

January 11, 2002

Federal Communications Commission
Equipment Approval Services
7435 Oakland Mills Road
Columbia, MD 21046
Attn: Frank Coperich

SUBJECT: **Withus IT Co., Ltd.**
FCC ID: POQWPE-2200
731 Confirmation No.: TC906802
Correspondence Ref. No.: 3395

Dear Frank:

On behalf of Withus IT Co., Ltd., we hereby submit our response to your e-mail dated January 4, 2002 requesting additional information for the subject application.

EMC:

1. Please find attached retested band edge and bandwidth test plots with video and resolution bandwidths set to 30kHz.

SAR:

1. The 1800MHz probe conversion factors used for the SAR evaluation were 5.78 for head and 5.36 for body. The manufacturers specified probe conversion factors at 1900MHz are 5.66 and 5.25 for head and body respectively. A re-evaluation of the highest SAR values for the EUT using 1900MHz probe conversion factors increases the overall SAR for head and body by approximately 2%, which is less than the uncertainty of the probe conversion factors and considerably less than the overall uncertainty of the entire system.
2. Please find attached revised page 10 of the SAR report with corrected measured liquid dielectric parameters. Please note that the previously submitted measured liquid dielectric parameters inadvertently stated a +/- 5% measurement uncertainty range.
3. Please find attached revised page 15 of the SAR report showing the appropriate measurement uncertainty table per IEEE P1528. The previously filed measurement uncertainty table was inadvertently submitted.
4. The reference to CENELEC and the 5dB error was inadvertently submitted and has now been removed from the measurement uncertainty page of the SAR report. Please find attached revised page 15 of the SAR report.
5. Please see attached revised measurement uncertainty page (15) of the SAR report with corrected probe calibration uncertainty budget of 4.4%. The system manufacturer states that when the uncertainty of the calibration is used alone then the k=2 factor applies. When the uncertainty of the calibration is used as part of the complete analysis then k=1 is used.

If you have any questions or comments concerning the above, please do not hesitate to contact me.

Sincerely,



Shawn McMillen
General Manager
Celltech Research Inc.
Testing & Engineering Lab

cc: Withus IT Co., Ltd.
American TCB

hp 15:30:03 Jan 8, 2002

WITHUS WPE-2200 BAND EDGE PCS CDMA LOW CH

Ref 24.5 dBm

*Atten 5 dB

Peak

Log

10

dB/

Offst

31

dB

DI

-13.0

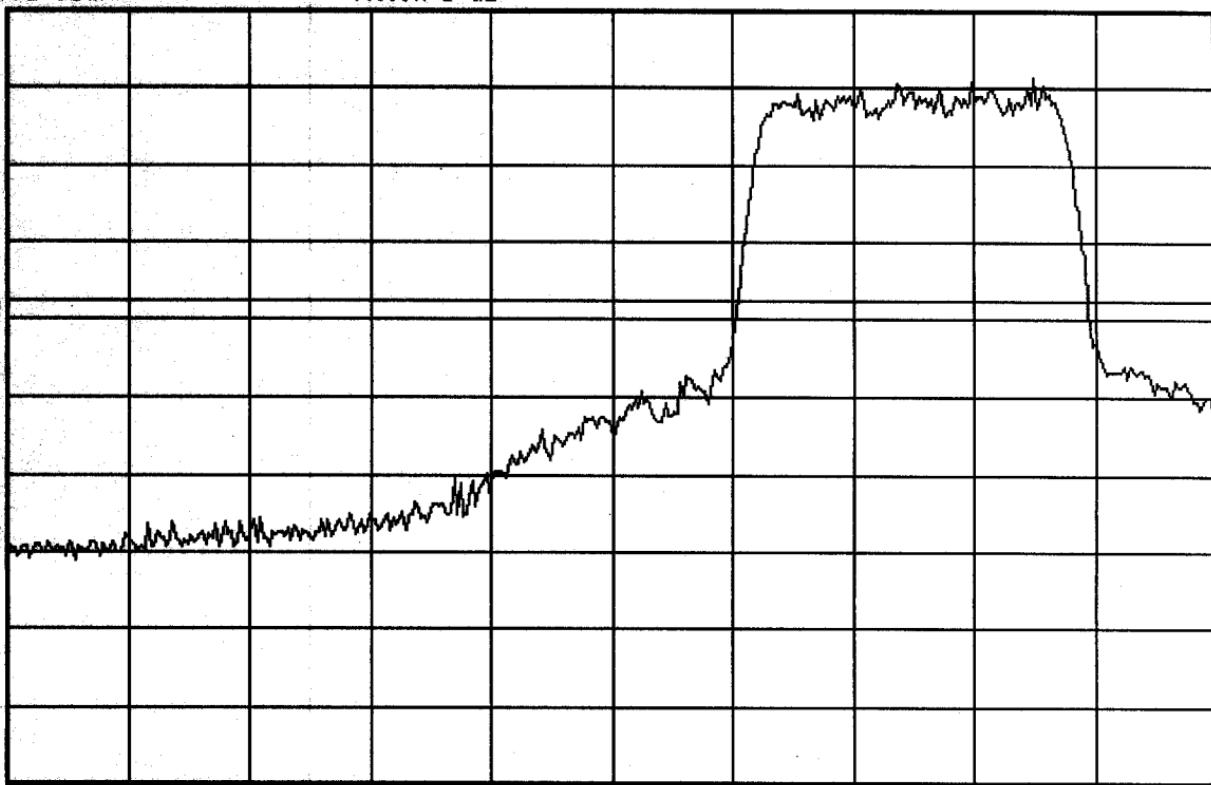
dBm

.

W1 W2

W3 FC

AA



Center 1.85 GHz

*Res BW 30 kHz

*VBW 30 kHz

Span 5 MHz

*Sweep 2.094 s

hp

15:26:31 Jan 8, 2002

WITHUS WPE-2200 BAND EDGE PCS CDMA HIGH CH

Ref 24.5 dBm

#Atten 5 dB

Peak

Log

10

dB/

Offst

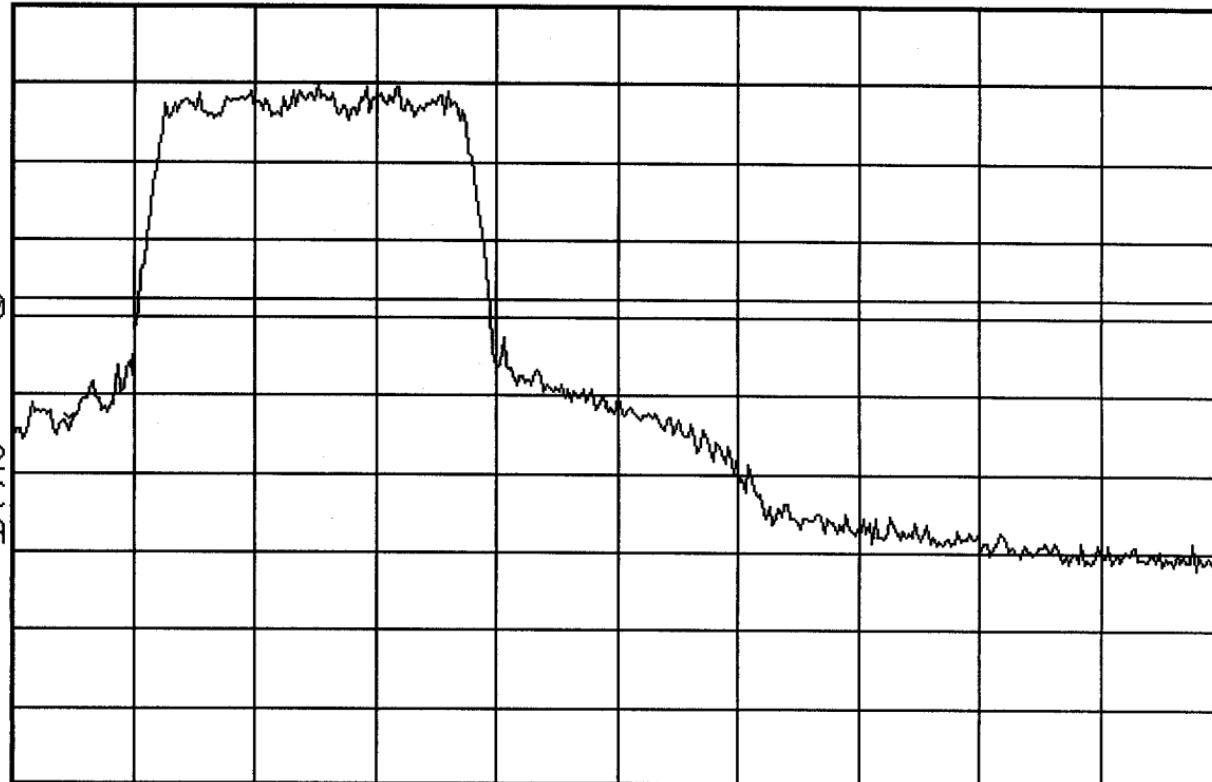
31

dB

DI

-13.0

dBm



Center 1.91 GHz

#Res BW 30 kHz

#VBW 30 kHz

Span 5 MHz

#Sweep 2.094 s

hp 14:55:46 Jan 8, 2002

WITHUS WPE-2200 OCCUPIED BANDWIDTH

Ref 24.5 dBm

Atten 5 dB

Samp

Log

10

dB/

Offst

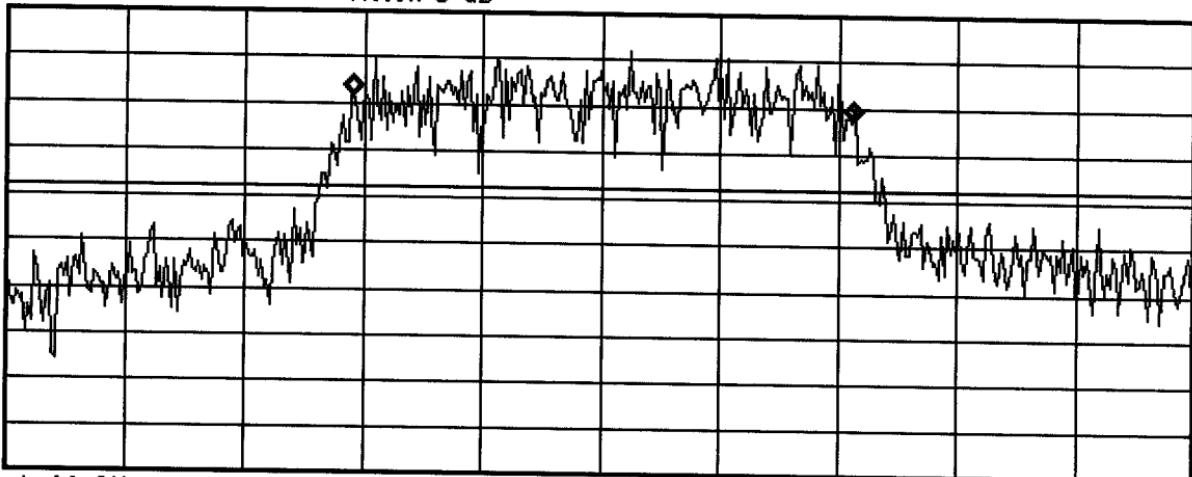
31

dB

DI

-13.0

dBm



Center 1.88 GHz

#Res BW 30 kHz

*VBW 30 kHz

Span 3 MHz

Sweep 9.167 ms

Occupied Bandwidth Results (idle)

Occupied Bandwidth

Occ BW % Pwr 99.00 %

1.268 MHz

Transmit Freq Error 4.419 kHz



15:16:37 Jan 8, 2002

WITHUS WPE-2200 PCS CDMA CH 25

Ref 24.5 dBm

*Atten 5 dB

Peak

Log

10

dB/

Offst

31

dB

DI

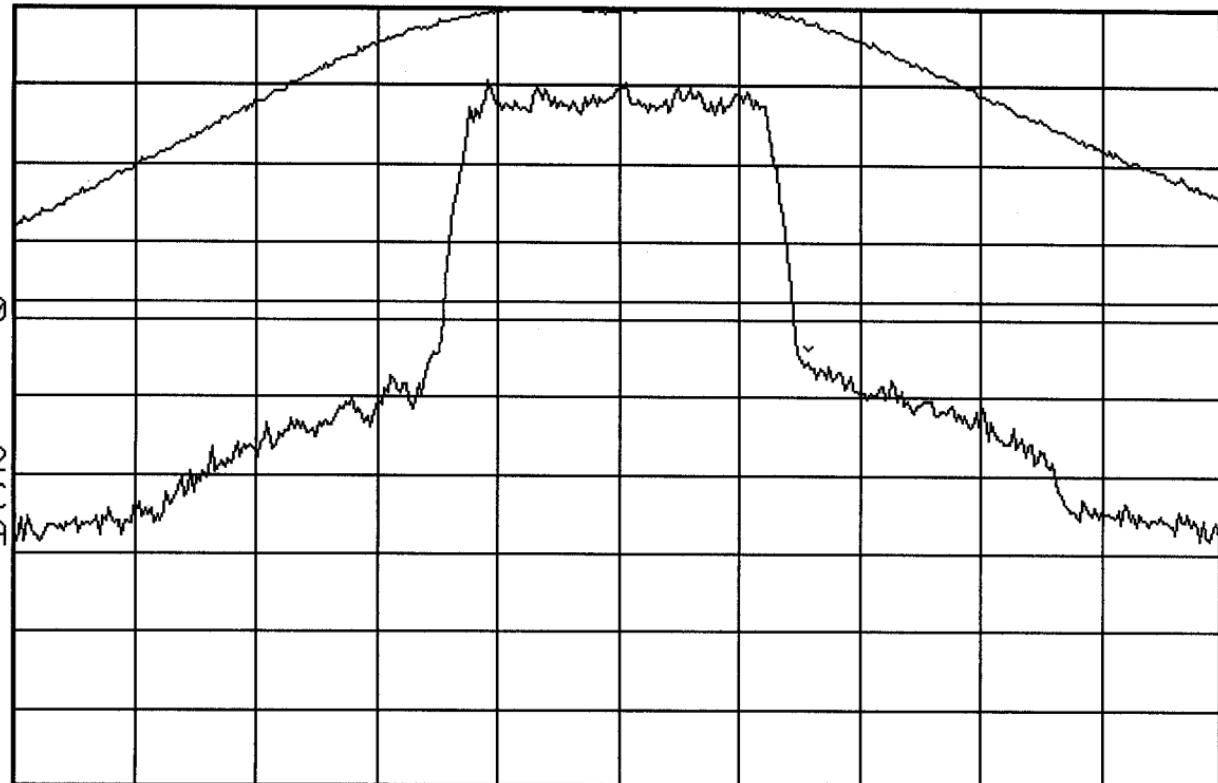
-13.0

dBm

M1 W2

W3 FC

AA



Center 1.851 GHz

*Res BW 30 kHz

*VBW 30 kHz

Span 5 MHz

*Sweep 2.094 s

hp 15:20:04 Jan 8, 2002
WITHUS WPE-2200 PCS CDMA CH 600
Ref 24.5 dBm *Atten 5 dB

Peak

Log

10

dB/

Offst

31

dB

DI

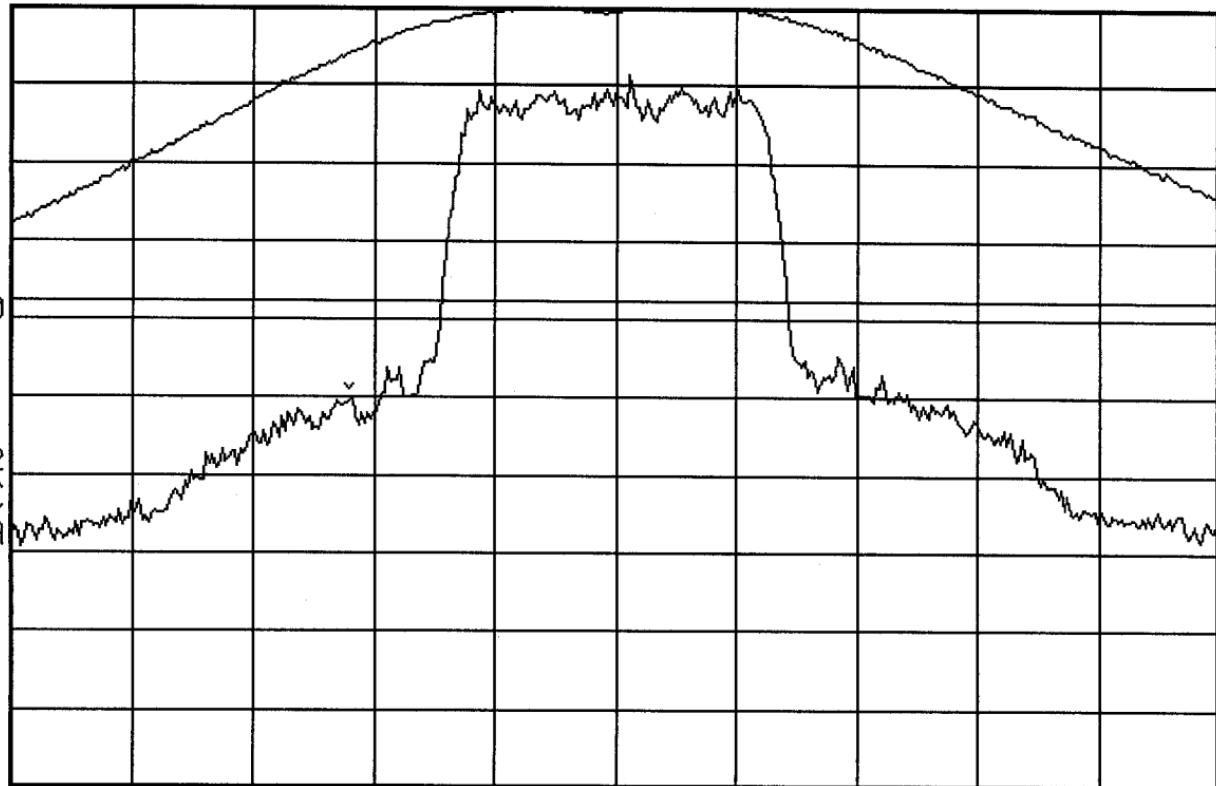
-13.0

dBm

M1 W2

W3 FC

AA



Center 1.88 GHz

*Res BW 30 kHz

*VBW 30 kHz

Span 5 MHz

*Sweep 2.094 s

hp

15:22:52 Jan 8, 2002

WITHUS WPE-2200 PCS CDMA CH 1175

Ref 24.5 dBm

#Atten 5 dB

Peak

Log

10

dB/

Offst

31

dB

DI

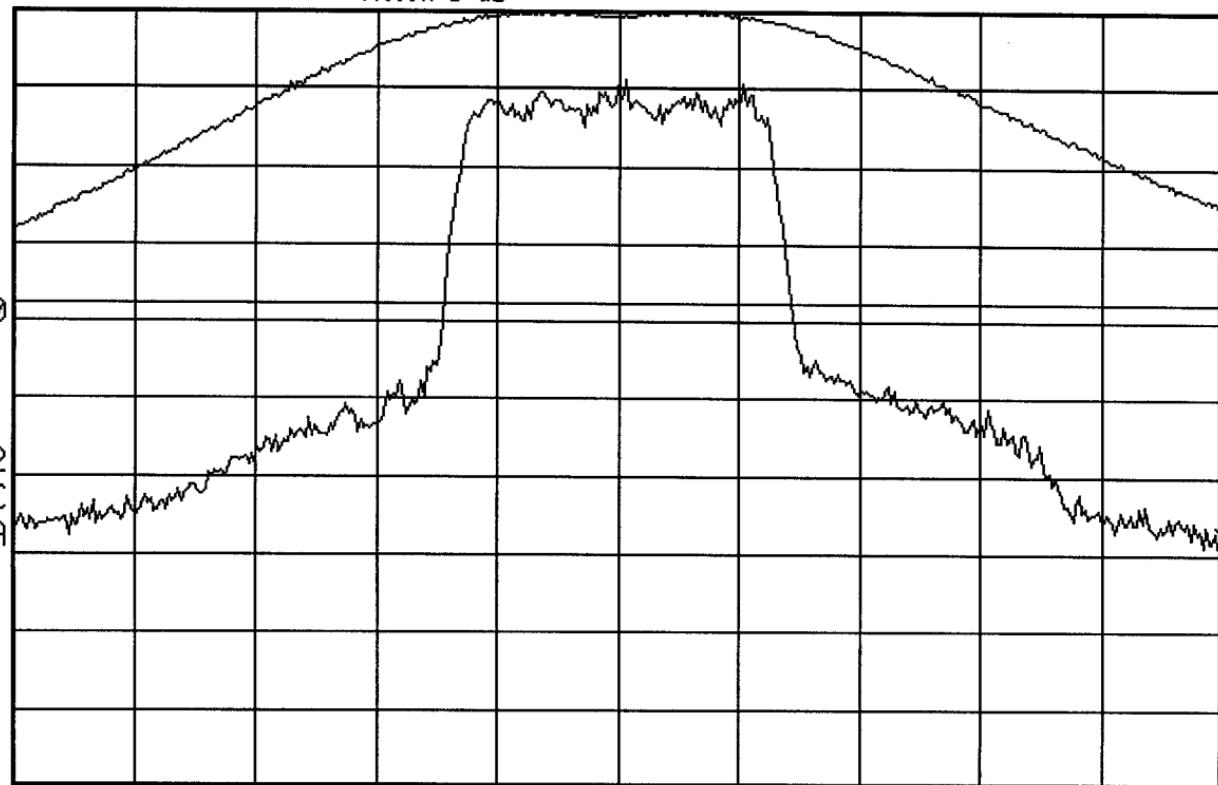
-13.0

dBm

M1 W2

W3 FC

AA



Center 1.909 GHz

#Res BW 30 kHz

#VBW 30 kHz

Span 5 MHz

#Sweep 2.094 s

7.0 SYSTEM VALIDATION

Prior to the assessment, the system was verified in the planar section of the SAM phantom using a 1800MHz dipole. A forward power of 250mW was applied to the dipole, and the system was verified to a tolerance of $\pm 10\%$. The applicable verification is as follows (see Appendix B for validation test plot):

Dipole Validation Kit	Target SAR 1g (w/kg)	Measured SAR 1g (w/kg)	Fluid Temperature	Validation Date
D1800V2	9.66	9.65	$\approx 23.0\text{ }^{\circ}\text{C}$	11/20/01
		9.63	$\approx 23.0\text{ }^{\circ}\text{C}$	11/21/01

8.0 TISSUE PARAMETERS

The dielectric parameters of the fluids were verified prior to the SAR evaluation using an 85070C Dielectric Probe Kit and an 8753E Network Analyzer. The dielectric parameters of the fluid are as follows:

BRAIN TISSUE PARAMETERS - DIPOLE VALIDATION & EUT EVALUATION			
Equivalent Tissue	Dielectric Constant ϵ_r	Conductivity s (mho/m)	r (Kg/m ³)
1800MHz Brain (Target)	$40.0 \pm 5\%$	$1.40 \pm 5\%$	1000
1800MHz Brain (Measured: 11/20/01)	40.3	1.40	1000
1800MHz Brain (Measured: 11/21/01)	40.1	1.40	1000

BODY TISSUE PARAMETERS - EUT EVALUATION			
Equivalent Tissue	Dielectric Constant ϵ_r	Conductivity s (mho/m)	r (Kg/m ³)
1800MHz Body (Target)	$53.3 \pm 5\%$	$1.52 \pm 5\%$	1000
1800MHz Body (Measured: 11/21/01)	53.4	1.52	1000

16.0 MEASUREMENT UNCERTAINTIES

Error Description	Uncertainty Value ±%	Probability Distribution	Divisor	c_i 1g	Standard Uncertainty ±% (1g)	v_i or v_{eff}
Measurement System						
Probe calibration	± 4.4	Normal	1	1	± 4.4	∞
Axial isotropy of the probe	± 4.7	Rectangular	$\sqrt{3}$	$(1-c_p)$	± 1.9	∞
Spherical isotropy of the probe	± 9.6	Rectangular	$\sqrt{3}$	(c_p)	± 3.9	∞
Spatial resolution	± 0.0	Rectangular	$\sqrt{3}$	1	± 0.0	∞
Boundary effects	± 5.5	Rectangular	$\sqrt{3}$	1	± 3.2	∞
Probe linearity	± 4.7	Rectangular	$\sqrt{3}$	1	± 2.7	∞
Detection limit	± 1.0	Rectangular	$\sqrt{3}$	1	± 0.6	∞
Readout electronics	± 1.0	Normal	1	1	± 1.0	∞
Response time	± 0.8	Rectangular	$\sqrt{3}$	1	± 0.5	∞
Integration time	± 1.4	Rectangular	$\sqrt{3}$	1	± 0.8	∞
RF ambient conditions	± 3.0	Rectangular	$\sqrt{3}$	1	± 1.7	∞
Mech. constraints of robot	± 0.4	Rectangular	$\sqrt{3}$	1	± 0.2	∞
Probe positioning	± 2.9	Rectangular	$\sqrt{3}$	1	± 1.7	∞
Extrap. & integration	± 3.9	Rectangular	$\sqrt{3}$	1	± 2.3	∞
Test Sample Related						
Device positioning	± 6.0	Normal	0.89	1	± 6.7	12
Device holder uncertainty	± 5.0	Normal	0.84	1	± 5.9	8
Power drift	± 5.0	Rectangular	$\sqrt{3}$		± 2.9	∞
Phantom and Setup						
Phantom uncertainty	± 4.0	Rectangular	$\sqrt{3}$	1	± 2.3	∞
Liquid conductivity (target)	± 5.0	Rectangular	$\sqrt{3}$	0.6	± 1.7	∞
Liquid conductivity (measured)	± 10.0	Rectangular	$\sqrt{3}$	0.6	± 3.5	∞
Liquid permittivity (target)	± 5.0	Rectangular	$\sqrt{3}$	0.6	± 1.7	∞
Liquid permittivity (measured)	± 5.0	Rectangular	$\sqrt{3}$	0.6	± 1.7	∞
Combined Standard Uncertainty					± 13.6	
Extended Standard Uncertainty (k=2)					± 27.1	