



中国认可
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检测
TESTING
CNAS L2264

RF TEST REPORT

Applicant	ZTE Corporation
FCC ID	SRQ-ZTEB2017G
Product	LTE/WCDMA/CDMA/GSM(GPRS) Mutil-Mode Digital Mobile Phone
Brand	ZTE
Model	ZTE B2017G
Report No.	RXA1607-0132RF02R1
Issue Date	September 7, 2016

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2/ FCC CFR 47 Part 24H**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Performed by: Xianqing Li

Reviewed by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China

TEL: +86-021-50791141/2/3

FAX: +86-021-50791141/2/3-8000

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Summary of measurement results

No.	Test Case	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Isotropic Radiated power	24.232	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	24.238	PASS
5	Peak-to-Average Power Ratio	24.232/KDB 971168 D01(5.7)	PASS
6	Frequency Stability	2.1055 / 24.235	PASS
7	Spurious Emissions at Antenna Terminals	2.1051 / 24.238	PASS
8	Radiates Spurious Emission	2.1053 / 24.238	PASS
Date of Testing: July 10, 2016 ~ August 12, 2016			

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd**). The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above. This report must not be used by the client to claim product certification, approval, or endorsement by CNAS or any government agencies.

1.2. Test facility

CNAS (accreditation number:L2264)

TA Technology (Shanghai) Co., Ltd. has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS).

FCC (recognition number is 428261)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

IC (recognition number is 8510A)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Canada to perform electromagnetic emission measurement.

VCCI (recognition number is C-4595, T-2154, R-4113, G-766)

TA Technology (Shanghai) Co., Ltd. has been listed by industry Japan to perform electromagnetic emission measurement.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.



1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City: Shanghai
Post code: 201201
Country: P. R. China
Contact: Xu Kai
Telephone: +86-021-50791141/2/3
Fax: +86-021-50791141/2/3-8000
Website: <http://www.ta-shanghai.com>
E-mail: xukai@ta-shanghai.com

2. General Description of Equipment under Test

Client Information

Applicant	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R. China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R. China

Accessory Equipment Details

Name	Model	Manufacturer	Capacity	S/N
Battery 1	Li3927T44P8h726044	SHENZHEN RUIDE ELECTRONIC INDUSTRIAL CO.,LTD	2705mAh	/
Battery 2	Li3927T44P8h726044	SCUD (Fujian) Electronics Co., Ltd.	2705mAh	/

General information

EUT Description			
Model:	ZTE B2017G		
Product IMEI:	SIM1:860935030016782 SIM2:860935030018788		
Hardware Version:	uj3A		
Software Version:	ZTE B2017G_USAV1.0.0B01		
Power Supply:	Battery/AC adapter		
Antenna Type:	Internal Antenna		
Test Mode(s):	GSM1900; WCDMA Band II; LTE Band 2		
Test Modulation:	(GSM)GMSK,8PSK; (WCDMA)QPSK; (LTE)QPSK,16QAM		
GPRS/EGPRS Multislot Class:	10		
HSDPA UE Category:	14		
HSUPA UE Category:	6		
Maximum E.I.R.P.	GSM 1900: 26.98dBm WCDMA Band II:20.47dBm LTE Band 2: 20.6dBm		
Rated Power Supply Voltage:	3.85V		
Extreme Voltage:	Minimum: 3.4V Maximum: 4.4V		
Extreme Temperature:	Lowest: -30°C Highest: +55°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	LTE Band 2	1850 ~ 1910	1930 ~ 1990

EUT Accessory	
Battery 1	Manufacturer: SHENZHEN RUIDE ELECTRONIC INDUSTRIAL CO.,LTD Model: Li3927T44P8h726044 Power Rating: 3.85V/2705mAh
Battery 2	Manufacturer: SCUD (Fujian) Electronics Co., Ltd. Model: Li3927T44P8h726044 Power Rating: 3.85V/2705mAh
Earphone	Manufacturer: KINGSTATE ELECTRONICS CORP. Model: KJAG4020AWKCB-2
Adapter	Manufacturer: Salcomp (Shenzhen) Co., Ltd Model: STC-A5915A-Z Input power: 100-240Vac, 50/60Hz, 0.45A Output power: 5.0V, 1.5A/9.0V, 1.5A
Phone cover	Manufacturer: Shenzhen senyuanxiang Technology Co. Ltd. Model: senyuanxiang
Note: 1. The information of the EUT is declared by the manufacturer. Please refer to the specifications or user manual for details. 2. There is more than one battery, each one should be applied throughout the compliance test respectively, however, only the worst case (battery 1) will be recorded in this report.	



3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC CFR47 Part 2 (2015)

FCC CFR 47 Part 24H (2015)

ANSI/TIA-603-D (2010)

KDB 971168 D01 Power Meas License Digital Systems v02r02

4. Test Configuration

There is more than one SIM card slot, each one should be applied throughout the compliance test respectively, and however, only the worst case (SIM 1) will be recorded in this report.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes.

EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

The following testing in GSM/WCDMA/LTE is set based on the maximum RF Output Power.

Test modes are chosen to be reported as the worst case configuration below for GSM 1900 and WCDMA Band II:

	Test items	Modes/Modulation	
		GSM 1900	WCDMA Band II
Conducted Test cases	RF power output	GSM/ GPRS/ EGPRS	RMC/ HSDPA/ HSUPA
	Occupied Bandwidth	GSM/ GPRS/ EGPRS	RMC
	Band Edge Compliance	GSM/ GPRS/ EGPRS	RMC
	Peak-to-Average Power Ratio	GSM/ GPRS/ EGPRS	RMC
	Frequency Stability	GSM/ GPRS/ EGPRS	RMC
	Spurious Emissions at Antenna Terminals	GSM	RMC
Radiated Test cases	Effective Isotropic Radiated power	GSM/ GPRS/ EGPRS	RMC
	Radiates Spurious Emission	GSM	RMC

Test modes are chosen to be reported as the worst case configuration below for LTE Band 2

Test items	Bandwidth (MHz)						Modulation		RB			Test Channel		
	1.4	3	5	10	15	20	QPSK	16QAM	1	50%	100%	L	M	H
RF power output	O	O	O	O	O	O	O	O	O	O	O	O	O	O
Effective Isotropic Radiated power	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Occupied Bandwidth	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	O	O	O	O	O	O	O	O	O	-	O	O	-	O
Peak-to-Average Power Ratio	O	O	O	O	O	O	O	O	-	-	O	O	O	O
Frequency Stability	O	O	O	O	O	O	O	O	-	-	O	-	O	-
Conducted Spurious Emissions	O	O	O	O	O	O	O	-	O	-	-	O	O	O
Radiates Spurious Emission	O	O	O	O	O	O	O	-	O	-	-	O	O	O
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.													

5. Test Case Results

5.1.RF Power Output

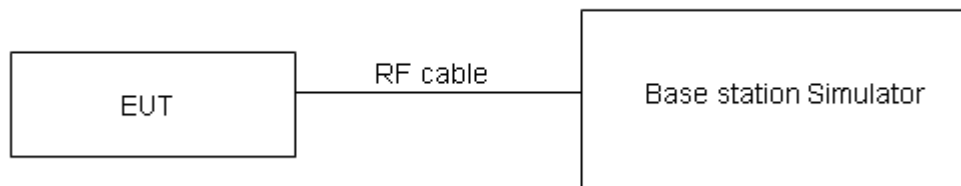
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation.

Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

Limits

No specific RF power output requirements in part 2.1046.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4$ dB.

Test Results

GSM 1900		Conducted Power(dBm)		
		Channel 512	Channel 661	Channel 810
		1850.2(MHz)	1880(MHz)	1909.8(MHz)
GSM	Results	29.16	29.23	29.51
GPRS (GMSK)	1TXslot	29.42	29.47	29.45
	2TXslots	29.23	29.23	29.28
EGPRS (GMSK)	1TXslot	29.36	29.47	29.46
	2TXslots	29.18	29.21	29.25
EGPRS (8PSK)	1TXslot	24.18	24.19	24.33
	2TXslots	23.14	23.08	23.22
Note: 1) The maximum RF Output Power numbers are marks in bold. 2) The following testing in GPRS/EGPRS is set to 1TXslot based on the maximum RF Output Power.				

WCDMA Band II		Conducted Power(dBm)		
		Channel 9262	Channel 9400	Channel 9538
		1852.4(MHz)	1880(MHz)	1907.6(MHz)
RMC	12.2k	22.37	22.23	22.45
	64k	22.31	22.11	22.29
	144k	22.22	22.06	22.28
	384k	22.21	22.07	22.29
HSDPA	Sub - Test 1	22.20	22.06	22.28
	Sub - Test 2	22.28	22.14	22.36
	Sub - Test 3	21.77	21.63	21.85
	Sub - Test 4	21.76	21.62	21.84
HSUPA	Sub - Test 1	22.25	22.11	22.33
	Sub - Test 2	20.44	20.30	20.52
	Sub - Test 3	21.17	21.03	21.41
	Sub - Test 4	20.39	20.25	20.50
	Sub - Test 5	22.31	22.17	22.39
Note:1) The maximum RF Output Power numbers are marks in bold. 2) The following testing in RMC based on the maximum RF Output Power.				

LTE FDD Band 2				Conducted Power(dBm)		
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18607/1850.7	18900/1880	19193/1909.3
1.4MHz	QPSK	1	0	21.93	22.23	22.33
		1	2	22.11	22.29	22.42
		1	5	21.98	22.25	22.38
		3	0	21.79	21.93	21.76
		3	2	21.73	21.98	21.50
		3	3	21.73	21.96	21.82
		6	0	20.81	21.07	21.23
	16QAM	1	0	20.79	21.02	20.94
		1	2	20.84	20.79	21.25
		1	5	20.88	20.86	21.07
		3	0	20.17	20.24	20.29
		3	2	20.26	20.20	20.31
		3	3	20.26	20.30	20.39
		6	0	20.09	20.14	20.35
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18615/1851.5	18900/1880	19185/1908.5
3MHz	QPSK	1	0	21.95	22.27	22.36
		1	7	22.14	22.34	22.46
		1	14	22.01	22.30	22.42
		8	0	20.89	21.05	21.29
		8	4	20.85	21.10	21.32
		8	7	20.83	21.07	21.24
		15	0	20.84	21.11	21.26
	16QAM	1	0	20.82	21.04	20.97
		1	7	20.87	20.84	21.29
		1	14	20.90	20.90	21.10
		8	0	20.08	20.17	20.21
		8	4	20.17	20.13	20.23
		8	7	20.16	20.22	20.32
		15	0	20.12	20.18	20.38
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18625/1852.5	18900/1880	19175/1907.5
5MHz	QPSK	1	0	21.92	22.25	22.32
		1	13	22.12	22.30	22.43
		1	24	21.98	22.25	22.38
		12	0	20.86	21.00	21.25



		12	6	20.83	21.06	21.27
		12	13	20.81	21.05	21.20
		25	0	20.82	21.10	21.24
	16QAM	1	0	20.79	21.00	20.94
		1	13	20.84	20.82	21.26
		1	24	20.87	20.88	21.06
		12	0	20.06	20.13	20.18
		12	6	20.14	20.08	20.19
		12	13	20.13	20.17	20.28
		25	0	20.10	20.14	20.33
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18650/1855	18900/1880	19150/1905
10MHz	QPSK	1	0	21.94	22.26	22.35
		1	25	22.15	22.35	22.47
		1	49	22.00	22.29	22.41
		25	0	20.89	21.05	21.29
		25	13	20.86	21.11	21.31
		25	25	20.83	21.09	21.25
		50	0	20.90	21.12	21.28
	16QAM	1	0	20.81	21.03	20.96
		1	25	20.87	20.86	21.29
		1	49	20.90	20.90	21.09
		25	0	20.09	20.18	20.22
		25	13	20.16	20.12	20.22
		25	25	20.16	20.22	20.32
		50	0	20.13	20.19	20.37
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18675/1857.5	18900/1880	19125/1902.5
15MHz	QPSK	1	0	21.93	22.22	22.33
		1	38	22.13	22.34	22.44
		1	74	21.97	22.24	22.37
		36	0	20.87	21.01	21.26
		36	18	20.83	21.06	21.27
		36	39	20.80	21.06	21.21
		75	0	20.88	21.08	21.23
	16QAM	1	0	20.76	21.01	20.94
		1	38	20.85	20.83	21.27
		1	74	20.87	20.86	21.06
		36	0	20.06	20.16	20.19
		36	18	20.13	20.07	20.18



		36	39	20.14	20.18	20.29
		75	0	20.10	20.14	20.33
Bandwidth	Modulation	RB size	RB offset	Channel/Frequency (MHz)		
				18700/1860	18900/1880	19100/1900
20MHz	QPSK	1	0	21.90	22.18	22.30
		1	50	22.12	22.30	22.42
		1	99	21.95	22.23	22.34
		50	0	20.84	20.96	21.22
		50	25	20.81	21.02	21.24
		50	50	20.77	21.01	21.17
		100	0	20.85	21.03	21.19
	16QAM	1	0	20.74	20.97	20.89
		1	50	20.81	20.81	21.23
		1	99	20.85	20.83	21.04
		50	0	20.03	20.12	20.16
		50	25	20.10	20.05	20.15
		50	50	20.11	20.13	20.25
		100	0	20.08	20.10	20.30

Note:

1) The following testing in worst case based on the maximum RF Output Power.

5.2.Effective Isotropic Radiated Power

Ambient condition

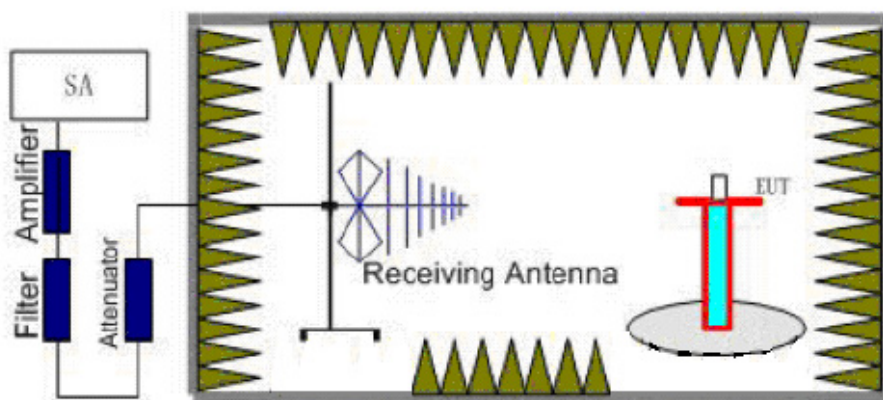
Temperature	Relative humidity
21°C ~25°C	40%~60%

Methods of Measurement

The measurement procedures in TIA- 603-D are used.

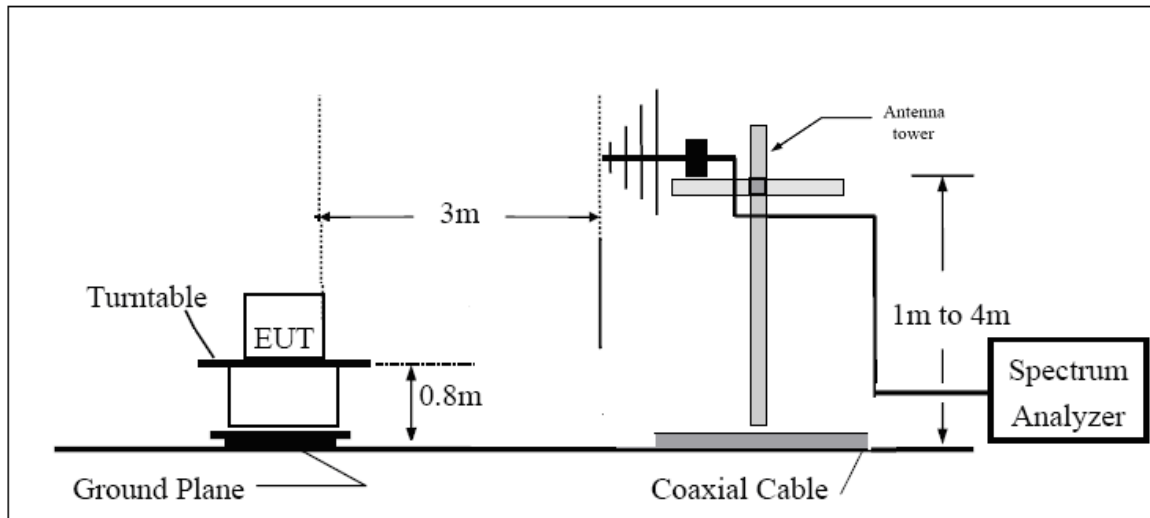
1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;
UMTS operating modes: Set RBW= 100 KHz, VBW= 300 KHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per section 4.0 of KDB 971168 D01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10. $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$
 P_s (dBm) : Input power to substitution antenna.
 G_s (dBi or dBd) : Substitution antenna Gain.
 $E_t = R_t + AF$
 $E_s = R_s + AF$
 AF (dB/m) : Receive antenna factor
 R_t : The highest received signal in spectrum analyzer for EUT.
 R_s : The highest received signal in spectrum analyzer for substitution antenna.

Test Setup

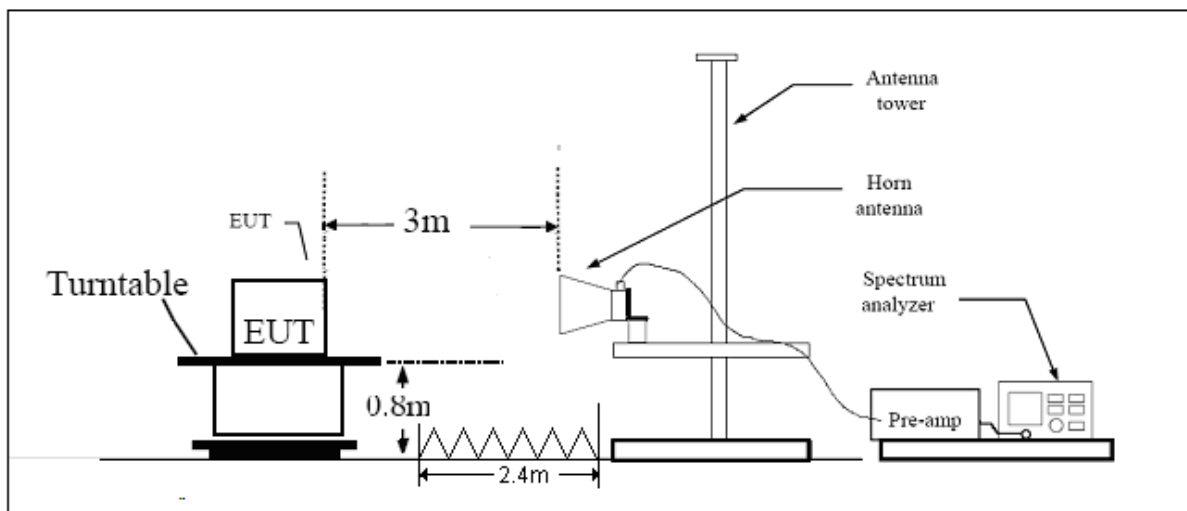


Test configuration

Below 1GHz:



Above 1GHz:



Limits

Rule Part 24.232(b) specifies that "Mobile/portable stations are limited to 2 watts EIRP. Peak power" and Rule Part 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage".

Limit (EIRP)	$\leq 2 \text{ W}$ (33 dBm)
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 1.19 \text{ dB}$



Test Results:

Mode	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
GSM 1900	H	1850.2	-31.74	-55.14	0.00	1.92	25.32	33	Pass
	H	1880	-31.36	-55.42	0.00	1.94	26.00	33	Pass
	H	1909.8	-30.59	-55.67	0.00	1.90	26.98	33	Pass
	V	1850.2	-36.38	-55.70	0.00	1.92	21.24	33	Pass
	V	1880	-36.31	-55.91	0.00	1.94	21.54	33	Pass
	V	1909.8	-36.64	-55.85	0.00	1.90	21.11	33	Pass
GPRS 1900	H	1850.2	-31.57	-55.14	0.00	1.92	25.49	33	Pass
	H	1880	-31.68	-55.42	0.00	1.94	25.68	33	Pass
	H	1909.8	-31.02	-55.67	0.00	1.90	26.55	33	Pass
	V	1850.2	-36.50	-55.70	0.00	1.92	21.12	33	Pass
	V	1880	-36.45	-55.91	0.00	1.94	21.40	33	Pass
	V	1909.8	-36.06	-55.85	0.00	1.90	21.69	33	Pass
EGPRS 1900	H	1850.2	-34.76	-55.14	0.00	1.92	22.30	33	Pass
	H	1880	-35.96	-55.42	0.00	1.94	21.40	33	Pass
	H	1909.8	-35.01	-55.67	0.00	1.90	22.56	33	Pass
	V	1850.2	-39.38	-55.70	0.00	1.92	18.24	33	Pass
	V	1880	-39.94	-55.91	0.00	1.94	17.91	33	Pass
	V	1909.8	-39.84	-55.85	0.00	1.90	17.91	33	Pass
WCDMA Band II	H	1852.4	-35.39	-53.19	0.00	1.92	19.72	33	Pass
	H	1880	-35.32	-53.42	0.00	1.94	20.04	33	Pass
	H	1907.6	-35.11	-53.66	0.00	1.92	20.47	33	Pass
	V	1852.4	-40.20	-53.69	0.00	1.92	15.41	33	Pass
	V	1880	-40.45	-53.91	0.00	1.94	15.40	33	Pass
	V	1907.6	-40.59	-54.54	0.00	1.92	15.87	33	Pass



LTE Band 2									
bandwidth	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
1.4 MHz (QPSK)	H	1850.7	-37.73	-54.89	0.00	1.90	19.06	33	Pass
	H	1880	-38.90	-56.66	0.00	1.92	19.68	33	Pass
	H	1909.3	-39.54	-58.09	0.00	1.91	20.46	33	Pass
	V	1850.7	-41.47	-55.05	0.00	1.90	15.48	33	Pass
	V	1880	-42.47	-56.41	0.00	1.92	15.86	33	Pass
	V	1909.3	-44.94	-57.85	0.00	1.91	14.82	33	Pass
1.4 MHz (16QAM)	H	1850.7	-38.63	-54.89	0.00	1.90	18.16	33	Pass
	H	1880	-39.92	-56.66	0.00	1.92	18.66	33	Pass
	H	1909.3	-40.51	-58.09	0.00	1.91	19.49	33	Pass
	V	1850.7	-42.72	-55.05	0.00	1.90	14.23	33	Pass
	V	1880	-44.08	-56.41	0.00	1.92	14.25	33	Pass
	V	1909.3	-46.14	-57.85	0.00	1.91	13.62	33	Pass
3 MHz (QPSK)	H	1851.5	-37.53	-54.93	0.00	1.91	19.31	33	Pass
	H	1880	-38.53	-56.66	0.00	1.94	20.07	33	Pass
	H	1908.5	-39.57	-58.08	0.00	1.91	20.42	33	Pass
	V	1851.5	-41.00	-55.04	0.00	1.91	15.95	33	Pass
	V	1880	-42.56	-56.41	0.00	1.94	15.79	33	Pass
	V	1908.5	-45.20	-57.86	0.00	1.91	14.57	33	Pass
3 MHz (16QAM)	H	1851.5	-38.58	-54.93	0.00	1.91	18.26	33	Pass
	H	1880	-39.42	-56.66	0.00	1.94	19.18	33	Pass
	H	1908.5	-40.30	-58.08	0.00	1.91	19.69	33	Pass
	V	1851.5	-42.37	-55.04	0.00	1.91	14.58	33	Pass
	V	1880	-43.96	-56.41	0.00	1.94	14.39	33	Pass
	V	1908.5	-46.48	-57.86	0.00	1.91	13.29	33	Pass
5 MHz (QPSK)	H	1852.5	-37.77	-54.98	0.00	1.92	19.13	33	Pass
	H	1880	-38.61	-56.66	0.00	1.94	19.99	33	Pass
	H	1907.5	-39.61	-58.05	0.00	1.90	20.34	33	Pass
	V	1852.5	-41.36	-55.14	0.00	1.92	15.70	33	Pass
	V	1880	-42.69	-56.41	0.00	1.94	15.66	33	Pass
	V	1907.5	-45.05	-57.97	0.00	1.90	14.82	33	Pass
5 MHz (16QAM)	H	1852.5	-38.27	-54.98	0.00	1.92	18.63	33	Pass
	H	1880	-39.71	-56.66	0.00	1.94	18.89	33	Pass
	H	1907.5	-40.66	-58.05	0.00	1.90	19.29	33	Pass
	V	1852.5	-42.36	-55.14	0.00	1.92	14.70	33	Pass
	V	1880	-43.66	-56.41	0.00	1.94	14.69	33	Pass
	V	1907.5	-46.02	-57.97	0.00	1.90	13.85	33	Pass
10 MHz (QPSK)	H	1855	-37.60	-55.09	0.00	1.91	19.40	33	Pass
	H	1880	-38.71	-56.66	0.00	1.94	19.89	33	Pass
	H	1905	-39.33	-58.01	0.00	1.92	20.60	33	Pass



LTE Band 2									
bandwidth	Polarization	Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	Limit (dBm)	Conclusion
	V	1855	-41.55	-55.08	0.00	1.91	15.44	33	Pass
	V	1880	-42.98	-56.41	0.00	1.94	15.37	33	Pass
	V	1905	-44.98	-57.81	0.00	1.92	14.75	33	Pass
10 MHz (16QAM)	H	1855	-38.10	-55.09	0.00	1.91	18.90	33	Pass
	H	1880	-39.21	-56.66	0.00	1.94	19.39	33	Pass
	H	1905	-39.83	-58.01	0.00	1.92	20.10	33	Pass
	V	1855	-42.05	-55.08	0.00	1.91	14.94	33	Pass
	V	1880	-43.48	-56.41	0.00	1.94	14.87	33	Pass
	V	1905	-45.48	-57.81	0.00	1.92	14.25	33	Pass
15 MHz (QPSK)	H	1857.5	-37.73	-55.23	0.00	1.93	19.43	33	Pass
	H	1880	-38.86	-56.66	0.00	1.94	19.74	33	Pass
	H	1902.5	-39.47	-57.95	0.00	1.92	20.40	33	Pass
	V	1857.5	-41.67	-55.24	0.00	1.93	15.50	33	Pass
	V	1880	-43.01	-56.41	0.00	1.94	15.34	33	Pass
	V	1902.5	-44.85	-57.69	0.00	1.92	14.76	33	Pass
15 MHz (16QAM)	H	1857.5	-38.53	-55.23	0.00	1.93	18.63	33	Pass
	H	1880	-39.66	-56.66	0.00	1.94	18.94	33	Pass
	H	1902.5	-40.27	-57.95	0.00	1.92	19.60	33	Pass
	V	1857.5	-42.47	-55.24	0.00	1.93	14.70	33	Pass
	V	1880	-43.81	-56.41	0.00	1.94	14.54	33	Pass
	V	1902.5	-45.65	-57.69	0.00	1.92	13.96	33	Pass
20 MHz (QPSK)	H	1860	-37.46	-55.35	0.00	1.93	19.82	33	Pass
	H	1880	-38.95	-56.66	0.00	1.94	19.65	33	Pass
	H	1900	-39.56	-57.86	0.00	1.92	20.22	33	Pass
	V	1860	-41.30	-55.31	0.00	1.93	15.94	33	Pass
	V	1880	-42.68	-56.41	0.00	1.94	15.67	33	Pass
	V	1900	-45.10	-57.66	0.00	1.92	14.48	33	Pass
20 MHz (16QAM)	H	1860	-38.06	-55.35	0.00	1.93	19.22	33	Pass
	H	1880	-39.55	-56.66	0.00	1.94	19.05	33	Pass
	H	1900	-40.16	-57.86	0.00	1.92	19.62	33	Pass
	V	1860	-41.90	-55.31	0.00	1.93	15.34	33	Pass
	V	1880	-43.28	-56.41	0.00	1.94	15.07	33	Pass
	V	1900	-45.70	-57.66	0.00	1.92	13.88	33	Pass

5.3.Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900,

RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band II,

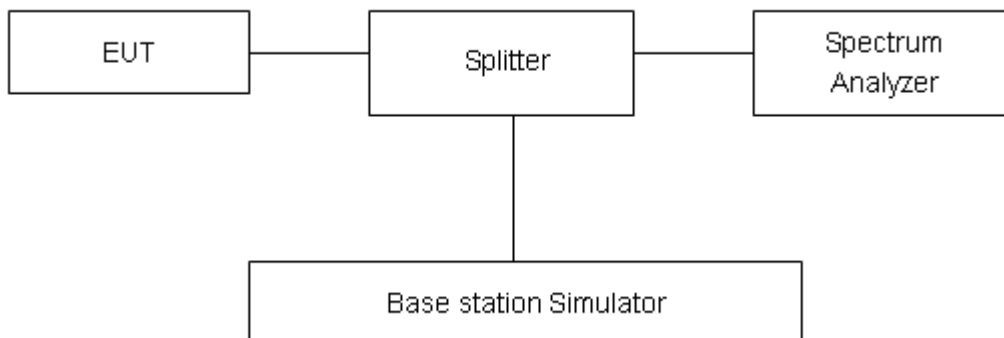
RBW is set to 51kHz, VBW is set to 160kHz for LTE Band 2 (1.4MHz),

RBW is set to 100kHz,VBW is set to 300kHz for LTE Band 2 (3MHz/5MHz),

RBW is set to 300kHz,VBW is set to 1MHz for LTE Band 2 (10MHz/15MHz/20MHz).

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 624\text{Hz}$.

Test Result

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 1900 (GSM)	512	1850.2	0.2473	0.3163
	661	1880.0	0.2486	0.3158
	810	1909.8	0.2480	0.3171
GPRS 1900 (GMSK)	512	1850.2	0.2464	0.3097
	661	1880.0	0.2451	0.3151
	810	1909.8	0.2447	0.3114
EGPRS 1900 (8-PSK)	512	1850.2	0.2459	0.3166
	661	1880.0	0.2448	0.3204
	810	1909.8	0.2474	0.3155
WCDMA Band II (RMC)	9262	1852.4	4.0951	4.6920
	9400	1880	4.1114	4.6840
	9538	1907.6	4.1267	4.7170

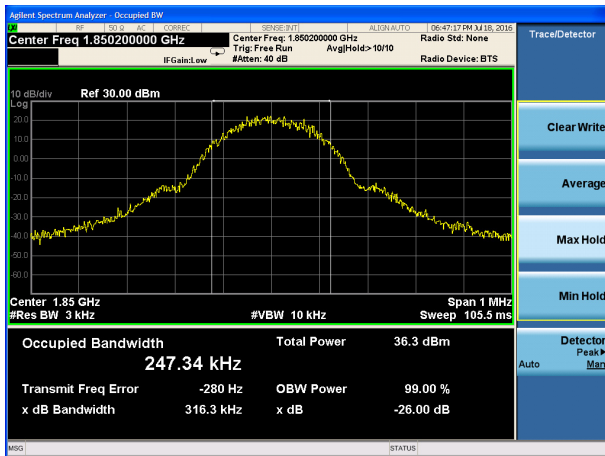
LTE Band 2					
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
QPSK	1.4	18607	1850.7	1.1295	1.4270
		18900	1880.0	1.1412	1.3650
		19193	1909.3	1.1394	1.4330
	3	18615	1851.5	2.7539	3.0700
		18900	1880	2.7411	3.0720
		19185	1908.5	2.7514	3.1240
	5	18625	1852.5	4.5078	5.0420
		18900	1880	4.5268	5.0150
		19175	1907.5	4.5146	5.0790
	10	18650	1855	8.9942	10.0800
		18900	1880	9.0430	10.0400
		19150	1905	9.0549	10.2300
	15	18675	1857.5	13.3930	14.7100



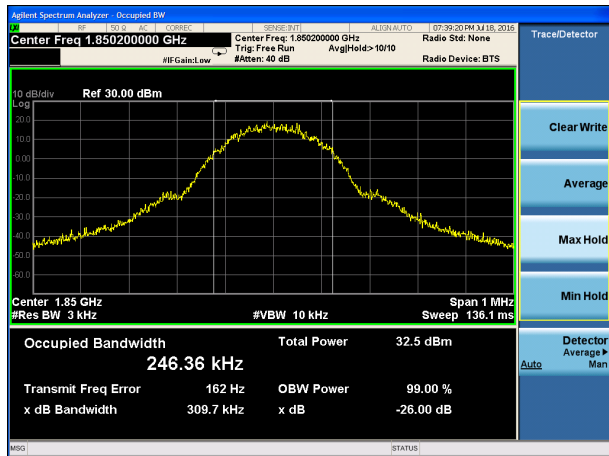
		18900	1880	13.4490	14.8000
		19125	1902.5	13.5020	14.8200
	20	18700	1860	17.8210	19.1400
		18900	1880	17.8630	19.4700
		19100	1900	17.9040	19.3800
16QAM	1.4	18607	1850.7	1.1253	1.3430
		18900	1880.0	1.1202	1.3550
		19193	1909.3	1.1323	1.3520
	3	18615	1851.5	2.7381	3.0670
		18900	1880	2.7374	3.0700
		19185	1908.5	2.7714	3.0610
	5	18625	1852.5	4.5324	5.0150
		18900	1880	4.5045	5.0250
		19175	1907.5	4.5353	5.0740
	10	18650	1855	8.9999	9.9800
		18900	1880	9.0317	10.0000
		19150	1905	9.0396	10.0100
	15	18675	1857.5	13.4410	14.6500
		18900	1880	13.4700	14.6400
		19125	1902.5	13.4680	14.7500
	20	18700	1860	17.8600	19.2000
		18900	1880	17.8670	19.1400
		19100	1900	17.9640	19.3200



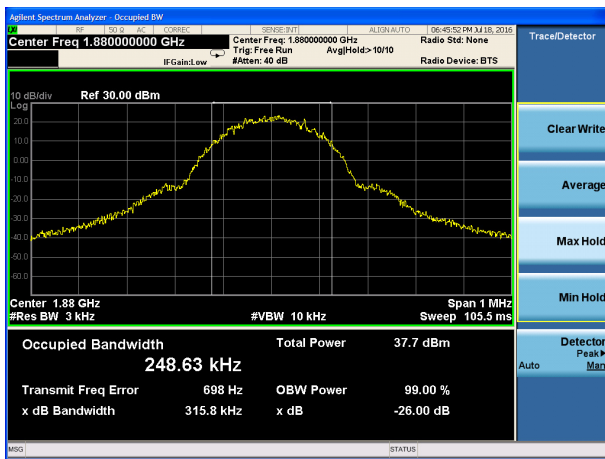
GSM1900 GSM CH-Low



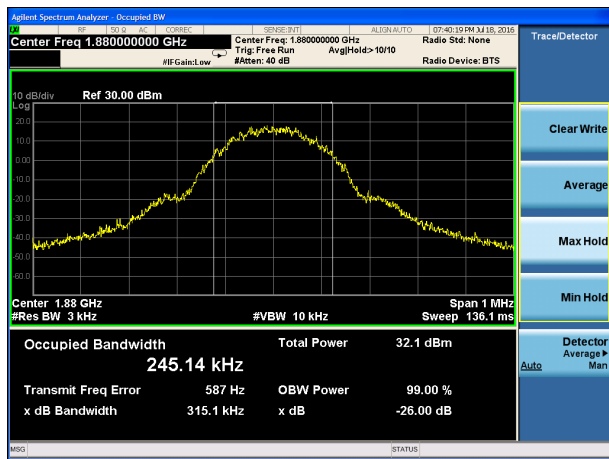
GSM1900 GPRS CH-Low



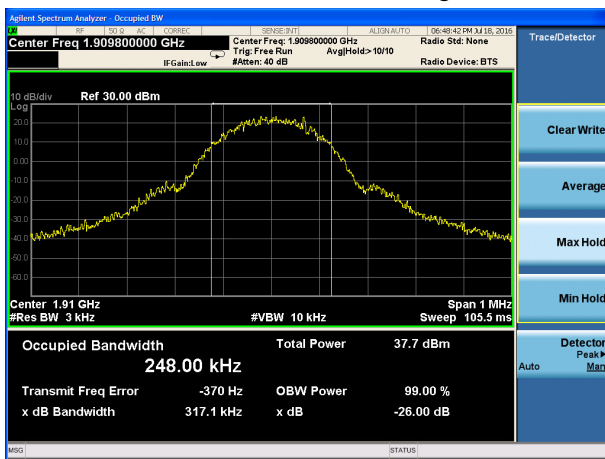
GSM 1900 GSM CH-Middle



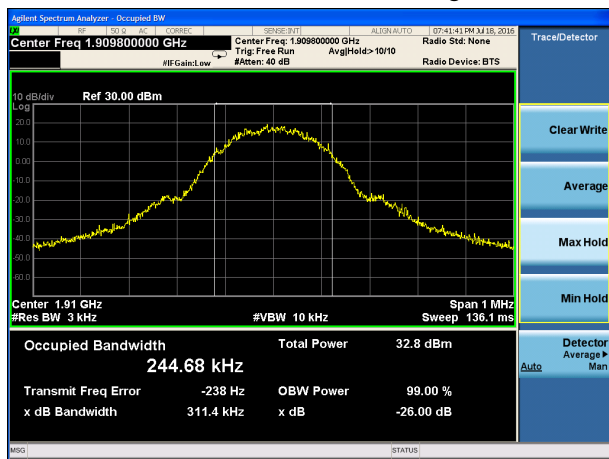
GSM 1900 GPRS CH-Middle



GSM 1900 GSM CH-High

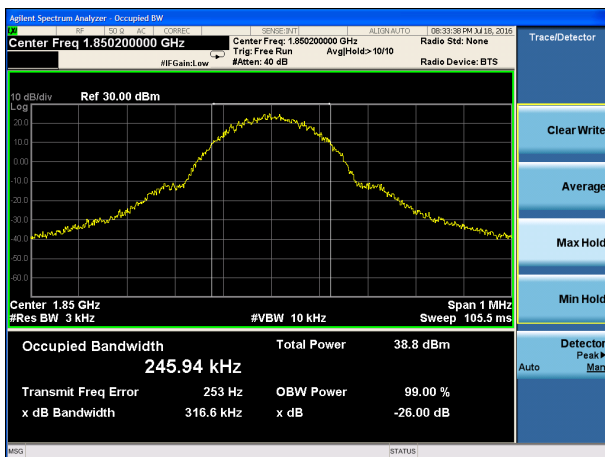


GSM 1900 GPRS CH-High

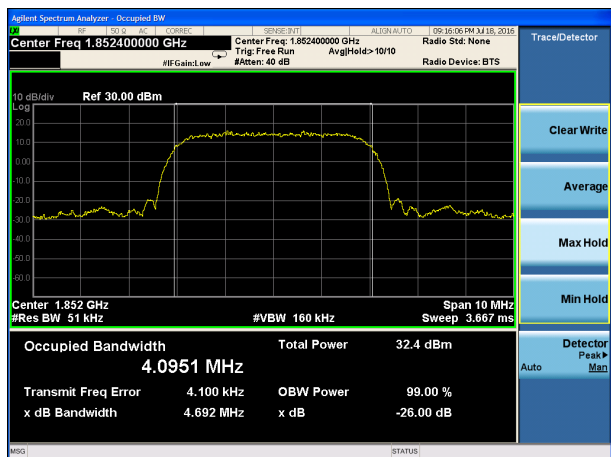




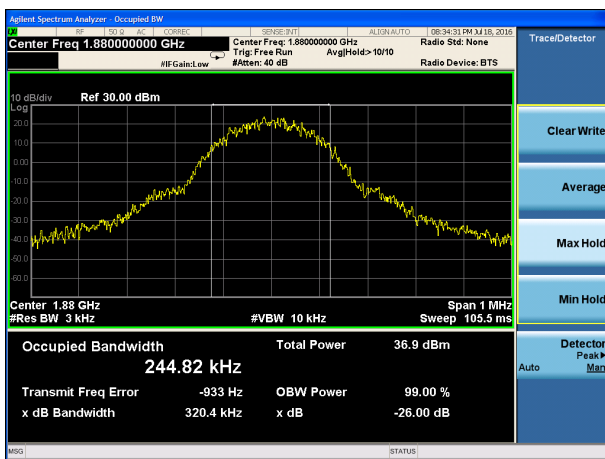
GSM1900 EGPRS CH-Low



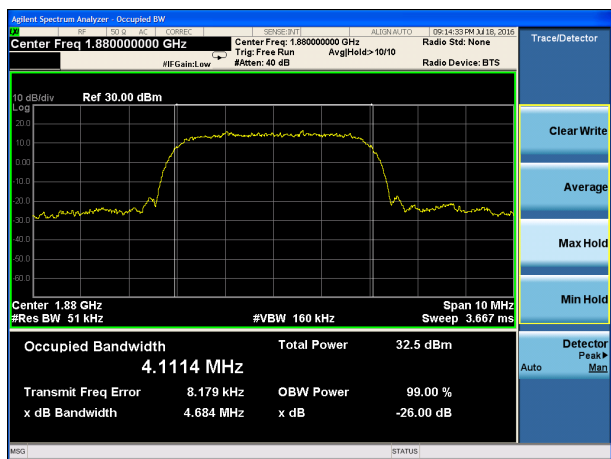
WCDMA Band II RMC CH-LOW



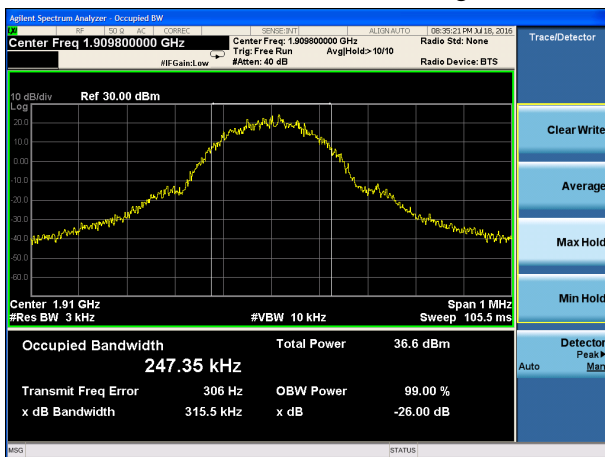
GSM 1900 EGPRS CH-Middle



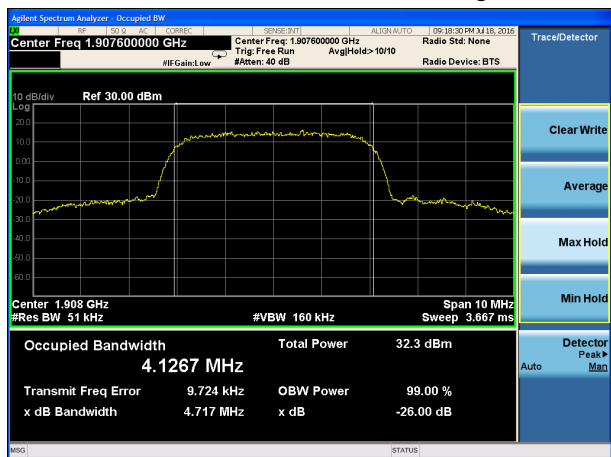
WCDMA Band II RMC CH-Middle



GSM 1900 EGPRS CH-High

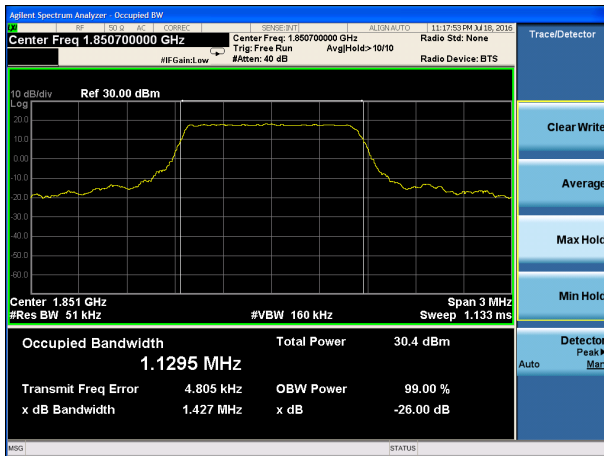


WCDMA Band II RMC CH-High

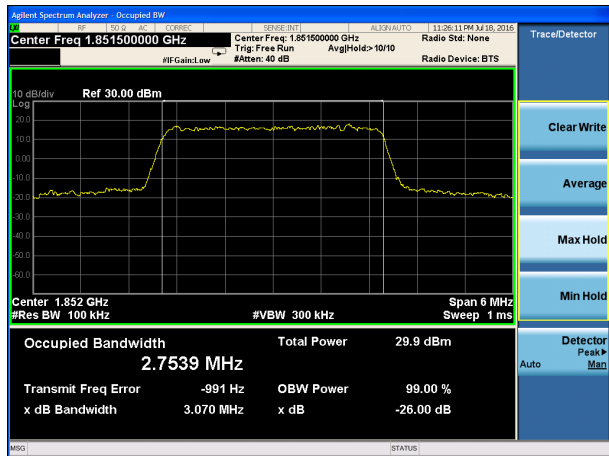




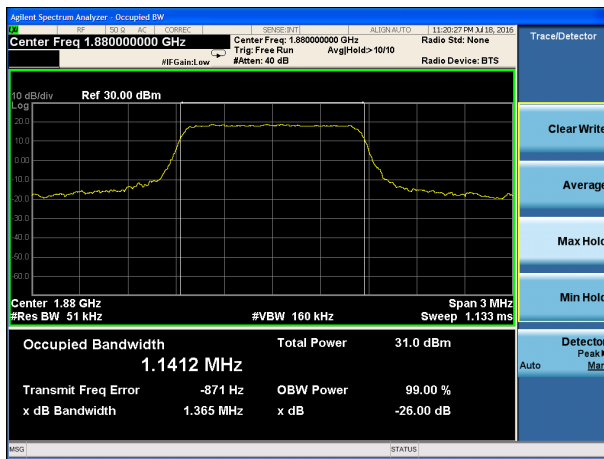
LTE Band 2 1.4MHz QPSK CH-Low



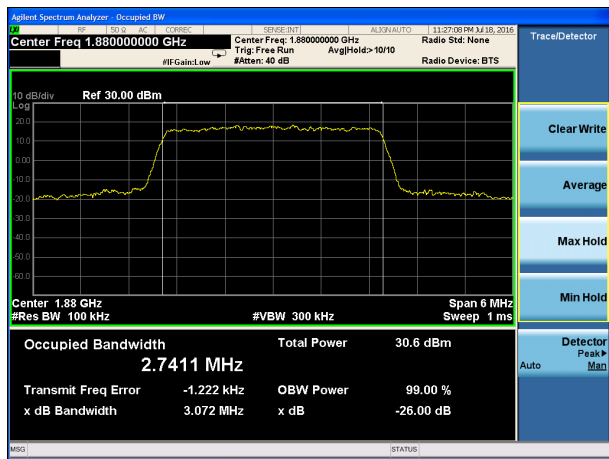
LTE Band 2 3MHz QPSK CH-Low



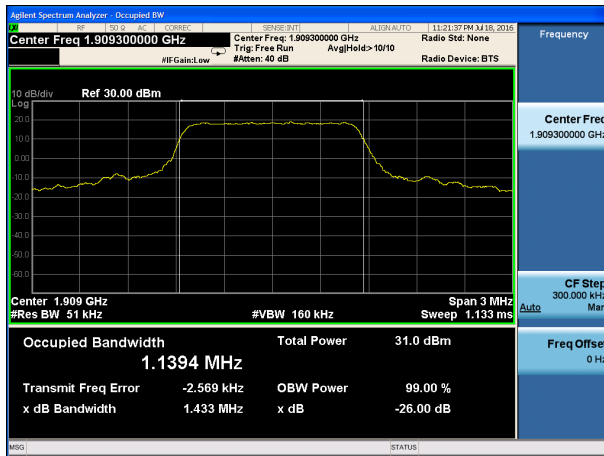
LTE Band 2 1.4MHz QPSK CH-Middle



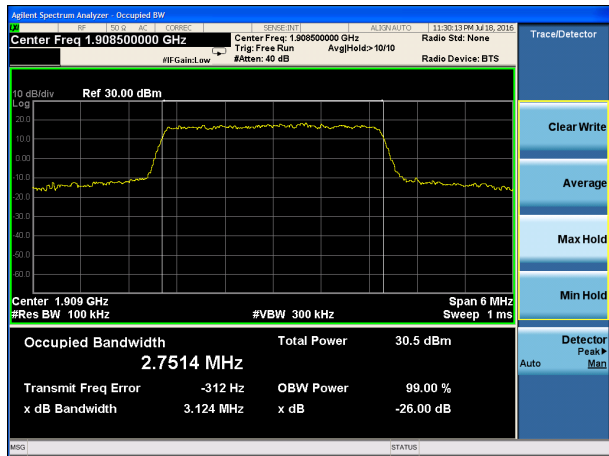
LTE Band 2 3MHz QPSK CH-Middle



LTE Band 2 1.4MHz QPSK CH-High

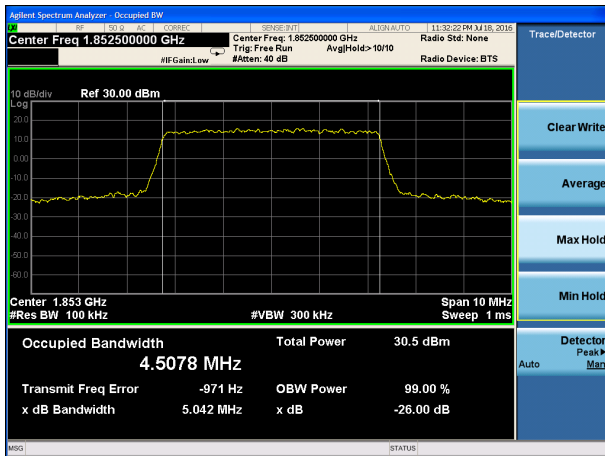


LTE Band 2 3MHz QPSK CH-High

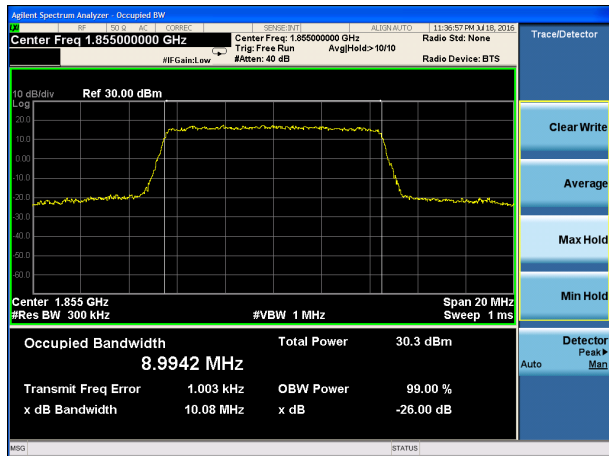




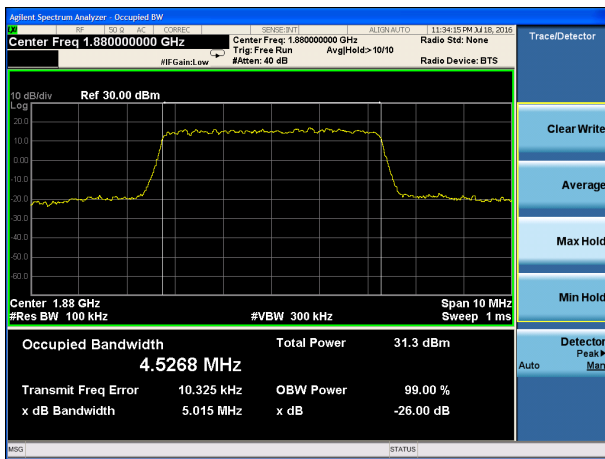
LTE Band 2 5MHz QPSK CH-Low



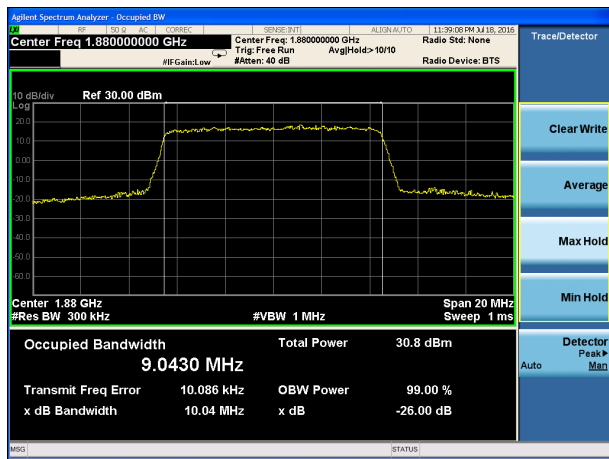
LTE Band 2 10MHz QPSK CH-Low



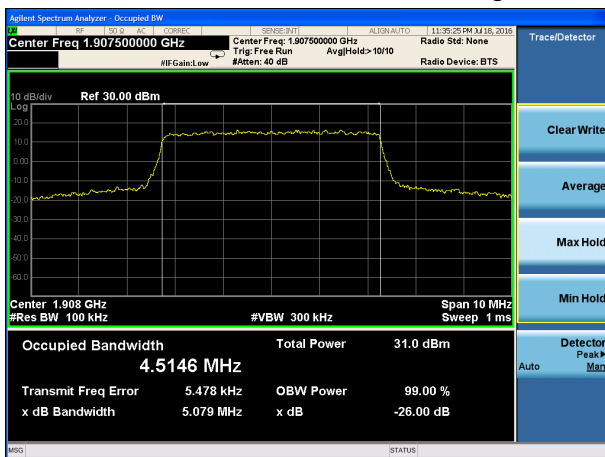
LTE Band 2 5MHz QPSK CH-Middle



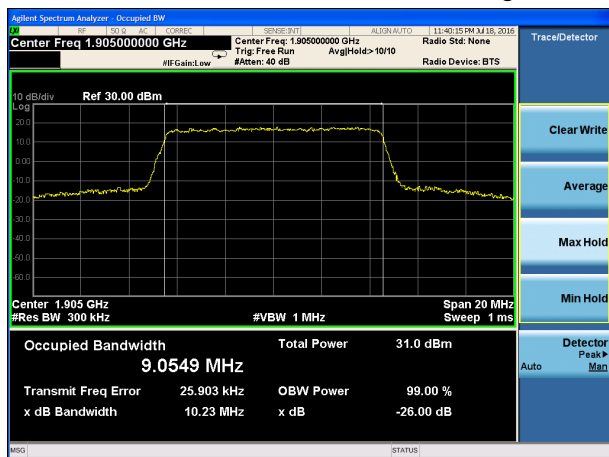
LTE Band 2 10MHz QPSK CH-Middle



LTE Band 2 5MHz QPSK CH-High

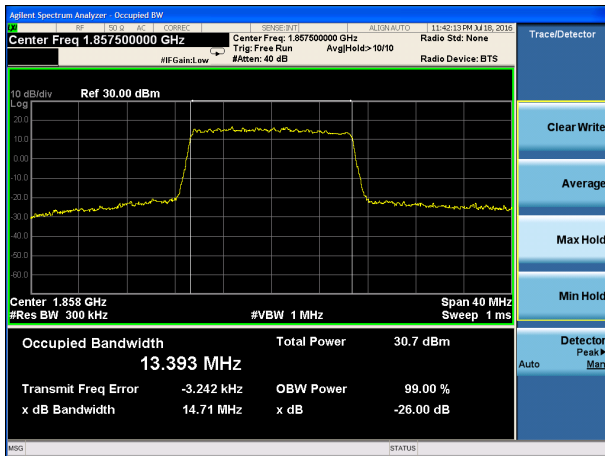


LTE Band 2 10MHz QPSK CH-High

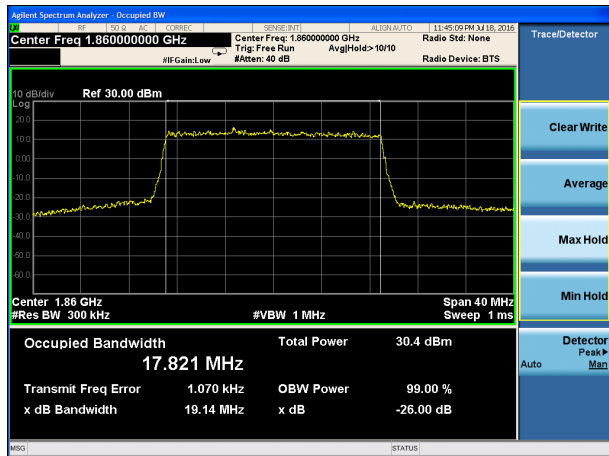




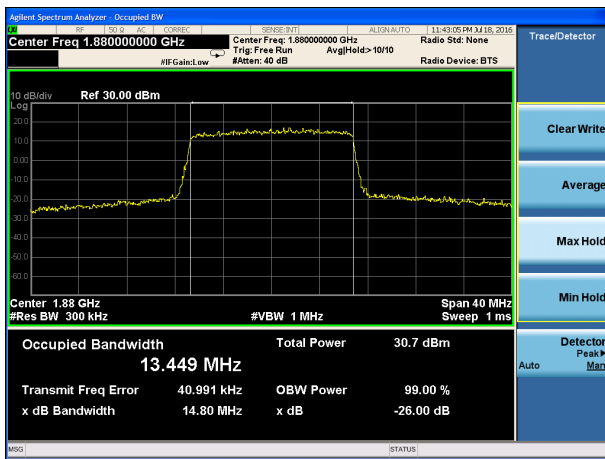
LTE Band 2 15MHz QPSK CH-Low



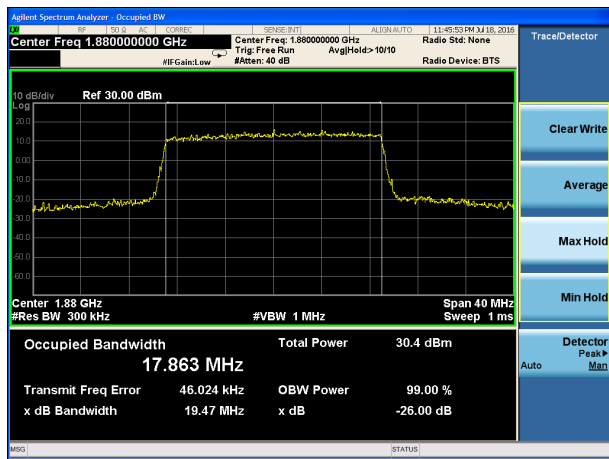
LTE Band 2 20MHz QPSK CH-Low



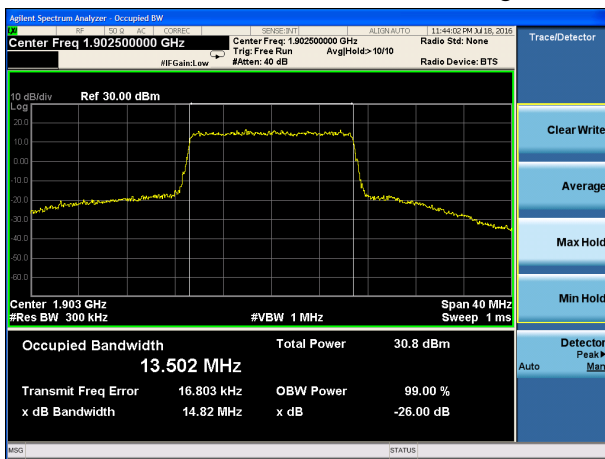
LTE Band 2 15MHz QPSK CH-Middle



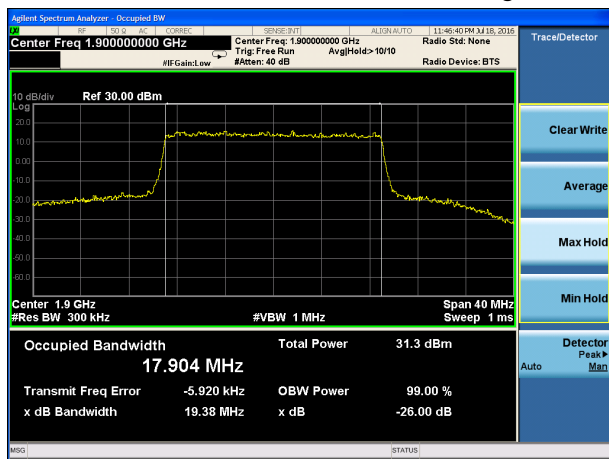
LTE Band 2 20MHz QPSK CH-Middle



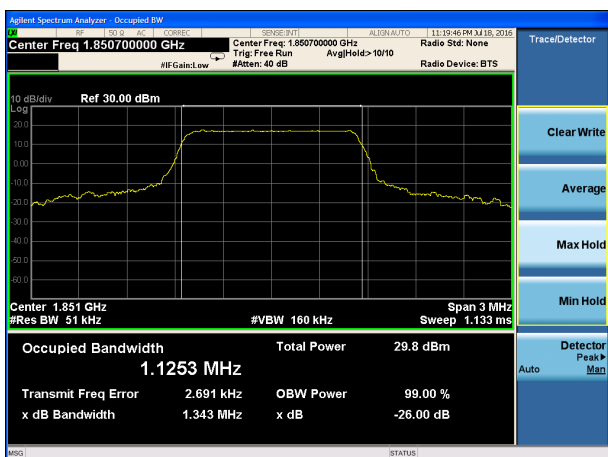
LTE Band 2 15MHz QPSK CH-High



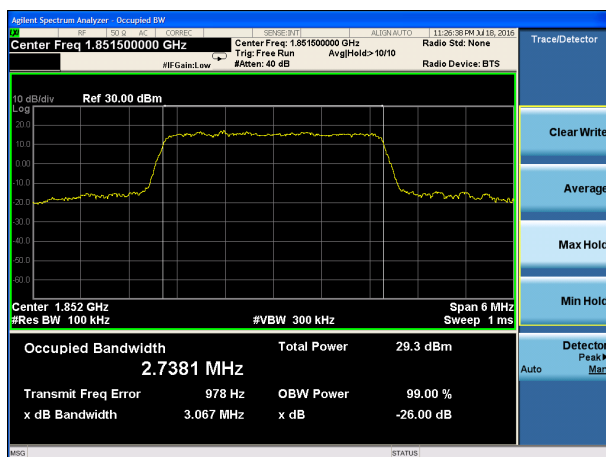
LTE Band 2 20MHz QPSK CH-High



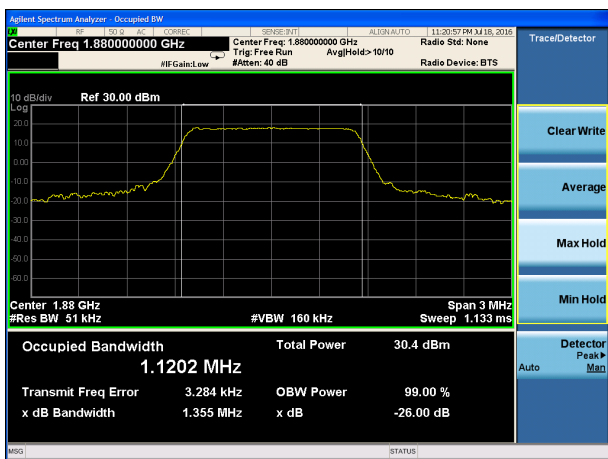
LTE Band 2 1.4MHz 16QAM CH-Low



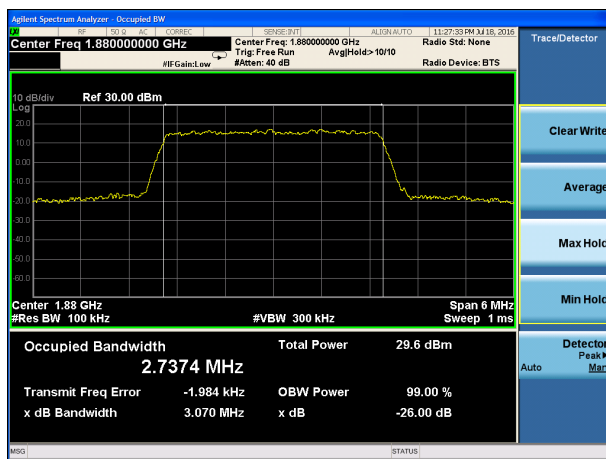
LTE Band 2 3MHz 16QAM CH-Low



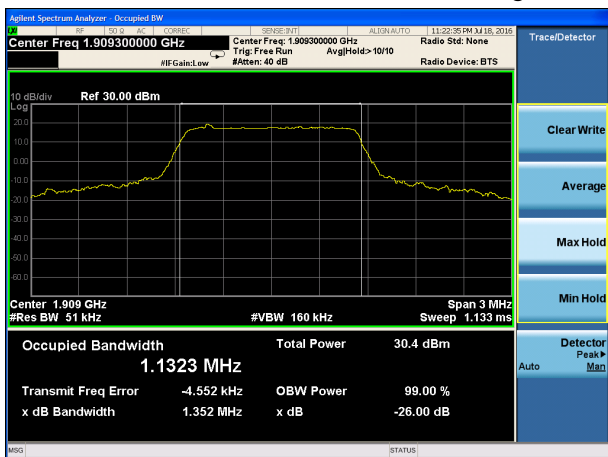
LTE Band 2 1.4MHz 16QAM CH-Middle



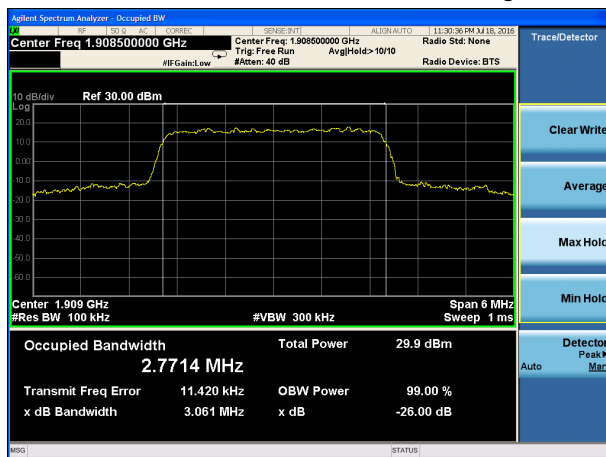
LTE Band 2 3MHz 16QAM CH-Middle



LTE Band 2 1.4MHz 16QAM CH-High

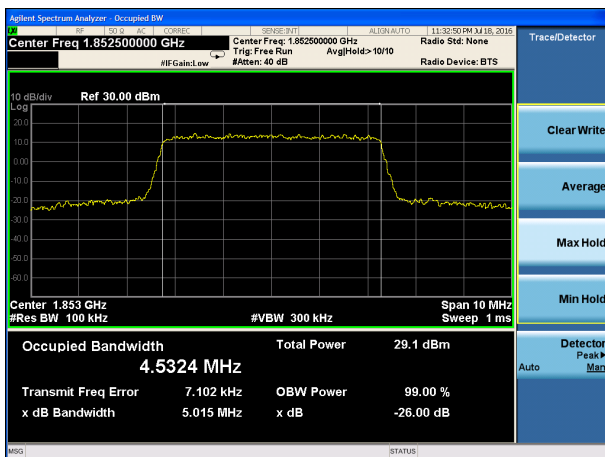


LTE Band 2 3MHz 16QAM CH-High

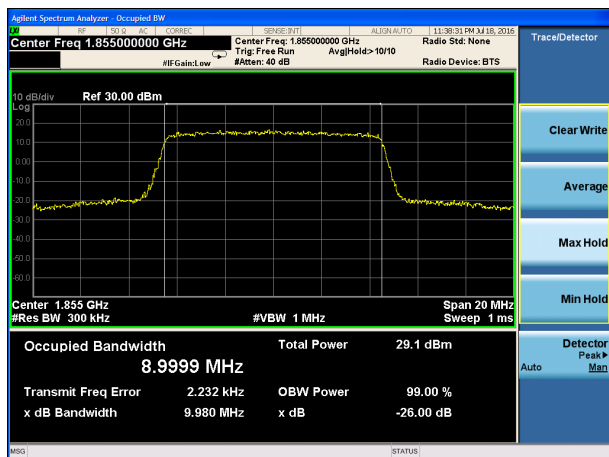




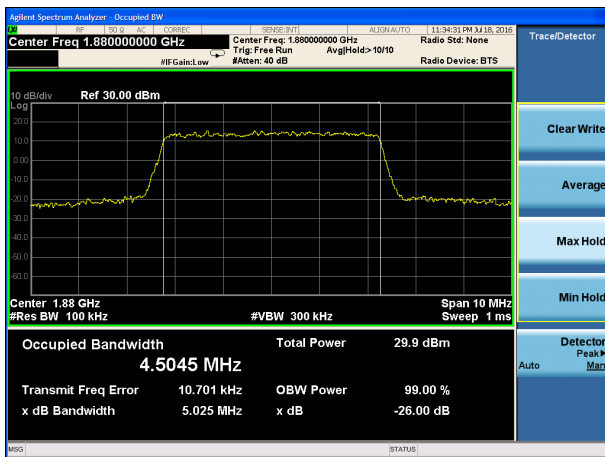
LTE Band 2 5MHz 16QAM CH-Low



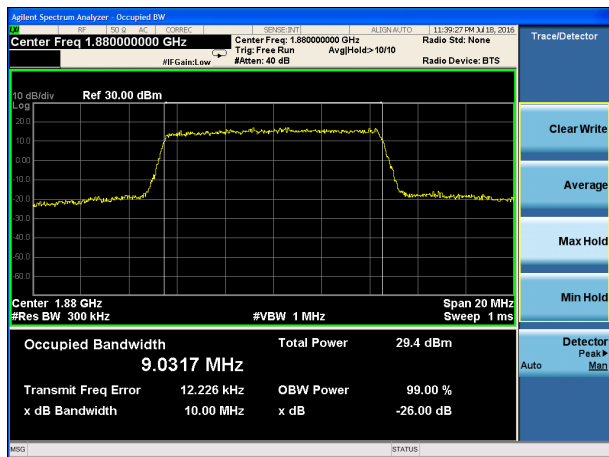
LTE Band 2 10MHz 16QAM CH-Low



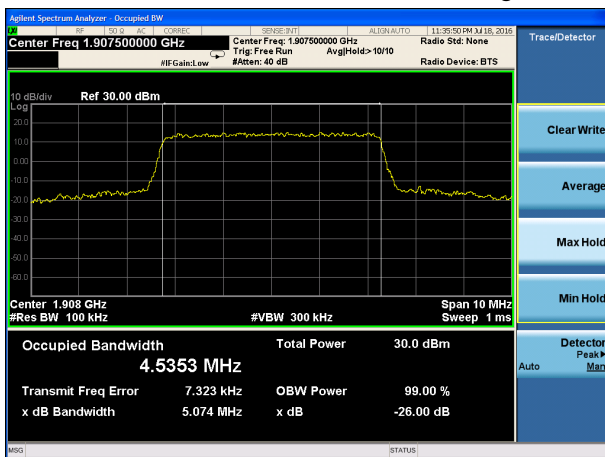
LTE Band 2 5MHz 16QAM CH-Middle



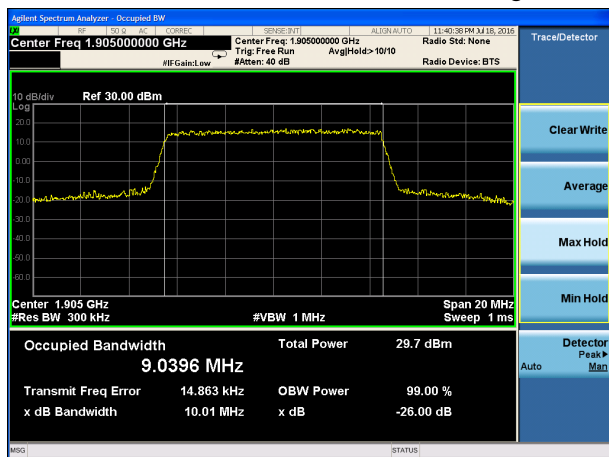
LTE Band 2 10MHz 16QAM CH-Middle



LTE Band 2 5MHz 16QAM CH-High

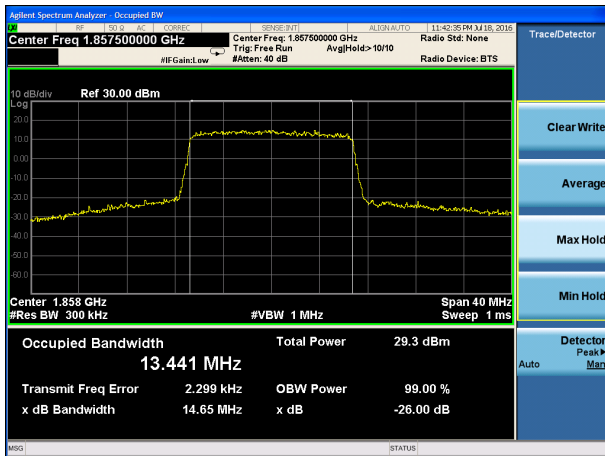


LTE Band 2 10MHz 16QAM CH-High

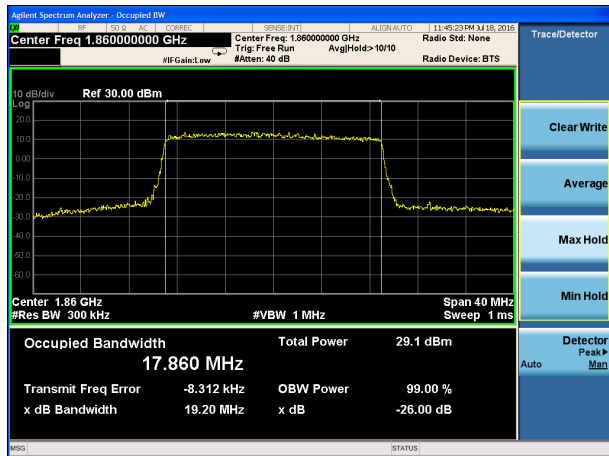




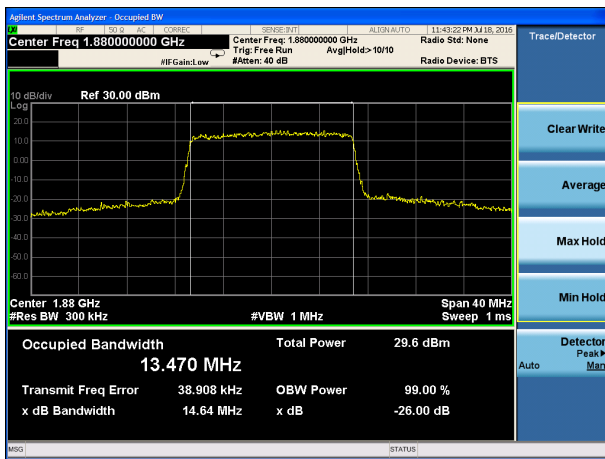
LTE Band 2 15MHz 16QAM CH-Low



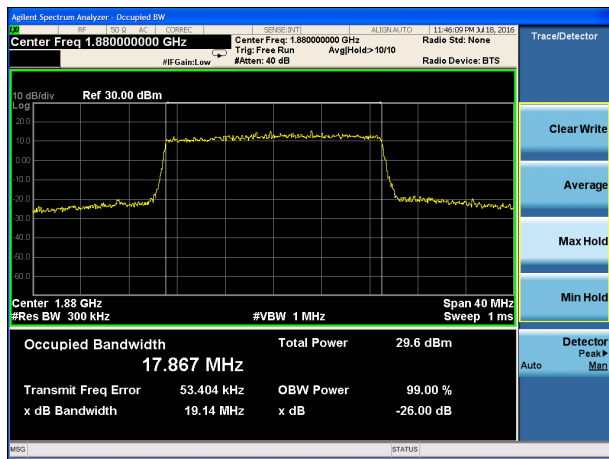
LTE Band 2 20MHz 16QAM CH-Low



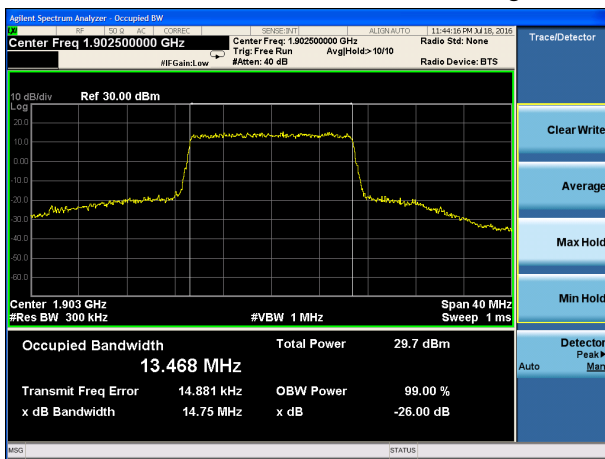
LTE Band 2 15MHz 16QAM CH-Middle



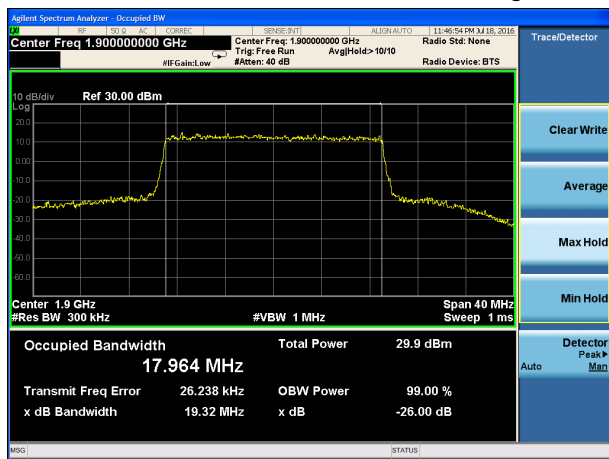
LTE Band 2 20MHz 16QAM CH-Middle



LTE Band 2 15MHz 16QAM CH-High



LTE Band 2 20MHz 16QAM CH-High



5.4. Band Edge Compliance

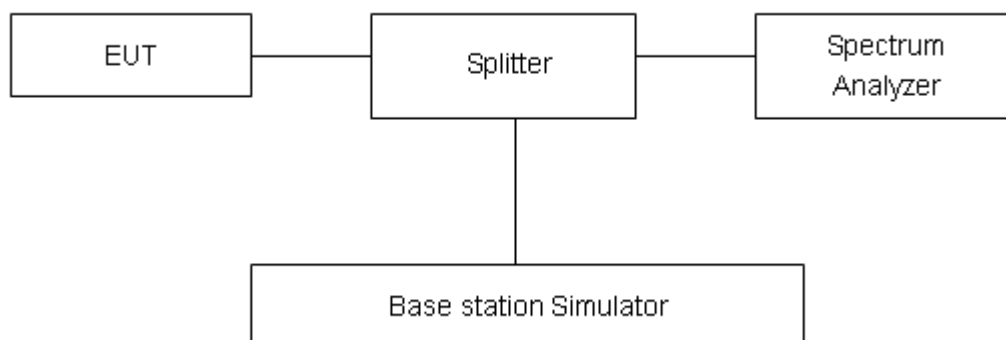
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The Average detector is used and RBW is set to 3kHz, VBW is set to 10kHz for GSM 1900, RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band II, RBW is set to 15kHz, VBW is set to 51kHz for LTE Band 2 (1.4MHz), RBW is set to 30kHz, VBW is set to 100kHz for LTE Band 2 (3MHz), RBW is set to 51kHz, VBW is set to 160kHz for LTE Band 2 (5MHz), RBW is set to 100kHz, VBW is set to 300kHz for LTE Band 2 (10MHz), RBW is set to 150kHz, VBW is set to 510kHz for LTE Band 2 (15MHz), RBW is set to 200kHz, VBW is set to 620kHz for LTE Band 2 (20MHz). Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.”

Limit	-13 dBm
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Measurement Uncertainty

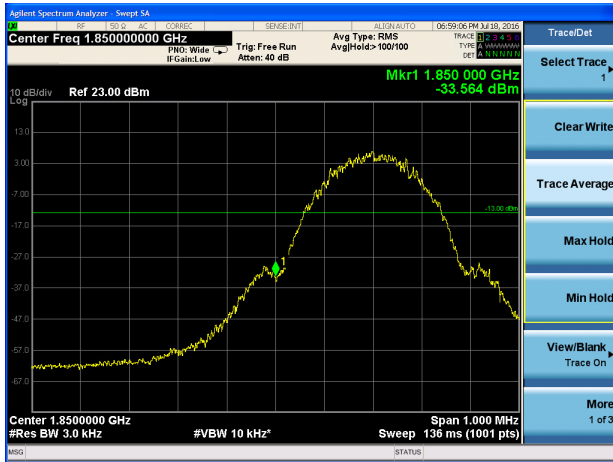
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution



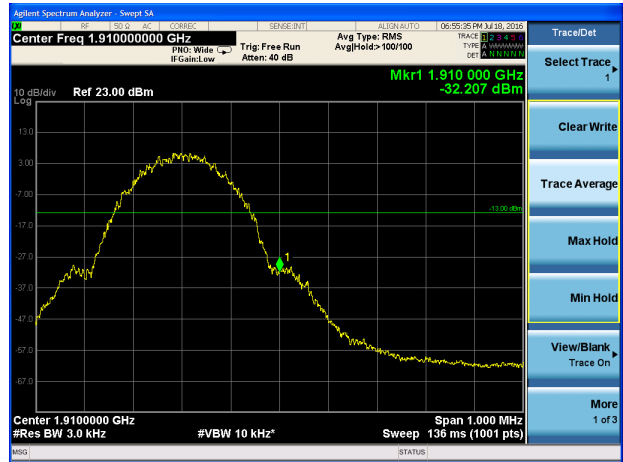
is with the coverage factor $k = 1.96$, $U=0.684\text{dB}$.

Test Result:

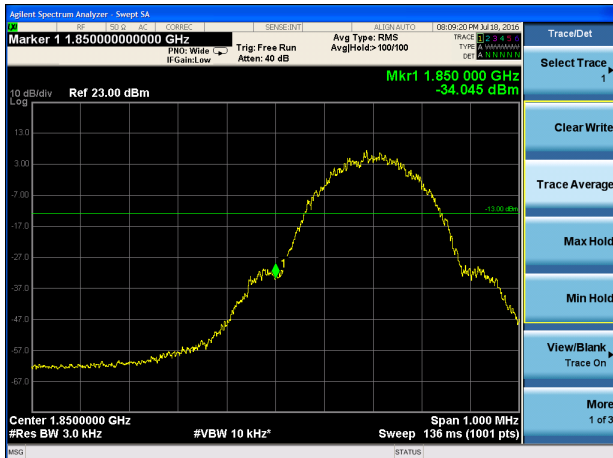
GSM1900 GSM CH-Low



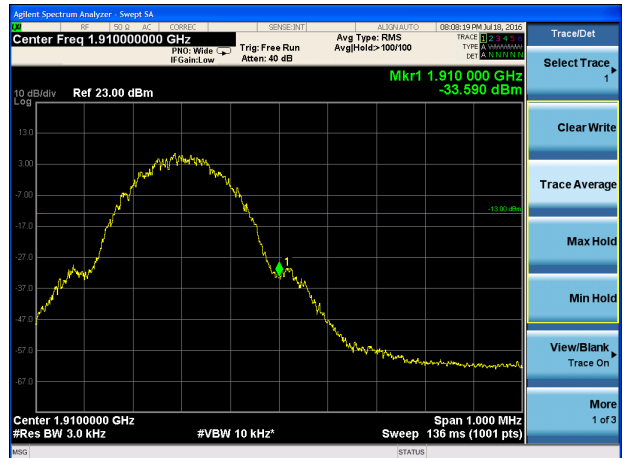
GSM 1900 GSM CH-High



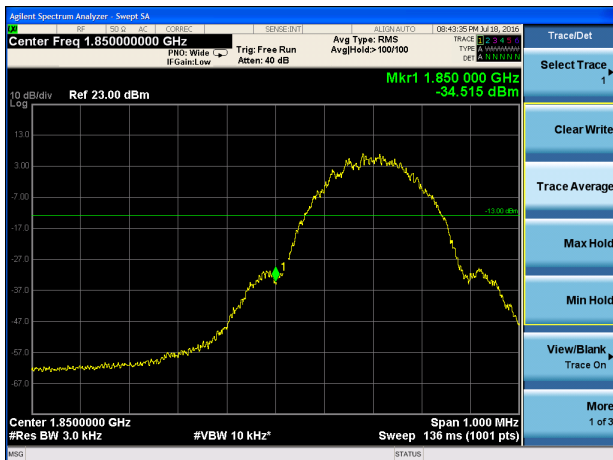
GSM1900 GPRS CH-Low



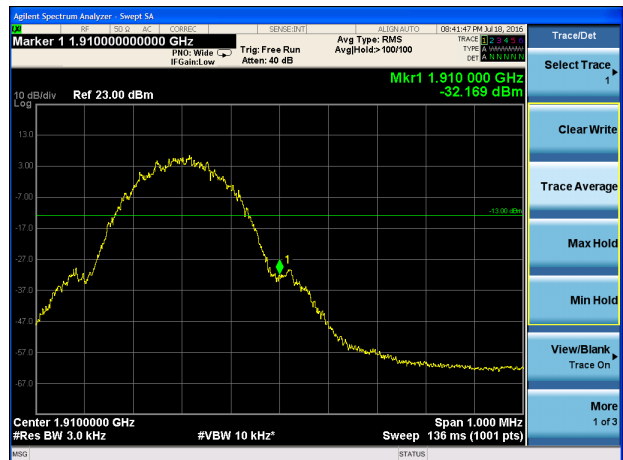
GSM 1900 GPRS CH-High



GSM1900 EGPRS CH-Low

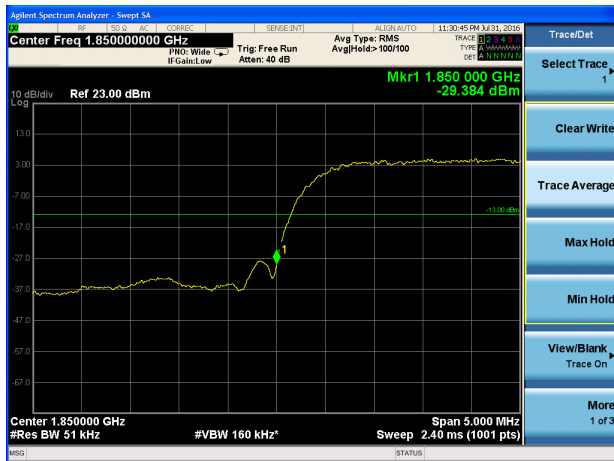


GSM 1900 EGPRS CH-High





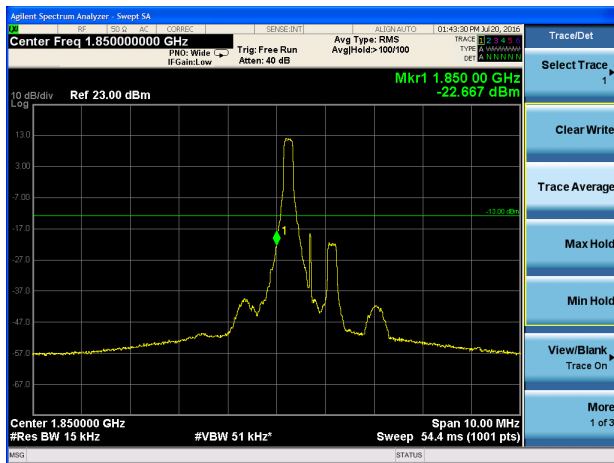
WCDMA Band II RMC CH-Low



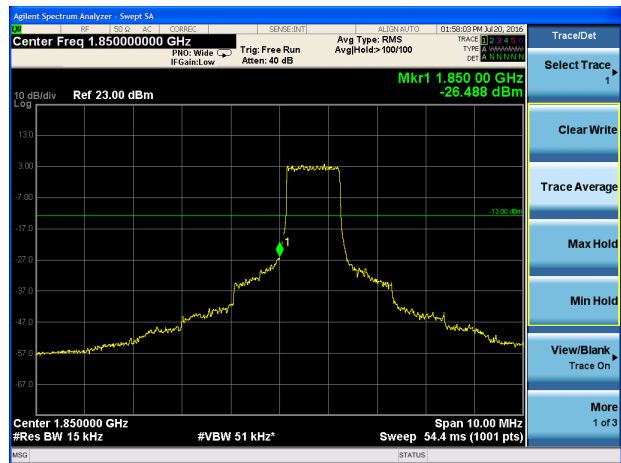
WCDMA Band II RMC CH-High



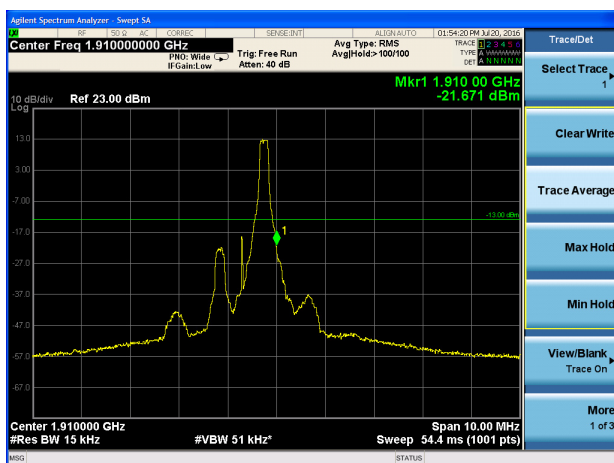
LTE Band 2 1.4MHz QPSK 1RB CH-Low



LTE Band 2 1.4MHz QPSK 100%RB CH-Low



LTE Band 2 1.4MHz QPSK 1RB CH-High



LTE Band 2 1.4MHz QPSK 100%RB CH-High

