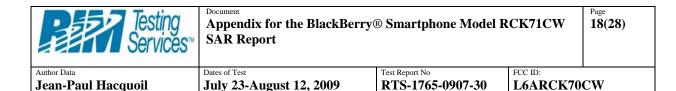
Paul Hacquoil	Dates of Test July 23-August 12	, 2009 Test Report No RTS-1765-09		CC ID: L6ARCK70	CW
Calibration Labor Schmid & Partner	atory of		Service enleres	er Kalibrierdienst d'étalonnage	
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The Swiss Accreditation	Accreditation Service (SAS) Service is one of the signatorie r the recognition of calibration	es to the EA	n No.: SCS 108	3	
Client RTS (RIM	Testing Services)	Certificate N	o: D1900V2-54	45-Jan09	0
CALIBRATIO	N CERTIFICATE		Net In all	2	
Object	D1900V2 - SN: 5	545			
Calibration procedure(s)	QA CAL-05.v7 Calibration proce	dure for dipole validation kits			
Calibration date:					
Cambration date.	January 06, 2009				
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Calibration Laboratory of Schmid & Partner Engineering AG Zeughausstrasse 43, 8004 Zurich, Switzerland



S Schweizerlscher 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) 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

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Testing Services ^{**}	Appendix for the BlackBer SAR Report	ry® Smartphone Model	RCK71CW	Page 19(28)
Author Data	Dates of Test	Test Report No	FCC ID:	
Jean-Paul Hacquoil	July 23-August 12, 2009	RTS-1765-0907-30	L6ARCK70	CW

Measurement Conditions

DASY system	configuration,	as tai	r as not	given or	n 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 ± 6 %
Head TSL temperature during test	(21.0 ± 0.2) °C		

SAR result with Head TSL

SAR normalized

SAR for nominal Head TSL parameters 1

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

normalized to 1W

normalized to 1W

21.2 mW/g

20.8 mW / g ± 16.5 % (k=2)

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

Certificate No: D1900V2-545_Jan09

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Testing Services™	Document Appendix for the BlackBerry SAR Report	® Smartphone Model F	RCK71CW	Page 20(28)
Author Data	Dates of Test	Test Report No	FCC ID:	
Jean-Paul Hacquoil	July 23-August 12, 2009	RTS-1765-0907-30	L6ARCK70	CW

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
----------------------------------	----------

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™	Document Appendix for the BlackBerr SAR Report	ry® Smartphone Model 1	RCK71CW	Page 21(28)
Author Data	Dates of Test	Test Report No	FCC ID:	
Jean-Paul Hacquoil	July 23-August 12, 2009	RTS-1765-0907-30	L6ARCK70	CW

DASY5 Validation Report for Head TSL

Date/Time: 06.01.2009 13:17:58

Test Laboratory: SPEAG, Zurich, Switzerland

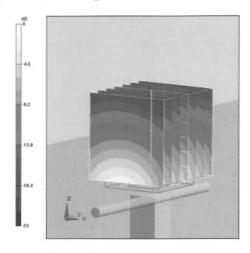
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:545

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1 Medium: HSL U10 BB Medium parameters used: f = 1900 MHz; σ = 1.47 mho/m; ϵ_r = 39.4; ρ = 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 (extrapolated) = 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



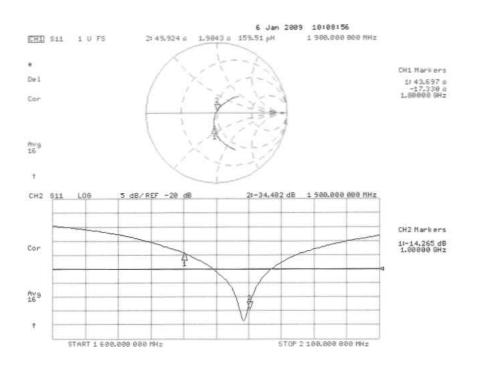
0 dB = 12mW/g

Certificate No: D1900V2-545_Jan09

Page 5 of 6

Testing Services™	Document Appendix for the BlackBerr SAR Report	y® Smartphone Model 1	RCK71CW	Page 22(28)
Author Data	Dates of Test	Test Report No	FCC ID:	
Jean-Paul Hacquoil	July 23-August 12, 2009	RTS-1765-0907-30	L6ARCK70	CW

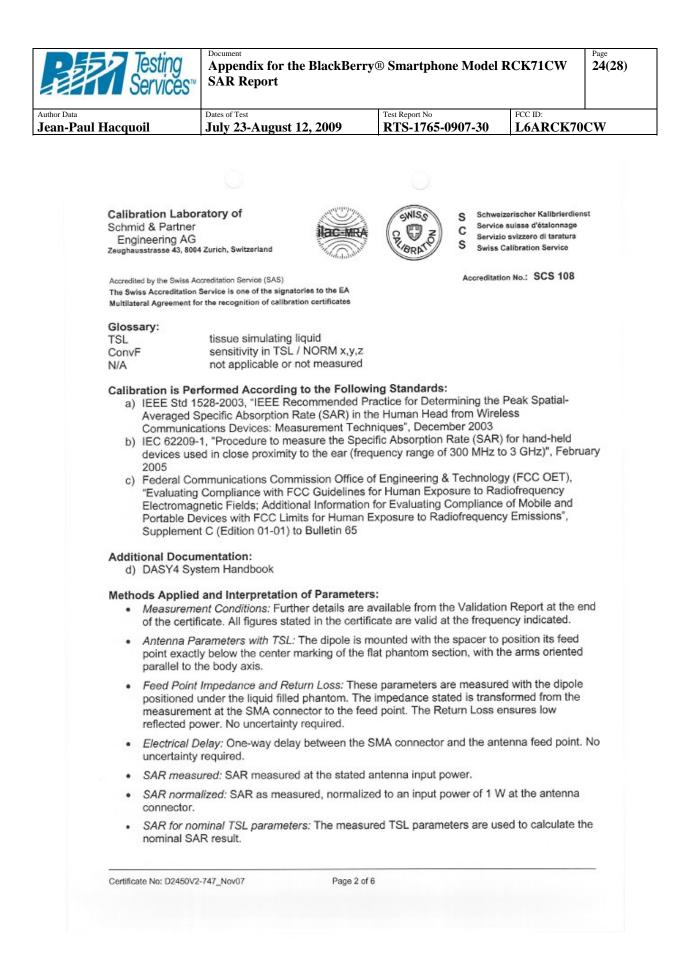
Impedance Measurement Plot for Head TSL



Certificate No: D1900V2-545_Jan09

Page 6 of 6

-Paul Hacquoil	Dates of Test July 23-August 12	,2009 Test Report No RTS-1765-0907	FCC ID: L6ARCK70	CW
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	creditation Service (SAS) Service is one of the signatorie r the recognition of calibration	is to the EA	Io.: SCS 108	
Client RIM			D2450V2-747_Nov07	
CALIBRATIO	N CERTIFICATE			
Object	D2450V2 - SN: 7	47		
	10140 Act 10140			
Calibration procedure(s)	QA CAL-05.v6 Calibration proce	dure for dipole validation kits		
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Testing Services™	Appendix for the BlackBerr SAR Report	y® Smartphone Model 1	RCK71CW	Page 25(28)
Author Data	Dates of Test	Test Report No	FCC ID:	

July 23-August 12, 2009

L6ARCK70CW

Measurement Conditions

DASY Version	DASY4	V4.7
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	2450 MHz ± 1 MHz	

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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	38.4 ± 6 %	1.85 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	13.6 mW / g
SAR normalized	normalized to 1W	54.4 mW / g
SAR for nominal Head TSL parameters 1	normalized to 1W	53.2 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.27 mW / g
SAR normalized	normalized to 1W	25.1 mW/g
SAR for nominal Head TSL parameters 1	normalized to 1W	24.8 mW / g ± 16.5 % (k=2)

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

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thor Data Pan-Paul Hacquoil	Dates of Test July 23-August 12, 2009	Test Report No RTS-1765-0907-30	FCC ID: L6ARCK70CV
	0		
Appendix			
Antenna Para	meters with Head TSL		
Impedance,	transformed to feed point	51.2 Ω + 2.1 jΩ	
Return Loss		– 32.4 dB	
	Hay (one direction)	1.160 ns	
Electrical De After long term use The dipole is made second arm of the	lay (one direction) with 100W radiated power, only a slight warm of standard semirigid coaxial cable. The cent dipole. The antenna is therefore short-circuiter must be applied to the dipole arms, because	ning of the dipole near the feedpoint er conductor of the feeding line is dir d for DC-signals.	ectly connected to the
Electrical De After long term use The dipole is made second arm of the No excessive force feedpoint may be of Additional EU	Hay (one direction) with 100W radiated power, only a slight warm of standard semirigid coaxial cable. The cent dipole. The antenna is therefore short-circuited e must be applied to the dipole arms, because damaged. T Data	ning of the dipole near the feedpoint er conductor of the feeding line is dir d for DC-signals. they might bend or the soldered con	ectly connected to the
Electrical De After long term use The dipole is made second arm of the No excessive force feedpoint may be o	a with 100W radiated power, only a slight warm of standard semirigid coaxial cable. The cent dipole. The antenna is therefore short-circuited a must be applied to the dipole arms, because famaged. T Data	ning of the dipole near the feedpoint er conductor of the feeding line is dir d for DC-signals.	ectly connected to the nections near the

Certificate No: D2450V2-747_Nov07

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Testing Services™	Appendix for the BlackBerry SAR Report	® Smartphone Model R	CK71CW	Page 27(28)
Author Data	Dates of Test	Test Report No	FCC ID:	

Jean-Paul Hacquoil

July 23-August 12, 2009

L6ARCK70CW

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DASY4 Validation Report for Head TSL

Date/Time: 06.11.2007 15:01:41

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN747

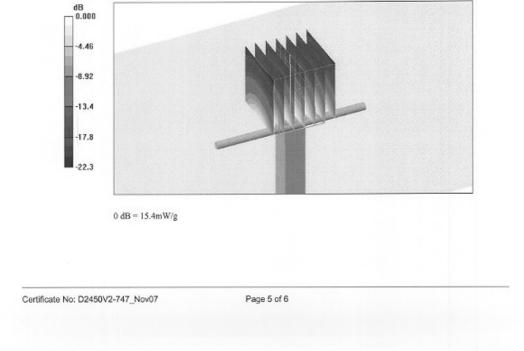
Communication System: CW-2450; Frequency: 2450 MHz; Duty Cycle: 1:1 Medium: HSL U10 BB; Medium parameters used: f = 2450 MHz; σ = 1.79 mho/m; ϵ_r = 38; ρ = 1000 kg/m³ Phantom section: Flat Section Measurement Standard: DASY4 (High Precision Assessment)

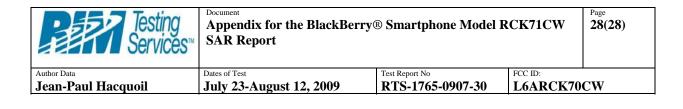
DASY4 Configuration:

- Probe: ES3DV2 SN3025 (HF); ConvF(4.41, 4.41, 4.41); Calibrated: 26.10.2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.01.2007
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; ;
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 172

Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 93.4 V/m; Power Drift = 0.016 dB Peak SAR (extrapolated) = 29.4 W/kg SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.27 mW/g Maximum value of SAR (measured) = 15.4 mW/g





Impedance Measurement Plot for Head TSL

