

A.4 Head Tissue

Broadband head simulating liquid was measured at a temperature of 22 ± 2 °C. The liquid temperature was stabilized within 0.05 °C of the desired temperature. Deviations are presented relative to the reference data for this material. Those parameters have been evaluated from multiple measurements on the used bath with precision reference OCP and further methods. For the measurements the Noise Filter was activated in the software.

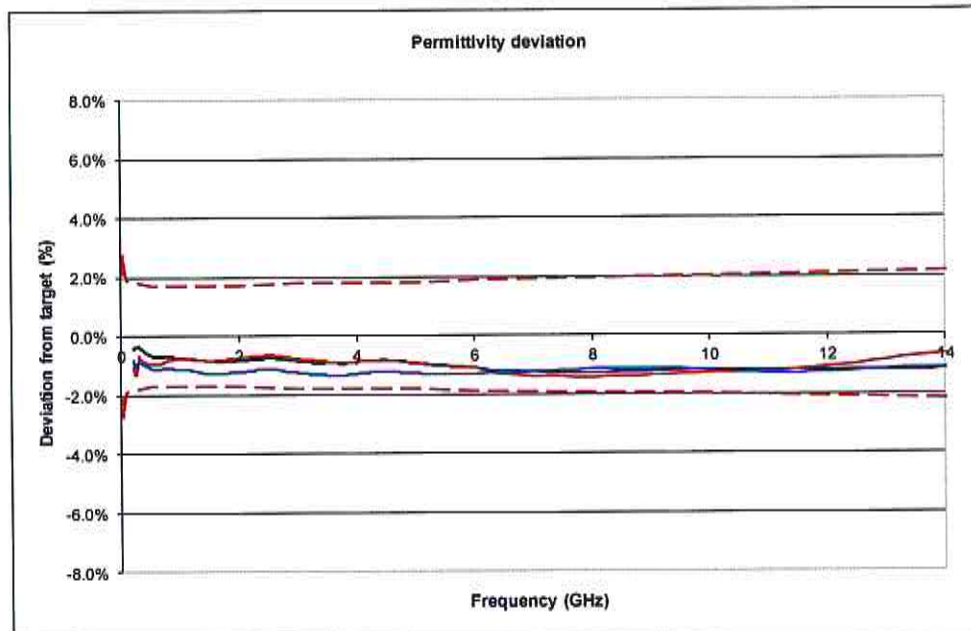


Fig. 4.1 HBBL permittivity deviation from target, 200 MHz – 14 GHz

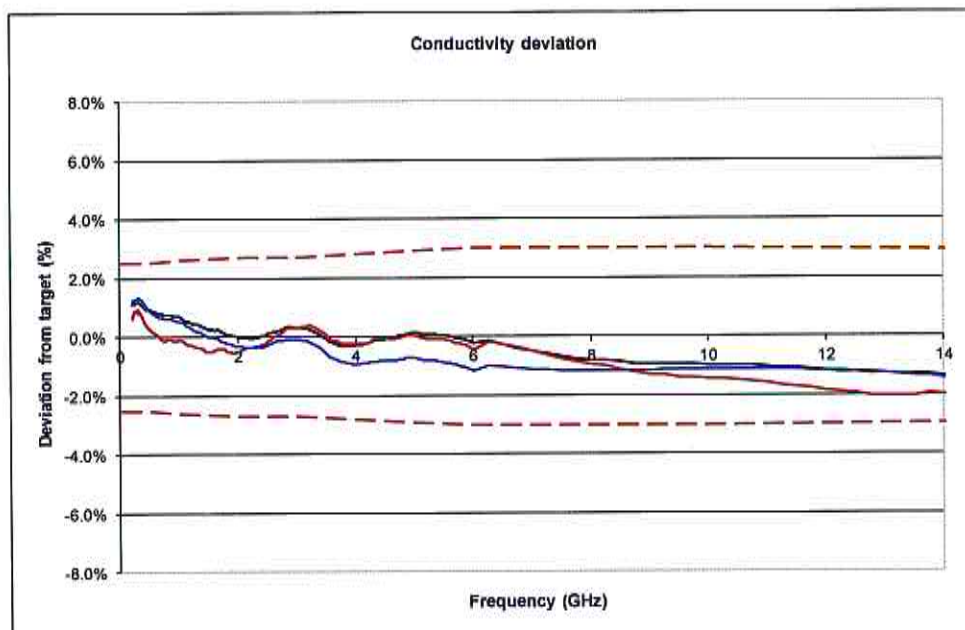


Fig. 4.2 HBBL conductivity deviation from target, 200 MHz – 14 GHz

A.5 0.05 mol/L NaCl solution

0.05 mol/L NaCl / water solution has a static conductivity of 0.5 S/m, similar to MRI HCL (High Conductivity Liquid). It was measured at a temperature of 22 ± 2 °C. The liquid temperature was stabilized within 0.05 °C of the desired temperature. Deviations are presented relative to the reference data for this material. These parameters have been derived from the theoretical model according to [7], matched to the measurements from reference probes and other sources.

A quantity of 1 liter was used for the measurement. For the measurements the Noise Filter was activated in the software.

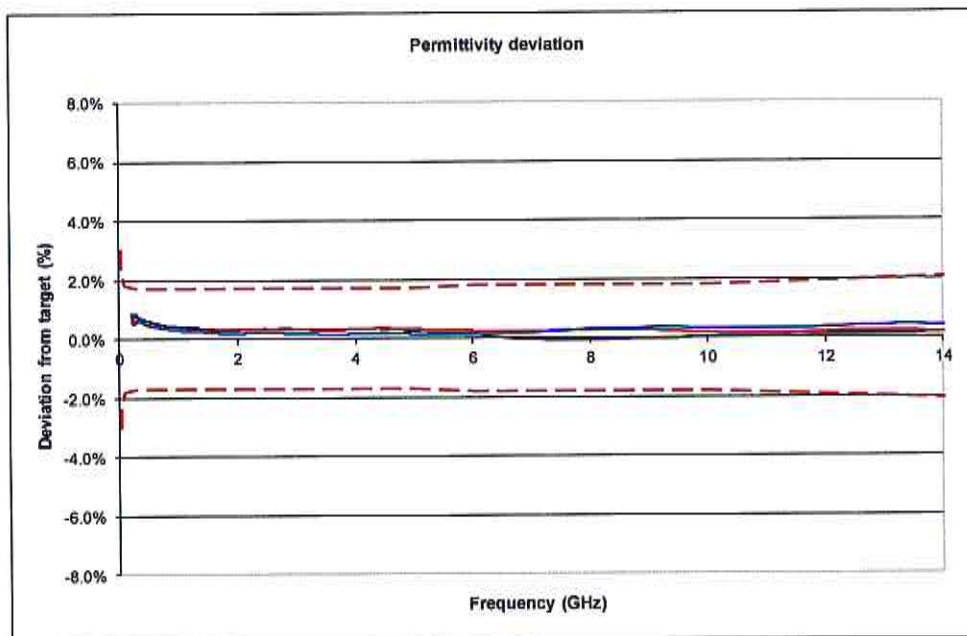


Fig. 5.1 0.05 mol/L solution permittivity deviation from target, 200 MHz – 14 GHz

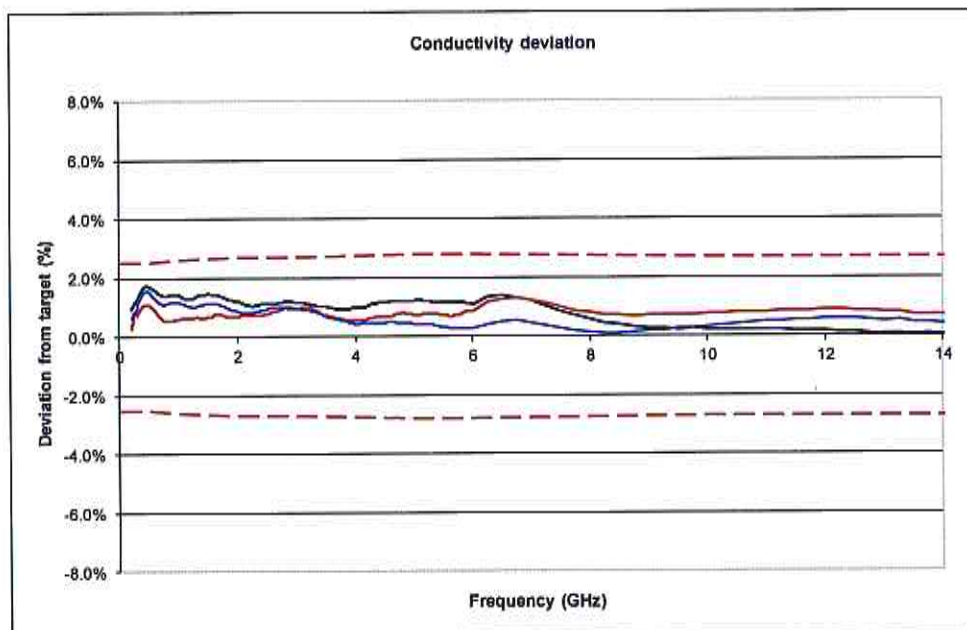


Fig. 5.2 0.05 mol/L solution conductivity deviation from target, 200 MHz – 14 GHz

Appendix B: Nominal parameters of reference materials used for calibration (additional assessments outside the scope of SCS0108)

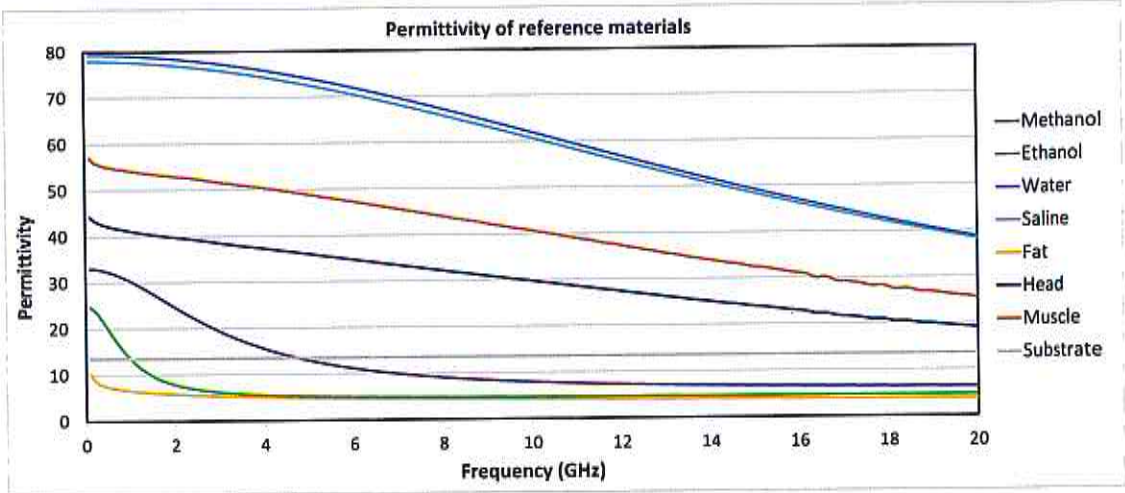


Fig. B.1 Permittivity of reference materials

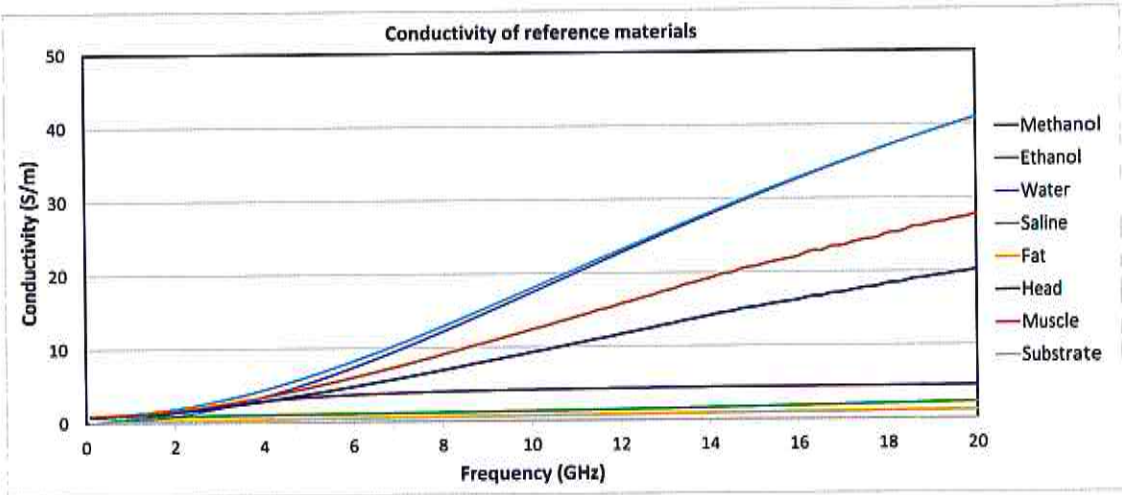


Fig. B.2 Conductivity of reference materials

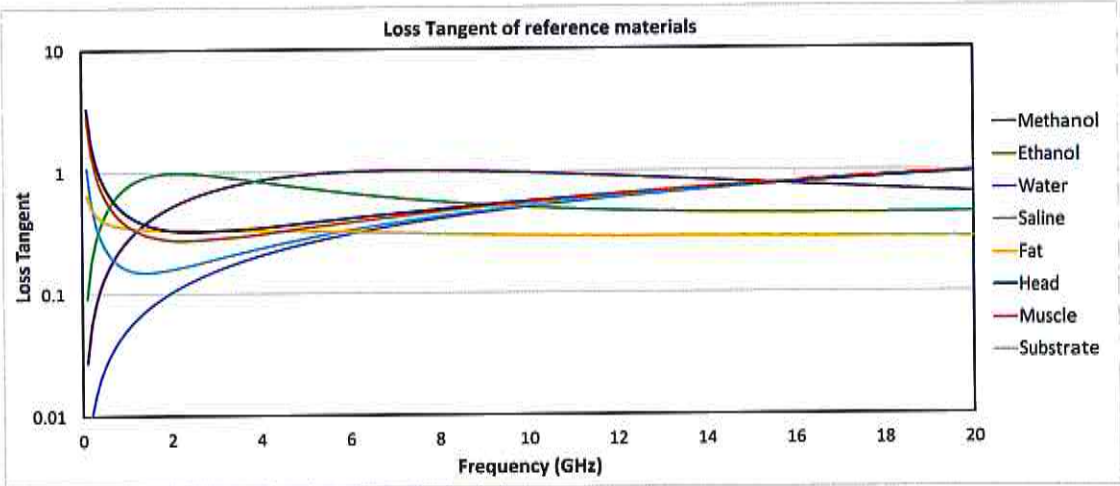


Fig. B.3 Loss tangent of reference materials

Appendix C: Measurements performed with R140 vector reflectometer (additional assessments outside the scope of SCS0108)

VNA type	Planar R140 reflectometer
Serial No	0011213
Software version	DAK Measurement Solver 2.6.1.7 Calibration Type: Air / short / water (set to measured water temp.) Probe type: "DAKS3.5" (software setting)
Further settings	VNA bandwidth setting: 100 Hz

Measurements were performed on Methanol, Head Tissue simulating liquid and 0.05 mol/L NaCl solution to illustrate the performance of the complete system (probe + reflectometer). For each material one measurement was taken and evaluated on the same way as shown in Appendix A3-A5. For the measurements the Noise Filter was activated in the software.

C.1 Methanol

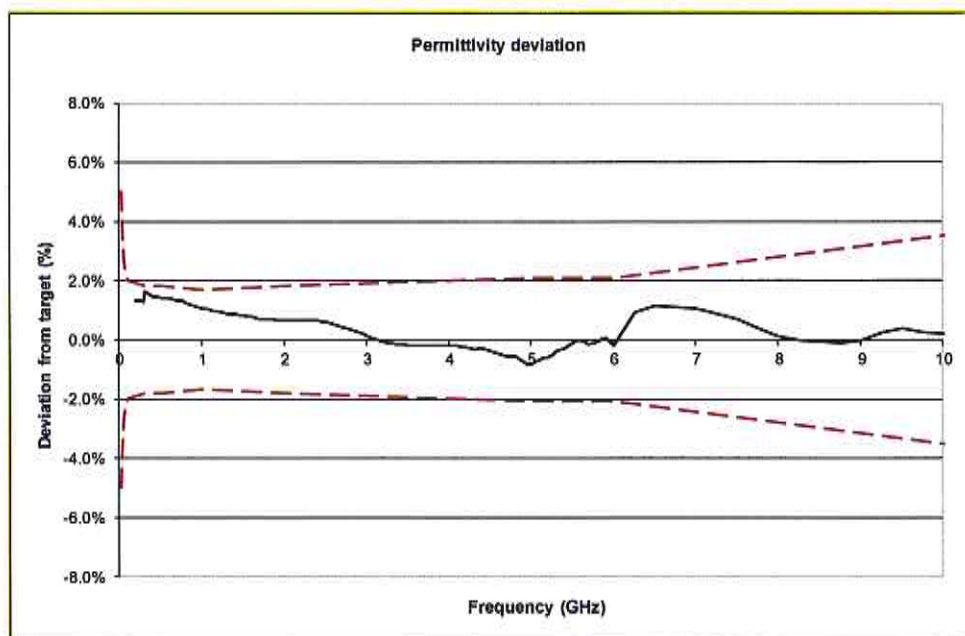


Fig. C.1.1 Methanol permittivity deviation from target, 200 MHz – 10 GHz

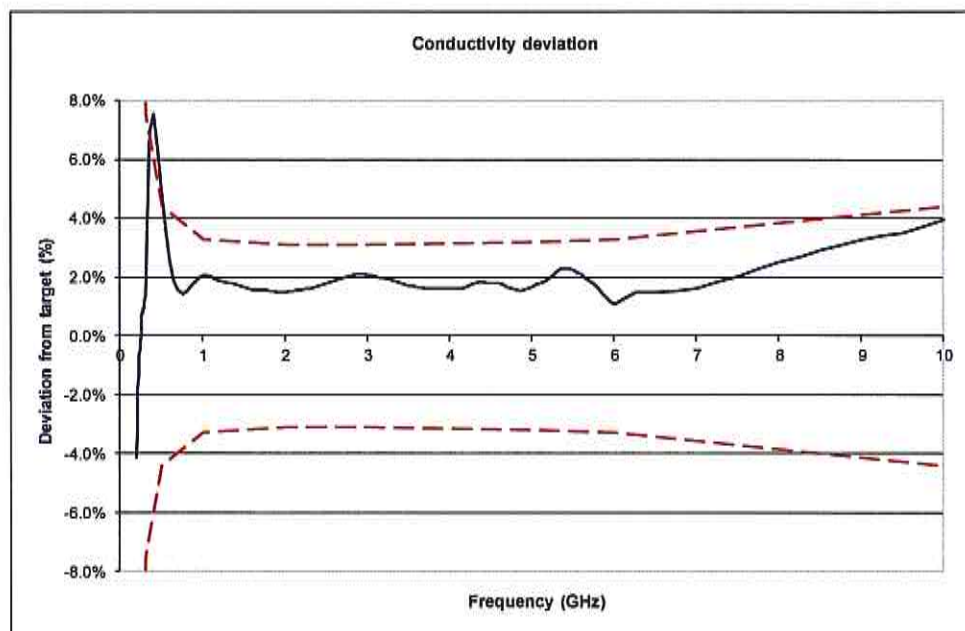


Fig. C.1.2 Methanol conductivity deviation from target, 200 MHz – 10 GHz

Note: Low absolute conductivity values can lead to high conductivity error at low frequencies, because of this average of filtered and unfiltered curves is shown below 700 MHz.

C.2 Head Tissue

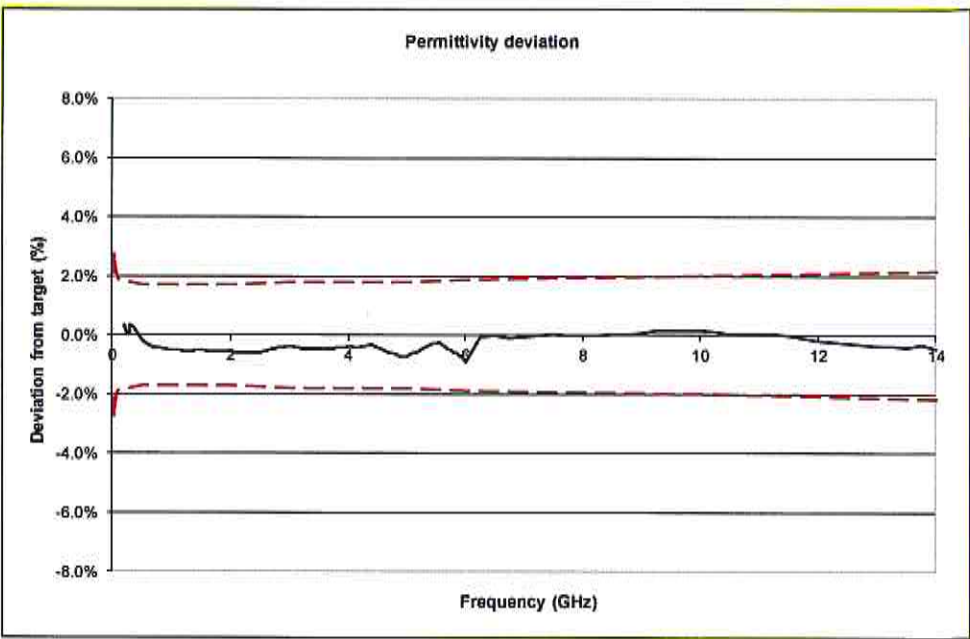


Fig. C.2.1 HBBL permittivity deviation from target, 200 MHz – 14 GHz

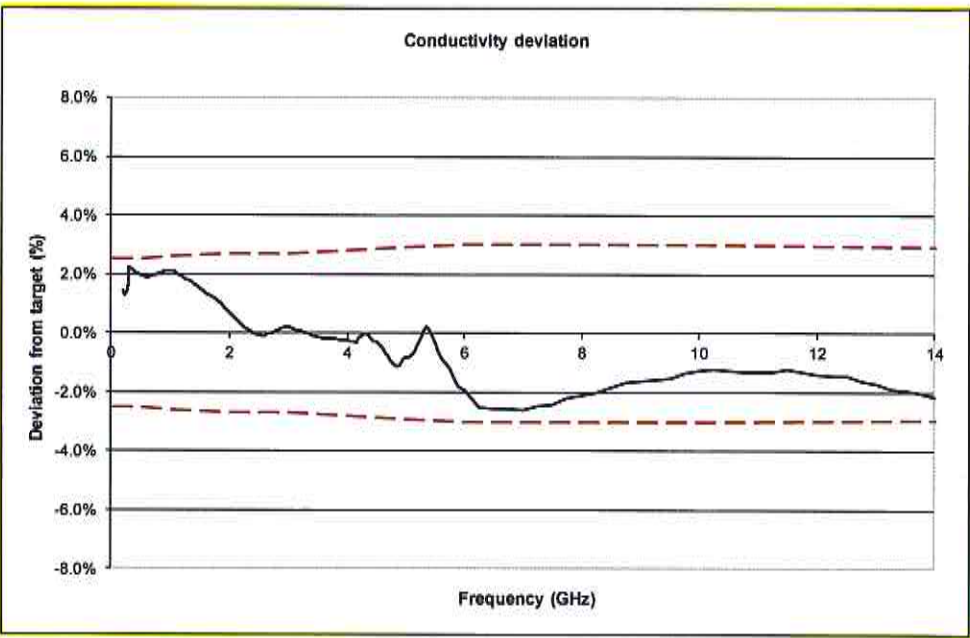


Fig. C.2.2 HBBL conductivity deviation from target, 200 MHz – 14 GHz

C.3 0.05 mol/L NaCl solution

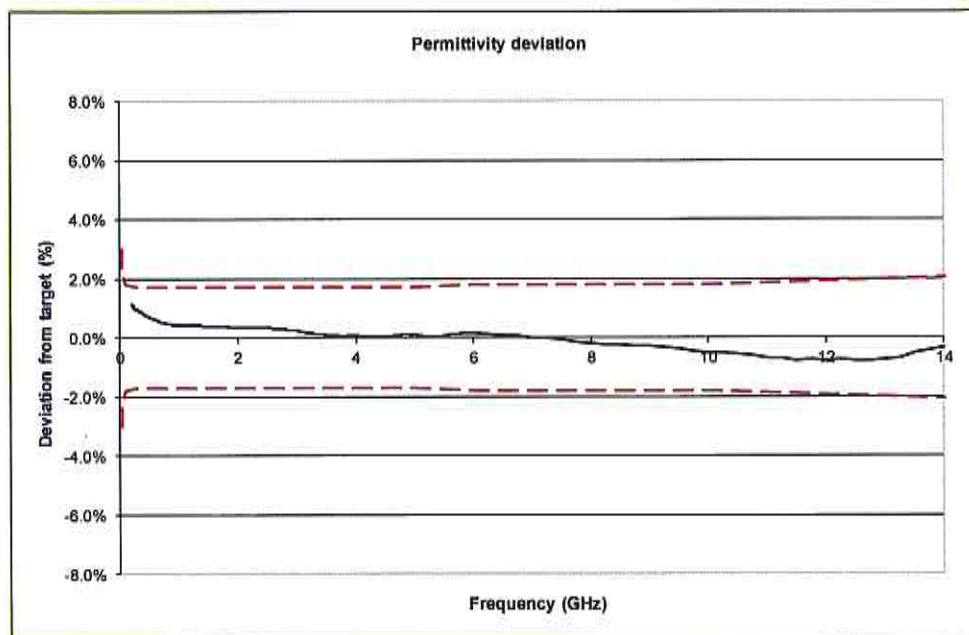


Fig. C.3.1 0.05 mol/L solution permittivity deviation from target, 200 MHz – 14 GHz

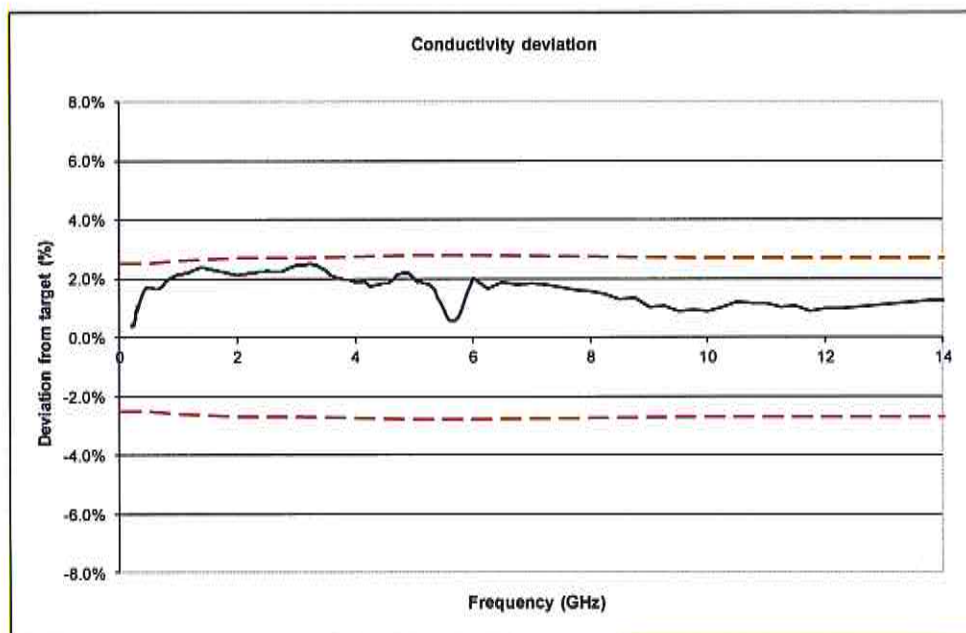


Fig. C.3.2 0.05 mol/L solution conductivity deviation from target, 200 MHz – 14 GHz