**Hotspot SAR**

| GSM850 – Body SAR Test (Gap: 10mm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | | | CH. | MHz | | | | | |
| 77. | GPRS_2TX | Back Side | 190 | 836.6 | 30.81 | 31.0 | 1.045 | 0.342 | 0.357 |
| 78. | GPRS_2TX | Front Side | 190 | 836.6 | 30.81 | 31.0 | 1.045 | 0.381 | 0.398 |
| 79. | GPRS_2TX | Right side | 190 | 836.6 | 30.81 | 31.0 | 1.045 | 0.169 | 0.177 |
| 80. | GPRS_2TX | Left side | 190 | 836.6 | 30.81 | 31.0 | 1.045 | 0.217 | 0.227 |
| 81. | GPRS_2TX | Bottom side | 190 | 836.6 | 30.81 | 31.0 | 1.045 | 0.247 | 0.258 |

| GSM1900 – Body SAR Test (Gap: 10mm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | | | CH. | MHz | | | | | |
| 82. | GPRS_3TX | Back Side | 661 | 1880.0 | 26.31 | 26.5 | 1.045 | 0.310 | 0.324 |
| 83. | GPRS_3TX | Front Side | 661 | 1880.0 | 26.31 | 26.5 | 1.045 | 0.301 | 0.314 |
| 84. | GPRS_3TX | Right side | 661 | 1880.0 | 26.31 | 26.5 | 1.045 | 0.203 | 0.212 |
| 85. | GPRS_3TX | Left side | 661 | 1880.0 | 26.31 | 26.5 | 1.045 | 0.241 | 0.252 |
| 86. | GPRS_3TX | Bottom side | 661 | 1880.0 | 26.31 | 26.5 | 1.045 | 0.281 | 0.294 |

| WCDMA Band 2 – Body SAR Test (Gap: 10mm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | | | CH. | MHz | | | | | |
| 87. | RMC 12.2k | Back Side | 9400 | 1880.0 | 22.18 | 22.5 | 1.076 | 0.478 | 0.515 |
| 88. | RMC 12.2k | Front Side | 9400 | 1880.0 | 22.18 | 22.5 | 1.076 | 0.475 | 0.511 |
| 89. | RMC 12.2k | Right side | 9400 | 1880.0 | 22.18 | 22.5 | 1.076 | 0.266 | 0.286 |
| 90. | RMC 12.2k | Left side | 9400 | 1880.0 | 22.18 | 22.5 | 1.076 | 0.317 | 0.341 |
| 91. | RMC 12.2k | Bottom side | 9400 | 1880.0 | 22.18 | 22.5 | 1.076 | 0.394 | 0.424 |

| WCDMA Band 5 – Body SAR Test (Gap: 10mm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | | | CH. | MHz | | | | | |
| 92. | RMC 12.2k | Back Side | 4233 | 846.6 | 22.27 | 22.5 | 1.054 | 0.187 | 0.197 |
| 93. | RMC 12.2k | Front Side | 4233 | 846.6 | 22.27 | 22.5 | 1.054 | 0.202 | 0.213 |
| 94. | RMC 12.2k | Right side | 4233 | 846.6 | 22.27 | 22.5 | 1.054 | 0.078 | 0.082 |
| 95. | RMC 12.2k | Left side | 4233 | 846.6 | 22.27 | 22.5 | 1.054 | 0.113 | 0.119 |
| 96. | RMC 12.2k | Bottom side | 4233 | 846.6 | 22.27 | 22.5 | 1.054 | 0.127 | 0.134 |

| WCDMA Band 4 – Body SAR Test (Gap: 10mm) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | | | CH. | MHz | | | | | |
| 97. | RMC 12.2k | Back Side | 1513 | 1752.6 | 22.42 | 22.5 | 1.019 | 0.480 | 0.489 |
| 98. | RMC 12.2k | Front Side | 1513 | 1752.6 | 22.42 | 22.5 | 1.019 | 0.517 | 0.527 |
| 99. | RMC 12.2k | Right side | 1513 | 1752.6 | 22.42 | 22.5 | 1.019 | 0.311 | 0.317 |
| 100. | RMC 12.2k | Left side | 1513 | 1752.6 | 22.42 | 22.5 | 1.019 | 0.336 | 0.342 |
| 101. | RMC 12.2k | Bottom side | 1513 | 1752.6 | 22.42 | 22.5 | 1.019 | 0.501 | 0.510 |

| LTE Band 2–Body SAR Test (Gap: 10mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | Modulation, Bandwidth, RB | | MHz | | | | | |
| 102. | RMC QPSK 20MHz 1RB | Back Side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.485 | 0.524 |
| 103. | RMC QPSK 20MHz 1RB | Front Side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.471 | 0.509 |
| 104. | RMC QPSK 20MHz 1RB | Right side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.277 | 0.300 |
| 105. | RMC QPSK 20MHz 1RB | Left side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.312 | 0.337 |
| 106. | RMC QPSK 20MHz 1RB | Bottom side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.462 | 0.500 |
| 107. | RMC QPSK 20MHz 50%RB | Back Side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.241 | 0.261 |
| 108. | RMC QPSK 20MHz 50%RB | Front Side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.221 | 0.239 |
| 109. | RMC QPSK 20MHz 50%RB | Right side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.166 | 0.180 |
| 110. | RMC QPSK 20MHz 50%RB | Left side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.172 | 0.186 |
| 111. | RMC QPSK 20MHz 50%RB | Bottom side | 1860.0 | 23.16 | 23.5 | 1.081 | 0.217 | 0.235 |

| LTE Band 4–Body SAR Test (Gap: 10mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | Modulation, Bandwidth, RB | | MHz | | | | | |
| 112. | RMC QPSK 20MHz 1RB | Back Side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.441 | 0.442 |
| 113. | RMC QPSK 20MHz 1RB | Front Side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.456 | 0.457 |
| 114. | RMC QPSK 20MHz 1RB | Right side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.232 | 0.233 |
| 115. | RMC QPSK 20MHz 1RB | Left side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.311 | 0.312 |
| 116. | RMC QPSK 20MHz 1RB | Bottom side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.494 | 0.495 |
| 117. | RMC QPSK 20MHz 50%RB | Back Side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.223 | 0.224 |
| 118. | RMC QPSK 20MHz 50%RB | Front Side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.234 | 0.235 |
| 119. | RMC QPSK 20MHz 50%RB | Right side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.122 | 0.122 |
| 120. | RMC QPSK 20MHz 50%RB | Left side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.147 | 0.147 |
| 121. | RMC QPSK 20MHz 50%RB | Bottom side | 1745.0 | 22.99 | 23.0 | 1.002 | 0.231 | 0.232 |

| LTE Band 5–Body SAR Test (Gap: 10mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | Modulation, Bandwidth, RB | | MHz | | | | | |
| 122. | RMC QPSK 10MHz 1RB | Back Side | 844.0 | 23.35 | 23.5 | 1.035 | 0.163 | 0.169 |
| 123. | RMC QPSK 10MHz 1RB | Front Side | 844.0 | 23.35 | 23.5 | 1.035 | 0.195 | 0.202 |
| 124. | RMC QPSK 10MHz 1RB | Right side | 844.0 | 23.35 | 23.5 | 1.035 | 0.059 | 0.061 |
| 125. | RMC QPSK 10MHz 1RB | Left side | 844.0 | 23.35 | 23.5 | 1.035 | 0.077 | 0.080 |
| 126. | RMC QPSK 10MHz 1RB | Bottom side | 844.0 | 23.35 | 23.5 | 1.035 | 0.133 | 0.138 |
| 127. | RMC QPSK 10MHz 50%RB | Back Side | 844.0 | 23.35 | 23.5 | 1.035 | 0.088 | 0.091 |
| 128. | RMC QPSK 10MHz 50%RB | Front Side | 844.0 | 23.35 | 23.5 | 1.035 | 0.112 | 0.116 |
| 129. | RMC QPSK 10MHz 50%RB | Right side | 844.0 | 23.35 | 23.5 | 1.035 | 0.031 | 0.032 |
| 130. | RMC QPSK 10MHz 50%RB | Left side | 844.0 | 23.35 | 23.5 | 1.035 | 0.037 | 0.038 |
| 131. | RMC QPSK 10MHz 50%RB | Bottom side | 844.0 | 23.35 | 23.5 | 1.035 | 0.071 | 0.073 |

| LTE Band 7–Body SAR Test (Gap: 10mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | Modulation, Bandwidth, RB | | MHz | | | | | |
| 132. | RMC QPSK 20MHz 1RB | Back Side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.377 | 0.378 |
| 133. | RMC QPSK 20MHz 1RB | Front Side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.430 | 0.431 |
| 134. | RMC QPSK 20MHz 1RB | Right side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.267 | 0.268 |
| 135. | RMC QPSK 20MHz 1RB | Left side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.311 | 0.312 |
| 136. | RMC QPSK 20MHz 1RB | Bottom side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.458 | 0.459 |
| 137. | RMC QPSK 20MHz 50%RB | Back Side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.172 | 0.172 |
| 138. | RMC QPSK 20MHz 50%RB | Front Side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.223 | 0.224 |
| 139. | RMC QPSK 20MHz 50%RB | Right side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.139 | 0.139 |
| 140. | RMC QPSK 20MHz 50%RB | Left side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.153 | 0.153 |
| 141. | RMC QPSK 20MHz 50%RB | Bottom side | 2560.0 | 22.99 | 23.0 | 1.002 | 0.241 | 0.242 |

| LTE Band 17–Body SAR Test (Gap: 10mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | Modulation, Bandwidth, RB | | MHz | | | | | |
| 142. | RMC QPSK 10MHz 1RB | Back Side | 709.0 | 22.7 | 23.0 | 1.072 | 0.388 | 0.416 |
| 143. | RMC QPSK 10MHz 1RB | Front Side | 709.0 | 22.7 | 23.0 | 1.072 | 0.354 | 0.379 |
| 144. | RMC QPSK 10MHz 1RB | Right side | 709.0 | 22.7 | 23.0 | 1.072 | 0.061 | 0.065 |
| 145. | RMC QPSK 10MHz 1RB | Left side | 709.0 | 22.7 | 23.0 | 1.072 | 0.066 | 0.071 |
| 146. | RMC QPSK 10MHz 1RB | Bottom side | 709.0 | 22.7 | 23.0 | 1.072 | 0.073 | 0.078 |
| 147. | RMC QPSK 10MHz 50%RB | Back Side | 709.0 | 22.7 | 23.0 | 1.072 | 0.169 | 0.181 |
| 148. | RMC QPSK 10MHz 50%RB | Front Side | 709.0 | 22.7 | 23.0 | 1.072 | 0.157 | 0.168 |
| 149. | RMC QPSK 10MHz 50%RB | Right side | 709.0 | 22.7 | 23.0 | 1.072 | 0.034 | 0.036 |
| 150. | RMC QPSK 10MHz 50%RB | Left side | 709.0 | 22.7 | 23.0 | 1.072 | 0.037 | 0.040 |
| 151. | RMC QPSK 10MHz 50%RB | Bottom side | 709.0 | 22.7 | 23.0 | 1.072 | 0.081 | 0.087 |

| WLAN 2.4GHz –Body SAR Test | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Plot No. | Mode | Test Position Body | Frequency | | Output Power (dBm) | Rated Limit (dBm) | Scaling Factor | SAR1g (W/kg) | Scaled SAR1g (W/kg) |
| | | | CH. | MHz | | | | | |
| 152. | 802.11b | Back Side | 11 | 2462 | 17.84 | 18.0 | 1.038 | 0.360 | 0.374 |
| 153. | 802.11b | Front Side | 11 | 2462 | 17.84 | 18.0 | 1.038 | 0.347 | 0.360 |
| 154. | 802.11b | Right side | 11 | 2462 | 17.84 | 18.0 | 1.038 | 0.152 | 0.158 |
| 155. | 802.11b | Top Side | 11 | 2462 | 17.84 | 18.0 | 1.038 | 0.369 | 0.383 |

## 9.3 Simultaneous Multi-band Transmission SAR Analysis

**List of Mode for Simultaneous Multi-band Transmission**

| No. | Configurations | Head SAR | Body-worn SAR | Hotspot SAR |
|---|---|---|---|---|
| 1 | GSM(Voice/Data) + WLAN(Data) | Yes | Yes | Yes |
| 2 | WCDMA (Voice/Data)+ WLAN(Data) | Yes | Yes | Yes |
| 3 | LTE(Data) + WLAN(Data) | Yes | Yes | Yes |
| 4 | GSM(Voice/Data) + Bluetooth(Data) | Yes | Yes | - |
| 5 | WCDMA (Voice/Data) + Bluetooth(Data) | Yes | Yes | - |
| 6 | LTE(Data) + Bluetooth(Data) | Yes | Yes | - |

**Remark:**

1. GSM and WCDMA share the same antenna, and cannot transmit simultaneously.
2. WLAN and Bluetooth share the same antenna, and cannot transmit simultaneously.
3. According to the KDB 447498 D01 v06, when standalone SAR test exclusion applies to an antenna that transmits simultaneously with other antennas, the standalone SAR must be estimated according to following to determine simultaneous transmission SAR test exclusion:

(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)]·[√f(GHz)/x] W/kg for test separation distances ≤ 50 mm;

where x = 7.5 for 1-g SAR, and x = 18.75 for 10-g SAR.

For simultaneous transmission analysis, Bluetooth SAR is estimated per KDB 447498 D01 v06 as below:

Bluetooth:

| Tune-Up Power (dBm) | Max. Power (mW) | Distance (mm) | Frequency (GHz) | X | SAR(1g) 5mm | SAR(1g) 10mm |
|---|---|---|---|---|---|---|
| 7.5 | 5.62 | 5/10 | 2.480 | 7.5 | 0.236 | 0.118 |

4. The maximum SAR summation is calculated based on the same configuration and test position.

**Head SAR**

**WWAN and WLAN**

| | WWAN | | WLAN | Summed SAR (W/kg) |
|---|---|---|---|---|
| **Position** | **Band** | **Scaled SAR (W/kg)** | **Scaled SAR (W/kg)** | |
| Right Cheek | GSM850 | 0.489 | 0.777 | 1.266 |
| Right Tilted | GSM850 | 0.248 | 0.364 | 0.612 |
| Left Cheek | GSM850 | 0.386 | 0.807 | 1.193 |
| Left Tilted | GSM850 | 0.217 | 0.376 | 0.593 |
| Right Cheek | GSM1900 | 0.158 | 0.777 | 0.935 |
| Right Tilted | GSM1900 | 0.077 | 0.364 | 0.441 |
| Left Cheek | GSM1900 | 0.180 | 0.807 | 0.987 |
| Left Tilted | GSM1900 | 0.096 | 0.376 | 0.472 |
| Right Cheek | GPRS850 | 0.652 | 0.777 | **1.429** |
| Right Tilted | GPRS850 | 0.354 | 0.364 | 0.718 |
| Left Cheek | GPRS850 | 0.520 | 0.807 | 1.327 |
| Left Tilted | GPRS850 | 0.270 | 0.376 | 0.646 |
| Right Cheek | GPRS1900 | 0.240 | 0.777 | 1.017 |
| Right Tilted | GPRS1900 | 0.143 | 0.364 | 0.507 |
| Left Cheek | GPRS1900 | 0.200 | 0.807 | 1.007 |
| Left Tilted | GPRS1900 | 0.124 | 0.376 | 0.500 |
| Right Cheek | WCDMA Band 2 | 0.381 | 0.777 | 1.158 |
| Right Tilted | WCDMA Band 2 | 0.213 | 0.364 | 0.577 |
| Left Cheek | WCDMA Band 2 | 0.302 | 0.807 | 1.109 |
| Left Tilted | WCDMA Band 2 | 0.160 | 0.376 | 0.536 |
| Right Cheek | WCDMA Band 5 | 0.275 | 0.777 | 1.052 |
| Right Tilted | WCDMA Band 5 | 0.140 | 0.364 | 0.504 |
| Left Cheek | WCDMA Band 5 | 0.216 | 0.807 | 1.023 |
| Left Tilted | WCDMA Band 5 | 0.123 | 0.376 | 0.499 |
| Right Cheek | WCDMA Band 4 | 0.375 | 0.777 | 1.152 |
| Right Tilted | WCDMA Band 4 | 0.172 | 0.364 | 0.536 |
| Left Cheek | WCDMA Band 4 | 0.239 | 0.807 | 1.046 |
| Left Tilted | WCDMA Band 4 | 0.140 | 0.376 | 0.516 |
| Right Cheek | LTE Band 2 | 0.297 | 0.777 | 1.074 |
| Right Tilted | LTE Band 2 | 0.171 | 0.364 | 0.535 |
| Left Cheek | LTE Band 2 | 0.444 | 0.807 | 1.251 |
| Left Tilted | LTE Band 2 | 0.218 | 0.376 | 0.594 |
| Right Cheek | LTE Band 4 | 0.295 | 0.777 | 1.072 |
| Right Tilted | LTE Band 4 | 0.161 | 0.364 | 0.525 |
| Left Cheek | LTE Band 4 | 0.262 | 0.807 | 1.069 |
| Left Tilted | LTE Band 4 | 0.134 | 0.376 | 0.510 |
| Right Cheek | LTE Band 5 | 0.269 | 0.777 | 1.046 |

| | | | | |
|---|---|---|---|---|
| Right Tilted | LTE Band 5 | 0.138 | 0.364 | 0.502 |
| Left Cheek | LTE Band 5 | 0.212 | 0.807 | 1.019 |
| Left Tilted | LTE Band 5 | 0.111 | 0.376 | 0.487 |
| Right Cheek | LTE Band 7 | 0.356 | 0.777 | 1.133 |
| Right Tilted | LTE Band 7 | 0.177 | 0.364 | 0.541 |
| Left Cheek | LTE Band 7 | 0.114 | 0.807 | 0.921 |
| Left Tilted | LTE Band 7 | 0.065 | 0.376 | 0.441 |
| Right Cheek | LTE Band 17 | 0.244 | 0.777 | 1.021 |
| Right Tilted | LTE Band 17 | 0.136 | 0.364 | 0.500 |
| Left Cheek | LTE Band 17 | 0.227 | 0.807 | 1.034 |
| Left Tilted | LTE Band 17 | 0.130 | 0.376 | 0.506 |

**WWAN and Bluetooth**

| | WWAN | | Bluetooth | Summed SAR (W/kg) |
|---|---|---|---|---|
| **Position** | **Band** | **Scaled SAR (W/kg)** | **Scaled SAR (W/kg)** | |
| Right Cheek | GSM850 | 0.489 | 0.236 | 0.725 |
| Right Tilted | GSM850 | 0.248 | 0.236 | 0.484 |
| Left Cheek | GSM850 | 0.386 | 0.236 | 0.622 |
| Left Tilted | GSM850 | 0.217 | 0.236 | 0.453 |
| Right Cheek | GSM1900 | 0.158 | 0.236 | 0.394 |
| Right Tilted | GSM1900 | 0.077 | 0.236 | 0.313 |
| Left Cheek | GSM1900 | 0.180 | 0.236 | 0.416 |
| Left Tilted | GSM1900 | 0.096 | 0.236 | 0.332 |
| Right Cheek | GPRS850 | 0.652 | 0.236 | **0.888** |
| Right Tilted | GPRS850 | 0.354 | 0.236 | 0.590 |
| Left Cheek | GPRS850 | 0.520 | 0.236 | 0.756 |
| Left Tilted | GPRS850 | 0.270 | 0.236 | 0.506 |
| Right Cheek | GPRS1900 | 0.240 | 0.236 | 0.476 |
| Right Tilted | GPRS1900 | 0.143 | 0.236 | 0.379 |
| Left Cheek | GPRS1900 | 0.200 | 0.236 | 0.436 |
| Left Tilted | GPRS1900 | 0.124 | 0.236 | 0.360 |
| Right Cheek | WCDMA Band 2 | 0.381 | 0.236 | 0.617 |
| Right Tilted | WCDMA Band 2 | 0.213 | 0.236 | 0.449 |
| Left Cheek | WCDMA Band 2 | 0.302 | 0.236 | 0.538 |
| Left Tilted | WCDMA Band 2 | 0.160 | 0.236 | 0.396 |
| Right Cheek | WCDMA Band 5 | 0.275 | 0.236 | 0.511 |
| Right Tilted | WCDMA Band 5 | 0.140 | 0.236 | 0.376 |
| Left Cheek | WCDMA Band 5 | 0.216 | 0.236 | 0.452 |
| Left Tilted | WCDMA Band 5 | 0.123 | 0.236 | 0.359 |
| Right Cheek | WCDMA Band 4 | 0.375 | 0.236 | 0.611 |
| Right Tilted | WCDMA Band 4 | 0.172 | 0.236 | 0.408 |
| Left Cheek | WCDMA Band 4 | 0.239 | 0.236 | 0.475 |
| Left Tilted | WCDMA Band 4 | 0.140 | 0.236 | 0.376 |
| Right Cheek | LTE Band 2 | 0.297 | 0.236 | 0.533 |
| Right Tilted | LTE Band 2 | 0.171 | 0.236 | 0.407 |
| Left Cheek | LTE Band 2 | 0.444 | 0.236 | 0.680 |
| Left Tilted | LTE Band 2 | 0.218 | 0.236 | 0.454 |
| Right Cheek | LTE Band 4 | 0.295 | 0.236 | 0.531 |
| Right Tilted | LTE Band 4 | 0.161 | 0.236 | 0.397 |
| Left Cheek | LTE Band 4 | 0.262 | 0.236 | 0.498 |
| Left Tilted | LTE Band 4 | 0.134 | 0.236 | 0.370 |
| Right Cheek | LTE Band 5 | 0.269 | 0.236 | 0.505 |
| Right Tilted | LTE Band 5 | 0.138 | 0.236 | 0.374 |

| | | | | |
|---|---|---|---|---|
| Left Cheek | LTE Band 5 | 0.212 | 0.236 | 0.448 |
| Left Tilted | LTE Band 5 | 0.111 | 0.236 | 0.347 |
| Right Cheek | LTE Band 7 | 0.356 | 0.236 | 0.592 |
| Right Tilted | LTE Band 7 | 0.177 | 0.236 | 0.413 |
| Left Cheek | LTE Band 7 | 0.114 | 0.236 | 0.350 |
| Left Tilted | LTE Band 7 | 0.065 | 0.236 | 0.301 |
| Right Cheek | LTE Band 12 | 0.244 | 0.236 | 0.480 |
| Right Tilted | LTE Band 12 | 0.136 | 0.236 | 0.372 |
| Left Cheek | LTE Band 12 | 0.227 | 0.236 | 0.463 |
| Left Tilted | LTE Band 12 | 0.130 | 0.236 | 0.366 |

**Body-worn SAR**

**WWAN and WLAN**

| | WWAN | | WLAN | Summed SAR (W/kg) |
|---|---|---|---|---|
| **Position** | **Band** | **Scaled SAR (W/kg)** | **Scaled SAR (W/kg)** | |
| Back | GSM850 | 0.278 | 0.374 | 0.652 |
| Front | GSM850 | 0.331 | 0.360 | 0.691 |
| Back | GSM1900 | 0.270 | 0.374 | 0.644 |
| Front | GSM1900 | 0.270 | 0.360 | 0.630 |
| Back | WCDMA Band 2 | 0.515 | 0.374 | 0.889 |
| Front | WCDMA Band 2 | 0.511 | 0.360 | 0.871 |
| Back | WCDMA Band 5 | 0.197 | 0.374 | 0.571 |
| Front | WCDMA Band 5 | 0.213 | 0.360 | 0.573 |
| Back | WCDMA Band 4 | 0.489 | 0.374 | 0.863 |
| Front | WCDMA Band 4 | 0.527 | 0.360 | 0.887 |
| Back | LTE Band 2 | 0.524 | 0.374 | **0.898** |
| Front | LTE Band 2 | 0.509 | 0.360 | 0.869 |
| Back | LTE Band 4 | 0.442 | 0.374 | 0.816 |
| Front | LTE Band 4 | 0.457 | 0.360 | 0.817 |
| Back | LTE Band 5 | 0.169 | 0.374 | 0.543 |
| Front | LTE Band 5 | 0.202 | 0.360 | 0.562 |
| Back | LTE Band 7 | 0.378 | 0.374 | 0.752 |
| Front | LTE Band 7 | 0.431 | 0.360 | 0.791 |
| Back | LTE Band 17 | 0.416 | 0.374 | 0.790 |
| Front | LTE Band 17 | 0.379 | 0.360 | 0.739 |

**WWAN and Bluetooth**

| | WWAN | | Bluetooth | Summed SAR (W/kg) |
|---|---|---|---|---|
| **Position** | **Band** | **Scaled SAR (W/kg)** | **Scaled SAR (W/kg)** | |
| Back | GSM850 | 0.278 | 0.118 | 0.396 |
| Front | GSM850 | 0.331 | 0.118 | 0.449 |
| Back | GSM1900 | 0.270 | 0.118 | 0.388 |
| Front | GSM1900 | 0.270 | 0.118 | 0.388 |
| Back | WCDMA Band 2 | 0.515 | 0.118 | 0.633 |
| Front | WCDMA Band 2 | 0.511 | 0.118 | 0.629 |
| Back | WCDMA Band 5 | 0.197 | 0.118 | 0.315 |
| Front | WCDMA Band 5 | 0.213 | 0.118 | 0.331 |
| Back | WCDMA Band 4 | 0.489 | 0.118 | 0.607 |
| Front | WCDMA Band 4 | 0.527 | 0.118 | **0.645** |
| Back | LTE Band 2 | 0.524 | 0.118 | 0.642 |
| Front | LTE Band 2 | 0.509 | 0.118 | 0.627 |

| | | | | |
|---|---|---|---|---|
| Back | LTE Band 4 | 0.442 | 0.118 | 0.560 |
| Front | LTE Band 4 | 0.457 | 0.118 | 0.575 |
| Back | LTE Band 5 | 0.169 | 0.118 | 0.287 |
| Front | LTE Band 5 | 0.202 | 0.118 | 0.320 |
| Back | LTE Band 7 | 0.378 | 0.118 | 0.496 |
| Front | LTE Band 7 | 0.431 | 0.118 | 0.549 |
| Back | LTE Band 12 | 0.416 | 0.118 | 0.534 |
| Front | LTE Band 12 | 0.379 | 0.118 | 0.497 |

**Hotspot SAR**

**WWAN and WLAN**

| | WWAN | | WLAN | Summed SAR (W/kg) |
|---|---|---|---|---|
| **Position** | **Band** | **Scaled SAR (W/kg)** | **Scaled SAR (W/kg)** | |
| Back | GSM850 | 0.357 | 0.374 | 0.731 |
| Front | GSM850 | 0.398 | 0.360 | 0.758 |
| Top side | GSM850 | -- | 0.383 | 0.383 |
| Bottom side | GSM850 | 0.258 | -- | 0.258 |
| Right side | GSM850 | 0.177 | 0.158 | 0.335 |
| Left side | GSM850 | 0.227 | -- | 0.227 |
| Back | GSM1900 | 0.324 | 0.374 | 0.698 |
| Front | GSM1900 | 0.314 | 0.360 | 0.674 |
| Top side | GSM1900 | -- | 0.383 | 0.383 |
| Bottom side | GSM1900 | 0.294 | -- | 0.294 |
| Right side | GSM1900 | 0.212 | 0.158 | 0.370 |
| Left side | GSM1900 | 0.252 | -- | 0.252 |
| Back | WCDMA Band 2 | 0.515 | 0.374 | 0.889 |
| Front | WCDMA Band 2 | 0.511 | 0.360 | 0.871 |
| Top side | WCDMA Band 2 | -- | 0.383 | 0.383 |
| Bottom side | WCDMA Band 2 | 0.424 | -- | 0.424 |
| Right side | WCDMA Band 2 | 0.286 | 0.158 | 0.444 |
| Left side | WCDMA Band 2 | 0.341 | -- | 0.341 |
| Back | WCDMA Band 5 | 0.197 | 0.374 | 0.571 |
| Front | WCDMA Band 5 | 0.213 | 0.360 | 0.573 |
| Top side | WCDMA Band 5 | -- | 0.383 | 0.383 |
| Bottom side | WCDMA Band 5 | 0.134 | -- | 0.134 |
| Right side | WCDMA Band 5 | 0.082 | 0.158 | 0.240 |
| Left side | WCDMA Band 5 | 0.119 | -- | 0.119 |
| Back | WCDMA Band 4 | 0.489 | 0.374 | 0.863 |
| Front | WCDMA Band 4 | 0.527 | 0.360 | 0.887 |
| Top side | WCDMA Band 4 | -- | 0.383 | 0.383 |
| Bottom side | WCDMA Band 4 | 0.510 | -- | 0.510 |
| Right side | WCDMA Band 4 | 0.317 | 0.158 | 0.475 |

| | | | | |
|---|---|---|---|---|
| Left side | WCDMA Band 4 | 0.342 | -- | 0.342 |
| Back | LTE Band 2 | 0.524 | 0.374 | **0.898** |
| Front | LTE Band 2 | 0.509 | 0.360 | 0.869 |
| Top side | LTE Band 2 | -- | 0.383 | 0.383 |
| Bottom side | LTE Band 2 | 0.500 | -- | 0.500 |
| Right side | LTE Band 2 | 0.300 | 0.158 | 0.458 |
| Left side | LTE Band 2 | 0.337 | -- | 0.337 |
| Back | LTE Band 4 | 0.442 | 0.374 | 0.816 |
| Front | LTE Band 4 | 0.457 | 0.360 | 0.817 |
| Top side | LTE Band 4 | -- | 0.383 | 0.383 |
| Bottom side | LTE Band 4 | 0.495 | -- | 0.495 |
| Right side | LTE Band 4 | 0.233 | 0.158 | 0.391 |
| Left side | LTE Band 4 | 0.312 | -- | 0.312 |
| Back | LTE Band 5 | 0.169 | 0.374 | 0.543 |
| Front | LTE Band 5 | 0.202 | 0.360 | 0.562 |
| Top side | LTE Band 5 | -- | 0.383 | 0.383 |
| Bottom side | LTE Band 5 | 0.138 | -- | 0.138 |
| Right side | LTE Band 5 | 0.061 | 0.158 | 0.219 |
| Left side | LTE Band 5 | 0.080 | -- | 0.080 |
| Back | LTE Band 7 | 0.378 | 0.374 | 0.752 |
| Front | LTE Band 7 | 0.431 | 0.360 | 0.791 |
| Top side | LTE Band 7 | -- | 0.383 | 0.383 |
| Bottom side | LTE Band 7 | 0.459 | -- | 0.459 |
| Right side | LTE Band 7 | 0.268 | 0.158 | 0.426 |
| Left side | LTE Band 7 | 0.312 | -- | 0.312 |
| Back | LTE Band 12 | 0.416 | 0.374 | 0.790 |
| Front | LTE Band 12 | 0.379 | 0.360 | 0.739 |
| Top side | LTE Band 12 | -- | 0.383 | 0.383 |
| Bottom side | LTE Band 12 | 0.078 | -- | 0.078 |
| Right side | LTE Band 12 | 0.065 | 0.158 | 0.223 |
| Left side | LTE Band 12 | 0.071 | -- | 0.071 |

# 10. Measurement Uncertainty

## 10.1 Uncertainty for EUT SAR Test

| a | b | c | d | e= f(d,k) | f | g | h= c*f/e | i= c*g/e | k |
|---|---|---|---|---|---|---|---|---|---|
| **Uncertainty Component** | **Sec.** | **Tol (+- %)** | **Prob. Dist.** | **Div.** | **Ci (1g)** | **Ci (10g)** | **1g Ui (+-%)** | **10g Ui (+-%)** | **Vi** |
| **Measurement System** | | | | | | | | | |
| Probe calibration | E.2.1 | 7.0 | N | 1 | 1 | 1 | 7.00 | 7.00 | ∝ |
| Axial Isotropy | E.2.2 | 2.5 | R | √3 | (1_Cp)^1/2 | (1_Cp)^1/2 | 1.02 | 1.02 | ∝ |
| Hemispherical Isotropy | E.2.2 | 4.0 | R | √3 | (Cp)^1/2 | (Cp)^1/2 | 1.63 | 1.63 | ∝ |
| Boundary effect | E.2.3 | 1.0 | R | √3 | 1 | 1 | 0.58 | 0.58 | ∝ |
| Linearity | E.2.4 | 5.0 | R | √3 | 1 | 1 | 2.89 | 2.89 | ∝ |
| System detection limits | E.2.5 | 1.0 | R | √3 | 1 | 1 | 0.58 | 0.58 | ∝ |
| Readout Electronics | E.2.6 | 0.02 | N | 1 | 1 | 1 | 0.02 | 0.02 | ∝ |
| Reponse Time | E.2.7 | 3.0 | R | √3 | 1 | 1 | 1.73 | 1.73 | ∝ |
| Integration Time | E.2.8 | 2.0 | R | √3 | 1 | 1 | 1.15 | 1.15 | ∝ |
| RF ambient Conditions – Noise | E.6.1 | 3.0 | R | √3 | 1 | 1 | 1.73 | 1.73 | ∝ |
| RF ambient Conditions - Reflections | E.6.1 | 3.0 | R | √3 | 1 | 1 | 1.73 | 1.73 | ∝ |
| Probe positioner Mechanical Tolerance | E.6.2 | 2.0 | R | √3 | 1 | 1 | 1.15 | 1.15 | ∝ |
| Probe positioning with respect to Phantom Shell | E.6.3 | 0.05 | R | √3 | 1 | 1 | 0.03 | 0.03 | ∝ |
| Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation | E.5 | 5.0 | R | √3 | 1 | 1 | 2.89 | 2.89 | ∝ |
| **Test Sample Related** | | | | | | | | | |
| Test sample positioning | E.4.2 | 0.03 | N | 1 | 1 | 1 | 0.03 | 0.03 | N–1 |
| Device Holder Uncertainty | E.4.1 | 5.00 | N | 1 | 1 | 1 | 5.00 | 5.00 | |
| Output power Variation - SAR drift measurement | E.2.9 | 12.02 | R | √3 | 1 | 1 | 6.94 | 6.94 | ∝ |
| SAR scaling | E6.5 | 0.0 | R | √3 | 1 | 1 | 0.0 | 0.0 | ∝ |
| **Phantom and Tissue Parameters** | | | | | | | | | |
| Phantom Uncertainty (Shape and thickness tolerances) | E.3.1 | 0.05 | R | √3 | 1 | 1 | 0.03 | 0.03 | ∝ |
| Uncertainty in SAR correction for deviations in permittivity and conductivity | E3.2 | 1.9 | R | √3 | 1 | 0.84 | 1.10 | 0.90 | ∝ |
| Liquid conductivity - deviation | E.3.2 | 5.00 | R | √3 | 0.64 | 0.43 | 1.85 | 1.24 | ∝ |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| from target value | | | | | | | | | |
| Liquid conductivity - measurement uncertainty | E.3.3 | 5.00 | N | 1 | 0.64 | 0.43 | 3.20 | 2.15 | ∝ |
| Liquid permittivity - deviation from target value | E.3.2 | 0.37 | R | √3 | 0.6 | 0.49 | 0.13 | 0.10 | ∝ |
| Liquid permittivity - measurement uncertainty | E.3.3 | 10.00 | N | 1 | 0.6 | 0.49 | 6.00 | 4.90 | ∝ |
| Combined Standard Uncertainty | | | RSS | | | | 12.98 | 12.53 | |
| Expanded Uncertainty (95% Confidence interval) | | | K=2 | | | | 25.32 | 24.43 | |

## 10.2 Uncertainty for System Performance Check

| a | b | c | d | e= f(d,k) | f | g | h= c*f/e | i= c*g/e | k |
|---|---|---|---|---|---|---|---|---|---|
| **Uncertainty Component** | **Sec.** | **Tol (+- %)** | **Prob. Dist.** | **Div.** | **Ci (1g)** | **Ci (10g)** | **1g Ui (+-%)** | **10g Ui (+-%)** | **Vi** |
| **Measurement System** | | | | | | | | | |
| Probe calibration | E.2.1 | 7.0 | N | 1 | 1 | 1 | 7.00 | 7.00 | ∝ |
| Axial Isotropy | E.2.2 | 2.5 | R | √3 | (1_Cp)^1/2 | (1_Cp)^1/2 | 1.02 | 1.02 | ∝ |
| Hemispherical Isotropy | E.2.2 | 4.0 | R | √3 | (Cp)^1/2 | (Cp)^1/2 | 1.63 | 1.63 | ∝ |
| Boundary effect | E.2.3 | 1.0 | R | √3 | 1 | 1 | 0.58 | 0.58 | ∝ |
| Linearity | E.2.4 | 5.0 | R | √3 | 1 | 1 | 2.89 | 2.89 | ∝ |
| System detection limits | E.2.5 | 1.0 | R | √3 | 1 | 1 | 0.58 | 0.58 | ∝ |
| Modulation response | E.2.5 | 0 | R | √3 | 0 | 0 | 0.0 | 0.0 | ∝ |
| Readout Electronics | E.2.6 | 0.02 | N | 1 | 1 | 1 | 0.02 | 0.02 | ∝ |
| Reponse Time | E.2.7 | 3.0 | R | √3 | 1 | 1 | 1.73 | 1.73 | ∝ |
| Integration Time | E.2.8 | 2.0 | R | √3 | 1 | 1 | 1.15 | 1.15 | ∝ |
| RF ambient Conditions – Noise | E.6.1 | 3.0 | R | √3 | 1 | 1 | 1.73 | 1.73 | ∝ |
| RF ambient Conditions - Reflections | E.6.1 | 3.0 | R | √3 | 1 | 1 | 1.73 | 1.73 | ∝ |
| Probe positioner Mechanical Tolerance | E.6.2 | 2.0 | R | √3 | 1 | 1 | 1.15 | 1.15 | ∝ |
| Probe positioning with respect to Phantom Shell | E.6.3 | 0.05 | R | √3 | 1 | 1 | 0.03 | 0.03 | ∝ |
| Extrapolation, interpolation and integration Algoritms for Max. | E.5.2 | 5.0 | R | √3 | 1 | 1 | 2.89 | 2.89 | ∝ |

| SAR Evaluation | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Dipole** | | | | | | | | | |
| Dipole axis to liquid Distance | 8,E.4.2 | 1.00 | N | √3 | 1 | 1 | 0.58 | 0.58 | N–1 |
| Input power and SAR drift measurement | 8,6.6.2 | 12.02 | R | √3 | 1 | 1 | 6.94 | 6.94 | ∝ |
| Deviation of experimental dipole from numerical dipole | E.6.4 | 5.5 | R | √3 | 1 | 1 | 3.20 | 3.20 | ∝ |
| **Phantom and Tissue Parameters** | | | | | | | | | |
| Phantom Uncertainty (Shape and thickness tolerances) | E.3.1 | 0.05 | R | √3 | 1 | 1 | 0.03 | 0.03 | ∝ |
| Uncertainty in SAR correction for deviations in permittivity and conductivity | E3.2 | 2.0 | R | √3 | 1 | 0.84 | 1.10 | 1.10 | ∝ |
| Liquid conductivity - deviation from target value | E.3.2 | 5.00 | R | √3 | 0.64 | 0.43 | 1.85 | 1.24 | |
| Liquid conductivity - measurement uncertainty | E.3.3 | 5.00 | N | 1 | 0.64 | 0.43 | 3.20 | 2.15 | |
| Liquid permittivity - deviation from target value | E.3.2 | 0.37 | R | √3 | 0.6 | 0.49 | 0.13 | 0.10 | |
| Liquid permittivity - measurement uncertainty | E.3.3 | 10.00 | N | 1 | 0.6 | 0.49 | 6.00 | 4.90 | M |
| Combined Standard Uncertainty | | | RSS | | | | 12.00 | 11.50 | |
| Expanded Uncertainty (95% Confidence interval) | | | K=2 | | | | 23.39 | 22.43 | |

# Annex A. Plots of System Performance Check

## MEASUREMENT 1

**For Head Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/23/2019

Measurement duration: 7 minutes 21 seconds

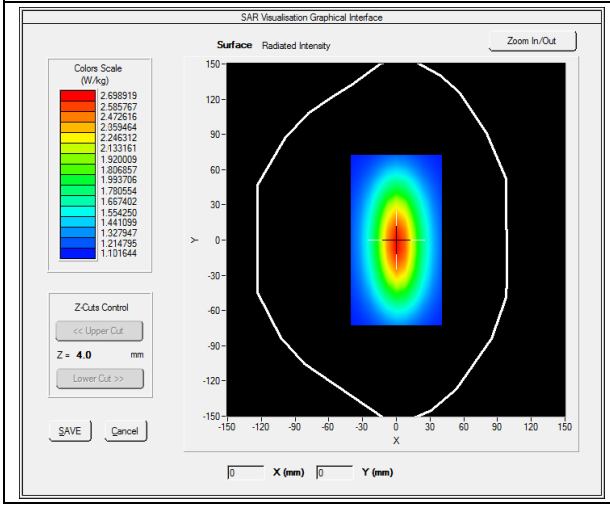
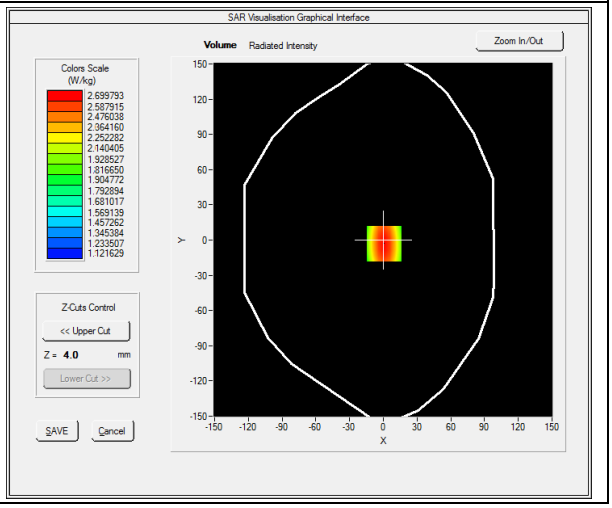
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.99; Calibrated: 05/22/2019

### A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW750 |
| **Signal** | Duty Cycle 1:1 |

### B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 750.000000 |
| **Relative Permittivity (real part)** | 41.320574 |
| **Conductivity (S/m)** | 0.862373 |
| **Power Variation (%)** | 0.038363 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

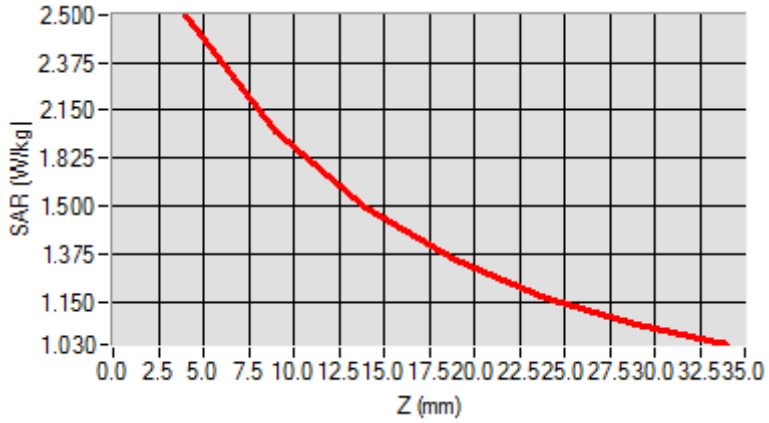
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

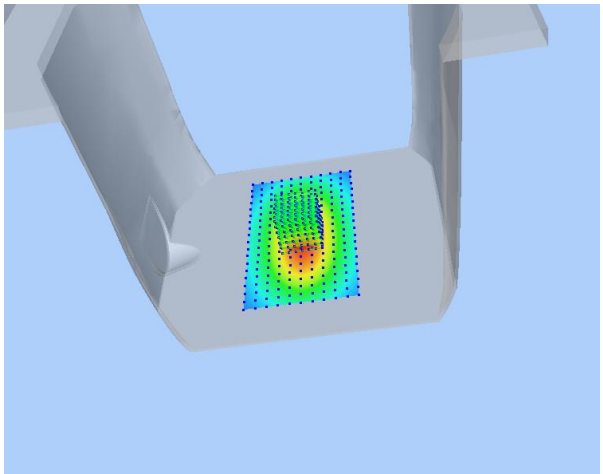
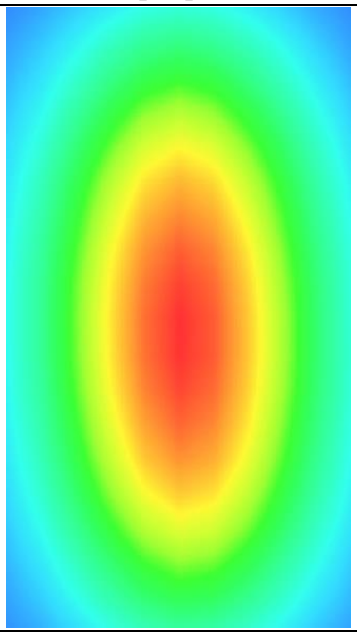
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 1.042744 |
|---|---|
| SAR 1g (W/Kg) | 2.164534 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 2.3634 | 1.8023 | 1.4523 | 1.2514 | 1.1005 | 1.0245 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 2

**For Head Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/23/2019

Measurement duration: 7 minutes 21 seconds

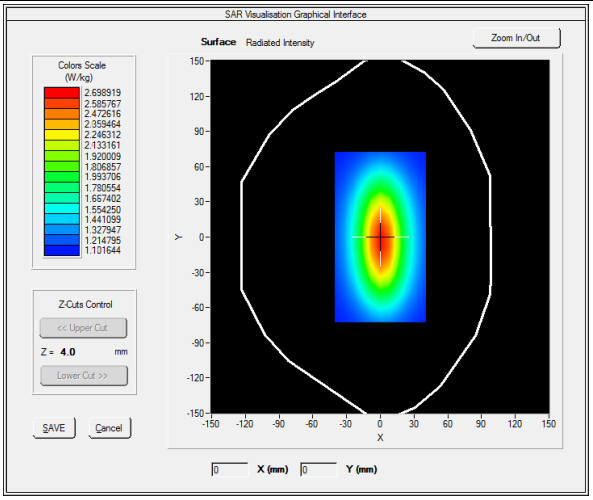
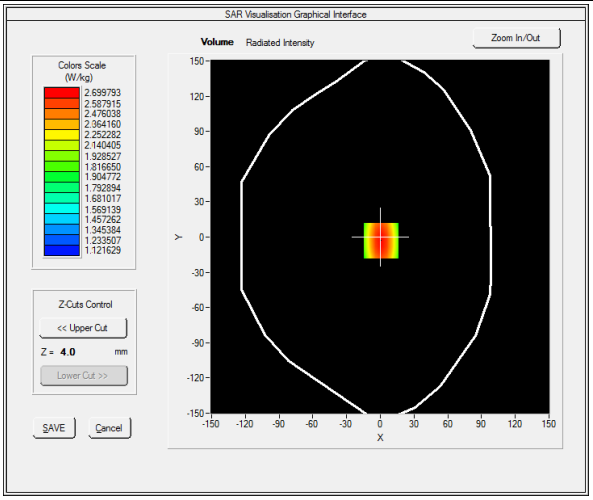
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW835 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 835.000000 |
| **Relative Permittivity (real part)** | 41.110245 |
| **Conductivity (S/m)** | 0.871245 |
| **Power Variation (%)** | 0.038437 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

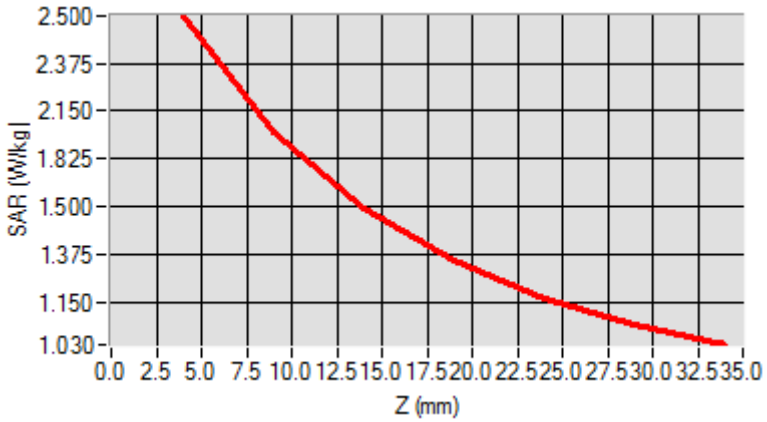
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

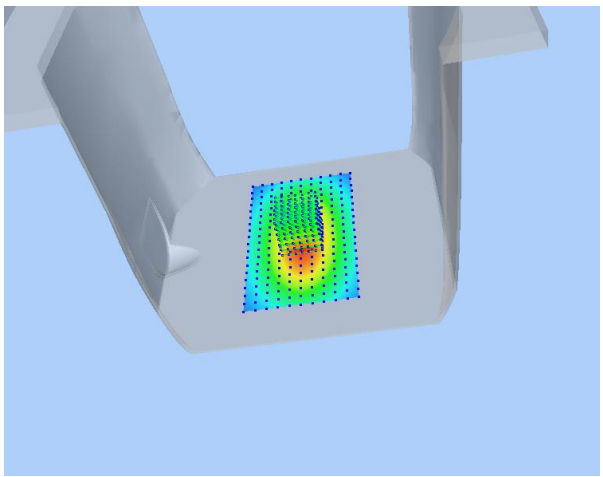
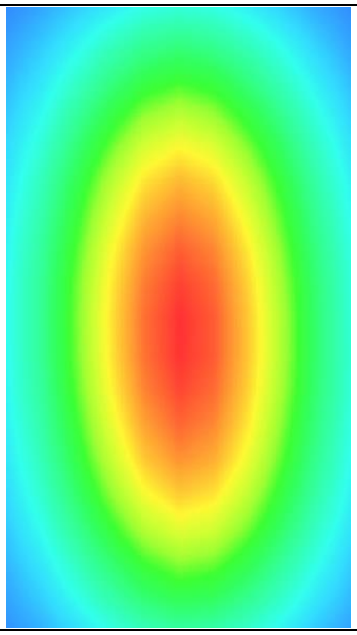
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 1.129489 |
|---|---|
| SAR 1g (W/Kg) | 2.411253 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 2.4900 | 1.8942 | 1.4811 | 1.3541 | 1.1123 | 1.0539 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 3

**For Head Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/24/2019

Measurement duration: 12 minutes 21 seconds

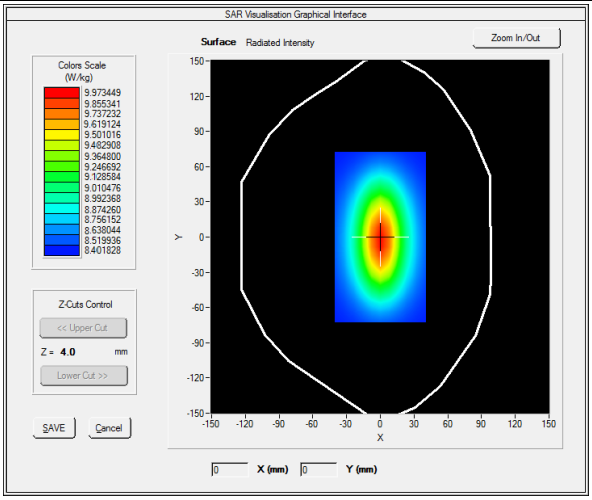
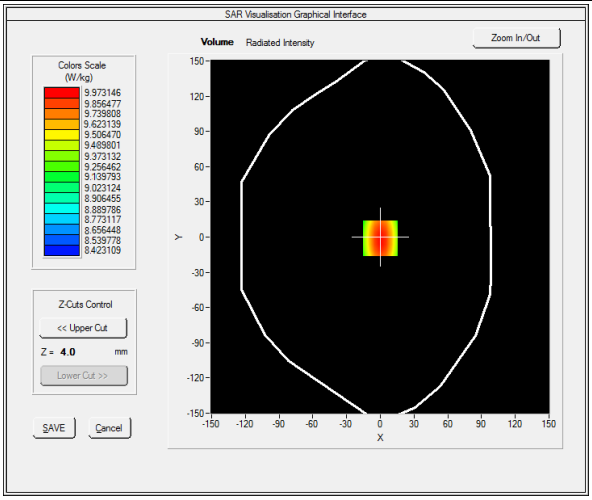
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW1800 |
| **Signal** | CW (Crest factor: 1.0) |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1800.000000 |
| **Relative Permittivity (real part)** | 39.024890 |
| **Conductivity (S/m)** | 1.371250 |
| **Power Variation (%)** | 1.401232 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

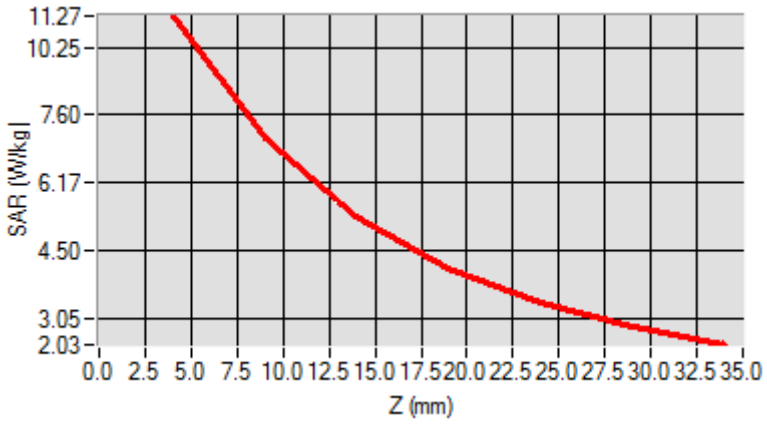
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

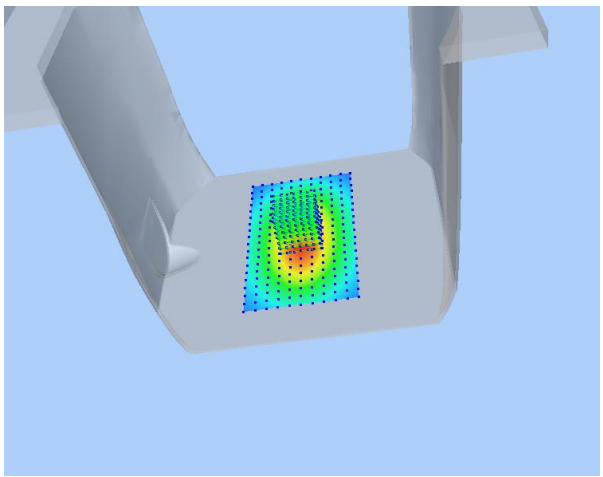
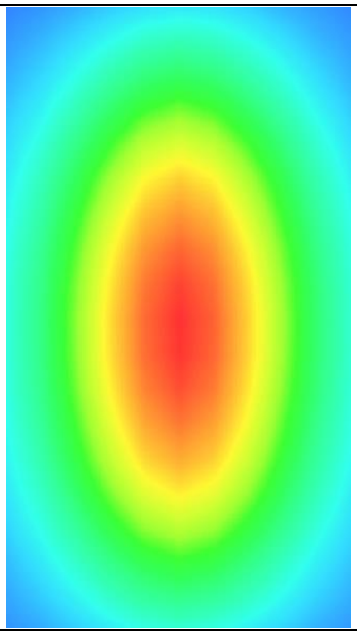
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 5.171252 |
|---|---|
| SAR 1g (W/Kg) | 9.611250 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 10.3455 | 7.1125 | 5.1026 | 3.425 | 3.0242 | 2.1125 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 4

**For Head Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/24/2019

Measurement duration: 12 minutes 21 seconds

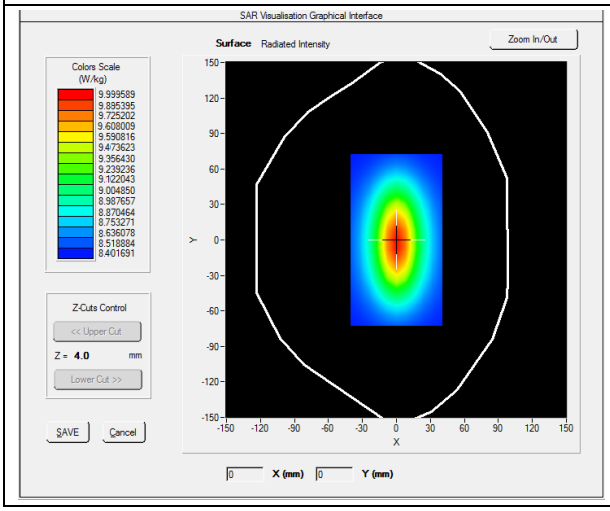
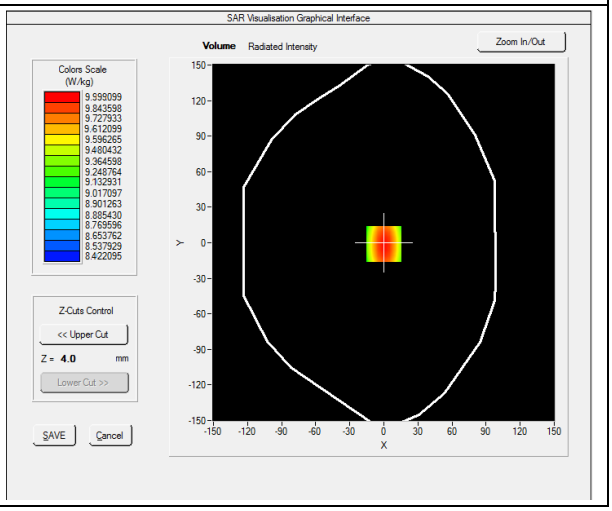
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW1900 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1900.000000 |
| **Relative Permittivity (real part)** | 38.560124 |
| **Conductivity (S/m)** | 1.380369 |
| **Power Variation (%)** | 1.022540 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

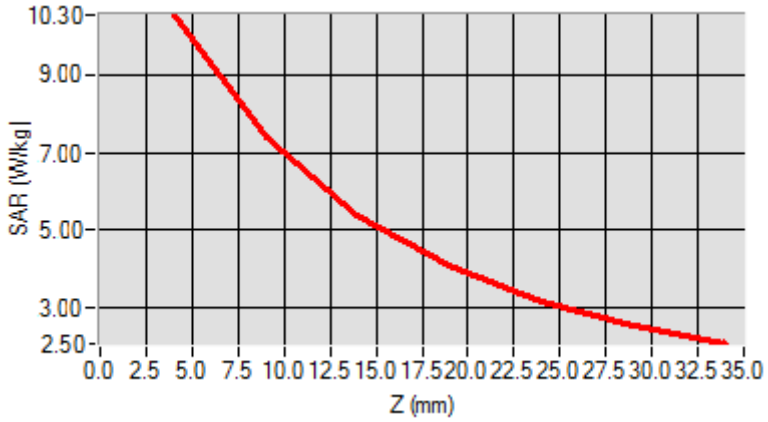
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

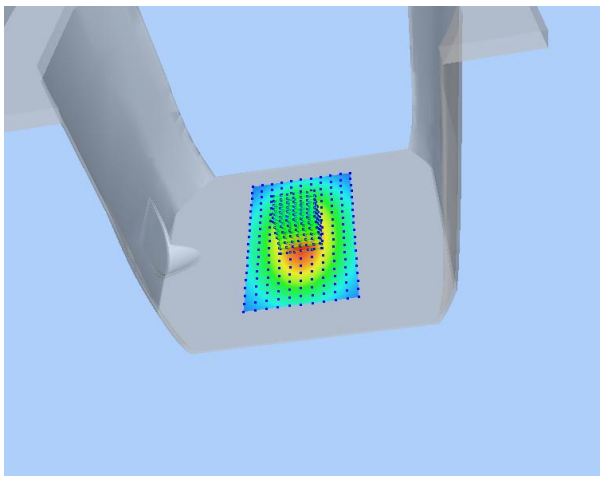
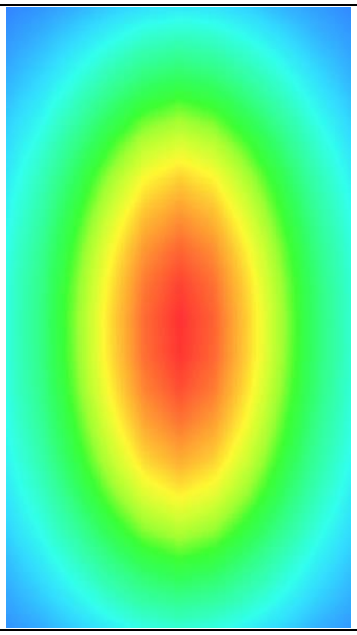
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 7.174526 |
|---|---|
| SAR 1g (W/Kg) | 9.913214 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 10.2354 | 6.8400 | 5.0121 | 4.1189 | 3.0522 | 2.8424 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 5

**For Head Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/25/2019

Measurement duration: 12 minutes 21 seconds

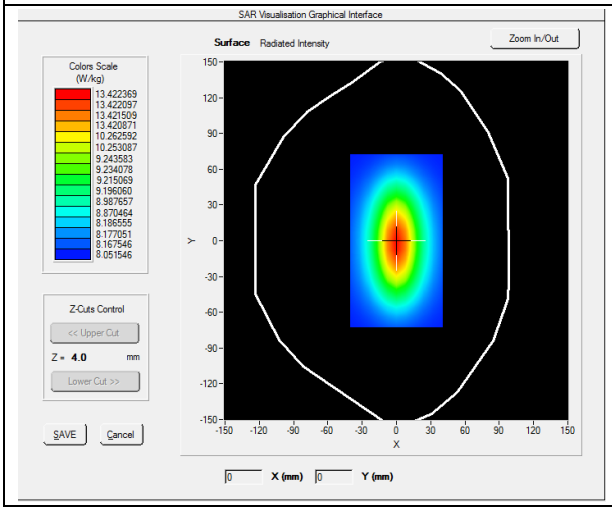
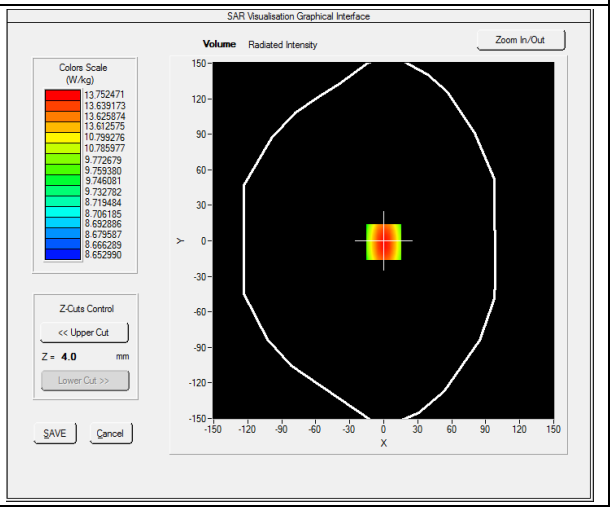
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW2450 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 2450.000000 |
| **Relative Permittivity (real part)** | 38.153660 |
| **Conductivity (S/m)** | 1.740236 |
| **Power Variation (%)** | 1.141452 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

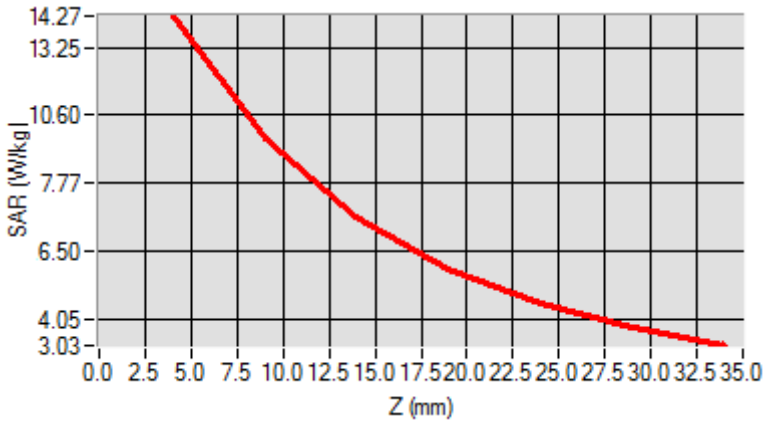
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

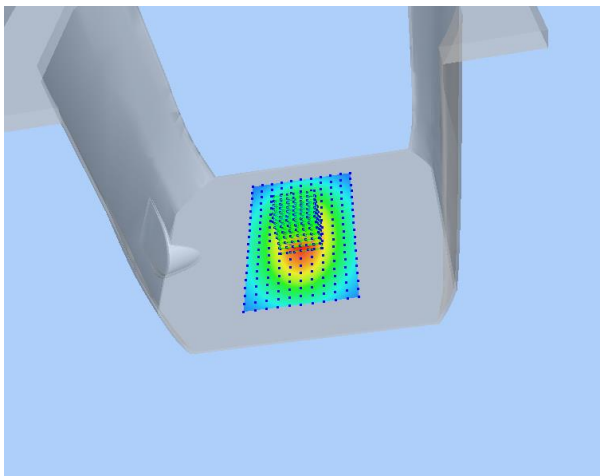
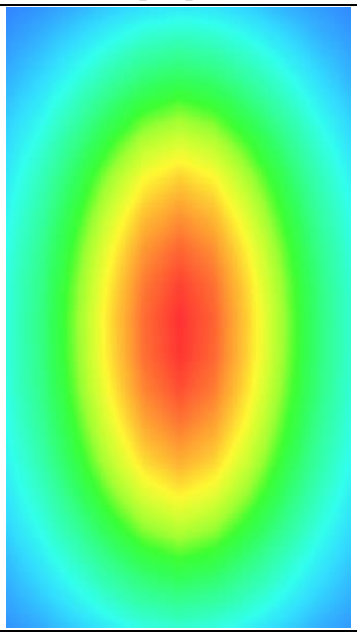
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 8.020427 |
|---|---|
| SAR 1g (W/Kg) | 13.452457 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 14.1034 | 12.0012 | 10.2624 | 7.4715 | 5.9022 | 4.5114 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 6

**For Head Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/25/2019

Measurement duration: 12 minutes 21 seconds

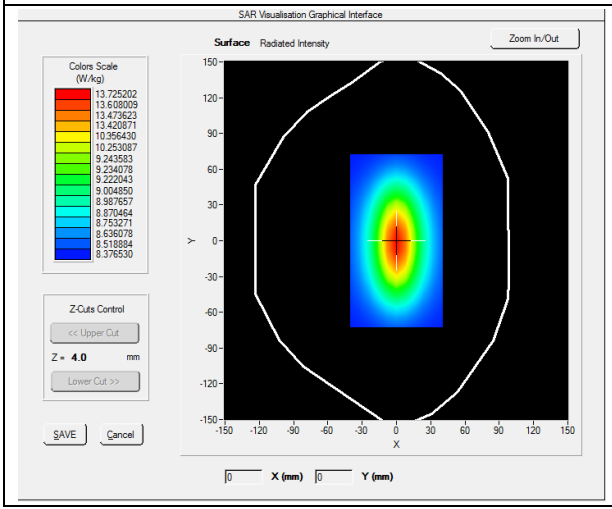
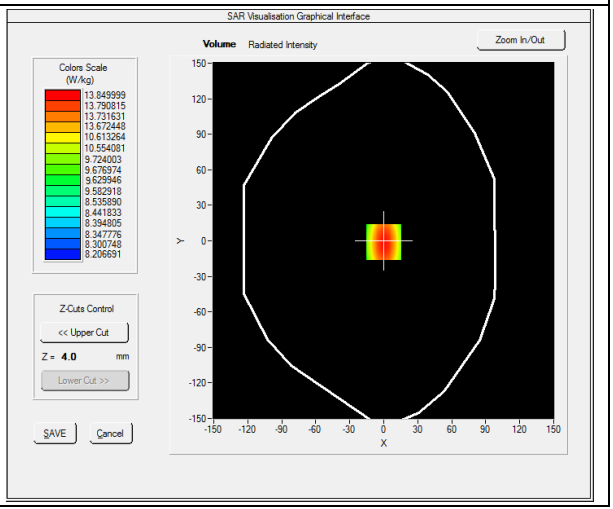
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW2600 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 2600.000000 |
| **Relative Permittivity (real part)** | 38.631092 |
| **Conductivity (S/m)** | 1.930182 |
| **Power Variation (%)** | 1.028221 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

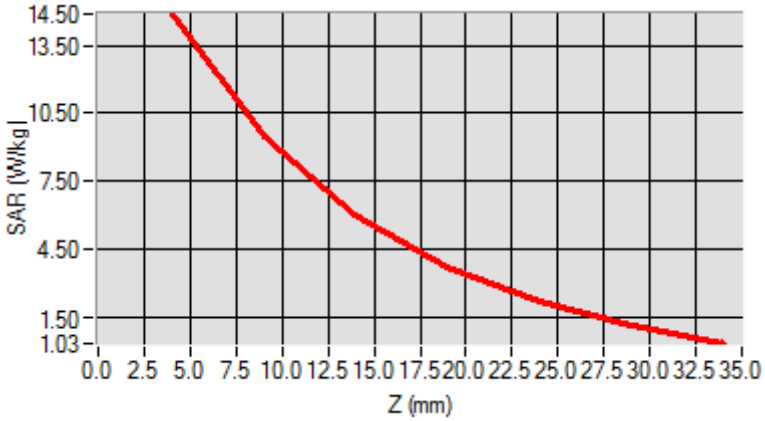
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

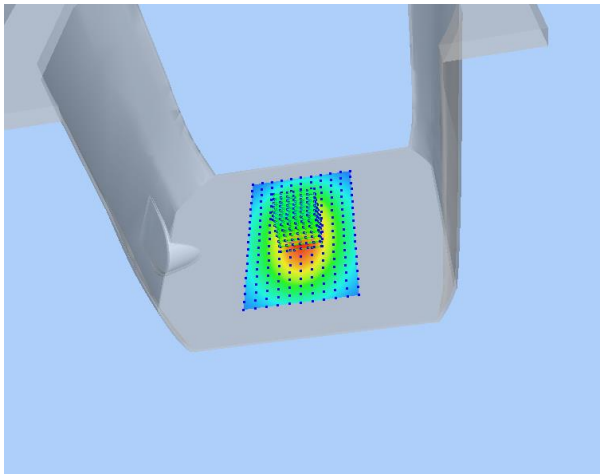
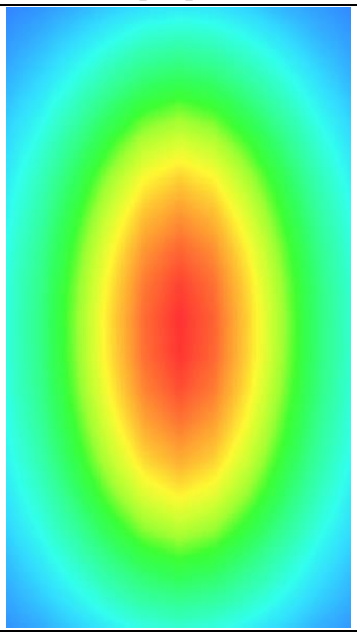
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 8.270822 |
|---|---|
| SAR 1g (W/Kg) | 13.670282 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 14.0426 | 12.1354 | 10.2965 | 7.4854 | 5.9354 | 4.5186 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 7

**For Body Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/23/2019

Measurement duration: 12 minutes 21 seconds

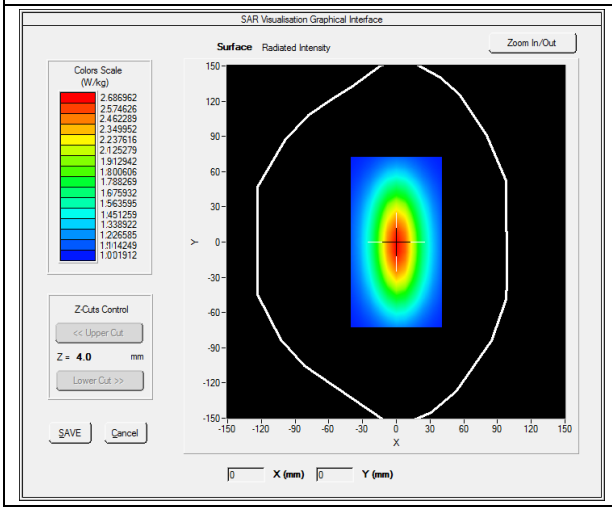
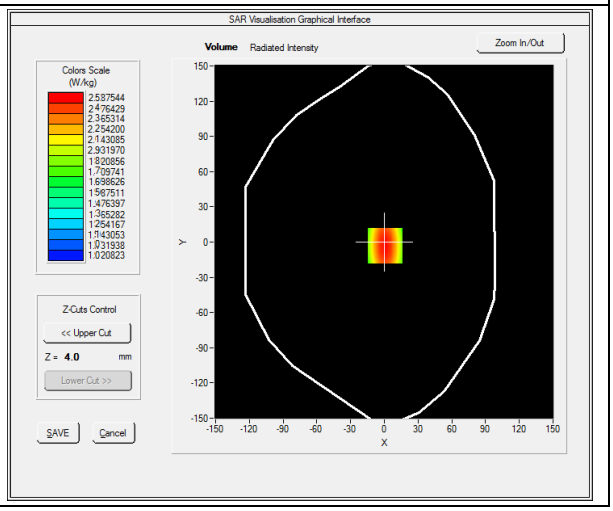
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.28; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW750 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 750.000000 |
| **Relative Permittivity (real part)** | 54.964739 |
| **Conductivity (S/m)** | 0.931048 |
| **Power Variation (%)** | 0.034745 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

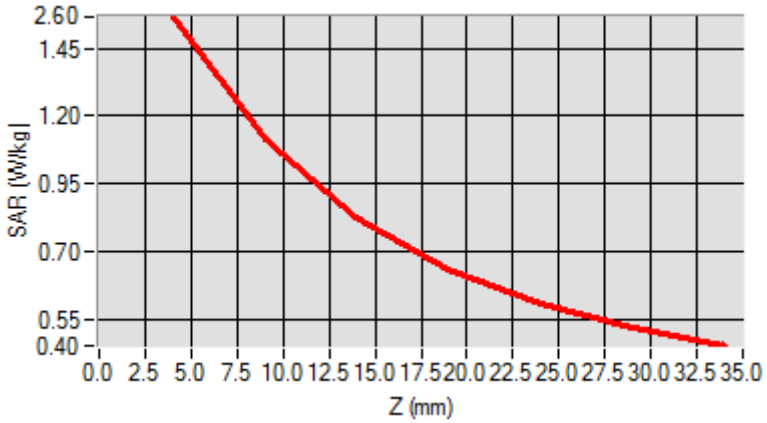
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

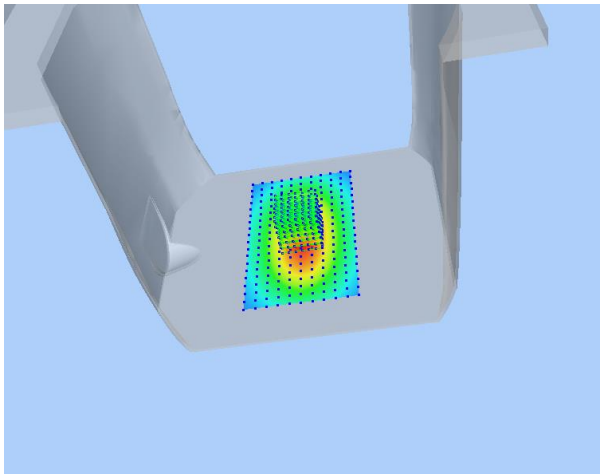
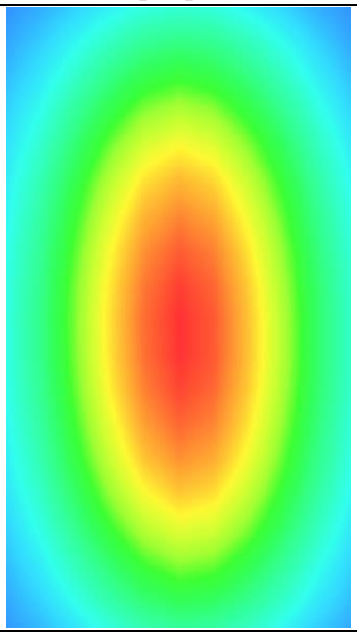
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 1.000865 |
|---|---|
| SAR 1g (W/Kg) | 2.124211 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 2.5132 | 1.1087 | 0.8214 | 0.5160 | 0.4875 | 0.4864 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 8

**For Body Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/23/2019

Measurement duration: 12 minutes 21 seconds

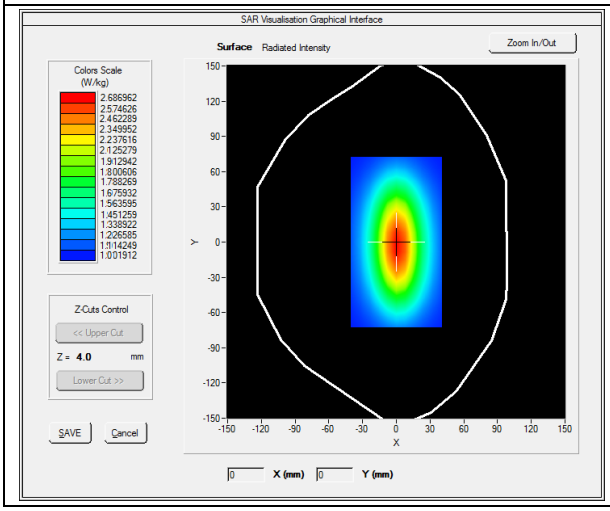
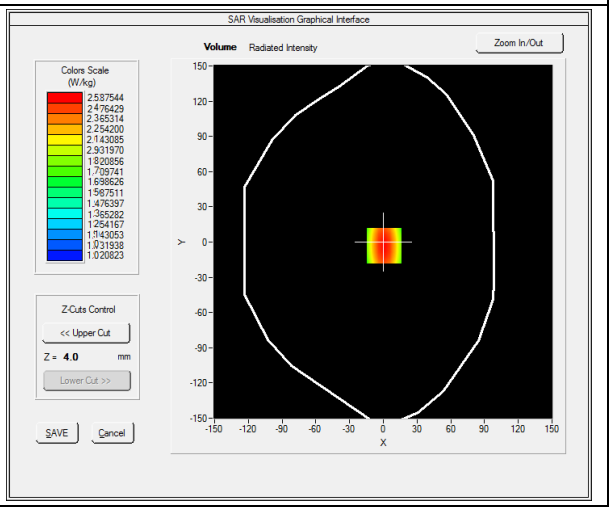
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW835 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 835.000000 |
| **Relative Permittivity (real part)** | 54.851214 |
| **Conductivity (S/m)** | 0.951454 |
| **Power Variation (%)** | 0.901472 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

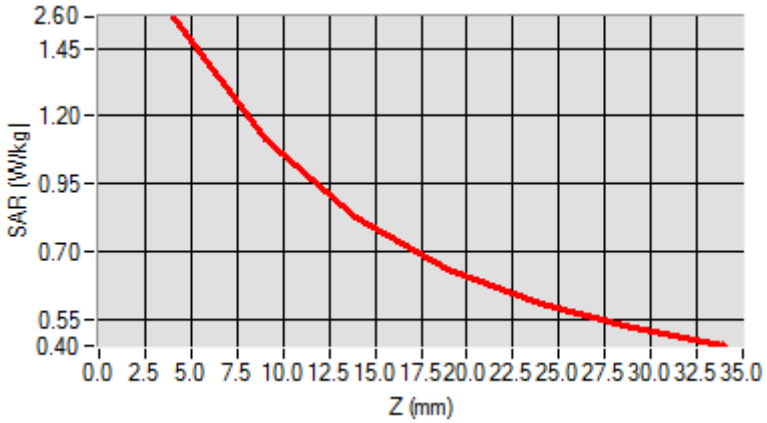
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

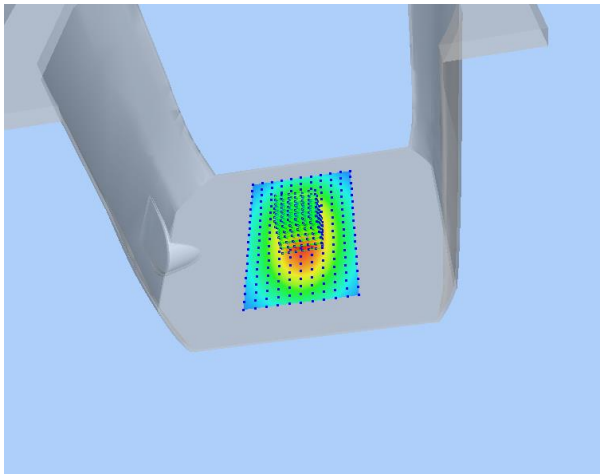
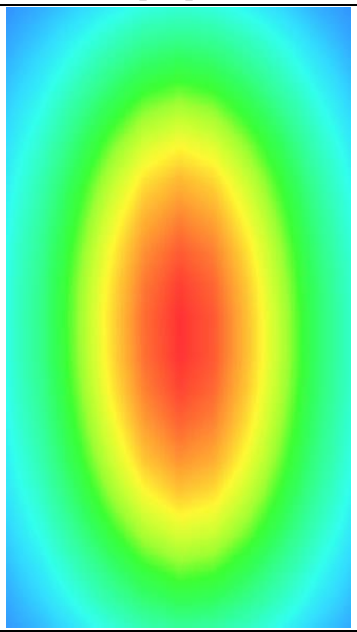
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 1.028956 |
|---|---|
| SAR 1g (W/Kg) | 2.354211 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 2.5789 | 1.1300 | 0.8795 | 0.5940 | 0.5011 | 0.5100 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 9

**For Body Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/24/2019

Measurement duration: 12 minutes 21 seconds

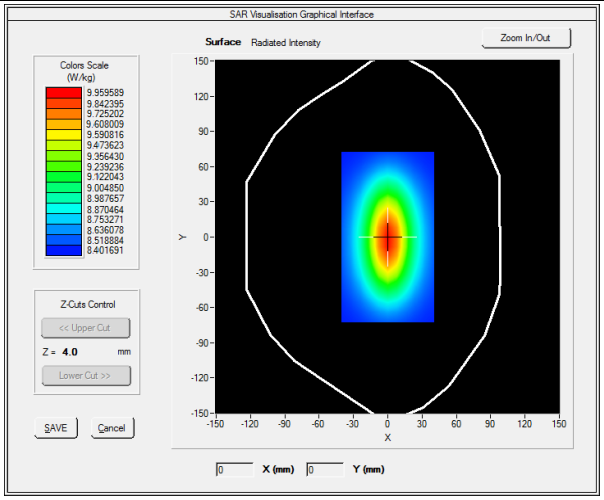
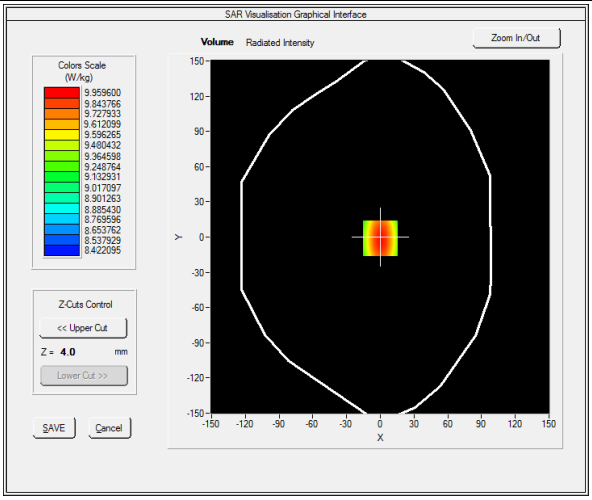
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.06; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW1800 |
| **Signal** | CW (Crest factor: 1.0) |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1800.000000 |
| **Relative Permittivity (real part)** | 51.224510 |
| **Conductivity (S/m)** | 1.461261 |
| **Power Variation (%)** | 0.845690 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

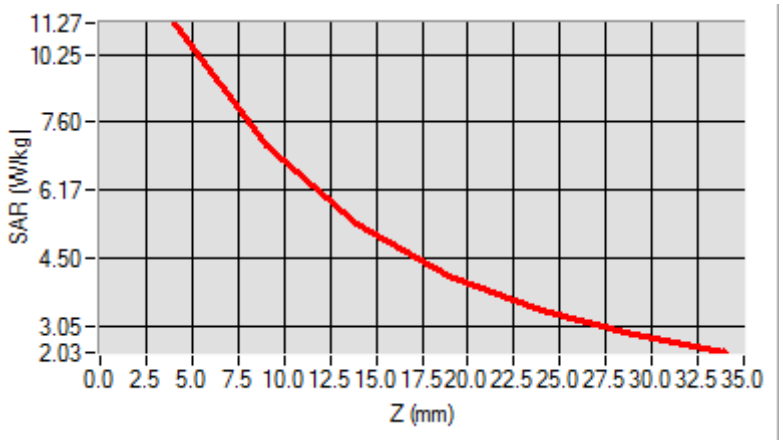
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

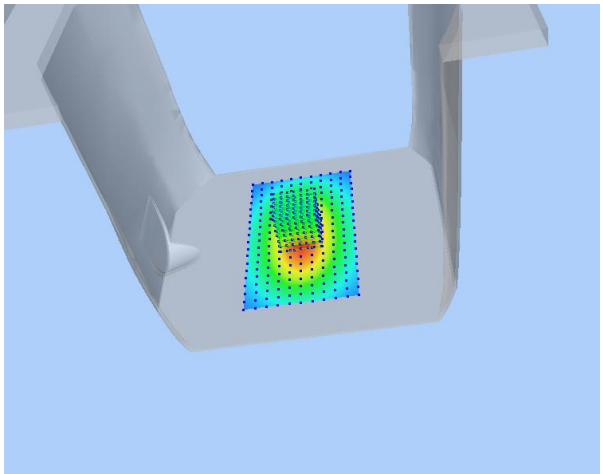
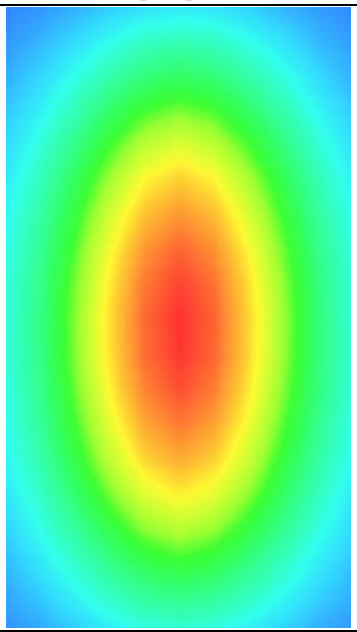
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 5.221202 |
|---|---|
| SAR 1g (W/Kg) | 9.582560 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 11.2425 | 9.4123 | 8.0345 | 6.9125 | 6.3092 | 3.9460 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 10

**For Body Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/24/2019

Measurement duration: 12 minutes 21 seconds

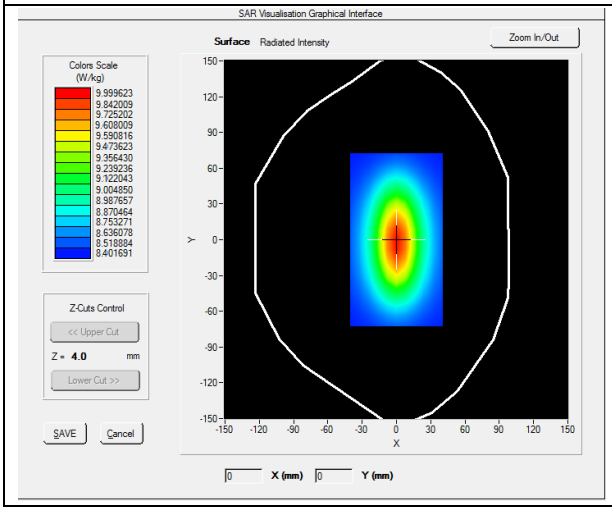
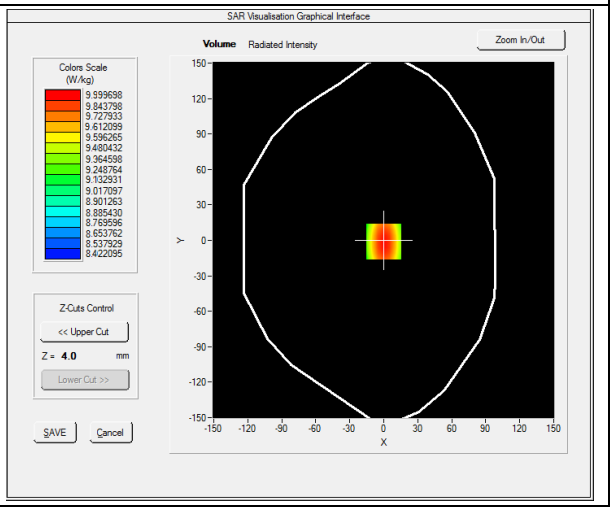
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW1900 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1900.000000 |
| **Relative Permittivity (real part)** | 52.420415 |
| **Conductivity (S/m)** | 1.501966 |
| **Power Variation (%)** | 0.541872 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

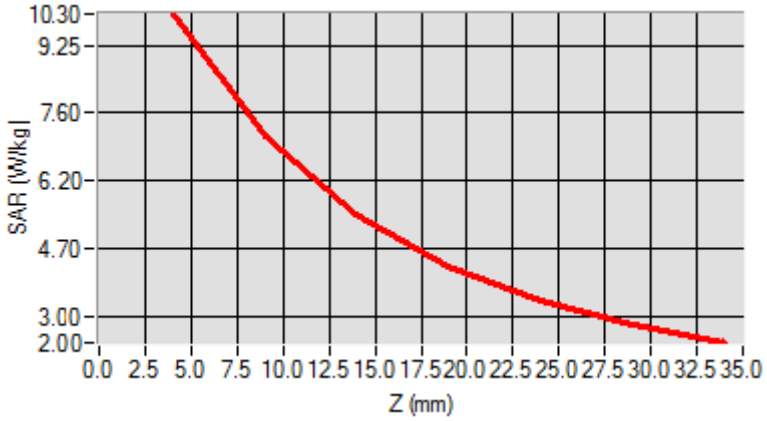
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

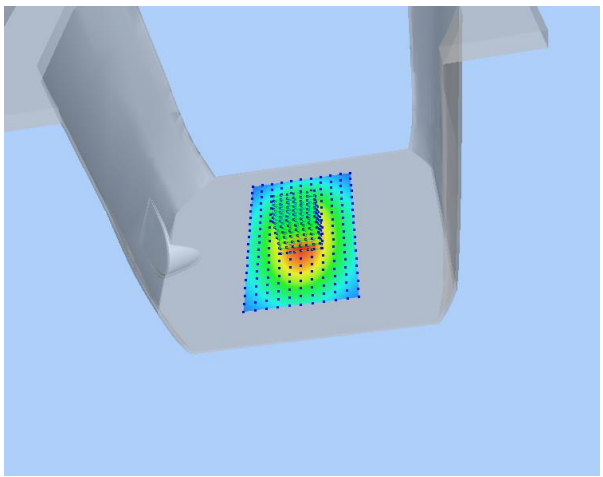
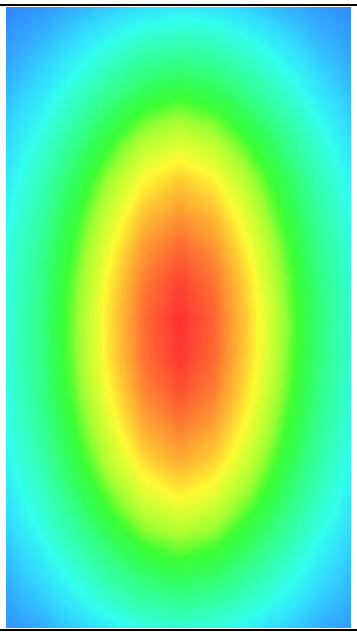
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 5.134651 |
|---|---|
| SAR 1g (W/Kg) | 9.781550 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 10.2031 | 6.43001 | 4.9011 | 4.5325 | 3.1201 | 2.5024 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 11

**For Body Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/25/2019

Measurement duration: 12 minutes 21 seconds

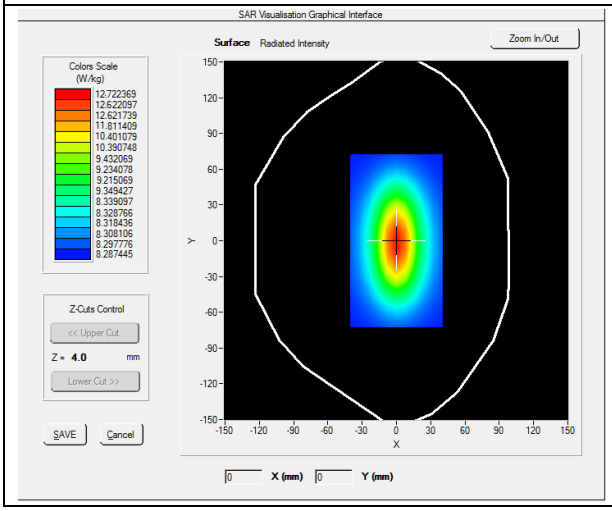
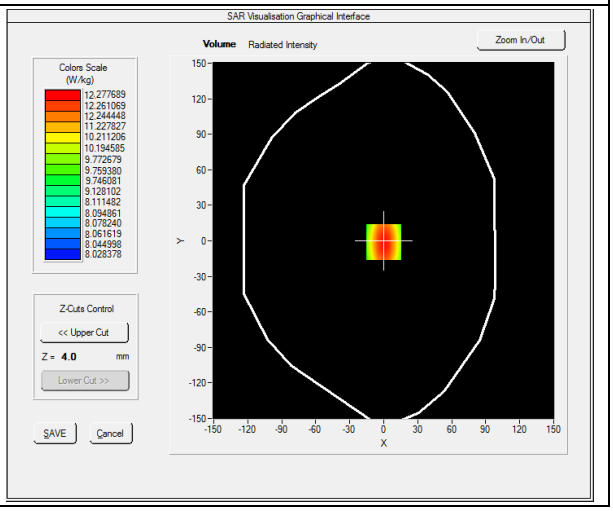
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.80; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW2450 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 2450.000000 |
| **Relative Permittivity (real part)** | 52.010212 |
| **Conductivity (S/m)** | 1.910255 |
| **Power Variation (%)** | 1.369745 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

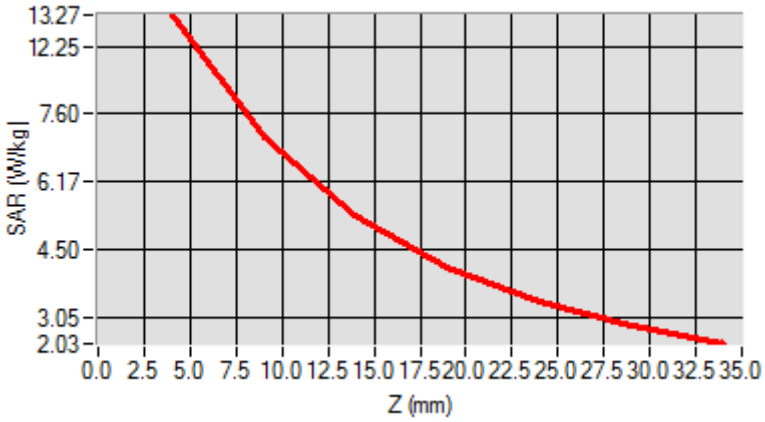
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

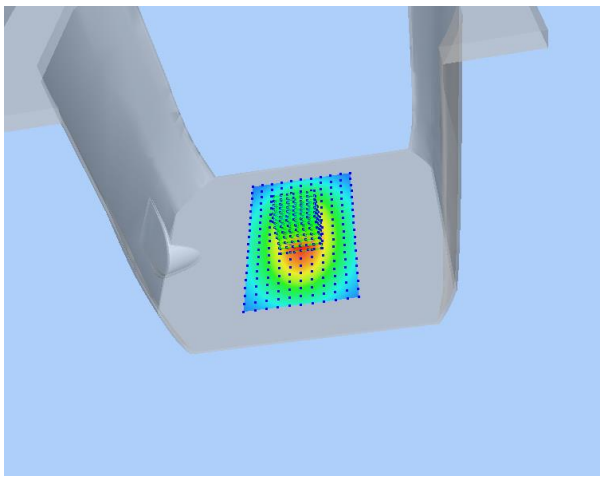
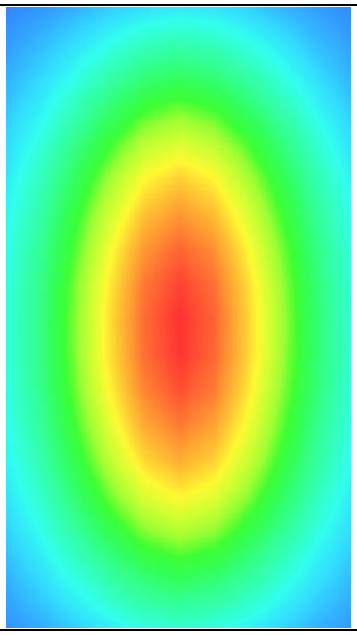
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 7.119522 |
|---|---|
| SAR 1g (W/Kg) | 12.592360 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 13.1911 | 11.7951 | 9.2945 | 8.5400 | 6.3712 | 4.6225 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 12

**For Body Liquid**

Type: Validation measurement (Fast, 75.00 %)

Date of measurement: 09/25/2019

Measurement duration: 12 minutes 21 seconds

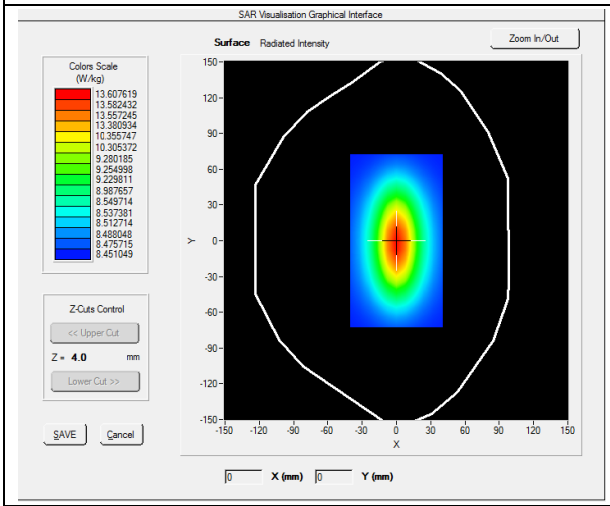
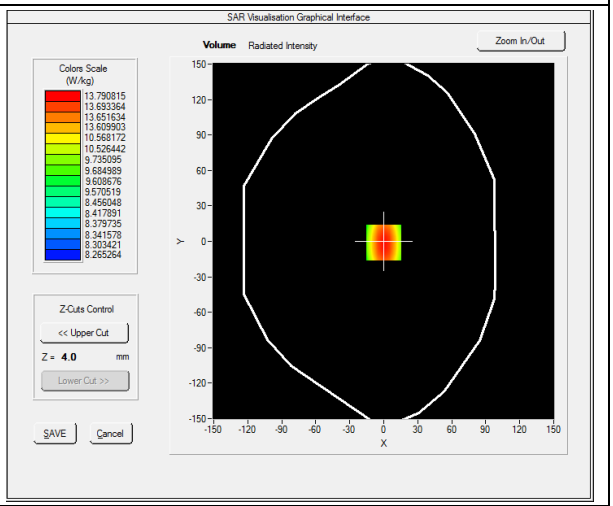
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.58; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | dx=8mm dy=8mm |
| **Phantom** | Validation plane |
| **Device Position** | Dipole |
| **Band** | CW2600 |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 2600.000000 |
| **Relative Permittivity (real part)** | 52.241202 |
| **Conductivity (S/m)** | 2.120943 |
| **Power Variation (%)** | 1.038832 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

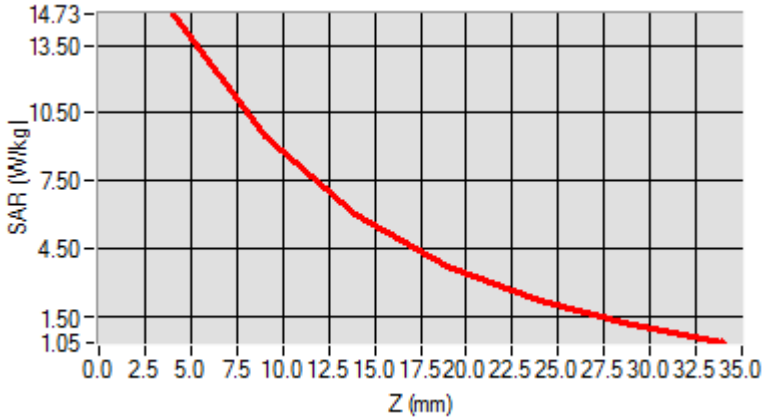
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

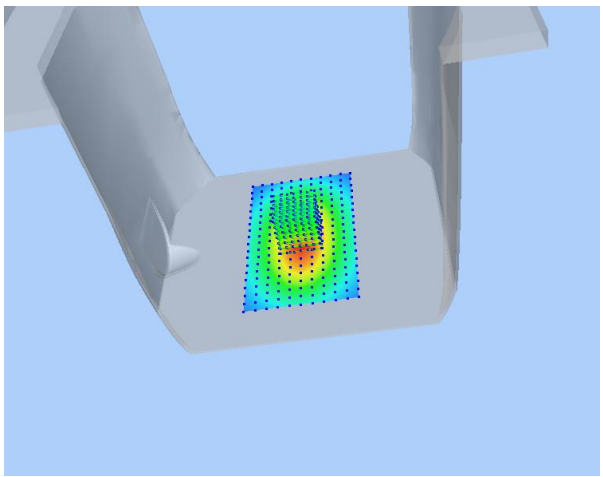
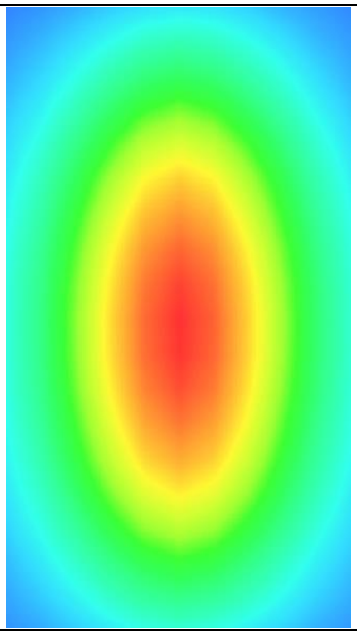
**Maximum location: X=0.00, Y=0.00**

| SAR 10g (W/Kg) | 6.083781 |
|---|---|
| SAR 1g (W/Kg) | 13.430481 |

**Z Axis Scan**

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 | 24.00 | 29.00 |
|---|---|---|---|---|---|---|---|
| SAR (W/Kg) | 0.0000 | 13.6473 | 11.8441 | 9.3627 | 8.5782 | 6.4357 | 4.6342 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

## Annex B. Plots of SAR Measurement

| TYPE | BAND | PARAMETERS |
|---|---|---|
| **Phone** | **GSM850** | Measurement 1: Right Head with Cheek device position on High Channel in GSM mode |
| **Phone** | **GSM1900** | Measurement 7: Left Head with Cheek device position on Low Channel in GSM mode |
| **Phone** | **GPRS850_2TX** | Measurement 9: Right Head with Cheek device position on Middle Channel in GPRS mode |
| **Phone** | **GPRS1900_3TX** | Measurement 13: Left Head with Cheek device position on High Channel in GPRS mode |
| **Phone** | **WCDMA1900_RMC** | Measurement 17: Right Head with Cheek device position on Middle Channel in WCDMA mode |
| **Phone** | **WCDMA850_RMC** | Measurement 21:Right Head with Cheek device position on High Channel in WCDMA mode |
| **Phone** | **WCDMA1700_RMC** | Measurement 25: Right Head with Cheek device position on High Channel in WCDMA mode |
| **Phone** | **LTE Band 2_RMC** | Measurement 31: Left Head with Cheek device position on Low Channel in LTE mode |
| **Phone** | **LTE Band 4_RMC** | Measurement 37: Right Head with Cheek device position on High Channel in LTE mode |
| **Phone** | **LTE Band 5_RMC** | Measurement 45: Right Head with Cheek device position on High Channel in LTE mode |
| **Phone** | **LTE Band 7_RMC** | Measurement 53: Right Head with Cheek device position on High Channel in LTE mode |
| **Phone** | **LTE Band 17_RMC** | Measurement 61: Right Head with Cheek device position on Low Channel in LTE mode |
| **Phone** | **WiFi_802.11b** | Measurement 71: Left Head with Cheek device position on High Channel in 802.11b mode |
| **Phone** | **GSM850** | Measurement 74: Flat Plane with Front(Body-worn) device position on High Channel in GSM mode |
| **Phone** | **GSM1900** | Measurement 76: Flat Plane with Front(Body-worn) device position on Low Channel in GSM mode |
| **Phone** | **GPRS850_2TX** | Measurement 78: Flat Plane with Front device position on Middle Channel in GPRS mode |
| **Phone** | **GPRS1900_3TX** | Measurement 82: Flat Plane with Back device position on Middle Channel in GPRS mode |
| **Phone** | **WCDMA1900_RMC** | Measurement 87: Flat Plane with Back side device position on Middle Channel in WCDMA mode |
| **Phone** | **WCDMA850_RMC** | Measurement 93: Flat Plane with Front device position on High Channel in WCDMA mode |

| | | |
|---|---|---|
| **Phone** | **WCDMA1700_RMC** | Measurement 98: Flat Plane with Front device position on High Channel in WCDMA mode |
| **Phone** | **LTE Band 2_RMC** | Measurement 102: Flat Plane with Back device position on Low Channel in LTE mode |
| **Phone** | **LTE Band 4_RMC** | Measurement 116: Flat Plane with Bottom device position on High Channel in LTE mode |
| **Phone** | **LTE Band 5_RMC** | Measurement 123: Flat Plane with Front device position on High Channel in LTE mode |
| **Phone** | **LTE Band 7_RMC** | Measurement 136: Flat Plane with Bottom device position on High Channel in LTE mode |
| **Phone** | **LTE Band 17_RMC** | Measurement 142: Flat Plane with Back device position on Low Channel in LTE mode |
| **Phone** | **WiFi_802.11b** | Measurement 155: Flat Plane with Top side device position on High Channel in 802.11b mode |
| *Remark: SAR plot is showed the highest measured SAR in each exposure configuration, wireless mode and frequency band combination.* | | |

# MEASUREMENT 1

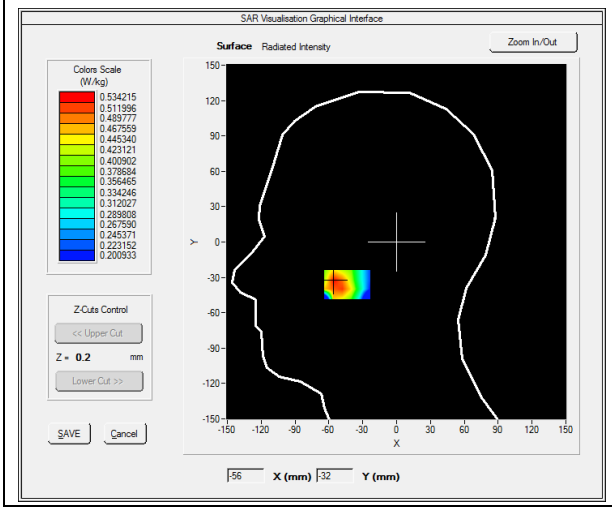
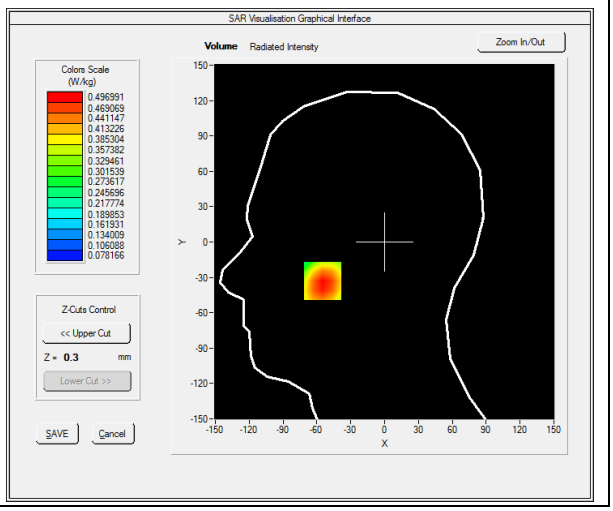
Type: Phone measurement (Complete)
Date of measurement: 09/23/2019
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | GSM850 |
| **Channels** | High |
| **Signal** | TDMA (Crest factor: 8.0) |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 848.800000 |
| **Relative Permittivity (real part)** | 41.110245 |
| **Conductivity (S/m)** | 0.871245 |
| **Power Variation (%)** | 1.144536 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

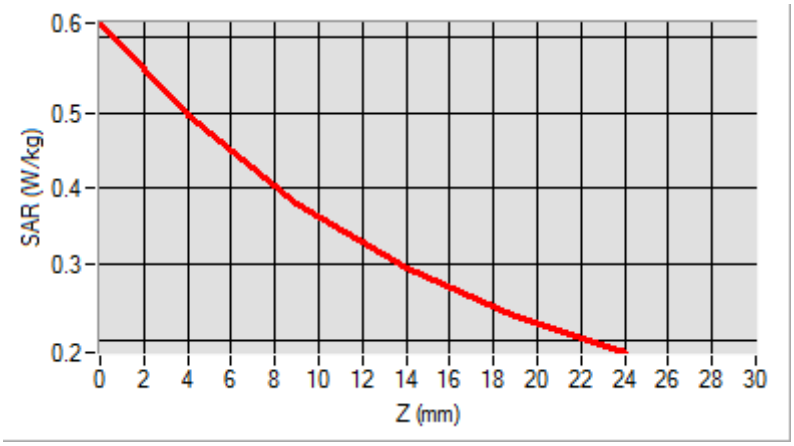
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

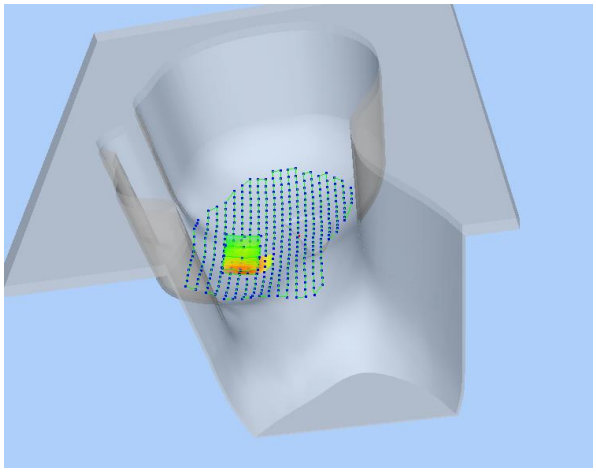
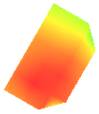
**Maximum location: X=-55.00, Y=-33.00**

**SAR Peak: 0.63 W/kg**

| SAR 10g (W/Kg) | 0.348430 |
|---|---|
| SAR 1g (W/Kg) | 0.480301 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.6193 | 0.4970 | 0.3794 | 0.2942 | 0.2323 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 7

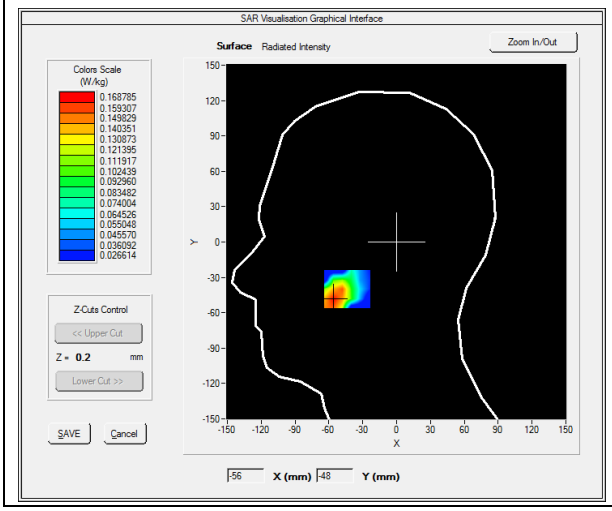
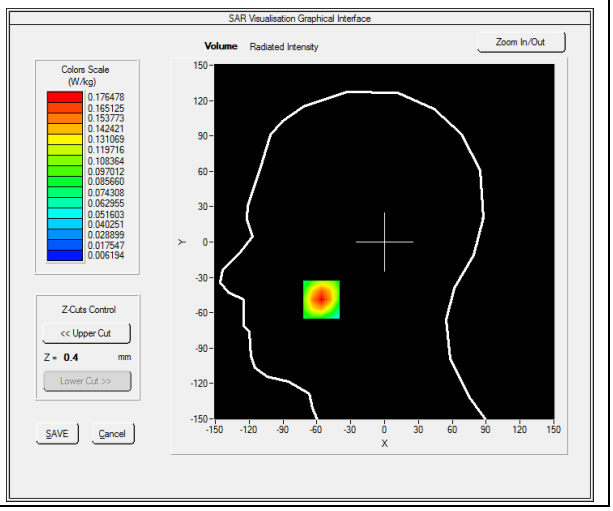
Type: Phone measurement (Complete)
Date of measurement: 09/24/2019
Measurement duration: 11 minutes 48 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Left head |
| **Device Position** | Cheek |
| **Band** | GSM1900 |
| **Channels** | Low |
| **Signal** | TDMA (Crest factor: 8.0) |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1850.200000 |
| **Relative Permittivity (real part)** | 38.560124 |
| **Conductivity (S/m)** | 1.380369 |
| **Power Variation (%)** | 1.442440 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

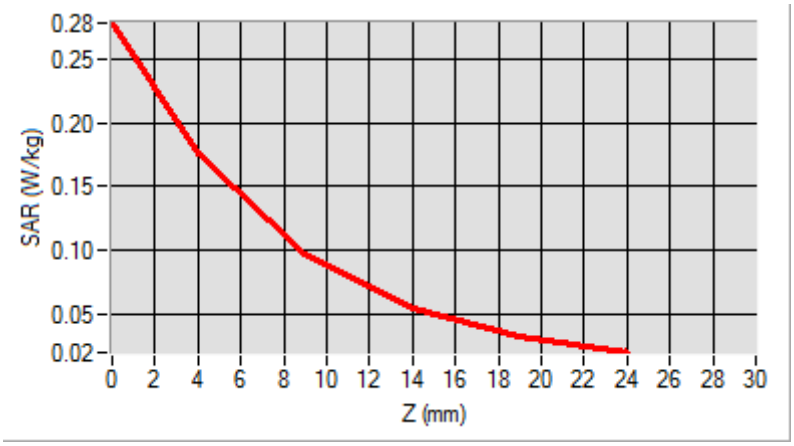
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

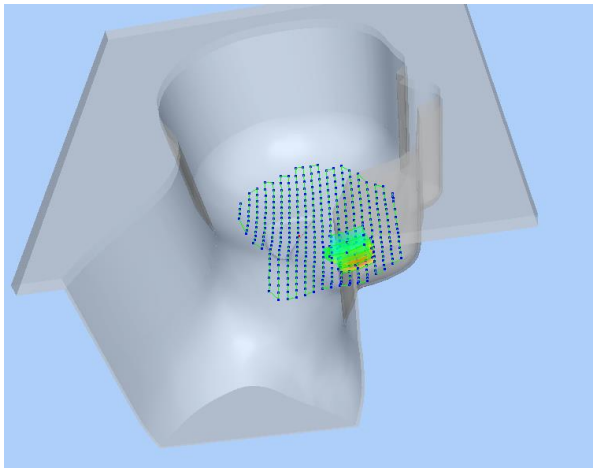
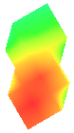
**Maximum location: X=-56.00, Y=-49.00**

**SAR Peak: 0.28 W/kg**

| SAR 10g (W/Kg) | 0.089647 |
|---|---|
| SAR 1g (W/Kg) | 0.165369 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.2786 | 0.1765 | 0.0973 | 0.0544 | 0.0324 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 9

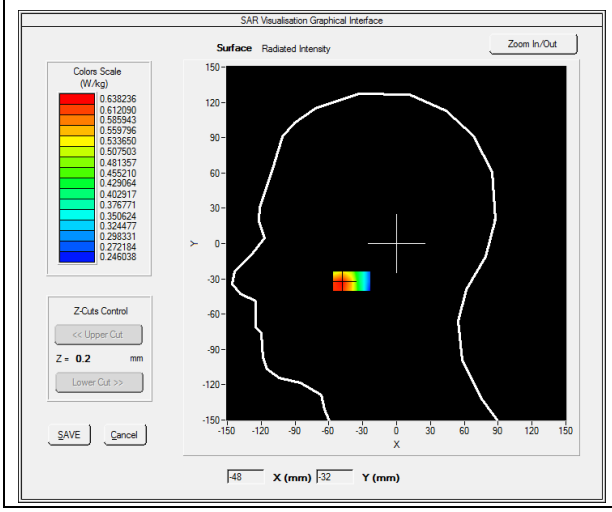
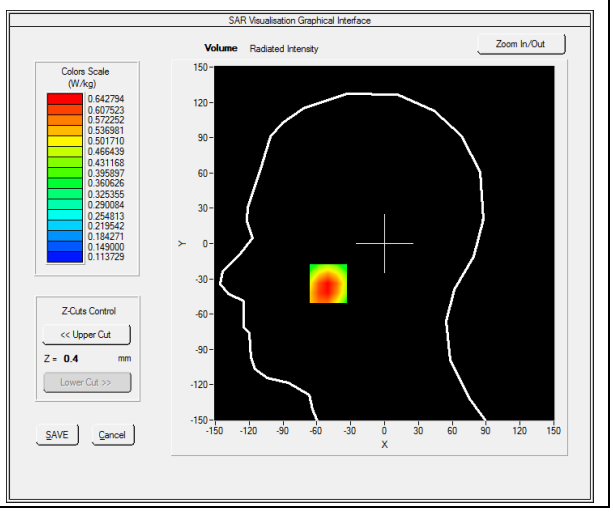
Type: Phone measurement (Complete)
Date of measurement: 09/23/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | GPRS850_2TX |
| **Channels** | Middle |
| **Signal** | Duty Cycle: 1:4 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 836.600000 |
| **Relative Permittivity (real part)** | 38.560124 |
| **Conductivity (S/m)** | 1.380369 |
| **Power Variation (%)** | 1.536272 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

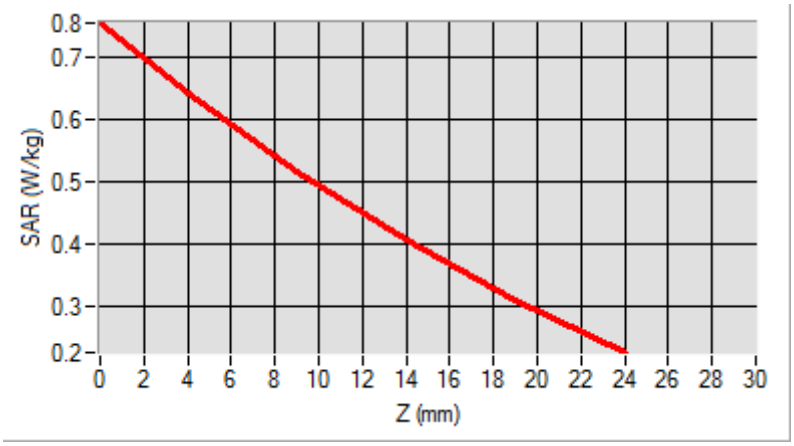
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

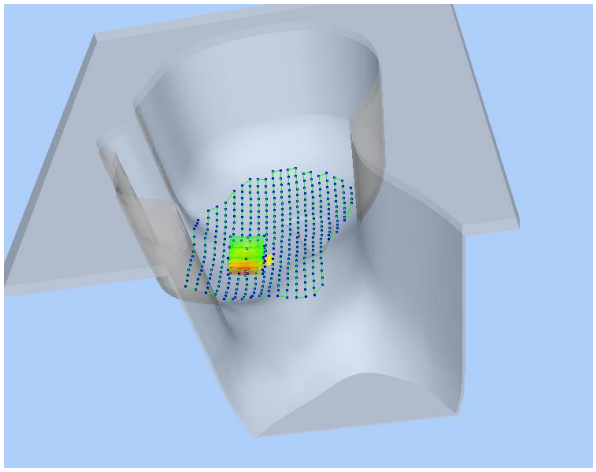
**Maximum location: X=-50.00, Y=-34.00**

**SAR Peak: 0.77 W/kg**

| | |
|---|---|
| **SAR 10g (W/Kg)** | **0.450375** |
| **SAR 1g (W/Kg)** | **0.623549** |

| **Z (mm)** | **0.00** | **4.00** | **9.00** | **14.00** | **19.00** |
|---|---|---|---|---|---|
| **SAR (W/Kg)** | **0.7550** | **0.6428** | **0.5164** | **0.4051** | **0.3082** |




| **3D screen shot** | **Hot spot position** |
|---|---|
|  |  |

# MEASUREMENT 13

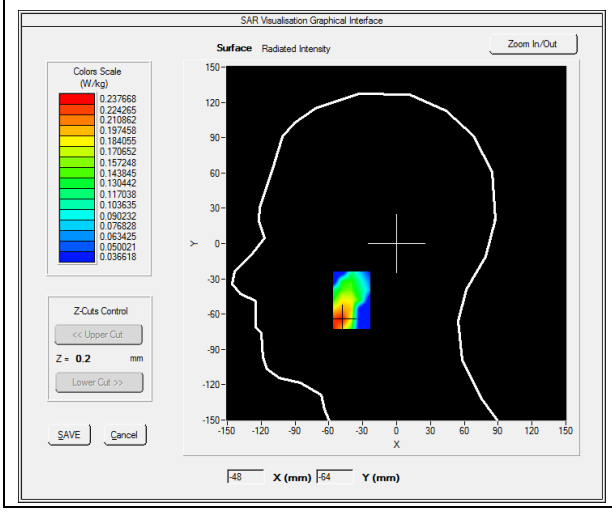
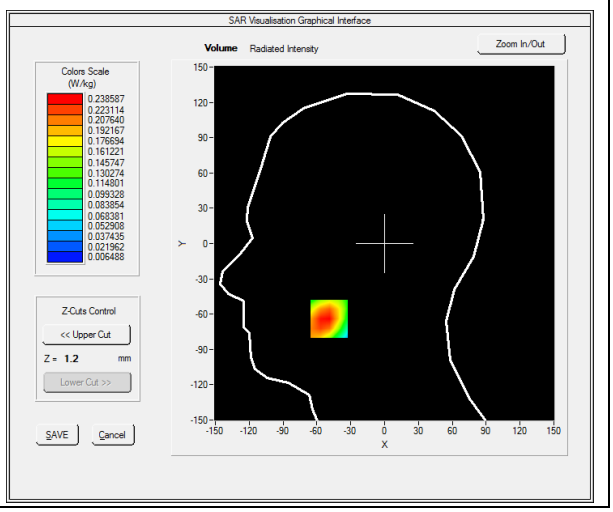
Type: Phone measurement (Complete)
Date of measurement: 09/24/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | GPRS1900_3TX |
| **Channels** | Middle |
| **Signal** | Duty Cycle: 1:2.66 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1880.000000 |
| **Relative Permittivity (real part)** | 38.560124 |
| **Conductivity (S/m)** | 1.380369 |
| **Power Variation (%)** | 1.536272 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

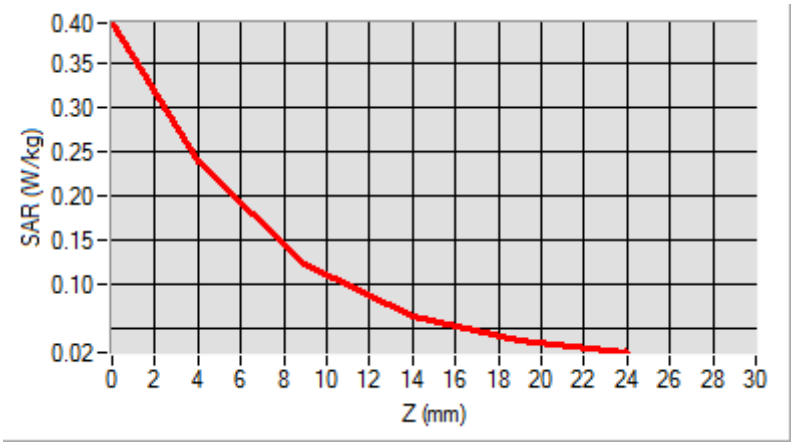
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

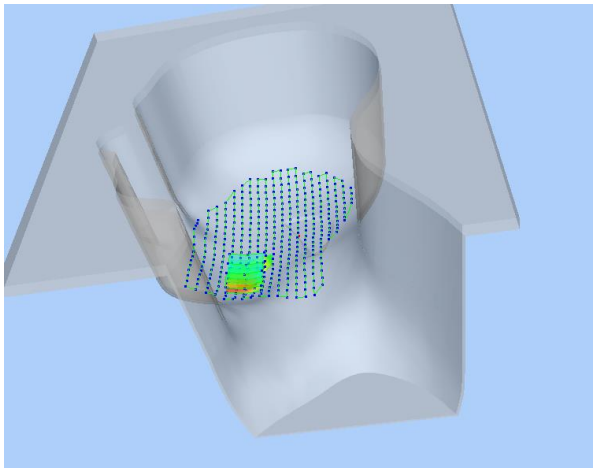
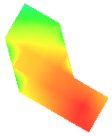
**Maximum location: X=-49.00, Y=-64.00**

**SAR Peak: 0.40 W/kg**

| SAR 10g (W/Kg) | 0.125018 |
|---|---|
| SAR 1g (W/Kg) | 0.230269 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.3965 | 0.2386 | 0.1223 | 0.0641 | 0.0371 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 17

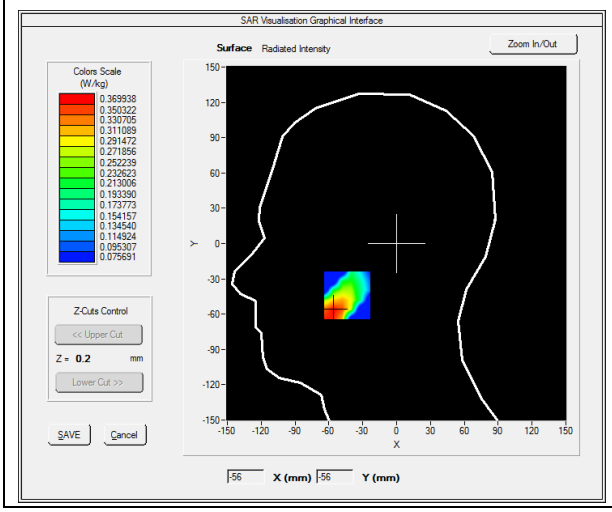
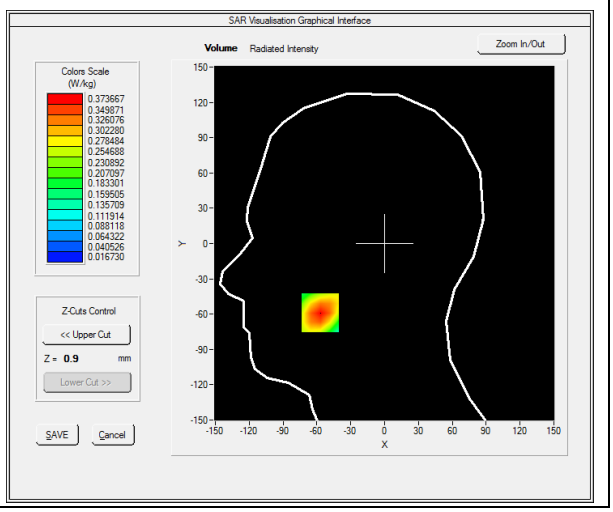
Type: Phone measurement (Complete)
Date of measurement: 09/24/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | WCDMA1900_RMC |
| **Channels** | Middle |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1880.000000 |
| **Relative Permittivity (real part)** | 38.560124 |
| **Conductivity (S/m)** | 1.380369 |
| **Power Variation (%)** | 1.524540 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

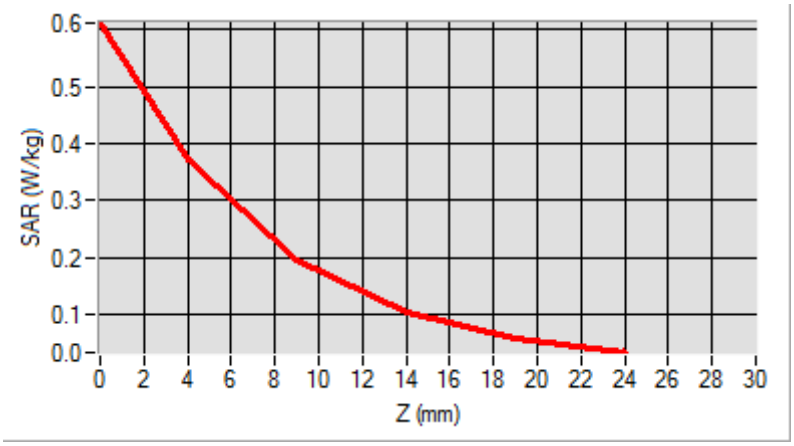
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

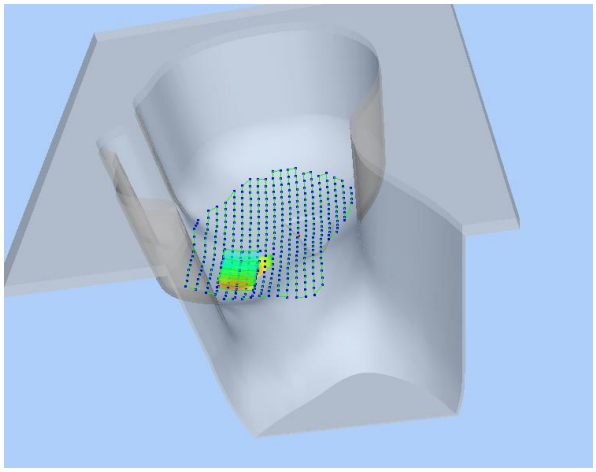
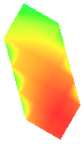
**Maximum location: X=-57.00, Y=-59.00**

**SAR Peak: 0.61 W/kg**

| SAR 10g (W/Kg) | 0.192488 |
|---|---|
| SAR 1g (W/Kg) | 0.353719 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.6122 | 0.3737 | 0.1947 | 0.1023 | 0.0576 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 21

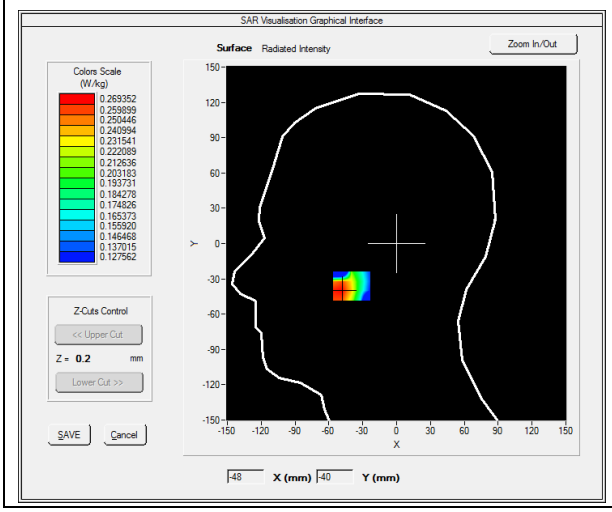
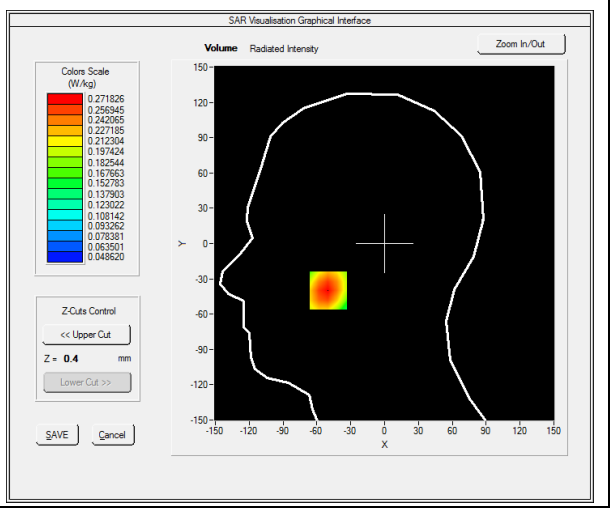
Type: Phone measurement (Complete)
Date of measurement: 09/23/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | WCDMA850_RMC |
| **Channels** | High |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 846.600000 |
| **Relative Permittivity (real part)** | 41.110245 |
| **Conductivity (S/m)** | 0.871245 |
| **Power Variation (%)** | 1.342427 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

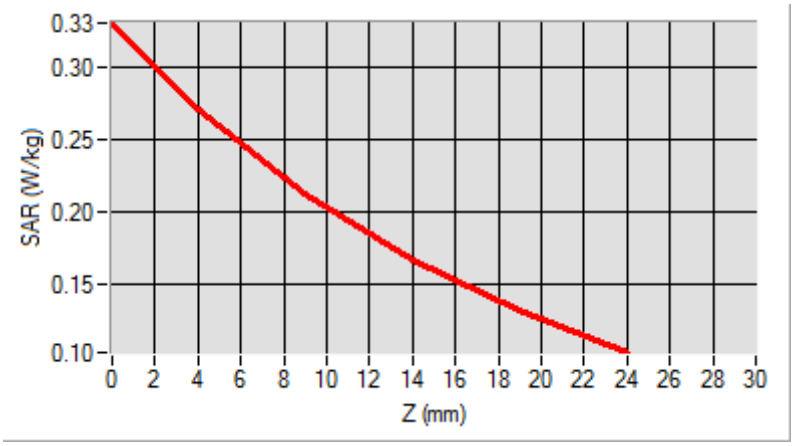
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

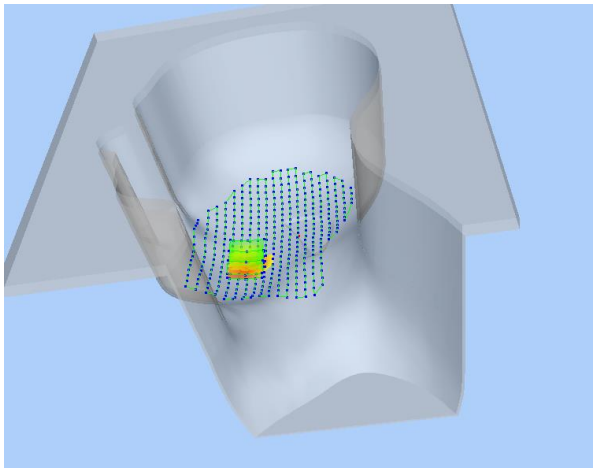
**Maximum location: X=-50.00, Y=-40.00**

**SAR Peak: 0.33 W/kg**

| SAR 10g (W/Kg) | 0.191260 |
|---|---|
| SAR 1g (W/Kg) | 0.261374 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.3309 | 0.2718 | 0.2125 | 0.1670 | 0.1319 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 25

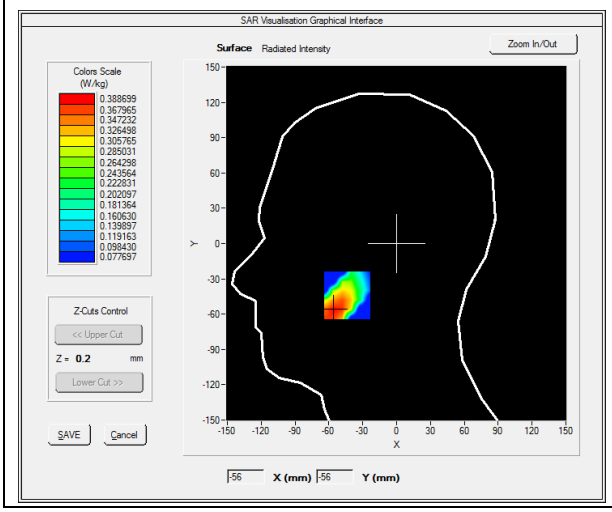
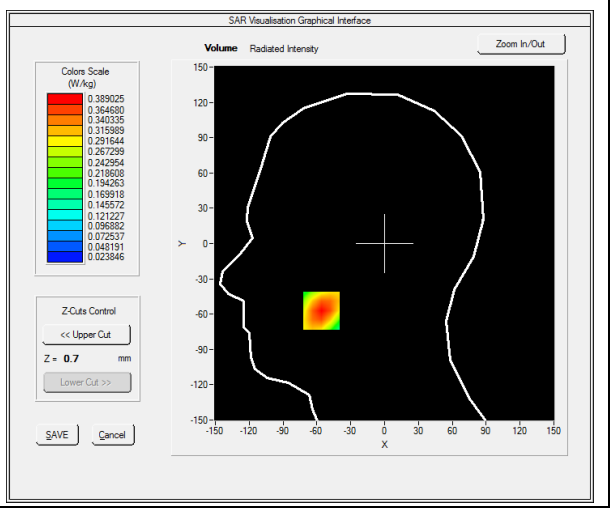
Type: Phone measurement (Complete)
Date of measurement: 09/24/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | WCDMA1700_RMC |
| **Channels** | High |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1752.600000 |
| **Relative Permittivity (real part)** | 39.025421 |
| **Conductivity (S/m)** | 1.370123 |
| **Power Variation (%)** | 1.342427 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

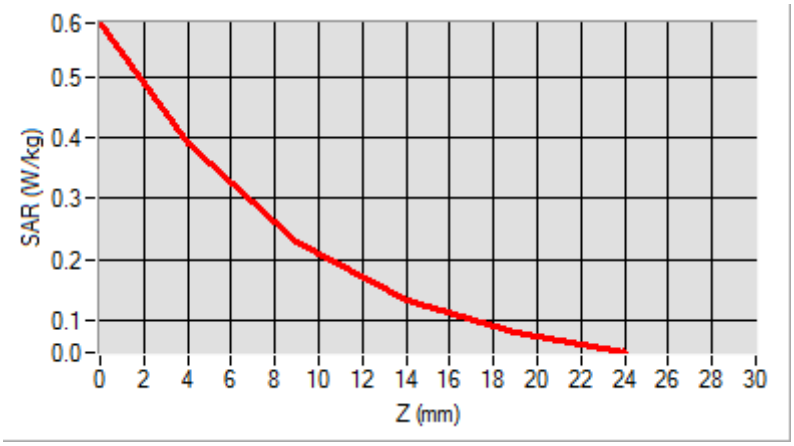
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

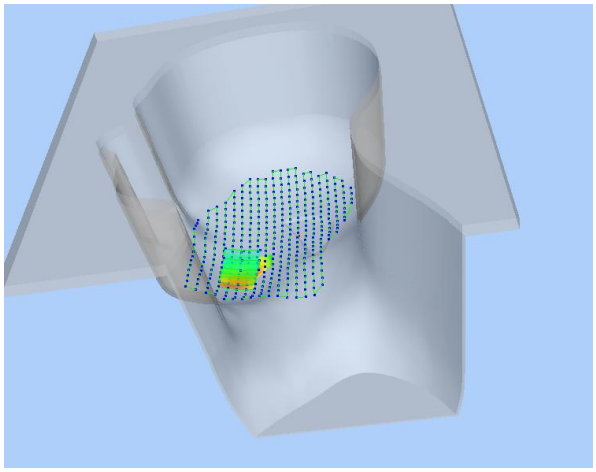
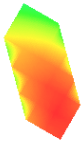
**Maximum location: X=-56.00, Y=-57.00**

**SAR Peak: 0.59 W/kg**

| SAR 10g (W/Kg) | 0.215062 |
|---|---|
| SAR 1g (W/Kg) | 0.368460 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.5891 | 0.3890 | 0.2266 | 0.1323 | 0.0794 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 31

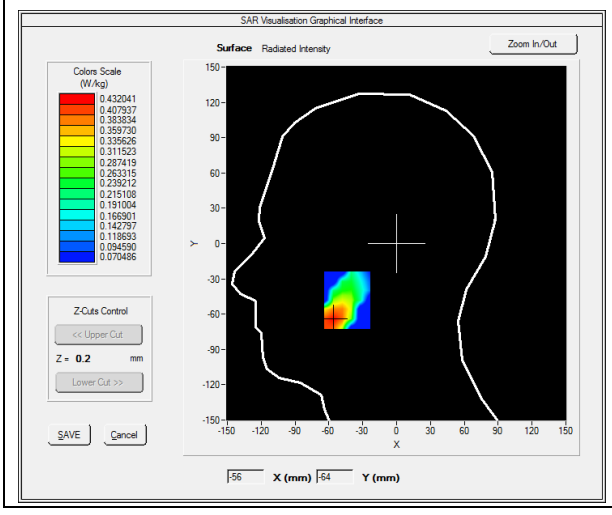
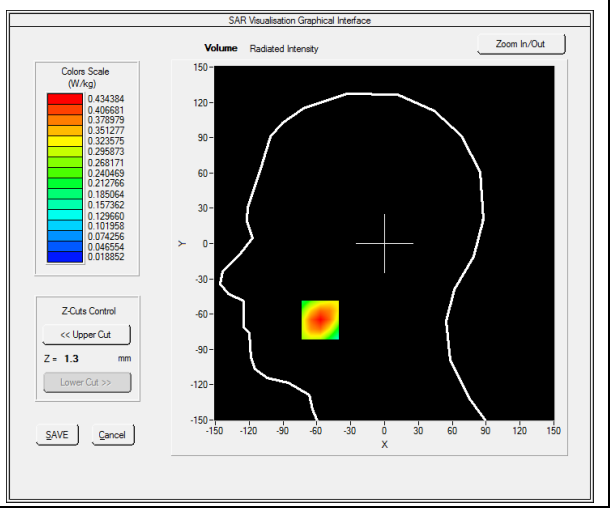
Type: Phone measurement (Complete)
Date of measurement: 09/24/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.35; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Left head |
| **Device Position** | Cheek |
| **Band** | LTE Band 2_RMC |
| **Channels** | QPSK, 20MHz, 1RB, Low |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1860.000000 |
| **Relative Permittivity (real part)** | 38.560124 |
| **Conductivity (S/m)** | 1.380369 |
| **Power Variation (%)** | 1.743564 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

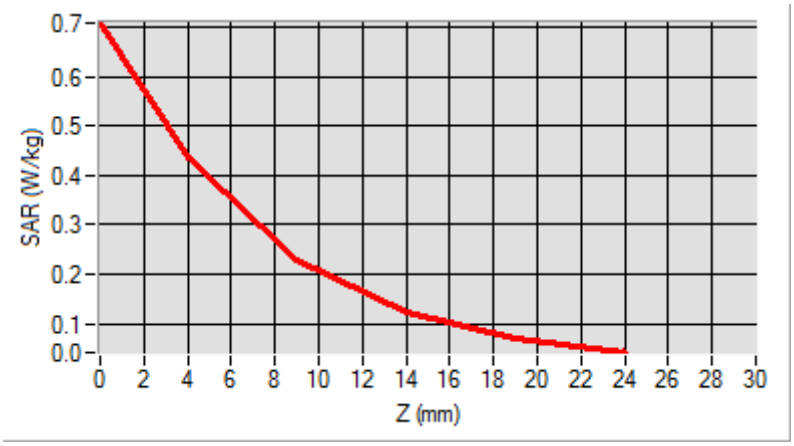
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

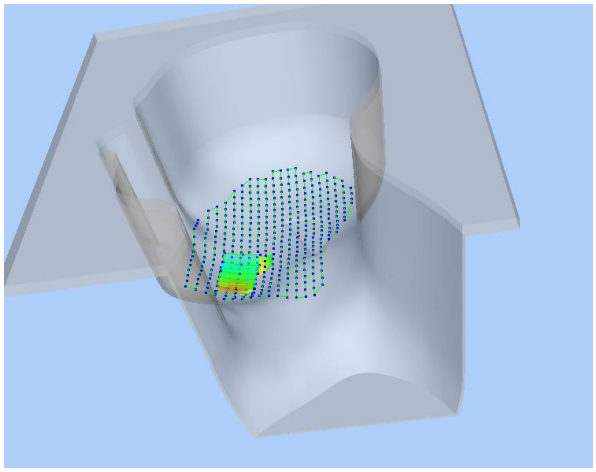
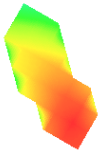
**Maximum location: X=-57.00, Y=-65.00**

**SAR Peak: 0.71 W/kg**

| SAR 10g (W/Kg) | 0.224323 |
|---|---|
| SAR 1g (W/Kg) | 0.410709 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.7088 | 0.4344 | 0.2282 | 0.1215 | 0.0699 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 37

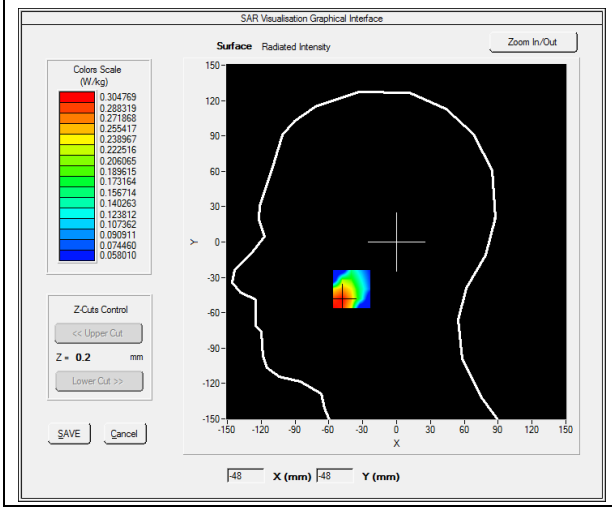
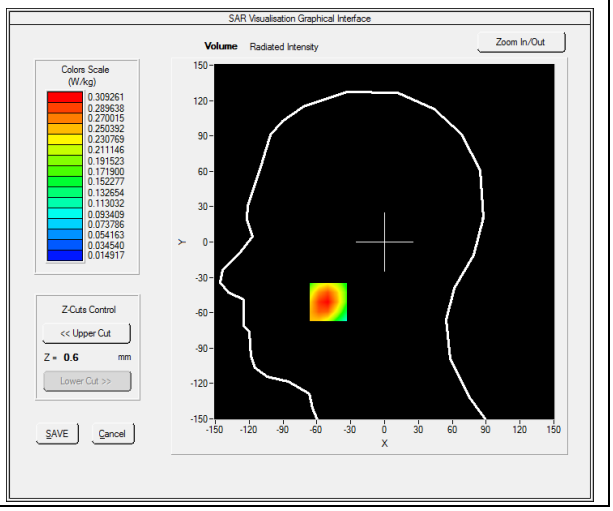
Type: Phone measurement (Complete)
Date of measurement: 09/24/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.84; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | LTE Band 4_RMC |
| **Channels** | QPSK, 20MHz, 1RB, High |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1745.000000 |
| **Relative Permittivity (real part)** | 39.025421 |
| **Conductivity (S/m)** | 1.370123 |
| **Power Variation (%)** | 1.374628 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

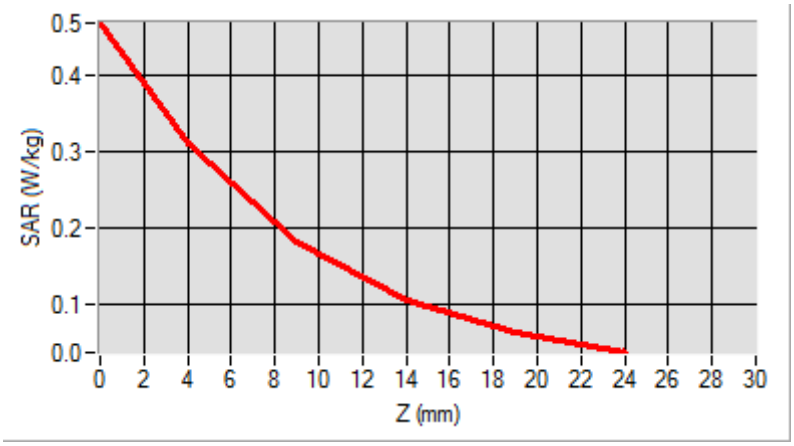
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

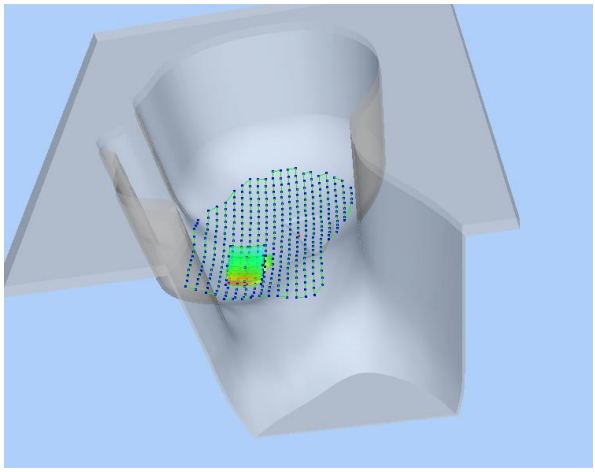
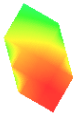
**Maximum location: X=-50.00, Y=-51.00**

**SAR Peak: 0.47 W/kg**

| SAR 10g (W/Kg) | 0.170710 |
|---|---|
| SAR 1g (W/Kg) | 0.294235 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.4668 | 0.3093 | 0.1811 | 0.1065 | 0.0645 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 45

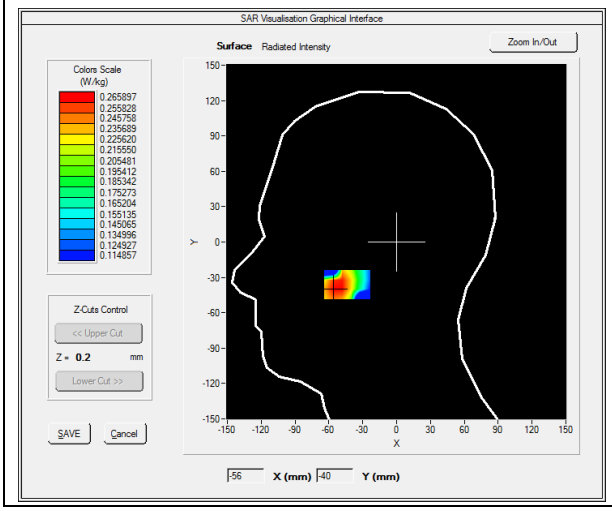
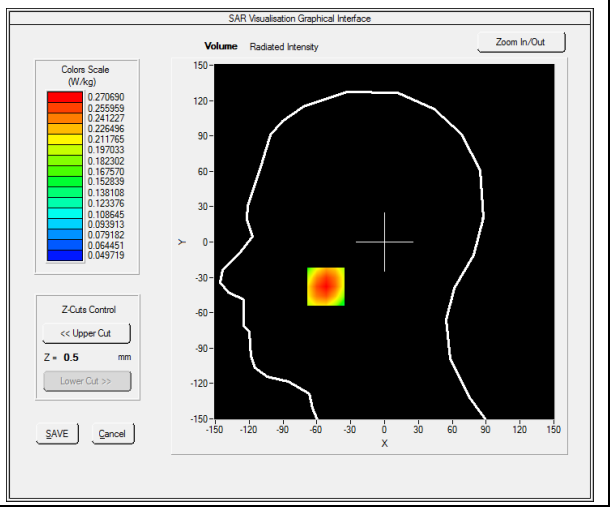
Type: Phone measurement (Complete)
Date of measurement: 09/23/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.93; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | LTE Band 5_RMC |
| **Channels** | QPSK, 10MHz, 1RB, High |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 844.000000 |
| **Relative Permittivity (real part)** | 41.110245 |
| **Conductivity (S/m)** | 0.871245 |
| **Power Variation (%)** | 0.924535 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

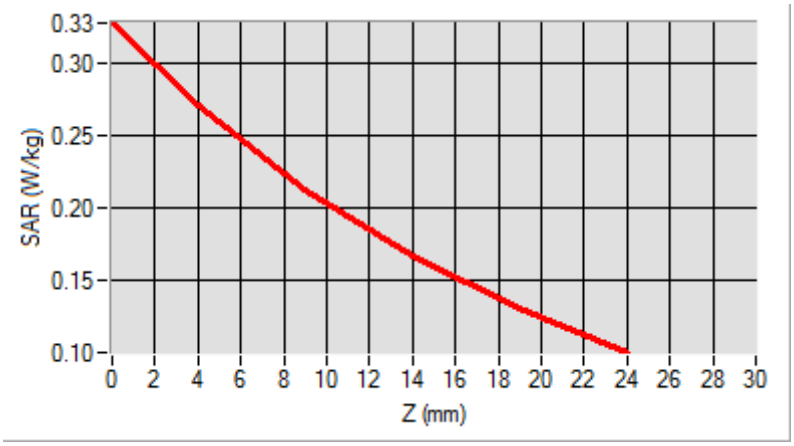
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

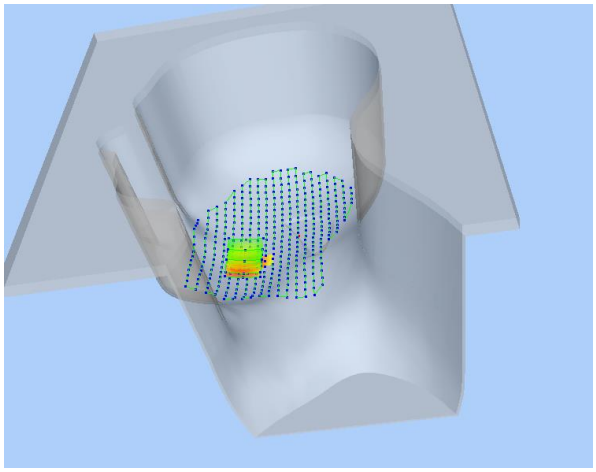
**Maximum location: X=-52.00, Y=-38.00**

**SAR Peak: 0.33 W/kg**

| SAR 10g (W/Kg) | 0.189603 |
|---|---|
| SAR 1g (W/Kg) | 0.259810 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.3281 | 0.2707 | 0.2121 | 0.1660 | 0.1296 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 53

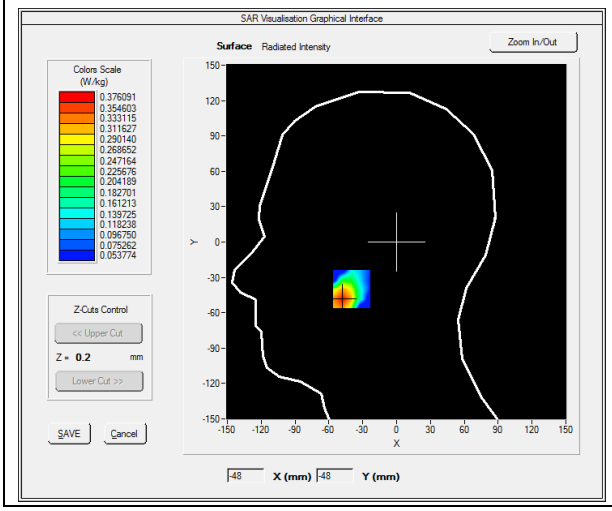
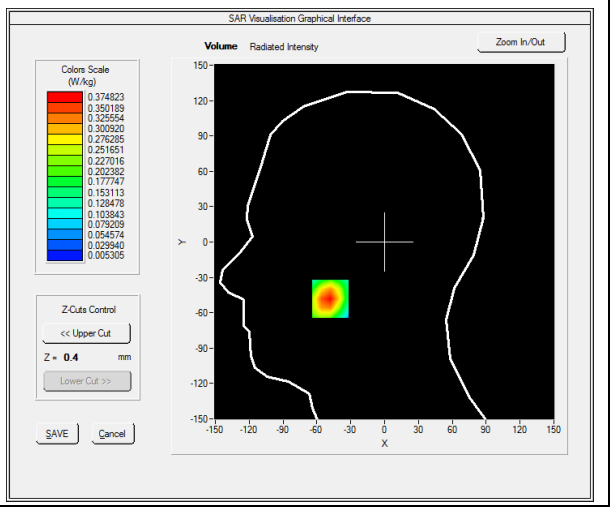
Type: Phone measurement (Complete)
Date of measurement: 09/25/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.37; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | LTE Band 7_RMC |
| **Channels** | QPSK, 20MHz, 1RB, High |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 2560.000000 |
| **Relative Permittivity (real part)** | 38.631092 |
| **Conductivity (S/m)** | 1.930182 |
| **Power Variation (%)** | 0.924535 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

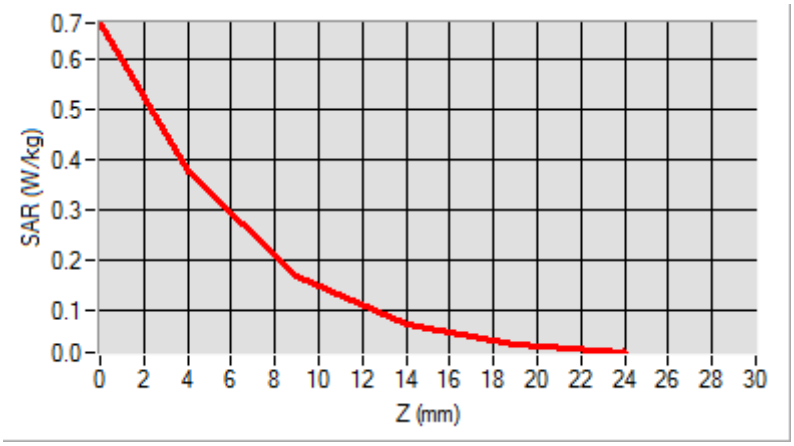
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

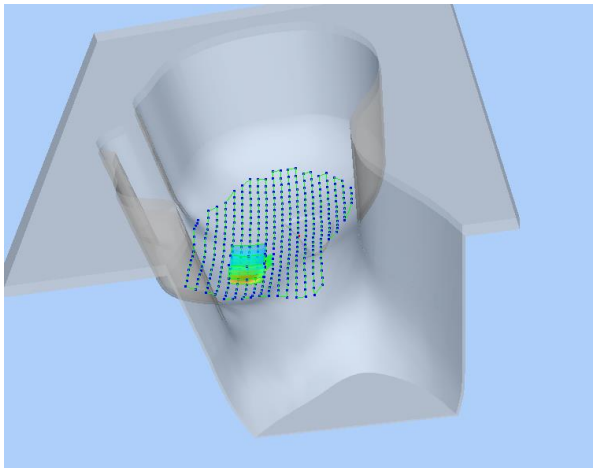
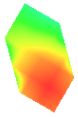
**Maximum location: X=-48.00, Y=-48.00**

**SAR Peak: 0.68 W/kg**

| SAR 10g (W/Kg) | 0.170452 |
|---|---|
| SAR 1g (W/Kg) | 0.354672 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.6733 | 0.3748 | 0.1675 | 0.0728 | 0.0341 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 61

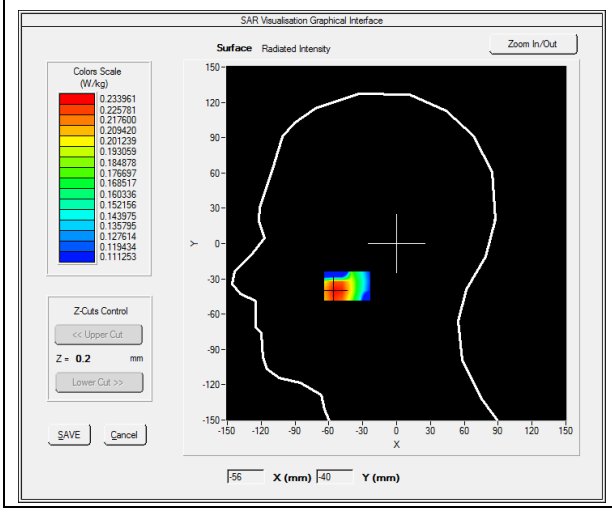
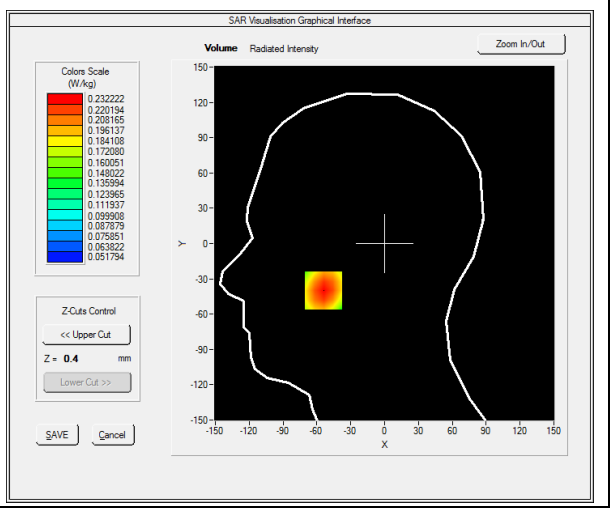
Type: Phone measurement (Complete)
Date of measurement: 09/23/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.99; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Right head |
| **Device Position** | Cheek |
| **Band** | LTE Band 17_RMC |
| **Channels** | QPSK, 10MHz, 1RB, Low |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 709.000000 |
| **Relative Permittivity (real part)** | 41.320574 |
| **Conductivity (S/m)** | 0.862373 |
| **Power Variation (%)** | 0.924535 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

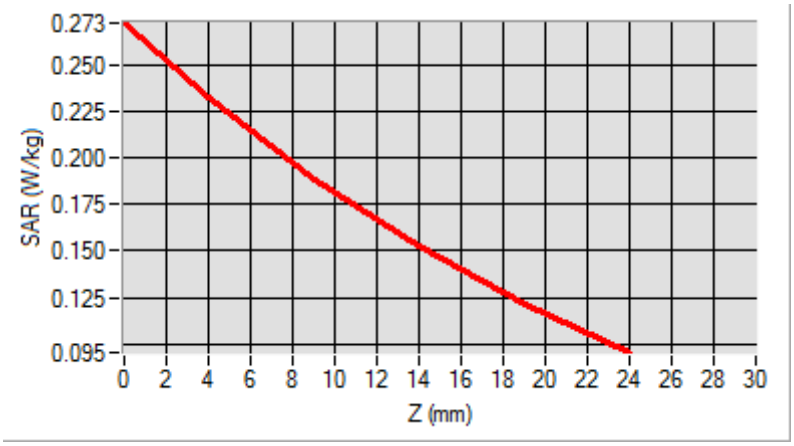
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

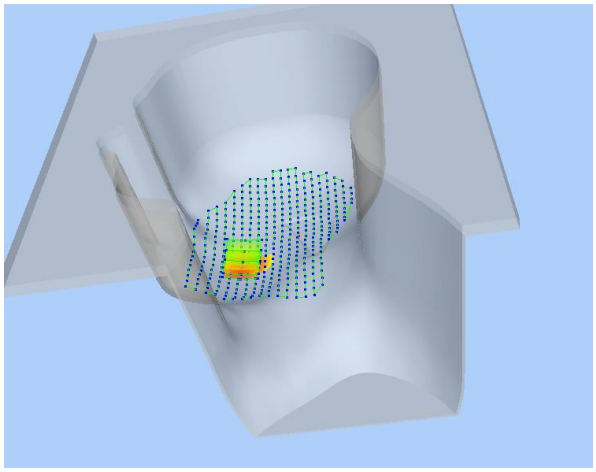
**Maximum location: X=-54.00, Y=-40.00**

**SAR Peak: 0.27 W/kg**

| SAR 10g (W/Kg) | 0.171934 |
|---|---|
| SAR 1g (W/Kg) | 0.227959 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.2726 | 0.2322 | 0.1887 | 0.1523 | 0.1217 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 71

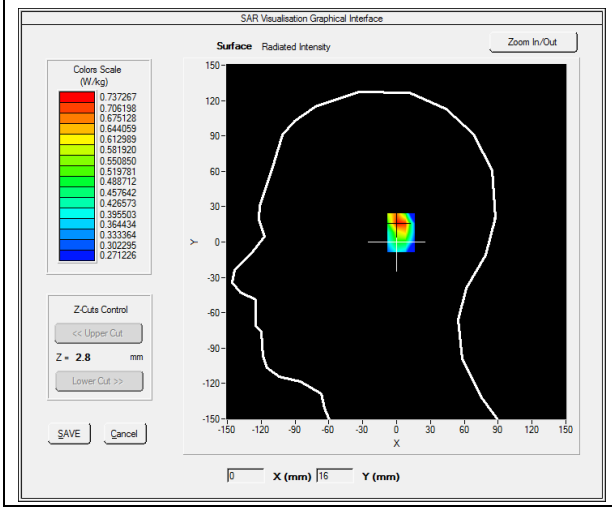
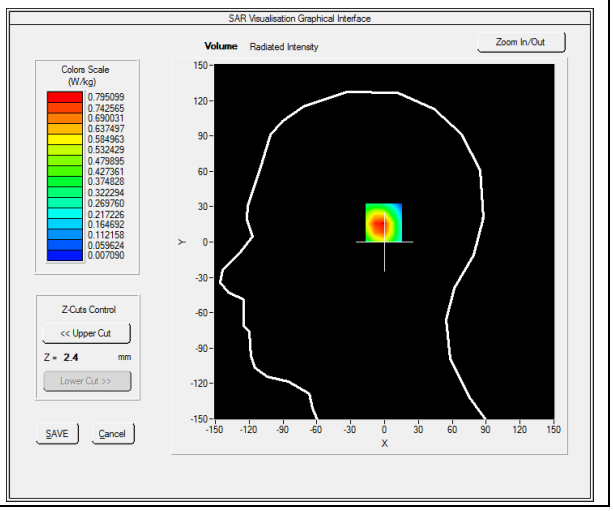
Type: Phone measurement (Complete)
Date of measurement: 09/25/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 5.64; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Left head |
| **Device Position** | Cheek |
| **Band** | WiFi_802.11b |
| **Channels** | High |
| **Signal** | Duty Cycle 1:1 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 2462.000000 |
| **Relative Permittivity (real part)** | 38.153660 |
| **Conductivity (S/m)** | 1.740236 |
| **Power Variation (%)** | 3.234772 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.2 |

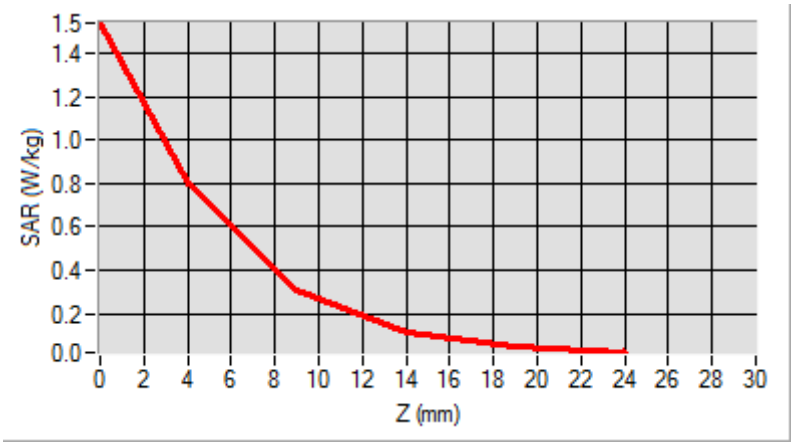
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

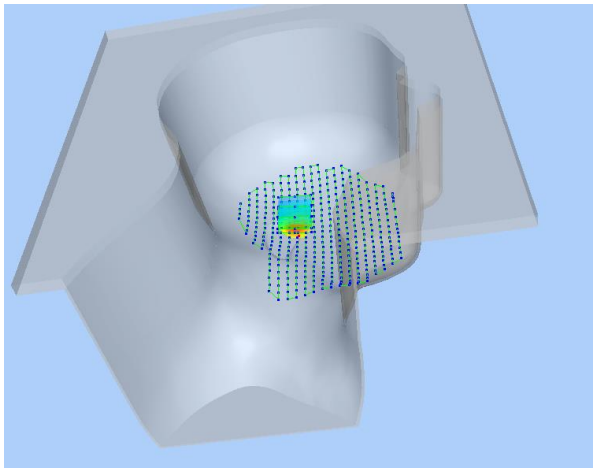
**Maximum location: X=3.00, Y=16.00**

**SAR Peak: 1.61 W/kg**

| SAR 10g (W/Kg) | 0.350368 |
|---|---|
| SAR 1g (W/Kg) | 0.777944 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 1.5389 | 0.7951 | 0.3117 | 0.1151 | 0.0477 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 74

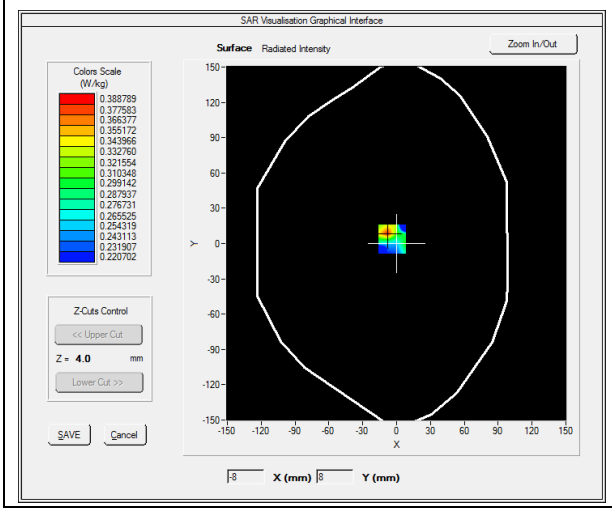
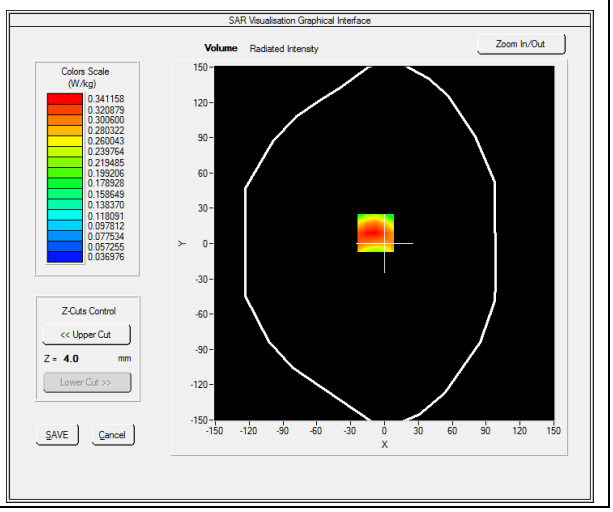
Type: Phone measurement (Complete)
Date of measurement: 09/23/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Flat Plane |
| **Device Position** | Front(Body-worn) |
| **Band** | GSM850 |
| **Channels** | High |
| **Signal** | TDMA (Crest factor: 8.0) |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 848.800000 |
| **Relative Permittivity (real part)** | 54.851214 |
| **Conductivity (S/m)** | 0.951454 |
| **Power Variation (%)** | 0.901472 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

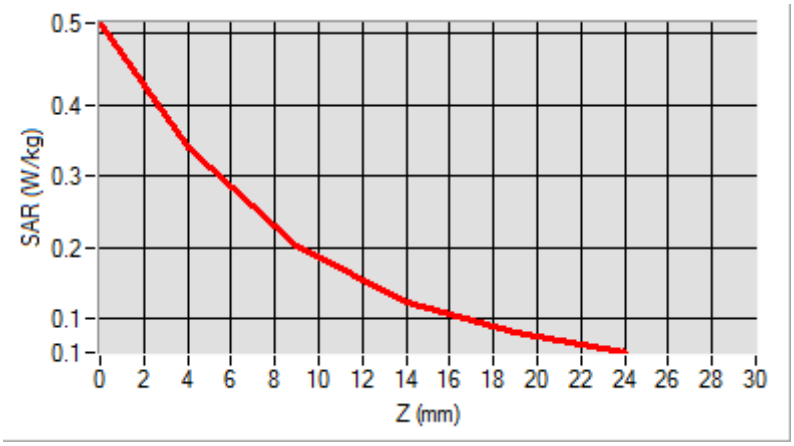
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

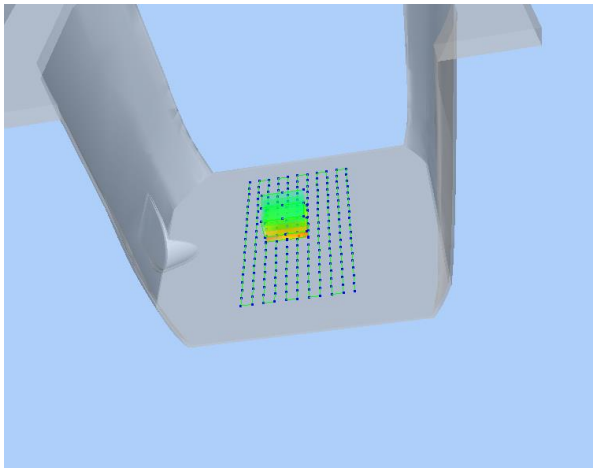
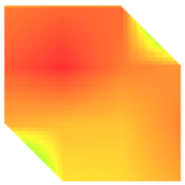
**Maximum location: X=-8.00, Y=9.00**

**SAR Peak: 0.51 W/kg**

| SAR 10g (W/Kg) | 0.197380 |
|---|---|
| SAR 1g (W/Kg) | 0.324780 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.5146 | 0.3412 | 0.2022 | 0.1233 | 0.0803 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 76

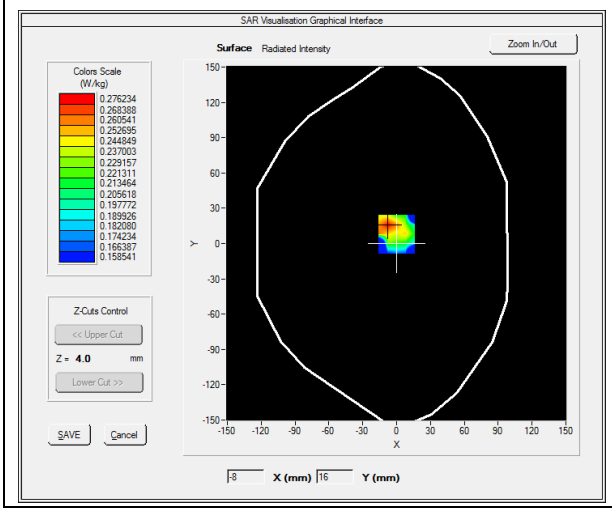
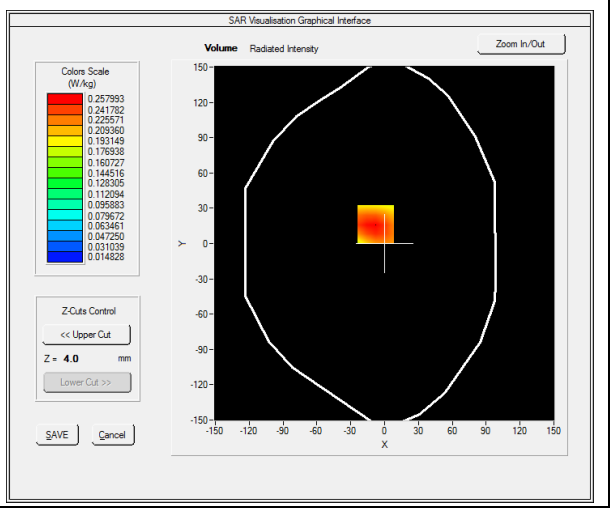
Type: Phone measurement (Complete)
Date of measurement: 09/24/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 6.55; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Flat Plane |
| **Device Position** | Front(Body-worn) |
| **Band** | GSM1900 |
| **Channels** | Low |
| **Signal** | TDMA (Crest factor: 8.0) |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 1850.200000 |
| **Relative Permittivity (real part)** | 52.420415 |
| **Conductivity (S/m)** | 1.501966 |
| **Power Variation (%)** | 1.474622 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

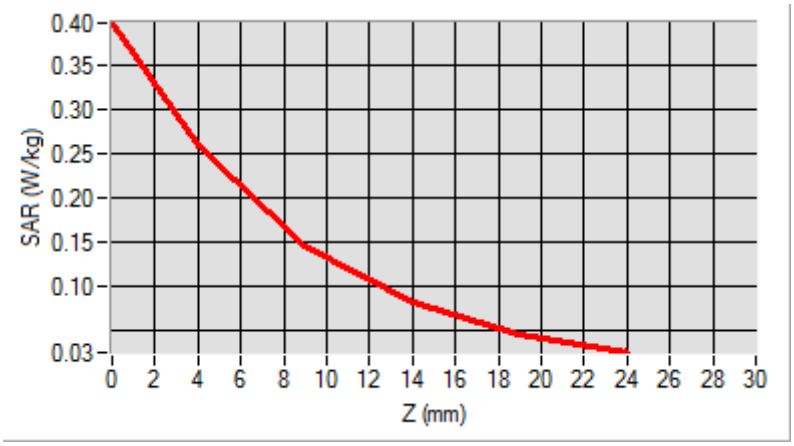
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

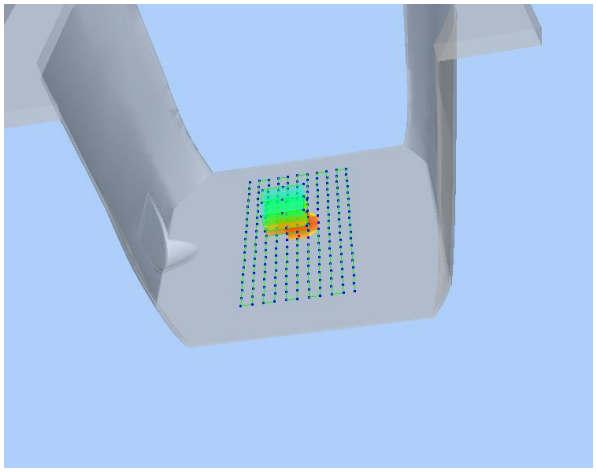
**Maximum location: X=-8.00, Y=16.00**

**SAR Peak: 0.40 W/kg**

| SAR 10g (W/Kg) | 0.145347 |
|---|---|
| SAR 1g (W/Kg) | 0.247392 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.3974 | 0.2580 | 0.1461 | 0.0820 | 0.0468 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |

# MEASUREMENT 78

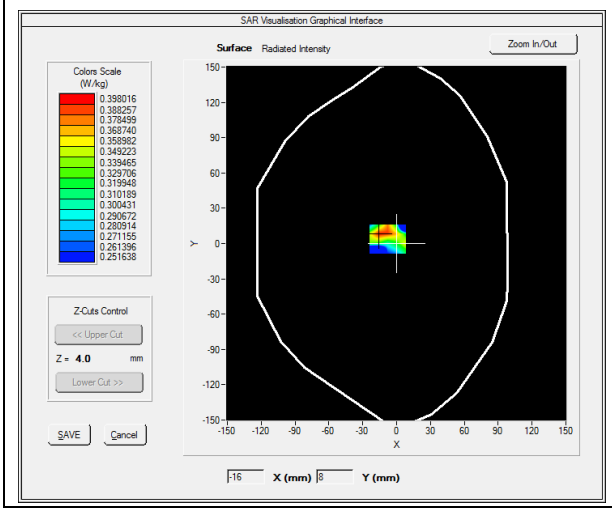
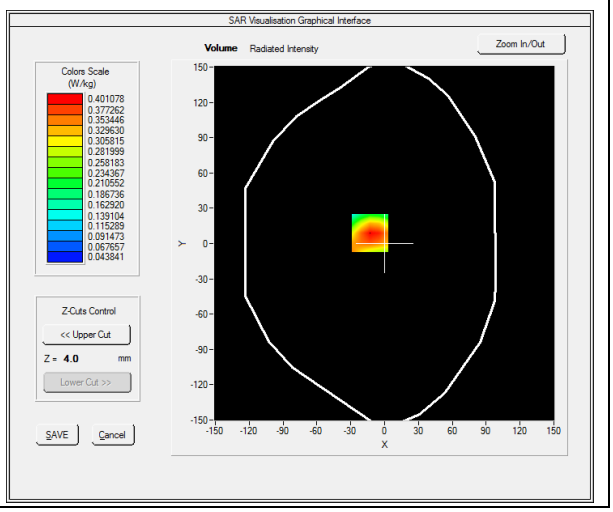
Type: Phone measurement (Complete)
Date of measurement: 09/23/2019
Measurement duration: 12 minutes 3 seconds
E-field Probe: SSE5 - SN 09/13 EP168; ConvF: 7.13; Calibrated: 05/22/2019

## A. Experimental conditions

| | |
|---|---|
| **Area Scan** | sam_direct_droit2_surf8mm.txt |
| **Phantom** | Flat plane |
| **Device Position** | Front |
| **Band** | GPRS850_2TX |
| **Channels** | Middle |
| **Signal** | Duty Cycle: 1:4 |

## B. SAR Measurement Results

| | |
|---|---|
| **Frequency (MHz)** | 836.600000 |
| **Relative Permittivity (real part)** | 54.851214 |
| **Conductivity (S/m)** | 0.951454 |
| **Power Variation (%)** | 0.901472 |
| **Ambient Temperature** | 21.1 |
| **Liquid Temperature** | 21.3 |

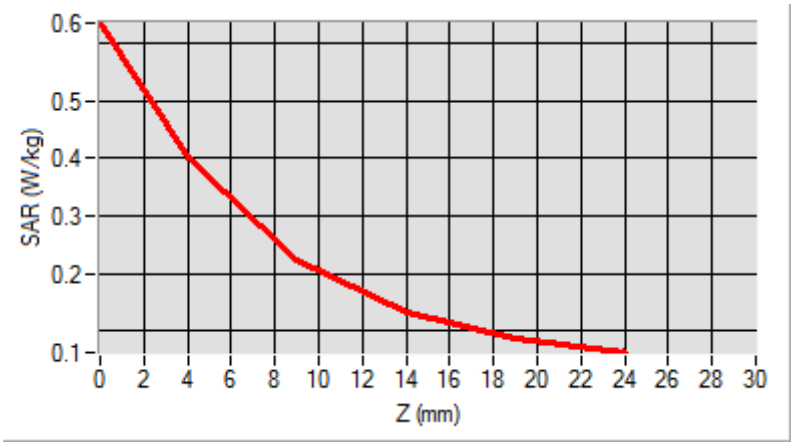
| SURFACE SAR | VOLUME SAR |
|---|---|
|  |  |

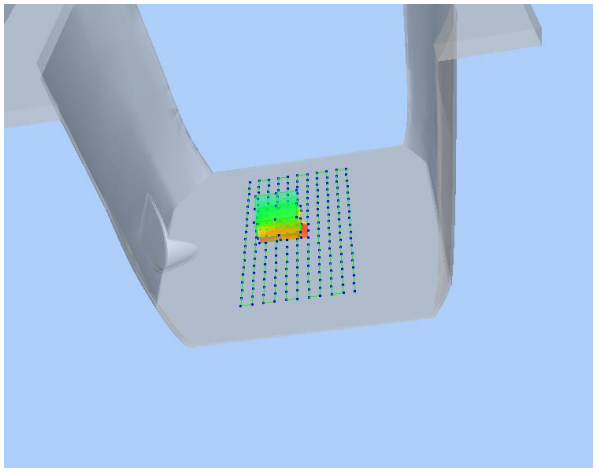
**Maximum location: X=-13.00, Y=9.00**

**SAR Peak: 0.64 W/kg**

| SAR 10g (W/Kg) | 0.226931 |
|---|---|
| SAR 1g (W/Kg) | 0.381436 |

| Z (mm) | 0.00 | 4.00 | 9.00 | 14.00 | 19.00 |
|---|---|---|---|---|---|
| SAR (W/Kg) | 0.6350 | 0.4011 | 0.2238 | 0.1316 | 0.0872 |




| 3D screen shot | Hot spot position |
|---|---|
|  |  |