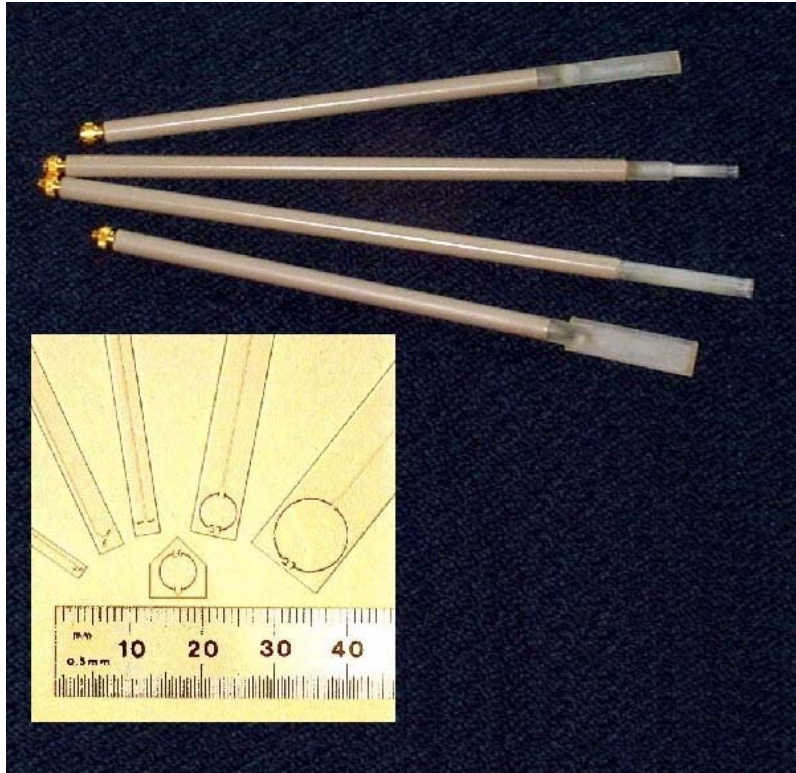


Nov. 13, 2002

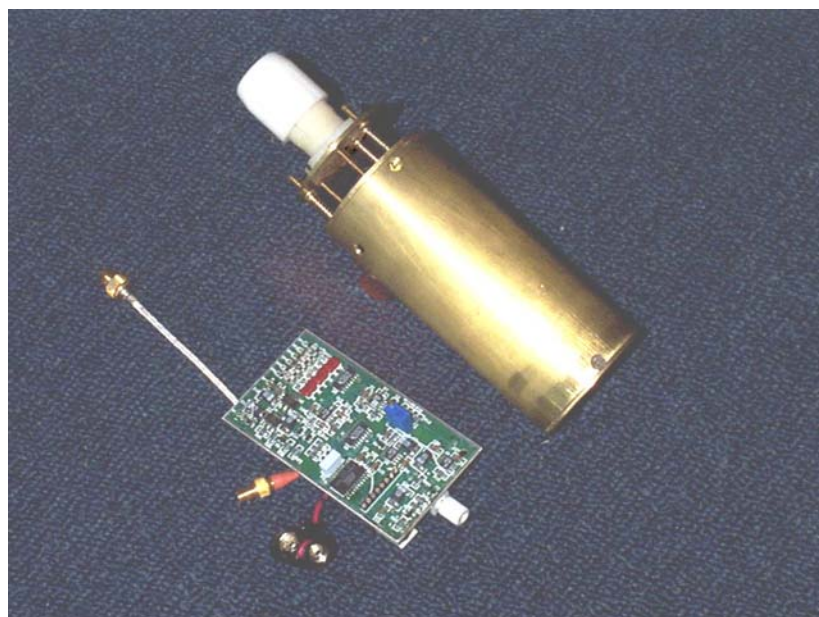
To: From: Stan Lyles  
FCC Application Processing Branch

Re: FCC ID GM3WLPC24HN  
Applicant: Psion Teklogix Inc  
Correspondence Reference Number: 24275  
731 Confirmation Number: EA235972

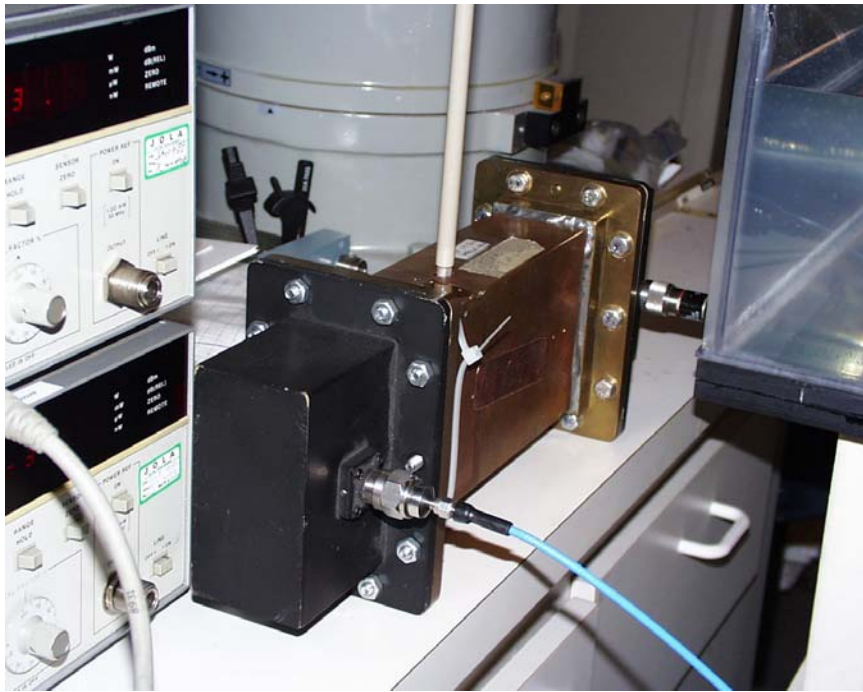
- 1) Additional photographs. Please provide photographs of the SAR measurement system, and key steps of the probe calibration process.



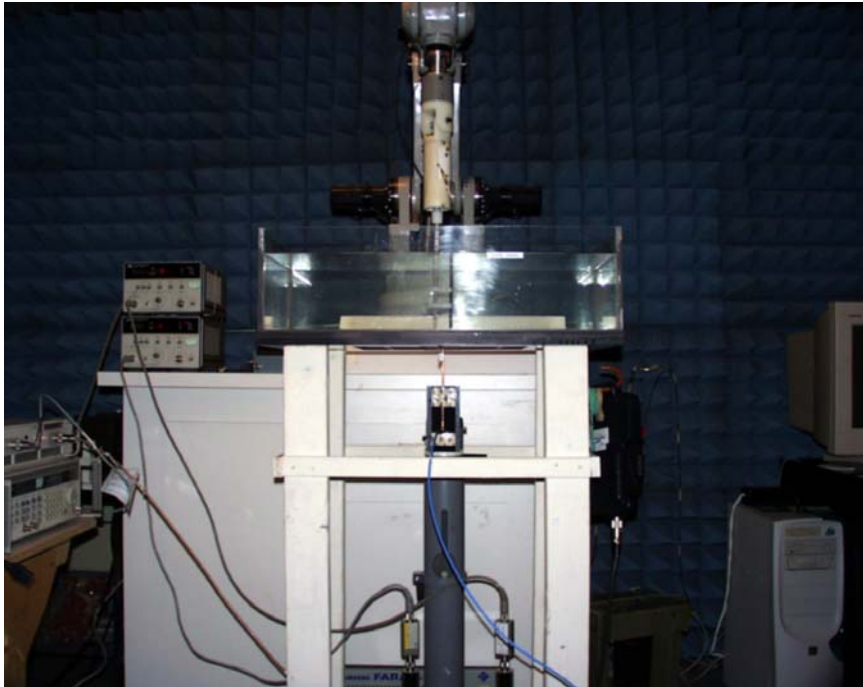
< Various miniature near field probes >



< Sensor amplifier >



< Free space calibration setup >



< Thermal transfer calibration and system verification setup >

Key steps of probe calibration process are described in the chapter 5.6 and chapter 5.7 of the report.

- 2) Statement justifying use of the probe calibration with different tissue parameters than used for testing (body vice head). Please include an analysis of the expected variation on the SAR value. Alternatively please provide data using a probe calibrated with the tested tissue parameters.

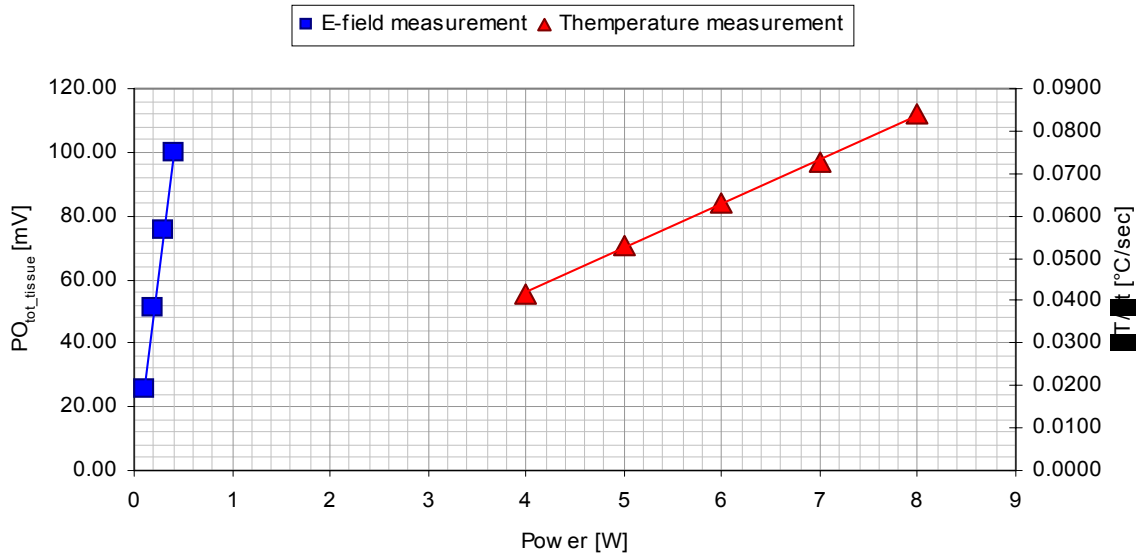
The conversion factor calibrated using tested tissue ( $\gamma_{\text{muscle}}$ : 4.028,  $\zeta_{\text{muscle@cal}}$ : 0.166 [W/Kg/mV]) is found to yield approximately 10% lower SAR result than that calibrated using the brain tissue ( $\gamma_{\text{brain}}$ : 3.653,  $\zeta_{\text{brain@cal}}$ : 0.183 [W/Kg/mV]). As a result, the SAR values in the report were overestimated by the ratio of 10%.

**Simulated tissue for muscle**

<b>Tissue calibration type</b>	HP Dielectric Strength Probe System
<b>Tissue calibration date</b> [MM/DD/YYYY]	09/23/2002
<b>Tissue calibrated by</b>	JaeWook Choi
<b>Room temperature</b> [°C]	24
<b>Room humidity</b> [%]	50
<b>Simulated tissue temperature</b> [°C]	24
<b>Tissue calibration frequency</b> [MHz]	2450
<b>Tissue Type</b>	Brain
<b>Target conductivity</b> [S/m]	1.95
<b>Target dielectric constant</b>	52.7
<b>Specific Heat Capacity</b> [J/Kg/°C]	3,702
<b>Mass Density</b> [Kg/m3]	1,016
<b>Measured conductivity</b> [S/m]	1.91 (-2.1 %)
<b>Measured dielectric constant</b>	55.5 (+5.0 %)
<b>Penetration depth (plane wave excitation)</b> [mm]	20.9

**Conversion Factor for muscle tissue**

<b>Calibration Date</b> [MM/DD/YYYY]	09/25/2002	
<b>Calibration by</b>	JaeWook Choi	
<b>Calibration Frequency</b> [MHz]	2450	
<b>Room Temperature</b> [°C]	24	
<b>Room Humidity</b> [%]	45	
<b>Simulated Tissue Temperature</b> [°C]	24	
<b>PO<sub>tot_tissue</sub></b> [mV]	25.569	@ 0.10 [W]
	51.166	@ 0.20 [W]
	75.544	@ 0.30 [W]
	99.802	@ 0.40 [W]
<b><math>\delta(\text{PO}_{\text{tot tissue}})/\delta\text{P}</math></b> [mV/W]	251.2469333	
<b><math>\Delta\text{T}/\Delta\text{t}</math></b> [°C/sec]	0.04164	@ 4.0 [W]
	0.05296	@ 5.0 [W]
	0.06284	@ 6.0 [W]
	0.07272	@ 7.0 [W]
	0.08398	@ 8.0 [W]
<b><math>\delta(\Delta\text{T}/\Delta\text{t})/\delta\text{P}</math></b> [°C/sec/W]	0.010444000	
<b>Conversion Factor (<math>\gamma</math>)</b>	4.028	



- 3) Statement justifying that the Probe meets the dynamic range recommendations of P1528 of 100 mW/g at the high end. Calibration information shows significant error at 10 mW/g levels. Does the system contain any compensation for nonlinearity of the probes.

Dynamic range of each channel of the probe in the graph was not presented in terms of the unit of SAR (W/Kg or mW/g), but power density (mW/cm<sup>2</sup>). And the original manufacturer (3D-EMC Lab. in Florida) of the probe specified that the probe meet the recommended 100 mW/g of the high end of the dynamic range.

- 4) Flat phantom material dielectric characteristics.

The bottom of the flat phantom is composed of a Lexan (Polycarbonate) whose dielectric constant and the dissipation factor are 2.98 (10<sup>6</sup> cycle) and 0.01 (10<sup>6</sup> cycle) respectively.

- 5) Dynamic range details of the device under test. Please provide the information demonstrating that the device is designed to operate linearly at 100 % duty cycle. It is understood that the device normally works at a maximum of 19% duty cycle.

This application is only for change of antenna; there is no other change of equipment operation. The device still operates at its maximum duty cycle of 19%. We did not reduce the SAR test result by its duty cycle because it passed with its 100% duty cycle in its special test mode.

- 6.) Details of maximum user data rate and duty cycle. It appears from the description in the original filing that the maximum effective bit rate to the user is approximately 180K bit/s ( 23,120 bytes/s). This appears to be true irregardless of the actual instantaneous data rate mode selected i.e. 1 or 11 MBPS. Please confirm.

The answer is the same as (5), there is no change in equipment operation at all. Only antenna is changed.

- 7) Confirmation that the PDA has no voice or held to head modes. Photographs could be interpreted to show a microphone and speaker. If appropriate please provide head data.

The device has no voice operation or held to head modes. It is only used for data communication purpose.

Please feel free to contact us if you have any questions

Regards

Tri Luu, P.Eng.

V.P. - Eng.

Ultratech Engineering Labs Inc.

3000 Bristol Circle

Oakville, Ontario

Canada L6H 6G4