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## 1 Scope

This Standard details definitions, methods of measurement, and minimum performance characteristics for Band Class 5(1900MHz) of Code Division Multiple Access (CDMA) mobile stations.

## 2 Terms and Definitions

**AWGN.** Additive White Gaussian Noise.

**Bad Frame.** A frame classified with insufficient frame quality or for Radio Configuration 1 9600 bps primary traffic only, with bit errors. See also Good Frame.

**Band Class (BC).** A set of frequency channels and a numbering scheme for these channels.

**Base Station.** A fixed station used for communicating with mobile stations. Depending upon the context, the term base station may refer to a cell, a sector within a cell, an MSC, or other part of the wireless system.

**CDMA.** See Code Division Multiple Access.

**CDMA Channel.** The set of channels transmitted between the base station and the mobile stations within a given CDMA frequency assignment. See also Forward CDMA Channel and Reverse CDMA Channel.

**CDMA Channel Number.** An 11-bit number corresponding to the center of the CDMA frequency assignment.

**Code Channel.** A subchannel of a Forward CDMA Channel or Reverse CDMA Channel. Each subchannel uses an orthogonal Walsh function or quasi-orthogonal function.

**dBc.** The ratio (in dB) of the sideband power of a signal, measured in a given bandwidth at a given frequency offset from the center frequency of the same signal, to the total inband power of the signal. For CDMA, the total inband power of the signal is measured in a 1.23 MHz bandwidth around the center frequency of the CDMA signal for a Spreading Rate 1 CDMA signal and in a 3.69 MHz bandwidth around the center frequency of the CDMA signal for a Spreading Rate 3 CDMA signal.

**dBm.** A measure of power expressed in terms of its ratio (in dB) to one milliwatt.

**dBm/Hz.** A measure of power spectral density. The ratio, dBm/Hz, is the power in one Hertz of bandwidth, where power is expressed in units of dBm.

**Eb.** Average energy of an information bit at the mobile station antenna connector.

**Eb/Nt.** The ratio in dB of the combined received energy per bit to the effective noise power spectral density at the mobile station antenna connector.

**Ec.** Average energy accumulated over one PN chip period ( $E_c$ ).

**FER.** Frame Error Rate of Forward Traffic Channel.

**Forward Fundamental Channel (FCH).** A portion of a Forward Traffic Channel which carries

a combination of higher-level data and power control information.

**I0.** The total received power spectral density, including signal and interference, as measured at the mobile station antenna connector.

**Ioc.** The power spectral density of a band-limited white noise source (simulating interference from other cells) as measured at the mobile station antenna connector. For test cases where multiple channels or cells are specified, this power spectral density does not include power from these multiple channels or cells.

**Ior.** The total transmit power spectral density of the Forward CDMA Channel at the base station antenna connector. For transmit diversity test cases, it shall be the total combined transmit power spectral density of the Forward CDMA Channel from both the main and transmit diversity base station antenna connectors.

**Îor.** The received power spectral density of the Forward CDMA Channel as measured at the mobile station antenna connector.

**Mobile Station.** A station intended to be used while in motion or during halts at unspecified points. Mobile stations include portable units (e.g., hand-held personal units) and units installed in vehicles.

**Spreading Rate (SR).** The PN chip rate of the Forward CDMA Channel or the Reverse CDMA Channel, defined as a multiple of 1.2288 Mcps.

### 3 Test Modes

The Forward Traffic Channel is verified by invoking Fundamental Channel test modes, Dedicated Control Channel test modes, Supplemental Code Channel test modes, and Supplemental Channel test modes. The Reverse Traffic Channel is verified by invoking Fundamental Channel test modes, Dedicated Control Channel test modes, and Supplemental Channel test modes. Table 3.1 lists the nine test modes and the mapping to radio configurations.

**Table 3.1. Test Configuration Combinations**

Test Mode	Forward Traffic Channel Radio Configuration	Reverse Traffic Channel Radio Configuration
1	1	1
2	2	2
3	3	3
4	4	3
5	5	4
6	6	5
7	7	5
8	8	6
9	9	6

## 4 Receiver Performance

### 4.1 Demodulation of Forward Fundamental Channel in Additive White Gaussian Noise

This test shall be performed on the Forward Fundamental Channel, if the Forward Fundamental Channel is supported by the mobile station. Otherwise, this test shall be performed on the Forward Dedicated Control Channel. This test shall also be performed on the Forward Supplemental Channel and the Forward Supplemental Code Channel if they are supported. Forward Traffic Channel closed loop power control in the base station shall be disabled during this test.

#### 4.1.1 Definition

The performance of the demodulation of Forward Traffic Channel in an AWGN (no fading or Multipath) environment is determined by the frame error rate (FER). The FER is calculated for each individual data rate. For Radio Configuration 2 Fundamental Channel, the accuracy of the Erasure Indicator bits sent by the mobile station is verified in this test.

#### 4.1.2 Method of Measurement

1. Connect the base station and an AWGN generator to the mobile station antenna connector as shown in Figure 4.1.

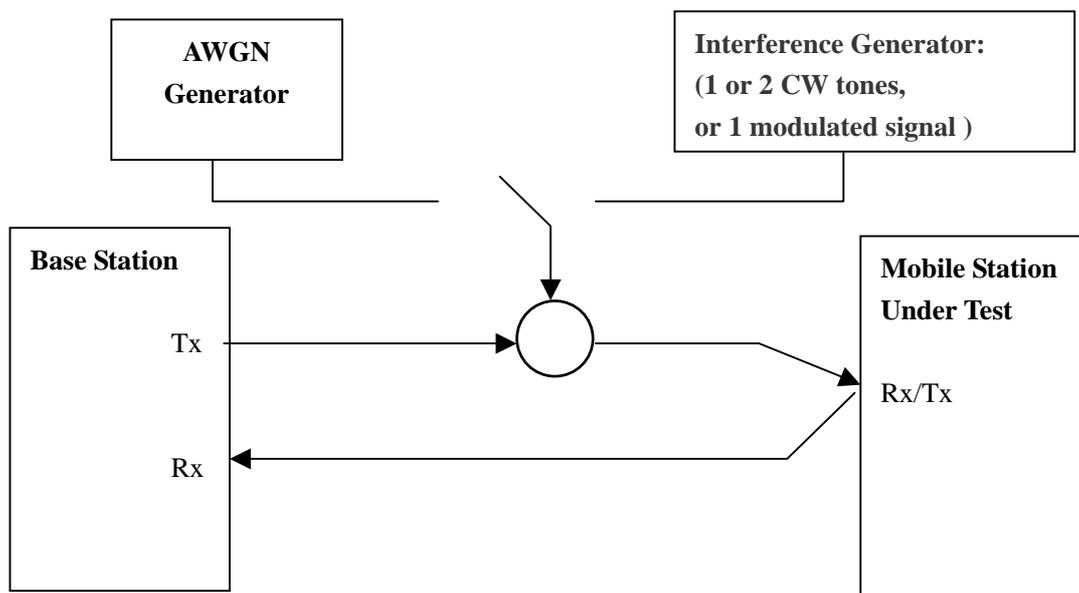


Figure 4.1 Test Block Diagram

2. For each band class that the mobile station supports, configure the mobile station to operate in that band class and perform steps 3 through 11.
3. For each radio configuration supported on the Forward Fundamental Channel or Forward Dedicated Control Channel, perform steps 4 through 7.
4. Set up a call using Fundamental Channel or Dedicated Control Channel test mode with frame activity equal to 100%.
5. Set the test parameters for each test as specified in Tables A.2.1.1-1 through A.2.1.1-18.

6. Count, at the base station, the number of frames transmitted and the number of good frames received at the mobile station.
7. For Radio Configuration 2, check the accuracy of the received Erasure Indicator bits at the base station against the corresponding frames received at the mobile station.
8. For each radio configuration supported on the Forward Supplemental Code Channel or Forward Supplemental Channel, perform steps 9 through 11.
9. Set up a call using the appropriate Supplemental Code Channel Test Mode or Supplemental Channel Test Mode with frame activity equal to 100%.
10. Set the test parameters for each test as specified in Tables A.2.1.1-19 through A.2.1.1-34. If the mobile station supports turbo coding on the Forward Supplemental Channel, perform all the turbo coding tests for the supported Forward Supplemental Channel data rates and only the convolutional coding test for the maximum supported Forward Supplemental Channel data rate. If the mobile station only supports convolutional coding on the Forward Supplemental Channel, perform all the convolutional coding tests for the supported Forward Supplemental Channel data rates.
11. Count, at the base station, the number of frames transmitted and the number of good frames received at the mobile station on the Forward Supplemental Code Channel or Forward Supplemental Channel.

#### **4.1.3 Minimum Standard**

The actual  $E_b/N_t$  used in each test shall be within  $\pm 0.2$  dB of the value indicated in Tables A.2.1.1-1 through A.2.1.1-34.

For Radio Configuration 2 Fundamental Channels, the mobile station shall set the Erasure Indicator Bit to '1' in the second transmitted frame following the reception of any bad frame on the Forward Fundamental Channel. The value of the Erasure Indicator bits corresponding to all other frames received at the mobile station shall be '0'.

The FER for each test shall not exceed the piecewise linear FER curve specified by the points in Tables A.2.1.2-1 through A.2.1.2-25 with 95% confidence.

## **4.2 Receiver Sensitivity and Dynamic Range**

### **4.2.1 Definition**

The RF sensitivity of the mobile station receiver is the minimum received power, measured at the mobile station antenna connector, at which the frame error rate (FER) does not exceed a specified value. The receiver dynamic range is the input power range at the mobile station antenna connector over which the FER does not exceed a specific value.

### **4.2.2 Method of Measurement**

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
2. For all tests, Forward Traffic Channel closed loop power control should be disabled in the base station.
3. set up a call using Fundamental Channel Test Mode 1 or 3 or Dedicated Control Channel Test Mode 4 with 9600 bps data rate only, or Fundamental Channel Test Mode 2 or 5, or

Dedicated Control Channel Test Mode 5 with 14400 bps data rate only.

4. Set the test parameters for Test 1 as specified in Table 4.1 and perform step 7.
5. Set the test parameters for Test 2 as specified in Table 4.1 and perform step 7.
6. Count, at the base station, the number of frames transmitted and the number of good frames received at the mobile station.

**Table 4.1. Test Parameters for Receiver Sensitivity and Dynamic Range**

Parameter	Unit	Test1	Test2
I <sub>or</sub>	dBm/1.23MHz	-104	-25
Pilot E <sub>c</sub> /I <sub>or</sub>	dB	-7	
Traffic E <sub>c</sub> /I <sub>or</sub>	dB	-15.6	

For the case of a Spreading Rate 3 system,  $\hat{I}_{or}$  is the received power on each carrier.

#### 4.2.3 Minimum Standard

The FER in each test shall not exceed 0.5% with 95% confidence.

### 4.3 Single Tone Desensitization

#### 4.3.1 Definition

Single tone desensitization is a measure of a receiver's ability to receive a CDMA signal at its assigned channel frequency in the presence of a single tone spaced at a given frequency offset from the center frequency of the assigned channel. The receiver desensitization performance is measured by the frame error rate (FER).

#### 4.3.2 Method of Measurement <sup>13</sup>

1. Connect the base station and an interfering CW tone to the mobile station antenna connector as shown in Figure 4.1.
2. Set up a call using Fundamental Channel Test Mode 1 or 3 or Dedicated Control Channel Test Mode 3 with 9600 bps data rate only and perform steps 6 through 11.
3. Set the test parameters for Test 1 as specified in Table 4.2 and perform steps 5.
4. Set the test parameters for Test 2 as specified in Table 4.2 and perform steps 5.
5. Count at the base station, the number of frames transmitted and the number of good frames received at the mobile station.

**Table 4.2. Test Parameters for Single Tone Desensitization**

Parameter	Unit	Test1	Test2
Tone Offset from Carrier	kHz	+900	-900
Tone Power	dBm	-30	
I <sub>or</sub>	dBm/1.23MHz	-101	
Pilot E <sub>c</sub> /I <sub>or</sub>	dB	-7	
Traffic E <sub>c</sub> /I <sub>or</sub>	dB	-15.6	

For the case of a Spreading Rate 3 system,  $\hat{I}_{or}$  is the received power on each carrier.

#### 4.3.3 Minimum Standard

The FER in each test shall not exceed 1.0% with 95% confidence

## 4.4 Intermodulation Spurious Response Attenuation

### 4.4.1 Definition

The intermodulation spurious response attenuation is a measure of a receiver's ability to receive a CDMA signal on its assigned channel frequency in the presence of two interfering CW tones. These tones are separated from the assigned channel frequency and are separated from each other such that the third order mixing of the two interfering CW tones can occur in the non-linear elements of the receiver, producing an interfering signal in the band of the desired CDMA signal. The receiver performance is measured by the frame error rate (FER).

### 4.4.2 Method of Measurement

1. Connect the base station and two interfering CW tones to the mobile station antenna connector as shown in Figure 4.1.
2. Set up a call using Fundamental Channel Test Mode 1 or 3 or Dedicated Control Channel Test Mode 3 with 9600 bps data rate only and perform steps 6 through 12.
3. Set the test parameters for Test 1 as specified in Table 4.3 and perform step 5.
4. Set the test parameters for Test 2 as specified in Table 4.3 and perform step 5.
5. Count at the base station, the number of frames transmitted and the number of good frames received at the mobile station.

**Table 4.3. Test Parameters for Intermodulation Spurious Response Attenuation**

Parameter	Unit	Test1	Test2
Tone Offset from Carrier	kHz	+900 +1700	-900 -1700
Tone Power	dBm	-40	
Ior	dBm/1.23MHz	-101	
Pilot Ec/Ior	dB	-7	
Traffic Ec/Ior	dB	-15.6	

### 4.4.3 Minimum Standard

The FER shall not exceed 1.0% with 95% confidence.

## 5 CDMA TRANSMITTER MINIMUM STANDARDS

### 5.1 Time Response of Open Loop Power Control

#### 5.1.1 Definition

Following a step change in the mean input power, the mean output power of the mobile station changes as a result of the open loop power control. This test measures the open loop power control time response to a step change in the mean input power.

#### 5.1.2 Method of Measurement

1. Connect the base station to the mobile station antenna connector as shown in Figure4.1. The AWGN generator and the interference generator are not applicable in this test.
2. If the mobile station supports demodulation of Radio Configuration 1 or 2, set up a call using Fundamental Channel Test Mode 1 with 9600 bps data rate only and perform steps 4 through 9.
3. If the mobile station supports demodulation of Radio Configuration 3, 4, or 5, set up a call using Fundamental Channel Test Mode 3 or Dedicated Control Channel Test Mode 3 with 9600 bps data rate only and perform steps 4 through 9.
4. Set the test parameters as specified in Table5.1.

**Table5.1. Test Parameters for Time Response of Open Loop Power Control**

参数	单位	设置
I <sub>or</sub>	dBm/1.23MHz	-60
Pilot E <sub>c</sub> /I <sub>or</sub>	dB	-7
Traffic E <sub>c</sub> /I <sub>or</sub>	dB	-7.4

5. Send alternating '0' and '1' power control bits on the Forward Power Control Subchannel.
6. Change the input power by a step of +20 dB and measure the transmitted output power as a function of time after the step change for 100 ms.
7. Change the input power by a step of -20 dB and measure the transmitted output power as a function of time after the step change for 100 ms.
8. Change the input power by a step of -20 dB and measure the transmitted output power as a function of time after the step change for 100 ms.
9. Change the input power by a step of +20 dB and measure the transmitted output power as a function of time after the step change for 100 ms.

#### 5.1.3 Minimum Standard

Following a step change in mean input power,  $\Delta P_{in}$ , the mean output power of the mobile station shall transition to its final value in a direction opposite in sign to  $\Delta P_{in}$ , with magnitude contained between mask limits<sup>12</sup> defined by:

(a) upper limit:

for  $0 < t < 24$  ms:  $\max [1.2 \cdot |\Delta P_{in}| \cdot (t/24), |\Delta P_{in}| \cdot (t/24) + 2.0 \text{ dB}] + 1.5 \text{ dB}$ ,

for  $t \in [0, 24]$  ms:  $\max [1.2 \cdot |\square P_{in}|, |\square P_{in}| + 0.5 \text{ dB}] + 1.5 \text{ dB}$ ;

(b) lower limit:

for  $t > 0$ :  $\max [0.8 \cdot |\square P_{in}| \cdot [1 - e^{-(1.25 - t)/36}] - 2.0 \text{ dB}, 0] - 1 \text{ dB}$ ;

where  $t$  is expressed in units of milliseconds,  $\square P_{in}$  is expressed in units of dB, and  $\max [x, y]$  is the maximum of  $x$  and  $y$ .

## 5.2 Code Domain Power

The code domain power requirements for this test are applicable to inactive code channels only.

### 5.2.1 Definition

Code domain power is a measure of the power in each code channel of a CDMA Channel. The CDMA time reference used in the code domain power test is derived from the Pilot Channel and is used as the reference for demodulation of all other code channels.

### 5.2.2 Method of Measurement

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
2. Set up a call using Fundamental Channel Test Mode 3 or Dedicated Control Channel Test Mode 3 with 9600 bps data rate only.
3. Set the test parameters as specified in table 5.2:

**Table 5.2. Test Parameters for Code Domain Power**

Parameter	Units	Value
Ior	dBm/1.23MHz	-101
Pilot Ec/Ior	dB	-7
Traffic Ec/Ior	dB	-7.4

4. Measure the mobile station transmitter output at the antenna connector with a Code Domain Power Analyzer, with Walsh function length,  $N$ , set to 16.

### 5.2.3 Minimum Standard

Both the real and imaginary components of code domain power in each inactive code channel shall be 23 dB or more below the total output power measured on both the I and Q carrier phase components combined. When either component of a code channel is active, the whole code channel is considered active, and this requirement shall not apply.

## 5.3 Waveform Quality and Frequency Accuracy

### 5.3.1 Definition

The waveform quality factor is measured in this test. The measurement also returns values for  $f$  and  $\tau$ , which are used to provide estimates of carrier frequency offset and transmit time offset, respectively.

### 5.3.2 Method of Measurement

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
2. If the mobile station supports demodulation of Radio Configuration 1 or 2, set up a call using Fundamental Channel Test Mode 1 with 9600 bps data rate only and perform steps 3 and 4.
3. Set the test parameters as specified below:

Parameter	Units	Value
Ior	dBm/1.23MHz	-75
Pilot Ec/Ior	dB	-7
Traffic Ec/Ior	dB	-7.4

- Measure the waveform quality factor,  $\sigma$ , frequency error,  $f$ , and transmit time error,  $t$ , at the mobile station antenna connector
- If the mobile station supports demodulation of Radio Configuration 3, 4, or 5, set up a call using Fundamental Channel Test Mode 3 or Dedicated Control Channel Test Mode 3 with 9600 bps data rate only and perform steps 6 through 8.

- Set the test parameters as specified below:

Parameter	Units	Value
Ior	dBm/1.23MHz	-101
Pilot Ec/Ior	dB	-7
Traffic Ec/Ior	dB	-7.4

- Send a *Universal Handoff Direction Message* with a change to either the frame offset or the PN offset, using the rest of the following parameters, to the mobile station to force a hard handoff:

Parameter	Value (Decimal)
USE_TIME	1 (use action time)
EXTRA_PARMS	1
FRAME_OFFSET	may change
PILOT_PN	may change
NOM_PWR_EXT	0 (0 dB correction)
NOM_PWR	0 (0 dB correction)
NUM_PREAMBLE	7 (20 ms preamble)
BAND_CLASS	same as current
CDMA_FREQ	same as current

- Begin sending a periodic pattern of one '0' power control bit followed by one '1' power control bit. 6. Measure the waveform quality factor,  $\sigma$ , frequency error,  $f$ , and transmit time error,  $t$ , at the mobile station antenna connector

### 5.3.3 Minimum Standard

The waveform quality factor,  $\sigma$ , shall be greater than 0.944 (excess power is less than 0.25 dB). The frequency error,  $f$ , shall be within  $\pm 300$  Hz, The transmit time error,  $t$ , shall be within  $\pm 1$   $\mu$ s.

## 5.4 Range of Open Loop Output Power

### 5.4.1 Definition

The mobile station estimates its open loop mean output power from its mean input power, which is referenced to the nominal CDMA Channel bandwidth of 1.23 MHz for Spreading Rate 1 or 3.69 MHz for Spreading Rate 3. When transmitting on the Access Channel, the estimate is defined as

mean output power (dBm) = - mean input power (dBm) + offset power

- interference correction
- $NOM\_PWR - 16 \cdot NOM\_PWR\_EXT$
- INIT\_PWR.

For BC5, the offset power is -73.

This test measures the range of the estimated open loop output power.

#### 5.4.2 Method of Measurement

1. Configure the base station so that the mobile station uses the Access Channel.
2. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
3. Set the parameter values in the *Access Parameters Message* to the values specified below.

Parameter	Value (Decimal)
PAM_SZ	15 (16 frames)
MAX_RSP_SEQ	1 (1 sequence)

4. Set the test parameter for Test 1 as specified in Table 5.3 and perform steps 7 through 9.
5. Set the test parameter for Test 2 as specified in Table 5.3 and perform steps 7 through 9.
6. Set the test parameter for Test 3 as specified in Table 5.3 and perform steps 7 through 9.
7. Set the base station to ignore all access attempts.
8. Send a page to the mobile station.
9. Measure the output power of the mobile station at the antenna connector during transmission of a probe.

**Table 5.3. Test Parameter of  $\hat{I}_{or}$  for Range of Open Loop Output Power for the Access Channel**

Parameter	Unit	Value		
		Test1	Test2	Test3
$\hat{I}_{or}$	dBm	-25	-65	-93.5

#### 5.4.3 Minimum Standard

The Open Loop Output Power should be:

$$-48 \pm 9.5 @ -25 \text{dBm}$$

$$-8 \pm 9.5 @ -65 \text{dBm}$$

$$20 \pm 9.5 @ -93.5 \text{dBm}$$

## 5.5 Range of Closed Loop Power Control

### 5.5.1 Definition

The mobile station provides a closed loop adjustment to its open loop estimate. Adjustments are made in response to valid received power control bits. The range of the adjustment is defined by the difference between the maximum mobile station output power and the open loop estimate, and the difference between the minimum mobile station output power and the open loop estimate.

### 5.5.2 Method of Measurement

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
2. For each band class that the mobile station supports, configure the mobile station to operate in that band class and perform steps 3 through 21.
3. Set the power control step size to 1 dB. Perform steps 6 through 21.
4. If the mobile station supports a power control step size of 0.5 dB, set the power control step size to 0.5 dB and perform steps 6 through 21.
5. If the mobile station supports a power control step size of 0.25 dB, set the power control

- step size to 0.25 dB and perform steps 6 through 21.
6. If the mobile station supports demodulation of Radio Configuration 1 or 2, perform steps 7 through 17 using Fundamental Channel Test Mode 1.
  7. Set up a call using the Fundamental Channel test mode or Dedicated Control Channel test mode with 9600 bps data rate only.
  8. Set the attenuation in the Forward CDMA Channel to yield an open loop output power, measured at the mobile station antenna connector, of -15 dBm and perform step 10. Tests 1, 6 and 10 specify the power control step size to be equal to 1 dB, 0.5 dB, and 0.25 dB, respectively.
  9. If the power control step size is 1 dB, set the attenuation in the Forward CDMA Channel to yield an open loop output power, measured at the mobile station antenna connector, of 19 dBm (Test 2) and perform step 10.
  10. Measure the mobile station output power while transmitting alternating '0' and '1' power control bits (the last bit is a '1' bit), followed by 100 consecutive '0' power control bits, followed by 100 consecutive '1' power control bits, and followed by 100 consecutive '0' power control bits.
  11. Set up a call using the Fundamental Channel test mode with 4800 bps data rate only.
  12. Set the attenuation in the Forward CDMA Channel to yield an open loop output power, measured at the mobile station antenna connector, of -15 dBm when the mobile station transmitter is gated on and perform step 17. Tests 3, 7 and 11 specify the power control step size to be equal to 1 dB, 0.5 dB, and 0.25 dB, respectively.
  13. Set up a call using the Fundamental Channel test mode with 2400 bps data rate only.
  14. Set the attenuation in the Forward CDMA Channel to yield an open loop output power, measured at the mobile station antenna connector, of -15 dBm when the mobile station transmitter is gated on and perform step 17. Tests 4, 8 and 12 specify the power control step size to be equal to 1 dB, 0.5 dB, and 0.25 dB, respectively.
  15. Set up a call using the Fundamental Channel test mode with 1200 bps data rate only.
  16. Set the attenuation in the Forward CDMA Channel to yield an open loop output power, measured at the mobile station antenna connector, of -15 dBm when the mobile station transmitter is gated on and perform steps 17. Tests 5, 9 and 13 specify the power control step size to be equal to 1 dB, 0.5 dB, and 0.25 dB, respectively.
  17. Measure the mobile station output power while transmitting alternating '0' and '1' valid power control bits (the last bit is a '1' bit), followed by 100 consecutive '0' valid power control bits, followed by 100 consecutive '1' valid power control bits, and followed by 100 consecutive '0' valid power control bits. Set all invalid power control bits to '0'.
  18. If the mobile station supports the demodulation of Radio Configuration 3, 4, or 5, perform steps 20 through 23 using Fundamental Channel Test Mode 3 or if the Forward Fundamental Channel is not supported, perform steps 20 through 21 using the Dedicated Control Channel Test Mode 3.
  19. If the mobile station supports Reverse Fundamental Channel gating, set up a call using the Fundamental Channel test mode (see 1.3) with 1500 bps data rate only.
  20. Set the attenuation in the Forward CDMA Channel to yield an open loop output power, measured at the mobile station antenna connector, of -15 dBm when the mobile station transmitter is gated on and perform step 23. Tests 14, 15 and 16 specify the power control

step size to be equal to 1 dB, 0.5 dB, and 0.25 dB, respectively.

21. Measure the mobile station output power while transmitting alternating '0' and '1' valid power control bits (the last bit is a '1' bit), followed by 100 consecutive '0' valid power control bits, followed by 100 consecutive '1' valid power control bits, and followed by 100 consecutive '0' valid power control bits. Set all invalid power control bits to '0'.

### 5.5.3 Minimum Standard

The average rate of change in mean output power requirement specified below applies to mobile station output power up to 3 dB below the lower limit of the maximum output power specified in Table 4.4.5.3-1.

Test 1:

- (a) The closed loop power control range shall be at least  $\pm 24$  dB around the open loop estimate.
- (b) The interval from the end of the first valid '1' power control bit after the 100 consecutive '0' valid power control bits to the time the mobile station output power starts to decrease shall be no longer than 2.5 ms.
- (c) The average rate of change in mean output power for 9600 bps data rate shall be greater than 12.8 dB per 20 ms and less than 19.2 dB per 20 ms.
- (d) Following the reception of any valid power control bit that occurs 2.5 ms after the 100 consecutive '0' valid power control bits, the mean output power of the mobile station shall be within 0.3 dB of its final value in less than 500  $\mu$ s.

Test 2:

- (a) The interval from the end of the first valid '1' power control bit after the 100 consecutive '0' valid power control bits until the time the mobile station output power starts to decrease shall be no longer than 2.5 ms.

Test 3:

- (a) The closed loop power control range shall be at least  $\pm 24$  dB around the open loop estimate.
- (b) The interval from the end of the first valid '1' power control bit after the 100 consecutive '0' valid power control bits until the time the mobile station output power starts to decrease shall be no longer than 5 ms.
- (c) The average rate of change in mean output power for 4800 bps data rate shall be greater than 6.4 dB per 20 ms and less than 9.6 dB per 20 ms.

Test 4:

- (a) The closed loop power control range shall be at least  $\pm 24$  dB around the open loop estimate.
- (b) The interval from the end of the first valid '1' power control bit after the 100 consecutive '0' valid power control bits until the time the mobile station output power starts to decrease shall be no longer than 10 ms.
- (c) The average rate of change in mean output power for 2400 bps data rate shall be greater

than 3.2 dB per 20 ms and less than 4.8 dB per 20 ms.

Test 5:

(a) The closed loop power control range shall be at least  $\pm 24$  dB around the open loop estimate.

(b) The interval from the end of the first valid '1' power control bit after the 100 consecutive '0' valid power control bits until the time the mobile station output power starts to decrease shall be no longer than 20 ms.

(c) The average rate of change in mean output power for 1200 bps data rate shall be greater than 1.6 dB per 20 ms and less than 2.4 dB per 20 ms.

Test 6:

(a) The average rate of change in mean output power for 9600 bps data rate shall be greater than 12 dB per 40 ms and less than 20 dB per 40 ms.

(b) Following the reception of any valid power control bit that occurs 2.5 ms after the 100 consecutive '0' valid power control bits, the mean output power of the mobile station shall be within 0.15 dB of its final value in less than 500  $\mu$ s.

Test 7:

(a) The average rate of change in mean output power for 4800 bps data rate shall be greater than 6.0 dB per 40 ms and less than 10 dB per 40 ms.

Test 8:

(a) The average rate of change in mean output power for 2400 bps data rate shall be greater than 3.0 dB per 40 ms and less than 5.0 dB per 40 ms.

Test 9:

(a) The average rate of change in mean output power for 1200 bps data rate shall be greater than 1.5 dB per 40 ms and less than 2.5 dB per 40 ms.

Test 10:

(a) The average rate of change in mean output power for 9600 bps data rate shall be greater than 11.2 dB per 80 ms and less than 20.8 dB per 80 ms.

(b) Following the reception of any valid power control bit that occurs 2.5 ms after the 100 consecutive '0' valid power control bits, the mean output power of the mobile station shall be within 0.15 dB of its final value in less than 500  $\mu$ s.

Test 11:

(a) The average rate of change in mean output power for 4800 bps data rate shall be greater than 5.6 dB per 80 ms and less than 10.4 dB per 80 ms.

Test 12:

(a) The average rate of change in mean output power for 2400 bps data rate shall be greater than 2.8 dB per 80 ms and less than 5.2 dB per 80 ms.

Test 13:

(a) The average rate of change in mean output power for 1200 bps data rate shall be greater than 1.4 dB per 80 ms and less than 2.6 dB per 80 ms.

Test 14:

(a) The closed loop power control range shall be at least  $\pm 24$  dB around the open loop estimate.

(b) The interval from the end of the first valid '1' power control bit after the 100 consecutive '0' valid power control bits until the time the mobile station output power starts to decrease shall be no longer than 5 ms.

(c) The average rate of change in mean output power for 1500 bps data rate shall be greater than 6.4 dB per 20 ms and less than 9.6 dB per 20 ms.

Test 15:

(a) The average rate of change in mean output power for 1500 bps data rate shall be greater than 6.0 dB per 40 ms and less than 10 dB per 40 ms.

Test 16:

(a) The average rate of change in mean output power for 1500 bps data rate shall be greater than 5.6 dB per 80 ms and less than 10.4 dB per 80 ms.

## 5.6 Maximum RF Output Power

### 5.6.1 Definition

For each Reverse Traffic Channel Radio Configuration that the mobile station supports, the maximum radiated RF output power is determined by the measurement of the maximum power that the mobile station transmits as measured at the mobile station antenna connector plus the antenna gain recommended by the mobile station manufacturer. The antenna gain is determined by using the Radiated Signal Measurement Procedures and calculating the antenna gain for EIRP or ERP as appropriate.

### 5.6.2 Method of Measurement

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
2. If the mobile station supports Reverse Traffic Channel Radio Configuration 1 and Forward Traffic Channel Radio Configuration 1, set up a call using Fundamental Channel Test Mode 1 with 9600 bps data rate only and perform steps 4 through 6.
3. If the mobile station supports the Radio Configuration 3 Reverse Fundamental Channel and demodulation of Radio Configuration 3, 4, or 5, set up a call using Fundamental Channel Test Mode 3 with 9600 bps data rate only and perform steps 4 through 6.
4. Set the test parameters as specified in Table.

**Table 5.4. Test Parameters for Maximum RF Output Power for Spreading Rate 1**

Parameter	Units	Value
Ior	dBm/1.23MHz	-104

Pilot Ec/Ior	dB	-7
Traffic Ec/Ior	dB	-7.4

5. Send continuously '0' power control bits to the mobile station.
6. Measure the mobile station output power at the mobile station antenna connector.

### 5.6.3 Minimum Standard 7

23dBm      Maximum RF Output Power      30dBm

## 5.7 Minimum Controlled Output Power

### 5.7.1 Definition

The minimum controlled output power of the mobile station is the output power, measured at the mobile station antenna connector, when both closed loop and open loop power control indicate minimum output.

### 5.7.2 Method of Measurement

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
2. Set up a call using Fundamental Channel Test Mode 1 or 3 or Dedicated Control Channel Test Mode 3 with 9600 bps data rate only.
3. Set the test parameters as specified in Table 5.5.

**Table 5.5. Test Parameters for Minimum Controlled Output Power**

Parameter	Units	Value
Ior	dBm/1.23MHz	-25
Pilot Ec/Ior	dB	-7
Traffic Ec/Ior	dB	-7.4

4. Send continuously '1' power control bits to the mobile station.
5. Measure the mobile station output power at the mobile station antenna connector.

### 5.7.3 Minimum Standard 3

With both closed loop and open loop power control set to minimum, the mean output power of the mobile station shall be less than -50 dBm/1.23 MHz.

## 5.8 Conducted Spurious Emissions

### 5.8.1 Definition

Conducted spurious emissions are emissions at frequencies that are outside the assigned CDMA Channel, measured at the mobile station antenna connector. This test measures the spurious emissions during continuous transmission.

### 5.8.2 Method of Measurement

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN and interference generators are not applicable in this test. Connect a spectrum analyzer (or other suitable test equipment) to the mobile station antenna connector.
2. If the mobile station supports Reverse Traffic Channel Radio Configuration 1 and Forward Traffic Channel Radio Configuration 1, set up a call using Fundamental Channel Test Mode 1 with 9600 bps data rate only and perform steps 9 through 10.

3. If the mobile station supports the Radio Configuration 3 Reverse Fundamental Channel and demodulation of Radio Configuration 3, 4, or 5, set up a call using Fundamental Channel Test Mode 3 with 9600 bps data rate only and perform steps 9 through 10.
5. If the mobile station supports the Radio Configuration 3 Reverse Dedicated Control Channel and demodulation of Radio Configuration 3, 4, or 5, set up a call using Dedicated Control Channel Test Mode 3 with 9600 bps data rate and 100% frame activity and perform steps 9 through 10.
6. If the mobile station supports the Radio Configuration 3 Reverse Fundamental Channel, Radio Configuration 3 Reverse Dedicated Control Channel and demodulation of Radio Configuration 3, 4, or 5, set up a call using Fundamental Channel Test Mode 3 with 1500 bps Fundamental Channel data rate only and 9600 bps Dedicated Control Channel with 100 % frame activity, and perform steps 11 through 20.
7. If the mobile station supports the Radio Configuration 3 Reverse Fundamental Channel, Radio Configuration 3 Reverse Supplemental Channel 0 and demodulation of Radio Configuration 3, 4, or 5, set up a call using Supplemental Channel Test Mode 3 with 9600 bps Fundamental Channel and 9600 bps Supplemental Channel 0 data rate, and perform steps 11 through 20.
8. If the mobile station supports the Radio Configuration 3 Reverse Dedicated Control Channel, Radio Configuration 3 Reverse Supplemental Channel 0 and demodulation of Radio Configuration 3, 4, or 5, set up a call using Supplemental Channel Test Mode 3 with 9600 bps Dedicated Control Channel with 100% frame activity and 9600 bps Supplemental Channel 0 data rate, and perform steps 11 through 20.
9. Set the test parameters as specified in Table 5.6.
9. Send continuously '0' power control bits to the mobile station.
10. Measure the spurious emission levels.
11. Set the test parameters as specified in Table 5.6.
12. Send alternating '0' and '1' power control bits to the mobile station using the smallest supported closed loop power control step size supported by the mobile station.
13. Determine the active channel configuration. If the desired channel configuration is not active, increase  $\hat{I}_{or}$  by 1 dB. Repeat this step until the desired channel configuration becomes active.
14. Measure the mobile station output power at the mobile station antenna connector.
15. Decrease  $\hat{I}_{or}$  by 0.5 dB.
16. Determine the active channel configuration. If the active channel configuration is the desired channel configuration, measure the mobile station output power at the mobile station antenna connector.
17. Repeat steps 21 and 22 until the output power no longer increases or the desired channel configuration is no longer active.
18. Set  $\hat{I}_{or}$  to the value at which the highest mobile station output power was achieved with the desired channel configuration active. Verify the desired channel configuration is active.
19. Measure the mobile station output power at the mobile station antenna connector.
20. Measure the spurious emission levels.

**Table 5.6. Test Parameters for Testing Spurious Emissions at Maximum RF Output Power**

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23MHz	-104

Pilot Ec/Ior	dB	-7
Traffic Ec/Ior	dB	-7.4

### 5.8.3 Minimum Standard

the spurious emissions shall be less than all limits specified in Table 5.7.

**Table 5.7. Transmitter Spurious Emission Limits**

For  .f  Within the Range	Emission Limit
885 kHz to 1.98 MHz	Less stringent of -42 dBc/30 kHz or -54 dBm/1.23 MHz
1.98 MHz to 4.00 MHz	Less stringent of -54 dBc/30 kHz or -54 dBm/1.23 MHz

## 5.9 Reverse Pilot Channel to Code Channel Time Tolerance

### 5.9.1 Definition

When operating with Radio Configurations 3 through 6, the Reverse Pilot Channel to code channel time tolerance is the permissible error in timing between the radiated Reverse Pilot Channel and the other code channels.

### 5.9.2 Method of Measurement

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
2. Set up a call using Fundamental Channel Test Mode 3 or Dedicated Control Channel Test Mode 3 with 9600 bps data rate only and perform step 5.
3. Monitor the transmitter output with the code domain power test equipment and measure the relative timing of the active channels.

### 5.9.3 Minimum Standard

When operating with Radio Configurations 3 through 6, the time error between the Reverse Pilot Channel and all other code channels sharing the same Reverse CDMA Channel shall be less than  $\pm 10$  ns.

## 5.10 Reverse Pilot Channel to Code Channel Phase Tolerance

### 5.10.1 Definition <sup>2</sup>

Reverse Pilot Channel to code channel phase tolerance is the permissible error in RF <sup>3</sup> phase between the radiated Reverse Pilot Channel and the other channels. <sup>4</sup>

### 5.10.2 Method of Measurement <sup>5</sup>

1. Connect the base station to the mobile station antenna connector as shown in Figure 4.1. The AWGN generator and the interference generator are not applicable in this test.
2. Set up a call using Fundamental Channel Test Mode 3 or Dedicated Control Channel Test Mode 3 with 9600 bps data rate only.
3. Monitor the transmitter output with the code domain power test equipment and measure the relative phase of the active channels.

### 5.10.3 Minimum Standard <sup>19</sup>

The phase differences between the Reverse Pilot Channel and all other code channels sharing the same

Reverse CDMA Channel should not exceed 0.05 radians and shall not exceed 0.15 radians.

## 6 CDMA ENVIRONMENTAL REQUIREMENTS

### 6.1 Temperature and Power Supply Voltage

#### 6.1.1 Definition

The temperature and voltage ranges denote the ranges of ambient temperature and power supply input voltages over which the mobile station will operate and meet the requirements of these standards. The ambient temperature is the average temperature of the air surrounding the mobile station. The power supply voltage is the voltage applied at the input terminals of the mobile station. The manufacturer shall specify the temperature range and the power supply voltage over which the equipment is to operate. In order to provide a convenient means for the manufacturer to express the temperature range under which the mobile station conforms to these recommended minimum standards, temperature ranges designated by letters are defined in Table 6.1

**Table 6.1. Temperature Ranges**

Designator	Range
A	-40°C to +70°C
B	-30°C to +60°C
C	-20°C to +50°C
D	0°C to +45°C

#### 6.1.2 Method of Measurement

The mobile station shall be installed in its normal configuration (i.e., in its normal mounting arrangement fully assembled) and placed in a temperature chamber. The temperature chamber shall be stabilized at the manufacturer's highest specified operating temperature, and the mobile station shall be operated over the power supply input voltage range specified by the manufacturer or  $\pm 10\%$ , whichever is greater. With the mobile station operating, the temperature shall be maintained at the specified test temperature without forced circulation of air from the temperature chamber being directly applied to the mobile station. The measurements specified in 6.1.3 shall then be performed.

Turn the mobile station off, stabilize the mobile station in the chamber at room temperature, and repeat the measurements specified in 6.1.3.

Turn the mobile station off, stabilize the mobile station in the chamber at the coldest operating temperature specified by the manufacturer, and repeat the measurements specified in 6.1.3.

The overall temperature range may be reduced to a lesser range than -30°C to +60°C if the manufacturer uses circuitry that automatically inhibits RF transmission when the temperature falls outside the lesser range specified. Measurements shall be made at the 3GPP2 C.S0011-B specified extremes of the manufacturer's temperature range. The manufacturer shall verify that RF transmission is inhibited outside of the specified temperature range.

#### 6.1.3 Minimum Standard

Over the ambient temperature and power supply ranges specified by the manufacturer, the operation of

the mobile station equipment shall meet the following minimum standards for all supported band classes unless noted otherwise:

1. Receiver sensitivity and dynamic range as specified in 4.2. The received CDMA power,  $\hat{I}_{or}$ , used to measure receiver sensitivity may be increased 2 dB at 60°C and higher.
2. Frequency accuracy as specified in 5.3.
3. Waveform quality as specified in 5.3.
4. Range of estimated open loop output power as specified in 5.4. For temperatures outside of the range +15°C to +35°C, the test tolerance lower limit may be relaxed to -12.5 dB.
5. Range of closed loop correction as specified in 5.5.
6. Maximum RF output power as specified in 5.6. For Temperature Range Designators A and B, the ERP for mobile station may drop by 2 dB at 60°C and higher.
7. Minimum controlled output power as specified in 5.7.
9. Conducted spurious emissions as specified in 5.8.

## **6.2 High Humidity**

### **6.2.1 Definition**

The term “high humidity” denotes the relative humidity at which the mobile station will operate with the specified performance.

### **6.2.2 Method of Measurement**

The mobile station, after having operated normally under standard test conditions, shall be placed, inoperative, in a humidity chamber with the humidity maintained at 0.024/gm H<sub>2</sub>O/gm Dry Air at 50°C (40% Relative Humidity) for a period of not less than eight hours. The measurements specified in 4.2 (receiver sensitivity and dynamic range) and 5.3 (waveform quality) shall then be performed. No readjustment of the mobile station shall be allowed during this test.

Turn the mobile station off, stabilize the mobile station in the chamber at standard conditions within six hours, and perform the measurements specified in Sections 3 and 4 of this standard.

### **6.2.3 Minimum Standard**

The mobile station equipment shall meet the minimum standards specified in 4.2 and 5.9 under the high humidity conditions. Once stabilized in standard conditions, the mobile station shall meet all the minimum standards specified in Sections 3 and 4 of this standard.

## **6.3 Vibration Stability**

### **6.3.1 Definition**

Vibration stability is the ability of the mobile station to maintain specified mechanical and <sup>11</sup> electrical performance after being vibrated.

### **6.3.2 Method of Measurement**

Sinusoidal vibration at 1.5 g acceleration swept through the range of 5 to 500 Hz at the rate of 0.1 octave/second shall be applied to the mobile station in three mutually perpendicular directions (sequentially) for a single sweep rising in frequency followed by a single sweep falling in frequency.<sup>7</sup>

### **6.3.3 Minimum Standard**

The mobile station equipment shall meet all the minimum standards specified in Sections 3 and 4 after being subjected to the above vibration tests.

## **6.4 Shock Stability**

### **6.4.1 Definition**

Shock stability is the ability of the mobile station to maintain specified mechanical and electrical performance after being shocked.

### **6.4.2 Method of Measurement**

The mobile station shall be subjected to three test table impacts, in three mutually perpendicular directions and their negatives, for a total of 18 impacts. In all cases, the mobile station shall be secured to the test table by its normal mounting hardware. Each impact shall be a half sine wave, lasting from 7 to 11 ms, with at least 20 g peak acceleration.

### **6.4.3 Minimum Standard**

The mobile station equipment shall meet all the minimum standards specified in Sections 3 and 4 of this standard and shall not suffer any mechanical damage after being subjected to the above shock tests.

## **7 CDMA STANDARD TEST CONDITIONS <sup>1</sup>**

### **7.1 Standard Equipment <sup>2</sup>**

#### **7.1.1 Basic Equipment <sup>3</sup>**

The equipment shall be assembled, and any necessary adjustments shall be made in accordance with the manufacturer's instructions for the mode of operation required. When alternative modes are available, the equipment shall be assembled and adjusted in accordance with the relevant instructions. A complete series of measurements shall be made for each mode of operation.

#### **7.1.2 Associated Equipment**

The mobile station equipment may include associated equipment during tests, provided that the associated equipment is normally used in the operation of the equipment under test. For mobile station equipment, this may include power supplies, handsets, cradles, charging stands, control cables, and battery cables.

### **7.2 Standard Environmental Test Conditions**

Measurements under standard atmospheric conditions shall be carried out under any combination of the following conditions:

- Temperature: +15°C to +35°C
- Relative humidity: 45% to 75%
- Air pressure: 86,000 Pa to 106,000 Pa (860 mbar to 1060 mbar)

If desired, the results of the measurements can be corrected by calculation to the standard reference temperature of 25°C and the standard reference air pressure of 101,300 Pa (1013 mbar).

## 附录 A

## 6.3 A.1 AWGN 条件下前向业务信道性能要求

## A.1.1 测试参数

表 A.1 AWGN 条件下无线配置 1 前向基本信道测试参数 1

参数	单位	测试 1	测试 2	测试 3
$I_{or}/I_{oc}$	dB	-1		
$\frac{Pilot E_c}{I_{or}}$	dB	-7		
$\frac{Traffic E_c}{I_{or}}$	dB	-16.3	-15.8	-15.6
$I_{oc}$	dBm/1.23MHz	-54		
数据速率	bps	9600	9600	9600
业务信道 $E_b/N_t$	dB	3.8	4.3	4.5

注：业务信道  $E_b/N_t$  的值由表中的参数计算得出，不是可直接设置的参数。

表 A.2 AWGN 条件下无线配置 1 前向基本信道测试参数 2

参数	单位	测试 4	测试 5	测试 6
$I_{or}/I_{oc}$	dB	-1		
$\frac{Pilot E_c}{I_{or}}$	dB	-7		
$\frac{Traffic E_c}{I_{or}}$	dB	-19.1	-21.6	-24.5
$I_{oc}$	dBm/1.23MHz	-54		
数据速率	bps	4800	2400	1200
业务信道 $E_b/N_t$	dB	4.0	4.5	4.6

表 A.3 AWGN 条件下无线配置 2 前向基本信道测试参数 1

参数	单位	测试 7	测试 8	测试 9
$I_{or}/I_{oc}$	dB	-1		
$\frac{Pilot E_c}{I_{or}}$	dB	-7		
$\frac{Traffic E_c}{I_{or}}$	dB	-13.0(频段类别 0, 2, 3, 5, 7 和 9) -12.9(频段类别 1, 4, 6 和 8)	-12.7(频段类别 0, 2, 3, 5, 7 和 9) -12.5(频段类别 1, 4, 6 和 8)	-12.4(频段类别 0, 2, 3, 5, 7 和 9) -12.3(频段类别 1, 4, 6 和 8)
$I_{oc}$	dBm/1.23MHz	-54		
数据速率	bps	14400	14400	14400
业务信道 $E_b/N_t$	dB	5.3(频段类别 0, 2, 3, 5, 7 和 9) 5.5(频段类别 1, 4, 6 和 8)	5.6(频段类别 0, 2, 3, 5, 7 和 9) 5.8(频段类别 1, 4, 6 和 8)	5.9(频段类别 0, 2, 3, 5, 7 和 9) 6.0(频段类别 1, 4, 6 和 8)

表 A.4 AWGN 条件下无线配置 2 前向基本信道测试参数 2

参数	单位	测试 10	测试 11	测试 12
$I_{or}/I_{oc}$	dB	-1		
$\frac{Pilot E_c}{I_{or}}$	dB	-7		
$\frac{Traffic E_c}{I_{or}}$	dB	-17.3 (频段类别 0, 2, 3, 5, 7 和 9) -17.2 (频段类别 1, 4, 6 和 8)	-20.8 (频段类别 0, 2, 3, 5, 7 和 9) -20.7 (频段类别 1, 4, 6 和 8)	-24.4 (频段类别 0, 2, 3, 5, 7 和 9) -24.3 (频段类别 1, 4, 6 和 8)
$I_{oc}$	dBm/ 1.23MHz	-54		
数据速率	bps	7200	3600	1800
业务信道 $E_b/N_t$	dB	4.0 (频段类别 0, 2, 3, 5, 7 和 9) 4.1 (频段类别 1, 4, 6 和 8)	3.5 (频段类别 0, 2, 3, 5, 7 和 9) 3.6 (频段类别 1, 4, 6 和 8)	2.9 (频段类别 0, 2, 3, 5, 7 和 9) 3.0 (频段类别 1, 4, 6 和 8)

表 A.5 AWGN 条件下无线配置 3 前向基本信道或前向专用控制信道(100%帧激活率)  
测试参数 1

参数	单位	测试 13	测试 14	测试 15	测试 16	测试 17	测试 18
$I_{or}/I_{oc}$	dB	-1					
$\frac{Pilot E_c}{I_{or}}$	dB	-7					
$\frac{Traffic E_c}{I_{or}}$	dB	未规定	未规定	未规定	-16.6	-16.2	-15.9
$I_{oc}$	dBm/1.23MHz	-54					
数据速率	bps	9600 (5ms)			9600		
业务信道 $E_b/N_t$	dB	未规定	未规定	未规定	3.5	3.9	4.2

表 A.6 AWGN 条件下无线配置 3 前向基本信道或前向专用控制信道(100%帧激活率)  
测试参数 2

参数	单位	测试 19	测试 20	测试 21
$I_{or}/I_{oc}$	dB	-1		
$\frac{Pilot E_c}{I_{or}}$	dB	-7		
$\frac{Traffic E_c}{I_{or}}$	dB	-19.3	-21.9	-24.9
$I_{oc}$	dBm/1.23MHz	-54		
数据速率	bps	4800	2700	1500
业务信道 $E_b/N_t$	dB	3.8	3.7	3.2

表 A.7 AWGN 条件下无线配置 4 前向基本信道或前向专用控制信道(100%帧激活率)  
测试参数 1

参数	单位	测试 22	测试 23	测试 24	测试 25	测试 26	测试 27
$I_{or}/I_{oc}$	dB	-1					
$\frac{Pilot E_c}{I_{or}}$	dB	-7					
$\frac{Traffic E_c}{I_{or}}$	dB	未规定	未规定	未规定	-15.9	-15.4	-15.1
$I_{oc}$	dBm/1.23MHz	-54					
数据速率	Bps	9600 (5ms)			9600		
业务信道 $E_b/N_t$	dB	未规定	未规定	未规定	4.2	4.7	5.0

表 A.8 AWGN 条件下无线配置 4 前向基本信道或前向专用控制信道 (100%帧激活率)  
测试参数 2

参数	单位	测试 28	测试 29	测试 30
$\hat{I}_{OR}/I_{OC}$	dB	-1		
$\frac{Pilot E_c}{I_{OR}}$	dB	-7		
$\frac{Traffic E_c}{I_{OR}}$	dB	-18.8	-21.5	-24.6
$I_{OC}$	dBm/1.23MHz	-54		
数据速率	bps	4800	2700	1500
业务信道 $E_b/N_T$	dB	4.3	4.1	3.5

表 A.9 AWGN 条件下无线配置 5 前向基本信道或前向专用控制信道 (100%帧激活率)  
测试参数 1

参数	单位	测试 31	测试 32	测试 33	测试 34	测试 35	测试 36
$\hat{I}_{OR}/I_{OC}$	dB	-1					
$\frac{Pilot E_c}{I_{OR}}$	dB	-7					
$\frac{Traffic E_c}{I_{OR}}$	dB	未规定	未规定	未规定	-14.2	-13.8	-13.6
$I_{OC}$	dBm/1.23MHz	-54					
数据速率	bps	9600 (5ms)			14400		
业务信道 $E_b/N_T$	dB	未规定	未规定	未规定	4.1	4.5	4.7

表 A.10 AWGN 条件下无线配置 5 前向基本信道或前向专用控制信道 (100%帧激活率)  
测试参数 2

参数	单位	测试 37	测试 38	测试 39
$\hat{I}_{OR}/I_{OC}$	dB	-1		
$\frac{Pilot E_c}{I_{OR}}$	dB	-7		
$\frac{Traffic E_c}{I_{OR}}$	dB	-17.2	-20.6	-24.1
$I_{OC}$	dBm/1.23 MHz	-54		
数据速率	bps	7200	3600	1800
业务信道 $E_b/N_T$	dB	4.1	3.7	3.2

### A.1.2 性能要求

表 A.35 AWGN 条件下无线配置 1 前向基本信道性能指标

测试	数据速率 [bps]	业务信道 $E_b/N_T$ [dB]	FER
1, 2, 3	9600	3.6	0.05
		3.8	0.03
		4.3	0.01
		4.5	0.005
		4.7	0.003
		3.6	0.03
4	4800	4.0	0.01
		4.2	0.005
5	2400	4.0	0.03
		4.5	0.01
		4.8	0.005
6	1200	3.9	0.03
		4.6	0.01
		4.9	0.005

表 A. 36 AWGN 条件下无线配置 2 前向基本信道性能指标

测试	数据速率 [bps]	业务信道 $E_b/N_t$ [dB]	FER
7, 8, 9	14400	5.2	0.05
		5.5	0.03
		5.8	0.01
		6.0	0.005
		6.2	0.003
10	7200	3.7	0.03
		4.1	0.01
		4.4	0.005
11	3600	3.1	0.03
		3.6	0.01
		3.9	0.005
12	1800	2.5	0.03
		3.0	0.01
		3.4	0.005

表 A. 37 AWGN 条件下无线配置 3 前向基本信道或前向专用控制信道(100%帧激活率)性能指标

测试	数据速率 [bps]	业务信道 $E_b/N_t$ [dB]	FER
13, 14, 15	9600 (5ms)	未规定	0.05
		未规定	0.03
		未规定	0.01
		未规定	0.005
		未规定	0.003
16, 17, 18	9600	3.3	0.05
		3.5	0.03
		3.9	0.01
		4.2	0.005
		4.4	0.003
19	4800	3.2	0.03
		3.8	0.01
		4.2	0.005
20	2700	3.1	0.03
		3.7	0.01
		4.0	0.005
21	1500	2.5	0.03
		3.2	0.01
		3.5	0.005

表 A. 38 AWGN 条件下无线配置 4 前向基本信道或前向专用控制信道(100%帧激活率)性能指标

测试	数据速率 [bps]	业务信道 Eb/Nt [dB]	FER
22, 23, 24	9600 (5ms)	未规定	0.05
		未规定	0.03
		未规定	0.01
		未规定	0.005
		未规定	0.003
25, 26, 27	9600	4.0	0.05
		4.2	0.03
		4.7	0.01
		5.0	0.005
		5.1	0.003
28	4800	3.8	0.03
		4.3	0.01
		4.5	0.005
29	2700	3.6	0.03
		4.1	0.01
30	1500	4.4	0.005
		2.9	0.03
		3.5	0.01
		3.9	0.005

表 A. 39 AWGN 条件下无线配置 5 前向基本信道或前向专用控制信道 (100% 帧激活率)  
性能指标

测试	数据速率 [bps]	业务信道 Eb/Nt [dB]	FER
31, 32, 33	9600 (5ms)	未规定	0.05
		未规定	0.03
		未规定	0.01
		未规定	0.005
		未规定	0.003
34, 35, 36	14400	3.9	0.05
		4.1	0.03
		4.5	0.01
		4.7	0.005
		4.8	0.003
37	7200	3.5	0.03
		4.1	0.01
		4.4	0.005
38	3600	3.2	0.03
		3.7	0.01
		4.0	0.005
39	1800	2.6	0.03
		3.2	0.01
		3.6	0.005