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Daoud Attayi	Jan. 12-19, 2011 RTS-2605-1102-02A L6ARDH70CW			
	Feb. 28-Mar. 01, 2011		L6ARDP70U	\mathbf{W}

Annex B: Probe and dipole description and calibration certificates

B.1 Probe, measurement chain description, specification and calibration certificate

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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Daoud Attayi

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L6ARDH70CW

L6ARDP70UW

DASY Dosimetric Assessment System by Schmid & Partner Engineering AG



ER3DV6 ISOTROPIC E-FIELD PROBE FOR GENERAL NEAR-FIELD Applications MEASUREMENTS Support & Downloads 🔼 <u>Download Product Flyer</u> (PDF, 192kB) **Products** DASY4 Packages • EASY4 Construction One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., ET3DV6 - Isotropic Dos-Probe glycolether) ES3DV3 - Isotropic Dos-Probe EX3DV4 - Isotropic Dos-Probe Calibration In air from 100 MHz to 3.0 GHz (absolute accuracy ±6.0%, k=2) ET1DV3 - D-Prob 100 MHz to > 6 GHz; Linearity: ± 0.2 dB (100 MHz to 3 GHz) EUV3 - Universal Vector E-Probe Frequency H3DV6 - Isotropic H-Probe Directivity ± 0.2 dB in air (rotation around probe axis) HUV4 - Universal Vector H-Probe T1V3 - Temp-Probe ± 0.4 dB in air (rotation normal to probe axis) DP1 - Dummy-Probe Dynamic Range Data Acquisition System 2 V/m to > 1000 V/m; Linearity: ± 0.2 dB Overall length: 330 mm (Tip: 16 mm) Dimensions Tip diameter: 8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.5 mm · Validation Kits & Calibration Dipoles Application General near-field measurements up to 6 GHz Hearing Aid Compatibility (HAC) Ext Field component measurements • Tissue Simulating Liquids Fast automatic scanning in phantoms SPEAG Home

http://www.dasy4.com/er3.htm

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DASY Dosimetric Assessment System by Schmid & Partner Engineering AG



Applications	H3DV6 3-DIMENSIONAL H-FIELD PROBE FOR SMALL BAND APPLICATIONS				
Support & Downloads Products	Download Product Fi	<u>yer</u> (PDF, 192kB)			
DASY4 Packages					
• EASY4	Construction	Three concentric loop sensors with 3.8 mm loop diameters			
Probes ET3DV6 - Isotropic Dos-Probe ES3DV3 - Isotropic Dos-Probe EX3DV4 - Isotropic Dos-Probe		Resistively loaded detector diodes for linear response Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)			
ET1DV3 - D-Probe ER3DV6 - Isotropic E-Probe	Frequency	200 MHz to 3 GHz (absolute accuracy \pm 6.0%, k=2); Output linearized			
EUV3 - Universal Vector E-Probe	Directivity	± 0.25 dB (spherical isotropy error)			
HUV4 - Universal Vector H-Probe	Dynamic Range	10 mA/m to 2 A/m at 1 GHz			
T1V3 - Temp-Probe DP1 - Dummy-Probe	E-Field Interference	< 10% at 3 GHz (for plane wave)			
Data Acquisition System Software	Dimensions	Overall length: 330 mm (Tip: 40 mm) Tip diameter: 6 mm (Body: 12 mm) Distance from probe tip to dipole centers: 3 mm			
• Phantoms	Application	General magnetic near-field measurements up to 3 GHz			
Robots Validation Kits & Calibration Dipoles Hearing Aid Compatibility (HAC) Ext Tissue Simulating Liquids		Field component measurements Surface current measurements Measurements in air or liquids Low interaction with the measured field			
SPEAG Home					

http://www.dasy4.com/h3d.htm

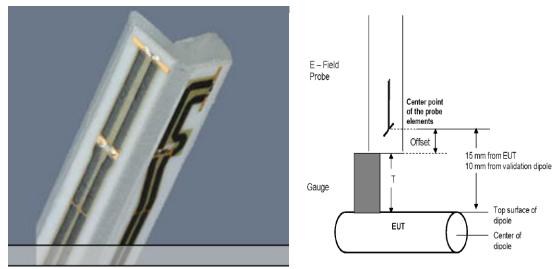
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All measurements were performed to the nearest element point as per the C63.19 standard. Offset distances were entered in the DASY4 software so that the measurement was to the nearest element.

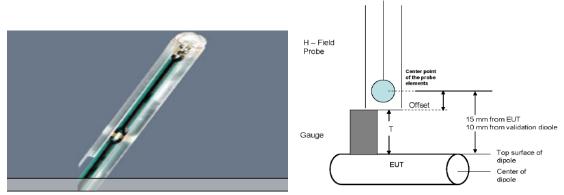
Figures 1 and 2, provided by the manufacturer, illustrate detail of the probe tip and its dimensions.

ER3DV6 E-Field probe: The distances from the probe tip to the closest points on the dipole sensors are 1.45mm for X and Y and 1.25mm for Z. From the probe tip to the center of the sensors is 2.5mm.

H3DV6 H-Field probe: The distance from the probe tip to the closest point of the X, Y and Z loop sensors is 1.1mm. From the probe tip to the center of the sensor is 3.00mm.



E-Field Probe (ER3DV6)



H-Field Probe (H3DV6)

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The following information is from the system manufacturer user manual describing the process chain:

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$
(20.1)

with V_i = compensated signal of channel i (i = x, y, z) U_i = input signal of channel i (i = x, y, z) cf = crest factor of exciting field (DASY parameter) dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

$$E- \text{ fieldprobes}: \qquad E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

$$H- \text{ fieldprobes}: \qquad H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1}f + a_{i2}f^2}{f}$$

$$= \text{ compensated signal of channel i} \qquad \qquad (\text{i} = \text{x},$$

 $Norm_i$ = sensor sensitivity of channel i $\mu V/(V/m)^2$ for E-field Probes (i = x, y, z)

ConvF = sensitivity enhancement in solution a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

 E_i = electric field strength of channel i in V/m H_i = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$
 (20.2)

The measurement / integration time per point is > 500 ms, as per the system manufacturer:

The time response of the field probes has been assessed by exposing the probe to a well-controlled field producing signals larger than HAC E- and H-fields of class M4. The signal response time is evaluated as the time required by the system to reach 90% of the expected final value after an on/off switch of the power source with an integration time of 500 ms and a probe response time of <5 ms. In the current implementation, DASY4 waits longer than 100 ms after having reached the grid point before starting a measurement, i.e., the response time uncertainty is negligible.

If the device under test does not emit a CW signal, the integration time applied to measure the electric field at a specific point may introduce additional uncertainties due to the discretization. The tolerances for the different systems had the worst-case of 2.6%.



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L6ARDH70CW Feb. 28-Mar. 01, 2011 L6ARDP70UW

ER3DV6 SN:2285 March 8, 2010

Other Probe Parameters

Sensor Arrangement	Rectangular
Connector Angle (°)	78.7
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	8.0 mm
Probe Tip to Sensor X Calibration Point	2.5 mm
Probe Tip to Sensor Y Calibration Point	2.5 mm
Probe Tip to Sensor Z Calibration Point	2.5 mm



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L6ARDH70CW L6ARDP70UW

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

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

Client RTS (RIM Testing Services)

Certificate No: ER3-2285_Mar10

Accreditation No.: SCS 108

ALIBRATION	CERTIFICAT		
ALIBRATION	CENTIFICAT		
bject	ER3DV6 - SN:2	285	
alibration procedure(s)		and QA CAL-25,v2 edure for E-field probes optimized ir	for close near field
calibration date:	March 8, 2010		
The measurements and the und	certainties with confidence	tional standards, which realize the physical uni probability are given on the following pages an ory facility: environment temperature (22 ± 3)°C	d are part of the certificate.
alibration Equipment used (Ma	&TE critical for calibration)		
rimary Standards	ID#	Cal Date (Certificate No.)	Scheduled Calibration
	ID# GB41293874	Cal Date (Certificate No.) 1-Apr-09 (No. 217-01030)	Scheduled Calibration Apr-10
ower meter E4419B			
ower meter E4419B ower sensor E4412A	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
ower meter E4419B ower sensor E4412A ower sensor E4412A eference 3 dB Attenuator	GB41293874 MY41495277	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030)	Apr-10 Apr-10
ower meter E4419B ower sensor E4412A ower sensor E4412A eference 3 dB Attenuator eference 20 dB Attenuator	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b)	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01028)	Apr-10 Apr-10 Apr-10 Mar-10 Mar-10
ower meter E4419B ower sensor E4412A ower sensor E4412A eference 3 dB Attenuator eference 20 dB Attenuator eference 30 dB Attenuator	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b)	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01028) 31-Mar-09 (No. 217-01027)	Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Mar-10
ower meter E4419B ower sensor E4412A ower sensor E4412A deference 3 dB Attenuator deference 20 dB Attenuator deference 30 dB Attenuator deference 70 dB Attenuator	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b)	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01028)	Apr-10 Apr-10 Apr-10 Mar-10 Mar-10
ower meter E4419B ower sensor E4412A ower sensor E4412A eference 3 dB Attenuator eference 20 dB Attenuator eference 30 dB Attenuator eference Probe ER3DV6	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 2328	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01028) 31-Mar-09 (No. 217-01027) 3-Oct-09 (No. ER3-2328_Oct09)	Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Oct-10 Dec-10
ower meter E4419B ower sensor E4412A ower sensor E4412A ofference 3 dB Attenuator eference 30 dB Attenuator eference 30 dB Attenuator eference Probe ER3DV6 AE4 econdary Standards	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 2328 SN: 789	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01028) 31-Mar-09 (No. 217-01027) 3-Oct-09 (No. 217-01027) 3-Oct-09 (No. ER3-2328_Oct09) 23-Dec-09 (No. DAE4-789_Dec09)	Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Mar-10 Oct-10
ower meter E4419B ower sensor E4412A ower sensor E4412A deference 3 dB Attenuator deference 20 dB Attenuator deference 30 dB Attenuator deference Probe ER3DV6 AE4 decondary Standards F generator HP 8648C	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 2328 SN: 789	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01028) 31-Mar-09 (No. 217-01027) 3-Oct-09 (No. ER3-2328_Oct09) 23-Dec-09 (No. DAE4-789_Dec09) Check Date (in house)	Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Mar-10 Cct-10 Dec-10 Scheduled Check
lower meter E4419B lower sensor E4412A lower s	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b) SN: 2328 SN: 789 ID # US3642U01700 US37390585 Name	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01028) 31-Mar-09 (No. 217-01027) 3-Oct-09 (No. ER3-2328_Oct09) 23-Dec-09 (No. DAE4-789_Dec09) Check Date (in house) 4-Aug-99 (in house check Oct-09) 18-Oct-01 (in house check Oct-09)	Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Mar-10 Cct-10 Dec-10 Scheduled Check In house check: Oct-11
ower meter E4419B ower sensor E4412A ower sensor E4412A deference 3 dB Attenuator deference 30 dB Attenuator deference Probe ER3DV6 AE4 econdary Standards IF generator HP 8648C letwork Analyzer HP 8753E	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 2328 SN: 789 ID # US3642U01700 US37390585	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01027) 3-Oct-09 (No. 217-01027) 3-Oct-09 (No. ER3-2328_Oct09) 23-Dec-09 (No. DAE4-789_Dec09) Check Date (in house) 4-Aug-99 (in house check Oct-09) 18-Oct-01 (in house check Oct-09)	Apr-10 Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Oct-10 Dec-10 Scheduled Check In house check: Oct-11 In house check: Oct10
Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 20 dB Attenuator Reference Probe ER3DV6 DAE4 Reference Pro	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5056 (20b) SN: S5129 (30b) SN: 2328 SN: 789 ID # US3642U01700 US37390585 Name	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026) 31-Mar-09 (No. 217-01028) 31-Mar-09 (No. 217-01027) 3-Oct-09 (No. ER3-2328_Oct09) 23-Dec-09 (No. DAE4-789_Dec09) Check Date (in house) 4-Aug-99 (in house check Oct-09) 18-Oct-01 (in house check Oct-09)	Apr-10 Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Oct-10 Dec-10 Scheduled Check In house check: Oct-11 In house check: Oct10

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Calibration Laboratory of

Schmid & Partner **Engineering AG**

Zeughausstrasse 43, 8004 Zurich, Switzerland





Schweizerischer Kalibrierdienst

Service suisse d'étalonnage С Servizio svizzero di taratura

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

Glossarv:

NORMx,y,z

sensitivity in free space

DCP

diode compression point crest factor (1/duty_cycle) of the RF signal

CF A, B, C

modulation dependent linearization parameters

Polarization ϕ

 $\boldsymbol{\phi}$ 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

Connector Angle

information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

a) IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005.

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization $\theta = 0$ for XY sensors and $\theta = 90$ for Z sensor (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide).
- $NORM(f)x, y, z = NORMx, y, z * frequency_response$ (see Frequency Response Chart).
- 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.
- Spherical isotropy (3D deviation from isotropy): in a locally homogeneous field realized using an open
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORMx (no uncertainty required).

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L6ARDP70UW

ER3DV6 SN:2285 March 8, 2010

Probe ER3DV6

SN:2285

Manufactured: September 20, 2002

Last calibrated: March 2, 2009 Recalibrated: March 8, 2010

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)



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2011

ER3DV6 SN:2285 March 8, 2010

DASY - Parameters of Probe: ER3DV6 SN:2285

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)$	1.26	1.42	1.61	± 10.1%
DCP (mV) ^A	92.1	94.2	96.0	

Modulation Calibration Parameters

uiD	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	300	± 1.5 %
			Y	0.00	0.00	1.00	300	
			Z	0.00	0.00	1.00	300	

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

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^A numerical linearization parameter: uncertainty not required

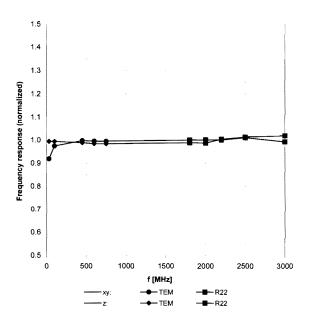
E Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

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ER3DV6 SN:2285 March 8, 2010

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide R22)



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

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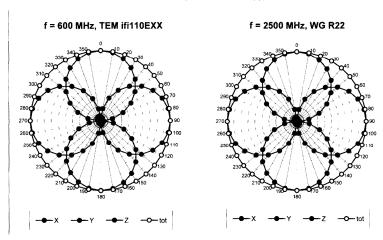
Feb. 28-Mar. 01, 2011

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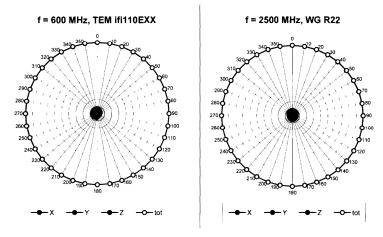
FCC ID L6ARDH70CW L6ARDP70UW

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



Receiving Pattern (ϕ), $\vartheta = 90^{\circ}$



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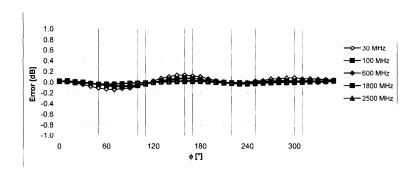
FCC ID

L6ARDH70CW

L6ARDP70UW

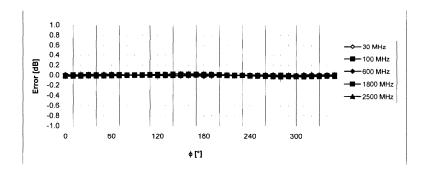
ER3DV6 SN:2285 March 8, 2010

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



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

Receiving Pattern (ϕ), ϑ = 90°



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

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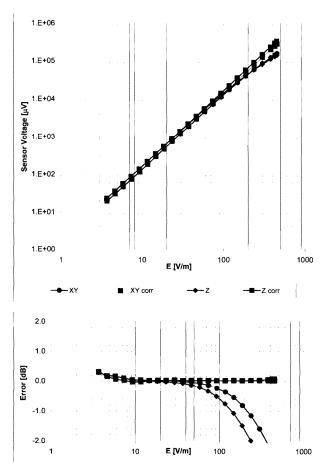
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ER3DV6 SN:2285 March 8, 2010

Dynamic Range f(E-field)

(Waveguide R22, f = 1800 MHz)



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

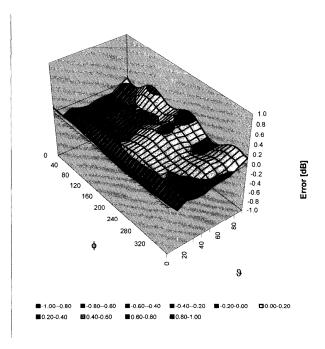
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ER3DV6 SN:2285 March 8, 2010

Deviation from Isotropy in Air Error (ϕ, ϑ) , f = 900 MHz



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

Certificate No: ER3-2285_Mar10



Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

Report No

Page

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011 Feb. 28-Mar. 01, 2011 RTS-2605-1102-02A

FCC ID L6ARDH70CW L6ARDP70UW

Calibration Laboratory of

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





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C Service suisse d'étalonnage
Servizio svizzero di taratura
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

Client

RTS (RIM Testing Services)

Certificate No: ER-2286_Jan11

Accreditation No.: SCS 108

CALIBRATION CERTIFICATE

Object

ER3DV6 - SN:2286

Calibration procedure(s)

QA CAL-02.v6, QA CAL-25.v3

Calibration procedure for E-field probes optimized for close near field

evaluations in air

Calibration date:

January 14, 2011

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).

The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	1D	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	01-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	01-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	01-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 dB Attenuator	SN: S5086 (20b)	30-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Attenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe ER3DV6	SN: 2328	4-Oct-10 (No. ER3-2328_Oct10)	Oct-11
DAE4	SN: 789	31-Aug-10 (No. DAE4-789_Aug10)	Aug-11
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:

Name

Function

marcor i on

Laboratory Technician

Issued: January 15, 2011

Approved by:

Katja Pokovic

Technical Manage

oratory.

This calibration certificate shall not be reproduced except in full without written approval of the laboratory

Certificate No: ER-2286 Jan11

Page 1 of 10



Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011

Feb. 28-Mar. 01, 2011

Report No

RTS-2605-1102-02A

FCC ID

L6ARDH70CW

L6ARDP70UW

Calibration Laboratory of

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





Schweizerischer Kalibrierdienst Service suisse d'étalonnage Servizio svizzero di taratura 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:

NORMx,y,z

sensitivity in free space

DCP CF diode compression point crest factor (1/duty_cycle) of the RF signal modulation dependent linearization parameters

A, B, C 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

Connector Angle

information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

 a) IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005.

Methods Applied and Interpretation of Parameters:

- NORMx,y,z: Assessed for E-field polarization 9 = 0 for XY sensors and 9 = 90 for Z sensor (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide).
- $NORM(f)x,y,z = NORMx,y,z * frequency_response$ (see Frequency Response Chart).
- 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.
- Spherical isotropy (3D deviation from isotropy): in a locally homogeneous field realized using an open waveguide setup.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the NORMx (no uncertainty required).

Certificate No: ER-2286 Jan11

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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011 Feb. 28-Mar. 01, 2011 Report No RTS-2605-1102-02A

FCC ID

L6ARDH70CW L6ARDP70UW

ER3DV6 - SN:2286

January 14, 2011

Probe ER3DV6

SN:2286

Manufactured: Calibrated:

September 18, 2002 January 14, 2011

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

Certificate No: ER-2286_Jan11

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Author Data **Daoud Attayi**

Dates of Test Jan. 12-19, 2011 Feb. 28-Mar. 01, 2011 Report No RTS-2605-1102-02A

L6ARDH70CW L6ARDP70UW

FCC ID

ER3DV6- SN:2286

January 14, 2011

DASY/EASY - Parameters of Probe: ER3DV6 - SN:2286

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (µV/(V/m) ²)	2.23	1.48	1.51	± 10.1 %
DCP (mV) ^B	97.6	98.4	97.6	

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	179.3	±3.0 %
			Y	0.00	0.00	1.00	145.0	
			Z	0.00	0.00	1.00	180.1	

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%.

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.



Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

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FCC ID

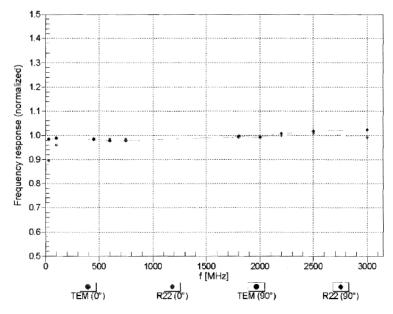
L6ARDH70CW L6ARDP70UW

ER3DV6-- SN:2286

January 14, 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:	ER-2286_Jan11	1
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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011 Feb. 28-Mar. 01, 2011 Report No RTS-2605-1102-02A

FCC ID

L6ARDH70CW L6ARDP70UW

ER3DV6-- SN:2286

January 14, 2011

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

f=600 MHz,TEM,0° f=2500 MHz,R22,0°

135

45

136

137

138

225

316

225

316

270

Tot

X

Y

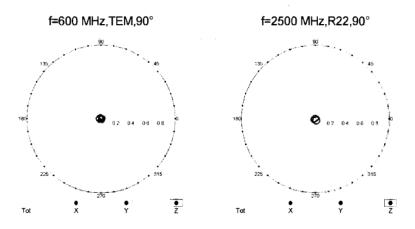
Z

Tot

X

Y

Receiving Pattern (ϕ), $\vartheta = 90^{\circ}$



Certificate No: ER-2286_Jan11

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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011 Feb. 28-Mar. 01, 2011 Report No RTS-2605-1102-02A

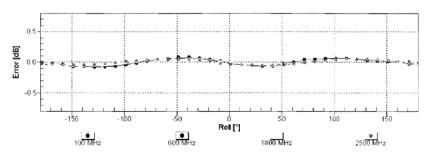
FCC ID

L6ARDH70CW L6ARDP70UW

ER3DV6- \$N:2286

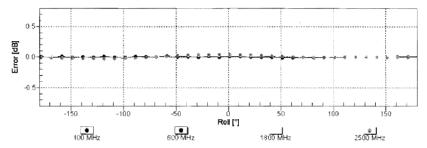
January 14, 2011

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



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

Receiving Pattern (ϕ), $\vartheta = 90^{\circ}$



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



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Author Data

Daoud Attayi

Dates of Test

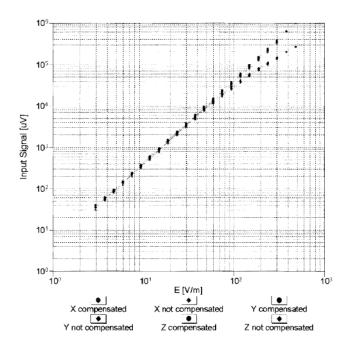
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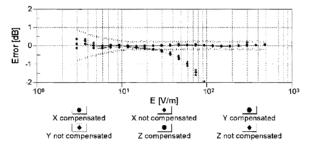
FCC ID

L6ARDH70CW L6ARDP70UW

ER3DV6-- SN:2286 January 14, 2011

Dynamic Range f(E-field) (TEM cell , f = 900 MHz)





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

Certificate No: ER-2286_Jan11

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Author Data

Daoud Attayi

Dates of Test

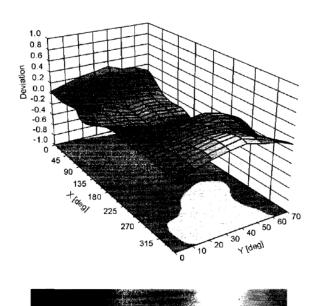
Jan. 12-19, 2011 Feb. 28-Mar. 01, 2011 Report No RTS-2605-1102-02A FCC ID

L6ARDH70CW L6ARDP70UW

ER3DV6- SN:2286

January 14, 2011

Deviation from Isotropy in Air Error (¢, 3), f = 900 MHz



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

0.2

-0.8 -0.6

-0.4

-0.2

Certificate No: ER-2286_Jan11

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Author Data **Daoud Attayi** Dates of Test

Jan. 12-19, 2011 Feb. 28-Mar. 01, 2011 Report No RTS-2605-1102-02A FCC ID L6ARDH70CW

L6ARDP70UW

Calibration Laboratory of Schmid & Partner







Schweizerischer Kalibrierdienst S Service suisse d'étalonnage С Servizio svizzero di taratura 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

RTS (RIM Testing Services)

Certificate No: H3-6168_Mar10

Accreditation No.: SCS 108

CALIBRATION CERTIFICATE H3DV6 - SN:6168 Object QA CAL-03.v5 and QA CAL-25.v2 Calibration procedure(s) Calibration procedure for H-field probes optimized for close near field evaluations in air H received And the state of t March 42, 2010 Calibration date This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate. All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70% Calibration Equipment used (M&TE critical for calibration) Primary Standards Cal Date (Certificate No.) Scheduled Calibration Power meter E4419B GB41293874 1-Apr-09 (No. 217-01030) Apr-10 Power sensor E4412A MY41495277 1-Apr-09 (No. 217-01030) Apr-10 MY41498087 Power sensor E4412A 1-Apr-09 (No. 217-01030) Apr-10 Reference 3 dB Attenuator SN: S5054 (3c) 31-Mar-09 (No. 217-01026) Mar-10 Reference 20 dB Attenuator SN: S5086 (20b) 31-Mar-09 (No. 217-01028) Mar-10 SN: S5129 (30b) Reference 30 dB Attenuator 31-Mar-09 (No. 217-01027) Mar-10 Reference Probe H3DV6 SN: 6182 3-Oct-09 (No. H3-6182 Oct09) Oct-10 DAE4 SN: 789 23-Dec-09 (No. DAE4-789 Dec09) Dec-10 Secondary Standards ID# Check Date (in house) Scheduled Check US3642U01700 RF generator HP 8648C 4-Aug-99 (in house check Oct-09) In house check: Oct-11 Network Analyzer HP 8753E US37390585 18-Oct-01 (in house check Oct-09) in house check: Oct10 Name Claudio Leubler The state of the s Calibrated by: Laboratory Technician Katja Poković Technical Manager Approved by: Issued: March 15, 2010 This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: H3-6168 Mar10

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011

Feb. 28-Mar. 01, 2011

Report No

RTS-2605-1102-02A

FCC ID

L6ARDH70CW L6ARDP70UW

Calibration Laboratory of

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





- Schweizerischer Kalibrierdienst S
- Service suisse d'étalonnage
- С 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:

NORMx,y,z DCP

sensitivity in free space diode compression point

crest factor (1/duty_cycle) of the RF signal CF A, B, C modulation dependent linearization parameters

 $\boldsymbol{\phi}$ rotation around probe axis Polarization o

Polarization 9 9 rotation around an axis that is in the plane normal to probe axis (at measurement center),

i.e., $\vartheta = 0$ is normal to probe axis

information used in DASY system to align probe sensor X to the robot coordinate system Connector Angle

Calibration is Performed According to the Following Standards:

a) IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005.

Methods Applied and Interpretation of Parameters:

- *NORMx*, y, z: Assessed for E-field polarization ϑ = 0 for XY sensors and ϑ = 90 for Z sensor (f \leq 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide).
- X,Y,Z(f)_a0a1a2= X,Y,Z_a0a1a2* frequency_response (see Frequency Response Chart).
- DCPx,v,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.
- Spherical isotropy (3D deviation from isotropy): in a locally homogeneous field realized using an open waveguide setup.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the X_a0a1a2 (no uncertainty required).

Certificate No: H3-6168_Mar10 Page 2 of 10



Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Feb. 28-Mar. 01, 2011

Jan. 12-19, 2011

Report No RTS-2605-1102-02A

FCC ID

L6ARDH70CW L6ARDP70UW

H3DV6 SN:6168 March 12, 2010

Probe H3DV6

SN:6168

Manufactured: July 9, 2003 Last calibrated: March 3, 2009 Recalibrated: March 12, 2010

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

Certificate No: H3-6168_Mar10

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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Report No

RTS-2605-1102-02A

FCC ID

L6ARDH70CW

Feb. 28-Mar. 01, 2011

Jan. 12-19, 2011

L6ARDP70UW

H3DV6 SN:6168 March 12, 2010

DASY - Parameters of Probe: H3DV6 SN:6168

Basic Calibration Parameters

		Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (A/m / √(μV))	a0	2.76E-3	2.64E-3	3.14E-3	± 5.1%
Norm (A/m / √(μV))	a1	-1.81E-4	-8.57E-5	-2.18E-4	± 5.1%
Norm (A/m / √(μV))	a2	-2.18E-5	-3.81E-5	3.05E-5	± 5.1%
DCP (mV) ^A		81.4	94.7	83.2	

Modulation Calibration Parameters

UID	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	300	± 1.5 %
			Y	0.00	0.00	1.00	300	
			Z	0.00	0.00	1.00	300	

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%.

Certificate No: H3-6168_Mar10

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A 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.



Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011

Feb. 28-Mar. 01, 2011

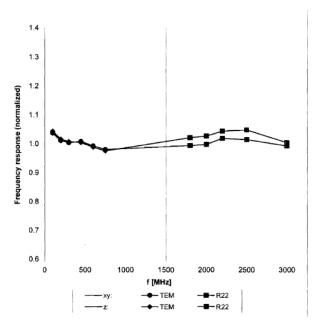
Report No RTS-2605-1102-02A

FCC ID L6ARDH70CW L6ARDP70UW

H3DV6 SN:6168 March 12, 2010

Frequency Response of H-Field

(TEM-Cell:ifi110 EXX, Waveguide R22)



Uncertainty of Frequency Response of H-field: \pm 6.3% (k=2)

Certificate No: H3-6168_Mar10

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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011

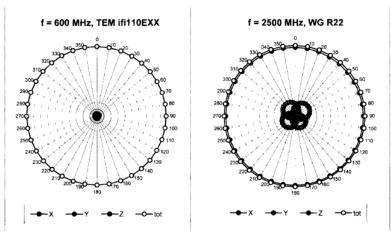
Feb. 28-Mar. 01, 2011

Report No RTS-2605-1102-02A

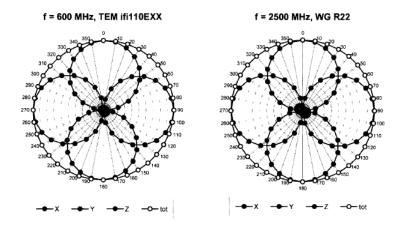
FCC ID L6ARDH70CW L6ARDP70UW

H3DV6 SN:6168 March 12, 2010

Receiving Pattern (ϕ), $\vartheta = 90^{\circ}$



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



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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011 Feb. 28-Mar. 01, 2011 Report No RTS-2605-1102-02A

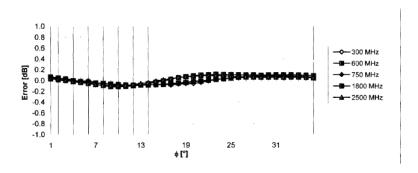
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L6ARDP70UW

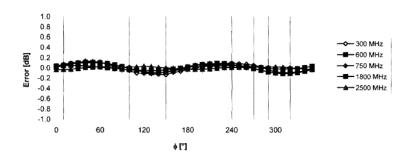
H3DV6 SN:6168 March 12, 2010

Receiving Pattern (ϕ), $\vartheta = 90^{\circ}$



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

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



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

Certificate No: H3-6168_Mar10

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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

Jan. 12-19, 2011

Feb. 28-Mar. 01, 2011

Report No RTS-2605-1102-02A

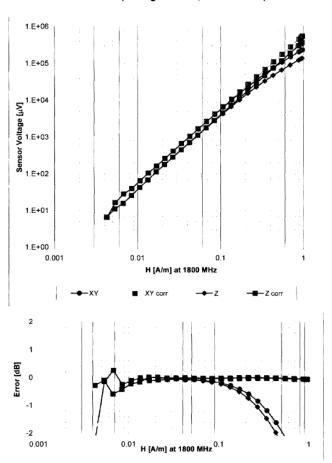
L6ARDH70CW L6ARDP70UW

FCC ID

H3DV6 SN:6168 March 12, 2010

Dynamic Range f(H-field)

(Waveguide R22, f = 1800 MHz)



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

Certificate No: H3-6168_Mar10

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Testing Services

Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

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Jan. 12-19, 2011

Feb. 28-Mar. 01, 2011

Report No RTS-2605-1102-02A

FCC ID

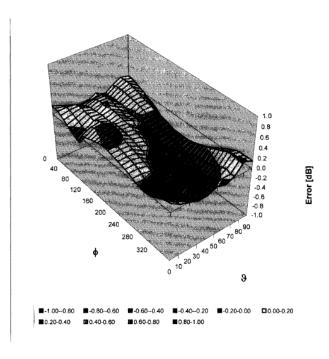
L6ARDH70CW

L6ARDP70UW

H3DV6 SN:6168

March 12, 2010

Deviation from Isotropy in Air Error (ϕ, ϑ) , f = 900 MHz



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

Certificate No: H3-6168_Mar10

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Testing Services™	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW			
Author Data	Dates of Test	Report No	FCC ID	
Daoud Attayi	Jan. 12-19, 2011 RTS-2605-1102-02A L6ARDH70CW L6ARDP70UW			



Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attayi

Dates of Test

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Report No RTS-2605-1102-02A

FCC ID

L6ARDH70CW L6ARDP70UW

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





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Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
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Multilateral Agreement for the recognition of calibration certificates

Client RO

Certificate No: H3-6105 Nov10

Accreditation No.: SCS 108

CALIBRATION CERTIFICATE

Object **H3DV6 - SN:6105**

Calibration procedure(s) QA CAL-03.v5, QA CAL-25.v2

Calibration procedure for H-field probes optimized for close near field

evaluations in air

Calibration date: November 18, 2010

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (St). The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility; environment temperature (22 ± 3)°C and humidity < 70%

Catibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	10-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41495277	10-Apr-10 (No. 217-01136)	Apr-11
Power sensor E4412A	MY41498087	10-Apr-10 (No. 217-01136)	Apr-11
Reference 3 dB Attenuator	SN: S5054 (3c)	30-Mar-10 (No. 217-01159)	Mar-11
Reference 20 d8 Allenuator	SN: \$5086 (20b)	3D-Mar-10 (No. 217-01161)	Mar-11
Reference 30 dB Altenuator	SN: S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe H30V6	SN: 6182	4-Oct-10 (No. H3-6182_Oct10)	Oct-11
DAE4	SN: 789	31-Aug-10 (No. DAE4-789_Aug10)	Aug-11
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check, Oct-11

Name Function Signature
Calibrated by: Jecin Kestrati Laboratory Technician

Approved by: Katja Pokovic Technical Manage

Issued: November 19, 2010

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.



Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

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Author Data

Daoud Attavi

Dates of Test

Jan. 12-19, 2011

Feb. 28-Mar. 01, 2011

Report No RTS-2605-1102-02A

FCC ID

L6ARDH70CW L6ARDP70UW

Calibration Laboratory of

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





S Schweizerischer Kalibrierdienst
C Service sulase d'étalonnage
S Servizio svizzero di taratura
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:

NORMx.y.z sensitivity in free space DCP diode compression point

CF crest factor (1/duty cycle) of the RF signal A, B, C modulation dependent linearization parameters

Polarization o o 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., 9 = 0 is normal to probe axis

Connector Angle information used in DASY system to align probe sensor X to the robot coordinate system

Calibration is Performed According to the Following Standards:

 IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005.

Methods Applied and Interpretation of Parameters:

- NORMx.y,z: Assessed for E-field polarization 9 = 0 for XY sensors and 9 = 90 for Z sensor (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide).
- X.Y.Z(f)_a0a1a2= X,Y.Z_a0a1a2* frequency_response (see Frequency Response Chart).
- 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.
- Spherical isotropy (3D deviation from isotropy): in a locally homogeneous field realized using an openwaveguide setup.
- Sensor Offset: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.
- Connector Angle: The angle is assessed using the information gained by determining the X_a0a1a2 (no uncertainty required).

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Daoud Attayi	Jan. 12-19, 2011	W			
	Feb. 28-Mar. 01, 2011	Feb. 28-Mar. 01, 2011 L6ARDP70UV			

H3DV6 - \$N:6105 November 18, 2010

Probe H3DV6

SN:6105

Manufactured: Calibrated:

January 5, 2002

November 18, 2010

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



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L6ARDH70CW L6ARDP70UW

Feb. 28-Mar. 01, 2011

Jan. 12-19, 2011

H3DV6- \$N:6105 November 18, 2010

DASY/EASY - Parameters of Probe: H3DV6 - SN:6105

Basic Calibration Parameters

		Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (A/m / √(mV))	a0	2.94E-003	2.71E-003	3.01E-003	± 5.1 %
Norm (A/m / $\sqrt{(mV)}$)	a1	2.83E-005	2.25E-005	-8.45E-005	± 5.1 %
Norm (A/m / $\sqrt{(mV)}$)	a2	-1.08E-005	2.19 E -006	6.61E-006	± 5.1 %
DCP (mV) ^B	-	90.4	91.6	92.6	

Modulation Calibration Parameters

ÜID	Communication System Name	PAR	Ţ.	A 8b	B dB	C dB	VR mV	Unc ^E (k=2)
10000	CW	0.00	Х	0.00	0.00	1.00	211.2	±2.96 %
			Υ	0.00	0.00	1.00	233.0	
			Z	0.00	0.00	1.00	239.4	

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%.

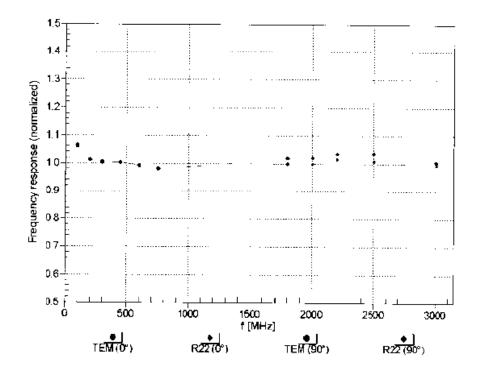
^e Numerical linearization parameter, uncertainty not required.

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

Testing Services	Report for the Black	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW		
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	Feb. 28-Mar. 01, 2011		L6ARDP70U	W

H3DV6- SN:6105 November 18, 2010

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



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

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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDH71CW/RDP71UW

rage

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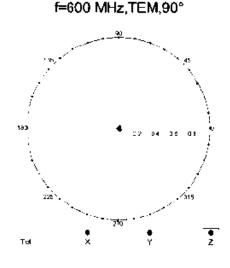
Receiving Pattern (4), 9 = 0°

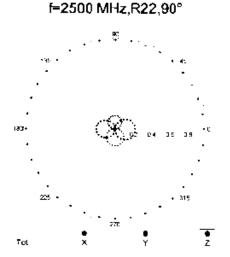
180 GZ C4 GC GE

f=2500 MHz,R22,0°

⊋in ♥ Z Tot X Y

Receiving Pattern (\$\phi\$), 9 = 90°



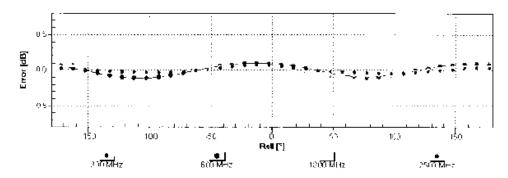


es

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	Feb. 28-Mar. 01, 2011		L6ARDP70U	\mathbf{W}

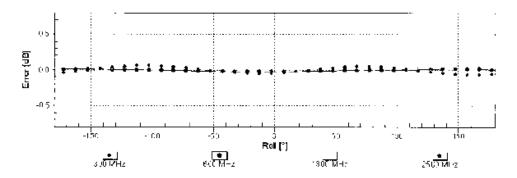
H3DV6_ SN:6105 November 18, 2010

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



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

Receiving Pattern (ϕ), ϑ = 90°



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

Testing Services	***
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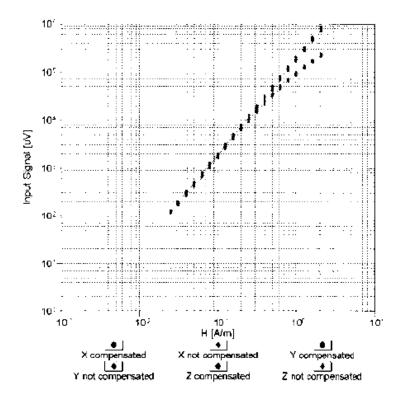
FCC ID

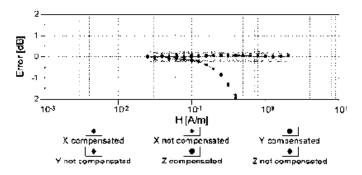
L6ARDH70CW

L6ARDP70UW

H3DV6- SN:6105 November 18, 2010

Dynamic Range f(H-field) (TEM cell, f = 900 MHz)





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



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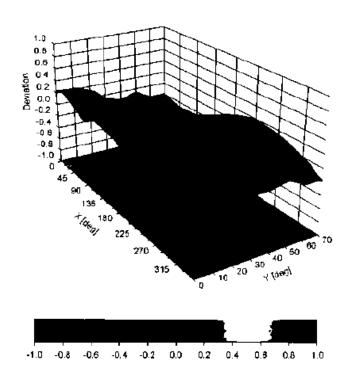
Dates of Test

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L6ARDH70CW
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Deviation from Isotropy in Air Error (¢, 8), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.5% (k=2)

Certificate No: H3-6105_Nov1Q

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H3DV6- SN:6105 November 18, 2010

DASY/EASY - Parameters of Probe: H3DV6 - SN:6105

Other Probe Parameters

Sensor Arrangement	Rectangular
Connector Angle (*)	-62.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	20 mm
Tip Diameter	6 mm
Probe Tip to Sensor X Calibration Point	3 mm
Probe Tip to Sensor Y Calibration Point	3 mm
Probe Tip to Sensor Z Calibration Point	3 mm