4.5.2 Test Procedures

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz, RBW=1MHz for f>1GHz ; VBW RBW; Sweep = auto; Detector function = peak; Trace = max hold for peak
   (3) For average measurement:
   VBW = 10 Hz, when duty cycle is no less than 98 percent.
   VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
5. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP.
6. Convert the resultant EIRP to an equivalent electric field strength using the following relationship:

   $E = EIRP - 20 \log d + 104.8$

   Where:

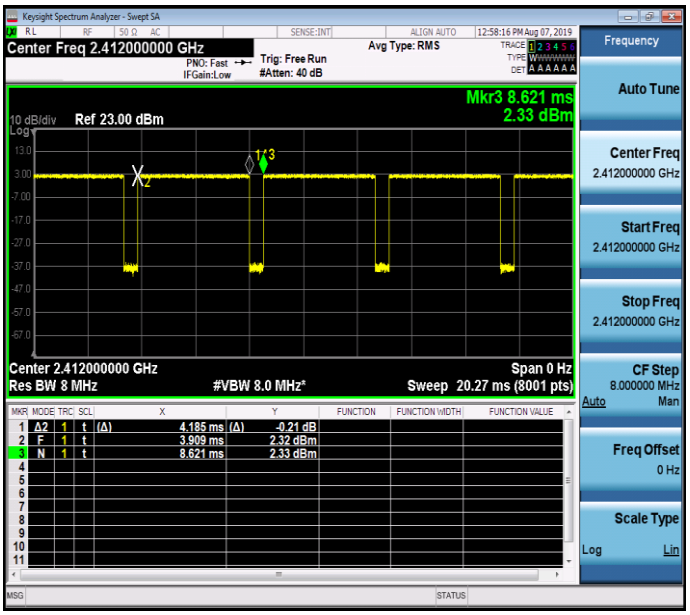
   E is the electric field strength in dBμV/m

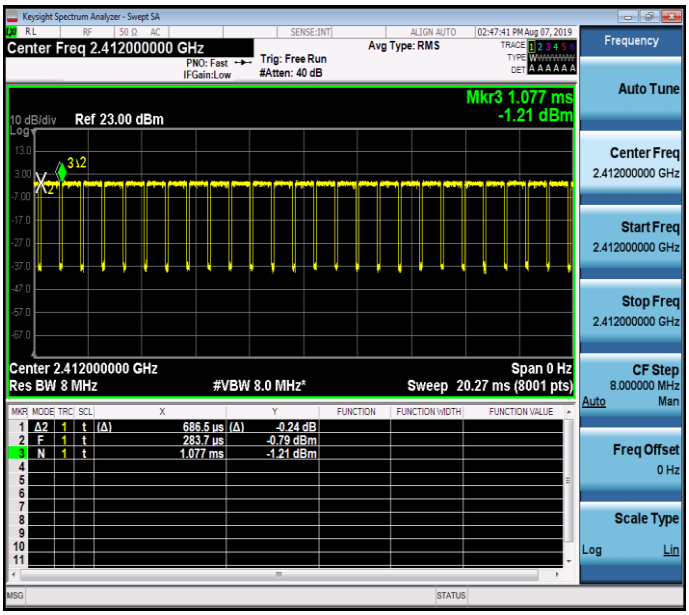
   EIRP is the equivalent isotropically radiated power in dBm

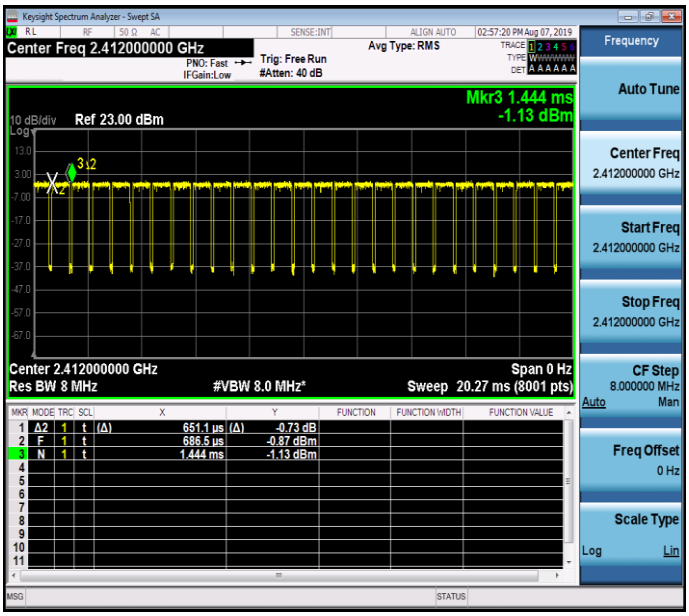
   d is the specified measurement distance in m

   E[dBμV/m] = EIRP[dBm] + 95.2, for d = 3 m.
7. Compare the resultant electric field strength level with the applicable regulatory limit.

Band	Duty Cycle(%)	T(ms)	1/T(kHz)	VBW Setting
802.11b	88.82	4.185	1	0.24
802.11g	86.58	0.6865	3	1.46
2.4GHz 802.11n HT20	85.95	0.6511	3	1.54







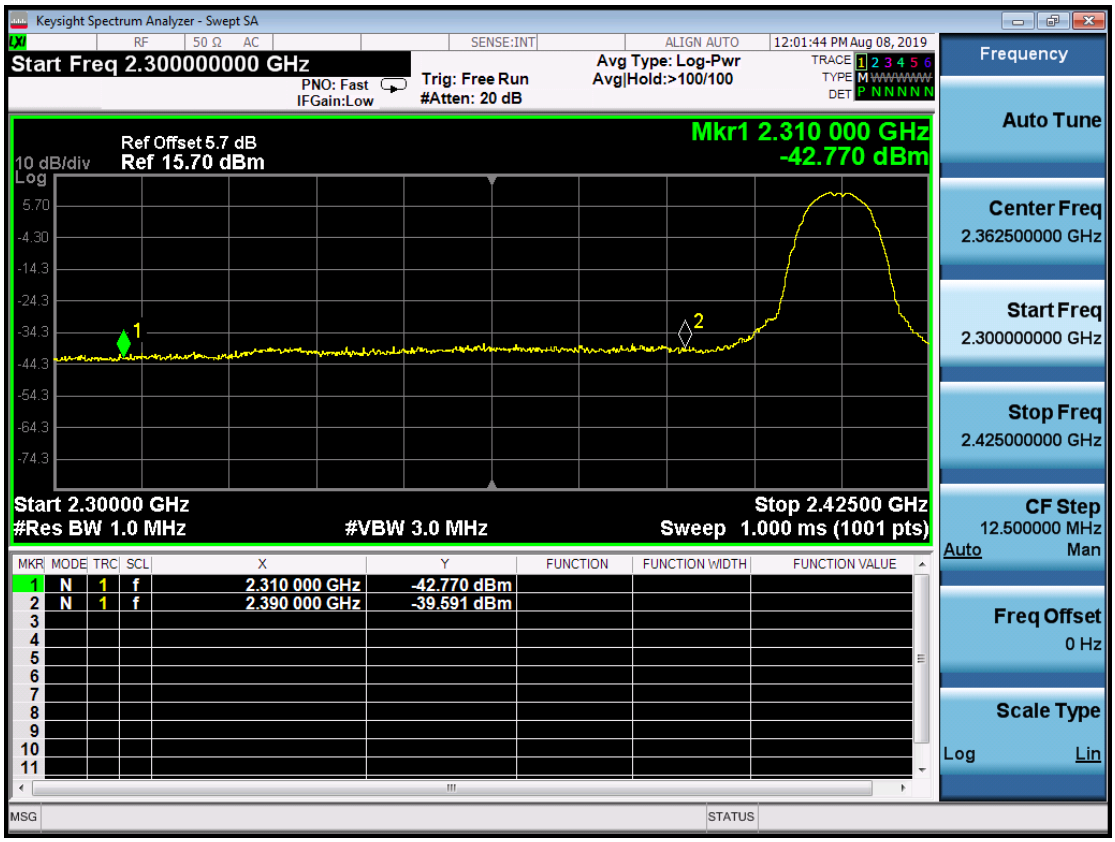
8. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

4.5.3 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

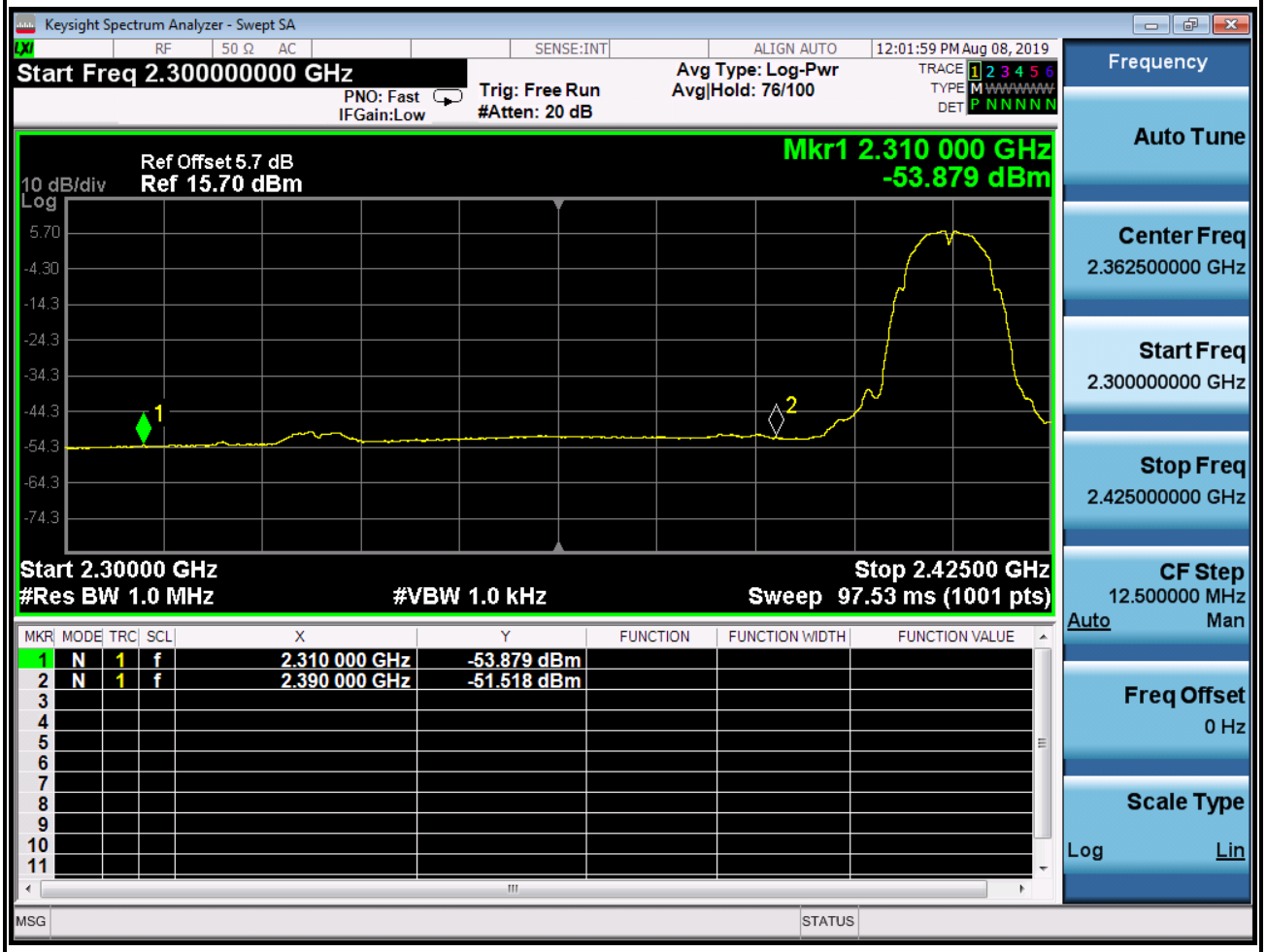
4.5.4 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b CH01 (2412 MHz)	**Temperature :**	21~23℃
Test Engineer :	Julie Deng	**Relative Humidity :**	63~65%
Frequencey Range	2.3GHz~2.425GHz		



Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2310	-42.770	3.00	-39.770	55.43	74.00	Pass	Peak
2390	-39.591	3.00	-36.591	58.609	74.00	Pass	Peak

Test Mode :	802.11b CH01 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz		



Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2310	-53.879	3.00	-50.879	-44.321	54.00	Pass	Average
2390	-51.518	3.00	-48.518	-46.682	54.00	Pass	Average

Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2483.5	-41.565	3.00	-38.565	56.635	74.00	Pass	Peak
2510	-41.823	3.00	-38.823	56.377	74.00	Pass	Peak

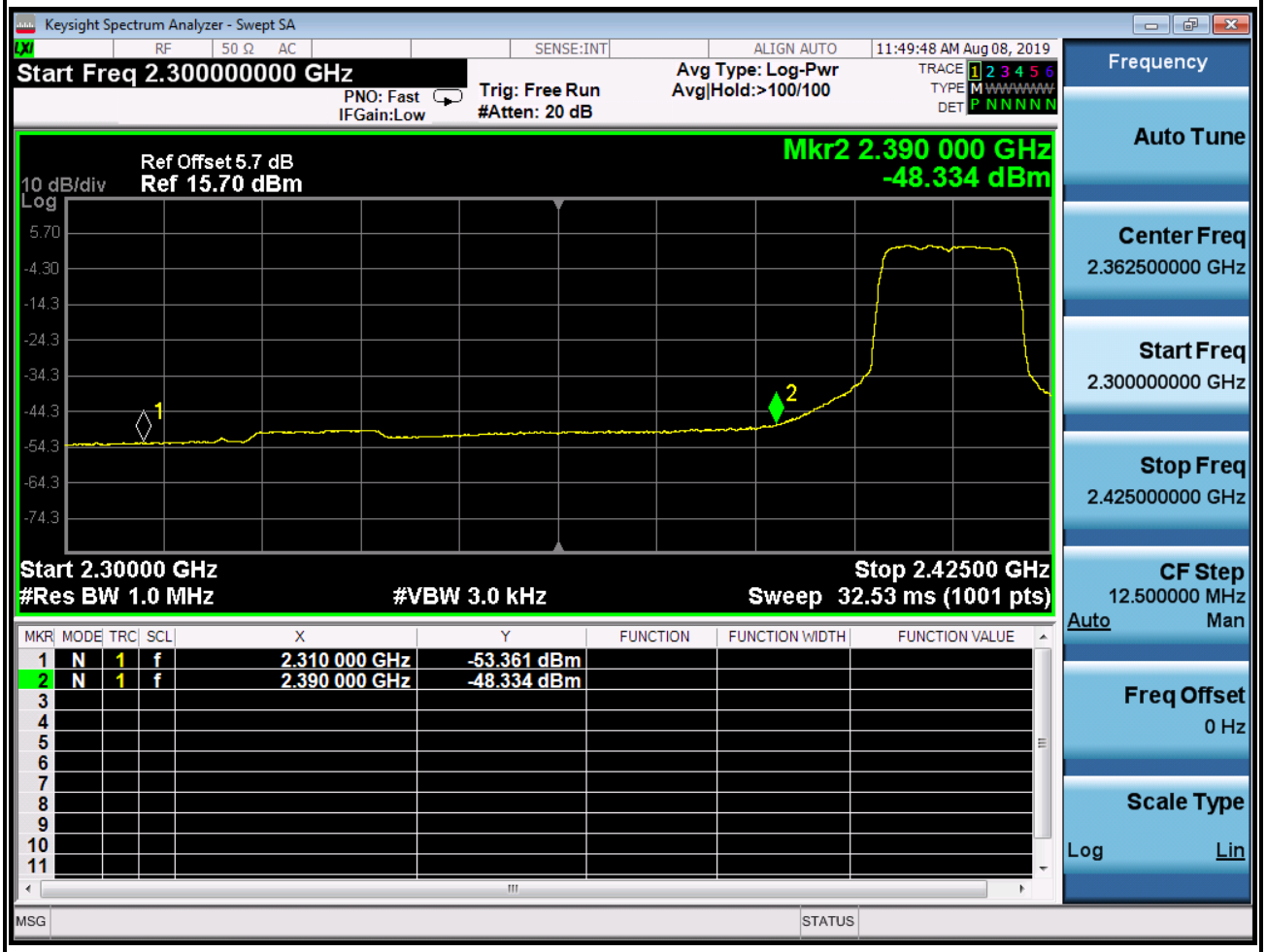
Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2483.5	-52.096	3.00	-49.096	46.104	54.00	Pass	Average
2510	-53.024	3.00	-50.024	45.176	54.00	Pass	Average

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2310	-42.295	3.00	-39.295	55.905	74.00	Pass	Peak
2390	-28.580	3.00	-25.580	69.62	74.00	Pass	Peak

Test Mode :	802.11g CH01 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz		



Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2310	-53.361	3.00	-50.361	41.839	54.00	Pass	Average
2390	-48.334	3.00	-45.334	49.866	54.00	Pass	Average

Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2483.5	-33.496	3.00	-30.496	64.704	74.00	Pass	Peak
2510	-42.043	3.00	-39.043	56.157	74.00	Pass	Peak

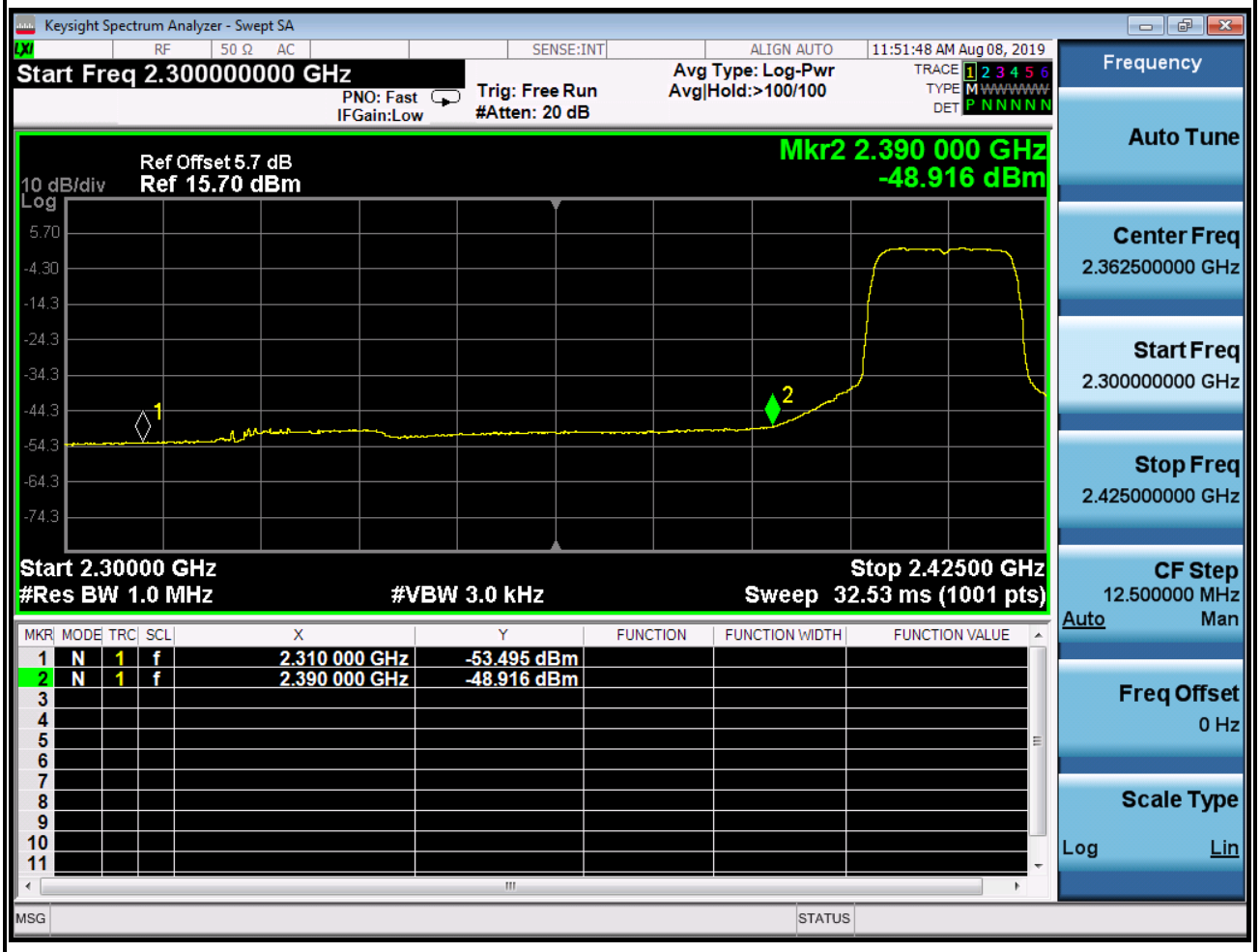
Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2483.5	-48.394	3.00	-45.394	49.806	54.00	Pass	Average
2510	-52.298	3.00	-49.298	45.902	54.00	Pass	Average

Test Mode :	802.11n20 CH01 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2310	-43.434	3.00	-40.434	54.766	74.00	Pass	Peak
2390	-30.183	3.00	-27.183	68.017	74.00	Pass	Peak

Test Mode :	802.11n20 CH01 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.3GHz~2.425GHz		



Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2310	-53.485	3.00	-50.485	44.715	54.00	Pass	Average
2390	-48.916	3.00	-45.916	49.284	54.00	Pass	Average

Test Mode :	802.11n20 CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz		

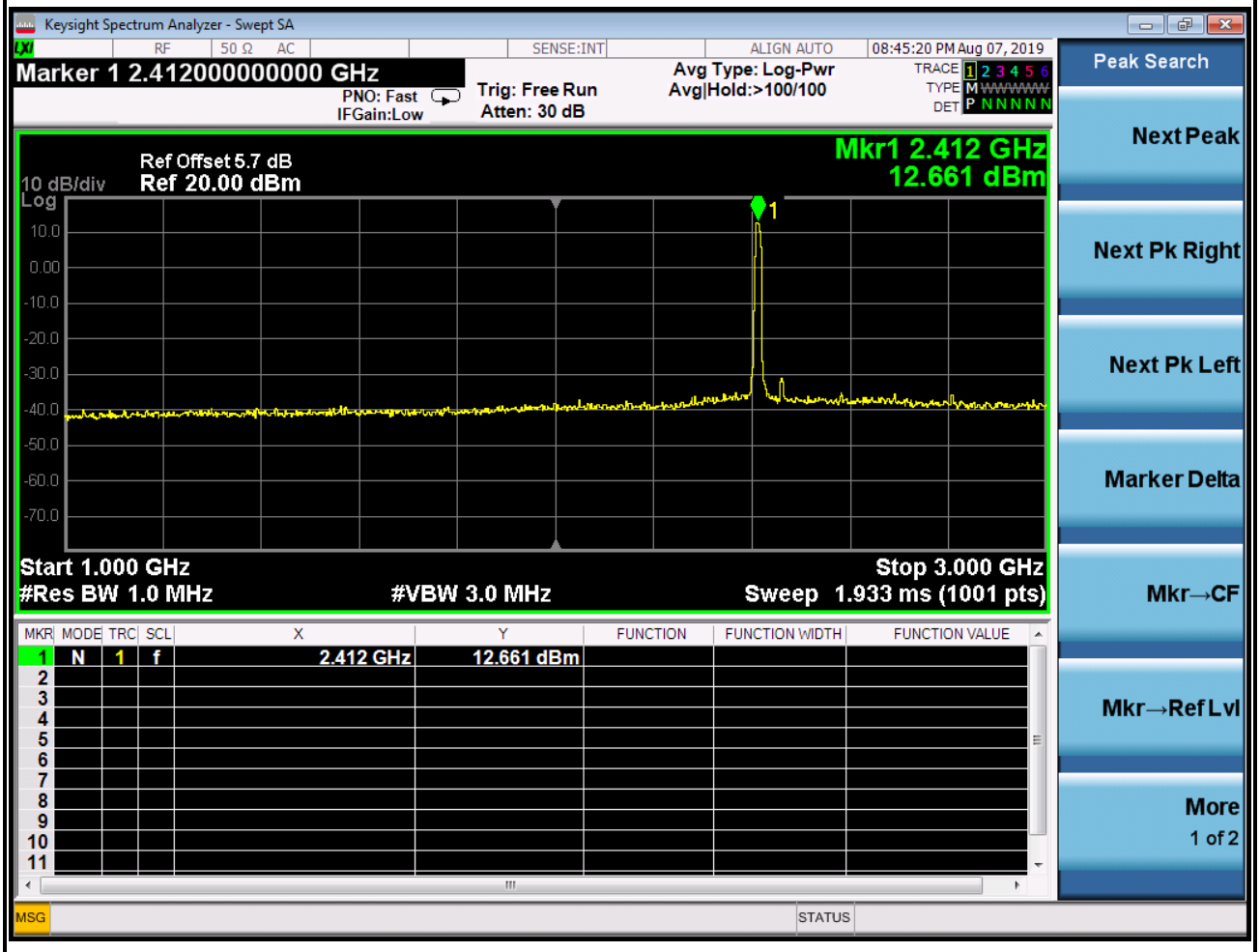
Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2483.5	-34.773	3.00	-31.773	63.427	74.00	Pass	Peak
2510	-41.019	3.00	-38.019	57.181	74.00	Pass	Peak

Test Mode :	802.11n20 CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	2.45GHz~2.51GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
2483.5	-47.434	3.00	-44.434	50.766	54.00	Pass	Average
2510	-52.578	3.00	-49.578	45.622	54.00	Pass	Average

4.5.5 Test Result of Radiated Spurious Emission (1GHz ~ 10th Harmonic)

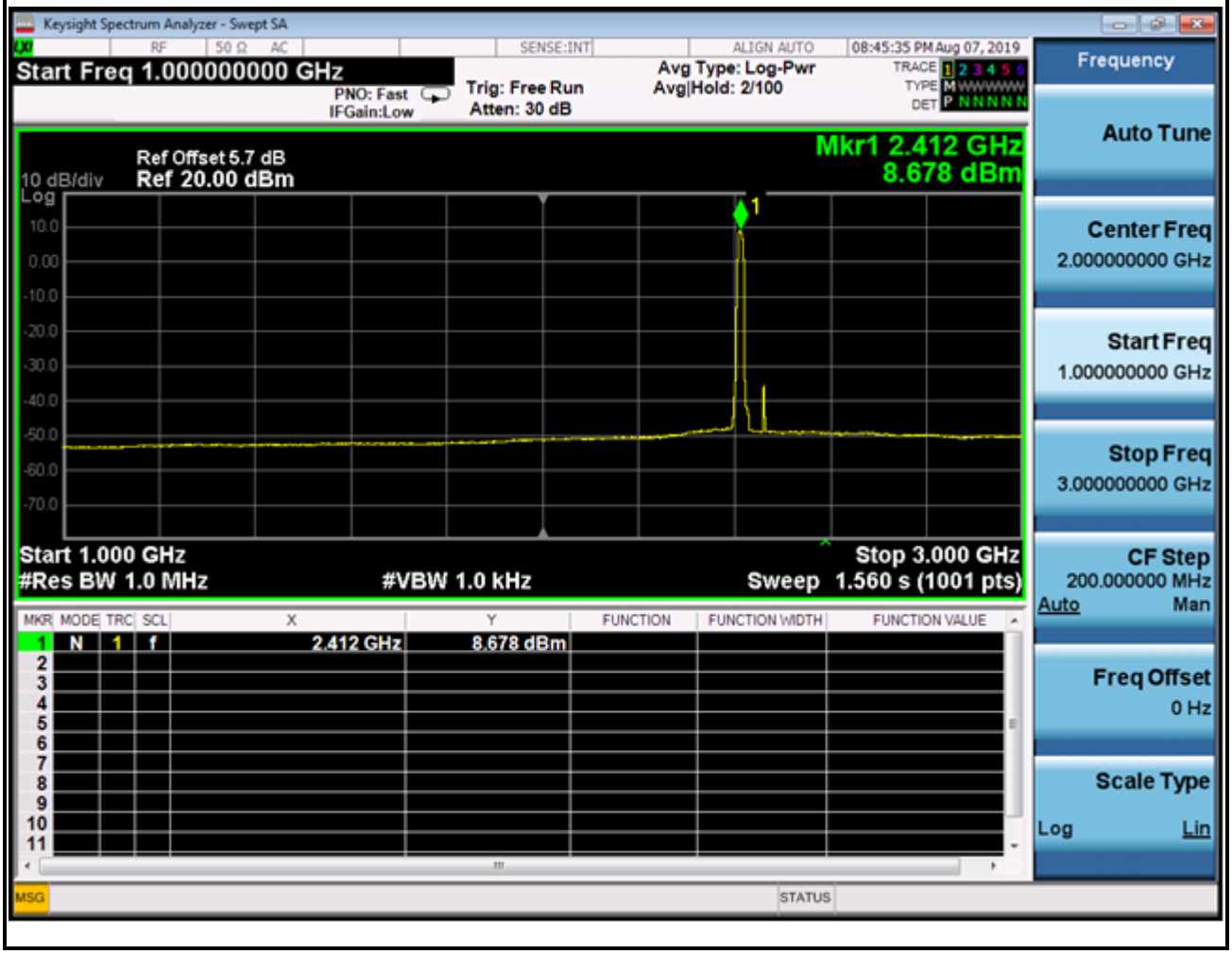
Test Mode :	802.11b CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		



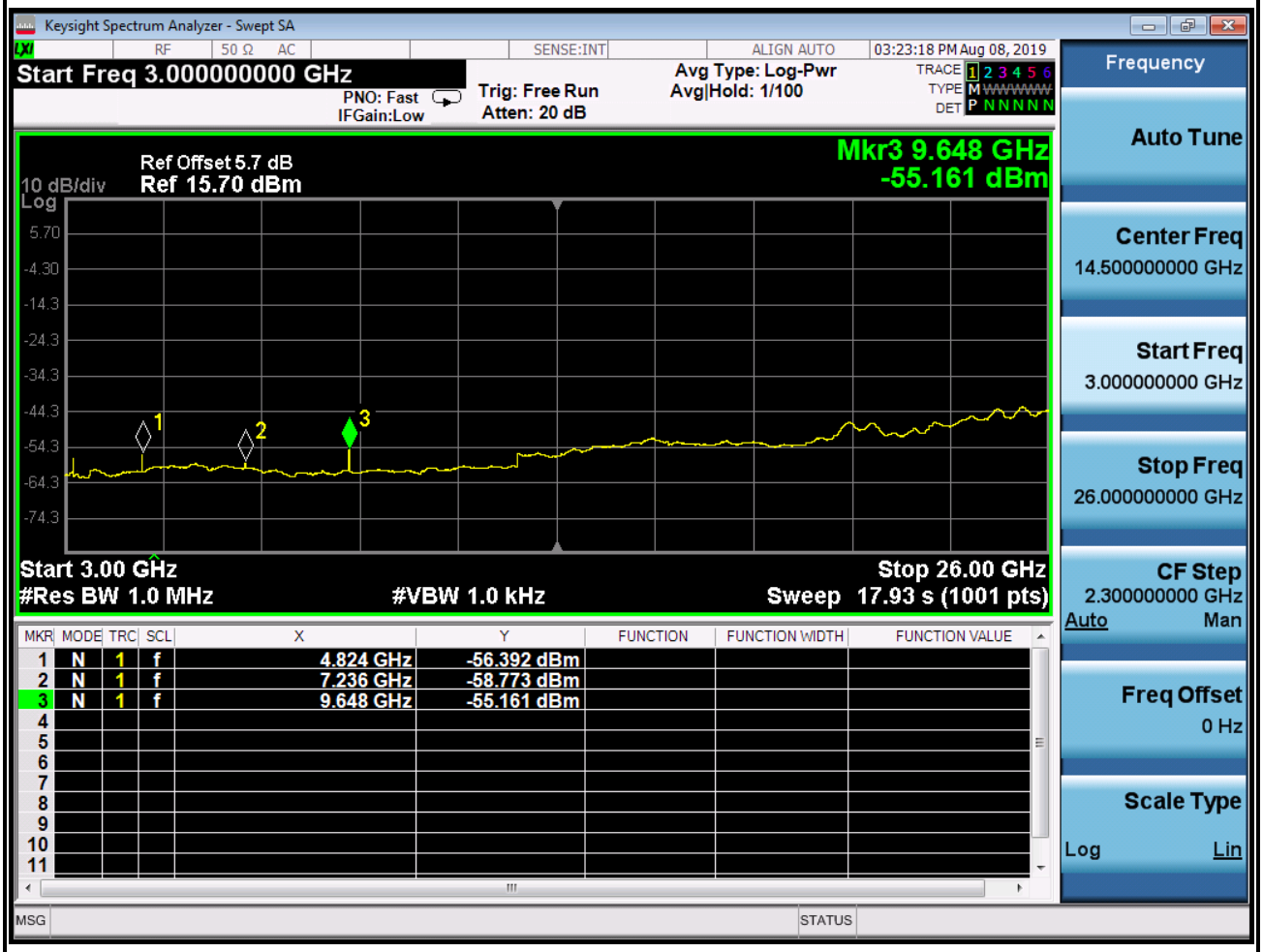
Test Mode :	802.11b CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4824	-48.783	3.00	-45.783	49.417	74.00	Pass	Peak
7236	-48.195	3.00	-45.195	50.005	74.00	Pass	Peak
9648	-49.137	3.00	-46.137	49.063	74.00	Pass	Peak

Test Mode :	802.11b CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

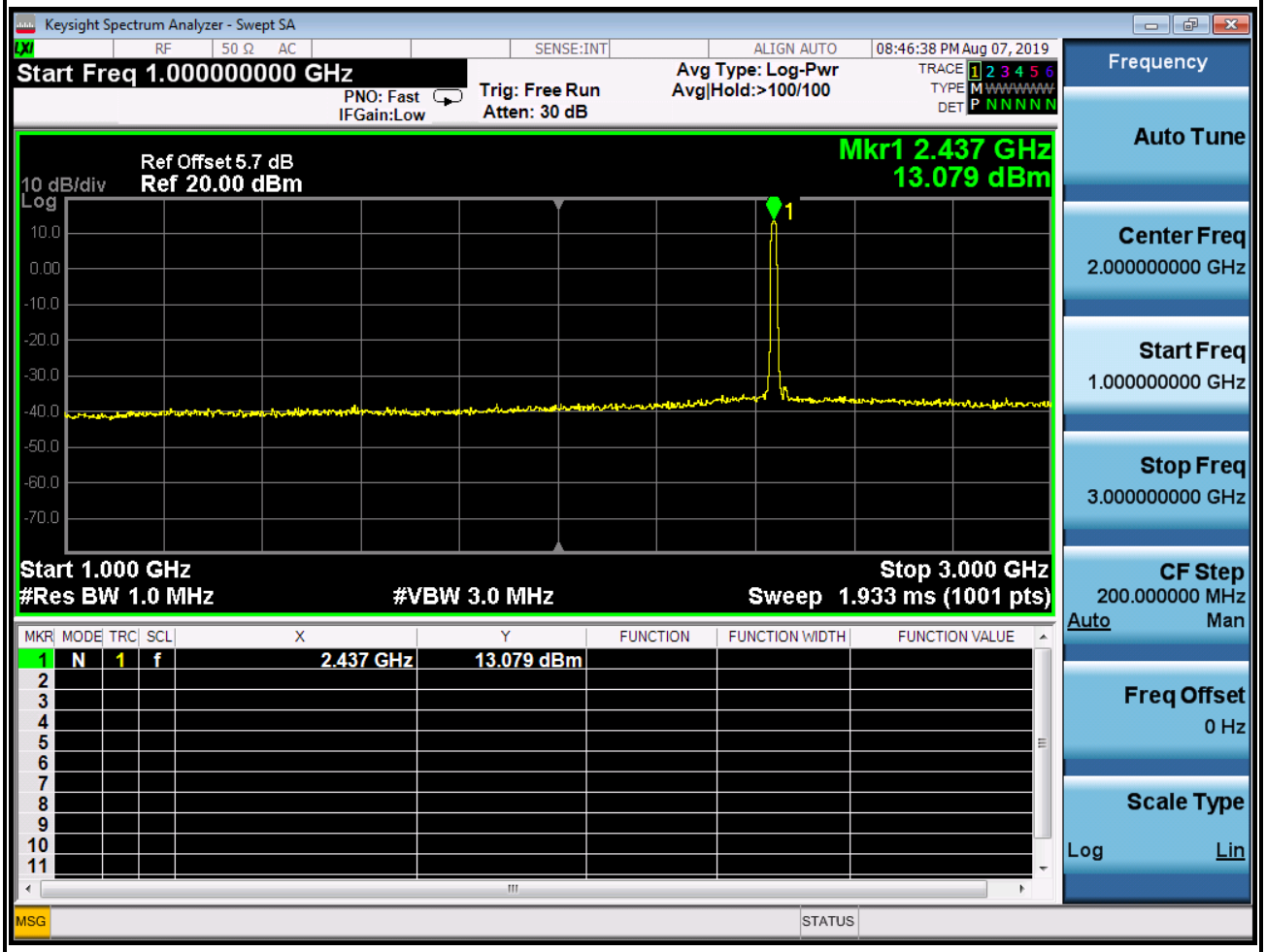


Test Mode :	802.11b CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		



Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4824	-56.392	3.00	-53.392	41.808	54.00	Pass	Average
7236	-58.773.	3.00	-55.773	39.427	54.00	Pass	Average
9648	-55.161	3.00	-52.161	43.039	54.00	Pass	Average

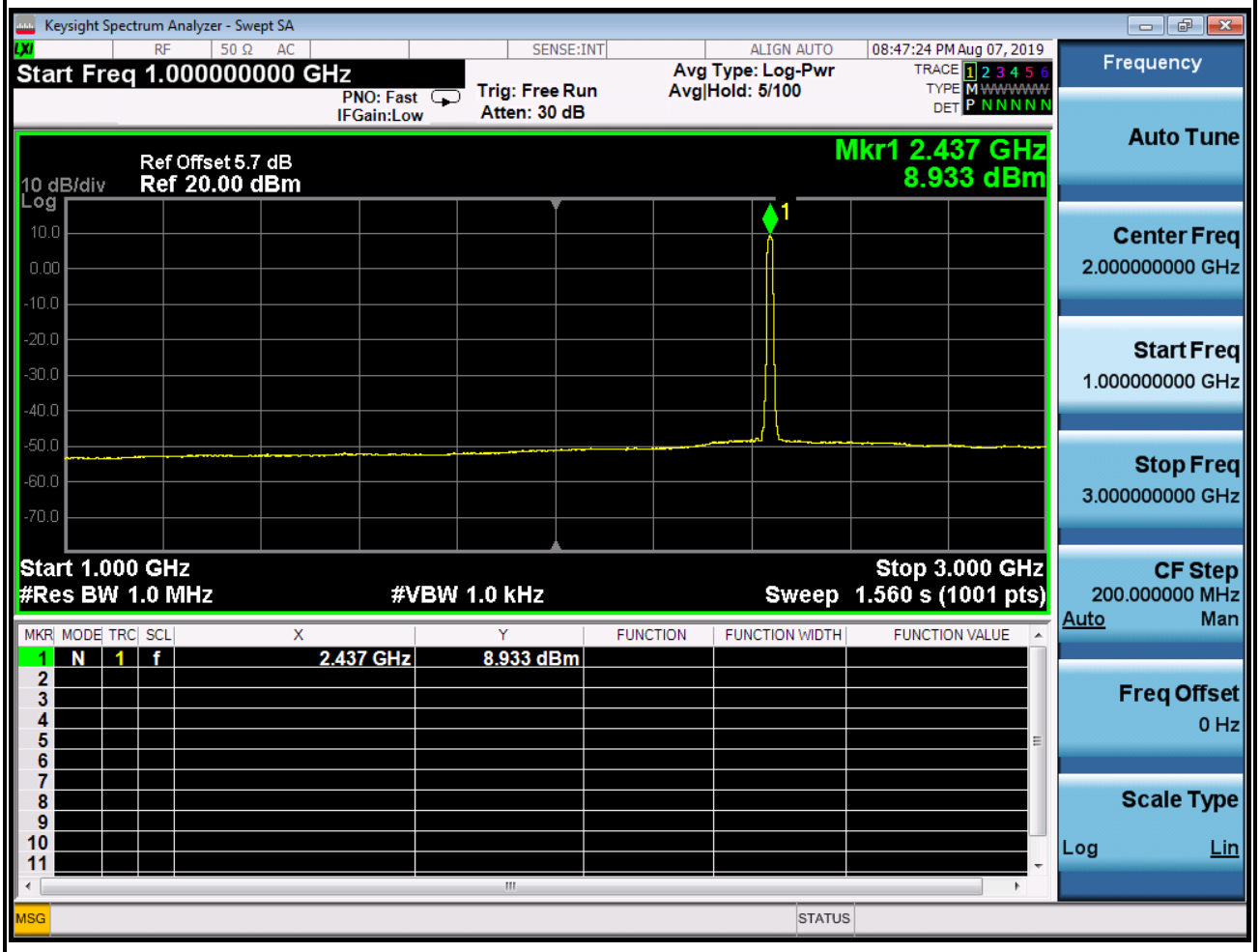
Test Mode :	802.11b CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		



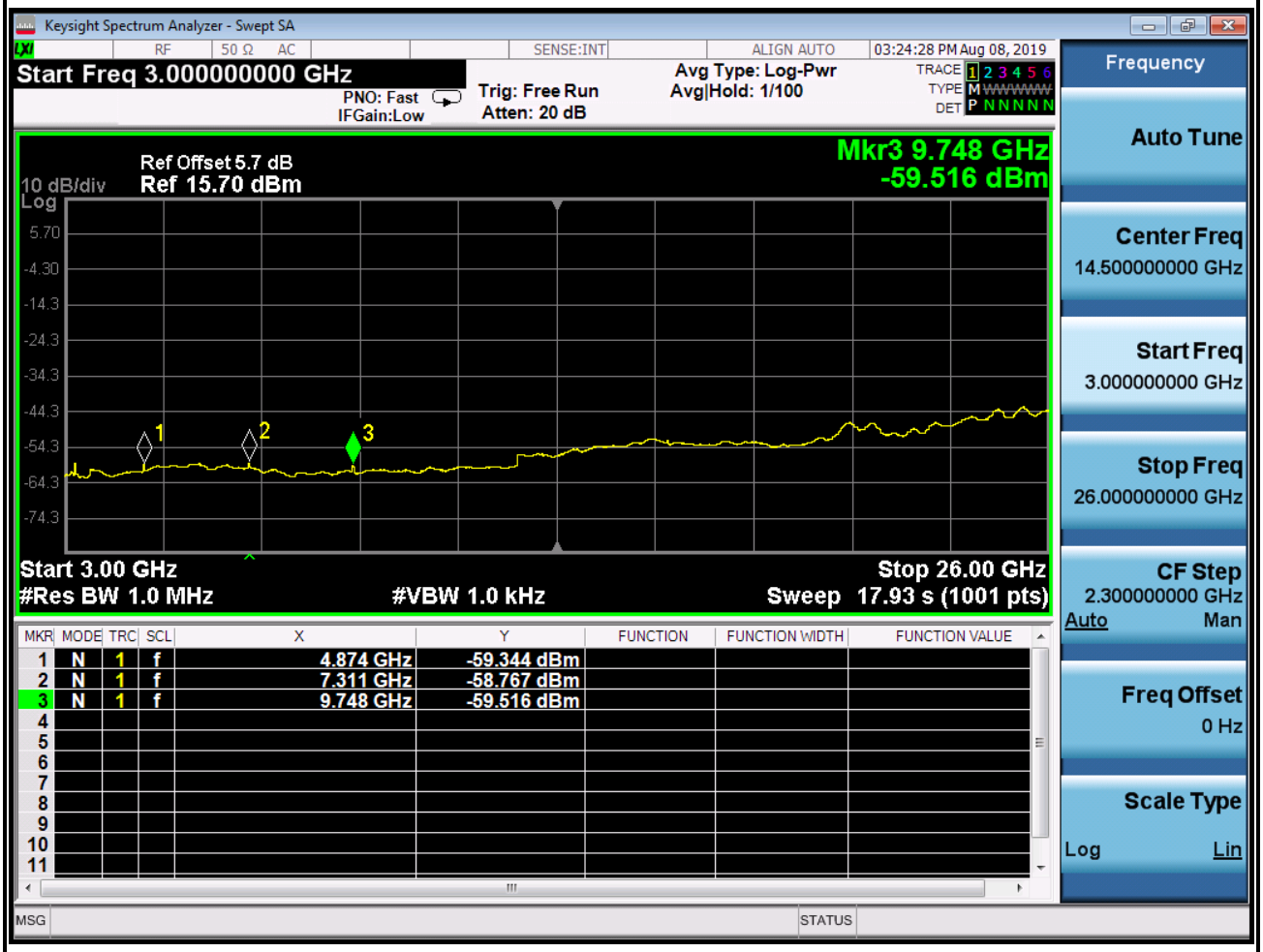
Test Mode :	802.11b CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4874	-49.262	3.00	-46.262	48.938	74.00	Pass	Peak
7311	-48.116	3.00	-45.116	50.184	74.00	Pass	Peak
9748	-48.974	3.00	-45.974	49.226	74.00	Pass	Peak

Test Mode :	802.11b CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

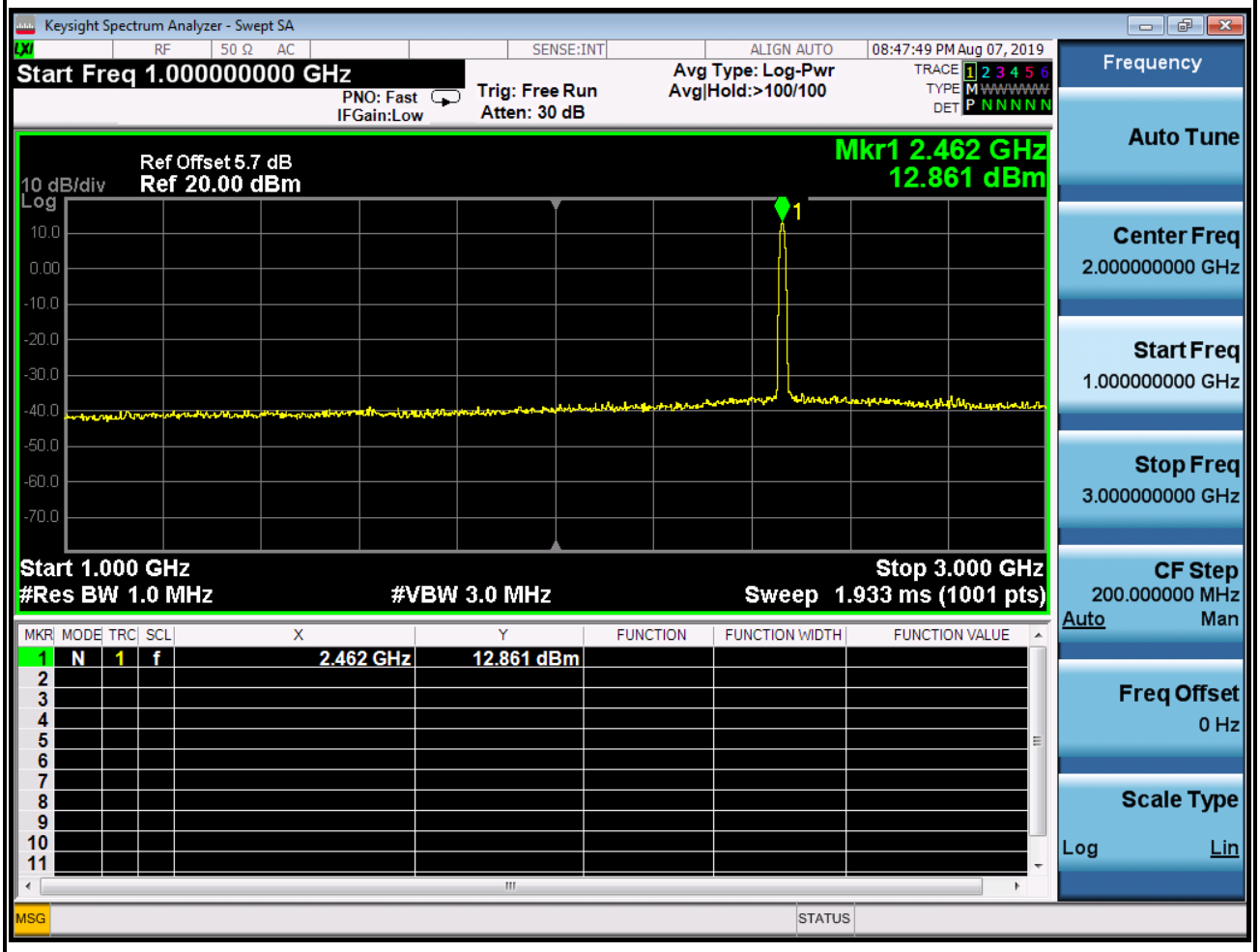


Test Mode :	802.11b CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

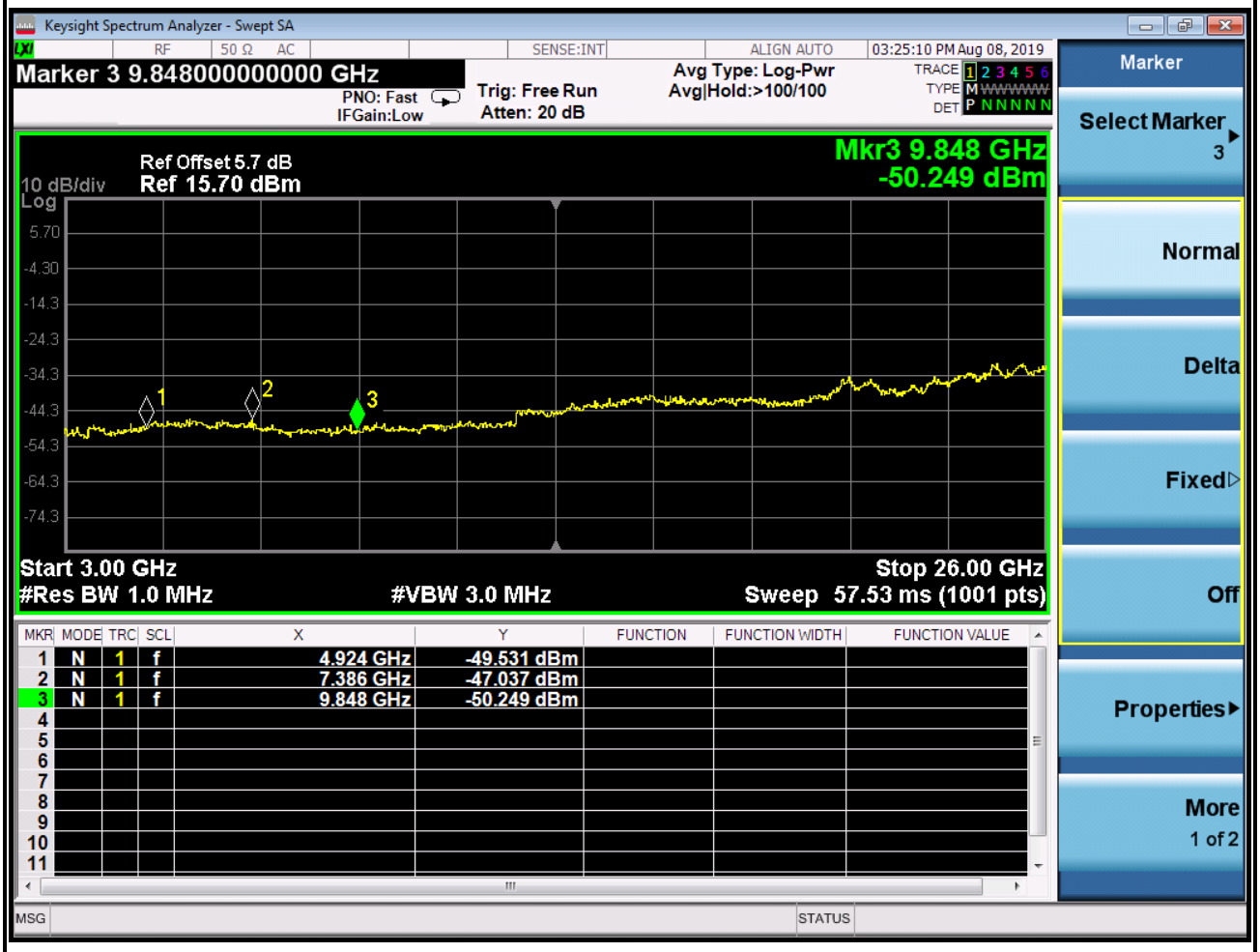


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4874	-59.344	3.00	-56.344	38.856	54.00	Pass	Average
7311	-58.767	3.00	-55.767	39.433	54.00	Pass	Average
9748	-59.516	3.00	-56.516	38.684	54.00	Pass	Average

Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

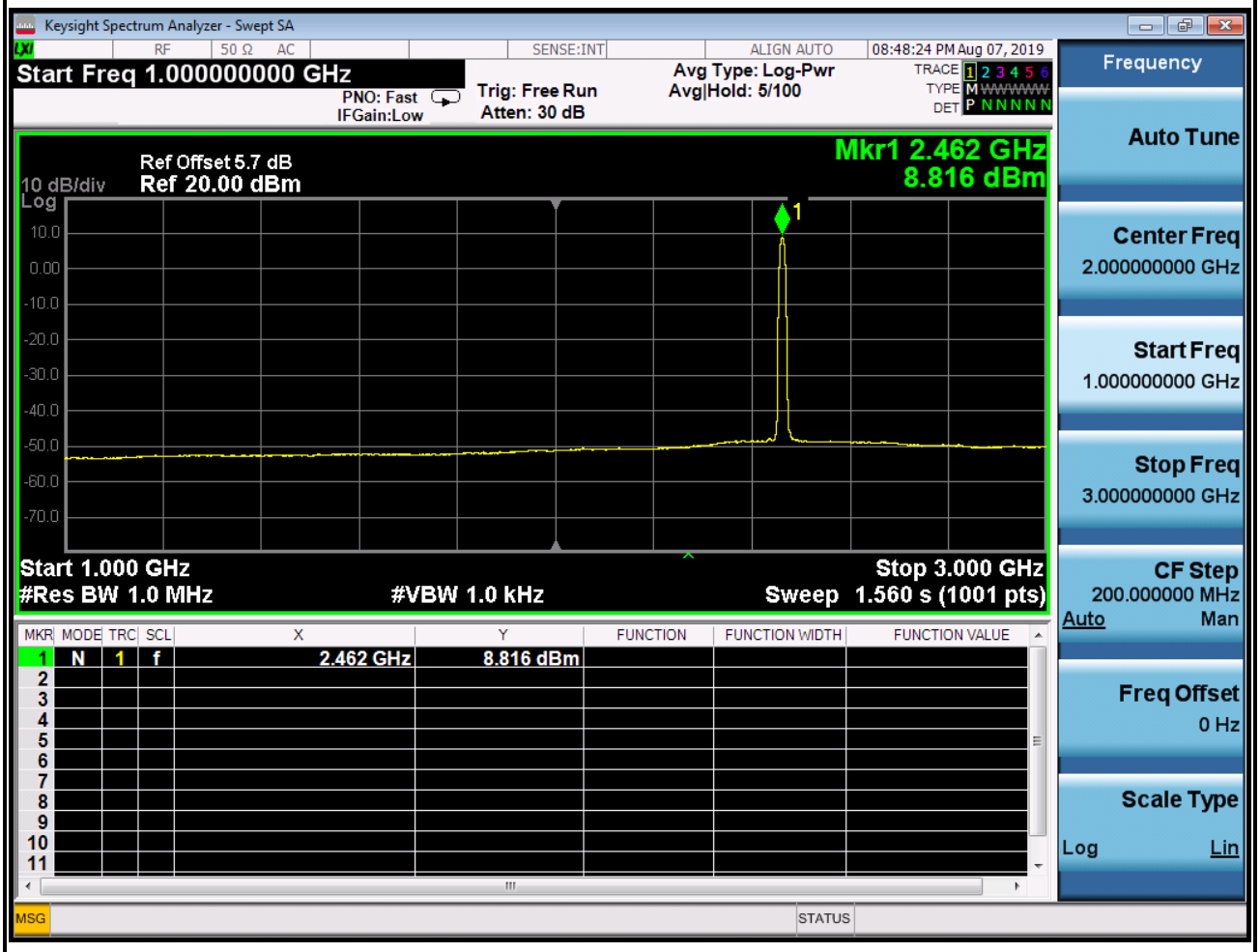


Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

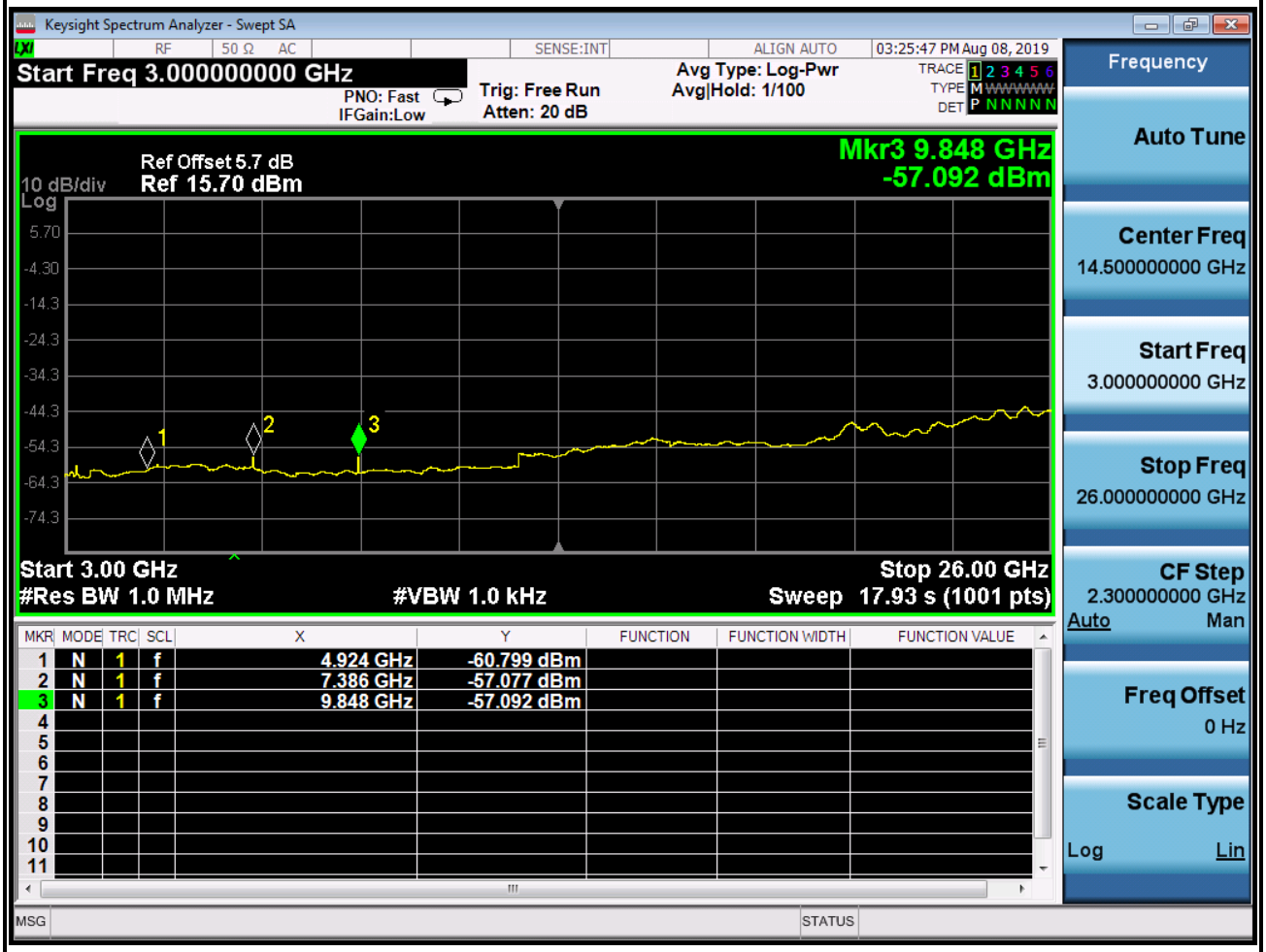


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4924	-49.531	3.00	-46.531	48.669	74.00	Pass	Peak
7386	-47.037	3.00	-44.037	51.163	74.00	Pass	Peak
9848	-50.249	3.00	-47.249	47.951	74.00	Pass	Peak

Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

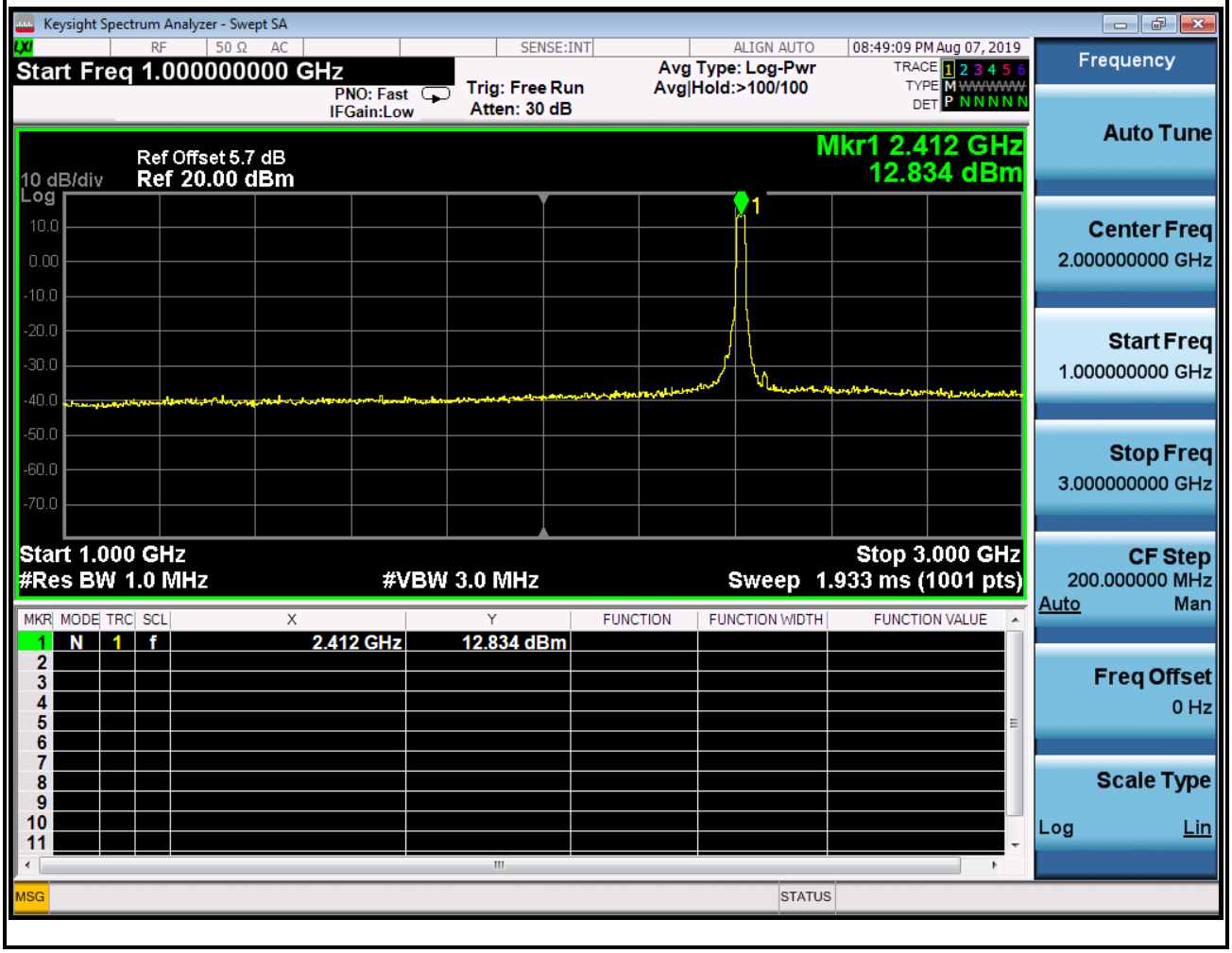


Test Mode :	802.11b CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

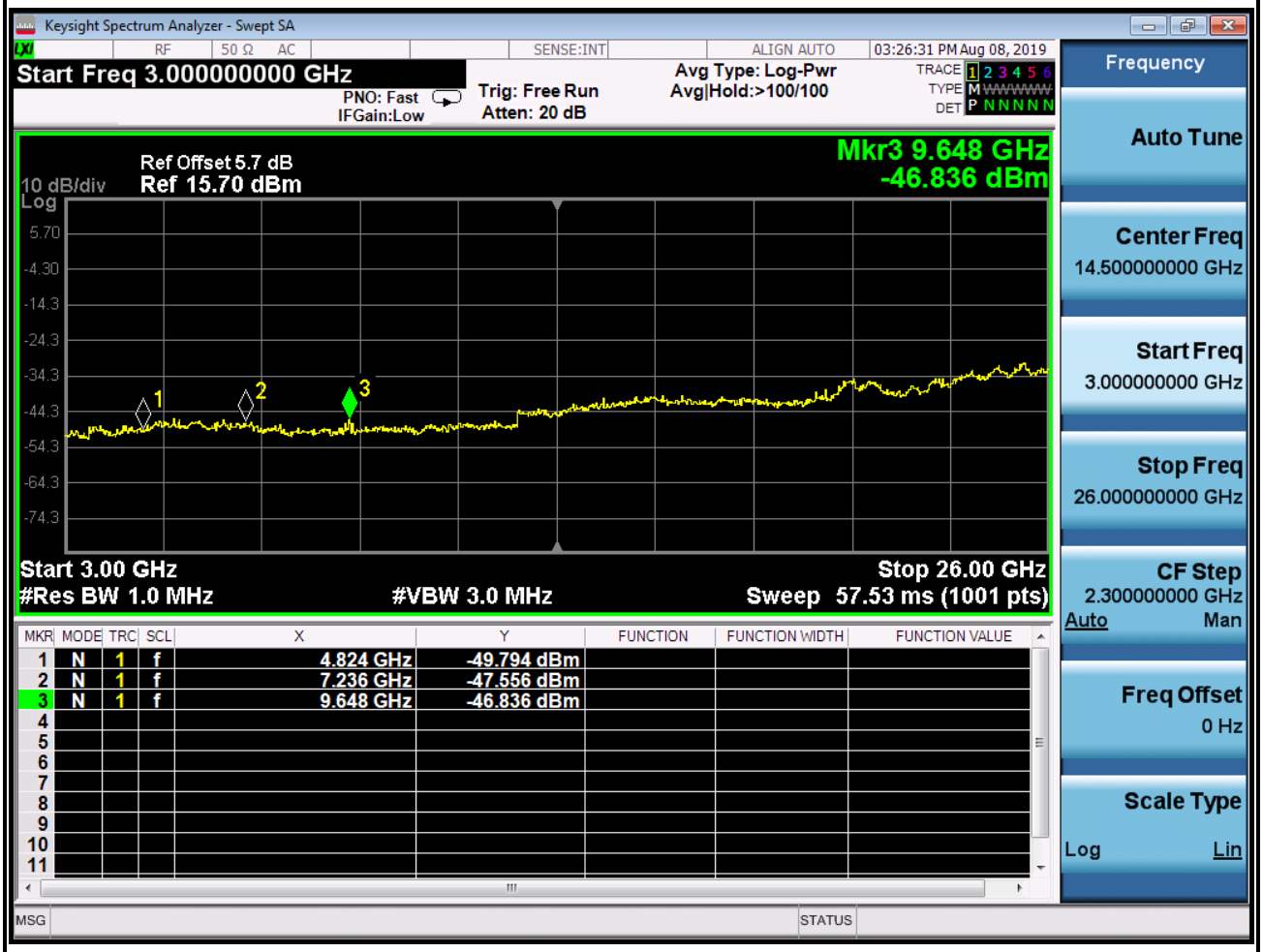


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4924	-60.799	3.00	-57.799	37.401	54.00	Pass	Average
7386	-57.077	3.00	-54.077	41.123	54.00	Pass	Average
9848	-57.092	3.00	-54.092	41.108	54.00	Pass	Average

Test Mode :	802.11g CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

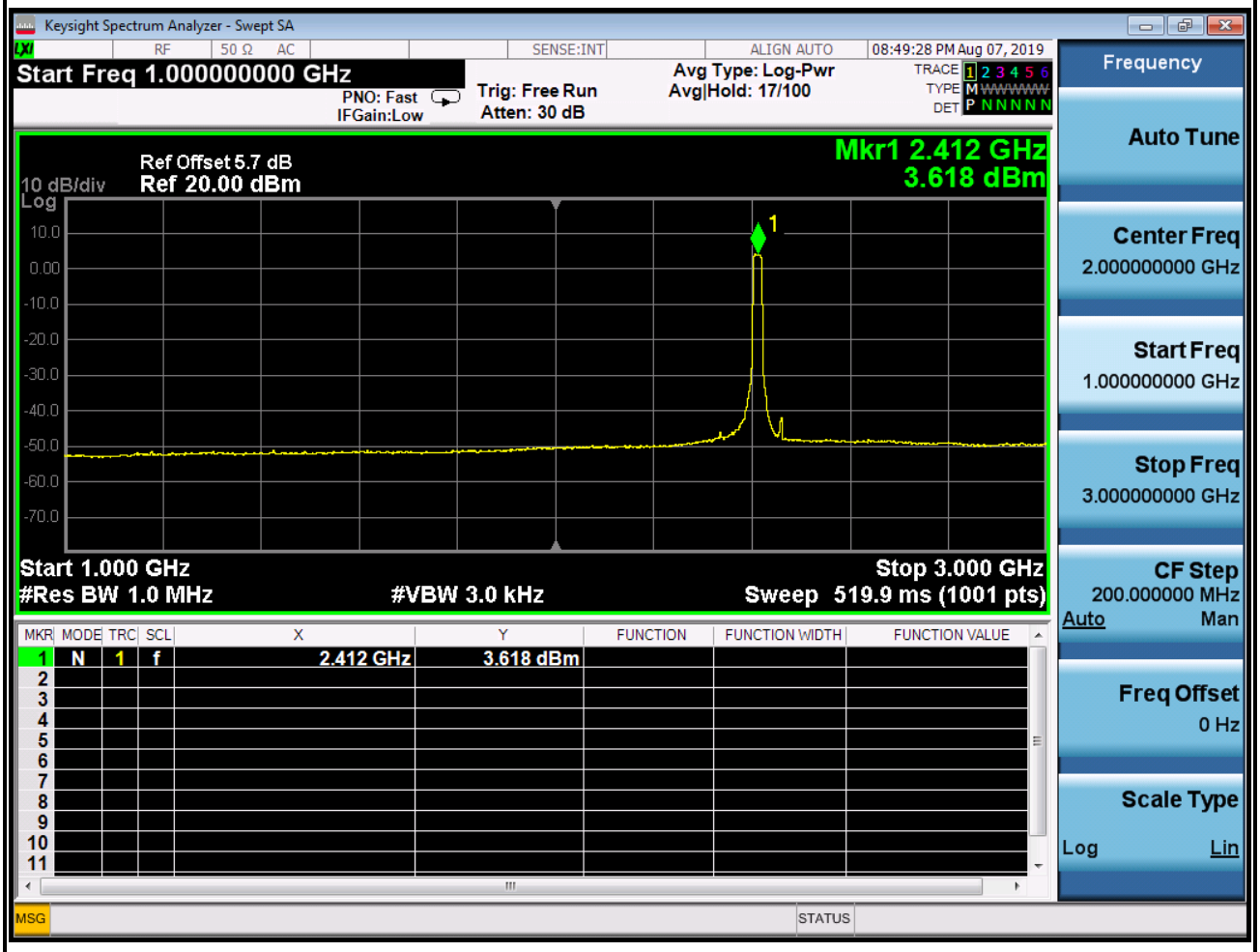


Test Mode :	802.11g CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

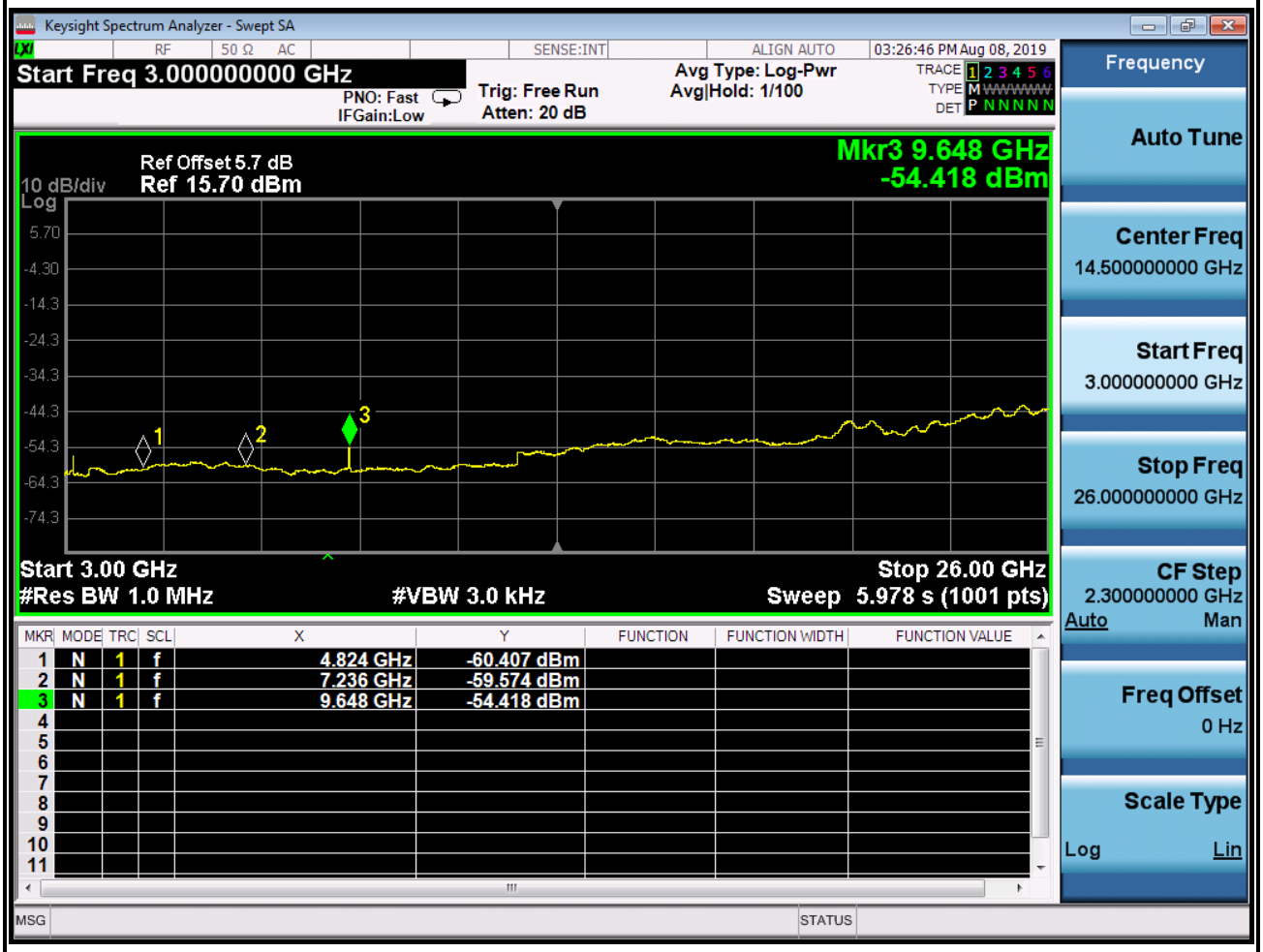


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4824	-49.794	3.00	-46.794	48.406	74.00	Pass	Peak
7236	-47.556	3.00	-44.556	50.644	74.00	Pass	Peak
9648	-46.836	3.00	-43.836	51.364	74.00	Pass	Peak

Test Mode :	802.11g CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

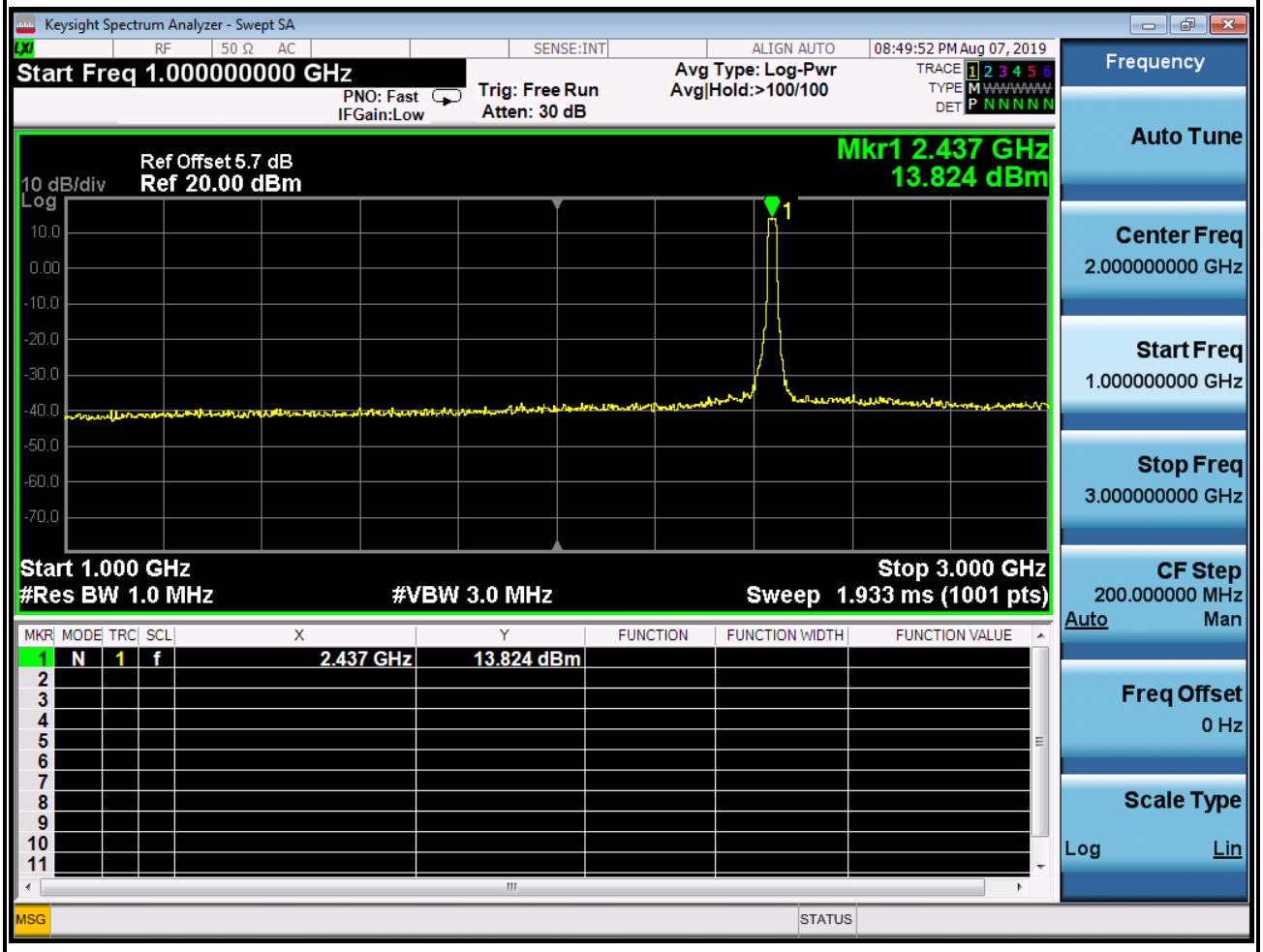


Test Mode :	802.11g CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

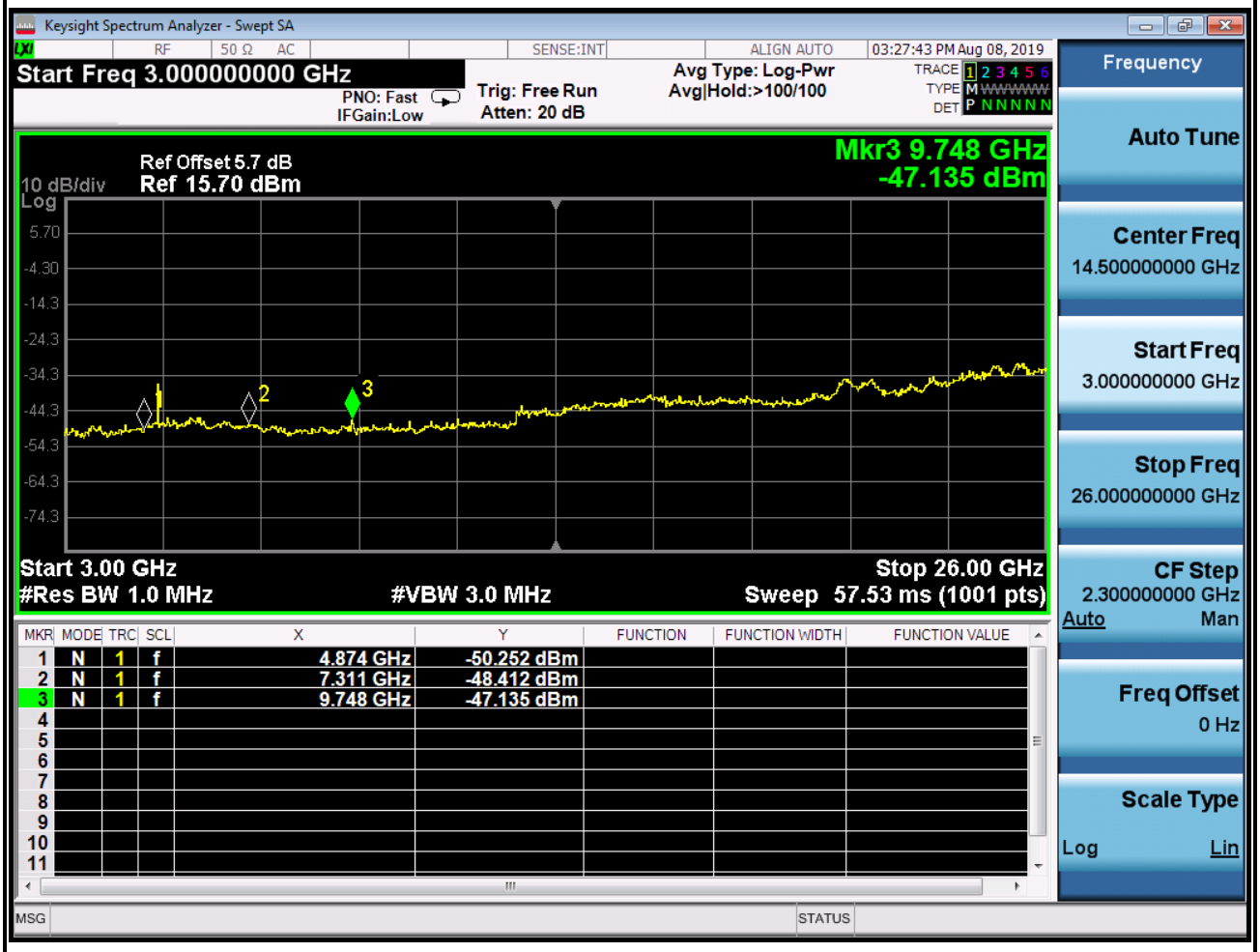


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4824	-60.407	3.00	-57.407	37.793	54.00	Pass	Average
7236	-59.574	3.00	-56.574	38.626	54.00	Pass	Average
9648	-54.418	3.00	-51.418	43.782	54.00	Pass	Average

Test Mode :	802.11g CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

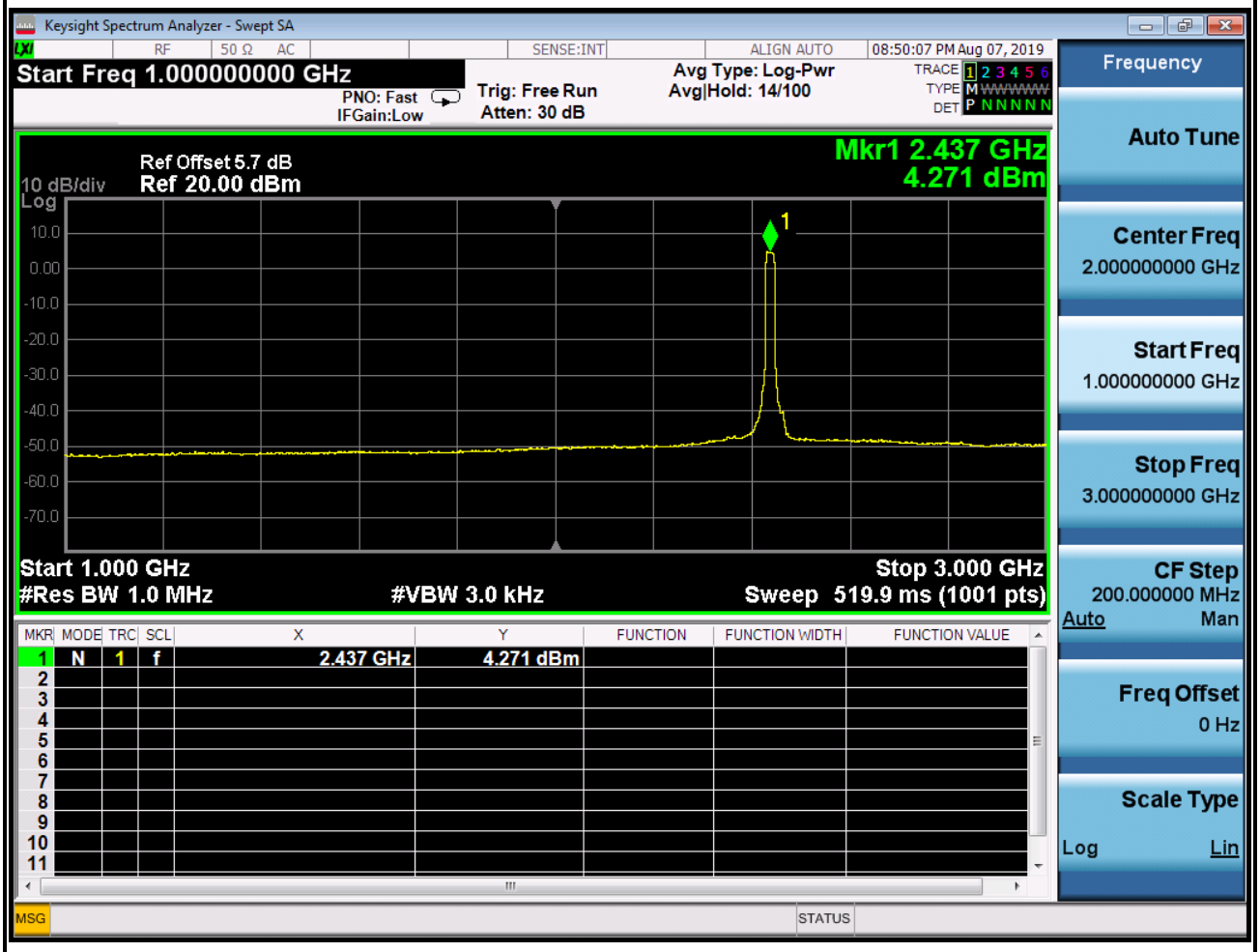


Test Mode :	802.11g CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

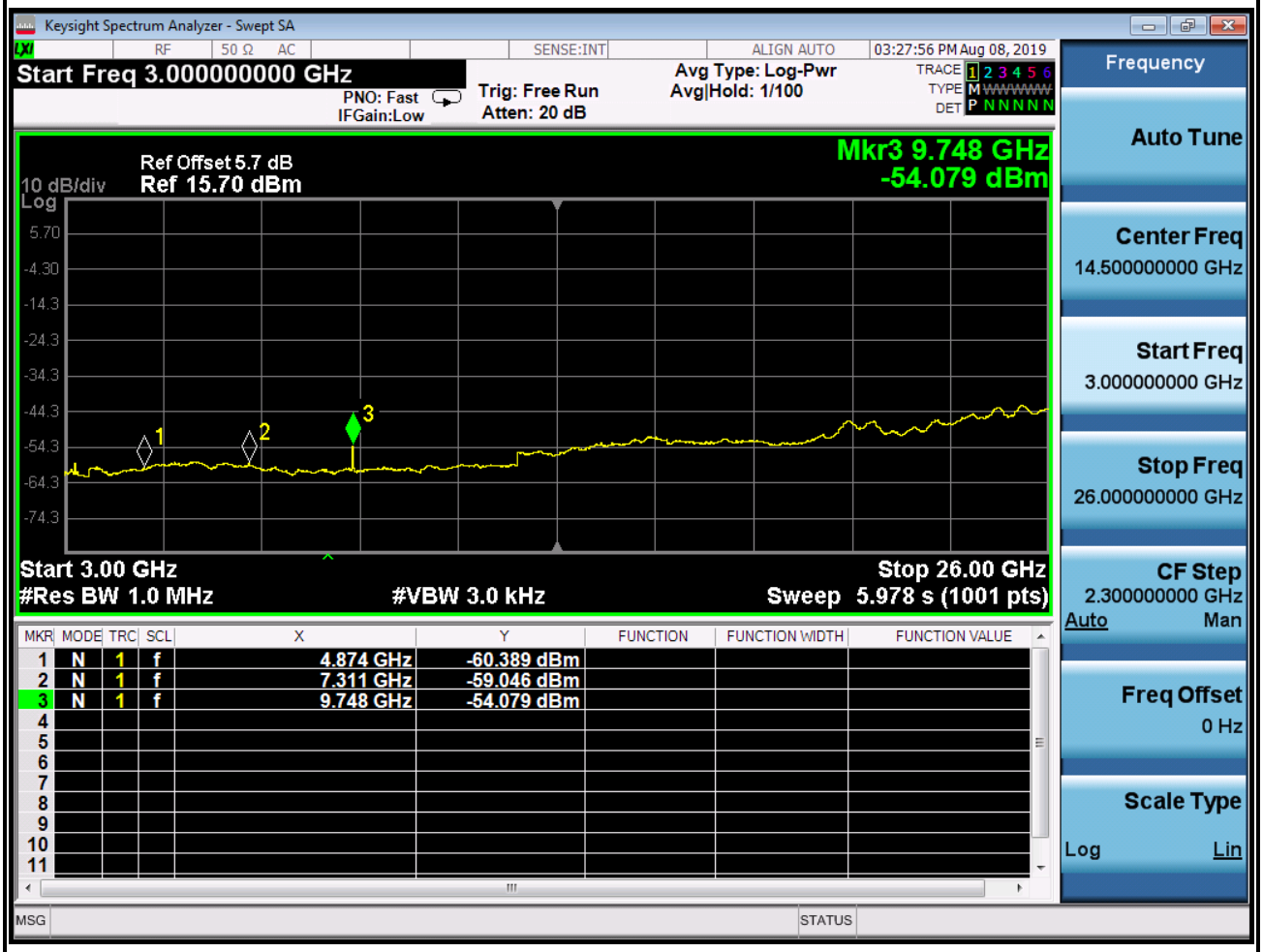


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4874	-50.252	3.00	-47.252	47.948	74.00	Pass	Peak
7311	-48.412	3.00	-45.412	49.788	74.00	Pass	Peak
9748	-47.135	3.00	-44.135	51.065	74.00	Pass	Peak

Test Mode :	802.11g CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

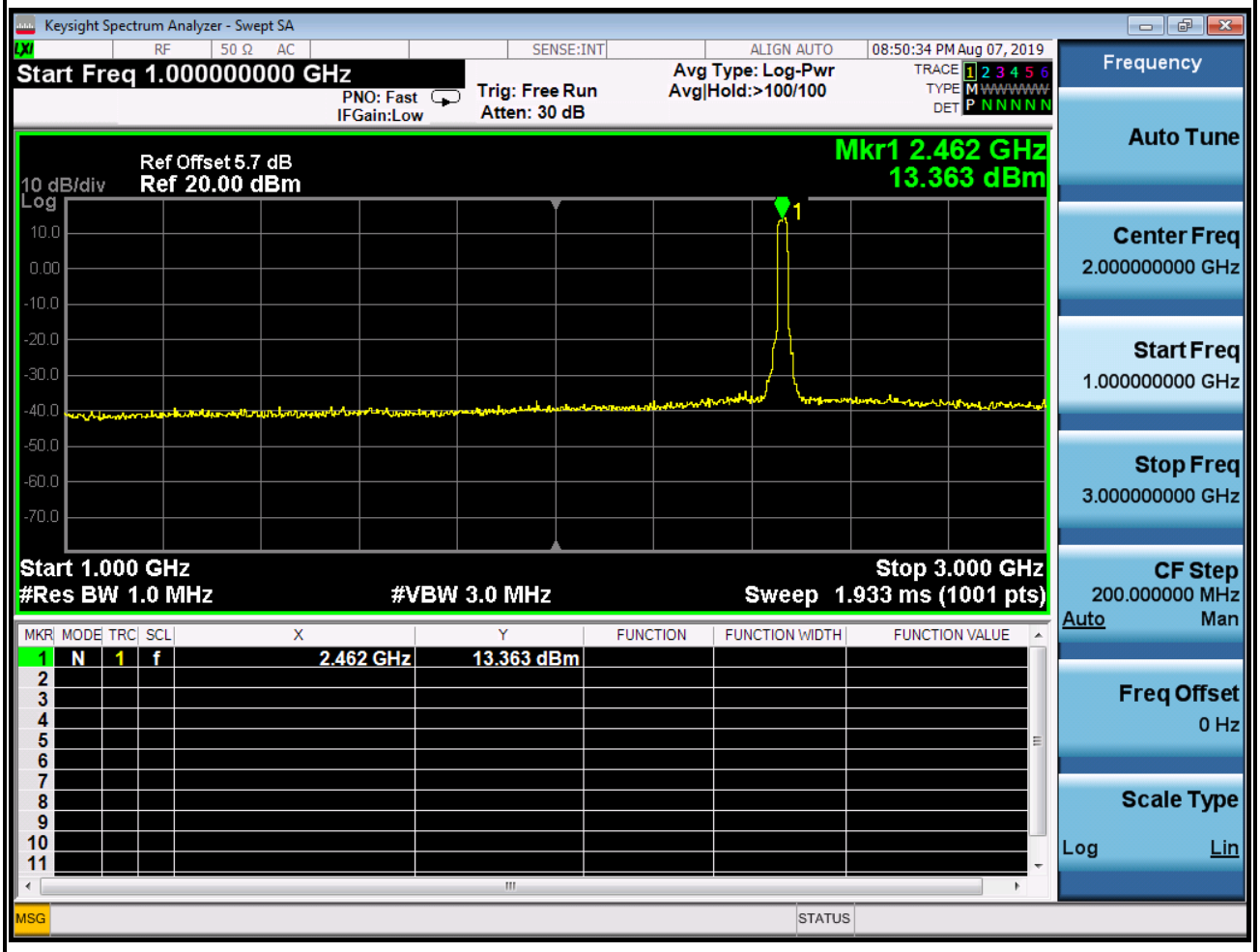


Test Mode :	802.11g CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

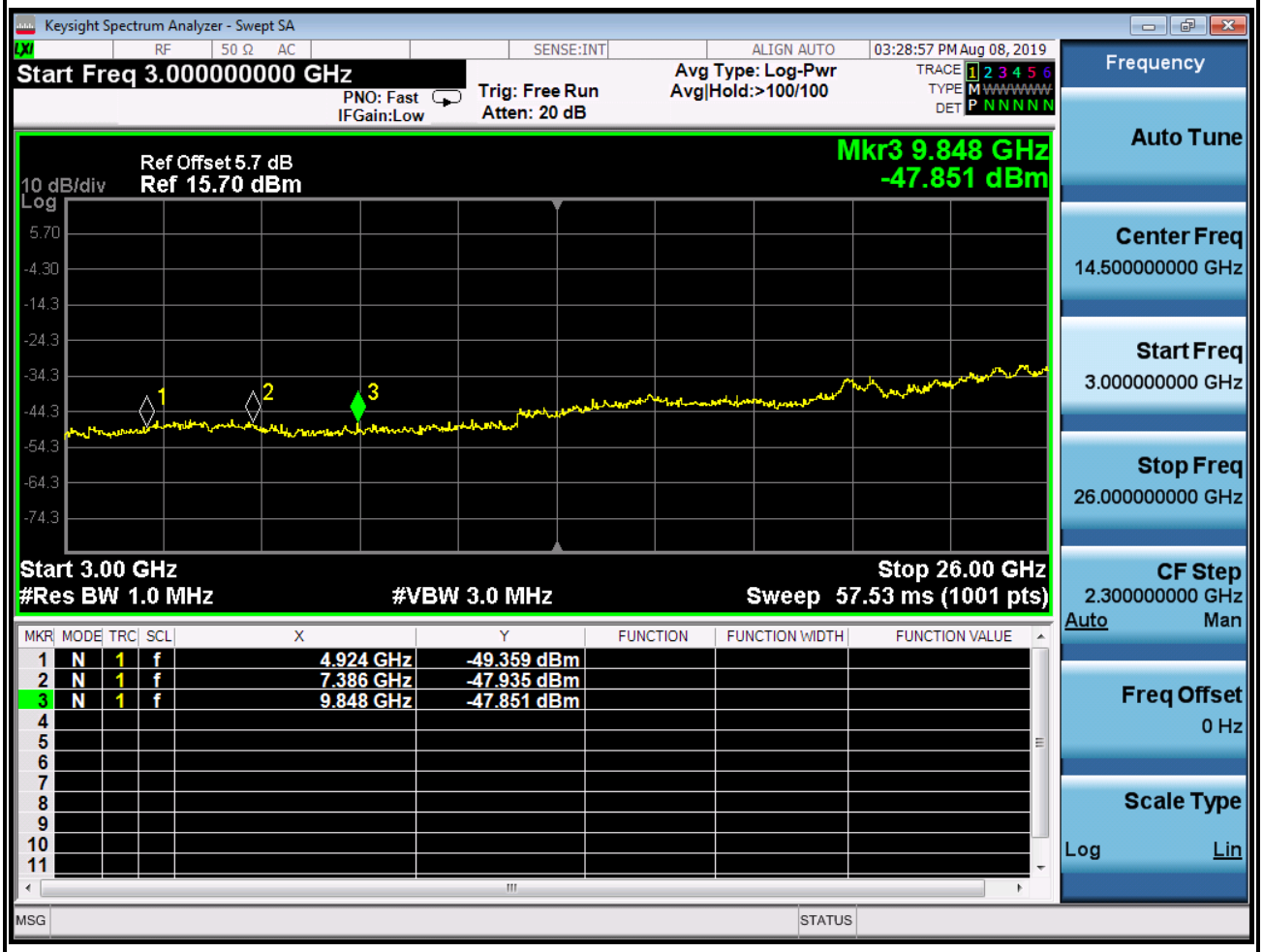


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4874	-60.389	3.00	-57.389	37.811	54.00	Pass	Average
7311	-59.046	3.00	-56.046	39.154	54.00	Pass	Average
9748	-54.079	3.00	-51.079	44.121	54.00	Pass	Average

Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

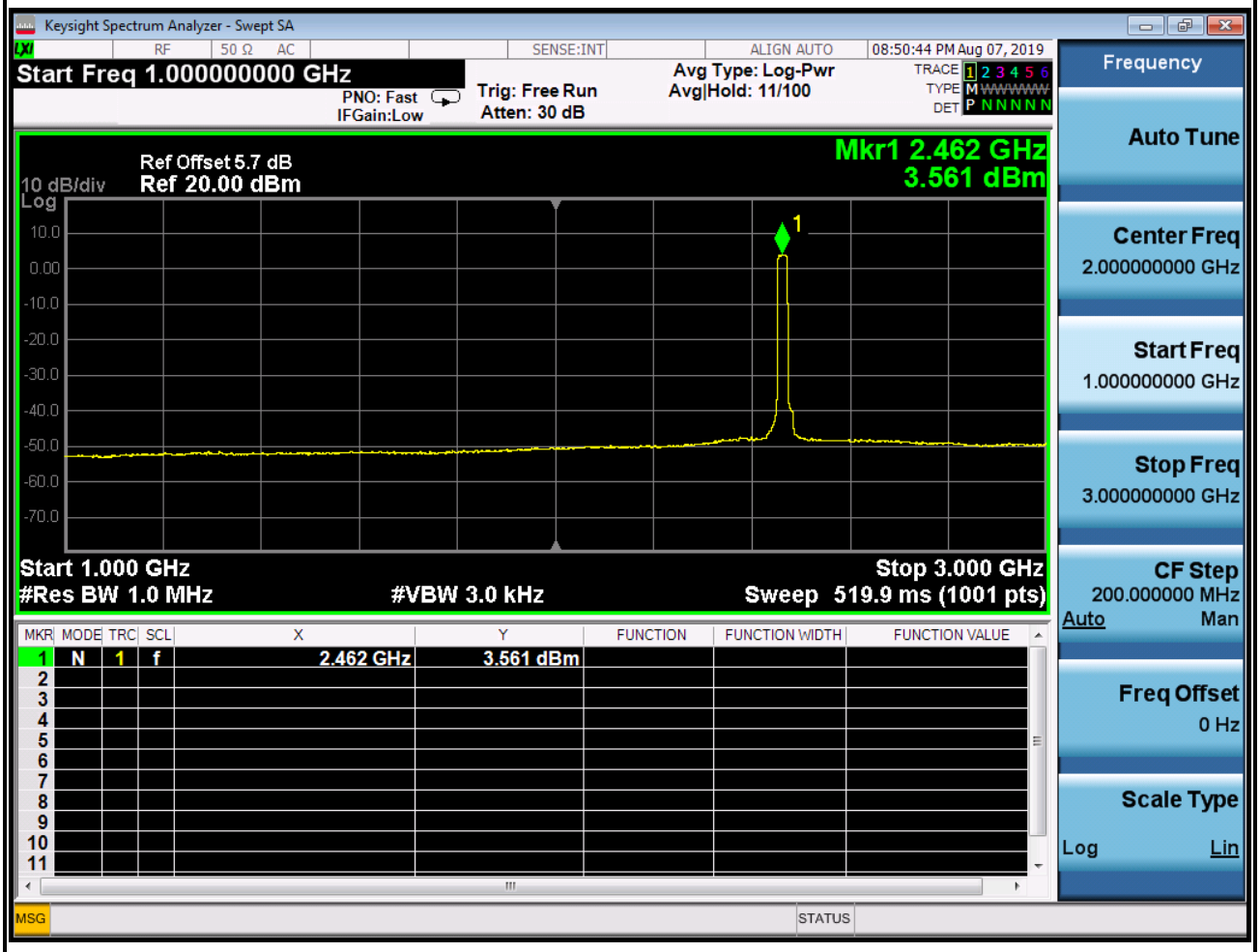


Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

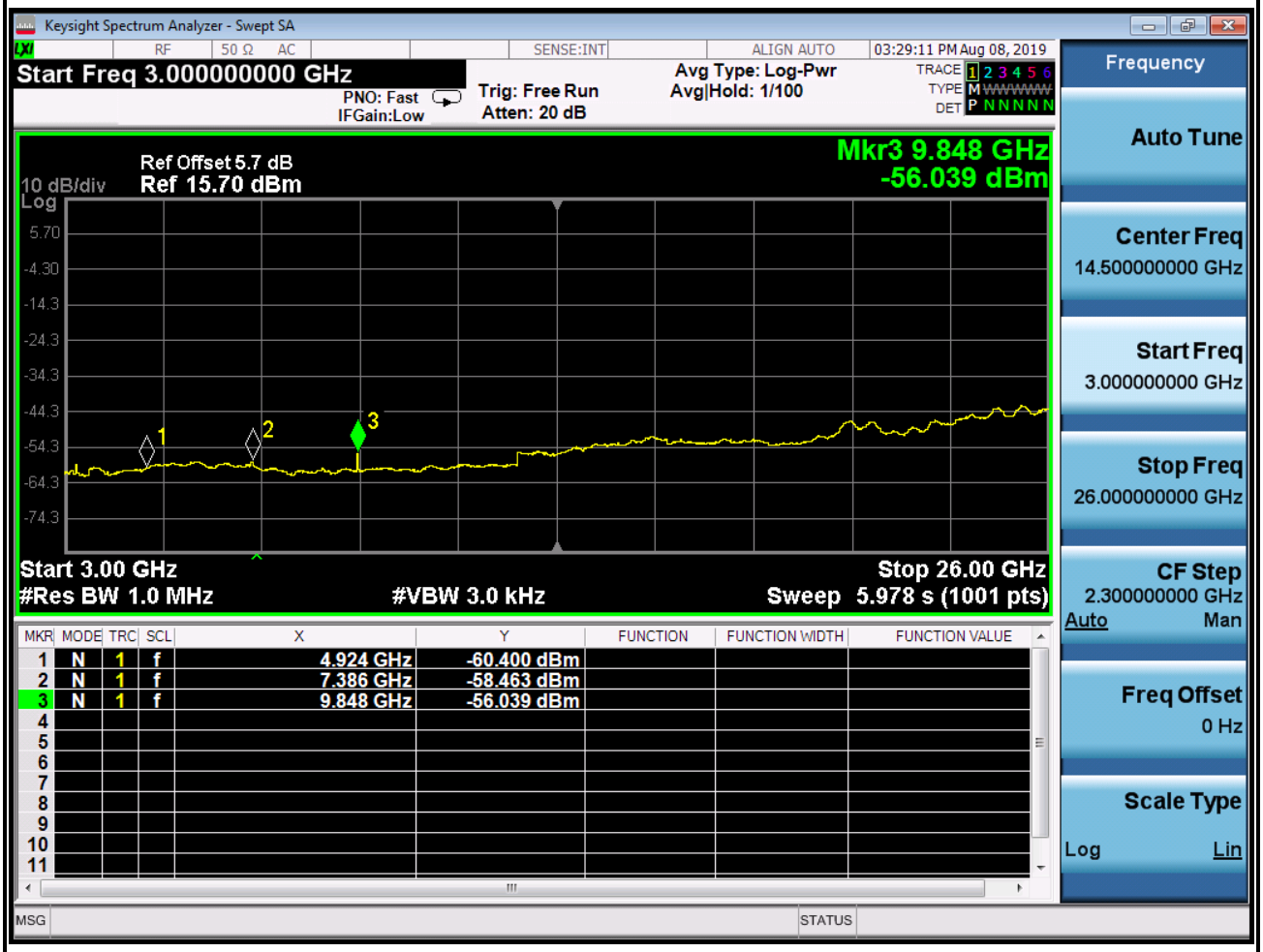


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4924	-49.359	3.00	-46.359	48.841	74.00	Pass	Peak
7386	-47.935	3.00	-44.935	50.265	74.00	Pass	Peak
9848	-47.851	3.00	-44.851	50.349	74.00	Pass	Peak

Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

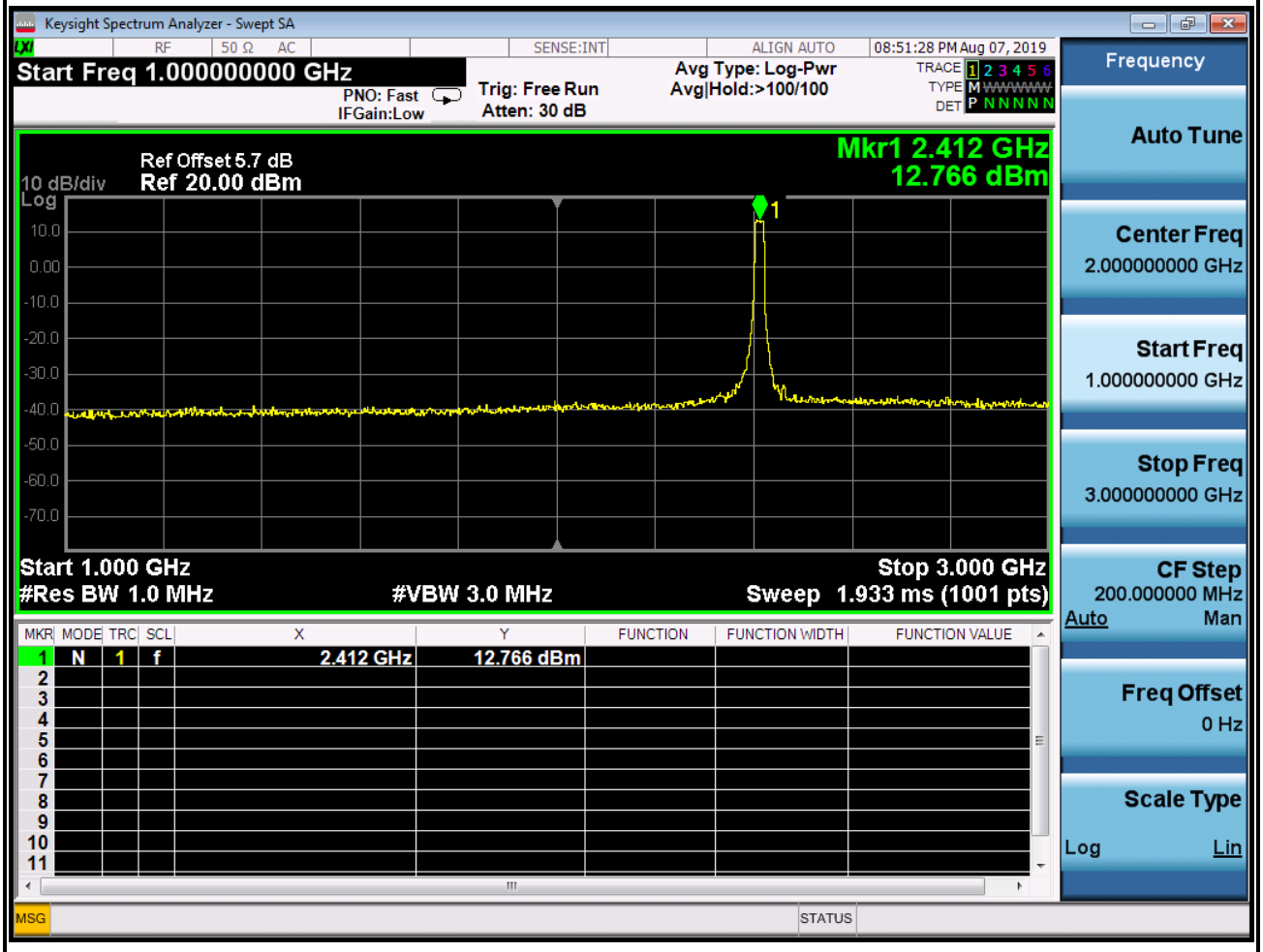


Test Mode :	802.11g CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

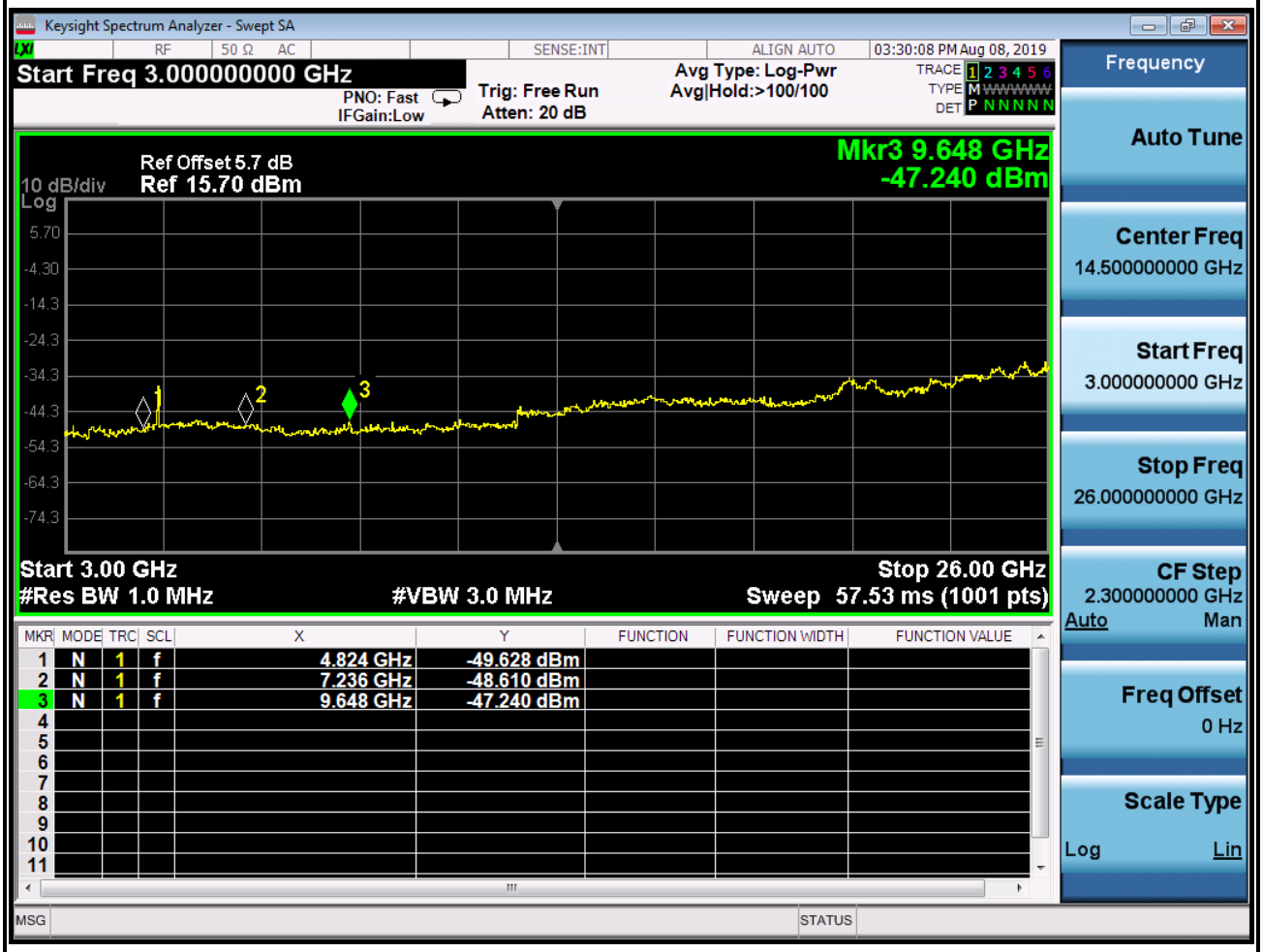


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4924	-60.400	3.00	-57.40	37.800	54.00	Pass	Average
7386	-58.463	3.00	-55.463	39.737	54.00	Pass	Average
9848	-56.039	3.00	-53.039	42.161	54.00	Pass	Average

Test Mode :	802.11n20 CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

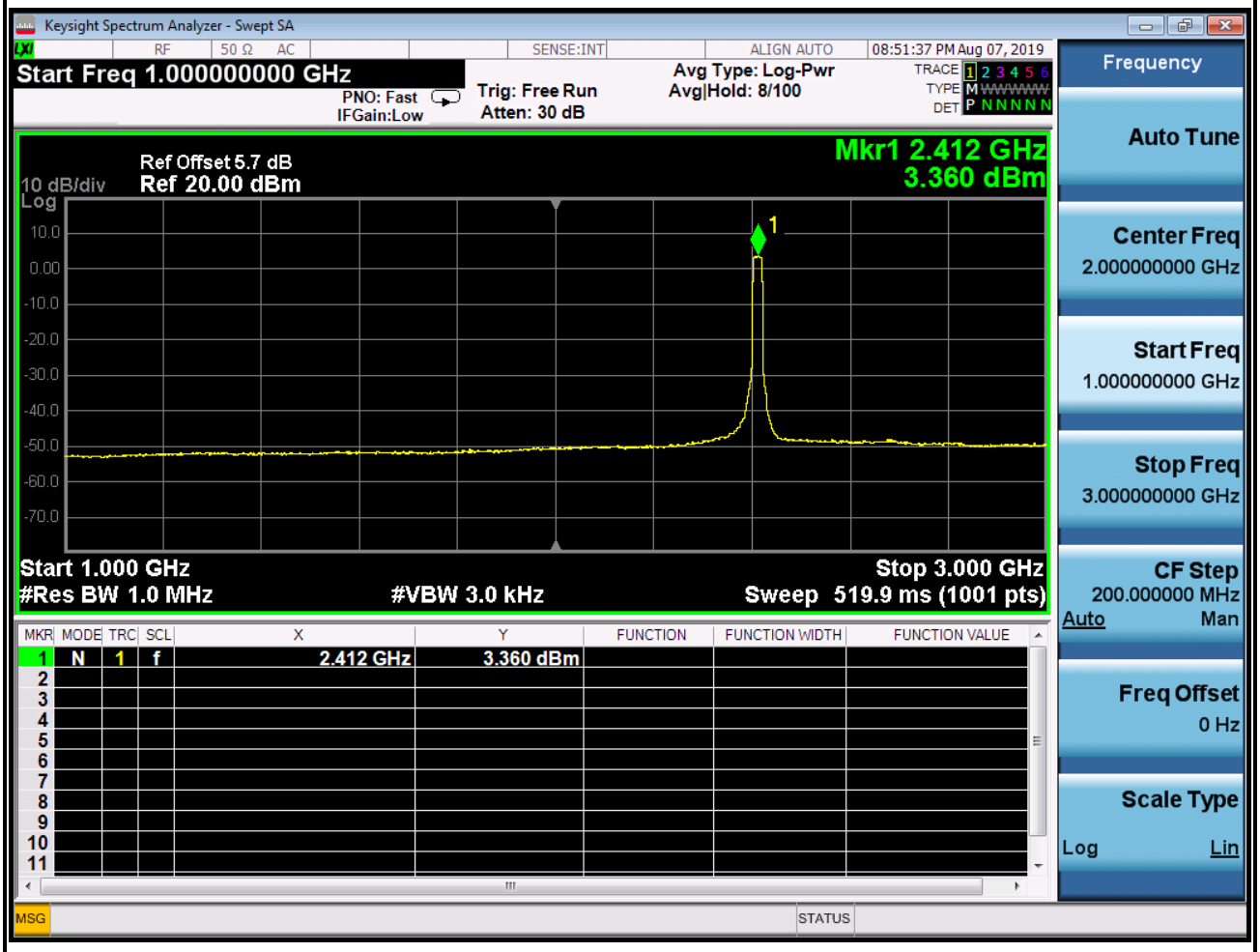


Test Mode :	802.11n20 CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		



Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4824	-49.628	3.00	-46.628	48.572	74.00	Pass	Peak
7236	-48.610	3.00	-45.610	49.59	74.00	Pass	Peak
9648	-47.240	3.00	-44.240	50.96	74.00	Pass	Peak

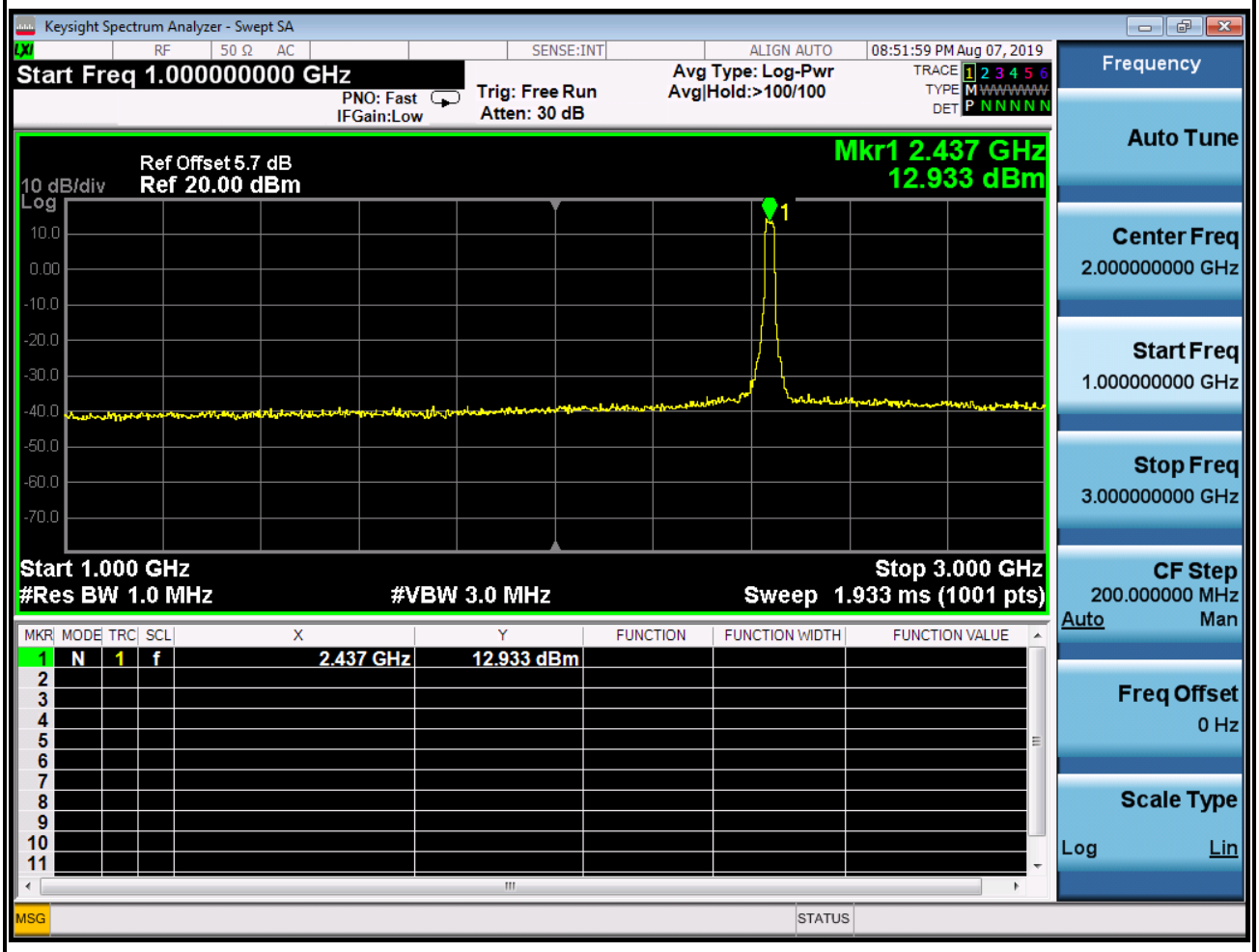
Test Mode :	802.11n20 CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		



Test Mode :	802.11n20 CH00 (2412 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4824	-60.620	3.00	-57.620	37.58	54.00	Pass	Average
7236	-59.469	3.00	-56.469	38.731	54.00	Pass	Average
9648	-53.792	3.00	-50.792	44.408	54.00	Pass	Average

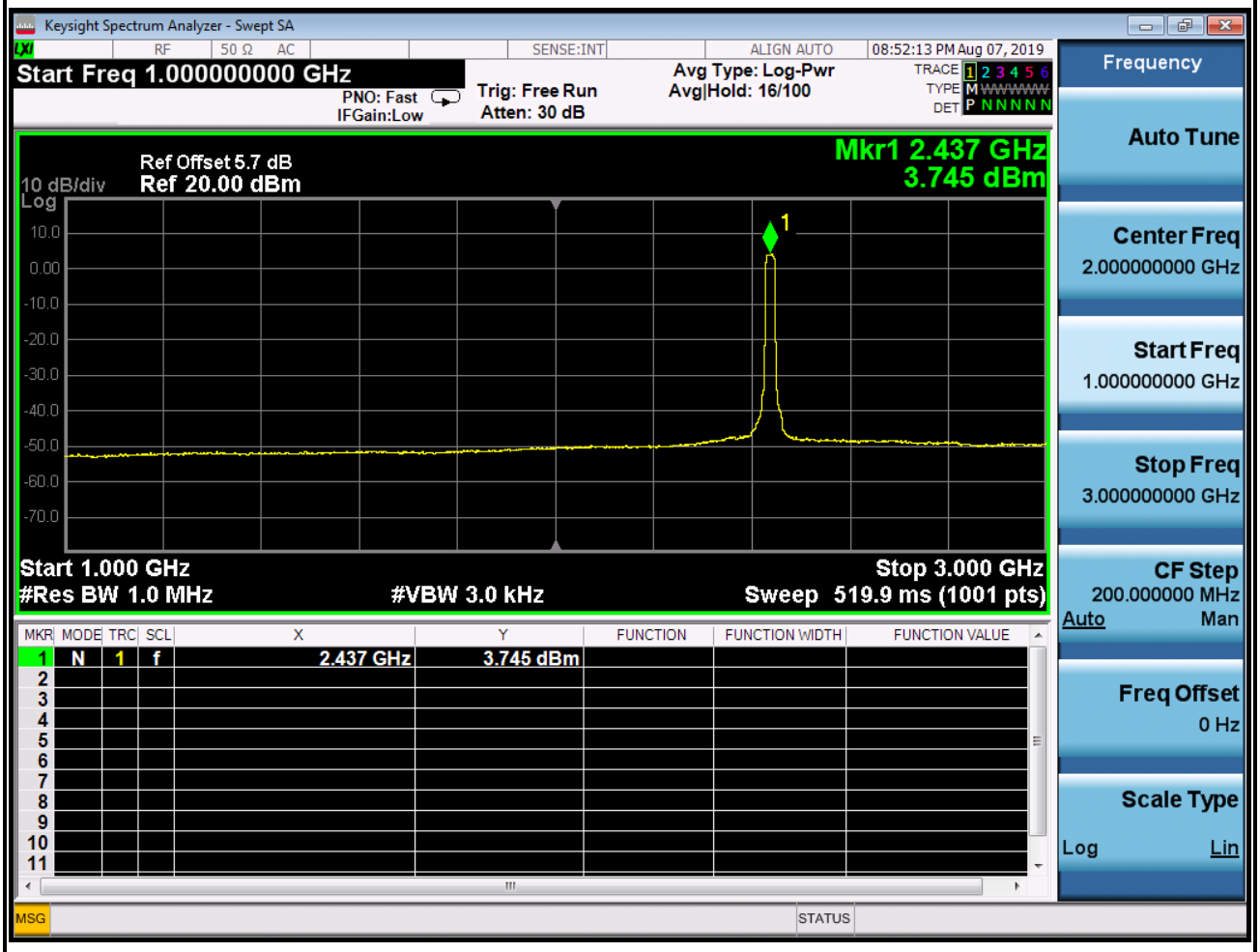
Test Mode :	802.11n20 CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		



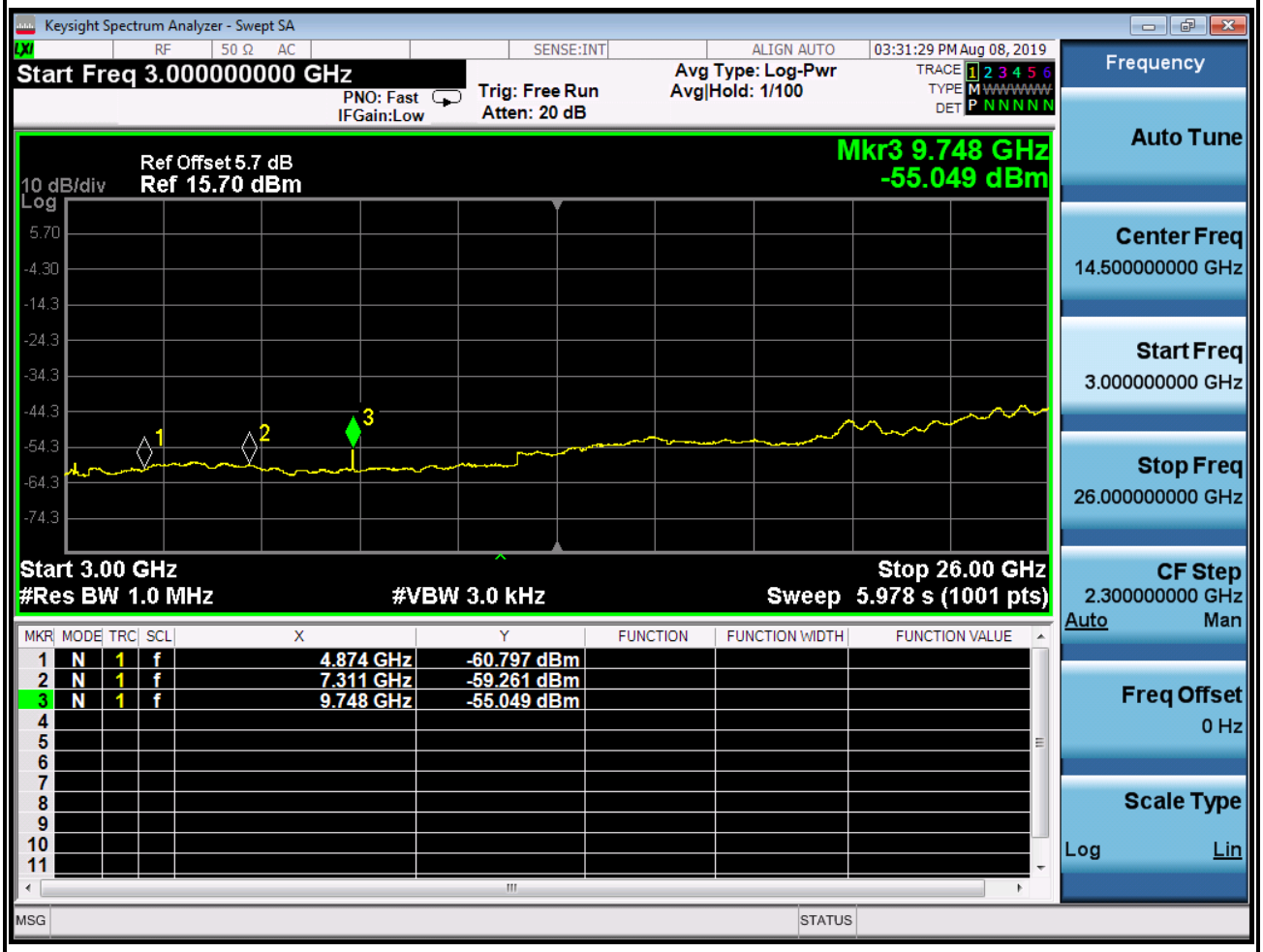
Test Mode :	802.11n20 CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4874	-50.528	3.00	-47.528	47.672	74.00	Pass	Peak
7311	-49.382	3.00	-46.382	48.818	74.00	Pass	Peak
9748	-48.819	3.00	-45.819	49.381	74.00	Pass	Peak

Test Mode :	802.11n20 CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

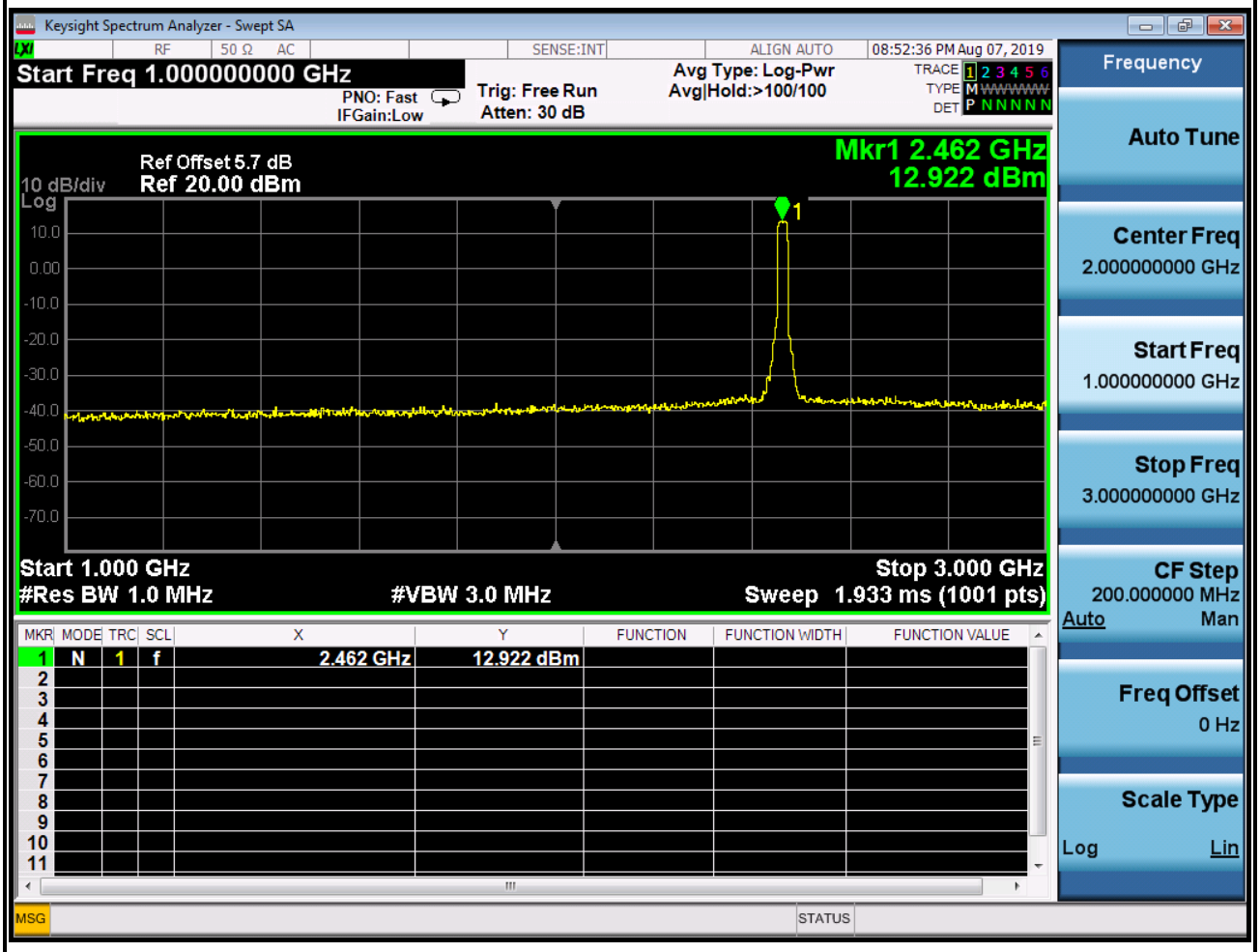


Test Mode :	802.11n20 CH06 (2437 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

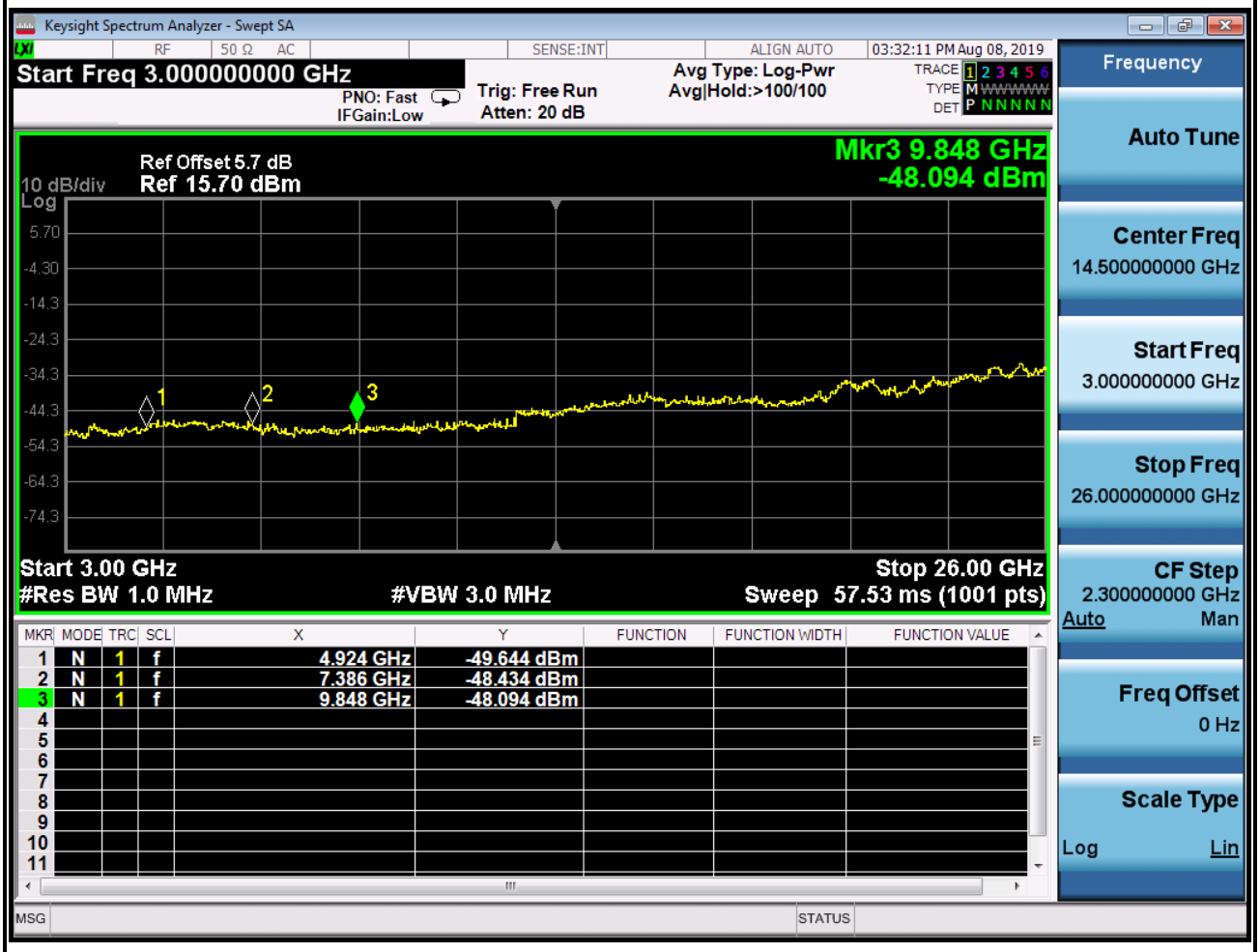


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4874	-60.797	3.00	-57.797	37.403	54.00	Pass	Average
7311	-59.261	3.00	-56.261	38.939	54.00	Pass	Average
9748	-55.049	3.00	-52.049	43.151	54.00	Pass	Average

Test Mode :	802.11n20 CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		

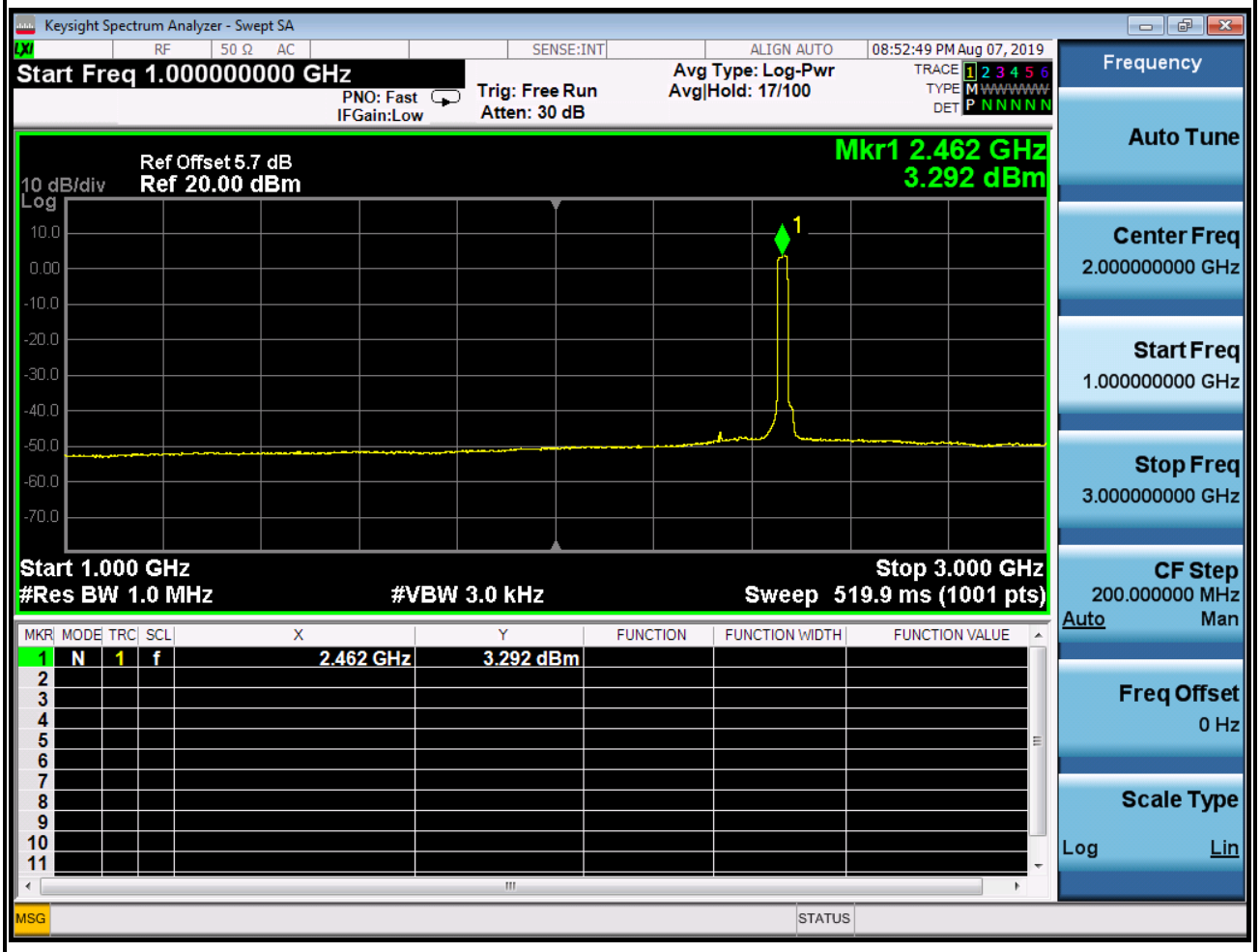


Test Mode :	802.11n20 CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		

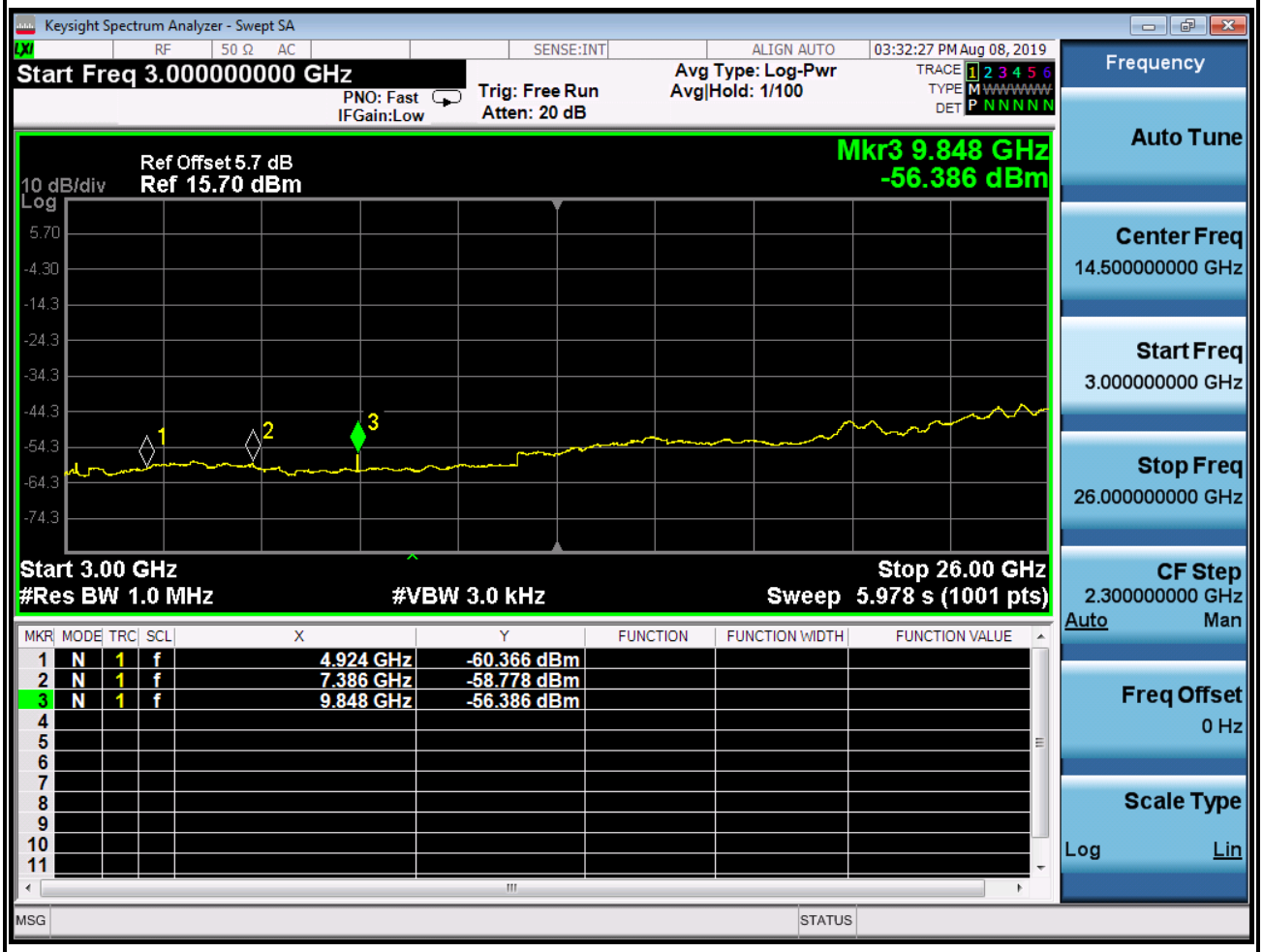


Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4924	-49.644	3.00	-46.644	48.556	74.00	Pass	Peak
7386	-48.434	3.00	-45.434	49.766	74.00	Pass	Peak
9848	-48.094	3.00	-45.094	50.106	74.00	Pass	Peak

Test Mode :	802.11 n20 CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	1GHz~3GHz		



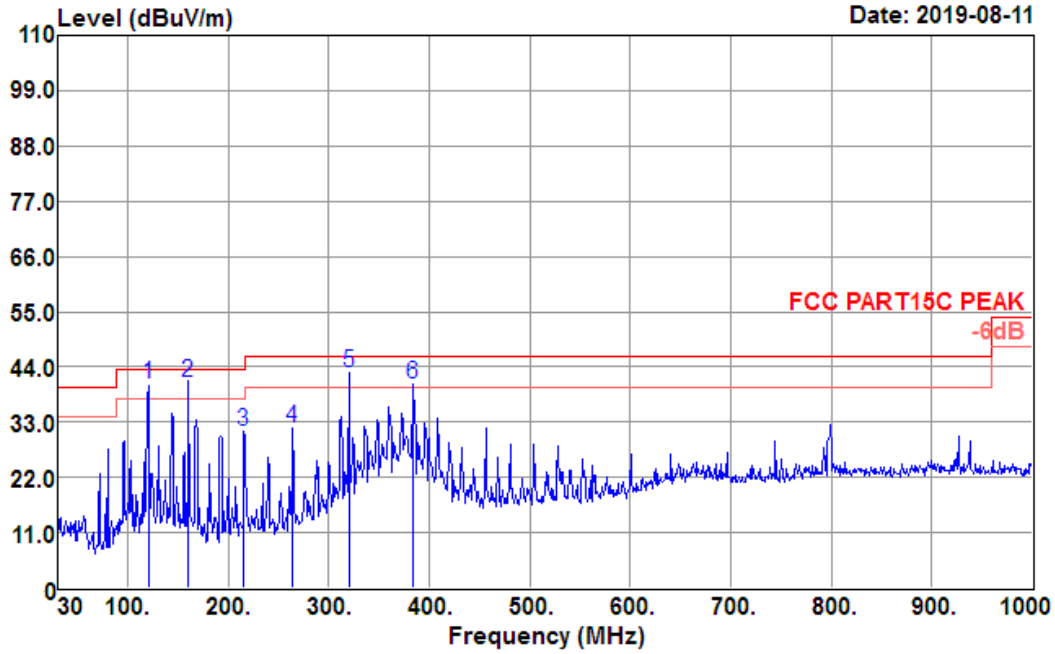
Test Mode :	802.11n20 CH11 (2462 MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	3GHz~26GHz		



Frequency (MHz)	Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	E (dBμV/m)	Limit (dBμV/m)	Result	Remark
4924	-60.366	3.00	-57.366	37.834	54.00	Pass	Average
7386	-58.778	3.00	-55.778	39.422	54.00	Pass	Average
9848	-56.386	3.00	-53.386	41.814	54.00	Pass	Average

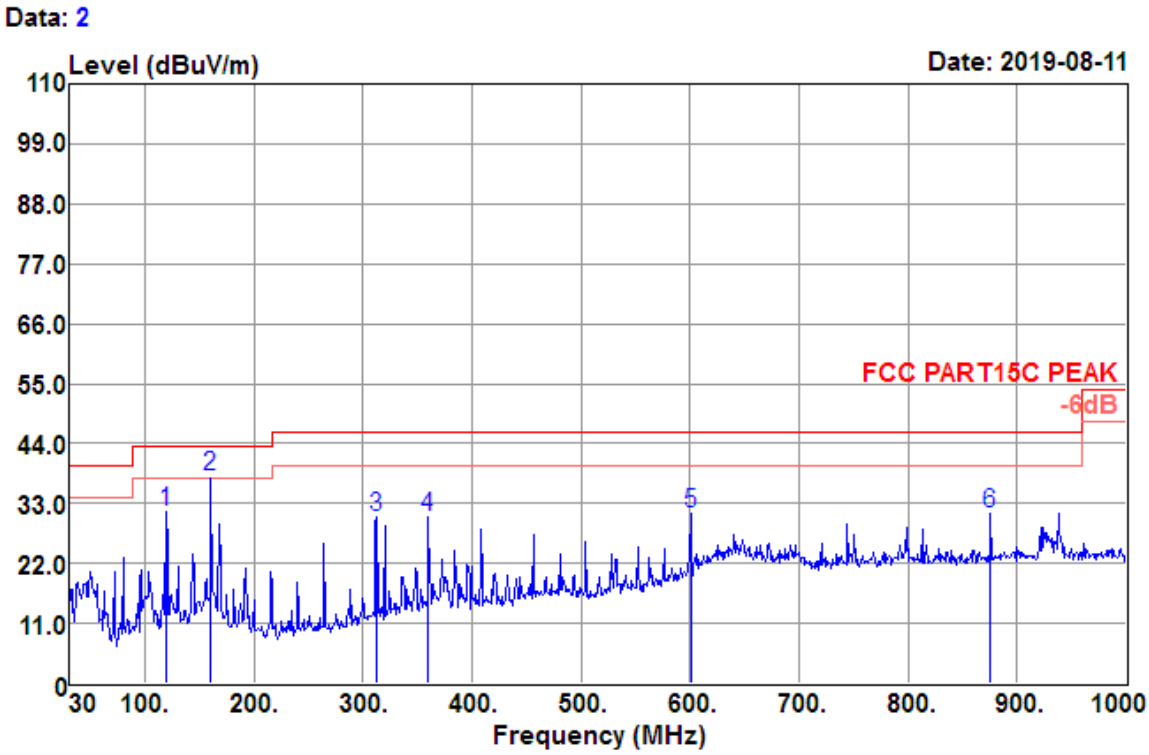
4.5.6 Test Result of Radiated Spurious Emission (30MHz ~ 1GHz)

Test Mode :	802.11g CH01 (2412MHz)	**Temperature :**	21~23℃
Test Engineer :	Julie Deng	**Relative Humidity :**	63~65%
Frequencey Range	30MHz~1GHz	**Polarization :**	Horizontal



Freq	Reading level	Antenna factor	Cable loss	Preamp factor	level	Limit level	Over limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
120.000	58.90	12.20	2.12	32.61	40.61	43.50	-2.89	QP
159.980	56.80	14.20	2.48	32.63	40.85	43.50	-2.65	QP
215.270	50.48	10.36	2.91	32.66	31.09	43.50	-12.41	QP
263.770	49.54	11.81	3.25	32.68	31.92	46.00	-14.08	QP
320.030	25.92	13.28	3.56	0.00	42.76	46.00	-3.24	QP
384.050	54.90	14.50	3.93	32.78	40.55	46.00	-5.45	QP

Test Mode :	802.11g CH01(2412MHz)	Temperature :	21~23℃
Test Engineer :	Julie Deng	Relative Humidity :	63~65%
Frequencey Range	30MHz~1GHz	Polarization :	Vertical



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
119.240	49.95	12.12	2.11	32.61	31.57	43.50	-11.93	QP
160.000	53.80	14.20	2.48	32.63	37.85	43.50	-5.65	QP
312.270	46.42	13.13	3.52	32.71	30.36	46.00	-15.64	QP
359.800	45.36	14.04	3.86	32.76	30.50	46.00	-15.50	QP
600.360	40.39	18.40	5.02	32.60	31.21	46.00	-14.79	QP
875.840	35.43	21.48	6.22	31.89	31.24	46.00	-14.76	QP

4.6 AC Conducted Emission Measurement

4.6.1 Limit of AC Conducted Emission

FCC §15.207

IC RSS-GEN 8.8

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

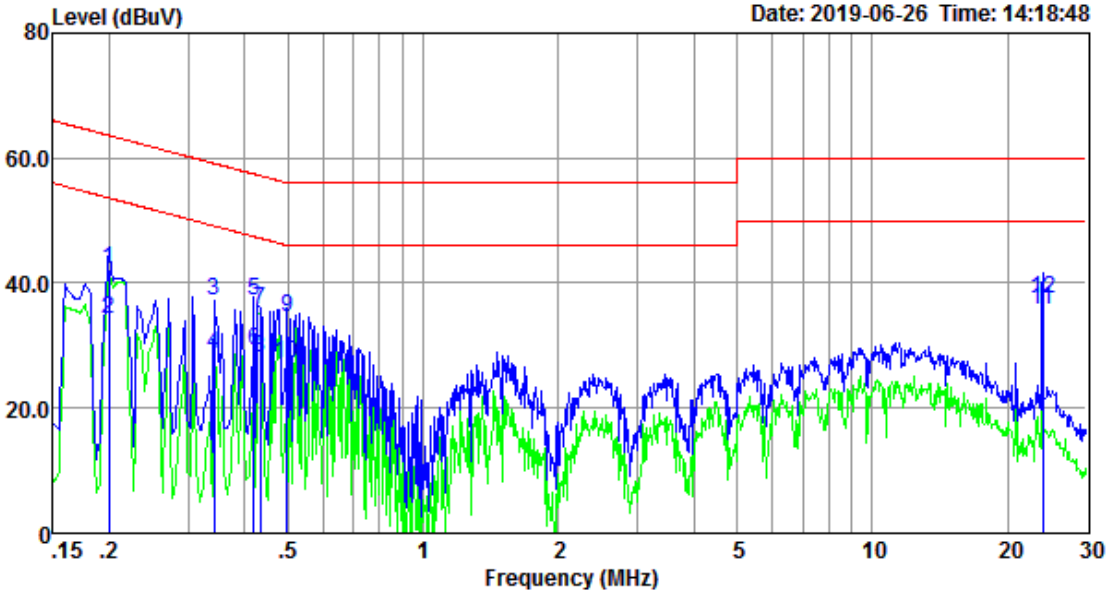
*Decreases with the logarithm of the frequency.

4.6.2 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

4.6.3 Test Result of AC Conducted Emission

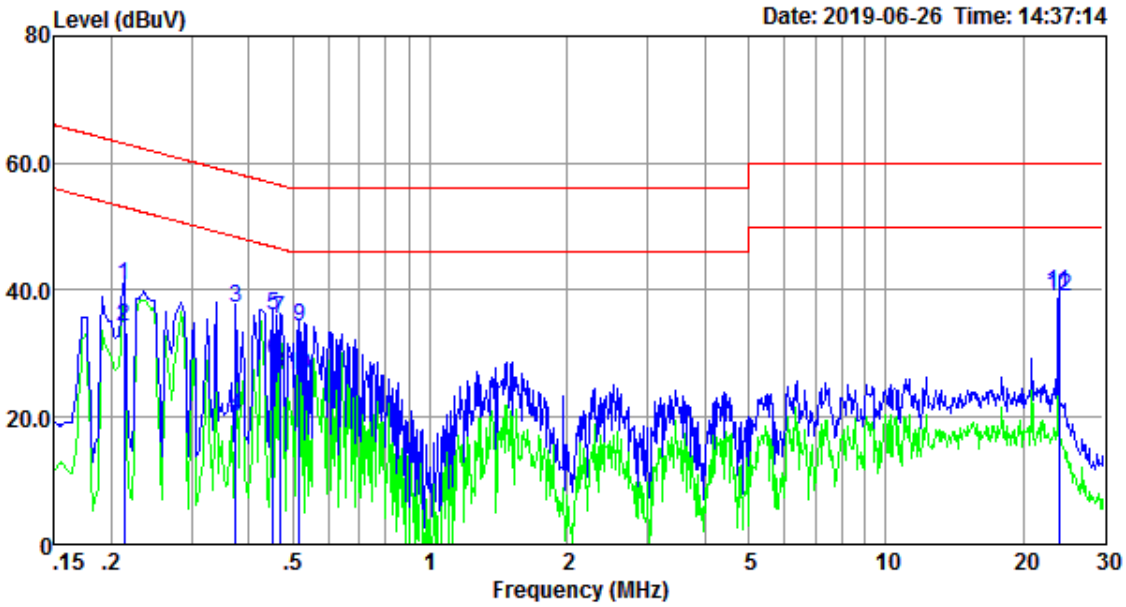
Test Mode :	Mode 1	Temperature :	20℃
Test Engineer :	Damon Zhang	Relative Humidity :	64%
Test Voltage :	125Vac/60Hz	Phase :	Line
Function Type :	Power Supply + WLAN Link + Lamp		



Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dB	Result level dBuV	Limit level dBuV	Over limit dB	Remark
0.200	32.40	9.65	0.04	42.09	63.62	-21.53	QP
0.200	24.50	9.65	0.04	34.19	63.62	-29.43	Average
0.343	27.40	9.68	0.04	37.12	59.13	-22.01	QP
0.343	19.00	9.68	0.04	28.72	59.13	-30.41	Average
0.419	27.40	9.70	0.04	37.14	57.46	-20.32	QP
0.419	19.60	9.70	0.04	29.34	57.46	-28.12	Average
0.433	26.00	9.71	0.04	35.75	57.20	-21.45	QP
0.433	18.30	9.71	0.04	28.05	57.20	-29.15	Average
0.497	24.90	9.72	0.04	34.66	56.05	-21.39	QP
0.497	17.30	9.72	0.04	27.06	56.05	-28.99	Average
24.015	25.71	10.02	0.13	35.86	60.00	-24.14	QP
24.015	27.21	10.02	0.13	37.36	60.00	-22.64	Average

Result Level= Reading Level + LISN Factor + Cable Loss

Test Mode :	Mode 1	Temperature :	20℃
Test Engineer :	Damon Zhang	Relative Humidity :	64%
Test Voltage :	125Vac/60Hz	Phase :	NEUTRAL
Function Type :	Power Supply + WLAN Link + Lamp		



Freq MHz	Reading level dBuV	LISN/ISN factor dB	Cable loss dB	Result level dBuV	Limit level dBuV	Over limit dB	Remark
0.213	31.10	9.61	0.04	40.75	63.10	-22.35	QP
0.213	24.60	9.61	0.04	34.25	63.10	-28.85	Average
0.375	27.60	9.62	0.04	37.26	58.39	-21.13	QP
0.375	10.54	9.62	0.04	20.20	58.39	-38.19	Average
0.452	26.40	9.63	0.04	36.07	56.85	-20.78	QP
0.452	19.20	9.63	0.04	28.87	56.85	-27.98	Average
0.469	25.80	9.63	0.04	35.47	56.54	-21.07	QP
0.469	17.30	9.63	0.04	26.97	56.54	-29.57	Average
0.516	24.70	9.64	0.04	34.38	56.00	-21.62	QP
0.516	16.90	9.64	0.04	26.58	56.00	-29.42	Average
24.015	29.40	10.00	0.13	39.53	60.00	-20.47	QP
24.015	28.70	10.00	0.13	38.83	60.00	-21.17	Average

Result Level= Reading Level + LISN Factor + Cable Loss

4.7 Antenna Requirements

4.7.1 Standard Applicable

According to antenna requirement of §15.203.

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be re-placed by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded..

And according to §15.247(4)(1), system operating in the 2400-2483.5MHz bands that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

4.7.2 Antenna Connected Construction

An embedded-in antenna design is used.

4.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	Keysight	N9010A	MY56070788	2019-01-23	2020-01-22	Conducted
Power Sensor	Keysight	U2021XA	MY56510025	2019-01-23	2020-01-22	Conducted
Power Sensor	Keysight	U2021XA	MY57030005	2019-01-23	2020-01-22	Conducted
Power Sensor	Keysight	U2021XA	MY56510018	2019-01-23	2020-01-22	Conducted
Power Sensor	Keysight	U2021XA	MY56480002	2019-01-23	2020-01-22	Conducted
Thermal Chamber	Sanmtest	SMC-408-CD	2435	2019-05-09	2020-05-08	Conducted
Base Station	R&S	CMW 270	101231	2019-01-23	2020-01-22	Conducted
Signal Generator (Interferer)	Keysight	N5182B	MY56200384	2019-05-19	2020-05-18	Conducted
Signal Generator (Blocker)	Keysight	N5171B	MY56200661	2019-01-23	2020-01-22	Conducted

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV 40	101433	2019-02-18	2020-02-17	Radiation
Amplifier	Sonoma	310	363917	2019-01-22	2020-01-21	Radiation
Amplifier	Schwarzbeck	BBV 9718	327	2019-01-22	2020-01-21	Radiation
Amplifier	Narda	TTA1840-35-HG	2034380	2019-05-15	2020-05-14	Radiation
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-051	2017/3/3	2020/3/2	Radiation
Broadband Antenna	Schwarzbeck	VULB 9168	9168-757	2017-03-03	2020-03-02	Radiation
Horn Antenna	Schwarzbeck	BBHA 9120 D	1677	2017-03-03	2020-03-02	Radiation
Horn Antenna	COM-POWER	AH-1840	101117	2018-06-20	2021-06-19	Radiation
Test Software	Auidx	E3	6.111221a	N/A	N/A	Radiation
Filter	Micro-Tronics	BRM 50702	G266	N/A	N/A	Radiation

N/A: No Calibration Required

6 Uncertainty of Evaluation

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.67dB
Radiated emissions	30MHz ~ 1GMHz	5.05dB
	1GHz ~ 18GHz	5.06 dB
	18GHz ~ 40GHz	3.65dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

----------End of the report----------