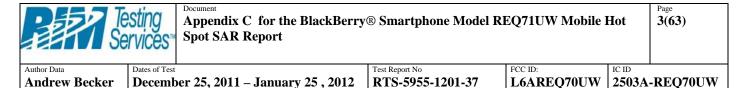
	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model R	EQ71UW Mobile l	Hot $1(63)$				
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID				
Andrew Becker	Decemb	r 25, 2011 – January 25, 2012 RTS-5955-1201-37 L6AREQ70UW 2503A-REQ70							

APPENDIX C: PROBE & DIPOLE CALIBRATION DATA

	Dates of Test		Test Report No		IC ID
w Becker	December 25, 2	<u>011 – January 25</u>	5,2012 RTS-5955-1201-37	L6AREQ70UW	2503A-REQ7
Calib	ration Laborator	ov of	and the second second		
	id & Partner	<i>y</i> 01	Swiiss s	Comise suises d'élalemeses	st
	ineering AG		Hac MRA (C V Z)	Servizio svizzero di taratura	
Zeughau	isstrasse 43, 8004 Zuric	h, Switzerland	Call Marker S	Swiss Calibration Service	
Accredit	ed by the Swiss Accredita	tion Service (SAS)	Accreditatio	on No.: SCS 108	
		e is one of the signatori ecognition of calibration			
Client	RTS (RIM Test	_		io: ES3-3225_Jan11	
CAL	IBRATION C	CERTIFICAT			
Object		ES3DV3 - SN:3	225 · · · · · · · · · · · · · · · · · ·	$\omega_{i} = \sqrt{\frac{2}{3}} \frac{1}{\sqrt{2}} \frac$	
Guille	ten un en de me feit	OA CAL DE T	CA CAL 22-14 Chical 26-	Station of the second of the	
Calibra	ion procedure(s)		QA CAL-23.v4 and QA CAL-25.v edure for dosimetric E-field probe		
1		and a start of the second start		1993년 1948년 - 1997년 1 1997년 1997년 1997	
		and the second sec			
Calibrat	ion date:	January 13, 201	1. Stall Stall		
This ca	ibration certificate docum	ents the traceability to na	1 tional standards, which realize the physical us probability are given on the following pages a		
This cal The me	lbration certificate docum asurements and the unce	ents the traceability to na rtainties with confidence	tional standards, which realize the physical u	nd are part of the certificate.	
This cal The me All calib	lbration certificate docum asurements and the unce	ents the traceability to na intainties with confidence cted in the closed laborate	tional standards, which realize the physical u probability are given on the following pages a	nd are part of the certificate.	
This cal The me All calib Calibrat	libration certificate docum asurements and the unce rations have been condu- tion Equipment used (M&	ents the traceability to na intainties with confidence (cted in the closed laborate TE ontical for calibration)	tional standards, which realize the physical u probability are given on the following pages a bry facility: environment temperature (22 \pm 3)	nd are part of the certificate. °C and humidity < 70%,	
This cal The me All calls Calibrat Primary	lbration certificate docum asurements and the unce rations have been condu	ents the traceability to na intainties with confidence cted in the closed laborate	tional standards, which realize the physical u probability are given on the following pages a	nd are part of the certificate.	
This cal The me All calls Calibrat Primary Power r	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards	ents the traceability to na intainties with confidence (cted in the closed laborate TE ontical for calibration)	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) Cal Date (Certificate No.)	nd are part of the certificate. "C and humidity < 70%, Scheduled Calibration	
This call The me All calls Calibrat Primary Power of Power of	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards	ents the traceability to na entainties with confidence cted in the closed laborate TE entical for calibration) ID # GB41293674	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136)	nd are part of the certificate. *C and humidity < 70%, Scheduled Calibration Apr-11	
This call The me All calls Calibrat Primary Power of Power of Power of	ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards neter E4419B sensor E4412A	ents the traceability to na entainties with confidence (cted in the closed laborate TE entical for calibration) ID # GB41293674 MY41495277	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136)	nd are part of the certificate. "C and humidity < 70%, Scheduled Calibration Apr-11 Apr-11	
This call The me All calls Calibrat Primary Power o Power o Referen	ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards reter E44198 sensor E4412A sensor E4412A	ents the traceability to na entainties with confidence p cted in the closed laborate TE critical for calibration) ID # GB41293674 MY41495277 MY41498087	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136)	nd are part of the certificate. "C and humidity < 70%, Scheduled Calibration Apr-11 Apr-11 Apr-11	
This call The me All calls Calibrai Primary Power o Power o Referer Referer	ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards reter E44198 sensor E4412A sensor E4412A sensor E4412A toe 3 dB Attenuator	ents the traceability to na entainties with confidence p cted in the closed laborato TE critical for calibration) ID # GB41293674 MY41495277 MY41498087 SN: S5054 (3c)	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 30-Mar-10 (No. 217-01156)	nd are part of the certificate. 'C and humidity < 70%. Scheduled Calibration Apr-11 Apr-11 Apr-11 Mar-11	
This call The me All calls Calibrat Primary Power of Power of Referen Referen Referen	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards Standards Standards E4412A Sensor E4412A Sensor E4412A Sensor E4412A Sensor E4412A Sensor E4412A Sensor E4412A Sensor E4412A Sensor E4412A Sensor E4412A Sensor E4412A	ents the traceability to naterial in the closed laborate in the clos	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 30-Mar-10 (No. 217-01159) 30-Mar-10 (No. 217-01161)	nd are part of the certificate. 'C and humidity < 70%. Scheduled Calibration Apr-11 Apr-11 Apr-11 Mar-11 Mar-11	
This call The me All calls Calibrat Primary Power of Power of Referen Referen Referen	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards reter E44198 sensor E4412A sensor E4412A tice 3 dB Attenuator tice 30 dB Attenuator tice 30 dB Attenuator	ents the traceability to nar rtainties with confidence (cted in the closed laborate TE ontical for calibration) ID # GB41293674 MY41495277 MY41498087 SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b)	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 30-Mar-10 (No. 217-01159) 30-Mar-10 (No. 217-01161) 30-Mar-10 (No. 217-01161)	nd are part of the certificate. 'C and humidity < 70%. Scheduled Calibration Apr-11 Apr-11 Apr-11 Mar-11 Mar-11 Mar-11	
This cal The me All calibrat Calibrat Primary Power of Power of Power of Referen Referen Referen Referen DAE4 Second	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards reter E44198 sensor E4412A sensor E4412A toce 3 dB Attenuator toce 20 dB Attenuator toce 30 dB Attenuator toce 90 dB Attenuator toce Probe ES3DV2	ents the traceability to na entainties with confidence cted in the closed laborate TE entical for calibration) ID # GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3013 SN: 660	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) ¹ Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 30-Mar-10 (No. 217-01136) 30-Mar-10 (No. 217-01159) 30-Mar-10 (No. 217-01161) 30-Mar-10 (No. 217-01161) 29-Dec-10 (No. ES3-3013_Dec10) 20-Apr-10 (No. DAE4-660_Apr10) Check Date (in house)	nd are part of the certificate. "C and humidity < 70%, Scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Dec-11 Apr-11 Scheduled Check	
This cal The me All calibrat Calibrat Primary Power o Power o Power o Referen Referen Referen Referen DAE4 Second RF gen	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards reter E44198 sensor E44198 sensor E4412A toe 3 dB Attenuator toe 20 dB Attenuator toe 30 dB Attenuator toe 9 robe ES3DV2	ents the traceability to na entainties with confidence cted in the closed laborate TE entical for calibration) ID # GB41293674 MY41495277 MY41498087 SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5129 (30b) SN: 3013 SN: 660	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) ¹ Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 30-Mar-10 (No. 217-01159) 30-Mar-10 (No. 217-01161) 30-Mar-10 (No. 217-01161) 29-Dec-10 (No. ES3-3013_Dec10) 20-Apr-10 (No. DAE4-660_Apr10)	rd are part of the certificate. 'C and humidity < 70%. Scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Mar-11 Dec-11 Apr-11	
This cal The me All calibrat Calibrat Primary Power o Power o Power o Referen Referen Referen Referen DAE4 Second RF gen	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards reter E44198 sensor E44198 sensor E4412A sensor E4412A senso	ents the traceability to na entainties with confidence (cted in the closed laborate TE entical for calibration) ID # GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5129 (30b) SN: 3013 SN: 660 ID # US3642U01700	tional standards, which realize the physical us probability are given on the following pages a pry facility: environment temperature (22 ± 3) ¹ Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 30-Mar-10 (No. 217-01161) 30-Mar-10 (No. 217-01161) 30-Mar-10 (No. 217-01161) 29-Dec-10 (No. ES3-3013_Dec10) 20-Apr-10 (No. DAE4-660_Apr10) Check Date (in house) 4-Aug-99 (in house check Oct-09)	nd are part of the certificate. "C and humidity < 70%, Scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Dec-11 Apr-11 Dec-11 Apr-11 Dec-11 Apr-11 Dec-11 Apr-11 Dec-11 Apr-11 Dec-11 Apr-11	
This cal The me All calibrat Calibrat Primary Power o Power o Referen Referen Referen Referen DAE4 Second RF gen	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards reter E44198 sensor E4412A sensor E4412A senso	ents the traceability to na entainties with confidence (cted in the closed laborate TE entical for calibration) ID # GB41293874 MY41495077 MY41498087 SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3013 SN: 660 ID # US3642U01700 US37390585 Name Jeton Kisetrati	tional standards, which realize the physical us probability are given on the following pages a stry facility: environment temperature (22 ± 3) ¹ Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 30-Mar-10 (No. 217-01161) 30-Mar-10 (No. 217-01161) 30-Mar-10 (No. 217-01161) 30-Mar-10 (No. 217-01160) 29-Dec-10 (No. ES3-3013_Dec10) 29-Apr-10 (No. DAE4-860_Apr10) Check Date (in house) 4-Aug-99 (in house check Oct-09) 18-Oct-01 (in house check Oct-10)	nd are part of the certificate. "C and humidity < 70%. Scheduled Calibration Apr-11 Apr-11 Apr-11 Mar-11 Mar-11 Dec-11 Apr-11 Scheduled Check In house check: Oct-11 In house check: Oct-11	
This cal The me All calib Calibrat Primary Power of Power of Power of Referen Referen Referen Referen DAE4 Second RF gen Networt	Ibration certificate docum asurements and the unce rations have been condu- tion Equipment used (M& Standards meter E44198 sensor E4412A sensor E4412A senso	ents the traceability to nai intainties with confidence (cted in the closed laborate TE entical for calibration) ID # GB41293674 MY41495277 MY41498087 SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b) SN: S5129 (30b) SN: S5129 (30b) SN: 3013 SN: 660 ID # US3642U01700 US37390585 Name	tional standards, which realize the physical us probability are given on the following pages a say facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 1-Apr-10 (No. 217-01136) 30-Mar-10 (No. 217-0116) 30-Mar-10 (No. 217-0116) 30-Mar-10 (No. 217-0116) 29-Dec-10 (No. 217-0116) 29-Dec-10 (No. ES3-3013_Dec10) 20-Apr-10 (No. DAE4-660_Apr10) Check Date (in house) 4-Aug-99 (in house check Oct-09) 18-Oct-01 (in house check Oct-10) Function	nd are part of the certificate. "C and humidity < 70%. Scheduled Calibration Apr-11 Apr-11 Apr-11 Mar-11 Mar-11 Dec-11 Apr-11 Scheduled Check In house check: Oct-11 In house check: Oct-11	

Certificate No: ES3-3225_Jan11

Page 1 of 11



Andrew Becker

Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kalibrierdienst

L6AREO70UW

- Service suisse d'étalonnage
- Servizio svizzero di taratura s
 - Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA

Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization o	φ rotation around probe axis
Polarization 9	9 rotation around an axis that is in the plane normal to probe axis (at measurement center).
	i.e., $\theta = 0$ is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORMx, y, z: Assessed for E-field polarization 9 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz; R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,y,z * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx, y, z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z; A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx, y, z * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Certificate No: ES3-3225 Jan11

Page 2 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model I	REQ71UW Mobile]	Hot ^{Page} 4(63)			
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID			
Andrew Becker	Decemb	25, 2011 – January 25, 2012 RTS-5955-1201-37 L6AREQ70UW 2503A-RE0						

January 13, 2011

Probe ES3DV3

SN:3225

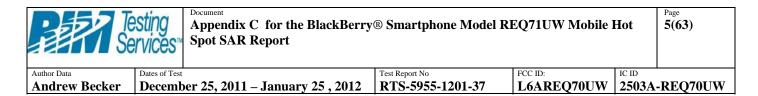
Manufactured: Last calibrated: Recalibrated: September 1, 2009 December 11, 2009 January 13, 2011

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

Certificate No: ES3-3225_Jan11

Page 3 of 11



January 13, 2011

DASY/EASY - Parameters of Probe: ES3DV3 SN:3225

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (µV/(V/m) ²) ^A	1.26	1.21	1.31	± 10.1%
DCP (mV) ⁸	102.1	100.8	99.1	

Modulation Calibration Parameters

סוט	Communication System Name	PAR		A dB	B dBuV	С	VR mV	Unc ^E (k=2)
10000	cw	0.00	х	0.00	0.00	1.00	149.8	± 2.6 %
			Y	0.00	0.00	1.00	148.1	
			Z	0.00	0.00	1.00	110.7	

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%.

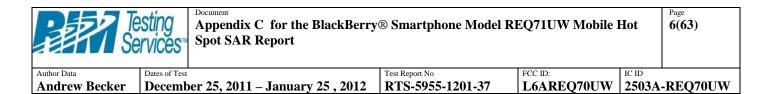
^a The uncertainties of NormX, Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

⁸ Numerical linearization parameter, uncertainty not required.

⁶ Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

Certificate No: ES3-3225_Jan11

Page 4 of 11



January 13, 2011

DASY/EASY - Parameters of Probe: ES3DV3 SN:3225

Calibration Parameter Determined in Head Tissue Simulating Media

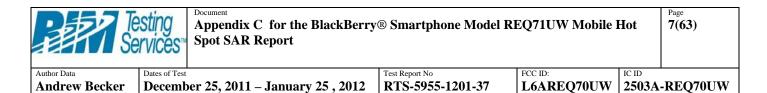
f [MHz]	Validity [MHz] ^C	Permittivity	Conductivity	ConvF X Co	nvFY Com	FZ	Aipha	Depth Linc (k=2)
750	± 50 / ± 100	41.9 ± 5%	0.89 ± 5%	6.47	6.47	6.47	0.89	1.08 ± 11.0%
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	6.11	6.11	6.11	0.81	1.10 ± 11.0%
1810	± 50 / ± 100	40.0 ± 5%	$1.40 \pm 5\%$	5.26	5.26	5.26	0.37	1.68 ± 11.0%
1950	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.98	4.98	4.98	0.48	1.51 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.60	4.60	4.60	0.52	1.54 ± 11.0%
2600	± 50 / ± 100	$39.0\pm5\%$	1.96 ± 5%	4.52	4.52	4.52	0.53	1.58 ± 11.0%

^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.

Certificate No: ES3-3225_Jan11

Page 5 of 11



January 13, 2011

DASY/EASY - Parameters of Probe: ES3DV3 SN:3225

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz] ^C	Permittivity	Conductivity	ConvF X Co	nvFY Co	nvF Z	Alpha	Depth Unc (k=2)
750	±50/±100	$55.5 \pm 5\%$	0.96 ± 5%	6.30	6.30	6.30	0.76	1.17 ± 11.0%
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	6.12	6.12	6.12	0.72	1.20 ± 11.0%
1810	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.88	4,88	4.88	0.26	2.70 ± 11.0%
1950	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.89	4.89	4.89	0.33	2.28 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	4.43	4.43	4.43	0.99	1.04 ± 11.0%
2600	± 50 / ± 100	52.5 ± 5%	2.16 ± 5%	4.29	4.29	4.29	0.99	1.05 ± 11.0%

^o 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.

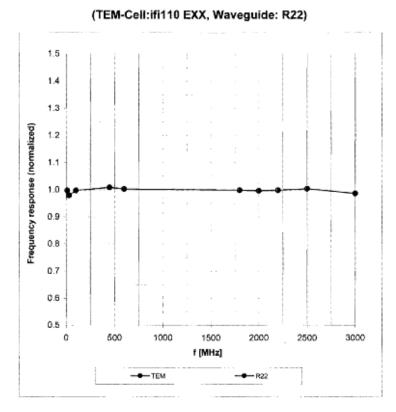
Certificate No: ES3-3225_Jan11

Page 6 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model R	EQ71UW Mobile I	Hot	Page 8(63)			
Author Data	Dates of Test		Test Report No FCC ID: IC ID						
Andrew Becker	Decemb	r 25, 2011 – January 25, 2012 RTS-5955-1201-37 L6AREQ70UW 2503A-REQ70UW							

January 13, 2011

Frequency Response of E-Field



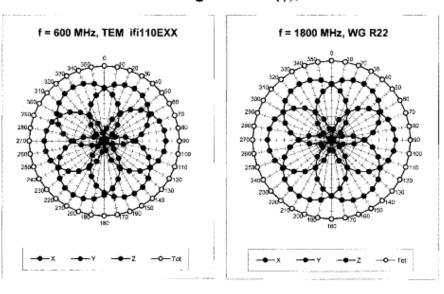
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Certificate No: ES3-3225_Jan11

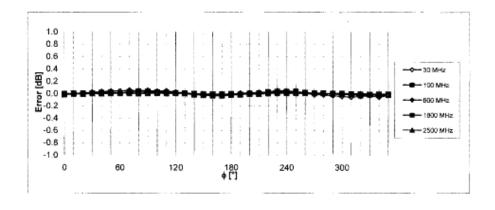
Page 7 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model F	EQ71UW Mobile 1	Hot 9(63)				
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID				
Andrew Becker	ndrew Becker December 25, 2011 – January 25 , 2012 RTS-5955-1201-37 L6AREQ70UW 2503A-REQ70								

January 13, 2011



Receiving Pattern (ϕ), ϑ = 0°



Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

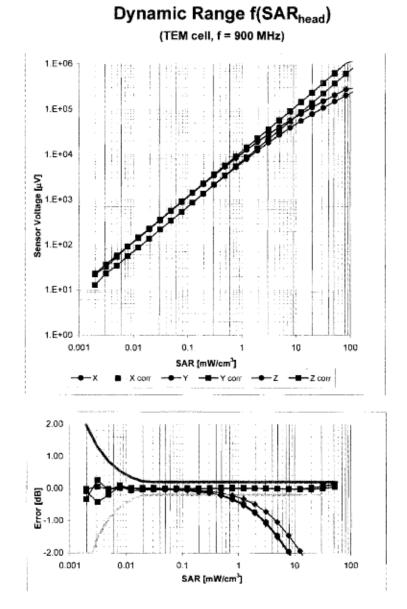
Certificate No: ES3-3225_Jan11

Page 8 of 11

This report shall <u>NOT</u> be reproduced except in full without the written consent of RIM Testing Services Copyright 2005-2012, RIM Testing Services, a division of Research In Motion Limited

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model F	REQ71UW Mobile]		Page 10(63)			
Author Data	Dates of Test	Test Report No FCC ID: IC ID							
Andrew Becker	Decemb	25, 2011 – January 25, 2012 RTS-5955-1201-37 L6AREQ70UW 2503A-REQ70U							

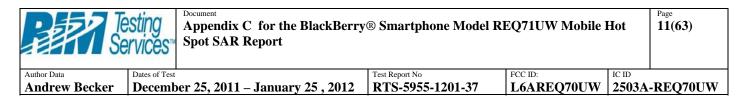
January 13, 2011



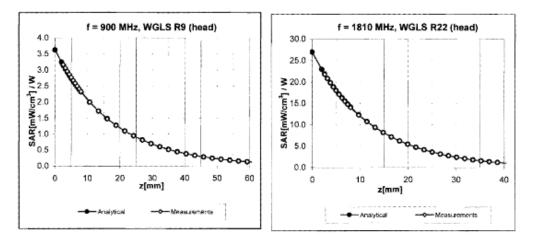
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: ES3-3225_Jan11

Page 9 of 11

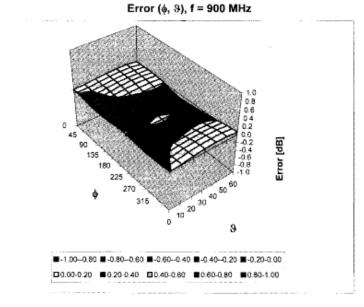


January 13, 2011



Conversion Factor Assessment

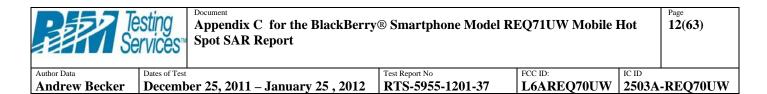
Deviation from Isotropy in HSL



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Certificate No: ES3-3225_Jan11

Page 10 of 11



January 13, 2011

Other Probe Parameters

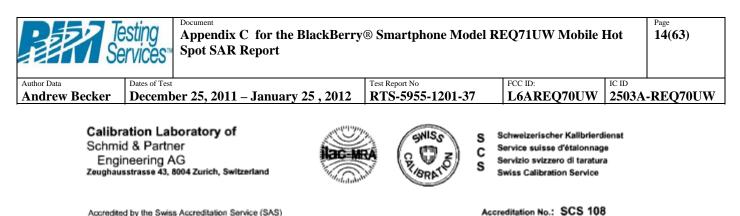
Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

Certificate No: ES3-3225_Jan11

Page 11 of 11

Services [™] Spot	SAR Report	ackBerry® Smartphone Mode	l REQ71UW Mobile Hot	13(63)
a Dates of Test W Becker December 25,	2011 – January 25	Test Report No 7, 2012 RTS-5955-1201-37	FCC ID: IC ID L6AREQ70UW 250)3A-REQ70
Calibration Laborato Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zuri	-	REC MIRA (PANISS S C C Z R BRATO S	Schweizerischer Kalibrierdienst Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service	
Accredited by the Swiss Accredit The Swiss Accreditation Servic Multilateral Agreement for the	ce is one of the signatories	s to the EA	Io.: SCS 108	
Client RTS (RIM Test	ting Services)	Certificate No:	E83-3225_Jan12	
CALIBRATION	CERTIFICATE			
Object	ES3DV3 - SN:32	25		
Calibration procedure(s)		A CAL-23.v4, QA CAL-25.v4 dure for dosimetric E-field probes		
Calibration date:	January 11, 2012			
This calibration certificate docum The measurements and the unco	nents the traceability to natio entainties with confidence pr ucted in the closed laborator	onal standards, which realize the physical units obability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a	are part of the certificate.	
This calibration certificate docum The measurements and the unc All calibrations have been condu Calibration Equipment used (M8	ments the traceability to natio pertainties with confidence pr ucted in the closed laborator STE critical for calibration)	onal standards, which realize the physical units obability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a	are part of the certificate. and humidity < 70%.	
This calibration certificate docum The measurements and the unc All calibrations have been condu Calibration Equipment used (M8 Primary Standards	ments the traceability to natio pertainties with confidence pr ucted in the closed laborator STE critical for calibration)	onal standards, which realize the physical units obability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a Cal Date (Certificate No.)	are part of the certificate. and humidity < 70%. Scheduled Calibration	
This calibration certificate docum The measurements and the unc All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E4419B	nents the traceability to natio partainties with confidence pr ucted in the closed laborator STE critical for calibration) ID GB41293874	onal standards, which realize the physical units obability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12	
This calibration certificate docum The measurements and the unc All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E4419B Power sensor E4412A	nents the traceability to natio partainties with confidence pr ucted in the closed laborator STE critical for calibration) ID GB41293874 MY41498087	conal standards, which realize the physical units obability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 31-Mar-11 (No. 217-01372)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12	
This calibration certificate docum The measurements and the unc All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E4419B Power sensor E4412A Reference 3 dB Attenuator	nents the traceability to natio partainties with confidence pr ucted in the closed laborator STE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c)	conal standards, which realize the physical units obability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12	
This calibration certificate docum The measurements and the unce All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E4419B Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator	nents the traceability to natio pertainities with confidence pr ucted in the closed laborator STE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5086 (20b)	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12	
This calibration certificate docum The measurements and the unc All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E4419B Power sensor E4412A Reference 3 dB Attenuator	nents the traceability to natio partainties with confidence pr ucted in the closed laborator STE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c)	conal standards, which realize the physical units obability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12	
This calibration certificate docum The measurements and the unce All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E44198 Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator	ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5129 (30b)	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12	
This calibration certificate docum The measurements and the unce All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E44198 Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference 90 dB Attenuator	ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5058 (20b) SN: S5129 (30b) SN: 3013	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01373) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370) 29-Dec-11 (No. ES3-3013_Dec11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-12 Dec-12	
This calibration certificate docum The measurements and the unce All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E44198 Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference 90 dB Attenuator	ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5058 (20b) SN: S5129 (30b) SN: 3013	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01373) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370) 29-Dec-11 (No. ES3-3013_Dec11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-12 Dec-12	
This calibration certificate docum The measurements and the unco All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E44198 Power sensor E4412A Reference 3 dB Attenuator Reference 3 dB Attenuator Reference 20 dB Attenuator Reference Probe ES3DV2 DAE4	nents the traceability to natio tertainties with confidence pr ucted in the closed laborator &TE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b) SN: 3013 SN: 654	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Dec-11 (No. ES3-3013_Dec11) 3-May-11 (No. DAE4-654_May11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-12 May-12	
This calibration certificate docum The measurements and the unco All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E4419B Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference Probe ES3DV2 DAE4 Secondary Standards	nents the traceability to natio tertainties with confidence pr ucted in the closed laborator &TE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b) SN: 3013 SN: 654 ID	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Dec-11 (No. ES3-3013_Dec11) 3-May-11 (No. DAE4-654_May11) Check Date (in house)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-12 May-12 Scheduled Check	
This calibration certificate docum The measurements and the unco All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E4419B Power sensor E4412A Reference 3 dB Attenuator Reference 30 dB Attenuator Reference 30 dB Attenuator Reference Probe ES3DV2 DAE4 Secondary Standards RF generator HP 8648C	nents the traceability to natio tertainties with confidence pr ucted in the closed laborator &TE critical for calibration) ID GB41293874 MY41498087 SN: 55054 (3c) SN: 55054 (3c) SN: 55129 (30b) SN: 55129 (30b) SN: 3013 SN: 654 ID US3642U01700	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Dec-11 (No. ES3-3013_Dec11) 3-May-11 (No. DAE4-654_May11) Check Date (in house) 4-Aug-99 (in house check Apr-11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-12 May-12 Scheduled Check In house check: Apr-13	
This calibration certificate docum The measurements and the unce All calibrations have been condu Calibration Equipment used (M8 Primary Standards Power meter E44198 Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 20 dB Attenuator Reference Probe ES3DV2 DAE4 Secondary Standards RF generator HP 8648C Network Analyzer HP 8753E	nents the traceability to natio certainties with confidence pr ucted in the closed laborator STE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3013 SN: 654 ID US3642U01700 US3642U01700 US37390585 Name	Cal Date (Certificate No.) Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 31-Mar-11 (No. 217-01372) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370) 29-Dec-11 (No. ES3-3013_Dec11) 3-May-11 (No. DAE4-654_May11) Check Date (in house) 4-Aug-99 (in house check Apr-11) 18-Oct-01 (in house check Cct-11) Function	are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-12 May-12 Scheduled Check In house check: Apr-13 In house check: Oct-12	

Page 1 of 11



Accredited by the Swiss Accreditation Service (SAS) The Swiss Accreditation Service is one of the signatories to the EA

Multilateral Agreement for the recognition of calibration certificates

Glossary:

ologouly.	
TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization ϕ	φ rotation around probe axis
Polarization 8	9 rotation around an axis that is in the plane normal to probe axis (at measurement center).
	i.e., 9 = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORMx,y,z: Assessed for E-field polarization 9 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,y,z * frequency_response (see Frequency Response Chart). This linearization is
 implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included
 in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C are numerical linearization parameters assessed based on the data of
 power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the
 maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom
 exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Certificate No: ES3-3225_Jan12

Page 2 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model I	REQ71UW Mobile]	Hot	Page 15(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-	-REQ70UW

January 11, 2012

Probe ES3DV3

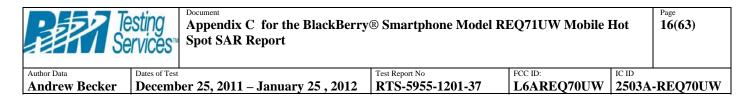
SN:3225

Manufactured: Calibrated: September 1, 2009 January 11, 2012

Calibrated for DASY/EASY Systems (Note: non-compatible with DASY2 system!)

Certificate No: ES3-3225_Jan12

Page 3 of 11



January 11, 2012

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3225

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (µV/(V/m) ²) ^A	1.26	1.20	1.30	± 10.1 %
DCP (mV) ⁸	101.2	100.8	101.2	

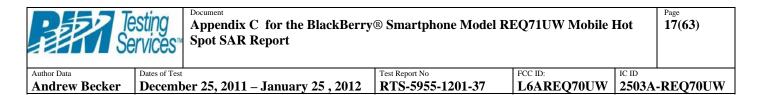
Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^t (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	107.7	±1.7 %
			Y	0.00	0.00	1.00	113.4	
			Z	0.00	0.00	1.00	110.4	

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%.

^h The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).
^b Numerical linearization parameter: uncertainty not required.
^c Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the uncertainty is determined using the max. field value.

Certificate No: ES3-3225_Jan12



January 11, 2012

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3225

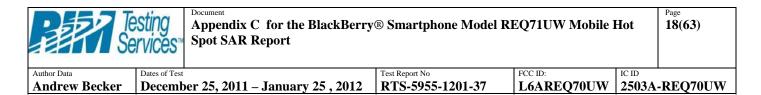
Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^F	Conductivity (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.42	6.42	6.42	0.27	2.04	± 12.0 %
900	41.5	0.97	6.06	6.06	6.06	0.35	1.74	± 12.0 %
1810	40.0	1.40	5.23	5.23	5.23	0.73	1.21	± 12.0 %
1950	40.0	1.40	4.98	4.98	4.98	0.58	1.41	± 12.0 %
2450	39.2	1.80	4.50	4.50	4.50	0.79	1.26	± 12.0 %
2600	39.0	1.96	4.32	4.32	4.32	0.77	1.32	± 12.0 %

^c Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
^r At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to

measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (c and o) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Certificate No: ES3-3225_Jan12



January 11, 2012

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3225

f (MHz) ^c	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	_ 55.5	0.96	6.27	6.27	6.27	0.36	1.74	± 12.0 %
900	55.0	1.05	6.07	6.07	6.07	0.29	2.02	± 12.0 %
1810	53.3	1.52	4.92	4.92	4.92	0.50	1.57	± 12.0 %
1950	53.3	1.52	4.87	4.87	4.87	0.59	1.49	± 12.0 %
2450	52.7	1.95	4.30	4.30	4.30	0.68	1.16	± 12.0 %
2600	52.5	2.16	4.12	4.12	4.12	0.80	0.99	± 12.0 %

Calibration Parameter Determined in Body Tissue Simulating Media

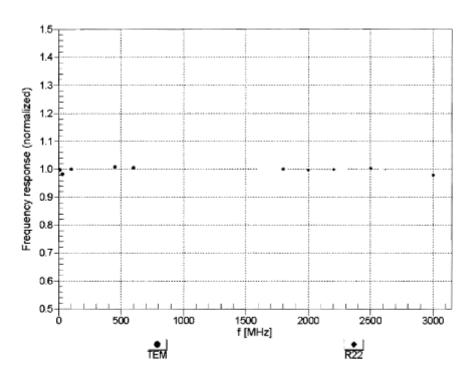
^c Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. ^r At frequencies below 3 GHz, the validity of tissue parameters (c and σ) can be relaxed to ± 10% if liquid compensation formula is applied to

⁷ At frequencies below 3 GHz, the validity of tissue parameters (c and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (c and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model I	REQ71UW Mobile	Hot	Page 19(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-	-REQ70UW

January 11, 2012

Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

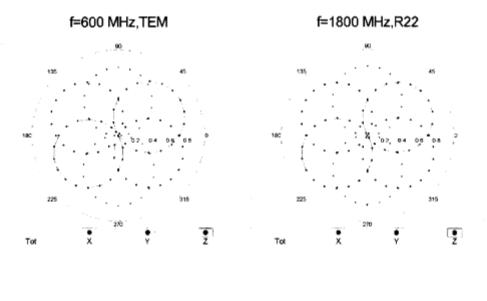
Certificate No: ES3-3225_Jan12

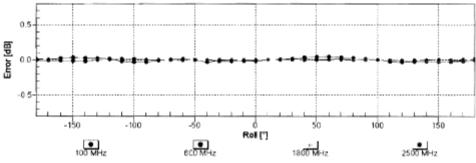
Page 7 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model R	EQ71UW Mobile]	Hot	Page 20(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-	REQ70UW

January 11, 2012

Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$





Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

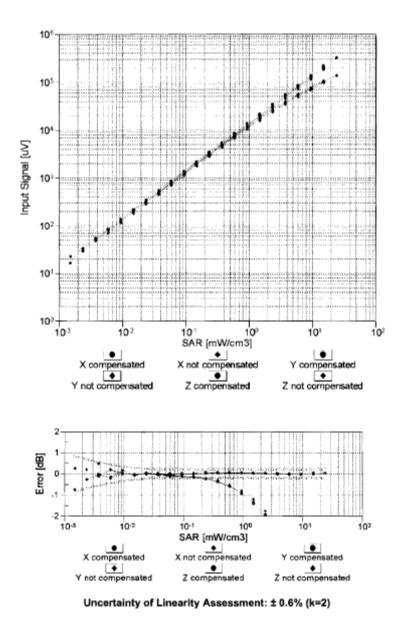
Certificate No: ES3-3225_Jan12

Page 8 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model I	REQ71UW Mobile]	Hot	Page 21(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-	-REQ70UW

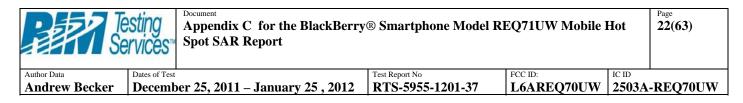
January 11, 2012

Dynamic Range f(SAR_{head}) (TEM cell , f = 900 MHz)



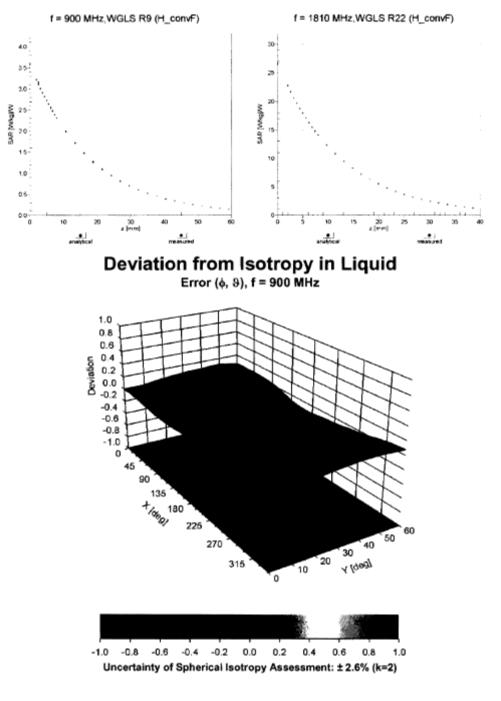
Certificate No: ES3-3225_Jan12

Page 9 of 11



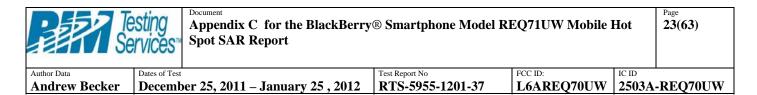
January 11, 2012

Conversion Factor Assessment



Certificate No: ES3-3225_Jan12

Page 10 of 11



```
ES3DV3- SN:3225
```

January 11, 2012

DASY/EASY - Parameters of Probe: ES3DV3 - SN:3225

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	4 mm
Probe Tip to Sensor X Calibration Point	2 mm
Probe Tip to Sensor Y Calibration Point	2 mm
Probe Tip to Sensor Z Calibration Point	2 mm
Recommended Measurement Distance from Surface	3 mm

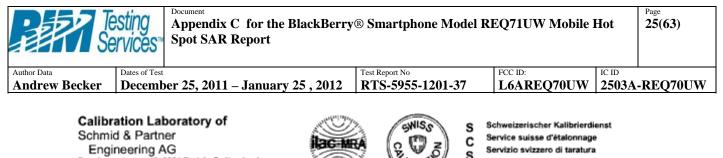
Certificate No: ES3-3225_Jan12

Page 11 of 11

	Dates of Test December 25	, 2011 – January 2	Test Report No RTS-5955-1201-37	FCC ID: L6AREQ70UW	7 2503A-REQ70
Schmid Engine	tion Laborato & Partner teering AG trasse 43, 8004 Zuri	-	Hac MRA R R R R S S S S S S S S S S S S S S S S	Schweizerischer Kalibrierdien Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service	st
The Swiss A		ation Service (SAS) ce is one of the signatorie: recognition of calibration	s to the EA	+o.: SCS 108	
Client	RTS (RIM Tes	ting Services)	Certificate No:	ET3-1644_Nov11	a de la compañía de la
CALIE	RATION	CERTIFICATE		and the second	Carlos and C
Object		ET3DV6 - SN:16	H	na in Altra Contra Statistic (Statistic) Altra Altra Contra Statistic (Statistic)	
Calibration	procedure(s)	QA CAL-01.v8, C Calibration proce	A CAL-23.v4, QA CAL-25.v4 dure for dosimetric E-field probes		
		and the second sec	State (Martin Contractor State (State (State))		
1	tion certificate docum	nents the traceability to natio	111 onal standards, which realize the physical units robability are given on the following pages and a		
This calibra The measur All calibratio	tion certificate docum rements and the unc ons have been condu	November 15, 20 nents the traceability to natio ertainties with confidence pr	onal standards, which realize the physical units	of measurements (SI). are part of the certificate.	
This calibrat The measur All calibration	tion certificate docun rements and the unc ons have been condu Equipment used (M8	November 15, 20 nents the traceability to natio entainties with confidence pr ucted in the closed laborator ATE critical for calibration)	onal standards, which realize the physical units robability are given on the following pages and y facility: environment temperature (22 ± 3)°C a	of measurements (SI). are part of the certificate. and humidity < 70%.	
This calibra The measur All calibration Calibration I Primary Str	tion certificate docun rements and the unc ons have been condu Equipment used (M8 andards	November 15, 20 nents the traceability to natio entainties with confidence pr ucted in the closed laborator ATE critical for calibration)	onal standards, which realize the physical units robability are given on the following pages and y facility: environment temperature (22 ± 3)°C a Cal Date (Certificate No.)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration	
This calibra The measur All calibration Calibration I Primary Str Power met	tion certificate docun rements and the unc ons have been condu Equipment used (M8 andards	November 15, 20 nents the traceability to natio entainties with confidence pr ucted in the closed laborator ATE critical for calibration)	onal standards, which realize the physical units robability are given on the following pages and y facility: environment temperature (22 ± 3)°C a	of measurements (SI). are part of the certificate. and humidity < 70%.	
This calibra The measur All calibration Calibration I Primary Sta Power met	tion certificate docun rements and the unc ons have been condu Equipment used (M8 andards er E4419B	November 15, 20 nents the traceability to natio entainties with confidence pr acted in the closed laborator ATE critical for calibration)	onal standards, which realize the physical units robability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a Cai Date (Certificate No.) 31-Mar-11 (No. 217-01372)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12	
This calibra The measur All calibration Calibration I Primary Str Power met Power sens Reference	tion certificate docum rements and the unc ons have been condu Equipment used (M8 andards er E4419B sor E4412A	November 15, 20 nents the traceability to natio ertainties with confidence pr acted in the closed laborator ATE critical for calibration)	conal standards, which realize the physical units robability are given on the following pages and a y facility: environment temperature (22 ± 3)°C a Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 31-Mar-11 (No. 217-01372)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12	
This calibrat The measur All calibration Calibration I Primary Str Power meb Power sens Reference Reference Reference	tion certificate docum rements and the unc ons have been condu- Equipment used (M8 andards er E4419B sor E4412A 3 dB Attenuator 20 dB Attenuator 30 dB Attenuator	November 15, 20 nents the traceability to natio ertainties with confidence pr acted in the closed laborator ATE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b)	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12	
This calibration The measure All calibration Calibration I Primary Str Power met Power met Power sens Reference Reference Reference	tion certificate docum rements and the unc ons have been condu Equipment used (M8 andards er E4419B sor E4412A 3 dB Attenuator 20 dB Attenuator	November 15, 20 nents the traceability to natio ertainties with confidence pr acted in the closed laborator ACTE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3013	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370) 29-Dec-10 (No. ES3-3013_Dec10)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-11	
This calibrat The measur All calibration Calibration I Primary Str Power meb Power sens Reference Reference Reference	tion certificate docum rements and the unc ons have been condu- Equipment used (M8 andards er E4419B sor E4412A 3 dB Attenuator 20 dB Attenuator 30 dB Attenuator	November 15, 20 nents the traceability to natio ertainties with confidence pr acted in the closed laborator ATE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b)	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12	
This calibration The measure All calibration Calibration I Primary Str Power met Power sens Reference Reference Reference	tion certificate docum rements and the unc ons have been condu- Equipment used (M8 andards er E4419B sor E4412A 3 dB Attenuator 20 dB Attenuator 30 dB Attenuator Probe ES3DV2	November 15, 20 nents the traceability to natio ertainties with confidence pr acted in the closed laborator ACTE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3013	Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370) 29-Dec-10 (No. ES3-3013_Dec10)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-11	
This calibration The measure All calibration Calibration I Primary Str Power sens Reference Reference Reference Reference DAE4 Secondary	tion certificate docum rements and the unc ons have been condu- Equipment used (M8 andards er E4419B sor E4412A 3 dB Attenuator 20 dB Attenuator 30 dB Attenuator Probe ES3DV2	November 15, 20 nents the traceability to natio ertainties with confidence pr acted in the closed laborator ATE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 3013 SN: 654	Cai Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Dec-10 (No. ES3-3013_Dec10) 3-May-11 (No. DAE4-654_May11)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12	
This calibration The measure All calibration Calibration I Primary Str Power sent Reference Reference Reference Reference DAE4 Secondary RF general	tion certificate docum rements and the unconstant shave been condu- Equipment used (M8 andards er E44198 sor E44198 sor E4412A 3 dB Attenuator 20 dB Attenuator 30 dB Attenuator Probe ES3DV2 Standards	November 15, 20 nents the traceability to natic ertainties with confidence pr acted in the closed laborator ATE critical for calibration) ID GB41293874 MY41498087 SN: S5084 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: S5129 (30b) SN: 3013 SN: 654	Cai Date (Certificate No.) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370) 29-Dec-10 (No. ES3-3013_Dec10) 3-May-11 (No. DAE4-654_May11) Check Date (in house)	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-11 May-12 Scheduled Check	
This calibration The measure All calibration Calibration I Primary Str Power sent Reference Reference Reference Reference DAE4 Secondary RF general	tion certificate docum rements and the uncons have been condu- Equipment used (M8 andards er E4419B sor E4419B sor E4419B sor E4419B dB Attenuator 20 dB Attenuator 20 dB Attenuator 20 dB Attenuator Probe ES3DV2 Standards tor HP 8648C malyzer HP 8753E	November 15, 20 nents the traceability to natic ertainties with confidence pr acted in the closed laborator ATE critical for calibration) ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5058 (20b) SN: S5129 (30b) SN: S5129 (30b) SN: 3013 SN: 654 ID US3642U01700	Cal Date (Certificate No.) Cal Date (Certificate No.) 31-Mar-11 (No. 217-01372) 31-Mar-11 (No. 217-01372) 31-Mar-11 (No. 217-01372) 29-Mar-11 (No. 217-01369) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01367) 29-Mar-11 (No. 217-01370) 29-Dec-10 (No. ES3-3013_Dec10) 3-May-11 (No. DAE4-654_May11) Check Date (in house) 4-Aug-99 (in house check Apr-11) 18-Oct-01 (in house check Apr-11) Function	of measurements (SI). are part of the certificate. and humidity < 70%. Scheduled Calibration Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Apr-12 Dec-11 May-12 Scheduled Check In house check: Apr-13	

Certificate No: ET3-1644_Nov11

Page 1 of 11



Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



Swiss Calibration Service

Accreditation No.: SCS 108

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

oloodal j.	
TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization ϕ	φ rotation around probe axis
Polarization 3	9 rotation around an axis that is in the plane normal to probe axis (at measurement center).
	i.e., 8 = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORMx, y, z: Assessed for E-field polarization 9 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,y,z * frequency_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z; A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx, y, z * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Certificate No: ET3-1644_Nov11

Page 2 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model F	REQ71UW Mobile		Page 26(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	25, 2011 – January 25, 2012 RTS-5955-1201-37 L6AREQ70UW 2503A-REQ70UW				REQ70UW

November 15, 2011

Probe ET3DV6

SN:1644

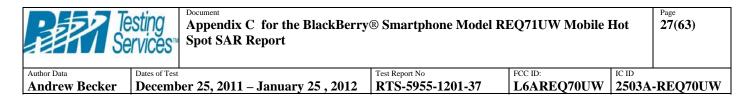
Manufactured: Calibrated:

November 7, 2001 November 15, 2011

Calibrated for DASY/EASY Systems (Note: non-compatible with DASY2 system!)

Certificate No: ET3-1644_Nov11

Page 3 of 11



November 15, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1644

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)^A$	1.71	1.97	1.98	± 10.1 %
DCP (mV) ⁸	98.3	98.4	98.1	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^E (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	140.4	±2.2 %
			Y	0.00	0.00	1.00	118.6	
			Z	0.00	0.00	1.00	145.5	

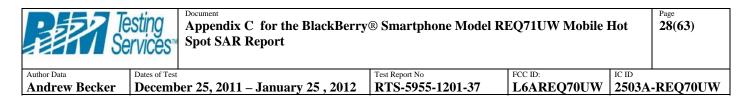
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

^b Numerical linearization parameter: uncertainty not required.

* Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

Certificate No: ET3-1644_Nov11

[^] The uncertainties of NormX, Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).



November 15, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1644

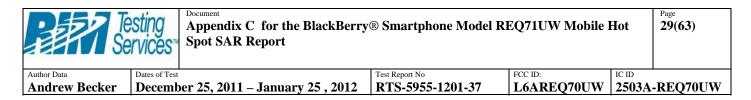
Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^F	Conductivity (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.28	6.28	6.28	0.67	1.99	± 12.0 %
900	41.5	0.97	5.96	5.96	5.96	0.72	1.88	± 12.0 %
1810	40.0	1.40	5.10	5.10	5.10	0.63	2.36	± 12.0 %
2450	39.2	1.80	4.34	4.34	4.34	0.89	1.73	± 12.0 %

^c Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
^f At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to

⁶ At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Certificate No: ET3-1644_Nov11



November 15, 2011

DASY/EASY - Parameters of Probe: ET3DV6- SN:1644

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^F	Conductivity (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	6.18	6.18	6.18	0.79	1.86	± 12.0 %
900	55.0	1.05	5.92	5.92	5.92	0.61	2.26	± 12.0 %
1810	53.3	1.52	4.69	4.69	4.69	0.65	2.60	± 12.0 %
2450	52.7	1.95	4.14	4.14	4.14	1.00	1.37	± 12.0 %

^c Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. ^F At frequencies below 3 GHz, the validity of tissue parameters (ε and π) can be relaxed to ± 10% if liquid compensation formula is applied to

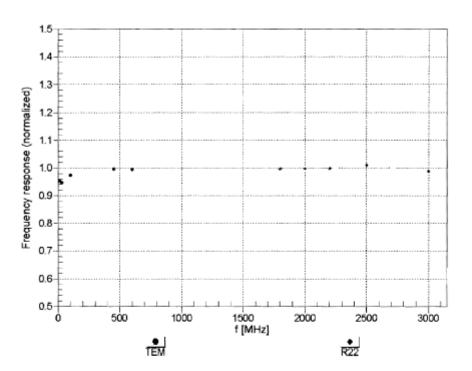
At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target issue parameters.

Certificate No: ET3-1644_Nov11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model R	EQ71UW Mobile	Hot	Page 30(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A	-REQ70UW

November 15, 2011

Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

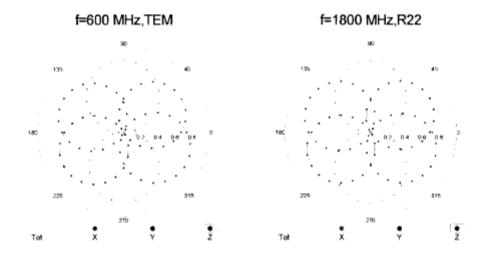
Certificate No: ET3-1644_Nov11

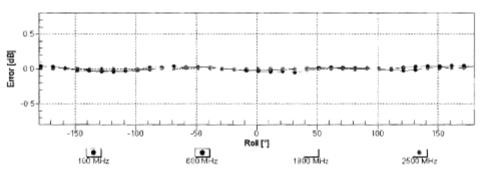
Page 7 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model R	EQ71UW Mobile]	Hot	Page 31(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-	-REQ70UW

November 15, 2011

Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$





Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

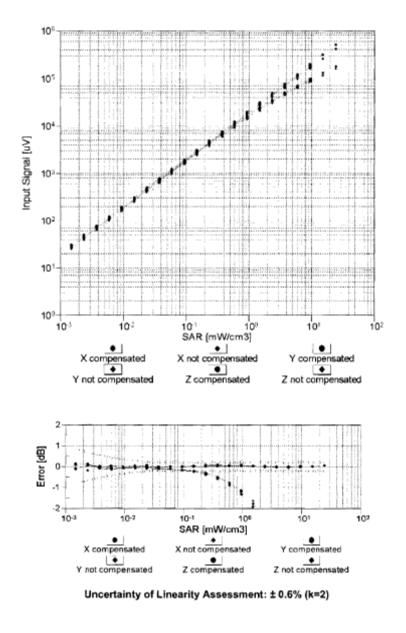
Certificate No: ET3-1644_Nov11

Page 8 of 11

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model F	EQ71UW Mobile	Hot	Page 32(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012				

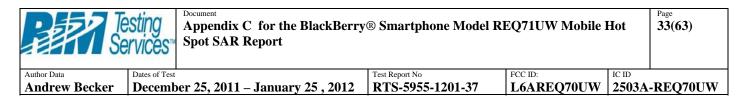
November 15, 2011

Dynamic Range f(SAR_{head}) (TEM cell , f = 900 MHz)



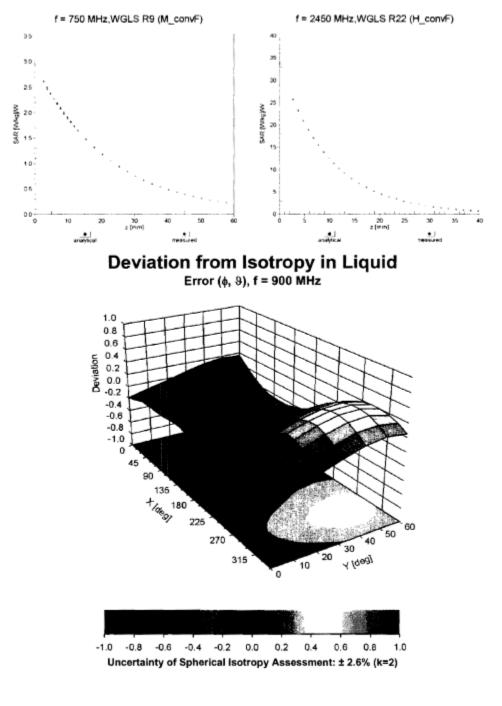
Certificate No: ET3-1644_Nov11

Page 9 of 11



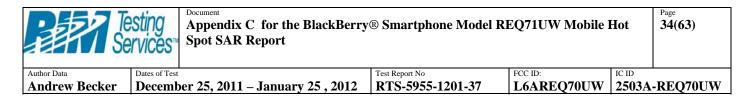
November 15, 2011

Conversion Factor Assessment



Certificate No: ET3-1644_Nov11

Page 10 of 11



```
ET3DV6- SN:1644
```

November 15, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1644

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	enabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

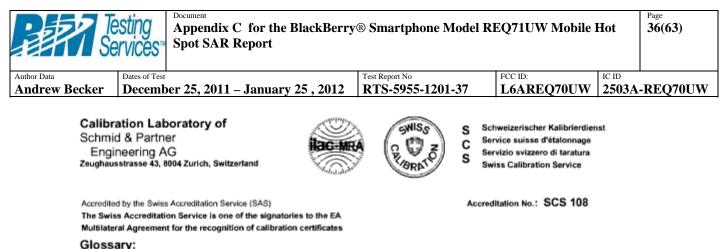
Certificate No: ET3-1644_Nov11

Page 11 of 11

a	Dates of Test			Test Report No	FCC ID:	IC ID
w Becker	December 2	5, 2011 – January 2	25,2012	RTS-5955-1201-37	L6AREQ70UW	2503A-REQ7
Calibr	ation Laborat	ory of	att Com		Schweizerischer Kalibrierdiens	
	d & Partner				Service suisse d'étalonnage	n.
	neering AG sstrasse 43, 8004 Zu	rich, Switzerland		[V, ♥, Ū] s	Servizio svizzero di taratura Swiss Calibration Service	
Accredite	d by the Swiss Accred	litation Service (SAS)	-stubber	Accreditation No	5: SCS 108	
The Swis	s Accreditation Serv	ice is one of the signatorie recognition of calibration				
Client	-	sting Services)	certificates	Certificate No:	ET3-1643_Mar11	
CAL	DRATION	CEDTIEICAT	-			
CAL	BRATION	CERTIFICATI		- Solid	and the second	
Object		ET3DV6 - SN:16	43	1477		
0.00		DA CAL 04.7		0.00	1	
Calibratio	on procedure(s)	QA CAL-01.v7, C Calibration proce		imetric E-field probes	승규는 물건을 다.	
-		and the state of t	Section 2. Contraction of the	Macan Macan	동안 24 · 2 · 2 · 2 · 2 · 2 · 2 · 2 · 2 · 2	
			1.00	1.55 The second s		
	bration certificate doct	-	onal standards, w	hich realize the physical units o		
This calif The mea All calibr	bration certificate docu isurements and the un ations have been conv	uments the traceability to nati- certainties with confidence pr ducted in the closed laborator	onal standards, w robability are give		re part of the certificate.	
This calif The mea All calibr	bration certificate docu isurements and the un ations have been conv	ments the traceability to nation of the traceability to nating to nation of the traceability to	onal standards, w robability are give	hich realize the physical units o an on the following pages and a	re part of the certificate.	
This calit The mea All calibri Calibratio	bration certificate docu isurements and the un ations have been conv	uments the traceability to nati- certainties with confidence pr ducted in the closed laborator	onal standards, w robability are give ry facility: environ	hich realize the physical units o an on the following pages and a	re part of the certificate.	
This calit The mea All calibration Calibration Primary Power m	bration certificate docu surements and the un ations have been con- on Equipment used (N Standards neter E44198	uments the traceability to natio certainties with confidence pro- ducted in the closed laborator I&TE critical for calibration)	onal standards, w robability are give ry facility: environ Cal Date 01-Apr-1	chich realize the physical units o en on the following pages and ar ment temperature (22 ± 3)°C an e (Certificate No.) 0 (No. 217-01136)	re part of the certificate. ad humidity < 70%. Scheduled Calibration Apr-11	
This calit The mea All calibration Calibration Primary Power n Power s	bration certificate docu surements and the un ations have been con- on Equipment used (N Standards neter E44198 iensor E4412A	Internet the traceability to national certainties with confidence producted in the closed laborator (8.TE critical for calibration)	onal standards, w robability are give ry facility: environ Cal Date 01-Apr-1 01-Apr-1	chich realize the physical units o en on the following pages and ar ment temperature (22 ± 3)°C an e (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136)	e part of the certificate. ad humidity < 70%. Scheduled Calibration Apr-11 Apr-11	
This calib The mea All calibratio Calibratio Primary Power n Power s Power s	bration certificate docu surements and the un ations have been con- on Equipment used (N Standards neter E44198 ensor E4412A ensor E4412A	Internet the traceability to native certainties with confidence producted in the closed laborator t&TE critical for calibration) ID GB41293874 MY41495277 MY41498087	onal standards, w robability are give ry facility: environ Cal Date 01-Apr-1 01-Apr-1 01-Apr-1	chich realize the physical units o en on the following pages and ar ment temperature (22 ± 3)°C an e (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 0 (No. 217-01136)	scheduled Calibration Apr-11 Apr-11 Apr-11	
This call The mea All calibration Calibration Primary Power s Power s Reference	bration certificate docu surements and the un ations have been con- on Equipment used (N Standards neter E44198 iensor E4412A ensor E4412A ce 3 dB Attenuator	ID GB41293874 MY41498087 SN: S5054 (3c)	conal standards, w robability are give ry facility: environ Cal Date 01-Apr-1 01-Apr-1 01-Apr-1 30-Mar-1	chich realize the physical units o en on the following pages and ar ment temperature (22 ± 3)°C an e (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01159)	scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11	
This calil The mea All calibra Calibratio Primary Power n Power s Referen Referen	bration certificate doci surements and the un ations have been con on Equipment used (N Standards nator E44198 tensor E4412A ce 3 dB Attenuator ce 20 dB Attenuator	ID GB41293874 MY41498087 SN: S5086 (20b)	conal standards, w robability are give ry facility: environ Cal Date 01-Apr-1 01-Apr-1 01-Apr-1 30-Mar-1 30-Mar-1	chich realize the physical units o en on the following pages and ar ment temperature (22 ± 3)°C an e (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01159) 10 (No. 217-01161)	scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11 Mar-11	
This calil The mea All calibra Calibratio Primary Power n Power s Referen Referen Referen	bration certificate doct surements and the un ations have been con- on Equipment used (N Standards neter E44198 tensor E4412A ce 3 dB Attenuator ce 20 dB Attenuator ce 30 dB Attenuator	ID GB41293874 MY41498087 SN: S5054 (3c) SN: S5129 (30b)	onal standards, w robability are give ry facility: environ 01-Apr-1 01-Apr-1 01-Apr-1 30-Mar-1 30-Mar-1 30-Mar-1	hich realize the physical units of en on the following pages and ar ment temperature (22 ± 3)°C an o (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01159) 10 (No. 217-01161) 10 (No. 217-01160)	scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Mar-11 Mar-11	
This calil The mea All calibra Calibratio Primary Power n Power s Referen Referen Referen	bration certificate doci surements and the un ations have been con on Equipment used (N Standards nator E44198 tensor E4412A ce 3 dB Attenuator ce 20 dB Attenuator	ID GB41293874 MY41498087 SN: S5086 (20b)	onal standards, w robability are give ry facility: environ 01-Apr-1 01-Apr-1 30-Mar- 30-Mar- 30-Mar- 29-Dec-	chich realize the physical units o en on the following pages and ar ment temperature (22 ± 3)°C an e (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01159) 10 (No. 217-01161)	scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11 Mar-11	
This calit The mea All calibri Calibratio Primary Power s Power s Referen Referen Referen Referen DAE4	bration certificate doct surements and the un ations have been con- on Equipment used (N Standards neter E44198 iensor E4412A ce 3 dB Attenuator ce 20 dB Attenuator ce 20 dB Attenuator ce Probe ES3DV2	ID GB41293874 MY41495277 MY41495277 MY41495277 MY41498087 SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b) SN: 654	onal standards, w robability are give ry facility: environ Cal Date 01-Apr-1 01-Apr-1 30-Mar- 30-Mar- 30-Mar- 29-Dec- 23-Apr-1	hich realize the physical units of en on the following pages and air ment temperature (22 ± 3)°C an (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01159) 10 (No. 217-01161) 10 (No. 217-01160) 10 (No. 217-01160) 10 (No. ES3-3013_Dec10) 10 (No. DAE4-654_Apr10)	re part of the certificate. ad humidity < 70%. Scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Dec-11 Apr-11	
This calib The mea All calibri Calibratio Primary Power s Power s Referen Referen Referen Referen DAE4	bration certificate doct surements and the un ations have been con- on Equipment used (N Standards neter E44198 iensor E4412A ce 3 dB Attenuator ce 20 dB Attenuator ce 20 dB Attenuator ce Probe ES3DV2	ID GB41293874 MY41495277 MY41495277 MY41495277 MY41495087 SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b) SN: 654 ID	onal standards, w robability are give ry facility: environ 01-Apr-1 01-Apr-1 30-Mar- 30-Mar- 29-Dec- 23-Apr-1 Check D	hich realize the physical units of en on the following pages and air ment temperature (22 ± 3)°C an (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01159) 10 (No. 217-01161) 10 (No. 217-01160) 10 (No. 217-01160) 10 (No. ES3-3013_Dec10) 10 (No. DAE4-654_Apr10)	scheduled Calibration Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Scheduled Check	
This calit The mea All calibra Calibratia Primary Power s Power s Referen Referen Referen Referen Referen Referen Referen Referen Referen Referen	bration certificate doct surements and the un ations have been con- on Equipment used (N Standards neter E44198 iensor E4412A ce 3 dB Attenuator ce 3 dB Attenuator ce 3 dB Attenuator ce 9 dB Attenuator ce Probe ES3DV2 any Standards erator HP 8648C	ID GB41293874 MY41495277 MY41495277 MY41495277 MY41498087 SN: S5054 (3c) SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 654 ID US3642U01700	onal standards, w robability are give ry facility: environ 01-Apr-1 01-Apr-1 01-Apr-1 30-Mar- 30-Mar- 29-Dec- 23-Apr-1 Check D 4-Aug-91	hich realize the physical units of en on the following pages and air ment temperature (22 ± 3)°C an (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01136) 10 (No. 217-01159) 10 (No. 217-01161) 10 (No. 217-01161) 10 (No. 217-01160) 10 (No. ES3-3013_Dec10) 10 (No. DAE4-654_Apr10) tate (in house) 9 (in house check Oct-09)	scheduled Calibration Apr-11 Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Dec-11 Apr-11 Apr-11 In base check: Oct-11	
This calit The mea All calibra Calibratia Primary Power s Power s Referen Referen Referen Referen Referen Referen Referen Referen Referen Referen	bration certificate doct surements and the un ations have been con- on Equipment used (N Standards neter E44198 iensor E4412A ce 3 dB Attenuator ce 20 dB Attenuator ce 20 dB Attenuator ce Probe ES3DV2	ID GB41293874 MY41495277 MY41495277 MY41498087 SN: S5054 (3c) SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b) SN: S5129 (30b) SN: 654 ID US3642U01700 US3642U01700 US37390585	onal standards, w robability are give ry facility: environ Cal Date 01-Apr-1 01-Apr-1 01-Apr-1 30-Mar- 30-Mar- 29-Dec- 23-Apr-1 Check D 4-Aug-9 18-Oct-0	hich realize the physical units of en on the following pages and air ment temperature (22 ± 3)°C an e (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01136) 10 (No. 217-01159) 10 (No. 217-01161) 10 (No. 217-01161) 10 (No. 217-01161) 10 (No. 217-01160) 10 (No. 217-01160) 10 (No. 217-01160) 10 (No. 217-01160) 10 (No. 2012-0110) 10 (No. 2012-0110) 10 (No. 2012-0110) 10 (No. 2012-0110) 10 (No. 2012-0110) 10 (No. 2012-0110)	scheduled Calibration Apr-11 Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Dec-11 Apr-11 Scheduled Check In house check: Oct-11 In house check: Oct-11	
This calit The mea All calibra Calibratia Primary Power s Power s Referen Referen Referen Referen Referen Referen Referen Referen Referen Referen	bration certificate doci surements and the un ations have been con- on Equipment used (N Standards neter E44198 ensor E4412A ce 3 dB Attenuator ce 20 dB Attenuator ce 20 dB Attenuator ce 9 dB Attenuator ce Probe ES3DV2 any Standards erator HP 8648C c Analyzer HP 8753E	ID GB41293874 MY41495277 MY41495277 MY41495277 MY41498087 SN: S5054 (3c) SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 654 ID US3642U01700	onal standards, w robability are give ry facility: environ 01-Apr-1 01-Apr-1 01-Apr-1 30-Mar- 30-Mar- 29-Dec- 23-Apr-1 Check D 4-Aug-9 18-Oct-0	hich realize the physical units of en on the following pages and air ment temperature (22 ± 3)°C an (Certificate No.) 0 (No. 217-01136) 0 (No. 217-01136) 10 (No. 217-01136) 10 (No. 217-01159) 10 (No. 217-01161) 10 (No. 217-01161) 10 (No. 217-01160) 10 (No. ES3-3013_Dec10) 10 (No. DAE4-654_Apr10) tate (in house) 9 (in house check Oct-09)	scheduled Calibration Apr-11 Apr-11 Apr-11 Mar-11 Mar-11 Mar-11 Dec-11 Apr-11 Apr-11 In base check: Oct-11	

Certificate No: ET3-1643_Mar11

Page 1 of 11



TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diade compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization 🐽	in rotation around probe axis
Polarization 9	8 rotation around an axis that is in the plane normal to probe axis (at measurement center),
	i.e., 9 = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- NORMx,y,z: Assessed for E-field polarization 9 = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E²-field uncertainty inside TSL (see below ConvF).
- NORM(f)x,y,z = NORMx,y,z * frequency_response (see Frequency Response Chart). This linearization is
 implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included
 in the stated uncertainty of ConvF.
- DCPx,y,z: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- PAR: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- Ax,y,z; Bx,y,z; Cx,y,z are numerical linearization parameters in dB assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media.
- VR: VR is the validity range of the calibration related to the average diode voltage or DAE voltage in mV.
- ConvF and Boundary Effect Parameters: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORMx,y,z * ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- Spherical isotropy (3D deviation from isotropy): in a field of low gradients realized using a flat phantom
 exposed by a patch antenna.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Certificate No: ET3-1643_Mar11

Page 2 of 11

	esting ervices™	Appendix C for the BlackBerry® Smartphone Model REQ71UW Mobile Hot Spot SAR Report				Page 37(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A	-REQ70UW

March 9, 2011

Probe ET3DV6

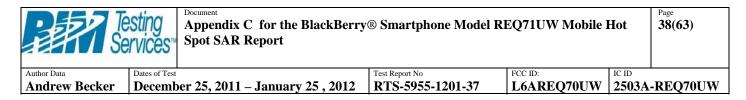
SN:1643

Manufactured: Calibrated: November 7, 2001 March 9, 2011

Calibrated for DASY/EASY Systems (Note: non-compatible with DASY2 system!)

Certificate No: ET3-1643_Mar11

Page 3 of 11



ET3DV6-- \$N:1643

March 9, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1643

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (µV/(V/m) ²) ^A	1.77	1.99	1.76	± 10.1 %
DCP (mV) ⁸	99.1	94.5	100.0	

Modulation Calibration Parameters

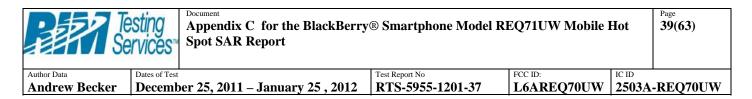
UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^E (k=2)
10000	CW	0.00	х	0.00	0.00	1.00	107.8	±2.2 %
			Y	0.00	0.00	1.00	109.4	
			Z	0.00	0.00	1.00	108.1	

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%.

^A The uncertainties of NormX, Y.Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required. ^C Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

Certificate No: ET3-1643_Mar11



March 9, 2011

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1643

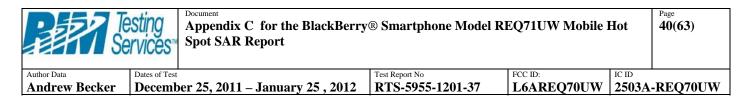
Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^F	Conductivity (S/m) ^F	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	6.59	6.59	6.59	0.81	1.77	± 12.0 %
900	41.5	0.97	6.21	6.21	6.21	0.74	1.88	± 12.0 %
1810	40.0	1.40	5.15	5.15	5.15	0.56	2.39	± 12.0 %
1950	40.0	1.40	4.96	4.96	4.96	0.57	2.35	± 12.0 %

^c Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band. ^c At frequencies below 3 GHz, the validity of tissue parameters (s and σ) can be relaxed to ± 10% if liquid compensation formula is applied to

* At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Certificate No: ET3-1643_Mar11



March 9, 2011

DASY/EASY - Parameters of Probe: ET3DV6- SN:1643

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^C	Relative Permittivity ^F	Conductivity (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	6.29	6.29	6.29	0.78	1.83	± 12.0 %
900	55.0	1.05	6.13	6.13	6.13	0.72	1.98	± 12.0 %
1810	53.3	1.52	4.72	4.72	4.72	0.65	2.59	± 12.0 %
1950	53.3	1.52	4.72	4.72	4.72	0.65	2.39	± 12.0 %

^c Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

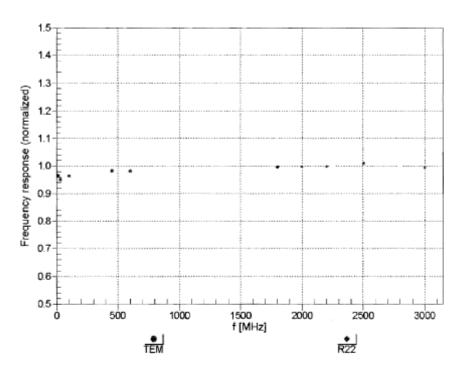
⁶ At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if figuid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and n) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

Certificate No: ET3-1643_Mar11

	Sting Stores Sources					Page 41(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-F	REQ70UW

March 9, 2011

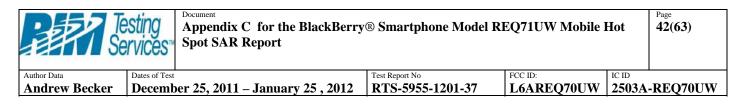
Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

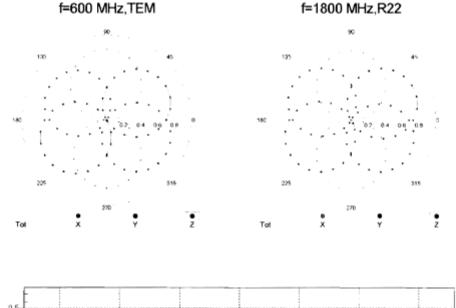
Certificate No: ET3-1643_Mar11

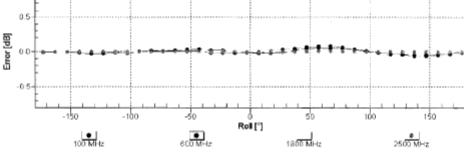
Page 7 of 11



March 9, 2011

Receiving Pattern (ϕ), $\vartheta = 0^{\circ}$





Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

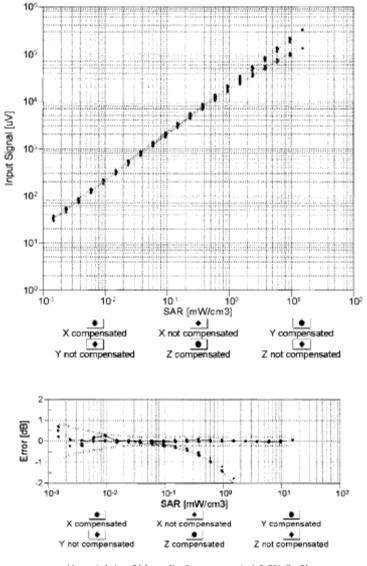
Certificate No: ET3-1643_Mar11

Page 8 of 11

Document Appendix C for the BlackBerry® Smartphone Model REQ71UW Mobile Hot Spot SAR Report					Hot	Page 43(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-	REQ70UW

March 9, 2011

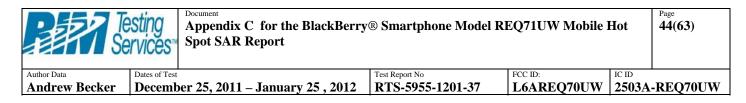
Dynamic Range f(SAR_{head}) (TEM cell, f = 900 MHz)



Uncertainty of Linearity Assessment: ± 0.6% (k=2)

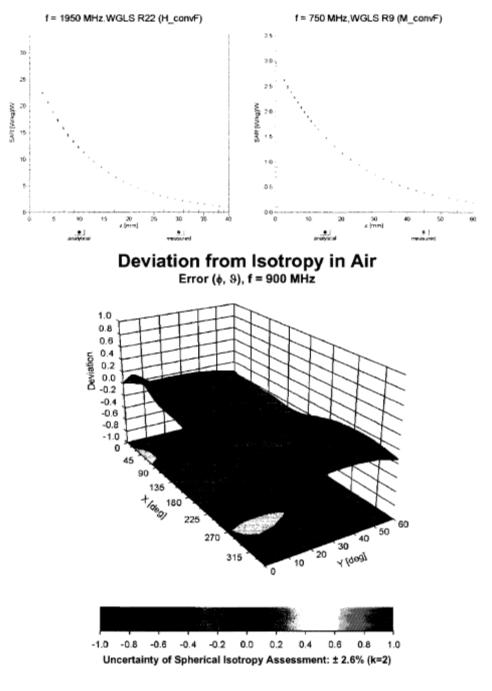
Certificate No: ET3-1643_Mar11

Page 9 of 11



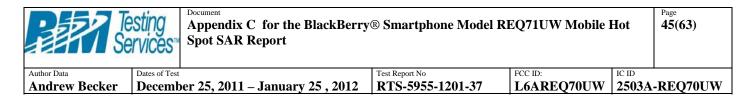
March 9, 2011

Conversion Factor Assessment



Certificate No: ET3-1643_Mar11

Page 10 of 11



```
ET3DV6- SN:1643
```

March 9, 2011

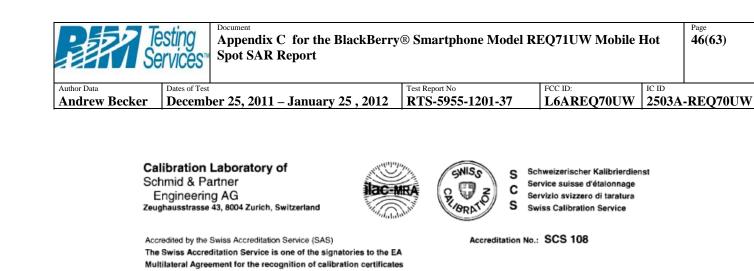
DASY/EASY - Parameters of Probe: ET3DV6 - SN:1643

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

Certificate No: ET3-1643_Mar11

Page 11 of 11



Certificate No: D835V2-446_Jan11

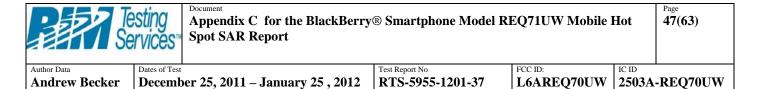
RTS (RIM Testing Services)

Client

CALIBRATION C	ERTIFICATE		
Object	D835V2 - SN: 44	6	
Calibration procedure(s)	QA CAL-05.v8 Calibration proce	dure for dipole validation kits	
Calibration date:	January 21, 2011	ta a an 1981 - Naciona Agrictico I	
The measurements and the unce	rtainties with confidence p	onal standards, which realize the physical un robability are given on the following pages ar ry facility: environment temperature $(22 \pm 3)^{\circ 1}$	d are part of the certificate.
Diana Dianata da	10.4	Onl Data (One-Streets Mark)	Only of the Continue from
Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A Reference 20 dB Attenuator	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
	SN: 5086 (20g) SN: 5047.2 / 06327	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination Reference Probe ES3DV3	SN: 3205	30-Mar-10 (No. 217-01162) 30-Apr-10 (No. ES3-3205_Apr10)	Mar-11 Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11
	1		
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11
Calibrated by:	Name Dimce lilev	Function	Signature
wanyondd by.			V. Silv
Approved by:	Katja Pokovic	Technical Manager	L KJ
			Issued: January 21, 2011
I his calibration certificate shall n	ot be reproduced except in	full without written approval of the laboratory	ſ.

Certificate No: D835V2-446_Jan11

Page 1 of 6



Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



s

Schweizerischer Kalibrierdienst Service suisse d'étalonnage

C Service suisse d'etaionnage Servizio svizzero di taratura

S Swiss Calibration Service

Accreditation No.: SCS 108

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

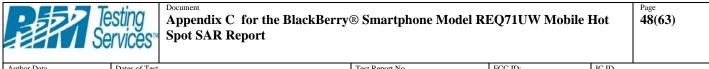
Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the end
 of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed
 point exactly below the center marking of the flat phantom section, with the arms oriented
 parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole
 positioned under the liquid filled phantom. The impedance stated is transformed from the
 measurement at the SMA connector to the feed point. The Return Loss ensures low
 reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- · SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

Certificate No: D835V2-446_Jan11



Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	December 25, 2011 – January 25, 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-REQ70UW

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.3 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature during test	(21.8 ± 0.2) °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.39 mW / g
SAR normalized	normalized to 1W	9.56 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.63 mW /g ± 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.56 mW / g
SAR normalized	normalized to 1W	6.24 mW / g

Certificate No: D835V2-446_Jan11



Document
Appendix C for the BlackBerry® Smartphone Model REQ71UW Mobile Hot
Spot SAR Report

Page

49(63)

Author Data	Dates of Test		Test Report No	FCC ID:	IC ID
Andrew Becker	Decemb	oer 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-REQ70UW

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.6 Ω - 7.7 jΩ
Return Loss	- 22.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.386 ns	
		۰.

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG	
Manufactured on	October 24, 2001	

Certificate No: D835V2-446_Jan11



Andrew Becker | December 25, 2011 – January 25, 2012 | RTS-5955-1201-37 | L6AREQ70UW | 2503A-REQ70UW

DASY5 Validation Report for Head TSL

Date/Time: 21.01.2011 10:18:05

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:446

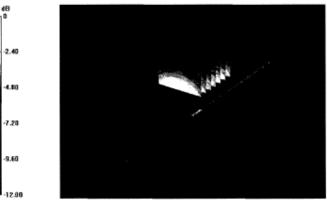
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1 Medium: HSL900 Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ϵ_r = 41.2; ρ = 1000 kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 SN3205; ConvF(6.03, 6.03, 6.03); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

Pin=250 mW /d=15mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement

grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 57.426 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 3.600 W/kg SAR(1 g) = 2.39 mW/g; SAR(10 g) = 1.56 mW/g Maximum value of SAR (measured) = 2.790 mW/g



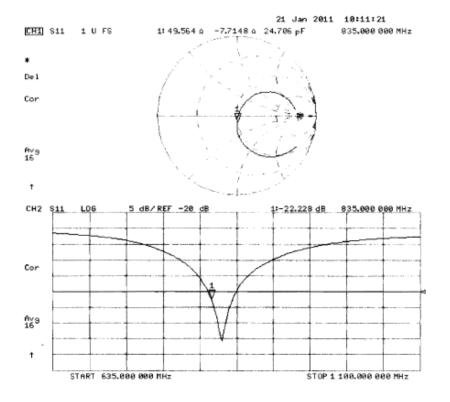


Certificate No: D835V2-446_Jan11

Page 5 of 6

	esting ervices [™]	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model R	EQ71UW Mobile]	Hot	Page 51(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-	-REQ70UW

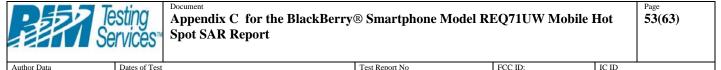
Impedance Measurement Plot for Head TSL



Certificate No: D835V2-446_Jan11

Page 6 of 6

	2011 – January 25	Z012 Test Report No RTS-5955-1201-37	FCC ID: IC II L6AREQ70UW 25	D 503A-REQ7
Calibration Laborate	orv of	and a second second	Schweizerischer Kalibrierdienst	
Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zu	-		Service suisse d'étalonnage Servizio svizzero di taratura	
Accredited by the Swiss Accred The Swiss Accreditation Serv Multilateral Agreement for the	rice is one of the signatorie	s to the EA	n No.: SCS 108	
-	sting Services)		la: D1900V2-545_Jan11	- 1
CALIBRATION	CERTIFICATE			3.5 1
Object	D1900V2 - SN: 5	45 COMPANY AND		
Calibration procedure(s)	QA CAL-05.v8	dure for dipole validation kits		
	Calification proce			
			a succession of the succession	
Calibration date:		na Marina (gapa) (an taon an tao ang		
This calibration certificate doc The measurements and the ur	ments the traceability to nat certainties with confidence p	ional standards, which realize the physical u robability are given on the following pages a ry facility: environment temperature (22 ± 3)	ind are part of the certificate.	-
This calibration certificate doc The measurements and the ur	iments the traceability to nat icertainties with confidence p ducted in the closed laborato	ional standards, which realize the physical u robability are given on the following pages a	ind are part of the certificate.	-
This calibration certificate doc The measurements and the ur All calibrations have been con	iments the traceability to nat icertainties with confidence p ducted in the closed laborato	ional standards, which realize the physical u robability are given on the following pages a	ind are part of the certificate.	-
This calibration certificate doc The measurements and the un All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A	uments the traceability to nat acertainties with confidence p ducted in the closed laborato 1&TE critical for calibration) ID # GB37480704	ional standards, which realize the physical u robability are given on the following pages a ry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266)	C and humidity < 70%. Scheduled Calibration	
This calibration certificate doc The measurements and the un All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A	Iments the traceability to nat incertainties with confidence p ducted in the closed laborato 18TE critical for calibration) ID # GB37480704 US37292783	ional standards, which realize the physical u robability are given on the following pages a ry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266)	C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11	
This calibration certificate doc The measurements and the ur All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator	uments the traceability to nat incertainties with confidence p ducted in the closed laborato 18TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g)	ional standards, which realize the physical u robability are given on the following pages a ry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 30-Mar-10 (No. 217-01158)	C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Mar-11	
This calibration certificate doc The measurements and the ur All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator Type-N mismatch combination	uments the traceability to nat incertainties with confidence p ducted in the closed laborato 18TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327	ional standards, which realize the physical u robability are given on the following pages a ry facility: environment temperature (22 ± 3) <u>Cal Date (Certificate No.)</u> 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 30-Mar-10 (No. 217-01158) 30-Mar-10 (No. 217-01162)	C and humidity < 70%. C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Mar-11 Mar-11	
This calibration certificate doc The measurements and the ur All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator	uments the traceability to nat incertainties with confidence p ducted in the closed laborato 18TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g)	ional standards, which realize the physical u robability are given on the following pages a ry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 30-Mar-10 (No. 217-01158)	C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Mar-11	
This calibration certificate doc The measurements and the ur All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator Type-N mismatch combination Reference Probe ES3DV3 DAE4	Iments the traceability to nat icertainties with confidence p ducted in the closed laborato 18TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5086 (20g) SN: 5086 (20g) SN: 3205 SN: 3205 SN: 601	Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 030-Mar-10 (No. 217-01158) 30-Mar-10 (No. 217-01158) 30-Mar-10 (No. 217-01162) 30-Apr-10 (No. ES3-3205_Apr10) 10-Jun-10 (No. DAE4-601_Jun10)	C and humidity < 70%. C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Mar-11 Mar-11 Apr-11 Jun-11	
This calibration certificate doc The measurements and the ur All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator Type-N mismatch combination Reference Probe ES3DV3 DAE4 Secondary Standards	Iments the traceability to nat icertainties with confidence p ducted in the closed laborato 18TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5086 (20g) SN: 5087.2 / 06327 SN: 3205 SN: 3205 SN: 601 ID #	onal standards, which realize the physical u robability are given on the following pages a ny facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 30-Mar-10 (No. 217-01158) 30-Mar-10 (No. 217-01152) 30-Apr-10 (No. ES3-3205_Apr10) 10-Jun-10 (No. DAE4-601_Jun10) Check Date (in house)	C and humidity < 70%. C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Mar-11 Mar-11 Apr-11 Jun-11 Scheduled Check	
This calibration certificate doc The measurements and the ur All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator Type-N mismatch combination Reference Probe ES3DV3 DAE4 Secondary Standards Power sensor HP 8481A	Iments the traceability to nat icertainties with confidence p ducted in the closed laborato 18TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 3205 SN: 601 ID # MY41092317	onal standards, which realize the physical u robability are given on the following pages a ny facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 30-Mar-10 (No. 217-01158) 30-Mar-10 (No. 217-01158) 30-Mar-10 (No. 217-01162) 30-Apr-10 (No. ES3-3205_Apr10) 10-Jun-10 (No. DAE4-601_Jun10) Check Date (in house) 18-Oct-02 (in house check Oct-09)	C and humidity < 70%. C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Oct-11 Mar-11 Mar-11 Jun-11 Scheduled Check In house check: Oct-11	
This calibration certificate doc The measurements and the ur All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator Type-N mismatch combination Reference Probe ES3DV3 DAE4 Secondary Standards	Iments the traceability to nat icertainties with confidence p ducted in the closed laborato 18TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5086 (20g) SN: 5087.2 / 06327 SN: 3205 SN: 3205 SN: 601 ID #	onal standards, which realize the physical u robability are given on the following pages a ny facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 30-Mar-10 (No. 217-01158) 30-Mar-10 (No. 217-01152) 30-Apr-10 (No. ES3-3205_Apr10) 10-Jun-10 (No. DAE4-601_Jun10) Check Date (in house)	C and humidity < 70%. C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Mar-11 Mar-11 Apr-11 Jun-11 Scheduled Check	
This calibration certificate doc The measurements and the un All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator Type-N mismatch combination Reference Probe ES3DV3 DAE4 Secondary Standards Power sensor HP 8481A RF generator R&S SMT-06	Iments the traceability to nat icertainties with confidence p ducted in the closed laborato 48.TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID # MY41092317 100005	onal standards, which realize the physical u robability are given on the following pages a ny facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 30-Mar-10 (No. 217-01162) 30-Mar-10 (No. 217-01162) 30-Apr-10 (No. 253-3205_Apr10) 10-Jun-10 (No. DAE4-601_Jun10) Check Date (in house) 18-Oct-02 (in house check Oct-09) 4-Aug-99 (in house check Oct-09) 18-Oct-01 (in house check Oct-10) Function	C and humidity < 70%. C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Mar-11 Mar-11 Apr-11 Jun-11 Scheduled Check In house check: Oct-11 In house check: Oct-11	
This calibration certificate doc The measurements and the ur All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator Type-N mismatch combination Reference Probe ES3DV3 DAE4 Secondary Standards Power sensor HP 8481A RF generator R&S SMT-06	Iments the traceability to nat incertainties with confidence p ducted in the closed laborato (8.TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID # MY41092317 100005 US37390585 S4206	onal standards, which realize the physical u robability are given on the following pages a ry facility: environment temperature (22 ± 3) Cal Date (Certificate No.) 06-Oct-10 (No. 217-01266) 06-Oct-10 (No. 217-01266) 30-Mar-10 (No. 217-01162) 30-Mar-10 (No. 217-01162) 30-Apr-10 (No. 217-01162) 30-Apr-10 (No. ES3-3205_Apr10) 10-Jun-10 (No. DAE4-601_Jun10) Check Date (in house) 18-Oct-02 (in house check Oct-09) 4-Aug-99 (in house check Oct-09) 18-Oct-01 (in house check Oct-10)	C and humidity < 70%. C and humidity < 70%. Scheduled Calibration Oct-11 Oct-11 Mar-11 Mar-11 Apr-11 Jun-11 Scheduled Check In house check: Oct-11 In house check: Oct-11 In house check: Oct-11	



December 25, 2011 – January 25, 2012 RTS-5955-1201-37 Andrew Becker

Calibration Laboratory of

Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kalibrierdienst s

L6AREO70UW

Service suisse d'étalonnage С

s

Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET). "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

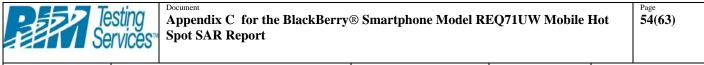
- Measurement Conditions: Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole ٠ positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the ٠ nominal SAR result.

Certificate No: D1900V2-545_Jan11

2503A-REO70UW

Servizio svizzero di taratura

Accreditation No.: SCS 108



Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	December 25, 2011 – January 25, 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-REQ70UW

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.5 ± 6 %	1.43 mho/m ± 6 %
Head TSL temperature during test	(21.2 ± 0.2) °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.2 mW / g
SAR normalized	normalized to 1W	40.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	40.0 mW /g ± 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
	condition 250 mW input power	5.26 mW / g
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured SAR normalized		5.26 mW / g 21.0 mW / g

Certificate No: D1900V2-545_Jan11



Document Appendix C for the BlackBerry® Smartphone Model REQ71UW Mobile Hot Spot SAR Report

Page

55(63)

Author Data	Dates of Test		Test Report No	FCC ID:	IC ID
Andrew Becker	Decemb	oer 25, 2011 – January 25 , 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-REQ70UW

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.8 Ω + 1.8 jΩ
Return Loss	- 34.4 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.199 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

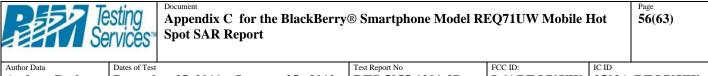
The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 15, 2001

Certificate No: D1900V2-545_Jan11



Andrew Becker | December 25, 2011 – January 25, 2012 | RTS-5955-1201-37 | L6AREQ70UW | 2503A-REQ70UW

DASY5 Validation Report for Head TSL

Date/Time: 13.01.2011 14:52:49

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:545

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1 Medium: HSL U12 BB Medium parameters used: f = 1900 MHz; $\sigma = 1.43$ mho/m; $\varepsilon_r = 38.6$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.1 Build (408)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2595)

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.053 V/m; Power Drift = 0.03 dB Peak SAR (extrapolated) = 18.648 W/kg SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.26 mW/g Maximum value of SAR (measured) = 12.743 mW/g



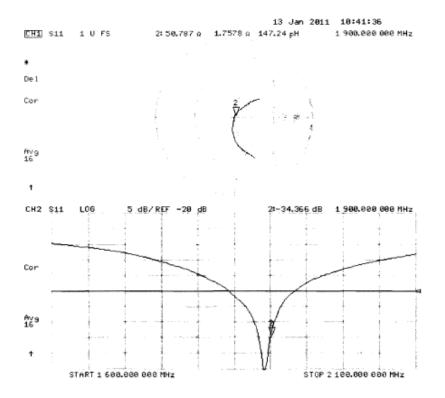
0 dB = 12.740 mW/g

Certificate No: D1900V2-545_Jan11

Page 5 of 6

	esting ervices™	Appendix C for the BlackBerry Spot SAR Report	® Smartphone Model F	REQ71UW Mobile]	Hot	Page 57(63)
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	Decemb	er 25, 2011 – January 25, 2012	RTS-5955-1201-37	L6AREQ70UW	2503A	-REQ70UW

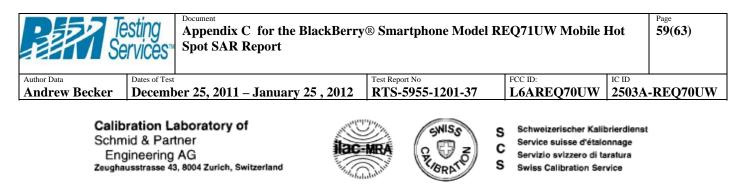
Impedance Measurement Plot for Head TSL



Certificate No: D1900V2-545_Jan11

Page 6 of 6

v Becke	Dates of Test		Test Report No		FCC ID:	IC ID
	r December 25, 20	<u>11 – January 25 ,</u>	2012 RTS-5955-120	01-37	L6AREQ70UW	2503A-REQ7
Sc	alibration Laboratory chmid & Partner Engineering AG ughausstrasse 43, 8004 Zurich	-		z) C	Schweizerischer Kalibrier Service suisse d'étalonna; Servizio svizzero di taratu Swiss Calibration Service	ge ra
The	credited by the Swiss Accredital e Swiss Accreditation Service	is one of the signatorie	s to the EA	creditation N	o.: SCS 108	
	ultilateral Agreement for the re ent RTS (RIM Testi			rtificate No:	D2450V2-747_Nov	IR. R
C	ALIBRATION C	ERTIFICATE	11111	5.3		
Ot	bject	D2450V2 - SN: 7	47	er dire	世界に対象をつめます。 学	6
G	alibration procedure(s)	QA CAL-05.v8 Calibration proce	dure for dipole validation	kits abov	s 700 MHz	e l
		1.18	alle 1	És s		
T		ents the traceability to nati	11 onal standards, which realize the p			ē
ית ית	his calibration certificate docume te measurements and the uncer	ents the traceability to nati rtainties with confidence p	anti (nyu toon - yyyy toongoni sayy	g pages and a	are part of the certificate.	Đ
TT TT All	his calibration certificate docume te measurements and the uncer	ents the traceability to nati rtainties with confidence p ted in the closed laborator	onal standards, which realize the p robability are given on the following	g pages and a	are part of the certificate.	Đ
TT TT All	his calibration certificate docume te measurements and the uncer I calibrations have been conduc	ents the traceability to nati rtainties with confidence p ted in the closed laborator	onal standards, which realize the p robability are given on the following y facility: environment temperature Cal Date (Certificate No.)	g pages and a	are part of the certificate.	Đ
Tr Tr All Ca Pr	his calibration certificate docume he measurements and the uncer I calibrations have been conduc alibration Equipment used (M&T rimary Standards ower meter EPM-442A	ents the traceability to nati tainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704	cnal standards, which realize the p robability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451)	g pages and a	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12	0
Tr Tr All Ca Pro Pro	his calibration certificate docume he measurements and the uncer I calibrations have been conduct alibration Equipment used (M&T rimary Standards ower meter EPM-442A ower sensor HP 8481A	ents the traceability to nati tainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783	onal standards, which realize the p robability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451)	g pages and a	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12	0
Tr Tr All Ca Pro Pro Ref	his calibration certificate docume he measurements and the uncer I calibrations have been conduct alibration Equipment used (M&T rimary Standards ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783 SN: 5066 (20g)	onal standards, which realize the p robability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368)	g pages and a	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12	0
Tr Tr All Ca Pr Po Po Re Ty	his calibration certificate docume he measurements and the uncert I calibrations have been conduct alibration Equipment used (M&T rimary Standards ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327	onal standards, which realize the p robability are given on the following y facility: environment temperature <u>Cal Date (Certificate No.)</u> 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371)	g pages and <i>i</i>	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12 Apr-12	0
Tr Tr All Ca Pr Po Re Ty Re	his calibration certificate docume he measurements and the uncer I calibrations have been conduct alibration Equipment used (M&T rimary Standards ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783 SN: 5066 (20g)	onal standards, which realize the p robability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368)	g pages and <i>i</i> e (22 ± 3)*C a	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12	Đ
Tr Tr All Ca Pr Po Re Ty Re D	his calibration certificate docume he measurements and the uncert l calibrations have been conduct alibration Equipment used (M&T imary Standards ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination eference Probe ES3DV3 AE4	ents the traceability to nati rtainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783 SN: 5066 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601	cnal standards, which realize the probability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371) 29-Apr-11 (No. 217-01371) 29-Apr-11 (No. DAE4-601_Jul11	g pages and <i>i</i> e (22 ± 3)*C a	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12 Apr-12 Apr-12 Jul-12	Đ
Tr Tr All Ca Pr Pro Pro Rr Ty Rr DJ St	his calibration certificate docume the measurements and the uncert I calibrations have been conduct alibration Equipment used (M&T trimary Standards ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination eference Probe ES3DV3 AE4 econdary Standards	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783 SN: 5066 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID #	onal standards, which realize the probability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371) 29-Apr-11 (No. ES3-3205_Apr1 04-Jul-11 (No. DAE4-601_Jul11 Check Date (in house)	g pages and a e (22 ± 3)*C a 1)	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12 Apr-12 Apr-12 Jul-12 Scheduled Check	
Tr Tr All Ca Pr Pro Re Ty Re DJ Ste Pro	his calibration certificate docume the measurements and the uncert I calibrations have been conduct alibration Equipment used (M&T trimary Standards ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination eference Probe ES3DV3 AE4 econdary Standards ower sensor HP 8481A	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 5047.2 / 06327 SN: 3205 SN: 601 ID # MY41092317	onal standards, which realize the probability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371) 29-Apr-11 (No. DAE4-601_Jul11 04-Jul-11 (No. DAE4-601_Jul11 Check Date (in house) 18-Oct-02 (in house check Oct-	g pages and a e (22 ± 3)*C a 1) 1)	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12 Apr-12 Apr-12 Jul-12 Scheduled Check In house check: Oct-13	
Tr Tr All CC Pr Pr Pr Pr Pr Pr Pr Pr Pr Pr Pr Pr Pr	his calibration certificate docume the measurements and the uncert I calibrations have been conduct alibration Equipment used (M&T trimary Standards ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination eference Probe ES3DV3 AE4 econdary Standards	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783 SN: 5066 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID #	onal standards, which realize the probability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371) 29-Apr-11 (No. ES3-3205_Apr1 04-Jul-11 (No. DAE4-601_Jul11 Check Date (in house)	g pages and (e (22 ± 3)*C a 1) 1) -11) -11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12 Apr-12 Apr-12 Jul-12 Scheduled Check	3
Tr Tr All CC Pr Pr Pr Pr Pr Pr Pr Pr Pr Pr Pr Pr Pr	his calibration certificate docume the measurements and the uncert I calibrations have been conduct alibration Equipment used (M&T <u>many Standards</u> ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination eference Probe ES3DV3 AE4 econdary Standards ower sensor HP 8481A F generator R&S SMT-06	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID # MY41092317 100005	onal standards, which realize the probability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371) 29-Apr-11 (No. 217-01371) 29-Apr-11 (No. DAE4-601_Jul11 Ot-Oct-02 (in house) 18-Oct-02 (in house check Oct- 04-Aug-99 (in house check Oct-	g pages and (e (22 ± 3)*C a 1) 1) -11) -11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12 Apr-12 Apr-12 Jul-12 Scheduled Check In house check: Oct-13 In house check: Oct-13	3
Tr Tr All C: Pr Pc Pc Pc Re Ty Re D/ Se Ri Ri Ni	his calibration certificate docume he measurements and the uncer- l calibrations have been conduct alibration Equipment used (M&T rimary Standards ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination eference Probe ES3DV3 AE4 econdary Standards ower sensor HP 8481A F generator R&S SMT-06 etwork Analyzer HP 8753E	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) (D # (B37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 5047.2 / 06327 SN: 3205 SN: 601 (D # MY41092317 100005 US37390585 S4206 Name	cnal standards, which realize the probability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371) 29-Apr-11 (No. ES3-3205_Apr1 04-Jul-11 (No. DAE4-601_Jul11 Check Date (in house) 18-Oct-02 (in house check Oct- 04-Aug-99 (in house check Oct- 18-Oct-01 (in house check Oct- 18-Oct-01 (in house check Oct- 18-Oct-01 (in house check Oct- Function	g pages and a e (22 ± 3)*C a 1) 1) 1) -11) -11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Apr-12 Apr-12 Apr-12 Jul-12 Scheduled Check In house check: Oct-13 In house check: Oct-13	3
Tr Tr All C: Pr Pc Pc Pc Re Ty Re D/ Se Ri Ri Ni	his calibration certificate docume the measurements and the uncert I calibrations have been conduct alibration Equipment used (M&T <u>many Standards</u> ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination eference Probe ES3DV3 AE4 econdary Standards ower sensor HP 8481A F generator R&S SMT-06	ents the traceability to nati tainties with confidence p ted in the closed laborator TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID # MY41092317 100005 US37390585 S4206	coal standards, which realize the probability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371) 29-Apr-11 (No. ES3-3205_Apr1 04-Jul-11 (No. DAE4-601_Jul111 Check Date (in house) 18-Oct-02 (in house check Oct- 04-Aug-99 (in house check Oct- 18-Oct-01 (in house check Oct-	g pages and a e (22 ± 3)*C a 1) 1) 1) -11) -11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Oct-12 Apr-12 Apr-12 Jul-12 Scheduled Check In house check: Oct-13 In house check: Oct-13	3
Tr Tr All Ca Pr Pro Pro Pro Pro Pro Pro Pro Pro Pro	his calibration certificate docume he measurements and the uncer- l calibrations have been conduct alibration Equipment used (M&T rimary Standards ower meter EPM-442A ower sensor HP 8481A eference 20 dB Attenuator ype-N mismatch combination eference Probe ES3DV3 AE4 econdary Standards ower sensor HP 8481A F generator R&S SMT-06 etwork Analyzer HP 8753E	ents the traceability to nati trainties with confidence p ted in the closed laborator (E critical for calibration) (D # (B37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 5047.2 / 06327 SN: 3205 SN: 601 (D # MY41092317 100005 US37390585 S4206 Name	cnal standards, which realize the probability are given on the following y facility: environment temperature Cal Date (Certificate No.) 05-Oct-11 (No. 217-01451) 05-Oct-11 (No. 217-01451) 29-Mar-11 (No. 217-01368) 29-Mar-11 (No. 217-01371) 29-Apr-11 (No. ES3-3205_Apr1 04-Jul-11 (No. DAE4-601_Jul11 Check Date (in house) 18-Oct-02 (in house check Oct- 04-Aug-99 (in house check Oct- 18-Oct-01 (in house check Oct- 18-Oct-01 (in house check Oct- 18-Oct-01 (in house check Oct- Function	g pages and (e (22 ± 3)*C a 1) 1) 1) -11) -11) 11)	are part of the certificate. and humidity < 70%. Scheduled Calibration Oct-12 Oct-12 Oct-12 Apr-12 Apr-12 Jul-12 Scheduled Check In house check: Oct-13 In house check: Oct-13	3



Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Accreditation No.: SCS 108

Calibration is Performed According to the Following Standards:

- a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
- c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

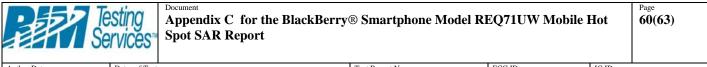
d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions: Further details are available from the Validation Report at the enc of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL: The dipole is mounted with the spacer to position its feed
 point exactly below the center marking of the flat phantom section, with the arms oriented
 parallel to the body axis.
- Feed Point Impedance and Return Loss: These parameters are measured with the dipole
 positioned under the liquid filled phantom. The impedance stated is transformed from the
 measurement at the SMA connector to the feed point. The Return Loss ensures low
 reflected power. No uncertainty required.
- Electrical Delay: One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- · SAR measured: SAR measured at the stated antenna input power.
- SAR normalized: SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters: The measured TSL parameters are used to calculate the nominal SAR result.

Certificate No: D2450V2-747_Nov11

This report shall <u>NOT</u> be reproduced except in full without the written consent of RIM Testing Services Copyright 2005-2012, RIM Testing Services, a division of Research In Motion Limited



Author Data	Dates of Test	Test Report No	FCC ID:	ICID
Andrew Becker	December 25, 2011 – January 25, 2012	RTS-5955-1201-37	L6AREQ70UW	2503A-REQ70UW

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.7 ± 6 %	1.84 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C		

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	54.1 mW /g ± 17.0 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR averaged over 10 cm ³ (10 g) of Head TSL SAR measured	condition 250 mW input power	6.39 mW / g

Certificate No: D2450V2-747_Nov11



 Document
 Page

 Appendix C for the BlackBerry® Smartphone Model REQ71UW Mobile Hot
 61(63)

 Spot SAR Report
 61(63)

Author Data	Dates of Test		Test Report No	FCC ID:	IC ID
Andrew Becker	December 25, 2011 – January 25 , 2012		RTS-5955-1201-37	L6AREQ70UW	2503A-REQ70UW

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.5 Ω + 1.3 jΩ	
Return Loss	- 31.2 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.161 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG	
Manufactured on	December 01, 2003	



DASY5 Validation Report for Head TSL

Date: 09.11.201

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 747

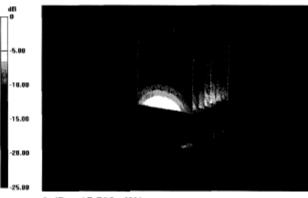
Communication System: CW; Frequency: 2450 MHz Medium parameters used: f = 2450 MHz; $\sigma = 1.84 \text{ mho/m}$; $\varepsilon_r = 37.7$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 102.1 V/m; Power Drift = 0.04 dB Peak SAR (extrapolated) = 28.853 W/kg SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.39 mW/gMaximum value of SAR (measured) = 17.782 mW/g



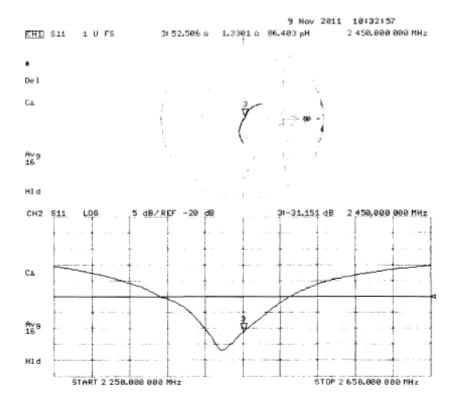
0 dB = 17.780 mW/g

Certificate No: D2450V2-747_Nov11

Page 5 of 6

Document Appendix C for the BlackBerry® Smartphone Model REQ71UW Mobile Hot Spot SAR Report						
Author Data	Dates of Test		Test Report No	FCC ID:	IC ID	
Andrew Becker	December 25, 2011 – January 25, 2012		RTS-5955-1201-37	L6AREQ70UW	2503A-REQ70UW	

Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-747_Nov11

Page 6 of 6