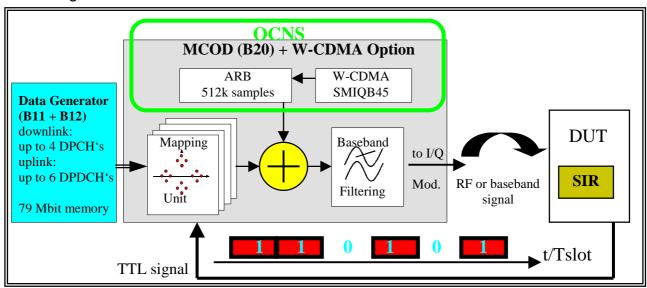
## External Power Control with SMIQB45 and SMIQB48

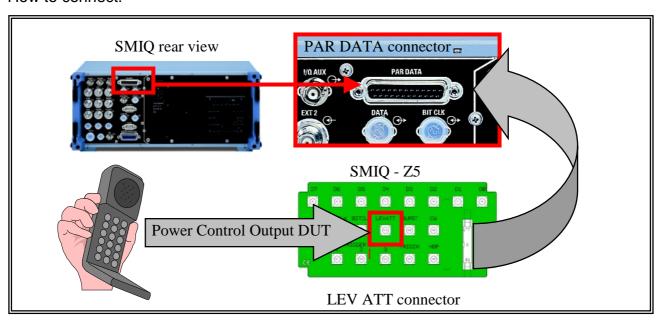
Two test constellations have to be distinguished in the test of SIR based Closed (Inner) Loop Power Control:

- 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 FREQ 2.000 000 000 0 GHz LEVEL -15.0 dBm ALC-ON FREQUENCY PHS **≜** STATE OFF ON SET DEFAULT (RESET)⊁ LEVEL **IS95** ANALOG MOD **WCDMA** SAUE/RECALL SETTING... TEST MODELS... VECTOR MOD WCDMA/3GPP DIGITAL MOD NADC General Settings DIGITAL STD PDC 3GPP VERSION 4.1.0 ARB MOD GSM/EDGE CHIP RATE 3.84 NOISE/DIST DECT SELECT BS/MS FADING SIM GPS BERT enter [SELECT] to execute function LF OUTPUT OF

Start with SET DEFAULT (main menu)

2 2.000 000 000 0 GHz -15.0 dBm FREQ LEVEL ALC-ON FREQUENCY PHS LINK DIRECTION DOWN/FORWARD UP/REVERSE LEVEL I S 9 5 SEQUENCE LENGTH ANALOG MOD MCDMA CLIPPING LEVEL 100 VECTOR MOD WCDMA/3GPP WCDMA 0.22 FILTER... DIGITAL MOD NADC Assistant/Enhanced Functions PARA PRENEE SETTIN DIGITAL STD PDC ENHANCED CHANNELS BS1/MS1... GSM/EDGE ARB MOD BERT DECT SELECT BS/MS LF OUTPUT BS 1 BS 2 BS 3 BS 4 SWEEP OFF OFF OFF OFF

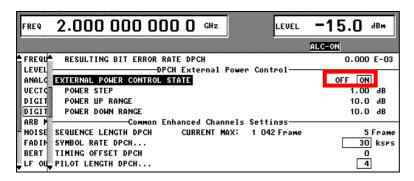
LIST

4

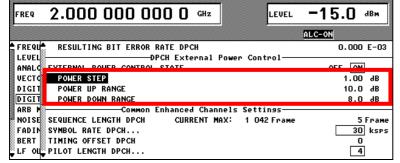
Select ENHANCED CHANNELS BS1/MS

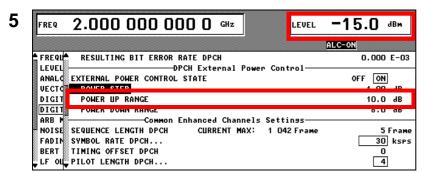
3  $2.000\ 000\ 000\ 0\ ^{GHz}$ -15.0 dBm LEVEL FREQ ALC-ON OFF ON FREQUA ENHANCED CHANNELS STATE ENHANCED P-CCPCH/BCH (INCL. SFN) STATE OFF ON ANALC -Channel Coding CHANNEL CODING STATE OFF ON VECTO DIGIT CODING TYPE... MEASURE\_\_12.2 DIGIT INTERLEAVER 1 OFF ON ARR N INTERLEAUER 2 -DPCH Bit Error Insertion-NOISE FADIN INSERT BIT ERRORS IN DATA OFF ON RERT NOMINAL BIT ERROR RATE 1.000 F-03 RESULTING BIT ERROR RATE DPCH LF OU 0.000 E-03

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



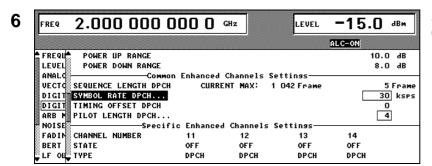
Select the wanted values for POWER STEP, UP and DOWN **RANGE** 



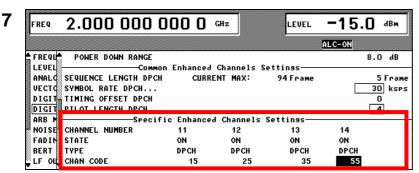


Make sure that LEVEL + POWER UP RANGE do not exceed maximum SMIQ Level

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

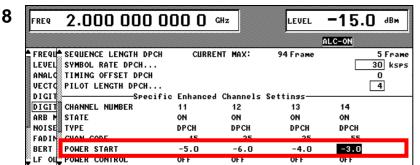


Set the COMMON ENHANCED CHANNELS parameters

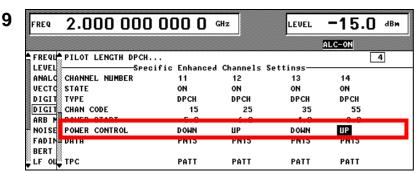


Activate and configure all enhanced channels you want to use (state + channelization code).

Differnet channelization codes should be used to cause no code domain conflicts.



Set the START POWER of enhanced channels.



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 2.000 000 000 0 GHz LEVEL -15.0 dBm ALC-ON FREQUENCY PHS FILTER... WCDMA 0.22 LEVEL IS95 ANALOG MOD WCDMA -Assistant/Enhanced Functions VECTOR MOD WCDMA/3GPP PARA.PREDEF SETTING... DIGITAL MOD NADC ENHANCED CHANNELS BS1/MS1... ON OCNS CHANNELS... PDC DIGITAL STD ARB MOD GSM/EDGE BERT DECT SELECT BS/MS

BS

BS 2

OFF

BS 3

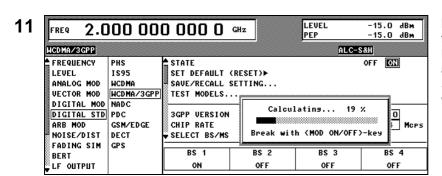
OFF

BS 4

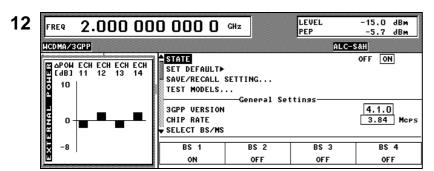
OFF

LE OUTPUT

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



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



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)



