



APPENDIX D: SAR SYSTEM VALIDATION

Per FCC KDB Publication 865664 D02v01r02, SAR system validation status should be documented to confirm measurement accuracy. The SAR systems (including SAR probes, system components and software versions) used for this device were validated against its performance specifications prior to the SAR measurements. Reference dipoles were used with the required tissue- equivalent media for system validation, according to the procedures outlined in FCC KDB Publication 865664 D01v01r04 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point, using the system that normally operates with the probe for routine SAR measurements and according to the required tissue-equivalent media.

A tabulated summary of the system validation status including the validation date(s), measurement frequencies, SAR probes and tissue dielectric parameters has been included.

**Table D-1
SAR System Validation Summary – 1g**



SAR System	Freq. (MHz)	Date	Probe SN	Probe Cal Point		Cond. (σ)	Perm. (ε _r)	CW VALIDATION			MOD. VALIDATION		
								SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
H	750	12/22/2020	7357	750	Head	0.881	42.984	PASS	PASS	PASS	N/A	N/A	N/A
P	835	9/10/2020	7308	835	Head	0.936	43.187	PASS	PASS	PASS	GMSK	PASS	N/A
D	835	2/2/2021	3589	835	Head	0.927	41.192	PASS	PASS	PASS	GMSK	PASS	N/A
H	1750	1/19/2021	7357	1750	Head	1.399	39.491	PASS	PASS	PASS	N/A	N/A	N/A
L	1900	11/25/2020	7539	1900	Head	1.402	40.110	PASS	PASS	PASS	GMSK	PASS	N/A
H	1900	5/12/2020	7357	1900	Head	1.456	38.734	PASS	PASS	PASS	GMSK	PASS	N/A
P	1900	9/10/2020	7308	1900	Head	1.442	40.894	PASS	PASS	PASS	GMSK	PASS	N/A
P	2300	9/9/2020	7308	2300	Head	1.750	41.206	PASS	PASS	PASS	N/A	N/A	N/A
P	2450	9/9/2020	7308	2450	Head	1.865	40.971	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
E	2450	1/7/2021	7571	2450	Head	1.847	39.716	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
P	2600	9/9/2020	7308	2600	Head	1.992	40.743	PASS	PASS	PASS	TDD	PASS	N/A
D	3500	1/29/2021	3589	3500	Head	2.787	37.327	PASS	PASS	PASS	TDD	PASS	N/A
D	3700	1/28/2021	3589	3700	Head	2.977	36.981	PASS	PASS	PASS	TDD	PASS	N/A
D	3900	2/10/2021	3589	3900	Head	3.217	36.609	PASS	PASS	PASS	TDD	PASS	N/A
H	5250	5/7/2020	7357	5250	Head	4.644	35.124	PASS	PASS	PASS	OFDM	N/A	PASS
H	5600	5/7/2020	7357	5600	Head	5.030	34.514	PASS	PASS	PASS	OFDM	N/A	PASS
H	5750	5/7/2020	7357	5750	Head	5.207	34.257	PASS	PASS	PASS	OFDM	N/A	PASS
L	750	12/17/2020	7539	750	Body	0.941	57.099	PASS	PASS	PASS	N/A	N/A	N/A
E	750	2/2/2021	7571	750	Body	0.928	56.169	PASS	PASS	PASS	N/A	N/A	N/A
D	835	1/7/2021	7552	835	Body	0.956	54.674	PASS	PASS	PASS	GMSK	PASS	N/A
P	835	9/8/2020	7308	835	Body	0.977	54.534	PASS	PASS	PASS	GMSK	PASS	N/A
G	1750	1/26/2021	7406	1750	Body	1.531	50.902	PASS	PASS	PASS	N/A	N/A	N/A
J	1900	12/3/2020	7410	1900	Body	1.561	52.634	PASS	PASS	PASS	GMSK	PASS	N/A
I	1900	1/5/2021	7551	1900	Body	1.520	53.063	PASS	PASS	PASS	GMSK	PASS	N/A
K	2300	7/7/2020	7409	2300	Body	1.850	51.591	PASS	PASS	PASS	N/A	N/A	N/A
P	2450	9/9/2020	7308	2450	Body	2.028	52.651	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	2450	7/7/2020	7409	2450	Body	2.018	51.176	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	2600	7/8/2020	7409	2600	Body	2.194	50.726	PASS	PASS	PASS	TDD	PASS	N/A
L	3500	11/5/2020	7539	3500	Body	3.176	50.634	PASS	PASS	PASS	TDD	PASS	N/A
L	3700	11/3/2020	7539	3700	Body	3.423	50.883	PASS	PASS	PASS	TDD	PASS	N/A
L	3900	11/2/2020	7539	3900	Body	3.674	50.519	PASS	PASS	PASS	TDD	PASS	N/A
G	5250	11/2/2020	7406	5250	Body	5.533	47.077	PASS	PASS	PASS	OFDM	N/A	PASS
G	5600	11/2/2020	7406	5600	Body	6.006	46.433	PASS	PASS	PASS	OFDM	N/A	PASS
G	5750	11/2/2020	7406	5750	Body	6.210	46.185	PASS	PASS	PASS	OFDM	N/A	PASS

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Test Dates: 01/12/21 – 02/19/21	DUT Type: Portable Handset			APPENDIX D: Page 1 of 2

**Table D-2
SAR System Validation Summary – 10g**

SAR System	Freq. (MHz)	Date	Probe SN	Probe Cal Point		Cond. (σ)	Perm. (εr)	CW VALIDATION			MOD. VALIDATION		
								SENSITIVITY	PROBE LINEARITY	PROBE ISOTROPY	MOD. TYPE	DUTY FACTOR	PAR
G	1750	1/26/2021	7406	1750	Body	1.531	50.902	PASS	PASS	PASS	N/A	N/A	N/A
I	1750	2/3/2021	7551	1750	Body	1.520	51.025	PASS	PASS	PASS	N/A	N/A	N/A
J	1900	12/3/2020	7410	1900	Body	1.561	52.634	PASS	PASS	PASS	GMSK	PASS	N/A
I	1900	1/5/2021	7551	1900	Body	1.520	53.063	PASS	PASS	PASS	GMSK	PASS	N/A
K	2300	7/7/2020	7409	2300	Body	1.850	51.591	PASS	PASS	PASS	N/A	N/A	N/A
K	2450	7/7/2020	7409	2450	Body	2.018	51.176	PASS	PASS	PASS	OFDM/TDD	PASS	PASS
K	2600	7/8/2020	7409	2600	Body	2.194	50.726	PASS	PASS	PASS	TDD	PASS	N/A
L	3500	11/5/2020	7539	3500	Body	3.176	50.634	PASS	PASS	PASS	TDD	PASS	N/A
L	3700	11/3/2020	7539	3700	Body	3.423	50.883	PASS	PASS	PASS	TDD	PASS	N/A
L	3900	11/2/2020	7539	3900	Body	3.674	50.519	PASS	PASS	PASS	TDD	PASS	N/A
G	5250	11/2/2020	7406	5250	Body	5.533	47.077	PASS	PASS	PASS	OFDM	N/A	PASS
G	5600	11/2/2020	7406	5600	Body	6.006	46.433	PASS	PASS	PASS	OFDM	N/A	PASS
G	5750	11/2/2020	7406	5750	Body	6.210	46.185	PASS	PASS	PASS	OFDM	N/A	PASS

NOTE: While the probes have been calibrated for both CW and modulated signals, all measurements were performed using communication systems calibrated for CW signals only. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01v01r04 for scenarios when CW probe calibrations are used with other signal types. SAR systems were validated for modulated signals with a periodic duty cycle, such as GMSK, or with a high peak to average ratio (>5 dB), such as OFDM according to FCC KDB Publication 865664 D01v01r04.

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