



**FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
FCC CFR47 PART 27 SUBPART F, H and M**

CERTIFICATION TEST REPORT

GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC

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V1	4/7/2016	Initial Issue	C.S.OOI
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONY MOBILE COMMUNICATIONS, INC.
EUT DESCRIPTION: GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC
SERIAL NUMBER: Radiated - CB5129Z1VS (GSM/WCDMA),
CB5129Z232 (sample #2)/CB5129Z1U0 (sample #1) (LTE)
Conducted – 231257 (GSM/WCDMA), 2312524 (LTE)
DATE TESTED: March 28- April 08, 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H, 24E, 27H, 27F, 27M	PASS

UL LLC reports apply only to the specific samples tested under stated test conditions. All samples tested were in good operating condition throughout the entire test program. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. UL LLC shall have no liability for any deductions, inferences or generalizations drawn by the client or others from UL LLC issued reports. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

This report may contain test results that are not covered by the NVLAP or A2LA accreditation. The scope of accreditation is limited to the specific tests that are listed on the NVLAP and/or A2LA websites referenced at the end of this report.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-D, FCC CFR 47 Part 22/24, FCC CFR Part 2 and FCC CFR 47 Part 27.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 12 Laboratory Dr., Research Triangle Park, NC 27709, USA and 2800 Suite B, Perimeter Park Drive, Morrisville, NC 27560.

12 Laboratory Dr., RTP, NC 27709	
<input type="checkbox"/>	Chamber A
<input type="checkbox"/>	Chamber C
2800 Suite B Perimeter Park Dr., Morrisville, NC 27560	
<input checked="" type="checkbox"/>	Chamber NORTH
<input type="checkbox"/>	Chamber SOUTH

The onsite chambers are covered under Industry Canada company address code 2180C with site numbers 2180C -1 through 2180C-4

UL LLC (RTP) is accredited by NVLAP, Laboratory Code 200246-0. The full scope of accreditation can be viewed at <http://www.nist.gov/nvlap/>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$EIRP = PSA \text{ reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)} + \text{Substitution Antenna Factor (dBi)}$

$ERP = PSA \text{ reading with EUT worst orientation (dBm)} + \text{Path loss (dB)} - \text{cable loss (between the SG and substitution antenna)}$

(Path loss = Signal generator output – PSA reading with substitution antenna)

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER		UNCERTAINTY
Total RF power, conducted	+/-	0.45
RF power density, conducted	+/-	1.50
Spurious emissions, conducted	+/-	2.94
All emissions, radiated up to 26 GHz	+/-	5.36
Temperature	+/-	0.07
Humidity	+/-	2.26
DC and low frequency voltages	+/-	1.27
Conducted Emissions (0.150-30MHz)	+/-	2.37

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

This EUT is a GSM/WCDMA/LTE PHONE with BT, DTS/UNII a/b/g/n/ac & NFC.

5.2. MAXIMUM OUTPUT POWER (GSM/EGPRS)

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
GSM850	824~849	GMSK	32.6	1819.70		
	824~849	GPRS	32.6	1819.70	27.35	543.25
	824~849	EGPRS	27.4	549.54	23.17	207.49
GSM1900	1850~1910	GMSK	30.4	1096.48		
	1850~1910	GPRS	30.4	1096.48	27.39	548.28
	1850~1910	EGPRS	26.8	478.63	23.51	224.39

5.3. MAXIMUM OUTPUT POWER (WCDMA)

The transmitter has a maximum peak conducted and radiated ERP / EIRP output powers as follows:

FCC Part 22/24						
Band	Frequency Range(MHz)	Modulation	Conducted		Radiated	
			AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
Band 2	1850~1910	REL99	24.0	251.19	21.34	136.14
	1850~1910	HSDPA	22.5	177.83	20.03	100.69
	1850~1910	HSUPA	22.6	181.97		
Band 5	824~849	REL99	24.3	269.15	19.24	83.95
	824~849	HSDPA	23.2	208.93	18.24	66.68
	824~849	HSUPA	23.1	204.17		

5.4. MAXIMUM OUTPUT POWER (LTE)

The transmitter has a maximum peak conducted and radiated ERP/EIRP output powers as follows:

LTE Band 5

FCC Part 22							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE5	824~849	1.4MHz	QPSK	20.7	117.49	17.70	58.88
			16QAM	21.1	128.82	17.82	60.53
		3MHz	QPSK	20.8	120.23	17.45	55.59
			16QAM	21.1	128.82	17.57	57.15
		5MHz	QPSK	20.8	120.23	18.01	63.24
			16QAM	21.1	128.82	17.88	61.38
		10MHz	QPSK	20.9	123.03	18.24	66.68
			16QAM	21.1	128.82	18.40	69.18

LTE Band 7

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	PEAK(dBm)	PEAK(mW)
LTE7	2500~2570	5MHz	QPSK	20.2	104.71	21.50	141.25
			16QAM	20.5	112.20	21.35	136.46
		10MHz	QPSK	20.5	112.20	21.25	133.35
			16QAM	20.6	114.82	21.24	133.05
		15MHz	QPSK	20.5	112.20	23.52	224.91
			16QAM	20.6	114.82	24.48	280.54
		20MHz	QPSK	20.5	112.20	23.49	223.36
			16QAM	20.6	114.82	24.71	295.80

LTE Band 13

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE13	777~787	5MHz	QPSK	23.0	199.53	18.89	77.45
			16QAM	22.2	165.96	17.99	62.95
		10MHz	QPSK	23.4	218.78	18.08	64.27
			16QAM	22.0	158.49	17.27	53.33

LTE Band 17

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	AVG(dBm)	AVG(mW)
LTE17	704~716	5MHz	QPSK	23.3	213.80	19.28	84.72
			16QAM	22.6	181.97	18.43	69.66
		10MHz	QPSK	23.4	218.78	19.60	91.20
			16QAM	22.5	177.83	18.78	75.51

LTE Band 41

FCC Part 27							
Band	Frequency Range(MHz)	BandWidth (MHz)	Modulation	Conducted		Radiated	
				AVG(dBm)	AVG(mW)	PEAK(dBm)	PEAK(mW)
LTE41	2496~2690	5MHz	QPSK	20.3	107.15	23.97	249.46
			16QAM	20.3	107.15	25.06	320.63
		10MHz	QPSK	20.5	112.20	25.64	366.44
			16QAM	20.5	112.20	26.66	463.45
		15MHz	QPSK	20.5	112.20	25.75	375.84
			16QAM	20.5	112.20	26.48	444.63
		20MHz	QPSK	20.5	112.20	26.08	405.51
			16QAM	20.4	109.65	26.70	467.74

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the [List the bands supported] with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
GSM850, 824~849MHz	-2.5
GSM1900, 1850~1910MHz	-1.1
WCDMA Band 2, 1850~1910	-1.1
WCDMA Band 5, 824~849	-2.5
LTE Band 5, 824~849MHz	-2.5
LTE Band 7, 2500~2570MHz	1.0
LTE Band 13, 777~787MHz	-4.0
LTE Band 17, 704~716MHz	-3.7
LTE Band 41, 2496~2690MHz	1.0

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	SONY	UCH 20 1295-70821	N/A	N/A
Earphone	SONY	N/A	N/A	N/A

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	Port	# of Identical ports	Connector Type	Serial Type	Cable Length (m)	Remarks
1	RF Out	1	Spectrum Analyzer	Shielded	None	NA
2	Antenna Port	1	EUT	Shielded	0.1m	NA
3	RF In/Out	1	Communication Test Set	Shielded	1m	NA

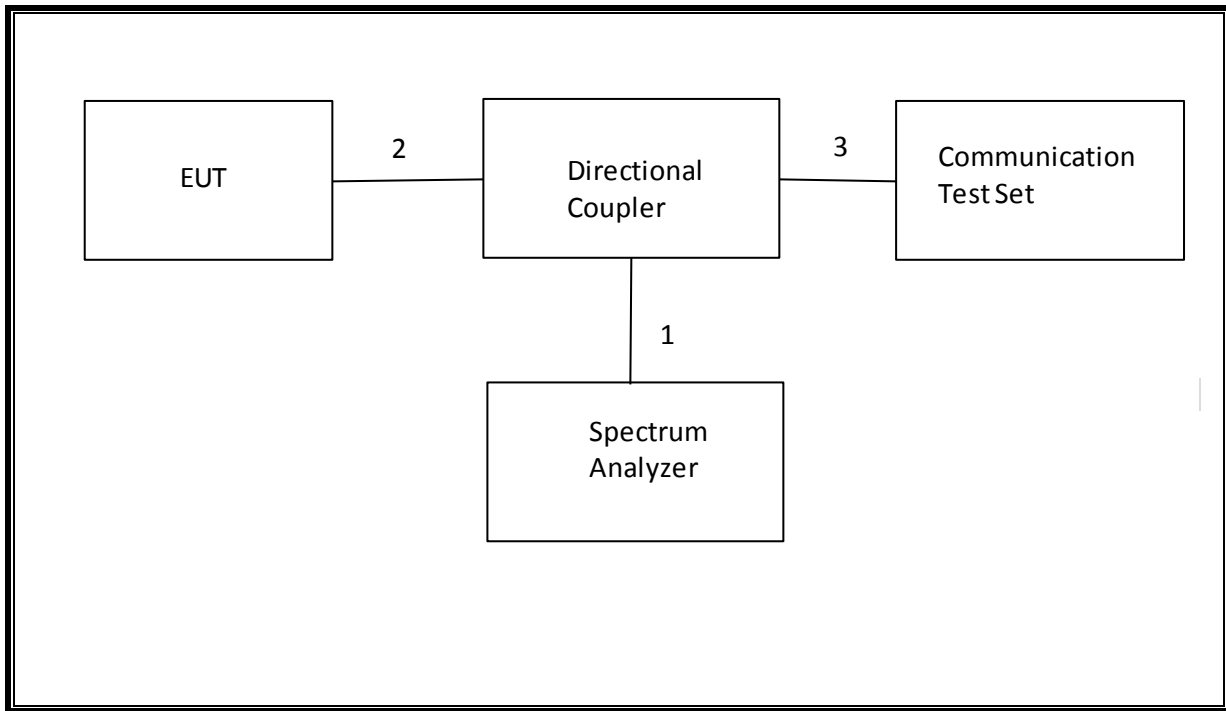
I/O CABLES (RADIATED SETUP)

I/O Cable List						
Cable No	Port	# of Identical ports	Connector Type	Serial Type	Cable Length (m)	Remarks
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

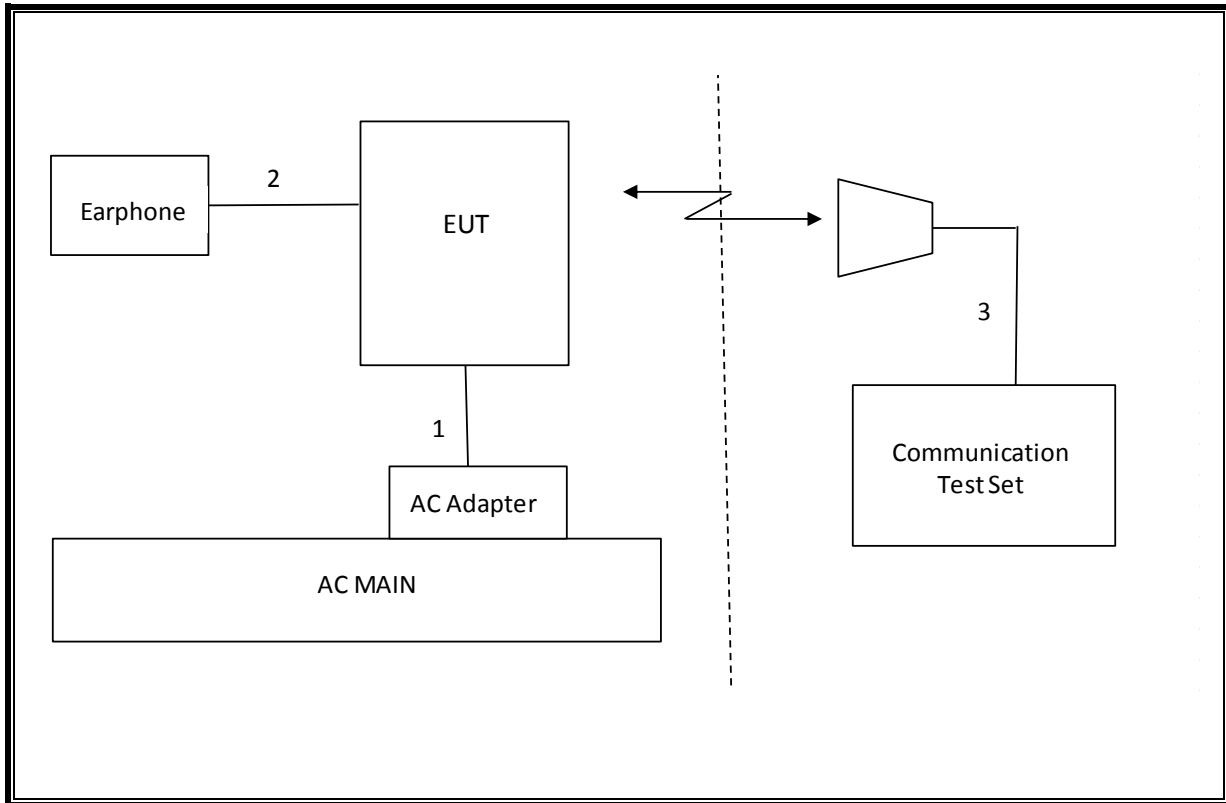
TEST SETUP

The EUT is continuously communicated to the call box during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville - North Chamber)

Equip. ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
	0.009-30MHz	(Loop Ant.)			
AT0079	Active Loop Antenna	ETS-Lindgren	6502	2015-12-08	2016-12-31
	30-1000 MHz				
AT0073	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2015-06-10	2016-06-30
	1-18 GHz				
AT0072	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2016-03-07	2017-03-31
	Tuned Dipole Set				
AT0013-AT0016	Four Dipole Antenna Set, 30 to 1000 MHz	EMCO	3121C-DB-1, -2, -3, -4	2015-05-06	2016-05-31
	Gain-Loss Chains				
N-SAC01	Gain-loss string: 0.009-30MHz	Various	Various	2015-10-07	2016-10-31
N-SAC02	Gain-loss string: 30-1000MHz	Various	Various	2015-06-04	2016-06-30
N-SAC03	Gain-loss string: 1-18GHz	Various	Various	2015-09-29	2016-09-30
	Receiver & Software				
SA0027	Spectrum Analyzer	Agilent	N9030A	2016-02-08	2017-02-08
T374	Wideband Radio Communications Tester	Rohde and Schwartz	CMW500	2015-10-21	2016-10-31
SOFTEMI	EMI Software	UL	Version 9.5	NA	NA
	Additional Equipment used				
HI0079	Temp/Humid/Pressure Meter (Module)	Springfield Precision	PreciseTemp	2015-07-01	2016-07-31
AT0078	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz. Used for substitution.	ETS Lindgren	3117	2015-10-15	2016-10-31
T374	Wideband Radio Communications Tester	Rohde and Schwartz	CMW500	2015-10-21	2016-10-31

Test Equipment Used - Wireless Conducted Measurement Equipment

Equipment ID	Description	Manufacturer	Model Number	Last Cal.	Next Cal.
Conducted Room 1					
SA0026	Spectrum Analyzer	Agilent	N9030A	2016-02-24	2017-02-28
PWM004	RF Power Meter	Keysight Technologies	N1911A	2015-06-08	2016-06-30
PWS004	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	E9323A	2015-06-05	2016-06-05
HI0079	Temp/Humid/Pressure Meter (Base)	Springfield	PreciseTemp	2015-07-01	2016-07-31
MM0167	True RMS Multimeter	Agilent	U1232A	2015-08-17	2016-08-31
76022	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
Conducted Room 2					
SA0026	Spectrum Analyzer	Agilent	N9030A	2016-02-24	2017-02-28
PWM003	RF Power Meter	Keysight Technologies	N1911A	2015-06-08	2016-06-30
PWS003	Peak and Avg Power Sensor, 50MHz to 6GHz	Keysight Technologies	E9323A	2015-06-05	2016-06-05
1100502	Temp/Humid Chamber	Cincinnati Sub-Zero	ZPH-8-3.5-SCT/AC	2015-05-13	2016-05-31
HI0080	Temp/Humid/Pressure Meter (Module)	Springfield Precision	PreciseTemp	2015-07-01	2016-07-31
MM0168	True RMS Multimeter	Agilent	U1232A	2015-08-17	2016-08-31
76021	DC Regulated Power Supply	CircuitSpecialists.Com	CSI3005X5	NA	NA
Additional Equipment used					
T918	Wideband Radio Communications Tester	Rohde and Schwartz	CMW500	2016-01-21	2017-01-21

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.7, Nov 12, 2015

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
2.1049	Occupied Bandwidth (99%)	N/A	Conducted	Pass
22.917(a) 24.238(a) 27.53(g)	Band Edge / Conducted Spurious Emission	-13dBm		Pass
27.53(m)		-25dBm		
2.1046	Conducted output power	N/A		Pass
27.53(m)	Emission Mask			Pass
22.355 24.235 27.54	Frequency Stability	2.5PPM		Pass
22.913(a)(2) 27.50©(10)	Effective Radiated Power	38dBm		Pass
		34.77dBm	Pass	
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power	33dBm	Pass	
27.50(d)(4)		30dBm	Pass	
22.917(a) 24.238(a) 27.53(g)	Radiated Spurious Emission	-13dBm	Pass	
27.53(m)		-25dBm	Pass	

8. RF POWER OUTPUT VERIFICATION

8.1. GSM/GPRS/EDGE

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900
Press Connection control to choose the different menus
Press RESET > choose all to reset all settings
Connection Press Signal Off to turn off the signal and change settings
Network Support > GSM+GPRS or GSM+EGPRS
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 850/900
 > 30 dBm for GPRS1800/1900
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 (Default)
Network Coding Scheme > CS4 (GPRS) and MCS5 ~ MCS9 (EGPRS)
 Bit Stream > 2E9-1PSR Bit Pattern
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

8.2. GSM OUTPUT POWER RESULT

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM (Voice)	CS1	1	128	824.4	30.7	21.7
			190	836.6	30.6	21.6
			251	848.8	30.8	21.8
GPRS (GMSK)	CS1	1	128	824.4	30.7	21.7
			190	836.6	30.6	21.6
			251	848.8	30.8	21.8
		2	128	824.4	29.6	23.6
			190	836.6	29.6	23.6
			251	848.8	29.7	23.7
		3	128	824.4	27.5	23.2
			190	836.6	27.5	23.2
			251	848.8	27.6	23.3
		4	128	824.4	26.5	23.5
			190	836.6	26.5	23.5
			251	848.8	26.6	23.6

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
EGPRS (8PSK)	MCS5	1	128	824.4	26.7	17.7
			190	836.6	26.6	17.6
			251	848.8	26.8	17.8
		2	128	824.4	25.0	19.0
			190	836.6	24.9	18.9
			251	848.8	25.0	19.0
		3	128	824.4	23.1	18.8
			190	836.6	23.0	18.7
			251	848.8	23.1	18.8
		4	128	824.4	22.1	19.1
			190	836.6	22.0	19.0
			251	848.8	22.0	19.0

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
GSM (Voice)	CS1	1	512	1850.2	30.4	21.4
			661	1880.0	30.3	21.3
			810	1909.8	30.3	21.3
GPRS (GMSK)	CS1	1	512	1850.2	30.4	21.4
			661	1880.0	30.3	21.3
			810	1909.8	30.3	21.3
		2	512	1850.2	28.9	22.9
			661	1880.0	28.8	22.8
			810	1909.8	28.9	22.9
		3	512	1850.2	27.0	22.7
			661	1880.0	26.8	22.5
			810	1909.8	27.0	22.7
		4	512	1850.2	25.9	22.9
			661	1880.0	25.7	22.7
			810	1909.8	25.9	22.9

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Burst Pwr (dBm)	Frame Pwr (dBm)
EGPRS (8PSK)	MCS5	1	512	1850.2	26.8	17.8
			661	1880.0	26.6	17.6
			810	1909.8	26.8	17.8
		2	512	1850.2	25.2	19.2
			661	1880.0	25.0	19.0
			810	1909.8	25.4	19.4
		3	512	1850.2	22.7	18.4
			661	1880.0	22.9	18.6
			810	1909.8	22.8	18.5
		4	512	1850.2	21.7	18.7
			661	1880.0	21.6	18.6
			810	1909.8	22.0	19.0

8.3. UMTS REL 99

TEST PROCEDURE

The following summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	β_c	Not Applicable
	β_d	Not Applicable
	β_{ec}	Not Applicable
	β_c/β_d	8/15
	β_{hs}	Not Applicable
	β_{ed}	Not Applicable

8.4. UMTS REL 99 OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	0	23.9
		9400	1880.0	0	24.0
		9538	1907.6	0	23.6

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Rel 99 (RMC, 12.2 kbps)	4132	826.4	0	22.7
		4183	836.6	0	22.7
		4233	846.6	0	22.7

8.5. UMTS HSDPA

The following 4 Sub-tests were completed according to Release 5 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	Rel5 HSDPA			
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	$A_{hs} = \beta_{hs}/\beta_c$	30/15			

8.6. UMTS HSDPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	22.4
		9400	1880.0	0	22.4
		9538	1907.6	0	22.5
	Subtest 2	9262	1852.4	0	22.1
		9400	1880.0	0	22.2
		9538	1907.6	0	22.3
	Subtest 3	9262	1852.4	0.5	22.0
		9400	1880.0	0.5	21.8
		9538	1907.6	0.5	22.1
	Subtest 4	9262	1852.4	0.5	21.9
		9400	1880.0	0.5	22.0
		9538	1907.6	0.5	22.0

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	21.5
		4183	836.6	0	21.4
		4233	846.6	0	21.6
	Subtest 2	4132	826.4	0	21.2
		4183	836.6	0	21.3
		4233	846.6	0	21.4
	Subtest 3	4132	826.4	0.5	21.2
		4183	836.6	0.5	21.4
		4233	846.6	0.5	21.4
	Subtest 4	4132	826.4	0.5	21.3
		4183	836.6	0.5	21.4
		4233	846.6	0.5	21.4

8.7. UMTS HSUPA

TEST PROCEDURE

The following summary of these settings are illustrated below: (ETSI TS 134.121-1 Table C.11.1)

	Mode	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	P-CPICH (dB)	-10				
	P-CCPCH (dB)	-12				
	SCH (dB)	-12				
	PICH(dB)	-15				
	DPCH (dB)	-9				
	HS-SCCH_1 (dB)	-8				
	HS-PDSCH (dB)	-3				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	Bc	11/15	6/15	15/15	2/15	15/15
	Bd	15/15	15/15	9/15	15/15	15/15
	Bec	209/225	12/15	30/15	2/15	5/15
	$\beta c/\beta d$	11/15	6/15	15/9	2/15	15/15
	Bhs	22/15	12/15	30/15	4/15	30/15
βed (note1)	1309/225	94/75	47/15 47/15	56/75	134/15	
MPR	0	2	1	2	0	
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
Ahs = $\beta hs/\beta c$	30/15					
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	Reference E-TFCIs	5	5	2	5	5
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18		E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27

Note1: βed cannot be set directly, it is set by Absolute Grant Value.

8.8. UMTS HSUPA OUTPUT POWER RESULT

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band II	Subtest 1	9262	1852.4	0	22.5
		9400	1880.0	0	22.5
		9538	1907.6	0	22.6
	Subtest 2	9262	1852.4	2	21.2
		9400	1880.0	2	21.1
		9538	1907.6	2	21.3
	Subtest 3	9262	1852.4	1	22.0
		9400	1880.0	1	22.0
		9538	1907.6	1	22.1
	Subtest 4	9262	1852.4	2	21.1
		9400	1880.0	2	21.1
		9538	1907.6	2	21.2
	Subtest 5	9262	1852.4	0	22.6
		9400	1880.0	0	22.6
		9538	1907.6	0	22.6

Band	Mode	UL Ch No.	Freq. (MHz)	MPR	Avg Pwr (dBm)
W-CDMA Band V	Subtest 1	4132	826.4	0	21.0
		4183	836.6	0	21.1
		4233	846.6	0	21.0
	Subtest 2	4132	826.4	2	20.0
		4183	836.6	2	20.0
		4233	846.6	2	20.0
	Subtest 3	4132	826.4	1	20.6
		4183	836.6	1	20.6
		4233	846.6	1	20.7
	Subtest 4	4132	826.4	2	20.0
		4183	836.6	2	20.0
		4233	846.6	2	20.0
	Subtest 5	4132	826.4	0	21.0
		4183	836.6	0	21.0
		4233	846.6	0	21.0

8.9. LTE OUTPUT POWER RESULT

LTE Band 5

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20407	20525	20643
						824.7 MHz	836.5 MHz	848.3 MHz
LTE Band 5	1.4	QPSK	1	0	0	20.50	20.60	20.70
			1	3	0	20.60	20.70	20.60
			1	5	0	20.60	20.60	20.60
			3	0	0	20.60	20.60	20.60
			3	1	0	20.60	20.60	20.70
			3	3	0	20.60	20.70	20.60
		16QAM	6	0	0	20.60	20.60	20.60
			1	0	0	20.60	21.00	20.70
			1	3	0	20.60	21.10	20.80
			1	5	0	20.60	21.00	20.70
			3	0	0	20.80	20.80	20.70
			3	1	0	20.80	20.90	20.70
			3	3	0	20.80	20.90	20.70
			6	0	0	20.70	20.60	20.80
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20415	20525	20635
						825.5 MHz	836.5 MHz	847.5 MHz
LTE Band 5	3	QPSK	1	0	0	20.60	20.60	20.70
			1	8	0	20.60	20.70	20.70
			1	14	0	20.70	20.80	20.70
			8	0	0	20.60	20.60	20.70
			8	4	0	20.60	20.70	20.70
			8	7	0	20.60	20.70	20.70
			15	0	0	20.60	20.60	20.70
		16QAM	1	0	0	20.60	21.00	20.60
			1	8	0	20.60	21.10	20.60
			1	14	0	20.70	21.10	20.60
			8	0	0	20.70	20.70	20.80
			8	4	0	20.70	20.80	20.80
			8	7	0	20.70	20.70	20.80
			15	0	0	20.60	20.70	20.80

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20425	20525	20625
						826.5 MHz	836.5 MHz	846.5 MHz
LTE Band 5	5	QPSK	1	0	0	20.70	20.60	20.60
			1	12	0	20.70	20.70	20.60
			1	24	0	20.70	20.70	20.60
			12	0	0	20.70	20.60	20.60
			12	7	0	20.80	20.60	20.70
			12	13	0	20.80	20.70	20.60
		16QAM	25	0	0	20.70	20.60	20.70
			1	0	0	20.80	21.10	21.10
			1	12	0	20.80	21.10	21.20
			1	24	0	20.80	21.20	21.10
			12	0	0	20.80	20.80	20.90
			12	7	0	20.90	20.80	20.90
			12	13	0	20.80	20.90	20.80
			25	0	0	20.80	20.80	20.80
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20450	20525	20600
						829 MHz	836.5 MHz	844 MHz
LTE Band 5	10	QPSK	1	0	0	20.80	20.90	20.60
			1	25	0	20.70	20.70	20.50
			1	49	0	20.80	20.70	20.60
			25	0	0	20.70	20.70	20.50
			25	12	0	20.80	20.70	20.50
			25	25	0	20.80	20.70	20.60
		16QAM	50	0	0	20.80	20.60	20.50
			1	0	0	21.10	20.80	20.60
			1	25	0	21.10	20.60	20.50
			1	49	0	21.10	20.60	20.60
			25	0	0	20.80	20.70	20.60
			25	12	0	20.90	20.80	20.70
			25	25	0	20.90	20.80	20.70
			50	0	0	20.80	20.70	20.50

LTE Band 7

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20775	21100	21425
						2502.5 MHz	2535 MHz	2567.5 MHz
LTE Band 7	5	QPSK	1	0	0	19.9	20.0	19.8
			1	12	0	20.0	20.1	19.8
			1	24	0	20.1	20.2	19.9
			12	0	1	20.0	20.0	19.7
			12	7	1	20.0	20.1	19.8
			12	13	1	20.0	20.0	19.8
		16QAM	25	0	1	19.9	20.1	19.7
			1	0	1	20.4	20.2	19.9
			1	12	1	20.5	20.3	19.9
			1	24	1	20.5	20.3	19.9
			12	0	2	20.1	20.1	19.7
			12	7	2	20.1	20.1	19.8
			12	13	2	20.2	20.1	19.8
			25	0	2	20.0	20.1	19.7
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20800	21100	21400
						2505 MHz	2535 MHz	2565 MHz
LTE Band 7	10	QPSK	1	0	0	20.1	20.1	19.8
			1	25	0	20.0	20.0	19.7
			1	49	0	20.5	20.5	20.2
			25	0	1	20.1	20.1	19.7
			25	12	1	20.0	20.1	19.8
			25	25	1	20.2	20.1	19.9
		16QAM	50	0	1	20.1	20.1	19.8
			1	0	1	20.5	20.2	19.8
			1	25	1	20.4	20.0	19.7
			1	49	1	20.6	20.5	20.2
			25	0	2	20.0	20.0	19.8
			25	12	2	19.9	20.1	19.8
			25	25	2	20.2	20.0	19.9
			50	0	2	20.1	20.0	19.8

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20825	21100	21375
						2507.5 MHz	2535 MHz	2562.5 MHz
LTE Band 7	15	QPSK	1	0	0	20.2	20.1	20.0
			1	37	0	20.5	20.4	20.5
			1	74	0	19.9	20.0	19.9
			36	0	1	20.4	20.4	20.4
			36	20	1	20.5	20.5	20.4
			36	39	1	20.2	20.4	20.3
			75	0	1	20.3	20.4	20.3
		16QAM	1	0	1	20.5	20.1	20.5
			1	37	1	20.6	20.4	20.6
			1	74	1	20.3	20.0	20.4
			36	0	2	20.4	20.4	20.3
			36	20	2	20.5	20.4	20.3
			36	39	2	20.3	20.3	20.2
			75	0	2	20.4	20.4	20.3
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)		
						20850	21100	21350
						2510 MHz	2535 MHz	2560 MHz
LTE Band 7	20	QPSK	1	0	0	19.9	20.0	19.8
			1	49	0	20.4	20.4	20.4
			1	99	0	20.0	20.1	20.0
			50	0	1	20.3	20.4	20.3
			50	24	1	20.4	20.5	20.4
			50	50	1	20.2	20.3	20.3
			100	0	1	20.3	20.3	20.2
		16QAM	1	0	1	20.0	20.4	20.4
			1	49	1	20.4	20.6	20.6
			1	99	1	20.0	20.6	20.6
			50	0	2	20.3	20.3	20.3
			50	24	2	20.4	20.5	20.4
			50	50	2	20.2	20.2	20.3
			100	0	2	20.3	20.3	20.2

LTE Band 13

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23230
						782 MHz
LTE Band 13	5	QPSK	1	0	0	22.9
			1	12	0	22.9
			1	24	0	23.0
			12	0	1	21.9
			12	7	1	22.0
			12	13	1	22.1
			25	0	1	22.0
		16QAM	1	0	1	22.1
			1	12	1	22.1
			1	24	1	22.2
			12	0	2	21.0
			12	7	2	21.1
			12	13	2	21.1
			25	0	2	21.0
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)
						23230
						782 MHz
LTE Band 13	10	QPSK	1	0	0	23.2
			1	24	0	23.0
			1	49	0	23.4
			25	0	1	22.0
			25	12	1	22.1
			25	24	1	22.2
			50	0	1	22.0
		16QAM	1	0	1	22.0
			1	24	1	21.8
			1	49	1	22.0
			25	0	2	21.0
			25	12	2	21.1
			25	24	2	21.2
			50	0	2	21.0

LTE Band 17

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						23790	710 MHz
LTE Band 17	5	QPSK	1	0	0	23.2	
			1	12	0	23.3	
			1	24	0	23.2	
			12	0	1	22.2	
			12	7	1	22.3	
			12	13	1	22.3	
		16QAM	25	0	1	22.2	
			1	0	1	22.4	
			1	12	1	22.6	
			1	24	1	22.5	
			12	0	2	21.3	
			12	7	2	21.4	
			12	13	2	21.4	
			25	0	2	21.3	
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)	
						23790	710 MHz
LTE Band 17	10	QPSK	1	0	0	23.4	
			1	24	0	23.2	
			1	49	0	23.3	
			25	0	1	22.3	
			25	12	1	22.3	
			25	24	1	22.2	
			50	0	1	22.4	
		16QAM	1	0	1	22.5	
			1	24	1	22.3	
			1	49	1	22.3	
			25	0	2	21.4	
			25	12	2	21.4	
			25	24	2	21.3	
			50	0	2	21.4	

LTE Band 41

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)					
						39750	40185	40620	41055	41490	
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz	
LTE Band 41	5	QPSK	1	0	0	20.30	20.30	20.10	20.10	20.10	
			1	12	0	20.30	20.30	20.10	20.10	20.10	
			1	24	0	20.30	20.30	20.10	20.10	20.10	
			12	0	1	20.30	20.30	20.10	20.10	20.10	
			12	7	1	20.30	20.30	20.10	20.10	20.10	
			12	13	1	20.30	20.30	20.10	20.10	20.10	
			25	0	1	20.30	20.30	20.10	20.10	20.10	
		16QAM	1	0	1	20.30	20.30	20.00	20.00	20.00	
			1	12	1	20.30	20.30	20.00	20.00	20.00	
			1	24	1	20.30	20.30	20.00	20.00	20.00	
			12	0	2	20.30	20.30	20.10	20.10	20.10	
			12	7	2	20.30	20.30	20.10	20.10	20.10	
			12	13	2	20.30	20.30	20.10	20.10	20.10	
			25	0	2	20.30	20.30	20.10	20.10	20.10	
LTE Band 41	10	QPSK	1	0	0	20.50	20.50	20.10	20.30	20.00	
			1	25	0	20.50	20.50	20.10	20.30	20.10	
			1	49	0	20.50	20.50	20.10	20.30	20.00	
LTE Band 41	10	QPSK	25	0	1	20.50	20.50	20.10	20.30	20.10	
			25	12	1	20.00	20.50	20.10	20.30	20.10	
			25	25	1	20.50	20.50	20.10	20.30	20.10	
			50	0	1	20.50	20.50	20.10	20.30	20.10	
			16QAM	1	0	1	20.50	20.50	20.10	20.30	20.10
				1	25	1	20.50	20.50	20.10	20.30	20.10
				1	49	1	20.50	20.50	20.10	20.30	20.10
		25		0	2	20.50	20.50	20.10	20.30	20.10	
		25		12	2	20.50	20.50	20.10	20.30	20.10	
		25		25	2	20.50	20.50	20.10	20.30	20.10	
		50		0	2	20.50	20.50	20.10	20.30	20.10	

Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	15	QPSK	1	0	0	20.40	20.40	20.40	20.30	20.00
			1	37	0	20.40	20.50	20.50	20.50	20.30
			1	74	0	20.40	20.50	20.20	20.40	20.10
			36	0	1	20.40	20.50	20.50	20.50	20.20
			36	20	1	20.40	20.50	20.50	20.50	20.20
			36	39	1	20.40	20.50	20.50	20.50	20.30
			75	0	1	20.50	20.50	20.50	20.50	20.00
		16QAM	1	0	1	20.40	20.50	20.50	20.50	20.00
			1	37	1	20.40	20.50	20.50	20.50	20.20
			1	74	1	20.40	20.40	20.50	20.40	20.00
			36	0	2	20.50	20.50	20.50	20.50	20.10
			36	20	2	20.50	20.50	20.50	20.50	20.20
			36	39	2	20.50	20.50	20.50	20.50	20.20
			75	0	2	20.50	20.50	20.50	20.50	20.20
Band	BW (MHz)	Mode	RB Allocation	RB offset	MPR	Avg Pwr (dBm)				
						39750	40185	40620	41055	41490
						2506 MHz	2549.5 MHz	2593 MHz	2636.5 MHz	2680 MHz
LTE Band 41	20	QPSK	1	0	0	19.90	20.30	20.10	20.20	20.20
			1	49	0	20.40	20.40	20.50	20.30	20.50
			1	99	0	19.80	20.40	20.50	20.30	20.50
			50	0	1	20.20	20.50	20.40	20.40	20.50
			50	24	1	20.40	20.50	20.50	20.40	20.50
			50	50	1	20.10	20.50	20.50	20.30	20.50
			100	0	1	20.30	20.40	20.40	20.30	20.40
		16QAM	1	0	1	19.90	20.40	20.30	20.40	20.20
			1	49	1	20.30	20.40	20.30	20.30	20.30
			1	99	1	20.30	20.40	20.40	20.40	20.40
			50	0	2	20.40	20.40	20.40	20.40	20.40
			50	24	2	20.30	20.50	20.50	20.40	20.50
			50	50	2	20.30	20.50	20.40	20.40	20.50
			100	0	2	20.30	20.40	20.40	20.30	20.40

9. PEAK TO AVERAGE RATIO

TEST PROCEDURE

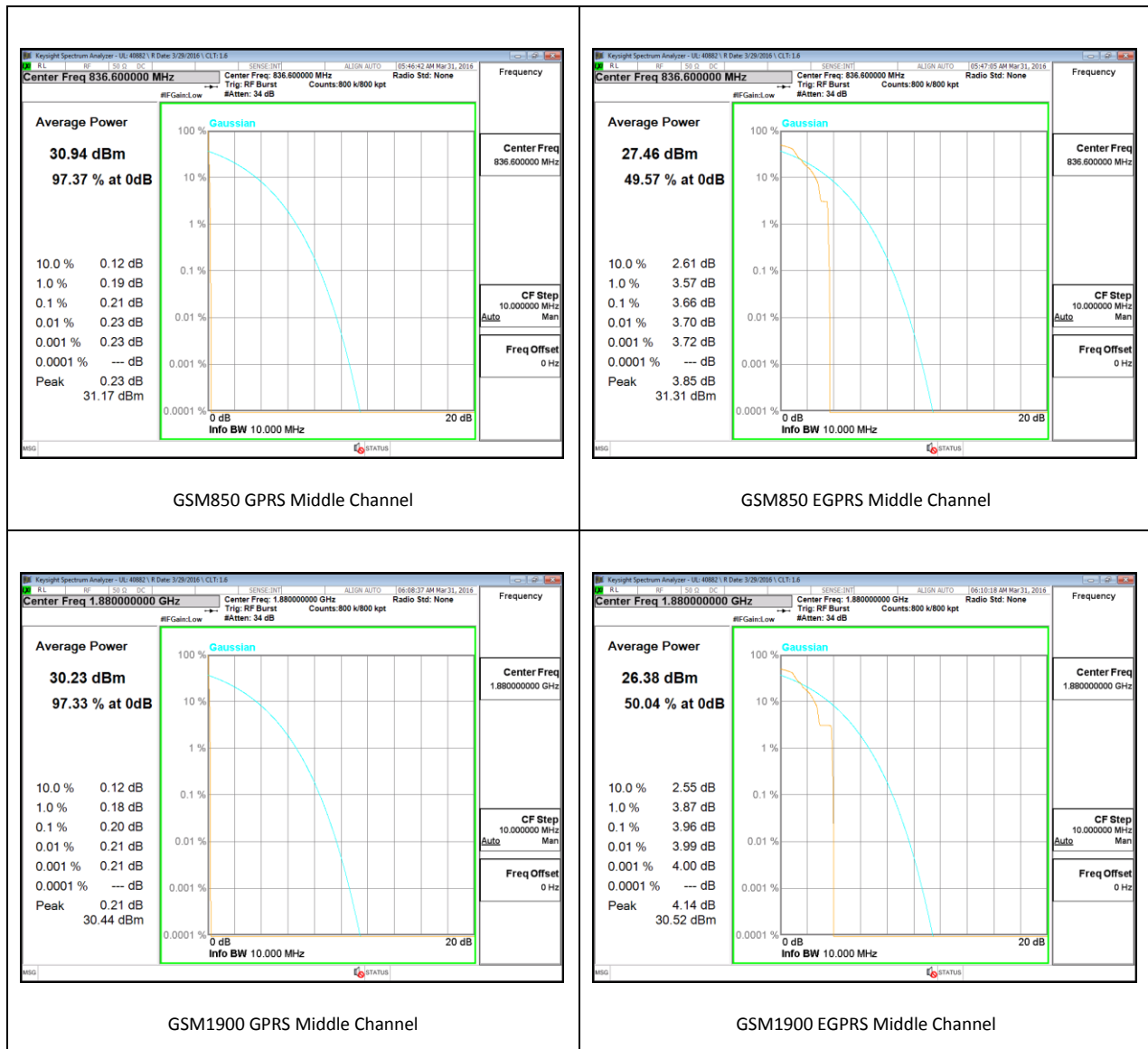
Per KDB 971168 D01 Power Meas License Digital Systems v02r02

TEST SPEC

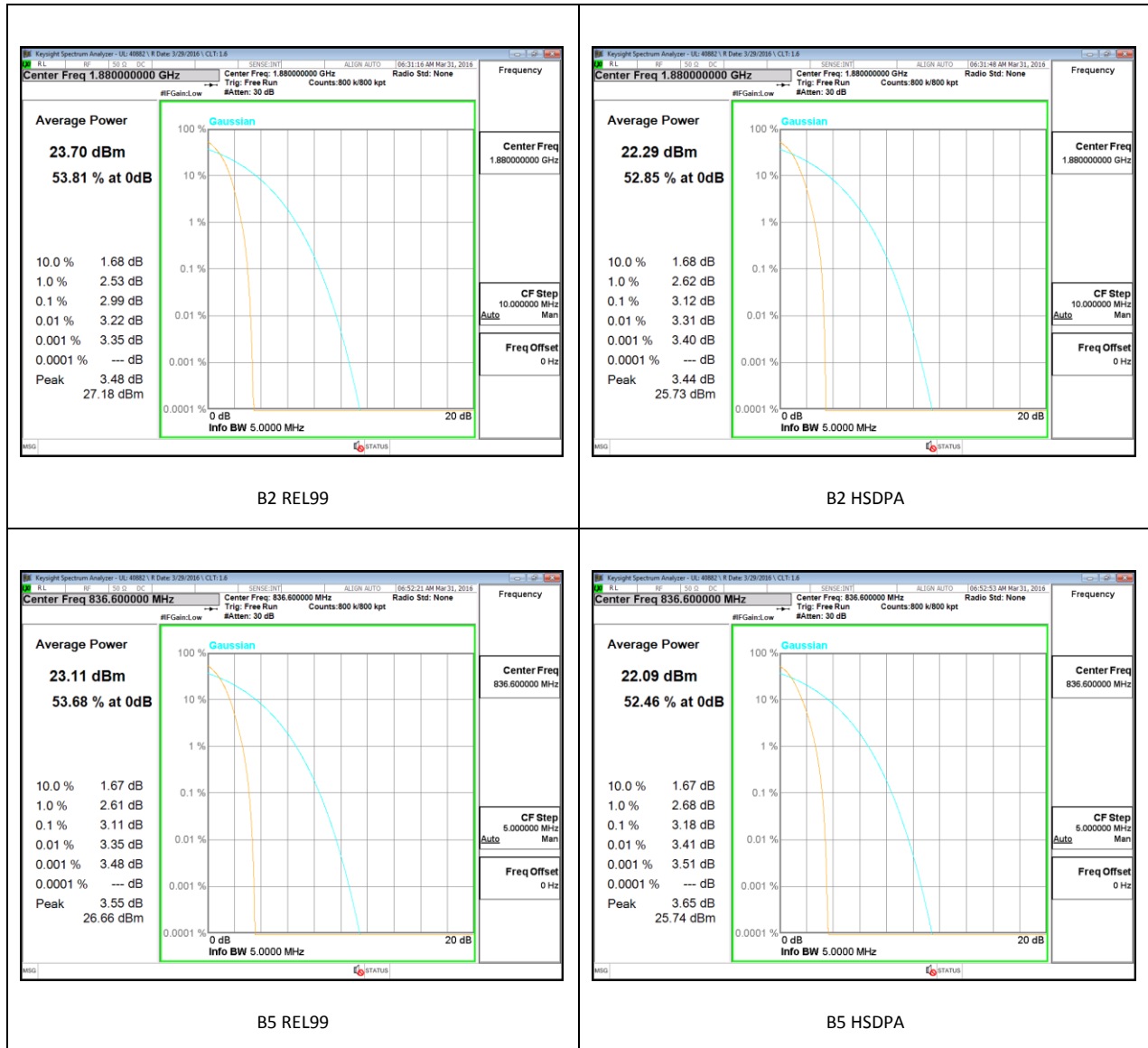
In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13 dB.

9.1. CONDUCTED PEAK TO AVERAGE RESULT

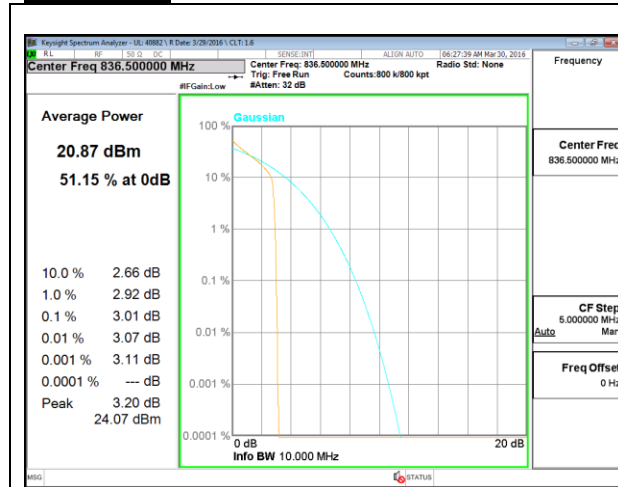
GSM



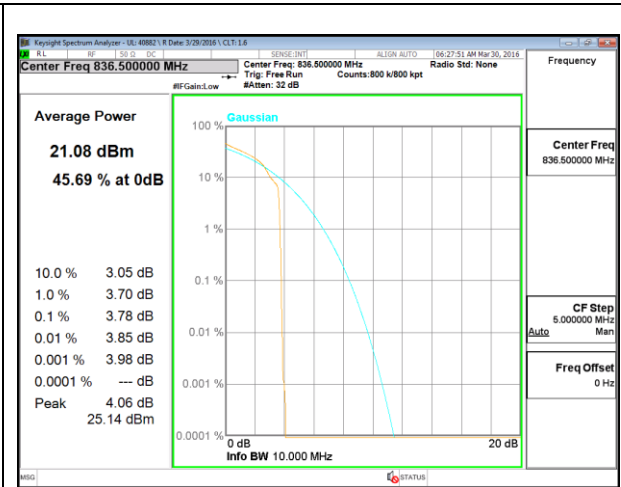
WCDMA



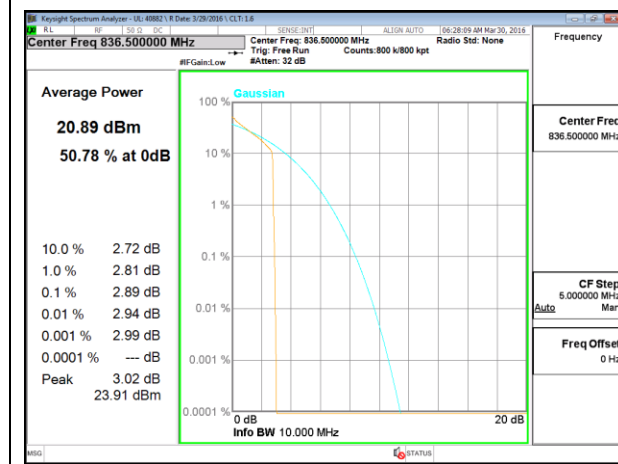
LTE Band 5



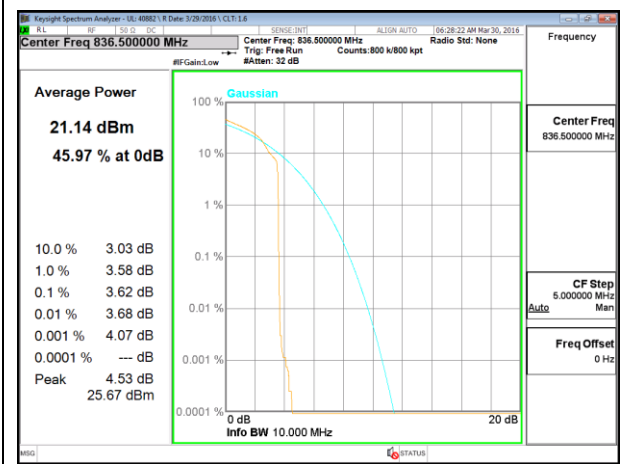
LTE B5 1.4MHz QPSK Middle Channel



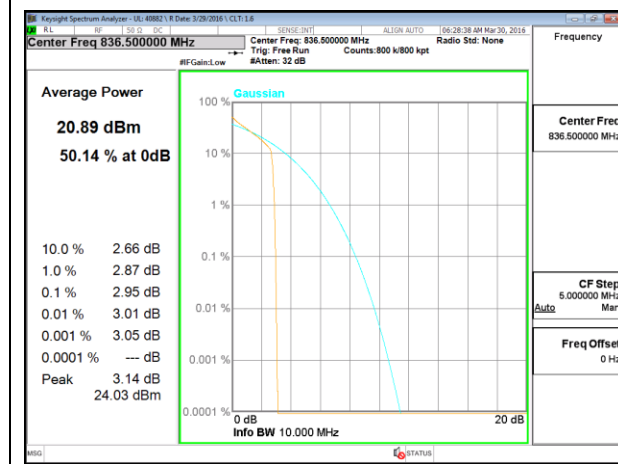
LTE B5 1.4MHz 16QAM Middle Channel



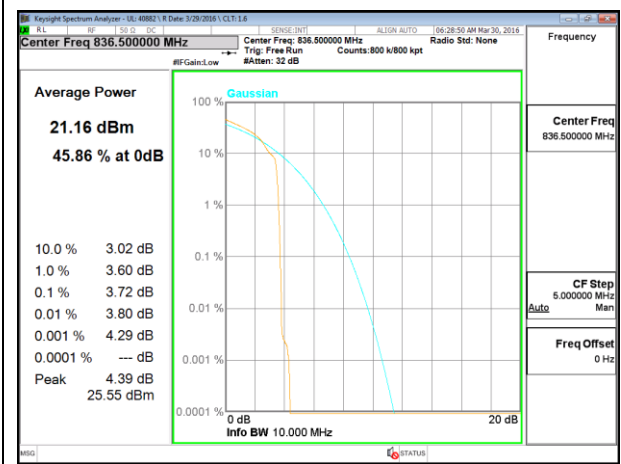
LTE B5 3MHz QPSK Middle Channel



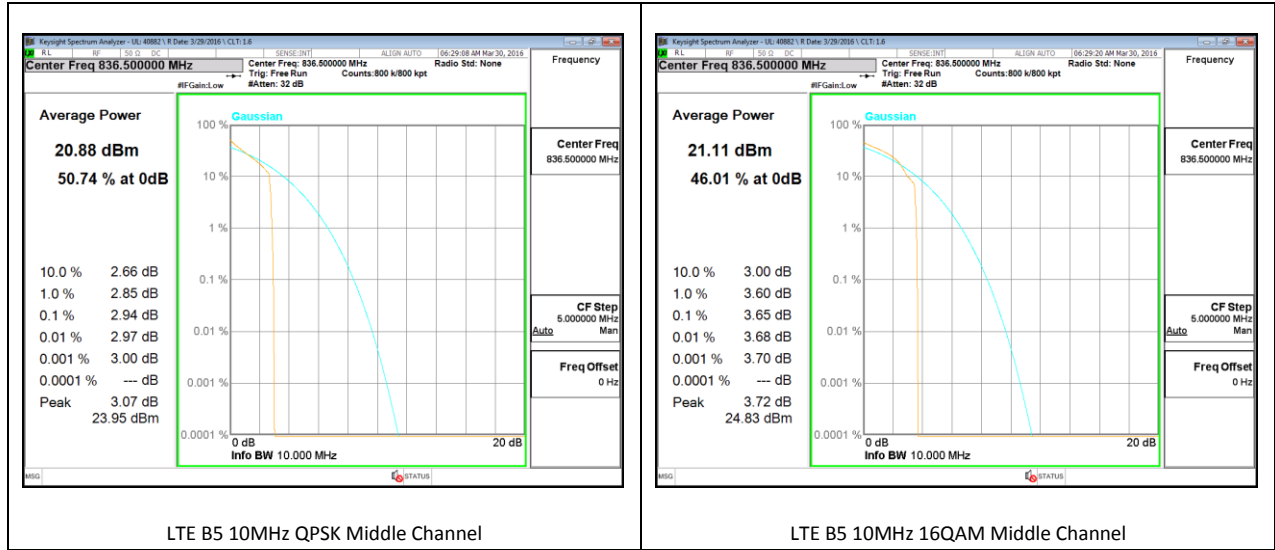
LTE B5 3MHz 16QAM Middle Channel



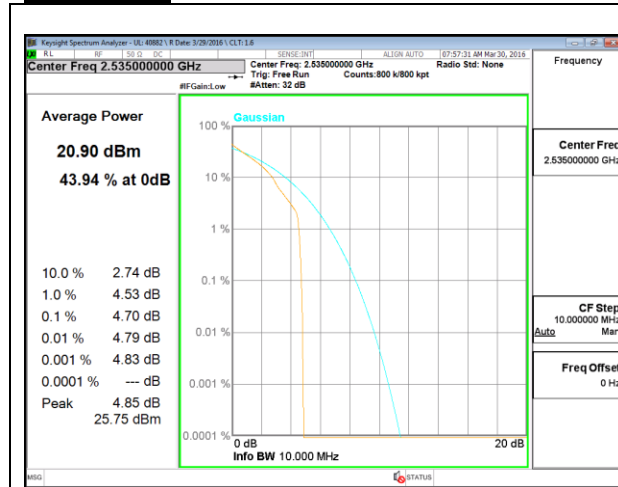
LTE B5 5MHz QPSK Middle Channel



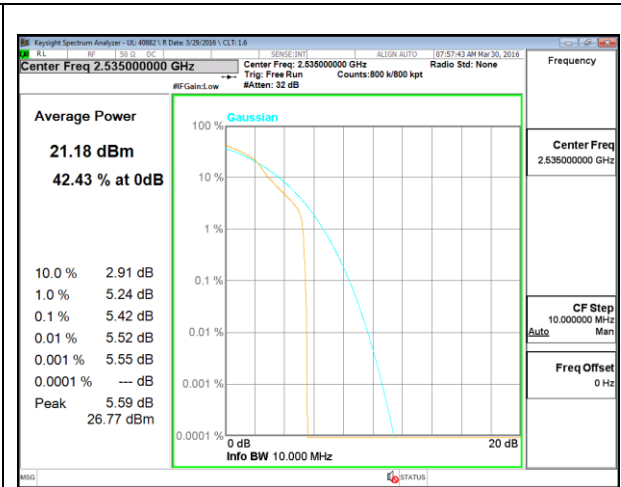
LTE B5 5MHz 16QAM Middle Channel



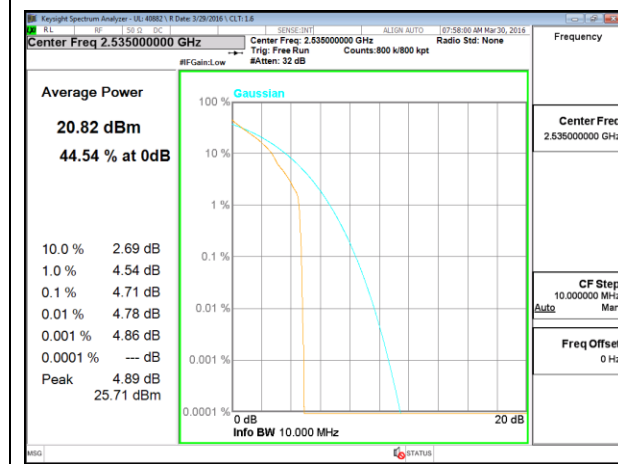
LTE Band 7



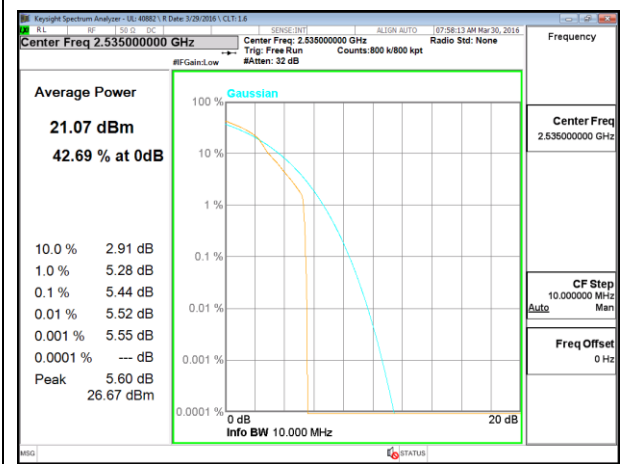
LTE B7 5MHz QPSK Middle Channel



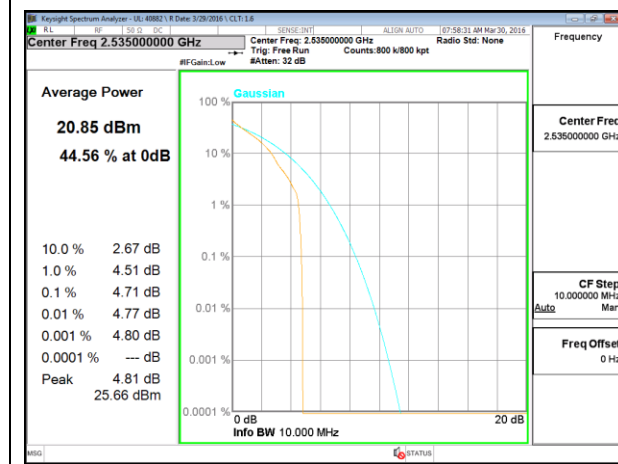
LTE B7 5MHz 16QAM Middle Channel



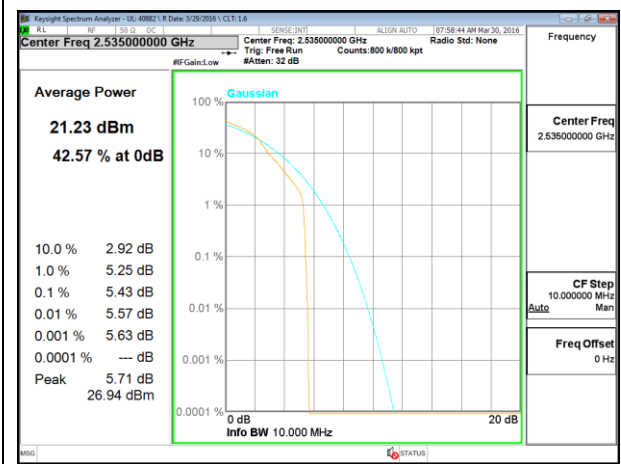
LTE B7 10MHz QPSK Middle Channel



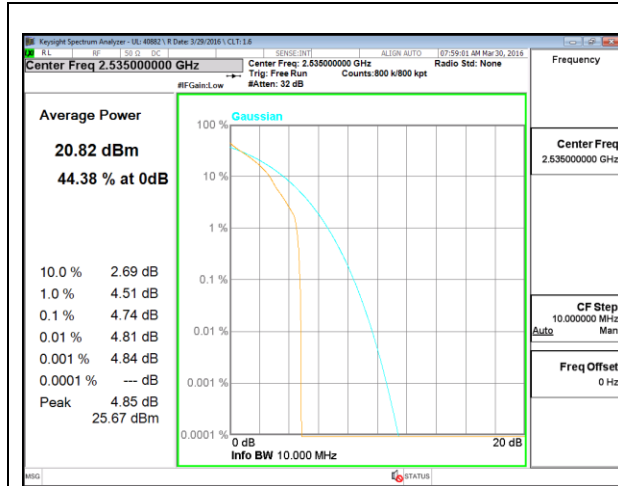
LTE B7 10MHz 16QAM Middle Channel



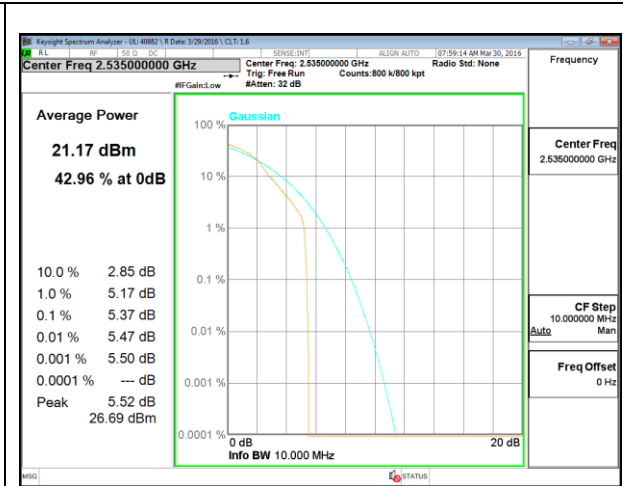
LTE B7 15MHz QPSK Middle Channel



LTE B7 15MHz 16QAM Middle Channel

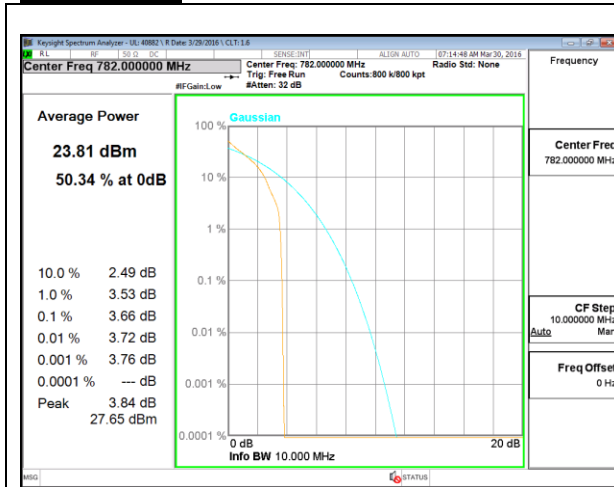


LTE B7 20MHz QPSK Middle Channel

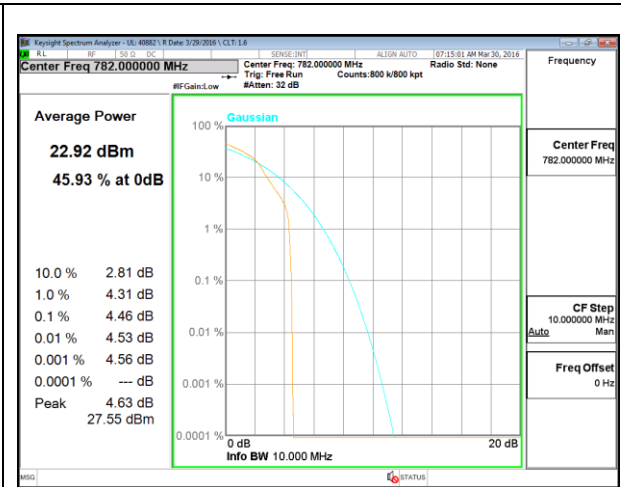


LTE B7 20MHz 16QAM Middle Channel

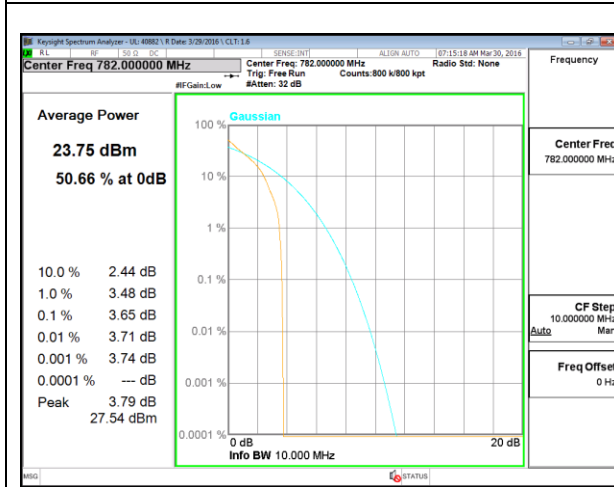
LTE Band 13



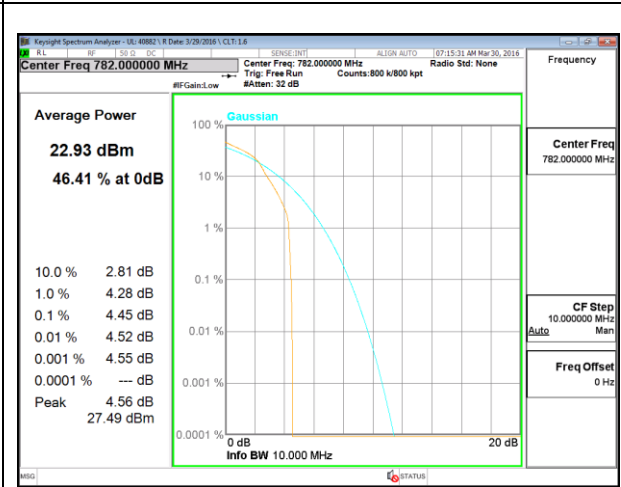
LTE B13 5MHz QPSK Middle Channel



LTE B13 5MHz 16QAM Middle Channel



LTE B13 10MHz QPSK Middle Channel



LTE B13 10MHz 16QAM Middle Channel

LTE Band 17

