Measurement -2

MEASUREMENT OF MODULATION CHARACTERISTICS
SECTION 2.1047

MEASUREMENT- 2

MEASUREMENT OF MODULATION CHARACTERISTICS

SECTION 2.1047

The modulation methods used in CDMA are completely different from those used in FM analog System. The methods used in evaluating the UMTS CDMA Radio (PCS) (UCR) are described in the EIA/TAIS document TIA/EIA-97-C "recommended Minimum performance Standards for Base Stations Supporting Dual-Mode Wideband Spread Spectrum Cellular Mobile Stations". The modulation quantify criteria are as follows:

1.0   Modulation Requirements – Section 4.3 of TIA/EIA-97-C

Waveform specifications are tested by measuring the waveform quality of ρ, as defined in TIA/EIA-97-C Section 4.3.2, and code domain power as defined in 4.4.4

Transmit waveform quality can be viewed as the output of a normalized matched filter. The range of values for the transmit waveform quality is from 1.0 for a perfect CDMA waveform to 0.0 for a non-CDMA signal. As an example, the base station with a 0.5 dB degradation in its transmit waveform would have a quality, ρ, of 0.89.

1.1   Required Results

Section 4.3.2.3 of TIA/EIA-97-C "The normal cross correlation coefficient, ρ, shall be greater than 0.912 (excess power <0.4 dB)".

The test method and diagrams are taken from TIA/EIA-97-C Section 4 and 6.
The signal applied to UCR is as shown in Table.

Type	Number of Channels	Fraction of Power (Linear)	Fraction of Power (dB)	Comments
Pilot	1	0.2000	-7.0	Walsh 0
Sync	1	0.0471	-13.3	Walsh 32, always 1/8 rate
Paging	1	0.1882	-7.3	Walsh 1, full rate only
Traffic	6	0.09412 each	-10.3 each	Variable Walsh Assignments, full rate only

TABLE 2.1 Base Station Test Model, Nominal

1.3   Minimum Standard

The normalized cross correlation coefficient, ρ, shall be greater than 0.912 (excess power <0.4 dB).

The measurement is made with HP VSA Transmitter Tester for RF output power of UCR.

1.4   Results

The test verified that the waveform quality factor, the normalized cross correlation coefficient, ρ, is ≥0.96. It also verifies that the frequency assignment is less than (+0.05 PPM) of the frequency assignment.