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Appendix 4. Photographs

This appendix contains the following photographs:

Photo Reference Number	Title
PHT/72510JD03/001	Test configuration for the measurement of Specific Absorption Rate (SAR)
PHT/72510JD03/002	Front Of EUT Facing Phantom At 15mm Separation From Phantom
PHT/72510JD03/003	Rear Of EUT Facing Phantom At 15mm Separation From Phantom
PHT/72510JD03/004	Front Of EUT
PHT/72510JD03/005	Rear Of EUT
PHT/72510JD03/006	Internal View Of EUT
PHT/72510JD03/007	900MHz Body Simulating Liquid Level
PHT/72510JD03/008	1900MHz Body Simulating Liquid Level
PHT/72510JD03/009	Battery View

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PHT/72510JD03/001: Test configuration for the measurement of Specific Absorption Rate (SAR)



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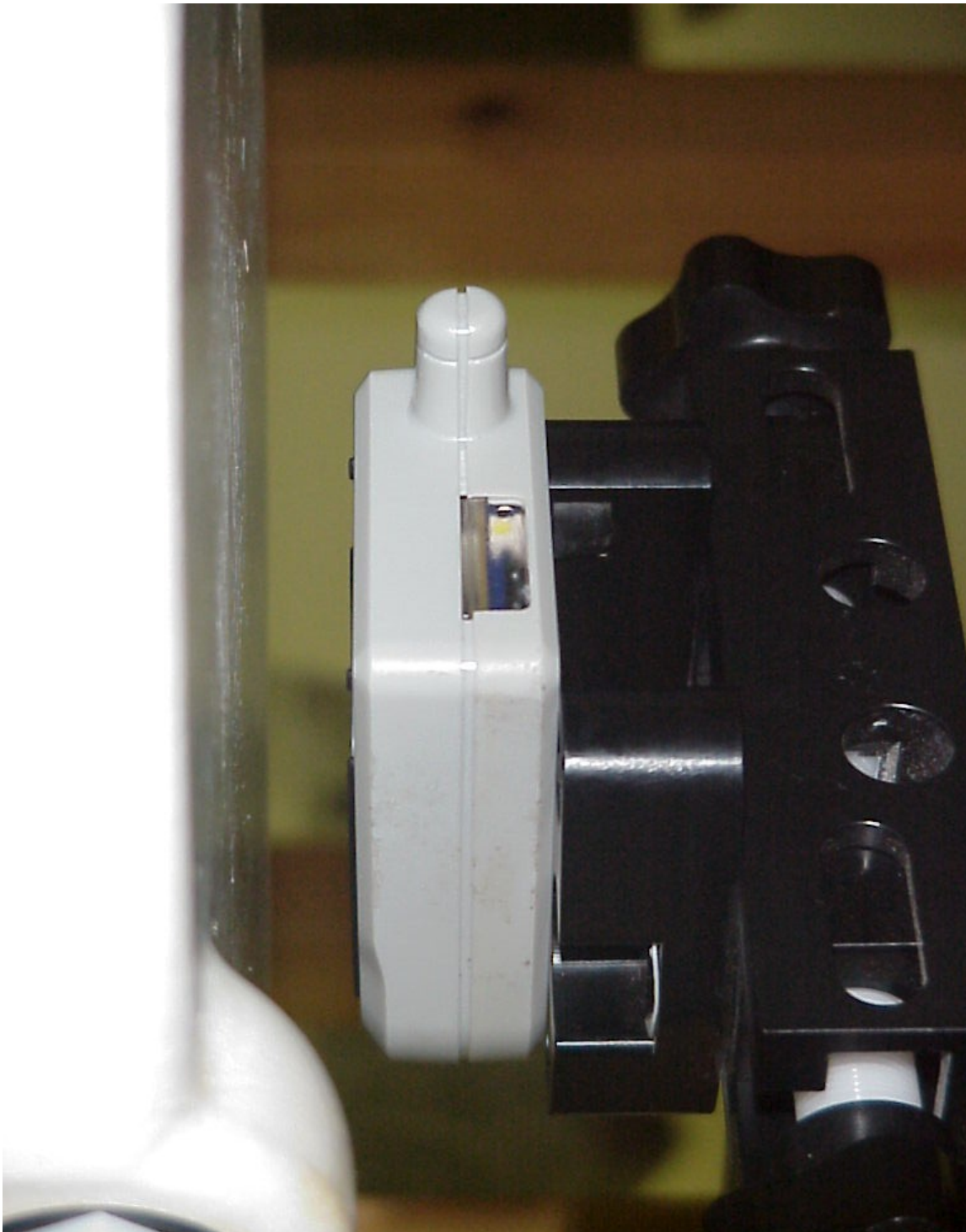
PHT/72510JD03/002: Front Of EUT Facing Phantom At 15mm Separation From Phantom



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PHT/72510JD03/003: Rear Of EUT Facing Phantom At 15mm Separation From Phantom



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PHT/72510JD03/004: Front Of EUT



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PHT/72510JD03/005: Rear View Of EUT



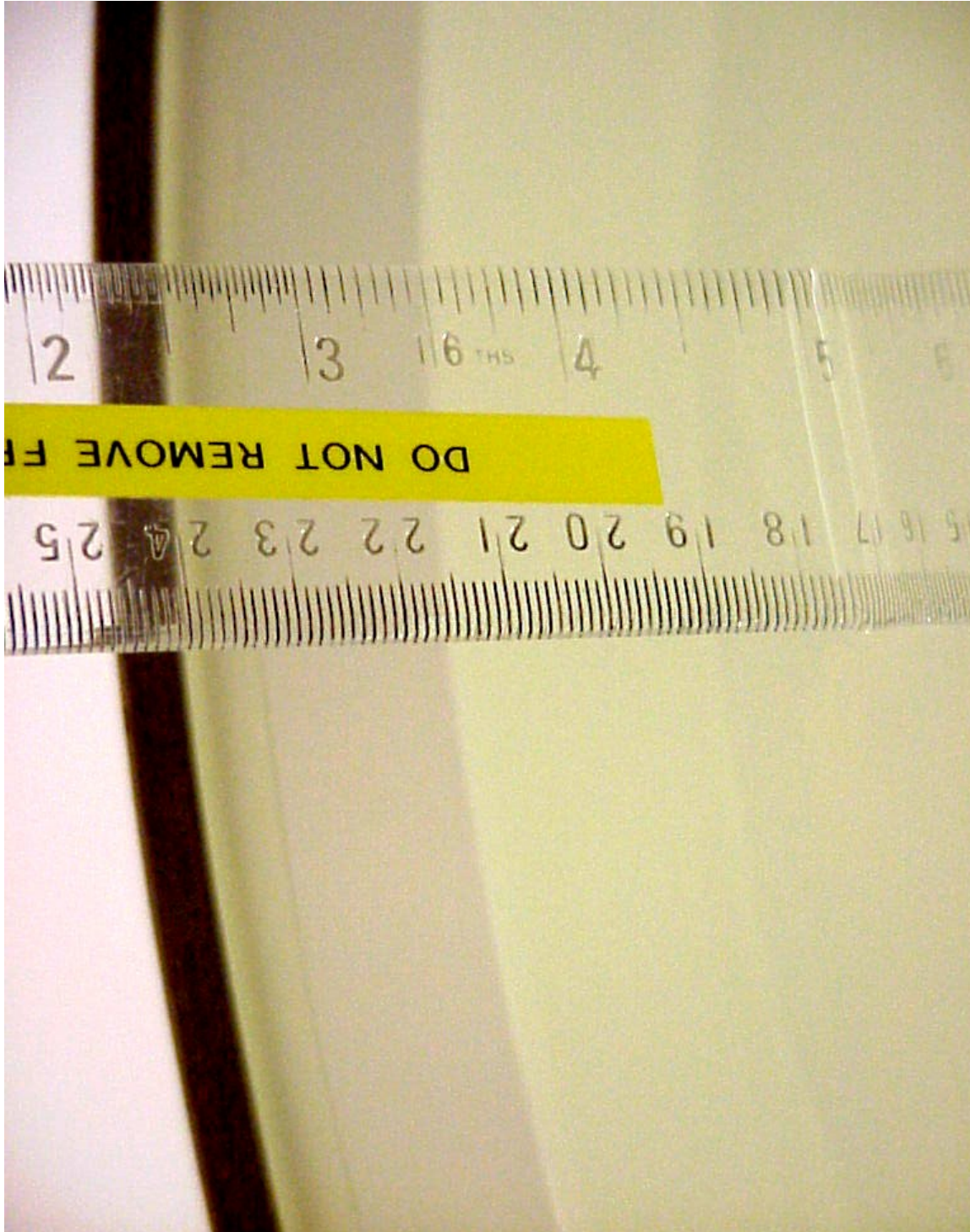
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A photograph showing the internal components of a mobile phone, likely a Nokia 1110, with the back cover removed. The phone is held against a white ruler for scale, with markings for 50mm, 100mm, and 150mm visible. The internal components include a large silver battery at the top, a SIM card slot in the center, and various electronic components such as capacitors, resistors, and integrated circuits. A yellow ribbon cable is visible on the left side, and a black and red cable is connected to the bottom. The phone's casing is a light beige color.

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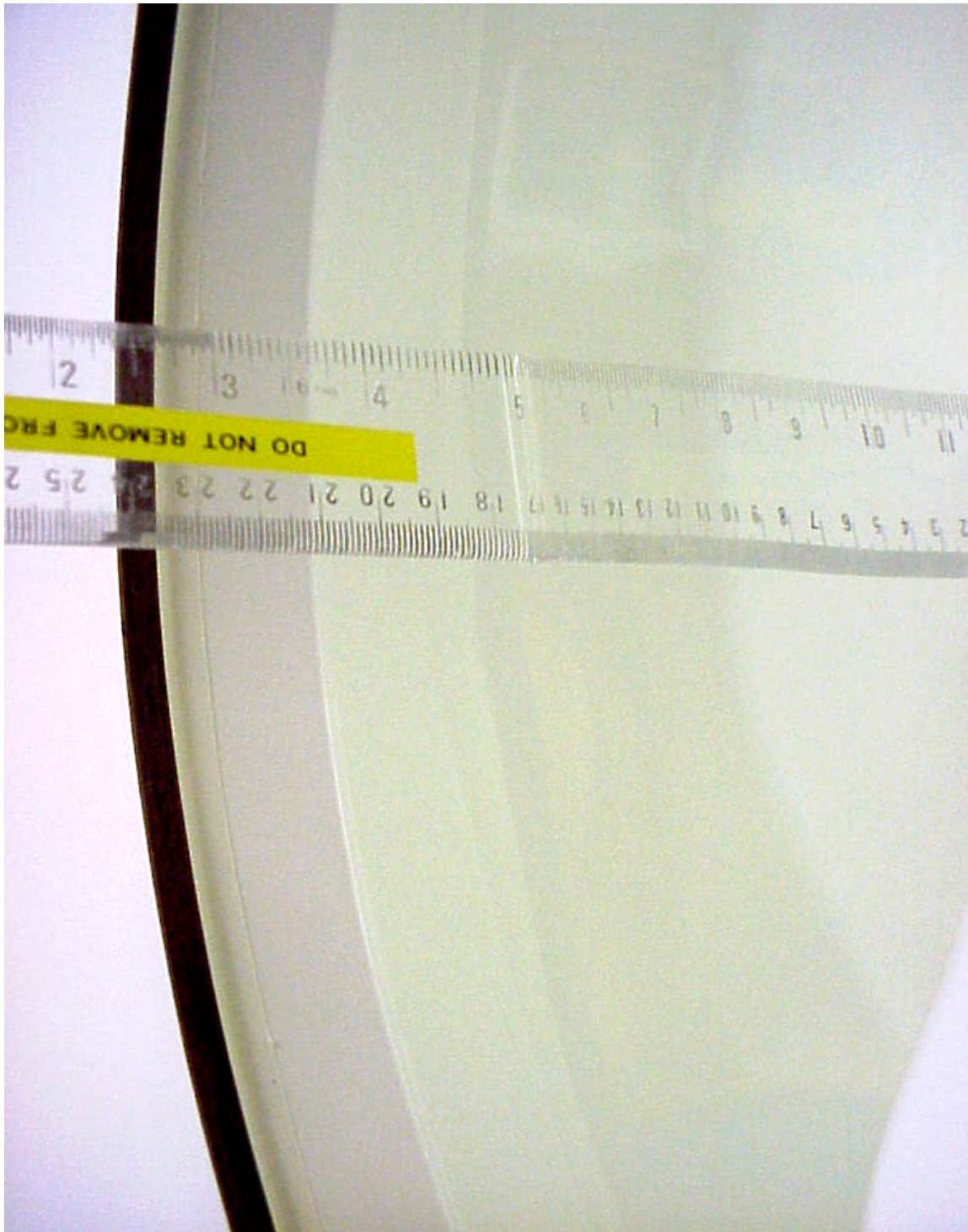
PHT/72510JD03/007: 900MHz Body Simulating Liquid Level



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PHT/72510JD03/008: 1900MHz Body Simulating Liquid Level



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PHT/72510JD03/009: Battery View



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Appendix 5. Validation of System

Prior to the assessment, the system was verified in the flat region of the phantom.

850 MHz and 1900 MHz dipoles were used. A forward power of 250 mW was applied to each dipole and the system was verified to a tolerance of $\pm 5\%$ for the 850 MHz and 1900 MHz dipole. The applicable verification (normalised to 1 Watt).

Date: 26 July 2007

Validation Dipole and Serial Number: D900V2; SN: 124

Stimulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	900	24 (°C)	23.0 to 24.0 (°C)	ϵ_r	55.00	55.41	0.75	± 5
				σ	1.02	1.05	-0.27	± 5
				1g SAR	10.50	10.32	-1.71	± 5

Date: 26 July 2007

Validation Dipole and Serial Number: D1900V2; SN: 540

Stimulant	Frequency (MHz)	Room Temperature	Liquid Temperature	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)
Body	1900	24 (°C)	23.0 to 24.0 (°C)	ϵ_r	53.30	52.48	-1.55	± 5
				σ	1.52	1.55	1.83	± 5
				1g SAR	38.00	37.96	-0.11	± 5

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Appendix 6. Simulated Tissues

The body mixture consists of water and glycol. Visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

Ingredient	Frequency
	835/850/900 MHz Body
De-Ionized Water	50.75%
Salt	00.94%
Kathon LXE	00.10%
Sugar	48.21%

Ingredient	Frequency
	1800/1900 MHz Body
De-Ionised Water	69.79%
Diglycol Butyl Ether (DGBE)	30.00%
Salt	0.20%

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Appendix 7. DASY4 System Details

A.7.1. DASY4 SAR Measurement System

RFI Global Services Ltd, SAR measurement facility utilises the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY4 system is comprised of the robot controller, computer, near-field probe, probe alignment sensor, and the SAM phantom containing brain or muscle equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller; teach pendant (Joystick), and remote control. This is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. The data acquisition electronics (DAE) performs signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection etc. The DAE is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE3 utilises a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16-bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

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A.7.2. DASY4 SAR System Specifications

Robot System

Positioner:	Stäubli Unimation Corp. Robot Model: RX90L
Repeatability:	0.025 mm
No. of Axis:	6
Serial Number:	F00/SD89A1/A/01
Reach:	1185 mm
Payload:	3.5 kg
Control Unit:	CS7
Programming Language:	V+

Data Acquisition Electronic (DAE) System

Serial Number:	394
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Cell Controller

PC:	Dell Precision 340
Operating System:	Windows 2000
Data Card:	DASY4 Measurement Server
Serial Number:	1080

Data Converter

Features:	Signal Amplifier, multiplexer, A/D converted and control logic.
Software:	DASY4 Software
Connecting Lines:	Optical downlink for data and status info. Optical uplink for commands and clock.

PC Interface Card

Function:	24 bit (64 MHz) DSP for real time processing Link to DAE3 16 bit A/D converter for surface detection system serial link to robot direct emergency stop output for robot.
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DASY4 SAR System Specifications (Continued)

E-Field Probe

Model:	ET3DV6
Serial No:	1529
Construction:	Triangular core fibre optic detection system
Frequency:	10 MHz to 3 GHz
Linearity:	±0.2 dB (30 MHz to 3 GHz)
Probe Length (mm):	337
Probe Diameter (mm):	12
Tip Length (mm):	10
Tip Diameter (mm):	6.8
Sensor X Offset (mm):	2.7
Sensor Y Offset (mm):	2.7
Sensor Z Offset (mm):	2.7

Phantom

Phantom:	SAM Phantom
Shell Material:	Fibreglass
Thickness:	2.0 ±0.1 mm
