

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 1(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

APPENDIX A: SAR DISTRIBUTION COMPARISON FOR ACCURACY VERIFICATION

Revision History		
Rev. Number	Date	Changes
Initial	Aug 15, 2013	-----
Rev 2	Dec 15, 2014	Added Dipole plots used for 802.11a Hotspot mode testing 1. Page 32-34

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 2(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 7/13/2013 12:26:59 AM

Test Laboratory: RIM Testing Services

**DipoleValidation_835MHz_07_13_13_Amb_Tem_24.1C_Liq_Tem_23.0
C**

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

Communication System: UID 0 - n/a, CW; Frequency: 835 MHz
Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.898 \text{ S/m}$; $\epsilon_r = 41.565$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section
Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

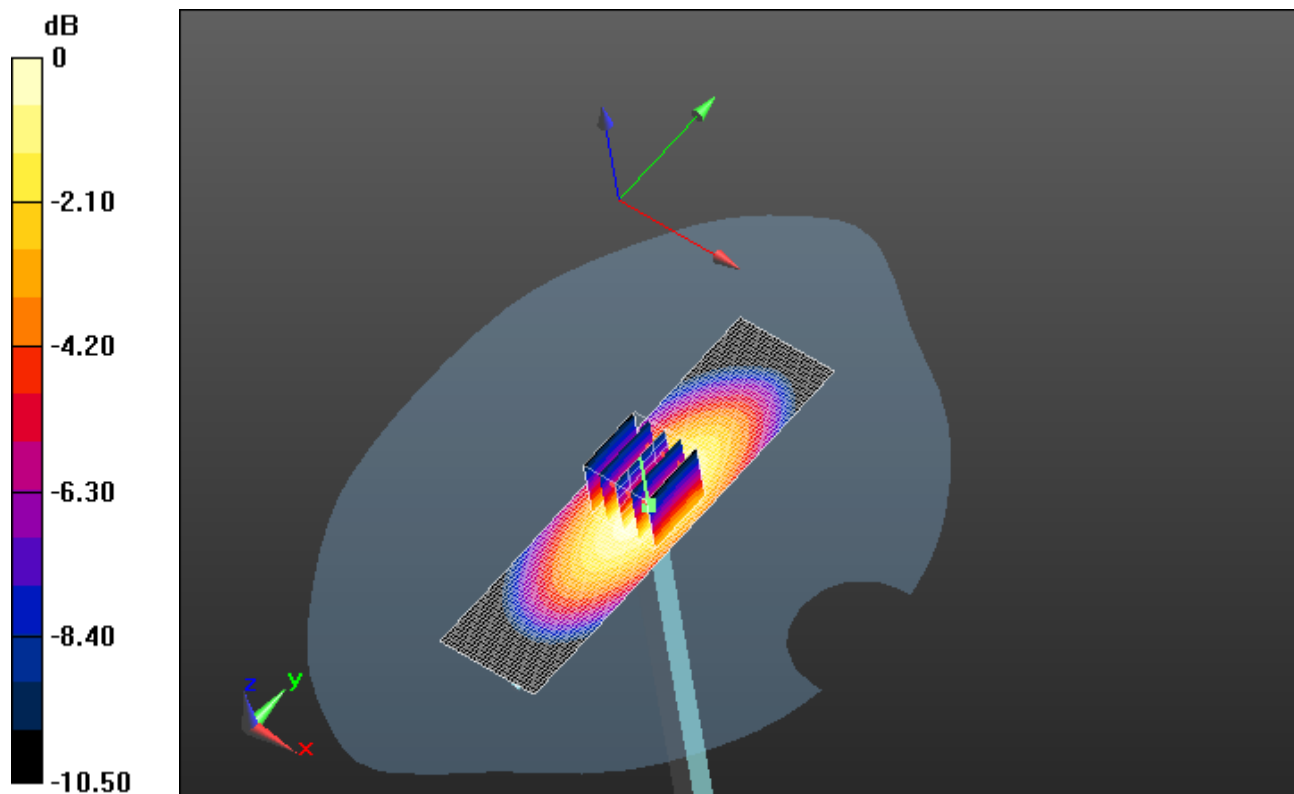
DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(6.19, 6.19, 6.19); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS 52.8.6(1115); SEMCAD X 14.6.9(7117)

Configuration/d=15mm, Pin=1000mW/Area Scan (31x121x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Reference Value = 112.0 V/m ; Power Drift = -0.02 dB
Fast SAR: SAR(1 g) = 9.09 W/kg; SAR(10 g) = 6.03 W/kg
Maximum value of SAR (interpolated) = 10.5 W/kg

Configuration/d=15mm, Pin=1000mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$
Reference Value = 112.0 V/m ; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 13.4 W/kg
SAR(1 g) = 9.06 W/kg; SAR(10 g) = 5.94 W/kg
Maximum value of SAR (measured) = 10.6 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 3(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 10.6 W/kg = 10.25 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 4(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 7/16/2013 1:18:07 AM

Test Laboratory: RIM Testing Services

**DipoleValidation_835MHz_07_16_13_Amb_Tem_23.9C_Liq_Tem_23.1
C**

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

Communication System: UID 0 - n/a, CW; Frequency: 835 MHz
Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.881 \text{ S/m}$; $\epsilon_r = 40.559$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section
Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

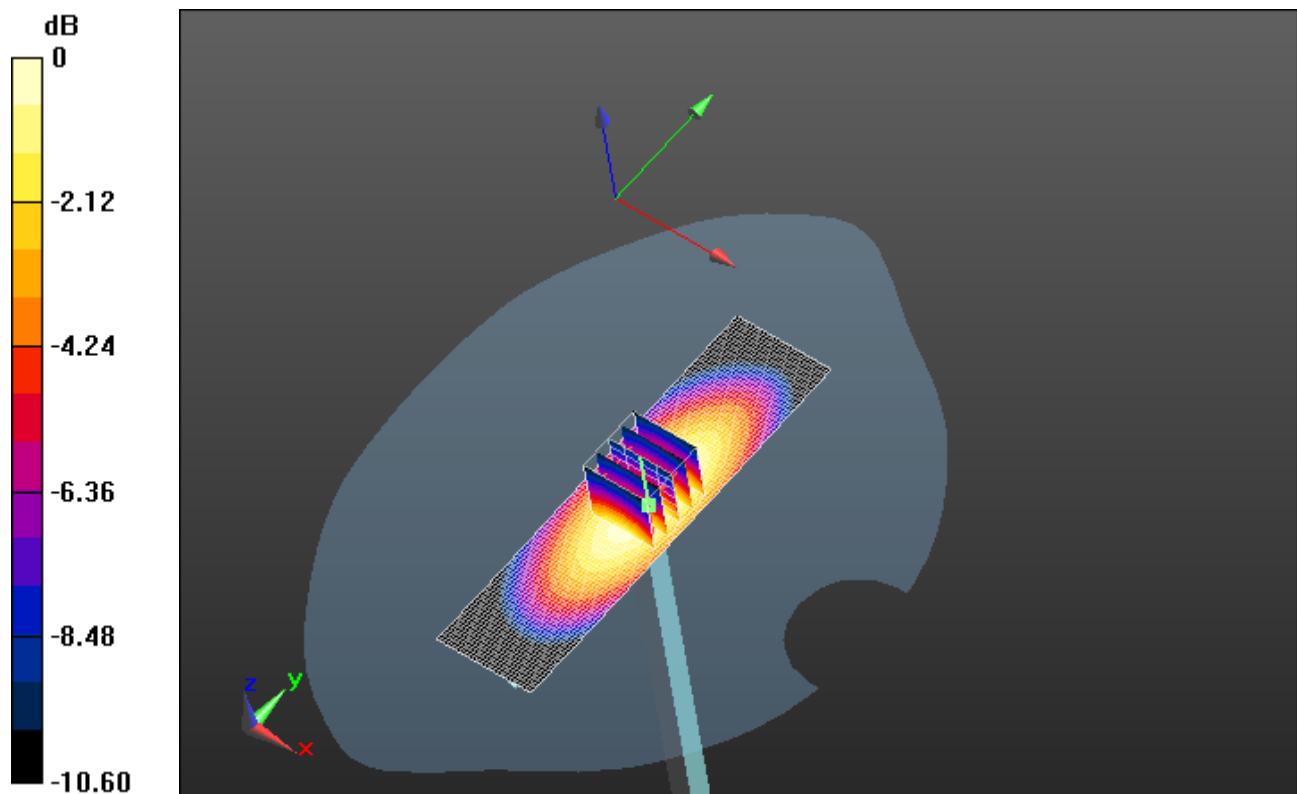
DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(6.19, 6.19, 6.19); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS 52.8.6(1115); SEMCAD X 14.6.9(7117)

Configuration/d=15mm, Pin=1000mW/Area Scan (31x121x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$
Reference Value = 113.2 V/m; Power Drift = -0.20 dB
Fast SAR: SAR(1 g) = 9.08 W/kg; SAR(10 g) = 6.03 W/kg
Maximum value of SAR (interpolated) = 10.5 W/kg

Configuration/d=15mm, Pin=1000mW/Zoom Scan (5x5x7) (5x5x7)/Cube 0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$
Reference Value = 113.2 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 13.0 W/kg
SAR(1 g) = 8.8 W/kg; SAR(10 g) = 5.76 W/kg
Maximum value of SAR (measured) = 10.3 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 5(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 10.3 W/kg = 10.13 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 6(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 7/2/2013 12:46:05 AM

Test Laboratory: RIM Testing Services

DipoleValidation_1900MHz_07_02_13_Amb_Tem_23.2C_Liq_Tem_21.6C

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

Communication System: UID 0 - n/a, CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.387 \text{ S/m}$; $\epsilon_r = 38.399$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(5.35, 5.35, 5.35); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS2 52.8.6(1115); SEMCAD X 14.6.9(7117)

Configuration/d=10mm, Pin=1000mW/Area Scan (31x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Reference Value = 190.8 V/m ; Power Drift = 0.03 dB

Fast SAR: SAR(1 g) = 37.6 W/kg ; SAR(10 g) = 19.8 W/kg

Maximum value of SAR (interpolated) = 47.1 W/kg

Configuration/d=10mm, Pin=1000mW/Zoom Scan (5x5x7) (5x5x7)/Cube

0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

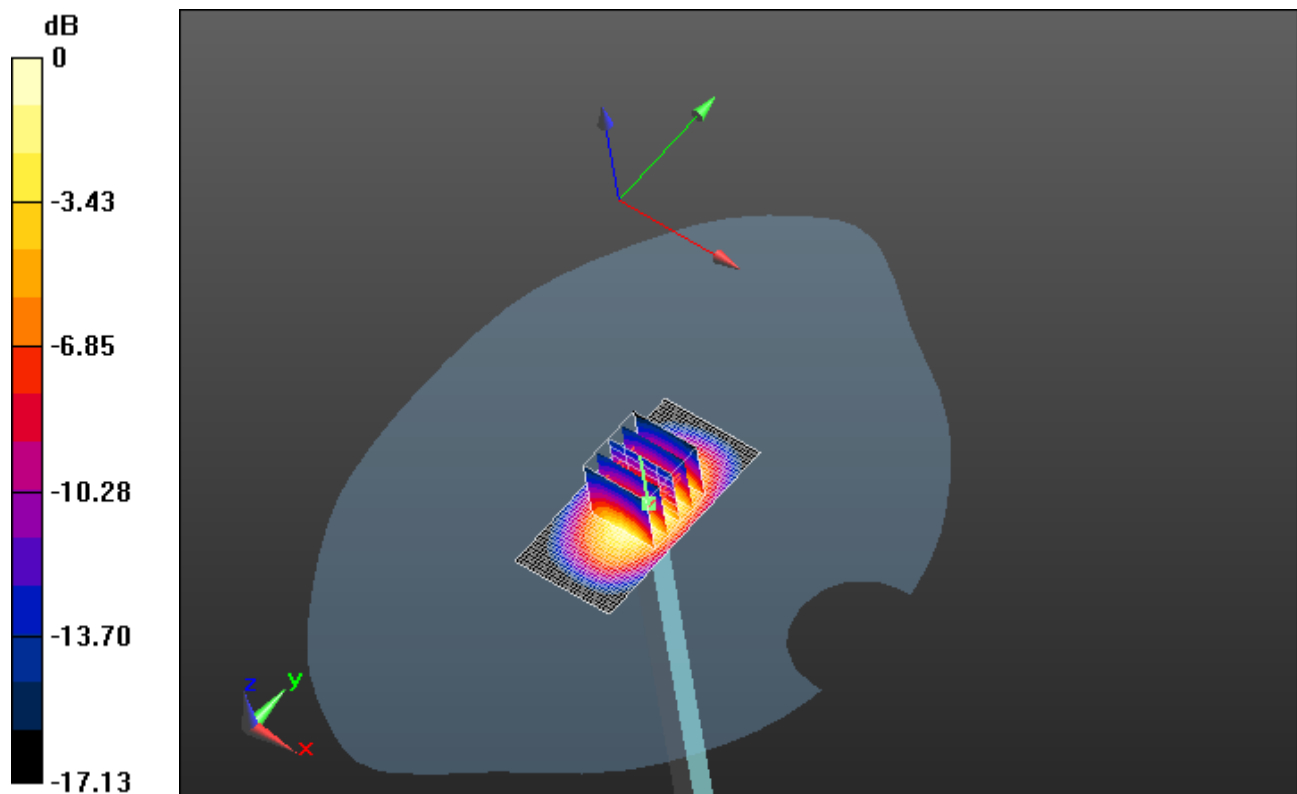
Reference Value = 190.8 V/m ; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 65.5 W/kg

SAR(1 g) = 37 W/kg ; SAR(10 g) = 19.5 W/kg

Maximum value of SAR (measured) = 46.6 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 7(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 46.6 W/kg = 16.68 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 8(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 7/5/2013 12:57:00 AM

Test Laboratory: RIM Testing Services

DipoleValidation_1900MHz_07_05_13_Amb_Tem_23.3C_Liq_Tem_21.7C

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

Communication System: UID 0 - n/a, CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.408 \text{ S/m}$; $\epsilon_r = 38.666$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(5.35, 5.35, 5.35); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS 52.8.6(1115); SEMCAD X 14.6.9(7117)

Configuration/d=10mm, Pin=1000mW/Area Scan (31x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Reference Value = 186.9 V/m ; Power Drift = -0.02 dB

Fast SAR: SAR(1 g) = 36.7 W/kg ; SAR(10 g) = 19.4 W/kg

Maximum value of SAR (interpolated) = 45.9 W/kg

Configuration/d=10mm, Pin=1000mW/Zoom Scan (5x5x7) (5x5x7)/Cube

0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

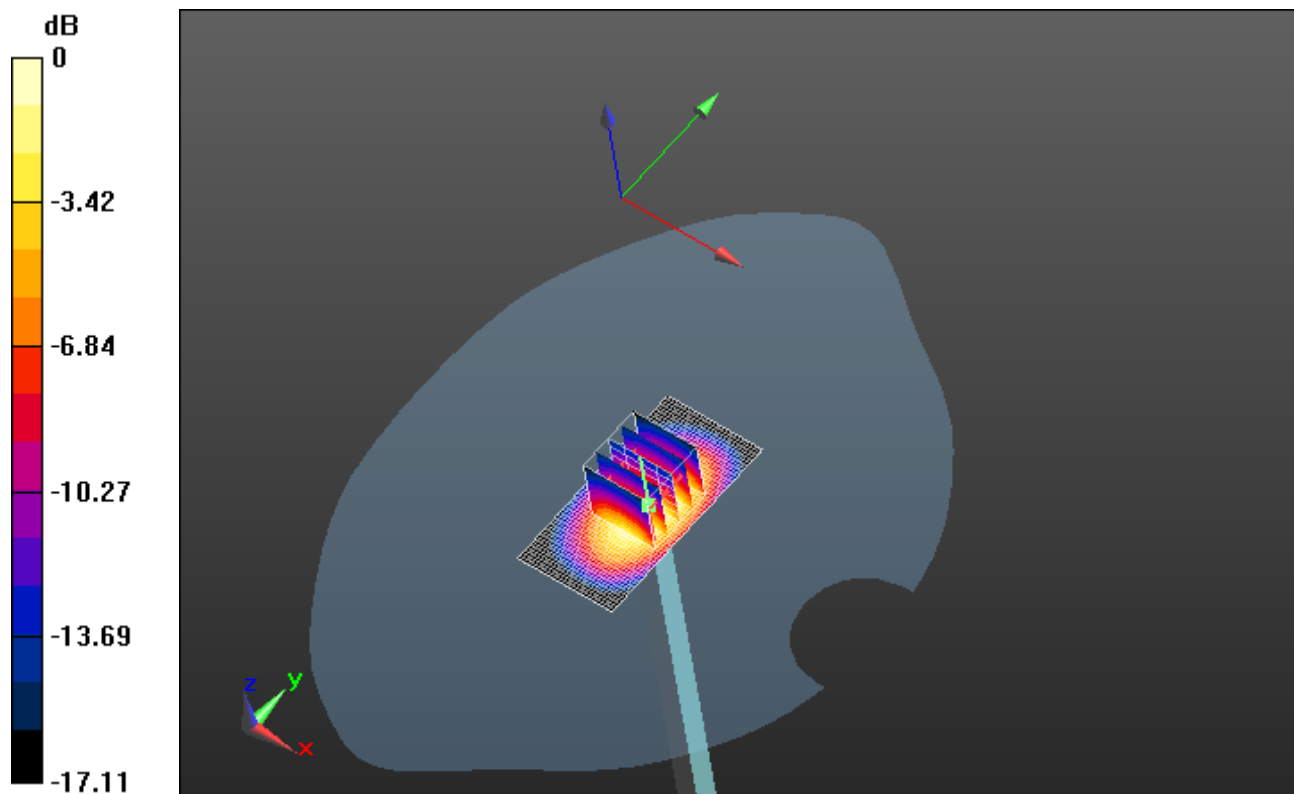
Reference Value = 186.9 V/m ; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 63.9 W/kg

SAR(1 g) = 36.2 W/kg ; SAR(10 g) = 19.1 W/kg

Maximum value of SAR (measured) = 45.9 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 9(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 45.9 W/kg = 16.62 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 10(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 7/8/2013 11:04:31 AM

Test Laboratory: RIM Testing Services

DipoleValidation_1900MHz_07_08_13_Amb_Tem_23.0C_Liq_Tem_22.5 C

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

Communication System: UID 0 - n/a, CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.375 \text{ S/m}$; $\epsilon_r = 38.543$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(5.35, 5.35, 5.35); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS2 52.8.6(1115); SEMCAD X 14.6.9(7117)

Configuration/d=10mm, Pin=1000mW/Area Scan (31x61x1): Interpolated
grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Reference Value = 190.8 V/m ; Power Drift = -0.03 dB

Fast SAR: SAR(1 g) = 37.3 W/kg ; SAR(10 g) = 19.6 W/kg

Maximum value of SAR (interpolated) = 46.9 W/kg

Configuration/d=10mm, Pin=1000mW/Zoom Scan (5x5x7) (5x5x7)/Cube

0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

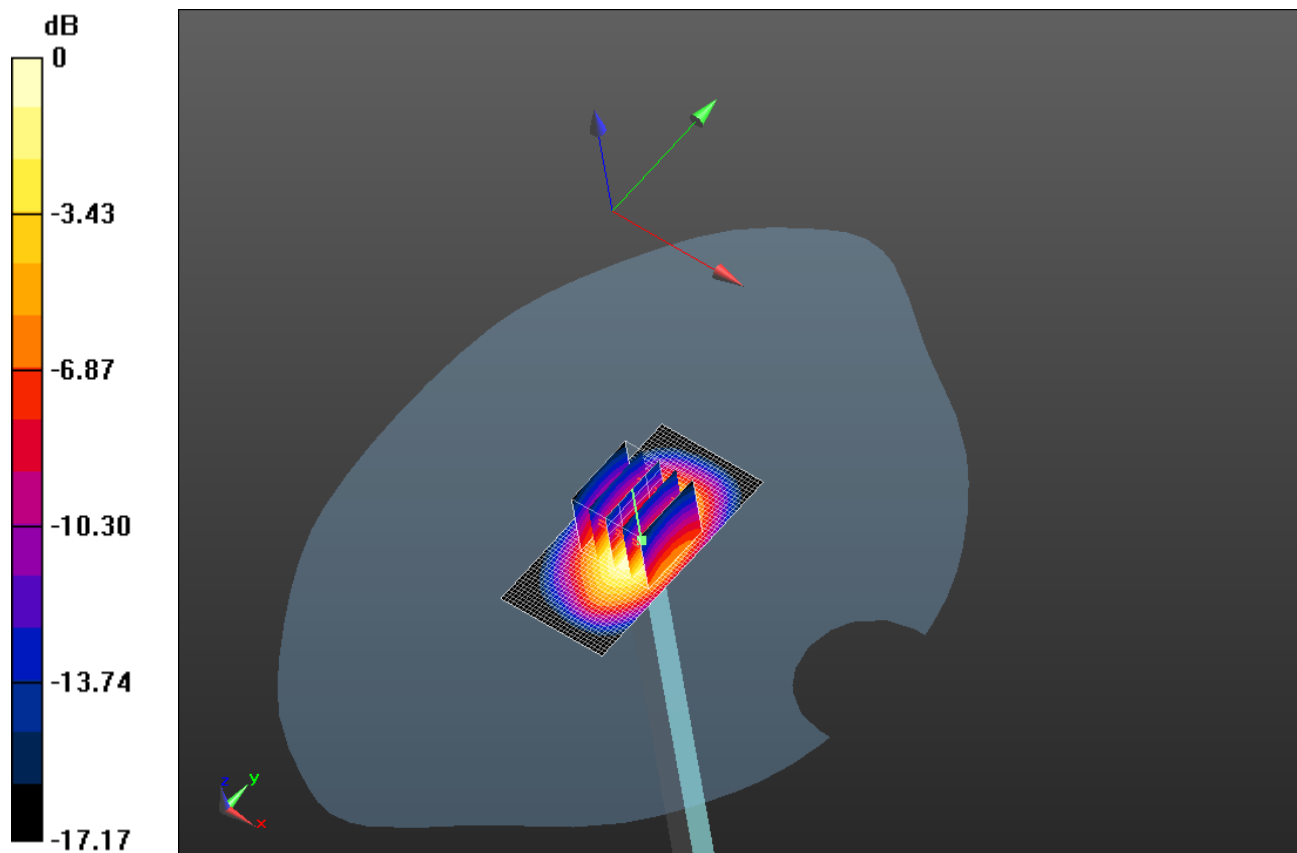
Reference Value = 190.8 V/m ; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 65.1 W/kg

SAR(1 g) = 36.6 W/kg ; SAR(10 g) = 19.2 W/kg

Maximum value of SAR (measured) = 46.7 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 11(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 46.7 W/kg = 16.69 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 12(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 8/7/2013 3:04:00 PM

Test Laboratory: RIM Testing Services

DipoleValidation_1900MHz_08_07_13_Amb_Tem_23.5C_Liq_Tem_22.2 C

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

Communication System: UID 0 - n/a, CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.378 \text{ S/m}$; $\epsilon_r = 38.172$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(5.35, 5.35, 5.35); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS2 52.8.6(1115); SEMCAD X 14.6.9(7117)

Configuration/d=10mm, Pin=1000mW/Area Scan (31x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Reference Value = 194.4 V/m ; Power Drift = -0.01 dB

Fast SAR: SAR(1 g) = 38.7 W/kg ; SAR(10 g) = 20.5 W/kg

Maximum value of SAR (interpolated) = 48.5 W/kg

Configuration/d=10mm, Pin=1000mW/Zoom Scan (5x5x7) (5x5x7)/Cube

0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

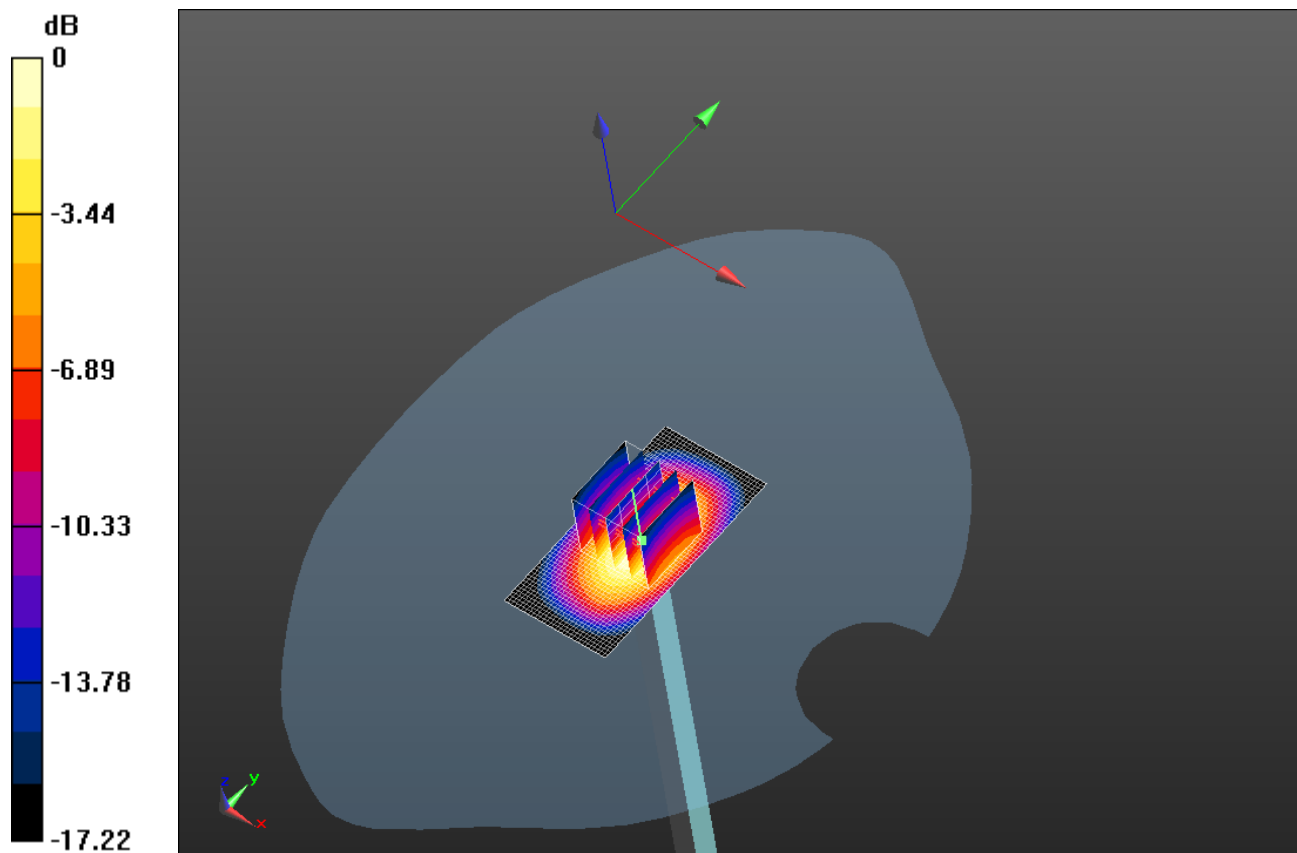
Reference Value = 194.4 V/m ; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 67.7 W/kg

SAR(1 g) = 38 W/kg ; SAR(10 g) = 19.9 W/kg

Maximum value of SAR (measured) = 48.4 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 13(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 48.4 W/kg = 16.85 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 14(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 8/15/2013 1:55:03 AM

Test Laboratory: RIM Testing Services

DipoleValidation_1900MHz_08_15_13_Amb_Tem_23.2C_Liq_Tem_23.0 C

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

Communication System: UID 0 - n/a, CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.384 \text{ S/m}$; $\epsilon_r = 38.362$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(5.35, 5.35, 5.35); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS 52.8.6(1115); SEMCAD X 14.6.9(7117)

Configuration/d=10mm, Pin=1000mW/Area Scan (31x61x1): Interpolated grid: $dx=1.500 \text{ mm}$, $dy=1.500 \text{ mm}$

Reference Value = 189.0 V/m ; Power Drift = -0.04 dB

Fast SAR: SAR(1 g) = 37.6 W/kg ; SAR(10 g) = 19.8 W/kg

Maximum value of SAR (interpolated) = 47.1 W/kg

Configuration/d=10mm, Pin=1000mW/Zoom Scan (5x5x7) (5x5x7)/Cube

0: Measurement grid: $dx=7.5\text{mm}$, $dy=7.5\text{mm}$, $dz=5\text{mm}$

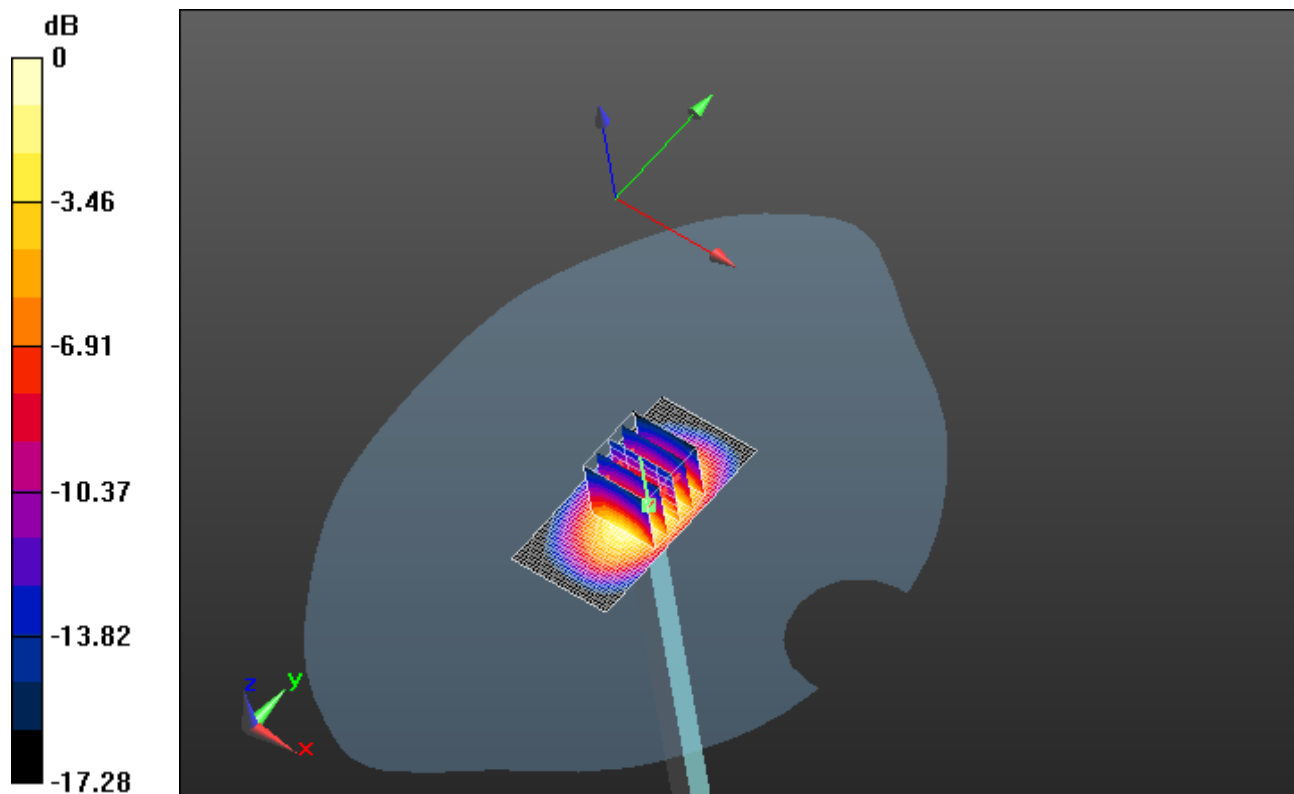
Reference Value = 189.0 V/m ; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 65.1 W/kg

SAR(1 g) = 36.7 W/kg ; SAR(10 g) = 19.3 W/kg

Maximum value of SAR (measured) = 46.6 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 15(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 46.6 W/kg = 16.68 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 16(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 7/19/2013 8:54:16 AM

Test Laboratory: RIM Testing Services

DipoleValidation_2450MHz_07_19_13_Amb_Tem_23.0C_Liq_Tem_22.8 C

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

Communication System: UID 0 - n/a, CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.831 \text{ S/m}$; $\epsilon_r = 37.795$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(4.65, 4.65, 4.65); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS2 52.8.6(1115); SEMCAD X 14.6.9(7117)

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=1000 mW, dist=3.0mm (ES-Probe)/Area Scan (41x71x1): Interpolated grid: $dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$

Reference Value = 204.6 V/m ; Power Drift = -0.09 dB

Fast SAR: SAR(1 g) = 52.5 W/kg ; SAR(10 g) = 23.2 W/kg

Maximum value of SAR (interpolated) = 71.2 W/kg

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=1000 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

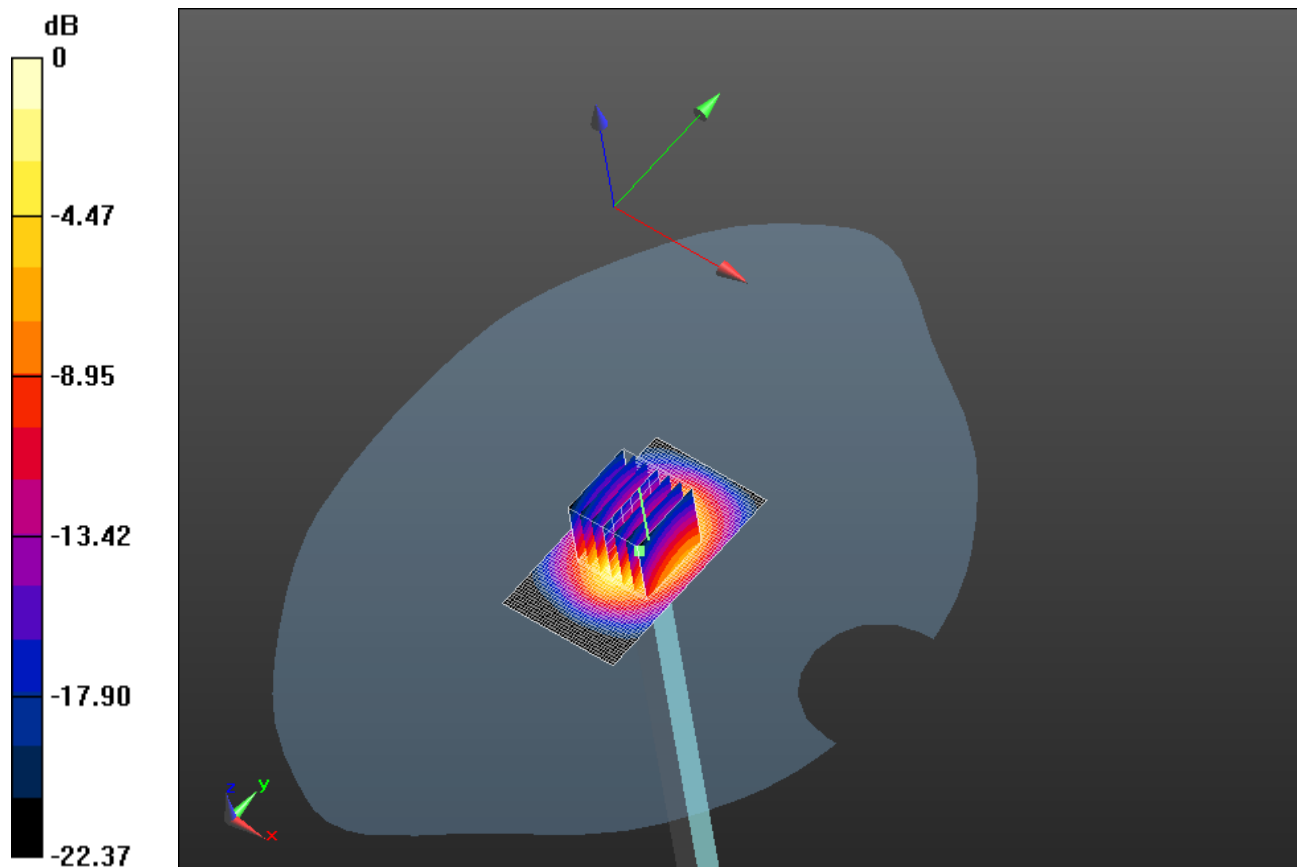
Reference Value = 204.6 V/m ; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 102 W/kg

SAR(1 g) = 52.1 W/kg ; SAR(10 g) = 24.6 W/kg

Maximum value of SAR (measured) = 67.6 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 17(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 67.6 W/kg = 18.30 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 18(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 7/23/2013 11:15:43 PM

Test Laboratory: RIM Testing Services

DipoleValidation_2450MHz_07_23_13_Amb_Tem_23.2C_Liq_Tem_22.4 C

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

Communication System: UID 0 - n/a, CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.845 \text{ S/m}$; $\epsilon_r = 37.878$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: ES3DV3 - SN3225; ConvF(4.65, 4.65, 4.65); Calibrated: 1/10/2013;
- Sensor-Surface: 3mm (Mechanical Surface Detection), $z = 2.0, 32.0$
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS 52.8.6(1115); SEMCAD X 14.6.9(7117)

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=1000 mW, dist=3.0mm (ES-Probe)/Area Scan (41x71x1): Interpolated grid: $dx=1.200 \text{ mm}$, $dy=1.200 \text{ mm}$

Reference Value = 202.1 V/m ; Power Drift = -0.06 dB

Fast SAR: SAR(1 g) = 51.7 W/kg ; SAR(10 g) = 22.8 W/kg

Maximum value of SAR (interpolated) = 70.4 W/kg

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=1000 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube

0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

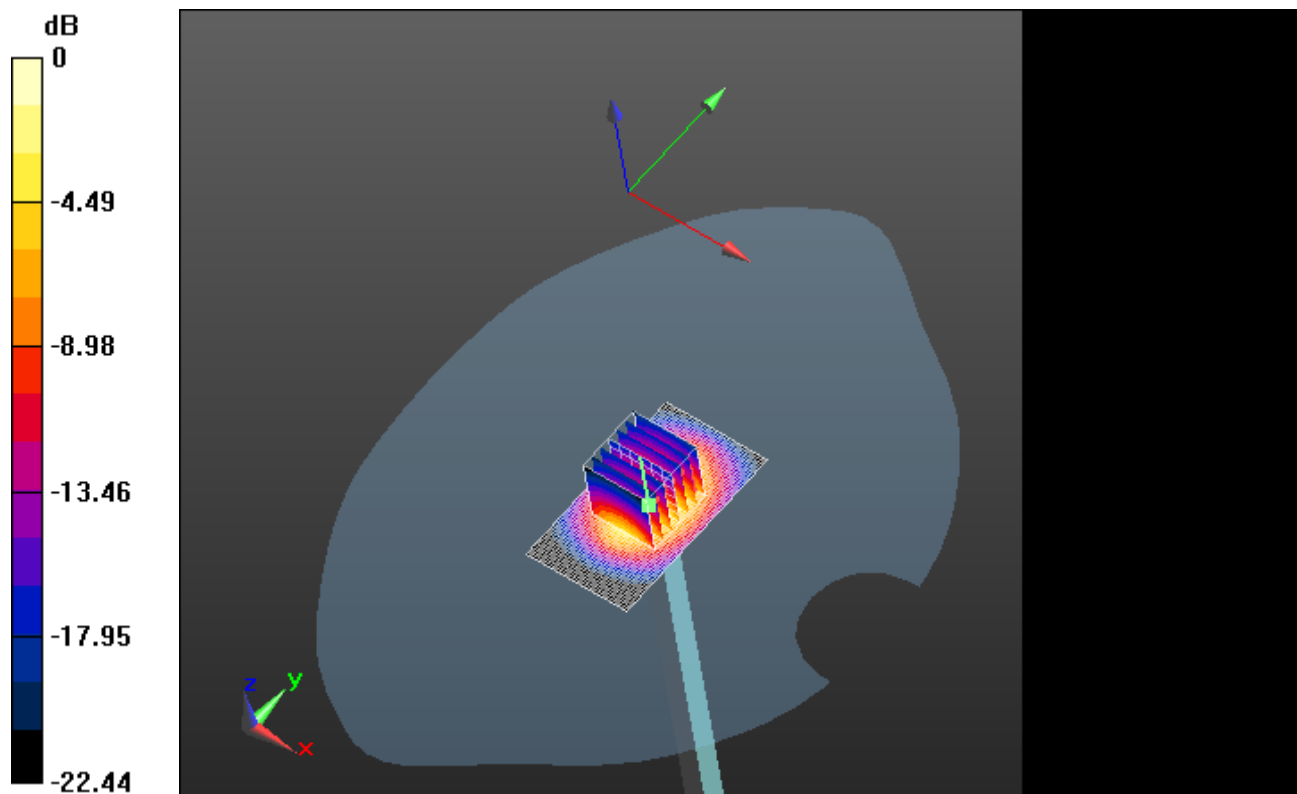
Reference Value = 202.1 V/m ; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 102 W/kg

SAR(1 g) = 51.6 W/kg ; SAR(10 g) = 24.3 W/kg

Maximum value of SAR (measured) = 67.1 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 19(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 67.1 W/kg = 18.27 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 20(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date: 7/22/2013

Test Lab: RIM Testing Services

DUT Name: Dipole D5GHzV2, Type: D5GHzV2, Serial: D5GHzV2 - SN:1033

Configuration: System Performance Check with D5GHzV2 Dipole – 5200 MHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5200 MHz

Medium Parameters used: $f=5200$ MHz; $\sigma = 4.633$ S/m; $\epsilon_r = 35.221$; $\rho = 1.000$ g/cm³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3548; ConvF: (5.13,5.13,5.13); Calibrated: 1/15/2013;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.6(1115); SEMCAD X Version 14.6.9 (7117)

System Performance Check with D5GHzV2 Dipole/d=10mm, Pin=1000 mW, f=5200 MHz/Area

Scan (41x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 195.0 V/m; **Power Drift = -0.00767 dB**

Fast SAR: SAR(1g) = 77.3 W/kg; SAR(10g) = 21.6 W/kg

Maximum value of SAR (interpolated) = 175 W/kg

System Performance Check with D5GHzV2 Dipole/d=10mm, Pin=1000 mW, f=5200 MHz/Zoom

Scan -Ext(24x24x22), Step (4x4x2mm), dist=2mm (36x36x61)/Cube 0: Interpolated grid:

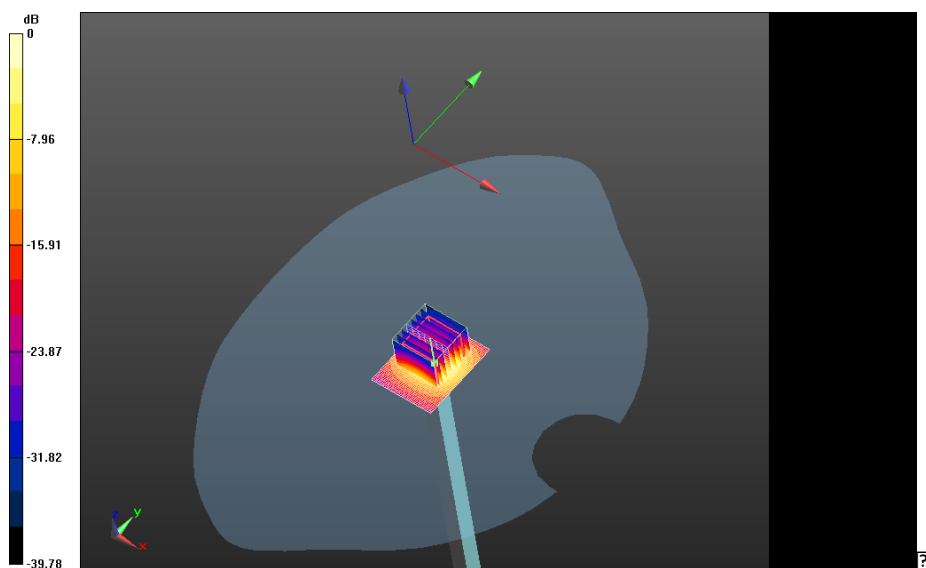
dx=0.800 mm, dy=0.800 mm, dz=0.400 mm

Reference Value = 195.0 V/m; **Power Drift = -0.00767 dB**

Averaged SAR: SAR(1g) = 83.1 W/kg; SAR(10g) = 24.1 W/kg

Maximum value of SAR (interpolated) = 316 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 21(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 167 W/kg = 22.23 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 22(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date: 7/22/2013

Test Lab: RIM Testing Services

DUT Name: Dipole D5GHzV2, Type: D5GHzV2, Serial: D5GHzV2 - SN:1033

Configuration: System Performance Check with D5GHzV2 Dipole – 5500 MHz

Communication System: CW-5GHz; Communication System Band: **Not Specified**; Frequency: 5500 MHz

Medium Parameters used: $f=5500$ MHz; $\sigma = 5.007$ S/m; $\epsilon_r = 34.543$; $\rho = 1.000$ g/cm³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3548; ConvF: (4.79,4.79,4.79); Calibrated: 1/15/2013;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.6(1115); SEMCAD X Version 14.6.9 (7117)

System Performance Check with D5GHzV2 Dipole 2/d=10mm, Pin=1000mW, f=5500 MHz/Area Scan (41x51x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 197.1 V/m; **Power Drift = 0.028 dB**

Fast SAR: SAR(1g) = 83.2 W/kg; SAR(10g) = 22.9 W/kg

Maximum value of SAR (interpolated) = 193 W/kg

System Performance Check with D5GHzV2 Dipole 2/d=10mm, Pin=1000mW, f=5500

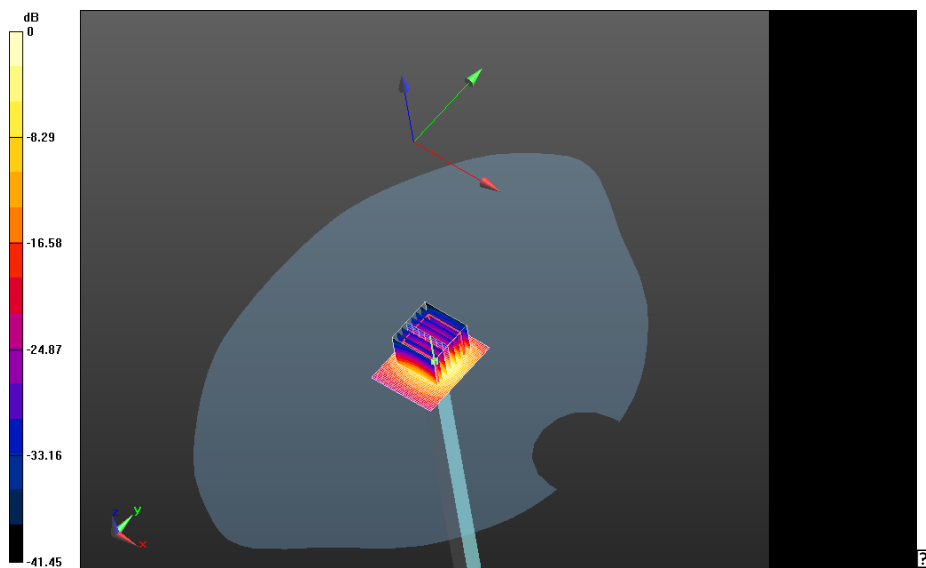
MHz/Zoom Scan -Ext(24x24x22), Step (4x4x2mm), dist=2mm (36x36x61)/Cube 0: Interpolated grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm

Reference Value = 197.1 V/m; **Power Drift = 0.028 dB**

Averaged SAR: SAR(1g) = 90.0 W/kg; SAR(10g) = 25.7 W/kg

Maximum value of SAR (interpolated) = 378 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 23(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 189 W/kg = 22.76 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 24(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date: 7/22/2013

Test Lab: RIM Testing Services

DUT Name: Dipole D5GHzV2, Type: D5GHzV2, Serial: D5GHzV2 - SN:1033

Configuration: System Performance Check with D5GHzV2 Dipole – 5800 MHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5800 MHz

Medium Parameters used: $f=5800$ MHz; $\sigma = 5.322$ S/m; $\epsilon_r = 33.887$; $\rho = 1.000$ g/cm³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3548; ConvF: (4.61,4.61,4.61); Calibrated: 1/15/2013;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.6(1115); SEMCAD X Version 14.6.9 (7117)

System Performance Check with D5GHzV2 Dipole 3/d=10mm, Pin=1000 mW, f=5800

MHz/Area Scan (41x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 188.7 V/m; **Power Drift = 0.025 dB**

Fast SAR: SAR(1g) = 78.1 W/kg; SAR(10g) = 21.6 W/kg

Maximum value of SAR (interpolated) = 182 W/kg

System Performance Check with D5GHzV2 Dipole 3/d=10mm, Pin=1000 mW, f=5800

MHz/Zoom Scan -Ext(24x24x22), Step (4x4x2mm), dist=2mm (36x36x61)/Cube 0: Interpolated

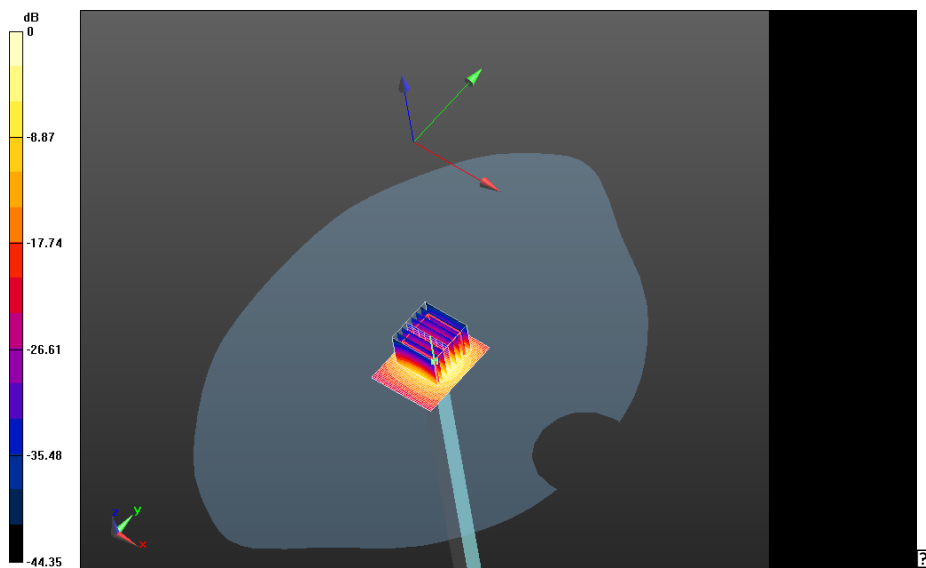
grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm

Reference Value = 188.7 V/m; **Power Drift = 0.025 dB**

Averaged SAR: SAR(1g) = 84.5 W/kg; SAR(10g) = 24.3 W/kg

Maximum value of SAR (interpolated) = 348 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 25(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 174 W/kg = 22.41 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 26(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date: 8/12/2013

Test Lab: RIM Testing Services

DUT Name: Dipole D5GHzV2, Type: D5GHzV2, Serial: D5GHzV2 - SN:1033

Configuration: System Performance Check with D5GHzV2 Dipole – 5200 MHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5200 MHz

Medium Parameters used: $f=5200$ MHz; $\sigma = 4.667$ S/m; $\epsilon_r = 34.365$; $\rho = 1.000$ g/cm³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3548; ConvF: (5.13,5.13,5.13); Calibrated: 1/15/2013;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.6(1115); SEMCAD X Version 14.6.9 (7117)

System Performance Check with D5GHzV2 Dipole/d=10mm, Pin=1000 mW, f=5200 MHz/Area

Scan (41x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 195.6 V/m; **Power Drift = 0.00864 dB**

Fast SAR: SAR(1g) = 74.4 W/kg; SAR(10g) = 20.6 W/kg

Maximum value of SAR (interpolated) = 174 W/kg

System Performance Check with D5GHzV2 Dipole/d=10mm, Pin=1000 mW, f=5200 MHz/Zoom

Scan -Ext(24x24x22), Step (4x4x2mm), dist=2mm (31x31x61)/Cube 0: Interpolated grid:

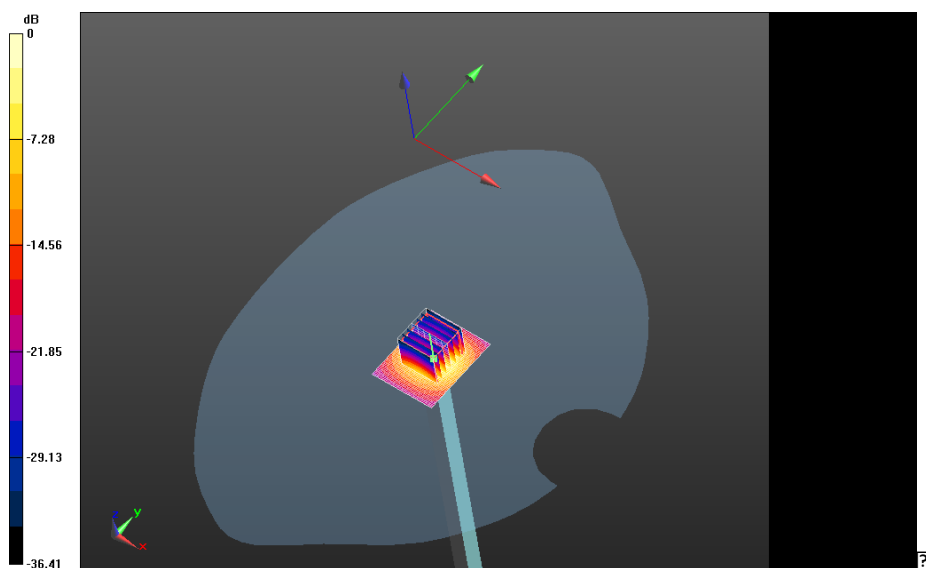
dx=0.800 mm, dy=0.800 mm, dz=0.400 mm

Reference Value = 195.6 V/m; **Power Drift = 0.00864 dB**

Averaged SAR: SAR(1g) = 78.1 W/kg; SAR(10g) = 22.7 W/kg

Maximum value of SAR (interpolated) = 300 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 27(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 161 W/kg = 22.07 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 28(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date: 8/12/2013

Test Lab: RIM Testing Services

DUT Name: Dipole D5GHzV2, Type: D5GHzV2, Serial: D5GHzV2 - SN:1033

Configuration: System Performance Check with D5GHzV2 Dipole – 5500 MHz

Communication System: CW-5GHz; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5500 MHz

Medium Parameters used: $f=5500$ MHz; $\sigma = 4.997$ S/m; $\epsilon_r = 34.755$; $\rho = 1.000$ g/cm³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3548; ConvF: (4.79,4.79,4.79); Calibrated: 1/15/2013;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.6(1115); SEMCAD X Version 14.6.9 (7117)

System Performance Check with D5GHzV2 Dipole 2/d=10mm, Pin=1000mW, f=5500 MHz/Area Scan (41x51x1):

Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 198.0 V/m; **Power Drift = 0.021 dB**

Fast SAR: SAR(1g) = 80.9 W/kg; SAR(10g) = 21.9 W/kg

Maximum value of SAR (interpolated) = 197 W/kg

System Performance Check with D5GHzV2 Dipole 2/d=10mm, Pin=1000mW, f=5500

MHz/Zoom Scan -Ext(24x24x22), Step (4x4x2mm), dist=2mm (41x41x61)/Cube 0:

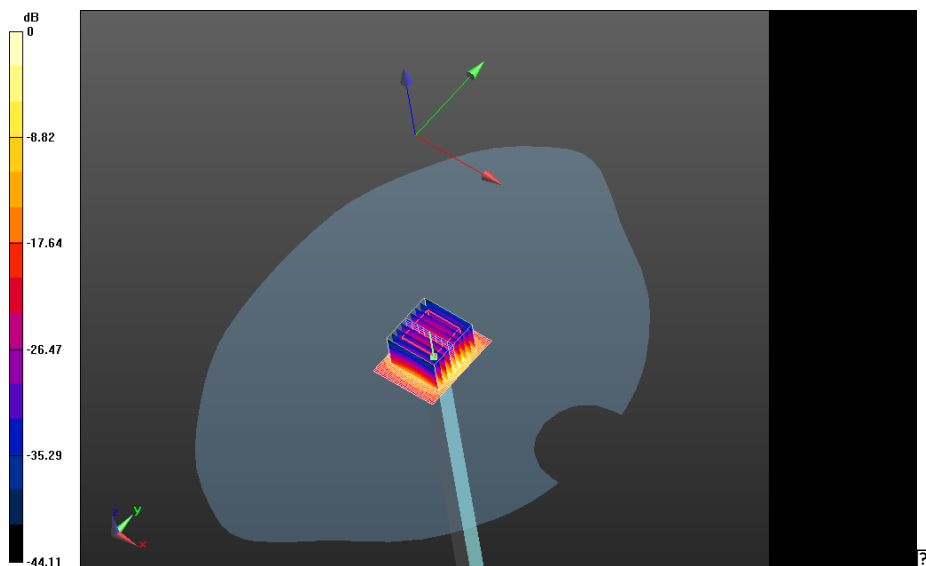
Interpolated grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm

Reference Value = 198.0 V/m; **Power Drift = 0.021 dB**

Averaged SAR: SAR(1g) = 85.1 W/kg; SAR(10g) = 24.3 W/kg

Maximum value of SAR (interpolated) = 355 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 29(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 176 W/kg = 22.46 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 30(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date: 8/12/2013

Test Lab: RIM Testing Services

DUT Name: Dipole D5GHzV2, Type: D5GHzV2, Serial: D5GHzV2 - SN:1033

Configuration: System Performance Check with D5GHzV2 Dipole – 5800 MHz

Communication System: CW; Communication System Band: D5GHz (5000.0 - 6000.0 MHz);

Frequency: 5800 MHz

Medium Parameters used: $f=5800$ MHz; $\sigma = 5.279$ S/m; $\epsilon_r = 33.885$; $\rho = 1.000$ g/cm³

Phantom section: Flat Section

DASY Configuration:

- Probe: EX3DV4 - SN3548; ConvF: (4.61,4.61,4.61); Calibrated: 1/15/2013;
- Sensor-Surface: 2 mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn881; Calibrated: 1/14/2013
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASY52 52.8.6(1115); SEMCAD X Version 14.6.9 (7117)

System Performance Check with D5GHzV2 Dipole 3/d=10mm, Pin=1000 mW, f=5800

MHz/Area Scan (41x51x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm

Reference Value = 198.4 V/m; **Power Drift = 0.019 dB**

Fast SAR: SAR(1g) = 81.9 W/kg; SAR(10g) = 22.2 W/kg

Maximum value of SAR (interpolated) = 201 W/kg

System Performance Check with D5GHzV2 Dipole 3/d=10mm, Pin=1000 mW, f=5800

MHz/Zoom Scan -Ext(24x24x22), Step (4x4x2mm), dist=2mm (36x36x61)/Cube 0: Interpolated

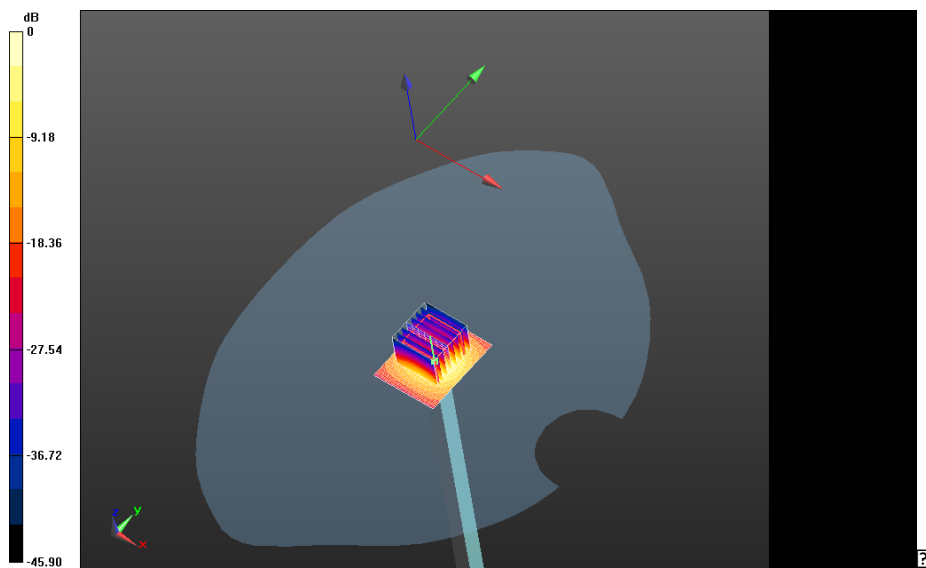
grid: dx=0.800 mm, dy=0.800 mm, dz=0.400 mm

Reference Value = 198.4 V/m; **Power Drift = 0.019 dB**

Averaged SAR: SAR(1g) = 86.0 W/kg; SAR(10g) = 24.6 W/kg

Maximum value of SAR (interpolated) = 365 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 31(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 181 W/kg = 22.58 dBW/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 32(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 12/8/2014 11:58:15 AM

Test Laboratory: BlackBerry RTS

**DipoleValidation_5200-5800MHz_12_08_14_Amb_Tem_24.2C
_Liq_Tem_22.6C**

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN 1033

Communication System: UID 0, CW (0); Frequency: 5200 MHz
Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.67 \text{ S/m}$; $\epsilon_r = 34.276$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section
Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF(4.63, 4.63, 4.63); Calibrated: 11/10/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 23.0$
- Electronics: DAE3 Sn472; Calibrated: 3/18/2014
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS 52.8.8(1222); SEMCAD X 14.6.10(7331)

**System Performance Check at Frequency 5.2 GHz/d=10mm,
Pin=1000mW, dist=2.0mm (EX-Probe)/Area Scan (61x91x1):** Interpolated
grid: $dx=1.000 \text{ mm}$, $dy=1.000 \text{ mm}$
Maximum value of SAR (interpolated) = 180 W/kg

**System Performance Check at Frequency 5.2 GHz/d=10mm,
Pin=1000mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x12)
(7x7x12)/Cube 0:** Measurement grid: $dx=4\text{mm}$, $dy=4\text{mm}$, $dz=2\text{mm}$
Reference Value = 203.8 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 339 W/kg
SAR(1 g) = 83.7 W/kg; SAR(10 g) = 24.2 W/kg (SAR corrected for target
medium)
Maximum value of SAR (measured) = 173 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 33(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	

Date/Time: 12/8/2014 12:46:30 PM

Test Laboratory: BlackBerry RTS

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN 1033

Communication System: UID 0, CW (0); Frequency: 5800 MHz

Medium parameters used: $f = 5800$ MHz; $\sigma = 5.403$ S/m; $\epsilon_r = 33.704$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS (IEEE/IEC/ANSI C63.19-2007)

DASY Configuration:

- Probe: EX3DV4 - SN3592; ConvF(4.34, 4.34, 4.34); Calibrated: 11/10/2014;
- Sensor-Surface: 2mm (Mechanical Surface Detection), $z = 1.0, 23.0$
- Electronics: DAE3 Sn472; Calibrated: 3/18/2014
- Phantom: SAM 1; Type: SAM 4.0; Serial: 1076
- DASYS 52.8.8(1222); SEMCAD X 14.6.10(7331)

System Performance Check at Frequency 5.8 GHz/d=10mm,

Pin=1000mW, dist=2.0mm (EX-Probe)/Area Scan (61x91x1): Interpolated grid: $dx=1.000$ mm, $dy=1.000$ mm

Maximum value of SAR (interpolated) = 191 W/kg

System Performance Check at Frequency 5.8 GHz/d=10mm,

Pin=1000mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x12)

(7x7x12)/Cube 0: Measurement grid: $dx=4$ mm, $dy=4$ mm, $dz=2$ mm

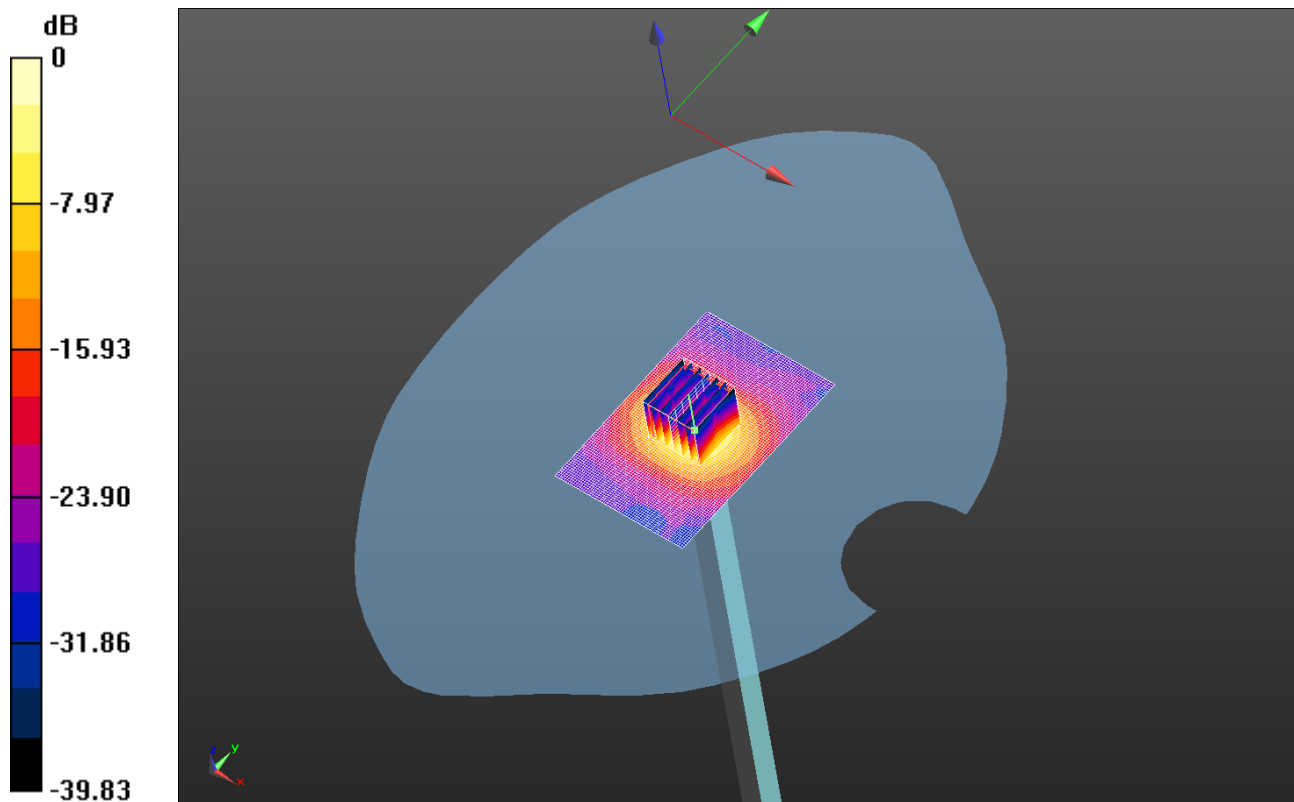
Reference Value = 197.5 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 380 W/kg

SAR(1 g) = 85.8 W/kg; SAR(10 g) = 24.4 W/kg (SAR corrected for target medium)

Maximum value of SAR (measured) = 182 W/kg

		Document Appendix A for the BlackBerry® Smartphone Model RFW121LW SAR Report Rev 2		Page 34(34)
Author Data Andrew Becker	Dates of Test July 02 –August 15, 2013 March 24-26, 2014 December 8-12, 2014	Test Report No RTS-6046-1307-42 Rev 5	FCC ID: L6ARFW120LW	



0 dB = 182 W/kg = 22.60 dBW/kg