

KWC-2255

Confirmation of compliance

Body-Worn

SPECIFIC ABSORPTION RATE (SAR)

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1 PURPOSE

At the time we submitted our initial application, Kyocera Wireless Corp. (KWC) did not have any accessories for a body-worn application. Therefore, the compliance test for Specific Absorption Rate for a body worn use was performed with 22.5mm separation, and the test results were reported in the initial application.

Per customer desires, KWC has designed its own leather case with a belt clip for model 2255 hand free application. This test report shows the compliance of the KWC-2255 for Specific Absorption Rate when using the KWC designed body-worn accessory.

2 SAR TEST FACILITY

SAR tests were performed in the same KWC SAR Test Facility located at the following address:

Kyocera Wireless Corp.
Building AA
10300 Campus Point Drive
San Diego, CA92131

The description of KWC SAR test facility was stated in the original SAR report that was submitted under FCC ID: OVFKWC-2255.

3 APPLICABLE REGULATIONS

The KWC-2255 is designed to comply with the specific absorption rate SAR limits for distances within 20 cm of the transmitting elements of the MES, and with general public uncontrolled environment Maximum Permissible Exposure (MPE) limits at distances greater than 20 cm from the transmitting elements of the device, as required by Sections 1.1307 through 1.1310, 2.1093 of the 47 C.F.R. (1998). This test report pertains specifically to the following limit from the Code of Federal Regulations 47 “Limits for General Population/Uncontrolled exposure: 0.08 W/kg as averaged over the whole-body and spatial peak SAR not exceeding 1.6 W/kg as averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the hands, wrists, feet and ankles where the spatial peak SAR shall not exceed 4

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W/kg, as averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube).”

4 KWC DESIGNED BODY-WORN ACCESSORY

Originally, KWC did not have any accessories available for a body-worn application. See page 80 in the original User’s Guide submitted under FCC ID: OVFKWC-2255. (This page has been attached to the report in Appendix C.)

Per the customer desires, KWC have designed an accessory for a body-worn application. This body-worn accessory consists of a leather case and a belt clip. The following are the photos of the accessory.

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2255 in KWC Leather Case

Front



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Side 1



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Side 2



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5 TEST SAMPLE OPERATION

The same phone tested for the initial submittal was used for this test. The test sample (S/N: 1S2X0115810873) was made to transmit maximum power controlled by a phone_t software, a KWC phone control software. The DASY 3 system checks E fields strength at a fixed location before and after each scan, and checks for drift due to draining of the battery or some other effect. This shows up as “drift” on the report and if it is too high the test is repeated.

Maximum output power --

In order to keep the consistency, the phone 2255 was set to the same maximum conducted power level as that in the initial Type Acceptance Application under FCC ID: OVFKWC-2255. The maximum conducted output power levels are re-listed in the tables below.

Conducted power used for SAR test - Cellular (same as the initial SAR report Table 3)

Carrier Frequency (MHz)	Channel	RF output power (W or dBm) - Cellular	
		Measured	
		FM	CDMA
824.04	991	0.398 W / 26.0 dBm	
824.7	1013		0.309 W / 24.9 dBm
836.49	383	0.403 W / 26.05 dBm	0.316 W / 25.0 dBm
848.31	777		0.306 W / 24.86 dBm
848.97	799	0.398 W / 26 dBm	
Maximum Power over Band		26.05 dBm	25.0dBm

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Conducted power used for SAR test - PCS (same as the initial SAR report Table 4)

Carrier Frequency (MHz)	Channel	RF output power (W or dBm) - PCS
		CDMA
		measured
1851.25	25	0.209 W / 23.2 dBm
1880	600	0.219 W / 23.4 dBm
1908.75	1175	0.205 W / 23.12 dBm
Maximum Power over Band		23.4 dBm

The ERP/EIRP remained the same levels as what was reported in the initial SAR report, Table 5 and Table 6.

6 TISSUE PARAMETERS

The table below shows the parameters of muscle tissue used for SAR tests reported in this report.

PARAMETERS OF MUSCLE TISSUE

		Tissues Used in the Test		Tissues Specified in FCC Supplemental C	
	Frequency	Permittivity	Conductivity (S/m)	Permittivity	Conductivity (S/m)
Muscle	835 MHz	55.1	0.96	55.2	0.97
Muscle	1800 MHz	54.3	1.56	53.3	1.52

HP85070B dielectric measurement system was used to calibrate muscle tissues. The dielectric data sheets of muscle tissue are attached in Appendix B.

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7 SAR TEST RESULTS

KWC-2255 has been tested SAR for a hand free configuration by using KWC body-worn accessory described in Section 4. All normal antenna operating positions were incorporated, with the device transmitting maximum power of the low, high, and mid-band frequencies of the KWC-2255. The KWC-2255 has been shown to be capable of compliance for localised SAR limits specified in ANSI/IEEE std. C95.3-1992 and OET Bulletin 65.

The setup photos were attached in the following pages.

The table below lists the 1gram average SAR values measured on the KWC-2255 while using KWC body-worn accessory. The SAR Plots are attached in Appendix A.

Body-Worn SAR Measurement Results (with KWC leather case and belt clip)

FREQ. MHZ	CH.#	SERIAL NUMBER	MODULATION	CONDUCTED POWER BEFORE TEST	ANTENNA POSITION	1 GRAM AVG.SAR (MW/G)	CONDUCTED POWER AFTER TEST
824	991	1S2X0115810873	ANALOG	25.95 dBm	Ext	0.337	25.97 dBm
824	991	1S2X0115810873	ANALOG		Ret	0.393	
836.5	383	1S2X0115810873	ANALOG	25.93 dBm	Ext	0.304	25.98 dBm
836.5	383	1S2X0115810873	ANALOG		Ret	0.436	
849	799	1S2X0115810873	ANALOG	25.94 dBm	Ext	0.302	26.0 dBm
849	799	1S2X0115810873	ANALOG		Ret	0.410	
824.7	383	1S2X0115810873	Cellular CDMA	24.92 dBm	Ext	0.260	25.23 dBm
824.7	383	1S2X0115810873	Cellular CDMA		Ret	0.347	
1851.25	25	1S2X0115810873	PCS CDMA	23.18 dBm	Ext	0.232	23.22 dBm
1851.25	25	1S2X0115810873	PCS CDMA		Ret	0.260	
1880	600	1S2X0115810873	PCS CDMA	23.24 dBm	Ext	0.237	23.17 dBm
1880	600	1S2X0115810873	PCS CDMA		Ret	0.254	
1908.75	1175	1S2X0115810873	PCS CDMA	23.20 dBm	Ext	0.231	23.20 dBm
1908.75	1175	1S2X0115810873	PCS CDMA		Ret	0.238	

With KWC leather case and belt clip, the highest body-worn SAR is 0.436 mW/g.

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Note: the previous User's Guide has been revised to include the KWC body-worn accessory tested above for a hand free application. The related pages in both previous User's Guide and revised User's Guide have been submitted with this Class II Permissive change application. See Appendix C.

8 MEASUREMENT UNCERTAINTY

Below is the uncertainty budget determined for the DASY3 measurement system by Schmid and Partners and the test device by KWC, according to the NIS81 and the NIST1297 document.

Uncertainty Description	Error	Distrib.	Weight	Std. Dev.
Probe Uncertainty				
axial isotropy	+/- 0.2dB	U-shape	0.5	+/- 2.4%
spherical isotropy	+/- 0.4dB	U-shape	0.5	+/- 4.8%
isotropy from gradient	+/- 0.5dB	U-shape	0	
spatial resolution	+/- 0.5%	normal	1	+/- 0.5%
linearity error	+/- 0.2dB	rectang.	1	+/- 2.7%
calibration error	+/- 3.3%	normal	1	+/- 3.3%
SAR Evaluation Uncertainty				
data acquisition error	+/- 1%	rectang.	1	+/- 0.6%
ELF and RF disturbances	+/- 0.25%	normal	1	+/- 0.25%
conductivity assessment	+/- 10%	rectang.	1	+/- 5.8%
Spatial Peak SAR Evaluation Uncertainty				
extrapol boundary effect	+/- 3%	normal	1	+/- 3%
probe positioning error	+/- 0.1mm	normal	1	+/- 1%
integrat. And cube orient	+/- 3%	normal	1	+/- 3%
cube shape inaccuracies	+/- 2%	rectang.	1	+/- 1.2%
devices positioning	+/- 6%	normal	1	+/- 6%
RF Source Error (test device)	+/- 2%	normal	1	+/- 2%
Combined Uncertainties				+/- 11.9%

The extended uncertainty (K=2) was assessed to be +/- 23.8%.

Taking it into account, the maximum SAR value in the body-worn application for model 2255 with KWC leather case and belt clip was 0.436mW/g +/- 23.8%, which is in compliance with FCC requirements even if the worst case uncertainty of the system has to be added to the assessed value.

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9 APPENDIX A -- SAR PLOTS

KWC 2255, #0873, FM ch991, With leather case and belt clip

SAR (1g): 0.337 [mW/g] $\pm$ 0.01 dB, SAR (10g): 0.252 [mW/g] $\pm$ 0.01 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

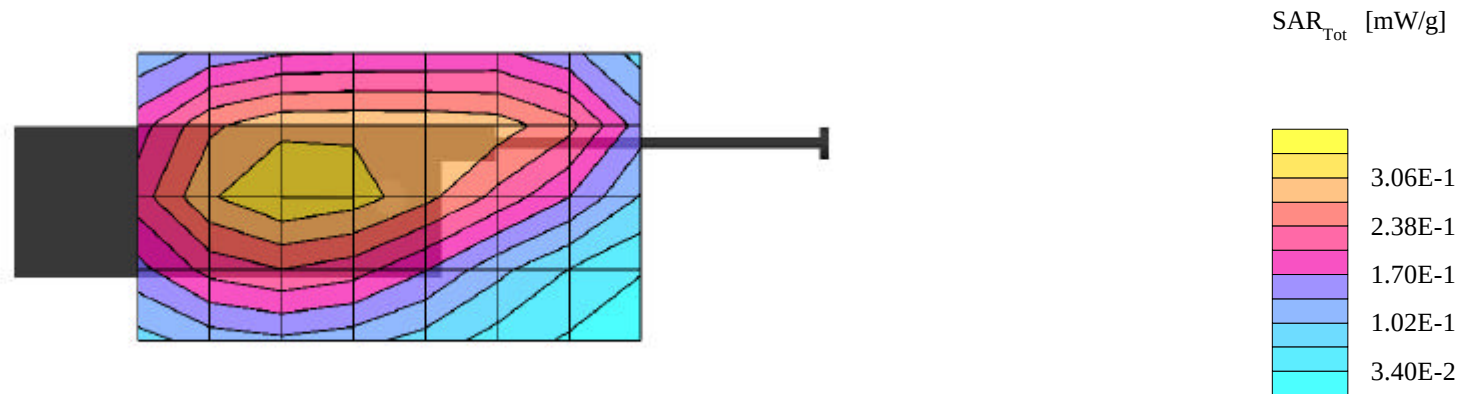
Probe: ET3DV5 - SN1353; ConvF(5.36,5.36,5.36)

Muscle 835MHz: $\sigma = 0.96$ [mho/m] $\epsilon_r = 55.1$ $\rho = 1.00$ [g/cm³]

File Name: KWC-2255 #0873, FM ch991, conducted power=25.9dBm, muscle with bc1.DA3

Operator: DWS

Powerdrift: -0.03 dB



KWC 2255, #0873, FM ch991, With leather case and belt clip

SAR (1g): 0.393 [mW/g] $\pm$ 0.02 dB, SAR (10g): 0.293 [mW/g] $\pm$ 0.01 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

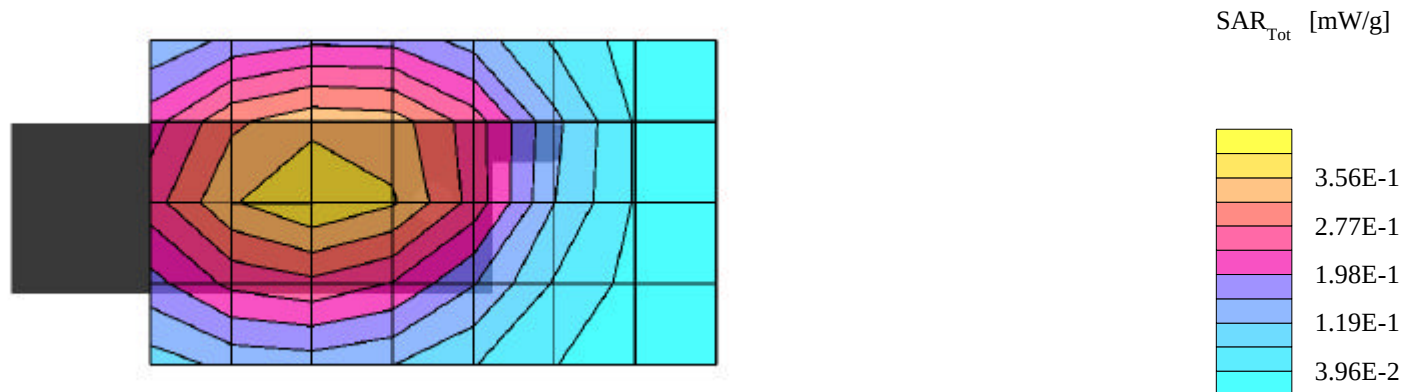
Probe: ET3DV5 - SN1353; ConvF(5.36,5.36,5.36)

Muscle 835MHz: $\sigma = 0.96$ [mho/m] $\epsilon_r = 55.1$ $\rho = 1.00$ [g/cm³]

File Name: KWC-2255 #0873, FM ch991, conducted power=25.9dBm, muscle with bc1.DA3

Operator: DWS

Powerdrift: -0.14 dB



KWC 2255, #0873, FM ch383, With leather case and belt clip

SAR (1g): 0.304 [mW/g] $\pm$ 0.01 dB, SAR (10g): 0.225 [mW/g] $\pm$ 0.01 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

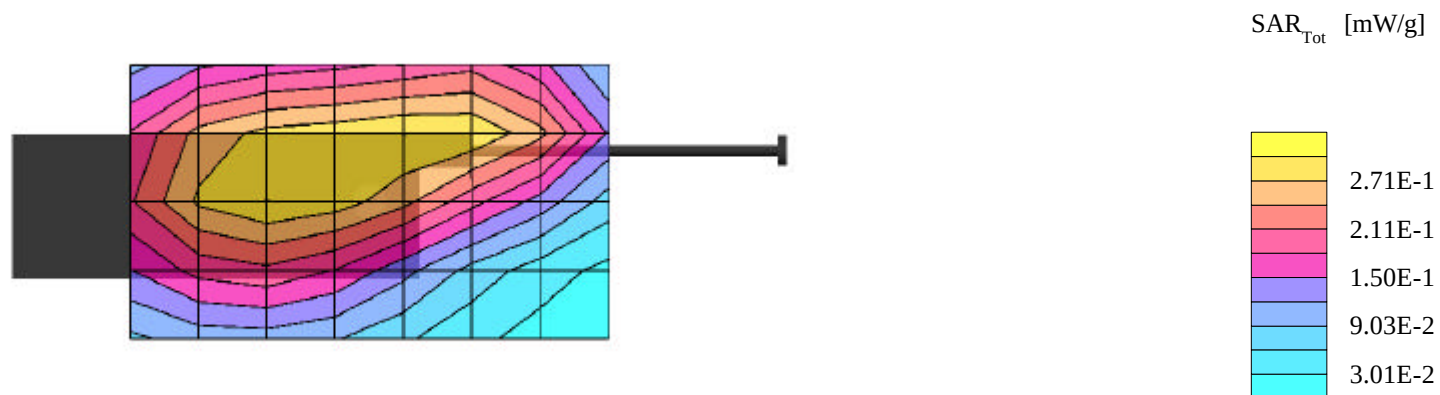
Probe: ET3DV5 - SN1353; ConvF(5.36,5.36,5.36)

Muscle 835MHz: $\sigma = 0.96$ [mho/m] $\epsilon_r = 55.1$ $\rho = 1.00$ [g/cm³]

File Name: KWC-2255 #0873, FM ch383, conducted power=25.9dBm, muscle with bc1.DA3

Operator: DWS

Powerdrift: -0.04 dB



KWC 2255, #0873, FM ch383, With leather case and belt clip

SAR (1g): 0.436 [mW/g] $\pm$ 0.04 dB, SAR (10g): 0.323 [mW/g] $\pm$ 0.05 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

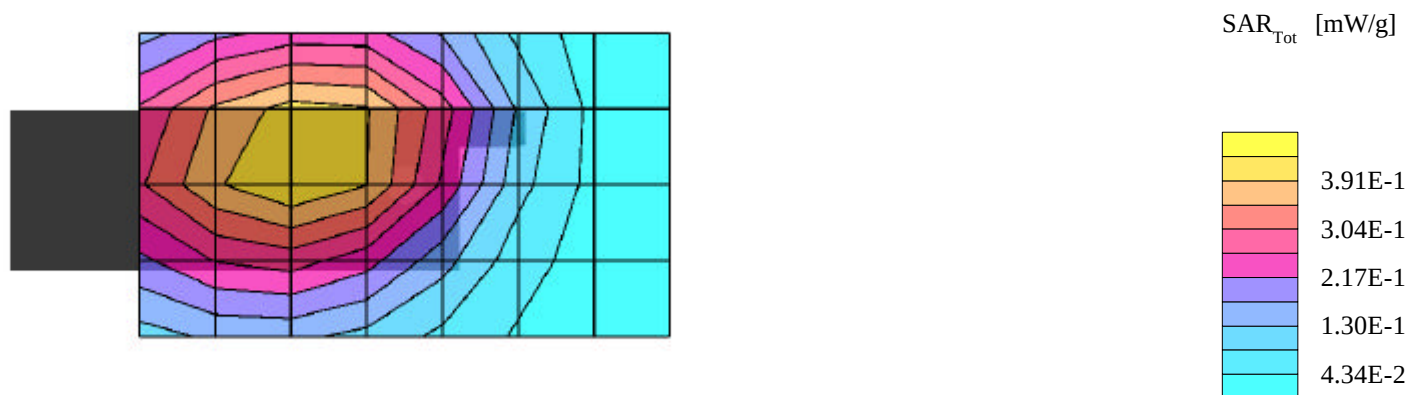
Probe: ET3DV5 - SN1353; ConvF(5.36,5.36,5.36)

Muscle 835MHz: $\sigma = 0.96$ [mho/m] $\epsilon_r = 55.1$ $\rho = 1.00$ [g/cm³]

File Name: KWC-2255 #0873, FM ch383, conducted power=25.9dBm, muscle with bc1.DA3

Operator: DWS

Powerdrift: -0.01 dB



KWC 2255, #0873, FM ch799, With leather case and belt clip

SAR (1g): 0.302 [mW/g] $\pm$ 0.01 dB, SAR (10g): 0.224 [mW/g] $\pm$ 0.01 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

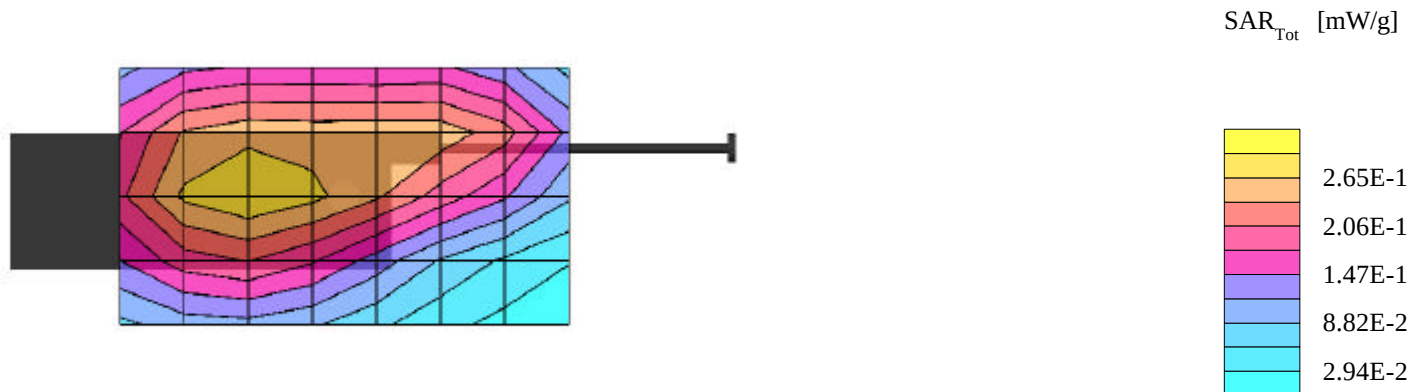
Probe: ET3DV5 - SN1353; ConvF(5.36,5.36,5.36)

Muscle 835MHz: $\sigma = 0.96$ [mho/m] $\epsilon_r = 55.1$ $\rho = 1.00$ [g/cm³]

File Name: KWC-2255 #0873, FM ch799, conducted power=25.9dBm, muscle with bc1.DA3

Operator: DWS

Powerdrift: -0.08 dB



KWC 2255, #0873, FM ch799, With leather case and belt clip

SAR (1g): 0.410 [mW/g] $\pm$ 0.01 dB, SAR (10g): 0.303 [mW/g] $\pm$ 0.01 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

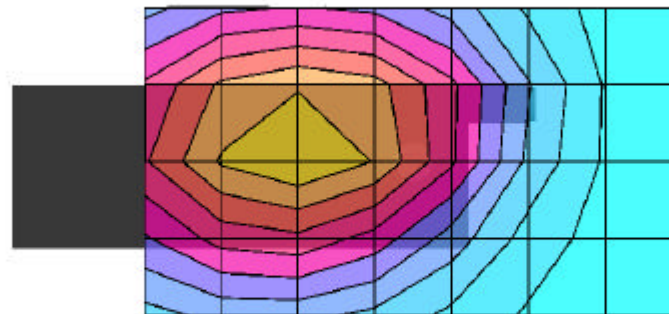
Probe: ET3DV5 - SN1353; ConvF(5.36,5.36,5.36)

Muscle 835MHz: $\sigma = 0.96$ [mho/m] $\epsilon_r = 55.1$ $\rho = 1.00$ [g/cm³]

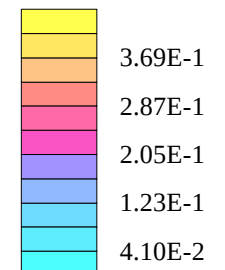
File Name: KWC-2255 #0873, FM ch799, conducted power=25.9dBm, muscle with bc1.DA3

Operator: DWS

Powerdrift: 0.08 dB



SAR_{Tot} [mW/g]



KWC 2255, #0873, CDMA ch383, With leather case and belt clip

SAR (1g): 0.260 [mW/g] $\pm$ 0.00 dB, SAR (10g): 0.194 [mW/g] $\pm$ 0.00 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

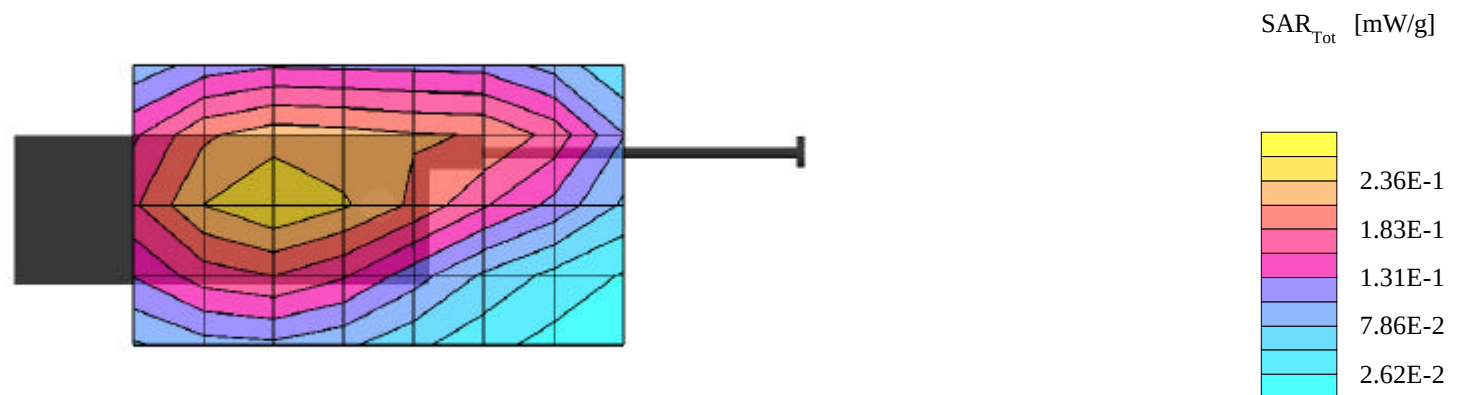
Probe: ET3DV5 - SN1353; ConvF(5.36,5.36,5.36)

Muscle 835MHz: $\sigma = 0.96$ [mho/m] $\epsilon_r = 55.1$ $\rho = 1.00$ [g/cm³]

File Name: KWC-2255 #0873, CDMA ch383, conducted power=24.9dBm, muscle with bc1.DA3

Operator: DWS

Powerdrift: 0.10 dB



KWC 2255, #0873, CDMA ch383, With leather case and belt clip

SAR (1g): 0.347 [mW/g] $\pm$ 0.02 dB, SAR (10g): 0.258 [mW/g] $\pm$ 0.01 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

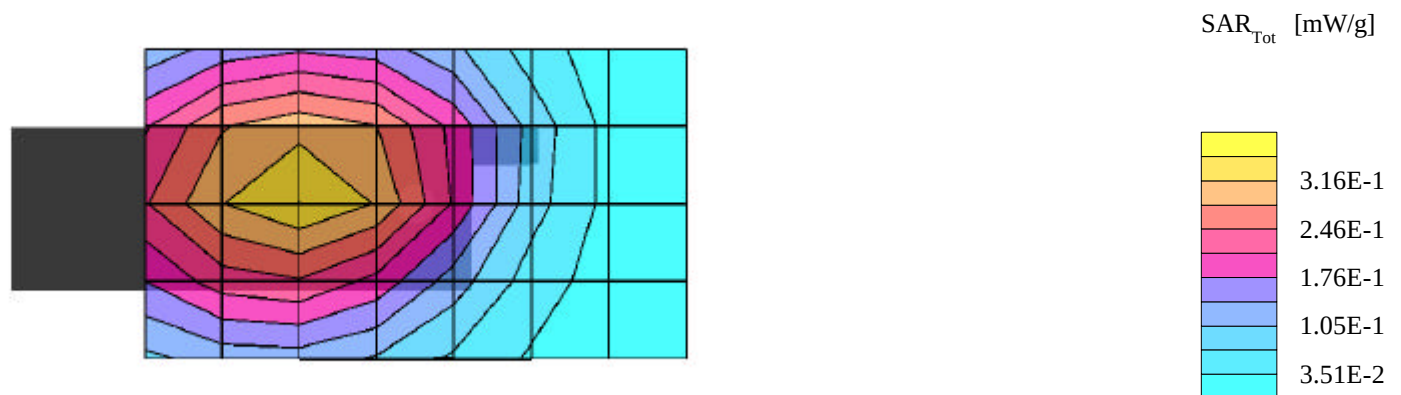
Probe: ET3DV5 - SN1353; ConvF(5.36,5.36,5.36)

Muscle 835MHz: $\sigma = 0.96$ [mho/m] $\epsilon_r = 55.1$ $\rho = 1.00$ [g/cm³]

File Name: KWC-2255 #0873, CDMA ch383, conducted power=24.9dBm, muscle with bc1.DA3

Operator: DWS

Powerdrift: -0.05 dB



KWC 2255, #0873, PCS ch25, With leather case and belt clip

SAR (1g): 0.232 [mW/g] $\pm$ 0.08 dB, SAR (10g): 0.142 [mW/g] $\pm$ 0.07 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

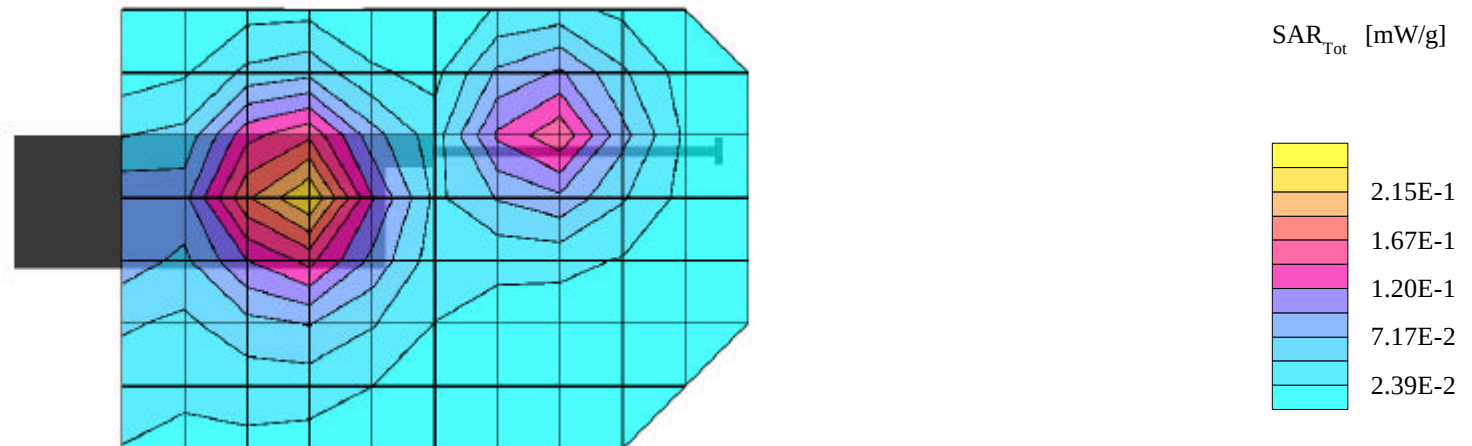
Probe: ET3DV5 - SN1353; ConvF(4.50,4.50,4.50)

Muscle 1800MHz: σ = 1.56 [mho/m] ϵ_r = 54.3 ρ = 1.00 [g/cm³]

File Name: S1 #0873, PCS ch25, conducted power=23.20dBm, muscle with leather, 11-29-01.DA3

Operator: DWS

Powerdrift: 0.03 dB



KWC 2255, #0873, PCS ch25, With leather case and belt clip

SAR (1g): 0.260 [mW/g] $\pm$ 0.06 dB, SAR (10g): 0.159 [mW/g] $\pm$ 0.06 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

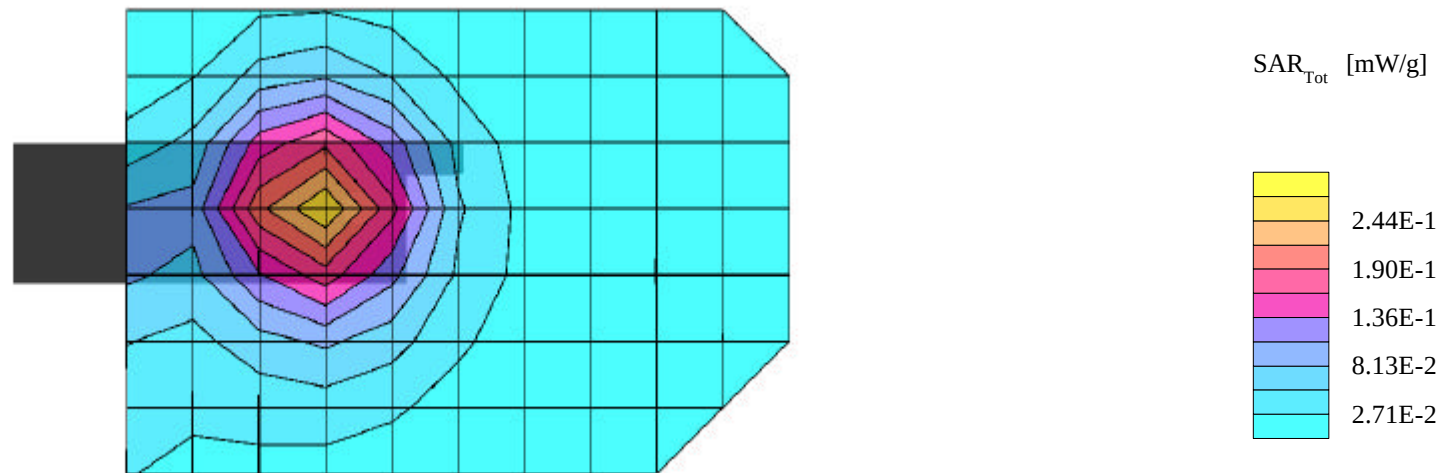
Probe: ET3DV5 - SN1353; ConvF(4.50,4.50,4.50)

Muscle 1800MHz: σ = 1.56 [mho/m] ϵ_r = 54.3 ρ = 1.00 [g/cm³]

File Name: S1 #0873, PCS ch25, conducted power=23.20dBm, muscle with leather, 11-29-01.DA3

Operator: DWS

Powerdrift: -0.15 dB



KWC 2255, #0873, PCS ch600, With leather case and belt clip

SAR (1g): 0.237 [mW/g] $\pm$ 0.03 dB, SAR (10g): 0.144 [mW/g] $\pm$ 0.02 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

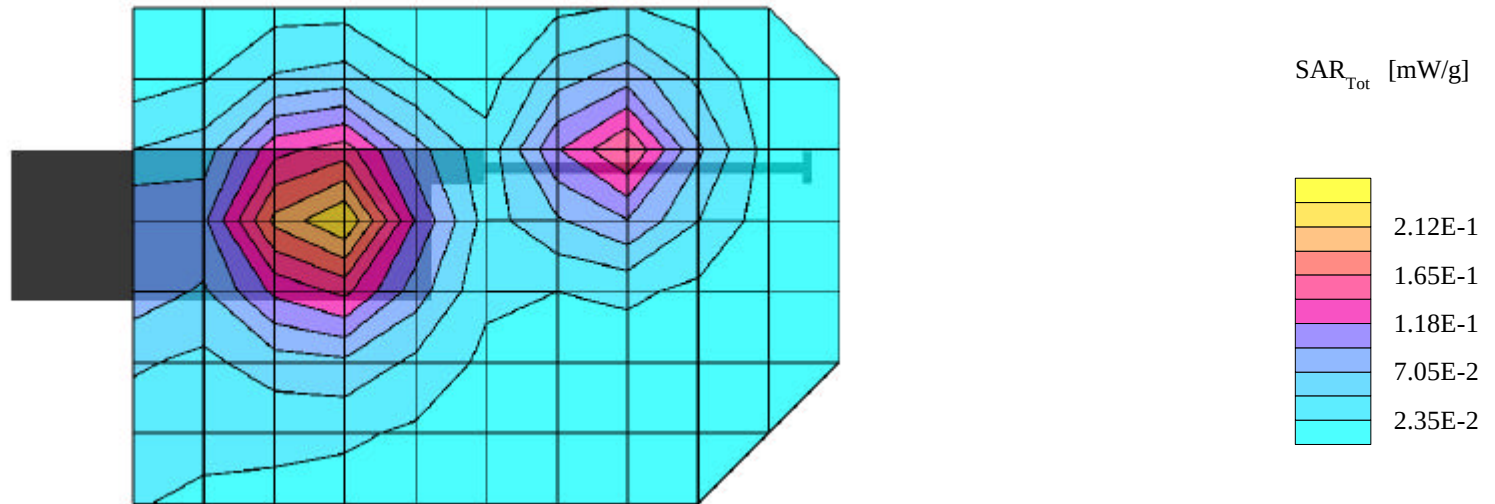
Probe: ET3DV5 - SN1353; ConvF(4.50,4.50,4.50)

Muscle 1800MHz: σ = 1.56 [mho/m] ϵ_r = 54.3 ρ = 1.00 [g/cm³]

File Name: S1 #0873, PCS ch600, conducted power=23.20dBm, muscle with leather, 11-29-01.DA3

Operator: DWS

Powerdrift: 0.07 dB



KWC 2255, #0873, PCS ch600, With leather case and belt clip

SAR (1g): 0.254 [mW/g] $\pm$ 0.03 dB, SAR (10g): 0.154 [mW/g] $\pm$ 0.01 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

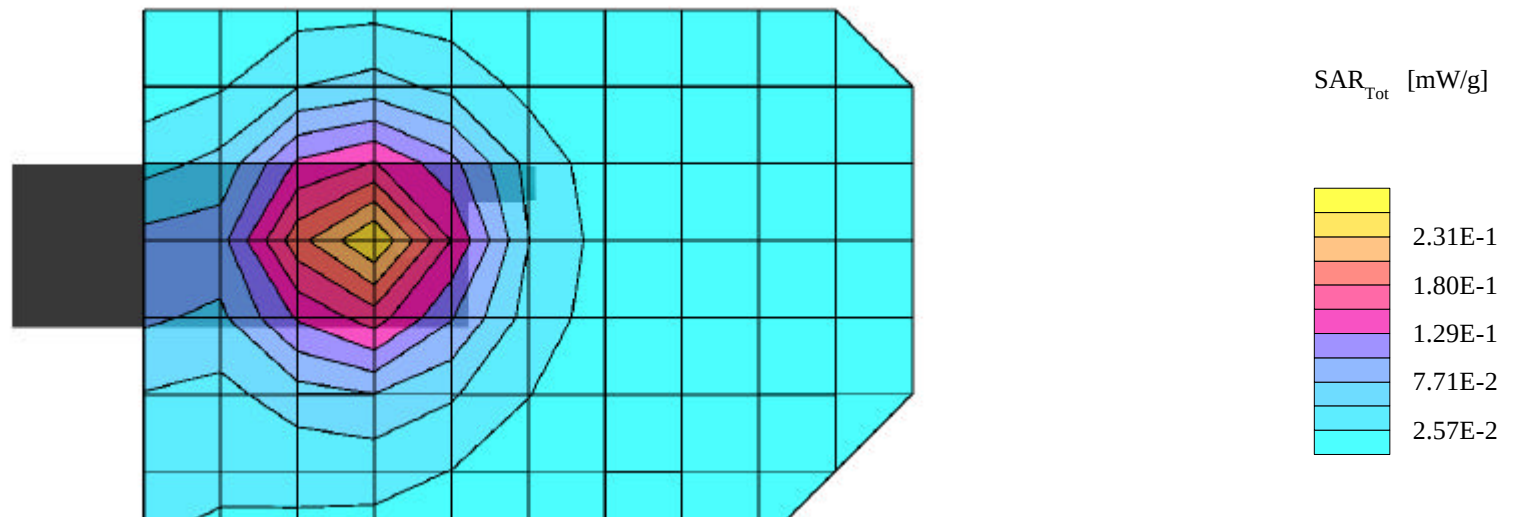
Probe: ET3DV5 - SN1353; ConvF(4.50,4.50,4.50)

Muscle 1800MHz: σ = 1.56 [mho/m] ϵ_r = 54.3 ρ = 1.00 [g/cm³]

File Name: S1 #0873, PCS ch600, conducted power=23.20dBm, muscle with leather, 11-29-01.DA3

Operator: DWS

Powerdrift: 0.05 dB



KWC 2255, #0873, PCS ch1175, With leather case and belt clip

SAR (1g): 0.231 [mW/g] $\pm$ 0.01 dB, SAR (10g): 0.139 [mW/g] $\pm$ 0.03 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

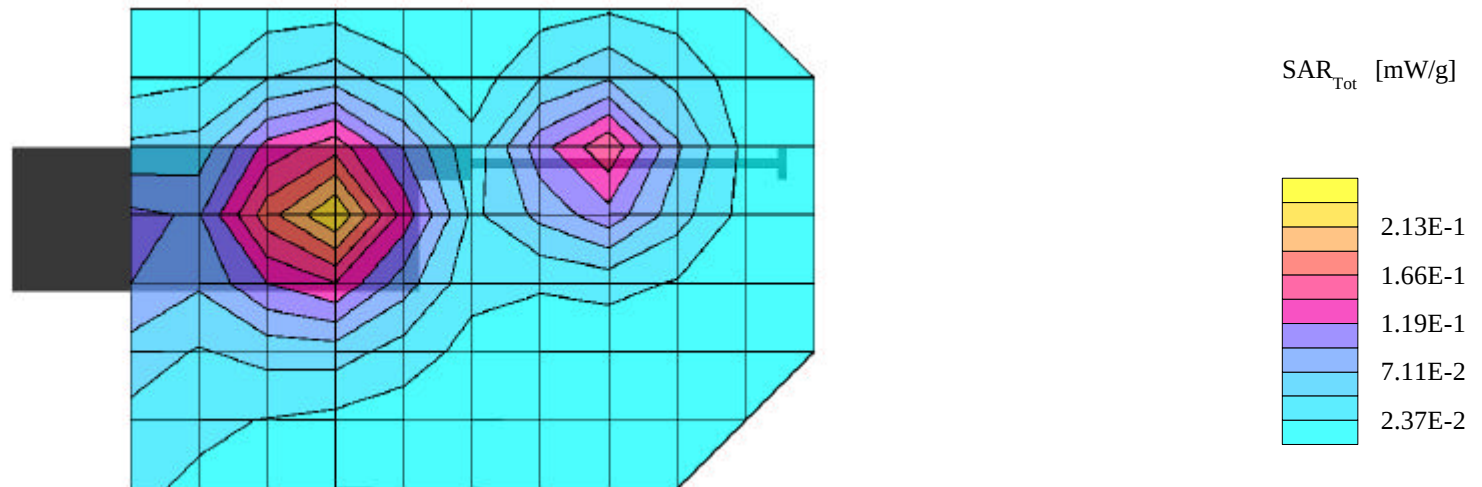
Probe: ET3DV5 - SN1353; ConvF(4.50,4.50,4.50)

Muscle 1800MHz: σ = 1.56 [mho/m] ϵ_r = 54.3 ρ = 1.00 [g/cm³]

File Name: S1 #0873, PCS ch1175, conducted power=23.20dBm, muscle with leather, 11-29-01.DA3

Operator: DWS

Powerdrift: 0.03 dB



KWC 2255, #0873, PCS ch1175, With leather case and belt clip

SAR (1g): 0.238 [mW/g] $\pm$ 0.11 dB, SAR (10g): 0.144 [mW/g] $\pm$ 0.08 dB

Cubes (2) (Worst-case extrapolation)

Generic Twin Phantom; Flat Section

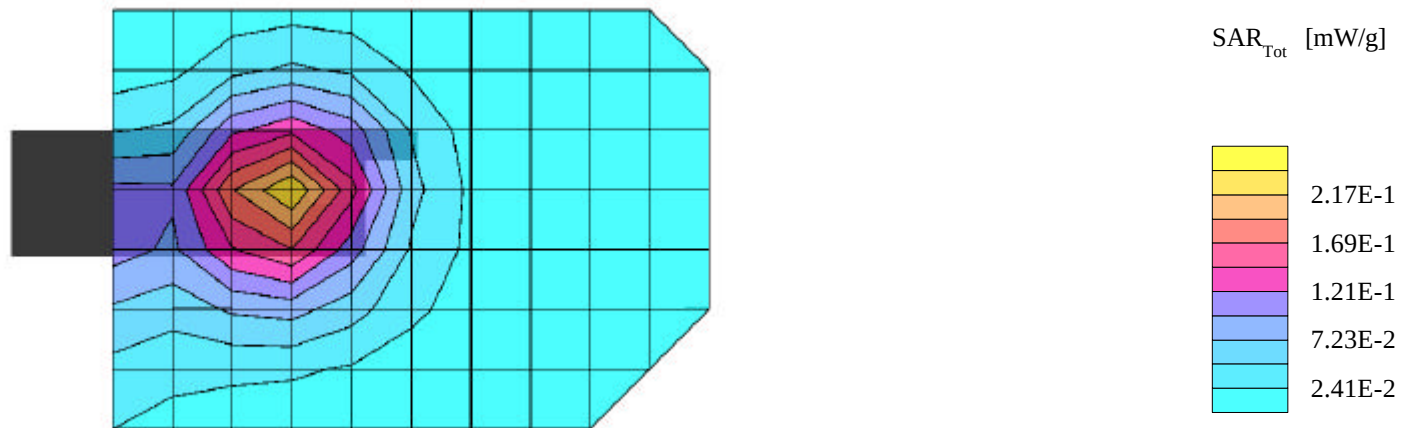
Probe: ET3DV5 - SN1353; ConvF(4.50,4.50,4.50)

Muscle 1800MHz: $\sigma = 1.56$ [mho/m] $\epsilon_r = 54.3$ $\rho = 1.00$ [g/cm³]

File Name: S1 #0873, PCS ch1175, conducted power=23.20dBm, muscle with leather, 11-29-01.DA3

Operator: DWS

Powerdrift: 0.05 dB



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10 APPENDIX B -- DIELECTRIC DATA SHEETS

Pt#	Frequency (GHz)	Data real	Data imag
1	0.000100000	2196.87	-148.48
2	0.015099500	117.46	344.06
3	0.030099000	80.62	175.59
4	0.045098500	72.65	118.58
5	0.060098000	69.59	90.05
6	0.075097500	67.82	73.90
7	0.090097000	66.96	62.45
8	0.105096500	65.87	54.40
9	0.120096000	65.35	48.94
10	0.135095500	64.71	44.25
11	0.150095000	64.49	40.68
12	0.165094500	64.04	37.77
13	0.180094000	63.65	35.48
14	0.195093500	63.23	33.47
15	0.210093000	62.96	31.75
16	0.225092500	62.66	30.34
17	0.240092000	62.38	29.12
18	0.255091500	62.14	28.08
19	0.270091000	61.82	27.11
20	0.285090500	61.61	26.22
21	0.300090000	61.43	25.56
22	0.315089500	61.15	24.89
23	0.330089000	60.92	24.34
24	0.345088500	60.73	23.86
25	0.360088000	60.52	23.31
26	0.375087500	60.29	22.90
27	0.390087000	60.14	22.54
28	0.405086500	59.83	22.23
29	0.420086000	59.71	21.99
30	0.435085500	59.51	21.63
31	0.450085000	59.33	21.43
32	0.465084500	59.20	21.16
33	0.480084000	58.88	21.00
34	0.495083500	58.80	20.83
35	0.510083000	58.65	20.60
36	0.525082500	58.47	20.51
37	0.540082000	58.28	20.32
38	0.555081500	58.16	20.24
39	0.570081000	57.93	20.08
40	0.585080500	57.75	19.98
41	0.600080000	57.60	19.88
42	0.615079500	57.41	19.85
43	0.630079000	57.29	19.75
44	0.645078500	57.11	19.70
45	0.660078000	56.93	19.64
46	0.675077500	56.77	19.58
47	0.690077000	56.63	19.53
48	0.705076500	56.47	19.44
49	0.720076000	56.28	19.42
50	0.735075500	56.13	19.44
51	0.750075000	56.01	19.37
52	0.765074500	55.84	19.32
53	0.780074000	55.68	19.29
54	0.795073500	55.50	19.25
55	0.810073000	55.37	19.28
56	0.825072500	55.24	19.24
57	0.840072000	55.10	19.26
58	0.855071500	54.98	19.22
59	0.870071000	54.79	19.19
60	0.885070500	54.63	19.17
61	0.900070000	54.54	19.19
62	0.915069500	54.43	19.19
63	0.930069000	54.28	19.19
64	0.945068500	54.10	19.20
65	0.960068000	53.95	19.22
66	0.975067500	53.81	19.21
67	0.990067000	53.68	19.25
68	1.005066500	53.56	19.25
69	1.020066000	53.41	19.23
70	1.035065500	53.26	19.23

$\sigma = 0.96 \text{ s/m}$

71	1.050065000	53.12	19.24
72	1.065064500	52.95	19.25
73	1.080064000	52.80	19.25
74	1.095063500	52.68	19.25
75	1.110063000	52.56	19.23
76	1.125062500	52.47	19.22
77	1.140062000	52.36	19.24
78	1.155061500	52.23	19.27
79	1.170061000	52.12	19.31
80	1.185060500	51.99	19.32
81	1.200060000	51.86	19.35
82	1.215059500	51.73	19.40
83	1.230059000	51.60	19.44
84	1.245058500	51.47	19.44
85	1.260058000	51.34	19.46
86	1.275057500	51.19	19.47
87	1.290057000	51.06	19.50
88	1.305056500	50.92	19.50
89	1.320056000	50.76	19.53
90	1.335055500	50.68	19.55
91	1.350055000	50.54	19.55
92	1.365054500	50.40	19.56
93	1.380054000	50.27	19.56
94	1.395053500	50.13	19.57
95	1.410053000	50.01	19.61
96	1.425052500	49.90	19.63
97	1.440052000	49.79	19.62
98	1.455051500	49.67	19.62
99	1.470051000	49.56	19.64
100	1.485050500	49.41	19.65
101	1.500050000	49.32	19.67
102	1.515049500	49.21	19.68
103	1.530049000	49.09	19.70
104	1.545048500	49.00	19.70
105	1.560048000	48.86	19.72
106	1.575047500	48.74	19.74
107	1.590047000	48.62	19.75
108	1.605046500	48.50	19.77
109	1.620046000	48.40	19.76
110	1.635045500	48.28	19.78
111	1.650045000	48.17	19.78
112	1.665044500	48.05	19.77
113	1.680044000	47.94	19.78
114	1.695043500	47.84	19.78
115	1.710043000	47.75	19.79
116	1.725042500	47.66	19.77
117	1.740042000	47.54	19.77
118	1.755041500	47.47	19.77
119	1.770041000	47.38	19.80
120	1.785040500	47.27	19.82
121	1.800040000	47.20	19.84
122	1.815039500	47.11	19.85
123	1.830039000	47.00	19.86
124	1.845038500	46.89	19.87
125	1.860038000	46.79	19.89
126	1.875037500	46.71	19.93
127	1.890037000	46.61	19.94
128	1.905036500	46.52	19.95
129	1.920036000	46.41	19.98
130	1.935035500	46.31	20.01
131	1.950035000	46.20	20.00
132	1.965034500	46.09	20.00
133	1.980034000	45.99	20.02
134	1.995033500	45.90	20.02
135	2.010033000	45.81	20.05
136	2.025032500	45.74	20.05
137	2.040032000	45.64	20.06
138	2.055031500	45.55	20.05
139	2.070031000	45.47	20.06
140	2.085030500	45.36	20.07
141	2.100030000	45.27	20.09
142	2.115029500	45.19	20.10
143	2.130029000	45.10	20.12
144	2.145028500	45.01	20.14

Pt#	Frequency (GHz)	Data real	Data imag
1	0.000100000	512.70	73.13
2	0.015099500	64.76	11.24
3	0.030099000	66.30	6.51
4	0.045098500	66.89	5.50
5	0.060098000	66.58	4.38
6	0.075097500	66.38	4.34
7	0.090097000	66.59	4.45
8	0.105096500	66.31	4.51
9	0.120096000	65.97	4.37
10	0.135095500	65.91	4.63
11	0.150095000	65.77	4.65
12	0.165094500	65.63	4.80
13	0.180094000	65.48	4.89
14	0.195093500	65.30	4.97
15	0.210093000	65.14	5.29
16	0.225092500	65.08	5.38
17	0.240092000	64.89	5.51
18	0.255091500	64.76	5.66
19	0.270091000	64.64	5.77
20	0.285090500	64.55	5.82
21	0.300090000	64.38	6.04
22	0.315089500	64.31	6.16
23	0.330089000	64.15	6.30
24	0.345088500	63.99	6.50
25	0.360088000	63.94	6.70
26	0.375087500	63.86	6.79
27	0.390087000	63.71	6.96
28	0.405086500	63.57	7.01
29	0.420086000	63.37	7.23
30	0.435085500	63.34	7.39
31	0.450085000	63.21	7.49
32	0.465084500	63.12	7.64
33	0.480084000	62.98	7.70
34	0.495083500	62.86	7.90
35	0.510083000	62.83	8.04
36	0.525082500	62.69	8.20
37	0.540082000	62.57	8.33
38	0.555081500	62.42	8.46
39	0.570081000	62.35	8.60
40	0.585080500	62.28	8.68
41	0.600080000	62.17	8.83
42	0.615079500	62.05	8.95
43	0.630079000	61.95	9.04
44	0.645078500	61.77	9.21
45	0.660078000	61.69	9.35
46	0.675077500	61.58	9.47
47	0.690077000	61.49	9.59
48	0.705076500	61.41	9.68
49	0.720076000	61.24	9.80
50	0.735075500	61.14	9.93
51	0.750075000	61.07	10.06
52	0.765074500	60.96	10.16
53	0.780074000	60.84	10.23
54	0.795073500	60.69	10.35
55	0.810073000	60.62	10.51
56	0.825072500	60.56	10.60
57	0.840072000	60.41	10.70
58	0.855071500	60.34	10.80
59	0.870071000	60.22	10.87
60	0.885070500	60.08	10.99
61	0.900070000	60.02	11.09
62	0.915069500	59.91	11.19
63	0.930069000	59.77	11.34
64	0.945068500	59.72	11.41
65	0.960068000	59.59	11.51
66	0.975067500	59.48	11.59
67	0.990067000	59.40	11.68
68	1.005066500	59.31	11.77
69	1.020066000	59.19	11.89
70	1.035065500	59.06	12.00

71	1.050065000	58.99	12.08
72	1.065064500	58.88	12.16
73	1.080064000	58.76	12.25
74	1.095063500	58.66	12.30
75	1.110063000	58.56	12.38
76	1.125062500	58.51	12.46
77	1.140062000	58.42	12.58
78	1.155061500	58.32	12.70
79	1.170061000	58.24	12.79
80	1.185060500	58.15	12.86
81	1.200060000	58.02	12.97
82	1.215059500	57.92	13.06
83	1.230059000	57.79	13.16
84	1.245058500	57.70	13.26
85	1.260058000	57.61	13.30
86	1.275057500	57.49	13.40
87	1.290057000	57.36	13.47
88	1.305056500	57.27	13.53
89	1.320056000	57.15	13.64
90	1.335055500	57.12	13.69
91	1.350055000	56.99	13.74
92	1.365054500	56.89	13.80
93	1.380054000	56.79	13.86
94	1.395053500	56.72	13.96
95	1.410053000	56.62	14.03
96	1.425052500	56.54	14.12
97	1.440052000	56.44	14.17
98	1.455051500	56.36	14.26
99	1.470051000	56.24	14.33
100	1.485050500	56.12	14.42
101	1.500050000	56.04	14.47
102	1.515049500	55.94	14.53
103	1.530049000	55.83	14.60
104	1.545048500	55.74	14.64
105	1.560048000	55.64	14.70
106	1.575047500	55.55	14.77
107	1.590047000	55.45	14.81
108	1.605046500	55.35	14.87
109	1.620046000	55.29	14.92
110	1.635045500	55.20	14.99
111	1.650045000	55.11	15.03
112	1.665044500	55.01	15.09
113	1.680044000	54.93	15.13
114	1.695043500	54.85	15.20
115	1.710043000	54.76	15.25
116	1.725042500	54.69	15.33
117	1.740042000	54.60	15.38
118	1.755041500	54.52	15.44
119	1.770041000	54.46	15.50
120	1.785040500	54.37	15.55
121	1.800040000	54.29	15.62
122	1.815039500	54.21	15.67
123	1.830039000	54.11	15.70
124	1.845038500	54.01	15.76
125	1.860038000	53.91	15.83
126	1.875037500	53.84	15.88
127	1.890037000	53.76	15.92
128	1.905036500	53.67	15.98
129	1.920036000	53.60	16.00
130	1.935035500	53.50	16.05
131	1.950035000	53.44	16.09
132	1.965034500	53.37	16.13
133	1.980034000	53.30	16.20
134	1.995033500	53.25	16.25
135	2.010033000	53.18	16.30
136	2.025032500	53.10	16.36
137	2.040032000	53.03	16.40
138	2.055031500	52.95	16.48
139	2.070031000	52.88	16.52
140	2.085030500	52.79	16.56
141	2.100030000	52.71	16.60
142	2.115029500	52.65	16.64
143	2.130029000	52.57	16.70
144	2.145028500	52.50	16.74

$\sigma = 1.56 \text{ S/m}$

Company	Kyocera Wireless Corp.		Document No.
Document	BODY-WORN SAR CONFIRMATION TEST	Issue No: 1	Date December 2001
Equipment	KWC 2255	Page Number 16	

11 APPENDIX C -- USER'S GUIDE

Original User's Guide

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Vehicles using liquefied petroleum gas (such as propane or butane) must comply with the National Fire Protection Standard (NFPA-58). For a copy of this standard, contact the National Fire Protection Association, One Batterymarch Park, Quincy, MA 02269, Attn: Publication Sales Division.

Cautions

Any changes or modifications to your phone not expressly approved in this document could void your warranty for this equipment and void your authority to operate this equipment. Only use approved batteries, antennas and chargers. The use of any unauthorized accessories may be dangerous and voids the phone warranty if said accessories cause damage or a defect to the phone.

Although your phone is quite sturdy, it is a complex piece of equipment and can be broken. Avoid dropping, hitting, bending or sitting on it.

Body-Worn Operation

To comply with FCC radiation exposure requirements, use of this device for body-worn operational configurations is limited to accessories tested and approved by Kyocera Wireless Corp. **KWC does not provide a belt clip or leather case.** Accessories used with KWC-2255 for body-worn operations must not contain any metallic components and must provide at least 22.5mm separation distance including the antenna and the user's body. Other accessories that have not been tested for body-worn SAR may not comply with FCC radiation exposure limits and should be avoided.

For more information about RF exposure, please visit the FCC website at www.fcc.gov.

Specific Absorption Rate (SAR) for Wireless Phones

THIS MODEL PHONE MEETS THE GOVERNMENT'S REQUIREMENTS FOR EXPOSURE TO RADIO WAVES.

Your wireless phone is a radio transmitter and receiver. It is designed and manufactured not to exceed the emission limits for exposure to radiofrequency (RF) energy set by the Federal Communications Commission of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies.

Revised User's Guide

Page 89 & 90

- ▶ Don't store the battery in high temperature areas for long periods of time. It's best to follow these storage rules:
 - Less than one month: 4° F to 140° F (-20° C to 60° C)
 - More than one month: 4° F to 113° F (-20° C to 45° C)

Disposal of Lithium Ion (Lilon) Batteries. For safe disposal options of your Lilon batteries, contact your nearest Sprint PCS-authorized service center.

Special Note: Be sure to dispose of your battery properly. In some areas, the disposal of batteries in household or business trash may be prohibited.

Note: For safety, do not handle a damaged or leaking Lilon battery.

Acknowledging Special Precautions and the FCC Notice

FCC Notice. The phone may cause TV or radio interference if used in close proximity to receiving equipment. The FCC can require you to stop using the phone if such interference cannot be eliminated.

Vehicles using liquefied petroleum gas (such as propane or butane) must comply with the National Fire Protection Standard (NFPA-58). For a copy of this standard, contact the National Fire Protection Association, One Batterymarch Park, Quincy, MA 02269, Attn: Publication Sales Division.

Cautions. Any changes or modifications to your phone not expressly approved in this document could void your warranty for this equipment and void your authority to operate this equipment. Only use approved batteries, antennas and chargers. The use of any unauthorized accessories may be dangerous and voids the phone warranty if said accessories cause damage or a defect to the phone.

Although your phone is quite sturdy, it is a complex piece of equipment and can be broken. Avoid dropping, hitting, bending or sitting on it.

Body-Worn Operation. To comply with FCC RF exposure guidelines, use of this device for body-worn operational configurations is limited to accessories tested and approved by Kyocera Wireless Corp. Accessories used with the Kyocera 2255 for body-worn operations must not contain any metallic components and must provide at least 22.5mm separation distance including the antenna and the user's body. Other

accessories that have not been tested for body-worn SAR may not comply with FCC radiation exposure limits and should be avoided.

Note: Use of non-Sprint PCS approved accessories may violate FCC RF exposure guidelines.

For more information about RF exposure, please visit the FCC website at <http://www.fcc.gov/oet/fccid>.

Specific Absorption Rate (SAR) for Wireless Phones. The SAR is a value that corresponds to the relative amount of RF energy absorbed in the head of a user of a wireless handset.

The SAR value of a phone is the result of an extensive testing, measuring and calculation process. It does not represent how much RF the phone emits. All phone models are tested at their highest value in strict laboratory settings. But when in operation, the SAR of a phone can be substantially less than the level reported to the FCC. This is because of a variety of factors including its proximity to a base station antenna, phone design and other factors. What is important to remember is that each phone meets strict federal guidelines. Variations in SARs do not represent a variation in safety.

All phones must meet the federal standard, which incorporates a substantial margin of safety. As stated above, variations in SAR values between different model phones do not mean variations in safety. SAR values at or below the federal standard of 1.6 mW/g are considered safe for use by the public.

The highest reported SAR values of Kyocera 2255 are:

AMPS mode (Part 22) - Head: 1.11 mW/g; Body-worn: 0.562 mW/g with 22.5mm separation, and 0.429 mW/g for KWC's TXLCC10001 leather case with belt clip.

PCS mode (Part 24) - Head: 1.47 mW/g; Body-worn: 0.400 mW/g with 22.5mm separation, and 0.271 mW/g for KWC's TXLCC10001 leather case with belt clip.

FCC Radio Frequency Emission

This phone meets the FCC Radio Frequency Emission Guidelines, FCC ID number: OVFKWC-2255. More information of the phone's SAR can be found from the following FCC website: <http://www.fcc.gov/oet/fccid>.