Report No.: LCS1506110738E

FCC TEST REPORT

For

Qingdao Hisense Intelligent Commercial System Co., Ltd.

Tablet POS

Test Model: HM516

Prepared for Address	:	Qingdao Hisense Intelligent Commercial System Co., Ltd. Bldg 3, 151 Zhuzhou Lu, Laoshan, Qingdao, China
Prepared by Address	:	Shenzhen LCS Compliance Testing Laboratory Ltd. 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
		Bao'an District, Shenzhen, Guangdong, China
Tel	:	(+86)755-82591330
Fax	:	(+86)755-82591332
Web	:	www.LCS-cert.com
Mail	:	webmaster@LCS-cert.com
Date of receipt of test sample	:	April 25, 2015
Number of tested samples	:	1
Serial number	:	1S352338610700JBU000005
Date of Test	:	April 25, 2015 – April 29, 2015
Date of Report	:	June 25, 2015

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. FCC ID: GQK-HM516 Report No.: LCS1506110738E

	FCC TEST REPORT		
FCC CFR 47 PA	RT 22 SUBPART H AND PART	24 SUBPART E	
Report Reference No	LCS1506110738E		
Date of Issue	June 25, 2015		
Testing Laboratory Name	Shenzhen LCS Compliance T	esting Laboratory Ltd.	
Address	1/F., Xingyuan Industrial Park Bao'an District, Shenzhen, Gua	r, Tongda Road, Bao'an Avenue, ngdong, China	
Testing Location/ Procedure	Full application of Harmonised	standards	
	Partial application of Harmonis	ed standards \Box	
	Other standard testing method		
Applicant's Name	: Qingdao Hisense Intelligent (Commercial System Co., Ltd.	
Address	Bldg 3, 151 Zhuzhou Lu, Laosh	nan, Qingdao, China	
Test Specification			
Standard	FCC CFR 47 PART 2, FCC CF AND PART 24 SUBPART E	FR 47 PART 22 SUBPART H	
Test Report Form No	LCSEMC-1.0		
TRF Originator	Shenzhen LCS Compliance Tes	sting Laboratory Ltd.	
Master TRF	Dated 2011-03		
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Test Item Description	a Tablet POS		
Trade Mark	Hisense		
Test Model	HM516		
Ratings	DC 3.7V by li-ion polymer batt Recharged Voltage: DC 5V/2A	tery(8000mAh)	
Result	Positive		
Compiled by:	Supervised by:	Approved by:	
Jeo Jee	Cash	Gravino Liang	

Leo Lee/ File administrators

Glin Lu/ Technique principal

Gavin Liang/ Manager

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FCC ID: GQK-HM516

Report No.: LCS1506110738E

FCC -- TEST REPORT

Test Report No. : LCS1506110738E

June 25, 2015 Date of issue

Test Model	: HM516
EUT	: Tablet POS
Applicant	: Qingdao Hisense Intelligent Commercial System Co., Ltd.
Address	: Bldg 3, 151 Zhuzhou Lu, Laoshan, Qingdao, China
Telephone	: /
Fax	: /
Manufacturer	: Qingdao Hisense Intelligent Commercial System Co., Ltd.
Address	: Bldg 3, 151 Zhuzhou Lu, Laoshan, Qingdao, China
Talanhana	
relephone	. /
Fax	: /
Fax	: / : Qingdao Hisense Intelligent Commercial System Co., Ltd.
Fax Fax Address	 ?/ : / : Qingdao Hisense Intelligent Commercial System Co., Ltd. : Bldg 3, 151 Zhuzhou Lu, Laoshan, Qingdao, China
Fax Factory Address Telephone	 / : <i>Q</i>ingdao Hisense Intelligent Commercial System Co., Ltd. : Bldg 3, 151 Zhuzhou Lu, Laoshan, Qingdao, China : /

Test Result Positive

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENTS

1. GENERAL INFORMATION	5
1.1. DESCRIPTION OF DEVICE (EUT)	5
1.2. HOST SYSTEM CONFIGURATION LIST AND DETAILS	7
1.3. External I/O	7
1.4. DESCRIPTION OF TEST FACILITY	7
1.5. STATEMENT OF THE MEASUREMENT UNCERTAINTY	7
1.6. MEASUREMENT UNCERTAINTY	8
1.7. 1EST ENVIRONMENT	8
2. TEST METHODOLOGY	9
2.1. EUT CONFIGURATION	9
2.2. Objective	9
2.3. GENERAL TEST PROCEDURES	9
2.4. Test Mode	10
3. SYSTEM TEST CONFIGURATION	11
3.1. JUSTIFICATION	11
3.2. EUT EXERCISE SOFTWARE	11
3.3. SPECIAL ACCESSORIES	11
3.4. BLOCK DIAGRAM/SCHEMATICS	11
3.5. Equipment Modifications	
3.6. TEST SETUP	11
4. SUMMARY OF TEST RESULTS	12
5. TEST RESULT	13
5.1. RF OUTPUT POWER	13
5.2. PEAK-TO-AVERAGE RATIO	19
5.3. OCCUPIED BANDWIDTH	20
5.4. SPURIOUS AND HARMONIC EMISSION AT ANTENNA TERMINAL	
5.5. RADIATED SPURIOUS EMISSIONS MEASUREMENT	
5.6. POWER LINE CONDUCTED EMISSIONS	
5.7. FREQUENCY STABILITY OVER TEMPERATURE AND VOLTAGE VARIATIONS	54
6. LIST OF MEASURING EQUIPMENTS	57

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD.

FCC ID: GQK-HM516

Report No.: LCS1506110738E

1. GENERAL INFORMATION

1.1. Description of Device (EUT)				
EUT	: Tablet POS			
Hardware Version	: VER.B			
Software Version	: V0.8U.F511.HM516_WCDMA			
Test Model	: HM516			
Power Supply	: DC 3.7V by li-ion polymer battery(8000mAh)			
	Recharged Voltage: DC 5V/2A			
EUT Support	: GSM/GPRS/EGPRS/WCDMA/HSUPA/HSDPA/WIFI/Bluetooth/			
Radios Application	NFC			
2G Band	:			
Support Band	: SGSM 900 (EU-Band) SDCS 1800 (EU-Band)			
	GSM 850 (U.SBand) PCS 1900 (U.SBand)			
Release Ver.	: R99			
GPRS Class	: Class 12			
EGPRS Class	: Class 12			
Uplink	: GSM 850: 824.2MHz ~ 848.8MHz			
	PCS 1900: 1850.2MHz ~ 1909.8MHz			
Downlink	: GSM 850: 869.2MHz ~ 893.8MHz			
	PCS 1900: 1930.2MHz ~ 1989.8MHz			
Number of Channels	: GSM 850: 128 / 190 / 251			
	PCS 1900: 512 / 661 / 810			
Type Of Modulation	: GMSK for GSM/GPRS; GMSK/8PSK for EGPRS			
Antenna Description	: IFA Antenna, 2.5dBi(Max.)			
Test PCL/Class	: GSM/GPRS 850: Level 5 / Class 4			
	PCS/GPRS 1900: Level 0 / Class 1			
Maximum	: 32.11dBm for GPRS 850			
RF Output Power	28.71dBm for GPRS 1900			

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FCC ID: GQK-HM516

Report No.: LCS1506110738E

3G Band	:
Support Band	: WCDMA Band II (U.SBand)
	WCDMA Band V (U.SBand)
	WCDMA Band I (EU-Band)
	WCDMA Band VIII (EU-Band)
Release Ver.	: R99
Uplink	: WCDMA Band V: 826.4MHz ~ 846.6MHz
	WCDMA Band II: 1852.4MHz ~ 1907.6MHz
Downlink	: WCDMA Band V: 871.4MHz ~ 891.6MHz
	WCDMA Band II: 1932.4MHz ~ 1987.6MHz
Number of Channels	: WCDMA Band V: 4132 / 4183 / 4233
	WCDMA Band II: 9262 / 9400 / 9538
Type Of Modulation	: WCDMA: QPSK; HSDPA/HSUPA: QPSK
Antenna Description	: IFA Antenna, 2.6dBi(Max.)
Test PCL/Class	: Level 3
Maximum	: 23.43dBm for WCDMA Band V
RF Output Power	23.21dBm for WCDMA Band II

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1.2. Support equipment List

Manufacturer	Description	Model	Serial Number	Certificate
FSP GROUP INC.	Switching Power Adapter	FSP040-RHA N2		VOC
Qingdao Hisense Intelligent Commercial System Co., Ltd.	Docking Station	HM516		VOC
SHENZHEN HONOR ELECTRONIC CO.,LTD.	SWITCHING ADAPTER	ADS-10BA-0 6 05010G		VOC

1.3. External I/O

I/O Port Description	Quantity	Cable
Micro-SD Card Slot	1	N/A
SIM Card Slot	1	N/A
IC Card Slot	1	N/A
USB Port	1	N/A
Headset Jack	1	N/A
Micro USB Port	1	0.9m, unshielded

1.4. Description of Test Facility

CNAS Registration Number. is L4595.

FCC Registration Number. is 899208.

Industry Canada Registration Number. is 9642A-1.

VCCI Registration Number. is C-4260 and R-3804.

ESMD Registration Number. is ARCB0108.

UL Registration Number. is 100571-492.

TUV SUD Registration Number. is SCN1081.

TUV RH Registration Number. is UA 50296516-001

1.5. Statement of The Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 - 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

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1.6. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty		9KHz~30MHz	3.10dB	(1)
	L	30MHz~200MHz	2.96dB	(1)
	:	200MHz~1000MHz	3.10dB	(1)
		1GHz~26.5GHz	3.80dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	1.63dB	(1)
Power disturbance	:	30MHz~300MHz	1.60dB	(1)

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

1.7. Test environment

All tests were performed under the following environmental conditions:

Condition	Minimum value	Maximum value
Barometric pressure	86kPa	106kPa
Temperature	15°C	30°C
Relative Humidity	20 %	75 %
Power supply range	$\pm 5\%$ of rate	ed voltages

2. TEST METHODOLOGY

All tests and measurements indicated in this document were performed in accordance with FCC CFR 47 part 2, FCC CFR 47 part 22 subpart H and part 24 subpart E.

Applicable Standards: TIA/EIA603-C. The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd.

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. Objective

This type approval report is prepared on behalf of **Qingdao Hisense Intelligent Commercial System Co., Ltd.** in accordance with FCC CFR 47 part 2, FCC CFR 47 part 22 subpart H and part 24 subpart E.

The objective is to determine compliance with FCC rules for RF output power, modulation characteristics, occupied bandwidth, spurious emissions at antenna terminal, field strength of spurious radiation, frequency stability, band edge, and conducted and radiated margin.

2.3. General Test Procedures

2.3.1 Conducted Emissions

AC power-line conducted emissions shall be measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turn table and the turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made.

2.4. Test Mode

GSM / GPRS / EGPRS 850: Channel Low (CH128), Channel Mid (CH190) and Channel High (CH251) were chosen for full testing. The test PCL(Power Control Level)/Class is level 5/class 4.

PCS / GPRS / EGPRS 1900: Channel Low (CH512), Channel Mid (CH661) and Channel High (CH810) were chosen for full testing. The test PCL(Power Control Level)/Class is level 0/class 1.

WCDMA Band V/HSPA Band V: Channel Low (CH4132), Channel Mid (CH4183) and Channel High (CH4233) were chosen for full testing. The test PCL(Power Control Level)/Class is level 3.

WCDMA Band II/HSPA Band II: Channel Low (CH9262), Channel Mid (CH9400) and Channel High (CH9538) were chosen for full testing. The test PCL(Power Control Level)/Class is level 3.

There are three test configurations for the pre-testing:

Configuration 1: Stand-alone(Power supplied by build-in battery DC 3.7V)

Configuration 2: Configured with SWITCHING ADAPTER (Used For Charging)

Configuration 3: Configured with Switching Power Adapter and Docking Station (Used For Charging)

For pre-testing, when performed with the Configuration 2 and Configuration 3, the input Voltage/Frequency AC 120V/60Hz and AC 240V/60Hz were used. We found that the Configuration 3(Input AC 120V/60Hz) was the worst case and used for the full test and recorded in this report.

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200) to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on both GSM and WCDMA frequency band.

GSM/GPRS/EGPRS 850, GSM/GPRS/EGPRS 1900, WCDMA / HSPA band V, WCDMA / HSPA band II mode have been tested during the test.

The EUT has one GSM/WCDMA card slot only.

***Note: The EUT only support data function and does not voice function. Only recorded the worst test case in this test report.

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a continuous transmit condition.

3.2. EUT Exercise Software

N/A.

3.3. Special Accessories

N/A.

3.4. Block Diagram/Schematics

Please refer to the related document

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Test Setup

Please refer to the test setup photo.

4. SUMMARY OF TEST RESULTS

Applied Standard: 47 CFR FCC Part 22 Subpart H, Part 24 Subpart E				
FCC Rules	Description of Test		Result	
§2.1046, §22.913 /	DE Output Douvor	Conducted Output Power	Compliant	
§24.232	Kr Output Power	Radiated Output Power	Compliant	
§24.232(d)	Peak-to-	-Average Ratio	Compliant	
§2.1049, §22.905	Qaauni	ad Dandwidth	Compliant	
§22.917, §24.238	Occupi			
§2.1053	Spurious P	Compliant		
§22.917, §24.238	Spurious Radiated Emissions		Compliant	
§2.1051	Spurious Emissions at Antenna Terminals		Compliant	
§22.917, §24.238	Spurious Emissions at Antenna Terminais		Compliant	
§22.917, §24.238	Band Edge		Compliant	
§2.1055	Frequency Stability		Compliant	
§22.355, §24.235			Compliant	
§15.107 / §15.207	AC power line conducted emissions		Compliant	
§1.1310, §2.1091	RF Expos	Compliant		

5. TEST RESULT

5.1. RF OUTPUT POWER

5.1.1. Standard Applicable

According to FCC §2.1046 and §22.913, the maximum effective radiated power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

According to FCC §2.1046 and §22.232, mobile and portable stations are limited to 2 Watts and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

5.1.2. Test Procedures

Conducted method:



Radiated method:

TIA 603-D section 2.2.17

Report No.: LCS1506110738E

5.1.3. Test Results

Temperature	25 ℃	Humidity	60%
ATM Pressure:	101.4kPa	Test Engineer	Leo

Conducted Output Power:

Mode	Channel	Frequency (MHz)	RF Output Power (dBm, Average)	Limit (dBm)
0000.000	128	824.2	31.73	38.45
GPRS 850	190	836.6	32.11	38.45
(1 uplink), GMSK	251	848.8	32.05	38.45
	128	824.2	30.74	38.45
(2 unlink) CMSK	190	836.6	30.89	38.45
(2 uplitik), Givisk	251	848.8	30.81	38.45
	128	824.2	28.11	38.45
GPRS 850	190	836.6	28.26	38.45
(4 uplitik), Givisk	251	848.8	28.19	38.45
	128	824.2	26.83	38.45
	190	836.6	26.91	38.45
(1 uplink), 8PSK	251	848.8	26.86	38.45
	128	824.2	25.77	38.45
(2 uplink), 8PSK	190	836.6	25.84	38.45
	251	848.8	25.81	38.45
	128	824.2	23.47	38.45
	190	836.6	23.64	38.45
(4 upiink), of SK	251	848.8	23.55	38.45

Report No.: LCS1506110738E

Mode	Channal	Frequency	RF Output Power	Limit
	Channer	(MHz)	(dBm, Average)	(dBm)
	512	1850.2	28.59	33
(1 unlink) CMSK	661	1880.0	28.71	33
(1 uplink), GMSK	810	1909.8	28.66	33
CDDS 1000	512	1850.2	27.87	33
GPRS 1900	661	1880.0	28.01	33
(2 upiirik), Givisk	810	1909.8	27.93	33
	512	1850.2	25.21	33
(4 uplink), GMSK	661	1880.0	25.33	33
	810	1909.8	25.27	33
	512	1850.2	24.91	33
EGPRS 1900	661	1880.0	25.00	33
(Tupink), opsk	810	1909.8	24.95	33
	512	1850.2	23.94	33
EGPRS 1900	661	1880.0	24.03	33
(2 uplink), 8PSK	810	1909.8	24.01	33
	512	1850.2	22.87	33
EGPRS 1900	661	1880.0	22.97	33
(4 upiink), or 5K	810	1909.8	22.92	33

***Note: The EUT only support data function. The GPRS(1 uplink) mode has higher power.

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD.

FCC ID: GQK-HM516

Report No.: LCS1506110738E

Mode	Channel	Frequency	RF Output Power	Limit
	Unanner	(MHz)	(dBm, Average)	(dBm)
WCDMA Band V RMC 12.2K	4132	826.4	23.39	38.45
	4183	836.6	23.43	38.45
	4233	846.6	23.37	38.45
	4132	826.4	23.07	38.45
Rubtost 1	4183	836.6	23.11	38.45
Sublesi	4233	846.6	23.03	38.45
ИСОВУ	4132	826.4	22.28	38.45
Rubtoot 2	4183	836.6	22.37	38.45
Sublesi 2	4233	846.6	22.31	38.45
	4132	826.4	21.68	38.45
HSDPA Subtest 2	4183	836.6	21.79	38.45
Sublest 3	4233	846.6	21.71	38.45
	4132	826.4	21.26	38.45
HSDPA Subtest 4	4183	836.6	21.31	38.45
	4233	846.6	21.21	38.45
	4132	826.4	22.41	38.45
HSUPA Subtost 1	4183	836.6	22.53	38.45
Sublesi	4233	846.6	22.37	38.45
	4132	826.4	22.05	38.45
HSUPA Subtost 2	4183	836.6	22.11	38.45
Sublesi 2	4233	846.6	22.01	38.45
	4132	826.4	21.74	38.45
Rubtost 2	4183	836.6	21.85	38.45
Sublesi S	4233	846.6	21.77	38.45
	4132	826.4	21.61	38.45
Rubtoot 4	4183	836.6	21.73	38.45
	4233	846.6	21.66	38.45
	4132	826.4	22.13	38.45
Rubtaat 5	4183	836.6	22.21	38.45
Sublest 5	4233	846.6	22.17	38.45

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD.

FCC ID: GQK-HM516

Report No.: LCS1506110738E

Mode	Frequency		RF Output Power	Limit
	Onamier	(MHz)	(dBm, Average)	(dBm)
	9262	1852.4	23.13	38.45
RMC 12.2K	9400	1880.0	23.21	38.45
	9538	1907.6	23.17	38.45
	9262	1852.4	22.39	38.45
Rubtost 1	9400	1880.0	22.47	38.45
Sublesi	9538	1907.6	22.41	38.45
	9262	1852.4	22.13	38.45
HSDPA	9400	1880.0	22.17	38.45
Sublest 2	9538	1907.6	22.09	38.45
	9262	1852.4	21.82	38.45
HSDPA	9400	1880.0	21.93	38.45
Sublest 3	9538	1907.6	21.87	38.45
	9262	1852.4	21.36	38.45
HSDPA Subtest 4	9400	1880.0	21.44	38.45
Sublest 4	9538	1907.6	21.39	38.45
	9262	1852.4	22.97	38.45
Rubtost 1	9400	1880.0	23.08	38.45
Sublesi	9538	1907.6	23.01	38.45
	9262	1852.4	22.32	38.45
Rubtost 2	9400	1880.0	22.41	38.45
Sublesi Z	9538	1907.6	22.27	38.45
	9262	1852.4	21.83	38.45
Rubtoot 2	9400	1880.0	21.89	38.45
Sublesi S	9538	1907.6	21.77	38.45
	9262	1852.4	21.25	38.45
Rubtoot 4	9400	1880.0	21.31	38.45
	9538	1907.6	21.27	38.45
	9262	1852.4	22.76	38.45
Rubtoet 5	9400	1880.0	22.87	38.45
Sublest 5	9538	1907.6	22.81	38.45

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Radiated Power:

The worst test data as follow:

			Test Resu		
Mode	Channel	(MHz)	Max. ERP & EIRP (dBm)	Polarization	Limit (dBm)
	128	824.2	30.34	Н	38.45
	190	836.6	30.43	Н	38.45
	251	848.8	30.26	Н	38.45
GFK3 000	128	824.2	30.83	V	38.45
	190	836.6	31.01	V	38.45
	251	848.8	30.96	V	38.45
	512	1850.2	29.02	Н	33
	661	1880.0	29.16	Н	33
	810	1909.8	29.11	Н	33
GPR5 1900	512	1850.2	29.63	V	33
	661	1880.0	29.75	V	33
	810	1909.8	29.71	V	33
	4132	826.4	21.33	Н	38.45
	4183	836.6	21.41	н	38.45
WCDMA Bond V	4233	846.6	21.37	Н	38.45
	4132	826.4	22.01	V	38.45
RIVIC 12.2R	4183	836.6	22.09	V	38.45
	4233	846.6	21.93	V	38.45
	9262	1852.4	21.61	Н	33
	9400	1880.0	21.75	Н	33
WCDMA Dand II	9538	1907.6	21.69	Н	33
	9262	1852.4	22.13	V	33
	9400	1880.0	22.19	V	33
	9538	1907.6	21.09	V	33

5.2. PEAK-TO-AVERAGE RATIO

5.2.1. Standard Applicable

According to FCC §2.1046 and §24.232(d), the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.2.2. Test Procedures

The following steps outline the procedure used to measure the Peak-to-Average Ratio from the EUT.

1) The EUT was connected to Spectrum Analyzer and Base Station via power divider.

2) For GSM/EGPRS operating modes:

a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.

b. Set EUT in maximum power output, and triggered the burst signal.

c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.

3) For UMTS operating modes:

a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.

b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

Modes	GPRS 1900			
	512	661	810	
Channel	Low	Mid	High	
Frequency(MHz)	1850.2	1880	1909.8	
Peak-To-Average Ratio (dB)	0.11	0.09	0.18	
Modes		WCDMA Band II		
	9262	9400	9538	
Channel	Low	Mid	High	
Frequency(MHz)	1852.4	1880.0	1907.6	
Peak-To-Average Ratio (dB)	2.49	2.51	2.64	

5.2.3. Test Results

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5.3. OCCUPIED BANDWIDTH

5.3.1. Standard Applicable

FCC §2.1049, §22.917, §22.905 and §24.238.

5.3.2. Test Procedures

The RF output of the transmitter was connected to the wireless communication tester and spectrum analyzer through attenuation.



The -26dB & 99% bandwidth was recorded.

5.3.3. Test Results

Temperature	25 ℃	Humidity	60%
ATM Pressure:	101.4kPa	Test Engineer	Leo

The worst test data as follow:

Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (kHz)	Occupied Bandwidth (99%) (kHz)
	128	824.2	319.0	244.13
GPRS 850	190	836.6	319.4	243.72
	251	848.8	314.4	241.61

Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (kHz)	Occupied Bandwidth (99%) (kHz)
	512	1850.2	321.9	244.94
GPRS 1900	661	1880.0	318.0	244.23
	810	1909.8	318.4	243.29

Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (MHz)	Occupied Bandwidth (99%) (MHz)
	4132	826.4	4.65	4.12
Rend V	4183	836.6	4.66	4.15
Danu V	4233	846.6	4.69	4.14
	9262	1852.4	4.67	4.14
WCDIMA Bond II	9400	1880.0	4.66	4.15
Dailu II	9538	1907.6	4.67	4.14

Test Plots For GPRS 850

Agilent Spectrum Analyzer - Occupied	BW					
Marker 1 Ηz	SE Cente Trig: F #IFGain:Low	nse:pulse r Freq: 824.200000 MHz ree Run Avg Ho : 30 dB	ALIGNAUTO	01:40:36 AM Apr 28, 20 Radio Std: None Radio Device: BTS	15 Tra	ce/Detector
10 dB/div Ref 30.00 dB	m I I o baccorr	~~~~~				
20.0			and a second	~		Clear Write
-10.0 -20.0 -30.0						Average
-40.0						Max Hold
Center 824.2 MHz #Res BW 10 kHz	#	VBW 30 kHz		Span 500 kl Sweep 4.8 n	Hz ns	Min Hold
Occupied Bandwid	th 244.13 kHz	Total Power	37.7	dBm		Detector
Transmit Freq Error x dB Bandwidth	343 Hz 319.0 kHz	OBW Power x dB	99. -26.0	00 % 0 dB	Auto	Peak▶ <u>Man</u>
MSG			STATUS			



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FCC ID: GQK-HM516

Report No.: LCS1506110738E

Agilent Spectrum Analyzer - Occupied BW						_			
Center Freq 848.800000 M	Hz #IFGain:Low	nys:/Potsej r Freq: 848.800000 MHz iree Run Avg H : 30 dB	align AUTO old:>10/10	Radio Std	M Apr 28, 2015 : None vice: BTS	Trace	Trace/Detector		
10 dB/div Ref 30.00 dBm	1								
20.0	~~~~~	m	and a second			c	lear Write:		
0.00 -10.0 -20.0				- And	~~~~		Average		
-30.0							Max Hold		
Center 848.8 MHz #Res BW 10 kHz	#	VBW 30 kHz		Spai Swee	n 500 kHz p 4.8 ms				
Occupied Bandwidth	1	Total Power	37.	7 dBm			WIN HOID		
24	1.61 kHz						Detector		
Transmit Freq Error	493 Hz	OBW Power	99	9.00 %		Auto	Man		
x dB Bandwidth	314.4 kHz	x dB	-26.	.00 dB					
MSG			STATU	s					

Test Plots For GPRS 1900



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FCC ID: GQK-HM516

Report No.: LCS1506110738E

Agilent Spectrum Analyzer - Occup	ied BW						
04 RF 50.2 Center Freq 1.880000	AC	SENSE:PULSE Center Freq: 1.88000 Trig: Free Run #Atten: 30 dB	ALIGN 00000 GHz Avg Hold:>10/1	IAUTO 01:58:10 A Radio Std 10 Radio De	M Apr 28, 2015 : None vice: BTS	Trace	/Detector
						с	lear Write
-10.0					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		Average
-60.0							Max Hold
Center 1.88 GHz #Res BW 10 kHz Occupied Bandw	idth	#VBW 30 ki Total P	Hz 'ower	Spa Swee 32.8 dBm	n 500 kHz p 4.8 ms		Min Hold
	244.23 kl	Hz					Detector Peak≯
Transmit Freq Error x dB Bandwidth	r 549 318.0 I	Hz OBW F kHz x dB	ower	99.00 % -26.00 dB		Auto	<u>Man</u>
MSG				STATUS			



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Test Plots For WCDMA Band V

Agilent Spectrum Analyzer - Occupied BW	1						
LXU RF 50 Ω AC	SE	ENSE:PULSE	ALIGN AUTO	02:34:42/	AM Apr 28, 2015	Tracal	Detector
Center Freq 826.400000 N	Hz Cente #IFGain:Low #Atten	r Freq: 826.400000 MHz 'ree Run Avg Ho : 38 dB	old>10/10	Radio Sto Radio De	l: None vice: BTS	Trace	Detector
10 dB/div Ref 30.00 dBm							
20.0	Norman Marine Mari	mmmm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	man and a state of the state of		с	lear Write
-10.0					χ		
-20.0					how		Average
-40.0							Max Hold
Center 826.4 MHz				Sr	an 6 MHz	-	_
#Res BW 100 kHz	#	VBW 300 kHz		Sw	eep 1 ms		Min Hold
occupied Bandwidth م م	1 1197 MHz	Total Power	31.2	2 dBm			Detector
Transmit Freq Error	13.653 kHz	OBW Power	99	9.00 %		Auto	Peak► <u>Man</u>
x dB Bandwidth	4.648 MHz	x dB	-26.	00 dB			
MSG			STATU	s			



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FCC ID: GQK-HM516

Report No.: LCS1506110738E

Agilent Spectru	m Analyzer - Occup	ied BW								
Center Fre	RF 50 Ω eq 846.6000	AC 00 MHz #IFGain:Low	SENSE:PULSE Center Freq: 846.60 Trig: Free Run #Atten: 38 dB	A D0000 MHz Avg Hold:>	ALIGN AUTO 02:: Radi 10/10 Radi	35:12 AM Apr 28, 2015 o Std: None o Device: BTS	7,2015 Trace/Detect			
10 dB/div Log 20.0 10.0	Ref 30.00	dBm	un man		Varan		c	Clear Write		
-10.0 -20.0						L		Average		
-50.0								Max Hold		
Center 84 #Res BW	6.6 MHz 100 kHz ied Bandw	ridth	#VBW 300 Total	kHz Power	32.9 dBi	Span 6 MHz Sweep 1 ms m		Min Hold		
Transm x dB Ba	it Freq Erro	4.1400 MH r -19.175 ⊮ 4.687 №	HZ (Hz OBW IHz x dB	Power	99.00 -26.00 d	% B	Auto	Detector Peak≯ <u>Man</u>		
MSG					STATUS					

Test Plots For WCDMA Band II



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FCC ID: GQK-HM516

Report No.: LCS1506110738E

Agilent Spectrum Analyzer - Occupied BV	N					
04 RF 50 Ω AC Center Freq 1.880000000	GHz #IFGain:Low	NSE:PULSE r Freq: 1.880000000 GHz ree Run Avg Hol : 38 dB	ALIGN AUTO Id:>10/10	03:07:45 AM A Radio Std: N Radio Device	pr 28, 2015 one a: BTS	Trace/Detector
10 dB/div Ref 30.00 dBm Log 20.0			0			Characterist
10.0				- And -		Clear Write
-20.0					tomore A	Average
-50.0						Max Hold
Center 1.88 GHz #Res BW 100 kHz	#\	/BW 300 kHz Total Power	30.1	Span Sweej dBm	n6MHz p1ms	Min Hold
4. ⁴	1527 MHz					Detector Peak►
Transmit Freq Error x dB Bandwidth	4.720 kHz 4.659 MHz	OBW Power x dB	99. -26.0	00 % 0 dB		Auto <u>Man</u>
MSG			STATUS			



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Report No.: LCS1506110738E

5.4. SPURIOUS AND HARMONIC EMISSION AT ANTENNA TERMINAL

5.4.1. Standard Applicable

FCC §2.1051, §22.917 and §24.238.

5.4.2. Test Procedures

The RF output of the transmitter was connected to the wireless communication tester and spectrum analyzer through attenuation.



5.4.3. Test Results

Please refer to the following plots.

Report No.: LCS1506110738E

Transmitting Mode, CH 128, GPRS 850

Agilent Spect	rum Analyzer - Sw	rept SA					
<mark>4</mark> Marker 2	RF 50 9 588.98675	AC 0000 MHz	SENSE:PUL	.9E Avg In Avg	ALIGNAUTO	01:51:11 AM Apr 28, 2015 TRACE 1 2 3 4 5 TYPE M AWW/MA	Trace/Detector
10 dB/div	Ref Offset 18 Ref 35.00	FNU: Fast IFGain:Low 5 dB dBm	Atten: 30 dB		Mkı	2 588.987 MHz -44.165 dBm	Select Trace
Log 25.0 15.0 5.00							Clear Write
-5.00 -15.0 -25.0						-13.00 dBr	Trace Average
-35.0 -45.0 -55.0				2		d Antonio constructiviti internet de sel que en trigo Internet de sel que en trigo	Max Hold
Start 30.0 #Res BW) MHz 100 kHz RC SCL	#V	BW 300 kHz	FUNCTION	Sweep 93	Stop 1.0000 GHz .33 ms (40001 pts) Min Hold
1 N 2 N 3 4 5 6	f f	751.971 MHz 588.987 MHz	-44.545 dBm -44.165 dBm				View Blank Trace On
7 8 9 10 11			ui.				More 1 of 3
MSG					STATUS	:	



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Transmitting Mode, CH 190, GPRS 850

Trace/Detecto	M Apr 28, 2015 CE 1 2 3 4 5 6	01:50:38 Al	ALIGNAUTO	Avg Ty	PULSE	SENSE:P	Hz	Ω AC 50000 M	50 5.7947	2 57	ker
Select Trac		D	> 100/100	Avgino	iB	Atten: 30 dl	PNO: Fast C IFGain:Low			2	_
	62 dBm	-44.0	IVINI					5 dB dBm	f Offset f 35.00	Re v R e	B/di
Clear Wr											
Trace Avera	-13.00 dBm										
Max He	e aan edition kerente de	int Assessing	1	alara (d. ara) alara (d. ara)	2-						Потен
Min He	0000 GHz 0001 pts)	Stop 1.0 33 ms (4	weep 93.			/ 300 kHz	#VB		z kHz	0.0 MH W 100	rt 3 s B
	ON VALUE	FUNCTIO	NCTION WIDTH	TION F	FUNC	⊻ -44.355 dBm	997 MHz	× 776.9		TRC SO	MODE N
View Blan Trace O					n	-44.062 dBm	795 MHz	575.		1 f	N
M d 1 d											
1	×					al.					



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Transmitting Mode, CH 251, GPRS 850

Trace/Detector	M Apr 28, 2015 CE 1 2 3 4 5 6	01:50:02 A TRA	ALIGNAUTO	Avg	SE:PULSE	SENS	Hz	Ω AC 00000 M	RF 50	er 2 2	rk
Select Trace	91 MHz	2 232.3	Mkr	Avgir	0 dB	Atten: 30	PNO: Fast G IFGain:Low	15 dB	Ref Offset		
Clear Wri	// dBm	-44.1) dBm	Ref 35.0	div	
	-13.00 dBm					71					
The child							^1	2			
Max Ho											
Min Ho	0000 GHz 0001 pts)	Stop 1. 33 ms (4 FUNCTI	Sweep 93.	UNCTION	z	/ 300 kHz Y	#VBV	×	IHZ DO KHZ SCL	BW 1	s M
View Blank Trace Or					IBm IBm	-44.266 d -44.177 d	236 MHz 391 MHz	377.2 232.3	f f	1 1 1	
Mo 1 of											
	<u>></u>					ШÌ					



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Transmitting Mode, CH 512, GPRS 1900

Trace/Detector	AM Apr 28, 2015 ACE 1 2 3 4 5 6	02:00:25 / TR/	ALIGNAUTO e: Log-Pwr	Avg T	SENSE:PULSE		ac DOOO MHz	50 Ω .58000	r 2 431	rke
Select Trace		1	1>100/100	AvgiH	Atten: 30 dB): Fast 😱 in:Low	PN IFGa			
1	580 MHz 305 dBm	2 431.8 -45.3	Mkr				dB d B m	Offset 15	Rei liv Re	dB/d
Clear Writ										
Trace Averag	-13.00 dBm									
Max Hol	plaiten son la se				2 Address Bibliographic Address				a an air an	
Min Hol	0000 GHz 40001 pts)	Stop 1. 33 ms (4	Sweep 93.		300 kHz	#VBW		z kHz	10.0 MH 3W 100	rt : s
View Blank	ION VALUE	FUNCT	NCTION WIDTH	JNCTION	43.823 dBm 45.305 dBm	MHz	× 685.817 431.580		E TRC SCI 1 f 1 f	MO N
Trace On										
Mor 1 of										
	>		CTATUS		UI.					_



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Transmitting Mode, CH 661, GPRS 1900

Trace/Detector	M Apr 28, 2015	02:00:03 AM	ALIGNAUTO	Avg Typ	LSE	SENSE:PU	z	AC 0000 MH	50 s 48250	2 798	ker
Select Trace		DE	>100/100	Avg Hold	In	Atten: 30 dB	NO: Fast G Gain:Low	IF		2	_
1	83 MHz 44 dBm	2 798.4	Mkr					5 dB dBm	Offset 1 f 35.00	Re / R e	B/di
Clear Writ											
Trace Averag	-13.00 dBm										
		2	¢					⊘ ¹			
Max Hol						ald a billing to the formation					
Min Hol	0000 GHz 0001 pts)	Stop 1.0 33 ms (4	weep 93.	٤		300 kHz	#VBV		z kHz	0.0 MH W 100	rt 30 s B
	IN VALUE	FUNCTIO	NCTION WIDTH	TION FL	FUI	⊻ 43.780 dBm	1 MHz	× 231.08		TRC SC	MODE N
View Blank Trace On						<u>43.744 dBm</u>	3 MHz	798.48		1 f	N
Mor 1 of											
	>					шi)					



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Transmitting Mode, CH 810, GPRS 1900

Trace/Detector	01:59:34 AM Apr 28, 2015 TRACE 1 2 3 4 5 5	ALIGN AUTO Type: Log-Pwr	E A'	SENSE:PULS	//Hz	50 Ω AC	RF 524.700	ker 2
Select Trace	TYPE M MANAMAN DET P N N N N N	Hold>100/100	ı Av	Trig: Free Run Atten: 30 dB	PNO: Fast G			
1	2 524.700 MHz -43.962 dBm	Mkr				et 15 dB 00 dBm	Ref Offse Ref 35.0	B/div
Clear Write								
Trace Averag	-13.00 dBm							
Max Hole			na frið fri sjóns á svíka fr					adiana da
Min Hole	Stop 1.0000 GHz 33 ms (40001 pts)	Sweep 93.		/ 300 kHz	#VB\		MHz 100 kHz	rt 30.0 s BW
	FUNCTION VALUE	FUNCTION WIDTH	FUNCTION	Y -44.225 dBm	.761 MHz	× 914.	C SCL	MODE TF
View Blank Trace On				-43.962 dBm	.700 MHz	524.	f	N 1
Mon 1 of								
		SUITATS		Ш.				



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Transmitting Mode, CH 4132, WCDMA Band V





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Transmitting Mode, CH 4183, WCDMA Band V

								owept SA	im Analyzer - S	ent Spectr
Trace/Detector	AM Apr 28, 2015 ACE 123456	02:40:05 / TRA	LIGNAUTO	Avg Typ		SENSE:F	lz	Ω AC 50000 MH	RF 50 582.9242	rker 2
Select Trace			-100/100	Avginoia	Run IB	Atten: 38 d	PNO: Fast G FGain:Low			
1	924 MHz 37 dBm	2 582.9 -48.6	Mkr					3 dB 0 dBm	Ref Offset Ref 30.00	dB/div
Clear Write										
Trace Average	-13.00 dBm									
Max Hold			^1							
Min Hold	0000 GHz 10001 pts)	Stop 1. 33 ms (4	weep 93.	S	FUNC	/ 300 kHz	#VBV		MHz 100 kHz	art 30.0 es BW
View Blank Trace On		FUNCI			n n	-48.284 dBr -48.637 dBr	92 MHz 24 MHz	^ 788.4 582.9	f	
More 1 of 3	×									
			STATUS			101				



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Transmitting Mode, CH 4233, WCDMA Band V





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Transmitting Mode, CH 9262, WCDMA Band II

Agilent Spectr	um Analyzer - Sv	wept SA	La companya ang ang					
X Marker 2	RF 50	Ω AC 00000 MHz	SENSE:PUL	Avg	ALIGN AUTO	03:08:59 / TR4	M Apr 28, 2015 CE 1 2 3 4 5 6	Trace/Detector
		PNO: Fast IFGain:Lov	Atten: 38 dB	n Avgji	Hold:>100/100	1	DET PNNNNN	Select Trace
10 dB/div	Ref Offset 3 Ref 30.00	dB dBm			Mk	r2 440.6 -47.5	698 MHz 646 dBm	1
20.0 10.0								Clear Write
-10.0							-13.00 dBm	Trace Average
-40.0 -50.0 -60.0	a na seu a sta de la compañía de la Tenena de la compañía		2- Attacking the state descerts		Med para and in personal fee itelian recepting a generation of the standy	1 	an the first of the second	Max Hold
Start 30.0 #Res BW) MHz 100 kHz	#V	'BW 300 kHz	SUNCTION	Sweep 93	Stop 1. .33 ms (4	0000 GHz 10001 pts)	Min Hold
1 N 1 2 N 1 3 4 5 6		826.006 MHz 440.698 MHz	-47.986 dBm -47.546 dBm	FUNCTION		FUNCI		View Blank Trace On
7 8 9 9 10 11 11 11 11 11 11 11 11 11 11 11 11							 ⊻	More 1 of 3
MSG					STATUS	3		



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Transmitting Mode, CH 9400, WCDMA Band II

Agilent Spect	rum Analyzer - Sw	ept SA						
Marker 2	RF 50 Ω 2 402.11625	AC 0000 MHz	SENSE:PULS	E Avg	ALIGNAUTO	03:09:31 AN TRAC	Apr 28, 2015	Trace/Detector
		PNO: Fast IFGain:Low	Atten: 38 dB	i Avg	1007100	DE	PNNNN	Select Trace
10 dB/div	Ref Offset 3 Ref 30.00	dB dBm			Mk	r2 402.1 -48.38	16 MHz 30 dBm	1
20.0								Clear Write
-10.0							-13:00 dBin	Trace Average
-30.0 -40.0 -50.0 -60.0				lation in the second state			ubjece at la strange	Max Hold
Start 30. #Res BW	0 MHz / 100 kHz	#VE	300 kHz	FUNCTION	Sweep 9	Stop 1.0 3.33 ms (4)	000 GHz 0001 pts)	Min Hold
1 N 2 N 3 4 5 6	1 f	709.873 MHz 402.116 MHz	-48.630 dBm -48.380 dBm	FUNCTION				View Blank Trace On
7 8 9 10 11							×	More 1 of 3
MSG					STATU	IS		



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Transmitting Mode, CH 9538, WCDMA Band II

	AM Apr 28, 2015	03:10:04/	ALIGN AUTO		PULSE	SENSE:P		Swept SA	m Analyzer RF 5	nt Spectr
Trace/Detector		TRA	e: Log-Pwr d:>100/100	Avg Typ Avg Hol	Run	Trig: Free F	Hz BNO: East	00000 M	763.077	ker 2
Select Trace	78 MHz	2 763.0	Mkr	-	IB	Atten: 38 d	IFGain:Low	3 dB	Ref Offse	
	63 dBm	-48.3						0 dBm	Ref 30.0	B/div
Clear Writ										
	-13:00 dBm									
Trace Average										
Max Hold		h ar aisteil laite	2-	er et klast			i çe çeştili yılış bileş			
Min Hole	0000 GHz 10001 pts)	Stop 1. 33 ms (4	Sweep 93.	:		N 300 kHz	#VB		MHz 100 kHz	rt 30.0 es BW
	ION VALUE	FUNCT	JNCTION WIDTH	ion fi	FI	Y		Х	C SCL	MODE TP
View Blank Trace On					n	-46.805 dBn -48.363 dBn	186 MHz 078 MHz	228. 763.	f f	<u>N 1</u>
Mon 1 of 3										
		-		10		Ш			3 ())	



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Agilent Spectrum Analyzer - Swept SA 57 AM Apr 28, 2015 02:12 Peak Search TRACE 12 Marker 1 1.850000000000 GHz Avg Type: Log-Pwr Avg|Hold:>100/100 TYPE Trig: Free Run PNO: Wide 🖵 IFGain:Low Atten: 30 dB **Next Peak** Mkr1 1.850 000 00 GHz -21.828 dBm Ref Offset 15 dB Ref 35.00 dBm 10 dB/div Next Pk Right Martin Martin Mart **Next Pk Left** Marker Delta -13.00 df Mkr→CF ŵ MM Mkr→Ref Lvl 1 And Malmarker hander Juliphonet More Center 1.8500000 GHz #Res BW 3.0 kHz 1 of 2 Span 1.000 MHz Sweep 105.6 ms (4001 pts) #VBW 10 kHz STATUS

Test Result of Band Edge Emissions, GPRS 1900



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					1.0.000		Swept SA	um Analyzer - S	ent Spectr
Trace/Detector	2:59:38 AM Apr 28, 2015 TRACE 1 2 3 4 5 6	ALIGN AUTO	Avg Type	E:PULSE	SENS	Hz	ο Ω AC 000000 M	RF 50 824.0000	arker 1
Select Trace	DET P N N N N N	>100/100	Avg Hold:	e Run dB	Atten: 38	PNO: Wide Ģ IFGain:Low			
1	000 000 MHz -19.214 dBm	Mkr1 82					3 dB 0 dBm	Ref Offset 3 Ref 30.00	dB/div
Clear Write									.0
	www.paumahananahan	distriction and the	MANNA MAN						
Trace Average				میں میں	41 82				10
	42.00 dBm			/	27				.0
Max Hold	-1300 054			1					.0
Min Hold					a farrybold and a f	ul test manuation	anal har an	hamped an and way	.0 Wuten
				(41			10	.0
View Blank Trace On				· ·					.0
More								3	.0
1 of 3	Span 5.000 MHz	ween 26			(300 kHz	#\/B\A	z	4.000 MHz	nter 82
	ms (40001 pts)	STATUS			-500 MHZ	weiten		Nov Miliz	03 044

Test Result of Band Edge Emissions, WCDMA Band V



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rker 1 1.8500000000000	GHz RNO: Mide Trig: F	ENSE:PULSE	Avg Type Avg Hold:	ALIGN AUTO : Log-Pwr >100/100	03:03:46 AM TRAC TYF	Apr 28, 2015 E 1 2 3 4 5 6 M M M M M	Trace/Detector
Ref Offset 3 dB dB/div Ref 30.00 dBm	IFGain:Low Atten	: 38 dB	M	kr1 1.88	50 000 0 -18.7	00 GHz 85 dBm	Select Trace
0							Clear Wri
0			all and a start with the second	elenter in the second	₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩₩	n han fanske skrivet fins	Trace Avera
o		1				-13.00 dBm	Max Ho
D weekytonikyer, lachetusetaan aan her operationaan weekytonikyer, lachetusetaan aan her operationaan weekytonaan	al at many and the second						Min Ho
o 							View Blan Trace O
nter 1.850000 GHz					Span 5	.000 MHz	M o 1 o
es BW 100 kHz	#VBW 300 k	Hz	S	weep 2.6	667 ms (4	0001 pts)	_

Test Result of Band Edge Emissions, WCDMA Band II



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5.5. RADIATED SPURIOUS EMISSIONS MEASUREMENT

5.5.1. Standard Applicable

FCC §2.1053, §22.917 and §24.238.

5.5.2. Test Procedures

The EUT was placed on a non-conductive, the measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP = S.G. output (dBm) + Antenna Gain (dBd) – Cable (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) - Cable (dB)

For radiated spurious emissions below 1GHz



Report No.: LCS1506110738E

For radiated spurious emissions above 1GHz



5.5.3. Test Results

The worst test data(Configured with Switching Power Adapter and Docking Station(Input AC 120V/60Hz)) as follow: 30MHz~10GHz

The Worst Test Result For GPRS 850, CH 128								
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity				
75.35	-62.49	-13	-49.49	Н				
182.78	-74.31	-13	-61.31	Н				
686.73	-74.23	-13	-61.23	Н				
1785.71	-20.03	-13	-7.03	Н				
2495.13	-28.28	-13	-15.28	Н				
89.14	-61.73	-13	-48.73	V				
180.50	-65.29	-13	-52.29	V				
720.81	-72.02	-13	-59.02	V				
1643.76	-23.29	-13	-10.29	V				
2466.03	-40.13	-13	-27.13	V				

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 SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD.
 FCC ID: GQK-HM516

Report No.: LCS1506110738E

The Worst Test Result For GPRS 850, CH 190							
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity			
78.04	-63.67	-13	-50.67	Н			
188.40	-73.32	-13	-60.32	Н			
674.60	-81.14	-13	-68.14	Н			
1667.83	-18.91	-13	-5.91	Н			
2513.12	-26.56	-13	-13.56	Н			
91.26	-62.36	-13	-49.36	V			
190.88	-70.77	-13	-57.77	V			
463.49	-68.50	-13	-55.50	V			
1667.18	-21.44	-13	-8.44	V			
2506.65	-37.95	-13	-24.95	V			

The Worst Test Result For GPRS 850, CH 251							
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity			
73.61	-68.70	-13	-55.70	Н			
189.69	-76.14	-13	-63.14	Н			
675.92	-82.10	-13	-69.10	Н			
1671.18	-18.36	-13	-5.36	Н			
2516.16	-31.25	-13	-18.25	Н			
87.35	-60.79	-13	-47.79	V			
191.22	-70.67	-13	-57.67	V			
464.90	-73.81	-13	-60.81	V			
1667.03	-25.67	-13	-12.67	V			
2508.63	-37.27	-13	-24.27	V			

30MHz~20GHz

The Worst Test Result For GPRS 1900, CH 512							
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity			
89.48	-66.14	-13	-53.14	Н			
180.95	-70.27	-13	-57.27	Н			
722.37	-73.44	-13	-60.44	Н			
1603.02	-19.07	-13	-6.07	Н			
2554.89	-31.99	-13	-18.99	Н			
85.93	-63.15	-13	-50.15	V			
185.41	-65.17	-13	-52.17	V			
708.11	-79.17	-13	-66.17	V			
1696.35	-28.71	-13	-15.71	V			
2510.52	-39.43	-13	-26.43	V			

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 SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD.
 FCC ID: GQK-HM516

Report No.: LCS1506110738E

The Worst Test Result For GPRS 1900, CH 661							
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity			
67.26	-66.03	-13	-53.03	Н			
170.14	-71.02	-13	-58.02	Н			
686.45	-75.41	-13	-62.41	Н			
3641.06	-25.59	-13	-12.59	Н			
5437.52	-33.86	-13	-20.86	Н			
73.07	-64.27	-13	-51.27	V			
160.14	-68.37	-13	-55.37	V			
647.40	-78.51	-13	-65.51	V			
3609.03	-24.11	-13	-11.11	V			
5752.00	-30.79	-13	-17.79	V			

The Worst Test Result For GPRS 1900, CH 810							
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity			
98.39	-65.95	-13	-52.95	Н			
183.06	-74.76	-13	-61.76	Н			
633.45	-81.37	-13	-68.37	Н			
3825.70	-21.74	-13	-8.74	Н			
5728.91	-29.76	-13	-16.76	Н			
80.27	-71.17	-13	-58.17	V			
194.32	-63.69	-13	-50.69	V			
456.61	-73.01	-13	-60.01	V			
3807.22	-29.00	-13	-16.00	V			
5720.52	-29.43	-13	-16.43	V			

30MHz~10GHz

The Worst Test Result For WCDMA Band V, CH 4132							
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity			
106.47	-58.71	-13	-45.71	Н			
190.95	-72.06	-13	-59.06	Н			
672.97	-76.94	-13	-63.94	Н			
3808.62	-29.35	-13	-16.35	Н			
5717.68	-34.39	-13	-21.39	Н			
87.87	-58.31	-13	-45.31	V			
177.97	-65.60	-13	-52.60	V			
670.23	-74.42	-13	-61.42	V			
3777.43	-25.03	-13	-12.03	V			
5681.31	-32.28	-13	-19.28	V			

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Report No.: LCS1506110738E

The Worst Test Result For WCDMA Band V, CH 4183					
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity	
72.34	-64.65	-13	-51.65	Н	
190.62	-73.46	-13	-60.46	Н	
701.79	-73.62	-13	-60.62	Н	
1779.88	-18.75	-13	-5.75	Н	
2487.43	-31.87	-13	-18.87	Н	
78.87	-65.29	-13	-52.29	V	
184.18	-63.55	-13	-50.55	V	
725.80	-76.23	-13	-63.23	V	
1646.69	-25.12	-13	-12.12	V	
2478.11	-41.50	-13	-28.50	V	

The Worst Test Result For WCDMA Band V, CH 4233					
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity	
83.34	-64.09	-13	-51.09	Н	
178.00	-71.10	-13	-58.10	Н	
683.17	-81.49	-13	-68.49	Н	
1674.23	-23.34	-13	-10.34	Н	
2500.61	-29.03	-13	-16.03	Н	
85.10	-63.29	-13	-50.29	V	
197.35	-67.93	-13	-54.93	V	
464.74	-72.78	-13	-59.78	V	
1667.27	-22.44	-13	-9.44	V	
2503.94	-33.92	-13	-20.92	V	

30MHz~20GHz

The Worst Test Result For WCDMA Band II, CH 9262					
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity	
93.35	-61.59	-13	-48.59	Н	
183.55	-68.23	-13	-55.23	Н	
713.09	-74.55	-13	-61.55	Н	
1603.54	-22.67	-13	-9.67	Н	
2551.41	-29.37	-13	-16.37	Н	
75.75	-67.59	-13	-54.59	V	
189.71	-60.62	-13	-47.62	V	
730.21	-78.63	-13	-65.63	V	
1690.14	-29.56	-13	-16.56	V	
2515.33	-38.47	-13	-25.47	V	

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Report No.: LCS1506110738E

The Worst Test Result For WCDMA Band II, CH 9400					
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity	
69.34	-65.55	-13	-52.55	Н	
168.94	-72.44	-13	-59.44	Н	
685.66	-72.51	-13	-59.51	Н	
3645.33	-27.47	-13	-14.47	Н	
5430.25	-34.44	-13	-21.44	Н	
73.90	-69.98	-13	-56.98	V	
163.68	-66.02	-13	-53.02	V	
650.59	-79.96	-13	-66.96	V	
3602.73	-26.47	-13	-13.47	V	
5754.75	-35.55	-13	-22.55	V	

The Worst Test Result For WCDMA Band II, CH 9538						
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	Polarity		
90.96	-69.13	-13	-56.13	Н		
191.31	-75.41	-13	-62.41	Н		
638.94	-79.67	-13	-66.67	Н		
3825.41	-20.48	-13	-7.48	Н		
5728.03	-32.45	-13	-19.45	Н		
81.02	-68.72	-13	-55.72	V		
195.12	-68.18	-13	-55.18	V		
458.98	-72.61	-13	-59.61	V		
3813.88	-28.65	-13	-15.65	V		
5721.90	-34.11	-13	-21.11	V		

Note: Only recorded the worst test data(Configuration 3(Input AC 120V/60Hz)).

5.6. POWER LINE CONDUCTED EMISSIONS

5.6.1 Standard Applicable

According to \$15.107 (a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolt (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range	Limits (dBµV)			
(MHz)	Quasi-peak	Average		
0.15 to 0.50	66 to 56	56 to 46		
0.50 to 5	56	46		
5 to 30	60	50		

5.6.2 Block Diagram of Test Setup



5.6.3 Test Results

PASS.

The test data please refer to following page.

Report No.: LCS1506110738E

The Worst Test Result For Configuration 2(Input AC 120V/60Hz): Configured with SWITCHING ADAPTER (Used For Charging)



Note: Pre-scan all mode and recorded the worst case results in this report (GPRS 850)

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The Worst Test Result For Configuration 3(Input AC 120V/60Hz): Configured with Switching Power Adapter and Docking Station (Used For Charging)



Note: Pre-scan all mode and recorded the worst case results in this report (GPRS 850)

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5.7. FREQUENCY STABILITY OVER TEMPERATURE AND VOLTAGE

VARIATIONS

5.7.1. Standard Applicable

FCC §2.1055, §22.355 and §24.235, Frequency Tolerance: ±2.5ppm

5.7.2. Test Procedures

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20° C operating frequency as reference frequency.

Turn EUT off and set the chamber temperature to -30° C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10° C increased per stage until the highest temperature of $+50^{\circ}$ C reached.



5.7.3. Test Results

Pass

The Worst Test Result For GSM 850, CH 190, $f_0 = 836.6$ MHz						
Temperature	Power Supplied	Frequency Error	Frequency Error	Limit		
(•)	(Vdc)	(Hz)	(ppm)	(ppm)		
-30		21	0.02510	±2.5		
-20		19	0.02271	±2.5		
-10		14	0.01673	±2.5		
0		16	0.01913	±2.5		
10	3.7	11	0.01315	±2.5		
20		11	0.01315	±2.5		
30		8	0.00956	±2.5		
40		11	0.01315	±2.5		
50		17	0.02032	±2.5		
25	4.07	14	0.01673	±2.5		
25	3.33	17	0.02032	±2.5		

The worst test data as follow:

The Worst Test Result For PCS 1900, CH 661, f _o = 1880.0MHz						
Temperature (℃)	Power Supplied (Vdc)	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)		
-30		19	0.01011	±2.5		
-20		14	0.00745	±2.5		
-10		14	0.00745	±2.5		
0		11	0.00585	±2.5		
10	3.7	10	0.00532	±2.5		
20		14	0.00745	±2.5		
30		16	0.00851	±2.5		
40		12	0.00638	±2.5		
50		17	0.00904	±2.5		
25	4.07	14	0.00745	±2.5		
25	3.33	18	0.00957	±2.5		

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The Worst Test Result For WCDMA Band V, CH 4183, f _o = 836.6MHz							
Temperature	Power Supplied	Frequency Error	Frequency Error	Limit			
(°C)	(Vdc)	(Hz)	(ppm)	(ppm)			
-30		16	0.01913	±2.5			
-20		9	0.01081	±2.5			
-10		11	0.01322	±2.5			
0		8	0.00961	±2.5			
10	3.7	13	0.01562	±2.5			
20		10	0.01202	±2.5			
30		16	0.01923	±2.5			
40		17	0.02043	±2.5			
50		12	0.01442	±2.5			
25	4.07	13	0.01562	±2.5			
25	3.33	16	0.01923	±2.5			

The Worst Test Result For WCDMA Band II, CH 9400, f _o = 1880.0MHz							
Temperature	Power Supplied	Frequency Error	Frequency Error	Limit			
(0)	(Vdc)	(Hz)	(ppm)	(ppm)			
-30		19	0.01011	±2.5			
-20		16	0.00851	±2.5			
-10		14	0.00745	±2.5			
0		9	0.00479	±2.5			
10	3.7	9	0.00479	±2.5			
20		14	0.00745	±2.5			
30		16	0.00851	±2.5			
40		12	0.00638	±2.5			
50		15	0.00798	±2.5			
25	4.07	15	0.00798	±2.5			
25	3.33	17	0.00904	±2.5			

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6. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal Date	Due Date
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	June 18,2014	June 17,2015
Signal analyzan	Agilant	E4448A(External	11544200460	Oblig 40Clig	L 1 (2014	Inter 15 2015
Signai analyzer	Agnent	mixers to 40GHz)	0344300409	9KHZ~40GHZ	July 10,2014	July 13,2015
LISN	MESS Tec	NNB-2/16Z	99079	9KHz-30MHz	June 18,2014	June 17,2015
LISN	FMCO	3819/2NM	9703-1839	9KH7-30MH7	June 18 2014	June 17 2015
(Support Unit)	EMCO	3017/21101	5705 1055		June 10,2014	Julie 17,2015
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9KHz-30MHz	June 18,2014	June 17,2015
ISN	SCHAFFNER	ISN ST08	21653	9KHz-30MHz	June 18,2014	June 17,2015
3m Semi Anechoic	SIDT ED A NIZONI A	SAC 2M	020102 11	30M-1GHz	June 18 2014	June 17 2015
Chamber	SIDI FRANKONIA	SAC-3M	03СН03-Н 1	3m	June 18,2014	June 17,2015
Amplifier	SCHAFFNER	COA9231A	18667	9kHz-2GHzz	June 18,2014	June 17,2015
Amplifier	Agilent	8449B	3008A02120	1GHz-26.5GHz	July 16,2014	July 15,2015
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz-40GHz	July 16,2014	July 15,2015
Spectrum Analyzer	Agilent	E4407B	MY41440292	9k-26.5GHz	July 16,2014	July 15,2015
MAX Signal Analyzer	Agilent	N9020A	MY50510140	20Hz~26.5GHz	Oct. 27, 2014	Oct. 26, 2015
Loop Antenna	R&S	HFH2-Z2	860004/001	9k-30MHz	June 18,2014	June 17,2015
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	30MHz-1GHz	June 10,2014	June 09,2015
Horn Antenna	EMCO	3115	6741	1GHz-18GHz	June 10,2014	June 09,2015
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz-40GHz	June 10,2014	June 09,2015
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz-1GHz	June 18,2014	June 17,2015
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz-40GHz	June 18,2014	June 17,2015
Spectrum Meter	R&S	FSP 30	100023	9kHz-30GHz	July 16,2014	July 15,2015
Power Meter	R&S	NRVS	100444	DC-40GHz	June 18,2014	June 17,2015
Power Sensor	R&S	NRV-Z51	100458	DC-30GHz	June 18,2014	June 17,2015
Power Sensor	R&S	NRV-Z32	10057	30MHz-6GHz	June 18,2014	June 17,2015
RF CABLE-1m	JYE Bao	RG142	CB034-1m	20MHz-7GHz	June 18,2014	June 17,2015
RF CABLE-2m	JYE Bao	RG142	CB035-2m	20MHz-1GHz	June 18,2014	June 17,2015
Vector signal Generator	R&S	SMU200A	102098	100kHz~6GHz	June 18,2014	June 17,2015
Signal Generator	R&S	SMR40	10016	10MHz~40GHz	July 16,2014	July 15,2015
Universal Radio Communication Tester	R&S	CMU200	112012	N/A	July 18,2014	July 17,2015
DC power Source	GW	GPC-6030D	C671845	/	June 18,2014	June 17,2015
Temperature & Humidity Chamber	Wuhuan	HTP205	/	/	June 18,2014	June 17,2015
Note: All equipment through GRGT EST calibration						

-----THE END OF REPORT------

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