

7.5.5. Test Result

TestMode	Antenna	Channel	FreqRange [Mhz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
11B	Ant1	2412	Reference	5.52	5.52	---	PASS
			30~1000	5.52	-62.11	≤-14.48	PASS
			1000~26500	5.52	-41.23	≤-14.48	PASS
		2437	Reference	5.00	5.00	---	PASS
			30~1000	5.00	-62.15	≤-15	PASS
			1000~26500	5.00	-42.52	≤-15	PASS
		2462	Reference	5.49	5.49	---	PASS
			30~1000	5.49	-61.81	≤-14.51	PASS
			1000~26500	5.49	-45.52	≤-14.51	PASS
11G	Ant1	2412	Reference	-0.62	-0.62	---	PASS
			30~1000	-0.62	-62.5	≤-20.62	PASS
			1000~26500	-0.62	-53.15	≤-20.62	PASS
		2437	Reference	-1.37	-1.37	---	PASS
			30~1000	-1.37	-61.31	≤-21.37	PASS
			1000~26500	-1.37	-44.69	≤-21.37	PASS
		2462	Reference	-0.70	-0.70	---	PASS
			30~1000	-0.70	-62.24	≤-20.7	PASS
			1000~26500	-0.70	-51.25	≤-20.7	PASS
11N20SISO	Ant1	2412	Reference	-2.38	-2.38	---	PASS
			30~1000	-2.38	-62.29	≤-22.38	PASS
			1000~26500	-2.38	-53.08	≤-22.38	PASS
		2437	Reference	-3.18	-3.18	---	PASS
			30~1000	-3.18	-62.89	≤-23.18	PASS
			1000~26500	-3.18	-53.37	≤-23.18	PASS
		2462	Reference	-2.60	-2.60	---	PASS
			30~1000	-2.60	-62.31	≤-22.6	PASS
			1000~26500	-2.60	-49.68	≤-22.6	PASS

11B_Ant1_Low_2412



11B_Ant1_High_2462



11G_Ant1_Low_2412



11G_Ant1_High_2462



11N20SISO_Ant1_Low_2412



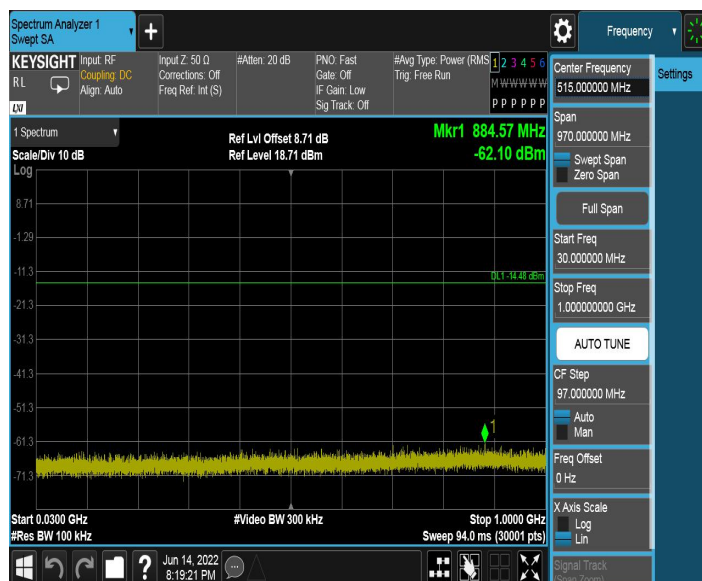
11N20SISO_Ant1_High_2462



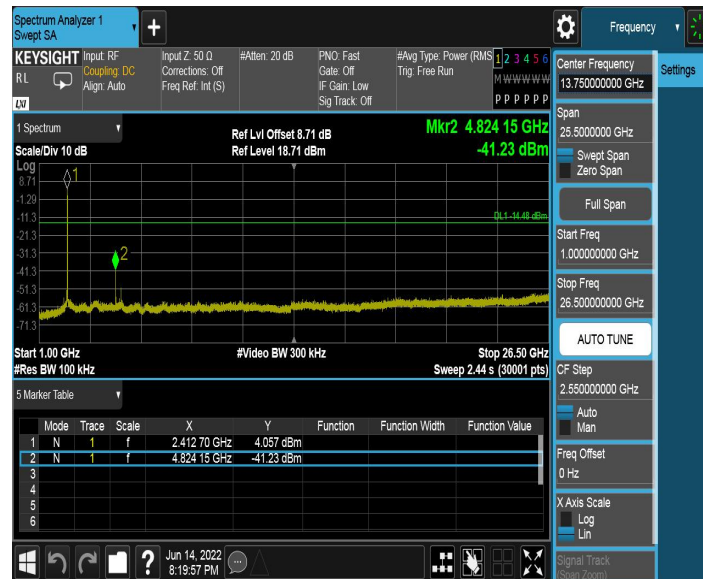
11B_Ant1_2412_0~Reference



11B_Ant1_2412_30~1000



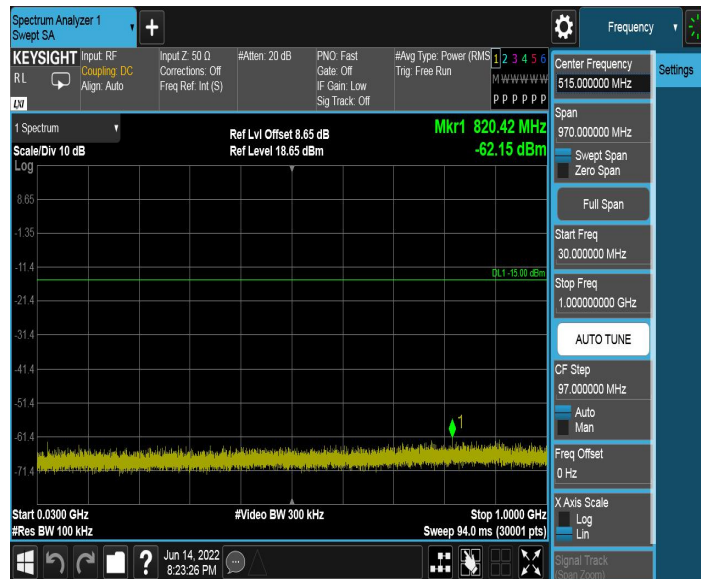
11B_Ant1_2412_1000~26500



11B_Ant1_2437_0~Reference



11B_Ant1_2437_30~1000



11B_Ant1_2437_1000~26500



11B_Ant1_2462_0~Reference



11B_Ant1_2462_30~1000



11B_Ant1_2462_1000~26500



11G_Ant1_2412_0~Reference



11G_Ant1_2412_30~1000



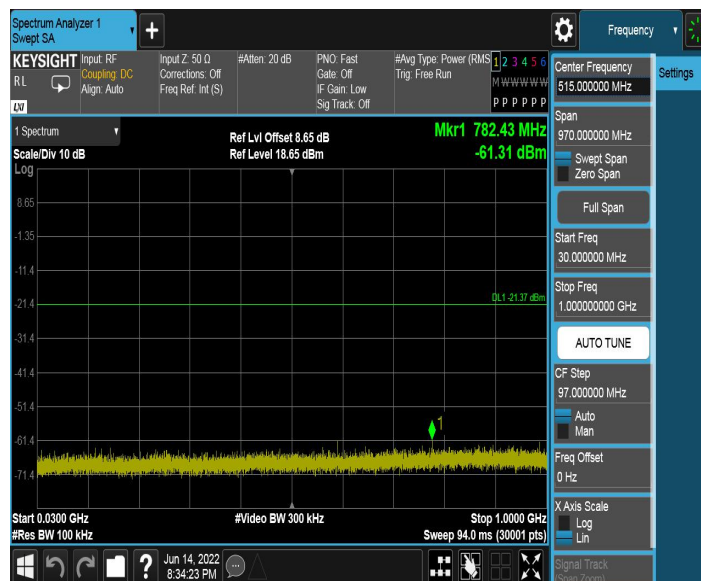
11G_Ant1_2412_1000~26500



11G_Ant1_2437_0~Reference



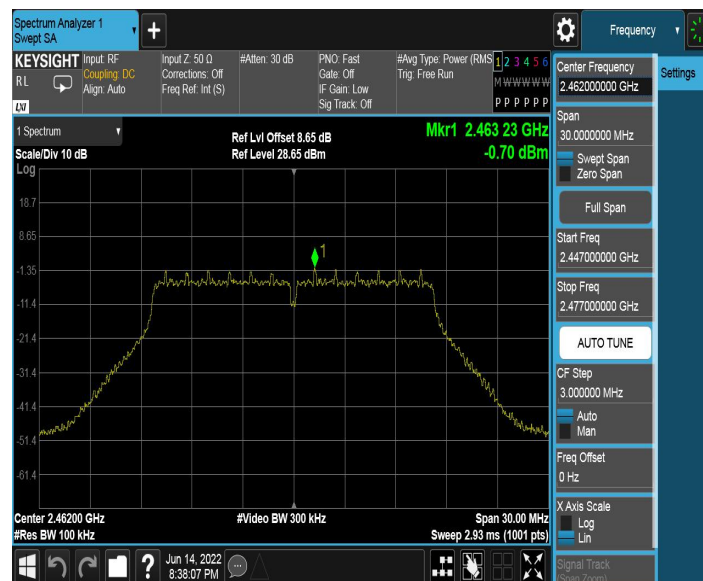
11G_Ant1_2437_30~1000



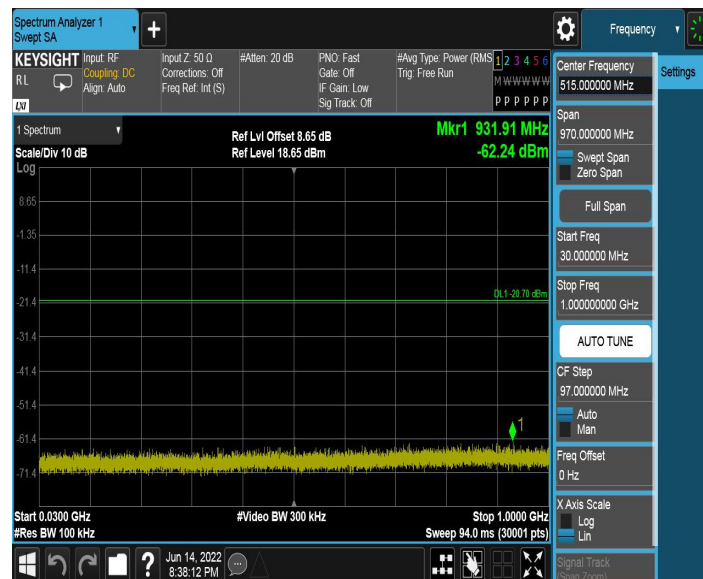
11G_Ant1_2437_1000~26500



11G_Ant1_2462_0~Reference



11G_Ant1_2462_30~1000



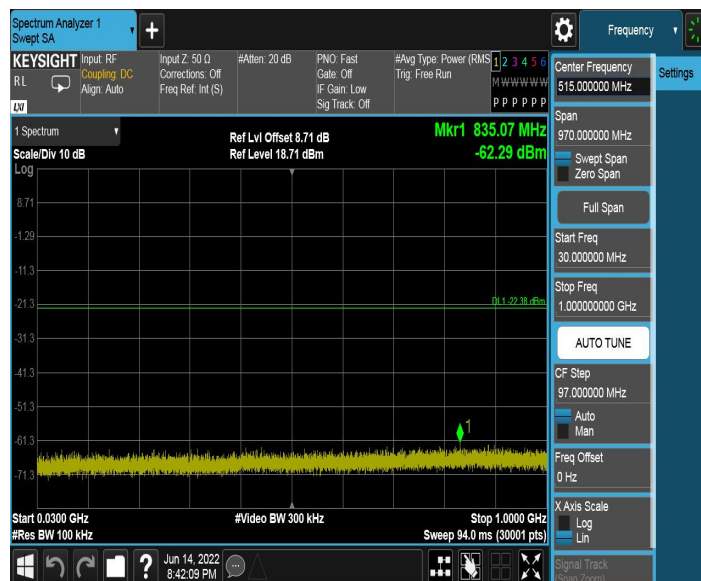
11G_Ant1_2462_1000~26500



11N20SISO_Ant1_2412_0~Reference



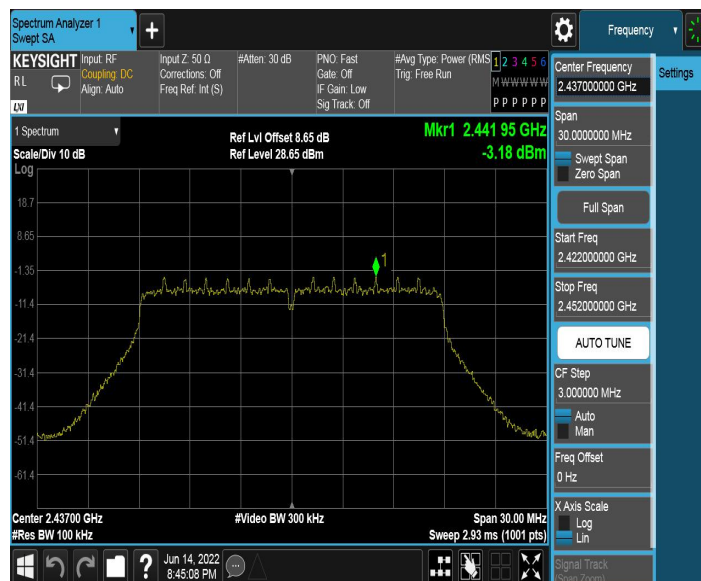
11N20SISO_Ant1_2412_30~1000



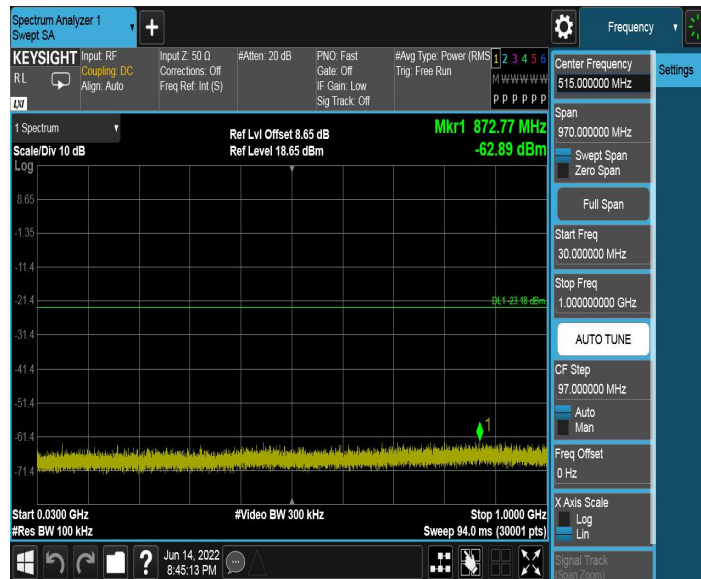
11N20SISO_Ant1_2412_1000~26500



11N20SISO_Ant1_2437_0~Reference



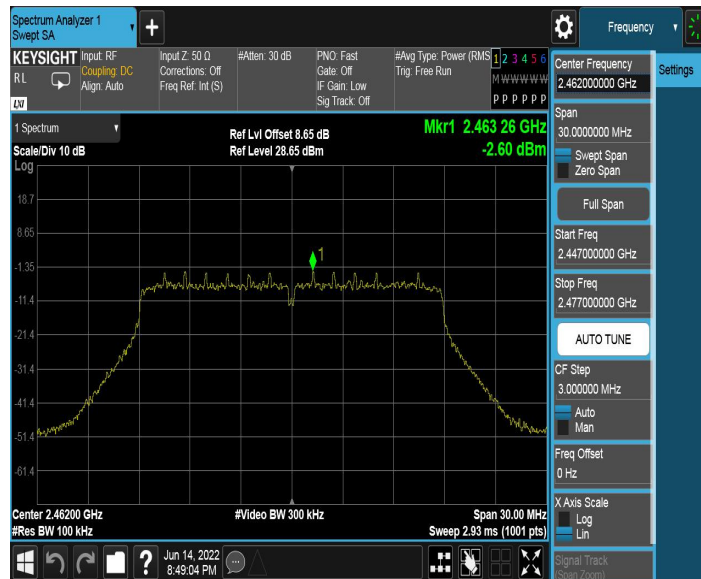
11N20SISO_Ant1_2437_30~1000



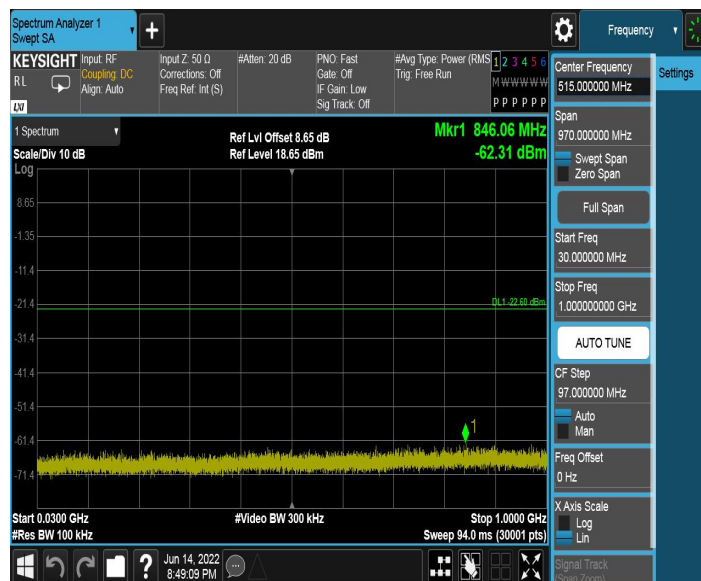
11N20SISO_Ant1_2437_1000~26500



11N20SISO_Ant1_2462_0~Reference



11N20SISO_Ant1_2462_30~1000



11N20SISO_Ant1_2462_1000~26500



7.6. Radiated Spurious Emission Measurement

7.6.1. Test Limit

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table per Section 15.209.

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 – 0.490	2400/F (kHz)	300
0.490 – 1.705	24000/F (kHz)	30
1.705 - 30	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

7.6.2. Test Procedure Used

ANSI C63.10-2013 – Section 6.6.4.3

7.6.3. Test Setting

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = as specified in Table 1
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Table 1 - RBW as a function of frequency

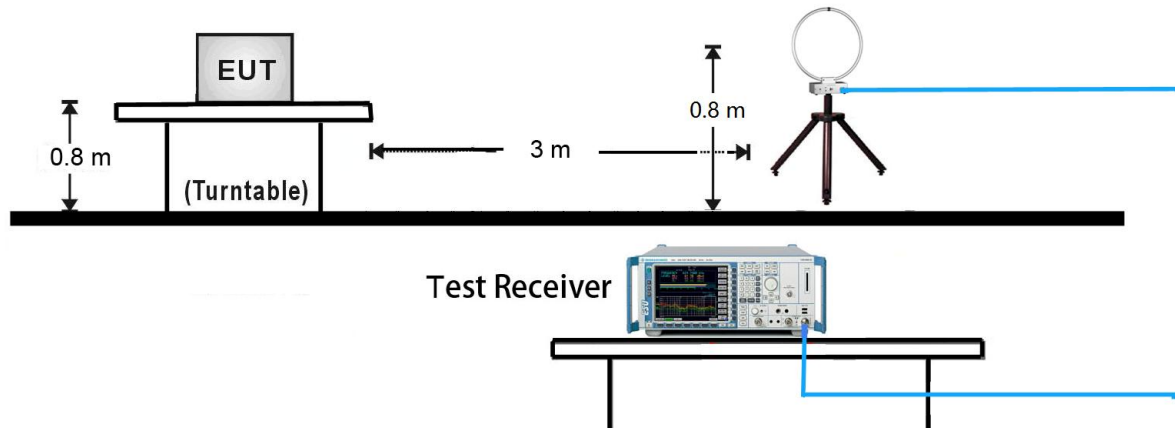
Frequency	RBW
9 ~ 150 kHz	200 ~ 300 Hz
0.15 ~ 30 MHz	9 ~ 10 kHz
30 ~ 1000 MHz	100 ~ 120 kHz
> 1000 MHz	1 MHz

Average Field Strength Measurements

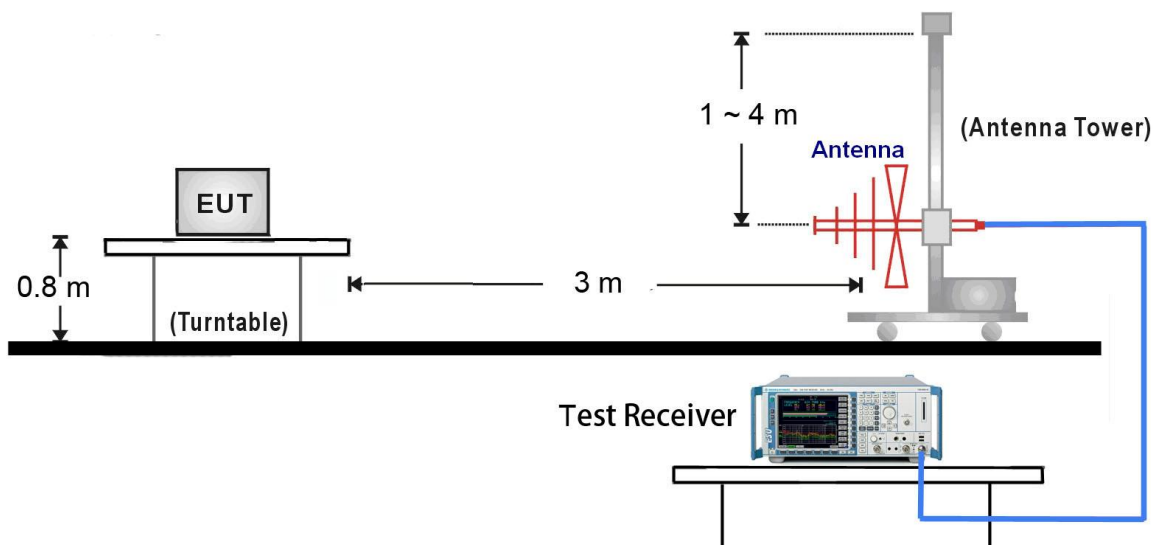
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = Power Average (RMS)
5. Number of sweep point = 2001 (Number of sweep points must be $\geq 2 \times \text{span} / \text{RBW}$)
6. Sweep time = auto
7. Trace (RMS) averaging was performed over at least 100 traces.

7.6.4. Test Setup

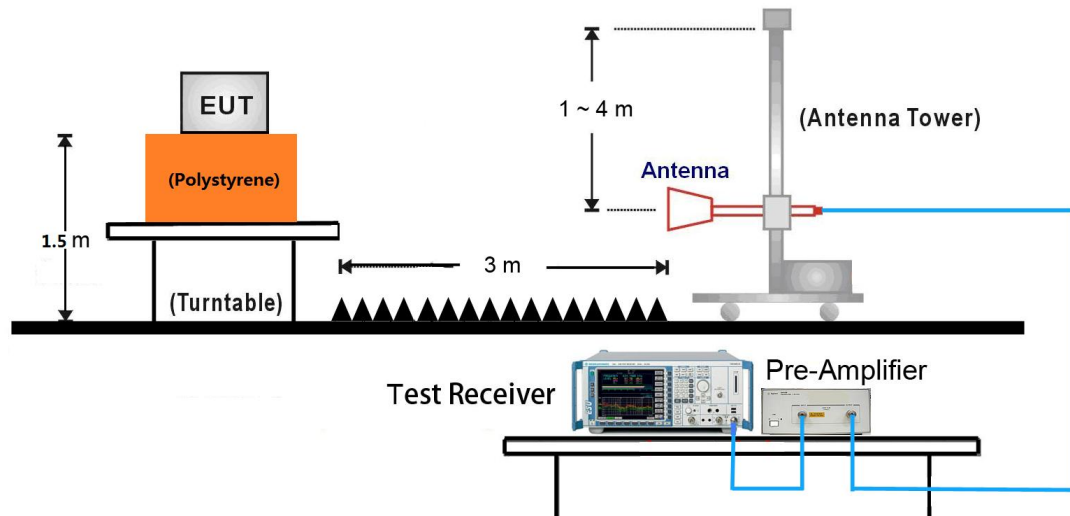
9kHz ~ 30MHz Test Setup:



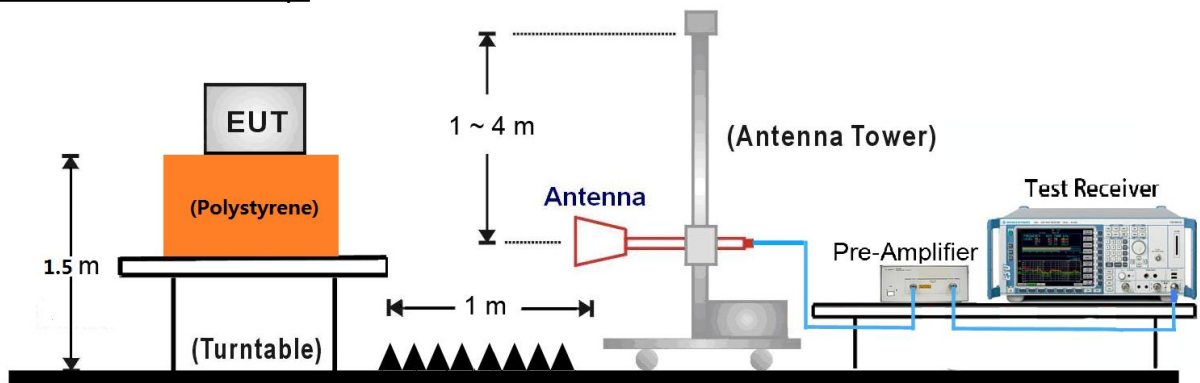
30MHz ~ 1GHz Test Setup:



1GHz ~ 18GHz Test Setup:



18GHz ~ 25GHz Test Setup:



7.6.5. Test Result

Test Mode:	802.11b - Ant 1	Test Date:	2022-06-16
Test Channel:	01	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4820	50	7.1	74	24	Peak	Horizontal
*	6335	49.64	12.07	88.77	39.13	Peak	Horizontal
*	6810	48.63	13.48	88.77	40.14	Peak	Horizontal
	7535	51.4	14.93	74	22.6	Peak	Horizontal
	4820	50	7.1	74	24	Peak	Vertical
*	6335	49.64	12.07	88.77	39.13	Peak	Vertical
*	6810	48.63	13.48	88.77	40.14	Peak	Vertical
	7535	51.4	14.93	74	22.6	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (108.77dBμV/m) or 15.209 which is higher.

Test Mode:	802.11b - Ant 1	Test Date:	2022-06-16
Test Channel:	06	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4870	49.69	7.18	74	24.31	Peak	Horizontal
*	6180	47.97	11.35	89.35	41.38	Peak	Horizontal
*	6540	47.86	12.52	89.35	41.49	Peak	Horizontal
	7585	50.86	15	74	23.14	Peak	Horizontal
	4870	52.56	7.18	74	21.44	Peak	Vertical
*	6345	48.21	12.12	89.35	41.14	Peak	Vertical
*	6600	47.96	12.83	89.35	41.39	Peak	Vertical
	7530	51.15	14.94	74	22.85	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (109.35dBμV/m) or 15.209 which is higher.

Test Mode:	802.11b - Ant 1	Test Date:	2022-06-16
Test Channel:	11	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4920	48.34	7.31	74	25.66	Peak	Horizontal
*	6130	49.02	11.27	89.77	40.75	Peak	Horizontal
*	6635	48.43	13	89.77	41.34	Peak	Horizontal
	7400	51.63	14.88	74	22.37	Peak	Horizontal
	4920	53.56	7.31	74	20.44	Peak	Vertical
*	6100	48.39	11.04	89.77	41.38	Peak	Vertical
*	6670	48.5	13.08	89.77	41.27	Peak	Vertical
	7515	51.49	14.98	74	22.51	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (109.77dBμV/m) or 15.209 which is higher.

Test Mode:	802.11g - Ant 1	Test Date:	2022-06-16
Test Channel:	01	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4780	43.78	7.05	74	30.22	Peak	Horizontal
*	6060	47.28	10.98	86.59	39.31	Peak	Horizontal
*	6685	48.5	13.08	86.59	38.09	Peak	Horizontal
	7365	52.01	15.04	74	21.99	Peak	Horizontal
	4590	43.41	6.92	74	30.59	Peak	Vertical
*	6315	48.93	11.97	86.59	37.66	Peak	Vertical
*	6825	48.35	13.64	86.59	38.24	Peak	Vertical
	7585	52.35	15	74	21.65	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (106.59dBμV/m) or 15.209 which is higher.

Test Mode:	802.11g - Ant 1	Test Date:	2022-06-16
Test Channel:	06	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4860	43.37	7.13	74	30.63	Peak	Horizontal
*	5935	46.89	10.5	87.65	40.76	Peak	Horizontal
*	6450	48.45	12.14	87.65	39.2	Peak	Horizontal
	7515	51.3	14.98	74	22.7	Peak	Horizontal
	4875	44.32	7.2	74	29.68	Peak	Vertical
*	6340	48.47	12.09	87.65	39.18	Peak	Vertical
*	6855	48.52	13.92	87.65	39.13	Peak	Vertical
	7545	50.84	14.91	74	23.16	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (107.65dBμV/m) or 15.209 which is higher.

Test Mode:	802.11g - Ant 1	Test Date:	2022-06-16
Test Channel:	11	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4930	43.69	7.31	74	30.31	Peak	Horizontal
*	6070	49.1	10.99	88.95	39.85	Peak	Horizontal
*	6745	49.16	13.13	88.95	39.79	Peak	Horizontal
	7755	51.68	15.46	74	22.32	Peak	Horizontal
	4875	43.87	7.2	74	30.13	Peak	Vertical
*	6420	48.13	12.26	88.95	40.82	Peak	Vertical
*	7075	49.78	14.26	88.95	39.17	Peak	Vertical
	7380	51.1	14.97	74	22.9	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (108.95dBμV/m) or 15.209 which is higher.

Test Mode:	802.11n - Ant 1	Test Date:	2022-06-16
Test Channel:	01	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4560	44.64	7.05	74	29.36	Peak	Horizontal
*	6315	47.99	11.97	85.34	37.35	Peak	Horizontal
*	6905	49.04	14.12	85.34	36.3	Peak	Horizontal
	7635	50.73	15.14	74	23.27	Peak	Horizontal
	4810	44.75	7.11	74	29.25	Peak	Vertical
*	6305	48.48	11.92	85.34	36.86	Peak	Vertical
*	6860	49.35	13.95	85.34	35.99	Peak	Vertical
	7420	51.79	14.96	74	22.21	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (105.34dBμV/m) or 15.209 which is higher.

Test Mode:	802.11n - Ant 1	Test Date:	2022-06-16
Test Channel:	06	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4895	44.13	7.3	74	29.87	Peak	Horizontal
*	6330	48.31	12.04	85.83	37.52	Peak	Horizontal
*	6855	48.94	13.92	85.83	36.89	Peak	Horizontal
	7650	51.49	15.19	74	22.51	Peak	Horizontal
	4870	47.18	7.18	74	26.82	Peak	Vertical
*	6350	47.66	12.14	85.83	38.17	Peak	Vertical
*	6770	48.62	13.23	85.83	37.21	Peak	Vertical
	7495	51.19	15.02	74	22.81	Peak	Vertical

Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (105.83dBμV/m) or 15.209 which is higher.

Test Mode:	802.11n - Ant 1	Test Date:	2022-06-16
Test Channel:	11	Test Engineer:	Amos Xia
Remark:	1. Average measurement was not performed if peak level lower than average limit. 2. Other frequency was 20dB below limit line within 1-18GHz, there is not show in the report.		

Mark	Frequency (MHz)	Level (dBμV)	Factor (dB)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
	4915	43.8	7.31	74	30.2	Peak	Horizontal
*	6415	47.87	12.28	85.97	38.1	Peak	Horizontal
	6620	47.94	12.93	74	26.06	Peak	Horizontal
*	7715	51.31	15.37	85.97	34.66	Peak	Horizontal
	4925	46.93	7.31	74	27.07	Peak	Vertical
*	6310	48.12	11.94	85.97	37.85	Peak	Vertical
*	6680	49.53	13.08	85.97	36.44	Peak	Vertical
	7360	51.56	15.07	74	22.44	Peak	Vertical

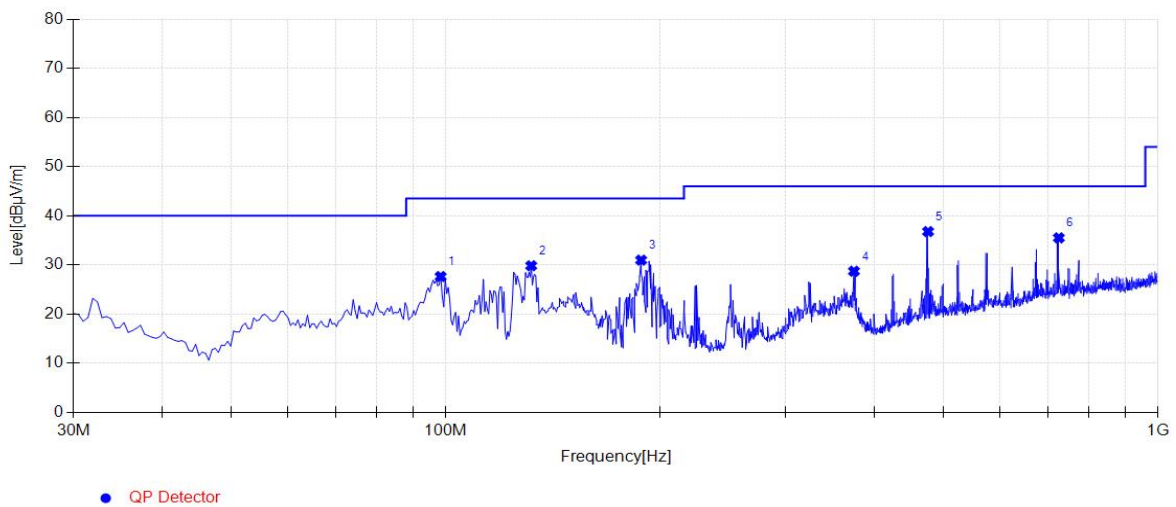
Note 1: "*" is not in restricted band, its limit is 20dBc of the fundamental emission level (105.97dBμV/m) or 15.209 which is higher.

The worst case of Radiated Emission below 1GHz:

30MHz – 1GHz Test Data

EUT:	Self-Cleaning and Emptying Robot Vacuum	Polarity:	Horizontal
Model:	SDJ06RM	S/N:	/
Mode:	Transmit by 802.11b at Channel 2412MHz	Voltage:	DC 14.4V
Environment:	Temp: 24°C; Humi:51%	Engineer:	Amos Xia

Test Graph



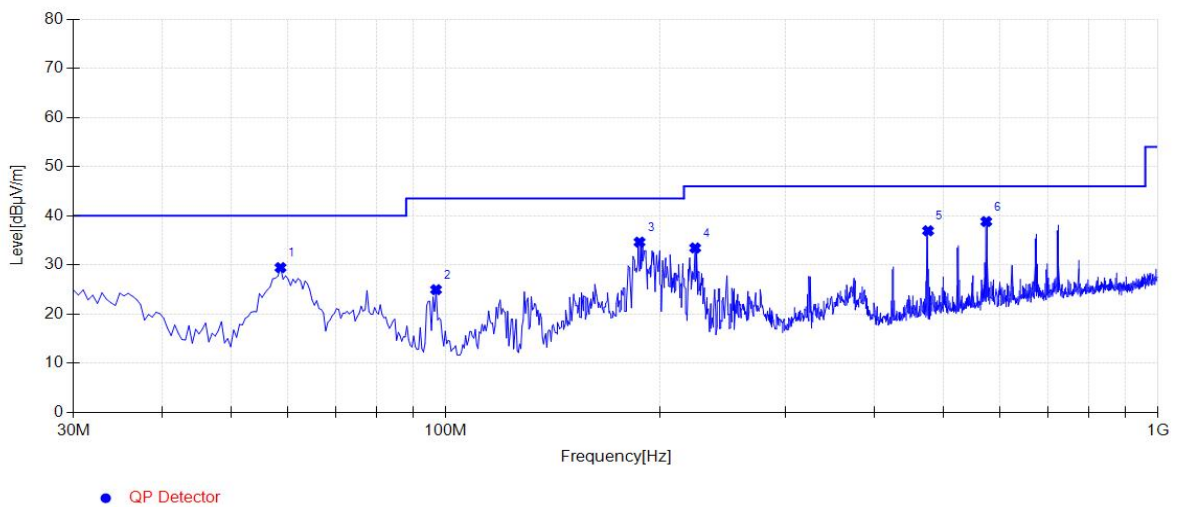
Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	98.3850	27.65	11.04	43.50	15.85	160	168	Horizontal
2	131.850	29.84	11.46	43.50	13.66	160	188	Horizontal
3	188.110	30.98	10.31	43.50	12.52	160	188	Horizontal
4	374.350	28.73	15.32	46.00	17.27	160	38	Horizontal
5	475.715	36.79	18.28	46.00	9.21	160	303	Horizontal
6	725.975	35.51	22.23	46.00	10.49	160	153	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

EUT:	Self-Cleaning and Emptying Robot Vacuum	Polarity:	Vertical
Model:	SDJ06RM	S/N:	/
Mode:	Transmit by 802.11b at Channel 2412MHz	Voltage:	DC 14.4V
Environment:	Temp: 24°C; Humi:51%	Engineer:	Amos Xia

Test Graph



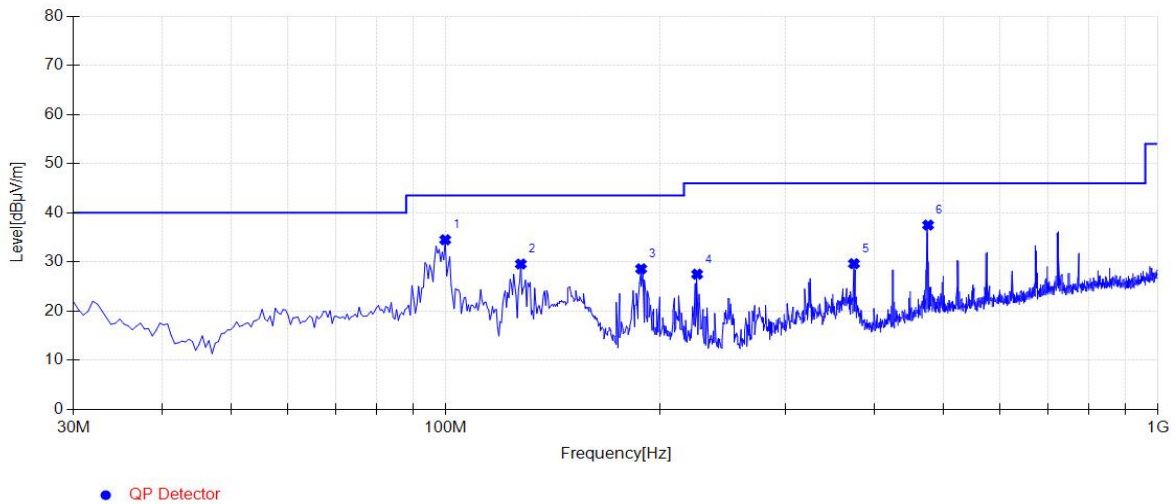
Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	58.6150	29.46	7.18	40.00	10.54	160	147	Vertical
2	96.9300	24.97	10.86	43.50	18.53	160	84	Vertical
3	187.140	34.65	10.36	43.50	8.85	160	147	Vertical
4	224.000	33.46	10.59	46.00	12.54	160	140	Vertical
5	475.715	36.95	18.28	46.00	9.05	160	91	Vertical
6	574.170	38.83	20.00	46.00	7.17	160	221	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

EUT:	Self-Cleaning and Emptying Robot Vacuum	Polarity:	Horizontal
Model:	SDJ06RM	S/N:	/
Mode:	Transmit by 802.11b at Channel 2437MHz	Voltage:	DC 14.4V
Environment:	Temp: 24°C; Humi:51%	Engineer:	Amos Xia

Test Graph



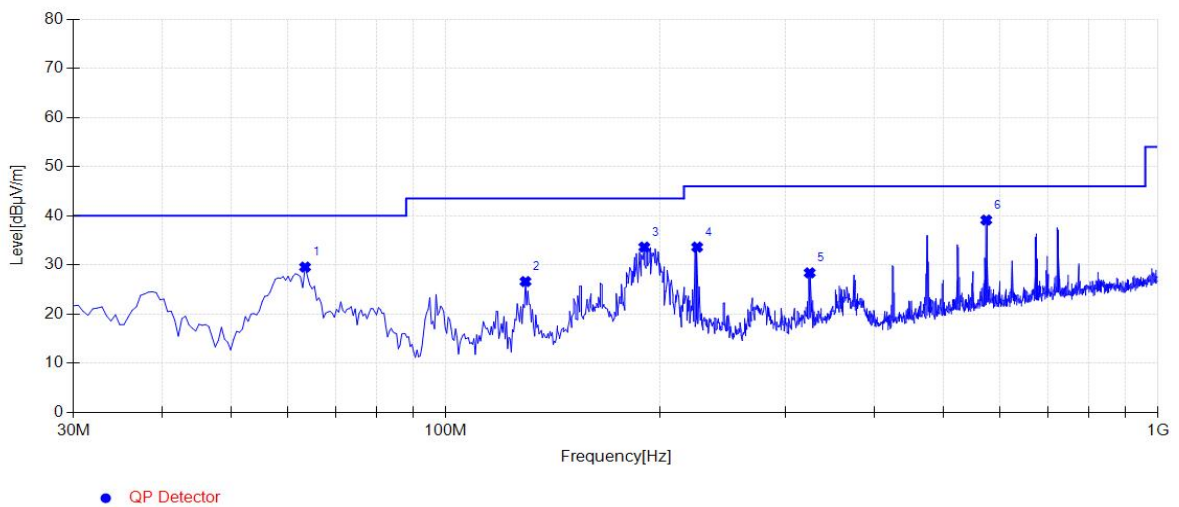
Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	99.8400	34.51	11.23	43.50	8.99	160	175	Horizontal
2	127.485	29.58	11.52	43.50	13.92	160	161	Horizontal
3	188.110	28.60	10.31	43.50	14.90	160	125	Horizontal
4	225.455	27.51	10.65	46.00	18.49	160	59	Horizontal
5	374.350	29.65	15.32	46.00	16.35	160	15	Horizontal
6	475.715	37.50	18.28	46.00	8.50	160	307	Horizontal

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.

EUT:	Self-Cleaning and Emptying Robot Vacuum	Polarity:	Vertical
Model:	SDJ06RM	S/N:	/
Mode:	Transmit by 802.11b at Channel 2437MHz	Voltage:	DC 14.4V
Environment:	Temp: 24°C; Humi:51%	Engineer:	Amos Xia

Test Graph



Final Data List

NO.	Freq. [MHz]	Factor [dB]	QP Value [dBμV/m]	QP Limit [dBμV/m]	QP Margin [dB]	Height [cm]	Angle [°]	Polarity
1	63.4650	29.57	7.41	40.00	10.43	160	114	Vertical
2	129.425	26.63	11.49	43.50	16.87	160	293	Vertical
3	190.050	33.63	10.21	43.50	9.87	160	1	Vertical
4	225.455	33.63	10.65	46.00	12.37	160	170	Vertical
5	324.395	28.39	14.32	46.00	17.61	160	185	Vertical
6	574.170	39.13	20.00	46.00	6.87	160	207	Vertical

Note 1: The test trace is same as the ambient noise and the amplitude of the emissions are attenuated more than 20dB below the permissible (the test frequency range: 9kHz ~ 30MHz, 18GHz ~ 25GHz), therefore no data appear in the report.