



Report No: SYBH (R)195082007EB-1  
FCC ID: QISQCPM-AWS

**FCC TEST REPORT OF  
Outdoor-BTS Radio  
Module(AWS) of Huawei  
CDMA2000 Base Station**

**October 10, 2007**

**Reliability Laboratory of Huawei Technologies Co., Ltd.**

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**REPORT ON** FCC Test of **Outdoor-BTS Radio Module(AWS)** of Huawei **CDMA2000 Base Station**

Report No: **SYBH(R)195082007EB-1**

**REGULATION** **FCC CFR47 Part 2: Subpart J;**  
**FCC CFR47 Part 27: Subpart C;**

**CONCLUSION** There are **7** items need to be tested, **7** items have been tested. The sample of the model completely meets the requirements

**Final Judgement: Pass**

<b>General Manager</b>	<u>2007.10.10</u>	张兴海	
	Date	Name	signature

<b>Technical Responsibility For Area of Testing</b>	<u>2007.10.10</u>	余 辉	
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## 1 Summary

The table below summarizes the measurements and results for the Outdoor-BTS Radio Module(AWS) of Huawei CDMA2000 Base Station. Detailed results and descriptions are shown in the following pages.

table 1. Summary of results

<b>FCC Measurement Specification</b>	<b>FCC Limits Part(s)</b>	<b>Description</b>	<b>Result</b>
2.1046	27.50(d)	Maximum Channel Power	PASS
2.1047	-	Modulation Characteristics	PASS
2.1049	-	Occupied Bandwidth	PASS
2.1051	27.53(g)	Band Edges Compliance	PASS
2.1051	27.53(g)	Spurious Emission at Antenna Terminal	PASS
2.1053	27.53(g)	Radiated Spurious Emission	PASS
2.1055	27.54	Frequency Stability	PASS

## 2 Product Description

### 2.1 Production Information

#### 2.1.1 General Description

The Outdoor-BTS Radio Module(AWS) of Huawei CDMA2000 Base Station (EUT) is mainly composed of Outdoor Multi-carrier Transceiver Module and Outdoor Multi-carrier Power Amplifier Module. The EUT can support AWS frequency band. In general, the EUT is connected to baseband processing module through a pair of fibres, and serves one cell or several logical sectors.

The EUT implements radio transmission over the Um interface, as well as the related control functions. The EUT has the following features:

- Compact size
- Easy installation
- Flexible coverage

It is ideal for the areas with medium or high traffic density. The EUT can operate in the following modes:

- CDAM2000 1X mode
- CDAM2000 1 X EV-DO mode
- CDMA2000 1X/1X EV-DO hybrid mode

#### 2.1.2 Support function and Service

The EUT supports the function and service as follows:

table 2. Service and Test mode List

Service Name	Characteristic	Corresponding Test Mode	Note
CDMA 1x	Modulation: BPSK, QPSK	RC1&RC3	
1x EV-Do	Modulation: 16QAM	EV-Do	

### 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				

### **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  and registration granted under the registration number **97456** on April 20, 2006. The test site has been accredited by



and the accredited number is **2174.01** in Jan of 2006.

#### **3.1 Testing Period**

The test has been performed during the period of

From: September 20, 2007

To: October 06, 2007

## 4 Product Description

### 4.1 Technical Characteristics

#### 4.1.1 Frequency Range

Refer to 3GPP2 C.S0057-B, the EUT supports AWS band with

- (1) Block designator A, B and C (AWS-Low band)
- (2) Block designator C, D, E and F (AWS-High band)

Using either the AWS-Low band or AWS-High band is subject to selected diversified duplexers.

table 4. Frequency Range for AWS-Low Band

Uplink band (RX):	1710 MHz to 1735 MHz
Downlink band (TX):	2110 MHz to 2135 MHz

table 5. Frequency Range for AWS-High Band

Uplink band (RX):	1730 MHz to 1755 MHz
Downlink band (TX):	2130 MHz to 2155 MHz

#### 4.1.2 Channel Spacing / Separation

table 6. Channel Spacing / Separation

Channel spacing:	50 KHz
Channel separation:	1.25 MHz

#### 4.1.3 Type of Emission

table 7. Type of Emission

Emission Designation:	<b>1M25F9W</b>
-----------------------	----------------

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

#### 4.1.4 Environmental Requirements

table 8. Environmental Requirements

Minimum temperature:	-40°C
Maximum temperature:	+52°C
Relative Humidity:	5%-95%RH

#### 4.1.5 Power Source

table 9. Power Source of the EUT

DC voltage nominal (rated):	== 27V
DC voltage range	== 23V ~ 29V

Note: for the test of frequency stability, the minimum voltage 23VDC (85% rated) and the maximum voltage 31VDC (115% rated) were employed.

#### 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.

## 4.2 EUT Identification List

### 4.2.1 Board Information

table 10. Board Information

Board				
Model Name	Qty.	Hardware Version	Serial Number	Description
OMTR	6	VER.B	21023148611077000004 21023148611077000005 21023148611077000006 21023148611077000022 21023148611077000007 21023148611077000023	BTS3606AE,QCPM6OMTR,Outdoor-BTS Multi-carrier Transceiver Module (AWS)
OMPA	6	VER.B	21023148781078000003 21023148781078000004 21023148781078000005 21023148781078000006 21023148781078000007 21023148781078000008	BTS3606AE, QCPM6OPMA, Outdoor-BTS Multi-carrier Power Amplifier Module (AWS)
ODFU	6	VER.A	2199058625 L077000107 2199058625 L077000108 2199058625 L077000109 2199058625L077000102 2199058625 L077000110 2199058625L077000111	Duplexer,BTS3606E 2100AWS1,TX:2110-2135MHz/RX:1710-1735MHz,1.4dB,1.1dB,16dB,DIN/N/SMA
ODFU	6	VER.A	2199040KPK1077000001 2199040KPK1077000002 2199040KPK1077000003 2199040KPK1077000004 2199040KPK1077000005 2199040KPK1077000006	Duplexer,BTS3606E 2100AWS2,TX:2130-2155MHz/RX:1730-1755MHz,1.4dB,1.1dB,16dB,DIN/N/SMA

### 4.2.2 Adapter Technical Data

Not Applicable for BTS.

### 4.2.3 Battery Technical Data

Not Applicable for BTS.

### 4.2.4 FCC Identification

Grantee Code: QIS  
 Product Code: QCPM-AWS  
 FCC Identification: QISQCPM-AWS

## 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	12.28.2007
Test Receiver Display Unit	R&S	ESMI 804.8932.52	829214/011	05.29.2008
Test Receiver RF Unit	R&S	ESMI 1032.5640.53	829550/008	05.29.2008
Receiver	R&S	ESCS30	830245/018	05.29.2008
Pre-Amplifier	Agilent	8447D	2944A10146	05.21.2008
Pre-Amplifier	Agilent	83017A	3950M00246	05.21.2008
BiLog Antenna	Schaffner	CBL 6112B	2941	02.15.2008
Horn Antenna	R&S	HF906 4044.4507.02	359287/006	11.09.2007
Signal Analyzer	R&S	FSQ 40	100025	09.06.2008
40 dB Attenuator	Weinschel	49-40-33	NY604	---
Power Supply	KIKUSUI	PAD110-32LA	EM004681	11.13.2007
ESS Temperature Chamber	ACS	CH 1500 C 15 ESS	11004	04.04.2008

## 6 TRANSMITTER MEASUREMENTS

### 6.1 Maximum Channel Power

#### 6.1.1 Test Conditions

table 12. Test Conditions

Preconditioning:	1 hour
Measured at:	Antenna connector
Ambient temperature:	23 °C
Relative humidity:	60 %

#### 6.1.2 Test Specifications and Limits

##### 6.1.2.1 Specification

CFR 47 (FCC) part 2.1046 and part 27.50(d).

##### 6.1.2.2 Supporting Standards

table 13. Supporting Standards:

EIA/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999	Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
3GPP2 C.S0010-B	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations. Release B
3GPP2 C.S0032-0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network
3GPP2 C.S0057-B	Band Class Specification for cdma2000 Spread Spectrum Systems

##### 6.1.2.3 Limits

Compliance with part 27.50(d), in no any case may the peak power of a base station transmitter exceeds 1640 Watts.  $P \text{ (dBm)} = 10 \cdot \log(P \text{ mWatts})$ .

table 14. Limits

Maximum Output Power (Watts)	< 1640 Watts
Maximum Output Power (dBm)	< 62 dBm

#### 6.1.3 Test Method and Setup

Base Station was connected to the wireless signal analyzer R&S FSQ40 via the one RF connector. Other RF connectors were connected to match load. BTS was controlled to transmit Maximum power by console computer. Measure and record the Maximum Channel Power of the Base Station by the R&S FSQ40.

Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an RMS equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true

peak measurement for the emission in question over the full bandwidth of the channel.

**Test setup**

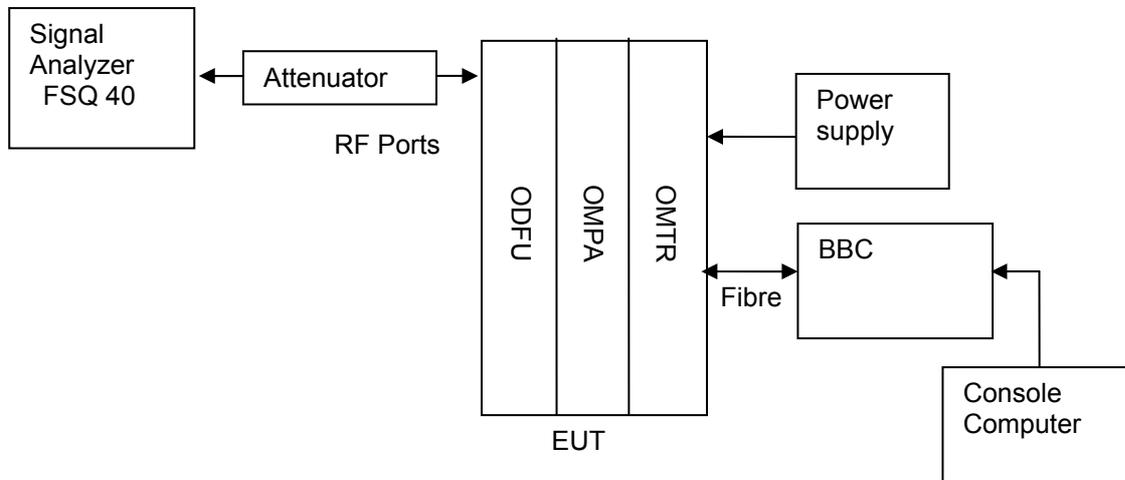


Figure 1. TEST SETUP

**6.1.4 Measurement Results**

For CDMA2000 1X system, set the base station to transmit a signal modulated with a combination of Pilot, Sync, Paging, and 6 traffic channels. For CDMA2000 1X EV-DO system, configure the MAC channel with 14 MAC indices, i.e. the RA channel and 13 RPC channels.

(1) AWS-Low Band:

CDMA2000 1X

A. Single Carrier:

table 15. Measurement Results for single carrier

TEST CONDITIONS		Maximum Output Power					
		Channel 025 2111.25 MHz		Channel 300 2125.00 MHz		Channel 475 2133.75 MHz	
		dBm		dBm		dBm	
		Measured	Limit	Measured	Limit	Measured	Limit
$T_{nom}$ (23 °C)	$V_{nom}$ (27 V)	<b>42.30</b>	<b>&lt; 62</b>	<b>42.65</b>	<b>&lt; 62</b>	<b>42.42</b>	<b>&lt; 62</b>

B. Two Carriers:

table 16. Measurement Results for two carriers

TEST CONDITIONS		Maximum Output Power					
		Channel 025 & 050		Channel 275 & 300		Channel 450 & 475	
		dBm		dBm		dBm	
$T_{nom}$ (23 °C)	$V_{nom}$ (27 V)	Measured	Limit	Measured	Limit	Measured	Limit
		<b>Carrier 1</b>					
		<b>42.40</b>	<b>&lt; 62</b>	<b>42.28</b>	<b>&lt; 62</b>	<b>42.16</b>	<b>&lt; 62</b>
		<b>Carrier 2</b>					

	42.33	< 62	42.31	< 62	42.26	< 62
	Total					
	45.38	< 62	45.30	< 62	45.22	< 62

C. Three Carriers:

table 17. Measurement Results for three carriers

TEST CONDITIONS		Maximum Output Power					
		Channel 025 & 050 & 075		Channel 275 & 300 & 325		Channel 425 & 450 & 475	
		dBm		dBm		dBm	
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	Measured	Limit	Measured	Limit	Measured	Limit
		Carrier 1					
		42.32	< 62	42.59	< 62	42.55	< 62
		Carrier 2					
		42.57	< 62	42.54	< 62	42.48	< 62
		Carrier 3					
		42.28	< 62	42.39	< 62	42.67	< 62
		Total					
		47.16	< 62	47.28	< 62	47.34	< 62

CDMA2000 1X EV-DO

table 18. Measurement Results for EV-DO

TEST CONDITIONS		Maximum Output Power					
		Channel 025 2111.25 MHz		Channel 300 2125.00 MHz		Channel 475 2133.75 MHz	
		dBm		dBm		dBm	
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	Measured	Limit	Measured	Limit	Measured	Limit
		42.40	< 62	42.34	< 62	42.31	< 62

(2) AWS-High Band:

CDMA2000 1X

A. Single Carrier:

table 19. Measurement Results for single carrier

TEST CONDITIONS		Maximum Output Power					
		Channel 425 2131.25 MHz		Channel 650 2142.50 MHz		Channel 875 2153.75 MHz	
		dBm		dBm		dBm	
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	Measured	Limit	Measured	Limit	Measured	Limit
		42.80	< 62	42.40	< 62	42.33	< 62

B. Two Carriers:

table 20. Measurement Results for two carriers

TEST CONDITIONS		Maximum Output Power					
		Channel 425 & 450		Channel 625 & 650		Channel 850 & 875	
		dBm		dBm		dBm	
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	Measured	Limit	Measured	Limit	Measured	Limit
		<b>Carrier 1</b>					
		42.46	< 62	42.60	< 62	42.54	< 62
		<b>Carrier 2</b>					
		42.69	< 62	42.41	< 62	42.39	< 62
		<b>Total</b>					
		45.59	< 62	45.52	< 62	45.47	< 62

C. Three Carriers:

table 21. Measurement Results for three carriers

TEST CONDITIONS		Maximum Output Power					
		Channel 425 & 450 & 475		Channel 625 & 650 & 675		Channel 825 & 850 & 875	
		dBm		dBm		dBm	
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	Measured	Limit	Measured	Limit	Measured	Limit
		<b>Carrier 1</b>					
		42.81	< 62	42.71	< 62	42.70	< 62
		<b>Carrier 2</b>					
		42.88	< 62	43.03	< 62	42.54	< 62
		<b>Carrier 3</b>					
		42.72	< 62	42.28	< 62	42.40	< 62
		<b>Total</b>					
		47.57	< 62	47.45	< 62	47.34	< 62

CDMA2000 1X EV-DO

table 22. Measurement Results for EV-DO

TEST CONDITIONS		Maximum Output Power					
		Channel 425 2131.25 MHz		Channel 650 2142.50 MHz		Channel 875 2153.75 MHz	
		dBm		dBm		dBm	
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	Measured	Limit	Measured	Limit	Measured	Limit
		42.56	< 62	42.87	< 62	42.50	< 62

### 6.1.5 Conclusion

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

## 6.2 Modulation Characteristics

### 6.2.1 Test Conditions

table 23. Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	23 °C
Relative humidity:	60 %

### 6.2.2 Test Specifications and Limits

#### 6.2.2.1 Specification

CFR 47 (FCC) part 2.1047 and part 27 subpart C.

#### 6.2.2.2 Supporting Standards

table 24. Supporting Standards:

EIA/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999	Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
3GPP2 C.S0010-B	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations. Release B
3GPP2 C.S0032-0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network
3GPP2 C.S0057-B	Band Class Specification for cdma2000 Spread Spectrum Systems

#### 6.2.2.3 Limits

No specific modulation characteristics requirement limits in part 2.1047 and part 27 subpart C.

table 25. Limits According to 3GPP2 C.S0010-B and C.S0032-0

Limits	Rho > 0.912 (for CDMA2000 1X) Rho > 0.97 (for CDMA 1X EV-DO)
--------	---

### 6.2.3 Test Method and Setup

Base Station was connected to the wireless signal analyzer R&S FSQ40 via the one RF connector. Other RF connectors were connected to match load. BTS was controlled to transmit Maximum power by console computer. Measure and record the Code Domain Power and the constellation of the Base Station by the R&S FSQ40.

#### Test setup

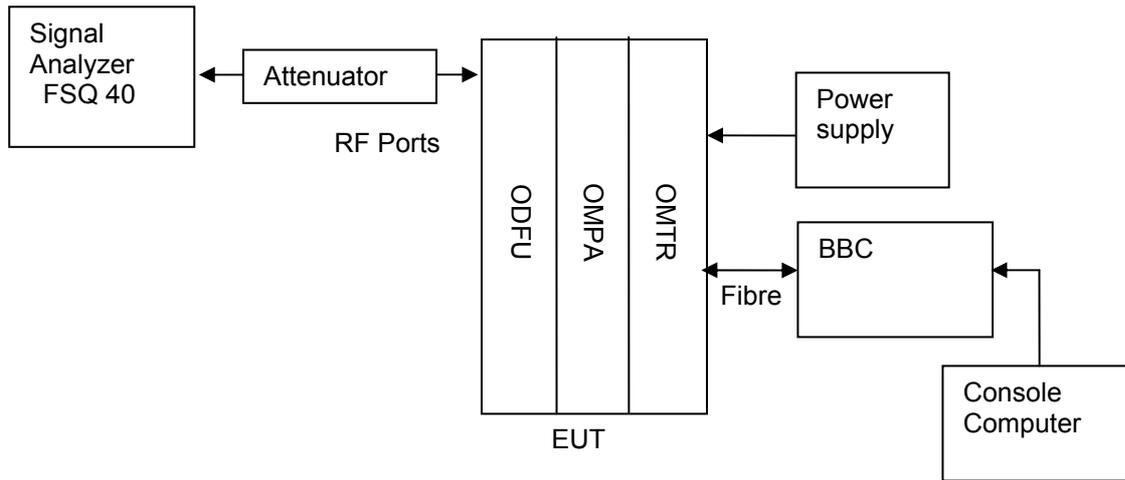


Figure 2. TEST SETUP

### 6.2.4 Measurement Results

For the CDMA2000 1X, the measurement was made based on two Radio Configurations: RC1 and RC3. The modulation mode of RC1 is BPSK, and the modulation mode of RC3 is QPSK. For the CDMA2000 1X EV-DO, the modulation mode is 16-QAM.

(1) AWS-Low Band:

CDMA2000 1X:  
RC1:

table 26. Measurement Results for RC1

TEST CONDITIONS		Rho(RC1/1)		
		Channel 300 2125.00 MHz		
		N/A		
		Type	Measured	Limit
$T_{nom}$ (23 °C)	$V_{nom}$ (27 V)	<b>BPSK</b>	<b>0.98145</b>	<b>0.912</b>

RC3:

table 27. Measurement Results for RC3

TEST CONDITIONS		Rho(RC3/3)		
		Channel 300 2125.00 MHz		
		N/A		
		Type	Measured	Limit
$T_{nom}$ (23 °C)	$V_{nom}$ (27 V)	<b>QPSK</b>	<b>0.99213</b>	<b>0.912</b>

CDMA2000 1X EV-DO:

table 28. Measurement Results for EV-DO

Rho	
-----	--

TEST CONDITIONS		Channel 300 2125.00 MHz		
		N/A		
		Type	Measured	Limit
		T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	<b>16-QAM</b>

(2) AWS-High Band:

CDMA2000 1X:  
RC1:

table 29. Measurement Results for RC1

TEST CONDITIONS		Rho(RC1/1)		
		Channel 300 2125.00 MHz		
		N/A		
		Type	Measured	Limit
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	<b>BPSK</b>	<b>0.98102</b>	<b>0.912</b>

RC3:

table 30. Measurement Results for RC3

TEST CONDITIONS		Rho(RC3/3)		
		Channel 300 2125.00 MHz		
		N/A		
		Type	Measured	Limit
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	<b>QPSK</b>	<b>0.99172</b>	<b>0.912</b>

CDMA2000 1X EV-DO:

table 31. Measurement Results for EV-DO

TEST CONDITIONS		Rho		
		Channel 300 2125.00 MHz		
		N/A		
		Type	Measured	Limit
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	<b>16-QAM</b>	<b>0.99350</b>	<b>0.97</b>

### 6.2.5 Conclusion

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

For the measurement results refer to appendix A.

## 6.3 Occupied Bandwidth

### 6.3.1 Test Conditions

table 32. Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	23 °C
Relative humidity:	60 %

### 6.3.2 Test Specifications and Limits

#### 6.3.2.1 Specification

CFR 47 (FCC) part 2.1049 and part 27 subpart C.

#### 6.3.2.2 Supporting Standards

table 33. Supporting Standards:

EIA/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999	Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
3GPP2 C.S0010-B	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations. Release B
3GPP2 C.S0032-0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network
3GPP2 C.S0057-B	Band Class Specification for cdma2000 Spread Spectrum Systems

#### 6.3.2.3 Limits

No specific occupied bandwidth requirement in part 27 subpart C. 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 34. Limits According to 3GPP2 C.S0010-B

Limits	< 1.48MHz
--------	-----------

### 6.3.3 Test Method and Setup

Base Station was connected to the wireless signal analyzer R&S FSQ40 via the one RF connector. Other RF connectors were connected to match load. BTS was controlled to transmit Maximum power by console computer. Measure and record the Occupied Bandwidth of the Base Station by the R&S FSQ40.

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 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.

Measurement bandwidth (RBW): 30 kHz  
 Video bandwidth (VBW): 100 kHz

**Test Set-up**

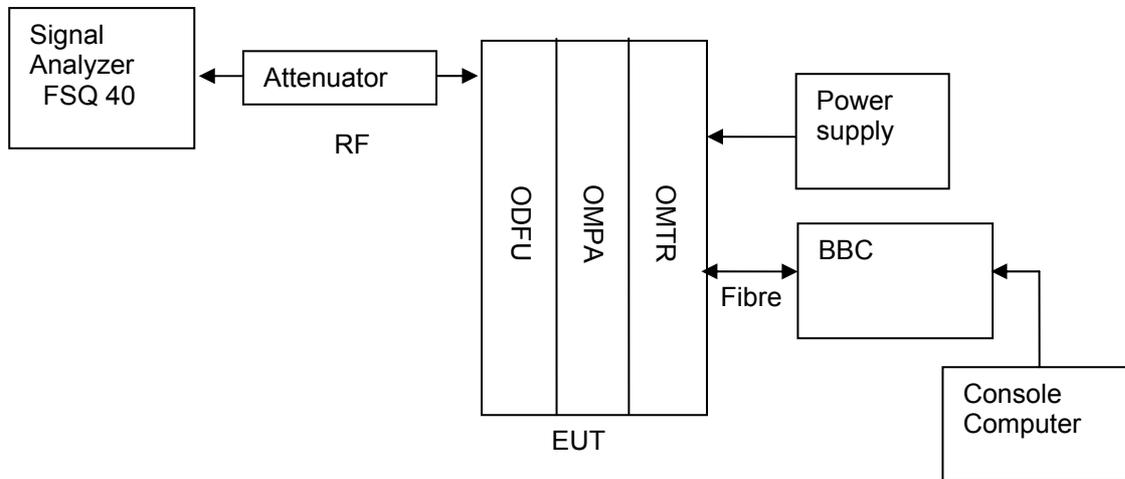


Figure 3. TEST SETUP

**6.3.4 Measurement Results**

(1) AWS-Low Band:

CDMA2000 1X:

table 35. Measurement Results for 1X

TEST CONDITIONS		Occupied Bandwidth	
		Channel 300 2125.00 MHz	
		Measured (MHz)	Limit (MHz)
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	1.2788	1.48

CDMA2000 1X EV-DO:

table 36. Measurement Results for 1X EV-DO

	Occupied Bandwidth
--	--------------------

TEST CONDITIONS		Channel 300 2125.00 MHz	
		<b>Measured (MHz)</b>	<b>Limit (MHz)</b>
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	1.2788	1.48

(2) AWS-High Band:

CDMA2000 1X:

table 37. Measurement Results for 1X

TEST CONDITIONS		Occupied Bandwidth	
		Channel 300 2125.00 MHz	
		<b>Measured (MHz)</b>	<b>Limit (MHz)</b>
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	1.2788	1.48

CDMA2000 1X EV-DO:

table 38. Measurement Results for 1X EV-DO

TEST CONDITIONS		Occupied Bandwidth	
		Channel 300 2125.00 MHz	
		<b>Measured (MHz)</b>	<b>Limit (MHz)</b>
T <sub>nom</sub> (23 °C)	V <sub>nom</sub> (27 V)	1.2721	1.48

### 6.3.5 Conclusion

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

## 6.4 Band Edges Compliance

### 6.4.1 Test Conditions

table 39. Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	23°C
Relative humidity:	60 %

### 6.4.2 Test Specifications and Limits

#### 6.4.2.1 Specification

CFR 47 (FCC) part 2.1051 and part 27.53(g).

#### 6.4.2.2 Supporting Standards

table 40. Supporting Standards:

EIA/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999	Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
3GPP2 C.S0010-B	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations. Release B
3GPP2 C.S0032-0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network
3GPP2 C.S0057-B	Band Class Specification for cdma2000 Spread Spectrum Systems

#### 6.4.2.3 Limits

Compliance with part 27.53(g), 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 41. Limits

Rated Power:	43 dBm
Required attenuation:	$43 + 10 \log(20) = 56$ , 43 dBm - 56 dB
Absolute level	- 13 dBm

### 6.4.3 Test Method and Setup

Base Station was connected to the wireless signal analyzer R&S FSQ40 via the one RF connector. Other RF connectors were connected to match load. BTS was controlled to transmit Maximum power by console computer. Measure and record the Occupied Bandwidth of the Base Station by the R&S FSQ40.

RBW of 20kHz (more than 1% of 1.25MHz) was used up to 1MHz away from the band edge .So the FCC rules specify that RBW of 100kHz for measurements of emissions >1MHz away from the band

edges of the BTS.

**Test Set-up**

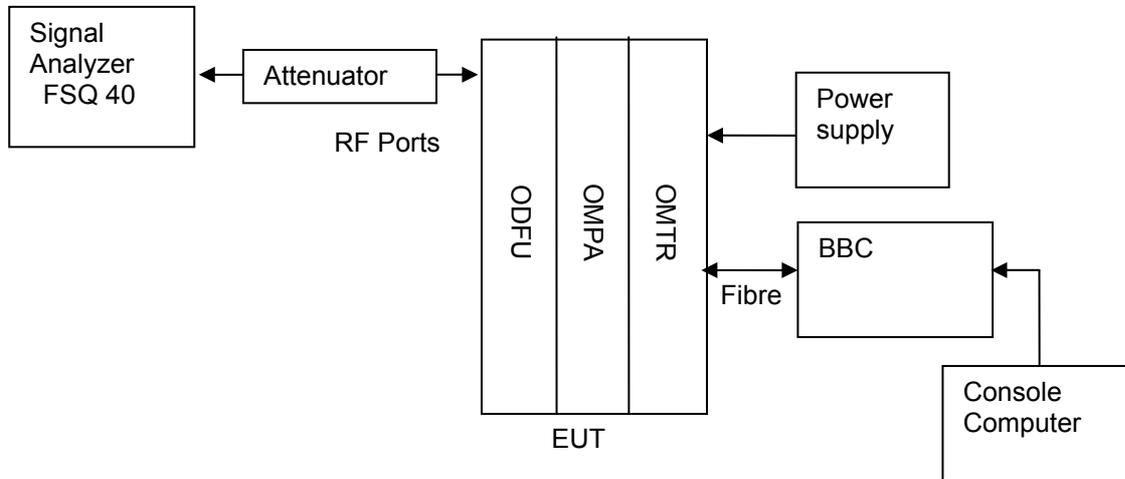


Figure 4. Test Set-up

**6.4.4 Measurement Results**

(1) AWS-Low Band:

CDMA2000 1X:  
A. Single Carrier

table 42. Measurement Results for single carrier

Channel Number	Frequency of Band edge [MHz]	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
25	2110	43	<-13(See appendix C)	- 13 dBm	Pass
475	2135	43	<-13(See appendix C)	- 13 dBm	Pass

B. Multiple Carriers

table 43. Measurement Results for multiple carriers

Channel Number	Frequency of Band edge [MHz]	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
25/50/75	2110	43	<-13(See appendix C)	- 13 dBm	Pass
425/450/475	2135	43	<-13(See appendix C)	- 13 dBm	Pass

CDMA2000 1X EV-DO:

table 44. Measurement Results for EV-DO

Channel Number	Frequency of Band edge [MHz]	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
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25	2110	43	<-13(See appendix C)	- 13 dBm	Pass
475	2135	43	<-13(See appendix C)	- 13 dBm	Pass

(2) AWS-High Band:

CDMA2000 1X:

A. Single Carrier

table 45. Measurement Results for single carrier

Channel Number	Frequency of Band edge [MHz]	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
425	2130	43	<-13(See appendix C)	- 13 dBm	Pass
875	2155	43	<-13(See appendix C)	- 13 dBm	Pass

B. Multiple Carriers

table 46. Measurement Results for multiple carriers

Channel Number	Frequency of Band edge [MHz]	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
425/450/475	2130	43	<-13(See appendix C)	- 13 dBm	Pass
825/850/875	2155	43	<-13(See appendix C)	- 13 dBm	Pass

CDMA2000 1X EV-DO:

table 47. Measurement Results for EV-DO

Channel Number	Frequency of Band edge [MHz]	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
425	2130	43	<-13(See appendix C)	- 13 dBm	Pass
875	2155	43	<-13(See appendix C)	- 13 dBm	Pass

### 6.4.5 Conclusion

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

## 6.5 Spurious Emission at Antenna Terminal

### 6.5.1 Test Conditions

table 48. Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	23°C
Relative humidity:	60 %

### 6.5.2 Test Specifications and Limits

#### 6.5.2.1 Specification

CFR 47 (FCC) part 2.1051 and part 27.53(g).

#### 6.5.2.2 Supporting Standards

table 49. Supporting Standards:

EIA/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999	Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
ITU-R Recommendation SM.329-10 (2003)	Unwanted emissions in the spurious domain
3GPP2 C.S0010-B	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations. Release B
3GPP2 C.S0032-0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network
3GPP2 C.S0057-B	Band Class Specification for cdma2000 Spread Spectrum Systems

#### 6.5.2.3 Limits

Compliance with part 27.53(g), 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 50. Limits

Rated Power:	43dBm
Required attenuation:	$43 + 10 \log(20) = 53$ , 43 dBm - 56 dB
Absolute level	-13 dBm

### 6.5.3 Test Method and Setup

Base Station was connected to the wireless signal analyzer R&S FSQ40 via the one RF connector. Other RF connectors were connected to match load. The band class is set Band Class 0(800MHz). BTS was controlled to transmit Maximum power by console computer. Measure and record the spurious emissions levels of the Base Station by the R&S FSQ40.

According to 47CFR part 27.53(g), this defined the measurement bandwidth of as following:  
Measurement bandwidth (RBW) for 9 kHz to 10<sup>th</sup> harmonic included: 1MHz;

Alternatively, according to ITU SM.329-10,  
 Measurement bandwidth (RBW) for 9 kHz up to 150 KHz: 1 kHz;  
 Measurement bandwidth (RBW) for 150 kHz up to 30 MHz: 10 kHz;  
 Measurement bandwidth (RBW) for 30 MHz up to 1 GHz: 100 kHz;  
 Measurement bandwidth (RBW) for 1 GHz up to 10<sup>th</sup> harmonic included: 1 MHz;

**Test Set-up**

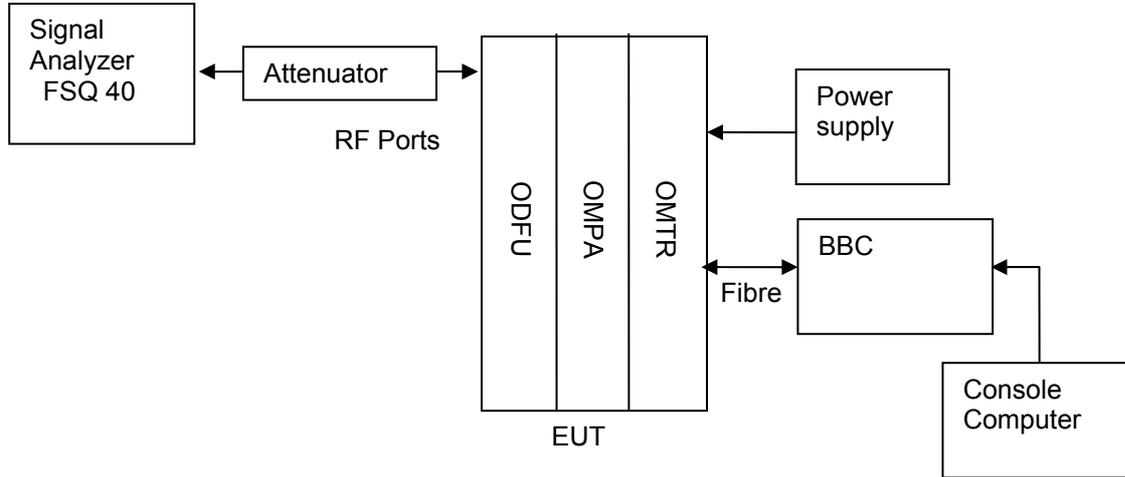


Figure 5. Test Set-up

**6.5.4 Measurement Results**

(1) AWS-Low Band:

CDMA2000 1X:  
 A. Single Carrier

table 51. Measurement Results for single carrier

Channel Number	Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
25	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass
475	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass

B. Multiple Carriers

table 52. Measurement Results for multiple carriers

Channel Number	Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
25/50/75	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass
425/450/475	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass

CDMA2000 1X EV-DO:

table 53. Measurement Results for EV-DO

Channel Number	Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
25	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass
475	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass

(2) AWS-High Band:

CDMA2000 1X:

C. Single Carrier

table 54. Measurement Results for single carrier

Channel Number	Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
425	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass
875	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass

D. Multiple Carriers

table 55. Measurement Results for multiple carriers

Channel Number	Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
425/450/475	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass
825/850/875	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass

CDMA2000 1X EV-DO:

table 56. Measurement Results for EV-DO

Channel Number	Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
425	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass
875	9 kHz ~ 22 GHz	43	<- 13 dBm (See appendix D)	- 13 dBm	Pass

## 6.5.5 Conclusion

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

## 6.6 Radiated Spurious Emission

### 6.6.1 Test Conditions

table 57. Test Conditions

Preconditioning:	0.5 hour
Measured at:	enclosure
Ambient temperature:	22 °C
Relative humidity:	53 %

### 6.6.2 Test Specifications and Limits

#### 6.6.2.1 Specification

CFR 47 (FCC) part 2.1053 and part 27.53(g)

#### 6.6.2.2 Supporting Standards

table 58. Supporting Standards:

EIA/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
EIA/TIA-102-CAAA:1999	Digital C4FM/CQPSK Transceiver Measurement Methods (ANSI/TIA/EIA-102.CAAA-1999)
ITU-R Recommendation SM.329-10 (2003)	Unwanted emissions in the spurious domain
3GPP2 C.S0010-B	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations. Release B
3GPP2 C.S0032-0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network
3GPP2 C.S0057-B	Band Class Specification for cdma2000 Spread Spectrum Systems

#### 6.6.2.3 Limits

Compliance with part 27.53(g),, 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 59. Limits

Rated Power:	43dBm
Required attenuation:	$43 + 10 \log(20) = 56$ , 43 dBm - 56 dB
Absolute level	- 13 dBm

### 6.6.3 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 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.

The BTS under test is equipment with non-integral antenna. And it should test according to part (b) of above section.

BTS is connected to match loads. The console computer controls the EUT to transmitter the maximum power which defined in specification of product. The EUT operates on a typical channel.

### **The test procedure:**

- (a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, E.R.P. 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). The EUT was connected to ancillary in order to simulate normal operating conditions with reference to the guidance given in the standard for this type of equipment.
- (b) Test the radiated maximum output power by the R&S test receiver ESML 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 ESML, and record the power level of Signal Generator. Of course, the cable loss at the test frequency should be compensated.

According to part 27.53(g), the defined measurement bandwidth as following:

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 to 10<sup>th</sup> harmonic included: 1MHz;

Alternatively, according to ITU SM.329-10,

Measurement bandwidth (RBW) for 9 kHz up to 150 KHz: 1 kHz;

Measurement bandwidth (RBW) for 150 kHz up to 30 MHz: 10 kHz;

Measurement bandwidth (RBW) for 30 MHz up to 1 GHz: 100 kHz;

Measurement bandwidth (RBW) for 1 GHz up to 10<sup>th</sup> harmonic included: 1 MHz;

### **Test setup**

#### **Step 1: Pre-test**

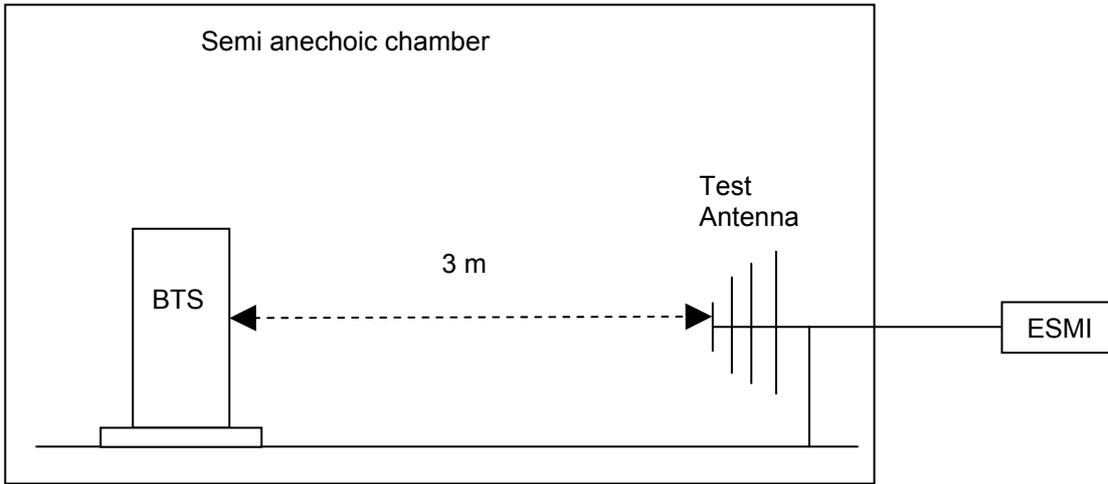


Figure 6. Test Set-up

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

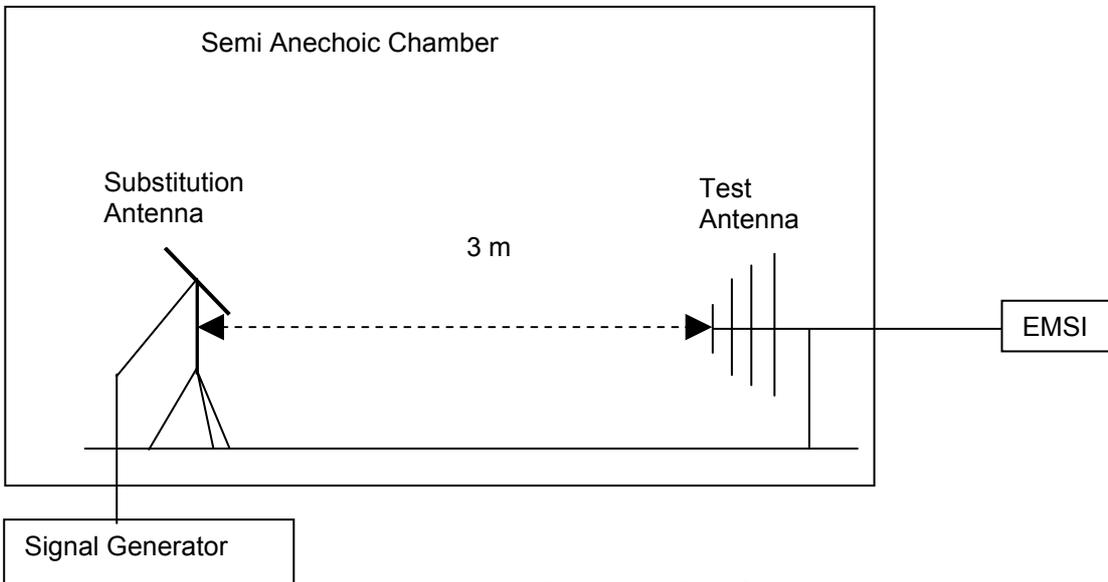


Figure 7. Test Set-up

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

**6.6.4 Measurement Results**

table 60. Measurement Results

Test Range (Frequency)	Power [dBm]	Spurious Level measured [dBm]	FCC limit	Result
30 MHz ~ 22 GHz	43	<- 13 dBm (See appendix E)	- 13 dBm	Pass

**6.6.5 Conclusion**

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

## 6.7 Frequency Stability

### 6.7.1 Test Conditions

table 61. Test Conditions

Preconditioning:	0.5 hour
Measured at:	Antenna connector
Ambient temperature:	See below
Relative humidity:	55 % at 20 °C

### 6.7.2 Test Specifications and Limits

#### 6.7.2.1 Specification

CFR 47 (FCC) part 2.1055 and part 27.54.

#### 6.7.2.2 Supporting Standards

table 62. Supporting Standards:

ANSI C63.4-1992	Methods of Measurement of Radio-Noise Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
EIA/TIA-603-C: 2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
3GPP2 C.S0010-B	Recommended Minimum Performance Standards for cdma2000 Spread Spectrum Base Stations. Release B
3GPP2 C.S0032-0	Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access Network
3GPP2 C.S0057-B	Band Class Specification for cdma2000 Spread Spectrum Systems

#### 6.7.2.3 Limits

No specific frequency stability requirement in part 2.1055 and part 27.54.

table 63. Limits According to 3GPP2 C.S0010-B

Limit:	< ±0.05ppm
--------	------------

### 6.7.3 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 equipment 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.
- (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 Base Station to the Wireless Signal Analyzer R&S FSQ40 via the antenna connector. Then measure the frequency error by the R&S FSQ40. The Other antenna output ports were matched with 50 Ω match loads.

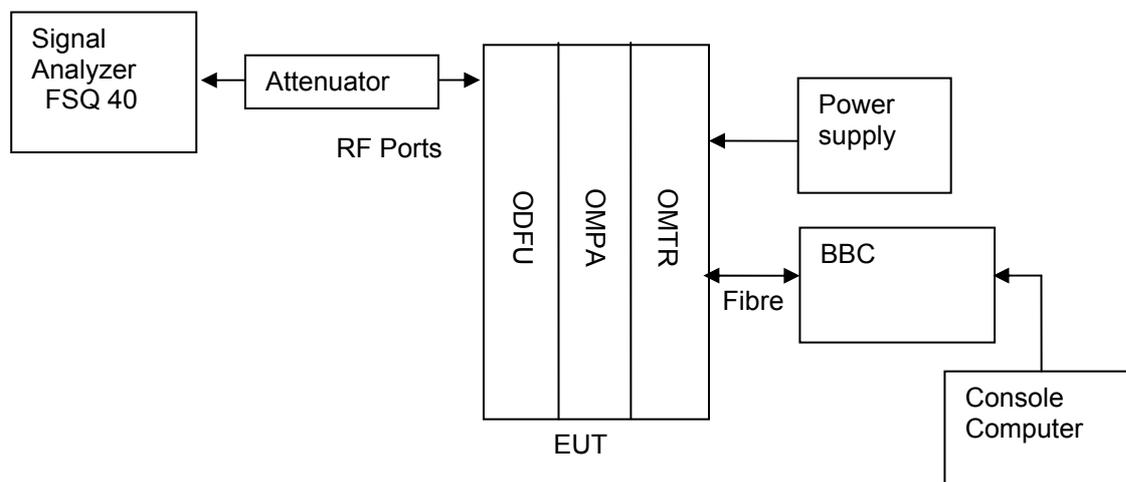


Figure 8. Test Set up

**6.7.4 Measurement Results**

**6.7.4.1 Measurement Results vs. Variation of Temperature**

(1) AWS-Low Band:

CDMA2000 1X:

- TRX1: Channel No.300 (2125 MHz)

table 64. Measurement Results for 1X

TEST CONDITIONS		Frequency Stability		
		Measured Max. Frequency Error		Limit (ppm)
		Hz	ppm	
V <sub>nom</sub> (27 V)	-30 °C	20.66	0.01	< ±0.05
	-20 °C	-38.44	-0.02	< ±0.05
	-10 °C	-24.56	-0.01	< ±0.05

	0 °C	17.24	0.01	< ±0.05
	+10 °C	-24.44	-0.01	< ±0.05
	+20 °C	-23.07	-0.01	< ±0.05
	+30 °C	-19.17	-0.01	< ±0.05
	+40 °C	-19.97	-0.01	< ±0.05
	+50 °C	28.08	0.01	< ±0.05

CDMA2000 1X EV-DO:

- TRX1: Channel No. 300 (2125 MHz)

table 65. Measurement Results for EV-DO

TEST CONDITIONS		Frequency Stability		
		Measured Max. Frequency Error		Limit (ppm)
		Hz	ppm	
V <sub>nom</sub> (27 V)	-30 °C	25.48	0.01	< ±0.05
	-20 °C	14.96	0.01	< ±0.05
	-10 °C	31.71	0.01	< ±0.05
	0 °C	36.36	0.02	< ±0.05
	+10 °C	18.21	0.01	< ±0.05
	+20 °C	31.63	0.01	< ±0.05
	+30 °C	-25.38	-0.01	< ±0.05
	+40 °C	-17.53	-0.01	< ±0.05
	+50 °C	-17.52	-0.01	< ±0.05

(2) AWS-High Band:

CDMA2000 1X:

- TRX1: Channel No.650 (2142.5 MHz)

table 66. Measurement Results for 1X

TEST CONDITIONS		Frequency Stability		
		Measured Max. Frequency Error		Limit (ppm)
		Hz	ppm	
V <sub>nom</sub> (27 V)	-30 °C	31.42	0.01	< ±0.05
	-20 °C	-34.17	-0.02	< ±0.05
	-10 °C	-32.88	-0.02	< ±0.05
	0 °C	26.05	0.01	< ±0.05
	+10 °C	24.60	0.01	< ±0.05
	+20 °C	-18.59	-0.01	< ±0.05
	+30 °C	20.18	0.01	< ±0.05
	+40 °C	-11.58	-0.01	< ±0.05
	+50 °C	-17.43	-0.01	< ±0.05

CDMA2000 1X EV-DO:

- TRX1: Channel No. 650 (2142.5 MHz)

table 67. Measurement Results for EV-DO

TEST CONDITIONS		Frequency Stability		
		Measured Max. Frequency Error		Limit (ppm)
		Hz	ppm	
$V_{nom}$ (27 V)	-30 °C	<b>37.01</b>	<b>0.02</b>	<b>&lt; ±0.05</b>
	-20 °C	<b>-12.52</b>	<b>-0.01</b>	<b>&lt; ±0.05</b>
	-10 °C	<b>-22.36</b>	<b>-0.01</b>	<b>&lt; ±0.05</b>
	0 °C	<b>22.20</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	+10 °C	<b>17.03</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	+20 °C	<b>-12.93</b>	<b>-0.01</b>	<b>&lt; ±0.05</b>
	+30 °C	<b>-29.25</b>	<b>-0.01</b>	<b>&lt; ±0.05</b>
	+40 °C	<b>-19.02</b>	<b>-0.01</b>	<b>&lt; ±0.05</b>
	+50 °C	<b>-21.99</b>	<b>-0.01</b>	<b>&lt; ±0.05</b>

6.7.4.2 Measurement Results vs. Variation of Voltage

(1) AWS-Low Band:

CDMA2000 1X:

- TRX1: Channel No. 300 (2125 MHz)

table 68. Measurement Results for 1X

TEST CONDITIONS		Frequency Stability		
		Measured Max. Frequency Error		Limit (ppm)
		Hz	ppm	
$T_{nom}$ (23°C)	85% $V_{nom}$ (23 V)	<b>13.54</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	100% $V_{nom}$ (27 V)	<b>11.06</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	115% $V_{nom}$ (31 V)	<b>11.82</b>	<b>0.01</b>	<b>&lt; ±0.05</b>

CDMA2000 1X EV-DO:

- TRX1: Channel No. 300 (2125 MHz)

table 69. Measurement Results for EV-DO

TEST CONDITIONS		Frequency Stability		
		Measured Max. Frequency Error		Limit (ppm)
		Hz	ppm	
$T_{nom}$ (23°C)	85% $V_{nom}$ (23 V)	<b>12.31</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	100% $V_{nom}$ (27 V)	<b>12.05</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	115% $V_{nom}$ (31 V)	<b>-12.11</b>	<b>-0.01</b>	<b>&lt; ±0.05</b>

(2) AWS-High Band:

CDMA2000 1X:

- TRX1: Channel No. 650 (2142.5 MHz)

table 70. Measurement Results for 1X

TEST CONDITIONS		Frequency Stability		
		Measured Max. Frequency Error		Limit (ppm)
		Hz	ppm	
$T_{nom}$ (23°C)	85% $V_{nom}$ (23 V)	<b>18.41</b>	<b>0.01</b>	<b>&lt; ±0.05</b>

	100%V <sub>nom</sub> (27 V)	<b>18.31</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	115%V <sub>nom</sub> (31 V)	<b>19.43</b>	<b>0.01</b>	<b>&lt; ±0.05</b>

CDMA2000 1X EV-DO:

- TRX1: Channel No. 650 (2142.5 MHz)

table 71. Measurement Results for EV-DO

TEST CONDITIONS		Frequency Stability		
		Measured Max. Frequency Error		Limit (ppm)
		Hz	ppm	
T <sub>nom</sub> (23°C)	85%V <sub>nom</sub> (23 V)	<b>16.63</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	100%V <sub>nom</sub> (27 V)	<b>16.94</b>	<b>0.01</b>	<b>&lt; ±0.05</b>
	115%V <sub>nom</sub> (31 V)	<b>16.30</b>	<b>0.01</b>	<b>&lt; ±0.05</b>

### 6.7.5 Conclusion

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

## 7 System Measurement Uncertainty

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

table 72. System Measurement Uncertainty

Items		Extended Uncertainty
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)(30MHz~1G)	U=4.6dB; k=2
	ERP (dBm) (>1G)	U=3dB; k=2
Conducted Output Power	Power(dBm)	U=0.39dB; k=2

## 8 Appendices

Appendix A	Measurement Results Modulation Characteristics	7 pages
Appendix B	Measurement Results Occupied Bandwidth	5 pages
Appendix C	Measurement Results Band Edges	13 pages
Appendix D	Measurement Results Spurious Emission at Antenna Terminal	61 pages
Appendix E	Measurement Results Radiated Spurious Emission	3 pages

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