



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 Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (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	Horizontal or Vertical



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

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

For Peak Limit @ 2390MHz:

- 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)
- Over Limit(dB)
= Level(dBμV/m) – Limit Line(dBμV/m)
= 55.45(dBμV/m) – 74(dBμV/m)
= -18.55(dB)

For Average Limit @ 2390MHz:

- 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)
- 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)

Table with 14 columns: WIFI Ant., Note, Frequency, Level, Over Limit, Limit Line, Read Level, Antenna Factor, Cable Loss, Preamp Factor, Ant Pos, Table Pos, Peak Avg, Pol. Rows include 802.11n HT40 CH 151 5755MHz and Remark section.



**15E Emission below 1GHz
5GHz WIFI 802.11n HT40 (LF @ 3m)**

WIFI Ant.	Note	Frequency (MHz)	Level (dBμV/m)	Over Limit (dB)	Limit Line (dBμV/m)	Read Level (dBμV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Peak Avg. (P/A)	Pol. (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	Horizontal or Vertical



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 HT40 CH 151 5755MHz		11511	43.76	-30.24	74	51.32	39	10.34	56.9	100	0	P	H
		17265	53.87	-20.13	74	56.94	41.99	12.73	57.79	100	0	P	H
802.11n HT40 CH 159 5795MHz		11511	42.98	-31.02	74	50.54	39	10.34	56.9	100	0	P	V
		17265	51.25	-22.75	74	54.32	41.99	12.73	57.79	100	0	P	V
802.11n HT40 CH 159 5795MHz		11589	43.4	-30.6	74	50.91	39.03	10.38	56.92	100	0	P	H
		17385	51.67	-22.33	74	54.89	41.95	12.93	58.1	100	0	P	H
802.11n HT40 CH 159 5795MHz		11589	44.19	-29.81	74	51.7	39.03	10.38	56.92	100	0	P	V
		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	Peak or Average
H/V	Horizontal or Vertical



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		2390	43.54	-10.46	54	42.6	32.22	4.58	35.86	103	308	A	H
2412MHz													

- 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”.