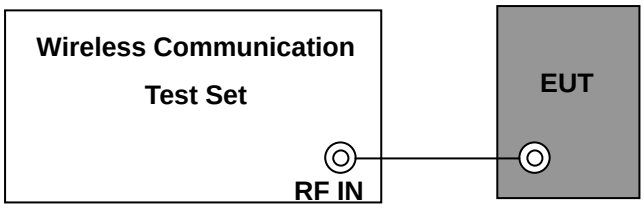
3G SAR Measurement Procedures

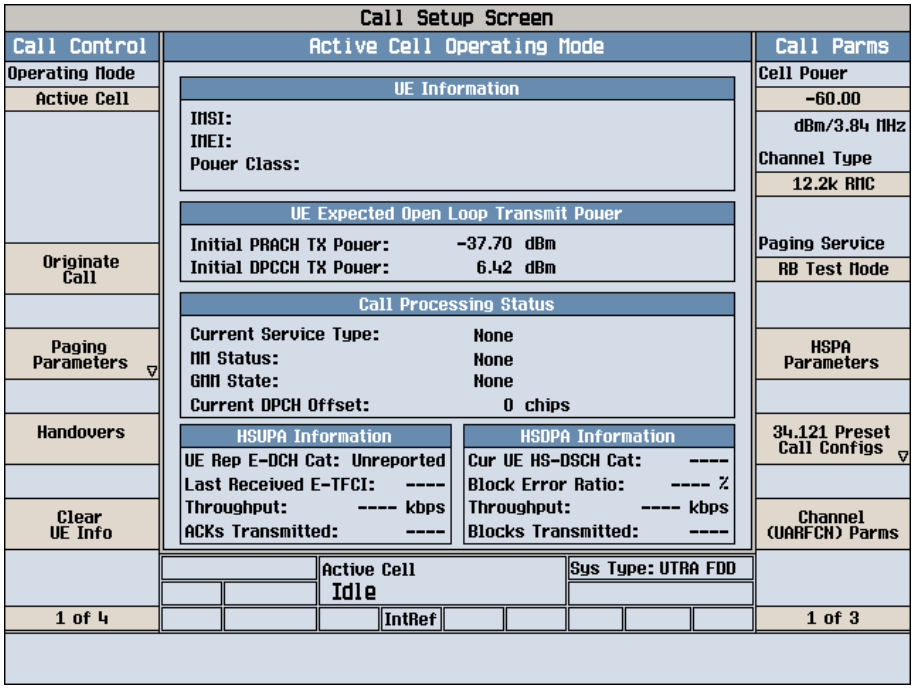
Conducted Output Power

The EUT was tested according to the requirements of the FCC 3G procedures and the TS 34.121. The EUT's WCDMA and HSPA function is Release6 version supporting HSDPA and HSUPA. A detailed analysis of the output power for all WCDDMA, HSDPA and HSUPA mode is provided in the table below. According to the FCC 3G procedures, handsets with both HSDPA and HSUPA should be tested according to release 6 HSPA test procedures, and EUT dose not support VOIP function over the HSPA function. The HSPA output levels are less than 1/4dB higher than the basic 12.2kbps RMC configurations in WCDMA, as required by FCC 3G SAR procedures and the PBA is fulfilled.

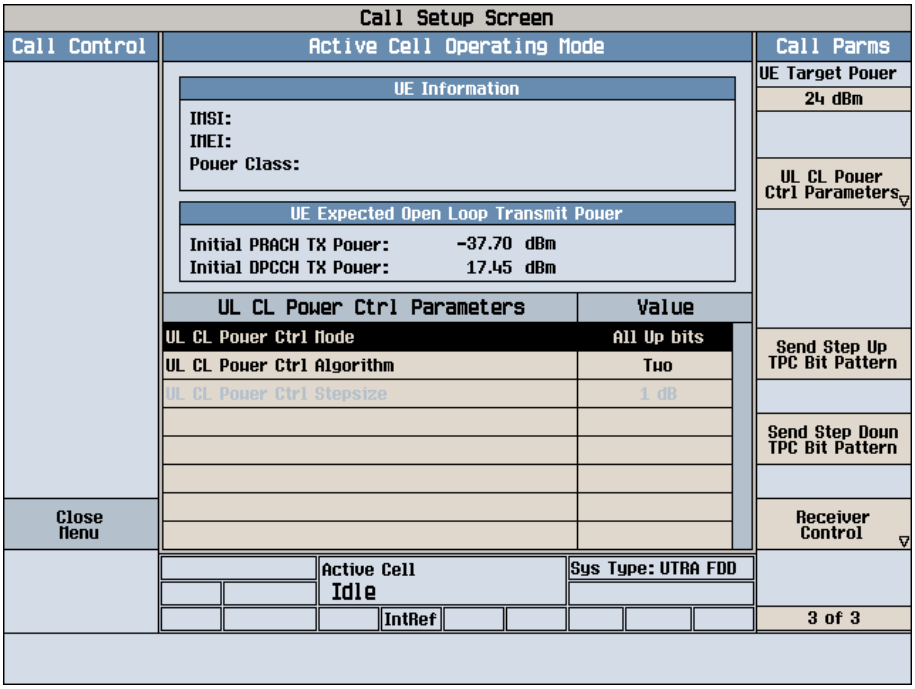
WCDMA Setup Configuration

1. The EUT was connected to Base Station referred to the drawing of Setup Configuration.
2. The RF path losses were compensated into measurements.
3. A call was established between EUT and Base Station with following setting
   a、 set Cell Power = -60dBm
   b、 set RMC 12.2K
   c、 set UE Target Power = 24dBm
   d、 set Power Ctrl Mode = All Up bit
4. The transmitted maximum output power was recorded.





WCDMA Setup Configuration : Step 3 – a & b



WCDMA Setup Configuration : Step 3 – c & d

HSDPA Setup Configuration

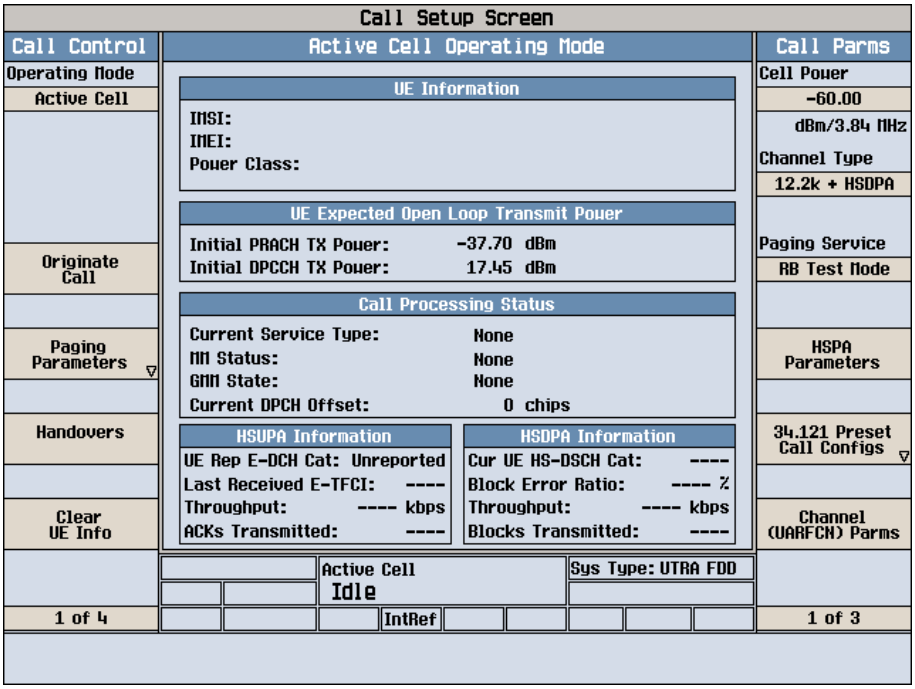
1. The EUT was connected to Base Station referred to the drawing of Setup Configuration.
2. The RF path losses were compensated into measurements.
3. A call was established between EUT and Base Station with following setting
   a、 Set Gain Factors (βc and βd) and parameters were set according to each specific sub-test in the following table quoted from the TS 34.121.
   b、 Set Cell Power = -60dBm
   c、 Set RMC 12.2K+HSDPA
   d、 Set HS-DSCH Configuration Type to FRC(H-set 1,QPSK)
   e、 Set UE Target Power = 24dBm
   f、 Set Power Ctrl Mode = All Up bit
   g、 Select Uplink Parameter
   h、 Set Gain Factor(β c and β d) Parameters were set according to each
   i、 Ex. Sub-test 1 : β c=2, β d=15
   j、 Set PS Domain
4. The transmitted maximum output power was recorded.

Sub-test	βc	βd	βd (SF)	βc/βd	βhs(1,2)	CM (dB)(3)	MRP (dB)(3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15(4)	15/15(4)	64	12/15(4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

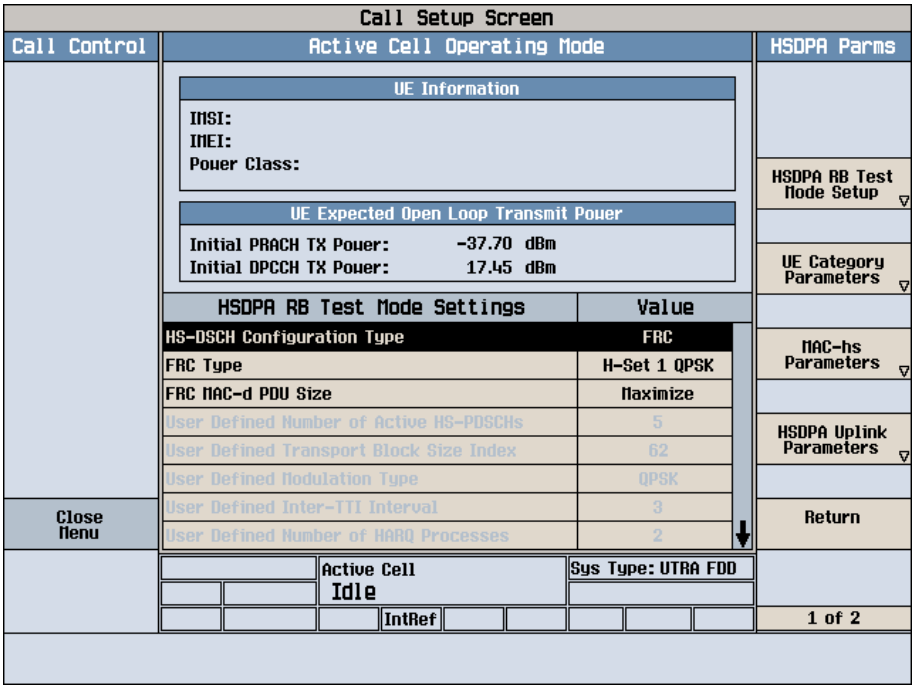
Note

1. Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 ⇔ Ahs = βhs/βc = 30/15 ⇔ βhs= 30/15 *βc
2. For theHS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude(EVM) with HS-DPCCH test in clause 5.13.1A and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with βhs = 30/15 *βc and Δ_{CQI} = 24/15 with βhs = 24/15*βc
3. CM = 1 for βc/βd =12/15, βhs/βc=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
4. For subtest 2 the βc/βd ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to βc = 11/15 and βd = 15/15.

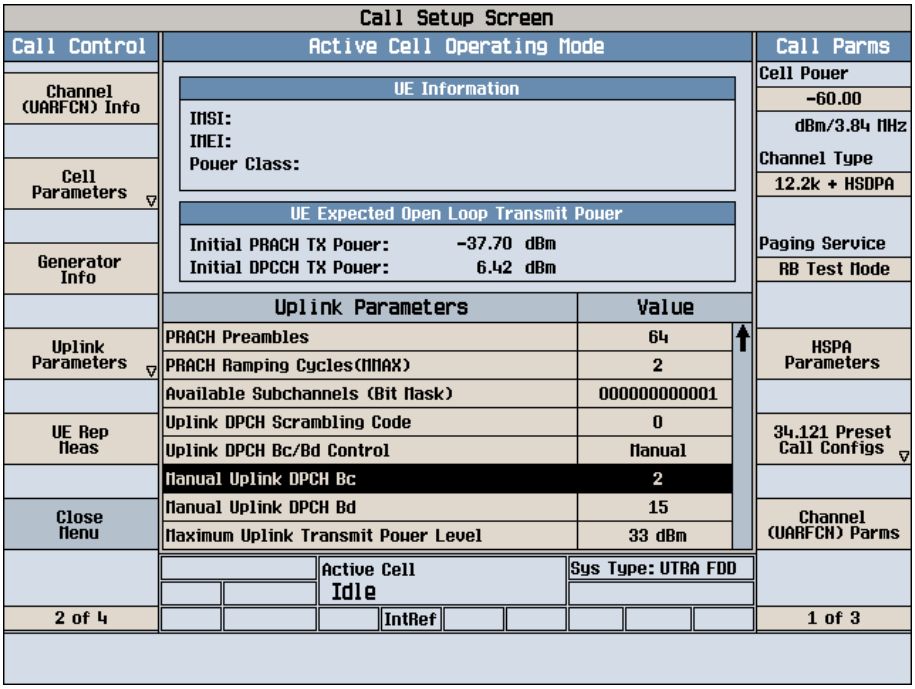
Table 1. Setup for Release 5 HSDPA



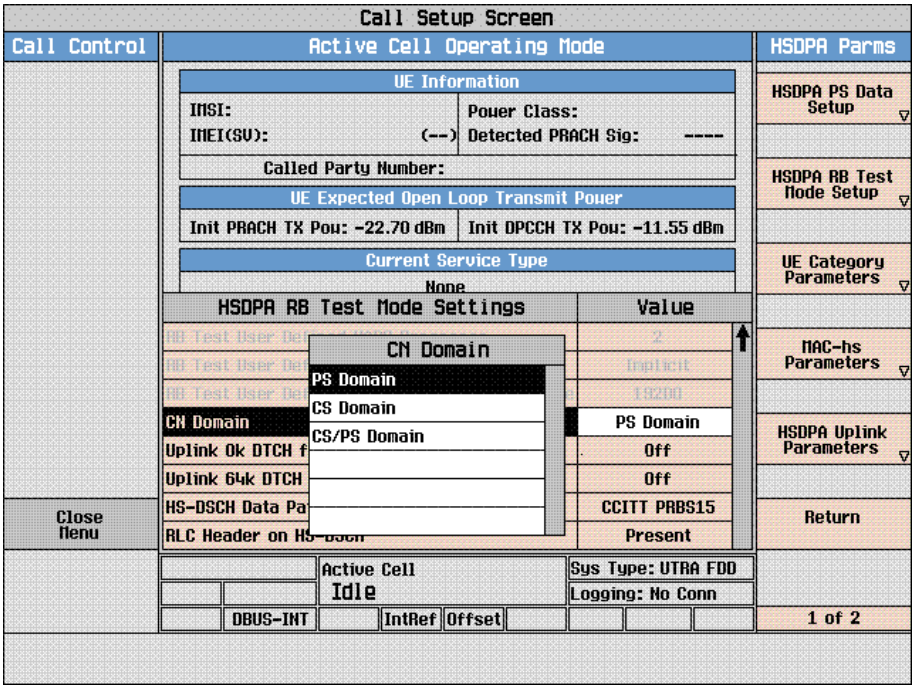
HSDPA Setup Configuration : Step 3 – b & c



HSDPA Setup Configuration : Step 3 - d



HSDPA Setup Configuration : Step 3 – i



HSDPA Setup Configuration : Step 3 - j

HSUPA Setup Configuration

1. The EUT was connected to Base Station referred to the drawing of Setup Configuration.
2. The RF path losses were compensated into measurements.
3. A call was established between EUT and Base Station with following setting
   a、 Set the Gain Factors (βc and βd) and parameters (AG Index) were set according to each specific sub-test in the following table quoted from the TS 34.121.
   b、 Set Cell Power = -75dBm
   c、 Set RMC 12.2K+HSPA
   d、 Set HS-DSCH Configuration Type to FRC(H-set 1,QPSK)
   e、 Set UE Target Power = 24dBm
   f、 Set Power Ctrl Mode = Alternating bits
   g、 Select Uplink Parameter
   h、 Set Gain Factor(β c,and β d) Parameters were set according to each
   i、 Ex. Sub-test 1 : β c=11, β d=15
   j、 Set AG Ex. Sub-test 1 :AG =20
   k、 Set E-TFCI Ex. Sub-test 1 : 75
   l、 Set PS Domain
4. The transmitted maximum output power was recorded.

Sub-test	βc	βd	βd (SF)	βc/βd	βhs[1]	βec	βed	Bed (SF)	Bed (codes)	CM[2] (dB)	MPR (dB)	AG[4] Index	E-TFCI
1	11/15[3]	15/15[3]	64	11/15[3]	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	βed1: 47/15 βed2: 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15[4]	15/15[4]	64	15/15[4]	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: ΔACK, ΔNACK and ΔCQI = 8 ⇔ Ahs = βhs/βc = 30/15 ⇔ βhs= 30/15 *βc.

Note 2: CM = 1 for βc/βd =12/15, βhs/βc=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

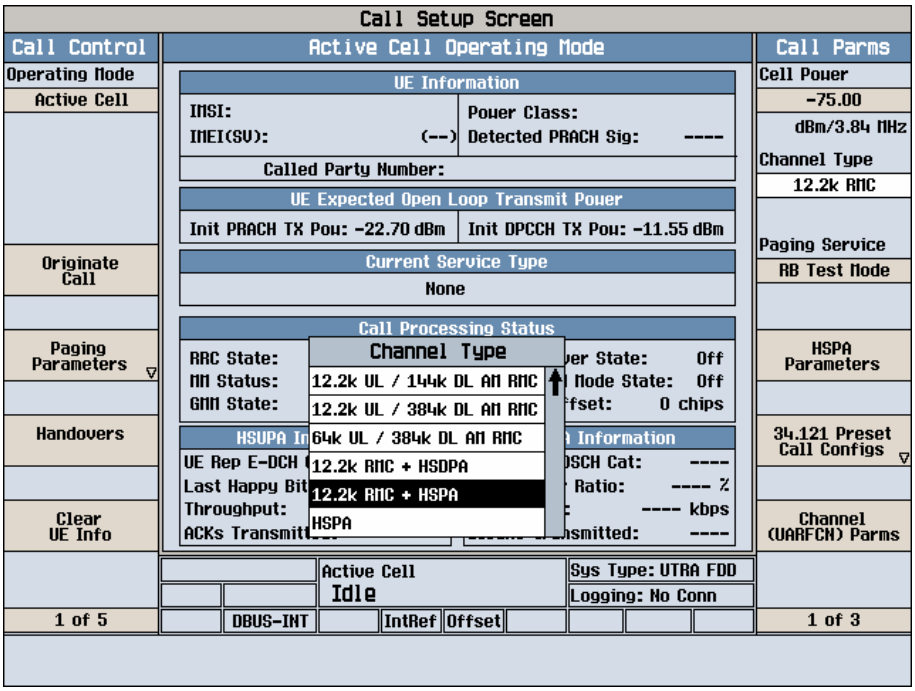
Note 3: For subtest 1 the βc/βd ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to βc = 10/15 and βd = 15/15.

Note 4: For subtest 5 the βc/βd ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to βc = 14/15 and βd = 15/15.

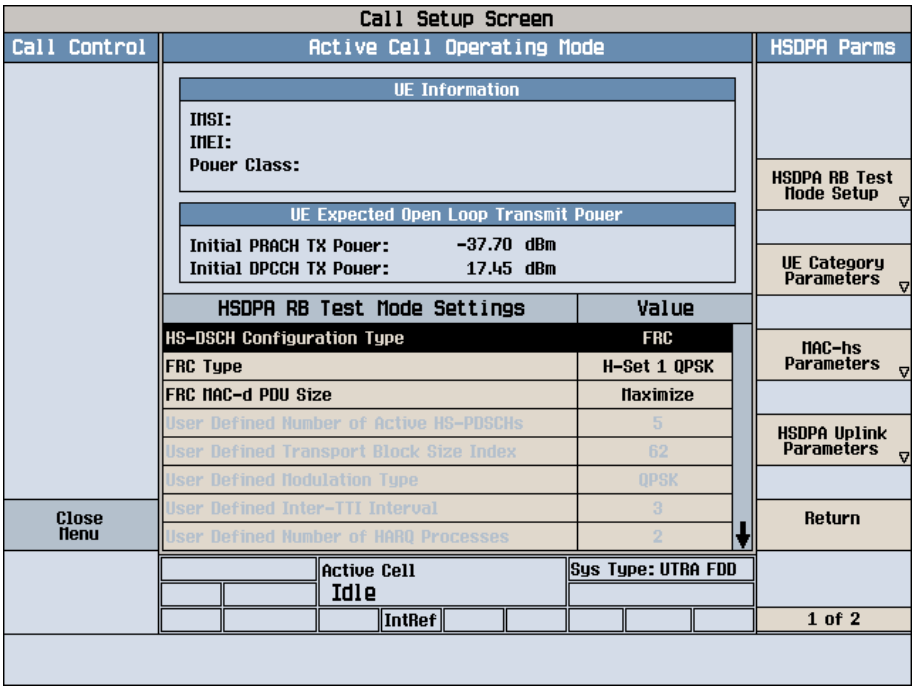
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6: βed can not be set directly; it is set by Absolute Grant Value.

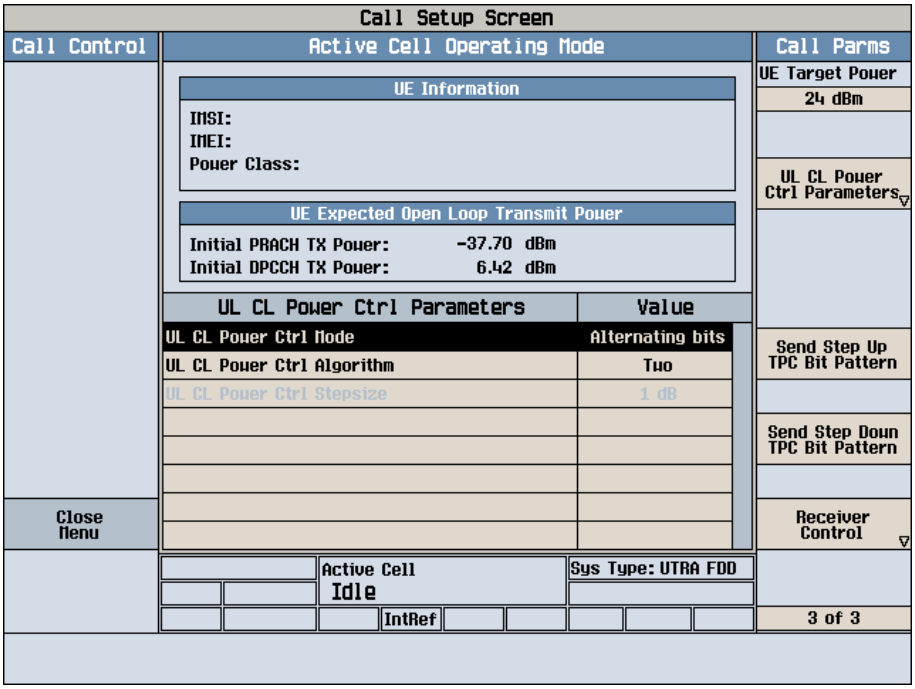
Table 2. Setup for Release 6 HSUPA



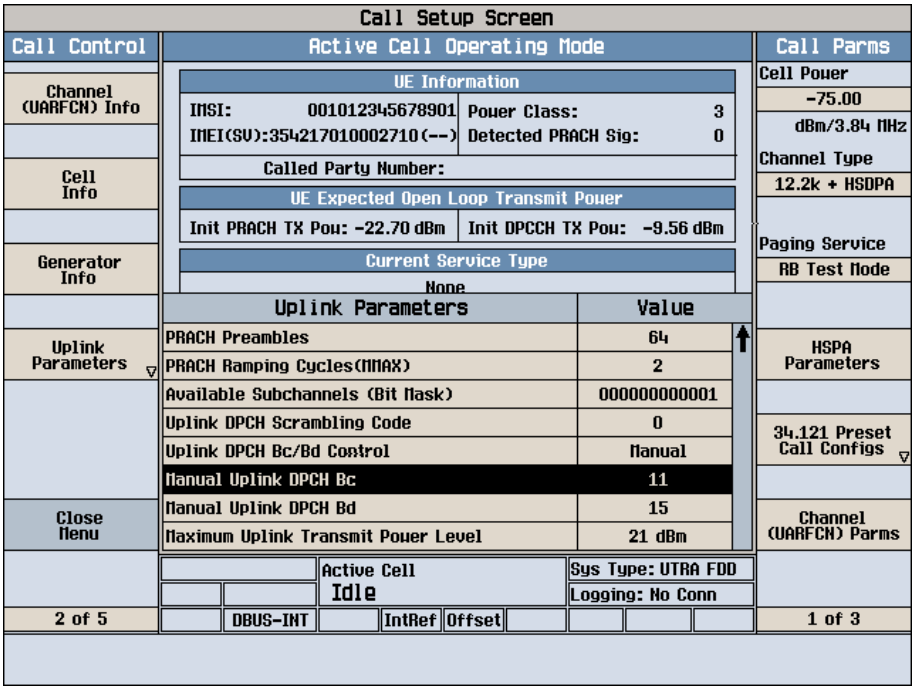
HSUPA Setup Configuration : Step 3 – b & c



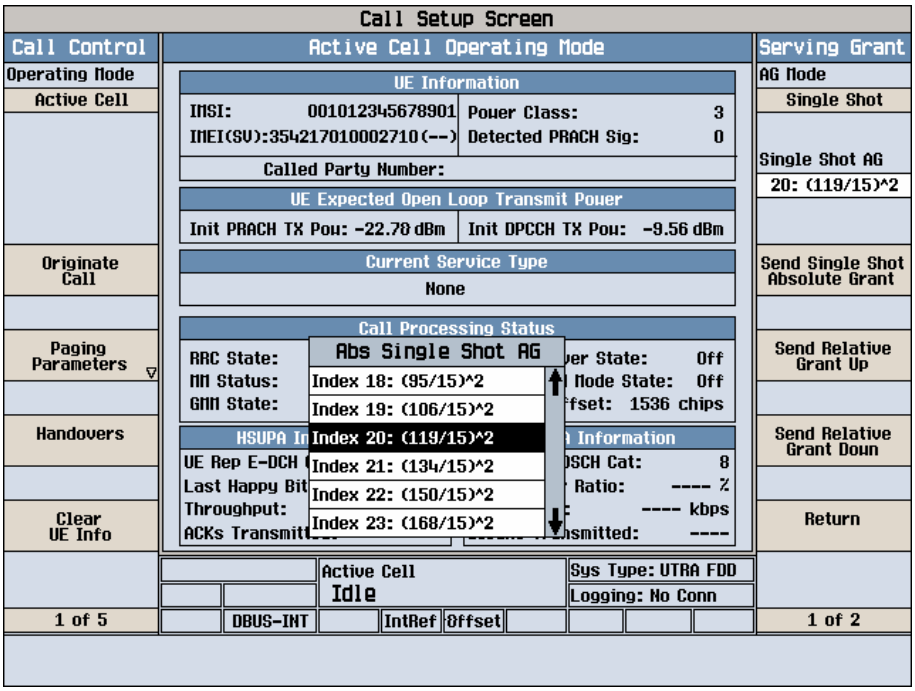
HSUPA Setup Configuration : Step 3 - d



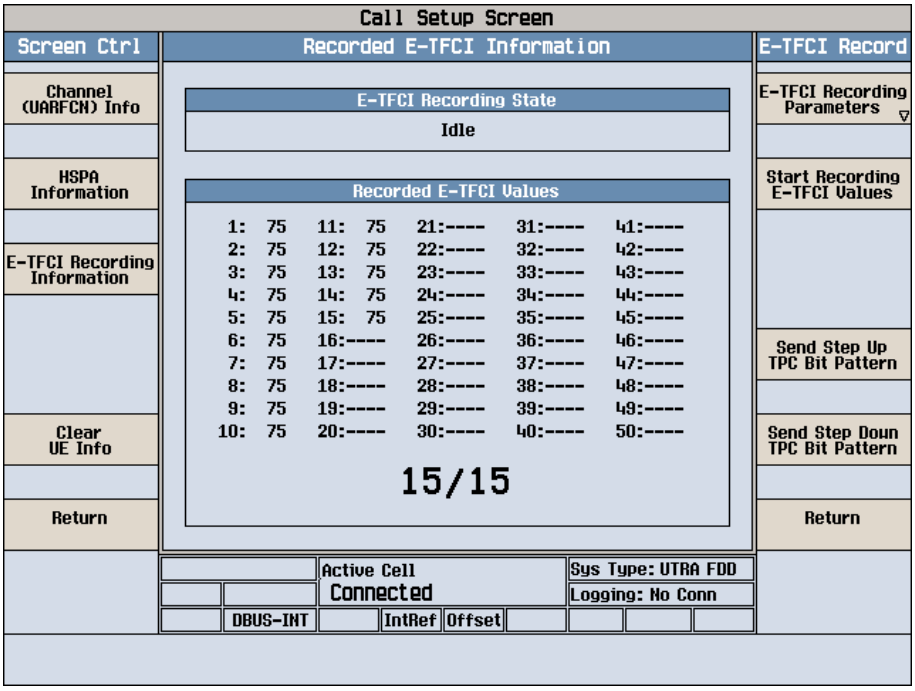
HSUPA Setup Configuration : Step 3 – e & f



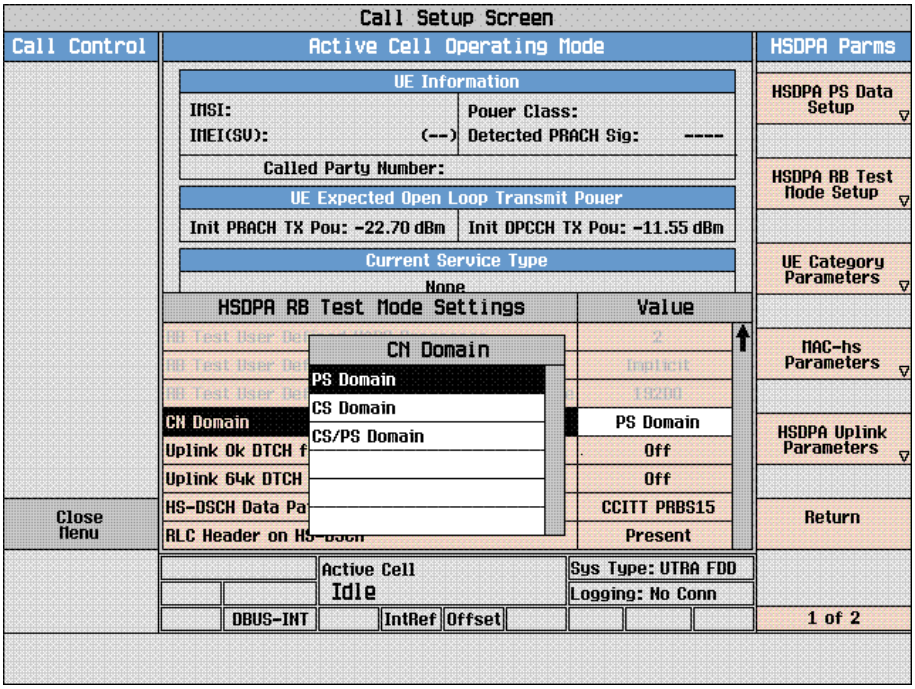
HSUPA Setup Configuration : Step 3 – i



HSUPA Setup Configuration : Step 3 – j



HSUPA Setup Configuration : Step 3 – k



HSUPA Setup Configuration : Step 3 – l