

4.5 6dB Bandwidth

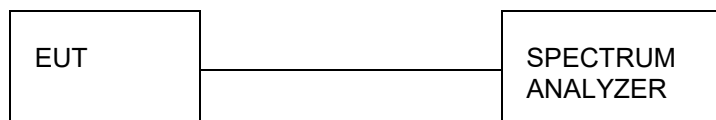
Limit

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz

Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300 KHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

Test Configuration



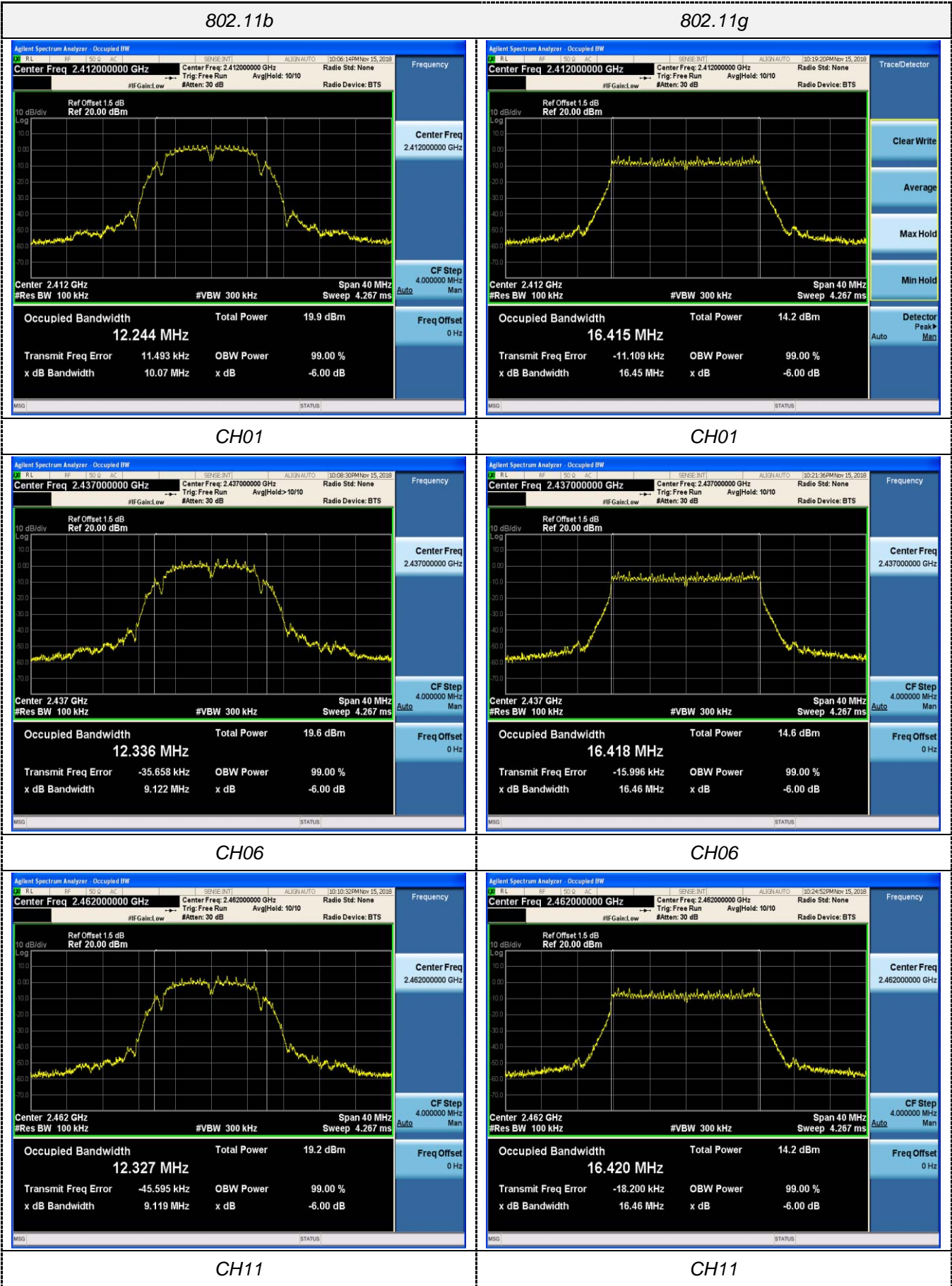
Test Results

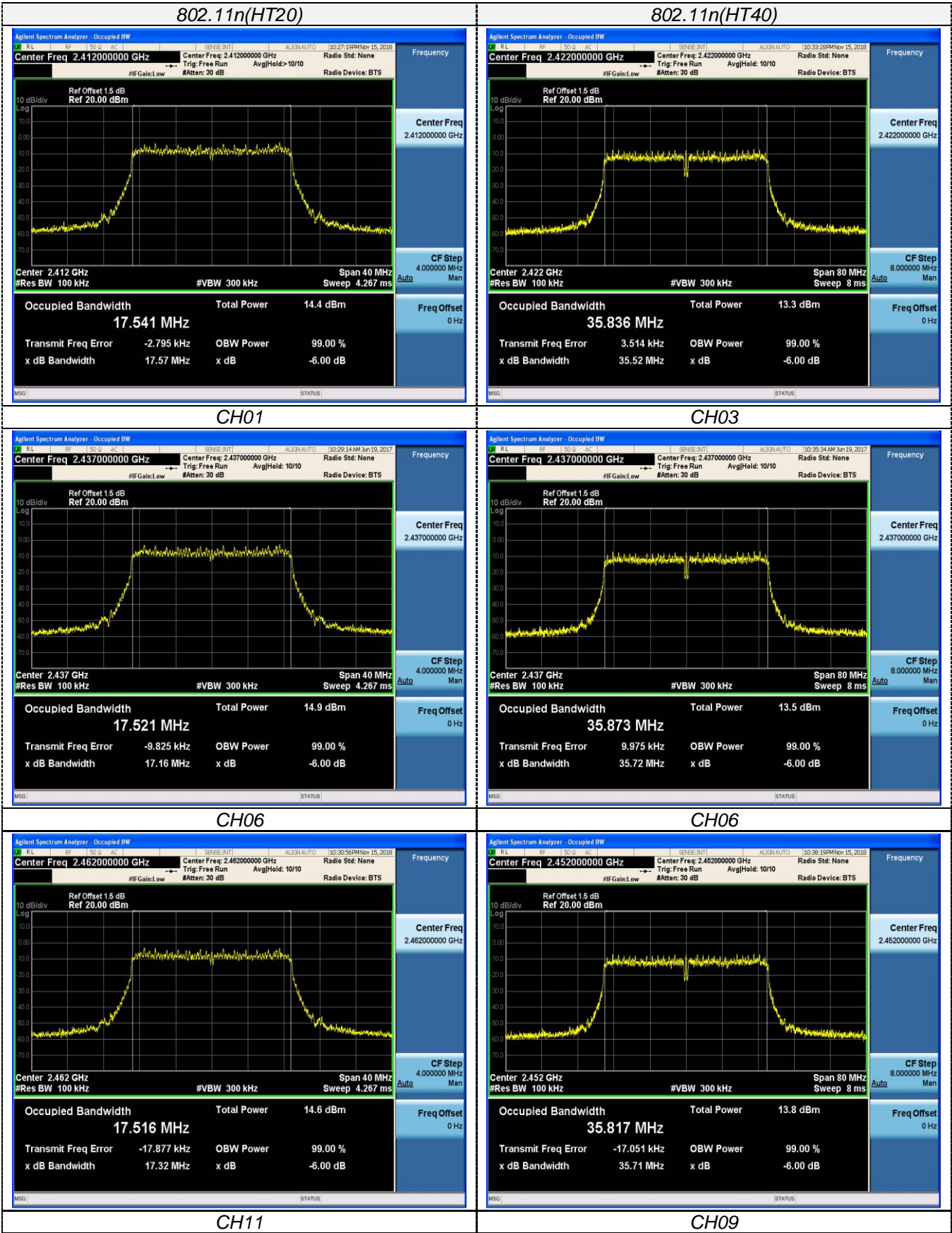
WIFI

Type	Channel	6dB Bandwidth (MHz)	99% OBW (MHz)	Limit (KHz)	Result
802.11b	01	10.07	12.244	≥500	Pass
	06	9.122	12.336		
	11	9.119	12.327		
802.11g	01	16.45	16.415	≥500	Pass
	06	16.46	16.418		
	11	16.46	16.420		
802.11n(HT20)	01	17.57	17.541	≥500	Pass
	06	17.16	17.521		
	11	17.32	17.516		
802.11n(HT40)	03	35.52	35.836	≥500	Pass
	06	35.72	35.873		
	09	35.71	35.817		

Note:

- 1) Measured peak power spectrum density at difference data rate for each mode and recorded worst case for each mode.
- 2) Test results including cable loss;
- 3) Worst case data at 1Mbps at IEEE 802.11b; 6Mbps at IEEE 802.11g; 6.5Mbps at IEEE 802.11n HT20; 13.5Mbps at IEEE 802.11n HT40.
- 4) Please refer to following plots;





4.6 Out-of-band Emissions

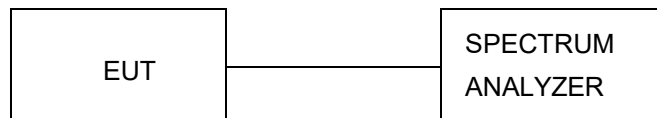
Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

Test Procedure

Connect the transmitter output to spectrum analyzer using a low loss RF cable, and set the spectrum analyzer to RBW=100 kHz, VBW= 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, band edge and out-of-band emissions.

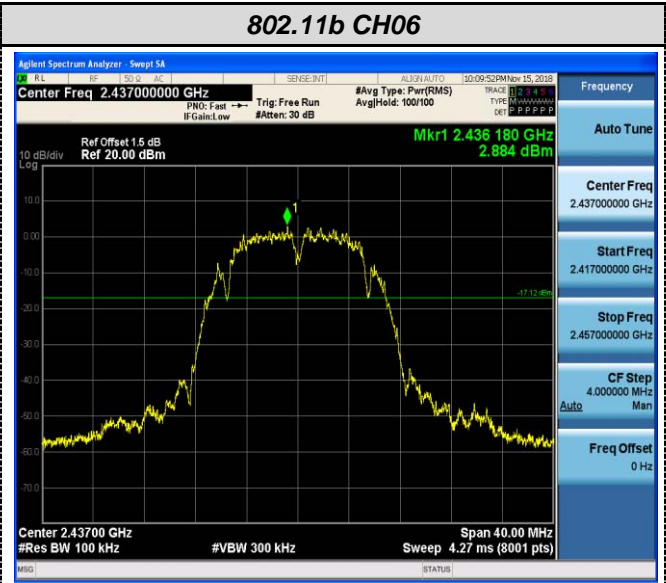
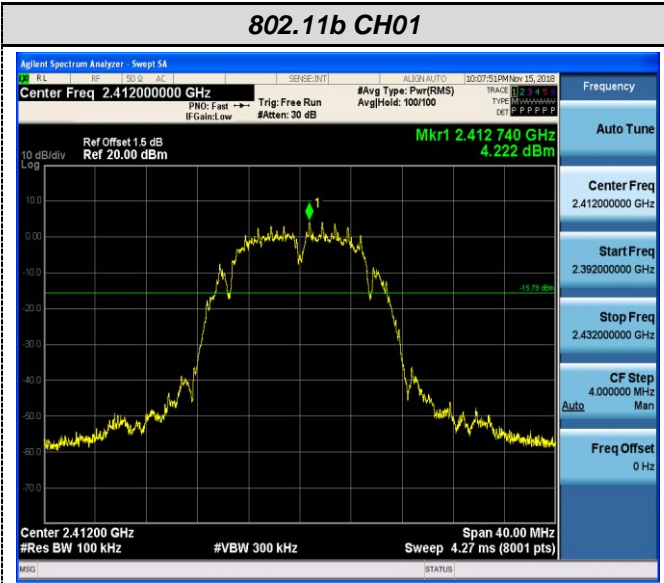
Test Configuration



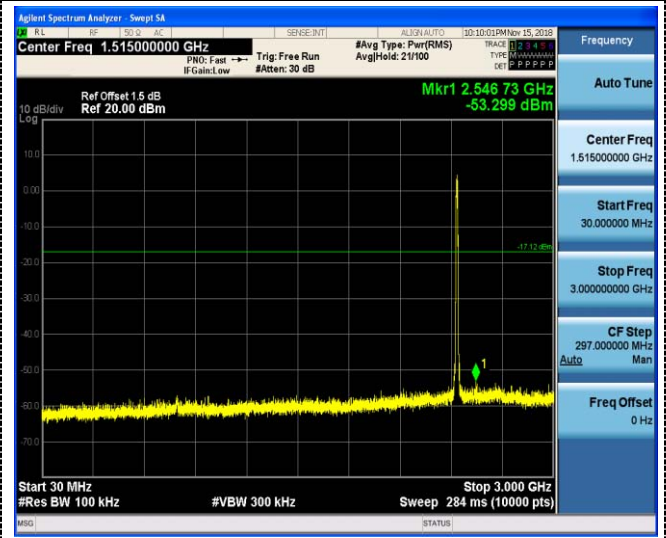
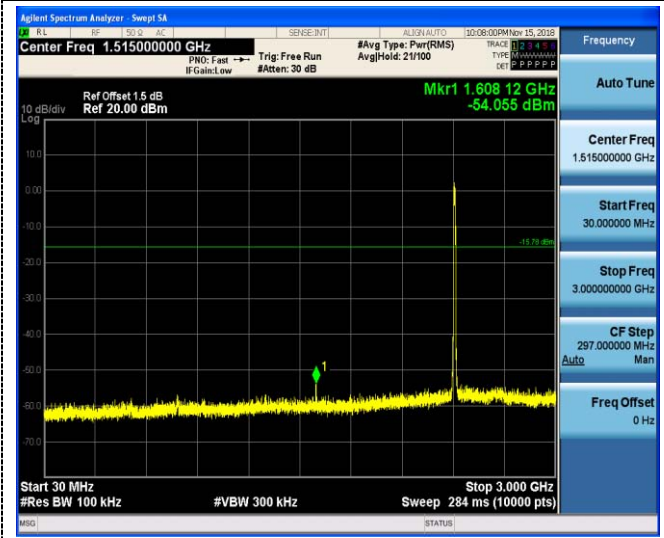
Test Results

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and band edge measurement data. And record the worst data in the report.

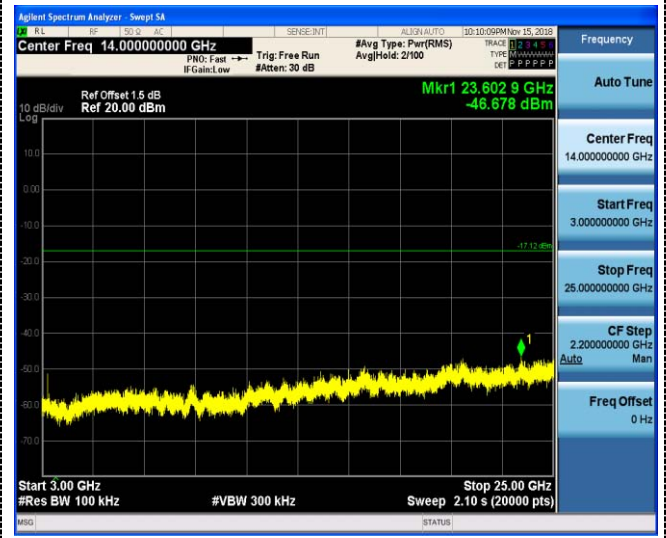
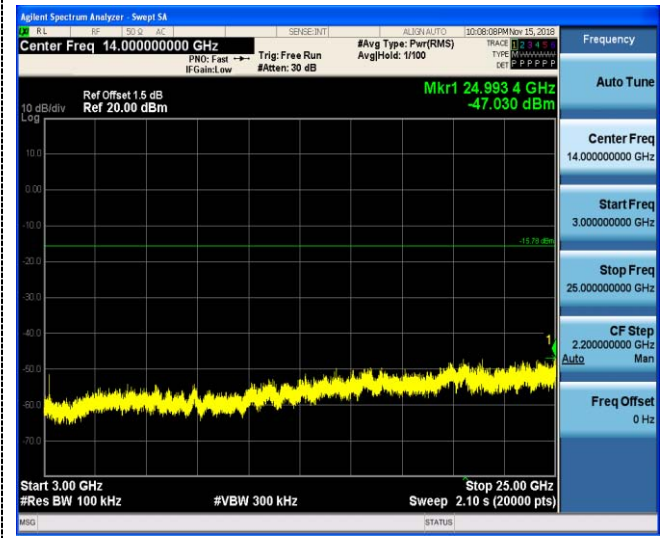
Test plot as follows:



Reference

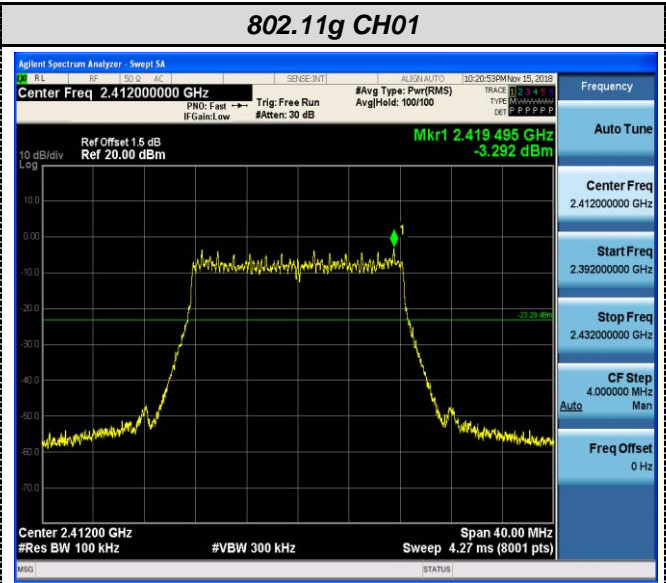
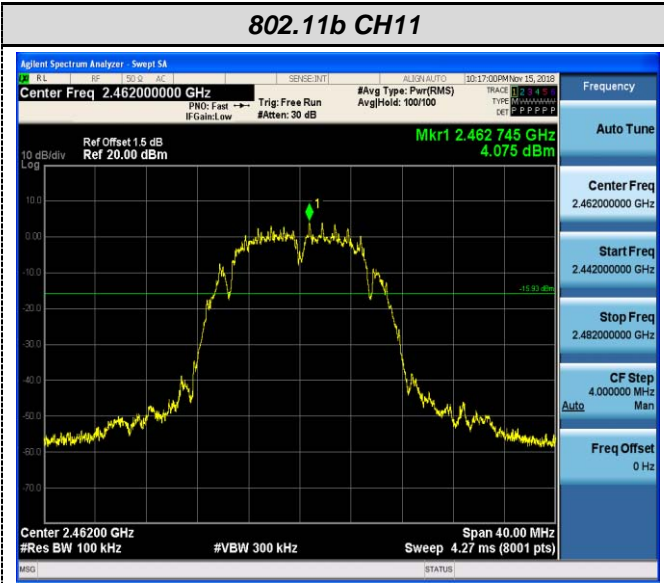


30MHz-3GHz



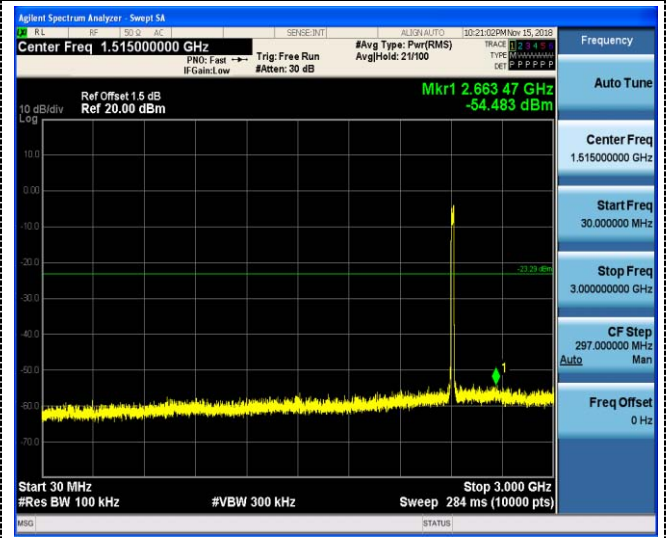
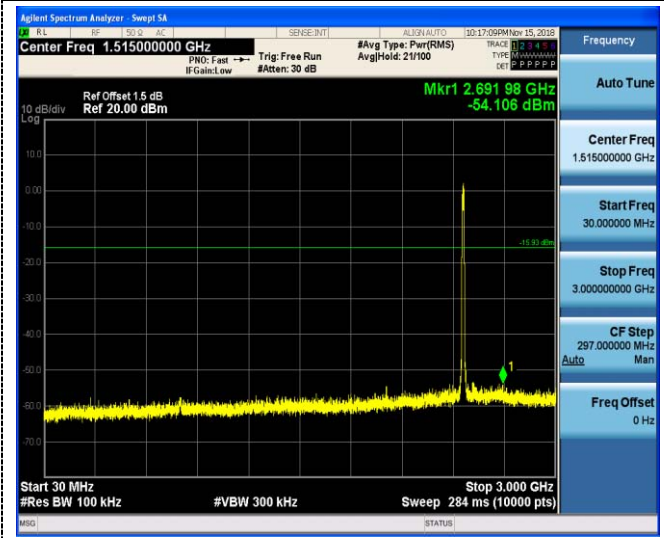
3GHz-25GHz

3GHz-25GHz



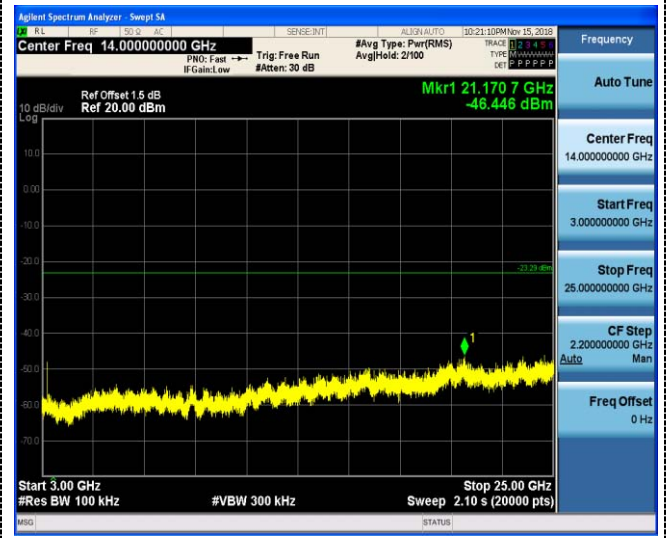
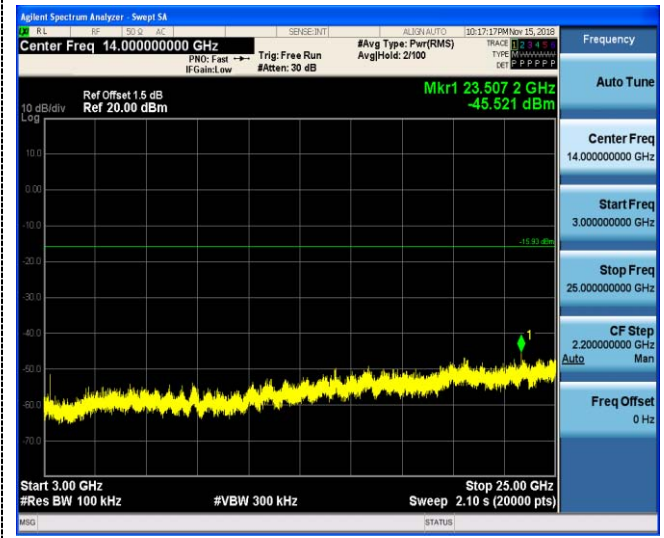
Reference

Reference



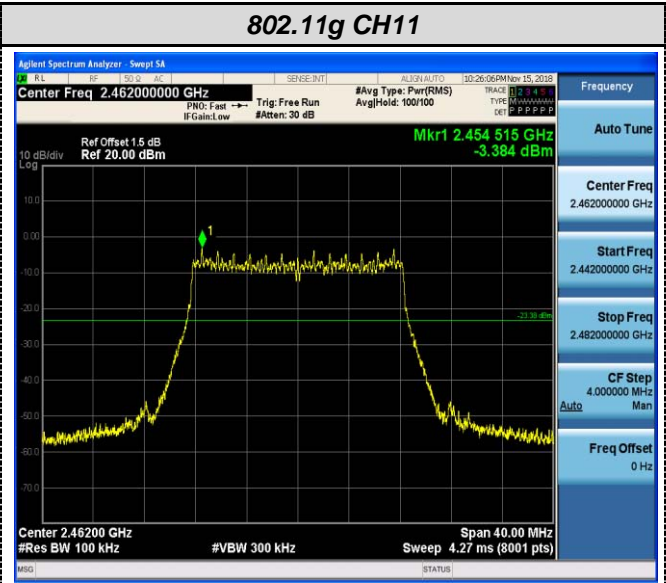
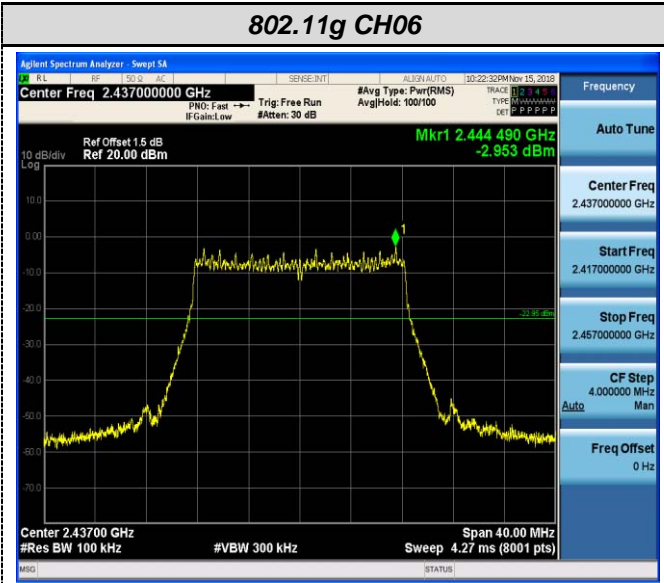
30MHz-3GHz

30MHz-3GHz



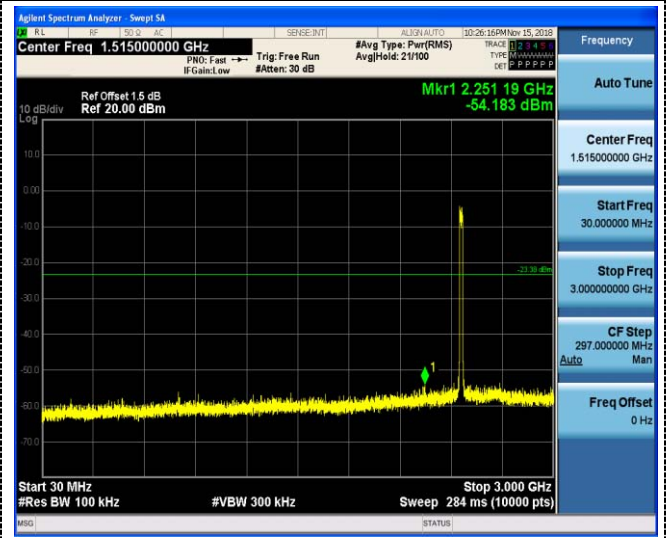
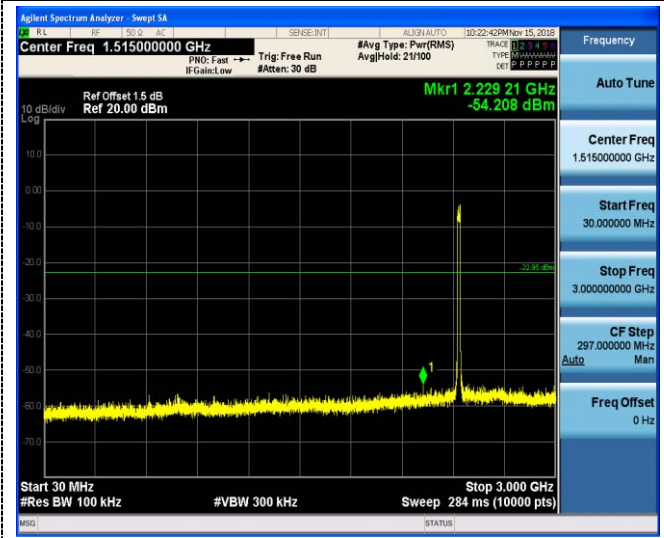
3GHz-25GHz

3GHz-25GHz



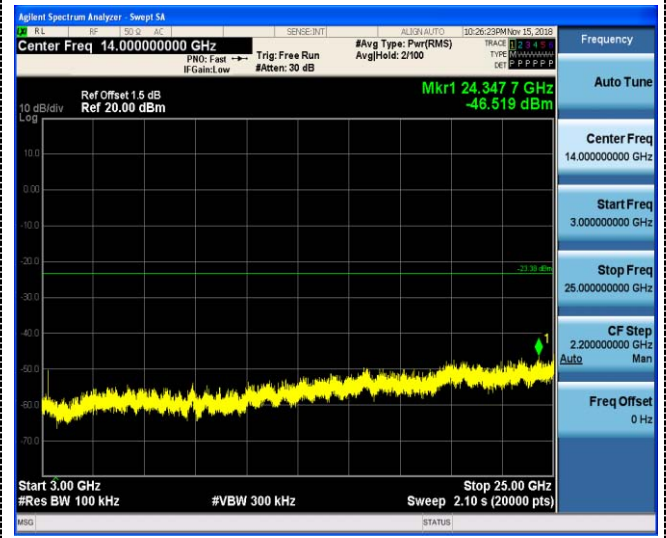
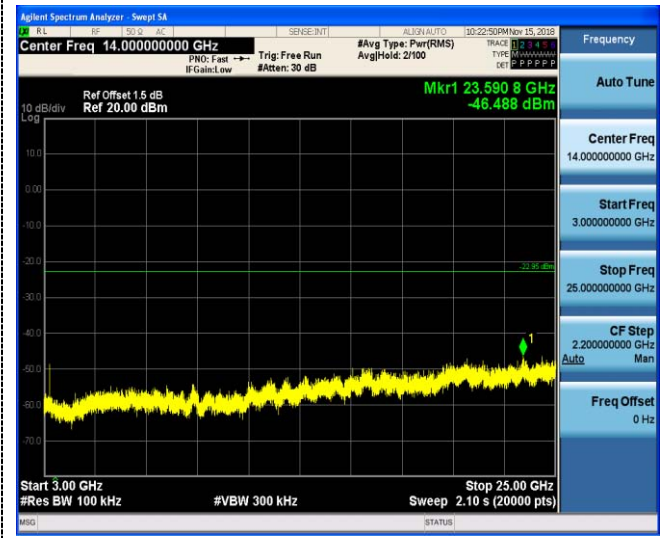
Reference

Reference



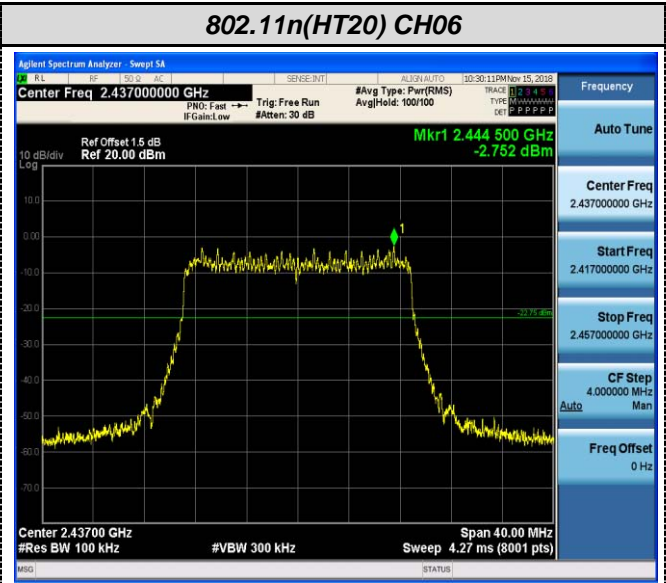
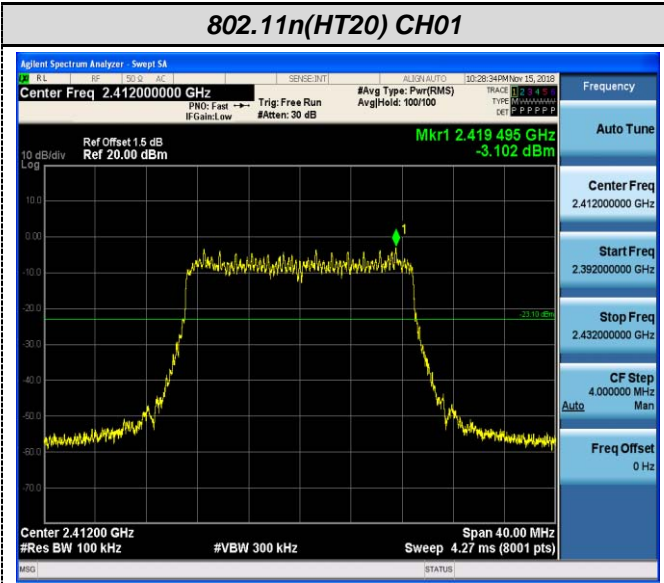
30MHz-3GHz

30MHz-3GHz

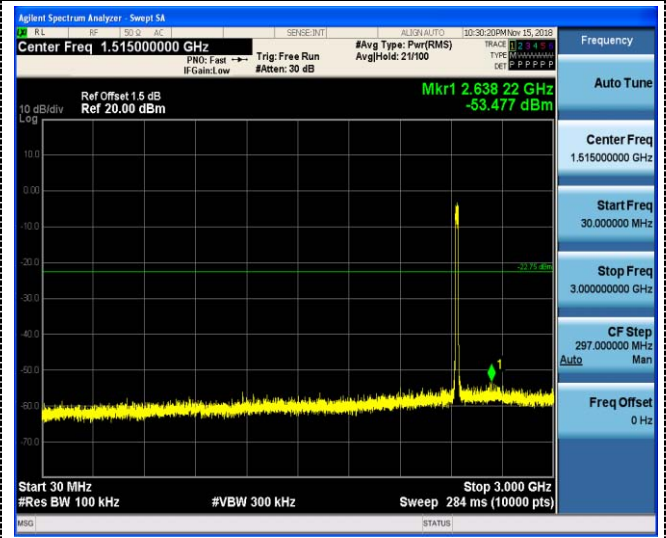
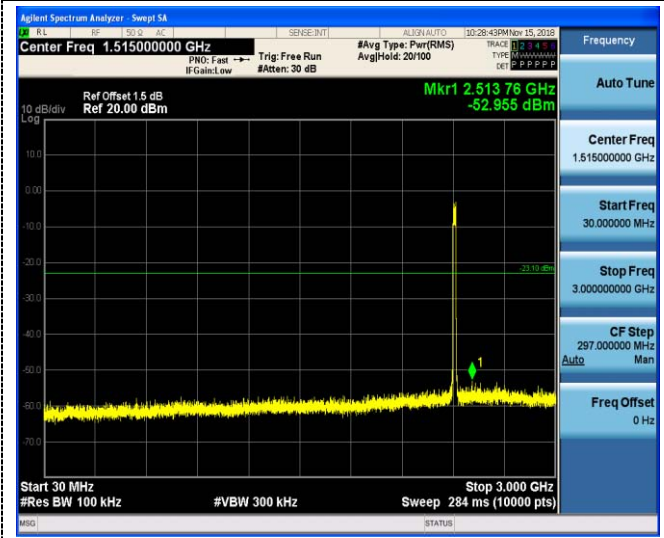


3GHz-25GHz

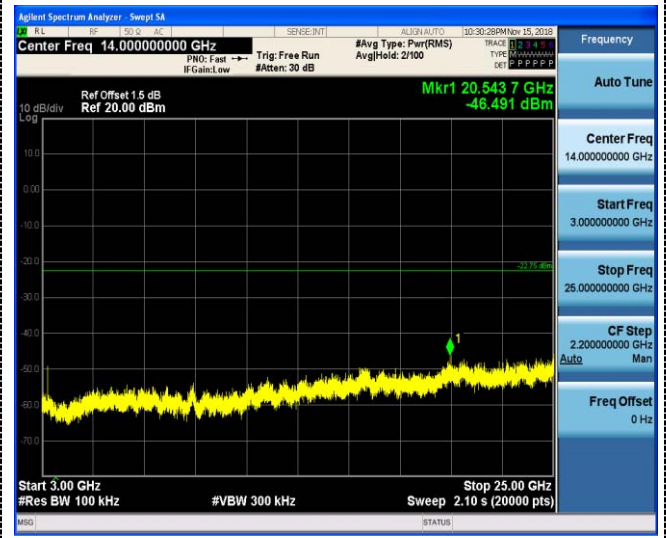
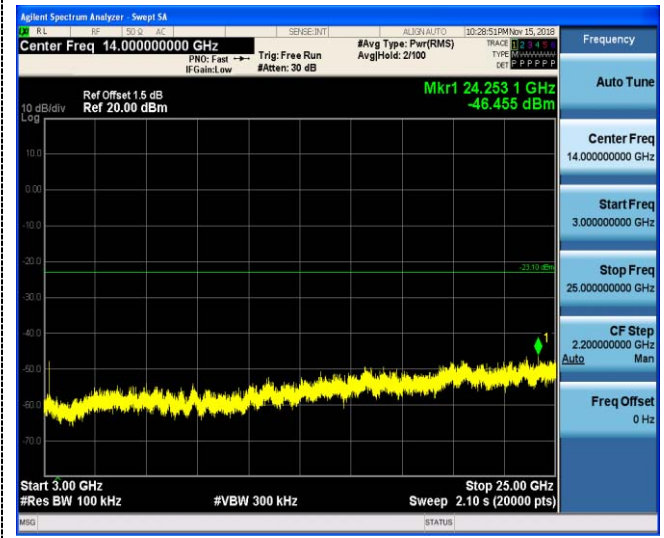
3GHz-25GHz



Reference

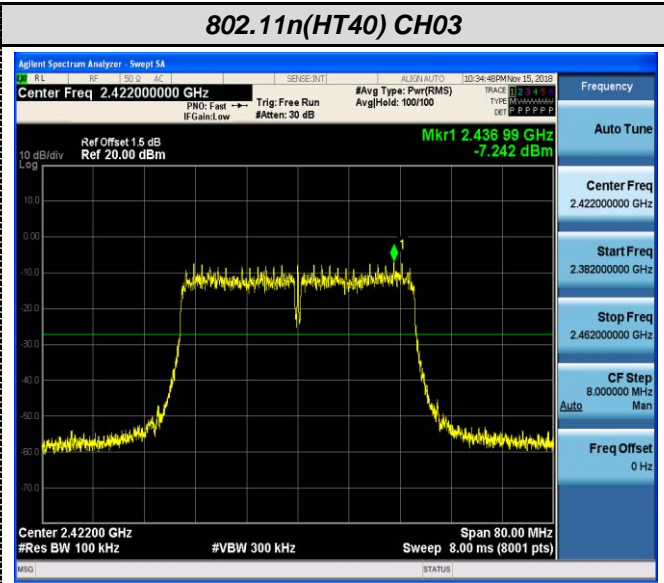
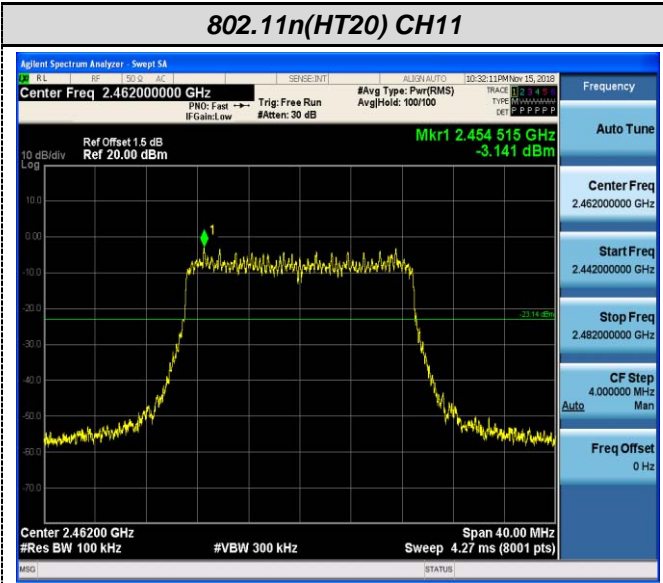


30MHz-3GHz



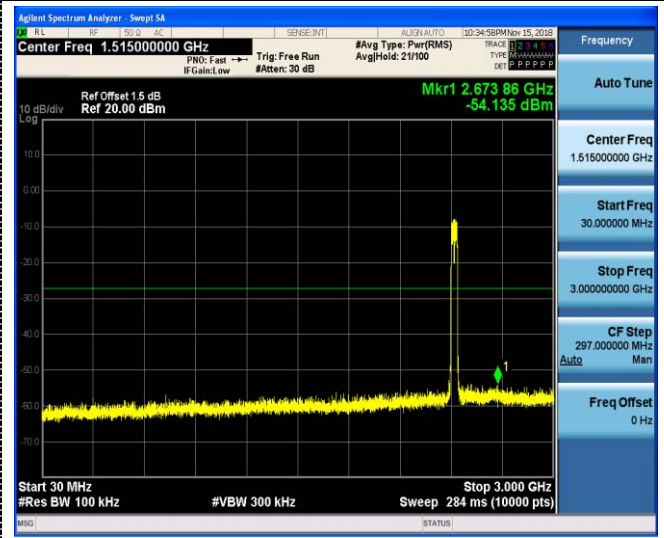
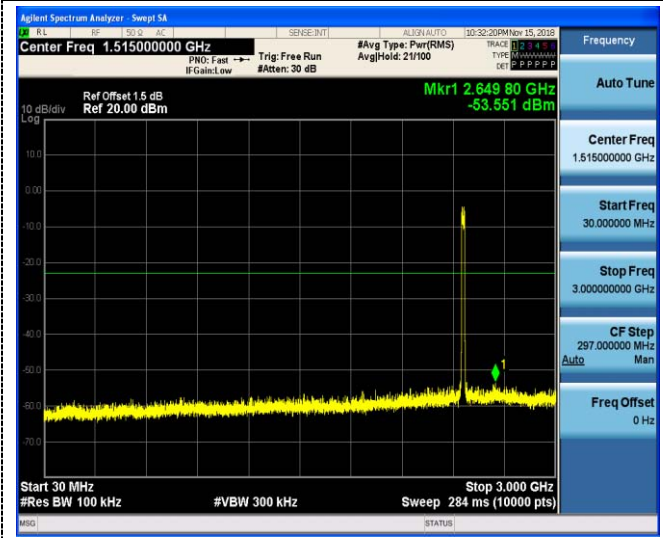
3GHz-25GHz

3GHz-25GHz



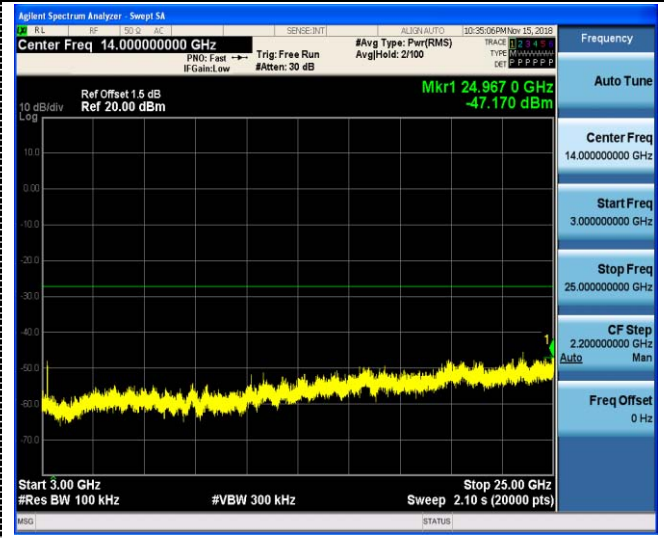
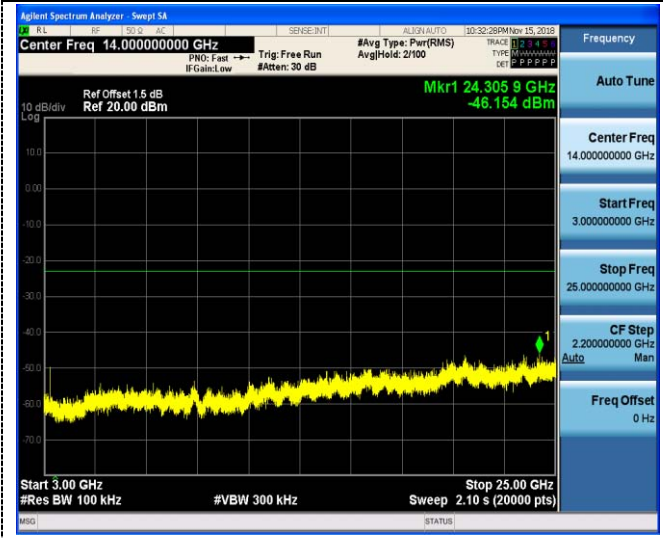
Reference

Reference



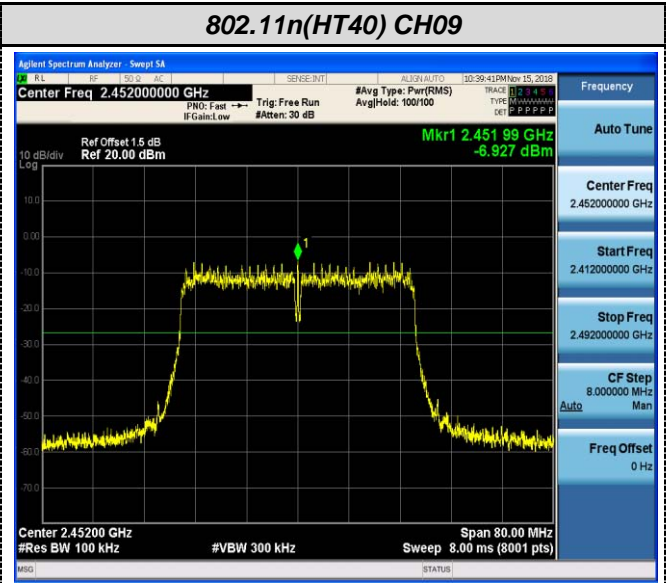
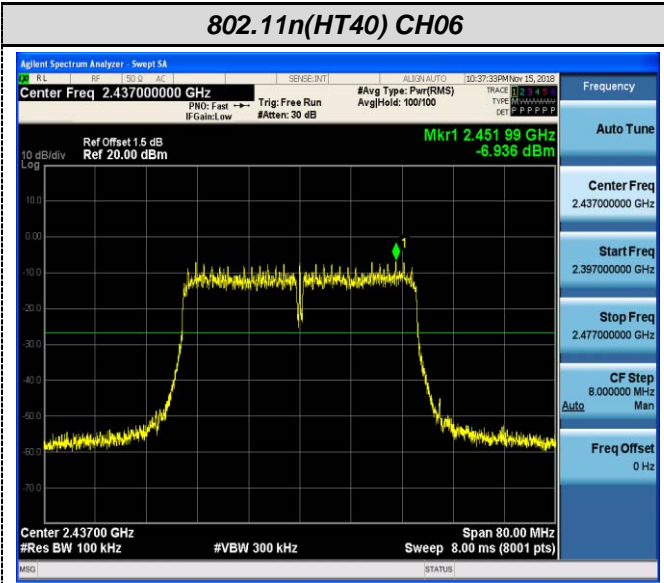
30MHz-3GHz

30MHz-3GHz



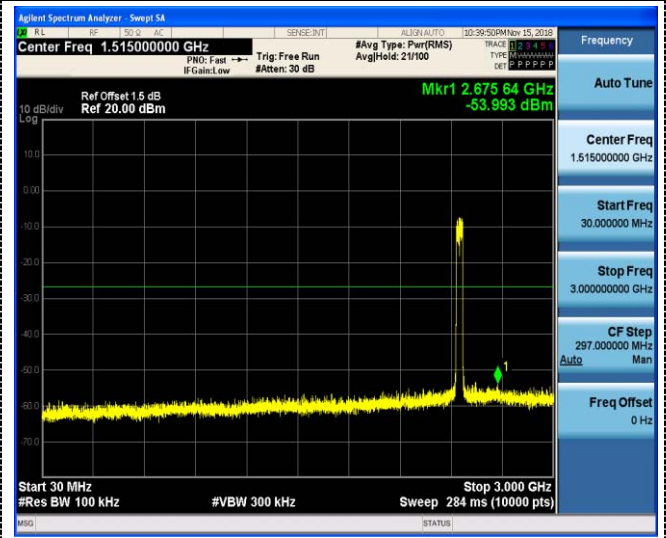
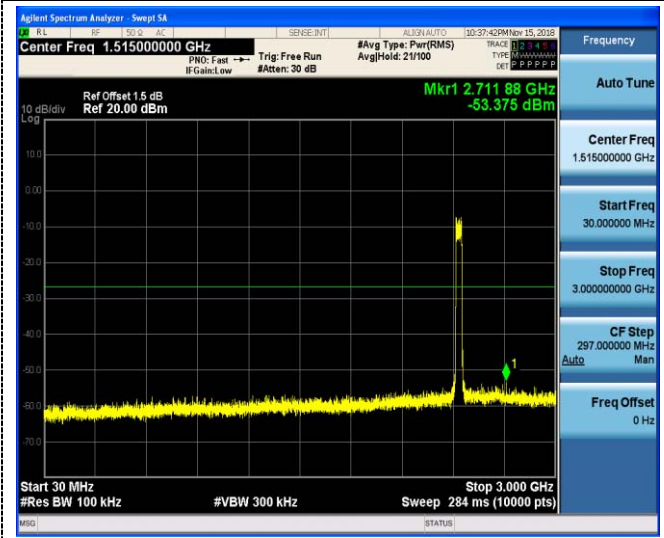
3GHz-25GHz

3GHz-25GHz



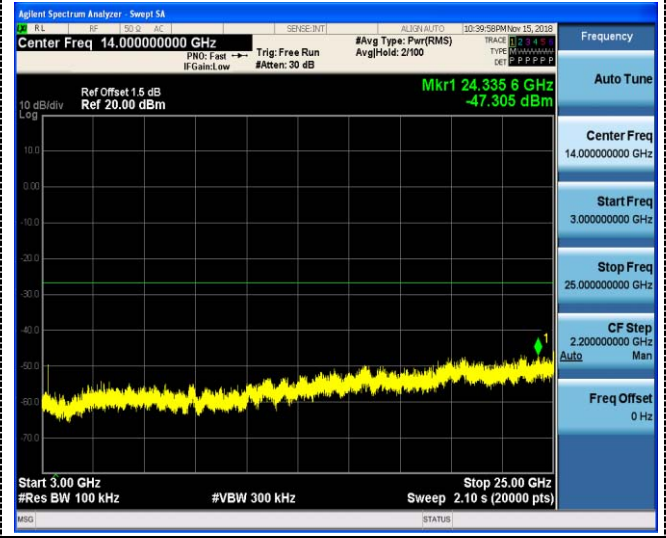
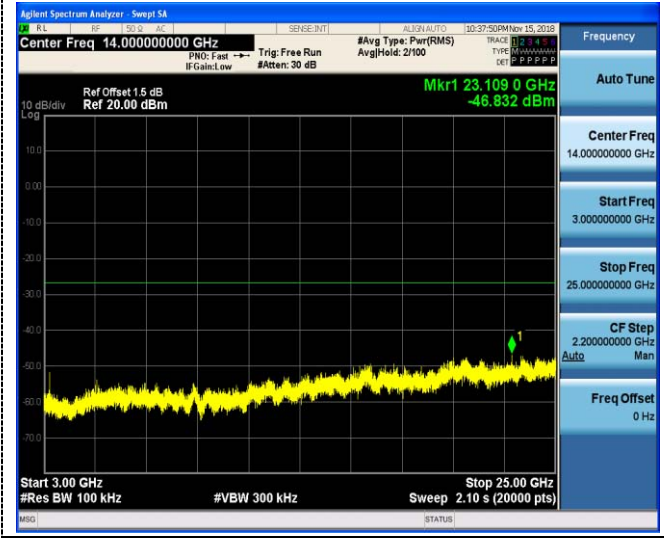
Reference

Reference



30MHz-3GHz

30MHz-3GHz

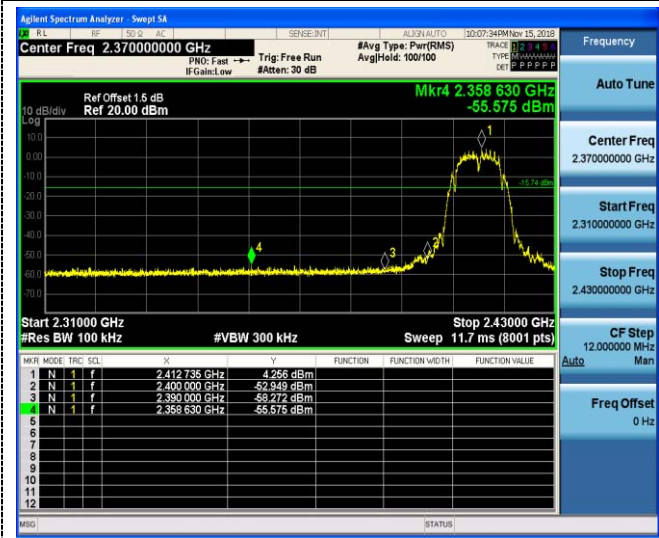


3GHz-25GHz

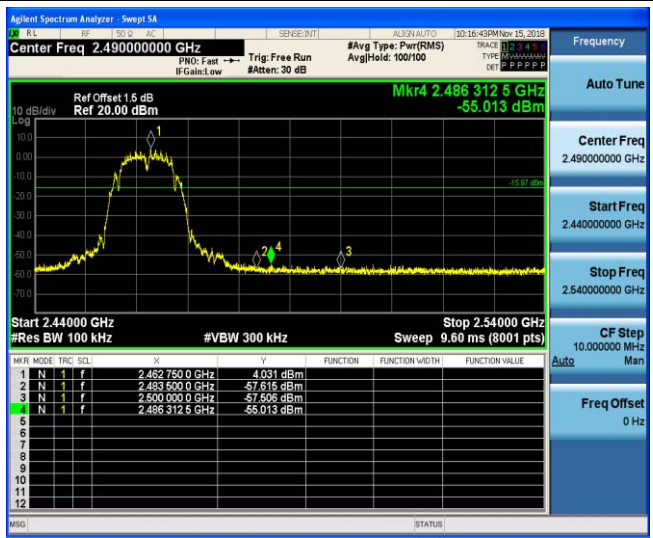
3GHz-25GHz

Band-edge Measurements for RF Conducted Emissions:

802.11b

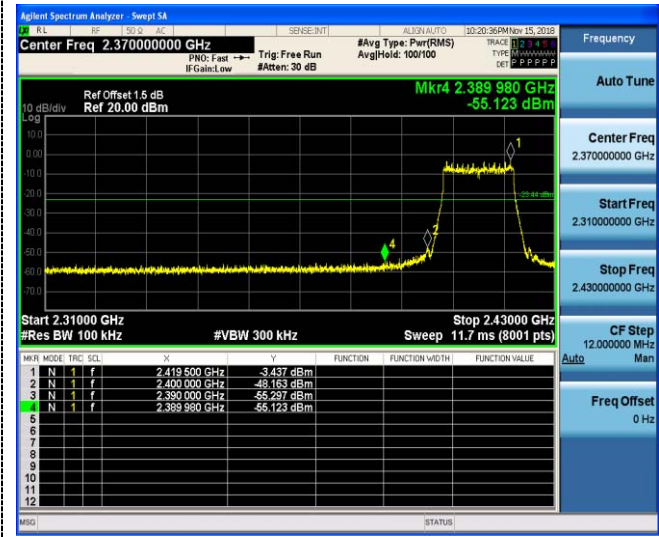


Left bandedge

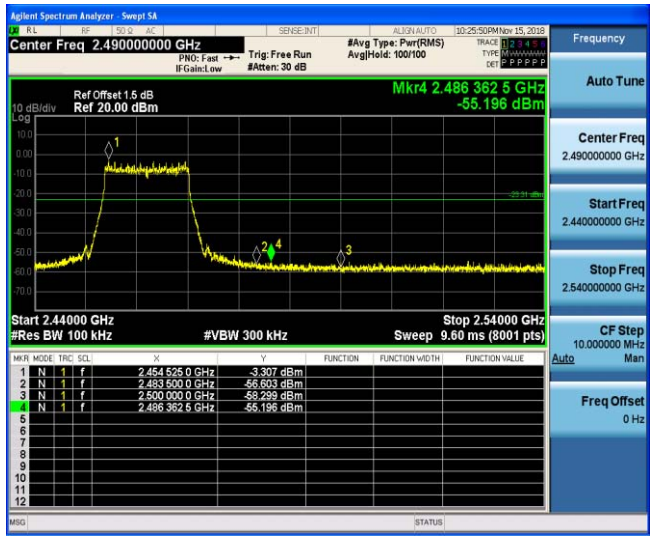


Right bandedge

802.11g

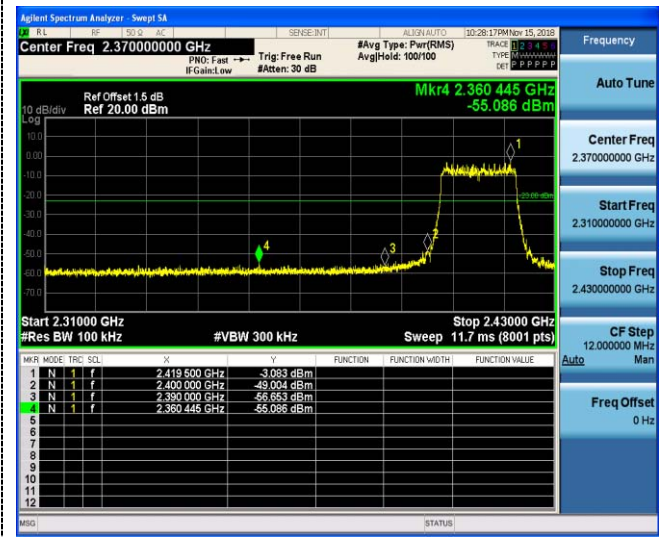


Left bandedge

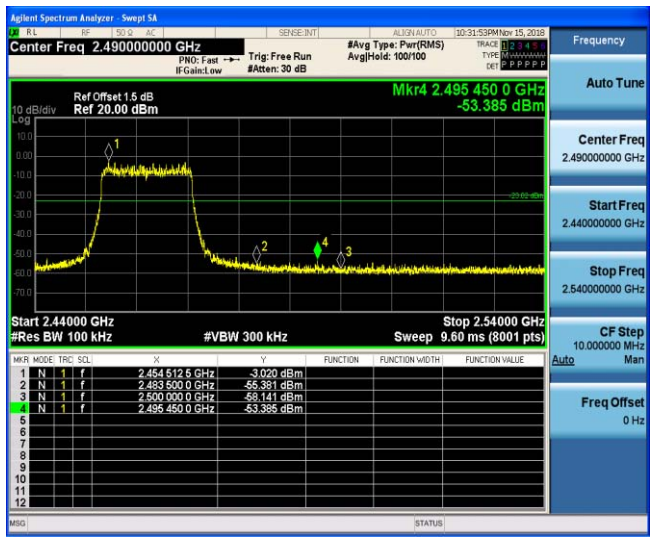


Right bandedge

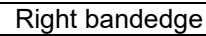
802.11n(HT20)



Left bandedge



Right bandedge



4.7 Antenna Requirement

Standard Applicable

For intentional device, according to FCC 47 CFR Section 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited

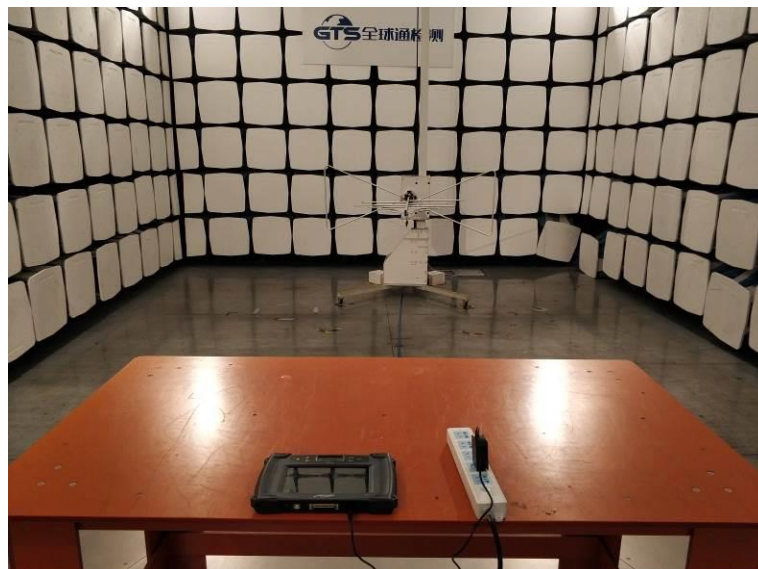
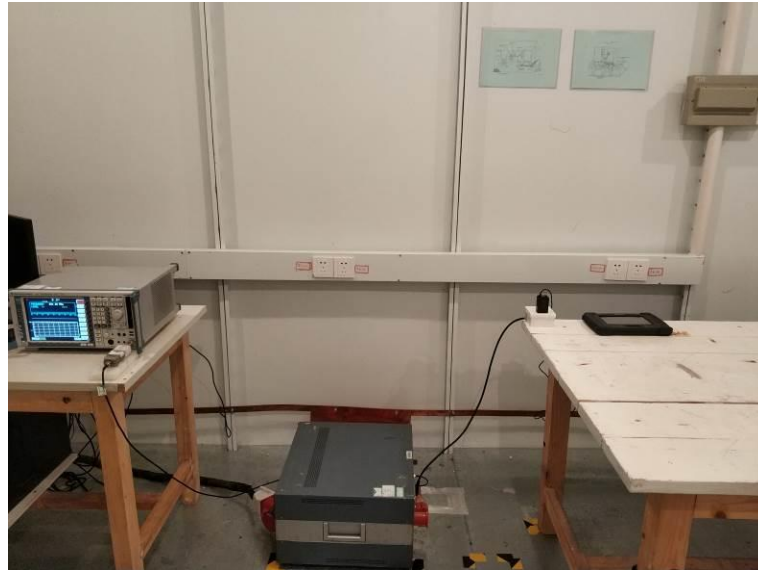
FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1) (I):

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result:

The maximum gain of antenna was 2.00dBi for 2.4GHz WIFI.

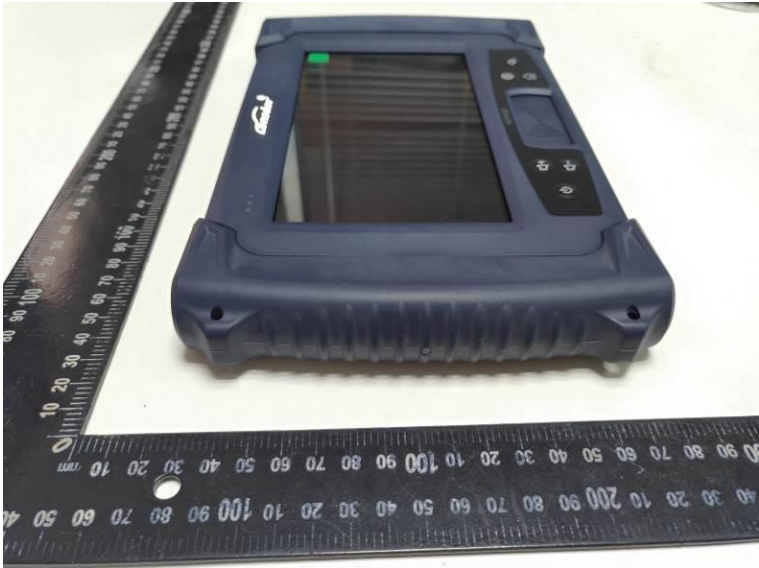
5 Test Setup Photos of the EUT



6 Photos of the EUT

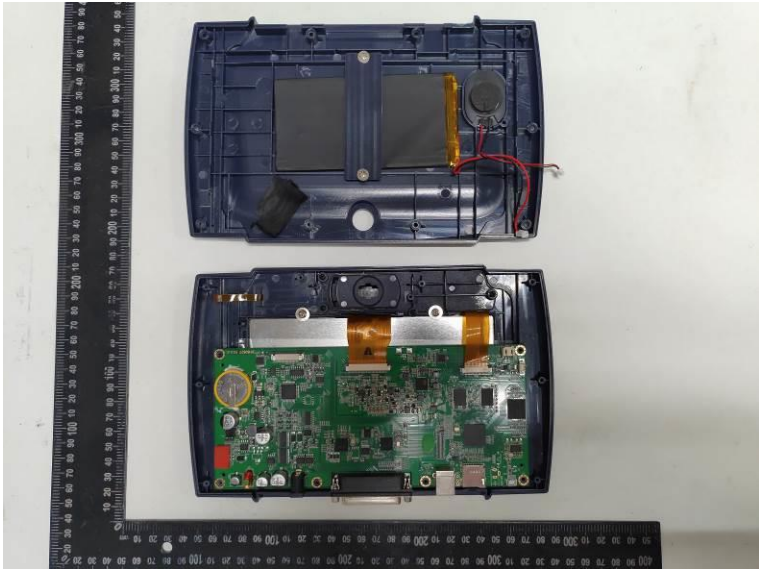
External Photos of EUT

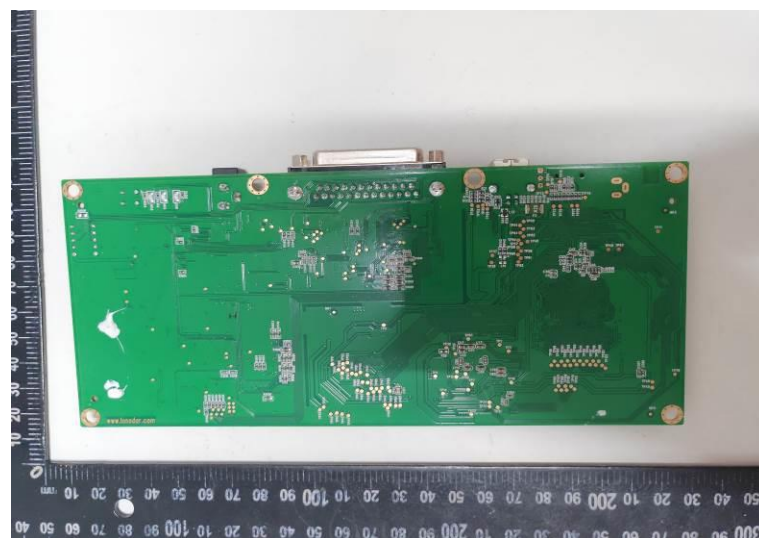
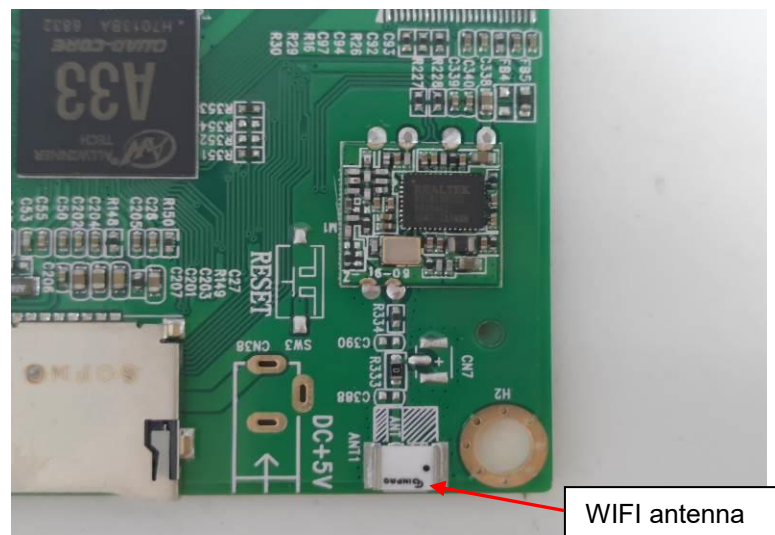






Internal Photos of EUT







***** End of Report *****