

# FCC AND ISED CERTIFICATION TEST REPORT

## FOR

|                             |   |                                                               |
|-----------------------------|---|---------------------------------------------------------------|
| <b>Applicant</b>            | : | Harman International Industries, Inc.                         |
| <b>Address</b>              | : | 8500 Balboa Boulevard, Northridge, CA 91329,<br>UNITED STATES |
| <b>Equipment under Test</b> | : | BLUETOOTH HEADSET                                             |
| <b>Model No.</b>            | : | FREEII                                                        |
| <b>Trade Mark</b>           | : | JBL                                                           |
| <b>FCC ID</b>               | : | APIJBLFREE2                                                   |
| <b>IC</b>                   | : | 6132A-JBLFREE2                                                |
| <b>Manufacturer</b>         | : | Harman International Industries, Inc.                         |
| <b>Address</b>              | : | 8500 Balboa Boulevard, Northridge, CA 91329,<br>UNITED STATES |

**Issued By: Dongguan Dongdian Testing Service Co., Ltd.**

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# REPORT

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## Test Report Declare

|                             |   |                                                            |
|-----------------------------|---|------------------------------------------------------------|
| <b>Applicant</b>            | : | Harman International Industries, Inc.                      |
| <b>Address</b>              | : | 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES |
| <b>Equipment under Test</b> | : | BLUETOOTH HEADSET                                          |
| <b>Model No.</b>            | : | FREEII                                                     |
| <b>Trade Mark</b>           | : | JBL                                                        |
| <b>Manufacturer</b>         | : | Harman International Industries, Inc.                      |
| <b>Address</b>              | : | 8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES |

### Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C, RSS-247 Issue 2 February 2017.

### Test Procedure Used:

ANSI C63.10:2013, RSS-Gen Issue 5, Apr. 2018

### We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

**After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC&ISED standards.**

|                         |                   |                      |                              |
|-------------------------|-------------------|----------------------|------------------------------|
| <b>Report No:</b>       | DDT-R20053003-1E5 |                      |                              |
| <b>Date of Receipt:</b> | May 30, 2020      | <b>Date of Test:</b> | May 30, 2020 ~ Jul. 27, 2020 |

### Prepared By:

*Talent Zhang*

**Talent Zhang/Engineer**

### Approved By:



**Damon Hu/EMC Manager**

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

## Revision History

| Rev. | Revisions     | Issue Date    | Revised By |
|------|---------------|---------------|------------|
| ---  | Initial issue | Jul. 27, 2020 |            |
|      |               |               |            |

## 1. Summary of Test Results

| The EUT have been tested according to the applicable standards as referenced below. |                                                                                                       |         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------|
| Description of Test Item                                                            | Standard                                                                                              | Verdict |
| 6 dB Bandwidth and 99% Bandwidth                                                    | FCC Part 15: 15.247<br>ANSI C63.10:2013<br>RSS-247 Issue 2                                            | Pass    |
| Peak Output Power                                                                   | FCC Part 15: 15.247<br>ANSI C63.10:2013<br>RSS-247 Issue 2                                            | Pass    |
| Power Spectral Density                                                              | FCC Part 15:15.247<br>ANSI C63.10:2013<br>RSS-247 Issue 2                                             | Pass    |
| Band Edge Compliance<br>(conducted method)                                          | FCC Part 15: 15.209<br>FCC Part 15: 15.247<br>ANSI C63.10: 2013<br>RSS-247 Issue 2<br>RSS-Gen Issue 5 | Pass    |
| Radiation Emission                                                                  | FCC Part 15: 15.247<br>ANSI C63.10:2013<br>RSS-247 Issue 2<br>RSS-Gen Issue 5                         | Pass    |
| RF Conducted Spurious Emissions                                                     | FCC Part 15: 15.209<br>FCC Part 15: 15.247<br>ANSI C63.10: 2013<br>RSS-247 Issue 2<br>RSS-Gen Issue 5 | Pass    |
| Emission in Restricted Frequency Bands                                              | FCC Part 15: 15.209<br>FCC Part 15: 15.247<br>ANSI C63.10: 2013<br>RSS-247 Issue 2<br>RSS-Gen Issue 5 | Pass    |
| Power Line Conducted Emission                                                       | FCC Part 15: 15.207<br>ANSI C63.10: 2013<br>RSS-Gen Issue 5                                           | Pass    |
| Antenna Requirement                                                                 | FCC Part 15: 15.203<br>RSS-Gen Issue 5                                                                | Pass    |

## 2. General Test Information

### 2.1. Description of EUT

|                          |                                                                                                               |
|--------------------------|---------------------------------------------------------------------------------------------------------------|
| EUT* Name                | : BLUETOOTH HEADSET                                                                                           |
| Model Number             | : FREEII                                                                                                      |
| EUT Function Description | : Please reference user manual of this device                                                                 |
| Power Supply             | : DC 5V from Charging case<br>: DC 3.7V Polymer Li-ion built-in battery                                       |
| Radio Specification      | : Bluetooth V5.0                                                                                              |
| Operation Frequency      | : 2402 MHz - 2480 MHz                                                                                         |
| Modulation               | : GFSK                                                                                                        |
| Data Rate                | : 1Mbps                                                                                                       |
| Antenna Type             | : Left side: LDS antenna, maximum PK gain: -2.29 dBi<br>: Right side: LDS antenna, maximum PK gain: -2.62 dBi |
| Sample Type              | : ND0751-GK0000501 for conductive<br>: ND0751-GK0000502 for radiation                                         |

Note: EUT is the ab. of equipment under test.

| Channel information |                 |         |                 |         |                 |
|---------------------|-----------------|---------|-----------------|---------|-----------------|
| Channel             | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 0                   | 2402            | 14      | 2430            | 28      | 2458            |
| 1                   | 2404            | 15      | 2432            | 29      | 2460            |
| 2                   | 2406            | 16      | 2434            | 30      | 2462            |
| 3                   | 2408            | 17      | 2436            | 31      | 2464            |
| 4                   | 2410            | 18      | 2438            | 32      | 2466            |
| 5                   | 2412            | 19      | 2440            | 33      | 2468            |
| 6                   | 2414            | 20      | 2442            | 34      | 2470            |
| 7                   | 2416            | 21      | 2444            | 35      | 2472            |
| 8                   | 2418            | 22      | 2446            | 36      | 2474            |
| 9                   | 2420            | 23      | 2448            | 37      | 2476            |
| 10                  | 2422            | 24      | 2450            | 38      | 2478            |
| 11                  | 2424            | 25      | 2452            | 39      | 2480            |
| 12                  | 2426            | 26      | 2454            |         |                 |
| 13                  | 2428            | 27      | 2456            |         |                 |

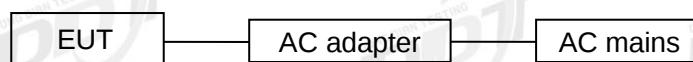
### 2.2. Accessories of EUT

| Description of Accessories | Manufacturer                        | Model Number | Description   | Remark                    |
|----------------------------|-------------------------------------|--------------|---------------|---------------------------|
| USB cable                  | N/A                                 | N/A          | N/A           | Length: 0.20m, unshielded |
| Charging case              | Harman                              | FREEII       | N/A           | N/A                       |
| Built-in Battery           | Chongqing VDL Electronics Co., Ltd. | VDL 1254     | DC3.7V, 55mAh | N/A                       |

### 2.3. Assistant equipment used for test

| Assistant equipment | Manufacturer            | Model number | EMC Compliance                                                     | SN       |
|---------------------|-------------------------|--------------|--------------------------------------------------------------------|----------|
| Notebook            | Lenovo Beijing Co. Ltd. | ThinkPad     | FCC/CE                                                             | TP00015A |
| Adapter             | SAMSUNG                 | EP-TA200     | Input: 100-240~,<br>50/60Hz, 0.5A;<br>Output: 9V/1.67A or<br>5V/2A | N/A      |

### 2.4. Block diagram of EUT configuration for test



Test software: BQB.EXE

The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table:

| Tested mode, channel, information |                  |         |                 |
|-----------------------------------|------------------|---------|-----------------|
| Mode                              | Setting Tx Power | Channel | Frequency (MHz) |
| GFSK                              | /                | CH0     | 2402            |
|                                   | /                | CH19    | 2440            |
|                                   | /                | CH39    | 2480            |

### 2.5. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

|                    |            |
|--------------------|------------|
| Temperature range: | 21-25 °C   |
| Humidity range:    | 40-75%     |
| Pressure range:    | 86-106 kPa |

### 2.6. Deviations of test standard

No deviation.

### 2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com

CNAS Registration No. CNAS L6451; A2LA Certificate Number: 3870.01;

FCC Designation Number: CN1182; FCC Test Firm Registration Number: 540522

Industry Canada Site Registration Number: 10288A-1

## 2.8. Measurement uncertainty

| Test Item                                                                                                                                     | Uncertainty                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bandwidth                                                                                                                                     | 1.1%                                                                                                                                                                  |
| Peak Output Power (Conducted) (Spectrum analyzer)                                                                                             | 0.86 dB ( $10 \text{ MHz} \leq f < 3.6 \text{ GHz}$ );<br>1.38 dB ( $3.6 \text{ GHz} \leq f < 8 \text{ GHz}$ )                                                        |
| Peak Output Power (Conducted) (Power Sensor)                                                                                                  | 0.74 dB                                                                                                                                                               |
| Power Spectral Density                                                                                                                        | 0.74 dB ( $10 \text{ MHz} \leq f < 3.6 \text{ GHz}$ );<br>1.38 dB ( $3.6 \text{ GHz} \leq f < 8 \text{ GHz}$ )                                                        |
| Frequencies Stability                                                                                                                         | $6.7 \times 10^{-8}$ (Antenna couple method)<br>$5.5 \times 10^{-8}$ (Conducted method)                                                                               |
| Conducted spurious emissions                                                                                                                  | 0.86 dB ( $10 \text{ MHz} \leq f < 3.6 \text{ GHz}$ );<br>1.40 dB ( $3.6 \text{ GHz} \leq f < 8 \text{ GHz}$ )<br>1.66 dB ( $8 \text{ GHz} \leq f < 22 \text{ GHz}$ ) |
| Uncertainty for radio frequency (RBW < 20 kHz)                                                                                                | $3 \times 10^{-8}$                                                                                                                                                    |
| Temperature                                                                                                                                   | 0.4 °C                                                                                                                                                                |
| Humidity                                                                                                                                      | 2 %                                                                                                                                                                   |
| Uncertainty for Radiation Emission test<br>(30 MHz - 1 GHz)                                                                                   | 4.70 dB (Antenna Polarize: V)<br>4.84 dB (Antenna Polarize: H)                                                                                                        |
| Uncertainty for Radiation Emission test<br>(1 GHz - 40 GHz)                                                                                   | 4.10 dB (1 - 6 GHz)<br>4.40 dB (6 GHz - 18 GHz)<br>3.54 dB (18 GHz - 26 GHz)<br>4.30 dB (26 GHz - 40 GHz)                                                             |
| Uncertainty for Power line conduction emission test                                                                                           | 3.32 dB (150 kHz - 30 MHz)                                                                                                                                            |
| Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2. |                                                                                                                                                                       |

## 3. Equipment Used During Test

| Equipment                                                 | Manufacturer | Model No.   | Serial No. | Last Cal.     | Cal. Interval |
|-----------------------------------------------------------|--------------|-------------|------------|---------------|---------------|
| <b>RF Connected Test (Tonscend RF Measurement System)</b> |              |             |            |               |               |
| Spectrum analyzer                                         | R&S          | FSU26       | 200071     | Sep. 29, 2019 | 1 Year        |
| Spectrum analyzer                                         | Agilent      | N9020D      | MY49100362 | Sep. 29, 2019 | 1 Year        |
| Wideband Radio Communication tester                       | R&S          | CMW500      | 117491     | Jul. 01, 2020 | 1 Year        |
| Vector Signal Generator                                   | Agilent      | E8267D      | US49060192 | Sep. 29, 2019 | 1 Year        |
| Vector Signal Generator                                   | Agilent      | N5182A      | MY48180737 | Jul. 01, 2020 | 1 Year        |
| Power Sensor                                              | Agilent      | U2021XA     | MY55150010 | Jul. 01, 2020 | 1 Year        |
| Power Sensor                                              | Agilent      | U2021XA     | MY55150011 | Jul. 01, 2020 | 1 Year        |
| DC Power Source                                           | MATRIS       | MPS-3005L-3 | D813058W   | Jul. 01, 2020 | 1 Year        |
| RF Cable                                                  | Micable      | C10-01-01-1 | 100309     | Sep. 29, 2019 | 1 Year        |
| Temp&Humi Programmable                                    | ZHIXIANG     | ZXGDJS-150L | ZX170110-A | Oct. 21, 2019 | 1 Year        |
| Test Software                                             | JS Tonscend  | JS1120-3    | Ver.2.7    | N/A           | N/A           |
| <b>Radiation 1#chamber</b>                                |              |             |            |               |               |

|                            |             |               |                |               |        |
|----------------------------|-------------|---------------|----------------|---------------|--------|
| EMI Test Receiver          | R&S         | ESU8          | 100316         | Sep. 29, 2019 | 1 Year |
| Spectrum analyzer          | Agilent     | E4447A        | MY50180031     | Jul. 01, 2020 | 1 Year |
| Trilog Broadband Antenna   | Schwarzbeck | VULB9163      | 9163-462       | Nov. 15, 2019 | 1 Year |
| Active Loop antenna        | Schwarzbeck | FMZB-1519     | 1519-038       | Sep. 29, 2019 | 1 Year |
| Double Ridged Horn Antenna | R&S         | HF907         | 100276         | Nov. 15, 2019 | 1 Year |
| Broad Band Horn Antenna    | Schwarzbeck | BBHA 9170     | 790            | Sep. 29, 2019 | 1 Year |
| Pre-amplifier              | A.H.        | PAM-0118      | 360            | Sep. 29, 2019 | 1 Year |
| Pre-amplifier              | TERA-MW     | TRLA-0040 G35 | 101303         | Sep. 29, 2019 | 1 Year |
| RF Cable                   | HUBSER      | CP-X2+ CP-X1  | W11.03+ W12.02 | Sep. 29, 2019 | 1 Year |
| RF Cable                   | N/A         | 5m+6m+1m      | 06270619       | Sep. 29, 2019 | 1 Year |
| MI Cable                   | HUBSER      | C10-01-01-1 M | 1091629        | Sep. 29, 2019 | 1 Year |
| Test software              | Audix       | E3            | V 6.11111b     | N/A           | N/A    |

**Radiation 2#chamber**

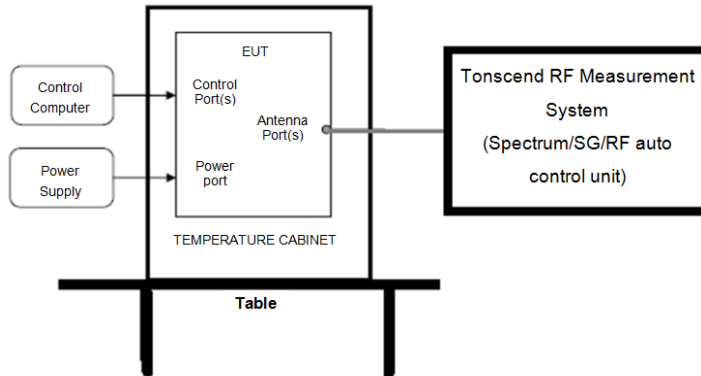
|                            |             |               |            |               |        |
|----------------------------|-------------|---------------|------------|---------------|--------|
| EMI Test Receiver          | R&S         | ESCI          | 101364     | Sep. 29, 2019 | 1 Year |
| Spectrum analyzer          | Agilent     | E4447A        | MY50180031 | Jul. 01, 2020 | 1 Year |
| Trilog Broadband Antenna   | Schwarzbeck | VULB 9163     | 9163-994   | Nov. 15, 2019 | 1 Year |
| Active Loop antenna        | Schwarzbeck | FMZB-1519     | 1519-038   | Sep. 29, 2019 | 1 Year |
| Double Ridged Horn Antenna | Schwarzbeck | BBHA9120      | 02108      | Jul. 21, 2019 | 1 Year |
| Broad Band Horn Antenna    | Schwarzbeck | BBHA 9170     | 790        | Sep. 29, 2019 | 1 Year |
| Pre-amplifier              | TERA-MW     | TRLA-0040 G35 | 101303     | Sep. 29, 2019 | 1 Year |
| RF Cable                   | N/A         | 14+1.5m       | 06270619   | Sep. 29, 2019 | 1 Year |
| Test software              | Audix       | E3            | V 6.11111b | N/A           | N/A    |

**Power Line Conducted Emissions Test**

|                   |        |         |            |               |        |
|-------------------|--------|---------|------------|---------------|--------|
| EMI Test Receiver | R&S    | ESU8    | 100316     | Sep. 29, 2019 | 1 Year |
| LISN 1            | R&S    | ENV216  | 101109     | Sep. 29, 2019 | 1 Year |
| LISN 2            | R&S    | ESH2-Z5 | 100309     | Sep. 29, 2019 | 1 Year |
| Pulse Limiter     | R&S    | ESH3-Z2 | 101242     | Sep. 29, 2019 | 1 Year |
| CE Cable 1        | HUBSER | N/A     | W10.01     | Sep. 29, 2019 | 1 Year |
| Test software     | Audix  | E3      | V 6.11111b | N/A           | N/A    |

## 4. 6 dB Bandwidth and 99% Bandwidth

### 4.1. Block diagram of test setup



### 4.2. Limits

For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz

### 4.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) 99% Bandwidth set the spectrum analyzer as follows:

|                |          |
|----------------|----------|
| RBW:           | 30 kHz   |
| VBW:           | 100 kHz  |
| Detector Mode: | Peak     |
| Sweep time:    | auto     |
| Trace mode     | Max hold |

(3) 6 dB Bandwidth set the spectrum analyzer as follows:

|                |          |
|----------------|----------|
| RBW:           | 100 kHz  |
| VBW:           | 300 kHz  |
| Detector Mode: | Peak     |
| Sweep time:    | auto     |
| Trace mode     | Max hold |

(4) Allow the trace to stabilize, measure the 6 dB and 99% bandwidth of signal.

#### 4.4. Test result

Left side:

| Mode | Channel | 99% bandwidth Result (MHz) | 6 dB bandwidth Result (MHz) | 6 dB width Limit (MHz) | Verdict |
|------|---------|----------------------------|-----------------------------|------------------------|---------|
| GFSK | CH0     | 1.028                      | 0.720                       | >0.5                   | Pass    |
|      | CH19    | 1.028                      | 0.728                       | >0.5                   | Pass    |
|      | CH39    | 1.036                      | 0.748                       | >0.5                   | Pass    |

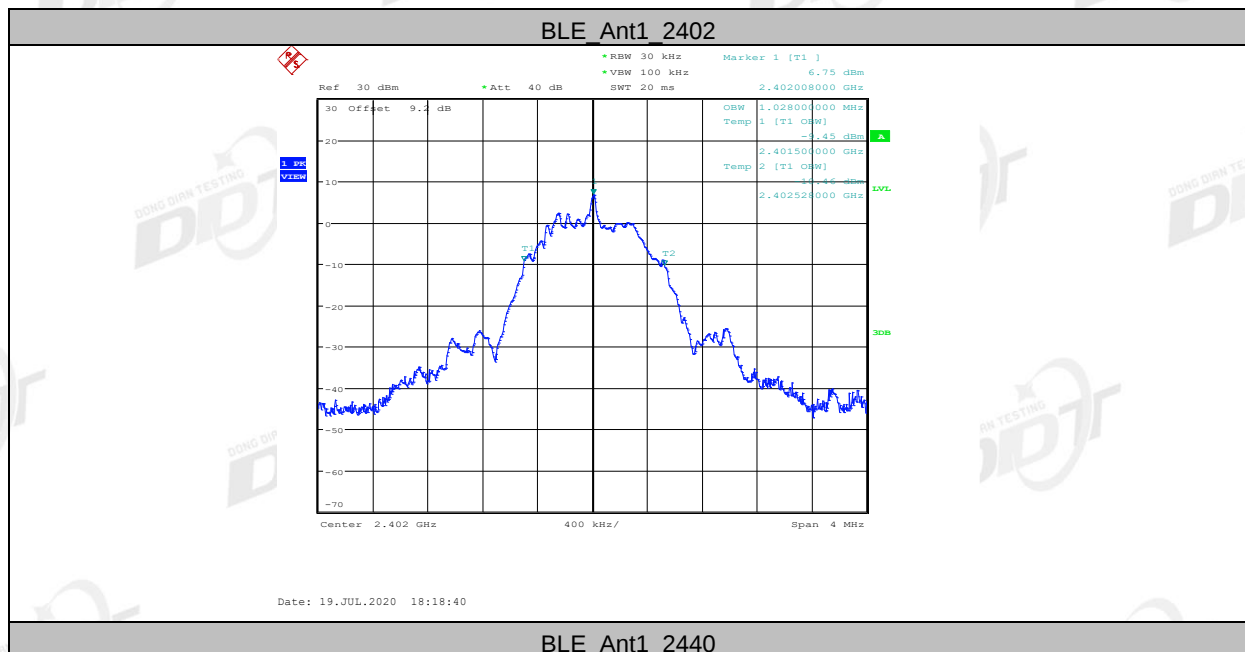
Right side:

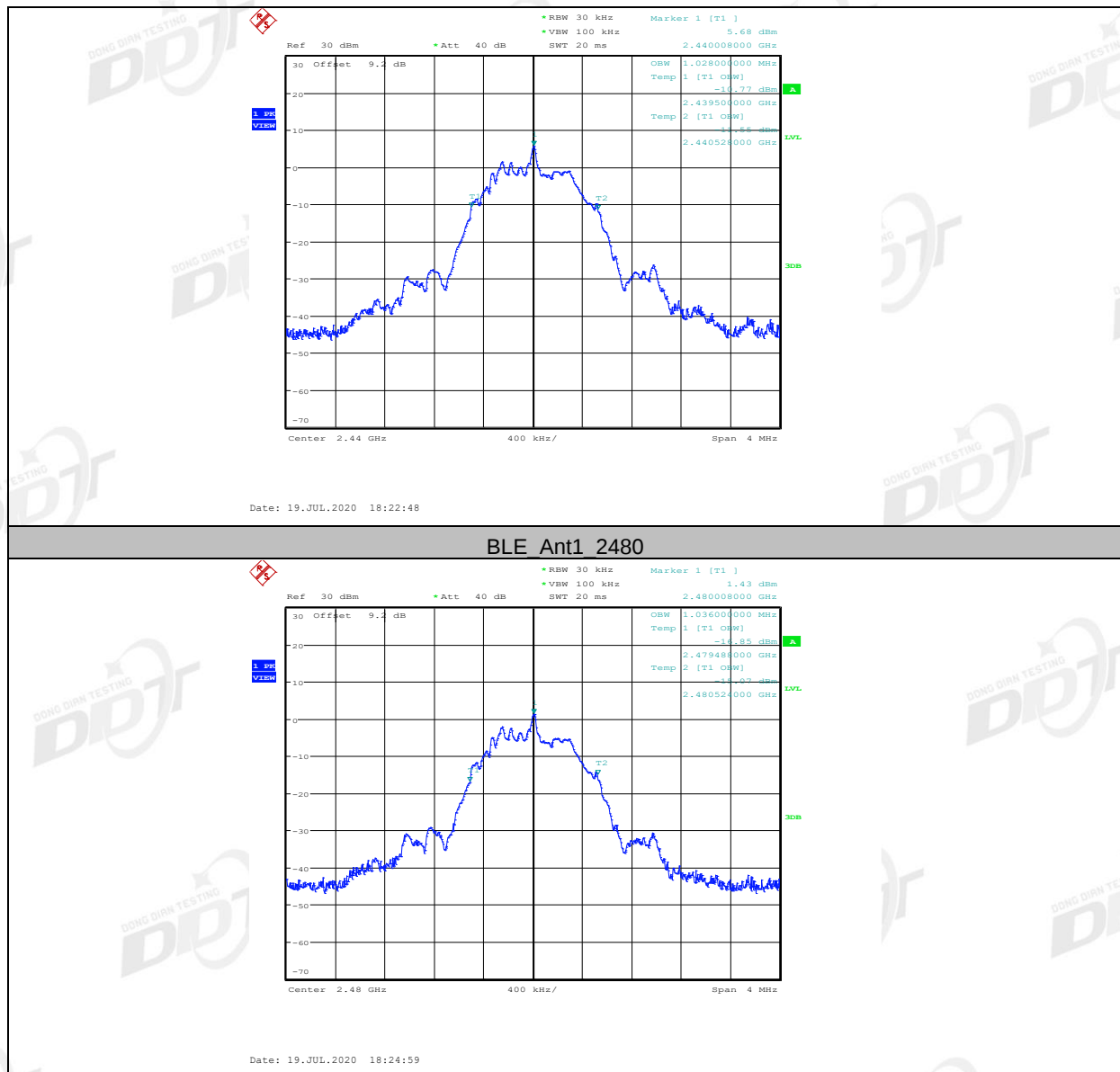
| Mode | Channel | 99% bandwidth Result (MHz) | 6 dB bandwidth Result (MHz) | 6 dB width Limit (MHz) | Verdict |
|------|---------|----------------------------|-----------------------------|------------------------|---------|
| GFSK | CH0     | 1.024                      | 0.720                       | >0.5                   | Pass    |
|      | CH19    | 1.024                      | 0.720                       | >0.5                   | Pass    |
|      | CH39    | 1.032                      | 0.744                       | >0.5                   | Pass    |

#### 4.5. Original test data

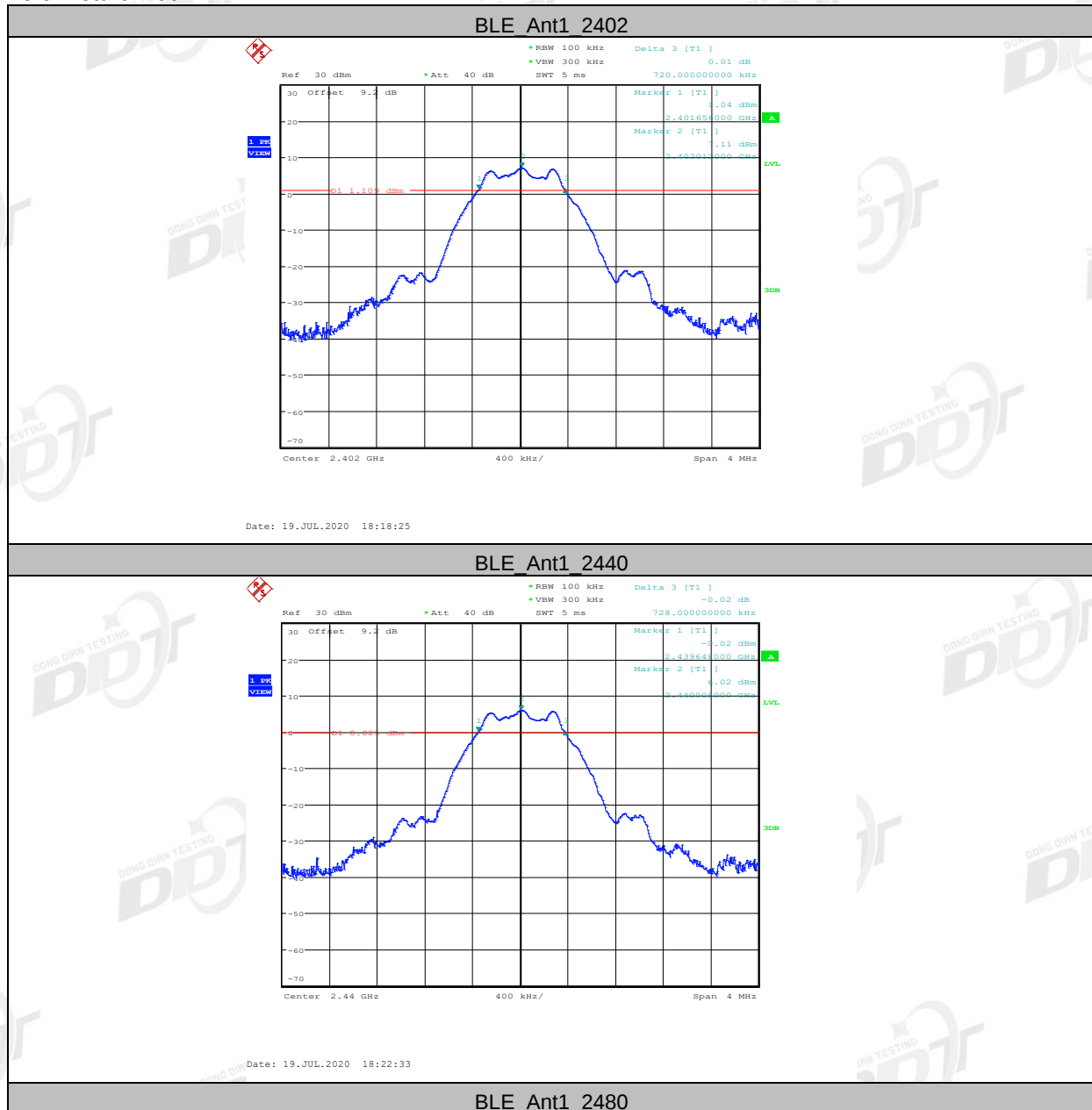
Left side:

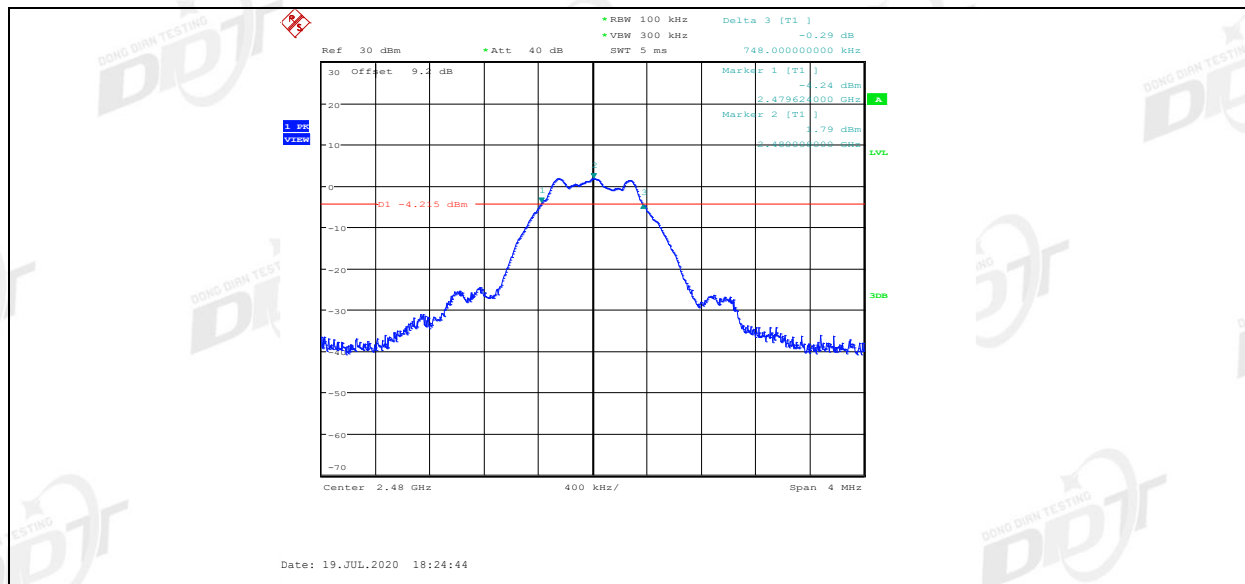
99% bandwidth





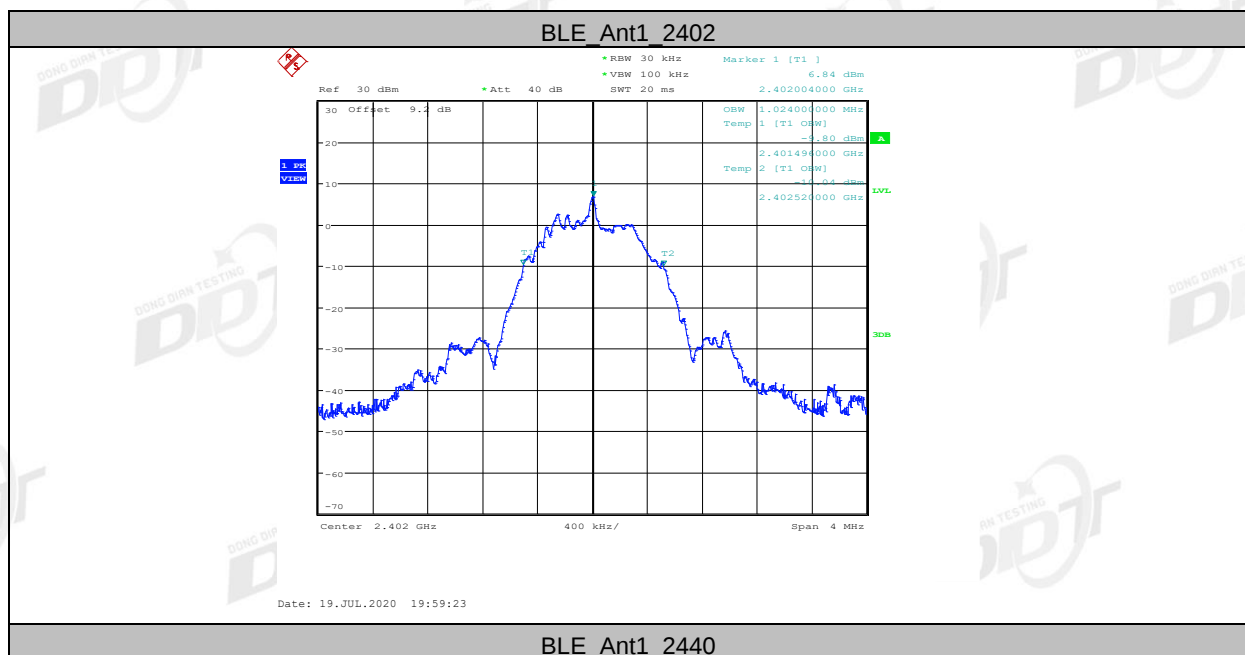
6 dB bandwidth

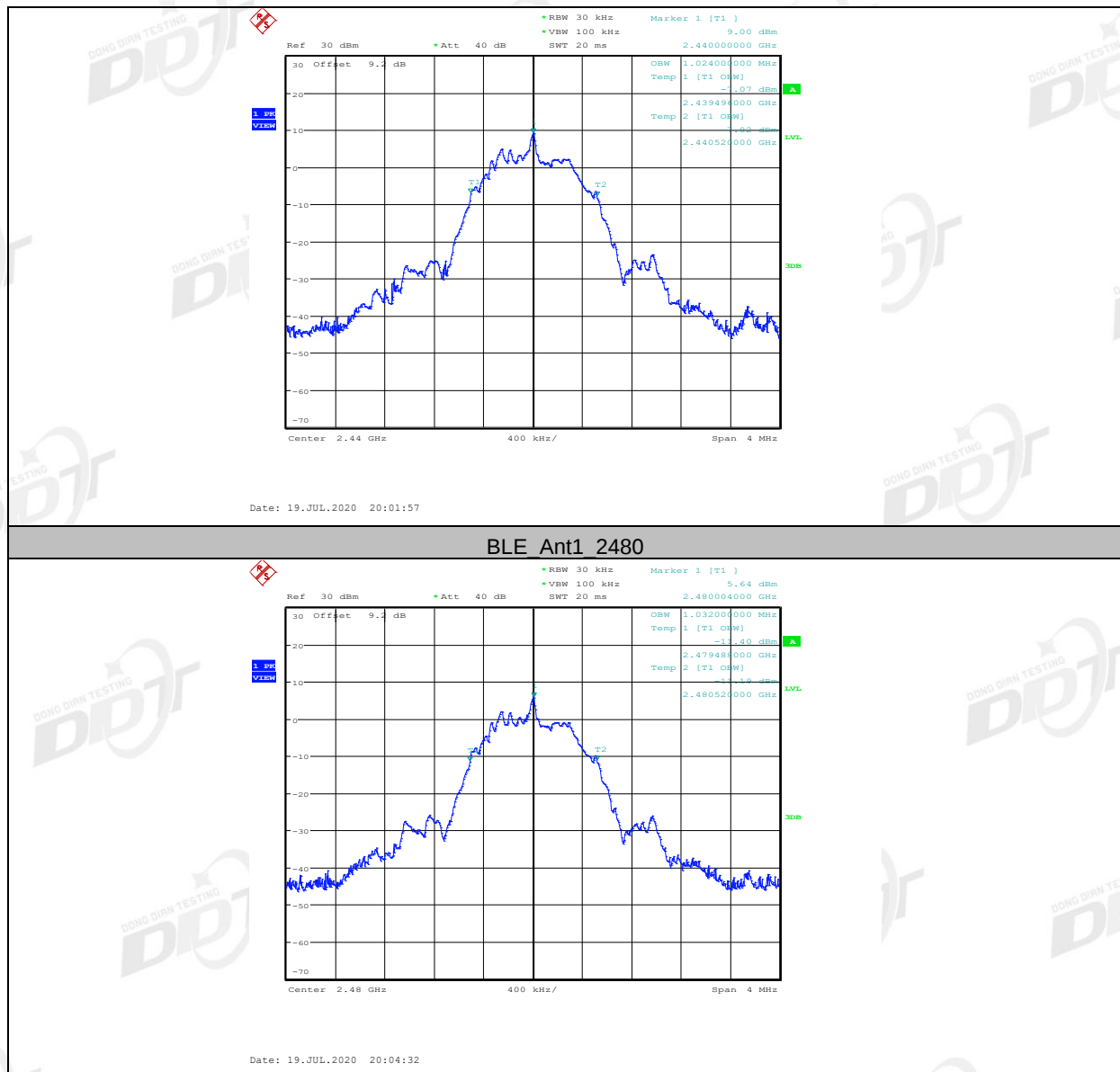




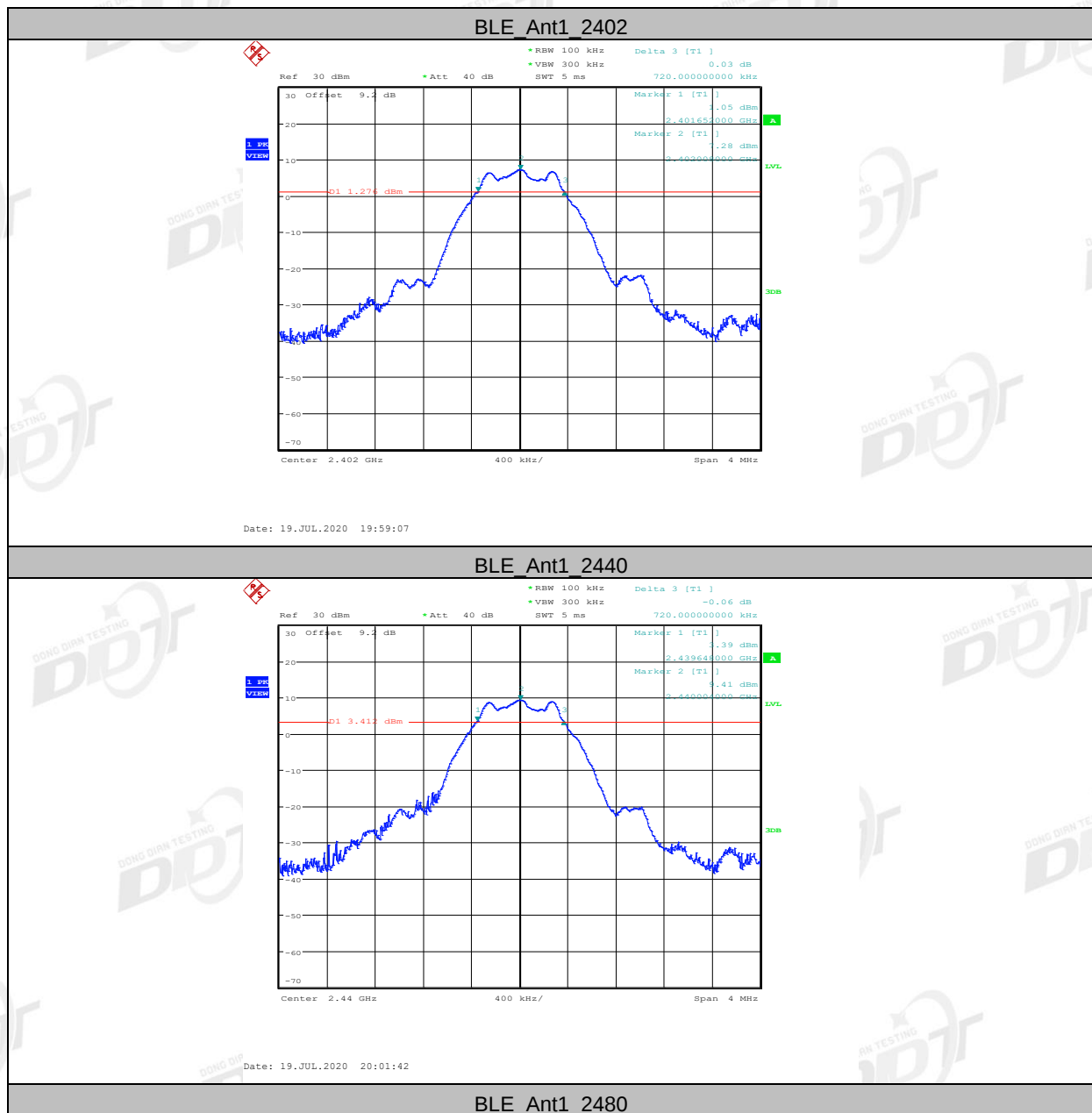
Right side:

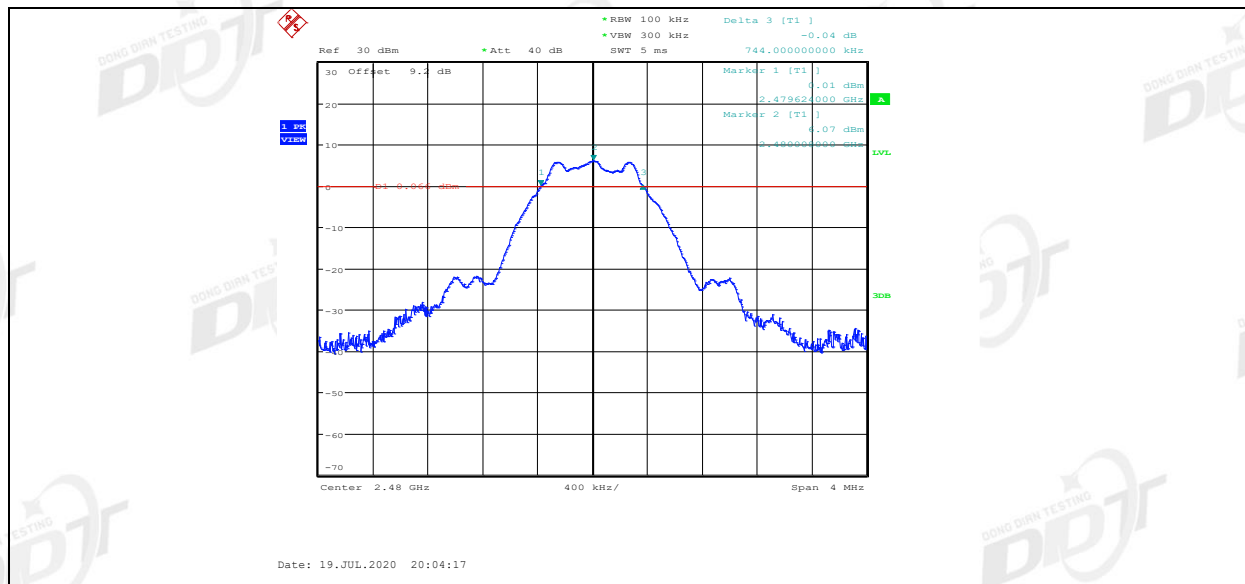
99% bandwidth





6 dB bandwidth





## 5. Maximum Peak Output Power

### 5.1. Block diagram of test setup

Same with 4.1

### 5.2. Limits

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. If transmitting antennas of directional gain greater than 6dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 5.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows:

|                |                |
|----------------|----------------|
| RBW:           | ≥DTS bandwidth |
| VBW:           | ≥3 x RBW       |
| Span           | ≥3 x RBW       |
| Detector Mode: | Peak           |
| Sweep time:    | auto           |
| Trace mode     | Max hold       |

(3) Allow the trace to stabilize, Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges measure out the PK output power.

### 5.4. Test result

Left side:

| Mode | Freq. (MHz) | Peak Output Power (dBm) | Limit (dBm) | Verdict |
|------|-------------|-------------------------|-------------|---------|
| GFSK | 2402        | 7.85                    | 30          | Pass    |
|      | 2440        | 6.78                    | 30          | Pass    |
|      | 2480        | 3.23                    | 30          | Pass    |

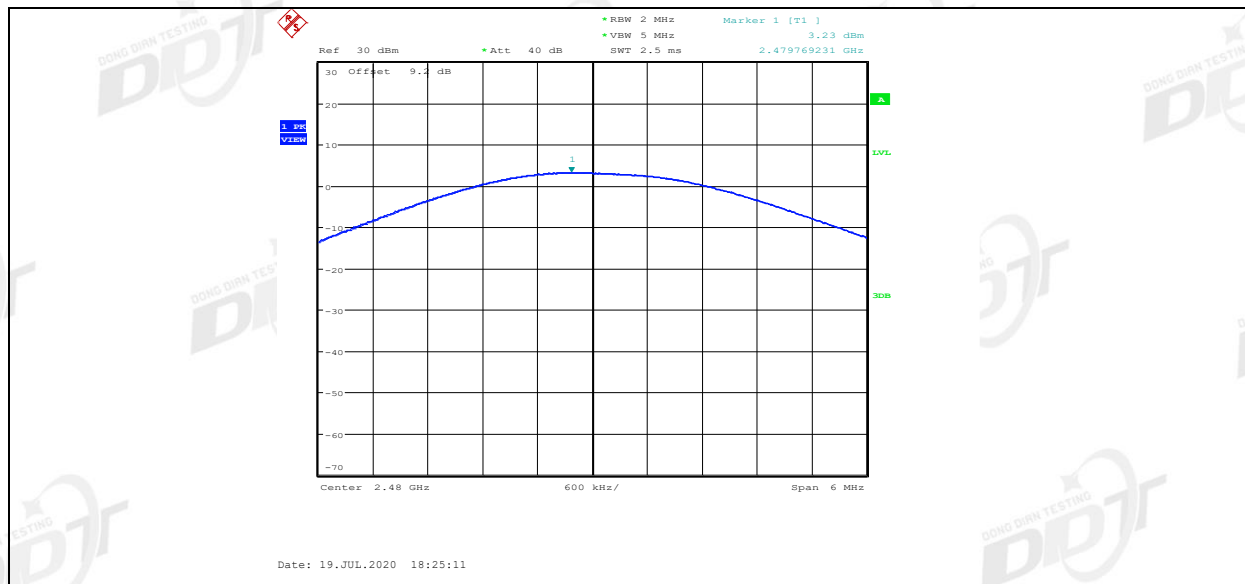
Right side:

| Mode | Freq. (MHz) | Peak Output Power (dBm) | Limit (dBm) | Verdict |
|------|-------------|-------------------------|-------------|---------|
| GFSK | 2402        | 7.76                    | 30          | Pass    |
|      | 2440        | 9.94                    | 30          | Pass    |
|      | 2480        | 7.17                    | 30          | Pass    |

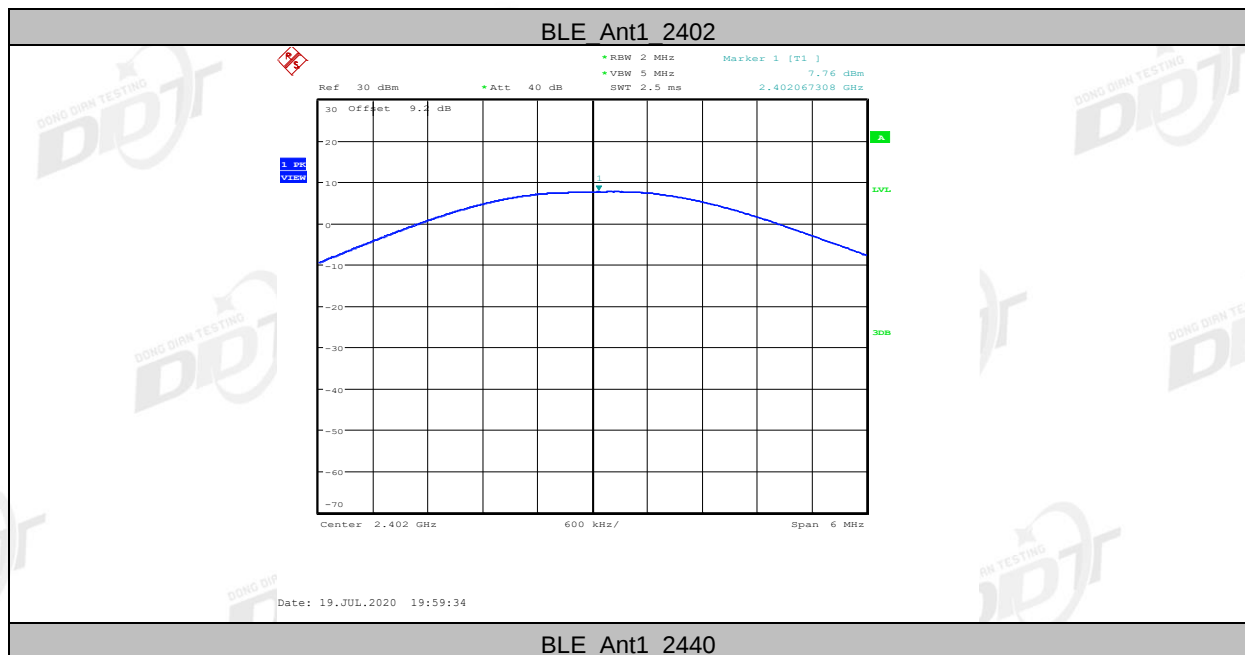
## 5.5. Original test data

Left side:





Right side:





## 6. Power Spectral Density

### 6.1. Block diagram of test setup

Same with 4.1

### 6.2. Limits

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.

### 6.3. Test procedure

- (1) Connect EUT's antenna output to spectrum analyzer by RF cable.
- (2) Set the spectrum analyzer as follows:

|                  |                                                      |
|------------------|------------------------------------------------------|
| Center frequency | DTS Channel center frequency                         |
| RBW:             | $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ |
| VBW:             | $\geq 3\text{RBW}$                                   |
| Span             | 1.5 times the DTS bandwidth                          |
| Detector Mode:   | Peak                                                 |
| Sweep time:      | auto                                                 |
| Trace mode       | Max hold                                             |

- (3) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude level within the RBW.
- (4) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

### 6.4. Test result

Left side:

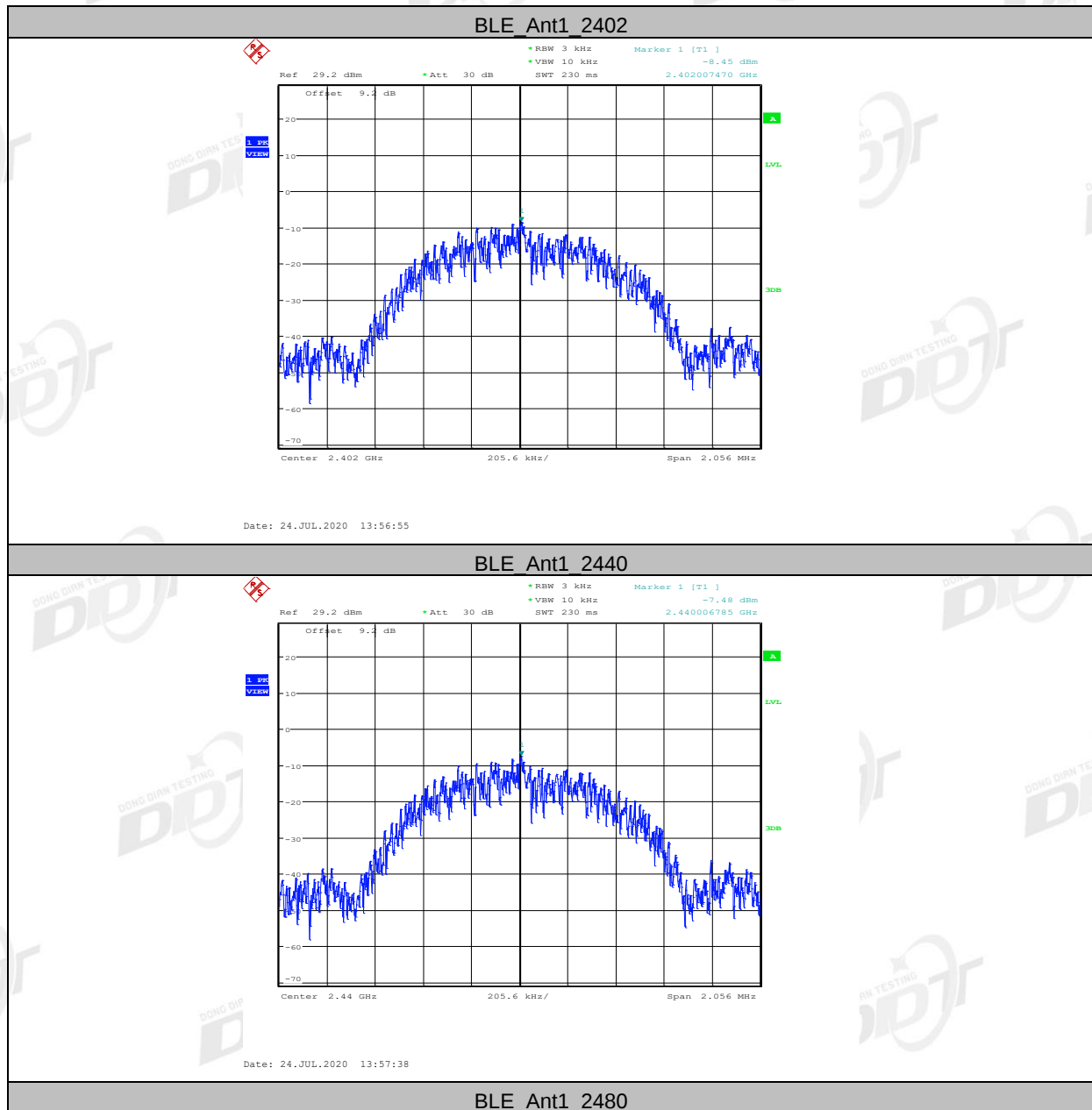
| EUT Set Mode            | Antenna | Channel | Result (dBm/3 kHz) |
|-------------------------|---------|---------|--------------------|
| GFSK                    | ANT1    | CH0     | -8.45              |
|                         | ANT1    | CH19    | -7.48              |
|                         | ANT1    | CH39    | -11.67             |
| Limit: <13.2 dBm/10 kHz |         |         | Verdict: Pass      |

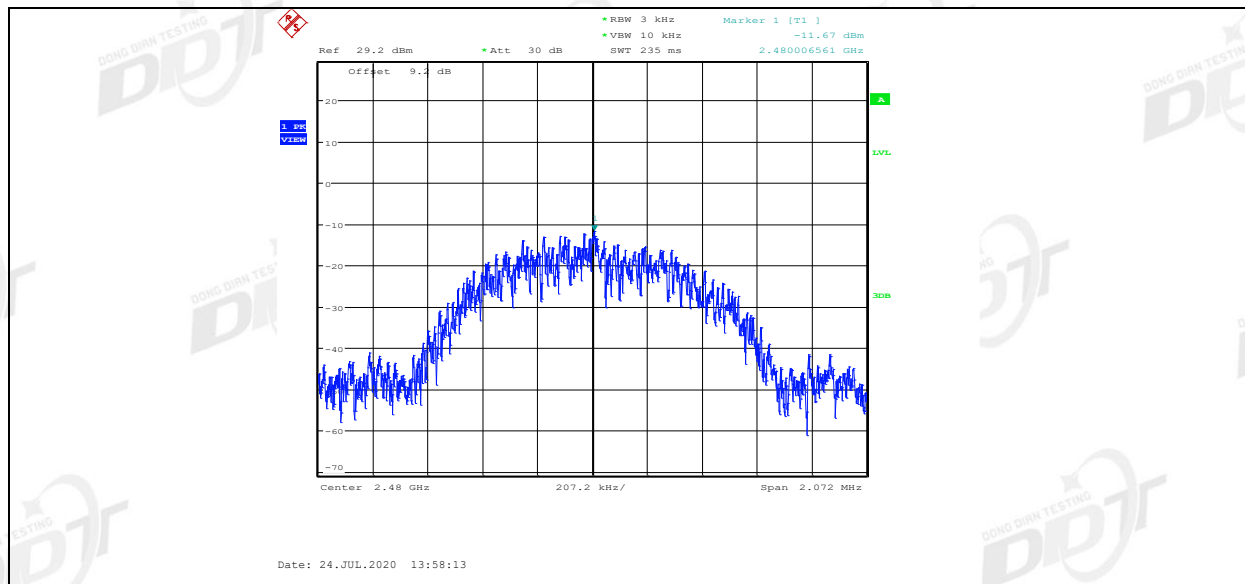
Right side:

| EUT Set Mode        | Antenna | Channel | Result (dBm/3 kHz) |
|---------------------|---------|---------|--------------------|
| GFSK                | ANT1    | CH0     | -8.02              |
|                     | ANT1    | CH19    | -7.18              |
|                     | ANT1    | CH39    | -10.55             |
| Limit: <8 dBm/3 kHz |         |         | Verdict: Pass      |

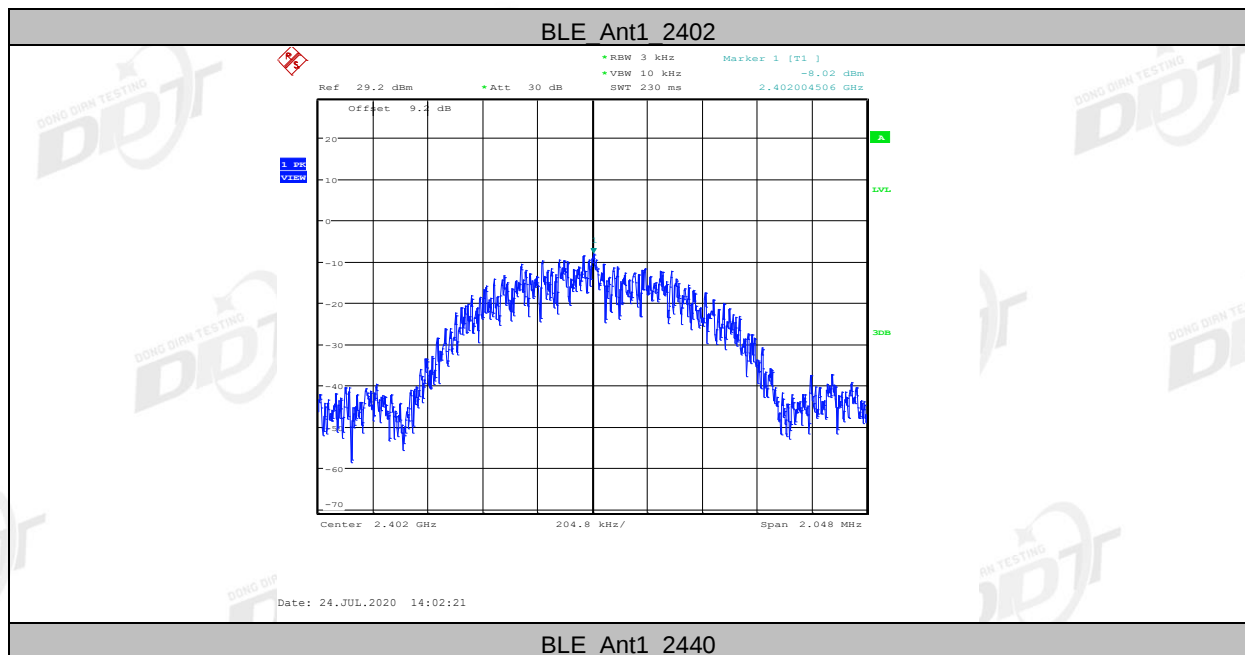
## 6.5. Original test data

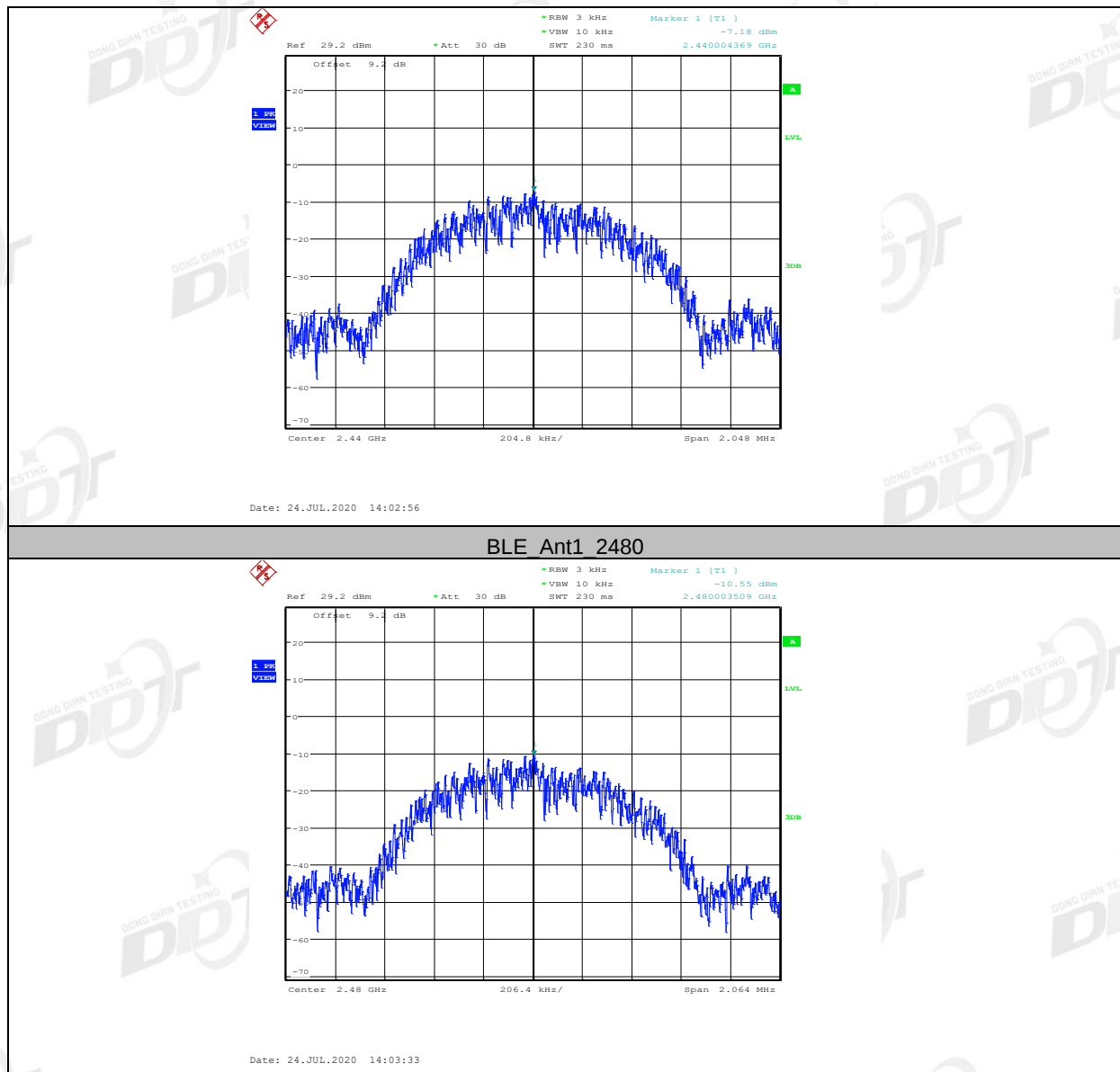
Left side:





Right side:





## 7. Band Edge Compliance (Conducted Method)

### 7.1. Block diagram of test setup

Same with 4.1

### 7.2. Limits

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum 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.

### 7.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Establish a reference level by using the following procedure:

|                  |                              |
|------------------|------------------------------|
| Center frequency | DTS Channel center frequency |
| RBW:             | 100 kHz                      |
| VBW:             | 300 kHz                      |
| Span             | 1.5 times the DTS bandwidth  |
| Detector Mode:   | Peak                         |
| Sweep time:      | auto                         |
| Trace mode       | Max hold                     |

(3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

(4) Set the spectrum analyzer as follows:

|                              |                                          |
|------------------------------|------------------------------------------|
| RBW:                         | 100 kHz                                  |
| VBW:                         | 300 kHz                                  |
| Span                         | Encompass frequency range to be measured |
| Number of measurement points | $\geq \text{span/RBW}$                   |
| Detector Mode:               | Peak                                     |
| Sweep time:                  | auto                                     |
| Trace mode                   | Max hold                                 |

(5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

#### 7.4. Test result

| EUT Set Mode | CH or Frequency | Measured Range        | Verdict |
|--------------|-----------------|-----------------------|---------|
| GFSK         | CH0             | 2.300 GHz - 2.405 GHz | Pass    |
|              | CH39            | 2.470 GHz - 2.550 GHz | Pass    |

#### 7.5. Original test data

Left side:

