Tissue Parameters

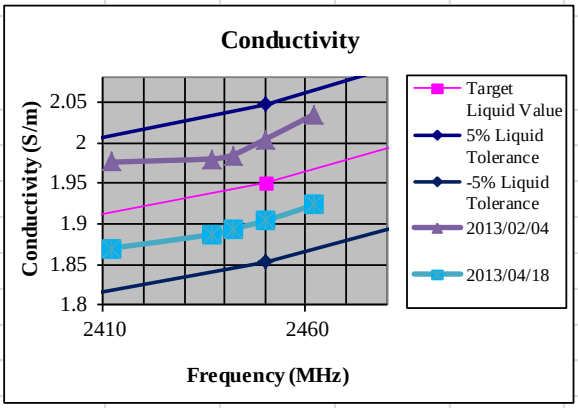
Recipe for liquids above 1-3 GHz:
Water 52-75%
DGBE 25-48%
Salt <1.0%

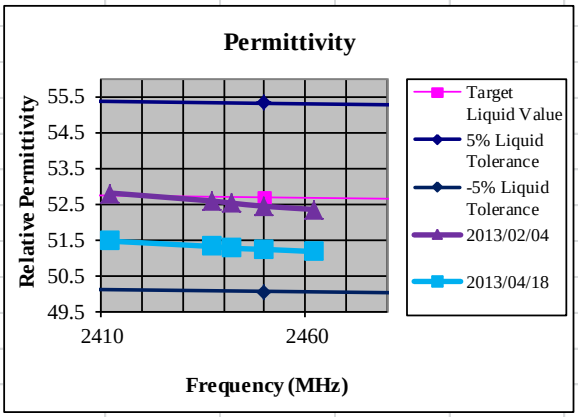
Recipe for liquids 5-6 GHz:
Water 60-80%
Esters, Emulsifiers, Inhibitors 20-40%
Sodium Chloride 0-1.5%

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

2450 MHz Body Liquid

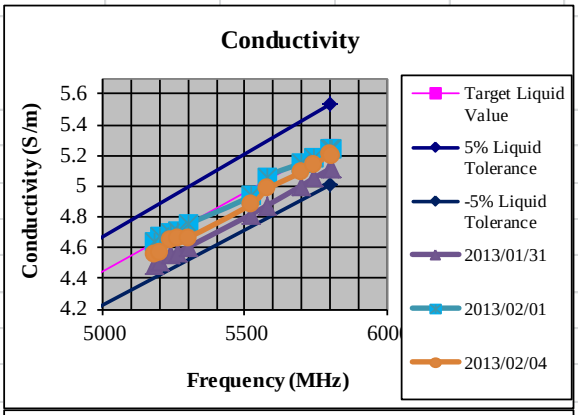
Date	Temp (°C)	Frequency (MHz)	Relative Permativity	Conductivity (S/m)
2013/02/04	20.2	2412	52.8202	1.976
		2437	52.5956	1.9801
		2442	52.5343	1.9847
		2450	52.4467	2.0041
		2462	52.359	2.0347
2013/04/18	23.3	2412	51.4763	1.8699
		2437	51.3266	1.8869
		2442	51.2755	1.8937
		2450	51.2445	1.9038
		2462	51.1833	1.9232

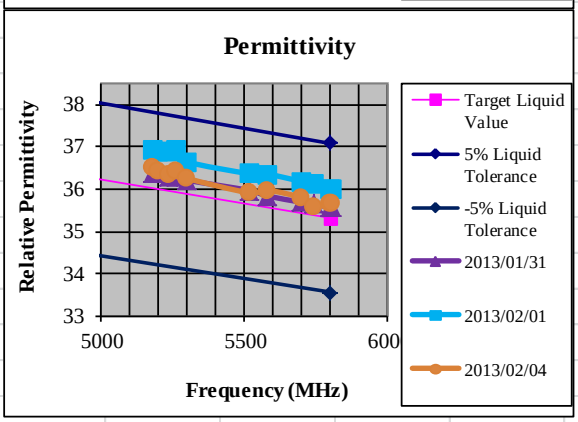




5000 MHz Head Liquid

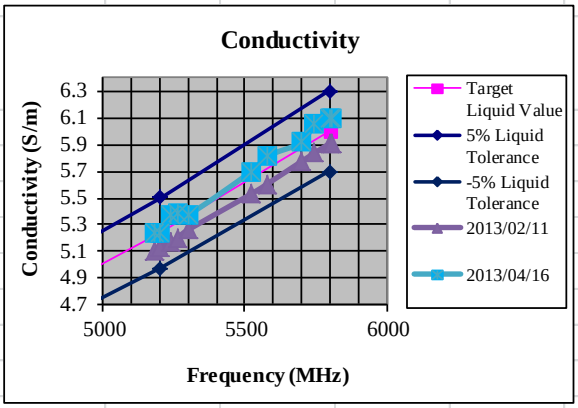
Date	Temp (°C)	Frequency (MHz)	Relative Permativity	Conductivity (S/m)
2013/01/31	20.8	5180	36.3927	4.4846
		5200	36.3763	4.505
		5240	36.282	4.5524
		5260	36.2934	4.5667
		5300	36.2141	4.6041
		5520	35.9679	4.8146
		5580	35.8426	4.8764
		5700	35.6936	5.0031
		5745	35.6447	5.0549
		5800	35.5728	5.1126
		5805	35.5659	5.118
2013/02/01	21.6	5180	36.9453	4.6433
		5200	36.8699	4.6683
		5240	36.9088	4.7009
		5260	36.9126	4.707
		5300	36.6491	4.7533
		5520	36.3653	4.9356
		5580	36.3596	5.0626
		5700	36.1862	5.1499
		5745	36.1379	5.1859
		5800	36.0098	5.2422
		5805	36.0006	5.2457
2013/02/04	20.9	5180	36.508	4.5519
		5200	36.4073	4.5654
		5240	36.333	4.6529
		5260	36.4141	4.6585
		5300	36.2598	4.666
		5520	35.9119	4.8795
		5580	35.9777	4.9818
		5700	35.7998	5.0913
		5745	35.5944	5.1388
		5800	35.6749	5.2063
		5805	35.662	5.1998

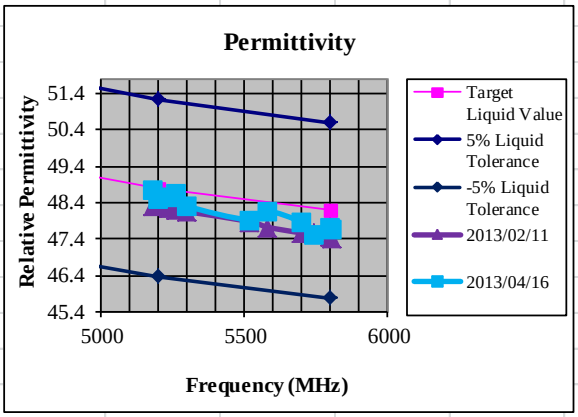




5000 MHz Body Liquid

Date	Temp (°C)	Frequency (MHz)	Relative Permativity	Conductivity (S/m)
2013/02/11	23.7	5180	48.3244	5.1067
		5200	48.3298	5.1366
		5240	48.2415	5.1698
		5260	48.2068	5.1987
		5300	48.1541	5.263
		5520	47.8832	5.5275
		5580	47.7301	5.6072
		5700	47.5736	5.774
		5745	47.5856	5.8358
		5800	47.4485	5.9088
		5805	47.4363	5.913
2013/04/16	21.1	5180	48.7652	5.2327
		5200	48.4839	5.241
		5240	48.5654	5.3738
		5260	48.6318	5.3905
		5300	48.3137	5.3744
		5520	47.9213	5.6947
		5580	48.1705	5.8141
		5700	47.8631	5.9157
		5745	47.519	6.0534
		5800	47.7269	6.1009
		5805	47.6662	6.0916





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	2012/11/06	2013/11/06
SAR Probe	SPEAG	ES3DV3	3244	2012/11/07	2013/11/07
SAR Probe	SPEAG	EX3DV4	3739	2012/11/14	2013/11/14

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	3261	2012/08/17	2013/08/17
SAR Probe	SPEAG	EX3DV4	3771	2012/08/22	2013/08/22

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
Data Acquisition Electronics	SPEAG	DAE4	1265	2011/05/13	2014/05/13
SAR Probe	SPEAG	ES3DV3	3260	2012/09/25	2013/09/25
SAR Probe	SPEAG	EX3DV4	3786	2012/08/22	2013/08/22

Shared Equipment

Instrument description	Supplier / Manufacturer	Model	Serial No.	Calibration (date)	Calibration Due (date)
2450 MHz Head Tissue Simulant	SPEAG	HSL 2450	110615-2	2013/01/31	N/A
2450 MHz Body Tissue Simulant	SPEAG	MSL 2450	110615-1	2013/02/04 – 2013/04/18	N/A
5000 MHz Head Tissue Simulant	SPEAG	HSL 501	100901-1	2013/01/31 – 2013/02/04	N/A
5000 MHz Body Tissue Simulant	SPEAG	MSL 501	100823-1	2013/02/11 – 2013/04/16	N/A
2450 MHz Dipole	SPEAG	D2450V2	859	2012/11/07	2014/11/07
5000 MHz Dipole	SPEAG	D5GHzV2	1096	2012/11/13	2014/11/13
Network Analyzer	Agilent	FieldFox N9923A	MY51491621	2012/04/02	2014/04/02
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	2011/07/29	2013/07/29
Power Sensor	Agilent	E9300A	MY41498484	2011/08/05	2013/08/05
Power Sensor	Agilent	E9300A	MY41498492	2011/08/05	2013/08/05
Radio Communications Tester	Rohde & Schwarz	CMU 200	101821	2011/05	2013/05
Radio Communications Tester	Rohde & Schwarz	CMU 200	109879	2011/05	2013/05
Radio Communications Tester	Rohde & Schwarz	CMU 200	110759	2011/05	2013/05

Equipment Calibration/Performance Documents:

Attached:
SAR Probe ES3DV3 Calibration Report
SAR Probe EX3DV4 Calibration Report
835 MHz Dipole Calibration Report
1900 MHz Dipole Calibration Report
2450 MHz Dipole Calibration Report
5000 MHz Dipole Calibration Report