

Test plot as follows:

Worse case mode:		802.11a(6Mbps)		Test channel:		36	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5150.00	53.12	-3.63	49.49	74	-24.51	peak	H
5150.00	37.29	-3.63	33.66	54	-20.34	AVG	H
5150.00	51.11	-3.63	47.48	74	-26.52	peak	V
5150.00	37.21	-3.63	33.58	54	-20.42	AVG	V

Worse case mode:		802.11a(6Mbps)		Test channel:		48	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5350.00	55.36	-3.59	51.77	74	-22.23	peak	H
5350.00	38.82	-3.59	35.23	54	-18.77	AVG	H
5350.00	51.72	-3.59	48.13	74	-25.87	peak	V
5350.00	36.42	-3.59	32.83	54	-21.17	AVG	V

Worse case mode:		802.11a(6Mbps)		Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5725	52.61	-3.44	49.17	74	-24.83	peak	H
5725	37.79	-3.44	34.35	54	-19.65	AV	H
5725	50.12	-3.44	46.68	74	-27.32	peak	V
5725	35.19	-3.44	31.75	54	-22.25	AV	V

Worse case mode:		802.11a(6Mbps)		Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850	53.76	-3.42	50.34	74	-23.66	peak	H
5850	36.76	-3.42	33.34	54	-20.66	AV	H
5850	50.17	-3.42	46.75	74	-27.25	peak	V
5850	36.82	-3.42	33.40	54	-20.60	AV	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		36	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5150.00	53.50	-3.63	49.87	74	-24.13	peak	H
5150.00	37.47	-3.63	33.84	54	-20.16	AVG	H
5150.00	50.73	-3.63	47.10	74	-26.90	peak	V
5150.00	38.09	-3.63	34.46	54	-19.54	AVG	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		48	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5350.00	55.84	-3.59	52.25	74	-21.75	peak	H
5350.00	39.15	-3.59	35.56	54	-18.44	AVG	H
5350.00	51.05	-3.59	47.46	74	-26.54	peak	V
5350.00	35.71	-3.59	32.12	54	-21.88	AVG	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5725	52.83	-3.44	49.39	74	-24.61	peak	H
5725	36.60	-3.44	33.16	54	-20.84	AV	H
5725	49.99	-3.44	46.55	74	-27.45	peak	V
5725	36.25	-3.44	32.81	54	-21.19	AV	V

Worse case mode:		802.11n(HT20)(6.5Mbps)		Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
5850	53.89	-3.42	50.47	74	-23.53	peak	H
5850	36.15	-3.42	32.73	54	-21.27	AV	H
5850	50.05	-3.42	46.63	74	-27.37	peak	V
5850	35.90	-3.42	32.48	54	-21.52	AV	V

Note:

1) Through Pre-scan transmitting mode with all kind of modulation and data rate, Only the worst case is recorded in the report.

2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading - Correct Factor

Correct Factor = Preamplifier Factor– Antenna Factor–Cable Factor

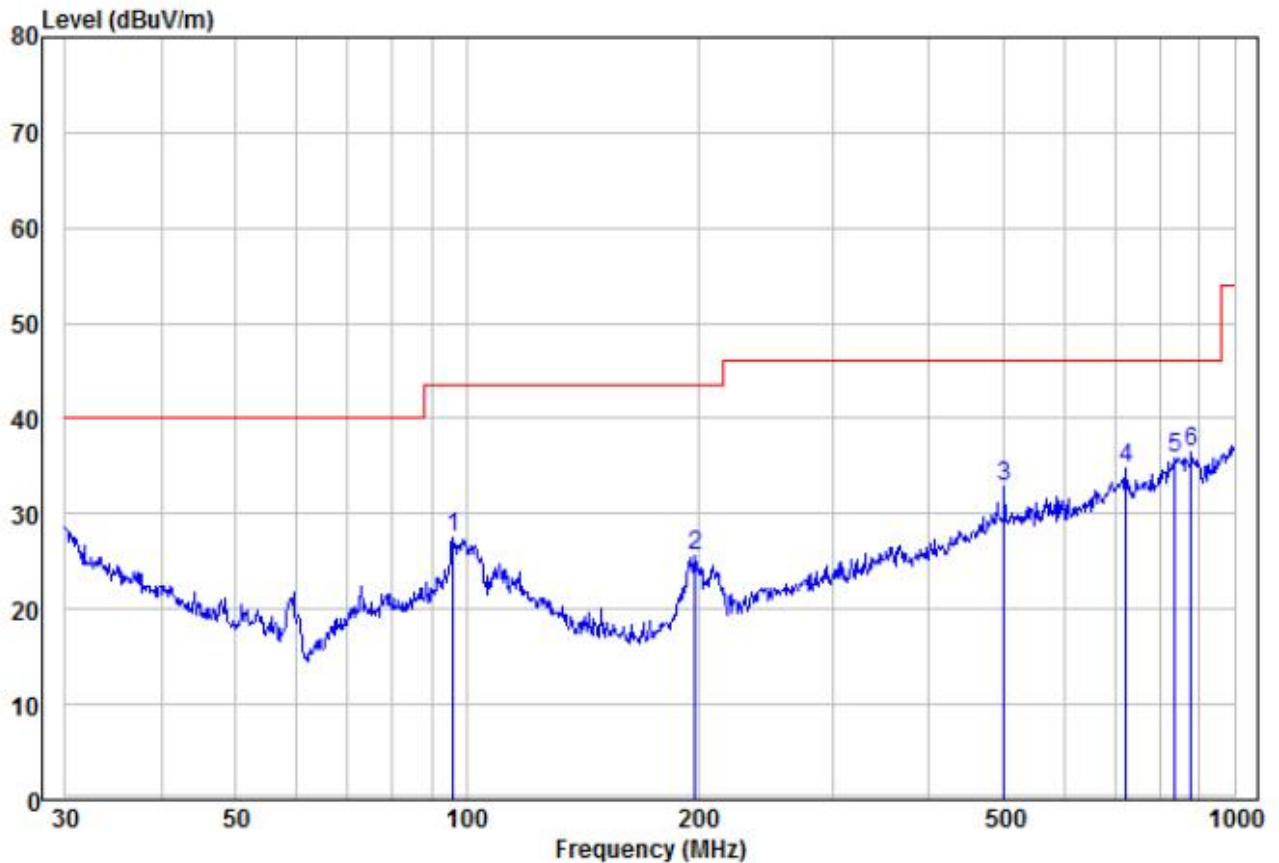
Appendix J): Radiated Spurious Emissions

Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average
Test Procedure:					
Below 1GHz test procedure as below: a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Above 1GHz test procedure as below: g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre) h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. j. Repeat above procedures until all frequencies measured was complete.					
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBµV/cm)	Remark	Measurement distance (cm)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.				
Test result: PASS					

Test Data:

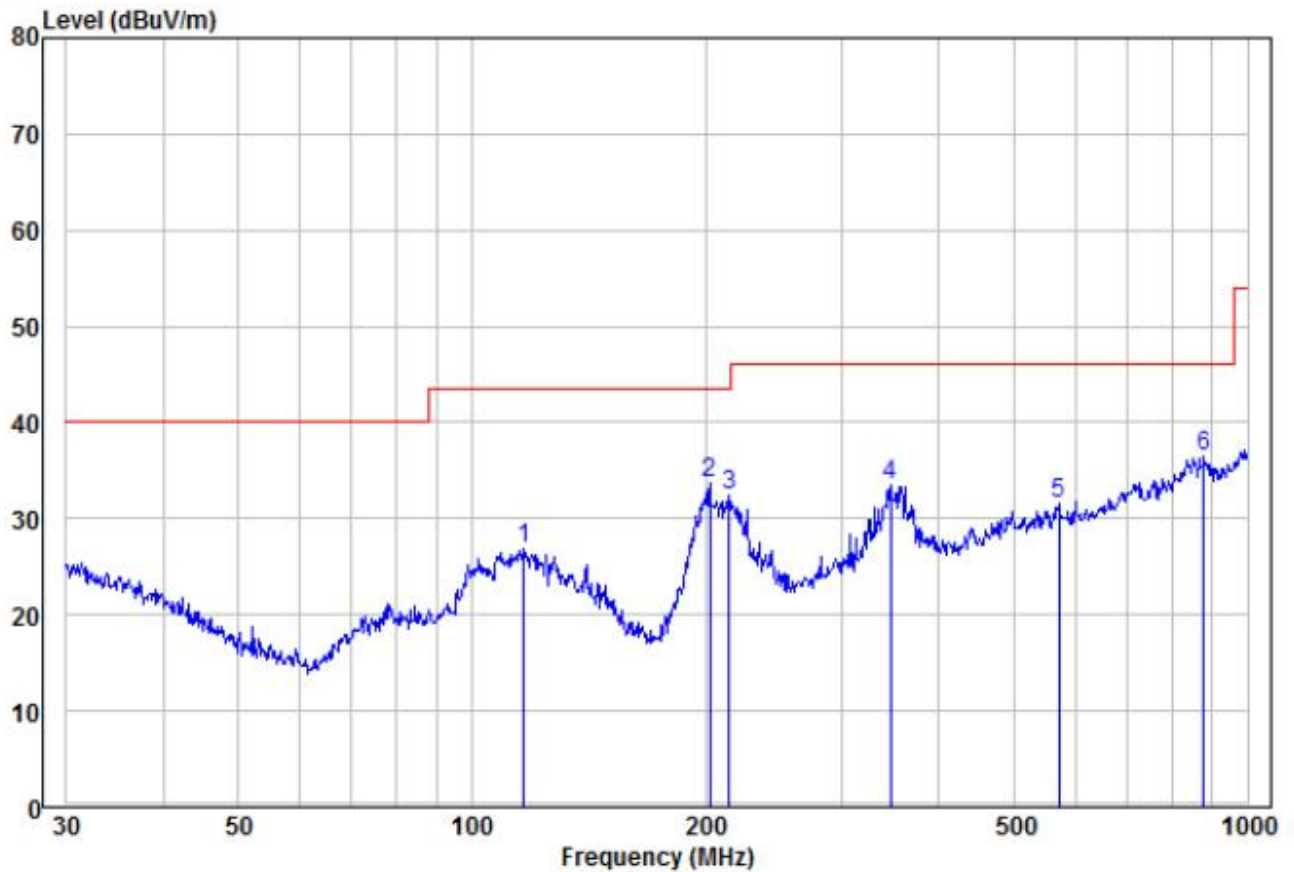
Radiated Emission below 1GHz

30MHz~1GHz		
Test mode:	Transmitting (802.11a 36CH)	Vertical



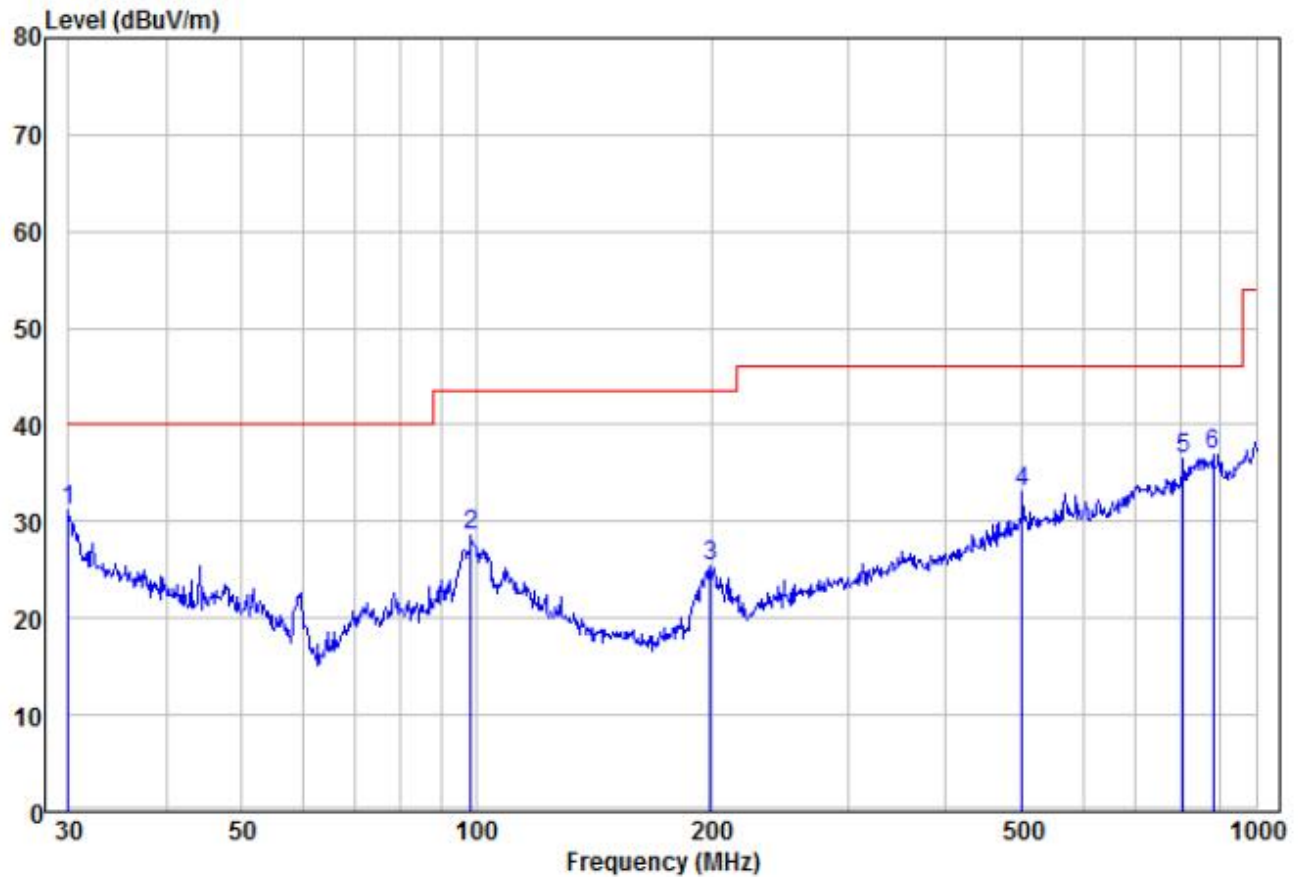
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	96.10	16.67	10.82	27.49	43.50	-16.01	Peak	VERTICAL
2	198.59	16.37	9.14	25.51	43.50	-17.99	Peak	VERTICAL
3	501.18	12.83	20.03	32.86	46.00	-13.14	Peak	VERTICAL
4	721.73	11.98	22.78	34.76	46.00	-11.24	Peak	VERTICAL
5	836.24	9.95	25.96	35.91	46.00	-10.09	Peak	VERTICAL
6 pp	878.32	10.62	25.93	36.55	46.00	-9.45	Peak	VERTICAL

Test mode:	Transmitting (802.11a 36CH)	Horizontal
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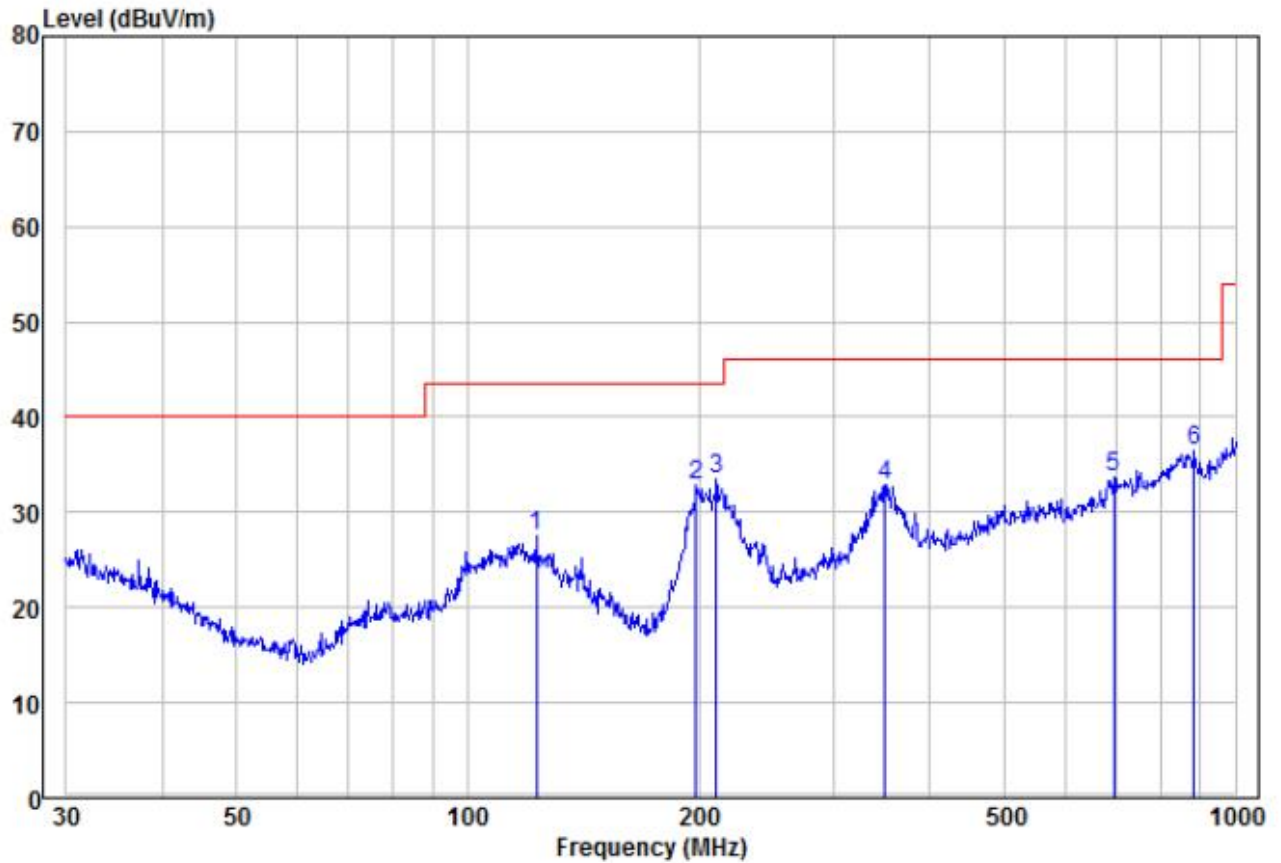
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	116.54	15.78	11.02	26.80	43.50	-16.70	Peak	HORIZONTAL
2	202.81	24.46	9.32	33.78	43.50	-9.72	Peak	HORIZONTAL
3	214.51	22.66	9.70	32.36	43.50	-11.14	Peak	HORIZONTAL
4	346.81	17.73	15.81	33.54	46.00	-12.46	Peak	HORIZONTAL
5	570.61	11.07	20.43	31.50	46.00	-14.50	Peak	HORIZONTAL
6 pp	878.32	10.55	25.93	36.48	46.00	-9.52	Peak	HORIZONTAL

30MHz~1GHz		
Test mode:	Transmitting (802.11a 149CH)	Vertical



		Read			Limit	Over		
	Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	pp	30.00	15.38	15.71	31.09	40.00	-8.91 Peak	VERTICAL
2		98.49	17.56	10.98	28.54	43.50	-14.96 Peak	VERTICAL
3		199.29	16.15	9.18	25.33	43.50	-18.17 Peak	VERTICAL
4		501.18	13.07	20.03	33.10	46.00	-12.90 Peak	VERTICAL
5		807.43	11.48	24.98	36.46	46.00	-9.54 Peak	VERTICAL
6		881.41	10.93	25.92	36.85	46.00	-9.15 Peak	VERTICAL

Test mode:	Transmitting (802.11a 149CH)	Horizontal
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	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark	Pol/Phase
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
1	122.83	16.49	11.13	27.62	43.50	-15.88	Peak	HORIZONTAL
2	198.59	23.61	9.14	32.75	43.50	-10.75	Peak	HORIZONTAL
3	210.79	23.90	9.57	33.47	43.50	-10.03	Peak	HORIZONTAL
4	349.25	17.02	15.87	32.89	46.00	-13.11	Peak	HORIZONTAL
5	694.42	11.23	22.56	33.79	46.00	-12.21	Peak	HORIZONTAL
6 pp	884.50	10.57	25.92	36.49	46.00	-9.51	Peak	HORIZONTAL

Transmitter Emission above 1GHz

Test mode:		802.11a(6Mbps)		Test channel:		36 CH	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
10360	54.18	2.26	56.44	74	-17.56	peak	H
10360	36.24	2.26	38.50	54	-15.50	AVG	H
15540	51.58	3.75	55.33	74	-18.67	peak	H
15540	37.49	3.75	41.24	54	-12.76	AVG	H
10360	56.09	2.26	58.35	74	-15.65	peak	V
10360	38.43	2.26	40.69	54	-13.31	AVG	V
15540	51.01	3.75	54.76	74	-19.24	peak	V
15540	35.40	3.75	39.15	54	-14.85	AVG	V

Test mode:		802.11a(6Mbps)		Test channel:		48 CH	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
10480	52.04	2.31	54.35	74	-19.65	peak	H
10480	37.97	2.31	40.28	54	-13.72	AVG	H
15720	49.76	3.79	53.55	74	-20.45	peak	H
15720	35.32	3.79	39.11	54	-14.89	AVG	H
10480	53.46	2.31	55.77	74	-18.23	peak	V
10480	37.48	2.31	39.79	54	-14.21	AVG	V
15720	49.31	3.79	53.10	74	-20.90	peak	V
15720	36.69	3.79	40.48	54	-13.52	AVG	V

Test mode: 802.11a(6Mbps)				Test channel:		149	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
11490	52.18	2.54	54.72	74	-19.28	peak	H
11490	37.89	2.54	40.43	54	-13.57	AVG	H
17235	50.61	3.94	54.55	74	-19.45	peak	H
17235	36.08	3.94	40.02	54	-13.98	AVG	H
11490	54.53	2.54	57.07	74	-16.93	peak	V
11490	37.71	2.54	40.25	54	-13.75	AVG	V
17235	50.71	3.94	54.65	74	-19.35	peak	V
17235	36.59	3.94	40.53	54	-13.47	AVG	V

Test mode: 802.11a(6Mbps)				Test channel:		165	
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detector Type	Ant. Pol.
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V
11650	52.30	2.58	54.88	74	-19.12	peak	H
11650	37.30	2.58	39.88	54	-14.12	AVG	H
17475	50.70	4.02	54.72	74	-19.28	peak	H
17475	37.62	4.02	41.64	54	-12.36	AVG	H
11650	53.80	2.58	56.38	74	-17.62	peak	V
11650	37.75	2.58	40.33	54	-13.67	AVG	V
17475	50.19	4.02	54.21	74	-19.79	peak	V
17475	37.22	4.02	41.24	54	-12.76	AVG	V

Remark:

- 1) The 802.11a 6Mbps of rate is the worst case, only the worst data recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 3) Scan from 9kHz to 40GHz, The disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

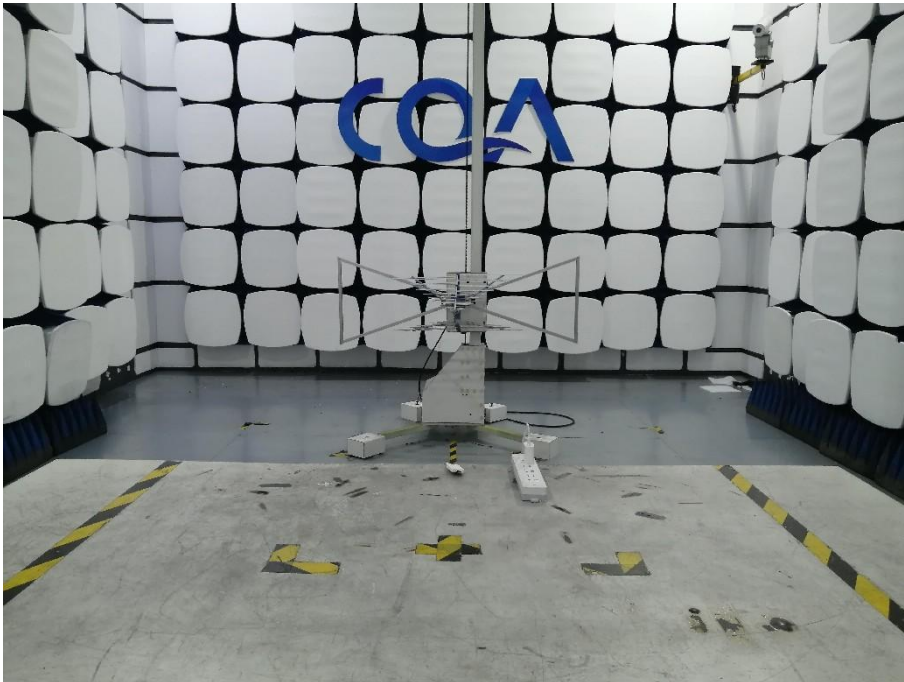
8 Photographs - EUT Test Setup

8.1 Radiated Spurious Emission

9kHz~30MHz:



30MHz~1GHz:



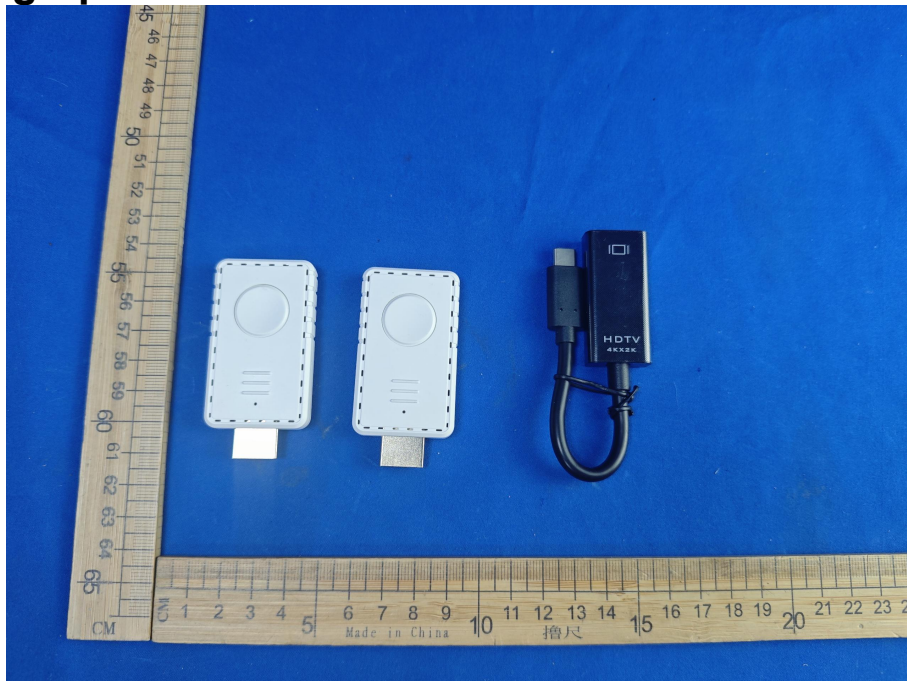
Above 1GHz:

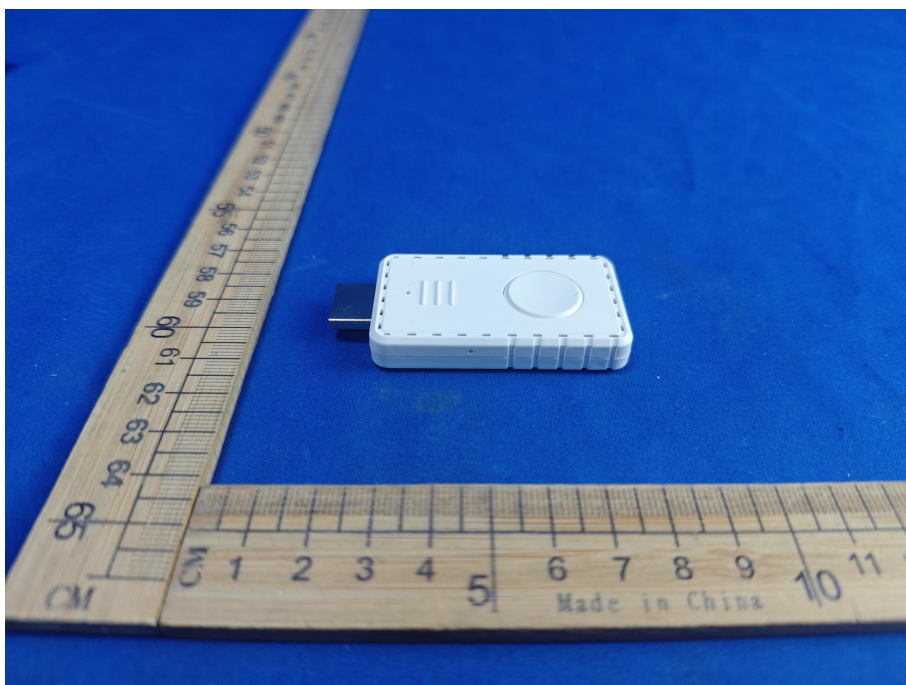
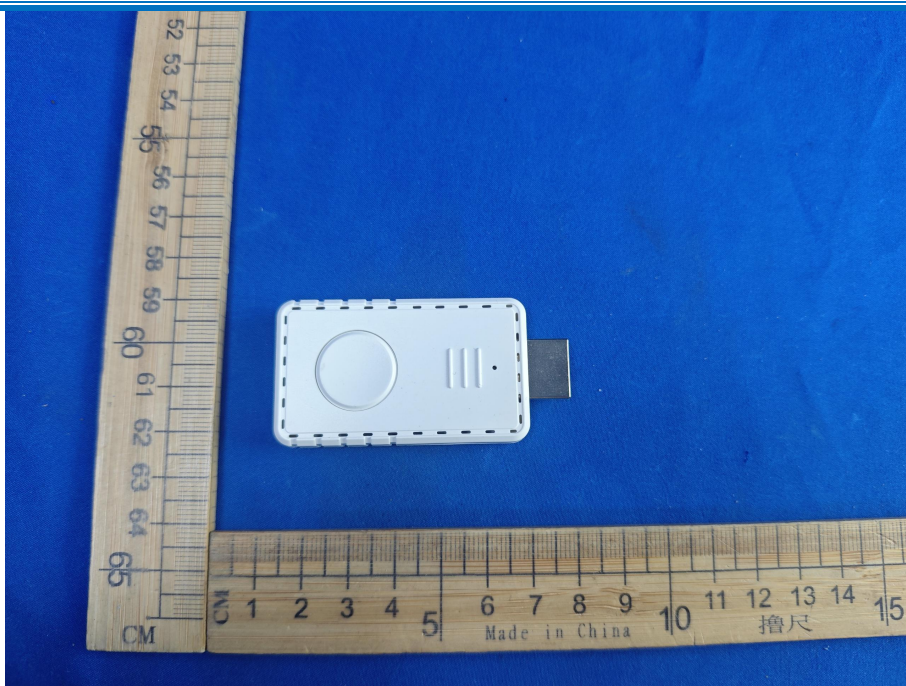


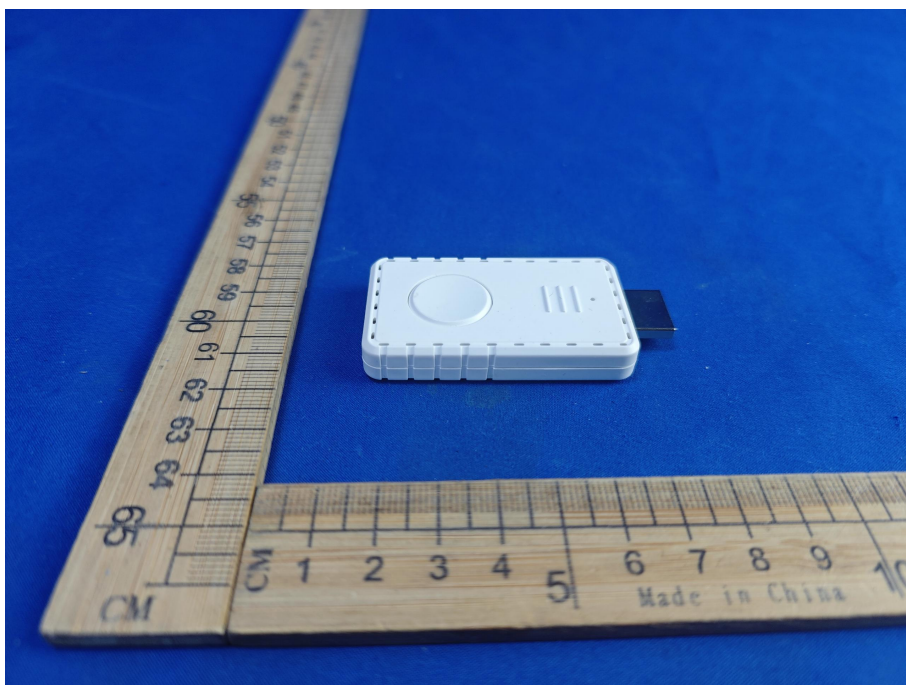
8.2 Conducted Emission

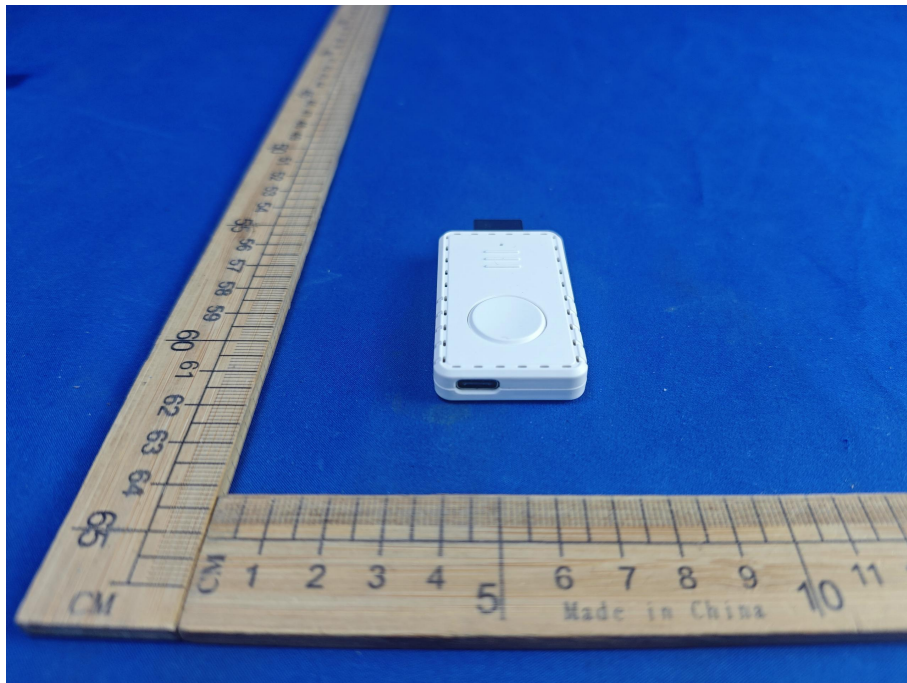


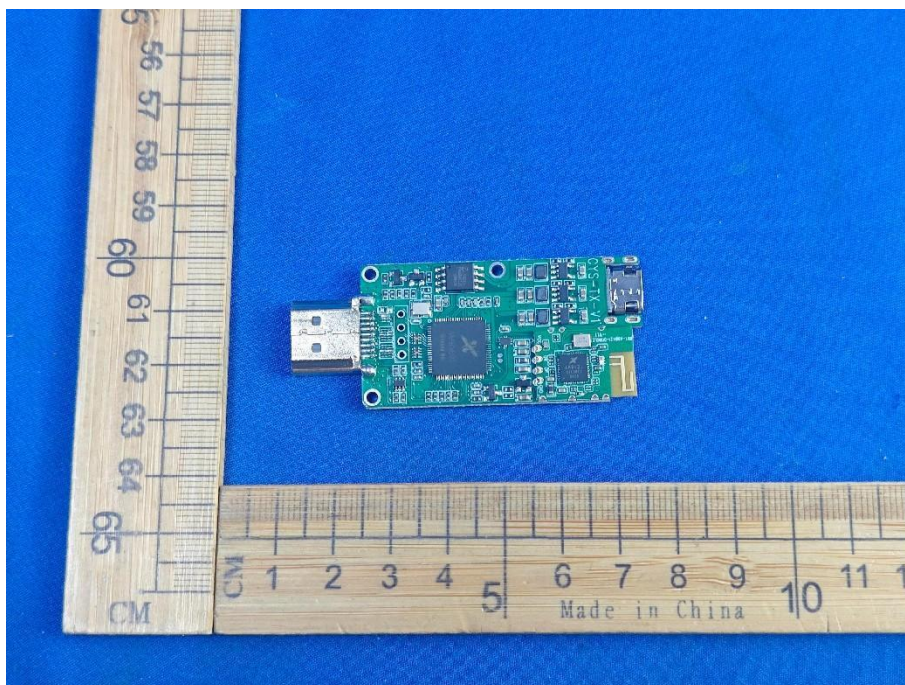
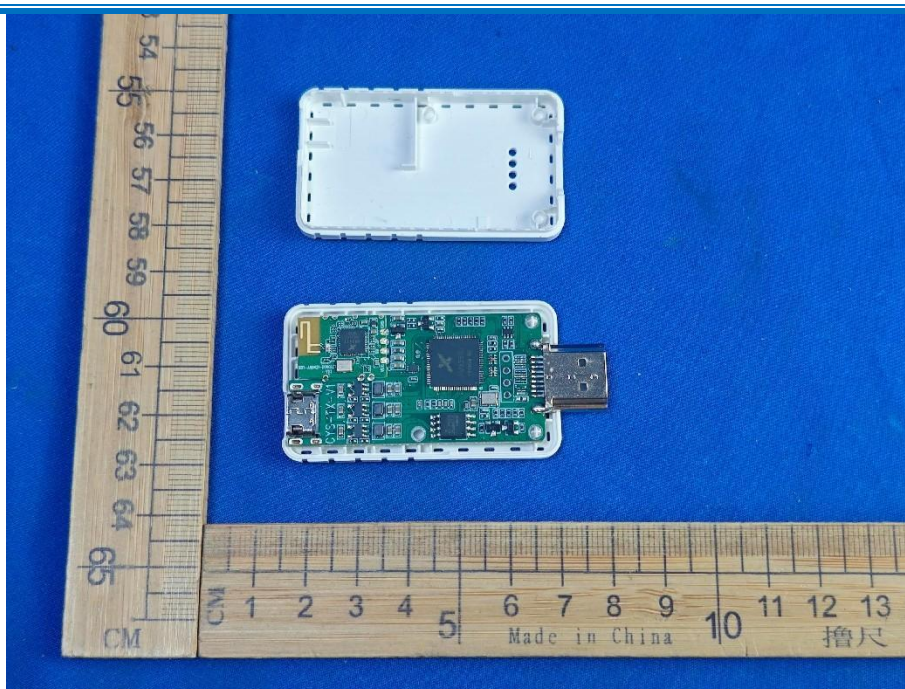
9 Photographs - EUT Constructional Details

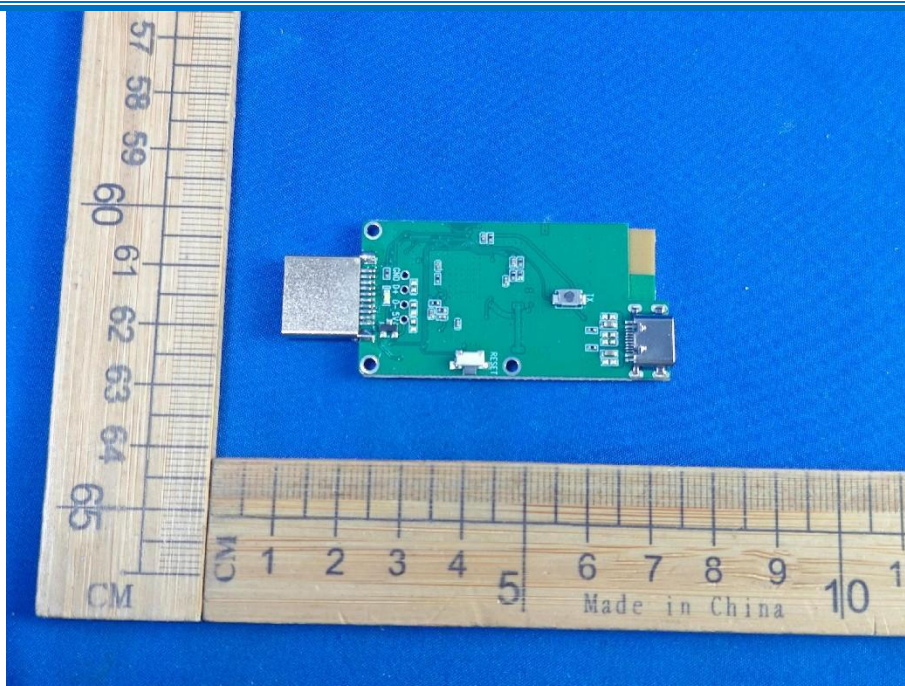












*** END OF REPORT ***