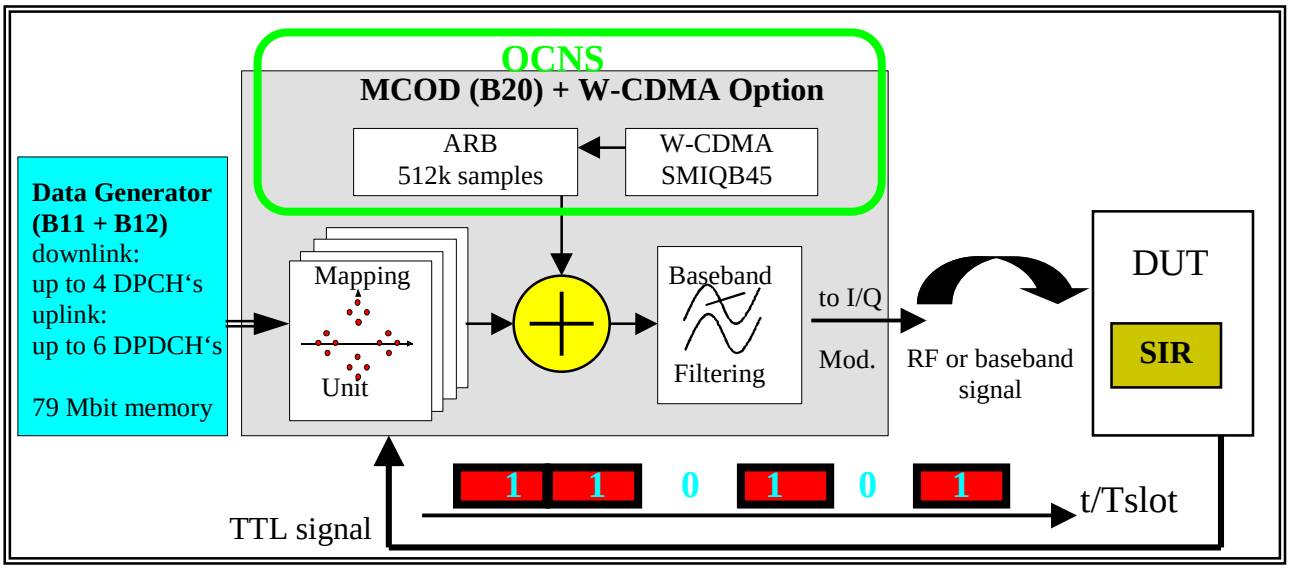
External Power Control with SMIQB45 and SMIQB48

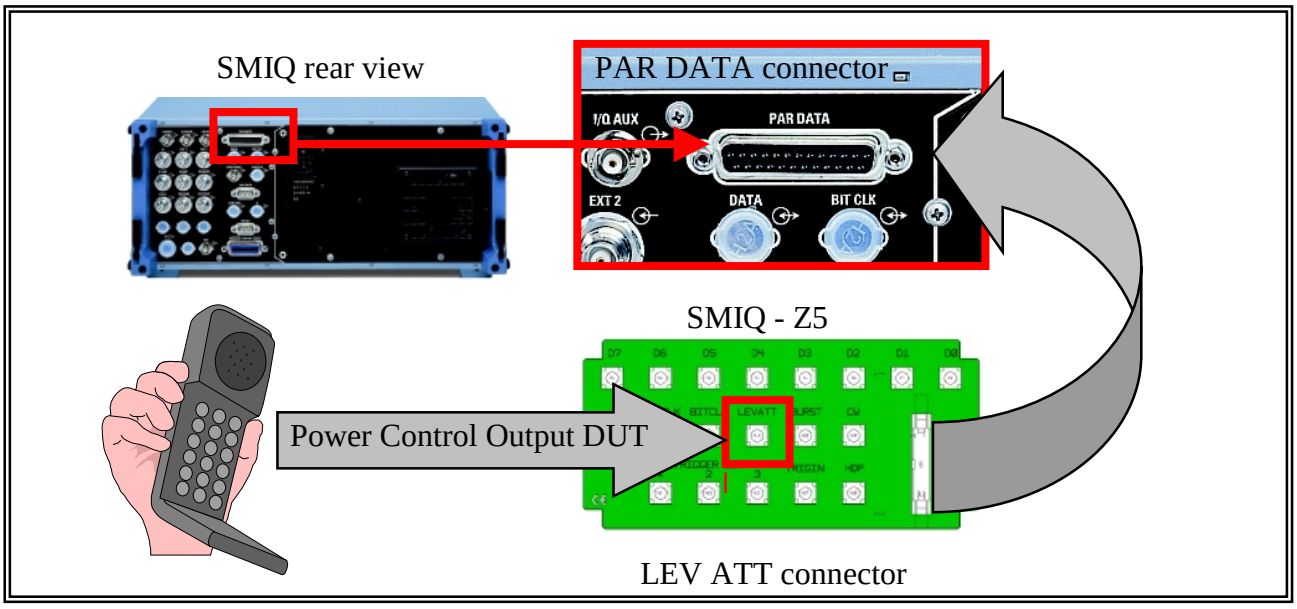
Two test constellations have to be distinguished in the test of SIR based Closed (Inner) Loop Power Control:

1. **Test whether the DUT responds with the correct output power to received TPC**. This can be carried out by using a data list adapted to the test condition as TPC data source. The TPC pattern can be defined in the channel table.
2. **Test whether the DUT correctly performs the SIR** (Signal to Interference Ratio) measurement and inserts the corresponding bits into the TPC field of its transmit signal. Since SMIQ has no receive channel, the TPC control information has to be taken to the generator via another channel. This is possible via "External Power Control".

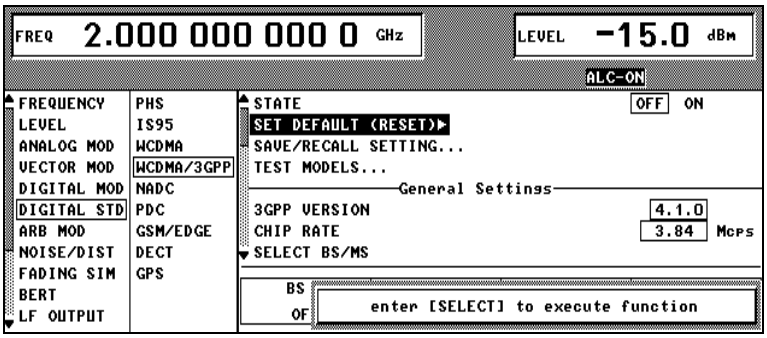
Block diagram:



How to connect:

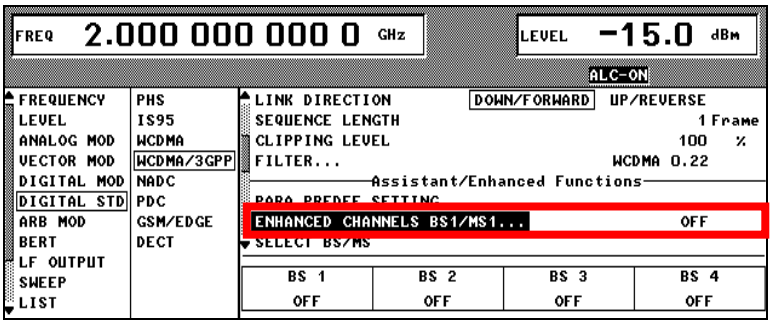


1



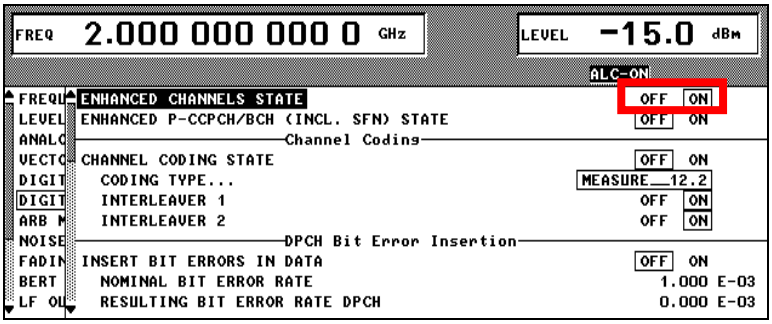
Start with SET DEFAULT (main menu)

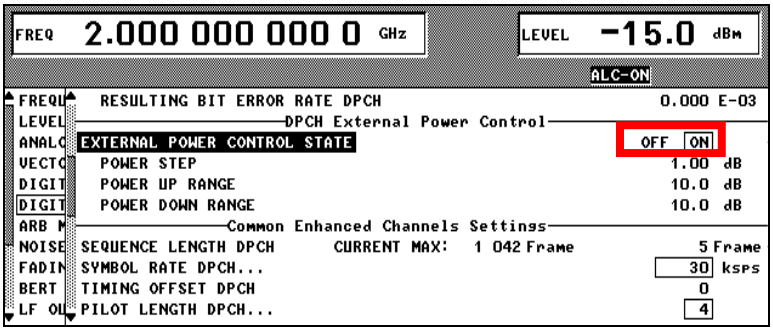
2



Select ENHANCED CHANNELS BS1/MS

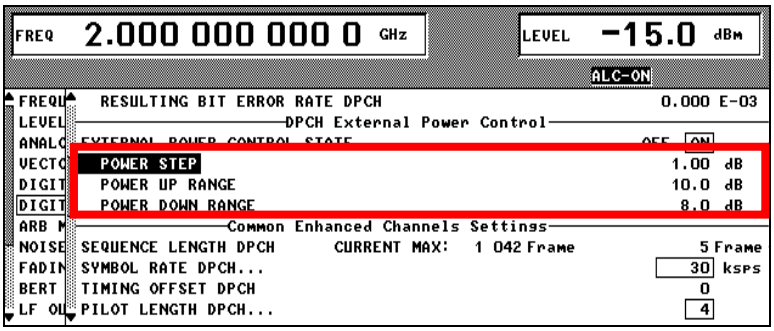
3





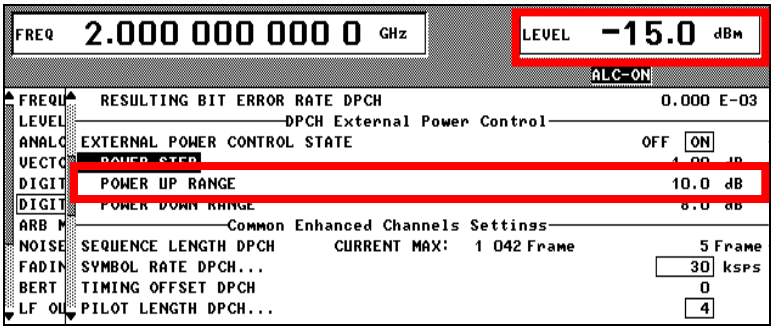
Activate ENHANCED CHANNELS STATE and EXTERNAL POWER CONTROL STATE (ON)

4



Select the wanted values for POWER STEP, UP and DOWN RANGE

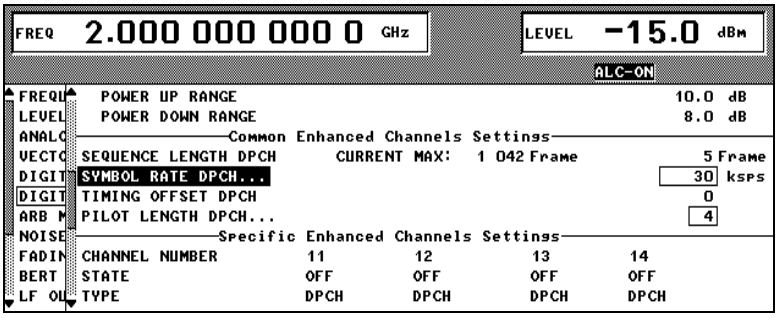
5



Make sure that LEVEL + POWER UP RANGE do not exceed maximum SMIQ Level

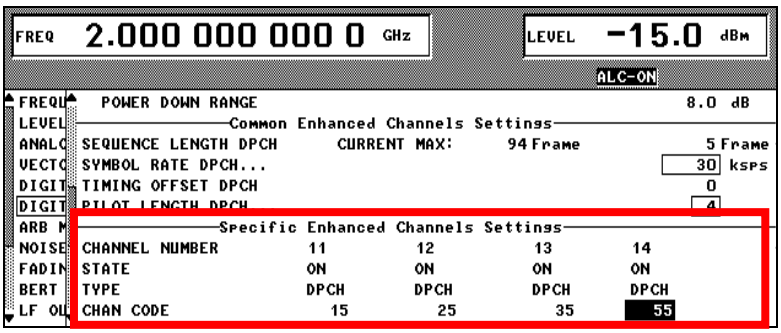
Important hint:
Level [dBm]+„Power Up Range“ [dB] < max. SMIQ level [dBm]

6



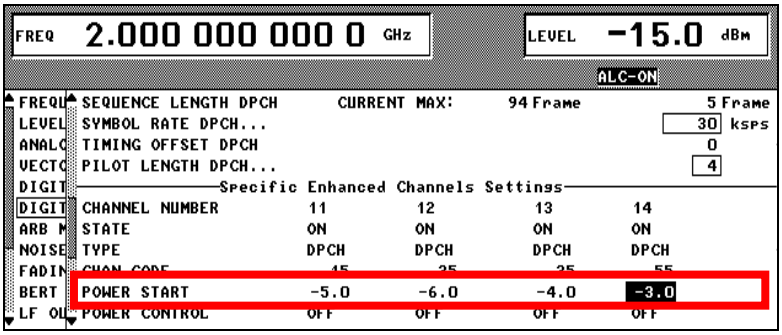
Set the COMMON ENHANCED CHANNELS parameters

7



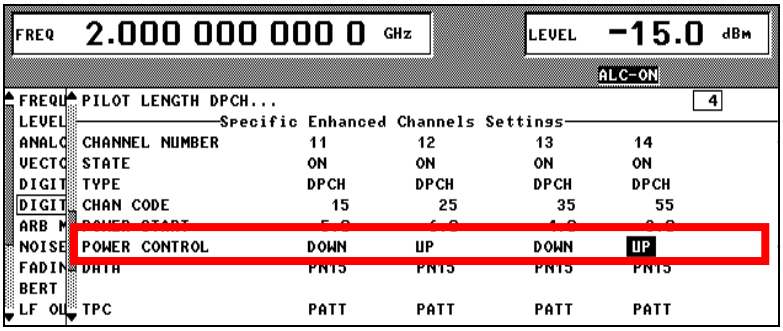
Activate and configure all enhanced channels you want to use (state + channelization code).
Differnet channelization codes should be used to cause no code domain conflicts.

8



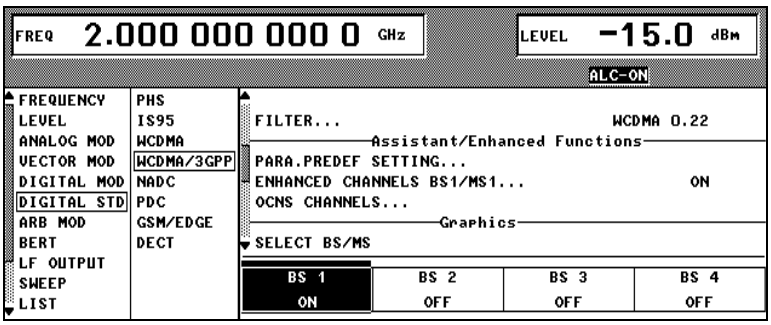
Set the START POWER of enhanced channels.

9



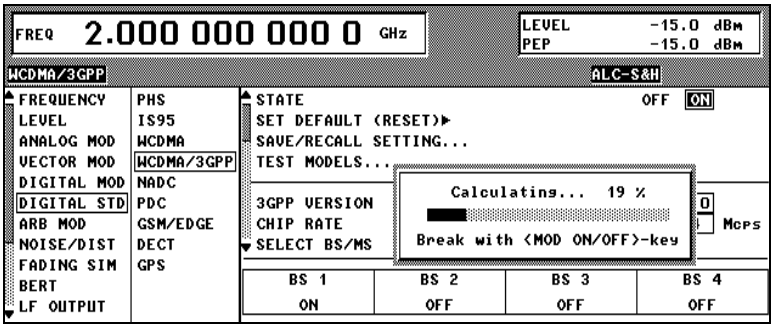
Set the POWER CONTROL parameter of each enh. channel:
UP: channel will go up in power if TTL signal is logical 1
DOWN: channel will go down in power if TTL signal is logical 1
OFF: channel is not power controlled (constant power)

10



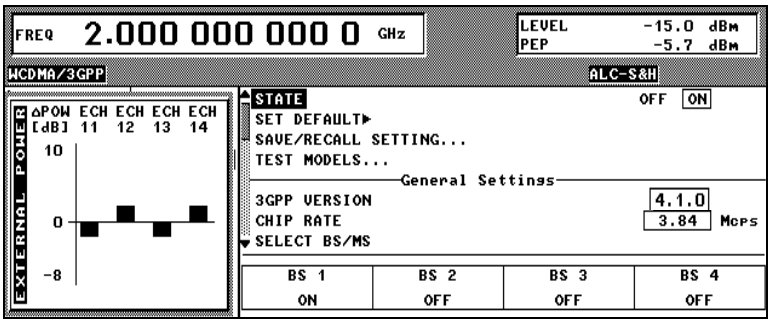
Go back to W-CDMA main menu and set BS1 state to ON

11



Make sure that power control cable from DUT is connected to SMIQ LEV ATT connector (via SMIQ-Z5 adapter) as described before
Set W-CDMA/3GPP state ON, SMIQ will start calculation of signal

12



When calculation is ready, a power control graph is displayed automatically
The difference of the current enhanced channels power related to the starting power is displayed (delta power)