

# FCC TEST REPORT (PART 24)

**REPORT NO.:** RF140306C19-6

**MODEL NO.:** 0P8B200

**FCC ID:** NM80P8B200

**RECEIVED:** Mar. 03, 2014

**TESTED:** Mar. 20, 2014 ~ Mar. 24, 2014

**ISSUED:** Apr. 15, 2014

**APPLICANT: HTC Corporation** 

ADDRESS: 1F, 6-3 Baogiang Road, Xindian District, New

Taipei City, Taiwan 231

**ISSUED BY:** Bureau Veritas Consumer Products Services

(H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New

Taipei City, Taiwan (R.O.C.)

**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei

Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.





This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

Report No.: RF140306C19-6 1 of 36 Report Format Version 5.0.0



# **TABLE OF CONTENTS**

ΚĿ		ASE CONTROL RECORD	
1		RTIFICATION	
2	SUN	MMARY OF TEST RESULTS	5
	2.1	MEASUREMENT UNCERTAINTY	5
	2.2	TEST SITE AND INSTRUMENTS	6
3	GEI	NERAL INFORMATION	7
		GENERAL DESCRIPTION OF EUT	
		CONFIGURATION OF SYSTEM UNDER TEST	
		DESCRIPTION OF SUPPORT UNITS	
		TEST ITEM AND TEST CONFIGURATION	
	-	EUT OPERATING CONDITIONS	_
		GENERAL DESCRIPTION OF APPLIED STANDARDS	
4		ST TYPES AND RESULTS	
7		OUTPUT POWER MEASUREMENT	
	7.1	4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT	
		4.1.2 TEST PROCEDURES	
		4.1.3 TEST SETUP	
		4.1.4 TEST RESULTS	
	12	FREQUENCY STABILITY MEASUREMENT	
	4.2	4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	
		4.2.2 TEST PROCEDURE	
		4.2.3 TEST SETUP	
		4.2.4 TEST RESULTS	
	12	OCCUPIED BANDWIDTH MEASUREMENT	
	4.3	4.3.1 TEST PROCEDURES	_
		4.3.2 TEST PROCEDURES	
	4.4	4.3.3 TEST RESULTS	
	4.4	PEAK TO AVERAGE RATIO	
		4.4.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT	
		4.4.2 TEST SETUP	
		4.4.3 TEST PROCEDURES	
		4.4.4 TEST RESULTS	
	4.5	BAND EDGE MEASUREMENT	
		4.5.1 LIMITS OF BAND EDGE MEASUREMENT	
		4.5.2 TEST SETUP	
		4.5.3 TEST PROCEDURES	
		4.5.4 TEST RESULTS	
	4.6	CONDUCTED SPURIOUS EMISSIONS	
		4.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	
		4.6.2 TEST PROCEDURE	
		4.6.3 TEST SETUP	
		4.6.4 TEST RESULTS	_
	4.7	RADIATED EMISSION MEASUREMENT	
		4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT	
		4.7.2 TEST PROCEDURES	_
		4.7.3 DEVIATION FROM TEST STANDARD	
		4.7.4 TEST SETUP	
		4.7.5 TEST RESULTS	
		OTOGRAPHS OF THE TEST CONFIGURATION	
		ORMATION ON THE TESTING LABORATORIES	
7	APF	PENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT E	βY
	THE	E LAB	36

2 of 36



# **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140306C19-6	Original release	Apr. 15, 2014

Report No.: RF140306C19-6 3 of 36 Report Format Version 5.0.0



# 1 CERTIFICATION

**PRODUCT:** Smartphone

**MODEL:** 0P8B200

**BRAND: HTC** 

**APPLICANT:** HTC Corporation

**TESTED:** Mar. 20, 2014 ~ Mar. 24, 2014

**TEST SAMPLE:** Production Unit

STANDARDS: FCC Part 24, Subpart E

The above equipment (model: 0P8B200) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** : , **DATE** : Apr. 15, 2014

Ivonne Wu / Supervisor

APPROVED BY : \_\_\_\_\_\_\_, DATE : \_\_\_\_\_\_ Apr. 15, 2014

Sam Chen / Senior Project Engineer



# **2 SUMMARY OF TEST RESULTS**

The EUT has been tested according to the following specifications:

	APPLIED STANDARD: FCC Part 24 & Part 2							
STANDARD SECTION	TEST TYPE	RESULT	REMARK					
2.1046 24.232	Equivalent Isotropically Radiated Power	PASS	Meet the requirement of limit.					
2.1055 24.235	Frequency Stability	PASS	Meet the requirement of limit.					
2.1049 24.238(b)	Occupied Bandwidth	PASS	Meet the requirement of limit.					
24.232(d)	24.232(d) Peak to average ratio		Meet the requirement of limit.					
24.238(b)	Band Edge Measurements	PASS	Meet the requirement of limit.					
2.1051 24.238	Conducted Spurious Emissions	PASS	Meet the requirement of limit.					
2.1053 24.238	Radiated Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -26.97dB at 41.34MHz.					

#### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	150kHz~30MHz	2.44 dB
	30MHz ~ 200MHz	2.93 dB
Radiated emissions	200MHz ~1000MHz	2.95 dB
Radiated emissions	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



# 2.2 TEST SITE AND INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2013	Apr. 14, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 27. 2014	Feb. 26, 2015
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 19, 2014	Feb. 18, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Preamplifier EMCI	EMC 012645	980115	Dec. 26, 2013	Dec. 25, 2014
Preamplifier EMCI	EMC 184045	980116	Jan. 13, 2014	Jan. 12, 2015
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA
Mini-Circuits Power Splitter	ZN2PD-9G	NA	Jul. 18, 2013	Jul. 17, 2014
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
Communications Tester-Wireless	E5515C	MY52102544	Sep. 05, 2012	Sep. 04, 2014
Radio Communication Analyzer	MT8820C	6201300640	Aug. 01, 2013	Jul. 31, 2014

**NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

- 2. The test was performed in HwaYa Chamber 10.
- 3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
- 4. The FCC Site Registration No. is 690701.
- 5. The IC Site Registration No. is IC 7450F-10.



# **3 GENERAL INFORMATION**

# 3.1 GENERAL DESCRIPTION OF EUT

EUT	Smartphone			
MODEL NO.	0P8B200			
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.8Vdc (battery)			
	GSM/GPRS	GMSK		
MODULATION TYPE	EDGE	GMSK, 8PSK		
	WCDMA	BPSK		
FREQUENCY RANGE	GSM/GPRS/EDGE	1850.2MHz ~ 1909.8MHz		
FREQUENCY KANGE	WCDMA	1852.4MHz ~ 1907.6MHz		
	GSM	842.17mW		
MAX. EIRP POWER	EDGE	304.93mW		
	WCDMA	172.66mW		
	GSM	249KGXW		
EMISSION DESIGNATOR	EDGE	244KG7W		
	WCDMA	4M17F9W		
ANTENNA TYPE	Fixed Internal Antenna			
I/O PORTS	Refer to users' manual			
DATA CABLE	Refer to NOTE as below			
ACCESSORY DEVICES Refer to NOTE as below				

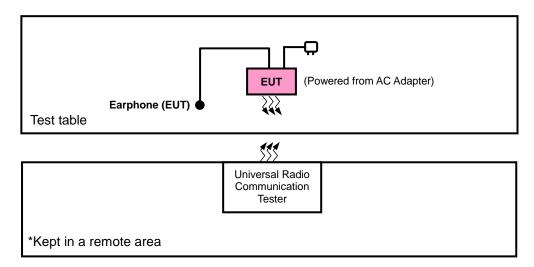
# NOTE:

- 1. The EUT's accessories list refers to Ext. Pho.
- 2. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

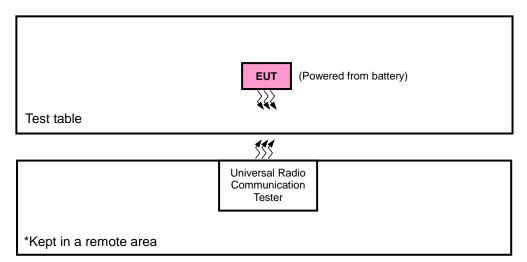


# 3.2 CONFIGURATION OF SYSTEM UNDER TEST

#### FOR RADIATION EMISSION TEST



#### FOR E.I.R.P. TEST



# 3.3 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units.



# 3.4 TEST ITEM AND TEST CONFIGURATION

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports. The worst case was found when positioned on X-plane for EIRP and Z-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

#### GSM MODE

GSM MODE							
EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE			
-	EIRP	512 to 810	512, 661, 810	GSM, EDGE			
-	FREQUENCY STABILITY	512 to 810	661	GSM, EDGE			
-	OCCUPIED BANDWIDTH	512 to 810	512, 661, 810	GSM, EDGE			
-	PEAK TO AVERAGE RATIO	512 to 810	512, 661, 810	GSM, EDGE			
-	BAND EDGE	512 to 810	512, 810	GSM, EDGE			
-	CONDCUDETED EMISSION	512 to 810	661	GSM, EDGE			
-	RADIATED EMISSION	512 to 810	661	GSM, EDGE			

#### **WCDMA MODE**

WODINA MODE							
EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE			
-	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA			
-	FREQUENCY STABILITY	9262 to 9538	9400	WCDMA			
-	OCCUPIED BANDWIDTH	9262 to 9538	9262, 9400, 9538	WCDMA			
-	PEAK TO AVERAGE RATIO	9262 to 9538	9262, 9400, 9538	WCDMA			
-	BAND EDGE	9262 to 9538	9262, 9538	WCDMA			
-	CONDCUDETED EMISSION	9262 to 9538	9400	WCDMA			
-	RADIATED EMISSION	9262 to 9538	9400	WCDMA			



# **Test CONDITION:**

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	26deg. C, 58%RH	3.8Vdc	Howard Kao
FREQUENCY STABILITY	26deg. C, 58%RH	3.8Vdc	Howard Kao
OCCUPIED BANDWIDTH	26deg. C, 58%RH	3.8Vdc	Howard Kao
PEAK TO AVERAGE RATIO	26deg. C, 58%RH	3.8Vdc	Howard Kao
BAND EDGE	26deg. C, 58%RH	3.8Vdc	Howard Kao
CONDCUDETED EMISSION	26deg. C, 58%RH	3.8Vdc	Howard Kao
RADIATED EMISSION	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao



# 3.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

#### 3.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2 FCC 47 CFR Part 24 ANSI/TIA/EIA-603-C 2004

**NOTE:** All test items have been performed and recorded as per the above standards.



#### 4 TEST TYPES AND RESULTS

#### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP.

#### 4.1.2 TEST PROCEDURES

#### **EIRP MEASUREMENT:**

- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GSM, GPRS & EDGE, and 5MHz for CDMA & WCDMA mode.
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.

#### CONDUCTED POWER MEASUREMENT:

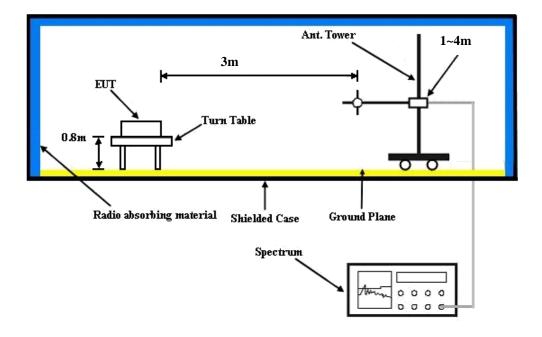
The EUT was set up for the maximum power with GSM, GPRS, EDGE & WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Report No.: RF140306C19-6 12 of 36 Report Format Version 5.0.0

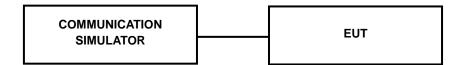


# 4.1.3 TEST SETUP

# **EIRP / ERP MEASUREMENT:**



# **CONDUCTED POWER MEASUREMENT:**





# 4.1.4 TEST RESULTS

# CONDUCTED OUTPUT POWER (dBm)

Band		GSM1900	
Channel	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8
GSM (1 Uplink)	30.15	30.28	30.49
GPRS 8 (GMSK, 1 slot)	30.12	30.25	30.46
GPRS 10 (GMSK, 2 slot)	28.98	29.11	29.32
GPRS 11 (GMSK, 3 slot)	28.19	28.32	28.53
GPRS 12 (GMSK, 4 slot)	27.43	27.56	27.77
EDGE 8 (GMSK, 1 Uplink)	30.08	30.21	30.42
EDGE 10 (GMSK, 2 Uplink)	28.93	29.06	29.27
EDGE 11 (GMSK, 3 Uplink)	28.19	28.32	28.53
EDGE 12 (GMSK, 4 Uplink)	27.36	27.49	27.70
EDGE 8 (8PSK, 1 Uplink)	25.25	25.38	25.59
EDGE 10 (8PSK, 2 Uplink)	25.15	25.28	25.49
EDGE 11 (8PSK, 3 Uplink)	24.44	24.57	24.78
EDGE 12 (8PSK, 4 Uplink)	23.26	23.39	23.60

Band	WCDMA II			
Channel	9262	9400	9538	
Frequency (MHz)	1852.4	1880.0	1907.6	
RMC 12.2K	23.89	23.86	23.66	
HSDPA Subtest-1	22.92	22.89	22.69	
HSDPA Subtest-2	22.90	22.87	22.67	
HSDPA Subtest-3	22.41	22.38	22.18	
HSDPA Subtest-4	22.37	22.34	22.14	
HSUPA Subtest-1	22.78	22.75	22.55	
HSUPA Subtest-2	21.42	21.39	21.19	
HSUPA Subtest-3	21.70	21.67	21.47	
HSUPA Subtest-4	21.44	21.41	21.21	
HSUPA Subtest-5	22.99	22.96	22.76	



# EIRP POWER (dBm)

	GSM								
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)		
	512	1850.2	-7.52	36.57	29.05	803.90	Н		
	661	1880.0	-7.97	37.22	29.25	842.17	Н		
x	810	1909.8	-8.14	37.18	29.04	802.05	Н		
^	512	1850.2	-15.79	37.65	21.86	153.50	V		
	661	1880.0	-15.89	37.58	21.70	147.81	V		
	810	1909.8	-15.60	37.48	21.88	154.17	V		

	EDGE						
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
	512	1850.2	-11.73	36.57	24.84	304.93	Н
	661	1880.0	-12.55	37.22	24.67	293.36	Н
x	810	1909.8	-12.89	37.18	24.29	268.66	Н
^	512	1850.2	-19.79	37.65	17.86	61.11	V
	661	1880.0	-19.90	37.58	17.68	58.65	V
	810	1909.8	-19.74	37.48	17.74	59.43	V

	WCDMA						
Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
	9262	1852.4	-14.58	36.57	21.99	158.20	Н
	9400	1880.0	-15.10	37.22	22.12	163.08	Н
x	9538	1907.6	-14.81	37.18	22.37	172.66	Н
^	9262	1852.4	-18.26	37.65	19.39	86.92	V
	9400	1880.0	-18.37	37.58	19.21	83.43	V
	9538	1907.6	-18.29	37.48	19.19	82.99	V



#### 4.2 FREQUENCY STABILITY MEASUREMENT

#### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

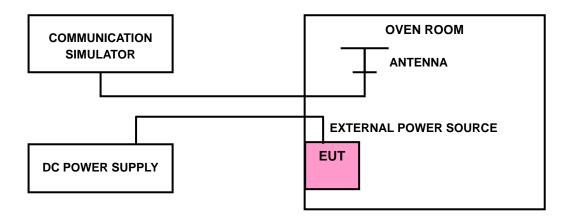
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### 4.2.2 TEST PROCEDURE

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5°C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

#### 4.2.3 TEST SETUP





#### 4.2.4 TEST RESULTS

#### FREQUENCY ERROR vs. VOLTAGE

VOLTAGE (Valta)	FRE	EQUENCY ERROR (p	NCY ERROR (ppm)				
VOLTAGE (Volts)	GSM	EDGE WCDMA		LIMIT (ppm)			
3.8	0.033	0.030	0.001	2.5			
3.6	0.030	0.032	0.002	2.5			
4.35	0.031	0.031	0.002	2.5			

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.35Vdc.

# FREQUENCY ERROR vs. TEMPERATURE

TEMP (%)	TEMP. (℃)				
TEMP. (C)	GSM	EDGE	WCDMA	LIMIT (ppm)	
-30	0.032	0.025	0.001	2.5	
-20	0.034	0.023	0.002	2.5	
-10	0.034	0.026	0.002	2.5	
0	0.034	0.027	0.001	2.5	
10	0.033	0.028	0.002	2.5	
20	0.030	0.030	-0.002	2.5	
30	0.032	0.030	0.002	2.5	
40	0.032	0.027	0.002	2.5	
50	0.032	0.033	0.001	2.5	
60	0.032	0.032	0.001	2.5	

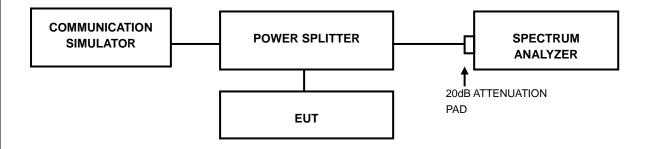


#### 4.3 OCCUPIED BANDWIDTH MEASUREMENT

#### **4.3.1 TEST PROCEDURES**

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

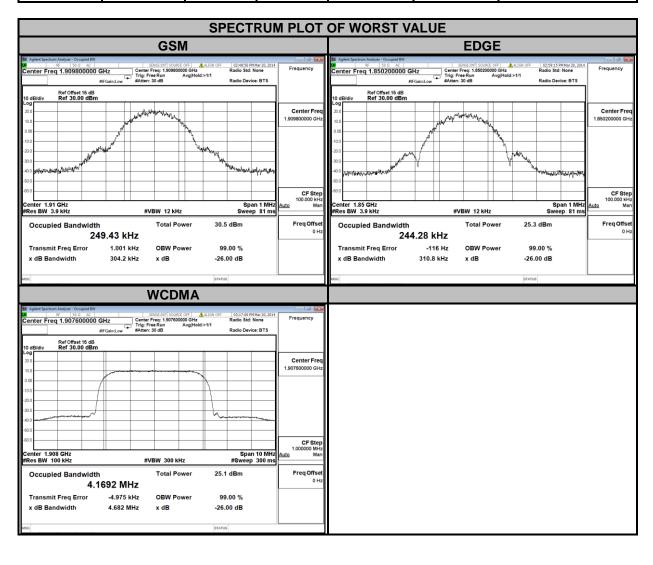
#### 4.3.2 TEST SETUP





#### 4.3.3 TEST RESULTS

CHANNEL	FREQUENCY	99% OCCUPIED BANDWIDTH (MHz)		CHANNEL	FREQUENCY	99% OCCUPIED BANDWIDTH (MHz)
		GSM	EDGE			WCDMA
512	1850.2	247.06	244.28	9262	1852.4	4.1653
661	1880.0	243.36	244.15	9400	1880.0	4.1669
810	1909.8	249.43	242.80	9538	1907.6	4.1692



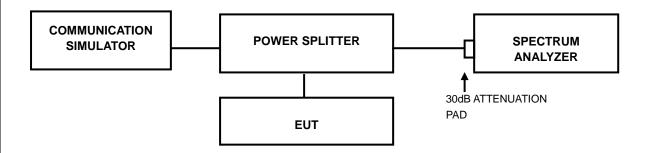


#### 4.4 PEAK TO AVERAGE RATIO

#### 4.4.1 LIMITS OF PEAK TO AVERAGE RATIO MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB.

#### 4.4.2 TEST SETUP



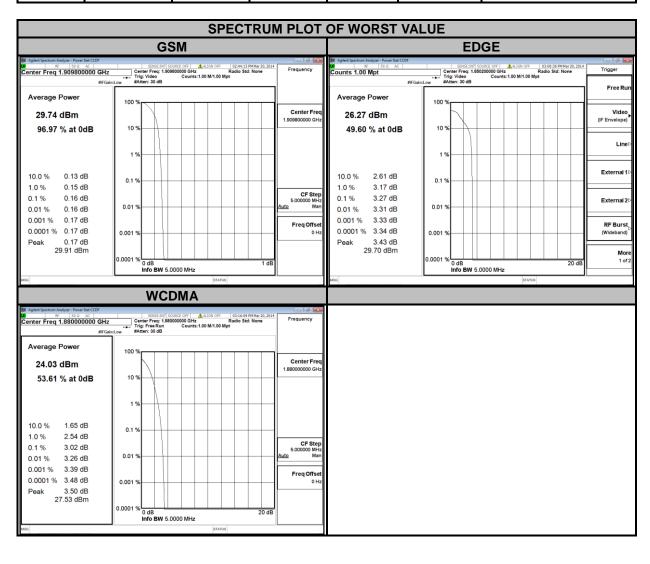
#### 4.4.3 TEST PROCEDURES

- 1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
- 2. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 3. Record the maximum PAPR level associated with a probability of 0.1%.



#### 4.4.4 TEST RESULTS

CHANNEL	FREQUENCY	PEAK TO AVERAGE RATIO (dB)		CHANNEL	FREQUENCY	PEAK TO AVERAGE RATIO (dB)
	(MHz)	GSM	EDGE		(MHz)	WCDMA
512	1850.2	0.16	3.27	9262	1852.4	2.99
661	1880.0	0.15	3.26	9400	1880.0	3.02
810	1909.8	0.16	3.25	9538	1907.6	3.00



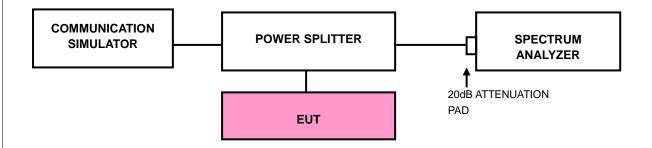


#### 4.5 BAND EDGE MEASUREMENT

#### 4.5.1 LIMITS OF BAND EDGE MEASUREMENT

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. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

#### 4.5.2 TEST SETUP

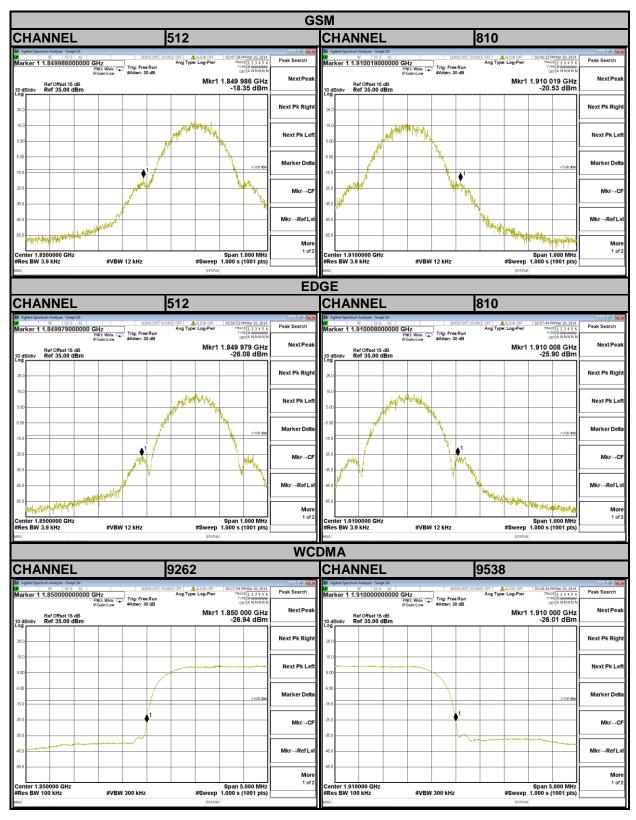


#### 4.5.3 TEST PROCEDURES

- a. All measurements were done at low and high operational frequency range.
- b. The center frequency of spectrum is the band edge frequency and span is 1MHz. RB of the spectrum is 3.9kHz and VB of the spectrum is 12kHz (GSM/GPRS/EDGE).
- c. The center frequency of spectrum is the band edge frequency and span is 5MHz. RB of the spectrum is 100kHz and VB of the spectrum is 300kHz (WCDMA).
- d. Record the max trace plot into the test report.



#### 4.5.4 TEST RESULTS





#### 4.6 CONDUCTED SPURIOUS EMISSIONS

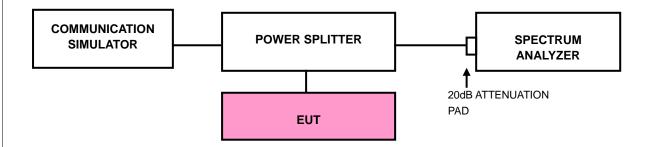
#### 4.6.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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. The emission limit is equal to -13dBm.

#### 4.6.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- b. Measuring frequency range is from 30 MHz to 19.1GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

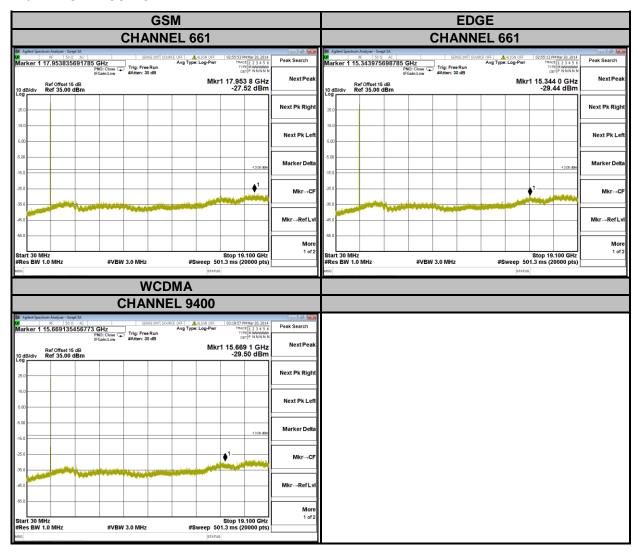
#### 4.6.3 TEST SETUP



Report No.: RF140306C19-6 24 of 36 Report Format Version 5.0.0



# 4.6.4 TEST RESULTS





#### 4.7 RADIATED EMISSION MEASUREMENT

#### 4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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. The emission limit is equal to -13dBm.

#### 4.7.2 TEST PROCEDURES

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G
- c. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power 2.15dBi.

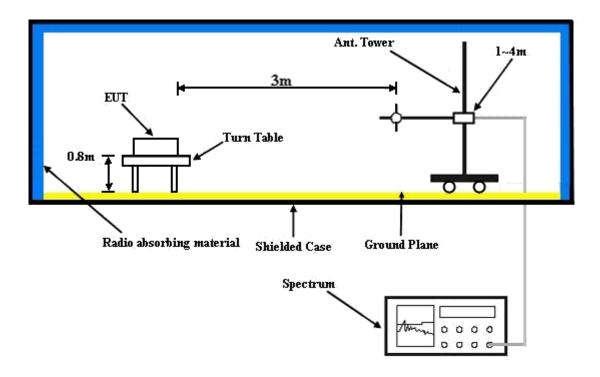
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

#### 4.7.3 DEVIATION FROM TEST STANDARD

No deviation



# 4.7.4 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

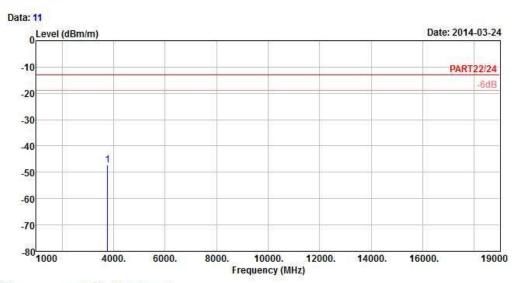


#### 4.7.5 TEST RESULTS

#### GSM:



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5

Condition : PART22/24 3m HORIZONTAL

Brand/Model: 0P8B200

Remark : PCS1900 Link Tested by : Johnson Liao

Plane : Z

Read Limit Over

Freq Level Level Line Limit Factor Remark

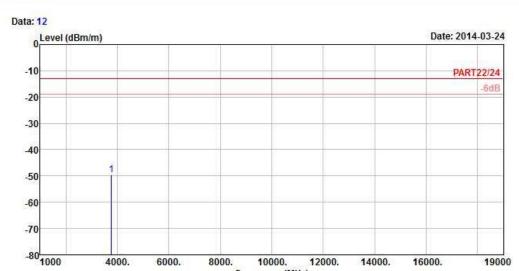
MHz dBm/m dBm dBm/m dB dB/m

1 pp 3760.00 -47.27 -38.97 -13.00 -34.27 -8.30 Peak





# Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Frequency (MHz)

Site : 966 Chamber 5

Condition : PART22/24 3m VERTICAL

Brand/Model: 0P8B200

Remark : PCS1900 Link Tested by : Johnson Liao

Plane : Z

Read Limit Over

Freq Level Line Limit Factor Remark

MHz dBm/m dBm dBm/m dB dB/m

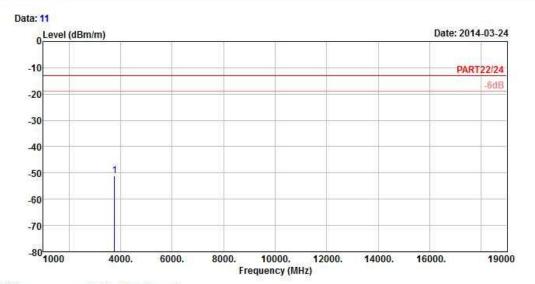
1 pp 3760.00 -49.49 -41.19 -13.00 -36.49 -8.30 Peak



#### EDGE:



# Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5

Condition : PART22/24 3m HORIZONTAL

Brand/Model: 0P8B200

Remark : EDGE1900 Link Tested by : Johnson Liao

Plane : Z

Read Limit Over
Freq Level Level Line Limit Factor Remark

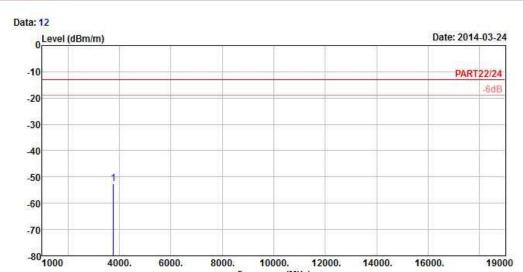
MHz dBm/m dBm dBm/m dB dB/m

1 pp 3760.00 -50.98 -42.68 -13.00 -37.98 -8.30 Peak





# Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Frequency (MHz)

Site : 966 Chamber 5

Condition : PART22/24 3m VERTICAL

Brand/Model: 0P8B200

Remark : EDGE1900 Link Tested by : Johnson Liao

Plane : Z

Read Limit Over

Freq Level Line Limit Factor Remark

MHz dBm/m dBm dBm/m dB dB/m

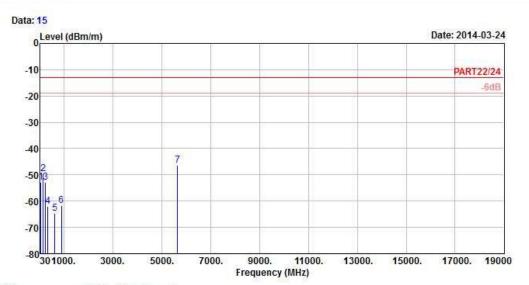
1 pp 3760.00 -52.56 -44.26 -13.00 -39.56 -8.30 Peak



#### WCDMA:



# Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



: 966 Chamber 5

Condition : PART22/24 3m HORIZONTAL

Brand/Model: 0P8B200

: Band II Link Tested by : Johnson Liao

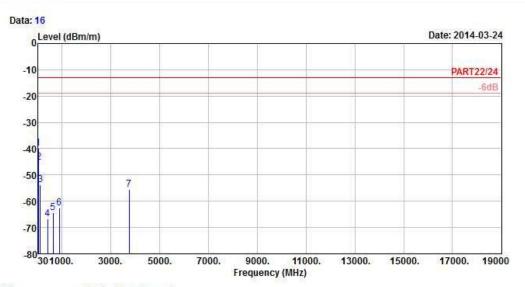
Plane

	Freq	Level	Read Level	Limit Line		Factor	Remark
8	MHz	dBm/m	dBm	dBm/m	dB	dB/m	
1	57.27	-52.98	-47.33	-13.00	-39.98	-5.65	Peak
2	138.54	-49.50	-43.57	-13.00	-36.50	-5.93	Peak
3	236.82	-52.91	-46.62	-13.00	-39.91	-6.29	Peak
4	344.10	-61.85	-55.80	-13.00	-48.85	-6.05	Peak
4 5	624.80	-64.67	-64.76	-13.00	-51.67	0.09	Peak
6	889.40	-61.77	-64.41	-13.00	-48.77	2.64	Peak
7 pp	5640.00	-46.20	-44.30	-13.00	-33.20	-1.90	Peak





# Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5

Condition : PART22/24 3m VERTICAL

Brand/Model: 0P8B200

Remark : Band II Link Tested by : Johnson Liao

Plane : Z

Read Limit Over
Freq Level Level Line Limit Factor Remark

MHz dBm/m dBm dBm/m dB dB/m

1 pp	41.34	-39.97	-38.58	-13.00	-26.97	-1.39	Peak
2	58.35	-45.29	-39.49	-13.00	-32.29	-5.80	Peak
3	107.22	-53.76	-43.19	-13.00	-40.76	-10.57	Peak
4	423.20	-66.57	-61.52	-13.00	-53.57	-5.05	Peak
5	643.70	-64.37	-64.81	-13.00	-51.37	0.44	Peak
6	891.50	-62.44	-65.09	-13.00	-49.44	2.65	Peak
7	3760.00	-55.48	-47.18	-13.00	-42.48	-8.30	Peak



# PHOTOGRAPHS OF THE TEST CONFIGURATION Please refer to the attached file (Test Setup Photo).

Report No.: RF140306C19-6 34 of 36 Report Format Version 5.0.0



# 6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab: Hsin Chu EMC/RF Lab:

Tel: 886-2-26052180 Tel: 886-3-5935343 Fax: 886-2-26051924 Fax: 886-3-5935342

#### Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232 Fax: 886-3-3270892

Email: <a href="mailto:service.adt@tw.bureauveritas.com">service.adt@tw.bureauveritas.com</a>
Web Site: <a href="mailto:www.bureauveritas-adt.com">www.bureauveritas-adt.com</a>

The address and road map of all our labs can be found in our web site also.

Report No.: RF140306C19-6 35 of 36 Report Format Version 5.0.0



7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB
No any modifications were made to the EUT by the lab during the test.
END

Report No.: RF140306C19-6 36 of 36 Report Format Version 5.0.0