>
> 5. The SAR Uncertainty Budget describes 7%, 7.1 % and 3.5 % uncertainties for
> the tissue enhancement factor, voltage measurement and probe sensitivity factor,
> respectively. Please quantify these with respect to the plot on page 20 of the
> SAR report (RF power vs compensated voltage and 30 sec thermal change), especially
> at below 1 watt. Also see #6 below.
>
>

This issue is irrelevant to whether or not this device will meet the maximum 1g SAR limit requirement. Even if these three were 100% each the device would still be under the limit! If however, you are using this as opportunity to ask us to review our presentation and components of the uncertainty, then we can tell you that we are indeed doing this and that the results of our review will start showing up in our SAR reports in the near future.

<u>Tissue Enhancement/Conversion Factor</u>
A parametric study of the tissue conversion factor data was made as a function of the upper range of the data used for the analysis. The results are summarized in the following table:

Table 2.

Data up to (W)	**TCF (γ)**	**R_V^2**	**R_T^2**	**ΣR^2**	**1σ mV %**	**1σ mT %**	**1σ RSS %**		**2σ RSS %**	**Square Law Intercept**
1.1	4.3	0.9997	0.9686	1.9683	1.7	18	18.0801		25.5691	-1619
1.5	5.2	0.9986	0.9547	1.9533	2.7	15.4	15.6349		22.1111	-1767
2	5.4	0.9993	0.9781	1.9774	1.6	8.6	8.74757		12.3709	-739
2.5	5.4	0.997	0.987	1.984	2.8	5.7	6.35059		8.98109	-1248
3	5.3	0.9907	0.9892	1.9799	4.3	4.7	6.37024		9.00888	-1677
4	5.4	0.9922	0.9886	1.9808	3.6	4.4	5.68507		8.0399	-479
5	5.1	0.9921	0.9887	1.9808	3.4	4	5.24976		7.42428	73
6	5.1	0.9823	0.9919	1.9742	4.7	3.2	5.68595		8.04114	113
7	5	0.9888	0.995	1.9838	3.6	2.4	4.32666		6.11882	1343
8	5.5	0.9927	0.9816	1.9743	2.7	4.3	5.0774		7.18053	2399
ALL	5.6	0.9916	0.9782	1.9698	2.8	4.5	5.3		7.49533	2377

The last column shows the 2 sigma RSS related to the two slopes used to calculate the tissue conversion factor. The uncertainty for the other parameters used in the calculation (density, conductivity) at taken account of separately in the error analysis. The 7.0% we have been using is based on an analysis performed at least a year ago. It is not far off the actual value of 7.5% (see above when all the data is used). We will modify our spreadsheets so that they use the data specific to each tissue calibration used.

There are a couple of possibilities for selecting a "better" subset of the data:

- the minimum 2 sigma RSS occurs if we use only the data up to 7 W
- the maximum sum of the R^2 values occurs if we use only the data up to 2.5 W with a close second for the data up to 7 W.
- the minimum intercept for a square law fit to the measured voltage data occurs if we use only the data up to 5 W.

Choosing between these is arbitrary and our practice has been to use all of our data. We will revisit this issue.

<u>Voltage Measurement Uncertainty</u>

We determine this uncertainty by taking an RSS of all the data acquisition uncertainties for the maximum 1g SAR cube. This represents the uncertainties of 3 voltages and 3 offsets at each of the 27 locations. Figure 10 shows the measurement uncertainty for our data acquisition card:

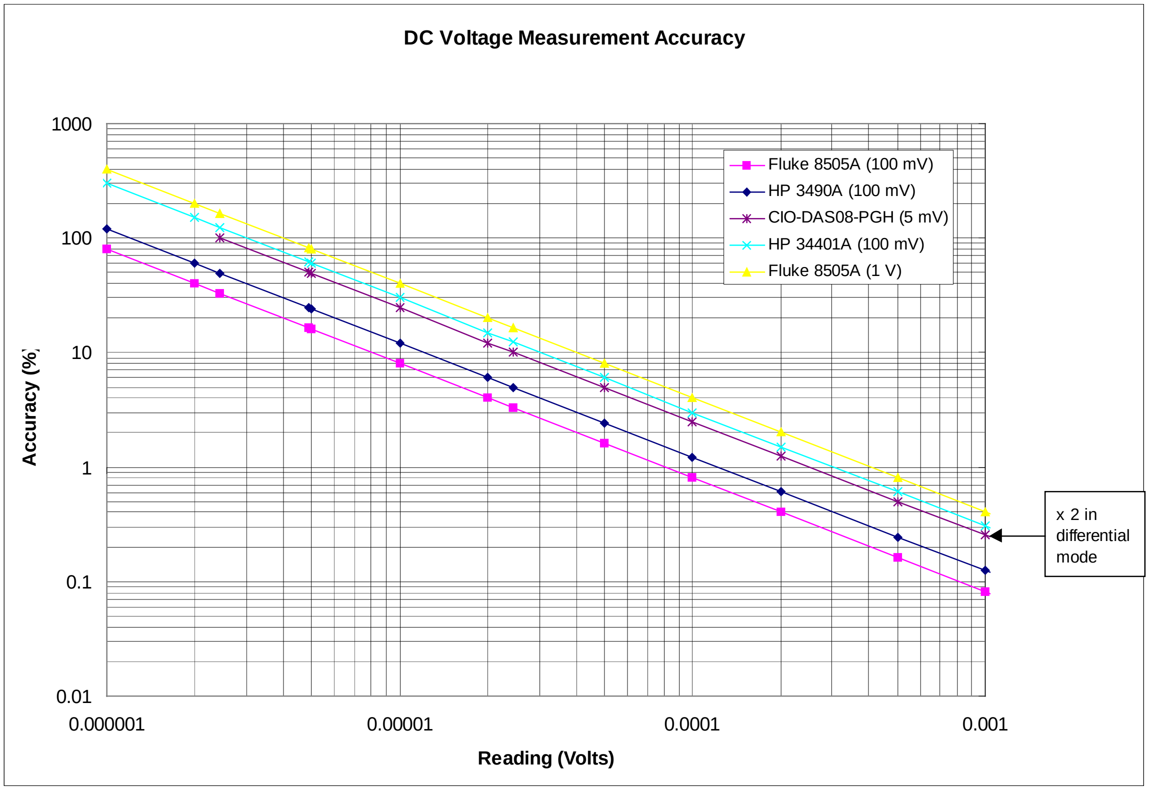

Figure 10.

<u>Probe Sensitivity Factor</u>

This uncertainty is determined from the calibration of the probe sensitivity in air with either a TM cell or reference antenna. We will look into this further and elaborate as necessary in future error analyses.

>
> 6. The peak to average output power ratio for this device is much higher
than
> typical wireless handsets. IRIDIUM units generally operate with less than
10%
> duty factor (TDMA). E-field probes generally require special calibration
and/or
> correction factors to compensate for the high peak and low duty factor to
correctly
> reflect average power. A minimum number of pulses may need to be measured
by
> a probe in order to correctly determine SAR based on the average power of a
certain
> number of peak output pulse sequences. Please provide additional
clarifications
> for these E-field probe calibration requirements to ensure the correct level
of
> SAR have been measured.
>
>

The Kyocera IRIDIUM units operate with a duty factor of 9.2% (8.28 ms ON, 90ms FRAME). The response of the CRS SAR Measurement System was assessed as a function of duty cycle for a constant average power (Figure 11). A 10ms ON time was used with a variable OFF time. The measurements show that with a 9.2% duty cycle the measured values are high by 14.7%. This would imply that the corrected maximum 1g SAR (see 3 above) should be corrected to reflect the CW behaviour, i.e. the maximum 1g SAR should be 0.195 W/kg.

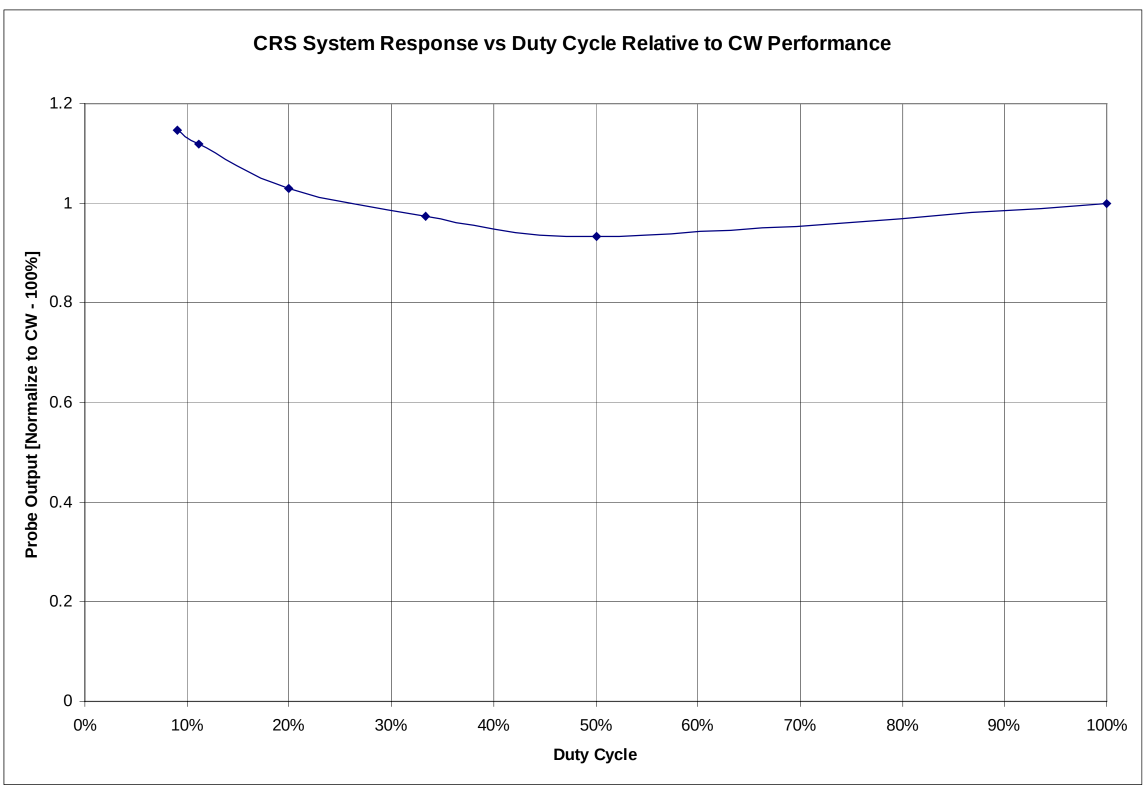

Figure 11.