RF TEST REPORT

Applicant	Huawei Technologies Co., Ltd.
FCC ID	QISAGS2-L09
Product	Tablet
Model	AGS2-L09
Report No.	R1806H0068-R1
Issue Date	June 26, 2018

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2017)/ FCC CFR 47 Part 22H (2017)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Performed by: Jiangpeng Lan	*Approved by: Kai Xu*

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Summary of measurement results

No.	Test Type	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Radiated Power	22.913(a)(5)	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	2.1051 / 22.917(a)	PASS
5	Peak-to-Average Power Ratio	22.913(d)/ KDB 971168 D01(5.7)	PASS
6	Frequency Stability	2.1055 / 22.355	PASS
7	Spurious Emissions at Antenna Terminals	2.1051 / 22.917(a)	PASS
8	Radiates Spurious Emission	2.1053 / 22.917 (a)	PASS
Date of Testing: June 6, 2018 ~ June 22, 2018			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard.			

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.

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 (Designation number: CN1179, Test Firm Registration Number: 446626)

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-10766)

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
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2. General Description of Equipment under Test

Client Information

Applicant	Huawei Technologies Co., Ltd.
Applicant address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.China.
Manufacturer	Huawei Technologies Co., Ltd.
Manufacturer address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.China.

General Information

EUT Description			
Model	AGS2-L09		
IMEI	004401721144414		
Hardware Version	A6t6e		
Software Version	AGS2-L09 8.0.0.1(SP1C432log)		
Power Supply	Battery/AC adapter		
Antenna Type	Internal Antenna		
Test Mode(s)	GSM 850: WCDMA Band V;LTE Band 5;		
Test Modulation	(GSM)GMSK,8PSK; (WCDMA)QPSK; (LTE)QPSK 16QAM;		
GPRS Multislot Class	12		
EGPRS Multislot Class	12		
HSDPA UE Category	24		
HSUPA UE Category	6		
LTE Category	6		
Maximum E.R.P.	GSM 850:	28.85dBm	
	WCDMA Band V:	19.96dBm	
	LTE Band 5:	20.08dBm	
Rated Power Supply Voltage	3.8V		
Extreme Voltage	Minimum: 3.6V Maximum: 4.3V		
Extreme Temperature	Lowest: 0°C Highest: +35°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM850	824 ~ 849	869 ~ 894
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE Band 5	824 ~ 849	869 ~ 894
EUT Accessory			
Adapter 1	Manufacturer: Huawei Technologies Co., Ltd. Model: HW-050100E01		
Adapter 2	Manufacturer: Huawei Technologies Co., Ltd. Model: HW-050100B01		

Adapter 3	Manufacturer: Huawei Technologies Co., Ltd. Model: HW-050100A01
Adapter 4	Manufacturer: Huawei Technologies Co., Ltd. Model: HW-050100U01
Battery	Manufacturer: Huawei Technologies Co., Ltd. (SCUD) Model: HB2899C0ECW-C
USB Extend Cable	100cm Cable, Signal Cable, USB2.0, 5V 1A
Note: The information of the EUT is declared by the manufacturer.	

3. Applied Standards

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

FCC CFR47 Part 2 (2017)

FCC CFR 47 Part 22H (2017)

ANSI/TIA-603-E (2016)

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

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, horizontal polarization) and the worst case was recorded.

All mode and data rates and positions 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:

	Test items	Modes/Modulation	
		GSM 850	WCDMA Band V
Conducted Test cases	RF power output	GSM GPRS EGPRS	RMC HSDPA/HSUPA
	Occupied Bandwidth	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
	Band Edge Compliance	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
	Peak-to-Average Power Ratio	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
	Frequency Stability	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
	Spurious Emissions at Antenna Terminals	GSM	RMC
Radiated Test cases	Effective Radiated Power	GSM GPRS(1Tx slot) EGPRS(1Tx slot)	RMC
	Radiates Spurious Emission	GSM	RMC

Test modes are chosen as the worst case configuration below for LTE Band 5.

Test items	Bandwidth (MHz)				Modulation		RB			Test Channel		
	1.4	3	5	10	QPSK	16QAM	1	50%	100%	L	M	H
RF power output	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
Occupied Bandwidth	O	O	O	O	O	O	-	-	O	O	O	O
Band Edge Compliance	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
Frequency Stability	O	O	O	O	O	O	-	-	O	O	-	O
Spurious Emissions at Antenna Terminals	O	O	O	O	-	O	O	-	-	O	O	O
Radiates Spurious Emission	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

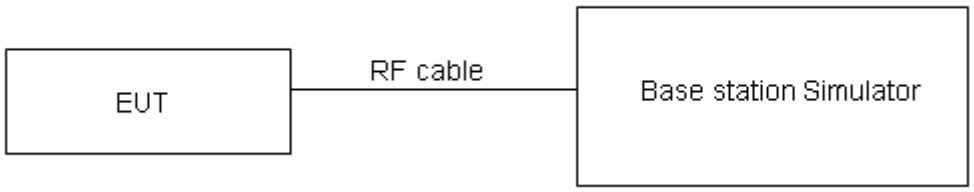
Ambient condition

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 850		Conducted Power(dBm)		
		Channel 128	Channel 190	Channel 251
		824.2 (MHz)	836.6 (MHz)	848.8 (MHz)
GSM	CS	32.83	32.76	32.69
GPRS (GMSK)	1TXslot	32.70	32.71	32.69
	2TXslots	30.64	30.67	30.67
	3TXslots	28.65	28.69	28.68
	4TXslots	27.64	27.68	27.68
EGPRS (8PSK)	1TXslot	25.24	25.27	25.26
	2TXslots	24.67	24.69	24.68
	3TXslots	22.65	22.68	22.64
	4TXslots	20.53	20.55	20.54

WCDMA Band V		Conducted Power(dBm)		
		Channel 4132	Channel 4183	Channel 4233
		826.4(MHz)	836.6(MHz)	846.6(MHz)
RMC	12.2k	24.06	24.03	23.96
HSDPA	Sub - Test 1	22.16	23.11	22.10
	Sub - Test 2	23.70	23.54	23.61
	Sub - Test 3	23.09	22.96	23.04
	Sub - Test 4	23.11	22.96	23.04
HSUPA	Sub - Test 1	21.11	21.05	21.19
	Sub - Test 2	19.08	19.10	19.24
	Sub - Test 3	20.74	20.78	20.93
	Sub - Test 4	19.77	19.94	20.00
	Sub - Test 5	23.56	23.46	23.51

LTE Band 5				Conducted Power(dBm)		
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				20407/824.7	20525/836.5	20643/848.3
1.4MHz	QPSK	1	0	24.28	23.90	24.25
		1	2	23.15	23.38	23.38
		1	5	23.76	24.00	23.99
		3	0	23.71	23.71	23.74
		3	2	23.63	23.92	23.89
		3	3	23.42	23.83	23.75
		6	0	22.56	22.74	22.85
	16QAM	1	0	23.79	23.40	23.77
		1	2	23.16	23.34	23.36
		1	5	23.64	23.90	23.86
		3	0	23.30	23.26	23.33
		3	2	23.18	23.41	23.40
		3	3	22.88	23.32	23.19
		6	0	22.12	22.26	22.37
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				20415/825.5	20525/836.5	20635/847.5
3MHz	QPSK	1	0	24.30	23.94	24.28
		1	7	23.18	23.43	23.42
		1	14	23.79	24.05	24.03
		8	0	22.81	22.83	22.87
		8	4	22.75	23.02	23.01
		8	7	22.52	22.94	22.85
		15	0	22.59	22.78	22.88
	16QAM	1	0	23.82	23.42	23.80
		1	7	23.19	23.39	23.40
		1	14	23.66	23.94	23.89
		8	0	22.41	22.39	22.45
		8	4	22.29	22.54	22.52
		8	7	21.98	22.44	22.32
		15	0	22.15	22.30	22.40
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				20425/826.5	20525/836.5	20625/846.5
5MHz	QPSK	1	0	24.27	23.92	24.24

		1	13	23.16	23.39	23.39
		1	24	23.76	24.00	23.99
		12	0	22.78	22.78	22.83
		12	6	22.73	22.98	22.96
		12	13	22.50	22.92	22.81
		25	0	22.57	22.77	22.86
	16QAM	1	0	23.79	23.38	23.77
		1	13	23.16	23.37	23.37
		1	24	23.63	23.92	23.85
		12	0	22.39	22.35	22.42
		12	6	22.26	22.49	22.48
		12	13	21.95	22.39	22.28
		25	0	22.13	22.26	22.35
BW	Modulation	RB size	RB offset	Channel/Frequency(MHz)		
				20450/829	20525/836.5	20600/844
10MHz	QPSK	1	0	24.25	23.85	24.22
		1	25	23.16	23.39	23.38
		1	49	23.73	23.98	23.95
		25	0	22.76	22.74	22.80
		25	13	22.71	22.94	22.93
		25	25	22.46	22.88	22.78
		50	0	22.60	22.70	22.81
	16QAM	1	0	23.74	23.35	23.72
		1	25	23.13	23.36	23.34
		1	49	23.61	23.87	23.83
		25	0	22.36	22.34	22.40
		25	13	22.22	22.46	22.44
		25	25	21.93	22.35	22.25
		50	0	22.11	22.22	22.32

5.2. Effective Radiated Power

Ambient condition

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

Methods of Measurement

The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI/TIA-603-E (2016).

a) Connect the equipment as illustrated. Mount the equipment with the manufacturer specified antenna in a vertical orientation on a manufacturer specified mounting surface located on a non-conducting rotating platform of a RF anechoic chamber (preferred) or a standard radiation site.

b) Key the transmitter, then rotate the EUT 360° azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. (Note: several batteries may be needed to offset the effect of battery voltage droop, which should not exceed 5% of the manufactured specified battery voltage during transmission).

c) Replace the transmitter under test with a vertically polarized half-wave dipole (or an antenna whose gain is known relative to an ideal half-wave dipole). The center of the antenna should be at the same location as the center of the antenna under test.

d) Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading.LOSS = Generator Output Power (dBm) – Analyzer reading (dBm)

e) Determine the effective radiated output power at each angular position from the readings in steps b) and d) using the following equation:ERP (dBm) = LVL (dBm) + LOSS (dB)

f) The maximum ERP is the maximum value determined in the preceding step.

g) When calculating ERP, in addition to knowing the antenna radiation and matching characteristics, it is necessary to know the loss values of all elements (e.g.transmission line attenuation, mismatches, filters, combiners) interposed between the point where transmitter output power is measured, and the point where power is applied to the antenna. ERP can then be calculated as follows:

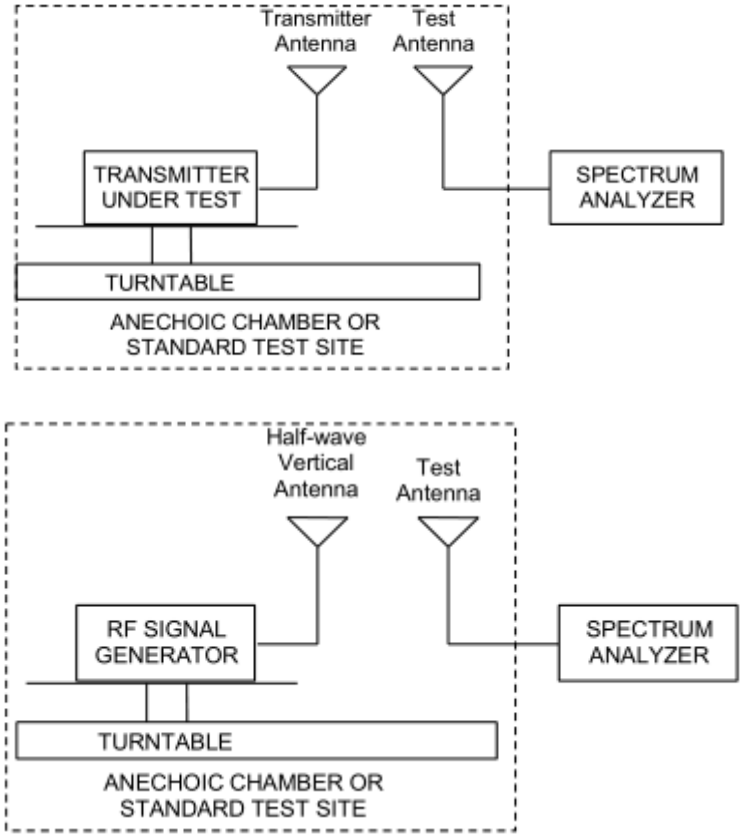
ERP (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBd)

where:dBd refers to gain relative to an ideal dipole.

EIRP (dBm) = ERP (dBm) + 2.15 (dB.)

The RB allocation refers to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 22.913(a)(5) specifies that "Mobile/portable stations are limited to 7 watts ERP".

Limit	≤ 7 W (38.45 dBm)

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 dB

Test Results:

The measurement is performed for both of horizontal and vertical antenna Polarization, and only the data of worst mode is recorded in this report.

Mode	Channel	Frequency (MHz)	Polarization	ERP (dBm)	Limit (dBm)	Conclusion
GSM 850	Low	824.2	Horizontal	28.75	38.45	Pass
	Mid	836.6	Horizontal	28.85	38.45	Pass
	High	848.8	Horizontal	28.23	38.45	Pass
GPRS 850	Low	824.2	Horizontal	28.05	38.45	Pass
	Mid	836.6	Horizontal	28.14	38.45	Pass
	High	848.8	Horizontal	27.47	38.45	Pass
EGPRS 850	Low	824.2	Horizontal	25.39	38.45	Pass
	Mid	836.6	Horizontal	25.35	38.45	Pass
	High	848.8	Horizontal	25.74	38.45	Pass
WCDMA Band V	Low	826.4	Horizontal	19.96	38.45	Pass
	Mid	836.6	Horizontal	19.74	38.45	Pass
	High	846.6	Horizontal	18.91	38.45	Pass

LTE Band 5						
bandwidth	Channel	Frequency (MHz)	Polarization	ERP (dBm)	Limit (dBm)	Conclusion
1.4 MHz (QPSK)	Low	824.7	Horizontal	20.08	38.45	Pass
	Mid	836.5	Horizontal	19.85	38.45	Pass
	High	848.3	Horizontal	19.37	38.45	Pass
3 MHz (QPSK)	Low	825.5	Horizontal	19.91	38.45	Pass
	Mid	836.5	Horizontal	19.63	38.45	Pass
	High	847.5	Horizontal	18.88	38.45	Pass
5 MHz (QPSK)	Low	826.5	Horizontal	20.05	38.45	Pass
	Mid	836.5	Horizontal	19.51	38.45	Pass
	High	846.5	Horizontal	18.75	38.45	Pass
10 MHz (QPSK)	Low	829	Horizontal	19.77	38.45	Pass
	Mid	836.5	Horizontal	19.35	38.45	Pass
	High	844	Horizontal	19.72	38.45	Pass
1.4 MHz (16QAM)	Low	824.7	Horizontal	19.74	38.45	Pass
	Mid	836.5	Horizontal	19.61	38.45	Pass
	High	848.3	Horizontal	19.01	38.45	Pass
3 MHz (16QAM)	Low	825.5	Horizontal	19.60	38.45	Pass
	Mid	836.5	Horizontal	19.17	38.45	Pass
	High	847.5	Horizontal	19.41	38.45	Pass
5 MHz (16QAM)	Low	826.5	Horizontal	19.62	38.45	Pass
	Mid	836.5	Horizontal	19.17	38.45	Pass
	High	846.5	Horizontal	18.54	38.45	Pass
10 MHz (16QAM)	Low	829	Horizontal	19.43	38.45	Pass
	Mid	836.5	Horizontal	19.21	38.45	Pass
	High	844	Horizontal	19.32	38.45	Pass

5.3. Occupied Bandwidth

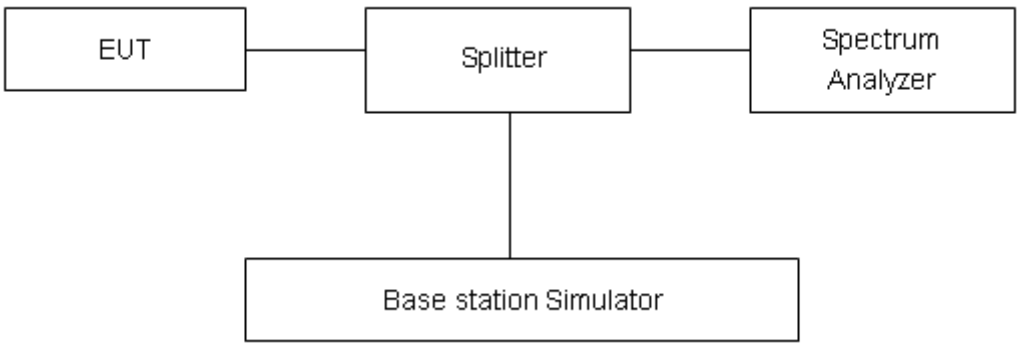
Ambient condition

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 850,
RBW is set to 51kHz, VBW is set to 160kHz for WCDMA Band V,
RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 5 (1.4MHz),
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 5 (3MHz/5MHz),
RBW is set to 300 kHz, VBW is set to 1 MHz for LTE Band 5 (10MHz),
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

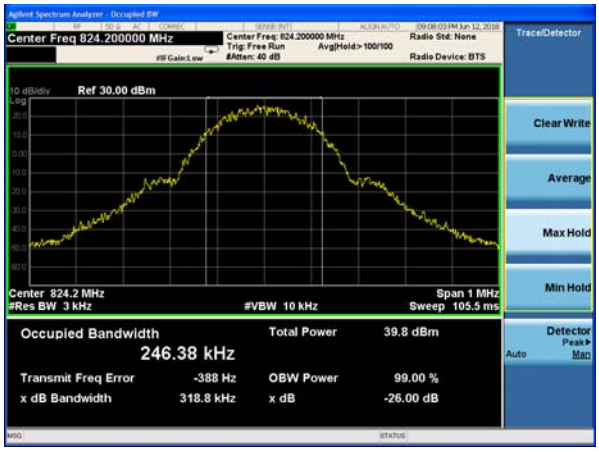
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 624Hz.

Test Result

Mode	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
GSM 850 (GSM)	128	824.2	0.24638	0.3188
	190	836.6	0.24569	0.3087
	251	848.8	0.24597	0.3084
GPRS 850 (GMSK)	128	824.2	0.24583	0.3132
	190	836.6	0.24829	0.3164
	251	848.8	0.24871	0.3168
EGPRS 850 (8-PSK)	128	824.2	0.25094	0.3152
	190	836.6	0.25077	0.3153
	251	848.8	0.24905	0.3209
WCDMA Band V (RMC)	4132	826.4	4.1335	4.6820
	4183	836.6	4.1408	4.6860
	4233	846.6	4.1388	4.6900

LTE Band 5						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	20407	824.7	1.122	1.288
			20525	836.5	1.1209	1.28
			20643	848.3	1.1375	1.296
		3	20415	825.5	2.7521	3.053
			20525	836.5	2.752	3.051
			20635	847.5	2.7497	3.053
		5	20425	826.5	4.5206	5.017
			20525	836.5	4.5128	4.985
			20625	846.5	4.5222	4.982
		10	20450	829	9.0684	10.08
			20525	836.5	9.0647	10.08
			20600	844	9.0483	10.06
	16QAM	1.4	20407	824.7	1.1298	1.294
			20525	836.5	1.1272	1.283
			20643	848.3	1.1272	1.289
		3	20415	825.5	2.7413	3.028
			20525	836.5	2.7496	3.055
			20635	847.5	2.7417	3.06
		5	20425	826.5	4.508	4.971
			20525	836.5	4.5309	4.97
			20625	846.5	4.5197	4.988
		10	20450	829	9.0519	10.08
			20525	836.5	9.0827	10.07
			20600	844	9.062	10.03

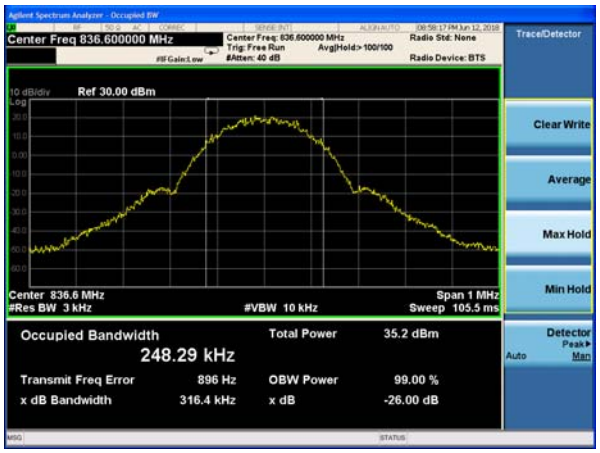
GSM 850 CH-Low



GSM 850 GPRS CH-Low

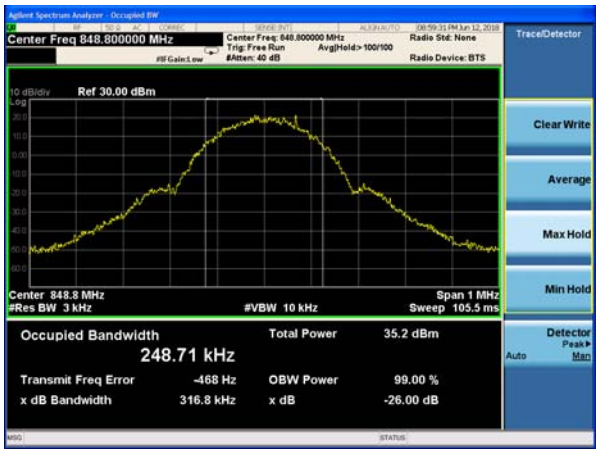
GSM 850 CH-Middle

GSM 850 GPRS CH-Middle



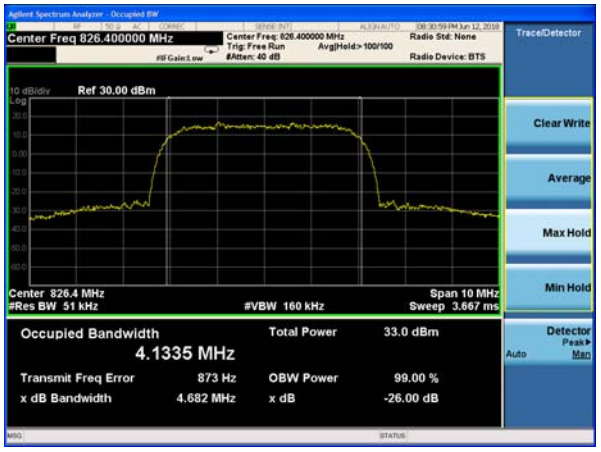
GSM 850 CH-High

GSM 850 GPRS CH-High

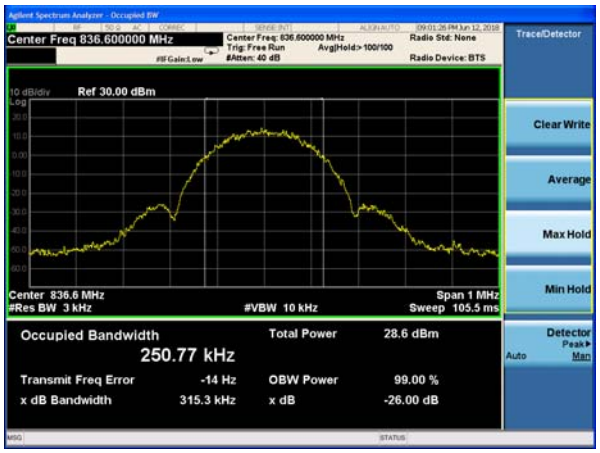


GSM 850 EGPRS CH-Low

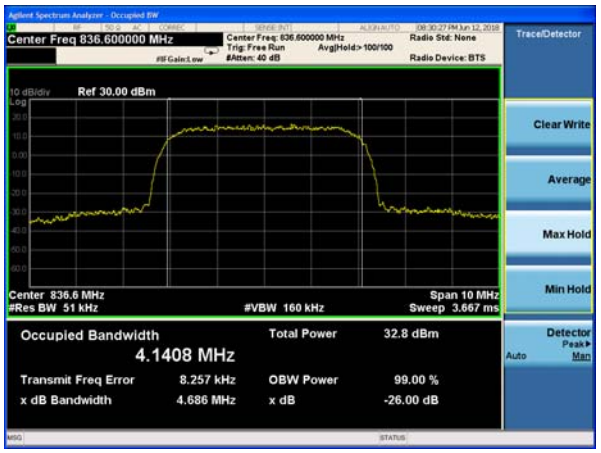
WCDMA Band V CH-Low



GSM 850 EGPRS CH-Middle

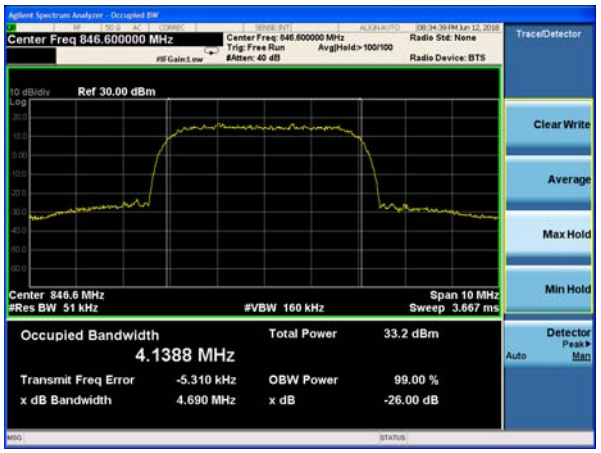


WCDMA Band V CH-Middle

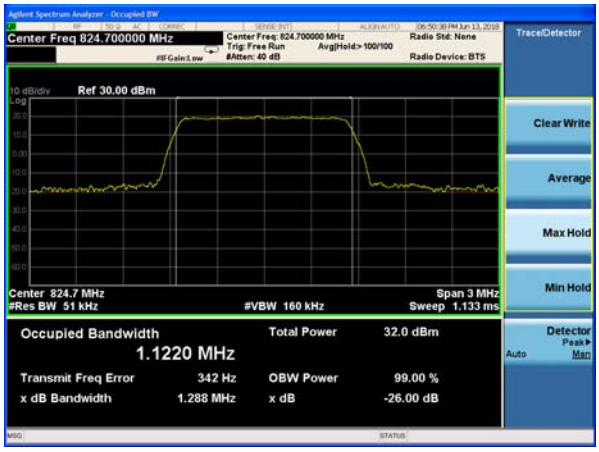


GSM 850 EGPRS CH-High

WCDMA Band V CH-High

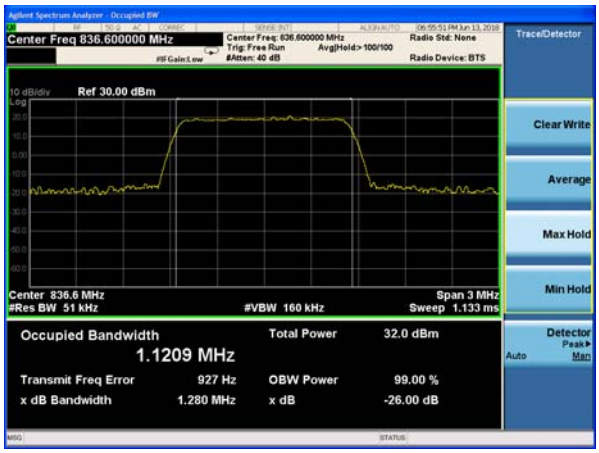


LTE Band 5 QPSK 1.4MHz CH-Low

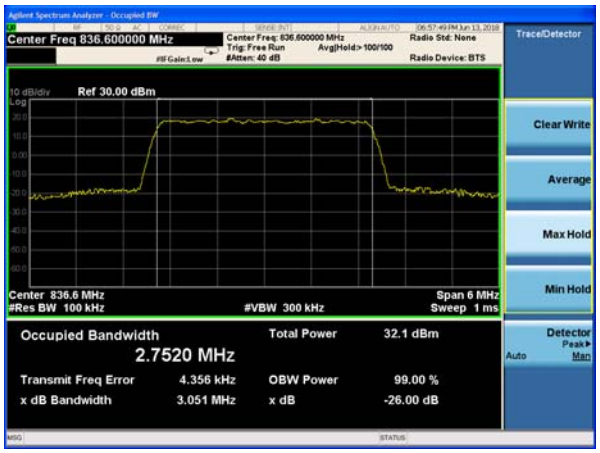


LTE Band 5 QPSK 3MHz CH-Low

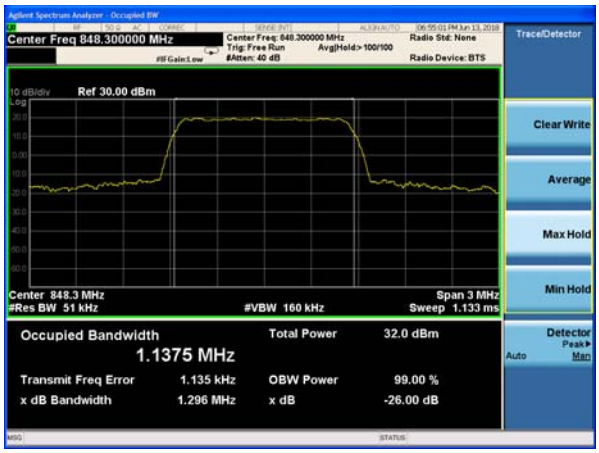
LTE Band 5 QPSK 1.4MHz CH-Middle



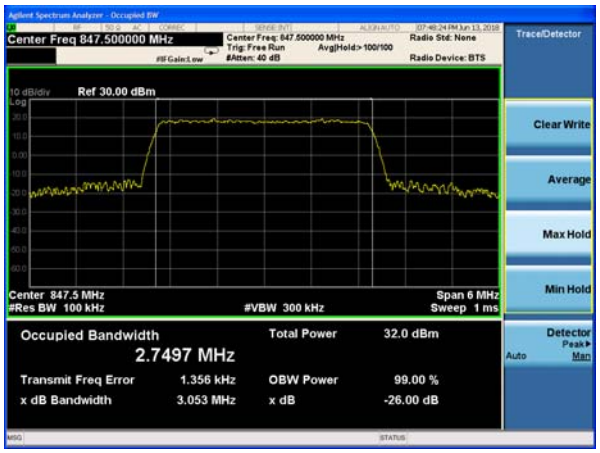
LTE Band 5 QPSK 3MHz CH-Middle



LTE Band 5 QPSK 1.4MHz CH-High



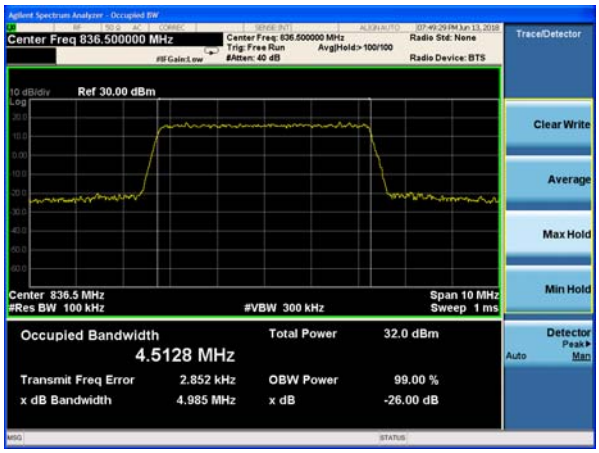
LTE Band 5 QPSK 3MHz CH-High



LTE Band 5 QPSK 5MHz CH-Low

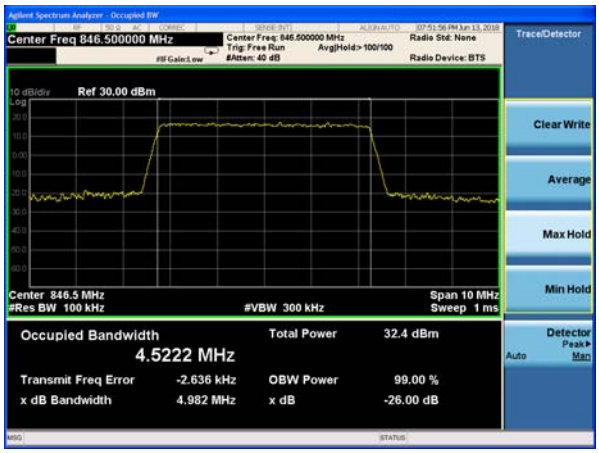
LTE Band 5 QPSK 10MHz CH-Low

LTE Band 5 QPSK 5MHz CH-Middle

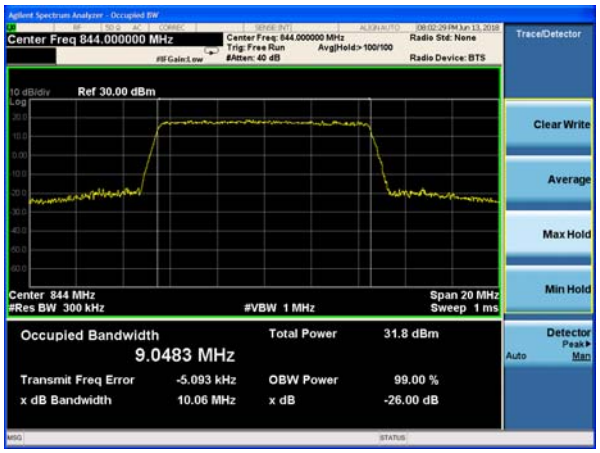


LTE Band 5 QPSK 10MHz CH-Middle

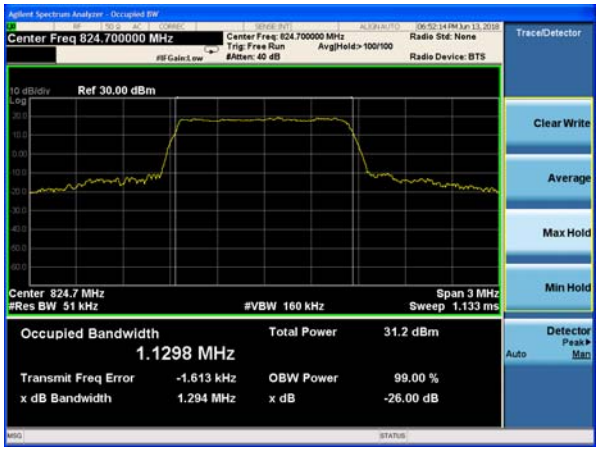
LTE Band 5 QPSK 5MHz CH-High



LTE Band 5 QPSK 10MHz CH-High

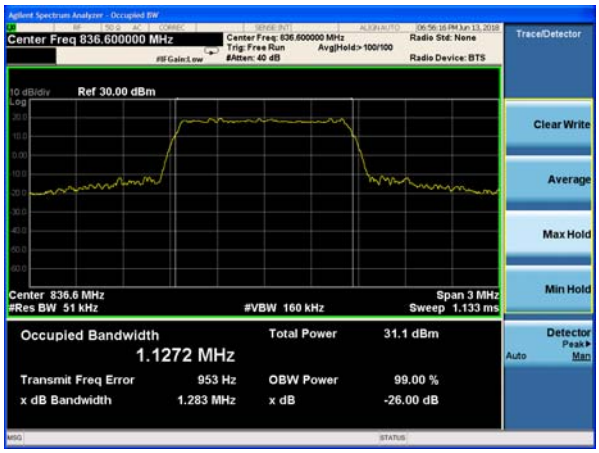


LTE Band 5 16QAM 1.4MHz CH-Low



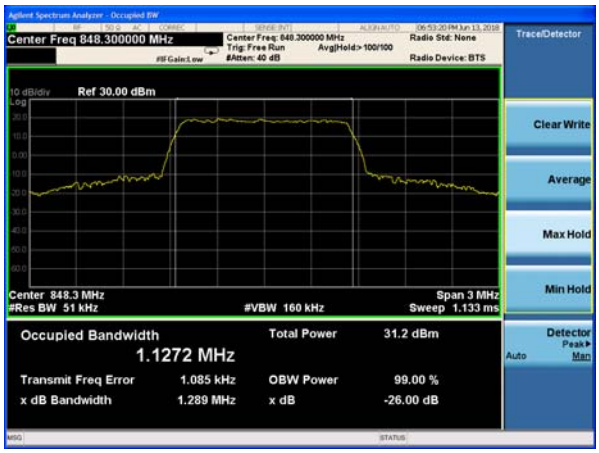
LTE Band 5 16QAM 3MHz CH-Low

LTE Band 5 16QAM 1.4MHz CH-Middle

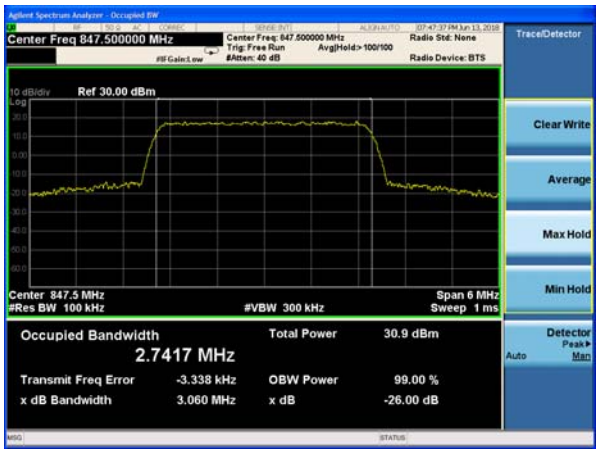


LTE Band 5 16QAM 3MHz CH-Middle

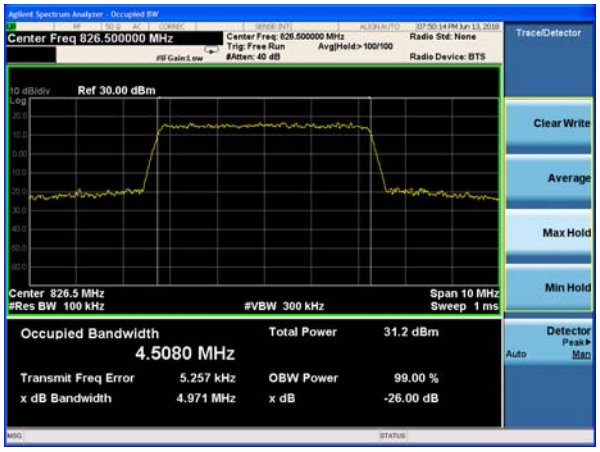
LTE Band 5 16QAM 1.4MHz CH-High



LTE Band 5 16QAM 3MHz CH-High



LTE Band 5 16QAM 5MHz CH-Low

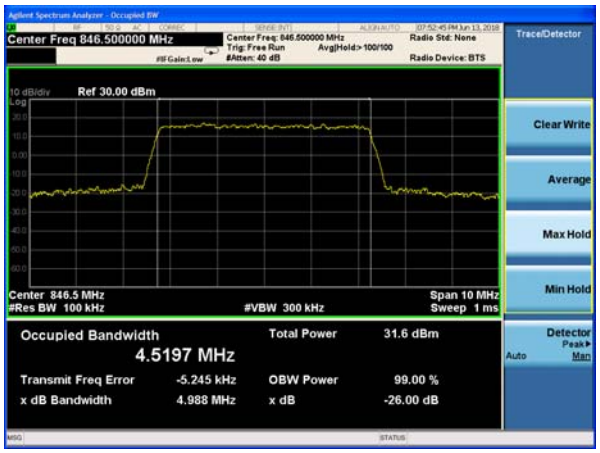


LTE Band 5 16QAM 10MHz CH-Low

LTE Band 5 16QAM 5MHz CH-Middle

LTE Band 5 16QAM 10MHz CH-Middle

LTE Band 5 16QAM 5MHz CH-High



LTE Band 5 16QAM 10MHz CH-High

5.4. Band Edge Compliance

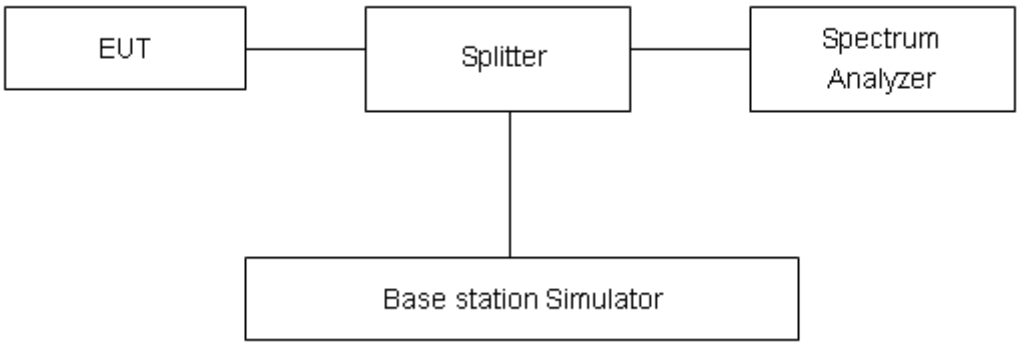
Ambient condition

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.
RBW is set to 3kHz,VBW is set to 10kHz for GSM 850,
RBW is set to 51kHz,VBW is set to 160kHz for WCDMA Band V,
RBW is set to 15 kHz, VBW is set to 51 kHz for LTE Band 5 (1.4MHz),
RBW is set to 30 kHz, VBW is set to 100 kHz for LTE Band 5 (3MHz),
RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 5 (5MHz),
RBW is set to 100 kHz, VBW is set to 300 kHz for LTE Band 5 (10MHz),
Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.”

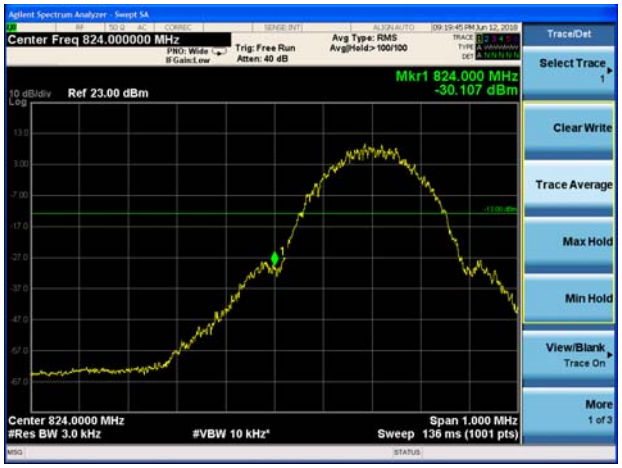
Limit	-13 dBm

Measurement Uncertainty

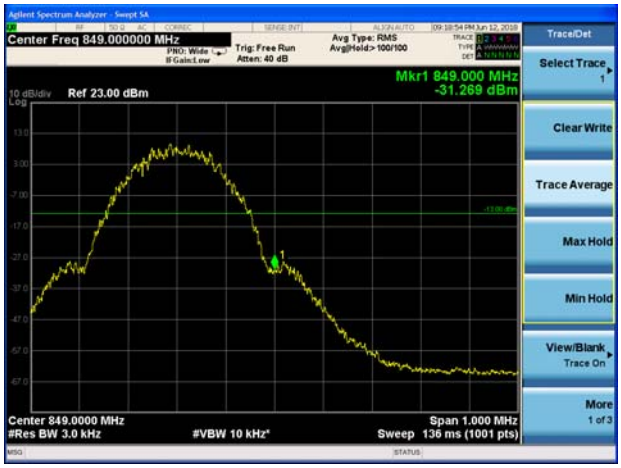
The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 1.96, U=0.684dB.

Test Result:

GSM 850 CH-Low



GSM 850 CH-High



GSM 850 GPRS CH-Low

GSM 850 GPRS CH-High

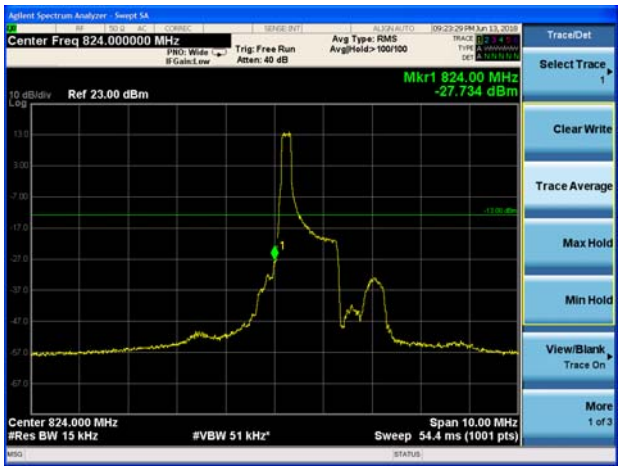
GSM 850 EGPRS CH-Low

GSM 850 EGPRS CH-High

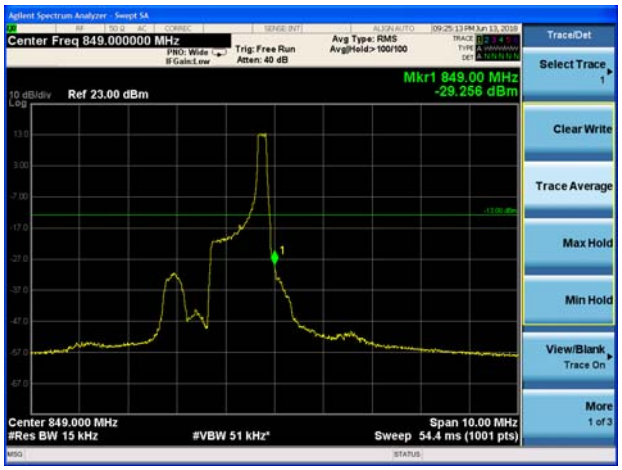
WCDMA Band V CH-Low

WCDMA Band V CH-High

LTE Band 5 QPSK 1.4MHz CH-Low 1RB



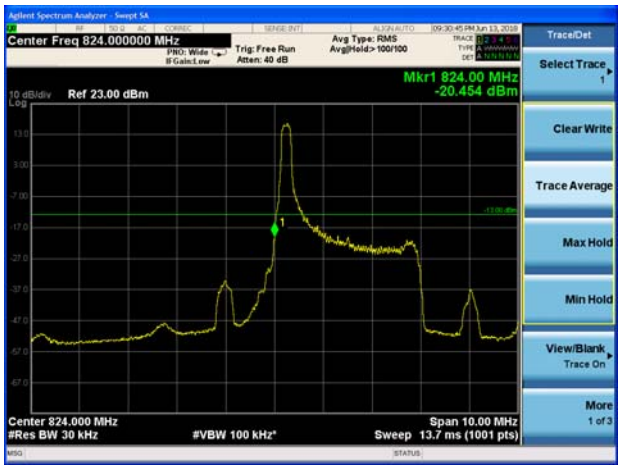
LTE Band 5 QPSK 1.4MHz CH-High 1RB



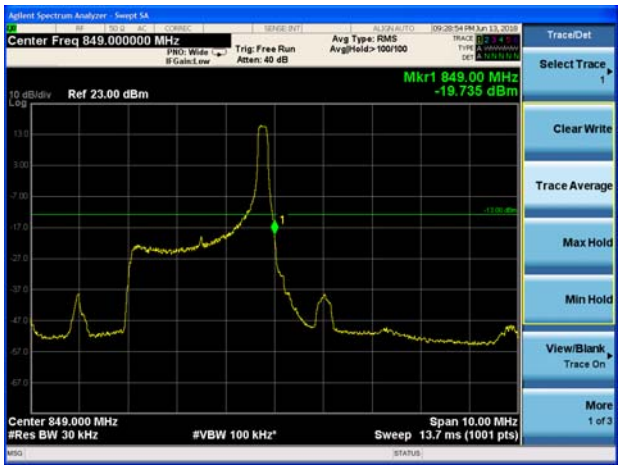
LTE Band 5 QPSK 1.4MHz CH-Low 100%RB

LTE Band 5 QPSK 1.4MHz CH-High 100%RB

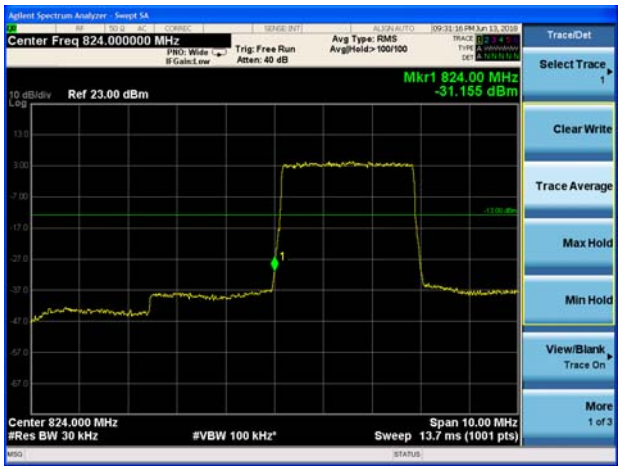
LTE Band 5 QPSK 3MHz CH-Low 1RB



LTE Band 5 QPSK 3MHz CH-High 1RB

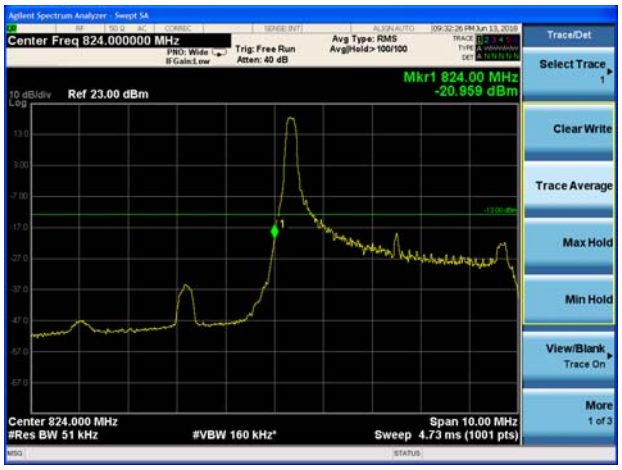


LTE Band 5 QPSK 3MHz CH-Low 100%RB

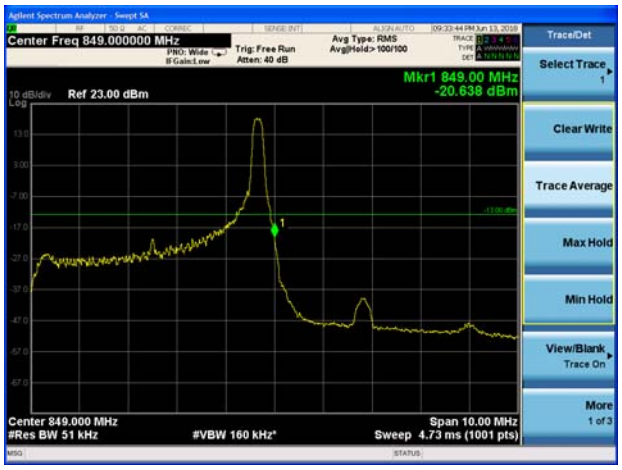


LTE Band 5 QPSK 3MHz CH-High 100%RB

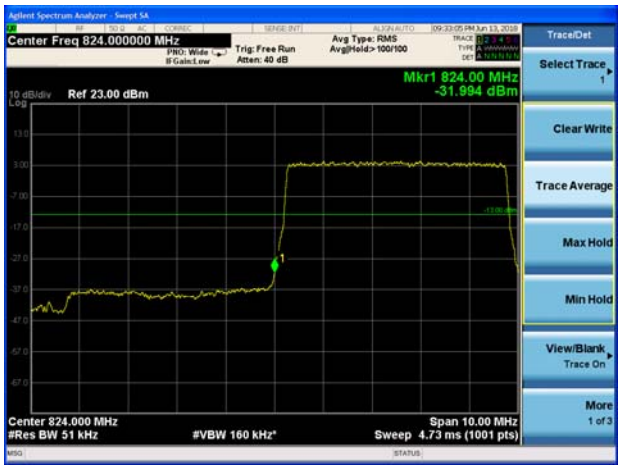
LTE Band 5 QPSK 5MHz CH-Low 1RB



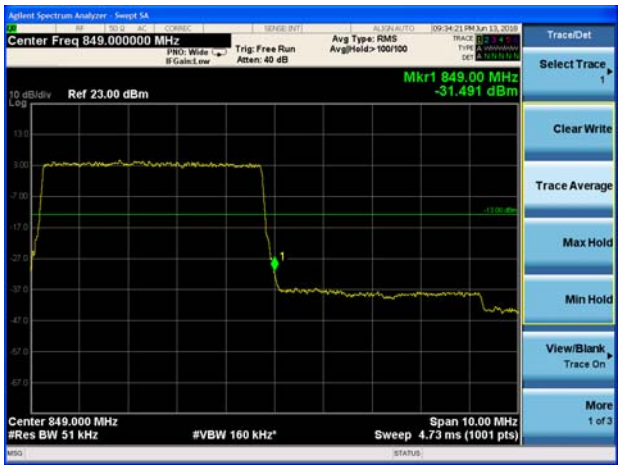
LTE Band 5 QPSK 5MHz CH-High 1RB



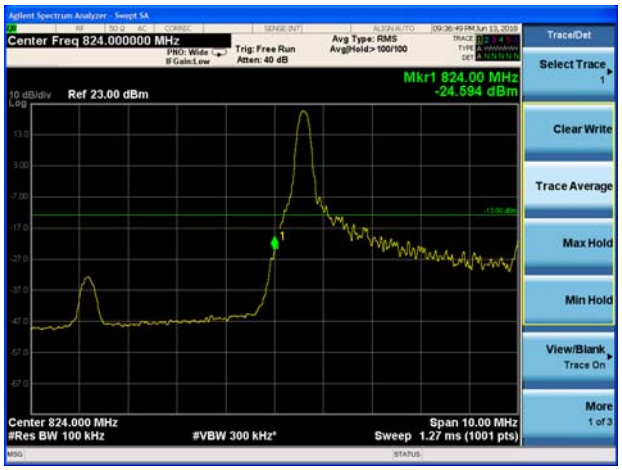
LTE Band 5 QPSK 5MHz CH-Low 100%RB



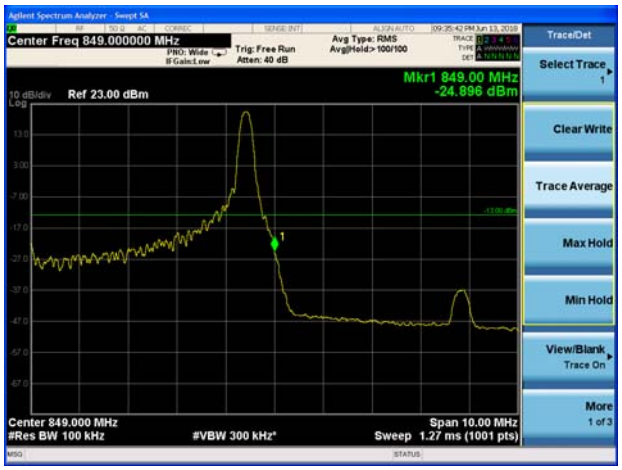
LTE Band 5 QPSK 5MHz CH-High 100%RB



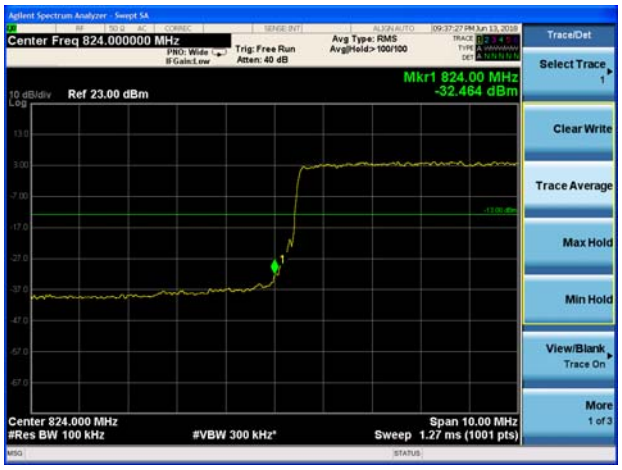
LTE Band 5 QPSK 10MHz CH-Low 1RB



LTE Band 5 QPSK 10MHz CH-High 1RB

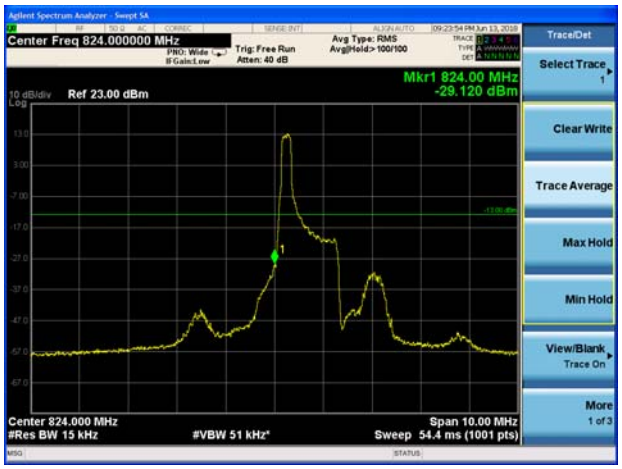


LTE Band 5 QPSK 10MHz CH-Low 100%RB

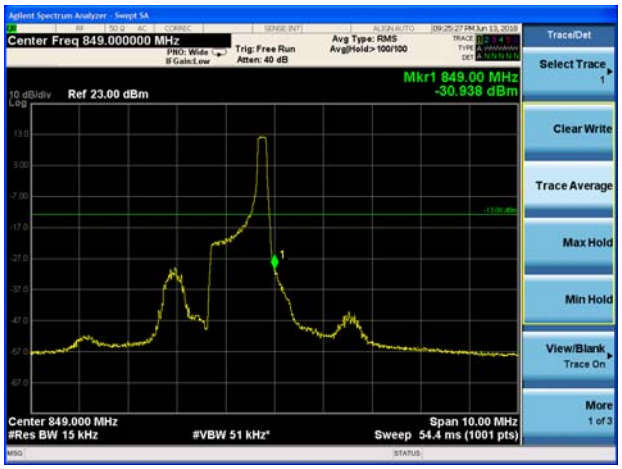


LTE Band 5 QPSK 10MHz CH-High 100%RB

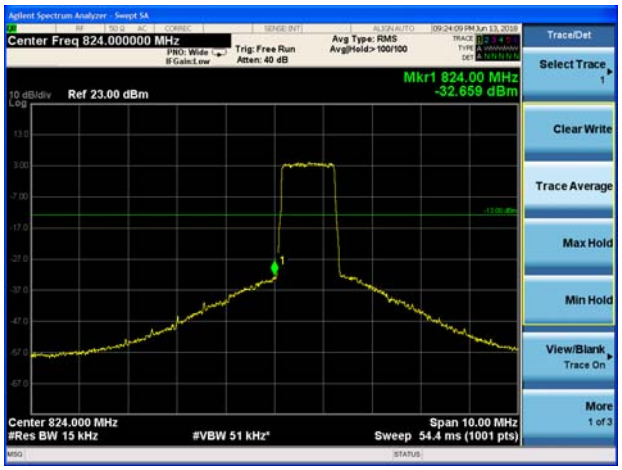
LTE Band 5 16QAM 1.4MHz CH-Low 1RB



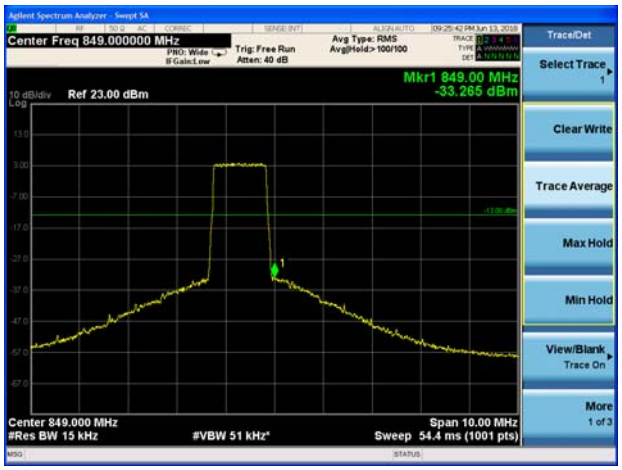
LTE Band 5 16QAM 1.4MHz CH-High 1RB



LTE Band 5 16QAM 1.4MHz CH-Low 100%RB

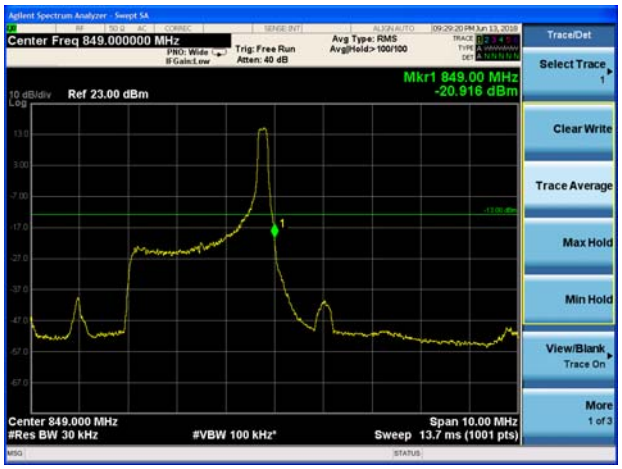


LTE Band 5 16QAM 1.4MHz CH-High 100%RB

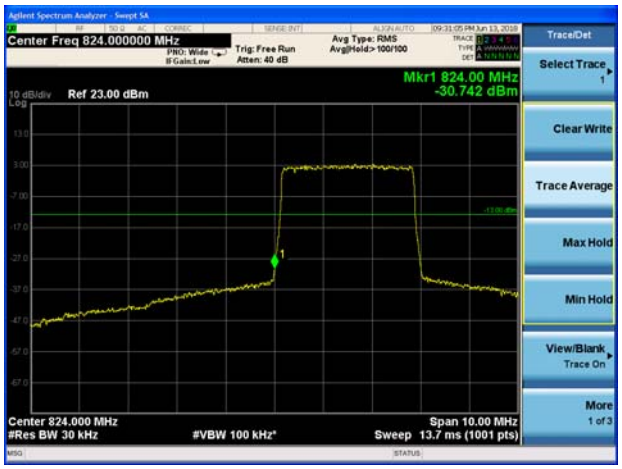


LTE Band 5 16QAM 3MHz CH-Low 1RB

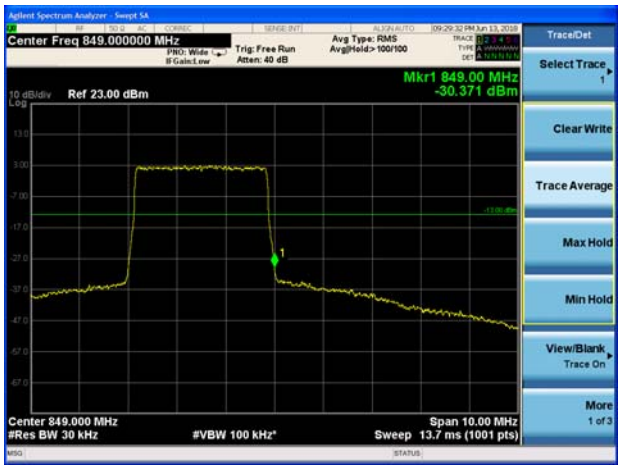
LTE Band 5 16QAM 3MHz CH-High 1RB



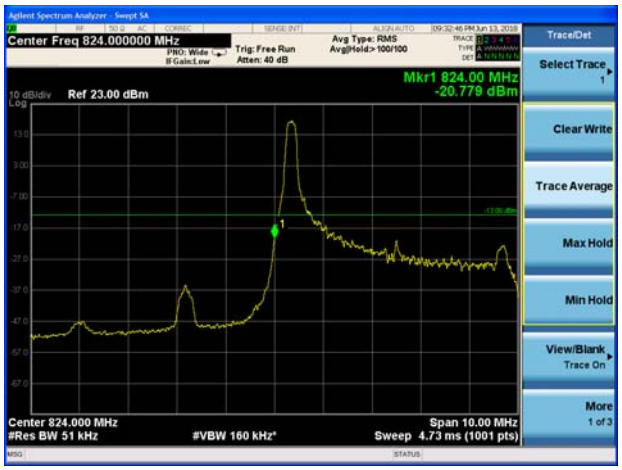
LTE Band 5 16QAM 3MHz CH-Low 100%RB



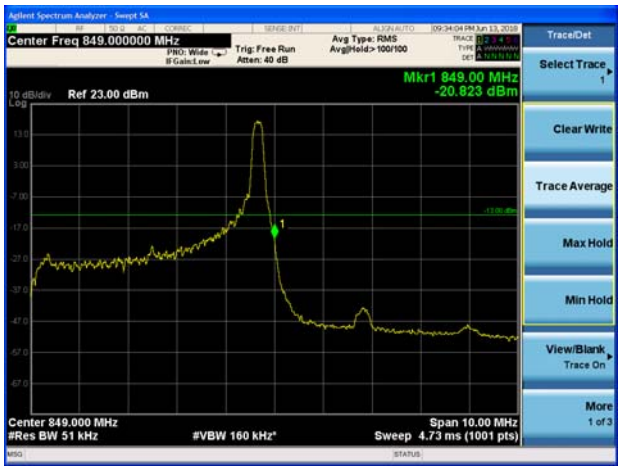
LTE Band 5 16QAM 3MHz CH-High 100%RB



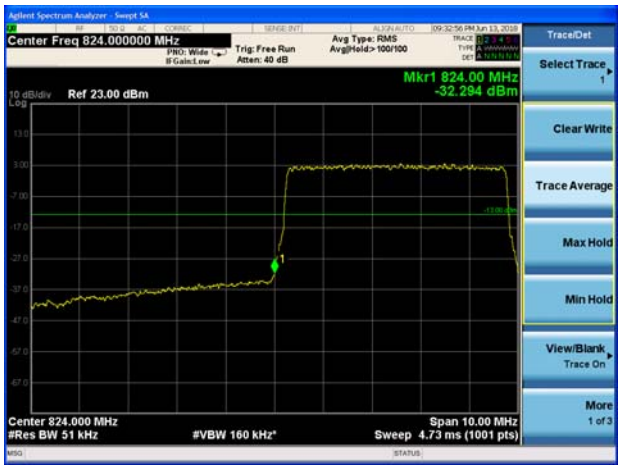
LTE Band 5 16QAM 5MHz CH-Low 1RB



LTE Band 5 16QAM 5MHz CH-High 1RB

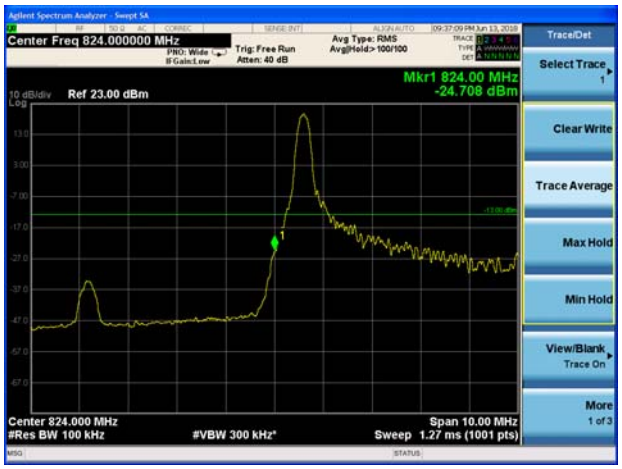


LTE Band 5 16QAM 5MHz CH-Low 100%RB

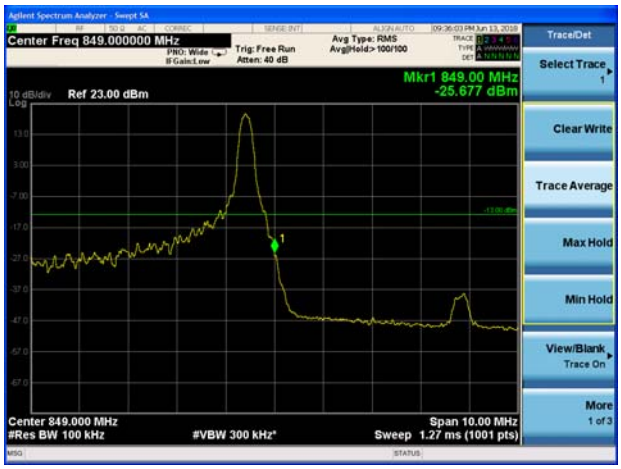


LTE Band 5 16QAM 5MHz CH-High 100%RB

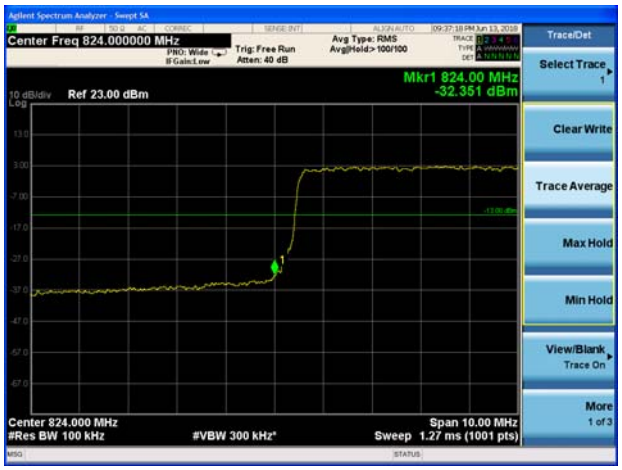
LTE Band 5 16QAM 10MHz CH-Low 1RB



LTE Band 5 16QAM 10MHz CH-High 1RB



LTE Band 5 16QAM 10MHz CH-Low 100%RB



LTE Band 5 16QAM 10MHz CH-High 100%RB

5.5. Peak-to-Average Power Ratio (PAPR)

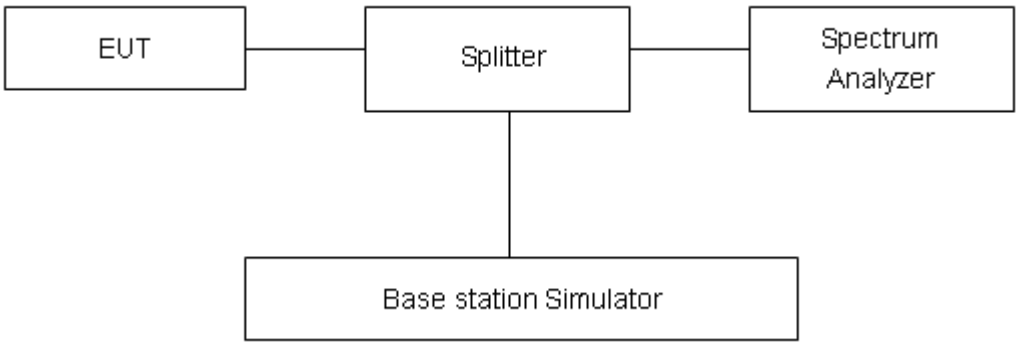
Ambient condition

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

Methods of Measurement

Measure the total peak power and record as P_{Pk}. And measure the total average power and record as P_{Avg}. Both the peak and average power levels must be expressed in the same logarithmic units (*e.g.*, dBm). Determine the PAPR from:
PAPR (dB) = P_{Pk} (dBm) - P_{Avg} (dBm).

Test Setup



Limits

According to the Sec. 22.913(d), The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB.

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

Mode	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
GSM 850 (GSM)	128	824.2	34.25	32.83	1.42	≤13	PASS
	190	836.6	34.15	32.76	1.39	≤13	PASS
	251	848.8	34.13	32.69	1.44	≤13	PASS
GPRS 850 (GMSK)	128	824.2	34.23	32.70	1.53	≤13	PASS
	190	836.6	34.19	32.71	1.48	≤13	PASS
	251	848.8	34.14	32.69	1.45	≤13	PASS
EGPRS 850 (8-PSK)	128	824.2	26.79	25.24	1.55	≤13	PASS
	190	836.6	26.81	25.27	1.54	≤13	PASS
	251	848.8	26.86	25.26	1.60	≤13	PASS
WCDMA Band V (RMC)	4132	826.4	26.94	24.06	2.88	≤13	PASS
	4183	836.6	27.01	24.03	2.98	≤13	PASS
	4233	846.6	26.84	23.96	2.88	≤13	PASS

LTE Band 5								
Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	Peak (dBm)	Avg (dBm)	PAPR (dB)	Limit (dB)	Conclusion
QPSK	1.4	20407	824.7	28.09	22.56	5.53	≤13	PASS
		20525	836.5	28.42	22.74	5.68	≤13	PASS
		20643	848.3	28.26	22.85	5.41	≤13	PASS
	3	20415	825.5	28.17	22.59	5.58	≤13	PASS
		20525	836.5	28.40	22.78	5.62	≤13	PASS
		20635	847.5	28.39	22.88	5.51	≤13	PASS
	5	20425	826.5	28.12	22.57	5.55	≤13	PASS
		20525	836.5	28.40	22.77	5.63	≤13	PASS
		20625	846.5	28.43	22.86	5.57	≤13	PASS
	10	20450	829	28.16	22.60	5.56	≤13	PASS
		20525	836.5	28.32	22.70	5.62	≤13	PASS
		20600	844	28.36	22.81	5.55	≤13	PASS
16QAM	1.4	20407	824.7	27.65	22.12	5.53	≤13	PASS
		20525	836.5	27.94	22.26	5.68	≤13	PASS
		20643	848.3	27.78	22.37	5.41	≤13	PASS
	3	20415	825.5	27.73	22.15	5.58	≤13	PASS
		20525	836.5	27.92	22.30	5.62	≤13	PASS
		20635	847.5	27.91	22.40	5.51	≤13	PASS
	5	20425	826.5	27.68	22.13	5.55	≤13	PASS
		20525	836.5	27.89	22.26	5.63	≤13	PASS
		20625	846.5	27.92	22.35	5.57	≤13	PASS
	10	20450	829	27.67	22.11	5.56	≤13	PASS
		20525	836.5	27.84	22.22	5.62	≤13	PASS
		20600	844	27.87	22.32	5.55	≤13	PASS

5.6. Frequency Stability

Ambient condition

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

Method of Measurement

Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,

(1) With all power removed, the temperature was decreased to 0°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements. Frequency Stability (Voltage Variation)

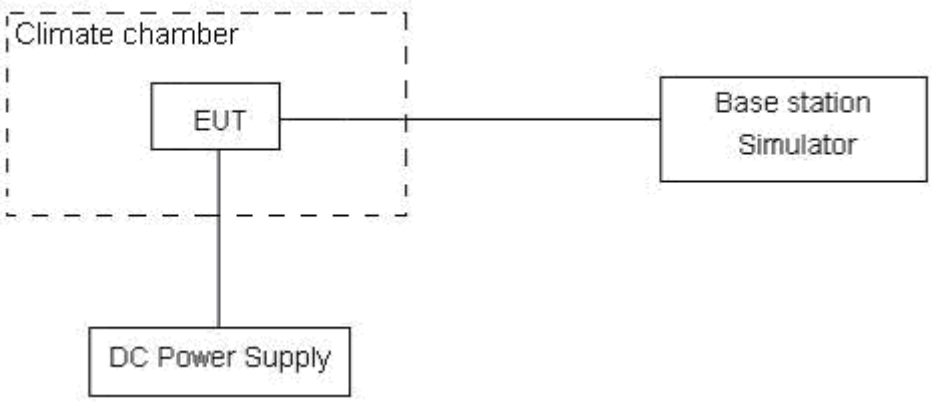
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 3.6 V and 4.3V, with a nominal voltage of 3.8V.

Test setup



Limits

According to the Sec. 22.355, the frequency stability of the carrier shall be accurate to within 2.5 ppm of the received frequency for mobile stations.

Limits	≤ 2.5 ppm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75％ confidence level for the normal distribution is with the coverage factor k = 3, U= 0.01ppm.

Test Result

GSM 850					
Condition		824	849	Delta (Hz)	Frequency Stability (ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	824.0705	848.9752	31.36	0.03749
Extreme（50°C）		824.0692	848.9739	11.36	0.01358
Extreme（40°C）		824.0734	848.9747	26.67	0.03188
Extreme（30°C）		824.0685	848.9732	-16.66	-0.01992
Extreme（20°C）		824.0693	848.9744	9.98	0.01193
Extreme（10C）		824.0711	848.9758	18.25	0.02182
Extreme（0°C）		824.0698	848.9745	-18.14	-0.02168
Extreme（-10°C）		824.0721	848.9747	13.32	0.01592
Extreme（-20°C）		824.0695	848.9742	22.80	0.02725
Extreme（-30°C）		824.0712	848.9757	-19.10	-0.02283
25°C	LV	824.0689	848.9736	-14.02	-0.01676
	HV	824.0691	848.9738	13.94	0.01666
GPRS 850					
Condition		824	849	Delta (Hz)	Frequency Stability (ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	824.0675	848.9674	29.30	0.03503
Extreme（50°C）		824.0657	848.9661	10.72	0.01281
Extreme（40°C）		824.0665	848.9669	36.03	0.04307
Extreme（30°C）		824.0657	848.9654	-19.99	-0.02390
Extreme（20°C）		824.0658	848.9662	8.54	0.01021
Extreme（10C）		824.0676	848.9683	30.95	0.03700
Extreme（0°C）		824.0663	848.9667	-12.97	-0.01550
Extreme（-10°C）		824.0665	848.9669	23.64	0.02826
Extreme（-20°C）		824.0668	848.9664	32.54	0.03890
Extreme（-30°C）		824.0675	848.9679	21.95	0.02623
25°C	LV	824.0654	848.9658	-7.25	-0.00867
	HV	824.0656	848.966	19.34	0.02312
EGPRS 850					
Condition		824	849	Delta (Hz)	Frequency Stability (ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	824.0736	848.9351	26.60	0.03180
Extreme（50°C）		824.0749	848.9363	17.44	0.02085
Extreme（40°C）		824.0741	848.9355	31.90	0.03813

Extreme（30°C）		824.0756	848.9372	-8.65	-0.01034
Extreme（20°C）		824.0748	848.9362	13.18	0.01575
Extreme（10C）		824.073	848.9344	19.90	0.02379
Extreme（0°C）		824.0743	848.9357	-24.00	-0.02869
Extreme（-10°C）		824.0741	848.9355	17.28	0.02066
Extreme（-20°C）		824.0746	848.9365	-4.45	-0.00532
Extreme（-30°C）		824.0731	848.9345	-11.23	-0.01343
25°C	LV	824.0752	848.9366	25.52	0.03050
	HV	824.0752	848.9364	-23.70	-0.02833

WCDMA Band 5					
Condition		824	849	Delta (Hz)	Frequency Stability (ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	824.0336	848.9633	12.80	0.01530
Extreme（50°C）		824.0332	848.9629	10.76	0.01286
Extreme（40°C）		824.0331	848.9627	11.71	0.01400
Extreme（30°C）		824.0342	848.9637	12.68	0.01515
Extreme（20°C）		824.0333	848.9635	-8.48	-0.01014
Extreme（10C）		824.0339	848.9636	-8.25	-0.00986
Extreme（0°C）		824.0338	848.9635	28.90	0.03455
Extreme（-10°C）		824.0334	848.9631	28.85	0.03449
Extreme（-20°C）		824.0335	848.9632	31.58	0.03775
Extreme（-30°C）		824.0329	848.9626	29.20	0.03490
25°C	LV	824.0345	848.9631	-22.19	-0.02652
	HV	824.0342	848.9639	0.43	0.00052

LTE Band 5					
(QPSK, 10MHz BANDWIDTH)					
Condition		824	849	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	824.2314	848.7916	-0.03	-0.00004
Extreme（50°C）		824.2310	848.7912	0.29	0.00035
Extreme（40°C）		824.2308	848.7913	1.54	0.00184
Extreme（30°C）		824.2318	848.7928	-0.74	-0.00088
Extreme（20°C）		824.2311	848.7913	-0.79	-0.00094
Extreme（10C）		824.2317	848.7919	1.33	0.00159
Extreme（0°C）		824.2316	848.7918	-1.56	-0.00186
Extreme（-10°C）		824.2312	848.7914	0.79	0.00094
Extreme（-20°C）		824.2313	848.7915	1.14	0.00136
Extreme（-30°C）		824.2307	848.7909	0.67	0.00080
25°C	LV	824.2315	848.7922	-0.94	-0.00112
	HV	824.2321	848.7928	2.96	0.00354
(16QAM,10MHz BANDWIDTH)					
Condition		824	849	Delta (Hz)	Frequency Stability(ppm)
Temperature	Voltage	F low@-13dBm(MHz)	F high@-13dBm(MHz)		
Normal（25°C）	Normal	824.3626	848.7248	1.30	0.00155
Extreme（50°C）		824.3631	848.7252	-0.29	-0.00035
Extreme（40°C）		824.3632	848.7254	-0.77	-0.00092
Extreme（30°C）		824.3622	848.7244	-0.74	-0.00088
Extreme（20°C）		824.3629	848.7251	-0.37	-0.00044
Extreme（10C）		824.3623	848.7245	-2.19	-0.00262
Extreme（0°C）		824.3624	848.7246	-1.09	-0.00130
Extreme（-10°C）		824.3628	848.7256	-0.13	-0.00016
Extreme（-20°C）		824.3627	848.7249	-0.04	-0.00005
Extreme（-30°C）		824.3633	848.7255	1.16	0.00139
25°C	LV	824.3624	848.7241	-0.94	-0.00112
	HV	824.3628	848.7243	-0.66	-0.00079

5.7. Spurious Emissions at Antenna Terminals

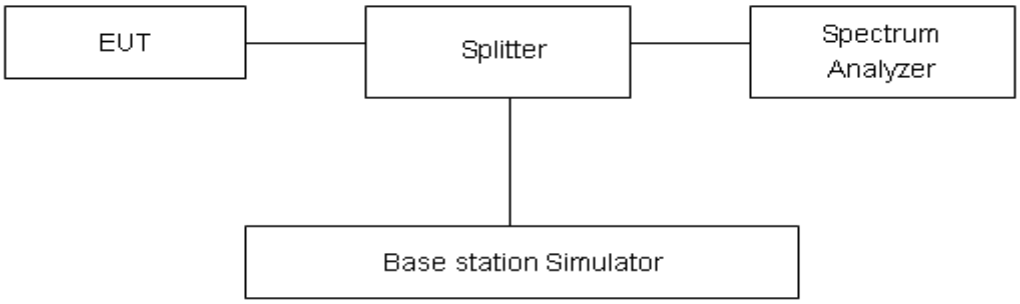
Ambient condition

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 measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 9kHz to the 10th harmonic of the carrier.
The peak detector is used. RBW are set to 100 kHz and VBW are set to 300 kHz for below 1G, RBW are set to 1MHz and VBW are set to 3MHz for above 1G, Sweep is set to ATUO.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup



Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor *k* = 1.96.

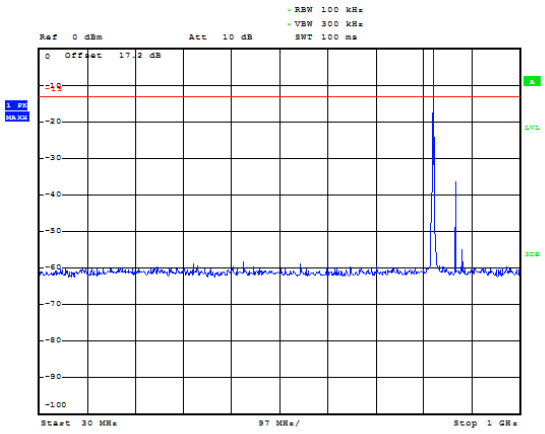
Frequency	Uncertainty
9kHz-1GHz	0.684 dB
1GHz-18GHz	1.407 dB

Test Result

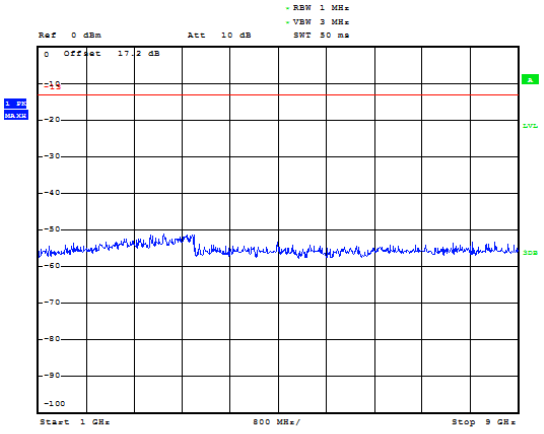
Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions more than 20 dB below the permissible value are not reported.

The signal beyond the limit is carrier.

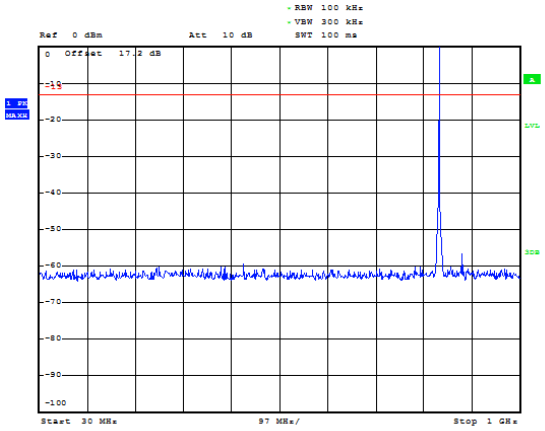
GSM 850 CH-Low 30MHz ~ 1GHz



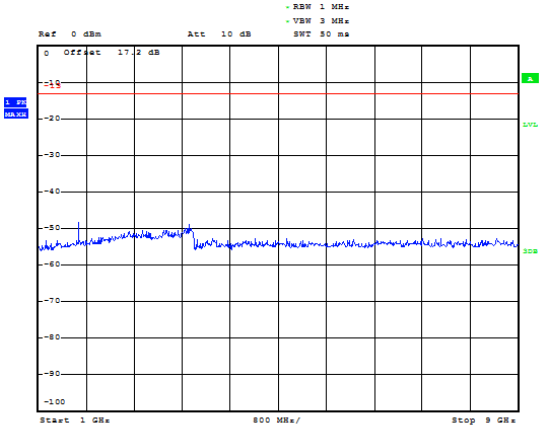
GSM 850 CH-Low 1GHz ~ 9GHz



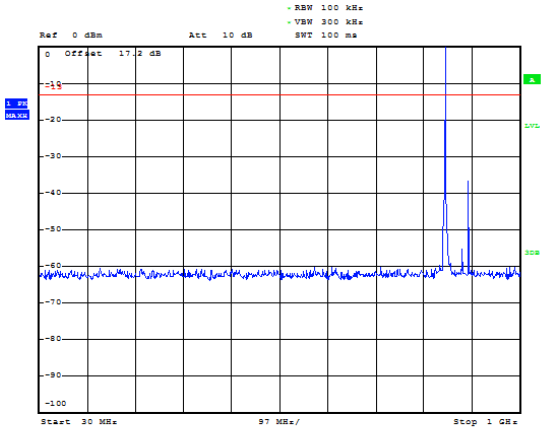
GSM 850 CH-Middle 30MHz ~ 1GHz



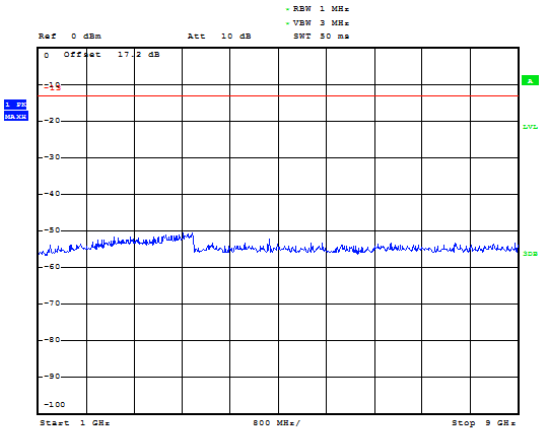
GSM 850 CH-Middle 1GHz ~ 9GHz



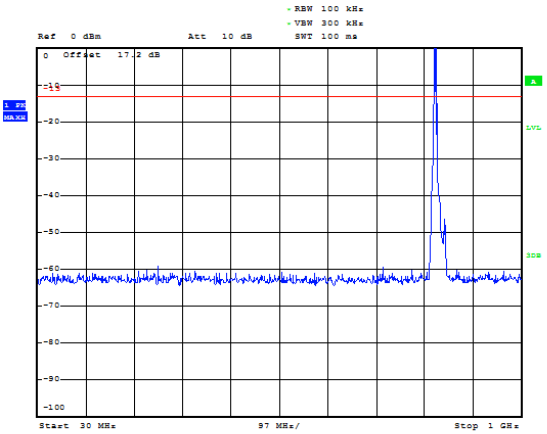
GSM 850 CH-High 30MHz ~ 1GHz



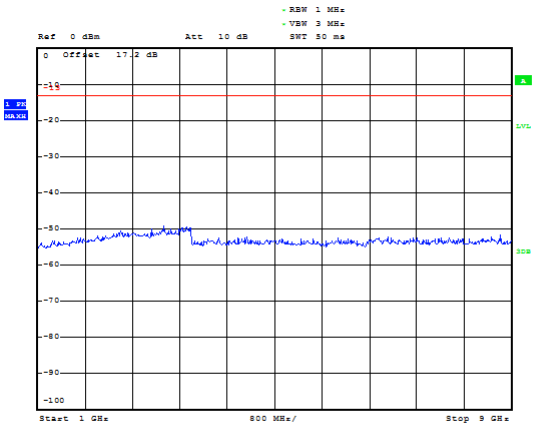
GSM 850 CH-High 1GHz ~ 9GHz



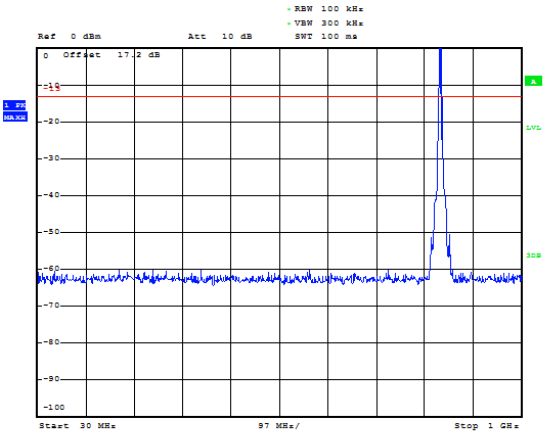
WCDMA Band V CH-Low 30MHz ~ 1GHz



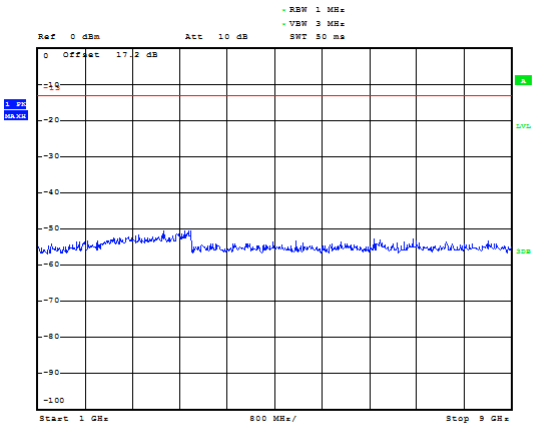
WCDMA Band V CH-Low 1GHz ~ 9GHz



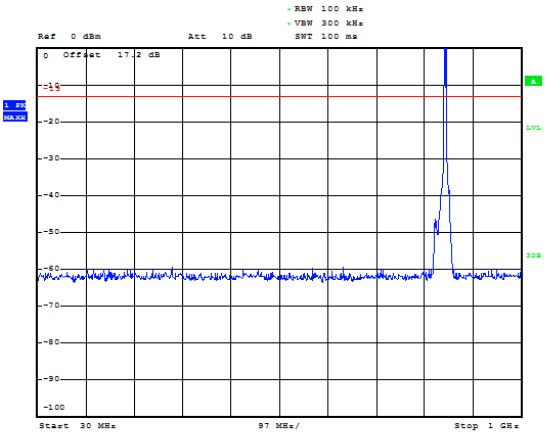
WCDMA Band V CH-Middle 30MHz ~ 1GHz



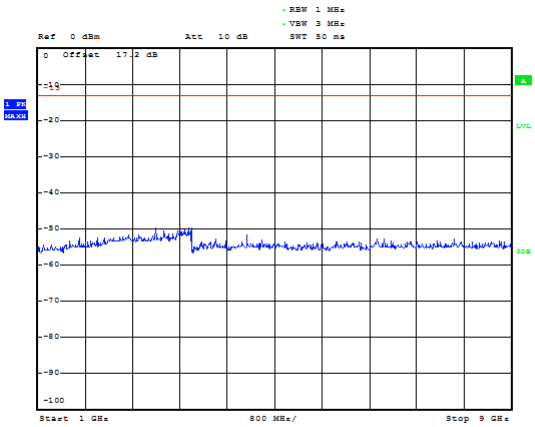
WCDMA Band V CH-Middle 1GHz ~ 9GHz



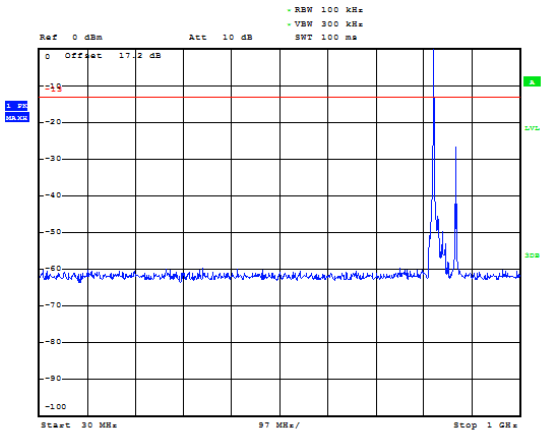
WCDMA Band V CH-High 30MHz ~ 1GHz



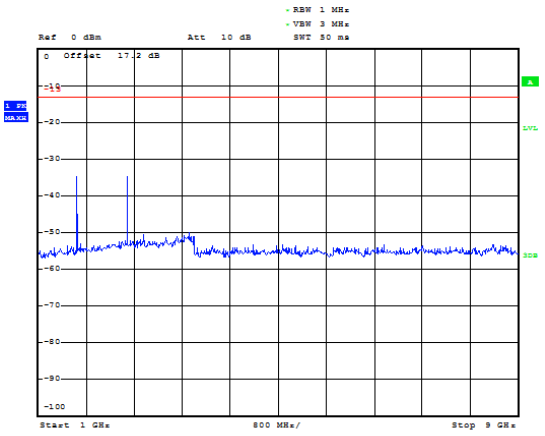
WCDMA Band V CH-High 1GHz ~ 9GHz



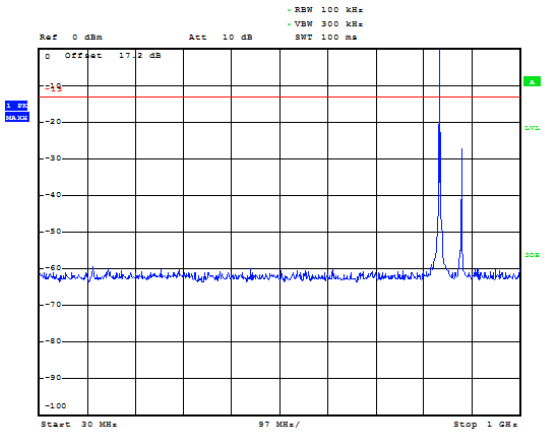
LTE Band 5 1.4MHz CH-Low 30MHz~1GHz



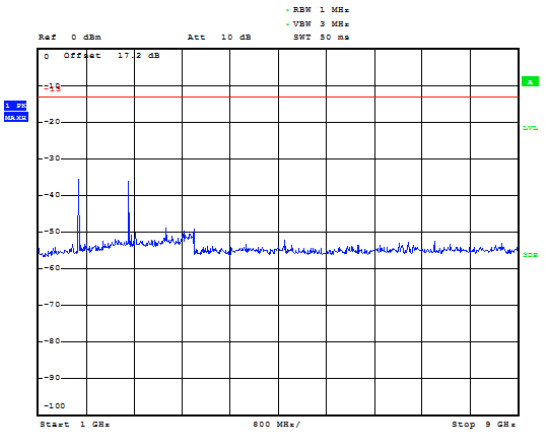
LTE Band 5 1.4MHz CH-Low 1GHz~9GHz



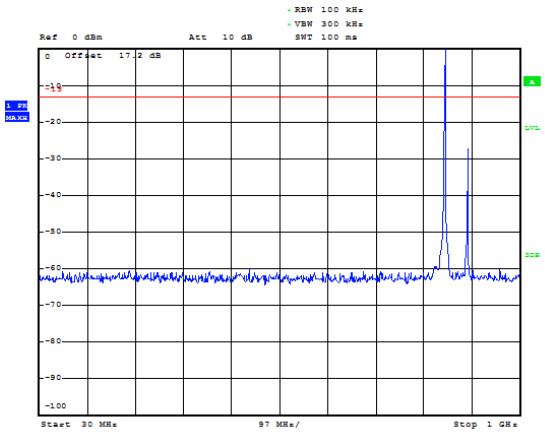
LTE Band 5 1.4MHz CH-Middle 30MHz~1GHz



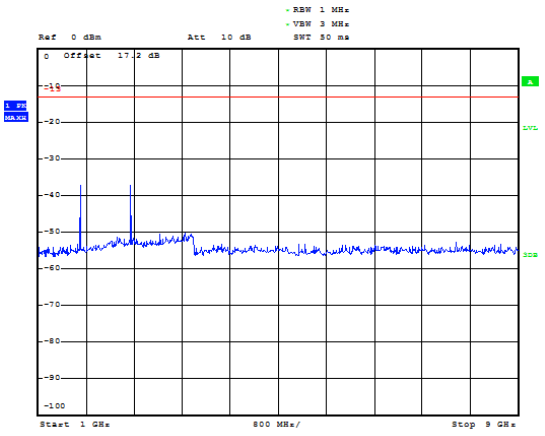
LTE Band 5 1.4MHz CH-Middle 1GHz~9GHz



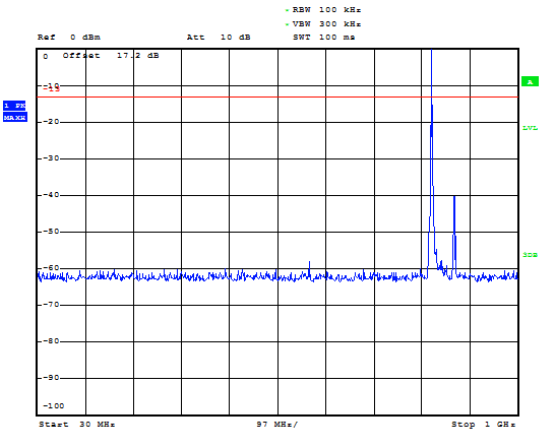
LTE Band 5 1.4MHz CH-High 30MHz~1GHz



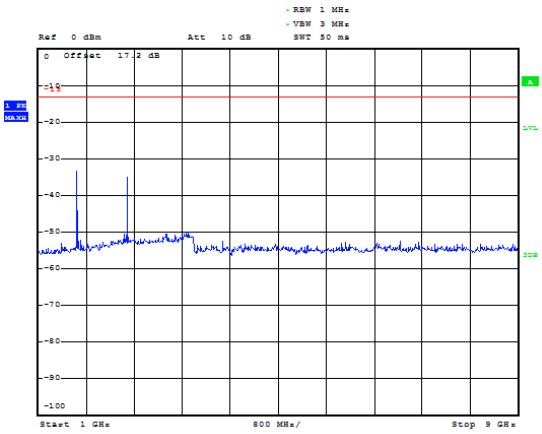
LTE Band 5 1.4MHz CH-High 1GHz~9GHz



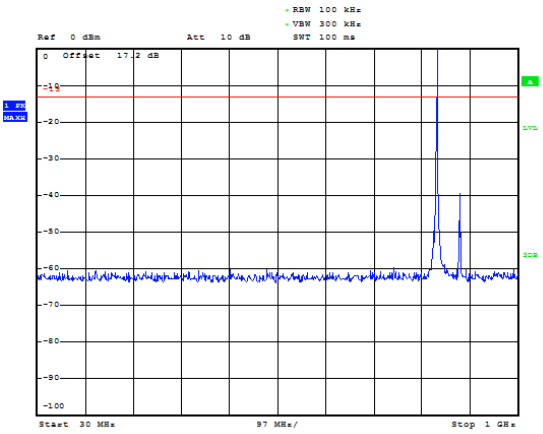
LTE Band 5 3MHz CH-Low 30MHz~1GHz



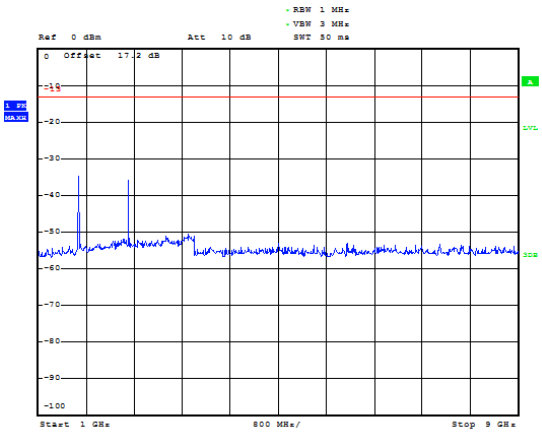
LTE Band 5 3MHz CH-Low 1GHz~9GHz



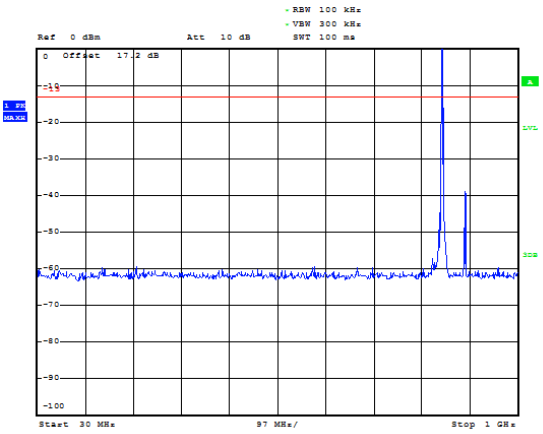
LTE Band 5 3MHz CH-Middle 30MHz~1GHz



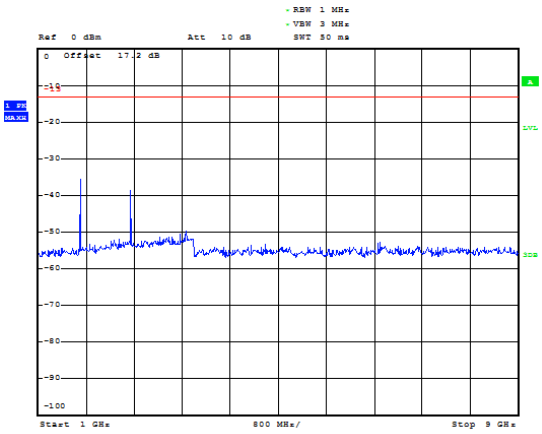
LTE Band 5 3MHz CH-Middle 1GHz~9GHz



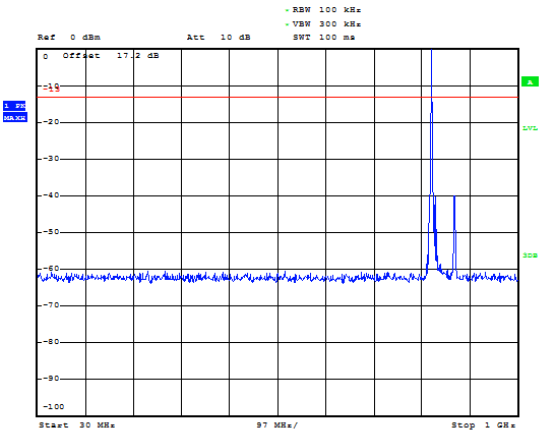
LTE Band 5 3MHz CH-High 30MHz~1GHz



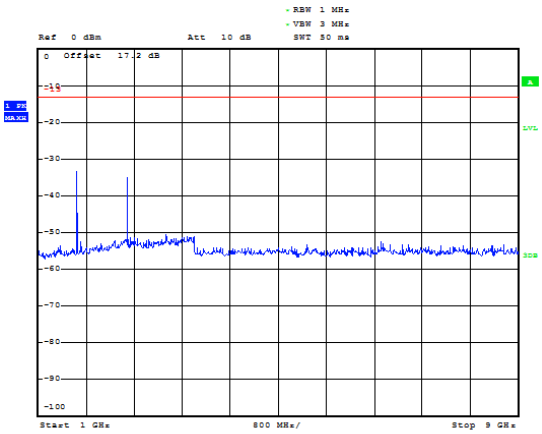
LTE Band 5 3MHz CH-High 1GHz~9GHz



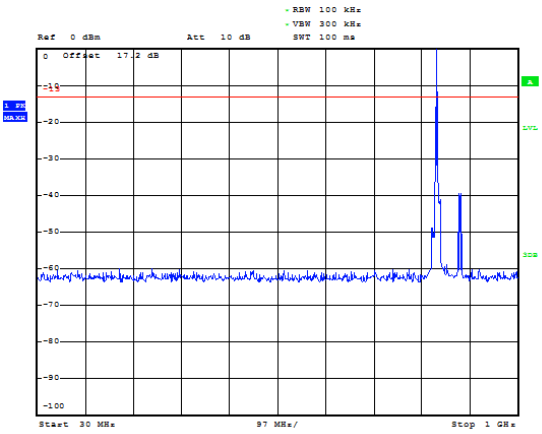
LTE Band 5 5MHz CH-Low 30MHz~1GHz



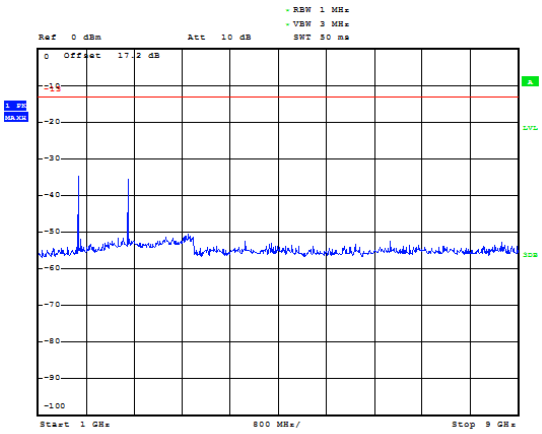
LTE Band 5 5MHz CH-Low 1GHz~9GHz



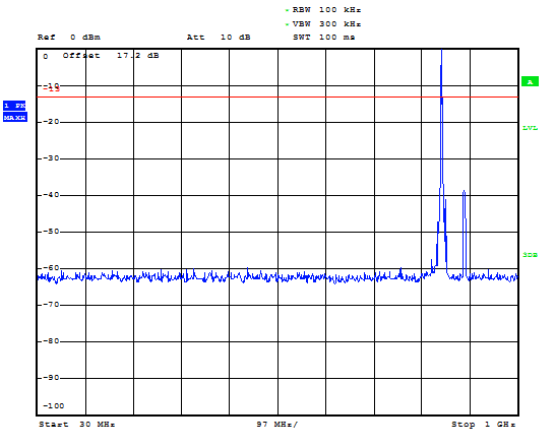
LTE Band 5 5MHz CH-Middle 30MHz~1GHz



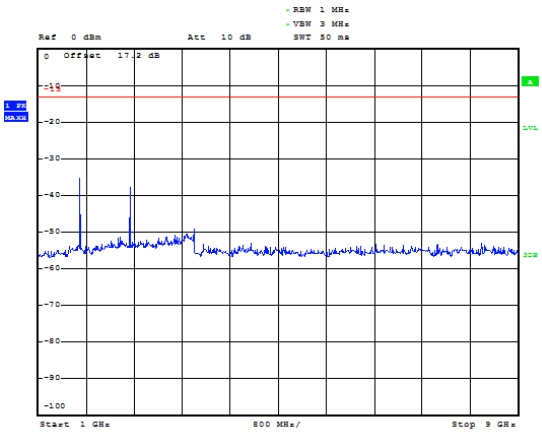
LTE Band 5 5MHz CH-Middle 1GHz~9GHz



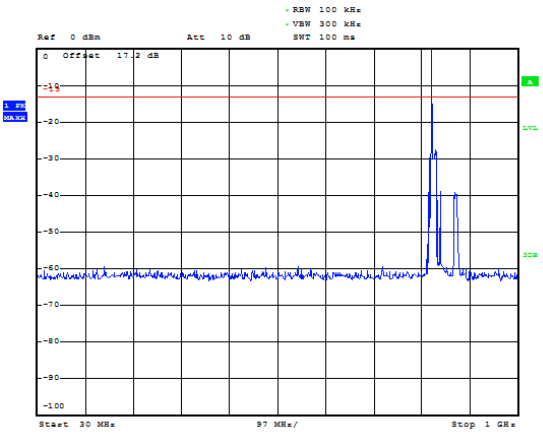
LTE Band 5 5MHz CH-High 30MHz~1GHz



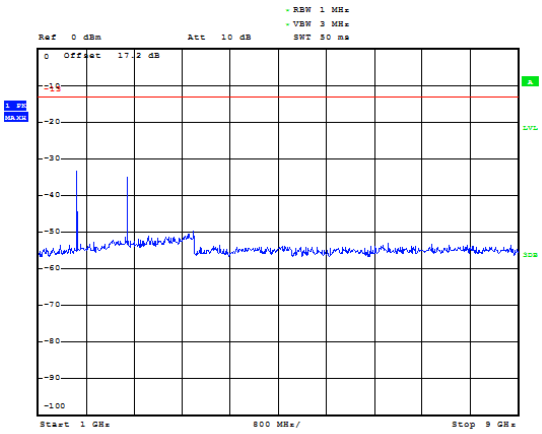
LTE Band 5 5MHz CH-High 1GHz~9GHz



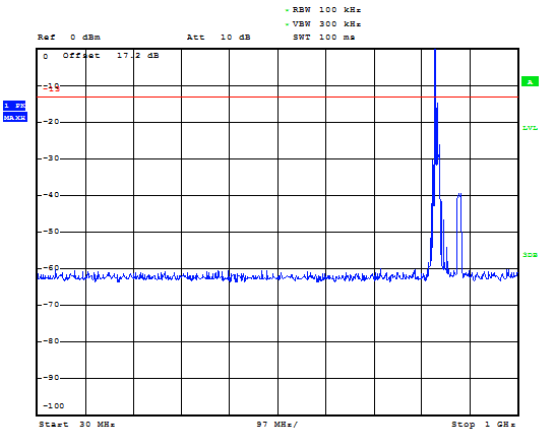
LTE Band 5 10MHz CH-Low 30MHz~1GHz



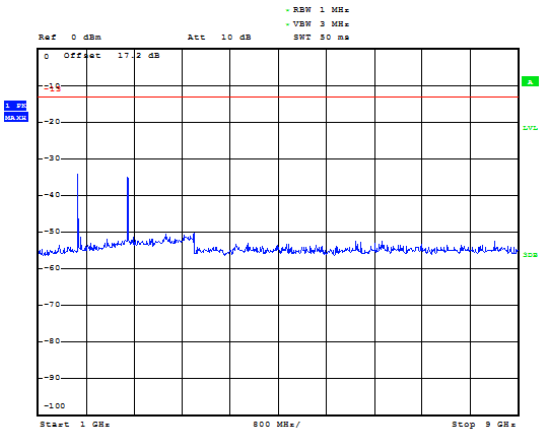
LTE Band 5 10MHz CH-Low 1GHz~9GHz



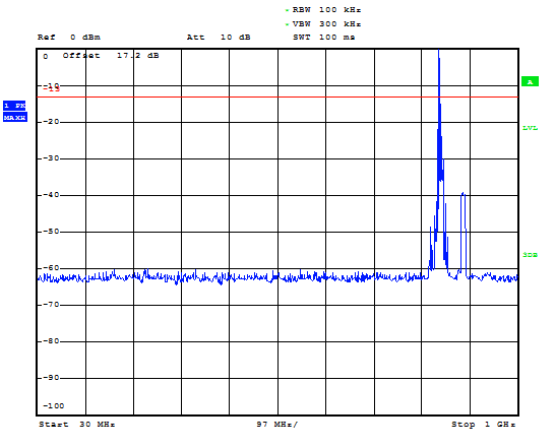
LTE Band 5 10MHz CH-Middle 30MHz~1GHz



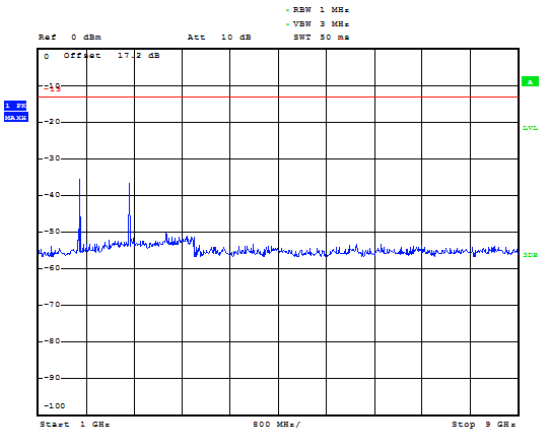
LTE Band 5 10MHz CH-Middle 1GHz~9GHz



LTE Band 5 10MHz CH-High 30MHz~1GHz



LTE Band 5 10MHz CH-High 1GHz~9GHz



5.8. Radiates Spurious Emission

Ambient condition

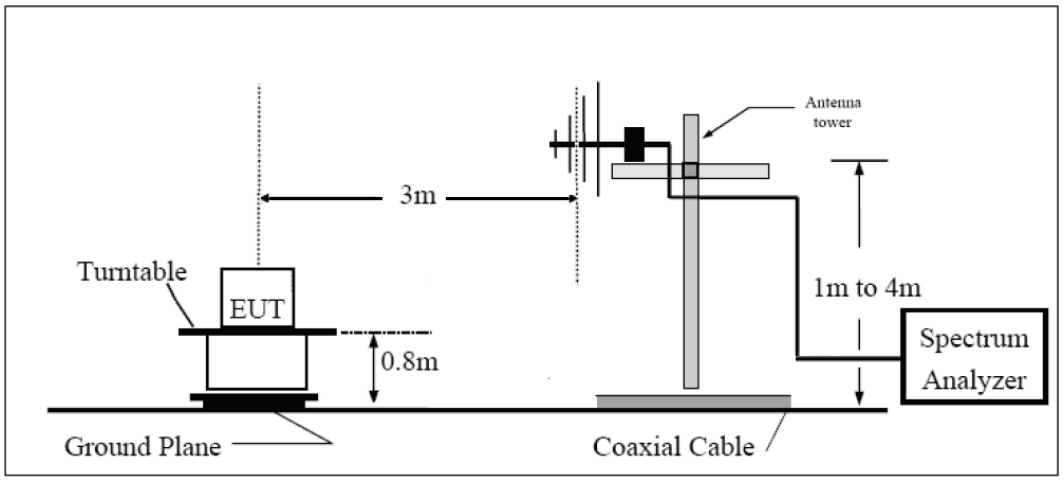
Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

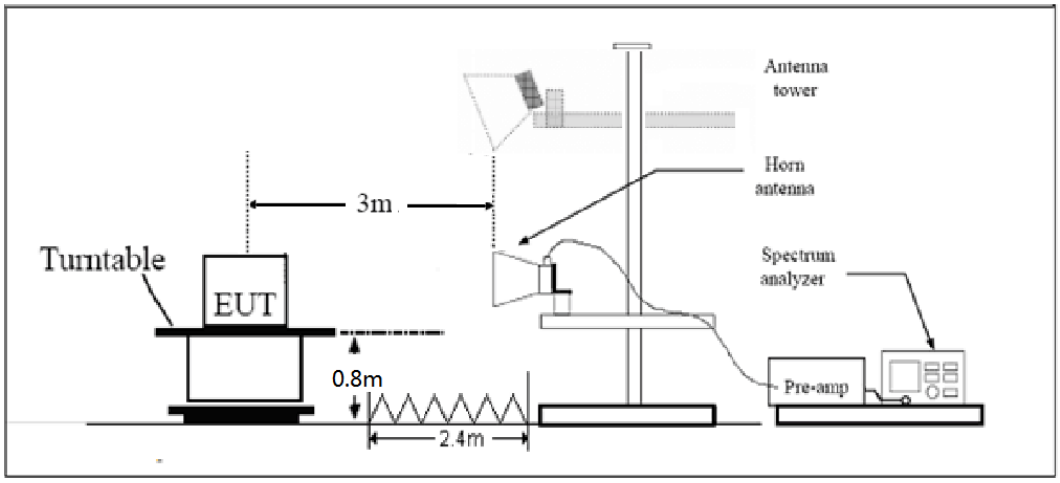
1. The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI/TIA-603-E (2016).
2. The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
3. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
4. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz for above 1GHz and RBW=100kHz,VBW=300kHz for 30MHz to 1GHz,, And the maximum value of the receiver should be recorded as (Pr).
5. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (PMea) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
6. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
7. The measurement results are obtained as described below:
Power(EIRP)=PMea- PAg - Pcl + Ga
The measurement results are amend as described below:
Power(EIRP)=PMea- Pcl + Ga
8. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi.
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test setup

30MHz~~~ 1GHz



Above 1GHz



Note: Area side:2.4mX3.6m

Limits

Rule Part 22.917(a) specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.”

Limit	-13 dBm

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95％ confidence level for the normal distribution is with the coverage factor *k* = 1.96, *U*= 3.55 dB.

Test Result

Sweep the whole frequency band through the range from 30MHz to the 10th harmonic of the carrier, from 30MHz to 1GHz are all noise floor will not be recorded in the report.

GSM 850 CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673	-50.60	2	10.75	Horizontal	-44.0	-13.00	31.0	315
3	2498	-42.69	2.51	11.05	Horizontal	-36.3	-13.00	23.3	0
4	3346	-54.20	4.2	11.15	Horizontal	-49.4	-13.00	36.4	45
5	4183	-52.40	5.2	11.15	Horizontal	-48.6	-13.00	35.6	90
6	5020	-53.60	5.5	11.95	Horizontal	-49.3	-13.00	36.3	180
7	5856	-52.10	5.7	13.55	Horizontal	-46.4	-13.00	33.4	45
8	6693	-49.30	6.3	13.75	Horizontal	-44.0	-13.00	31.0	90
9	7529	-51.00	6.8	13.85	Horizontal	-46.1	-13.00	33.1	225
10	8366	-48.30	6.9	14.25	Horizontal	-43.1	-13.00	30.1	135
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

WCDMA Band V CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673	-60.00	2	10.75	Horizontal	-53.4	-13.00	40.4	135
3	2510	-57.89	2.51	11.05	Horizontal	-51.5	-13.00	38.5	45
4	3346	-51.70	4.2	11.15	Horizontal	-46.9	-13.00	33.9	135
5	4183	-54.00	5.2	11.15	Horizontal	-50.2	-13.00	37.2	0
6	5020	-54.20	5.5	11.95	Horizontal	-49.9	-13.00	36.9	45
7	5856	-54.70	5.7	13.55	Horizontal	-49.0	-13.00	36.0	225
8	6693	-51.10	6.3	13.75	Horizontal	-45.8	-13.00	32.8	315
9	8366	-49.20	6.8	13.85	Horizontal	-44.3	-13.00	31.3	180
10	3346	-49.10	6.9	14.25	Horizontal	-43.9	-13.00	30.9	0
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.0	-54.20	2.00	10.75	Horizontal	-47.6	-13.00	34.6	225
3	2509.5	-53.39	2.51	11.05	Horizontal	-47.0	-13.00	34.0	315
4	3346.0	-54.20	4.20	11.15	Horizontal	-49.4	-13.00	36.4	90
5	4182.5	-52.20	5.20	11.15	Horizontal	-48.4	-13.00	35.4	180
6	5019.0	-52.40	5.50	11.95	Horizontal	-48.1	-13.00	35.1	45
7	5855.5	-53.20	5.70	13.55	Horizontal	-47.5	-13.00	34.5	0
8	6692.0	-50.40	6.30	13.75	Horizontal	-45.1	-13.00	32.1	315
9	7528.5	-52.40	6.80	13.85	Horizontal	-47.5	-13.00	34.5	225
10	8365.0	-48.20	6.90	14.25	Horizontal	-43.0	-13.00	30.0	135
Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor. 2.The worst emission was found in the antenna is Horizontal position.									

6. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Base Station Simulator	R&S	CMW500	113824	2018-05-20	2019-05-19
Power Splitter	Hua Xiang	SHX-GF2-2-13	10120101	NA	NA
Spectrum Analyzer	Agilent	N9010A	MY47191109	2018-05-20	2019-05-19
Universal Radio Communication Tester	Agilent	E5515C	MY48367192	2018-05-20	2019-05-19
Signal Analyzer	R&S	FSV30	100815	2017-12-17	2018-12-16
EMI Test Receiver	R&S	ESCI	100948	2018-05-20	2019-05-19
Signal generator	R&S	SMB 100A	102594	2018-05-13	2019-05-12
Signal generator	R&S	SMR27	100365	2018-05-14	2019-05-13
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2014-12-06	2019-12-05
Trilog Antenna	SCHWARZBECK	VUBL 9163	9163-201	2017-11-18	2020-11-17
Horn Antenna	R&S	HF907	100126	2014-12-06	2019-12-05
Horn Antenna	ETS-Lindgren	3160-09	00102644	2015-01-30	2020-01-29
Climatic Chamber	Re Ce	PT-30B	20101891	2015-07-18	2018-07-17
RF Cable	Agilent	SMA 15cm	0001	2018-02-03	2018-08-02
Preampflier	R&S	SCU18	102327	2018-05-20	2019-05-19
Software	R&S	EMC32	V 8.52.0	NA	NA
MOB COMMS DC SUPPLY	Keysight	66319D	MY43004105	2018-05-07	2019-05-06

*******END OF REPORT *******