MEASUREMENT UNCERTAINTIES

a	b	c	d	e= $f(d,k)$	f	g	h = cxf/e	i = cxg/e	k
Uncertainty Component	Sec.	Tol. (± %)	Prob. Dist.	Div.	c_i (1 - g)	c_i (10 - g)	1 - g u_i (± %)	10 - g u_i (± %)	v_i
Measurement System									
Probe Calibration	E1.1	7.4	N	1	1	1	7.4	7.4	∞
Axial Isotropy	E1.2	4.88	R	$\sqrt{3}$	0.5	0.5	1.4	1.4	∞
Hemishperical Isotropy	E1.2	9.6	R	$\sqrt{3}$	0.5	0.5	2.8	2.8	∞
Boundary Effect	E1.3	11.0	R	$\sqrt{3}$	1	1	6.4	6.4	∞
Linearity	E1.4	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
System Detection Limits	E1.5	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Readout Electronics	E1.6	1.0	R	1	1	1	1.0	1.0	∞
Response Time	E1.7	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
Integration Time	E1.8	1.7	R	$\sqrt{3}$	1	1	1.0	1.0	∞
RF Ambient Conditions	E5.1	1.2	R	$\sqrt{3}$	1	1	0.7	0.7	∞
Probe Positioner Mechanical Tolerance	E5.2	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
Probe Positioning w/ respect to Phantom Shell	E5.3	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
Extrapolation, Interpolation & Integration Algorithms for Max. SAR Evaluation	E4.2	3.9	R	$\sqrt{3}$	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E3.2.1	10.6	R	$\sqrt{3}$	1	1	6.1	6.1	11
Device Holder Uncertainty	E3.1.1	8.7	R	$\sqrt{3}$	1	1	5.0	5.0	8
Output Power Variation - SAR drift measurement	5.6.2	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom & Tissue Parameters									
Phantom Uncertainty (Shape & Thickness tolerances)	E2.1	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
Liquid Conductivity - deviation from target values	E2.2	5.0	R	$\sqrt{3}$	0.7	0.5	2.0	1.4	∞
Liquid Conductivity - measurement uncertainty	E2.2	10.0	R	$\sqrt{3}$	0.7	0.5	4.0	2.9	∞
Liquid Permittivity - deviation from target values	E2.2	5.0	R	$\sqrt{3}$	0.6	0.5	1.7	1.4	∞
Liquid Permittivity - measurement uncertainty	E2.2	5.0	R	$\sqrt{3}$	0.6	0.5	1.7	1.4	∞
Combined Standard Uncertainty (k=1)			RSS				14.4	14.0	
Expanded Uncertainty (k=2) (95% CONFIDENCE LEVEL)							28.8	28.0	

The above measurement uncertainties are according to IEEE Std. 1528-200X (January, 2002)

DEVICE MEASUREMENT UNCERTAINTY

Uncertainty Component	**a** Tol. ($\pm$ %)	Probability Distribution	**b** *Divisor*	**c** c_i	$u_i = (a/b) \times c$ Standard Uncertainty ($\pm$ %)	$\boldsymbol{n}_i$ or $\boldsymbol{n}_{eff}$
Test Sample Positioning	10.6	R	$\sqrt{3}$	1	6.1	11
Device Holder Uncertainty	8.7	R	$\sqrt{3}$	1	5.0	8
Output Power Variation – SAR drift measurement	5.0	R	$\sqrt{3}$	1	2.9	∞
					8.40	

SYSTEM VERIFICATION UNCERTAINTY

Uncertainty Component	**a** Tol. ($\pm$ %)	Probability Distribution	**b** *Divisor*	**c** c_i	$u_i = (a/b) \times c$ Standard Uncertainty ($\pm$ %)	$\boldsymbol{n}_i$ or $\boldsymbol{n}_{eff}$
Repeatability	2.5	N	1	1	2.50	4
Validation Target Estimation	5.4	R	$\sqrt{3}$	1	3.12	∞
Signal Generator-drift, linearity, etc.	0.5	R	$\sqrt{3}$	1	0.29	∞
Dipole Positioning	2.0	N	1	1	2.00	
					4.48	
Expanded Uncertainty (k=2)					8.44	