



Appendix A. Radiated Spurious Emission

Test Engineer :	Jet Lui, Kyle Jhuang and Karl Hou	Temperature :	23~24°C
		Relative Humidity :	45~46%

15E Band 4 - 5725~5850MHz

WIFI 802.11a (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		5708.52	65.91	-8.09	74	55.11	35.77	7.15	32.12	100	144	P	H
		5723.8	72.09	-6.21	78.3	61.27	35.78	7.16	32.12	100	144	P	H
		5714.92	48.36	-5.64	54	37.56	35.77	7.15	32.12	100	144	A	H
	*	5743	93.89	-	-	83.03	35.79	7.18	32.11	100	144	A	H
	*	5743	105.02	-	-	94.16	35.79	7.18	32.11	100	144	P	H
		5713.8	66.87	-7.13	74	56.07	35.77	7.15	32.12	106	167	P	V
		5724.76	75.74	-2.56	78.3	64.92	35.78	7.16	32.12	106	167	P	V
		5715	49.82	-4.18	54	39.02	35.77	7.15	32.12	106	167	A	V
	*	5743	95.06	-	-	84.2	35.79	7.18	32.11	106	167	A	V
	*	5743	106.32	-	-	95.46	35.79	7.18	32.11	106	167	P	V



WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 157 5785MHz		5714.76	55.45	-18.55	74	44.65	35.77	7.15	32.12	100	156	P	H
		5724.36	57.08	-21.22	78.3	46.26	35.78	7.16	32.12	100	156	P	H
		5714.76	43.97	-10.03	54	33.17	35.77	7.15	32.12	100	156	A	H
	*	5783	93.98	-	-	83.06	35.82	7.2	32.1	100	156	A	H
	*	5783	105.06	-	-	94.14	35.82	7.2	32.1	100	156	P	H
		5855.04	55.46	-22.84	78.3	44.38	35.89	7.26	32.07	100	156	P	H
		5889.2	55.38	-18.62	74	44.22	35.92	7.3	32.06	100	156	P	H
		5888.56	43.99	-10.01	54	32.83	35.92	7.3	32.06	100	156	A	H
		5710.92	54.46	-19.54	74	43.66	35.77	7.15	32.12	100	207	P	V
		5725	56.44	-21.86	78.3	45.62	35.78	7.16	32.12	100	207	P	V
		5715	43.65	-10.35	54	32.85	35.77	7.15	32.12	100	207	A	V
	*	5783	91.33	-	-	80.41	35.82	7.2	32.1	100	207	A	V
	*	5783	102.74	-	-	91.82	35.82	7.2	32.1	100	207	P	V
		5856.4	53.97	-24.33	78.3	42.89	35.89	7.26	32.07	100	207	P	V
		5868.88	53.38	-20.62	74	42.28	35.89	7.28	32.07	100	207	P	V
		5889.92	43.32	-10.68	54	32.16	35.92	7.3	32.06	100	207	A	V



WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 165 5825MHz	*	5823	94.41	-	-	83.4	35.86	7.24	32.09	100	157	A	H
	*	5823	105.55	-	-	94.54	35.86	7.24	32.09	100	157	P	H
		5853.76	67.64	-10.66	78.3	56.56	35.89	7.26	32.07	100	157	P	H
		5863.92	62.87	-11.13	74	51.77	35.89	7.28	32.07	100	157	P	H
		5860	46.8	-7.2	54	35.72	35.89	7.26	32.07	100	157	A	H
	*	5823	90.39	-	-	79.38	35.86	7.24	32.09	100	209	A	V
	*	5823	101.15	-	-	90.14	35.86	7.24	32.09	100	209	P	V
		5851.52	61.63	-16.67	78.3	50.57	35.88	7.26	32.08	100	209	P	V
		5863.68	59.3	-14.7	74	48.2	35.89	7.28	32.07	100	209	P	V
		5860	44.83	-9.17	54	33.75	35.89	7.26	32.07	100	209	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15E Band 4 5725~5850MHz

WIFI 802.11a (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11a CH 149 5745MHz		11490	43.1	-30.9	74	50.69	38.99	10.33	56.91	100	0	P	H
		17235	44.61	-9.39	54	47.66	42.01	12.65	57.71	100	155	A	H
		17235	57.58	-16.42	74	60.63	42.01	12.65	57.71	100	155	P	H
		11490	43.18	-30.82	74	50.77	38.99	10.33	56.91	100	0	P	V
		17235	51.64	-2.36	54	54.69	42.01	12.65	57.71	133	160	A	V
		17235	64.52	-9.48	74	67.57	42.01	12.65	57.71	133	160	P	V
802.11a CH 157 5785MHz		11571	44.07	-29.93	74	51.59	39.03	10.36	56.91	100	0	P	H
		17355	46.72	-7.28	54	49.92	41.96	12.85	58.01	100	161	A	H
		17355	58.67	-15.33	74	61.87	41.96	12.85	58.01	100	161	P	H
		11571	45.25	-28.75	74	52.77	39.03	10.36	56.91	100	0	P	V
		17355	50.53	-3.47	54	53.73	41.96	12.85	58.01	128	159	A	V
		17355	62.88	-11.12	74	66.08	41.96	12.85	58.01	128	159	P	V
802.11a CH 165 5825MHz		11649	39.7	-34.3	74	47.16	39.06	10.41	56.93	100	0	P	H
		17475	45.32	-8.68	54	48.68	41.91	13.04	58.31	100	174	A	H
		17475	56.85	-17.15	74	60.21	41.91	13.04	58.31	100	174	P	H
		11649	39.78	-34.22	74	47.24	39.06	10.41	56.93	100	0	P	V
		17475	49.83	-4.17	54	53.19	41.91	13.04	58.31	122	188	A	V
		17475	63.35	-10.65	74	66.71	41.91	13.04	58.31	122	188	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15E Band 4 5725~5850MHz
WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 149 5745MHz		5708.44	64.23	-9.77	74	53.43	35.77	7.15	32.12	100	145	P	H
		5724.44	76.31	-1.99	78.3	65.49	35.78	7.16	32.12	100	145	P	H
		5714.92	48.28	-5.72	54	37.48	35.77	7.15	32.12	100	145	A	H
	*	5747	93.69	-	-	82.83	35.79	7.18	32.11	100	145	A	H
	*	5747	105.21	-	-	94.35	35.79	7.18	32.11	100	145	P	H
		5712.44	65.76	-8.24	74	54.96	35.77	7.15	32.12	107	178	P	V
		5724.28	76.06	-2.24	78.3	65.24	35.78	7.16	32.12	107	178	P	V
		5715	49.28	-4.72	54	38.48	35.77	7.15	32.12	107	178	A	V
	*	5743	94.83	-	-	83.97	35.79	7.18	32.11	107	178	A	V
	*	5743	106.49	-	-	95.63	35.79	7.18	32.11	107	178	P	V



WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 157 5785MHz		5712.76	54.75	-19.25	74	43.95	35.77	7.15	32.12	100	153	P	H
		5723.4	57.88	-20.42	78.3	47.06	35.78	7.16	32.12	100	153	P	H
		5714.84	43.99	-10.01	54	33.19	35.77	7.15	32.12	100	153	A	H
	*	5787	94.3	-	-	83.37	35.83	7.2	32.1	100	153	A	H
	*	5787	105.63	-	-	94.7	35.83	7.2	32.1	100	153	P	H
		5852.48	55.24	-23.06	78.3	44.18	35.88	7.26	32.08	100	153	P	H
		5885.84	55.06	-18.94	74	43.93	35.9	7.3	32.07	100	153	P	H
		5887.44	44.13	-9.87	54	33	35.9	7.3	32.07	100	153	A	H
		5709.8	54.96	-19.04	74	44.16	35.77	7.15	32.12	100	207	P	V
		5721.72	56.23	-22.07	78.3	45.41	35.78	7.16	32.12	100	207	P	V
		5715	43.62	-10.38	54	32.82	35.77	7.15	32.12	100	207	A	V
	*	5783	91.11	-	-	80.19	35.82	7.2	32.1	100	207	A	V
	*	5783	101.89	-	-	90.97	35.82	7.2	32.1	100	207	P	V
		5850.64	53.36	-24.94	78.3	42.3	35.88	7.26	32.08	100	207	P	V
		5887.92	54.1	-19.9	74	42.94	35.92	7.3	32.06	100	207	P	V
		5888.72	43.31	-10.69	54	32.15	35.92	7.3	32.06	100	207	A	V



WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 165 5825MHz	*	5824	94.07	-	-	83.06	35.86	7.24	32.09	100	156	A	H
	*	5824	105.85	-	-	94.84	35.86	7.24	32.09	100	156	P	H
		5855.2	66	-12.3	78.3	54.92	35.89	7.26	32.07	100	156	P	H
		5861.52	63.86	-10.14	74	52.76	35.89	7.28	32.07	100	156	P	H
		5860	46.24	-7.76	54	35.16	35.89	7.26	32.07	100	156	A	H
	*	5823	91.93	-	-	80.92	35.86	7.24	32.09	111	156	A	V
	*	5823	103.94	-	-	92.93	35.86	7.24	32.09	111	156	P	V
		5852.8	65.19	-13.11	78.3	54.13	35.88	7.26	32.08	111	156	P	V
		5860	62.83	-11.17	74	51.75	35.89	7.26	32.07	111	156	P	V
		5860	45.83	-8.17	54	34.75	35.89	7.26	32.07	111	156	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15E Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 149 5745MHz		11490	40.16	-33.84	74	47.75	38.99	10.33	56.91	100	0	P	H
		17235	45.57	-8.43	54	48.62	42.01	12.65	57.71	100	164	A	H
		17235	57.37	-16.63	74	60.42	42.01	12.65	57.71	100	164	P	H
		11490	40.51	-33.49	74	48.1	38.99	10.33	56.91	100	0	P	V
		17235	50.13	-3.87	54	53.18	42.01	12.65	57.71	141	164	A	V
		17235	62.34	-11.66	74	65.39	42.01	12.65	57.71	141	164	P	V
802.11n HT20 CH 157 5785MHz		11571	40.78	-33.22	74	48.3	39.03	10.36	56.91	100	0	P	H
		17355	44.46	-9.54	54	47.66	41.96	12.85	58.01	100	162	A	H
		17355	55.59	-18.41	74	58.79	41.96	12.85	58.01	100	162	P	H
		11571	42.97	-31.03	74	50.49	39.03	10.36	56.91	100	0	P	V
		17355	50.47	-3.53	54	53.67	41.96	12.85	58.01	135	178	A	V
		17355	62.2	-11.8	74	65.4	41.96	12.85	58.01	135	178	P	V
802.11n HT20 CH 165 5825MHz		11649	40.62	-33.38	74	48.08	39.06	10.41	56.93	100	0	P	H
		17473	47.4	-6.6	54	50.76	41.91	13.04	58.31	100	76	A	H
		17473	59.72	-14.28	74	63.08	41.91	13.04	58.31	100	76	P	H
		11649	40.58	-33.42	74	48.04	39.06	10.41	56.93	100	0	P	V
		17475	53.03	-0.97	54	56.39	41.91	13.04	58.31	133	175	A	V
		17475	64.06	-9.94	74	67.42	41.91	13.04	58.31	133	175	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15E Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 151 5755MHz		5713.72	65.07	-8.93	74	54.27	35.77	7.15	32.12	100	150	P	H
		5724.2	68.54	-9.76	78.3	57.72	35.78	7.16	32.12	100	150	P	H
		5714.84	51.11	-2.89	54	40.31	35.77	7.15	32.12	100	150	A	H
	*	5753	101.91	-	-	91.03	35.81	7.18	32.11	100	150	P	H
	*	5753	92.47	-	-	81.59	35.81	7.18	32.11	100	150	A	H
		5850.72	53.88	-24.42	78.3	42.82	35.88	7.26	32.08	100	150	P	H
		5865.04	43.6	-10.4	54	32.5	35.89	7.28	32.07	100	150	A	H
		5714.6	64.68	-9.32	74	53.88	35.77	7.15	32.12	112	162	P	V
		5724.44	68.52	-9.78	78.3	57.7	35.78	7.16	32.12	112	162	P	V
		5714.36	50.71	-3.29	54	39.91	35.77	7.15	32.12	112	162	A	V
	*	5753	102.68	-	-	91.8	35.81	7.18	32.11	112	162	P	V
	*	5753	92.8	-	-	81.92	35.81	7.18	32.11	112	162	A	V
		5850.48	55.2	-23.1	78.3	44.14	35.88	7.26	32.08	112	162	P	V
		5888.88	53.95	-20.05	74	42.79	35.92	7.3	32.06	112	162	P	V
		5862.24	43.67	-10.33	54	32.57	35.89	7.28	32.07	112	162	A	V



WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 159 5795MHz		5711	55.86	-18.14	74	45.06	35.77	7.15	32.12	100	150	P	H
		5725	58.46	-19.84	78.3	47.64	35.78	7.16	32.12	100	150	P	H
		5713.08	44.67	-9.33	54	33.87	35.77	7.15	32.12	100	150	A	H
	*	5793	92	-	-	81.05	35.83	7.22	32.1	100	150	A	H
	*	5793	101.88	-	-	90.93	35.83	7.22	32.1	100	150	P	H
		5851.44	60.62	-17.68	78.3	49.56	35.88	7.26	32.08	100	150	P	H
		5860.16	56.82	-17.18	74	45.72	35.89	7.28	32.07	100	150	P	H
		5860.64	45.73	-8.27	54	34.63	35.89	7.28	32.07	100	150	A	H
		5685.32	55	-19	74	44.25	35.75	7.13	32.13	100	207	P	V
		5721.56	57.11	-21.19	78.3	46.29	35.78	7.16	32.12	100	207	P	V
		5714.44	44.21	-9.79	54	33.41	35.77	7.15	32.12	100	207	A	V
	*	5793	88.73	-	-	77.78	35.83	7.22	32.1	100	207	A	V
	*	5793	98.41	-	-	87.46	35.83	7.22	32.1	100	207	P	V
		5850.32	55.09	-23.21	78.3	44.03	35.88	7.26	32.08	100	207	P	V
		5873.44	54.02	-19.98	74	42.91	35.9	7.28	32.07	100	207	P	V
		5860.96	44.06	-9.94	54	32.96	35.89	7.28	32.07	100	207	A	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15E Band 4 5725~5850MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 151 5755MHz		11511	41.1	-32.9	74	48.66	39	10.34	56.9	100	0	P	H
		17263	45.57	-8.43	54	48.64	41.99	12.73	57.79	100	161	A	H
		17263	55.72	-18.28	74	58.79	41.99	12.73	57.79	100	161	P	H
		11511	40.99	-33.01	74	48.55	39	10.34	56.9	100	0	P	V
		17267	48.02	-5.98	54	51.09	41.99	12.73	57.79	100	182	A	V
		17267	57.97	-16.03	74	61.04	41.99	12.73	57.79	100	182	P	V
802.11n HT40 CH 159 5795MHz		11590	44.4	-29.6	74	51.91	39.03	10.38	56.92	100	0	P	H
		17387	43.31	-10.69	54	46.53	41.95	12.93	58.1	104	73	A	H
		17387	54.72	-19.28	74	57.94	41.95	12.93	58.1	104	73	P	H
		11590	44.17	-29.83	74	51.68	39.03	10.38	56.92	100	0	P	V
		17387	49.99	-4.01	54	53.21	41.95	12.93	58.1	102	176	A	V
		17387	59.85	-14.15	74	63.07	41.95	12.93	58.1	102	176	P	V
Remark	1. No other spurious found. 2. All results are PASS against Peak and Average limit line.												



15E Emission below 1GHz

5GHz WIFI 802.11n HT40 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT40 LF		47.82	33.5	-6.5	40	55.16	9.35	0.79	31.8			P	H
	!	131.79	38.28	-5.22	43.5	56.97	11.86	1.23	31.78	123	200	P	H
		278.4	33.33	-12.67	46	50.54	12.82	1.73	31.76			P	H
		302.8	39.15	-6.85	46	55.82	13.3	1.79	31.76			P	H
	!	421.1	40.2	-5.8	46	53.23	16.72	2.07	31.82			P	H
		439.3	38.89	-7.11	46	51.63	16.99	2.11	31.84			P	H
		121.26	20.34	-23.16	43.5	39.41	11.52	1.19	31.78			P	V
		153.93	27.59	-15.91	43.5	47.28	10.8	1.29	31.78			P	V
		212.52	24.91	-18.59	43.5	45.95	9.22	1.52	31.78			P	V
		302.1	38.8	-7.2	46	55.47	13.3	1.79	31.76			P	V
		427.4	39.14	-6.86	46	52.02	16.86	2.08	31.82	102	55	P	V
		773.2	32.78	-13.22	46	39.84	22.1	2.79	31.95			P	V
Remark	1. No other spurious found. 2. All results are PASS against limit line.												

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency per 15.209(c).
!	Test result is over limit line.
P/A	Peak or Average
H/V	H orizontal or V ertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

1. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

2. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

1. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

2. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



15E Band 4 5725~5850MHz

WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 151 5755MHz		5714.6	67.28	-6.72	74	56.48	35.77	7.15	32.12	100	152	P	H
		5724.68	71.37	-6.93	78.3	60.55	35.78	7.16	32.12	100	152	P	H
		5714.12	53.04	-0.96	54	42.24	35.77	7.15	32.12	100	152	A	H
	*	5753	104.49	-	-	93.61	35.81	7.18	32.11	100	152	P	H
	*	5753	94.38	-	-	83.5	35.81	7.18	32.11	100	152	A	H
		5858.48	53.75	-24.55	78.3	42.67	35.89	7.26	32.07	100	152	P	H
		5884.56	54.21	-19.79	74	43.08	35.9	7.3	32.07	100	152	P	H
		5869.92	44.03	-9.97	54	32.93	35.89	7.28	32.07	100	152	A	H
		5714.36	66.09	-7.91	74	55.29	35.77	7.15	32.12	103	161	P	V
		5723.56	70.13	-8.17	78.3	59.31	35.78	7.16	32.12	103	161	P	V
		5714.76	52.27	-1.73	54	41.47	35.77	7.15	32.12	103	161	A	V
	*	5753	102.21	-	-	91.33	35.81	7.18	32.11	103	161	P	V
	*	5753	92.45	-	-	81.57	35.81	7.18	32.11	103	161	A	V
		5855.12	53.83	-24.47	78.3	42.75	35.89	7.26	32.07	103	161	P	V
		5867.12	53.63	-20.37	74	42.53	35.89	7.28	32.07	103	161	P	V
		5863.6	43.8	-10.2	54	32.7	35.89	7.28	32.07	103	161	A	V

**15E Band 4 5725~5850MHz****WIFI 802.11n HT40 (Harmonic @ 3m)**

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n		11510	43.46	-30.54	74	51.02	39	10.34	56.9	100	0	P	H
HT40		17265	49.79	-24.21	74	52.86	41.99	12.73	57.79	100	0	P	H
CH 151		11510	43.2	-30.8	74	50.76	39	10.34	56.9	100	0	P	V
5755MHz		17265	48.96	-25.04	74	52.03	41.99	12.73	57.79	100	0	P	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



15E Emission below 1GHz

5GHz WIFI 802.11n HT40 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT40 LF		143.13	32.21	-11.29	43.5	51.23	11.5	1.26	31.78			P	H
		204.15	26.09	-17.41	43.5	47.23	9.15	1.49	31.78			P	H
	!	278.13	41.9	-4.1	46	59.11	12.82	1.73	31.76	126	110	P	H
		419	38.88	-7.12	46	51.98	16.66	2.06	31.82			P	H
		540.1	21.15	-24.85	46	32.29	18.5	2.31	31.95			P	H
		771.1	28.27	-17.73	46	35.34	22.1	2.78	31.95			P	H
		85.89	28.24	-11.76	40	50.77	8.24	1.02	31.79			P	V
		154.2	34.42	-9.08	43.5	54.11	10.8	1.29	31.78			P	V
		222.51	26.66	-19.34	46	47.43	9.46	1.55	31.78			P	V
		401.5	37.01	-8.99	46	50.82	15.97	2.02	31.8	159	22	P	V
		540.1	23.86	-22.14	46	35	18.5	2.31	31.95			P	V
		772.5	28.08	-17.92	46	35.15	22.1	2.78	31.95			P	V
Remark	3. No other spurious found.												
	4. All results are PASS against limit line.												

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency per 15.209(c).
!	Test result is over limit line.
P/A	Peak or Average
H/V	H orizontal or V ertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
CH 01													
2412MHz		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

3. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

4. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

3. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

4. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

3. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

4. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.



15E Band 4 5725~5850MHz

WIFI 802.11n HT20 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 149 5745MHz		5714.44	73.72	-0.28	74	62.92	35.77	7.15	32.12	114	152	P	H
		5724.92	75.06	-3.24	78.3	64.24	35.78	7.16	32.12	114	152	P	H
		5715	52.86	-1.14	54	42.06	35.77	7.15	32.12	114	152	A	H
	*	5743	99.9	-	-	89.04	35.79	7.18	32.11	114	152	A	H
	*	5743	109.79	-	-	98.93	35.79	7.18	32.11	114	152	P	H
		5715	71.92	-2.08	74	61.12	35.77	7.15	32.12	139	158	P	V
		5723.88	74.25	-4.05	78.3	63.43	35.78	7.16	32.12	139	158	P	V
		5715	52.81	-1.19	54	42.01	35.77	7.15	32.12	139	158	A	V
	*	5743	99.51	-	-	88.65	35.79	7.18	32.11	139	158	A	V
	*	5743	109.74	-	-	98.88	35.79	7.18	32.11	139	158	P	V



WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 157 5785MHz		5712.36	57.39	-16.61	74	46.59	35.77	7.15	32.12	113	160	P	H
		5722.52	60.09	-18.21	78.3	49.27	35.78	7.16	32.12	113	160	P	H
		5714.68	46.76	-7.24	54	35.96	35.77	7.15	32.12	113	160	A	H
	*	5784	101.04	-	-	90.12	35.82	7.2	32.1	113	160	A	H
	*	5784	111.98	-	-	101.06	35.82	7.2	32.1	113	160	P	H
		5856.72	56.81	-21.49	78.3	45.73	35.89	7.26	32.07	113	160	P	H
		5880.88	56.5	-17.5	74	45.39	35.9	7.28	32.07	113	160	P	H
		5861.92	45.75	-8.25	54	34.65	35.89	7.28	32.07	113	160	A	H
		5711.88	58.03	-15.97	74	47.23	35.77	7.15	32.12	124	161	P	V
		5723.56	58.03	-20.27	78.3	47.21	35.78	7.16	32.12	124	161	P	V
		5714.36	46.48	-7.52	54	35.68	35.77	7.15	32.12	124	161	A	V
	*	5783	100.92	-	-	90	35.82	7.2	32.1	124	161	A	V
	*	5783	111.19	-	-	100.27	35.82	7.2	32.1	124	161	P	V
		5850.8	57.03	-21.27	78.3	45.97	35.88	7.26	32.08	124	161	P	V
		5862.16	57.39	-16.61	74	46.29	35.89	7.28	32.07	124	161	P	V
		5864.08	45.86	-8.14	54	34.76	35.89	7.28	32.07	124	161	A	V



WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 165 5825MHz	*	5823	98.94	-	-	87.93	35.86	7.24	32.09	100	158	A	H
	*	5823	109.02	-	-	98.01	35.86	7.24	32.09	100	158	P	H
		5850.48	72.06	-6.24	78.3	61	35.88	7.26	32.08	100	158	P	H
		5860.08	62.96	-11.04	74	51.86	35.89	7.28	32.07	100	158	P	H
		5860	48.68	-5.32	54	37.6	35.89	7.26	32.07	100	158	A	H
	*	5824	97.95	-	-	86.94	35.86	7.24	32.09	147	158	A	V
	*	5824	107.82	-	-	96.81	35.86	7.24	32.09	147	158	P	V
		5850.08	72.17	-6.13	78.3	61.11	35.88	7.26	32.08	147	158	P	V
		5862.48	60.69	-13.31	74	49.59	35.89	7.28	32.07	147	158	P	V
		5860.16	48.11	-5.89	54	37.01	35.89	7.28	32.07	147	158	A	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



15E Band 4 5725~5850MHz
WIFI 802.11n HT20 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT20 CH 149 5745MHz		11492	44.87	-29.13	74	52.46	38.99	10.33	56.91	100	0	P	H
		17233	49.84	-4.16	54	52.89	42.01	12.65	57.71	106	164	A	H
		17233	60.1	-13.9	74	63.15	42.01	12.65	57.71	106	164	P	H
		11492	44.59	-29.41	74	52.18	38.99	10.33	56.91	100	0	P	V
		17233	50.33	-3.67	54	53.38	42.01	12.65	57.71	126	174	A	V
		17233	60.49	-13.51	74	63.54	42.01	12.65	57.71	126	174	P	V
802.11n HT20 CH 157 5785MHz		11568	42.73	-31.27	74	50.25	39.03	10.36	56.91	100	0	P	H
		17357	48.7	-5.3	54	51.86	41.96	12.89	58.01	100	176	A	H
		17357	58.2	-15.8	74	61.36	41.96	12.89	58.01	100	176	P	H
		11571	44.39	-29.61	74	51.91	39.03	10.36	56.91	100	0	P	V
		17353	49.9	-4.1	54	53.1	41.96	12.85	58.01	147	158	A	V
		17353	59.37	-14.63	74	62.57	41.96	12.85	58.01	147	158	P	V
802.11n HT20 CH 165 5825MHz		11649	40.07	-33.93	74	47.53	39.06	10.41	56.93	100	0	P	H
		17473	49.66	-4.34	54	53.02	41.91	13.04	58.31	102	172	A	H
		17473	58.89	-15.11	74	62.25	41.91	13.04	58.31	102	172	P	H
		11649	41.61	-32.39	74	49.07	39.06	10.41	56.93	100	0	P	V
		17477	50.9	-3.1	54	54.22	41.91	13.08	58.31	149	156	A	V
		17477	60.65	-13.35	74	63.97	41.91	13.08	58.31	149	156	P	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



15E Band 4 5725~5850MHz
WIFI 802.11n HT40 (Band Edge @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 151 5755MHz		5711.56	64.04	-9.96	74	53.24	35.77	7.15	32.12	142	249	P	H
		5721.64	65.68	-12.62	78.3	54.86	35.78	7.16	32.12	142	249	P	H
		5712.6	51.36	-2.64	54	40.56	35.77	7.15	32.12	142	249	A	H
	*	5753	97.23	-	-	86.35	35.81	7.18	32.11	142	249	A	H
	*	5753	107.12	-	-	96.24	35.81	7.18	32.11	142	249	P	H
		5850.32	55.95	-22.35	78.3	44.89	35.88	7.26	32.08	142	249	P	H
		5872.8	55.75	-18.25	74	44.64	35.9	7.28	32.07	142	249	P	H
		5864.8	45.03	-8.97	54	33.93	35.89	7.28	32.07	142	249	A	H
		5713.88	61.92	-12.08	74	51.12	35.77	7.15	32.12	100	151	P	V
		5723.64	66.58	-11.72	78.3	55.76	35.78	7.16	32.12	100	151	P	V
		5714.84	49.64	-4.36	54	38.84	35.77	7.15	32.12	100	151	A	V
	*	5757	92.79	-	-	81.91	35.81	7.18	32.11	100	151	A	V
	*	5757	102.62	-	-	91.74	35.81	7.18	32.11	100	151	P	V
		5853.04	52.98	-25.32	78.3	41.92	35.88	7.26	32.08	100	151	P	V
		5873.44	53.59	-20.41	74	42.48	35.9	7.28	32.07	100	151	P	V
		5860.96	43.72	-10.28	54	32.62	35.89	7.28	32.07	100	151	A	V



WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n HT40 CH 159 5795MHz		5709	57.77	-16.23	74	46.97	35.77	7.15	32.12	149	149	P	H
		5724.52	57.04	-21.26	78.3	46.22	35.78	7.16	32.12	149	149	P	H
		5712.44	45.35	-8.65	54	34.55	35.77	7.15	32.12	149	149	A	H
	*	5793	96.12	-	-	85.17	35.83	7.22	32.1	149	149	A	H
	*	5793	105.56	-	-	94.61	35.83	7.22	32.1	149	149	P	H
		5850.88	60.48	-17.82	78.3	49.42	35.88	7.26	32.08	149	149	P	H
		5866.8	56.79	-17.21	74	45.69	35.89	7.28	32.07	149	149	P	H
		5860.4	45.88	-8.12	54	34.78	35.89	7.28	32.07	149	149	A	H
		5697.72	55.06	-18.94	74	44.29	35.75	7.15	32.13	163	160	P	V
		5724.68	55.89	-22.41	78.3	45.07	35.78	7.16	32.12	163	160	P	V
		5713.4	44.7	-9.3	54	33.9	35.77	7.15	32.12	163	160	A	V
	*	5793	95.66	-	-	84.71	35.83	7.22	32.1	163	160	A	V
	*	5793	105.17	-	-	94.22	35.83	7.22	32.1	163	160	P	V
		5851.76	59.28	-19.02	78.3	48.22	35.88	7.26	32.08	163	160	P	V
		5863.84	57.37	-16.63	74	46.27	35.89	7.28	32.07	163	160	P	V
		5860.8	46.35	-7.65	54	35.25	35.89	7.28	32.07	163	160	A	V
Remark	3. No other spurious found. 4. All results are PASS against Peak and Average limit line.												



15E Band 4 5725~5850MHz
WIFI 802.11n HT40 (Harmonic @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11n		11511	43.76	-30.24	74	51.32	39	10.34	56.9	100	0	P	H
HT40		17265	53.87	-20.13	74	56.94	41.99	12.73	57.79	100	0	P	H
CH 151		11511	42.98	-31.02	74	50.54	39	10.34	56.9	100	0	P	V
5755MHz		17265	51.25	-22.75	74	54.32	41.99	12.73	57.79	100	0	P	V
802.11n		11589	43.4	-30.6	74	50.91	39.03	10.38	56.92	100	0	P	H
HT40		17385	51.67	-22.33	74	54.89	41.95	12.93	58.1	100	0	P	H
CH 159		11589	44.19	-29.81	74	51.7	39.03	10.38	56.92	100	0	P	V
5795MHz		17385	53.03	-20.97	74	56.25	41.95	12.93	58.1	100	0	P	V
Remark	5. No other spurious found. 6. All results are PASS against Peak and Average limit line.												



5GHz WIFI 802.11n HT40 (LF @ 3m)

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
5GHz 802.11n HT40 LF		153.66	35.53	-7.97	43.5	55.23	10.8	1.28	31.78			P	H
		226.83	28.26	-17.74	46	48.6	9.86	1.57	31.77			P	H
	!	277.86	40.36	-5.64	46	57.57	12.82	1.73	31.76	189	201	P	H
		416.9	36.82	-9.18	46	49.99	16.58	2.06	31.81			P	H
		681.5	26.42	-19.58	46	35.44	20.4	2.62	32.04			P	H
		761.3	30.1	-15.9	46	37.11	22.19	2.77	31.97			P	H
		69.96	26.66	-13.34	40	51.13	6.4	0.92	31.79			P	V
		154.47	30.64	-12.86	43.5	50.33	10.8	1.29	31.78			P	V
		217.92	21.77	-24.23	46	42.73	9.28	1.54	31.78			P	V
		463.8	35.41	-10.59	46	47.67	17.44	2.16	31.86	172	150	P	V
		616.4	25.87	-20.13	46	35.31	20.11	2.49	32.04			P	V
		772.5	28.4	-17.6	46	35.47	22.1	2.78	31.95			P	V
Remark	5. No other spurious found. 6. All results are PASS against limit line.												

**Note symbol**

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency per 15.209(c).
!	Test result is over limit line.
P/A	P eak or A verage
H/V	H orizontal or V ertical



A calculation example for radiated spurious emission is shown as below:

WIFI	Note	Frequency	Level	Over	Limit	Read	Antenna	Cable	Preamp	Ant	Table	Peak	Pol.
Ant.				Limit	Line	Level	Factor	Loss	Factor	Pos	Pos	Avg.	
1+2		(MHz)	(dBμV/m)	(dB)	(dBμV/m)	(dBμV)	(dB/m)	(dB)	(dB)	(cm)	(deg)	(P/A)	(H/V)
802.11b CH 01 2412MHz		2390	55.45	-18.55	74	54.51	32.22	4.58	35.86	103	308	P	H
		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H

5. Level(dBμV/m) =

Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

6. Over Limit(dB) = Level(dBμV/m) – Limit Line(dBμV/m)

For Peak Limit @ 2390MHz:

5. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 54.51(dBμV) – 35.86 (dB)

= 55.45 (dBμV/m)

6. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 55.45(dBμV/m) – 74(dBμV/m)

= -18.55(dB)

For Average Limit @ 2390MHz:

5. Level(dBμV/m)

= Antenna Factor(dB/m) + Cable Loss(dB) + Read Level(dBμV) - Preamp Factor(dB)

= 32.22(dB/m) + 4.58(dB) + 42.6(dBμV) – 35.86 (dB)

= 43.54 (dBμV/m)

6. Over Limit(dB)

= Level(dBμV/m) – Limit Line(dBμV/m)

= 43.54(dBμV/m) – 54(dBμV/m)

= -10.46(dB)

Both peak and average measured complies with the limit line, so test result is “PASS”.