

APPENDIX C: DIELECTRIC PARAMETERS OF THE TISSUE SIMULANTS

Head tissue simulant dielectric parameters used in the measurements:

f (MHz)	Date	Ch 1013 824.7 MHz		Ch 384 836.5 MHz		Ch 777 848.3 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
CDMA800 (BC0)	2014-09-01	40.9	0.87	40.8	0.88	40.7	0.89
f (MHz)	Date	Ch 476 817.9 MHz		Ch 580 820.5 MHz		Ch 684 823.1 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
CDMA800 (BC10)	2014-09-01	41.0	0.87	40.9	0.87	40.9	0.87
f (MHz)	Date	Dielectric Parameters					
		Ch 128 824.2 MHz		Ch 190 836.6 MHz		Ch 251 848.8 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
GSM/GPRS/ EGPRS850	2014-08-27	41.5	0.89	41.4	0.90	41.3	0.90
f (MHz)	Date	Dielectric Parameters					
		Ch 4132 826.4 MHz		Ch 4175 835.0 MHz		Ch 4233 846.6 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
WCDMA850	2014-08-25	41.2	0.87	41.1	0.88	41.1	0.88
F (MHz)	Date	Dielectric Parameters					
		-		Ch 26740 819.0 MHz		-	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
LTE850 (Band 26 Limited)	2014-08-22	-	-	41.7	0.89	-	-
	2014-08-27	-	-	41.5	0.89	-	-
	2014-09-05	-	-	40.2	0.86	-	-
f (MHz)	Date	Dielectric Parameters					
		Ch 26765 821.5 MHz		Ch 26865 831.5 MHz		Ch 26965 841.5 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
LTE850 (Band 26)	2014-08-27	41.5	0.89	41.4	0.89	41.3	0.90
	2014-09-05	40.2	0.86	40.1	0.86	40.1	0.87
f (MHz)	Date	Dielectric Parameters					
		Ch 25 1851.25 MHz		Ch 600 1880.0 MHz		Ch 1175 1908.75 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
CDMA1900 (BC1)	2014-09-02	38.8	1.40	38.7	1.43	38.6	1.46

(Table continues)

(Table continues)

f (MHz)	Date	Dielectric Parameters					
		Ch 512 1850.2 MHz		Ch 661 1880.0 MHz		Ch 810 1909.8 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
GSM/GPRS/ EGPRS1900	2014-09-02	38.8	1.40	38.7	1.43	38.6	1.46
f (MHz)	Date	Dielectric Parameters					
		Ch 9262 1852.4 MHz		Ch 9400 1880.0 MHz		Ch 9538 1907.6 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
WCDMA1900	2014-08-29	39.4	1.40	39.2	1.43	39.1	1.45
f (MHz)	Date	Dielectric Parameters					
		Ch 26140 1860.0 MHz		Ch 26365 1882.5 MHz		Ch 26590 1905.0 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
LTE1900 (Band 25)	2014-08-22	40.1	1.43	40.0	1.44	39.9	1.46
	2014-08-25	38.4	1.41	38.3	1.43	38.2	1.45
f (MHz)	Date	Dielectric Parameters					
		Ch 1 2412.0 MHz		Ch 6 2437.0 MHz		Ch 11 2462.0 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
WLAN2450	2014-08-26	38.4	1.77	38.3	1.80	38.2	1.82
f (MHz)	Date	Dielectric Parameters					
		Ch 39750 2506.0 MHz		Ch 40620 2593.0 MHz		Ch 41490 2680.0 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
LTE2500 (Band 41)	2014-08-28	39.1	1.87	39.2	2.01	38.5	2.14
	2014-09-05	37.9	1.88	37.5	2.00	37.1	2.10

Body tissue simulant dielectric parameters used in the measurements:

f (MHz)	Date	Ch 1013 824.7 MHz		Ch 384 836.5 MHz		Ch 777 848.3 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
CDMA800 (BC0)	2014-08-29	54.7	0.95	54.6	0.96	54.5	0.98
f (MHz)	Date	Ch 476 817.9 MHz		Ch 580 820.5 MHz		Ch 684 823.1 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
CDMA800 (BC10)	2014-08-29	54.8	0.94	54.7	0.95	54.7	0.95
f (MHz)	Date	Dielectric Parameters					
		Ch 128 824.2 MHz		Ch 190 836.6 MHz		Ch 251 848.8 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
GSM/GPRS/ EGPRS850	2014-09-03	54.4	0.93	54.2	0.95	54.1	0.96
	2014-09-04	54.1	0.94	54.0	0.95	53.9	0.97
f (MHz)	Date	Dielectric Parameters					
		Ch 4132 826.4 MHz		Ch 4175 835.0 MHz		Ch 4233 846.6 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
WCDMA850	2014-09-03	54.4	0.94	54.3	0.95	54.1	0.96
F (MHz)	Date	Dielectric Parameters					
		-		Ch 26740 819.0 MHz		-	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
LTE850 (Band 26 Limited)	2014-08-28	-	-	54.1	0.94	-	-
	2014-08-29	-	-	54.8	0.94	-	-
	2014-09-04	-	-	54.2	0.94	-	-
f (MHz)	Date	Dielectric Parameters					
		Ch 26765 821.5 MHz		Ch 26865 831.5 MHz		Ch 26965 841.5 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
LTE850 (Band 26)	2014-08-28	54.1	0.94	53.9	0.95	53.8	0.96
	2014-08-29	54.7	0.95	54.6	0.96	54.5	0.97
	2014-09-04	54.2	0.94	54.1	0.95	54.0	0.96
f (MHz)	Date	Dielectric Parameters					
		Ch 25 1851.25 MHz		Ch 600 1880.0 MHz		Ch 1175 1908.75 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
CDMA1900 (BC1)	2014-09-03	50.9	1.45	50.8	1.48	50.7	1.51

(Table continues)

(Table continues)

f (MHz)	Date	Dielectric Parameters					
		Ch 512 1850.2 MHz		Ch 661 1880.0 MHz		Ch 810 1909.8 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
GSM/GPRS/ EGPRS1900	2014-09-05	50.8	1.44	50.7	1.47	50.6	1.50
f (MHz)	Date	Dielectric Parameters					
		Ch 9262 1852.4 MHz		Ch 9400 1880.0 MHz		Ch 9538 1907.6 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
WCDMA1900	2014-09-04	51.0	1.45	50.9	1.48	50.8	1.51
f (MHz)	Date	Dielectric Parameters					
		Ch 26140 1860.0 MHz		Ch 26365 1882.5 MHz		Ch 26590 1905.0 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
LTE1900 (Band 25)	2014-08-27	51.9	1.49	51.8	1.51	51.7	1.53
	2014-08-28	51.9	1.50	51.8	1.52	51.7	1.54
	2014-09-05	50.8	1.45	50.7	1.47	50.7	1.49
f (MHz)	Date	Dielectric Parameters					
		Ch 1 2412.0 MHz		Ch 6 2437.0 MHz		Ch 11 2462.0 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
WLAN2450	2014-09-03	50.7	1.86	50.7	1.91	50.8	1.95
f (MHz)	Date	Dielectric Parameters					
		Ch 39750 2506.0 MHz		Ch 40620 2593.0 MHz		Ch 41490 2680.0 MHz	
		ϵ_r	σ [S/m]	ϵ_r	σ [S/m]	ϵ_r	σ [S/m]
LTE2500 (Band 41)	2014-09-04	51.5	2.00	51.2	2.14	50.8	2.27