

Agilent 8935 E6380A Option 200 E6380ART Option R2A/2B cdma2000 1xRTT Base Station Test Solution Product Overview

With the introduction of cdma2000 Spread Rate 1 (SR1/1XRTT) by the network equipment manufacturers, cdmaOne service providers are now seeking ways to test their newly updated systems. Agilent Technologies has developed forward link test capability that is now available as an option and as a retrofit kit for new and existing E6380A CDMA base station test sets.

Many CDMA network operators will upgrade their networks with cdma2000 1XRTT channel cards that will offer improved capacity and new data services. The network upgrade is relatively simple and backwards compatible with the existing cdmaOne RF hardware making it a very attractive alternative compared to simply adding more channels. Agilent customers who currently own the E6380A CDMA Test Set will be able to upgrade their existing test sets to add the new cdma2000 format. Orders for new test sets will require E6380A option 200 for cdma2000 test capability. Additionally, Agilent CDMA application base-station-specific software for the E6380A will be upgraded to take advantage of this new feature in the Fall of 2001.



E6380A Key Features:

- Designed for base station test environment
- Automated SW provides consistent, repeatable measurements based on network equipment manufacturer's recommended procedures
- Power measurements
- Antenna measurements
- Performs TX and RX measurements
 - Power
 - Rho
 - Estimated rho
 - Code domain power
 - Adjacent channel power
 - Reverse channel source with data buffer for RX testing
 - AWGN (built-in calibrated Eb/No levels)

Option 200 Features:

- New code domain power screen displays 128 code channels and supplemental channels.
- New dual I and Q complex code domain power screen clearly shows I Walsh codes and Q Walsh codes on the same display.
- New I/Q constellation diagram screen graphically shows I/Q decision points
- Noise power display for each code

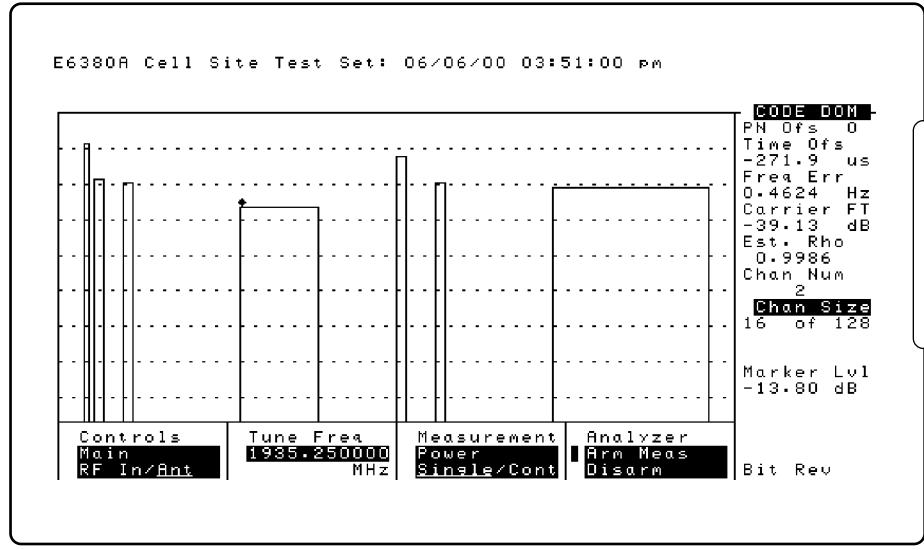


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E6380A Option 200

New Test Displays

128 Walsh Channels illustrating data and voice traffic

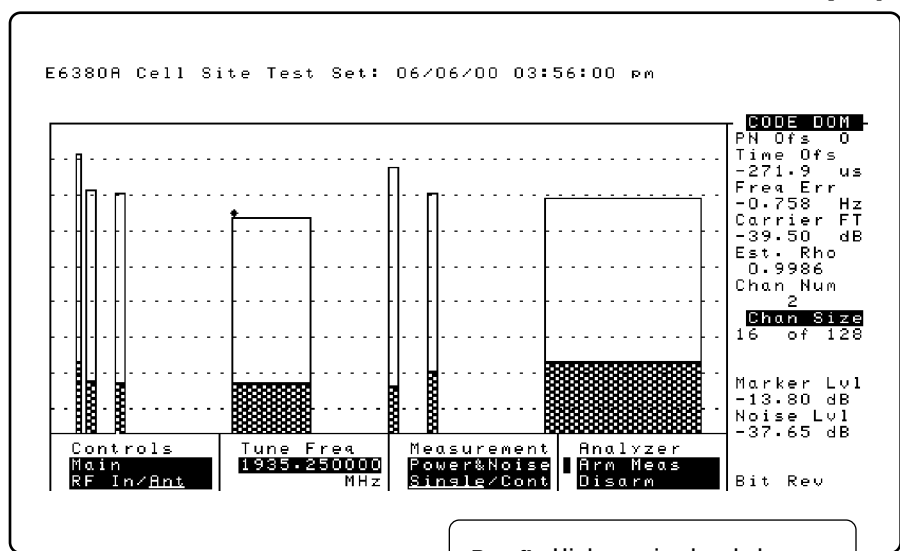


Benefit: This display is important because it illustrates how many channels are being used for data/voice traffic and whether your system is nearing its capacity limits.

Here is an example of a measurement screen on the E6380A with cdma2000 SR1 option installed.

Bit Reverse (Walsh) index ordering display mode is newly defined for cdma2000. The Binary representation of each code index is bit reversed from the original cdmaOne order so that LSB becomes the MSB. (Walsh ordering). This new Walsh ordering allows supplemental channels to be represented as one contiguous block. The supplemental channels are used for transmit only data. As the data rate increases (determined by the base station and capacity limitations) more supplemental channels are required.

Power and Noise Display

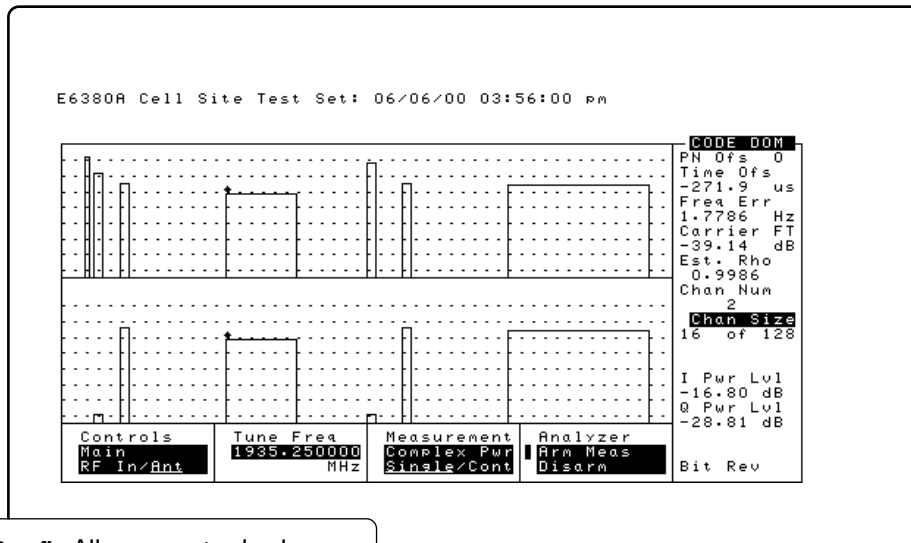


Benefit: Higher noise levels lower the system capacity.

This screen displays the noise level that is correlated with a specific code. Higher noise levels can cause bit errors and lower system capacity. One cause of the noise can be another CDMA carrier or CW signal leaking into the system under test. Interfering signals leak into the system through bad cables, loose connectors, poor shielding, mis-tuned/poor filtering. The consequence of this is a raised noise floor across all codes.

Another problem this measurement screen identifies is if just one code shows a high noise level, this may indicate an imbalance in the modulators, resulting in code A mixing with code B producing code C, showing up as noise in one code channel. Furthermore, this could also indicate that a spur in the system may be causing higher noise levels associated with one code.

cdmaOne/cdma2000 Display

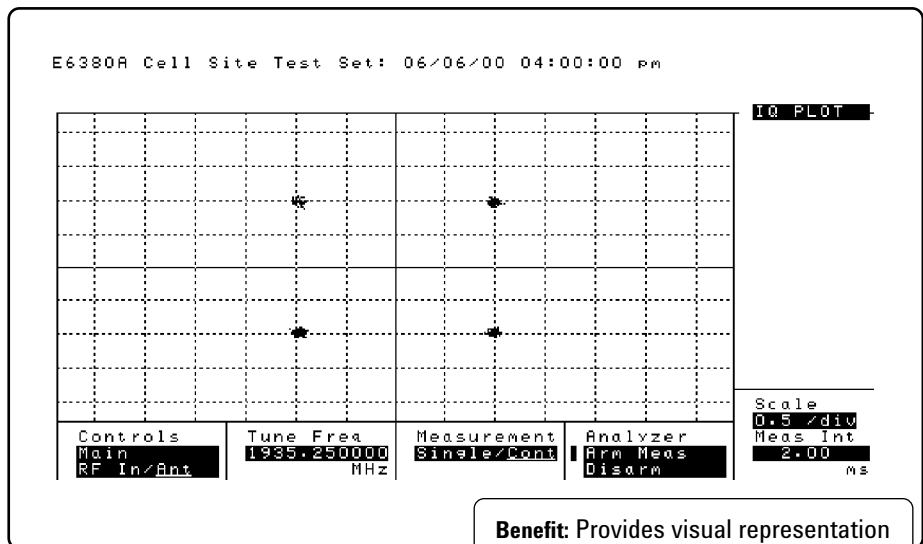


Benefit: Allows user to clearly delineate cdmaOne traffic from cdma2000 traffic

A dual I and Q Complex Code Domain Power screen clearly illustrates I Walsh codes and Q Walsh codes on the same display. This screen separates cdmaOne (I) codes and cdma2000 (Q) codes so you can clearly see each system independently.

The markers track each other so you can observe codes that are cdmaOne specific and cdma2000 specific. Since cdma2000 doubles the codes from 64 to 128 each cdmaOne active voice channel will show a correct channel size of 2 on the cdmaOne Pilot Channel.

Constellation Diagram



Benefit: Provides visual representation of possible modulation errors or carrier feedthrough.

This display provides a visual presentation that helps identify IQ errors. This particular signal shows no errors. However, the 4 point groupings (decision points) could be skewed away from perfect square or offset for several reasons.

Typically, magnitude error indicates compression in the IQ modulator while phase error can indicate an imbalance in the IQ modulator.

In terms of origin offset, the constellation diagram helps identify carrier feedthrough. Excessive carrier feedthrough level is a common cause of poor rho measurements. Carrier feedthrough may be caused by lack of isolation across a mixer and cavity of a transmitter I/Q modulator.

Ordering Information:

E6380A Option 200

(at the time of order)

E6380ART Option R2A/R2B

(to retrofit existing unit)

Additional Agilent literature

Configuration guides

Agilent 8935

Base Station Test Set Configuration Guide5968-3799E

Data Sheets

Agilent 8935 E6380A AMPS/CDMA

Base Station Test Set Data Sheet5968-3798E

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