

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

For

# MAXWEST INTERNATIONAL LIMITED

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FCC ID: 2AEN3GRAVITY5LTE

Report Type: Product Type: Original Report **Gravity 5LTE** Lion Xiao **Test Engineer:** Lion Xiao **Report Number:** RDG151125001-00C **Report Date:** 2015-12-04 Jerry Zhang Jerry Zhang **Reviewed By:** EMC Manager Bay Area Compliance Laboratories Corp. (Dongguan) **Test Laboratory:** No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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### **GENERAL INFORMATION**

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

The MAXWEST INTERNATIONAL LIMITED's product, model number: Gravity 5LTE (FCC ID: 2AEN3GRAVITY5LTE) (the "EUT") in this report was a Gravity 5LTE, which was measured approximately:14.6 cm (L) x 7.2 cm (W) x 1.0 cm (H), rated input voltage: DC3.8V rechargeable Li-ion battery or DC5.0V charging from adapter.

Adapter information:

Model: LPL-A005050100Z

Input: AC100-240V, 50/60 Hz 200mA MAX

Output: DC 5V, 1000mA

Note: The model Gravity 5LTE have different samples, they are the same electromagnetic emissions and electromagnetic compatibility characteristics, the difference between them is the colour, the details was explained in the attached declaration letter.

All measurement and test data in this report was gathered from production sample serial number: 151125001 (Assigned by BACL, Dongguan). The EUT was received on 2015-11-25.

### **Objective**

This report is prepared on behalf of *MAXWEST INTERNATIONAL LIMITED* 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: 2AEN3GRAVITY5LTE FCC Part 15C DSS submissions with FCC ID: 2AEN3GRAVITY5LTE FCC Part 15C DTS submissions with FCC ID: 2AEN3GRAVITY5LTE

### **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.

### **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.

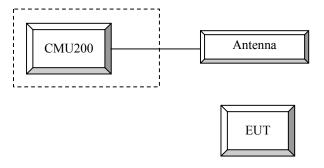
### **Equipment Modifications**

No modification was made to the EUT.

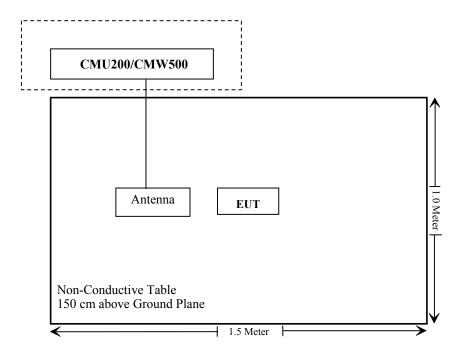
### **Support Equipment List and Details**

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**

FCC Rules	Description of Test	Result
§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

# FCC §1.1310 & §2.1093- RF EXPOSURE

# **Applicable Standard**

FCC§1.1310 and §2.1093.

### **Test Result**

Compliance, please refer to the SAR report: RDG151125001-20.

# FCC §2.1047 - MODULATION CHARACTERISTIC

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

### FCC § 2.1046, § 22.913 (a) & § 24.232 (c) & § 27.50 - 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 Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection 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).

	Loopback Mode	Test Mode 1
WCDMA General Settings	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc / βd	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	
	Loopback Mode			Test Mode		
	Rel99 RMC			12.2kbps RM	IC	
WCDMA	HSDPA FRC			H-Set1		
	Power Control Algorithm		Algorithm2			
WCDMA General	βς	2/15	12/15	15/15	15/15	
General Settings	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	
	DACK			8		
	DNAK			8		
HSDPA	DCQI			8		
Specific	Ack-Nack repetition			3		
Settings	factor			<i></i>		
Settings	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.

	Mode	HSUPA	HSUPA	HSUPA	HSUPA	HSUPA			
	Subset	1	2	3	4	5			
	Loopback Mode Test Mode 1								
	Rel99 RMC	12.2kbps RMC							
	HSDPA FRC	H-Set1							
	HSUPA Test	HSUPA Loopback							
****	Power Control			Algorithm2					
WCDM	Algorithii								
A General	βc	11/15	6/15	15/15	2/15	15/15			
	βd	15/15	15/15	9/15	15/15	0			
Settings	βес	209/225	12/15	30/15	2/15	5/15			
	βc/ βd	11/15	6/15	15/9	2/15	-			
	βhs	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			
	DACK			8					
	DNAK			8					
	DCQI			8					
HSDPA	Ack-Nack repetition			3					
Specific	factor								
Settings	CQI Feedback			4ms					
	CQI Repetition			2					
	Factor								
	Ahs=βhs/ βc			30/15					
	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	242.1	174.9	482.8	205.8	308.9			
	Data Rate kbps		1,,		200.0	200.5			
		E-TFC	VI 11 17	E-TFCI	E TEC	ZI 11 E			
		E-TFC		11		I PO 4			
HSUPA		E-TF		E-TFCI		CI 67			
Specific		E-TFCI		PO4		I PO 18			
Settings		E-TF		E-TFCI	E-TF				
	Reference E FCls	E-TFC		92		I PO23			
		E-TF		E-TFCI		CI 75			
		E-TFC	I PO26	PO 18	E-TFC	I PO26			
		E-TF			E-TF				
		E-TFCI	I PO 27		E-TFC	I PO 27			
				1					

### 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	β <sub>c</sub> (Note3)	β <sub>d</sub>	β <sub>HS</sub> (Note1)	$\beta_{ec}$	β <sub>ed</sub> (2xSF2) (Note 4)	β <sub>ed</sub> (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	β <sub>ed</sub> 1: 30/15 β <sub>ed</sub> 2: 30/15	β <sub>ed</sub> 3: 24/15 β <sub>ed</sub> 4: 24/15	3.5	2.5	14	105	105
Note 1 Note 2 Note 3 Note 4 Note 5	2: CM = 3: DPD 4: β <sub>ed</sub> c 5: All th DPD	= 3.5 a CH is an not e sub CH ca	and the MF not config t be set dii -tests requategory 7.	PR is bas jured, the rectly; it is uire the U E-DCH T	with $\beta_{hs} = 30/15$ ed on the relative refore the $\beta_c$ is seen by Absolute E to transmit 2S TI is set to 2ms allocated. The U	e CM difference, et to 1 and β₄ = Grant Value. F2+2SF4 16QAI TTI and E-DCH	0 by defau M EDCH a table index	lt. nd they a c = 2. To s	pply for Usupport the	nese E-D	

### **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-TT	Distance	TTI's	1		
Number	of HARQ Processes	Proces ses	6		
Informat	ion Bit Payload ( $N_{\mathit{INF}}$ )	Bits	120		
Number	Code Blocks	Blocks	1		
Binary C	hannel Bits Per TTI	Bits	960		
Total Av	ailable SML's in UE	SML's	19200		
Number	of SML's per HARQ Proc.	SML's	3200		
Coding Rate 0.1					
Number of Physical Channel Codes Codes 1					
Modulation QPS					
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.  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.					

### 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	Cha	Channel bandwidth / Transmission bandwidth (RB)							
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	İ		
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 Signaling 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 <sub>RS</sub> )	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	
			3	>5	≤ 1	
			5	>6	≤1	
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	10	>6	≤ <b>1</b>	
		40,40		15	>8	≤1
				20	>10	s 1
NS 04	6.6.2.2.2	41	5	>6	≤ 1	
NS_04	S_04 6.6.2.2.2 41		10, 15, 20	See Tab	le 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	
NS_07	6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2	
NS_08	6.6.3.3.3	19	10, 15	> 44	≤3	
NS 09	6.6.3.3.4	21	10, 15	> 40	s 1	
	0.0.0.0.4			> 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'	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5	
**						
NS_32			-			

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	831259/019	2015-07-28	2016-07-27
ETS LINDGREN	Horn Antenna	3115	9808-5557	2015-09-06	2018-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2015-02-19	2016-02-19
Giga	Signal Generator	1026	320408	2015-11-23	2016-11-22
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A
TDK RF	Horn Antenna	HRN-0118	130 084	2015-09-06	2018-09-06

<sup>\*</sup> 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**

Temperature:	26.5°C
Relative Humidity:	49%
ATM Pressure:	100.3kPa

The testing was performed by Lion Xiao on 2015-11-26.

### **Conducted Power**

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

	Ch		Peak Output Power (dBm)								
Band Channel No.	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		
	128	33.11	32.77	31.64	30.22	29.09	26.60	25.18	23.64	22.19	
Cellular	190	33.18	32.95	31.87	30.45	29.21	26.94	25.44	23.92	22.45	
	251	32.84	32.51	31.30	30.18	28.94	26.51	25.07	23.54	22.07	
	512	29.73	29.24	27.86	26.30	24.73	25.43	24.10	22.72	21.25	
PCS	661	29.69	29.31	27.90	26.37	24.84	25.31	23.91	22.47	21.01	
	810	30.02	29.54	28.12	26.66	25.17	25.66	24.28	22.80	21.33	

# WCDMA Band (PART 24E)

			Avei	age Output	Power (dB	m)	
Mode	3GPP Sub Test	Low Channel (Ave. Power)	Low Channel (PAR)	Middle Channel (Ave. Power)	Middle Channel (PAR)	High Channel (Ave. Power)	High Channel (PAR)
Rel 99	1	22.99	3.12	22.77	3.12	22.83	3.24
	1	21.71	3.10	21.54	3.18	21.59	3.21
HSDPA	2	21.62	3.23	21.59	3.14	21.60	3.17
HSDPA	3	21.72	3.11	21.52	3.19	21.63	3.14
	4	21.84	3.19	21.57	3.13	21.75	3.19
	1	21.80	3.22	21.6	3.1	21.7	3.22
	2	21.72	3.17	21.55	3.14	21.68	3.17
HSUPA	3	21.78	3.15	21.52	3.11	21.65	3.21
	4	21.69	3.22	21.61	3.09	21.55	3.10
	5	21.66	3.20	21.55	3.02	21.60	3.25
	1	21.62	3.24	21.49	3.15	21.57	3.22
DC HCDDA	2	21.67	3.17	21.42	3.21	21.63	3.19
DC-HSDPA	3	21.75	3.21	21.55	3.13	21.50	3.13
	4	21.59	3.19	21.57	3.20	21.53	3.18
HSPA+	1	21.37	3.15	21.16	3.24	21.41	3.20

# WCDMA Band IV (PART 27)

			Avei	age Output	Power (dB	m)	
Mode	3GPP Sub Test	Low Channel (Ave. Power)	Low Channel (PAR)	Middle Channel (Ave. Power)	Middle Channel (PAR)	High Channel (Ave. Power)	High Channel (PAR)
Rel 99	1	22.53	3.08	22.65	3.40	22.84	3.36
	1	21.46	3.12	21.60	3.47	21.54	3.34
HCDDA	2	21.49	3.03	21.67	3.42	21.56	3.41
HSDPA	3	21.52	3.07	21.62	3.37	21.58	3.33
	4	21.56	3.10	21.50	3.49	21.62	3.32
	1	21.51	3.09	21.54	3.38	21.66	3.38
	2	21.55	3.14	21.59	3.51	21.69	3.42
HSUPA	3	21.48	3.06	21.61	3.49	21.56	3.32
	4	21.39	3.17	21.43	3.43	21.50	3.37
	5	21.41	3.11	21.46	3.50	21.63	3.41
	1	21.52	3.15	21.42	3.43	21.47	3.33
DC-HSDPA	2	21.39	3.19	21.50	3.46	21.44	3.38
DC-HSDPA	3	21.35	3.12	21.44	3.41	21.41	3.30
	4	21.34	3.17	21.52	3.45	21.37	3.42
HSPA+	1	21.12	3.05	21.43	3.43	21.13	3.44

# WCDMA Band V (PART 22H)

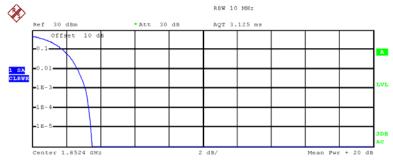
			Avei	age Output	Power (dB	m)	
Mode	3GPP Sub Test	Low Channel (Ave. Power)	Low Channel (PAR)	Middle Channel (Ave. Power)	Middle Channel (PAR)	High Channel (Ave. Power)	High Channel (PAR)
Rel 99	1	22.95	3.16	22.80	3.12	22.93	3.16
	1	21.87	3.22	21.73	3.19	21.8	3.15
HSDPA	2	21.89	3.15	21.66	3.20	21.88	3.11
HSDPA	3	21.91	3.23	21.71	3.06	21.73	3.20
	4	21.94	3.26	21.63	3.13	21.81	3.18
	1	21.87	3.22	21.65	3.09	21.69	3.13
	2	21.89	3.15	21.61	3.14	21.62	3.16
HSUPA	3	21.86	3.12	21.64	3.12	21.67	3.14
	4	21.77	3.16	21.60	3.18	21.71	3.11
	5	21.81	3.28	21.55	3.15	21.65	3.18
	1	21.74	3.14	21.49	3.07	21.6	3.22
DC HCDDA	2	21.69	3.17	21.46	3.12	21.54	3.24
DC-HSDPA	3	21.72	3.26	21.54	3.17	21.63	3.16
	4	21.68	3.23	21.51	3.19	21.59	3.23
HSPA+	1	21.36	3.25	21.16	3.15	21.38	3.21

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

### Peak-to-average ratio (PAR)

### WCDMA Band (PART 24E)

### **Low Channel**



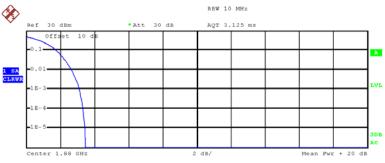
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 22.70 dBm
Peak 26.20 dBm
Crest 3.50 dB

10 % 1.80 dB 1 % 2.64 dB .1 % 3.12 dB .01 % 3.32 dB

Date: 26.NOV.2015 20:49:33

### Middle Channel



Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \ \ 1$ 

Mean 22.79 dBm
Peak 26.27 dBm
Crest 3.48 dB

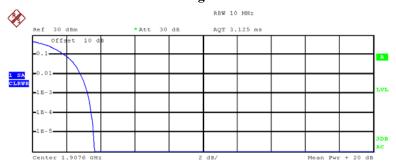
10 % 1.76 dB
1 % 2.68 dB
.1 % 3.12 dB

3.32 dB

Date: 26.NOV.2015 20:49:48

.01 %





Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

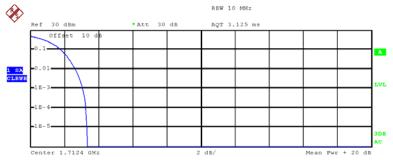
Mean 21.99 dBm Peak 25.64 dBm Crest 3.64 dB

10 % 1.92 dB 1 % 2.84 dB .1 % 3.24 dB .01 % 3.44 dB

Date: 26.NOV.2015 20:50:01

### WCDMA Band IV (PART 27)





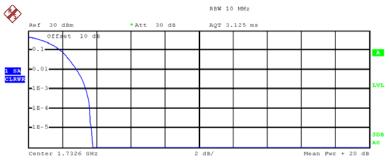
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 22.59 dBm
Peak 25.92 dBm
Crest 3.33 dB

10 % 1.80 dB 1 % 2.64 dB .1 % 3.08 dB .01 % 3.28 dB

Date: 26.NOV.2015 20:50:29

### Middle Channel



Complementary Cumulative Distribution Function (100000 samples)

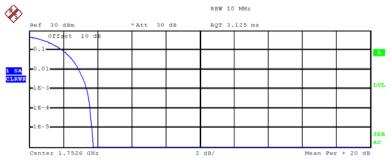
Trace 1
Mean 22.29 dBm
Peak 26.06 dBm
Crest 3.77 dB

10 % 1.92 dB

1 % 2.84 dB .1 % 3.40 dB .01 % 3.60 dB

Date: 26.NOV.2015 20:51:02

### **High Channel**



Complementary Cumulative Distribution Function (100000 samples)

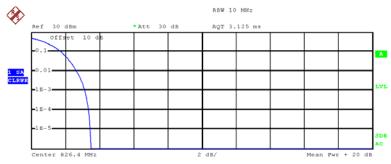
Trace 1
Mean 22.39 dBm
Peak 26.13 dBm
Crest 3.74 dB

10 % 1.96 dB 1 % 2.92 dB .1 % 3.36 dB .01 % 3.56 dB

Date: 26.NOV.2015 20:51:34

### WCDMA Band V (PART 22H)

### Low Channel



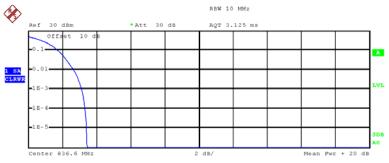
Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

Mean 23.27 dBm Peak 26.76 dBm Crest 3.49 dB 10 % 1.76 dB

1 % 2.68 dB .1 % 3.16 dB .01 % 3.36 dB

Date: 26.NOV.2015 20:51:54

### **Middle Channel**



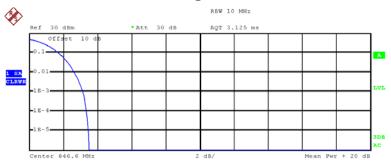
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 23.33 dBm
Peak 26.76 dBm
Crest 3.44 dB

10 % 1.76 dB 1 % 2.68 dB .1 % 3.12 dB .01 % 3.32 dB

Date: 26.NOV.2015 20:52:05

### **High Channel**



Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

Trace 1
Mean 23.26 dBm
Peak 26.76 dBm
Crest 3.50 dB

10 % 1.72 dB

1 % 2.64 dB .1 % 3.16 dB .01 % 3.36 dB

Date: 26.NOV.2015 20:52:17

LTE Band II

LTE Band II						
Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)	
		1#0	22.96	22.78	22.75	
		1#3	22.91	22.81	22.96	
		1#5	22.89	22.86	22.81	
	QPSK	3#0	22.70	22.52	22.26	
		3#1	22.66	22.60	22.34	
		3#3	22.52	22.57	22.35	
1.4M		6#0	21.74	21.52	21.50	
1.41VI		1#0	22.87	22.56	22.52	
		1#3	22.94	22.58	22.30	
		1#5	22.83	22.50	22.13	
	16-QAM	3#0	22.14	21.93	21.94	
		3#1	22.12	21.96	22.06	
		3#3	22.08	21.89	22.03	
		6#0	21.40	21.01	21.32	
		1#0	22.96	22.69	22.86	
		1#7	22.88	22.81	22.67	
	QPSK	1#14	22.95	22.86	22.40	
		8#0	22.39	22.52	22.39	
		8#4	22.33	22.47	22.27	
		8#7	22.40	22.42	22.28	
3M		15#0	21.80	21.61	21.45	
5101		1#0	22.81	22.35	22.23	
		1#7	22.87	22.32	21.98	
		1#14	22.85	22.29	22.16	
	16-QAM	8#0	22.13	21.87	21.76	
		8#4	22.19	21.79	21.73	
		8#7	22.05	21.82	21.88	
		15#0	21.32	21.04	21.17	
		1#0	23.00	22.69	22.51	
		1#12	22.96	22.62	22.45	
		1#24	22.89	20.59	22.43	
	QPSK	12#0	22.11	21.97	21.98	
		12#6	22.20	21.94	22.03	
		12#11	22.16	21.88	21.94	
5M		25#0	21.76	21.44	21.25	
J1V1		1#0	22.30	22.17	22.20	
		1#12	22.25	22.08	22.28	
		1#24	22.23	22.13	22.15	
	16-QAM	12#0	21.92	21.89	21.46	
		12#6	21.96	21.90	21.55	
		12#11	21.93	21.94	21.42	
		25#0	21.35	21.09	20.89	

		Resource	Low	Middle	Uigh
Test	Test	Block &	Low Channel	Channel	High Channel
Bandwidth	Modulation	RB offset	(dBm)	(dBm)	(dBm)
		1#0	22.92	22.67	22.53
		1#24	23.01	22.60	22.51
		1#49	22.89	22.63	22.52
	QPSK	25#0	22.15	21.93	21.96
		25#12	22.13	22.01	21.94
		25#24	22.09	21.96	21.87
10M		50#0	21.65	21.20	21.28
TOW		1#0	22.42	22.23	22.13
		1#24	22.50	22.14	22.14
		1#49	21.45	22.26	22.03
	16-QAM	25#0	21.87	21.82	21.40
		25#12	21.84	21.89	21.56
		25#24	21.91	21.85	21.47
		50#0	21.28	20.99	20.64
		1#0	22.80	22.79	22.71
		1#37	22.65	22.83	22.77
		1#74	22.72	22.74	22.89
	QPSK	36#0	22.03	22.25	22.24
		36#17	22.08	22.30	22.15
		36#35	22.01	22.22	22.31
15M		75#0	21.53	21.28	21.15
		1#0	22.50	22.21	22.05
		1#37	22.45	22.14	21.94
	16 OAM	1#74 36#0	22.41 21.89	22.18 21.67	21.90 21.25
	16-QAM	36#17	21.89	21.67	21.23
		36#35	21.93	21.65	21.30
		75#0	21.87	20.87	20.50
		1#0	22.79	22.35	22.43
		1#49	22.86	22.43	22.52
		1#99	22.80	23.59	22.66
	QPSK	50#0	22.12	21.85	22.31
	QFSK	50#24	22.12	21.88	22.31
			22.02		
		50#49		21.94	22.23
20M		100#0	21.22	21.13	21.30
		1#0	22.07	22.20	22.29
		1#49	22.15	22.14	22.24
		1#99	22.10	22.10	22.16
	16-QAM	50#0	21.63	21.58	21.37
		50#24	21.61	21.49	21.37
		50#49	21.59	21.52	21.41
		100#0	21.04	21.02	20.73

LTE Band IV

i	T .	LTE Ba	IIU I V		F
Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)
		1#0	22.92	22.61	23.01
		1#3	22.85	22.58	23.03
		1#5	22.99	22.54	22.96
	QPSK	3#0	22.32	21.98	22.47
		3#1	22.39	21.91	22.16
		3#3	22.36	21.95	22.30
1.4M		6#0	21.70	21.21	21.76
1.4101		1#0	22.57	22.14	22.47
		1#3	22.53	22.10	22.40
		1#5	22.49	22.08	22.49
	16-QAM	3#0	21.93	21.52	21.89
		3#1	21.87	21.57	21.82
		3#3	21.95	21.53	21.88
		6#0	21.20	21.01	21.26
		1#0	22.84	22.34	22.88
		1#7	22.90	22.41	22.75
	QPSK	1#14	22.79	22.37	22.83
		8#0	22.23	21.82	22.10
		8#4	22.26	21.79	22.01
		8#7	22.20	21.85	22.04
3M		15#0	21.63	21.14	21.62
3101		1#0	22.45	22.07	22.41
		1#7	22.49	22.02	22.45
		1#14	22.41	21.99	22.49
	16-QAM	8#0	21.76	21.31	21.73
		8#4	21.71	21.33	21.79
		8#7	21.67	21.37	21.75
		15#0	20.11	20.89	21.18
		1#0	22.62	22.38	22.89
		1#12	22.58	22.30	22.80
		1#24	22.65	22.31	22.87
	QPSK	12#0	21.91	21.89	22.20
		12#6	22.98	21.86	22.18
		12#11	21.93	21.82	22.13
5M		25#0	21.09	21.10	21.59
5M		1#0	22.31	21.82	22.23
		1#12	22.37	21.87	22.19
		1#24	22.34	21.90	22.15
	16-QAM	12#0	21.79	21.29	21.61
		12#6	21.76	21.26	21.59
		12#11	21.72	21.31	21.66
		25#0	21.05	20.82	21.09

		Resource	Low	Middle	High
Test	Test	Block &	Channel	Channel	High Channel
Bandwidth	Modulation	RB offset	(dBm)	(dBm)	(dBm)
		1#0	22.49	22.12	22.54
		1#24	22.57	22.18	22.51
		1#49	22.50	22.15	22.59
	QPSK	25#0	21.99	21.60	21.83
		25#12	21.92	21.57	21.86
		25#24	21.89	21.53	21.91
10M		50#0	21.25	21.01	21.38
TUIVI		1#0	22.30	21.84	22.16
		1#24	22.25	21.92	22.13
		1#49	22.27	21.87	22.20
	16-QAM	25#0	21.60	21.31	21.69
		25#12	21.53	21.37	21.63
		25#24	21.62	21.32	21.70
		50#0	20.99	20.74	21.04
		1#0	22.68	22.18	22.55
		1#37	22.64	22.10	22.52
	QPSK	1#74	22.61	22.13	22.50
		36#0	21.92	21.67	21.82
		36#17	21.90	21.59	21.88
		36#35	21.97	21.63	21.86
15M		75#0	21.22	20.99	21.16
		1#0	22.04	21.86	22.13
		1#37 1#74	22.09	21.82	22.15
	16-QAM	36#0	22.01	21.91 21.47	22.09 21.58
	10-QAWI	36#17	21.40	21.47	21.50
		36#35	21.49	21.44	21.55
		75#0	20.95	20.67	20.90
		1#0	22.81	22.60	22.61
		1#49	22.78	22.54	22.56
		1#99	22.56	22.84	22.58
	QPSK	50#0	22.25	22.13	22.00
	QI SIL	50#24	22.22	22.08	21.94
		50#49	22.30	22.16	21.98
		100#0	21.67	21.33	21.43
20M		1#0	22.18	21.91	22.12
		1#49	22.05	21.87	22.14
		1#99	22.03	21.96	22.14
	16-QAM	50#0	21.30	21.36	21.55
	10 2/11/1	50#24	21.25	21.34	21.46
		50#49	21.29	21.30	21.49
		100#0	20.77	20.76	20.94

LTE Band VII

LIE BANG VII							
Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)		
		1#0	22.81	22.78	22.50		
		1#12	22.87	22.80	22.53		
		1#24	22.89	22.84	22.49		
	QPSK	12#0	22.03	22.08	21.86		
		12#6	22.00	22.14	21.88		
		12#11	20.08	22.11	21.81		
5M		25#0	21.35	21.78	21.49		
3101		1#0	21.95	22.22	22.13		
		1#12	21.92	22.29	22.09		
	16-QAM	1#24	21.99	22.27	22.07		
		12#0	21.42	21.73	21.25		
		12#6	21.40	21.76	21.19		
		12#11	21.47	21.70	21.24		
		25#0	20.87	21.13	20.78		
		1#0	22.97	22.85	22.51		
		1#24	22.92	22.81	22.46		
		1#49	2.90	22.79	22.53		
	QPSK	25#0	21.93	22.16	21.87		
		25#12	21.91	22.10	21.90		
		25#24	21.98	22.14	21.84		
10M		50#0	21.37	21.82	21.45		
TUIVI		1#0	21.91	22.27	22.14		
		1#24	21.89	22.29	22.17		
		1#49	21.94	22.24	22.12		
	16-QAM	25#0	21.24	21.64	21.13		
		25#12	21.19	21.62	21.17		
		25#24	21.27	21.70	21.12		
		50#0	20.73	20.94	20.72		

		Resource	Low	Middle	High
Test	Test	Block &	Channel	Channel	Channel
Bandwidth	Modulation	RB offset	(dBm)	(dBm)	(dBm)
		1#0	22.84	22.80	22.44
		1#37	22.80	22.85	22.47
		1#74	22.91	22.81	22.40
	QPSK	36#0	22.20	22.12	21.90
		36#17	22.23	22.07	21.84
		36#35	22.27	22.09	21.82
15M		75#0	21.50	21.56	21.40
13101		1#0	22.07	22.24	21.89
		1#37	22.04	22.15	21.90
		1#74	22.01	22.20	21.82
	16-QAM	36#0	21.33	21.58	21.16
		36#17	21.30	21.56	21.20
		36#35	21.39	21.59	21.14
		75#0	20.80	20.88	20.61
		1#0	22.89	22.72	22.48
		1#49	22.79	22.93	22.45
		1#99	22.86	22.70	22.51
	QPSK	50#0	22.13	22.13	21.96
		50#24	22.10	22.15	21.99
		50#49	22.07	22.20	21.94
20M		100#0	21.45	21.66	21.48
20W		1#0	22.23	22.11	21.88
		1#49	22.15	22.19	21.82
		1#99	22.18	22.23	21.87
	16-QAM	50#0	21.19	21.60	21.28
		50#24	21.14	21.57	21.25
		50#49	21.16	21.53	21.23
		100#0	20.82	20.85	20.59

LTE Band 17

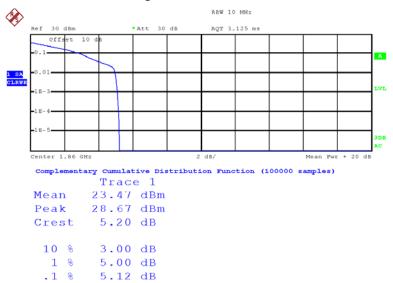
LTE Band 17											
Test Bandwidth	Test Modulation	Resource Block & RB offset	Low Channel (dBm)	Middle Channel (dBm)	High Channel (dBm)						
5M	QPSK	1#0	22.70	22.75	22.78						
		1#12	22.71	22.71	22.74						
		1#24	22.76	22.73	22.74						
		12#0	22.29	22.19	22.20						
		12#6	22.24	22.14	22.24						
		12#11	22.32	22.10	22.21						
		25#0	21.87	21.76	21.69						
	16-QAM	1#0	21.95	21.97	22.24						
		1#12	21.93	21.91	22.20						
		1#24	21.99	22.03	22.16						
		12#0	21.23	21.44	21.69						
		12#6	21.25	21.49	21.61						
		12#11	21.30	21.51	21.64						
		25#0	20.74	20.85	20.98						
10M	QPSK	1#0	22.65	22.69	22.54						
		1#24	22.63	22.72	22.56						
		1#49	22.68	22.65	22.60						
		25#0	22.11	22.02	22.13						
		25#12	22.16	22.05	22.09						
		25#24	22.09	22.09	22.15						
		50#0	21.70	21.46	21.64						
TOW	16-QAM	1#0	22.00	21.88	22.19						
		1#24	22.75	21.82	22.26						
		1#49	22.72	21.86	22.22						
		25#0	22.24	21.29	21.65						
		25#12	22.29	21.33	21.59						
		25#24	22.35	21.30	21.54						
		50#0	21.71	20.82	20.87						

# 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	5.12	4.56	4.92	13
		Full RB		6.28	6.32	6.36	13
	16- QAM	1 RB		5.96	5.36	5.80	13
		Full RB		7.20	7.04	7.20	13
Band 4	QPSK	1 RB	20M	4.32	4.60	3.92	13
		Full RB		6.20	7.16	6.24	13
	16- QAM	1 RB		5.16	5.80	4.96	13
		Full RB		7.24	6.32	7.12	13
Band 7	QPSK	1 RB	20M	3.76	4.84	4.80	13
		Full RB		6.24	6.20	6.20	13
	16- QAM	1 RB		4.56	5.56	5.68	13
		Full RB		7.64	8.00	7.12	13
Band 17	QPSK	1 RB	20M	3.40	3.32	3.52	13
		Full RB		5.16	5.00	4.72	13
	16- QAM	1 RB		3.92	4.32	4.28	13
		Full RB		6.16	5.96	5.96	13

### LTE Band 2



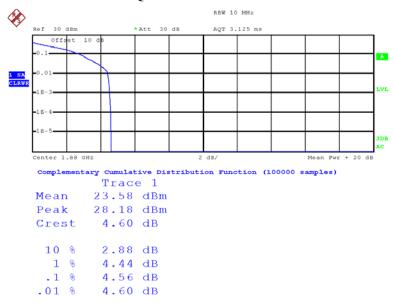


Date: 26.NOV.2015 20:26:08

5.20 dB

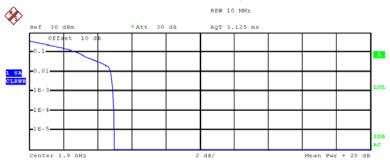
.01 %

### **QPSK-RB#1 Middle Channel**



Date: 26.NOV.2015 20:23:47

### **QPSK-RB#1 High Channel**



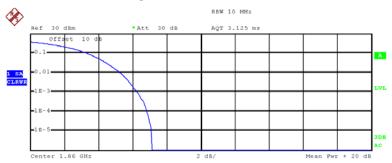
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 23.21 dBm
Peak 28.18 dBm
Crest 4.97 dB

10 % 2.84 dB 1 % 4.76 dB .1 % 4.92 dB .01 % 4.96 dB

Date: 26.NOV.2015 20:28:07

### QPSK-RB#100 Low Channel



Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

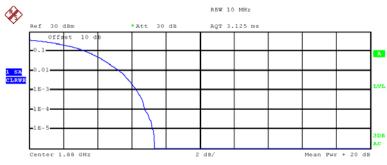
Peak 27.40 dBm Crest 7.12 dB 10 % 3.40 dB 1 % 5.28 dB .1 % 6.28 dB .01 % 6.84 dB

Mean

20.28 dBm

Date: 26.NOV.2015 20:26:21

### QPSK-RB#100 Middle Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 20.27 dBm
Peak 27.61 dBm
Crest 7.34 dB

10 % 3.36 dB 1 % 5.32 dB .1 % 6.32 dB .01 % 6.80 dB

Date: 26.NOV.2015 20:22:48

### QPSK-RB#100 High Channel



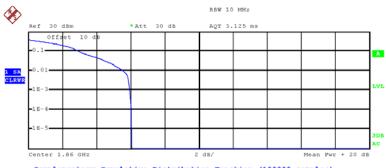
Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

Mean 20.86 dBm Peak 28.25 dBm Crest 7.39 dB 10 % 3.36 dB 1 % 5.36 dB .1 % 6.36 dB

.01 % 7.08 dB

Date: 26.NOV.2015 20:27:42

### 16QAM-RB#1 Low Channel



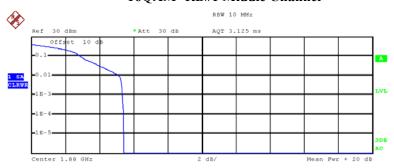
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 22.61 dBm
Peak 28.67 dBm
Crest 6.05 dB

10 % 3.00 dB 1 % 5.56 dB .1 % 5.96 dB .01 % 6.04 dB

Date: 26.NOV.2015 20:25:48

### 16QAM-RB#1 Middle Channel



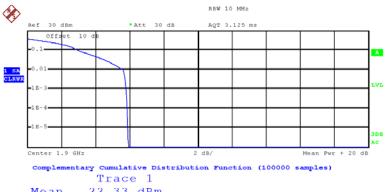
Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

Mean 22.89 dBm Peak 28.32 dBm Crest 5.42 dB

10 % 2.92 dB 1 % 5.12 dB .1 % 5.36 dB .01 % 5.40 dB

Date: 26.NOV.2015 20:23:55

## 16QAM- RB#1 High Channel



Mean 22.33 dBm Peak 28.25 dBm Crest 5.91 dB

10 % 3.04 dB 1 % 5.60 dB .1 % 5.80 dB .01 % 5.88 dB

Date: 26.NOV.2015 20:28:14

# 16QAM-RB#100 Low Channel



Complementary Cumulative Distribution Function (100000 samples)

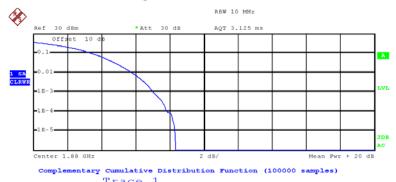
Trace 1
Mean 19.28 dBm
Peak 27.89 dBm
Crest 8.61 dB

10 % 3.48 dB

1 % 5.84 dB .1 % 7.20 dB .01 % 8.00 dB

Date: 26.NOV.2015 20:26:30

# 16QAM-RB#100 Middle Channel



Trace 1
Mean 19.91 dBm
Peak 28.25 dBm
Crest 8.33 dB

10 % 3.48 dB 1 % 5.80 dB .1 % 7.04 dB .01 % 7.96 dB

Date: 26.NOV.2015 20:22:22

## 16QAM-RB#100 High Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 19.88 dBm
Peak 28.32 dBm
Crest 8.43 dB

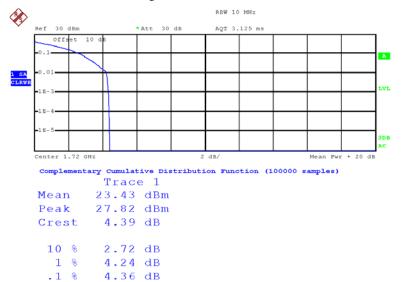
10 % 3.48 dB
1 % 5.88 dB

.1 % 7.20 dB .01 % 8.08 dB

Date: 26.NOV.2015 20:27:35

## LTE Band 4

#### **QPSK-RB#1 Low Channel**

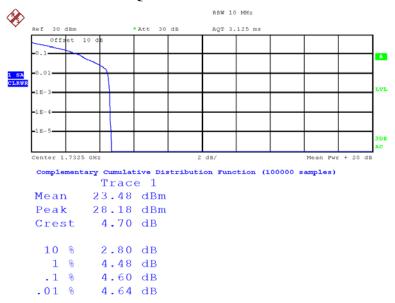


Date: 26.NOV.2015 20:33:48

4.40 dB

.01 %

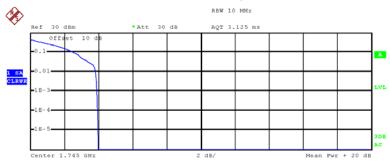
## **QPSK-RB#1 Middle Channel**



Date: 26.NOV.2015 20:30:48

#### Report No.: RDG151125001-00C

## **QPSK-RB#1 High Channel**



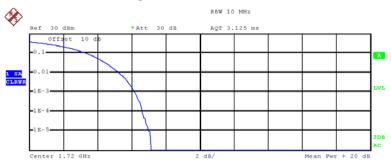
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 23.41 dBm
Peak 27.40 dBm
Crest 3.99 dB

10 % 2.60 dB 1 % 3.84 dB .1 % 3.92 dB .01 % 3.96 dB

Date: 26.NOV.2015 20:34:53

#### **QPSK-RB#100 Low Channel**



Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

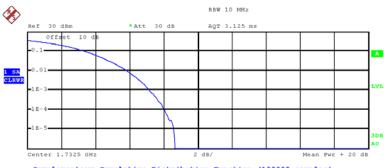
Peak 27.82 dBm Crest 7.13 dB 10 % 3.40 dB 1 % 5.28 dB .1 % 6.20 dB .01 % 6.64 dB

Mean

20.69 dBm

Date: 26.NOV.2015 20:33:29

# QPSK-RB#100 Middle Channel



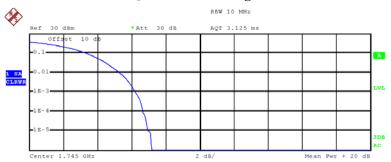
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 19.81 dBm
Peak 28.46 dBm
Crest 8.65 dB

10 % 3.48 dB 1 % 5.88 dB .1 % 7.16 dB .01 % 8.08 dB

Date: 26.NOV.2015 20:31:21

## QPSK-RB#100 High Channel



Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

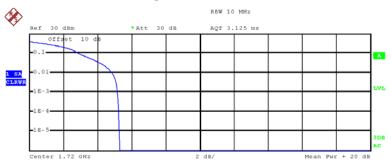
Mean 20.10 dBm Peak 27.26 dBm Crest 7.16 dB 10 % 3.44 dB 1 % 5.32 dB .1 % 6.24 dB

6.68 dB

.01 %

Date: 26.NOV.2015 20:35:10

#### 16QAM-RB#1 Low Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 22.51 dBm
Peak 27.82 dBm
Crest 5.31 dB

10 % 2.92 dB 1 % 4.84 dB .1 % 5.16 dB .01 % 5.24 dB

Date: 26.NOV.2015 20:33:54

## 16QAM-RB#1 Middle Channel



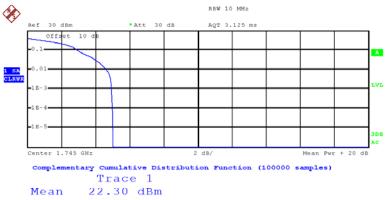
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 22.24 dBm
Peak 28.10 dBm
Crest 5.87 dB

10 % 3.08 dB 1 % 5.64 dB .1 % 5.80 dB .01 % 5.84 dB

Date: 26.NOV.2015 20:30:42

## 16QAM- RB#1 High Channel



Peak 27.33 dBm Crest 5.03 dB

10 % 3.00 dB 1 % 4.64 dB .1 % 4.96 dB .01 % 5.00 dB

Date: 26.NOV.2015 20:34:46

# 16QAM-RB#100 Low Channel



Complementary Cumulative Distribution Function (100000 samples)

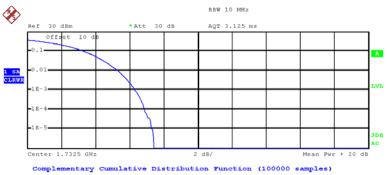
Trace 1
Mean 19.38 dBm
Peak 27.89 dBm
Crest 8.51 dB

10 % 3.52 dB

1 % 5.88 dB .1 % 7.24 dB .01 % 7.96 dB

Date: 26.NOV.2015 20:33:13

# 16QAM-RB#100 Middle Channel

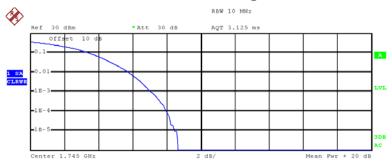


Trace 1 20.83 dBm Mean Peak 28.25 dBm Crest 7.42 dB

10 % 3.40 dB 1 % 5.32 dB 6.32 dB .1 % .01 % 6.88 dB

Date: 26.NOV.2015 20:31:13

## 16QAM-RB#100 High Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1 Mean 19.10 dBm 27.75 dBm Peak 8.65 dB Crest 3.52 dB 10 %

.1 % 7.12 dB .01 % 8.00 dB

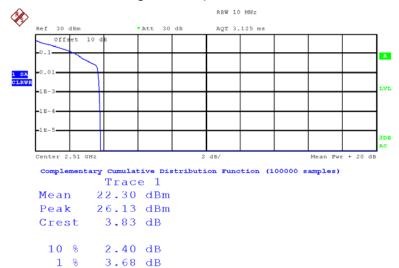
5.80 dB

Date: 26.NOV.2015 20:35:20

1 %

## LTE Band 7

# QPSK-1RB, 20M Low Channel

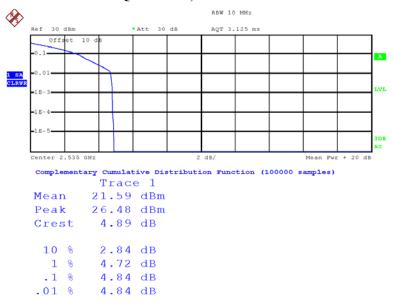


Date: 26.NOV.2015 20:03:48

.1 % .01 % 3.76 dB

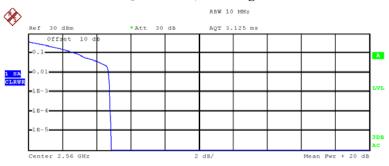
3.80 dB

## QPSK-1RB, 20M Middle Channel



Date: 26.NOV.2015 19:59:57

## QPSK-1RB, 20M High Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 22.42 dBm
Peak 27.26 dBm
Crest 4.84 dB

10 % 2.84 dB 1 % 4.72 dB .1 % 4.80 dB .01 % 4.80 dB

Date: 26.NOV.2015 20:06:23

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



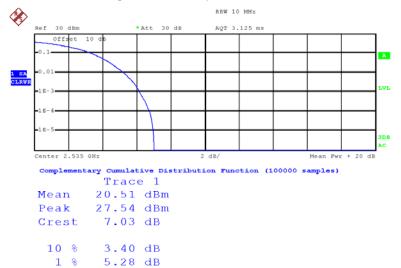
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 21.32 dBm
Peak 28.74 dBm
Crest 7.42 dB

10 % 3.44 dB 1 % 5.28 dB .1 % 6.24 dB .01 % 6.84 dB

Date: 26.NOV.2015 20:03:26

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



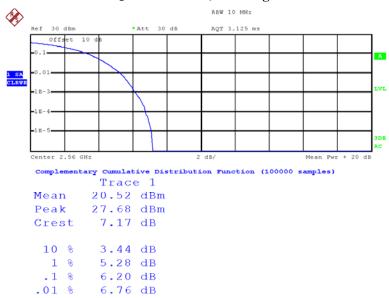
Date: 26.NOV.2015 20:02:18

.1 %

6.20 dB

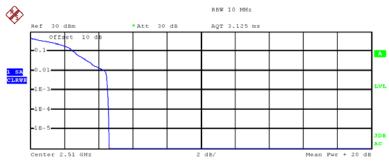
6.80 dB

## QPSK-Full RB, 20M High Channel



Date: 26.NOV.2015 20:07:05

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



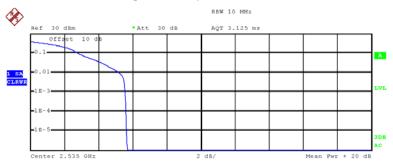
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 21.53 dBm
Peak 26.13 dBm
Crest 4.60 dB

10 % 2.56 dB 1 % 4.36 dB .1 % 4.56 dB .01 % 4.60 dB

Date: 26.NOV.2015 20:03:54

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



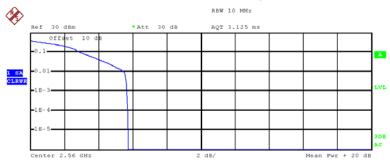
Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

Mean 20.88 dBm Peak 26.55 dBm Crest 5.68 dB 10 % 2.84 dB

1 % 5.20 dB .1 % 5.56 dB .01 % 5.64 dB

Date: 26.NOV.2015 20:00:31

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



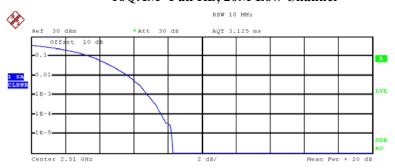
Complementary Cumulative Distribution Function (100000 samples)

Trace 1
Mean 21.58 dBm
Peak 27.33 dBm
Crest 5.75 dB

10 % 3.00 dB 1 % 5.52 dB .1 % 5.68 dB .01 % 5.72 dB

Date: 26.NOV.2015 20:06:28

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



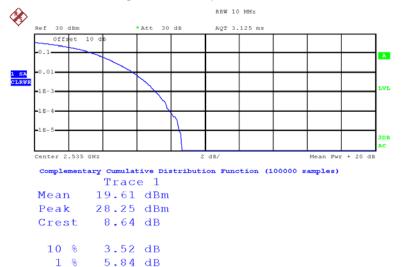
Complementary Cumulative Distribution Function (100000 samples)  ${\tt Trace} \quad 1$ 

Mean 20.52 dBm Peak 28.81 dBm Crest 8.29 dB 10 % 3.52 dB 1 % 5.68 dB .1 % 6.84 dB

.01 % 7.64 dB

Date: 26.NOV.2015 20:03:15

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



Date: 26.NOV.2015 20:02:23

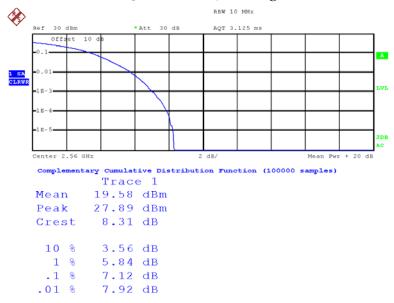
7.16 dB

8.00 dB

.1 %

.01 %

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

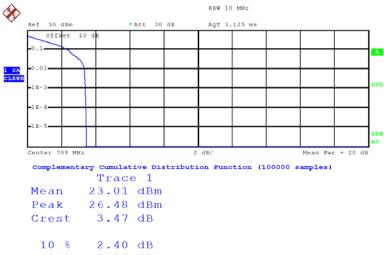


Date: 26.NOV.2015 20:06:50

#### Report No.: RDG151125001-00C

## LTE Band 17

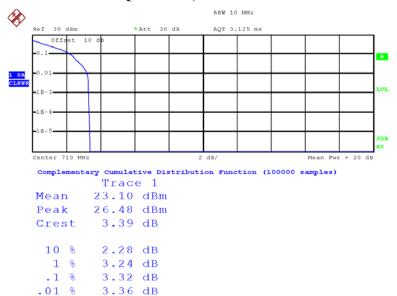




10 % 2.40 dB 1 % 3.36 dB .1 % 3.40 dB .01 % 3.44 dB

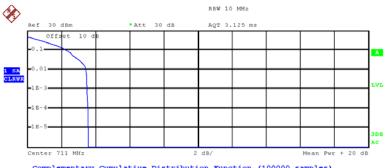
Date: 26.NOV.2015 20:41:27

## QPSK-1RB, 10M Middle Channel



Date: 26.NOV.2015 20:38:33

## QPSK-1RB, 10M High Channel



Complementary Cumulative Distribution Function (100000 samples)

Trace 1 23.04 dBm Mean Peak 26.62 dBm Crest 3.59 dB

10 % 2.32 dB 1 % 3.44 dB 3.52 dB .1 % .01 % 3.56 dB

Date: 26.NOV.2015 20:42:29

## **QPSK-Full RB, 10M Low Channel**



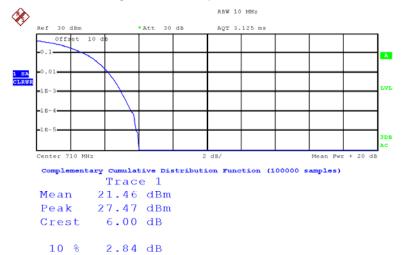
Complementary Cumulative Distribution Function (100000 samples)

Trace 1 Mean 21.51 dBm 27.33 dBm Peak 5.82 dB Crest

3.04 dB 10 % 1 % 4.44 dB .1 % 5.16 dB .01 % 5.56 dB

Date: 26.NOV.2015 20:39:35

## **QPSK- Full RB, 10M Middle Channel**



Date: 26.NOV.2015 20:39:11

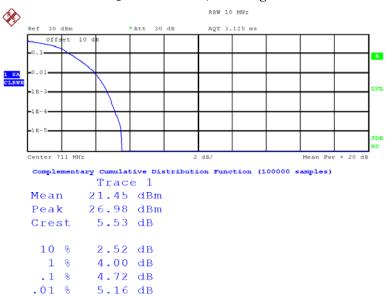
1 %

.1 %

4.24 dB 5.00 dB

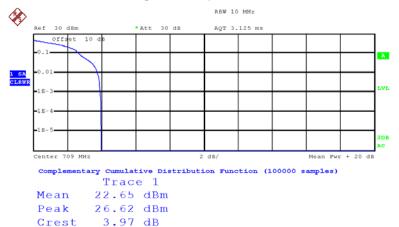
5.64 dB

## QPSK-Full RB, 10M High Channel



Date: 26.NOV.2015 20:42:49

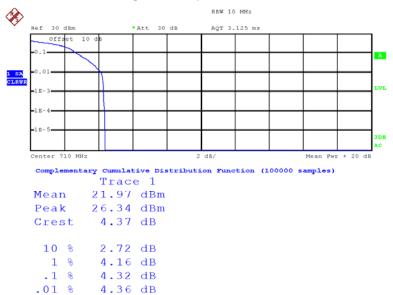
#### 16QAM-1RB, 10M Low Channel



10 % 2.68 dB 1 % 3.76 dB .1 % 3.92 dB .01 % 4.00 dB

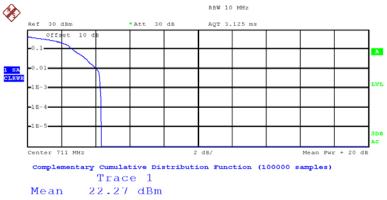
Date: 26.NOV.2015 20:41:16

## 16QAM-1RB, 10M Middle Channel



Date: 26.NOV.2015 20:38:40

## 16QAM-1RB, 10M High Channel



 Mean
 22.27 dBm

 Peak
 26.62 dBm

 Crest
 4.35 dB

10 % 2.68 dB 1 % 4.08 dB .1 % 4.28 dB .01 % 4.36 dB

Date: 26.NOV.2015 20:42:36

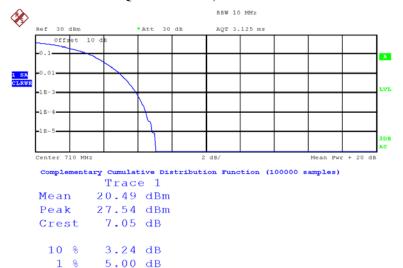
## 16QAM-Full RB, 10M Low Channel



Peak 27.89 dBm Crest 7.34 dB 10 % 3.36 dB 1 % 5.16 dB .1 % 6.16 dB .01 % 6.88 dB

Date: 26.NOV.2015 20:39:40

## 16QAM- Full RB, 10M Middle Channel



Date: 26.NOV.2015 20:38:57

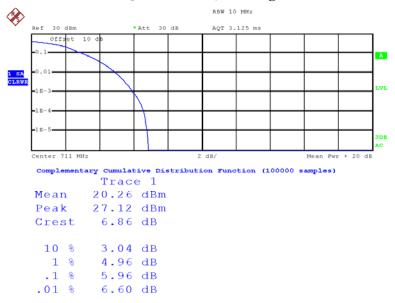
5.96 dB

6.52 dB

.1 %

.01 %

## 16QAM-Full RB, 10M High Channel



Date: 26.NOV.2015 20:42:44

# ERP & EIRP

## PART 22H

		Receiver	Sı	ubstituted Me	ethod	About 4				
Frequency (MHz)	Polar (H/V)	Reading (dBµV)	S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)		
GSM 850 Middle Channel										
836.600	Н	105.22	30.3	0.0	1	29.3	38.45	9.2		
836.600	V	101.19	29.4	0.0	1	28.4	38.45	10.1		
			EGPRS	850 Middle	Channel					
836.600	Н	99.28	24.4	0.0	1	23.4	38.45	15.1		
836.600	V	94.41	22.6	0.0	1	21.6	38.45	16.9		
	WCDMA Band V Middle Channel									
836.600	Н	94.52	19.6	0.0	1	18.6	33.0	14.4		
836.600	V	90.58	18.8	0.0	1	17.8	33.0	15.2		

# PART 24E

		D	Sı	ubstituted Me	thod	Alexalests					
Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)			
PCS 1900 Middle Channel											
1880.000	Н	89.73	18.1	11.7	1.4	28.4	33.0	4.6			
1880.000	V	86.97	15.5	11.7	1.4	25.8	33.0	7.2			
			EGPRS	1900 Middle	Channel						
1880.000	Н	85.50	13.9	11.7	1.4	24.2	33.0	8.8			
1880.000	V	82.31	10.9	11.7	1.4	21.2	33.0	11.8			
	WCDMA Band II Middle Channel										
1880.000	Н	82.78	11.2	11.7	1.4	21.5	33.0	11.5			
1880.000	V	78.07	6.6	11.7	1.4	16.9	33.0	16.1			

## Part 27

		D	<b>Substituted Method</b>			Absolute				
Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)		
	WCDMA Band IV Middle Channel									
1732.600	V	83.79	10.5	10.9	1.4	20.0	30.0	10.0		
1732.600	V	80.35	7	10.9	1.4	16.5	30.0	13.5		

LTE Band 2

		Receiver	Sı	ıbstituted Me	thod	Absolute				
Frequency (MHz)	Polar (H/V)	Reading (dBµV)	S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)		
			QPSK 1.4	M BW Middl	e Channel					
1880.000	Н	83.04	11.4	11.7	1.4	21.7	33.00	11.3		
1880.000	V	80.98	9.5	11.7	1.4	19.8	33.00	13.2		
			QPSK 3M	1 BW Middle	e Channel					
1880.000	Н	82.26	10.7	11.7	1.4	21.0	33.00	12.0		
1880.000	V	79.85	8.4	11.7	1.4	18.7	33.00	14.3		
			QPSK 5M	1 BW Middle	e Channel					
1880.000	Н	81.59	10	11.7	1.4	20.3	33.00	12.7		
1880.000	V	78.46	7	11.7	1.4	17.3	33.00	15.7		
			QPSK 10N	M BW Middl	e Channel					
1880.000	Н	80.84	9.2	11.7	1.4	19.5	33.00	13.5		
1880.000	V	77.27	5.8	11.7	1.4	16.1	33.00	16.9		
QPSK 15M BW Middle Channel										
1880.000	Н	80.04	8.4	11.7	1.4	18.7	33.00	14.3		
1880.000	V	76.91	5.5	11.7	1.4	15.8	33.00	17.2		
			QPSK 201	M BW Middl	e Channel					
1880.000	Н	79.83	8.2	11.7	1.4	18.5	33.00	14.5		
1880.000	V	76.48	5	11.7	1.4	15.3	33.00	17.7		
			16-QAM 1.	4M BW Mido	lle Channel					
1880.000	Н	82.31	10.7	11.7	1.4	21.0	33.00	12.0		
1880.000	V	79.16	7.7	11.7	1.4	18.0	33.00	15.0		
			16-QAM 3	M BW Midd	le Channel					
1880.000	Н	81.74	10.1	11.7	1.4	20.4	33.00	12.6		
1880.000	V	78.51	7.1	11.7	1.4	17.4	33.00	15.6		
			16-QAM 5	M BW Midd	le Channel					
1880.000	Н	80.99	9.4	11.7	1.4	19.7	33.00	13.3		
1880.000	V	78.14	6.7	11.7	1.4	17.0	33.00	16.0		
			16-QAM 10	M BW Mide	lle Channel					
1880.000	Н	80.62	9	11.7	1.4	19.3	33.00	13.7		
1880.000	V	77.86	6.4	11.7	1.4	16.7	33.00	16.3		
			16-QAM 15	M BW Mide	lle Channel					
1880.000	Н	79.74	8.1	11.7	1.4	18.4	33.00	14.6		
1880.000	V	76.28	4.8	11.7	1.4	15.1	33.00	17.9		
			16-QAM 20	M BW Mide	dle Channel					
1880.000	Н	79.01	7.4	11.7	1.4	17.7	33.00	15.3		
1880.000	V	76.08	4.6	11.7	1.4	14.9	33.00	18.1		

LTE Band 4

LTE Band 4		T	<u> </u>			Г			
		Receiver	Sı	ubstituted Me	thod	Absolute			
Frequency (MHz)	Polar (H/V)	Reading (dBµV)	S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	
			QPSK 1.4	M BW Middl	e Channel				
1732.500	Н	86.23	13.2	10.9	1.4	22.7	30.00	7.3	
1732.500	V	84.30	11	10.9	1.4	20.5	30.00	9.5	
			QPSK 3N	A BW Middle	e Channel				
1732.500	Н	85.89	12.9	10.9	1.4	22.4	30.00	7.6	
1732.500	V	83.72	10.4	10.9	1.4	19.9	30.00	10.1	
			QPSK 5N	A BW Middle	e Channel				
1732.500	Н	85.01	12	10.9	1.4	21.5	30.00	8.5	
1732.500	V	83.37	10	10.9	1.4	19.5	30.00	10.5	
QPSK 10M BW Middle Channel									
1732.500	Н	84.52	11.5	10.9	1.4	21.0	30.00	9.0	
1732.500	V	82.74	9.4	10.9	1.4	18.9	30.00	11.1	
QPSK 15M BW Middle Channel									
1732.500	Н	83.93	10.9	10.9	1.4	20.4	30.00	9.6	
1732.500	V	81.66	8.3	10.9	1.4	17.8	30.00	12.2	
			QPSK 201	M BW Middl	e Channel				
1732.500	Н	83.38	10.4	10.9	1.4	19.9	30.00	10.1	
1732.500	V	81.09	7.8	10.9	1.4	17.3	30.00	12.7	
			16-QAM 1.	4M BW Mido	lle Channel				
1732.500	Н	85.81	12.8	10.9	1.4	22.3	30.00	7.7	
1732.500	V	83.85	10.5	10.9	1.4	20.0	30.00	10.0	
			16-QAM 3	M BW Midd	le Channel				
1732.500	Н	85.04	12	10.9	1.4	21.5	30.00	8.5	
1732.500	V	83.18	9.9	10.9	1.4	19.4	30.00	10.6	
			16-QAM 5	M BW Midd	le Channel				
1732.500	Н	84.59	11.6	10.9	1.4	21.1	30.00	8.9	
1732.500	V	82.62	9.3	10.9	1.4	18.8	30.00	11.2	
_			16-QAM 10	OM BW Mide	lle Channel		_		
1732.500	Н	83.91	10.9	10.9	1.4	20.4	30.00	9.6	
1732.500	V	81.48	8.2	10.9	1.4	17.7	30.00	12.3	
			16-QAM 15	5M BW Mide	dle Channel				
1732.500	Н	83.17	10.2	10.9	1.4	19.7	30.00	10.3	
1732.500	V	81.04	7.7	10.9	1.4	17.2	30.00	12.8	
			16-QAM 20	OM BW Mide	lle Channel				
1732.500	Н	82.69	9.7	10.9	1.4	19.2	30.00	10.8	
1732.500	V	80.18	6.9	10.9	1.4	16.4	30.00	13.6	

		D	St	ubstituted Me	thod	A11 4.		
Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			QPSK 5N	1 BW Middle	e Channel			
2535.000	Н	80.58	9.4	13.1	2.5	20.0	33.00	13.0
2535.000	V	78.39	8.6	13.1	2.5	19.2	33.00	13.8
			QPSK 101	M BW Midd	e Channel			
2535.000	Н	79.52	8.3	13.1	2.5	18.9	33.00	14.1
2535.000	V	77.36	7.6	13.1	2.5	18.2	33.00	14.8
			QPSK 15	M BW Midd	e Channel			
2535.000	Н	78.85	7.6	13.1	2.5	18.2	33.00	14.8
2535.000	V	76.71	7	13.1	2.5	17.6	33.00	15.4
			QPSK 201	M BW Midd	e Channel			
2535.000	Н	78.10	6.9	13.1	2.5	17.5	33.00	15.5
2535.000	V	76.07	6.3	13.1	2.5	16.9	33.00	16.1
			16-QAM 5	M BW Midd	le Channel			
2535.000	Н	79.76	8.6	13.1	2.5	19.2	33.00	13.8
2535.000	V	77.11	7.4	13.1	2.5	18.0	33.00	15.0
			16-QAM 10	M BW Mide	lle Channel			
2535.000	Н	79.25	8	13.1	2.5	18.6	33.00	14.4
2535.000	V	77.64	7.9	13.1	2.5	18.5	33.00	14.5
			16-QAM 15	M BW Mide	dle Channel			
2535.000	Н	78.67	7.5	13.1	2.5	18.1	33.00	14.9
2535.000	V	76.48	6.7	13.1	2.5	17.3	33.00	15.7
			16-QAM 20	M BW Mide	dle Channel	•		
2535.000	Н	77.76	6.6	13.1	2.5	17.2	33.00	15.8
2535.000	V	75.61	5.9	13.1	2.5	16.5	33.00	16.5

		Receiver	Sı	ubstituted Me	thod	Almal 4					
Frequency Polar (MHz) (H/V)		Reading (dBµV)	S.G. Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	Absolute Level (dBm)	Limit (dBm)	Margin (dB)			
QPSK 5M BW Middle Channel											
710.000	Н	95.42	18.6	0.0	0.9	17.7	34.77	17.1			
710.000	V	89.86	15.5	0.0	0.9	14.6	34.77	20.2			
	QPSK 10M BW Middle Channel										
710.000	Н	94.64	17.8	0.0	0.9	16.9	34.77	17.9			
710.000	V	88.21	13.9	0.0	0.9	13.0	34.77	21.8			
			16-QAM 5	M BW Midd	le Channel						
710.000	Н	94.09	17.3	0.0	0.9	16.4	34.77	18.4			
710.000	V	88.57	14.2	0.0	0.9	13.3	34.77	21.5			
		•	16-QAM 10	M BW Mide	lle Channel						
710.000	Н	93.43	16.6	0.0	0.9	15.7	34.77	19.1			
710.000	V	87.60	13.2	0.0	0.9	12.3	34.77	22.5			

#### Note:

<sup>1)</sup> The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.

<sup>2)</sup> Absolute Level = SG Level - Cable loss + Antenna Gain

<sup>3)</sup> Margin = Limit-Absolute Level

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

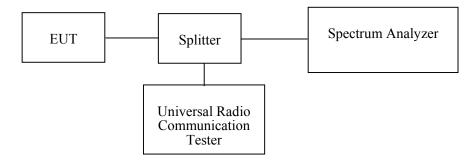
## **Applicable Standard**

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	2015-11-23	2016-11-22
R&S	Universal Radio Communication Tester	CMU200	109038	2015-07-28	2016-07-27
R&S	Wideband Radio Communication Tester	CMW500	1201.002K50- 146520-wh	2014-12-19	2015-12-19

<sup>\*</sup> 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**

Temperature:	25.4~26.9 °C
Relative Humidity:	48~52%
ATM Pressure:	100.3~100.6 kPa

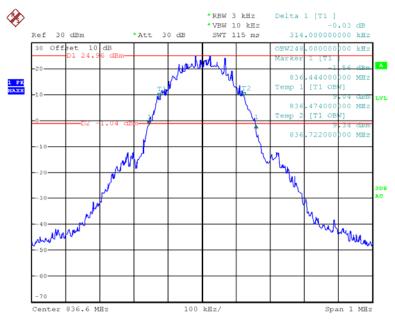
The testing was performed by Lion Xiao from 2015-11-26 to 2015-12-02.

Test Mode: Transmitting

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

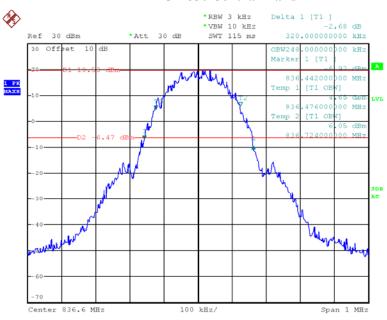
Band	Channel No.	Mode	99% Occupied Bandwidth (kHz)	26 dB Occupied Bandwidth (kHz)
Cellular	190	GSM	248	314
Centular	170	EDGE	248	320
PCS	661	PCS	244	312
res	001	EDGE	244	318
W.CD. (	9400	Rel 99	4160	4720
WCDMA Band	9400	HSDPA	4160	4720
_ ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	9400	HSUPA	4160	4760
W.CD. (	1413	Rel 99	4180	4740
WCDMA Band IV	1413	HSDPA	4180	4760
Dana II	1413	HSUPA	4180	4720
	4175	Rel 99	4160	4760
WCDMA Band V	4175	HSDPA	4140	4760
	4175	HSUPA	4160	4760

# **GMSK 850 Cellular Band**



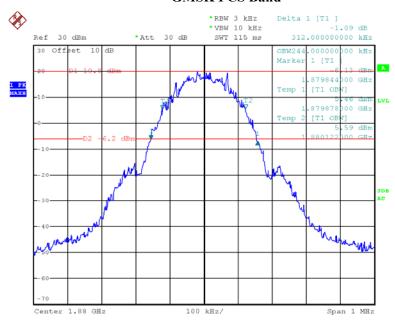
Date: 27.NOV.2015 18:46:14

# **EDGE 850 Cellular Band**



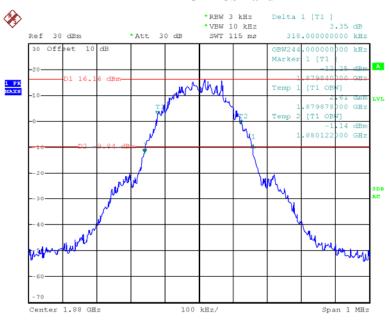
Date: 27.NOV.2015 18:49:51

## **GMSK PCS Band**



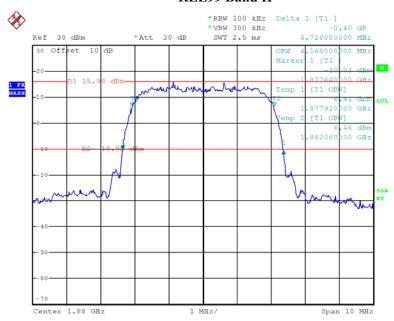
Date: 27.NOV.2015 18:38:41

# **EDGE PCS Band**



Date: 27.NOV.2015 18:53:48

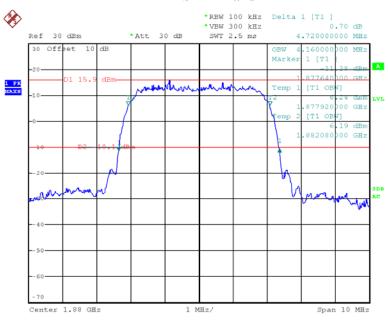
## **REL99 Band II**



Date: 26.NOV.2015 21:26:14

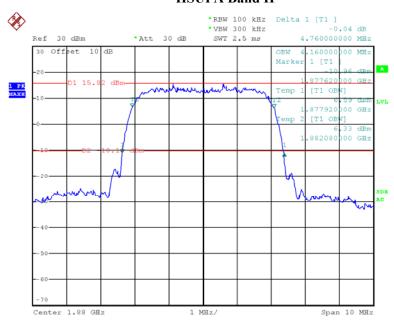
#### Report No.: RDG151125001-00C

## **HSDPA Band II**



Date: 26.NOV.2015 21:26:40

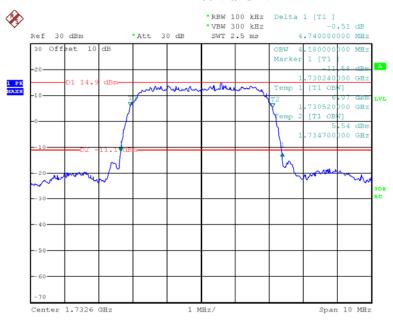
#### **HSUPA Band II**



Date: 26.NOV.2015 21:31:33

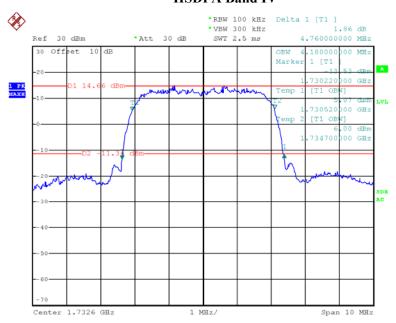
#### Report No.: RDG151125001-00C

## **REL99 Band IV**



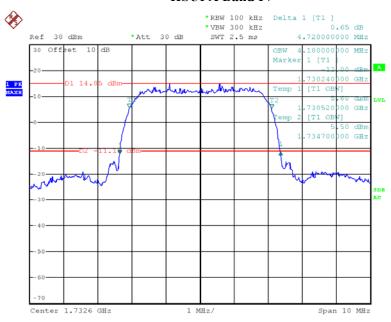
Date: 26.NOV.2015 21:35:06

#### **HSDPA Band IV**



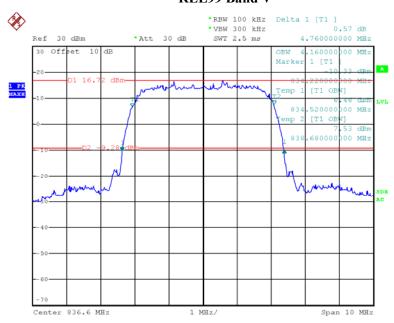
Date: 26.NOV.2015 21:32:30

#### **HSUPA Band IV**



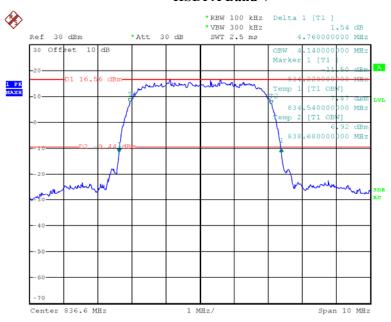
Date: 26.NOV.2015 21:35:35

#### **REL99 Band V**



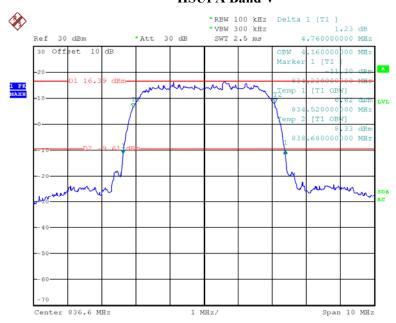
Date: 26.NOV.2015 21:24:31

## $HSDPA \ Band \ V$



Date: 26.NOV.2015 21:20:14

#### **HSUPA Band V**

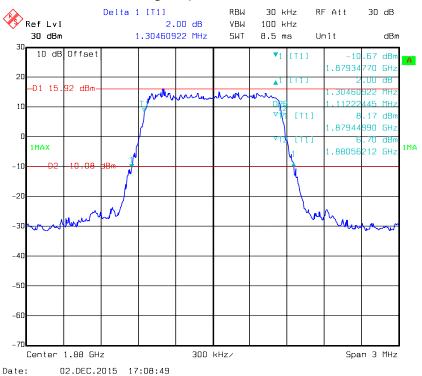


Date: 26.NOV.2015 21:25:23

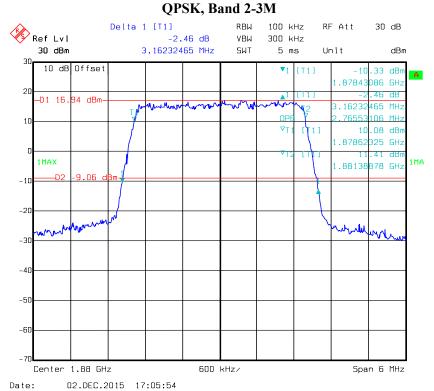
LTE Band	Test Modulation	Test Bandwidth	Test Channel	99% Occupied Bandwidth	26 dB Bandwidth
				MHz	MHz
		1.4M		1.112	1.305
		3M		3.162	2.766
	QPSK	5M	Middle	4.549	5.090
	QI SII	10M	Tittaate	9.098	10.301
		15M		13.527	15.030
		20M		18.036	19.960
Band 2		1.4M		1.112	1.323
	16-QAM	3M		3.127	2.766
		5M	Middle	4.549	5.070
		10M		9.058	10.261
		15M		13.527	14.970
		20M		17.876	19.800
		1.4M		1.112	1.323
		3M		2.766	3.128
	OBCK	5M	Middle	4.549	5.090
	QPSK	10M	Middle	9.138	10.371
		15M		13.587	15.090
Band 4		20M		18.196	20.120
Danu 4		1.4M		1.100	1.335
		3M		2.766	3.126
	16 0 4 14	5M	Middle	4.569	5.090
	16-QAM	10M	Middle	9.098	10.291
		15M		13.587	15.090
		20M		18.277	20.120

LTE Band	Test Modulation	Test Bandwidth	Test Channel	99% Occupied Bandwidth	26 dB Bandwidth
				MHz	MHz
		5M		4.569	5.110
	ODCV	10M	Middle	9.098	10.291
	QPSK	15M		13.587	15.090
Danid 7		20M		18.277	20.040
Band 7		5M		4.529	5.070
	16.0434	10M	Middle	9.138	10.370
	16-QAM	15M		13.587	15.090
		20M		18.196	20.200
	ODCK	5M	MC 141.	4.529	5.010
Dan J 17	QPSK	10M	Middle	9.018	10.170
Band 17	16 OAM	5M	Middle	4.529	5.030
	16-QAM	10M	Middle	8.978	10.130

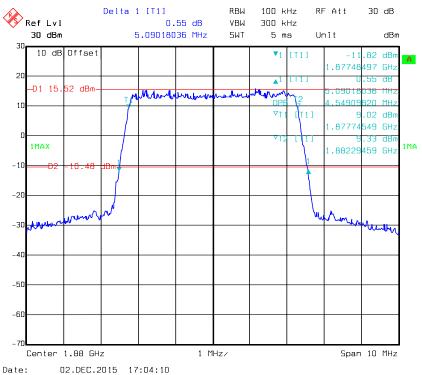
## QPSK, Band 2-1.4M



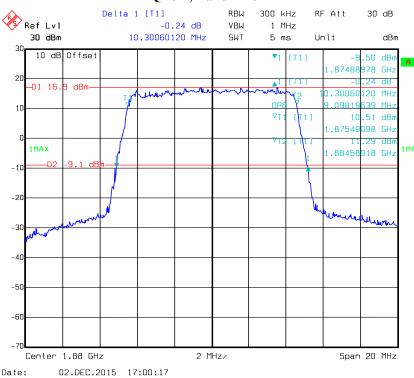
#### ODGIL D



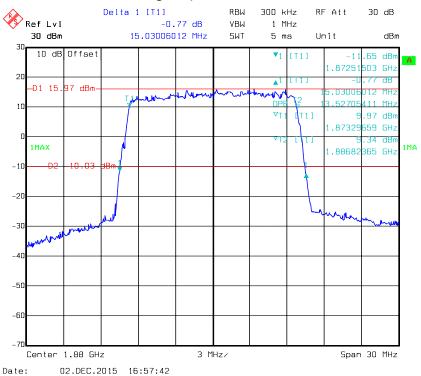
#### QPSK, Band 2-5M



#### QPSK, Band 2-10M



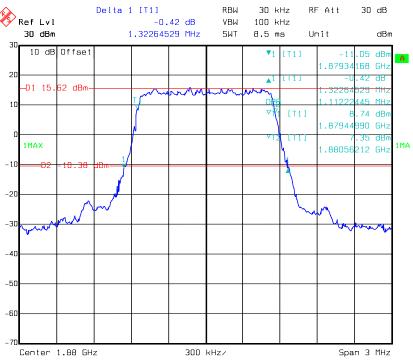
#### QPSK, Band 2-15M



## QPSK, Band 2-20M

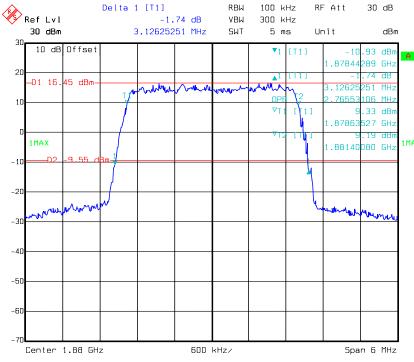


## 16-QAM, Band 2-1.4M

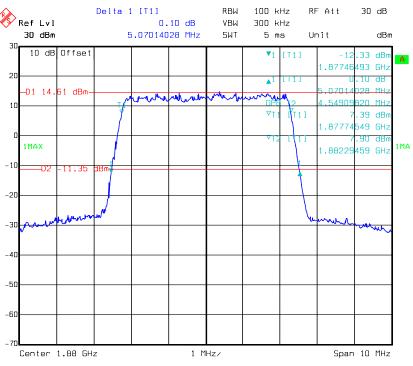


Date: 02.DEC.2015 17:10:04

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

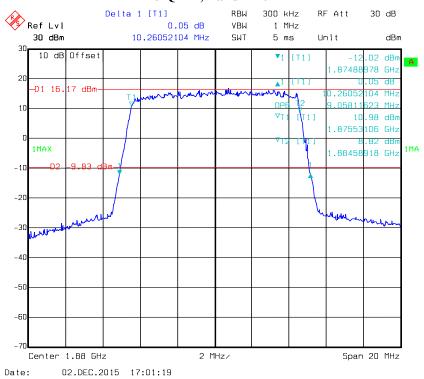


#### 16-QAM, Band 2-5M

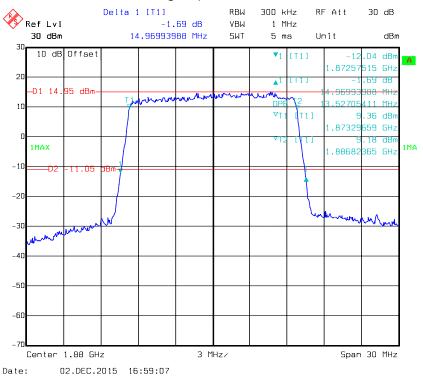


Date: 02.DEC.2015 17:03:10

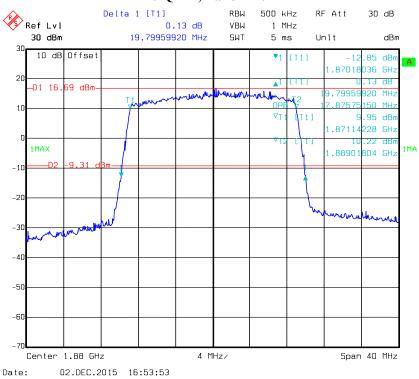
#### 16-QAM, Band 2-10M



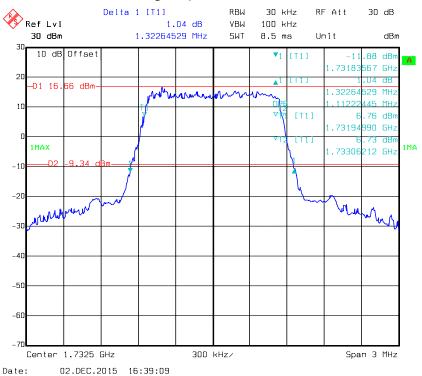
#### 16-QAM, Band 2-15M



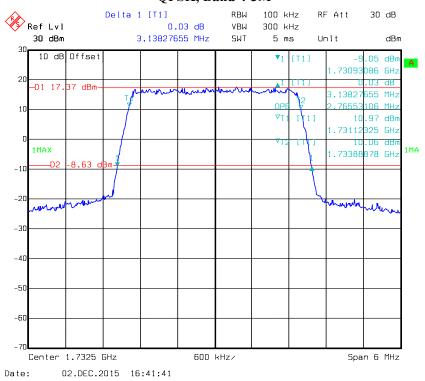
#### 16-QAM, Band 2-20M



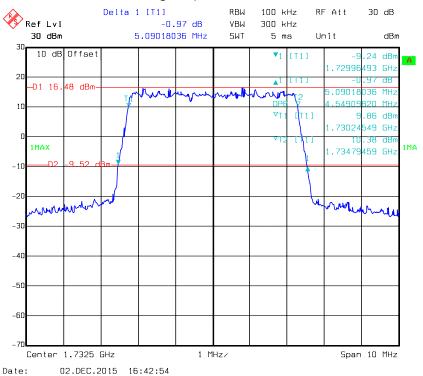
#### QPSK, Band 4-1.4M



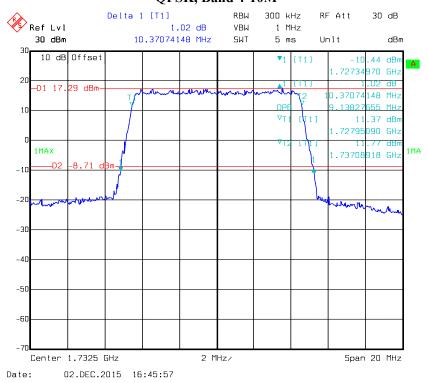
# QPSK, Band 4-3M



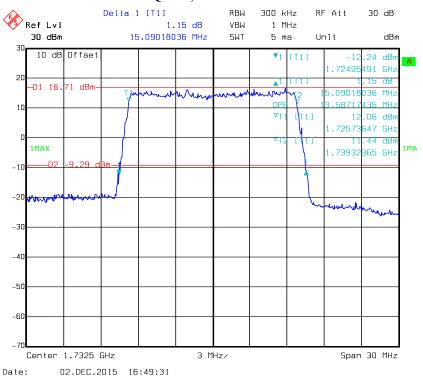
#### QPSK, Band 4-5M



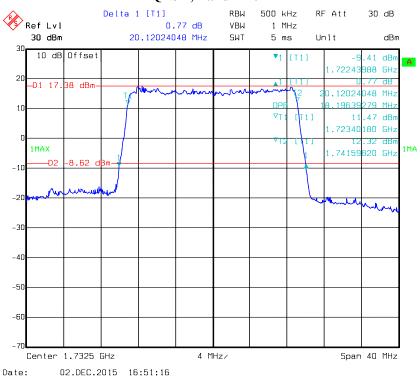
## QPSK, Band 4-10M



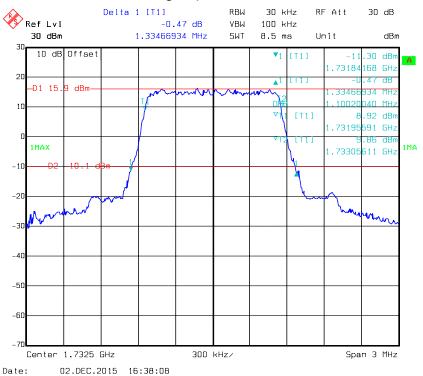
#### QPSK, Band 4-15M



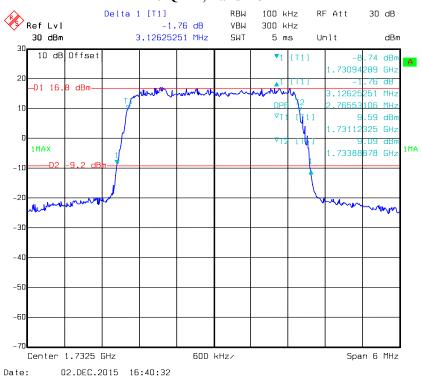
#### QPSK, Band 4-20M



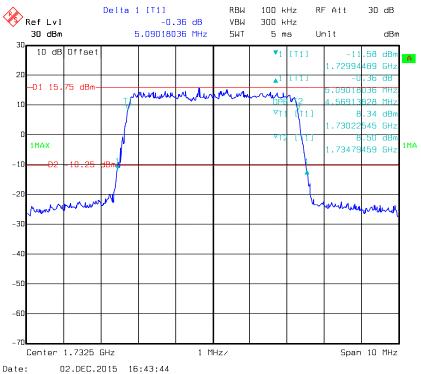
#### 16-QAM, Band 4-1.4M



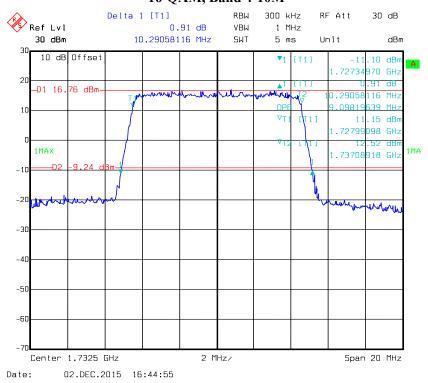
#### 16-QAM, Band 4-3M



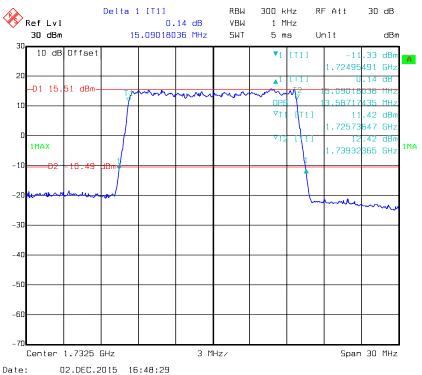
## 16-QAM, Band 4-5M



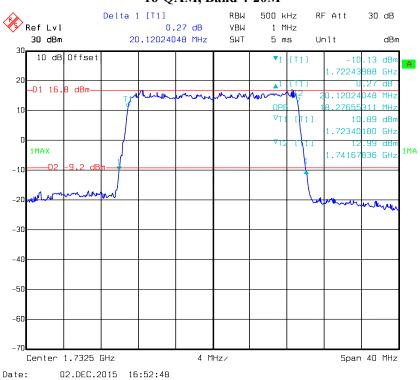
## 16-QAM, Band 4-10M



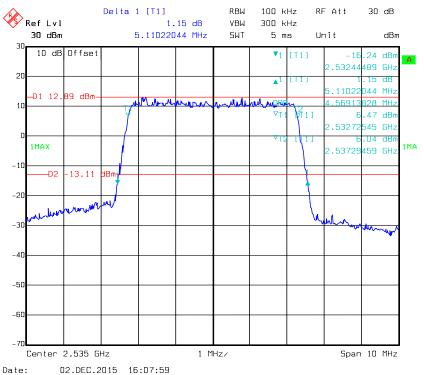
#### 16-QAM, Band 4-15M



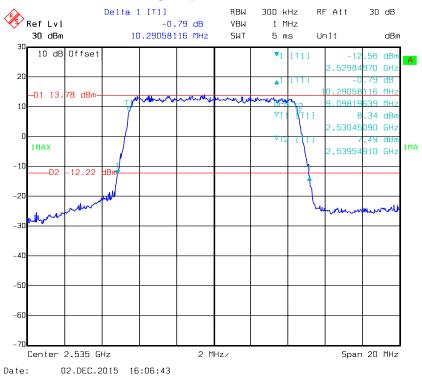
## 16-QAM, Band 4-20M



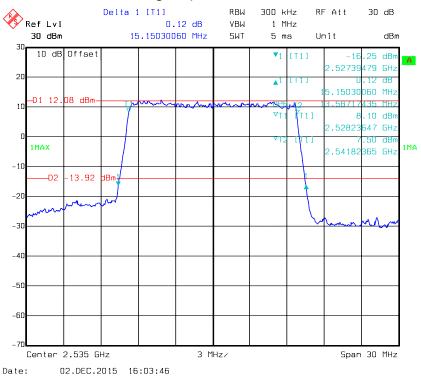
## QPSK, Band 7-5M



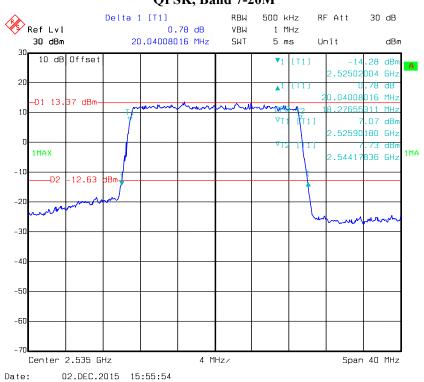
#### QPSK, Band 7-10M



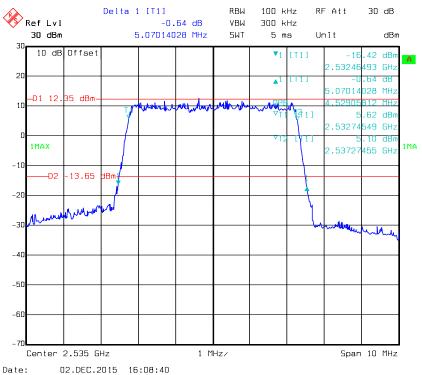
#### QPSK, Band 7-15M



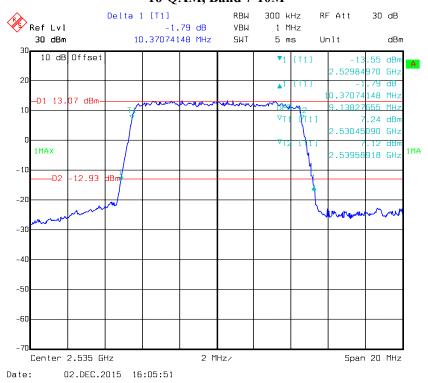
# QPSK, Band 7-20M



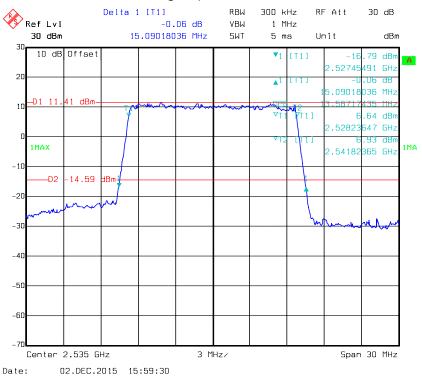
#### 16-QAM, Band 7-5M



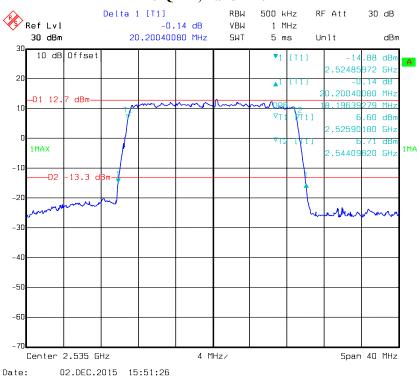
## 16-QAM, Band 7-10M



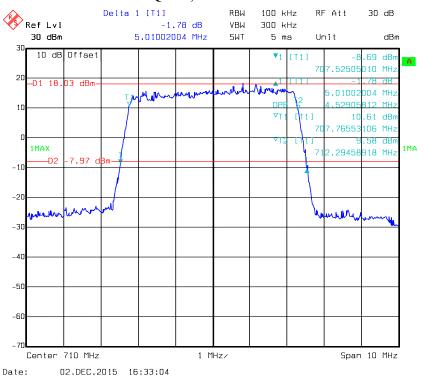
#### 16-QAM, Band 7-15M



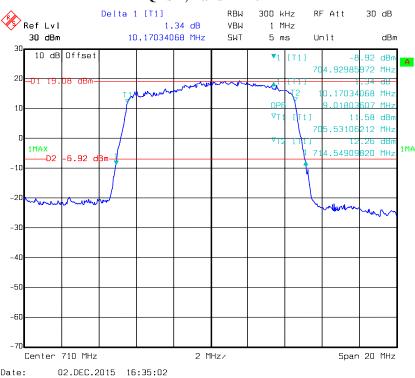
#### 16-QAM, Band 7-20M



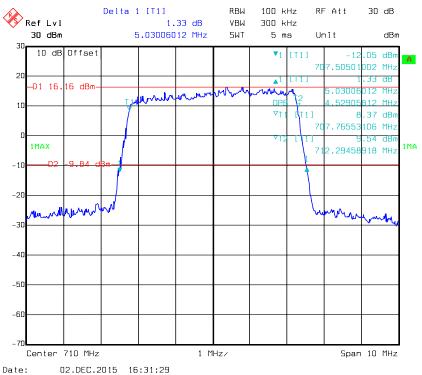
#### QPSK, Band 17-5M



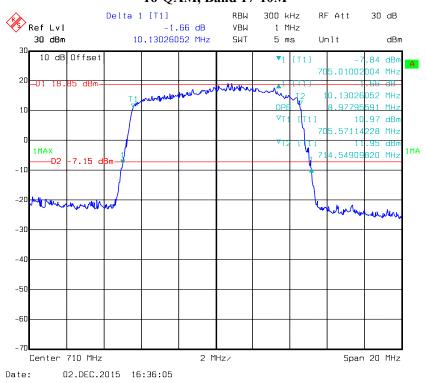
#### QPSK, Band 17-10M



#### 16-QAM, Band 17-5M



## 16-QAM, Band 17-10M



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

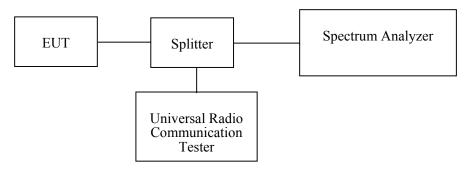
#### **Applicable Standard**

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	1201.002K50- 146520-wh	2014-12-19	2015-12-19

<sup>\*</sup> 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**

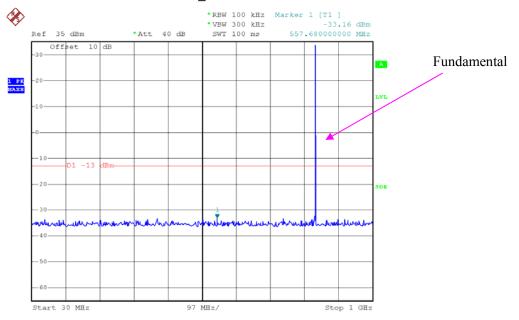
## **Environmental Conditions**

Temperature:	26.8~27.2 °C	
Relative Humidity:	51~54 %	
ATM Pressure:	100.2~100.6 kPa	

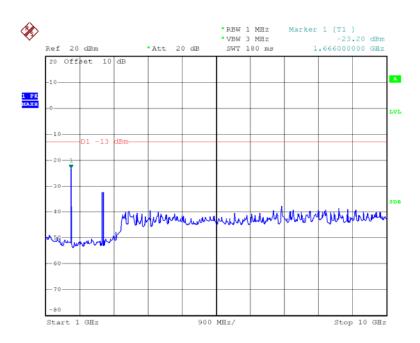
The testing was performed by Lion Xiao from 2015-11-30 to 2015-12-03.

Please refer to the following plots.

#### **GSM850\_Middle Channel**

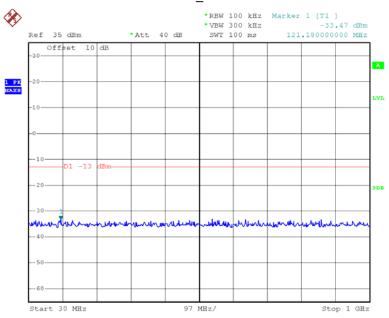


Date: 30.NOV.2015 11:51:40

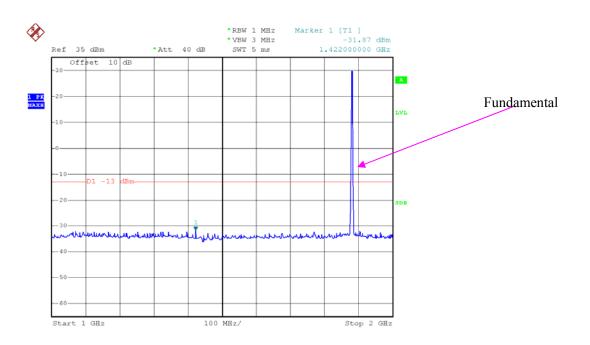


Date: 30.NOV.2015 11:49:14

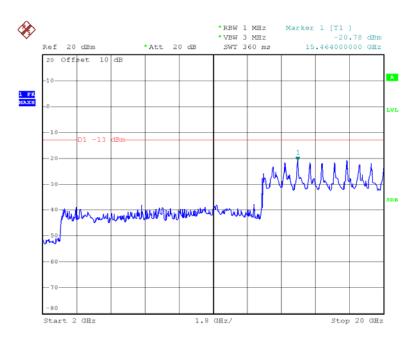
## PCS 1900\_ Middle Channel



Date: 30.NOV.2015 11:52:21

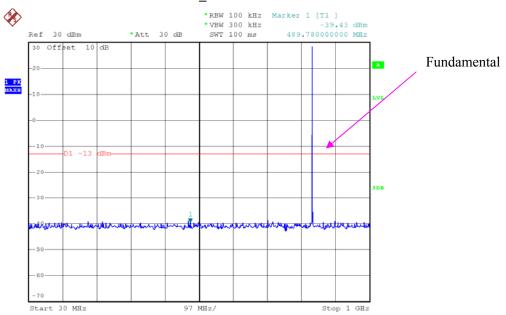


Date: 30.NOV.2015 11:52:45

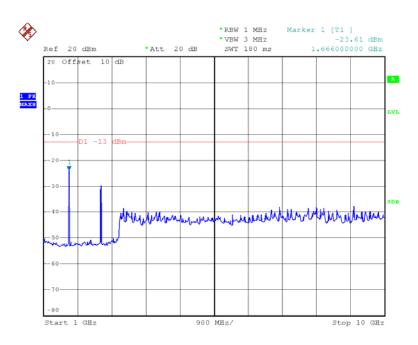


Date: 30.NOV.2015 11:54:39

# EDGE850\_Middle Channel

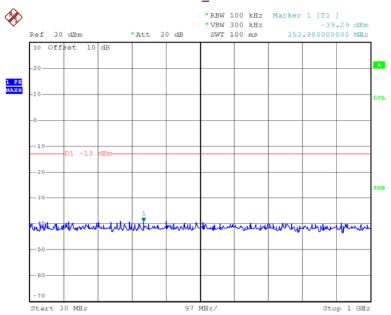


Date: 30.NOV.2015 11:57:21

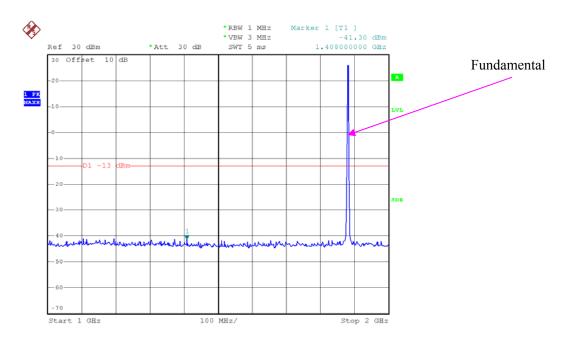


Date: 30.NOV.2015 11:59:44

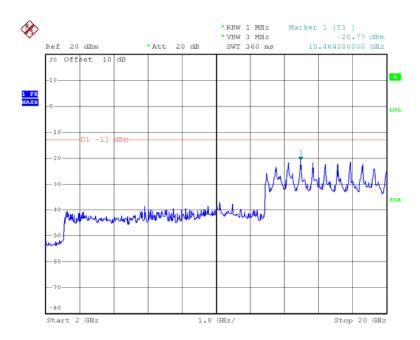
# EDGE1900\_ Middle Channel



Date: 30.NOV.2015 11:56:43

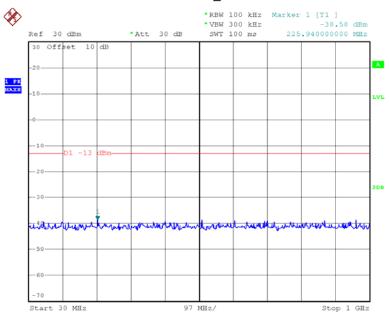


Date: 30.NOV.2015 11:56:26

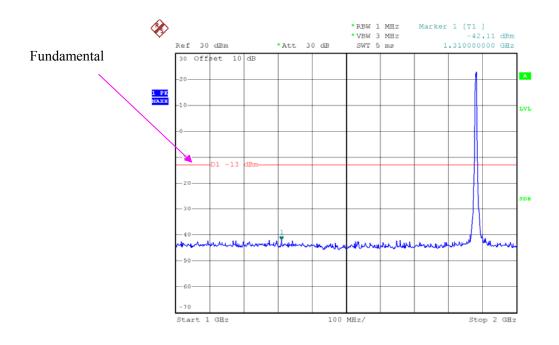


Date: 30.NOV.2015 11:55:54

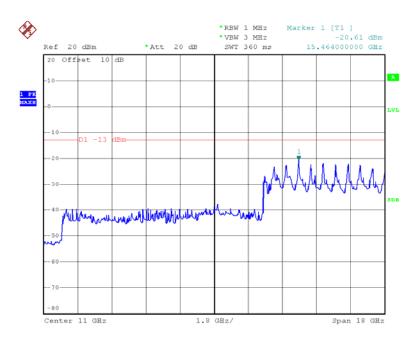
# **REL99 Band II\_ Middle Channel**



Date: 30.NOV.2015 12:02:38

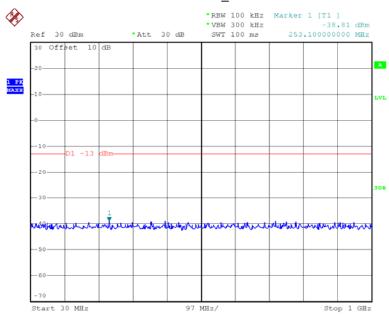


Date: 30.NOV.2015 12:13:14

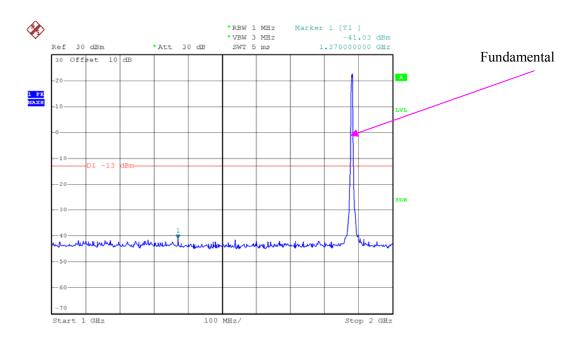


Date: 30.NOV.2015 12:15:26

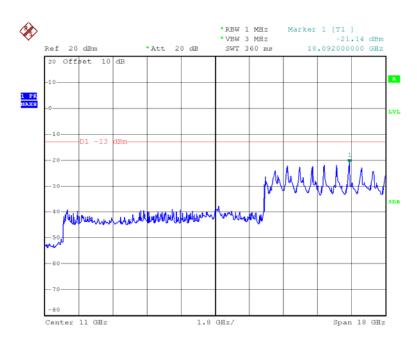
# **HSDPA Band II \_Middle Channel**



Date: 30.NOV.2015 12:04:50

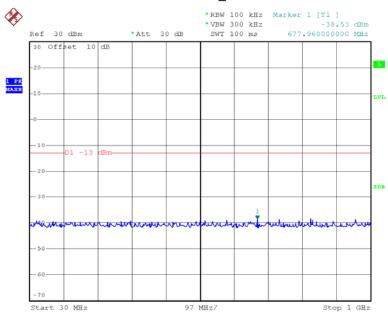


Date: 30.NOV.2015 12:13:44

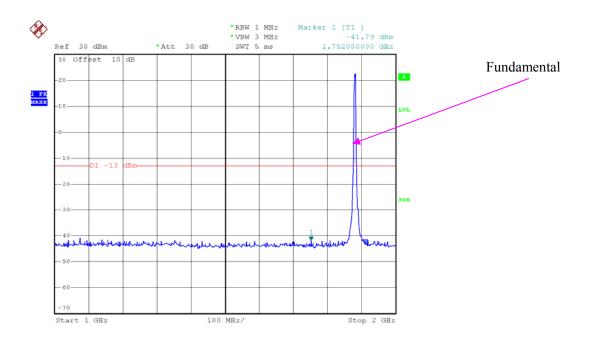


Date: 30.NOV.2015 12:16:41

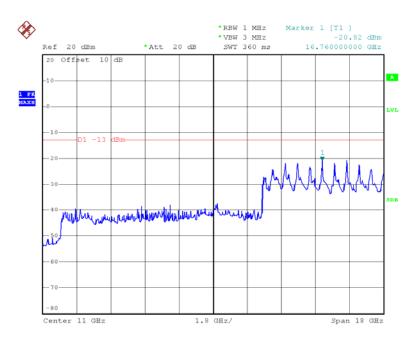
# **HSUPA Band II \_ Middle Channel**



Date: 30.NOV.2015 12:05:06

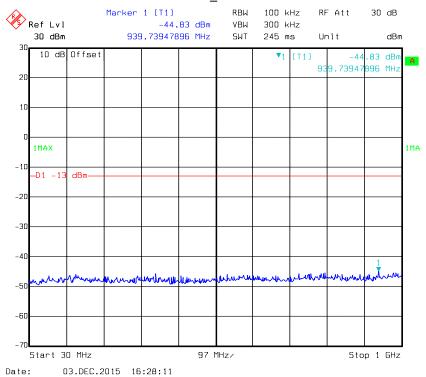


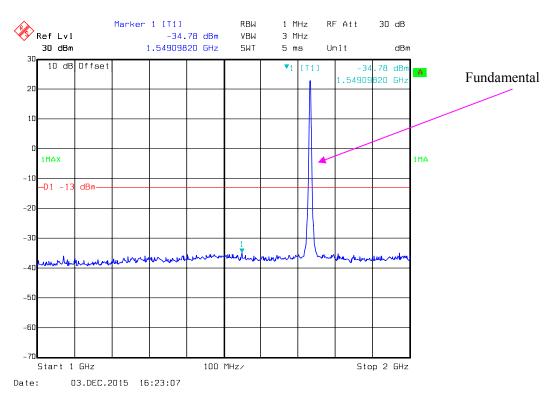
Date: 30.NOV.2015 12:15:07

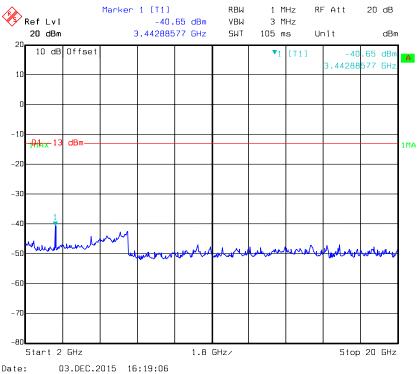


Date: 30.NOV.2015 12:17:01

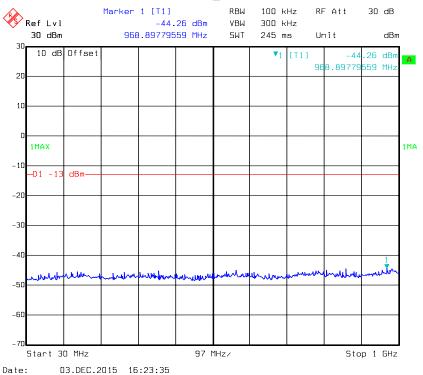
# **REL99 Band IV\_Middle Channel**

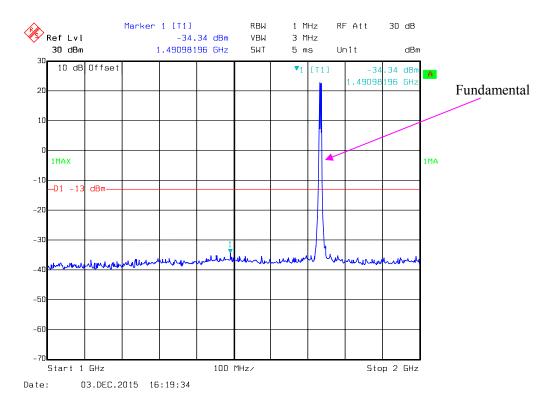


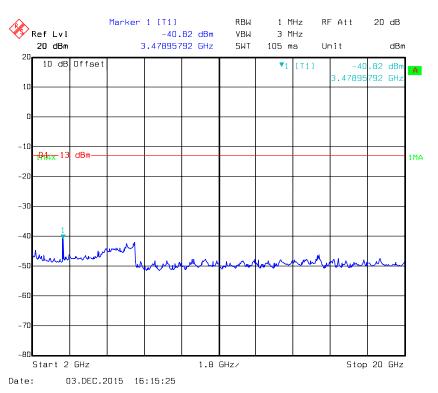




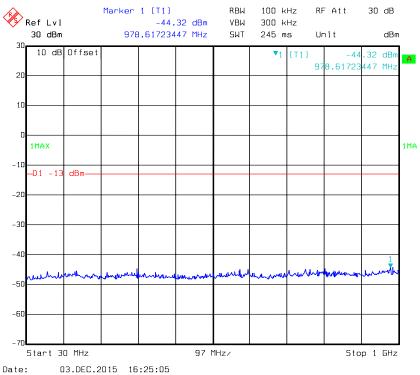
# **HSDPA Band IV \_Middle Channel**

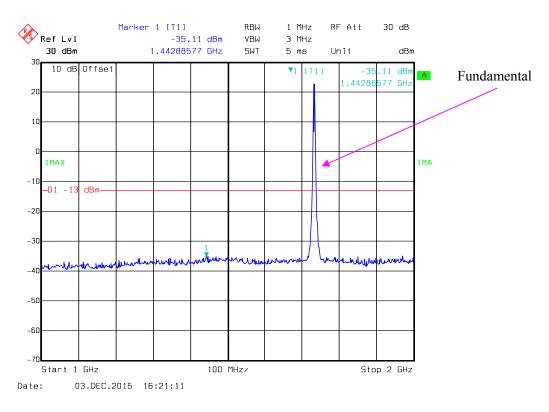


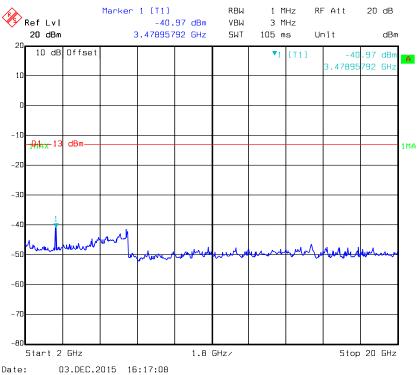




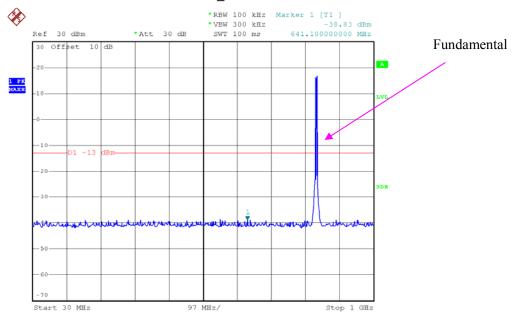
# **HSUPA Band IV** \_ **Middle Channel**



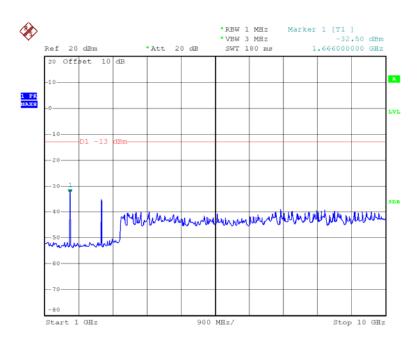




# REL99 Band $V_{\rm M}$ Middle Channel

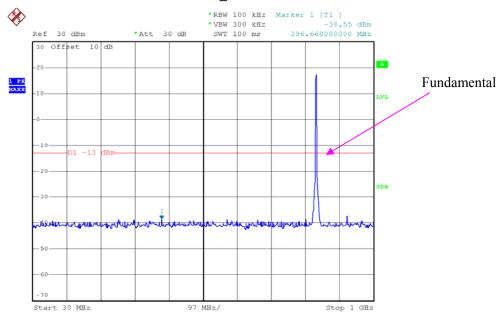


Date: 30.NOV.2015 12:24:56

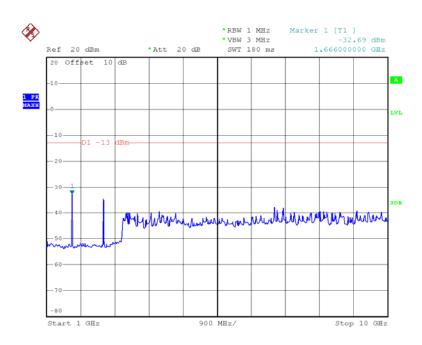


Date: 30.NOV.2015 12:21:40

# $HSDPA \ Band \ V\_ \ Middle \ Channel$

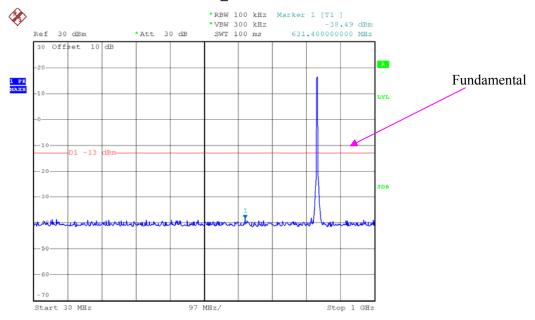


Date: 30.NOV.2015 12:23:36

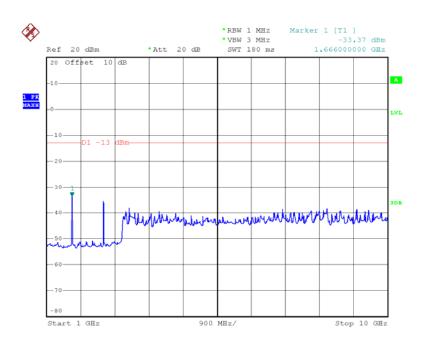


Date: 30.NOV.2015 12:20:25

# $HSUPA \ Band \ V\_ \ Middle \ Channel$



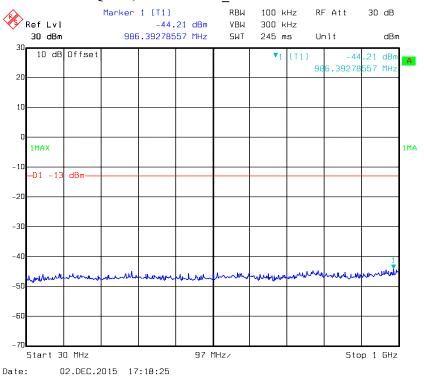
Date: 30.NOV.2015 12:22:20

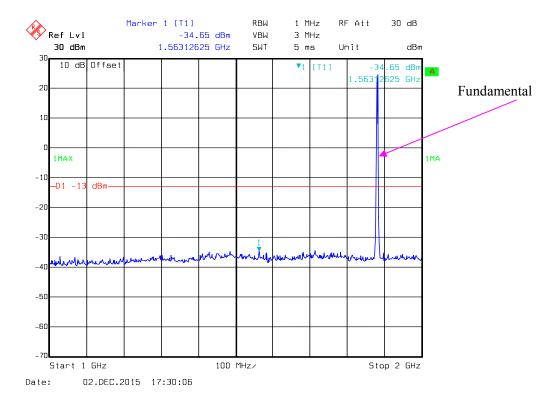


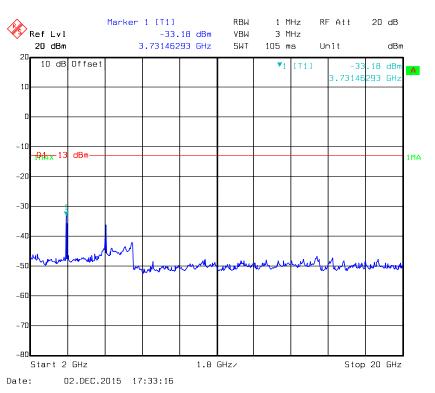
Date: 30.NOV.2015 12:19:06

#### LTE Band 2:

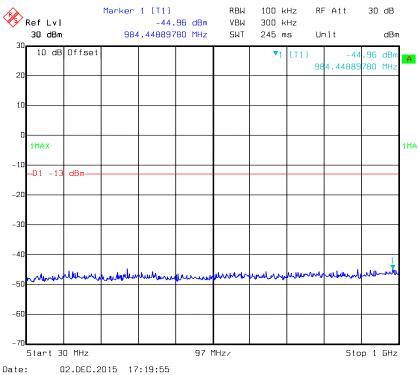
## QPSK, Band 2-1.4M \_ Middle Channel

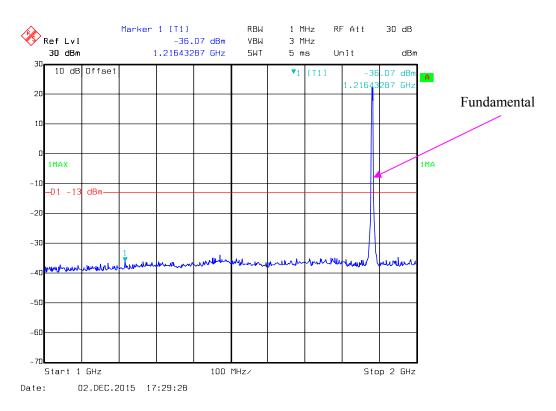


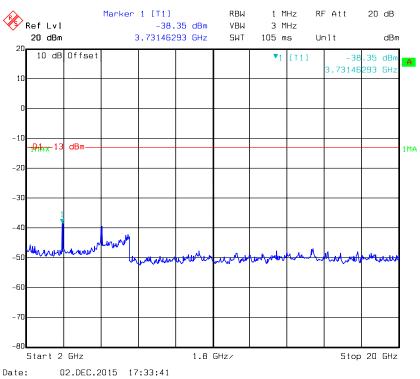




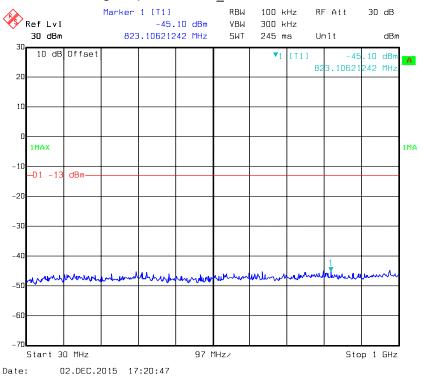
# QPSK, Band 2-3M \_ Middle Channel

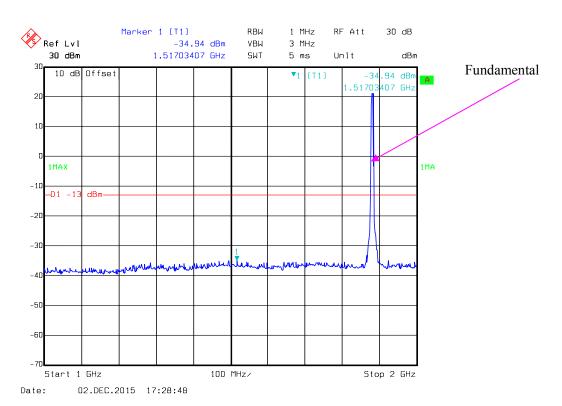


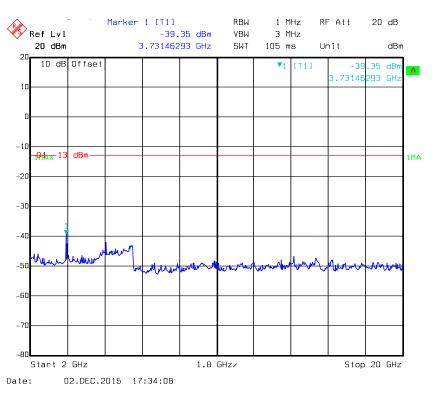




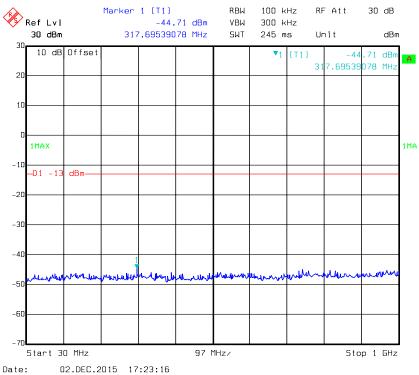
### QPSK, Band 2-5M \_ Middle Channel

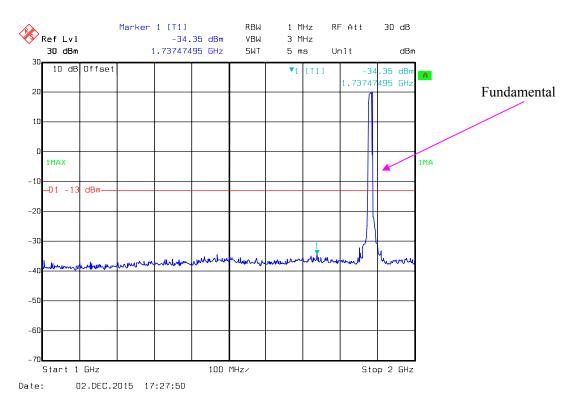


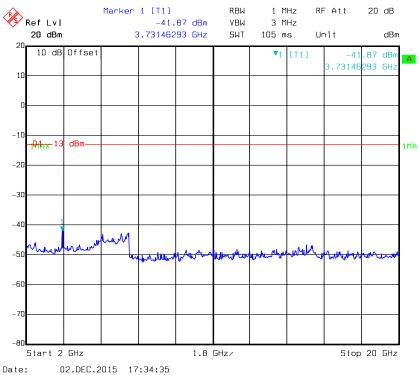




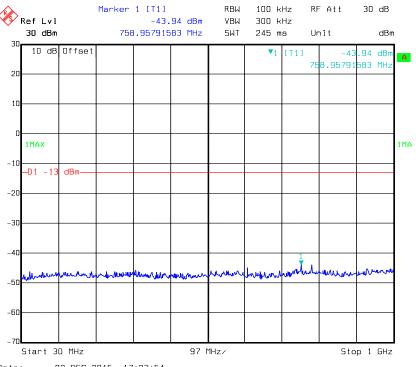
# QPSK, Band 2-10M \_ Middle Channel



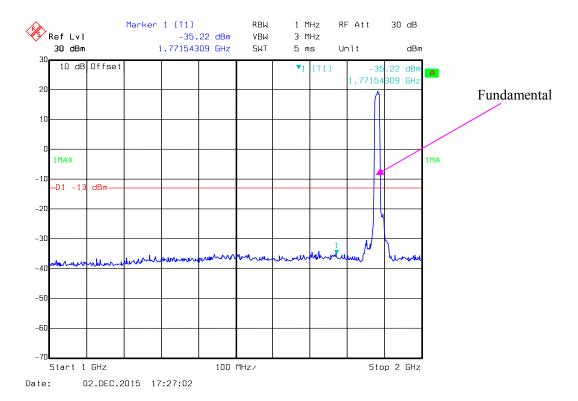


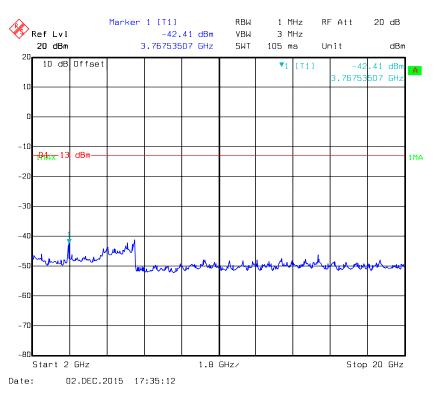


# QPSK, Band 2-15M \_ Middle Channel

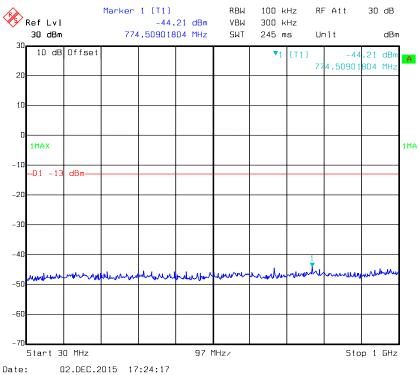


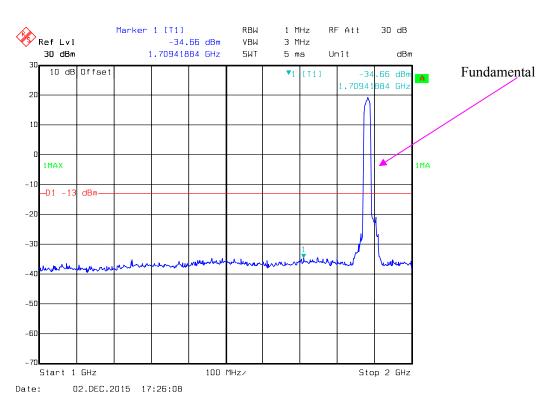


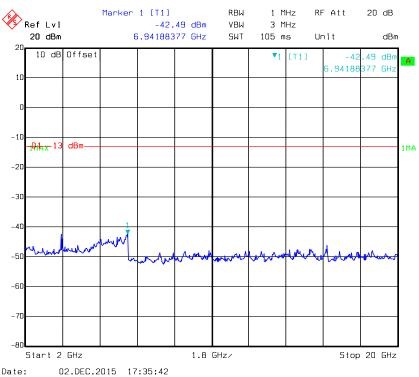




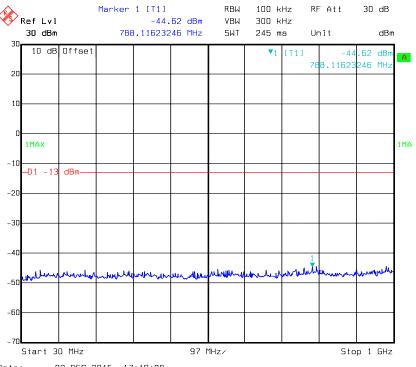
# QPSK, Band 2-20M \_ Middle Channel

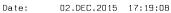


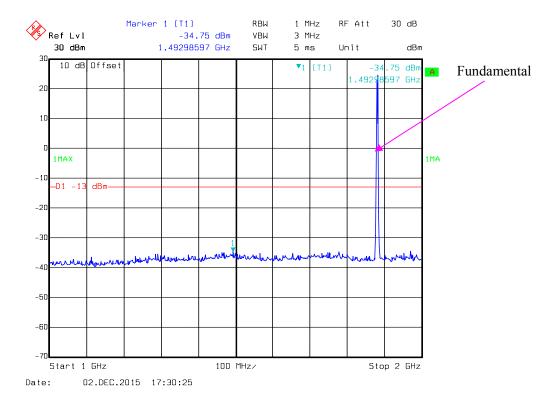


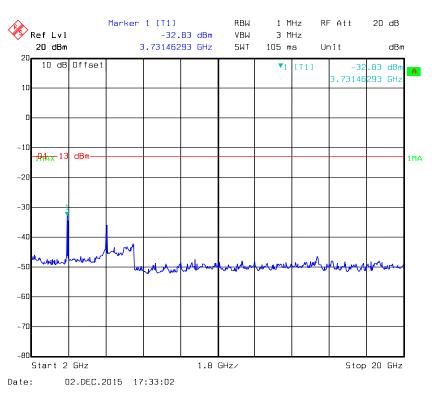


### 16-QAM, Band 2-1.4M \_ Middle Channel

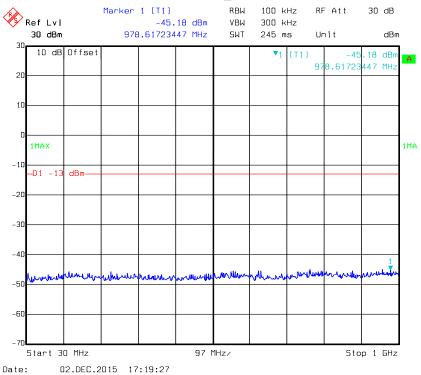


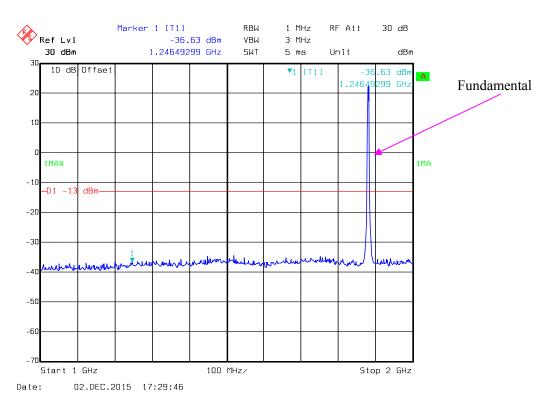


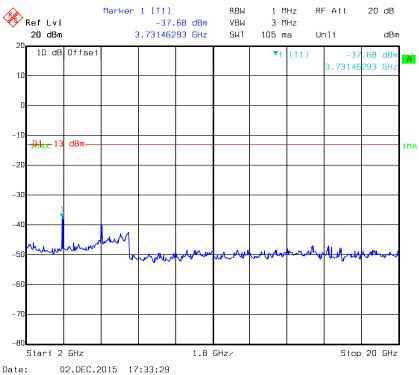




### 16-QAM, Band 2-3M \_ Middle Channel

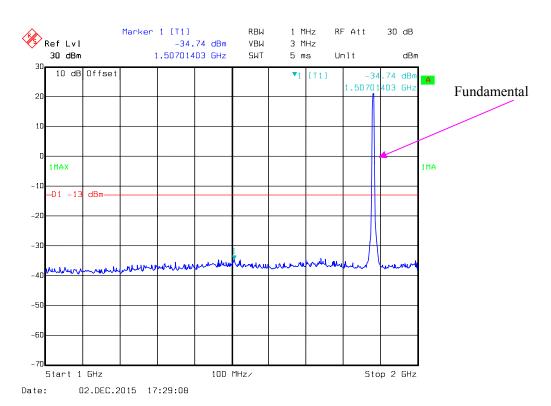


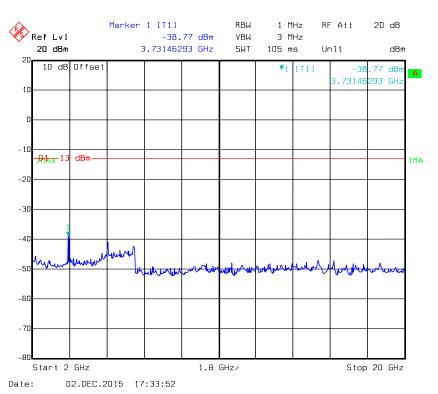




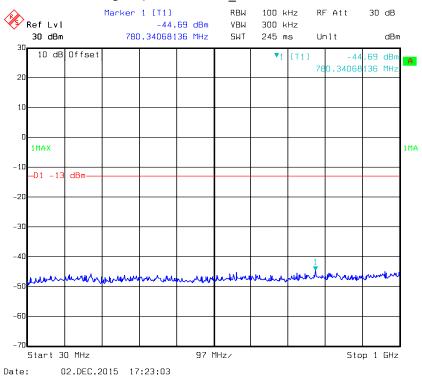
### 16-QAM, Band 2-5M \_ Middle Channel

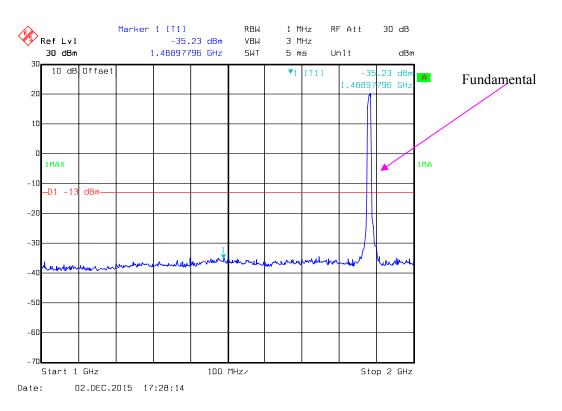


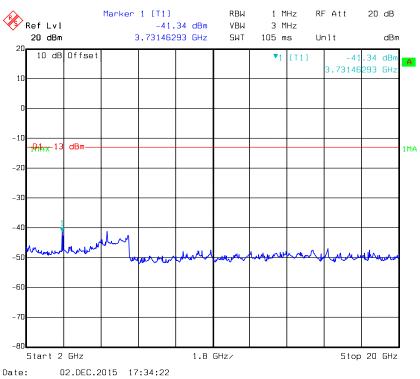




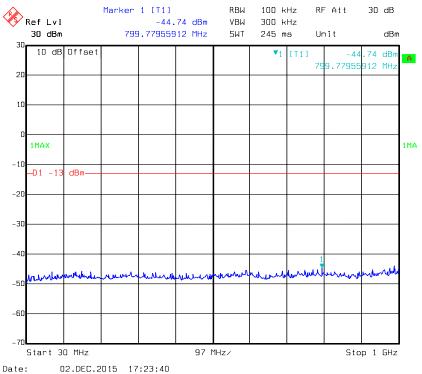
### 16-QAM, Band 2-10M \_ Middle Channel

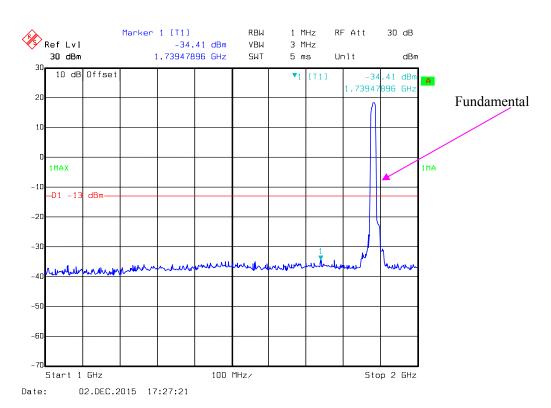


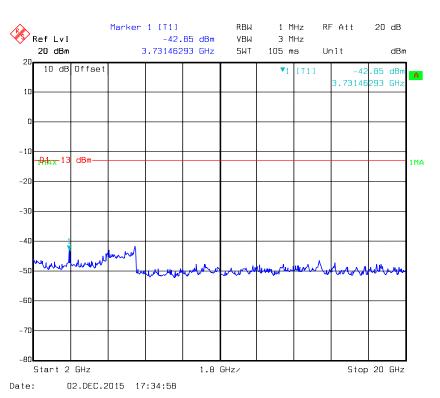




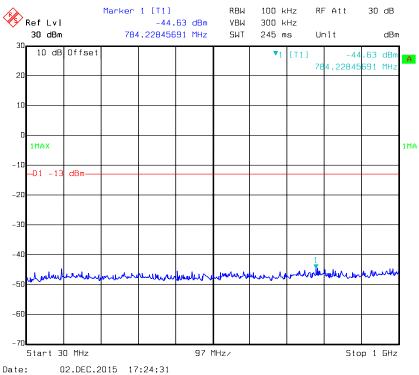
### 16-QAM, Band 2-15M \_ Middle Channel

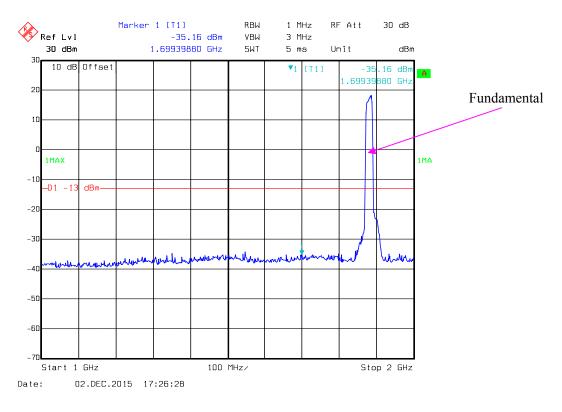


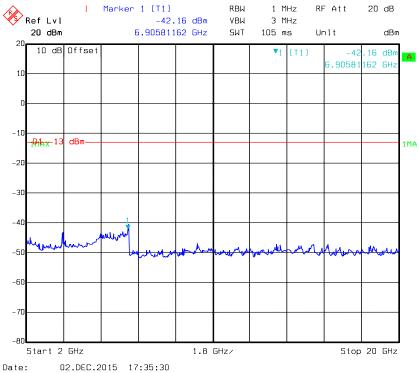




# 16-QAM, Band 2-20M \_ Middle Channel

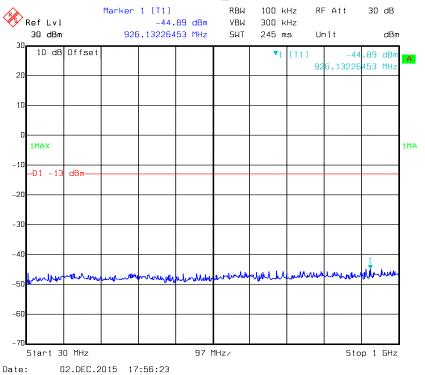


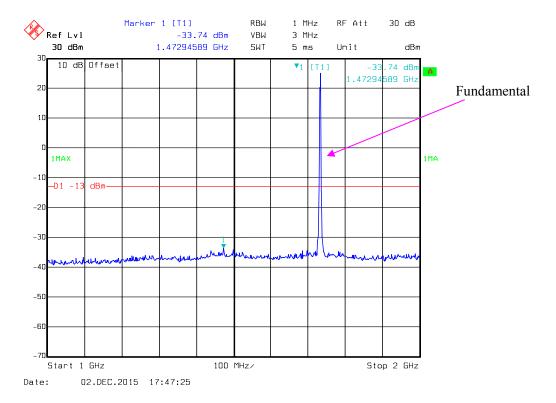


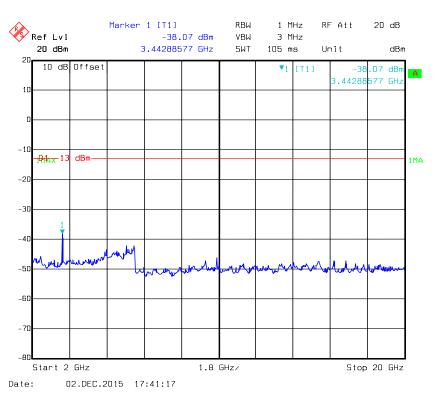


#### LTE Band 4:

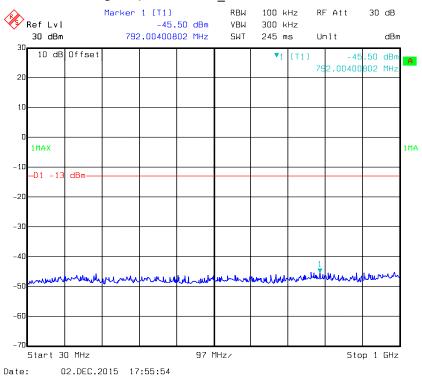
### QPSK, Band 4-1.4M \_ Middle Channel

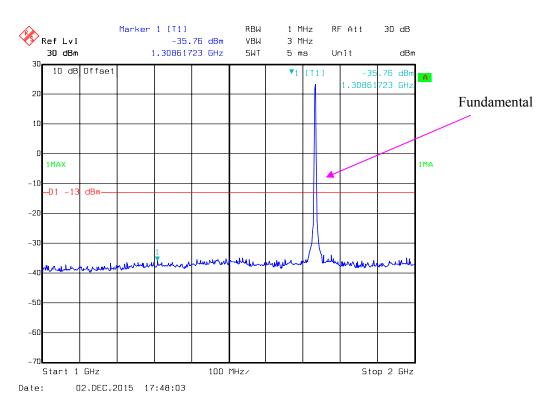


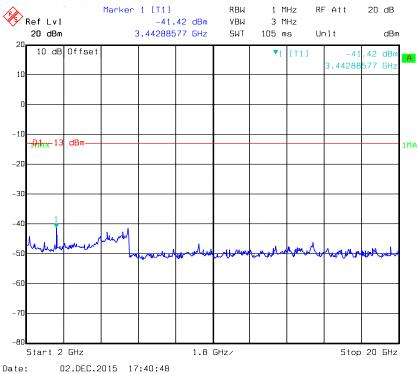




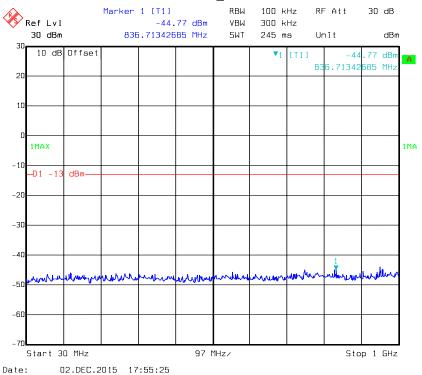
### QPSK, Band 4-3M \_ Middle Channel

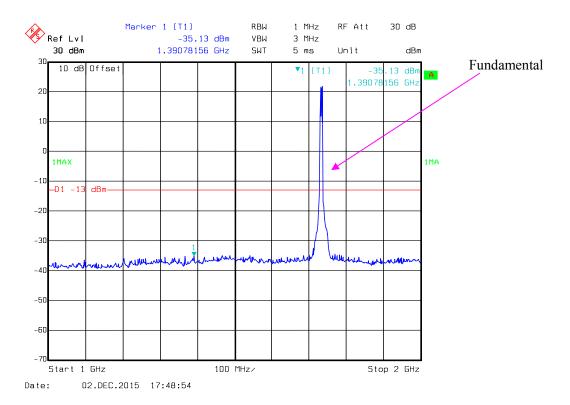


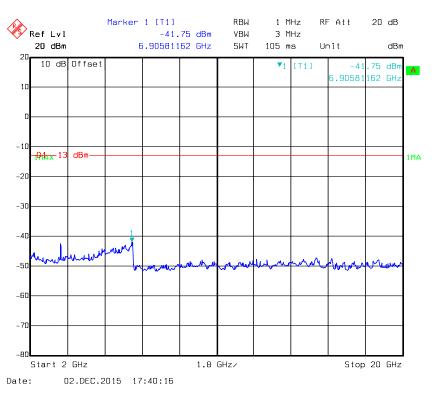




# QPSK, Band 4-5M \_ Middle Channel







# QPSK, Band 4-10M \_ Middle Channel

