

13 FCC 3G MEASUREMENT PROCEDURES – JUNE 2006

Power measurements were performed using a base station simulator under digital average power.

13.1 Procedures Used to Establish RF Signal for SAR

The handset was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR [4]. SAR measurements were taken with a fully charged battery. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5% occurred, the tests were repeated.

13.2 SAR Measurement Conditions for UMTS

13.2.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1s". Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes) should be tabulated in the test report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations should be clearly identified.

13.2.2 Body SAR Measurements



SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits configured to all "1s".

13.2.3 Devices with HSDPA

Body SAR is not required for devices with HSDPA capabilities, when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured in 12.2 kbps RMC without HSDPA. Otherwise, SAR for HSDPA is measured using FRC (fixed reference channel) in the body exposure configuration that results in the highest SAR for that RF channel in 12.2 RMC.

Table 13-1 Conducted Power for CF-19

		HSDPA Inactive		HSDPA Active		
UMTS	Channel	12.2	12.2	12.2	12.2	
		kbps	kbps	kbps	kbps	
		RMC	AMR	RMC	RMC	
		[dBm]	[dBm]	[dBm]	[dBm]	
	4132	20.72	20.67	20.65	20.50	
	4175	20.86	20.85	20.85	20.79	
	4233	20.47	20.41	20.44	20.31	
PCS		9262	21.28	21.22	21.20	21.21
		9400	21.18	21.20	21.10	21.15
		9538	21.10	21.08	21.00	21.03



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14.6 WCDMA/ HSDPA SAR Results

MEASUREMENT RESULTS										
FREQUENCY		Mode	C_Power[dBm]		Position	Spacing	LCD	Data Rate (kbps)	Remarks	SAR
MHz	Ch.		Start	End						(W/kg)
835.00	4175	WCDMA	20.86	20.77	Bystander	1.5	Open	384	-	0.043
835.00	4175	WCDMA	20.86	20.89	Laptop	0.0	Flip	384	-	0.028
835.00	4175	WCDMA	20.86	20.98	Tablet	0.0	Flip	384	-	0.133
835.00	4175	WCDMA	20.86	20.80	Tablet	0.0	Flip	384	w/ 802.11g	0.146
ANSI / IEEE C95.1 2005 - SAFETY LIMIT						Muscle				
Spatial Peak						1.6 W/kg (mW/g)				
Uncontrolled Exposure/General Population						averaged over 1 gram				
MEASUREMENT RESULTS										
FREQUENCY		Mode	C_Power[dBm]		Position	Spacing	LCD	Data Rate (kbps)	Remarks	SAR
MHz	Ch.		Start	End						(W/kg)
1880.00	9400	WCDMA	21.18	21.14	Bystander	1.5	Open	384	-	0.106
1880.00	9400	WCDMA	21.18	21.22	Laptop	0.0	Flip	384	-	0.053
1880.00	9400	WCDMA	21.18	21.22	Tablet	0.0	Flip	384	-	0.210
1880.00	9400	WCDMA	21.18	21.18	Tablet	0.0	Flip	384	w/ 802.11g	0.220
ANSI / IEEE C95.1 2005 - SAFETY LIMIT						Muscle				
Spatial Peak						1.6 W/kg (mW/g)				
Uncontrolled Exposure/General Population						averaged over 1 gram				

Notes:

1. The test data reported are the worst-case SAR value with the position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2. All modes of operation were investigated, and worst-case results are reported.
3. Batteries are fully charged for all readings. Standard batteries were tested..
4. Tissue parameters and temperatures are listed on the SAR plots.
5. Both sides of the EUT were tested, and the worst-case is reported.
6. Liquid tissue depth is 15.1 cm. \pm 0.1.
7. Body SAR is measured under RMC 12.2kbps with HSDPA inactive.

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