

APPENDIX D: ANTENNA GROUPING ANALYSIS & JUSTIFICATION

D.1 Sub6 Antenna Groups

The 2nd generation of Smart Transmit (GEN2) operates based on pre-defined sub6 antenna groups (AG) and mmW module groups (MG). Sub6 Tx antennas in the device are grouped based on spatial variation of RF exposure distributions, where the RF exposure of one AG is mutually exclusive from other AG. This is accomplished by demonstrating either of below conditions for all exposure scenarios:

- a) Sum of SAR of one antenna from each of the sub6 AGs and the RF exposure from radios outside Smart Transmit is less than regulatory limits. This condition must be demonstrated for all antenna combinations of sub6 AGs.

(or)

- b) Every antenna from each sub6 AG meets SPLSR criteria (Section 4.3.2(c) in FCC KDB 447498 D01) with every antenna from another sub6 AG. This criteria must be demonstrated for all antenna combinations for each pair of AGs.

This device supports two sub6 AG: AG0 and AG1, with AG0 having 4 antennas (A, B, C, D) and AG1 having 4 antennas (E, F, G, H), and two WIFI/BT antennas outside of Smart Transmit. The conditions are verified through the following criterias:



i) (SAR1 + SAR2 criteria): If SPLSR criteria is not used, then the highest reported SAR at P_{limit} (or P_{max} when $P_{limit} > P_{max}$) for each antenna should be obtained out of all supported technologies and frequency bands for each DSI. Demonstrate that the sum of reported SAR of one antenna from each of the sub6 AGs and the sum of RF exposure from all supported radios outside of Smart Transmit should be less than the regulatory limit as given below for each DSI.

1. Obtain the worst-case reported SAR for each antenna group (i.e., maximum reported SAR at P_{limit} (or P_{max} when $P_{limit} > P_{max}$) out of all supported technologies, frequency bands and antennas in AG0 and AG1), denoted as max.SAR.AG0 and max.SAR.AG1, and obtain the worst-case RF exposure for each external radio, and demonstrate that the sum of these RF exposures meets: $\{ [\text{max.SAR.AG0} + \text{max.SAR.AG1}] + \text{WIFI/BT Ant 1} + \text{WIFI/BT Ant 2} \} \leq 1.6$ (for 1g, or 4.0 for 10g).

ii) (SPLSR criteria): For each antenna, obtain the highest reported SAR value at P_{limit} out of all supported technologies for each frequency band. Using these values, demonstrate for a given DSI that every antenna from one sub6 AG meets SPLSR criteria with every antenna in another sub6 AG for all frequency bands. This criteria must be demonstrated for all antenna pair combinations irrespective of supported simultaneous transmission scenarios as given below for each DSI:

- SPLSR criteria should be met for all antenna pair combinations of AG0 and AG1: {antenna (A, B, C, D) in AG0; antenna (E, F, G, H) in AG1. As it can be seen, these include all combinations of antenna groups, antennas, and frequency bands.

iii) (combination of SPLSR & SAR1+SAR2 criteria): If SPLSR criteria for all the combinations of sub6 antenna groups in (i) is demonstrated to show that each AG is mutually exclusive from other AGs, and if the WIFI/BT antennas supported outside of Smart Transmit do not meet SPLSR criteria, then the condition in (ii) reduces to: $\{ \text{max.SAR.AG0} + \text{WIFI/BT Ant 1} + \text{WIFI/BT Ant 2} \} \leq 1.6$ and $\{ \text{max.SAR.AG1} + \text{WIFI/BT Ant 1} + \text{WIFI/BT Ant 2} \} \leq 1.6$ for compliance demonstration (for 1g, or 4.0 for 10g).

FCC ID A3LSMS901E	 PCTEST Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 1 of 14

If SPLSR criteria evaluation and analysis is needed to determine compliance for a certain DSI configuration, SPLSR is performed by taking the highest reported SAR for each of the supported technologies and bands per antenna, along with the peak SAR locations. Per Qualcomm guidance, only Y-axis coordinates are recorded in the analysis for calculation simplicity (assumes all 0mm of separation on the x-axis). Peak locations are documented in Section D.7 below for each DSI configuration.

For bottom AG0, Y_max coordinate represents the worst case hotspot location that is closest to the top AG1. Similarly, for top AG1, Y_min coordinate represents the worst case hotspot location that is closest to the bottom AG0.

The following formula is used to calculate the SPLSR between AG0 and AG1 for each exposure configuration:

$$SPLSR = \frac{(Max\ SAR\ AG0 + Max\ SAR\ AG1)^{1.5}}{|Y_{max} - Y_{min}|}$$

D.2 Head (DSI = 2) SAR Antenna Group Analysis

Table D-1
DSI=2 Held-to-ear AG0 Highest Reported SAR

AG0						
Head SAR	Configuration	A	B	C	D	Max
	Right Cheek	0.432	0.059	0.011	0.006	0.432
	Right Tilt	0.222	0.033	0.018	0.005	0.222
	Left Cheek	0.325	0.059	0.039	0.010	0.325
	Left Tilt	0.210	0.059	0.005	0.010	0.210

Table D-2
DSI=2 Held-to-ear AG1 Highest Reported SAR

AG1						
Head SAR	Configuration	E	F	G	H	Max
	Right Cheek	0.310	0.422	0.584	0.020	0.584
	Right Tilt	0.298	0.616	0.365	0.023	0.616
	Left Cheek	0.261	0.911	0.142	0.027	0.911
	Left Tilt	0.238	1.041	0.141	0.052	1.041

Please refer to Table E-1 in Appendix E for highest reported simultaneous held-to-ear SAR of WLAN/BT antennas.





FCC ID A3LSMS901E	 PCTEST Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 2 of 14

Table D-3
DSI=2 Held-to-ear AG Verification

Configuration	AG0	AG1	WLAN/BT Worst-case Combination	AG0 + AG1 + WLAN/BT Worst-case
Right Cheek	0.432	0.584	1.003	See Table Below
Right Tilt	0.222	0.616	0.723	1.561
Left Cheek	0.325	0.911	0.673	See Table Below
Left Tilt	0.210	1.041	0.216	1.467



Right Cheek							
Ant Combination	AG0		AG1		WLAN/BT Worst-case	AG0 + AG1 + WLAN/BT	SPLSR
	SAR	Position	SAR	Position			
Ant A-Ant E	0.432	-61.700	0.310	2.900	1.003	See Note 2	0.01
Ant A-Ant F	0.432	-61.700	0.422	2.210	1.003	See Note 2	0.01
Ant A-Ant G	0.432	-61.700	0.584	-19.340	1.003	See Note 2	0.02
Ant A-Ant H	0.432	N/A	0.020	N/A	1.003	1.455	N/A
Ant B-Ant E	0.043	N/A	0.310	N/A	1.003	1.356	N/A
Ant B-Ant F	0.043	N/A	0.422	N/A	1.003	1.468	N/A
Ant B-Ant G	0.043	-69.600	0.584	-19.340	1.003	See Note 2	0.01
Ant B-Ant H	0.043	N/A	0.020	N/A	1.003	1.066	N/A
Ant C-Ant E	0.011	N/A	0.310	N/A	1.003	1.324	N/A
Ant C-Ant F	0.011	N/A	0.422	N/A	1.003	1.436	N/A
Ant C-Ant G	0.011	-83.444	0.584	-19.340	1.003	See Note 2	0.01
Ant C-Ant H	0.011	N/A	0.020	N/A	1.003	1.034	N/A
Ant D-Ant E	0.006	N/A	0.310	N/A	1.003	1.319	N/A
Ant D-Ant F	0.006	N/A	0.422	N/A	1.003	1.431	N/A
Ant D-Ant G	0.006	N/A	0.584	N/A	1.003	1.593	N/A
Ant D-Ant H	0.006	N/A	0.020	N/A	1.003	1.029	N/A

Left Cheek							
Ant Combination	AG0		AG1		WLAN/BT Worst-case	AG0 + AG1 + WLAN/BT	SPLSR
	SAR	Position	SAR	Position			
Ant A-Ant E	0.325	N/A	0.261	N/A	0.673	1.259	N/A
Ant A-Ant F	0.325	-53.960	0.911	1.480	0.673	See Note 2	0.02
Ant A-Ant G	0.325	N/A	0.142	N/A	0.673	1.140	N/A
Ant A-Ant H	0.325	N/A	0.027	N/A	0.673	1.025	N/A
Ant B-Ant E	0.059	N/A	0.261	N/A	0.673	0.993	N/A
Ant B-Ant F	0.059	-76.840	0.911	1.480	0.673	See Note 2	0.01
Ant B-Ant G	0.059	N/A	0.142	N/A	0.673	0.874	N/A
Ant B-Ant H	0.059	N/A	0.027	N/A	0.673	0.759	N/A
Ant C-Ant E	0.039	N/A	0.261	N/A	0.673	0.973	N/A
Ant C-Ant F	0.039	-70.810	0.911	1.480	0.673	See Note 2	0.01
Ant C-Ant G	0.039	N/A	0.142	N/A	0.673	0.854	N/A
Ant C-Ant H	0.039	N/A	0.027	N/A	0.673	0.739	N/A
Ant D-Ant E	0.010	N/A	0.261	N/A	0.673	0.944	N/A
Ant D-Ant F	0.010	N/A	0.911	N/A	0.673	1.594	N/A
Ant D-Ant G	0.010	N/A	0.142	N/A	0.673	0.825	N/A
Ant D-Ant H	0.010	N/A	0.027	N/A	0.673	0.710	N/A

FCC ID A3LSMS901E		SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 3 of 14

Notes:

1. For all combinations where the sum of AG0+AG1+WLAN/BT is less than 1.6 W/kg, there's no further analysis required for compliance demonstration.
2. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. Please see Section D.7 for Y-axis peak locations

FCC ID A3LSMS901E	 PCTEST <small>Proud to be part of element</small>	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 4 of 14

D.3 Body-worn (DSI = 0) SAR Antenna Group Analysis

Table D-4
DSI=0 Body-worn AG0 Highest Reported SAR

AG0						
Bodyworn SAR	Configuration	A	B	C	D	Max
	Back	0.946	0.194	0.016	0.108	0.946

Table D-5
DSI=0 Body-worn AG1 Highest Reported SAR

AG1						
Bodyworn SAR	Configuration	E	F	G	H	Max
	Back	0.019	0.251	0.181	0.118	0.251

Please refer to Table E-3 in Appendix E for highest reported simultaneous body-worn SAR of WLAN/BT antennas.

Table D-6
DSI=0 Body-worn AG Verification

	Configuration	AG0	AG1	WLAN/BT Worst-case Combination	AG0 + AG1 + WLAN/BT Worst-case
Bodyworn SAR	Back	0.946	0.251	0.338	1.535

Notes:

1. For all combinations where the sum of AG0+AG1+WLAN/BT is less than 1.6 W/kg, there's no further analysis required for compliance demonstration.

D.4 Hotspot (DSI = 3) SAR Antenna Group Analysis

Table D-7
DSI=3 Hotspot AG0 Highest Reported SAR

AG0						
Hotspot SAR	Configuration	A	B	C	D	Max
	Back	0.811	0.328	0.043	0.287	0.811
	Front	0.594	0.396	0.025	0.012	0.594
	Top	0.000	0.000	0.000	0.000	-
	Bottom	1.174	1.083	0.017	0.016	1.174
	Right	0.636	0.000	0.000	0.007	0.636
	Left	0.440	0.393	0.063	0.000	0.440



FCC ID A3LSMS901E	 PCTEST <small>Proud to be part of element</small>	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 5 of 14

Table D-8
DSI=3 Hotspot AG1 Highest Reported SAR



AG1						
Hotspot SAR	Configuration	E	F	G	H	Max
	Back	0.034	0.457	0.317	0.355	0.457
	Front	0.070	0.344	0.198	0.003	0.344
	Top	0.046	0.787	0.160	0.021	0.787
	Bottom	0.000	0.000	0.000	0.000	-
	Right	0.001	0.189	0.000	0.000	0.189
	Left	0.023	0.000	0.604	0.010	0.604

Please refer to Table E-5 in Appendix E for highest reported simultaneous hotspot SAR of WLAN/BT antennas.

Table D-9
DSI=3 Hotspot AG Verification

	Configuration	AG0	AG1	WLAN/BT	AG0 + AG1 +
				Worst-case Combination	WLAN/BT Worst- case
Hotspot SAR	Back	0.811	0.457	0.535	See Table Below
	Front	0.594	0.344	0.477	1.415
	Top	0.000	0.787	0.420	1.207
	Bottom	1.174	0.000	-	1.174
	Right	0.636	0.189	-	0.825
	Left	0.440	0.604	0.510	1.554

Back							
Ant Combination	AG0		AG1		WLAN/BT Worst-case	AG0 + AG1 + WLAN/BT	SPLSR
	SAR	Position	SAR	Position			
Ant A-Ant E	0.811	N/A	0.034	N/A	0.535	1.380	N/A
Ant A-Ant F	0.811	-48.270	0.457	60.500	0.535	See Note 2	0.01
Ant A-Ant G	0.811	-48.270	0.317	53.500	0.535	See Note 2	0.01
Ant A-Ant H	0.811	-48.270	0.355	56.000	0.535	See Note 2	0.01
Ant B-Ant E	0.328	N/A	0.034	N/A	0.535	0.897	N/A
Ant B-Ant F	0.328	N/A	0.457	N/A	0.535	1.320	N/A
Ant B-Ant G	0.328	N/A	0.317	N/A	0.535	1.180	N/A
Ant B-Ant H	0.328	N/A	0.355	N/A	0.535	1.218	N/A
Ant C-Ant E	0.043	N/A	0.034	N/A	0.535	0.612	N/A
Ant C-Ant F	0.043	N/A	0.457	N/A	0.535	1.035	N/A
Ant C-Ant G	0.043	N/A	0.317	N/A	0.535	0.895	N/A
Ant C-Ant H	0.043	N/A	0.355	N/A	0.535	0.933	N/A
Ant D-Ant E	0.287	N/A	0.034	N/A	0.535	0.856	N/A
Ant D-Ant F	0.287	N/A	0.457	N/A	0.535	1.279	N/A
Ant D-Ant G	0.287	N/A	0.317	N/A	0.535	1.139	N/A
Ant D-Ant H	0.287	N/A	0.355	N/A	0.535	1.177	N/A

FCC ID A3LSMS901E	 PCTEST <small>Proud to be part of element</small>	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 6 of 14

Notes:

1. For all combinations where the sum of AG0+AG1+WLAN/BT is less than 1.6, there's no further analysis required for compliance demonstration.
2. No evaluation was performed to determine the aggregate 1g SAR for these configurations as the SPLS ratio between the antenna pairs was not greater than 0.04 per FCC KDB 447498 D01v06. Please see Section D.7 for Y-axis peak locations.

D.5 Max Phablet (DSI = 0) SAR Antenna Group Analysis

Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required if wireless router 1g SAR (scaled to the maximum output power, including tolerance) < 1.2 W/kg. Therefore, no further analysis beyond the tables included in this section was required to determine that possible simultaneous transmission scenarios would not exceed the SAR limit.

Table D-10
DSI=0 Max Phablet AG0 Highest Reported SAR

AG0						
Phablet SAR	Configuration	A	B	C	D	Max
	Back	1.141	0.235	0.000	0.000	1.141
	Front	1.338	0.316	0.000	0.000	1.338
	Top	0.000	0.000	0.000	0.000	-
	Bottom	1.036	0.719	0.000	0.000	1.036
	Right	0.466	0.000	0.000	0.000	0.466
	Left	1.209	1.152	0.000	0.000	1.209

Table D-11
DSI=0 Max Phablet AG1 Highest Reported SAR

AG1						
Phablet SAR	Configuration	E	F	G	H	Max
	Back	0.000	0.000	1.097	1.230	1.230
	Front	0.000	0.000	0.000	0.000	-
	Top	0.000	0.000	0.000	0.000	-
	Bottom	0.000	0.000	0.000	0.000	-
	Right	0.000	0.000	0.000	0.000	-
	Left	0.000	0.000	3.135	0.000	3.135

Please refer to Table E-7 in Appendix E for highest reported simultaneous phablet SAR of WLAN/BT antennas.



FCC ID A3LSMS901E	 PCTEST Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 7 of 14

Table D-12
DSI=0 Max Phablet AG Verification

	Configuration	AG0	AG1	WLAN/BT Worst-case Combination	AG0 + AG1 + WLAN/BT Worst-case
Phablet SAR	Back	1.141	1.230	1.027	3.398
	Front	1.338	0.000	1.331	2.669
	Top	0.000	0.000	1.331	1.331
	Bottom	1.036	0.000	-	1.036
	Right	0.466	0.000	-	0.466
	Left	1.209	3.135	1.331	See Table Below

Left							
Ant Combination	AG0		AG1		WLAN/BT Worst-case	AG0 + AG1 + WLAN/BT	SPLSR
	SAR	Position	SAR	Position			
Ant A-Ant G	1.209	-53.000	3.135	56.500	1.331	See Note 2	0.08
Ant B-Ant G	1.152	-58.200	3.135	56.500	1.331	See Note 2	0.08

Notes:

1. For all combinations where the sum of AG0+AG1+WLAN/BT is less than 4W/kg, there's no further analysis required for compliance demonstration.
2. No evaluation was performed to determine the aggregate 10g SAR for these configurations as the SPLSR ratio between the antenna pairs was not greater than 0.10 per FCC KDB 447498 D01v06. Please see Section D.7 for Y-axis peak locations.

D.6 Reduced Phablet (DSI = 1) SAR Antenna Group Analysis

Per FCC KDB Publication 648474 D04 Handset SAR, Phablet SAR tests were not required if wireless router 1g SAR (scaled to the maximum output power, including tolerance) < 1.2 W/kg. Therefore, no further analysis beyond the tables included in this section was required to determine that possible simultaneous transmission scenarios would not exceed the SAR limit.

Table D-13
DSI=1 Reduced Phablet AG0 Highest Reported SAR

AG0						
Phablet SAR	Configuration	A	B	C	D	Max
	Back	1.997	2.925	0.000	0.000	2.925
	Front	1.634	1.497	0.000	0.000	1.634
	Top	0.000	0.000	0.000	0.000	-
	Bottom	2.234	1.828	0.000	0.000	2.234
	Right	0.466	0.000	0.000	0.000	0.466
	Left	1.209	0.000	0.000	0.000	1.209



FCC ID A3LSMS901E	 PCTEST Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 8 of 14

Table D-14
DSI=1 Reduced Phablet AG1 Highest Reported SAR

AG1						
Phablet SAR	Configuration	E	F	G	H	Max
	Back	0.000	0.000	1.097	1.230	1.230
	Front	0.000	0.000	0.000	0.000	-
	Top	0.000	0.000	0.000	0.000	-
	Bottom	0.000	0.000	0.000	0.000	-
	Right	0.000	0.000	0.000	0.000	-
	Left	0.000	0.000	3.135	0.000	3.135

Please refer to Table E-17 in Appendix E for highest reported simultaneous phablet SAR of WLAN/BT antennas.

Table D-15
DSI=1 Reduced Phablet AG Verification



	Configuration	AG0	AG1	WLAN/BT	AG0 + AG1 +
				Worst-case Combination	WLAN/BT Worst- case
Phablet SAR	Back	2.925	1.230	1.027	See Table Below
	Front	1.634	0.000	1.331	2.965
	Top	0.000	0.000	1.331	1.331
	Bottom	2.234	0.000	-	2.234
	Right	0.466	0.000	-	0.466
	Left	1.209	3.135	1.331	See Table Below

Back							
Ant Combination	AG0		AG1		WLAN/BT Worst-case	AG0 + AG1 + WLAN/BT	SPLSR
	SAR	Position	SAR	Position			
Ant A-Ant G	1.997	-62.700	1.097	58.500	1.027	See Note 2	0.04
Ant A-Ant H	1.997	-62.700	1.230	57.800	1.027	See Note 2	0.05
Ant B-Ant G	2.925	-74.600	1.097	58.500	1.027	See Note 2	0.06
Ant B-Ant H	2.925	-74.600	1.230	57.800	1.027	See Note 2	0.06

Left							
Ant Combination	AG0		AG1		WLAN/BT Worst-case	AG0 + AG1 + WLAN/BT	SPLSR
	SAR	Position	SAR	Position			
Ant A-Ant G	1.209	-53.000	3.135	56.500	1.331	See Note 2	0.08
Ant B-Ant G	1.152	-58.200	3.135	56.500	1.331	See Note 2	0.08

Notes:

- For all combinations where the sum of AG0+AG1+WLAN/BT is less than 4W/kg, there's no further analysis required for compliance demonstration.
- No evaluation was performed to determine the aggregate 10g SAR for these configurations as the SPLSR ratio between the antenna pairs was not greater than 0.10 per FCC KDB 447498 D01v06. Please see Section D.7 for Y-axis peak locations.

FCC ID A3LSMS901E	 PCTEST <small>Proud to be part of element</small>	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 9 of 14

D.7 Highest Report SAR and SAR Hotspot Locations

As a conservative assessment, the distances between AG0 and AG1 were determined using the y-axis coordinates of the peak locations only (assumes 0 mm separation on x/z axis)

Table D-16
DSI=2 Right Cheek Peak Y Coordinates

		AG0		AG1		
		A	B	E	F	G
Mode/Band	Distance (mm)	0	0	0	0	0
GSM 850	SAR	0.265				
	Y-Axis	-64.590				
GSM 1900	SAR	0.037				
	Y-Axis	-79.690				
UMTS 850	SAR	0.432				
	Y-Axis	-68.170				
UMTS 1750	SAR	0.096				
	Y-Axis	-61.730				
UMTS 1900	SAR	0.130				
	Y-Axis	-61.900				
LTE Band 12	SAR	0.090				
	Y-Axis	-66.340				
LTE Band 13	SAR	0.223				
	Y-Axis	-66.560				
LTE Band 26 (Cell)	SAR	0.258				
	Y-Axis	-63.200				
LTE Band 66 (AWS)	SAR	0.097				
	Y-Axis	-61.700				
LTE Band 4 (AWS)	SAR				0.238	
	Y-Axis				2.210	
LTE Band 25 (PCS)	SAR	0.089				
	Y-Axis	-86.560				
LTE Band 41	SAR		0.043			
	Y-Axis		-69.600			
NR Band n12	SAR	0.094				
	Y-Axis	-72.498				
NR Band n5 (Cell)	SAR	0.220				
	Y-Axis	-67.030				
NR Band n66 (AWS)	SAR	0.180				
	Y-Axis	-84.830				
NR Band n25 (PCS)	SAR	0.174				
	Y-Axis	-73.010				
NR Band n66 (AWS)	SAR				0.323	
	Y-Axis				3.190	
NR Band n41	SAR				0.422	
	Y-Axis				3.420	
NR Band n41	SAR		0.025			
	Y-Axis		-74.690			
NR Band n41	SAR			0.310		
	Y-Axis			2.900		
NR Band n77 DoD	SAR					0.554
	Y-Axis					-15.450
NR Band n77	SAR					0.584
	Y-Axis					-19.340



FCC ID A3LSMS901E	 PCTEST Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 10 of 14

Table D-17
DSI=2 Left Cheek Peak Y Coordinates

		AG0			AG1
		A	B	C	F
Mode/Band	Distance (mm)	0	0	0	0
GSM 850	SAR	0.203			
	Y-Axis	-64.830			
GSM 1900	SAR	0.110			
	Y-Axis	-75.030			
UMTS 850	SAR	0.325			
	Y-Axis	-66.300			
UMTS 1750	SAR	0.211			
	Y-Axis	-76.920			
UMTS 1900	SAR	0.222			
	Y-Axis	-72.390			
LTE Band 12	SAR	0.102			
	Y-Axis	-71.350			
LTE Band 13	SAR	0.165			
	Y-Axis	-64.770			
LTE Band 26 (Cell)	SAR	0.208			
	Y-Axis	-63.270			
LTE Band 66 (AWS)	SAR	0.201			
	Y-Axis	-74.890			
LTE Band 4 (AWS)	SAR				0.378
	Y-Axis				1.480
LTE Band 25 (PCS)	SAR	0.195			
	Y-Axis	-73.070			
LTE Band 41	SAR		0.043		
	Y-Axis		-87.900		
NR Band n12	SAR	0.098			
	Y-Axis	-66.939			
NR Band n5 (Cell)	SAR	0.202			
	Y-Axis	-53.960			
NR Band n66 (AWS)	SAR	0.305			
	Y-Axis	-78.450			
NR Band n25 (PCS)	SAR	0.213			
	Y-Axis	-73.010			
NR Band n66 (AWS)	SAR				0.601
	Y-Axis				1.950
NR Band n41	SAR				0.911
	Y-Axis				1.990
NR Band n41	SAR		0.033		
	Y-Axis		-76.840		
NR Band n77 DoD	SAR			0.039	
	Y-Axis			-74.710	
NR Band n77	SAR			0.007	
	Y-Axis			-70.810	



FCC ID A3LSMS901E	 PCTEST <small>Proud to be part of element</small>	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 11 of 14

Table D-18
DSI=3 Back Side Peak Y Coordinates

		AG0	AG1		
		A	F	G	H
Mode/Band	Distance (mm)	10	10	10	10
GSM 850	SAR	0.785			
	Y-Axis	-60.080			
GSM 1900	SAR	0.488			
	Y-Axis	-70.900			
UMTS 850	SAR	0.811			
	Y-Axis	-60.180			
UMTS 1750	SAR	0.441			
	Y-Axis	-71.400			
UMTS 1900	SAR	0.430			
	Y-Axis	-77.100			
LTE Band 12	SAR	0.255			
	Y-Axis	-48.270			
LTE Band 13	SAR	0.407			
	Y-Axis	-52.980			
LTE Band 26 (Cell)	SAR	0.497			
	Y-Axis	-61.680			
LTE Band 66 (AWS)	SAR	0.497			
	Y-Axis	-76.600			
LTE Band 4 (AWS)	SAR		0.103		
	Y-Axis		74.600		
LTE Band 25 (PCS)	SAR	0.422			
	Y-Axis	-74.100			
NR Band n5 (Cell)	SAR	0.488			
	Y-Axis	-60.200			
NR Band n66 (AWS)	SAR	0.550			
	Y-Axis	-74.600			
NR Band n25 (PCS)	SAR	0.725			
	Y-Axis	-70.400			
NR Band n66 (AWS)	SAR		0.457		
	Y-Axis		70.000		
NR Band n41	SAR		0.171		
	Y-Axis		60.500		
NR Band n77 DoD	SAR			0.233	
	Y-Axis			55.000	
NR Band n77 DoD	SAR				0.355
	Y-Axis				56.000
NR Band n77	SAR			0.317	
	Y-Axis			53.500	
NR Band n77	SAR				0.102
	Y-Axis				59.000



FCC ID A3LSMS901E	 PCTEST Proud to be part of element	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 12 of 14

Table D-19
DSI=0 Left Edge Max Phablet and DSI=1 Left Edge Reduced Phablet Peak Y Coordinates

		AG0		AG1
		A	B	G
Mode/Band	Distance (mm)	0	0	0
GSM 1900	SAR	0.758		
	Y-Axis	-54.900		
UMTS 1750	SAR	0.932		
	Y-Axis	-53.000		
UMTS 1900	SAR	1.113		
	Y-Axis	-61.300		
LTE Band 66 (AWS)	SAR	0.613		
	Y-Axis	-67.600		
LTE Band 25 (PCS)	SAR	0.773		
	Y-Axis	-64.600		
LTE Band 41	SAR		1.152	
	Y-Axis		-58.200	
NR Band n66 (AWS)	SAR	1.209		
	Y-Axis	-57.000		
NR Band n25 (PCS)	SAR	1.174		
	Y-Axis	-64.400		
NR Band n77 DoD	SAR			2.695
	Y-Axis			56.500
NR Band n77	SAR			3.135
	Y-Axis			56.500







FCC ID A3LSMS901E	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 13 of 14

Table D-20
DSI=1 Back Side Reduced Phablet Peak Y Coordinates

		AG0		AG1	
		A	B	G	H
Mode/Band	Distance (mm)	0	0	0	0
GSM 1900	SAR	0.781			
	Y-Axis	-68.100			
UMTS 1750	SAR	1.542			
	Y-Axis	-62.700			
UMTS 1900	SAR	1.153			
	Y-Axis	-68.000			
LTE Band 66 (AWS)	SAR	1.184			
	Y-Axis	-73.900			
LTE Band 25 (PCS)	SAR	1.164			
	Y-Axis	-70.000			
LTE Band 41	SAR		2.925		
	Y-Axis		-74.600		
NR Band n66 (AWS)	SAR	1.805			
	Y-Axis	-70.200			
NR Band n25 (PCS)	SAR	1.997			
	Y-Axis	-71.800			
NR Band n77 DoD	SAR				1.230
	Y-Axis				57.800
NR Band n77	SAR			1.097	
	Y-Axis			58.500	

D.8 Conclusion

The above SPLSR criteria for all of the combinations of sub6 antenna groups is demonstrated to show that AG0 is mutually exclusive from AG1. Additional analysis for simultaneous analysis for the antenna groups and WIFI/BT antennas compliance demonstration is included in Appendix E

FCC ID A3LSMS901E	 PCTEST Proud to be part of 	SAR EVALUATION REPORT		Approved by: Quality Manager
Test Dates: 02/16/22 – 03/07/22	DUT Type: Portable Handset			APPENDIX D: Page 14 of 14