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## Annex B: Probe and dipole description and calibration certificates

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

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DASY Dosimetric Assessment System by Schmid & Partner Engineering AG



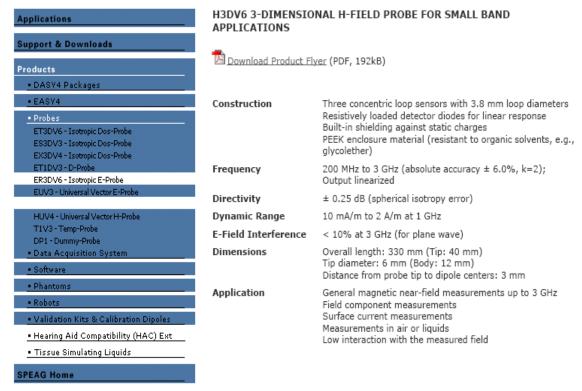
#### ER3DV6 ISOTROPIC E-FIELD PROBE FOR GENERAL NEAR-FIELD Applications MEASUREMENTS Support & Downloads Download Product Flyer (PDF, 192kB) Products DASY4 Packages • EASY4 Construction One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges PEEK enclosure material (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-Prol Frequency 100 MHz to > 6 GHz; Linearity: ± 0.2 dB (100 MHz to 3 GHz) EUV3 - Universal Vector E-Probe H3DV6 - Isotropic H-Probe HUV4 - Universal Vector H-Probe Directivity ± 0.2 dB in air (rotation around probe axis) T1V3 - Temp-Probe ± 0.4 dB in air (rotation normal to probe axis) DP1 - Dummy-Probe Data Acquisition System Dynamic Range 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





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

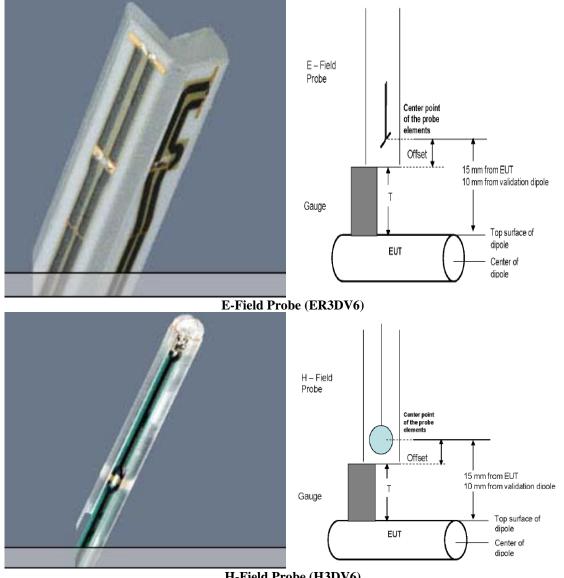
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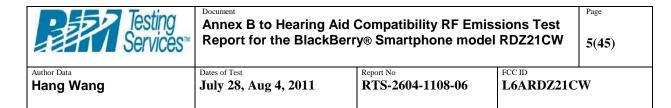
All measurements were performed to the nearest element point as per the C63.19 standard. Offset distances were entered in the DASY4 software so that the measurement was to the nearest element.

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.





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:

$$E-\text{ fieldprobes}: \qquad E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$
 
$$H-\text{ fieldprobes}: \qquad H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1}f + a_{i2}f^2}{f}$$
 
$$V_i \qquad = \text{compensated signal of channel i} \qquad \qquad (i = x, y)$$

with  $V_i$  = compensated signal of channel i (i = x, y, z)  $Norm_i$  = sensor sensitivity of channel i (i = x, y, z)  $\mu V/(V/m)^2$  for E-field Probes 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  $500\,\mathrm{ms}$  and a probe response time of  $<5\,\mathrm{ms}$ . In the current implementation, DASY4 waits longer than  $100\,\mathrm{ms}$  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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### **Calibration Laboratory of**

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





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Service sulsse 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

MEDITALION	CERTIFICAT		
bject	ER3DV6 - SN:2	285	
Calibration 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 unc	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.
Sanbranon Equipment acca (m	are ordinarior outbration,		
Primary 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			Scheduled Calibration Apr-10 Apr-10
ower meter E4419B ower sensor E4412A	GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
ower meter E4419B ower sensor E4412A ower sensor E4412A	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	GB41293874 MY41495277 MY41498087	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030)	Apr-10 Apr-10 Apr-10
ower meter E4419B ower sensor E4412A ower sensor E4412A leference 3 dB Attenuator leference 20 dB Attenuator	GB41293874 MY41495277 MY41498087 SN: S5054 (3c)	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030) 31-Mar-09 (No. 217-01026)	Apr-10 Apr-10 Apr-10 Mar-10
Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 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
Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference 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 eference 3 dB Attenuator leference 20 dB Attenuator leference 30 dB Attenuator leference Probe ER3DV6 AE4	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 Mar-10 Oct-10
ower meter E4419B ower sensor E4412A ower sensor E4412A over sensor E4412A teference 3 dB Attenuator teference 30 dB Attenuator teference Probe ER3DV6 AE4	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: S2328 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 Oct-10 Dec-10
ower meter E4419B ower sensor E4412A ower sensor E4412A deference 3 dB Attenuator teference 20 dB Attenuator teference 30 dB Attenuator teference Probe ER3DV6 oAE4 tecondary 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. ER3-2328_Oct09) 23-Dec-09 (No. DAE4-789_Dec09) Check Date (in house)	Apr-10 Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Cct-10 Dec-10 Scheduled Check
Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ER3DV6 PAE4 Reference Probe ER3DV6 Reference Probe	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) 4-Aug-99 (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
Power meter E4419B Power sensor E4412A Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference Probe ER3DV6 PAE4 Reference Probe ER3DV6 Reference Probe ER3DV6 Reference Probe	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. 217-01028) 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
Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference Probe ER3DV6 DAE4 Secondary Standards RF generator HP 8648C Network Analyzer HP 8753E Calibrated by:	GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 2328 SN: 789  ID # US3642U01700 US37390585  Name Jelon Kastrati	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





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Swiss Calibration Service

Accreditation No.: SCS 108

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Glossary:

NORMx,y,z DCP

CF A, B, C sensitivity in free space

diode compression point

crest factor (1/duty\_cycle) of the RF signal modulation dependent linearization parameters

φ 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., 9 = 0 is normal to probe axis

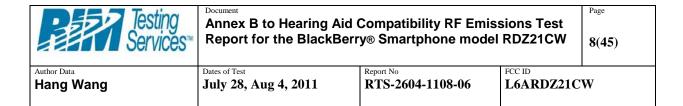
information used in DASY system to align probe sensor X to the robot coordinate system Connector Angle

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  $\vartheta$  = 0 for XY sensors and  $\vartheta$  = 90 for Z sensor (f  $\leq$  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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# Probe ER3DV6

SN:2285

Manufactured: September 20, 2002 Last calibrated: March 2, 2009

(Note: non-compatible with DASY2 system!)

Recalibrated: March 8, 2010

Calibrated for DASY Systems

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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) <sup>A</sup>	92.1	94.2	96.0	

#### **Modulation Calibration Parameters**

uid	Communication System Name	PAR		A dB	B dBuV	С	VR mV	Unc <sup>E</sup> (k=2)
10000	cw	0.00	X	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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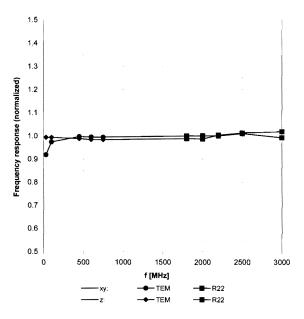
<sup>&</sup>lt;sup>A</sup> numerical linearization parameter: uncertainty not required

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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### Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide R22)



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

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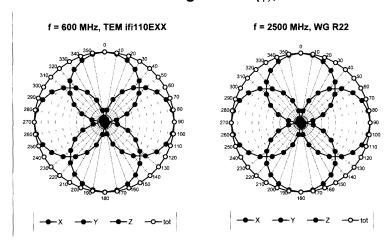
RTS-2604-1108-06

FCC ID

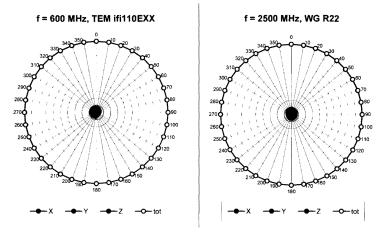
L6ARDZ21CW

ER3DV6 SN:2285 March 8, 2010

## Receiving Pattern ( $\phi$ ), $\vartheta$ = 0°



## Receiving Pattern ( $\phi$ ), $\theta$ = 90°

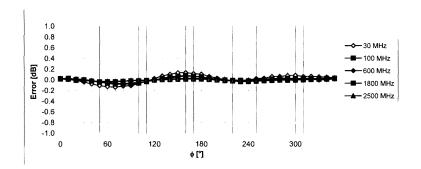


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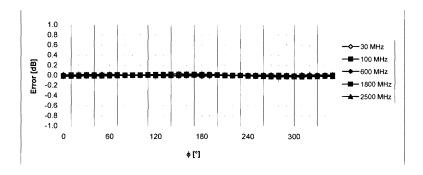
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## Receiving Pattern ( $\phi$ ), $\vartheta = 0^{\circ}$



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

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



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

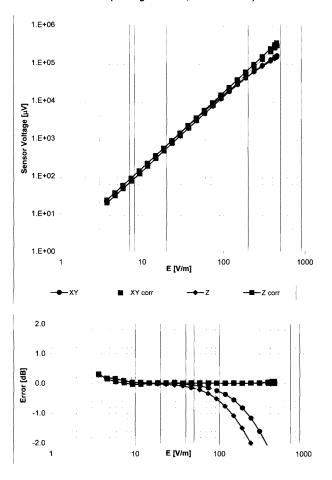
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## Dynamic Range f(E-field)

(Waveguide R22, f = 1800 MHz)



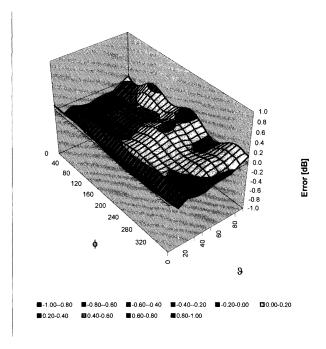
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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# Deviation from Isotropy in Air Error $(\phi, \vartheta)$ , f = 900 MHz



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

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





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Multilateral Agreement for the recognition of calibration certificates

Client RTS (RIM Testing Services)

Certificate No. H3-6168 Mar10

Accreditation No.: SCS 108

	CERTIFICAT	San Salamina A. San	State of the state
Object	H3DV6 - SN:61	<b>68</b> . A reconstruction of the contract of the	SPERMENTED TO STORY
Calibration procedure(s)	Calibration proc	and QA CAL-25.v2 edure for H-field probes optimized ir	t day bigger brown fixing
Calibration date:	March 12, 2010	The second secon	British Andrews
The measurements and the unc	certainties with confidence	tional standards, which realize the physical uniprobability are given on the following pages an only facility: environment temperature $(22 \pm 3)^{\circ}$ C	d are part of the certificate.
Suibration Equipment used (we	are ormour for combination,		
Primary Standards	ID#	Cal Date (Certificate No.)	Scheduled Calibration
Primary Standards		Cal Date (Certificate No.) 1-Apr-09 (No. 217-01030)	Scheduled Calibration Apr-10
rimary Standards ower meter E4419B	ID#		
rimary Standards ower meter E4419B ower sensor E4412A	ID# GB41293874	1-Apr-09 (No. 217-01030)	Apr-10
rimary Standards ower meter E4419B ower sensor E4412A ower sensor E4412A	ID # GB41293874 MY41495277	1-Apr-09 (No. 217-01030) 1-Apr-09 (No. 217-01030)	Apr-10 Apr-10
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Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator Reference 30 dB Attenuator	ID#  GB41293874 MY41495277 MY41498087 SN: S5054 (3c) SN: S5086 (20b) SN: S5129 (30b) SN: 6182	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. H3-6182_Oct09)	Apr-10 Apr-10 Apr-10 Mar-10 Mar-10 Mar-10 Oct-10
Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 20 dB Attenuator Reference 30 dB Attenuator	ID # 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
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Primary Standards Power meter E4419B Power sensor E4412A Power sensor E4412A Reference 3 dB Attenuator Reference 30 dB Attenuator Reference Probe H3DV6 PAE4 Secondary Standards RF generator HP 8648C Retwork Analyzer HP 8753E	ID# GB41293874 MY41495277 MY41498087 SN: S5054 (3e) SN: S5086 (20b) SN: S5129 (30b) SN: 6182 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. 13-6182_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 Oct-10 Dec-10 Scheduled Check In house check: Oct-11 In house check: Oct-11
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**Hang Wang** 

Dates of Test

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RTS-2604-1108-06

FCC ID L6ARDZ21CW

### Calibration Laboratory of

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





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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 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

 $\phi$  rotation around probe axis Polarization φ

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:

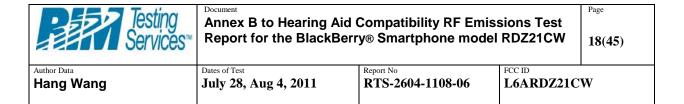
a) IEEE Std 1309-2005, "IEEE Standard for calibration of electromagnetic field sensors and probes, excluding antennas, from 9 kHz to 40 GHz", December 2005.

#### Methods Applied and Interpretation of Parameters:

- NORMx, y, z: Assessed for E-field polarization  $\vartheta$  = 0 for XY sensors and  $\vartheta$  = 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,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 X\_a0a1a2 (no uncertainty required).

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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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FCC ID L6ARDZ21CW

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) <sup>A</sup>		81.4	94.7	83.2	

### **Modulation Calibration Parameters**

UID	Communication System Name	PAR		A dB	B dBuV	С	VR mV	Unc <sup>E</sup> (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

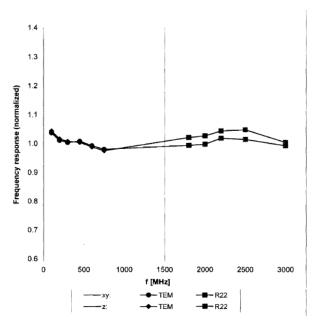
E Uncertainty is determined using the maximum deviation from linear response applying recatangular distribution and is expressed for the square of the field value.

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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)

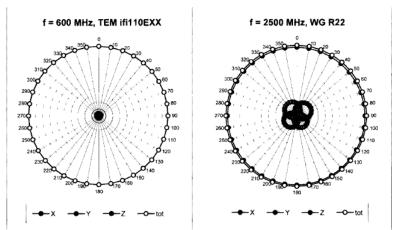
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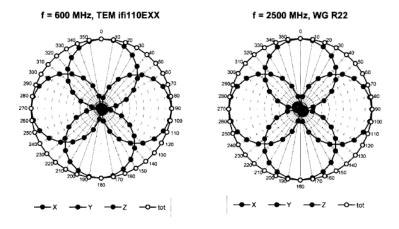
Testing Services™	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW			Page 21(45)
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Hang Wang	July 28, Aug 4, 2011	RTS-2604-1108-06	L6ARDZ21C	W

H3DV6 SN:6168 March 12, 2010

## Receiving Pattern ( $\phi$ ), $\vartheta$ = 90°



Receiving Pattern ( $\phi$ ),  $\vartheta$  = 0°



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	Testing Services™
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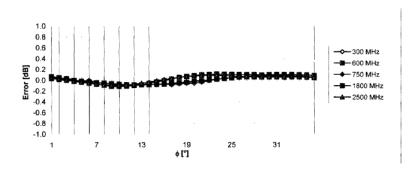
FCC ID

L6ARDZ21CW

H3DV6 SN:6168

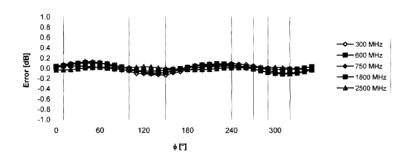
March 12, 2010

### Receiving Pattern ( $\phi$ ), $\vartheta$ = 90°



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

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



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

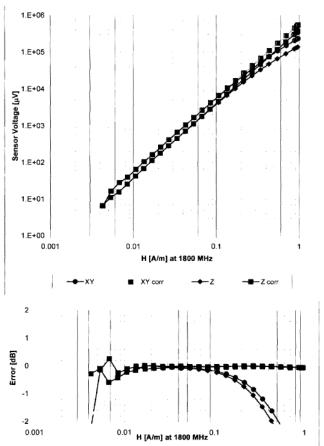
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H3DV6 SN:6168 March 12, 2010

## Dynamic Range f(H-field) (Waveguide R22, f = 1800 MHz)



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

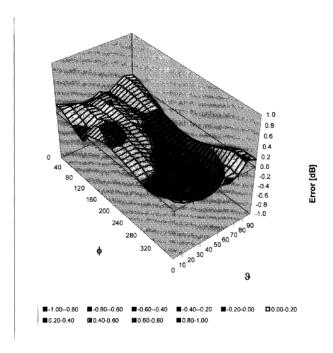
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H3DV6 SN:6168 March 12, 2010

### Deviation from Isotropy in Air Error $(\phi, \vartheta)$ , f = 900 MHz



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

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H3DV6 SN:6168 March 12, 2010

### **Other Probe Parameters**

Sensor Arrangement	Rectangular
Connector Angle (°)	-232.8
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	6.0 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



## Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW

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FCC ID L6ARDZ21CW

### Calibration Laboratory of

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





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C Service suisse d'étalonnage
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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	U\$37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

Calibrated by:

Name Function Signature
Laboratory Technicien

Approved by:

Katja Pokovic Technical Manager

Issued: January 15, 2011

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

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### Calibration Laboratory of

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





S Schweizerischer Kalibrierdienst
C Service suisse 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 φ σ 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:

 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).

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Testing Services <sup>™</sup>	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW			Page 28(45)
Author Data Hang Wang	July 28, Aug 4, 2011	Report No RTS-2604-1108-06	FCC ID  L6ARDZ210	<b>CW</b>

ER3DV6 - SN:2286 January 14, 2011

# Probe ER3DV6

SN:2286

Manufactured: September 18, 2002 Calibrated: January 14, 2011

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)

Certificate No: ER-2286\_Jan11

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### Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW

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L6ARDZ21CW

ER3DV6- SN:2286

January 14, 2011

FCC ID

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

### **Basic Calibration Parameters**

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (µV/(V/m) <sup>2</sup> )	2.23	1.48	1.51	± 10.1 %
DCP (mV) <sup>8</sup>	97.6	98.4	97.6	

### Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc <sup>E</sup> (k=2)
10000	CW	0.00	Х	0.00	0.00	1.00	179.3	±3.0 %
			Υ	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%.

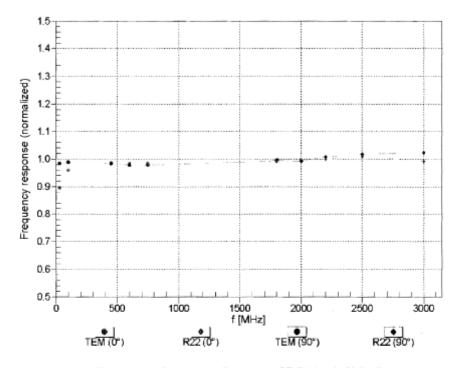
Numerical linearization parameter: uncertainty not required.
Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

lesting Services™	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW			Page 30(45)
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ER3DV6-SN:2286

January 14, 2011

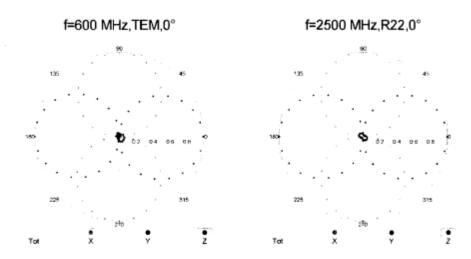
# Frequency Response of E-Field (TEM-Cell:ifi110 EXX, Waveguide: R22)



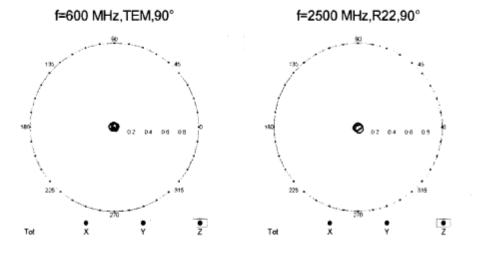
Testing Services™	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW			Page 31(45)
Author Data	Dates of Test	Report No	FCC ID	
Hang Wang	July 28, Aug 4, 2011	RTS-2604-1108-06	L6ARDZ21C	CW

ER3DV6- SN:2286 January 14, 2011

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



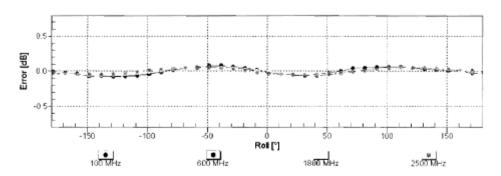
## Receiving Pattern ( $\phi$ ), $\vartheta = 90^{\circ}$



Testing Services™	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW			Page 32(45)
Author Data	Dates of Test	Report No	FCC ID	
Hang Wang	July 28, Aug 4, 2011	RTS-2604-1108-06	L6ARDZ21C	<b>W</b>

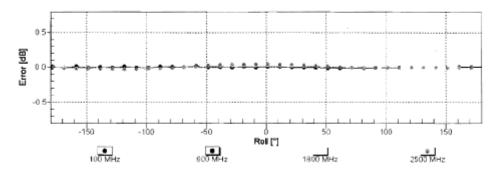
ER3DV6- SN:2286 January 14, 2011

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



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

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

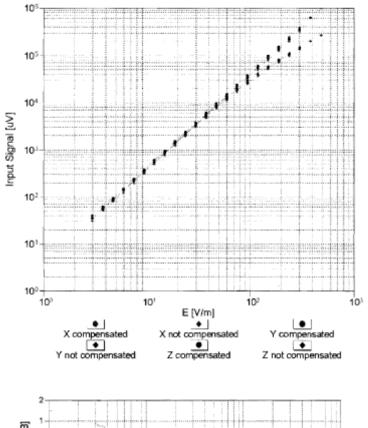


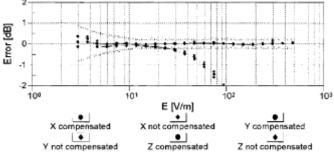
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Testing Services™	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW			Page 33(45)
Author Data	Dates of Test	Report No	FCC ID	
Hang Wang	July 28, Aug 4, 2011	RTS-2604-1108-06	L6ARDZ21C	CW

ER3DV6- SN:2286 January 14, 2011

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



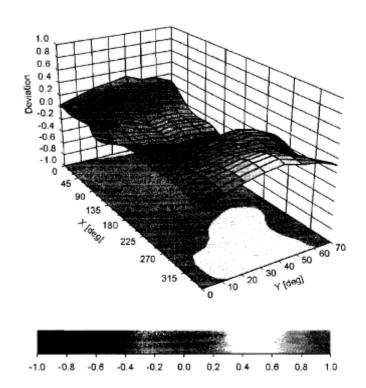


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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Author Data Hang Wang	July 28, Aug 4, 2011	Report No RTS-2604-1108-06	FCC ID L6ARDZ21C	W

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



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

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Author Data	Dates of Test	Report No	FCC ID	
Hang Wang	July 28, Aug 4, 2011 RTS-2604-1108-06 L6ARDZ21CW			<b>CW</b>

ER3DV6- SN:2286

January 14, 2011

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

### Other Probe Parameters

Sensor Arrangement	Rectangular
Connector Angle (°)	171.4
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 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

Certificate No: ER-2286\_Jan11



## Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW

Report No

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Author Data
Hang Wang

Dates of Test

July 28, Aug 4, 2011

RTS-2604-1108-06

FCC ID L6ARDZ21CW

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





Schweizerischer Kanbrerdienst Bervice suiste d'étakonnage Servizio svizzero di (anatura Swise Calibration Service

Accredited by the Swiss Accreditation Service (SAS)

The Swiss Accreditation Service is one of the algustories to the EA Multileteral Agreement for the recognition of calibration cartificates

Client **Rit** 

Continues 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 relative 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 68 ibitations have been conducted in the closed laboratory facility; environment temperature (22 ± 3)\*C and humidity < 70%.

Cathtration Equipment used [M&TE critical for patibration]

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E44198	GB41293674	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: 85054 (3c)	30-Mar-10 (No. 217-91159)	Mar-11
Reference 20 d9 Altenuator	3N: 95086 (20b)	30-Mar-10 (No. 217-91161)	Mar-11
Reference 30 dB Altenuetor	Sht S5129 (30b)	30-Mar-10 (No. 217-01160)	Mar-11
Reference Probe H3DV6	3N: 5182	4-Oct-10 [No. H3-6182_Oct10)	Dot-11
DAE4	SN 769	31-Aug-10 (No. DAE4-789_Aug10)	Aug-11
Secondary Standards	ID	Check Date (in house)	5chedulad Check
RF generator MP 86480	U\$3642U01700	4-Aug-99 ön house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Dct-01 (in house theck Cct-10)	In house check, Oct-11

Calibrated by: Name Function Signature
Laboratory Technician
Approved by: Karje Pokovic Technical Manager

Issued: November 19, 2010

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

Certificate No: H3-6105\_Nov10

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## Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW

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Author Data
Hang Wang

Dates of Test

July 28, Aug 4, 2011

RTS-2604-1108-06

L6ARDZ21CW

FCC ID

Calibration Laboratory of Schmid & Partner Engineering AG Zeughausakrasse 43, 8084 Zurich, Switzesland





S Sohwoizerischer Kalibrierdienst
C Service suls se d'étalonnage
Servizio svizzero di taratura
Swisa Calibration Service

Ascreditation No.: SCS 108

Accredited by the 5-visa Assieditation 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.2 sensitivity in free space DCP diede compression point

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

Polarization o protestion 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.

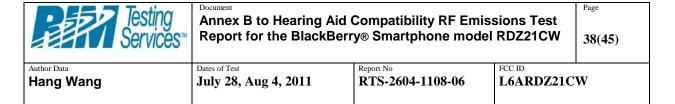
#### Calibration is Performed According to the Following Standards:

 i) 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)\_ada1a2= 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; 8x,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 th
  maximum call bration 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: H3-5105\_Nov10 Page 2 of 10



H3DV6 = \$N:6105 November 16, 2010

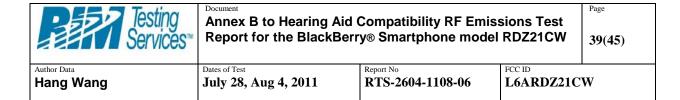
# Probe H3DV6

SN:6105

Manufactured: January 5, 2002 Calibrated: November 18, 2010

Calibrated for DASY/EASY Systems

(Note: non-compatible with DASY2 system!)



H3DV6- \$N:6105 November 18, 2010

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

### **Basic Calibration Parameters**

		Sensor X	Sensor Y	Sensor Z	Une (k=2)
Norm (A/m / √(mV))	ad	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 / √(mV))	a2	-1.08E-005	2.19E-006	6.6 <b>1</b> E-006	± 5.1 %
DCP (mV) <sup>B</sup>		90.4	91.6	92.6	

#### Modulation Calibration Parameters

	ion during and in a contraction							
ÜID	Communication System Name	PAR	ļ	A	В	С	VR	Unc
l		L.		48	dB.	dB diB	mV	(k=2)
10000	ÇW	0.00	X	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	

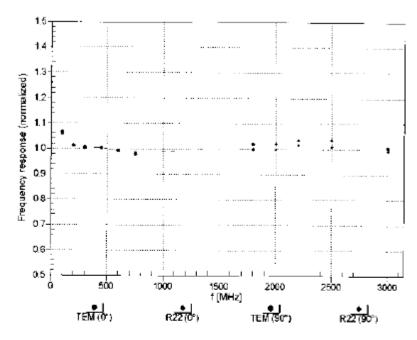
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Numerical Incartzation parameter: uncertainty not required
 Uncertainty is determined using the max, deviation from importrosponds applying rectangular distribution and is expressed for the square of the

Testing Services™	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW			Page 40(45)
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H3DV6-SN:6105 November 18, 2010

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



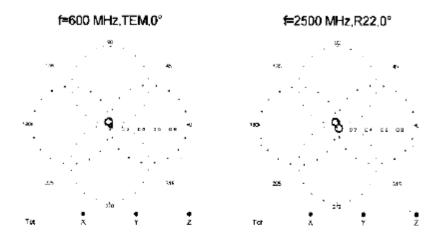
Uncertainty of Frequency Response of H-field: ± 6.3% (k=2)

<del>_</del>	
Certificate No: H3-6105 Nov10	Page 5 of 10

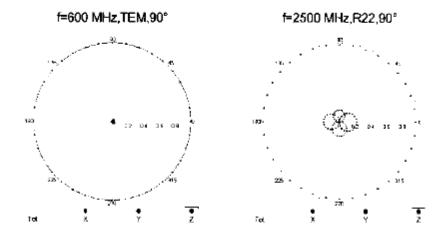
Testing Services™	Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW			Page 41(45)
Author Data	Dates of Test	Report No	FCC ID	
Hang Wang	July 28, Aug 4, 2011	RTS-2604-1108-06	L6ARDZ21C	W

H3DV6— SN:6105 November 18, 2010

## Receiving Pattern (φ), 9 = 0°



## Receiving Pattern (\$\phi\$), 3 = 90°

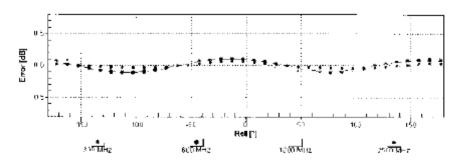


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Hang Wang	July 28, Aug 4, 2011	RTS-2604-1108-06	L6ARDZ21C	W

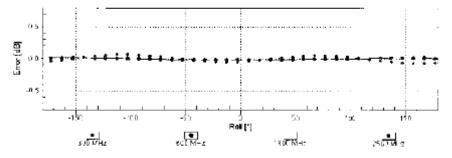
H3DV8= SN 6105 November 18, 2010

## Receiving Pattern (6), 9 = 0°



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

## Receiving Pattern (6), 9 = 90°

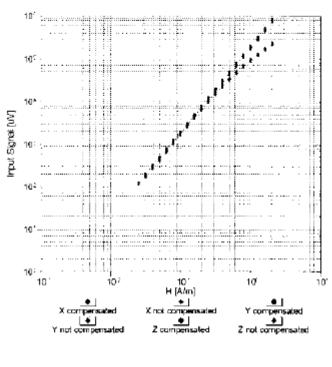


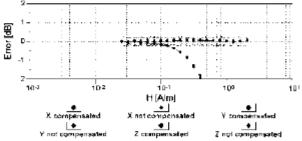
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Testing Services™	Annex B to Hearing Aid Report for the BlackBer			Page 43(45)
Author Data	Dates of Test	Report No	FCC ID	
Hang Wang	July 28, Aug 4, 2011	RTS-2604-1108-06	L6ARDZ21C	W

H3DV6- SN 6105 November 18, 2010

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





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

Certificate No. H3-6105\_Nov10

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Annex B to Hearing Aid Compatibility RF Emissions Test Report for the BlackBerry® Smartphone model RDZ21CW

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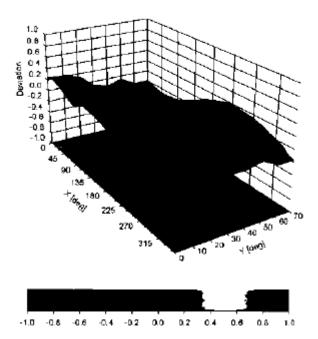
Author Data **Hang Wang** 

July 28, Aug 4, 2011

Report No RTS-2604-1108-06 FCC ID L6ARDZ21CW

H3DV6- SN:6105 November 18, 2010

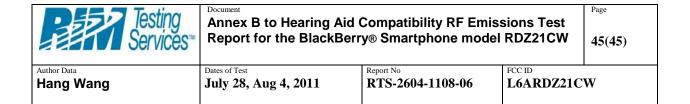
### Deviation from Isotropy in Air Error (¢, 3), f = 900 MHz



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

Certificate No: H3-6185\_Nov10

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H3DV6— SN:6105 Navember 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	mm OF
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

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