ES3DV3– SN:3335

July 26, 2018

10607-AAB	IEEE 802.11ac WiFi (20MHz, MCS0, 90pc duty cycle)	X	4.80	66.04	16.11	0.46	130.0	± 9.6 %
		Y	4.72	66.30	16.25		130.0	
		Z	4.64	66.03	16.03		130.0	
10608-AAB	IEEE 802.11ac WiFi (20MHz, MCS1, 90pc duty cycle)	X	5.02	66.47	16.27	0.46	130.0	± 9.6 %
		Y	4.92	66.72	16.42		130.0	
		Z	4.83	66.43	16.20		130.0	
10609-AAB	IEEE 802.11ac WiFi (20MHz, MCS2, 90pc duty cycle)	X	4.91	66.35	16.13	0.46	130.0	± 9.6 %
		Y	4.81	66.59	16.28		130.0	
		Z	4.72	66.28	16.04		130.0	
10610-AAB	IEEE 802.11ac WiFi (20MHz, MCS3, 90pc duty cycle)	X	4.96	66.51	16.29	0.46	130.0	± 9.6 %
		Y	4.86	66.74	16.43		130.0	
		Z	4.77	66.44	16.20		130.0	
10611-AAB	IEEE 802.11ac WiFi (20MHz, MCS4, 90pc duty cycle)	X	4.89	66.36	16.16	0.46	130.0	± 9.6 %
		Y	4.78	66.57	16.29		130.0	
		Z	4.69	66.26	16.05		130.0	
10612-AAB	IEEE 802.11ac WiFi (20MHz, MCS5, 90pc duty cycle)	X	4.90	66.49	16.18	0.46	130.0	± 9.6 %
		Y	4.80	66.74	16.34		130.0	
		Z	4.70	66.41	16.09		130.0	
10613-AAB	IEEE 802.11ac WiFi (20MHz, MCS6, 90pc duty cycle)	X	4.92	66.42	16.10	0.46	130.0	± 9.6 %
		Y	4.81	66.65	16.24		130.0	
		Z	4.70	66.31	15.98		130.0	
10614-AAB	IEEE 802.11ac WiFi (20MHz, MCS7, 90pc duty cycle)	X	4.85	66.61	16.33	0.46	130.0	± 9.6 %
		Y	4.74	66.80	16.45		130.0	
		Z	4.64	66.48	16.20		130.0	
10615-AAB	IEEE 802.11ac WiFi (20MHz, MCS8, 90pc duty cycle)	X	4.89	66.16	15.93	0.46	130.0	± 9.6 %
		Y	4.79	66.41	16.09		130.0	
		Z	4.69	66.09	15.83		130.0	
10616-AAB	IEEE 802.11ac WiFi (40MHz, MCS0, 90pc duty cycle)	X	5.45	66.65	16.33	0.46	130.0	± 9.6 %
		Y	5.37	66.80	16.44		130.0	
		Z	5.29	66.54	16.25		130.0	
10617-AAB	IEEE 802.11ac WiFi (40MHz, MCS1, 90pc duty cycle)	X	5.52	66.76	16.35	0.46	130.0	± 9.6 %
		Y	5.43	66.93	16.48		130.0	
		Z	5.36	66.73	16.32		130.0	
10618-AAB	IEEE 802.11ac WiFi (40MHz, MCS2, 90pc duty cycle)	X	5.41	66.83	16.40	0.46	130.0	± 9.6 %
		Y	5.32	66.98	16.52		130.0	
		Z	5.24	66.71	16.32		130.0	
10619-AAB	IEEE 802.11ac WiFi (40MHz, MCS3, 90pc duty cycle)	X	5.43	66.63	16.24	0.46	130.0	± 9.6 %
		Y	5.35	66.83	16.38		130.0	
		Z	5.27	66.56	16.19		130.0	
10620-AAB	IEEE 802.11ac WiFi (40MHz, MCS4, 90pc duty cycle)	X	5.56	66.78	16.36	0.46	130.0	± 9.6 %
		Y	5.45	66.89	16.46		130.0	
		Z	5.36	66.59	16.25		130.0	
10621-AAB	IEEE 802.11ac WiFi (40MHz, MCS5, 90pc duty cycle)	X	5.53	66.83	16.50	0.46	130.0	± 9.6 %
		Y	5.43	66.94	16.59		130.0	
		Z	5.35	66.69	16.42		130.0	
10622-AAB	IEEE 802.11ac WiFi (40MHz, MCS6, 90pc duty cycle)	X	5.52	66.93	16.54	0.46	130.0	± 9.6 %
		Y	5.43	67.09	16.66		130.0	
		Z	5.37	66.87	16.50		130.0	

10623-AAB	IEEE 802.11ac WiFi (40MHz, MCS7, 90pc duty cycle)	X	5.43	66.56	16.25	0.46	130.0	± 9.6 %
		Y	5.32	66.66	16.33		130.0	
		Z	5.24	66.39	16.14		130.0	
10624-AAB	IEEE 802.11ac WIFI (40MHz, MCS8, 90pc duty cycle)	X	5.60	66.69	16.37	0.46	130.0	± 9.6 %
		Y	5.51	66.85	16.49		130.0	
		Z	5.44	66.60	16.31		130.0	
10625-AAB	IEEE 802.11ac WiFi (40MHz, MCS9, 90pc duty cycle)	X	5.99	67.68	16.92	0.46	130.0	± 9.6 %
		Y	5.92	67.95	17.09		130.0	
		Z	5.84	67.69	16.90		130.0	
10626-AAB	IEEE 802.11ac WiFi (80MHz, MCS0, 90pc duty cycle)	X	5.70	66.68	16.26	0.46	130.0	± 9.6 %
		Y	5.64	66.83	16.38		130.0	
		Z	5.58	66.59	16.21		130.0	
10627-AAB	IEEE 802.11ac WiFi (80MHz, MCS1, 90pc duty cycle)	X	5.96	67.23	16.49	0.46	130.0	± 9.6 %
		Y	5.89	67.41	16.62		130.0	
		Z	5.84	67.21	16.48		130.0	
10628-AAB	IEEE 802.11ac WIFI (80MHz, MCS2, 90pc duty cycle)	X	5.78	66.88	16.25	0.46	130.0	± 9.6 %
		Y	5.70	67.00	16.36		130.0	
		Z	5.62	66.72	16.17		130.0	
10629-AAB	IEEE 802.11ac WiFi (80MHz, MCS3, 90pc duty cycle)	X	5.88	66.97	16.29	0.46	130.0	± 9.6 %
		Y	5.78	67.07	16.39		130.0	
		Z	5.72	66.83	16.22		130.0	
10630-AAB	IEEE 802.11ac WiFi (80MHz, MCS4, 90pc duty cycle)	X	6.47	68.88	17.24	0.46	130.0	± 9.6 %
		Y	6.31	68.82	17.26		130.0	
		Z	6.23	68.53	17.06		130.0	
10631-AAB	IEEE 802.11ac WiFi (80MHz, MCS5, 90pc duty cycle)	X	6.32	68.53	17.25	0.46	130.0	± 9.6 %
		Y	6.15	68.45	17.25		130.0	
		Z	6.05	68.12	17.05		130.0	
10632-AAB	IEEE 802.11ac WiFi (80MHz, MCS6, 90pc duty cycle)	X	5.95	67.33	16.67	0.46	130.0	± 9.6 %
		Y	5.85	67.43	16.76		130.0	
		Z	5.80	67.23	16.62		130.0	
10633-AAB	IEEE 802.11ac WiFi (80MHz, MCS7, 90pc duty cycle)	X	5.90	67.20	16.44	0.46	130.0	± 9.6 %
		Y	5.76	67.15	16.46		130.0	
		Z	5.68	66.85	16.26		130.0	
10634-AAB	IEEE 802.11ac WiFi (80MHz, MCS8, 90pc duty cycle)	X	5.87	67.16	16.48	0.46	130.0	± 9.6 %
		Y	5.74	67.15	16.52		130.0	
		Z	5.66	66.87	16.33		130.0	
10635-AAB	IEEE 802.11ac WIFI (80MHz, MCS9, 90pc duty cycle)	X	5.74	66.47	15.88	0.46	130.0	± 9.6 %
		Y	5.64	66.57	15.98		130.0	
		Z	5.55	66.25	15.76		130.0	
10636-AAC	IEEE 802.11ac WiFi (160MHz, MCS0, 90pc duty cycle)	X	6.11	67.09	16.37	0.46	130.0	± 9.6 %
		Y	6.05	67.22	16.47		130.0	
		Z	6.00	66.98	16.31		130.0	
10637-AAC	IEEE 802.11ac WiFi (160MHz, MCS1, 90pc duty cycle)	X	6.29	67.52	16.56	0.46	130.0	± 9.6 %
		Y	6.21	67.60	16.64		130.0	
		Z	6.16	67.38	16.49		130.0	
10638-AAC	IEEE 802.11ac WiFi (160MHz, MCS2, 90pc duty cycle)	X	6.28	67.45	16.51	0.46	130.0	± 9.6 %
		Y	6.21	67.58	16.61		130.0	
		Z	6.16	67.35	16.45		130.0	

ES3DV3– SN:3335 July 26, 2018

10639-AAC	IEEE 802.11ac WiFi (160MHz, MCS3, 90pc duty cycle)	X	6.29	67.50	16.58	0.46	130.0	± 9.6 %
		Y	6.20	67.55	16.64		130.0	
		Z	6.13	67.29	16.47		130.0	
10640-AAC	IEEE 802.11ac WiFi (160MHz, MCS4, 90pc duty cycle)	X	6.33	67.60	16.57	0.46	130.0	± 9.6 %
		Y	6.22	67.62	16.62		130.0	
		Z	6.15	67.33	16.43		130.0	
10641-AAC	IEEE 802.11ac WiFi (160MHz, MCS5, 90pc duty cycle)	X	6.31	67.30	16.44	0.46	130.0	± 9.6 %
		Y	6.24	67.42	16.54		130.0	
		Z	6.18	67.20	16.39		130.0	
10642-AAC	IEEE 802.11ac WiFi (160MHz, MCS6, 90pc duty cycle)	X	6.38	67.64	16.78	0.46	130.0	± 9.6 %
		Y	6.29	67.69	16.83		130.0	
		Z	6.22	67.45	16.68		130.0	
10643-AAC	IEEE 802.11ac WiFi (160MHz, MCS7, 90pc duty cycle)	X	6.21	67.32	16.52	0.46	130.0	± 9.6 %
		Y	6.13	67.41	16.60		130.0	
		Z	6.06	67.16	16.43		130.0	
10644-AAC	IEEE 802.11ac WiFi (160MHz, MCS8, 90pc duty cycle)	X	6.46	68.08	16.92	0.46	130.0	± 9.6 %
		Y	6.33	68.03	16.94		130.0	
		Z	6.24	67.70	16.72		130.0	
10645-AAC	IEEE 802.11ac WiFi (160MHz, MCS9, 90pc duty cycle)	X	6.74	68.44	17.04	0.46	130.0	± 9.6 %
		Y	6.80	68.96	17.35		130.0	
		Z	6.69	68.60	17.13		130.0	
10646-AAE	LTE-TDD (SC-FDMA, 1 RB, 5 MHz, QPSK, UL Subframe=2,7)	X	20.11	100.60	33.03	9.30	60.0	± 9.6 %
		Y	67.00	132.52	43.08		60.0	
		Z	45.69	123.89	40.58		60.0	
10647-AAE	LTE-TDD (SC-FDMA, 1 RB, 20 MHz, QPSK, UL Subframe=2,7)	X	20.57	101.80	33.52	9.30	60.0	± 9.6 %
		Y	71.00	134.86	43.86		60.0	
		Z	45.61	124.78	40.99		60.0	
10648-AAA	CDMA2000 (1x Advanced)	X	0.74	63.52	11.16	0.00	150.0	± 9.6 %
		Y	0.73	64.36	11.36		150.0	
		Z	0.61	62.32	9.54		150.0	
10652-AAC	LTE-TDD (OFDMA, 5 MHz, E-TM 3.1, Clipping 44%)	X	4.47	68.36	17.23	2.23	80.0	± 9.6 %
		Y	4.40	69.06	17.51		80.0	
		Z	4.19	68.31	16.99		80.0	
10653-AAC	LTE-TDD (OFDMA, 10 MHz, E-TM 3.1, Clipping 44%)	X	4.95	67.74	17.30	2.23	80.0	± 9.6 %
		Y	4.84	68.16	17.52		80.0	
		Z	4.68	67.60	17.14		80.0	
10654-AAC	LTE-TDD (OFDMA, 15 MHz, E-TM 3.1, Clipping 44%)	X	4.88	67.44	17.30	2.23	80.0	± 9.6 %
		Y	4.78	67.80	17.51		80.0	
		Z	4.64	67.27	17.15		80.0	
10655-AAD	LTE-TDD (OFDMA, 20 MHz, E-TM 3.1, Clipping 44%)	X	4.93	67.49	17.35	2.23	80.0	± 9.6 %
		Y	4.84	67.81	17.55		80.0	
		Z	4.70	67.26	17.19		80.0	
10658-AAA	Pulse Waveform (200Hz, 10%)	X	11.24	83.51	22.79	10.00	50.0	± 9.6 %
		Y	16.10	90.15	24.02		50.0	
		Z	16.34	90.14	23.70		50.0	
10659-AAA	Pulse Waveform (200Hz, 20%)	X	19.80	93.92	24.71	6.99	60.0	± 9.6 %
		Y	100.00	116.23	29.49		60.0	
		Z	100.00	114.94	28.73		60.0	

ES3DV3– SN:3335 July 26, 2018

10660-AAA	Pulse Waveform (200Hz, 40%)	X	100.00	115.97	28.34	3.98	80.0	± 9.6 %
		Y	100.00	114.00	26.90		80.0	
		Z	100.00	111.84	25.78		80.0	
10661-AAA	Pulse Waveform (200Hz, 60%)	X	100.00	115.58	26.61	2.22	100.0	± 9.6 %
		Y	100.00	114.73	25.82		100.0	
		Z	100.00	110.72	23.93		100.0	
10662-AAA	Pulse Waveform (200Hz, 80%)	X	100.00	115.84	24.73	0.97	120.0	± 9.6 %
		Y	100.00	117.86	25.24		120.0	
		Z	100.00	107.82	20.96		120.0	

[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

UL Japan, Inc.
Ise EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone: +81 596 24 8999
Facsimile: +81 596 24 8124

System check uncertainty

The uncertainty budget has been determined for the DASY5 measurement system according to the SPEAG documents and is given in the following Table.

Repeatability Budget for System Check

<0.3 – 3GHz range Body>

Error Description	Uncertainty value ± %	Probability distribution	divisor	(ci) 1g	Standard (1g)	vi or veff
Measurement System						
Probe calibration	± 1.8	Normal	1	1	± 1.8	∞
Axial isotropy of the probe	± 0.0	Rectangular	√3	1	± 0.0	∞
Spherical isotropy of the probe	± 0.0	Rectangular	√3	1	± 0.0	∞
Boundary effects	± 0.0	Rectangular	√3	1	± 0.0	∞
Probe linearity	± 0.0	Rectangular	√3	1	± 0.0	∞
Detection limit	± 0.0	Rectangular	√3	1	± 0.0	∞
Modulation response	± 0.0	Rectangular	√3	1	± 0.0	∞
Readout electronics	± 0.0	Normal	1	1	± 0.0	∞
Response time	± 0.0	Rectangular	√3	1	± 0.0	∞
Integration time	± 0.0	Rectangular	√3	1	± 0.0	∞
RF ambient Noise	± 0.0	Rectangular	√3	1	± 0.0	∞
RF ambient Reflections	± 0.0	Rectangular	√3	1	± 0.0	∞
Probe Positioner	± 0.4	Rectangular	√3	1	± 0.2	∞
Probe positioning	± 2.9	Rectangular	√3	1	± 1.7	∞
Max.SAR Eval.	± 0.0	Rectangular	√3	1	± 0.0	∞
Test Sample Related						
Deviation of wxp.dipole	± 0.0	Rectangular	√3	1	± 0.0	∞
Dipole Axis to Liquid Distance	± 2.0	Rectangular	√3	1	± 1.2	∞
Input power and SAR drift meas.	± 3.4	Rectangular	√3	1	± 2.0	∞
Phantom and Setup						
Phantom uncertainty	± 4.0	Rectangular	√3	1	± 2.3	∞
Algorithm for correcting SAR for deviations in permittivity and conductivity	± 1.9	Rectangular	√3	1	± 1.1	∞
Liquid conductivity (meas.)	± 5.0	Normal	1	0.78	+ 3.9	∞
Liquid permittivity (meas.)	± 5.0	Normal	1	0.26	- 1.3	∞
Liquid conductivity - temp.unc (below 2deg.C.)	± 1.7	Rectangular	√3	0.78	± 0.8	∞
Liquid permittivity - temp.unc (below 2deg.C.)	± 0.3	Rectangular	√3	0.23	± 0.0	∞
Combined Standard Uncertainty					± **5.945**	
Expanded Uncertainty (k=2)					± **11.9**	