

## RF Test Data for Bluetooth (BDR+EDR) (Conducted Measurements)

| General Description of EUT                                                                     |                       |
|------------------------------------------------------------------------------------------------|-----------------------|
| Product Name:                                                                                  | Wireless Speaker      |
| Test Model:                                                                                    | M5                    |
| Sample ID:                                                                                     | RW-C-202302-0022-9-2# |
| Environmental Conditions                                                                       |                       |
| Temperature:                                                                                   | 23.8℃                 |
| Relative Humidity:                                                                             | 48%                   |
| Test Voltage:                                                                                  | DC 3.7V               |
| Test Engineer:                                                                                 | Huang jian ping       |
| Note: For a more detailed features description, please refer to the report TBR-C-202302-0022-9 |                       |



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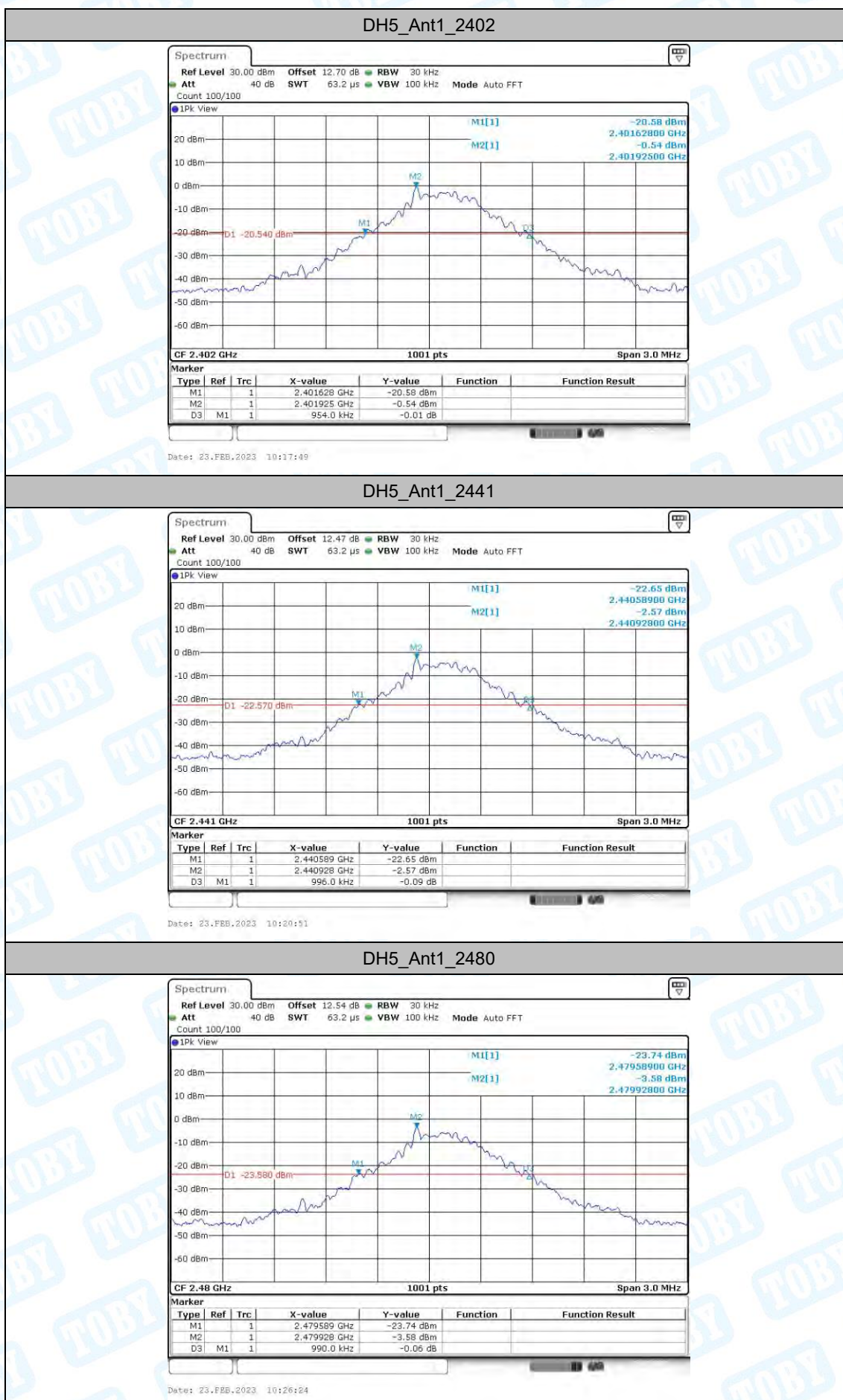
## 1. 20dB Emission Bandwidth

### 1.1. Test Result

| TestMode | Antenna | Channel | 20db EBW[MHz] | Limit[MHz] | Verdict |
|----------|---------|---------|---------------|------------|---------|
| DH5      | Ant1    | 2402    | 0.95          | ---        | ---     |
|          |         | 2441    | 1.00          | ---        | ---     |
|          |         | 2480    | 0.99          | ---        | ---     |
| 2DH5     | Ant1    | 2402    | 1.29          | ---        | ---     |
|          |         | 2441    | 1.28          | ---        | ---     |
|          |         | 2480    | 1.29          | ---        | ---     |
| 3DH5     | Ant1    | 2402    | 1.26          | ---        | ---     |
|          |         | 2441    | 1.26          | ---        | ---     |
|          |         | 2480    | 1.27          | ---        | ---     |



## 1.2. Test Graphs

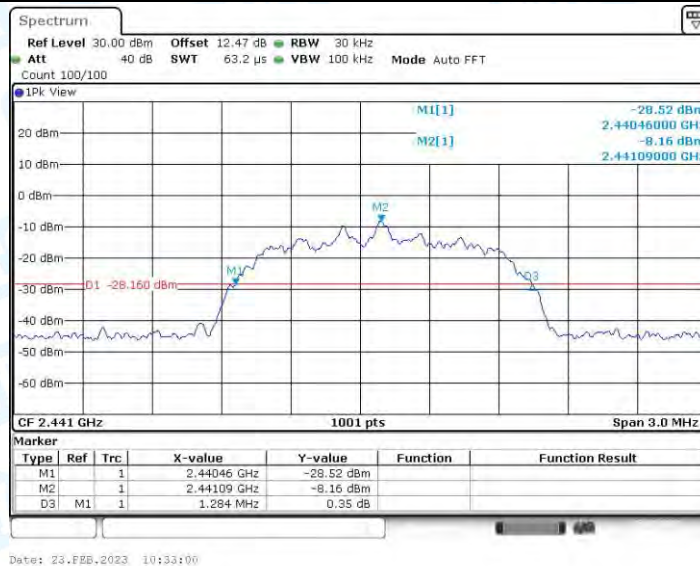




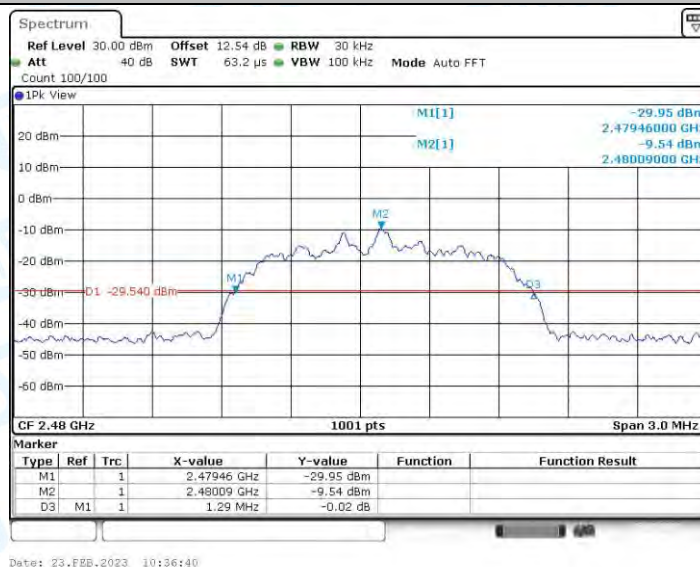
### 2DH5\_Ant1\_2402



### 2DH5\_Ant1\_2441

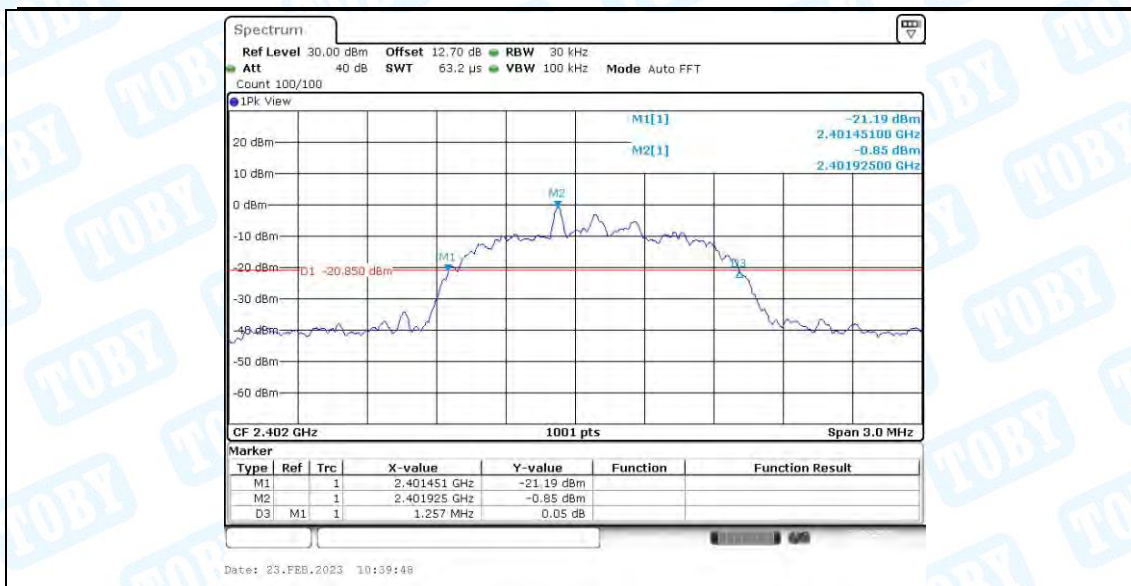


### 2DH5\_Ant1\_2480



### 3DH5\_Ant1\_2402





3DH5\_Ant1\_2441



3DH5\_Ant1\_2480





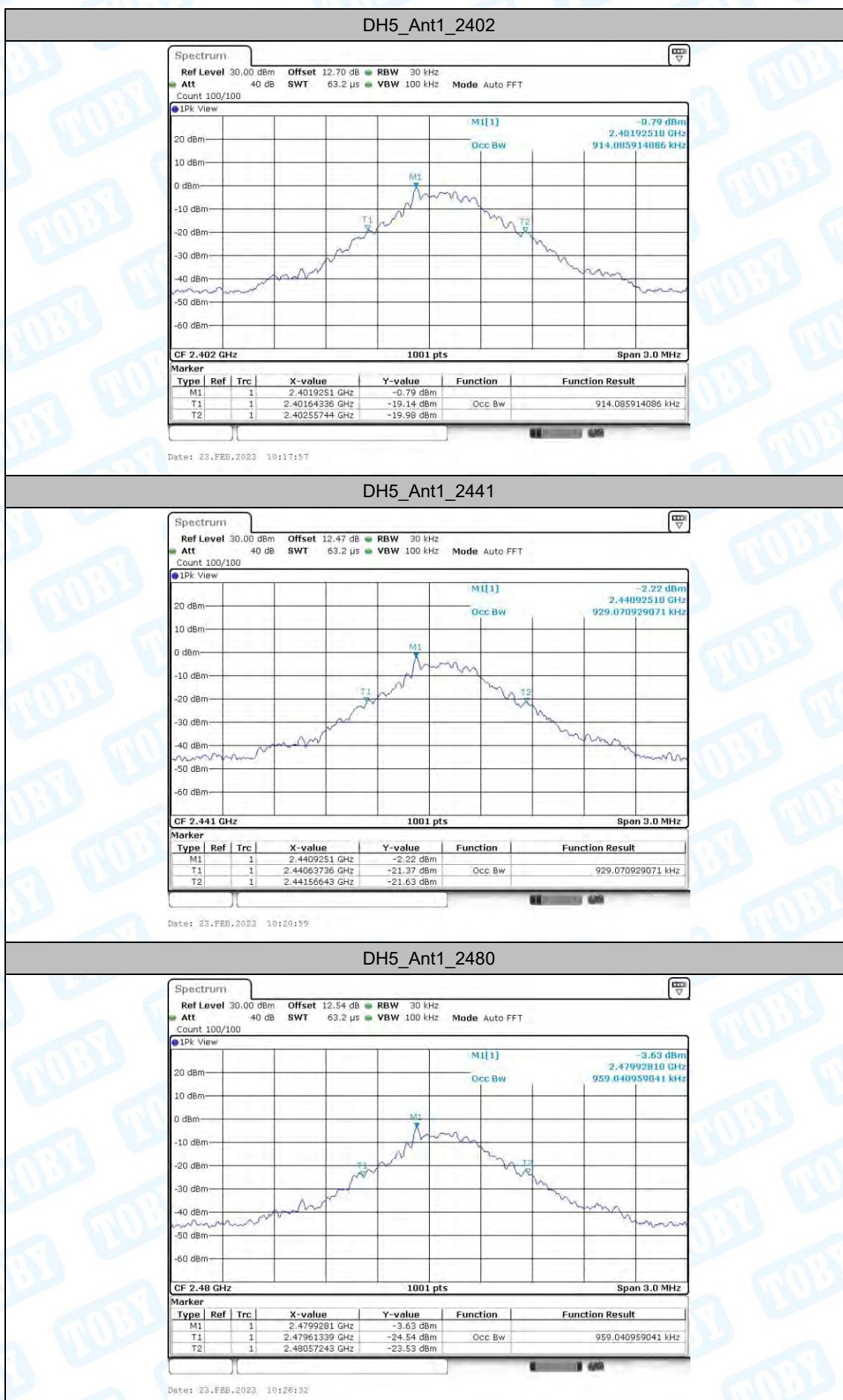
## 2. Occupied Channel Bandwidth

### 2.1. Test Result

| TestMode | Antenna | Channel | OCB [MHz] | FL[MHz]   | FH[MHz]   | Limit[MHz] | Verdict |
|----------|---------|---------|-----------|-----------|-----------|------------|---------|
| DH5      | Ant1    | 2402    | 0.914     | 2401.6434 | 2402.5574 | ---        | ---     |
|          |         | 2441    | 0.929     | 2440.6374 | 2441.5664 | ---        | ---     |
|          |         | 2480    | 0.959     | 2479.6134 | 2480.5724 | ---        | ---     |
| 2DH5     | Ant1    | 2402    | 1.181     | 2401.4995 | 2402.6803 | ---        | ---     |
|          |         | 2441    | 1.190     | 2440.4965 | 2441.6863 | ---        | ---     |
|          |         | 2480    | 1.193     | 2479.4965 | 2480.6893 | ---        | ---     |
| 3DH5     | Ant1    | 2402    | 1.181     | 2401.5025 | 2402.6833 | ---        | ---     |
|          |         | 2441    | 1.178     | 2440.5025 | 2441.6803 | ---        | ---     |
|          |         | 2480    | 1.190     | 2479.4965 | 2480.6863 | ---        | ---     |



## 2.2. Test Graphs





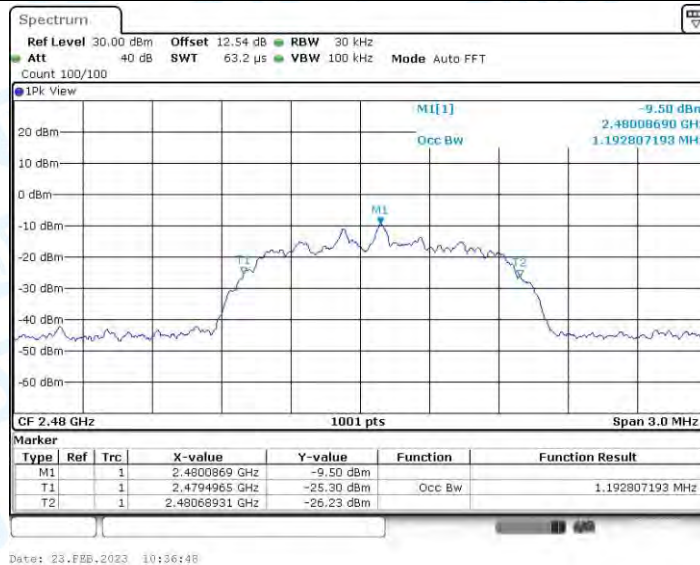
### 2DH5\_Ant1\_2402



### 2DH5\_Ant1\_2441

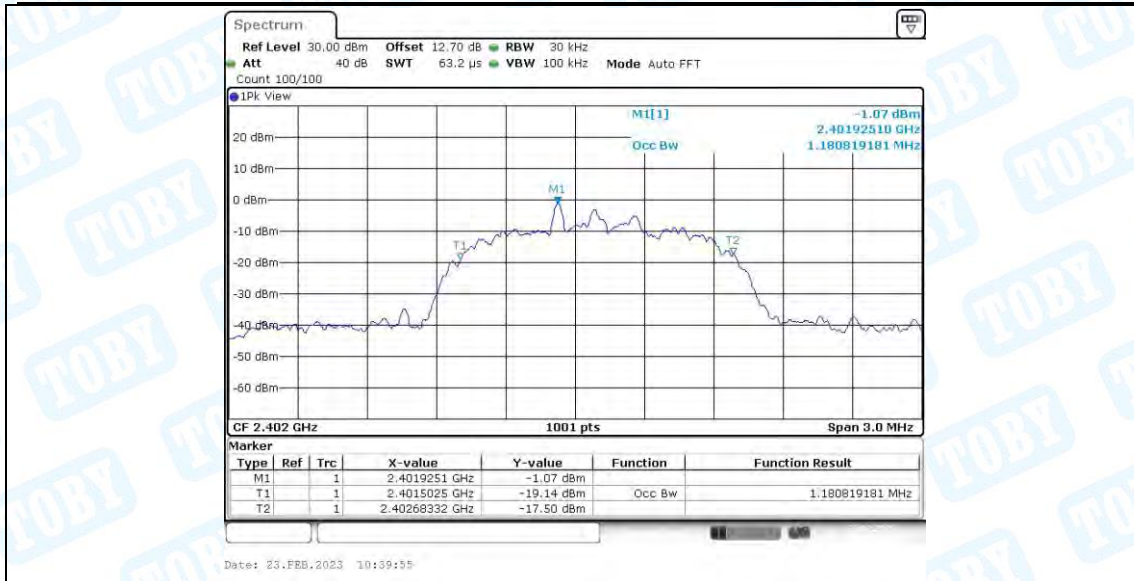


### 2DH5\_Ant1\_2480

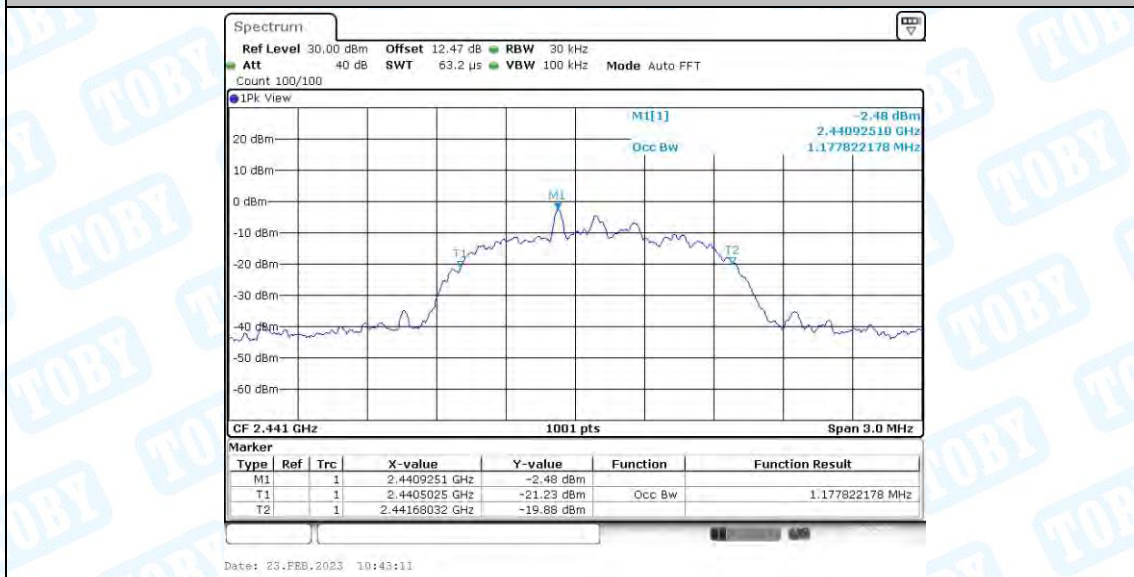


### 3DH5\_Ant1\_2402





3DH5\_Ant1\_2441



3DH5\_Ant1\_2480





### 3. Maximum conducted output power

#### 3.1. Test Result

| TestMode | Antenna | Channel | Result[dBm] | Limit[dBm] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| DH5      | Ant1    | 2402    | 0.18        | ≤21        | PASS    |
|          |         | 2441    | -1.42       | ≤21        | PASS    |
|          |         | 2480    | -3.11       | ≤21        | PASS    |
| 2DH5     | Ant1    | 2402    | 0.15        | ≤21        | PASS    |
|          |         | 2441    | -1.35       | ≤21        | PASS    |
|          |         | 2480    | -2.75       | ≤21        | PASS    |
| 3DH5     | Ant1    | 2402    | 0.41        | ≤21        | PASS    |
|          |         | 2441    | -0.95       | ≤21        | PASS    |
|          |         | 2480    | -2.90       | ≤21        | PASS    |



### 3.2.Test Graphs





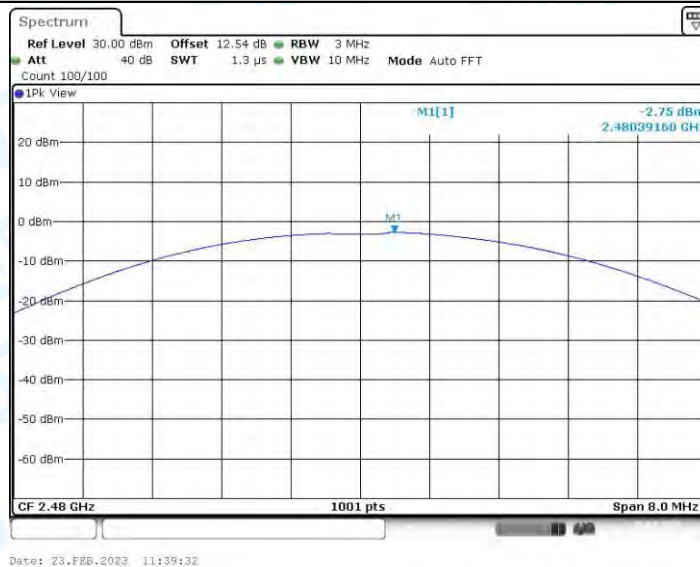
### 2DH5\_Ant1\_2402



### 2DH5\_Ant1\_2441

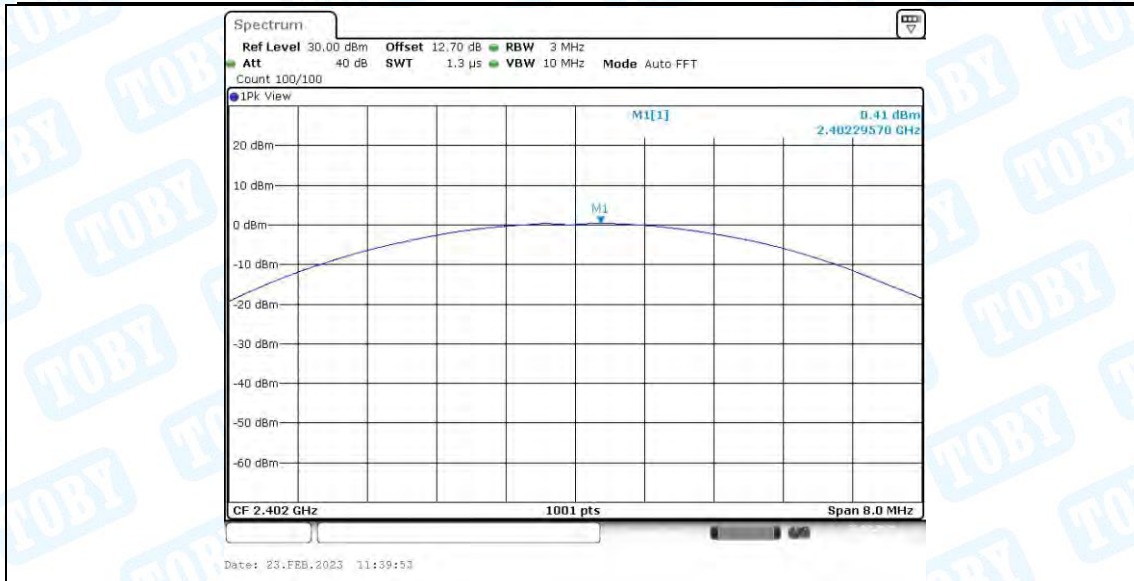


### 2DH5\_Ant1\_2480

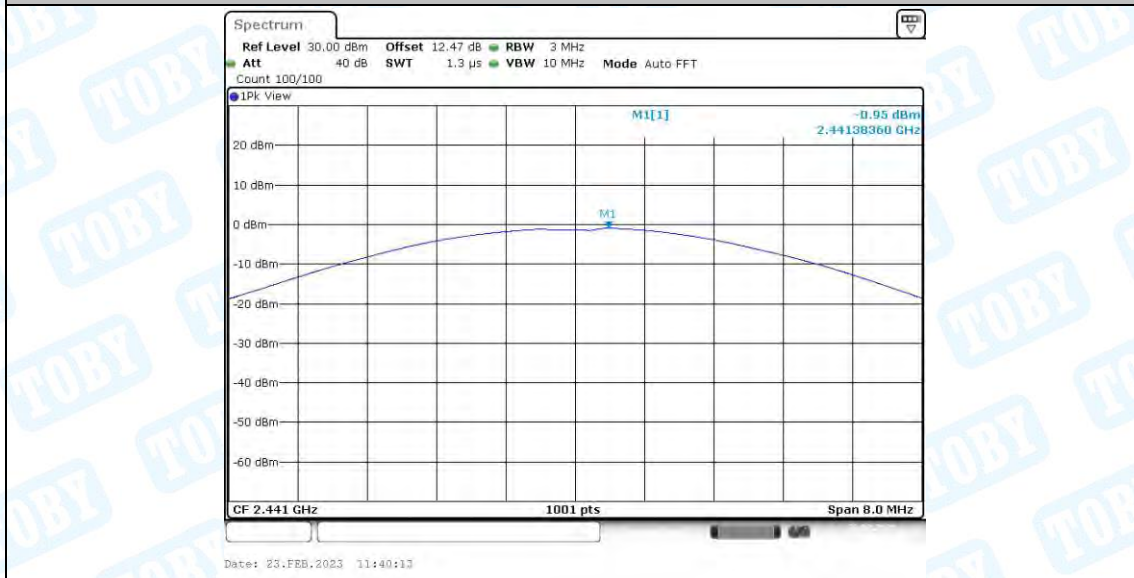


### 3DH5\_Ant1\_2402

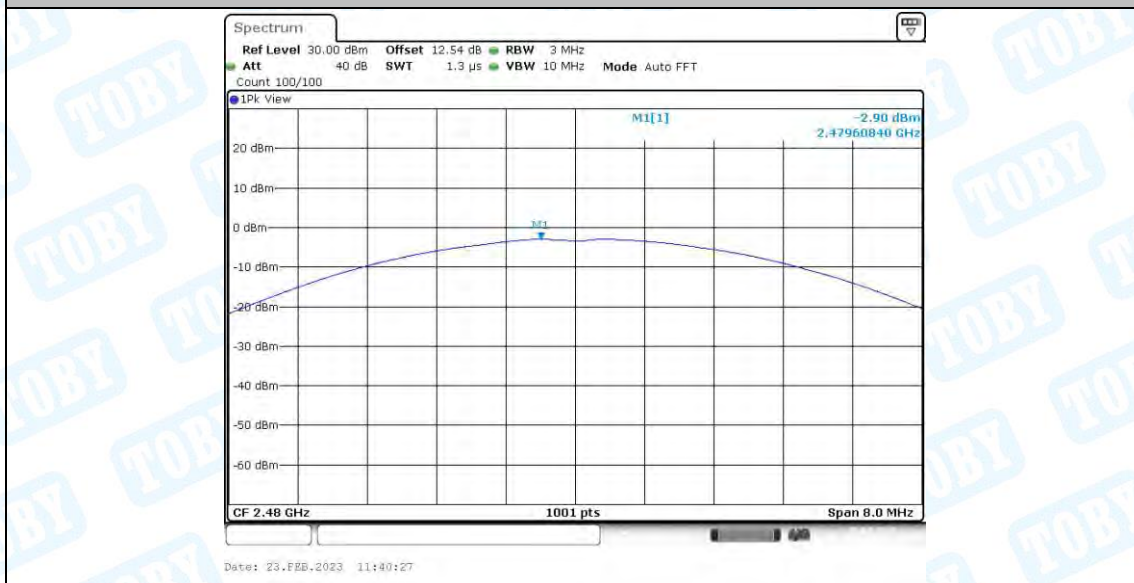




3DH5\_Ant1\_2441



3DH5\_Ant1\_2480





## 4. Carrier frequency separation

### 4.1. Test Result

| TestMode | Antenna | Channel | Result[MHz] | Limit[MHz] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| DH5      | Ant1    | Hop     | 1.339       | 0.667      | PASS    |
| 2DH5     | Ant1    | Hop     | 1.304       | 0.860      | PASS    |
| 3DH5     | Ant1    | Hop     | 1.006       | 0.847      | PASS    |



## 4.2. Test Graphs





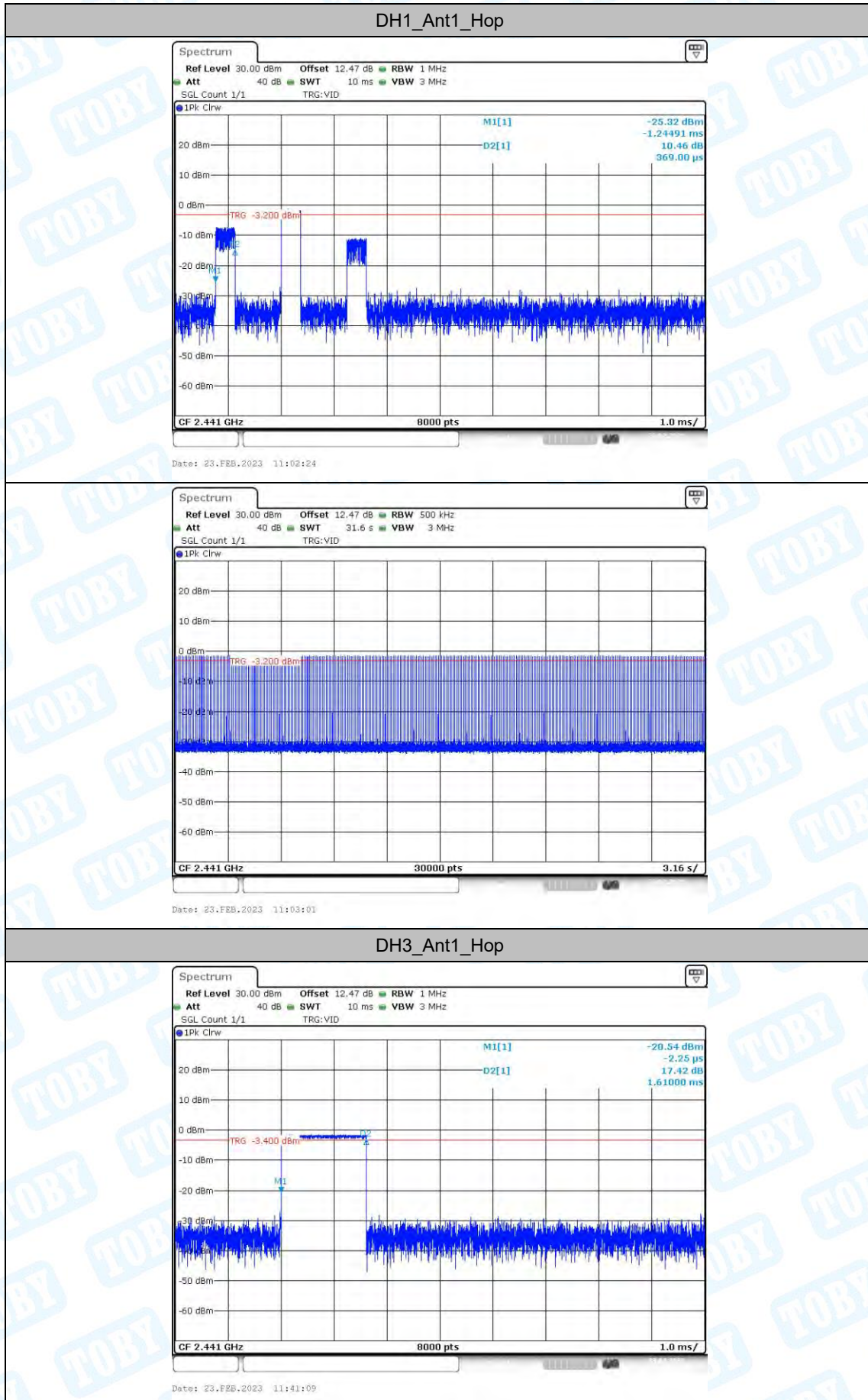
## 5. Time of occupancy

### 5.1. Test Result

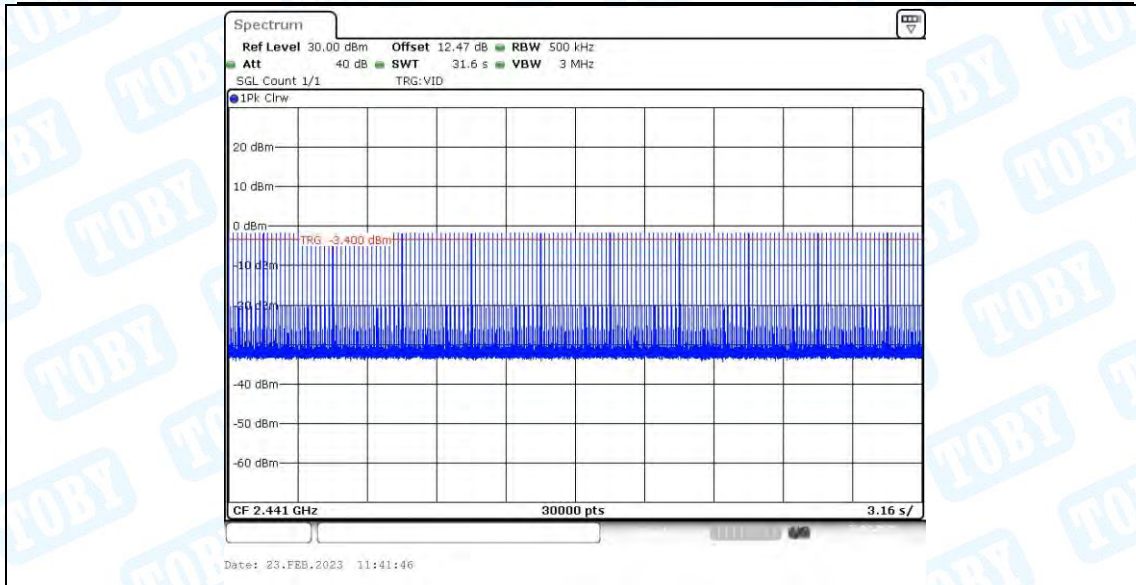
| TestMode | Antenna | Channel | BurstWidth<br>[ms] | TotalHops<br>[Num] | Result[s] | Limit[s] | Verdict |
|----------|---------|---------|--------------------|--------------------|-----------|----------|---------|
| DH1      | Ant1    | Hop     | 0.369              | 320                | 0.118     | ≤0.4     | PASS    |
| DH3      | Ant1    | Hop     | 1.610              | 160                | 0.258     | ≤0.4     | PASS    |
| DH5      | Ant1    | Hop     | 2.850              | 107                | 0.305     | ≤0.4     | PASS    |
| 2DH1     | Ant1    | Hop     | 0.376              | 320                | 0.120     | ≤0.4     | PASS    |
| 2DH3     | Ant1    | Hop     | 1.621              | 160                | 0.259     | ≤0.4     | PASS    |
| 2DH5     | Ant1    | Hop     | 2.863              | 107                | 0.306     | ≤0.4     | PASS    |
| 3DH1     | Ant1    | Hop     | 0.376              | 320                | 0.120     | ≤0.4     | PASS    |
| 3DH3     | Ant1    | Hop     | 1.619              | 160                | 0.259     | ≤0.4     | PASS    |
| 3DH5     | Ant1    | Hop     | 2.863              | 107                | 0.306     | ≤0.4     | PASS    |



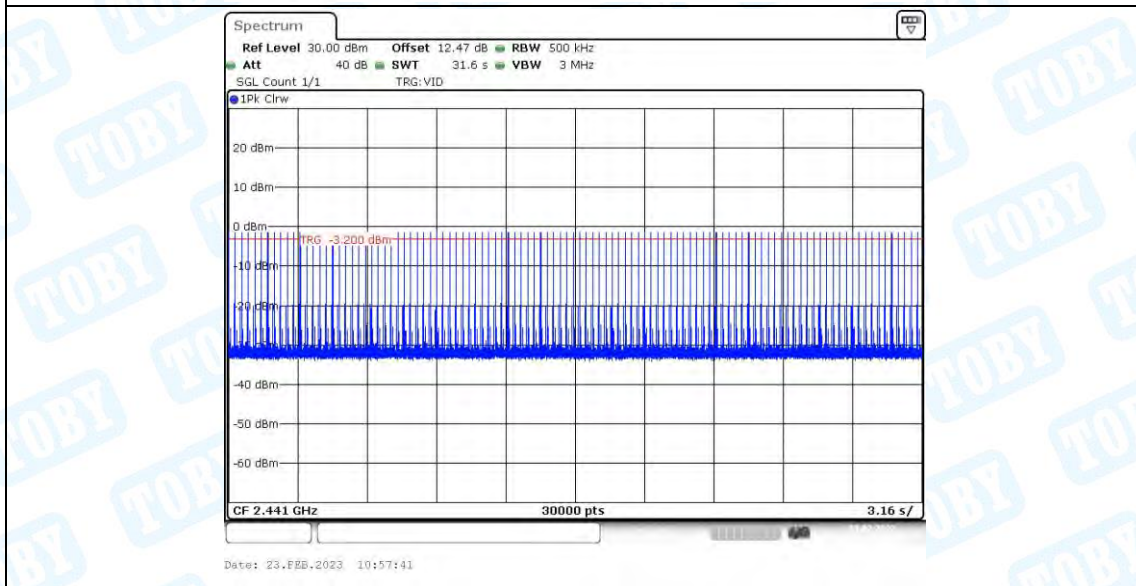
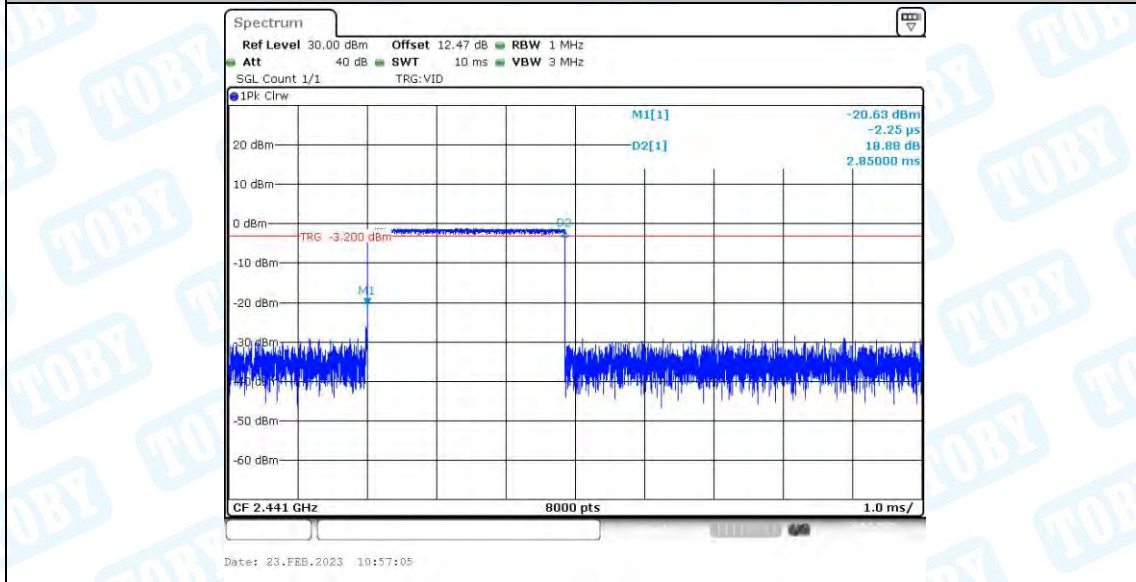
## 5.2.Test Graphs







DH5\_Ant1\_Hop

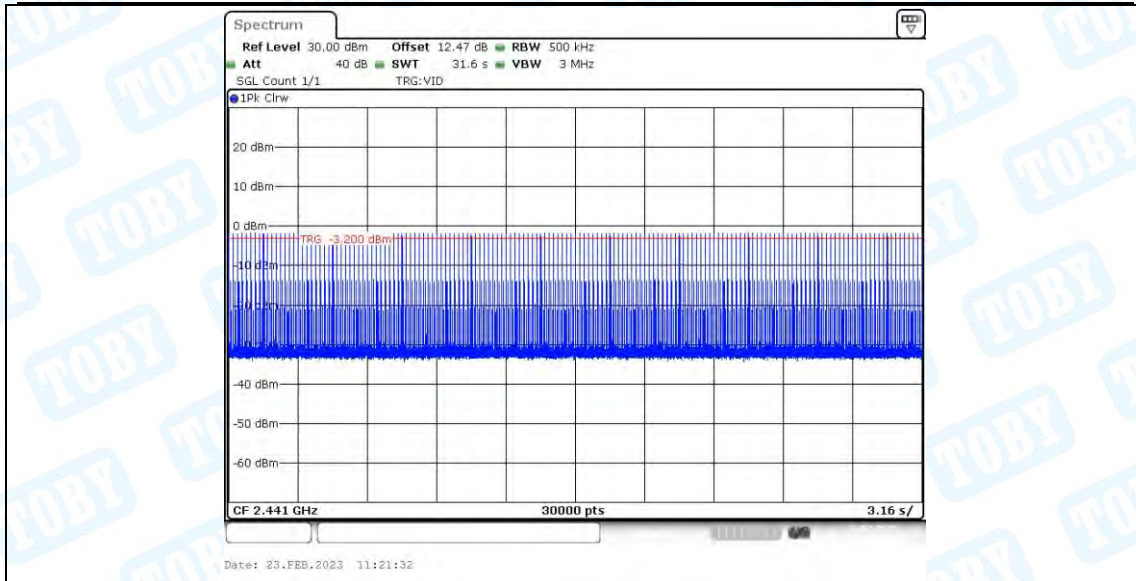


2DH1\_Ant1\_Hop

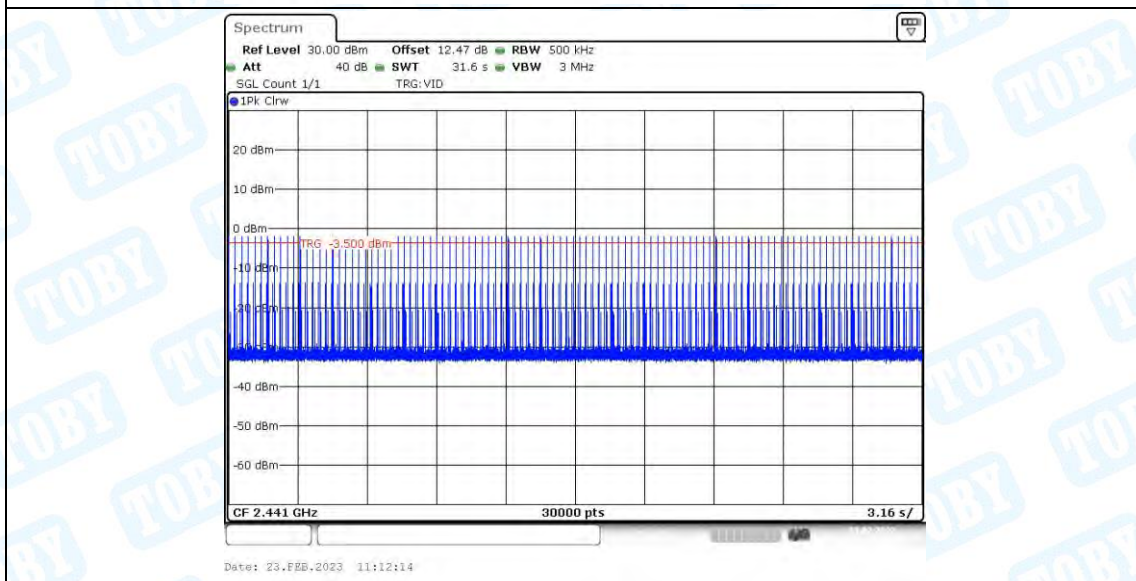
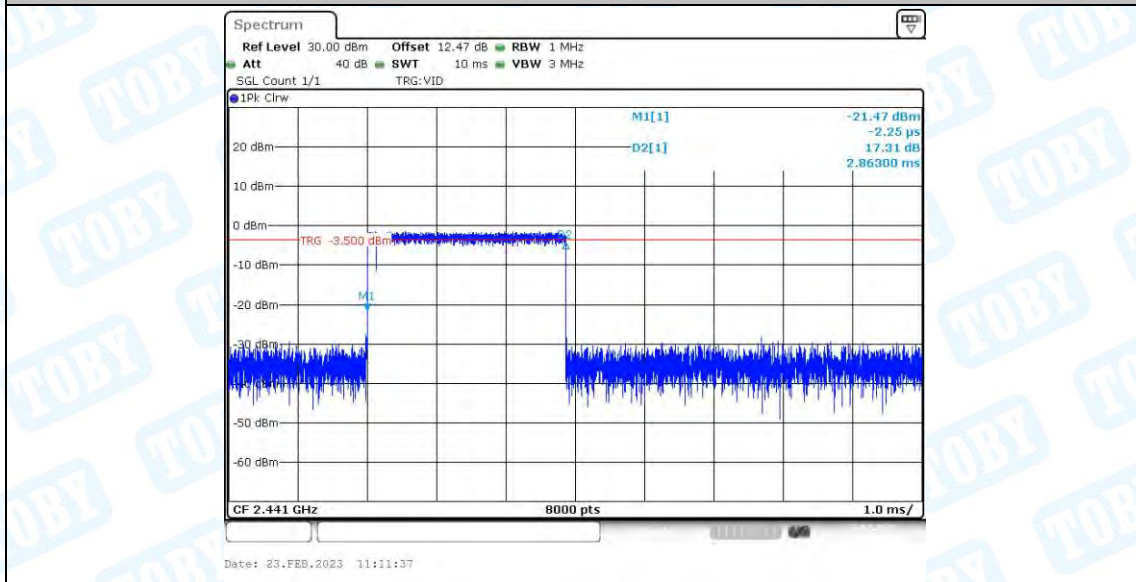






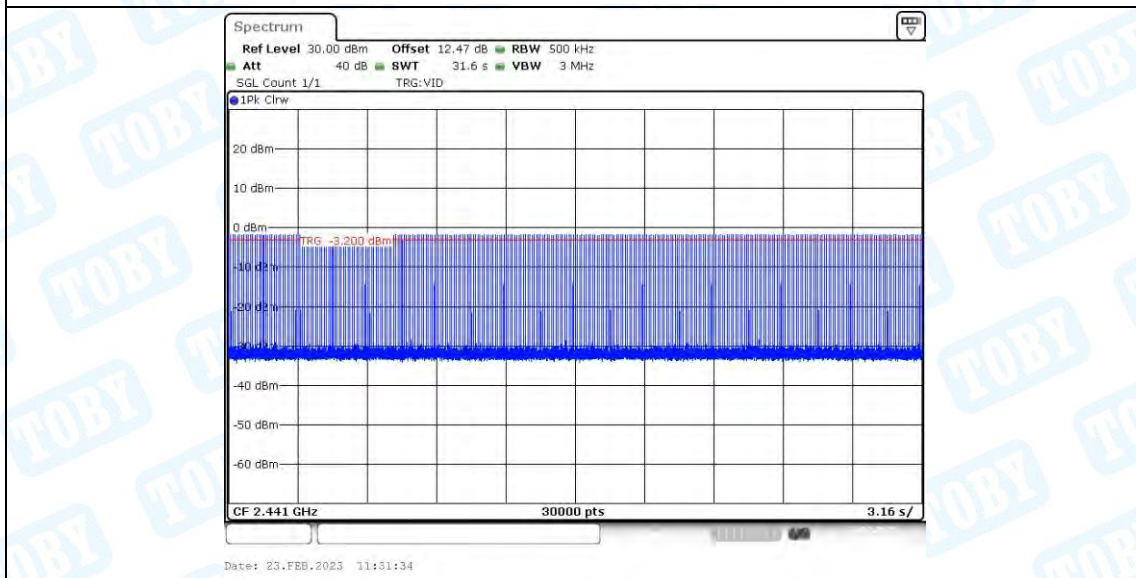
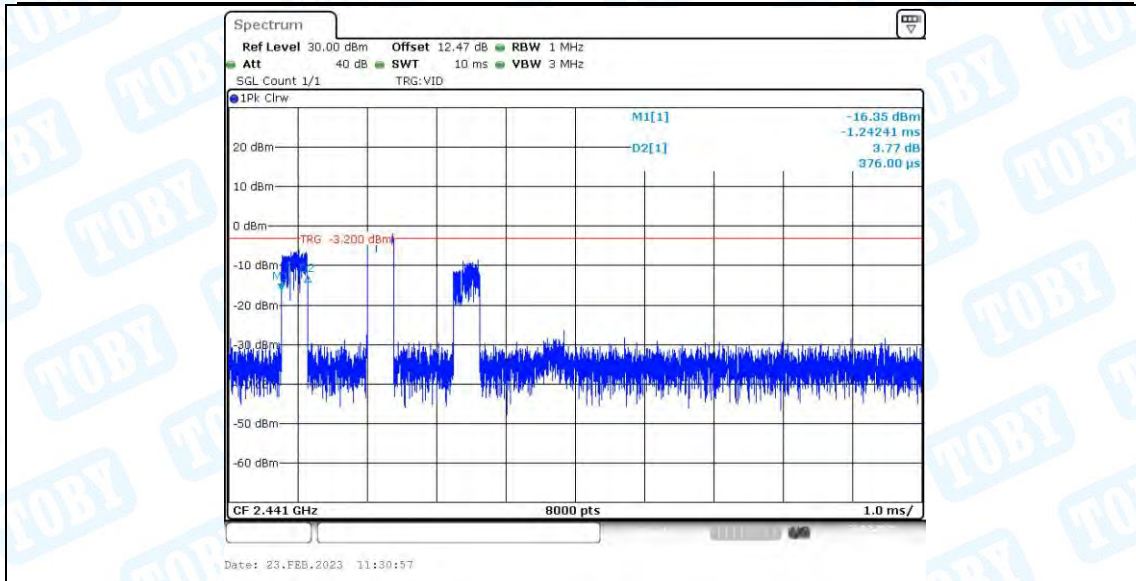


2DH5\_Ant1\_Hop

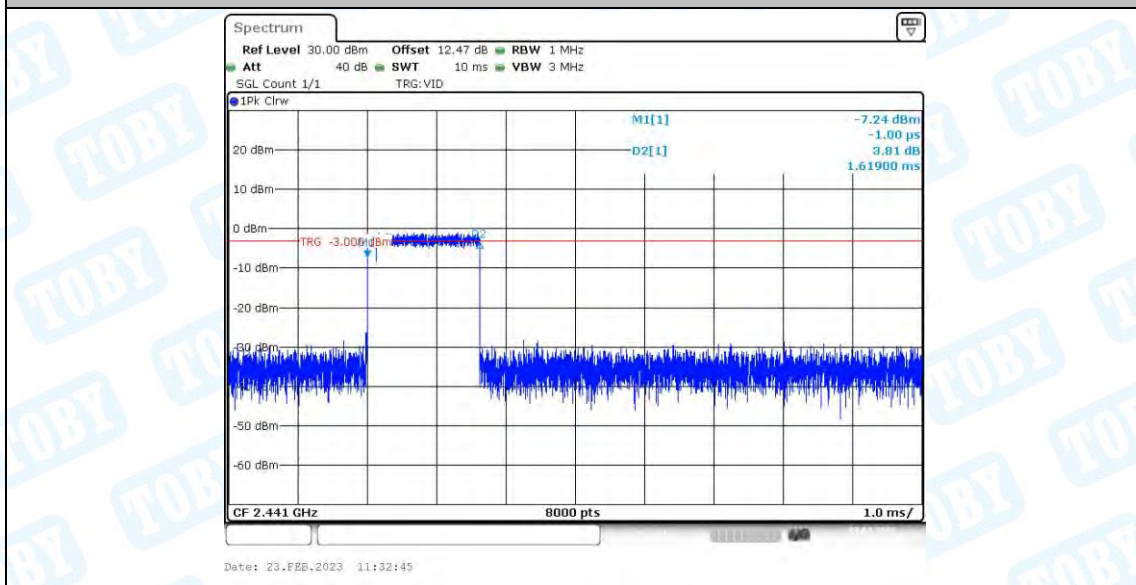


3DH1\_Ant1\_Hop

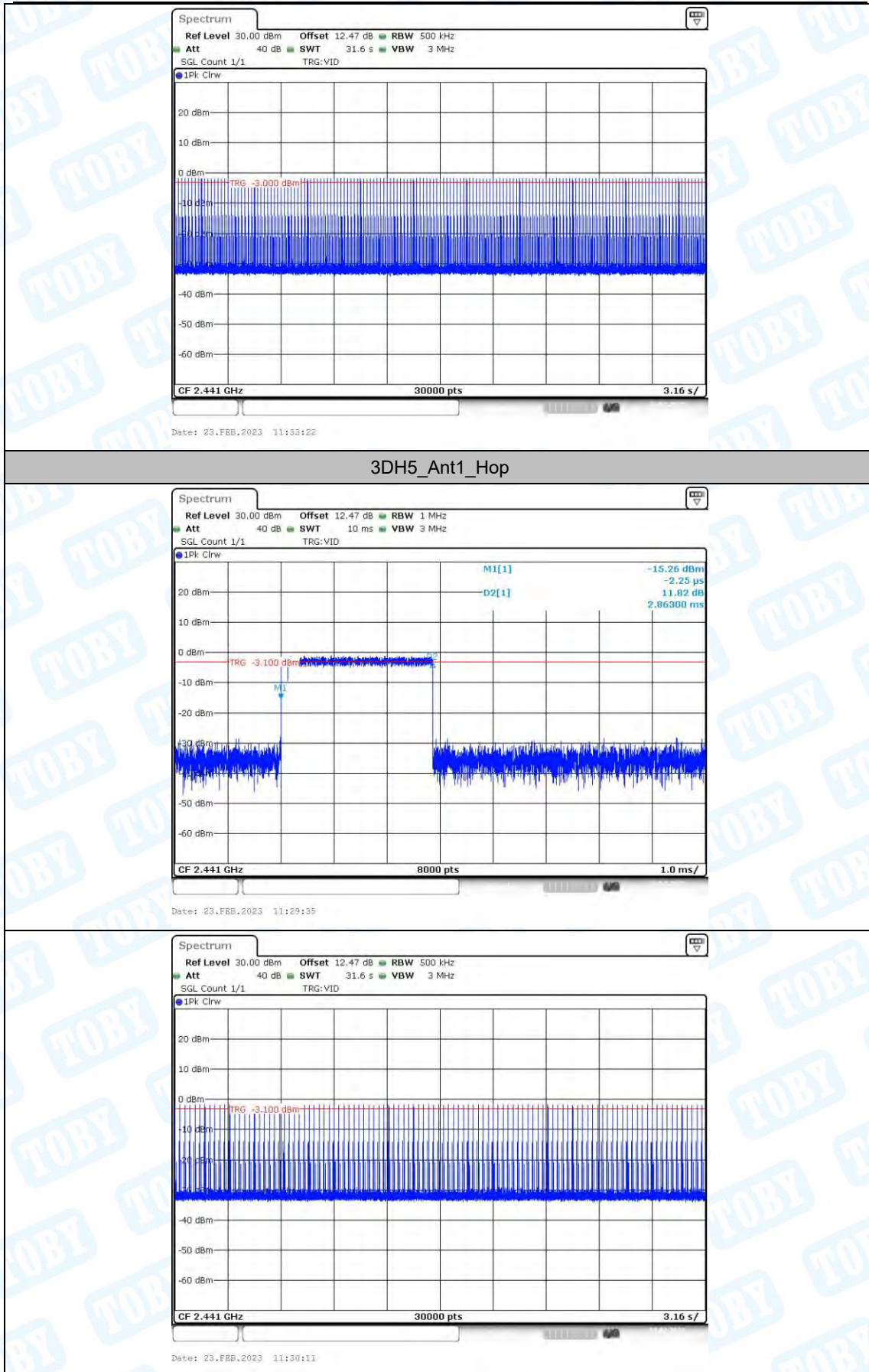




### 3DH3\_Ant1\_Hop









## 6. Number of hopping channels

### 6.1. Test Result

| TestMode | Antenna | Channel | Result[Num] | Limit[Num] | Verdict |
|----------|---------|---------|-------------|------------|---------|
| DH5      | Ant1    | Hop     | 79          | ≥15        | PASS    |
| 2DH5     | Ant1    | Hop     | 79          | ≥15        | PASS    |
| 3DH5     | Ant1    | Hop     | 79          | ≥15        | PASS    |



## 6.2.Test Graphs





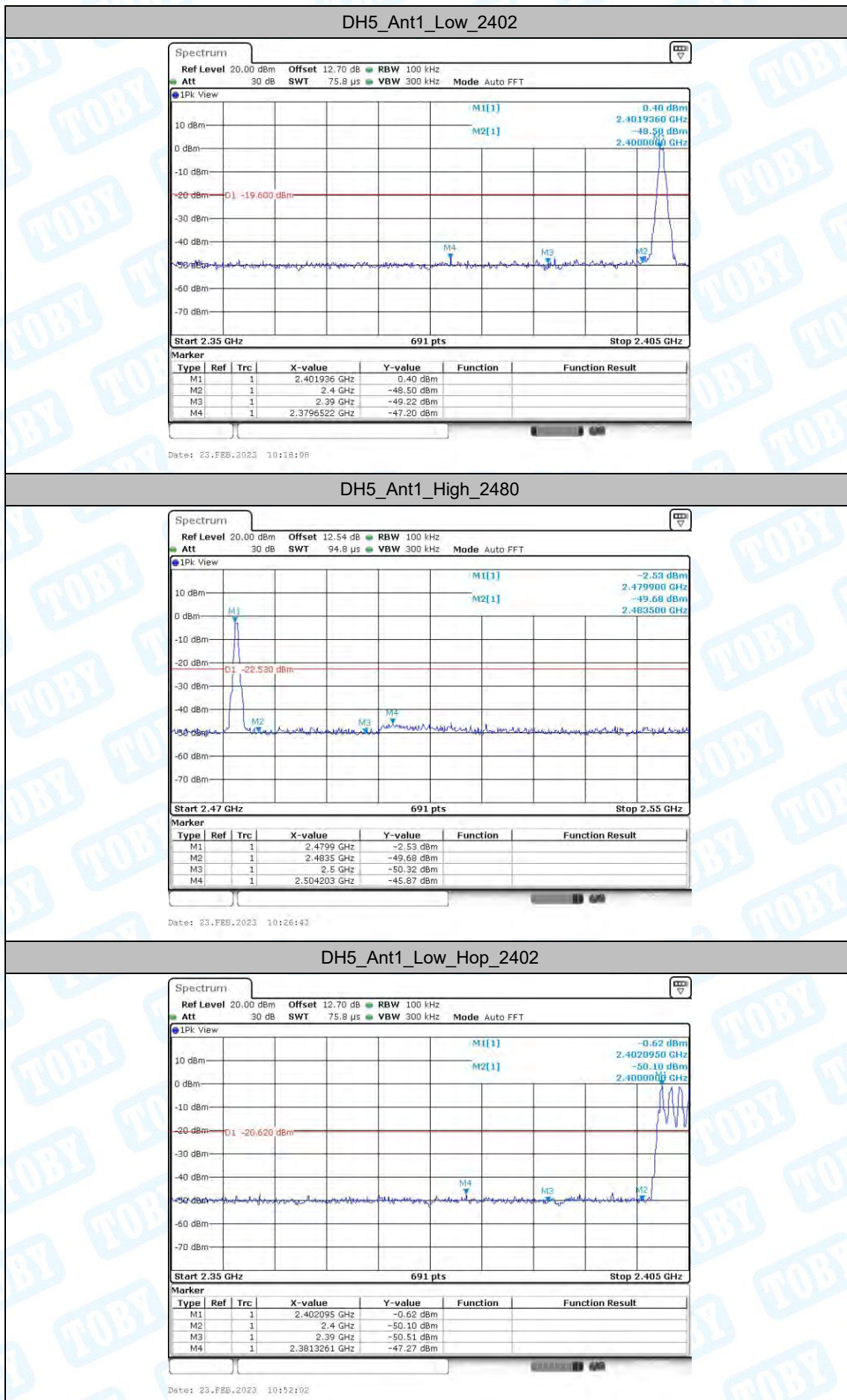
## 7. Band edge measurements

### 7.1. Test Result

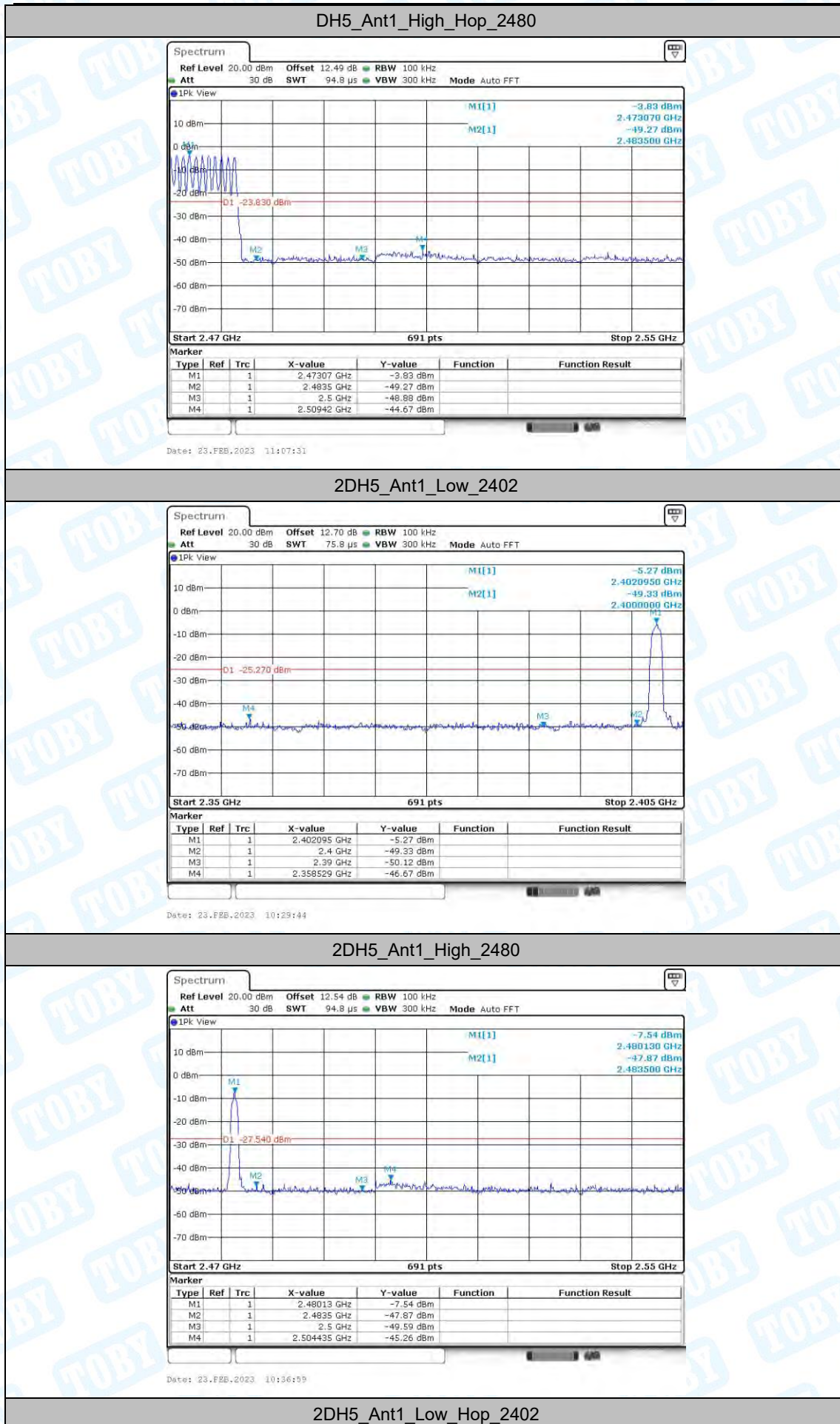
| TestMode | Antenna | ChName | Channel  | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|----------|---------|--------|----------|----------------|--------------|-------------|---------|
| DH5      | Ant1    | Low    | 2402     | 0.40           | -47.2        | ≤-19.6      | PASS    |
|          |         | High   | 2480     | -2.53          | -45.87       | ≤-22.53     | PASS    |
|          |         | Low    | Hop_2402 | -0.62          | -47.27       | ≤-20.62     | PASS    |
|          |         | High   | Hop_2480 | -3.83          | -44.67       | ≤-23.83     | PASS    |
| 2DH5     | Ant1    | Low    | 2402     | -5.27          | -46.67       | ≤-25.27     | PASS    |
|          |         | High   | 2480     | -7.54          | -45.26       | ≤-27.54     | PASS    |
|          |         | Low    | Hop_2402 | -2.97          | -47.52       | ≤-22.97     | PASS    |
|          |         | High   | Hop_2480 | -7.89          | -45.67       | ≤-27.89     | PASS    |
| 3DH5     | Ant1    | Low    | 2402     | 0.26           | -47.46       | ≤-19.74     | PASS    |
|          |         | High   | 2480     | -3.06          | -44.98       | ≤-23.06     | PASS    |
|          |         | Low    | Hop_2402 | -3.35          | -46.79       | ≤-23.35     | PASS    |
|          |         | High   | Hop_2480 | -3.30          | -45.14       | ≤-23.3      | PASS    |



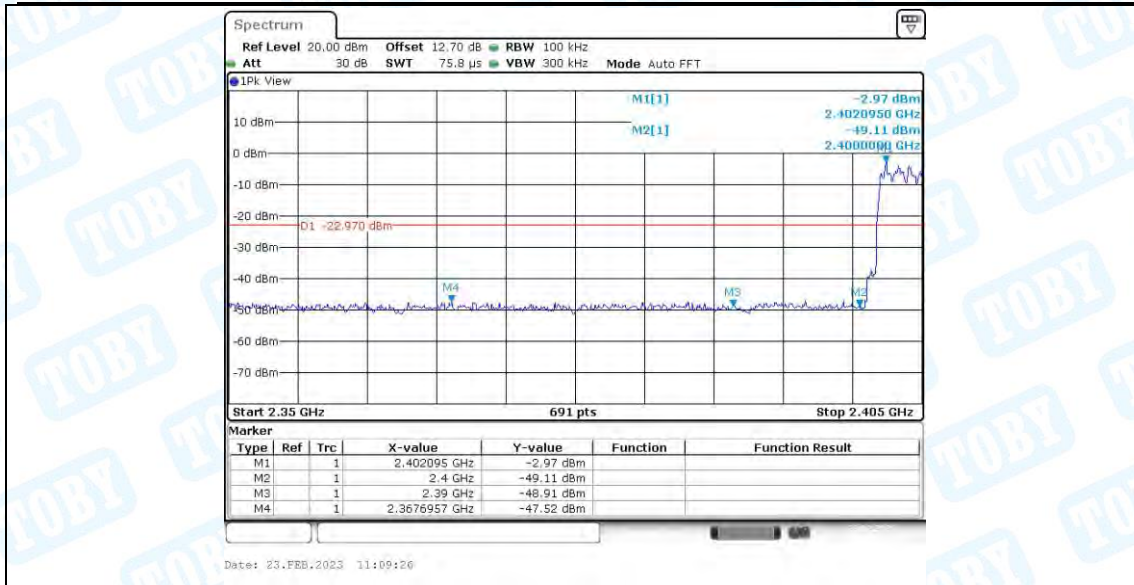
## 7.2. Test Graphs



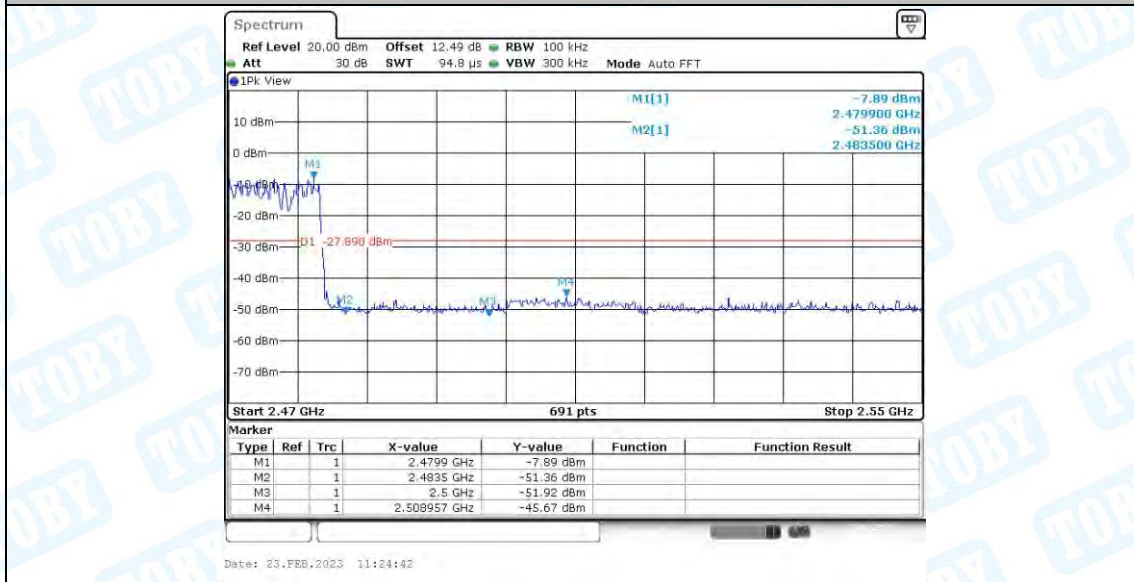




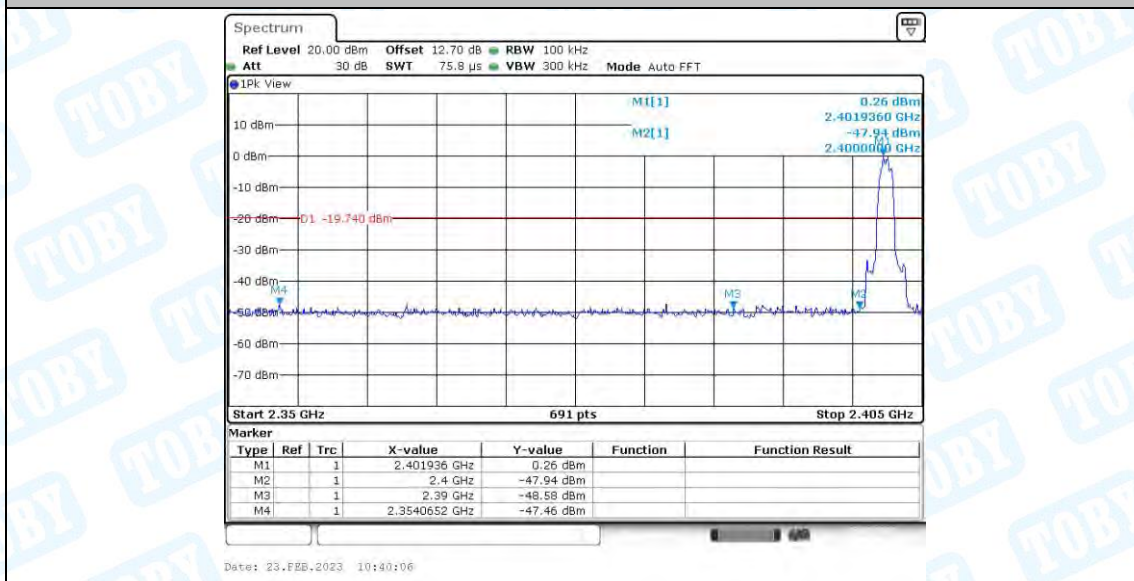




2DH5\_Ant1\_High\_Hop\_2480

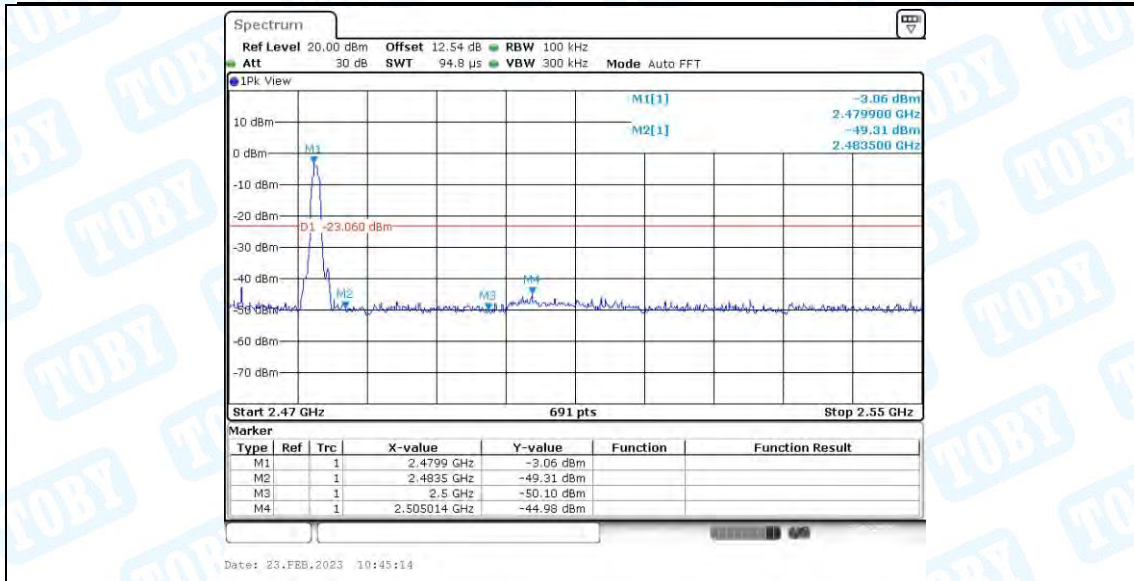


3DH5\_Ant1\_Low\_2402

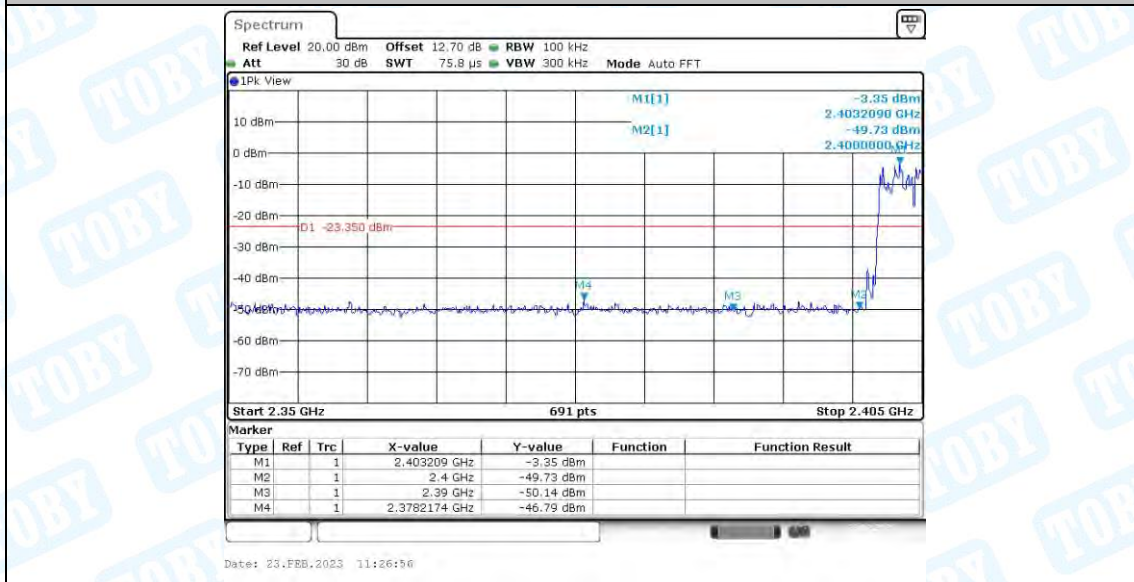


3DH5\_Ant1\_High\_2480

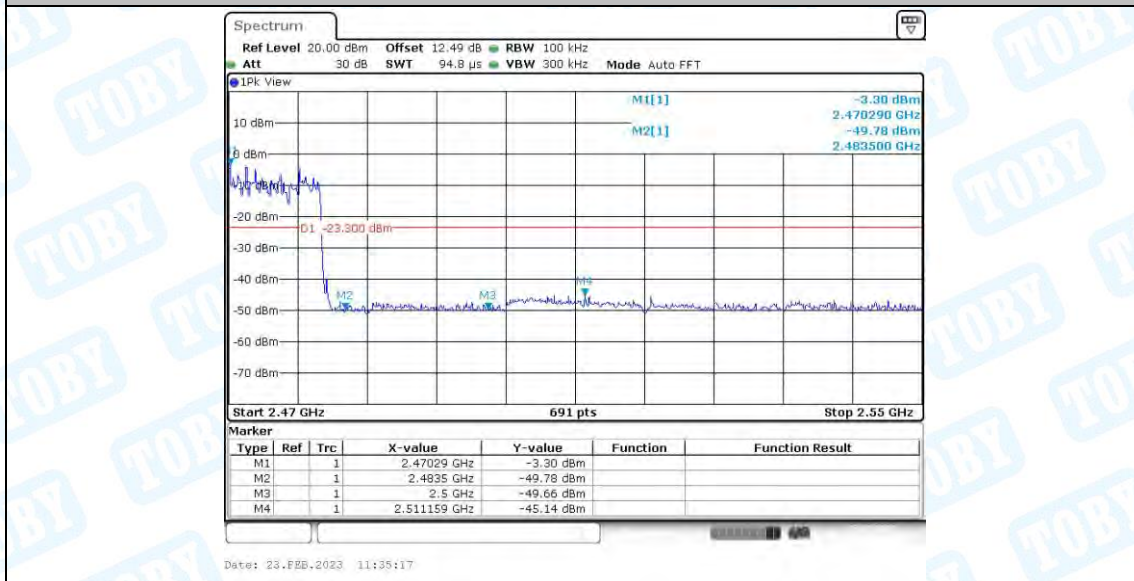




### 3DH5\_Ant1\_Low\_Hop\_2402



### 3DH5\_Ant1\_High\_Hop\_2480





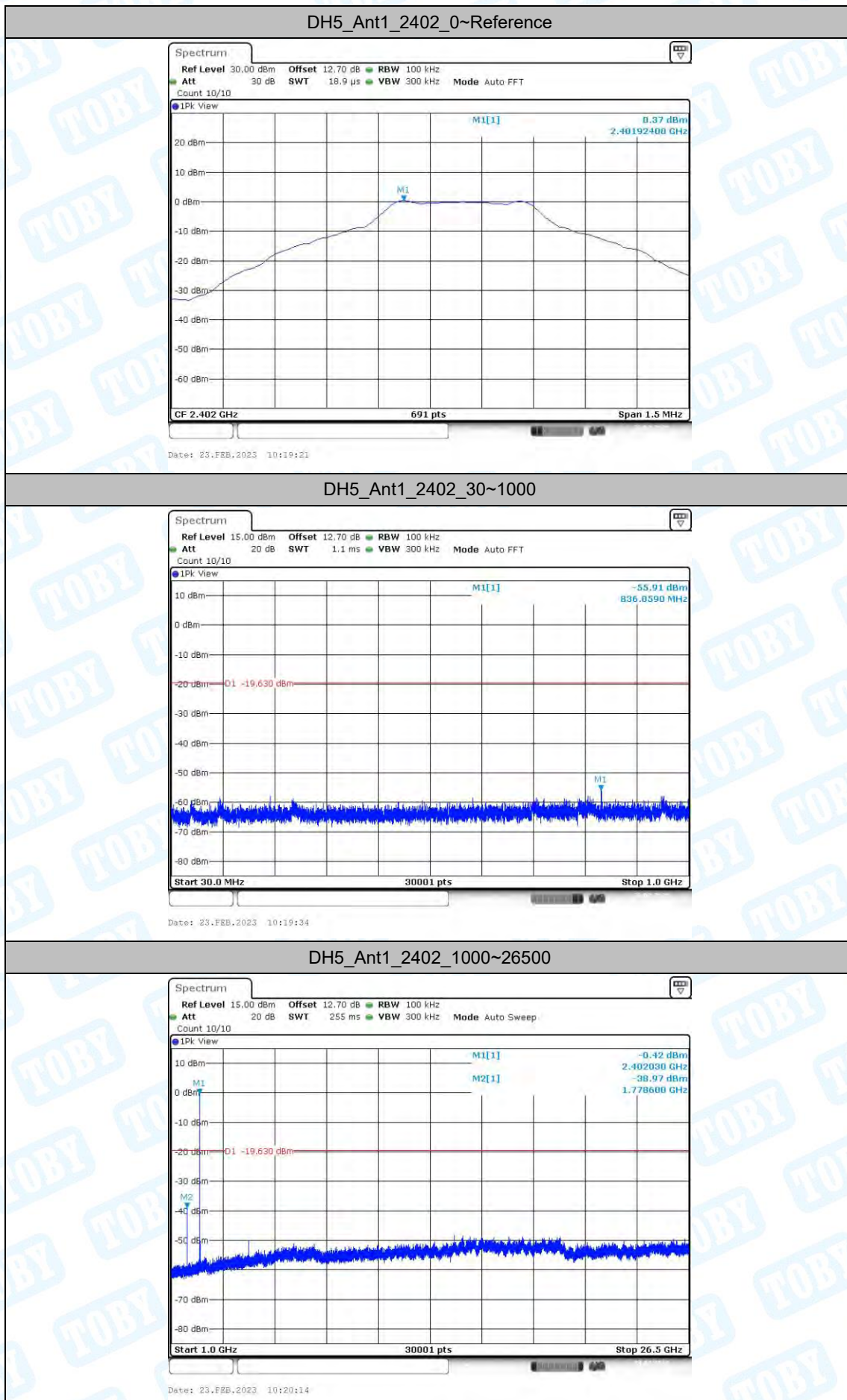
## 8. Conducted Spurious Emission

### 8.1. Test Result

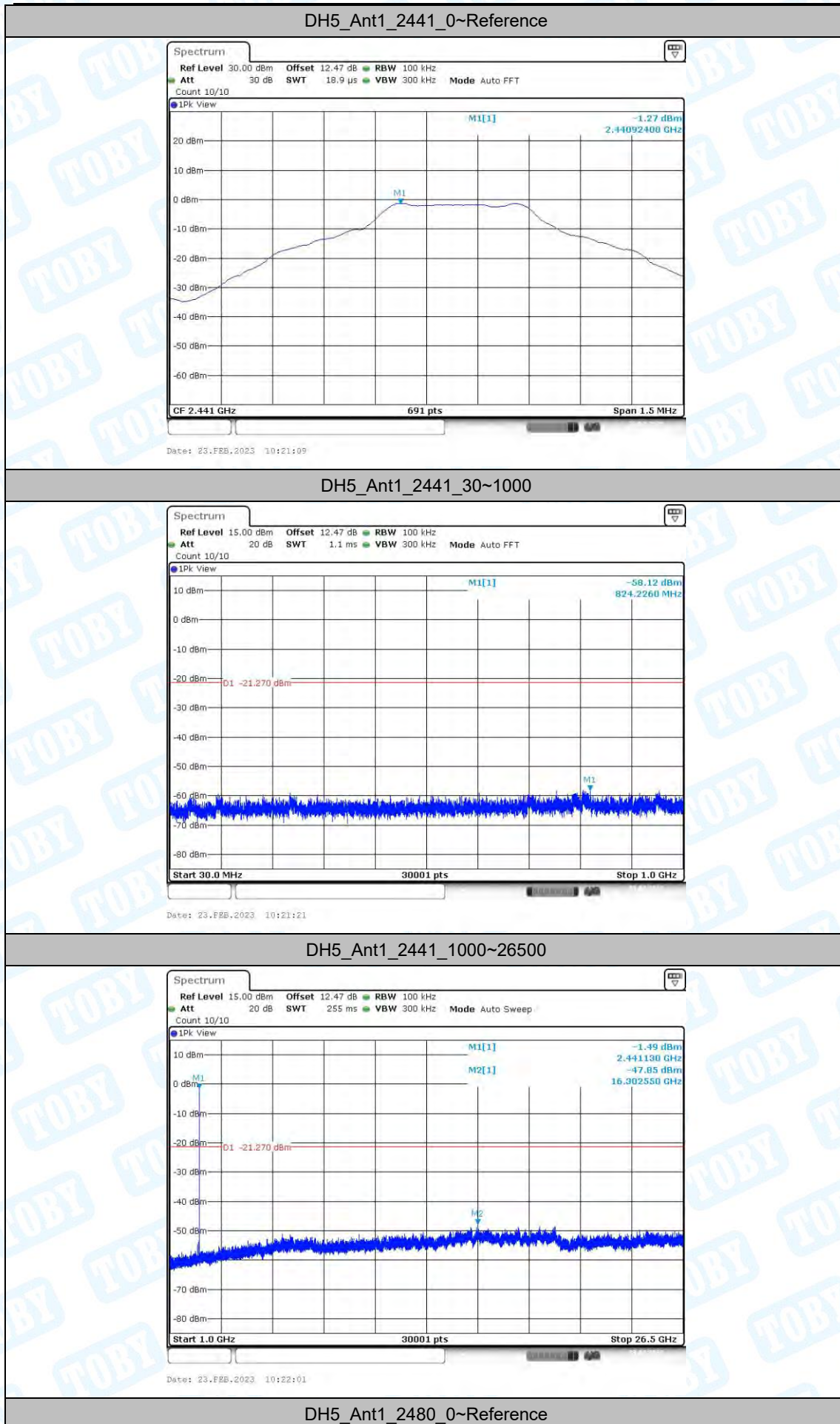
| TestMode | Antenna | Channel | FreqRange [MHz] | RefLevel [dBm] | Result [dBm] | Limit [dBm] | Verdict |
|----------|---------|---------|-----------------|----------------|--------------|-------------|---------|
| DH5      | Ant1    | 2402    | Reference       | 0.37           | 0.37         | ---         | PASS    |
|          |         |         | 30~1000         | 0.37           | -55.91       | ≤-19.63     | PASS    |
|          |         |         | 1000~26500      | 0.37           | -38.97       | ≤-19.63     | PASS    |
|          |         | 2441    | Reference       | -1.27          | -1.27        | ---         | PASS    |
|          |         |         | 30~1000         | -1.27          | -58.12       | ≤-21.27     | PASS    |
|          |         |         | 1000~26500      | -1.27          | -47.85       | ≤-21.27     | PASS    |
|          |         | 2480    | Reference       | -2.68          | -2.68        | ---         | PASS    |
|          |         |         | 30~1000         | -2.68          | -53.71       | ≤-22.68     | PASS    |
|          |         |         | 1000~26500      | -2.68          | -47.95       | ≤-22.68     | PASS    |
| 2DH5     | Ant1    | 2402    | Reference       | -3.69          | -3.69        | ---         | PASS    |
|          |         |         | 30~1000         | -3.69          | -57.79       | ≤-23.69     | PASS    |
|          |         |         | 1000~26500      | -3.69          | -47.17       | ≤-23.69     | PASS    |
|          |         | 2441    | Reference       | -5.27          | -5.27        | ---         | PASS    |
|          |         |         | 30~1000         | -5.27          | -58.3        | ≤-25.27     | PASS    |
|          |         |         | 1000~26500      | -5.27          | -48.55       | ≤-25.27     | PASS    |
|          |         | 2480    | Reference       | -6.71          | -6.71        | ---         | PASS    |
|          |         |         | 30~1000         | -6.71          | -58.49       | ≤-26.71     | PASS    |
|          |         |         | 1000~26500      | -6.71          | -48.88       | ≤-26.71     | PASS    |
| 3DH5     | Ant1    | 2402    | Reference       | 0.09           | 0.09         | ---         | PASS    |
|          |         |         | 30~1000         | 0.09           | -56.04       | ≤-19.91     | PASS    |
|          |         |         | 1000~26500      | 0.09           | -48.41       | ≤-19.91     | PASS    |
|          |         | 2441    | Reference       | -1.49          | -1.49        | ---         | PASS    |
|          |         |         | 30~1000         | -1.49          | -56.67       | ≤-21.49     | PASS    |
|          |         |         | 1000~26500      | -1.49          | -48.98       | ≤-21.49     | PASS    |
|          |         | 2480    | Reference       | -3.19          | -3.19        | ---         | PASS    |
|          |         |         | 30~1000         | -3.19          | -56.37       | ≤-23.19     | PASS    |
|          |         |         | 1000~26500      | -3.19          | -48.24       | ≤-23.19     | PASS    |



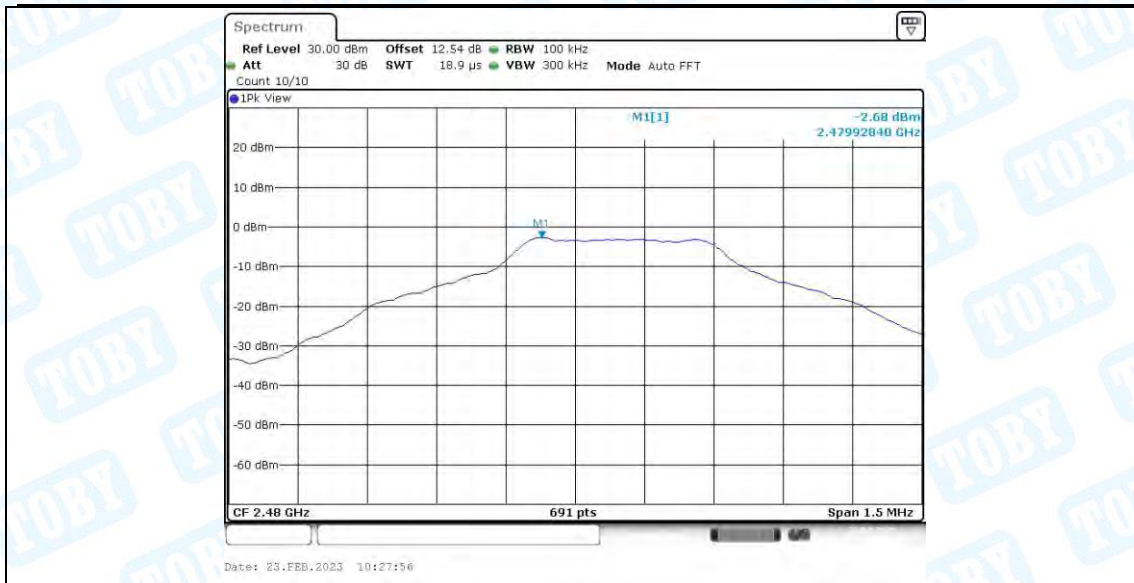
## 8.2.Test Graphs



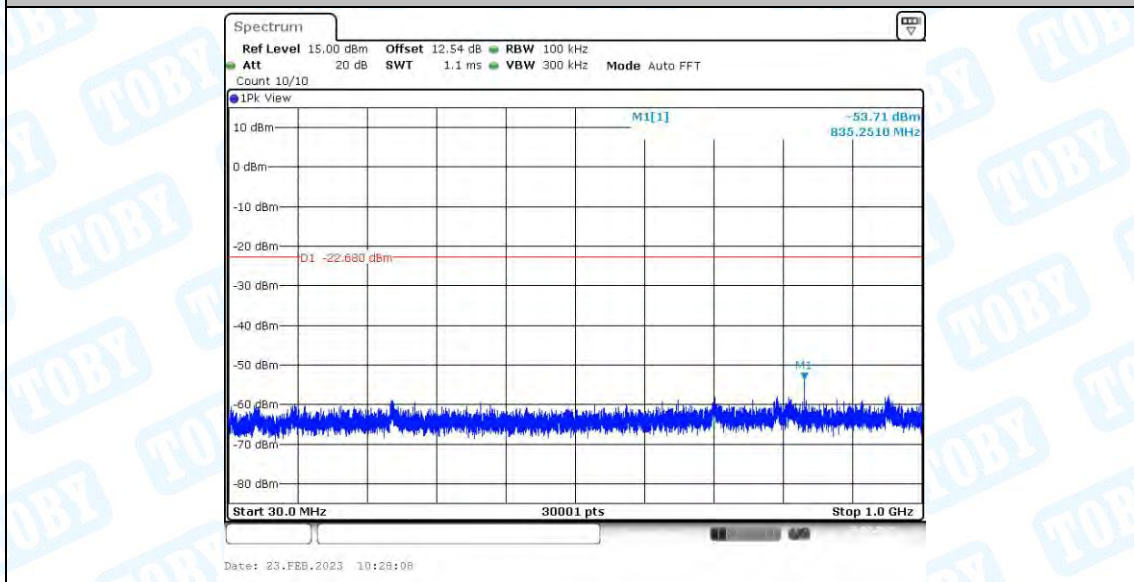




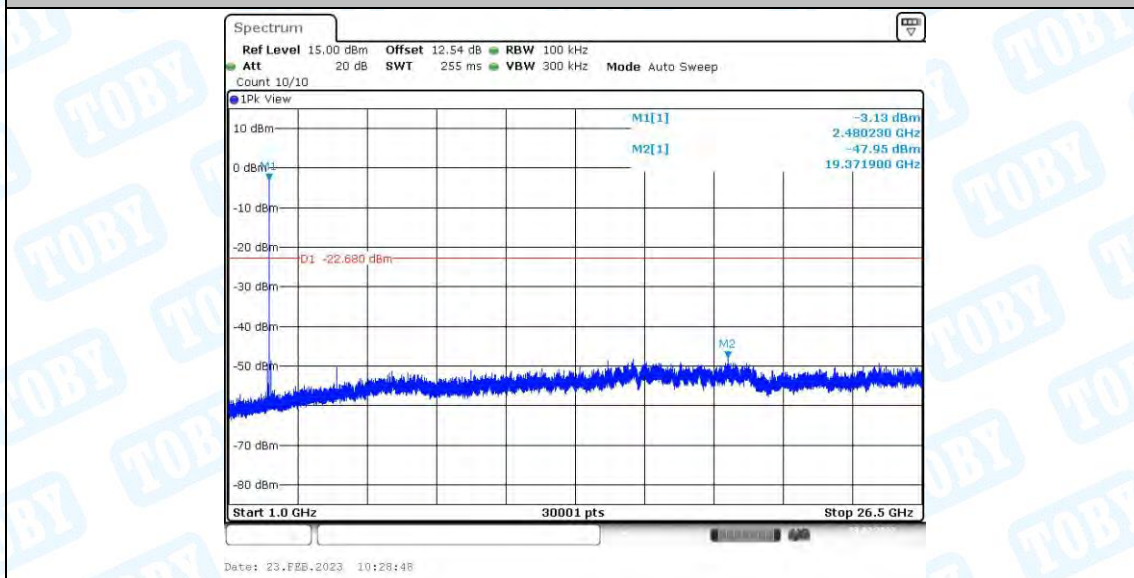




DH5\_Ant1\_2480\_30~1000

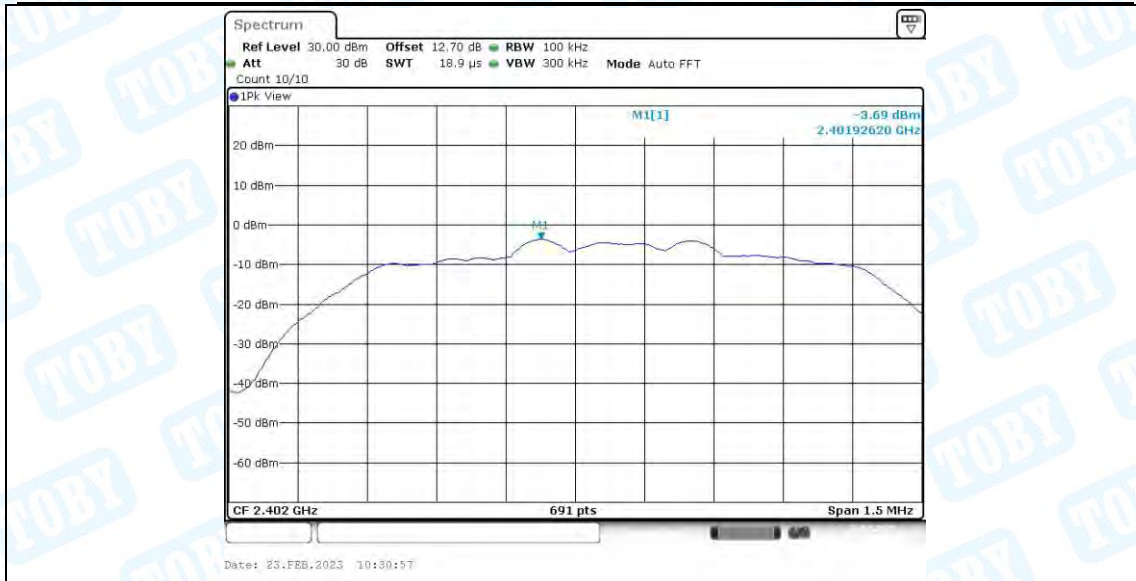


DH5\_Ant1\_2480\_1000~26500

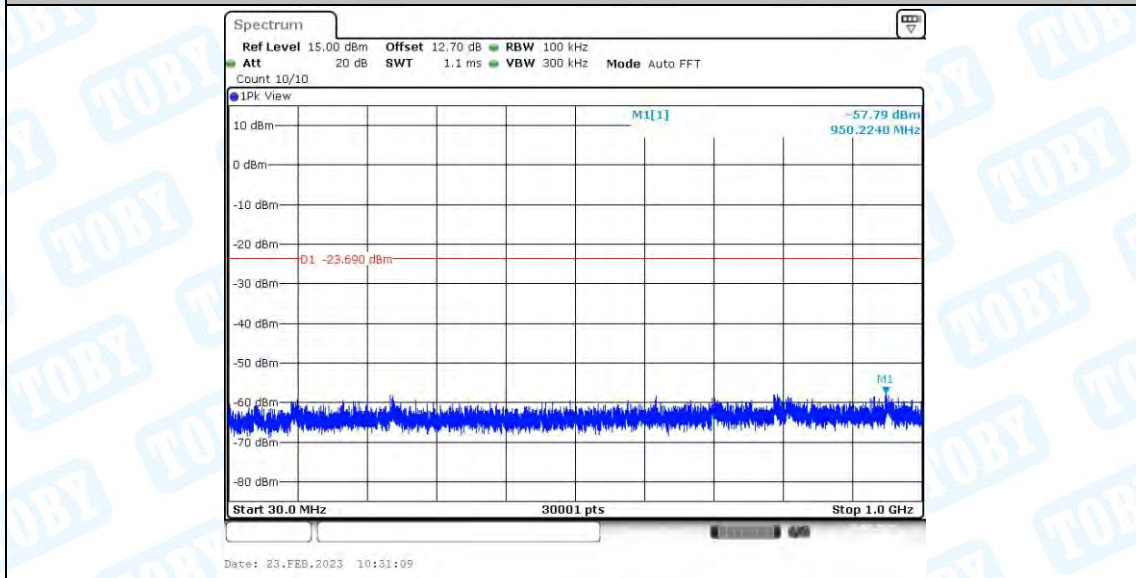


2DH5\_Ant1\_2402\_0~Reference

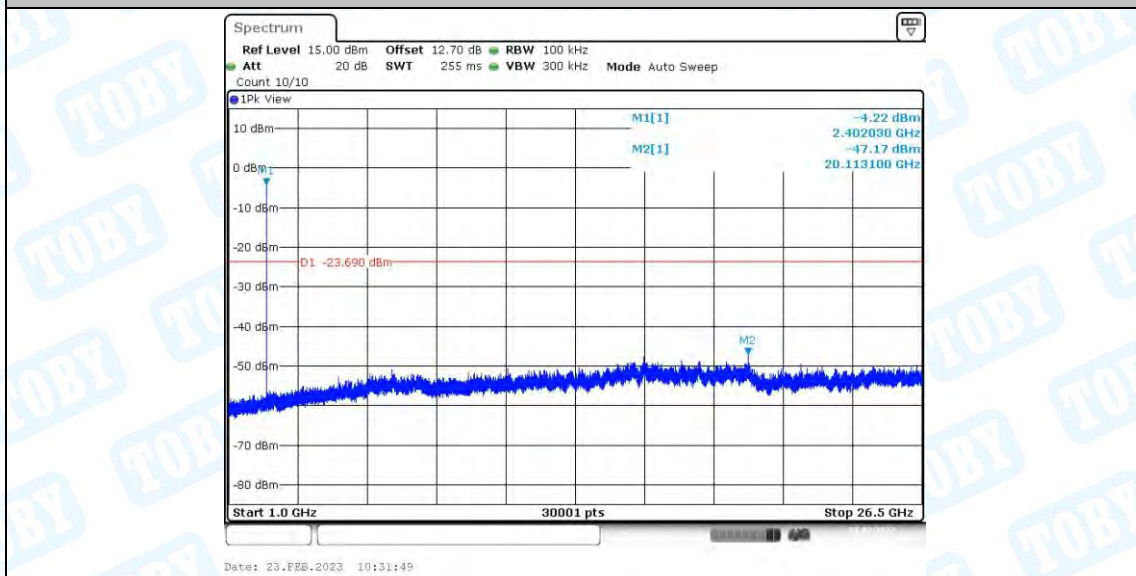




2DH5\_Ant1\_2402\_30~1000



2DH5\_Ant1\_2402\_1000~26500

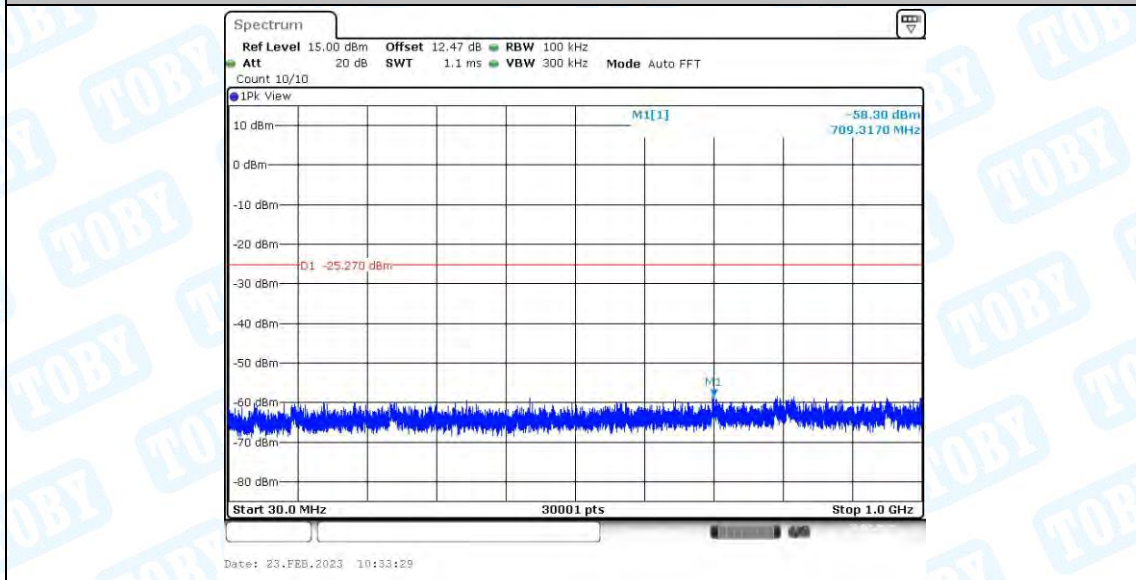


2DH5\_Ant1\_2441\_0~Reference

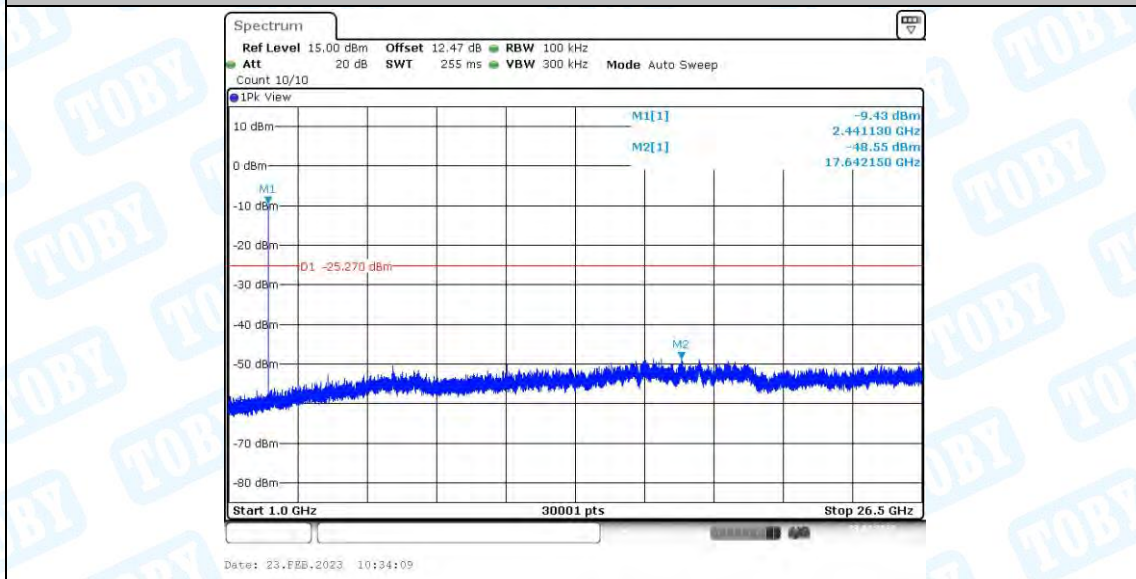




2DH5\_Ant1\_2441\_30~1000



2DH5\_Ant1\_2441\_1000~26500

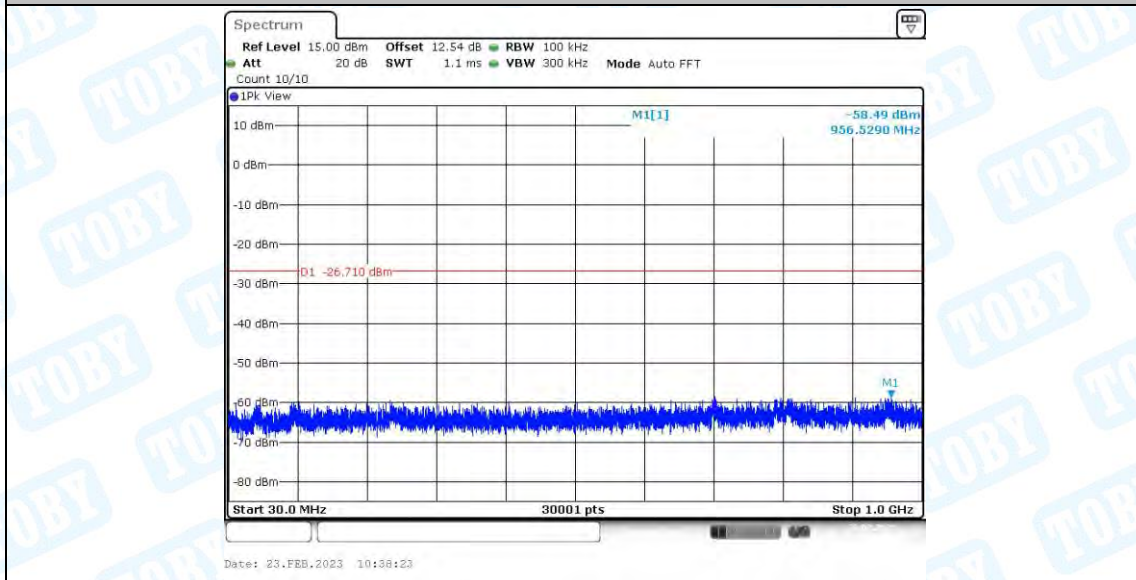


2DH5\_Ant1\_2480\_0~Reference

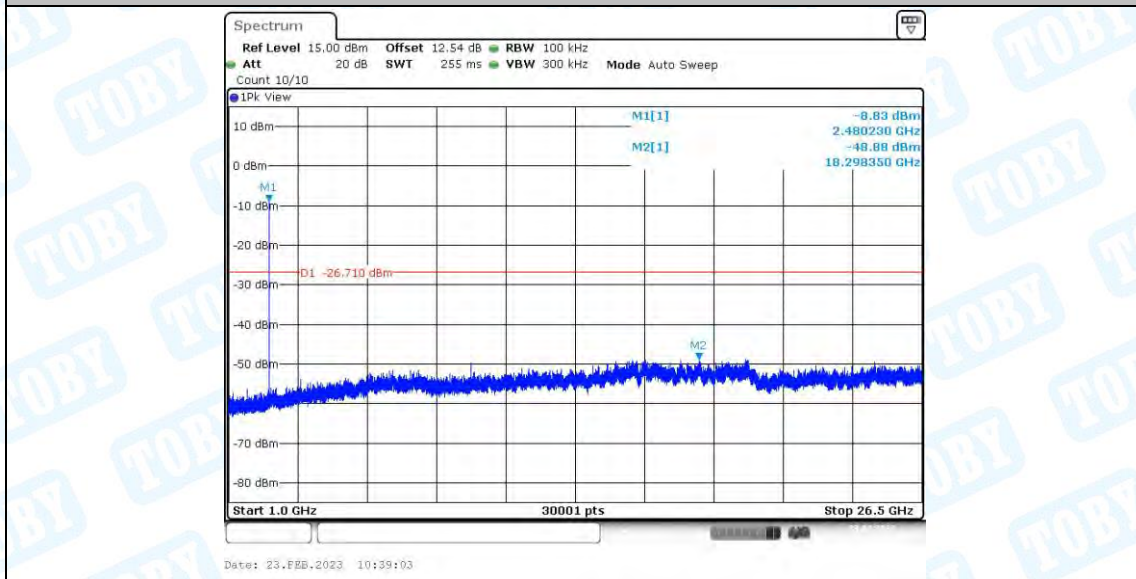




2DH5\_Ant1\_2480\_30~1000

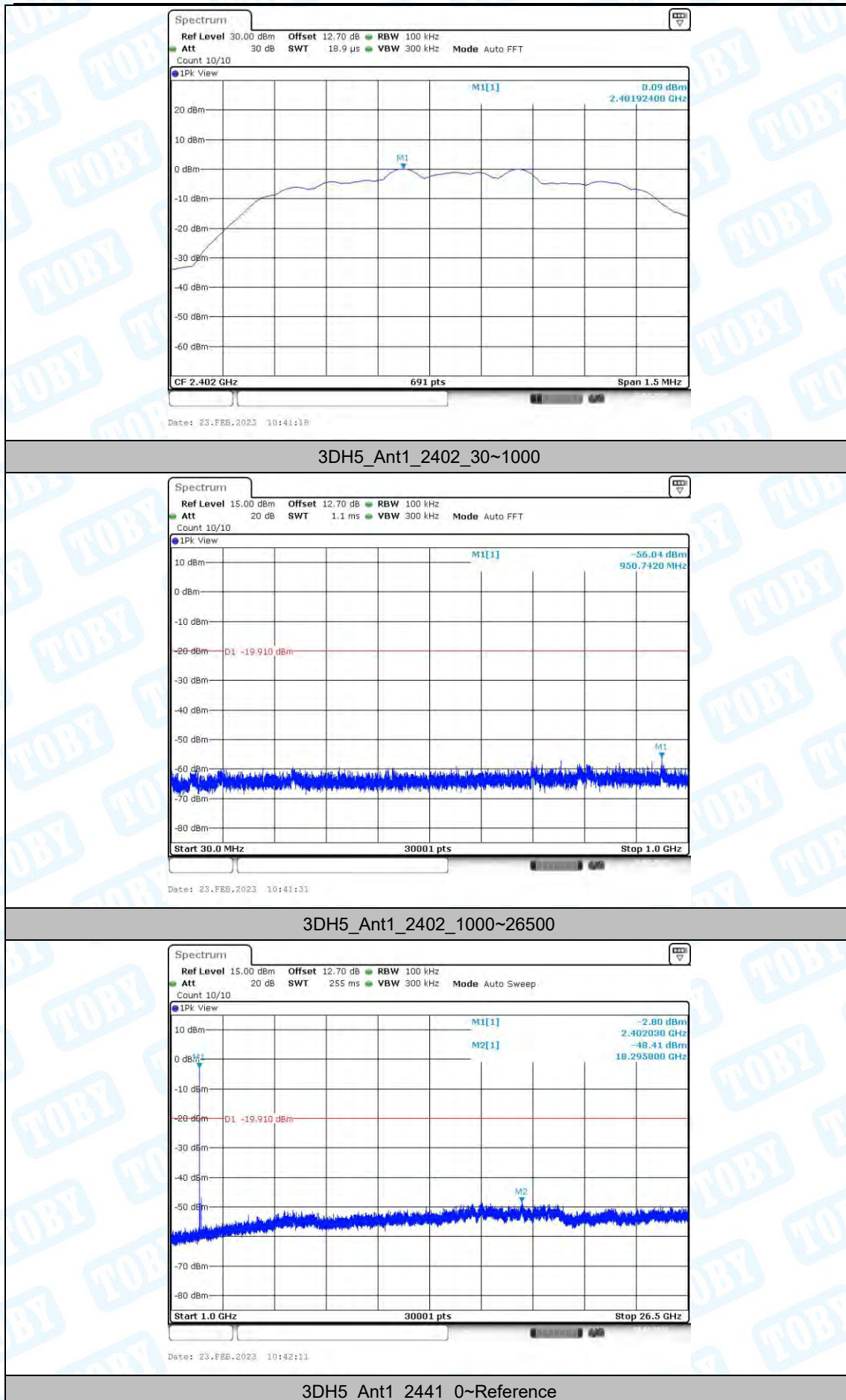


2DH5\_Ant1\_2480\_1000~26500



3DH5\_Ant1\_2402\_0~Reference

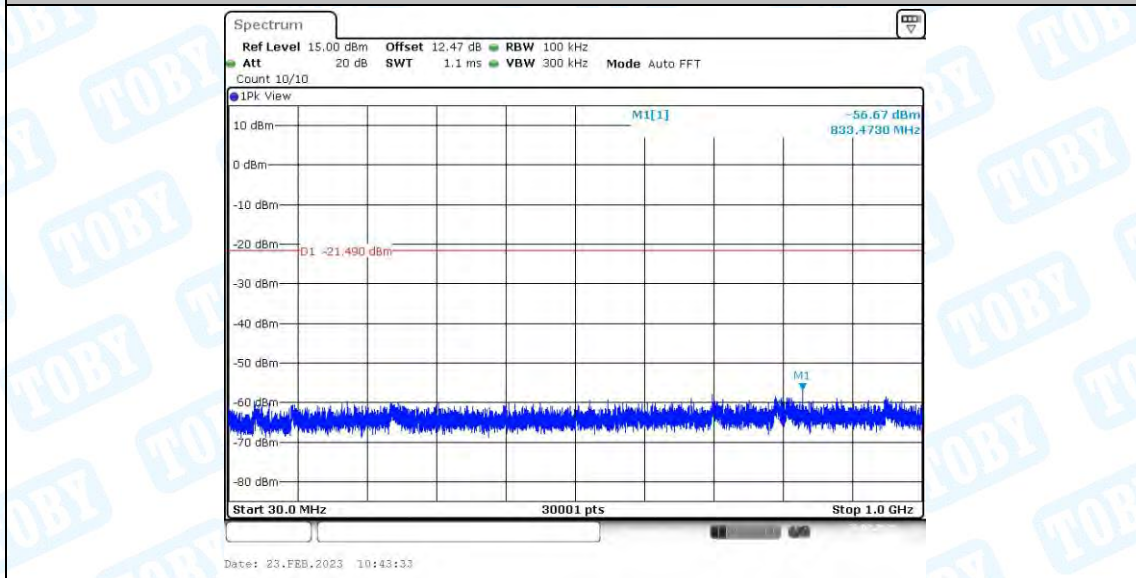




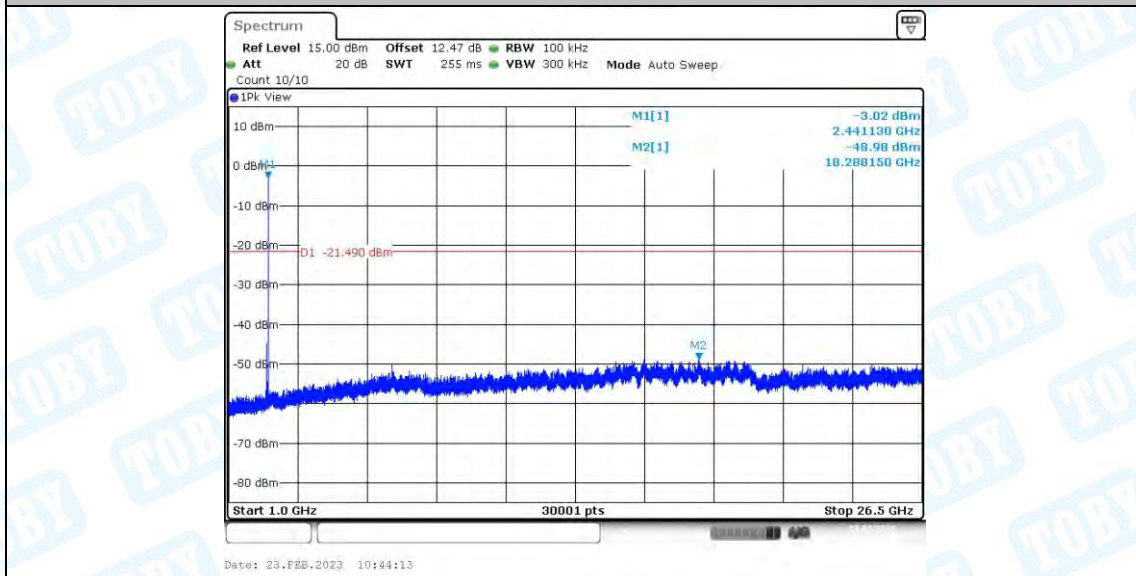




3DH5\_Ant1\_2441\_30~1000

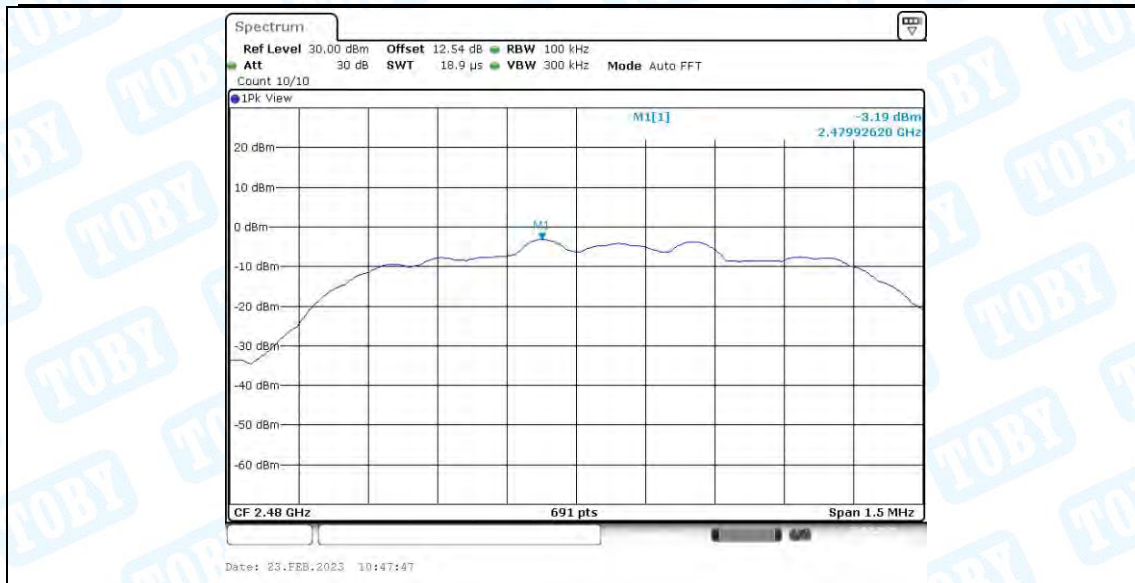


3DH5\_Ant1\_2441\_1000~26500

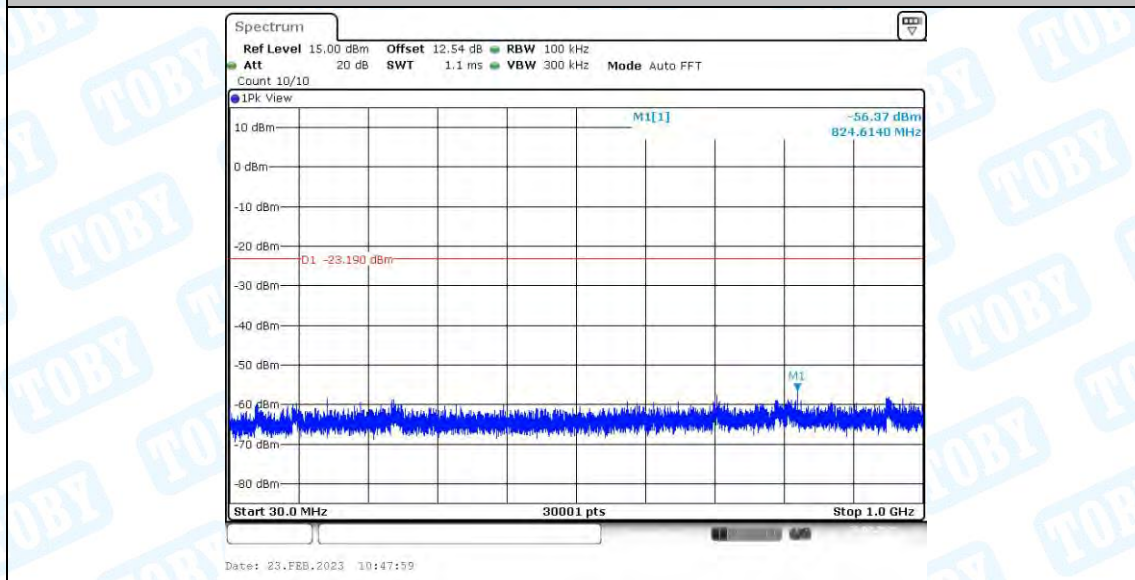


3DH5\_Ant1\_2480\_0~Reference

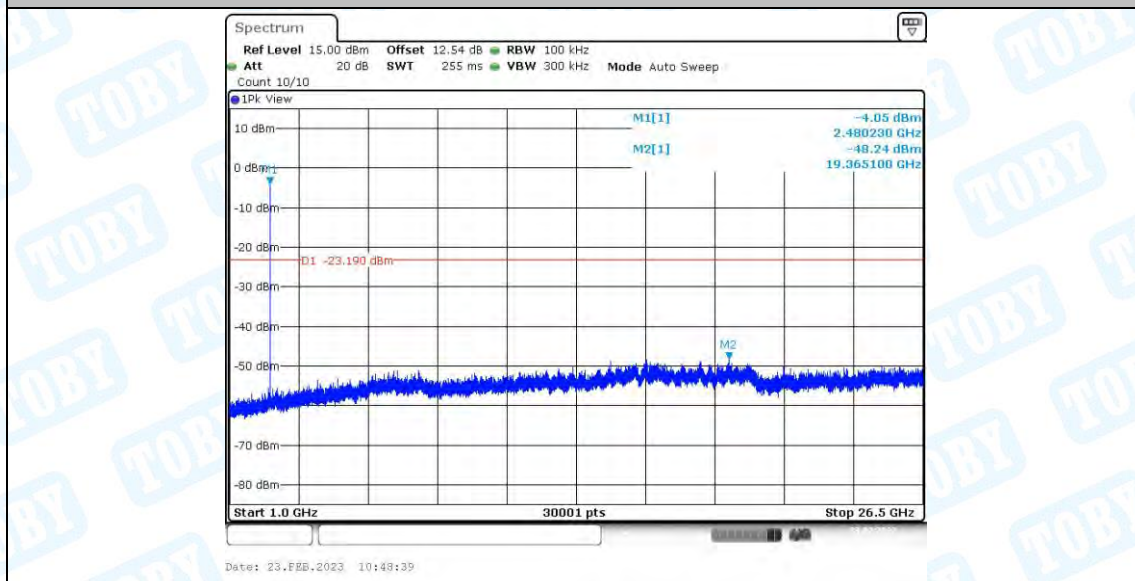




3DH5\_Ant1\_2480\_30~1000



3DH5\_Ant1\_2480\_1000~26500





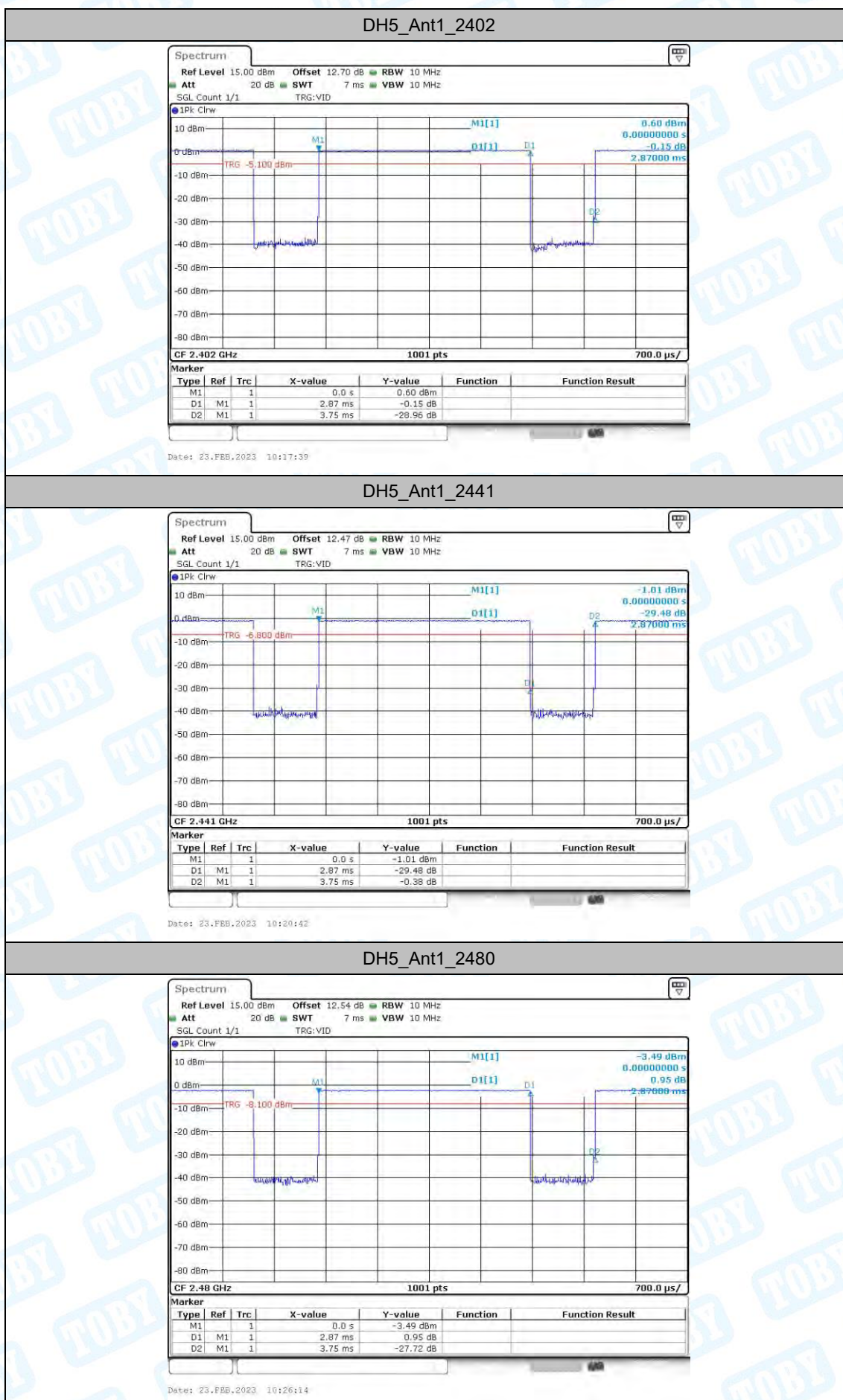
## 9. Duty Cycle

### 9.1. Test Result

| TestMode | Antenna | Channel | Transmission Duration [ms] | Transmission Period [ms] | Duty Cycle [%] | 1/T [KHz] | Limit | Verdict |
|----------|---------|---------|----------------------------|--------------------------|----------------|-----------|-------|---------|
| DH5      | Ant1    | 2402    | 2.87                       | 3.75                     | 76.53          | 0.348     | ---   | ---     |
|          |         | 2441    | 2.87                       | 3.75                     | 76.53          | 0.348     | ---   | ---     |
|          |         | 2480    | 2.87                       | 3.75                     | 76.53          | 0.348     | ---   | ---     |
| 2DH5     | Ant1    | 2402    | 2.88                       | 3.75                     | 76.80          | 0.347     | ---   | ---     |
|          |         | 2441    | 2.88                       | 3.75                     | 76.80          | 0.347     | ---   | ---     |
|          |         | 2480    | 2.88                       | 3.75                     | 76.80          | 0.347     | ---   | ---     |
| 3DH5     | Ant1    | 2402    | 2.88                       | 3.75                     | 76.80          | 0.347     | ---   | ---     |
|          |         | 2441    | 2.89                       | 3.76                     | 76.86          | 0.346     | ---   | ---     |
|          |         | 2480    | 2.89                       | 3.75                     | 77.07          | 0.346     | ---   | ---     |

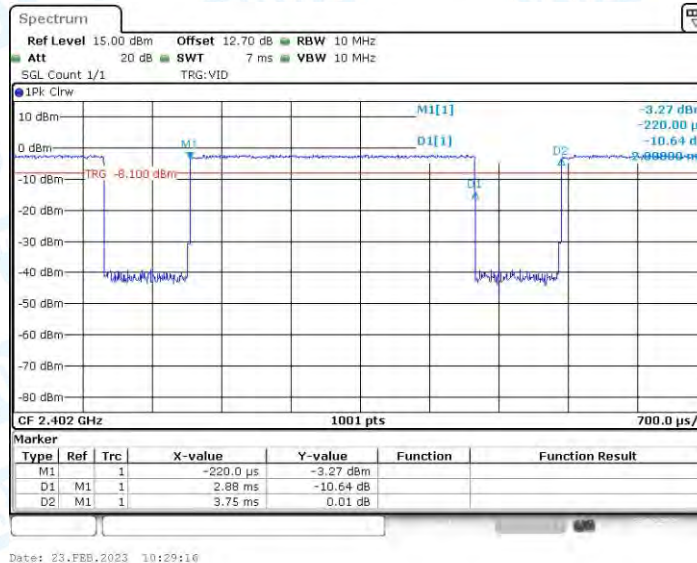


## 9.2. Test Graphs

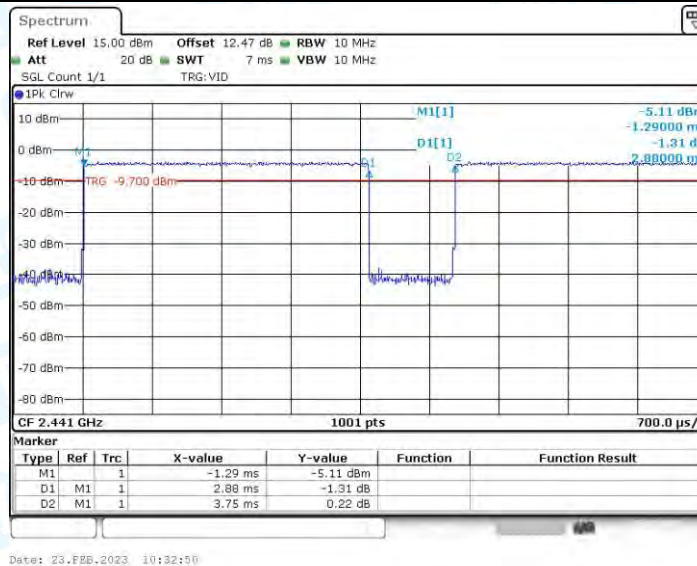




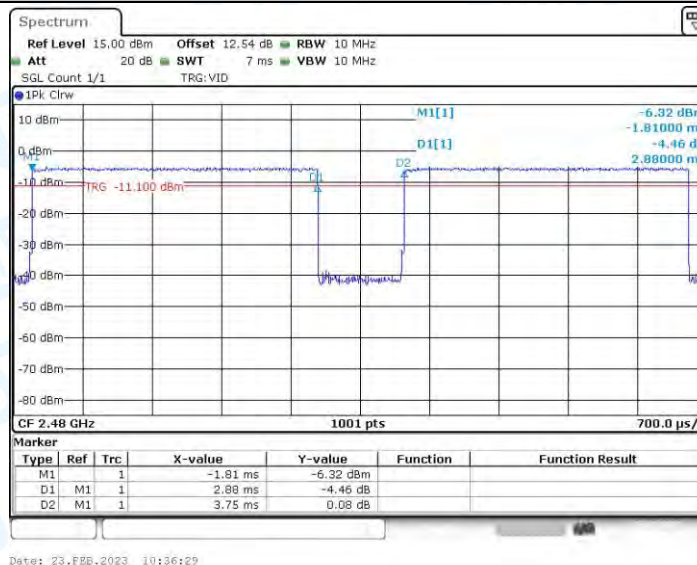
### 2DH5\_Ant1\_2402



### 2DH5\_Ant1\_2441

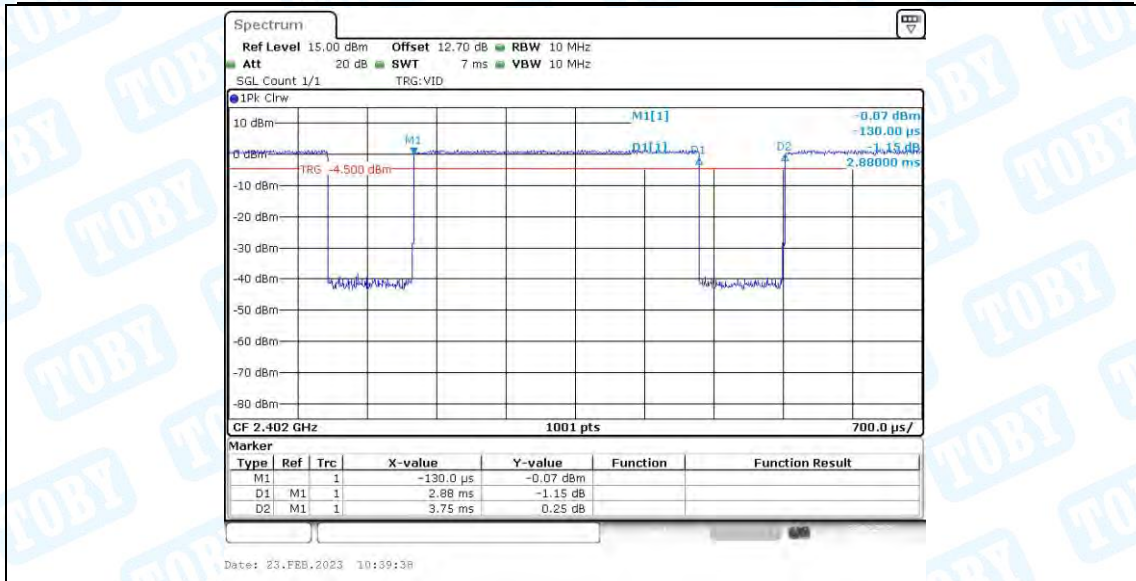


### 2DH5\_Ant1\_2480

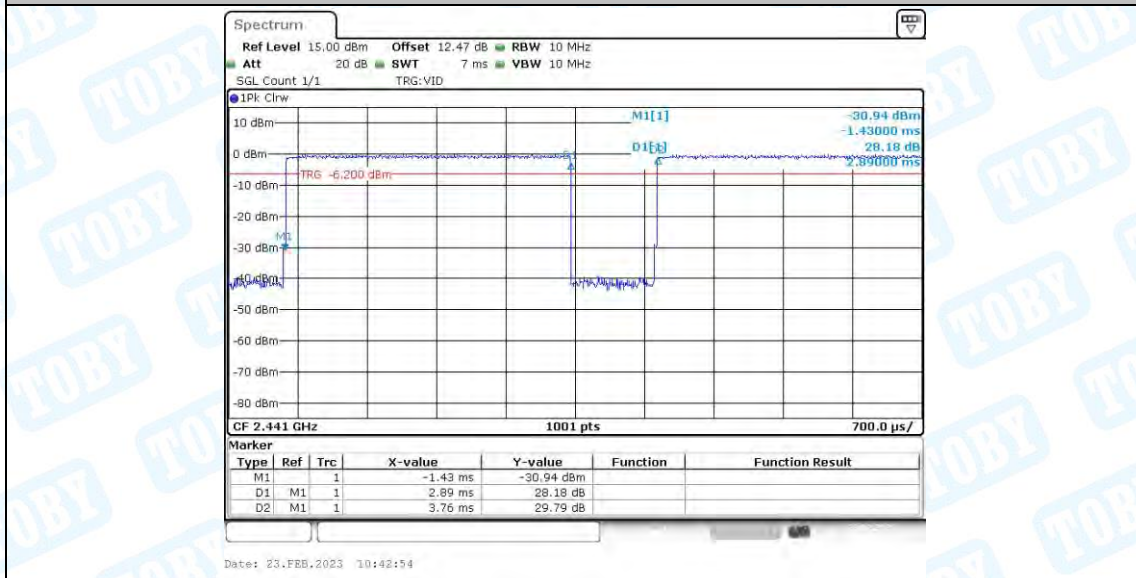


### 3DH5\_Ant1\_2402

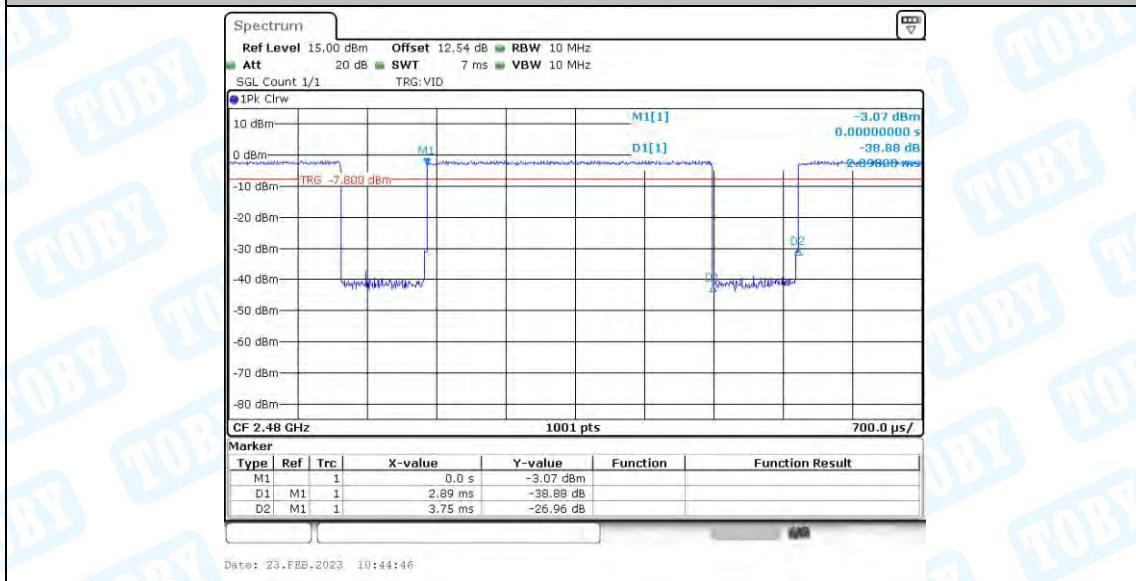




3DH5\_Ant1\_2441



3DH5\_Ant1\_2480





## 10. Emissions in Restricted Bands

### 10.1. Test Result

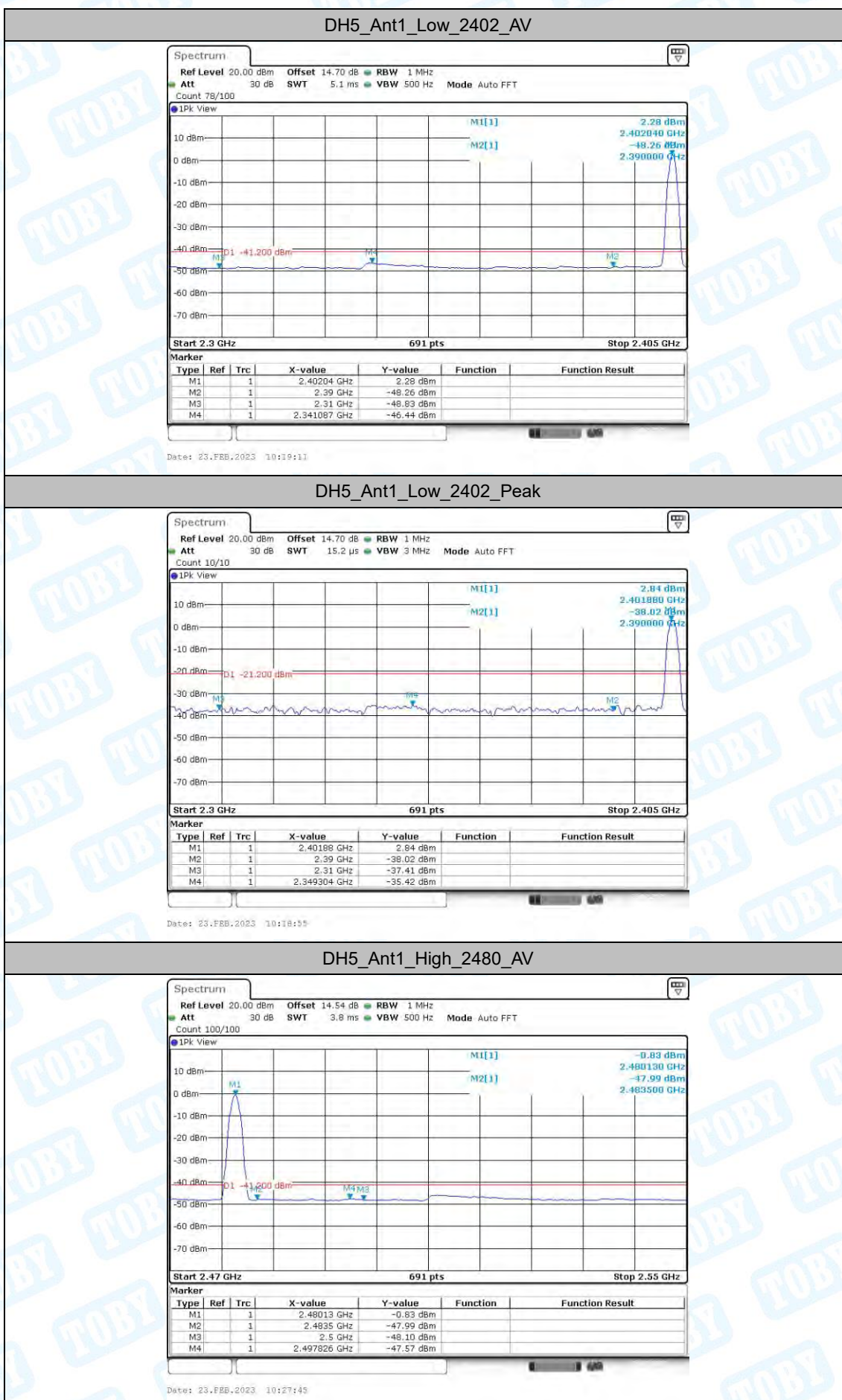
| TestMode | Antenna | ChName | Channel | Detector | Freq. [MHz] | Result [dBm] | Limit [dBm] | Verdict |
|----------|---------|--------|---------|----------|-------------|--------------|-------------|---------|
| DH5      | Ant1    | Low    | 2402    | AV       | 2310.000    | -48.83       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2341.087    | -46.44       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2390.000    | -48.26       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2310.000    | -37.41       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2349.304    | -35.42       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2390.000    | -38.02       | ≤-21.20     | PASS    |
|          |         | High   | 2480    | AV       | 2483.500    | -47.99       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2497.826    | -47.57       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2500.000    | -48.1        | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2483.500    | -39.33       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2498.058    | -35.35       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2500.000    | -37.63       | ≤-21.20     | PASS    |
| 2DH5     | Ant1    | Low    | 2402    | AV       | 2310.000    | -48.86       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2341.087    | -46.45       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2390.000    | -48.53       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2310.000    | -38.81       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2340.935    | -34.17       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2390.000    | -37.48       | ≤-21.20     | PASS    |
|          |         | High   | 2480    | AV       | 2483.500    | -48.05       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2497.130    | -47.66       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2500.000    | -48.08       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2483.500    | -38.42       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2492.261    | -35.89       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2500.000    | -36.86       | ≤-21.20     | PASS    |
| 3DH5     | Ant1    | Low    | 2402    | AV       | 2310.000    | -48.84       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2340.022    | -46.25       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2390.000    | -48.24       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2310.000    | -37.36       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2342.000    | -34.88       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2390.000    | -38.25       | ≤-21.20     | PASS    |
|          |         | High   | 2480    | AV       | 2483.500    | -48.04       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2497.246    | -47.69       | ≤-41.20     | PASS    |
|          |         |        |         | AV       | 2500.000    | -48.13       | ≤-41.20     | PASS    |
|          |         |        |         | Peak     | 2483.500    | -38.02       | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2490.986    | -34.1        | ≤-21.20     | PASS    |
|          |         |        |         | Peak     | 2500.000    | -37.02       | ≤-21.20     | PASS    |

Note:

- The Antenna Gain is compensated in the graph.
- The limit in dBm for average detector is conversion from 54dBuV/m, according to 15.209(a). The limit in dBm for peak detector is 20dB above the limit of average detector in dBm.

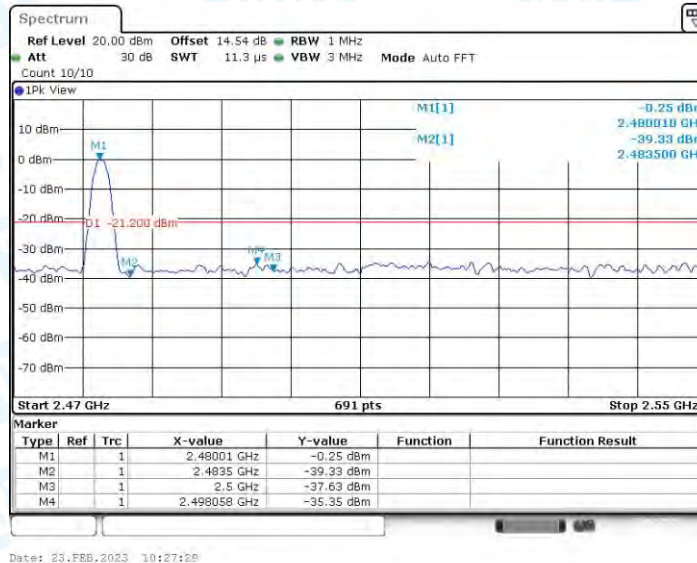


## 10.2. Test Graphs

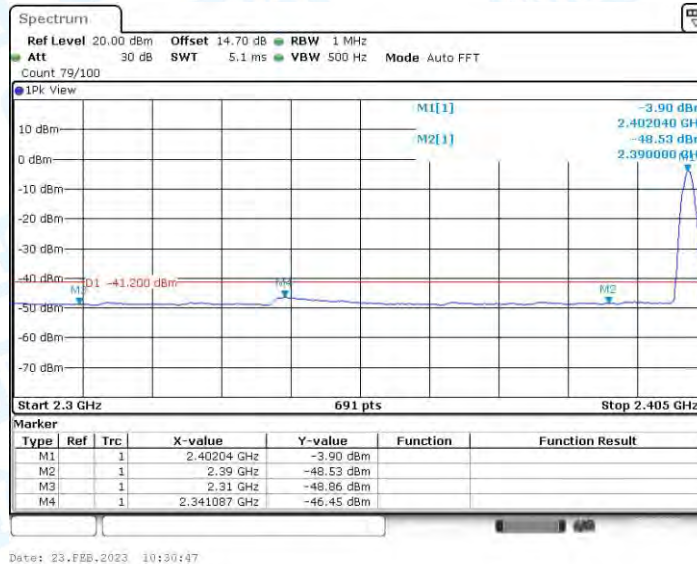




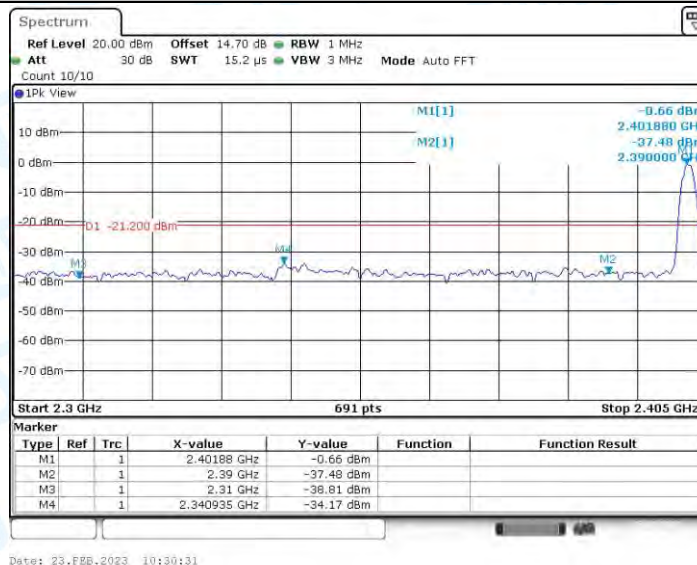
### DH5\_Ant1\_High\_2480\_Peak



### 2DH5\_Ant1\_Low\_2402\_AV



### 2DH5\_Ant1\_Low\_2402\_Peak

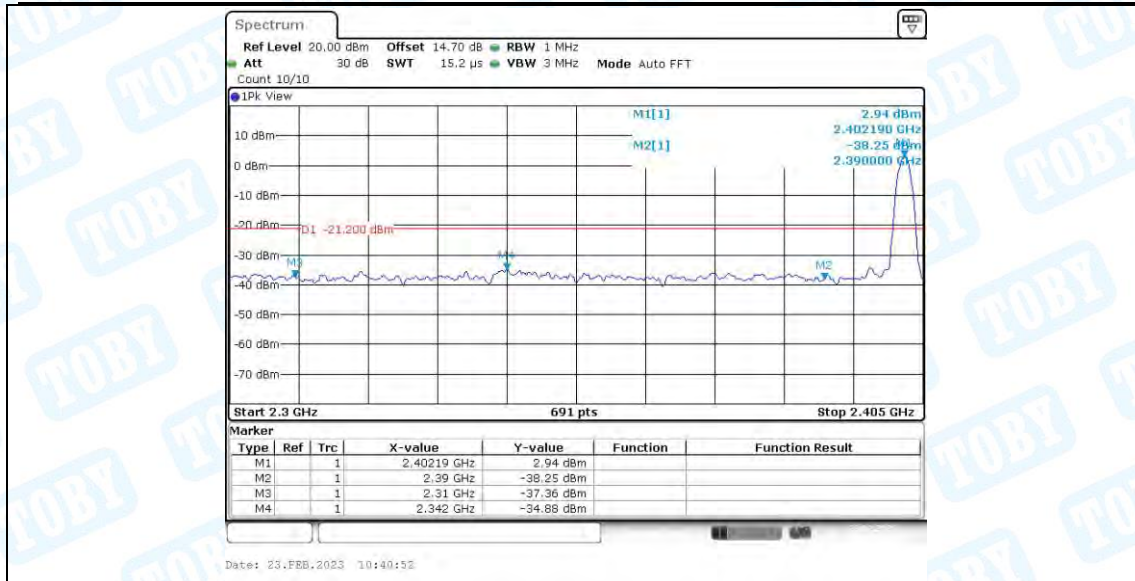


### 2DH5\_Ant1\_High\_2480\_AV

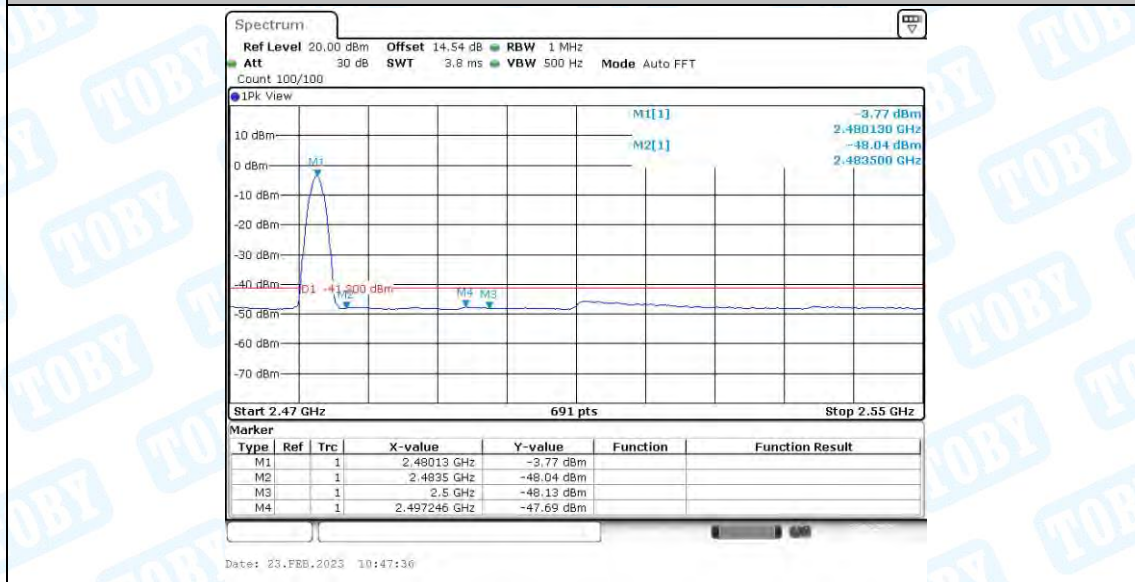




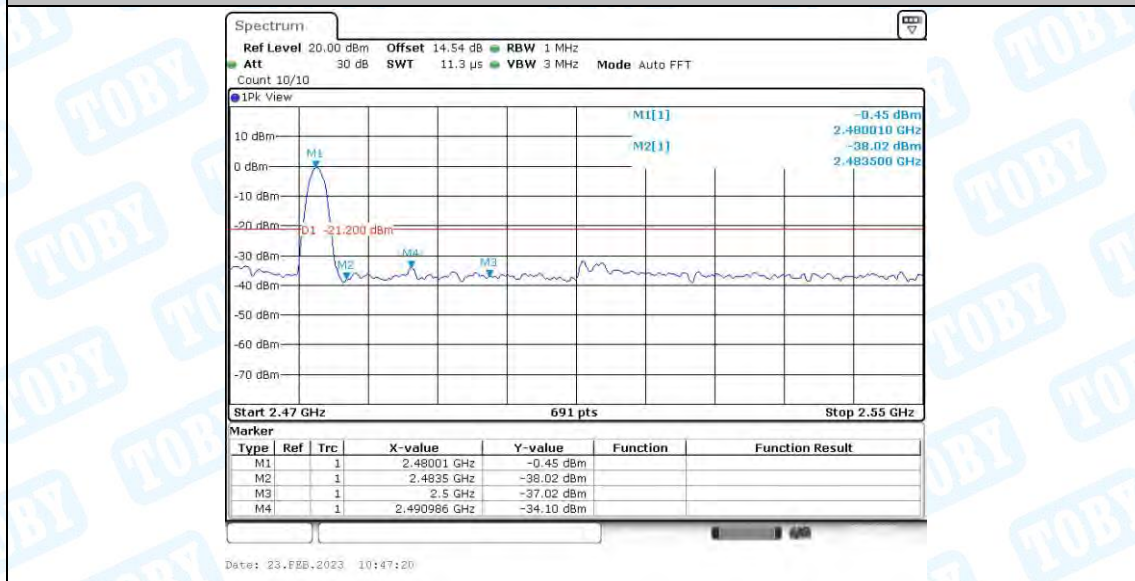




### 3DH5\_Ant1\_High\_2480\_AV



### 3DH5\_Ant1\_High\_2480\_Peak



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