



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.

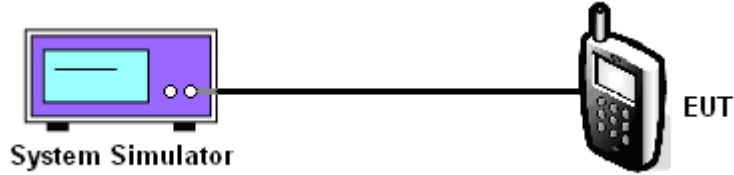
A detailed analysis of the output power verification is provided as the table below:

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 BC0	FCH	1	1	1	55	Full	All Up	24.60	24.24	23.96
		3	3	3	55	Full	All Up	24.66	24.24	24.04
		3	3	3	32	Full	All Up	24.59	24.22	23.94
	FCH+SCH	3	3	3	32	FCH:Full,SCH 9.6	All Up	24.57	24.23	23.92
	EVDO Rev.0	Subtype:0/1				RTAP 153.6	All Up	24.64	24.35	23.93
	EVDO Rev.A	Subtype:2				RETAP 4096	All Up	24.65	24.33	23.98

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 BC1	FCH	1	1	1	55	Full	All Up	23.88	23.75	23.98
		3	3	3	55	Full	All Up	23.98	23.76	24.09
		3	3	3	32	Full	All Up	23.93	23.75	23.94
	FCH+SCH	3	3	3	32	FCH:Full,SCH 9.6	All Up	23.91	23.78	23.92
	EVDO Rev.0	Subtype:0/1				RTAP 153.6	All Up	24.03	23.92	24.08
	EVDO Rev.A	Subtype:2				RETAP 4096	All Up	24.01	23.94	24.06

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)				476	580	684
CDMA2000 BC10	FCH	1	1	1	55	Full	All Up	24.50	24.49	24.41
		3	3	3	55	Full	All Up	24.53	24.51	24.52
		3	3	3	32	Full	All Up	24.52	24.48	24.49
	FCH+SCH	3	3	3	32	FCH:Full,SCH 9.6	All Up	24.49	24.26	24.47
	EVDO Rev.0	Subtype:0/1				RTAP 153.6	All Up	24.52	24.5	24.51
	EVDO Rev.A	Subtype:2				RETAP 4096	All Up	24.51	24.49	24.52

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	-86.00
	ESN (Hex):				dBm/1.23 MHz	
	ESN (Dec):				Cell Band	US PCS
	NCC:				Channel	1175
	NMC:				Protocol Rev	6 (IS-2000-0)
	NSIN:				Radio Config	(Fud1, Rvs1)
	Slot Class:				FCH Service Option Setup	S055 (Loopback)
	Slot Cycle Index: ----				Service Option	S09 (Loopback)
	Protocol Revision:				Service Option f	S055 (Loopback)
	FCH Service Option Setup				Value	S055 (Loopback)
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	Mobile Station Information ESN (Hex): ESN (Dec): MCC: MNC: MSIN: Slot Class: Slot Cycle Index: ---- Protocol Revision:		Cell Power -86.00 dBm/1.23 MHz Cell Band US PCS Channel 1175														
	FCH Service Option Setup		Protocol Rev 6 (IS-2000-0)														
	<table border="1"> <thead> <tr> <th>Service Option</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>S01 (Voice)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S02 (Loopback)</td> <td>S09 (Loopback)</td> </tr> <tr> <td>S03 (Voice)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S06 (SMS)</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	S01 (Voice)	S055 (Loopback)	S02 (Loopback)	S09 (Loopback)	S03 (Voice)	S055 (Loopback)	S06 (SMS)	S055 (Loopback)	S055 (Loopback)		S032 (+ F-SCH)		Radio Config (Fud3, Rvs3) S055 (Loopback)
	Service Option	Value															
	S01 (Voice)	S055 (Loopback)															
	S02 (Loopback)	S09 (Loopback)															
	S03 (Voice)	S055 (Loopback)															
	S06 (SMS)	S055 (Loopback)															
	S055 (Loopback)																
	S032 (+ F-SCH)																
Active Cell 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	Mobile Station Information ESN (Hex): ESN (Dec): MCC: MNC: MSIN: Slot Class: Slot Cycle Index: ---- Protocol Revision:		Cell Power -86.00 dBm/1.23 MHz Cell Band US PCS Channel 1175														
	FCH Service Option Setup		Protocol Rev 6 (IS-2000-0)														
	<table border="1"> <thead> <tr> <th>Service Option</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>S02 (Loopback)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S03 (Voice)</td> <td>S09 (Loopback)</td> </tr> <tr> <td>S06 (SMS)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S055 (Loopback)</td> <td>S055 (Loopback)</td> </tr> <tr> <td>S032 (+ F-SCH)</td> <td></td> </tr> <tr> <td>S032 (+ SCH)</td> <td></td> </tr> </tbody> </table>		Service Option	Value	S02 (Loopback)	S055 (Loopback)	S03 (Voice)	S09 (Loopback)	S06 (SMS)	S055 (Loopback)	S055 (Loopback)	S055 (Loopback)	S032 (+ F-SCH)		S032 (+ SCH)		Radio Config (Fud3, Rvs3) S032 (+ SCH)
	Service Option	Value															
	S02 (Loopback)	S055 (Loopback)															
	S03 (Voice)	S09 (Loopback)															
	S06 (SMS)	S055 (Loopback)															
	S055 (Loopback)	S055 (Loopback)															
	S032 (+ F-SCH)																
	S032 (+ SCH)																
Active Cell 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: Hardware ID Type (Hex): Hardware ID (Hex): Hardware ID (Decimal):</p> <hr/> <p style="text-align: center; margin: 0;">Access Terminal Information (AN Assigned)</p> <p>UATI 024: ---- UATI Color Code: ---- MAC 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: Hardware ID Type (Hex): Hardware ID (Hex): Hardware ID (Decimal):</p> <hr/> <p style="text-align: center; margin: 0;">Access Terminal Information (AN Assigned)</p> <p>UATI 024: ---- UATI Color Code: ---- MAC 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



Call Setup Screen																				
Call Control	Active Cell Operating Mode				Call Parm															
Operating Mode	Access Terminal Information (AT Reported)				Cell Power															
Active Cell	Session Seed: Hardware ID Type (Hex): Hardware ID (Hex): Hardware ID (Decimal):				-86.00															
	Access Terminal Information (AM Assigned)				dBm/1.23 MHz															
Start Data Connection	UATI 024: ---- UATI Color Code: ---- MAC Index: ----				Cell Band															
	Application Configuration				US PCS															
Close Session	<table border="1"> <thead> <tr> <th>R-Data Packet Size</th> <th>Application</th> </tr> </thead> <tbody> <tr> <td>128</td> <td>AP</td> </tr> <tr> <td>256</td> <td>Z</td> </tr> <tr> <td>512</td> <td></td> </tr> <tr> <td>768</td> <td></td> </tr> <tr> <td>1024</td> <td>Capacity</td> </tr> <tr> <td>1536</td> <td>kbps</td> </tr> </tbody> </table>				R-Data Packet Size	Application	128	AP	256	Z	512		768		1024	Capacity	1536	kbps	Channel	
R-Data Packet Size	Application																			
128	AP																			
256	Z																			
512																				
768																				
1024	Capacity																			
1536	kbps																			
Handoff Setup					1175															
AT Max Power					Application Config															
23 dBm/1.23MHz					F-Traffic Format															
	Active Cell				4 (1024,2,128)															
	Idle				(307.2k, QPSK)															
	Sys Type: IS-856				R-Data Pkt Size															
	IntRef Offset				128															
1 of 3	PLSub0 RETAP				bits															
					1 of 3															

1xEV-DO setting for RETAP data rate



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