

# TEST REPORT

**REPORT NUMBER: B17W00112-WWAN\_Rev3**

**ON**

**Type of Equipment:** 4G TLE mobile phone  
**Model Name:** A1-901  
**Manufacturer:** SHENZHEN FUTAIHONG PRECISION  
INDUSTRY CO.,LTD

## 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;**

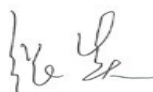
**PART 27, MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES;**

**Chongqing Institute of Telecommunications**

*Month date, year*

*Jun, 09, 2017*

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 Institute of Telecommunications.

**FCC ID:** 2AK9KA1

**Report Date:** 2017-06-09

**Test Firm Name:** Chongqing Institute of Telecommunications

**FCC Registration Number:** 428018

#### 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

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### 1.3 Testing Laboratory information

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#### 1.3.2 Details of accreditation status

Accredited by: -----  
Registration number: -----  
Standard: -----

#### 1.3.3 Test location, where different from section 1.3.1

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Country: -----  
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#### 1.4 Details of applicant or manufacturer

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##### 1.4.2 Manufacturer (if different from applicant in section 1.4.1)

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## 2 Test Item

### 2.1 General Information

Manufacturer: SHENZHEN FUTAIHONG PRECISION INDUSTRY CO.,LTD  
 Type of Equipment: 4G TLE mobile phone  
 Model Name: A1-901  
 Serial Number: S5/18: 862851030000874/862851030020872  
 S7/18: 862851030000163/862851030020161  
 Production Status: Product  
 Receipt date of test item: 2017-02-21

### 2.2 Outline of Equipment under Test

The A1-901, referred to as “EUT” hereafter, is a 4G TLE mobile phone operating on the GSM/UMTS/LTE 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	--
WCDMA	B2	1850 - 1910	1930 - 1990	--
	B5	824 - 849	869 - 894	--
CDMA/EVDO	BC0	824 - 849	869 - 894	--
	BC1	1850 - 1910	1930 - 1990	--
LTE	B7	2500 - 2570	2620 - 2690	--
	B41	2496 - 2690	2496 - 2690	--

### 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	Adaptor	None	None	--	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, 24.238, 22.917, 27.53	Conducted spurious emissions	Pass
2.1051, 2.1053, 24.238, 22.917, 27.53	Radiated Spurious Emission	Pass
2.1051, 2.1053, 24.238, 22.917, 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	2018-03-03
2	Trilog super broadband test antenna	VULB 9163	9163-544	R&S	2017-12-01
3	Double-Ridged Horn Antenna	HF907	100356	R&S	2017-12-01
4	Fully-Anechoic Chamber	11.8m×6.5m×6.3m	--	ETS	2017-08-19
5	Universal Radio Communication Tester	CMW500	128181	R&S	2018-03-03
6	Signal Generator	SMU200A	104517	R&S	2018-03-03
7	spectrum analyzer	FSQ 26	201137/026	R&S	2018-03-03
8	spectrum analyzer	N9020A	MY50200376	Agilent	2018-03-03
9	Universal Radio Communication Tester	CMU200	112012	R&S	2018-03-03
10	Climate chamber	SH-241	92010759	ESPEC	2018-03-03
11	DC Power Supply	N6705B	MY50000919	Agilent	2017-12-06

## 5 Test Results

### 5.1 Conducted RF Power Output

<b>Specifications:</b>	FCC Part 2.1046, 22.913(a), 24.232(c), 27.50
<b>DUT Serial Number:</b>	S5/18: 862851030000874/862851030020872
<b>Test conditions:</b>	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Test Results:</b>	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.

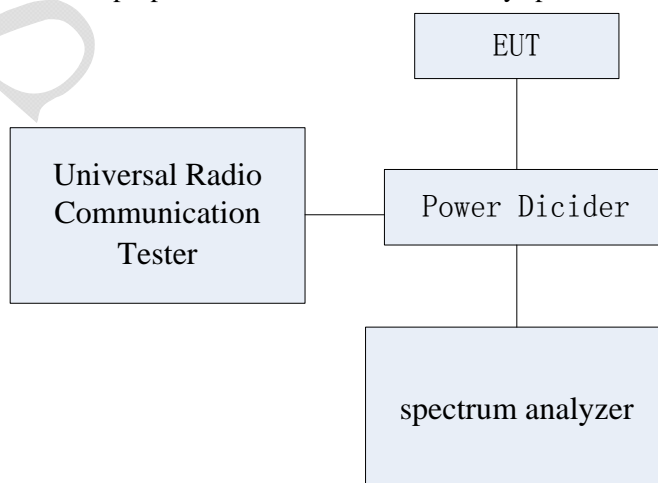
**According to Part 27.50(b)**, portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

**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 cables the test system is calibrated to correct the readings.
- 2) The spectrum analyzer was set to Maxpeak Detector function and Maximum hold mode.
- 3) The resolution bandwidth of the spectrum analyzer was comparable to the emission bandwidth.

**Note:** --**5.1.1 GSM850 Conducted RF Power Output Results****GSM GMSK Mode:**

Channel No.	Maximum output power(pk) [dBm]
<b>128</b> (824.2MHz)	34.1
<b>190</b> (836.6MHz)	33.8
<b>251</b> (848.8MHz)	33.3

**GPRS GMSK Mode:**

Channel No.	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
<b>128</b> (824.2MHz)	34.2	32.9	32.7	32.5
<b>190</b> (836.6MHz)	33.9	32.9	32.7	32.4
<b>251</b> (848.8MHz)	33.4	32.5	32.2	32.0

**EGPRS GMSK Mode**

Channel No.	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
<b>128</b> (824.2MHz)	34.1	32.9	32.7	32.5
<b>190</b> (836.6MHz)	33.8	32.9	32.6	32.4
<b>251</b> (848.8MHz)	33.3	32.4	32.2	31.9

**EGPRS 8PSK Mode**

Channel No.	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
<b>128</b> (824.2MHz)	30.4	29.4	29.3	29.2
<b>190</b> (836.6MHz)	30.3	29.2	29.1	29.0
<b>251</b> (848.8MHz)	30.0	29.0	28.8	28.7

**5.1.2 PCS1900 Conducted RF Power Output Results****GSM GMSK Mode:**

Channel No.	Maximum output power(pk) [dBm]
<b>512</b> (1850.2MHz)	30.9
<b>661</b> (1880.0MHz)	31.1
<b>810</b> (1909.8MHz)	30.7

**GPRS GMSK Mode**

Channel No.	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
<b>512</b> (1850.2MHz)	30.9	30.3	30.2	30.0
<b>661</b> (1880.0MHz)	31.1	30.5	30.4	30.3
<b>810</b> (1909.8MHz)	30.7	29.8	29.7	29.9

**EGPRS GMSK Mode**

Channel No.	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
<b>512</b> (1850.2MHz)	30.9	30.3	30.2	30.0
<b>661</b> (1880.0MHz)	31.1	30.5	30.4	30.3
<b>810</b> (1909.8MHz)	30.7	29.8	29.7	29.9

### EGPRS 8PSK Mode

Channel No.	Maximum output power(pk) [dBm]			
	1TS	2TS	3TS	4TS
<b>512</b> (1850.2MHz)	29.5	28.5	28.5	28.3
<b>661</b> (1880.0MHz)	29.7	28.8	28.8	28.6
<b>810</b> (1909.8MHz)	29.4	28.4	28.4	28.3

### 5.1.3 WCDMA B2 Conducted RF Power Output Results

		Maximum output power(pk) [dBm]			Maximum output power(RMS) [dBm]		
Mode	3GPP Subtest	9262	9400	9538	9262	9400	9538
RMC	--	26.13	26.66	26.85	23.67	22.13	21.72
HSDPA	1	26.19	26.54	26.96	22.67	21.21	20.83
	2	26.26	26.61	26.77	22.88	21.41	21.01
	3	26.41	26.48	26.69	22.11	20.65	20.39
	4	26.44	26.73	27.01	21.97	20.67	20.11
HSUPA (QPSK)	1	26.83	27.67	27.94	22.43	21.15	20.57
	2	26.72	27.70	28.11	22.37	21.11	20.66
	3	26.87	27.74	28.01	22.49	21.08	20.60
	4	26.97	27.63	28.06	22.39	21.10	20.74
	5	27.02	27.56	28.05	22.38	21.09	20.67

#### 5.1.4 WCDMA B5 Conducted RF Power Output Results

		Maximum output power(pk) [dBm]			Maximum output power(RMS) [dBm]		
Mode	3GPP Subtest	4132	4182	4233	4132	4182	4233
RMC	--	26.48	26.73	26.61	24.42	24.26	24.26
HSDPA	1	26.58	26.56	26.72	23.38	23.28	23.30
	2	26.25	26.46	26.60	23.21	23.22	23.16
	3	26.34	26.63	26.21	21.85	21.86	21.74
	4	26.30	26.48	26.55	21.64	21.58	21.50
HSUPA (QPSK)	1	27.67	28.12	27.57	22.24	21.90	21.95
	2	27.62	27.81	27.74	22.11	21.91	21.94
	3	27.56	27.77	27.71	22.14	21.98	21.97
	4	27.67	27.97	27.74	22.11	21.94	22.04
	5	27.60	27.96	27.82	22.12	22.00	21.97

#### 5.1.5 CDMA/EVDO Band Conducted RF Power Output Results

		CDMA Maximum output power [dBm]						1x EvDo	
Band	Channel	SO2		SO9		SO55		Rel.0	Rel.A
		RC1	RC3	RC1	RC3	RC1	RC3	RTAP	RETAP
BC0	1013	23.86	23.93	23.98	23.95	23.89	23.94	23.93	24.01
	384	23.85	23.84	23.86	23.82	23.96	23.87	23.98	23.92
	777	23.86	23.94	23.81	23.85	23.94	23.81	24.05	24.07
BC1	25	24.01	24.00	24.02	23.98	23.95	23.98	24.08	24.06
	600	23.98	23.96	23.99	23.97	23.84	23.84	23.95	24.03
	1175	23.96	23.85	23.84	23.86	23.93	23.97	24.01	24.10

### 5.1.6 LTE B7 Conducted RF Power Output Results

#### Test Data (5MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS)	Max Power (PK)	PAR
20775	2502.5	1	0	QPSK	21.81	25.11	3.30
		1	13		21.93	24.82	2.89
		1	24		21.43	24.86	3.43
		25	0		20.96	25.75	4.79
		1	0	16QAM	20.89	25.04	4.15
		1	13		20.78	24.97	4.19
		1	24		20.66	24.98	4.32
		25	0		19.78	25.27	5.49
21100	2535	1	0	QPSK	21.99	24.76	2.77
		1	13		21.91	24.73	2.82
		1	24		21.80	24.59	2.79
		25	0		20.52	25.32	4.80
		1	0	16QAM	20.81	24.77	3.96
		1	13		20.95	24.47	3.52
		1	24		20.63	24.52	3.89
		25	0		19.56	24.80	5.24
21425	2567.5	1	0	QPSK	21.81	24.88	3.07
		1	13		21.76	24.90	3.14
		1	24		21.80	24.95	3.15
		25	0		20.73	25.24	4.51
		1	0	16QAM	21.08	24.79	3.71
		1	13		21.10	24.81	3.71
		1	24		21.17	24.87	3.70
		25	0		19.90	25.29	5.39



Test Data (10MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS)	Max Power (PK)	PAR
20800	2505	1	0	QPSK	21.92	25.72	3.80
		1	25		21.78	25.20	3.42
		1	49		21.34	25.31	3.97
		50	0		20.92	25.81	4.89
		1	0	16QAM	21.34	25.35	4.01
		1	25		21.17	25.17	4.00
		1	49		20.88	24.91	4.03
		50	0		20.57	25.57	5.00
21100	2535	1	0	QPSK	21.80	25.04	3.24
		1	25		21.57	24.92	3.35
		1	49		21.64	25.03	3.39
		50	0		20.56	25.55	4.99
		1	0	16QAM	20.87	24.93	4.06
		1	25		20.49	24.90	4.41
		1	49		20.63	24.99	4.36
		50	0		19.54	24.67	5.13
21400	2565	1	0	QPSK	21.95	25.17	3.22
		1	25		21.85	25.07	3.22
		1	49		21.71	25.15	3.44
		50	0		20.76	26.04	5.28
		1	0	16QAM	21.11	25.18	4.07
		1	25		20.92	25.02	4.10
		1	49		21.09	25.22	4.13
		50	0		19.80	25.37	5.57

## Test Data (15MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS)	Max Power (PK)	PAR
20825	2507.5	1	0	QPSK	22.33	25.35	3.02
		1	38		22.13	24.92	2.79
		1	74		22.04	25.06	3.02
		75	0		20.82	25.92	5.10
		1	0	16QAM	21.71	25.31	3.60
		1	38		21.59	24.96	3.37
		1	74		21.20	25.03	3.83
		75	0		19.72	25.52	5.80
21100	2535	1	0	QPSK	22.41	25.15	2.74
		1	38		21.89	24.94	3.05
		1	74		21.70	24.99	3.29
		75	0		20.60	25.60	5.00
		1	0	16QAM	21.02	24.91	3.89
		1	38		20.79	24.78	3.99
		1	74		20.70	24.88	4.18
		75	0		19.61	25.26	5.65
21375	2562.5	1	0	QPSK	22.32	25.41	3.09
		1	38		22.01	24.91	2.90
		1	74		22.07	25.09	3.02
		75	0		20.84	25.76	4.92
		1	0	16QAM	21.17	25.27	4.10
		1	38		21.00	24.83	3.83
		1	74		20.96	25.01	4.05
		75	0		19.86	25.36	5.50

Test Data (20MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS)	Max Power (PK)	PAR
20850	2510	1	0	QPSK	22.22	25.29	3.07
		1	50		22.04	24.79	2.75
		1	99		21.71	25.02	3.31
		100	0		21.01	25.71	4.70
		1	0	16QAM	21.39	25.30	3.91
		1	50		20.86	24.85	3.99
		1	99		20.99	24.91	3.92
		100	0		19.94	25.63	5.69
21100	2535	1	0	QPSK	21.92	24.94	3.02
		1	50		21.56	24.79	3.23
		1	99		21.61	24.89	3.28
		100	0		20.72	25.32	4.60
		1	0	16QAM	21.21	24.69	3.48
		1	50		20.81	24.51	3.70
		1	99		20.76	24.81	4.05
		100	0		19.83	25.28	5.45
21350	2560	1	0	QPSK	22.42	25.31	2.89
		1	50		21.77	24.83	3.06
		1	99		21.73	25.00	3.27
		100	0		20.78	25.44	4.66
		1	0	16QAM	21.36	25.31	3.95
		1	50		21.02	24.83	3.81
		1	99		21.22	24.98	3.76
		100	0		19.91	25.27	5.36

### 5.1.7 LTE B41 Conducted RF Power Output Results

Test Data (5MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS)	Max Power (PK)	PAR
39675	2498.5	1	0	QPSK	21.08	23.70	2.62
		1	13		21.12	23.75	2.63
		1	24		21.10	23.92	2.82
		25	0		20.14	25.38	5.24
		1	0	16QAM	21.10	23.75	2.65
		1	13		21.18	23.71	2.53
		1	24		21.12	23.79	2.67
		25	0		20.18	25.05	4.87
40620	2593	1	0	QPSK	21.78	24.89	3.11
		1	13		21.90	24.97	3.07
		1	24		21.87	25.03	3.16
		25	0		21.01	26.62	5.61
		1	0	16QAM	21.08	24.83	3.75
		1	13		21.11	24.84	3.73
		1	24		21.05	25.09	4.04
		25	0		20.00	26.20	6.20
41565	2687.5	1	0	QPSK	22.53	24.65	2.12
		1	13		22.50	24.53	2.03
		1	24		22.43	24.54	2.11
		25	0		21.64	26.26	4.62
		1	0	16QAM	21.79	24.65	2.86
		1	13		21.87	24.53	2.66
		1	24		21.75	24.55	2.80
		25	0		20.69	26.06	5.37

## Test Data (10MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS)	Max Power (PK)	PAR
39700	2501	1	0	QPSK	21.10	23.85	2.75
		1	25		21.08	23.76	2.68
		1	49		21.00	23.91	2.91
		50	0		20.20	25.37	5.17
		1	0	16QAM	20.47	23.85	3.38
		1	25		20.46	23.78	3.32
		1	49		20.57	23.75	3.18
		50	0		19.42	25.15	5.73
40620	2593	1	0	QPSK	21.83	24.90	3.07
		1	25		21.84	24.87	3.03
		1	49		21.78	25.06	3.28
		50	0		21.01	26.67	5.66
		1	0	16QAM	21.09	24.84	3.75
		1	25		21.04	24.81	3.77
		1	49		21.10	25.05	3.95
		50	0		20.02	26.29	6.27
41540	2685	1	0	QPSK	22.59	24.70	2.11
		1	25		22.43	24.56	2.13
		1	49		22.41	24.59	2.18
		50	0		21.69	26.12	4.43
		1	0	16QAM	21.92	24.62	2.70
		1	25		21.86	24.61	2.75
		1	49		21.78	24.54	2.76
		50	0		20.72	26.04	5.32

## Test Data (15MHz bandwidth Mode)

Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS)	Max Power (PK)	PAR
39725	2503.5	1	0	QPSK	21.14	23.50	2.36
		1	38		21.09	23.22	2.13
		1	74		21.22	23.11	1.89
		75	0		20.42	25.08	4.66
		1	0	16QAM	20.37	23.35	2.98
		1	38		20.30	23.07	2.77
		1	74		20.41	23.18	2.77
		75	0		19.31	24.97	5.66
40620	2593	1	0	QPSK	21.89	24.25	2.36
		1	38		21.76	24.56	2.80
		1	74		21.72	24.97	3.25
		75	0		20.88	26.37	5.49
		1	0	16QAM	21.20	24.31	3.11
		1	38		21.06	24.40	3.34
		1	74		21.07	24.79	3.72
		75	0		19.93	26.15	6.22
41515	2682.5	1	0	QPSK	22.68	24.68	2.00
		1	38		22.42	24.34	1.92
		1	74		22.43	24.44	2.01
		75	0		21.52	26.32	4.80
		1	0	16QAM	21.99	24.54	2.55
		1	38		21.74	24.29	2.55
		1	74		21.78	24.36	2.58
		75	0		20.58	26.06	5.48

## Test Data (20MHz bandwidth Mode)

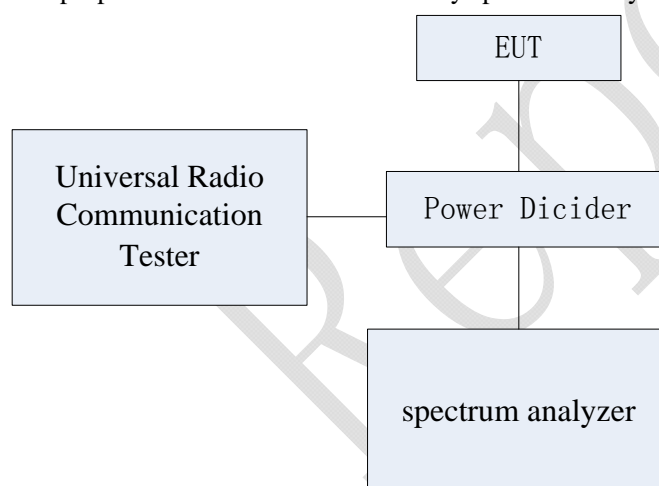
Channel	Frequency (MHz)	No.RB	RB START	Modulation	Max Power(RMS)	Max Power (PK)	PAR
39750	2506	1	0	QPSK	21.59	23.65	2.06
		1	50		21.15	23.12	1.97
		1	99		21.29	23.16	1.87
		100	0		20.40	24.88	4.48
		1	0	16QAM	20.62	23.59	2.97
		1	50		20.38	23.11	2.73
		1	99		20.52	23.29	2.77
		100	0		19.44	24.97	5.53
40620	2593	1	0	QPSK	22.03	24.58	2.55
		1	50		21.74	24.60	2.86
		1	99		21.89	25.20	3.31
		100	0		20.89	26.23	5.34
		1	0	16QAM	21.39	24.14	2.75
		1	50		21.23	24.28	3.05
		1	99		21.28	24.70	3.42
		100	0		19.98	26.12	6.14
41490	2680	1	0	QPSK	22.79	24.72	1.93
		1	50		22.33	24.17	1.84
		1	99		22.44	24.45	2.01
		100	0		21.64	25.97	4.33
		1	0	16QAM	21.98	24.65	2.67
		1	50		21.61	24.20	2.59
		1	99		21.69	24.49	2.80
		100	0		20.70	25.89	5.19

## 5.2 Occupied bandwidth

<b>Specifications:</b>	FCC Part 2.1049, 22.917(b), 24.238(b)
<b>DUT Serial Number:</b>	S5/18: 862851030000874/862851030020872
<b>Test conditions:</b>	Ambient Temperature:15℃-35℃ Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Test Results:</b>	--

## 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	EUT channel No.	Mode	99% OBW (MHz)	-26dBc OBW (MHz)
GSM850	128	GMSK	0.24	0.32
		8PSK	0.25	0.32
	190	GMSK	0.25	0.31
		8PSK	0.24	0.31
	251	GMSK	0.25	0.31
		8PSK	0.24	0.32
PCS1900	512	GMSK	0.25	0.31
		8PSK	0.25	0.31
	661	GMSK	0.24	0.32
		8PSK	0.24	0.32
	810	GMSK	0.24	0.32
		8PSK	0.24	0.32

### 5.2.2 WCDMA Band Mode Occupied Bandwidth Results

Band	EUT channel No.	Mode	99% OBW (MHz)	-26dBc OBW (MHz)
Band2	9400	QPSK	4.15	4.78
Band5	4182	QPSK	4.13	4.74

### 5.2.3 CDMA/EVDO Band mode occupied bandwidth Results

Band	EUT channel No.	Configuration		99% OBW (MHz)	-26dBc OBW (MHz)
BC0	384 (836.52MHz)	SO2	RC1	1.28	1.44
			RC3	1.28	1.43
		1x EvDo	Rel.A	1.28	1.44
BC1	600 (1880.00MHz)	SO2	RC1	1.29	1.44
			RC3	1.29	1.45
		1x EvDo	Rel.A	1.28	1.43

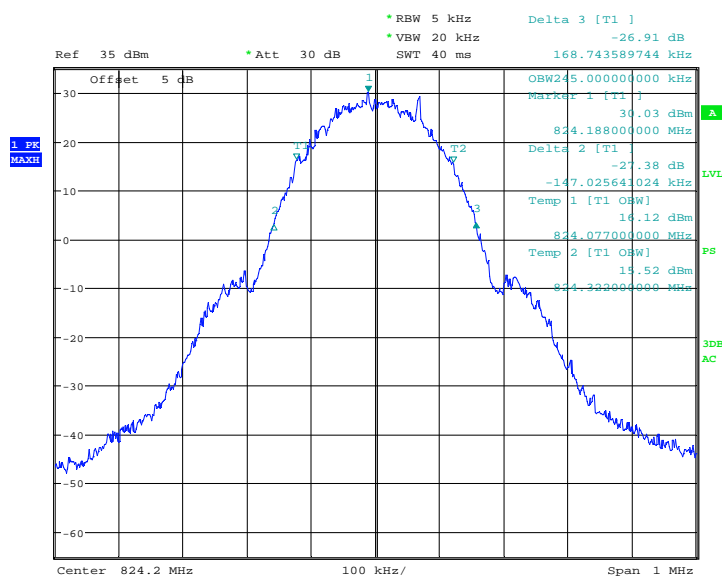
## 5.2.4 LTE B7 occupied bandwidth Results

Mode	EUT channel No.	bandwidth	No. RB	RB offset	99% occupied bandwidth [MHz]	-26dBc occupied bandwidth [MHz]
QPSK	21100 (2535MHz)	5MHz	25	0	4.48	4.89
		10MHz	50		8.96	9.66
		15MHz	75		13.48	14.44
		20MHz	100		17.91	19.00
16QAM		5MHz	25		4.47	4.90
		10MHz	50		8.94	9.58
		15MHz	75		13.44	14.49
		20MHz	100		17.91	19.05

## 5.2.5 LTE B41 occupied bandwidth Results

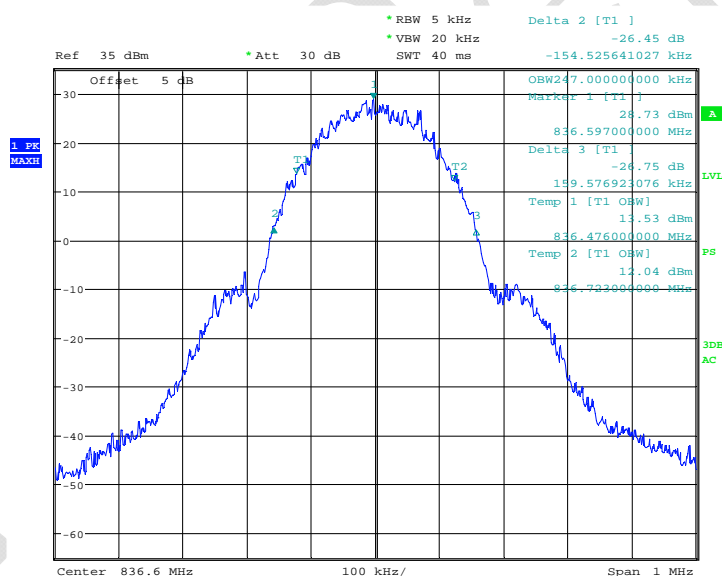
Mode	EUT channel No.	bandwidth	No. RB	RB offset	99% occupied bandwidth [MHz]	-26dBc occupied bandwidth [MHz]
QPSK	40620 (2593MHz)	5MHz	25	0	4.47	4.88
		10MHz	50		8.96	9.55
		15MHz	75		13.46	14.59
		20MHz	100		17.91	19.01
16QAM		5MHz	25		4.47	4.92
		10MHz	50		8.94	9.63
		15MHz	75		13.46	14.47
		20MHz	100		17.91	18.82

Graphical results for GSM :



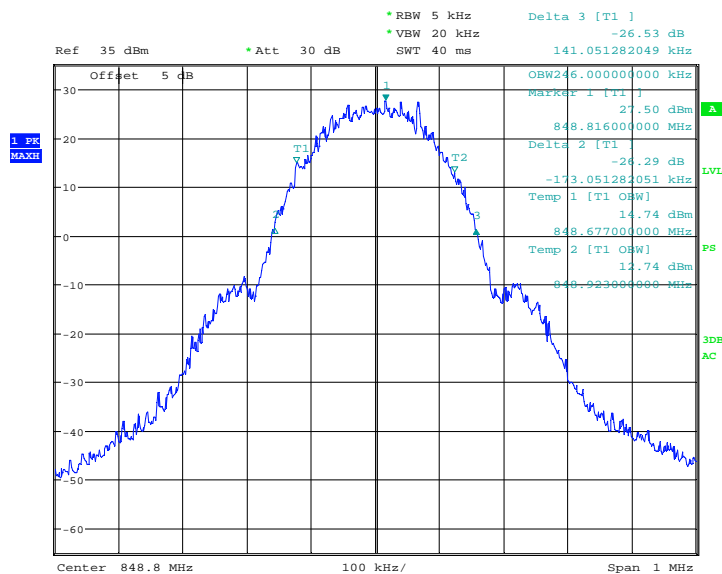
Date: 6.MAR.2017 10:22:24

GMSK Channel 128



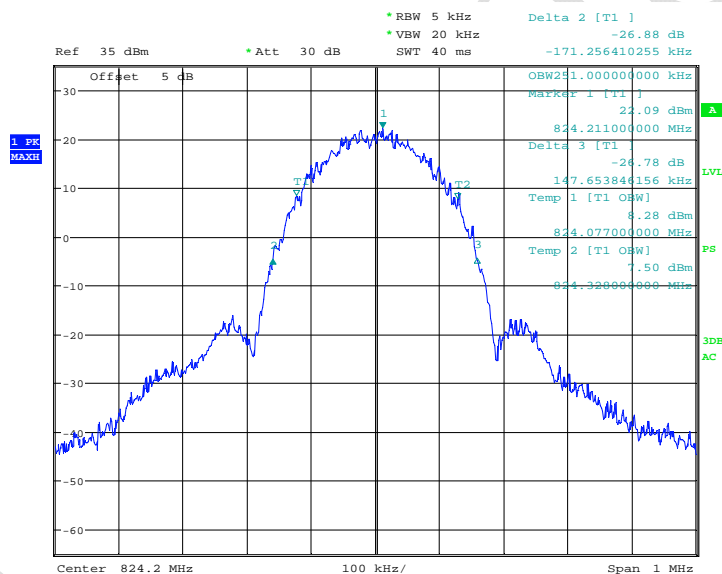
Date: 6.MAR.2017 10:24:09

GMSK Channel 190



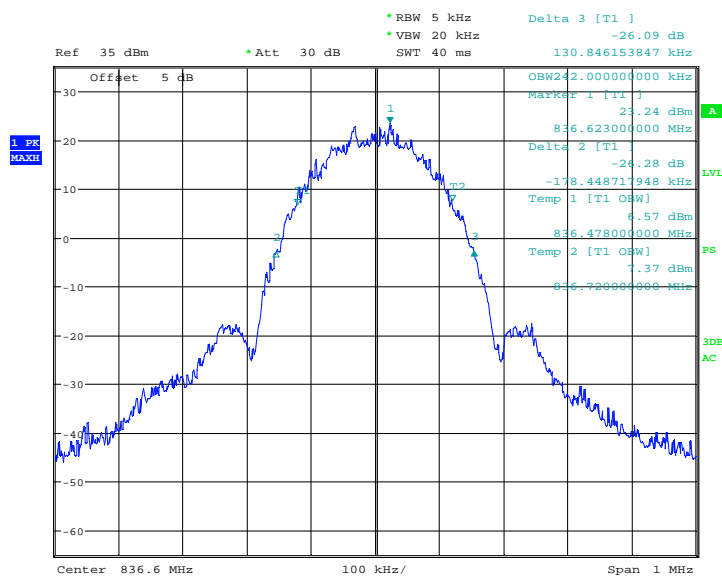
Date: 6.MAR.2017 10:25:23

### GMSK Channel 251



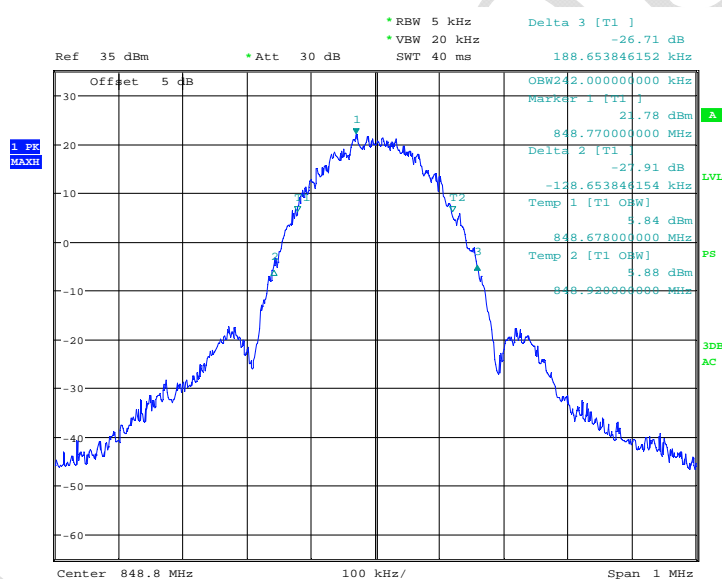
Date: 6.MAR.2017 10:30:57

### 8PSK Channel 128



Date: 6.MAR.2017 10:29:53

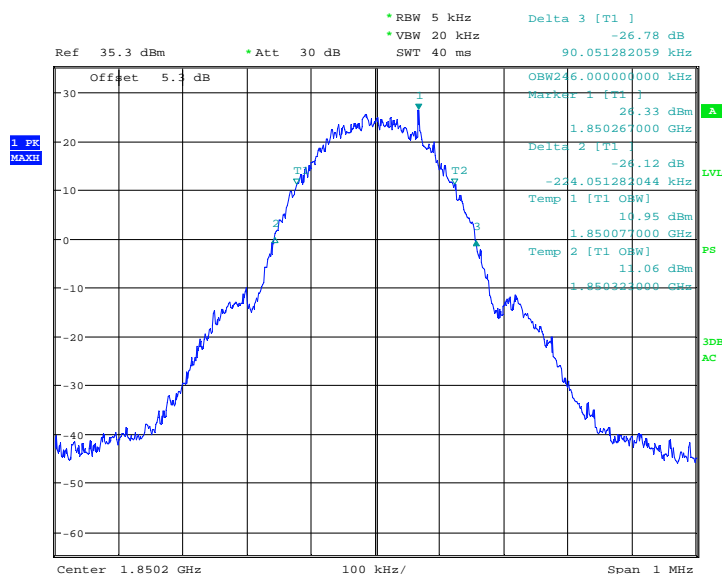
### 8PSK Channel 190



Date: 6.MAR.2017 10:28:30

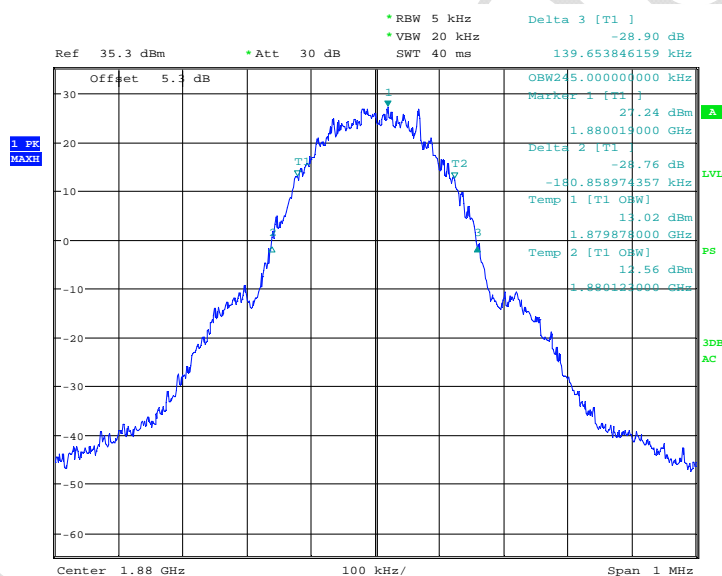
### 8PSK Channel 251

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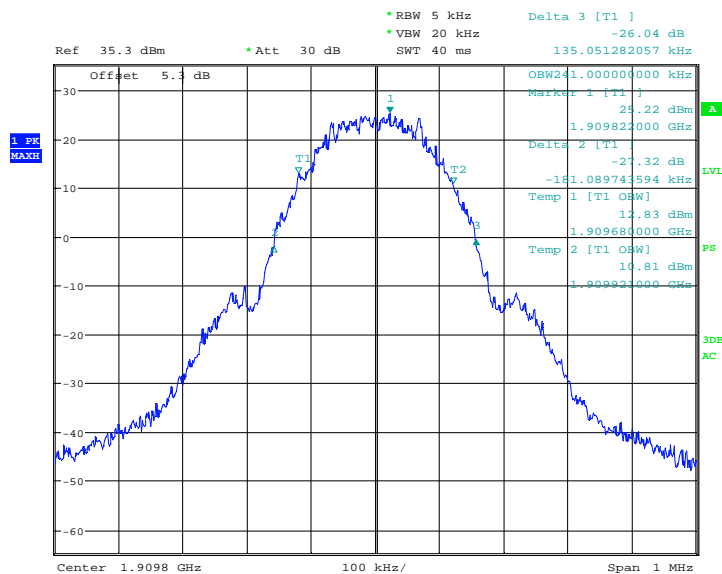
Date: 6.MAR.2017 11:28:52

GMSK Channel 512



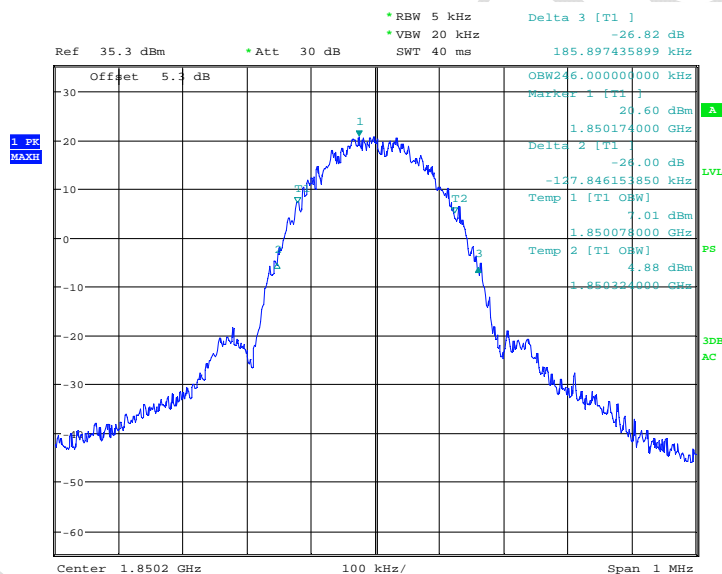
Date: 6.MAR.2017 11:30:25

GMSK Channel 661



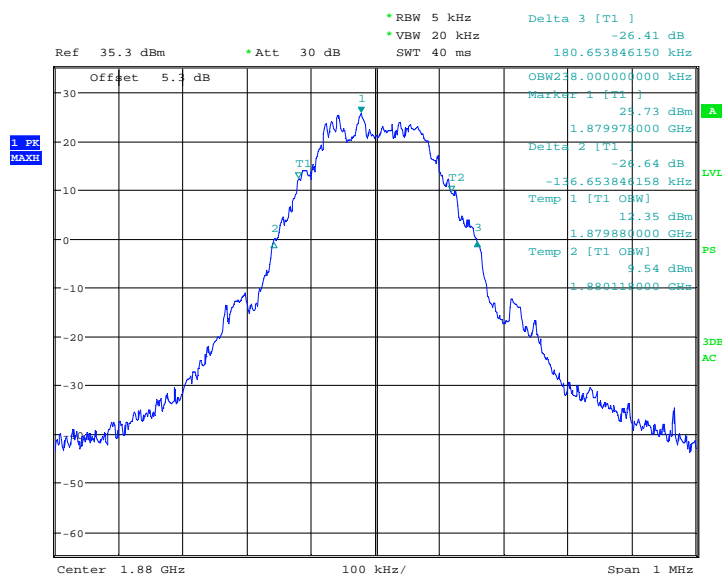
Date: 6.MAR.2017 11:31:57

### GMSK Channel 810



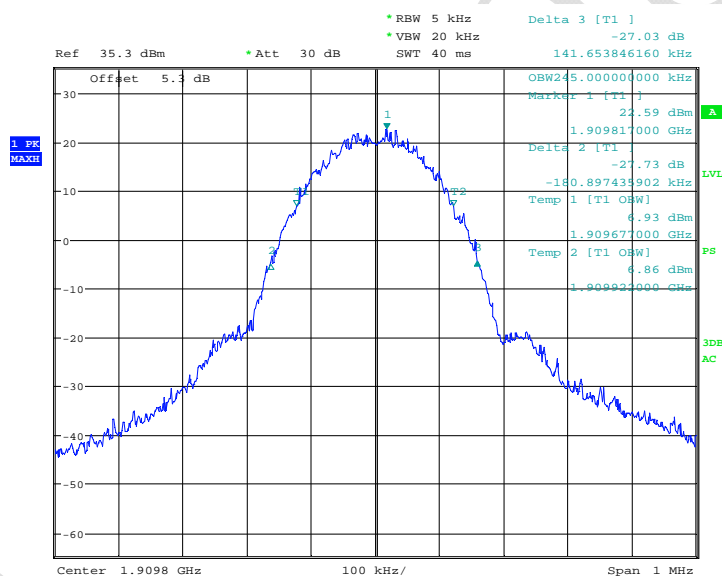
Date: 6.MAR.2017 11:38:54

### 8PSK Channel 512



Date: 6.MAR.2017 11:37:28

### 8PSK Channel 661



Date: 6.MAR.2017 11:35:30

### 8PSK Channel 810

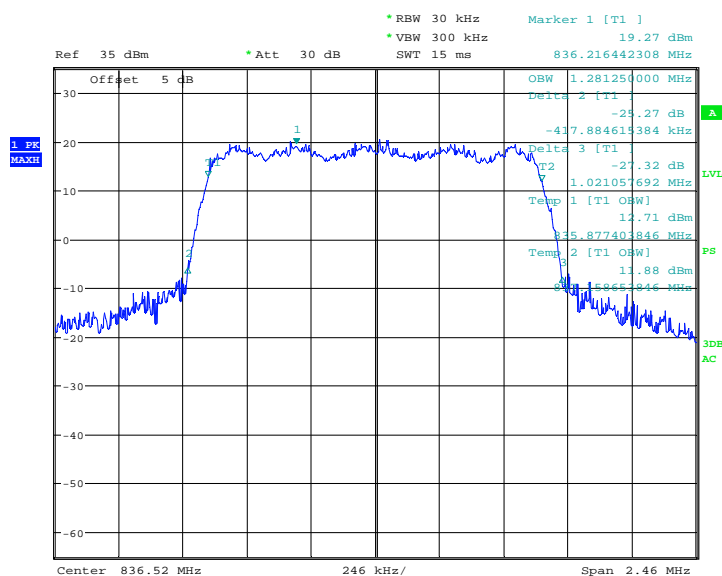




Date: 6.MAR.2017 16:41:53

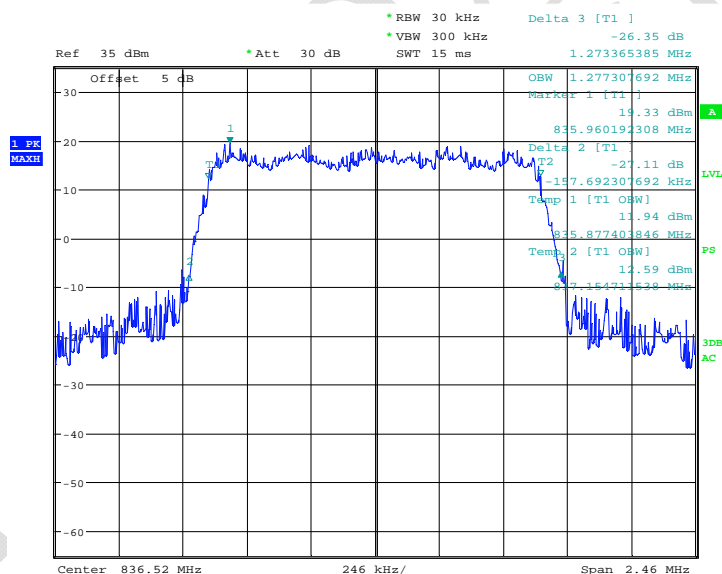
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Graphical results for CDMA/EVDO :



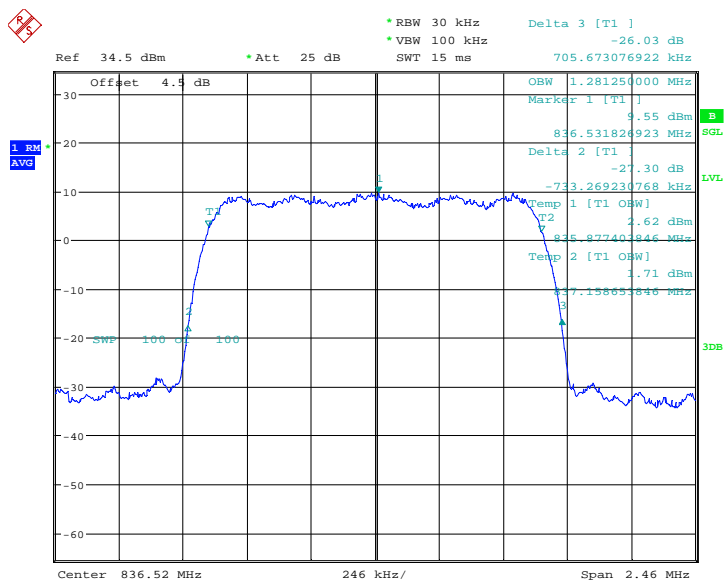
Date: 24.MAR.2017 10:59:10

CDMA Occupied Bandwidth, SO2, RC1, BC0 channel 384



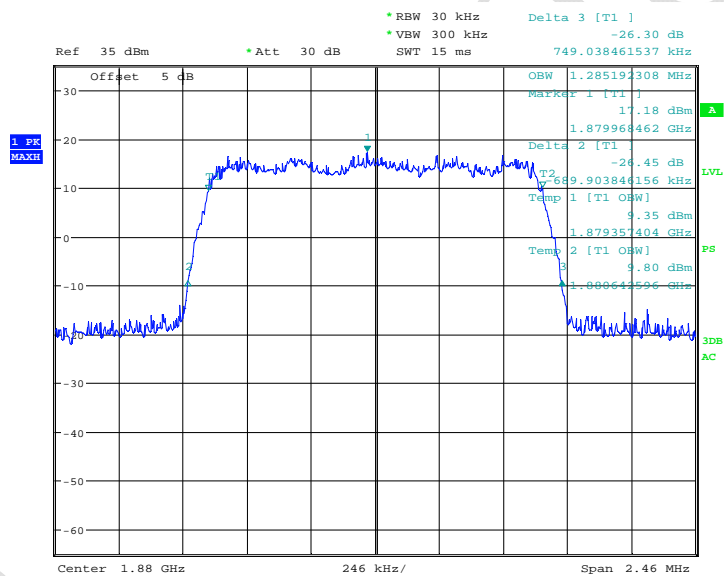
Date: 24.MAR.2017 11:00:53

CDMA Occupied Bandwidth, SO2, RC3, BC0 channel 384



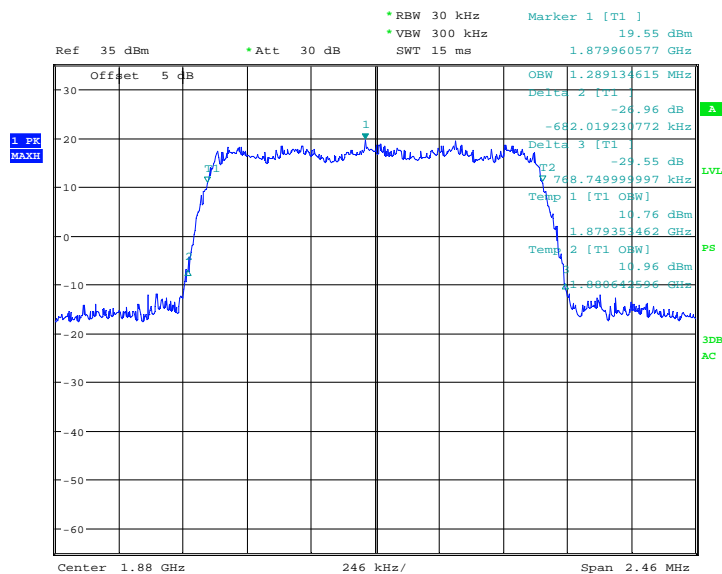
Date: 27.APR.2017 11:17:30

### 1x EvDo Occupied Bandwidth, Rel.A, BC0 channel 384



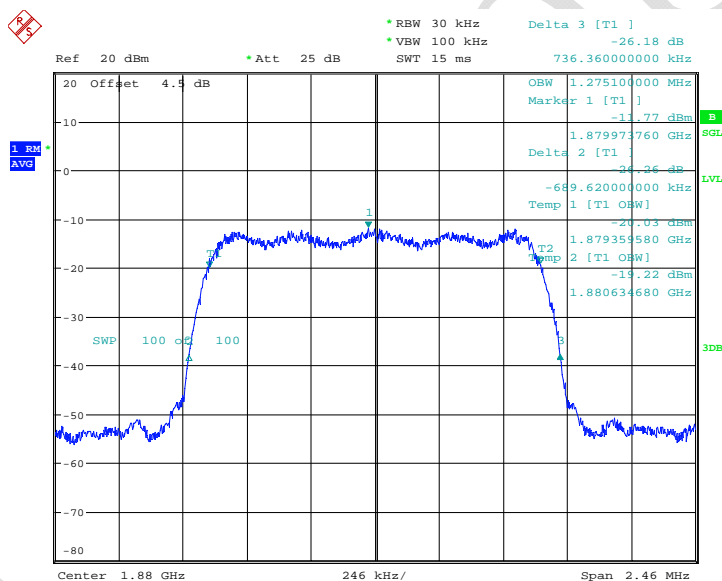
Date: 24.MAR.2017 11:08:45

### CDMA Occupied Bandwidth, SO2, RC1, BC1 channel 600



Date: 24.MAR.2017 11:10:48

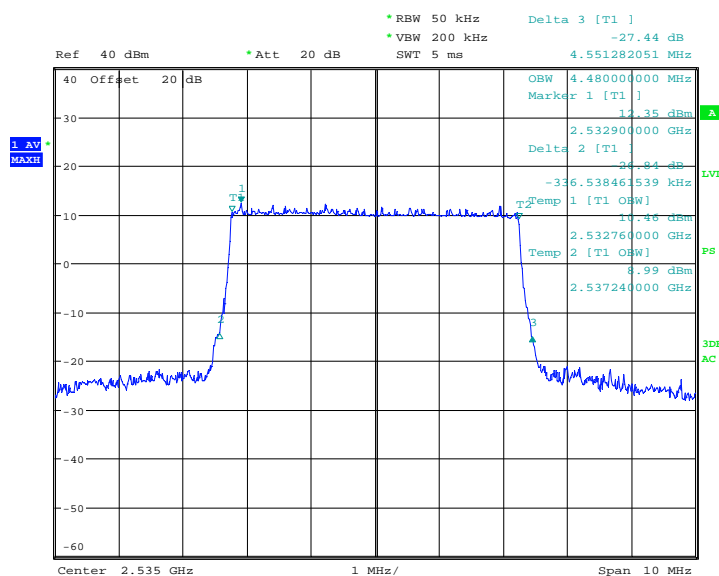
### CDMA Occupied Bandwidth, SO2, RC3, BC1 channel 600



Date: 27.APR.2017 11:43:52

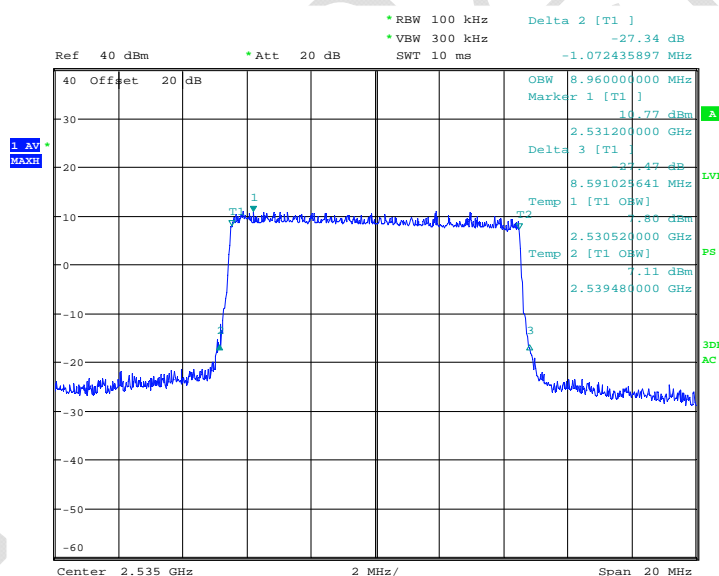
### 1x EvDo Occupied Bandwidth, Rel.A, BC1 channel 600

Graphical results for LTE :



Date: 7.MAR.2017 10:39:51

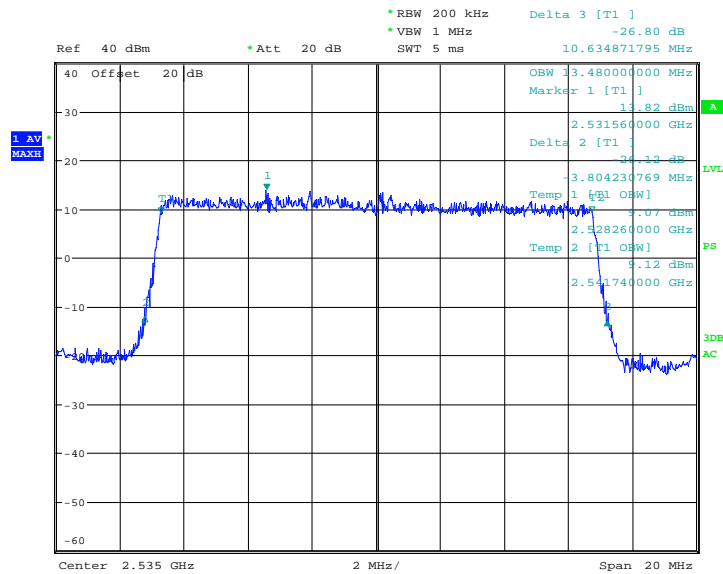
LTE Band7 QPSK Channel 21100 BW=5MHz RB=25 RB Offset=0



Date: 7.MAR.2017 10:45:55

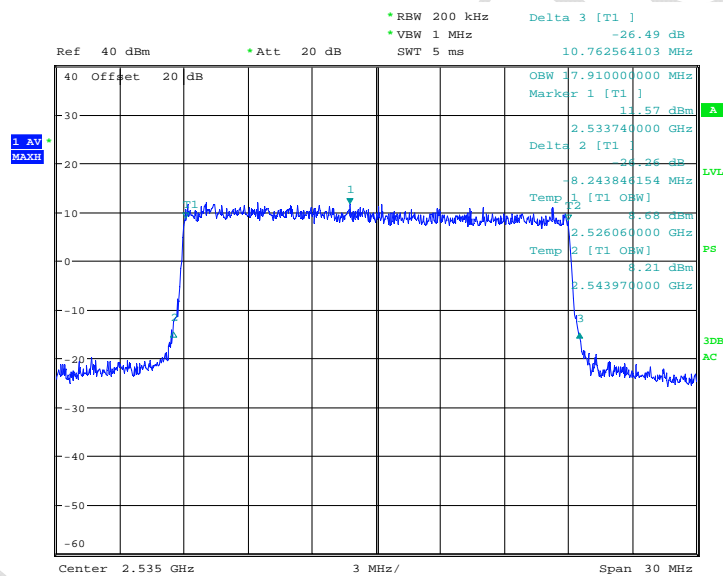
LTE Band7 QPSK Channel 21100 BW=10MHz RB=50 RB Offset=0

Report No.: B17W00112-WWAN\_Rev3



Date: 7.MAR.2017 10:48:33

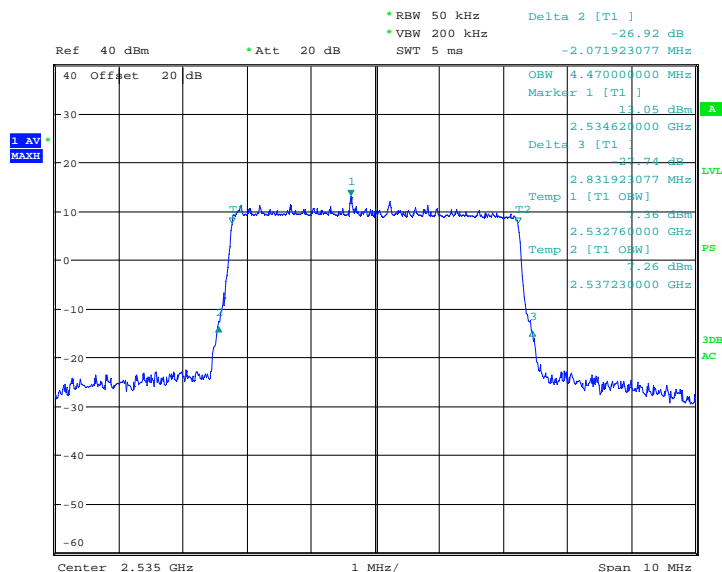
LTE Band7 QPSK Channel 21100 BW=15MHz RB=75 RB Offset=0



Date: 7.MAR.2017 10:50:17

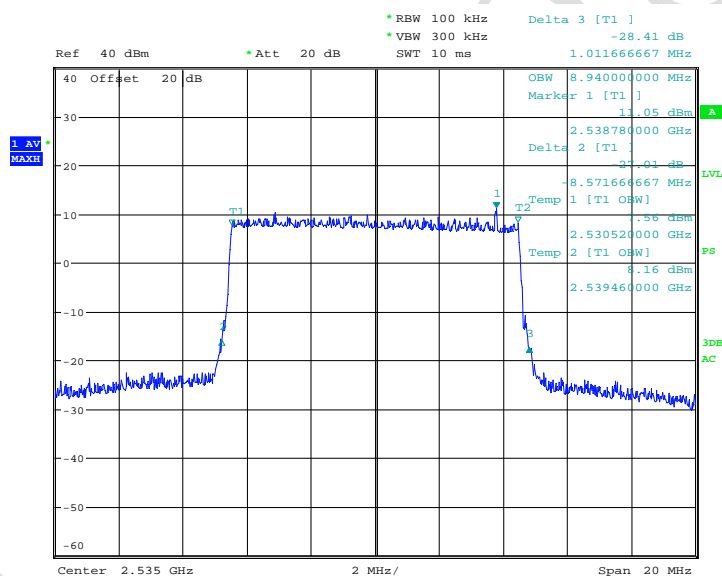
LTE Band7 QPSK Channel 21100 BW=20MHz RB=100 RB Offset=0

Report No.: B17W00112-WWAN\_Rev3



Date: 7.MAR.2017 10:53:46

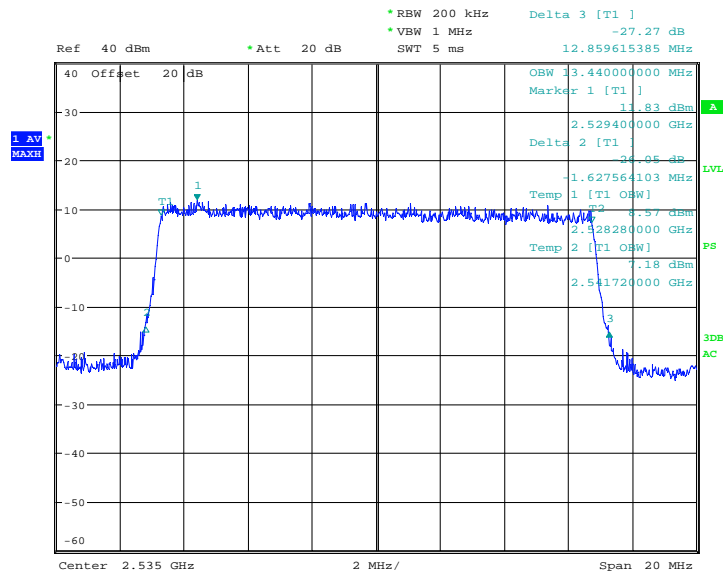
LTE Band7 16QAM Channel 21100 BW=5MHz RB=25 RB Offset=0



Date: 7.MAR.2017 10:55:54

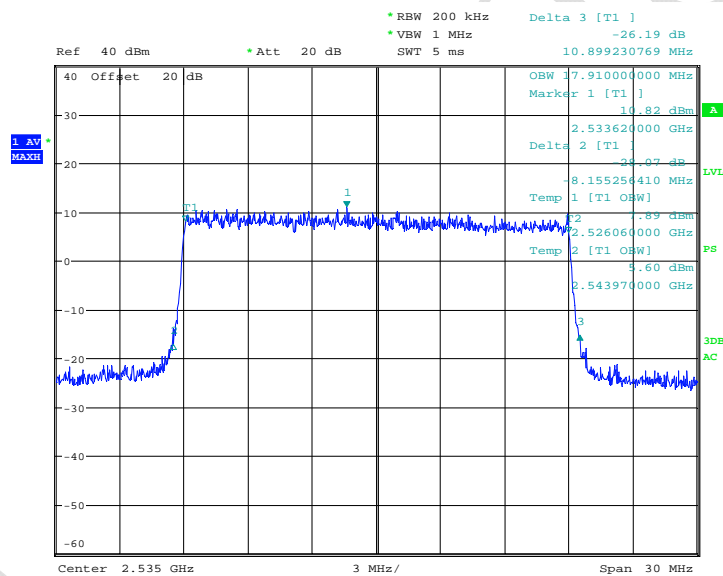
LTE Band7 16QAM Channel 21100 BW=10MHz RB=50 RB Offset=0

Report No.: B17W00112-WWAN\_Rev3



Date: 7.MAR.2017 10:57:13

LTE Band7 16QAM Channel 21100 BW=15MHz RB=75 RB Offset=0

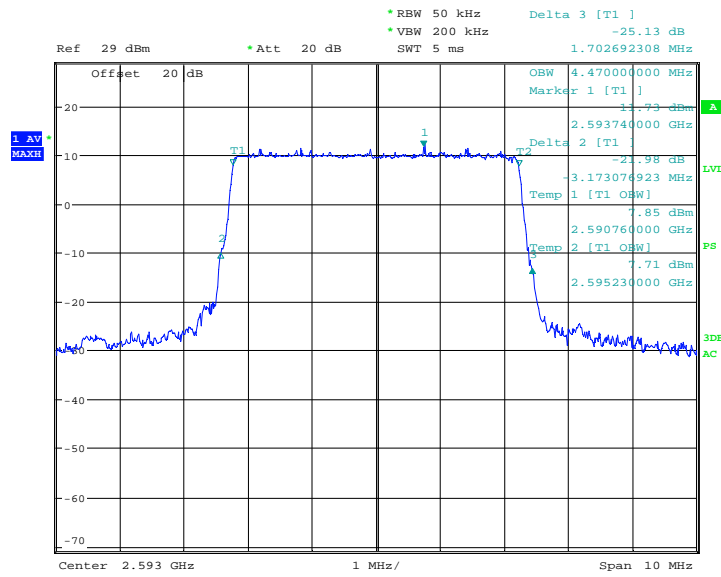


Date: 7.MAR.2017 10:58:19

LTE Band7 16QAM Channel 21100 BW=20MHz RB=100 RB Offset=0

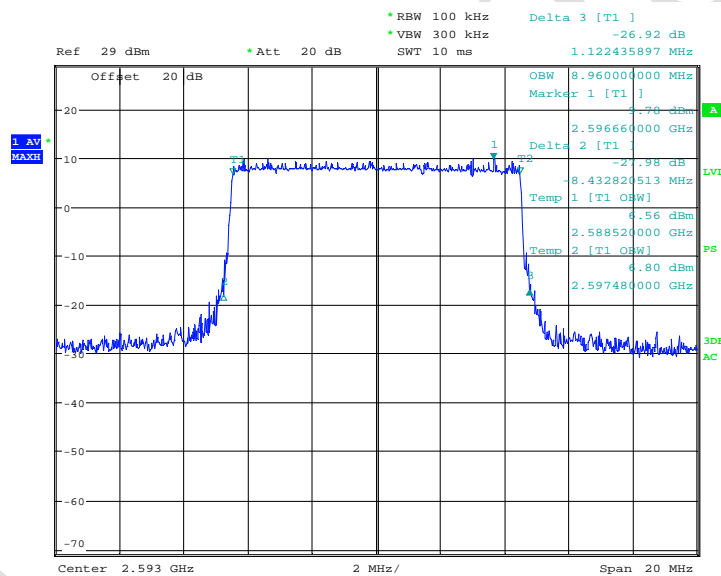


Report No.: B17W00112-WWAN\_Rev3



Date: 7.MAR.2017 16:39:38

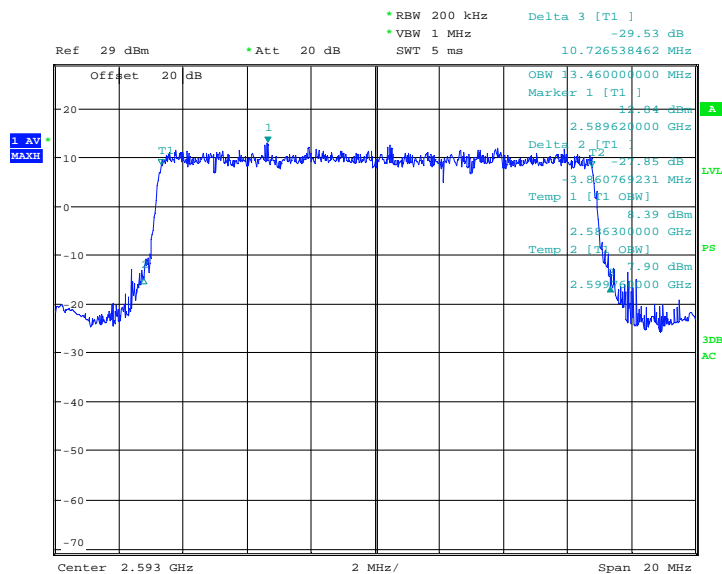
LTE Band41 QPSK Channel 40620 BW=5MHz RB=25 RB Offset=0



Date: 7.MAR.2017 16:41:42

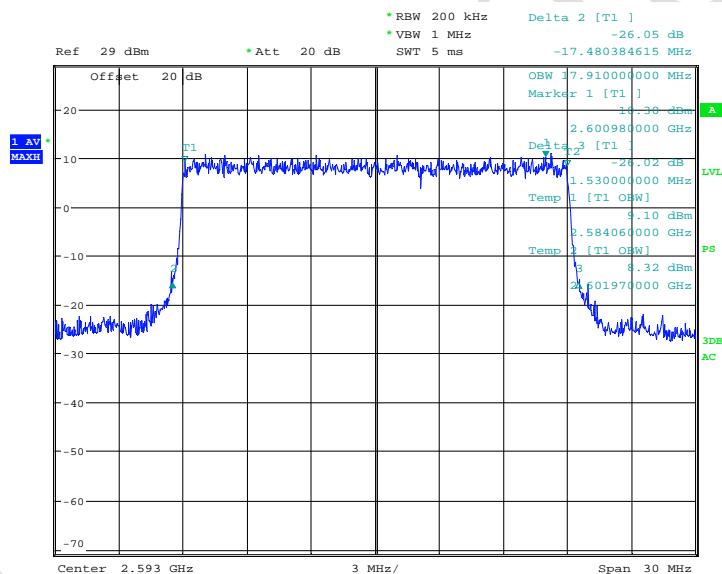
LTE Band41 QPSK Channel 40620 BW=10MHz RB=50 RB Offset=0

Report No.: B17W00112-WWAN\_Rev3



Date: 7.MAR.2017 16:43:38

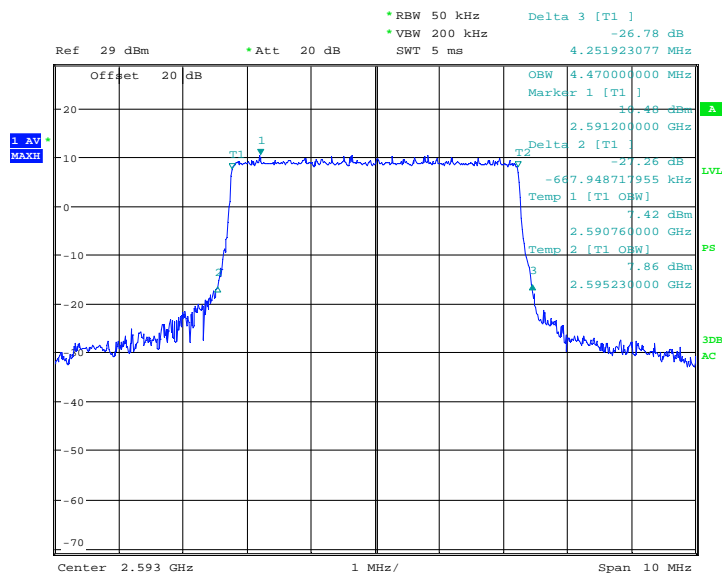
LTE Band41 QPSK Channel 40620 BW=15MHz RB=75 RB Offset=0



Date: 7.MAR.2017 16:45:05

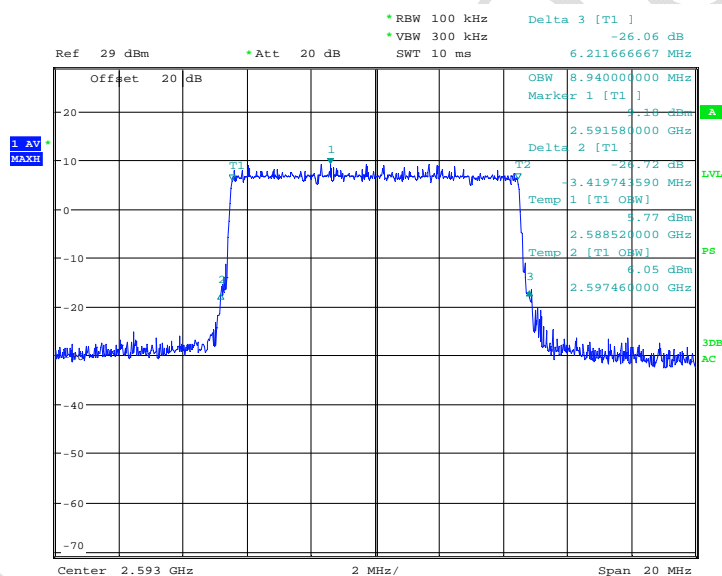
LTE Band41 QPSK Channel 40620 BW=20MHz RB=100 RB Offset=0

Report No.: B17W00112-WWAN\_Rev3



Date: 7.MAR.2017 16:47:14

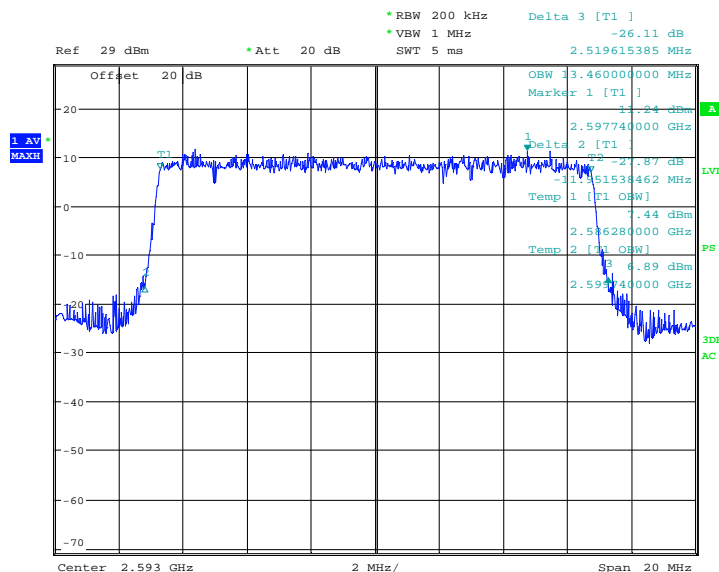
LTE Band41 16QAM Channel 40620 BW=5MHz RB=25 RB Offset=0



Date: 7.MAR.2017 16:49:07

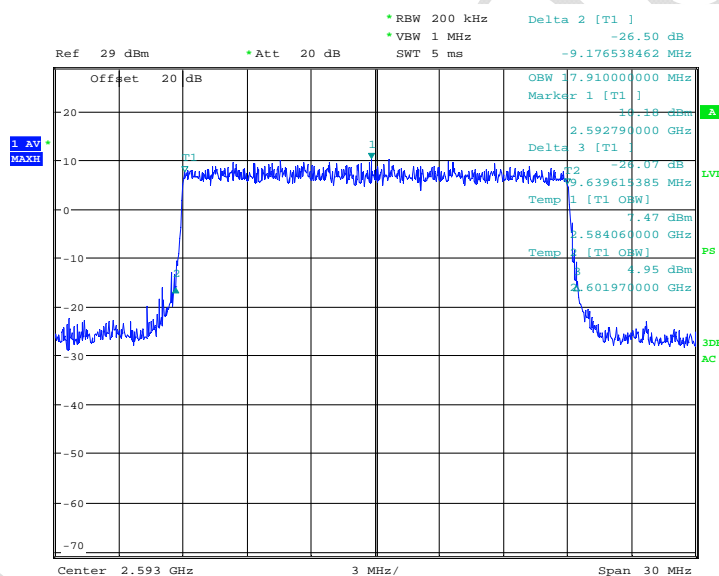
LTE Band41 16QAM Channel 40620 BW=10MHz RB=50 RB Offset=0

Report No.: B17W00112-WWAN\_Rev3



Date: 7.MAR.2017 16:50:28

LTE Band41 16QAM Channel 40620 BW=15MHz RB=75 RB Offset=0



Date: 7.MAR.2017 16:51:45

LTE Band41 16QAM Channel 40620 BW=20MHz RB=100 RB Offset=0

### 5.3 Conducted Spurious Emission

<b>Specifications:</b>	FCC Part 2.1051, 24.238, 2.1053, 22.917, 27.53
<b>DUT Serial Number:</b>	S5/18: 862851030000874/862851030020872
<b>Test conditions:</b>	Ambient Temperature:15°C-35°C Relative Humidity:30%-60% Air pressure: 86-106kPa
<b>Test Results:</b>	--

#### Limit Level Construction:

**According to Part 22.917 (a)**, i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

**According to Part 24.238 (a)**, i.e., Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB, so the limit level is:

$P(\text{dBm}) - (43 + 10 \log(P)) \text{ dB} = -13\text{dBm}$ .

#### According to Part 27.53(h):

Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least  $43 + 10 \log_{10}(P)$  dB.

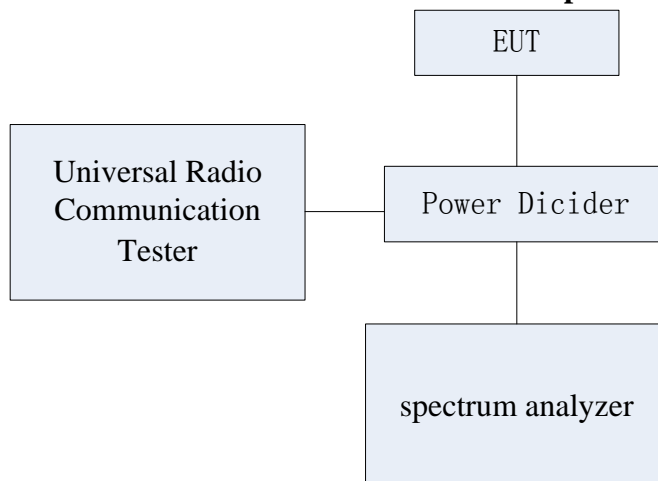
#### According to Part 27.53(m):

For digital base stations, the attenuation shall be not less than  $43 + 10 \log(P)$  dB.

Limits for Radiated spurious emissions(UE)	
Frequency range	Limit Level /Resolution Bandwidth
30 MHz to 20000 MHz	-13dBm/1MHz

#### 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:

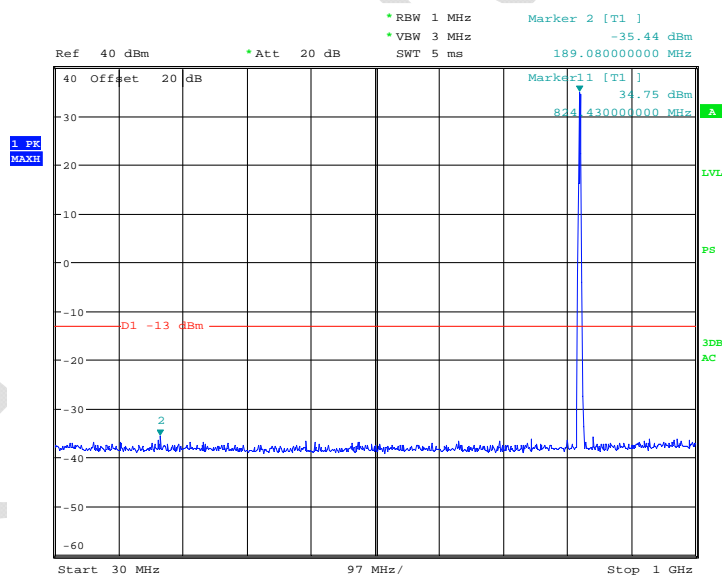
The measurement was performed accordance with section 2.2.13 of ANSI/TIA-603-B-2002: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

The following steps outline the procedure used to measure the conducted emissions from the EUT.

1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency.

Note: --

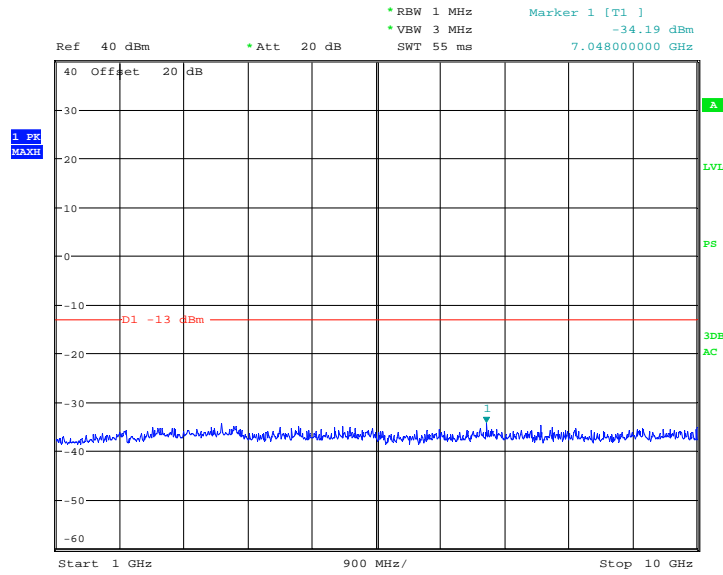
### 5.3.1 GSM850 Conducted Spurious Emission Results



Date: 6.MAR.2017 14:00:37

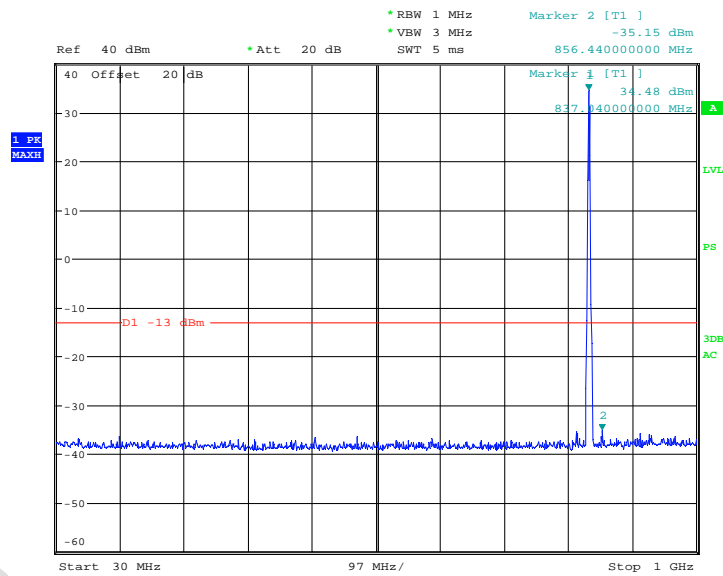
GMSK, Low channel, 824.200 MHz, 30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



Date: 6.MAR.2017 14:01:05

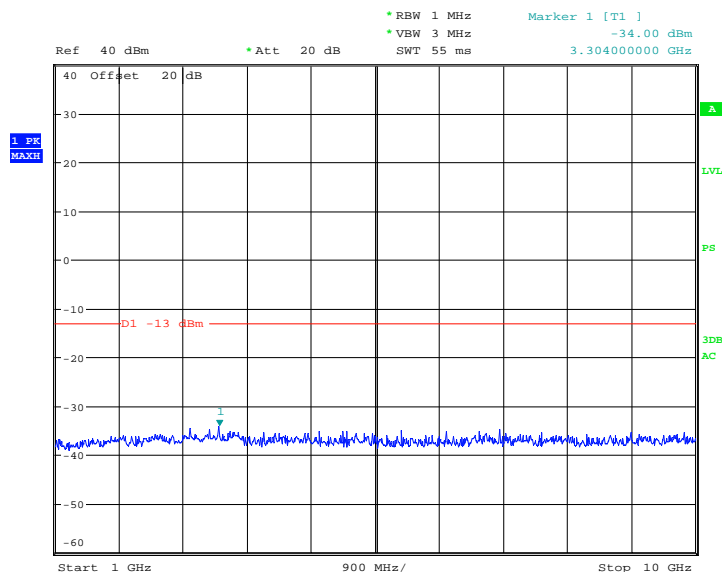
### GMSK, Low channel, 824.200 MHz, 1GHz to 10GHz



Date: 6.MAR.2017 14:02:15

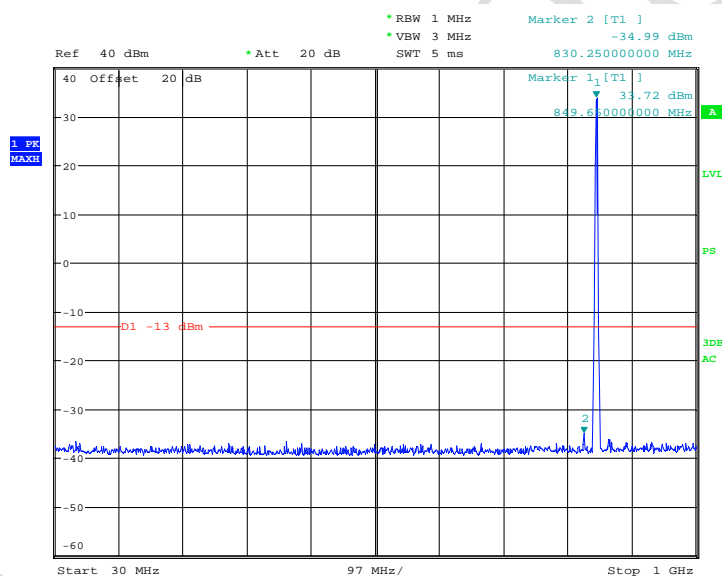
### GMSK, Mid Channel, 836.6 MHz, 30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



Date: 6.MAR.2017 14:02:39

### GMSK, Mid Channel, 836.6 MHz, 1GHz to 10GHz

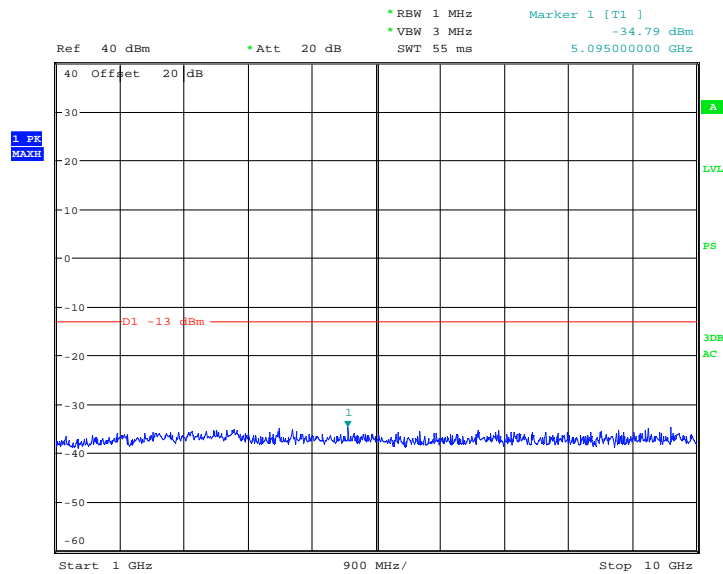


Date: 6.MAR.2017 14:03:19

### GMSK, High Channel, 848.8 MHz, 30MHz to 1GHz

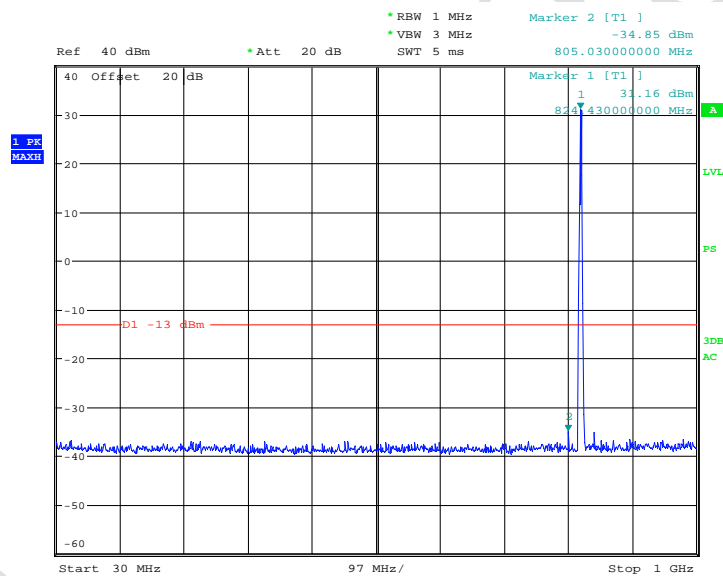
Note: The strong emission shown in each case is the carrier signal.





Date: 6.MAR.2017 14:03:43

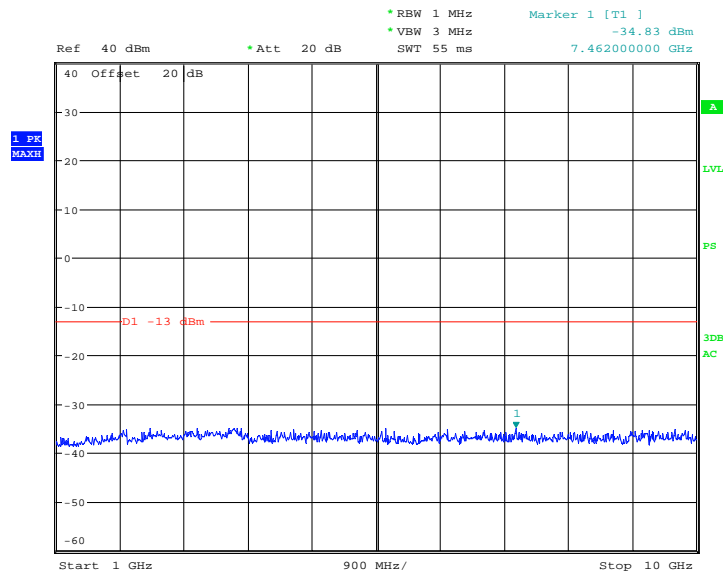
### GMSK, High Channel, 848.8 MHz, 1GHz to 10GHz



Date: 6.MAR.2017 14:05:06

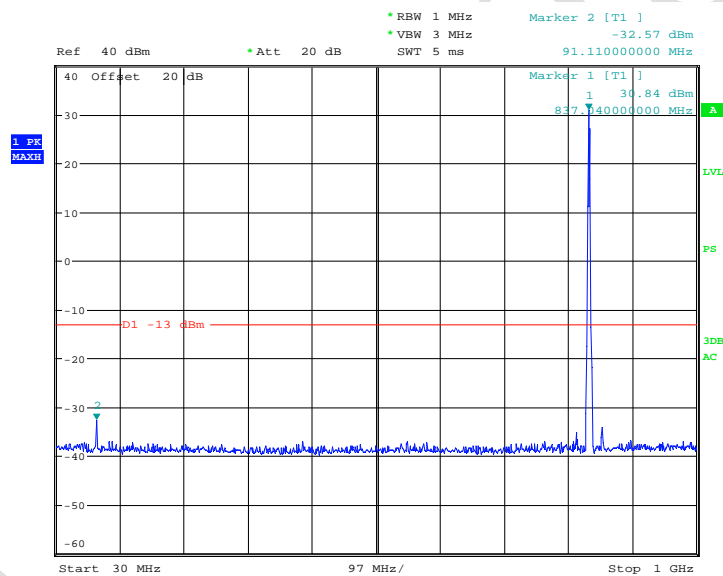
### 8PSK, Low channel, 824.200 MHz, 30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



Date: 6.MAR.2017 14:05:38

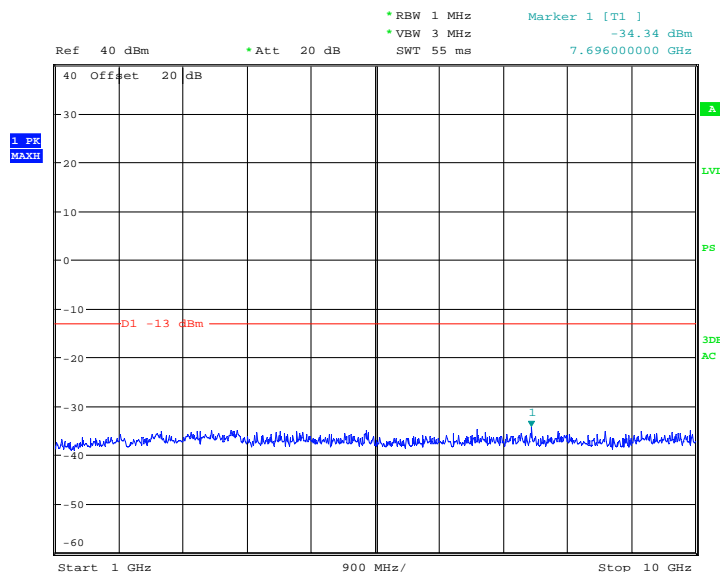
### 8PSK, Low channel, 824.200 MHz, 1GHz to 10GHz



Date: 6.MAR.2017 14:06:38

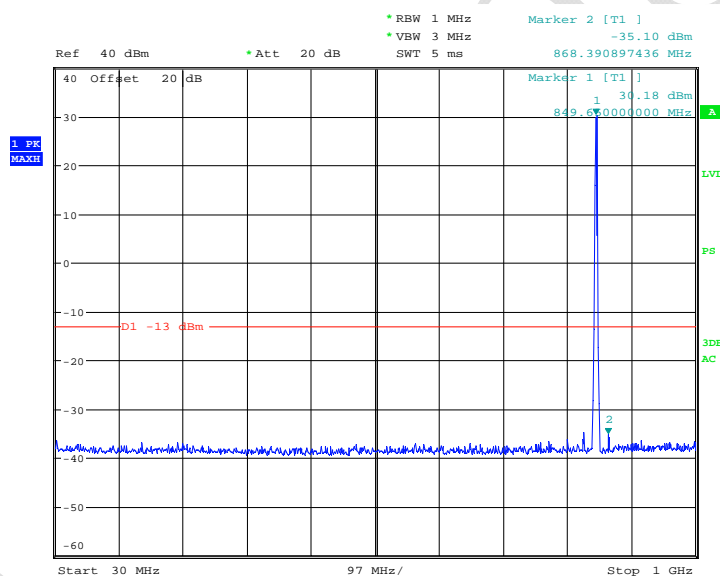
### 8PSK, Mid Channel, 836.6 MHz, 30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



Date: 6.MAR.2017 14:06:14

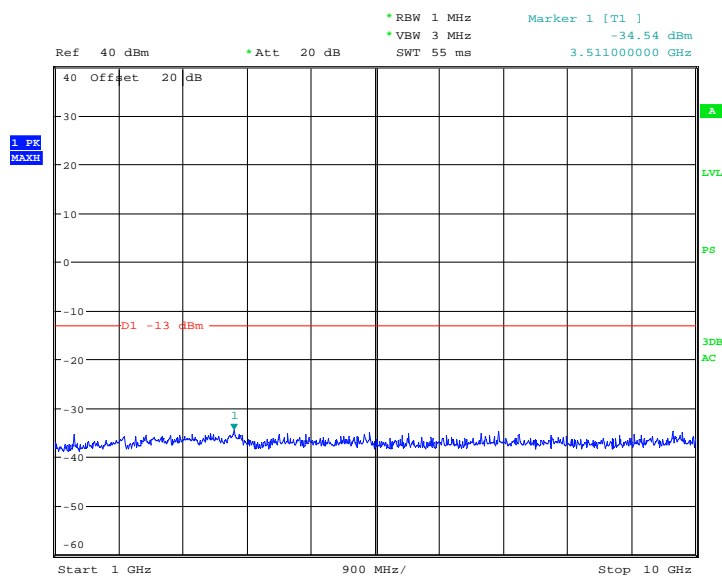
### 8PSK, Mid Channel, 836.6 MHz, 1GHz to 10GHz



Date: 6.MAR.2017 14:07:25

### 8PSK, High Channel, 848.8 MHz, 30MHz to 1GHz

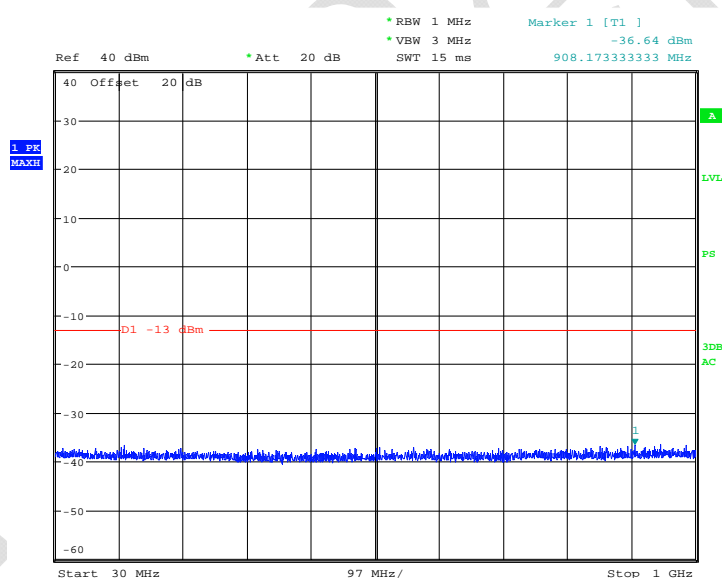
Note: The strong emission shown in each case is the carrier signal.



Date: 6.MAR.2017 14:07:48

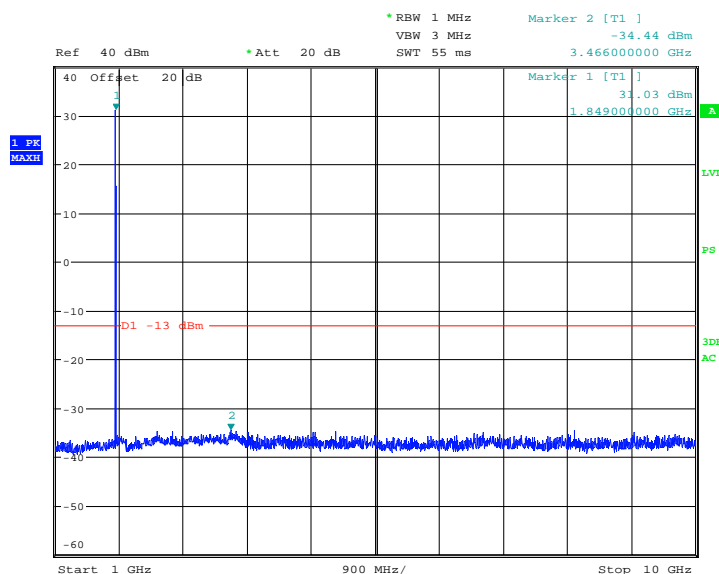
8PSK, High Channel, 848.8 MHz, 1GHz to 10GHz

### 5.3.2 PCS1900 Conducted Spurious Emission Results



Date: 6.MAR.2017 14:25:59

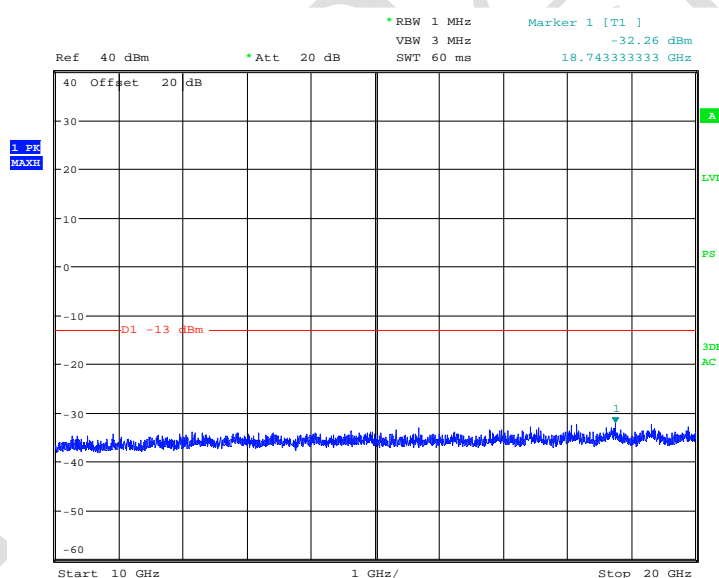
GMSK, Low channel, 1850.2 MHz, 30MHz to 1GHz



Date: 6.MAR.2017 14:29:45

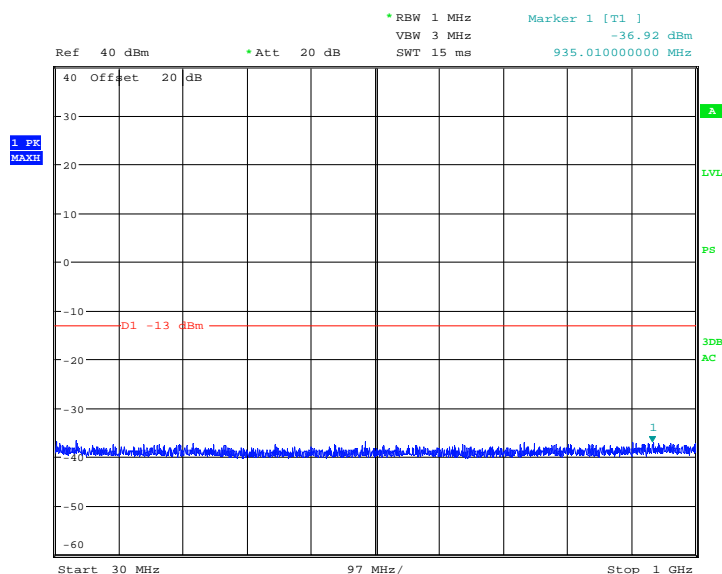
GMSK, Low channel, 1850.2 MHz, 1GHz to 10GHz

Note: The strong emission shown is the carrier signal.



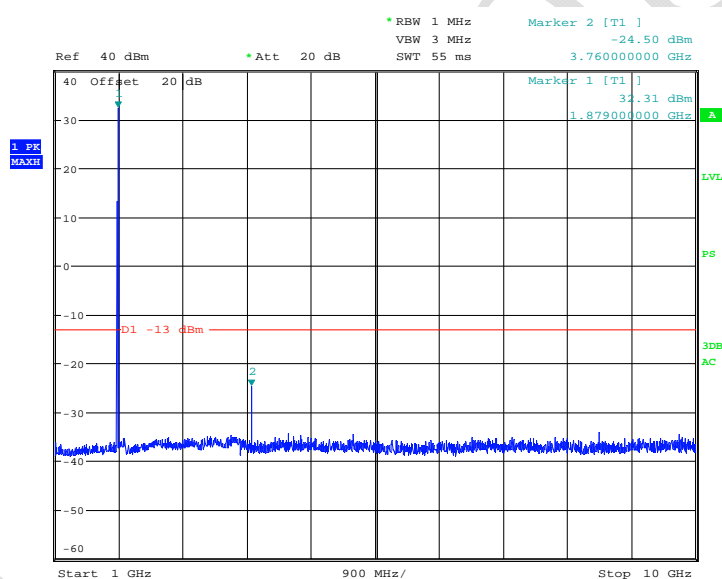
Date: 6.MAR.2017 14:30:10

GMSK, Low channel, 1850.2 MHz, 10GHz to 20GHz



Date: 6.MAR.2017 14:31:11

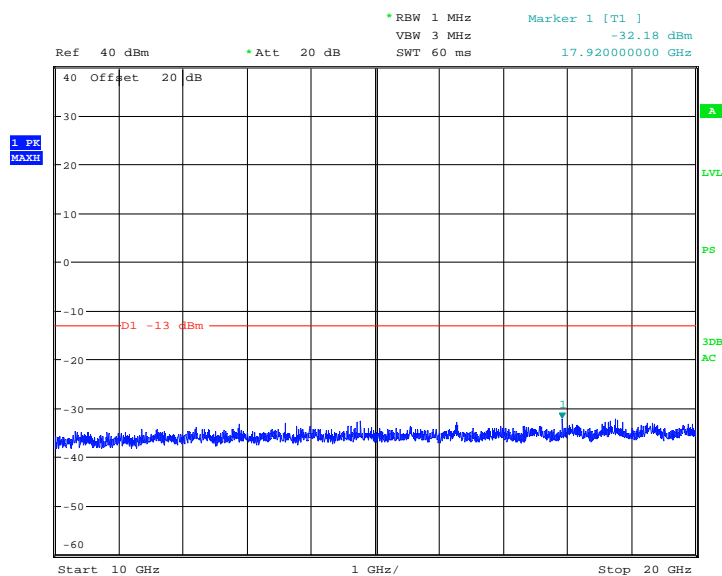
### GMSK, Middle channel, 1880.0 MHz, 30MHz to 1GHz



Date: 6.MAR.2017 14:33:14

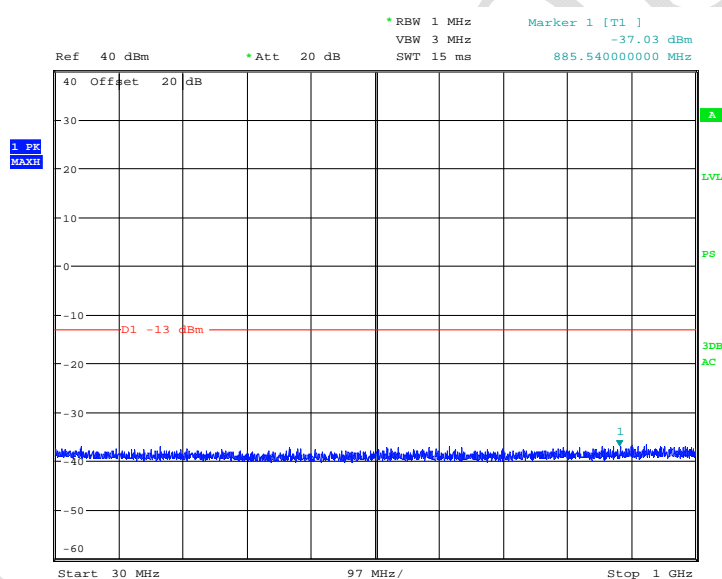
### GMSK, Middle channel, 1880.0 MHz, 1GHz to 10GHz

Note: The strong emission shown is the carrier signal.



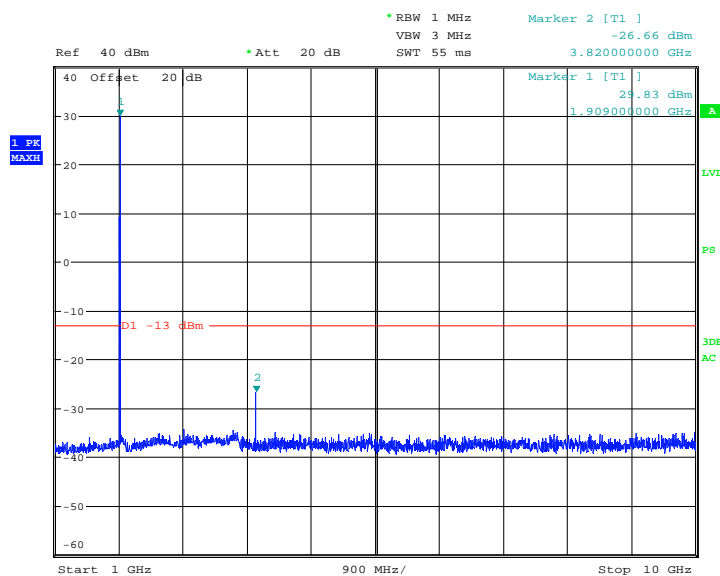
Date: 6.MAR.2017 14:33:39

### GMSK, Middle channel, 1880.0 MHz, 10GHz to 20GHz



Date: 6.MAR.2017 14:34:16

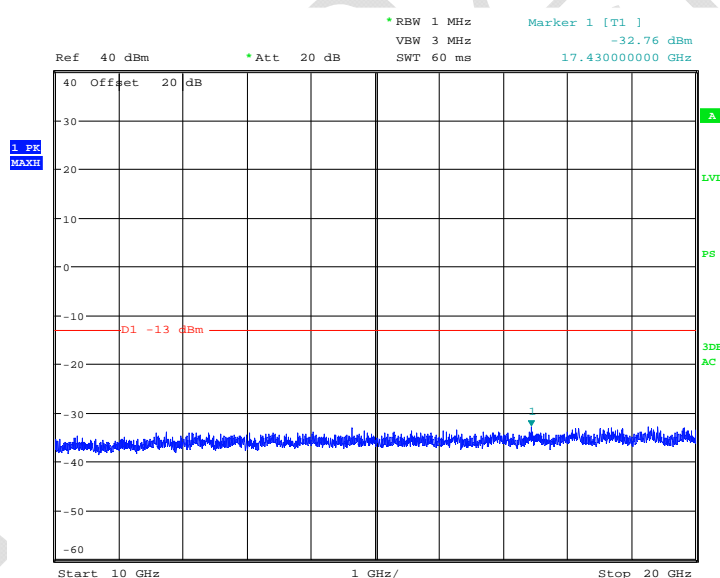
### GMSK, High channel, 1909.8 MHz, 30MHz to 1GHz



Date: 6.MAR.2017 14:34:57

GMSK, High channel, 1909.8 MHz, 1GHz to 10GHz

Note: The strong emission shown is the carrier signal.

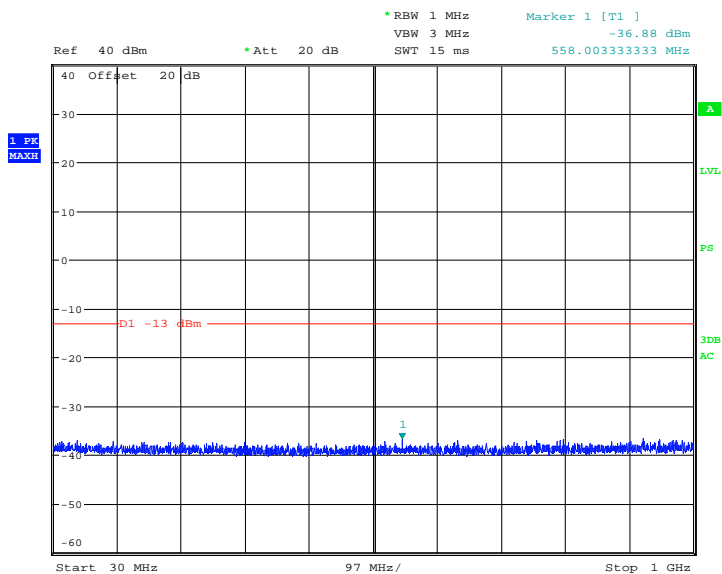


Date: 6.MAR.2017 14:35:16

GMSK, High channel, 1909.8 MHz, 10GHz to 20GHz

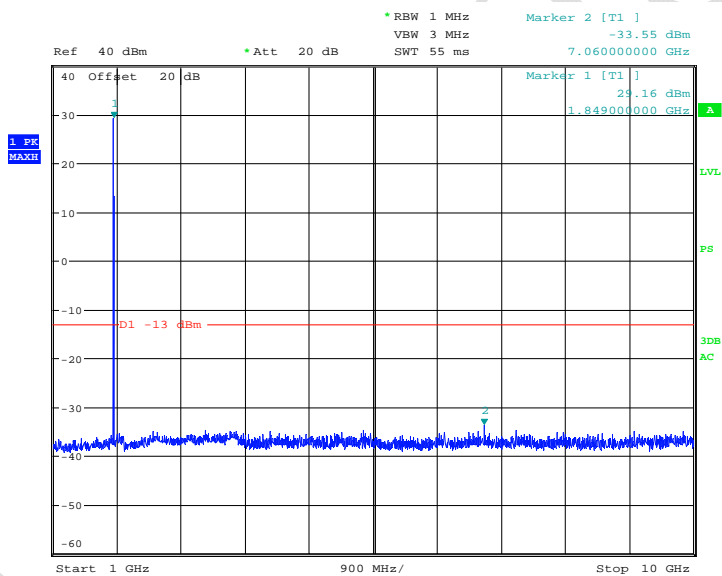


**Report No.: B17W00112-WWAN\_Rev3**



Date: 6.MAR.2017 14:36:49

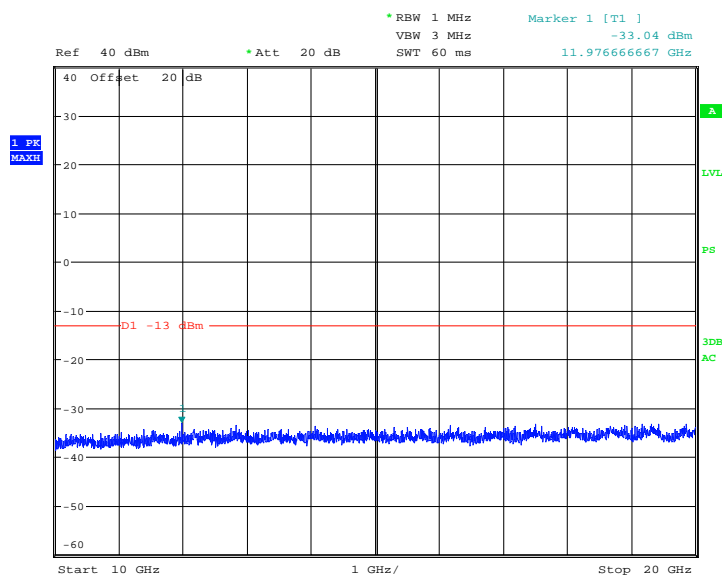
8PSK, Low channel, 1850.2 MHz, 30MHz to 1GHz



Date: 6.MAR.2017 14:37:25

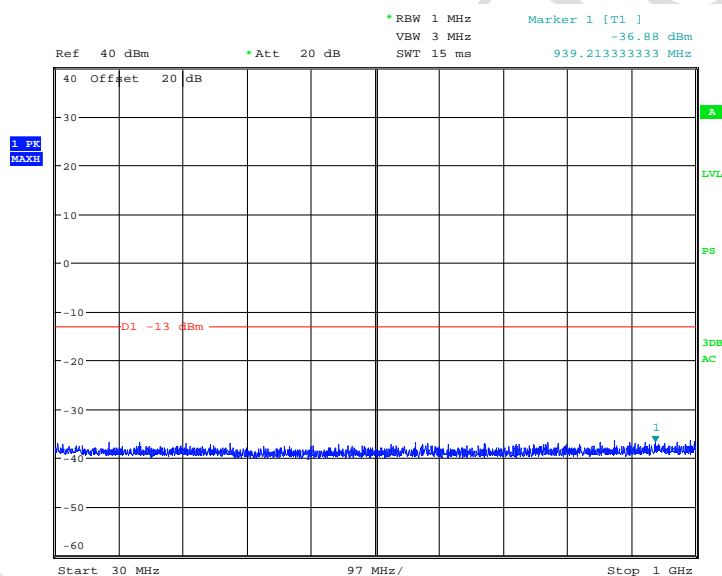
8PSK, Low channel, 1850.2 MHz, 1GHz to 10GHz

Note: The strong emission shown is the carrier signal.



Date: 6.MAR.2017 14:37:43

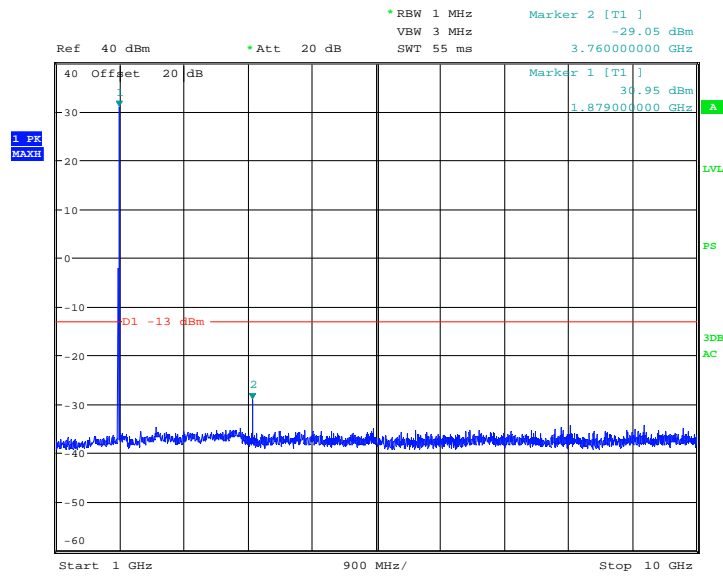
8PSK, Low channel, 1850.2 MHz, 10GHz to 20GHz



Date: 6.MAR.2017 14:38:28

8PSK, Middle channel, 1880.0 MHz, 30MHz to 1GHz

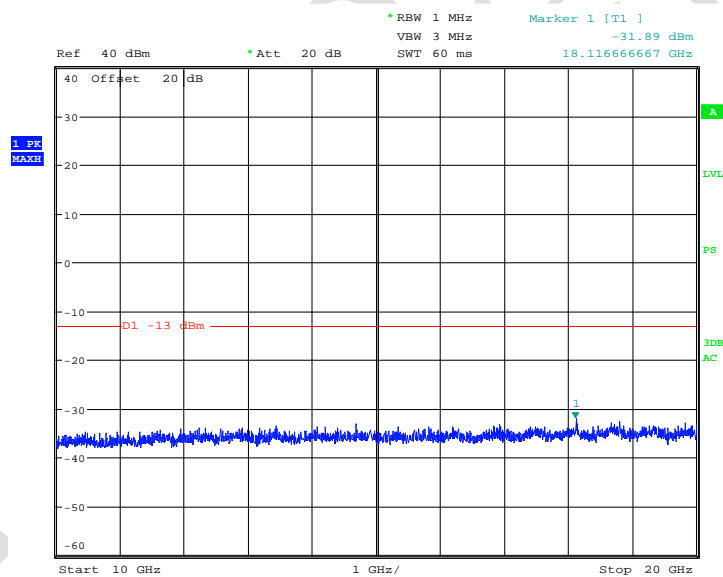
**Report No.: B17W00112-WWAN\_Rev3**



Date: 6.MAR.2017 14:38:52

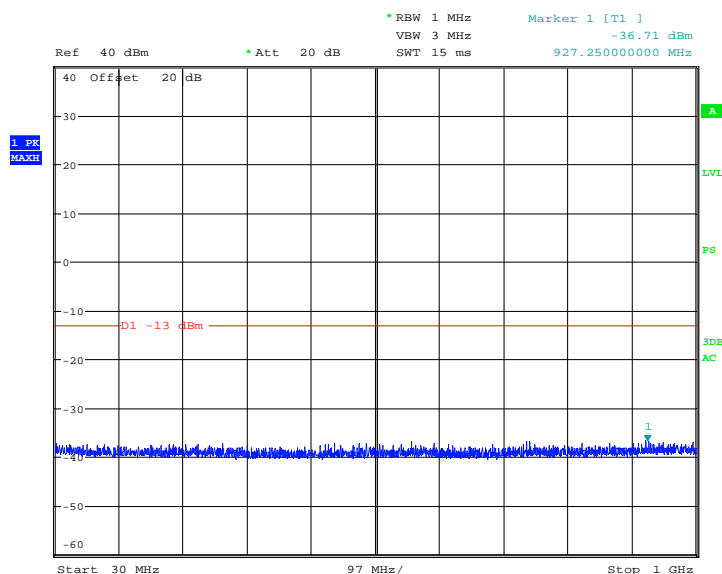
8PSK, Middle channel, 1880.0 MHz, 1GHz to 10GHz

Note: The strong emission shown is the carrier signal.



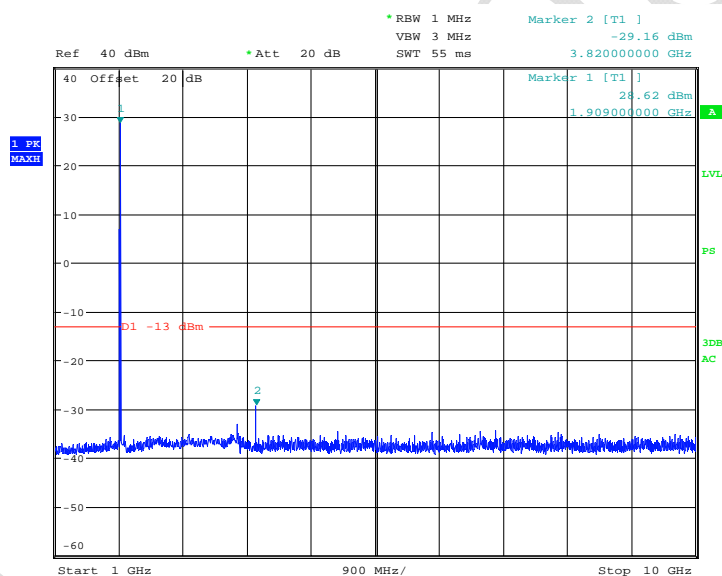
Date: 6.MAR.2017 14:39:17

8PSK, Middle channel, 1880.0 MHz, 10GHz to 20GHz



Date: 6.MAR.2017 14:39:41

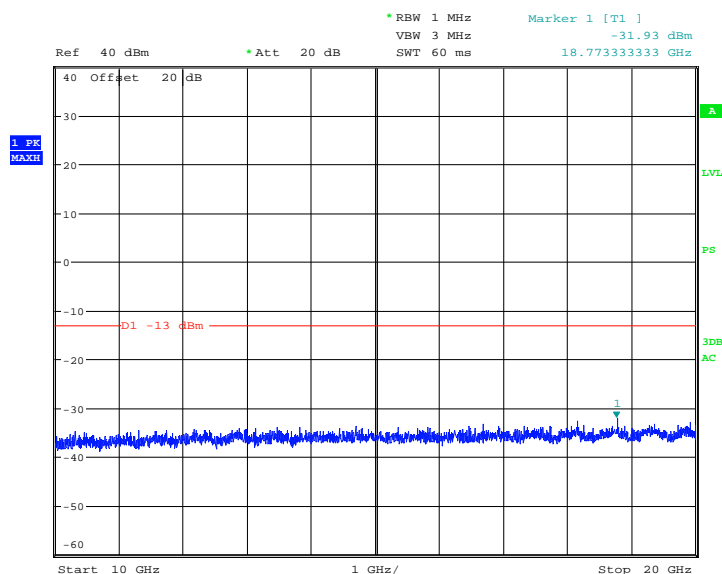
8PSK, High channel, 1909.8 MHz, 30MHz to 1GHz



Date: 6.MAR.2017 14:40:05

8PSK, High channel, 1909.8 MHz, 1GHz to 10GHz

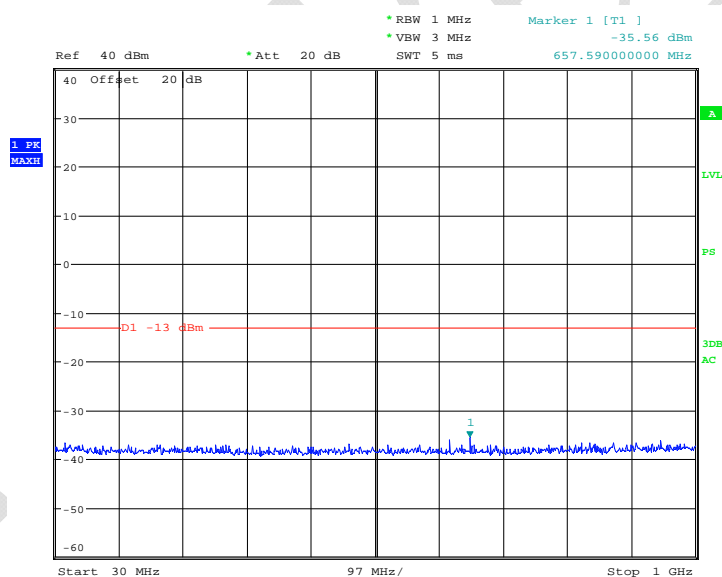
Note: The strong emission shown is the carrier signal



Date: 6.MAR.2017 14:40:20

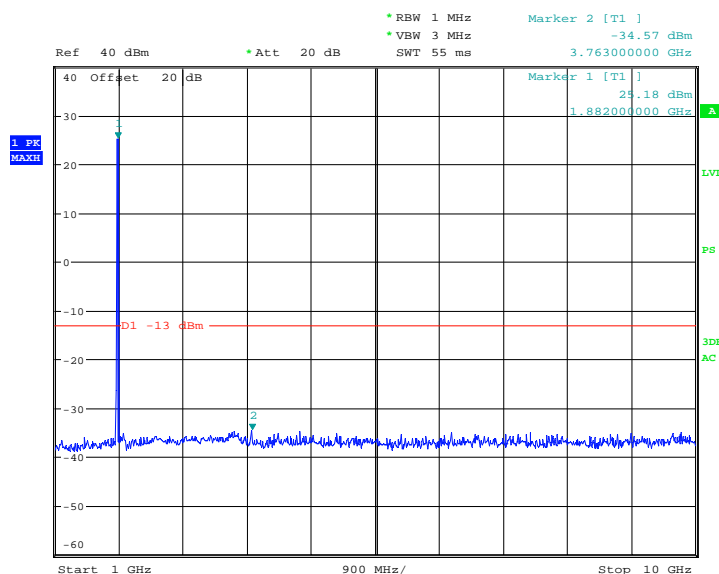
8PSK, High channel, 1909.8 MHz, 10GHz to 20GHz

### 5.3.3 WCDMA B2 Conducted Spurious Emission Results



Date: 6.MAR.2017 16:45:12

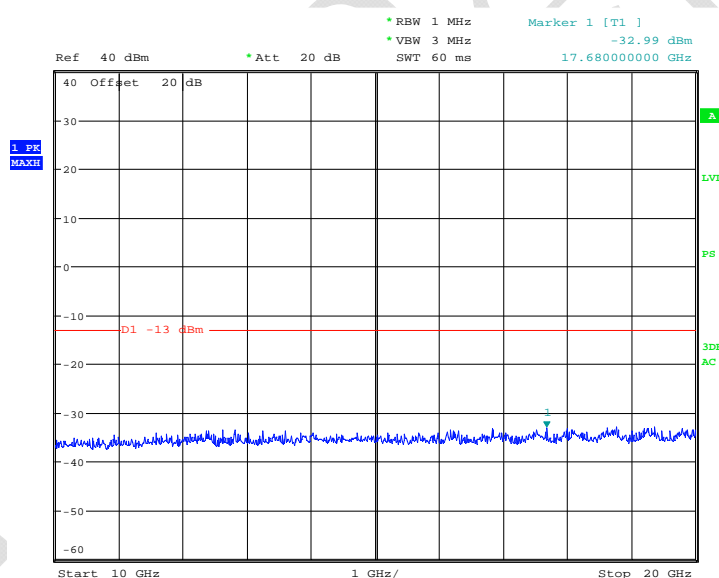
WCDMA Band 2 QPSK Mode Middle Channel, 1880 MHz, 30MHz to 1GHz



Date: 6.MAR.2017 16:45:59

WCDMA Band 2 QPSK Mode Middle Channel, 1880 MHz, 1GHz to 10GHz

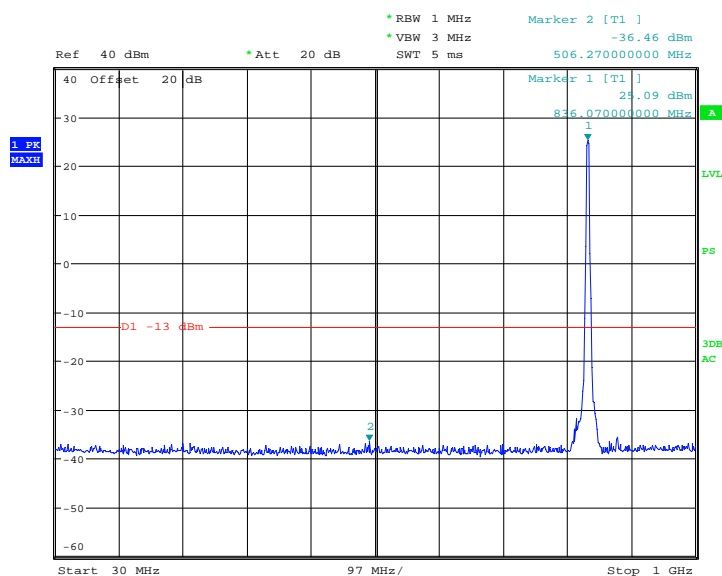
Note: The strong emission shown in each case is the carrier signal.



Date: 6.MAR.2017 16:46:24

WCDMA Band 2 QPSK Mode Middle Channel, 1880 MHz, 10GHz to 20GHz

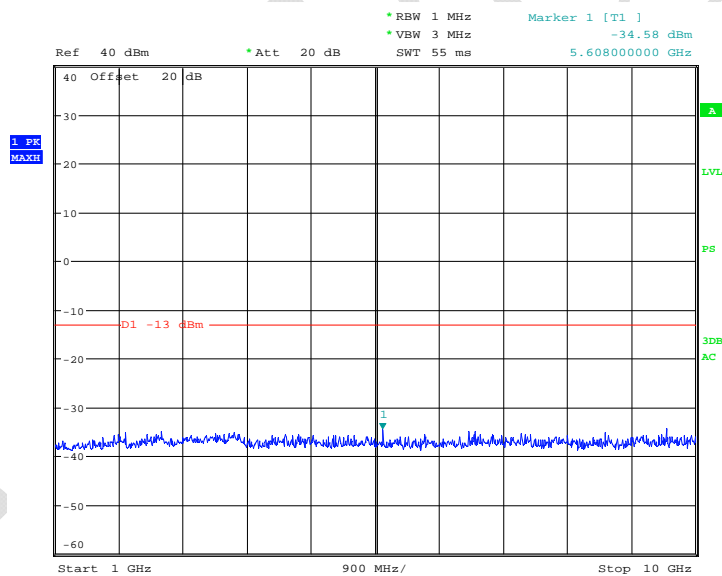
### 5.3.4 WCDMA B5 Conducted Spurious Emission Results



Date: 6.MAR.2017 16:49:50

WCDMA Band 5 QPSK Mode Middle Channel, 836.4 MHz, 30MHz to 1GHz

Note: The strong emission shown in each case is the carrier signal.



Date: 6.MAR.2017 16:50:27

WCDMA Band 5 QPSK Mode Middle Channel, 836.4 MHz, 1GHz to 10GHz