

Tissue Parameters

Recipe for liquids below 1 GHz:

Water 35-58%
Sugar 40-60%
Salt 0-6%
Hydroxyethyl-cellulose <0.3%
Preventol-D7 0.1-0.7%

Recipe for liquids above 1-3 GHz:

Water 52-75%
DGBE 25-48%
Salt <1.0%

SAR measurements were made within 24 hours of the measurement of liquid parameters.

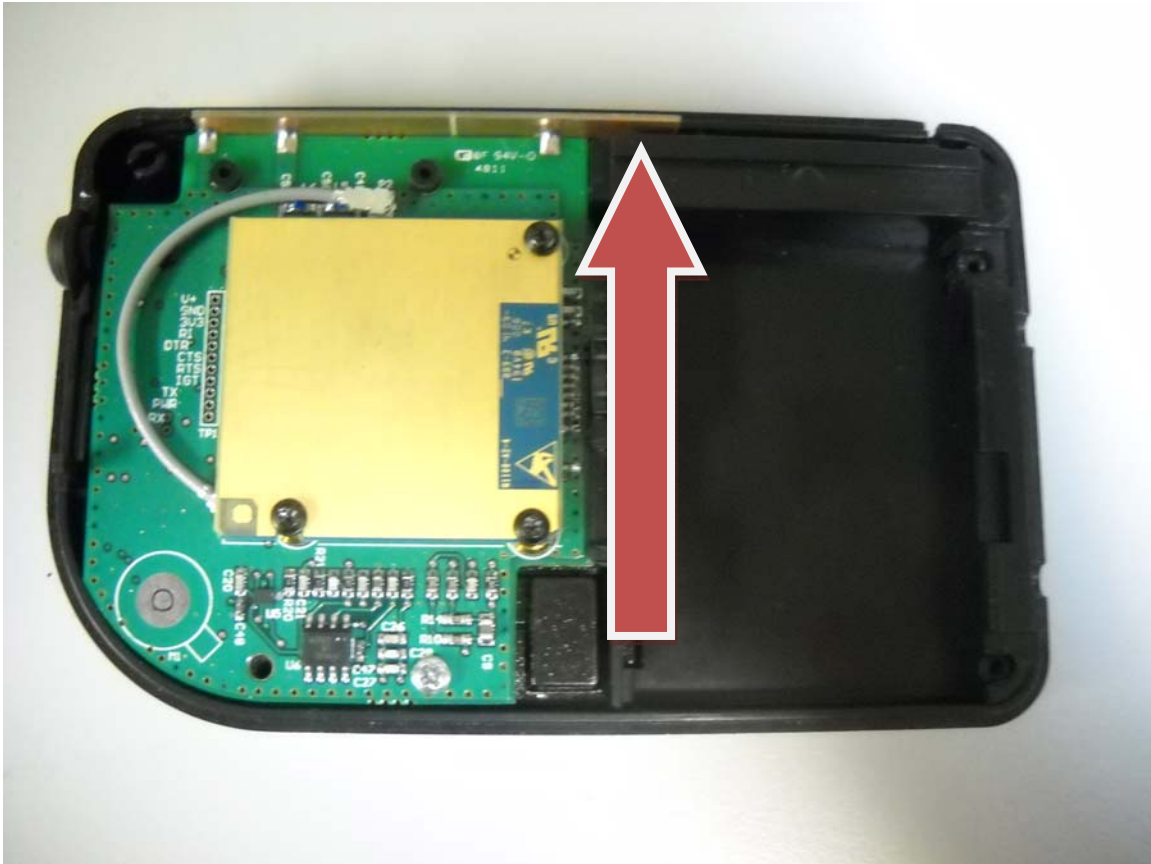
850MHz Body Liquid:

Date	Freq. (MHz)	Rel. Perm.	Condy (S/m)
2012-02-13	824.2	54.2	0.986
	835	54.02	0.998
	836.6	54.02	1
	848.8	53.84	1.012

1900MHz Body Liquid:

Date	Freq. (MHz)	Rel. Perm.	Condy (S/m)
2012-02-16	1850.2	52.36	1.461
	1880	51.85	1.485
	1900	51.61	1.484
	1909.8	51.56	1.475

Antenna Locations



Test Equipment**SAR1 Lab**

Instrument description	Supplier / Manufacturer	Model	Serial No.	Calibration (date)	Calibration Due (date)
Robot	Staubli	TX90	F10/5D3NA 1/A/01	N/A	N/A
SAM Twin Phantom	SPEAG	SM 000 T01 DA	1592	N/A	N/A
Elliptical Phantom	SPEAG	QD OVA 001 BB	1092	N/A	N/A
Software	SPEAG	Dasy52.6.2.482	N/A	N/A	N/A
Device Holder	SPEAG	SD 000H01	N/A	N/A	N/A
Data Acquisition Electronics	SPEAG	DAE4	1233	2010/10/13	2013/10/13
SAR Probe	SPEAG	ES3DV3	3244	2011/10/25	2012/10/25

SAR 3 Lab

Instrument description	Supplier / Manufacturer	Model	Serial No.	Calibration (date)	Calibration Due (date)
Robot	Staubli	TX90	F11/5G2MA 1/C/01	N/A	N/A
SAM Twin Phantom	SPEAG	SM 000 T01 DA	1637	N/A	N/A
SAM Twin Phantom	SPEAG	SM 000 T01 DA	1638	N/A	N/A
Elliptical Phantom	SPEAG	QD OVA 001 BB	1124	N/A	N/A
Software	SPEAG	Dasy52.6.2.482	N/A	N/A	N/A
Device Holder	SPEAG	SD 000H01	N/A	N/A	N/A
Data Acquisition Electronics	SPEAG	DAE4	1266	2011/05/30	2014/05/30
SAR Probe	SPEAG	ES3DV3	3260	2011/05/15	2011/05/15

Shared Equipment

Instrument description	Supplier / Manufacturer	Model	Serial No.	Calibration (date)	Calibration Due (date)
850 MHz Body Tissue Simulant	SPEAG	MSL 900	100818-1	2012/02/13	N/A
1900 MHz Body Tissue Simulant	SPEAG	MSL 1900	100824-3	2012/02/16	N/A
835 MHz Dipole	SPEAG	D835V2	4D113	2011-01-10	2013-01-10
1900 MHz Dipole	SPEAG	D1900V2	5D135	2011-01-05	2013-01-05
Network Analyzer	Agilent	E753ES	US39172511	2011/06/22	2012/06/22
Calibration Kit	HP	85052D	2830A00748	2011/03/22	2012/03/22
Directional coupler	Werlatone	C6529	11249	N/A	N/A
RF Amplifier	Vectawave	VTL5400	N/A	N/A	N/A
Dielectric Measurement Kit	IndexSAR	Di-Line	N/A	N/A	N/A
Synthesized CW Generator	Agilent	8371213	US37101255	N/A	N/A
Power Meter	Agilent	E4419B	MY45101996	2011/07/29	2012/07/29
Power Sensor	Agilent	E9300A	MY41498484	2011/08/05	2012/08/05
Power Sensor	Agilent	E9300A	MY41498492	2011/08/05	2012/08/05

Equipment Calibration/Performance Documents:

KDB 450824 states that the return-loss and impedance of dipoles should be measured at least annually to ensure dipoles meet specification. Section 1c) states the return loss should not deviate by more than 20% (0.79 dB) of the previous measurement. Section 1d) states the real or imaginary parts of the impedance should not deviate by more than 5 Ω from the previous measurement.

Measurements were made with the dipole against the flat phantom, filled with head or body liquid for the respective frequency.

Muscle Simulating Liquid

Dipole	835 MHz SN: 4d113	1900 MHz SN: 5d135
Date Measured	2012/03/05	2012/03/05
Measured Return-Loss [dB]	-27.304	-21.620
Target Return-Loss [dB]	-26.8	-22
Return-Loss Deviation [dB]	-0.50	0.38
Measured Real Impedance [Ω]	45.08	44.29
Target Real Impedance [Ω]	48.1	47.3
Real Impedance Deviation [Ω]	-3.02	-3.01
Measured Imaginary Impedance [Ω]	-5.90	5.62
Target Imaginary Impedance [Ω]	-4.1	7.3
Imaginary Impedance Deviation [Ω]	-1.8	-1.68

SAR Test Report No: SAR_TZMED_001_10001_FCC

FCC ID: ZIMTZMR

IC ID: 9647Z-TZMR

Date of Report: 2012-03-16



Appendix C

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Attached:

SAR Probe ES3DV3 Calibration Report

835 MHz Dipole Calibration Report

1900 MHz Dipole Calibration Report