Accredited No. 2174.01

FCC TEST REPORT OF HUAWEI E870 HSDPA EXPRESS PCI DATACARD

M/N: E870

Apr. 18, 2007

Reliability Laboratory of Huawei Technologies Co., Ltd.

Notice

1.	The laboratory has obtained the accreditation of China National Accreditation Committee for Laboratories (CNAL), and accreditation number: L0310.
2.	The laboratory has obtained the accreditation of THE AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION (A2LA), and Accreditation Council Certificate Number: 2174.01.
3.	The laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 97456.
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REPORT ON DATACARD	**FCC Test of HUAWEI E870 HSDPA EXPRESS PCI**
	M/N: E870
	Report No: SYBH(E) 91032007
REGULATION	**FCC CFR47 Part 2: Subpart J;**
	FCC CFR47 Part 24: Subpart E;
CONCLUSION	There are 8 items need to be tested, 8 items have been tested. The sample of the model completely meets the requirements
	Final Judgement: Pass

General Manager	2007.04.17	Guo Xiaoqi	
	Date	Name	signature

Technical Responsibility For Area of Testing	2007.04.16	Zhang Xinghai	
	Date	Name	signature

Test Lab Engineer	2007.04.15	Hu Jun	
	Date	Name	signature

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1 Summary

The table below summarizes the measurements and results for the HUAWEI E870 HSDPA EXPRESS PCI DATACARD. Detailed results and descriptions are shown in the following pages.

Table 1   Summary of results

FCC Measurement Specification	FCC Limits Part(s)	Description	Result
2.1046	24.232	**Effective Radiated Power of Transmitter**	**PASS**
2.1046	24.232	**Conducted Power of Transmitter**	**PASS**
2.1047		**Modulation Characteristics**	**PASS**
2.1049		**Occupied Bandwidth**	**PASS**
2.1051	24.238	**Band Edges Compliance**	**PASS**
2.1051	24.238	**Spurious Emission at Antenna Terminal**	**PASS**
2.1053	24.238	**Radiated Spurious Emission**	**PASS**
2.1055	24.235	**Frequency Stability**	**PASS**

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2   Product   Description

2.1   Production Information

2.1.1   General Description

HUAWEI E870 HSDPA EXPRESS PCI DATACARDE870 is subscriber equipment in the GSM system. The frequency band is 850M. The E870 implements such functions as RF signal receiving / Transmitting, HSDPA/UMTS/EDGE/GPRS/GSM protocol processing and data service etc. Externally it provides EXPRESSCARD interface (to connect to the notebook etc.), USIM card interface and antenna interface. It has an internal antenna and an external antenna as default. E870 uses Qualcomm MSM7200 chipset and Zero-IF technologies.

Huawei D08 PCMCIA to Express adapter should work with the Huawei Express card E870, which switches the PC card interface of laptop from PCMCIA to ExpressCard. It can possess the protocol transfer from PCMCIA protocol PC Card Standard 8.1 (December 2002) to ExpressCard protocol ExpressCard Standard Release 1.0, so E870 can also work in the interface of PCMCIA by using it. But we don't recommend that D08 to work with other venders' express cards.

2.1.2   Support function and Service

The HUAWEI E870 HSDPA EXPRESS PCI DATACARD support the function and service as follows:

Table 2   Service and Test mode List

Service Name	Characteristic	Corresponding Test Mode	Note
data	Modulation: GMSK	TM1	
data	Modulation: 8PSK	TM2	
data	Modulation: HPSK	TM3	

Note: * The specified GPRS test conditions & settings are defined in 3GPP TS51.010 V6.1.0 clause 40 and the EDGE test conditions & settings are defined in 3GPP TS51.010 V6.1.0 clause 50.

2.2   Modification Information

For original equipment, following table is not application.

Table 3   Modification Information

Model Number	Board/Module	Original Version	New Version	Modify Information
		Not applicable		

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3 Test Site Description

The test site of:

Huawei Technologies Co. Ltd.
P.O. Box 518129
Huawei base, bantian,
Longgang District, Shenzhen, China

The test site description has been submitted to **FC** and registration granted under

the registration number **97456** on April 20. 2006. The test site has been accredited by

and the accredited number is **2714.01** in Jan of 2006.

3.1 Testing Period

The test have been performed during the period of

Apr. 01, 2007 –Apr. 18, 2007

3.2 General Set up Description

HUAWEI E870 HSDPA EXPRESS PCI DATACARD can support GPRS/EDGE mode and PCS Band. During this measurement, the HUAWEI E870 HSDPA EXPRESS PCI DATACARD just works in UMTS/GPRS/EDGE mode and PCS Band.

TM1: GPRS/GSM Mode with GMSK Modulation
TM2: EDGE Mode with 8PSK Modulation
TM3: UMTS/HSDPA Mode with QPSK Modulation

4 Product Description

4.1 Technical Characteristics

4.1.1 Frequency Range

Table 4 Frequency Range

Uplink band:	1850 to 1910 MHz
Downlink band:	1930 to 1990 MHz

4.1.2 Channel Spacing / Separation

Table 5 Channel Spacing / Separation

	EDGE/GPRS/GSM	UMTS/HSDPA
Channel spacing	200k Hz	200k Hz
Channel separation:	200k Hz	5M Hz

4.1.3 Type of Emission

Table 6 Type of Emission

	EDGE/GPRS/GSM	UMTS/HSDPA
Emission Designation:	300kGXW	5M0F9W

According to CFR 47 (FCC) part 2, subpart C, section 2.201 and 2.202

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4.1.4 Environmental Requirements

Table 7   Environmental Requirements

Minimum temperature:	- 10 ℃
Maximum temperature:	+ 55 ℃
Relative Humidity:	5％-95％RH

4.1.5 Power Source

Table 8   Power Source

DC voltage nominal:	▬▬ +3.3V; Supplied by EXPRESSCARD port of notebook
DC voltage range	▬▬ +3.0-3.6V
DC current maximal:	750mA

4.1.6 Tune-up Procedure

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (9).

Please reference the document Tune-up Procedure in TCF.

4.1.7 Applied DC Voltages and Currents

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8).

The voltage and current in the final RF stage is:

Table 9   Applied DC Voltages and Currents

Voltage:	▬▬ +2.85V
Current:	150mA According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8)

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4.2 EUT Identification List

4.2.1 Board Information

Table 10 Board Information

1900MHz HUAWEI E870 HSDPA EXPRESS PCI DataCard		
E870		
Board and Module		
Equipment Designation / Description	Serial Number	Remarks
-MAINBOARD	020EHH1074000011	TCPU Ver.B

4.2.2 Adapter Technical Data

Not Applicable.

4.2.3 Battery Technical Data

Not Applicable.

4.2.4 FCC Identification

Grantee Code: **QIS**
Product Code: **E870**
FCC Identification: **QISE870**

5 Main Test Instruments

Table 11   Main Test Equipments

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until (MM.DD.YYYY)
3m Semi Anechoic Chamber	S+M	N/A	N/A	12.24.2007
3m Full Anechoic Chamber	S+M	N/A	N/A	12.05.2007
Signal Analyzer	R&S	FSQ 26	100266	07.18.2007
Test Receiver Display Unit	R&S	ESMI 804.8932.52	829214/011	07.30.2007
Test Receiver RF Unit	R&S	ESMI 1032.5640.53	829550/008	07.30.2007
Receiver	R&S	ESIB 26	100318	08.17.2007
Receiver	R&S	ESCS30	830245/018	07.30.2007
Pre-Amplifier	Agilent	8447D	2944A10146	07.30.2007
Pre-Amplifier	Agilent	83017A	3950M00246	07.03.2007
Loop Antenna	Schwarzbeck	FMZB1516	1516115	08.08.2007
BiLog Antenna	Schaffner	CBL 6112B	2747	08.30.2007
BiLog Antenna	Schaffner	CBL 6112B	2536	08.30.2007
Horn Antenna	R&S	HF906 4044.4507.02	359287/005	12.05.2007
Horn Antenna	R&S	HF906 4044.4507.02	359287/006	12.05.2007
Horn Antenna	ETS-Lindgren	3116	00031541	09.14.2007
Dipole	Schwarzbeck	D69250-UHAP/D69250-VHAP	979/917	09.14.2007
Signal Generator	R&S	SMT06	830264/009	07.15.2007
Signal Generator	R&S	SMR 40	100325	08.28.2007
Artificial Mains Network	Schwarzbeck	NNLK8121	8121416	09.29.2007
Power Supply	Keithley	2306	1045337	12.09.2007
Climate Chamber	WEISS	ACS-1	3604040034	09.29.2007
Universal Radio Communication Tester	R&S	CMU200	108035	07.20.2007
Wireless communication test set	Agilent	8960	GB43461081	08.24.2007

6 Transmitter Measurements

6.1 Effective Radiated Power of Transmitter (EIRP)

6.1.1 Test Conditions

Table 12   Test Conditions

Preconditioning:	0.5 hour
Measured at:	enclosure
Ambient temperature:	25℃
Relative humidity:	55%
Test Configurations:	TM1/TM2/TM3 at frequency Bottom、Middle、Top

6.1.2 Test Specifications and Limits

6.1.2.1 Specification

CFR 47 (FCC) part 2.1046 and part 24.232

6.1.2.2 Supporting Standards

Table 13   Supporting Standards:

ANSI/TIA-603-C:2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP TS51.010 V6.1.0:2005	Digital cellular telecommunications system Mobile Station (MS) conformance specification;

6.1.2.3 Limits

Compliance with part 24.232, mobile/portable stations are limited to 2 watts EIRP peak power. $W(dBm)= 10*\log (W_{watts})$.

Table 14   Limits

| Maximum Output Power (Watts)	< 2 Watts
Maximum Output Power (dBm)	< 33 dBm

6.1.3 Test Method and Setup

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, ERP shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the HUAWEI E870 HSDPA EXPRESS PCI DataCard to the wireless communication tester CMU200 via the air interface. The band is set as PCS.

(b) Test the Radiated maximum output power by the CMU200 received from test antenna.

(c) Use substitution method to verify the maximum output power. The EUT is substituted by a dipole antenna. The dipole is connected to a signal generator. And then adjust the output level of the signal generator to get the same received power recorded in step (b) on Agilent 8960, and record the power level of Signal Generator. Of course, the cable loss at the test frequency should be compensated.

Test setup

Step 1: Pre-test
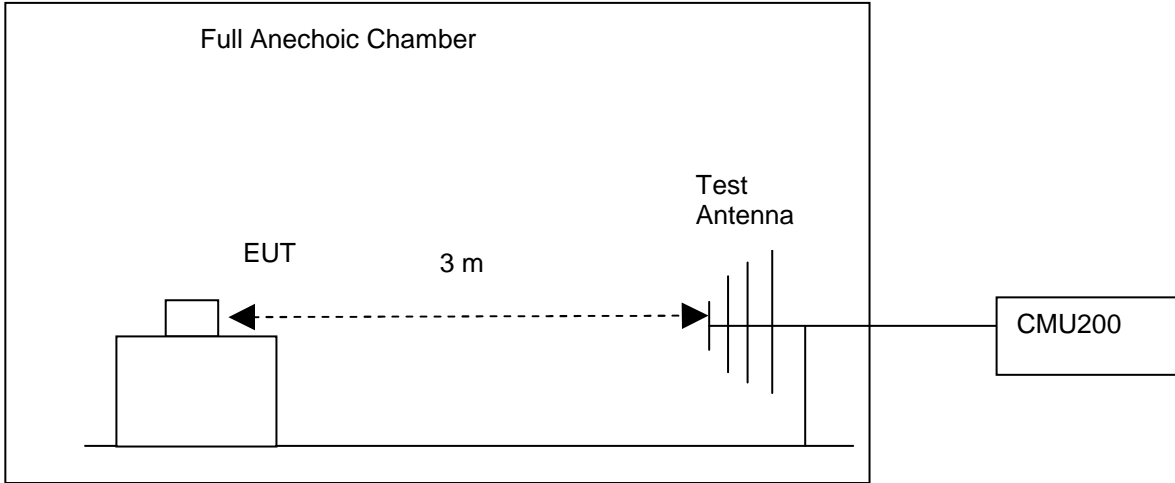
Step 2: Substitution method to verify the maximum EIRP
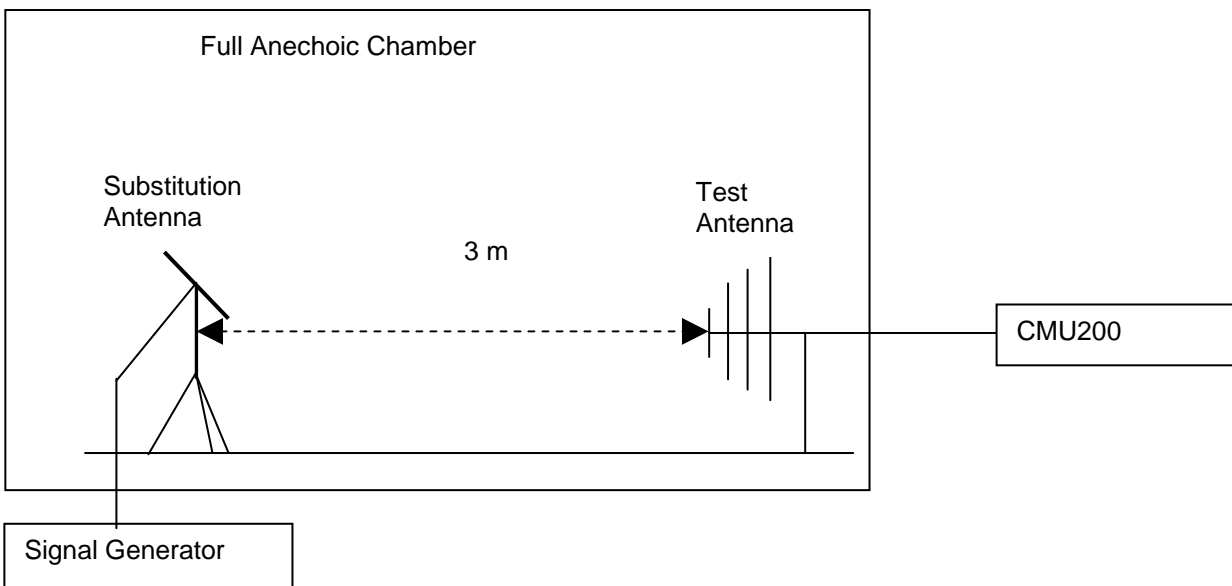
<u>Figure 1.</u>Test Set-up

NOTE: Effective radiated power (ERP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

There is a constant difference of 2.15 dB between EIRP and ERP.

EIRP (dBm)= ERP (dBm) + 2.15 (ITU-R Recommendation SM.329-10).

EIRP was measured using 3 hosts.

Host 1: IBM T41

Host 2: Dell D600

Host 3: HP nc6130

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6.1.4 Measurement Results

6.1.4.1 Pre-test Results

Table 15   Measurement Results

		RF Output Power (EIRP)					
TEST CONDITIONS		Channel512(B) 1850.2MHz		Channel661 (M) 1880MHz		Channel810(T) 1909.8MHz	
		dBm		dBm		dBm	
		Measured	Limit	Measured	Limit	Measured	Limit
TM1 (Host 1)	T_{nom} (25 ℃) V_{nom} (3.3V)	32.44	33	32.65	33	32.48	33
TM2 (Host 1)	T_{nom} (25 ℃) V_{nom} (3.3V)	27.96	33	28.06	33	27.93	33
TEST CONDITIONS		Channel9262(B) 1852.4MHz		Channel9400(M) 1880MHz		Channel9538(T) 1907.6MHz	
		dBm		dBm		dBm	
TM3		Measured	Limit	Measured	Limit	Measured	Limit
WCDMA (12.2kbps RMC) (Host 1)	T_{nom} (25 ℃) V_{nom} (3.3V)	25.79	33	25.87	33	25.71	33
TEST CONDITIONS		Channel512(B) 1850.2MHz		Channel661 (M) 1880MHz		Channel810(T) 1909.8MHz	
		dBm		dBm		dBm	
		Measured	Limit	Measured	Limit	Measured	Limit
TM1 (Host 2)	T_{nom} (25 ℃) V_{nom} (3.3V)	32.37	33	32.60	33	32.41	33
TM2 (Host 2)	T_{nom} (25 ℃) V_{nom} (3.3V)	27.88	33	28.01	33	27.87	33
TEST CONDITIONS		Channel9262(B) 1852.4MHz		Channel9400(M) 1880MHz		Channel9538(T) 1907.6MHz	
		dBm		dBm		dBm	
TM3		Measured	Limit	Measured	Limit	Measured	Limit
WCDMA (12.2kbps RMC)	T_{nom} (25 ℃) V_{nom} (3.3V)	25.72	33	25.79	33	25.65	33

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(Host 2)							
TEST CONDITIONS		Channel512(B) 1850.2MHz		Channel661 (M) 1880MHz		Channel810(T) 1909.8MHz	
		dBm		dBm		dBm	
		Measured	Limit	Measured	Limit	Measured	Limit
TM1 (Host 3)	T_{nom} (25 ℃) V_{nom} (3.3V)	**32.32**	**33**	**32.53**	**33**	**32.39**	**33**
TM2 (Host 3)	T_{nom} (25 ℃) V_{nom} (3.3V)	**27.84**	**33**	**28.02**	**33**	**27.86**	**33**
TEST CONDITIONS		Channel9262(B) 1852.4MHz		Channel9400(M) 1880MHz		Channel9538(T) 1907.6MHz	
		dBm		dBm		dBm	
TM3		Measured	Limit	Measured	Limit	Measured	Limit
WCDMA (12.2kbps RMC) (Host 3)	T_{nom} (25 ℃) V_{nom} (3.3V)	**25.68**	**33**	**25.79**	**33**	**25.68**	**33**

6.1.4.2 Substitution Results

Table 16   Substitution Results

Test Mode	Freq. [MHz]	Meas. Level [dBm]	Substitution Antenna Type	SGP [dBm]	Substitution Gain [dBi]	Cable Loss [dB]	Substitution Level (EIRP) [dBm]	FCC limit [dBm]	Result
TM1 (Host 1)	1850.2	32.52	Dipole Ant.	28.82	4.6	1.0	32.42	33	Pass
TM1 (Host 1)	1880	32.58	Dipole Ant.	28.70	4.6	1.0	32.30	33	Pass
TM1(Host 1)	1909.8	32.63	Dipole Ant.	29.04	4.7	1.0	32.74	33	Pass
TM2 (Host 1)	1850.2	28.05	Dipole Ant.	24.79	4.6	1.0	28.39	33	Pass
TM2 (Host 1)	1880	28.00	Dipole Ant.	24.29	4.6	1.0	27.89	33	Pass
TM2 (Host 1)	1909.8	27.97	Dipole Ant.	24.32	4.7	1.0	28.02	33	Pass
TM3	1852.	25.76	Dipole	22.57	4.6	1.0	26.17	33	Pass

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(Host 1)	4		Ant.						
TM3 (Host 1)	1880	25.75	Dipole Ant.	22.02	4.6	1.0	25.62	33	Pass
TM3 (Host 1)	1907.6	25.71	Dipole Ant.	22.43	4.7	1.0	26.13	33	Pass
TM1(Host 2)	1850.2	32.49	Dipole Ant.	28.78	4.6	1.0	32.38	33	Pass
TM1 (Host 2)	1880	32.51	Dipole Ant.	28.77	4.6	1.0	32.37	33	Pass
TM1 (Host 2)	1909.8	32.59	Dipole Ant.	28.95	4.7	1.0	32.65	33	Pass
TM2(Host 2)	1850.2	28.12	Dipole Ant.	24.67	4.6	1.0	28.27	33	Pass
TM2 (Host 2)	1880	28.05	Dipole Ant.	24.21	4.6	1.0	27.81	33	Pass
TM2 (Host 2)	1909.8	27.92	Dipole Ant.	24.39	4.7	1.0	28.09	33	Pass
TM3 (Host 2)	1852.4	25.68	Dipole Ant.	22.50	4.6	1.0	26.10	33	Pass
TM3 (Host 2)	1880	25.71	Dipole Ant.	22.07	4.6	1.0	25.67	33	Pass
TM3(Host 2)	1907.6	25.77	Dipole Ant.	21.99	4.7	1.0	25.69	33	Pass
TM1 (Host 3)	1850.2	32.49	Dipole Ant.	28.77	4.6	1.0	32.37	33	Pass
TM1 (Host 3)	1880	32.50	Dipole Ant.	28.75	4.6	1.0	32.35	33	Pass
TM1 (Host 3)	1909.8	32.67	Dipole Ant.	28.90	4.7	1.0	32.60	33	Pass
TM2 (Host 3)	1850.2	28.11	Dipole Ant.	24.72	4.6	1.0	28.32	33	Pass
TM2 (Host 3)	1880	28.09	Dipole Ant.	24.16	4.6	1.0	27.76	33	Pass
TM2 (Host 3)	1909.8	27.86	Dipole Ant.	24.43	4.7	1.0	28.13	33	Pass
TM3 (Host 3)	1852.4	25.69	Dipole Ant.	22.52	4.6	1.0	26.12	33	Pass

TM3 (Host 3)	1880	25.67	Dipole Ant.	21.95	4.6	1.0	25.55	33	Pass
TM3 (Host 3)	1907.6	25.79	Dipole Ant.	21.91	4.7	1.0	25.61	33	Pass

Note: a, For get the EIRP (Efficient Radiated Power) in substitution method, the following formula should take to calculate it,

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

NOTE: SGP- Signal Generator Level

b, A cdma signal with bandwidth of 1.23MHz are created by the vector generator R&S SMU200A.

c, RBW=10kHz, VBW=300kHz, and integrated by the instrument to 200kHz for TM1 and TM2 and 5MHz for TM3.

6.1.5 Conclusion

The equipment **PASSED** the requirement of this clause.

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6.2   Conducted Power of Transmitter

6.2.1   Test Conditions

Table 17   Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	25 ℃
Relative humidity:	52 %
Test Configurations:	TM1/TM2/TM3 at frequency Bottom、Middle、Top

6.2.2   Test Specifications and Limits

6.2.2.1   Specification

CFR 47 (FCC) part 2.1047 and part 24 subpart E

6.2.2.2   Supporting Standards

Table 18   Supporting Standards:

ANSI/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP TS51.010 V6.1.0:2005	Digital cellular telecommunications system Mobile Station (MS) conformance specification;

6.2.2.3   Limits

Compliance with part 24.232, in no any case may the peak power of a mobile station transmitter exceed 2 W. The calculated longitude EIRP by following formula:

$EIRP(dBm)= 10*log (EIRP_{in\ watts})$.

And for conducted power, we can use Antenna Gain to calculate the limit. So the conducted power:

$P_{cod.}(dBm)=EIRP(dBm)- Gain(dBi)$.
and Gain $(dBi)= Gain(dBd)+ 2.15dB$

Table 19   Limits

Maximum Output Power (Watts)	< 2 Watts
Antenna Gain(dBi):	2.7
Maximum Conducted Output Power (dBm)	< 30.3dBm

6.2.3   Test Method and Setup

(a)For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, Conducted maximum power shall be measured when the transmitter is adjusted in

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accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the HUAWEI E870 HSDPA EXPRESS PCI Data Card to the wireless communication tester CMU200 via the antenna connector. The band class is set as US Cellular.
(b)Test the Conducted maximum output power by the CMU200.

For the WCDMA output power, the configurations for the DPCCH and DPDCH as followed (E870 do not support the DPDCH$_{2-n}$):

	Channel Bit Rate (kbps)	Channel Symbol Rate (ksps)	Spreading Factor	Spreading Code Number	Bits/Slot
DPCCH	15	15	256	0	10
DPDCH$_1$	15	15	256	64	10
	30	30	128	32	20
	60	60	64	16	40
	120	120	32	8	80
	240	240	16	4	160
	480	480	8	2	320
	960	960	4	1	640

The configurations of SAR test which measured the RMC 12.2k as followed:

UL reference measurement channel physical parameters (12,2 kbps)

Parameter	Level	Unit
Information bit rate	12,2	kbps
DPDCH	60	kbps
DPCCH	15	kbps
DPCCH Slot Format	0	-
DPCCH/DPDCH power ratio	−5,46	dB
TFCI	On	-
Repetition	23	%
NOTE: Slot Format #2 is used for closed loop tests in clause 7.6.2. Slot Format #2 and #5 are used for site selection diversity transmission tests in subclause 7.6.3.		

The HSDPA output power was verified on 12.2kbps FRC and 12.2kbps RMC with TPC set to all "1s".
1) H-Set 1 is configured in FRC according to UE category
2) Using QPSK in H-Set 1
3) Using CQI feedback cycle = 2ms in HS-DPCCH
4) Using βc =9 ; βd =15 for DPCCH and DPDCH gain factors
5) Using $\triangle$ ACK= $\triangle$ NACK=5 and $\triangle$ CQI =2

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Fixed Reference Channel H-Set 1

Parameter	Unit	Value	
Nominal Avg. Inf. Bit Rate	kbps	534	777
Inter-TTI Distance	TTI's	3	3
Number of HARQ Processes	Processes	2	2
Information Bit Payload (N_{INF})	Bits	3202	4664
Number Code Blocks	Blocks	1	1
Binary Channel Bits Per TTI	Bits	4800	7680
Total Available SML's in UE	SML's	19200	19200
Number of SML's per HARQ Proc.	SML's	9600	9600
Coding Rate		0.67	0.61
Number of Physical Channel Codes	Codes	5	4
Modulation		QPSK	16QAM
Note: The HS-DSCH shall be transmitted continuously with constant power but only every third TTI shall be allocated to the UE under test			

The maximum output power were verified on high,middle and low channels for each test band according to 3GPP TS 34.121 with the following configuration (Please see 7.2.2 Table 6 for the above detailed power measurement results):
1) 12.2kbps RMC ,64,144,384 kbps RMC with TPC set to all "1s".
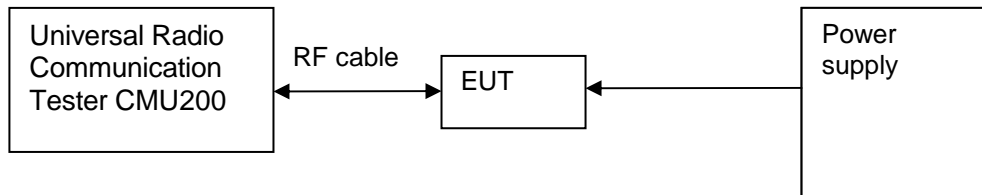2) Test loop Mode 1

Test setup

Figure 2. Test Set-up

6.2.4 Measurement Results

Table 20 Measurement Results

TEST CONDITIONS		RF Output Power(Conducted)					
		Channel512(B) 1850.2MHz		Channel661 (M) 1880MHz		Channel810(T) 1909.8MHz	
		dBm		dBm		dBm	
		Measured	Limit	Measured	Limit	Measured	Limit
TM1	T_{nom} (25 ℃) V_{nom} (3.3V)	29.82	30.3	29.95	30.3	29.82	30.3
TM2	T_{nom} (25 ℃) V_{nom} (3.3V)	25.25	30.3	25.36	30.3	25.27	30.3

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TEST CONDITIONS		Channel9262(B) 1852.4MHz		Channel9400(M) 1880MHz		Channel9538(T) 1907.6MHz	
		dBm		dBm		dBm	
TM3		Measured	Limit	Measured	Limit	Measured	Limit
WCDMA (12.2kbps RMC)	T_{nom} (25 ℃) V_{nom} (3.3V)	23.02	30.3	23.17	30.3	23.05	30.3
WCDMA (64kbps RMC)	T_{nom} (25 ℃) V_{nom} (3.3V)	22.98	30.3	23.11	30.3	23.01	30.3
WCDMA (144kbps RMC)	T_{nom} (25 ℃) V_{nom} (3.3V)	22.96	30.3	23.09	30.3	22.99	30.3
WCDMA (384kbps RMC)	T_{nom} (25 ℃) V_{nom} (3.3V)	22.95	30.3	23.05	30.3	22.97	30.3
HSDPA	T_{nom} (25 ℃) V_{nom} (3.3V)	22.94	30.3	23.04	30.3	22.92	30.3

6.2.5 Conclusion

The equipment **PASSED** the requirement of this clause.

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6.3 Modulation Characteristics

6.3.1 Test Conditions

Table 21   Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	25 ℃
Relative humidity:	52 %
Test Configurations:	TM1/TM2/TM3 at frequency Middle

6.3.2 Test Specifications and Limits

6.3.2.1 Specification

CFR 47 (FCC) part 2.1047 and part 24 subpart E

6.3.2.2 Supporting Standards

Table 22   Supporting Standards:

ANSI/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP TS51.010 V6.1.0:2005	Digital cellular telecommunications system Mobile Station (MS) conformance specification;

6.3.2.3 Limits

No specific modulation characteristics requirement limits in part 2.1047 and part 24 subpart E.

Table 23   Limits

Limits	Not applicable

6.3.3 Test Method and Setup

Connect the HUAWEI E870 HSDPA EXPRESS PCI Data Card to Universal Radio Communication Tester CMU200 via the antenna connector. The frequency band is set as PCS; the HUAWEI E870 HSDPA EXPRESS PCI Data Card's output is matched with 50 Ω load, test method was according to 3GPP TS 51.010. The waveform quality and constellation of the HUAWEI E870 HSDPA EXPRESS PCI Data Card was tested.
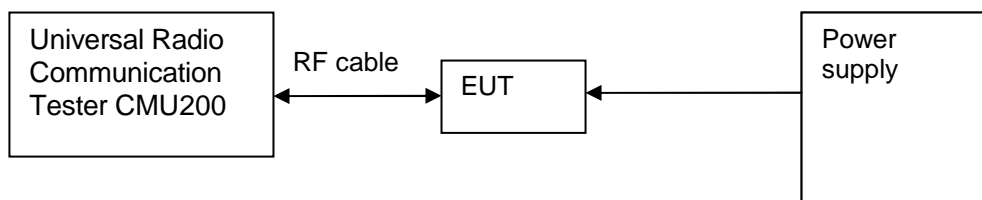
Test setup

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Figure 3.Test Set-up

6.3.4 Measurement Results

Table 24Measurement Results

		Modulation Characteristic	
TEST CONDITIONS		Channel661(M) 1880MHz	
		Measured	
		TM1	TM2
T_{nom} (25 ℃)	V_{nom} (3.3V)	Refer to Appendix A	Refer to Appendix A
		Modulation Characteristic	
TEST CONDITIONS		Channel9400(M) 1880MHz	
		Measured	
		TM3	
T_{nom} (25 ℃)	V_{nom} (3.3V)	Refer to Appendix A	

6.3.5 Conclusion

The equipment **PASSED** the requirement of this clause.

For the measurement results refer to appendix A with 4 pages.

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6.4 Occupied Bandwidth

6.4.1 Test Conditions

Table 25 Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	25 ℃
Relative humidity:	55 %
Test Configurations:	TM1/TM2/TM3 at frequency Bottom、Middle、Top

6.4.2 Test Specifications and Limits

6.4.2.1 Specification

CFR 47 (FCC) part 2.1049 and part 24 subpart E

6.4.2.2 Supporting Standards

Table 26 Supporting Standards:

ANSI/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP TS51.010 V6.1.0:2005	Digital cellular telecommunications system Mobile Station (MS) conformance specification;

6.4.2.3 Limits

No specific occupied bandwidth requirement in part 24 subpart E, but the occupied bandwidth was defined in part 2.1049: the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

Table 27   Limits

Upper /lower frequency limits	0.5% of the mean power

6.4.3 Test Method and Setup

HUAWEI E870 HSDPA EXPRESS PCI Data Card was connected to the wireless signal analyzer R&S FSQ26 via the one RF connector. The band class is set as PCS; HUAWEI E870 HSDPA EXPRESS PCI Data Card was controlled to transmit maximum power. Measure and record the occupied bandwidth of the HUAWEI E870 HSDPA EXPRESS PCI Data Card by the R&S FSQ26.

The OBW, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

Refer to 47CFR part2.1049 section (g)&(h).
(g) Transmitter in which the modulating base band comprises not more than three independent channels - when modulated by the full complement of signals for which the transmitter is rated. The level of modulation for each channel should be set to that prescribed in rule parts applicable to the

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services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer's maximum rated condition.

(h) Transmitters employing digital modulation techniques - when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudorandom generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at discretion of the user.

For TM1/TM2 following RBW and VBW are employed:
Measurement bandwidth (RBW):   3 kHz (Resolution bandwidth)
Video bandwidth (VBW):   10 kHz

For TM3 system following RBW and VBW are employed:
Measurement bandwidth (RBW):   50 kHz (Resolution bandwidth)
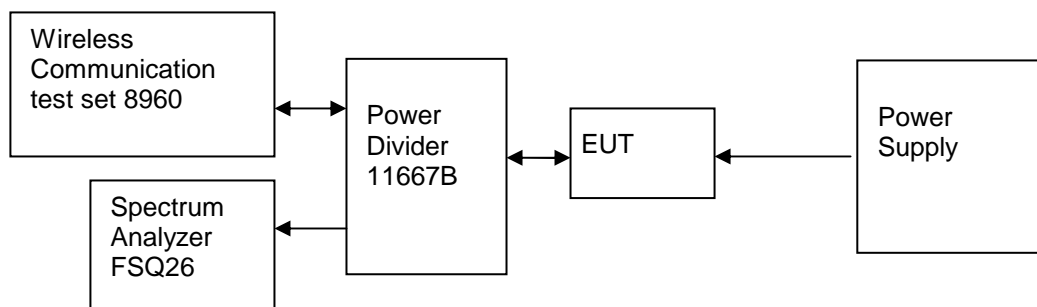Video bandwidth (VBW):   500 kHz

Test Set-up

Figure 4.Test Set-up

6.4.4 Measurement Results

Table 28   Measurement Results

TEST CONDITIONS		Occupied Bandwidth					
		Channel512 (B) 1850.2MHz		Channel661 (M) 1880MHz		Channel810 (T) 1909.8MHz	
		Measured (kHz)		Measured (kHz)		Measured (kHz)	
		TM1	TM2	TM1	TM2	TM1	TM2
T_{nom} (25 ℃) V_{nom} (3.3V)	99%	245.19	241.99	246.79	246.79	243.59	245.19
TEST CONDITIONS		Occupied Bandwidth					
		Channel9262(B) 1852.4MHz		Channel9400(M) 1880MHz		Channel9538 (T) 1907.6MHz	
		Measured		Measured		Measured	

		(MHz)	(MHz)	(KHz)
		TM3	TM3	TM3
T_{nom} (25 ℃) V_{nom} (3.3V)	99%	4.199	4.199	4.183

6.4.5 Conclusion

The equipment **PASSED** the requirement of this clause.
For the measurement results refer to appendix B.

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6.5　Band Edges Compliance

6.5.1　Test Conditions

Table 29　Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	25℃
Relative humidity:	55 %
Test Configurations:	TM1/TM2/TM3 at frequency Bottom、Top

6.5.2　Test Specifications and Limits

6.5.2.1　Specification

CFR 47 (FCC) part 2.1051 and part 24.238

6.5.2.2　Supporting Standards

Table 30　Supporting Standards:

ANSI/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP TS51.010 V6.1.0:2005	Digital cellular telecommunications system Mobile Station (MS) conformance specification;

6.5.2.3　Limits

Compliance with part 24.238, all spurious emission must be attenuated below the transmitter power by at least 43 +10 $\log_{10}$ P. (Whereas P is the rated power of the EUT).

Table 31　Limits for GPRS

	TM1	TM2	TM3
Rated Power:	30 dBm	26 dBm	24 dBm
Required attenuation:	43+10log (1) = 43 , 30 dBm - 43 dB	43+10log (0.4) = 39 , 26 dBm - 39 dB	43+10log (0.25) = 37 , 24 dBm - 37 dB
Absolute level	- 13 dBm	- 13 dBm	- 13 dBm

6.5.3　Test Method and Setup

HUAWEI E870 HSDPA EXPRESS PCI DATACARD was connected to the wireless signal analyzer R&S FSQ26 via the one RF connector, the band class is set as PCS. HUAWEI E870 HSDPA EXPRESS PCI DATACARD was controlled to transmit maximum power. Measure and record band edges compliance of the HUAWEI E870 HSDPA EXPRESS PCI DATACARD by the R&S FSQ26.

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

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According to FCC part24.238.The FCC rules define the fundamental emission as -26dBc bandwidth. The limit is -13dBm.
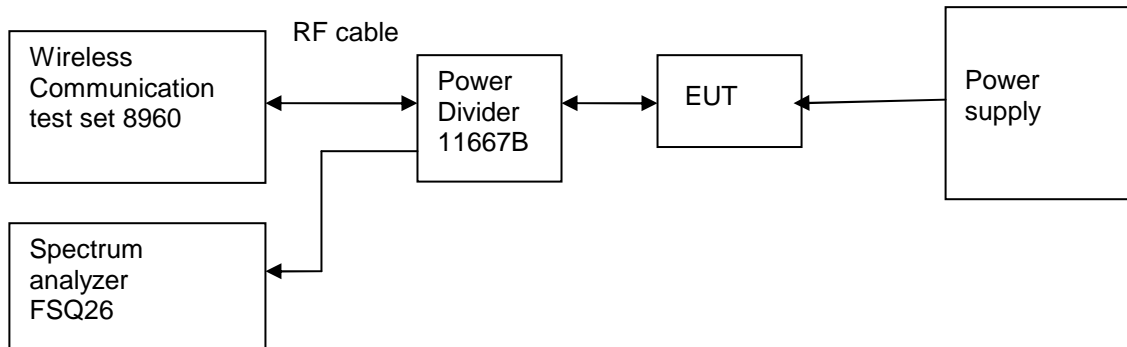
Test Set-up

<u>Figure 5.</u> Test Set-up

6.5.4 Measurement Results

Table 32   Measurement Results outside Band Edges-- Single Carrier

Band	Frequency of Band edges [MHz]	Channel Number	Test Mode	Spurious Level measured [dBm]	FCC limit	Result
	T_{nom} (25 °C), V_{nom} (3.3V)					
PCS	1850.2	512	TM1	<-13(See appendix C)	- 13 dBm	Pass
	1909.8	810	TM1	<-13(See appendix C)	- 13 dBm	Pass
	1850.2	512	TM2	<-13(See appendix C)	- 13 dBm	Pass
	1909.8	810	TM2	<-13(See appendix C)	- 13 dBm	Pass
	1852.4	9262	TM3	<-13(See appendix C)	- 13 dBm	Pass
	1907.6	9538	TM3	<-13(See appendix C)	- 13 dBm	Pass

6.5.5 Conclusion

The equipment **PASSED** the requirement of this clause.
For the measurement results refer to appendix C.

6.6   Spurious Emission at Antenna Terminal

6.6.1   Test Conditions

Table 33   Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	25°C
Relative humidity:	50 %
Test Configurations:	TM1/TM2/TM3 at frequency Bottom, Top

6.6.2   Test Specifications and Limits

6.6.2.1   Specification

CFR 47 (FCC) part 2.1051 and part 24.238

6.6.2.2   Supporting Standards

Table 34   Supporting Standards:

ANSI/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP TS51.010 V6.1.0:2005	Recommended GSM/EDGE MS conformance specification

6.6.2.3   Limits

Compliance with part 24.238, all spurious emission must be attenuated below the transmitter power by at least 43 +10 $\log_{10}$ P. (Whereas P is the rated power of the EUT).

Table 35   Limits for GPRS Mode

	TM1	TM2	TM3
Rated Power:	30 dBm	26 dBm	24 dBm
Required attenuation:	43+10log (1) = 43 , 30 dBm - 43 dB	43+10log (0.4) = 39 , 26 dBm - 39 dB	43+10log (0.25) = 37 , 24 dBm - 37 dB
Absolute level	- 13 dBm	- 13 dBm	- 13 dBm

6.6.3   Test Method and Setup

HUAWEI E870 HSDPA EXPRESS PCI DATACARD was connected to the wireless signal analyzer R&S FSQ26 via the one RF connector, the band class is set as PCS. HUAWEI E870 HSDPA EXPRESS PCI DATACARD was controlled to transmit maximum power. Measure and record the Conducted Spurious Emission of the HUAWEI E870 HSDPA EXPRESS PCI DATACARD by the R&S FSQ26.

According to part 24.238, the defined measurement bandwidth as following:

24.238 (b) Measurement procedure: Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater.

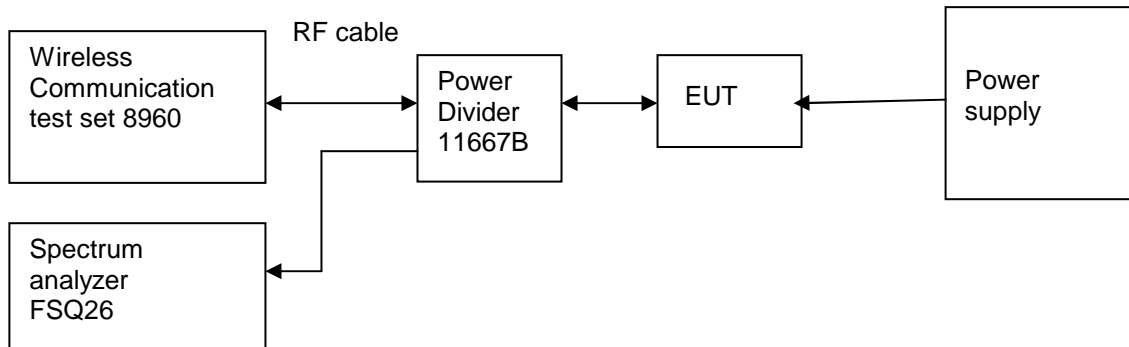Measurement bandwidth (RBW) for 9 kHz up to 20GHz: 1MHz;

Test Set-up

Figure 6. Test Set-up

6.6.4 Measurement Results

Table 36 Measurement Results

Channel Number	Test Mode	Test Range (Frequency)	Output Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
Channel 512(B)	TM1	9 kHz~20GHz	30	<- 13 dBm (See appendix D)	- 13 dBm	Pass
	TM2	9 kHz~20GHz	26	<- 13 dBm (See appendix D)	- 13 dBm	Pass
Channel 9262(B)	TM3	9 kHz~20GHz	24	<- 13 dBm (See appendix D)	- 13 dBm	Pass
Channel 810(T)	TM1	9 kHz~20GHz	30	<- 13 dBm (See appendix D)	- 13 dBm	Pass
	TM2	9 kHz~20GHz	26	<- 13 dBm (See appendix D)	- 13 dBm	Pass
Channel 9538(T)	TM3	9 kHz~20GHz	24	<- 13 dBm (See appendix D)	- 13 dBm	Pass

6.6.5 Conclusion

The equipment **PASSED** the requirement of this clause.
For the measurement results refer to appendix D.

6.7 Radiated Spurious Emission

6.7.1 Test Conditions

Table 37   Test Conditions

Preconditioning:	0.5 hour
Measured at:	enclosure
Ambient temperature:	25 ℃
Relative humidity:	53 %
Test Configurations:	TM1/TM2/TM3 at frequency M

6.7.2 Test Specifications and Limits

6.7.2.1 Specification

CFR 47 (FCC) part 2.1053 and part 24.238

6.7.2.2 Supporting Standards

Table 38   Supporting Standards:

ANSI/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP TS51.010 V6.1.0:2005	Digital cellular telecommunications system Mobile Station (MS) conformance specification;

6.7.2.3 Limits

Compliance with part 24.238, all spurious emission must be attenuated below the transmitter power by at least $43 + 10 \log_{10} P$. (Whereas P is the rated power of the EUT).

Table 39   Limits for GPRS Mode

	TM1	TM2	TM3
Rated Power:	30 dBm	26 dBm	24 dBm
Required attenuation:	43+10log (1) = 43 , 30 dBm - 43 dB	43+10log (0.4) = 39 , 26 dBm - 39 dB	43+10log (0.25) = 37 , 24 dBm - 37 dB
Absolute level	- 13 dBm	- 13 dBm	- 13 dBm

6.7.3 Test Method and Setup

(a) Measurements were made to detect spurious emissions radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data were supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph 2.1049(c) as appropriate. For equipment operating on frequencies below 890 MHz, an Open Field Test is normally required with the measuring instrument antenna located in the far field at all test frequencies. In the event it is either

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impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurement will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections, which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission with the reference to the rated power output of the transmitter, assuming all emissions are radiated from half-wave dipole antennas.

(b) Measurements specified in paragraph (a) of this section shall be made for the following equipment:

(1) Those in which the spurious emission are required to be 60 dB or more below the mean power of the transmitter.

(2) All equipment operating on frequencies higher than 25 MHz

(3) All equipment where the antenna is an integral part of, and attached directly to the transmitter.

(4) Other types of equipment as required, when deemed necessary by the Commission.

HUAWEI E870 HSDPA EXPRESS PCI DATACARD is equipment with non-integral antenna. And it should test according to part (b) of above section.

BTS simulator is connected to a communication antenna, by which communicate with the HUAWEI E870 HSDPA EXPRESS PCI DATACARD inside the test site. The BTS simulator controls the HUAWEI E870 HSDPA EXPRESS PCI DATACARD to transmit at maximum power which defined in specification of product when in traffic mode, field strength of spurious emission in idle mode were also tested. The HUAWEI E870 HSDPA EXPRESS PCI DATACARD operates on a typical channel.

The test procedure:

(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, EIRP. shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the HUAWEI E870 HSDPA EXPRESS PCI DATACARD to the BTS simulator via the air interface. The band class is set as PCS.

(b) Test the Radiated maximum output power by the Rohde and Schwarz ESMI Test Receiver from test antenna.

(c) Use substitution method to verify the maximum output power. The EUT is substituted by a dipole antenna. The dipole is connected to a signal generator. And then adjust the output level of the signal generator to get the same received power recorded in step (b) on ESMI Test Receiver, and record the power level of Signal Generator. Of course, the cable loss at the test frequency should be compensated.

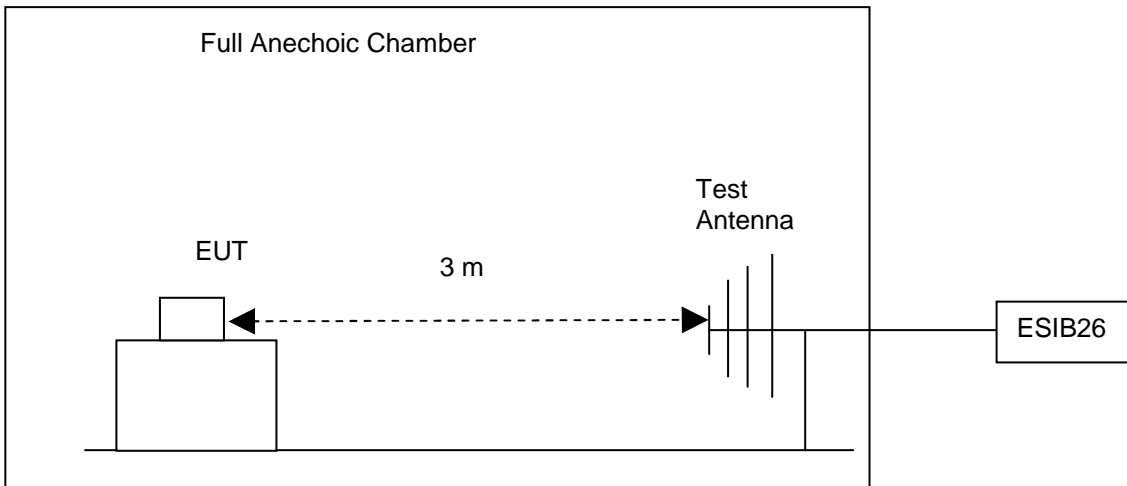According to part 24.238, the defined measurement bandwidth as following:

24.238 (b) Measurement procedure: Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater.

Measurement bandwidth (RBW) for 9 kHz up to 20GHz: 1 MHz;

Test setup

Step 1: Pre-test

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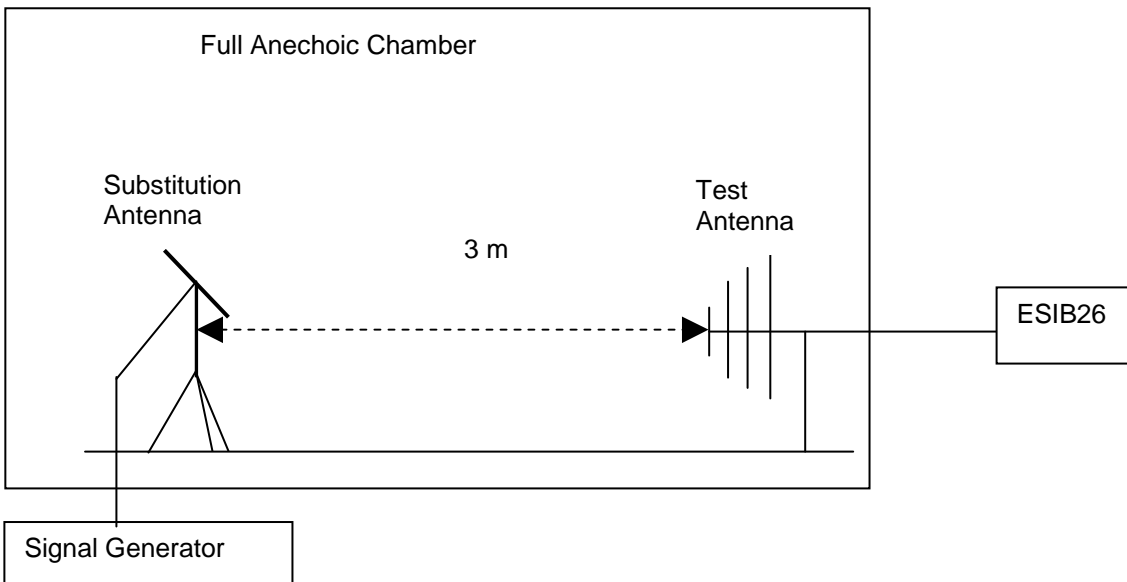**Step 2: Substitution method to verify the maximum ERP**

Figure 7.   Test Set-up

NOTE: Effective radiated power (ERP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

6.7.4 Measurement Results

6.7.4.1 Pre-test Measurement Results

Table 40   Measurement Results

Channel Number	Mode	Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
661	TM1	9 kHz~20GHz	30	<- 13 dBm (See appendix E)	- 13 dBm	Pass
661	TM2	9 kHz~20GHz	26	<- 13 dBm (See appendix E)	- 13 dBm	Pass
9400	TM3	9 kHz~20GHz	24	<- 13 dBm	- 13 dBm	Pass

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				(See appendix E)		

6.7.4.2 Substitution Results

No obvious peak found in pre- test.

Calculation Sample:

Table 41 Substitution Results

Test Mode	Freq. [MHz]	Meas. Level [dBm]	Substitution Antenna Type	Gain [dBd]	Cable Loss [dB]	Substitution Level [dBm]	FCC limit [dBm]	Result
TM1	2100.5	-49	Horn Ant.	3.85	1.2	-48.25	-13	Pass

Note: For get the EIRP. (Efficient Radiated Power) in substitution method, the following formula should take to calculate it,

ERP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBd]

NOTE: SGP- Signal Generator Level

6.7.5 Conclusion

The equipment **PASSED** the requirement of this clause.
For the measurement results refer to appendix E.
According to pre-test result, only the test data which the data card with the external antenna (the maximum radiated spurious emission condition) were given in appendix E.

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6.8 Frequency Stability

6.8.1 Test Conditions

Table 42   Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	See below
Relative humidity:	55 % at 25 ℃
Test Configurations:	TM1/TM2/TM3 at frequency M

6.8.2 Test Specifications and Limits

6.8.2.1 Specification

CFR 47 (FCC) part 2.1055 and part 24.235

6.8.2.2 Supporting Standards

Table 43   Supporting Standards:

ANSI/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP TS51.010 V6.1.0:2005	Digital cellular telecommunications system Mobile Station (MS) conformance specification;

6.8.2.3 Limits

No specific frequency stability requirement in part 2.1055 and part 24.235.

6.8.3 Test Method and Setup

The frequency stability shall be measured with variation of ambient temperature as follows:
(1) From -30 ° to +50 ° centigrade for all equipmen t except that specified in subparagraphs
(2) and (3) of paragraph 2.1055

(b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short-term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.

(d) The frequency stability shall be measured with variation of primary supply voltage as follows:
(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point, which shall be specified by the manufacturer.
(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

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(e) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c) and (d) of this section. (For example, measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

Test Set up

Connect the HUAWEI E870 HSDPA EXPRESS PCI DATACARD to the Wireless Communication test set 8960 via the connector. Then measure the frequency error by the Wireless Communication test set 8960. The HUAWEI E870 HSDPA EXPRESS PCI DATACARD's output is matched with a 50 Ω load.
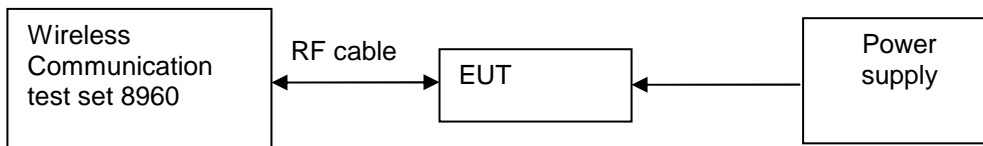

Figure 8. Test Set up

6.8.4 Measurement Results

6.8.4.1 Measurement Results vs. Variation of Temperature

● **GPRS Mode, 3.3V DC Channel No.661(1880.0MHz)**

Table 44   Measurement Results vs. Variation of Temperature－GPRS Mode

Temperature	Power (dBm)	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 ℃	30	1880.0	-28.71	Pass
-20 ℃	30	1880.0	-25.62	Pass
-10 ℃	30	1880.0	13.22	Pass
0 ℃	30	1880.0	18.45	Pass
+10 ℃	30	1880.0	26.23	Pass
+20 ℃	30	1880.0	28.45	Pass
+30 ℃	30	1880.0	-12.53	Pass
+40 ℃	30	1880.0	22.45	Pass
+50 ℃	30	1880.0	-15.63	Pass

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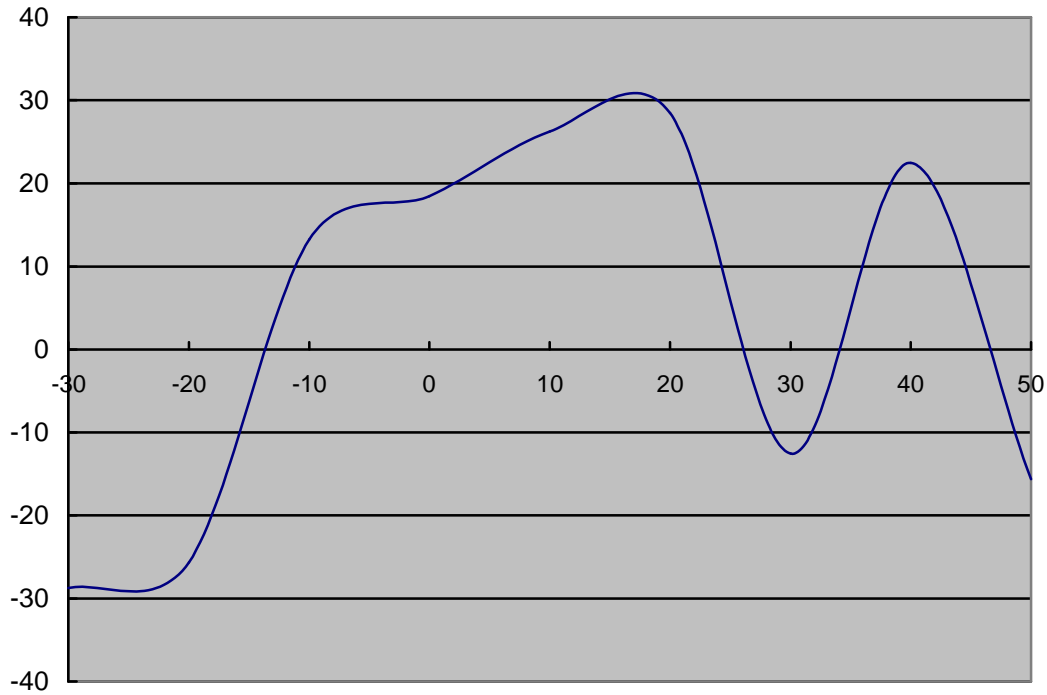Confidential Information of Huawei. No Distribution without Permission

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Figure 9.GPRS Mode Test Graph

● **EDGE Mode, 3.3V DC Channel No.661(1880.0MHz)**

Table 45   Measurement Results vs. Variation of Temperature－EDGE Mode

Temperature	Power (dBm)	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 ℃	26	1880.0	-25.42	Pass
-20 ℃	26	1880.0	-19.35	Pass
-10 ℃	26	1880.0	21.13	Pass
0 ℃	26	1880.0	26.54	Pass
+10 ℃	26	1880.0	-13.25	Pass
+20 ℃	26	1880.0	-22.86	Pass
+30 ℃	26	1880.0	23.65	Pass
+40 ℃	26	1880.0	19.85	Pass
+50 ℃	26	1880.0	22.33	Pass

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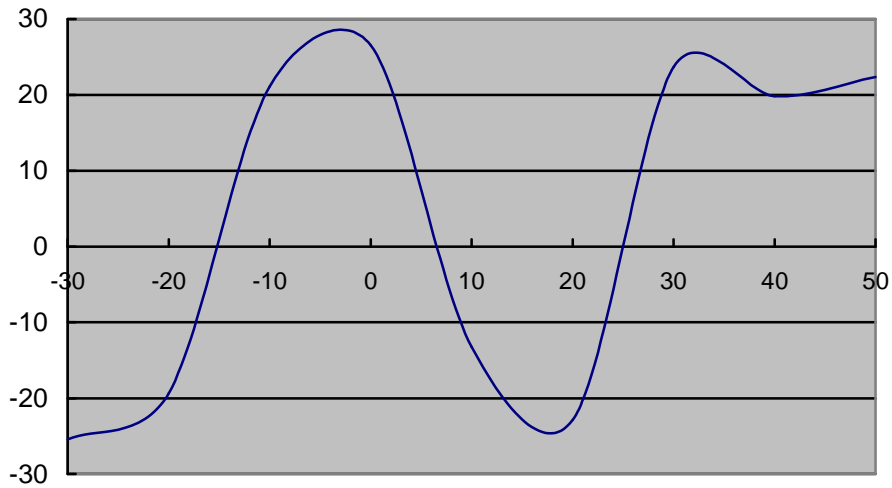
<p align="center">Figure 10.   EDGE Mode Test Graph</p>

● **UMTS Mode, 3.3V DC Channel No.9400(1880.0MHz)**

<p align="center">Table 46   Measurement Results vs. Variation of Temperature－UMTS Mode</p>

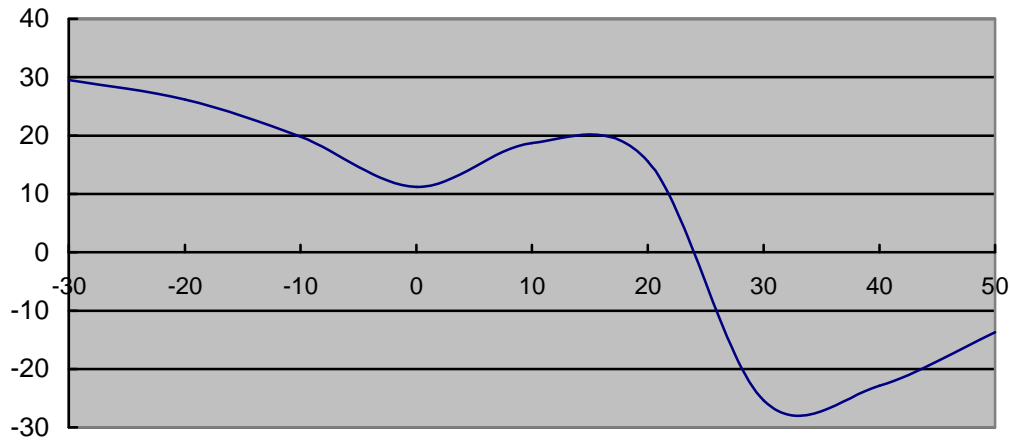| Temperature	Power (dBm)	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
-30 ℃	24	1880.0	29.51	Pass
-20 ℃	24	1880.0	26.16	Pass
-10 ℃	24	1880.0	19.85	Pass
0 ℃	24	1880.0	11.23	Pass
+10 ℃	24	1880.0	18.76	Pass
+20 ℃	24	1880.0	15.62	Pass
+30 ℃	24	1880.0	-25.36	Pass
+40 ℃	24	1880.0	-22.83	Pass
+50 ℃	24	1880.0	-13.68	Pass

Figure 11.   UMTS Mode Test Graph

6.8.4.2 Measurement Results vs. Variation of Voltage
● **GPRS Mode, 25 ℃ ,Channel No. 661(1880.0MHz)**

Table 47   Measurement Results vs. Variation of Voltage－GPRS Mode

Voltage	Power (dBm)	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.0	30	1880.0	25.43	Pass
3.3	30	1880.0	22.21	Pass
3.6	30	1880.0	-7.86	Pass

● **EDGE Mode, 25 ℃ ,Channel No. 661(1880.0MHz)**

Table 48   Measurement Results vs. Variation of Voltage－EDGE Mode

Voltage	Power (dBm)	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.0	26	1880.0	-14.63	Pass
3.3	26	1880.0	19.82	Pass
3.6	26	1880.0	13.21	Pass

● **UMTS Mode, 25 ℃ ,Channel No. 9400(1880.0MHz)**

Table 49   Measurement Results vs. Variation of Voltage－EDGE Mode

Voltage	Power (dBm)	Nominal Frequency (MHz)	Measured Frequency Error(Hz)	Result
3.0	24	1880.0	29.65	Pass
3.3	24	1880.0	17.85	Pass
3.6	24	1880.0	15.93	Pass

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6.8.5 Conclusion

The equipment **PASSED** the requirement of this clause.

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7 <u>System Measurement Uncertainty</u>

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Table 50   System Measurement Uncertainty

Items		Extended Uncertainty
Effective Radiated Power of Transmitter	EIRP (dBm)	U=3dB; k=2
Band Width	Magnitude (%)	U＝0.2%; k=2
Band Edge Compliance	Disturbance Power （dBm）	U＝2.0dB; k=2
Conducted Spurious Emission at Antenna Terminal	Disturbance Power （dBm）	U＝2.0dB; k=2
Frequency Stability	Frequency Accuracy(ppm)	U＝0.21ppm; k=2
Field Strength of Spurious Radiation	ERP(dBm)	U=3dB; k=2
Conducted Output Power	Power(dBm)	U=0.39dB; k=2

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8 Appendices