

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Right touch 190/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.168 mW/g

**Right touch 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

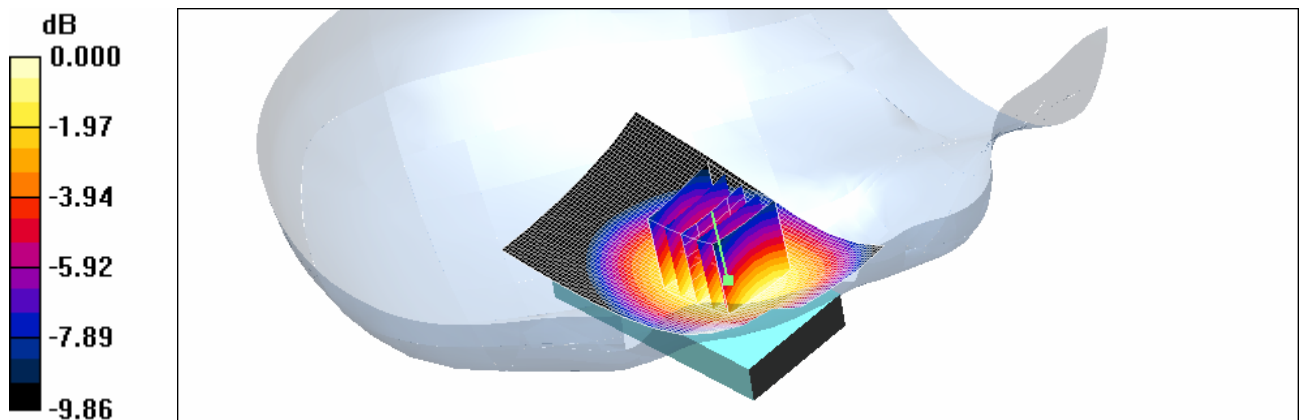
Reference Value = 4.81 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 0.197 W/kg

**SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.113 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.162 mW/g



0 dB = 0.162mW/g

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 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Left tilt 190/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.107 mW/g

**Left tilt 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

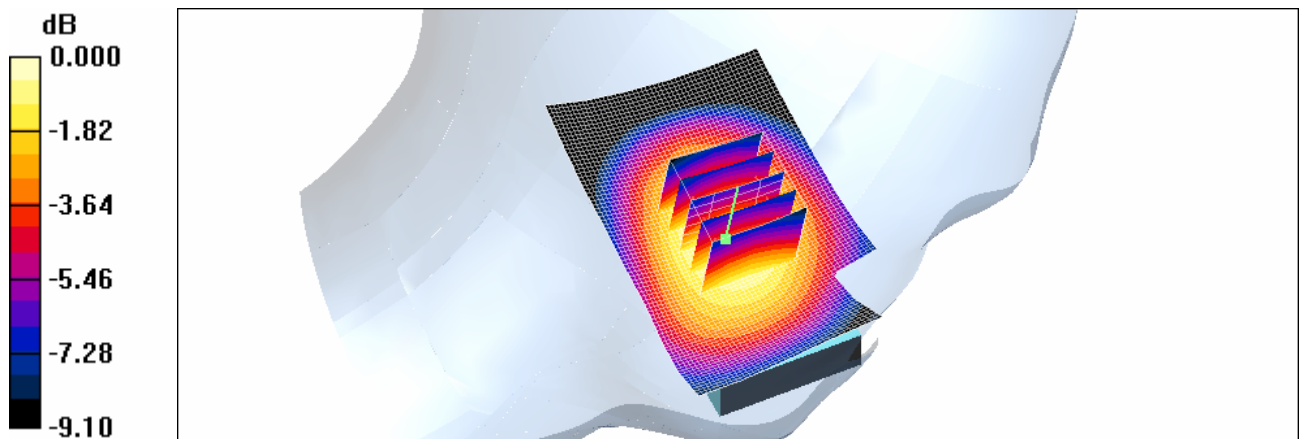
Reference Value = 6.58 V/m; Power Drift = -0.031 dB

Peak SAR (extrapolated) = 0.129 W/kg

**SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.074 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.107 mW/g



0 dB = 0.107mW/g

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 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Right tilt 190/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.091 mW/g

**Right tilt 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

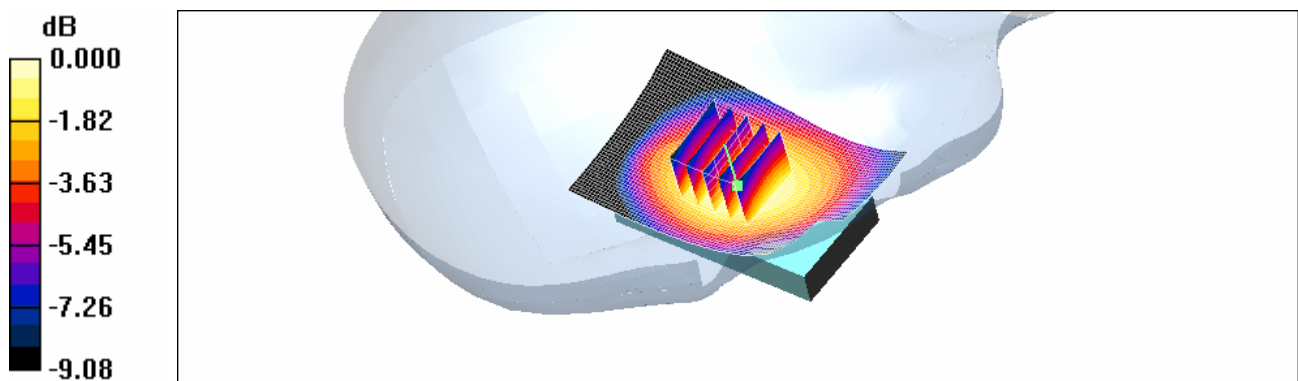
Reference Value = 6.47 V/m; Power Drift = -0.077 dB

Peak SAR (extrapolated) = 0.109 W/kg

**SAR(1 g) = 0.085 mW/g; SAR(10 g) = 0.063 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.088 mW/g



0 dB = 0.088mW/g

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Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Left touch 190/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.168 mW/g

**Left touch 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

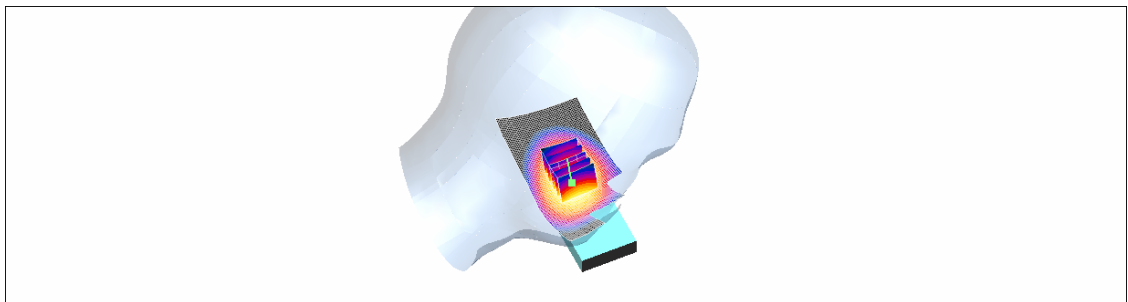
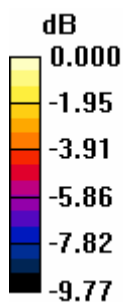
Reference Value = 4.34 V/m; Power Drift = 0.054 dB

Peak SAR (extrapolated) = 0.200 W/kg

**SAR(1 g) = 0.157 mW/g; SAR(10 g) = 0.114 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.166 mW/g



0 dB = 0.166mW/g

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Liquid Temperature: 21.1 °C  
Ambient Temperature: 21.3 °C  
Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Right touch 190/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.159 mW/g

**Right touch 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

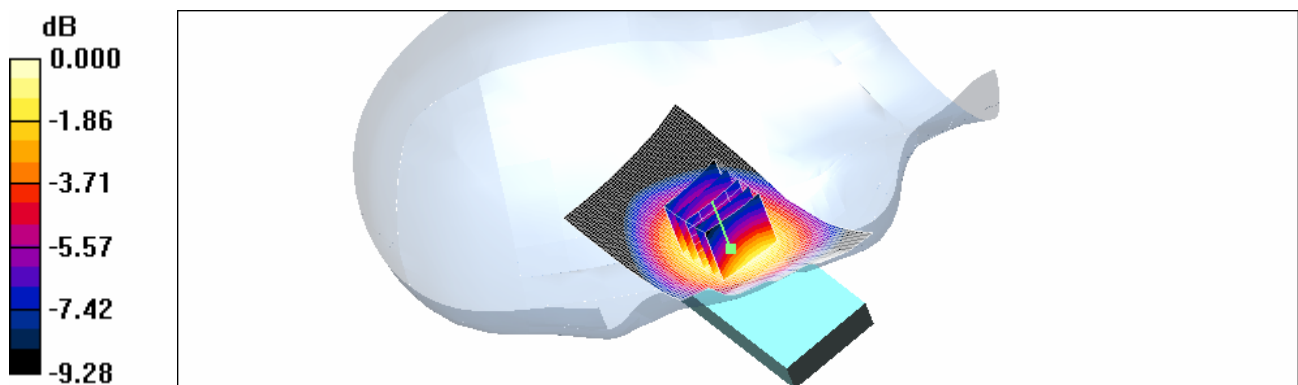
Reference Value = 4.65 V/m; Power Drift = -0.146 dB

Peak SAR (extrapolated) = 0.190 W/kg

**SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.109 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.158 mW/g



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 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Left tilt 190/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.098 mW/g

**Left tilt 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

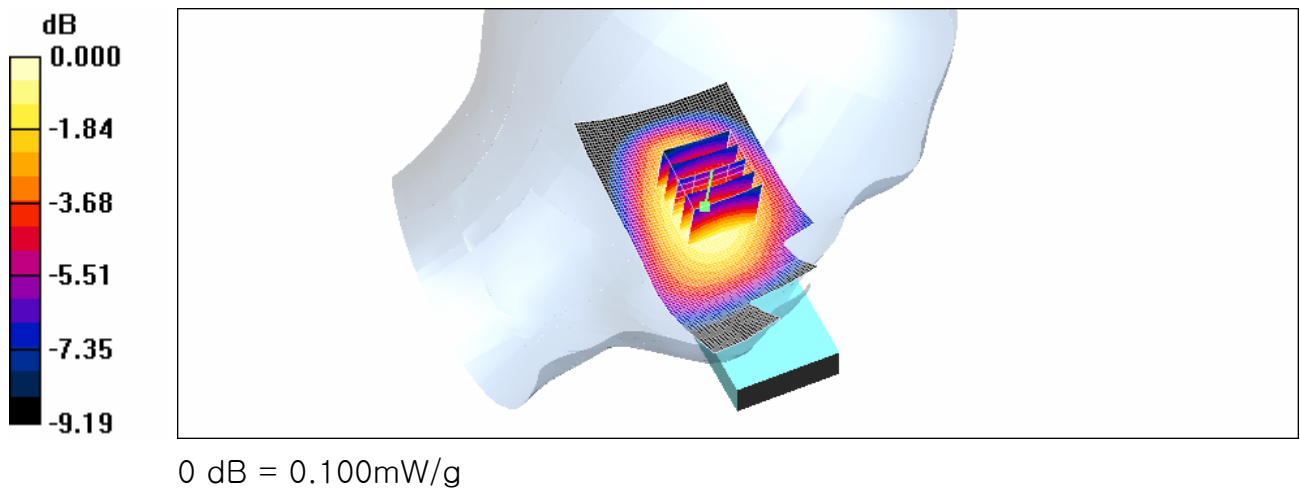
Reference Value = 6.45 V/m; Power Drift = 0.057 dB

Peak SAR (extrapolated) = 0.123 W/kg

**SAR(1 g) = 0.094 mW/g; SAR(10 g) = 0.070 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.100 mW/g



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 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Right tilt 190/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.090 mW/g

**Right tilt 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

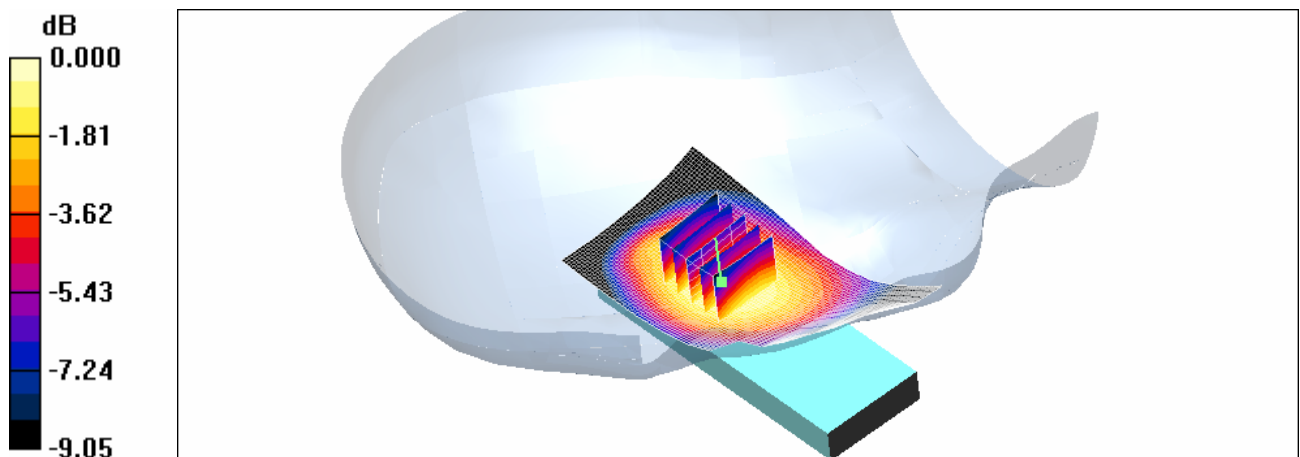
Reference Value = 6.41 V/m; Power Drift = -0.008 dB

Peak SAR (extrapolated) = 0.110 W/kg

**SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.063 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.091 mW/g



0 dB = 0.091mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.2 °C  
Ambient Temperature: 21.4 °C  
Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

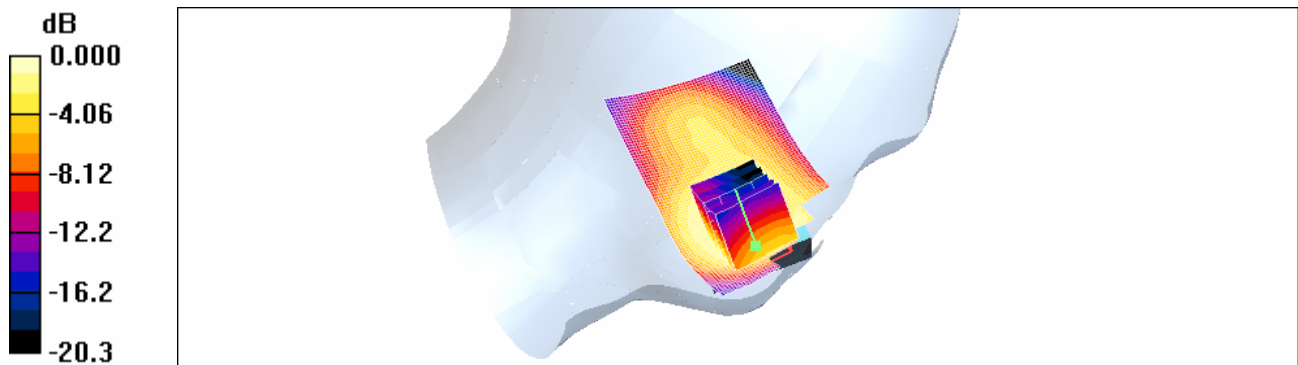
**Left touch 661/Area Scan (51x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.223 mW/g

**Left touch 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.42 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.390 W/kg

**SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.106 mW/g**

Maximum value of SAR (measured) = 0.225 mW/g



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 Liquid Temperature: 21.2 °C  
 Ambient Temperature: 21.4 °C  
 Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

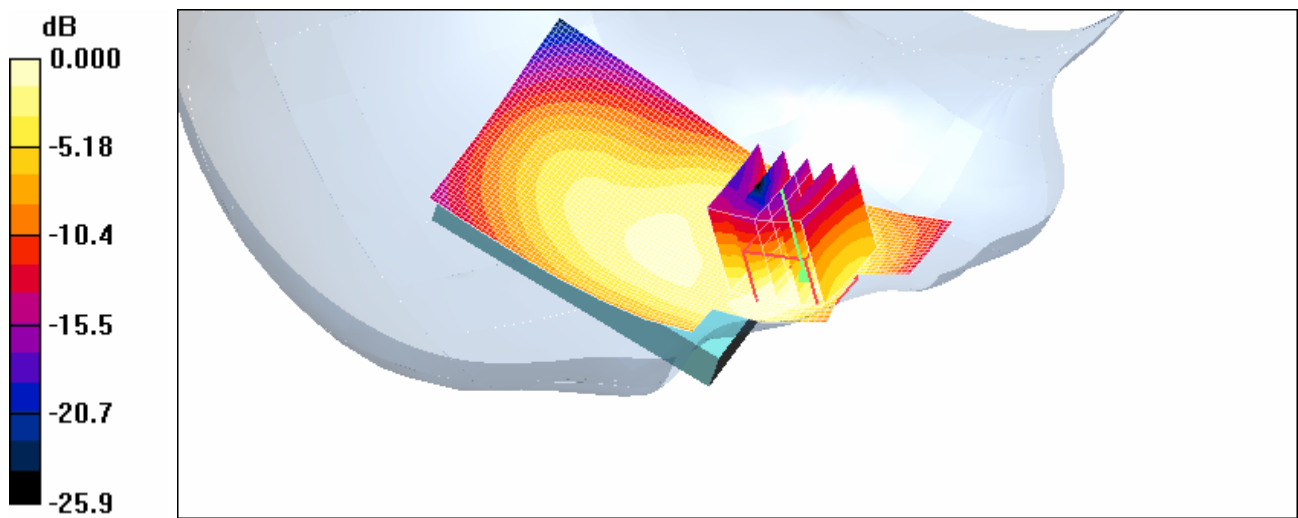
**Right touch 661/Area Scan (51x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) = 0.185 mW/g

**Right touch 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 4.51 V/m; Power Drift = -0.187 dB

Peak SAR (extrapolated) = 0.341 W/kg

**SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.090 mW/g**

Maximum value of SAR (measured) = 0.190 mW/g



0 dB = 0.190mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.2 °C  
Ambient Temperature: 21.4 °C  
Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

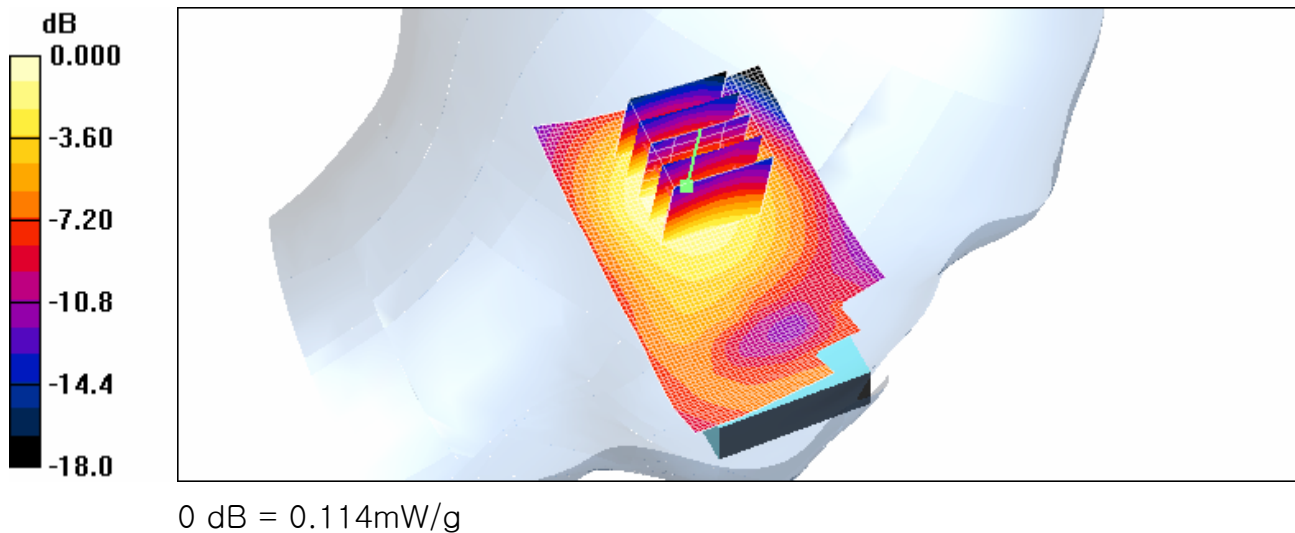
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

**Left tilt 661/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.116 mW/g

**Left tilt 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 8.41 V/m; Power Drift = 0.095 dB  
Peak SAR (extrapolated) = 0.164 W/kg  
**SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.063 mW/g**  
Maximum value of SAR (measured) = 0.114 mW/g



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 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

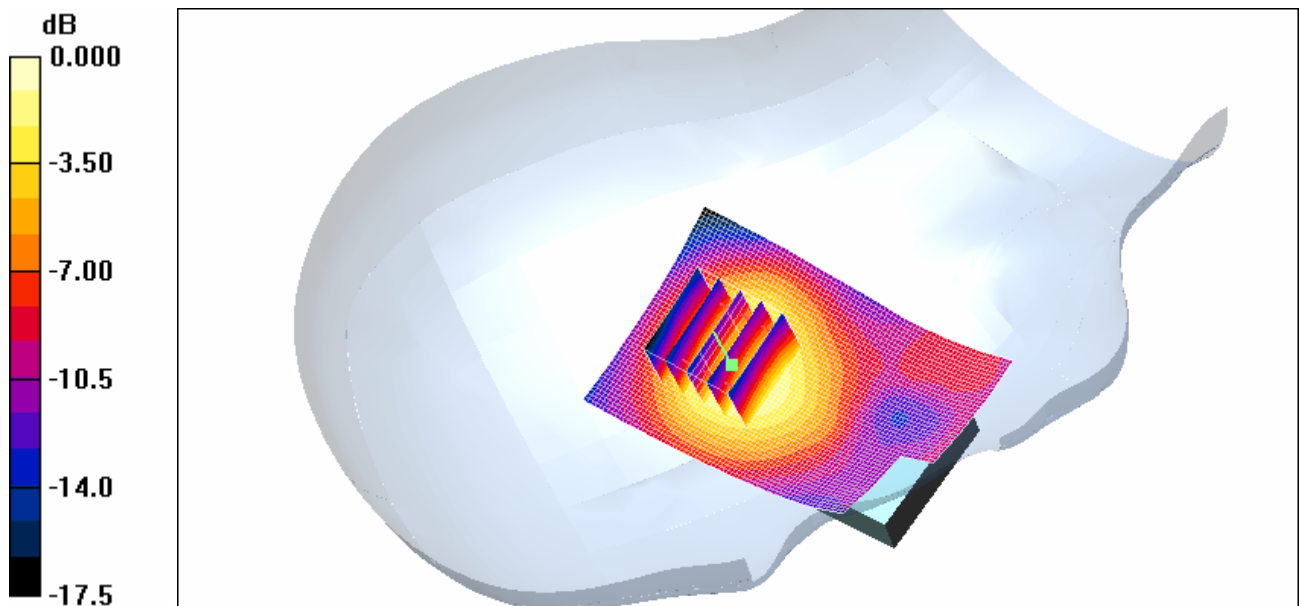
**Right tilt 661/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) = 0.161 mW/g

**Right tilt 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 8.15 V/m; Power Drift = 0.018 dB

Peak SAR (extrapolated) = 0.216 W/kg

**SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.081 mW/g**

Maximum value of SAR (measured) = 0.148 mW/g



0 dB = 0.148mW/g

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Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

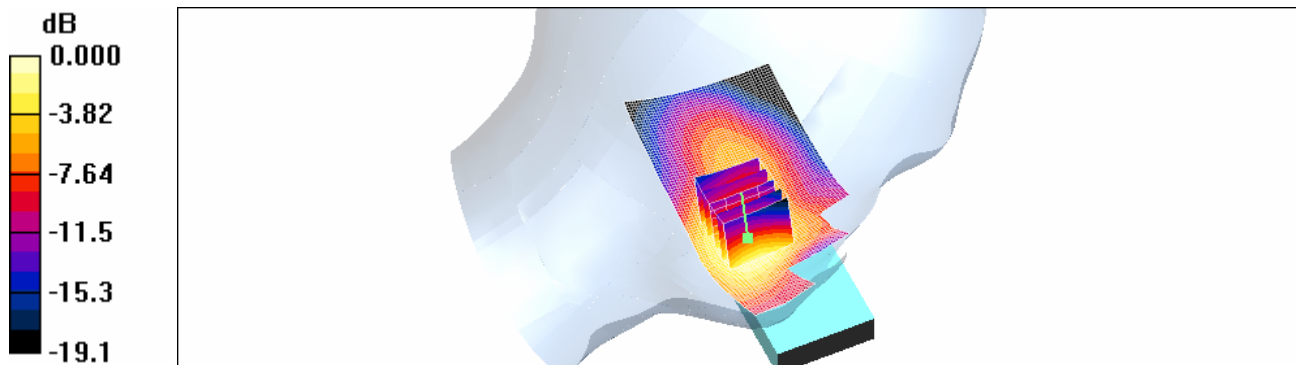
**Left touch 661/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.208 mW/g

**Left touch 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 4.25 V/m; Power Drift = -0.075 dB

Peak SAR (extrapolated) = 0.307 W/kg

**SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.113 mW/g**

Maximum value of SAR (measured) = 0.212 mW/g



0 dB = 0.212mW/g

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Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

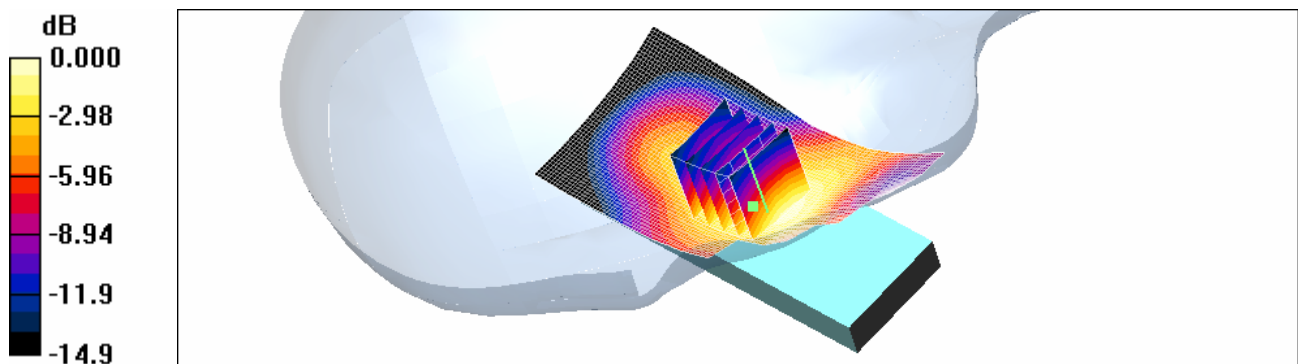
**Right touch 661/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.148 mW/g

**Right touch 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 3.72 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 0.201 W/kg

**SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.082 mW/g**

Maximum value of SAR (measured) = 0.143 mW/g



0 dB = 0.143mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.2 °C  
Ambient Temperature: 21.4 °C  
Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW:  
SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

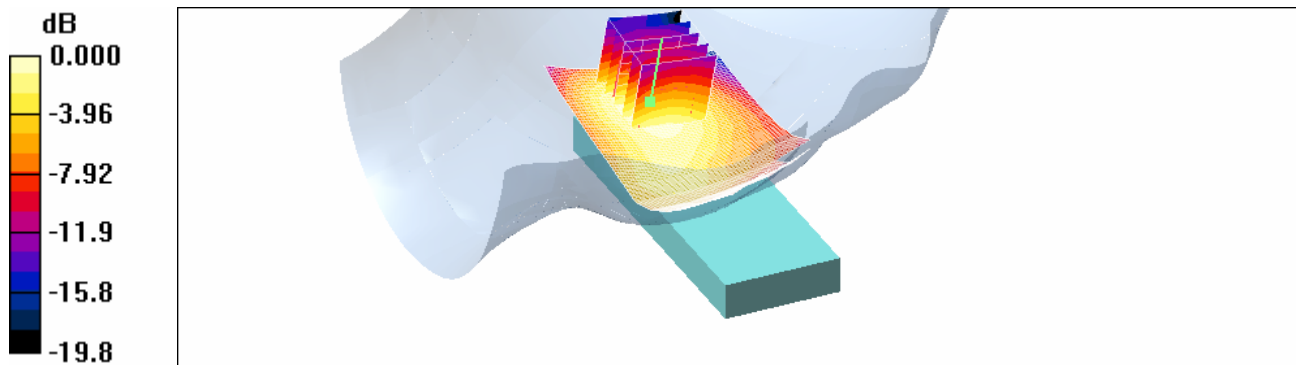
**Left tilt 661/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.075 mW/g

**Left tilt 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.49 V/m; Power Drift = -0.137 dB

Peak SAR (extrapolated) = 0.101 W/kg

**SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.040 mW/g**

Maximum value of SAR (measured) = 0.070 mW/g



0 dB = 0.070mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.2 °C  
Ambient Temperature: 21.4 °C  
Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

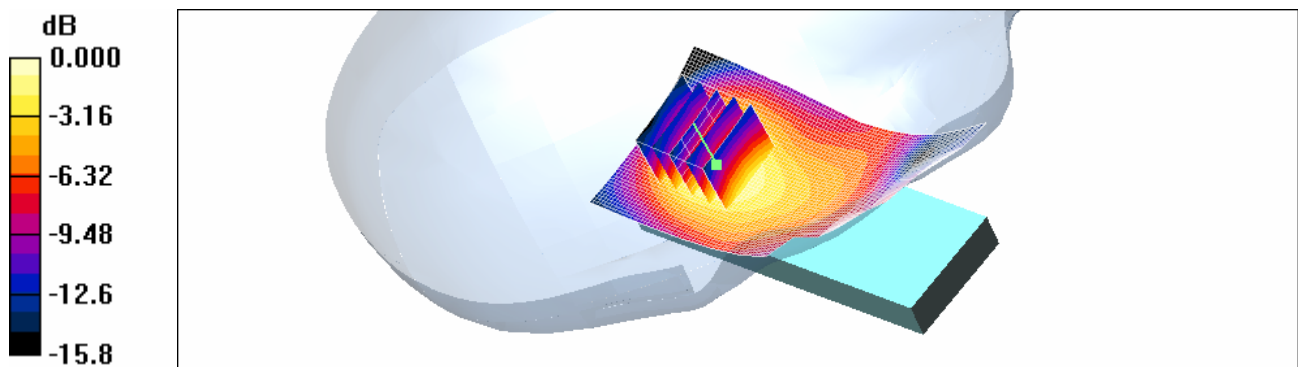
**Right tilt 661/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.090 mW/g

**Right tilt 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 5.75 V/m; Power Drift = -0.196 dB

Peak SAR (extrapolated) = 0.119 W/kg

**SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.047 mW/g**

Maximum value of SAR (measured) = 0.085 mW/g



0 dB = 0.085mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Left touch 4183/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.210 mW/g

**Left touch 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

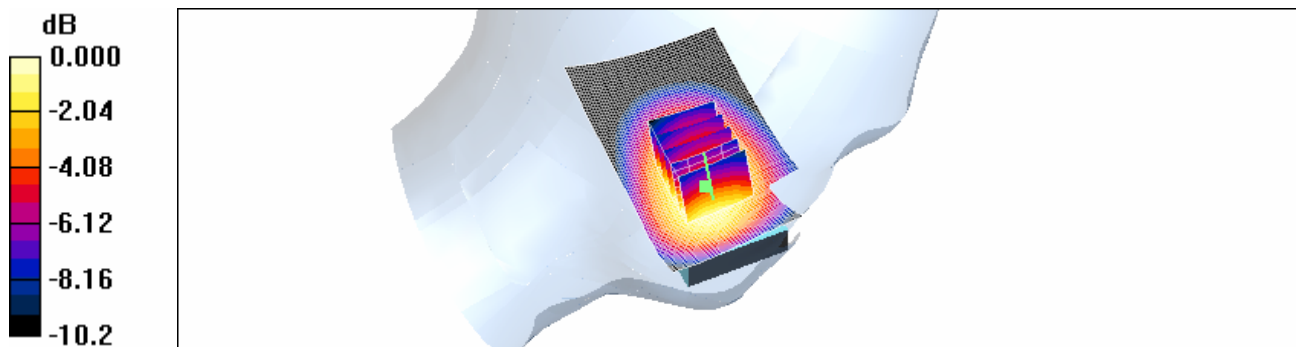
Reference Value = 5.63 V/m; Power Drift = -0.075 dB

Peak SAR (extrapolated) = 0.252 W/kg

**SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.142 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.205 mW/g



0 dB = 0.205mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.1 °C  
Ambient Temperature: 21.3 °C  
Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.869$  mho/m;  $\epsilon_r = 41.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Right touch 4183/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.163 mW/g

**Right touch 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

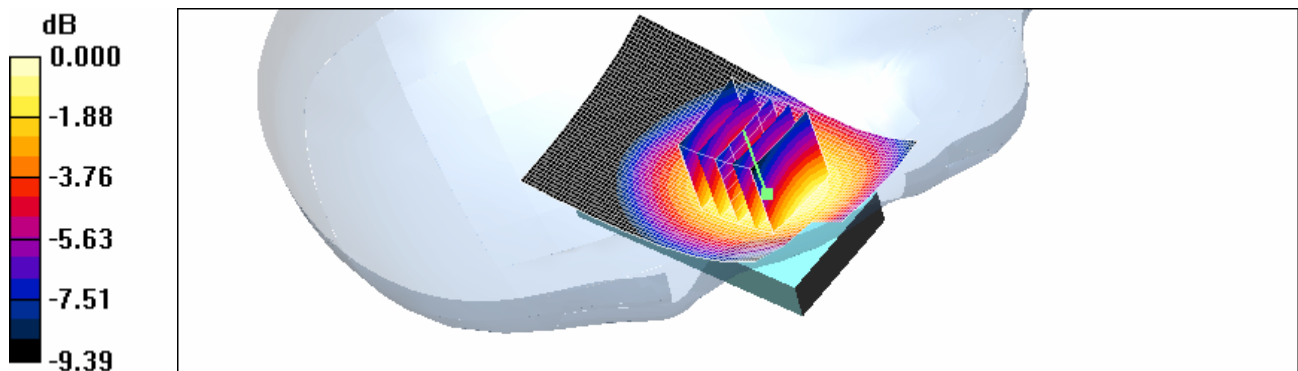
Reference Value = 4.49 V/m; Power Drift = 0.013 dB

Peak SAR (extrapolated) = 0.196 W/kg

**SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.114 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.165 mW/g



Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Left tilt 4183/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.123 mW/g

**Left tilt 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

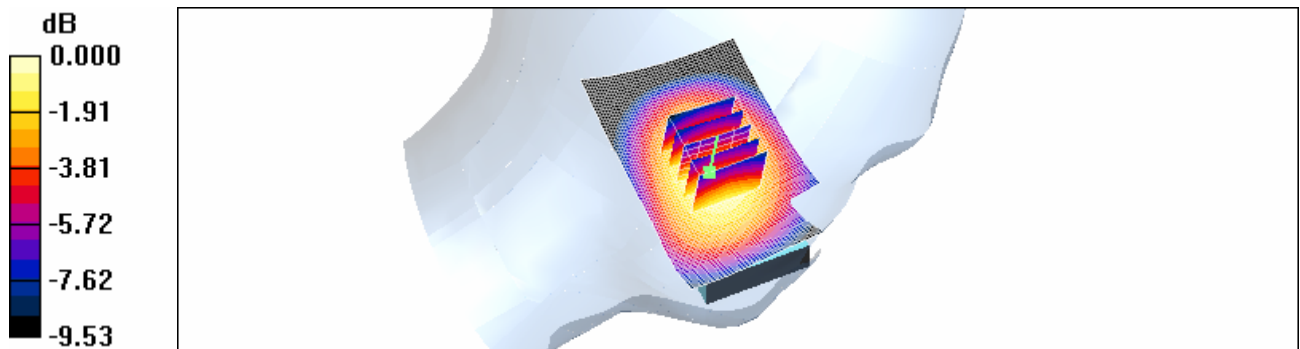
Reference Value = 7.43 V/m; Power Drift = 0.040 dB

Peak SAR (extrapolated) = 0.152 W/kg

**SAR(1 g) = 0.117 mW/g; SAR(10 g) = 0.086 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.124 mW/g



0 dB = 0.124mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Right tilt 4183/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.111 mW/g

**Right tilt 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

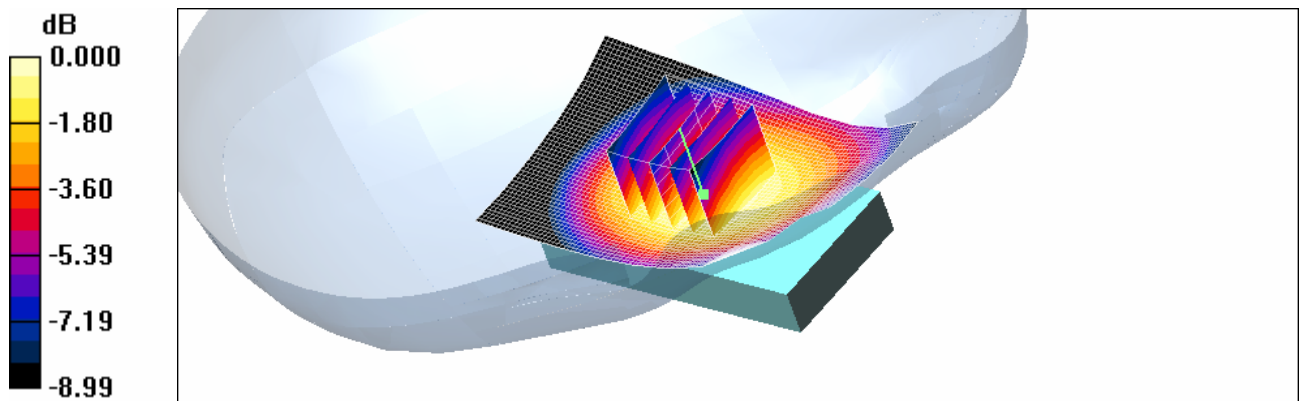
Reference Value = 6.41 V/m; Power Drift = 0.030 dB

Peak SAR (extrapolated) = 0.130 W/kg

**SAR(1 g) = 0.103 mW/g; SAR(10 g) = 0.077 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.107 mW/g



0 dB = 0.107mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.1 °C  
Ambient Temperature: 21.3 °C  
Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.869$  mho/m;  $\epsilon_r = 41.6$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Left touch 4183/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.191 mW/g

**Left touch 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

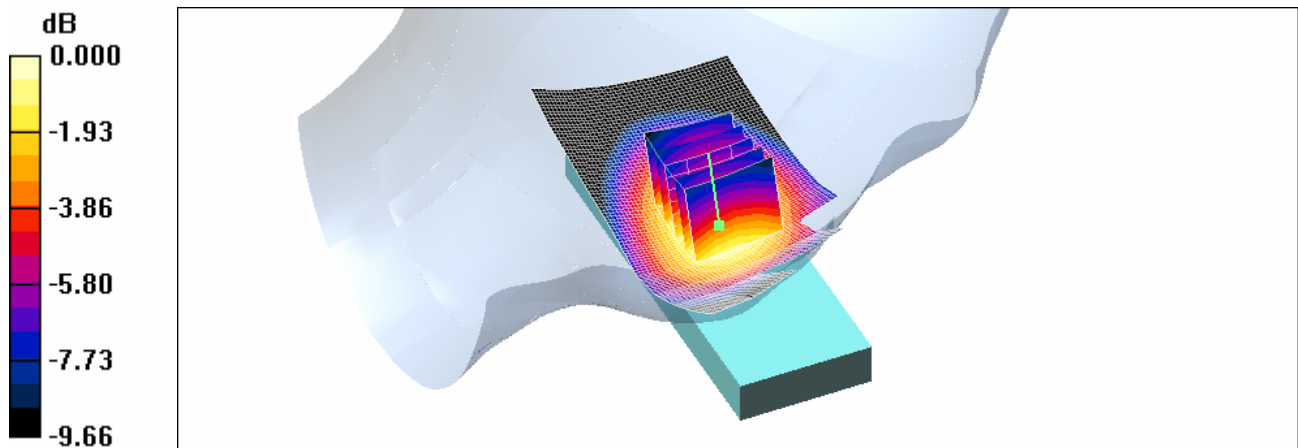
Reference Value = 4.80 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.233 W/kg

**SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.131 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.190 mW/g



0 dB = 0.190mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Right touch 4183/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.217 mW/g

**Right touch 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

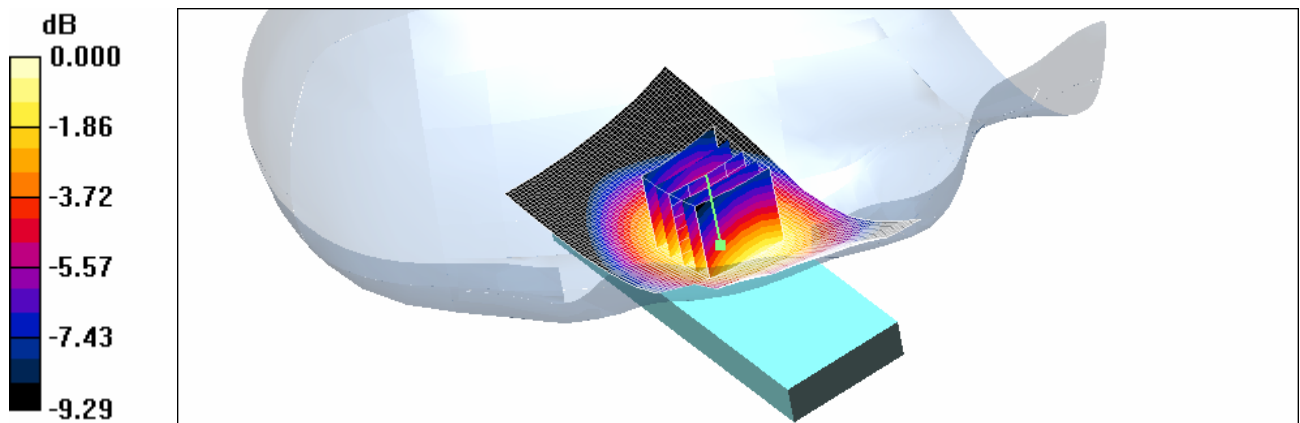
Reference Value = 5.17 V/m; Power Drift = -0.093 dB

Peak SAR (extrapolated) = 0.261 W/kg

**SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.150 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.214 mW/g



0 dB = 0.214mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Left tilt 4183/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.117 mW/g

**Left tilt 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

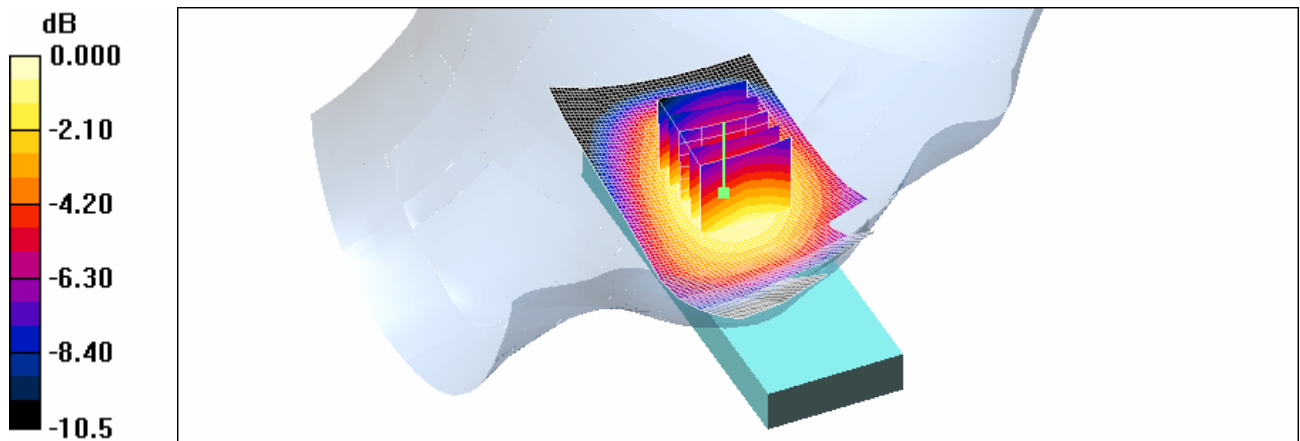
Reference Value = 7.00 V/m; Power Drift = -0.037 dB

Peak SAR (extrapolated) = 0.144 W/kg

**SAR(1 g) = 0.112 mW/g; SAR(10 g) = 0.083 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.118 mW/g



0 dB = 0.118mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:  
 - Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22  
 - Sensor-Surface: 4mm (Mechanical Surface Detection)  
 - Electronics: DAE3 Sn479; Calibrated: 2010-08-19  
 - Phantom: 835/900 Phantom ; Type: SAM

**Right tilt 4183/Area Scan (51x101x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

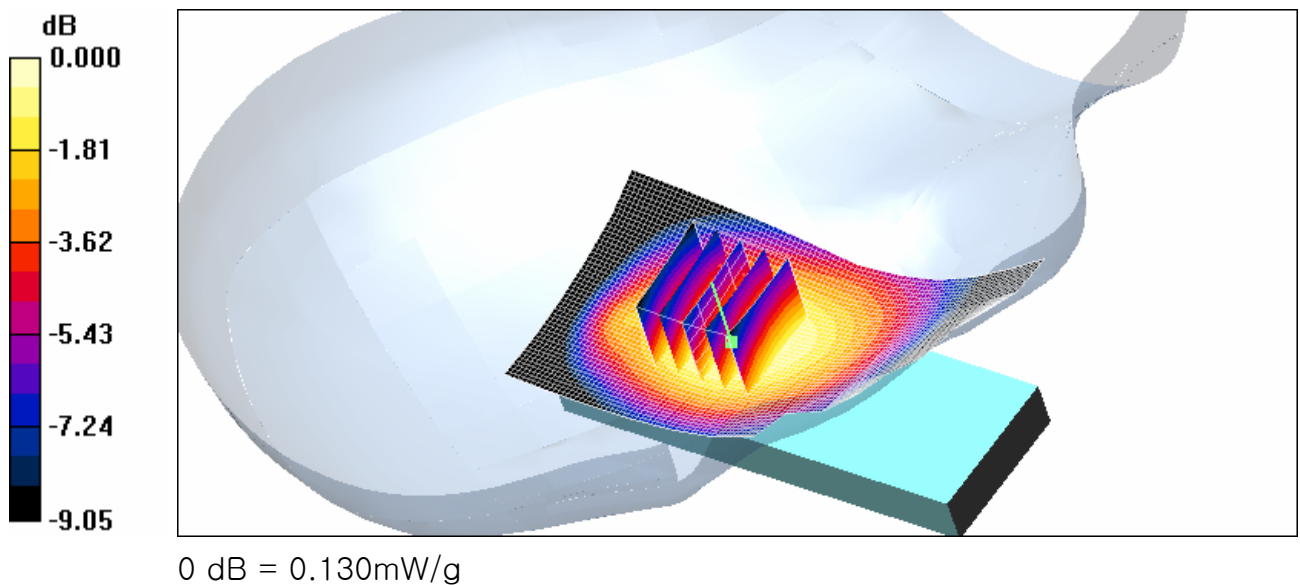
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.129 mW/g

**Right tilt 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 7.48 V/m; Power Drift = 0.067 dB  
 Peak SAR (extrapolated) = 0.158 W/kg  
**SAR(1 g) = 0.123 mW/g; SAR(10 g) = 0.091 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.130 mW/g



Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.075  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 190/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.258 mW/g

**Body 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

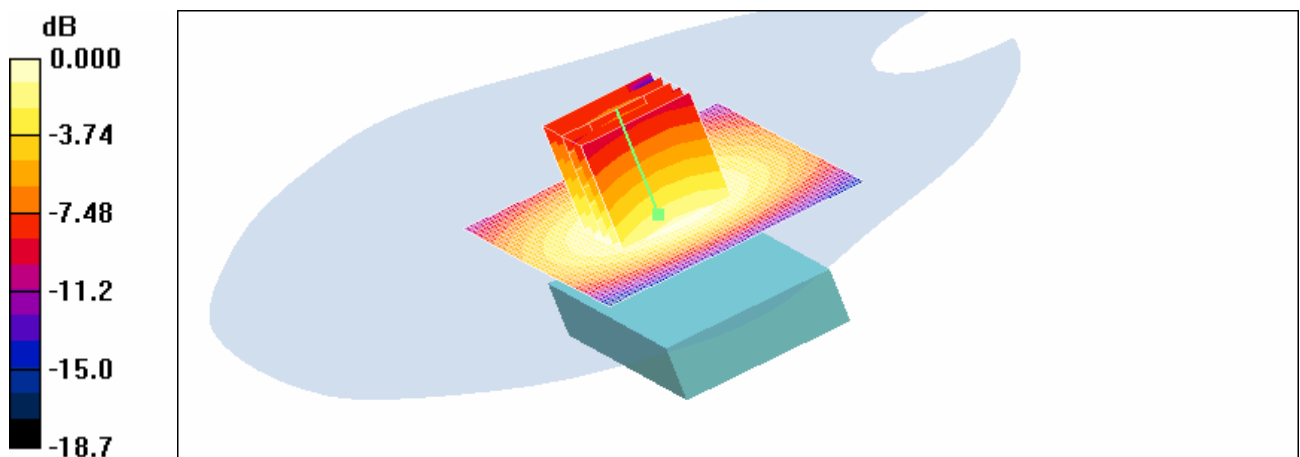
Reference Value = 10.2 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 0.333 W/kg

**SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.174 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.260 mW/g



0 dB = 0.260mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.77  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 190/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.246 mW/g

**Body 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

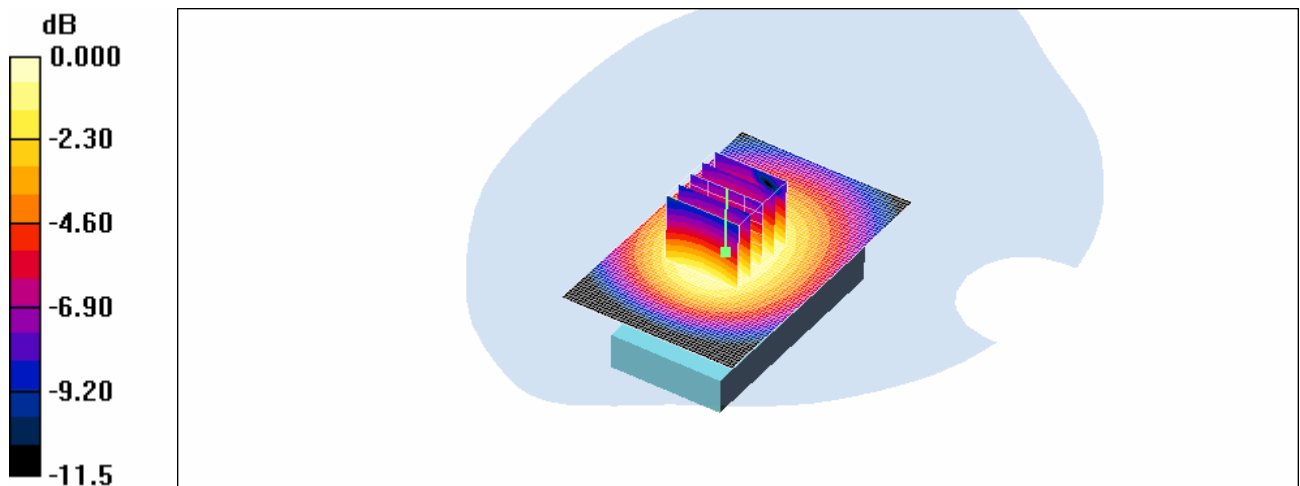
Reference Value = 9.90 V/m; Power Drift = 0.071 dB

Peak SAR (extrapolated) = 0.307 W/kg

**SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.164 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.245 mW/g



0 dB = 0.245mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 190/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.238 mW/g

**Body 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

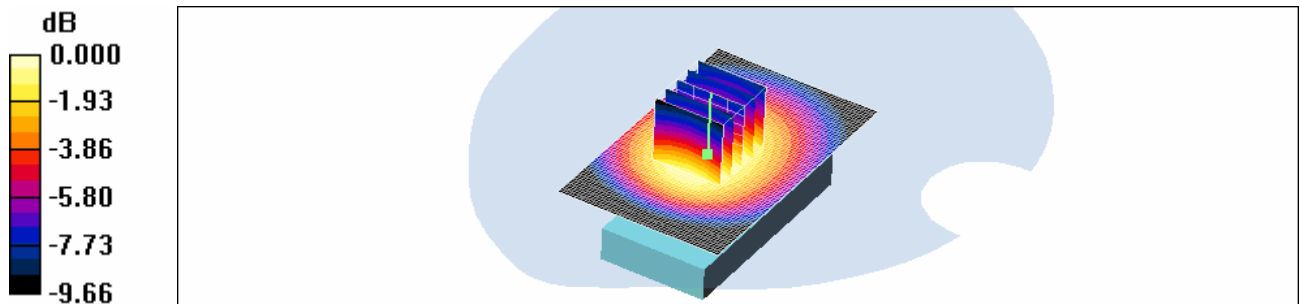
Reference Value = 9.57 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.301 W/kg

**SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.160 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.240 mW/g



0 dB = 0.240mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.1 °C  
Ambient Temperature: 21.3 °C  
Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3  
Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 190/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.154 mW/g

**Body 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

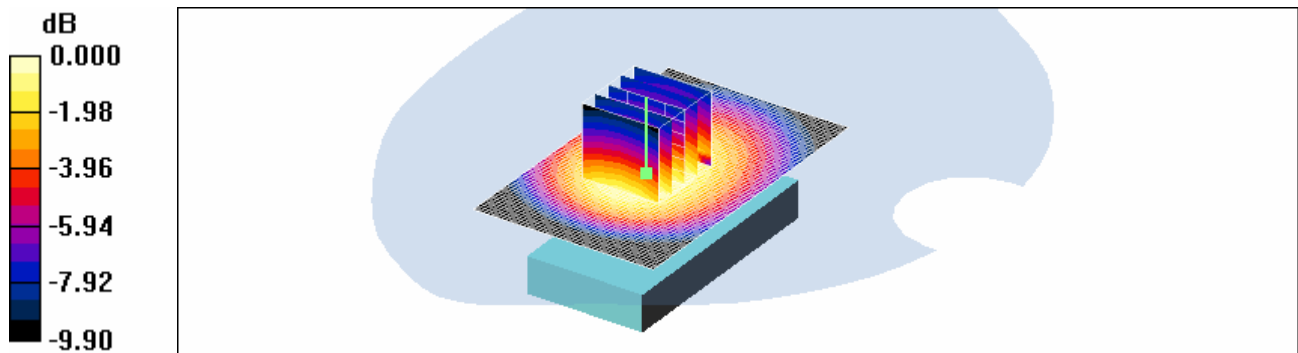
Reference Value = 7.74 V/m; Power Drift = -0.090 dB

Peak SAR (extrapolated) = 0.195 W/kg

**SAR(1 g) = 0.145 mW/g; SAR(10 g) = 0.103 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.153 mW/g



0 dB = 0.153mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 190/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.152 mW/g

**Body 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

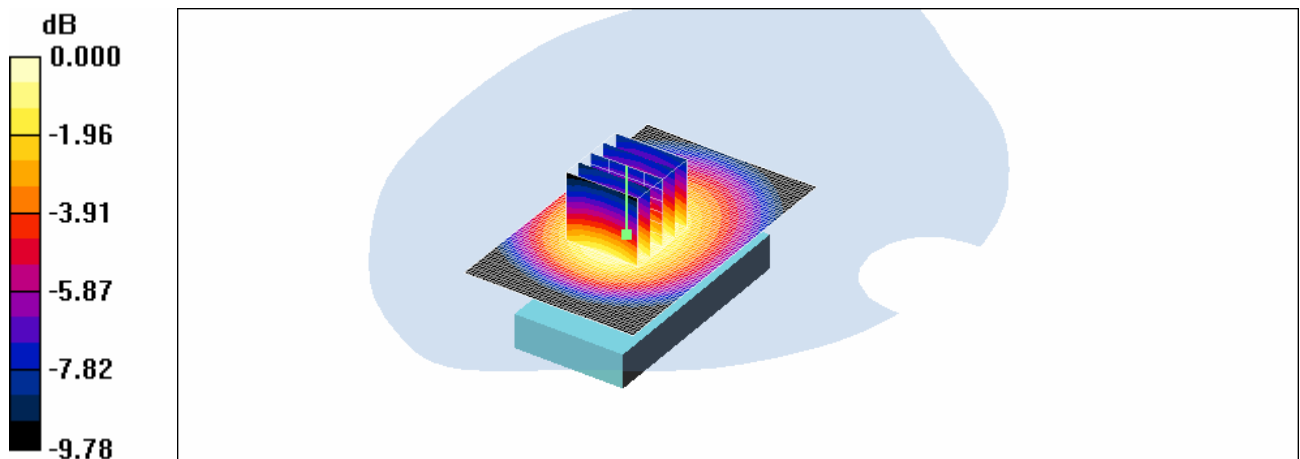
Reference Value = 7.68 V/m; Power Drift = -0.025 dB

Peak SAR (extrapolated) = 0.191 W/kg

**SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.102 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.152 mW/g



0 dB = 0.152mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.075  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 190/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.128 mW/g

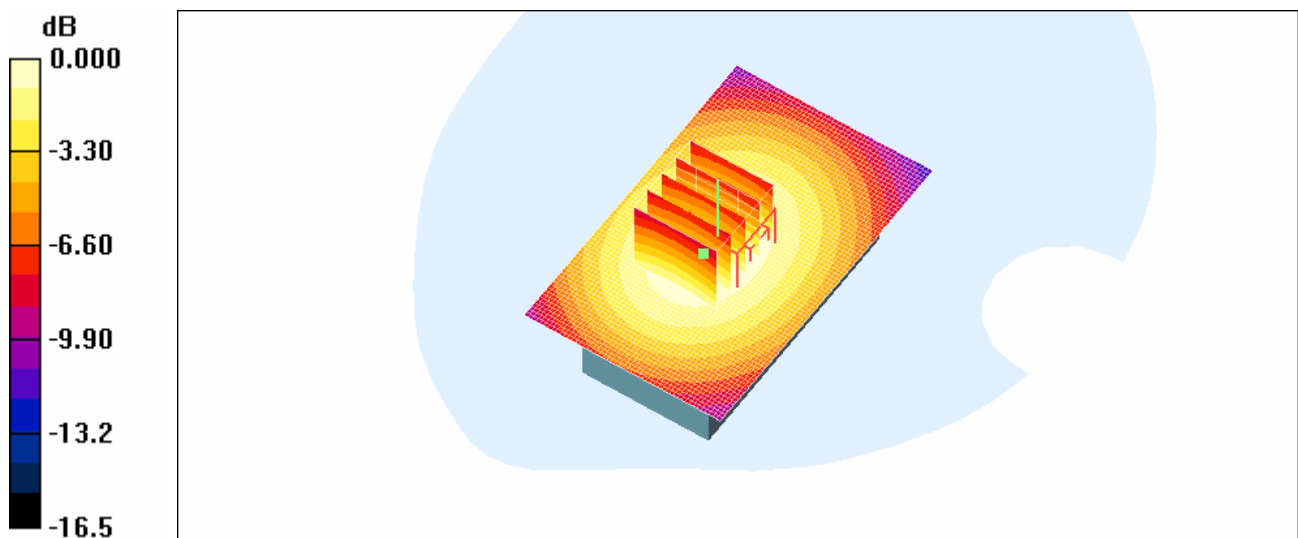
**Body 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 7.38 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 0.164 W/kg

**SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.077 mW/g**

Maximum value of SAR (measured) = 0.128 mW/g



0 dB = 0.128mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.2 °C  
Ambient Temperature: 21.4 °C  
Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

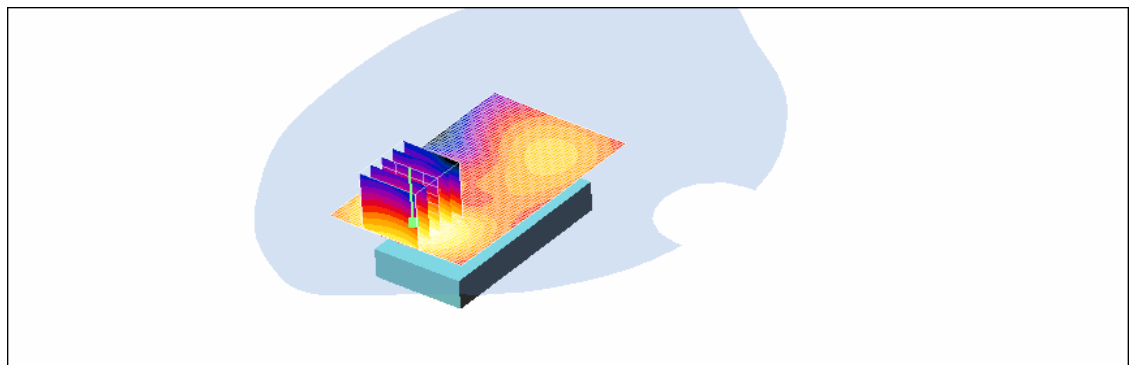
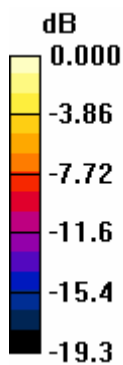
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.46 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

**Body 661/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.244 mW/g

**Body 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 7.24 V/m; Power Drift = -0.049 dB  
Peak SAR (extrapolated) = 0.881 W/kg  
**SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.133 mW/g**  
Maximum value of SAR (measured) = 0.247 mW/g



0 dB = 0.247mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.2 °C  
Ambient Temperature: 21.4 °C  
Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

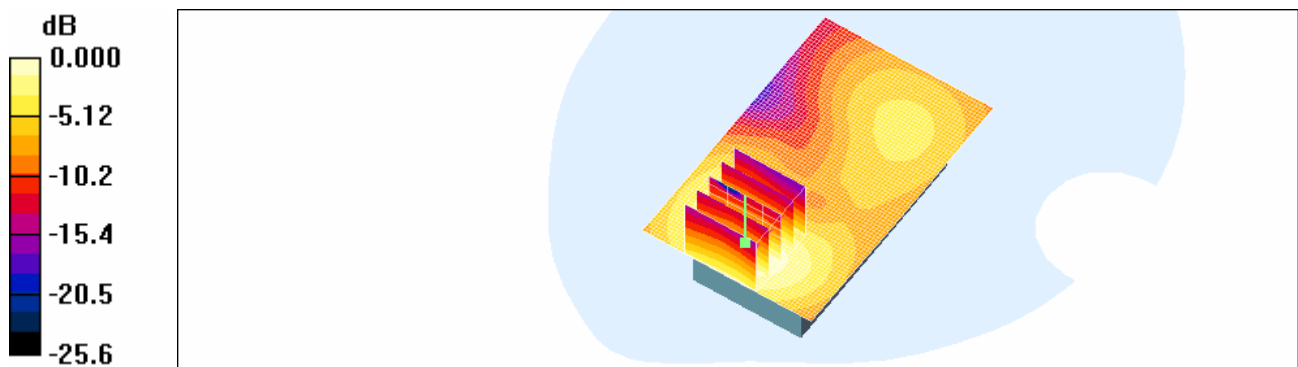
Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.46 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

**Body 661/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.229 mW/g

**Body 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 6.90 V/m; Power Drift = 0.050 dB  
Peak SAR (extrapolated) = 0.346 W/kg  
**SAR(1 g) = 0.212 mW/g; SAR(10 g) = 0.121 mW/g**  
Maximum value of SAR (measured) = 0.232 mW/g



0 dB = 0.232mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.2 °C  
 Ambient Temperature: 21.4 °C  
 Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

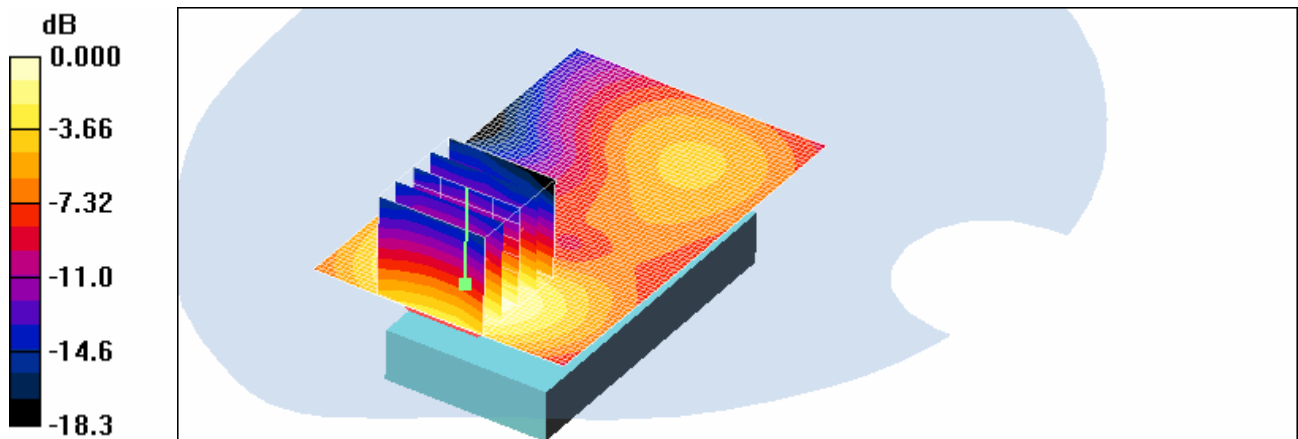
Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:4.15  
 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.46 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

**Body 661/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) = 0.194 mW/g

**Body 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 6.32 V/m; Power Drift = 0.078 dB  
 Peak SAR (extrapolated) = 0.303 W/kg  
**SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.102 mW/g**  
 Maximum value of SAR (measured) = 0.197 mW/g



0 dB = 0.197mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.2 °C  
 Ambient Temperature: 21.4 °C  
 Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

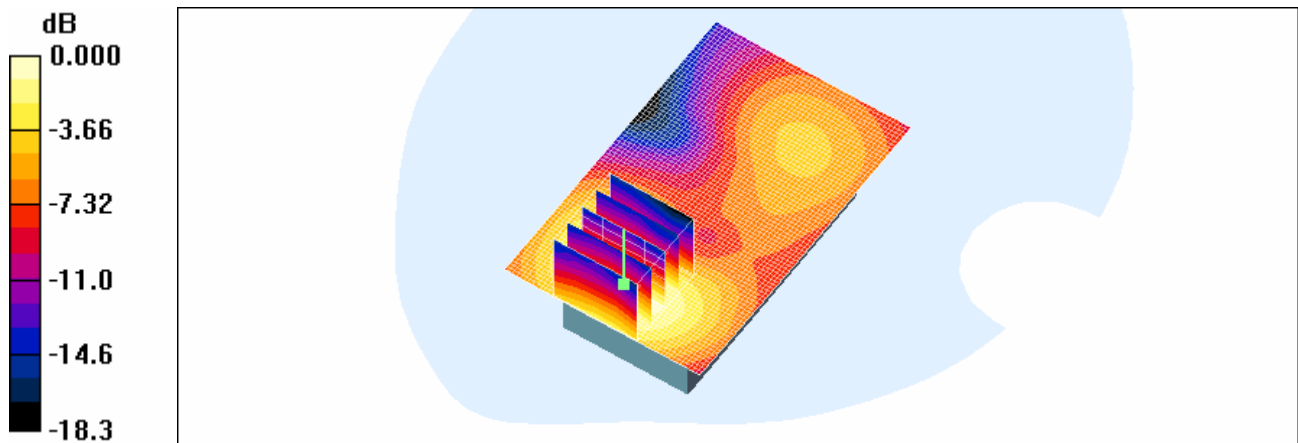
Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.46 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

**Body 661/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) = 0.121 mW/g

**Body 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 5.01 V/m; Power Drift = 0.095 dB  
 Peak SAR (extrapolated) = 0.184 W/kg  
**SAR(1 g) = 0.111 mW/g; SAR(10 g) = 0.064 mW/g**  
 Maximum value of SAR (measured) = 0.122 mW/g



0 dB = 0.122mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.2 °C  
Ambient Temperature: 21.4 °C  
Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.46 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

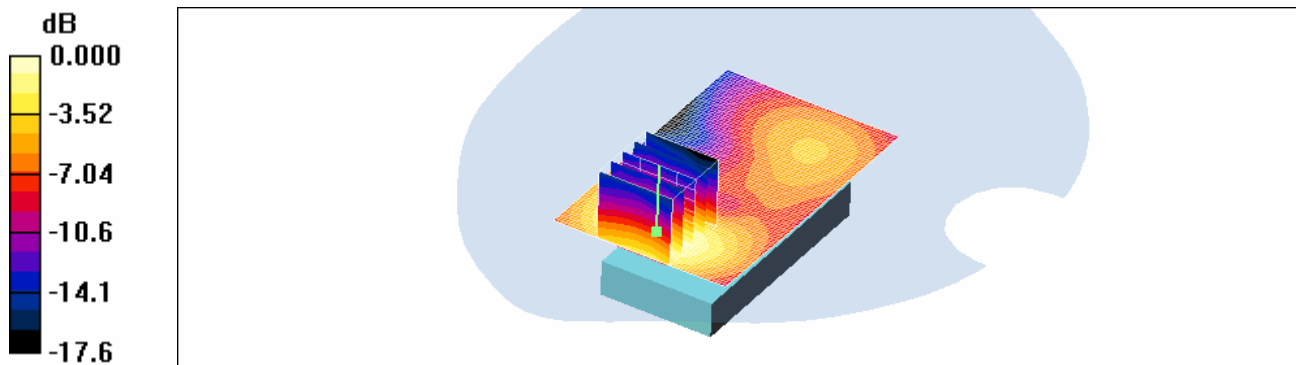
**Body 661/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.121 mW/g

**Body 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 5.03 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 0.181 W/kg

**SAR(1 g) = 0.111 mW/g; SAR(10 g) = 0.064 mW/g**

Maximum value of SAR (measured) = 0.123 mW/g



0 dB = 0.123mW/g

Test Laboratory: HCT CO., LTD  
EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
Liquid Temperature: 21.2 °C  
Ambient Temperature: 21.4 °C  
Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075  
Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.46 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

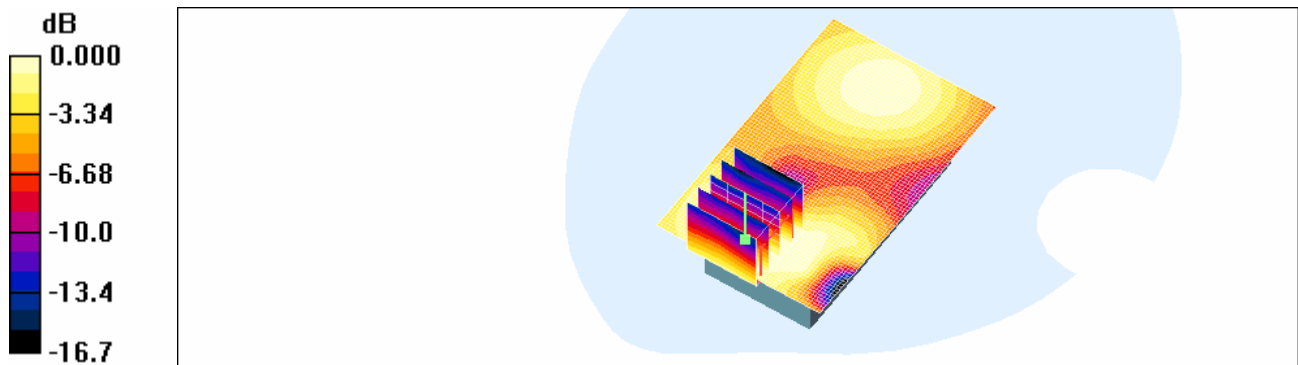
**Body 661/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 0.084 mW/g

**Body 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 7.41 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 0.123 W/kg

**SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.047 mW/g**

Maximum value of SAR (measured) = 0.083 mW/g



0 dB = 0.083mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 4183/Area Scan (51x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.151 mW/g

**Body 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

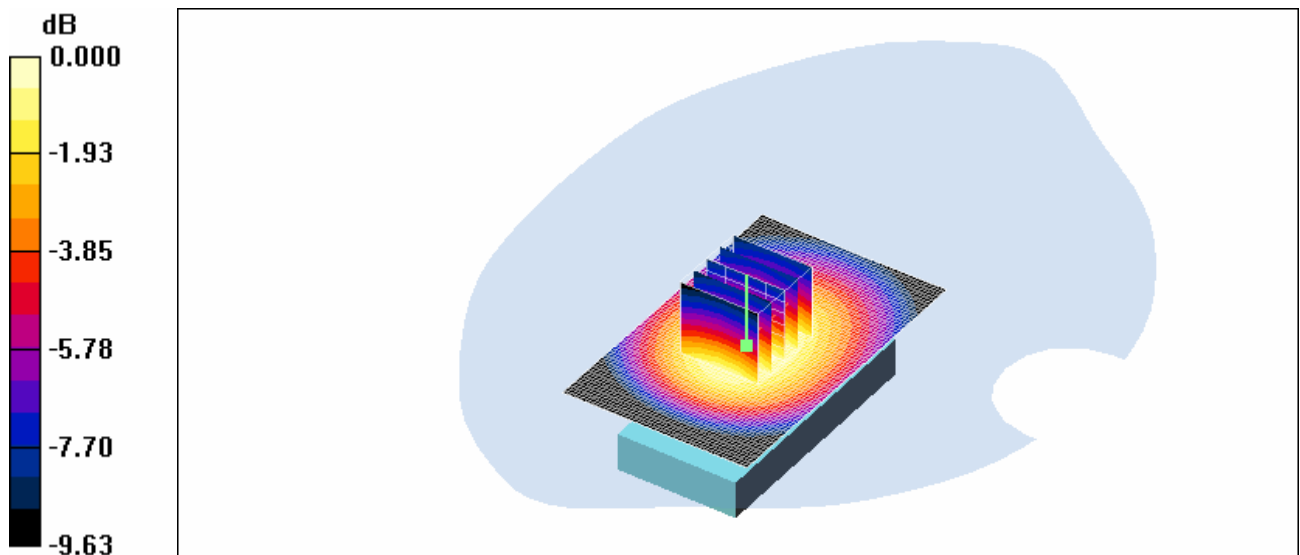
Reference Value = 7.80 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 0.194 W/kg

**SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.101 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.151 mW/g



0 dB = 0.151mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 4183/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.081 mW/g

**Body 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

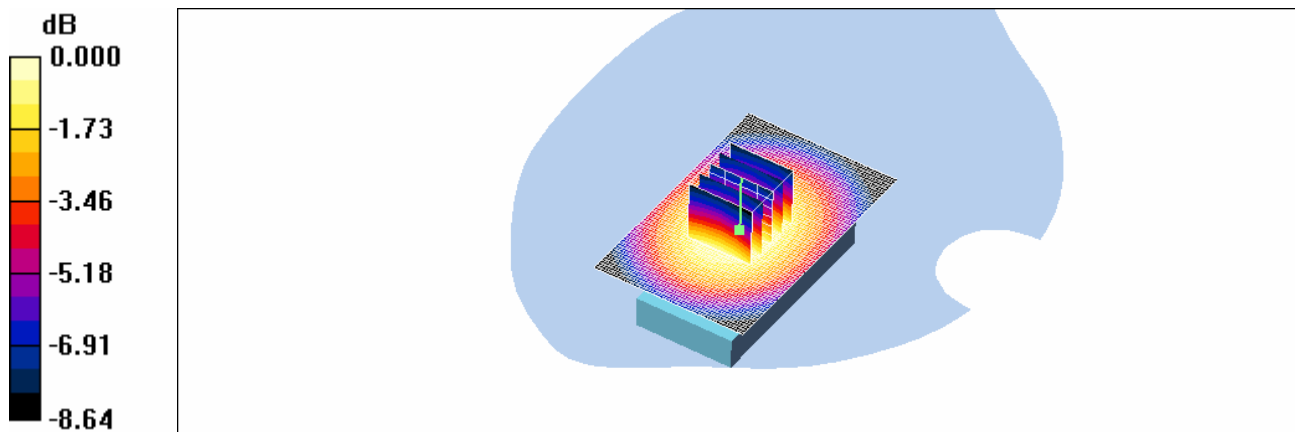
Reference Value = 6.05 V/m; Power Drift = 0.110 dB

Peak SAR (extrapolated) = 0.102 W/kg

**SAR(1 g) = 0.078 mW/g; SAR(10 g) = 0.057 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.083 mW/g



0 dB = 0.083mW/g

Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Left touch 190/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.183 mW/g

**Left touch 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

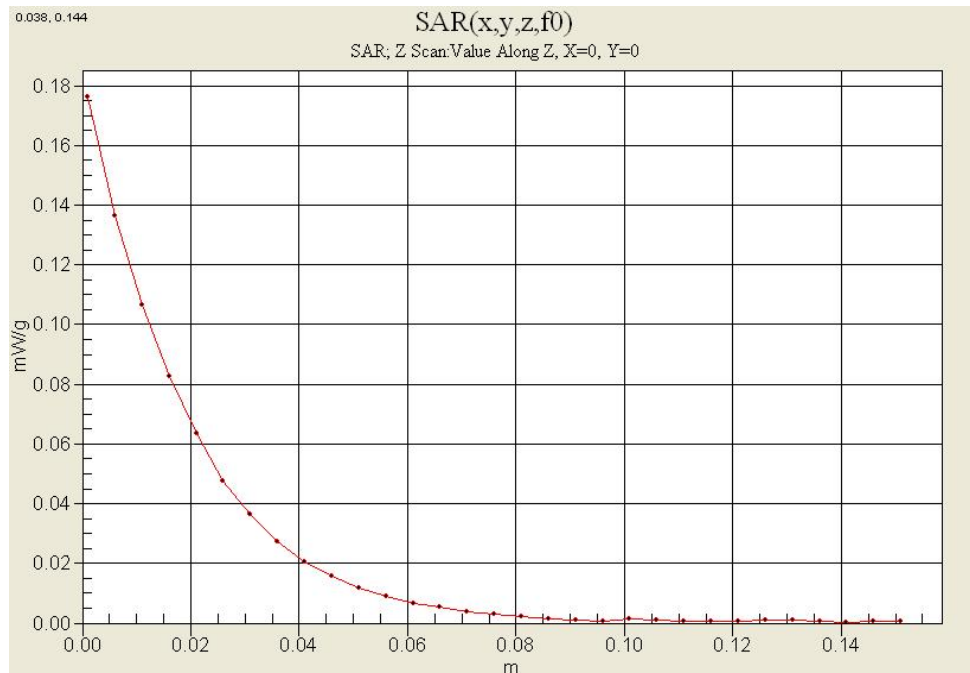
Reference Value = 5.04 V/m; Power Drift = -0.037 dB

Peak SAR (extrapolated) = 0.220 W/kg

**SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.126 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.182 mW/g



Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.075  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.984 \text{ mho/m}$ ;  $\epsilon_r = 56.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 190/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.258 mW/g

**Body 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

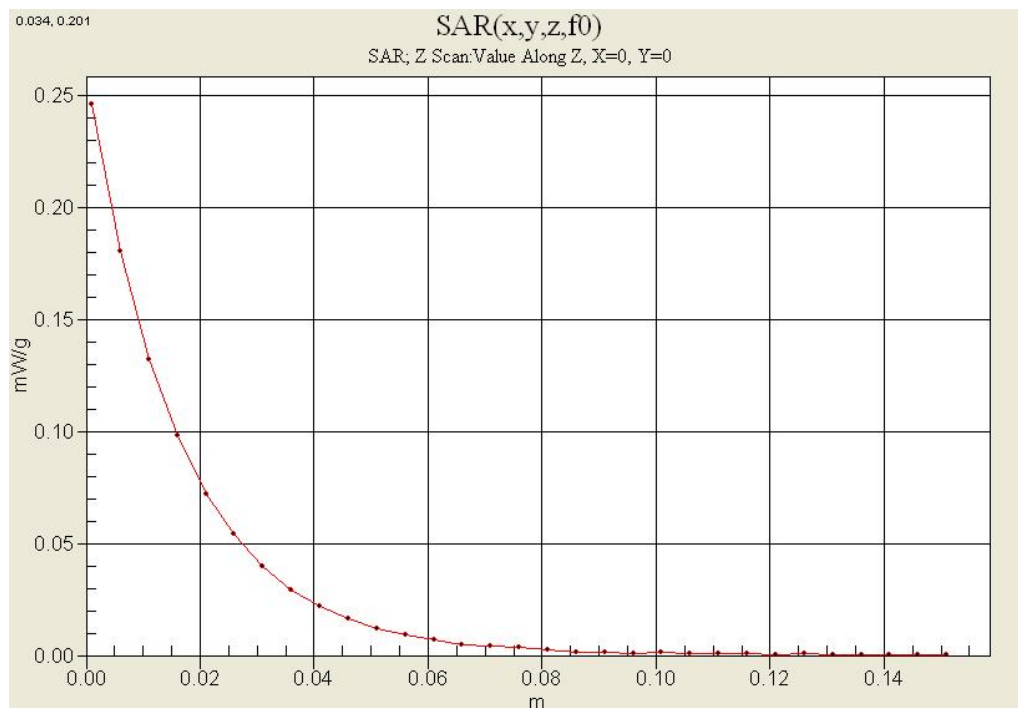
Reference Value = 10.2 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 0.333 W/kg

**SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.174 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.260 mW/g



Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.2 °C  
 Ambient Temperature: 21.4 °C  
 Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

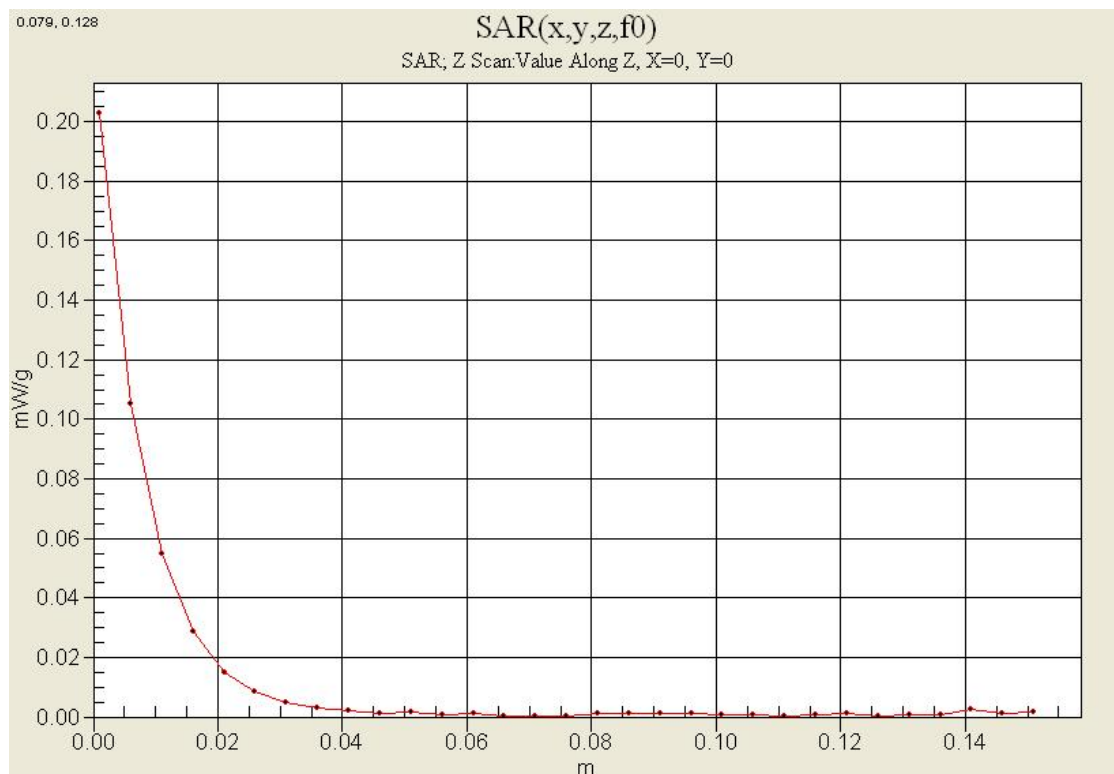
Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3  
 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.38 \text{ mho/m}$ ;  $\epsilon_r = 40.8$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

**Left touch 661/Area Scan (51x91x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
 Maximum value of SAR (interpolated) = 0.223 mW/g

**Left touch 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
 Reference Value = 6.42 V/m; Power Drift = -0.039 dB  
 Peak SAR (extrapolated) = 0.390 W/kg  
**SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.106 mW/g**  
 Maximum value of SAR (measured) = 0.225 mW/g



Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.2 °C  
 Ambient Temperature: 21.4 °C  
 Test Date: Sep.29, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

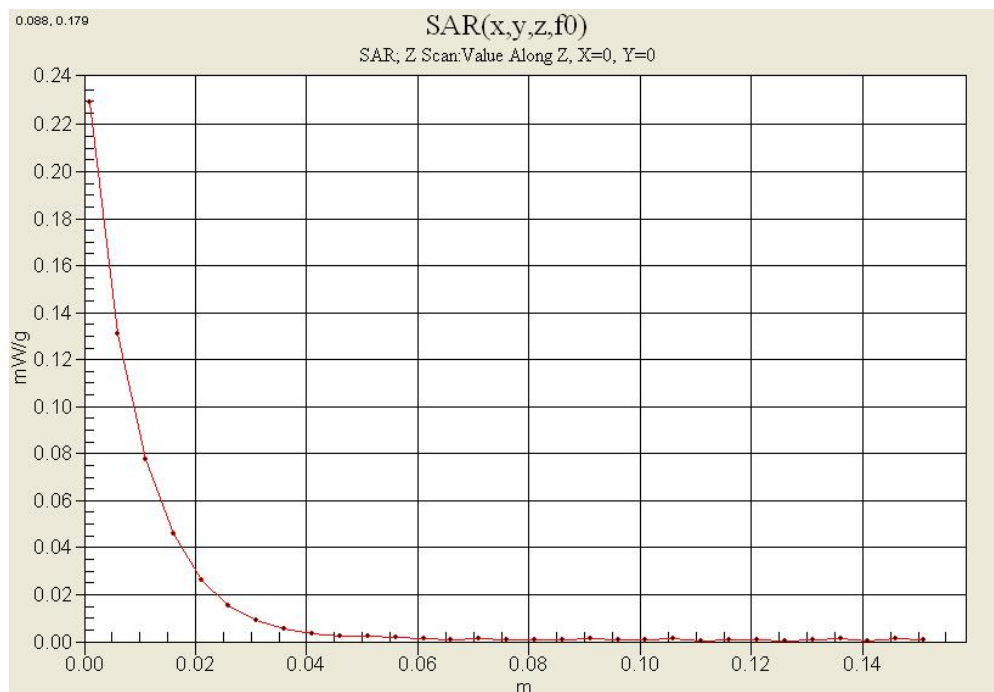
Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075  
 Medium parameters used:  $f = 1880 \text{ MHz}$ ;  $\sigma = 1.46 \text{ mho/m}$ ;  $\epsilon_r = 53.7$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.52, 4.52, 4.52); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 1800/1900 Phantom; Type: SAM

**Body 661/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm  
 Maximum value of SAR (interpolated) = 0.244 mW/g

**Body 661/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm  
 Reference Value = 7.24 V/m; Power Drift = -0.049 dB  
 Peak SAR (extrapolated) = 0.881 W/kg  
**SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.133 mW/g**  
 Maximum value of SAR (measured) = 0.247 mW/g



Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: up; Serial: #1**

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1  
 Medium parameters used (interpolated):  $f = 836.6 \text{ MHz}$ ;  $\sigma = 0.869 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Right touch 4183/Area Scan (51x101x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.217 mW/g

**Right touch 4183/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

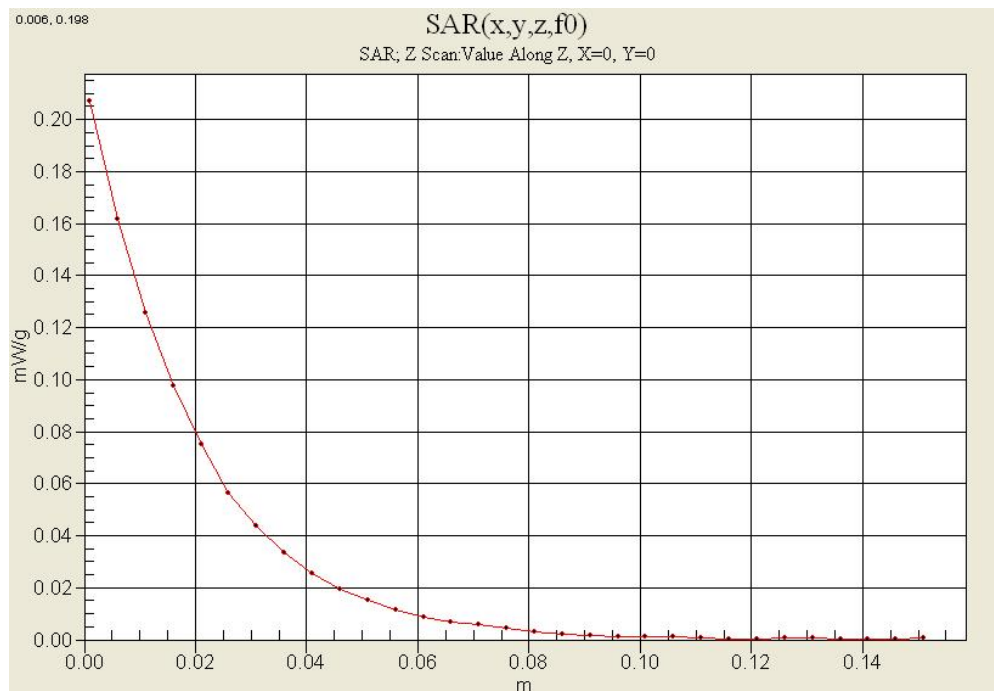
Reference Value = 5.17 V/m; Power Drift = -0.093 dB

Peak SAR (extrapolated) = 0.261 W/kg

**SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.150 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.214 mW/g



Test Laboratory: HCT CO., LTD  
 EUT Type: Cellular/PCS GSM/EDGE/WCDMA Phone with Bluetooth  
 GPRS Class12 and GPRS mode class B(GPRS and GSM, but not simultaneously)  
 Liquid Temperature: 21.1 °C  
 Ambient Temperature: 21.3 °C  
 Test Date: Sep.28, 2010

**DUT: LG-A310f; Type: down; Serial: #1**

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3  
 Medium parameters used (interpolated):  $f = 836.6$  MHz;  $\sigma = 0.984$  mho/m;  $\epsilon_r = 56.8$ ;  $\rho = 1000$  kg/m<sup>3</sup>  
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8  
 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.84, 5.84, 5.84); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: 835/900 Phantom ; Type: SAM

**Body 190/Area Scan (51x81x1):** Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.152 mW/g

**Body 190/Zoom Scan (5x5x7)/Cube 0:** Measurement grid: dx=8mm, dy=8mm, dz=5mm

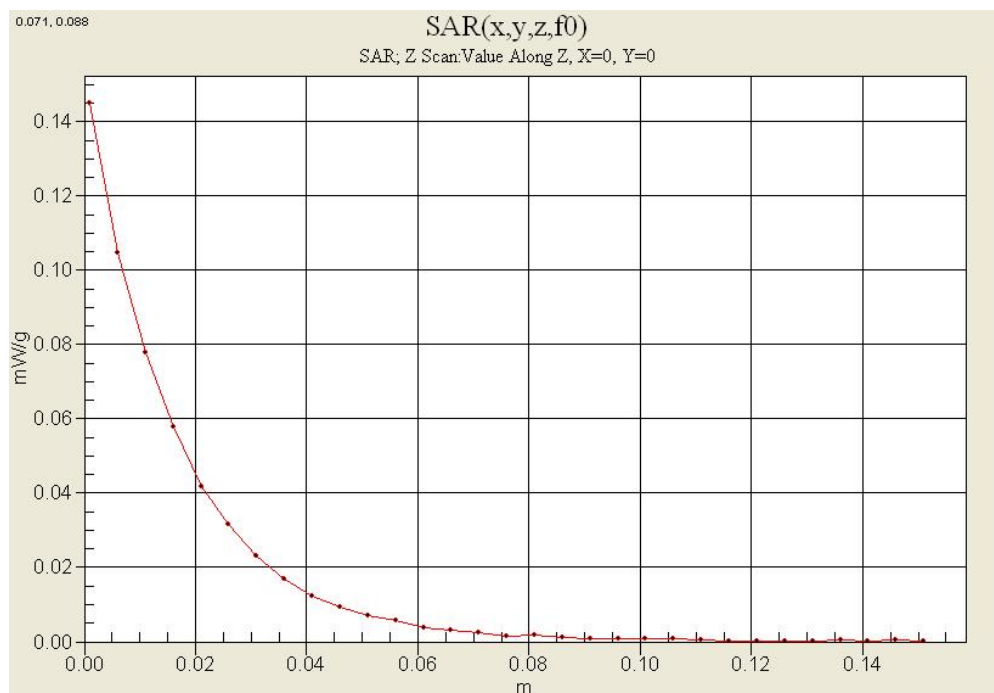
Reference Value = 7.68 V/m; Power Drift = -0.025 dB

Peak SAR (extrapolated) = 0.191 W/kg

**SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.102 mW/g**

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.152 mW/g



## **Attachment 2. – Dipole Validation Plots**

## ■ Validation Data (835 MHz Head)

Test Laboratory: HCT CO., LTD  
Input Power 100 mW (20 dBm)  
Liquid Temp: 21.1 °C  
Test Date: Sep.28, 2010

**DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 – SN:441**

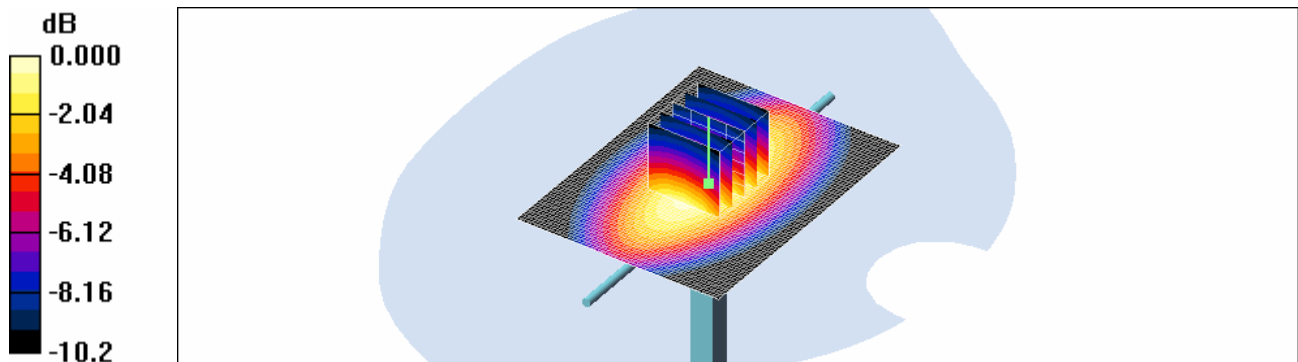
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.868 \text{ mho/m}$ ;  $\epsilon_r = 41.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 – SN3161; ConvF(5.96, 5.96, 5.96); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: SAM 835/900 MHz; Type: SAM

**Validation 835 MHz/Area Scan (61x81x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 1.05 mW/g

**Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 35.0 V/m; Power Drift = -0.091 dB  
Peak SAR (extrapolated) = 1.41 W/kg  
**SAR(1 g) = 0.962 mW/g; SAR(10 g) = 0.639 mW/g**  
Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

## ■ Validation Data (1900 MHz Head)

Test Laboratory: HCT CO., LTD  
Input Power 100 mW (20 dBm)  
Liquid Temp: 21.2 °C  
Test Date: Sep.29, 2010

**DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN:5d032**

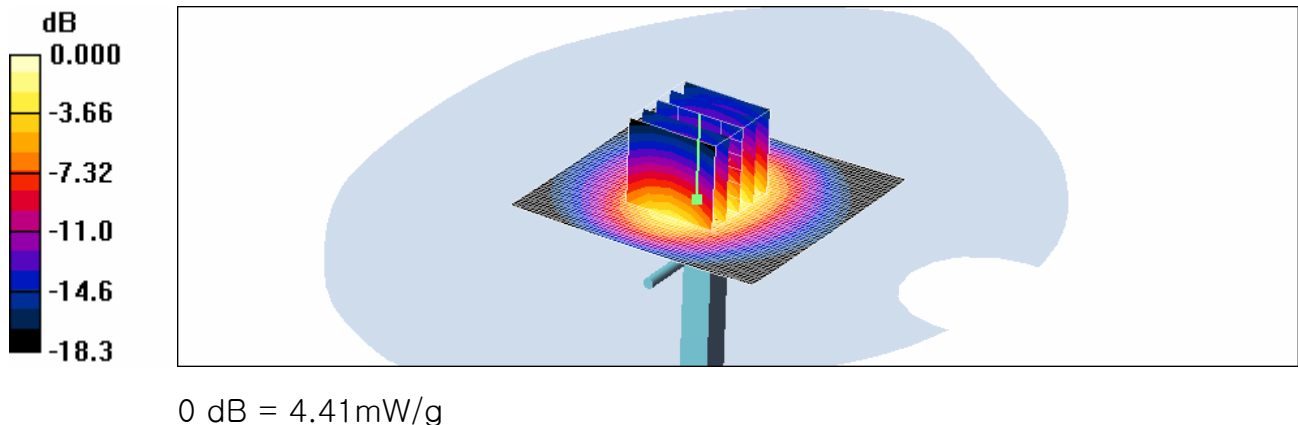
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1  
Medium parameters used:  $f = 1900 \text{ MHz}$ ;  $\sigma = 1.4 \text{ mho/m}$ ;  $\epsilon_r = 40.6$ ;  $\rho = 1000 \text{ kg/m}^3$   
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 – SN3161; ConvF(4.79, 4.79, 4.79); Calibrated: 2010-03-22
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2010-08-19
- Phantom: SAM 1800/1900 MHz; Type: SAM

**Dipole 1900MHz Validation/Area Scan (61x61x1):** Measurement grid:  $dx=15\text{mm}$ ,  $dy=15\text{mm}$   
Maximum value of SAR (interpolated) = 4.59 mW/g

**Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$   
Reference Value = 57.8 V/m; Power Drift = 0.009 dB  
Peak SAR (extrapolated) = 7.21 W/kg  
**SAR(1 g) = 4.08 mW/g; SAR(10 g) = 2.23 mW/g**  
Maximum value of SAR (measured) = 4.41 mW/g



## ■ Dielectric Parameter (835 MHz Head)

Title LG-A310F  
SubTitle GSM850(Head)  
Test Date Sep.28, 2010

| Frequency      | e'      | e''     |
|----------------|---------|---------|
| 800000000.0000 | 42.0299 | 19.0248 |
| 805000000.0000 | 42.0500 | 18.9482 |
| 810000000.0000 | 41.9702 | 18.8995 |
| 815000000.0000 | 41.8983 | 18.8761 |
| 820000000.0000 | 41.8209 | 18.7909 |
| 825000000.0000 | 41.7247 | 18.7490 |
| 830000000.0000 | 41.6493 | 18.7020 |
| 835000000.0000 | 41.6442 | 18.6779 |
| 840000000.0000 | 41.5801 | 18.6654 |
| 845000000.0000 | 41.5253 | 18.6453 |
| 850000000.0000 | 41.4884 | 18.6669 |
| 855000000.0000 | 41.4285 | 18.6590 |
| 860000000.0000 | 41.3945 | 18.6489 |
| 865000000.0000 | 41.3264 | 18.6590 |
| 870000000.0000 | 41.3030 | 18.7323 |
| 875000000.0000 | 41.3318 | 18.7039 |
| 880000000.0000 | 41.2596 | 18.7252 |
| 885000000.0000 | 41.2156 | 18.7531 |
| 890000000.0000 | 41.1735 | 18.7505 |
| 895000000.0000 | 41.1607 | 18.7938 |
| 900000000.0000 | 41.0828 | 18.7821 |

## ■ Dielectric Parameter (835 MHz Body)

Title LG-A310F  
SubTitle GSM850(Body)  
Test Date Sep.28,2010

| Frequency      | e'      | e''     |
|----------------|---------|---------|
| 800000000.0000 | 57.0463 | 21.3114 |
| 805000000.0000 | 56.9713 | 21.3052 |
| 810000000.0000 | 57.0161 | 21.2441 |
| 815000000.0000 | 56.9163 | 21.2291 |
| 820000000.0000 | 56.9370 | 21.2132 |
| 825000000.0000 | 56.8884 | 21.1941 |
| 830000000.0000 | 56.8257 | 21.1467 |
| 835000000.0000 | 56.8235 | 21.1571 |
| 840000000.0000 | 56.7830 | 21.0802 |
| 845000000.0000 | 56.7284 | 21.0569 |
| 850000000.0000 | 56.7173 | 21.0050 |
| 855000000.0000 | 56.6075 | 20.9827 |
| 860000000.0000 | 56.5893 | 20.9223 |
| 865000000.0000 | 56.4753 | 20.9263 |
| 870000000.0000 | 56.3524 | 20.8652 |
| 875000000.0000 | 56.3094 | 20.7946 |
| 880000000.0000 | 56.2343 | 20.7963 |
| 885000000.0000 | 56.1953 | 20.7817 |
| 890000000.0000 | 56.1706 | 20.8116 |
| 895000000.0000 | 56.0456 | 20.7653 |
| 900000000.0000 | 56.0558 | 20.7533 |

## ■ Dielectric Parameter (1900 MHz Head)

Title LG-A310F  
SubTitle WCDMA1900(Head)  
Test Date Sep.29,2010

| Frequency       | e'      | e''     |
|-----------------|---------|---------|
| 1800000000.0000 | 41.0853 | 12.9927 |
| 1810000000.0000 | 41.0512 | 13.0039 |
| 1820000000.0000 | 41.0301 | 13.0527 |
| 1830000000.0000 | 41.0008 | 13.1343 |
| 1840000000.0000 | 40.9548 | 13.1683 |
| 1850000000.0000 | 40.9226 | 13.2118 |
| 1860000000.0000 | 40.8623 | 13.1915 |
| 1870000000.0000 | 40.8269 | 13.2493 |
| 1880000000.0000 | 40.7510 | 13.2340 |
| 1890000000.0000 | 40.6907 | 13.2269 |
| 1900000000.0000 | 40.6133 | 13.2378 |
| 1910000000.0000 | 40.5752 | 13.2380 |
| 1920000000.0000 | 40.5538 | 13.2753 |
| 1930000000.0000 | 40.5429 | 13.3174 |
| 1940000000.0000 | 40.4990 | 13.3398 |
| 1950000000.0000 | 40.5349 | 13.3768 |
| 1960000000.0000 | 40.5350 | 13.3991 |
| 1970000000.0000 | 40.5207 | 13.4638 |
| 1980000000.0000 | 40.5018 | 13.4809 |
| 1990000000.0000 | 40.4136 | 13.5164 |
| 2000000000.0000 | 40.3912 | 13.5421 |

**■ Dielectric Parameter (1900 MHz Body)**

Title LG-A310F  
SubTitle WCDMA1900(Body)  
Test Date Sep.28,2010

| Frequency       | e'      | e''     |
|-----------------|---------|---------|
| 1850000000.0000 | 53.7945 | 13.8885 |
| 1855000000.0000 | 53.7812 | 13.9029 |
| 1860000000.0000 | 53.7714 | 13.9164 |
| 1865000000.0000 | 53.7601 | 13.9202 |
| 1870000000.0000 | 53.7883 | 13.9387 |
| 1875000000.0000 | 53.7117 | 13.9722 |
| 1880000000.0000 | 53.7180 | 13.9914 |
| 1885000000.0000 | 53.6692 | 14.0042 |
| 1890000000.0000 | 53.6426 | 14.0416 |
| 1895000000.0000 | 53.5996 | 14.0465 |
| 1900000000.0000 | 53.5835 | 14.0520 |
| 1905000000.0000 | 53.5758 | 14.0868 |
| 1910000000.0000 | 53.5164 | 14.0853 |
| 1915000000.0000 | 53.4627 | 14.1216 |
| 1920000000.0000 | 53.4750 | 14.1597 |
| 1925000000.0000 | 53.4648 | 14.1456 |
| 1930000000.0000 | 53.4361 | 14.1780 |
| 1935000000.0000 | 53.4598 | 14.1950 |
| 1940000000.0000 | 53.4658 | 14.2111 |
| 1945000000.0000 | 53.4316 | 14.2493 |
| 1850000000.0000 | 53.7945 | 13.8885 |

## **Attachment 3. – Probe Calibration Data**

**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  
**S** 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

Accreditation No.: SCS 108

Client **HCT (Dymstec)**

Certificate No: ES3-3161\_Mar10

## CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3161**

Calibration procedure(s) **QA CAL-01.v6, QA CAL-12.v6, QA CAL-23.v3 and QA CAL-25.v2  
Calibration procedure for dosimetric E-field probes**

Calibration date: **March 22, 2010**

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 ( $22 \pm 3$ )°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

| Primary Standards          | ID #            | 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                |
| Power sensor E4412A        | MY41498087      | 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                |
| Reference 30 dB Attenuator | SN: S5129 (30b) | 31-Mar-09 (No. 217-01027)      | Mar-10                |
| Reference Probe ES3DV2     | SN: 3013        | 30-Dec-09 (No. ES3-3013_Dec09) | Dec-10                |
| DAE4                       | SN: 660         | 29-Sep-09 (No. DAE4-660_Sep09) | Sep-10                |

| 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-09) | In house check: Oct10  |

|                | Name           | Function              | Signature |
|----------------|----------------|-----------------------|-----------|
| Calibrated by: | Jeton Kastrati | Laboratory Technician |           |
| Approved by:   | Katja Pokovic  | Technical Manager     |           |

Issued: March 25, 2010

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

Certificate No: ES3-3161\_Mar10

Page 1 of 11

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



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

Accreditation No.: **SCS 108**

### Glossary:

|                          |                                                                                                                                                         |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| TSL                      | tissue simulating liquid                                                                                                                                |
| NORM <sub>x,y,z</sub>    | sensitivity in free space                                                                                                                               |
| ConvF                    | sensitivity in TSL / NORM <sub>x,y,z</sub>                                                                                                              |
| DCP                      | diode compression point                                                                                                                                 |
| CF                       | crest factor (1/duty_cycle) of the RF signal                                                                                                            |
| A, B, C                  | modulation dependent linearization parameters                                                                                                           |
| Polarization $\phi$      | $\phi$ rotation around probe axis                                                                                                                       |
| Polarization $\vartheta$ | $\vartheta$ rotation around an axis that is in the plane normal to probe axis (at measurement center),<br>i.e., $\vartheta = 0$ is normal to probe axis |

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

- IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
- IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

### Methods Applied and Interpretation of Parameters:

- NORM<sub>x,y,z</sub>**: Assessed for E-field polarization  $\vartheta = 0$  ( $f \leq 900$  MHz in TEM-cell;  $f > 1800$  MHz: R22 waveguide). NORM<sub>x,y,z</sub> are only intermediate values, i.e., the uncertainties of NORM<sub>x,y,z</sub> does not effect the E<sup>2</sup>-field uncertainty inside TSL (see below ConvF).
- NORM(f)<sub>x,y,z</sub>** = NORM<sub>x,y,z</sub> \* frequency\_response (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of ConvF.
- DCPx,y,z**: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- Ax,y,z; Bx,y,z; Cx,y,z; VRx,y,z**: A, B, C are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. VR is the maximum calibration range expressed in RMS voltage across the diode.
- ConvF and Boundary Effect Parameters**: Assessed in flat phantom using E-field (or Temperature Transfer Standard for  $f \leq 800$  MHz) and inside waveguide using analytical field distributions based on power measurements for  $f > 800$  MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to NORM<sub>x,y,z</sub> \* ConvF whereby the uncertainty corresponds to that given for ConvF. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from  $\pm 50$  MHz to  $\pm 100$  MHz.
- Spherical isotropy (3D deviation from isotropy)**: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- Sensor Offset**: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

ES3DV3 SN:3161

March 22, 2010

# Probe ES3DV3

## SN:3161

|                  |                 |
|------------------|-----------------|
| Manufactured:    | October 8, 2007 |
| Last calibrated: | July 22, 2009   |
| Recalibrated:    | March 22, 2010  |

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

ES3DV3 SN:3161

March 22, 2010

## DASY - Parameters of Probe: ES3DV3 SN:3161

### Basic Calibration Parameters

|                                       | Sensor X | Sensor Y | Sensor Z | Unc (k=2) |
|---------------------------------------|----------|----------|----------|-----------|
| Norm ( $\mu V/(V/m)^2$ ) <sup>A</sup> | 1.11     | 1.27     | 1.21     | ± 10.1%   |
| DCP (mV) <sup>B</sup>                 | 89.6     | 92.5     | 91.0     |           |

### Modulation Calibration Parameters

| UID   | Communication System Name | PAR  |   | A<br>dB | B<br>dBuV | C    | VR<br>mV | Unc <sup>E</sup><br>(k=2) |
|-------|---------------------------|------|---|---------|-----------|------|----------|---------------------------|
| 10000 | CW                        | 0.00 | X | 0.00    | 0.00      | 1.00 | 300.0    | ± 1.5%                    |
|       |                           |      | Y | 0.00    | 0.00      | 1.00 | 300.0    |                           |
|       |                           |      | Z | 0.00    | 0.00      | 1.00 | 300.0    |                           |

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

<sup>A</sup> The uncertainties of NormX,Y,Z do not affect the E<sup>2</sup>-field uncertainty inside TSL (see Pages 5 and 6).

<sup>B</sup> Numerical linearization parameter: uncertainty not required.

<sup>E</sup> Uncertainty is determined using the maximum deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

ES3DV3 SN:3161

March 22, 2010

## DASY - Parameters of Probe: ES3DV3 SN:3161

### Calibration Parameter Determined in Head Tissue Simulating Media

| f [MHz] | Validity [MHz] <sup>c</sup> | Permittivity | Conductivity | ConvF X | ConvF Y | ConvF Z | Alpha | Depth Unc (k=2) |
|---------|-----------------------------|--------------|--------------|---------|---------|---------|-------|-----------------|
| 450     | ± 50 / ± 100                | 43.5 ± 5%    | 0.87 ± 5%    | 6.23    | 6.23    | 6.23    | 0.24  | 1.47 ± 13.3%    |
| 835     | ± 50 / ± 100                | 41.5 ± 5%    | 0.90 ± 5%    | 5.96    | 5.96    | 5.96    | 0.82  | 1.12 ± 11.0%    |
| 900     | ± 50 / ± 100                | 41.5 ± 5%    | 0.97 ± 5%    | 5.82    | 5.82    | 5.82    | 0.74  | 1.17 ± 11.0%    |
| 1750    | ± 50 / ± 100                | 40.1 ± 5%    | 1.37 ± 5%    | 4.97    | 4.97    | 4.97    | 0.40  | 1.69 ± 11.0%    |
| 1900    | ± 50 / ± 100                | 40.0 ± 5%    | 1.40 ± 5%    | 4.79    | 4.79    | 4.79    | 0.42  | 1.63 ± 11.0%    |
| 1950    | ± 50 / ± 100                | 40.0 ± 5%    | 1.40 ± 5%    | 4.67    | 4.67    | 4.67    | 0.37  | 1.79 ± 11.0%    |
| 2300    | ± 50 / ± 100                | 39.5 ± 5%    | 1.67 ± 5%    | 4.54    | 4.54    | 4.54    | 0.34  | 2.02 ± 11.0%    |
| 2450    | ± 50 / ± 100                | 39.2 ± 5%    | 1.80 ± 5%    | 4.26    | 4.26    | 4.26    | 0.39  | 1.91 ± 11.0%    |
| 2600    | ± 50 / ± 100                | 39.0 ± 5%    | 1.96 ± 5%    | 4.22    | 4.22    | 4.22    | 0.53  | 1.57 ± 11.0%    |

<sup>c</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

ES3DV3 SN:3161

March 22, 2010

## DASY - Parameters of Probe: ES3DV3 SN:3161

### Calibration Parameter Determined in Body Tissue Simulating Media

| f [MHz] | Validity [MHz] <sup>Ⓒ</sup> | Permittivity | Conductivity | ConvF X | ConvF Y | ConvF Z | Alpha | Depth Unc (k=2) |
|---------|-----------------------------|--------------|--------------|---------|---------|---------|-------|-----------------|
| 450     | ± 50 / ± 100                | 56.7 ± 5%    | 0.94 ± 5%    | 6.69    | 6.69    | 6.69    | 0.15  | 1.27 ± 13.3%    |
| 835     | ± 50 / ± 100                | 55.2 ± 5%    | 0.97 ± 5%    | 5.84    | 5.84    | 5.84    | 0.70  | 1.23 ± 11.0%    |
| 1750    | ± 50 / ± 100                | 53.4 ± 5%    | 1.49 ± 5%    | 4.74    | 4.74    | 4.74    | 0.34  | 2.11 ± 11.0%    |
| 1900    | ± 50 / ± 100                | 53.3 ± 5%    | 1.52 ± 5%    | 4.52    | 4.52    | 4.52    | 0.31  | 2.37 ± 11.0%    |
| 1950    | ± 50 / ± 100                | 53.3 ± 5%    | 1.52 ± 5%    | 4.64    | 4.64    | 4.64    | 0.35  | 2.18 ± 11.0%    |
| 2300    | ± 50 / ± 100                | 52.8 ± 5%    | 1.85 ± 5%    | 4.35    | 4.35    | 4.35    | 0.41  | 1.83 ± 11.0%    |
| 2450    | ± 50 / ± 100                | 52.7 ± 5%    | 1.95 ± 5%    | 4.17    | 4.17    | 4.17    | 0.77  | 1.17 ± 11.0%    |
| 2600    | ± 50 / ± 100                | 52.5 ± 5%    | 2.16 ± 5%    | 4.07    | 4.07    | 4.07    | 0.82  | 1.20 ± 11.0%    |

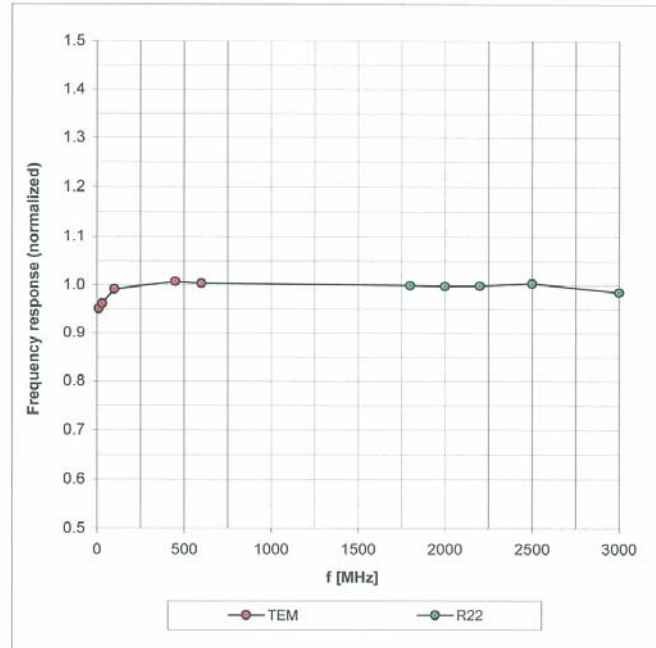
<sup>Ⓒ</sup> The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

ES3DV3 SN:3161

March 22, 2010

## Frequency Response of E-Field

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

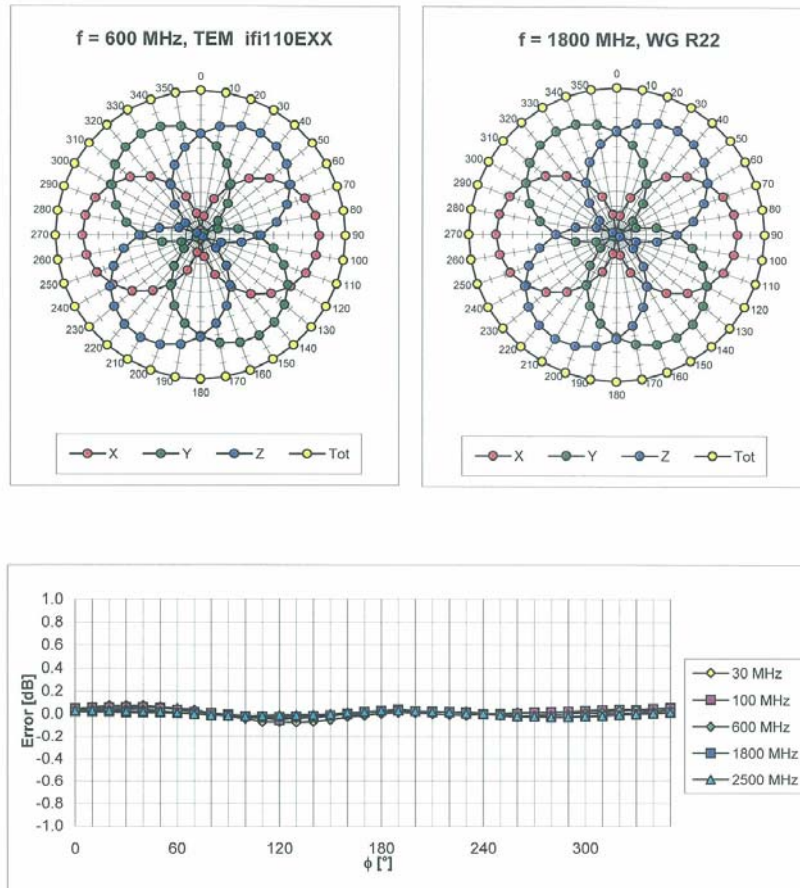


Uncertainty of Frequency Response of E-field:  $\pm 6.3\%$  (k=2)

ES3DV3 SN:3161

March 22, 2010

### Receiving Pattern ( $\phi$ ), $\theta = 0^\circ$

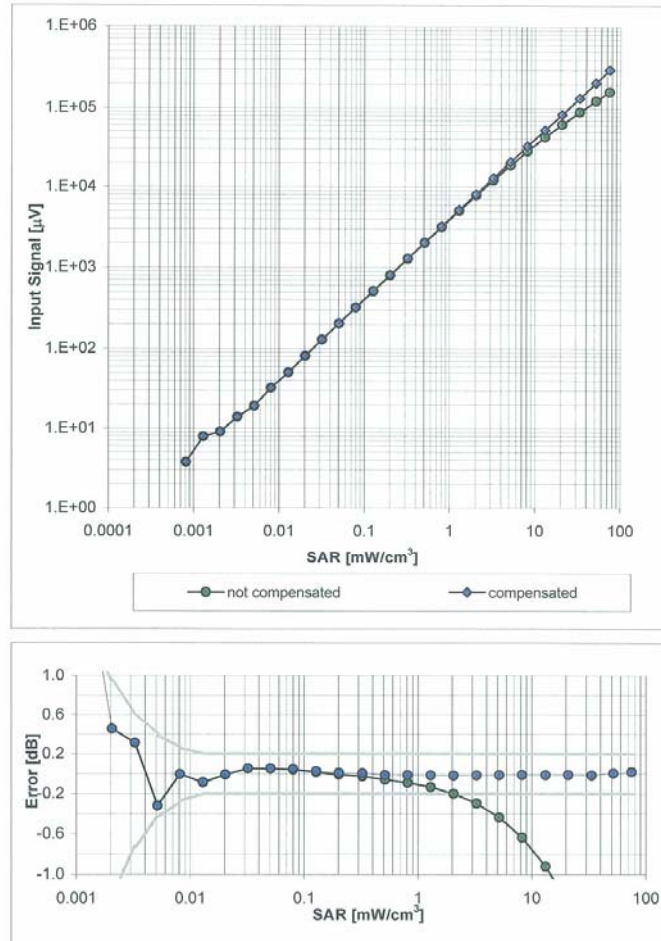


Uncertainty of Axial Isotropy Assessment:  $\pm 0.5\%$  ( $k=2$ )

ES3DV3 SN:3161

March 22, 2010

**Dynamic Range  $f(\text{SAR}_{\text{head}})$**   
(Waveguide R22,  $f = 1800 \text{ MHz}$ )



Uncertainty of Linearity Assessment:  $\pm 0.6\%$  ( $k=2$ )