

FCC TEST REPORT (PART 24)

REPORT NO.: RF120409C36D-3

MODEL NO.: PJ40200 FCC ID: NM8PJ40200

- **RECEIVED:** Apr. 25, 2012
 - **TESTED:** Apr. 26, 2012
 - **ISSUED:** May 16, 2012
- **APPLICANT:** HTC Corporation
 - ADDRESS: 23, Xinghua Rd., Taoyuan 330, Taiwan, R.O.C.
- **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.

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TABLE OF CONTENTS

RELEA	SE CONTROL RECORD	3
1	CERTIFICATION	4
2	SUMMARY OF TEST RESULTS	5
2.1	MEASUREMENT UNCERTAINTY	5
2.2	TEST SITE AND INSTRUMENTS	6
3	GENERAL INFORMATION	7
3.1	GENERAL DESCRIPTION OF EUT	7
3.2	CONFIGURATION OF SYSTEM UNDER TEST	8
3.3	DESCRIPTION OF SUPPORT UNITS	9
3.4	TEST ITEM AND TEST CONFIGURATION	10
3.5	EUT OPERATING CONDITIONS	11
3.6	GENERAL DESCRIPTION OF APPLIED STANDARDS	11
4	TEST TYPES AND RESULTS	12
4.1	OUTPUT POWER MEASUREMENT	12
4.1.1	LIMITS OF OUTPUT POWER MEASUREMENT	12
4.1.2	TEST PROCEDURES	12
4.1.3	TEST SETUP	13
4.1.4	TEST RESULTS	14
4.2	FREQUENCY STABILITY MEASUREMENT	
4.2.1	LIMITS OF FREQUENCY STABILIITY MEASUREMENT	17
4.2.2	TEST PROCEDURE	17
4.2.3	TEST SETUP	17
4.2.4	TEST RESULTS	18
4.3	OCCUPIED BANDWIDTH MEASUREMENT	
4.3.1	TEST PROCEDURES	19
4.3.2	TEST SETUP	19
4.3.3	TEST RESULTS	
4.4	BAND EDGE MEASUREMENT	
4.4.1	LIMITS OF BAND EDGE MEASUREMENT	21
4.4.2	TEST SETUP	21
4.4.3	TEST PROCEDURES	
4.4.4	TEST RESULTS	22
4.5	CONDUCTED SPURIOUS EMISSIONS	
4.5.1	LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT	23
4.5.2	TEST PROCEDURE	23
4.5.3	TEST SETUP	23
4.5.4	TEST RESULTS	
4.6	RADIATED EMISSION MEASUREMENT	
4.6.1	LIMITS OF RADIATED EMISSION MEASUREMENT	
4.6.2	TEST PROCEDURES	
4.6.3	DEVIATION FROM TEST STANDARD	
4.6.4	TEST SETUP	
4.6.5	TEST RESULTS	
5	PHOTOGRAPHS OF THE TEST CONFIGURATION	
6	INFORMATION ON THE TESTING LABORATORIES	
7	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE E BY THE LAB	



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF120409C36D-3	Original release	May 16, 2012



1 CERTIFICATION

PRODUCT: Smartphone
MODEL: PJ40200
BRAND: HTC
APPLICANT: HTC Corporation
TESTED: Apr. 26, 2012
TEST SAMPLE: Production Unit
STANDARDS: FCC Part 24, Subpart E

The above equipment (model: PJ40200) 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

May 16, 2012 , DATE : Pettie Chen / Specialist

APPROVED BY

Gary Chang / Technical Manager

, DATE : May 16, 2012



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.		
24.238(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		Meet the requirement of limit. Minimum passing margin is -19.11dB at 30.27MHz.		

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
Dedicted 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 Agilent	N9038A	MY51210203	Dec. 22, 2011	Dec. 21, 2012
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2011	Dec. 20, 2012
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 20, 2011	Dec. 19, 2012
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Dec. 20, 2011	Dec. 19, 2012
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 20, 2011	Dec. 19, 2012
Preamplifier EMCI	EMC 012645	980115	Dec. 30, 2011	Dec. 29, 2012
Preamplifier EMCI	EMC 330H	980112	Dec. 30, 2011	Dec. 29, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4	Oct. 21, 2011	Oct. 20, 2012
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Jan. 02, 2012	Jan. 01, 2013
RF signal cable Worken	RG-213	NA	Jan. 02, 2012	Jan. 01, 2013
Software	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	May 25, 2011	May 24, 2012
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA

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 9.
- 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 460141.
- 5. The IC Site Registration No. is IC 7450F-4.



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Smartphone		
MODEL NO.	PJ40200		
POWER SUPPLY	5.0Vdc (adapter or host equipment)		
	3.7Vdc (battery)		
MODULATION TYPE	GSM, GPRS: GMSK		
MODULATION THE	EDGE: 8PSK		
FREQUENCY RANGE	GSM, GPRS, EDGE: 1850.2MHz ~ 1909.8MHz		
MAX. EIRP POWER	GSM: 1.14Watts		
MAA. EIRF FOWER	EDGE: 0.36Watts		
MULTI-SLOTS CLASS	12		
ANTENNA TYPE	Fixed Internalantenna with 0.91dBi gain		
I/O PORTS	Refer to users' manual		
DATA CABLE	N/A		
ACCESSORY DEVICES	N/A		

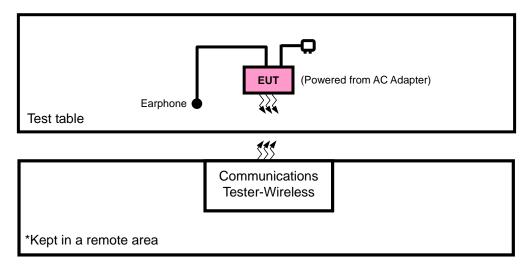
NOTE:

- 1. The EUT's accessories list refers to Ext Pho.pdf.
- 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.

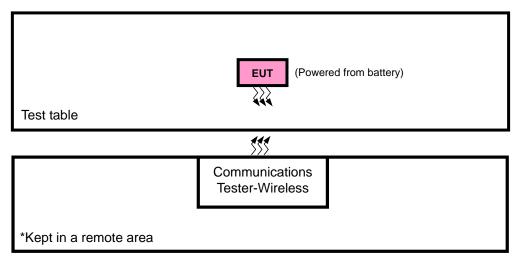


3.2 CONFIGURATION OF SYSTEM UNDER TEST

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. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Communications Tester-Wireless	Agilent	E5515C	MY50266653	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

NOTE:

1. All power cords of the above support units are non shielded (1.8m).

2. Item 1 acted as a communication partners to transfer data.



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 Y-plane for ERP, X-axis for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION	
A	Main Sample	
В	Second Sample	

GSM MODE

EUT CONFIGURE MODE	TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
А, В	EIRP	512 to 810	512, 661, 810	GSM, EDGE
A	FREQUENCY STABILITY	512 to 810	661	GSM, EDGE
A	OCCUPIED BANDWIDTH	512 to 810	512, 661, 810	GSM, EDGE
A	BAND EDGE	512 to 810	512, 810	GSM, EDGE
A	CONDCUDETED EMISSION	512 to 810	661	GSM, EDGE
A	RADIATED EMISSION	512 to 810	661	GSM, EDGE
В	RADIATED EMISSION	512 to 810	661	GSM

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
ERP	25deg. C, 65%RH	3.7Vdc	Phoenix Chen
FREQUENCY STABILITY	25deg. C, 65%RH	3.7Vdc	Phoenix Chen
OCCUPIED BANDWIDTH	25deg. C, 65%RH	3.7Vdc	Phoenix Chen
BAND EDGE	25deg. C, 65%RH	3.7Vdc	Phoenix Chen
CONDCUDETED EMISSION	25deg. C, 65%RH	3.7Vdc	Phoenix Chen
RADIATED EMISSION	25deg. C, 65%RH	120Vac, 60Hz	Kay Wu



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. RWB and VBW is 1MHz for GSM & EDGE 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.

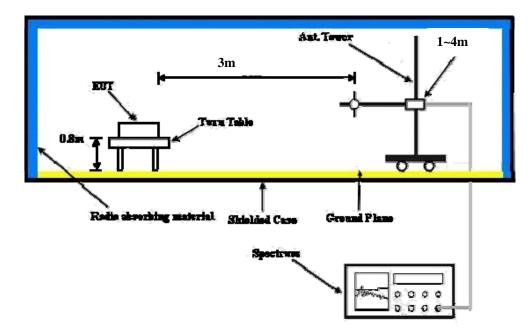
CONDUCTED POWER MEASUREMENT:

The EUT was set up for the maximum power with GSM, 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.



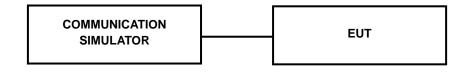
4.1.3 TEST SETUP

EIRP MEASUREMENT:



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

CONDUCTED POWER MEASUREMENT:



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



4.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	GSM1900		
Channel	512	661	810
Frequency (MHz)	1850.2	1880.0	1909.8
GSM (GMSK, 1 slot)	30.32	30.11	30.33
GPRS 8 (GMSK, 1 slot)	30.30	30.10	30.32
GPRS 10 (GMSK, 2 slot)	28.43	28.57	28.61
GPRS 11 (GMSK, 3 slot)	26.29	26.48	26.51
GPRS 12 (GMSK, 4 slot)	25.06	24.92	24.96
DTM 9 (GMSK, 2 slot)	28.46	28.53	28.51
DTM 11 (GMSK, 3 slot)	26.33	26.52	26.57
EDGE 8 (8PSK, 1 slot)	24.97	24.99	25.04
EDGE 10 (8PSK, 2 slot)	24.70	24.73	24.82
EDGE 11 (8PSK, 3 slot)	23.64	23.66	23.72
EDGE 12 (8PSK, 4 slot)	22.97	22.95	22.99
DTM 9 (8PSK, 2 slot)	25.16	25.17	25.22
DTM 11 (8PSK, 3 slot)	24.76	24.80	24.91



EIRP POWER (dBm)

Test Mode A GSM 1900

Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(W)	Polarization (H/V)
	512	1850.2	-7.64	38.19	30.55	1.14	Н
	661	1880.0	-8.37	38.70	30.33	1.08	Н
Y	810	1909.8	-9.22	39.35	30.13	1.03	Н
Ŷ	512	1850.2	-12.50	38.48	25.98	0.40	V
	661	1880.0	-12.57	38.59	26.02	0.40	V
	810	1909.8	-12.07	38.87	26.80	0.48	V

EDGE 1900

Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(W)	Polarization (H/V)
	512	1850.2	-13.14	38.19	25.05	0.32	Н
	661	1880.0	-13.11	38.70	25.59	0.36	Н
v	810	1909.8	-13.80	39.35	25.55	0.36	Н
Ť	512	1850.2	-17.21	38.48	21.27	0.13	V
	661	1880.0	-16.89	38.59	21.70	0.15	V
	810	1909.8	-17.84	38.87	21.03	0.13	V



Test Mode B GSM 1900

Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(W)	Polarization (H/V)
	512	1850.2	-8.21	38.19	29.98	1.00	Н
	661	1880.0	-8.20	38.70	30.50	1.12	Н
v	810	1909.8	-8.99	39.35	30.36	1.09	Н
Ŷ	512	1850.2	-11.92	38.48	26.56	0.45	V
	661	1880.0	-11.66	38.59	26.93	0.49	V
	810	1909.8	-11.94	38.87	26.93	0.49	V

EDGE 1900

Plane	Channel	Frequency (MHz)	LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(W)	Polarization (H/V)
	512	1850.2	-12.89	38.19	25.30	0.34	Н
	661	1880.0	-13.14	38.70	25.56	0.36	Н
Y	810	1909.8	-13.85	39.35	25.50	0.35	Н
Y	512	1850.2	-17.83	38.48	20.65	0.12	V
	661	1880.0	-17.54	38.59	21.05	0.13	V
	810	1909.8	-18.06	38.87	20.81	0.12	V



4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

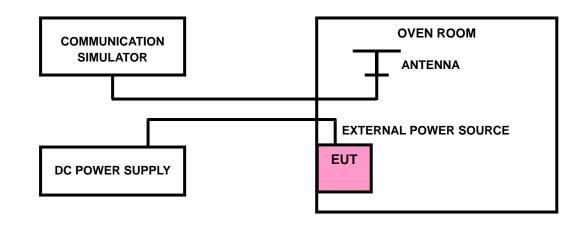
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

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 $\pm 0.5^{\circ}$ 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

	FREQUENCY	ERROR (ppm)	
VOLTAGE (Volts)	GSM	EDGE	LIMIT (ppm)
3.8	-0.03	0.01	2.5
3.6	-0.03	0.01	2.5
4.2	-0.03	0.01	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (℃)	FREQUENCY	ERROR (ppm)	
	GSM	EDGE	LIMIT (ppm)
-10	-0.03	0.01	2.5
0	-0.02	0.01	2.5
10	-0.03	0.01	2.5
20	-0.03	0.01	2.5
30	-0.03	0.01	2.5
40	-0.03	0.01	2.5
50	-0.03	0.01	2.5
55	-0.03	0.01	2.5

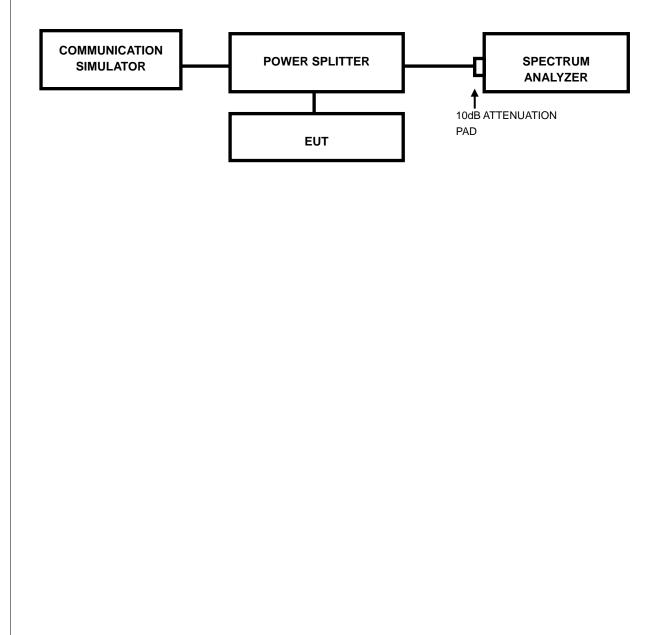


4.3 OCCUPIED BANDWIDTH MEASUREMENT

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 E	BANDWIDTH (kHz)
CHANNEL	(MHz)	GSM	EDGE
512	1850.2	245.35	244.02
661	1880.0	244.13	240.57
810	1909.8	245.03	246.62

GSM	EDGE									
Mint Spectrum Audyrer Occepted Tax 10 10 10 10 10 10 10 10 10 10 10 10 10 1	Frequency	Ref Offset 15 dB 10 dB/div Ref 30.00 dBm	Hz Center Free, 1309800000 GHt Trig: Free Run AvgiHe Gaint.ew #Atten: 30 dB	Radio Std: None	Frequency					
	Center Freq 1.850200000 GHz	Log 300 000 300 300 300 400 400 Magarian Marina Marina 400 400 400 400 400 400 400 40	Water and the second se	Mary Marken ward	Center Free 1.909800000 GH					
Res BW 3 KHz Sweep 105.5 ms	CF Step 100.000 kHz Auto Man	Center 1.91 GHz #Res BW 3 kHz	#VBW 10 kHz	Span 1 MHz Sweep 105.5 ms	CF Step 100.000 kH Auto Mar					
Occupied Bandwidth Total Power 37.0 dBm 245.35 kHz	Freq Offset 0 Hz	Occupied Bandwidth 246 Transmit Freq Error x dB Bandwidth	Total Power 5.62 kHz -355 Hz OBW Power 308.7 kHz x dB	31.9 dBm 99.00 % -26.00 dB	Freq Offse 0 H					

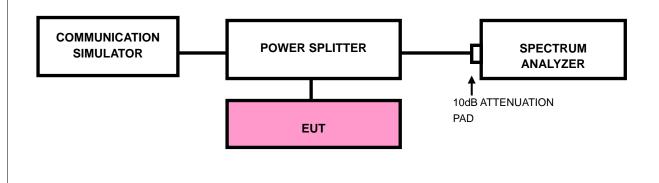


4.4 BAND EDGE MEASUREMENT

4.4.1 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.

4.4.2 TEST SETUP

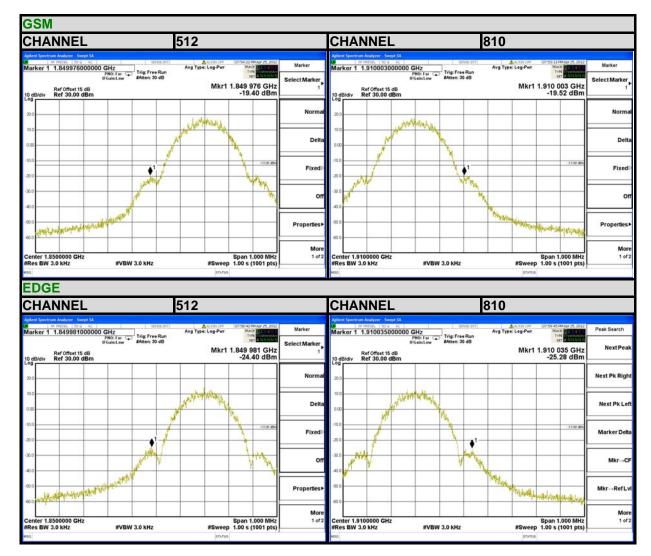


4.4.3 TEST PROCEDURES

- 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 1.5 MHz. RB of the spectrum is 3kHz and VB of the spectrum is 3kHz (GSM / EDGE).
- c. Record the max trace plot into the test report.



4.4.4 TEST RESULTS





4.5 CONDUCTED SPURIOUS EMISSIONS

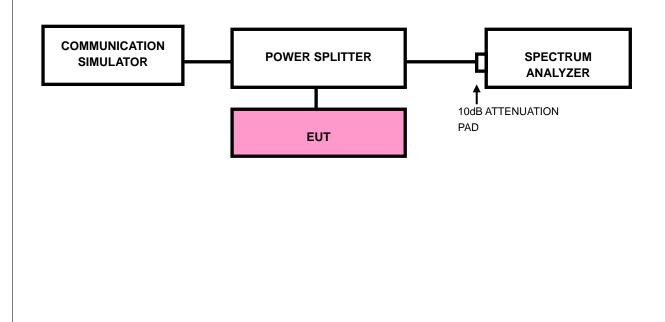
4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

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 equal to -13 dBm.

4.5.2 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 30MHz to 19.1GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

4.5.3 TEST SETUP





4.5.4 TEST RESULTS

F	REQ	UEN	ICY	RAI	NGE	: 30	DMH	z~10	GHz					UEN		RAN	IGE	:10	SHz	~3G	Hz		
arl	ker 1 8	03.09000	0000 M	Hz	Tel F	NE 20	Avg Type	Log-Pwr	DB-24-44 F TRAC TVI		Peak Search	100		6740000	M ₄	Hz	167	Read	Avg Type	ALION OFF	09-24-157 TRAC TVI	MApr 25, 2012	Peak Search
	R	ef Offset 15	dB	Gain:Low	Trig: Free SAtten: 30	86 0		м	ar1 803.	09 MHz	Next Peak		R	ef Offset 15	dB	HZ 0: Fast 😱 ain:Low	#Atten: 30	dB		N	1kr1 2.6	74 GHz	Next Pe
e de	3/div R	ef 35.00 (1Bm						-33.	65 dBm		10 di Log	Bldiv R	ef 35.00 (1Bm		1				-32.	20 dBm	2012/05/25 12/0
5.0											Next Pk Right	25.0											Next Pk Rig
5.0											Next Pk Left	15.0 6.00											Next Pk L
00			-				-					-6 00					-		_				995aart-82
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50											Mkr→RefLvl	-45.0		-									Mkr→Reft
	t 30.0 M	H7							Stop 1 (000 GHz	More 1 of 2		t 1.000 C	247							Stop 3	.000 GHz	Ma
tes	s BW 1.0	MHz		#VBW	V 3.0 MHz			#Sweep	500 ms (1000 GH2 1001 pts)	1012		s BW 1.0			#VBW	3.0 MHz			#Sweep	500 ms (1001 pts)	
F	REQ	UEN	ICY	RA	NGE	: 30	GHz	~7G	Hz			FF	REQ	UEN	ICY	RAN	IGE	:7G	Hz~	13.6	GH	z	
lent	t Spectrum	Acuatyzer - Swi RF 50 P	nget SA Ari		1.58	ME 217		ALISN OFF	09:22:51 F	MApr 25, 2012	Peak Search	Agilee	it Spectrum	Analyzer - Sw RF 50 P	pt SA AC		1.65	68.7NT		ALISN OFF	09:22:29 5	M Apr 25, 2012	Peak Search
	R	.6400000 ef Offset 15 ef -5.00 d	dB	SHZ NO: Fast G Gain:High	Trig: Free #Atten: 0	e Run dB	WAB LAbe		1kr1 5.6	40 GHz 61 dBm	NextPeak		R	2.643000 ef Offset 15 ef -5.00 d	Pf IF (3Hz IO: Fast 😱 ais:High	Trig: Free #Atten: 0	Run dB	AVG TYPE	• • • • •	1 12.64	E COMMANN	NextPe
		-5.00 0								-13.00 dBH	Next Pk Right	Log		-5.00 0								-13.00 dBH	Next Pk Ri
0												-15.0											
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0			-				♦1				Marker Delta	-45.0	-						-				Marker D
0		-										-55.0									♦ ¹		marker
0	Current and a second	-LAC-POR	and the same	anno	- Caller		in Schellende	al contra		to faith and see	Mkr→CF	-65.0		S. S	andrad	and the second	and the second	and the second se		- Jones -	accenter, 4	in starting	Mkr
0											Mkr→RefLvl	-75.0											Mkr→Ref
5.0		-					-				MKI-KEILVI	-95.0		-					_				MKI-+Kell
art	t 3.000 C	GHz							Stop 7	.000 GHz	More 1 of 2	Star	t 7.000 C	Hz		-					Stop 13	.600 GHz	Mc 1 c
es	s BW 1.0	MHz		#VBW	V 3.0 MHz			#Sweep	500 ms (1001 pts)		#Re MSG	s BW 1.0	MHz		#VBW	3.0 MHz	Ś.		#Sweep	2.00.00.000	1001 pts)	
F	REQ	UEN	ICY	RA	NGE	: 13	8.6G	Hz~	19.1	GHz													
eri ark	t Spectrum ker 1 1	9.012000	net 54 1/2	GHz	1.58	N#.311	Avg Type	Log-Pwr	09:21:49 F	MApr 25, 2012	Peak Search												
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		ef Offset 15 ef -5.00 d								20 dBm													
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0																							
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											More												



				RA	NGE	: 3	ОМН	z~10	GHz						CY R	ANG	GE : 1	GHz	~3G	Hz		
	r 1 790	50 @	AC	Hz		B48.341	Avg Typ	ALION OFF e: Log-Pwr	TRAC		Peak Search	100	85	60000000	000 GHz		1848.341	Avg Typ	ALION OFF	TRACI	M Apr 25, 2012	Peak Search
	Ref	Offset 15	dB	NO: Fast G Gain:Low	Trig: Fre #Atten: 3	e Run 10 dB		м	kr1 790.	48 MHz 18 dBm	NextPeak		Ref 0	ffset 15 dB		W SAC	Free Run ten: 30 dB		N	Ikr1 2.5	46 GHz 91 dBm	NextPea
	iv Kei	35.00 c	DIII								Next Pk Right	10 dB/div Log	Kei	35.00 dBm		1						Next Pk Rig
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	0.0 MHz 3W 1.0 M			#VBI	V 3.0 MH:	2	į.	#Sweep	500 ms (0000 GHz (1001 pts)	1 of 2	Start 1.0 #Res BV				/BW 3.0	MHz	į.	#Sweep	Stop 3. 500 ms (*	.000 GHz 1001 pts)	10
R	EQI	JEN	ICY	RA	NGE	: 3	GHz	~7G	Hz			FRE	QL	IENC	CY R	ANG	6E :70	GHz~	-13.6	GH	Z	
	r 1 5 6	50 @	A.C.	3Hz	1 1 9	948.94T		AUXIOF	09:17:49 F	M Apr 25, 2012	Peak Search	100	R.F.	59400000	0000 GHz	_	1648.941	Avg Typ	AUXN OFF	08:18:46 P	MApr 25, 2012	Peak Search
	Ref	Offset 15	dB	NO: Fast G Gain:High	Trig: Fre #Atten: 0	e Run dB			1kr1 5.6	40 GHz 52 dBm	NextPeak		Ref 0	ffset 15 dB	FNO: Fa IFGain:Hi	t Trig ph #Att	Free Run en: 0 dB			112.669		NextPe
		-5.00 d	bin							-13.00 484	Next Pk Right	10 dB/div Log	Kei	5.00 dBm							-13.00 (@H	Next Pk Rig
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0								T			Mkr→RefLvi	-05.0										Mkr→Reft
art 3	.000 GH	z							Stop 7	.000 GHz	More 1 of 2	-95.0 Start 7.0	00 GHz							Stop 13.	.600 GHz	Mo
es E	3W 1.0 M	ИНZ		#VB	V 3.0 MH	1		#Sweep		(1001 pts)		#Res BV				/BW 3.0	MHz		#Sweep	500 ms (*	1001 pts)	
R	EQI	JEN	ICY	RA	NGE	: 1	3.6G	iHz~	19.1	GHz	<u>:</u>											
irke	r 1 18.	957000	000000	GHz	_	erre 201	Avg Typ	AUDIOF	08:19:24 F TRAC TVI	MApr 25, 2012	Peak Search											
dB/d	Ref	Offset 15 -5.00 d	dB	GaincHigh	Trig: Fre #Atten: 0	dB		Mkr		7 0 GHz 08 dBm	NextPeak											
										-13.00 dBm	Next Pk Right											
0											Next Pk Left											
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0											Mkr→CF											
0											Mkr→RefLvi											
0											More											
L	3.600 G	H7								.100 GHz	1 of 2											



4.6 RADIATED EMISSION MEASUREMENT

4.6.1 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 equal to -13 dBm.

4.6.2 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.P.R power - 2.15dBi.

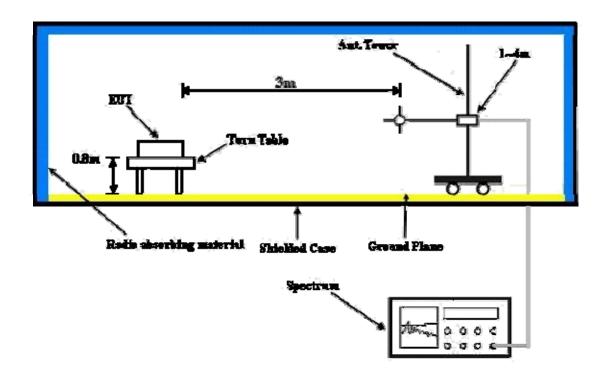
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.6.3 DEVIATION FROM TEST STANDARD

No deviation



4.6.4 TEST SETUP



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

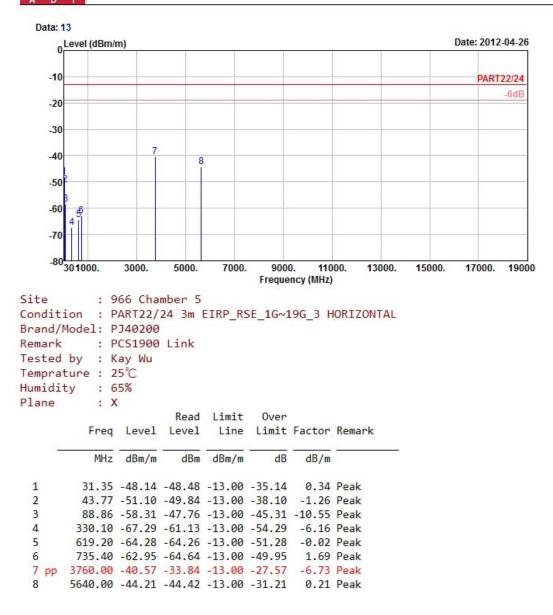


4.6.5 TEST RESULTS

Test Mode A



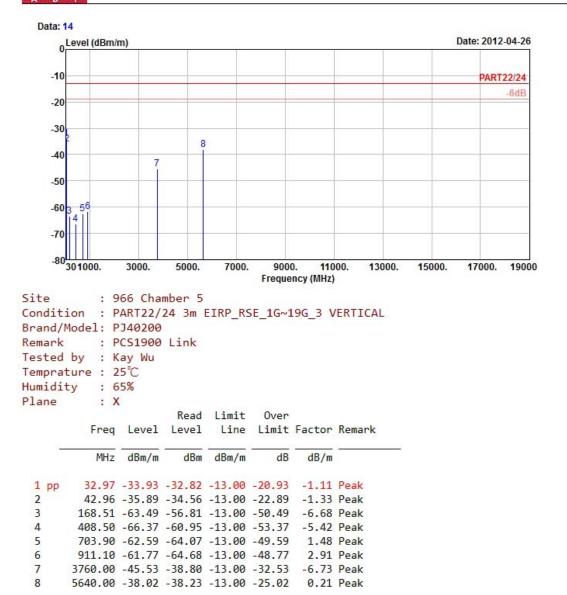
Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch





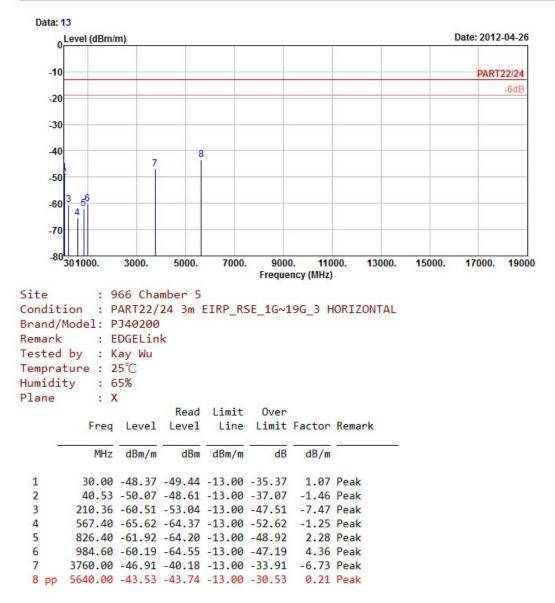


Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch





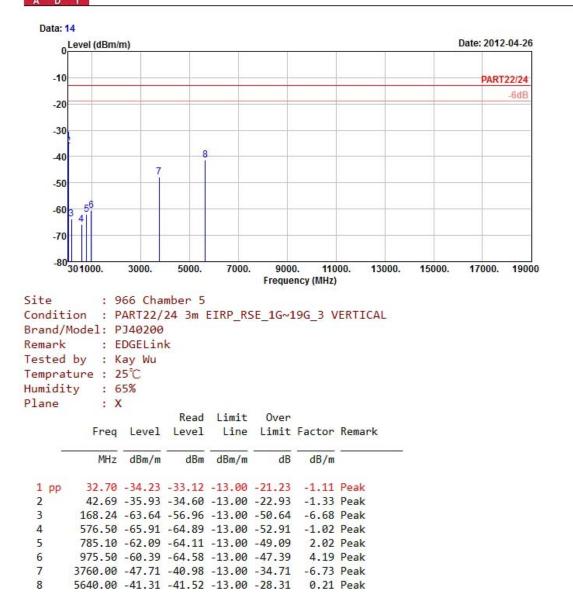








Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch

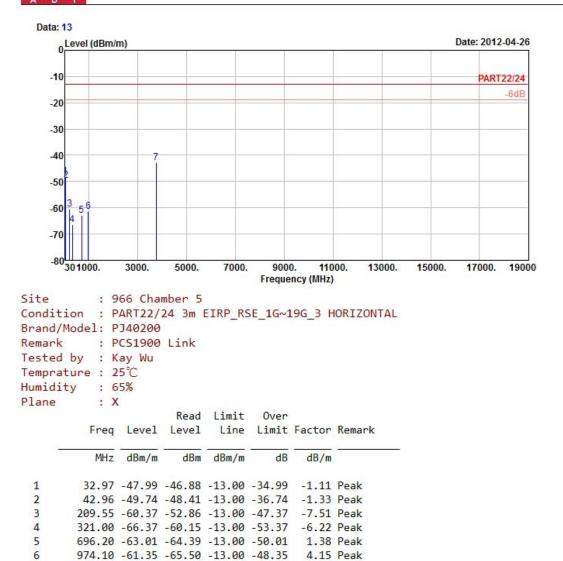




Test Mode B



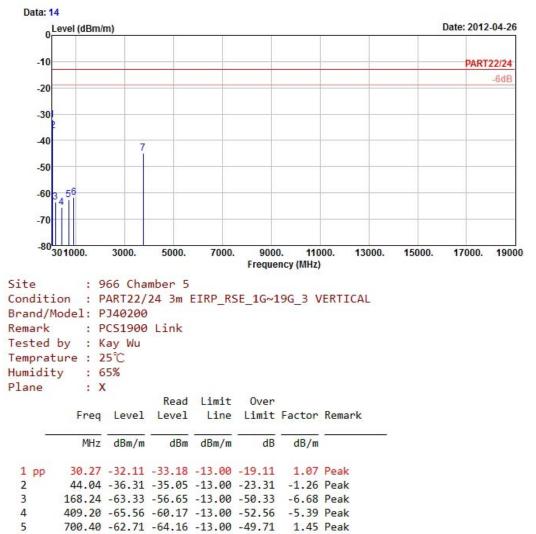
Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



7 pp 3760.00 -42.72 -35.99 -13.00 -29.72 -6.73 Peak







5 700.40 -62.71 -64.16 -13.00 -49.71 1.45 Peak 6 916.70 -61.72 -64.75 -13.00 -48.72 3.03 Peak 7 3760.00 -44.93 -38.20 -13.00 -31.93 -6.73 Peak



5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



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.

Copies of accreditation and authorization certificates of our laboratories obtained from approval agencies can be downloaded from our web site: <u>www.adt.com.tw/index.5.phtml</u>. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180 Fax: 886-2-26051924 Hsin Chu EMC/RF Lab: Tel: 886-3-5935343 Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab: Tel: 886-3-3183232

Fax: 886-3-3270892 Email: service.adt@tw.bureauveritas.com Web Site: www.adt.com.tw

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



7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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