



## Appendix E. FCC 3G SAR Measurement Procedures

### Conducted Output Power:

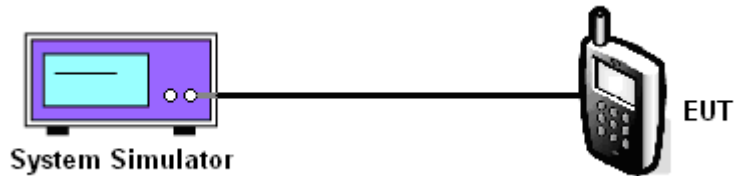
The EUT was tested according to the requirements of the FCC 3G procedures and the 3.1.2.3.4.

A detailed analysis of the output power verification is provided as the table below:

| Function Type     | Reverse Traffic Channel | Test Mode | Radio Configuration           |                               | Service Option | Data Rates (kbps) | Power Control | Low Ch | Mid. Ch | High Ch |
|-------------------|-------------------------|-----------|-------------------------------|-------------------------------|----------------|-------------------|---------------|--------|---------|---------|
|                   |                         |           | Forward Traffic Channel (Fwd) | Reverse Traffic Channel (Rvs) |                |                   |               | 1013   | 384     | 777     |
| CDMA2000 Cellular | FCH                     | 1         | 1                             | 1                             | 55             | Full              | All Up        | 23.88  | 24.04   | 23.77   |
|                   |                         | 3         | 3                             | 3                             | 55             | Full              | All Up        | 23.87  | 23.97   | 23.81   |
|                   |                         | 3         | 3                             | 3                             | 55             | Full              | All Up        | 23.93  | 23.98   | 23.78   |
|                   | FCH+SCH                 | 3         | 3                             | 3                             | 32             | FCH:Full,SCH 9.6  | All Up        | 23.92  | 24.03   | 23.78   |
|                   | EVDO Rev.0*             | Subtype:0 |                               |                               |                | RTAP 153.6        | All Up        | 23.97  | 24.08   | 23.75   |
|                   | EVDO Rev.A*             | Subtype:0 |                               |                               |                | RETAP 4096        | All Up        | 24.05  | 24.10   | 23.83   |

| Function Type | Reverse Traffic Channel | Test Mode | Radio Configuration           |                               | Service Option | Data Rates (kbps) | Power Control | Low Ch | Mid. Ch | High Ch |
|---------------|-------------------------|-----------|-------------------------------|-------------------------------|----------------|-------------------|---------------|--------|---------|---------|
|               |                         |           | Forward Traffic Channel (Fwd) | Reverse Traffic Channel (Rvs) |                |                   |               | 25     | 600     | 1175    |
| CDMA2000 PCS  | FCH                     | 1         | 1                             | 1                             | 55             | Full              | All Up        | 23.84  | 23.96   | 23.57   |
|               |                         | 3         | 3                             | 3                             | 55             | Full              | All Up        | 23.79  | 23.97   | 23.49   |
|               |                         | 3         | 3                             | 3                             | 55             | Full              | All Up        | 23.85  | 23.94   | 23.48   |
|               | FCH+SCH                 | 3         | 3                             | 3                             | 32             | FCH:Full,SCH 9.6  | All Up        | 23.82  | 23.96   | 23.52   |
|               | EVDO Rev.0*             | Subtype:0 |                               |                               |                | RTAP 153.6        | All Up        | 23.81  | 23.76   | 23.51   |
|               | EVDO Rev.A*             | Subtype:0 |                               |                               |                | RETAP 4096        | All Up        | 23.88  | 23.83   | 23.63   |

**CDMA2000 Setup Configuration:**



**Setup Configuration**

1. The EUT was connected to System Simulator, Agilent 8960. Refer to the drawing of Setup Configuration.
2. The RF path losses were compensated into the measurements.
3. A call was established between EUT and System Simulator with following setting:
  - a. For 1xRTT, set the Radio Configuration and the Service Option
  - b. For 1xEV-DO, set the Protocol Release and Data Rate
  - c. Set the Power Control to All Up Bits
4. The transmitted maximum output power was recorded.

| Call Setup Screen |                            |                   |                          |
|-------------------|----------------------------|-------------------|--------------------------|
| Call Control      | Active Cell Operating Mode |                   | Call Parm                |
| Close Menu        | Mobile Station Information |                   | Cell Power               |
|                   | ESN (Hex):                 |                   | -86.00                   |
|                   | ESN (Dec):                 |                   | dBm/1.23 MHz             |
|                   | NCC:                       |                   | Cell Band                |
|                   | NMC:                       |                   | US PCS                   |
|                   | NSIN:                      |                   | Channel                  |
|                   | Slot Class:                |                   | 1175                     |
|                   | Slot Cycle Index: ----     |                   | Protocol Rev             |
|                   | Protocol Revision:         |                   | 6 (IS-2000-0)            |
|                   | FCH Service Option Setup   |                   | Value                    |
| Service Option f  | Service Option             | S055 (Loopback)   | (Fud1, Rus1)             |
| Service Option f  | S01 (Voice)                | S09 (Loopback)    | S055 (Loopback)          |
| Service Option f  | S02 (Loopback)             | S055 (Loopback)   | FCH Service Option Setup |
| Service Option f  | S03 (Voice)                | S055 (Loopback)   |                          |
| Service Option f  | S06 (SIS)                  | S055 (Loopback)   |                          |
|                   | S055 (Loopback)            |                   |                          |
|                   | S068 (Voice)               |                   |                          |
|                   | Active Cell                | Sys Type: IS-2000 |                          |
|                   | Idle                       |                   |                          |
|                   | IntRef                     | Offset            | 1 of 4                   |

**1xRTT setting for Radio Configuration 1 with Service Option 55**



| Call Setup Screen   |   |                          |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|---------------------|---|--------------------------|--|-------|-----------------|-----------------|----------------|----------------|-------------|-----------------|----------------|-----------------|-------------|-----------------|-----------|-----------------|-----------------|--|----------------|--|---|
| Call Control        | Active Cell Operating Mode  |                          | Call Parm  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
| Close Menu          | <b>Mobile Station Information</b><br>ESN (Hex):<br>ESN (Dec):<br>MCC:<br>MNC:<br>MSIN:<br>Slot Class:<br>Slot Cycle Index: ----<br>Protocol Revision:   |                          | Cell Power<br>-86.00<br>dBm/1.23 MHz<br>Cell Band<br>US PCS<br>Channel<br>1175 |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     | <b>FCH Service Option Setup</b>   |                          | Protocol Rev<br>6 (IS-2000-0)  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     | <table border="1"> <thead> <tr> <th>Service Option</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>S055 (Loopback)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S09 (Loopback)</td> <td>S09 (Loopback)</td> </tr> <tr> <td>S01 (Voice)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S02 (Loopback)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S03 (Voice)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S06 (SIS)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S055 (Loopback)</td> <td></td> </tr> <tr> <td>S032 (+ F-SCH)</td> <td></td> </tr> </tbody> </table> |                          | Service Option   | Value | S055 (Loopback) | S055 (Loopback) | S09 (Loopback) | S09 (Loopback) | S01 (Voice) | S055 (Loopback) | S02 (Loopback) | S055 (Loopback) | S03 (Voice) | S055 (Loopback) | S06 (SIS) | S055 (Loopback) | S055 (Loopback) |  | S032 (+ F-SCH) |  | Radio Config<br>(Fud3, Rvs3)<br>S055 (Loopback) |
|                     | Service Option  | Value                    |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     | S055 (Loopback)   | S055 (Loopback)          |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     | S09 (Loopback)  | S09 (Loopback)           |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     | S01 (Voice)   | S055 (Loopback)          |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     | S02 (Loopback)  | S055 (Loopback)          |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     | S03 (Voice)   | S055 (Loopback)          |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     | S06 (SIS)   | S055 (Loopback)          |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
| S055 (Loopback)     |   |                          |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
| S032 (+ F-SCH)      |   |                          |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
| Active Cell<br>Idle |   | Sys Type: IS-2000        |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
| IntRef Offset       |   | FCH Service Option Setup |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |
|                     |   | 1 of 4                   |  |       |                 |                 |                |                |             |                 |                |                 |             |                 |           |                 |                 |  |                |  |   |

1xRTT setting for Radio Configuration 3 with Service Option 55

| Call Setup Screen   |  |                          |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|---------------------|--|--------------------------|--|-------|-----------------|-----------------|----------------|----------------|----------------|--------------|-------------|-----------------|-----------|-----------------|-----------------|--|----------------|--|--------------|--|--|
| Call Control        | Active Cell Operating Mode   |                          | Call Parm  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
| Close Menu          | <b>Mobile Station Information</b><br>ESN (Hex):<br>ESN (Dec):<br>MCC:<br>MNC:<br>MSIN:<br>Slot Class:<br>Slot Cycle Index: ----<br>Protocol Revision:  |                          | Cell Power<br>-86.00<br>dBm/1.23 MHz<br>Cell Band<br>US PCS<br>Channel<br>1175 |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     | <b>FCH Service Option Setup</b>  |                          | Protocol Rev<br>6 (IS-2000-0)  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     | <table border="1"> <thead> <tr> <th>Service Option</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>S055 (Loopback)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S09 (Loopback)</td> <td>S09 (Loopback)</td> </tr> <tr> <td>S02 (Loopback)</td> <td>S032 (+ SCH)</td> </tr> <tr> <td>S03 (Voice)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S06 (SIS)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S055 (Loopback)</td> <td></td> </tr> <tr> <td>S032 (+ F-SCH)</td> <td></td> </tr> <tr> <td>S032 (+ SCH)</td> <td></td> </tr> </tbody> </table> |                          | Service Option   | Value | S055 (Loopback) | S055 (Loopback) | S09 (Loopback) | S09 (Loopback) | S02 (Loopback) | S032 (+ SCH) | S03 (Voice) | S055 (Loopback) | S06 (SIS) | S055 (Loopback) | S055 (Loopback) |  | S032 (+ F-SCH) |  | S032 (+ SCH) |  | Radio Config<br>(Fud3, Rvs3)<br>S032 (+ SCH) |
|                     | Service Option   | Value                    |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     | S055 (Loopback)  | S055 (Loopback)          |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     | S09 (Loopback)   | S09 (Loopback)           |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     | S02 (Loopback)   | S032 (+ SCH)             |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     | S03 (Voice)  | S055 (Loopback)          |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     | S06 (SIS)  | S055 (Loopback)          |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     | S055 (Loopback)  |                          |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
| S032 (+ F-SCH)      |  |                          |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
| S032 (+ SCH)        |  |                          |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
| Active Cell<br>Idle |  | Sys Type: IS-2000        |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
| IntRef Offset       |  | FCH Service Option Setup |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |
|                     |  | 1 of 4                   |  |       |                 |                 |                |                |                |              |             |                 |           |                 |                 |  |                |  |              |  |  |

1xRTT setting for Radio Configuration 3 with Service Option 32



| Call Setup Screen           |   |                          |             |                             |  |                            |  |             |  |              |  |             |  |                |
|-----------------------------|---|--------------------------|-------------|-----------------------------|--|----------------------------|--|-------------|--|--------------|--|-------------|--|----------------|
| Call Control                | Active Cell Operating Mode  | Call Parm                |             |                             |  |                            |  |             |  |              |  |             |  |                |
| Operating Mode              | <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Access Terminal Information (AT Reported)</p> <p>Session Seed:<br/>Hardware ID Type (Hex):<br/>Hardware ID (Hex):<br/>Hardware ID (Decimal):</p> <hr/> <p style="text-align: center; margin: 0;">Access Terminal Information (AN Assigned)</p> <p>UATI 024: ----<br/>UATI Color Code: ----<br/>NAC Index: ----</p> <hr/> <p style="text-align: center; margin: 0;">Protocol Release</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Session App: 0 (1xEV-DO)</td> <td style="width: 50%;">Application</td> </tr> <tr> <td>Test Applica: A (1xEV-DO-A)</td> <td></td> </tr> <tr> <td>Limited TAP: B (1xEV-DO-B)</td> <td></td> </tr> <tr> <td>AT Directed</td> <td></td> </tr> <tr> <td>DRC Value Fi</td> <td></td> </tr> <tr> <td>ACK Channel</td> <td></td> </tr> </table> </div> | Session App: 0 (1xEV-DO) | Application | Test Applica: A (1xEV-DO-A) |  | Limited TAP: B (1xEV-DO-B) |  | AT Directed |  | DRC Value Fi |  | ACK Channel |  | Rvs Power Ctrl |
| Session App: 0 (1xEV-DO)    |   | Application              |             |                             |  |                            |  |             |  |              |  |             |  |                |
| Test Applica: A (1xEV-DO-A) |   |                          |             |                             |  |                            |  |             |  |              |  |             |  |                |
| Limited TAP: B (1xEV-DO-B)  |   |                          |             |                             |  |                            |  |             |  |              |  |             |  |                |
| AT Directed                 |   |                          |             |                             |  |                            |  |             |  |              |  |             |  |                |
| DRC Value Fi                |   |                          |             |                             |  |                            |  |             |  |              |  |             |  |                |
| ACK Channel                 |   |                          |             |                             |  |                            |  |             |  |              |  |             |  |                |
| Active Cell                 |   | Active bits              |             |                             |  |                            |  |             |  |              |  |             |  |                |
| Start Data Connection       |   | Pur Ctrl Step            | 1.0 dB      |                             |  |                            |  |             |  |              |  |             |  |                |
| Close Session               |   | Call Drop Timer          | On          |                             |  |                            |  |             |  |              |  |             |  |                |
| Handoff Setup               | Call Limit Mode   | Off                      |             |                             |  |                            |  |             |  |              |  |             |  |                |
| AT Max Power                | Protocol Rel  | 0 (1xEV-DO)              |             |                             |  |                            |  |             |  |              |  |             |  |                |
| 23 dBm/1.23MHz              | Active Cell   | Idle                     |             |                             |  |                            |  |             |  |              |  |             |  |                |
| 1 of 3                      | Sys Type: IS-856  |                          |             |                             |  |                            |  |             |  |              |  |             |  |                |
|                             | IntRef Offset   | PLSub0 RTAP              |             |                             |  |                            |  |             |  |              |  |             |  |                |
|                             |   | 2 of 3                   |             |                             |  |                            |  |             |  |              |  |             |  |                |

1xEV-DO setting for Protocol Release (Rev.0 or Rev.A)

| Call Setup Screen        |  |                       |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
|--------------------------|--|-----------------------|-------------|-------------------------|--|------------------------|--|------------------------|--|--------------------------|--|-------------|--|------------|
| Call Control             | Active Cell Operating Mode   | Call Parm             |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| Operating Mode           | <div style="border: 1px solid black; padding: 5px;"> <p style="text-align: center; margin: 0;">Access Terminal Information (AT Reported)</p> <p>Session Seed:<br/>Hardware ID Type (Hex):<br/>Hardware ID (Hex):<br/>Hardware ID (Decimal):</p> <hr/> <p style="text-align: center; margin: 0;">Access Terminal Information (AN Assigned)</p> <p>UATI 024: ----<br/>UATI Color Code: ----<br/>NAC Index: ----</p> <hr/> <p style="text-align: center; margin: 0;">RTAP Rate</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Session App: 9.6 kbps</td> <td style="width: 50%;">Application</td> </tr> <tr> <td>Test Applica: 19.2 kbps</td> <td></td> </tr> <tr> <td>Limited TAP: 38.4 kbps</td> <td></td> </tr> <tr> <td>AT Directed: 76.8 kbps</td> <td></td> </tr> <tr> <td>DRC Value Fi: 153.6 kbps</td> <td></td> </tr> <tr> <td>ACK Channel</td> <td></td> </tr> </table> </div> | Session App: 9.6 kbps | Application | Test Applica: 19.2 kbps |  | Limited TAP: 38.4 kbps |  | AT Directed: 76.8 kbps |  | DRC Value Fi: 153.6 kbps |  | ACK Channel |  | Cell Power |
| Session App: 9.6 kbps    |  | Application           |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| Test Applica: 19.2 kbps  |  |                       |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| Limited TAP: 38.4 kbps   |  |                       |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| AT Directed: 76.8 kbps   |  |                       |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| DRC Value Fi: 153.6 kbps |  |                       |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| ACK Channel              |  |                       |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| Active Cell              |  | -86.00                |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| Start Data Connection    |  | dBm/1.23 MHz          |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| Close Session            |  | Cell Band             | US PCS      |                         |  |                        |  |                        |  |                          |  |             |  |            |
| Handoff Setup            | Channel  | 1175                  |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| AT Max Power             | Application Config   |                       |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| 23 dBm/1.23MHz           | FTAP Rate  | 307.2 kbps            |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
| 1 of 3                   | RTAP Rate  | (2 Slot, QPSK)        |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
|                          | Active Cell  | 9.6 kbps              |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
|                          | Sys Type: IS-856   |                       |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
|                          | IntRef Offset  | PLSub0 RTAP           |             |                         |  |                        |  |                        |  |                          |  |             |  |            |
|                          |  | 1 of 3                |             |                         |  |                        |  |                        |  |                          |  |             |  |            |

1xEV-DO setting for RTAP data rate (153.6 kbps)



| Call Setup Screen     |  |                    |                  |        |                    |        |
|-----------------------|--|--------------------|------------------|--------|--------------------|--------|
| Call Control          | Active Cell Operating Mode   |                    |                  |        | Call Parms         |        |
| Operating Mode        | Access Terminal Information (AT Reported)  |                    |                  |        | Cell Power         |        |
| Active Cell           | Session Seed:<br>Hardware ID Type (Hex):<br>Hardware ID (Hex):<br>Hardware ID (Decimal): |                    |                  |        | -86.00             |        |
|                       | Access Terminal Information (AM Assigned)  |                    |                  |        | dBm/1.23 MHz       |        |
| Start Data Connection | UATI 024: ----<br>UATI Color Code: ----<br>MAC Index: ----                               |                    |                  |        | Cell Band          |        |
|                       | Application Configuration  |                    |                  |        | US PCS             |        |
| Close Session         | Session App  | R-Data Packet Size | Application      |        | Channel            |        |
|                       | Enhanced Te  | 128                | AP               |        | 1175               |        |
| Handoff Setup         | AT Directed  | 256                | Z                |        | Application Config |        |
|                       | DRC Value Fi   | 512                | :                |        | F-Traffic Format   |        |
|                       | ACK Channel  | 768                | :                |        | 4 (1024,2,128)     |        |
| AT Max Power          | Reverse Data   | 1024               | :                |        | (307.2k, QPSK)     |        |
| 23 dBm/1.23MHz        | Expected En  | 1536               | ↓ Capacity       |        | R-Data Pkt Size    |        |
|                       |  |                    | kbps             |        | 128                |        |
|                       |  |                    |                  |        | bits               |        |
|                       |  | Active Cell        | Sys Type: IS-856 |        |                    |        |
|                       |  | Idle               |                  |        |                    |        |
| 1 of 3                |  | IntRef             | Offset           | PLSub0 | RETAP              | 1 of 3 |

1xEV-DO setting for RETAP data rate (4096 kbps)



**Reference:**

- [1] SAR Measurement Procedures for 3G Devices CDMA 2000/Ev-Do/WCDMA/HSDPA, June 2006  
Laboratory Division Office of Engineering and Technology Federal Communications Commission
- [2] 3.1.2.3.4 Maximum RF Output Power 3GPP2 C.S0033-0 Version 2.0, Date: 12 December 2003  
Recommended Minimum Performance Standards for cdma2000 High Rate Packet Data Access  
Terminal