



## Appendix F. FCC 3G SAR Measurement Procedures

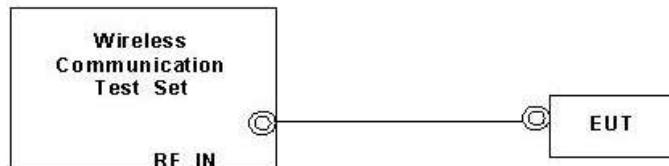
### Conducted Output Power:

The EUT was tested according to the requirements of the FCC 3G procedures and the TS 34.121. The EUT's WCDMA and HSDPA function is Release 5 version supporting HSDPA Category 8. A detailed analysis of the output power for all WCDMA and HSDPA modes is provided in the tables below.

WCDMA SAR Test mode - Conducted Power							
Mode	Setup	Cell band (850)			PCS band (1900)		
		CH4132	CH4182	CH4233	CH9262	CH9400	CH9538
R99 - WCDMA	RMC 12.2Kbps	22.14	22.41	22.40	22.65	22.72	22.63
R5 - HSDPA	HSDPA - subtest 1	22.31	22.42	22.44	22.74	22.78	22.84
	HSDPA - subtest 2	22.12	22.45	22.41	22.80	22.83	22.74
	HSDPA - subtest 3	20.52	20.79	20.90	21.46	21.55	21.63
	HSDPA - subtest 4	19.63	19.56	19.77	20.37	20.34	20.51

**WCDMA Setup Configuration:**

- The EUT was connected to Base Station referred to the drawing of Setup Configuration.
- The RF path losses were compensated into the measurements.
- A call was established between EUT and Base Station with following setting
  - Data rates: Varied from RMC 12.2Kbps
  - RMC Test Loop=Loop Mode 1
  - Power Ctrl Mode= All Up bits
- The transmitted maximum output power was recorded.


**Setup Configuration**
**HSDPA Setup Configuration:**

- The EUT was connected to Base Station referred to the drawing of Setup Configuration.
- The RF path losses were compensated into the measurements.
- A call was established between EUT and Base Station with following setting:
  - Set Gain Factors( $\beta_c$  and  $\beta_d$ ) and parameters were set according to each
  - Specific sub-test in the following table, C10.1.4, quoted from the TS 34.121
  - Set RMC12.2Kbps + HSDPA mode
  - Set Cell Power = -86 dBm
  - Set HS-DSCH Configuration Type to FRC (H-set 1, QPSK)
  - Select HSDPA Uplink Parameters
  - Set DeltaACK, DeltaNACK and DeltaCQI = 8
  - Set Ack-Nack Repetition Factor to 3
  - Set CQI Feedback Cycle (k) to 4 ms
  - Set CQI Repetition Factor to 2
  - Power Ctrl Mode = All Up bits
- The transmitted maximum output power was recorded.

 Table C.10.1.4:  $\beta$  values for transmitter characteristics tests with HS-DPCCH

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{hs}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 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:  $\Delta_{ACK}, \Delta_{NACK}$  and  $\Delta_{CQI} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ .  
 Note 2: For the HS-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,  $\Delta_{ACK}$  and  $\Delta_{NACK} = 30/15$  with  $\beta_{hs} = 30/15 * \beta_c$ , and  $\Delta_{CQI} = 24/15$  with  $\beta_{hs} = 24/15 * \beta_c$ .  
 Note 3: CM = 1 for  $\beta_c/\beta_d = 12/15$ ,  $\beta_{hs}/\beta_c = 24/15$ . 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.  
 Note 4: For subtest 2 the  $\beta_c/\beta_d$  ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to  $\beta_c = 11/15$  and  $\beta_d = 15/15$ .

**Setup Configuration**



**Reference:**

- [1] 941225 D01 SAR test for 3G devices v02, SAR Measurement Procedures for 3G Devices CDMA 2000/Ev-Do/WCDMA/HSDPA/HSPA Oct. 2007 Laboratory Division Office of Engineering and Technology Federal Communications Commission
- [2.] TS 34.121 Universal Mobile Telecommunications System (UMTS); Terminal Conformance Specification, Radio Transmission and Reception (FDD)
- [3.] HSUPA Measurement Guide with 8960 V7.5.0 Release 7 (2007-06) Ver.: v.02.18