Measurement Functions User's Guide

LPT-3000 / LPT-6000

Digitally Synthesized RF Spectrum Analyzer

LP Technologies, Inc.

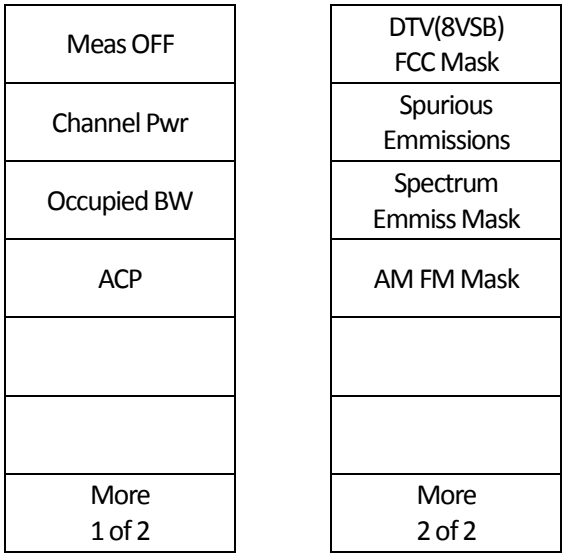
www.lptech.com

1. Menus

The Measurement Functions consist of Channel Power, Occupied Bandwidth, and Adjacent Channel Power, DTV(8VSB) FCC Mask, Spurious Emissions, Spectrum Emission Mask and AM FM Mask. The different menus are listed below:

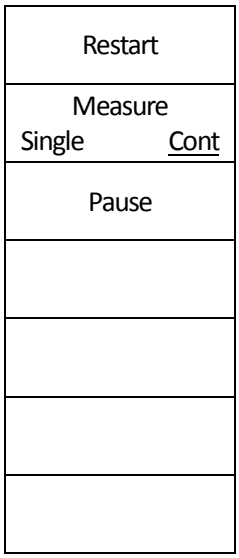
1-1. Measure

Measure Menu



1-2. Measure Control

Measure Control Menu



1-3. Measure Setup

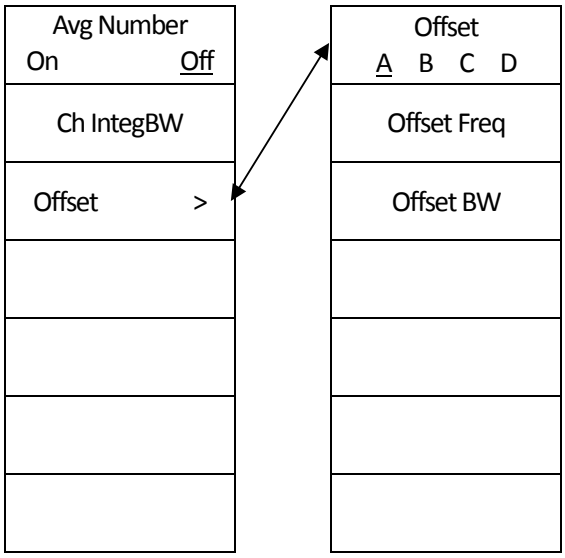
A. Measure Setup for Channel Power

Avg Number On Off
Integ BW
Ch pwr span

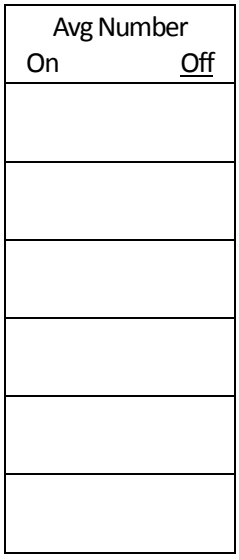
B. Measure Setup for Occupied BW

Avg Number On Off
Occ BW%Pwr
OBW span

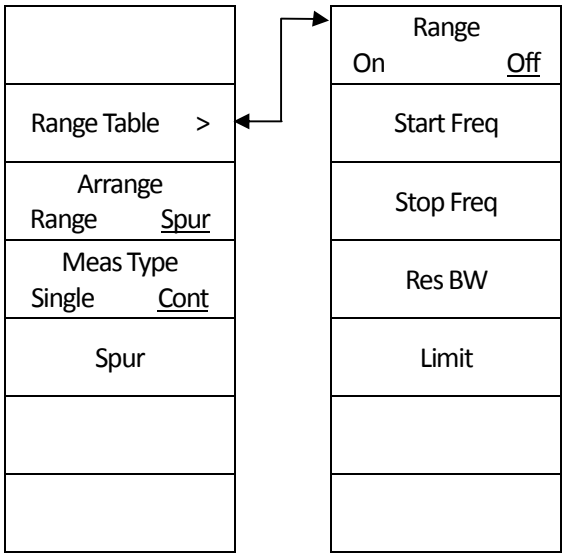
C. Measure Setup for Adjacent Channel Power



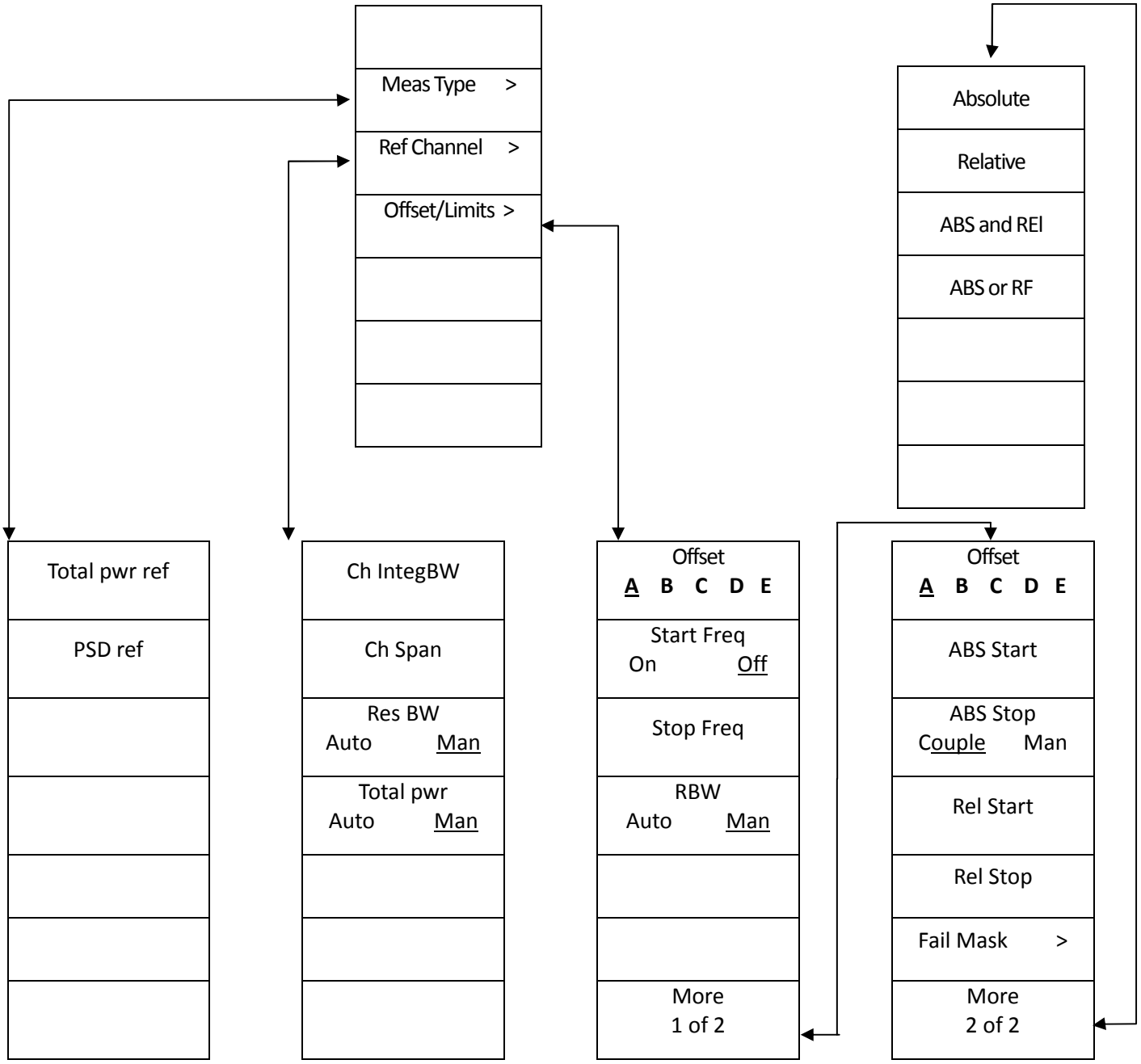
D. Measure Setup for DTV(8VSB) FCC Mask



E. Measure Setup for Spurious Emissions



F. Measure Setup for Spectrum Emission Mask



G. Measure Setup for AM FM Mask

AM FCC R&R 47
AM Ibiquity Xmsn
FM FCC R&R 73.317
FM NRSC 5A
FM Ibiquity Mask
Fail Screen On Off

2. **Operations**

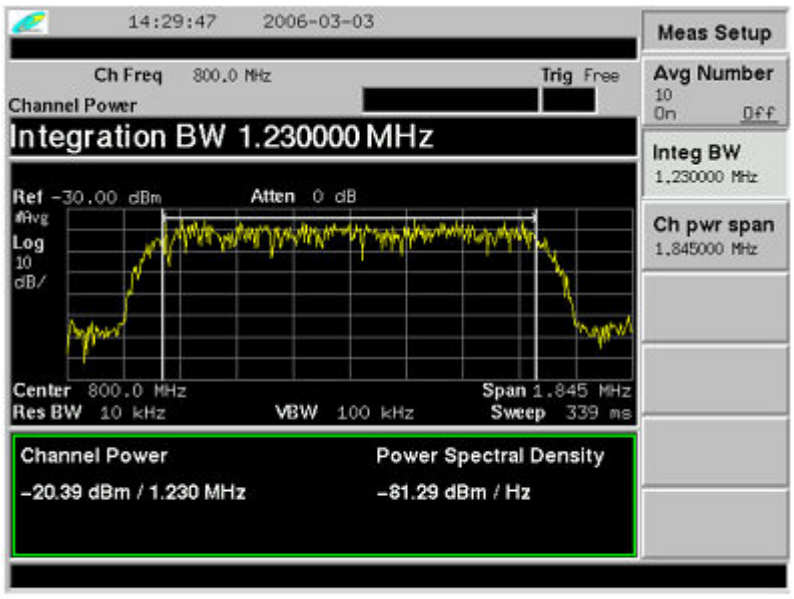
2-1. Channel Power

The channel power function allows measurement of the Channel Power and the Power Spectrum Density within the channel bandwidth selected by the operator. To see the Channel Bandwidth currently set, press the MEASURE key, select the CHANNEL PWR soft key and press MEAS SETUP.
The Channel Power function uses the Integration Bandwidth (IBW) method to calculate the power. This method uses the data obtained by the spectrum analyzer. It is important to set correct RBW on the analyzer for the Channel Power calculation.

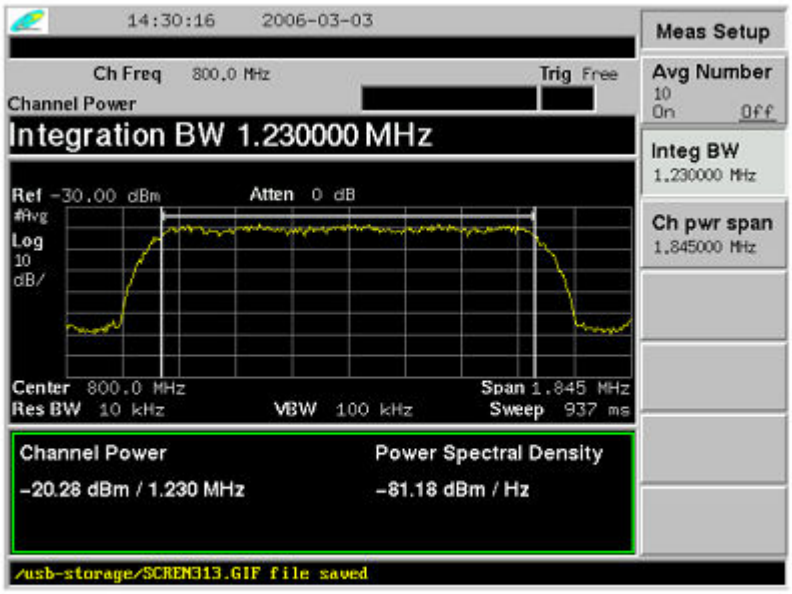
$$RBW = k \times span / N$$

In the formula above, the value of k varies between 1.2 and 4.0. The character N represents the number of trace pointers, which is set at 400 for the LPT spectrum analyzer. Generally, VBW is set to more than 10 times the value of RBW in the Channel Power calculation.

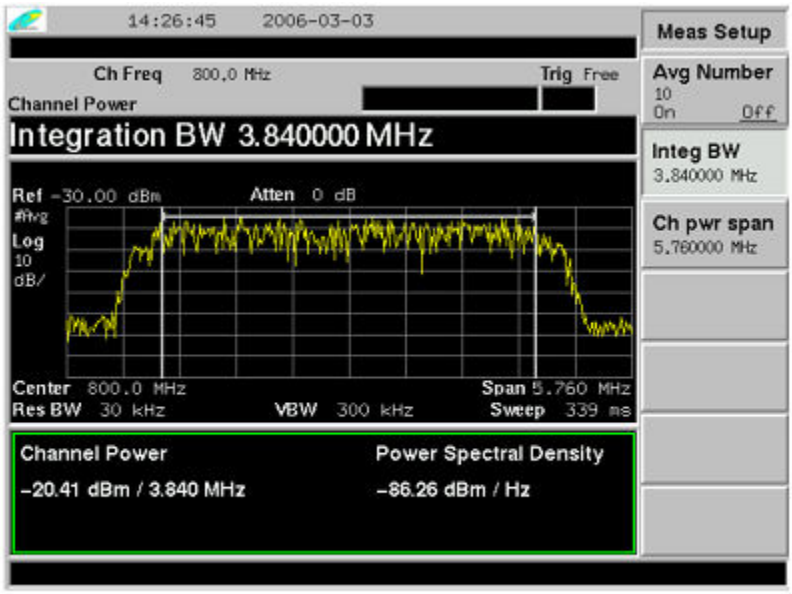
Figure 2-6 shows the Channel Bandwidth currently set in a Channel Power measurement window.



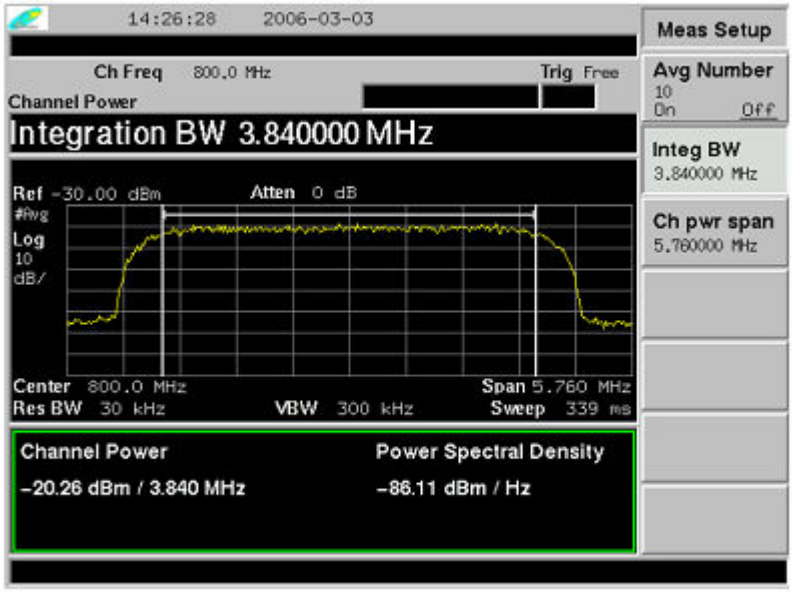
[Figure 2-6] Channel Power Measurement (CDMA 2000)



[Figure 2-7] Channel Power Measurement (CDMA 2000 Average Performance)



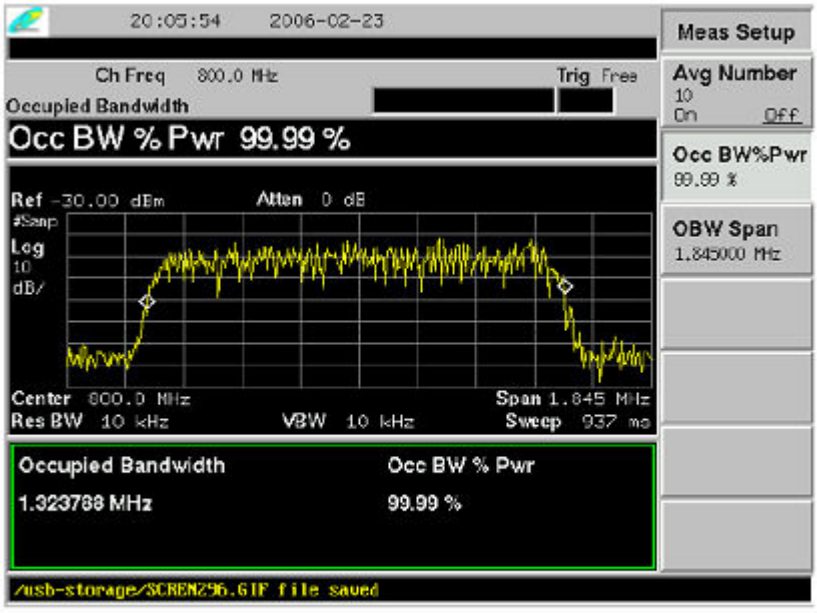
[Figure 2-8] Channel Power Measurement (WCDMA)



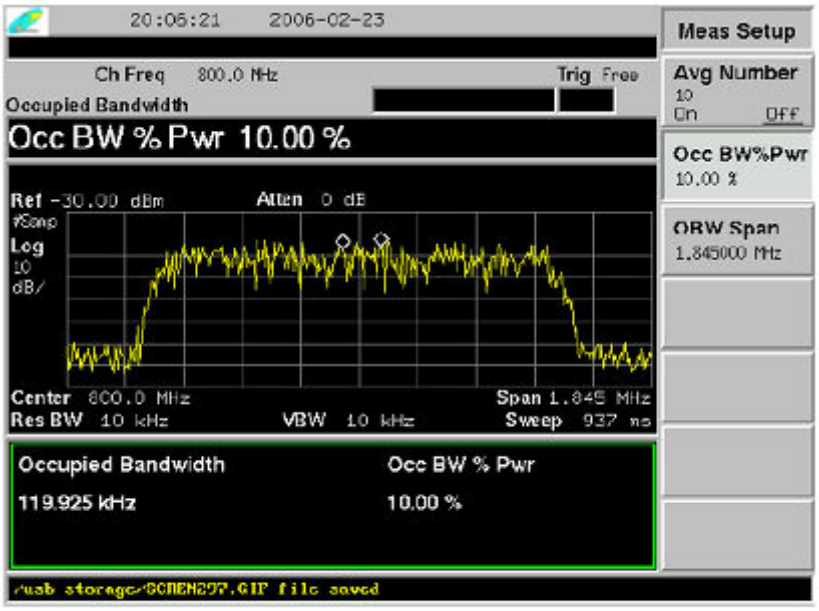
[Figure 2-9] Channel Power Measurement (WCDMA Average Performance)

2-2. Occupied Bandwidth

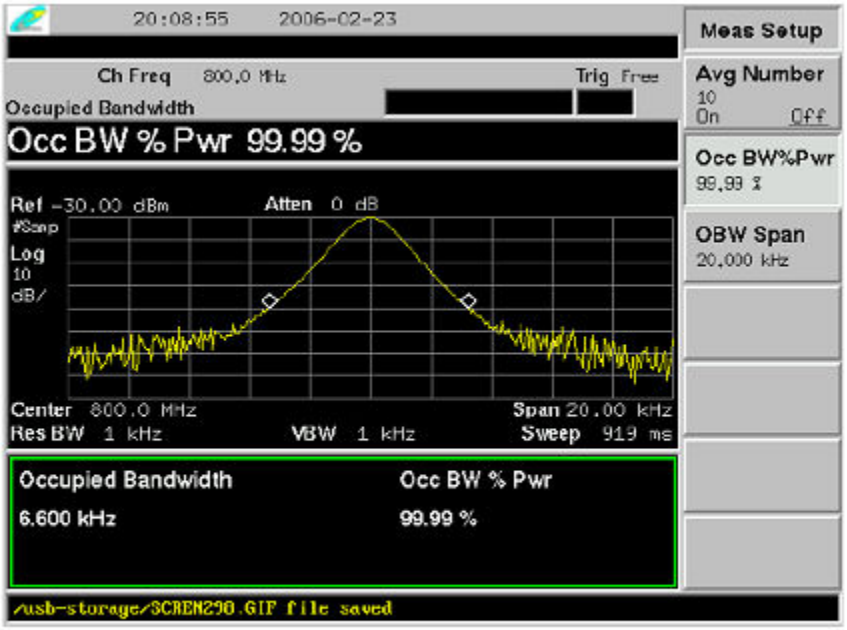
This function measures the occupied bandwidth of the signal indicated. Based on the measurement data, the LPT spectrum analyzer calculates the ratio of the frequency bandwidth out of the total power within an occupied rate set by a user. The occupied rate can be set between the range of 10 and 99.99%.



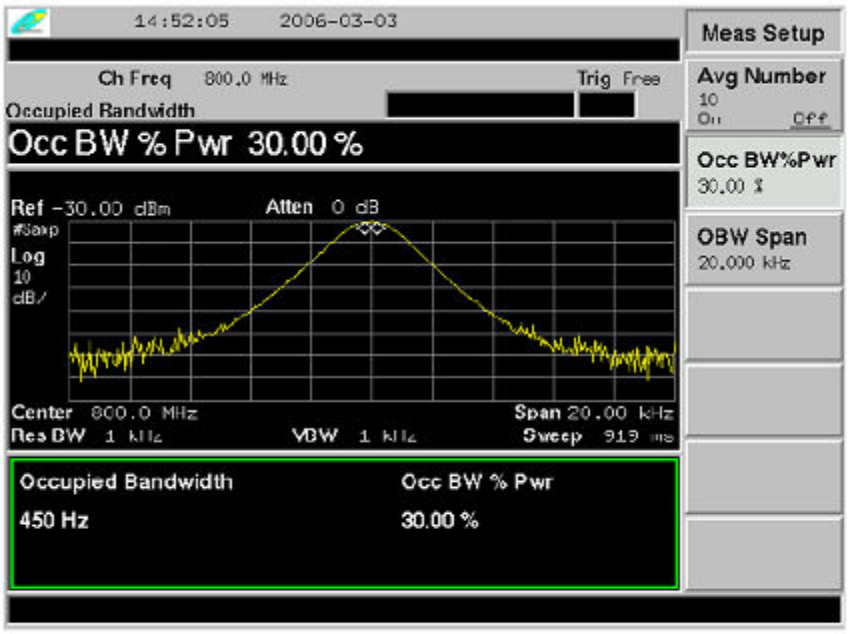
[Figure 2-10] Occupied BW Measurement (99.99%)



[Figure 2-11] Occupied BW Measurement (10.00%)



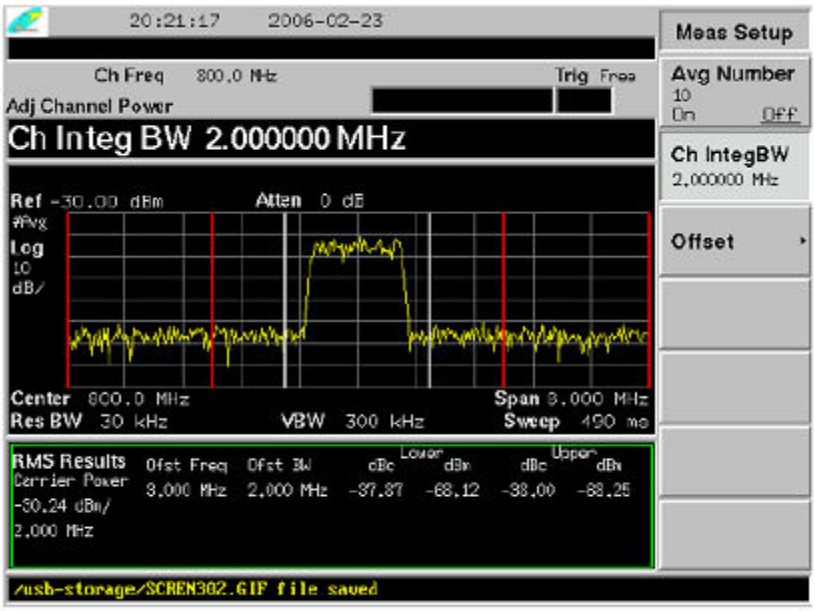
[Figure 2-12] Occupied BW Measurement (99.99%)



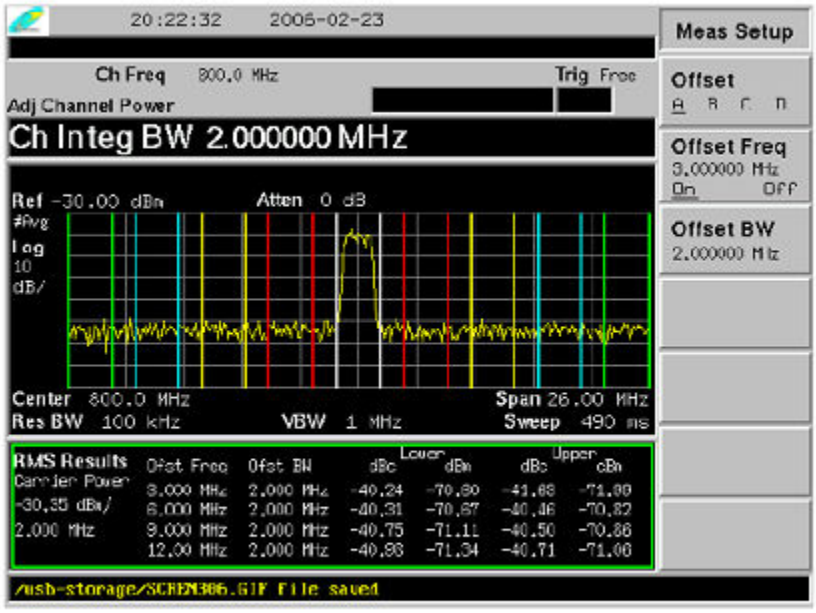
[Figure 2-13] Occupied BW Measurement (30.00%)

2-3. Adjacent Channel Power

The ACP measurement function allows the user to measure the power leaked from the main channel to adjacent channels, showing the powers of both the main channel and adjacent power at the same time. The user can set number of adjacent channels up to 4 simultaneously. Ch IntegBW sets the channel bandwidth of the main channel. In the Offset menu, the adjacent channel can be set. The four adjacent channels are represented as A (Red), B (Yellow), C (Blue) and D (Green) respectively, and they can be distinguished by color in the ACP measurement window. In Offset Freq, the frequency difference between the center of the main channel and center of the offset channel. The channel bandwidth of the Offset channel can be set from Offset BW.



[Figure 2-14] Adjacent Channel Power Measurement (Offset 1)



[Figure 2-15] Adjacent Channel Power Measurement (Offset 4)