

### 3.6. 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, bandedge and out-of-band emissions.

#### Test Configuration

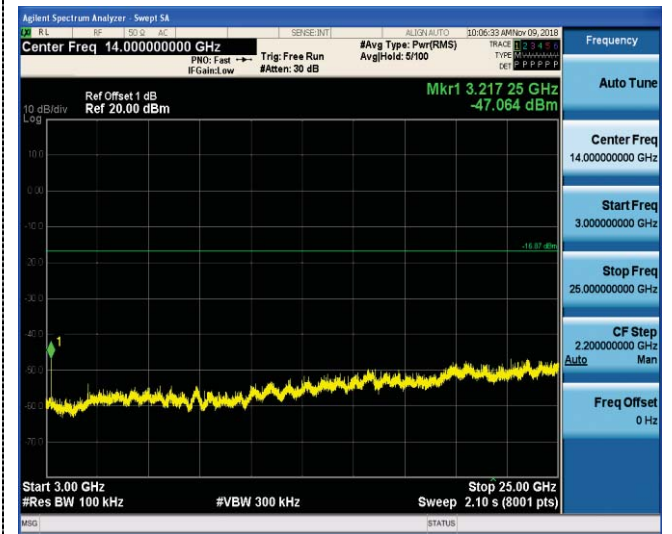
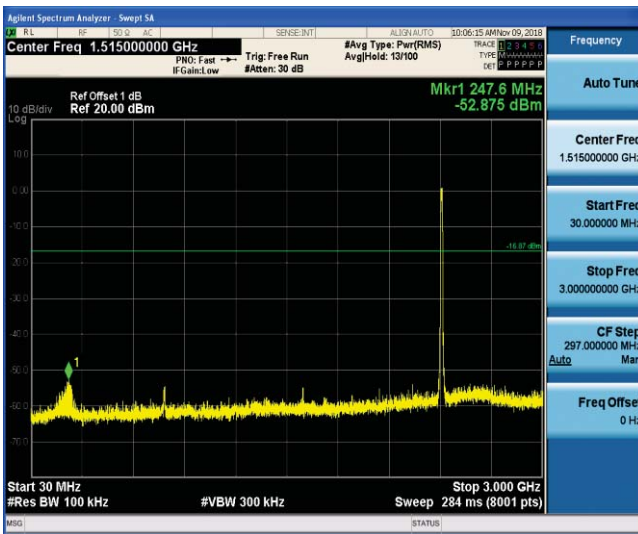


#### Test Results

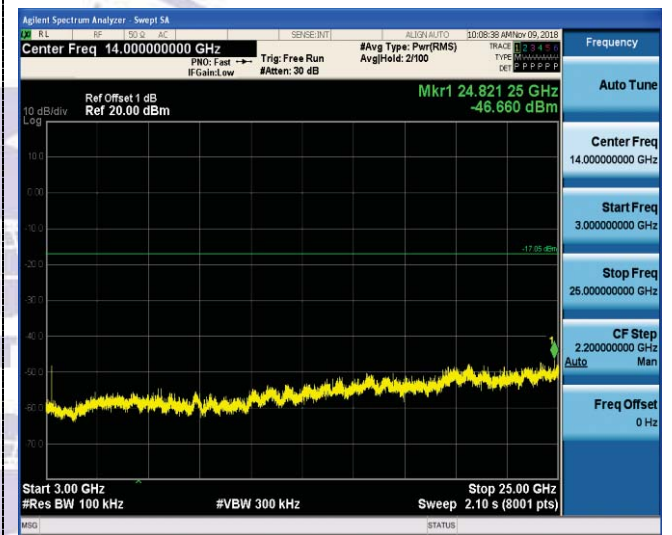
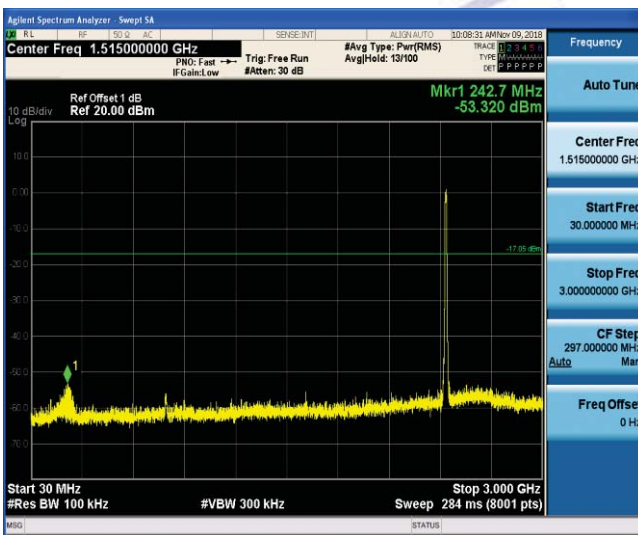
Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandedge measurement data.

Test plot as follows:

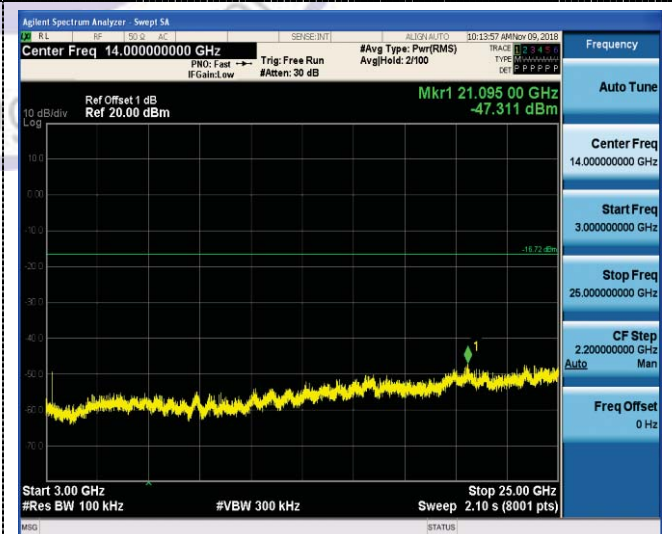
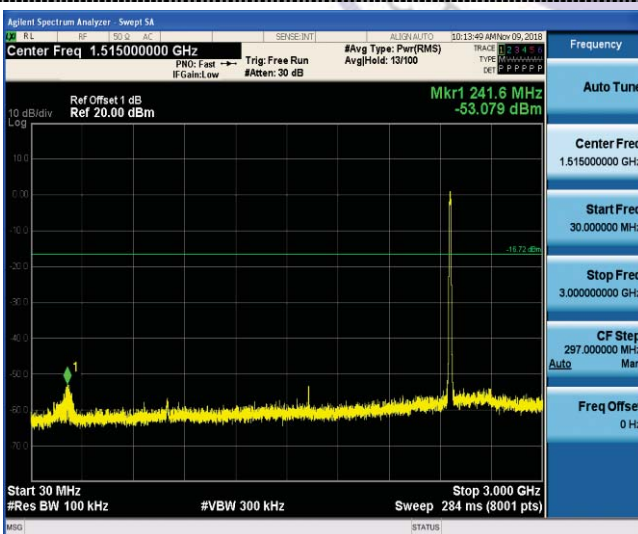
### Ant1 802.11b



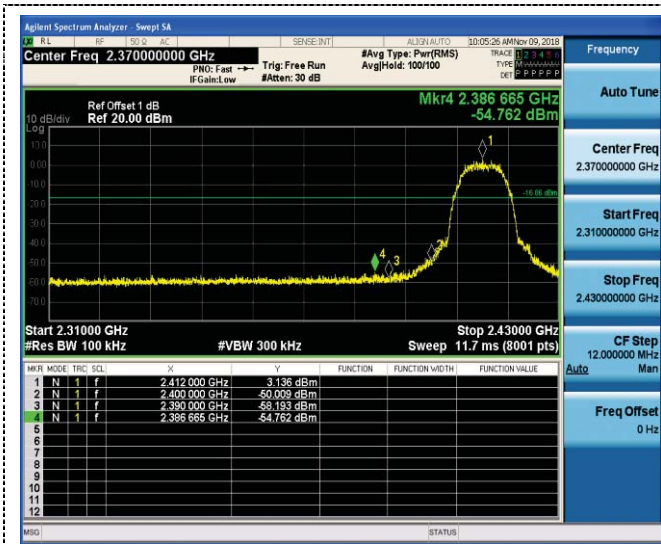
### CH01



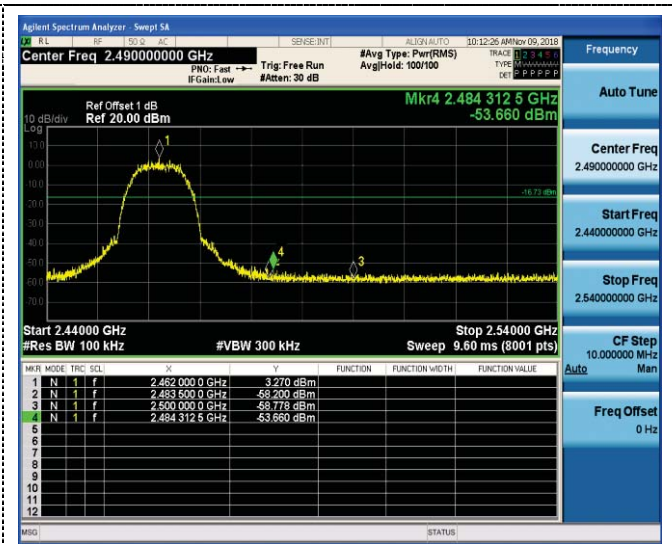
### CH06



### CH11

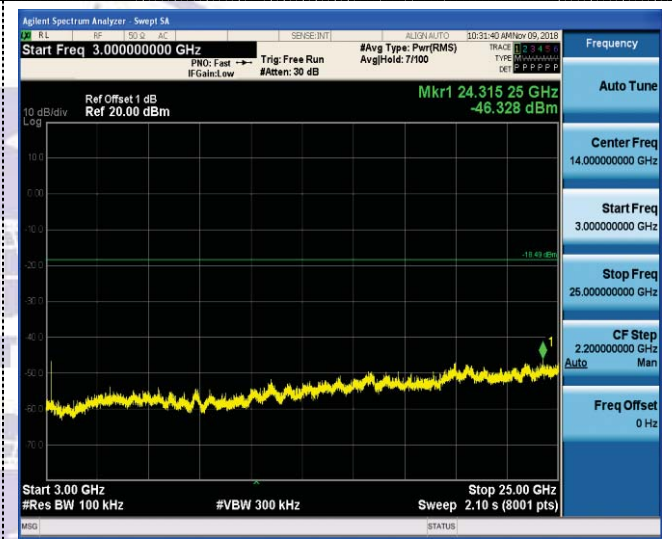
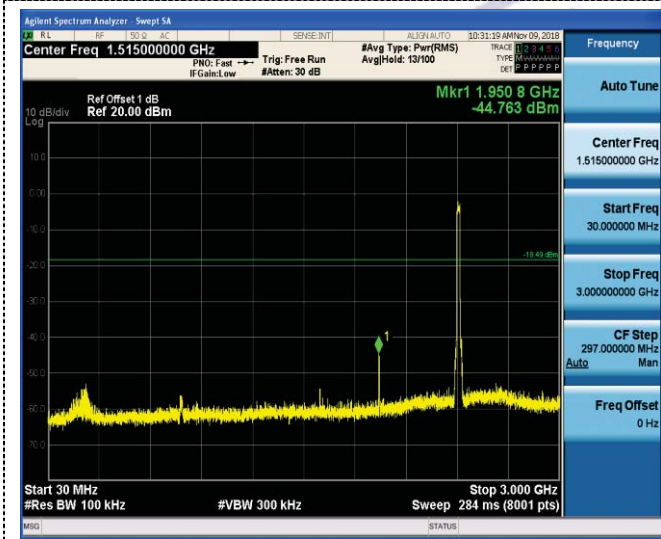


Left Band edge

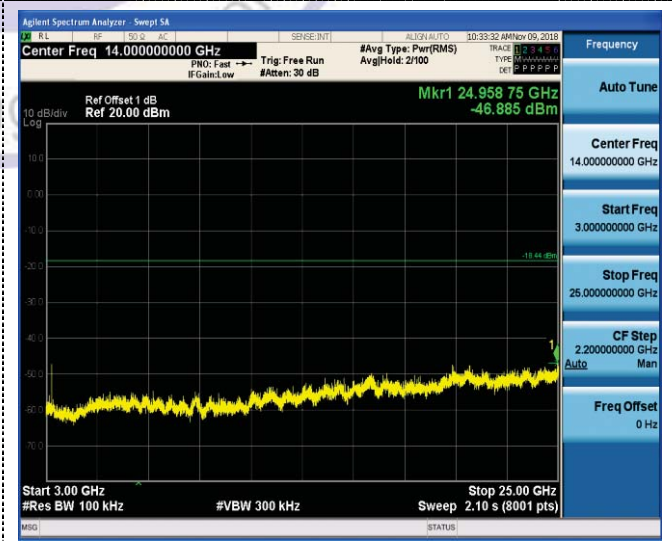
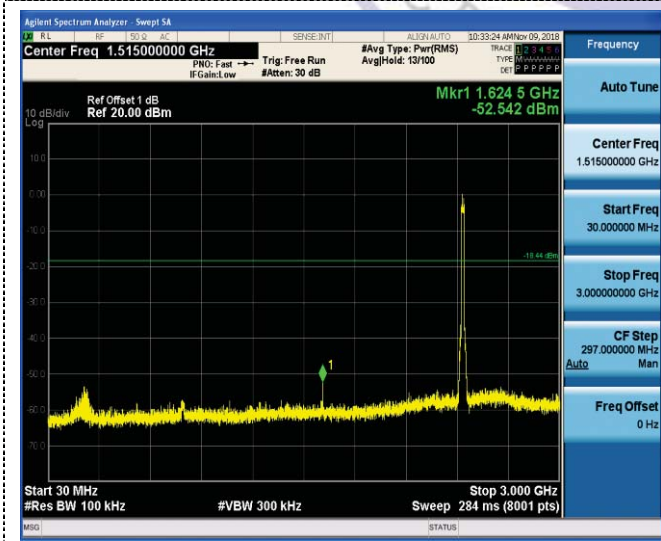


Right Band edge

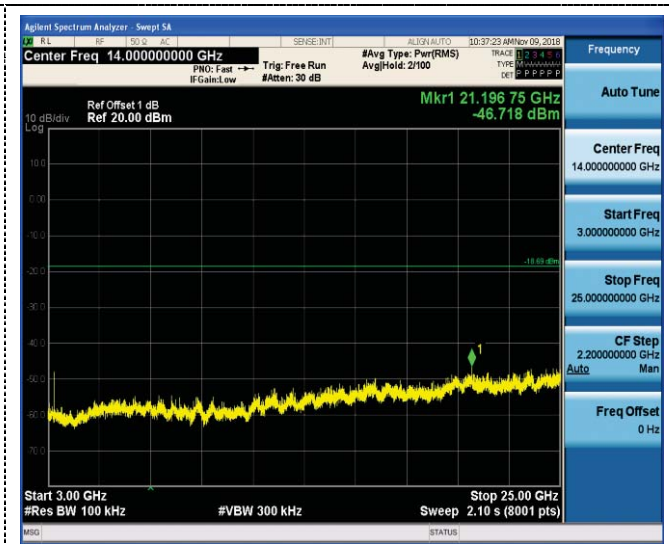
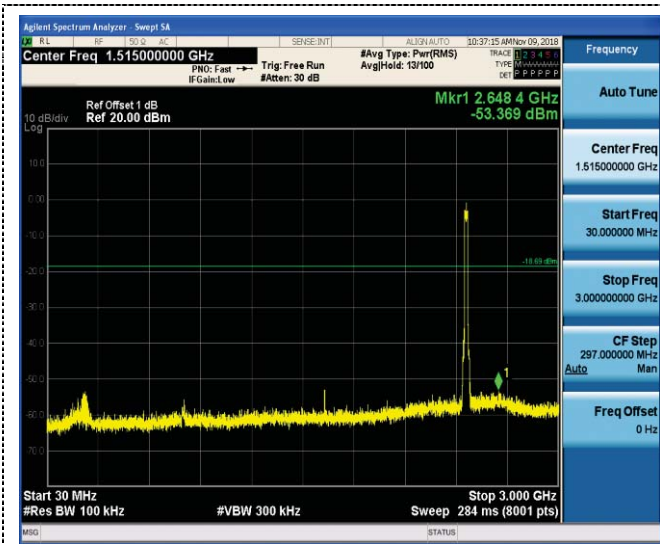
802.11g



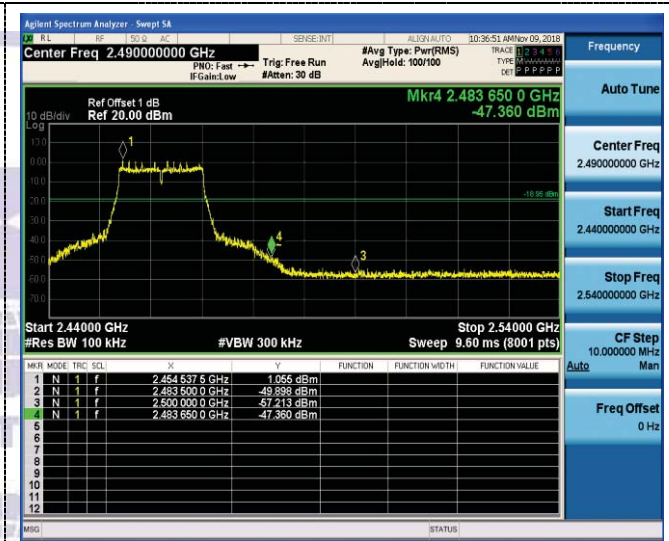
CH01



CH01



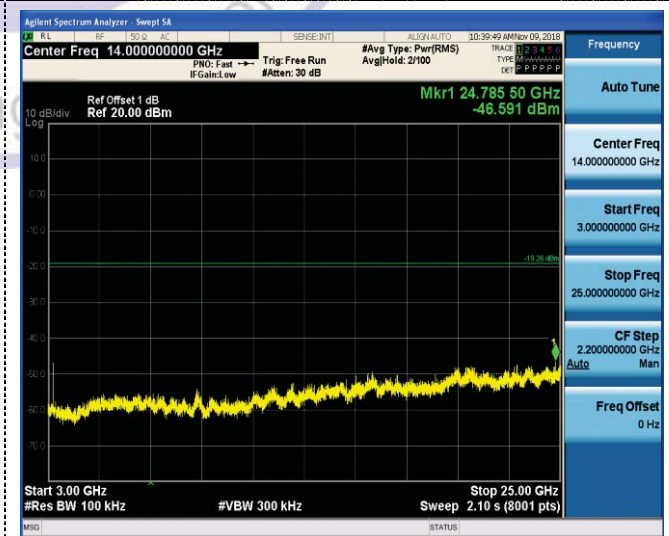
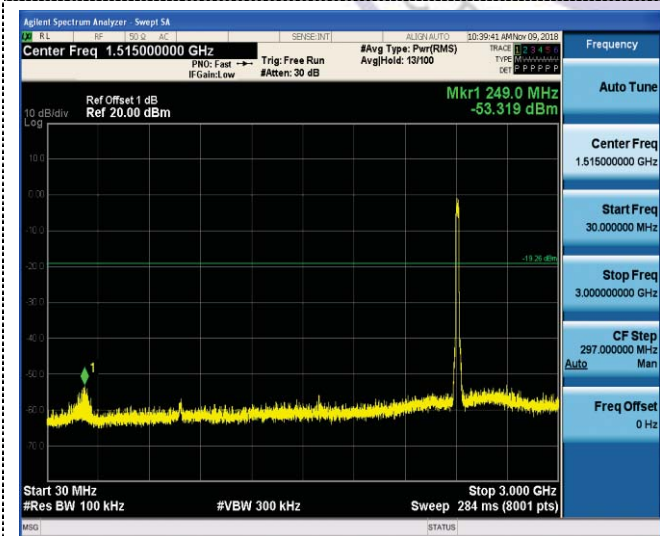
CH11



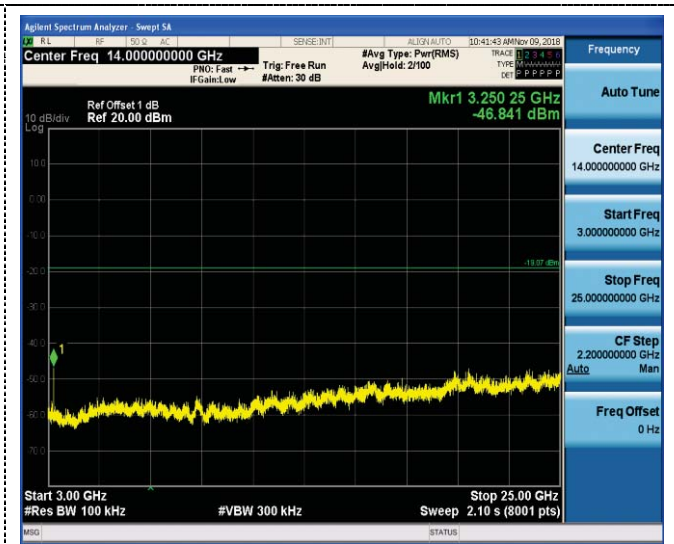
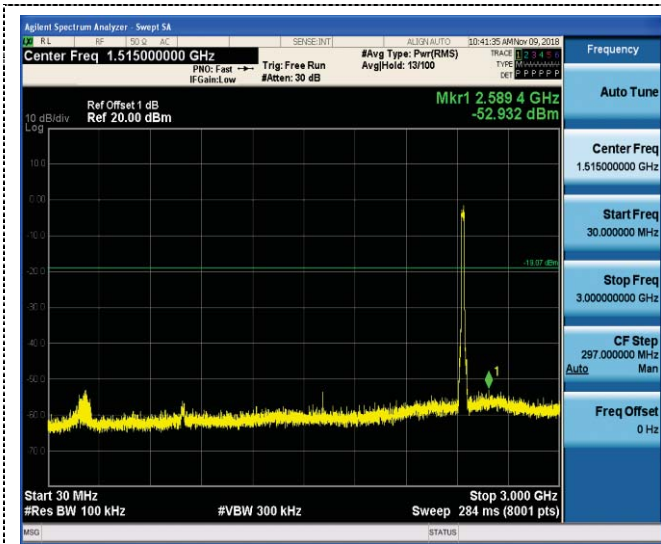
Left Band edge

Right Band edge

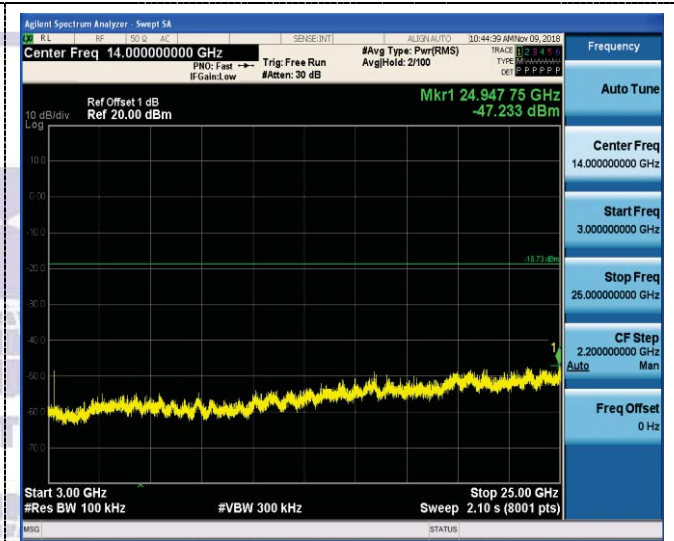
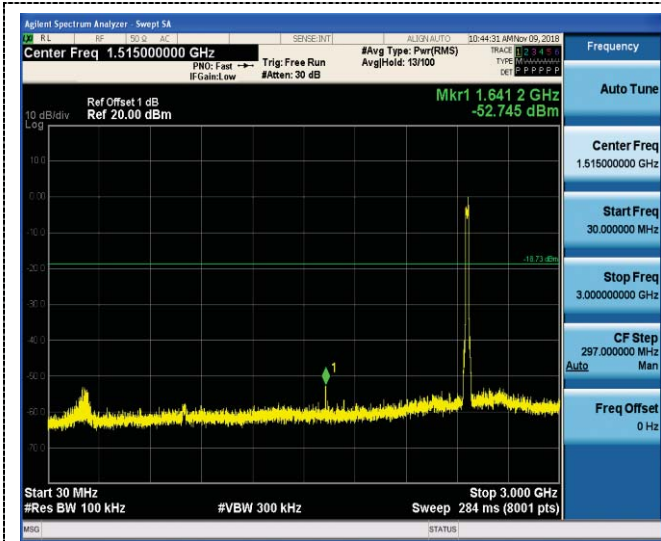
802.11n(HT20)



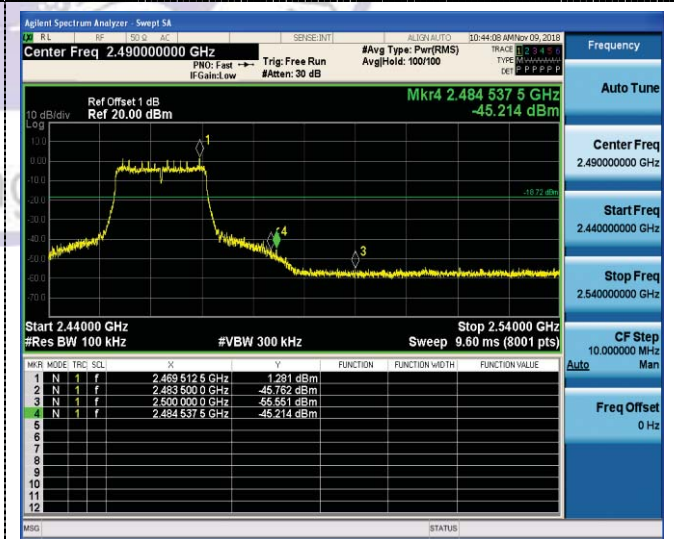
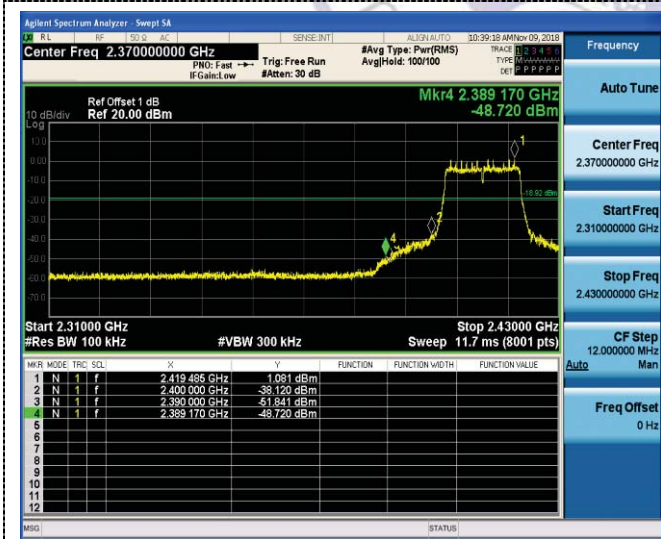
CH01



CH06



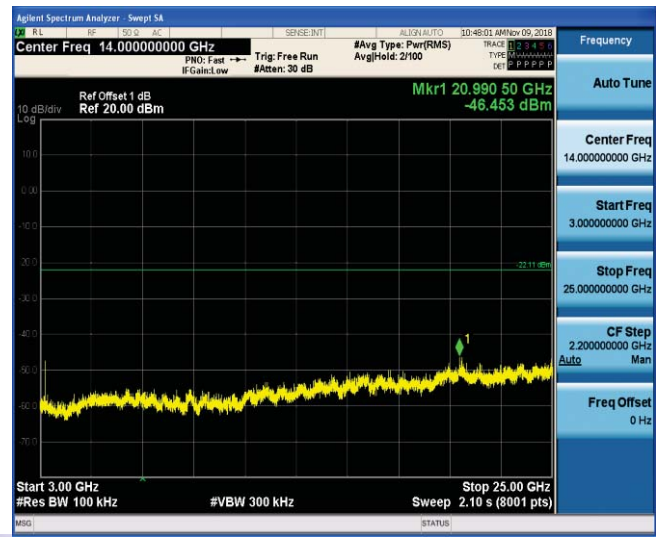
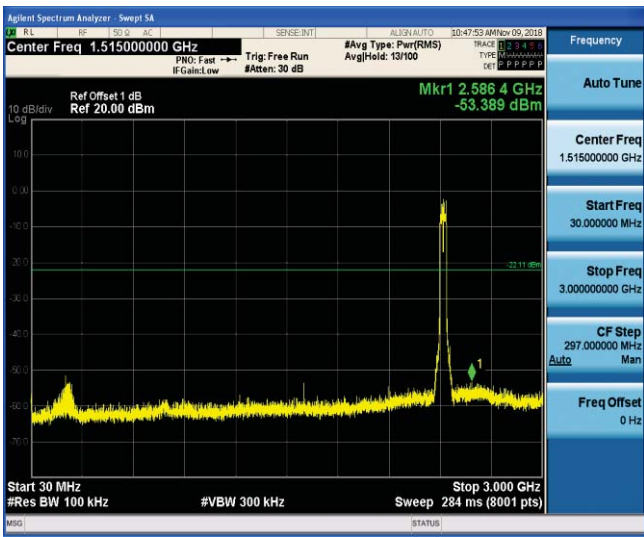
CH11



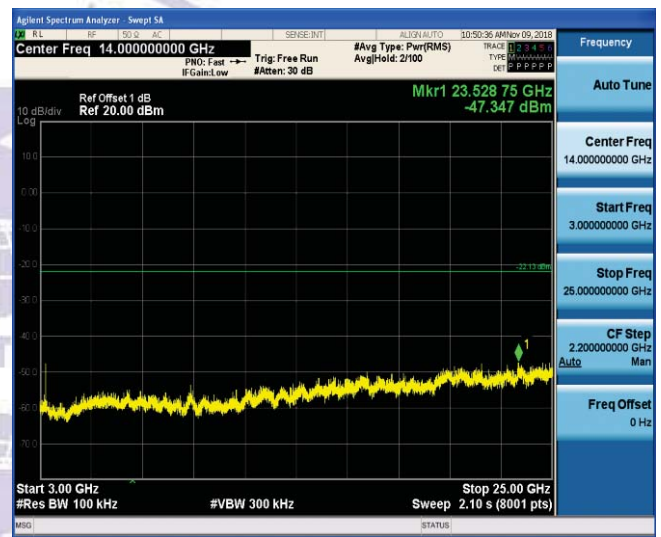
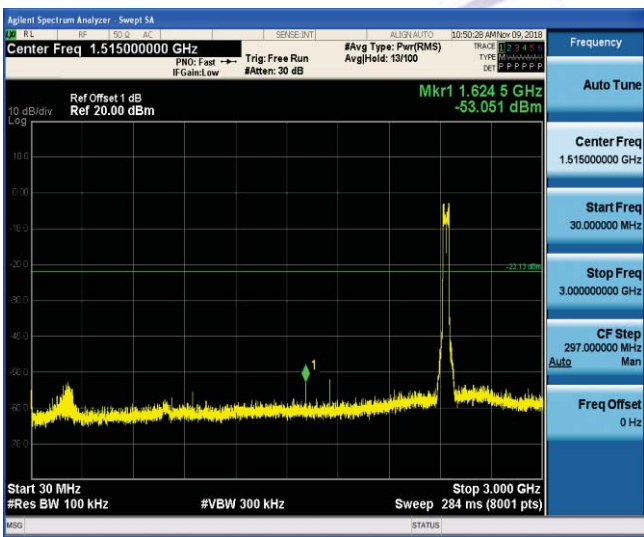
Left Band edge

Right Band edge

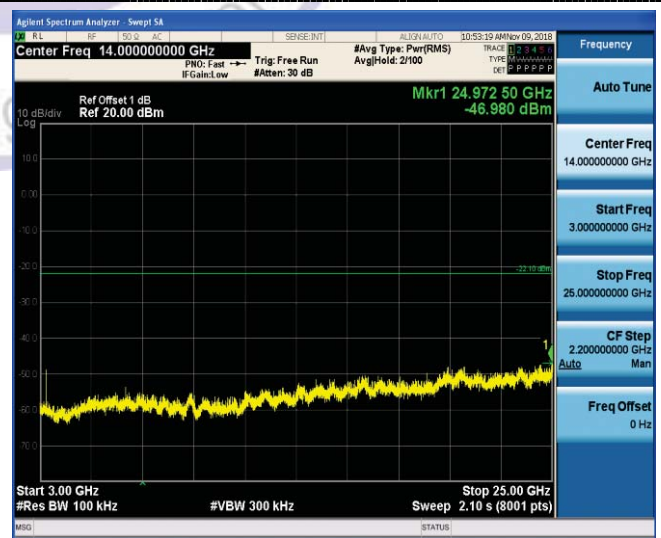
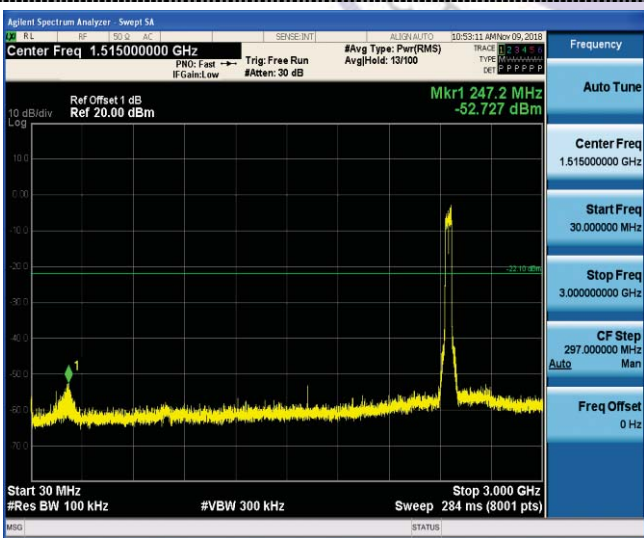
### 802.11n(HT40)



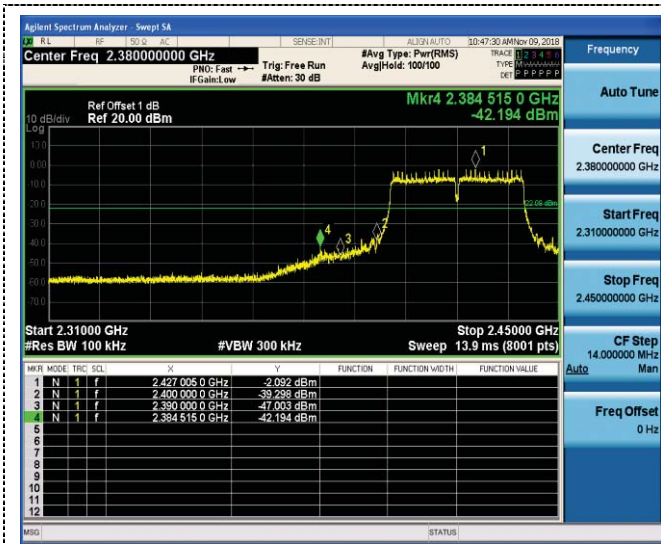
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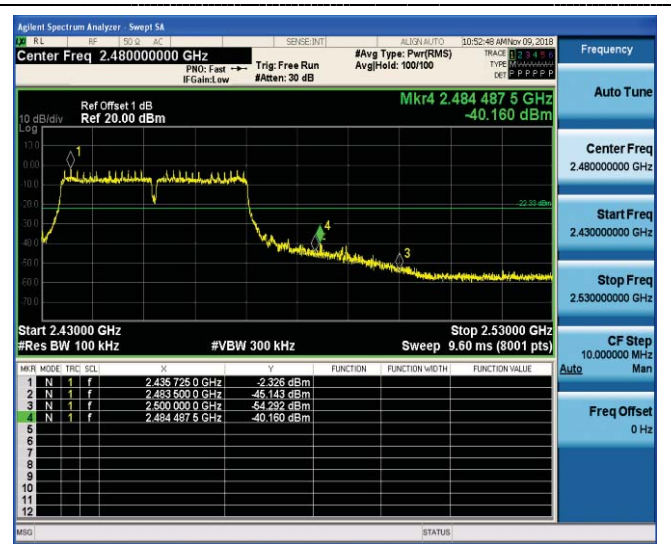
### CH06



### CH09



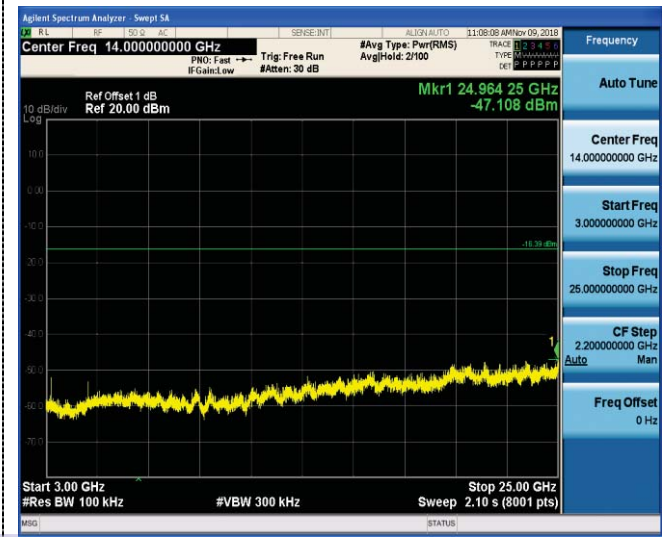
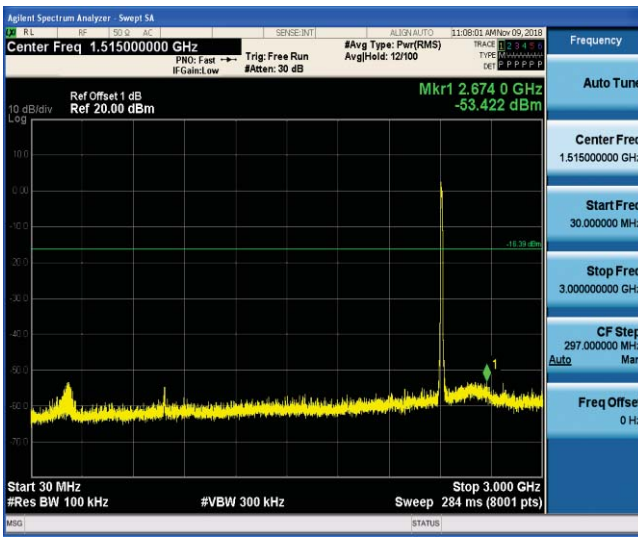
Left Band edge



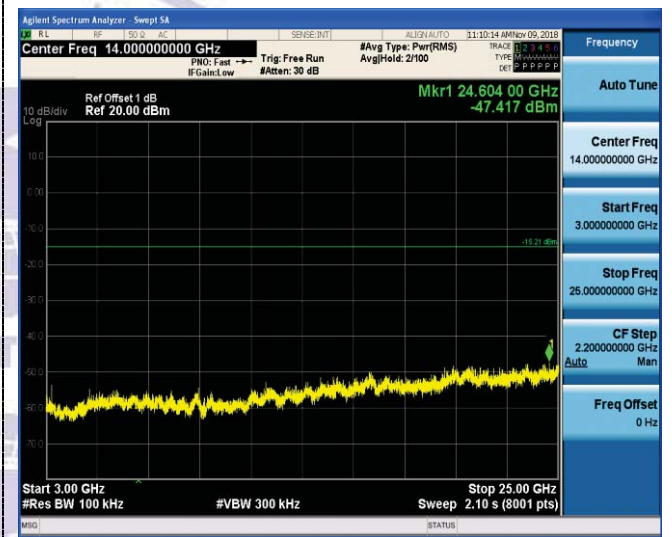
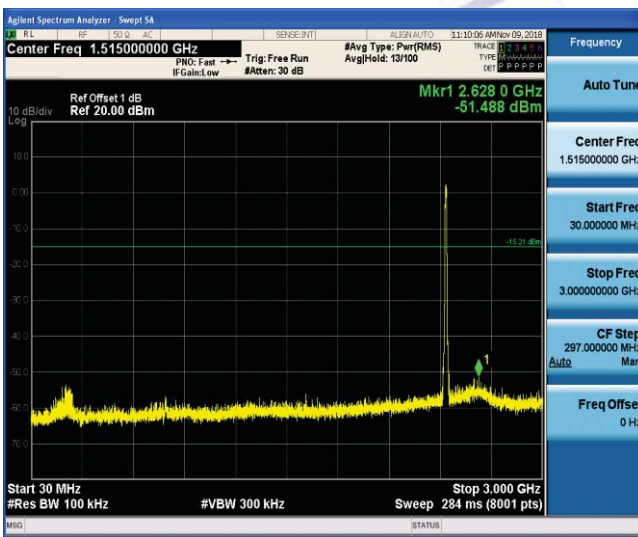
Right Band edge



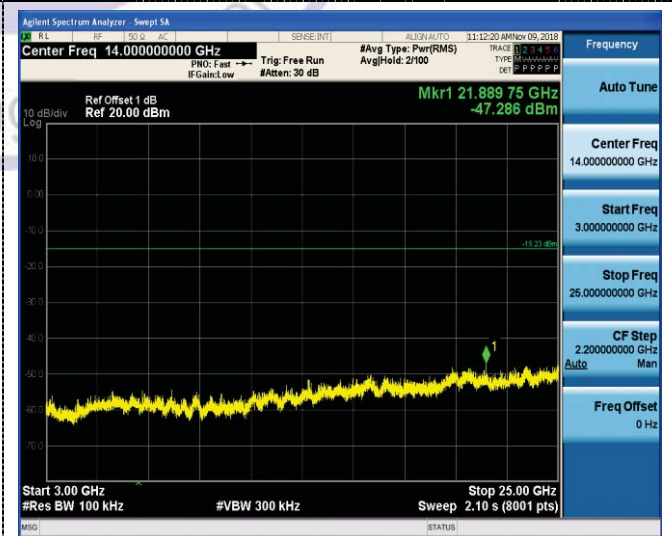
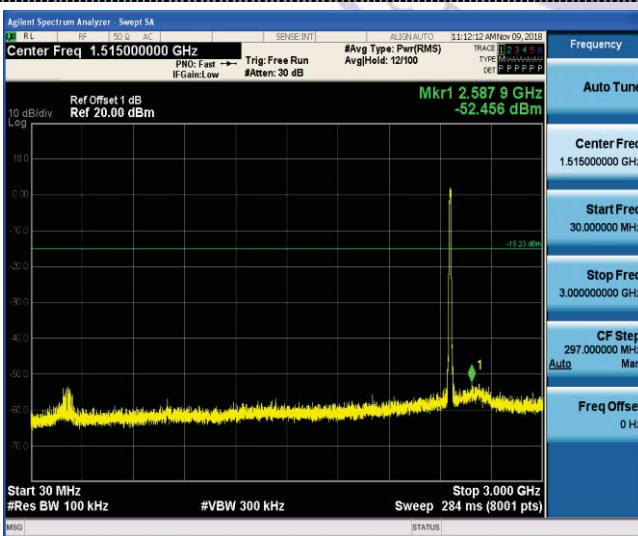
### Ant2 802.11b



### CH01

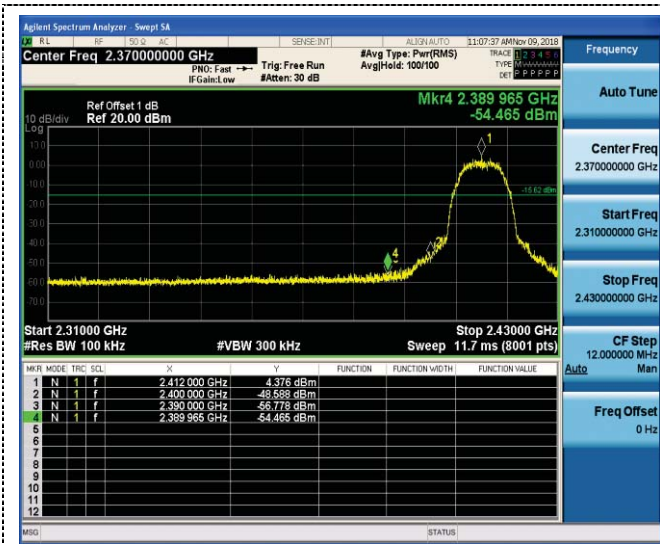


### CH06

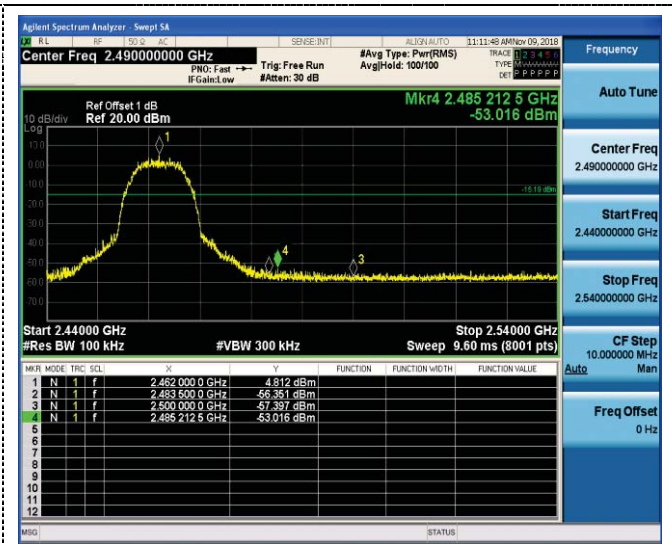


### CH11



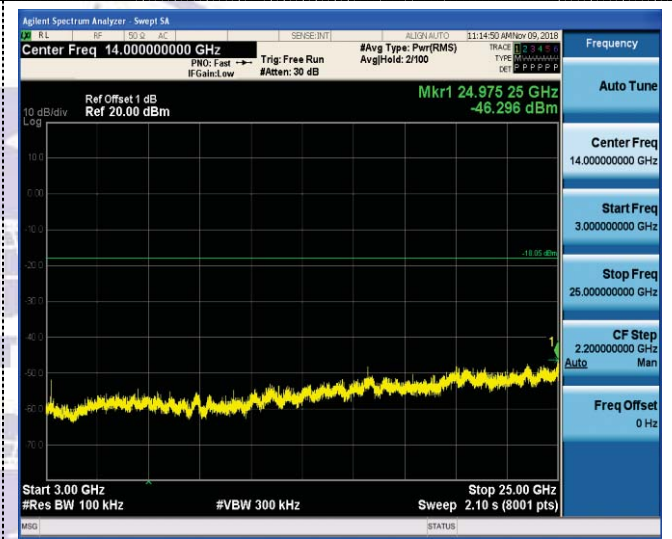
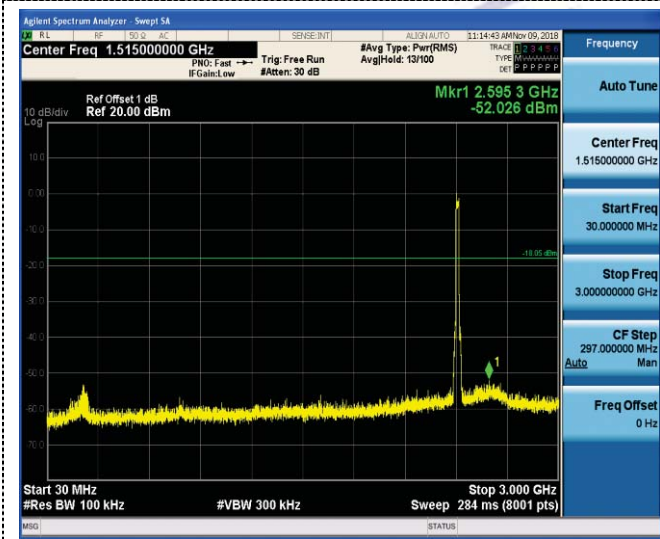


Left Band edge

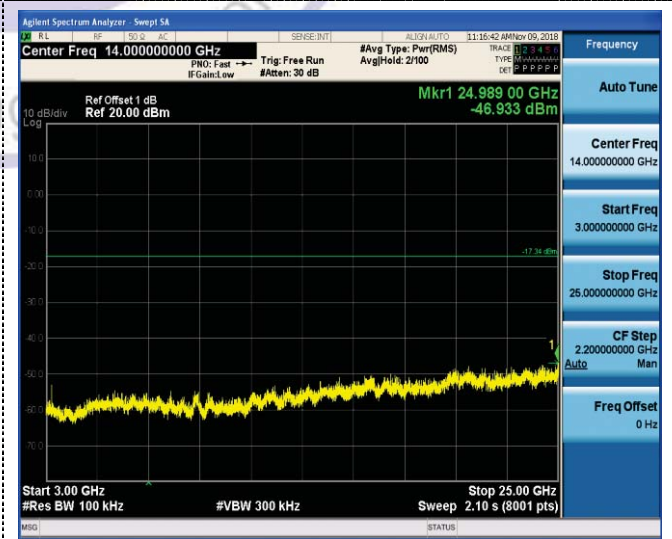
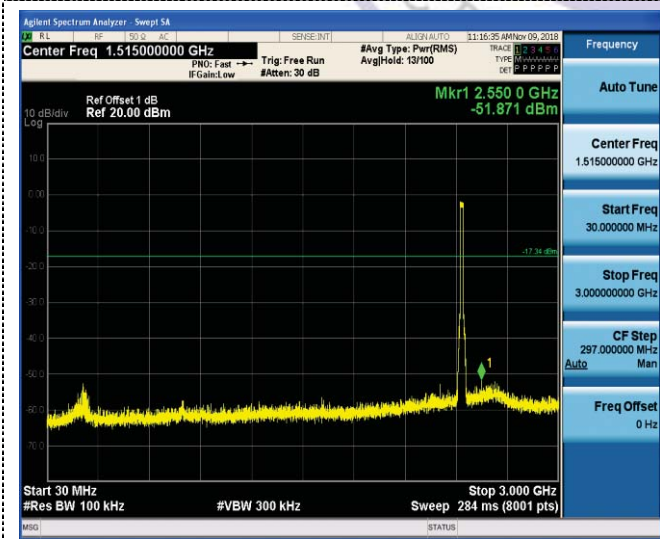


Right Band edge

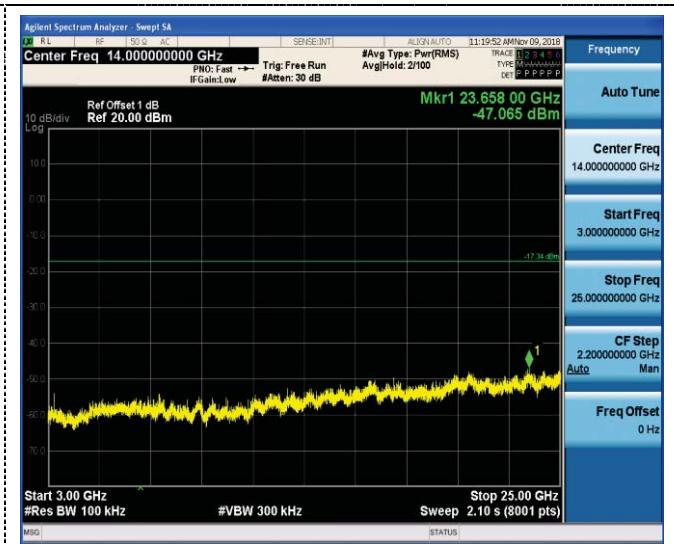
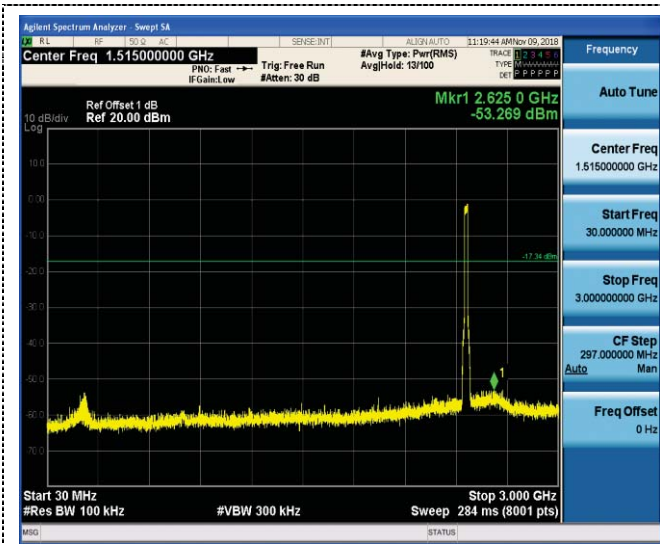
802.11g



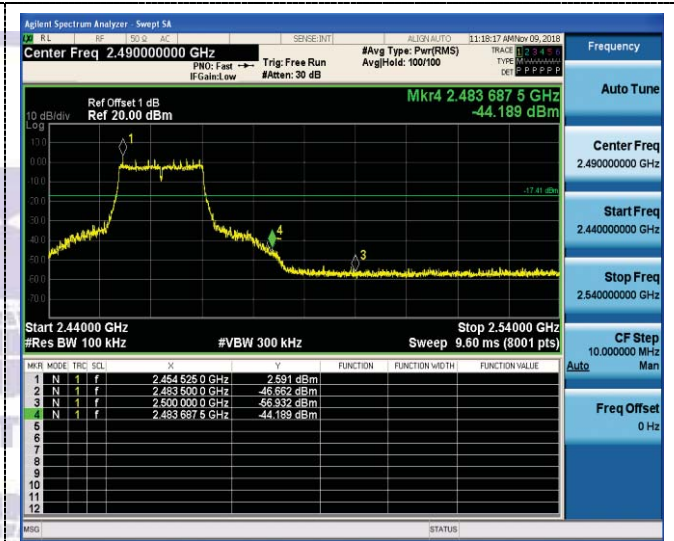
CH01



CH06



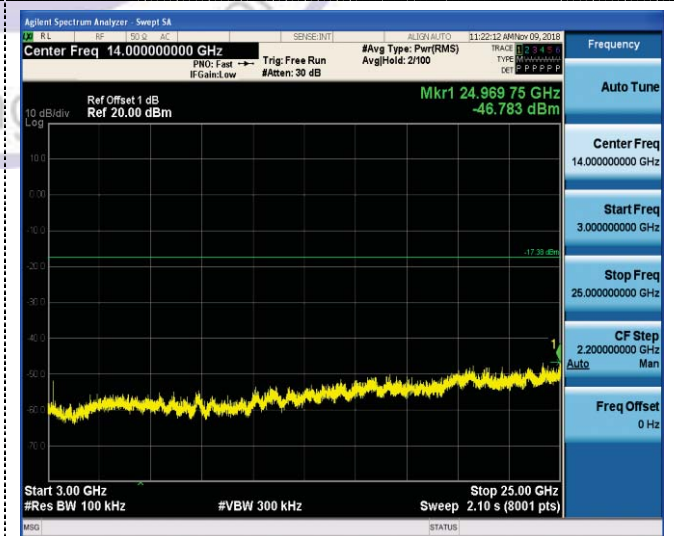
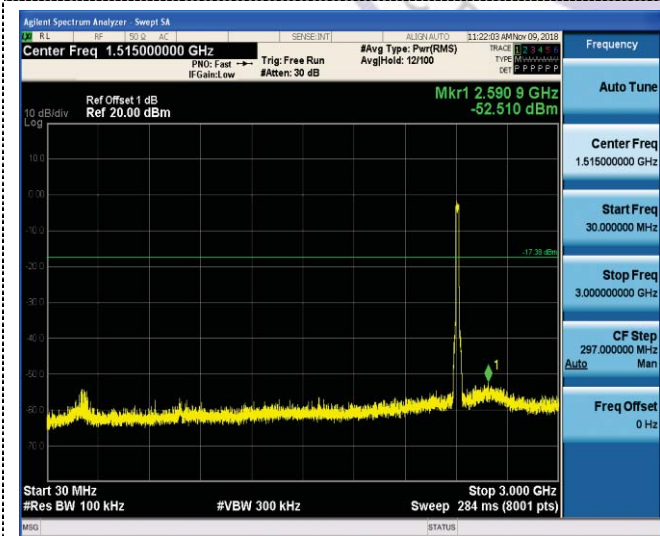
CH11



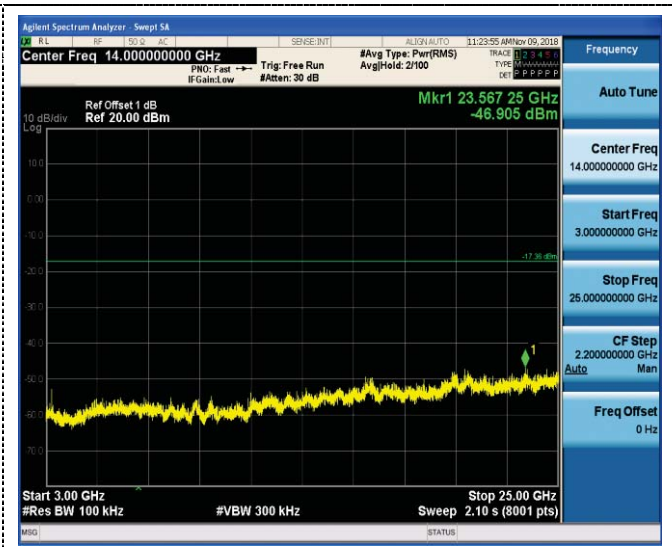
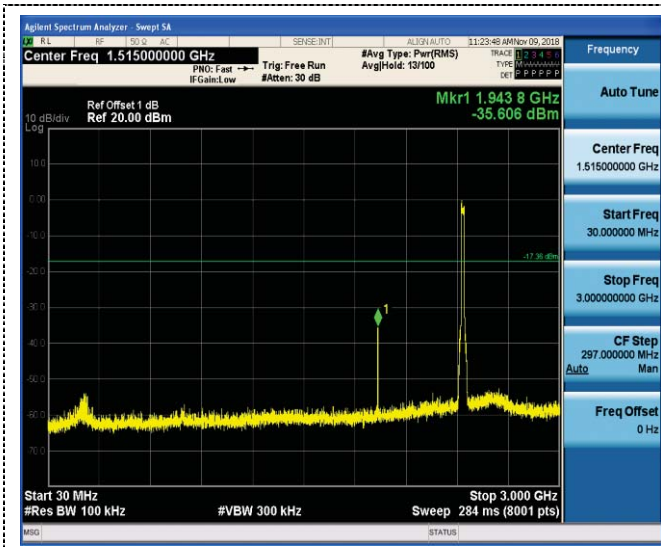
Left Band edge

Right Band edge

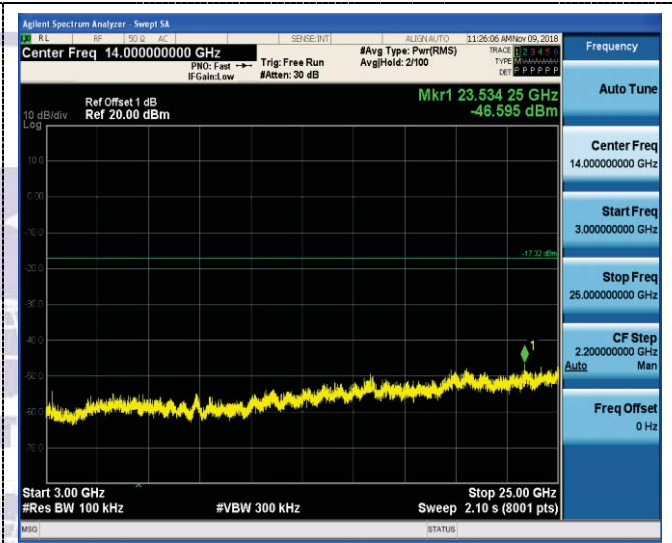
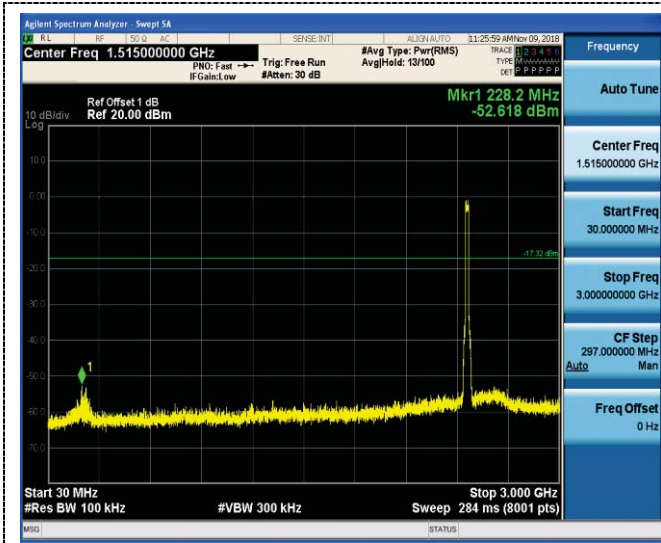
802.11n(HT20)



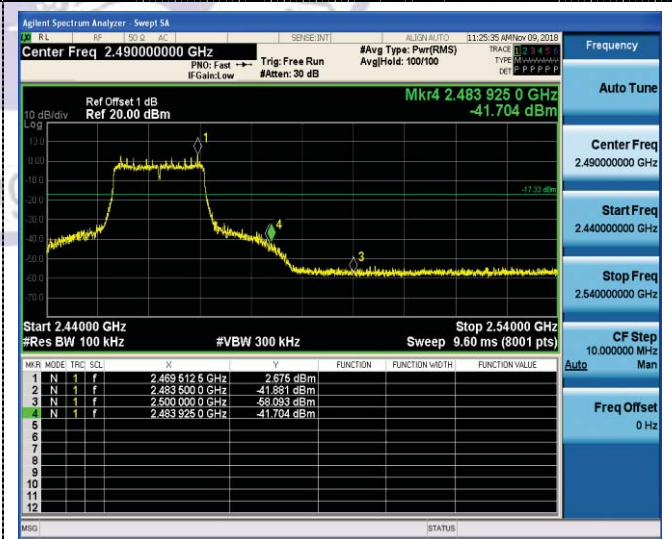
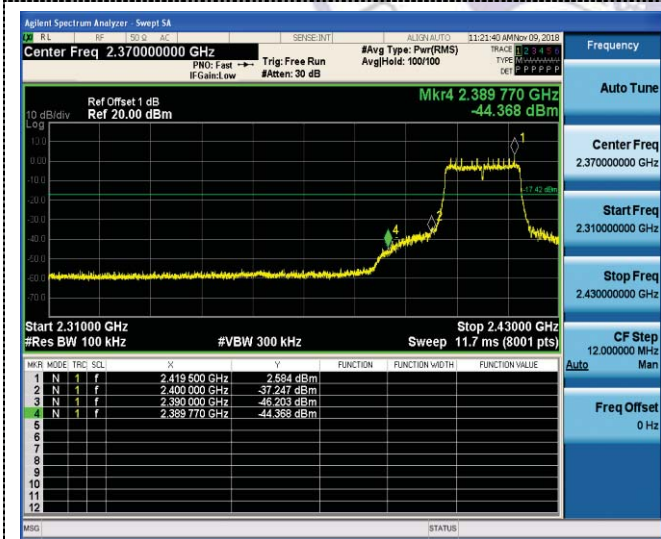
CH01



CH06



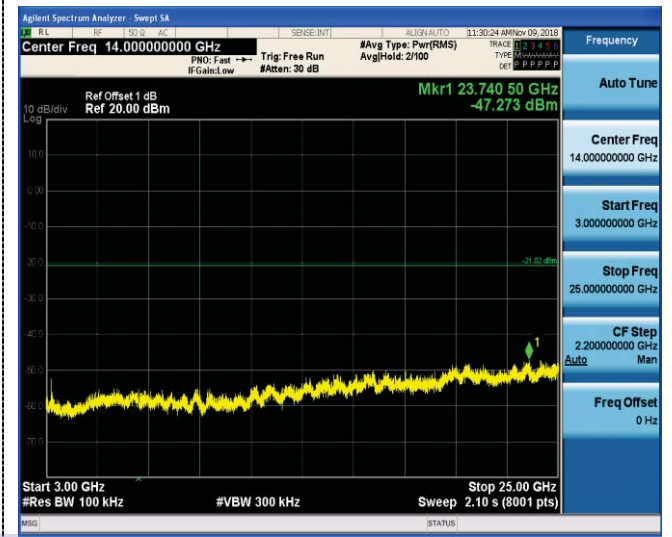
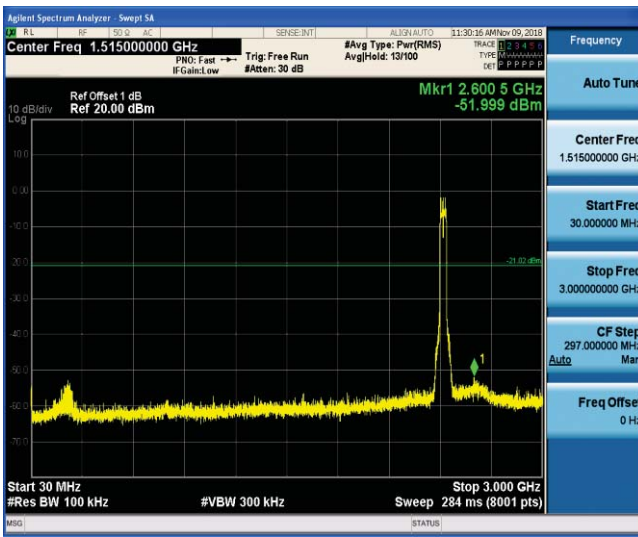
CH11



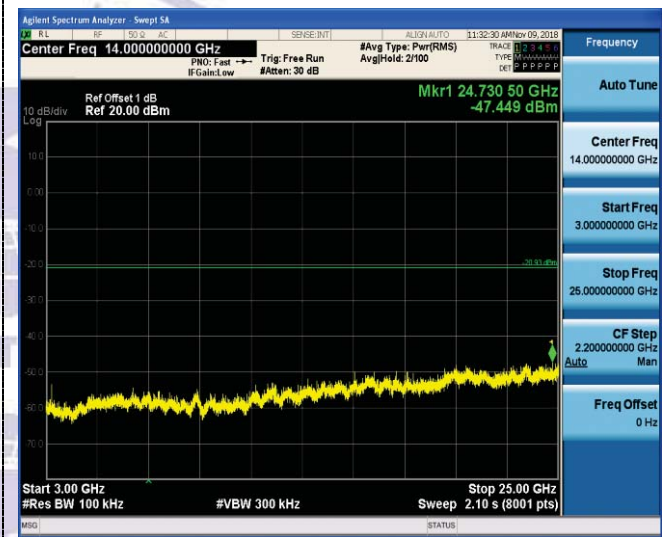
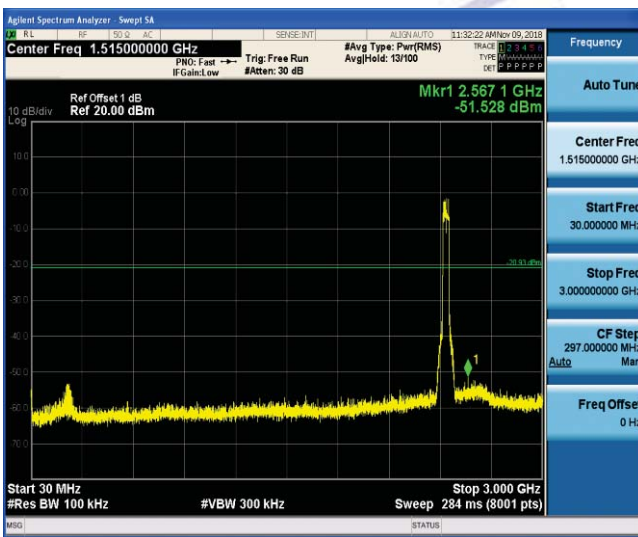
Left Band edge

Right Band edge

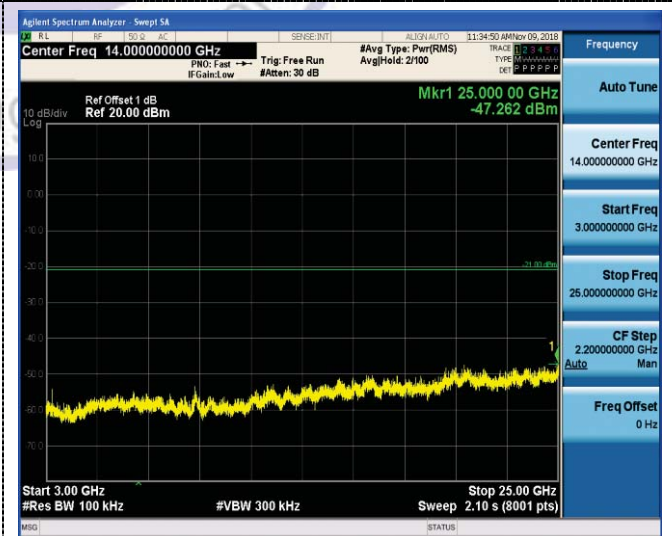
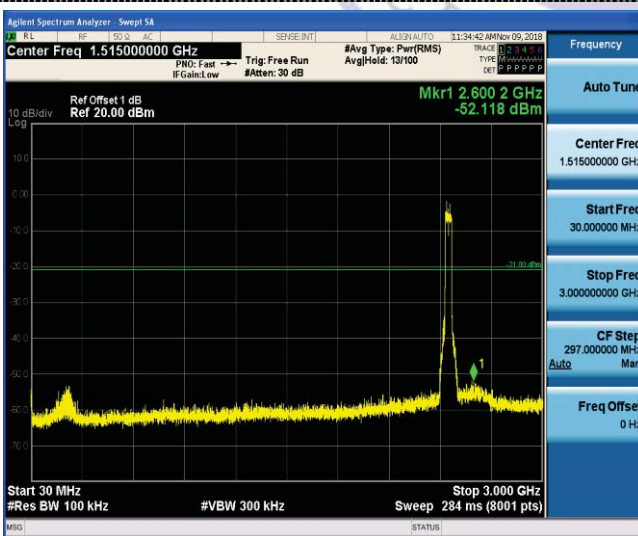
802.11n(HT40)



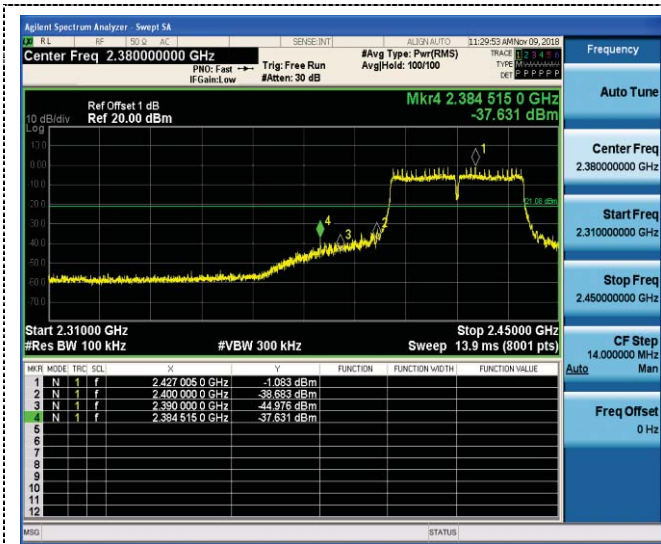
CH03



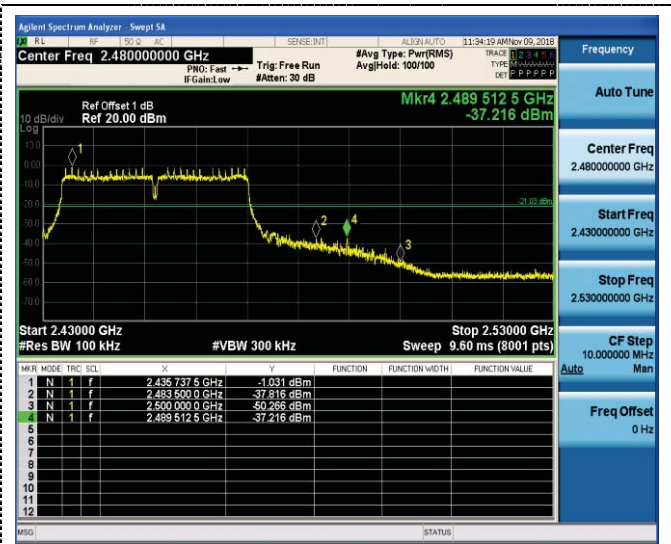
CH06



CH09



Left Band edge



Right Band edge



### 3.7. Antenna Requirement

#### Standard Applicable

**For intentional device, according to FCC 47 CFR Section 15.203:**

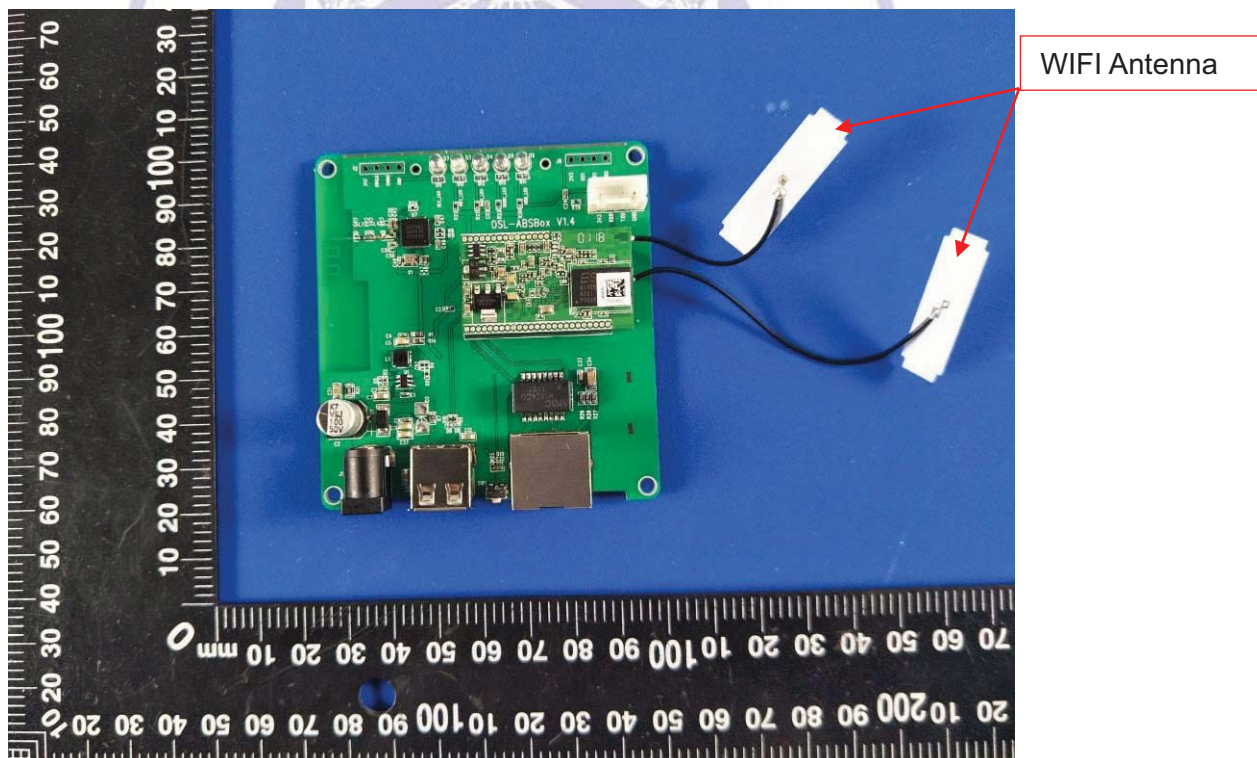
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit 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 EUT used 2\*TX 2\*RX antenna, the maximum gain of WIFI antenna was 2.5dBi, and directional gain =  $2.5 + 10 \log 2 = 5.51 \text{ dBi} < 6 \text{ dBi}$ .

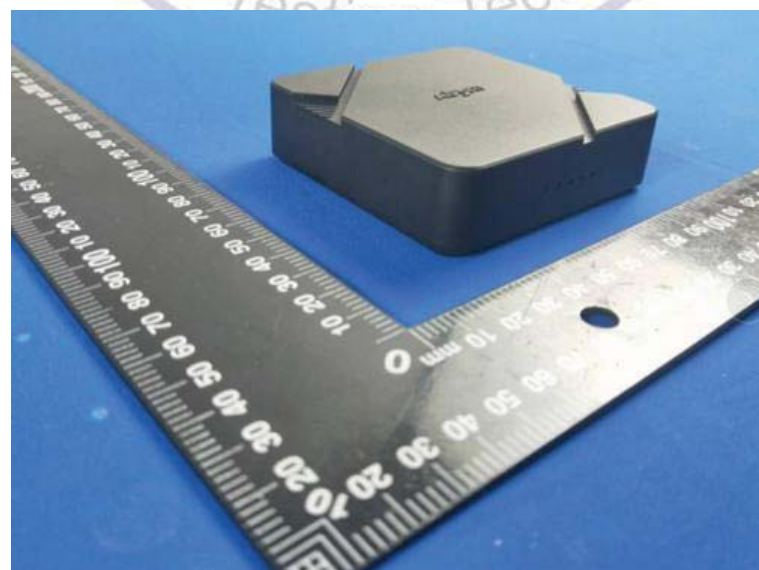
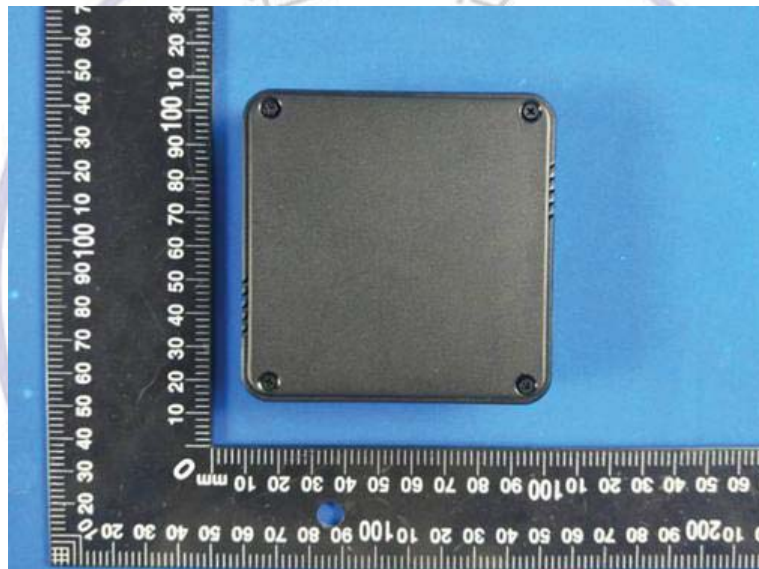
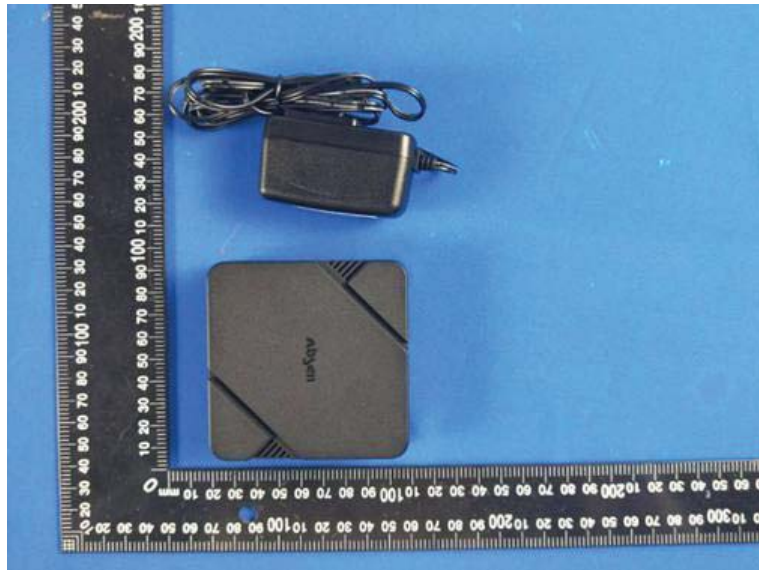


### 4. Test Setup Photos of the EUT

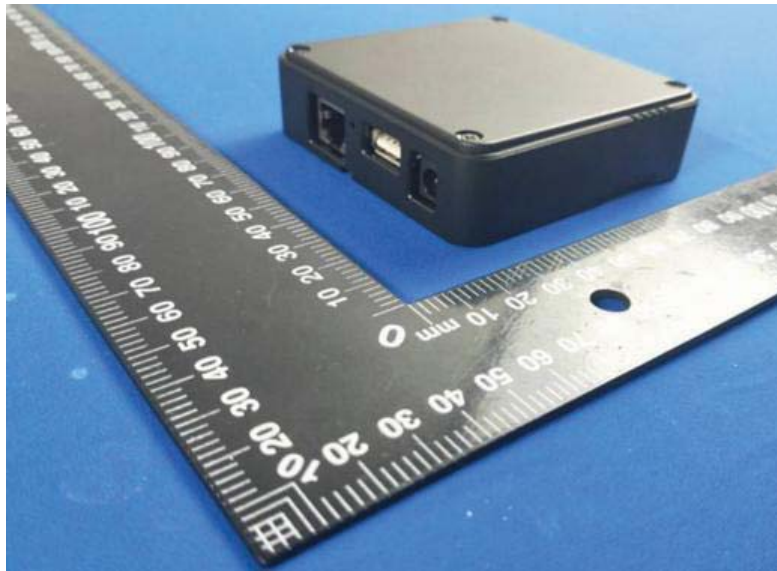


## 5. External and Internal Photos of the EUT

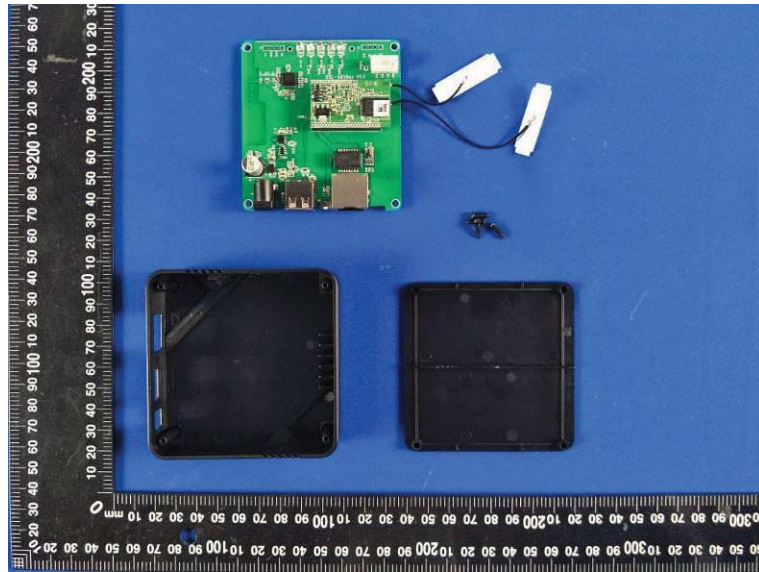
### External photos





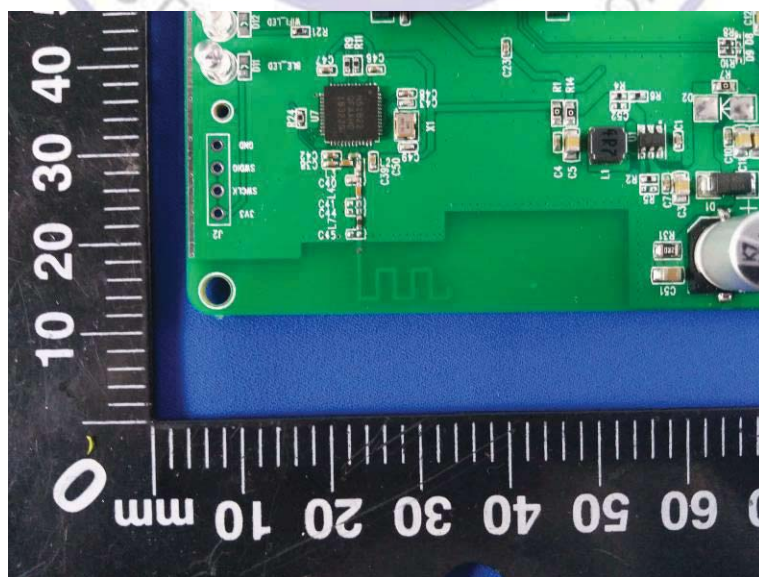
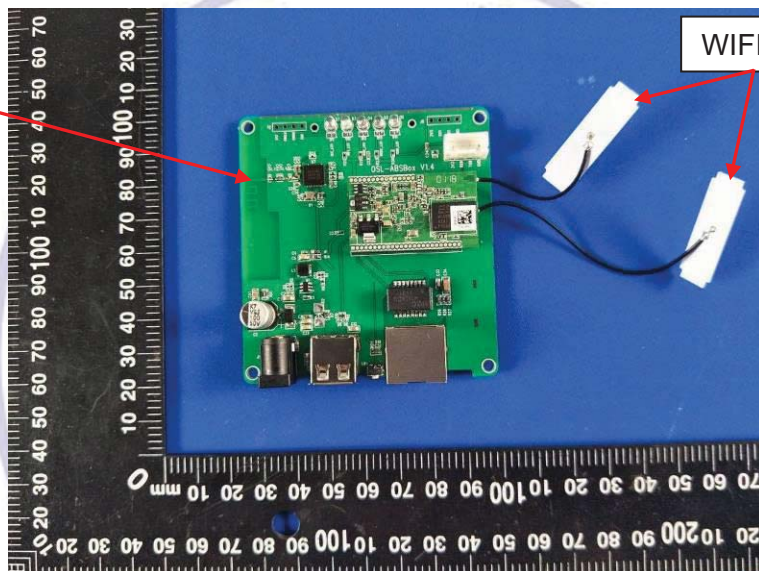


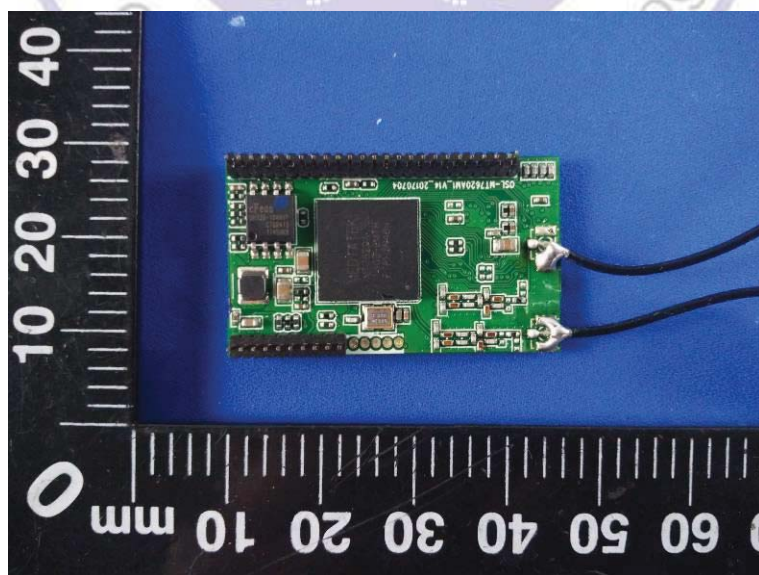
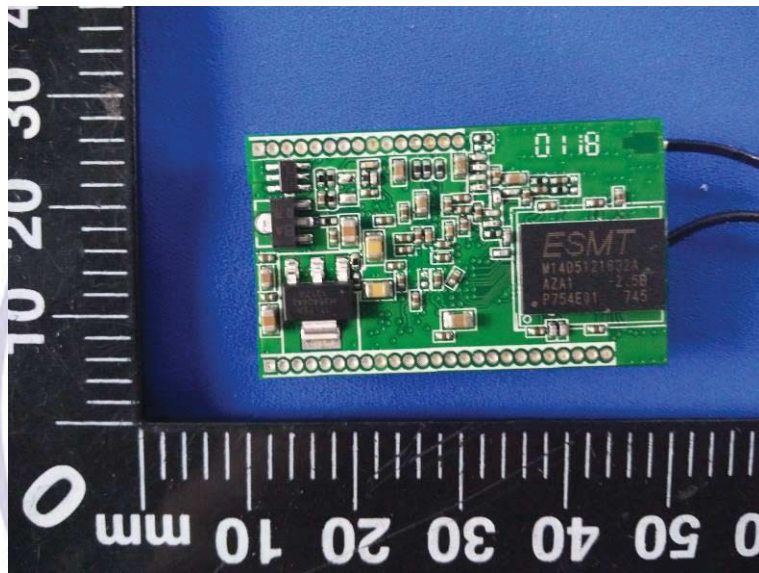
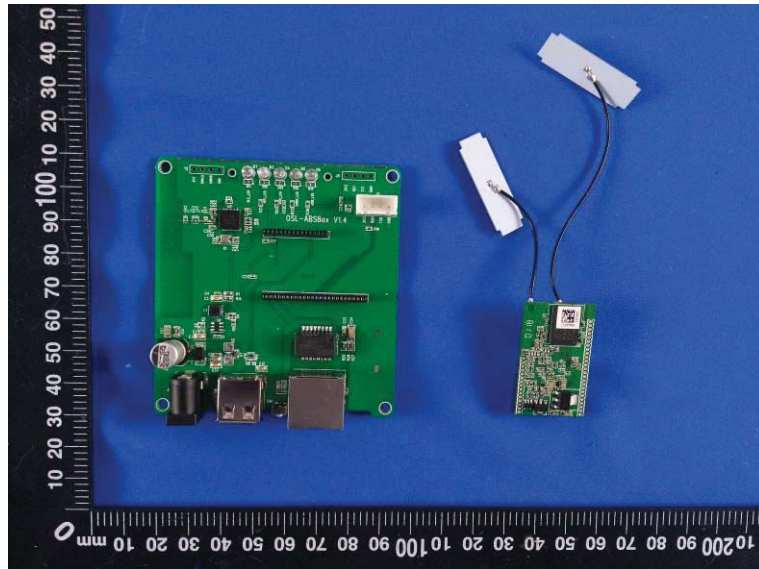
Internal photos

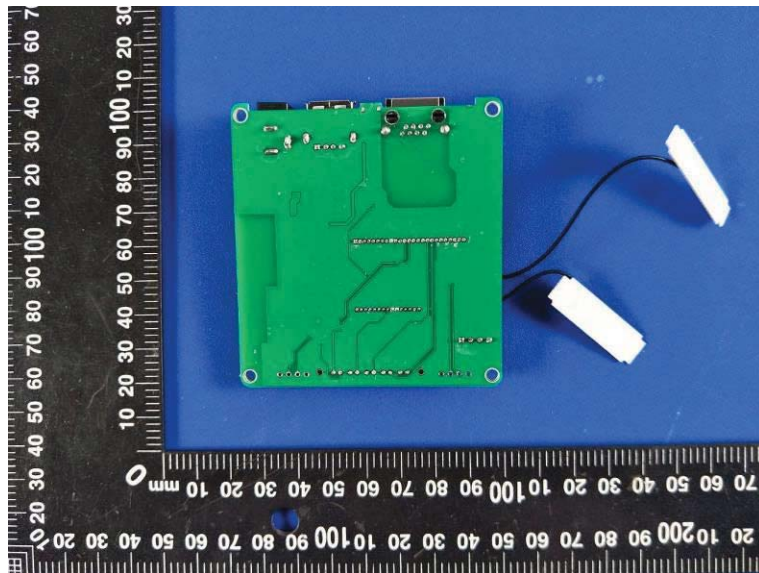


BT Antenna

WIFI Antenna







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

