

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%

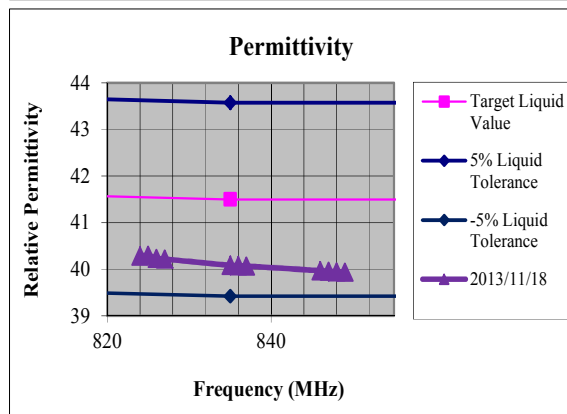
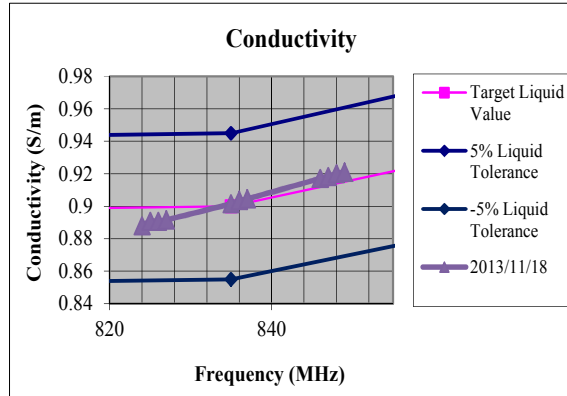
DGBE 25-48%

Salt <1.0%

SAR measurements were made within 24 hours of the measurement of liquid parameters. Relative permittivity and conductivity are within $\pm 5\%$ of the target.

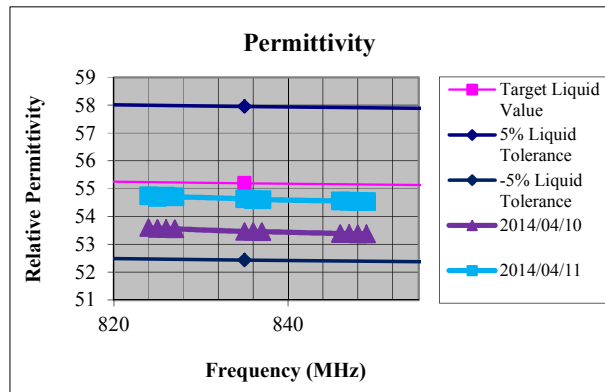
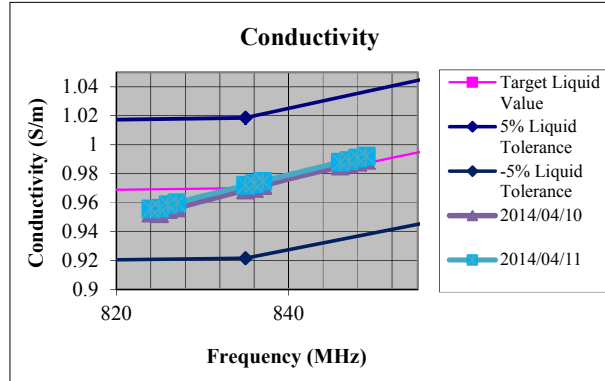
850 MHz Head Liquid

Date	Temp (°C)	Frequency (MHz)	Relative Permativity	Conductivity (S/m)
2013/11/18	20.3	824	40.2839	0.888
		825	40.3025	0.8907
		826	40.2324	0.8908
		827	40.2193	0.8916
		835	40.0848	0.9016
		836	40.0805	0.9036
		837	40.0701	0.9046
		846	39.9696	0.9171
		847	39.9601	0.9184
		848	39.9477	0.9201
849	39.9415	0.921		



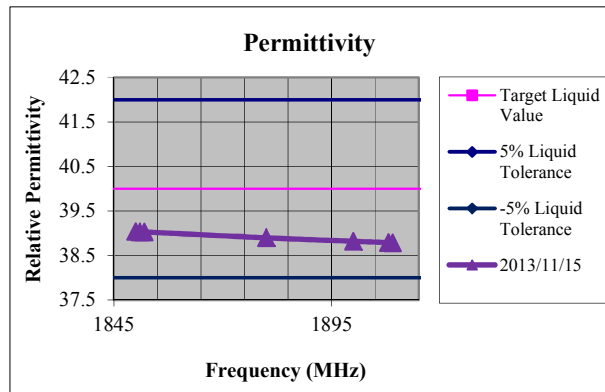
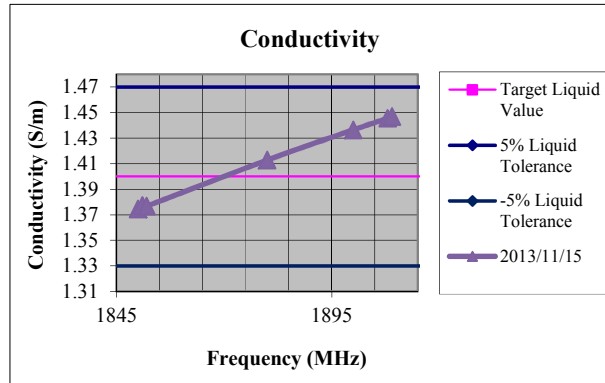
850 MHz Body Liquid

Date	Temp (°C)	Frequency (MHz)	Relative Permativity	Conductivity (S/m)
2014/04/10	20.9	824	53.601	0.9527
		825	53.5744	0.9523
		826	53.5703	0.955
		827	53.5582	0.9562
		835	53.4621	0.9686
		836	53.4617	0.9697
		837	53.458	0.9717
		846	53.3914	0.9851
		847	53.3878	0.9865
		848	53.3794	0.9878
		849	53.3767	0.9892
2014/04/11	21	824	54.7464	0.9555
		825	54.6901	0.956
		826	54.7335	0.9585
		827	54.7138	0.9598
		835	54.6352	0.9719
		836	54.6094	0.973
		837	54.6095	0.9747
		846	54.5574	0.9879
		847	54.5488	0.9889
		848	54.542	0.9908
849	54.5365	0.9921		



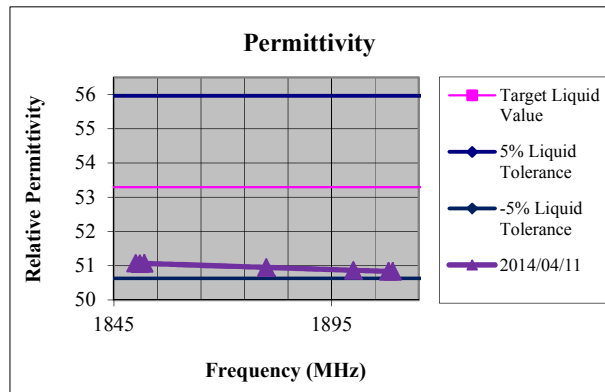
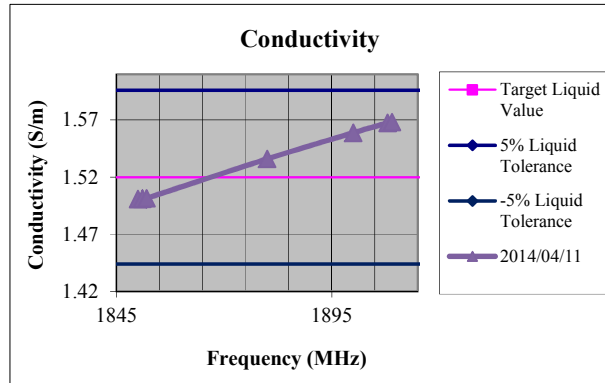
1900 MHz Head Liquid

Date	Temp (°C)	Frequency (MHz)	Relative Permativity	Conductivity (S/m)
2013/11/15	20.3	1850	39.0388	1.3745
		1851	39.0278	1.3773
		1852	39.0297	1.3768
		1880	38.8963	1.4128
		1900	38.8193	1.4365
		1908	38.7908	1.4455
		1909	38.7858	1.4469



1900 MHz Body Liquid

Date	Temp (°C)	Frequency (MHz)	Relative Permativity	Conductivity (S/m)
2014/04/11	21.6	1850	51.079	1.5008
		1851	51.0655	1.501
		1852	51.069	1.5015
		1880	50.9519	1.5359
		1900	50.8698	1.5588
		1908	50.8365	1.5675
		1909	50.8338	1.5681



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

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

SAR 4 Lab

Instrument description	Supplier / Manufacturer	Model	Serial No.	Calibration (date)	Calibration Due (date)
Robot	Staubli	TX90	F11/5GW9A 1/A/01	N/A	N/A
SAM Twin Phantom	SPEAG	SM 000 T01 DA	1639	N/A	N/A
SAM Twin Phantom	SPEAG	SM 000 T01 DA	1640	N/A	N/A
Elliptical Phantom	SPEAG	QD OVA 001 BB	1125	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

Shared Equipment

Instrument description	Supplier / Manufacturer	Model	Serial No.	Calibration (date)	Calibration Due (date)
Data Acquisition Electronics	SPEAG	DAE4	1265	2013/06/11	2014/06/11
Data Acquisition Electronics	SPEAG	DAE4	1233	2012/11/06	2014/03/16
Data Acquisition Electronics	SPEAG	DAE4	1233	2014/03/17	2015/03/17
Data Acquisition Electronics	SPEAG	DAE4	1375	2013/06/10	2014/06/10
SAR Probe	SPEAG	ES3DV3	3323	2013/06/12	2014/06/12
SAR Probe	SPEAG	ES3DV3	3260	2013/06/19	2014/06/19
SAR Probe	SPEAG	ES3DV3	3260	2014/03/19	2015/13/19
900 MHz Head Tissue Simulant	SPEAG	HSL 900	100922-1	2013/11/18	N/A
900 MHz Body Tissue Simulant	SPEAG	MSL 900	110518-7	2014/04/10 – 2014/04/11	N/A
1900 MHz Head Tissue Simulant	SPEAG	HSL 1900	100907-3	2013/11/15	N/A
1900 MHz Body Tissue Simulant	SPEAG	MSL 1900	100824-3	2011/02/04 – 2011/02/19	N/A
835 MHz Dipole	SPEAG	D835V2	4d113	2012/11/05	2014/11/05
835 MHz Dipole	SPEAG	D835V2	4d155	2013/06/06	2015/06/06
1900 MHz Dipole	SPEAG	D1900V2	5d135	2012/11/06	2014/11/06
1900 MHz Dipole	SPEAG	D1900V2	5d172	2013/06/10	2015/06/10
Network Analyzer	Agilent	FieldFox N9923A	MY51491621	2013/06/21	2014/06/21
Directional coupler	Werlatone	C6529	11249	N/A	N/A
RF Amplifier	Vectawave	VTL5400	N/A	N/A	N/A
Dielectric Measurement Kit	SPEAG	DAK-3.5	1023	2012/02/20	2014/02/20
Synthesized CW Generator	Agilent	8371213	US37101255	N/A	N/A
Power Meter	Agilent	E4419B	MY45101996	2013/06/03	2015/06/03
Power Sensor	Agilent	E9300A	MY41498484	2013/06/04	2015/06/04
Power Sensor	Agilent	E9300A	MY41498492	2013/06/04	2015/06/04
Radio Communications Tester	Rohde & Schwarz	CMU 200	101821	2013/06	2015/06

Equipment Calibration/Performance Documents:

Attached:

SAR Probe ES3DV3 Calibration Report

835 MHz Dipole Calibration Report

1900 MHz Dipole Calibration Report