Testing Services™	Appendix D for the BlackBerr SAR Report	Page 1(36)		
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

APPENDIX D: PROBE & DIPOLE CALIBRATION DATA

Becker Ap	ril 28– May 11, 2010	Test Report No RTS-2671-1005-55	FCC ID: L6ARDB70UW	іс ір 2503А-RDB7
Calibration Laborate	ery of	SHISS S	Schweizerischer Kalibri	ierdienst
Schmid & Partner Engineering AG		BOCMRA (0 77 z) C	Service suisse d'étalon Servizio svizzero di tara	*
Zeughausstrasse 43, 8004 Zuri	ich, Switzerland	RIBRATE S	Swiss Calibration Servi	
Accredited by the Swiss Accredit			No.: SCS 108	
The Swiss Accreditation Servi Multilateral Agreement for the	*			
_	ting Services)		ES3-3225_Dec09	right -
CALIBRATION	CERTIFICATE		natur industria Prima Stationary and	- gi ar na syster Sa anddon ains ains ai
Object	ES3DV3 - SN:322	5	en e energy Charlen in	- A.
Calibration procedure(s)	QA CAL-01.v6, Q	A CAL-23.v3 and QA CAL-25.v2	ante anti de la composición de la compo	6.
	Calibration proces	ture for dosimetric E-field probe:	States and a state of the	890 R.N.
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	Wand Par in the	Construction of the second second second	Bangard and the second	<i>A</i>
	terning and	Allering Control and Allering Street		
	December 11, 200	09	its of measurements (SI).	en de la companya de La companya de la comp
This calibration certificate docu The measurements and the une	December 11, 200 ments the traceability to nation certainties with confidence pro	9	its of measurements (SI). Id are part of the certificate.	
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This calibration certificate docu The measurements and the unit All calibrations have been cond Calibration Equipment used (M Primary Standards Power meter E4419B	December 11, 200 ments the traceability to nation certainties with confidence pro- ucted in the closed laboratory &TE critical for calibration) ID # GB41293874	D9 nal standards, which realize the physical universities and the following pages and tacility: environment temperature (22 ± 3)*C Cal Date (Certificate No.) 1-Apr-09 (No. 217-01030)	its of measurements (SI). Id are part of the certificate. C and humidity < 70%. Scheduled Calibration Apr-10	
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Certificate No: ES3-3225_Dec09

Page 1 of 11



Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report

2503A-RDB70UW

IC ID

Author Data Andrew Becker

April 28– May 11, 2010

Test Report No FCC ID: RTS-2671-1005-55 L6ARDB70UW

SNISS S Schweizerischer Kalibrierdienst

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Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)

Zeughausstrasse 43, 8004 Zurich, Switzerland

Calibration Laboratory of

Schmid & Partner

Engineering AG

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

Document

Dates of Test

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 ϕ	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., 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 3 = 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 NORMs, 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_Dec09

Page 2 of 11

Testing Services ^{**}	Document Appendix D for the BlackBer SAR Report	Page 4(36)		
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	2503A-RDB70UW		

December 11, 2009

Probe ES3DV3

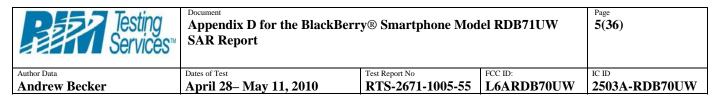
SN:3225

Manufactured: Calibrated: September 1, 2009 December 11, 2009

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

Certificate No: ES3-3225_Dec09

Page 3 of 11



December 11, 2009

DASY - Parameters of Probe: ES3DV3 SN:3225

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)^A$	1.26	1.22	1.32	± 10.1%
DCP (mV) ^B	92.3	94.8	92.7	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dBuV	с	VR mV	Unc ^E (k=2)
10000	cw	0.00	x	0.00	0.00	1.00	300.0	± 1.5%
			Y	0.00	0.00	1.00	300.0	
			z	0.00	0.00	1.00	300.0	

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%.

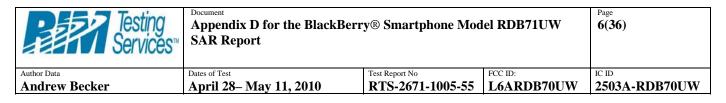
^A The uncertainties of NormX, Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

⁸ Numerical linearization parameter: uncertainty not required.

e 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_Dec09

Page 4 of 11



December 11, 2009

DASY - Parameters of Probe: ES3DV3 SN:3225

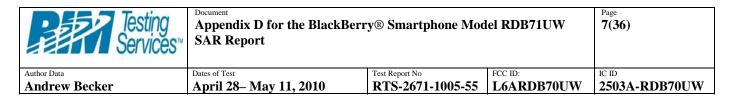
Calibration Parameter Determined in Head Tissue Simulating Media

f [MHz]	Validity [MHz] ^C	Permittivity	Conductivity	ConvF X Co	nvFY Con	vFZ	Alpha	Depth Unc (k=2)
900	± 50 / ± 100	41.5 ± 5%	0.97 ± 5%	6.12	6.12	6.12	0.99	1.07 ± 11.0%
1810	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	5.14	5.14	5.14	0.46	1.60 ± 11.0%
1950	± 50 / ± 100	40.0 ± 5%	1.40 ± 5%	4.96	4.96	4.96	0.47	1.57 ± 11.0%
2450	± 50 / ± 100	39.2 ± 5%	1.80 ± 5%	4.53	4.53	4.53	0.41	1.89 ± 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 Dec09

Page 5 of 11



December 11, 20

DASY - Parameters of Probe: ES3DV3 SN:3225

Calibration Parameter Determined in Body Tissue Simulating Media

f [MHz]	Validity [MHz] ^C	Permittivity	Conductivity	ConvFX Co	nvFY Co	nvF Z	Alpha	Depth Unc (k=2
900	± 50 / ± 100	55.0 ± 5%	1.05 ± 5%	5.97	5.97	5.97	0.98	1.12 ± 11.0%
1810	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.90	4.90	4.90	0.35	2.07 ± 11.0%
1950	± 50 / ± 100	53.3 ± 5%	1.52 ± 5%	4.83	4.83	4.83	0.32	2.45 ± 11.0%
2450	± 50 / ± 100	52.7 ± 5%	1.95 ± 5%	4.32	4.32	4.32	0.74	1.27 ± 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_Dec09

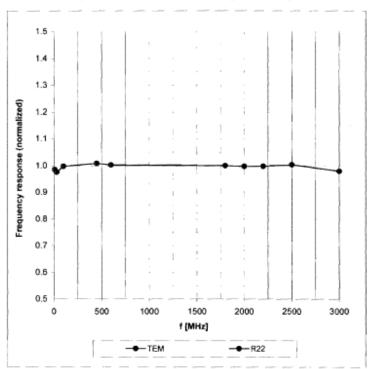
Page 6 of 11

Testing Services™	Document Appendix D for the BlackBerr SAR Report	ry® Smartphone Mod	el RDB71UW	Page 8(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

December 11, 2009

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



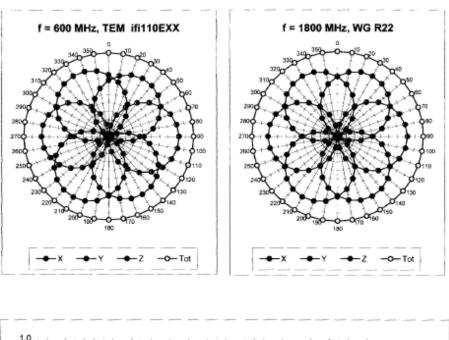
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Certificate No: ES3-3225_Dec09

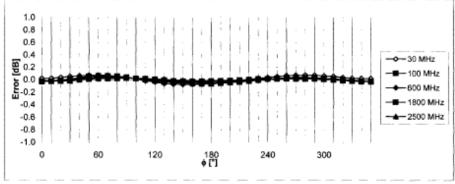
Page 7 of 11

Testing Services™	Appendix D for the BlackBerr SAR Report	Page 9(36)		
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

December 11, 2009



Receiving Pattern (ϕ), ϑ = 0°



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

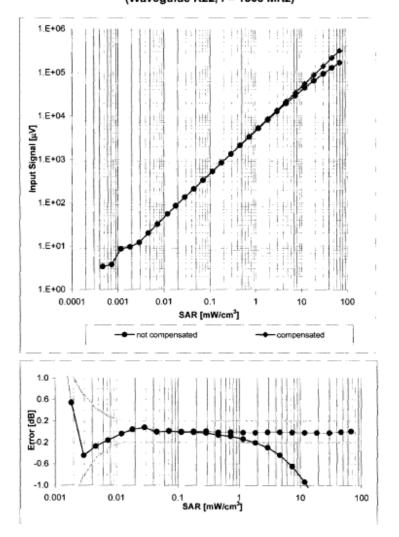
Certificate No: ES3-3225_Dec09

Page 8 of 11

Testing Services™	Document Appendix D for the BlackBer SAR Report	rry® Smartphone Mod	lel RDB71UW	Page 10(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

December 11, 2009

Dynamic Range f(SAR_{head}) (Waveguide R22, f = 1800 MHz)



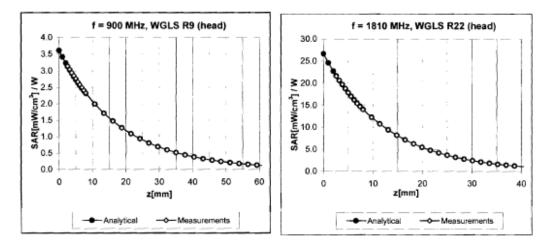
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: ES3-3225_Dec09

Page 9 of 11

Testing Services™	Appendix D for the BlackBerr SAR Report	Page 11(36)		
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

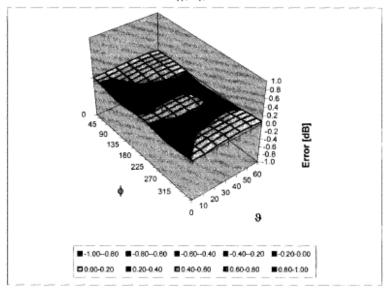
December 11, 2009



Conversion Factor Assessment

Deviation from Isotropy in HSL

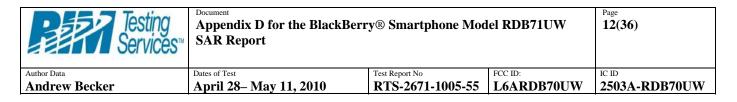
Error (\$, 9), f = 900 MHz



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

Certificate No: ES3-3225_Dec09

Page 10 of 11



December 11, 2009

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	4.0 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_Dec09

Page 11 of 11

Testing Service		Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report			kBerry® Smartphone Model RDB71UW 13(36)	
Author Data Andrew Becker	Dates of Test April 28–	May 11, 2010	Test Report No RTS-2671-1005-55	FCC ID: L6ARDB70UW	IC ID 2503A-RDB70UW	
Schmid Engir	ation Laborator & Partner heering AG strasse 43, 8004 Zuric		GNISS C D N C D N C D N C C N C C C C	Schweizerischer Kalibrierdie Service suisse d'étalonnage Servizio svizzero di taratura Swiss Calibration Service	nst	
The Swiss		itation Service (SAS) e is one of the signatorie ecognition of calibration	s to the EA	No.: SCS 108		
Client	RTS (RIM Test	ing Services)	Certificate N	: D835V2-446_Jan09		
CALI	BRATION C	ERTIFICATE		a set of the		
Object		D835V2 - SN: 44	6			
Calibratio	n procedure(s)	QA CAL-05.v7 Calibration proce	dure for dipole validation kits			
Calibratio	n date:	January 05, 2009				
Condition	of the calibrated item	In Tolerance				
The meat All calibra	surements and the unce	rtainties with confidence pr	anal standards, which realize the physical un obability are given on the following pages ar y facility: environment temperature $(22 \pm 3)^{\circ}$	d are part of the certificate.		
Primary S	tandards	ID#	Cal Date (Certificate No.)	Scheduled Calibration		
Power se Reference Type-N m Reference	ster EPM-442A nsor HP 8481A e 20 dB Attenuator Ismatch combination e Probe ES3DV2	GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3025	08-Oct-08 (No. 217-00898) 08-Oct-08 (No. 217-00898) 01-Jul-08 (No. 217-00864) 01-Jul-08 (No. 217-00867) 28-Apr-08 (No. ES3-3025_Apr08)	Oct-09 Oct-09 Jul-09 Jul-09 Apr-09		
DAE4		SN: 601	14-Mar-08 (No. DAE4-601_Mar08)	Mar-09		
	y Standards tsor HP 8481A	ID#	Check Date (in house)	Scheduled Check		
RF genera	ator R&S SMT-06 knałyzer HP 8753E	MY41092317 100005 US37390585 S4206	18-Oct-02 (in house check Oct-07) 4-Aug-99 (in house check Oct-07) 18-Oct-01 (in house check Oct-08)	In house check: Oct-09 In house check: Oct-09 In house check: Oct-09		
Calibrated	i by:	Name Jeton Kastrati	Function Laboratory Technician	Signature	-	
Approved	by:	Katja Pokovic	Technical Manager	Salai 19	-	
This calibr	ation certificate shall no	t be reproduced except in	full without written approval of the laboratory	Issued: January 7, 2009		
Certificate	No: D835V2-446_Ja	n09	Page 1 of 6		;	



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



S Schweizerischer Kalibrierdienst

C Service suisse d'étalonnage

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_Jan09

Page 2 of 6

Testing Services ^{**}	Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report			Page 15(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

Measurement Conditions

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

DASY Version	DASY5	V5.0
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 %	0.91 mho/m ± 6 %
Head TSL temperature during test	(21.5±0.2) °C		

SAR result with Head TSL

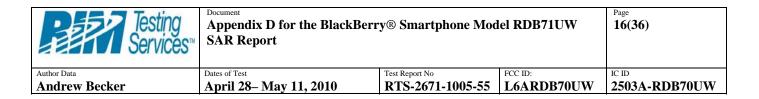
SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.40 mW / g
SAR normalized	normalized to 1W	9.60 mW / g
SAR for nominal Head TSL parameters 1	normalized to 1W	9.50 mW /g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.58 mW / g
SAR normalized	normalized to 1W	6.32 mW / g
SAR for nominal Head TSL parameters 1	normalized to 1W	6.27 mW /g ± 16.5 % (k=2)

1 Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Certificate No: D835V2-446_Jan09

Page 3 of 6



Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.8 Ω - 6.9 jΩ	
Return Loss	- 23.3 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.385 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	October 24, 2001	

Certificate No: D835V2-446_Jan09

Page 4 of 6

Testing Services ^{**}	Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report			Page 17(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

DASY5 Validation Report for Head TSL

Date/Time: 05.01.2009 10:38:06

Test Laboratory: SPEAG, Zurich, Switzerland

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

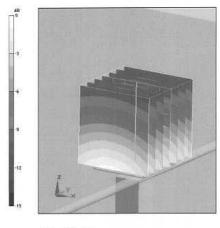
Communication System: CW-835; Frequency: 835 MHz; Duty Cycle: 1:1 Medium: HSL 900 MHz Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.1; ρ = 1000 kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 SN3025; ConvF(5.97, 5.97, 5.97); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin=250mW; dip=15mm; dist=3.4mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.7 V/m; Power Drift = 0.024 dBPeak SAR (extrapolated) = 3.54 W/kgSAR(1 g) = 2.4 mW/g; SAR(10 g) = 1.58 mW/gMaximum value of SAR (measured) = 2.7 mW/g



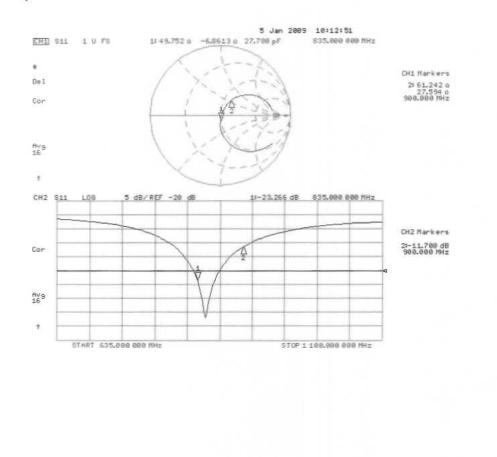
 $0 \, dB = 2.7 mW/g$

Certificate No: D835V2-446_Jan09

Page 5 of 6

Testing Services™	Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report			Page 18(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

Impedance Measurement Plot for Head TSL



Certificate No: D835V2-446_Jan09

Page 6 of 6

Servicĕs [™] s	SAR Report			
	ates of Test April 28– May 11, 201	1	FCC ID: L6ARDB70UW	IC ID 2503А-RDB70
Calibration Labora Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 z		BIC MIRA (C C C C C C C C C C C C C C C C C C C	Schweizerischer Kalibri Service suisse d'étalon Servizio svizzero di tara Swiss Calibration Servi	atura
	creditation Service (SAS) rvice is one of the signatoria he recognition of calibration	es to the EA	No.: SCS 108	
Client RTS (RIM Te	est Services)	Certificate No:	D1800V2-2d020_	Jan09
CALIBRATION	CERTIFICATI			Sec. 1
Object	D1800V2 - SN: 2	2d020		
Calibration procedure(s)	QA CAL-05.v7 Calibration proce	dure for dipole validation kits		
	the second barries when			
Calibration date:	January 06, 2009	9		
Condition of the calibrated ite	In Tolerance	9 Ional standards, which realize the physical unit	s of measurements (SI).	
Condition of the calibrated its This calibration certificate do The measurements and the c All calibrations have been co	In Tolerance currents the traceability to nati incertainties with confidence p inducted in the closed laborato		I are part of the certificate.	
Condition of the calibrated its This calibration certificate do The measurements and the c All calibrations have been co Calibration Equipment used (In Tolerance currents the traceability to nat incertainties with confidence p inducted in the closed laborato (M&TE critical for calibration)	ional standards, which realize the physical unit robability are given on the following pages and ry facility: environment temperature (22 ± 3)°C	I are part of the certificate. and humidity < 70%.	
Condition of the calibrated its This calibration certificate do The measurements and the o All calibrations have been co Calibration Equipment used (Primary Standards	In Tolerance currents the traceability to nat incertainties with confidence p inducted in the closed laborato (M&TE critical for calibration)	ional standards, which realize the physical unit robability are given on the following pages and ry facility: environment temperature (22 ± 3)°C Cal Date (Calibrated by, Certificate No.)	and humidity < 70%.	
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Condition of the calibrated its This calibration certificate do The measurements and the o All calibrations have been co Calibration Equipment used (Primary Standards Power meter EPM-442A	In Tolerance currents the traceability to nat incertainties with confidence p inducted in the closed laborato (M&TE critical for calibration) ID # GB37480704	ional standards, which realize the physical unit robability are given on the following pages and ry facility: environment temperature (22 ± 3)°C Cal Date (Calibrated by, Certificate No.)	and humidity < 70%.	
Condition of the calibrated its This calibration certificate do The measurements and the o All calibrations have been co Calibration Equipment used (Primary Standards Power meter EPM-442A Power sensor HP 6481A	In Tolerance currents the traceability to nati incertainties with confidence p inducted in the closed laborato (M&TE critical for calibration) 1D # GB37480704 US37292783 SN: 5086 (20g)	ional standards, which realize the physical units robability are given on the following pages and ry facility: environment temperature (22 ± 3)°C Cal Date (Calibrated by, Certificate No.) 08-Oct-08 (No. 217-00898) 08-Oct-08 (No. 217-00898)	and humidity < 70%. Scheduled Calibratic Oct-09 Oct-09	
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Condition of the calibrated its This calibration certificate do The measurements and the o All calibrations have been co Calibration Equipment used (Primary Standards Power mater EPM-442A Power sensor HP 8481A Reference 20 dB Attenuator Type-N mismatch combinatio	In Tolerance currents the traceability to nation incertainties with confidence p inducted in the closed laborato (M&TE critical for calibration) 1D # GB37490704 US37292783 SN: 5085 (20g) in SN: 5047.2 / 06327	ional standards, which realize the physical units robability are given on the following pages and ny facility: environment temperature (22 ± 3)°C Cal Date (Calibrated by, Certificate No.) 08-Oct-08 (No. 217-00898) 08-Oct-08 (No. 217-00898) 01-Jul-08 (No. 217-00864) 01-Jul-08 (No. 217-00867)	and humidity < 70%. Scheduled Calibratic Oct-09 Oct-09 Jul-09 Jul-09	
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerischer Kalibrierdienst C Service suisse d'étalonnage

Servizio svizzero di taratura

Swiss Calibration Service

Accreditation No.: SCS 108

S

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: D1800V2-2d020 Jan09

Page 2 of 6

Testing Services™				Page 21(36)
Author Data	Dates of Test	IC ID		
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

Measurement Conditions

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

DASY Version	DASY5	V5.0
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	1800 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	39.5 ± 6 %	1.40 mho/m ± 6 %
Head TSL temperature during test	(21.6 ± 0.2) [≠] C		

SAR result with Head TSL

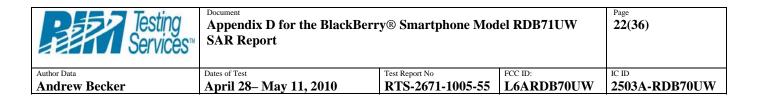
SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	9.57 mW /g
SAR normalized	normalized to 1W	38.3 mW /g
SAR for nominal Head TSL parameters 1	normalized to 1W	38.2 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.04 mW /g
SAR normalized	normalized to 1W	20.2 mW /g
SAR for nominal Head TSL parameters 1	normalized to 1W	20.1 mW / g ± 16.5 % (k=2)

1 Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Certificate No: D1800V2-2d020_Jan09

Page 3 of 6



Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	45.3 Ω - 7.5 jΩ
Return Loss	- 20.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.215 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.

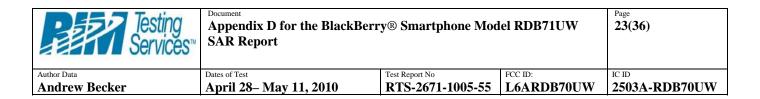
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	September 07, 2001

Certificate No: D1800V2-2d020_Jan09

Page 4 of 6



DASY5 Validation Report for Head TSL

Date/Time: 06.01.2009 11:22:58

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: SN:2d020

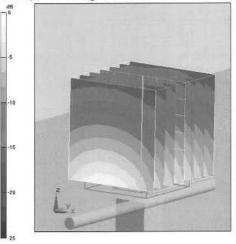
Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1 Medium: HSL U10 BB Medium parameters used: f - 1800 MHz; $\sigma = 1.4$ mho/m; $\varepsilon_r = 39.6$; $\rho - 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 SN3025; ConvF(4.96, 4.96, 4.96); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.C (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version :3.4 Build 45

Pin = 250 mW; dip = 10 mm, scan at 3.4mm 2/Zoom Scan (dist=3.4mm, probe 0deg)

(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 91.8 V/m; Power Drift = 0.036 dB Peak SAR (extrapolated) = 17.6 W/kg SAR(1 g) = 9.57 mW/g; SAR(10 g) = 5.04 mW/g Maximum value of SAR (measured) = 11.2 mW/g



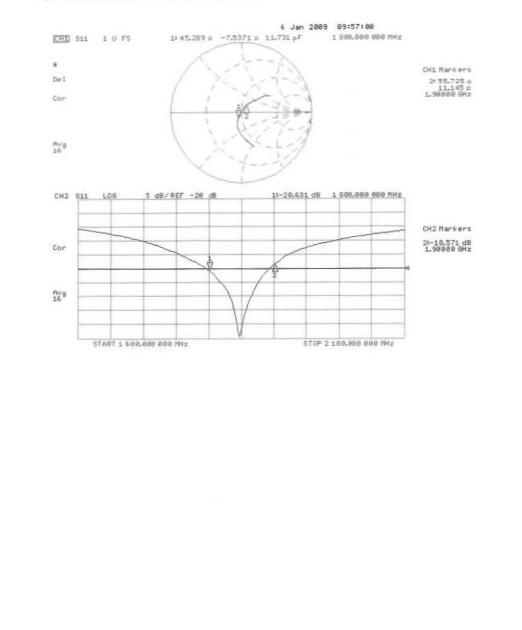
 $0 \, dB = 11.2 \, mW/g$

Certificate No: D1800V2-2d020_Jan09

Page 5 of 6

Testing Services™	Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report			Page 24(36)
Author Data	Dates of Test	IC ID		
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

Impedance Measurement Plot for Head TSL



Certificate No: D1800V2-2d020_Jan09

Page 6 of 6

Testing Services™		Appendix D SAR Repor) for the BlackBe t	Page 25(36)		
Author Data		Dates of Test April 28– M	ov 11 2010	Test Report No RTS-2671-1005-55	FCC ID: L6ARDB70UW	IC ID 2503A-RDB70UW
indiew beeker		<u> </u>	ay 11, 2010	R15-2071-1003-55		25051-RDD100 W
	Schmid & Enginee	on Laborator Partner ering AG 1556 43, 8004 Zurich		Iac-MRA (SNISS C U Z R BRATO	S Schweizerischer Ka C Service suisse d'étt S Servizio svizzero di S Swiss Calibration 5	tonnage taratura
	The Swiss A	ccreditation Service	Itation Service (SAS) is one of the signatorie cognition of calibration	s to the EA	Itation No.: SCS 108	
		TS (RIM Testi		NEXTRA N	ate No: D1900V2-545~	Jan09
	CALIB	RATION C	ERTIFICATE			17. DO-19.
	Object		D1900V2 - SN: 5	45		
	Calibration p	rocedure(s)	QA CAL-05.v7 Calibration proce	dure for dipole validation kits	•	
	Calibration d	ate:	January 06, 2009			
	Condition of	the calibrated item	In Tolerance	and the second second	State State	
				nal standards, which realize the physio obability are given on the following pag		
All calibratio		s have been conduc	ted in the closed laborator	y facility: environment temperature (22	± 3)*C and humidity < 70%.	
	Calibration E	quipment used (M&T	E critical for calibration)			
	Primary Stan	and the second se	ID#	Cal Date (Calibrated by, Certificate I		ration
	Power meter Power senso		GB37480704 US37292783	08-Oct-08 (No. 217-00898) 08-Oct-08 (No. 217-00898)	Oct-09 Oct-09	
		dB Attenuator	SN: 5085 (20g)	01-Jul-08 (No. 217-00864)	90-lut	
	Type-N mism	atch combination	SN: 5047.2 / 06327	01-Jul-08 (No. 217-00667)	Jui-09	
	Reference Pr DAE4	obe ES3DV2	SN: 3025 SN: 601	28-Apr-08 (No. ES3-3025_Apr08) 14-Mar-08 (No. DAE4-601_Mar08)	Apr-09 Mar-09	
	Secondary S	tandarda	ID #	Check Date (in house)	Scheduled Che	
	Power senso		MY41092317	18-Oct-02 (in house check Oct-07)	In house check	
		R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check	1977 C C C C
	Network Anal	yzer HP 8753E	U\$37390585 \$4206	18-Oct-01 (in house check Oct-08)	in house check	Oct-09
			Name	Function	Signature	
	Calibrated by	5	Jeton Kastrati	Laboratory Technician	-f= 16	L
	Approved by:		Ketja Pokovic	Technical Manager	al.	leg
	This calibratio	on certificate shall no	t be reproduced except in	full without written approval of the labo	Issued: January ratory.	7, 2009
	Certificate No	: D1900V2-545 J	an09	Page 1 of 6		

Testing Services ^{**}	Appendix D for the BlackBerr SAR Report	y® Smartphone Mod	el RDB71UW	Page 26(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

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



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

Accreditation No.: SCS 108

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S

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) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- 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: D1900V2-545_Jan09

Page 2 of 6

Testing Services™	Appendix D for the BlackBerr SAR Report	y® Smartphone Mod	el RDB71UW	Page 27(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

Measurement Conditions

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

DASY Version	DASY5	V5.0
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	39.2 ± 6 %	1.47 mho/m ± 8 %
Head TSL temperature during test	(21.0 ± 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 1	normalized to 1W	39.5 mW/g±17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.29 mW/g
SAR normalized	normalized to 1W	21.2 mW/g
SAR for nominal Head TSL parameters ¹	normalized to 1W	20.8 mW / g ± 16.5 % (k=2)

' Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Certificate No: D1900V2-545_Jan09

Testing Services™	Appendix D for the BlackBerr SAR Report	y® Smartphone Mod	el RDB71UW	Page 28(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.9 Ω + 1.9 jΩ	
Return Loss	- 34.4 dB	

General Antenna Parameters and Design

Electrical Delay (one direction)	1.197 ns
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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_Jan09

Page 4 of 6

Testing Services ^{**}	Appendix D for the BlackBerr SAR Report	y® Smartphone Mod	el RDB71UW	Page 29(36)	
Author Data	Dates of Test	FCC ID:	IC ID		
Andrew Becker	April 28– May 11, 2010				

DASY5 Validation Report for Head TSL

Date/Time: 06.01.2009 13:17:58

Test Laboratory: SPEAG, Zurich, Switzerland

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

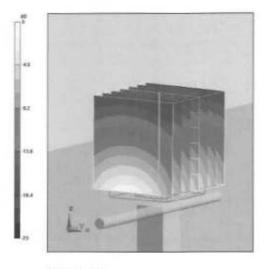
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1 Medium: HSL U10 BB Medium parameters used: f = 1900 MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 39.4$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Probe: ES3DV2 SN3025; ConvF(4.9, 4.9, 4.9); Calibrated: 28.04.2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 14.03.2008
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.0 Build 120; SEMCAD X Version 13.4 Build 45

Pin = 250 mW; dip = 10 mm, scan at 3.4mm/Zoom Scan (dist=3.4mm, probe 0deg)

(7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 92.5 V/m; Power Drift = 0.037 dB Peak SAR (cxtrapolated) = 19 W/kg SAR(1 g) - 10.2 mW/g; SAR(10 g) - 5.29 mW/g Maximum value of SAR (measured) = 12 mW/g



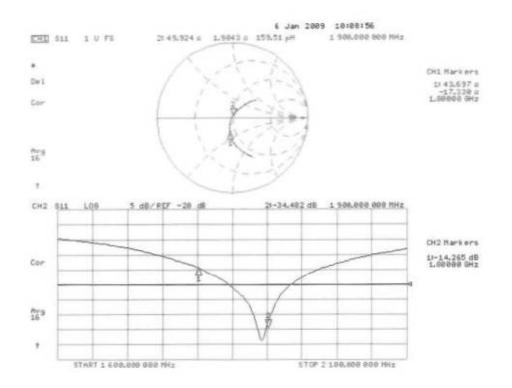
0 dB = 12 mW/g

Certificate No: D1900V2-545_Jan09

Page 5 of 6

Testing Services™	Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report			Page 30(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

Impedance Measurement Plot for Head TSL



Certificate No: D1900V2-545_Jan09

Page 6 of 6

	es of Test pril 28– May 11, 20	Test Report No RTS-2671-1005-55	FCC ID: L6ARDB70UW	IС ID 2503А-RDB7
Calibration Laborate Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zur	-	IDC MRA RA RA RA RA RA RA RA RA S	Schweizerischer Kalibri Service suisse d'étalon: Servizio svizzero di tara Swiss Calibration Servi	nage Itura
Accredited by the Swiss Accred The Swiss Accreditation Serv Multilateral Agreement for the	ice is one of the signatorie	s to the EA	No.: SCS 108	
Client RTS (RIM Ter	ting Services)	Certificate No	»: D2450V2-747_No	v09
CALIBRATION	CERTIFICATE	the state of the second state of the		
Object	D2450V2 - SN: 7	47	a stander	98
Calibration procedure(s)	QA CAL-05.v7 Calibration proce	dure for dipole validation kits		
Calibration date:	November 11, 20		STATES AND A STATES	6435
	November 11, 20	109 ////////////////////////////////////		55
The measurements and the un	uments the traceability to nati icertainties with confidence p ducted in the closed laborato	ional standards, which realize the physical un probability are given on the following pages ar ny facility: environment temperature $(22 \pm 3)^{\circ}$	nd are part of the certificate.	
The measurements and the un All calibrations have been con Calibration Equipment used (N	uments the traceability to nati icertainties with confidence p ducted in the closed laborato M&TE critical for calibration)	ional standards, which realize the physical un robability are given on the following pages ar ny facility: environment temperature (22 ± 3)°	nd are part of the certificate. C and humidity < 70%.	
The measurements and the un All calibrations have been con Calibration Equipment used (N Primary Standards	uments the traceability to nati icertainties with confidence p ducted in the closed laborato M&TE critical for calibration)	ional standards, which realize the physical un probability are given on the following pages ar ny facility: environment temperature (22 ± 3)° Cal Date (Certificate No.)	nd are part of the certificate. C and humidity < 70%. Scheduled Calibration	on
The measurements and the un All calibrations have been con Calibration Equipment used (N Primary Standards Power meter EPM-442A	uments the traceability to nati icertainties with confidence p ducted in the closed laborato M&TE critical for calibration) ID # GB37480704	ional standards, which realize the physical un probability are given on the following pages ar ny facility: environment temperature (22 ± 3)° Cal Date (Certificate No.) 06-Oct-09 (No. 217-01086)	nd are part of the certificate. C and humidity < 70%. Scheduled Calibratie Oct-10	2n
The measurements and the un All calibrations have been con Calibration Equipment used (N Primary Standards	uments the traceability to nati icertainties with confidence p ducted in the closed laborato M&TE critical for calibration)	ional standards, which realize the physical un probability are given on the following pages ar ny facility: environment temperature (22 ± 3)° Cal Date (Certificate No.)	nd are part of the certificate. C and humidity < 70%. Scheduled Calibration	n
The measurements and the un All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8481A	uments the traceability to national ducted in the closed laborato M&TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g)	ional standards, which realize the physical un probability are given on the following pages ar ny facility: environment temperature (22 ± 3) ^{on} <u>Cal Date (Certificate No.)</u> 06-Oct-09 (No. 217-01086) 06-Oct-09 (No. 217-01086)	ad are part of the certificate. C and humidity < 70%. Scheduled Calibratio Oct-10 Oct-10	on
The measurements and the un All calibrations have been con Calibration Equipment used (M Primary Standards Power meter EPM-442A Power sensor HP 8461A Reference 20 dB Attenuator	uments the traceability to national ducted in the closed laborato M&TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g)	ional standards, which realize the physical un probability are given on the following pages ar ny facility: environment temperature (22 ± 3) ^o <u>Cal Date (Certificate No.)</u> 06-Oct-09 (No. 217-01086) 06-Oct-09 (No. 217-01086) 31-Mar-09 (No. 217-01025)	nd are part of the certificate. C and humidity < 70%. Scheduled Calibration Oct-10 Oct-10 Mar-10	on
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	uments the traceability to national ducted in the closed laborato M&TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5047.2 / 06327	ional standards, which realize the physical un probability are given on the following pages ar ny facility: environment temperature (22 ± 3)° <u>Cal Date (Certificate No.)</u> 06-Oct-09 (No. 217-01086) 06-Oct-09 (No. 217-01086) 31-Mar-09 (No. 217-01025) 31-Mar-09 (No. 217-01029)	ad are part of the certificate. C and humidity < 70%. Scheduled Calibratio Oct-10 Oct-10 Mar-10 Mar-10	on
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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	uments the traceability to nati certainties with confidence p ducted in the closed laborato M&TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID #	ional standards, which realize the physical un robability are given on the following pages ar ny facility: environment temperature (22 ± 3)°1 <u>Cal Date (Certificate No.)</u> 06-Oct-09 (No. 217-01086) 06-Oct-09 (No. 217-01086) 31-Mar-09 (No. 217-01025) 31-Mar-09 (No. 217-01025) 31-Mar-09 (No. 217-01029) 26-Jun-09 (No. ES3-3205_Jun09) 07-Mar-09 (No. DAE4-601_Mar09) Check Date (in house)	ad are part of the certificate. C and humidity < 70%. Scheduled Calibratio Oct-10 Oct-10 Mar-10 Jun-10 Mar-10 Mar-10 Scheduled Check	
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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	uments the traceability to nati certainties with confidence p ducted in the closed laborato M&TE critical for calibration) ID # GB37480704 US37292783 SN: 5086 (20g) SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID #	ional standards, which realize the physical un robability are given on the following pages ar ny facility: environment temperature (22 ± 3)°1 <u>Cal Date (Certificate No.)</u> 06-Oct-09 (No. 217-01086) 06-Oct-09 (No. 217-01086) 31-Mar-09 (No. 217-01025) 31-Mar-09 (No. 217-01025) 31-Mar-09 (No. 217-01029) 26-Jun-09 (No. ES3-3205_Jun09) 07-Mar-09 (No. DAE4-601_Mar09) Check Date (in house)	ad are part of the certificate. C and humidity < 70%. Scheduled Calibratio Oct-10 Oct-10 Mar-10 Jun-10 Mar-10 Mar-10 Scheduled Check	-11
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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 Network Analyzer HP 8753E	uments the traceability to nati certainties with confidence p ducted in the closed laborato (&TE critical for calibration) ID # GB37480704 US37282783 SN: 5086 (20g) SN: 5086 (20g) SN: 5047.2 / 06327 SN: 3205 SN: 601 ID # MY41092317 100005 US37390585 S4206 Name	ional standards, which realize the physical un robability are given on the following pages ar ny facility: environment temperature (22 ± 3)° Cal Date (Certificate No.) 06-Oct-09 (No. 217-01086) 06-Oct-09 (No. 217-01086) 31-Mar-09 (No. 217-01025) 31-Mar-09 (No. 217-01025) 31-Mar-09 (No. 217-01029) 26-Jun-09 (No. ES3-3205_Jun09) 07-Mar-09 (No. DAE4-601_Mar09) 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-09) 18-Oct-01 (in house check Oct-09)	ad are part of the certificate. C and humidity < 70%. Scheduled Calibration Oct-10 Oct-10 Mar-10 Jun-10 Mar-10 Scheduled Check In house check: Oct In house check: Oct	-11

Certificate No: D2450V2-747_Nov09

Page 1 of 6



Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report

2503A-RDB70UW

IC ID

Author Data Andrew Becker

Dates of Test April 28– May 11, 2010

 Test Report No
 FCC ID:

 RTS-2671-1005-55
 L6ARDB70UW

BRI

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S Schweizerischer Kalibrierdienst Service suisse d'étalonnage

C Service suisse d'etalonnage Servizio svizzero di taratura

Swiss Calibration Service

Accreditation No.: SCS 108

Accredited by the Swiss Accreditation Service (SAS)

Calibration Laboratory of

Zeughausstrasse 43, 8004 Zurich, Switzerland

Schmid & Partner

Engineering AG

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

Document

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

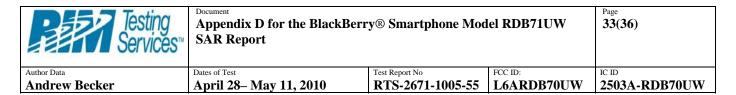
Additional Documentation:

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: D2450V2-747_Nov09



Measurement Conditions

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

DASY Version	DASY5	V5.2	
Extrapolation	Advanced Extrapolation		
Phantom	Modular Flat Phantom V4.9		
Distance Dipole Center - TSL	10 mm	with Spacer	
Zoom Scan Resolution	dx, dy, dz = 5 mm		
Frequency	2450 MHz ± 1 MHz		

Head TSL parameters

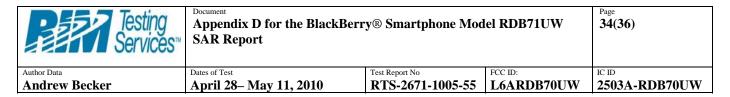
The following parameters and calculations were applied.

	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	39.1 ± 6 %	1.78 mho/m ± 6 %
Head TSL temperature during test	(21.3 ± 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	13.3 mW / g
SAR normalized	normalized to 1W	53.2 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	53.4 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	6.23 mW / g
		6.23 mW / g 24.9 mW / g
SAR measured	250 mW input power	

Certificate No: D2450V2-747_Nov09



Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.9 Ω + 0.9 jΩ	
Return Loss	- 33.9 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.

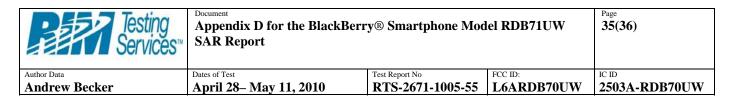
The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. No excessive force must be applied to the dipole arms, because they might bend or the soldered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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 01, 2003

Certificate No: D2450V2-747_Nov09

Page 4 of 6



DASY5 Validation Report for Head TSL

Date/Time: 11.11.2009 15:04:10

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1 Medium: HSL U11 BB Medium parameters used: f = 2450 MHz; $\sigma = 1.79$ mho/m; $\varepsilon_r = 39.2$; $\rho = 1000$ kg/m³ Phantom section: Flat Section Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

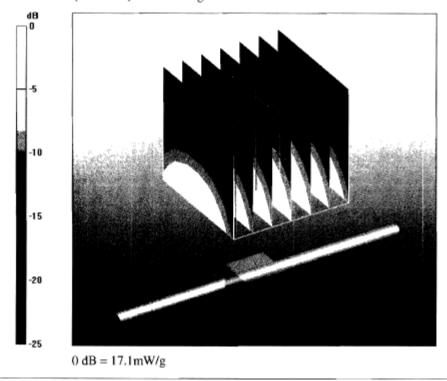
DASY5 Configuration:

- Probe: ES3DV3 SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 26.06.2009
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 07.03.2009
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 101.3 V/m; Power Drift = 0.067 dB Peak SAR (extrapolated) = 27 W/kg SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.23 mW/g

Maximum value of SAR (measured) = 17.1 mW/g

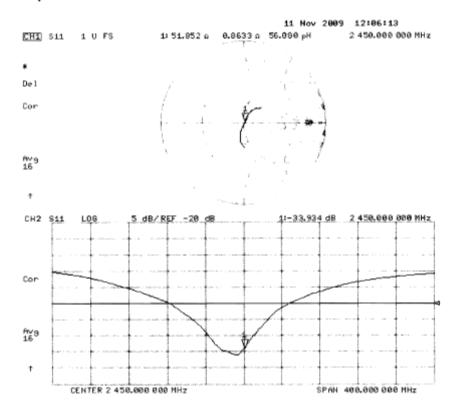


Certificate No: D2450V2-747_Nov09

Page 5 of 6

Testing Services™	Document Appendix D for the BlackBerry® Smartphone Model RDB71UW SAR Report			Page 36(36)
Author Data	Dates of Test	Test Report No	FCC ID:	IC ID
Andrew Becker	April 28– May 11, 2010	RTS-2671-1005-55	L6ARDB70UW	2503A-RDB70UW

Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-747_Nov09

Page 6 of 6