

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

For

**Nexpro International Limitada**

Guadalupe, Barrio Tournon, Frente Al Hotel Villas , Oficinas Del Bufete Facio Y  
Canas, , San Jose-Goicoechea , Costa Rica

**FCC ID: ZYPTREAT**

<b>Report Type:</b> Original Report	<b>Product Type:</b> LTE Mobile phone
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<b>Report Number:</b> RSZ150930003-00C	
<b>Report Date:</b> 2015-10-29	
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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *Nexpro International Limitada*'s product, model number: *Treat* (FCC ID: ZYPTREAT) (the "EUT") in this report was a *LTE Mobile phone*, which was measured approximately: 14.4 cm (L) x 7.15 cm (W) x 0.95 cm (H), rated input voltage: DC3.8V rechargeable Li-ion battery or DC5.0V charging from adapter.

Adapter information:

Model: sendtel

Input: AC100-240V, 50/60 Hz, 0.15A

Output: DC 5V, 1000mA

*All measurement and test data in this report was gathered from production sample serial number: 150930003 (Assigned byBACL, Dongguan). The EUT was received on 2015-10-08.*

### Objective

This report is prepared on behalf of *Nexpro International Limitada*. in accordance with: Part 2-Subpart J, Part 22-Subpart H, and Part 24-Subpart E of the Federal Communications Commission's rules. Part 2, Part 27 of the Federal Communication Commissions rules.

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

### Related Submittal(s)/Grant(s)

FCC Part 15B JBP submissions with FCC ID: ZYPTREAT  
FCC Part 15C DSS submissions with FCC ID: ZYPTREAT  
FCC Part 15C DTS submissions with FCC ID: ZYPTREAT

### Test Methodology

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

Part 22 Subpart H - Public Mobile Services  
Part 24 Subpart E - Personal Communication Services  
Part 27 – Miscellaneous wireless communications services

Applicable Standards: TIA/EIA 603-D-2010.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp.(Dongguan).

### **Test Facility**

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

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communications Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 06, 2015.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

F I N A L

## SYSTEM TEST CONFIGURATION

### Justification

The EUT was configured for testing according to TIA/EIA-603-D-2010.

The test items were performed with the EUT operating at testing mode.

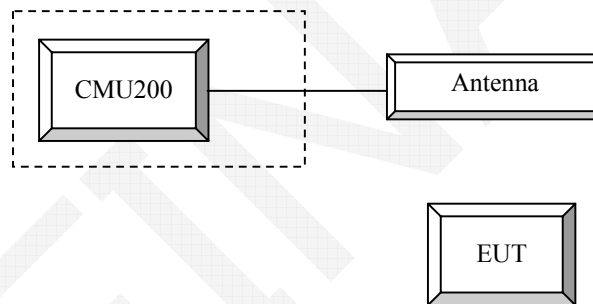
### Equipment Modifications

No modification was made to the EUT.

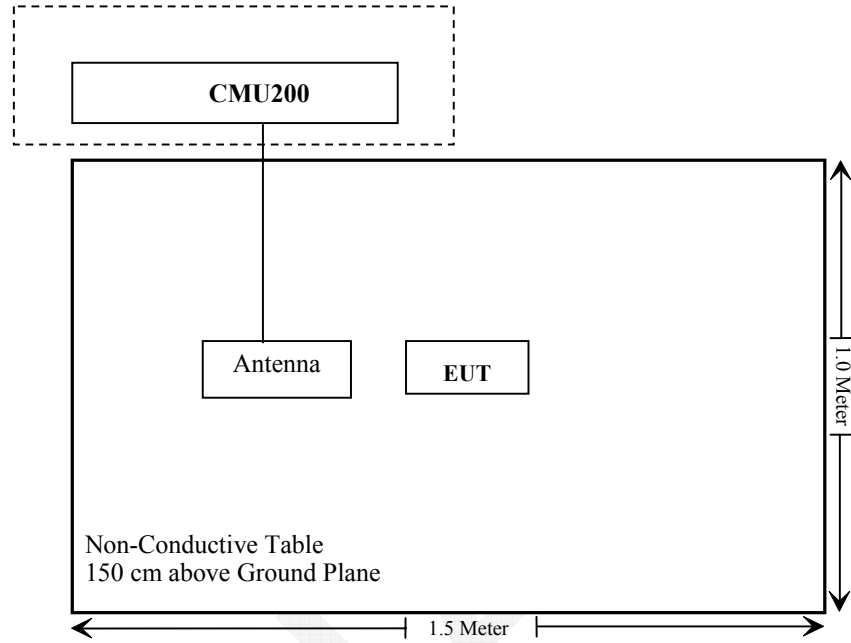
### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
R&S	Universal Radio Communication Tester	CMU200	109038
R&S	Wideband Radio Communication Tester	CMW500	106891

### Configuration of Test Setup



**Block Diagram of Test Setup**



**SUMMARY OF TEST RESULTS**

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Result</b>
§1.1310, §2.1093	RF Exposure	Compliance
§2.1046; § 22.913 (a); § 24.232 (c); §27.50	RF Output Power	Compliance
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905 § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliance
§ 2.1051, § 22.917 (a); § 24.238 (a); §27.53	Spurious Emissions at Antenna Terminal	Compliance
§ 2.1053 § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliance
§ 22.917 (a); § 24.238 (a); §27.53	Out of band emission, Band Edge	Compliance
§ 2.1055 § 22.355; § 24.235; §27.54	Frequency stability vs. temperature Frequency stability vs. voltage	Compliance



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## **FCC §1.1310 & §2.1093- RF EXPOSURE**

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### **Applicable Standard**

FCC§1.1310 and §2.1093.

### **Test Result**

Compliance, please refer to the SAR report: RSZ150930003-20.

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## **FCC §2.1047 - MODULATION CHARACTERISTIC**

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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.

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**FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50 - RF OUTPUT POWER****Applicable Standard**

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §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 §24.232 (d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

According to FCC §2.1046 and §27.50 (c), (10) 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 FCC §2.1046 and §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.

According to FCC §2.1046 and §27.50 (h), (2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

**Test Procedure****GSM/GPRS/EGPRS**

Function: Menu select > GSM Mobile Station > GSM 850/1900

Press Connection control to choose the different menus

Press RESET > choose all the reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM + GPRS or GSM + EGSM

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config Bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850

> 30 dBm for GPRS 1900

> 27 dBm for EGPRS 850

> 26 dBm for EGPRS 1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0 > 4 dB  
 Slot Config > Unchanged (if already set under MS signal)  
 TCH > choose desired test channel  
 Hopping > Off  
 Main Timeslot > 3  
 Network Coding Scheme > CS4 (GPRS) and MCS5 (EGPRS)

Bit Stream > 2E9-1 PSR Bit Stream  
 AF/RF Connection Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input  
 Press Signal on to turn on the signal and change settings

**WCDMA-Release 99**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification. The EUT has a nominal maximum output power of 24dBm (+1.7/-3.7).

<b>WCDMA General Settings</b>	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	<b>βc / βd</b>	8/15

**WCDMA HSDPA**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subset	1	2	3	4
<b>WCDMA General Settings</b>	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/ βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR(dB)	0	0	0.5	0.5
<b>HSDPA Specific Settings</b>	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs=βhs/ βc	30/15			

**WCDMA HSUPA**

The following tests were conducted according to the test requirements outlines in section 5.2 of the 3GPP TS34.121-1 specification.

	<b>Mode</b>	<b>HSUPA</b>	<b>HSUPA</b>	<b>HSUPA</b>	<b>HSUPA</b>	<b>HSUPA</b>
	<b>Subset</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>WCDMA General Settings</b>	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	$\beta_c$	11/15	6/15	15/15	2/15	15/15
	$\beta_d$	15/15	15/15	9/15	15/15	0
	$\beta_{ec}$	209/225	12/15	30/15	2/15	5/15
	$\beta_c/\beta_d$	11/15	6/15	15/9	2/15	-
	$\beta_{hs}$	22/15	12/15	30/15	4/15	5/15
CM(dB)	1.0	3.0	2.0	3.0	1.0	
MPR(dB)	0	2	1	2	0	
<b>HSDPA Specific Settings</b>	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback	4ms				
	CQI Repetition Factor	2				
	$A_{hs}=\beta_{hs}/\beta_c$	30/15				
<b>HSUPA Specific Settings</b>	DE-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_FCI	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27	E-TFCI 11 E-TFCI PO4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO23 E-TFCI 75 E-TFCI PO26 E-TFCI 81 E-TFCI PO 27		

**HSPA+**

The following tests were conducted according to the test requirements in Table C.11.1.4 of 3GPP TS 34.121-1

Sub-test	$\beta_c$ (Note3)	$\beta_d$	$\beta_{HS}$ (Note1)	$\beta_{ec}$	$\beta_{ed}$ (2xSF2) (Note 4)	$\beta_{ed}$ (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	$\beta_{ed1}$ : 30/15 $\beta_{ed2}$ : 30/15	$\beta_{ed3}$ : 24/15 $\beta_{ed4}$ : 24/15	3.5	2.5	14	105	105

- Note 1:  $\Delta_{ACK}, \Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .
- Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).
- Note 3: DPDCH is not configured, therefore the  $\beta_c$  is set to 1 and  $\beta_d = 0$  by default.
- Note 4:  $\beta_{ed}$  can not be set directly; it is set by Absolute Grant Value.
- Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.

**DC-HSDPA**

The following tests were conducted according to the test requirements in Table C.8.1.12 of 3GPP TS 34.121-1

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload ( $N_{INF}$ )	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
<p>Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.</p> <p>Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.</p>		

**LTE:**

The following tests were conducted according to the test requirements in 3GPP TS36.101

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

**Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3**

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	>5	>4	>8	>12	>16	>18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signalling Value of "NS\_01".

**Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)**

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks ( $N_{RB}$ )	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4, 10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23 <sup>1</sup>	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

*Radiated method:*

ANSI/TIA 603-D section 2.2.17

**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2015-08-03	2016-08-02
Sunol Sciences	Antenna	JB3	A060611-3	2014-11-06	2017-11-05
HP	Amplifier	8447E	2434A02181	2015-09-01	2016-09-01
R&S	Spectrum Analyzer	FSEM	DE31388	2015-05-09	2016-05-09
ETS LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2015-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2015-02-19	2016-02-19
Giga	Signal Generator	1026	320408	2015-05-09	2016-05-09
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
TDK RF	Horn Antenna	HRN-0118	130 084	2012-09-06	2015-09-06

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

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

<b>Temperature:</b>	26.5~27.3 °C
<b>Relative Humidity:</b>	47~52%
<b>ATM Pressure:</b>	100.8~101.1kPa

*The testing was performed by Dean Liu from 2015-10-14 to 2015-10-28.*



**Conducted Power**

**Cellular Band (Part 22H) & PCS Band (Part 24E)**

Band	Channel No.	Peak Output Power (dBm)								
		GSM	GPRS 1 TX Slot	GPRS 2 TX Slot	GPRS 3 TX Slot	GPRS 4 TX Slot	EDGE 1 TX Slot	EDGE 2 TX Slot	EDGE 3 TX Slot	EDGE 4 TX Slot
Cellular	128	32.76	32.67	32.14	30.37	29.23	26.89	24.86	22.95	22.04
	190	32.69	32.55	32.00	30.35	29.33	26.90	25.11	22.97	21.76
	251	32.42	32.43	31.98	30.26	29.20	26.83	25.20	22.81	21.87
PCS	512	28.45	28.34	27.47	25.78	24.57	25.49	23.83	21.81	20.91
	661	28.29	28.28	27.54	25.74	24.70	25.48	24.10	22.31	20.74
	810	28.39	28.32	27.72	25.85	24.82	25.32	23.91	22.08	21.07

**WCDMA Band (PART 24E)**

Mode	3GPP Sub Test	Average Output Power (dBm)					
		Low Channel (Ave. Power)	Low Channel (PAR)	Middle Channel (Ave. Power)	Middle Channel (PAR)	High Channel (Ave. Power)	High Channel (PAR)
Rel 99	1	22.44	2.84	22.82	2.60	22.96	2.40
HSDPA	1	21.77	3.17	22.02	2.53	22.14	2.49
	2	21.67	3.08	22.19	2.92	22.11	2.42
	3	21.73	2.75	22.10	2.79	22.20	2.72
	4	21.69	2.94	22.17	2.81	22.25	2.58
HSPA	1	21.69	2.92	22.06	2.85	22.19	2.50
	2	21.79	2.89	22.01	2.53	22.33	2.73
	3	21.76	2.97	21.96	2.79	22.15	2.69
	4	21.74	3.00	22.10	2.63	22.25	2.66
	5	21.70	2.80	22.09	2.67	22.30	2.57
DC-HSDPA	1	21.21	2.84	21.6	2.58	21.62	2.45
	2	21.17	2.76	21.49	2.55	21.71	2.44
	3	21.13	2.90	21.66	2.84	21.62	2.35
	4	21.23	3.09	21.58	2.81	21.67	2.26
HSPA+	1	21.12	2.77	21.55	2.93	21.77	2.50

**WCDMA Band IV (PART 27)**

Mode	3GPP Sub Test	Average Output Power (dBm)					
		Low Channel (Ave. Power)	Low Channel (PAR)	Middle Channel (Ave. Power)	Middle Channel (PAR)	High Channel (Ave. Power)	High Channel (PAR)
Rel 99	1	22.51	2.60	22.67	2.92	22.84	2.76
HSDPA	1	21.58	2.80	21.86	3.25	22.02	2.94
	2	21.49	2.73	22.08	3.39	21.92	2.87
	3	21.57	2.72	21.99	3.19	22.03	3.00
	4	21.49	2.87	22.01	3.19	22.07	3.04
HSUPA	1	21.51	2.74	21.87	3.14	22.08	2.89
	2	21.67	2.81	21.84	3.37	22.19	3.05
	3	21.60	2.69	21.80	3.32	22.04	2.96
	4	21.59	2.58	21.98	3.31	22.08	2.93
	5	21.50	2.63	21.94	3.12	22.14	3.05
DC-HSDPA	1	21.1	2.83	21.45	3.37	21.52	2.75
	2	20.97	2.64	21.33	3.42	21.55	2.80
	3	21.02	2.70	21.53	3.46	21.48	2.86
	4	21.08	2.91	21.44	3.30	21.50	2.87
HSPA+	1	20.97	2.76	21.37	3.09	21.62	3.08

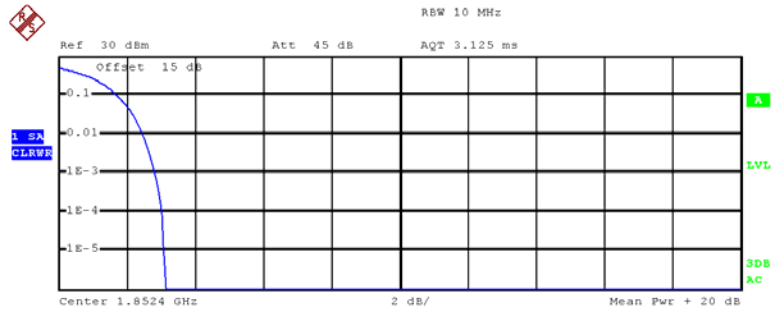
**WCDMA Band V (PART 22H)**

Mode	3GPP Sub Test	Average Output Power (dBm)					
		Low Channel (Ave. Power)	Low Channel (PAR)	Middle Channel (Ave. Power)	Middle Channel (PAR)	High Channel (Ave. Power)	High Channel (PAR)
Rel 99	1	22.72	2.76	22.17	2.92	22.61	2.76
HSDPA	1	21.84	3.06	21.24	3.17	21.7	2.67
	2	22.03	3.08	21.34	2.90	21.81	2.84
	3	21.69	3.18	21.11	3.07	21.83	2.83
	4	21.94	2.79	20.95	3.06	21.75	2.91
DC-HSDPA	1	21.73	2.99	21.20	3.14	21.57	2.95
	2	21.90	3.00	20.96	2.95	21.71	3.07
	3	21.69	2.75	21.04	2.93	21.90	3.09
	4	21.77	3.01	20.98	3.07	21.61	2.73
	5	21.77	2.89	21.35	3.09	21.84	2.94
HSUPA	1	21.27	3.16	20.69	3.3	21.15	3.15
	2	21.26	3.14	20.75	2.89	21.20	3.00
	3	21.18	2.71	20.82	3.21	21.36	2.69
	4	21.25	2.78	20.76	3.01	21.23	3.00
HSPA+	1	21.20	2.93	20.75	3.07	21.37	3.01

Note: peak-to-average ratio (PAR) <13 dB.

Peak-to-average ratio (PAR)  
**WCDMA Band (PART 24E)**

**Low Channel**



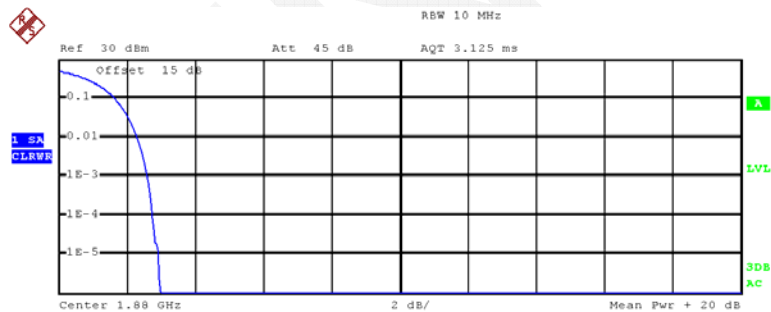
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	28.27 dBm
Peak	31.41 dBm
Crest	3.15 dB
10 %	1.72 dB
1 %	2.48 dB
.1 %	2.84 dB
.01 %	3.04 dB

Date: 15.OCT.2015 20:36:44

**Middle Channel**



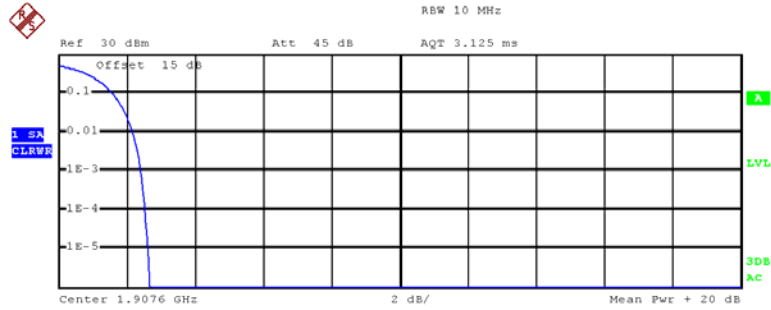
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	28.10 dBm
Peak	31.06 dBm
Crest	2.96 dB
10 %	1.68 dB
1 %	2.32 dB
.1 %	2.60 dB
.01 %	2.76 dB

Date: 15.OCT.2015 20:37:25

### High Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean    27.95 dBm  
 Peak    30.64 dBm  
 Crest    2.68 dB

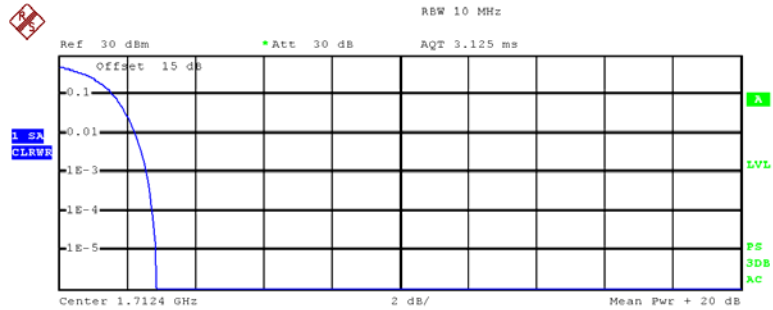
10 %	1.60 dB
1 %	2.20 dB
.1 %	2.40 dB
.01 %	2.56 dB

Date: 15.OCT.2015 20:38:08



WCDMA Band IV (PART 27)

Low Channel



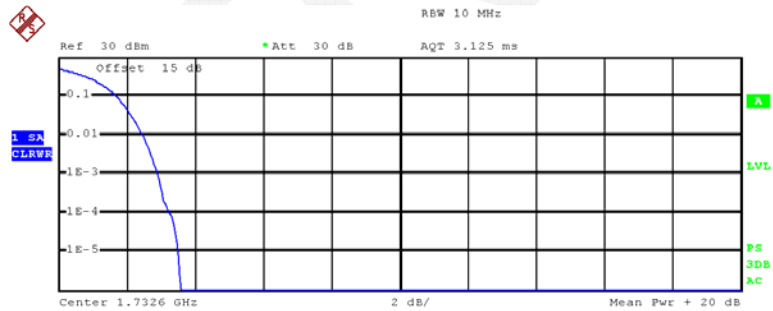
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	21.15 dBm
Peak	24.01 dBm
Crest	2.87 dB
10 %	1.60 dB
1 %	2.24 dB
.1 %	2.60 dB
.01 %	2.76 dB

Date: 28.OCT.2015 20:15:08

Middle Channel



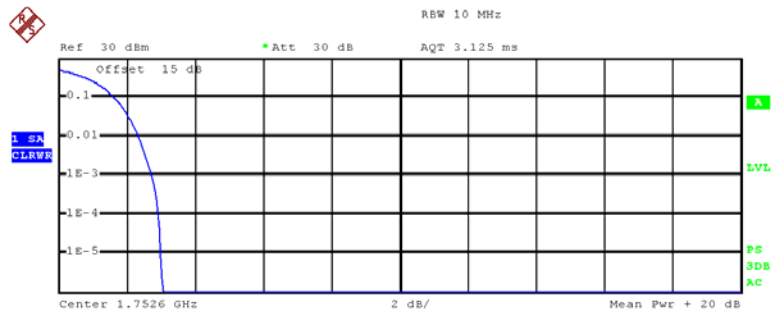
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	19.67 dBm
Peak	23.24 dBm
Crest	3.57 dB
10 %	1.72 dB
1 %	2.48 dB
.1 %	2.92 dB
.01 %	3.28 dB

Date: 28.OCT.2015 20:14:33

### High Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

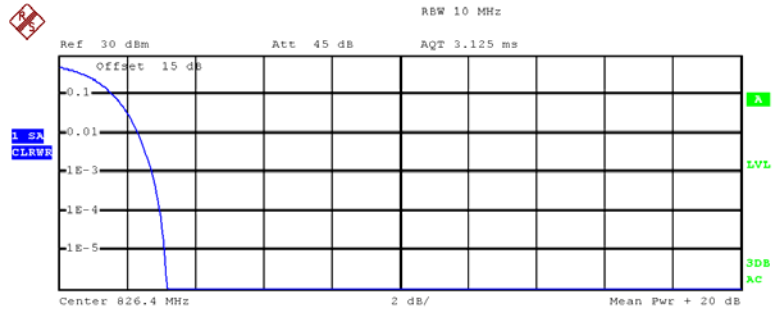
Mean	19.34 dBm
Peak	22.39 dBm
Crest	3.05 dB
10 %	1.64 dB
1 %	2.36 dB
.1 %	2.76 dB
.01 %	2.92 dB

Date: 28.OCT.2015 20:15:46



WCDMA Band V (PART 22H)

Low Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 29.72 dBm  
 Peak 32.89 dBm  
 Crest 3.17 dB

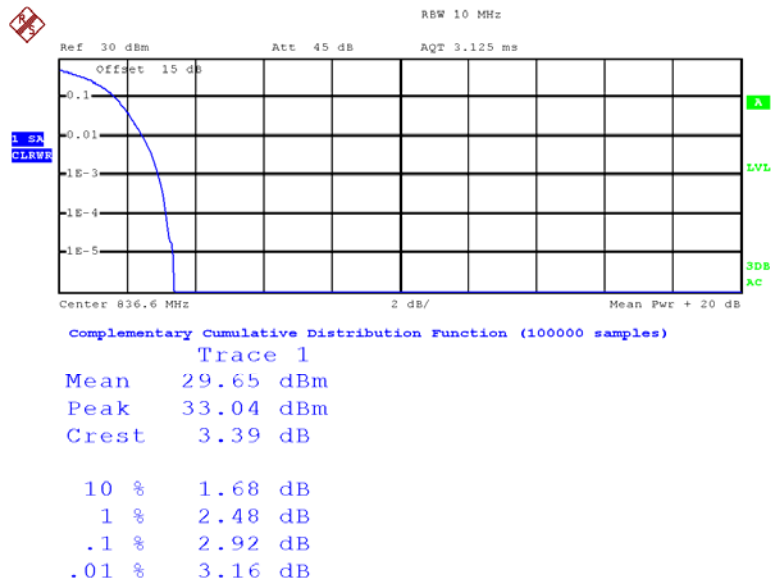
10 %	1.60 dB
1 %	2.36 dB
.1 %	2.76 dB
.01 %	3.00 dB

Date: 15.OCT.2015 20:40:14



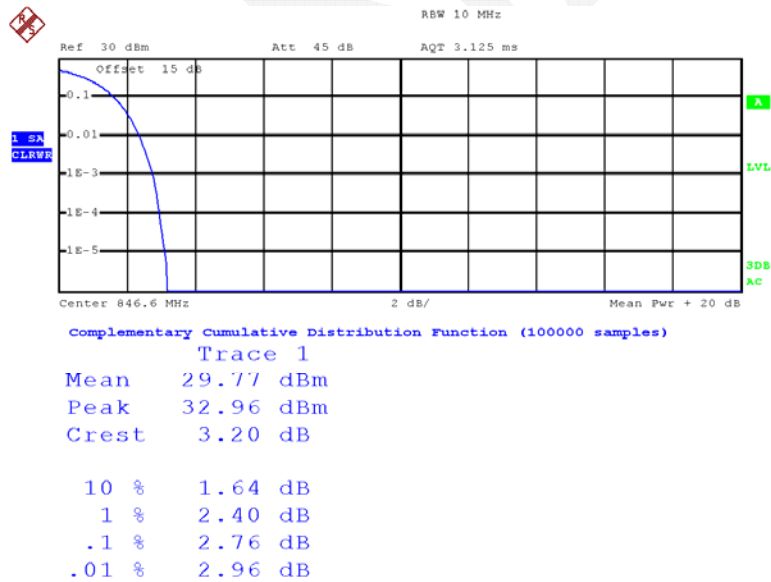


### Middle Channel



Date: 15.OCT.2015 20:40:45

### High Channel



Date: 15.OCT.2015 20:42:09

LTE Band II

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	22.66	22.74	22.54
		1#3	22.76	22.73	22.55
		1#5	22.78	22.73	22.48
		3#0	22.29	22.74	21.87
		3#1	22.16	22.63	21.94
		3#3	21.99	22.66	21.94
		6#0	21.32	21.61	21.28
	16-QAM	1#0	22.33	22.47	22.02
		1#3	22.55	22.32	21.89
		1#5	22.42	22.47	21.76
		3#0	21.82	22.51	21.43
		3#1	21.57	22.50	21.69
		3#3	21.80	22.42	21.65
		6#0	21.02	20.69	21.07
3M	QPSK	1#0	22.48	22.27	22.55
		1#7	22.44	22.48	22.21
		1#14	22.35	22.44	22.05
		8#0	22.05	22.02	21.93
		8#4	21.96	22.04	21.91
		8#7	21.85	21.83	21.77
		15#0	21.03	21.07	20.99
	16-QAM	1#0	22.39	21.95	21.90
		1#7	22.43	21.86	21.71
		1#14	22.42	21.79	21.86
		8#0	21.64	21.47	21.46
		8#4	21.94	21.25	21.45
		8#7	21.67	21.61	21.62
		15#0	20.89	20.88	20.70
5M	QPSK	1#0	22.91	22.22	22.59
		1#12	22.70	22.08	22.09
		1#24	22.48	20.09	22.22
		12#0	21.56	21.56	21.55
		12#6	21.87	21.37	21.80
		12#11	21.55	21.34	21.56
		25#0	20.93	20.92	20.85
	16-QAM	1#0	21.78	21.47	21.84
		1#12	21.85	21.33	21.75
		1#24	21.19	21.20	21.85
		12#0	21.57	21.31	21.11
		12#6	21.41	21.49	21.19
		12#11	21.40	20.97	21.12
		25#0	20.69	20.68	20.53

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	1#0	22.49	22.14	22.14
		1#24	22.77	22.00	22.10
		1#49	22.33	22.13	22.26
		25#0	21.85	21.54	21.47
		25#12	22.03	21.56	21.68
		25#24	21.86	21.48	21.68
	16-QAM	50#0	21.39	20.90	20.88
		1#0	22.31	21.99	21.76
		1#24	22.15	21.92	21.84
		1#49	21.11	21.67	21.67
		25#0	21.67	21.47	21.06
		25#12	21.49	21.55	21.17
15M	QPSK	25#24	20.58	20.70	21.09
		50#0	20.55	20.37	20.18
		1#0	22.29	22.33	22.38
		1#37	22.26	22.40	22.37
		1#74	22.13	22.31	22.59
		36#0	21.80	21.82	21.83
	16-QAM	36#17	21.73	21.94	21.83
		36#35	21.51	21.95	22.05
		75#0	21.52	20.80	20.86
		1#0	22.14	21.67	21.83
		1#37	22.14	21.41	21.58
		1#74	22.03	21.36	21.73
20M	QPSK	36#0	21.43	20.44	20.81
		36#17	21.58	20.86	21.00
		36#35	21.48	20.70	20.91
		75#0	20.70	20.21	20.04
		1#0	22.26	21.87	22.08
		1#49	22.39	22.04	22.41
	16-QAM	1#99	22.34	22.25	23.23
		50#0	21.65	21.25	21.86
		50#24	21.49	21.38	22.00
		50#49	22.70	21.63	21.69
		100#0	21.49	20.82	20.87
		1#0	21.90	21.77	21.92
16-QAM	1#49	22.10	21.59	21.78	
	1#99	21.94	21.60	21.98	
	50#0	21.32	20.91	21.01	
	50#24	21.25	21.13	21.10	
	50#49	21.20	21.06	20.96	
	100#0	20.28	20.47	20.45	

LTE Band IV

Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
1.4M	QPSK	1#0	23.02	22.86	22.78
		1#3	22.98	22.88	22.77
		1#5	22.75	22.92	22.64
		3#0	22.22	21.99	22.22
		3#1	22.31	22.28	21.76
		3#3	22.14	22.20	22.02
		6#0	21.65	21.72	21.52
	16-QAM	1#0	22.25	22.31	22.24
		1#3	22.29	22.20	21.90
		1#5	22.12	22.47	21.96
		3#0	21.54	21.28	21.32
		3#1	21.10	21.15	21.06
		3#3	21.23	21.42	21.05
		6#0	21.69	20.59	20.54
3M	QPSK	1#0	22.78	22.90	22.52
		1#7	22.68	22.68	22.50
		1#14	22.64	22.85	22.69
		8#0	22.64	22.31	21.72
		8#4	22.45	22.22	22.03
		8#7	22.34	22.23	21.88
		15#0	21.69	21.87	21.30
	16-QAM	1#0	22.27	22.11	22.11
		1#7	21.94	22.31	22.27
		1#14	22.13	22.32	22.04
		8#0	21.31	21.48	20.96
		8#4	21.35	21.16	20.89
		8#7	21.36	21.22	20.90
		15#0	20.48	20.72	20.36
5M	QPSK	1#0	22.88	22.76	22.59
		1#12	22.91	22.57	22.41
		1#24	22.81	22.60	22.70
		12#0	22.15	22.28	21.86
		12#6	22.40	22.02	22.02
		12#11	22.15	22.10	21.82
		25#0	21.64	21.57	21.27
	16-QAM	1#0	22.21	22.17	21.95
		1#12	22.40	22.12	22.04
		1#24	22.37	22.59	21.88
		12#0	21.37	21.30	20.89
		12#6	21.03	21.47	21.02
		12#11	21.17	21.55	20.81
		25#0	20.64	20.80	20.56

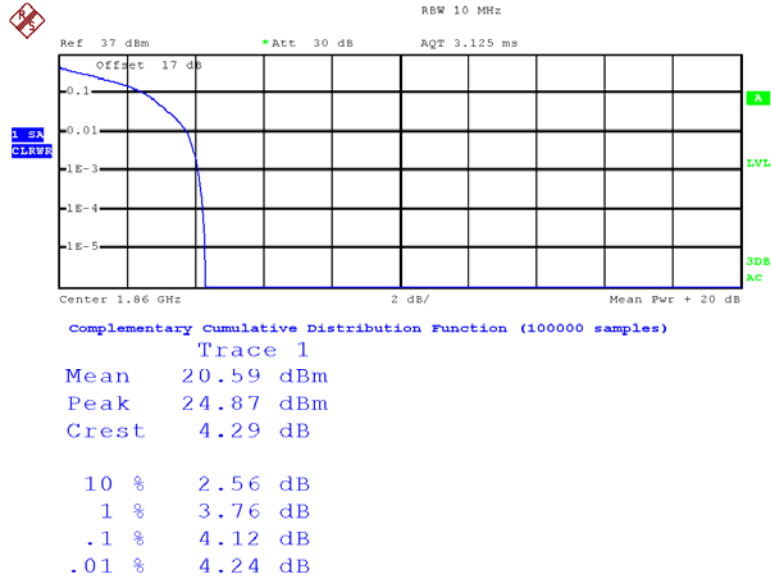
Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
10M	QPSK	1#0	22.78	22.51	21.99
		1#24	22.81	22.90	22.19
		1#49	22.79	22.62	21.90
		25#0	22.02	22.27	21.56
		25#12	22.28	22.39	21.70
		25#24	22.05	22.38	21.66
		50#0	21.61	21.56	21.10
	16-QAM	1#0	22.43	22.05	21.94
		1#24	22.23	21.93	21.75
		1#49	22.18	22.10	21.93
		25#0	21.38	21.66	21.17
		25#12	21.61	21.63	21.27
		25#24	21.59	21.78	21.41
		50#0	20.26	20.70	20.51
15M	QPSK	1#0	23.05	23.13	22.18
		1#37	23.08	23.15	22.34
		1#74	23.11	23.03	22.53
		36#0	22.18	22.29	21.30
		36#17	22.38	22.12	21.19
		36#35	22.49	22.19	21.41
		75#0	21.72	21.61	20.89
	16-QAM	1#0	22.24	21.88	22.06
		1#37	22.36	22.20	21.86
		1#74	22.18	21.83	21.62
		36#0	21.27	21.44	21.33
		36#17	21.20	21.45	21.13
		36#35	21.12	21.52	21.12
		75#0	20.24	20.85	20.55
20M	QPSK	1#0	22.67	22.92	22.22
		1#49	22.82	22.98	22.19
		1#99	22.93	22.95	22.32
		50#0	22.52	22.29	21.49
		50#24	22.19	21.86	21.66
		50#49	22.20	21.52	21.70
		100#0	21.61	20.74	20.80
	16-QAM	1#0	22.29	21.82	21.70
		1#49	22.25	22.08	21.83
		1#99	22.03	21.94	22.06
		50#0	21.40	21.21	20.86
		50#24	21.22	21.08	20.80
		50#49	21.33	21.12	21.20
		100#0	20.60	20.89	20.12

Peak-to-average ratio (PAR)

LTE Band	Test Modulation		Test Bandwidth	Low Channel (dB)	Middle Channel (dB)	High Channel (dB)	Limit (dB)
Band 2	QPSK	1 RB	20M	4.12	4.12	4.16	13
		Full RB		6.40	6.24	6.44	13
	16-QAM	1 RB		5.16	4.80	5.12	13
		Full RB		7.12	7.12	7.24	13
Band 4	QPSK	1 RB	20M	4.92	5.32	3.88	13
		Full RB		6.24	6.32	6.28	13
	16-QAM	1 RB		5.56	6.44	4.68	13
		Full RB		7.00	7.16	6.92	13

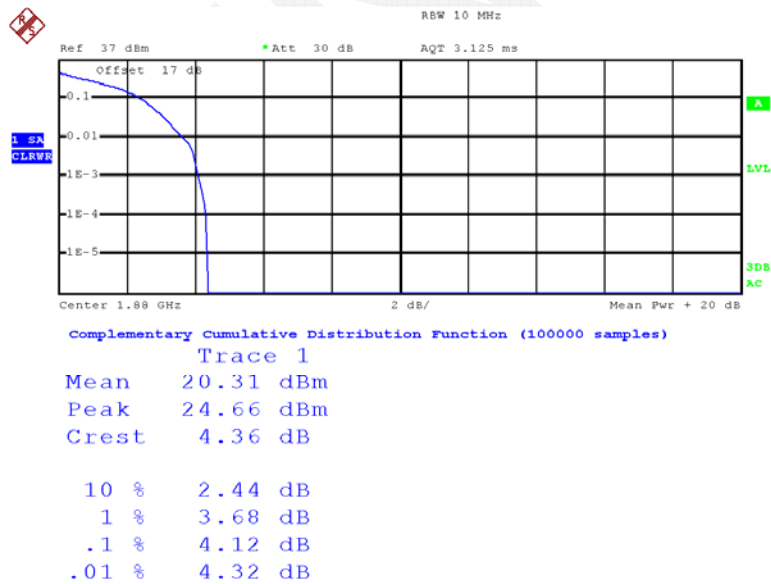
**LTE Band 2**

**QPSK-1RB, 20M Low Channel**



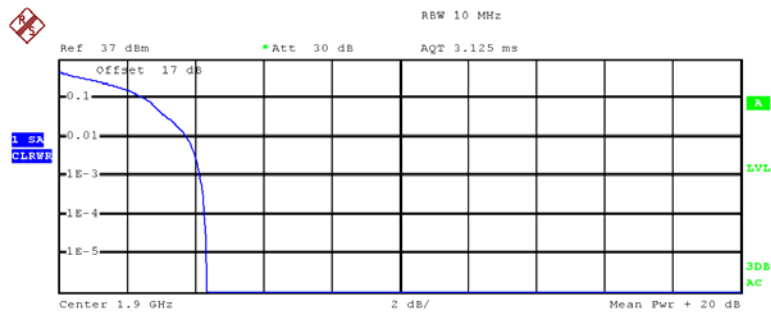
Date: 14.OCT.2015 22:05:07

**QPSK-1RB, 20M Middle Channel**



Date: 14.OCT.2015 22:03:12

**QPSK-1RB, 20M High Channel**



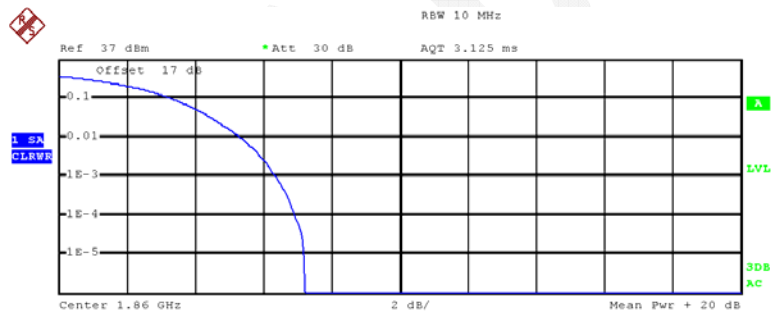
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	19.89 dBm
Peak	24.24 dBm
Crest	4.35 dB
10 %	2.56 dB
1 %	3.76 dB
.1 %	4.16 dB
.01 %	4.28 dB

Date: 14.OCT.2015 22:07:04

**QPSK- Full RB, 20M Low Channel**



Complementary Cumulative Distribution Function (100000 samples)

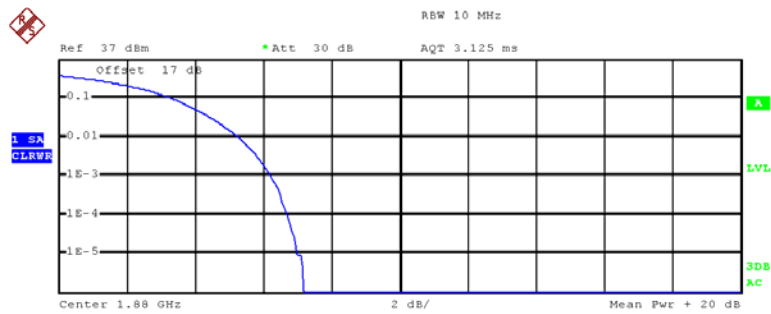
Trace 1

Mean	16.47 dBm
Peak	23.68 dBm
Crest	7.21 dB
10 %	3.40 dB
1 %	5.36 dB
.1 %	6.40 dB
.01 %	6.96 dB

Date: 14.OCT.2015 22:11:40



**QPSK- Full RB, 20M Middle Channel**



Complementary Cumulative Distribution Function (100000 samples)

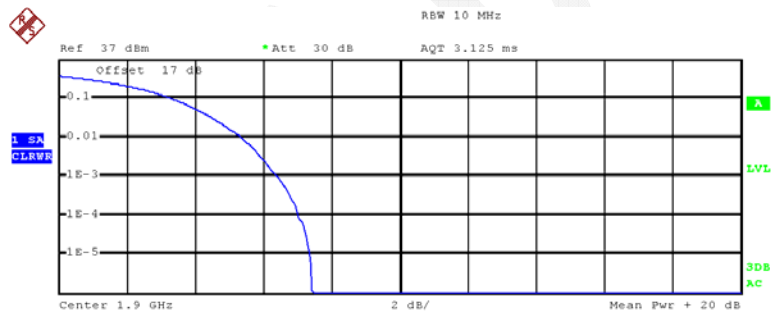
Trace 1

Mean 16.21 dBm  
 Peak 23.39 dBm  
 Crest 7.18 dB

10 % 3.40 dB  
 1 % 5.32 dB  
 .1 % 6.24 dB  
 .01 % 6.72 dB

Date: 14.OCT.2015 22:09:56

**QPSK- Full RB, 20M High Channel**



Complementary Cumulative Distribution Function (100000 samples)

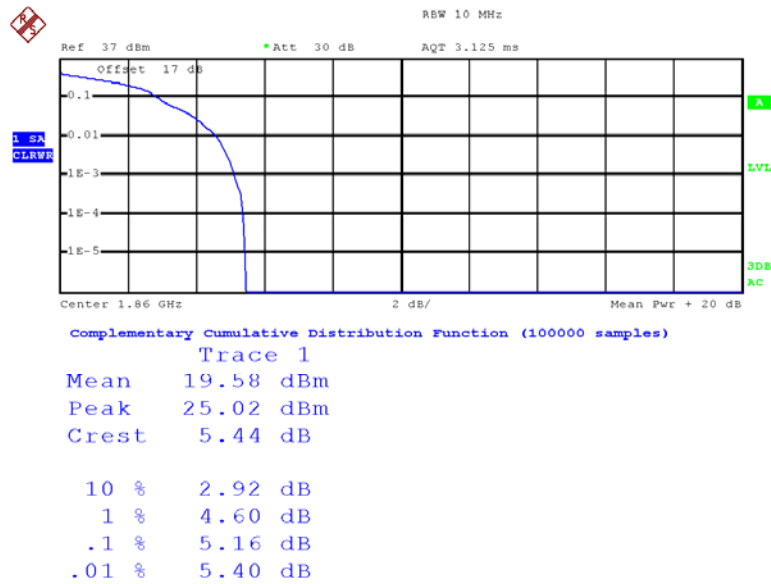
Trace 1

Mean 15.89 dBm  
 Peak 23.32 dBm  
 Crest 7.43 dB

10 % 3.40 dB  
 1 % 5.40 dB  
 .1 % 6.44 dB  
 .01 % 7.04 dB

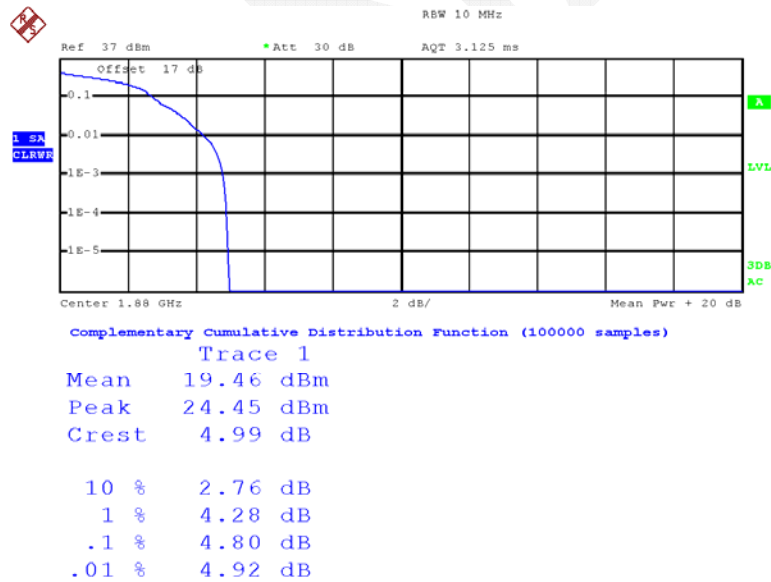
Date: 14.OCT.2015 22:08:51

### 16QAM- 1RB, 20M Low Channel



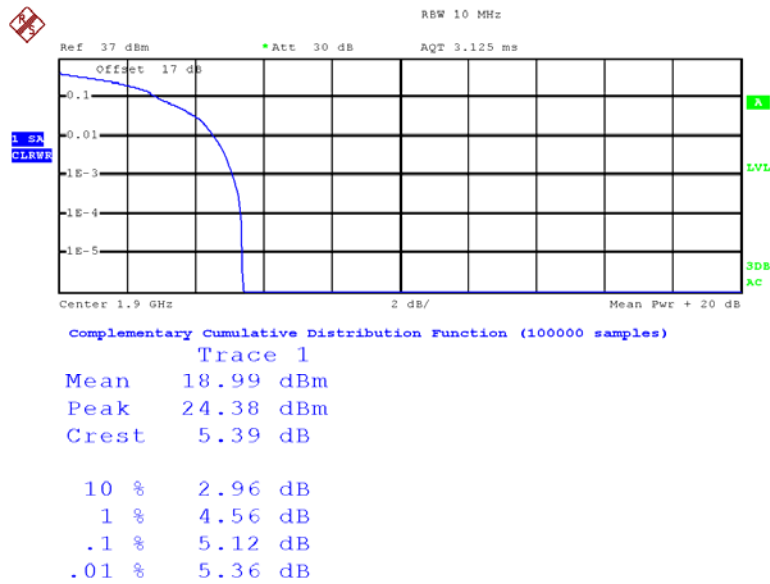
Date: 14.OCT.2015 22:04:46

### 16QAM- 1RB, 20M Middle Channel



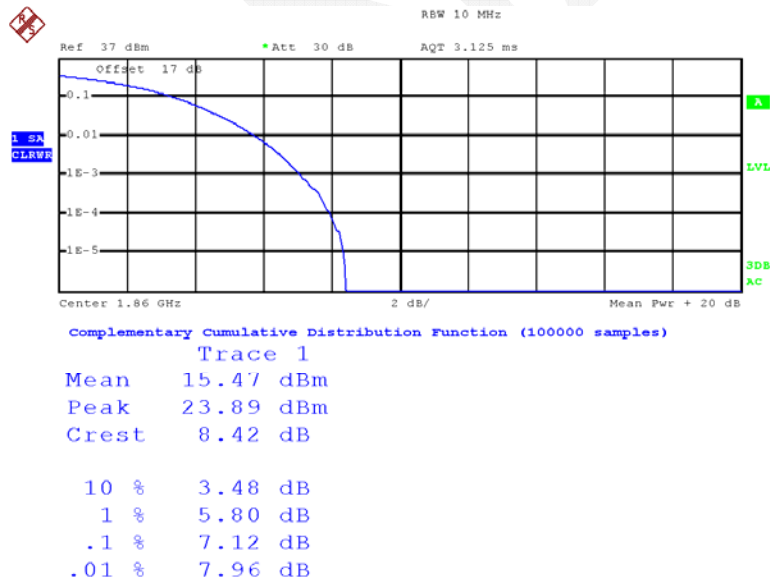
Date: 14.OCT.2015 22:03:24

**16QAM- 1RB, 20M High Channel**



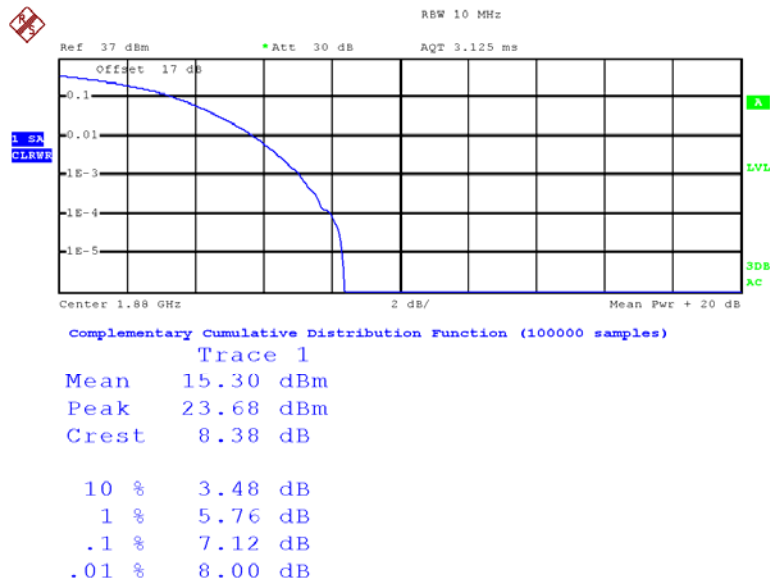
Date: 14.OCT.2015 22:07:17

**16QAM- Full RB, 20M Low Channel**



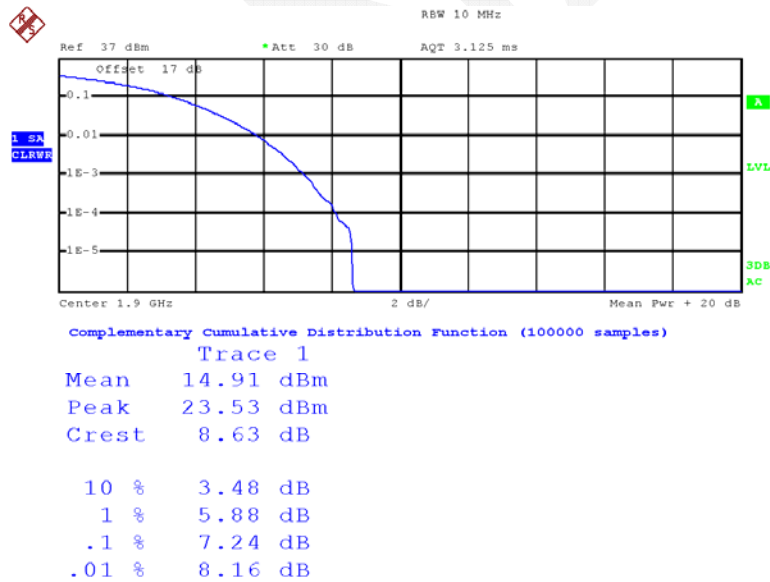
Date: 14.OCT.2015 22:11:29

**16QAM- Full RB, 20M Middle Channel**



Date: 14.OCT.2015 22:10:07

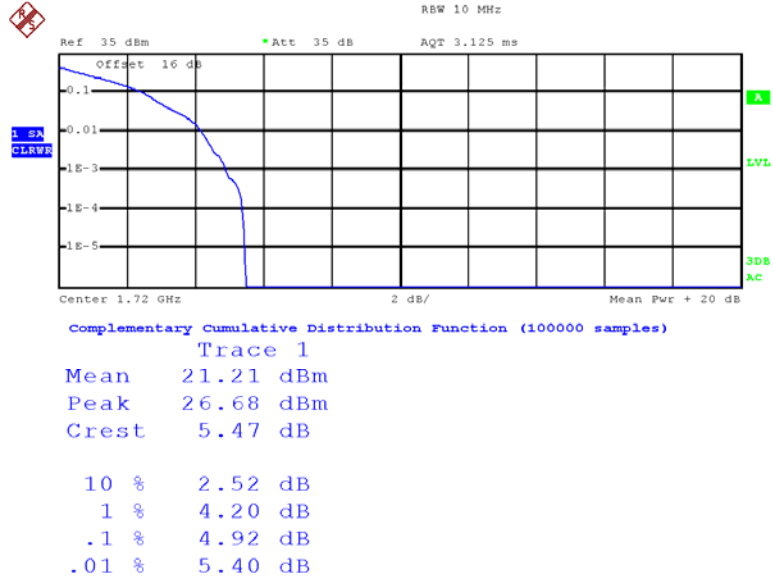
**16QAM- Full RB, 20M High Channel**



Date: 14.OCT.2015 22:08:43

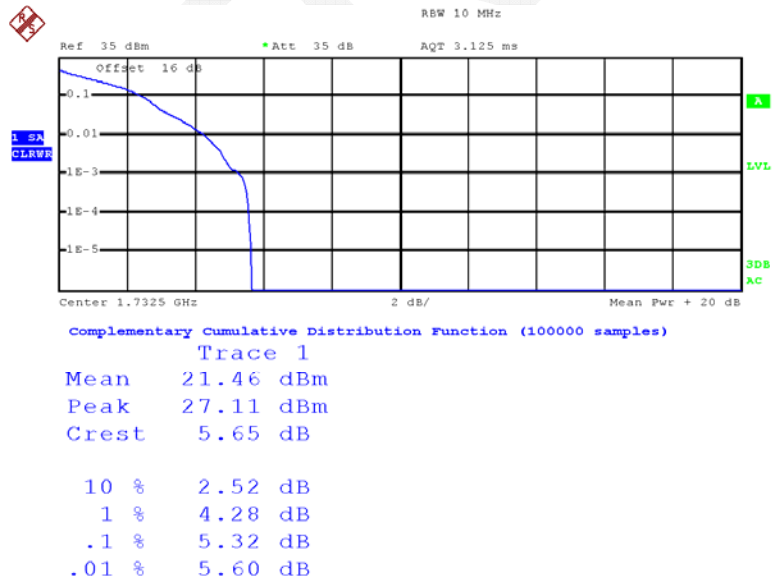
LTE Band 4

QPSK-1RB, 20M Low Channel



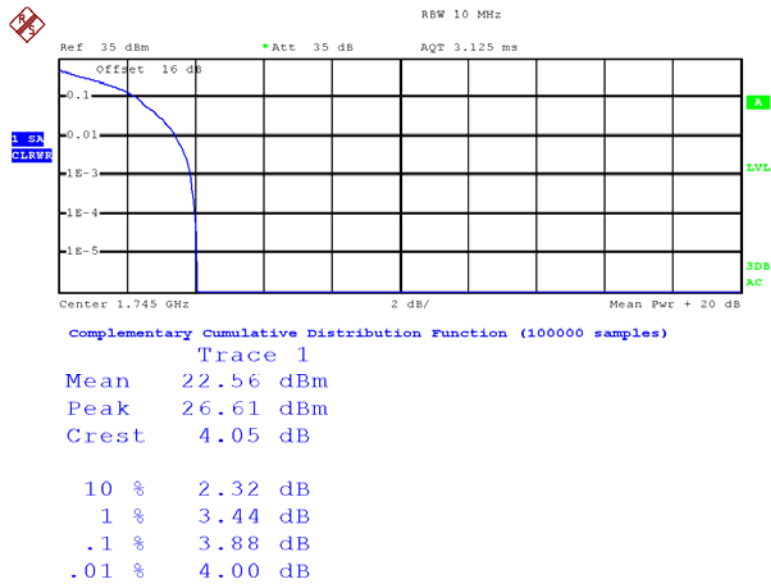
Date: 15.OCT.2015 23:35:26

QPSK-1RB, 20M Middle Channel



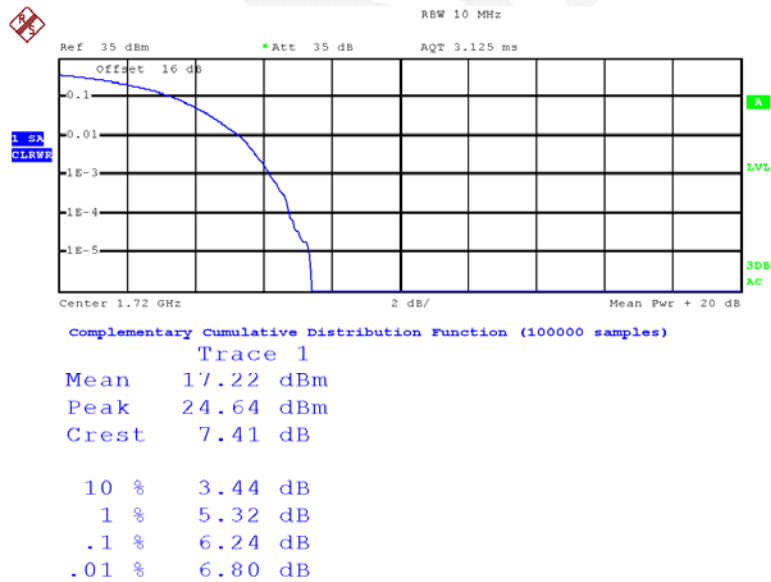
Date: 15.OCT.2015 23:32:36

### QPSK-1RB, 20M High Channel



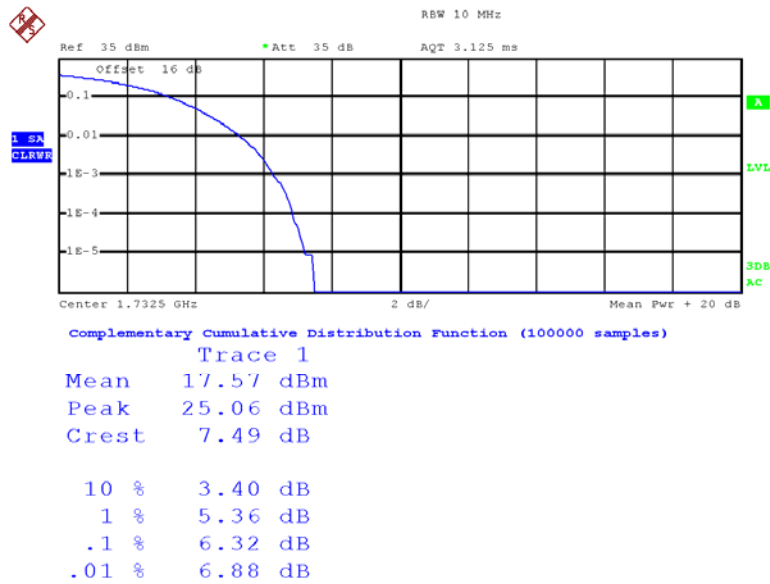
Date: 15.OCT.2015 23:31:10

### QPSK- Full RB, 20M Low Channel



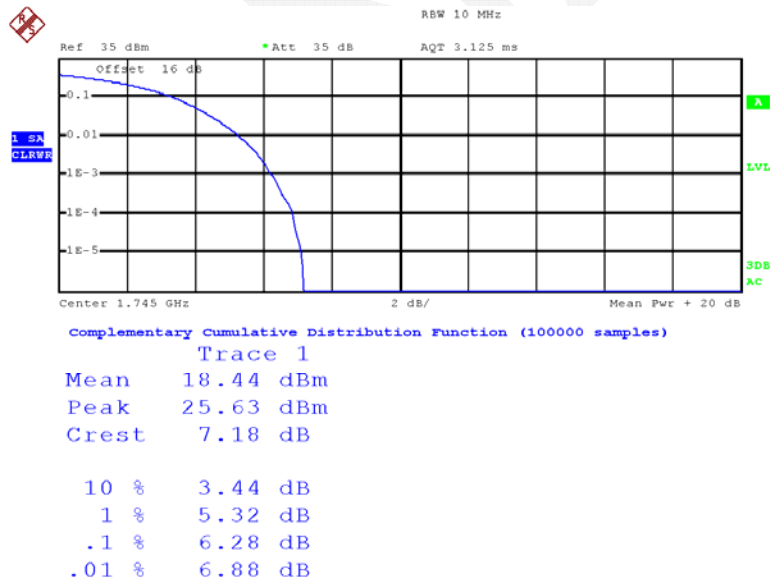
Date: 15.OCT.2015 23:21:53

**QPSK- Full RB, 20M Middle Channel**



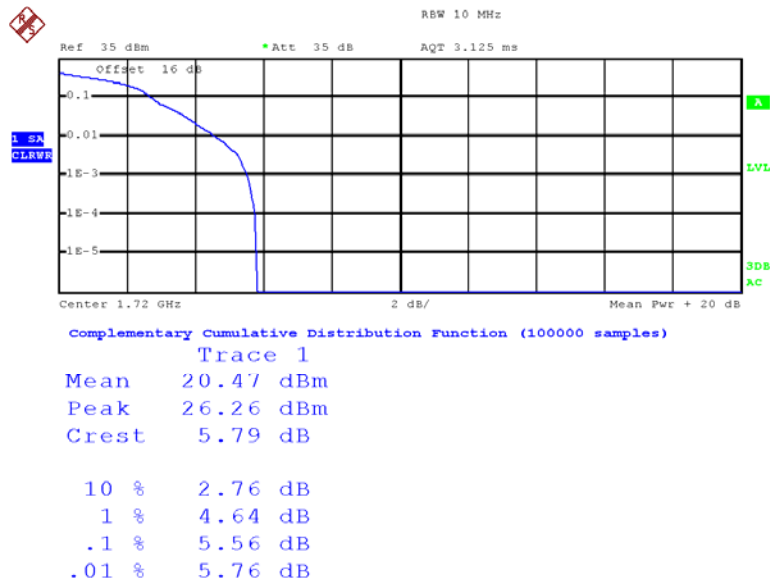
Date: 15.OCT.2015 23:25:12

**QPSK- Full RB, 20M High Channel**



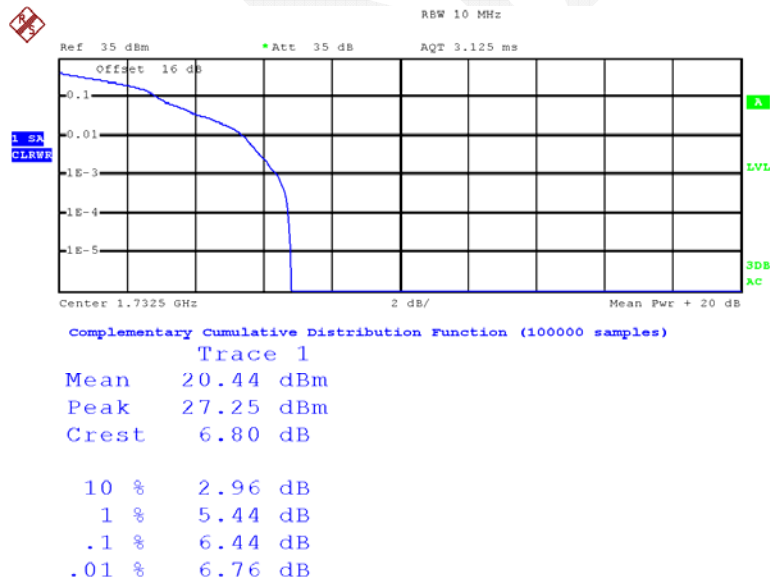
Date: 15.OCT.2015 23:27:52

### 16QAM- 1RB, 20M Low Channel



Date: 15.OCT.2015 23:35:00

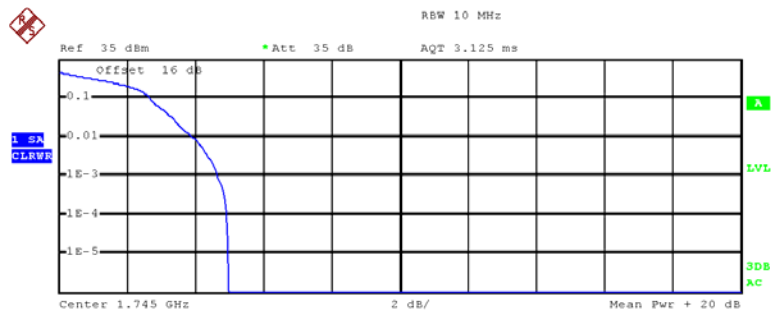
### 16QAM- 1RB, 20M Middle Channel



Date: 15.OCT.2015 23:32:45



### 16QAM- 1RB, 20M High Channel



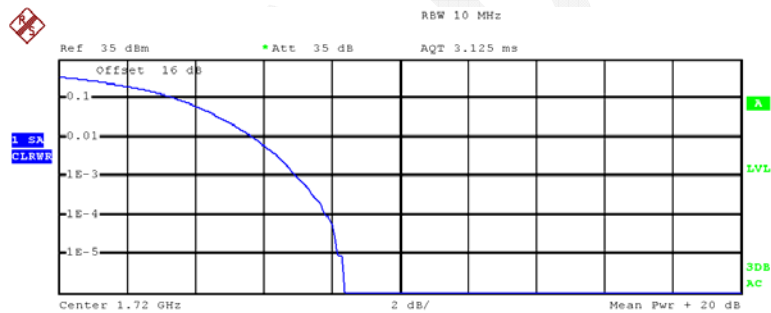
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	21.51 dBm
Peak	26.47 dBm
Crest	4.96 dB
10 %	2.68 dB
1 %	3.96 dB
.1 %	4.68 dB
.01 %	4.92 dB

Date: 15.OCT.2015 23:30:42

### 16QAM- Full RB, 20M Low Channel



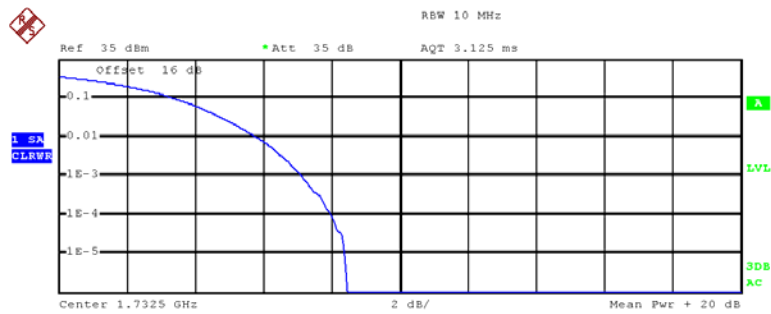
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	16.34 dBm
Peak	24.71 dBm
Crest	8.37 dB
10 %	3.52 dB
1 %	5.76 dB
.1 %	7.00 dB
.01 %	7.88 dB

Date: 15.OCT.2015 23:22:18

**16QAM- Full RB, 20M Middle Channel**



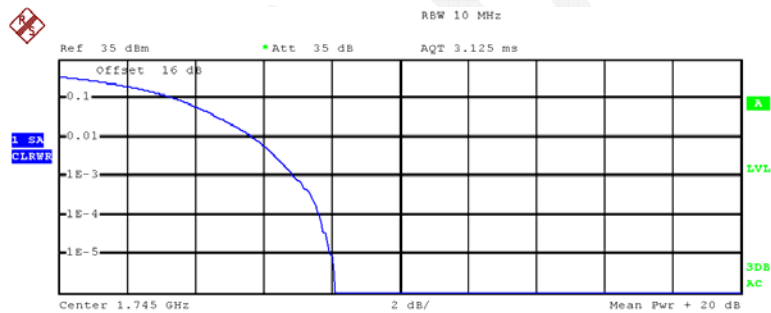
Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	16.61 dBm
Peak	25.06 dBm
Crest	8.45 dB
10 %	3.48 dB
1 %	5.84 dB
.1 %	7.16 dB
.01 %	8.00 dB

Date: 15.OCT.2015 23:24:22

**16QAM- Full RB, 20M High Channel**



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean	17.46 dBm
Peak	25.56 dBm
Crest	8.09 dB
10 %	3.52 dB
1 %	5.72 dB
.1 %	6.92 dB
.01 %	7.68 dB

Date: 15.OCT.2015 23:28:22

ERP & EIRP

PART 22H

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
<b>GSM 850 Middle Channel</b>								
836.600	H	93.98	19.1	0.0	1.0	18.1	38.5	20.4
836.600	V	103.10	31.3	0.0	1.0	30.3	38.5	8.2
<b>EGPRS 850 Middle Channel</b>								
836.600	H	88.19	13.3	0.0	1.0	12.3	38.5	26.2
836.600	V	99.07	27.3	0.0	1.0	26.3	38.5	12.2
<b>WCDMA Band V Middle Channel</b>								
836.600	H	80.19	5.3	0.0	1.0	4.3	38.5	34.2
836.600	V	92.35	20.6	0.0	1.0	19.6	38.5	18.9

PART 27

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
<b>WCDMA Band IV Middle Channel</b>								
1732.600	H	84.89	11.9	10.9	1.4	21.4	33.0	11.6
1732.600	V	83.87	10.5	10.9	1.4	20.0	33.0	13.0

PART 24E

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
<b>PCS 1900 Middle Channel</b>								
1880.000	H	85.72	14.1	8.4	1.4	21.1	33.0	11.9
1880.000	V	92.91	21.5	8.4	1.4	28.5	33.0	4.5
<b>EGPRS 1900 Middle Channel</b>								
1880.000	H	82.35	10.8	8.4	1.4	17.8	33.0	15.2
1880.000	V	88.69	17.2	8.4	1.4	24.2	33.0	8.8
<b>WCDMA Band II Middle Channel</b>								
1880.000	H	84.71	13.1	8.4	1.4	20.1	33.0	12.9
1880.000	V	85.55	14.1	8.4	1.4	21.1	33.0	11.9

**LTE Band 2**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
<b>QPSK 1.4M BW Middle Channel</b>								
1880.000	H	87.42	15.8	8.4	1.4	22.8	33.00	10.2
1880.000	V	86.78	15.3	8.4	1.4	22.3	33.00	10.7
<b>QPSK 3M BW Middle Channel</b>								
1880.000	H	86.28	14.7	8.4	1.4	21.7	33.00	11.3
1880.000	V	85.49	14	8.4	1.4	21.0	33.00	12.0
<b>QPSK 5M BW Middle Channel</b>								
1880.000	H	85.14	13.5	8.4	1.4	20.5	33.00	12.5
1880.000	V	84.33	12.9	8.4	1.4	19.9	33.00	13.1
<b>QPSK 10M BW Middle Channel</b>								
1880.000	H	84.39	12.8	8.4	1.4	19.8	33.00	13.2
1880.000	V	83.17	11.7	8.4	1.4	18.7	33.00	14.3
<b>QPSK 15M BW Middle Channel</b>								
1880.000	H	83.86	12.3	8.4	1.4	19.3	33.00	13.7
1880.000	V	82.72	11.3	8.4	1.4	18.3	33.00	14.7
<b>QPSK 20M BW Middle Channel</b>								
1880.000	H	83.35	11.8	8.4	1.4	18.8	33.00	14.2
1880.000	V	82.34	10.9	8.4	1.4	17.9	33.00	15.1
<b>16-QAM 1.4M BW Middle Channel</b>								
1880.000	H	87.52	15.9	8.4	1.4	22.9	33.00	10.1
1880.000	V	87.04	15.6	8.4	1.4	22.6	33.00	10.4
<b>16-QAM 3M BW Middle Channel</b>								
1880.000	H	86.41	14.8	8.4	1.4	21.8	33.00	11.2
1880.000	V	85.67	14.2	8.4	1.4	21.2	33.00	11.8
<b>16-QAM 5M BW Middle Channel</b>								
1880.000	H	85.23	13.6	8.4	1.4	20.6	33.00	12.4
1880.000	V	84.52	13.1	8.4	1.4	20.1	33.00	12.9
<b>16-QAM 10M BW Middle Channel</b>								
1880.000	H	84.08	12.5	8.4	1.4	19.5	33.00	13.5
1880.000	V	83.47	12	8.4	1.4	19.0	33.00	14.0
<b>16-QAM 15M BW Middle Channel</b>								
1880.000	H	82.81	11.2	8.4	1.4	18.2	33.00	14.8
1880.000	V	82.32	10.9	8.4	1.4	17.9	33.00	15.1
<b>16-QAM 20M BW Middle Channel</b>								
1880.000	H	82.48	10.9	8.4	1.4	17.9	33.00	15.1
1880.000	V	81.61	10.2	8.4	1.4	17.2	33.00	15.8

**LTE Band 4**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
<b>QPSK 1.4M BW Middle Channel</b>								
1732.500	H	89.32	16.3	8.1	1.4	23.0	33.00	10.0
1732.500	V	86.90	13.6	8.1	1.4	20.3	33.00	12.7
<b>QPSK 3M BW Middle Channel</b>								
1732.500	H	88.17	15.2	8.1	1.4	21.9	33.00	11.1
1732.500	V	86.23	12.9	8.1	1.4	19.6	33.00	13.4
<b>QPSK 5M BW Middle Channel</b>								
1732.500	H	87.08	14.1	8.1	1.4	20.8	33.00	12.2
1732.500	V	85.52	12.2	8.1	1.4	18.9	33.00	14.1
<b>QPSK 10M BW Middle Channel</b>								
1732.500	H	85.89	12.9	8.1	1.4	19.6	33.00	13.4
1732.500	V	85.01	11.7	8.1	1.4	18.4	33.00	14.6
<b>QPSK 15M BW Middle Channel</b>								
1732.500	H	84.76	11.8	8.1	1.4	18.5	33.00	14.5
1732.500	V	84.35	11	8.1	1.4	17.7	33.00	15.3
<b>QPSK 20M BW Middle Channel</b>								
1732.500	H	84.12	11.1	8.1	1.4	17.8	33.00	15.2
1732.500	V	83.60	10.3	8.1	1.4	17.0	33.00	16.0
<b>16-QAM 1.4M BW Middle Channel</b>								
1732.500	H	89.53	16.5	8.1	1.4	23.2	33.00	9.8
1732.500	V	87.26	13.9	8.1	1.4	20.6	33.00	12.4
<b>16-QAM 3M BW Middle Channel</b>								
1732.500	H	88.07	15.1	8.1	1.4	21.8	33.00	11.2
1732.500	V	86.13	12.8	8.1	1.4	19.5	33.00	13.5
<b>16-QAM 5M BW Middle Channel</b>								
1732.500	H	86.59	13.6	8.1	1.4	20.3	33.00	12.7
1732.500	V	85.05	11.7	8.1	1.4	18.4	33.00	14.6
<b>16-QAM 10M BW Middle Channel</b>								
1732.500	H	85.14	12.1	8.1	1.4	18.8	33.00	14.2
1732.500	V	84.22	10.9	8.1	1.4	17.6	33.00	15.4
<b>16-QAM 15M BW Middle Channel</b>								
1732.500	H	83.77	10.8	8.1	1.4	17.5	33.00	15.5
1732.500	V	82.89	9.6	8.1	1.4	16.3	33.00	16.7
<b>16-QAM 20M BW Middle Channel</b>								
1732.500	H	83.12	10.1	8.1	1.4	16.8	33.00	16.2
1732.500	V	82.26	8.9	8.1	1.4	15.6	33.00	17.4

Note:

- 1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
- 2) Absolute Level = SG Level - Cable loss + Antenna Gain
- 3) Margin = Limit-Absolute Level

**FCC §2.1049, §22.917, §22.905 & §24.238 & §27.53- OCCUPIED BANDWIDTH**

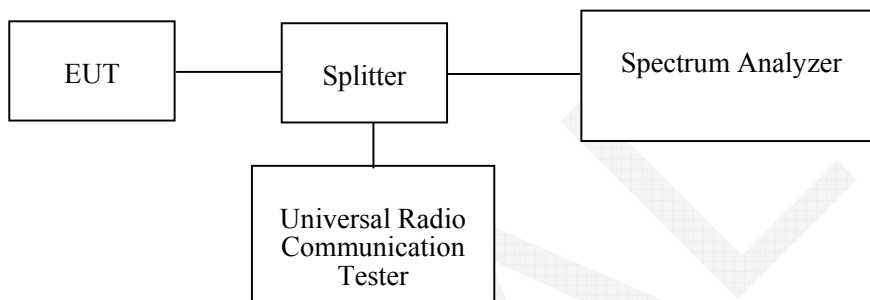
**Applicable Standard**

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

**Test Procedure**

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The 26 dB & 99% bandwidth was recorded.



**Test Equipment List and Details**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-05-09	2016-05-09
R&S	Universal Radio Communication Tester	CMU200	109038	2015-05-09	2016-05-09
R&S	Wideband Radio Communication Tester	CMW500	106891	2014-12-19	2015-12-19

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Test Data**

**Environmental Conditions**

<b>Temperature:</b>	26.7~27.1 °C
<b>Relative Humidity:</b>	49~51%
<b>ATM Pressure:</b>	100.8~101.1 kPa

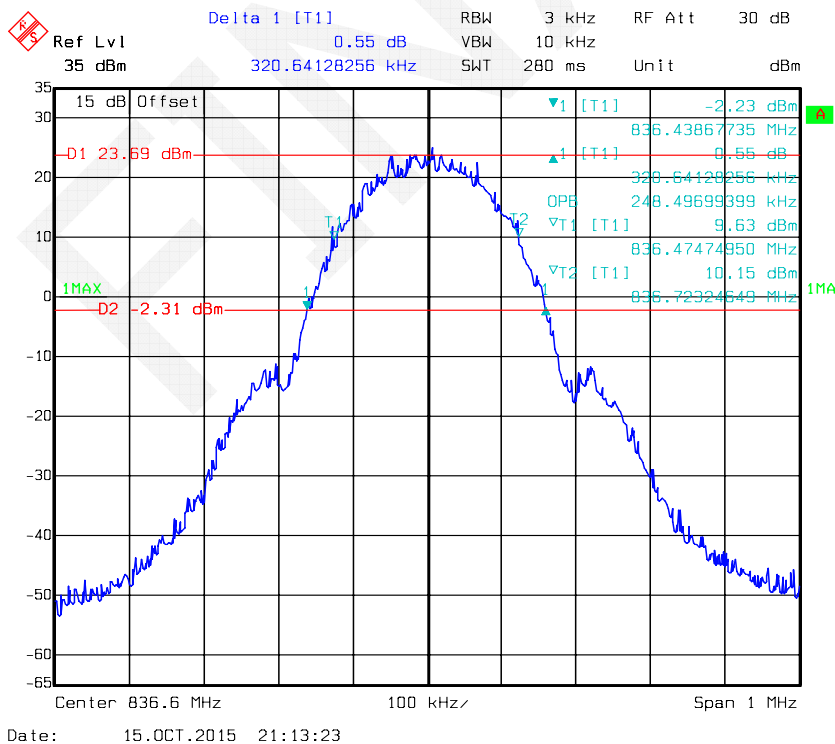
*The testing was performed by Dean Liu from 2015-10-14 to 2015-10-28.*

*Test Mode: Transmitting*

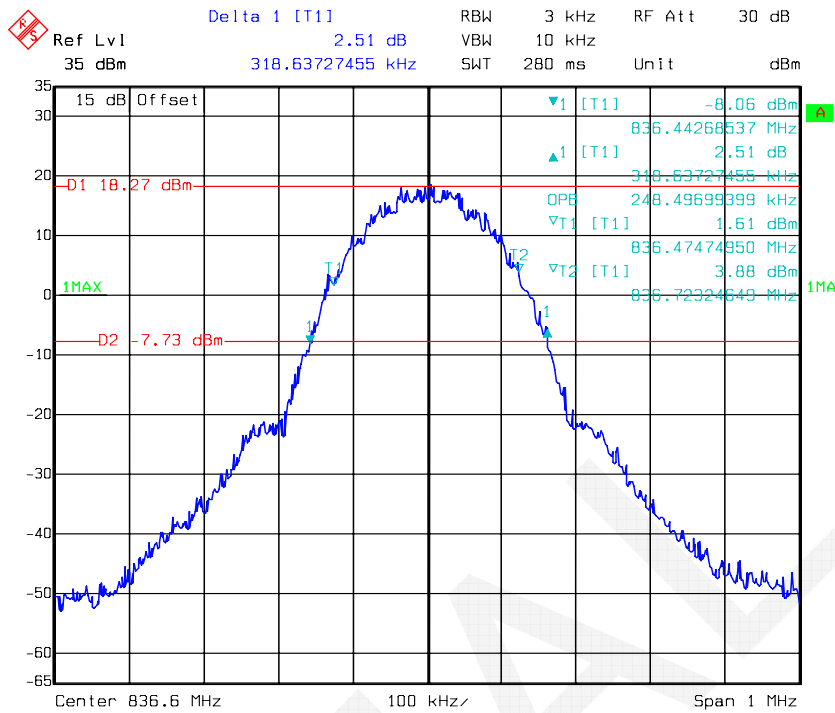
*Test Result: Compliance. Please refer to the following table and plots.*

Band	Channel No.	Mode	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Cellular	190	GSM	248	321
		EDGE	248	319
PCS	661	PCS	248	315
		EDGE	246	313
WCDMA Band	9400	Rel 99	4208	4870
	9400	HSDPA	4228	4870
	9400	HSUPA	4228	4910
WCDMA Band IV	1413	Rel 99	4228	4910
	1413	HSDPA	4228	4870
	1413	HSUPA	4228	4870
WCDMA Band V	4183	Rel 99	4208	4870
	4183	HSDPA	4228	4870
	4183	HSUPA	4228	4890

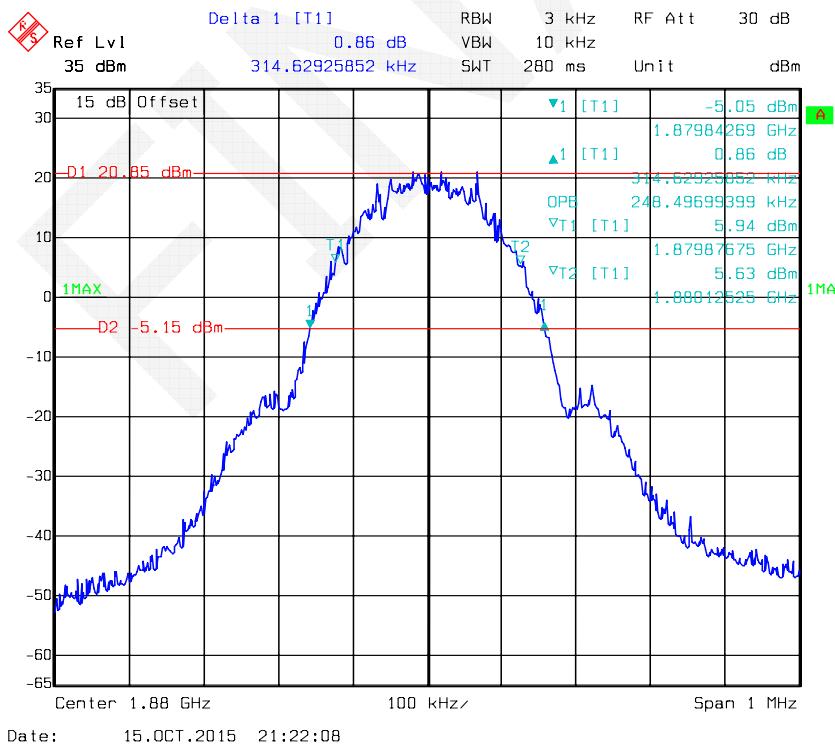
**GMSK 850 Cellular Band**



**EDGE 850 Cellular Band**

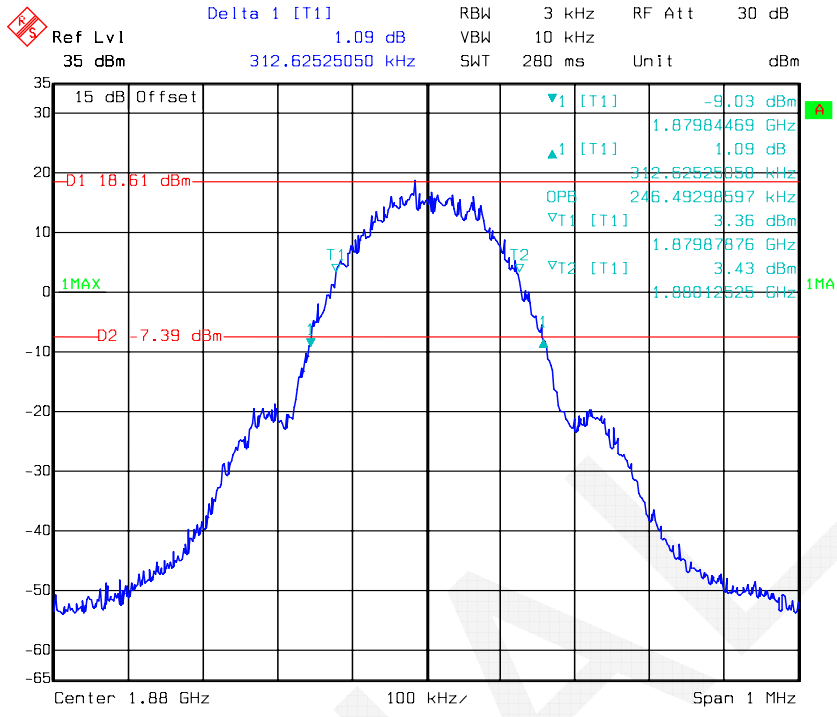


**GMSK PCS Band**

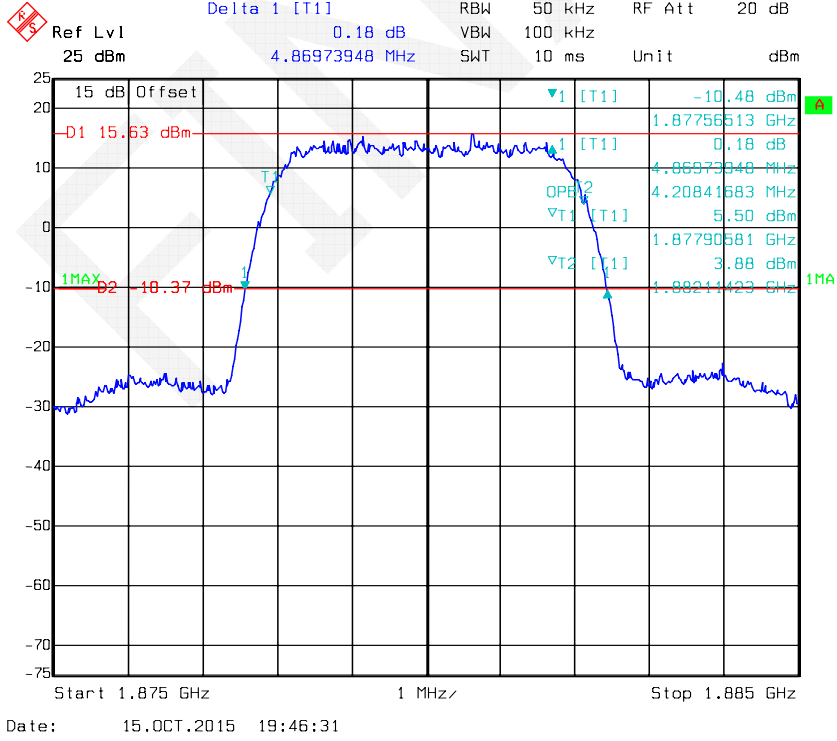




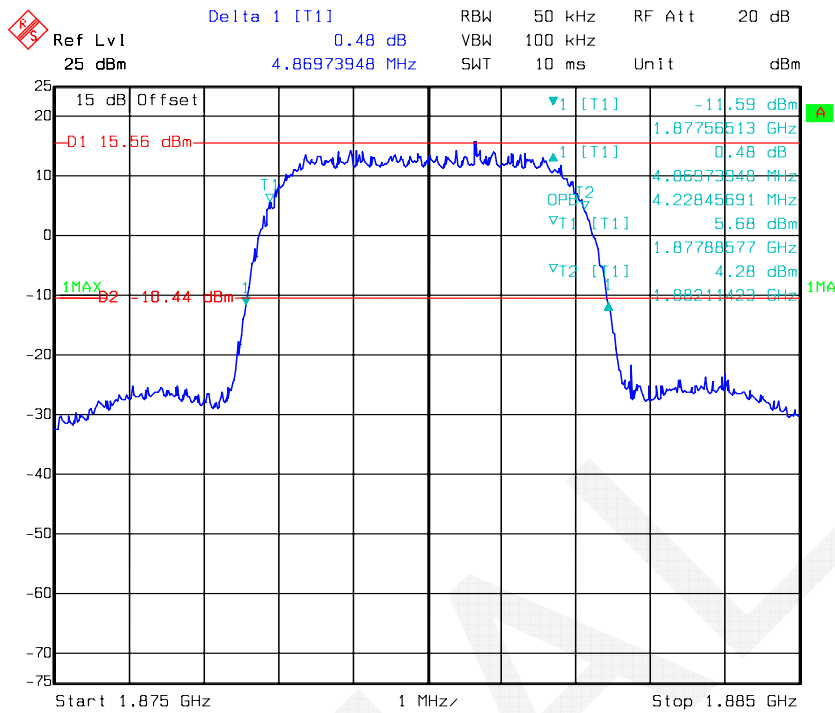
### EDGE PCS Band



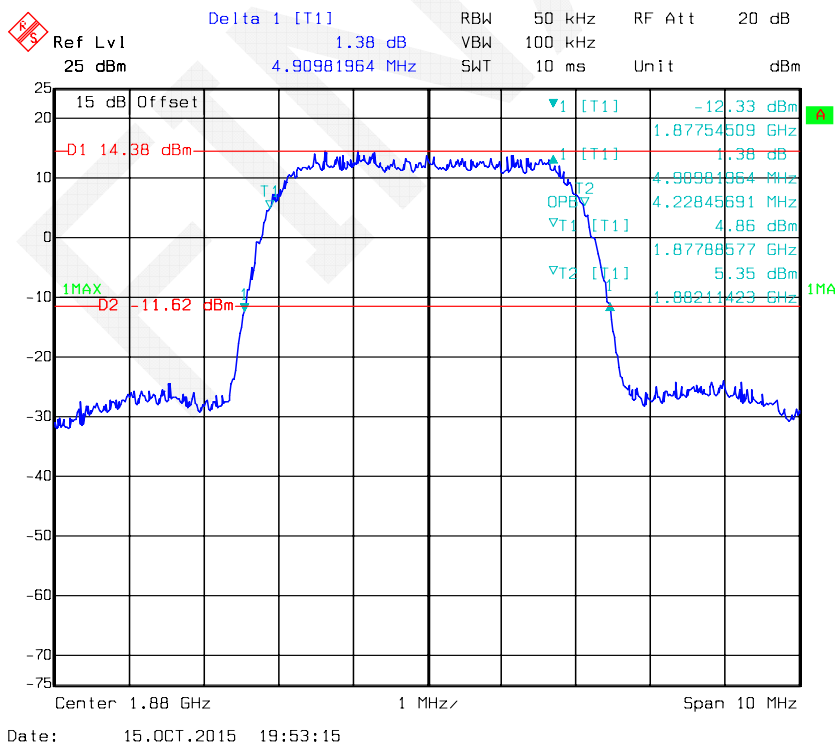
### REL99 Band II



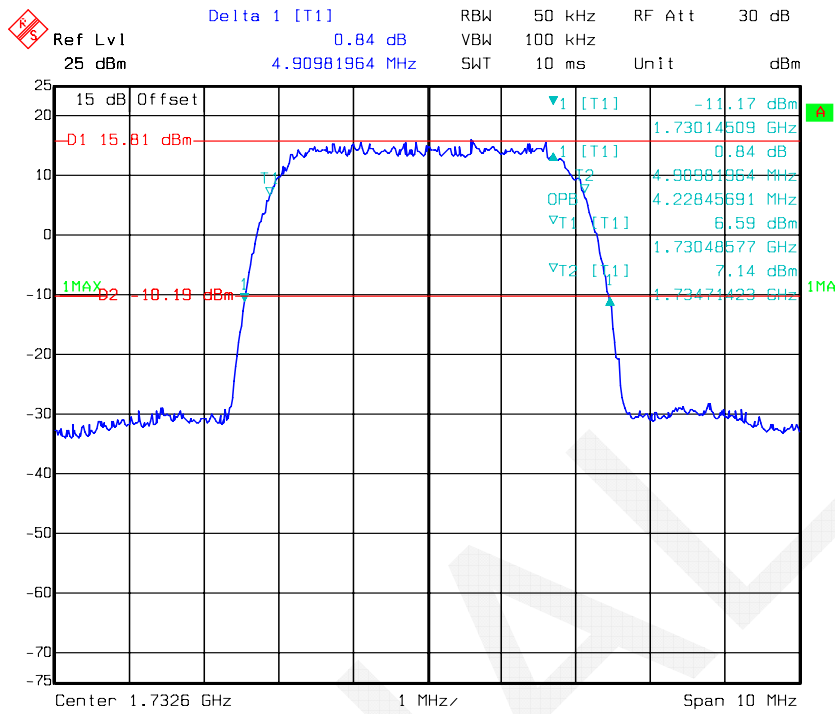
### HSDPA Band II



### HSUPA Band II

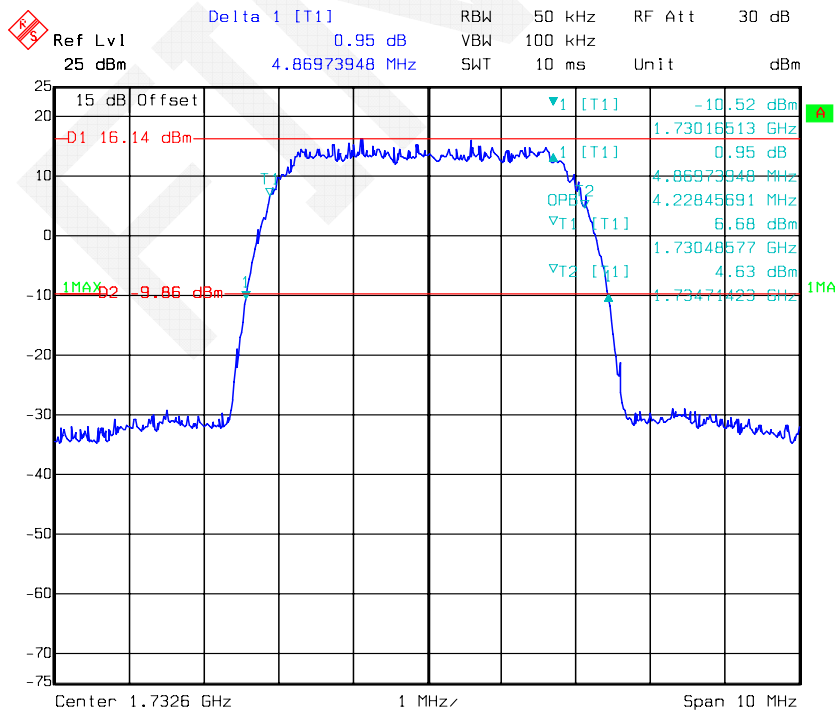


### REL99 Band IV



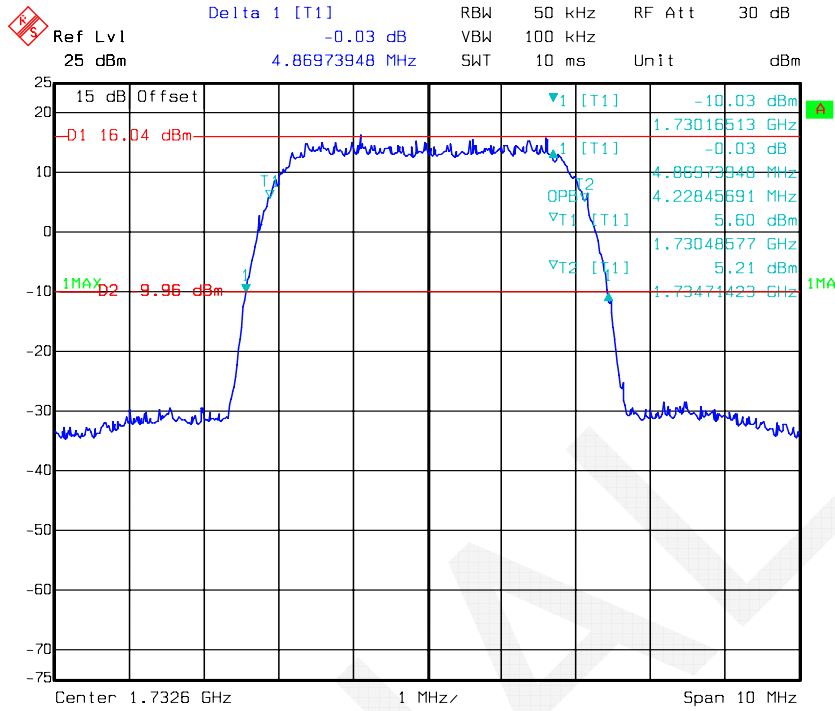
Date: 28.OCT.2015 20:26:32

### HSDPA Band IV

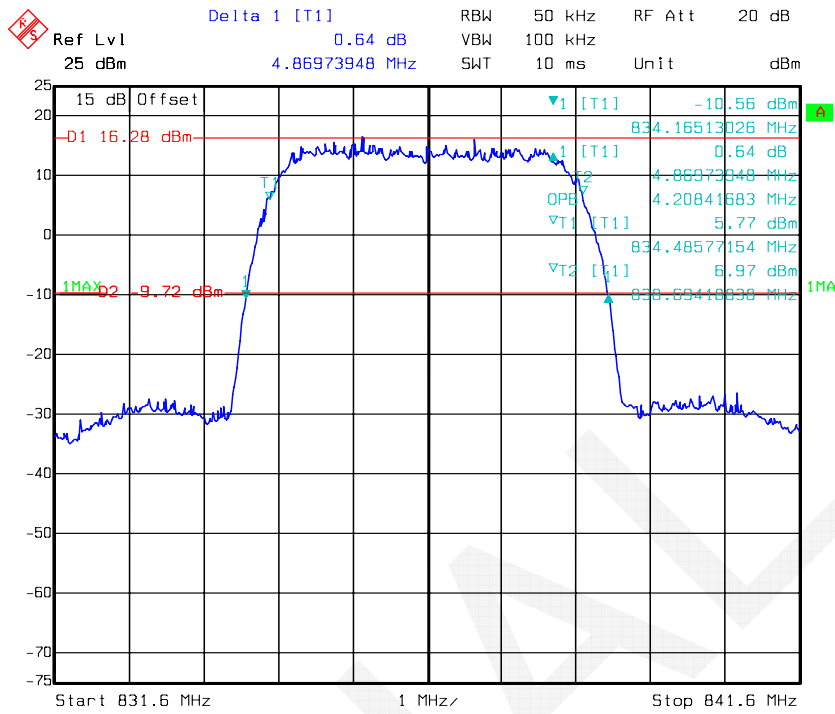


Date: 28.OCT.2015 20:28:07

**HSUPA Band IV**

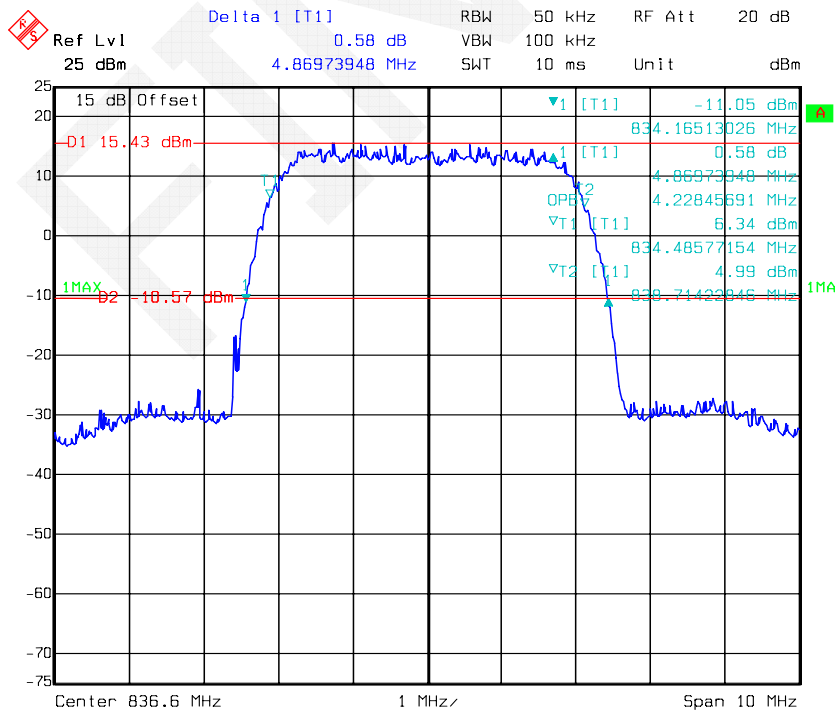


### REL99 Band V



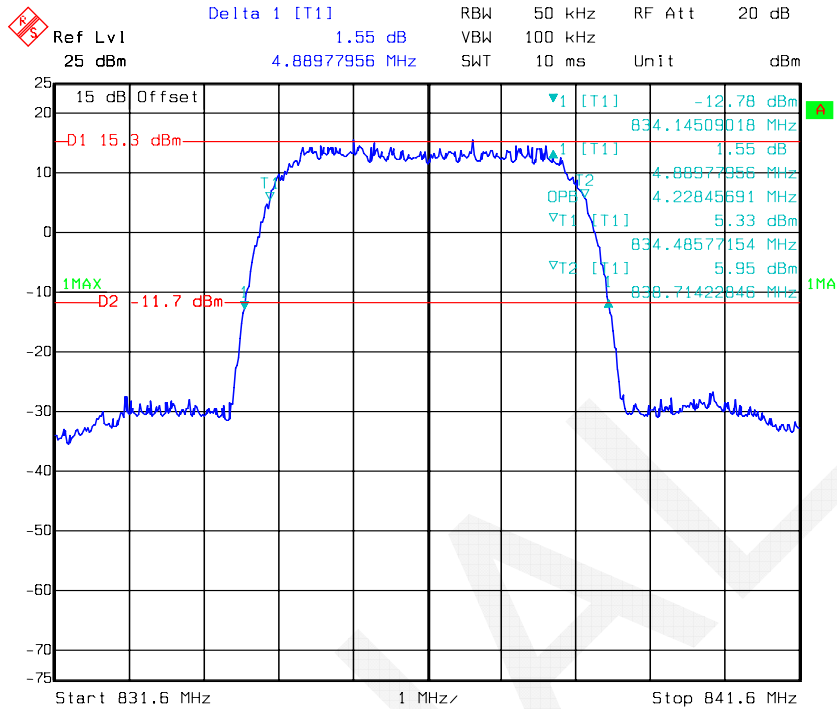
Date: 15.OCT.2015 18:59:24

### HSDPA Band V



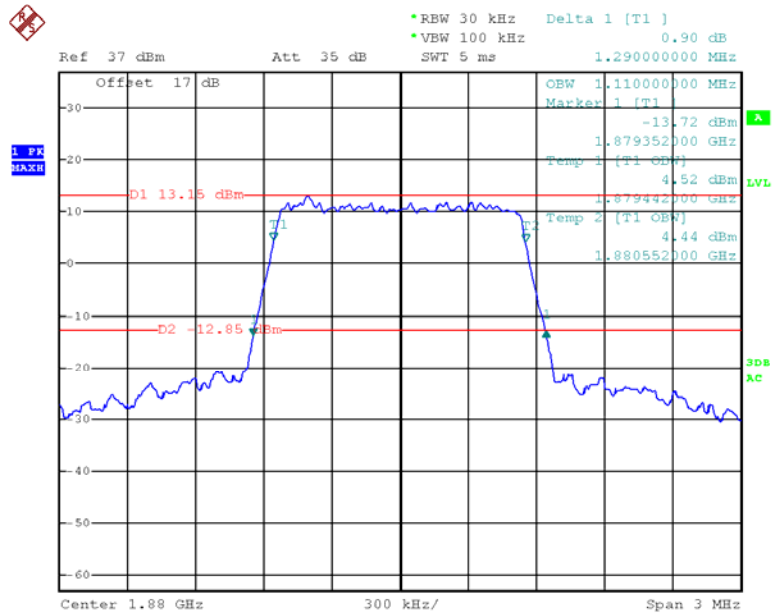
Date: 15.OCT.2015 19:05:08

### HSUPA Band V



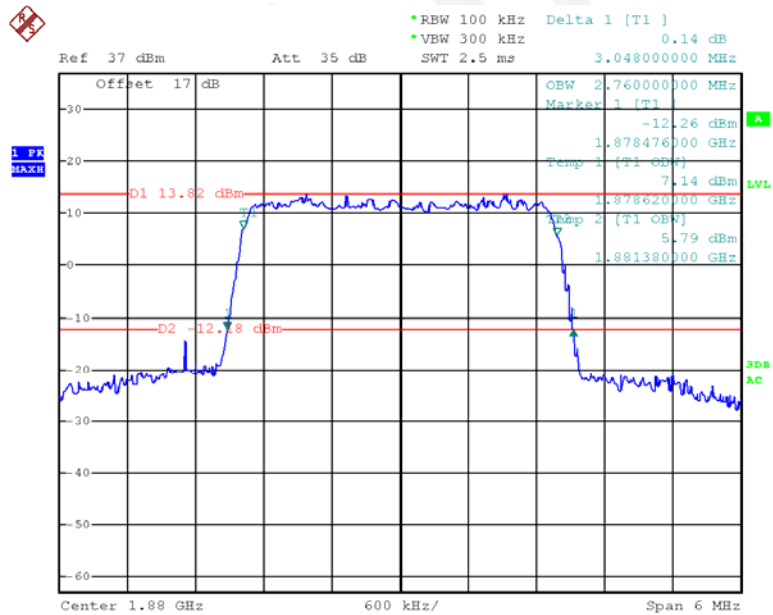
LTE Band	Test Modulation	Test Bandwidth	Test Channel	99% Occupied Bandwidth	26 dB Bandwidth
				MHz	MHz
Band 2	QPSK	1.4M	Middle	1.110	1.290
		3M		2.760	3.048
		5M		4.540	5.040
		10M		9.120	10.360
		15M		13.560	15.120
		20M		18.000	19.520
	16-QAM	1.4M	Middle	1.110	1.278
		3M		2.760	3.072
		5M		4.540	5.080
		10M		9.080	10.240
		15M		13.620	15.048
		20M		18.080	19.680
Band 4	QPSK	1.4M	Middle	1.098	1.284
		3M		2.748	3.072
		5M		4.560	5.100
		10M		9.120	10.400
		15M		13.620	15.100
		20M		18.000	19.520
	16-QAM	1.4M	Middle	1.110	1.302
		3M		2.736	2.976
		5M		4.540	5.140
		10M		9.120	10.320
		15M		13.620	15.120
		20M		18.000	19.600

### QPSK, Band 2-1.4M



Date: 14.OCT.2015 19:57:40

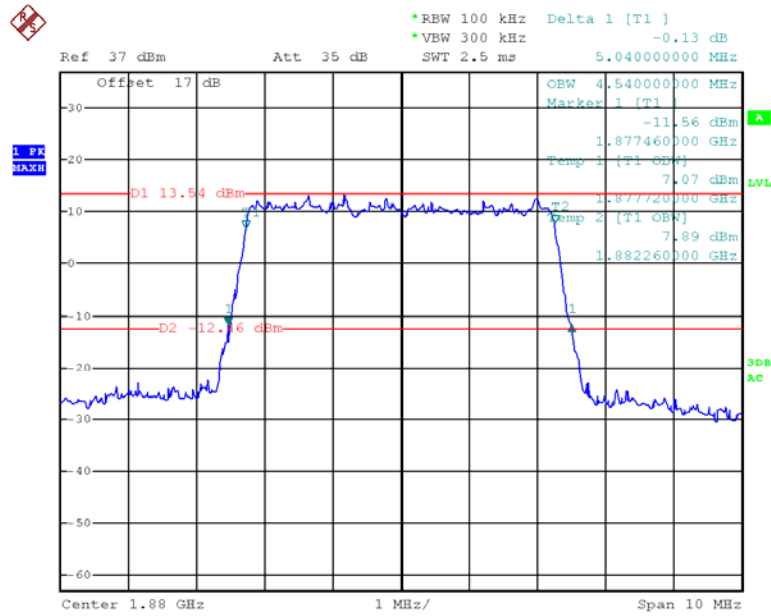
### QPSK, Band 2-3M



Date: 14.OCT.2015 19:55:09

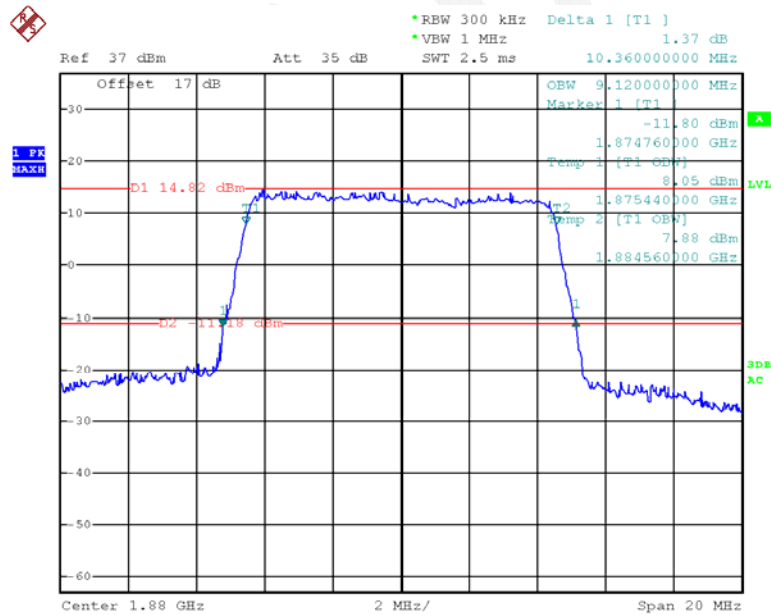


### QPSK, Band 2-5M



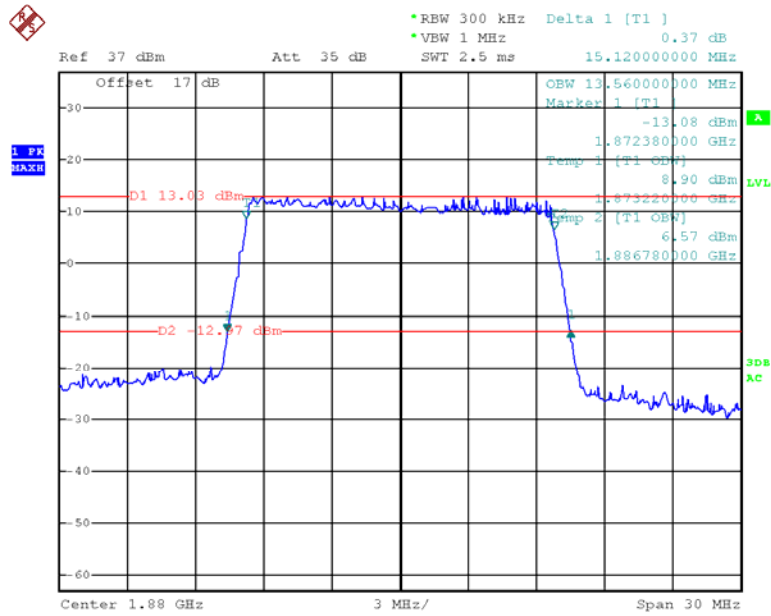
Date: 14.OCT.2015 20:03:16

### QPSK, Band 2-10M



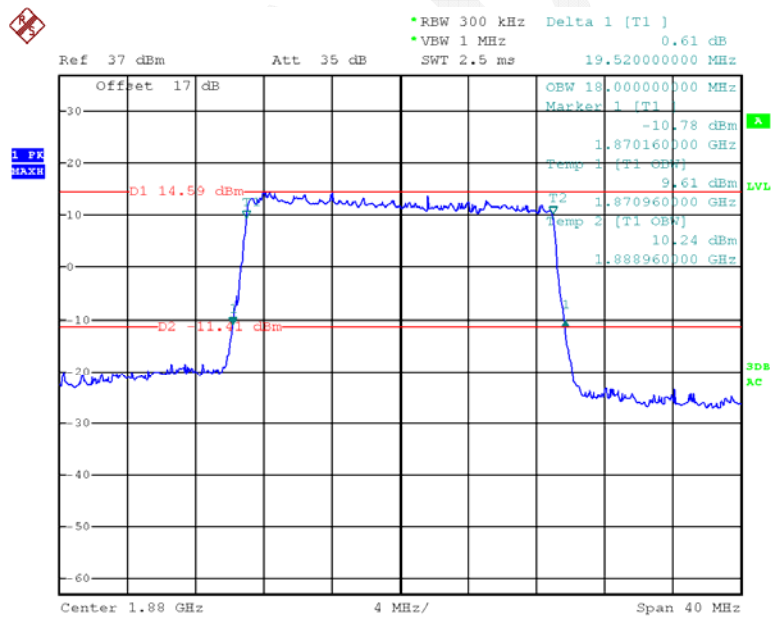
Date: 14.OCT.2015 20:05:09

### QPSK, Band 2-15M



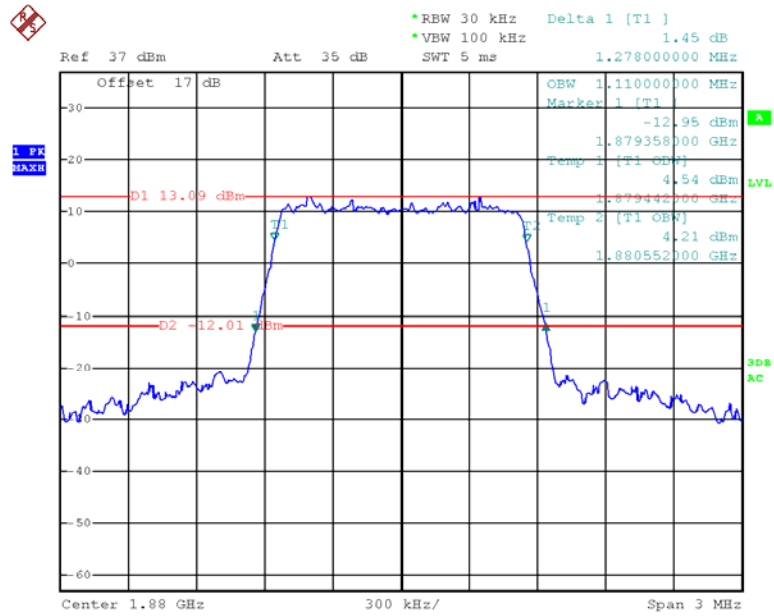
Date: 14.OCT.2015 20:07:39

### QPSK, Band 2-20M



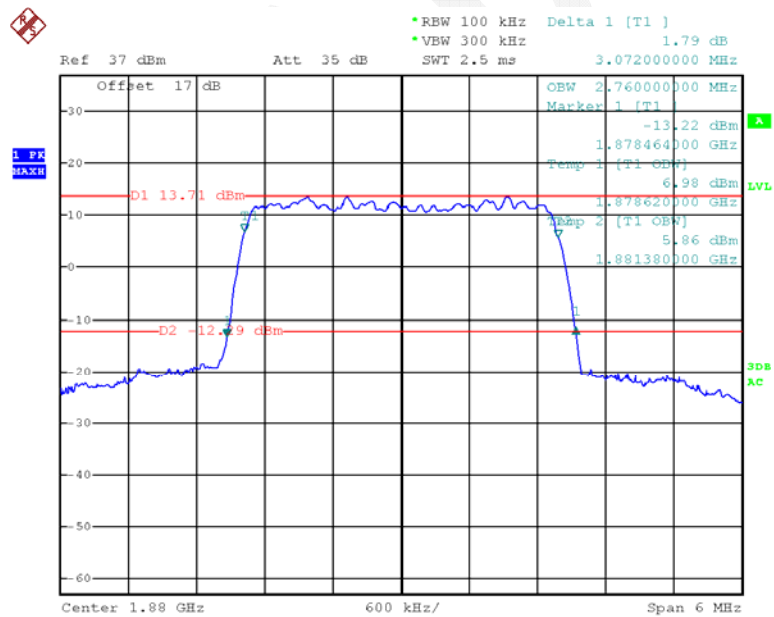
Date: 14.OCT.2015 20:14:51

### 16-QAM, Band 2-1.4M



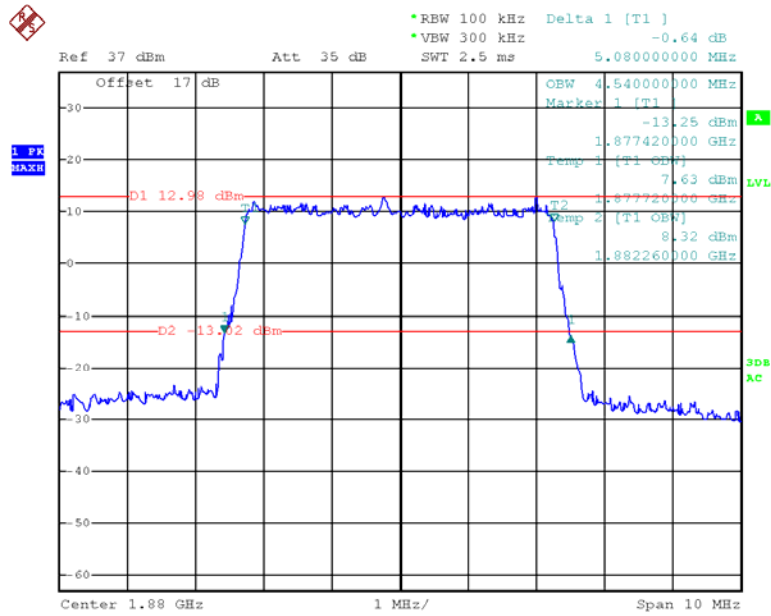
Date: 14.OCT.2015 19:58:49

### 16-QAM, Band 2-3M



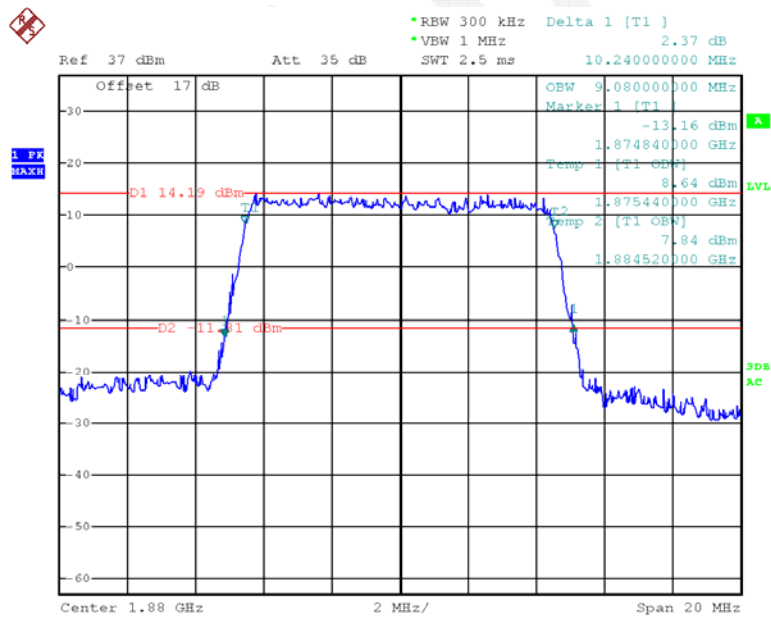
Date: 14.OCT.2015 19:52:59

### 16-QAM, Band 2-5M



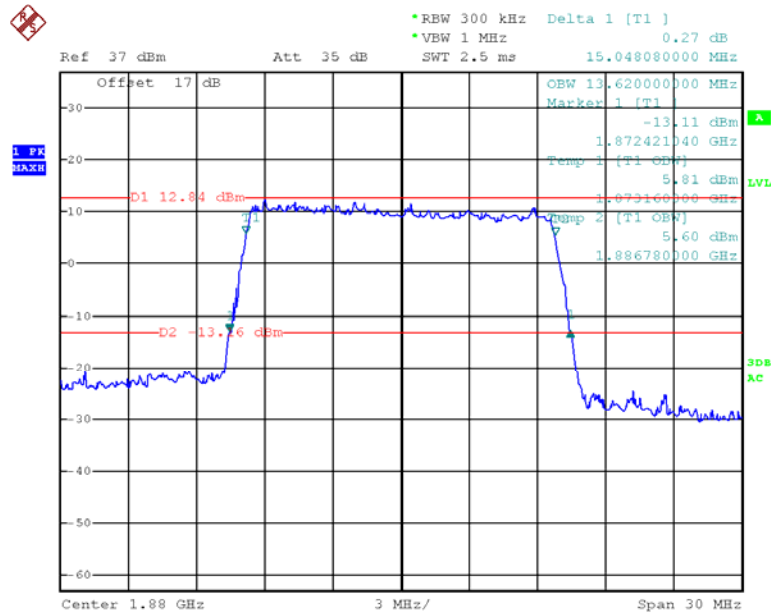
Date: 14.OCT.2015 20:01:52

### 16-QAM, Band 2-10M



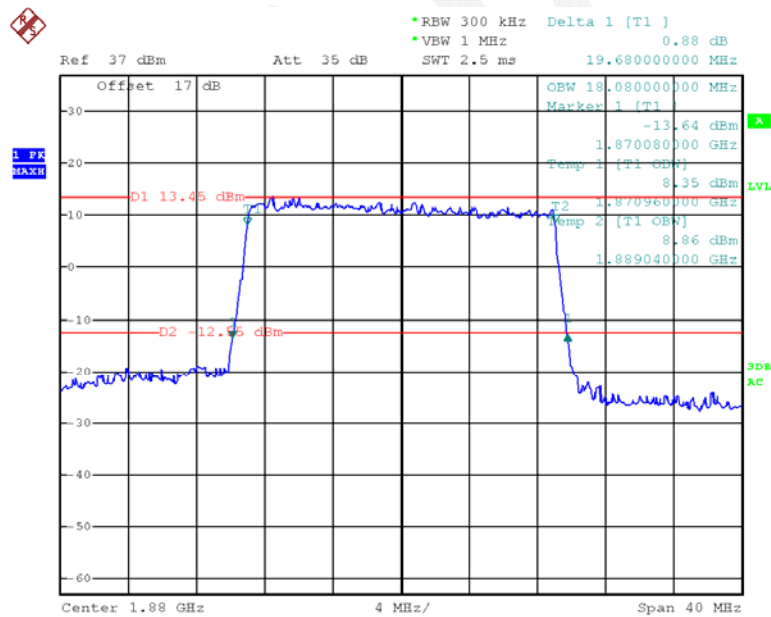
Date: 14.OCT.2015 20:06:17

### 16-QAM, Band 2-15M



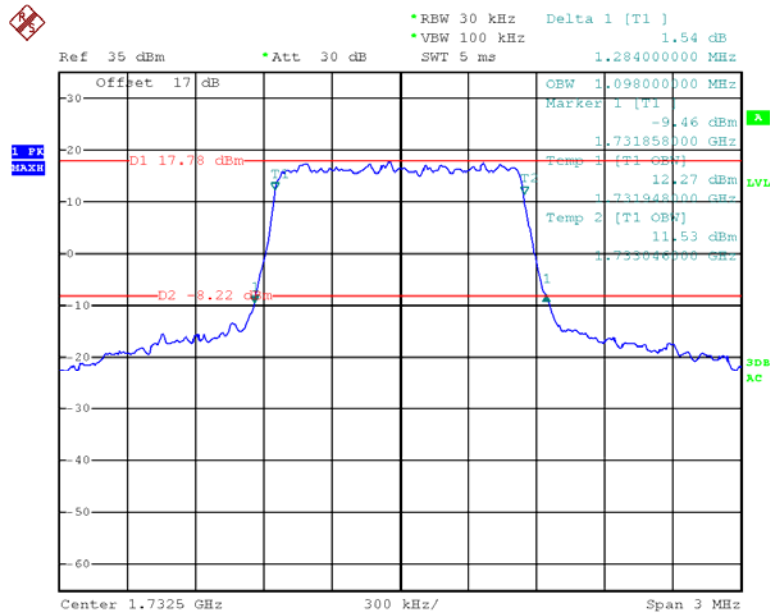
Date: 14.OCT.2015 20:11:37

### 16-QAM, Band 2-20M



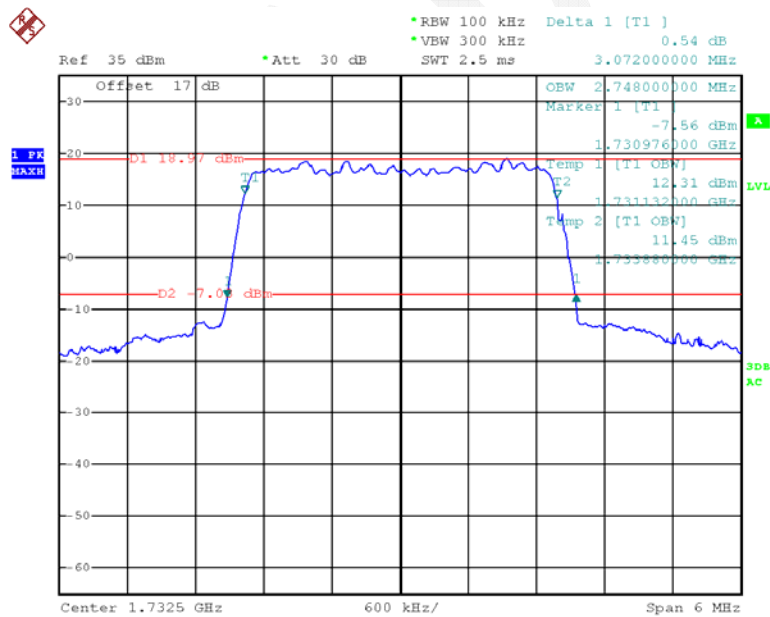
Date: 14.OCT.2015 20:16:09

### QPSK, Band 4-1.4M



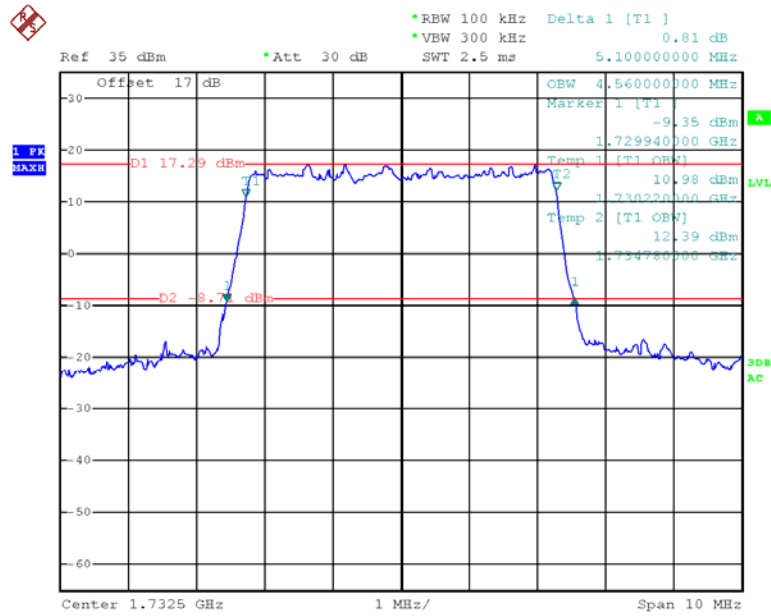
Date: 14.OCT.2015 22:30:16

### QPSK, Band 4-3M



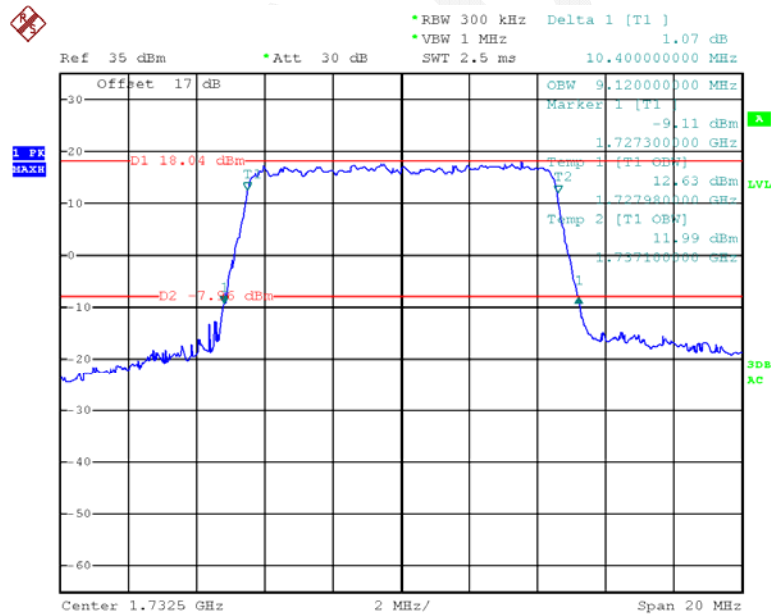
Date: 14.OCT.2015 22:52:01

### QPSK, Band 4-5M



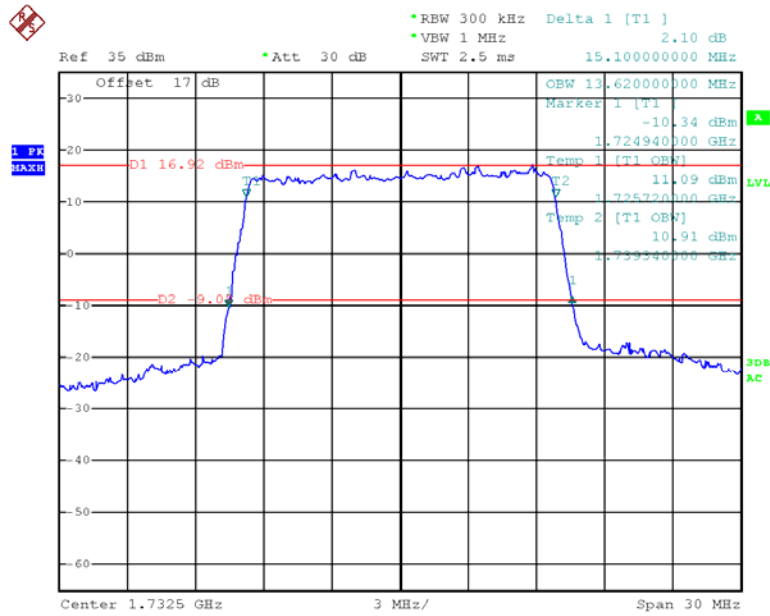
Date: 14.OCT.2015 23:07:32

### QPSK, Band 4-10M



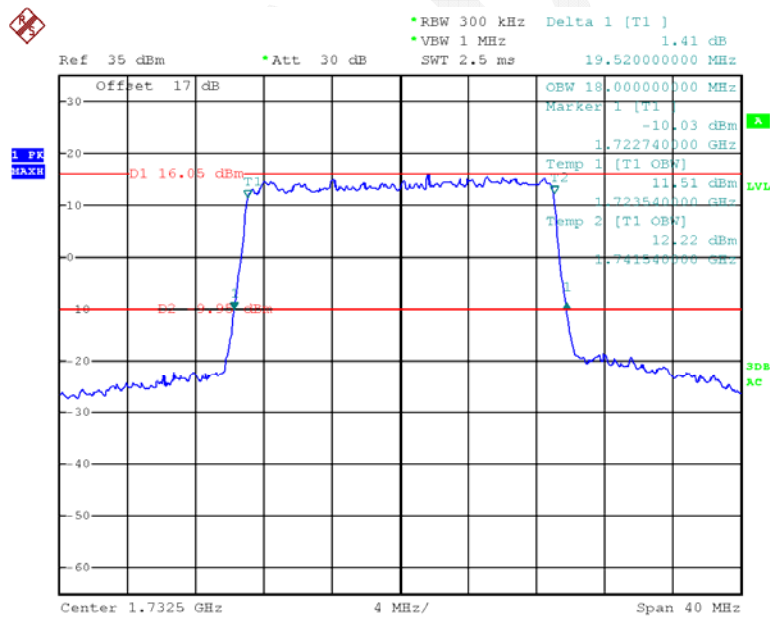
Date: 14.OCT.2015 23:17:50

### QPSK, Band 4-15M



Date: 14.OCT.2015 23:24:09

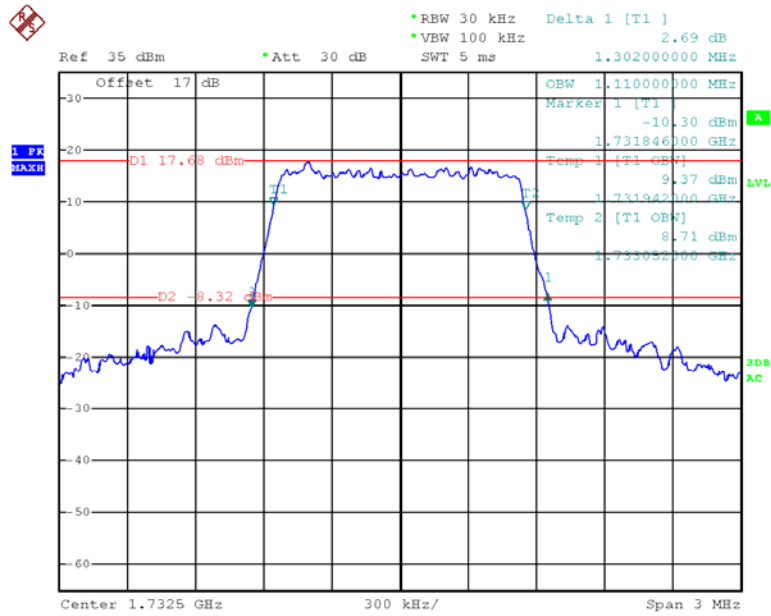
### QPSK, Band 4-20M



Date: 14.OCT.2015 23:34:32

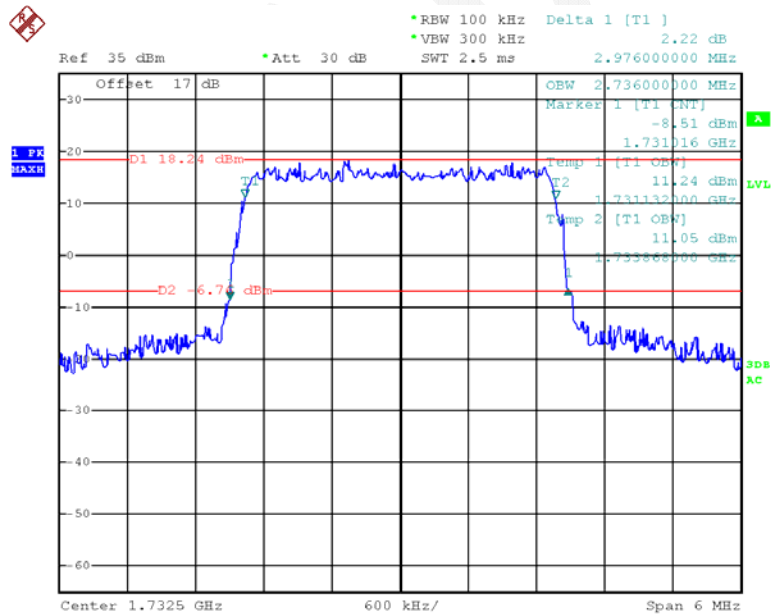


### 16-QAM, Band 4-1.4M



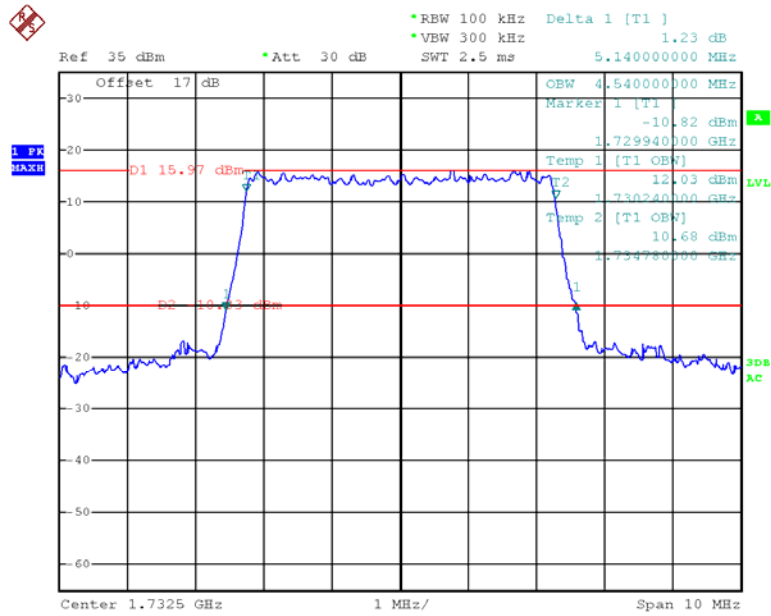
Date: 14.OCT.2015 22:27:58

### 16-QAM, Band 4-3M



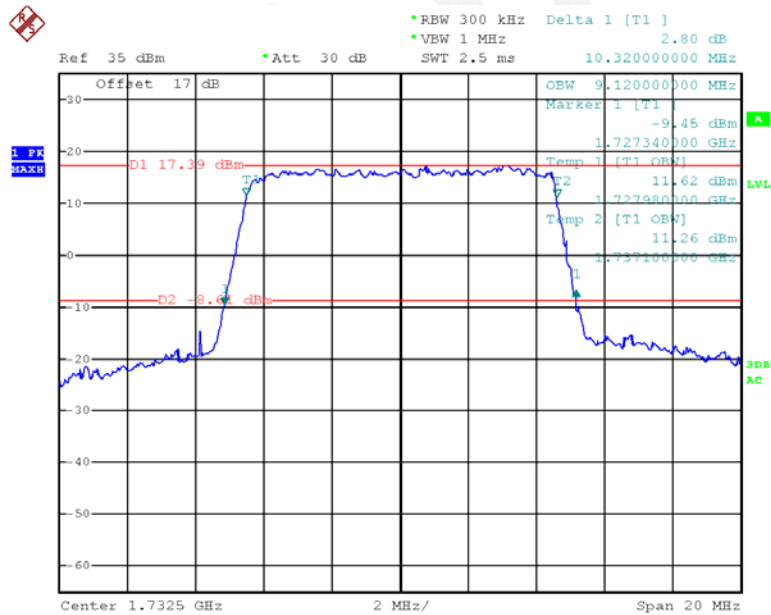
Date: 14.OCT.2015 22:58:47

### 16-QAM, Band 4-5M



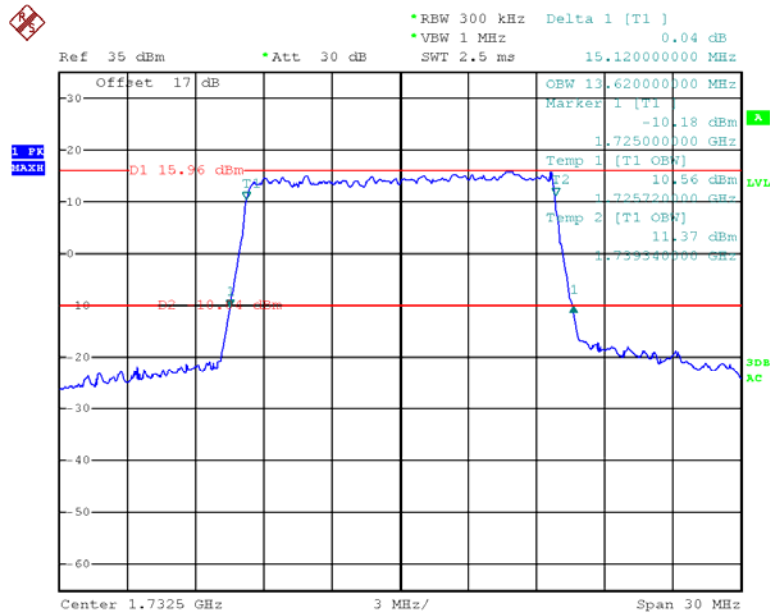
Date: 14.OCT.2015 23:06:20

### 16-QAM, Band 4-10M



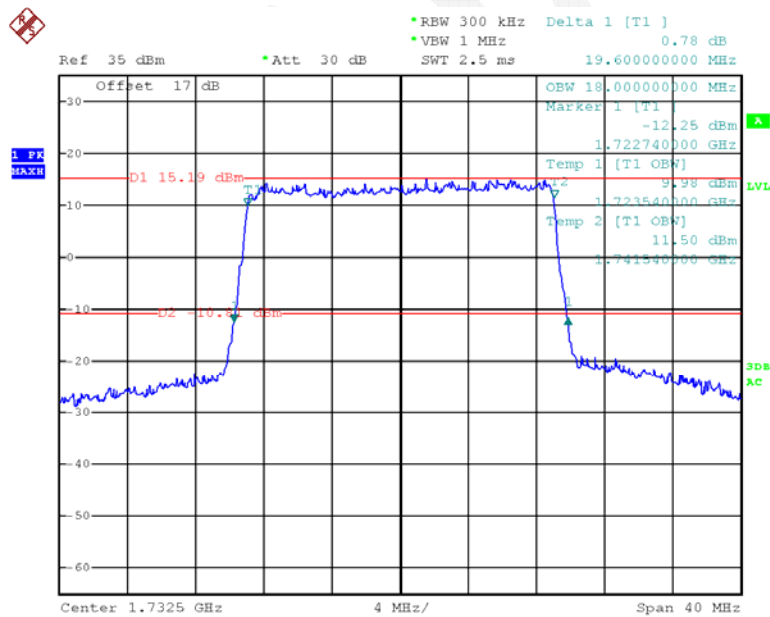
Date: 14.OCT.2015 23:18:53

### 16-QAM, Band 4-15M



Date: 14.OCT.2015 23:25:51

### 16-QAM, Band 4-20M



Date: 14.OCT.2015 23:37:00

## FCC §2.1051, §22.917(a) & §24.238(a) & §27.53- SPURIOUS EMISSIONS AT ANTENNA TERMINALS

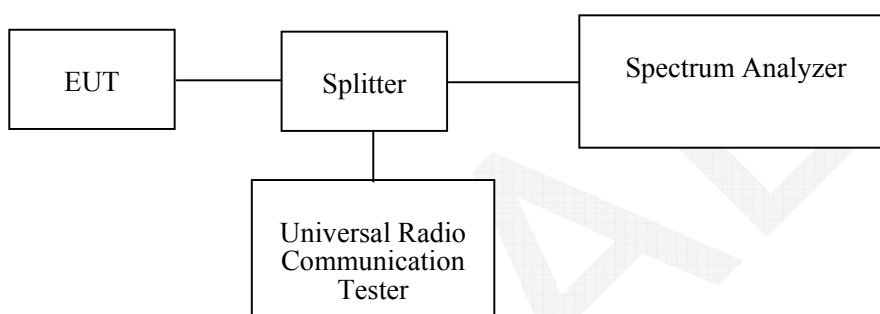
### Applicable Standard

FCC §2.1051, §22.917(a) , §24.238(a) and §27.53.

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

### Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. Sufficient scans were taken to show any out of band emissions up to 10<sup>th</sup> harmonic.



### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2015-05-09	2016-05-09
R&S	Universal Radio Communication Tester	CMU200	109038	2015-05-09	2016-05-09
R&S	Wideband Radio Communication Tester	CMW500	106891	2014-12-19	2015-12-19

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

### Test Data

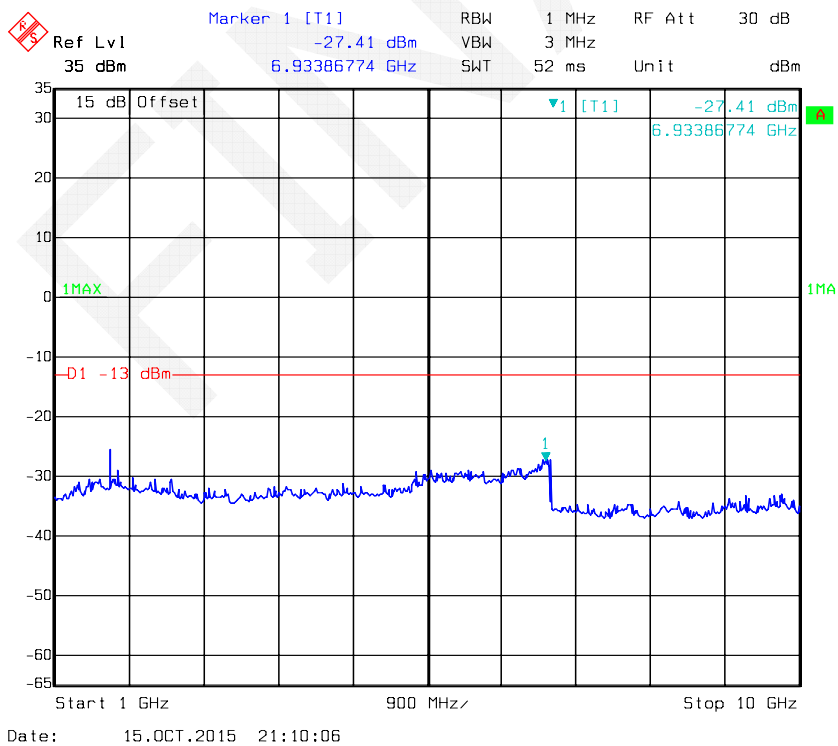
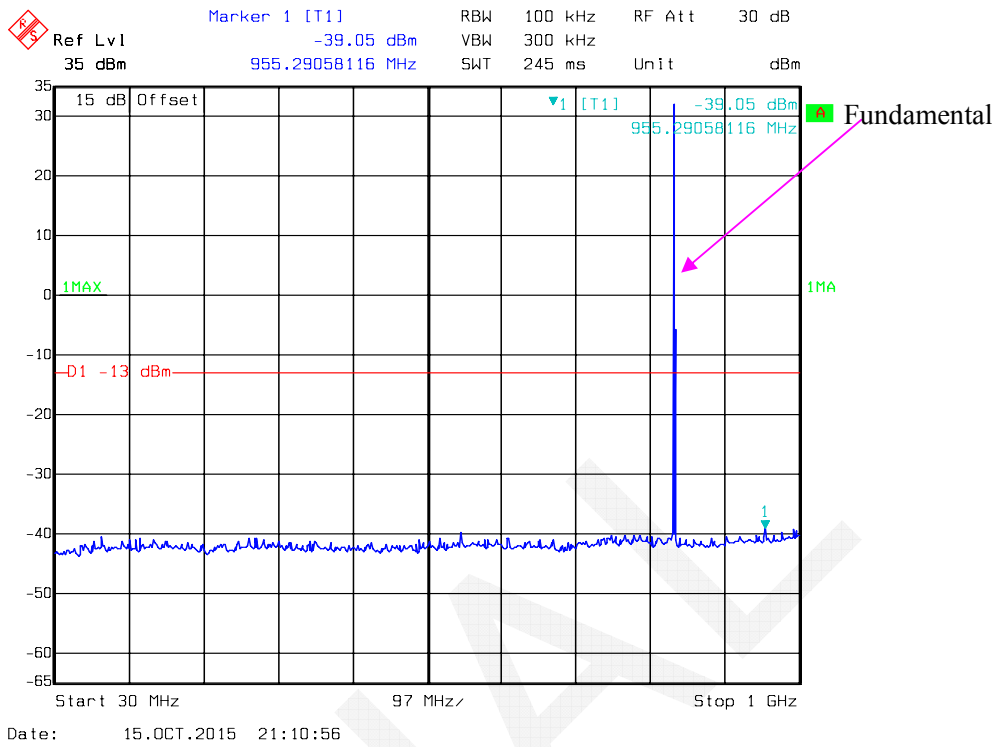
#### Environmental Conditions

<b>Temperature:</b>	26.8~27.1 °C
<b>Relative Humidity:</b>	51~55 %
<b>ATM Pressure:</b>	100.8 kPa

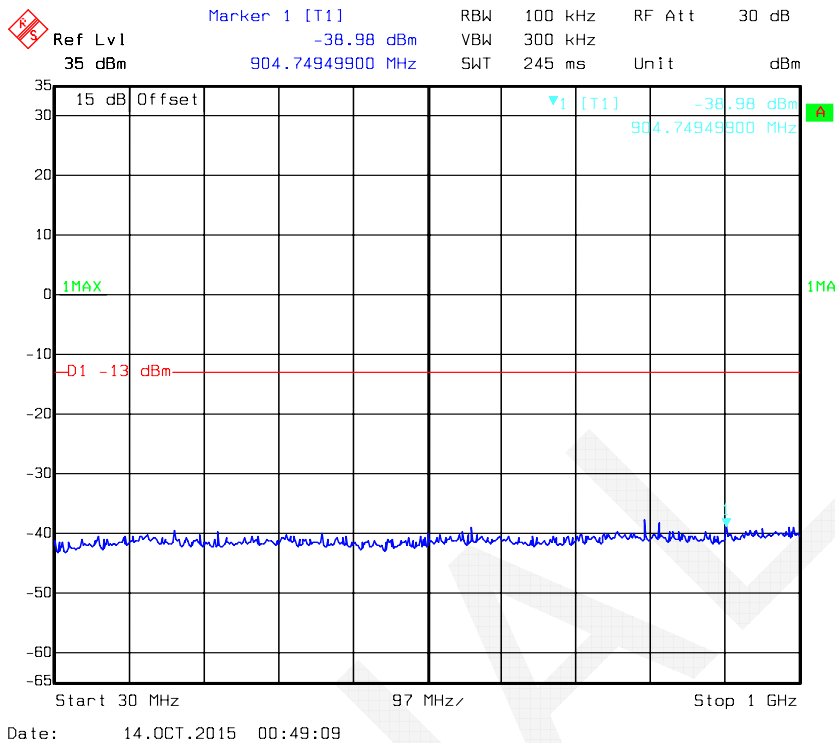
*The testing was performed by Dean Liu from 201510-15 to 2015-10-28.*

Please refer to the following plots.

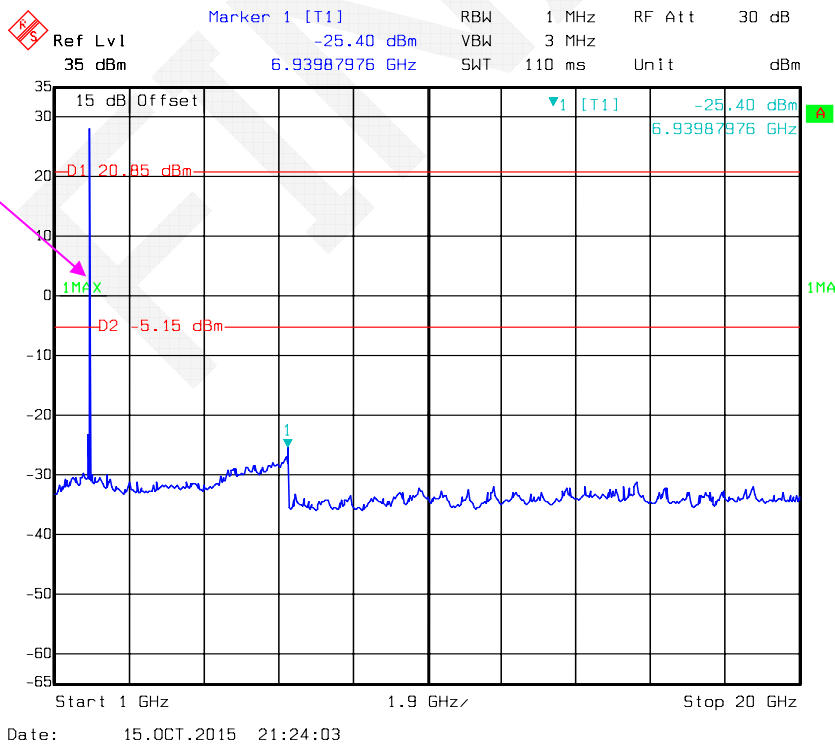
### GSM850\_Middle Channel



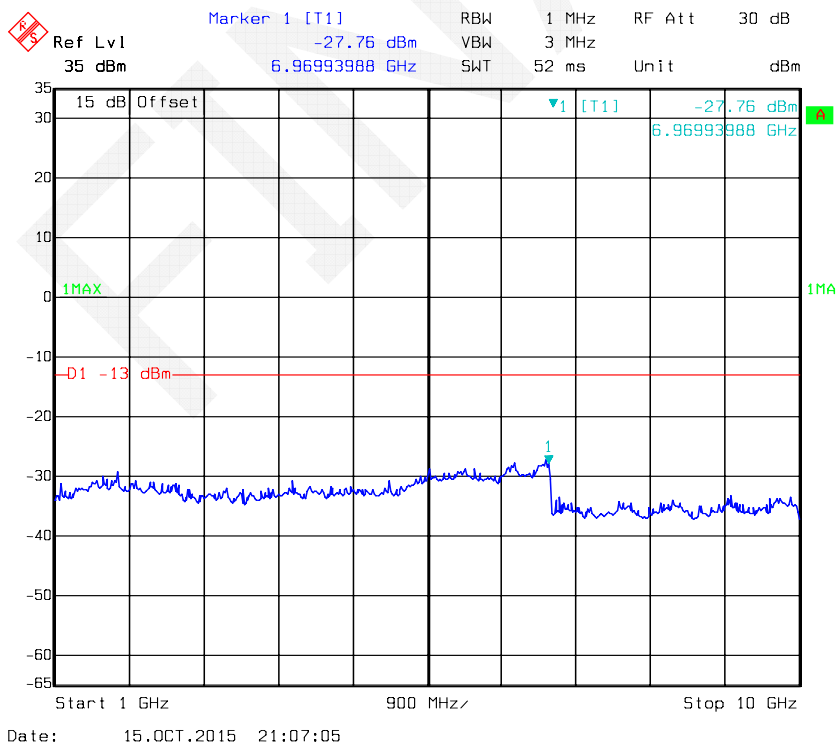
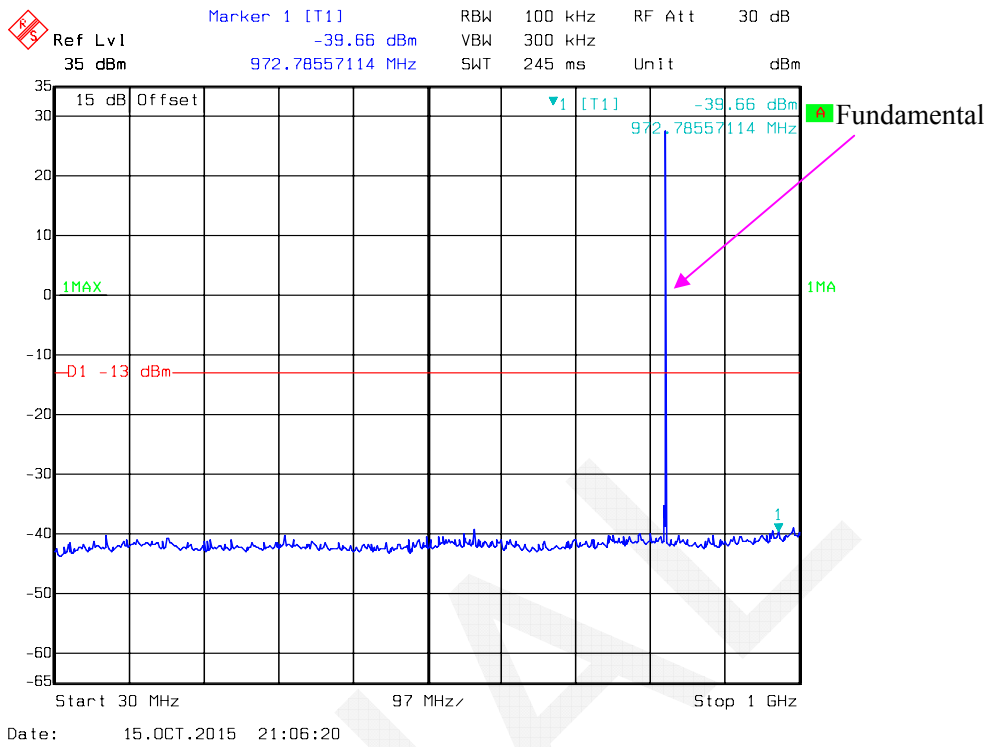
PCS 1900\_ Middle Channel



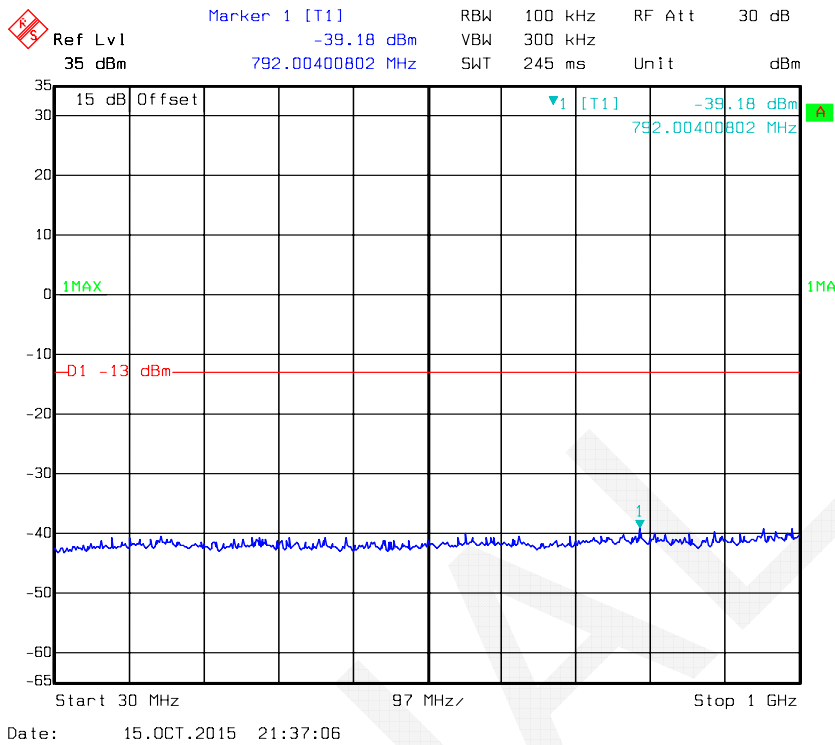
Fundamental



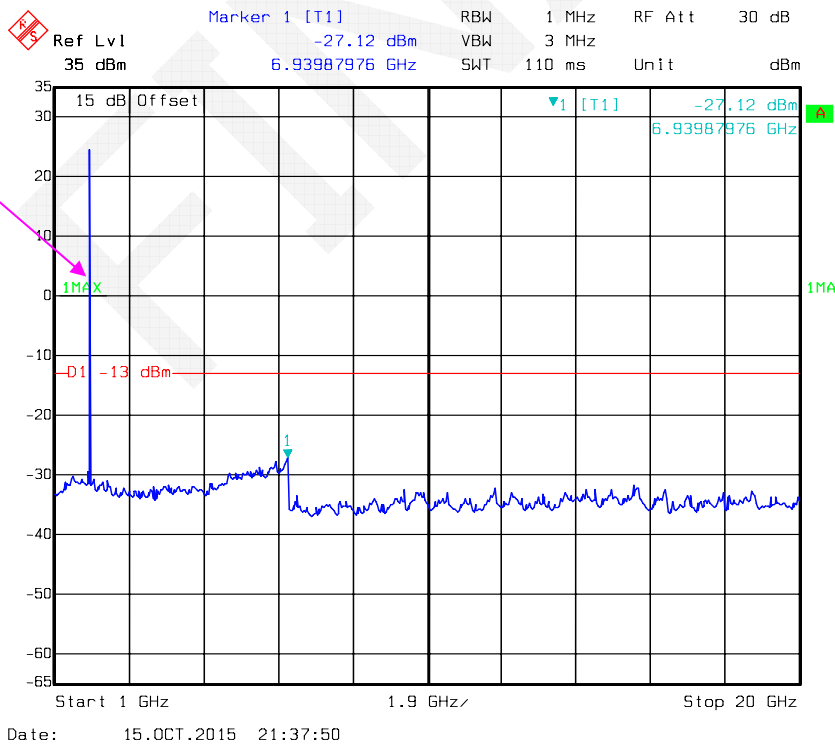
### EDGE850\_Middle Channel



**EDGE1900\_Middle Channel**

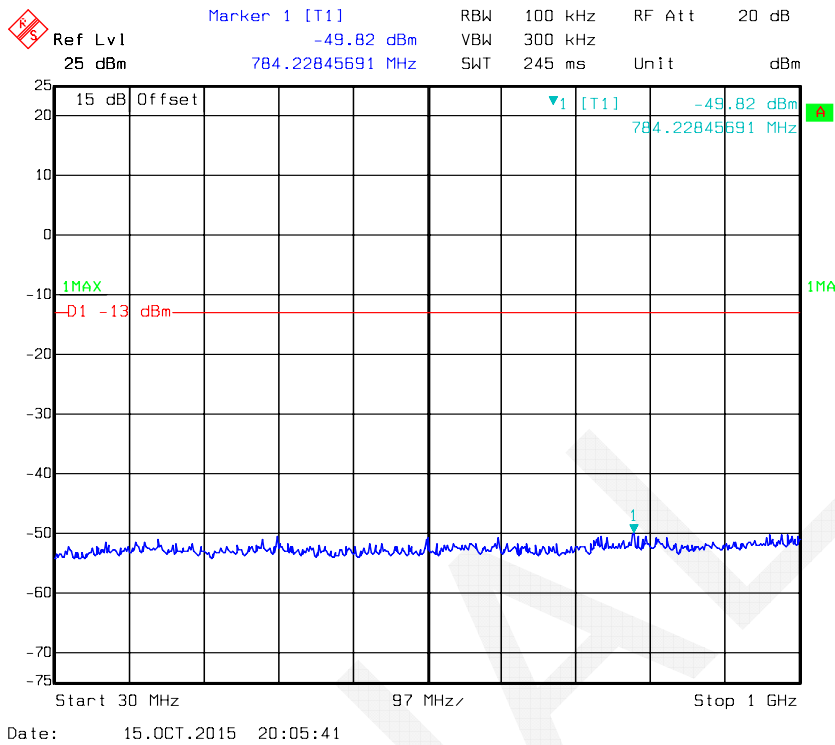


Fundamental

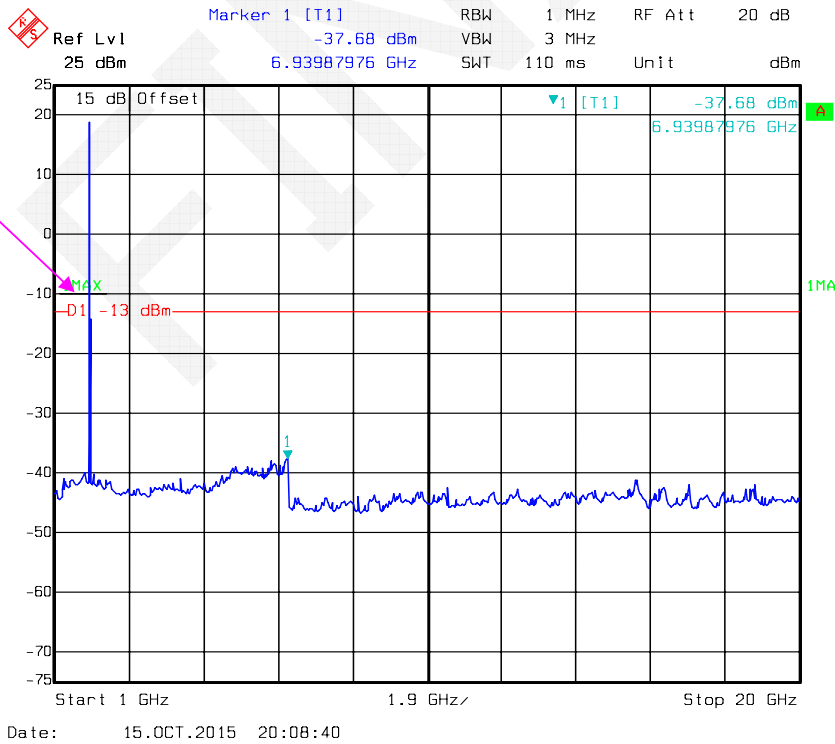




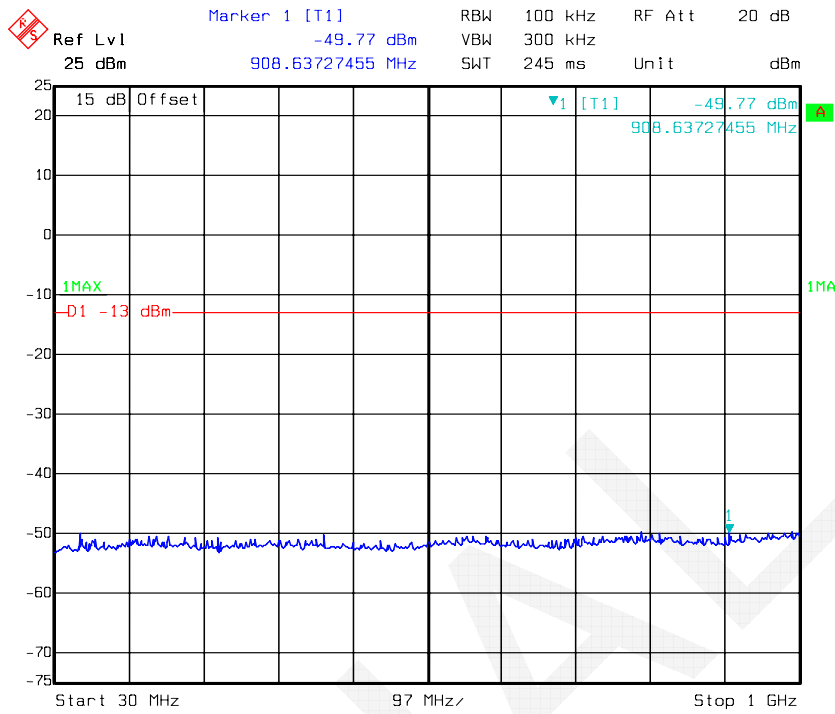
### REL99 Band II\_Middle Channel



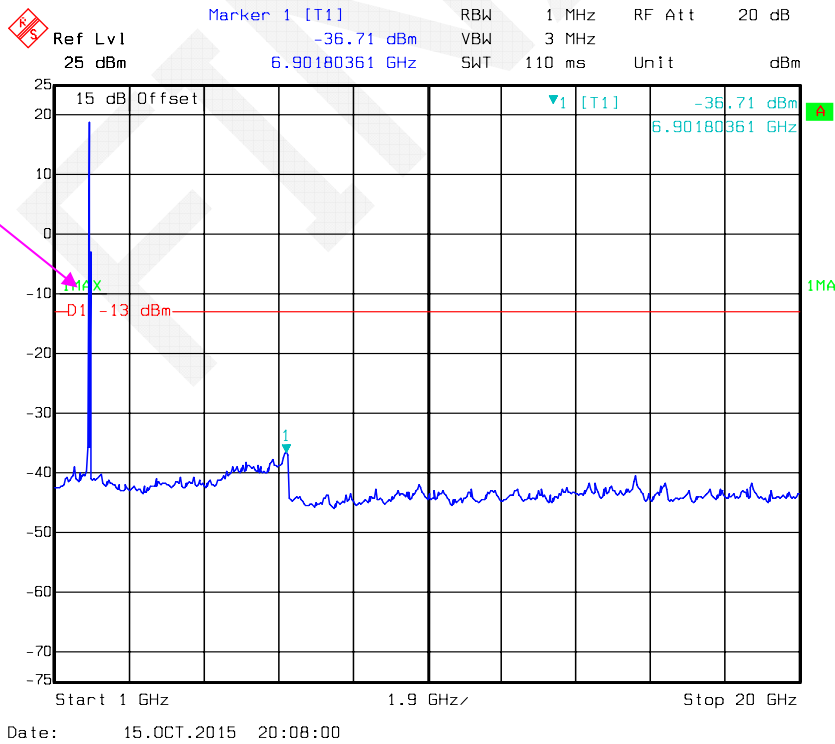
Fundamental



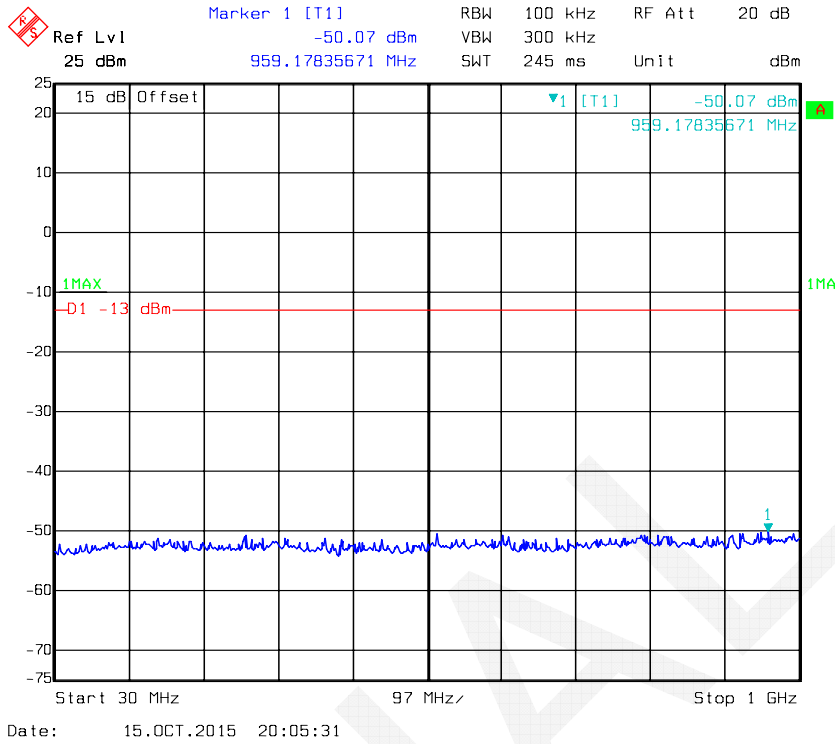
**HSDPA Band II \_Middle Channel**



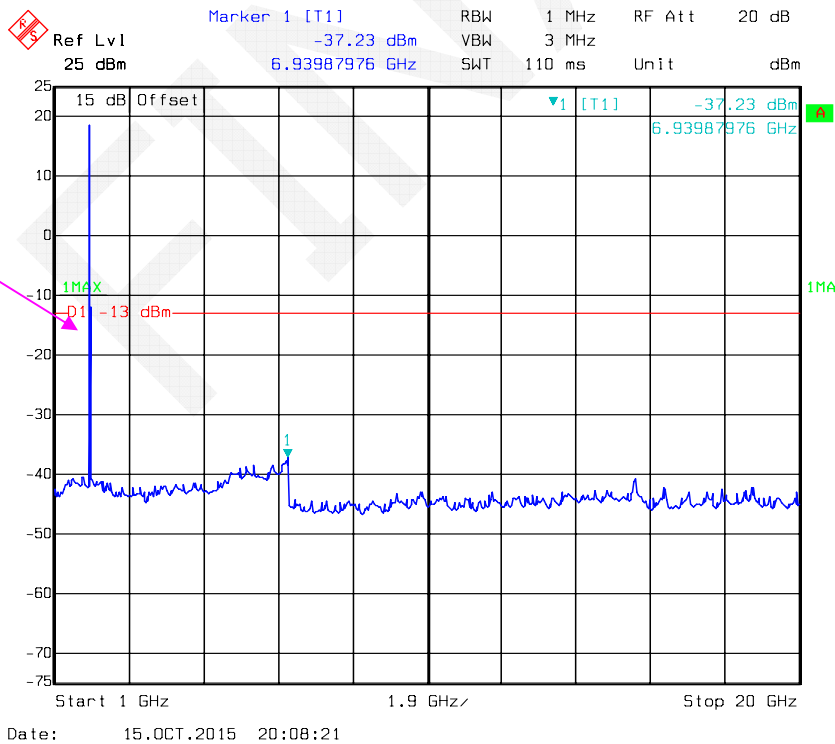
Fundamental



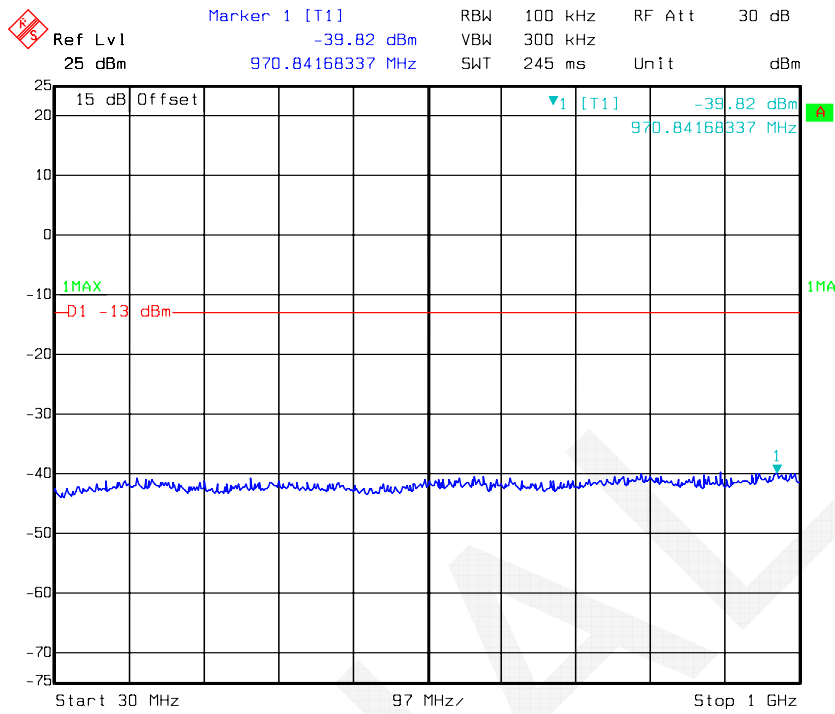
### HSUPA Band II \_ Middle Channel



Fundamental

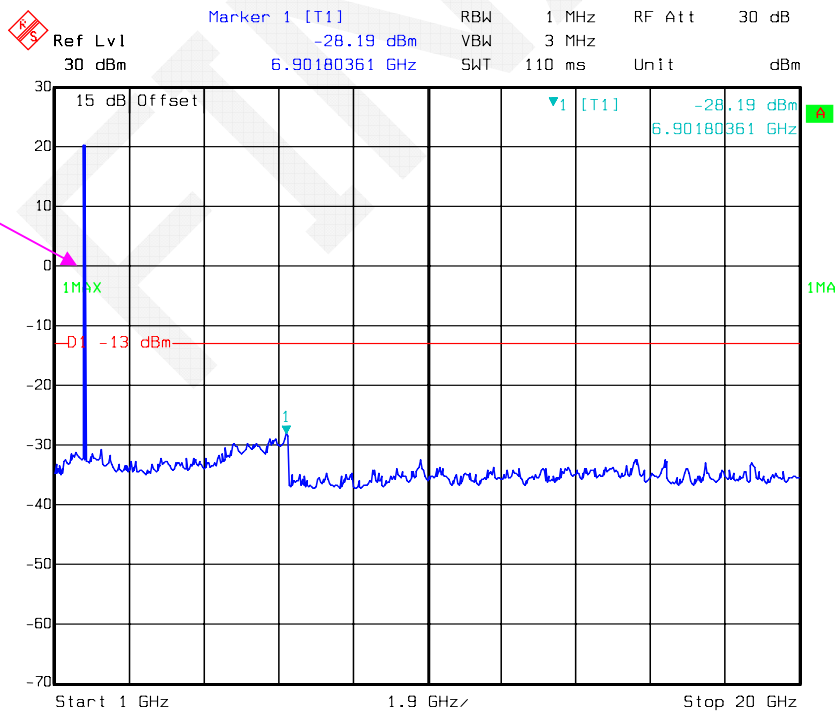


**REL99 Band IV\_ Middle Channel**



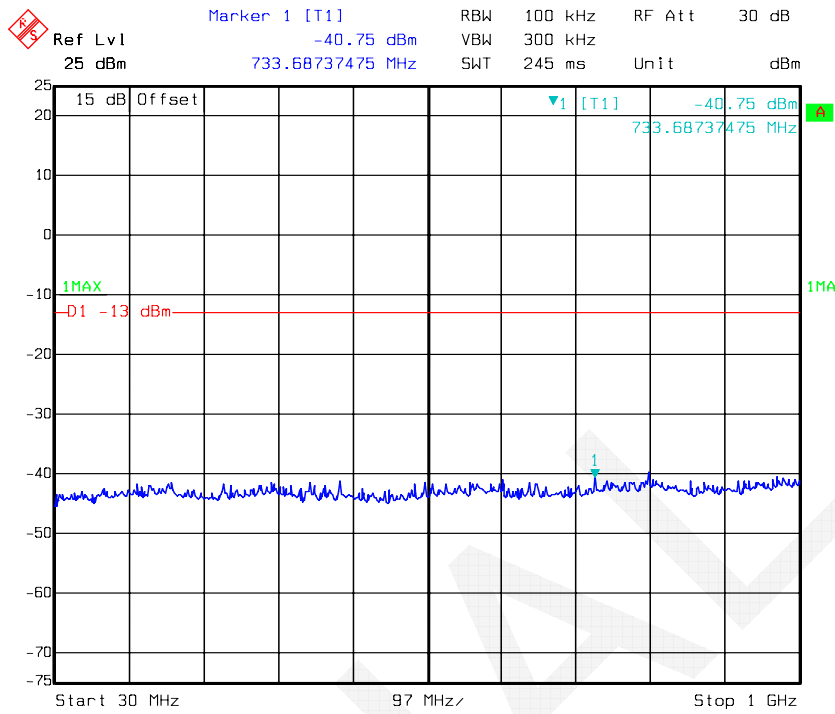
Date: 28.OCT.2015 20:38:25

Fundamental



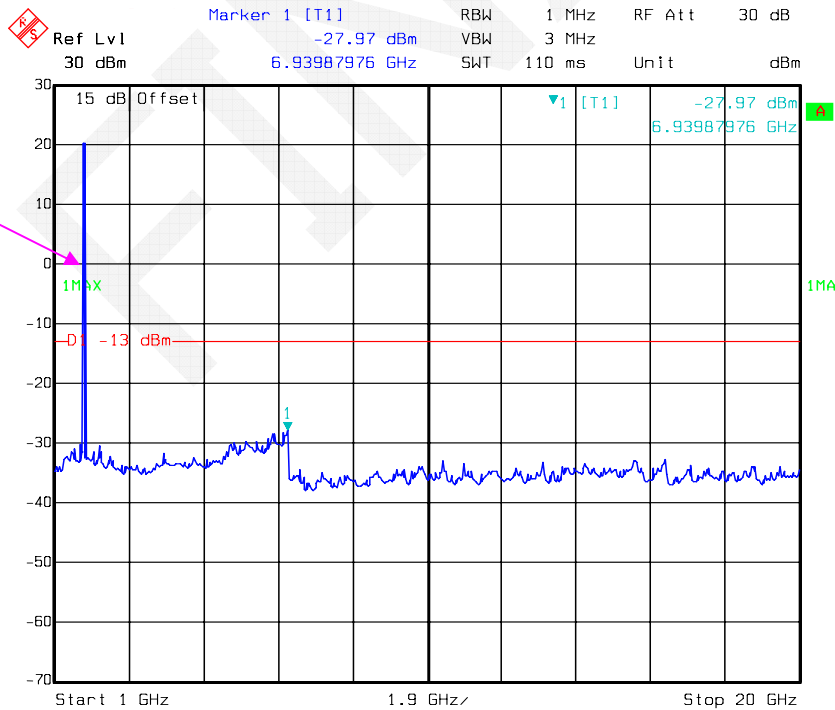
Date: 28.OCT.2015 20:40:48

**HSDPA Band IV\_ Middle Channel**



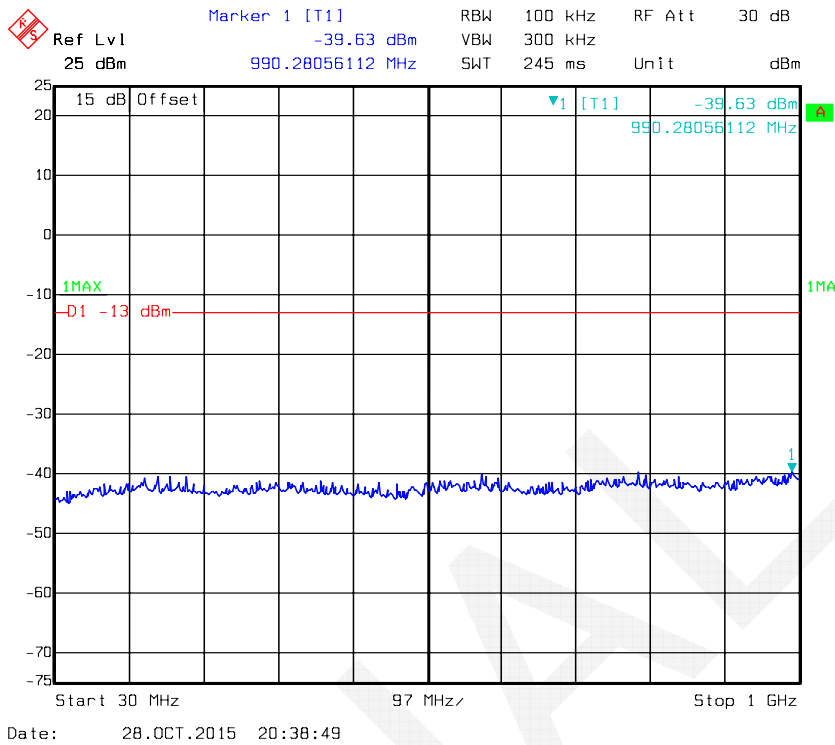
Date: 28.OCT.2015 20:38:34

Fundamental

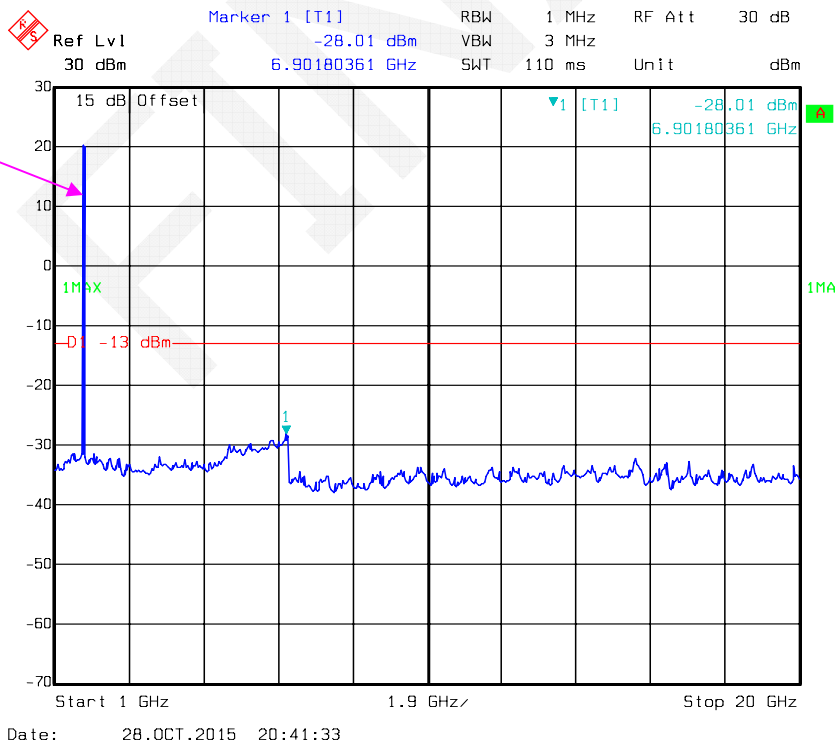


Date: 28.OCT.2015 20:41:13

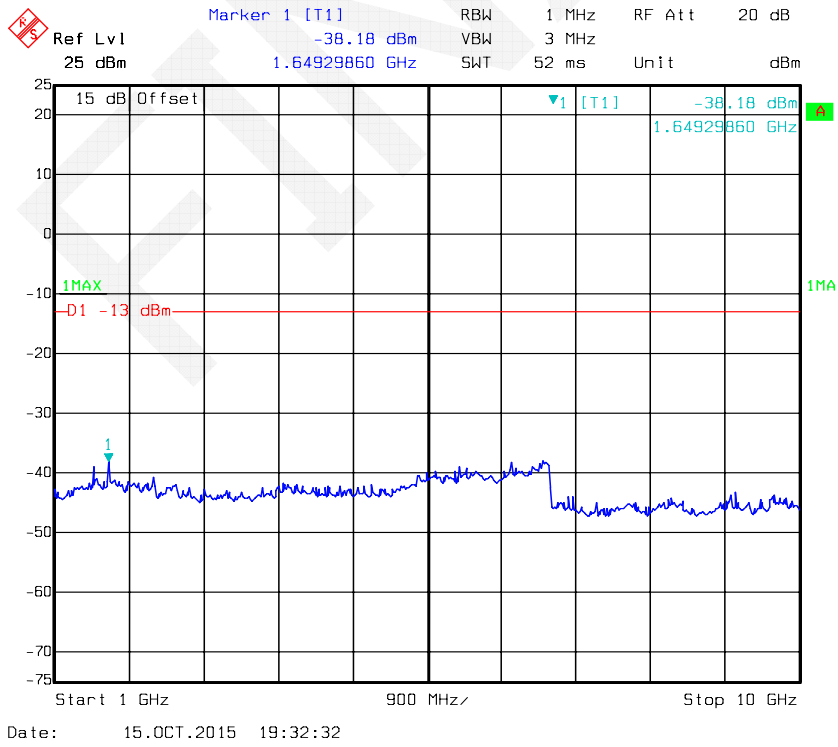
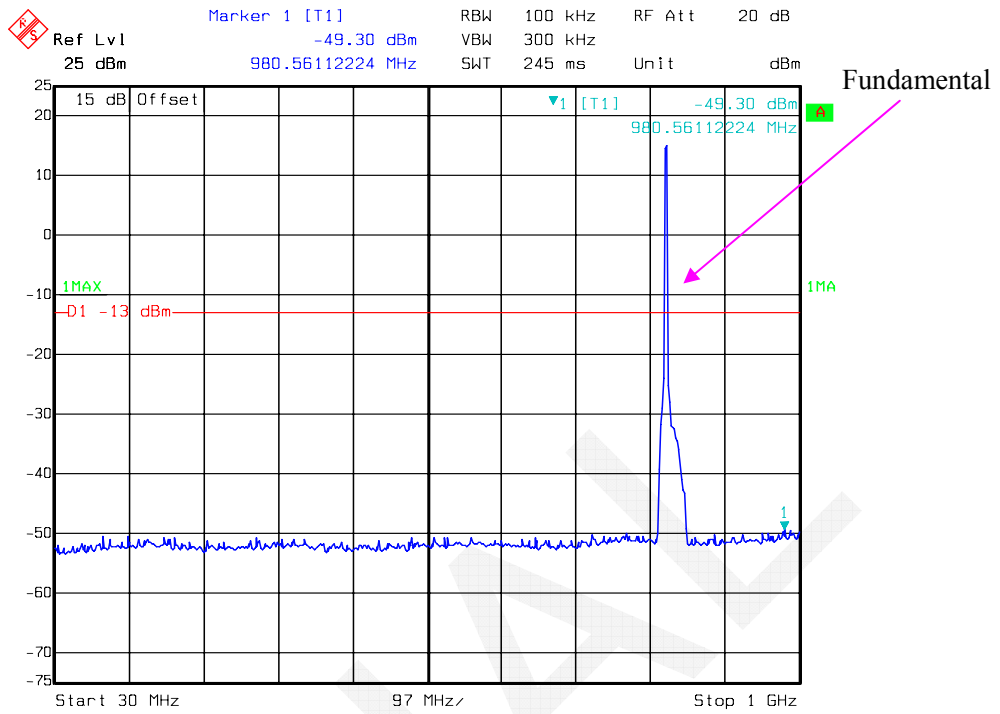
### HSUPA Band IV\_ Middle Channel



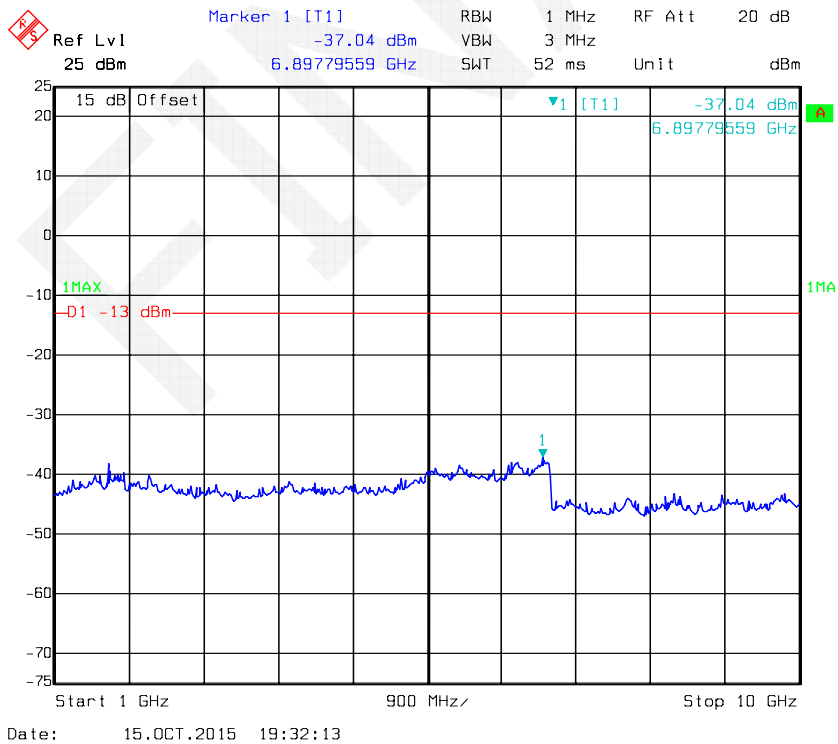
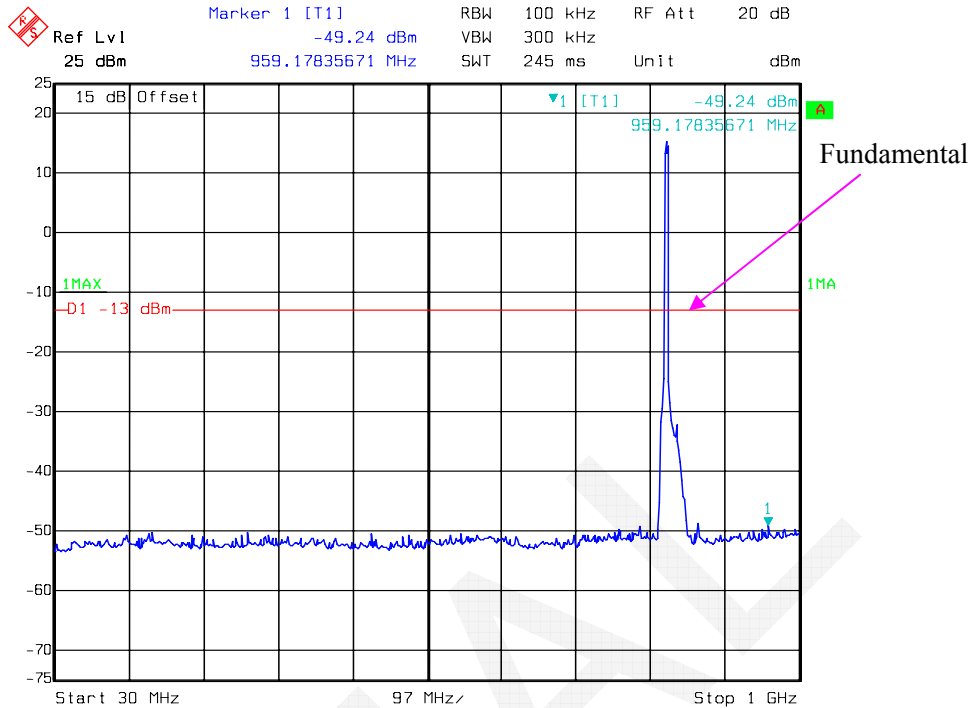
Fundamental



**REL99 Band V\_ Middle Channel**



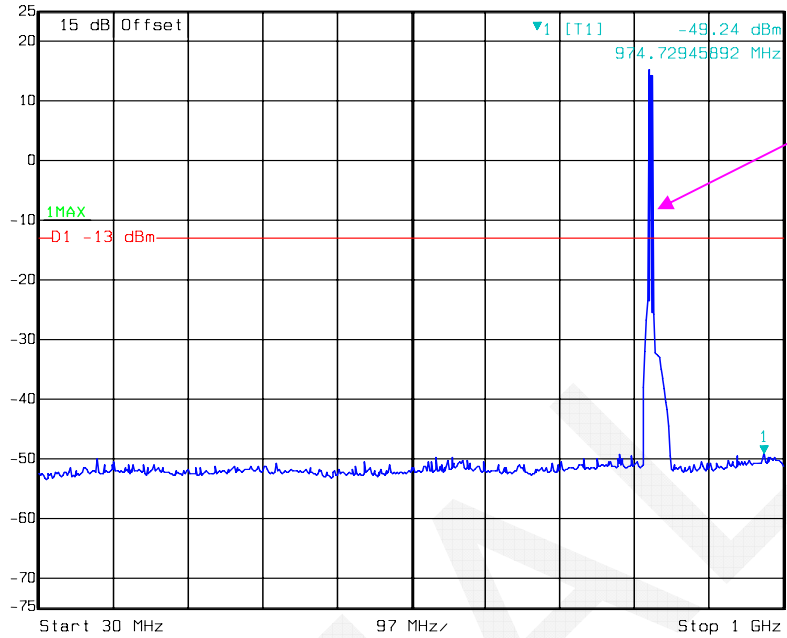
**HSDPA Band V\_ Middle Channel**





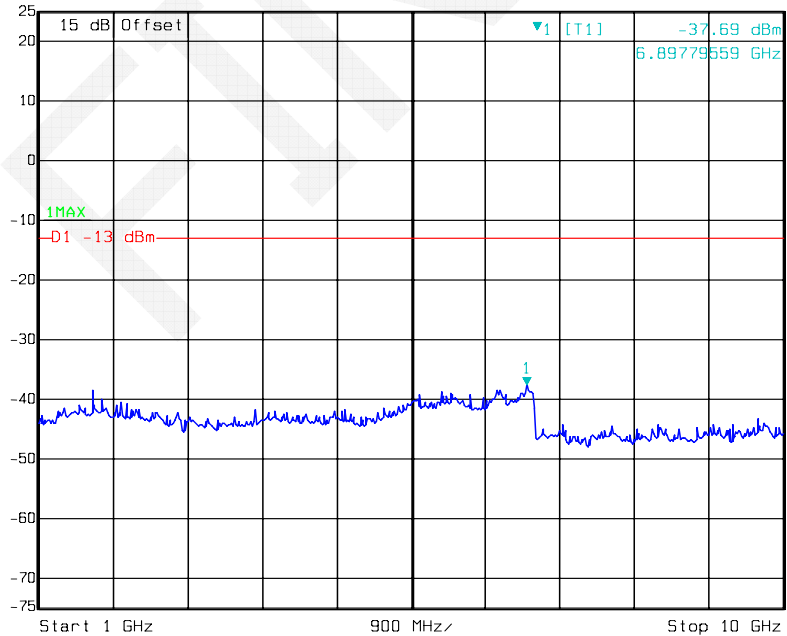
**HSUPA Band V\_ Middle Channel**

	Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	20 dB
	25 dBm	-49.24 dBm	VBW	300 kHz		
		974.72945892 MHz	SWT	245 ms	Unit	dBm



Date: 15.OCT.2015 19:30:27

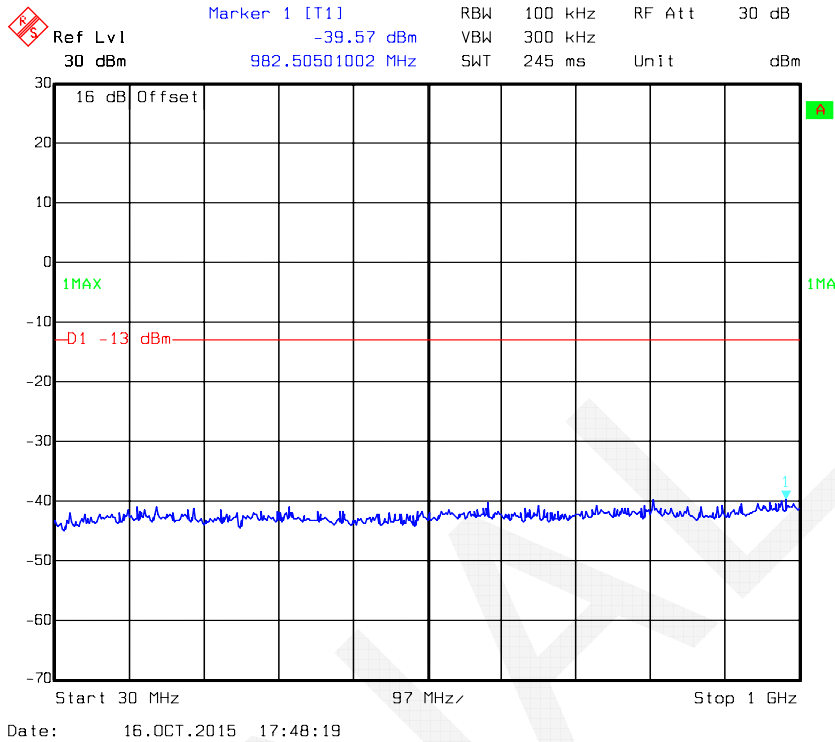
	Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
	25 dBm	-37.69 dBm	VBW	3 MHz		
		6.89779559 GHz	SWT	52 ms	Unit	dBm



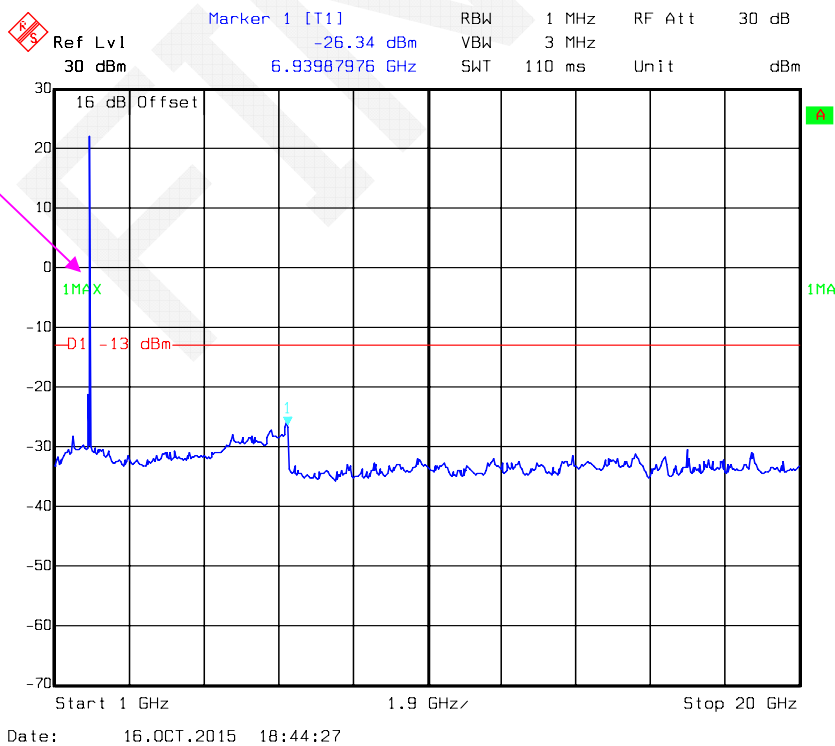
Date: 15.OCT.2015 19:32:23

LTE Band:

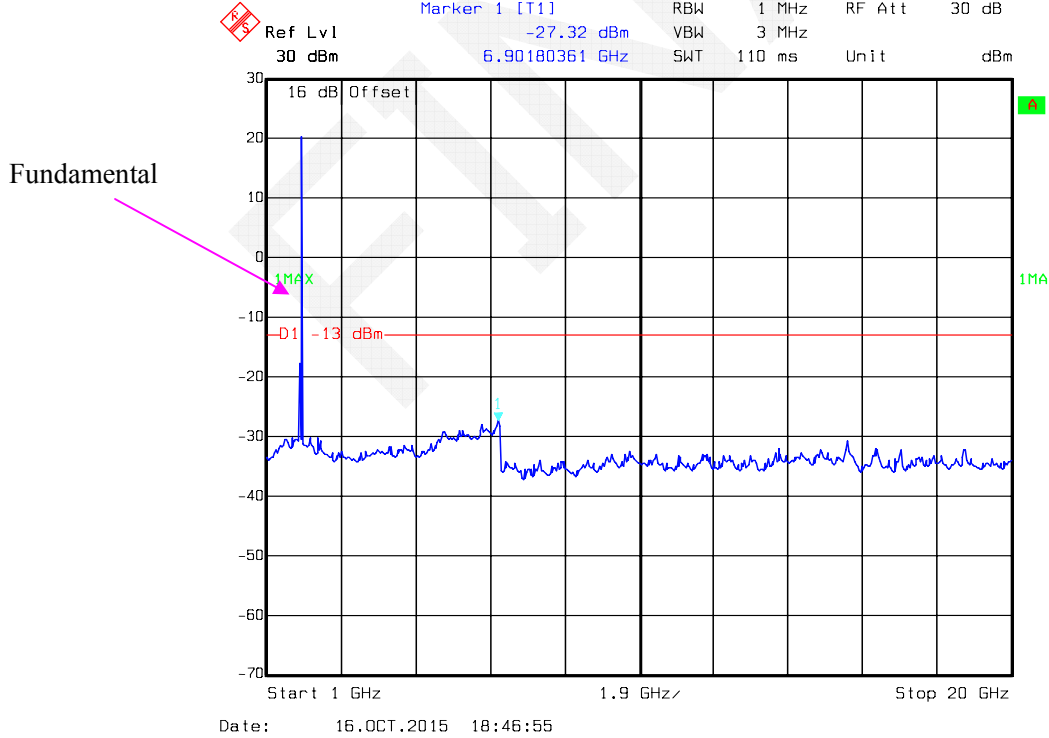
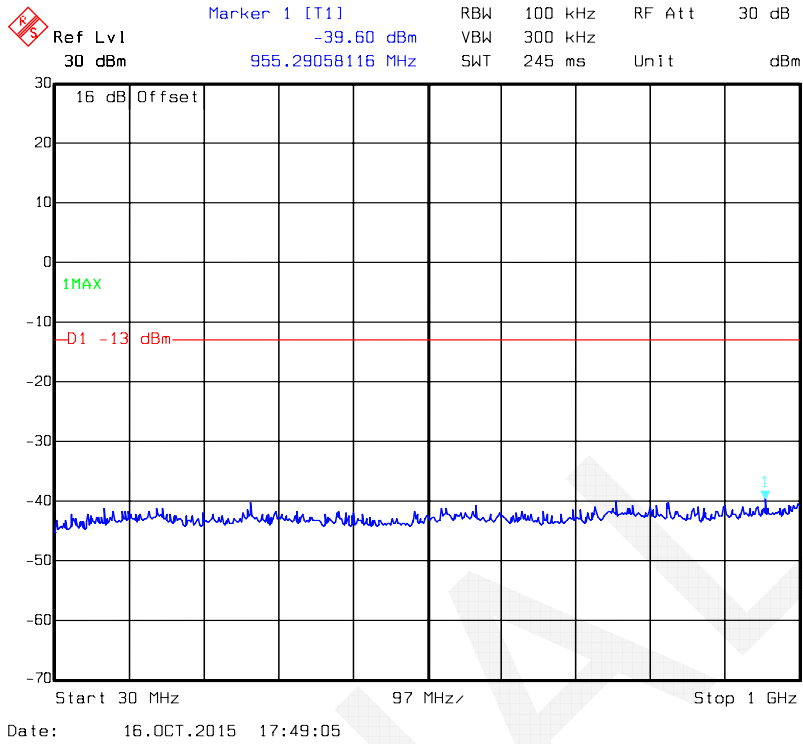
### QPSK, Band 2-1.4M \_ Middle Channel



Fundamental

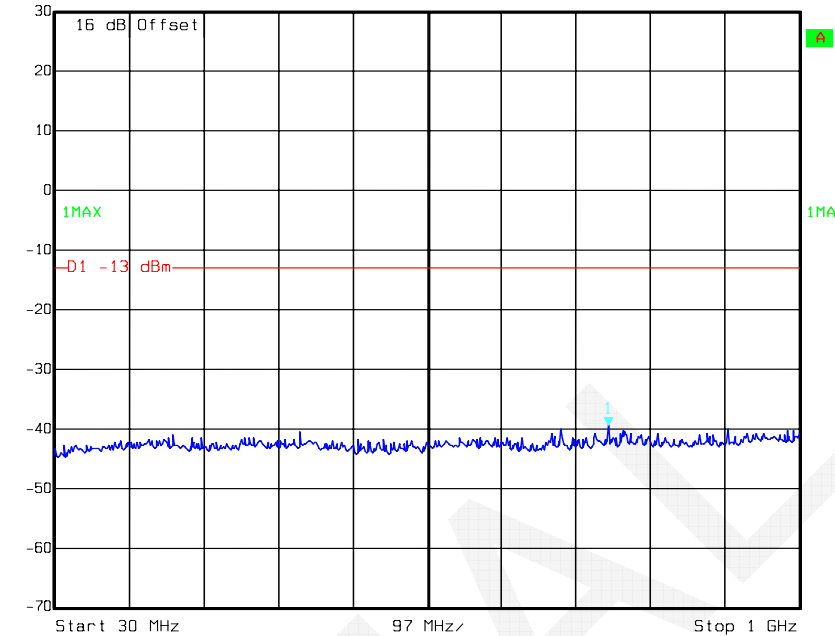


**QPSK, Band 2-3M \_ Middle Channel**



### QPSK, Band 2-5M \_ Middle Channel

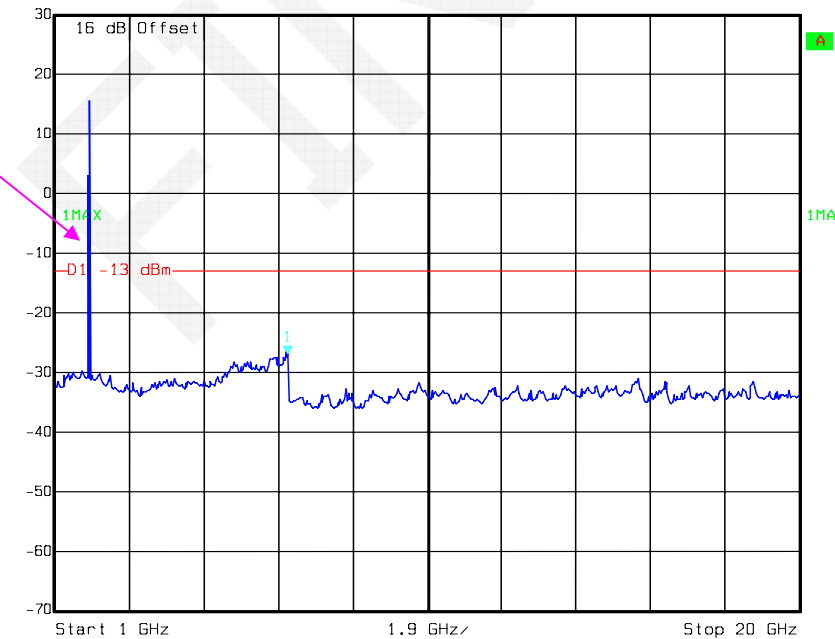
Marker 1 [T1] RBW 100 kHz RF Att 30 dB  
Ref Lvl -39.49 dBm VBW 300 kHz  
30 dBm 751.18236473 MHz SWT 245 ms Unit dBm



Date: 16.OCT.2015 17:49:55

Marker 1 [T1] RBW 1 MHz RF Att 30 dB  
Ref Lvl -26.90 dBm VBW 3 MHz  
30 dBm 6.93987976 GHz SWT 110 ms Unit dBm

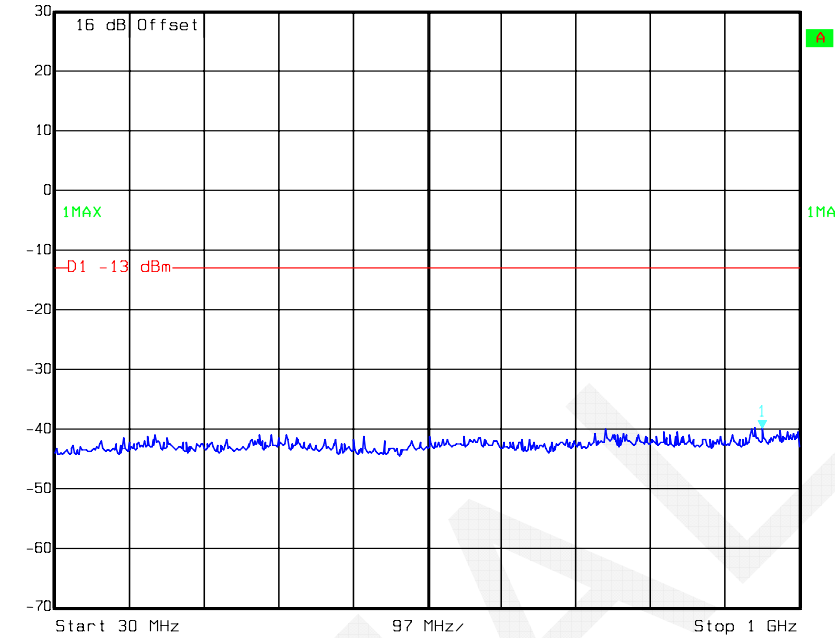
Fundamental



Date: 16.OCT.2015 20:54:25

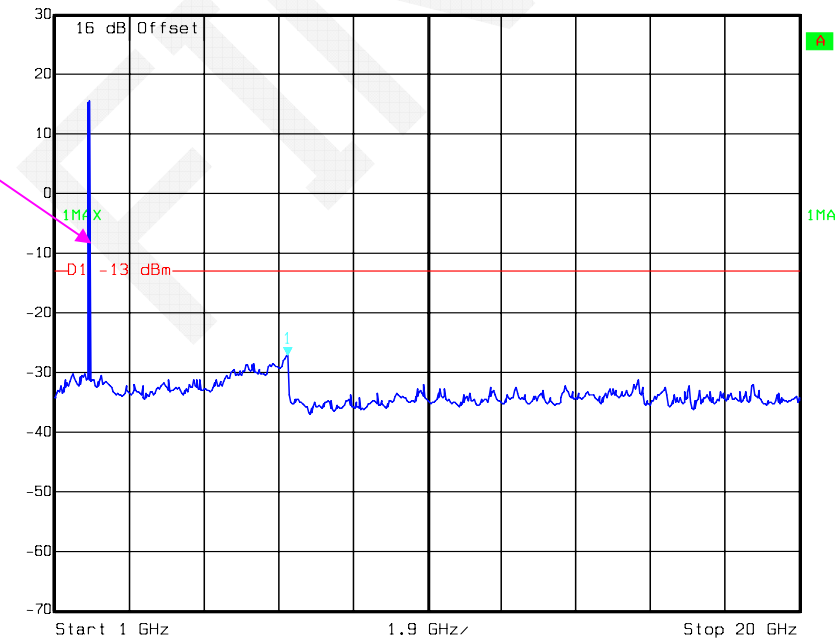
### QPSK, Band 2-10M \_ Middle Channel

Marker 1 [T1] RBW 100 kHz RF Att 30 dB  
Ref Lvl -39.87 dBm VBW 300 kHz  
30 dBm 951.40280561 MHz SWT 245 ms Unit dBm

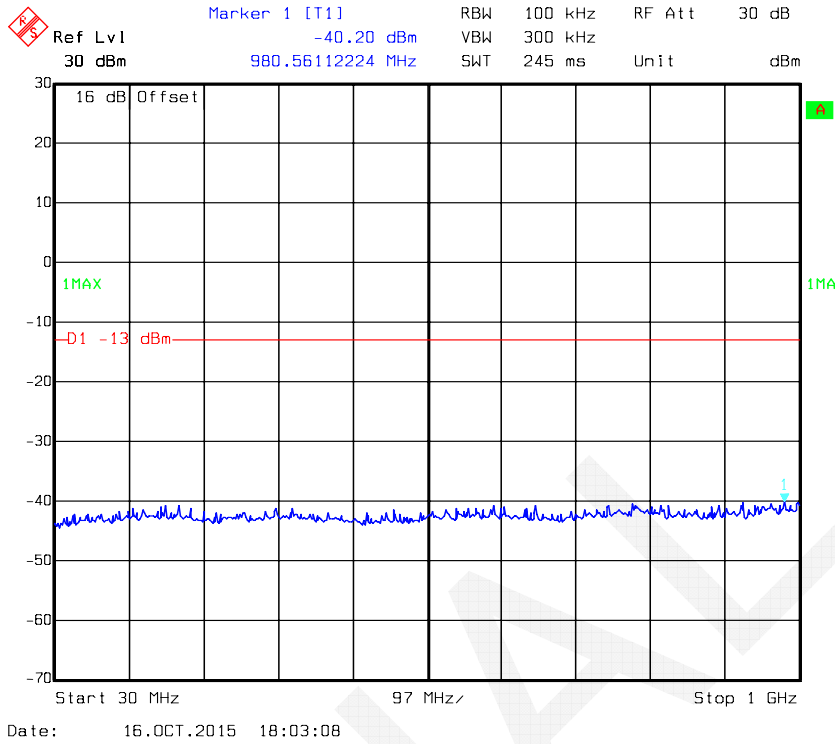


Marker 1 [T1] RBW 1 MHz RF Att 30 dB  
Ref Lvl -27.03 dBm VBW 3 MHz  
30 dBm 6.93987976 GHz SWT 110 ms Unit dBm

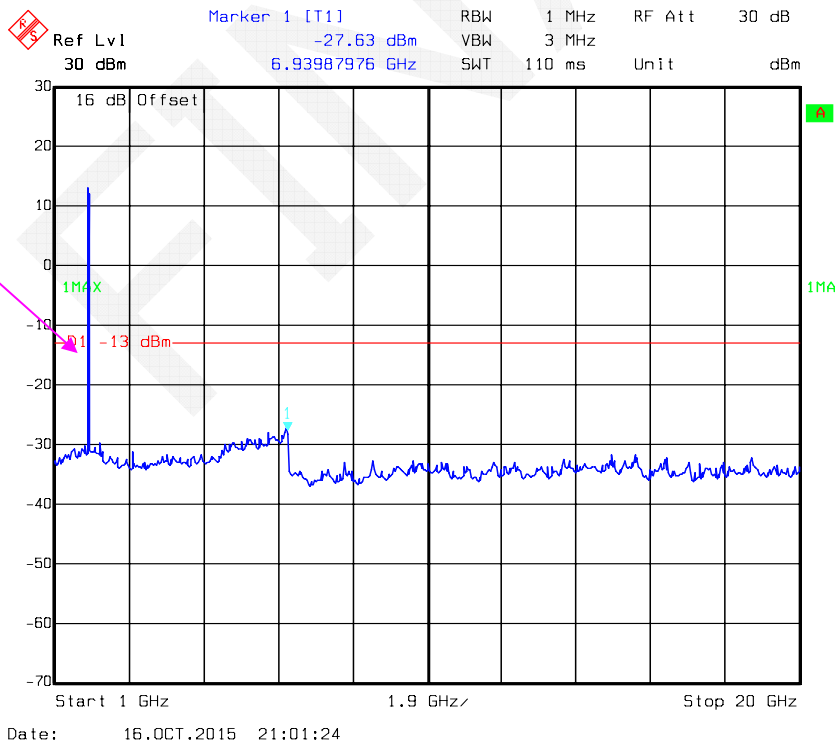
Fundamental



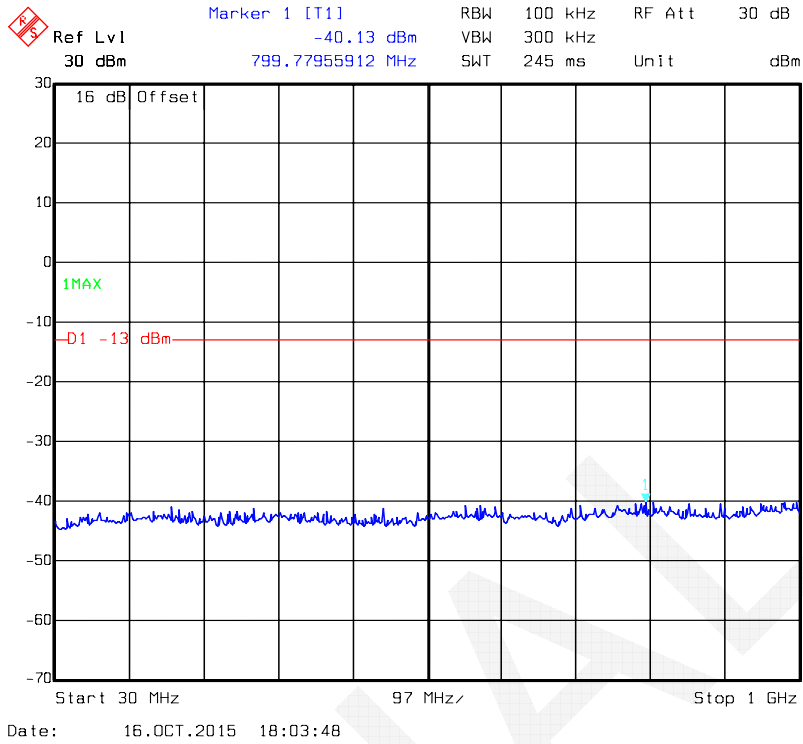
### QPSK, Band 2-15M \_ Middle Channel



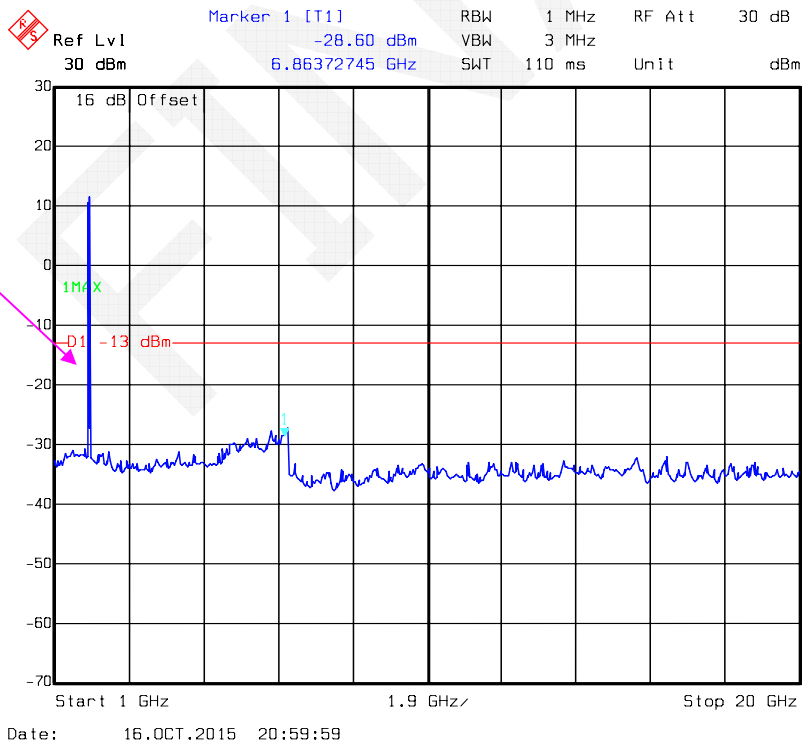
Fundamental



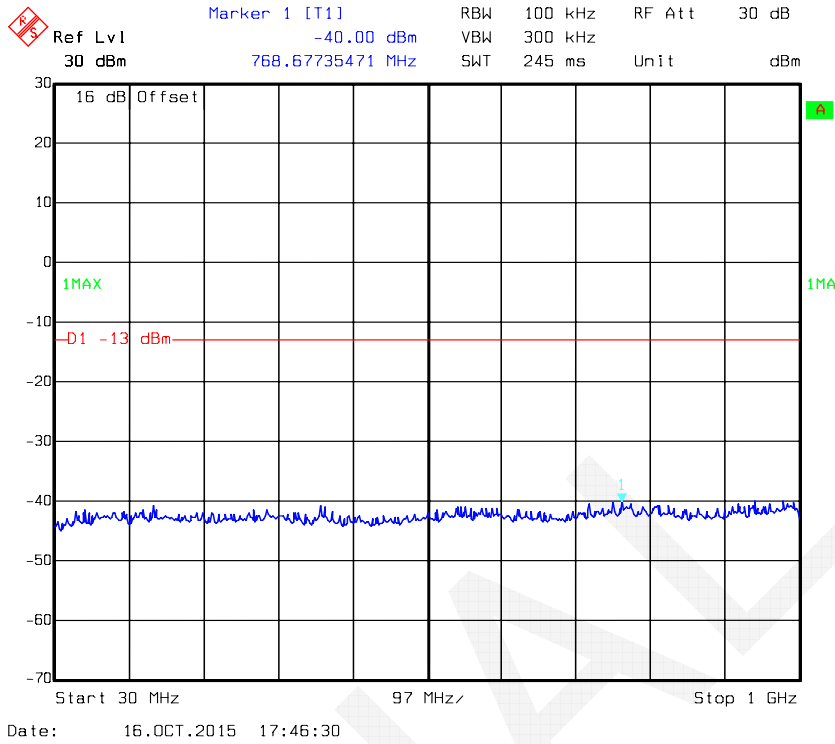
### QPSK, Band 2-20M \_ Middle Channel



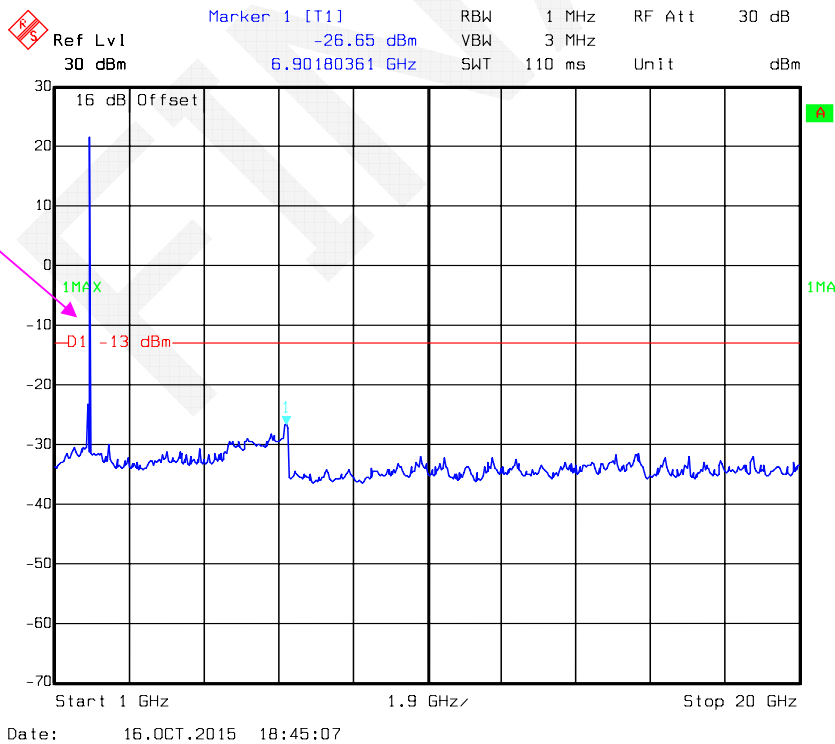
Fundamental



### 16-QAM, Band 2-1.4M \_ Middle Channel

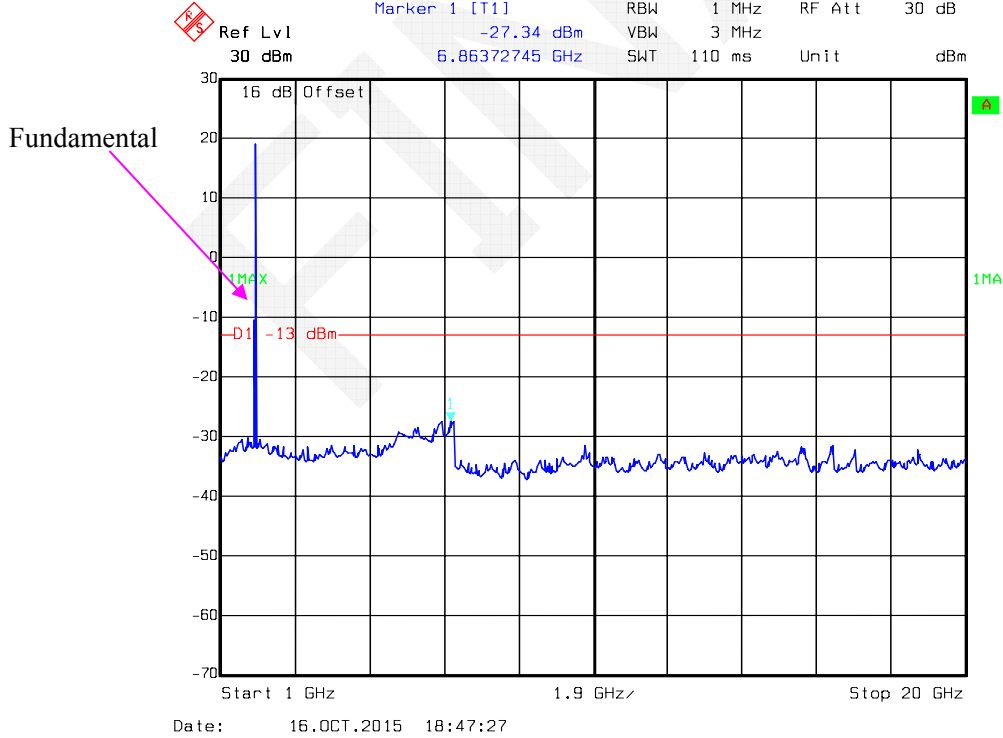
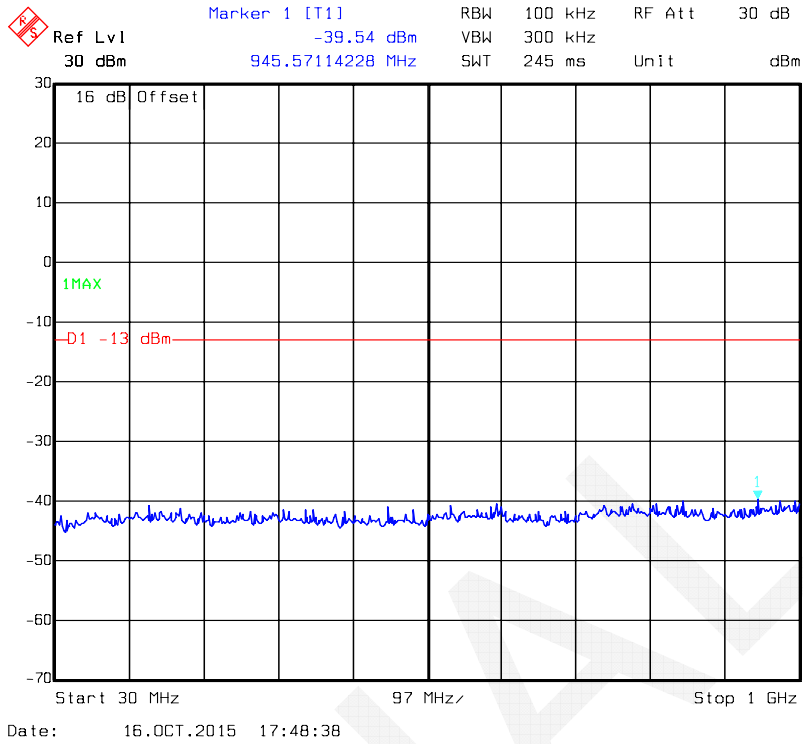


Fundamental





### 16-QAM, Band 2-3M \_ Middle Channel



### 16-QAM, Band 2-5M \_ Middle Channel

