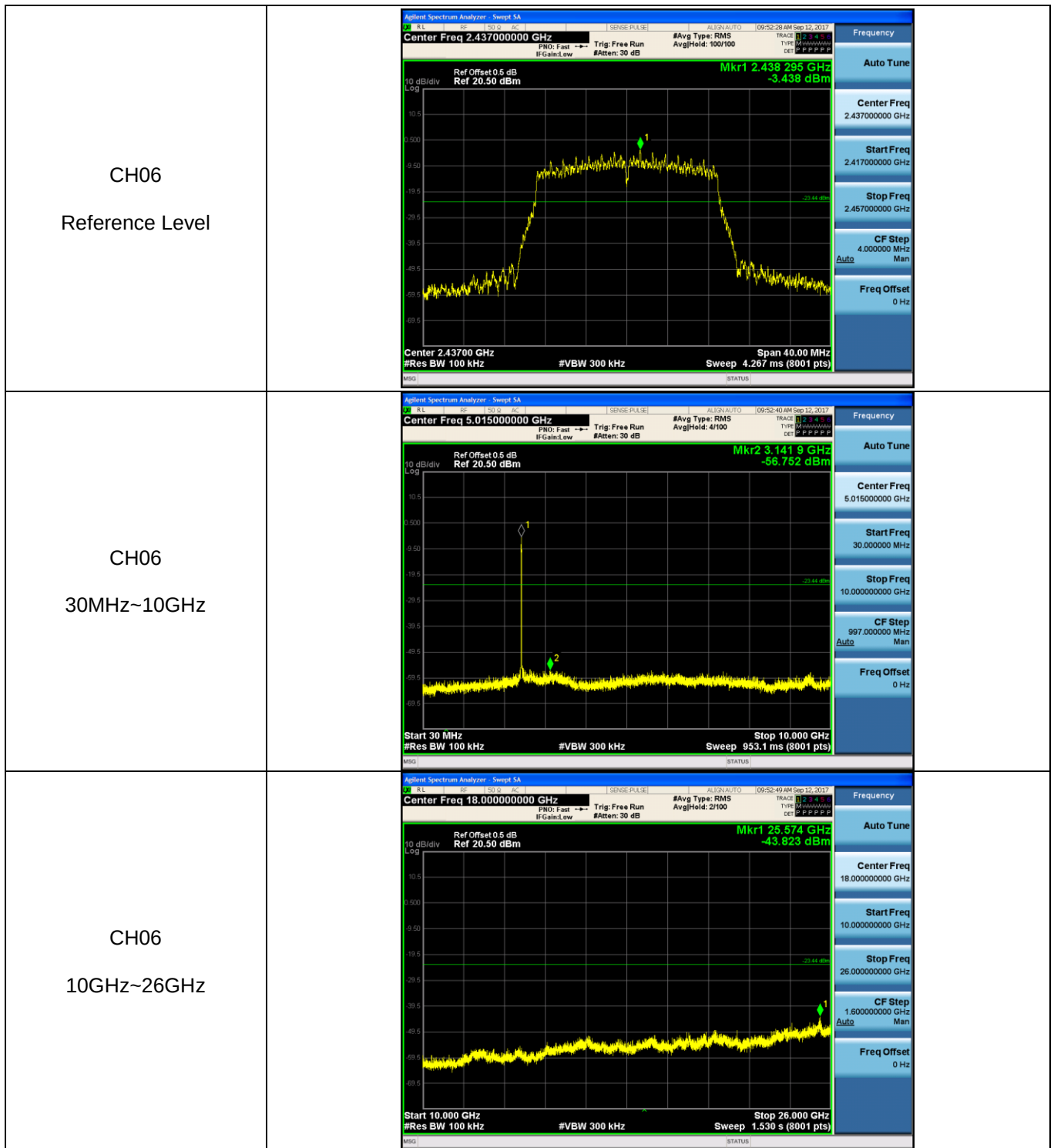
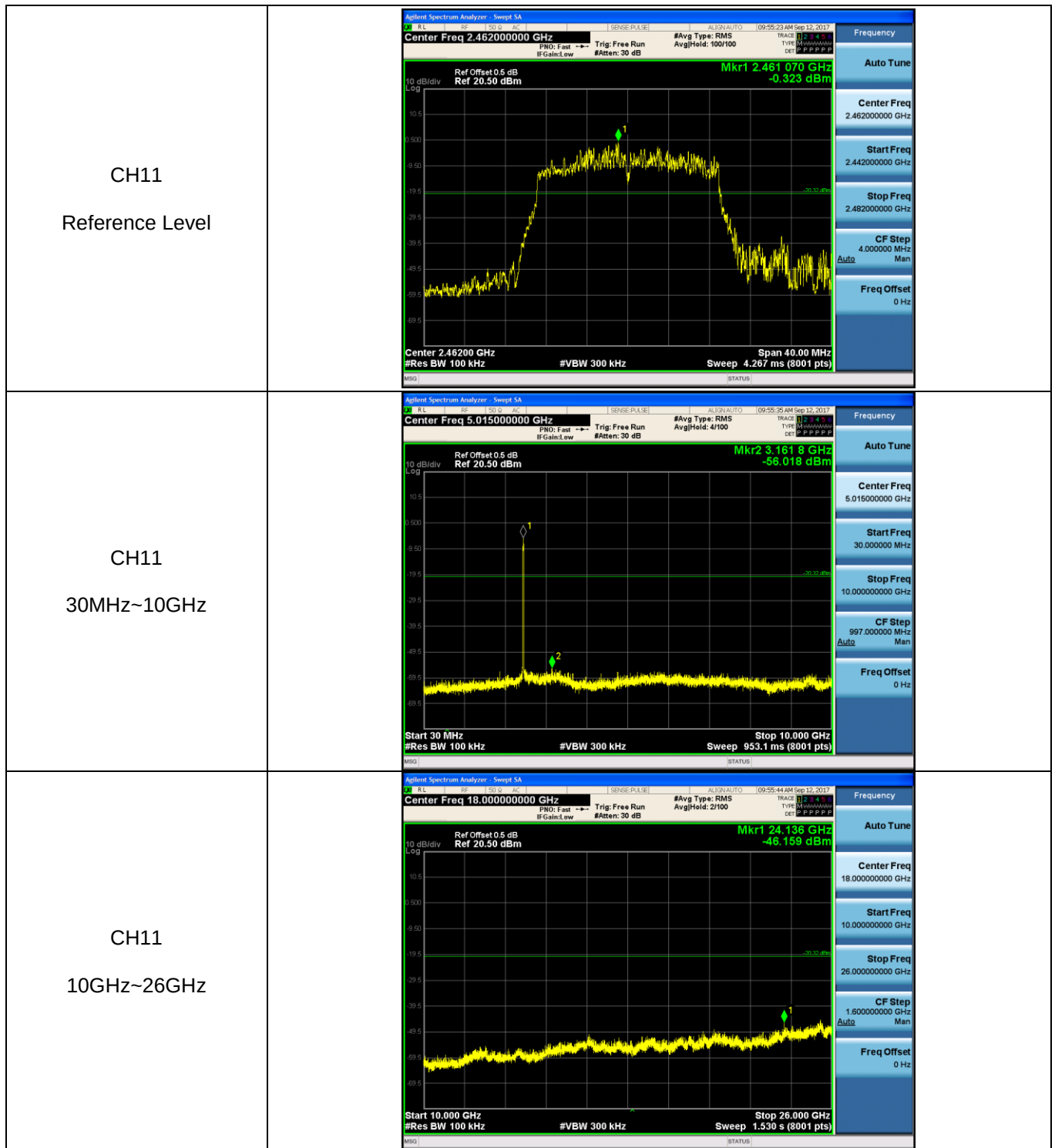
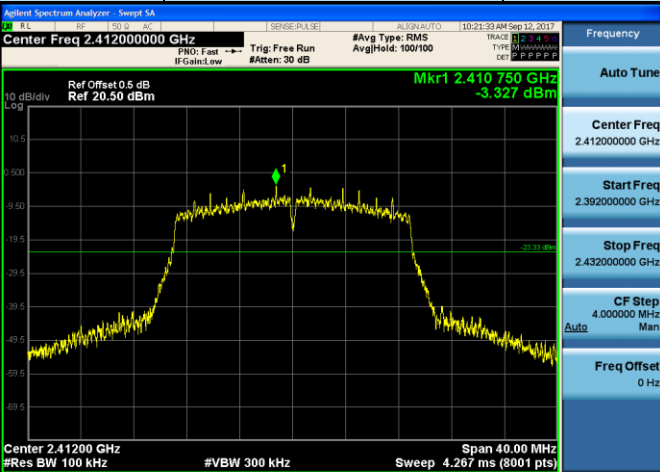
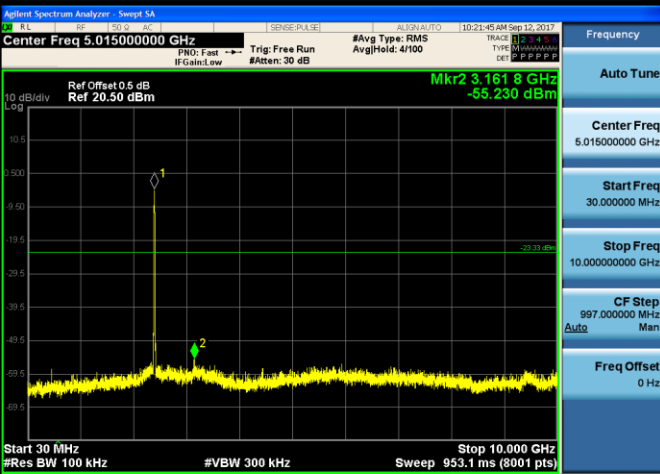
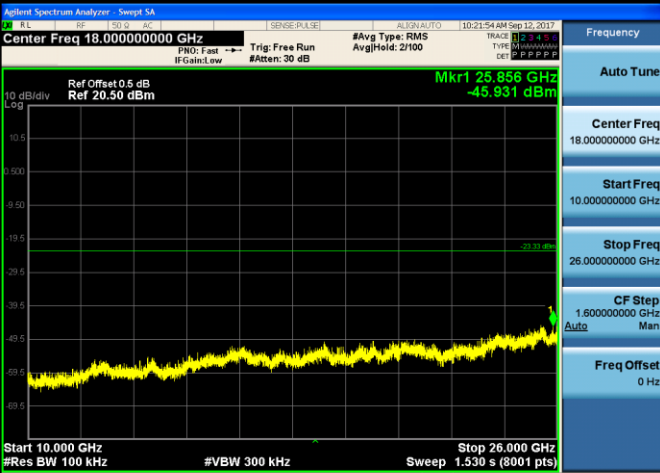
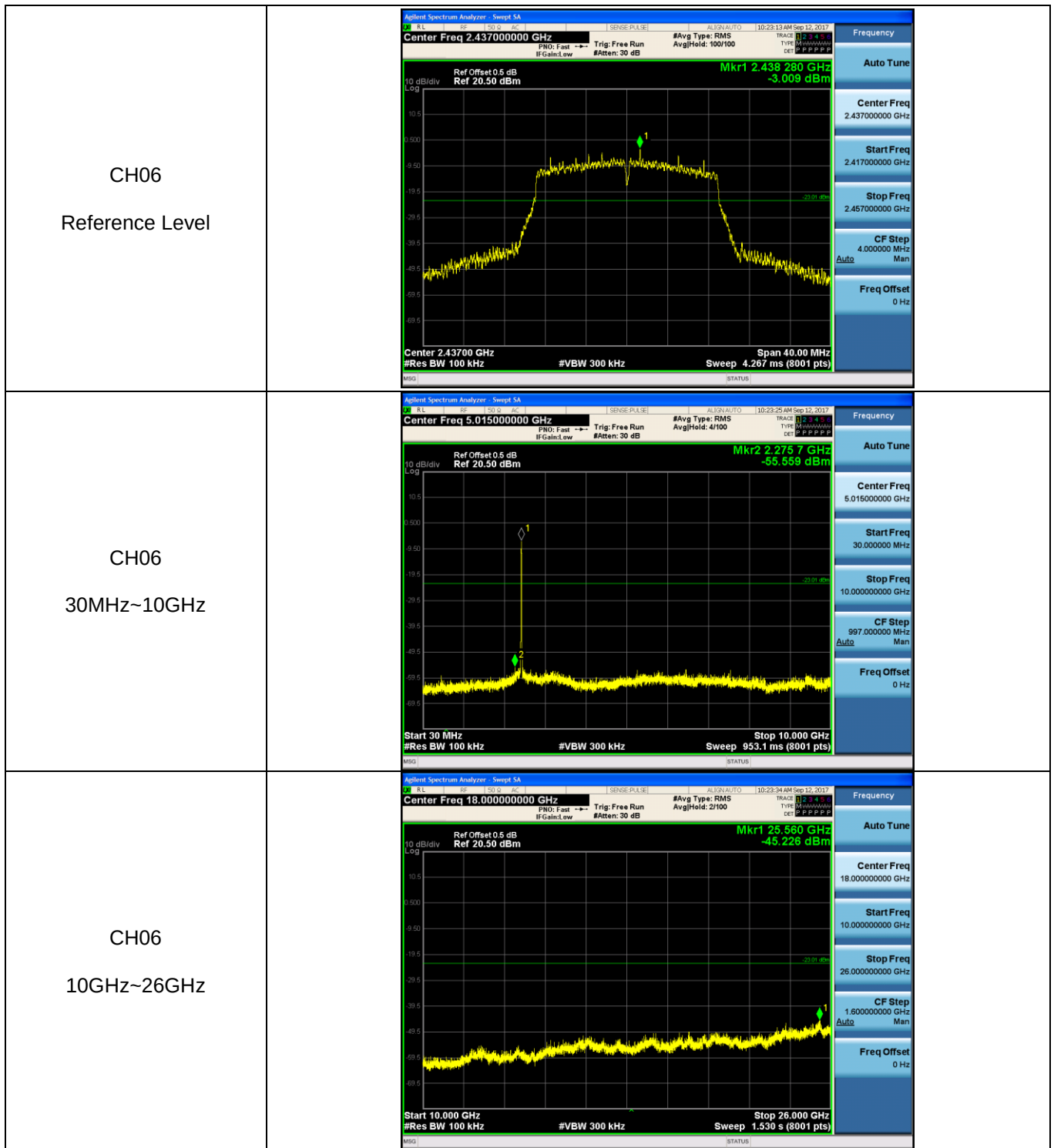
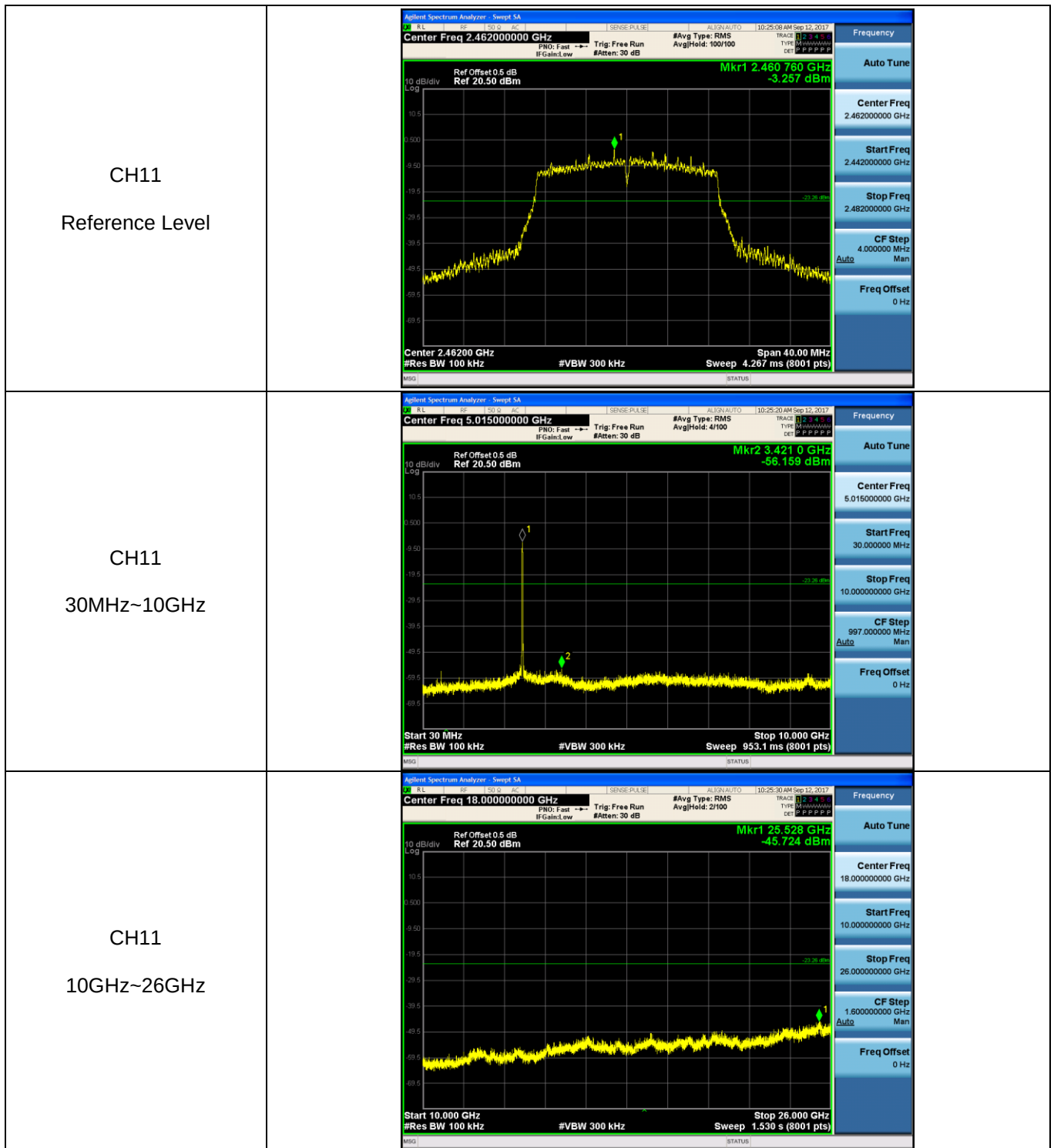


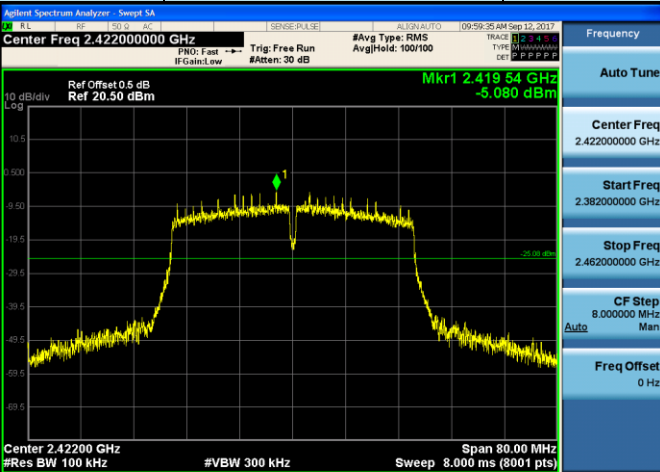
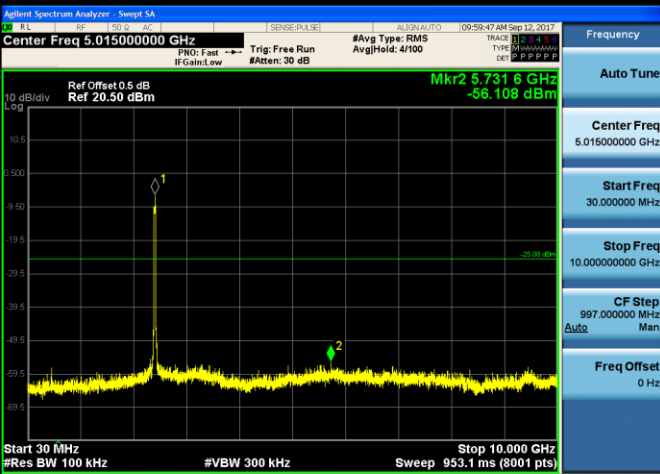


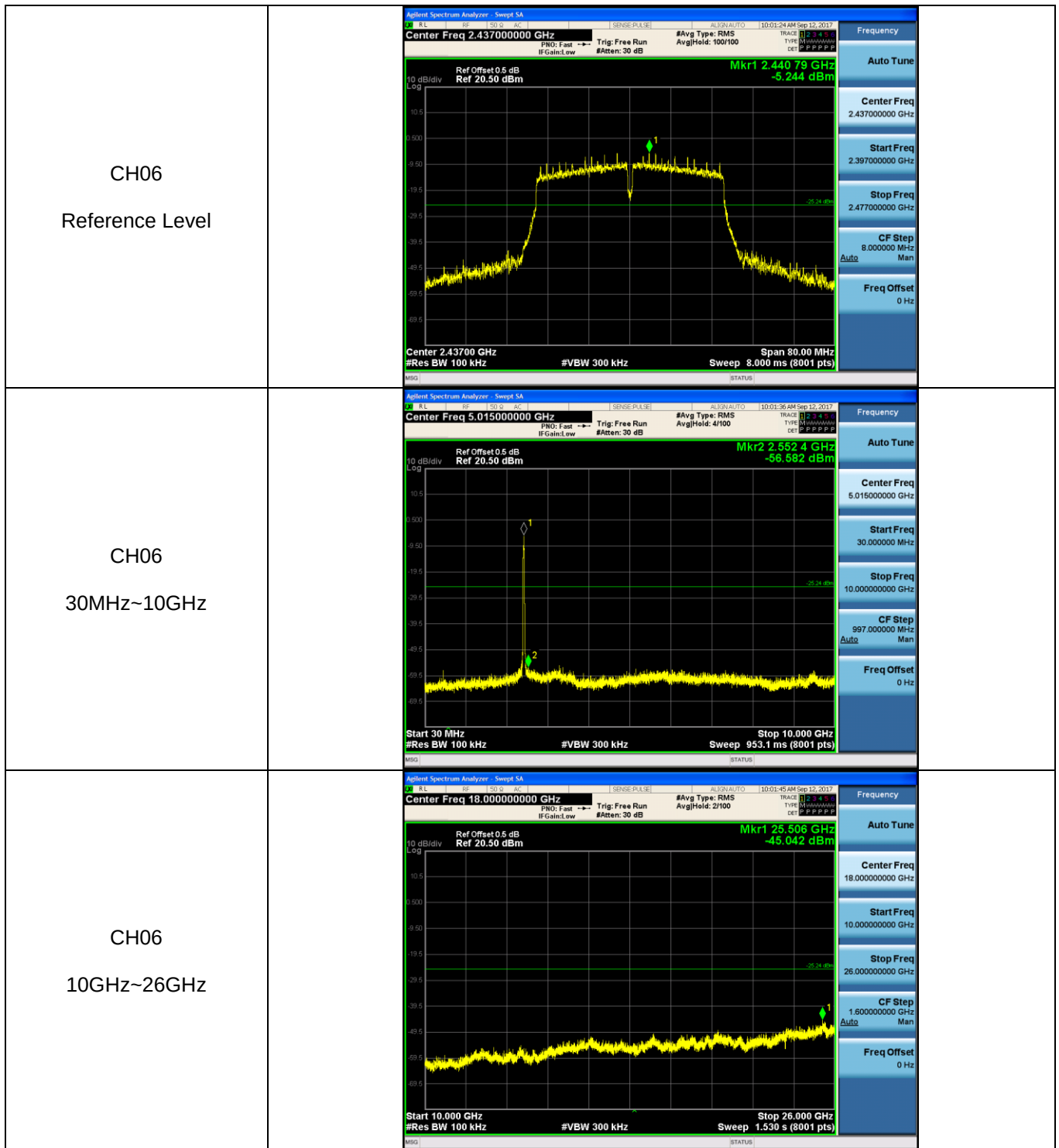


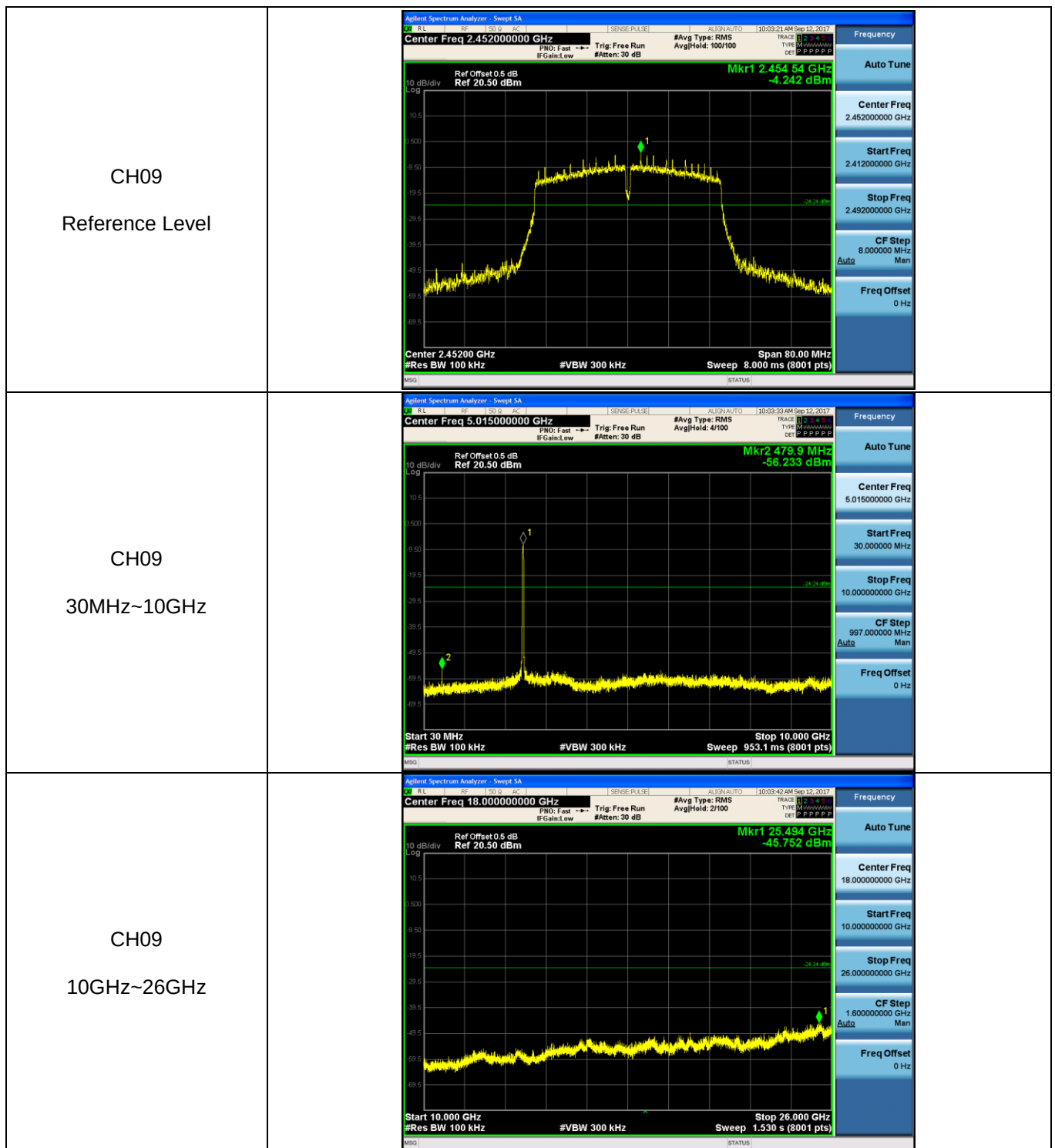
Test Item:	SE	Type:	802.11 n(HT20) / Ant1
CH01 Reference Level			
CH01 30MHz~10GHz			
CH01 10GHz~26GHz			

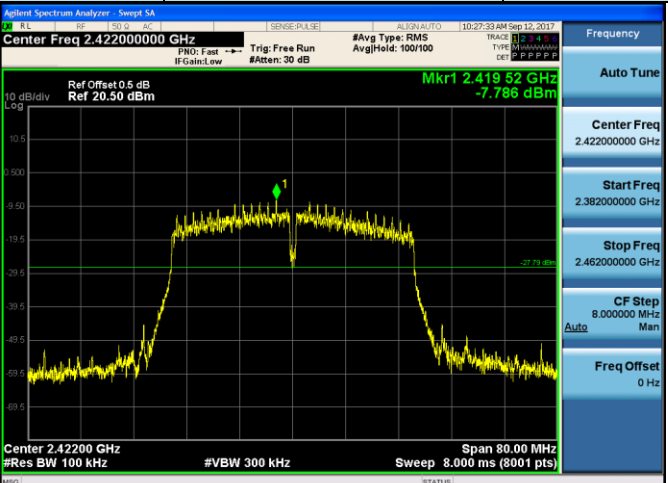
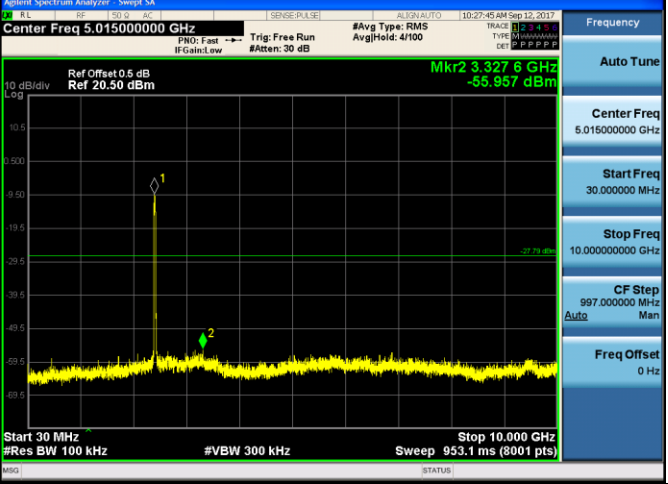


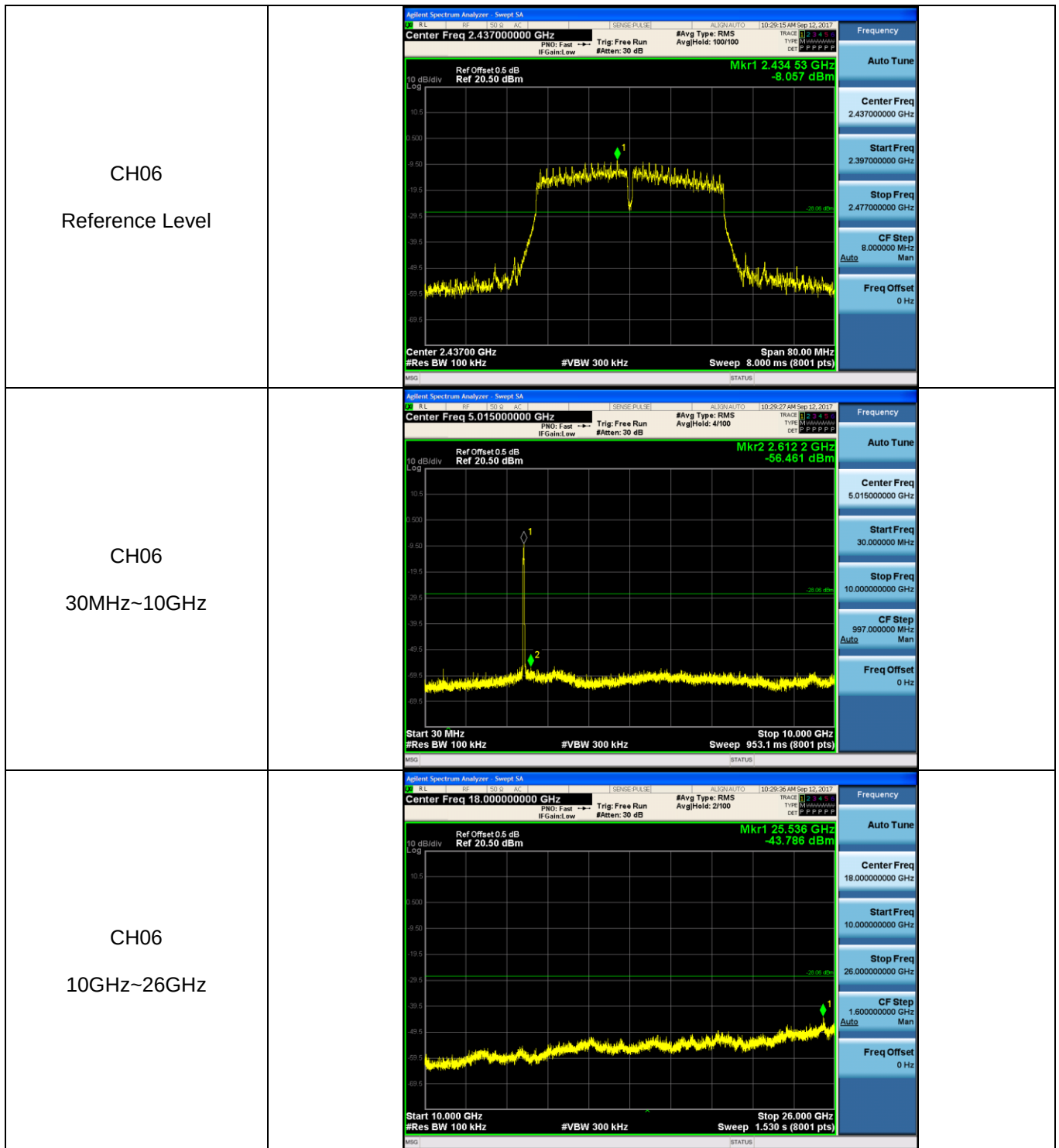


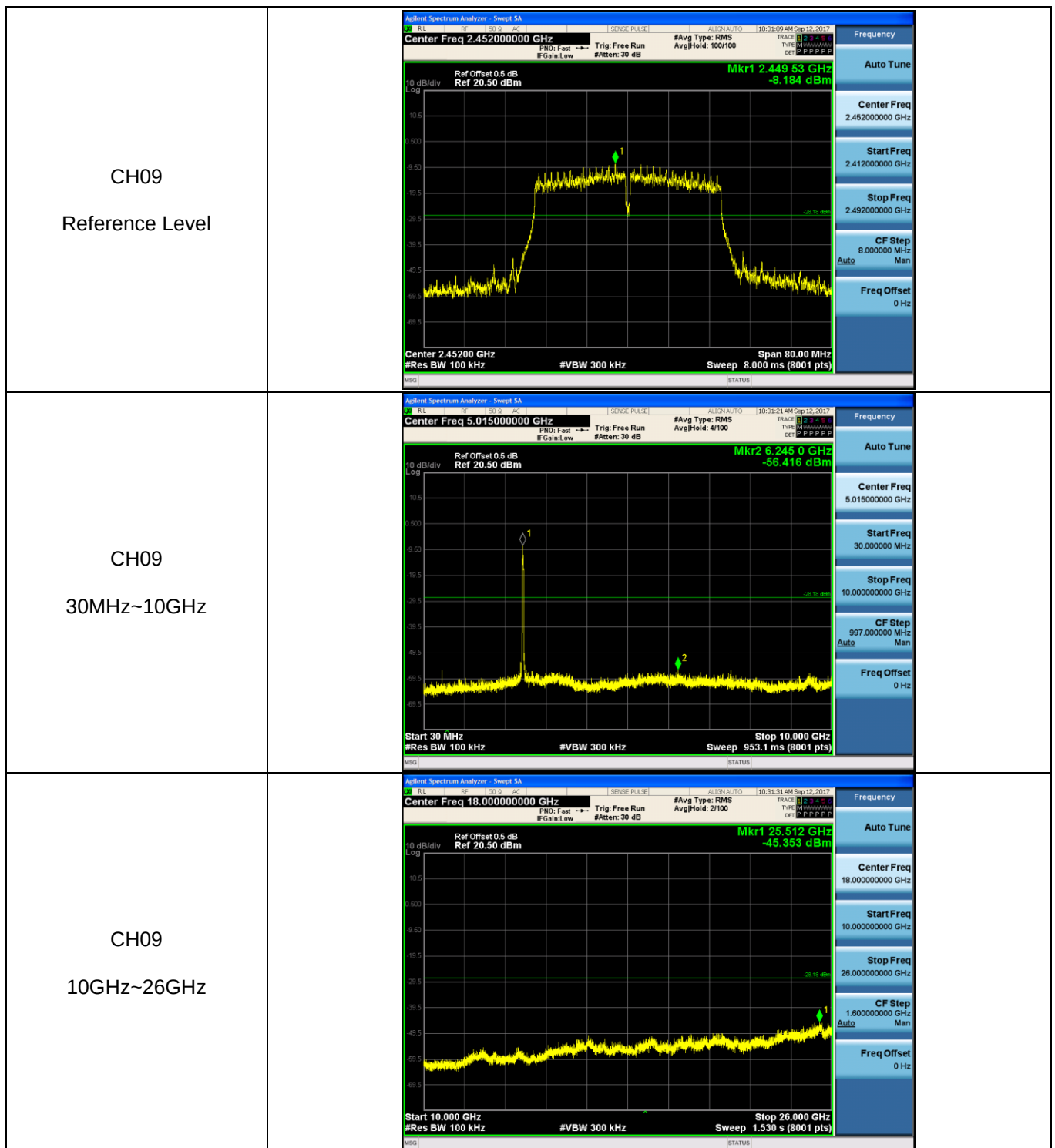
Test Item:	SE	Type:	802.11 n(HT40) / Ant0
CH03 Reference Level			
CH03 30MHz~10GHz			
CH03 10GHz~26GHz			





Test Item:	SE	Type:	802.11 n(HT40) / Ant1
CH03 Reference Level			
CH03 30MHz~10GHz			
CH03 10GHz~26GHz			





5.8. Spurious Emissions (Radiated)

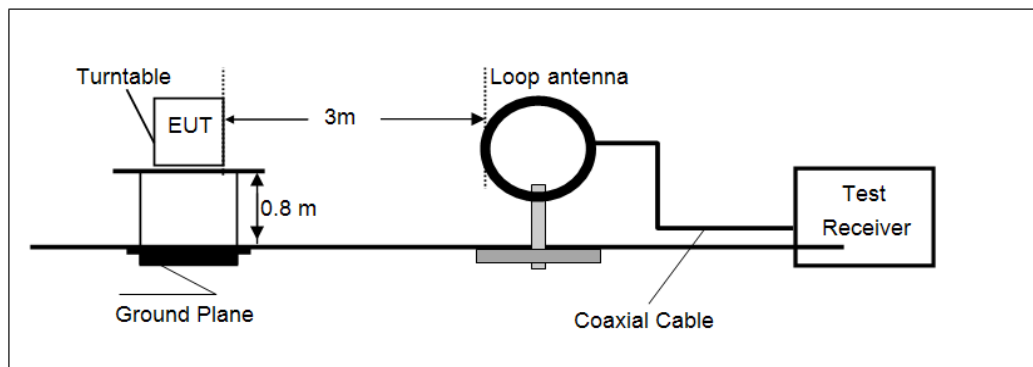
LIMIT

FCC CFR Title 47 Part 15 Subpart C Section 15.209

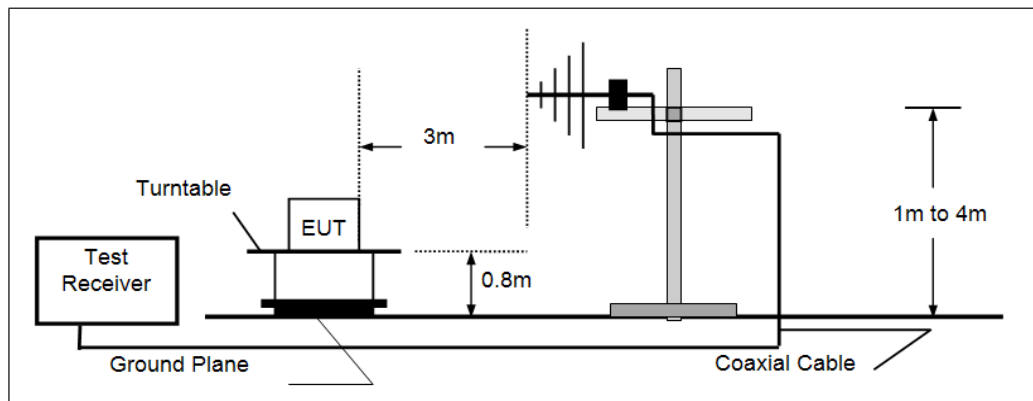
Frequency	Limit (dBuV/m @3m)	Value
30MHz-88MHz	40.00	Quasi-peak
88MHz-216MHz	43.50	Quasi-peak
216MHz-960MHz	46.00	Quasi-peak
960MHz-1GHz	54.00	Quasi-peak
Above 1GHz	54.00	Average
	74.00	Peak

TEST CONFIGURATION

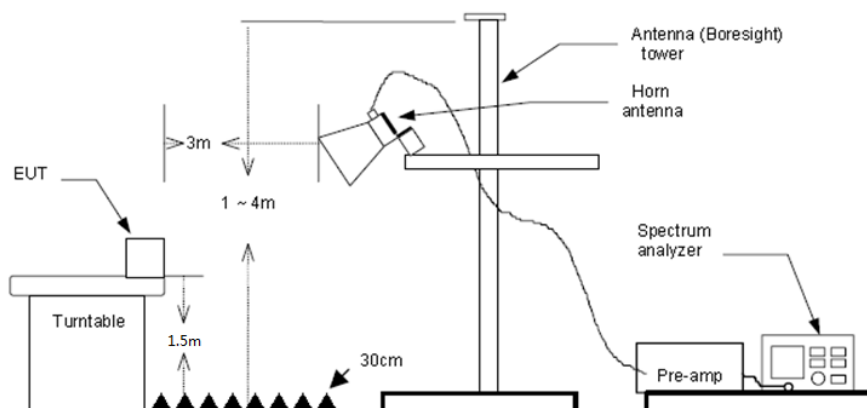
➤ 9kHz ~30MHz



➤ 30MHz ~ 1GHz



➤ Above 1GHz



TEST PROCEDURE

1. The EUT was tested according to ANSI C63.10:2013 for compliance to FCC 47CFR 15.247 requirements.
2. The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna.
5. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1GHz, RBW=120kHz, VBW=300kHz, Sweep=auto, Detector function=peak, Trace=max hold;
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
 - (3) Above 1GHz, RBW=1MHz, VBW=3MHz PEAK detector for Peak value.
RBW=1MHz, VBW=3MHz RMS detector for Average value.

TEST MODE:

Please refer to the clause 3.3

TEST RESULTS

☒ **Passed** ☐ **Not Applicable**

Note:

- 1) Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2) The emission levels of other frequencies are very lower than the limit and not show in test report.

➤ **9kHz ~ 30MHz**

The EUT was pre-scanned the frequency band (9kHz~30MHz), found the radiated level lower than the limit, so don't show on the report.

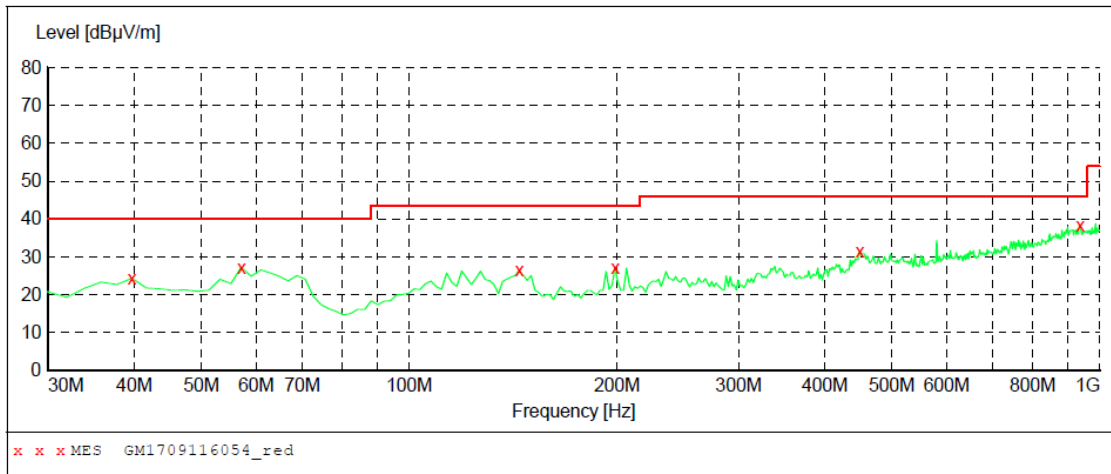
➤ **30MHz ~1000MHz**

Have pre-scan all modulation mode, found the 802.11b mode CH01 which it was worst case, so only the worst case's data on the test report.

➤ 30MHz ~ 1GHz

Polarization:

Vertical

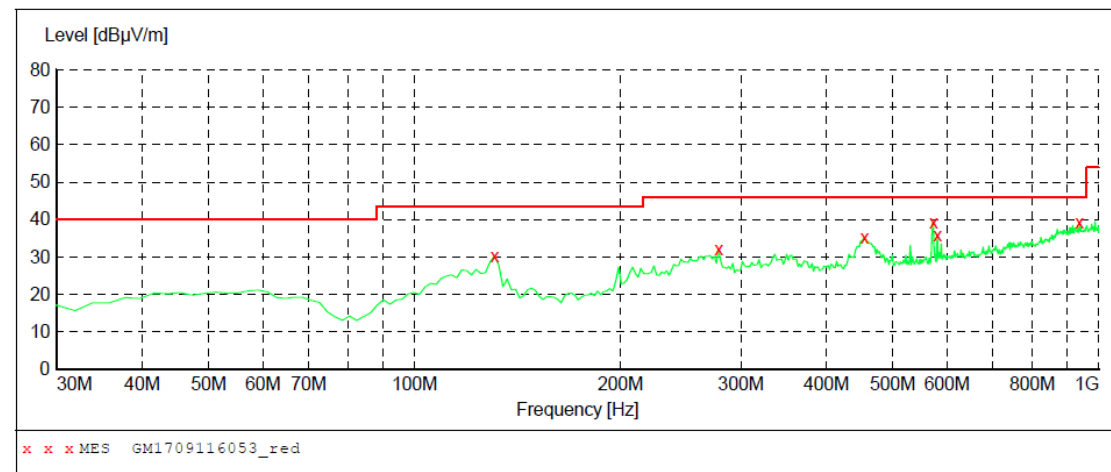
**MEASUREMENT RESULT: "GM1709116054_red"**

9/11/2017 2:16PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
39.700000	24.40	-10.1	40.0	15.6	---	100.0	84.00	VERTICAL
57.160000	27.20	-9.4	40.0	12.8	---	100.0	268.00	VERTICAL
144.460000	26.40	-13.9	43.5	17.1	---	100.0	200.00	VERTICAL
198.780000	27.10	-9.8	43.5	16.4	---	100.0	357.00	VERTICAL
449.040000	31.30	-3.3	46.0	14.7	---	100.0	173.00	VERTICAL
935.980000	38.20	7.1	46.0	7.8	---	100.0	111.00	VERTICAL

Polarization:

Horizontal

**MEASUREMENT RESULT: "GM1709116053_red"**

9/11/2017 2:13PM

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
130.880000	30.30	-13.4	43.5	13.2	---	300.0	353.00	HORIZONTAL
278.320000	32.20	-7.8	46.0	13.8	---	100.0	119.00	HORIZONTAL
454.860000	35.10	-3.2	46.0	10.9	---	100.0	360.00	HORIZONTAL
573.200000	39.10	-0.1	46.0	6.9	---	100.0	360.00	HORIZONTAL
580.960000	35.70	0.3	46.0	10.3	---	100.0	0.00	HORIZONTAL
935.980000	39.20	7.1	46.0	6.8	---	300.0	258.00	HORIZONTAL

➤ Above 1 GHz

802.11b					CH01				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1593.34	36.53	24.96	5.55	36.71	30.33	74.00	-43.67	Vertical	Peak
4821.76	46.51	31.56	9.55	36.90	50.72	74.00	-23.28	Vertical	Peak
4821.76	38.45	31.56	9.55	36.90	42.66	54.00	-11.34	Vertical	Average
7245.81	42.63	36.25	11.91	35.02	55.77	74.00	-18.23	Vertical	Peak
7245.81	28.11	36.25	11.91	35.02	41.25	54.00	-12.75	Vertical	Average
9660.72	35.07	39.09	13.71	35.32	52.55	74.00	-21.45	Vertical	Peak
1680.83	35.65	25.14	5.73	36.89	29.63	74.00	-44.37	Horizontal	Peak
3616.45	35.71	29.30	8.29	38.27	35.03	74.00	-38.97	Horizontal	Peak
4821.76	42.97	31.56	9.55	36.90	47.18	74.00	-26.82	Horizontal	Peak
7245.81	38.69	36.25	11.91	35.02	51.83	74.00	-22.17	Horizontal	Peak

802.11b					CH06				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
2086.86	34.11	26.65	6.34	37.32	29.78	74.00	-44.22	Vertical	Peak
3672.11	36.15	29.30	8.35	38.26	35.54	74.00	-38.46	Vertical	Peak
4871.10	46.79	31.46	9.59	36.76	51.08	74.00	-22.92	Vertical	Peak
7319.96	35.36	36.30	11.99	34.92	48.73	74.00	-25.27	Vertical	Peak
1313.08	36.21	26.16	4.85	36.51	30.71	74.00	-43.29	Horizontal	Peak
2995.54	38.82	28.60	7.48	38.23	36.67	74.00	-37.33	Horizontal	Peak
4871.10	42.11	31.46	9.59	36.76	46.40	74.00	-27.60	Horizontal	Peak
7319.96	35.71	36.30	11.99	34.92	49.08	74.00	-24.92	Horizontal	Peak

802.11b					CH11				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1663.80	36.53	25.09	5.69	36.85	30.46	74.00	-43.54	Vertical	Peak
3824.76	36.50	29.62	8.53	38.22	36.43	74.00	-37.57	Vertical	Peak
4920.96	53.06	31.42	9.62	36.62	57.48	74.00	-16.52	Vertical	Peak
4920.96	41.93	31.42	9.62	36.62	46.35	54.00	-7.65	Vertical	Average
7394.88	42.71	36.30	12.06	34.83	56.24	74.00	-17.76	Vertical	Peak
7394.88	31.73	36.30	12.06	34.83	45.26	54.00	-8.74	Vertical	Average
1782.18	35.58	25.37	5.93	37.10	29.78	74.00	-44.22	Horizontal	Peak
3662.78	34.28	29.30	8.34	38.26	33.66	74.00	-40.34	Horizontal	Peak
4920.96	41.49	31.42	9.62	36.62	45.91	74.00	-28.09	Horizontal	Peak
7394.88	34.45	36.30	12.06	34.83	47.98	74.00	-26.02	Horizontal	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

802.11g					CH01				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1260.67	37.02	26.24	4.76	36.54	31.48	74.00	-42.52	Vertical	Peak
3233.26	35.05	28.60	7.76	38.26	33.15	74.00	-40.85	Vertical	Peak
4821.76	46.29	31.56	9.55	36.90	50.50	74.00	-23.50	Vertical	Peak
7245.81	50.33	36.25	11.91	35.02	63.47	74.00	-10.53	Vertical	Peak
7245.81	32.22	36.25	11.91	35.02	45.36	54.00	-8.64	Vertical	Average
1755.16	36.36	25.31	5.87	37.05	30.49	74.00	-43.51	Horizontal	Peak
3824.76	34.19	29.62	8.53	38.22	34.12	74.00	-39.88	Horizontal	Peak
4821.76	42.71	31.56	9.55	36.90	46.92	74.00	-27.08	Horizontal	Peak
7227.39	42.18	36.23	11.89	35.04	55.26	74.00	-18.74	Horizontal	Peak
7227.39	32.28	36.23	11.89	35.04	45.36	54.00	-8.64	Horizontal	Average

802.11g					CH06				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1395.80	35.80	25.91	4.99	36.46	30.24	74.00	-43.76	Vertical	Peak
3445.70	35.07	28.57	8.03	38.49	33.18	74.00	-40.82	Vertical	Peak
4858.72	48.86	31.48	9.58	36.80	53.12	74.00	-20.88	Vertical	Peak
4858.71	39.09	31.48	9.58	36.80	43.35	54.00	-10.65	Vertical	Average
7301.36	41.03	36.30	11.97	34.95	54.35	74.00	-19.65	Vertical	Peak
7301.36	28.90	36.30	11.97	34.95	42.22	54.00	-11.78	Vertical	Average
1276.82	36.33	26.22	4.79	36.53	30.81	74.00	-43.19	Horizontal	Peak
1818.84	35.22	25.38	5.99	37.16	29.43	74.00	-44.57	Horizontal	Peak
4772.91	32.83	31.49	9.53	37.00	36.85	74.00	-37.15	Horizontal	Peak
7338.62	40.11	36.30	12.01	34.90	53.52	74.00	-20.48	Horizontal	Peak
7338.62	32.94	36.30	12.01	34.90	46.35	54.00	-7.65	Horizontal	Average

802.11g					CH11				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
3160.03	35.73	28.80	7.67	38.21	33.99	74.00	-40.01	Vertical	Peak
4933.49	38.78	31.43	9.63	36.59	43.25	54.00	-10.75	Vertical	Average
4933.50	47.53	31.43	9.63	36.59	52.00	74.00	-22.00	Vertical	Peak
6938.94	31.11	34.93	11.77	34.85	42.96	74.00	-31.04	Vertical	Peak
7394.88	42.90	36.30	12.06	34.83	56.43	74.00	-17.57	Vertical	Peak
7394.88	29.82	36.30	12.06	34.83	43.35	54.00	-10.65	Vertical	Average
1676.56	35.19	25.13	5.72	36.88	29.16	74.00	-44.84	Horizontal	Peak
3625.67	35.57	29.30	8.30	38.26	34.91	74.00	-39.09	Horizontal	Peak
4933.50	41.14	31.43	9.63	36.59	45.61	74.00	-28.39	Horizontal	Peak
7394.88	41.32	36.30	12.06	34.83	54.85	74.00	-19.15	Horizontal	Peak
7394.88	29.47	36.30	12.06	34.83	43.00	54.00	-11.00	Horizontal	Average

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

802.11n(HT20)					CH01				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1851.54	35.03	25.35	6.04	37.18	29.24	74.00	-44.76	Vertical	Peak
3854.08	34.75	29.65	8.58	38.20	34.78	74.00	-39.22	Vertical	Peak
4821.76	47.86	31.56	9.55	36.90	52.07	74.00	-21.93	Vertical	Peak
4821.76	39.04	31.56	9.55	36.90	43.25	54.00	-10.75	Vertical	Average
7245.81	41.01	36.25	11.91	35.02	54.15	74.00	-19.85	Vertical	Peak
7245.81	30.51	36.25	11.91	35.02	43.65	54.00	-10.35	Vertical	Average
1213.44	36.22	26.29	4.68	36.56	30.63	74.00	-43.37	Horizontal	Peak
3863.90	34.57	29.66	8.59	38.19	34.63	74.00	-39.37	Horizontal	Peak
4821.76	44.03	31.56	9.55	36.90	48.24	74.00	-25.76	Horizontal	Peak
7245.81	39.77	36.25	11.91	35.02	52.91	74.00	-21.09	Horizontal	Peak
7245.81	29.22	36.25	11.91	35.02	42.36	54.00	-11.64	Horizontal	Average

802.11n(HT20)					CH06				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1746.25	36.33	25.29	5.86	37.03	30.45	74.00	-43.55	Vertical	Peak
3041.64	36.11	28.68	7.53	38.22	34.10	74.00	-39.90	Vertical	Peak
4871.10	44.68	31.46	9.59	36.76	48.97	74.00	-25.03	Vertical	Peak
7338.62	45.01	36.30	12.01	34.90	58.42	74.00	-15.58	Vertical	Peak
7338.62	30.84	36.30	12.01	34.90	44.25	54.00	-9.75	Vertical	Average
1270.33	37.03	26.23	4.78	36.53	31.51	74.00	-42.49	Horizontal	Peak
3834.51	35.47	29.63	8.55	38.21	35.44	74.00	-38.56	Horizontal	Peak
4871.10	41.87	31.46	9.59	36.76	46.16	74.00	-27.84	Horizontal	Peak
7338.62	38.92	36.30	12.01	34.90	52.33	74.00	-21.67	Horizontal	Peak
7338.62	28.15	36.30	12.01	34.90	41.56	54.00	-12.44	Horizontal	Average

802.11n(HT20)					CH11				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1289.89	35.97	26.21	4.81	36.52	30.47	74.00	-43.53	Vertical	Peak
3854.08	34.39	29.65	8.58	38.20	34.42	74.00	-39.58	Vertical	Peak
4920.96	49.05	31.42	9.62	36.62	53.47	74.00	-20.53	Vertical	Peak
4920.96	38.60	31.42	9.62	36.62	43.02	54.00	-10.98	Vertical	Average
7376.08	41.60	36.30	12.04	34.85	55.09	74.00	-18.91	Vertical	Peak
7376.08	29.76	36.30	12.04	34.85	43.25	54.00	-10.75	Vertical	Average
1676.56	36.88	25.13	5.72	36.88	30.85	74.00	-43.15	Horizontal	Peak
3498.74	35.98	28.99	8.11	38.41	34.67	74.00	-39.33	Horizontal	Peak
4933.50	44.68	31.43	9.63	36.59	49.15	74.00	-24.85	Horizontal	Peak
7376.08	43.17	36.30	12.04	34.85	56.66	74.00	-17.34	Horizontal	Peak
7376.08	26.72	36.30	12.04	34.85	40.21	54.00	-13.79	Horizontal	Average

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

802.11n(HT40)					CH03				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1283.34	35.03	26.22	4.80	36.52	29.53	74.00	-44.47	Vertical	Peak
3112.13	34.18	28.80	7.61	38.21	32.38	74.00	-41.62	Vertical	Peak
4724.56	40.68	31.30	9.51	37.06	44.43	74.00	-29.57	Vertical	Peak
7099.75	42.34	35.60	11.85	34.93	54.86	74.00	-19.14	Vertical	Peak
7099.75	28.69	35.60	11.85	34.93	41.21	54.00	-12.79	Vertical	Average
1724.17	34.93	25.25	5.81	36.98	29.01	74.00	-44.99	Horizontal	Peak
3662.78	34.67	29.30	8.34	38.26	34.05	74.00	-39.95	Horizontal	Peak
4736.60	35.41	31.35	9.51	37.05	39.22	74.00	-34.78	Horizontal	Peak
7099.75	37.84	35.60	11.85	34.93	50.36	74.00	-23.64	Horizontal	Peak

802.11n(HT40)					CH06				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1672.30	35.91	25.12	5.71	36.87	29.87	74.00	-44.13	Vertical	Peak
3672.11	35.04	29.30	8.35	38.26	34.43	74.00	-39.57	Vertical	Peak
4883.52	45.65	31.43	9.59	36.73	49.94	74.00	-24.06	Vertical	Peak
4883.52	35.71	31.43	9.59	36.73	40.00	54.00	-14.00	Vertical	Average
7319.96	38.65	36.30	11.99	34.92	52.02	74.00	-21.98	Vertical	Peak
7319.96	30.28	36.30	11.99	34.92	43.65	54.00	-10.35	Vertical	Average
1786.72	34.77	25.37	5.93	37.11	28.96	74.00	-45.04	Horizontal	Peak
3913.39	33.76	29.70	8.66	38.16	33.96	74.00	-40.04	Horizontal	Peak
4871.10	37.42	31.46	9.59	36.76	41.71	74.00	-32.29	Horizontal	Peak
7301.36	35.43	36.30	11.97	34.95	48.75	74.00	-25.25	Horizontal	Peak

802.11n(HT40)					CH09				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	Test value
1222.74	36.98	26.28	4.70	36.56	31.40	74.00	-42.60	Vertical	Peak
3690.85	35.64	29.30	8.37	38.25	35.06	74.00	-38.94	Vertical	Peak
4946.07	49.02	31.45	9.63	36.55	53.55	74.00	-20.45	Vertical	Peak
4946.07	38.72	31.45	9.63	36.55	43.25	54.00	-10.75	Vertical	Average
7394.88	41.51	36.30	12.06	34.83	55.04	74.00	-18.96	Vertical	Peak
7394.88	30.68	36.30	12.06	34.83	44.21	54.00	-9.79	Vertical	Average
1715.41	35.44	25.23	5.80	36.96	29.51	74.00	-44.49	Horizontal	Peak
3672.11	36.96	29.30	8.35	38.26	36.35	74.00	-37.65	Horizontal	Peak
4933.50	40.49	31.43	9.63	36.59	44.96	74.00	-29.04	Horizontal	Peak
7413.73	38.67	36.27	12.11	34.83	52.22	74.00	-21.78	Horizontal	Peak
7413.73	28.56	36.27	12.11	34.83	42.11	54.00	-11.89	Horizontal	Average

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2. The peak level is lower than average limit(54 dBuV/m), this data is the too weak instrument of signal is unable to test.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.

NOTE:802.11b and 802.11g SISO mode have been tested , only worse case ANT 0 is reported

802.11n(HT20) and 802.11n(HT40) MIMO mode have been tested

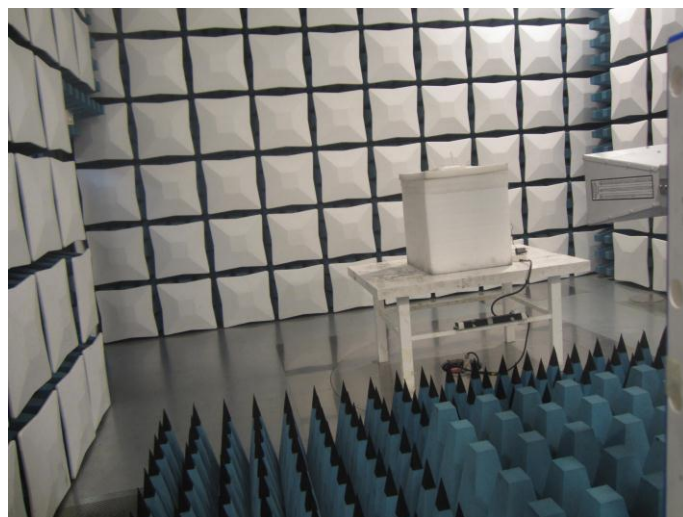
6. TEST SETUP PHOTOS

Conducted Emissions



Radiated Emissions





7. EXTERANAL AND INTERNAL PHOTOS

EXTERANAL PHOTOS





INTERNAL PHOTOS

