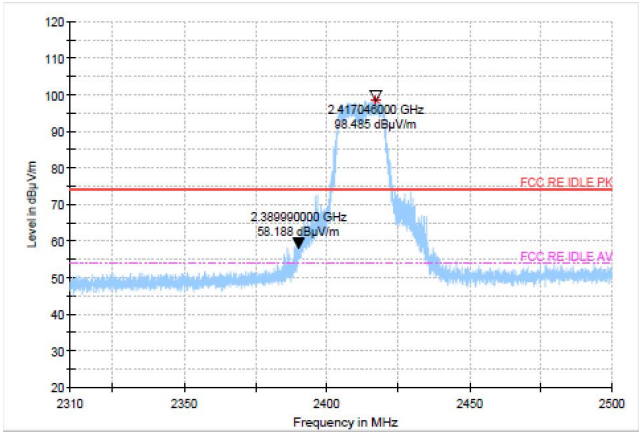
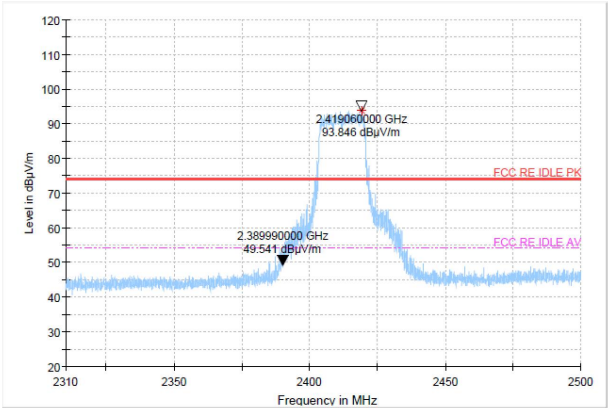
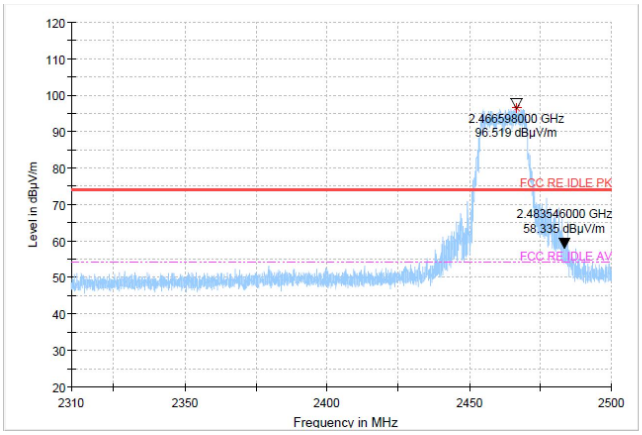
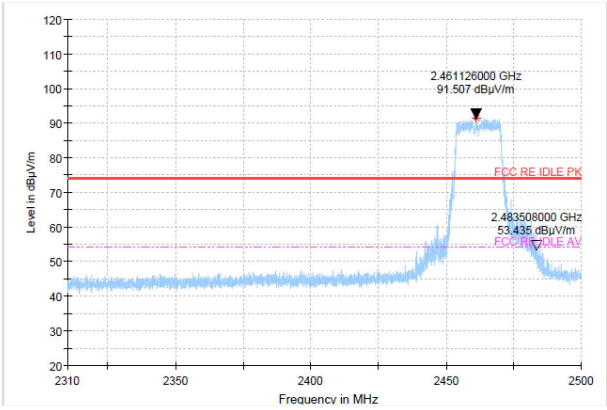
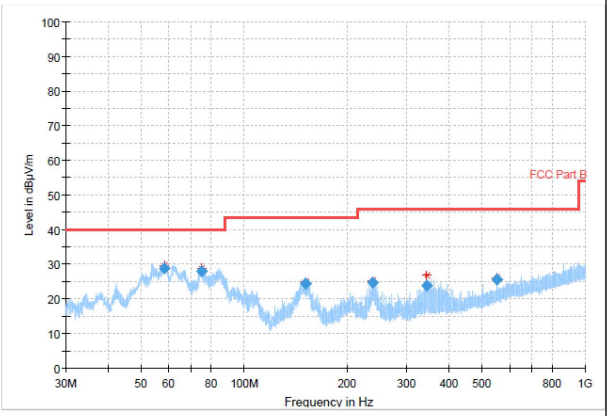
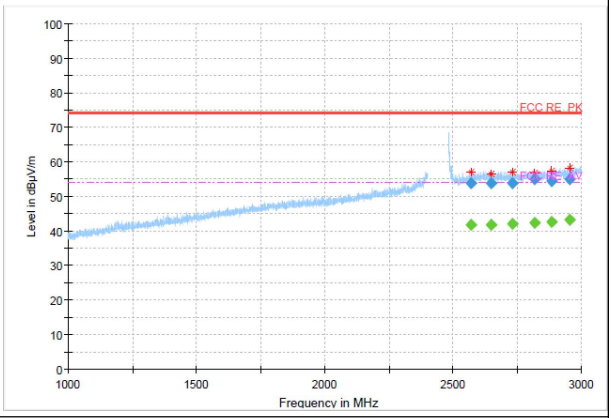
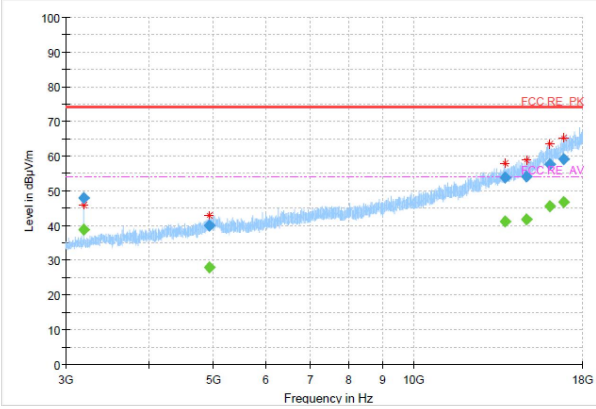
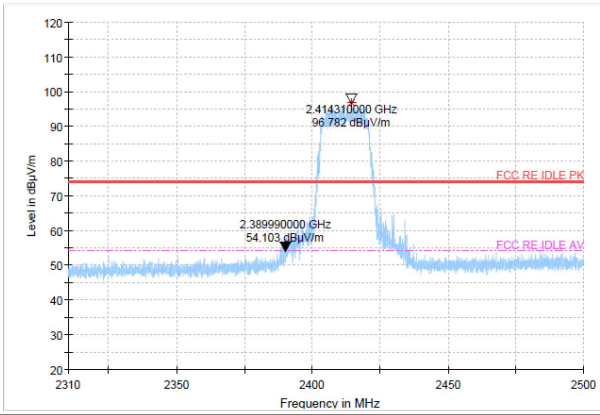
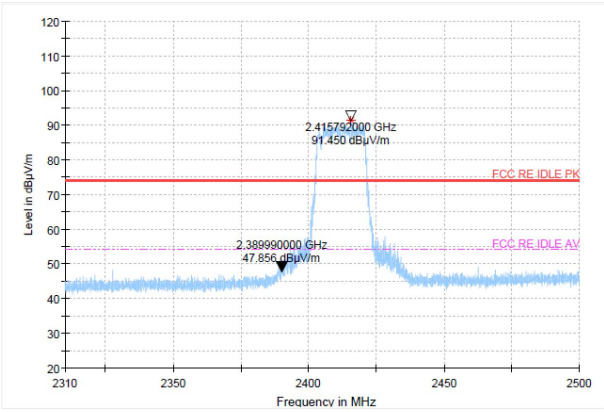
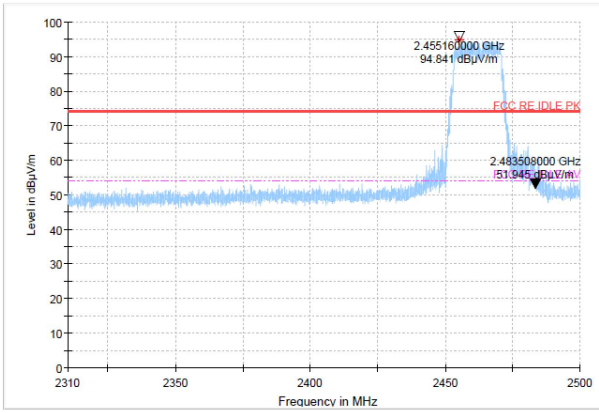
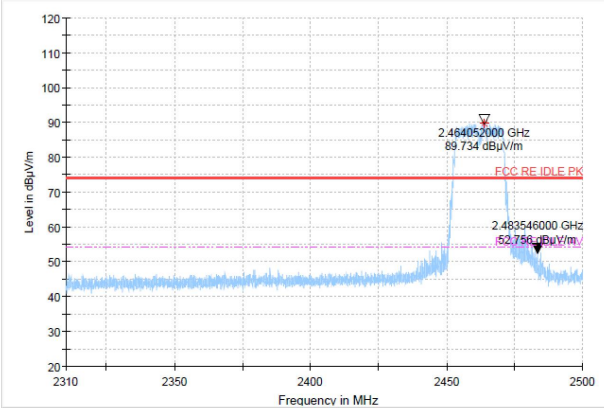
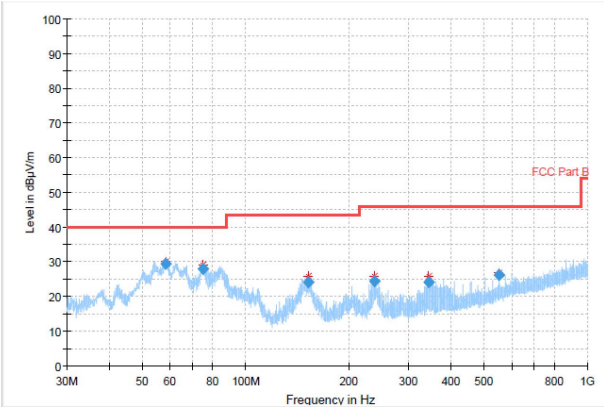
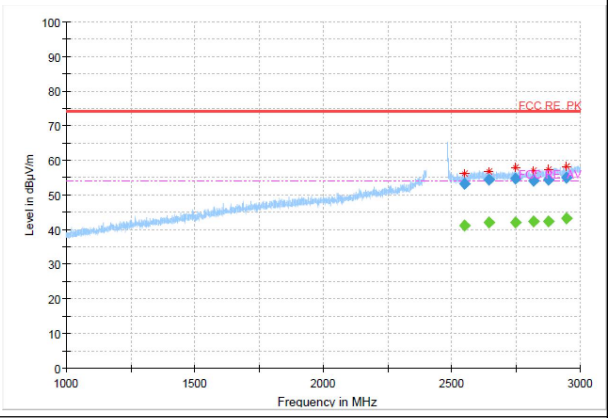
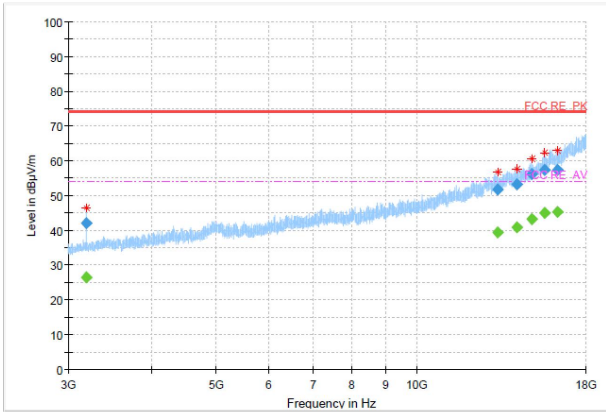
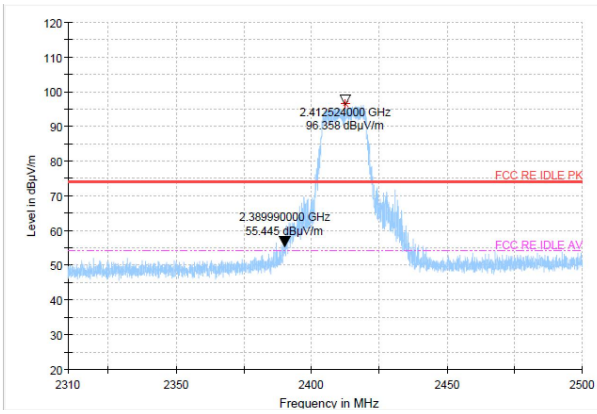
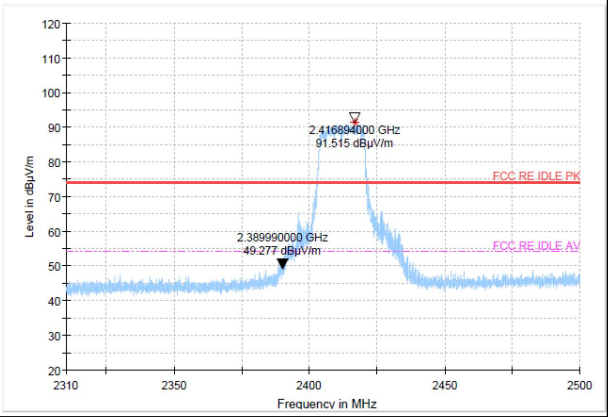
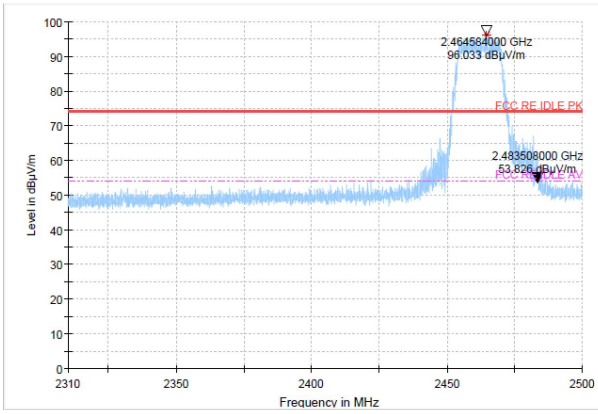
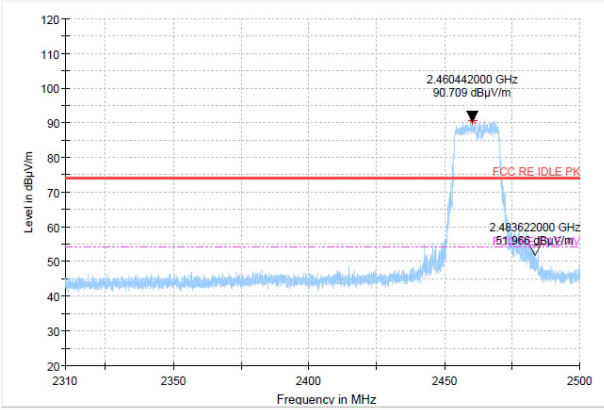
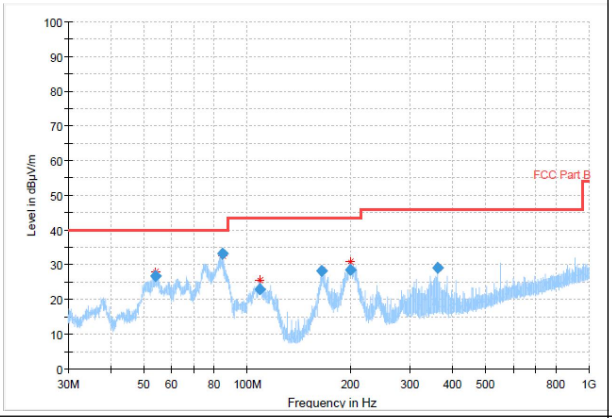
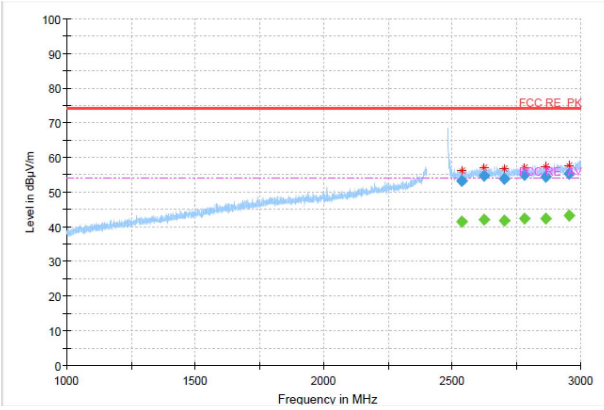
Band edge: 802.11g, low channel	
Peak detector	AV detector
	
Band edge: 802.11g, high channel	
Peak detector	AV detector
	

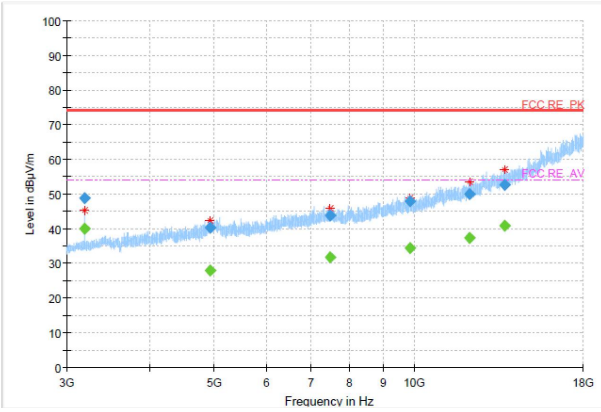
Radiated Spurious Emission (802.11g, Ch11,30MHz~1GHz)	Radiated Spurious Emission (802.11g, Ch11,1GHz~3GHz)
	
Radiated Spurious Emission (802.11g, Ch11, 3GHz~18GHz)	/
	/

Band edge: 802.11n-20MHz, low channel	
Peak detector	AV detector
	

Band edge: 802.11n-20MHz, high channel	
Peak detector	AV detector
	

Radiated Spurious Emission (802.11n-20MHz, Ch11,30MHz~1GHz)	Radiated Spurious Emission (802.11n-20MHz, Ch11,1GHz~3GHz)
	
Radiated Spurious Emission (802.11n-20MHz, Ch11, 3GHz~18GHz)	/
	/

Band edge: 802.11g, low channel	
Peak detector	AV detector
	
Band edge: 802.11g, high channel	
Peak detector	AV detector
	
Radiated Spurious Emission (802.11g, Ch11,30MHz~1GHz)	Radiated Spurious Emission (802.11g, Ch11,1GHz~3GHz)
	
Radiated Spurious Emission (802.11g, Ch11,3GHz~18GHz)	/

	/

Note:

A ”reference path loss” is established and A_{Rpi} is the attenuation of “reference path loss”, and including the gain of receive antenna , the gain of the preamplifier, the cable loss.

P_{Mea} is the field strength recorded from the instrument.

The measurement results are obtained as described below:

ARpi = Cable loss + Antenna Gain-Preamplifier gain

Result = P_{Mea} + Cable loss + Antenna Gain-Preamplifier gain = P_{Mea} + ARpi .

Mainly Supply-12V

802.11b mode

Ch11 30MHz~1GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
58.85	28.63	-16.3	44.93	V
75.59	28.21	-19.8	48.01	V
147.47	24.36	-19.6	43.96	H
236.54	22.14	-14.2	36.34	H
358.92	23.39	-10.8	34.19	H
552.00	26.59	-6	32.59	H

Ch11 1GHz~3GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2579.45	53.89	17	36.89	H
2675.40	54.45	17.3	37.15	V
2758.04	54.53	17.5	37.03	V
2827.77	54.03	17.8	36.23	H
2897.50	55.22	18.3	36.92	V
2968.42	55.37	18.9	36.47	V

Ch11 1GHz~3GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2579.45	41.81	17	24.81	H
2675.40	42.2	17.3	24.9	V
2758.04	41.97	17.5	24.47	V
2827.77	42.16	17.8	24.36	H
2897.50	42.89	18.3	24.59	V
2968.42	43.18	18.9	24.28	V

Ch11 3GHz~18GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3192.00	48.48	-3.2	51.68	V
12708.10	51.82	17.3	34.52	V
13642.40	52.55	18.1	34.45	V
14869.50	54.73	21.7	33.03	V
15990.10	57.96	25.3	32.66	H
16947.30	60.08	27.8	32.28	V

Ch11 3GHz~18GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3192.00	39.04	-3.2	42.24	V
12708.10	39.26	17.3	21.96	V
13642.40	40.72	18.1	22.62	V
14869.50	43.08	21.7	21.38	V
15990.10	45.91	25.3	20.61	H
16947.30	48.15	27.8	20.35	V

802.11g mode

Ch11 30MHz~1GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
58.54	28.81	-16.3	45.11	V
75.06	28.04	-19.7	47.74	V
151.23	24.46	-19.3	43.76	H
237.58	24.84	-14.2	39.04	H
342.91	23.82	-11.2	35.02	V
551.99	25.49	-6	31.49	H

Ch11 1GHz~3GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2570.70	53.73	16.9	36.83	V
2648.97	53.88	17.3	36.58	H
2733.41	53.78	17.4	36.38	H
2816.65	54.9	17.7	37.2	H
2885.78	54.51	18.2	36.31	H
2952.52	55.11	18.6	36.51	V

Ch11 1GHz~3GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2570.70	41.75	16.9	24.85	V
2648.97	41.9	17.3	24.6	H
2733.41	42	17.4	24.6	H
2816.65	42.23	17.7	24.53	H
2885.78	42.61	18.2	24.41	H
2952.52	43.19	18.6	24.59	V

Ch11 3GHz~18GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3192.00	47.92	-3.2	51.12	V
4927.00	40.14	3.1	37.04	V
13748.50	53.9	18.4	35.5	H
14819.10	54.07	20.5	33.57	V
16035.50	57.53	25	32.53	H
16824.00	59.26	27	32.26	H

Ch11 3GHz~18GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3192.00	38.75	-3.2	41.95	V
4927.00	27.9	3.1	24.8	V
13748.50	41.22	18.4	22.82	H
14819.10	41.77	20.5	21.27	V
16035.50	45.55	25	20.55	H
16824.00	46.79	27	19.79	H

802.11n-20MHz

Ch11 30MHz~1GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
58.60	29.4	-16.3	45.7	V
75.31	27.89	-19.7	47.59	V
153.02	24.18	-19.1	43.28	H
237.60	24.52	-14.2	38.72	H
343.01	24.06	-11.2	35.26	V
552.02	26.09	-6	32.09	H

Ch11 1GHz~3GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2549.25	53.36	16.6	36.76	H
2643.22	54.32	17.3	37.02	H
2746.72	54.82	17.4	37.42	V
2816.65	54.21	17.7	36.51	H
2874.85	54.38	18.1	36.28	V
2947.75	55.14	18.6	36.54	H

Ch11 1GHz~3GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2549.25	41.11	16.6	24.51	H
2643.22	41.93	17.3	24.63	H
2746.72	42.18	17.4	24.78	V
2816.65	42.25	17.7	24.55	H
2874.85	42.29	18.1	24.19	V
2947.75	43.24	18.6	24.64	H

Ch11 3GHz~18GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3191.60	42.18	-3.2	45.38	H
13240.30	51.87	17.3	34.57	H
14150.40	53.21	19.1	34.11	V
14907.30	56.03	22.3	33.73	H
15617.50	57.4	24.4	33	V
16278.30	57.39	25	32.39	V

Ch11 3GHz~18GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3191.60	26.59	-3.2	29.79	H
13240.30	39.38	17.3	22.08	H
14150.40	40.75	19.1	21.65	V
14907.30	43.27	22.3	20.97	H
15617.50	44.92	24.4	20.52	V
16278.30	45.2	25	20.2	V

Mainly Supply-24V

802.11g mode

Ch11 30MHz~1GHz

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
53.82	26.91	-15.7	42.61	V
84.60	33.11	-19.5	52.61	V
109.04	23.02	-16.3	39.32	H
165.91	28.33	-17.7	46.03	H
200.12	28.46	-15.8	44.26	H
360.00	28.99	-10.8	39.79	H

Ch11 1GHz~3GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2538.33	53.33	16.3	37.03	H
2623.55	54.56	17.3	37.26	V
2701.22	53.82	17.3	36.52	V
2780.29	55.05	17.5	37.55	V
2861.74	54.39	18	36.39	V
2954.30	55.38	18.6	36.78	H

Ch11 1GHz~3GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
2538.33	41.45	16.3	25.15	H
2623.55	41.94	17.3	24.64	V
2701.22	41.85	17.3	24.55	V
2780.29	42.25	17.5	24.75	V
2861.74	42.36	18	24.36	V
2954.30	43.18	18.6	24.58	H

Ch11 3GHz~18GHz (Peak)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3192.10	48.77	-3.2	51.97	V
4932.20	40.24	3.2	37.04	H
7487.60	43.85	6.2	37.65	H
9874.70	47.81	9.9	37.91	H
12143.30	50.02	15.4	34.62	V
13710.40	52.72	18.5	34.22	H

Ch11 3GHz~18GHz (Average)

Frequency(MHz)	Result(dBuV/m)	ARpl (dB)	PMea(dBuV/m)	Polarity
3192.10	40.09	-3.2	43.29	V
4932.20	27.93	3.2	24.73	H
7487.60	31.78	6.2	25.58	H
9874.70	34.4	9.9	24.5	H
12143.30	37.28	15.4	21.88	V
13710.40	40.79	18.5	22.29	H

Note: Only the worst case is written in the report.

7. Test Equipment List

7.1. Conducted Test System

Item	Equipment Name	Type	Serial Number	Manufacturer	Cal. Date	Cal. interval
1	Vector Signal Analyzer	FSQ26	101091	R&S	2020-05-11 2021-05-10	1 year
2	DC Power Supply	ZUP60-14	LOC-220Z006-0007	TDL-Lambda	2020-05-11 2021-05-10	1 year
3	Eagle Test Software	Eagle V3.1 FCC BT/WIFI	N/A	ECIT	N/A	N/A

7.2. Radiated Emission Test System

Item	Equipment Name	Type	Serial Number	Manufacturer	Cal. Date	Cal. interval
1	Universal Radio Communication Tester	CMU200	123123	R&S	2020-05-11 2021-05-10	1 year
2	EMI Test Receiver	ESU40	100307	R&S	2021-03-03	1 year
3	TRILOG Broadband Antenna	VULB9163	VULB9163-515	Schwarzbeck	2021-02-03	2 years
4	Double- ridged Waveguide Antenna	ETS-3117	00135890	ETS	2020-02-28	3 years
5	Universal Radio Communication Tester	CMW500	104178	R&S	2020-05-11 2021-05-10	1 year
6	EMI Test Software	EMC32 V 9.15.00	N/A	R&S	N/A	N/A

Anechoic chamber

Fully anechoic chamber by ETS.

Annex A: Measurement Uncertainty

Measurement uncertainty for all the testing in this report are within the limit specified in 3IN documents . The detailed measurement uncertainty is defined in 3IN documents.

Measurement Items	Range	Confidence Level	Calculated Uncertainty
Peak Output Power-Conducted	2412MHz-2462MHz	95%	0.544dB
Peak Power Spectral Density	2412MHz-2462MHz	95%	0.502dB
Occupied 6dB Bandwidth	2412MHz-2462MHz	95%	69.26kHz
Band Edges-Conducted	2412MHz-2462MHz	95%	0.544dB
Conducted Emission	30MHz-2GHz	95%	0.90dB
Conducted Emission	2GHz-3.6GHz	95%	0.88dB
Conducted Emission	3.6GHz-8GHz	95%	0.96dB
Conducted Emission	8GHz-20GHz	95%	0.94dB
Conducted Emission	20GHz-22GHz	95%	0.88dB
Conducted Emission	22GHz-26GHz	95%	0.86dB
Transmitter Spurious Emission-Radiated	9KHz-30MHz	95%	5.66dB
Transmitter Spurious Emission-Radiated	30MHz-1000MHz	95%	4.98dB
Transmitter Spurious Emission-Radiated	1000MHz -18000MHz	95%	5.06dB
Transmitter Spurious Emission-Radiated	18000MHz -40000MHz	95%	5.20dB
AC Power line Conducted Emission	0.15MHz-30MHz	95%	3.66 dB

Annex B: Accreditation Certificate

Accredited Laboratory

A2LA has accredited

INDUSTRIAL INTERNET INNOVATION CENTER (SHANGHAI) CO., LTD.

Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 12th day of April 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2023

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

**********END OF REPORT**********