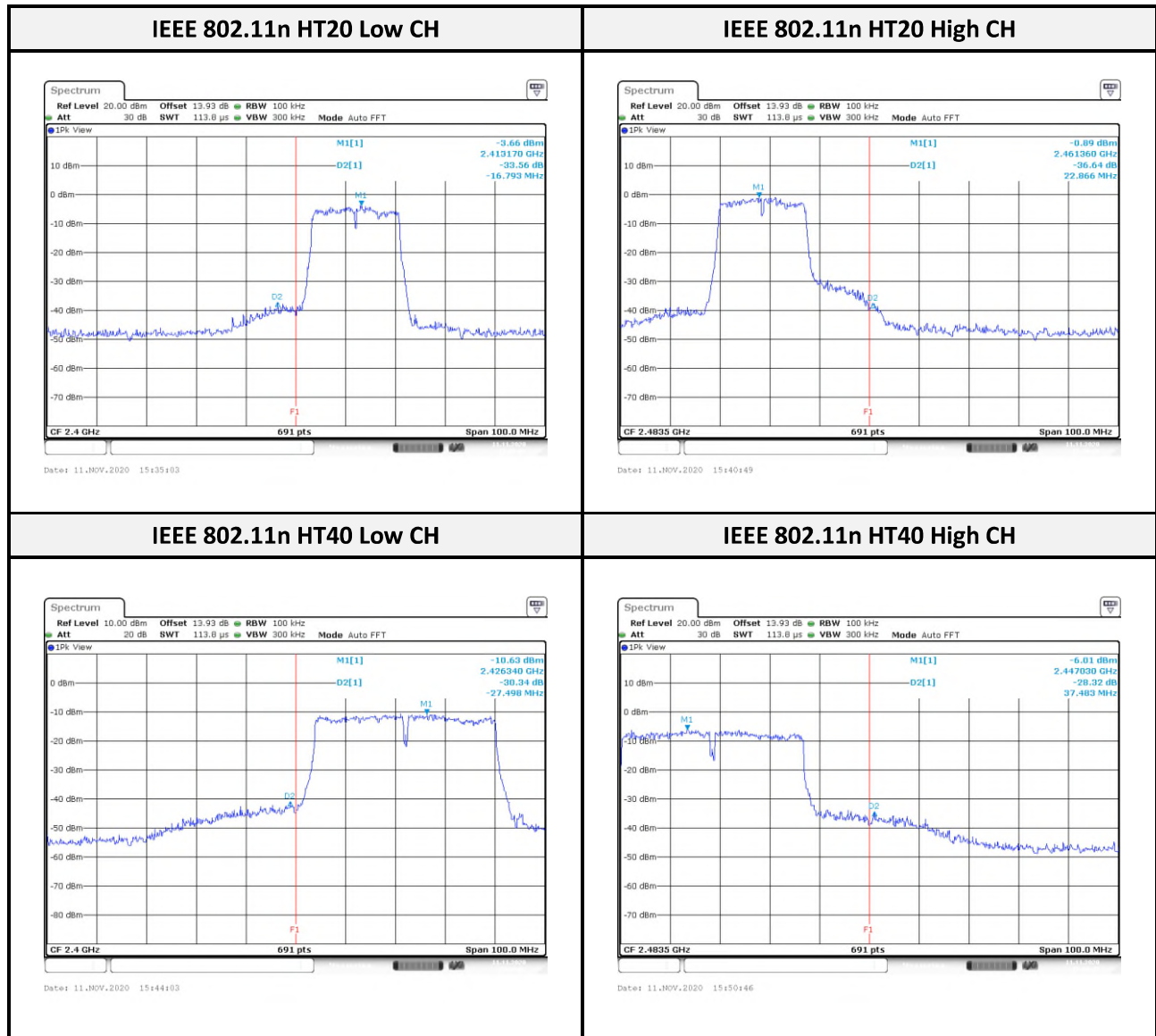
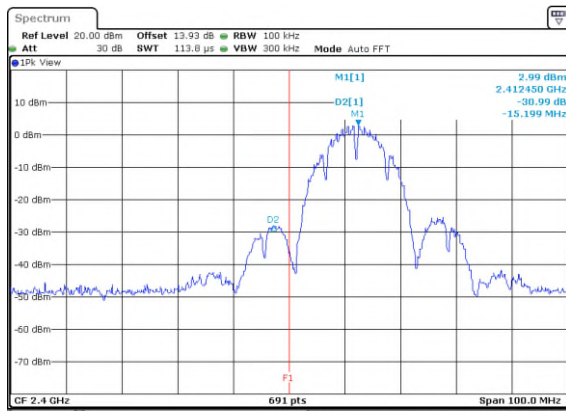




< Dipole Antenna (GW.34.5153) with 1.8V<sub>dc</sub>>

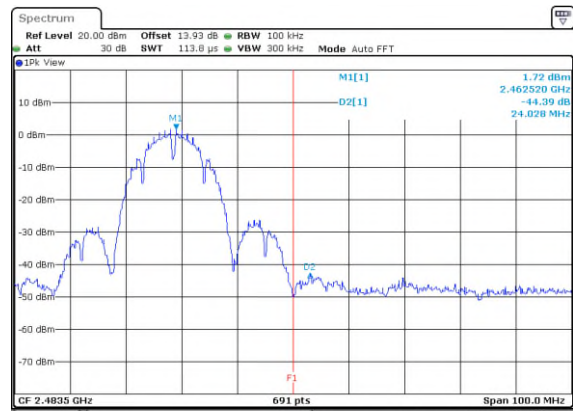
| Configuration          | Channel | Frequency (MHz) | Delta Peak to Band Emission (dBc) | Limit (dBc) | Result     |
|------------------------|---------|-----------------|-----------------------------------|-------------|------------|
| IEEE 802.11b           | Low     | 2412            | 30.99                             | ≥ 20        | Compliance |
|                        | High    | 2462            | 44.39                             | ≥ 20        | Compliance |
| BLE-2M<br>IEEE 802.11g | Low     | 2412            | 28.77                             | ≥ 20        | Compliance |
|                        | High    | 2462            | 36.35                             | ≥ 20        | Compliance |
| IEEE 802.11n<br>HT20   | Low     | 2412            | 29.34                             | ≥ 20        | Compliance |
|                        | High    | 2462            | 35.65                             | ≥ 20        | Compliance |
| IEEE 802.11n<br>HT40   | Low     | 2422            | 27.62                             | ≥ 20        | Compliance |
|                        | High    | 2452            | 25.81                             | ≥ 20        | Compliance |

IEEE 802.11b Low CH



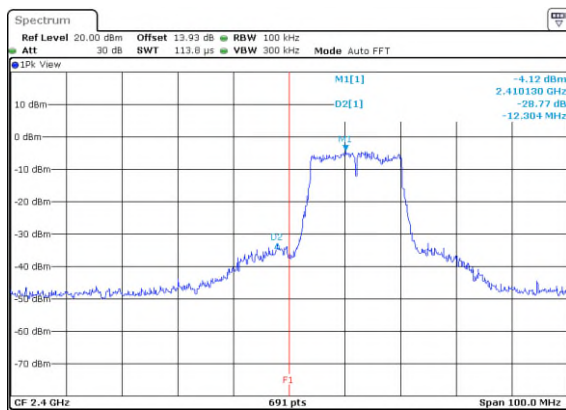
Date: 28.NOV.2020 12:31:21

IEEE 802.11b High CH



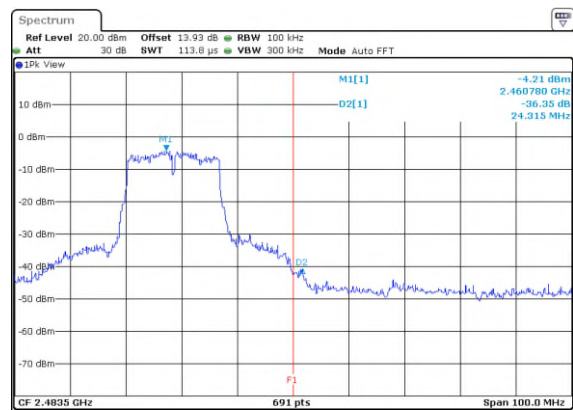
Date: 28.NOV.2020 12:35:44

IEEE 802.11g Low CH

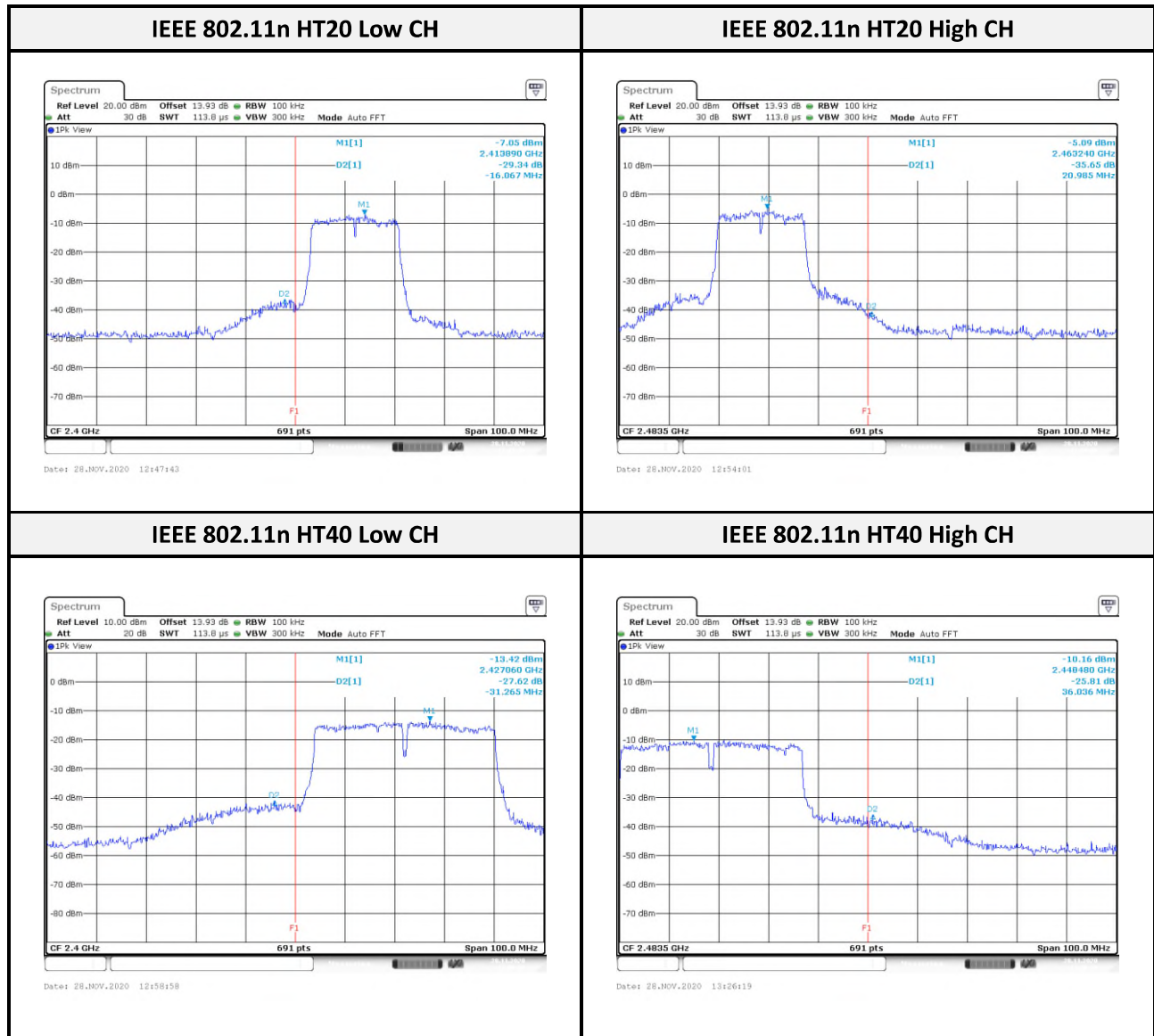


Date: 28.NOV.2020 12:39:18

IEEE 802.11g High CH



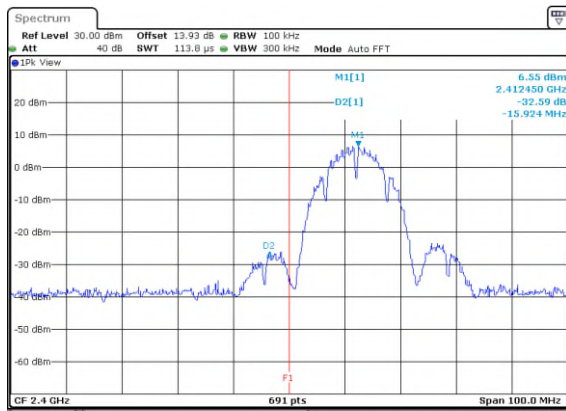
Date: 28.NOV.2020 12:43:55



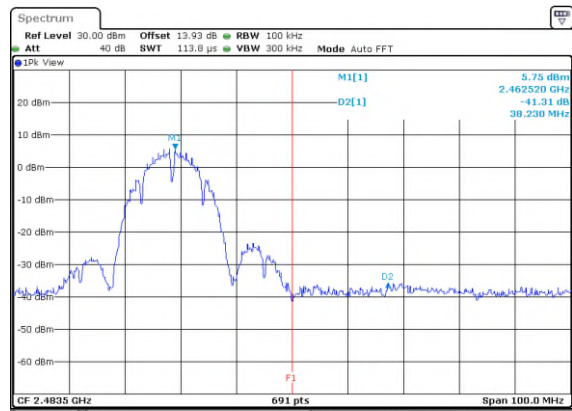
< Dipole Antenna (GW.34.5153) with 3.3V<sub>dc</sub>>

| Configuration          | Channel | Frequency (MHz) | Delta Peak to Band Emission (dBc) | Limit (dBc) | Result     |
|------------------------|---------|-----------------|-----------------------------------|-------------|------------|
| IEEE 802.11b           | Low     | 2412            | 32.59                             | ≥ 20        | Compliance |
|                        | High    | 2462            | 41.31                             | ≥ 20        | Compliance |
| BLE-2M<br>IEEE 802.11g | Low     | 2412            | 35.17                             | ≥ 20        | Compliance |
|                        | High    | 2462            | 37.88                             | ≥ 20        | Compliance |
| IEEE 802.11n<br>HT20   | Low     | 2412            | 35.49                             | ≥ 20        | Compliance |
|                        | High    | 2462            | 37.59                             | ≥ 20        | Compliance |
| IEEE 802.11n<br>HT40   | Low     | 2422            | 29.15                             | ≥ 20        | Compliance |
|                        | High    | 2452            | 28.74                             | ≥ 20        | Compliance |

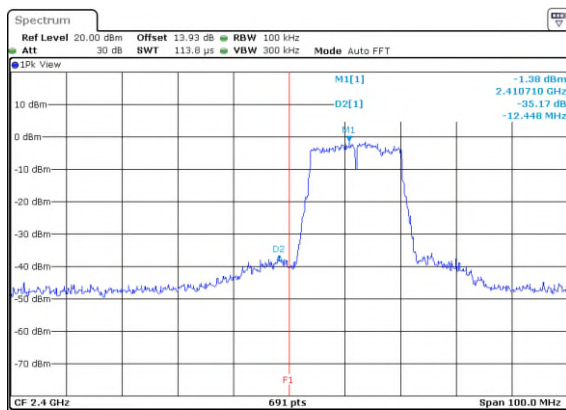
IEEE 802.11b Low CH



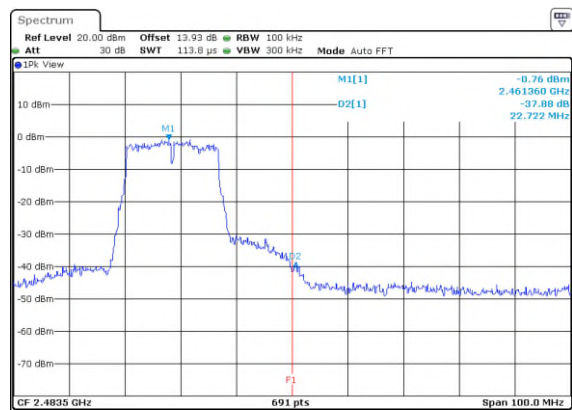
IEEE 802.11b High CH

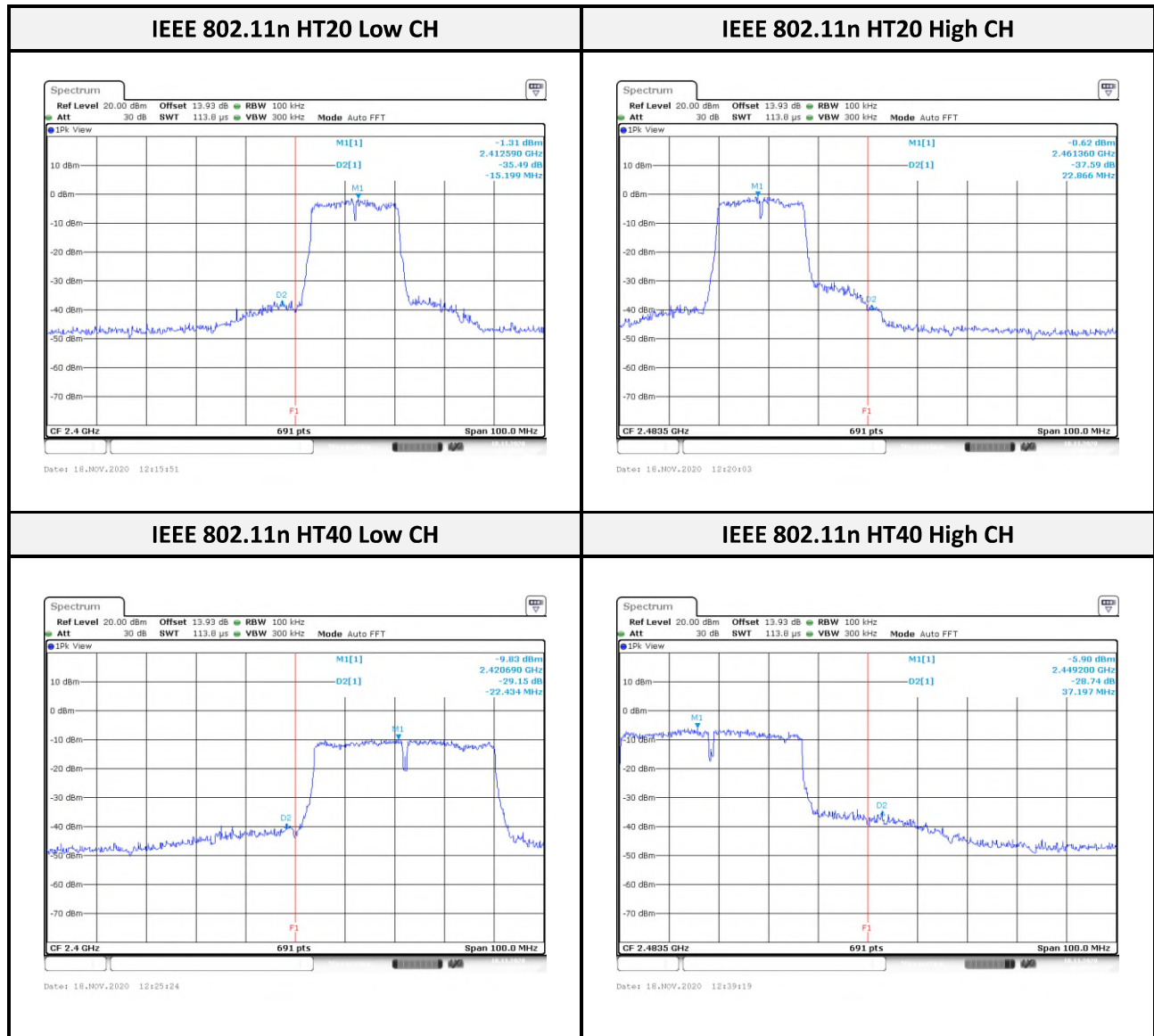


IEEE 802.11g Low CH



IEEE 802.11g High CH





## 12 FCC §15.247(e) and RSS-247 §5.2(b) – Power Spectral Density

### 12.1 Applicable Standard

According to FCC §15.247(e),

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

According to RSS-247 §5.2(b).

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

### 12.2 Test Procedure

According to ANSI C63.10-2013,

- (1) Set analyzer center frequency to DTS channel center frequency.
- (2) Set the span to 1.5 times the DTS bandwidth. (3) Set the RBW to  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- (4) Set the VBW  $\geq [3 \times \text{RBW}]$ . (5) Detector = peak. (6) Sweep time = auto couple.
- (7) Trace mode = max hold. (8) Allow trace to fully stabilize.
- (9) Use the peak marker function to determine the maximum amplitude level within the RBW.
- (10) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

### 12.3 Test Equipment List and Details

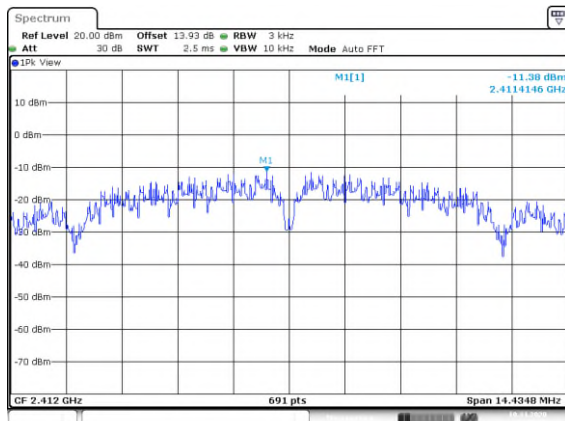
| Description                  | Manufacture     | Model | Serial No.       | Cal. Date. | Cal. Due.  |
|------------------------------|-----------------|-------|------------------|------------|------------|
| Conducted Room(TH-02)        |                 |       |                  |            |            |
| Signal and Spectrum Analyzer | Rohde & Schwarz | FSV40 | 101434           | 2020/05/07 | 2021/05/06 |
| Cable                        | MTJ             | MT40S | 620620-MT40S-100 | Each Use   | -          |

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

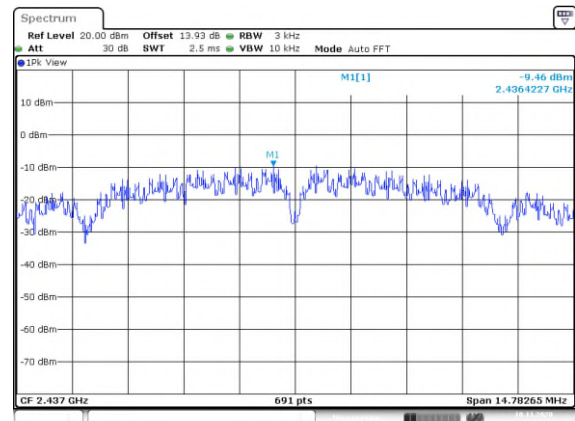
**12.4 Test Results****<Chip Antenna (FR05-S1-N-0-102) with 1.8V<sub>dc</sub>>**

| Configuration     | Channel | Frequency (MHz) | PSD (dBm/3 kHz) | Limit (dBm/3 kHz) | Result     |
|-------------------|---------|-----------------|-----------------|-------------------|------------|
| IEEE 802.11b      | Low     | 2412            | -11.38          | 8                 | Compliance |
|                   | Middle  | 2437            | -9.46           | 8                 | Compliance |
|                   | High    | 2462            | -10.93          | 8                 | Compliance |
| IEEE 802.11g      | Low     | 2412            | -17.67          | 8                 | Compliance |
|                   | Middle  | 2437            | -10.41          | 8                 | Compliance |
|                   | High    | 2462            | -16.37          | 8                 | Compliance |
| IEEE 802.11n HT20 | Low     | 2412            | -18.50          | 8                 | Compliance |
|                   | Middle  | 2437            | -9.29           | 8                 | Compliance |
|                   | High    | 2462            | -16.73          | 8                 | Compliance |
| IEEE 802.11n HT40 | Low     | 2422            | -25.06          | 8                 | Compliance |
|                   | Middle  | 2437            | -20.26          | 8                 | Compliance |
|                   | High    | 2452            | -21.18          | 8                 | Compliance |

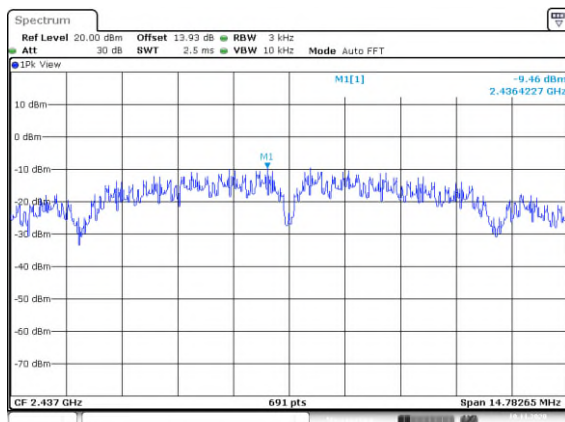
### IEEE 802.11b Low CH



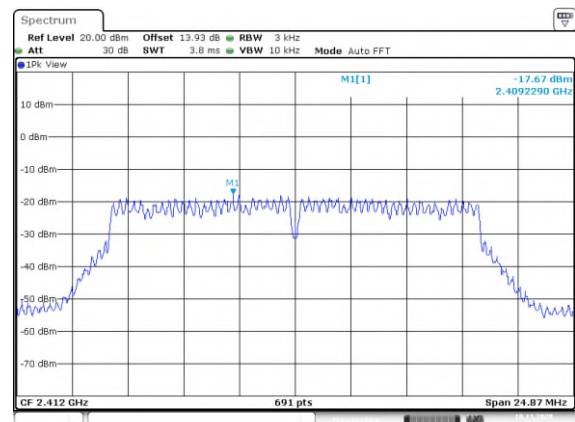
### IEEE 802.11b Middle CH



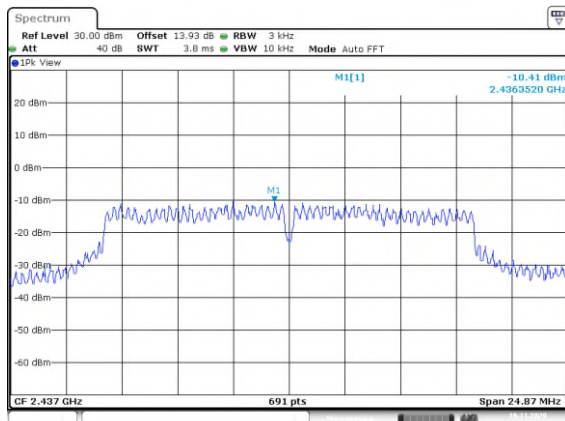
### IEEE 802.11b High CH



### IEEE 802.11g Low CH



### IEEE 802.11g Middle CH



### IEEE 802.11g High CH

