

## Appendix F. FCC 3G SAR Measurement Procedures

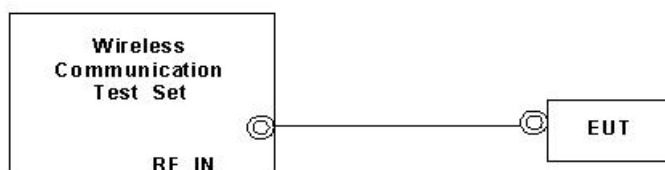
### Conducted Output Power:

The EUT was tested according to the requirements of the FCC 3G procedures and the TS 34.121. The EUT's WCDMA function is Release 7 version supporting HSDPA Category 24, and HSUPA Category 6. A detailed analysis of the output power for all WCDMA, HSDPA, and HSUPA modes is provided in the tables below. According to the FCC 3G procedures, handsets with both HSDPA and HSUPA should be tested according to Release 6 HSPA test procedures, and the EUT does not support VOIP function over the HSPA function. Device was tested according to procedure KDB941225 - section Release 6 HSPA Data Devices as documented/evaluated in the following table. Power values for HSPA are less than ¼ dB higher than the basic 12.2 kbps RMC configurations in WCDMA or maximum SAR value (1.18 W/kg) in WCDMA mode is less than 75% of SAR limit.

| WCDMA SAR Test mode - Conducted Power |              |                 |                |                |                 |                 |                 |
|---------------------------------------|--------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|
| Mode                                  | Setup        | Cell band (850) |                |                | PCS band (1900) |                 |                 |
|                                       |              | CH4132          | CH4182         | CH4233         | CH9262          | CH9400          | CH9538          |
|                                       |              | 826.4<br>(MHz)  | 836.4<br>(MHz) | 846.6<br>(MHz) | 1852.4<br>(MHz) | 1880.0<br>(MHz) | 1907.6<br>(MHz) |
| WCDMA                                 | RMC 12.2Kbps | 22.51           | 22.61          | 23.01          | 21.63           | 21.75           | 21.43           |
| HSDPA                                 | Subtest 1    | 22.02           | 22.14          | 22.58          | 21.08           | 21.45           | 21.08           |
|                                       | Subtest 2    | 22.14           | 22.02          | 22.55          | 21.13           | 21.28           | 21.05           |
|                                       | Subtest 3    | 22.06           | 22.10          | 22.36          | 20.95           | 21.08           | 20.95           |
|                                       | Subtest 4    | 22.07           | 22.13          | 22.60          | 21.07           | 21.12           | 20.80           |
| HSUPA                                 | Subtest 1    | 20.98           | 20.81          | 21.22          | 20.50           | 20.47           | 20.62           |
|                                       | Subtest 2    | 19.94           | 19.72          | 20.01          | 19.19           | 19.09           | 19.31           |
|                                       | Subtest 3    | 21.09           | 20.84          | 21.08          | 20.14           | 20.23           | 20.35           |
|                                       | Subtest 4    | 19.94           | 19.85          | 19.81          | 19.02           | 19.14           | 19.31           |
|                                       | Subtest 5    | 21.12           | 21.30          | 21.57          | 20.33           | 20.49           | 20.39           |

**WCDMA Setup Configuration:**

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

**Setup Configuration**

**HSDPA Setup Configuration:**

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

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

| Sub-test | $\beta_c$         | $\beta_d$         | $\beta_d$<br>(SF) | $\beta_c/\beta_d$ | $\beta_{hs}$<br>(Note 1,<br>Note 2) | CM (dB)<br>(Note 3) | MPR (dB)<br>(Note 3) |
|----------|-------------------|-------------------|-------------------|-------------------|-------------------------------------|---------------------|----------------------|
| 1        | 2/15              | 15/15             | 64                | 2/15              | 4/15                                | 0.0                 | 0.0                  |
| 2        | 12/15<br>(Note 4) | 15/15<br>(Note 4) | 64                | 12/15<br>(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 DPDCCH, 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**

**HSPA (HSUPA & HSPDA) Setup Configuration:**

- a. The EUT was connected to Base Station referred to the drawing of Setup Configuration.
- b. The RF path losses were compensated into the measurements.
- c. A call was established between EUT and Base Station with following setting \* :
  - i. Call Configs = 5.2B, 5.9B, 5.10B, and 5.13.2B with QPSK
  - ii. Set the Gain Factors ( $\beta_c$  and  $\beta_d$ ) and parameters (AG Index) were set according to each specific sub-test in the following table, C11.1.3, quoted from the TS 34.121
  - iii. Set Cell Power = -86 dBm
  - iv. Set Channel Type = 12.2k + HSPA
  - v. Set UE Target Power
  - vi. Power Ctrl Mode= Alternating bits
  - vii. Set and observe the E-TFCI
  - viii. Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1, and other subtest's E-TFCI
- d. The transmitted maximum output power was recorded.

**Table C.11.1.3:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH**

| Sub-test                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | $\beta_c$      | $\beta_d$      | $\beta_d$ (SF) | $\beta_c/\beta_d$ | $\beta_{HS}$ (Note 1) | $\beta_{ec}$ | $\beta_{ed}$ (Note 5) (Note 6)               | $\beta_{ed}$ (SF) | $\beta_{ed}$ (Codes) | CM (dB) (Note 2) | MPR (dB) (Note 2) | AG Index (Note 6) | E-TFCI |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|-------------------|-----------------------|--------------|----------------------------------------------|-------------------|----------------------|------------------|-------------------|-------------------|--------|
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 11/15 (Note 3) | 15/15 (Note 3) | 64             | 11/15 (Note 3)    | 22/15                 | 209/25       | 1309/225                                     | 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        | $\beta_{ed1}: 47/15$<br>$\beta_{ed2}: 47/15$ | 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 (Note 4) | 15/15 (Note 4) | 64             | 15/15 (Note 4)    | 30/15                 | 24/15        | 134/15                                       | 4                 | 1                    | 1.0              | 0.0               | 21                | 81     |
| Note 1: $\Delta_{ACK}$ , $\Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$ .<br>Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$ , $\beta_{HS}/\beta_c = 24/15$ . For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.<br>Note 3: For subtest 1 the $\beta_c/\beta_d$ ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$ .<br>Note 4: For subtest 5 the $\beta_c/\beta_d$ ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$ .<br>Note 5: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.<br>Note 6: $\beta_{ed}$ can not be set directly, it is set by Absolute Grant Value. |                |                |                |                   |                       |              |                                              |                   |                      |                  |                   |                   |        |

**Setup Configuration**

**Note:** For details settings in the Agilent 8960 test equipment, please refer to the user guide "HSUPA Measurement Guide with 8960 V7.5.0 Release 7 (2007-06) Ver.: v.02.18"

| Call Setup Screen     |  |                                                                         |  |  |  |  |  |                    |  |
|-----------------------|--|-------------------------------------------------------------------------|--|--|--|--|--|--------------------|--|
| Call Control          |  | Active Cell Operating Mode                                              |  |  |  |  |  | Call Parms         |  |
| Channel (UARFCN) Info |  | UE Information                                                          |  |  |  |  |  | Cell Power         |  |
|                       |  | INSI:<br>INEI:<br>Power Class:                                          |  |  |  |  |  | -86.00             |  |
| Cell Parameters       |  | UE Expected Open Loop Transmit Power                                    |  |  |  |  |  | dBm/3.84 MHz       |  |
|                       |  | Initial PRACH TX Power: -11.70 dBm<br>Initial DPCCH TX Power: -0.56 dBm |  |  |  |  |  | Channel Type       |  |
| Generator Info        |  |                                                                         |  |  |  |  |  | 12.2k + HSPA       |  |
|                       |  | Uplink Parameters                                                       |  |  |  |  |  | Paging Service     |  |
|                       |  | Value                                                                   |  |  |  |  |  | RB Test Mode       |  |
| Uplink Parameters     |  | PRACH Preambles                                                         |  |  |  |  |  | 64                 |  |
|                       |  | PRACH Ramping Cycles(MAX)                                               |  |  |  |  |  | 2                  |  |
|                       |  | Available Subchannels (Bit Mask)                                        |  |  |  |  |  | 000000000001       |  |
| UE Rep Meas           |  | Uplink DPCCH Scrambling Code                                            |  |  |  |  |  | 0                  |  |
|                       |  | Uplink DPCCH Bc/Bd Control                                              |  |  |  |  |  | Manual             |  |
|                       |  | Manual Uplink DPCCH Bc                                                  |  |  |  |  |  | 11                 |  |
| Close Menu            |  | Manual Uplink DPCCH Bd                                                  |  |  |  |  |  | 15                 |  |
|                       |  | Maximum Uplink Transmit Power Level                                     |  |  |  |  |  | 21 dBm             |  |
|                       |  | Active Cell                                                             |  |  |  |  |  | Sys Type: UTRA FDD |  |
|                       |  | Idle                                                                    |  |  |  |  |  |                    |  |
| 2 of 4                |  | IntRef Offset                                                           |  |  |  |  |  | 1 of 3             |  |

Example for HSPA Subtest 1, and other subtests following table, C11.1.3  
(Gain Factors ( $\beta_c = 11$  and  $\beta_d = 15$ ))

| Call Setup Screen  |  |                                                                                                                                                                                                                                                                                                           |  |  |  |  |  |                                 |  |
|--------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|---------------------------------|--|
| Call Control       |  | Active Cell Operating Mode                                                                                                                                                                                                                                                                                |  |  |  |  |  | Serving Grant                   |  |
| Additional Screens |  | UE Information                                                                                                                                                                                                                                                                                            |  |  |  |  |  | AG Mode                         |  |
|                    |  | INSI:<br>INEI:<br>Power Class:                                                                                                                                                                                                                                                                            |  |  |  |  |  | Single Shot                     |  |
| Cell Parameters    |  | UE Expected Open Loop Transmit Power                                                                                                                                                                                                                                                                      |  |  |  |  |  | Single Shot AG                  |  |
|                    |  | Initial PRACH TX Power: -11.70 dBm<br>Initial DPCCH TX Power: -0.56 dBm                                                                                                                                                                                                                                   |  |  |  |  |  | 20: (119/15)^2                  |  |
| Generator Info     |  | Call Processing Status                                                                                                                                                                                                                                                                                    |  |  |  |  |  | Send Single Shot Absolute Grant |  |
|                    |  | Current Service Type: None<br>MM Status: Abs Single Shot AG<br>GMM State: Index 15: (67/15)^2<br>Current DPCCH: Index 16: (75/15)^2<br>HSUPA In: Index 17: (84/15)^2<br>UE Rep E-DCH: Index 18: (95/15)^2<br>Last Received: Index 19: (106/15)^2<br>Throughput: Index 20: (119/15)^2<br>ACKs Transmitted: |  |  |  |  |  | Send Relative Grant Up          |  |
| Uplink Parameters  |  | Information                                                                                                                                                                                                                                                                                               |  |  |  |  |  | Send Relative Grant Down        |  |
|                    |  | DPCCH Cat: ----<br>Ratio: ---- %<br>kbps<br>Transmitted: ----                                                                                                                                                                                                                                             |  |  |  |  |  | Return                          |  |
| UE Rep Meas        |  | Active Cell                                                                                                                                                                                                                                                                                               |  |  |  |  |  | Sys Type: UTRA FDD              |  |
|                    |  | Idle                                                                                                                                                                                                                                                                                                      |  |  |  |  |  |                                 |  |
| Trig Output Setup  |  | IntRef Offset                                                                                                                                                                                                                                                                                             |  |  |  |  |  | 1 of 2                          |  |
| Sys Frame Clock    |  |                                                                                                                                                                                                                                                                                                           |  |  |  |  |  |                                 |  |
| 2 of 4             |  |                                                                                                                                                                                                                                                                                                           |  |  |  |  |  |                                 |  |

Example: AG – Index = 20 for HSPA subtest 1

| Call Setup Screen            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      |             |      |                    |      |                                |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------|-------------|------|--------------------|------|--------------------------------|------|-----|-----|------|------|------|------|------|------|----|----|-----|----|-----|------|-----|------|-----|------|----|----|-----|----|-----|------|-----|------|-----|------|----|----|-----|----|-----|------|-----|------|-----|------|----|----|-----|----|-----|------|-----|------|-----|------|----|----|-----|------|-----|------|-----|------|-----|------|----|----|-----|------|-----|------|-----|------|-----|------|----|----|-----|------|-----|------|-----|------|-----|------|----|----|-----|------|-----|------|-----|------|-----|------|-----|----|-----|------|-----|------|-----|------|-----|------|-------------------------------|--|
| Screen Ctrl                  | Recorded E-TFCI Information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |            |      |             |      |                    |      | E-TFCI Record                  |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| Channel (UARFCN) Info        | <div>E-TFCI Recording State</div> <div>Idle</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |      |             |      |                    |      | E-TFCI Rec Count               |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      |             |      |                    |      | 15                             |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| HSPA Information             | <div>Recorded E-TFCI Values</div> <table border="1"> <tr><td>1:</td><td>75</td><td>11:</td><td>75</td><td>21:</td><td>----</td><td>31:</td><td>----</td><td>41:</td><td>----</td></tr> <tr><td>2:</td><td>75</td><td>12:</td><td>75</td><td>22:</td><td>----</td><td>32:</td><td>----</td><td>42:</td><td>----</td></tr> <tr><td>3:</td><td>75</td><td>13:</td><td>75</td><td>23:</td><td>----</td><td>33:</td><td>----</td><td>43:</td><td>----</td></tr> <tr><td>4:</td><td>75</td><td>14:</td><td>75</td><td>24:</td><td>----</td><td>34:</td><td>----</td><td>44:</td><td>----</td></tr> <tr><td>5:</td><td>75</td><td>15:</td><td>75</td><td>25:</td><td>----</td><td>35:</td><td>----</td><td>45:</td><td>----</td></tr> <tr><td>6:</td><td>75</td><td>16:</td><td>----</td><td>26:</td><td>----</td><td>36:</td><td>----</td><td>46:</td><td>----</td></tr> <tr><td>7:</td><td>75</td><td>17:</td><td>----</td><td>27:</td><td>----</td><td>37:</td><td>----</td><td>47:</td><td>----</td></tr> <tr><td>8:</td><td>75</td><td>18:</td><td>----</td><td>28:</td><td>----</td><td>38:</td><td>----</td><td>48:</td><td>----</td></tr> <tr><td>9:</td><td>75</td><td>19:</td><td>----</td><td>29:</td><td>----</td><td>39:</td><td>----</td><td>49:</td><td>----</td></tr> <tr><td>10:</td><td>75</td><td>20:</td><td>----</td><td>30:</td><td>----</td><td>40:</td><td>----</td><td>50:</td><td>----</td></tr> </table> |            |      |             |      |                    |      | 1:                             | 75   | 11: | 75  | 21:  | ---- | 31:  | ---- | 41:  | ---- | 2: | 75 | 12: | 75 | 22: | ---- | 32: | ---- | 42: | ---- | 3: | 75 | 13: | 75 | 23: | ---- | 33: | ---- | 43: | ---- | 4: | 75 | 14: | 75 | 24: | ---- | 34: | ---- | 44: | ---- | 5: | 75 | 15: | 75 | 25: | ---- | 35: | ---- | 45: | ---- | 6: | 75 | 16: | ---- | 26: | ---- | 36: | ---- | 46: | ---- | 7: | 75 | 17: | ---- | 27: | ---- | 37: | ---- | 47: | ---- | 8: | 75 | 18: | ---- | 28: | ---- | 38: | ---- | 48: | ---- | 9: | 75 | 19: | ---- | 29: | ---- | 39: | ---- | 49: | ---- | 10: | 75 | 20: | ---- | 30: | ---- | 40: | ---- | 50: | ---- | Start Recording E-TFCI Values |  |
| 1:                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      |             |      |                    |      | 75                             | 11:  | 75  | 21: | ---- | 31:  | ---- | 41:  | ---- |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 2:                           | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 12:        | 75   | 22:         | ---- | 32:                | ---- | 42:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 3:                           | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13:        | 75   | 23:         | ---- | 33:                | ---- | 43:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 4:                           | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 14:        | 75   | 24:         | ---- | 34:                | ---- | 44:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 5:                           | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 15:        | 75   | 25:         | ---- | 35:                | ---- | 45:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 6:                           | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 16:        | ---- | 26:         | ---- | 36:                | ---- | 46:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 7:                           | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 17:        | ---- | 27:         | ---- | 37:                | ---- | 47:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 8:                           | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 18:        | ---- | 28:         | ---- | 38:                | ---- | 48:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 9:                           | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 19:        | ---- | 29:         | ---- | 39:                | ---- | 49:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| 10:                          | 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 20:        | ---- | 30:         | ---- | 40:                | ---- | 50:                            | ---- |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| E-TFCI Recording Information | <div>15/15</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |            |      |             |      |                    |      | Send Step Up TPC Bit Pattern   |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      |             |      |                    |      |                                |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| Clear UE Info                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      |             |      |                    |      | Send Step Down TPC Bit Pattern |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      |             |      |                    |      |                                |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
| Return                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      |             |      |                    |      | Return                         |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      |             |      |                    |      |                                |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Background |      | Active Cell |      | Sys Type: UTRA FDD |      |                                |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |
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|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |      | IntRef      |      | Offset             |      |                                |      |     |     |      |      |      |      |      |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |    |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |    |    |     |      |     |      |     |      |     |      |     |    |     |      |     |      |     |      |     |      |                               |  |

Example: Confirm that E-TFCI is equal to the target E-TFCI of 75 for sub-test 1



**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