

	8RB-Middle (4)	714.5	24	21.39	1	20.59	2
		707.5	24	21.34	1	20.57	2
		700.5	24	21.40	1	20.61	2
	8RB-Low (0)	714.5	24	21.42	1	20.52	2
		707.5	24	21.47	1	20.71	2
		700.5	24	21.41	1	20.62	2
	15RB (0)	714.5	24	21.55	1	20.62	2
		707.5	24	21.46	1	20.52	2
		700.5	24	21.52	1	20.67	2
5 MHz	1RB-High (24)	713.5	24	22.38	0	21.60	1
		707.5	24	22.42	0	21.50	1
		701.5	24	22.13	0	21.62	1
	1RB-Middle (12)	713.5	24	22.43	0	21.77	1
		707.5	24	22.03	0	21.44	1
		701.5	24	22.10	0	21.51	1
	1RB-Low (0)	713.5	24	22.57	0	21.64	1
		707.5	24	22.47	0	21.68	1
		701.5	24	22.51	0	21.49	1
	12RB-High (13)	713.5	24	21.46	1	20.63	2
		707.5	24	21.26	1	20.34	2
		701.5	24	21.40	1	20.66	2
	12RB-Middle (6)	713.5	24	21.39	1	20.65	2
		707.5	24	21.28	1	20.43	2
		701.5	24	21.38	1	20.68	2
	12RB-Low (0)	713.5	24	21.50	1	20.67	2
		707.5	24	21.43	1	20.50	2
		701.5	24	21.49	1	20.41	2
	25RB (0)	713.5	24	21.49	1	20.68	2
		707.5	24	21.32	1	20.40	2
		701.5	24	21.42	1	20.49	2
10 MHz	1RB-High (49)	711	24	22.36	0	21.25	1
		707.5	24	22.33	0	21.71	1
		704	24	22.16	0	21.81	1
	1RB-Middle (24)	711	24	22.63	0	22.12	1
		707.5	24	22.39	0	21.18	1
		704	24	22.81	0	22.06	1
	1RB-Low (0)	711	24	22.72	0	22.22	1
		707.5	24	22.20	0	21.19	1
		704	24	22.60	0	21.98	1
	25RB-High (25)	711	24	21.53	1	20.75	2
		707.5	24	21.20	1	20.30	2
		704	24	21.32	1	20.51	2
	25RB-Middle (12)	711	24	21.49	1	20.72	2
		707.5	24	21.30	1	20.62	2
		704	24	21.24	1	20.43	2
	25RB-Low	711	24	21.51	1	20.62	2

	(0)	707.5	24	21.44	1	20.48	2
		704	24	21.32	1	20.36	2
50RB (0)	711	24	21.55	1	20.61	2	
	707.5	24	21.26	1	20.31	2	
	704	24	21.36	1	20.39	2	

## 11.6 Wi-Fi and BT Measurement result

The output power of BT antenna is as following:

Mode	Conducted Power (dBm)		
	Channel 0 (2402MHz)	Channel 39 (2441MHz)	Channel 78(2480MHz)
GFSK	7.23	8.19	6.52
EDR2M-4_DQPSK	6.19	7.25	5.57
EDR3M-8DPSK	6.30	7.23	5.61

The average conducted power for Wi-Fi is as following:

802.11b (dBm)

Channel\data rate	1Mbps	2Mbps	5.5Mbps	11Mbps
1	19.85	/	/	/
6	20.67	20.48	20.50	20.11
11	20.42	/	/	/

802.11g (dBm)

Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
1	14.34	/	/	/	/	/	/	/
6	14.90	/	/	/	/	/	/	/
11	15.08	15.07	14.86	14.49	14.15	13.59	13.11	12.92

802.11n (dBm) - HT20 (2.4G)

Channel\data rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
1	13.24	/	/	/	/	/	/	/
6	13.89	/	/	/	/	/	/	/
11	14.19	13.81	13.43	13.09	12.58	12.14	11.98	11.81

802.11n (dBm) – HT40 (2.4G)

Channel\data rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
3	12.55	/	/	/	/	/	/	/
6	13.65	/	/	/	/	/	/	/
9	13.68	13.02	12.49	12.04	11.36	10.89	10.73	10.51

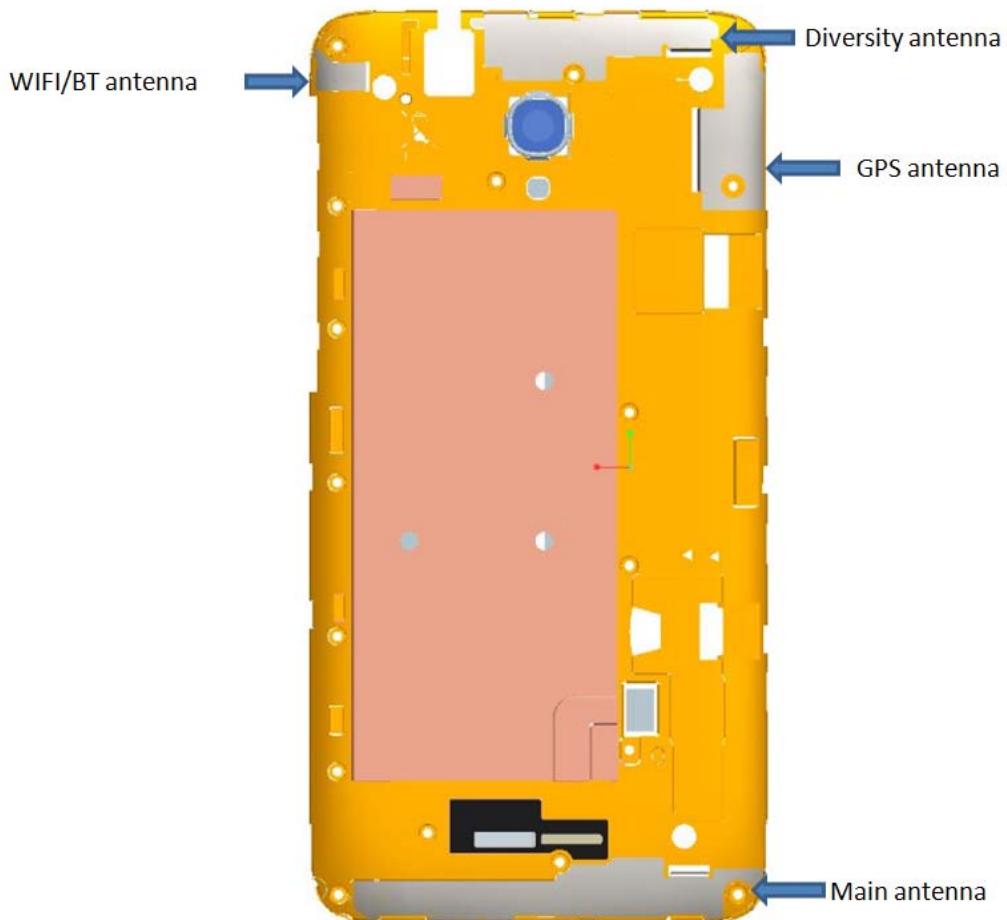
## 12 Simultaneous TX SAR Considerations

### 12.1 Introduction

The following procedures adopted from "FCC SAR Considerations for Cell Phones with Multiple Transmitters" are applicable to handsets with built-in unlicensed transmitters such as 802.11 a/b/g and Bluetooth devices which may simultaneously transmit with the licensed transmitter.

For this device, the BT and Wi-Fi can transmit simultaneous with other transmitters.

### 12.2 Transmit Antenna Separation Distances



Picture 12.1 Antenna Locations

### 12.3 SAR Measurement Positions

According to the KDB941225 D06 Hot Spot SAR v01, the edges with less than 2.5 cm distance to the antennas need to be tested for SAR.

SAR measurement positions						
Mode	Front	Rear	Left edge	Right edge	Top edge	Bottom edge
Main antenna	Yes	Yes	Yes	Yes	No	Yes
WLAN	Yes	Yes	No	Yes	Yes	No

## 12.4 Standalone SAR Test Exclusion Considerations

Standalone 1-g head or body SAR evaluation by measurement or numerical simulation is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied. The 1-g SAR test exclusion threshold for 100 MHz to 6 GHz at test separation distances  $\leq$  50 mm are determined by:

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR, where}$$

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison

**Table 12.1: Standalone SAR test exclusion considerations**

<b>Band/Mode</b>	<b>F(GHz)</b>	<b>Position</b>	<b>SAR test exclusion threshold(mW)</b>	<b>RF output power</b>		<b>SAR test exclusion</b>
				<b>dBm</b>	<b>mW</b>	
Bluetooth	2.441	Head	9.60	9	7.94	Yes
		Body	19.20	9	7.94	Yes
2.4GHz WLAN 802.11 b	2.45	Head	9.58	21	125.89	No
		Body	19.17	21	125.89	No

## 13 Evaluation of Simultaneous

**Table 13.1: The sum of reported SAR values for main antenna and WiFi**

	Position	Main antenna	WiFi	Sum
<b>Maximum reported SAR value for Head</b>	Left hand, Touch cheek	0.31	0.62	<b>0.93</b>
	Right hand, Touch cheek	0.39	0.29	<b>0.68</b>
<b>Maximum reported SAR value for Body</b>	Rear	0.94	0.19	<b>1.13</b>
	Bottom	1.15	/	<b>1.15</b>

**Table 13.2: The sum of reported SAR values for main antenna and BT**

	Position	Main antenna	BT	Sum
<b>Maximum reported SAR value for Head</b>	Right hand, Touch cheek	0.39	0.33 <sup>[1]</sup>	<b>0.72</b>
<b>Maximum reported SAR value for Body</b>	Rear	0.94	0.17 <sup>[1]</sup>	<b>1.11</b>

[1] - Estimated SAR for Bluetooth (see the table 13.3)

**Table 13.3: Estimated SAR for Bluetooth**

Mode/Band	F (GHz)	Position	Distance (mm)	Upper limit of power *		<b>Estimated<sub>1g</sub> (W/kg)</b>
				dBm	mW	
Bluetooth	2.441	Head	5	9	7.94	0.33
Bluetooth	2.441	Body	10	9	7.94	0.17

\* - Maximum possible output power declared by manufacturer

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)].[ $\sqrt{f(\text{GHz})/x}$ ] W/kg for test separation distances  $\leq$  50 mm;  
where  $x = 7.5$  for 1-g SAR.

When the minimum test separation distance is  $< 5$  mm, a distance of 5 mm is applied to determine SAR test exclusion

### Conclusion:

According to the above tables, the sum of reported SAR values is  $< 1.6$  W/kg. So the simultaneous transmission SAR with volume scans is not required.

## 14 SAR Test Result

It is determined by user manual for the distance between the EUT and the phantom bottom.

The distance is 10mm or 15mm and just applied to the condition of body worn accessory.

It is performed for all SAR measurements with area scan based 1-g SAR estimation (Fast SAR). A zoom scan measurement is added when the estimated 1-gSAR is the highest measured SAR in each exposure configuration, wireless mode and frequency band combination or more than 1.2W/kg.

The calculated SAR is obtained by the following formula:

$$\text{Reported SAR} = \text{Measured SAR} \times 10^{(P_{\text{Target}} - P_{\text{Measured}})/10}$$

Where  $P_{\text{Target}}$  is the power of manufacturing upper limit;

$P_{\text{Measured}}$  is the measured power in chapter 11.

**Table 14.1: Duty Cycle**

Mode	Duty Cycle
Speech for GSM850/1900	1:8.3
GPRS&EGPRS for GSM850	1:2.67
GPRS&EGPRS for GSM1900	1:4
WCDMA&LTE	1:1

### 14.1 SAR results for Fast SAR

**Table 14.1-1: SAR Values (GSM 850 MHz Band - Head)**

Frequency		Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C					
MHz	Ch.	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
836.6	190	Left	Touch	/	31.95	33.5	0.075	<b>0.11</b>	0.110	<b>0.16</b>	0.02
836.6	190	Left	Tilt	/	31.95	33.5	0.050	<b>0.07</b>	0.071	<b>0.10</b>	0.12
848.8	251	Right	Touch	/	32.03	33.5	0.088	<b>0.12</b>	0.132	<b>0.19</b>	0.12
836.6	190	Right	Touch	/	31.95	33.5	0.090	<b>0.13</b>	0.135	<b>0.19</b>	-0.05
824.2	128	Right	Touch	Fig.1	31.89	33.5	0.116	<b>0.17</b>	0.151	<b>0.22</b>	0.03
836.6	190	Right	Tilt	/	31.95	33.5	0.051	<b>0.07</b>	0.074	<b>0.11</b>	0.03

**Table 14.1-2: SAR Values (GSM 850 MHz Band-Body)**

Frequency		Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C					
MHz	Ch.	Mode (number of timeslots)	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
836.6	190	GPRS (3)	Front	/	27.48	28.7	0.080	<b>0.11</b>	0.110	<b>0.15</b>	0.09
848.8	251	GPRS (3)	Rear	Fig.2	27.64	28.7	0.134	<b>0.17</b>	0.275	<b>0.35</b>	0.03

836.6	190	GPRS (3)	Rear	/	27.48	28.7	0.132	<b>0.17</b>	0.228	<b>0.30</b>	-0.10
824.2	128	GPRS (3)	Rear	/	27.36	28.7	0.140	<b>0.19</b>	0.236	<b>0.32</b>	0.03
836.6	190	GPRS (3)	Left	/	27.48	28.7	0.057	<b>0.08</b>	0.084	<b>0.11</b>	-0.02
836.6	190	GPRS (3)	Right	/	27.48	28.7	0.120	<b>0.16</b>	0.177	<b>0.23</b>	0.01
836.6	190	GPRS (3)	Bottom	/	27.48	28.7	0.057	<b>0.08</b>	0.097	<b>0.13</b>	0.11
848.8	251	EGPRS (3)	Rear	/	27.64	28.7	0.132	<b>0.17</b>	0.238	<b>0.30</b>	0.08

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.1-3: SAR Values (GSM1900 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.				(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
1880	661	Left	Touch	/	29.50	30.5	0.087	<b>0.11</b>	0.145	<b>0.18</b>	0.00
1880	661	Left	Tilt	/	29.50	30.5	0.071	<b>0.09</b>	0.122	<b>0.15</b>	-0.05
1909.8	810	Right	Touch	/	29.48	30.5	0.078	<b>0.10</b>	0.136	<b>0.17</b>	0.13
1880	661	Right	Touch	/	29.50	30.5	0.104	<b>0.13</b>	0.177	<b>0.22</b>	0.04
1850.2	512	Right	Touch	Fig.3	29.49	30.5	0.139	<b>0.18</b>	0.222	<b>0.28</b>	0.16
1880	661	Right	Tilt	/	29.50	30.5	0.052	<b>0.07</b>	0.091	<b>0.11</b>	0.03

**Table 14.1-4: SAR Values (GSM 1900 MHz Band-Body)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Mode (number of timeslots)	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.				(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
1880	661	GPRS (2)	Front	/	26.82	27.5	0.112	<b>0.13</b>	0.193	<b>0.23</b>	0.01
1880	661	GPRS (2)	Rear	/	26.82	27.5	0.275	<b>0.32</b>	0.492	<b>0.58</b>	-0.03
1880	661	GPRS (2)	Left	/	26.82	27.5	0.064	<b>0.07</b>	0.106	<b>0.12</b>	-0.02
1880	661	GPRS (2)	Right	/	26.82	27.5	0.033	<b>0.04</b>	0.057	<b>0.07</b>	0.05
1909.8	810	GPRS (2)	Bottom	/	26.82	27.5	0.280	<b>0.33</b>	0.504	<b>0.59</b>	0.10
1880	661	GPRS (2)	Bottom	Fig.4	26.82	27.5	0.320	<b>0.37</b>	0.553	<b>0.65</b>	0.13
1850.2	512	GPRS (2)	Bottom	/	26.73	27.5	0.265	<b>0.32</b>	0.502	<b>0.60</b>	-0.08
1880	661	EGPRS (2)	Bottom	/	26.76	27.5	0.268	<b>0.32</b>	0.484	<b>0.57</b>	-0.01

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.1-5: SAR Values (WCDMA850 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.				(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
836.4	4182	Left	Touch	/	22.82	24	0.082	<b>0.11</b>	0.123	<b>0.16</b>	0.06
836.4	4182	Left	Tilt	/	22.82	24	0.062	<b>0.08</b>	0.089	<b>0.12</b>	0.01
846.6	4233	Right	Touch	Fig.5	22.84	24	0.118	<b>0.15</b>	0.154	<b>0.20</b>	0.02

836.4	4182	Right	Touch	/	22.82	24	0.098	<b>0.13</b>	0.140	<b>0.18</b>	0.04
826.4	4132	Right	Touch	/	22.99	24	0.089	<b>0.11</b>	0.132	<b>0.17</b>	0.11
836.4	4182	Right	Tilt	/	22.82	24	0.088	<b>0.12</b>	0.133	<b>0.17</b>	0.02

**Table 14.1-6: SAR Values (WCDMA 850 MHz Band-Body)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.									
836.4	4182	Front	/	22.82	24	0.085	<b>0.11</b>	0.119	<b>0.16</b>	0.05
846.6	4233	Rear	/	22.84	24	0.157	<b>0.21</b>	0.243	<b>0.32</b>	-0.06
836.4	4182	Rear	/	22.82	24	0.178	<b>0.23</b>	0.255	<b>0.33</b>	-0.03
826.4	4132	Rear	Fig.6	22.99	24	0.233	<b>0.29</b>	0.301	<b>0.38</b>	0.06
836.4	4182	Left	/	22.82	24	0.081	<b>0.11</b>	0.121	<b>0.16</b>	-0.03
836.4	4182	Right	/	22.82	24	0.162	<b>0.21</b>	0.240	<b>0.31</b>	0.08
836.4	4182	Bottom	/	22.82	24	0.088	<b>0.11</b>	0.148	<b>0.19</b>	-0.05

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.1-7: SAR Values (WCDMA1700 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1732.4	1412	Left	Touch	/	23.00	24	0.092	<b>0.12</b>	0.153	<b>0.19</b>	-0.05
1732.4	1412	Left	Tilt	/	23.00	24	0.086	<b>0.11</b>	0.142	<b>0.18</b>	-0.10
1752.6	1513	Right	Touch	/	23.05	24	0.126	<b>0.16</b>	0.215	<b>0.27</b>	0.17
1732.4	1412	Right	Touch	Fig.7	23.00	24	0.156	<b>0.20</b>	0.242	<b>0.30</b>	0.08
1712.4	1312	Right	Touch	/	23.09	24	0.133	<b>0.16</b>	0.225	<b>0.28</b>	0.12
1732.4	1412	Right	Tilt	/	23.00	24	0.083	<b>0.10</b>	0.152	<b>0.19</b>	0.02

**Table 14.1-8: SAR Values (WCDMA1700 MHz Band-Body) – AP ON**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.									
1732.4	1412	Front	/	22.61	23	0.327	<b>0.36</b>	0.531	<b>0.58</b>	0.01
1752.6	1513	Rear	/	22.59	23	0.477	<b>0.52</b>	0.841	<b>0.92</b>	-0.06
1732.4	1412	Rear	/	22.61	23	0.462	<b>0.51</b>	0.816	<b>0.89</b>	-0.13
1712.4	1312	Rear	/	22.66	23	0.423	<b>0.46</b>	0.747	<b>0.81</b>	-0.18
1732.4	1412	Left	/	22.61	23	0.084	<b>0.09</b>	0.144	<b>0.16</b>	0.09
1732.4	1412	Right	/	22.61	23	0.137	<b>0.15</b>	0.232	<b>0.25</b>	-0.02
1752.6	1513	Bottom	Fig.8	22.59	23	0.556	<b>0.61</b>	1.050	<b>1.15</b>	0.11
1732.4	1412	Bottom	/	22.61	23	0.492	<b>0.54</b>	0.913	<b>1.00</b>	0.18

1712.4	1312	Bottom	/	22.66	23	0.446	<b>0.48</b>	0.829	<b>0.90</b>	0.06
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Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.1-9: SAR Values (WCDMA1700 MHz Band-Body) – AP OFF**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.			(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
1732.4	1412	Front	/	23.00	24	0.201	<b>0.25</b>	0.321	<b>0.40</b>	0.19
1752.6	1513	Rear	Fig.9	23.05	24	0.313	<b>0.39</b>	0.501	<b>0.62</b>	-0.02
1732.4	1412	Rear	/	23.00	24	0.303	<b>0.38</b>	0.487	<b>0.61</b>	-0.09
1712.4	1312	Rear	/	23.09	24	0.258	<b>0.32</b>	0.416	<b>0.51</b>	-0.06

Note: The distance between the EUT and the phantom bottom is 15mm.

**Table 14.1-10: SAR Values (WCDMA1900 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.				(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
1880	9400	Left	Touch	/	23.48	24	0.162	<b>0.18</b>	0.277	<b>0.31</b>	0.12
1880	9400	Left	Tilt	/	23.48	24	0.102	<b>0.11</b>	0.174	<b>0.20</b>	0.01
1907.6	9538	Right	Touch	/	23.58	24	0.133	<b>0.15</b>	0.231	<b>0.25</b>	0.10
1880	9400	Right	Touch	/	23.48	24	0.175	<b>0.20</b>	0.305	<b>0.34</b>	0.19
1852.4	9262	Right	Touch	Fig.9	23.34	24	0.213	<b>0.25</b>	0.338	<b>0.39</b>	0.16
1880	9400	Right	Tilt	/	23.48	24	0.082	<b>0.09</b>	0.140	<b>0.16</b>	0.11

**Table 14.1-11: SAR Values (WCDMA1900 MHz Band-Body) – AP ON**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.			(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
1880	9400	Front	/	22.84	23	0.225	<b>0.23</b>	0.394	<b>0.41</b>	-0.02
1880	9400	Rear	/	22.84	23	0.398	<b>0.41</b>	0.686	<b>0.71</b>	0.01
1880	9400	Left	/	22.84	23	0.131	<b>0.14</b>	0.231	<b>0.24</b>	-0.12
1880	9400	Right	/	22.84	23	0.066	<b>0.07</b>	0.115	<b>0.12</b>	-0.12
1907.6	9538	Bottom	/	22.95	23	0.509	<b>0.52</b>	0.934	<b>0.95</b>	0.09
1880	9400	Bottom	Fig.11	22.84	23	0.545	<b>0.57</b>	0.961	<b>1.00</b>	-0.04
1852.4	9262	Bottom	/	22.66	23	0.501	<b>0.54</b>	0.928	<b>1.00</b>	-0.01

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.1-12: SAR Values (WCDMA1900 MHz Band-Body) – AP OFF**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.			(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
1880	9400	Front	/	23.48	24	0.134	<b>0.15</b>	0.226	<b>0.25</b>	-0.13
1907.6	9538	Rear	/	23.58	24	0.258	<b>0.28</b>	0.442	<b>0.49</b>	-0.12
1880	9400	Rear	/	23.48	24	0.283	<b>0.32</b>	0.456	<b>0.51</b>	-0.14
1852.4	9262	Rear	Fig.12	23.34	24	0.298	<b>0.35</b>	0.486	<b>0.57</b>	0.02

Note: The distance between the EUT and the phantom bottom is 15mm.

**Table 14.1-13: SAR Values (LTE Band2 - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C								
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
1900	19100	1RB_Mid	Left	Touch	Fig.13	23.51	24	0.142	<b>0.16</b>	0.220	<b>0.25</b>	0.06
1900	19100	1RB_Mid	Left	Tilt	/	23.51	24	0.101	<b>0.11</b>	0.173	<b>0.19</b>	0.02
1900	19100	1RB_Mid	Right	Touch	/	23.51	24	0.124	<b>0.14</b>	0.210	<b>0.24</b>	0.12
1900	19100	1RB_Mid	Right	Tilt	/	23.51	24	0.068	<b>0.08</b>	0.127	<b>0.14</b>	0.08
1900	19100	50RB_High	Left	Touch	/	23.51	23	0.108	<b>0.10</b>	0.182	<b>0.16</b>	0.10
1900	19100	50RB_High	Left	Tilt	/	22.23	23	0.052	<b>0.06</b>	0.098	<b>0.12</b>	0.04
1900	19100	50RB_High	Right	Touch	/	22.23	23	0.110	<b>0.13</b>	0.193	<b>0.23</b>	0.11
1900	19100	50RB_High	Right	Tilt	/	22.23	23	0.052	<b>0.06</b>	0.098	<b>0.12</b>	0.04

Note: The LTE mode is QPSK\_20MHz.

**Table 14.1-14: SAR Values (LTE Band2 -Body) – AP ON**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.				(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
1860	18700	1RB_Mid	Front	/	22.45	23	0.209	<b>0.24</b>	0.367	<b>0.42</b>	0.03
1900	19100	1RB_Mid	Rear	/	22.43	23	0.376	<b>0.43</b>	0.671	<b>0.77</b>	0.03
1880	18900	1RB_Mid	Rear	/	22.41	23	0.362	<b>0.41</b>	0.654	<b>0.75</b>	-0.06
1860	18700	1RB_Mid	Rear	/	22.45	23	0.423	<b>0.48</b>	0.754	<b>0.86</b>	-0.02
1860	18700	1RB_Mid	Left	/	22.45	23	0.090	<b>0.10</b>	0.151	<b>0.17</b>	-0.12
1860	18700	1RB_Mid	Right	/	22.45	23	0.075	<b>0.09</b>	0.130	<b>0.15</b>	-0.06
1900	19100	1RB_Mid	Bottom	/	22.43	23	0.431	<b>0.49</b>	0.777	<b>0.89</b>	0.16
1880	18900	1RB_Mid	Bottom	/	22.41	23	0.405	<b>0.46</b>	0.749	<b>0.86</b>	0.17
1860	18700	1RB_Mid	Bottom	Fig.14	22.45	23	0.513	<b>0.58</b>	0.894	<b>1.02</b>	0.2
1900	19100	50RB_High	Front	/	22.25	23	0.201	<b>0.24</b>	0.359	<b>0.43</b>	-0.13
1900	19100	50RB_High	Rear	/	22.25	23	0.436	<b>0.52</b>	0.792	<b>0.94</b>	0.11

1880	18900	50RB_High	Rear	/	22.23	23	0.406	<b>0.48</b>	0.738	<b>0.88</b>	0.06
1860	18700	50RB_High	Rear	/	22.20	23	0.412	<b>0.50</b>	0.749	<b>0.90</b>	0.18
1900	19100	50RB_High	Left	/	22.25	23	0.102	<b>0.12</b>	0.172	<b>0.20</b>	0.12
1900	19100	50RB_High	Right	/	22.25	23	0.052	<b>0.06</b>	0.095	<b>0.11</b>	-0.09
1900	19100	50RB_High	Bottom	/	22.25	23	0.450	<b>0.54</b>	0.811	<b>0.96</b>	0.11
1880	18900	50RB_High	Bottom	/	22.23	23	0.432	<b>0.52</b>	0.800	<b>0.96</b>	0.18
1860	18700	50RB_High	Bottom	/	22.20	23	0.432	<b>0.52</b>	0.812	<b>0.98</b>	0.16
1860	18700	100RB	Rear	/	22.19	23	0.266	<b>0.32</b>	0.483	<b>0.58</b>	0.03
1860	18700	100RB	Bottom	/	22.19	23	0.295	<b>0.36</b>	0.533	<b>0.64</b>	0.14

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table 14.1-15: SAR Values (LTE Band2 -Body) – AP OFF**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1900	19100	1RB_Mid	Front	/	23.51	24	0.165	<b>0.18</b>	0.274	<b>0.31</b>	0.01
1900	19100	1RB_Mid	Rear	Fig.15	23.51	24	0.311	<b>0.35</b>	0.507	<b>0.57</b>	0.17
1900	19100	50RB_High	Front	/	22.23	23	0.128	<b>0.15</b>	0.212	<b>0.25</b>	0.08
1900	19100	50RB_High	Rear	/	22.23	23	0.224	<b>0.27</b>	0.380	<b>0.45</b>	-0.12

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table 14.1-16: SAR Values (LTE Band4 - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C								
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
1745	20300	1RB_Mid	Left	Touch	/	23.31	24	0.107	<b>0.13</b>	0.158	<b>0.19</b>	0.01
1745	20300	1RB_Mid	Left	Tilt	/	23.31	24	0.071	<b>0.08</b>	0.109	<b>0.13</b>	-0.02
1745	20300	1RB_Mid	Right	Touch	Fig.16	23.31	24	0.185	<b>0.22</b>	0.288	<b>0.34</b>	-0.04
1745	20300	1RB_Mid	Right	Tilt	/	23.31	24	0.081	<b>0.09</b>	0.139	<b>0.16</b>	0.09
1720	20050	50RB_High	Left	Touch	/	21.84	23	0.091	<b>0.12</b>	0.136	<b>0.18</b>	0.10
1720	20050	50RB_High	Left	Tilt	/	21.84	23	0.064	<b>0.08</b>	0.100	<b>0.13</b>	0.03
1720	20050	50RB_High	Right	Touch	/	21.84	23	0.150	<b>0.20</b>	0.253	<b>0.33</b>	0.16
1720	20050	50RB_High	Right	Tilt	/	21.84	23	0.057	<b>0.07</b>	0.093	<b>0.12</b>	0..3

Note: The LTE mode is QPSK\_20MHz.

**Table 14.1-17: SAR Values (LTE Band4 -Body) – AP ON**

		Ambient Temperature: 22.5 °C			Liquid Temperature: 22.0 °C						
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.				(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	
1720	20050	1RB_Low	Front	/	21.95	22	0.266	<b>0.27</b>	0.477	<b>0.48</b>	0.02
1745	20300	1RB_Low	Rear	/	21.54	22	0.384	<b>0.43</b>	0.715	<b>0.79</b>	-0.08
1732.5	20175	1RB_Low	Rear	/	21.95	22	0.385	<b>0.39</b>	0.711	<b>0.72</b>	0.1
1720	20050	1RB_Low	Rear	Fig.17	21.66	22	0.425	<b>0.46</b>	0.751	<b>0.81</b>	0.05
1720	20050	1RB_Low	Left	/	21.95	22	0.057	<b>0.06</b>	0.094	<b>0.10</b>	0.08
1720	20050	1RB_Low	Right	/	21.95	22	0.104	<b>0.11</b>	0.174	<b>0.18</b>	0.03
1720	20050	1RB_Low	Bottom	/	21.95	22	0.345	<b>0.35</b>	0.649	<b>0.66</b>	0.07
1720	20050	50RB_Low	Front	/	21.58	22	0.242	<b>0.27</b>	0.425	<b>0.47</b>	0.12
1720	20050	50RB_Low	Rear	/	21.58	22	0.377	<b>0.42</b>	0.697	<b>0.77</b>	0.09
1720	20050	50RB_Low	Left	/	21.58	22	0.053	<b>0.06</b>	0.087	<b>0.10</b>	0.11
1720	20050	50RB_Low	Right	/	21.58	22	0.094	<b>0.10</b>	0.156	<b>0.17</b>	0.05
1720	20050	50RB_Low	Bottom	/	21.58	22	0.358	<b>0.39</b>	0.690	<b>0.76</b>	0.12
1720	20050	100RB	Rear	/	21.48	22	0.372	<b>0.42</b>	0.684	<b>0.77</b>	0.01

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table 14.1-18: SAR Values (LTE Band4 -Body) – AP OFF**

		Ambient Temperature: 22.5 °C			Liquid Temperature: 22.0 °C						
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.				(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	
1745	20300	1RB_Mid	Front	/	23.31	24	0.231	<b>0.27</b>	0.383	<b>0.45</b>	0.03
1745	20300	1RB_Mid	Rear	Fig.18	23.31	24	0.323	<b>0.38</b>	0.536	<b>0.63</b>	-0.06
1720	20050	50RB_High	Front	/	21.84	23	0.176	<b>0.23</b>	0.292	<b>0.38</b>	0.03
1720	20050	50RB_High	Rear	/	21.84	23	0.252	<b>0.33</b>	0.430	<b>0.56</b>	0.01

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table 14.1-19: SAR Values (LTEBand12 - Head)**

		Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
704	23060	1RB_Mid	Left	Touch	/	22.81	24	0.184	<b>0.24</b>	0.229	<b>0.30</b>	-0.11
704	23060	1RB_Mid	Left	Tilt	/	22.81	24	0.117	<b>0.15</b>	0.140	<b>0.18</b>	-0.05
704	23060	1RB_Mid	Right	Touch	Fig.19	22.81	24	0.217	<b>0.29</b>	0.275	<b>0.36</b>	-0.07
704	23060	1RB_Mid	Right	Tilt	/	22.81	24	0.155	<b>0.20</b>	0.193	<b>0.25</b>	0.01
711	23130	25RB_High	Left	Touch	/	21.53	23	0.167	<b>0.23</b>	0.209	<b>0.29</b>	0.11
711	23130	25RB_High	Left	Tilt	/	21.53	23	0.115	<b>0.16</b>	0.138	<b>0.19</b>	-0.09
711	23130	25RB_High	Right	Touch	/	21.53	23	0.187	<b>0.26</b>	0.240	<b>0.34</b>	0.08
711	23130	25RB_High	Right	Tilt	/	21.53	23	0.136	<b>0.19</b>	0.166	<b>0.23</b>	0.03

Note1: The LTE mode is QPSK\_10MHz.

**Table 14.1-20: SAR Values (LTE Band12-Body)**

		Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)	
MHz	Ch.											
704	23060	1RB_Mid	Front	/	22.81	24	0.261	<b>0.34</b>	0.289	<b>0.38</b>	0.01	
704	23060	1RB_Mid	Rear	Fig.20	22.81	24	0.290	<b>0.38</b>	0.482	<b>0.63</b>	-0.18	
704	23060	1RB_Mid	Left	/	22.81	24	0.152	<b>0.20</b>	0.223	<b>0.29</b>	-0.13	
704	23060	1RB_Mid	Right	/	22.81	24	0.216	<b>0.28</b>	0.315	<b>0.41</b>	-0.18	
704	23060	1RB_Mid	Bottom	/	22.81	24	0.071	<b>0.09</b>	0.120	<b>0.16</b>	0.09	
711	23130	25RB_High	Front	/	21.53	23	0.209	<b>0.29</b>	0.282	<b>0.40</b>	-0.02	
711	23130	25RB_High	Rear	/	21.53	23	0.252	<b>0.35</b>	0.403	<b>0.57</b>	0.04	
711	23130	25RB_High	Left	/	21.53	23	0.163	<b>0.23</b>	0.242	<b>0.34</b>	-0.02	
711	23130	25RB_High	Right	/	21.53	23	0.211	<b>0.30</b>	0.312	<b>0.44</b>	-0.04	
711	23130	25RB_High	Bottom	/	21.53	23	0.069	<b>0.10</b>	0.225	<b>0.32</b>	0.09	

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK\_10MHz.

## 14.2 SAR results for Standard procedure

There is zoom scan measurement to beaded for the highest measured SAR in each exposure configuration/band.

**Table 14.2-1: SAR Values (GSM 850 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
824.2	128	Right	Touch	Fig.1	31.89	33.5	0.116	0.17	0.151	0.22	0.03

**Table 14.2-2: SAR Values (GSM 850 MHz Band-Body)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Mode (number of timeslots)	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
848.8	251	GPRS (3)	Rear	Fig.2	27.64	28.7	0.134	0.17	0.275	0.35	0.03

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.2-3: SAR Values (GSM1900 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1850.2	512	Right	Touch	Fig.3	29.49	30.5	0.139	0.18	0.222	0.28	0.16

**Table 14.2-4: SAR Values (GSM 1900 MHz Band-Body)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Mode (number of timeslots)	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1880	661	GPRS (2)	Bottom	Fig.4	26.82	27.5	0.320	0.37	0.553	0.65	0.13

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.2-5: SAR Values (WCDMA850 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
846.6	4233	Right	Touch	Fig.5	22.84	24	0.118	0.15	0.154	0.20	0.02

**Table 14.2-6: SAR Values (WCDMA 850 MHz Band-Body)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
826.4	4132	Rear	Fig.6	22.99	24	0.233	<b>0.29</b>	0.301	<b>0.38</b>	0.06

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.2-7: SAR Values (WCDMA1700 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
1732.4	1412	Right	Touch	Fig.7	23.00	24	0.156	<b>0.20</b>	0.242	<b>0.30</b>	0.08

**Table 14.2-8: SAR Values (WCDMA1700 MHz Band-Body) – AP ON**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)	
MHz	Ch.										
1752.6	1513	Bottom	Fig.8	22.59	23	0.556	<b>0.61</b>	1.050	<b>1.15</b>	0.11	

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.2-9: SAR Values (WCDMA1700 MHz Band-Body) – AP OFF**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)	
MHz	Ch.										
1752.6	1513	Rear	Fig.9	23.05	24	0.313	<b>0.39</b>	0.501	<b>0.62</b>	-0.02	

Note: The distance between the EUT and the phantom bottom is 15mm.

**Table 14.2-10: SAR Values (WCDMA1900 MHz Band - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.										
1852.4	9262	Right	Touch	Fig.9	23.34	24	0.213	<b>0.25</b>	0.338	<b>0.39</b>	0.16

**Table 14.2-11: SAR Values (WCDMA1900 MHz Band-Body) – AP ON**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
1880	9400	Bottom	Fig.11	22.84	23	0.545	<b>0.57</b>	0.961	<b>1.00</b>	-0.04

Note: The distance between the EUT and the phantom bottom is 10mm.

**Table 14.2-12: SAR Values (WCDMA1900 MHz Band-Body) – AP OFF**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPower (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.									
1852.4	9262	Rear	Fig.12	23.34	24	0.298	<b>0.35</b>	0.486	<b>0.57</b>	0.02

Note: The distance between the EUT and the phantom bottom is 15mm.

**Table 14.2-13: SAR Values (LTE Band2 - Head)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C								
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)
MHz	Ch.											
1900	19100	1RB_Mid	Left	Touch	Fig.13	23.51	24	0.142	<b>0.16</b>	0.220	<b>0.25</b>	0.06

Note: The LTE mode is QPSK\_20MHz.

**Table 14.2-14: SAR Values (LTE Band2 -Body) – AP ON**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C								
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPo wer (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)	
MHz	Ch.											
1860	18700	1RB_Mid	Bottom	Fig.14	22.45	23	0.513	<b>0.58</b>	0.894	<b>1.02</b>	0.2	

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table 14.2-15: SAR Values (LTE Band2 -Body) – AP OFF**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C								
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-upPo wer (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g)(W/kg)	Power Drift (dB)	
MHz	Ch.											
1900	19100	1RB_Mid	Rear	Fig.15	23.51	24	0.311	<b>0.35</b>	0.507	<b>0.57</b>	0.17	

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table 14.2-16: SAR Values (LTE Band4 - Head)**

Ambient Temperature: 22.5 °C						Liquid Temperature: 22.0 °C						
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
1745	20300	1RB_Mid	Right	Touch	Fig.16	23.31	24	0.185	0.22	0.288	0.34	-0.04

Note: The LTE mode is QPSK\_20MHz.

**Table 14.2-17: SAR Values (LTE Band4 -Body) – AP ON**

Ambient Temperature: 22.5 °C						Liquid Temperature: 22.0 °C					
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1720	20050	1RB_Low	Rear	Fig.17	21.66	22	0.425	0.46	0.751	0.81	0.05

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table 14.2-18: SAR Values (LTE Band4 -Body) – AP OFF**

Ambient Temperature: 22.5 °C						Liquid Temperature: 22.0 °C					
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
1745	20300	1RB_Mid	Rear	Fig.18	23.31	24	0.323	0.38	0.536	0.63	-0.06

Note1: The distance between the EUT and the phantom bottom is 15mm.

Note2: The LTE mode is QPSK\_20MHz.

**Table 14.2-19: SAR Values (LTEBand12 - Head)**

Ambient Temperature: 22.5 °C						Liquid Temperature: 22.0 °C						
Frequency		Mode	Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.											
704	23060	1RB_Mid	Right	Touch	Fig.19	22.81	24	0.217	0.29	0.275	0.36	-0.07

Note1: The LTE mode is QPSK\_10MHz.

**Table 14.2-20: SAR Values (LTE Band12-Body)**

Ambient Temperature: 22.5 °C						Liquid Temperature: 22.0 °C					
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
704	23060	1RB_Low	Rear	Fig.20	22.81	24	0.290	0.38	0.482	0.63	-0.18

Note1: The distance between the EUT and the phantom bottom is 10mm.

Note2: The LTE mode is QPSK\_10MHz.

### 14.3 WLAN Evaluation

According to the KDB248227 D01, SAR is measured for 2.4GHz 802.11b DSSS using the initial test position procedure.

#### Head Evaluation

**Table 14.3-1: SAR Values (WLAN - Head) – 802.11b 1Mbps (Fast SAR)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
2437	6	Left	Touch	/	20.67	21	0.282	<b>0.30</b>	0.554	<b>0.60</b>	0.09
2437	6	Left	Tilt	/	20.67	21	0.268	<b>0.29</b>	0.524	<b>0.57</b>	0.06
2437	6	Right	Touch	/	20.67	21	0.143	<b>0.15</b>	0.262	<b>0.28</b>	-0.06
2437	6	Right	Tilt	/	20.67	21	0.158	<b>0.17</b>	0.321	<b>0.35</b>	0.01

As shown above table, the initial test position for head is “Left Touch”. So the head SAR of WLAN is presented as below:

**Table 14.3-2: SAR Values (WLAN - Head) – 802.11b 1Mbps (Full SAR)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C							
Frequency		Side	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.										
2437	6	Left	Touch	Fig.21	20.67	21	0.270	<b>0.29</b>	0.561	<b>0.61</b>	0.09
2437	6	Left	Tilt	/	20.67	21	0.257	<b>0.28</b>	0.531	<b>0.57</b>	0.06

Note1: When the reported SAR of the initial test position is  $> 0.4 \text{ W/kg}$ , SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is  $\leq 0.8 \text{ W/kg}$ .

Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is  $> 0.8 \text{ W/kg}$ , SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is  $\leq 1.2 \text{ W/kg}$  or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

**Table 14.3-3: SAR Values (WLAN - Head) – 802.11b 1Mbps (Scaled Reported SAR)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C			
Frequency		Side	Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)
MHz	Ch.						
2437	6	Left	Touch	97.62%	100%	<b>0.61</b>	<b>0.62</b>
2437	6	Right	Touch	97.62%	100%	<b>0.28</b>	<b>0.29</b>

SAR is not required for OFDM because the 802.11b adjusted SAR  $\leq 1.2 \text{ W/kg}$ .

### Body Evaluation

**Table 14.3-4: SAR Values (WLAN - Body) – 802.11b 1Mbps (Fast SAR)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.			(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
2437	6	Front	/	20.67	21	0.090	<b>0.10</b>	0.162	<b>0.17</b>	0.04
2437	6	Rear	/	20.67	21	0.091	<b>0.10</b>	0.179	<b>0.19</b>	0.00
2437	6	Right	/	20.67	21	0.076	<b>0.08</b>	0.159	<b>0.17</b>	0.06
2437	6	Top	/	20.67	21	0.091	<b>0.10</b>	0.171	<b>0.18</b>	-0.03

As shown above table, the initial test position for body is “Rear”. So the body SAR of WLAN is presented as below:

**Table 14.3-5: SAR Values (WLAN - Body) – 802.11b 1Mbps (Full SAR)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C						
Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
MHz	Ch.			(dBm)	(dBm)	(W/kg)	(W/kg)	(W/kg)	(W/kg)	(dB)
2437	6	Rear	Fig.22	20.67	21	0.091	<b>0.10</b>	0.180	<b>0.19</b>	0.00

Note1: When the reported SAR of the initial test position is  $> 0.4 \text{ W/kg}$ , SAR is repeated for the 802.11 transmission mode configuration tested in the initial test position using subsequent highest estimated 1-g SAR conditions determined by area scans, on the highest maximum output power channel, until the reported SAR is  $\leq 0.8 \text{ W/kg}$ .

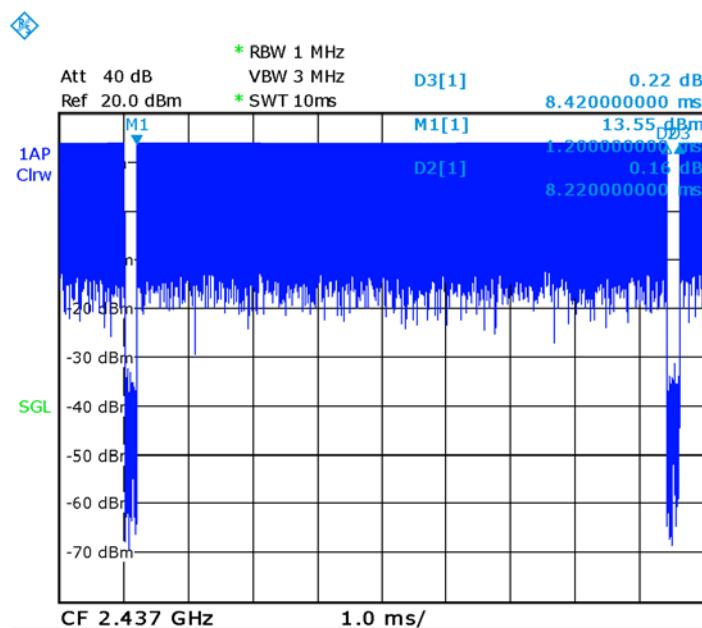
Note2: For all positions/configurations tested using the initial test position and subsequent test positions, when the reported SAR is  $> 0.8 \text{ W/kg}$ , SAR is measured for these test positions/configurations on the subsequent next highest measured output power channel until the reported SAR is  $\leq 1.2 \text{ W/kg}$  or all required channels are tested.

According to the KDB248227 D01, The reported SAR must be scaled to 100% transmission duty factor to determine compliance at the maximum tune-up tolerance limit. The scaled reported SAR is presented as below.

**Table 14.3-6: SAR Values (WLAN - Body) – 802.11b 1Mbps (Scaled Reported SAR)**

Ambient Temperature: 22.5 °C				Liquid Temperature: 22.0 °C			
Frequency		Test Position	Actual duty factor	maximum duty factor	Reported SAR (1g) (W/kg)	Scaled reported SAR (1g) (W/kg)	
MHz	Ch.			(W/kg)	(W/kg)	(W/kg)	
2437	6	Rear	97.62%	100%	<b>0.19</b>	<b>0.19</b>	

SAR is not required for OFDM because the 802.11b adjusted SAR  $\leq 1.2 \text{ W/kg}$ .



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**Picture 14.1 Duty factor plot**

## 15 SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is  $\geq 0.80$  W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is  $> 1.20$  or when the original or repeated measurement is  $\geq 1.45$  W/kg ( $\sim 10\%$  from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is  $\geq 1.5$  W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is  $> 1.20$ .

**Table 15.1: SAR Measurement Variability for Body WCDMA1700 (1g) – AP ON**

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
MHz	Ch.						
1752.6	1338	Bottom	10	1.05	1.04	1.01	/

**Table 15.2: SAR Measurement Variability for Body WCDMA1900 (1g) – AP ON**

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
MHz	Ch.						
1880	9400	Bottom	10	0.961	0.963	1.00	/

**Table 15.3: SAR Measurement Variability for Body LTE Band2 (1g) – AP ON**

Frequency		Test Position	Spacing (mm)	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio	Second Repeated SAR (W/kg)
MHz	Ch.						
1860	18700	Bottom	10	0.894	0.886	1.01	/

## 16 Measurement Uncertainty

### 16.1 Measurement Uncertainty for Normal SAR Tests (300MHz~3GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedo m
<b>Measurement system</b>										
1	Probe calibration	B	6.0	N	1	1	1	6.0	6.0	$\infty$
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	$\infty$
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	$\infty$
5	Detection limit	B	1.0	N	1	1	1	0.6	0.6	$\infty$
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	$\infty$
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	$\infty$
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	$\infty$
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	$\infty$
10	RF ambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	$\infty$
11	Probe positioned mech. restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	$\infty$
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	$\infty$
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
<b>Test sample related</b>										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	$\infty$
<b>Phantom and set-up</b>										
17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	$\infty$
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	$\infty$
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	$\infty$
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521

Combined standard uncertainty	$u_c = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$					9.55	9.43	257
Expanded uncertainty (confidence interval of 95 %)	$u_e = 2u_c$					19.1	18.9	

### 16.2 Measurement Uncertainty for Normal SAR Tests (3~6GHz)

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
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#### Measurement system

1	Probe calibration	B	6.55	N	1	1	1	6.55	6.55	$\infty$
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	$\infty$
3	Boundary effect	B	2.0	R	$\sqrt{3}$	1	1	1.2	1.2	$\infty$
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	$\infty$
5	Detection limit	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	$\infty$
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	$\infty$
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	$\infty$
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	$\infty$
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	$\infty$
10	RF ambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	$\infty$
11	Probe positioned mech. restrictions	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	$\infty$
12	Probe positioning with respect to phantom shell	B	6.7	R	$\sqrt{3}$	1	1	3.9	3.9	$\infty$
13	Post-processing	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	$\infty$

#### Test sample related

14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	$\infty$

#### Phantom and set-up

17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	$\infty$
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	$\infty$
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43