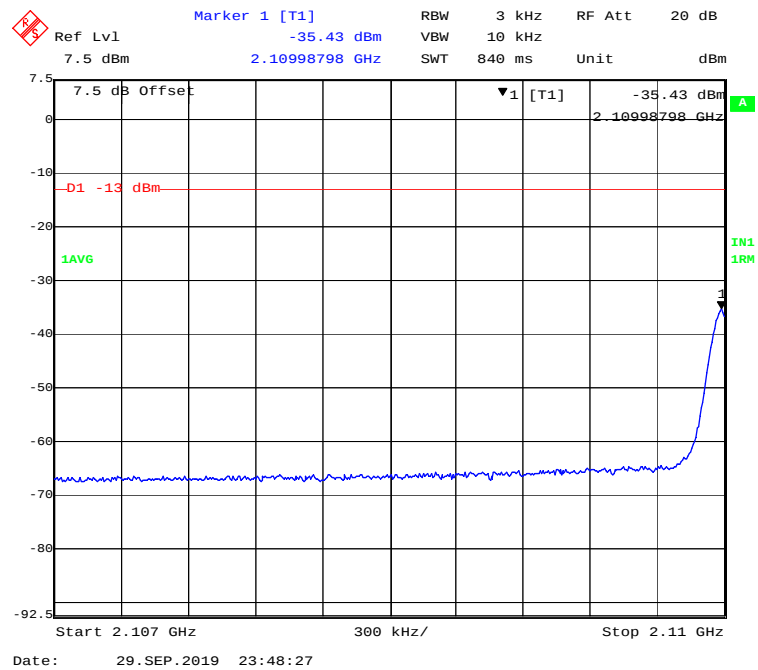
AWS Band, Left Band Edge for AWGN-3dB Above AGC



AWS Band, Right Band Edge for AWGN-3dB Above AGC

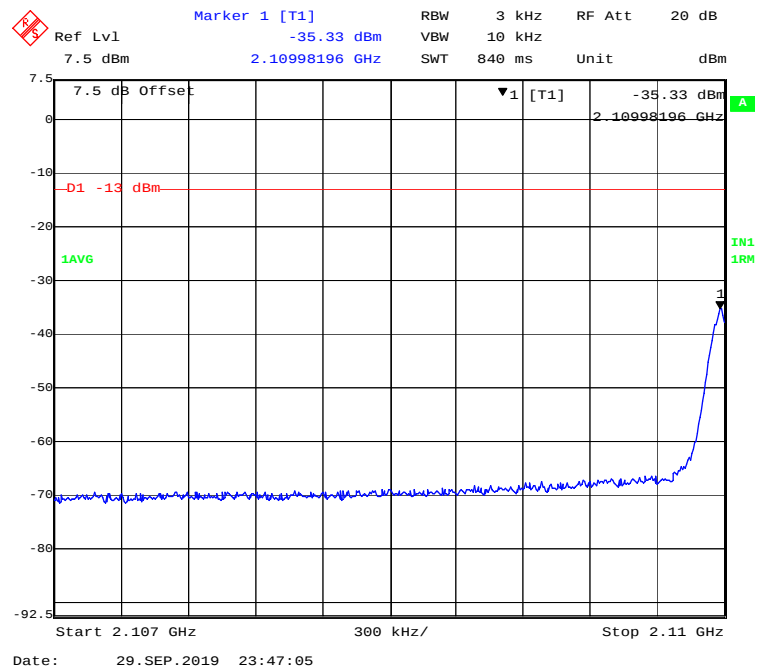


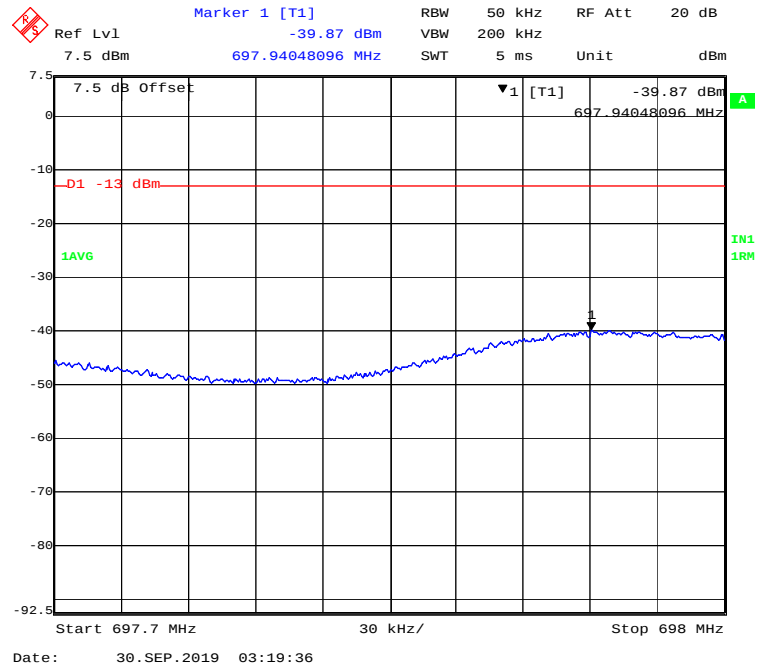
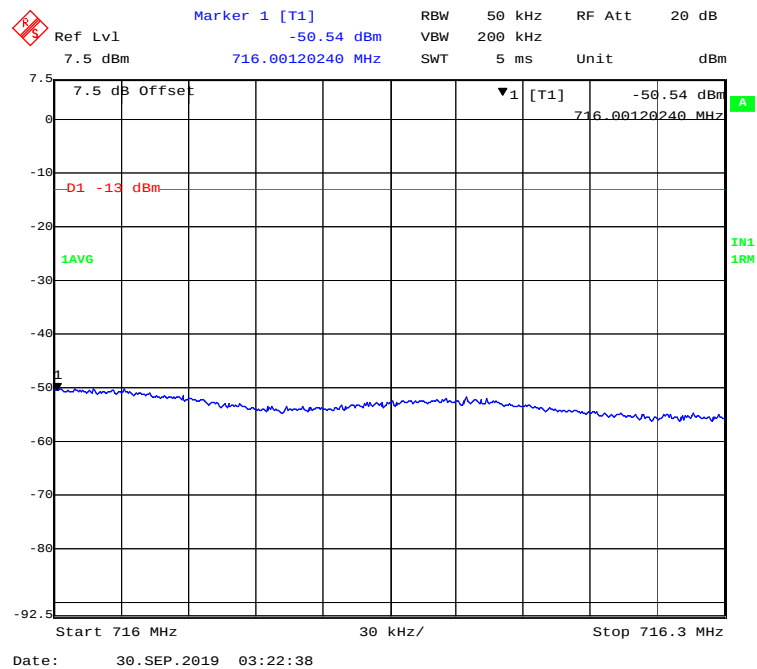
AWS Band, Left Band Edge for GSM-Pre AGC

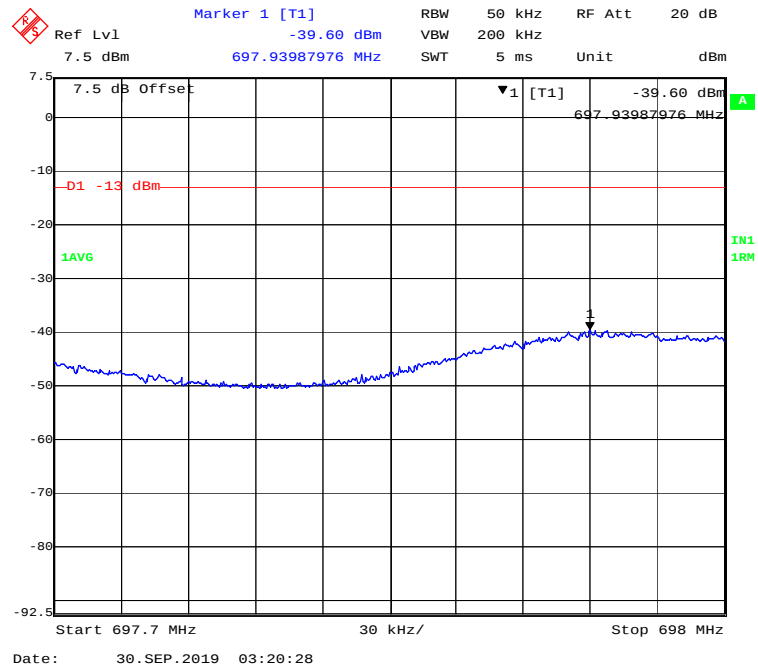
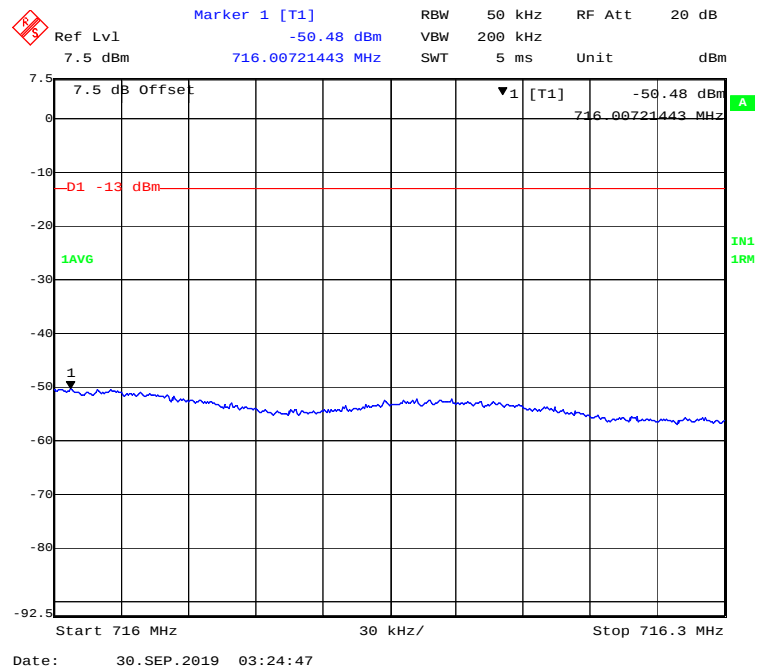


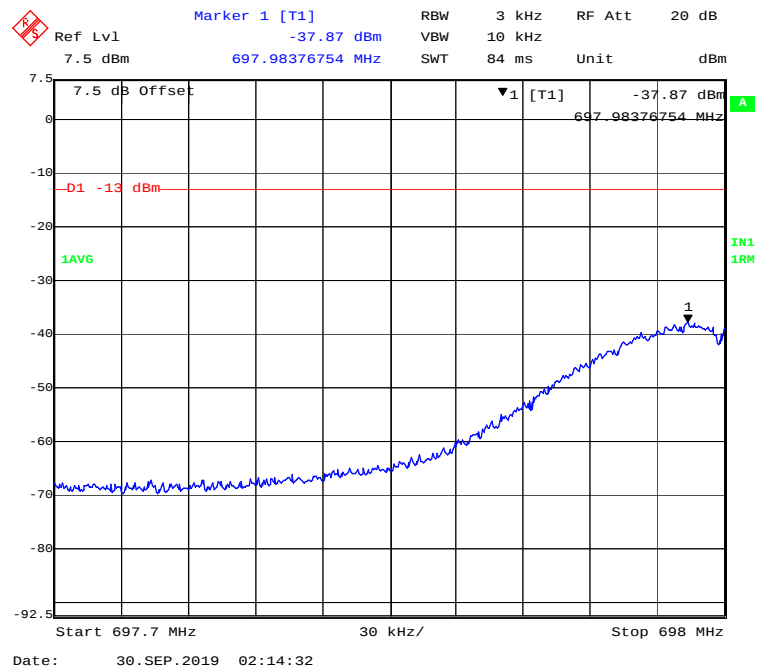
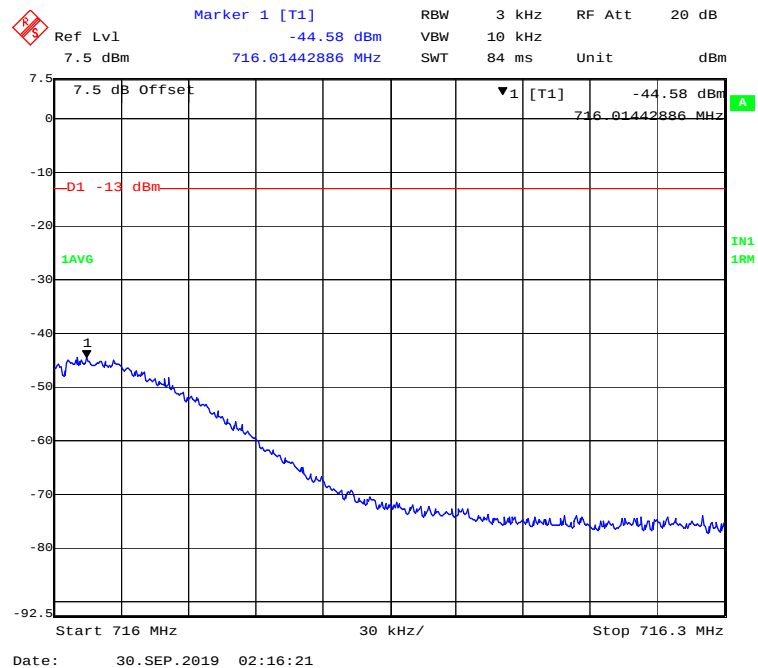
AWS Band, Right Band Edge for GSM-Pre AGC

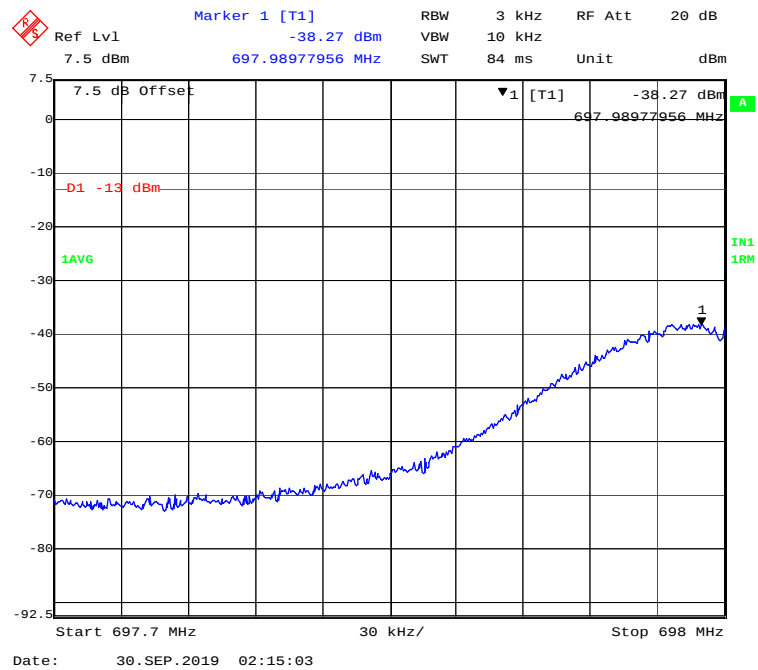
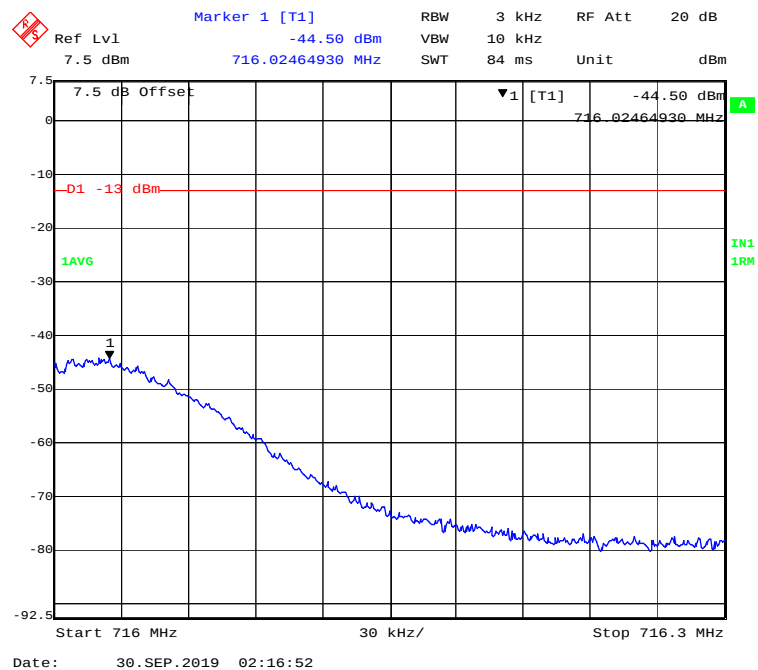


AWS Band, Left Band Edge for GSM-3dB Above AGC**AWS Band, Right Band Edge for GSM-3dB Above AGC**

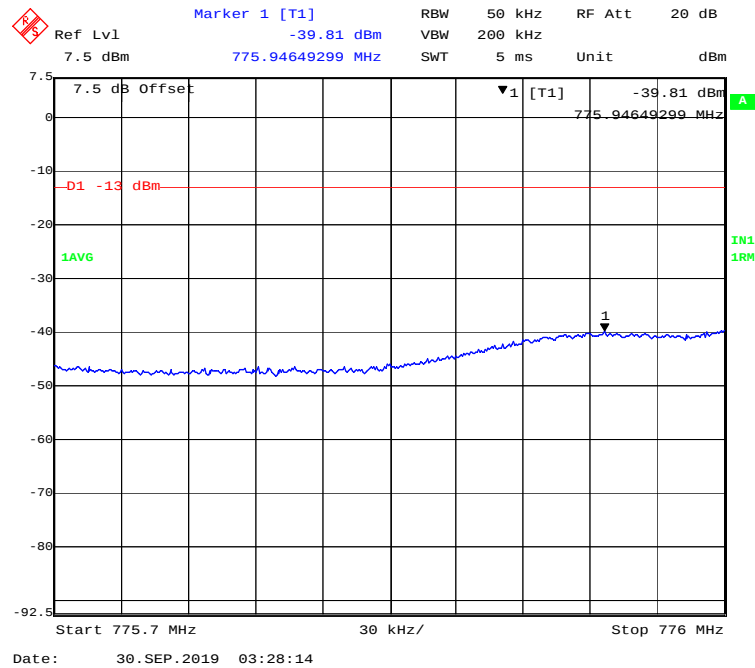
Inter-Modulation**Uplink:****Lower 700MHz (A+B+C Block) Band, Left Band Edge for AWGN-Pre AGC****Lower 700MHz (A+B+C Block) Band, Right Band Edge for AWGN-Pre AGC**

Lower 700MHz (A+B+C Block) Band, Left Band Edge for AWGN-3dB Above AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for AWGN-3dB Above AGC**

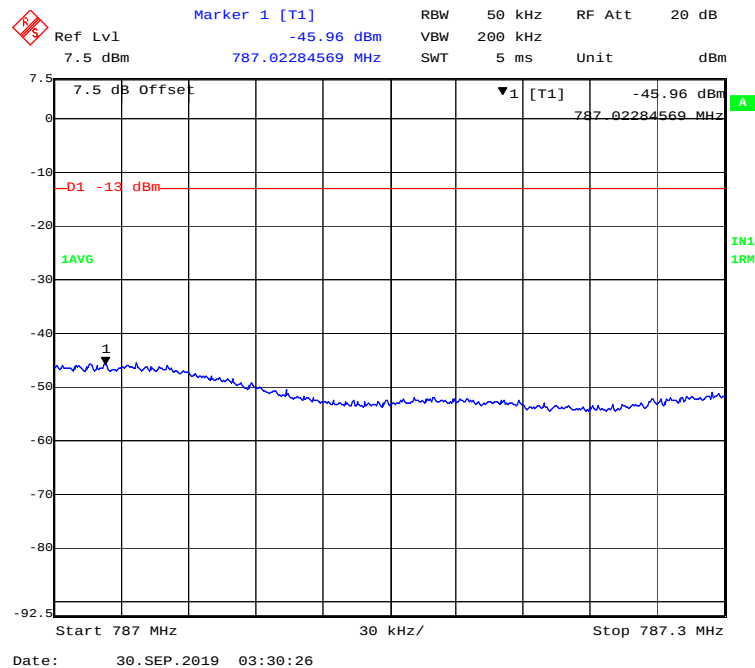
Lower 700MHz (A+B+C Block) Band, Left Band Edge for GSM-Pre AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for GSM-Pre AGC**

Lower 700MHz (A+B+C Block) Band, Left Band Edge for GSM-3dB Above AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for GSM-3dB Above AGC**

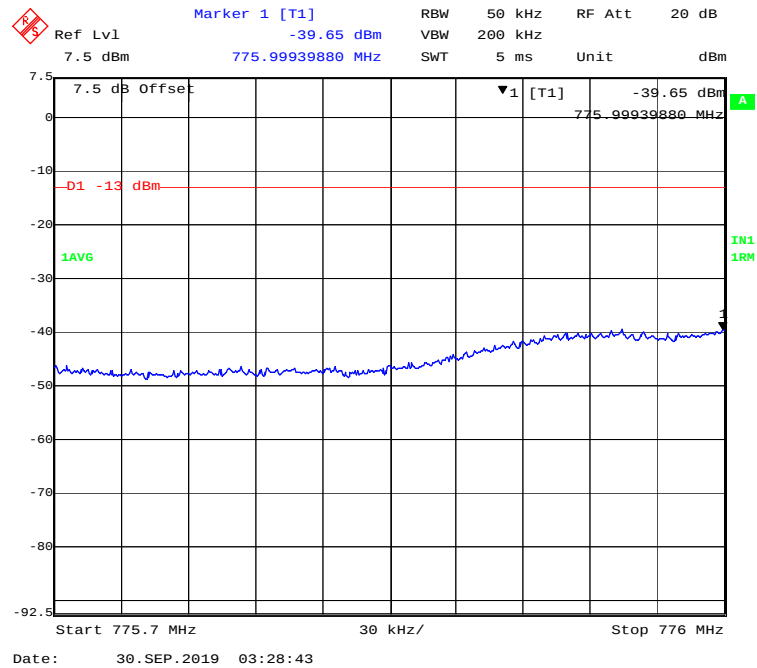
Upper 700MHz (C Block) Band, Left Band Edge for AWGN-Pre AGC



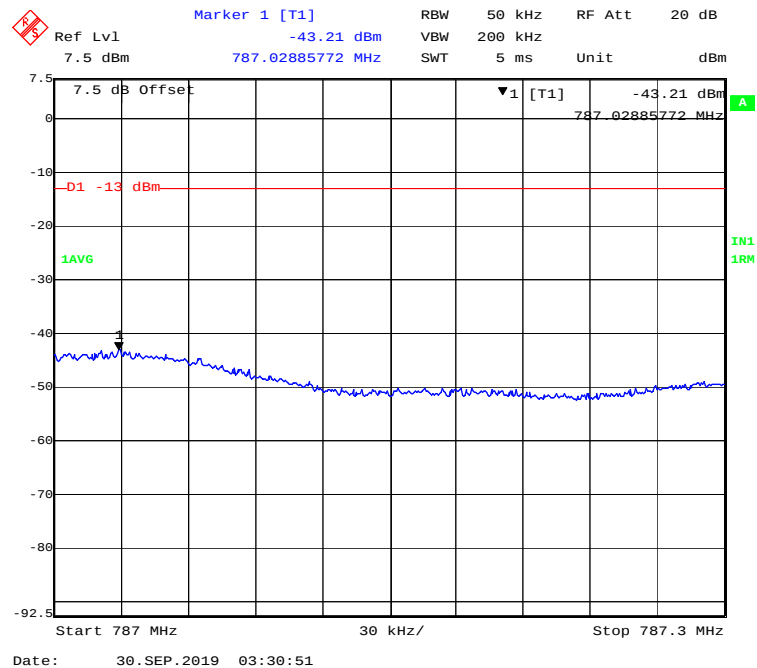
Upper 700MHz (C Block) Band, Right Band Edge for AWGN-Pre AGC

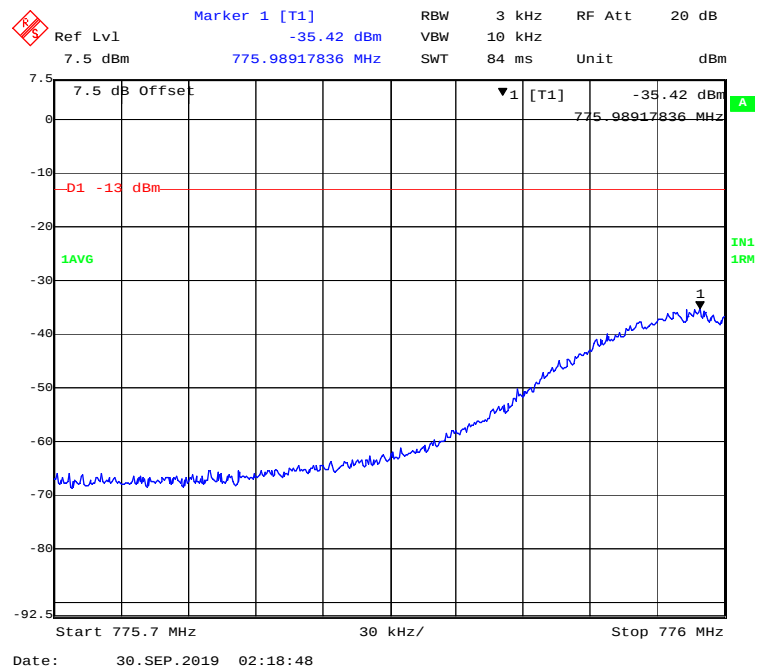
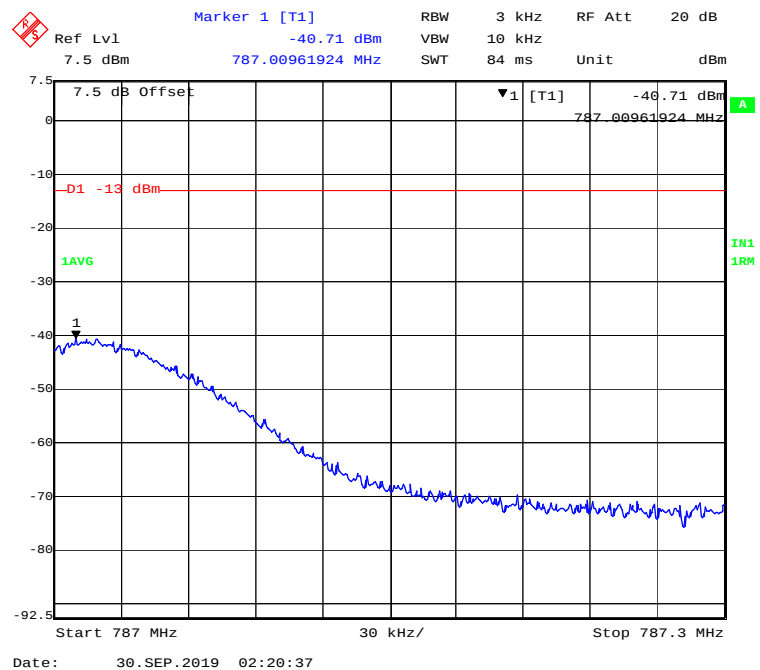


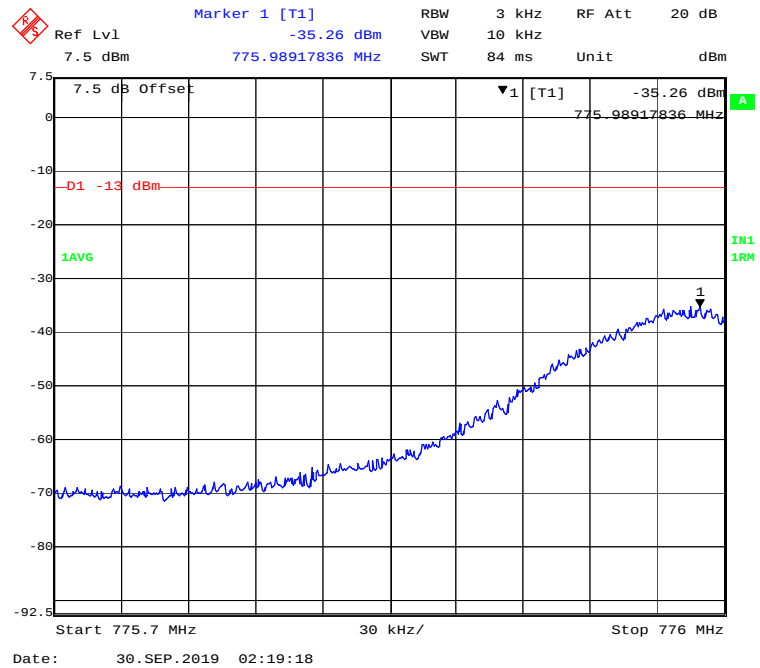
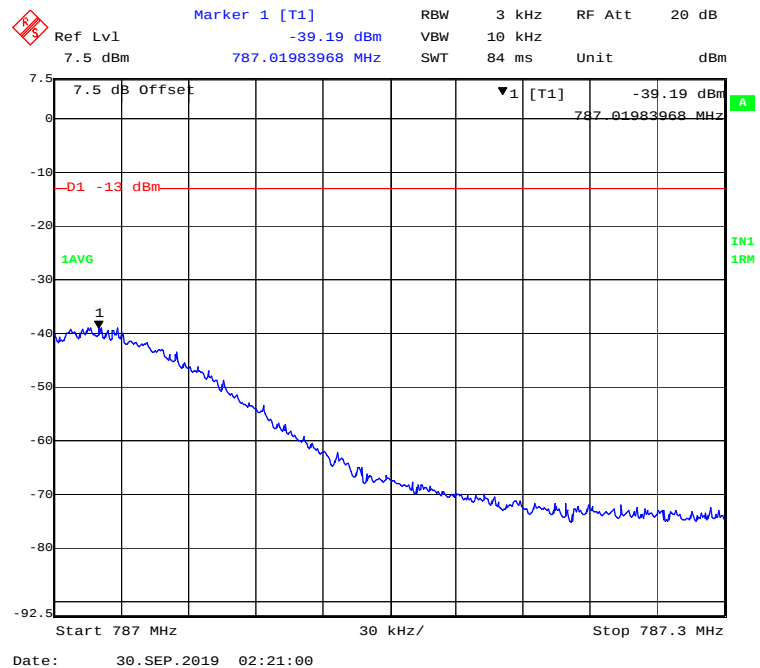
Upper 700MHz (C Block) Band, Left Band Edge for AWGN-3dB Above AGC



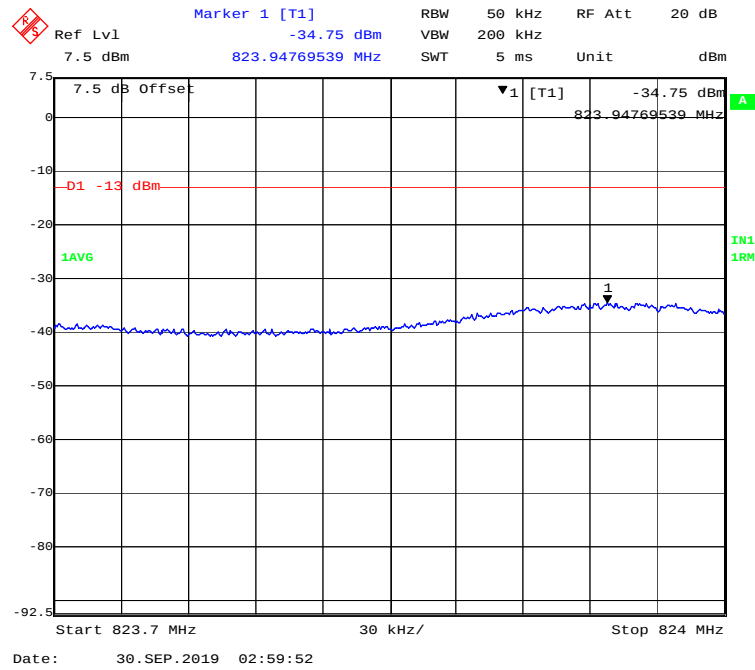
Upper 700MHz (C Block) Band, Right Band Edge for AWGN-3dB Above AGC



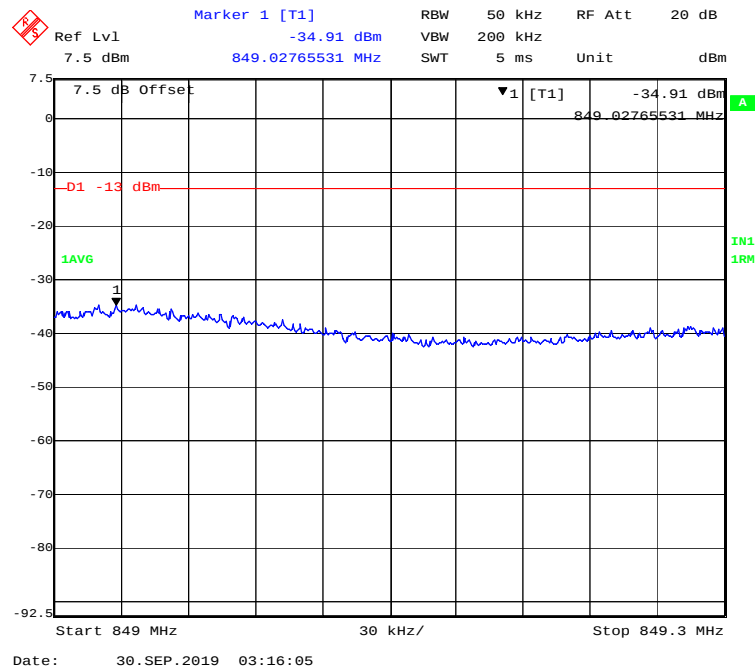
Upper 700MHz (C Block) Band, Left Band Edge for GSM-Pre AGC**Upper 700MHz (C Block) Band, Right Band Edge for GSM-Pre AGC**

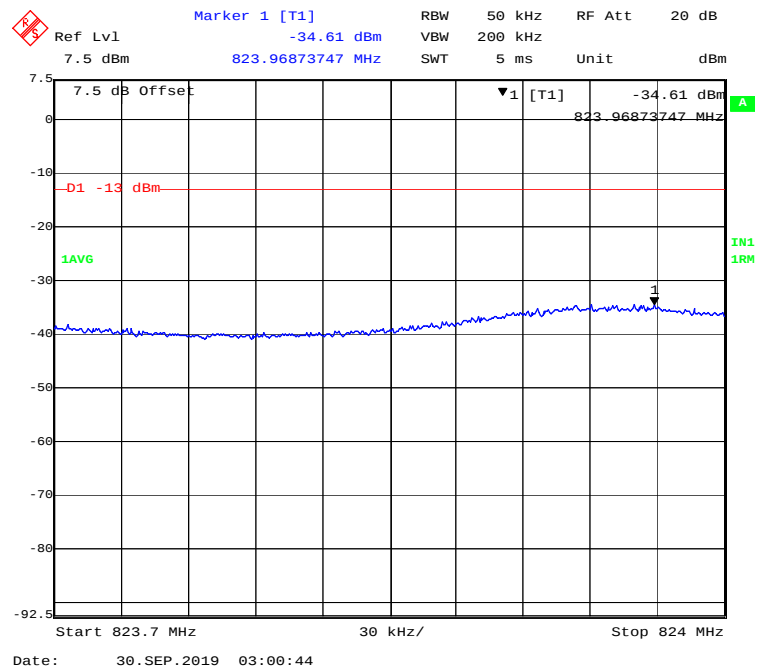
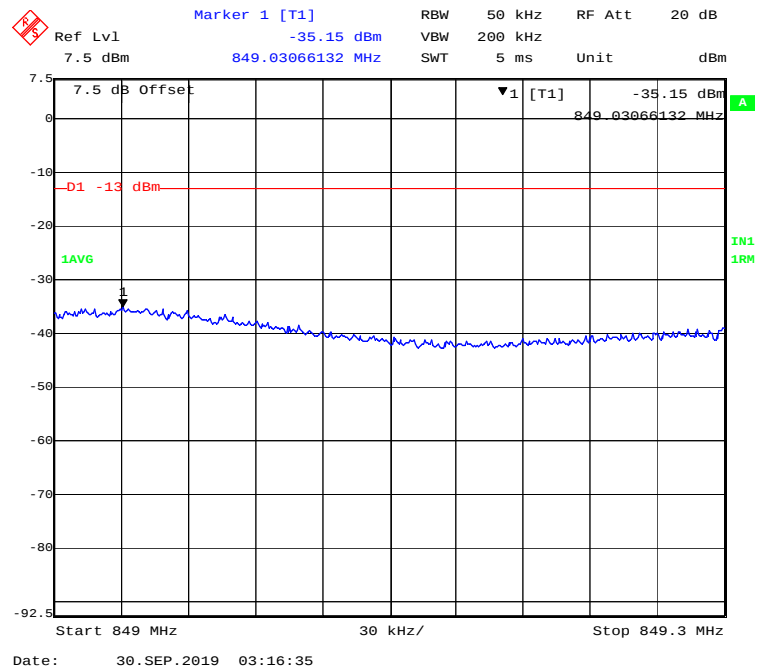
Upper 700MHz (C Block) Band, Left Band Edge for GSM-3dB Above AGC**Upper 700MHz (C Block) Band, Right Band Edge for GSM-3dB Above AGC**

Cellular Band, Left Band Edge for AWGN-Pre AGC

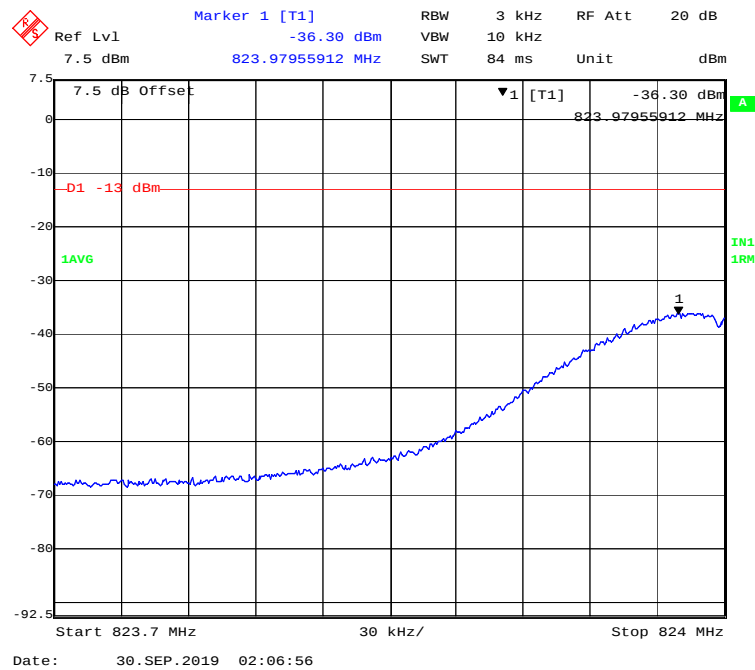


Cellular Band, Right Band Edge for AWGN-Pre AGC

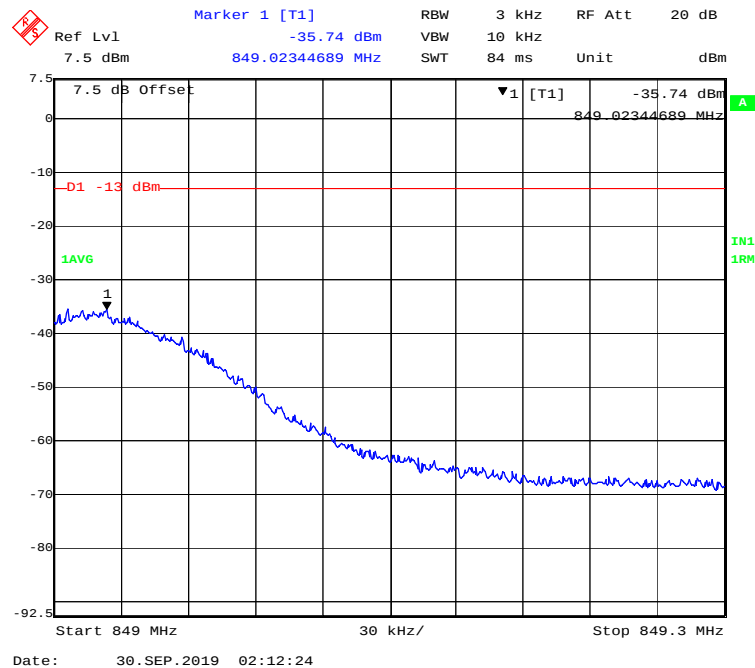


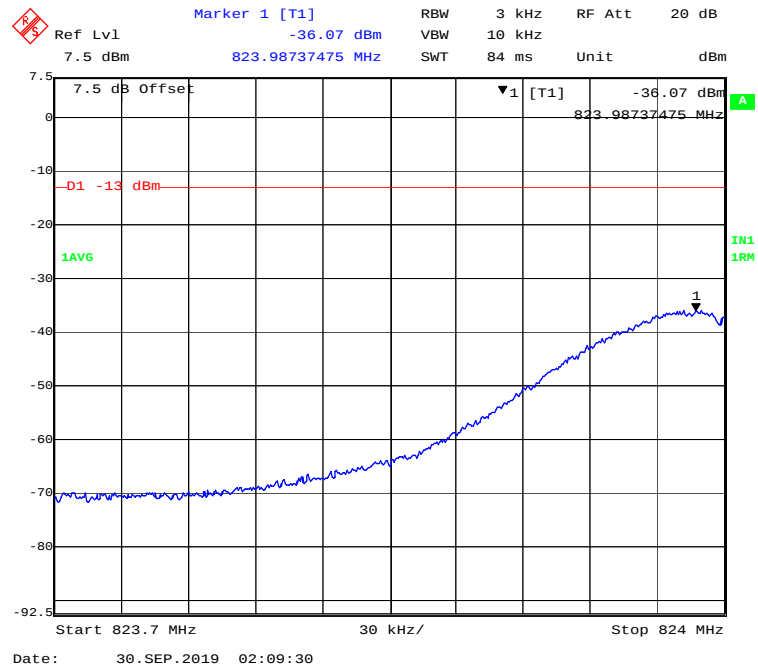
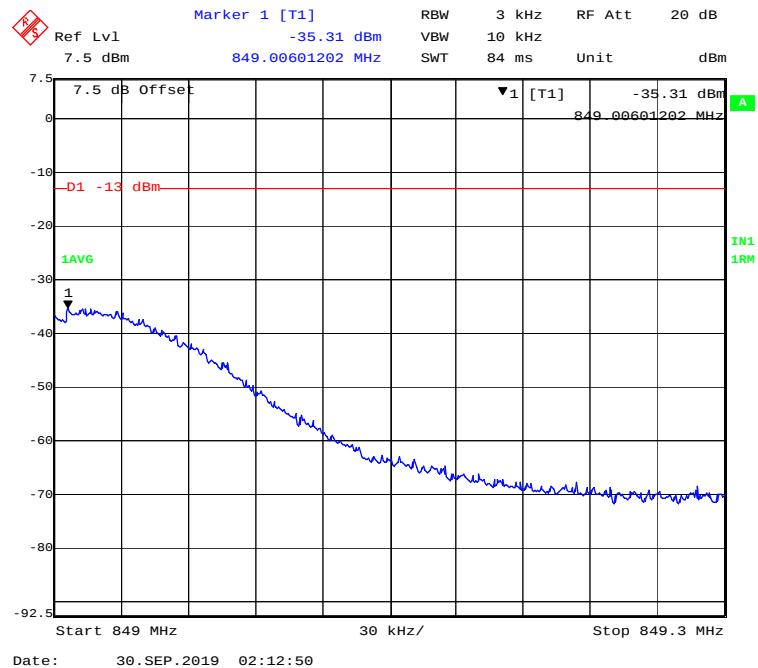
Cellular Band, Left Band Edge for AWGN-3dB Above AGC**Cellular Band, Right Band Edge for AWGN-3dB Above AGC**

Cellular Band, Left Band Edge for GSM-Pre AGC

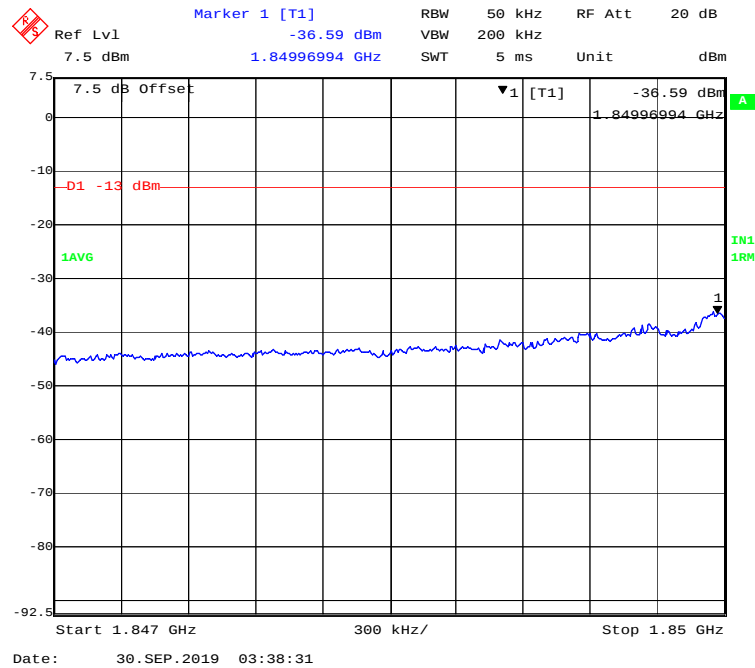


Cellular Band, Right Band Edge for GSM-Pre AGC

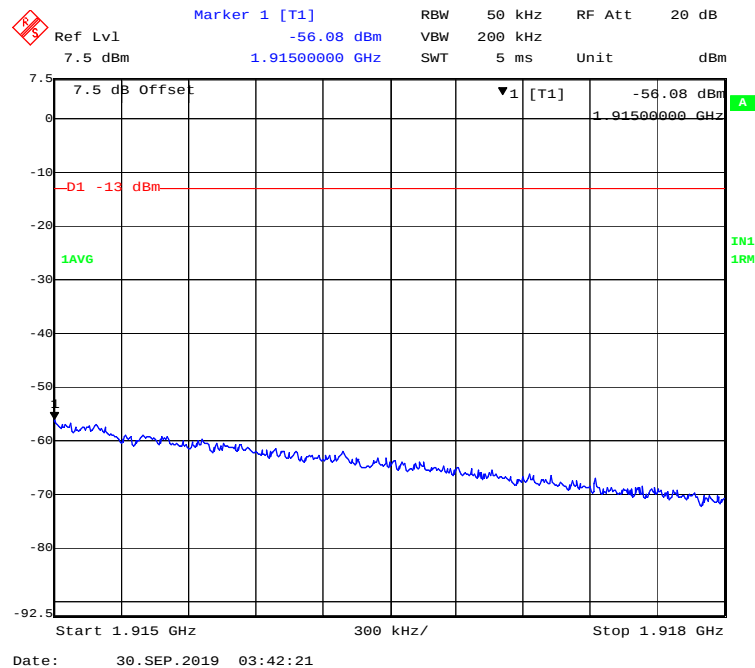


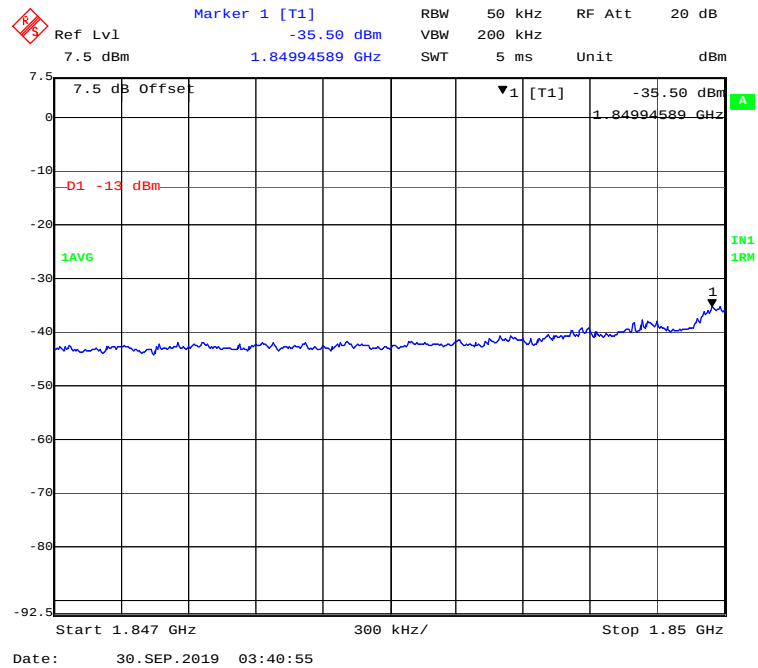
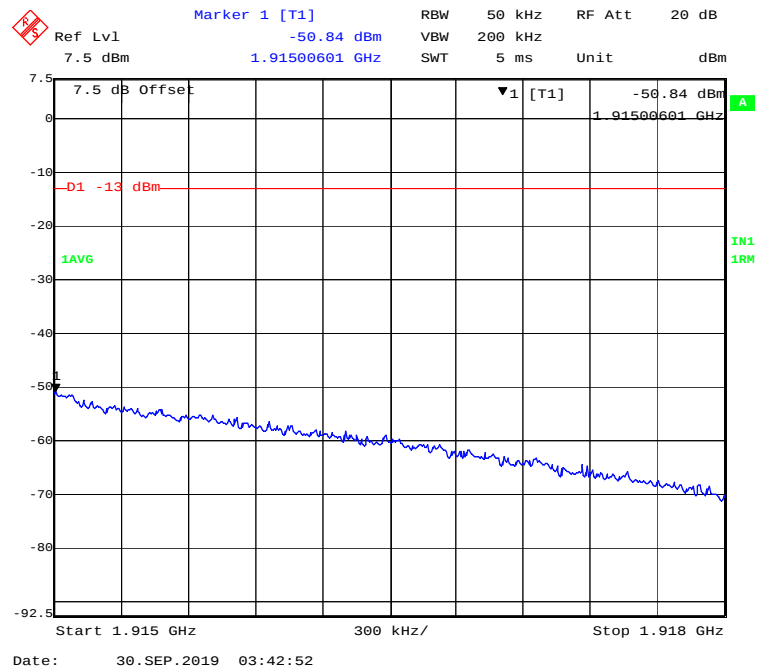
Cellular Band, Left Band Edge for GSM-3dB Above AGC**Cellular Band, Right Band Edge for GSM-3dB Above AGC**

PCS Band, Left Band Edge for AWGN-Pre AGC

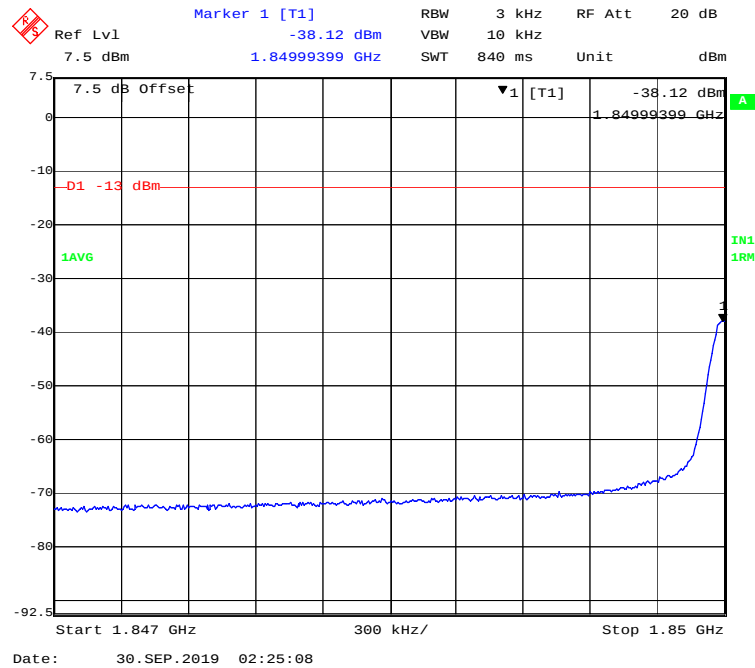


PCS Band, Right Band Edge for AWGN-Pre AGC

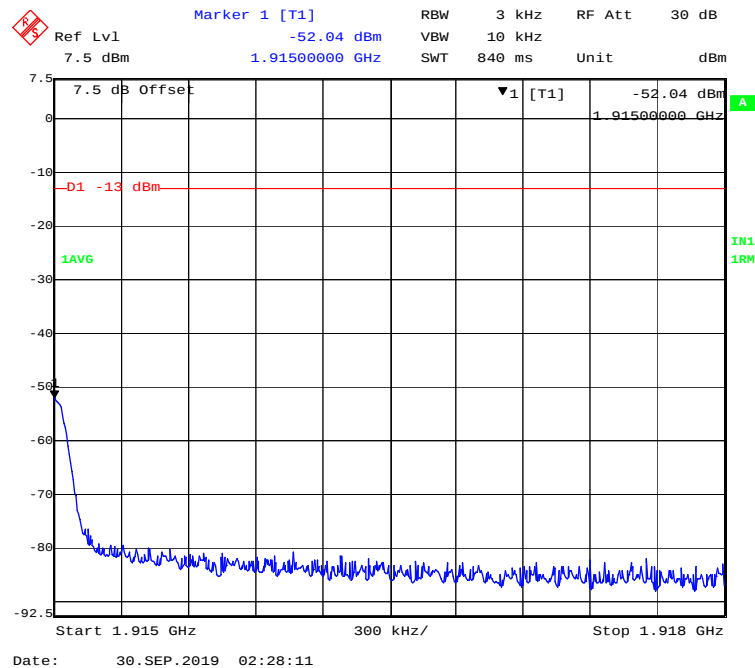


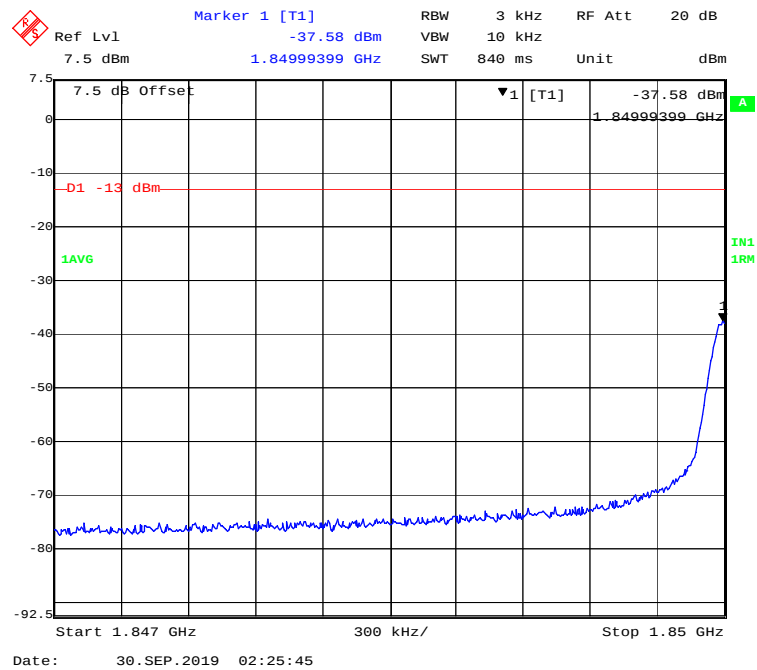
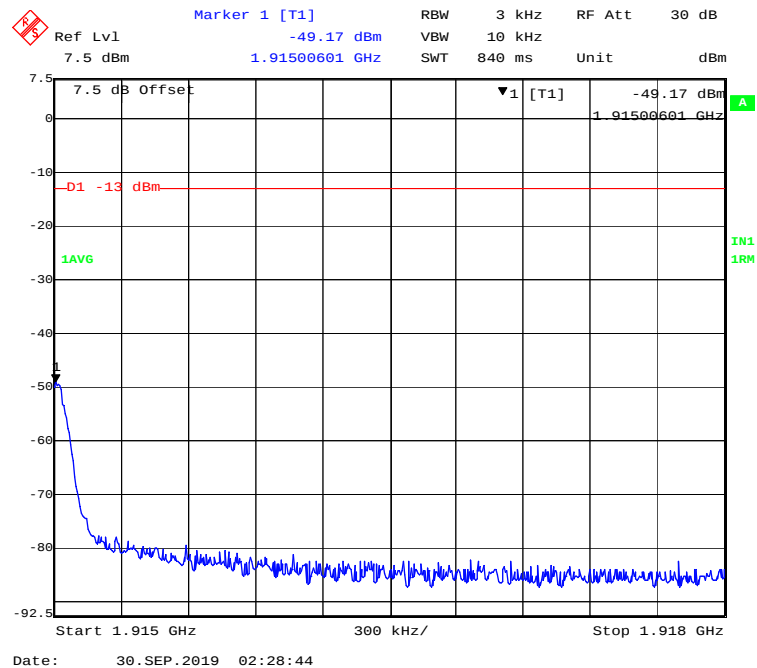
PCS Band, Left Band Edge for AWGN-3dB Above AGC**PCS Band, Right Band Edge for AWGN-3dB Above AGC**

PCS Band, Left Band Edge for GSM-Pre AGC

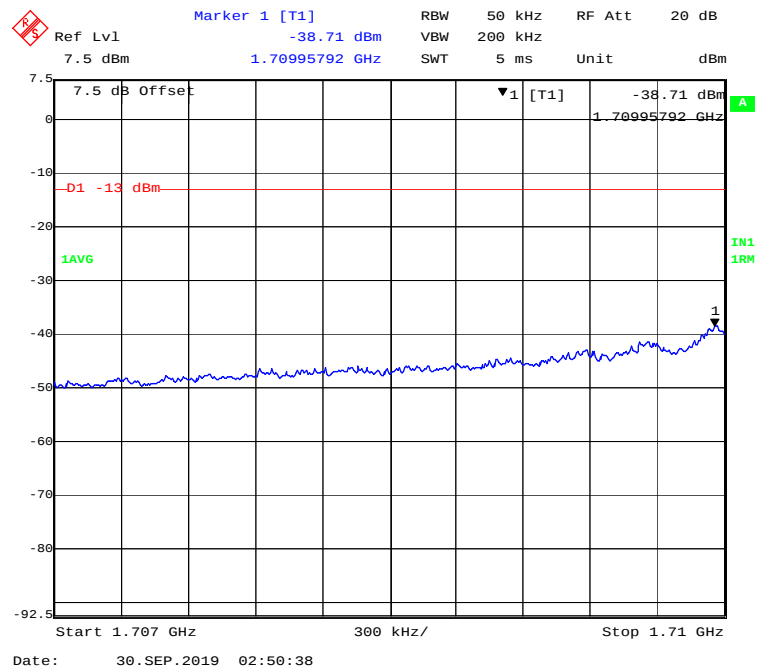


PCS Band, Right Band Edge for GSM-Pre AGC

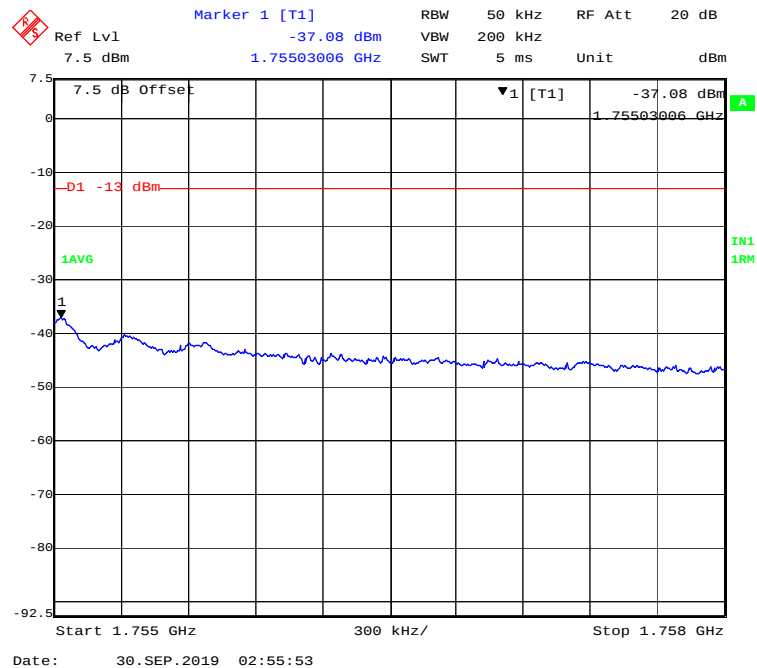


PCS Band, Left Band Edge for GSM-3dB Above AGC**PCS Band, Right Band Edge for GSM-3dB Above AGC**

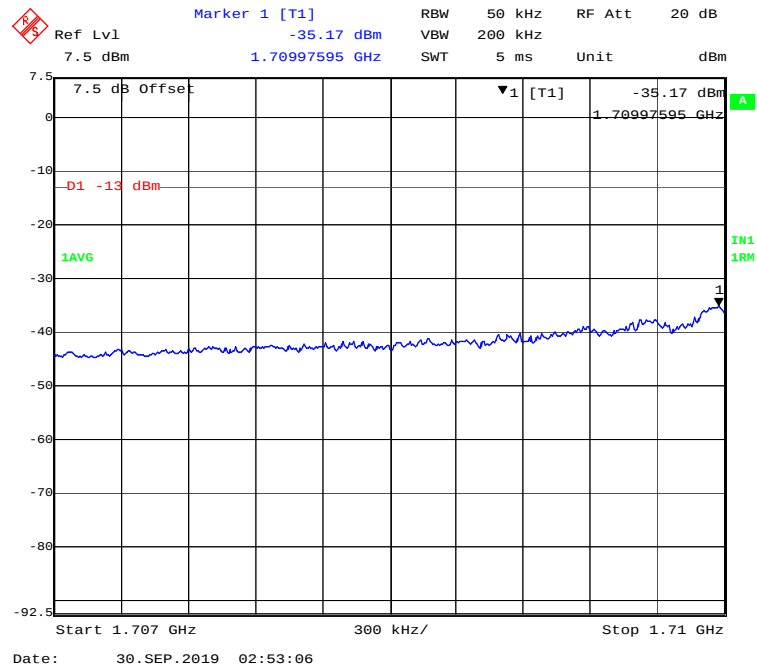
AWS Band, Left Band Edge for AWGN-Pre AGC



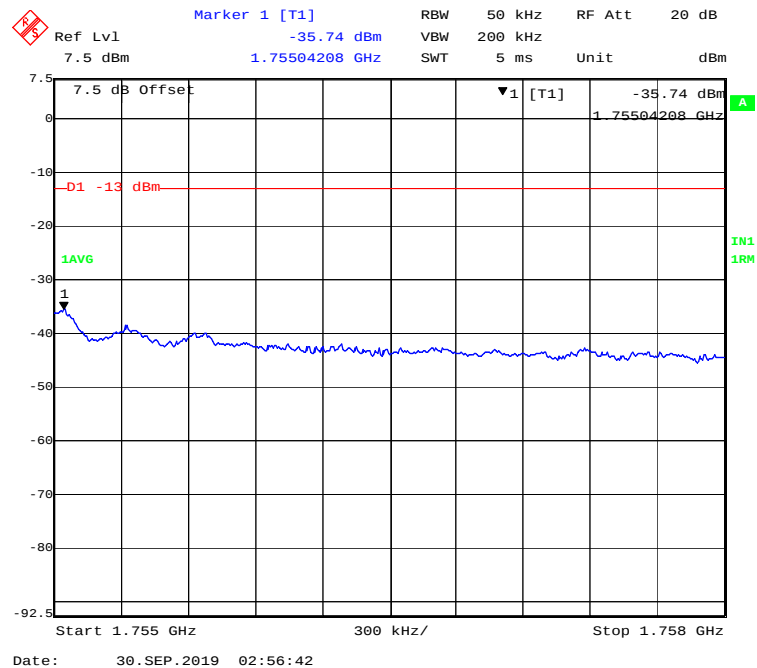
AWS Band, Right Band Edge for AWGN-Pre AGC

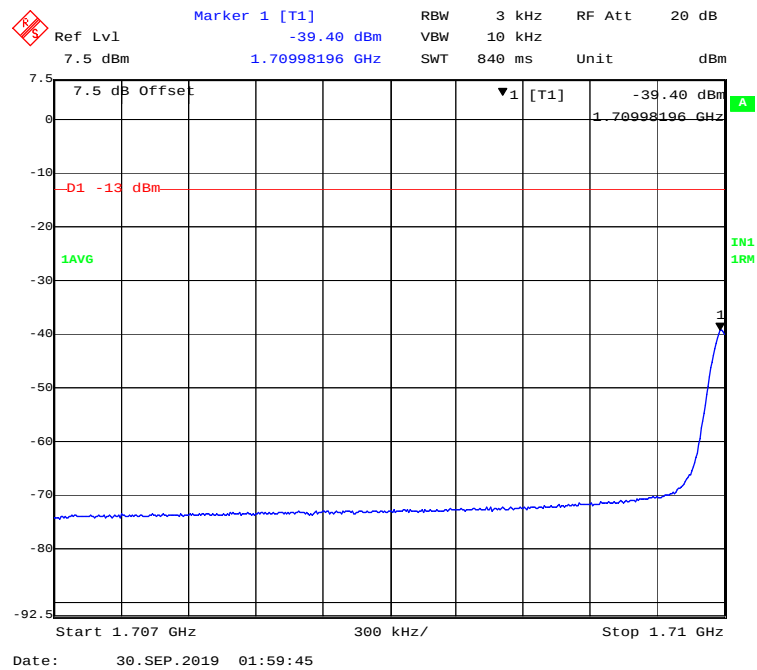
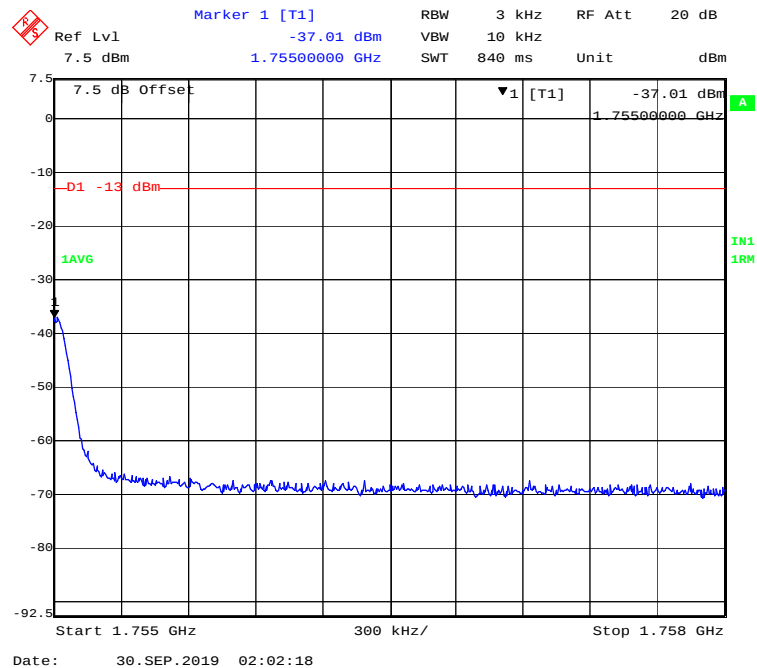


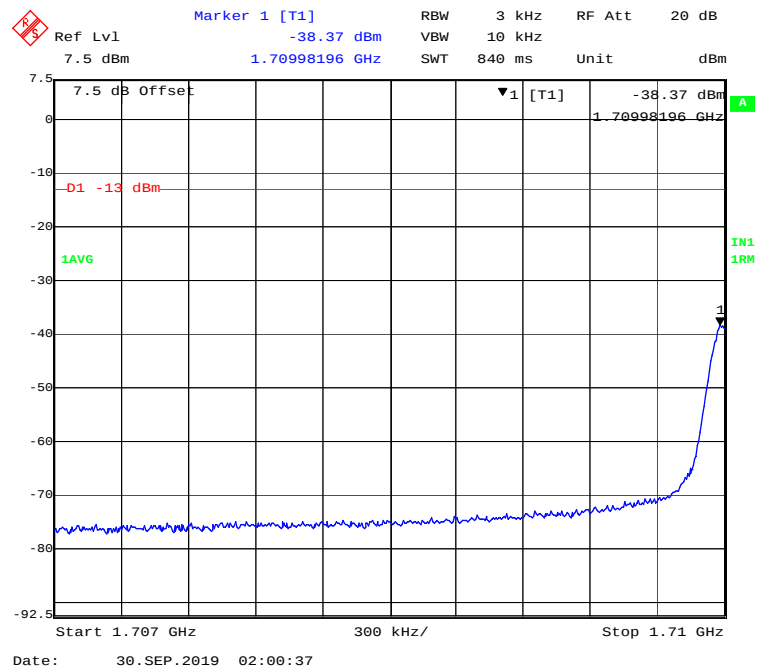
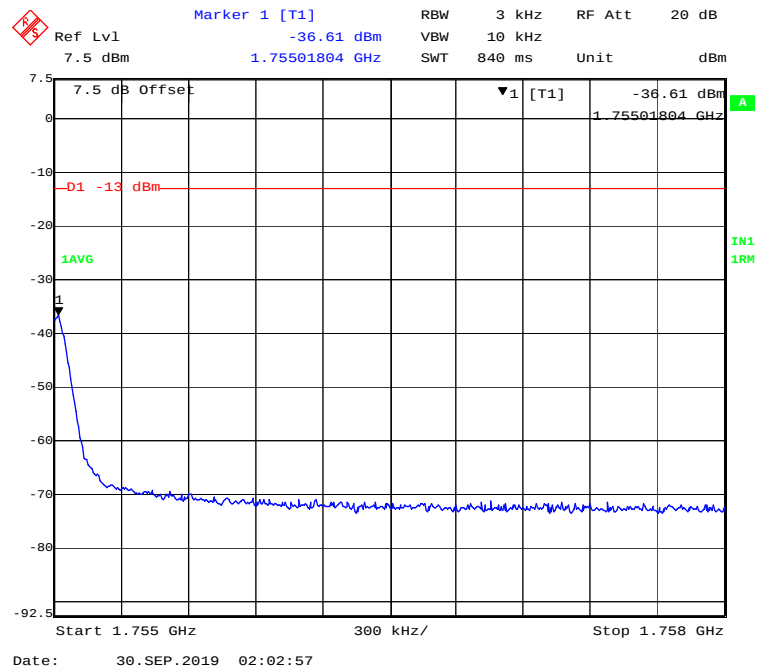
AWS Band, Left Band Edge for AWGN-3dB Above AGC

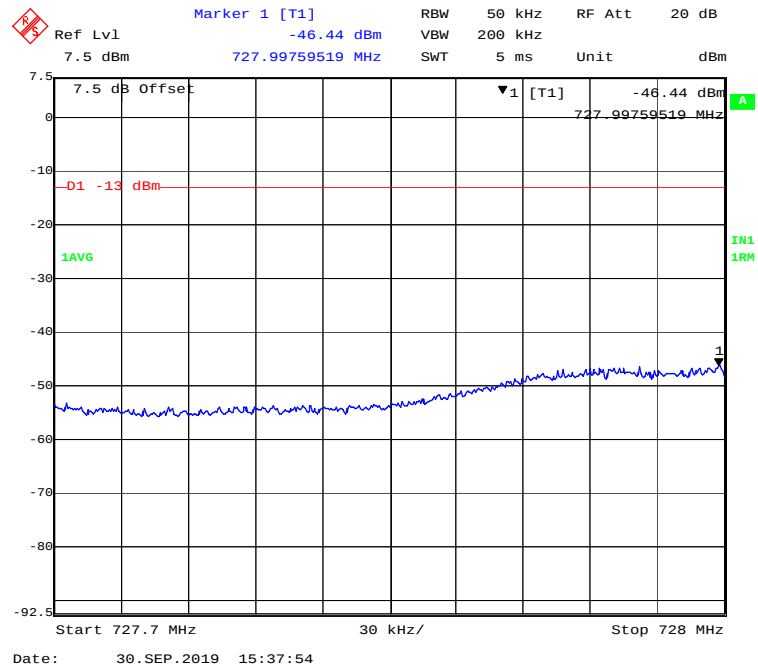
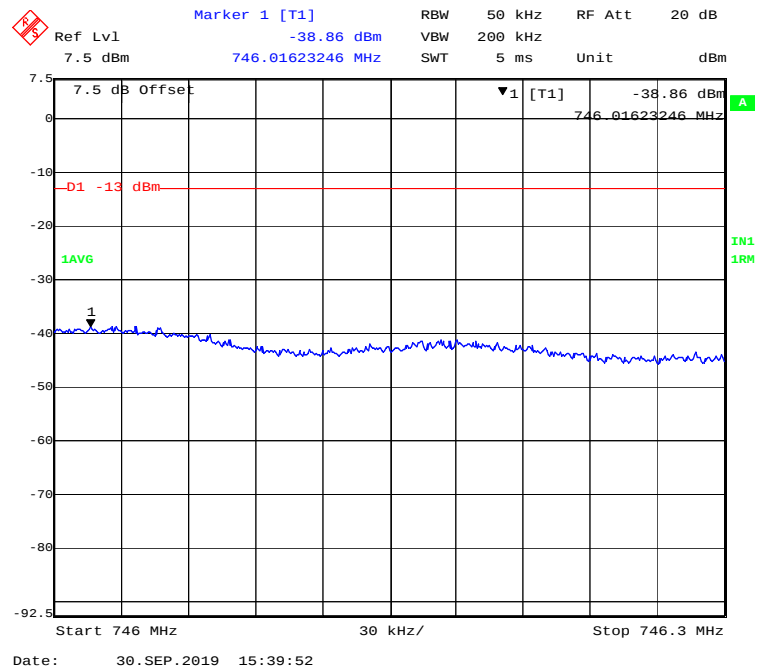


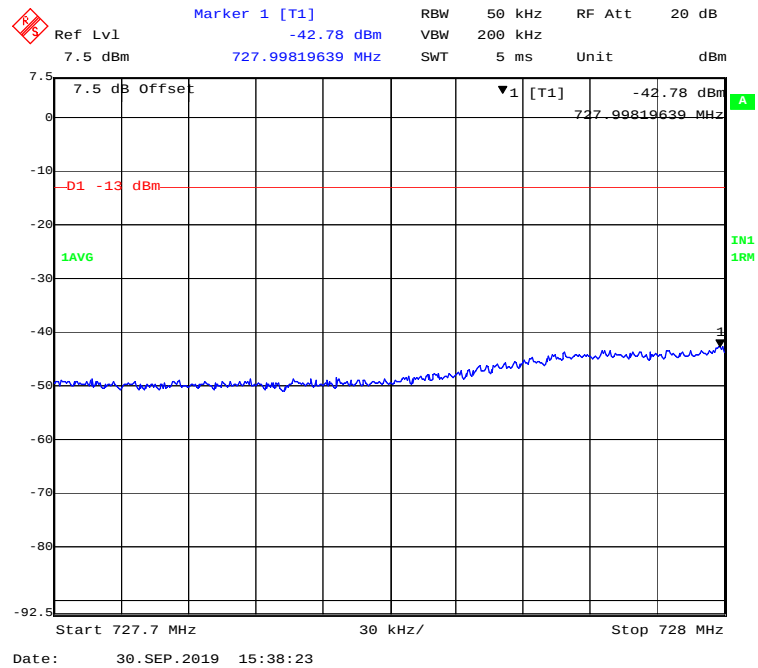
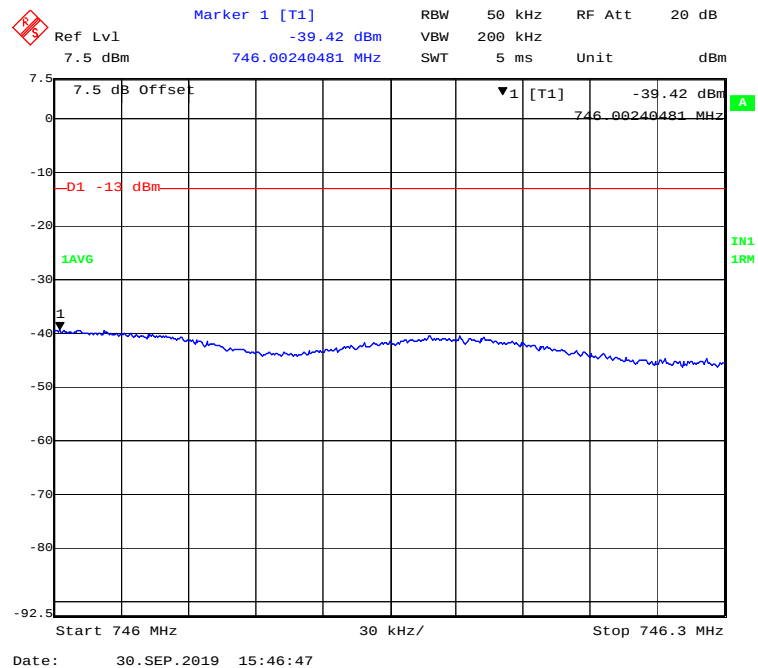
AWS Band, Right Band Edge for AWGN-3dB Above AGC

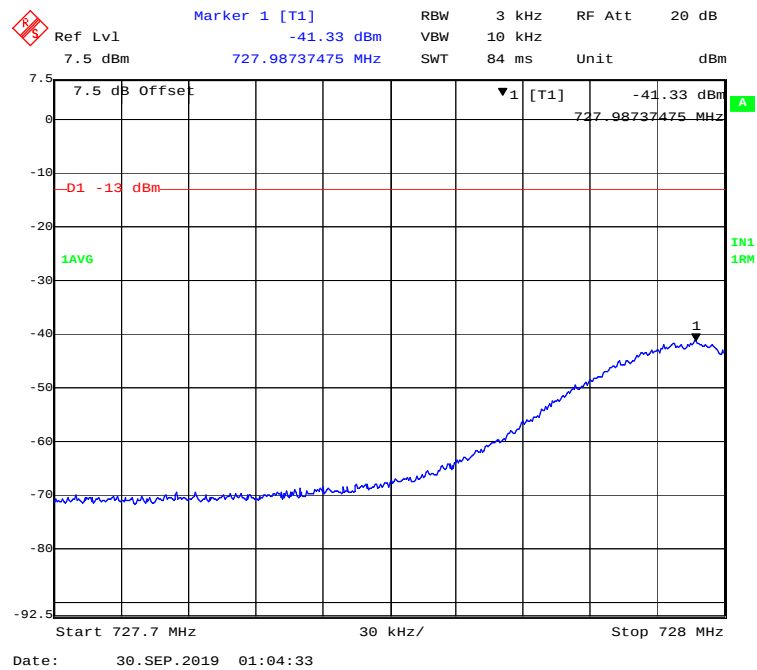
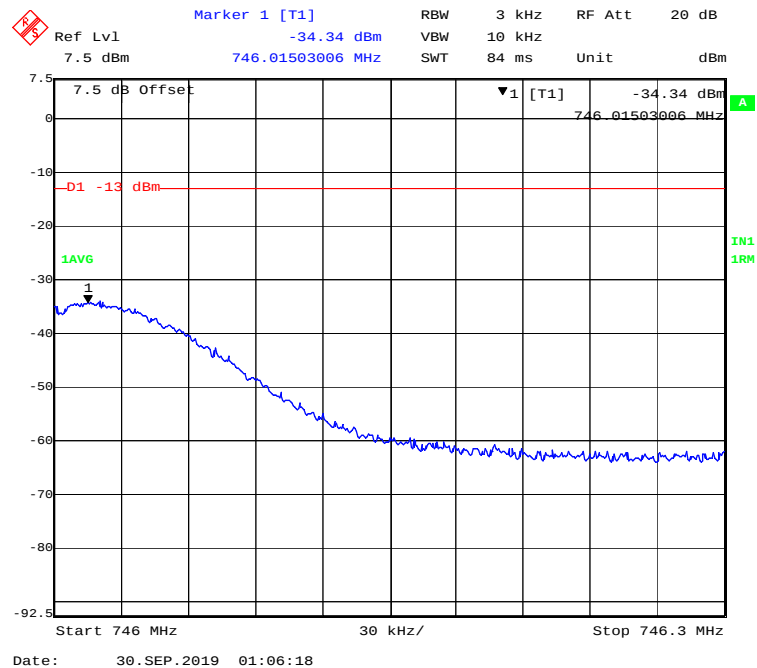


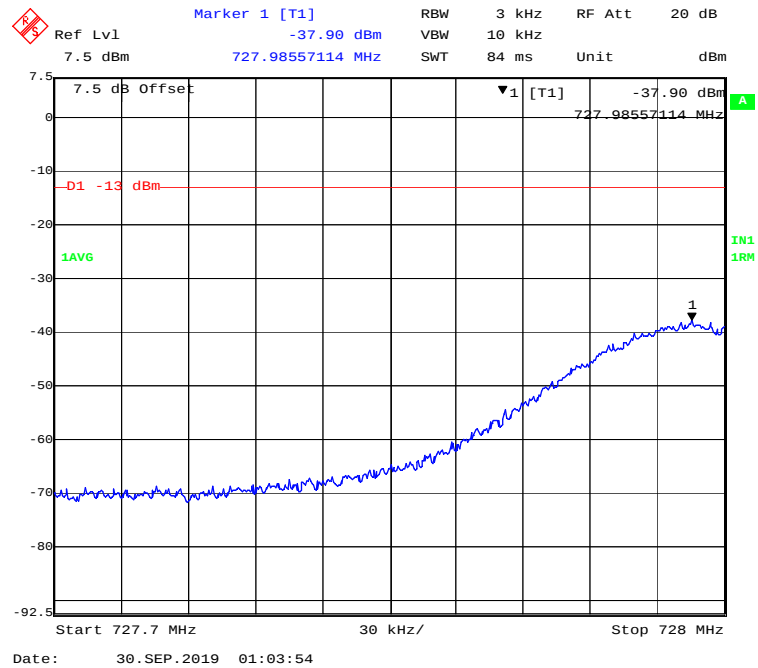
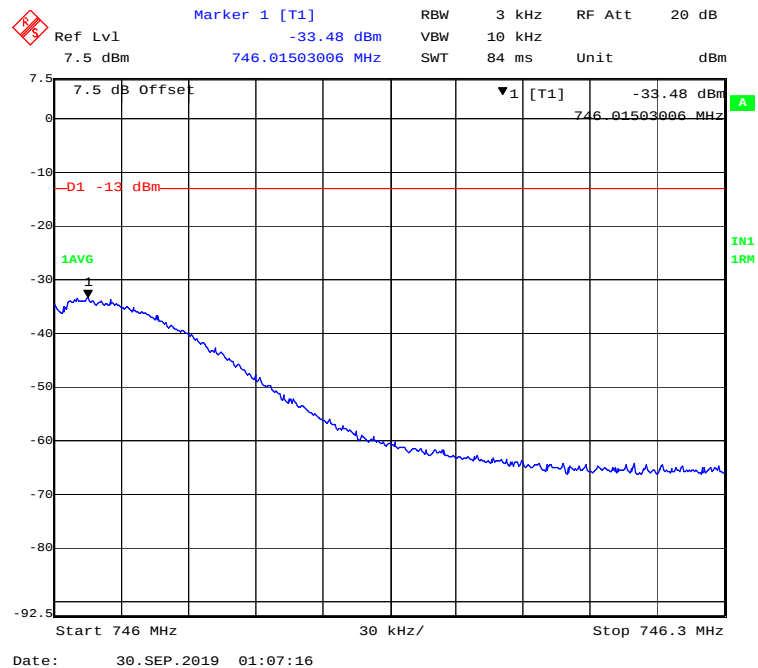
AWS Band, Left Band Edge for GSM-Pre AGC**AWS Band, Right Band Edge for GSM-Pre AGC**

AWS Band, Left Band Edge for GSM-3dB Above AGC**AWS Band, Right Band Edge for GSM-3dB Above AGC**

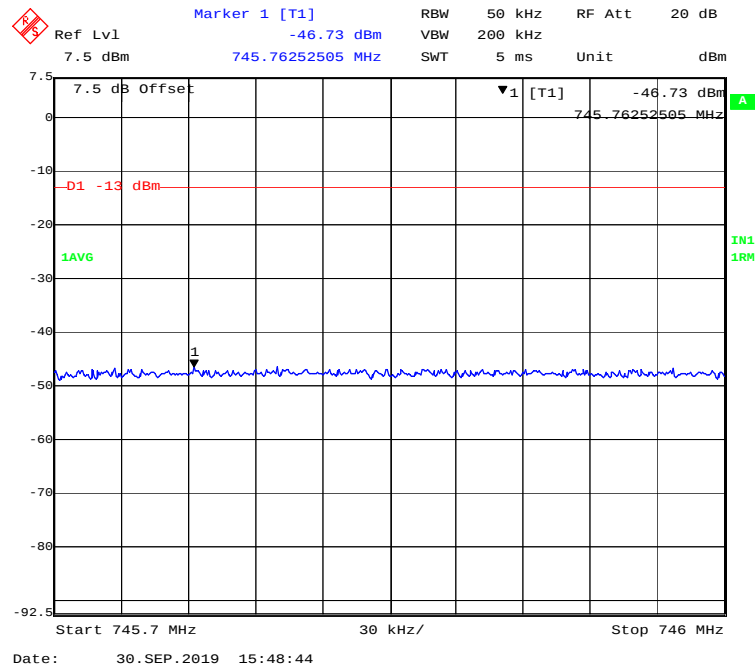
Downlink:**Lower 700MHz (A+B+C Block) Band, Left Band Edge for AWGN-Pre AGC****Lower 700MHz (A+B+C Block) Band, Right Band Edge for AWGN-Pre AGC**

Lower 700MHz (A+B+C Block) Band, Left Band Edge for AWGN-3dB Above AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for AWGN-3dB Above AGC**

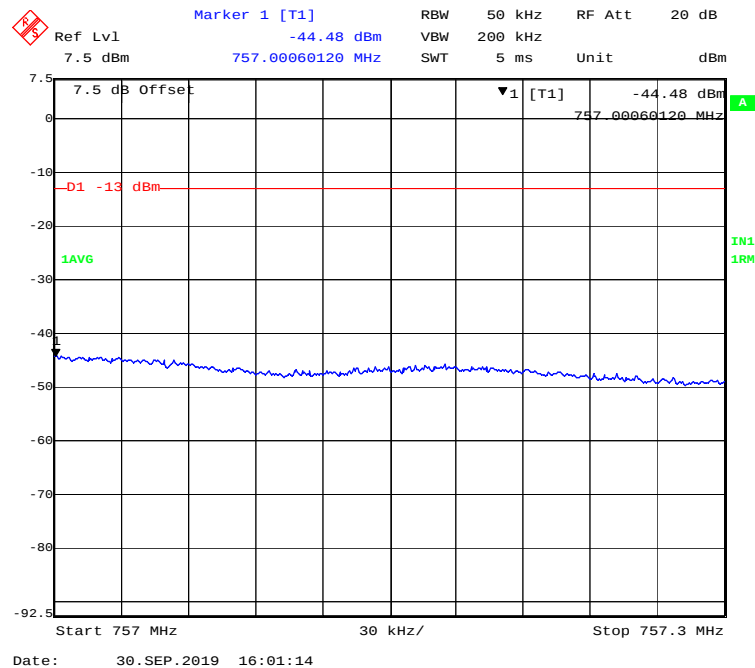
Lower 700MHz (A+B+C Block) Band, Left Band Edge for GSM-Pre AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for GSM-Pre AGC**

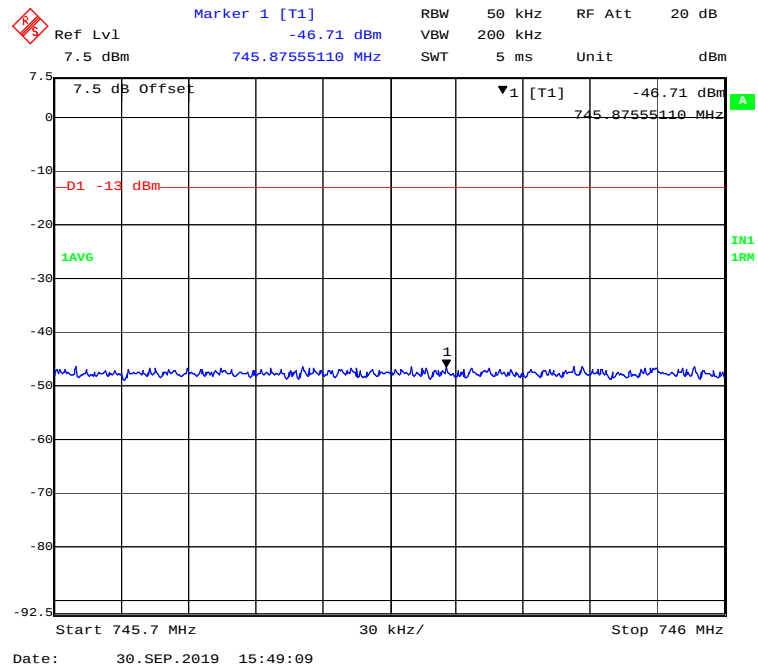
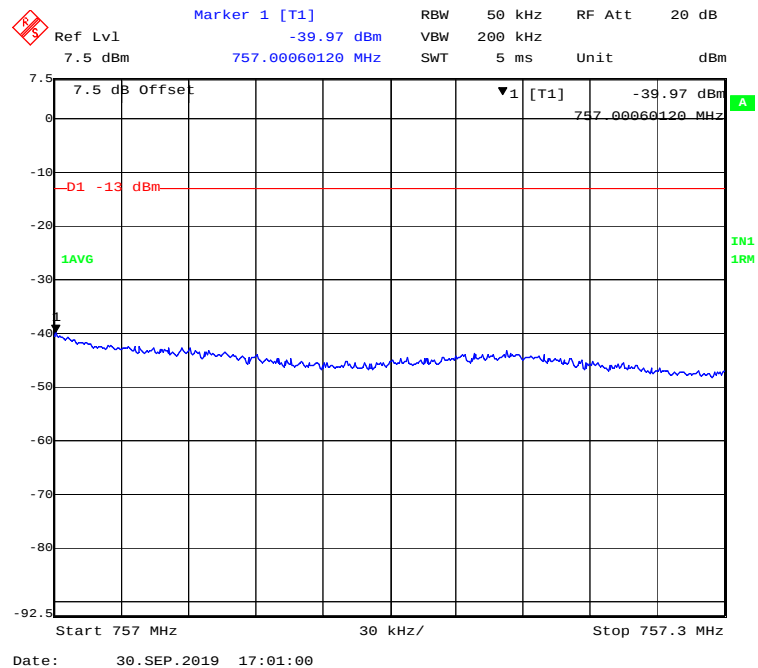
Lower 700MHz (A+B+C Block) Band, Left Band Edge for GSM-3dB Above AGC**Lower 700MHz (A+B+C Block) Band, Right Band Edge for GSM-3dB Above AGC**

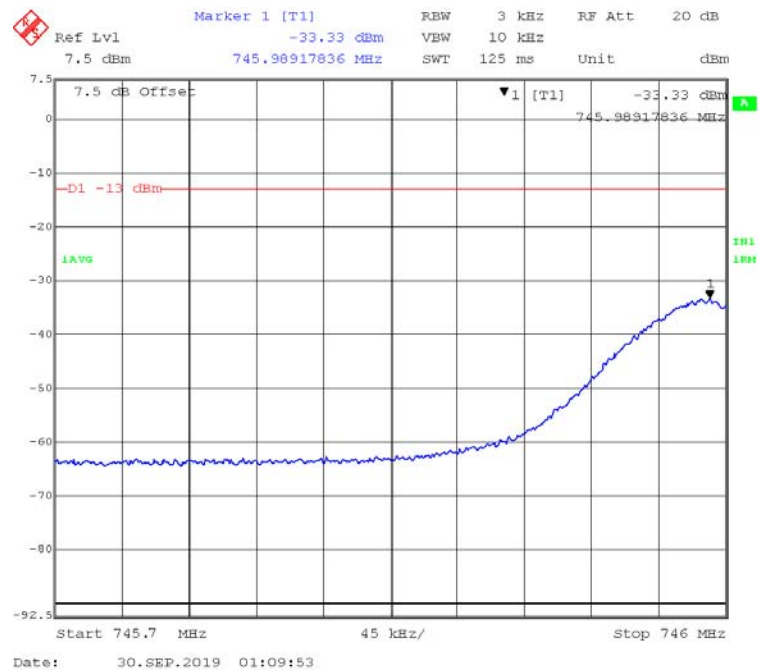
Upper 700MHz (C Block) Band, Left Band Edge for AWGN-Pre AGC

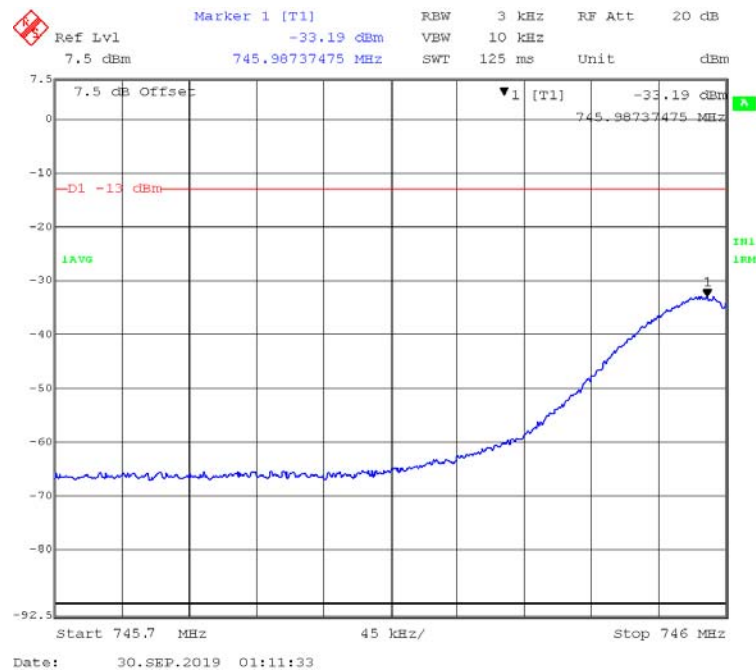
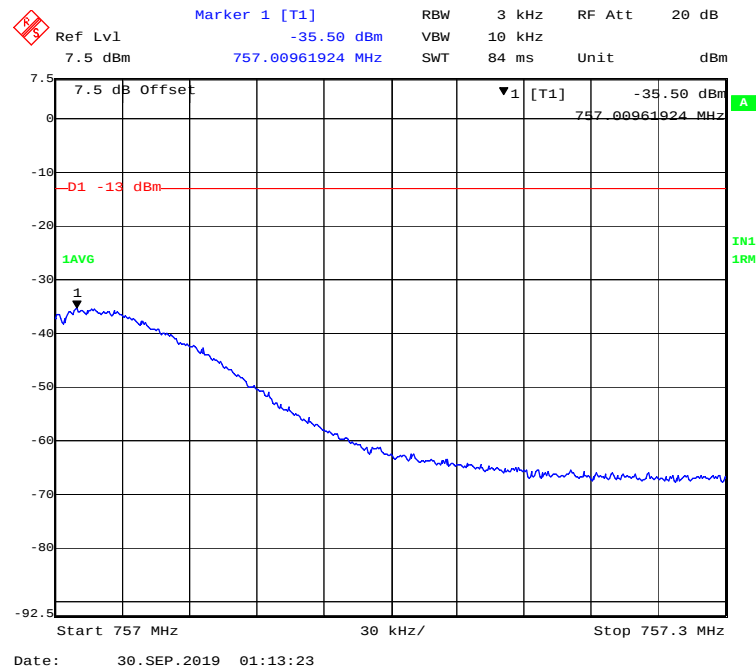


Upper 700MHz (C Block) Band, Right Band Edge for AWGN-Pre AGC

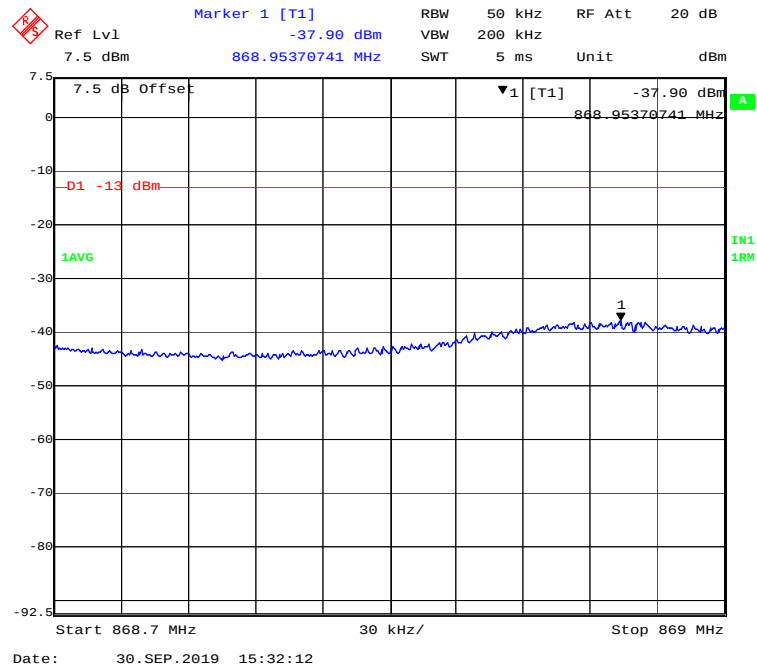


Upper 700MHz (C Block) Band, Left Band Edge for AWGN-3dB Above AGC**Upper 700MHz (C Block) Band, Right Band Edge for AWGN-3dB Above AGC**

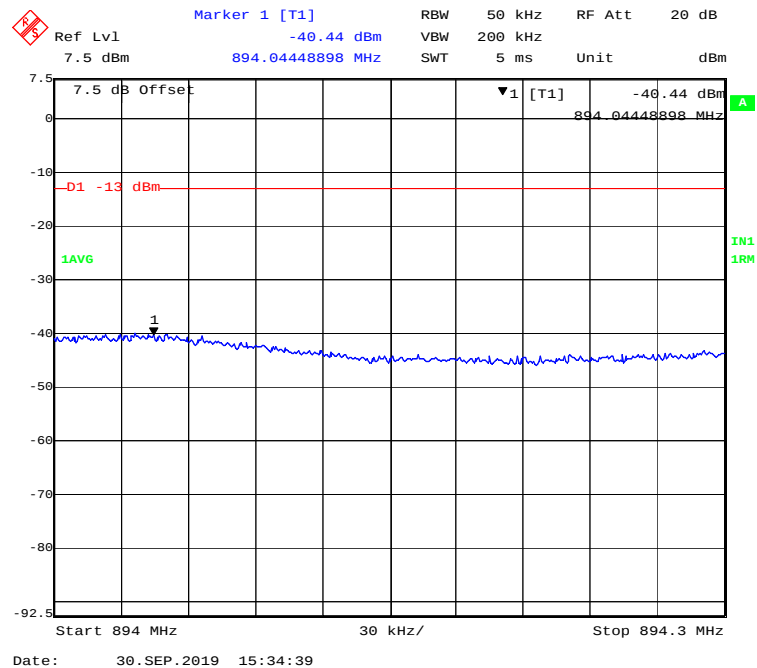
Upper 700MHz (C Block) Band, Left Band Edge for GSM-Pre AGC**Upper 700MHz (C Block) Band, Right Band Edge for GSM-Pre AGC**

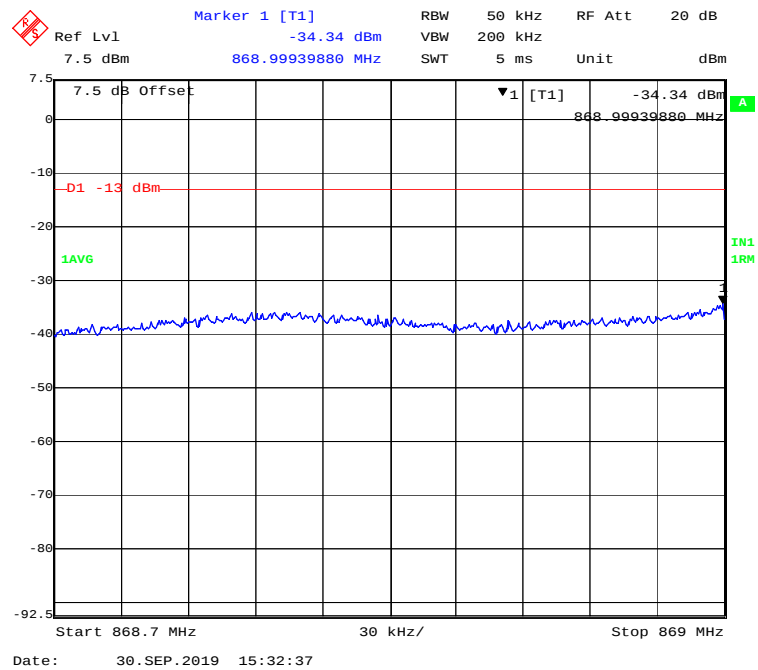
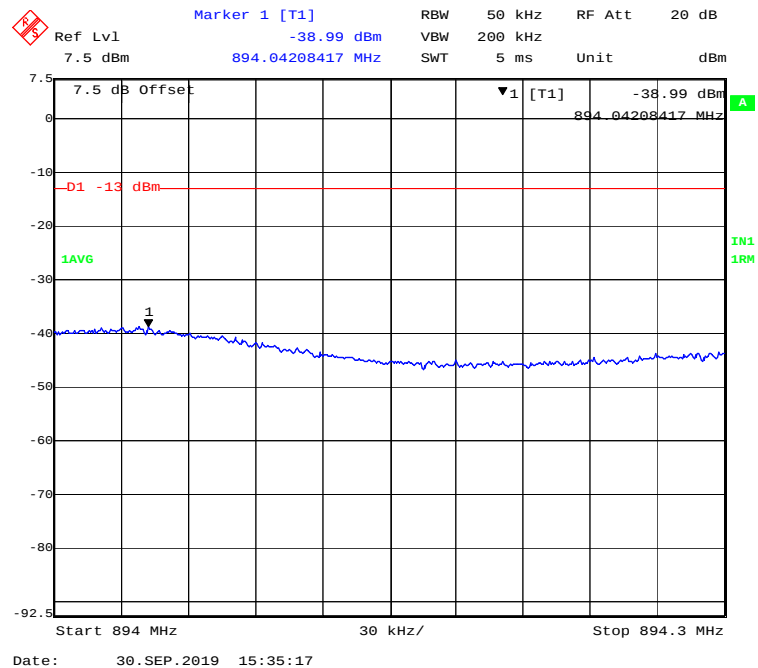
Upper 700MHz (C Block) Band, Left Band Edge for GSM-3dB Above AGC**Upper 700MHz (C Block) Band, Right Band Edge for GSM-3dB Above AGC**

Cellular Band, Left Band Edge for AWGN-Pre AGC

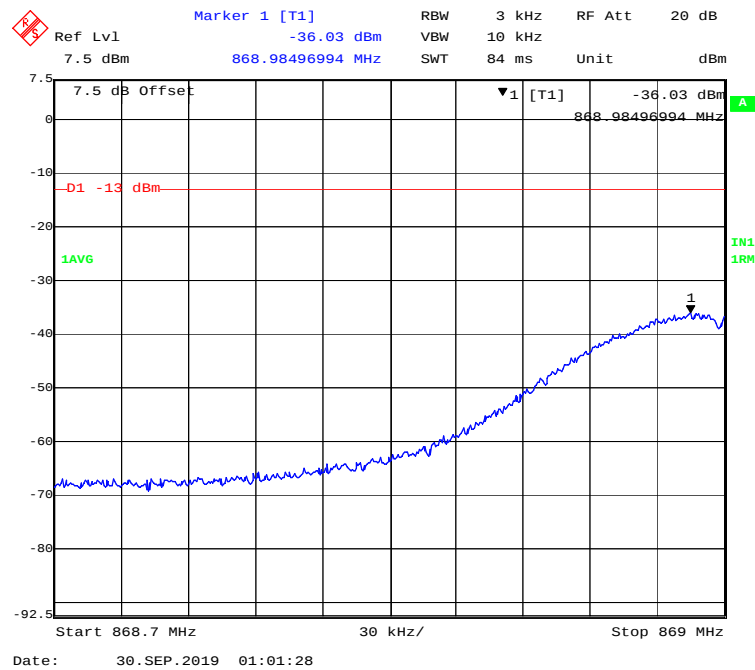


Cellular Band, Right Band Edge for AWGN-Pre AGC

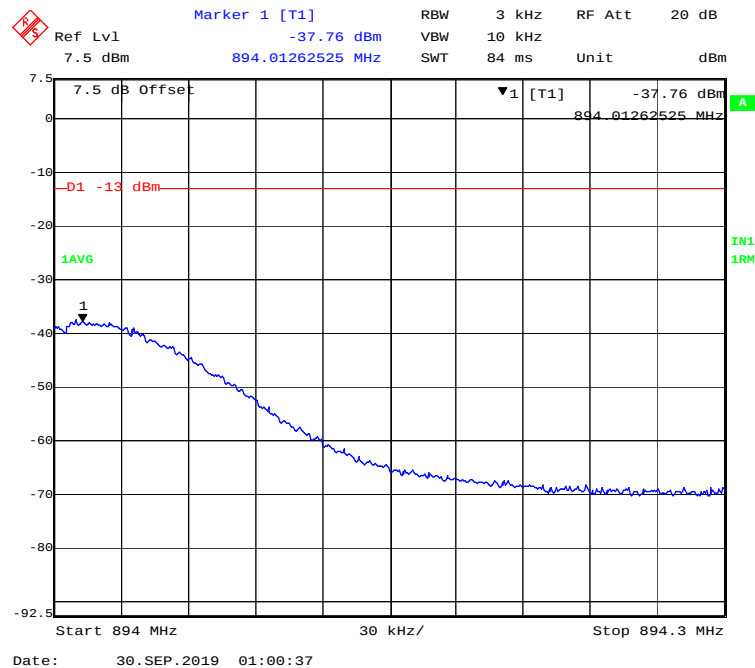


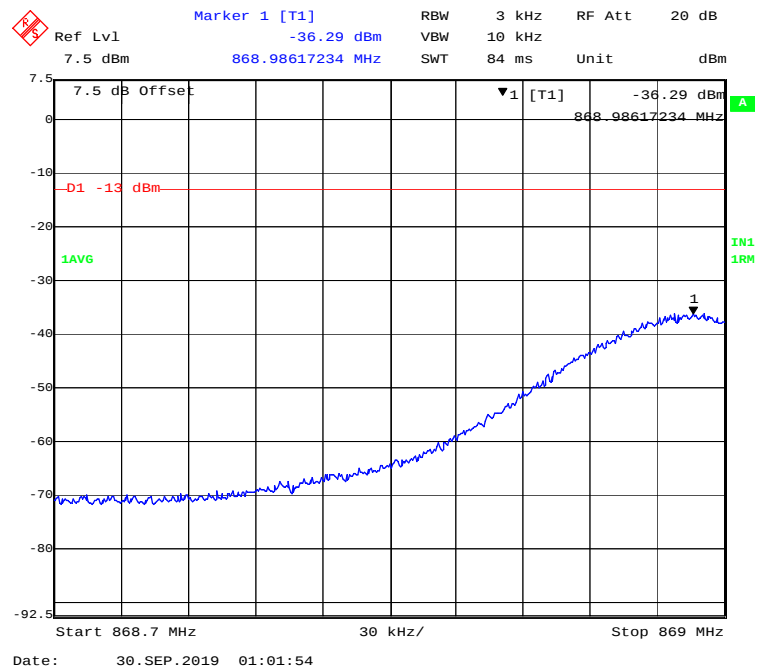
Cellular Band, Left Band Edge for AWGN-3dB Above AGC**Cellular Band, Right Band Edge for AWGN-3dB Above AGC**

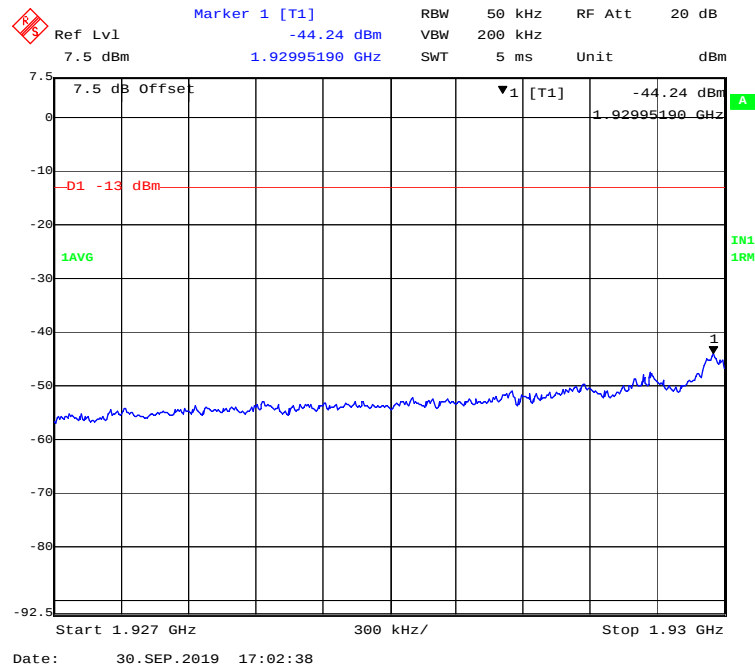
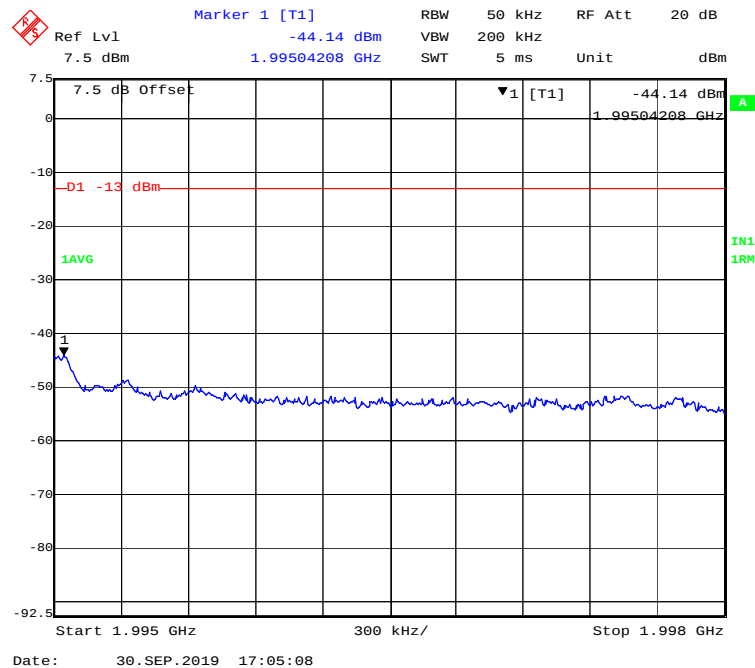
Cellular Band, Left Band Edge for GSM-Pre AGC

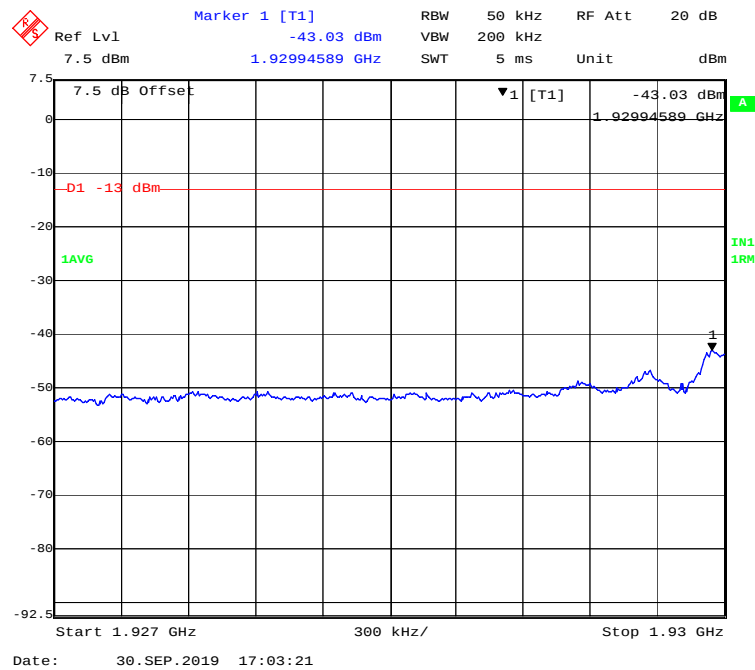
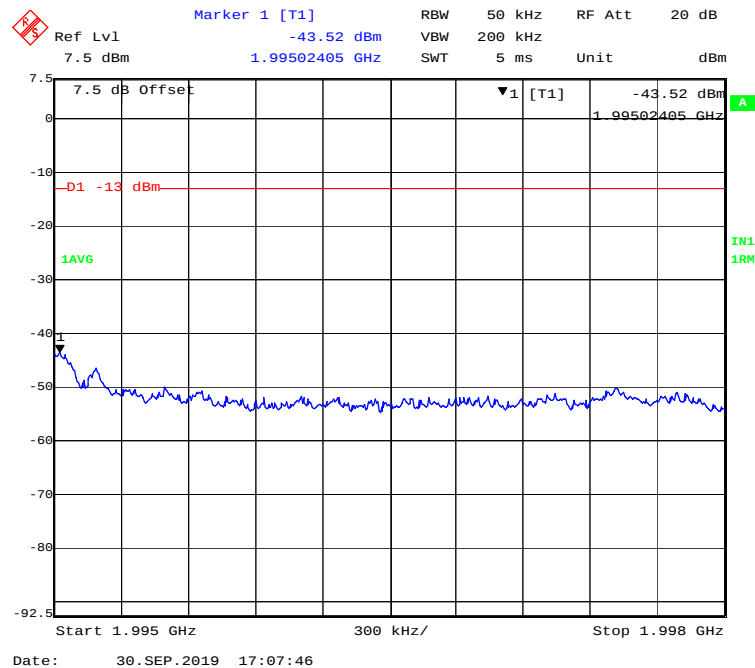


Cellular Band, Right Band Edge for GSM-Pre AGC

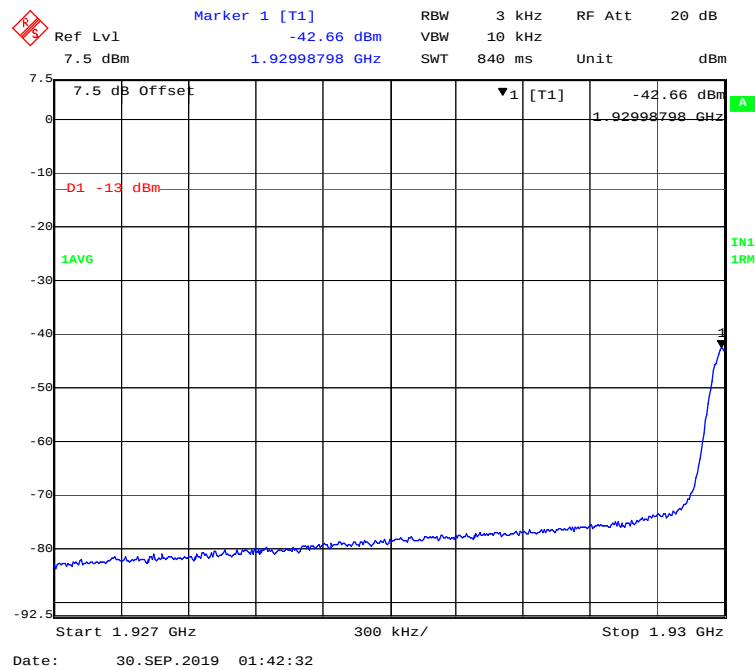


Cellular Band, Left Band Edge for GSM-3dB Above AGC**Cellular Band, Right Band Edge for GSM-3dB Above AGC**

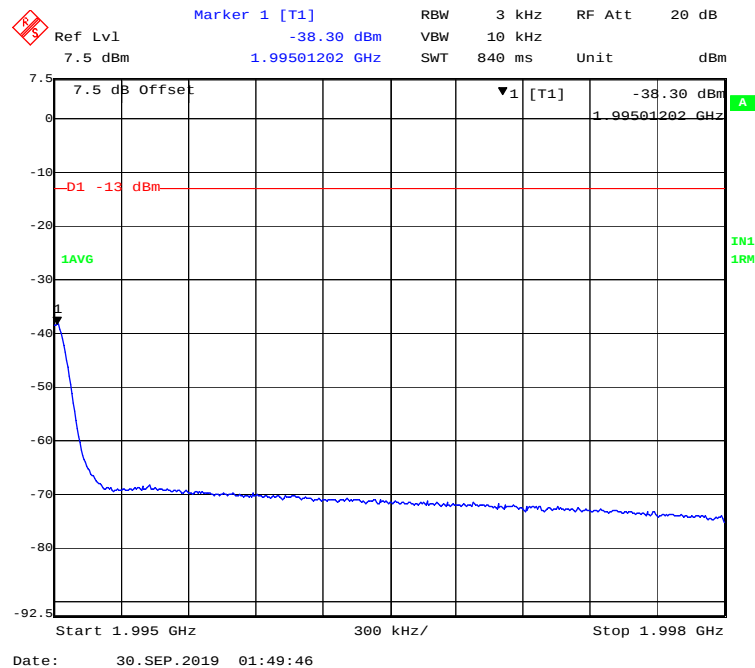
PCS Band, Left Band Edge for AWGN-Pre AGC**PCS Band, Right Band Edge for AWGN-Pre AGC**

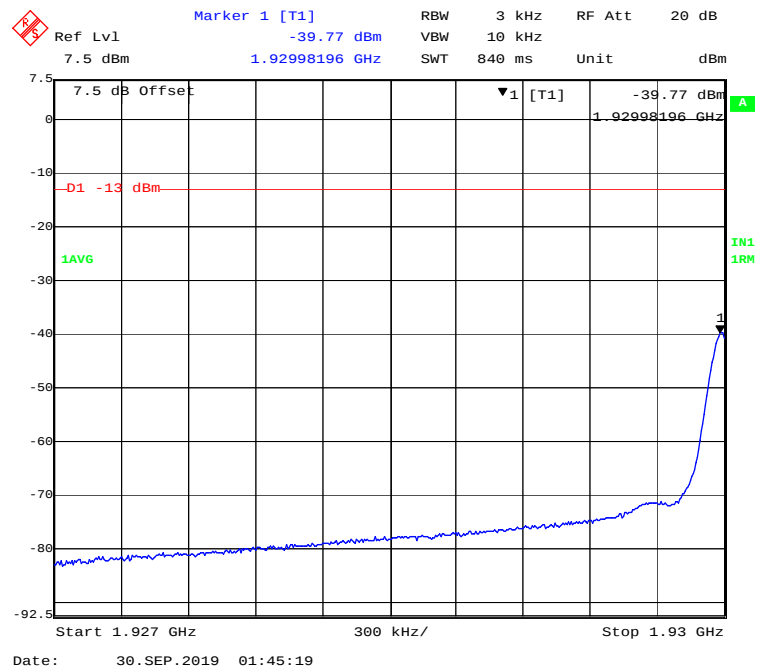
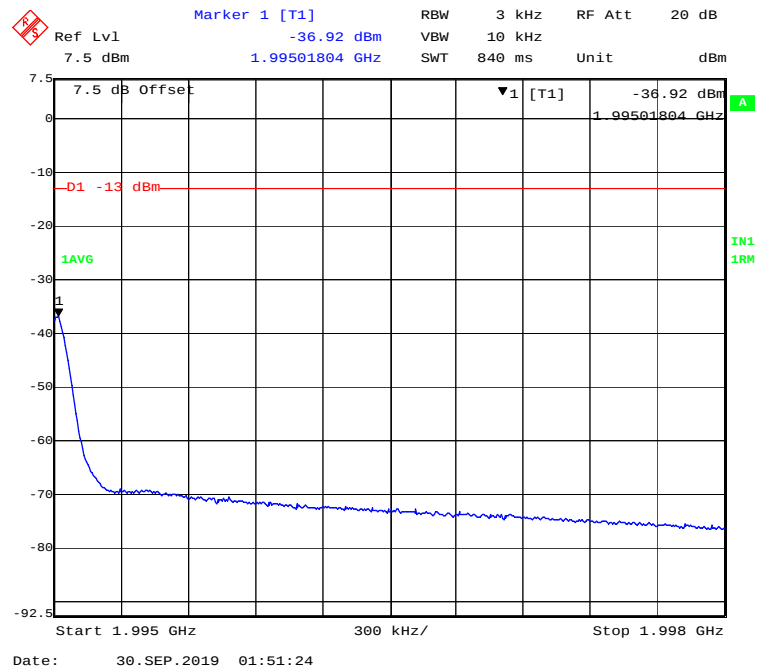
PCS Band, Left Band Edge for AWGN-3dB Above AGC**PCS Band, Right Band Edge for AWGN-3dB Above AGC**

PCS Band, Left Band Edge for GSM-Pre AGC

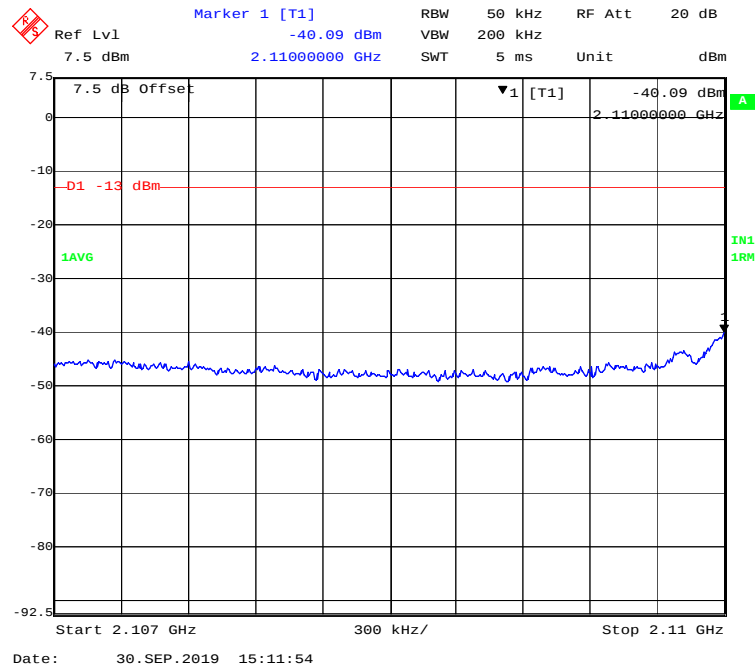


PCS Band, Right Band Edge for GSM-Pre AGC

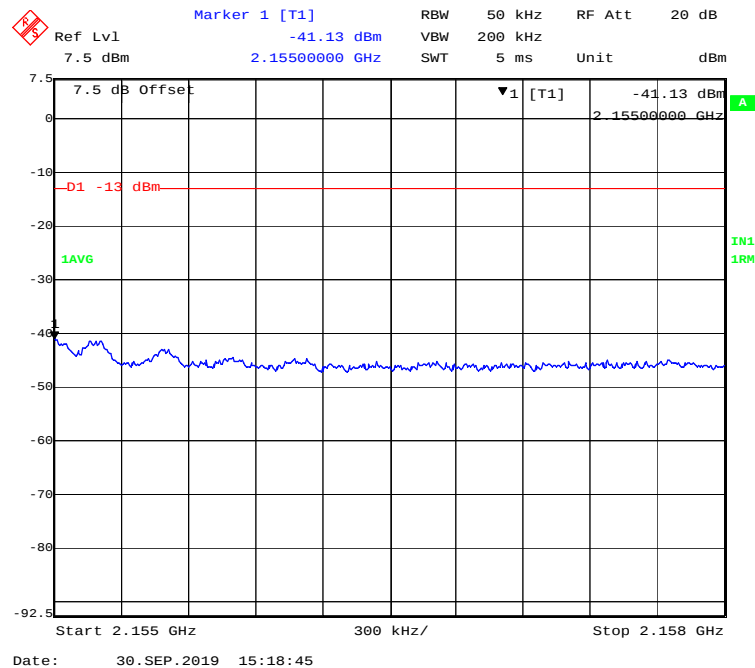


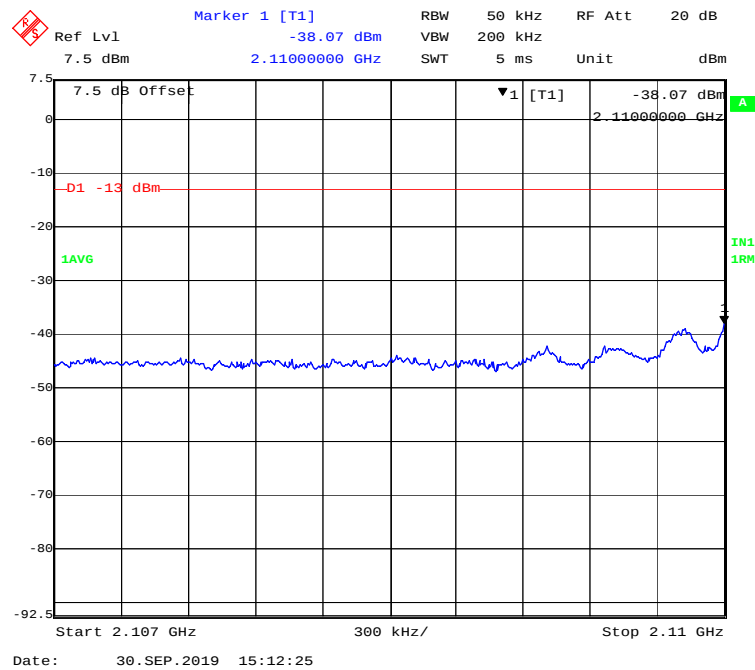
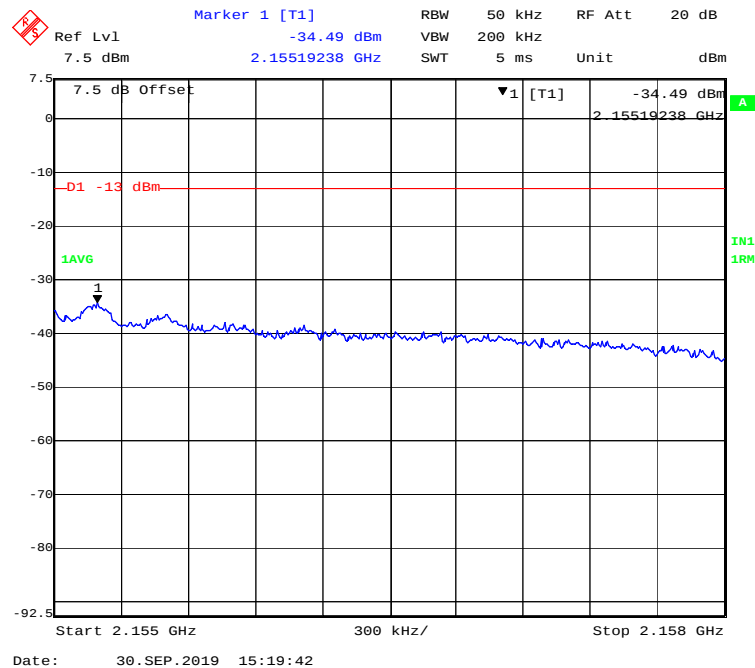
PCS Band, Left Band Edge for GSM-3dB Above AGC**PCS Band, Right Band Edge for GSM-3dB Above AGC**

AWS Band, Left Band Edge for AWGN-Pre AGC

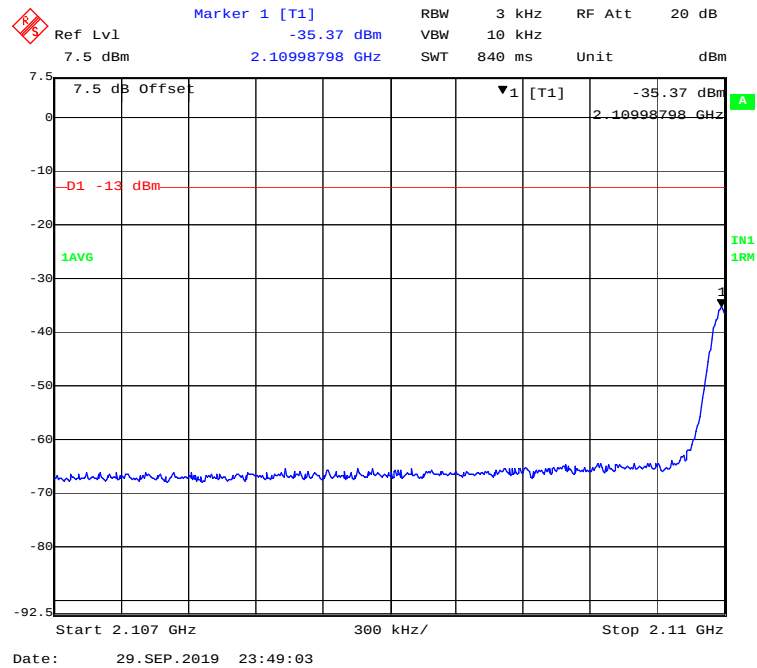


AWS Band, Right Band Edge for AWGN-Pre AGC

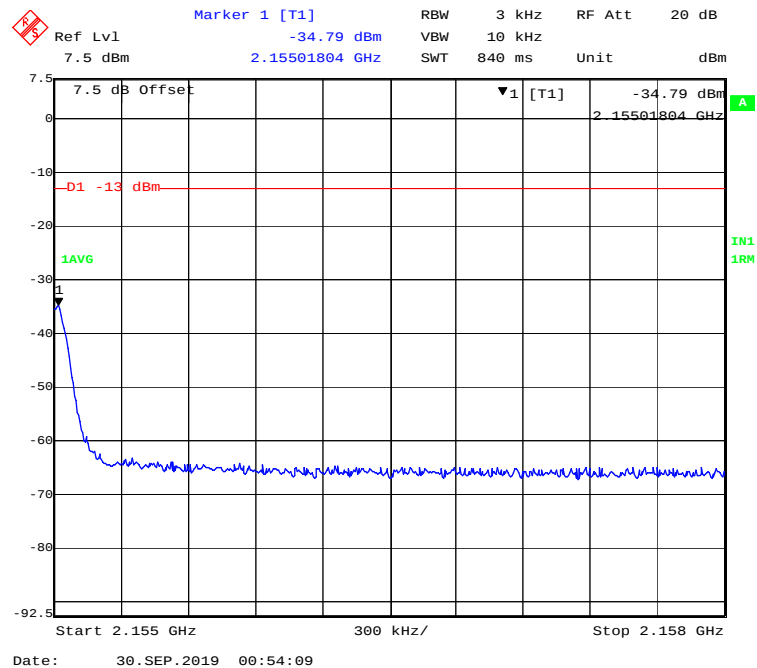


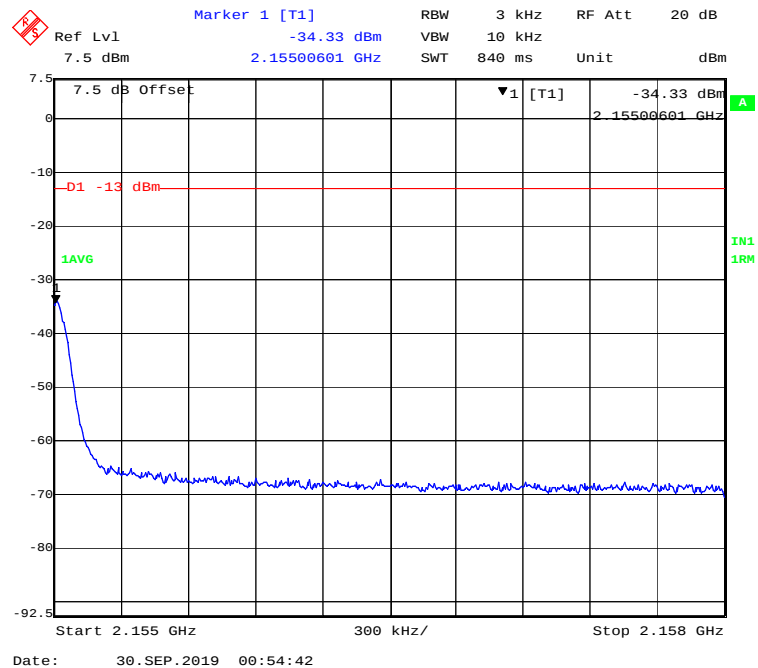
AWS Band, Left Band Edge for AWGN-3dB Above AGC**AWS Band, Right Band Edge for AWGN-3dB Above AGC**

AWS Band, Left Band Edge for GSM-Pre AGC



AWS Band, Right Band Edge for GSM-Pre AGC



AWS Band, Left Band Edge for GSM-3dB Above AGC**AWS Band, Right Band Edge for GSM-3dB Above AGC**

FCC § 20.21 - OUT OF BAND REJECTION

Applicable Standards

According to FCC Part § 20.21, a booster shall have -20dB at the band edge referenced to the gain in the center of the pass band of the booster, where band edge is the end of the licensee's allocated spectrum.

Test Procedure

FCC KDB 935210 D05 Indus Booster Basic Meas v01r03, Section 3.3.

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation. The span of the spectrum analyzer was set to be wide enough in order to capture the spectrum of entire operating band.

Test Data

Environmental Conditions

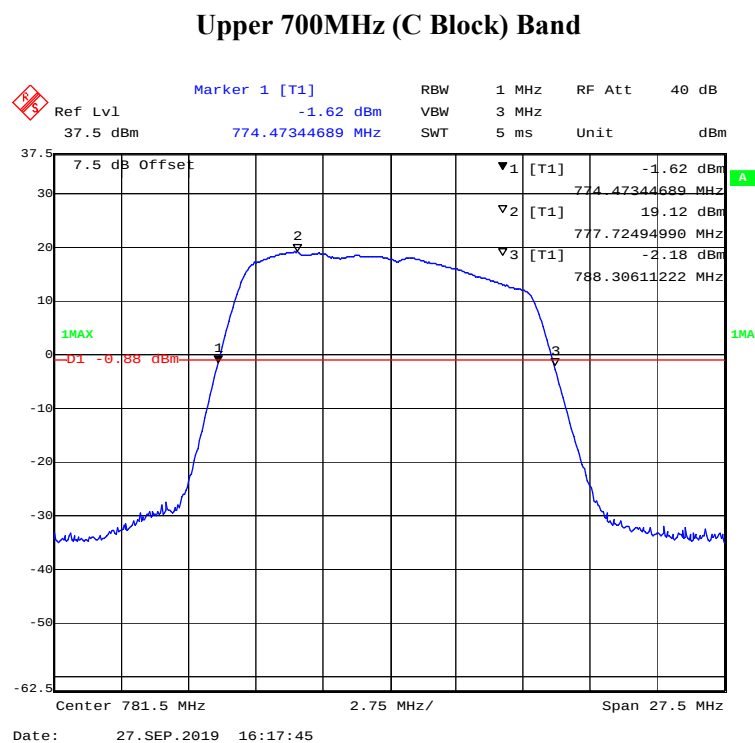
Temperature:	23.2~24.6℃
Relative Humidity:	48~51%
ATM Pressure:	101.1~101.3kPa

The testing was performed by Carrie He from 2019-09-27 to 2019-09-30.

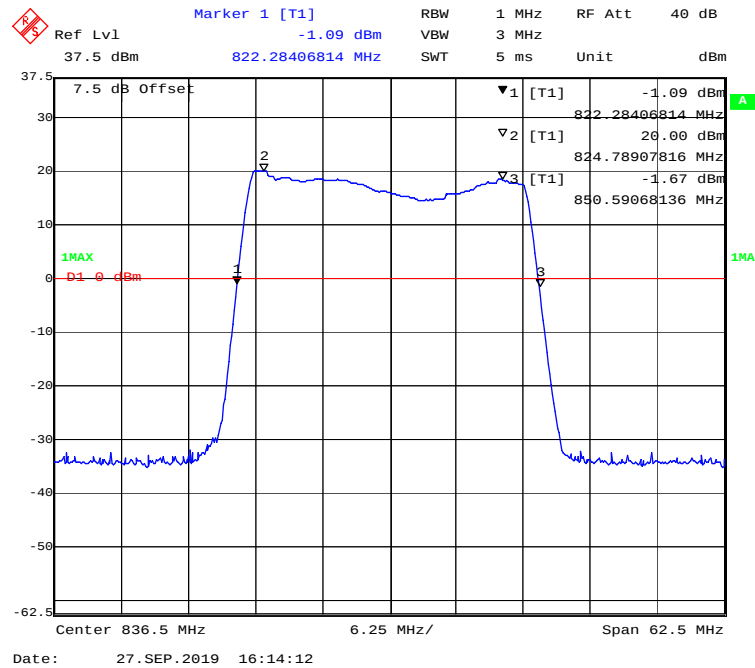
EUT operation mode: Transmitting

Test Result: Compliant.

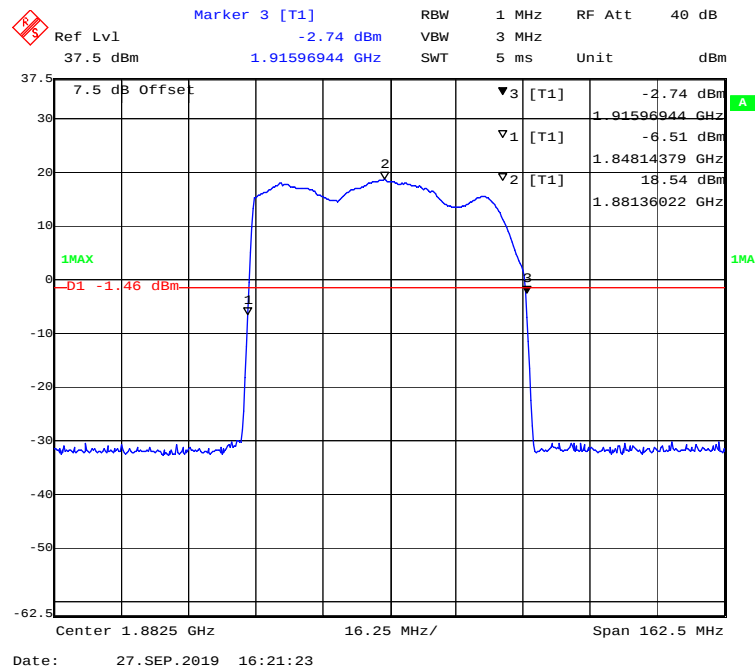
Lower 700MHz (A+B+C Block) Band



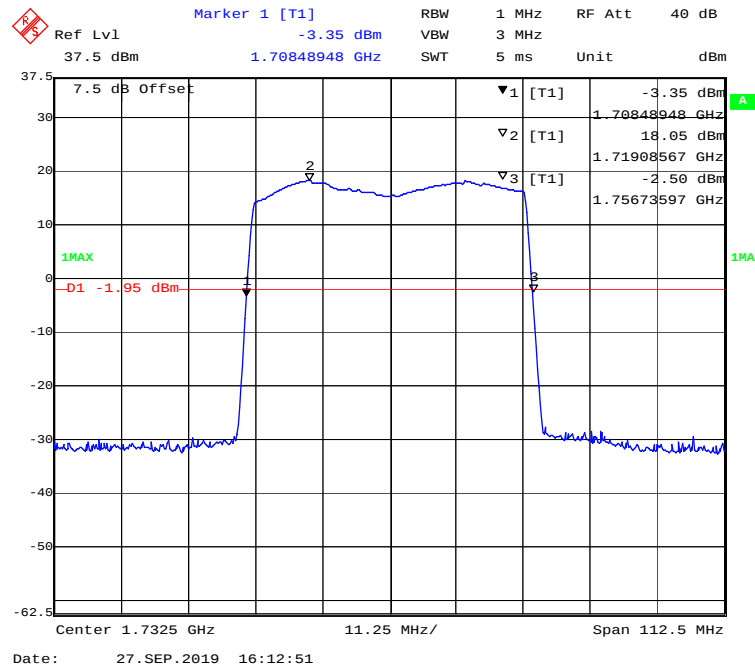
Cellular Band



PCS Band

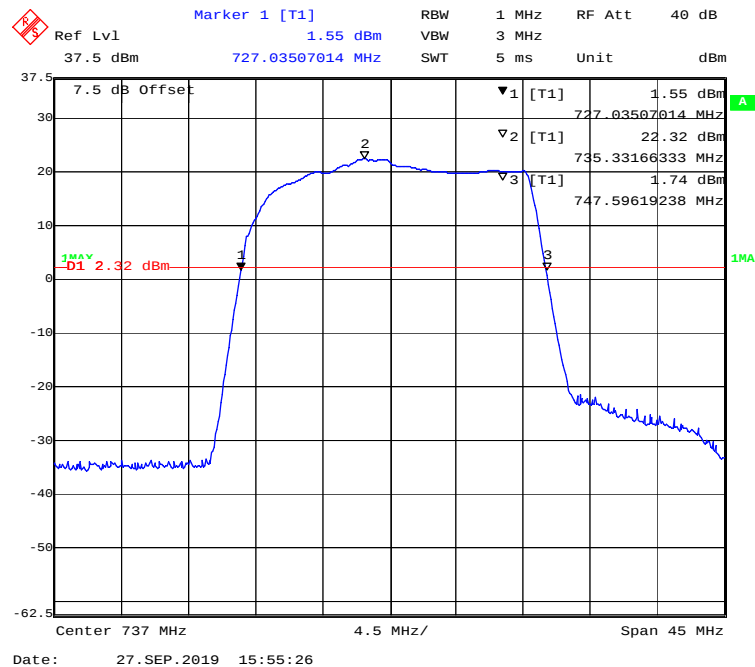


AWS Band

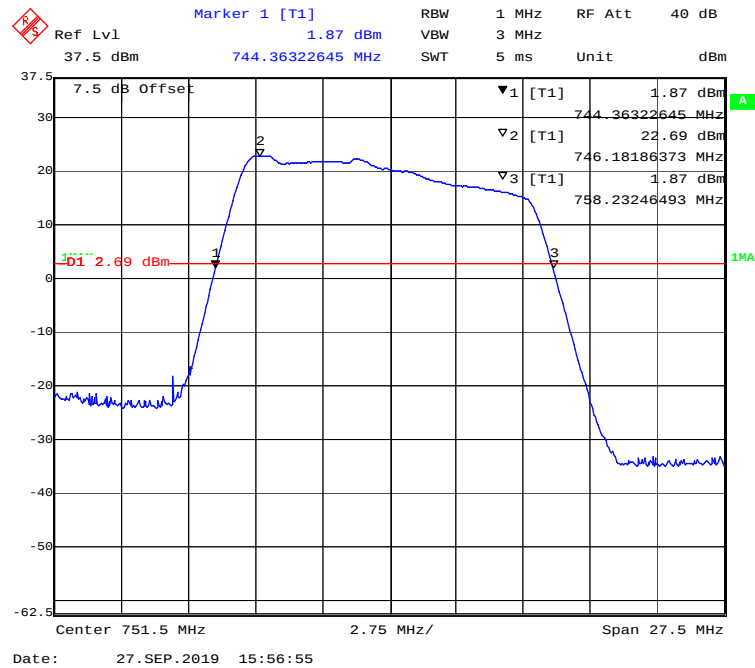


Downlink:

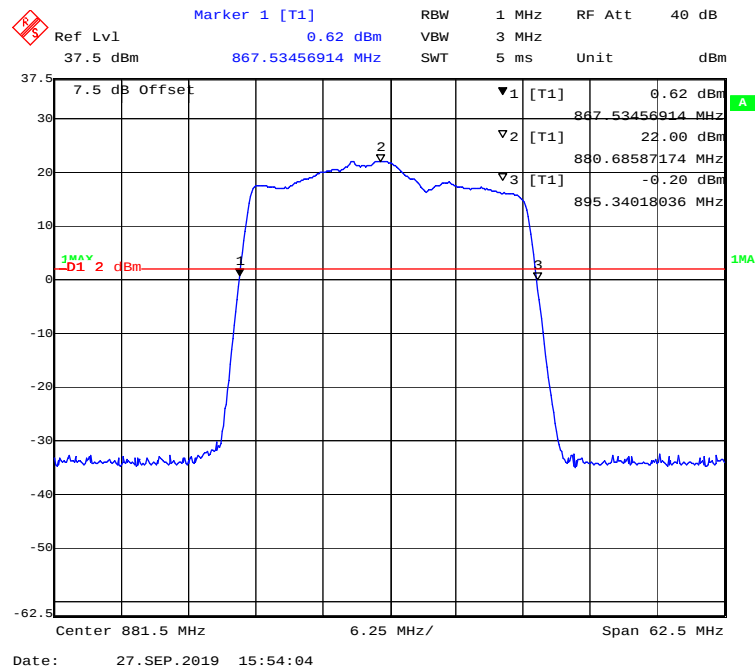
Lower 700MHz (A+B+C Block)



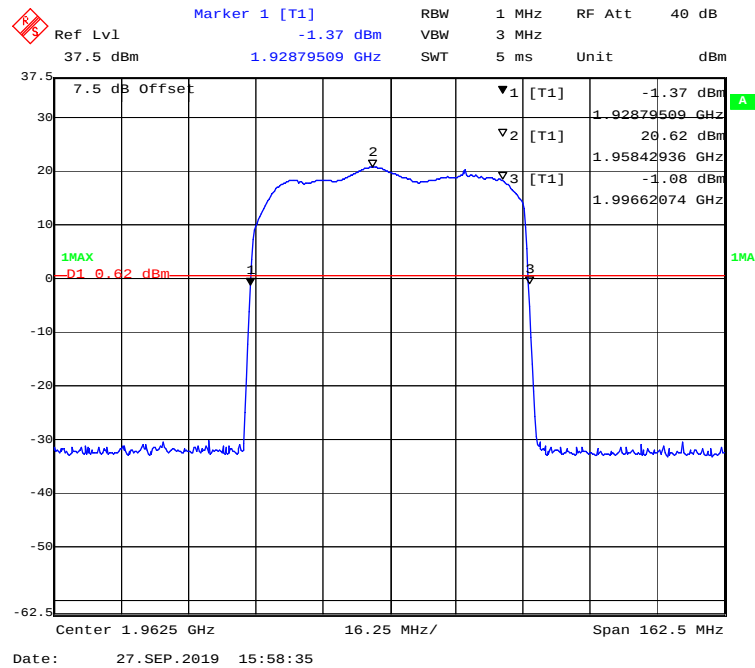
Upper 700MHz (C Block) Band



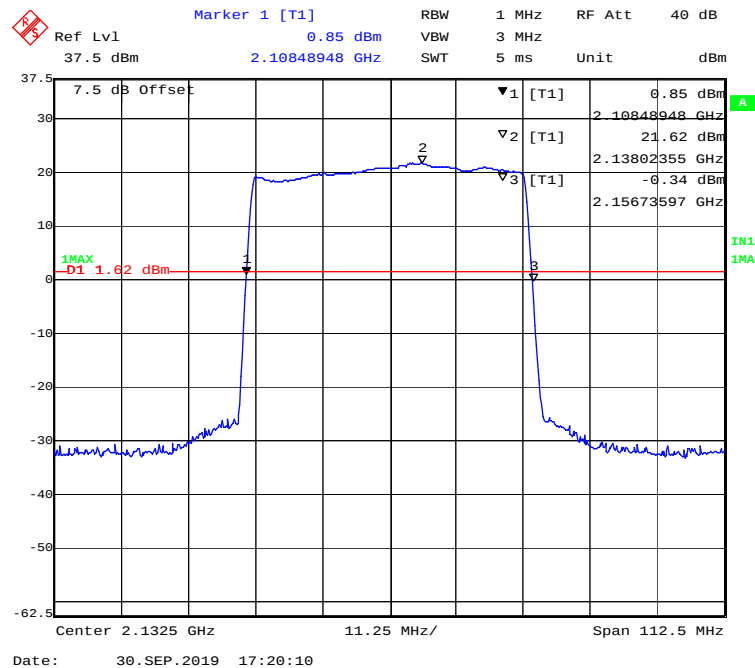
Cellular Band



PCS Band



AWS Band



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