

TEST REPORT

REPORT NUMBER: B18W50279

ON

Type of Equipment: LTE CAT-M1/NB-IOT/GPRS/EDGE/GNSS MODULE
Model Name: SIM7000G
Manufacturer: Shanghai SIMCom Wireless Solutions Limited.

ACCORDING TO

FCC CFR Part 2, FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS;

PART 22, PUBLIC MOBILE SERVICES;

PART 24, PERSONAL COMMUNICATIONS SERVICES;

PART 27, MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES;

Chongqing Academy of Information and Communications Technology

Month date, year

Aug, 29, 2018

Signature



Zhang Yan

Director

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of Chongqing Academy of Information and Communications Technology.

Chongqing Academy of Information and Communications Technology

Report No.:B18W50279

Revision Version

Report Number	Revision	Date	Memo
B18W50279	V1.0	2018-08-29	--

Chongqing Academy of Information and Communications Technology

Report No.:B18W50279

FCC ID: 2AJYU-SIM7000G

Report Date: 2018-08-29

Test Firm Name: Chongqing Academy of Information and Communications Technology

FCC Registration Number: CN1239

Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 2, 22, 24, 27, The sample tested was found to comply with the requirements defined in the applied rules.

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1 General Information

1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Parts 2, 22, 24, 27.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviation from, additions to, or exclusions from the test specifications have been made. See Annex B.

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1.2 Testers

Name: Bao Cheng
Position: Engineer
Department: Department of RF test
Date: 2018-08-01 to 2018-08-28

Signature:



Editor of this test report:

Name: Chen Wen
Position: Engineer
Department: Department of RF test
Date: 2018-08-29

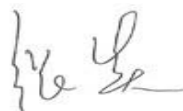
Signature:



Technical responsibility for area of testing:

Name: Zhang Yan
Position: Manager
Department: Director of the laboratory
Date: 2018-08-29

Signature:



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1.3 Testing Laboratory information

1.3.1 Location

Name: Chongqing Academy of Information and Communications Technology

Address: Building B, Technology Innovation Center, No.8, Yuma Road, Chayuan New Area, Nan'an District, Chongqing, People's Republic of China, 401336

Tel: +86-23-88069965

Fax: +86-23-88608777

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1.3.2 Test location, where different from section 1.3.1

Name: -----

Street: -----

City: -----

Country: -----

Telephone: -----

Fax: -----

Postcode: -----

1.4 Details of applicant or manufacturer

1.4.1 Applicant

Name: Shanghai SIMCom Wireless Solutions Limited.
Address: Bldg. B, SIM Technology Bldg.,No.633, Jinzhong Rd,
Changning Dist., Shanghai, P.R.China
Country: China
Telephone: +86-21-31575182
Fax: --
Contact: Haisheng zeng
Telephone: +86-21-31575182
Email: --

1.4.2 Manufacturer (if different from applicant in section 1.4.1)

Name: --
Address: --
City: --
Country: --

2 Test Item

2.1 General Information

Manufacturer: Shanghai SIMCom Wireless Solutions Limited.
Type of Equipment: LTE CAT-M1/NB-IOT/GPRS/EDGE/GNSS MODULE
Model Name: SIM7000G
Production Status: Product
Hardware Version: SIM7000G
Software Version: SIM7000G R1529
Receipt date of test item: 2018-07-03

2.2 Outline of Equipment under Test

The SIM7000G, referred to as “EUT” hereafter, is a multi-Band wireless modem operating on the GSM/LTE CAT-M1/NB-IoT networks. The table below shows the supported Bands for the EUT.

Technology	Band	UL Freq.(MHz)	DL Freq.(MHz)	Note
GSM	GSM850	824 – 849	869 – 894	--
	PCS1900	1850 – 1910	1930 – 1990	--
NB-IoT	Band2	1850 – 1910	1930 – 1990	--
	Band5	824 – 849	869 – 894	Covered by Band26 (Band5 is a subset of Band26. Both Bands share the same hardware and have the same radio performance. Separate measurement in Band5 is not required.)
	Band12	699 – 716	729 – 746	--
	Band13	777 – 787	746 – 756	--
	Band17	704 – 716	734 – 746	--
	Band26	814 – 849	859 – 894	--
CAT-M	Band2	1850 – 1910	1930 – 1990	--
	Band4	1710 – 1755	2110 – 2155	--

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Technology	Band	UL Freq.(MHz)	DL Freq.(MHz)	Note
	Band5	824 – 849	869 – 894	Covered by Band26 (Band5 is a subset of Band26. Both Bands share the same hardware and have the same radio performance. Separate measurement in Band5 is not required.)
	Band12	698 – 716	728 – 746	--
	Band13	777 – 787	746 – 756	--
	Band26	814 – 849	859 – 894	--

2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	Modules	Shanghai SIMCom Wireless Solutions Limited.	SIM7000G	D20618181ACDFF4	None
B	Modules	Shanghai SIMCom Wireless Solutions Limited.	SIM7000G	MP0618221C7CAF8	None
C	Adaptor	Someting High Electric (Xiamen) Company	P-050B-050200	--	None

2.5 Other Information

--

3 Summary of Test Results

A brief summary of the tests carried out is shown as following.

FCC Rules	Name of Test	Result
2.1046, 22.913(a) 24.232(c), 27.50	Conducted RF Power Output	Pass
2.1049, 22.917(b), 24.238(b)	Occupied Bandwidth	*Note 1
2.1051, 2.1053 22.917, 24.238 27.53	Conducted spurious emissions	Pass
2.1051, 2.1053 22.917, 24.238 27.53	Radiated Spurious Emission	Pass
2.1051, 2.1053 22.917, 24.238 27.53	Band Edge	Pass
2.1055, 22.355 24.235, 27.54	Frequency Stability over Temperature Variation	Pass
2.1055, 22.355 24.235, 27.54	Frequency Stability over Voltage Variation	Pass
24.232, 27.50	Peak to Average Ratio	Pass
22.913(a), 24.232(b)	ERP and EIRP	Pass
Note 1: No applicable performance criteria.		

4 Test Equipments and Ancillaries Used For Tests

The test equipments and ancillaries used are as follows.

No.	Equipment	Model	SN	Manufacture	Cal. Due Date
1	EMI Test Receiver	ESU26	100367	R&S	2019-03-02
2	Trilog super broadBand test antenna	VULB 9163	9163-544	R&S	2018-11-30
3	Double-Ridged Horn Antenna	HF907	100356	R&S	2018-11-30
4	Fully-Anechoic Chamber	11.8m×6.5m×6.3m	--	ETS	2019-10-23
5	Universal Radio Communication Tester	CMW500	128181	R&S	2019-03-02
6	Signal Generator	SMU200A	104517	R&S	2019-03-02
7	spectrum analyzer	FSQ 26	201137/026	R&S	2019-03-02
8	spectrum analyzer	N9020A	MY50200376	Agilent	2019-03-02
9	Universal Radio Communication Tester	CMU200	112012	R&S	2019-03-02
10	Climate chamber	SH-241	92010759	ESPEC	2019-03-02
11	DC Power Supply	N6705B	MY50000919	Agilent	2019-12-05
12	Universal Radio Communication Tester	CMW500	152395	R&S	2019-03-02
13	Universal Radio Communication Tester	SP8315	SP8315-1249	StarPoint	2019-01-03

5 Test Results

5.1 Conducted RF Power Output

Specifications:	FCC Part 2.1046, 22.913(a), 24.232(c), 27.50
DUT Serial Number:	S1: D20618181ACDFF4
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	Pass

Limit Level Construction:

According to Part 22.913(a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

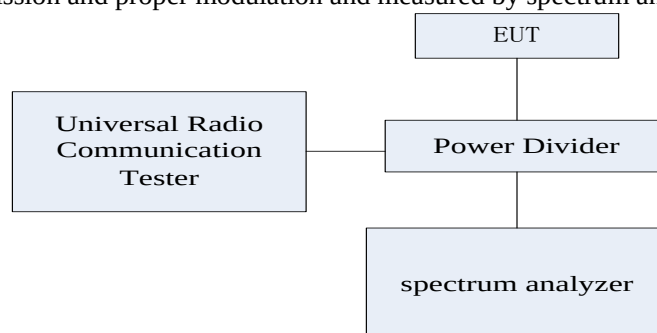
According to Part 24.232(c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

According to Part 27.50(c), portable stations (hand-held devices) in the 600 MHz uplink Band and the 698-746 MHz Band, and fixed and mobile stations in the 600 MHz uplink Band are limited to 3 watts ERP;

According to Part 27.50(d), 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.

Test Setup:

During the test, the EUT was controlled via the Wireless Telecommunications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



Test Method:

- 1) The EUT was coupled to the spectrum analyzer and the Wireless Telecommunications Test Set through a power divider. The loss of the RF cables of the test system is calibrated to correct the readings.
- 2) For RMS power test, the spectrum analyzer was set to RMS Detector function and Maximum hold mode.
- 3) For Peak power test, the spectrum analyzer was set to Maxpeak Detector function and

Maximum hold mode.

4) The resolution Bandwidth of the spectrum analyzer was comparable to the emission Bandwidth.

Note: --

5.1.1 GSM850 Conducted RF Power Output Results

GPRS GMSK Mode:

Channel	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
128 (824.2MHz)	33.3	31.8	29.7	27.3
190 (836.6MHz)	33.5	32.0	29.3	27.2
251 (848.8MHz)	32.7	31.2	29.4	27.1

EGPRS GMSK Mode

Channel	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
128 (824.2MHz)	33.4	32.0	29.6	27.5
190 (836.6MHz)	33.5	32.1	29.5	27.4
251 (848.8MHz)	33.0	31.6	29.3	27.0

EGPRS 8PSK Mode

Channel	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
128 (824.2MHz)	30.0	28.2	27.2	26.0
190 (836.6MHz)	30.0	28.2	26.9	25.8
251 (848.8MHz)	29.6	27.8	26.7	25.2

5.1.2 PCS1900 Conducted RF Power Output Results

GPRS GMSK Mode

Channel	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
512 (1850.2MHz)	28.3	27.5	26.0	24.5
661 (1880.0MHz)	28.0	27.0	25.7	24.4

810 (1909.8MHz)	28.4	27.5	26.3	24.9
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EGPRS GMSK Mode

Channel	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
512 (1850.2MHz)	28.5	27.5	25.8	24.8
661 (1880.0MHz)	28.0	27.0	25.6	24.2
810 (1909.8MHz)	28.4	27.6	26.1	24.8

EGPRS 8PSK Mode

Channel	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
512 (1850.2MHz)	24.4	23.3	22.2	21.2
661 (1880.0MHz)	24.0	23.0	22.0	21.0
810 (1909.8MHz)	24.7	23.5	22.5	21.5

5.1.3 NB-IoT B2 Conducted RF Power Output Results

NB-IoT standalone Test frequencies for operating Band 2

Test Frequency ID	Channel	Frequency (MHz)	Power(dBm)	Power(dBm)
			QPSK	BPSK
Low Range	18630	1853	22.52	22.49
Mid Range	18900	1880	21.97	21.93
High Range	19193	1909.3	21.05	21.04

5.1.4 NB-IoT B12 Conducted RF Power Output Results

NB-IoT standalone Test frequencies for operating Band 12

Test Frequency ID	Channel	Frequency (MHz)	Power(dBm)	Power(dBm)
			QPSK	BPSK
Low Range	23017	699.7	22.80	22.86
Mid Range	23095	707.5	22.92	22.88
High Range	23173	715.3	22.76	22.74

5.1.5 NB-IoT B13 Conducted RF Power Output Results

NB-IoT standalone Test frequencies for operating Band 13

Test Frequency ID	Channel	Frequency (MHz)	Power(dBm)	Power(dBm)
			QPSK	BPSK
Low Range	23205	779.5	23.29	23.26
Mid Range	23230	782.0	23.26	22.25
High Range	23255	784.5	23.17	22.40

5.1.6 NB-IoT B17 Conducted RF Power Output Results

NB-IoT standalone Test frequencies for operating Band 17

Test Frequency ID	Channel	Frequency (MHz)	Power(dBm)	Power(dBm)
			QPSK	BPSK
Low Range	23735	704	22.83	22.80
Mid Range	23790	710	22.93	22.81
High Range	23849	716	22.85	22.80

5.1.7 NB-IoT B26 Conducted RF Power Output Results

NB-IoT standalone Test frequencies for operating Band 26

Test Frequency ID	Channel	Frequency (MHz)	Power(dBm)	Power(dBm)
			QPSK	BPSK
Low Range	26690	814	20.80	20.83
Mid Range	26865	831.5	21.65	20.98
High Range	27039	849	21.85	21.86

5.1.8 CAT-M B2 Conducted RF Power Output Results

Mode	Bandwidth	Channel	RB	Index	Conducted Power	
					QPSK	16QAM
Band2	1.4MHz	18607	1#0	0	21.74	21.50
			6#0	0	20.64	20.58
		18900	1#0	0	22.07	22.06

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			6#0	0	20.98	20.80
		19195	1#5	0	21.64	21.60
			6#0	0	20.99	20.42
	3MHz	18615	1#0	0	21.45	21.30
			6#0	0	21.05	20.96
		18900	1#0	0	21.86	21.66
			6#0	0	20.84	20.69
		19185	1#5	1	22.12	22.08
			6#0	1	21.42	21.32
	5MHz	18620	1#0	0	22.61	22.53
			6#0	0	21.13	21.06
		18900	1#0	0	22.54	22.08
			6#0	0	21.41	21.20
		19180	1#5	3	23.10	22.93
			6#0	3	21.32	21.20
	10MHz	18640	1#0	0	22.75	22.50
			4#0	0	20.69	20.75
		18900	1#0	0	22.41	21.18
			4#0	0	20.39	20.23
		19160	1#5	7	22.12	22.08
			4#2	7	21.41	21.12

	15MHz	18660	1#0	0	22.45	21.26
			6#0	0	20.65	20.48
		18900	1#0	0	21.74	21.56
			6#0	0	20.54	20.43
		19140	1#5	0	21.89	21.58
			6#0	0	20.75	20.65
	20MHz	18680	1#0	0	21.98	21.78
			6#0	0	21.12	20.94
		18900	1#0	0	22.26	22.16
			6#0	0	21.65	20.81
		19120	1#5	0	22.51	22.17
			6#0	0	21.12	20.89

5.1.9 CAT-M B4 Conducted RF Power Output Results

Mode	Bandwidth	Channel	RB	Index	Conducted Power	
					QPSK	16QAM
Band4	1.4MHz	19957	1#0	0	23.05	22.37
			6#0	0	21.25	21.52
		20175	1#0	0	22.76	22.33
			6#0	0	21.23	21.38
		20393	1#5	0	23.08	22.56
			6#0	0	21.06	20.96
	3MHz	19965	1#0	0	22.97	22.85

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			6#0	0	21.25	20.78
		20175	1#0	0	23.10	23.05
			6#0	0	21.32	21.21
		20385	1#5	1	22.76	22.72
			6#0	1	20.80	20.72
	5MHz	19975	1#0	0	22.80	22.76
			6#0	0	20.60	20.51
		20175	1#0	0	22.71	22.65
			6#0	0	20.45	20.40
		20375	1#5	3	22.85	22.59
			6#0	3	21.50	21.42
	10MHz	20000	1#0	0	23.05	21.98
			4#0	0	20.88	20.45
		20175	1#0	0	23.11	22.03
			4#0	0	21.12	21.05
		20350	1#5	7	22.30	22.12
			4#2	7	20.54	20.32
	15MHz	20025	1#0	0	22.18	22.06
			6#0	0	21.23	21.05
		20175	1#0	0	21.97	21.85
			6#0	0	20.82	20.54

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		20325	1#5	0	22.23	22.17
			6#0	0	21.25	21.11
	20MHz	20050	1#0	0	21.97	21.85
			6#0	0	20.98	20.84
		20175	1#0	0	22.30	22.17
			6#0	0	20.87	20.51
		20300	1#5	0	21.74	21.50
			6#0	0	20.49	20.40

5.1.10 CAT-M B12 Conducted RF Power Output Results

Mode	Bandwidth	Channel	RB	Index	Conducted Power	
					QPSK	16QAM
Band12	1.4MHz	20315	1#0	0	22.56	22.15
			6#0	0	20.98	20.78
		23095	1#0	0	22.57	21.52
			6#0	0	21.12	21.01
		23175	1#5	0	22.69	22.57
			6#0	0	21.42	21.38
	3MHz	20320	1#0	0	22.41	22.34
			6#0	0	21.42	21.29
		23095	1#0	0	22.29	22.16
			6#0	0	21.59	21.32
		23170	1#5	1	22.40	22.32

			6#0	1	21.45	20.79
			1#0	0	22.41	22.28
			6#0	0	21.58	21.26
			1#0	0	21.57	21.45
			6#0	0	21.29	20.89
			1#5	3	22.72	22.59
			6#0	3	21.22	21.03
			1#0	0	22.33	22.30
			4#0	0	22.09	21.12
			1#0	0	21.89	21.45
			4#0	0	21.56	21.14
			1#5	7	22.21	22.10
			4#2	7	20.89	20.52

5.1.11 CAT-M B13 Conducted RF Power Output Results

	Bandwidth	Channel	RB	Index	Conducted Power	
					QPSK	16QAM
Band13	5MHz	23200	1#0	0	23.16	22.56
			6#0	0	21.16	21.10
		23230	1#0	0	22.90	22.34
			6#0	0	21.89	21.62
		23260	1#5	3	22.26	22.20
			6#0	3	21.23	20.96

	10MHz	23225	1#0	0	23.31	23.13
			4#0	0	22.10	21.20
		23230	1#0	0	22.62	22.54
			4#0	0	21.11	20.90
		23235	1#5	7	23.02	22.98
			4#2	7	22.12	22.08

5.1.12 CAT-M B26 Conducted RF Power Output Results

Mode	Bandwidth	Channel	RB	Index	Conducted Power	
					QPSK	16QAM
Band26	1.4MHz	26697	1#0	0	23.03	21.94
			6#0	0	20.69	21.04
		26865	1#0	0	23.15	21.06
			6#0	0	20.80	21.09
		27033	1#5	0	23.08	21.97
			6#0	0	20.70	21.01
	3MHz	26705	1#0	0	23.18	22.15
			6#0	0	20.83	21.11
		26865	1#0	0	23.38	22.39
			6#0	0	21.01	21.24
		27025	1#5	1	23.35	22.28
			6#0	1	20.88	21.18
	5MHz	26715	1#0	0	22.87	22.53

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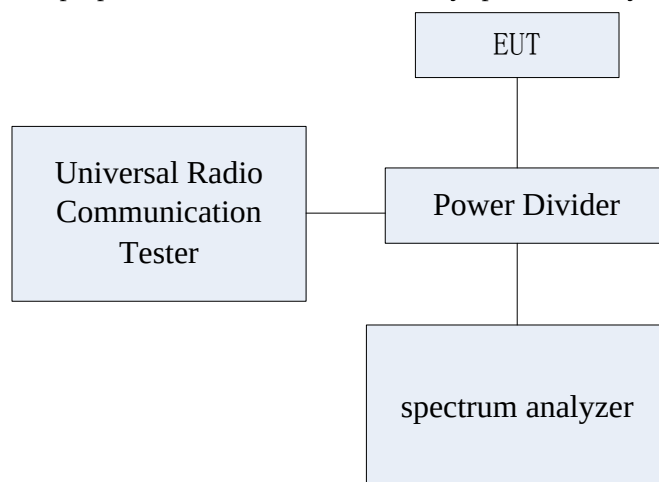
			6#0	0	20.40	20.05
		26865	1#0	0	22.71	22.63
			6#0	0	20.32	20.10
		27015	1#5	3	22.92	22.56
			6#0	3	21.91	20.98
	10MHz	26740	1#0	0	22.80	22.56
			4#0	0	21.91	20.98
		26865	1#0	0	22.88	22.71
			4#0	0	21.08	20.28
		26990	1#5	7	22.79	22.68
			4#2	7	21.65	20.85
	15MHz	26765	1#0	0	22.96	22.88
			6#0	0	21.47	21.41
		26865	1#0	0	22.83	22.93
			6#0	0	21.30	21.35
		26965	1#5	0	22.75	22.52
			6#0	0	20.86	20.56

5.2 Occupied Bandwidth

Specifications:	FCC Part 2.1049, 22.917(b), 24.238(b)
DUT Serial Number:	S1: D20618181ACDFF4
Test conditions:	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
Test Results:	--

Test Setup

During the test, the EUT was controlled via the Wireless Communications Test Set to ensure max power transmission and proper modulation and measured by spectrum analyzer.



Test Method

The 99% occupied Bandwidth was calculated from the spectrum analyzer. Markers in the spectrum analyzer were then placed between the calculated frequencies to show the calculated 99% power Band. The 26dB Bandwidth was also measured and recorded.

Note: --

5.2.1 GSM Mode Occupied Bandwidth Results

Band	Channel	Mode	Occupied Bandwidth 99% (kHz)	Occupied Bandwidth 26dB (kHz)
GSM850	128	GMSK	245.2	315.7
		8PSK	243.6	307.7
	190	GMSK	243.6	320.5
		8PSK	243.0	304.5
	251	GMSK	245.2	315.7
		8PSK	242.0	302.9
PCS1900	512	GMSK	246.0	320.5
		8PSK	244.0	310.9
	661	GMSK	244.0	317.3
		8PSK	246.0	306.1
	810	GMSK	247.0	320.5
		8PSK	247.0	309.3

5.2.2 NB-IoT B2 Mode Occupied Bandwidth Results

Mode	Channel/Ferquency (MHz)	Occupied Bandwidth 99% (kHz)	Occupied Bandwidth 26dB (kHz)
BPSK	18900/1880	157.0	94.0
QPSK	18900/1880	162.0	83.0

5.2.3 NB-IoT B12 Mode Occupied Bandwidth Results

Mode	Channel/Ferquency (MHz)	Occupied Bandwidth 99% (kHz)	Occupied Bandwidth 26dB (kHz)
BPSK	23095/707.5	137.0	94.0
QPSK	23095/707.5	135.0	81.0

5.2.4 NB-IoT B13 Mode Occupied Bandwidth Results

Mode	Channel/Ferquency (MHz)	Occupied Bandwidth 99% (kHz)	Occupied Bandwidth 26dB (kHz)
BPSK	23230/782	138.0	94.0
QPSK	23230/782	133.0	95.0

5.2.5 NB-IoT B17 Mode Occupied Bandwidth Results

Mode	Channel/Ferquency (MHz)	Occupied Bandwidth 99% (kHz)	Occupied Bandwidth 26dB (kHz)
BPSK	23790/710	133.0	97.8
QPSK	23790/710	131.4	97.8

5.2.6 NB-IoT B26 Mode Occupied Bandwidth Results

Mode	Channel/Ferquency (MHz)	Occupied Bandwidth 99% (kHz)	Occupied Bandwidth 26dB (kHz)
BPSK	26843/829.34	137.8	107.4
QPSK	26843/829.34	136.1	96.2

5.2.7 CAT-M B2 Mode Occupied Bandwidth Results

Bandwidth	Modulation	Channel/Ferquency (MHz)	RB	Index	Occupied Bandwidth 99% (MHz)	Occupied Bandwidth 26dB (MHz)
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1.4MHz	QPSK	18900/1880	6#0	0	1.12	1.32
	16QAM	18900/1880			1.10	1.33
3MHz	QPSK	18900/1880	6#0	0	1.14	1.47
	16QAM	18900/1880			1.13	1.46
5MHz	QPSK	18900/1880	6#0	0	1.12	1.43
	16QAM	18900/1880			1.17	1.52
10MHz	QPSK	18900/1880	6#0	0	1.17	1.73
	16QAM	18900/1880			1.19	1.68
15MHz	QPSK	18900/1880	6#0	0	1.23	1.95
	16QAM	18900/1880			1.25	1.80
20MHz	QPSK	18900/1880	6#0	0	1.19	1.86
	16QAM	18900/1880			1.31	1.92

5.2.8 CAT-M B4 Mode Occupied Bandwidth Results

Bandwidth	Modulation	Channel/Ferquency (MHz)	RB	Index	Occupied Bandwidth 99% (MHz)	Occupied Bandwidth 26dB (MHz)
1.4MHz	QPSK	20175/1732.5	6#0	0	1.10	1.27
	16QAM	20175/1732.5			1.09	1.30
3MHz	QPSK	20175/1732.5	6#0	0	1.11	1.40
	16QAM	20175/1732.5			1.10	1.41
5MHz	QPSK	20175/1732.5	6#0	0	1.12	1.43
	16QAM	20175/1732.5			1.37	1.43
10MHz	QPSK	20175/1732.5	6#0	0	1.11	1.51
	16QAM	20175/1732.5			1.12	1.54

15MHz	QPSK	20175/1732.5	6#0	0	1.13	1.71
	16QAM	20175/1732.5			1.25	2.01
20MHz	QPSK	20175/1732.5	6#0	0	1.12	1.67
	16QAM	20175/1732.5			1.28	2.40

5.2.9 CAT-M B12 Mode Occupied Bandwidth Results

Bandwidth	Modulation	Channel/Ferquency (MHz)	RB	Index	Occupied Bandwidth 99% (MHz)	Occupied Bandwidth 26dB (MHz)
1.4MHz	QPSK	23095/707.5	6#0	0	1.12	1.29
	16QAM	23095/707.5			1.10	1.31
3MHz	QPSK	23095/707.5	6#0	0	1.13	1.42
	16QAM	23095/707.5			1.12	1.47
5MHz	QPSK	23095/707.5	6#0	0	1.11	1.39
	16QAM	23095/707.5			1.13	1.52
10MHz	QPSK	23095/707.5	6#0	0	1.14	1.62
	16QAM	23095/707.5			1.15	1.60

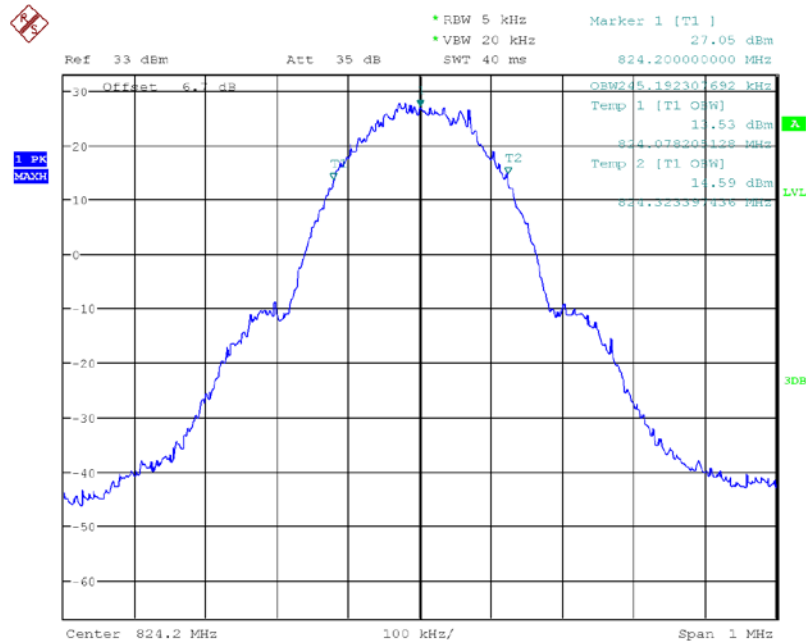
5.2.10 CAT-M B13 Mode Occupied Bandwidth Results

Bandwidth	Modulation	Channel/Ferquency (MHz)	RB	Index	Occupied Bandwidth 99% (MHz)	Occupied Bandwidth 26dB (MHz)
5MHz	QPSK	23230/782	6#0	0	1.12	1.44
	16QAM	23230/782			1.14	1.47
10MHz	QPSK	23230/782	6#0	0	1.14	1.49
	16QAM	23230/782			1.15	1.62

5.2.11 CAT-M B26 Mode Occupied Bandwidth Results

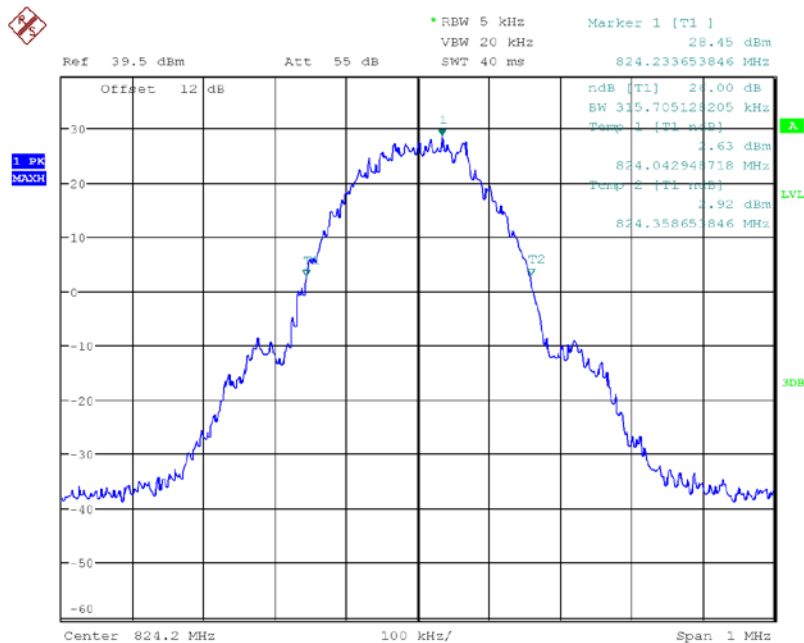
Bandwidth	Modulation	Channel/Ferquency (MHz)	RB	Index	Occupied Bandwidth 99% (MHz)	Occupied Bandwidth 26dB (MHz)
1.4MHz	QPSK	23230/782	6#0	0	1.12	1.30
	16QAM	23230/782			1.11	1.34
3MHz	QPSK	23230/782	6#0	0	1.13	1.45
	16QAM	23230/782			1.13	1.46
5MHz	QPSK	23230/782	6#0	0	1.15	1.42
	16QAM	23230/782			1.15	1.55
10MHz	QPSK	23230/782	6#0	0	1.15	1.67
	16QAM	23230/782			1.22	1.70
15MHz	QPSK	23230/782	6#0	0	1.23	1.97
	16QAM	23230/782			1.23	1.83

Graphical results for GSM850:



Date: 2.AUG.2018 16:56:55

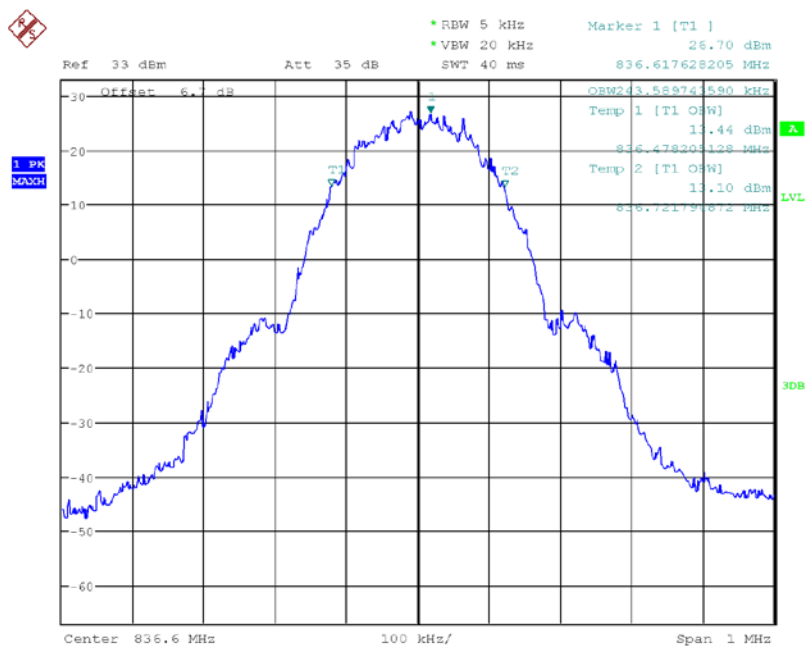
99% OBW-GMSK-Channel 128



Date: 3.AUG.2018 10:41:02

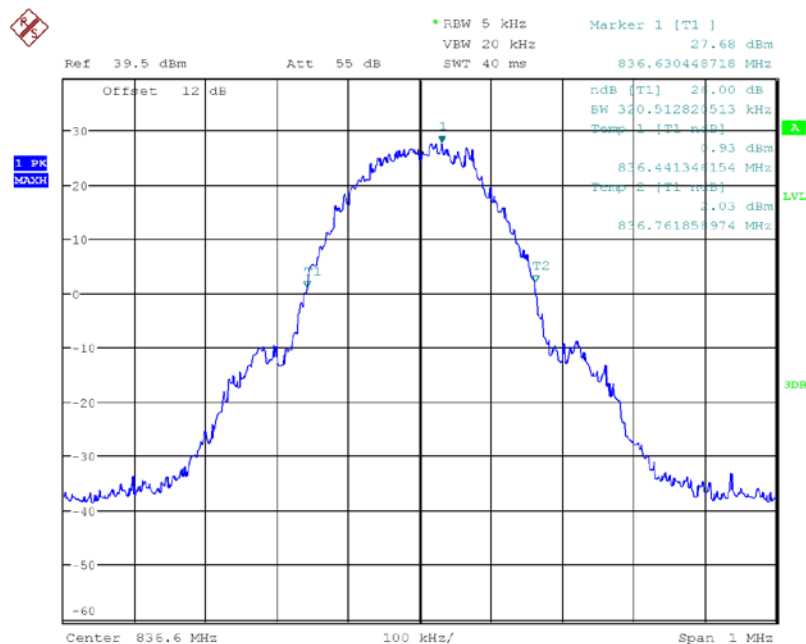
26dB OBW-GMSK-Channel 128

Report No.:B18W50279



Date: 2.AUG.2018 16:59:09

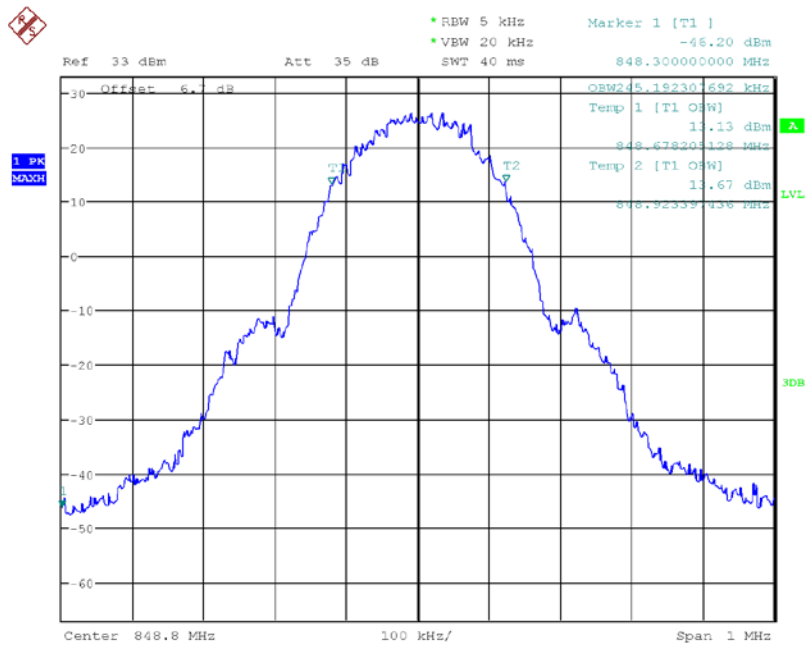
99% OBW-GMSK-Channel 190



Date: 3.AUG.2018 10:40:14

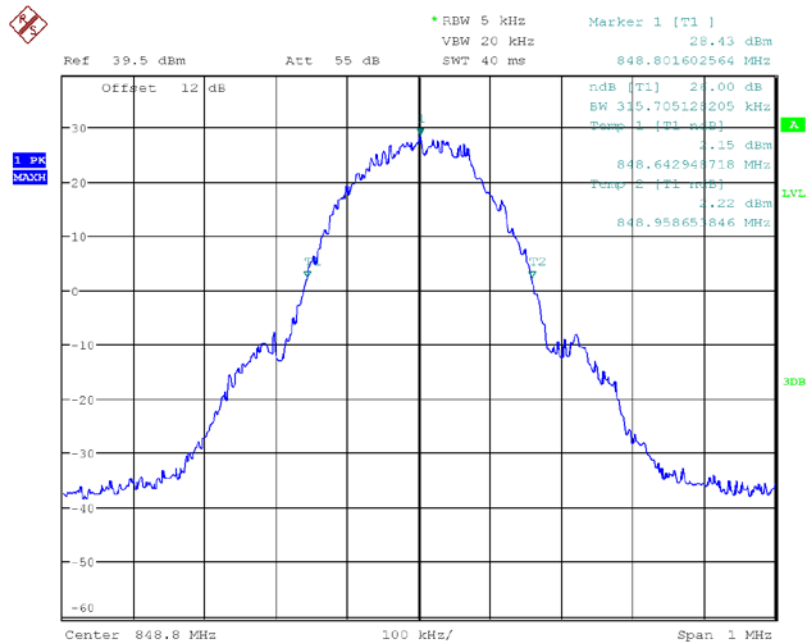
26dB OBW-GMSK-Channel-190

Report No.:B18W50279



Date: 2.AUG.2018 17:00:31

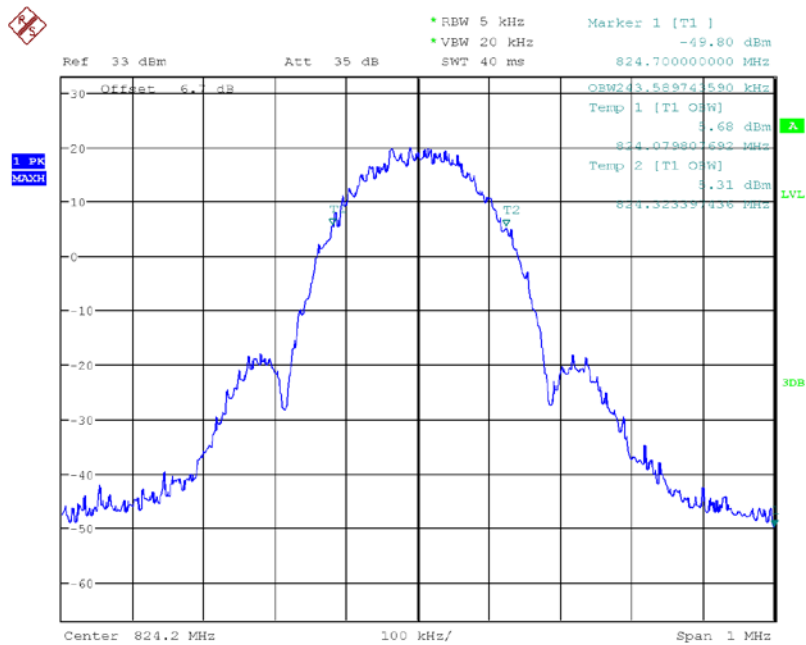
99% OBW-GMSK-Channel 251



Date: 3.AUG.2018 10:42:12

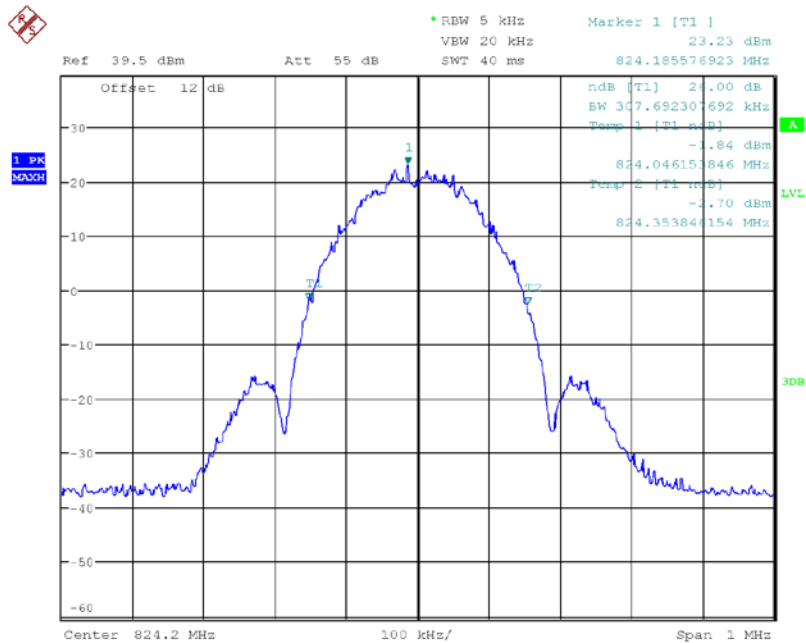
26dB OBW-GMSK Channel 251

Report No.:B18W50279



Date: 3.AUG.2018 17:02:51

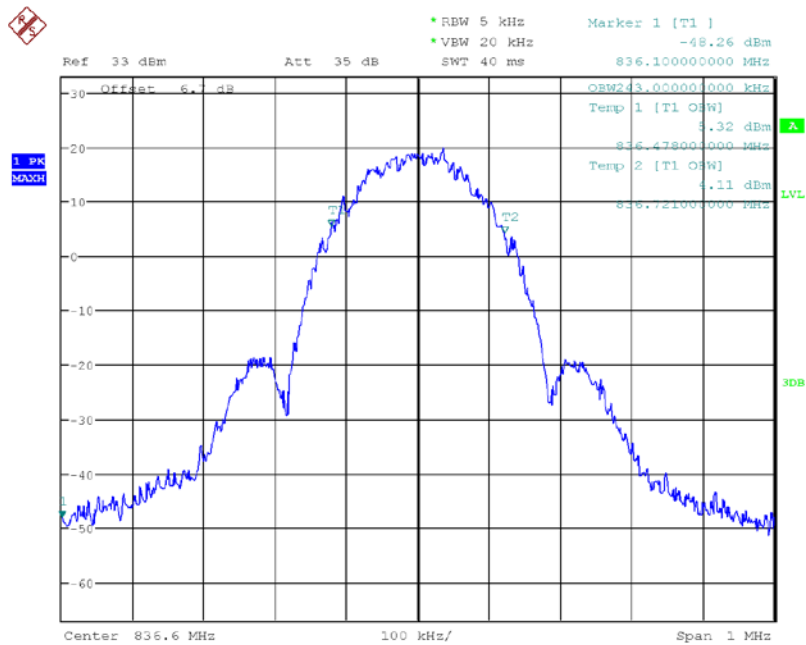
99% OBW-8PSK-Channel 128



Date: 3.AUG.2018 10:53:07

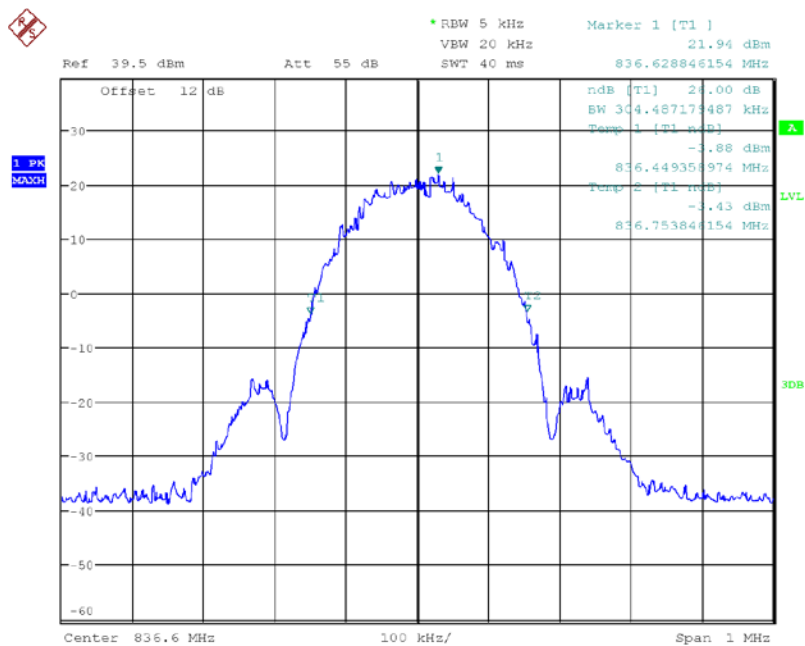
26dB OBW-8PSK-Channel 128

Report No.:B18W50279



Date: 2.AUG.2018 17:04:16

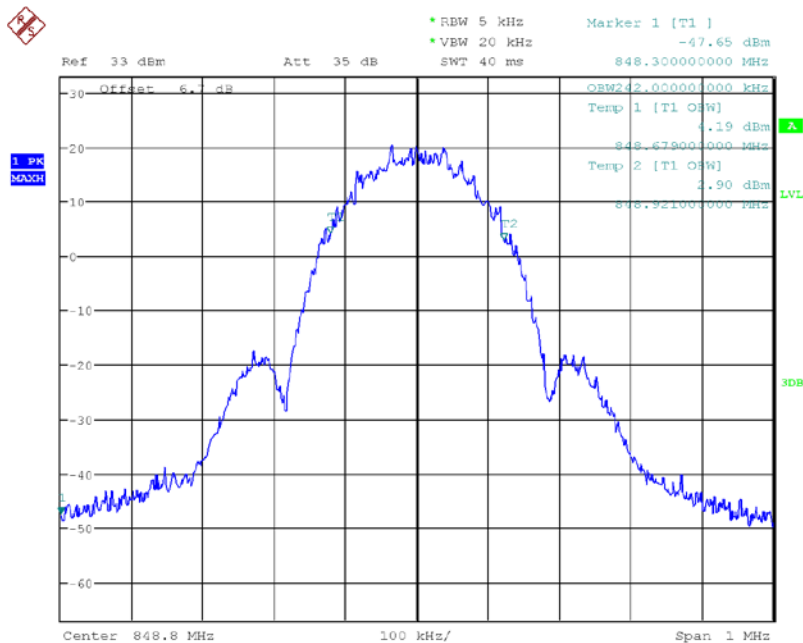
99% OBW-8PSK-Channel 190



Date: 3.AUG.2018 10:50:18

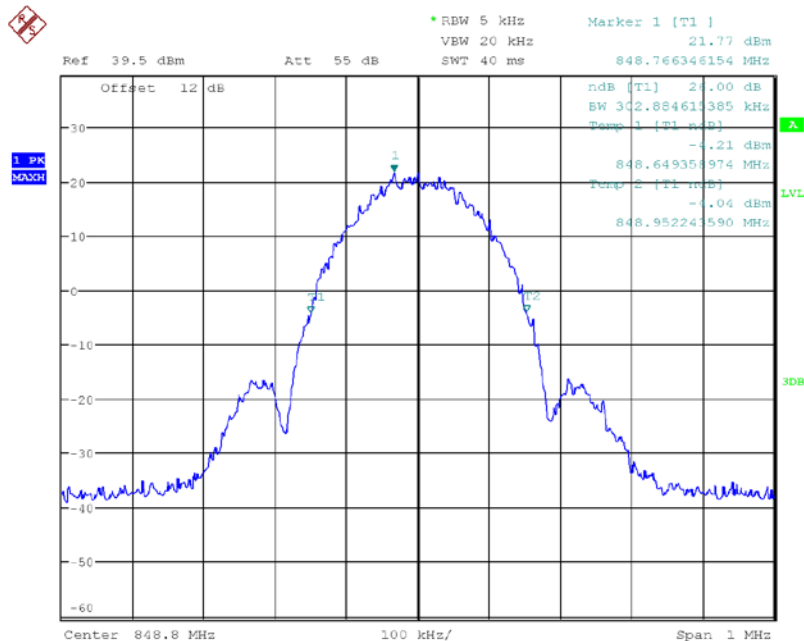
26dB OBW-8PSK-Channel 190

Report No.:B18W50279



Date: 2.AUG.2018 17:05:28

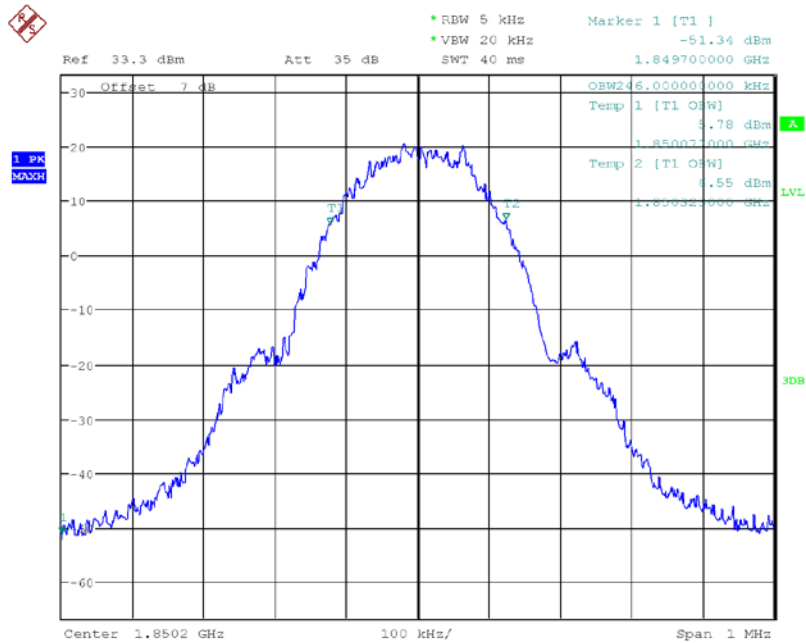
99% OBW-8PSK-Channel 251



Date: 3.AUG.2018 10:48:55

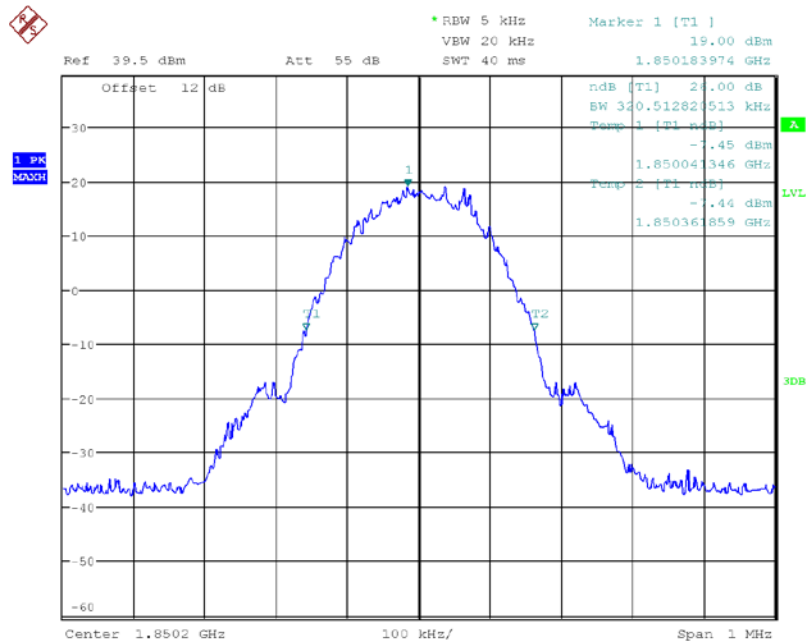
26dB OBW-8PSK-Channel 251

Graphical results for PCS1900:



Date: 2.AUG.2018 17:08:57

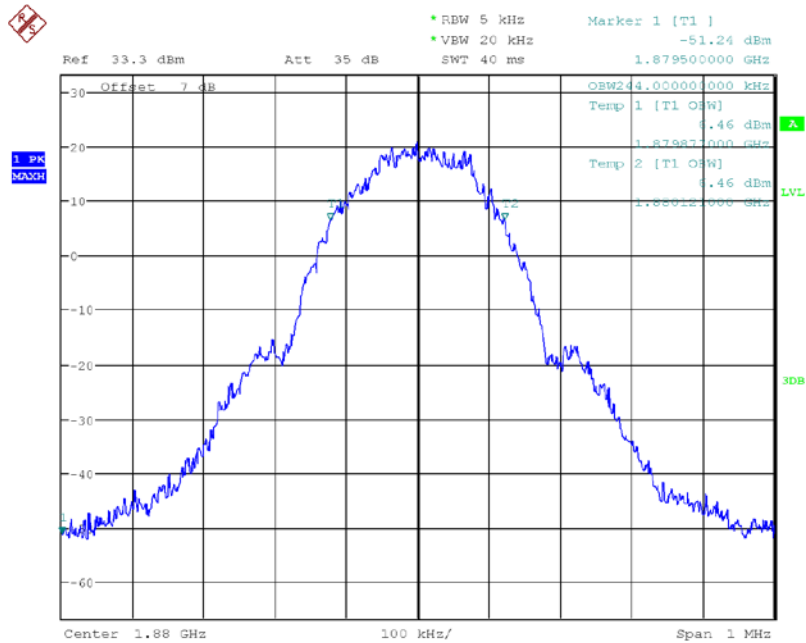
99% OBW-GMSK-Channel 512



Date: 3.AUG.2018 11:00:30

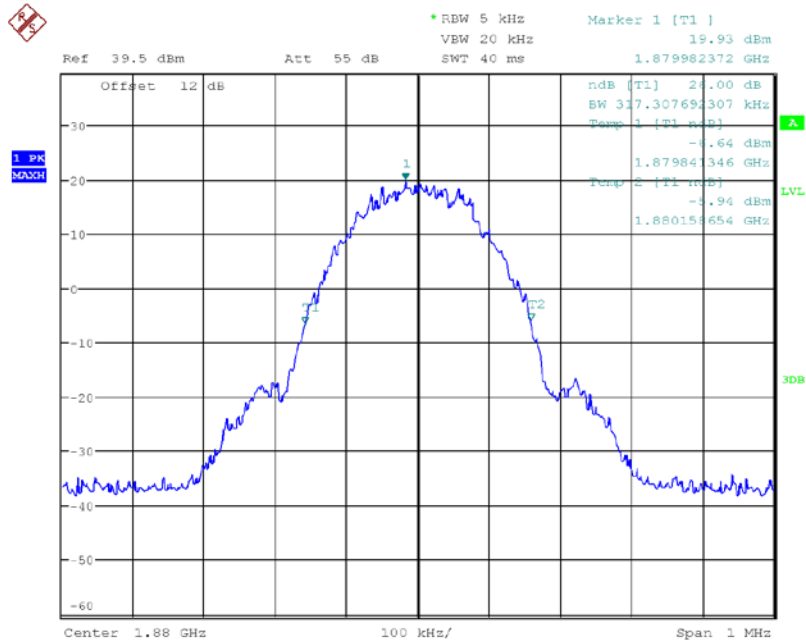
26dB OBW-GMSK-Channel 512

Report No.:B18W50279



Date: 2.AUG.2018 17:09:39

99% OBW-GMSK-Channel 661



Date: 3.AUG.2018 11:03:24

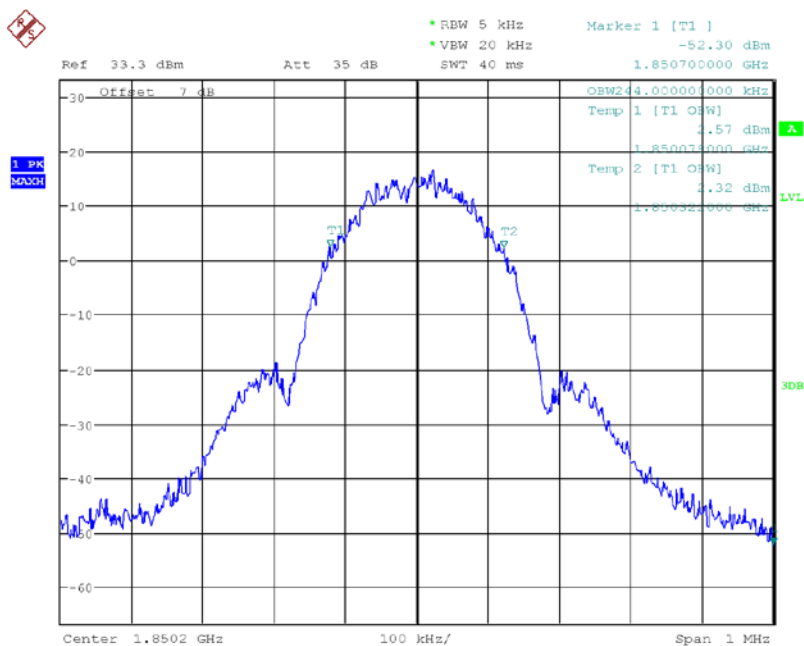
26dB OBW-GMSK-Channel 661

[illegible]

Date: 3.AUG.2018 11:06:35

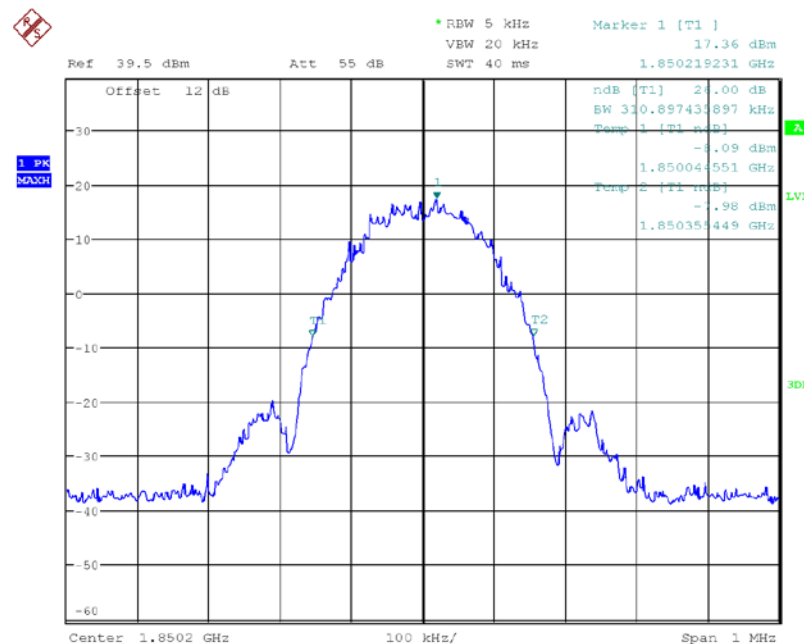
26dB OBW-GMSK-Channel 810

Report No.:B18W50279



Date: 2.AUG.2018 17:14:56

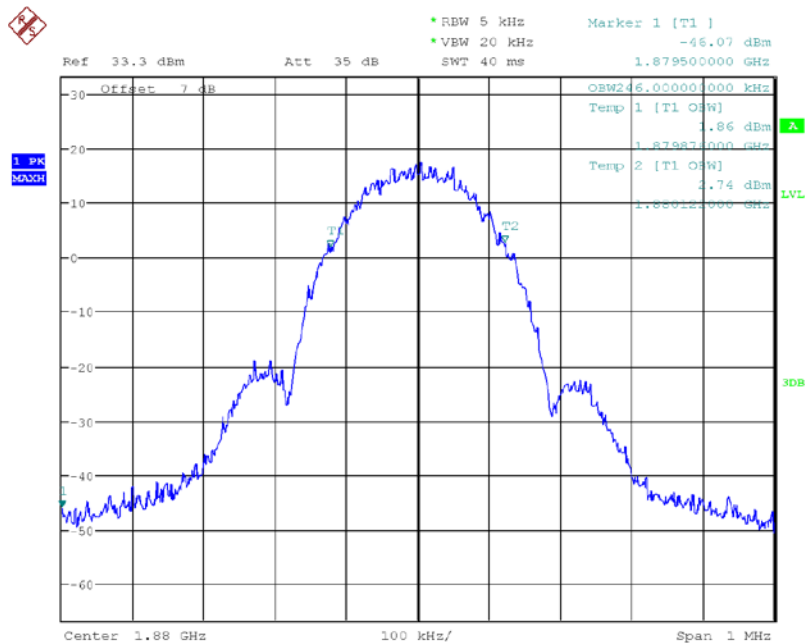
99% OBW-8PSK-Channel 512



Date: 3.AUG.2018 11:14:36

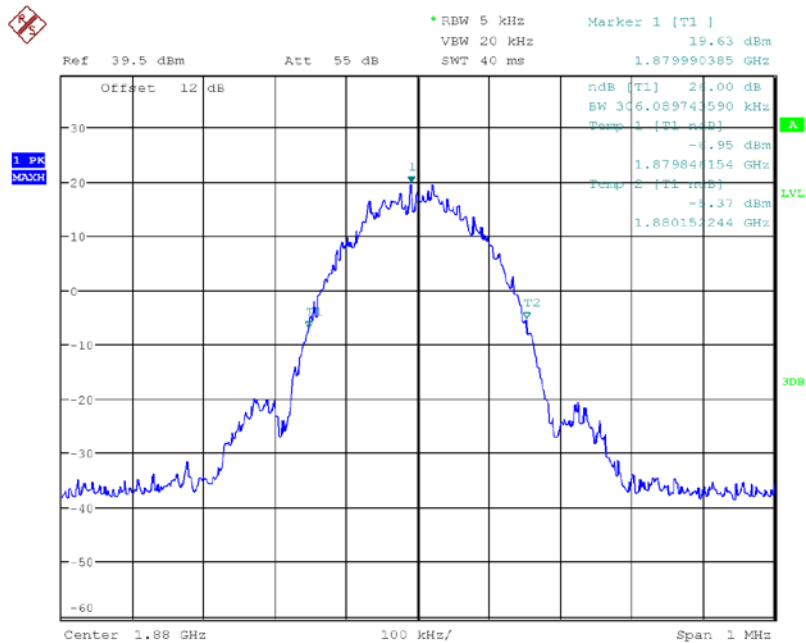
26dB OBW-8PSK-Channel 512

Report No.:B18W50279



Date: 2.AUG.2018 17:16:23

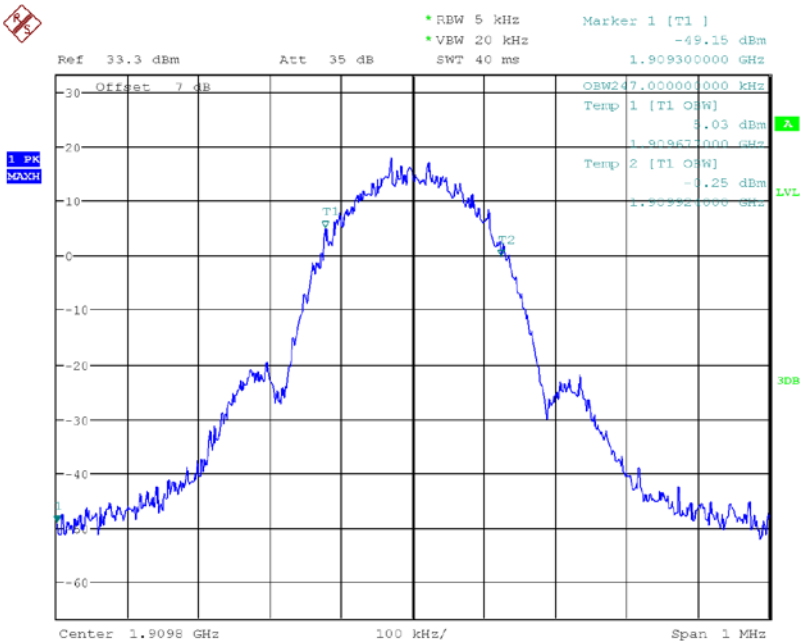
99% OBW-8PSK-Channel 661



Date: 3.AUG.2018 11:14:02

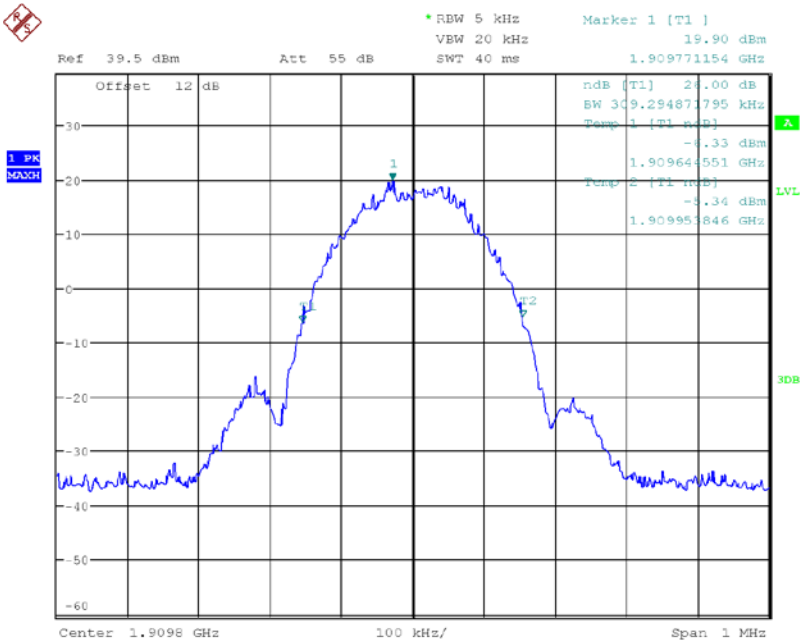
26dB OBW-8PSK-Channel 661

Report No.:B18W50279



Date: 2.AUG.2018 17:17:49

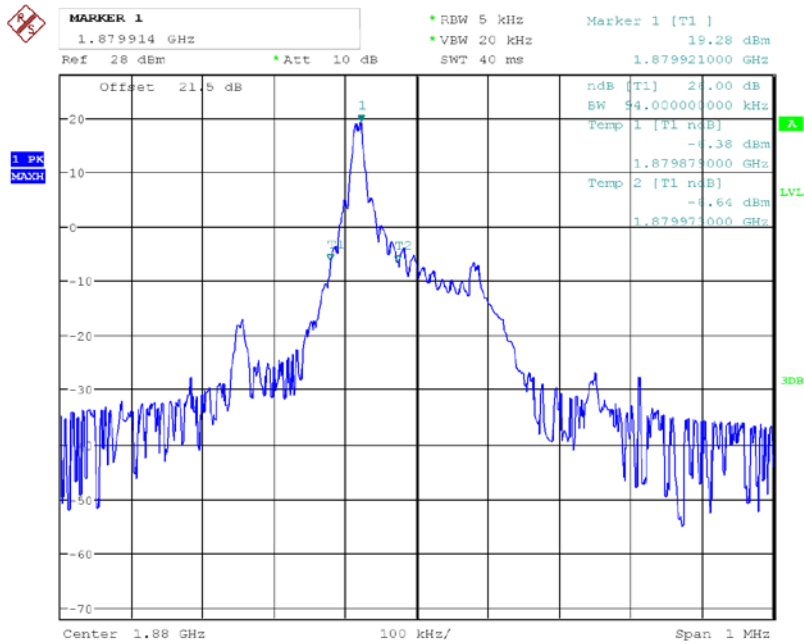
99% OBW-8PSK-Channel 810



Date: 3.AUG.2018 11:11:45

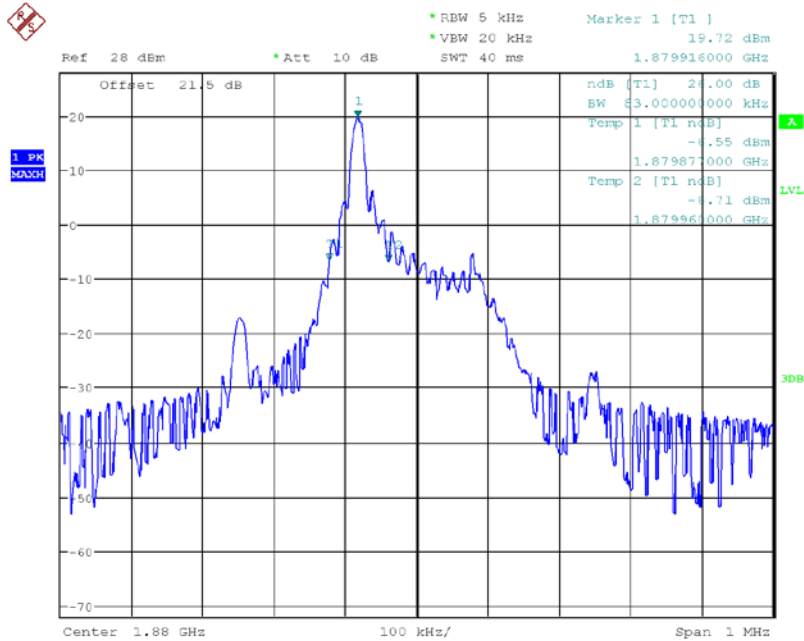
26dB OBW-8PSK-Channel 810

Graphical results for NB-IoT



Date: 5.AUG.2018 22:45:14

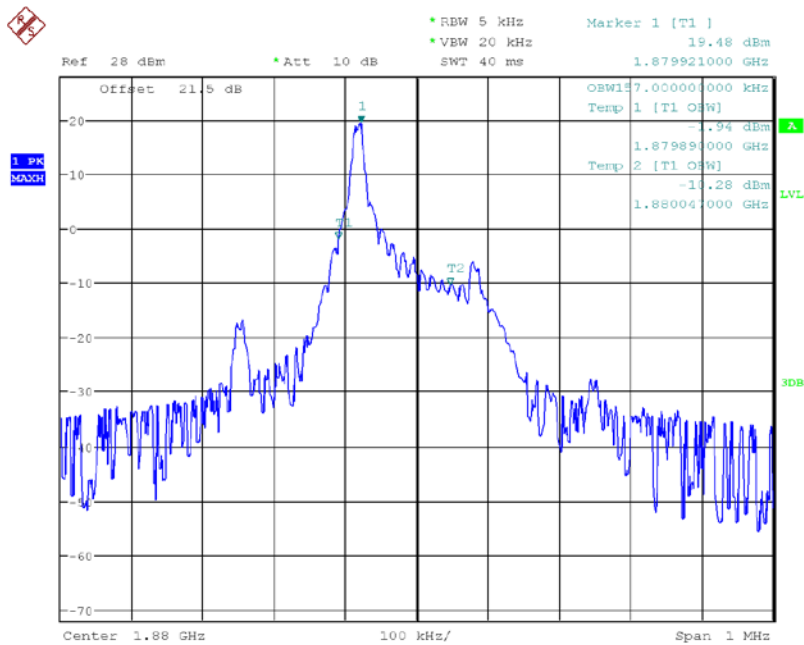
Band2-26dB OBW-Middle Channel-BPSK



Date: 5.AUG.2018 22:45:29

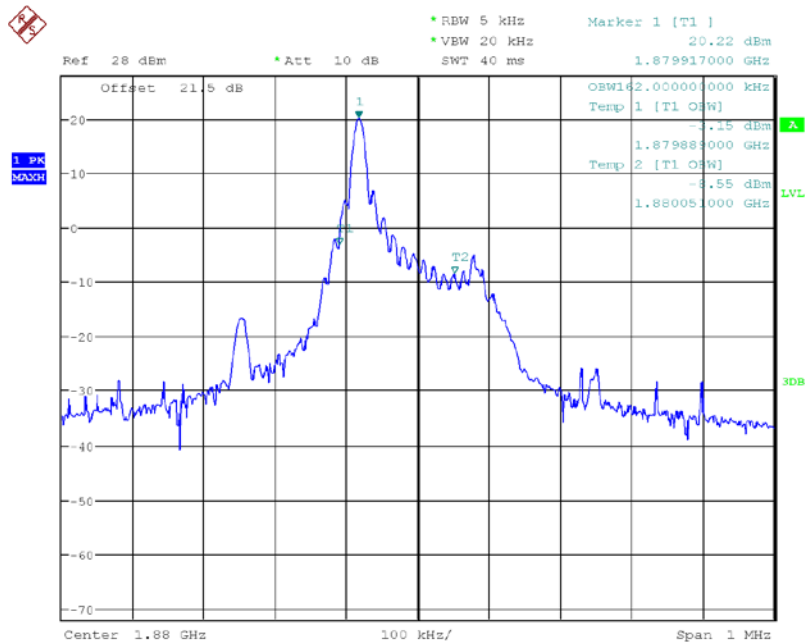
Band2-26dB OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 22:44:59

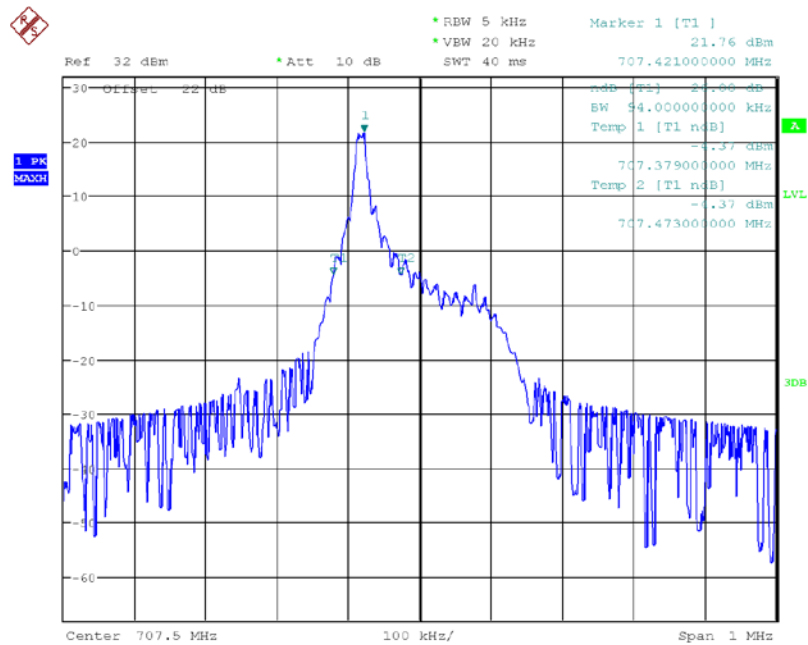
Band2-99% OBW-Middle Channel-BPSK



Date: 5.AUG.2018 22:44:42

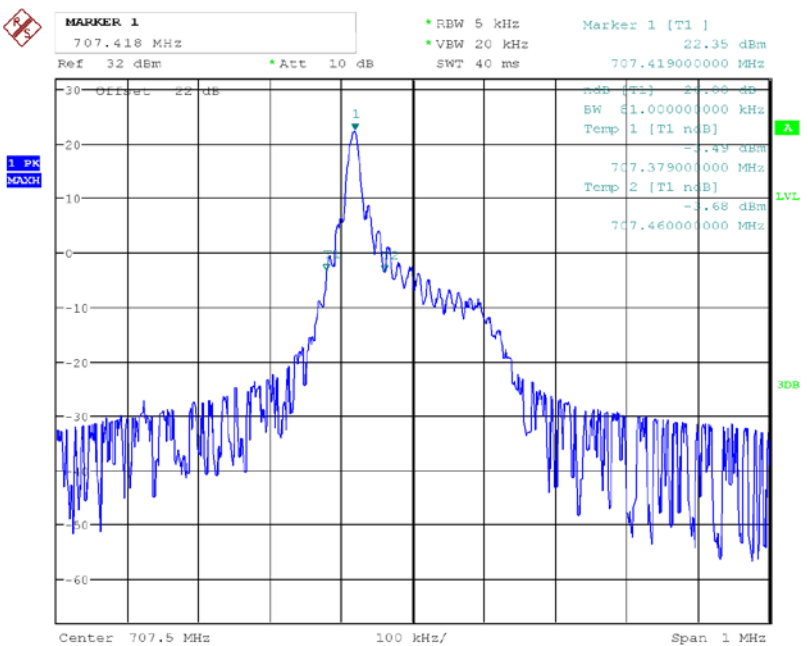
Band2-99% OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 22:21:32

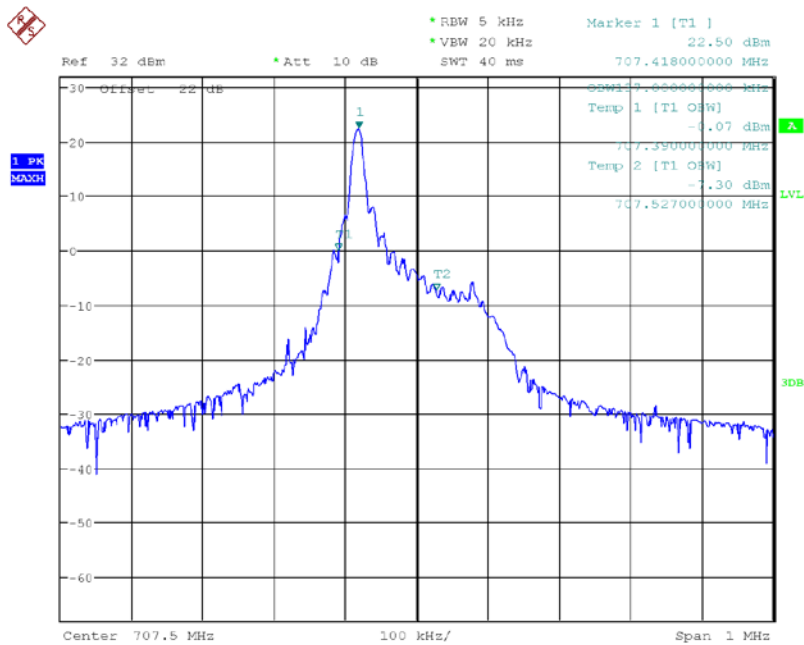
Band12-26% OBW-Middle Channel-BPSK



Date: 5.AUG.2018 22:21:16

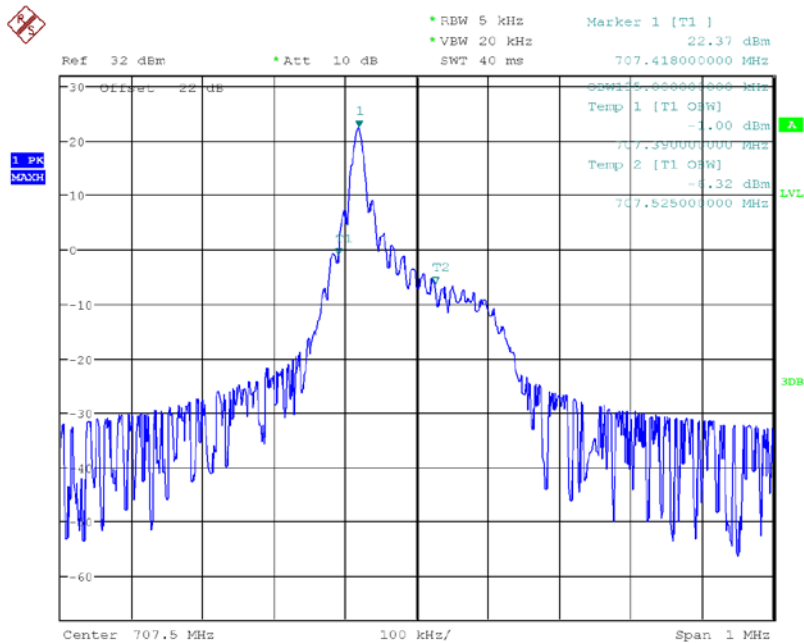
Band12-26% OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 22:20:42

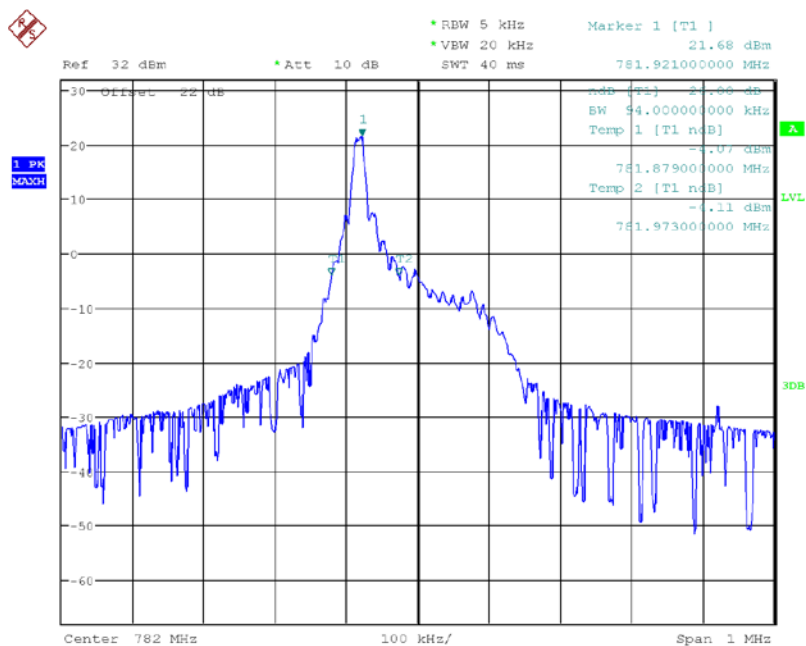
Band12-99% OBW-Middle Channel-BPSK



Date: 5.AUG.2018 22:21:02

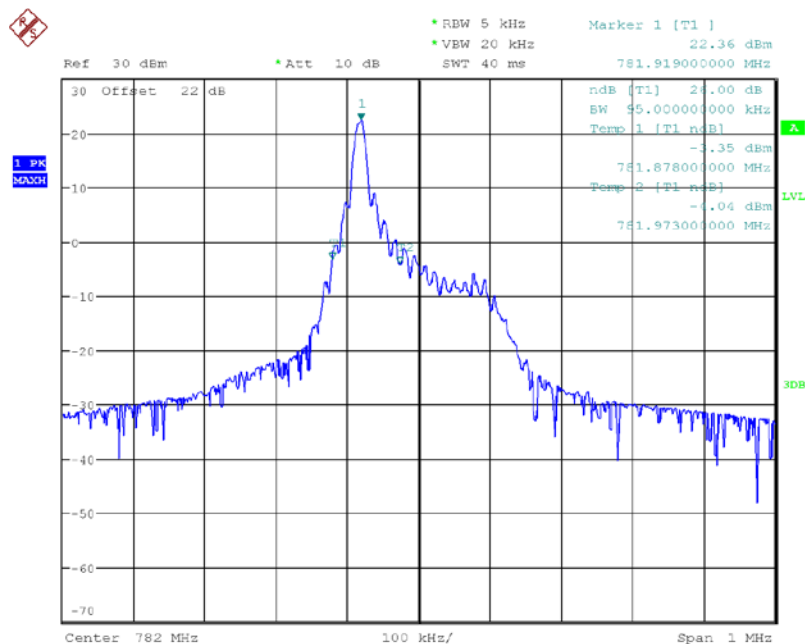
Band12-99% OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 22:04:24

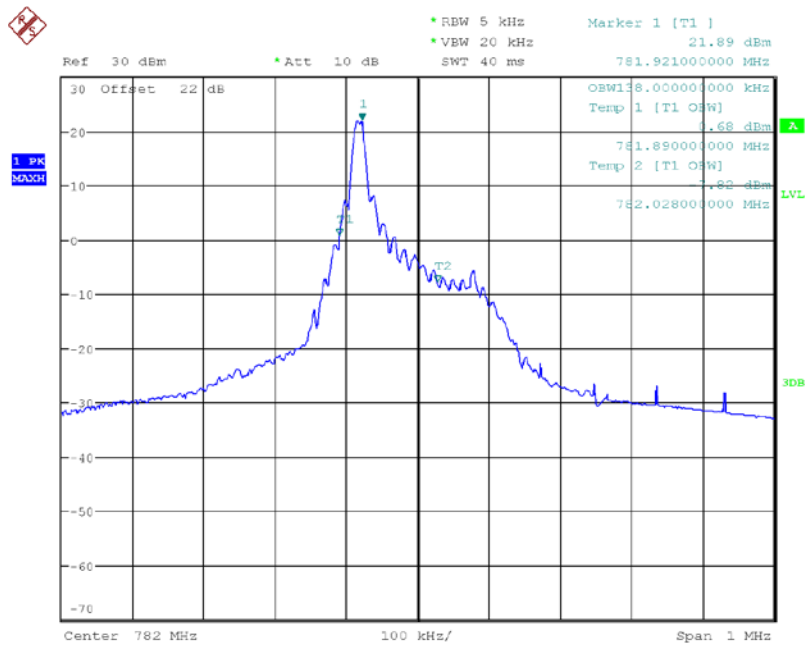
Band13-26dB OBW-Middle Channel-BPSK



Date: 5.AUG.2018 22:03:58

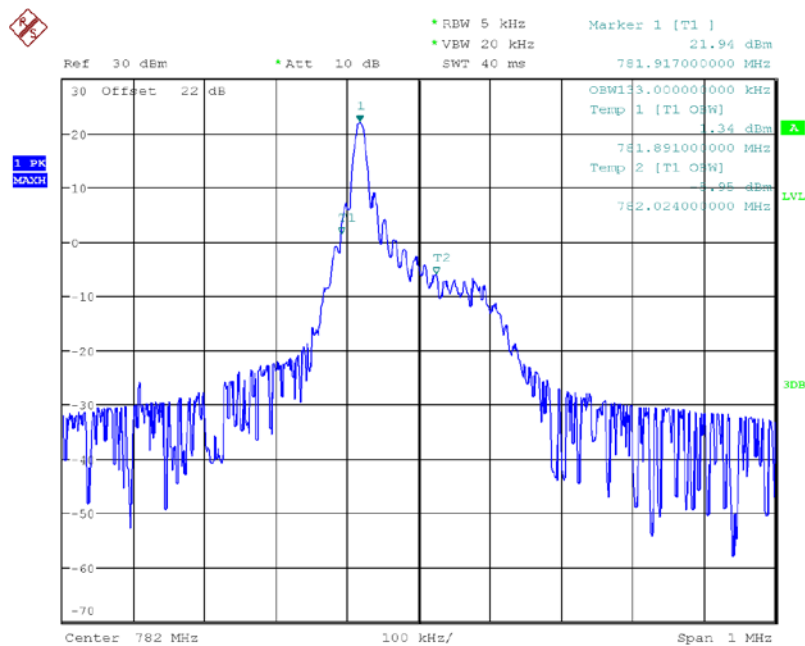
Band13-26dB OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 22:02:57

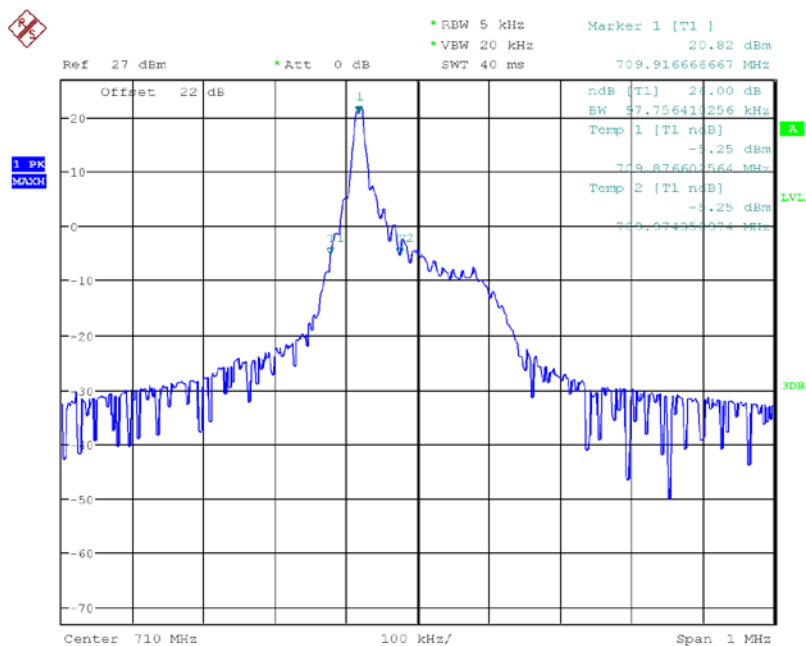
Band13-99% OBW-Middle Channel-BPSK



Date: 5.AUG.2018 22:03:16

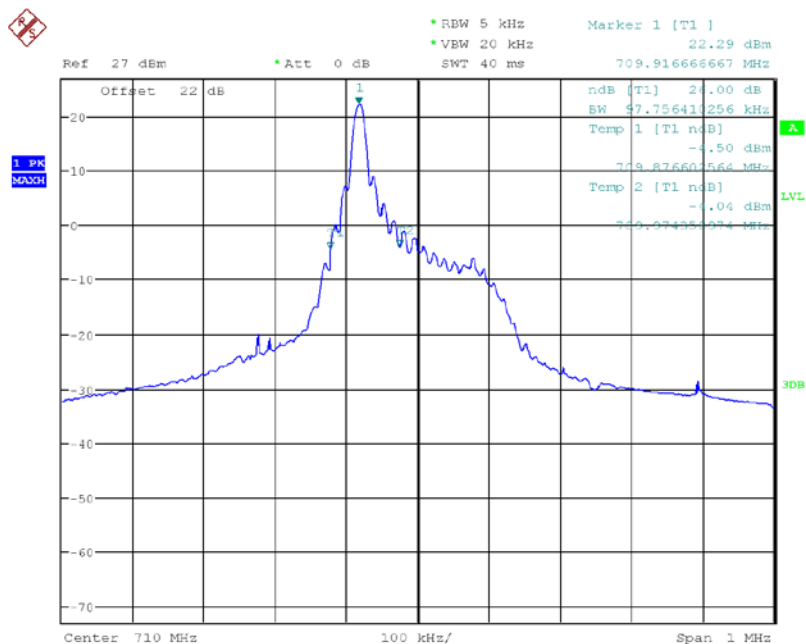
Band13-99% OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 21:10:17

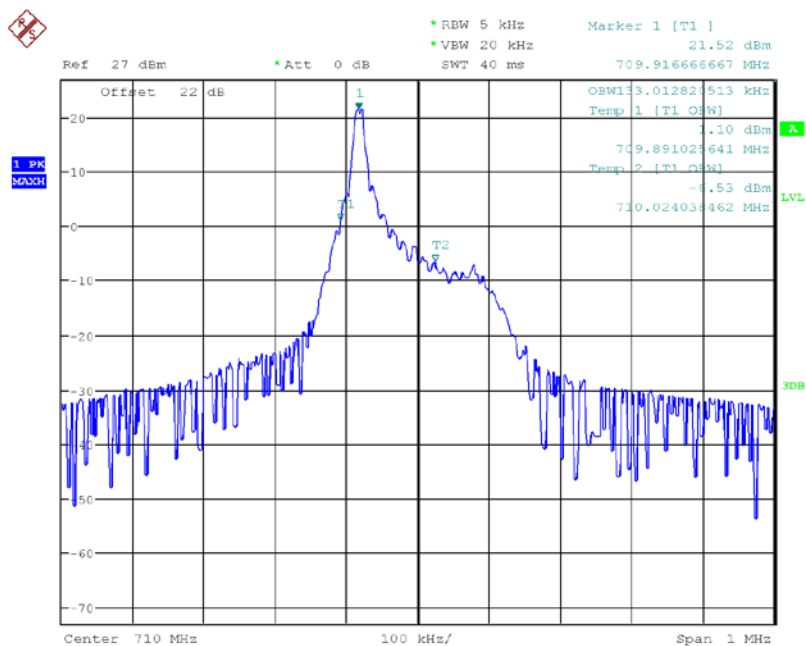
Band17-26dB OBW-Middle Channel-BPSK



Date: 5.AUG.2018 21:09:52

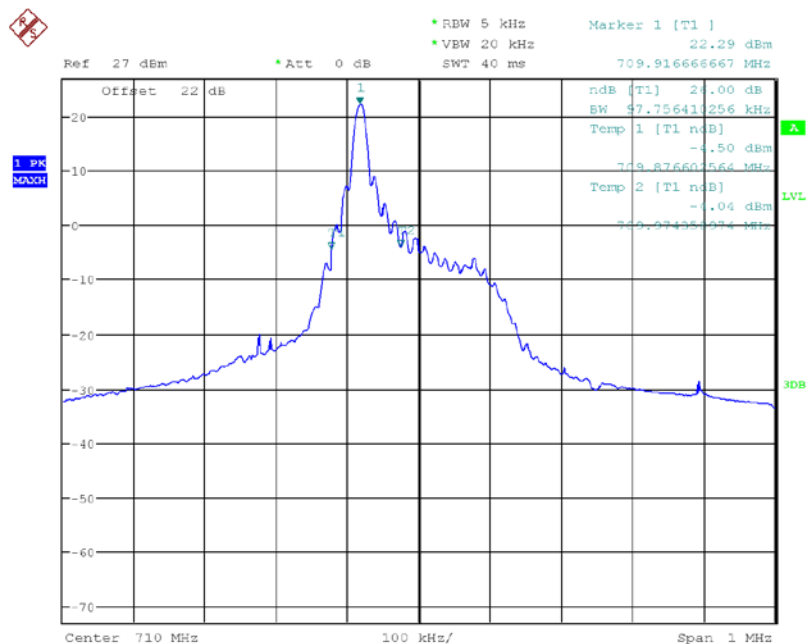
Band17-26dB OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 21:10:43

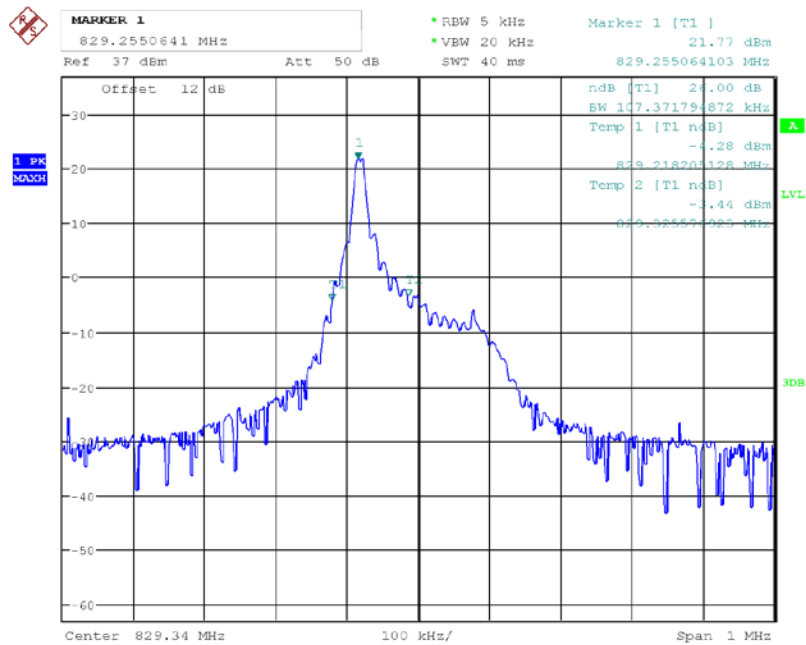
Band17-99% OBW-Middle Channel-BPSK



Date: 5.AUG.2018 21:09:52

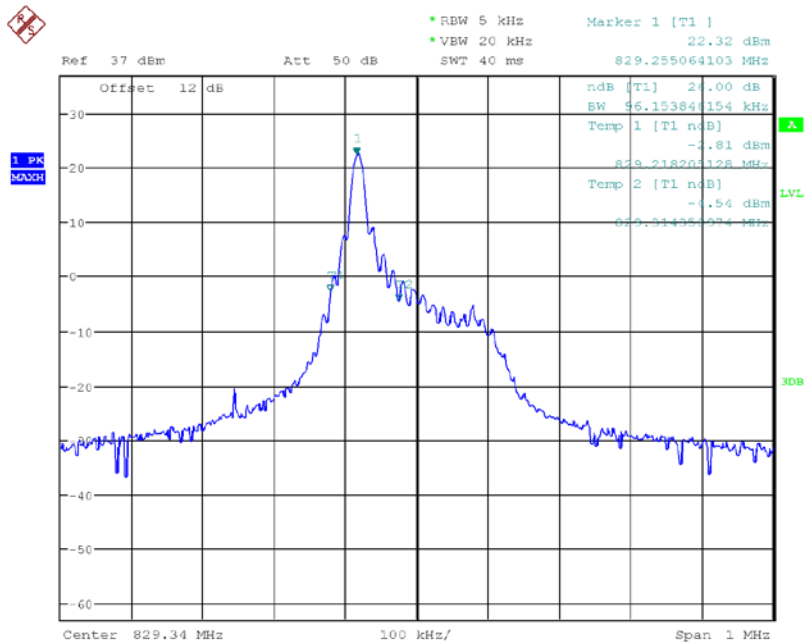
Band17-99% OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 20:13:59

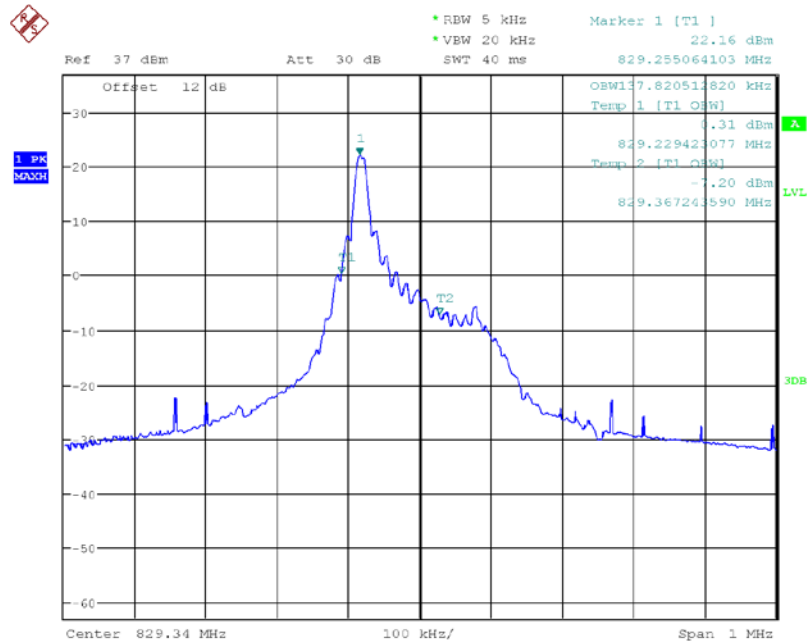
Band26-26dB OBW-Middle Channel-BPSK



Date: 5.AUG.2018 20:14:43

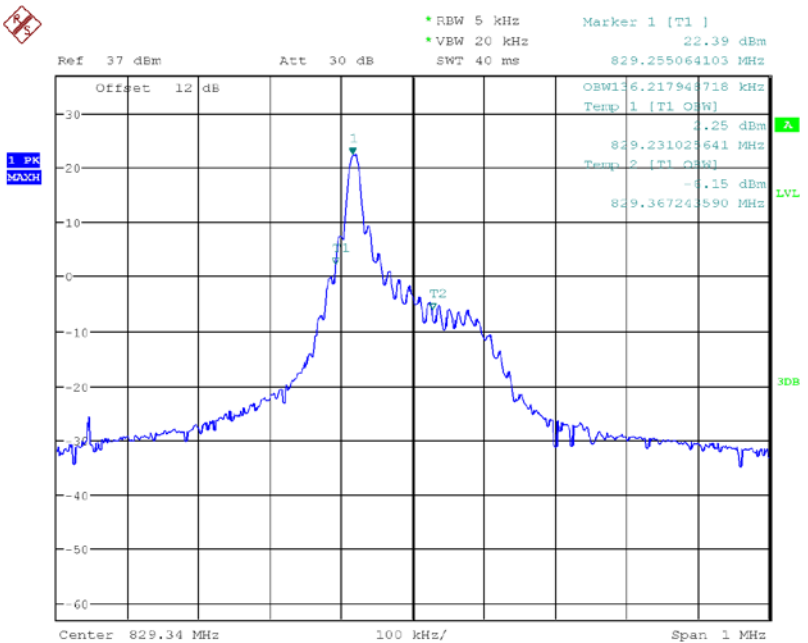
Band26-26dB OBW-Middle Channel-QPSK

Report No.:B18W50279



Date: 5.AUG.2018 20:13:24

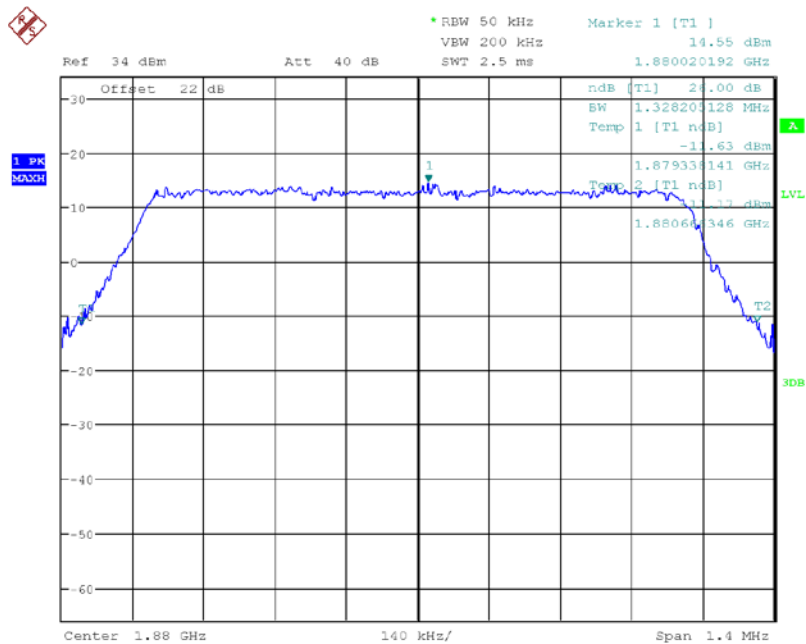
Band26-99% OBW-Middle Channel-BPSK



Date: 5.AUG.2018 20:15:19

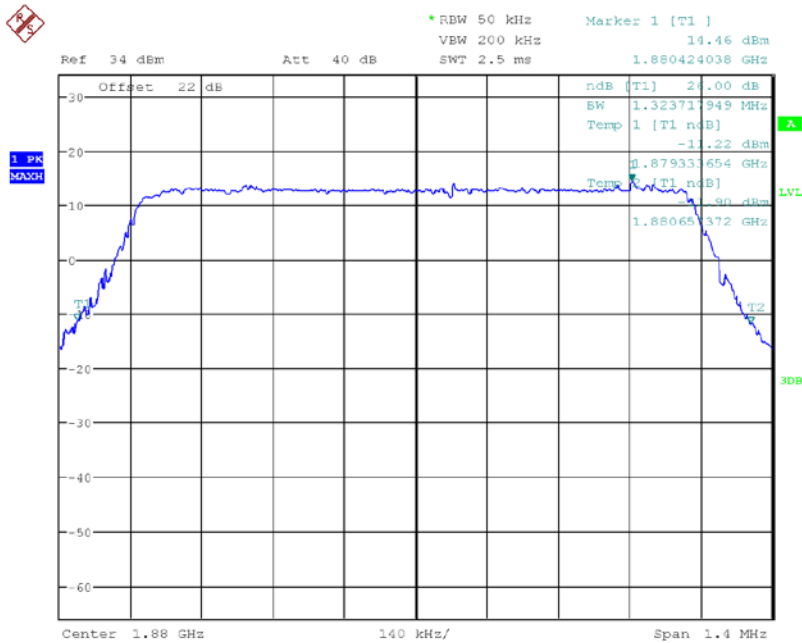
Band26-99% OBW-Middle Channel-QPSK

Graphical results for CAT-M:



Date: 8.AUG.2018 11:30:13

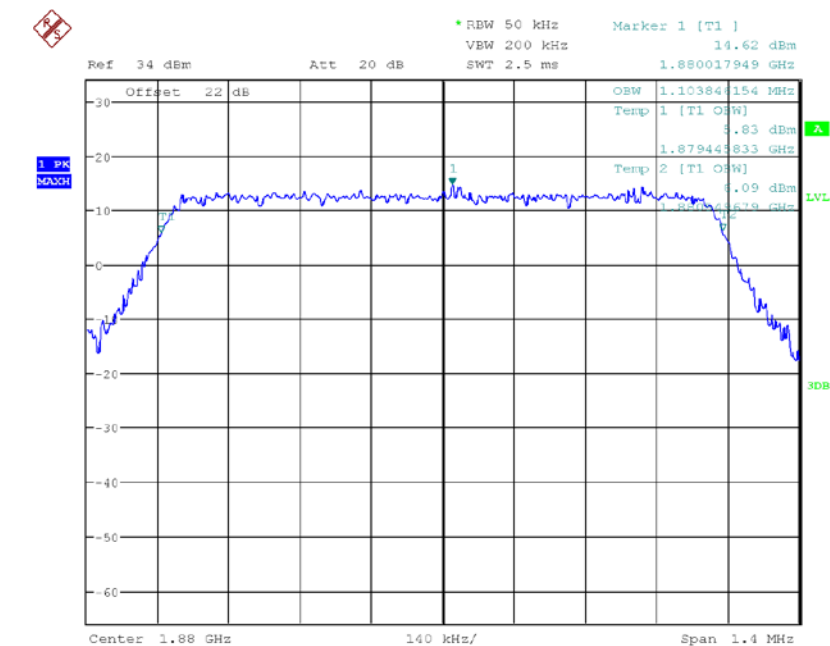
Band2-26dB OBW-1.4MHz Bandwidth-16QAM



Date: 8.AUG.2018 11:29:48

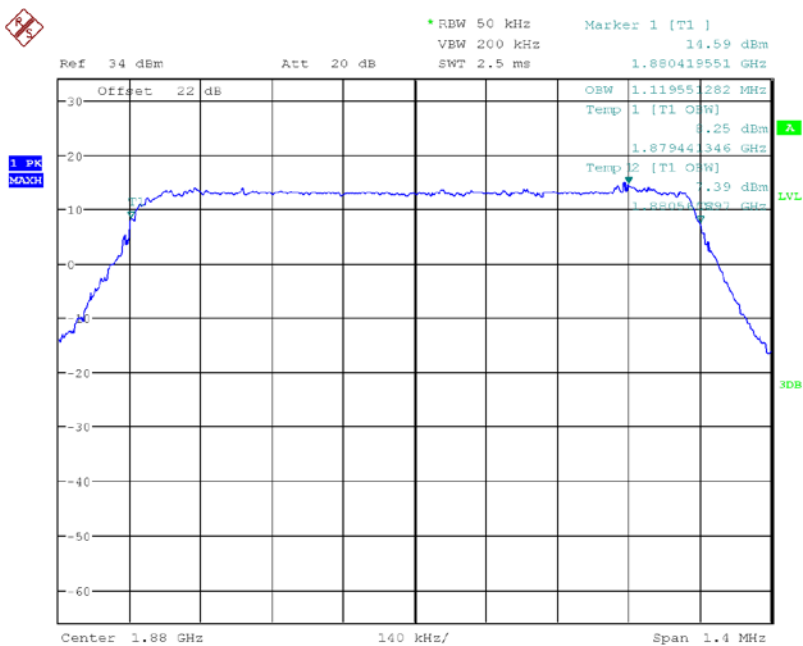
Band2-26dB OBW-1.4MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 8.AUG.2018 11:30:29

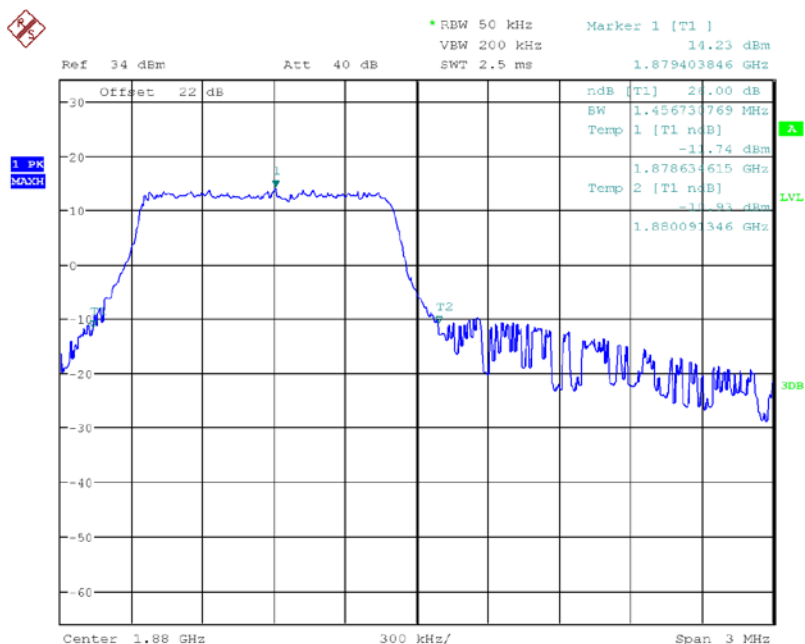
Band2-99% OBW-1.4MHz Bandwidth-16QAM



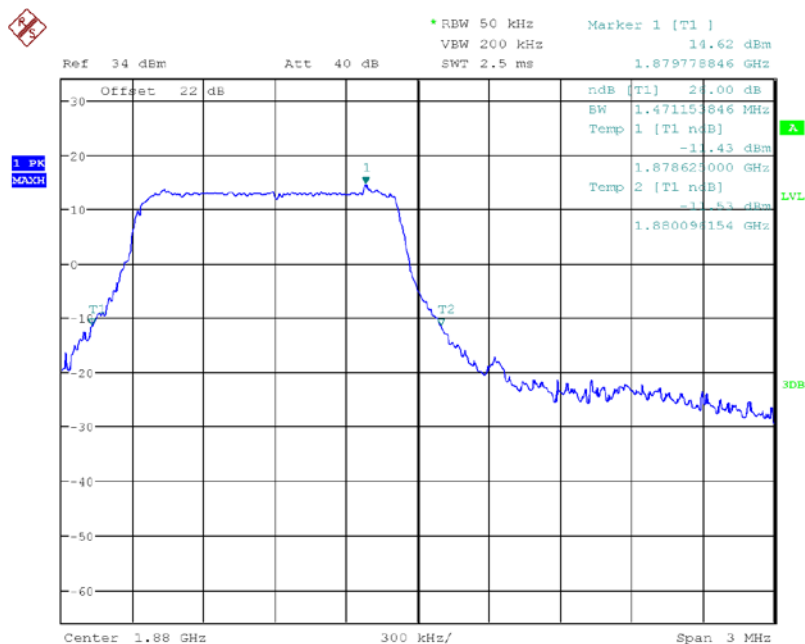
Date: 8.AUG.2018 11:29:12

Band2-99% OBW-1.4MHz Bandwidth-QPSK

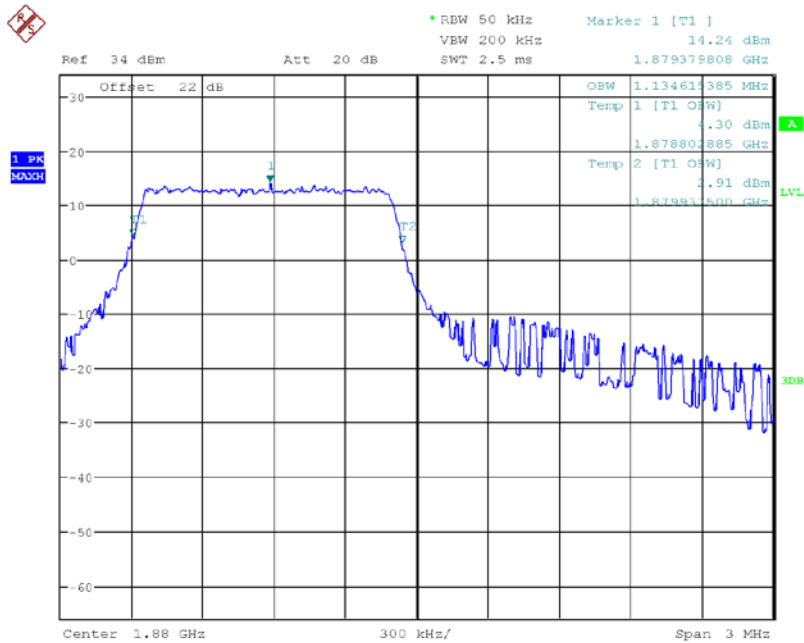
Report No.:B18W50279



Band2-26dB OBW-3MHz Bandwidth-16QAM

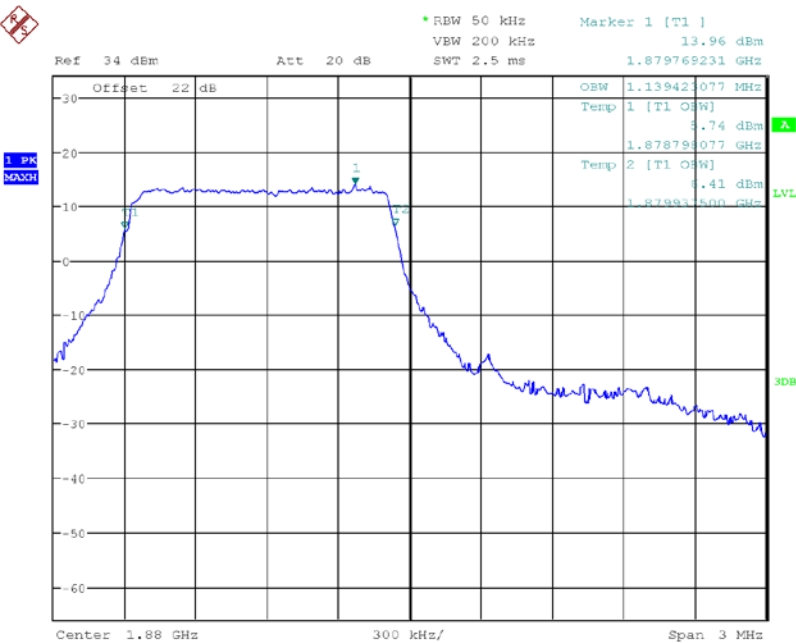


Band2-26dB OBW-3MHz Bandwidth-QPSK



Date: 8.AUG.2018 11:30:59

Band2-99% OBW-3MHz Bandwidth-16QAM



Date: 8.AUG.2018 11:32:51

Band2-99% OBW-3MHz Bandwidth-QPSK



* RBW 50 kHz
 VBW 200 kHz
 SWT 2.5 ms

Ref 34 dBm
 Att 40 dB

Marker 1 [T1]
 15.49 dBm
 1.878709936 GHz

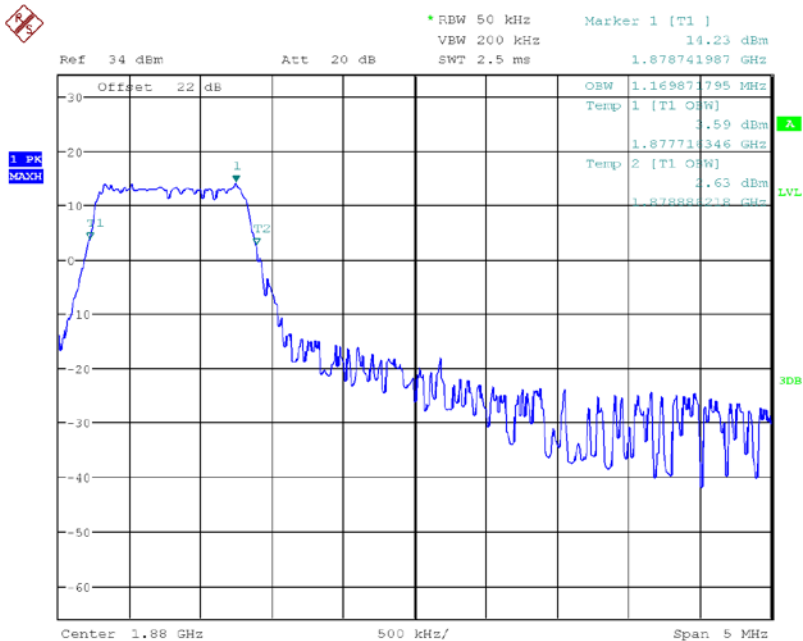
Offset 22 dB
 24.00 dB
 1.434294872 MHz
 -11.11 dBm
 1.877554090 GHz
 -11.91 dBm
 1.878994385 GHz

Center 1.88 GHz
 500 kHz/
 Span 5 MHz

Date: 8.AUG.2018 11:35:37

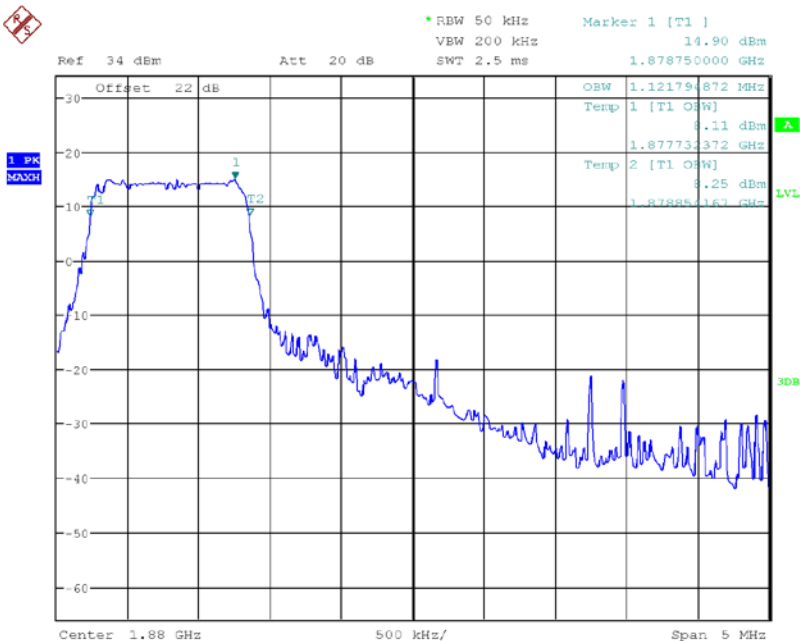
Band2-26dB OBW-5MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 8.AUG.2018 11:36:32

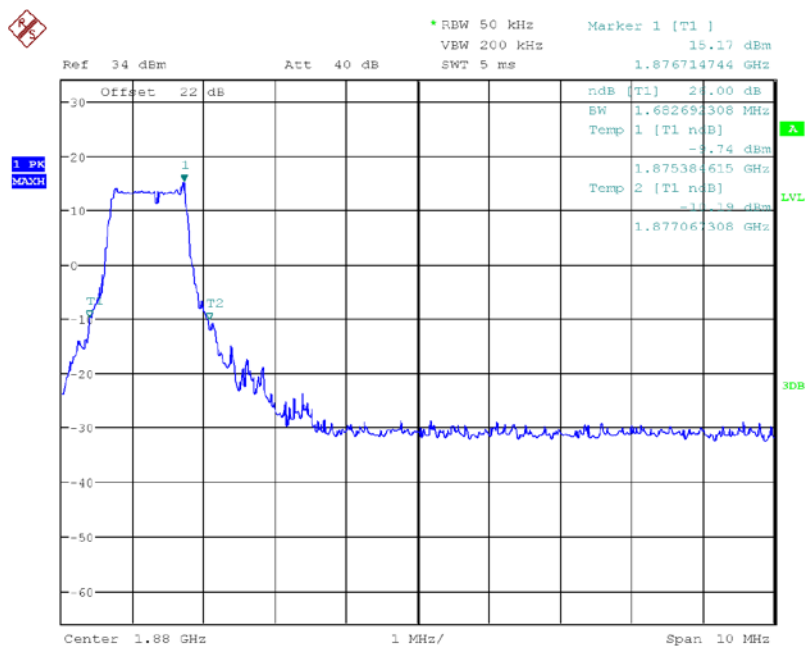
Band2-99% OBW-5MHz Bandwidth-16QAM



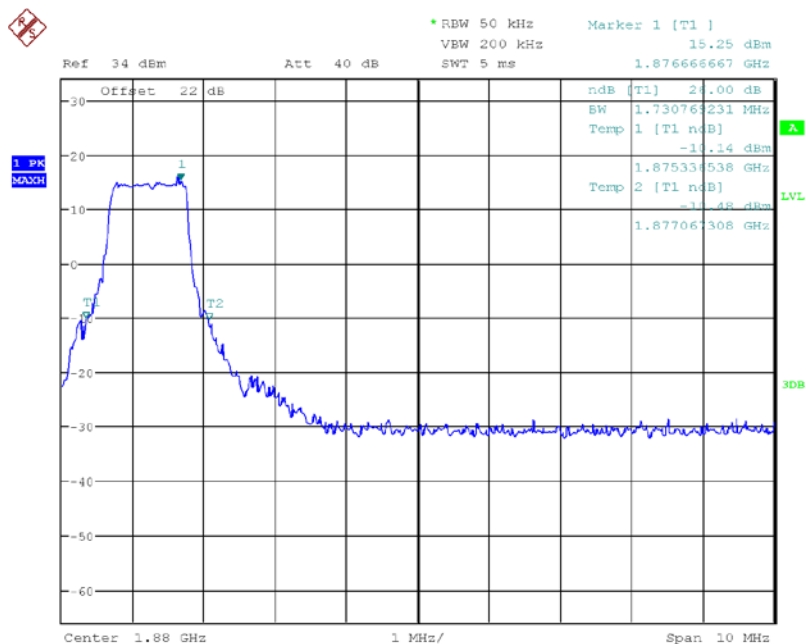
Date: 8.AUG.2018 11:35:18

Band2-99% OBW-5MHz Bandwidth-QPSK

Report No.:B18W50279

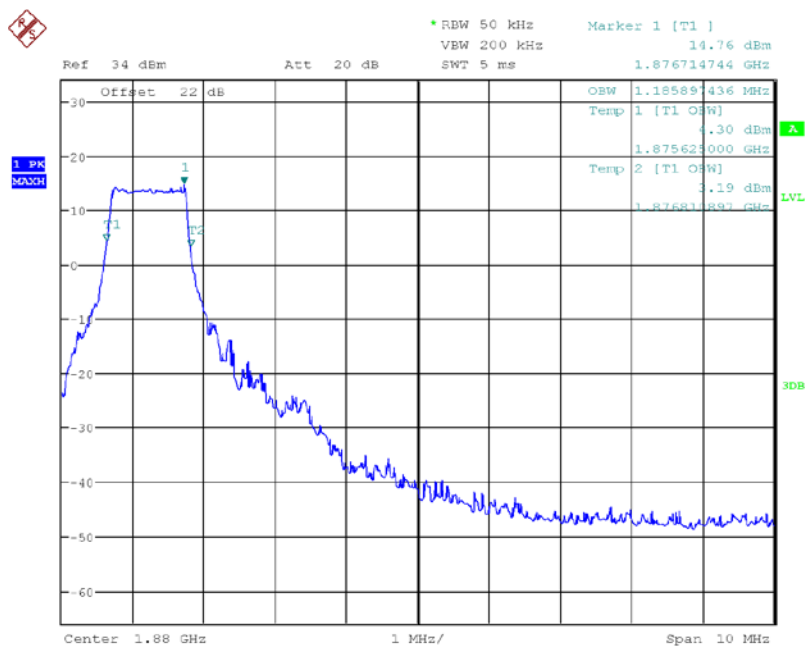


Band2-26dB OBW-10MHz Bandwidth-16QAM



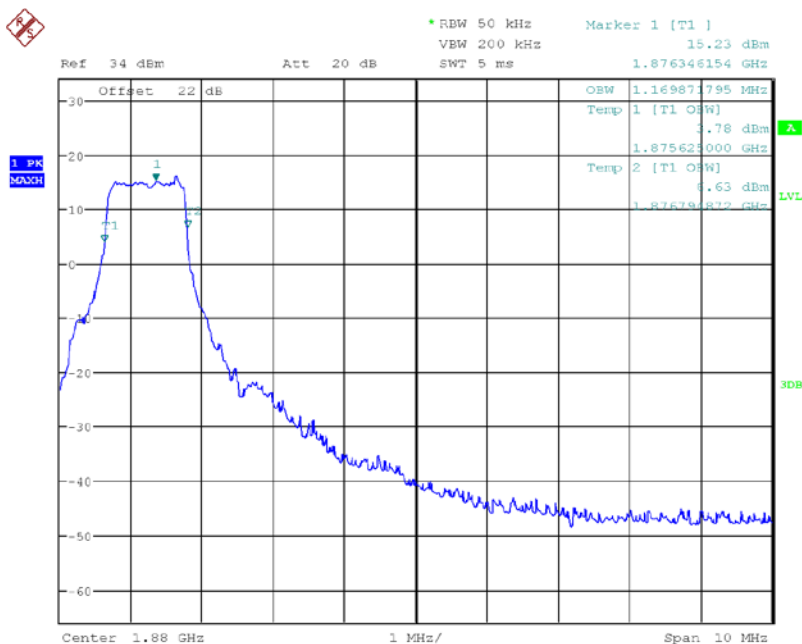
Band2-26dB OBW-10MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 8.AUG.2018 11:56:30

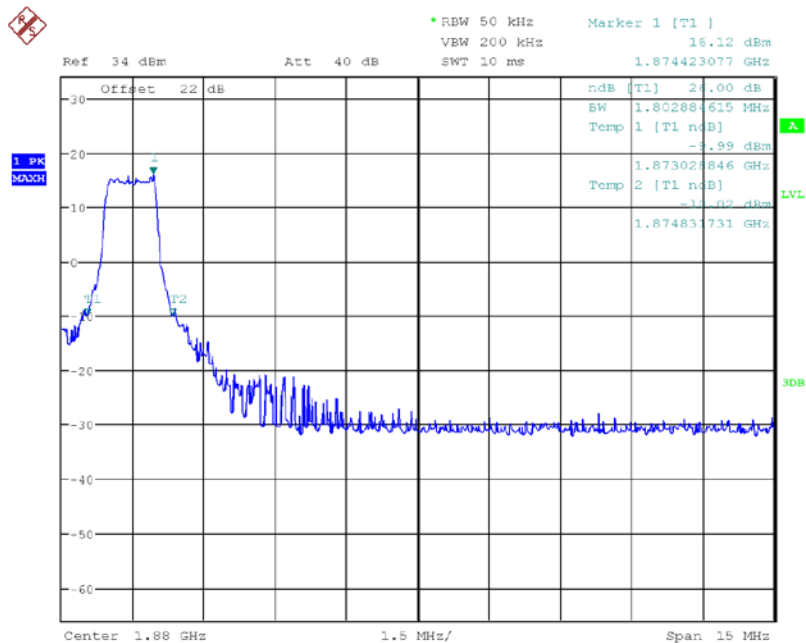
Band2-99% OBW-10MHz Bandwidth-16QAM



Date: 8.AUG.2018 11:55:25

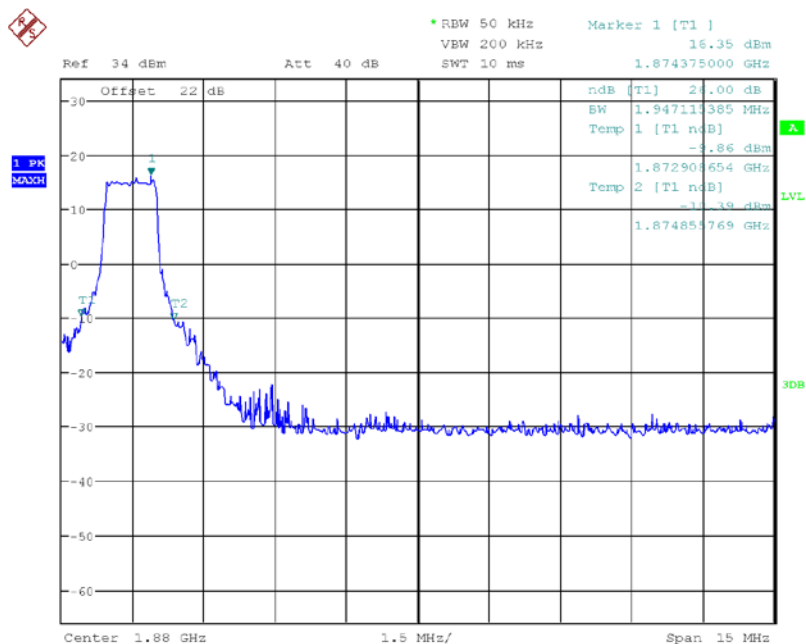
Band2-99% OBW-10MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 8.AUG.2018 11:59:44

Band2-26dB OBW-15MHz Bandwidth-16QAM



Date: 8.AUG.2018 11:59:17

Band2-26dB OBW-15MHz Bandwidth-QPSK

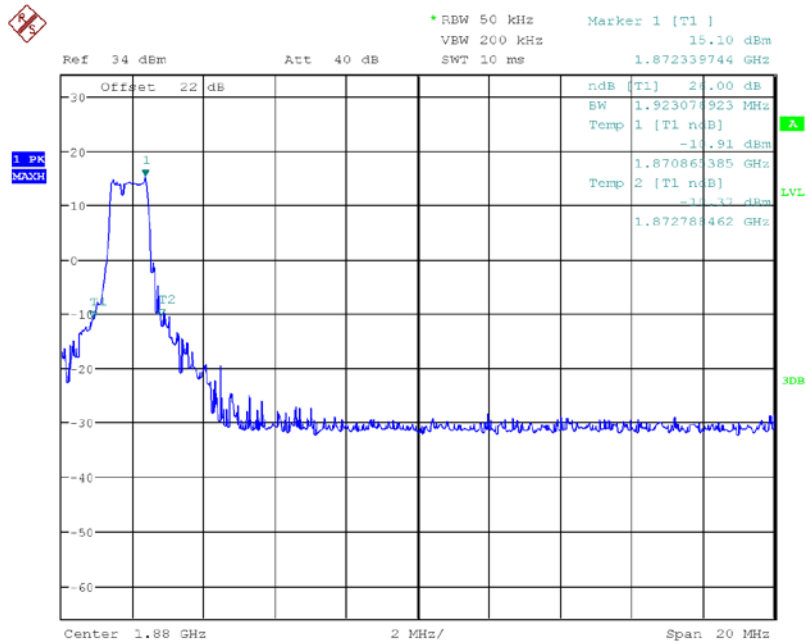
Date: 8.AUG.2018 12:00:04

Band2-99% OBW-15MHz Bandwidth-16QAM

Date: 8.AUG.2018 11:58:32

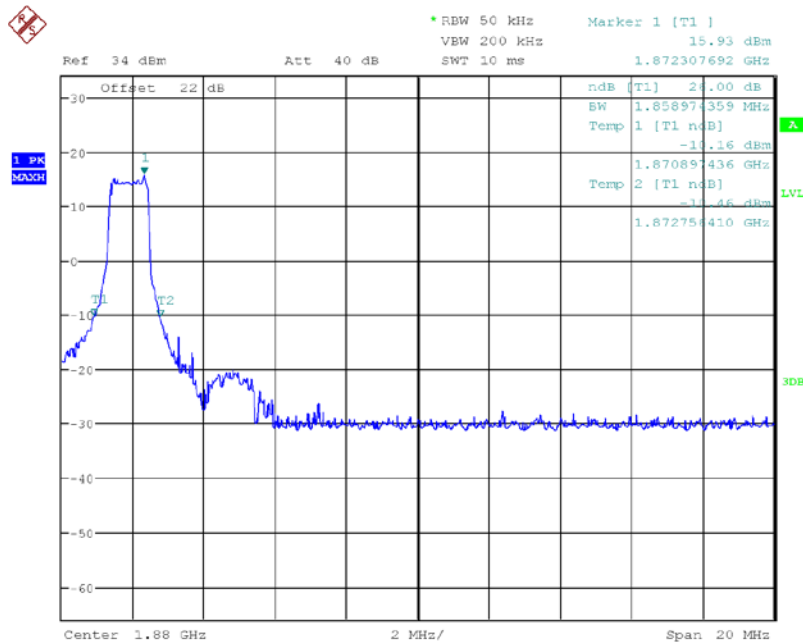
Band2-99% OBW-15MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 8.AUG.2018 12:00:54

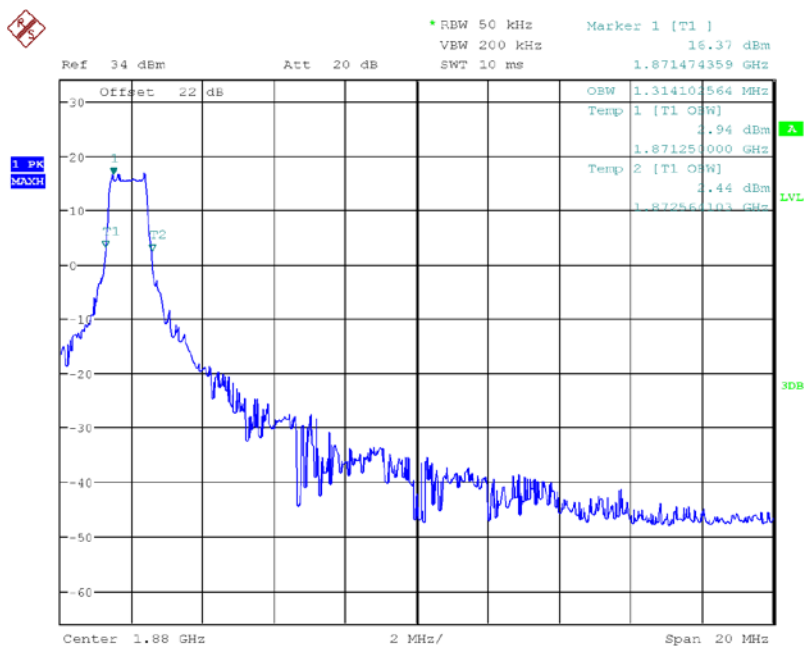
Band2-26dB OBW-20MHz Bandwidth-16QAM



Date: 8.AUG.2018 12:01:45

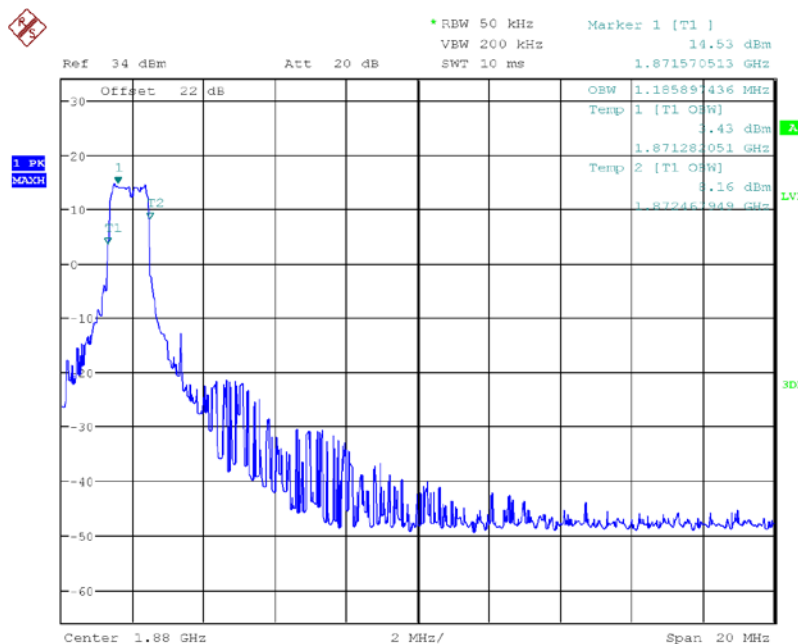
Band2-26dB OBW-20MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 8.AUG.2018 13:42:28

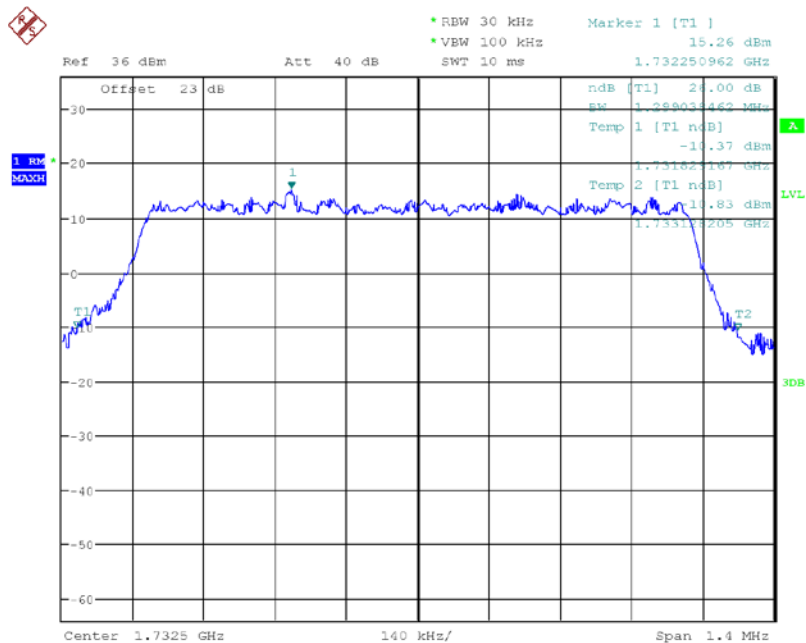
Band2-99% OBW-20MHz Bandwidth-16QAM



Date: 8.AUG.2018 12:02:02

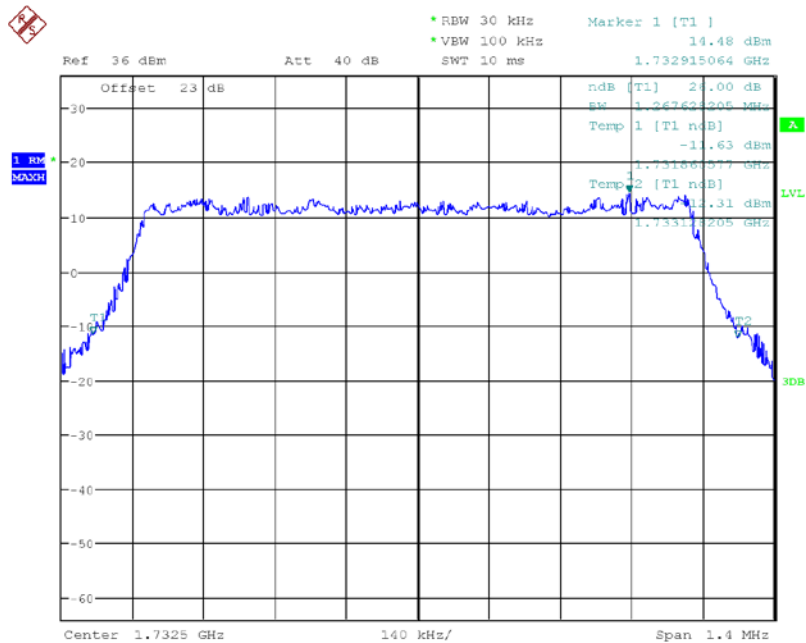
Band2-99% OBW-20MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 09:35:56

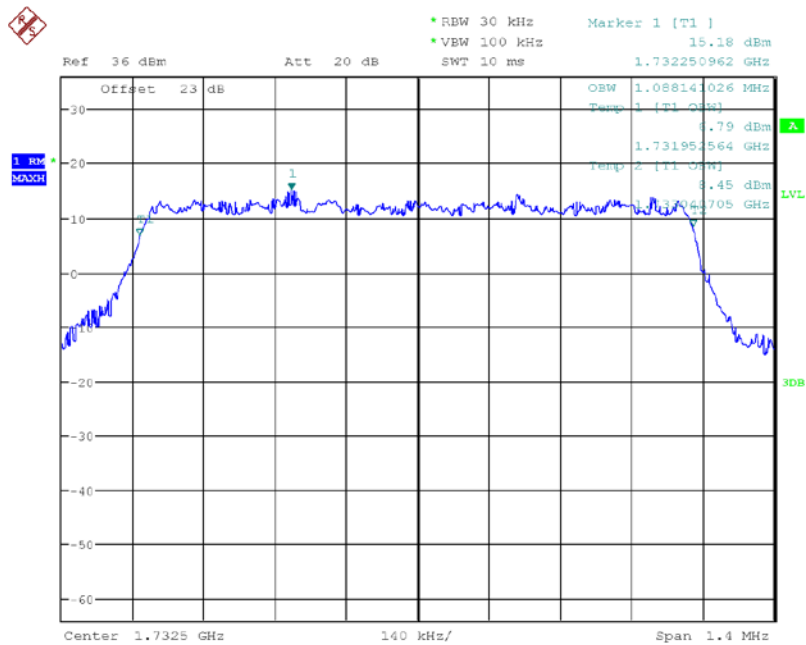
Band4-26dB OBW-1.4MHz Bandwidth-16QAM



Date: 7.AUG.2018 09:35:08

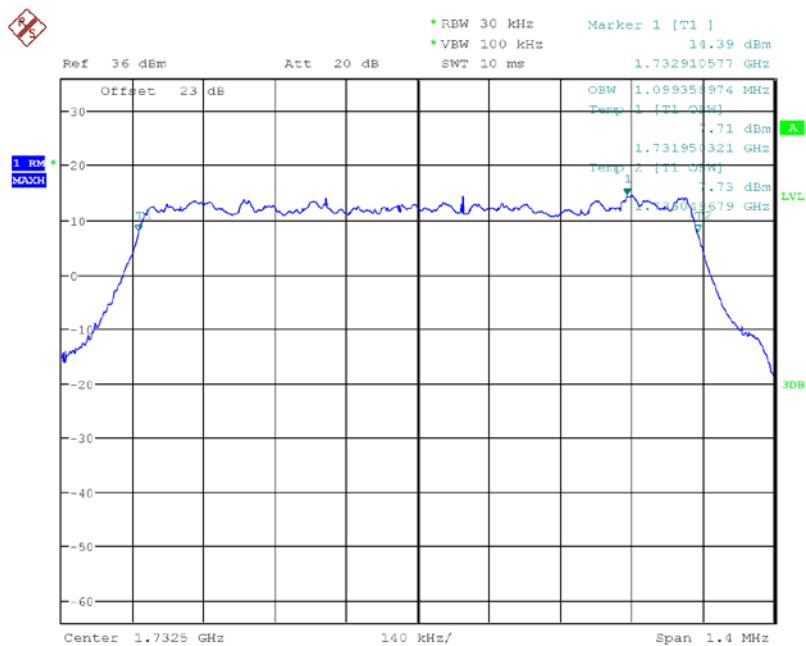
Band4-26dB OBW-1.4MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 09:36:39

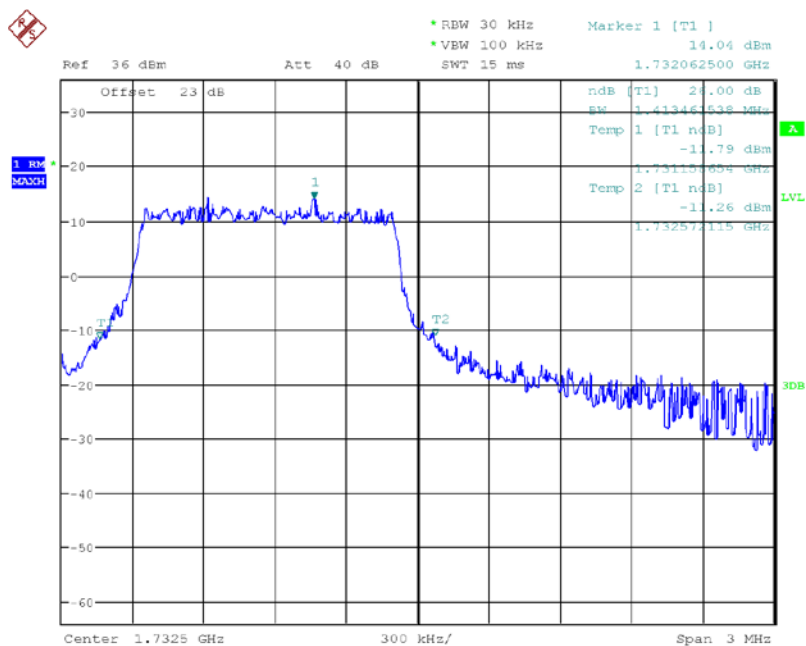
Band4-99% OBW-1.4MHz Bandwidth-16QAM



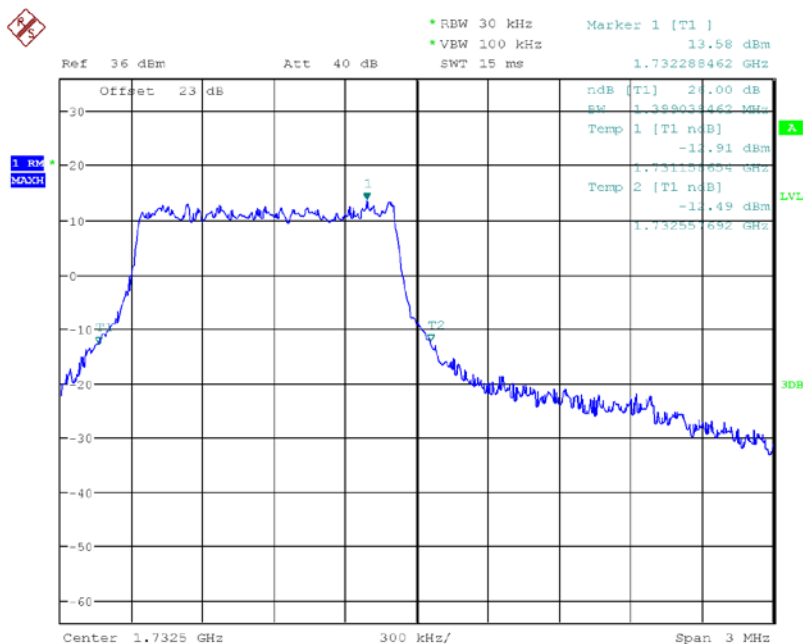
Date: 7.AUG.2018 09:34:36

Band4-99% OBW-1.4MHz Bandwidth-QPSK

Report No.:B18W50279

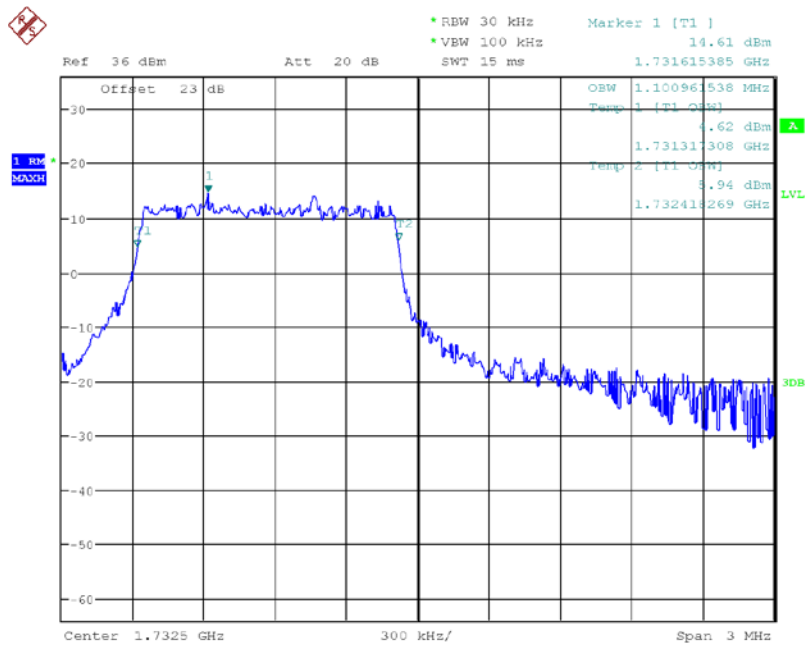


Band4-26dB OBW-3MHz Bandwidth-16QAM



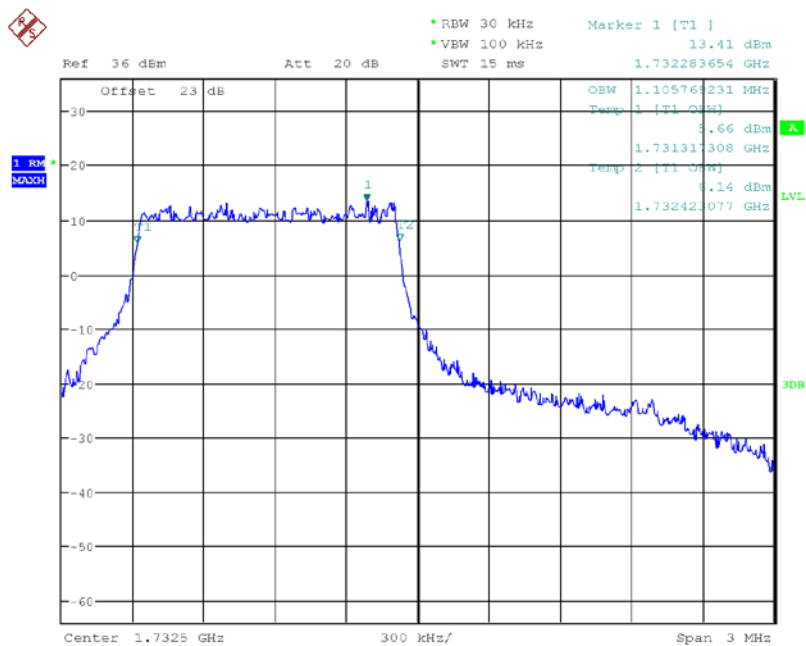
Band4-26dB OBW-3MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 09:37:29

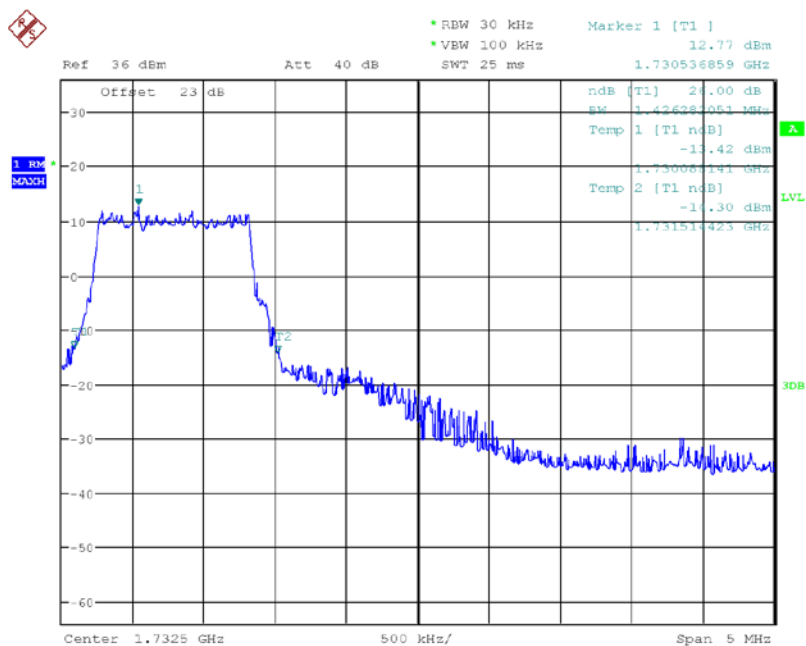
Band4-99% OBW-3MHz Bandwidth-16QAM



Date: 7.AUG.2018 09:38:59

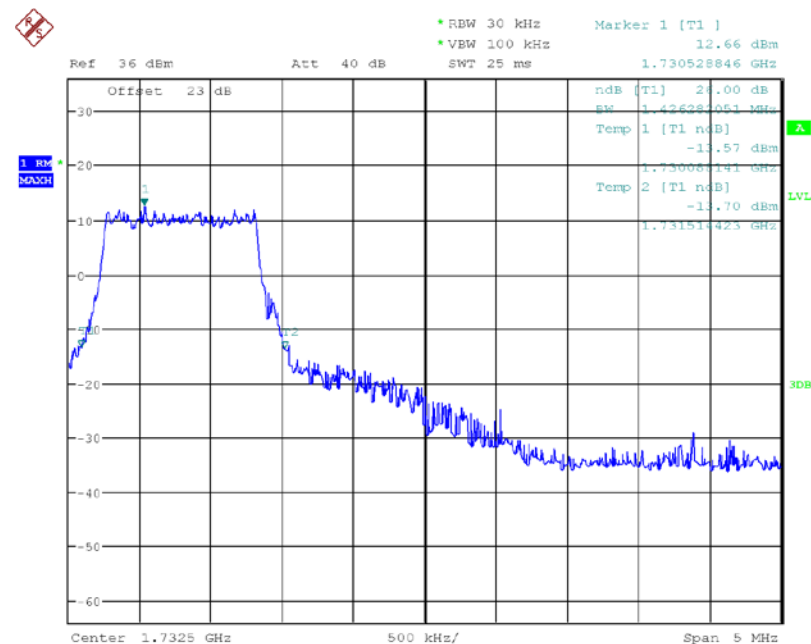
Band4-99% OBW-3MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 09:56:21

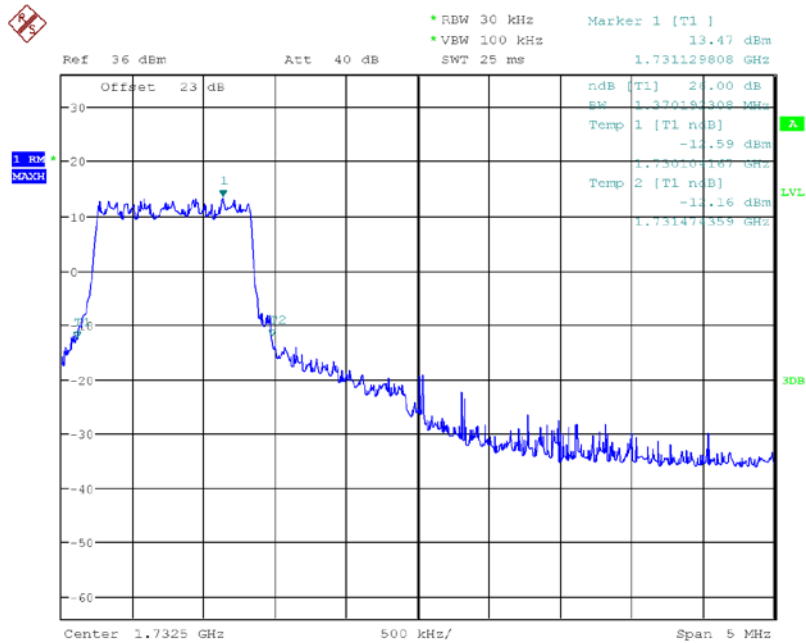
Band4-26dB OBW-5MHz Bandwidth-16QAM



Date: 7.AUG.2018 09:45:15

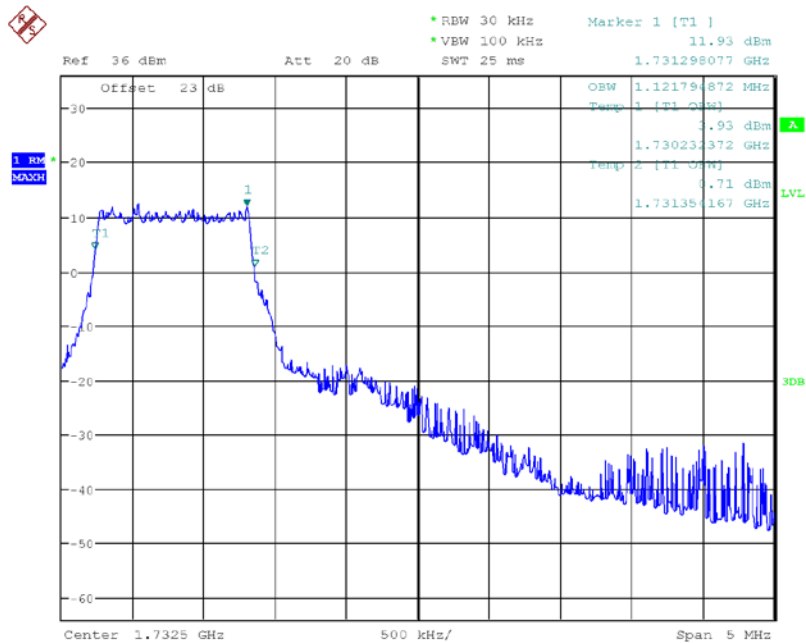
Band4-26dB OBW-5MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 09:42:16

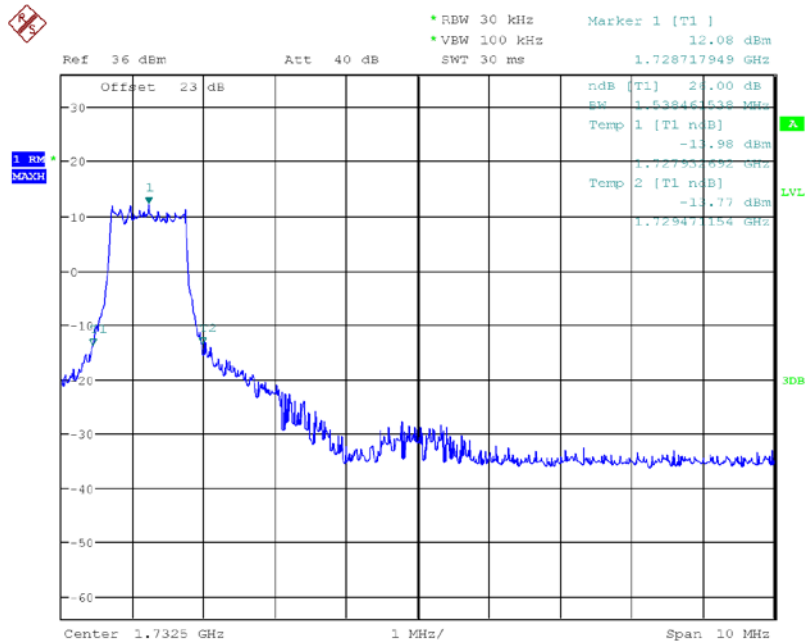
Band4-99% OBW-5MHz Bandwidth-16QAM



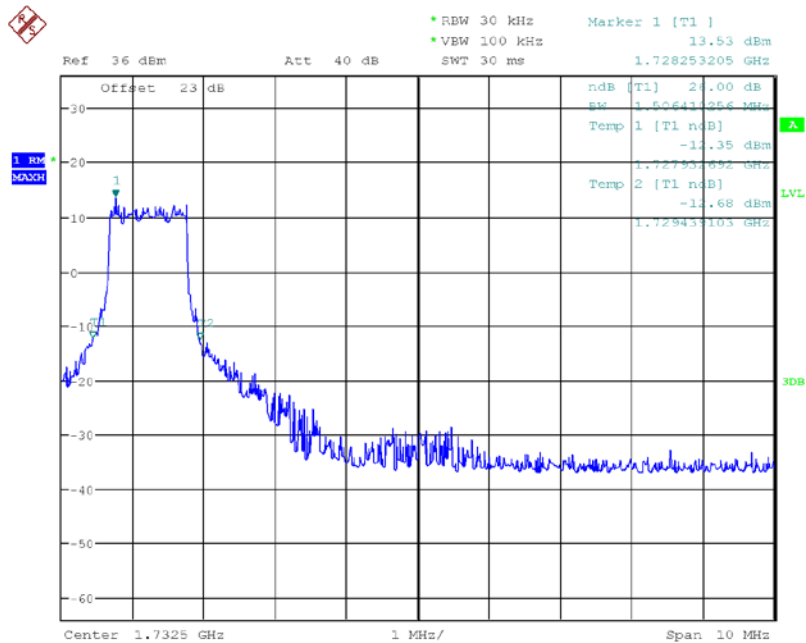
Date: 7.AUG.2018 09:44:41

Band4-99% OBW-5MHz Bandwidth-QPSK

Report No.:B18W50279

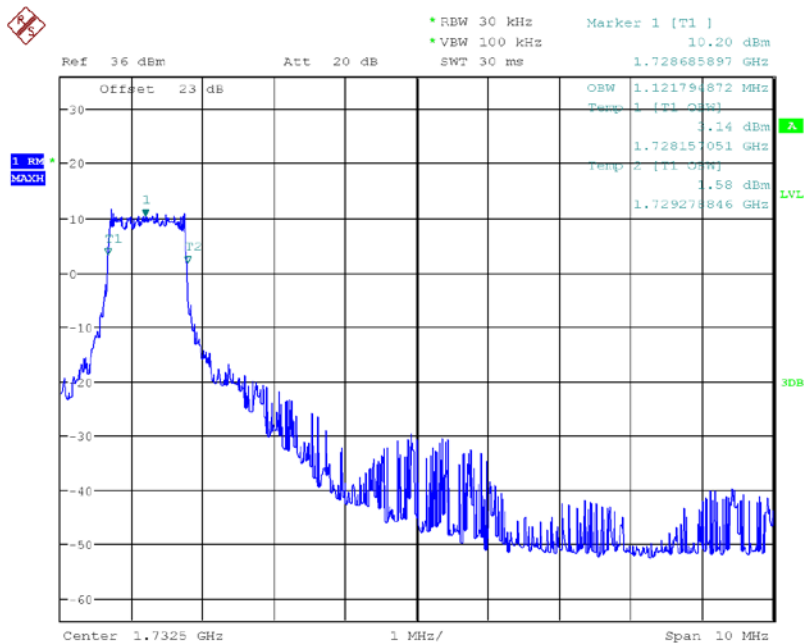


Band4-26dB OBW-10MHz Bandwidth-16QAM



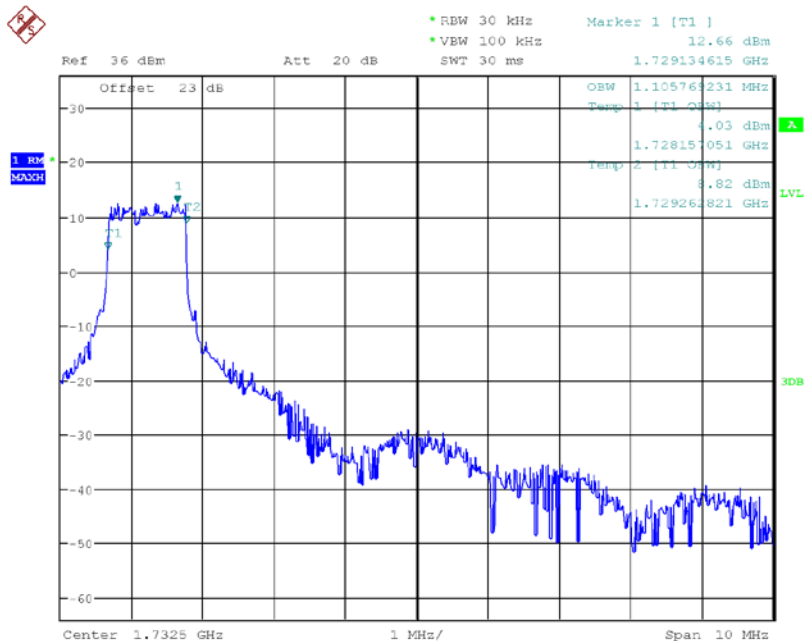
Band4-26dB OBW-10MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 09:47:33

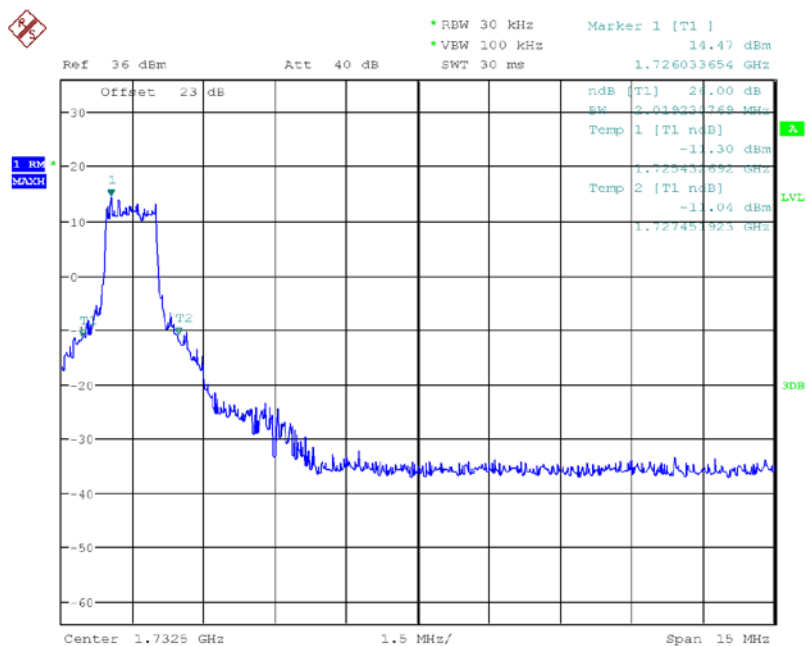
Band4-99% OBW-10MHz Bandwidth-16QAM



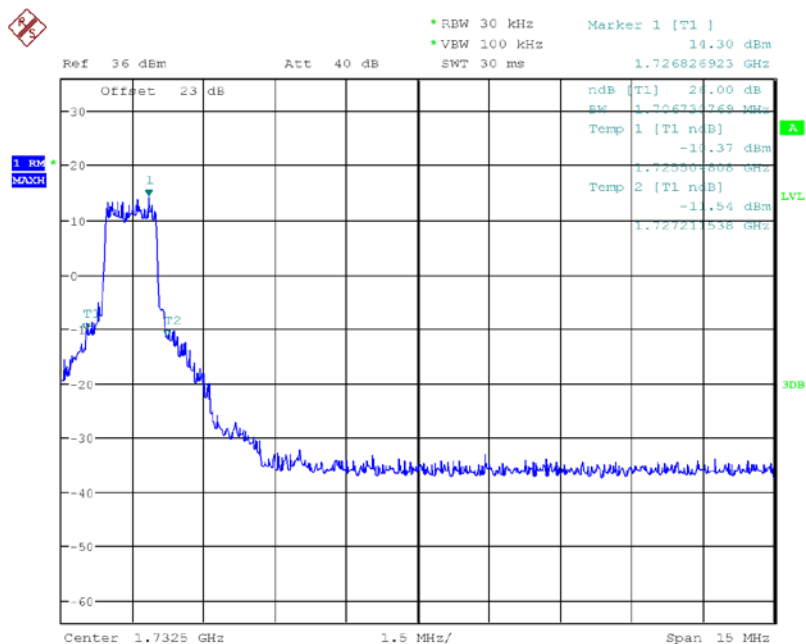
Date: 7.AUG.2018 09:48:16

Band4-99% OBW-10MHz Bandwidth-QPSK

Report No.:B18W50279

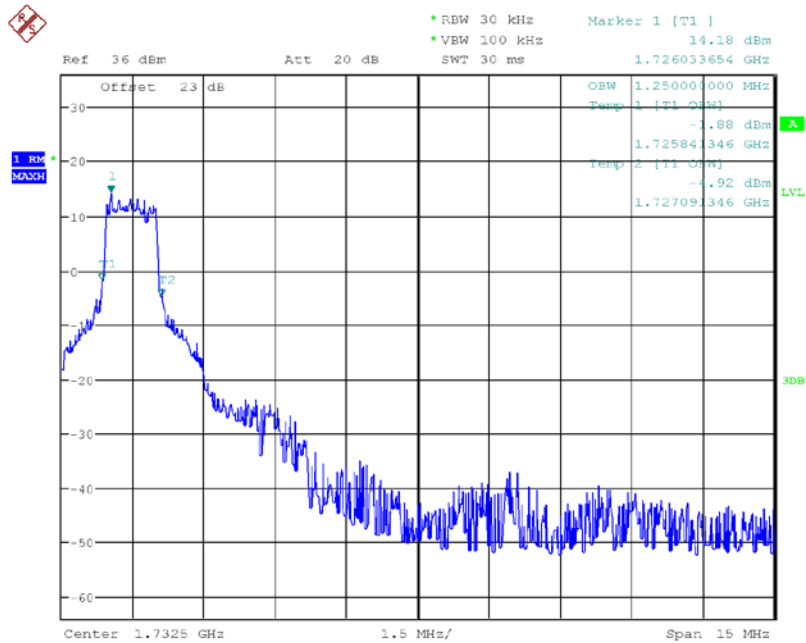


Band4-26dB OBW-15MHz Bandwidth-16QAM



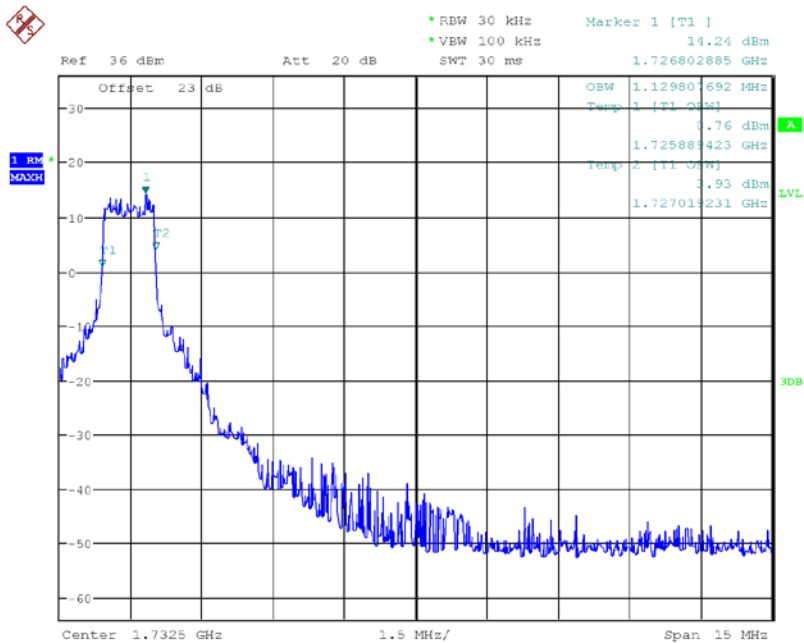
Band4-26dB OBW-15MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 09:49:43

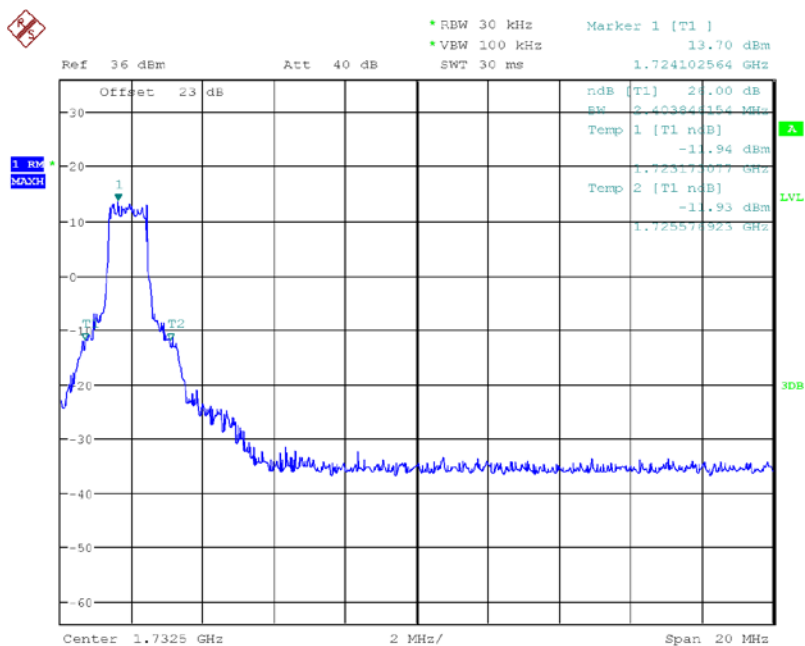
Band4-99% OBW-15MHz Bandwidth-16QAM



Date: 7.AUG.2018 09:49:20

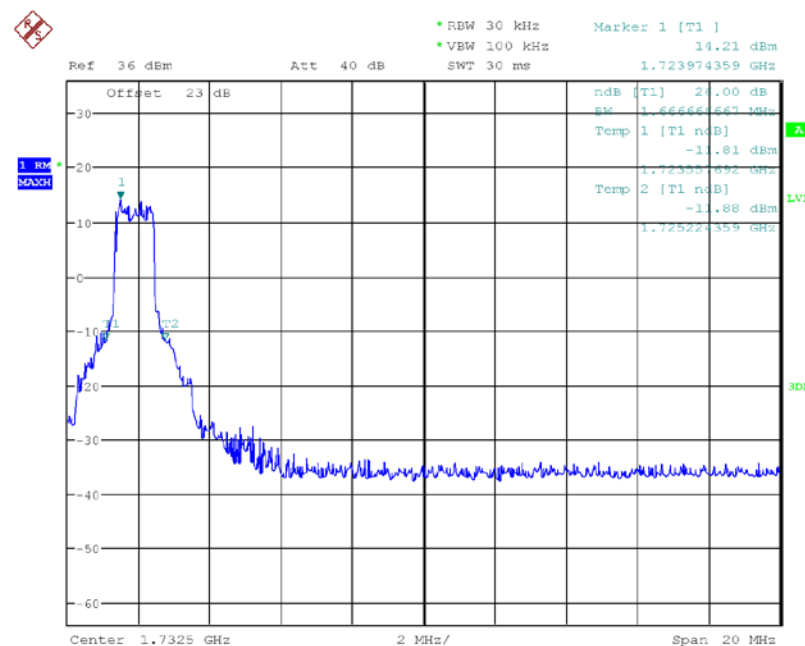
Band4-99% OBW-15MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 09:53:42

Band4-26dB OBW-20MHz Bandwidth-16QAM



Date: 7.AUG.2018 09:54:45

Band4-26dB OBW-20MHz Bandwidth-QPSK



Ref 36 dBm Att 20 dB

Marker 1 [T1] 13.48 dBm 1.723910256 GHz

OBW 1.121794872 MHz

Temp 1 [T1] 0.56 dBm 1.723814103 GHz

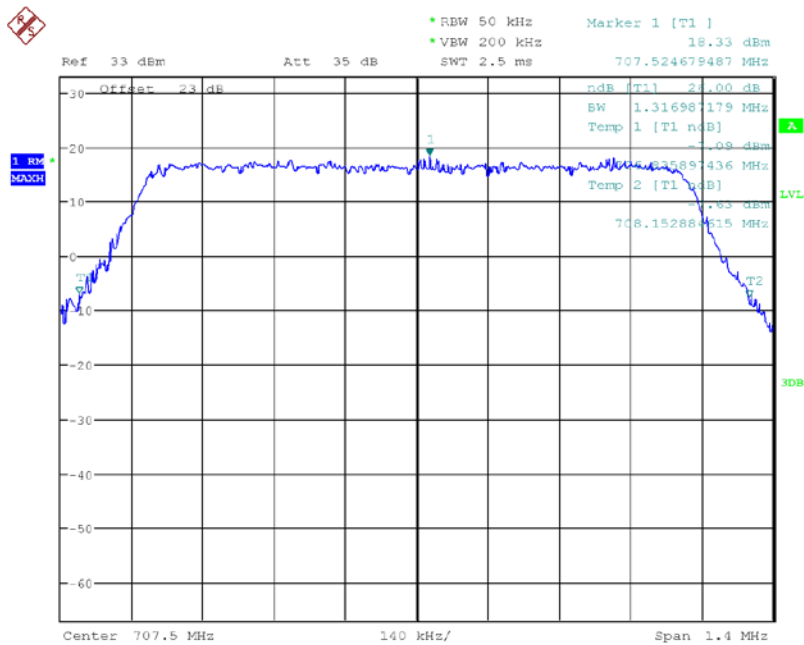
Temp 2 [T1] 0.89 dBm 1.724938897 GHz

Center 1.7325 GHz 2 MHz/ Span 20 MHz

Date: 7.AUG.2018 09:54:31

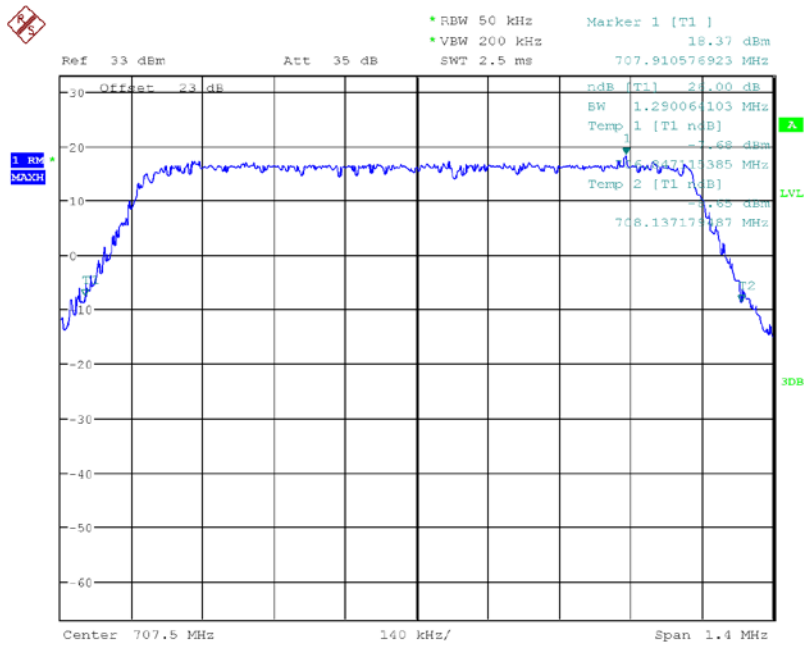
Address: No. 8,Yuma Road, Chayuan New City, Nan'an District, Chongqing, P. R. China,401336
Tel: 0086-23-88069965 FAX: 0086-23-88608777

Report No.:B18W50279



Date: 7.AUG.2018 14:14:47

Band12-26dB OBW-1.4MHz Bandwidth-16QAM



Date: 7.AUG.2018 14:14:12

Band12-26dB OBW-1.4MHz Bandwidth-QPSK

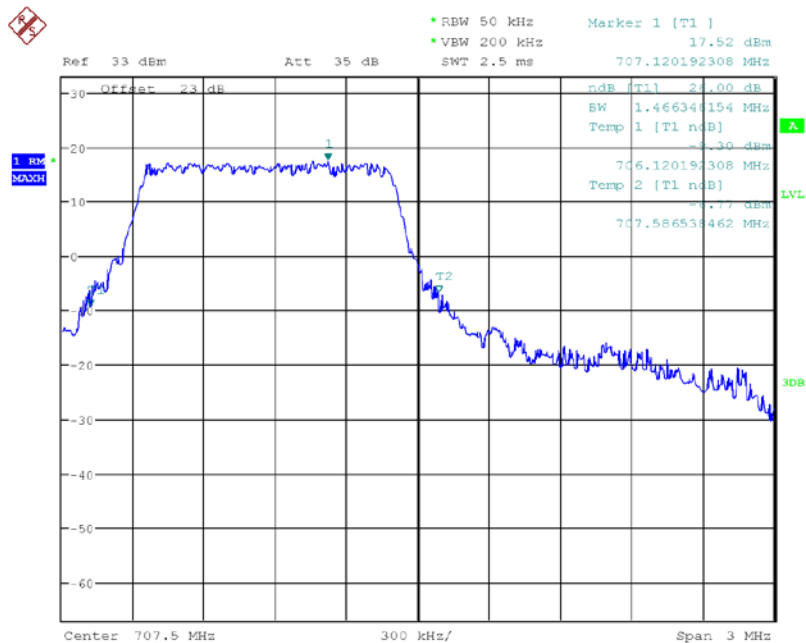
Date: 7.AUG.2018 14:15:04

Band12-99% OBW-1.4MHz Bandwidth-16QAM

Date: 7.AUG.2018 14:13:47

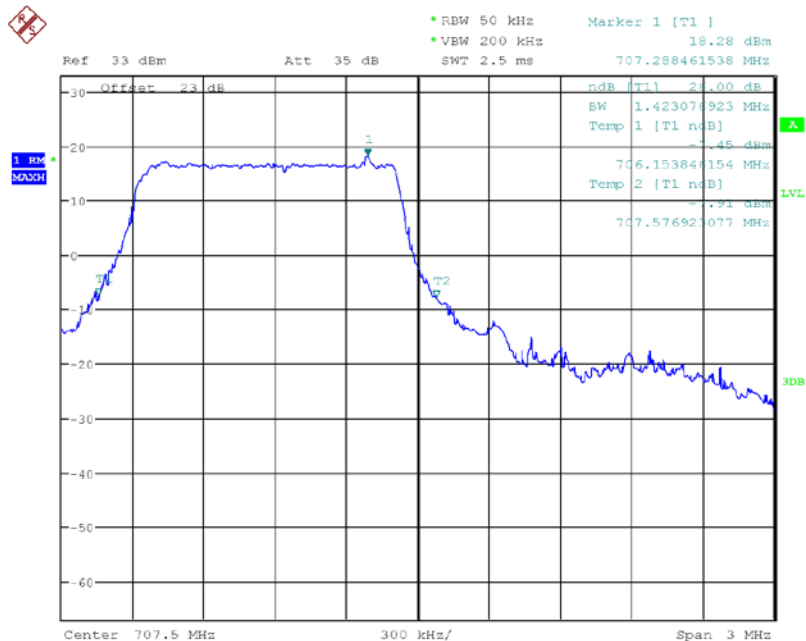
Band12-99% OBW-1.4MHz Bandwidth-QPSK

Report No.:B18W50279



Date: 7.AUG.2018 14:16:27

Band12-26dB OBW-3MHz Bandwidth-16QAM



Date: 7.AUG.2018 14:17:24

Band12-26dB OBW-3MHz Bandwidth-QPSK