

PCTEST ENGINEERING LABORATORY, INC.

PCTEST Calibration Laboratory

6660-B Dobbin Road
Columbia, Maryland 21045
U.S.A.

Calibration File No.: PCT486C-0801

CERTIFICATE OF CALIBRATION

It is hereby certified that the identified equipment below has
been calibrated in
PCTEST Calibration Laboratory by qualified personnel following
recognized procedures and using transfer standards traceable
to US NIST.

EQUIPMENT: Miniature Isotropic RF Probe

MANUFACTURER: IDX Robotics Inc.

SERIAL NO.: PCT486C

Calibration Procedure: IEEE Std. 1528 (Draft 3 -
Aug. 2000)

Date of Calibration: 01 August 2001

Calibration Due Date: 01 August 2002

REMARKS: none

Calibrated By: Al Cirwithian

CALIBRATION RECORD

EQUIPMENT: Miniature Isotropic RF Probe
MANUFACTURER: IDX Robotics Inc.
SERIAL NO.: PCT486C

Calibration Procedure: IEEE Std. 1528 (Draft 3 - Aug. 2000)

Date of Calibration: 01 August 2001
Calibration Due Date: 01 August 2002

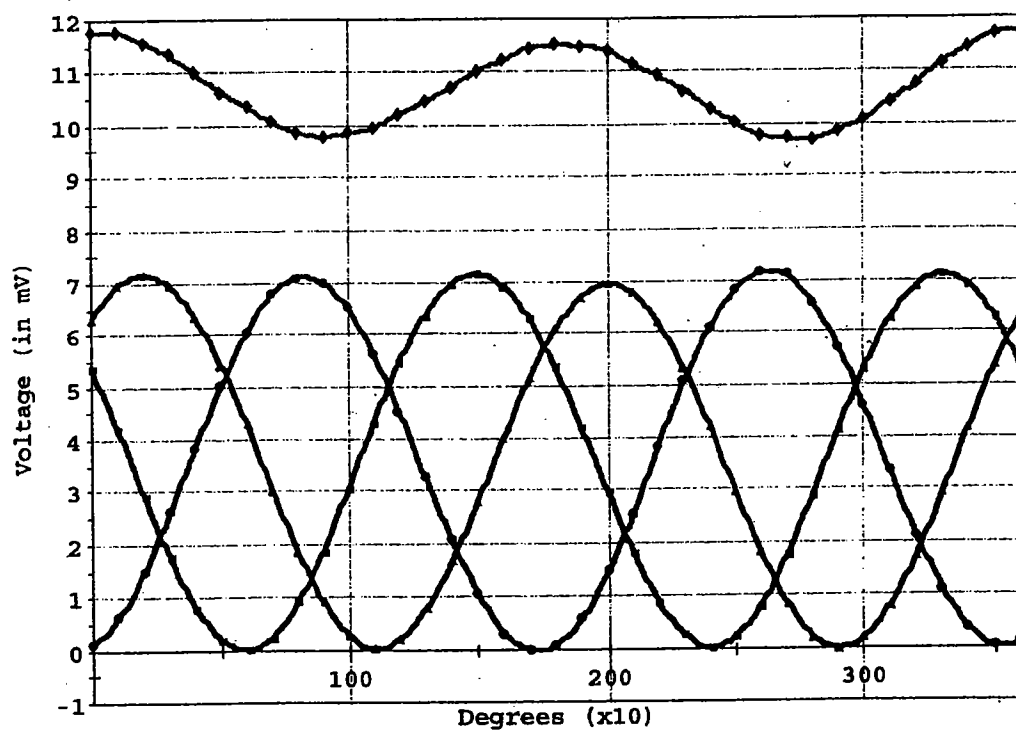
Environmental Conditions:
Temperature: 25 $\pm$ 2 $^{\circ}$ C
Humidity: 30-60 %

TEST EQUIPMENT:

1. RF Power Meter - HP 437B
2. RF Power Sensor - HP 8481H
3. Precision Dual-Channel Thermometer - Guildline Model 5150
S/N: 66145
4. Precision Thermistor Sensor - Guildline 51502
5. Near-Field Broadband Measuring System - IDX
6. Signal Generator - HP 8648D (9kHz-4 GHz)
7. RF Power Amplifier - Amplified Research 5SIG4 (800MHz-
4.2GHz) 5Watts
8. Dipole Validation Antennas 835MHz - SPEAG
9. Dipole Validation Antennas 1900MHz - SPEAG
10. Network Analyzer HP 8753E
11. TEM Cell - IFI CC-110
12. Directional Coupler - HP 767D

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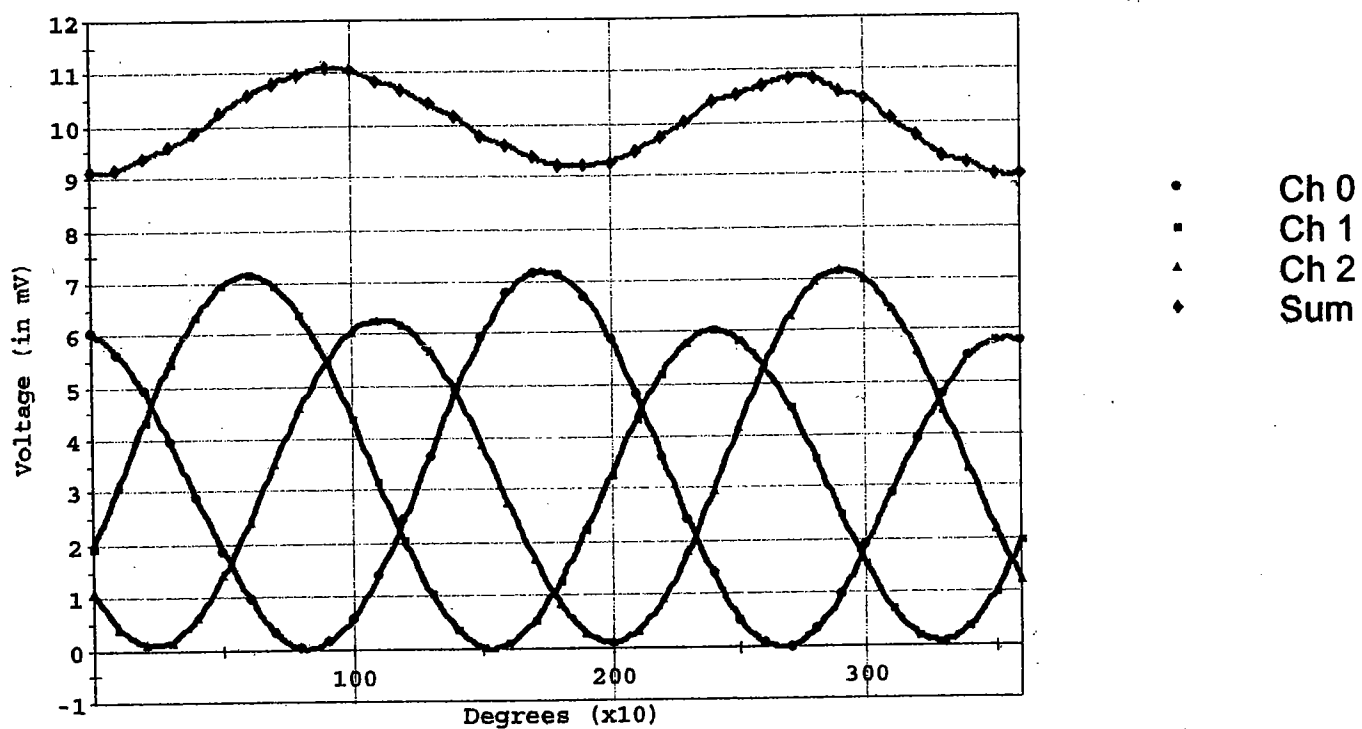
File: 010801 0835 MHz PCT486c.cal
Date: 01-August 2001 10:37:50 am
Probe: PCT486C
Freq: 835
Comment:
Amp 1 Setting: 0.239
Amp 2 Setting: 0.278
Amp 3 Setting: 0.294



• Ch 0
▪ Ch 1
▲ Ch 2
◆ Sum

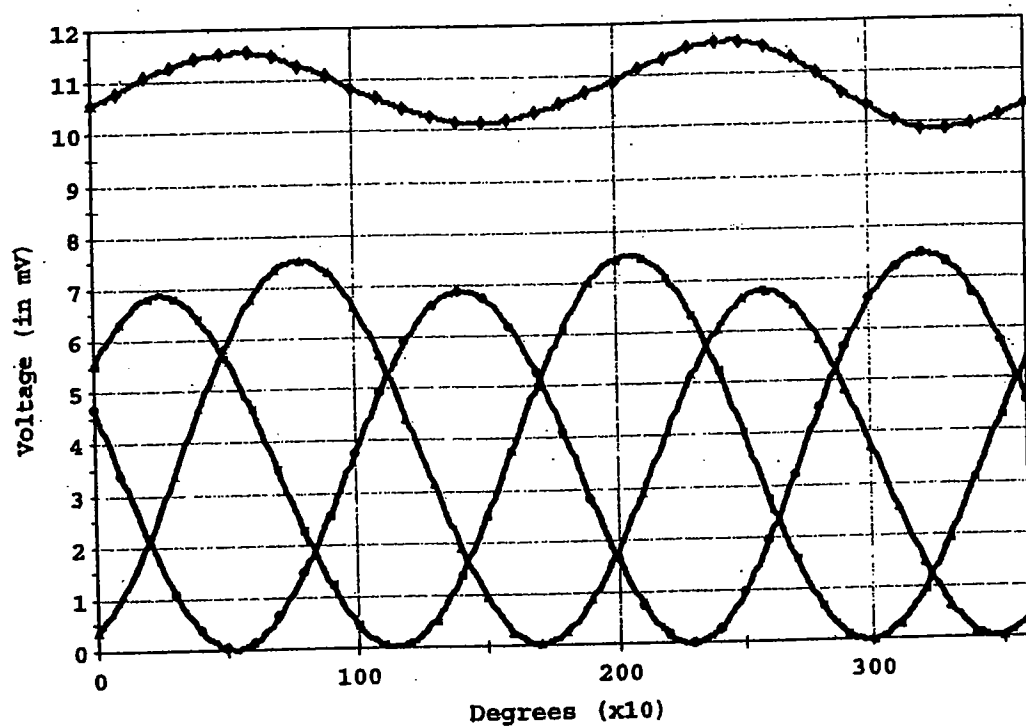
PCT Calibration Laboratory

File: 010801 1900 MHz PCT486c.cal
Date: 01-August 2001 11:07:57 am
Probe: PCT486C
Freq: 1900
Comment:
Amp 1 Setting: 0.309
Amp 2 Setting: 0.361
Amp 3 Setting: 0.421



PCT Calibration Laboratory

File: 010801 2450 MHz PCT486c.cal
Date: 01-August 2001 09:17:10 am
Probe: PCT486C
Freq: 2450
Comment:
Amp 1 Setting: 0.172
Amp 2 Setting: 0.187
Amp 3 Setting: 0.220



• Ch 0
■ Ch 1
▲ Ch 2
♦ Sum

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OFFSET	ANGLE
cm	deg
.20	54.72

Tissue Type	Freq. MHz	Dielectric Constant	Conductivity S/M	Conversion Factor
Brain	835	41.5	0.90	.325
Brain	1900	39.9	1.42	.550
Brain	2450	39.2	1.80	1.004
Muscle	835	56.1	0.95	.423
Muscle	1900	54.2	1.45	.496
Muscle	2450	52.7	1.95	.983

Frequency	Isotropy	dB
835	9.66	.40
1900	9.77	.405
2450	8.06	.336

Calibrated by ALG Date Aug 1, 2001

File : c:/idx3/SYSTEM/SARMEAS3/data/Normal/02011630_ZOOM.VLT
Start : 16-Jan-102 06:58:43 pm End : 16-Jan-102 07:13:05 pm

Radio Type : Validation
Model Number :
Serial Number : C
Frequency : 1900 MHz
Peak Trans. Pwr : 0.250 W
Start Trans. Pwr: 0.250 W
Antenna Type : Dipole
Antenna Posn. : Internal
Phantom Type : Flat
Phantom Posn. : E Field
Scan Type : ZOOM/SAR
Probe Name : PCTEST
Field Type : E Field
Orientation : 0 Degrees

Mixture Type = Muscle
Mixture Dielectric Constant = 54.200
Mixture Conductivity = 1.450

Comment :
1900 MHz Dipole Validation
SN: C

Robot : PCTEST

Probe Offset = 0.20 cm
Sensor Factor = 0.0108
Conversion Factor = 0.496

PCTEST Amplifier Channel Settings : 0.309 0.361 0.421

Max Location : X = 1.500, Y = -1.750, Z = 0.000 (cm) Value = 197.854

Measured Values (volts) =
2.064E-001 1.318E-001 8.987E-002 6.346E-002 4.708E-002 3.322E-002
2.407E-002 1.680E-002 1.200E-002 8.758E-003 6.158E-003 4.441E-003
3.363E-003 2.430E-003 1.916E-003 1.508E-003 1.117E-003 1.130E-003
1.024E-003 1.204E-003 1.008E-003

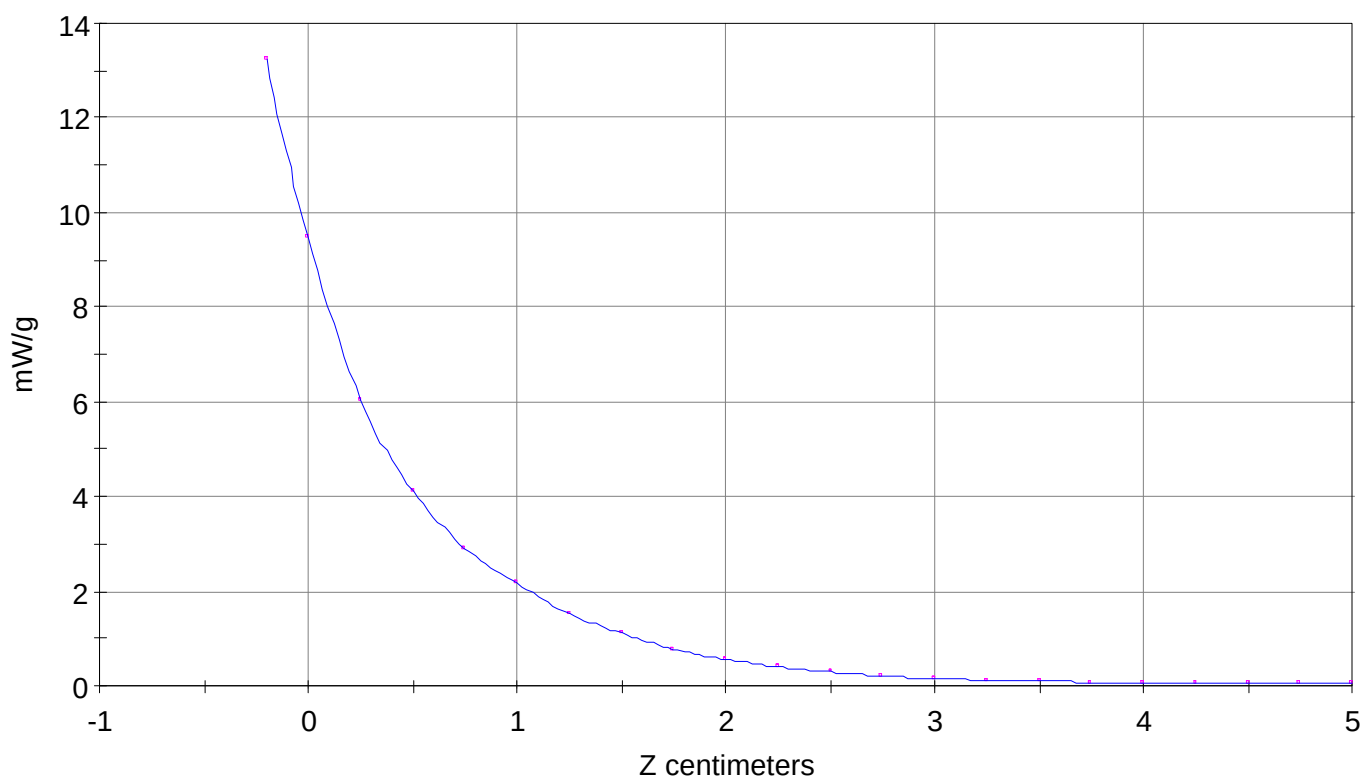
Calc. Voltage @ Surface (Vs) = 0.2880

Voltage @ 1.00 cm (Vt) = 0.0602

Ave. Voltage (Vs+Vt)/2 = 0.1741

Ave. SAR over 1 g (mW/g) = 7.9948

SAR Scan
File : 02011630_ZOOM
Start : 16-Jan-102 06:58:43 pm End : 16-Jan-102 07:13:05 pm
Validation//C;1900MHz;W;Dipole/Internal;
Flat/E Field;ZOOM/SAR;PCTEST/E Field/0 DegreesMuscle/54.200/1.450

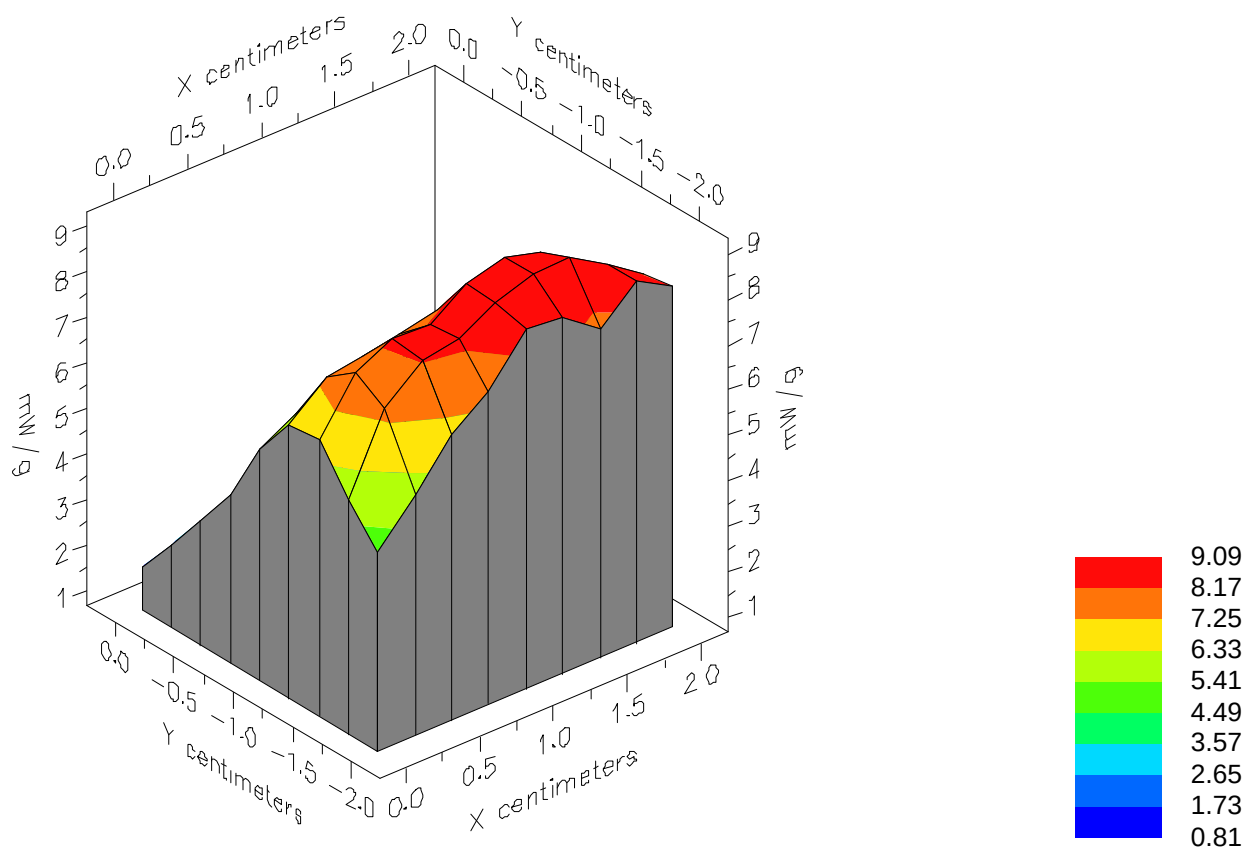


File : 02011630_ZOOM

Start : 16-Jan-102 06:58:43 pm End : 16-Jan-102 07:13:05 pm

Validation//C;1900MHz;W;Dipole/Internal;

Flat/E Field;ZOOM/SAR;PCTEST/E Field/0 DegreesMuscle/54.200/1.450



File : 02011630_ZOOM

Start : 16-Jan-102 06:58:43 pm End : 16-Jan-102 07:13:05 pm

Validation//C;1900MHz;W;Dipole/Internal;

Flat/E Field;ZOOM/SAR;PCTEST/E Field/0 DegreesMuscle/54.200/1.450

