



晶復科技股份有限公司 A Test Lab Techno Corp.

Probe Calibrated: 1/9/2008

1. Body Conversion

The test frequencies are properly matched as this is a cellular band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 900MHz has permittivity and conductivity of 55.0 and 1.05 respectively. At the probe extreme frequencies the following are true: at 800 MHz the permittivity and conductivity are 52.3 and 0.92 respectively. At 1000 MHz the permittivity and conductivity are 57.8 and 1.1 respectively. The probe was calibrated at these parameters in order to cover the frequency range 800 MHz to 1000 MHz.

Conversion					
Name:	900 (Body)			OK	
	X:	Y:	Z:	Cancel	
Conversion factor:	6	6	6		
Alpha:	0.8	0.8	0.8		
Delta:	1.3	1.3	1.3		
Frequency range:	800	to	1000	MHz	Calibrated for: 900 MHz
Permittivity range:	52.3	to	57.8		Calibrated for: 55
Conductivity range:	0.92	to	1.1	S/m	Calibrated for: 1.05 S/m



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The test frequencies are properly matched as this is a PCS band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 1810MHz has permittivity and conductivity of 53.3 and 1.52 respectively. At the probe extreme frequencies the following are true: at 1710 MHz the permittivity and conductivity are 50.6 and 1.38 respectively. At 1910 MHz the permittivity and conductivity are 56.0 and 1.6 respectively. The probe was calibrated at these parameters in order to cover the frequency range 1710 MHz to 1910 MHz.

Conversion					
Name:	1810 (Body)			OK	
	X:	Y:	Z:	Cancel	
Conversion factor:	4.95	4.95	4.95		
Alpha:	0.96	0.96	0.96		
Delta:	1.12	1.12	1.12		
Frequency range:	1710	to	1910	MHz	Calibrated for: 1810 MHz
Permittivity range:	50.6	to	56		Calibrated for: 53.3
Conductivity range:	1.38	to	1.6	S/m	Calibrated for: 1.52 S/m



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The test frequencies are properly matched as this is a WLAN (2.4GHz) band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 2450MHz has permittivity and conductivity of 52.7 and 1.95 respectively. At the probe extreme frequencies the following are true: at 2350 MHz the permittivity and conductivity are 50.1 and 1.85 respectively. At 2550 MHz the permittivity and conductivity are 55.3 and 2.12 respectively. The probe was calibrated at these parameters in order to cover the frequency range 2350 MHz to 2550 MHz.

Conversion

Name: 2450 (Body)

OK

Cancel

X: Y: Z:

Conversion factor: 4.19 4.19 4.19

Alpha: 0.63 0.63 0.63

Delta: 1.48 1.48 1.48

Frequency range: 2350 to 2550 MHz

Calibrated for: 2450 MHz

Permittivity range: 50.1 to 55.3

Calibrated for: 52.7

Conductivity range: 1.85 to 2.12 S/m

Calibrated for: 1.95 S/m



2. Head Conversion

The test frequencies are properly matched as this is a cellular band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 900MHz has permittivity and conductivity of 41.5 and 0.97 respectively. At the probe extreme frequencies the following are true: at 800 MHz the permittivity and conductivity are 39.4 and 0.86 respectively. At 1000 MHz the permittivity and conductivity are 43.6 and 1.03 respectively. The probe was calibrated at these parameters in order to cover the frequency range 800 MHz to 1000 MHz

Conversion					
Name:	900 (Head)			OK	
	X:	Y:	Z:	Cancel	
Conversion factor:	6.23	6.23	6.23		
Alpha:	0.77	0.77	0.77		
Delta:	1.35	1.35	1.35		
Frequency range:	800	to	1000	MHz	Calibrated for: 900 MHz
Permittivity range:	39.4	to	43.6		Calibrated for: 41.5
Conductivity range:	0.86	to	1.03	S/m	Calibrated for: 0.97 S/m

The test frequencies are properly matched as this is a PCS band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 1810MHz has permittivity and conductivity of 40.0 and 1.40 respectively. At the probe extreme frequencies the following are true: at 1710 MHz the permittivity and conductivity are 38.0 and 1.29 respectively. At 1910 MHz the permittivity and conductivity are 42.0 and 1.47 respectively. The probe was calibrated at these parameters in order to cover the frequency range 1710 MHz to 1910 MHz.



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Conversion					
Name:	1810 (Head			OK	
	X:	Y:	Z:	Cancel	
Conversion factor:	5.11	5.11	5.11		
Alpha:	0.89	0.89	0.89		
Delta:	1.24	1.24	1.24		
Frequency range:	1710	to	1910	MHz	Calibrated for: 1810 MHz
Permittivity range:	38	to	42		Calibrated for: 40
Conductivity range:	1.29	to	1.47	S/m	Calibrated for: 1.4 S/m

The test frequencies are properly matched as this is a WLAN (2.4GHz) band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 2450MHz has permittivity and conductivity of 39.2 and 1.80 respectively. At the probe extreme frequencies the following are true: at 2350 MHz the permittivity and conductivity are 37.2 and 1.71 respectively. At 2550 MHz the permittivity and conductivity are 41.2 and 1.93 respectively. The probe was calibrated at these parameters in order to cover the frequency range 2350 MHz to 2550 MHz.

Conversion					
Name:	2450 (Head			OK	
	X:	Y:	Z:	Cancel	
Conversion factor:	4.54	4.54	4.54		
Alpha:	0.63	0.63	0.63		
Delta:	1.52	1.52	1.52		
Frequency range:	2350	to	2550	MHz	Calibrated for: 2450 MHz
Permittivity range:	37.2	to	41.2		Calibrated for: 39.2
Conductivity range:	1.71	to	1.93	S/m	Calibrated for: 1.8 S/m



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The target permittivity and conductivity which is within the calibrated range of the probe parameter. The following parameters are declared in the probe calibration certificate on page 8: The system manufacturer has carried out addition steps as detailed on page 4 of KDB450824. This is detailed in the calibration certificates. The measured SAR values in the report are all below 10% of the SAR limit.

f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	0.40	2.04	6.99 ± 13.3% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.28	3.16	5.88 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.71	2.18	4.80 ± 11.0% (k=2)
2000	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.76	2.12	4.48 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.73	2.44	4.26 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.33	2.02	7.32 ± 13.3% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.38	2.54	5.63 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.91	2.06	4.40 ± 11.0% (k=2)
2000	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.81	2.06	4.10 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.68	2.68	3.84 ± 11.8% (k=2)

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.



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Probe Calibrated: 1/20/2009

1. Body Conversion

The test frequencies are properly matched as this is a cellular band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 900MHz has permittivity and conductivity of 55.0 and 1.05 respectively. At the probe extreme frequencies the following are true: at 800 MHz the permittivity and conductivity are 52.3 and 0.92 respectively. At 1000 MHz the permittivity and conductivity are 57.8 and 1.1 respectively. The probe was calibrated at these parameters in order to cover the frequency range 800 MHz to 1000 MHz.

Conversion					
Name:	900 (Body)			OK	
	X:	Y:	Z:	Cancel	
Conversion factor:	5.91	5.91	5.91		
Alpha:	0.99	0.99	0.99		
Delta:	1.09	1.09	1.09		
Frequency range:	800	to	1000	MHz	Calibrated for: 900 MHz
Permittivity range:	52.3	to	57.8		Calibrated for: 55
Conductivity range:	0.92	to	1.1	S/m	Calibrated for: 1.05 S/m

The test frequencies are properly matched as this is a PCS band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 1810MHz has permittivity and conductivity of 53.3 and 1.52 respectively. At the probe extreme frequencies the following are true: at 1710 MHz the permittivity and conductivity are 50.6 and 1.38 respectively. At 1910 MHz the permittivity and conductivity are 56.0 and 1.6 respectively. The probe was calibrated at these parameters in order to cover the frequency range 1710 MHz to 1910 MHz.



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Conversion					
Name:	1810 (Body)			OK	
	X:	Y:	Z:	Cancel	
Conversion factor:	4.92	4.92	4.92		
Alpha:	0.44	0.44	0.44		
Delta:	1.53	1.53	1.53		
Frequency range:	1710	to	1910	MHz	Calibrated for: 1810 MHz
Permittivity range:	50.6	to	56		Calibrated for: 53.3
Conductivity range:	1.38	to	1.6	S/m	Calibrated for: 1.52 S/m

The test frequencies are properly matched as this is a WLAN (2.4GHz) band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 2450MHz has permittivity and conductivity of 52.7 and 1.95 respectively. At the probe extreme frequencies the following are true: at 2350 MHz the permittivity and conductivity are 50.1 and 1.85 respectively. At 2550 MHz the permittivity and conductivity are 55.3 and 2.12 respectively. The probe was calibrated at these parameters in order to cover the frequency range 2350 MHz to 2550 MHz.

Conversion					
Name:	2450 (Body)			OK	
	X:	Y:	Z:	Cancel	
Conversion factor:	4.23	4.23	4.23		
Alpha:	0.64	0.64	0.64		
Delta:	1.3	1.3	1.3		
Frequency range:	2350	to	2550	MHz	Calibrated for: 2450 MHz
Permittivity range:	50.1	to	55.3		Calibrated for: 52.7
Conductivity range:	1.85	to	2.12	S/m	Calibrated for: 1.95 S/m



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2. Head Conversion

The test frequencies are properly matched as this is a cellular band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 900MHz has permittivity and conductivity of 41.5 and 0.97 respectively. At the probe extreme frequencies the following are true: at 800 MHz the permittivity and conductivity are 39.4 and 0.86 respectively. At 1000 MHz the permittivity and conductivity are 43.6 and 1.03 respectively. The probe was calibrated at these parameters in order to cover the frequency range 800 MHz to 1000 MHz

Conversion

Name:

OK

Cancel

X:Y:Z:

Conversion factor:

Alpha:

Delta:

Frequency range: to MHz

Calibrated for: MHz

Permittivity range: to

Calibrated for:

Conductivity range: to S/m

Calibrated for: S/m

The test frequencies are properly matched as this is a PCS band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 1810MHz has permittivity and conductivity of 40.0 and 1.40 respectively. At the probe extreme frequencies the following are true: at 1710 MHz the permittivity and conductivity are 38.0 and 1.29 respectively. At 1910 MHz the permittivity and conductivity are 42.0 and 1.47 respectively. The probe was calibrated at these parameters in order to cover the frequency range 1710 MHz to 1910 MHz.



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Conversion

Name:

OK

Cancel

X: Y: Z:

Conversion factor:

Alpha:

Delta:

Frequency range: to MHz Calibrated for: MHz

Permittivity range: to Calibrated for:

Conductivity range: to S/m Calibrated for: S/m

The test frequencies are properly matched as this is a WLAN (2.4GHz) band. The probe calibration for permittivity and conductivity is within +/-5%, were the probe calibrated centre frequency at 2450MHz has permittivity and conductivity of 39.2 and 1.80 respectively. At the probe extreme frequencies the following are true: at 2350 MHz the permittivity and conductivity are 37.2 and 1.71 respectively. At 2550 MHz the permittivity and conductivity are 41.2 and 1.93 respectively. The probe was calibrated at these parameters in order to cover the frequency range 2350 MHz to 2550 MHz.

Conversion

Name:

OK

Cancel

X: Y: Z:

Conversion factor:

Alpha:

Delta:

Frequency range: to MHz Calibrated for: MHz

Permittivity range: to Calibrated for:

Conductivity range: to S/m Calibrated for: S/m



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The target permittivity and conductivity which is within the calibrated range of the probe parameter. The following parameters are declared in the probe calibration certificate on page 8: The system manufacturer has carried out addition steps as detailed on page 4 of KDB450824. This is detailed in the calibration certificates. The measured SAR values in the report are all below 10% of the SAR limit.

Probe Calibrated: 1/9/2008

f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.77	1.35	6.23 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.89	1.24	5.11 ± 11.0% (k=2)
2000	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.66	1.48	4.84 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.63	1.52	4.54 ± 11.8% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.80	1.30	6.00 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.96	1.12	4.95 ± 11.0% (k=2)
2000	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.76	1.29	4.55 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.63	1.48	4.19 ± 11.8% (k=2)

Probe Calibrated: 1/20/2009

f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
450	± 50 / ± 100	Head	43.5 ± 5%	0.87 ± 5%	0.32	1.49	6.25 ± 13.3% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.41	1.69	5.91 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.39	2.06	5.04 ± 11.0% (k=2)
2000	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.28	2.95	4.88 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.36	2.44	4.59 ± 11.0% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.24	1.23	6.75 ± 13.3% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.99	1.09	5.91 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.44	1.53	4.92 ± 11.0% (k=2)
2000	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.35	1.78	4.77 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.64	1.30	4.23 ± 11.0% (k=2)



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The measurement within the required frequency interval satisfy an expanded probe calibration uncertainty ($k=2$) $\leq 15\%$ for all measurement conditions. Please refer to SAR report for probe and dipole calibration certificates produce by the system manufacturer.

ES3DV3 SN:3150

January 9, 2008

DASY - Parameters of Probe: ES3DV3 SN:3150

Sensitivity in Free Space^A

NormX	1.24 $\pm$ 10.1%	$\mu V/(V/m)^2$	DCP X	89 mV
NormY	1.25 $\pm$ 10.1%	$\mu V/(V/m)^2$	DCP Y	93 mV
NormZ	1.24 $\pm$ 10.1%	$\mu V/(V/m)^2$	DCP Z	98 mV

Diode Compression^B

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL 900 MHz Typical SAR gradient: 5 % per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SAR _{be} [%]	Without Correction Algorithm	11.0	6.8
SAR _{be} [%]	With Correction Algorithm	0.8	0.5

TSL 1810 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SAR _{be} [%]	Without Correction Algorithm	11.5	7.2
SAR _{be} [%]	With Correction Algorithm	0.3	0.6

Sensor Offset

Probe Tip to Sensor Center 2.0 mm

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k=2$, which for a normal distribution corresponds to a coverage probability of approximately 95%.



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ES3DV3 SN:3150

January 20, 2009

DASY - Parameters of Probe: ES3DV3 SN:3150

Sensitivity in Free Space^A

NormX	1.25 ± 10.1%	$\mu V/(V/m)^2$
NormY	1.26 ± 10.1%	$\mu V/(V/m)^2$
NormZ	1.25 ± 10.1%	$\mu V/(V/m)^2$

Diode Compression^B

DCP X	93 mV
DCP Y	95 mV
DCP Z	94 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL 900 MHz Typical SAR gradient: 5 % per mm

Sensor Center to Phantom Surface Distance	3.0 mm	4.0 mm
SAR ₁₀ [%] Without Correction Algorithm	9.9	6.5
SAR ₁₀ [%] With Correction Algorithm	0.8	0.4

TSL 1810 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance	3.0 mm	4.0 mm
SAR ₁₀ [%] Without Correction Algorithm	11.5	7.6
SAR ₁₀ [%] With Correction Algorithm	0.8	0.5

Sensor Offset

Probe Tip to Sensor Center 2.0 mm

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.