CDMA Signal Generator User's Guide

(AT6030D)

ATTEN®
INSTRUMENTS

Table of Contents

Chapter 1. General Information

1-1. Introduction

The CDMA signal generator is an optional item of the Spectrum Analyzer. The output signals are CW, CDMA2000(Code Channel : Pilot Channel) and WCDMA(Code Channel : CPICH). It can output the signals independently from one another, and change frequency and level independently. The range of the frequency of the output signals is 800 MHz ~ 2.2 GHz so that it can be applied to all bandwidths of GSM, DCS, PCS and IMT2000. Since frequency resolution can be set as the unit of 10 kHz, it can be precisely applied to the mobile communication frequency which is a currently used service. The Amplitude range is between 0 dBm and -50 dBm, and can be set as the unit of 1 dB.

1-2. Specification

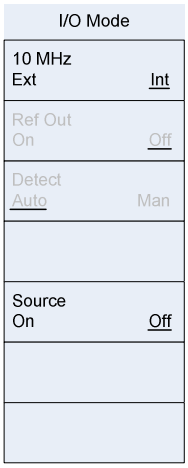
- ▶ Frequency Range : 800 MHz ~ 2.2 GHz
- ▶ Frequency Resolution : 10 kHz
- ▶ Amplitude Range : 0 dBm ~ -50 dBm
- ▶ Amplitude Resolution : 1 dB
- ▶ Harmonic Distortions : < -30 dBc
- ▶ Non Harmonic Distortions : < -40 dBc
- ▶ Phase Noise : < -90 dBc (@ 10 kHz Offset)
- ▶ WCDMA Modulation:
  - Code Channel : CPICH (Common Pilot Channel) Only
  - Rho(Waveform Quality) : > 0.99
  - EVM(Error Vector Magnitude) : < 10 %, Typically < 5 %
  - Baseband Filter : Root Raised Cosine (a=0.22)

- CDMA2000 Modulation
  - Code Channel : Pilot Only
  - Rho(Waveform Quality) : > 0.99
  - EVM(Error Vector Magnitude) : < 10 %, Typically < 5 %
  - Baseband Filter : CDMA2000 FIR + Equalizer
- Reverse Power : +30 dBm
- Impedance : 50 Ω Nominal
- Connector : N-type Female
- RF Output VSWR : <1.5 : 1 (@ 10 dB Atten) Typically

Chapter 2. Operation

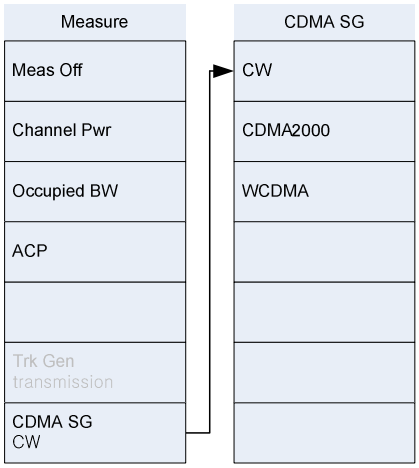
2-1. Menu

The CDMA signal generator option menu consists of the following items.



[Figure 2-1] I/O Mode Menu

Once Source is set to On, the signal is generated from the RF out connector in the front panel.

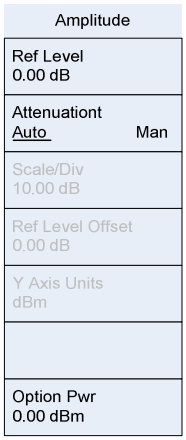


[Figure 2-2] CDMA SG Menu

The basic output signal of the CDMA Signal generator is CW. Once Source is changed to On, the CW signal is generated basically. To change the output signal of the CDMA Signal generator, change the output signal from the CDMA SG menu as shown in Figure 2-2.

[Figure 2-3] Frequency Menu

The frequency of the CDMA Signal generator can be changed from the Frequency menu. Once Source is changed to On and becomes the option mode, then it activates the CSG Freq item in the Frequency menu, allowing the output frequency of the CDMA signal generator to change.



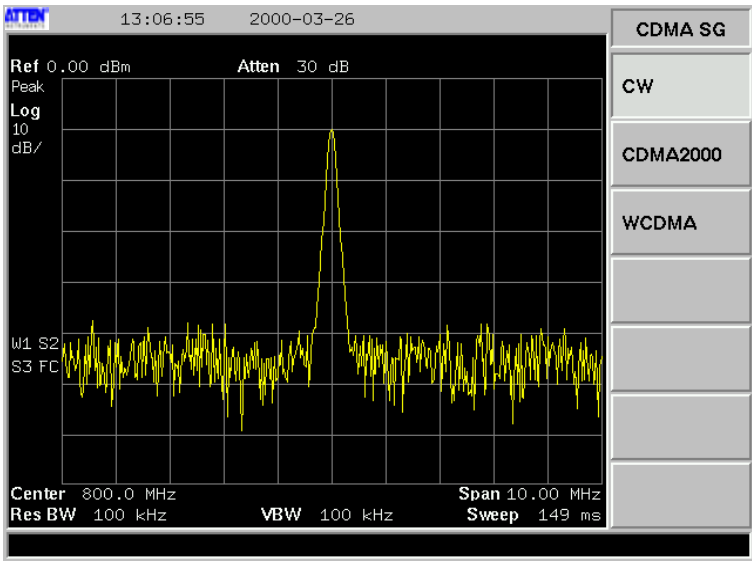
[Figure 2-4] Amplitude Menu

The level of the CDMA Signal generator can be changed from the Amplitude menu. Once Source is changed to On and becomes the option mode, then it activates the Option Pwr item in the Amplitude menu, allowing the output level of the CDMA signal generator to change.

2-2. Operations

2-2-1. CW

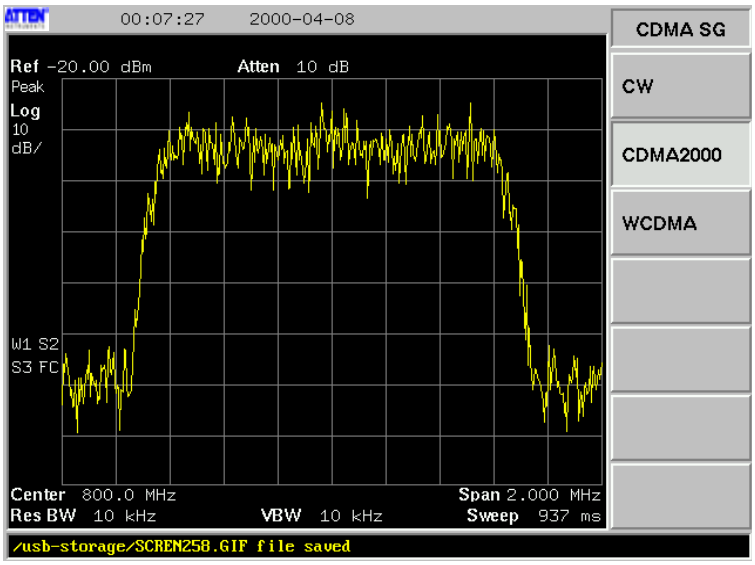
Once Source is set to On and the CDMA Signal generator is operated, basically CW signal is generated. Alternatively, MEASURE >> CDMA SG >> CW is selected to generate the CW signal in CDMA2000 or WCDMA generation state.



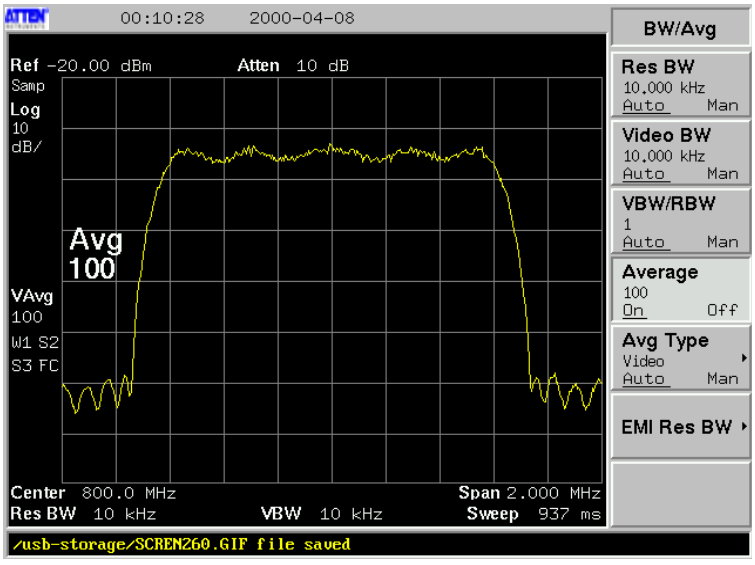
[Figure 2-5] CW Signal

2-2-2. CDMA2000

Once Source is set to On and the CDMA signal generator is operated, basically CW signal is generated. In order to generate the CDMA2000 signal, MEASURE >> CDMA SG >> CDMA2000 is selected.



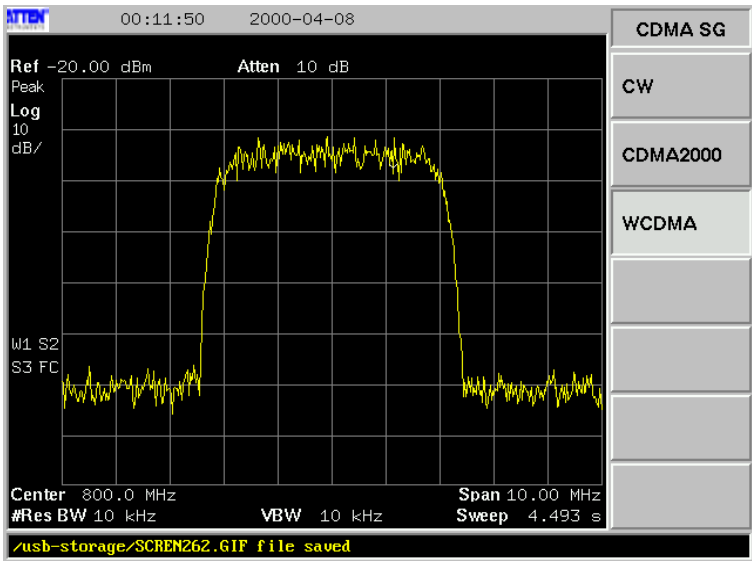
[Figure 2-6] CDMA2000 Signal



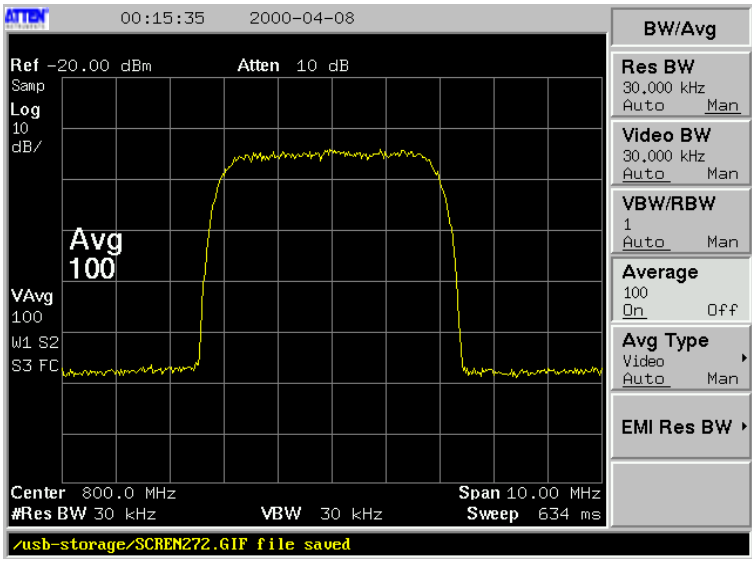
[Figure 2-7] CDMA2000 Average Signal

2-2-3. WCDMA

Once Source is set to On and the CDMA signal generator is operated, basically CW signal is generated. In order to generate the CDMA2000 signal, MEASURE >> CDMA SG >> WCDMA is selected.



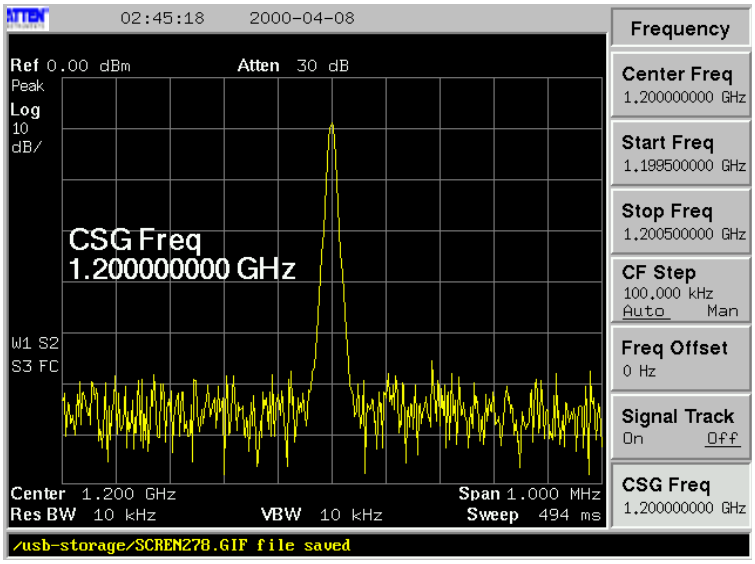
[Figure 2-8] WCDMA Signal



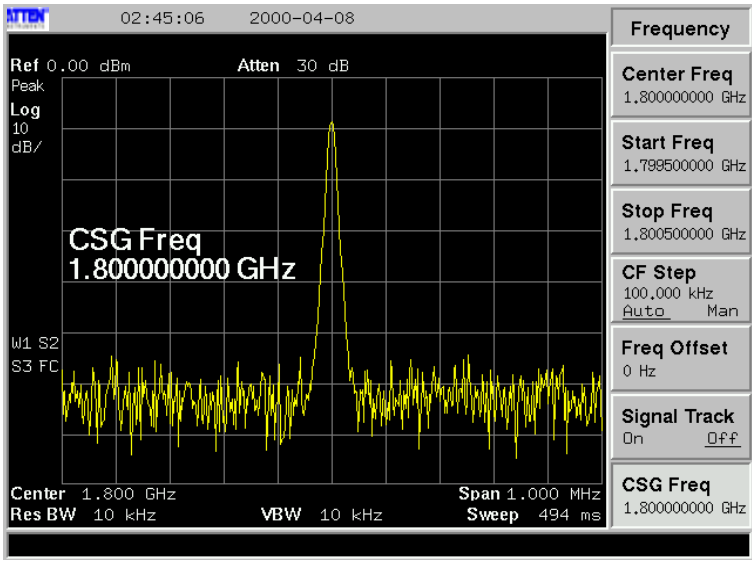
[Figure 2-9] WCDMA Average Signal

2-2-4. Change of the Output Frequency

The setup of the CDMA Signal generator can be performed in CSG Freq from the Frequency menu. CSG Freq in the Frequency menu can be activated only when the CDMA Signal generator is operated. That is, it is activated only when Source is the "On" state.



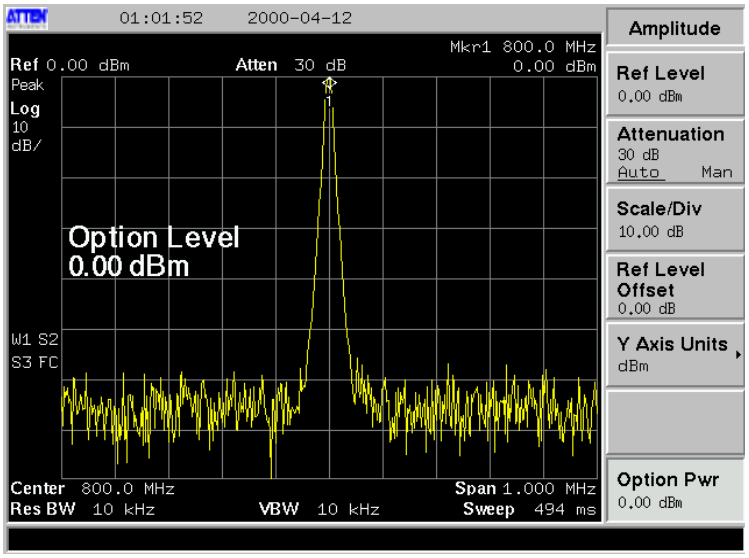
[Figure 2-10] Center Frequency 1.2 GHz



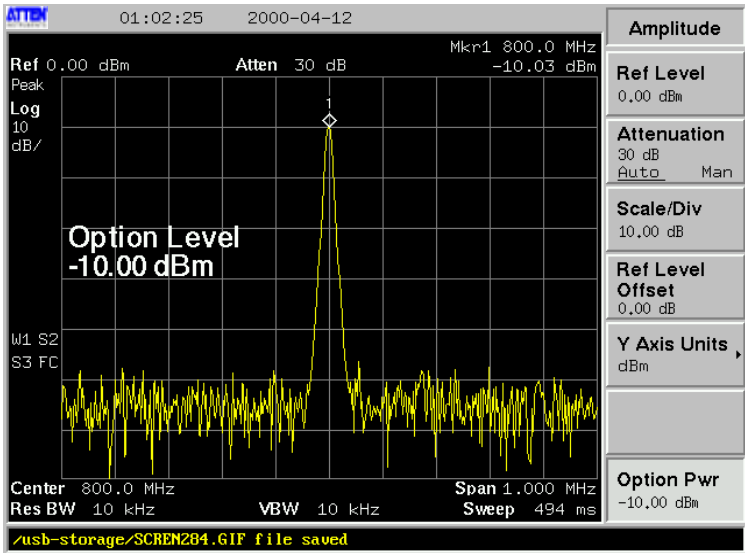
[Figure 2-11] Center Frequency 1.8 GHz

2-2-5. Output Level Change

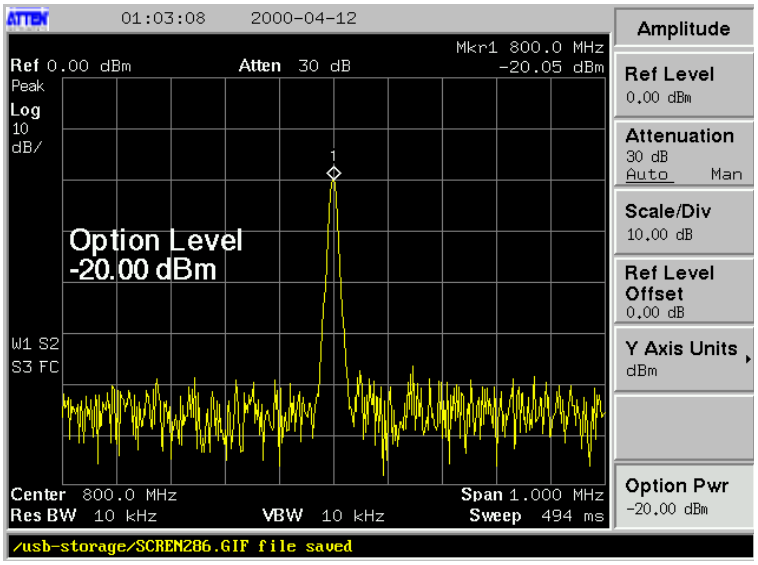
The output level change in the CDMA Signal generator can be performed in Option Pwr from the Amplitude menu. Option Pwr in the Amplitude menu can be activated only when the CDMA Signal generator is operated. That is, it is activated only when Source is the "On" state.



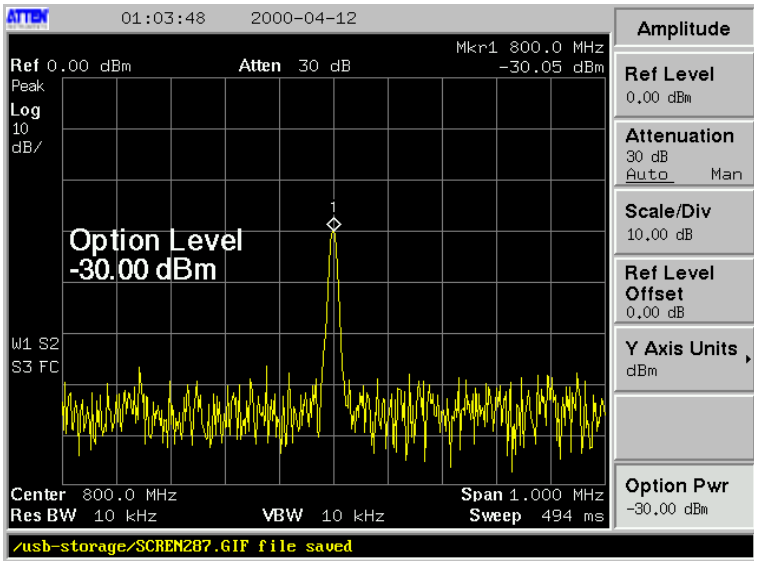
[Figure 2-12] Power Setup



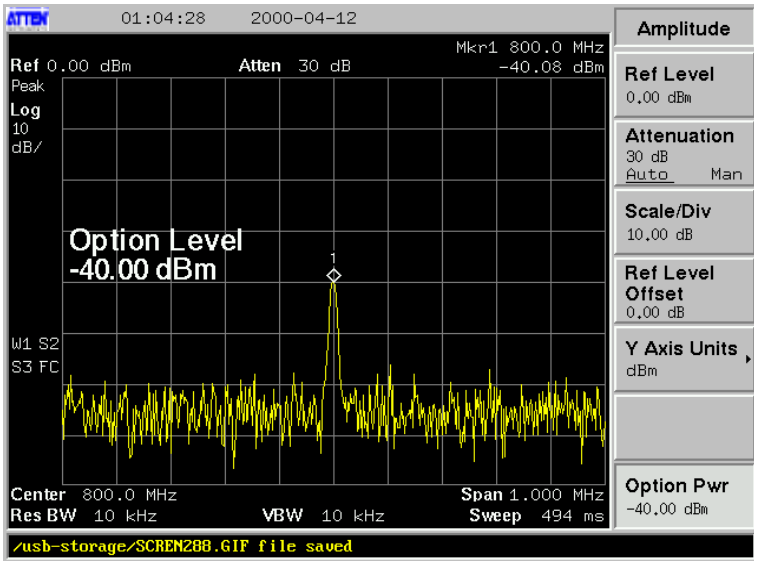
[Figure 2-13] Power Setup



[Figure 2-14] Power Setup



[Figure 2-15] Power Setup



[Figure 2-16] Power Setup