

# Annex A General Information

# 1. Identification of the Responsible Testing Laboratory

| Company Name:       | Shenzhen Morlab Communications Technology Co., Ltd.           |  |
|---------------------|---------------------------------------------------------------|--|
| Department:         | Morlab Laboratory                                             |  |
| Address:            | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road,  |  |
|                     | Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. |  |
|                     | China                                                         |  |
| ResponsibleTest Lab | Mr. Su Feng                                                   |  |
| Manager:            |                                                               |  |
| Telephone:          | +86 755 36698555                                              |  |
| Facsimile:          | +86 755 36698525                                              |  |

#### 2. Identification of the Responsible Testing Location

| Name:    | Shenzhen Morlab Communications Technology Co., Ltd. Morlab    |
|----------|---------------------------------------------------------------|
|          | Laboratory                                                    |
| Address: | FL.3, Building A, FeiYang Science Park, No.8 LongChang Road,  |
|          | Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. |
|          | China                                                         |

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# 3. List of Test Equipments

| No. | Instrument           | Туре                                               | Cal. Date | Cal.<br>Due |
|-----|----------------------|----------------------------------------------------|-----------|-------------|
| 1   | PC                   | Dell (Pentium IV 2.4GHz,<br>SN:X10-23533)          | (n.a)     | (n.a)       |
| 2   | Network Emulator     | Aglient (8960, SN:10752)                           | 2017-5-24 | 1year       |
| 3   | Network Emulator     | Rohde&Schwarz<br>(CMW500,SN:124534)                | 2017-5-25 | 1year       |
| 4   | Network Analyzer     | Agilent(E5071B ,SN:MY42404762 )                    | 2017-5-25 | 1year       |
| 5   | Voltmeter            | Keithley (2000, SN:1000572)                        | 2017-7-8  | 1year       |
| 6   | Synthetizer          | Rohde&Schwarz (SML_03,<br>SN:101868)               | 2017-8-24 | 1year       |
| 7   | Signal Generator     | Rohde&Schwarz (SMP_02)                             | 2017-7-8  | 1year       |
| 8   | Power Amplifier      | PRANA (Ap32 SV125AZ)                               | 2017-7-8  | 1year       |
| 9   | Power Meter          | Agilent (E4416A, SN:MY45102093)                    | 2017-7-8  | 1year       |
| 10  | Power Sensor         | Agilent (N8482A, SN:MY41091706)                    | 2017-7-8  | 1year       |
| 11  | Power Meter          | Rohde&Schwarz (NRVD, SN:101066)                    | 2017-7-8  | 1year       |
| 12  | Power Sensor         | MA2411B                                            | 2017-7-8  | 1year       |
| 13  | Directional coupler  | Giga-tronics(SN:1829112)                           | 2017-7-24 | 1year       |
| 14  | Probe                | Satimo (SN:SN 37/08 EP80)                          | 2017-7-5  | 1year       |
| 15  | Probe                | Satimo (SN:SN 37/13 EPG193)                        | 2017-7-5  | 1year       |
| 16  | Dielectric Probe Kit | Agilent (85033E)                                   | 2017-7-5  | 1year       |
| 17  | Phantom              | Satimo (SN:SN_36_08_SAM62)                         | N/A       | N/A         |
| 18  | Liquid               | Satimo(Last Calibration: 2018-01-12 to 2018-02-08) | N/A       | N/A         |
| 19  | Dipole 750MHz        | Satimo (SN30/13 DIP0G750)                          | 2017-7-5  | 1year       |
| 20  | Dipole 835MHz        | Satimo (SN 20/08 DIPC99)                           | 2017-7-5  | 1year       |
| 21  | Dipole 1800MHz       | Satimo (SN 36/08 DIPF101)                          | 2017-7-5  | 1year       |
| 22  | Dipole 2000MHz       | Satimo (SN 20/08 DIPI102)                          | 2017-7-5  | 1year       |
| 23  | Dipole 2450MHz       | Satimo (SN 30/13 DIP2G450-263)                     | 2017-7-5  | 1year       |
| 24  | Dipole 2600MHz       | Satimo (SN 30/13 DIP2G600-265)                     | 2017-7-5  | 1year       |
| 25  | Dipole 5-6GHz        | Satimo (SN 41/12 WGA21)                            | 2017-7-5  | 1year       |
| 26  | Thermo meter         | KTJ(mode-01)                                       | 2017-5-10 | 1year       |

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# Annex B Test Setup Photos

Head



**Right Cheek** 



**Right Tilt** 

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Left Cheek



Left Tilt



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Dama



Body



Front Side\_10mm



Back Side\_10mm



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Right Side\_10mm



Left Side\_10mm



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Top Side\_10mm



Bottom Side\_10mm



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# Annex C Plots of System Performance Check

System Performance Check Data (750MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.12

Measurement duration: 13 minutes 28 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 750MHz            |
| Channels               |                   |
| Signal                 | CW                |

#### **B. SAR Measurement Results**

| Frequency (MHz)                   | 750.00000 |
|-----------------------------------|-----------|
| Relative permittivity (real part) | 41.350601 |
| Conductivity (S/m)                | 0.885608  |
| Power drift (%)                   | 1.030000  |
| Ambient Temperature:              | 22.6°C    |
| Liquid Temperature:               | 21.2°C    |
| ConvF:                            | 6.44      |
| Crest factor:                     | 1:1       |



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# Maximum location: X=2.00, Y=0.00

| SAR 10g (W/Kg) | 0.539271 |
|----------------|----------|
| SAR 1g (W/Kg)  | 0.783215 |

#### Z Axis Scan









System Performance Check Data (750MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.12

Measurement duration: 13 minutes 36 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 750MHz            |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 750.00000 |
|-----------------------------------|-----------|
| Relative permittivity (real part) | 53.517799 |
| Conductivity (S/m)                | 1.031025  |
| Power drift (%)                   | 0.320000  |
| Ambient Temperature:              | 22.6°C    |
| Liquid Temperature:               | 21.2°C    |
| ConvF:                            | 6.68      |
| Crest factor:                     | 1:1       |



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# Maximum location: X=2.00, Y=0.00

| SAR 10g (W/Kg) | 0.609663 |
|----------------|----------|
| SAR 1g (W/Kg)  | 0.905411 |

# <u>Z Axis Scan</u>









#### System Performance Check Data (835MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.19

Measurement duration: 13 minutes 35 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 835MHz            |
| Channels               |                   |
| Signal                 | CW                |

#### **B. SAR Measurement Results**

| Frequency (MHz)                   | 835.000000 |
|-----------------------------------|------------|
| Relative permittivity (real part) | 41.182291  |
| Conductivity (S/m)                | 0.891718   |
| Power drift (%)                   | 1.070000   |
| Ambient Temperature:              | 22.6°C     |
| Liquid Temperature:               | 21.2°C     |
| ConvF:                            | 6.13       |
| Crest factor:                     | 1:1        |



#### Maximum location: X=7.00, Y=-1.00



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| SAR 10g (W/Kg) | 0.622151 |
|----------------|----------|
| SAR 1g (W/Kg)  | 0.968476 |

#### Z Axis Scan







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System Performance Check Data (835MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.01

Measurement duration: 13 minutes 28 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 835MHz            |
| Channels               |                   |
| Signal                 | CW                |

#### **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 835.00000 |
|-----------------------------------|-----------|
| Relative permittivity (real part) | 55.382291 |
| Conductivity (S/m)                | 0.921718  |
| Power drift (%)                   | 1.070000  |
| Ambient Temperature:              | 22.6°C    |
| Liquid Temperature:               | 21.2°C    |
| ConvF:                            | 6.37      |
| Crest factor:                     | 1:1       |



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# Maximum location: X=7.00, Y=-1.00

| SAR 10g (W/Kg) | 0.629151 |
|----------------|----------|
| SAR 1g (W/Kg)  | 0.986576 |

#### Z Axis Scan









### System Performance Check Data(1800MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.31

Measurement duration: 13 minutes 27 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 1800MHz           |
| Channels               |                   |
| Signal                 | CW                |

#### **B. SAR Measurement Results**

# Band SAR

| Frequency (MHz)                   | 1800.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 40.095167   |
| Conductivity (S/m)                | 1.365073    |
| Power drift (%)                   | 0.310000    |
| Ambient Temperature:              | 22.3°C      |
| Liquid Temperature:               | 22.6°C      |
| ConvF:                            | 5.21        |
| Crest factor:                     | 1:1         |





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# Maximum location: X=3.00, Y=1.00

| SAR 10g (W/Kg) | 2.048386 |
|----------------|----------|
| SAR 1g (W/Kg)  | 3.698154 |

Z Axis Scan









#### System Performance Check Data(1800MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.02

Measurement duration: 13 minutes 27 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 1800MHz           |
| Channels               |                   |
| Signal                 | CW                |

#### **B. SAR Measurement Results**

## Band SAR

| Frequency (MHz)                   | 1800.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 53.295167   |
| Conductivity (S/m)                | 1.515073    |
| Power drift (%)                   | 0.310000    |
| Ambient Temperature:              | 22.3°C      |
| Liquid Temperature:               | 22.6°C      |
| ConvF:                            | 5.38        |
| Crest factor:                     | 1:1         |





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### Maximum location: X=3.00, Y=1.00

| SAR 10g (W/Kg) | 2.038386 |
|----------------|----------|
| SAR 1g (W/Kg)  | 3.753454 |

Z Axis Scan









System Performance Check Data(2000MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.17

Measurement duration: 13 minutes 27 seconds

#### A. Experimental conditions.

| Phantom File    | surf_sam_plan.txt |
|-----------------|-------------------|
| Phantom         | Flat              |
| Device Position |                   |
| Band            | 2000MHz           |
| Channels        |                   |
| Signal          | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 2000.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 39.984477   |
| Conductivity (S/m)                | 1.414283    |
| Power drift (%)                   | -0.830000   |
| Ambient Temperature:              | 22.1°C      |
| Liquid Temperature:               | 22.4°C      |
| ConvF:                            | 5.61        |
| Crest factor:                     | 1:1         |



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#### Maximum location: X=7.00, Y=1.00

| SAR 10g (W/Kg) | 1.992518 |
|----------------|----------|
| SAR 1g (W/Kg)  | 4.255954 |

#### Z Axis Scan

| Z (mm) | 0.00                                                                            | 4.00    | 9.00     | 14.00    | 19.00           | 24.00   | 29.00  |
|--------|---------------------------------------------------------------------------------|---------|----------|----------|-----------------|---------|--------|
| SAR    | 0.0000                                                                          | 10.2075 | 7.3996   | 5.4654   | 4.1101          | 3.1286  | 2.4128 |
| (W/Kg) |                                                                                 |         |          |          |                 |         |        |
|        | S<br>10.21 -<br>9.00 -<br>8.00 -<br>7.00 -<br>1.00 -<br>3.00 -<br>1.88 -<br>0.0 | AR, Z A | xis Scar | n (X = ) | <b>7, Y</b> = 1 | .0 35.0 |        |





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System Performance Check Data(2000MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.22

Measurement duration: 13 minutes 27 seconds

# A. Experimental conditions.

| Phantom File    | surf_sam_plan.txt |  |
|-----------------|-------------------|--|
| Phantom         | Flat              |  |
| Device Position |                   |  |
| Band            | 2000MHz           |  |
| Channels        |                   |  |
| Signal          | CW                |  |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 2000.000000 |  |  |
|-----------------------------------|-------------|--|--|
| Relative permittivity (real part) | 53.285167   |  |  |
| Conductivity (S/m)                | 1.514073    |  |  |
| Power drift (%)                   | -1.860000   |  |  |
| Ambient Temperature:              | 22.1°C      |  |  |
| Liquid Temperature:               | 22.4°C      |  |  |
| ConvF:                            | 5.71        |  |  |
| Crest factor:                     | 1:1         |  |  |







#### Maximum location: X=7.00, Y=1.00

| SAR 10g (W/Kg) | 2.092518 |  |  |
|----------------|----------|--|--|
| SAR 1g (W/Kg)  | 4.119540 |  |  |

#### Z Axis Scan

| Z (mm) | 0.00                                                                            | 4.00    | 9.00    | 14.00    | 19.00           | 24.00  | 29.00  |
|--------|---------------------------------------------------------------------------------|---------|---------|----------|-----------------|--------|--------|
| SAR    | 0.0000                                                                          | 10.2075 | 7.3996  | 5.4654   | 4.1101          | 3.1286 | 2.4128 |
| (W/Kg) |                                                                                 |         |         |          |                 |        |        |
|        | S<br>10.21 -<br>9.00 -<br>8.00 -<br>7.00 -<br>4.00 -<br>3.00 -<br>1.88 -<br>0.0 | AR, Z A | xis Sca | n (X = ) | <b>7, Y</b> = 1 |        |        |
| _      |                                                                                 |         |         |          |                 |        |        |







System Performance Check Data(2450MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.06

Measurement duration: 13 minutes 31 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 2450MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 2450.000000 |  |  |
|-----------------------------------|-------------|--|--|
| Relative permittivity (real part) | 39.284446   |  |  |
| Conductivity (S/m)                | 1.836061    |  |  |
| Power Drift (%)                   | 1.080000    |  |  |
| Ambient Temperature:              | 22.0°C      |  |  |
| Liquid Temperature:               | 21.8°C      |  |  |
| ConvF:                            | 4.74        |  |  |
| Crest factor:                     | 1:1         |  |  |







#### Maximum location: X=6.00, Y=1.00

| SAR 10g (W/Kg) | 2.377250 |  |  |
|----------------|----------|--|--|
| SAR 1g (W/Kg)  | 5.326074 |  |  |

#### Z Axis Scan







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System Performance Check Data(2450MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.08

Measurement duration: 13 minutes 31 seconds

# A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 2450MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 2450.000000 |  |
|-----------------------------------|-------------|--|
| Relative permittivity (real part) | 52.884446   |  |
| Conductivity (S/m)                | 1.966143    |  |
| Power Drift (%)                   | 1.080000    |  |
| Ambient Temperature:              | 22.0°C      |  |
| Liquid Temperature:               | 21.8°C      |  |
| ConvF:                            | 4.93        |  |
| Crest factor:                     | 1:1         |  |







#### Maximum location: X=6.00, Y=1.00

| SAR 10g (W/Kg) | 2.377250 |  |  |
|----------------|----------|--|--|
| SAR 1g (W/Kg)  | 5.081074 |  |  |

#### Z Axis Scan







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System Performance Check Data(2600MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.17

Measurement duration: 13 minutes 31 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 2600MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 2600.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 39.024564   |
| Conductivity (S/m)                | 1.975236    |
| Power Drift (%)                   | 1.080000    |
| Ambient Temperature:              | 22.0°C      |
| Liquid Temperature:               | 21.8°C      |
| ConvF:                            | 4.74        |
| Crest factor:                     | 1:1         |



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#### Maximum location: X=6.00, Y=1.00

| SAR 10g (W/Kg) | 2.498154 |
|----------------|----------|
| SAR 1g (W/Kg)  | 5.681472 |

#### Z Axis Scan









System Performance Check Data(2600MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.22

Measurement duration: 13 minutes 31 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Flat              |
| <b>Device Position</b> |                   |
| Band                   | 2600MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 2600.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 52.362564   |
| Conductivity (S/m)                | 2.105256    |
| Power Drift (%)                   | 1.380000    |
| Ambient Temperature:              | 22.0°C      |
| Liquid Temperature:               | 21.8°C      |
| ConvF:                            | 4.93        |
| Crest factor:                     | 1:1         |







#### Maximum location: X=6.00, Y=1.00

| SAR 10g (W/Kg) | 2.369854 |
|----------------|----------|
| SAR 1g (W/Kg)  | 5.386472 |

#### Z Axis Scan









System Performance Check Data(5200MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 23 minutes 27 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Validation plane  |
| <b>Device Position</b> |                   |
| Band                   | 5200MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 5200.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 36.123014   |
| Conductivity (S/m)                | 4.665260    |
| Power Drift (%)                   | 2.310000    |
| Ambient Temperature:              | 22.9°C      |
| Liquid Temperature:               | 22.1°C      |
| ConvF:                            | 21.61       |
| Crest factor:                     | 1:1         |



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### Maximum location: X=1.00, Y=3.00

| SAR 10g (W/Kg) | 5.651263  |
|----------------|-----------|
| SAR 1g (W/Kg)  | 16.398864 |



# Z Axis Scan



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System Performance Check Data(5600MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 13 minutes 27 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Validation plane  |
| <b>Device Position</b> |                   |
| Band                   | 5600MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 5600.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 35.562139   |
| Conductivity (S/m)                | 5.100255    |
| Power Drift (%)                   | 1.080000    |
| Ambient Temperature:              | 22.9°C      |
| Liquid Temperature:               | 22.1°C      |
| ConvF:                            | 22.92       |
| Crest factor:                     | 1:1         |







# Maximum location: X=-1.00, Y=-5.00

| SAR 10g (W/Kg) | 6.0553669 |
|----------------|-----------|
| SAR 1g (W/Kg)  | 17.144263 |



# Z Axis Scan



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System Performance Check Data(5800MHz Head)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 13 minutes 27 seconds

#### A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Validation plane  |
| <b>Device Position</b> |                   |
| Band                   | 5800MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 5800.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 35.334675   |
| Conductivity (S/m)                | 5.310226    |
| Power Drift (%)                   | 1.260000    |
| Ambient Temperature:              | 22.9°C      |
| Liquid Temperature:               | 22.1°C      |
| ConvF:                            | 22.42       |
| Crest factor:                     | 1:1         |



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REPORT No. : SZ17120080S01

# Maximum location: X=-6.00, Y=-1.00

| SAR 10g (W/Kg) | 5.994412  |
|----------------|-----------|
| SAR 1g (W/Kg)  | 17.711256 |



# Z Axis Scan



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System Performance Check Data(5200MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 23 minutes 27 seconds

## A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Validation plane  |
| <b>Device Position</b> |                   |
| Band                   | 5200MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 5200.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 48.273014   |
| Conductivity (S/m)                | 5.443260    |
| Power Drift (%)                   | 2.310000    |
| Ambient Temperature:              | 22.9°C      |
| Liquid Temperature:               | 22.1°C      |
| ConvF:                            | 22.11       |
| Crest factor:                     | 1:1         |





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REPORT No. : SZ17120080S01

# Maximum location: X=1.00, Y=3.00

| SAR 10g (W/Kg) | 5.624355 |
|----------------|----------|
| SAR 1g (W/Kg)  | 16.28442 |



Z Axis Scan



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System Performance Check Data(5600MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 13 minutes 27 seconds

## A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Validation plane  |
| <b>Device Position</b> |                   |
| Band                   | 5600MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 5600.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 48.394381   |
| Conductivity (S/m)                | 5.7432600   |
| Power Drift (%)                   | 1.080000    |
| Ambient Temperature:              | 22.9°C      |
| Liquid Temperature:               | 22.1°C      |
| ConvF:                            | 23.69       |
| Crest factor:                     | 1:1         |





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# Maximum location: X=-1.00, Y=-5.00

| SAR 10g (W/Kg) | 5.906961 |
|----------------|----------|
| SAR 1g (W/Kg)  | 17.19624 |



# Z Axis Scan



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System Performance Check Data(5800MHz Body)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 23 minutes 27 seconds

## A. Experimental conditions.

| Phantom File           | surf_sam_plan.txt |
|------------------------|-------------------|
| Phantom                | Validation plane  |
| <b>Device Position</b> |                   |
| Band                   | 5800MHz           |
| Channels               |                   |
| Signal                 | CW                |

# **B. SAR Measurement Results**

Band SAR

| Frequency (MHz)                   | 5800.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 48.093428   |
| Conductivity (S/m)                | 5.930716    |
| Power Drift (%)                   | 1.260000    |
| Ambient Temperature:              | 22.9°C      |
| Liquid Temperature:               | 22.1°C      |
| ConvF:                            | 23.02       |
| Crest factor:                     | 1:1         |





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REPORT No. : SZ17120080S01

# Maximum location: X=-6.00, Y=-1.00

| SAR 10g (W/Kg) | 5.982634  |
|----------------|-----------|
| SAR 1g (W/Kg)  | 17.695290 |



# Z Axis Scan



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# Annex D Plots of Maximum SAR Test Results

#### **MEASUREMENT 1**

Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.17

Measurement duration: 16 minutes 20 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| <b>Phantom</b>         | Right head               |
| <b>Device Position</b> | <u>Cheek</u>             |
| <u>Band</u>            | Band2_WCDMA1900          |
| <u>Channels</u>        | Low                      |
| <u>Signal</u>          | RMC                      |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 9262):

| Frequency (MHz)                   | 1852.400024 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 40.300000   |
| Conductivity (S/m)                | 1.370851    |
| Power drift (%)                   | -3.540000   |
| Ambient Temperature:              | 22.1°C      |
| Liquid Temperature:               | 22.4°C      |
| ConvF:                            | 5.61        |
| Duty cycle:                       | 1:1         |



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SAR 10g (W/Kg)

0.091693

|               | SAR 1g                                                                                        | (W/Kg)     |        |          | 0.15      | 8999   |        |
|---------------|-----------------------------------------------------------------------------------------------|------------|--------|----------|-----------|--------|--------|
| Z (mm)        | 0.00                                                                                          | 4.00       | 9.00   | 14.00    | 19.00     | 24.00  | 29.00  |
| SAR<br>(W/Kg) | 0.1315                                                                                        | 0.0683     | 0.0241 | 0.0138   | 0.0021    | 0.0013 | 0.0005 |
|               | 0.13<br>0.12<br>0.10<br>(29,0.08<br>(29,0.08<br>(29,0.08<br>9,0.06<br>29,0.04<br>0.04<br>0.02 |            |        |          |           |        |        |
|               | 0.00-<br>0                                                                                    | 02.55.07.5 | 12.5 1 | 7.5 22.5 | 27.5 32.5 | 40.0   |        |

Z (mm)

# Maximum location: X=-72.00, Y=-66.00 SAR Peak: 0.11 W/kg



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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.22

Measurement duration: 15 minutes 56 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Flat                     |
| <b>Device Position</b> | Body                     |
| Band                   | Band2 WCDMA1900          |
| <u>Channels</u>        | Low                      |
| <u>Signal</u>          | RMC                      |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 9262):

| Frequency (MHz)                   | 1852.400024 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 53.399999   |
| Conductivity (S/m)                | 1.501109    |
| Power drift (%)                   | -1.660000   |
| Ambient Temperature:              | 22.1°C      |
| Liquid Temperature:               | 22.4°C      |
| ConvF:                            | 5.71        |
| Duty cycle:                       | 1:1         |



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| SAR 10g (W/Kg) | 0.127896 |  |  |
|----------------|----------|--|--|
| SAR 1g (W/Kg)  | 0.236923 |  |  |
|                |          |  |  |

#### Maximum location: X=6.00, Y=0.00 SAR Peak: 0.38 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.31

Measurement duration: 16 minutes 19 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Right head               |
| <b>Device Position</b> | Cheek                    |
| <u>Band</u>            | Band4 WCDMA1700          |
| <u>Channels</u>        | <u>High</u>              |
| <u>Signal</u>          | RMC                      |

## **B. SAR Measurement Results**

Higher Band SAR (Channel 1513):

| Frequency (MHz)                   | 1752.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 40.198001   |
| Conductivity (S/m)                | 1.331076    |
| Power drift (%)                   | -4.100000   |
| Ambient Temperature:              | 22.3℃       |
| Liquid Temperature:               | 22.6℃       |
| ConvF:                            | 5.21        |
| Crest factor:                     | 1:1         |



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| SAR Peak: 0.16 W/kg     |          |  |  |
|-------------------------|----------|--|--|
| SAR 10g (W/Kg) 0.084895 |          |  |  |
| SAR 1g (W/Kg)           | 0.160693 |  |  |

#### Maximum location: X=-63.00, Y=-25.00 SAR Peak: 0.16 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.02

Measurement duration: 16 minutes 54 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Flat                     |
| <b>Device Position</b> | Body                     |
| Band                   | Band4 WCDMA1700          |
| <u>Channels</u>        | High                     |
| <u>Signal</u>          | RMC                      |

#### **B. SAR Measurement Results**

Higher Band SAR (Channel 1513):

| Frequency (MHz)                   | 1752.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 53.426315   |
| Conductivity (S/m)                | 1.490532    |
| Power drift (%)                   | -0.090000   |
| Ambient Temperature:              | 22.3℃       |
| Liquid Temperature:               | 22.6℃       |
| ConvF:                            | 5.38        |
| Crest factor:                     | 1:1         |



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| SAR Peak: 0.41 W/kg |          |  |  |
|---------------------|----------|--|--|
| SAR 10g (W/Kg)      | 0.157412 |  |  |
| SAR 1g (W/Kg)       | 0.266374 |  |  |
|                     |          |  |  |

#### Maximum location: X=-5.00, Y=-16.00 SAP Poak: 0 /1 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.19

Measurement duration: 16 minutes 19 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Right head               |
| <b>Device Position</b> | Cheek                    |
| <u>Band</u>            | Band5 WCDMA850           |
| <u>Channels</u>        | High                     |
| <u>Signal</u>          | RMC                      |

## **B. SAR Measurement Results**

Higher Band SAR (Channel 4233):

| Frequency (MHz)                   | 846.599976 |
|-----------------------------------|------------|
| Relative permittivity (real part) | 41.500000  |
| Conductivity (S/m)                | 0.912447   |
| Power drift (%)                   | -1.340000  |
| Ambient Temperature:              | 22.6°C     |
| Liquid Temperature:               | 21.2°C     |
| ConvF:                            | 6.13       |
| Crest factor:                     | 1:1        |



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![](_page_51_Picture_15.jpeg)

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![](_page_52_Picture_0.jpeg)

|     | SAR 10g | g (W/Kg) |      | 0.097024 |       |          |       |  |  |
|-----|---------|----------|------|----------|-------|----------|-------|--|--|
|     | SAR 1g  | (W/Kg)   |      | 0.137917 |       |          |       |  |  |
|     |         |          |      |          |       |          |       |  |  |
| 7 ( | A AA    | 4.00     | A AA | 44.00    | 40.00 | <u> </u> | 00.00 |  |  |

#### Maximum location: X=-52.00, Y=-25.00 SAR Peak: 0.18 W/kg

![](_page_52_Figure_4.jpeg)

![](_page_52_Figure_5.jpeg)

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![](_page_52_Picture_7.jpeg)

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![](_page_53_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.01

Measurement duration: 16 minutes 51 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |  |  |  |  |
|------------------------|--------------------------|--|--|--|--|
| Phantom                | <u>Flat</u>              |  |  |  |  |
| <b>Device Position</b> | Body                     |  |  |  |  |
| Band                   | Band5 WCDMA850           |  |  |  |  |
| <u>Channels</u>        | High                     |  |  |  |  |
| <u>Signal</u>          | RMC                      |  |  |  |  |

#### **B. SAR Measurement Results**

Higher Band SAR (Channel 4233):

| Frequency (MHz)                   | 846.599976 |  |  |  |  |
|-----------------------------------|------------|--|--|--|--|
| Relative permittivity (real part) | 55.304307  |  |  |  |  |
| Conductivity (S/m)                | 0.934222   |  |  |  |  |
| Power drift (%)                   | -0.050000  |  |  |  |  |
| Ambient Temperature:              | 22.6°C     |  |  |  |  |
| Liquid Temperature:               | 21.2°C     |  |  |  |  |
| ConvF:                            | 6.37       |  |  |  |  |
| Crest factor:                     | 1:1        |  |  |  |  |

![](_page_53_Figure_13.jpeg)

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![](_page_53_Picture_15.jpeg)

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![](_page_54_Picture_0.jpeg)

| SAN FEAR. 0.14 W/Ng |          |  |  |  |  |  |  |
|---------------------|----------|--|--|--|--|--|--|
| SAR 10g (W/Kg)      | 0.071454 |  |  |  |  |  |  |
| SAR 1g (W/Kg)       | 0.102922 |  |  |  |  |  |  |
|                     |          |  |  |  |  |  |  |

![](_page_54_Figure_3.jpeg)

![](_page_54_Figure_4.jpeg)

![](_page_54_Figure_5.jpeg)

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![](_page_54_Picture_7.jpeg)

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![](_page_55_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 22 minutes 14 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt  |  |  |  |  |
|------------------------|--------------------|--|--|--|--|
| Phantom                | Right head         |  |  |  |  |
| <b>Device Position</b> | Cheek              |  |  |  |  |
| Band                   | IEEE 802.11a U-NII |  |  |  |  |
| <u>Channels</u>        | High               |  |  |  |  |
| Signal                 | <u>OFDM</u>        |  |  |  |  |

## **B. SAR Measurement Results**

Higher Band SAR (Channel 64):

| Frequency (MHz)                   | 5320.00000 |  |  |  |  |
|-----------------------------------|------------|--|--|--|--|
| Relative permittivity (real part) | 35.980001  |  |  |  |  |
| Conductivity (S/m)                | 4.779724   |  |  |  |  |
| Power Drift (%)                   | 2.790000   |  |  |  |  |
| Ambient Temperature:              | 22.9°C     |  |  |  |  |
| Liquid Temperature:               | 22.1°C     |  |  |  |  |
| ConvF:                            | 21.61      |  |  |  |  |
| Crest factor:                     | 1:1        |  |  |  |  |

![](_page_55_Figure_13.jpeg)

**NOTE:** This document is issued by MORLAB, the test report shall not be reproduced except in full without prior written permission of the company. The test results apply only to the particular sample(s) tested and to the specific tests carried out which is available on request for validation and information confirmed at our website.

![](_page_55_Picture_15.jpeg)

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![](_page_56_Picture_0.jpeg)

|               | SAR 1              | 0g (W/                                                                                                                    | Kg)                                                                                                                                                                                                                                                         |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0.057575                                               |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|---------------|--------------------|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------------------|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SAR 1g (W/Kg) |                    |                                                                                                                           |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        | 0.072496                                              |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               |                    |                                                                                                                           |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 0.00          | 4.00               | 6.00                                                                                                                      | 8.00                                                                                                                                                                                                                                                        | 10.0                                                   | 12.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 14.0                                                   | 16.0                                                  | 18.0                                                   | 20.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 22.0                                                  | 24.0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|               |                    |                                                                                                                           |                                                                                                                                                                                                                                                             | 0                                                      | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                                                      | 0                                                     | 0                                                      | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                                                     | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|               |                    |                                                                                                                           |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
| 0.13          | 0.08               | 0.05                                                                                                                      | 0.07                                                                                                                                                                                                                                                        | 0.04                                                   | 0.05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.04                                                   | 0.04                                                  | 0.04                                                   | 0.04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.04                                                  | 0.04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| 15            | 45                 | 21                                                                                                                        | 51                                                                                                                                                                                                                                                          | 25                                                     | 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 63                                                     | 65                                                    | 75                                                     | 59                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 39                                                    | 80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|               |                    |                                                                                                                           |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               |                    |                                                                                                                           |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | 0.1                | 3-                                                                                                                        |                                                                                                                                                                                                                                                             |                                                        | 1 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | 0.1                | 2-                                                                                                                        |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               |                    |                                                                                                                           |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | ും 0.1             | 0                                                                                                                         | +                                                                                                                                                                                                                                                           |                                                        | + +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | +                                                      |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | 5                  |                                                                                                                           | N                                                                                                                                                                                                                                                           |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | g <sup>0.0</sup>   | 8                                                                                                                         |                                                                                                                                                                                                                                                             |                                                        | +                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | +                                                      |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | 0.0                | e                                                                                                                         |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | 0.0                |                                                                                                                           |                                                                                                                                                                                                                                                             |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | 0.0                | 4-                                                                                                                        |                                                                                                                                                                                                                                                             |                                                        | $\mathbf{V}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                        |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               |                    | 02                                                                                                                        | 46                                                                                                                                                                                                                                                          | 38                                                     | 10 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 14 16                                                  | 18 20                                                 | ) 22 2                                                 | 24 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               |                    |                                                                                                                           |                                                                                                                                                                                                                                                             |                                                        | Z (                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | mm)                                                    |                                                       |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |
|               | 0.00<br>0.13<br>15 | SAR 10<br>SAR 10<br>0.00 4.00<br>0.13 0.08<br>15 45<br>0.1<br>0.1<br>0.1<br>0.1<br>0.1<br>0.1<br>0.1<br>0.1<br>0.1<br>0.1 | SAR 10g (W/         SAR 1g       (W/         0.00       4.00       6.00         0.13       0.08       0.05         15       45       21         0.13-<br>0.12-<br>0.08-<br>0.06-<br>0.04-<br>0       0.08-<br>0.06-<br>0.04-<br>0       0.08-<br>0.04-<br>0 | $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | SAR 10g (W/Kg) $SAR 1g (W/Kg)$ $0.00  4.00  6.00  8.00  10.0  0$ $0.13  0.08  0.05  0.07  0.04  15  45  21  51  25$ $0.13  0.13  0.13  0.12  0.12  0.12  0.12  0.12  0.08  0.06  0.04  0.06  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0.04  0$ | $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | SAR 10g (W/Kg)       0.0575         SAR 1g (W/Kg)       0.0575         SAR 1g (W/Kg)       0.0724         0.00       4.00       6.00       8.00       10.0       12.0       14.0       16.0       18.0         0.13       0.08       0.05       0.07       0.04       0.05       0.04       0.04       0.04         0.13       0.08       0.05       21       51       25       23       63       65       75         0.12       0.10       0.08       0.06       0.06       0.06       0.06       0.06       0.06       0.06       0.06       0.06       0.06       0.04       0.12       14       16       18       20       22       2         0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04 | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | SAR 10g (W/Kg)       0.057575         SAR 1g (W/Kg)       0.057575         0.00       4.00       6.00       8.00       10.0       12.0       14.0       16.0       18.0       20.0       22.0         0.00       4.00       6.00       8.00       10.0       12.0       14.0       16.0       18.0       20.0       22.0         0.13       0.08       0.05       0.07       0.04       0.05       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04       0.04 |  |

#### Maximum location: X=-75.00, Y=-66.00 SAR Peak: 0.21 W/kg

![](_page_56_Figure_4.jpeg)

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![](_page_56_Picture_6.jpeg)

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![](_page_57_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 21 minutes 58 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |  |  |  |
|------------------------|--------------------------|--|--|--|
| Phantom                | Left head                |  |  |  |
| <b>Device Position</b> | <u>Tilt</u>              |  |  |  |
| Band                   | IEEE 802.11a U-NII       |  |  |  |
| <u>Channels</u>        | Low                      |  |  |  |
| <u>Signal</u>          | OFDM                     |  |  |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 149):

| Frequency (MHz)                   | 5745.000000 |  |  |  |  |
|-----------------------------------|-------------|--|--|--|--|
| Relative permittivity (real part) | 35.355000   |  |  |  |  |
| Conductivity (S/m)                | 5.216300    |  |  |  |  |
| Power Drift (%)                   | -1.580000   |  |  |  |  |
| Ambient Temperature:              | 22.9°C      |  |  |  |  |
| Liquid Temperature:               | 22.1°C      |  |  |  |  |
| ConvF:                            | 22.42       |  |  |  |  |
| Crest factor:                     | 1:1         |  |  |  |  |

![](_page_57_Figure_13.jpeg)

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![](_page_57_Picture_15.jpeg)

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![](_page_58_Picture_0.jpeg)

|               |      | SAR 1                                | 0g (W/ | Kg)                |      |      | 0.084791 |      |          |           |      |      |  |
|---------------|------|--------------------------------------|--------|--------------------|------|------|----------|------|----------|-----------|------|------|--|
| SAR 1g (W/Kg) |      |                                      |        |                    |      |      | 0.098821 |      |          |           |      |      |  |
|               | T    | r                                    | [      | [                  | [    | r    | r        | T    | 1        | 1         | 1    |      |  |
| Z             | 0.00 | 4.00                                 | 6.00   | 8.00               | 10.0 | 12.0 | 14.0     | 16.0 | 18.0     | 20.0      | 22.0 | 24.0 |  |
| (m            |      |                                      |        |                    | 0    | 0    | 0        | 0    | 0        | 0         | 0    | 0    |  |
| ,<br>m)       |      |                                      |        |                    |      |      |          |      |          |           |      |      |  |
| SA            | 0 15 | 0 1 2                                | 0.08   | 0 10               | 0.07 | 0 09 | 0.06     | 0 11 | 0.05     | 0 10      | 0.05 | 0 09 |  |
| D             | 0.10 | 22                                   | 00     | 7/                 | 00   | 01   | 20       | 22   | 17       | 25        | 27   | 72   |  |
|               | 00   | 23                                   | 00     | 14                 | 00   | 91   | 20       | 33   | 17       | 35        | 31   | 12   |  |
| (W/           |      |                                      |        |                    |      |      |          |      |          |           |      |      |  |
| Kg)           |      |                                      |        |                    |      |      |          |      |          |           |      |      |  |
|               |      | 0.1                                  | 6 -    | _                  |      | 1 1  |          |      |          |           |      |      |  |
|               |      |                                      |        |                    |      |      |          |      |          |           |      |      |  |
|               |      | 0.1                                  | 4      |                    |      |      |          |      |          |           |      |      |  |
|               |      | നം 0.1                               | 2-     | $\mathbf{\lambda}$ |      |      |          |      |          |           |      |      |  |
|               |      | , Fe                                 |        |                    |      |      | - L 🔺    |      |          |           |      |      |  |
|               |      | ె <sup>ల్</sup> 0.1                  | 0      | -++                |      |      |          |      |          |           |      |      |  |
|               |      | S.                                   |        |                    |      |      |          |      |          | $\Lambda$ |      |      |  |
|               |      | 0.0                                  | 8      |                    |      | Ϋ́́́ |          |      | <b>1</b> |           |      |      |  |
|               |      |                                      |        |                    |      |      | V L      | V    |          |           |      |      |  |
|               |      | 0.05-                                |        |                    |      |      |          |      |          |           |      |      |  |
|               |      | 0 2 4 6 8 10 12 14 16 18 20 22 24 26 |        |                    |      |      |          |      |          |           |      |      |  |
|               |      |                                      |        |                    |      | Ζ (  | mm)      |      |          |           |      |      |  |
|               |      |                                      |        |                    |      |      |          |      |          |           |      |      |  |

#### Maximum location: X=6.00, Y=-46.00 SAR Peak: 0.25 W/kg

![](_page_58_Picture_4.jpeg)

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![](_page_58_Picture_6.jpeg)

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![](_page_59_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 23 minutes 14 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |  |  |  |
|------------------------|--------------------------|--|--|--|
| Phantom                | Flat                     |  |  |  |
| <b>Device Position</b> | Body                     |  |  |  |
| Band                   | IEEE 802.11a U-NII       |  |  |  |
| <u>Channels</u>        | Low                      |  |  |  |
| <u>Signal</u>          | <u>OFDM</u>              |  |  |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 149):

| Frequency (MHz)                   | 5745.000000 |  |  |  |  |
|-----------------------------------|-------------|--|--|--|--|
| Relative permittivity (real part) | 48.155000   |  |  |  |  |
| Conductivity (S/m)                | 5.716300    |  |  |  |  |
| Power Drift (%)                   | 1.240000    |  |  |  |  |
| Ambient Temperature:              | 22.9°C      |  |  |  |  |
| Liquid Temperature:               | 22.1°C      |  |  |  |  |
| ConvF:                            | 23.02       |  |  |  |  |
| Crest factor:                     | 1:1         |  |  |  |  |

![](_page_59_Figure_13.jpeg)

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![](_page_59_Picture_15.jpeg)

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![](_page_60_Picture_0.jpeg)

|               |        | SAR 1            | 0g (W/   | Kg)  |      |       | 0.103808      |      |        |      |      |      |  |
|---------------|--------|------------------|----------|------|------|-------|---------------|------|--------|------|------|------|--|
| SAR 1g (W/Kg) |        |                  |          |      |      |       | 0.129543      |      |        |      |      |      |  |
|               |        |                  |          |      |      |       |               |      |        |      |      |      |  |
| Ζ             | 0.00   | 4.00             | 6.00     | 8.00 | 10.0 | 12.0  | 14.0          | 16.0 | 18.0   | 20.0 | 22.0 | 24.0 |  |
| (m            |        |                  |          |      | 0    | 0     | 0             | 0    | 0      | 0    | 0    | 0    |  |
| m)            |        |                  |          |      |      |       |               |      |        |      |      |      |  |
| SA            | 0.22   | 0.10             | 0.08     | 0.09 | 0.04 | 0.09  | 0.08          | 0.10 | 0.09   | 0.10 | 0.08 | 0.08 |  |
| R             | 27     | 19               | 70       | 56   | 38   | 81    | 57            | 60   | 18     | 20   | 85   | 55   |  |
| (W/           |        |                  |          |      |      |       |               |      |        |      |      |      |  |
| Kg)           |        |                  |          |      |      |       |               |      |        |      |      |      |  |
|               |        | 0.2              | 23-      | 1 1  |      |       |               |      |        |      |      |      |  |
|               |        | 0.2              | 00 - 🖊 - |      |      |       | _             | _    |        |      |      |      |  |
|               |        | 0.1              | 75-      |      |      |       |               |      |        |      |      |      |  |
|               |        | ू<br>भे 0.1      | 50       |      |      |       |               |      |        |      |      |      |  |
|               |        | ≷ <sub>0.1</sub> | 25 -     |      |      |       |               |      |        |      |      |      |  |
| e 0. 100      |        |                  |          |      |      |       |               |      |        |      |      |      |  |
|               | 0.075  |                  |          |      |      |       | $\checkmark$  | Y    |        |      |      |      |  |
| 0.075-        |        |                  |          |      |      |       |               |      |        |      |      |      |  |
|               | 0.044- |                  |          |      |      |       |               |      |        |      |      |      |  |
|               |        |                  | U :      | 24   | ь 8  | 10 12 | 14 16<br>(mm) | 18 2 | 0 22 2 | 26   |      |      |  |
|               | Z (mm) |                  |          |      |      |       |               |      |        |      |      |      |  |

#### Maximum location: X=11.00, Y=9.00 SAR Peak: 0.31 W/kg

![](_page_60_Picture_4.jpeg)

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![](_page_60_Picture_6.jpeg)

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 Http://www.morlab.cn
 E-mail:
 set

Fax: 86-755-36698525

E-mail: service@morlab.cn

![](_page_61_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 17 minutes 27 seconds

#### A. Experimental conditions.

| <u>Area Scan</u>       | <u>dx=12mm dy=12mm, h= 5.00 mm</u> |
|------------------------|------------------------------------|
| Phantom                | Left head                          |
| <b>Device Position</b> | Cheek                              |
| Band                   | IEEE 802.11a U-NII                 |
| <u>Channels</u>        | Middle                             |
| <u>Signal</u>          | DSSS                               |

#### **B. SAR Measurement Results**

Middle Band SAR (Channel 120):

| Frequency (MHz)                   | 5600.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 35.562139   |
| Conductivity (S/m)                | 5.100255    |
| Power Drift (%)                   | -1.230000   |
| Ambient Temperature:              | 22.9°C      |
| Liquid Temperature:               | 22.1°C      |
| ConvF:                            | 22.42       |
| Crest factor:                     | 1:1         |

![](_page_61_Figure_13.jpeg)

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![](_page_61_Picture_15.jpeg)

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![](_page_62_Picture_0.jpeg)

|     |                     |                   |        | C            |              | an. 0.2      |              | 9     |               |         |      |      |  |
|-----|---------------------|-------------------|--------|--------------|--------------|--------------|--------------|-------|---------------|---------|------|------|--|
|     |                     | SAR 1             | 0g (W/ | Kg)          |              |              | 0.046597     |       |               |         |      |      |  |
|     |                     | SAR 1             | g (W/  | ′Kg)         |              |              | 0.074252     |       |               |         |      |      |  |
|     |                     |                   |        |              |              |              |              |       |               |         |      |      |  |
| Ζ   | 0.00                | 4.00              | 6.00   | 8.00         | 10.0         | 12.0         | 14.0         | 16.0  | 18.0          | 20.0    | 22.0 | 24.0 |  |
| (m  |                     |                   |        |              | 0            | 0            | 0            | 0     | 0             | 0       | 0    | 0    |  |
| m)  |                     |                   |        |              |              |              |              |       |               |         |      |      |  |
| SA  | 0.16                | 0.09              | 0.05   | 0.07         | 0.02         | 0.03         | 0.02         | 0.04  | 0.02          | 0.03    | 0.03 | 0.04 |  |
| R   | 03                  | 40                | 18     | 40           | 25           | 67           | 29           | 07    | 59            | 89      | 65   | 52   |  |
| (W/ |                     |                   |        |              |              |              |              |       |               |         |      |      |  |
| Kg) |                     |                   |        |              |              |              |              |       |               |         |      |      |  |
|     |                     | 0.1               | 6-     |              |              | 1 1          |              |       |               |         |      |      |  |
|     |                     | 0.1               | 4-     |              |              |              |              |       |               |         |      |      |  |
|     |                     | 0.1               | 2-     |              |              |              |              |       |               |         |      |      |  |
|     |                     | ()<br>2<br>4<br>1 |        | $\mathbf{N}$ |              |              |              |       |               |         |      |      |  |
|     |                     | ≥°.1              |        |              |              |              |              |       |               |         |      |      |  |
|     | g <sup>0.08</sup> - |                   |        |              |              |              |              |       |               |         |      |      |  |
|     |                     | 0.0               | 6      |              | $\checkmark$ |              |              |       |               |         |      |      |  |
|     |                     | 0.0               | 4      |              |              |              |              |       | $\rightarrow$ | <b></b> |      |      |  |
|     |                     | 0.0               | 2-     |              |              | 10 12        | 14 16        | 18 20 | 1 22 9        | 4 26    |      |      |  |
|     |                     |                   | 0 2    | મ (          |              | 10 12<br>Z ( | 14 10<br>mm) | 10 20 | 5 22 2        | .4 20   |      |      |  |
|     |                     |                   |        |              |              | - `          |              |       |               |         |      |      |  |

# Maximum location: X=6.00, Y=-25.00

![](_page_62_Picture_4.jpeg)

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![](_page_62_Picture_6.jpeg)

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![](_page_63_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=8mm,dy=8mm

Zoom scan resolution: dx=4mm, dy=4mm, dz=2mm

Date of measurement: 2018.02.02

Measurement duration: 17 minutes 14 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u>  |
|------------------------|---------------------------|
| Phantom                | <u>Flat</u>               |
| <b>Device Position</b> | Body                      |
| Band                   | <u>IEEE 802.11a U-NII</u> |
| <u>Channels</u>        | Middle                    |
| <u>Signal</u>          | DSSS                      |

## **B. SAR Measurement Results**

Middle Band SAR (Channel 120):

| Frequency (MHz)                   | 5600.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 48.394381   |
| Conductivity (S/m)                | 5.7432600   |
| Power Drift (%)                   | -1.770000   |
| Ambient Temperature:              | 22.9°C      |
| Liquid Temperature:               | 22.1°C      |
| ConvF:                            | 23.02       |
| Crest factor:                     | 1:1         |

![](_page_63_Figure_13.jpeg)

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![](_page_63_Picture_15.jpeg)

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![](_page_64_Picture_0.jpeg)

|               | SANT eak. 1.50 W/kg |           |        |      |      |              |                        |       |        |       |      |      |  |
|---------------|---------------------|-----------|--------|------|------|--------------|------------------------|-------|--------|-------|------|------|--|
|               |                     | SAR 1     | 0g (W/ | Kg)  |      |              | 0.087254               |       |        |       |      |      |  |
| SAR 1g (W/Kg) |                     |           |        |      |      |              | 0.138741               |       |        |       |      |      |  |
|               |                     |           |        |      |      |              |                        |       |        |       |      |      |  |
| Ζ             | 0.00                | 4.00      | 6.00   | 8.00 | 10.0 | 12.0         | 14.0                   | 16.0  | 18.0   | 20.0  | 22.0 | 24.0 |  |
| (m            |                     |           |        |      | 0    | 0            | 0                      | 0     | 0      | 0     | 0    | 0    |  |
| m)            |                     |           |        |      |      |              |                        |       |        |       |      |      |  |
| SA            | 1.25                | 0.37      | 0.10   | 0.01 | 0.17 | 0.01         | 0.12                   | 0.01  | 0.07   | 0.01  | 0.05 | 0.01 |  |
| R             | 55                  | 71        | 66     | 64   | 84   | 52           | 62                     | 27    | 37     | 27    | 98   | 64   |  |
| (W/           |                     |           |        |      |      |              |                        |       |        |       |      |      |  |
| Kg)           |                     |           |        |      |      |              |                        |       |        |       |      |      |  |
|               |                     | 1.3       | -      |      |      |              |                        |       |        |       |      |      |  |
|               |                     |           |        |      |      |              |                        |       |        |       |      |      |  |
|               |                     | 1.0       |        |      |      |              |                        |       |        |       |      |      |  |
|               |                     | ည့် 0.8   |        |      |      |              | +                      |       | _      |       |      |      |  |
|               |                     | ≷ 0.6     | -      |      |      |              | + +                    |       |        |       |      |      |  |
|               |                     | a<br>Nor⊿ |        | V I  |      |              |                        |       |        |       |      |      |  |
|               |                     | 0.4       |        |      |      |              |                        |       |        |       |      |      |  |
|               |                     | 0.2       | -      |      |      |              | $\mathbf{L}^{\dagger}$ |       |        |       |      |      |  |
|               |                     | 0.0       | -      |      | ¥,   |              | 14 16                  |       |        |       |      |      |  |
|               |                     |           | υz     | 4 D  | 0 1  | .0 12<br>7.6 | 14 10<br>000)          | 10 20 | ) 22 2 | .4 20 |      |      |  |
|               |                     |           |        |      |      |              |                        |       |        |       | ]    |      |  |

# Maximum location: X=0.00, Y=8.00

![](_page_64_Picture_4.jpeg)

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![](_page_64_Picture_6.jpeg)

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![](_page_65_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.02

Measurement duration: 23 minutes 14 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u>  |
|------------------------|---------------------------|
| Phantom                | <u>Flat</u>               |
| <b>Device Position</b> | Body                      |
| Band                   | <u>IEEE 802.11a U-NII</u> |
| <u>Channels</u>        | <u>High</u>               |
| <u>Signal</u>          | <u>OFDM</u>               |

## **B. SAR Measurement Results**

Higher Band SAR (Channel 64):

| Frequency (MHz)                   | 5320.00000 |
|-----------------------------------|------------|
| Relative permittivity (real part) | 48.080001  |
| Conductivity (S/m)                | 5.489724   |
| Power Drift (%)                   | -4.380000  |
| Ambient Temperature:              | 22.9°C     |
| Liquid Temperature:               | 22.1°C     |
| ConvF:                            | 22.11      |
| Crest factor:                     | 1:1        |

![](_page_65_Figure_13.jpeg)

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![](_page_65_Picture_15.jpeg)

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![](_page_66_Picture_0.jpeg)

|               |            | SAR 1 | 0g (W/ | Kg)  |      |       | 0.085795      |      |        |       |      |      |  |
|---------------|------------|-------|--------|------|------|-------|---------------|------|--------|-------|------|------|--|
| SAR 1g (W/Kg) |            |       |        |      |      |       | 0.1293608     |      |        |       |      |      |  |
|               |            |       |        |      |      |       |               |      |        |       |      |      |  |
| Ζ             | 0.00       | 4.00  | 6.00   | 8.00 | 10.0 | 12.0  | 14.0          | 16.0 | 18.0   | 20.0  | 22.0 | 24.0 |  |
| (m            |            |       |        |      | 0    | 0     | 0             | 0    | 0      | 0     | 0    | 0    |  |
| m)            |            |       |        |      |      |       |               |      |        |       |      |      |  |
| SA            | 0.20       | 0.09  | 0.02   | 0.08 | 0.07 | 0.08  | 0.07          | 0.07 | 0.08   | 0.08  | 0.08 | 0.07 |  |
| R             | 18         | 25    | 13     | 03   | 98   | 80    | 77            | 74   | 38     | 32    | 16   | 14   |  |
| (W/           |            |       |        |      |      |       |               |      |        |       |      |      |  |
| Kg)           |            |       |        |      |      |       |               |      |        |       |      |      |  |
|               |            | 0.2   | 02     |      |      |       |               | _    |        | —     |      |      |  |
|               |            | 0.1   | 75-    |      |      |       |               |      |        |       |      |      |  |
|               |            | 0.1   | 50-    |      |      |       |               |      |        |       |      |      |  |
|               |            | ងឹករ  | 25     |      |      |       |               |      |        |       |      |      |  |
|               |            | 8,    | 00     |      |      |       |               |      |        |       |      |      |  |
|               |            |       |        |      |      |       |               |      |        |       |      |      |  |
|               | ··· 0.075- |       |        |      |      |       |               |      |        |       |      |      |  |
|               |            | U. O  | 50     |      |      |       |               |      |        |       |      |      |  |
|               |            | 0.0   | 21-    |      | ¥    |       | 14 16         | 10 0 |        |       |      |      |  |
|               |            |       | 0 3    | 2 4  | 0 0  | 10 12 | ւգ լե<br>(տա) | 16 2 | 0 22 2 | .4 26 |      |      |  |
|               | Z (mm)     |       |        |      |      |       |               |      |        |       |      |      |  |

#### Maximum location: X=7.00, Y=-23.00 SAR Peak: 0.29 W/kg

![](_page_66_Picture_4.jpeg)

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![](_page_66_Picture_6.jpeg)

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![](_page_67_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.06

Measurement duration: 16 minutes 16 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Right head               |
| <b>Device Position</b> | Cheek                    |
| Band                   | IEEE 802.11n-HT20        |
| <u>Channels</u>        | High                     |
| <u>Signal</u>          | DSSS                     |

## **B. SAR Measurement Results**

Higher Band SAR (Channel 11):

| Frequency (MHz)                   | 2462.000000 |  |  |  |  |
|-----------------------------------|-------------|--|--|--|--|
| Relative permittivity (real part) | 39.084927   |  |  |  |  |
| Conductivity (S/m)                | 1.886143    |  |  |  |  |
| Power Drift (%)                   | 0.370001    |  |  |  |  |
| Ambient Temperature:              | 22.0°C      |  |  |  |  |
| Liquid Temperature:               | 21.8°C      |  |  |  |  |
| ConvF:                            | 4.74        |  |  |  |  |
| Crest factor:                     | 1:1         |  |  |  |  |

![](_page_67_Figure_13.jpeg)

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![](_page_67_Picture_15.jpeg)

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![](_page_68_Picture_0.jpeg)

| SAR 10g (W/Kg) |        |        |          | 0.012203 |        |        |        |
|----------------|--------|--------|----------|----------|--------|--------|--------|
| SAR 1g (W/Kg)  |        |        | 0.029303 |          |        |        |        |
|                |        |        |          |          |        |        |        |
| Z (mm)         | 0.00   | 4.00   | 9.00     | 14.00    | 19.00  | 24.00  | 29.00  |
| SAR            | 0.0659 | 0.0323 | 0.0106   | 0.0045   | 0.0016 | 0.0010 | 0.0010 |

# Maximum location: X=-23.00, Y=11.00 SAR Peak: 0.06 W/kg

![](_page_68_Figure_4.jpeg)

![](_page_68_Picture_5.jpeg)

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![](_page_68_Picture_7.jpeg)

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![](_page_69_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.08

Measurement duration: 16 minutes 45 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |  |
|------------------------|-------------------|--|--|
| <b>Phantom</b>         | <u>Flat</u>       |  |  |
| <b>Device Position</b> | Body              |  |  |
| Band                   | IEEE 802.11n-HT20 |  |  |
| <u>Channels</u>        | High              |  |  |
| <u>Signal</u>          | DSSS              |  |  |

#### **B. SAR Measurement Results**

Higher Band SAR (Channel 11):

| Frequency (MHz)                   | 2462.000000 |  |
|-----------------------------------|-------------|--|
| Relative permittivity (real part) | 52.684727   |  |
| Conductivity (S/m)                | 1.996143    |  |
| Power Drift (%)                   | -4.830000   |  |
| Ambient Temperature:              | 22.0°C      |  |
| Liquid Temperature:               | 21.8°C      |  |
| ConvF:                            | 4.93        |  |
| Crest factor:                     | 1:1         |  |

![](_page_69_Figure_13.jpeg)

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![](_page_69_Picture_15.jpeg)

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![](_page_70_Picture_0.jpeg)

| SAR Feak. 0.20 W/kg |          |  |  |
|---------------------|----------|--|--|
| SAR 10g (W/Kg)      | 0.044518 |  |  |
| SAR 1g (W/Kg)       | 0.105513 |  |  |
|                     |          |  |  |

# Maximum location: X=-16.00, Y=-25.00

![](_page_70_Figure_4.jpeg)

![](_page_70_Figure_5.jpeg)

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![](_page_70_Picture_7.jpeg)

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E-mail: service@morlab.cn

![](_page_71_Picture_1.jpeg)

Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.17

Measurement duration: 16 minutes 37 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |  |
|------------------------|-------------------|--|--|
| Phantom                | Right head        |  |  |
| <b>Device Position</b> | <u>Cheek</u>      |  |  |
| Band                   | LTE band 2        |  |  |
| <u>Channels</u>        | Low               |  |  |
| <u>Signal</u>          | LTE               |  |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 18700):

| Frequency (MHz)                   | 1860.000000 |  |
|-----------------------------------|-------------|--|
| Relative permittivity (real part) | 40.299999   |  |
| Conductivity (S/m)                | 1.401102    |  |
| Power drift (%)                   | -2.330000   |  |
| Ambient Temperature:              | 22.1°C      |  |
| Liquid Temperature:               | 22.4°C      |  |
| ConvF:                            | 5.61        |  |
| Duty cycle:                       | 1:1         |  |

![](_page_71_Figure_13.jpeg)

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![](_page_71_Picture_15.jpeg)

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| SAR 10g (W/Kg) | 0.085821 |
|----------------|----------|
| SAR 1g (W/Kg)  | 0.157897 |
|                |          |

#### Maximum location: X=-69.00, Y=-57.00 SAR Peak: 0.26 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.22

Measurement duration: 16 minutes 52 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |  |
|------------------------|-------------------|--|--|
| Phantom                | <u>Flat</u>       |  |  |
| <b>Device Position</b> | Body              |  |  |
| Band                   | LTE band 2        |  |  |
| <u>Channels</u>        | Low               |  |  |
| Signal                 | LTE               |  |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 18700):

|                                   | 1860.000000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 53.399680   |
| Conductivity (S/m)                | 1.501271    |
| Power drift (%)                   | 2.430000    |
| Ambient Temperature:              | 22.1°C      |
| Liquid Temperature:               | 22.4°C      |
| ConvF:                            | 5.71        |
| Duty cycle:                       | 1:1         |



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| SAR 10 | g (W/Kg) |      | 0.132 | 2848 |  |
|--------|----------|------|-------|------|--|
| SAR 1g | (W/Kg)   |      | 0.286 | 6430 |  |
|        |          |      |       |      |  |
| - ( )  |          | <br> |       |      |  |

#### Maximum location: X=6.00, Y=14.00 SAR Peak: 0.26 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.31

Measurement duration: 16 minutes 11 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |  |
|------------------------|-------------------|--|--|
| Phantom                | Left head         |  |  |
| <b>Device Position</b> | Cheek             |  |  |
| Band                   | LTE band 4        |  |  |
| <u>Channels</u>        | Low               |  |  |
| Signal                 | LTE               |  |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 20050):

| Frequency (MHz)                   | 1719.500000 |  |
|-----------------------------------|-------------|--|
| Relative permittivity (real part) | 40.227728   |  |
| Conductivity (S/m)                | 1.300668    |  |
| Power drift (%)                   | 3.040000    |  |
| Ambient Temperature:              | 22.2°C      |  |
| Liquid Temperature:               | 22.6℃       |  |
| ConvF:                            | 5.21        |  |
| Crest factor:                     | 1:1         |  |



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| SARTeak. U.T. Wrkg |          |  |
|--------------------|----------|--|
| SAR 10g (W/Kg)     | 0.068807 |  |
| SAR 1g (W/Kg)      | 0.113591 |  |
|                    |          |  |

#### Maximum location: X=-64.00, Y=-25.00 SAR Peak. 0 17 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.02

Measurement duration: 15 minutes 51 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |  |
|------------------------|-------------------|--|--|
| Phantom                | Flat              |  |  |
| <b>Device Position</b> | Body              |  |  |
| Band                   | LTE band 4        |  |  |
| <u>Channels</u>        | Low               |  |  |
| <u>Signal</u>          | LTE               |  |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 20050):

| Frequency (MHz)                   | 1719.500000 |
|-----------------------------------|-------------|
| Relative permittivity (real part) | 53.538841   |
| Conductivity (S/m)                | 1.460235    |
| Power drift (%)                   | 2.210000    |
| Ambient Temperature:              | 22.2°C      |
| Liquid Temperature:               | 22.6℃       |
| ConvF:                            | 5.38        |
| Crest factor:                     | 1:1         |



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| BARTeak. 0.50 Wrkg |          |  |  |
|--------------------|----------|--|--|
| SAR 10g (W/Kg)     | 0.153010 |  |  |
| SAR 1g (W/Kg)      | 0.245913 |  |  |
|                    |          |  |  |

#### Maximum location: X=6.00, Y=26.00 SAR Peak. 0.36 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.17

Measurement duration: 16 minutes 7 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |  |
|------------------------|-------------------|--|--|
| Phantom                | Right head        |  |  |
| <b>Device Position</b> | <u>Tilt</u>       |  |  |
| <u>Band</u>            | LTE band 7        |  |  |
| <u>Channels</u>        | <u>High</u>       |  |  |
| <u>Signal</u>          | LTE               |  |  |

#### **B. SAR Measurement Results**

Higher Band SAR (Channel 21400):

| Frequency (MHz)                   | 2565.000000 |  |
|-----------------------------------|-------------|--|
| Relative permittivity (real part) | 39.306665   |  |
| Conductivity (S/m)                | 1.912087    |  |
| Power Drift (%)                   | -1.930000   |  |
| Ambient Temperature:              | 22.0°C      |  |
| Liquid Temperature:               | 21.8°C      |  |
| ConvF:                            | 4.74        |  |
| Crest factor:                     | 1:1         |  |



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| SAR Feak. 0.20 W/kg    |          |  |
|------------------------|----------|--|
| SAR 10g (W/Kg)         | 0.018032 |  |
| SAR 1g (W/Kg) 0.032633 |          |  |
|                        |          |  |

## Maximum location: X=-24.00, Y=-48.00





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.22

Measurement duration: 16 minutes 12 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |
|------------------------|-------------------|--|
| Phantom                | Flat              |  |
| <b>Device Position</b> | Body              |  |
| Band                   | LTE band 7        |  |
| <u>Channels</u>        | High              |  |
| <u>Signal</u>          | LTE               |  |

#### **B. SAR Measurement Results**

Higher Band SAR (Channel 21400):

| Frequency (MHz)                   | 2565.000000 |  |
|-----------------------------------|-------------|--|
| Relative permittivity (real part) | 52.589635   |  |
| Conductivity (S/m)                | 2.093106    |  |
| Power Drift (%)                   | -2.380000   |  |
| Ambient Temperature:              | 22.0°C      |  |
| Liquid Temperature:               | 21.8°C      |  |
| ConvF:                            | 4.93        |  |
| Crest factor:                     | 1:1         |  |



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| SARTeak. 0.35 Wrkg |          |  |
|--------------------|----------|--|
| SAR 10g (W/Kg)     | 0.108430 |  |
| SAR 1g (W/Kg)      | 0.224854 |  |
|                    |          |  |

#### Maximum location: X=2.00, Y=-34.00 SAR Peak: 0.39 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.12

Measurement duration: 15 minutes 24 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |
|------------------------|-------------------|--|
| Phantom                | Right head        |  |
| <b>Device Position</b> | Cheek             |  |
| Band                   | LTE band 12       |  |
| <u>Channels</u>        | Low               |  |
| <u>Signal</u>          | LTE               |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 23060):

| Frequency (MHz)                   | 703.500000 |  |
|-----------------------------------|------------|--|
| Relative permittivity (real part) | 41.589999  |  |
| Conductivity (S/m)                | 0.986238   |  |
| Power drift (%)                   | 1.390000   |  |
| Ambient Temperature:              | 22.6°C     |  |
| Liquid Temperature:               | 21.2°C     |  |
| ConvF:                            | 6.44       |  |
| Crest factor:                     | 1:1        |  |



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| SAR 10g (W/Kg) |      | 0.065115 |          |       |       |       |       |
|----------------|------|----------|----------|-------|-------|-------|-------|
| SAR 1g (W/Kg)  |      |          | 0.089689 |       |       |       |       |
|                |      |          |          |       |       |       |       |
| Z (mm)         | 0.00 | 4.00     | 9.00     | 14.00 | 19.00 | 24.00 | 29.00 |

## Maximum location: X=-55.00, Y=-35.00 SAR Peak: 0.11 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.12

Measurement duration: 16 minutes 2 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |
|------------------------|-------------------|--|
| Phantom                | Flat              |  |
| <b>Device Position</b> | Body              |  |
| Band                   | LTE band 12       |  |
| <u>Channels</u>        | Low               |  |
| <u>Signal</u>          | LTE               |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 23060):

| Frequency (MHz)                   | 703.500000 |  |
|-----------------------------------|------------|--|
| Relative permittivity (real part) | 53.712337  |  |
| Conductivity (S/m)                | 0.999031   |  |
| Power drift (%)                   | 0.300000   |  |
| Ambient Temperature:              | 22.6°C     |  |
| Liquid Temperature:               | 21.2°C     |  |
| ConvF:                            | 6.68       |  |
| Crest factor:                     | 1:1        |  |



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| SAR Peak: 0.21 W/kg     |  |  |  |
|-------------------------|--|--|--|
| SAR 10g (W/Kg) 0.121330 |  |  |  |
| SAR 1g (W/Kg) 0.172213  |  |  |  |
|                         |  |  |  |

#### Maximum location: X=-5.00, Y=12.00 SAP Poak: 0.21 W/kg





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.12

Measurement duration: 15 minutes 55 seconds

#### A. Experimental conditions.

| Phantom File           | surf sam plan.txt |  |
|------------------------|-------------------|--|
| Phantom                | Right head        |  |
| <b>Device Position</b> | Cheek             |  |
| Band                   | LTE band 17       |  |
| <u>Channels</u>        | Low               |  |
| <u>Signal</u>          | LTE               |  |

#### **B. SAR Measurement Results**

Lower Band SAR (Channel 23780):

| Frequency (MHz)                   | 709.00000 |  |
|-----------------------------------|-----------|--|
| Relative permittivity (real part) | 41.579168 |  |
| Conductivity (S/m)                | 0.990696  |  |
| Power drift (%)                   | 0.310000  |  |
| Ambient Temperature:              | 22.6°C    |  |
| Liquid Temperature:               | 21.2°C    |  |
| ConvF:                            | 6.44      |  |
| Crest factor:                     | 1:1       |  |



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SAR 10g (W/Kg)

0.04

0.02

0.02.55.07.5

12.5

0.066885

|        | SAR 1g               | (W/Kg)        |        |        | 0.09   | 1108   |        |
|--------|----------------------|---------------|--------|--------|--------|--------|--------|
| Z (mm) | 0.00                 | 4.00          | 9.00   | 14.00  | 19.00  | 24.00  | 29.00  |
| SAR    | 0.1110               | 0.0929        | 0.0737 | 0.0585 | 0.0467 | 0.0365 | 0.0291 |
| (W/Kg) |                      |               |        |        |        |        |        |
|        | 0.11-                |               |        |        |        |        |        |
|        | 0.10-                | $\rightarrow$ |        |        |        | _      |        |
|        |                      |               |        |        |        |        |        |
|        | ୍ଲି <sup>0.08-</sup> |               |        |        |        |        |        |
|        | €<br>0.06.           |               |        |        |        |        |        |
|        | SAB<br>SAB           |               |        |        |        |        |        |

22.5

17.5

27.5

32.5

40.0

## Maximum location: X=-56.00, Y=-35.00 SAR Peak: 0.11 W/kg



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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.12

Measurement duration: 15 minutes 54 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Flat                     |
| <b>Device Position</b> | Body                     |
| Band                   | LTE band 17              |
| <u>Channels</u>        | Middle                   |
| <u>Signal</u>          | LTE                      |

#### **B. SAR Measurement Results**

Middle Band SAR (Channel 23790):

| Frequency (MHz)                   | 710.000000 |
|-----------------------------------|------------|
| Relative permittivity (real part) | 53.688012  |
| Conductivity (S/m)                | 1.028526   |
| Power drift (%)                   | 1.050000   |
| Ambient Temperature:              | 22.6°C     |
| Liquid Temperature:               | 21.2°C     |
| ConvF:                            | 6.68       |
| Crest factor:                     | 1:1        |



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### Maximum location: X=7.00, Y=36.00 SAR Peak: 0.07 W/kg

| SAR 10g (W/Kg) | 0.039542 |
|----------------|----------|
| SAR 1g (W/Kg)  | 0.055733 |





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.19

Measurement duration: 16 minutes 17 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Left head                |
| <b>Device Position</b> | Cheek                    |
| Band                   | CUSTOM (GPRS850 4Tx)     |
| <u>Channels</u>        | Middle                   |
| Signal                 | GPRS                     |

#### **B. SAR Measurement Results**

| Frequency (MHz)                   | 836.599976 |
|-----------------------------------|------------|
| Relative permittivity (real part) | 41.179600  |
| Conductivity (S/m)                | 0.901269   |
| Power drift (%)                   | 0.260000   |
| Ambient Temperature:              | 22.6°C     |
| Liquid Temperature:               | 21.2°C     |
| ConvF:                            | 6.13       |
| Crest factor:                     | 1:2.08     |



#### Maximum location: X=-57.00, Y=-35.00

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| SAR 10g (W/Kg) | 0.213763 |
|----------------|----------|
| SAR 1g (W/Kg)  | 0.307635 |
|                |          |





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E-mail: service@morlab.cn



Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.02.01

Measurement duration: 16 minutes 06 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Flat                     |
| <b>Device Position</b> | Body                     |
| Band                   | CUSTOM (GPRS850 4Tx)     |
| <u>Channels</u>        | Middle                   |
| <u>Signal</u>          | GPRS                     |

#### **B. SAR Measurement Results**

| Frequency (MHz)                   | 836.599976 |
|-----------------------------------|------------|
| Relative permittivity (real part) | 55.275076  |
| Conductivity (S/m)                | 0.981353   |
| Power drift (%)                   | -1.560000  |
| Ambient Temperature:              | 22.6°C     |
| Liquid Temperature:               | 21.2°C     |
| ConvF:                            | 6.37       |
| Crest factor:                     | 1:2.08     |



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| OART CAR. COO TING |          |  |  |
|--------------------|----------|--|--|
| SAR 10g (W/Kg)     | 0.214642 |  |  |
| SAR 1g (W/Kg)      | 0.341530 |  |  |
|                    |          |  |  |

#### Maximum location: X=-1.00, Y=-55.00 SAR Peak: 0.56 W/kg





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Type: Phone measurement (Complete) Area scan resolution: dx=15mm,dy=15mm Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm Date of measurement: 2018.01.17 Measurement duration: 16 minutes 10 seconds

## A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| <b>Phantom</b>         | Left head                |
| <b>Device Position</b> | Cheek                    |
| Band                   | CUSTOM (GPRS1900 4Tx)    |
| <u>Channels</u>        | Middle                   |
| Signal                 | GPRS                     |

## **B. SAR Measurement Results**

| Frequency (MHz)                   | 1880.00000 |
|-----------------------------------|------------|
| Relative permittivity (real part) | 40.210000  |
| Conductivity (S/m)                | 1.400391   |
| Power drift (%)                   | -2.660000  |
| Ambient Temperature:              | 22.1°C     |
| Liquid Temperature:               | 22.4°C     |
| ConvF:                            | 5.61       |
| Duty cycle:                       | 1:2.08     |



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| SAR Feak. 0.21 W/kg |          |
|---------------------|----------|
| SAR 10g (W/Kg)      | 0.080933 |
| SAR 1g (W/Kg)       | 0.136728 |
|                     |          |

## Maximum location: X=-63.00, Y=-21.00





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Type: Phone measurement (Complete)

Area scan resolution: dx=15mm,dy=15mm

Zoom scan resolution: dx=8mm, dy=8mm, dz=5mm

Date of measurement: 2018.01.23

Measurement duration: 15 minutes 59 seconds

#### A. Experimental conditions.

| Phantom File           | <u>surf_sam_plan.txt</u> |
|------------------------|--------------------------|
| Phantom                | Flat                     |
| <b>Device Position</b> | Body                     |
| Band                   | CUSTOM (GPRS1900 4Tx)    |
| <u>Channels</u>        | Middle                   |
| <u>Signal</u>          | GPRS                     |

#### **B. SAR Measurement Results**

| Frequency (MHz)                   | 1880.00000 |
|-----------------------------------|------------|
| Relative permittivity (real part) | 53.436999  |
| Conductivity (S/m)                | 1.509711   |
| Power drift (%)                   | -2.280000  |
| Ambient Temperature:              | 22.1°C     |
| Liquid Temperature:               | 22.4°C     |
| ConvF:                            | 5.61       |
| Duty cycle:                       | 1:2.08     |



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| SAR Peak: 0.43 W/kg |          |  |
|---------------------|----------|--|
| SAR 10g (W/Kg)      | 0.149561 |  |
| SAR 1g (W/Kg)       | 0.272037 |  |

# Maximum location: X=7.00, Y=1.00





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