



FCC - TEST REPORT

Report Number : **709502505392-00B** Date of Issue: August 13, 2025

Model : CE220818

Product Type : Wireless Headphones

Applicant : Balco Brands Pty Ltd

Address : C/ siemens Building Ground Floor 885 Mountain Hwy Bayswater
Victoria, 3153 Australia

Production Facility : Shenzhen Qiateng Electronics Co., Ltd

Address : 1402, Chuangzhi Industrial Building, 1 Ying'ai Road, Dalang
Street, Longhua District, Shenzhen, Guangdong Sheng, China

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including
Appendices : 83

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2 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

| Issue | Description of Change | Date of Issue |
|------------------|-----------------------|---------------|
| 709502505392-00B | First Issue | 08/12/2025 |

3 Details about the Test Laboratory

Details about the Test Laboratory

Test Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch
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FCC Registration No.: 820234

FCC Designation Number: CN1183

ISED CAB identifier CN0101

IC Registration No.: 31668

4 Description of the Equipment Under Test

Product: Wireless Headphones

Model no.: CE220818

FCC ID: 2BNW2-CE220818

Options and accessories: USB Cable, Audio cable

Rating: USB input 5V DC,500mA; Internal rechargeable lithium battery:3.7V DC

RF Transmission Frequency: 2402~2480MHz

No. of Operated Channel:

| Ch | Fre(MHz) | Ch | Fre(MHz) | Ch | Fre(MHz) | Ch | Fre(MHz) |
|----|----------|----|----------|----|----------|----|----------|
| 0 | 2402 | 20 | 2422 | 40 | 2442 | 60 | 2462 |
| 1 | 2403 | 21 | 2423 | 41 | 2443 | 61 | 2463 |
| 2 | 2404 | 22 | 2424 | 42 | 2444 | 62 | 2464 |
| 3 | 2405 | 23 | 2425 | 43 | 2445 | 63 | 2465 |
| 4 | 2406 | 24 | 2426 | 44 | 2446 | 64 | 2466 |
| 5 | 2407 | 25 | 2427 | 45 | 2447 | 65 | 2467 |
| 6 | 2408 | 26 | 2428 | 46 | 2448 | 66 | 2468 |
| 7 | 2409 | 27 | 2429 | 47 | 2449 | 67 | 2469 |
| 8 | 2410 | 28 | 2430 | 48 | 2450 | 68 | 2470 |
| 9 | 2411 | 29 | 2431 | 49 | 2451 | 69 | 2471 |
| 10 | 2412 | 30 | 2432 | 50 | 2452 | 70 | 2472 |
| 11 | 2413 | 31 | 2433 | 51 | 2453 | 71 | 2473 |
| 12 | 2414 | 32 | 2434 | 52 | 2454 | 72 | 2474 |
| 13 | 2415 | 33 | 2435 | 53 | 2455 | 73 | 2475 |
| 14 | 2416 | 34 | 2436 | 54 | 2456 | 74 | 2476 |
| 15 | 2417 | 35 | 2437 | 55 | 2457 | 75 | 2477 |
| 16 | 2418 | 36 | 2438 | 56 | 2458 | 76 | 2478 |
| 17 | 2419 | 37 | 2439 | 57 | 2459 | 77 | 2479 |
| 18 | 2420 | 38 | 2440 | 58 | 2460 | 78 | 2480 |
| 19 | 2421 | 39 | 2441 | 59 | 2461 | 79 | |

Modulation: GFSK, $\pi/4$ -DQPSK, 8DPSK

Antenna Type: Onboard PCB antenna

Antenna Gain: 0.42dBi

Hardware version: V1.0
Software version: 1.3.8

Description of the EUT: The Equipment Under Test (EUT) was a Wireless Headphones with classic Bluetooth function.

Test sample no.: SHA-929061-2 (Radiated sample); SHA-929061-3 (Conducted sample)

The sample's mentioned in this report is/are submitted/ supplied/ manufactured by client. The laboratory therefore assumes no responsibility for accuracy of information on the brand name, model number, origin of manufacture, consignment, antenna gain or any information supplied



5 Summary of Test Standards

| Test Standards | |
|--|--|
| FCC Part 15 Subpart C 10-1-2023 Edition | PART 15 - RADIO FREQUENCY DEVICES Subpart C - Intentional Radiators |

All the test methods were according to KDB 558074 D01 15.247 Meas Guidance v05r02 Measurement Guidance and ANSI C63.10-2020.



6 Summary of Test Results

| Technical Requirements | | | | | | |
|--------------------------------|---|------------|-----------|-------------------------------------|--------------------------|-------------------------------------|
| FCC Part 15 Subpart | | | | | | |
| Test Condition | | Pages | Test Site | Test Result | | |
| | | | | Pass | Fail | N/A |
| §15.207 | Conducted emission AC power port | 10-15 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.247 (b) (1) | Conducted peak output power | 16-20 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.247(a)(1) | 20dB bandwidth Bandwidth | 21-24 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.247(a)(1) | Carrier frequency separation | 25-26 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.247(a)(1)(iii) | Number of hopping frequencies | 27-28 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.247(a)(1)(iii) | Dwell Time - Average Time of Occupancy | 29-31 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.247(a)(2) | 6dB bandwidth and 99% Occupied Bandwidth | --- | --- | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| §15.247(e) | Power spectral density | --- | --- | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| §15.247(e) | Spurious RF conducted emissions | 32-35 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.247(d) | Band edge | 36-48 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.247(d) & §15.209 & §15.205 | Spurious radiated emissions for transmitter | 49-79 | Site 1 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| §15.203 | Antenna requirement | See note 1 | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Remark 1: N/A – Not Applicable.

Note 1: The EUT uses a onboard PCB antenna, which gain is 0.42dBi. In accordance to §15.203, It is considered sufficiently to comply with the provisions of this section.



7 General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: 2BNW2-CE220818, complies with Section 15.205, 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C rules.

SUMMARY:

All tests according to the regulations cited on page 5 were

n - Performed

o - **Not** Performed

The Equipment Under Test

n - **Fulfills** the general approval requirements.

o - **Does not** fulfill the general approval requirements.

Sample Received Date: June 20, 2025

Testing Start Date: June 24, 2025

Testing End Date: August 9, 2025

TÜV SÜD Certification and Testing (China) Co., Ltd. Shanghai Branch

Reviewed by:

Prepared by:

Tested by:



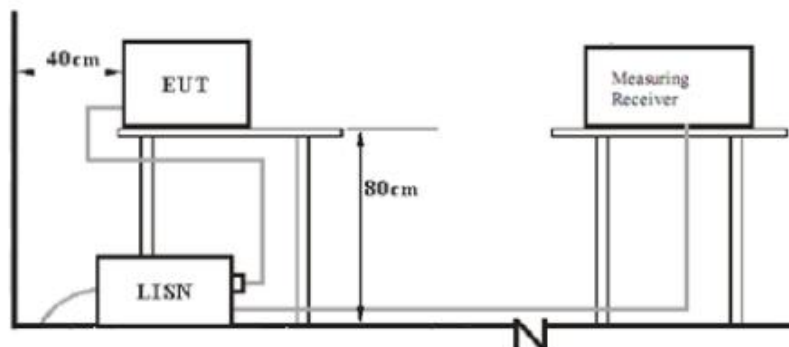
Hui TONG
Review Engineer

Jiayi XU
Project Engineer

Doujun XU
Test Engineer

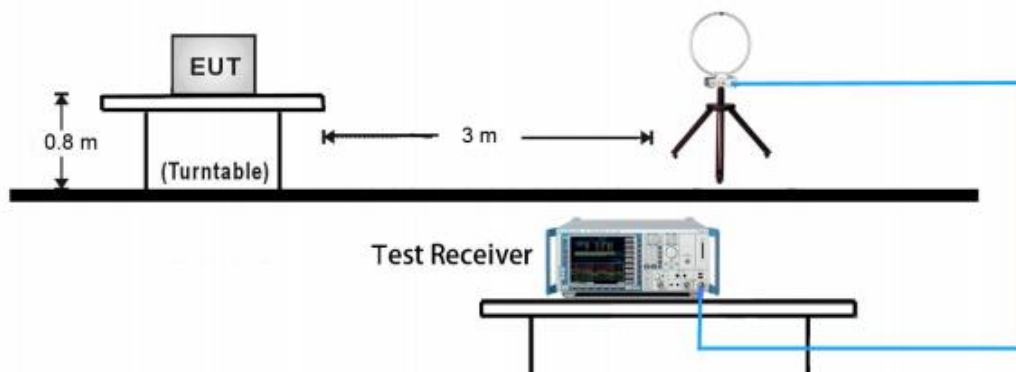
8 Test Setups

8.1 AC Power Line Conducted Emission test setups

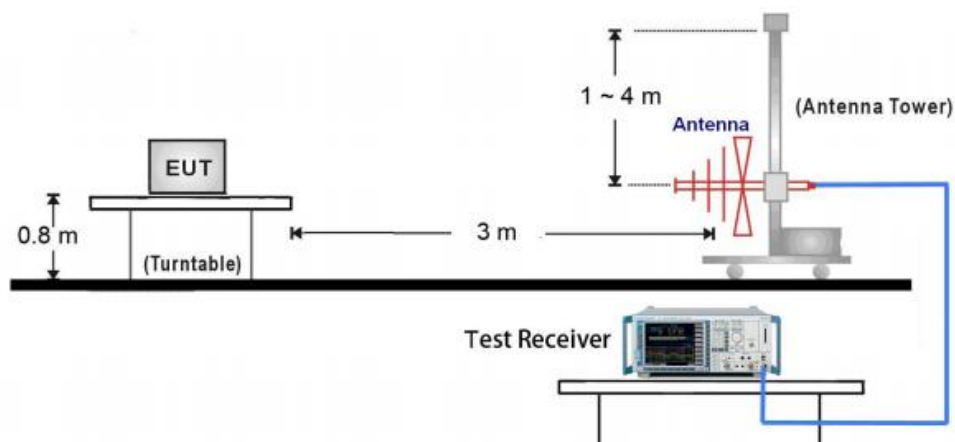


8.2 Radiated test setups

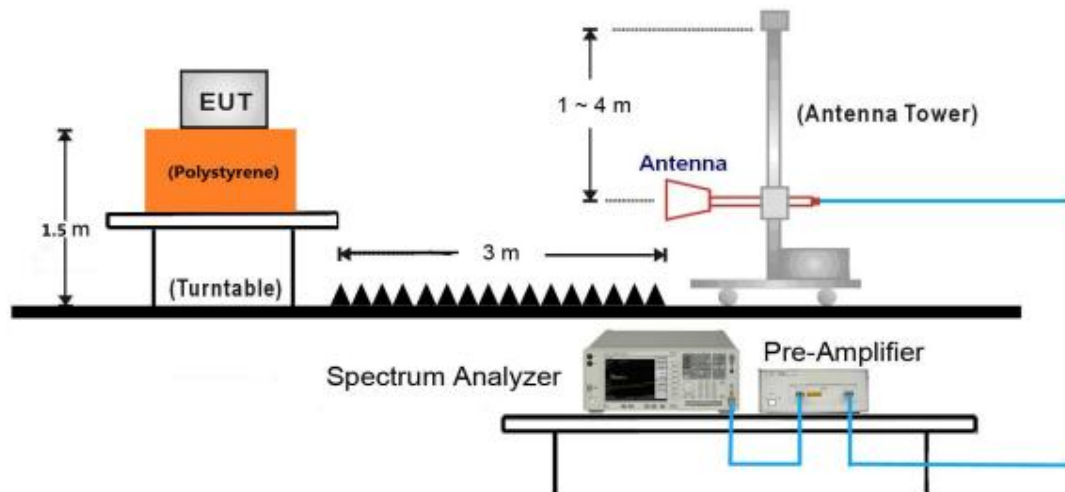
9kHz ~ 30MHz Test Setup:



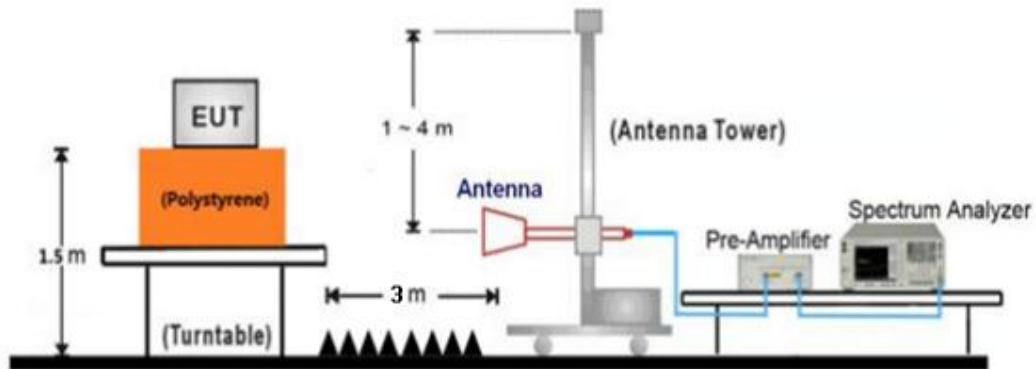
30MHz ~ 1GHz Test Setup:



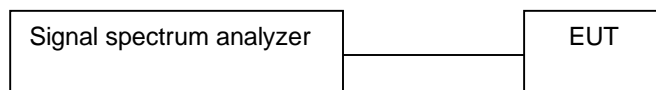
1GHz ~ 18GHz Test Setup:



18GHz ~ 25GHz Test Setup:



8.3 Conducted RF test setups



9 Systems test configuration

Auxiliary Equipment Used during Test:

| DESCRIPTION | MANUFACTURER | MODEL NO.(SHIELD) | S/N(LENGTH) |
|-------------|--------------|-------------------|-----------------|
| Notebook | Lenovo | E470 | PF-OU5TS7 17/09 |
| Adaptor | -- | TPA-67B050100VU01 | -- |

Test software: FCC_assist_1.0.2.2, which used to control the EUT in continues transmitting mode.

The system was configured to hopping mode and non-hopping mode.

Hopping mode: typical working mode (normal hopping status)

| Mode | Tested Channel | Modulation | Index Value (Power level setting) |
|------|----------------|----------------|--------------------------------------|
| DH5 | 0 | GFSK | 10 |
| | 40 | GFSK | 10 |
| | 78 | GFSK | 10 |
| 2DH5 | 0 | $\pi/4$ -DQPSK | 10 |
| | 40 | $\pi/4$ -DQPSK | 10 |
| | 78 | $\pi/4$ -DQPSK | 10 |
| 3DH5 | 0 | 8DPSK | 10 |
| | 40 | 8DPSK | 10 |
| | 78 | 8DPSK | 10 |

The system was configured to hopping mode and non-hopping mode.

Hopping mode: typical working mode (normal hopping status)

Non-hopping mode: The system was configured to operate at a signal channel transmitting. The test software allows the configuration and operation at the worst-case duty and the highest transmit power

10 Technical Requirement

10.1 Conducted Emission

Test Method

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.

Limit

| Frequency MHz | QP Limit dB μ V | AV Limit dB μ V |
|------------------|------------------------|------------------------|
| 0.150-0.500 | 66-56* | 56-46* |
| 0.500-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency.

Conducted Emission

150k-30MHz Conducted Emission Test

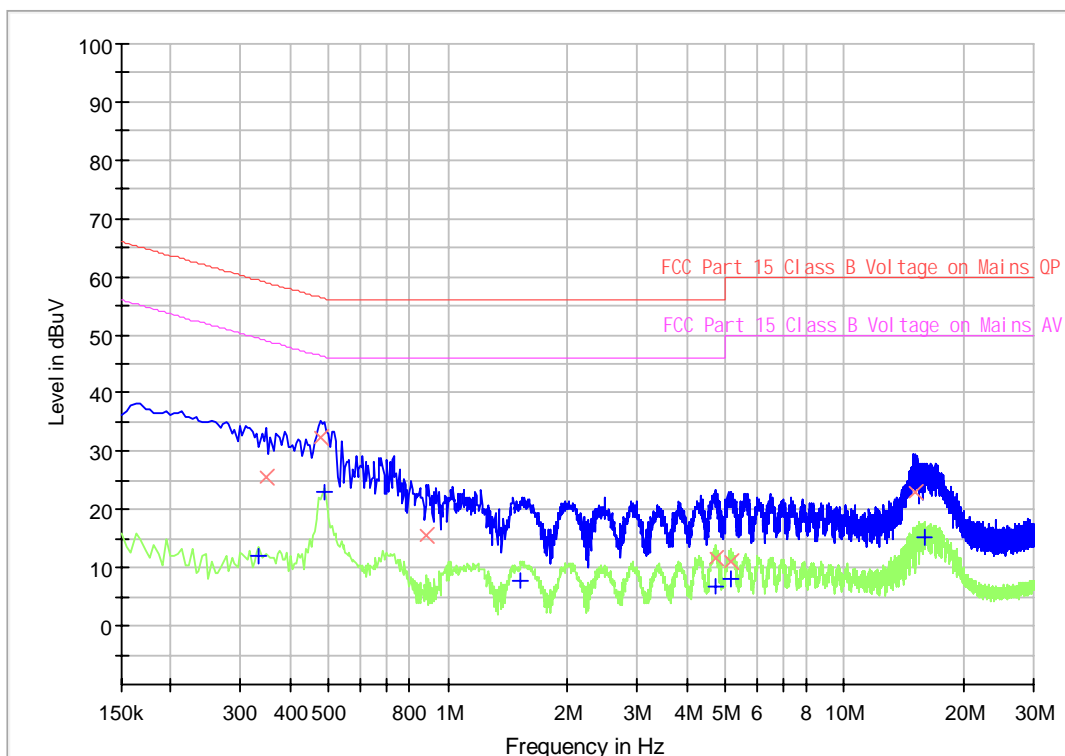
EUT Information

EUT Name: Wireless Headphones
 Model: CE220818
 Client: Balco Brands Pty Ltd
 Op Cond: Charging and TX_2402MHz at GFSK mode
 Operator: Doujun XU
 Test Spec: FCC 15.207 (a)
 Comment: Phase L
 Sample No: SHA-929061-2

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN
 Receiver: [ESR 3]
 Level Unit: dBuV

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|------------------|-----------|-----------|--------|------------|--------|
| 9 kHz - 150 kHz | 100 Hz | PK+ | 200 Hz | 0.02 s | 0 dB |
| 150 kHz - 30 MHz | 4.5 kHz | PK+; AVG | 9 kHz | 0.01 s | 0 dB |





Final Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.334500 | --- | 12.05 | 49.34 | 37.29 | 1000.0 | 9.000 | L1 | 19.5 |
| 0.348000 | 25.75 | --- | 59.01 | 33.26 | 1000.0 | 9.000 | L1 | 19.5 |
| 0.478500 | 32.49 | --- | 56.37 | 23.88 | 1000.0 | 9.000 | L1 | 19.5 |
| 0.487500 | --- | 23.13 | 46.21 | 23.08 | 1000.0 | 9.000 | L1 | 19.5 |
| 0.883500 | 15.49 | --- | 56.00 | 40.51 | 1000.0 | 9.000 | L1 | 19.5 |
| 1.518000 | --- | 7.92 | 46.00 | 38.08 | 1000.0 | 9.000 | L1 | 19.5 |
| 4.717500 | 11.76 | --- | 56.00 | 44.24 | 1000.0 | 9.000 | L1 | 19.6 |
| 4.717500 | --- | 6.67 | 46.00 | 39.33 | 1000.0 | 9.000 | L1 | 19.6 |
| 5.154000 | --- | 8.12 | 50.00 | 41.88 | 1000.0 | 9.000 | L1 | 19.6 |
| 5.181000 | 11.18 | --- | 60.00 | 48.82 | 1000.0 | 9.000 | L1 | 19.6 |
| 15.153000 | 22.90 | --- | 60.00 | 37.10 | 1000.0 | 9.000 | L1 | 19.9 |
| 15.945000 | --- | 15.33 | 50.00 | 34.67 | 1000.0 | 9.000 | L1 | 20.0 |

150k-30MHz Conducted Emission Test

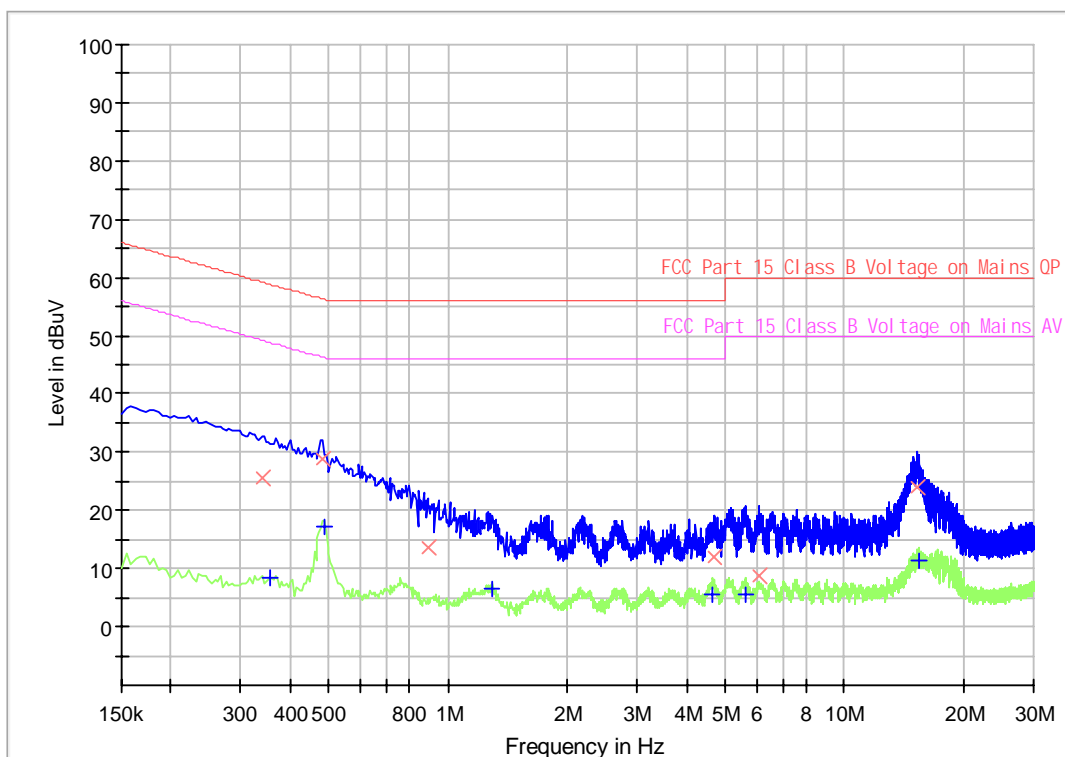
EUT Information

EUT Name: Wireless Headphones
 Model: CE220818
 Client: Balco Brands Pty Ltd
 Op Cond: Charging and TX_2402MHz at GFSK mode
 Operator: Doujun XU
 Test Spec: FCC 15.207 (a)
 Comment: Phase N
 Sample No: SHA-929061-2

Scan Setup: Voltage with 2-Line-LISN pre [EMI conducted]

Hardware Setup: Voltage with 2-Line-LISN
 Receiver: [ESR 3]
 Level Unit: dBuV

| Subrange | Step Size | Detectors | IF BW | Meas. Time | Preamp |
|------------------|-----------|-----------|--------|------------|--------|
| 9 kHz - 150 kHz | 100 Hz | PK+ | 200 Hz | 0.02 s | 0 dB |
| 150 kHz - 30 MHz | 4.5 kHz | PK+; AVG | 9 kHz | 0.01 s | 0 dB |





Final_Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.339000 | 25.54 | --- | 59.23 | 33.69 | 1000.0 | 9.000 | N | 19.4 |
| 0.357000 | --- | 8.29 | 48.80 | 40.51 | 1000.0 | 9.000 | N | 19.4 |
| 0.483000 | 28.91 | --- | 56.29 | 27.38 | 1000.0 | 9.000 | N | 19.5 |
| 0.487500 | --- | 17.29 | 46.21 | 28.92 | 1000.0 | 9.000 | N | 19.5 |
| 0.888000 | 13.73 | --- | 56.00 | 42.27 | 1000.0 | 9.000 | N | 19.5 |
| 1.297500 | --- | 6.59 | 46.00 | 39.41 | 1000.0 | 9.000 | N | 19.5 |
| 4.654500 | --- | 5.38 | 46.00 | 40.62 | 1000.0 | 9.000 | N | 19.6 |
| 4.708500 | 11.85 | --- | 56.00 | 44.15 | 1000.0 | 9.000 | N | 19.6 |
| 5.622000 | --- | 5.51 | 50.00 | 44.49 | 1000.0 | 9.000 | N | 19.6 |
| 6.085500 | 8.91 | --- | 60.00 | 51.09 | 1000.0 | 9.000 | N | 19.6 |
| 15.288000 | 23.81 | --- | 60.00 | 36.19 | 1000.0 | 9.000 | N | 19.9 |
| 15.450000 | --- | 11.29 | 50.00 | 38.71 | 1000.0 | 9.000 | N | 20.0 |

Remark:

Level=Reading Level + Correction Factor

Correction Factor=Cable Loss + LISN Factor

(The Reading Level is recorded by software which is not shown in the sheet)

10.2 Conducted Peak Output Power

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously
3. Use the following test receiver settings:
Span = approximately 5 times the 20dB bandwidth, centered on a hopping channel
RBW > the 20dB bandwidth of the emission being measured, VBW ≥ RBW,
Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power and record the results in the test report.
5. Repeat above procedures until all frequencies measured were complete.

Limits

According to §15.247 (b) (1), conducted peak output power limit as below:

| Frequency Range MHz | Limit W | Limit dBm |
|------------------------|------------|--------------|
| 2400-2483.5 | ≤1 | ≤30 |

Conducted Peak Output Power

Bluetooth Mode GFSK modulation Test Result

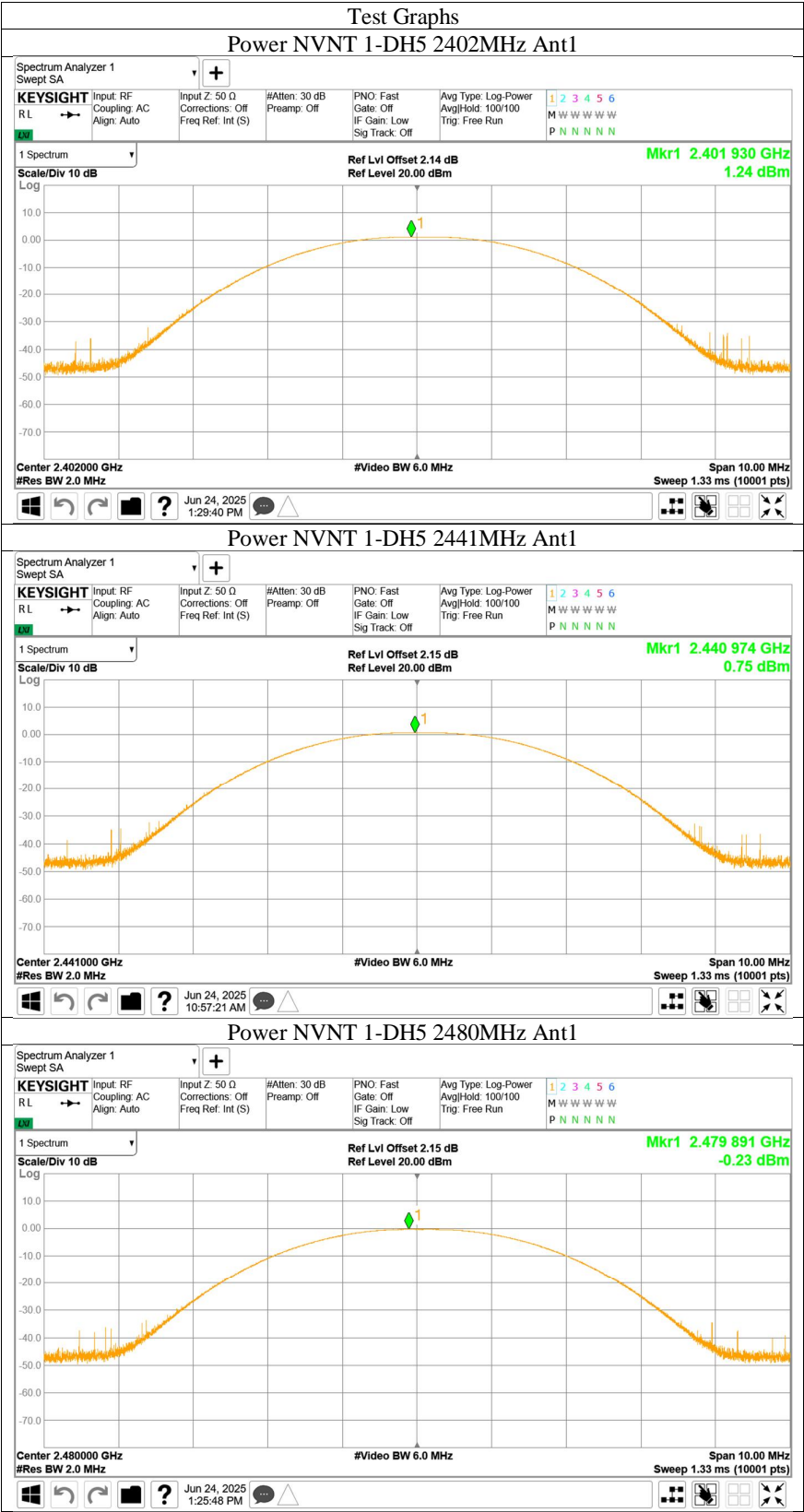
| Frequency MHz | Conducted Peak Output Power dBm | Result |
|------------------------|---------------------------------------|--------|
| Low channel 2402MHz | 1.24 | Pass |
| Middle channel 2441MHz | 0.75 | Pass |
| High channel 2480MHz | -0.23 | Pass |

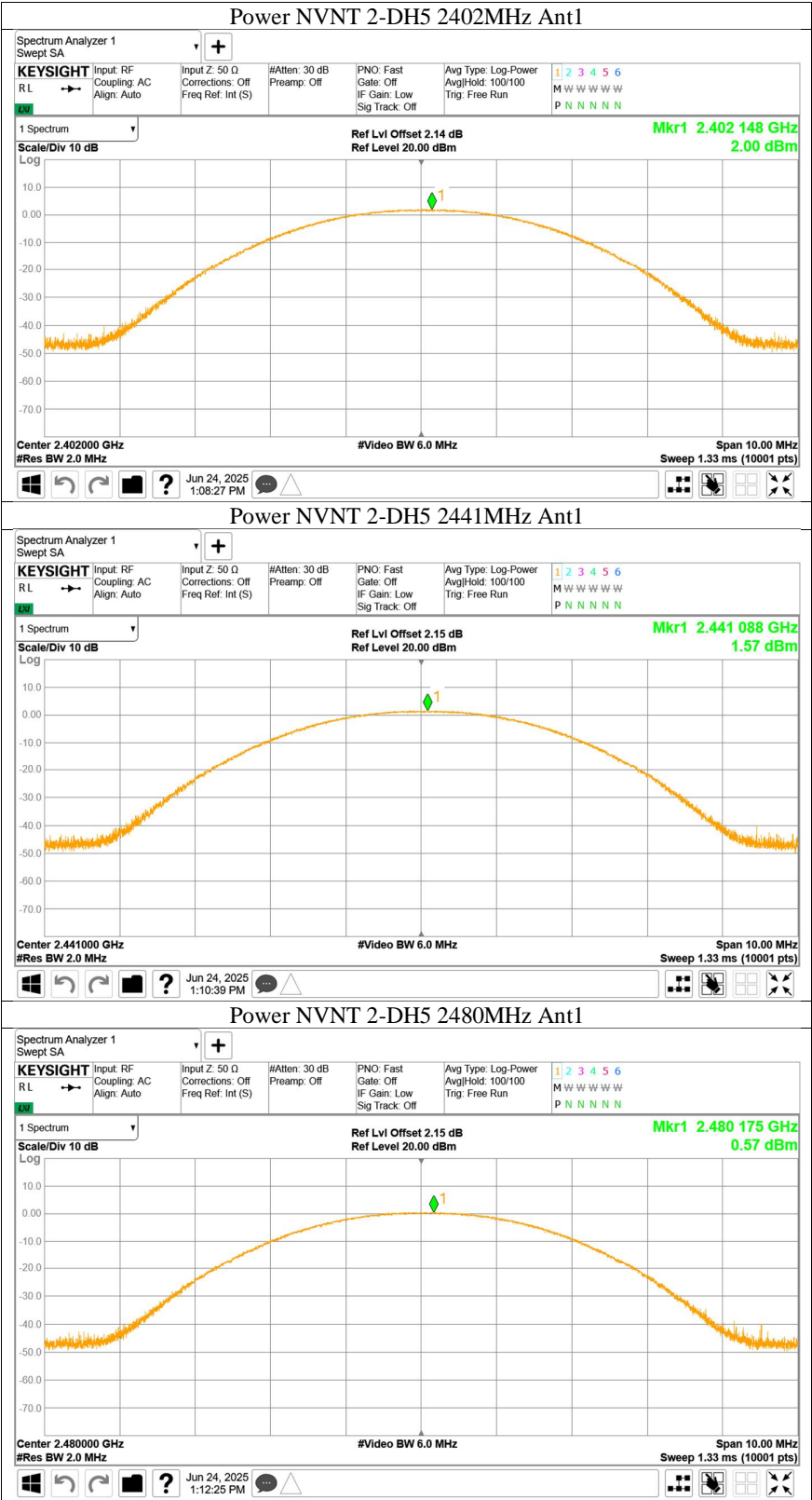
Bluetooth Mode $\pi/4$ -DQPSK modulation Test Result

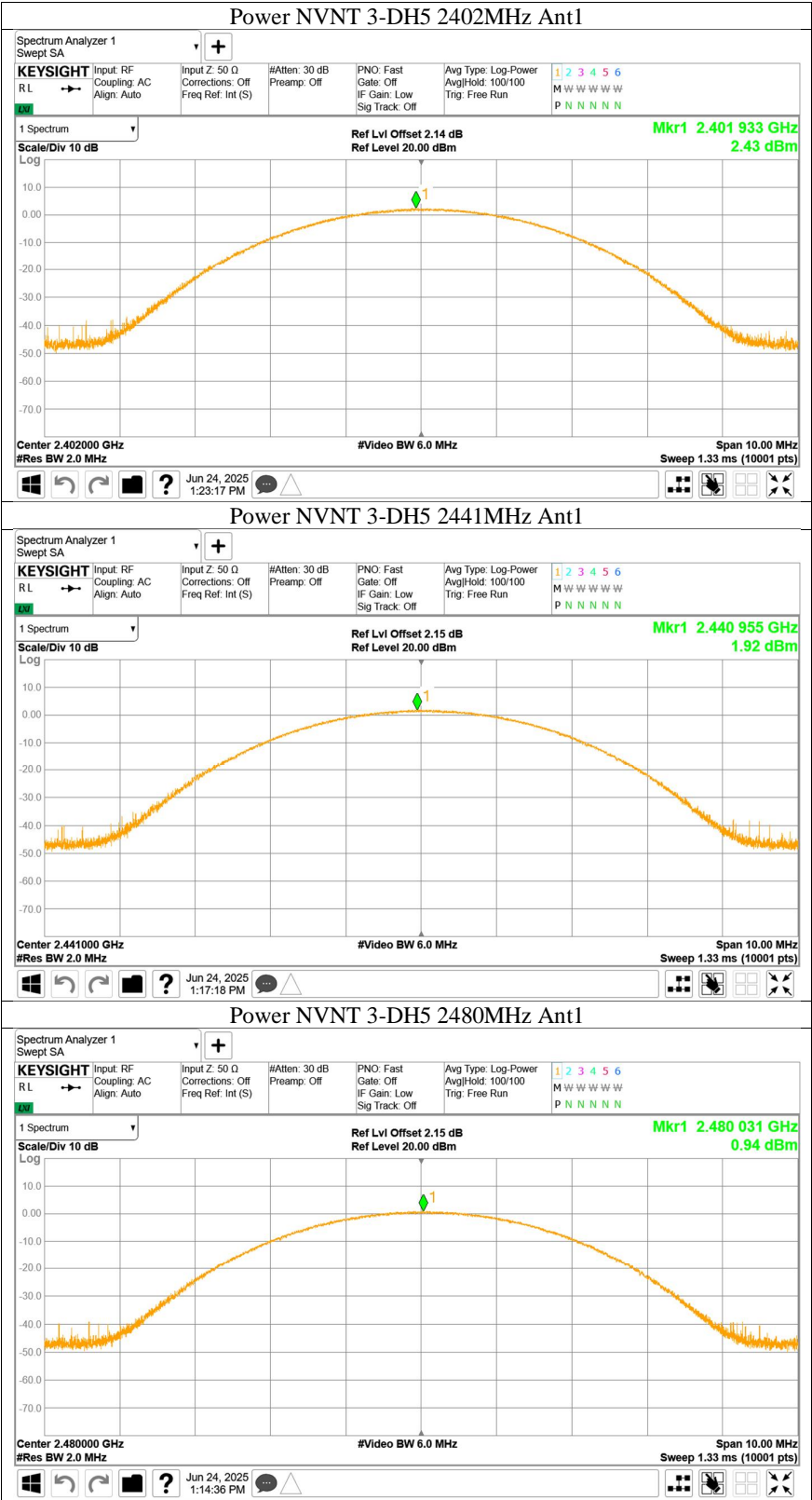
| Frequency MHz | Conducted Peak Output Power dBm | Result |
|------------------------|---------------------------------------|--------|
| Low channel 2402MHz | 2.01 | Pass |
| Middle channel 2441MHz | 1.57 | Pass |
| High channel 2480MHz | 0.57 | Pass |

Bluetooth Mode 8DPSK modulation Test Result

| Frequency MHz | Conducted Peak Output Power dBm | Result |
|------------------------|---------------------------------------|--------|
| Low channel 2402MHz | 2.43 | Pass |
| Middle channel 2441MHz | 1.92 | Pass |
| High channel 2480MHz | 0.94 | Pass |







10.320 dB bandwidth

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Use the following test receiver settings:
Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
RBW \geq 1% to 5% of the 20 dB bandwidth/99% OBW, VBW \geq 3RBW,
Sweep = auto, Detector function = peak, Trace = max hold
4. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Measure the frequency difference of two frequencies that were attenuated 20 dB/99% OBW from the reference level. Record the frequency difference as the emission bandwidth. Record the results.
5. Repeat above procedures until all frequencies measured were complete.

Limit

Limit [kHz]

N/A

20 dB bandwidth

Bluetooth Mode GFSK Modulation test result

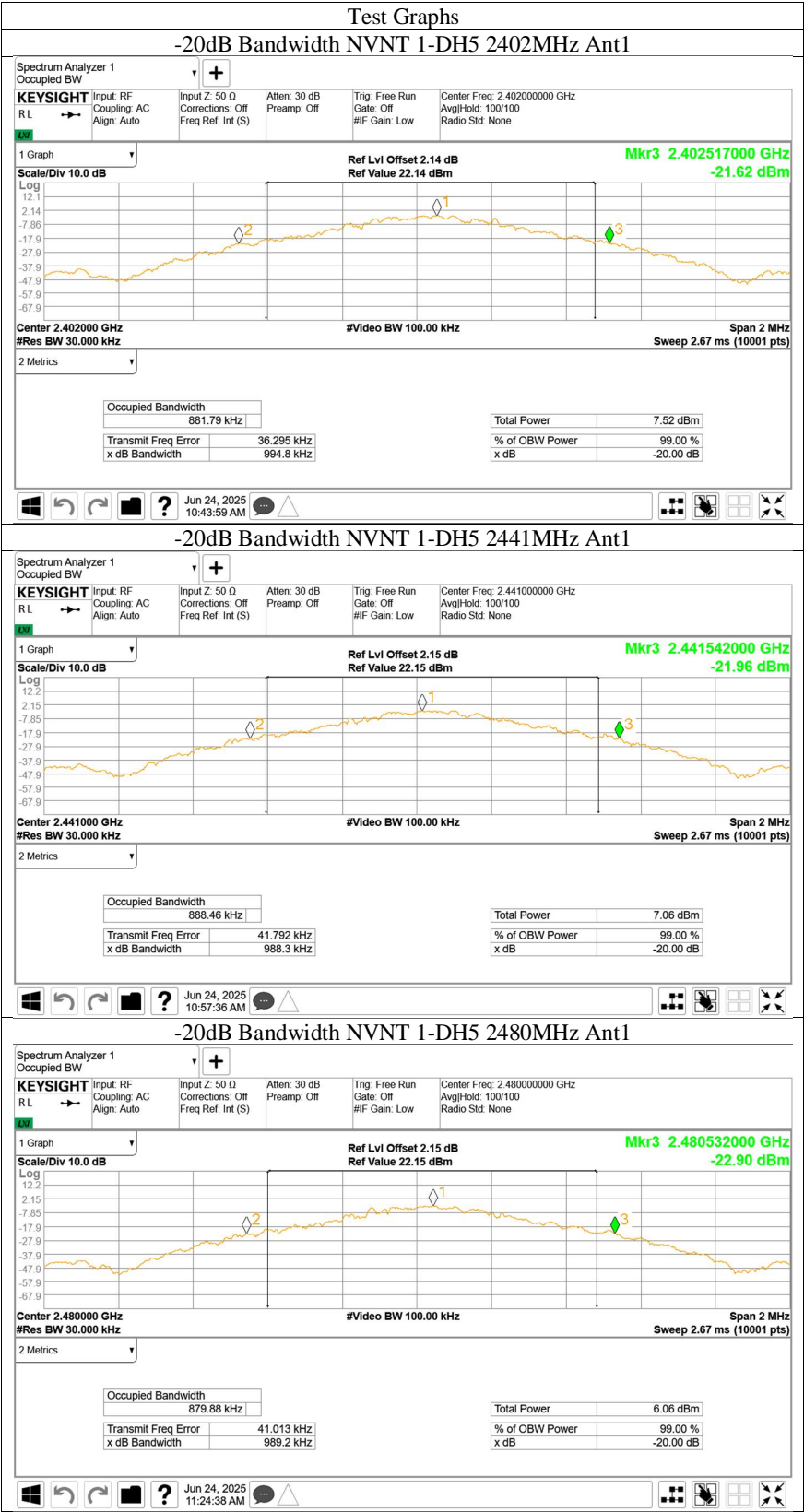
| Frequency MHz | 20 dB Bandwidth kHz | Limit kHz | Result |
|------------------|------------------------|--------------|--------|
| 2402 | 0.995 | -- | Pass |
| 2441 | 0.988 | -- | Pass |
| 2480 | 0.989 | -- | Pass |

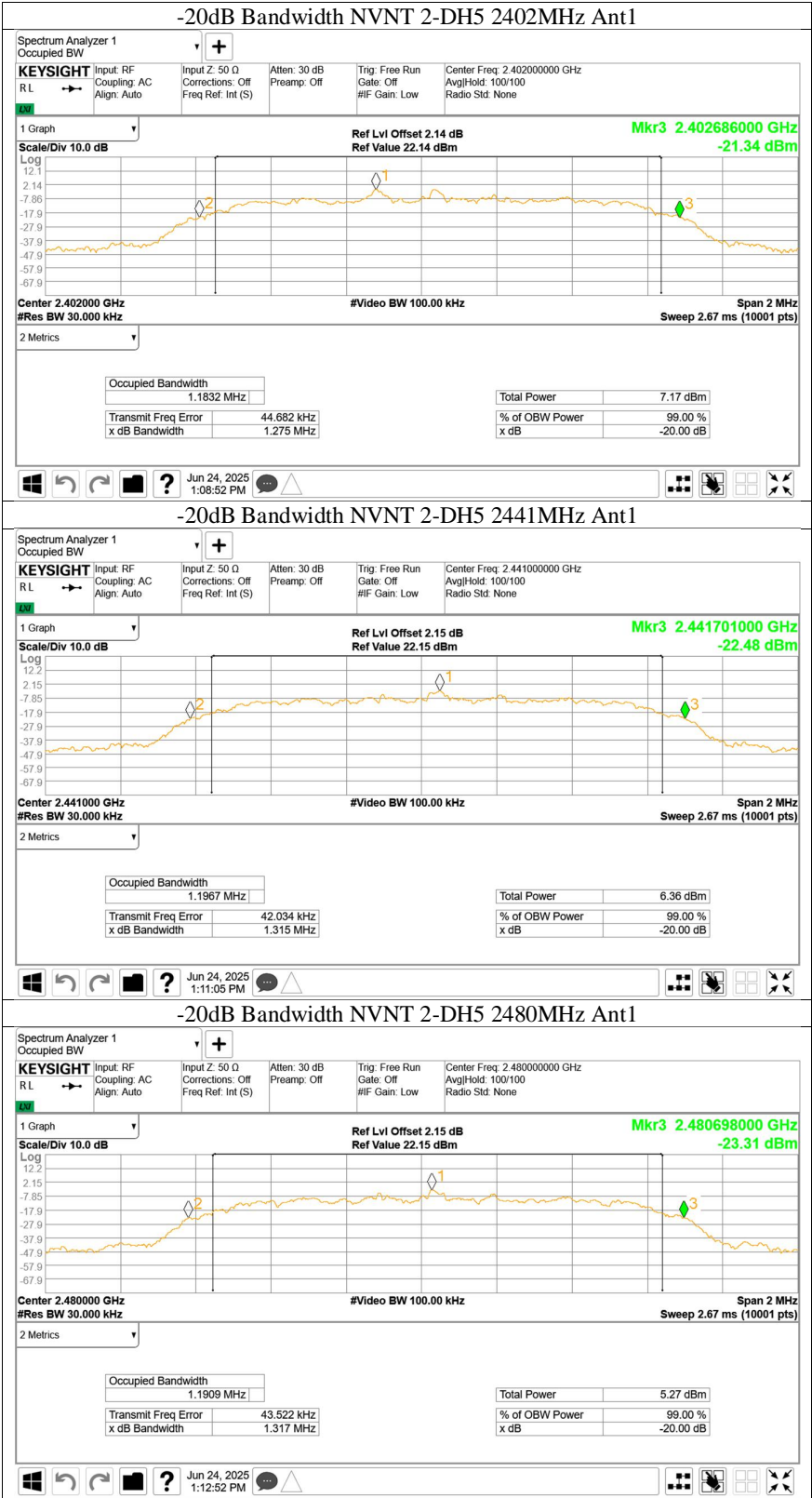
Bluetooth Mode $\pi/4$ -DQPSK Modulation test result

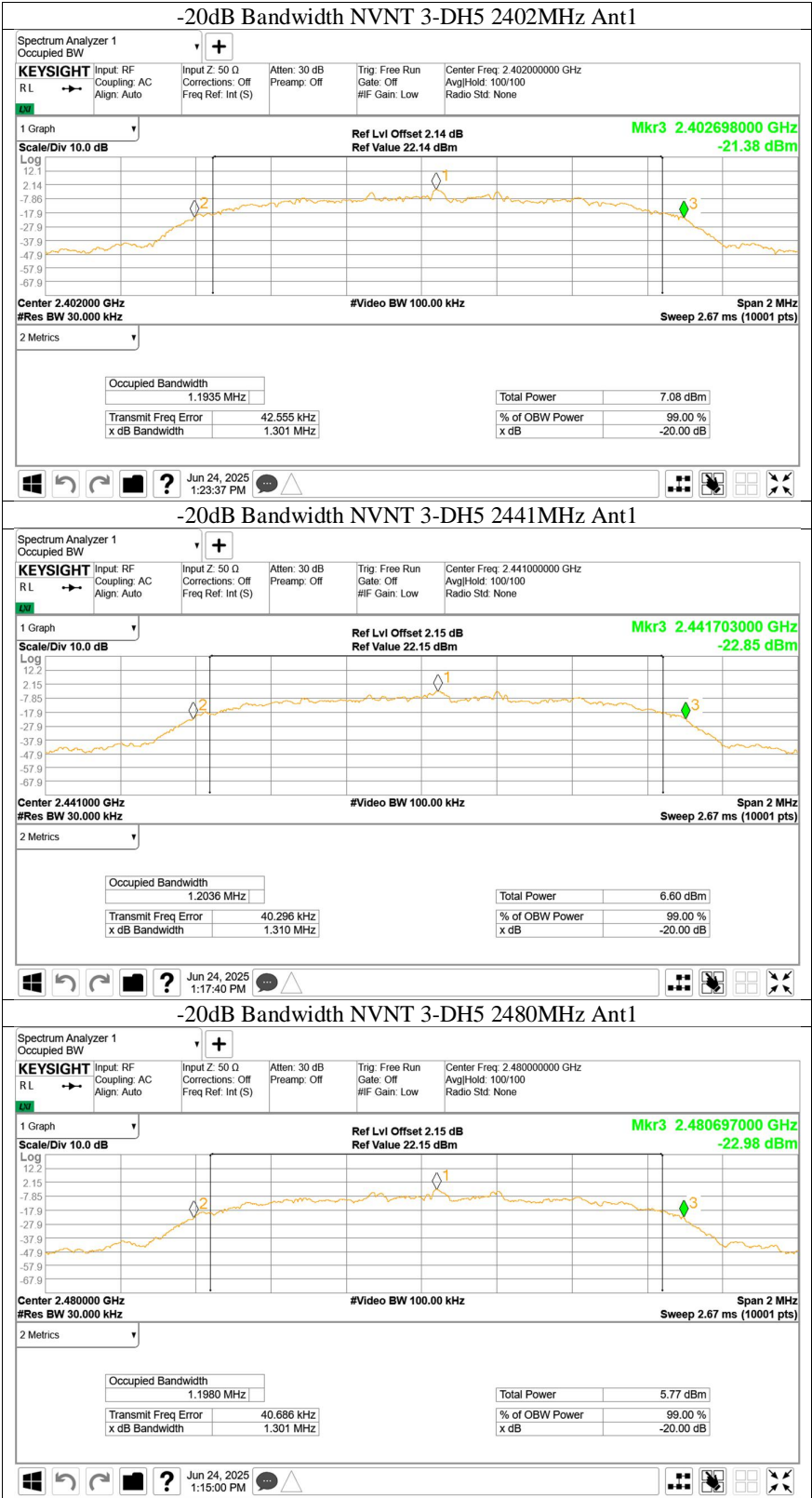
| Frequency MHz | 20 dB Bandwidth kHz | Limit kHz | Result |
|------------------|------------------------|--------------|--------|
| 2402 | 1.275 | -- | Pass |
| 2441 | 1.315 | -- | Pass |
| 2480 | 1.317 | -- | Pass |

Bluetooth Mode 8DPSK Modulation test result

| Frequency MHz | 20 dB Bandwidth kHz | Limit kHz | Result |
|------------------|------------------------|--------------|--------|
| 2402 | 1.301 | -- | Pass |
| 2441 | 1.31 | -- | Pass |
| 2480 | 1.301 | -- | Pass |







10.4 Carrier Frequency Separation

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit to hopping mode.
3. Use the following spectrum analyzer settings:
Span = wide enough to capture the peaks of two adjacent channels, RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel. VBW \geq RBW, Sweep = auto, Detector function = peak.
4. By using the Max-Hold function record the separation of two adjacent channels.
5. Measure the frequency difference of these two adjacent channels by spectrum analyzer marker function. Record the results.
6. Repeat above procedures until all frequencies measured were complete.

Limit

Limit

kHz

$\geq 25\text{kHz}$ or $2/3$ of the 20 dB bandwidth which is greater

Limit

| Modulation | Frequency | 2/3 of 20 dB Bandwidth |
|----------------|-----------|------------------------|
| | MHz | kHz |
| GFSK | 2402 | 663 |
| $\pi/4$ -DQPSK | 2441 | 876 |
| 8DPSK | 2441 | 873 |

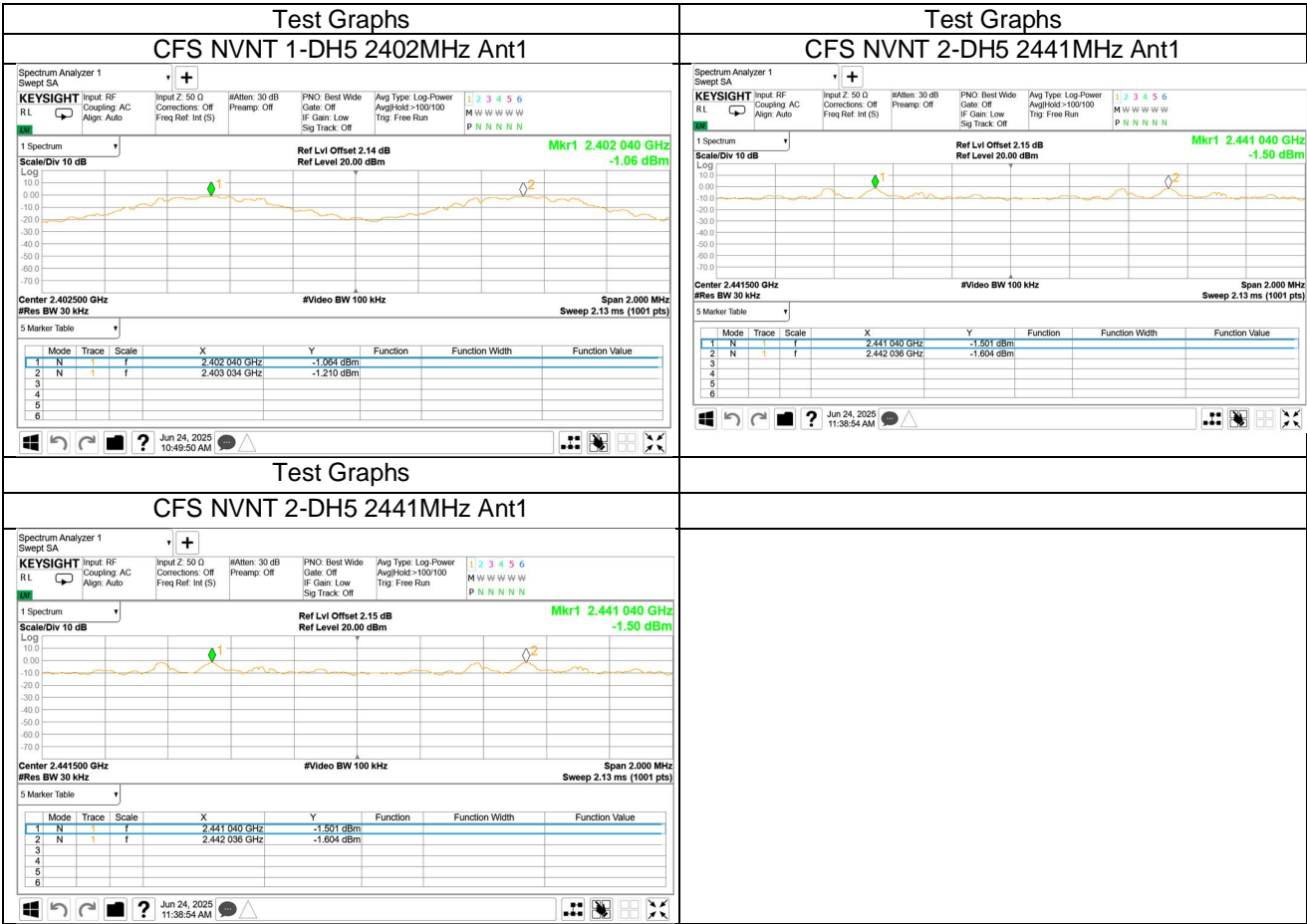


Carrier Frequency Separation

Test result: The measurement was performed with the typical configuration (normal hopping status), here the worst case was used to show compliance.

Test result

| Modulation | Frequency MHz | Carrier Frequency Separation kHz | Result |
|----------------|------------------|-------------------------------------|--------|
| GFSK | 2402 | 994 | Pass |
| $\pi/4$ -DQPSK | 2441 | 996 | Pass |
| 8DPSK | 2441 | 1004 | Pass |



10.5 Number of hopping frequencies

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit to hopping mode.
3. Use the following spectrum analyzer settings:
Span = the frequency band of operation, RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller, VBW \geq RBW, Sweep = auto, Detector function = peak, Trace=Max hold.
4. Allow the trace to stabilize. It may prove necessary to break the span up to sections, in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

Limit

Limit
number

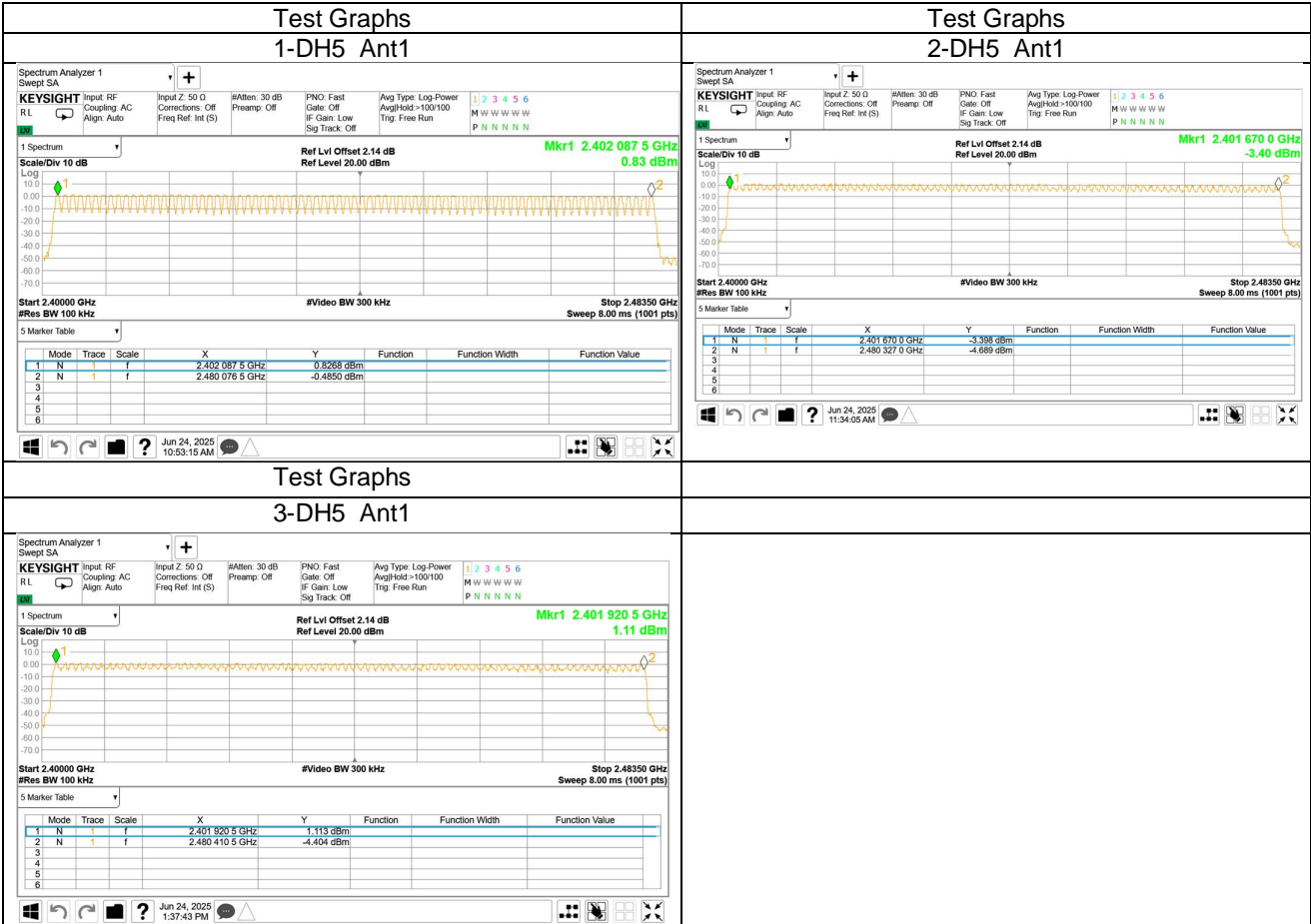
 ≥ 15



Number of hopping frequencies

Test result: The measurement was performed with the typical configuration (normal hopping status), and the total hopping channels is constant for the all modulation mode according with the Bluetooth Core Specification. Here GFSK modulation mode was used to show compliance.

| Number of hopping frequencies | Result |
|-------------------------------|--------|
| 79 | Pass |





10.6 Dwell Time

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit to hopping mode.
3. Span: Zero span, centered on a hopping channel.
4. RBW shall be \leq channel spacing and where possible RBW should be set $\gg 1 / T$, where T is the expected dwell time per channel.
5. Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
6. Detector function: Peak.
7. Trace: Max hold. Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time.

Limit

The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.



Dwell Time

Dwell time

The maximum dwell time shall be 0,4 s.

According to the Bluetooth Core Specification, the worse result was reported to show compliance.

The Dwell Time = Burst Width * Total Hops. The detailed calculations are showed as follows:

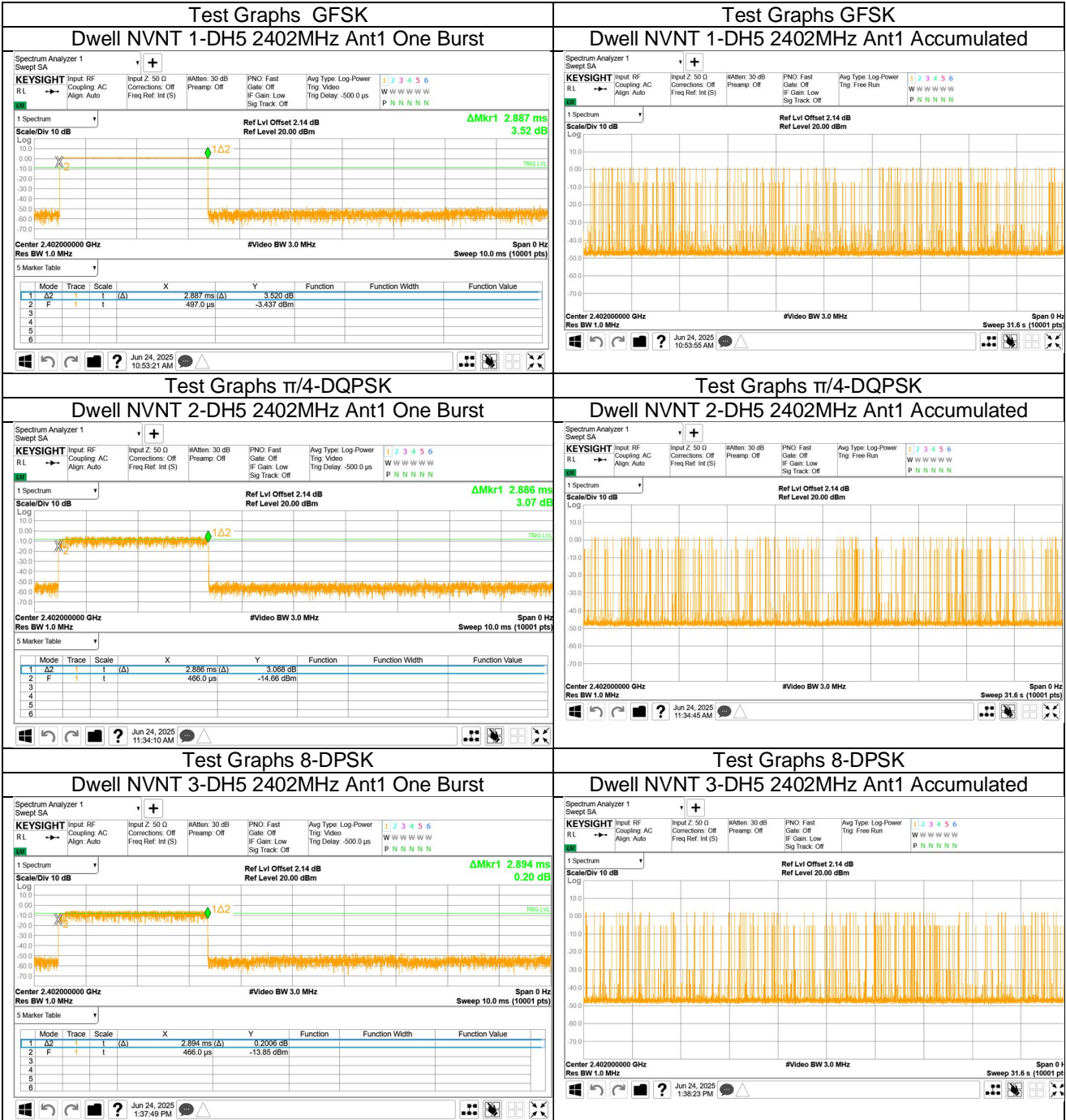
The duration for dwell time calculation: $0.4 \text{ [s]} * \text{hopping number} = 0.4 \text{ [s]} * 79 \text{ [ch]} = 31.6 \text{ [s*ch]}$;

The burst width, which is directly measured, refers to the duration on one channel hop.



Test Result

| Modulation | Mode | Reading (ms) | Total Hops | Test Result (ms) | Limit (ms) | Result |
|----------------|------|--------------|------------|------------------|------------|--------|
| GFSK | DH5 | 2.887 | 111 | 320.457 | < 400 | Pass |
| $\pi/4$ -DQPSK | 2DH5 | 2.886 | 106 | 305.916 | < 400 | Pass |
| 8-DPSK | 3DH5 | 2.894 | 101 | 292.294 | < 400 | Pass |



10.7 Spurious RF conducted emissions

Test Method

1. The RF output of EUT was connected to the spectrum analyzer by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector, Sweep = auto, Span = wide enough to capture the peak level of the in-band emission and all spurious emissions, Trace = max hold. Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.
4. Measure and record the results in the test report.
5. The RF fundamental frequency should be excluded against the limit line in the operating frequency

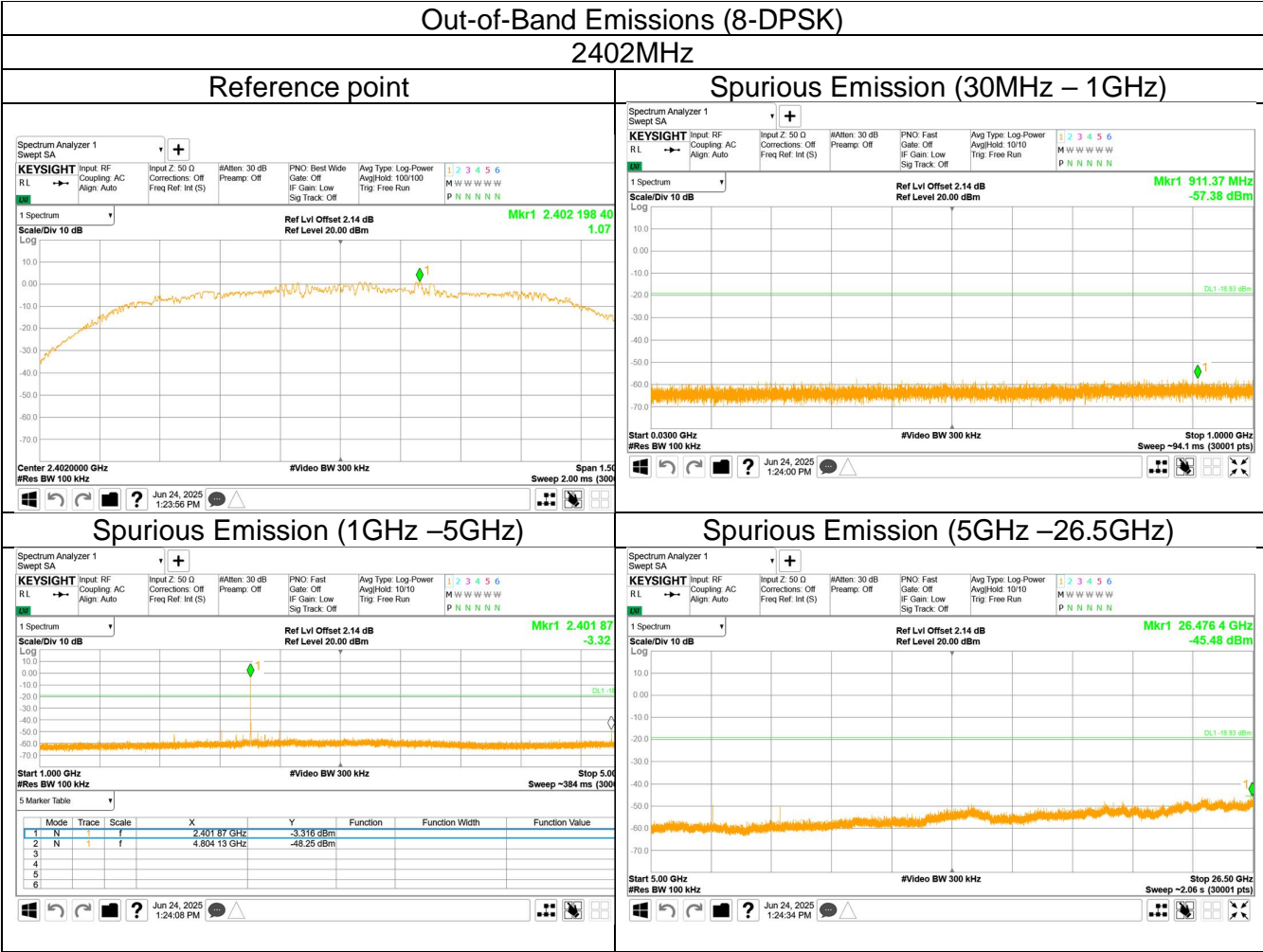
Limit

| Frequency Range MHz | Limit (dBc) |
|------------------------|-------------|
| 30-25000 | -20 |



Spurious RF conducted emissions

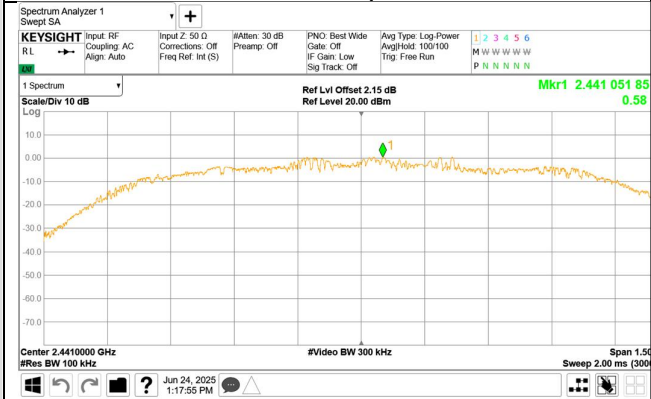
Only the worst case (which is subject to the maximum Peak Power, 8-DPSK mode) test result is listed in the report.





Out-of-Band Emissions (8-DPSK)
2441MHz

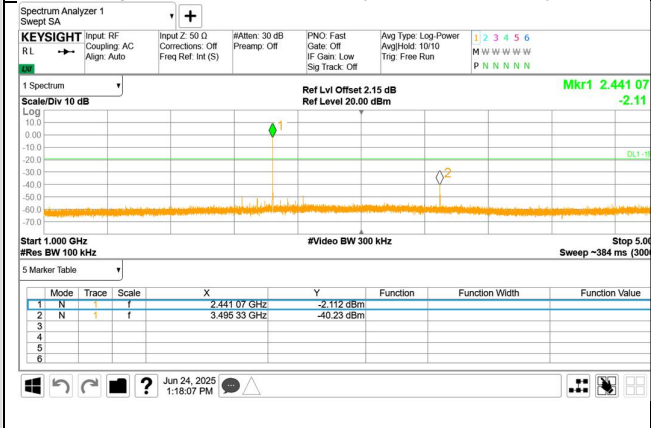
Reference point



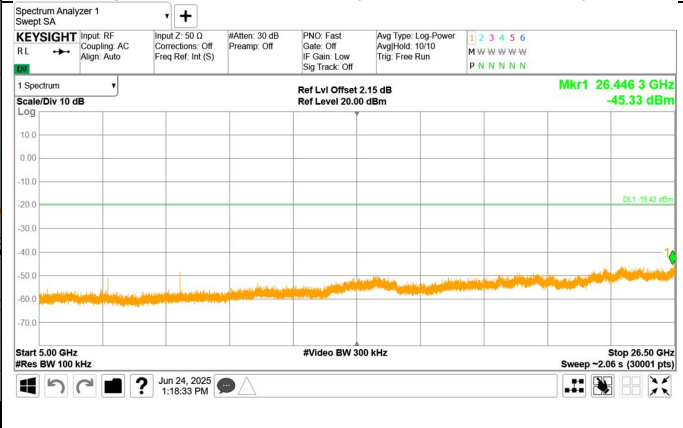
Spurious Emission (30MHz – 1GHz)



Spurious Emission (1GHz –5GHz)



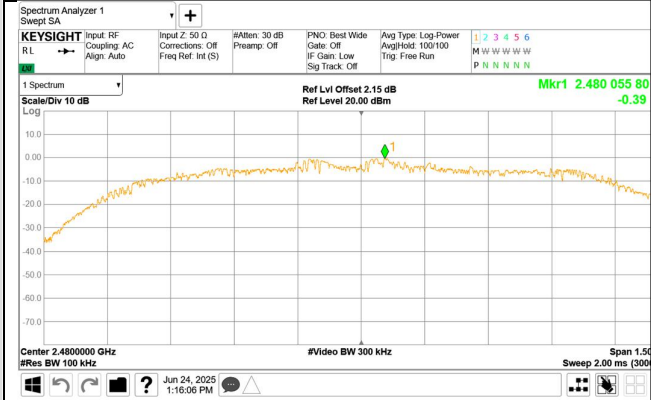
Spurious Emission (5GHz –26.5GHz)



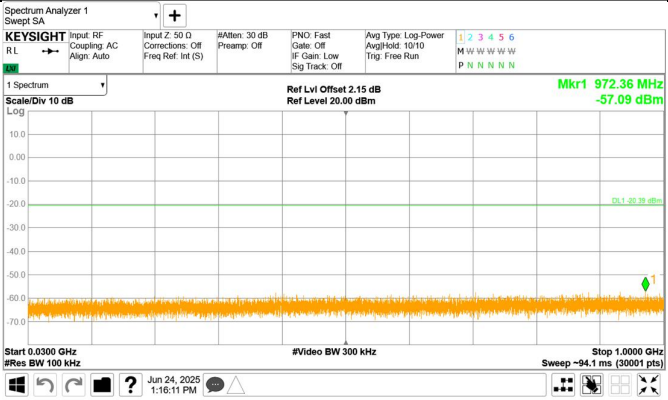


Out-of-Band Emissions (8-DPSK)
2480MHz

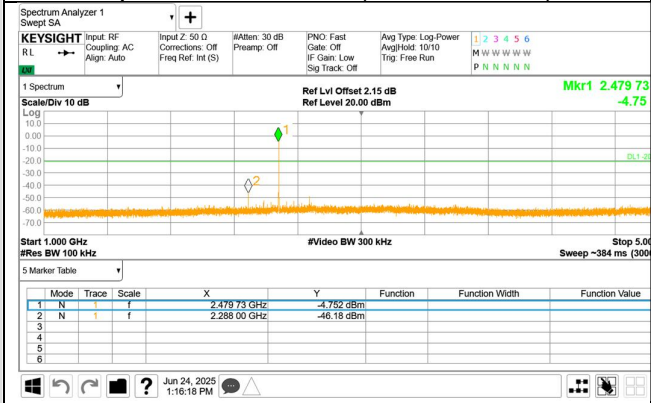
Reference point



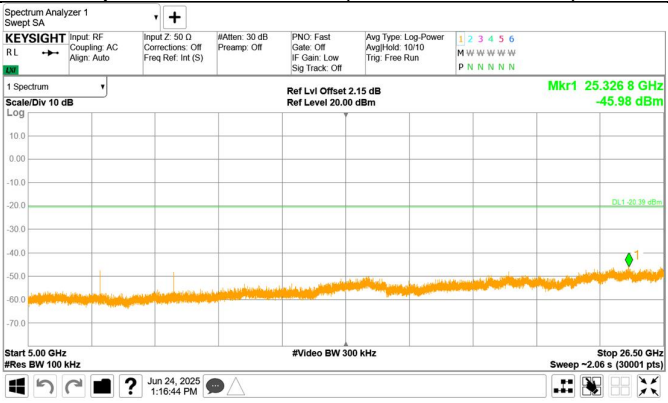
Spurious Emission (30MHz – 1GHz)



Spurious Emission (1GHz –5GHz)



Spurious Emission (5GHz –26.5GHz)





10.8 Band edge testing

Test Method

1. The RF output of EUT was connected to the test receiver by RF cable. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously. Set the EUT to the lowest frequency channel.
3. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector, Trace: Max hold, Sweep time: Coupled, Span: Wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products that fall outside of the authorized band of operation. Allow the trace to stabilize.
4. Set the marker on the emission at the band edge, or on the highest modulation product outside of the band, if this level is greater than that at the band edge. Enable the marker-delta function, and then use the marker-to-peak function to move the marker to the peak of the in-band emission.
5. Set the EUT to the highest frequency channel and repeat step 2) to 4)
6. Enable the EUT hopping mode, repeat the test.

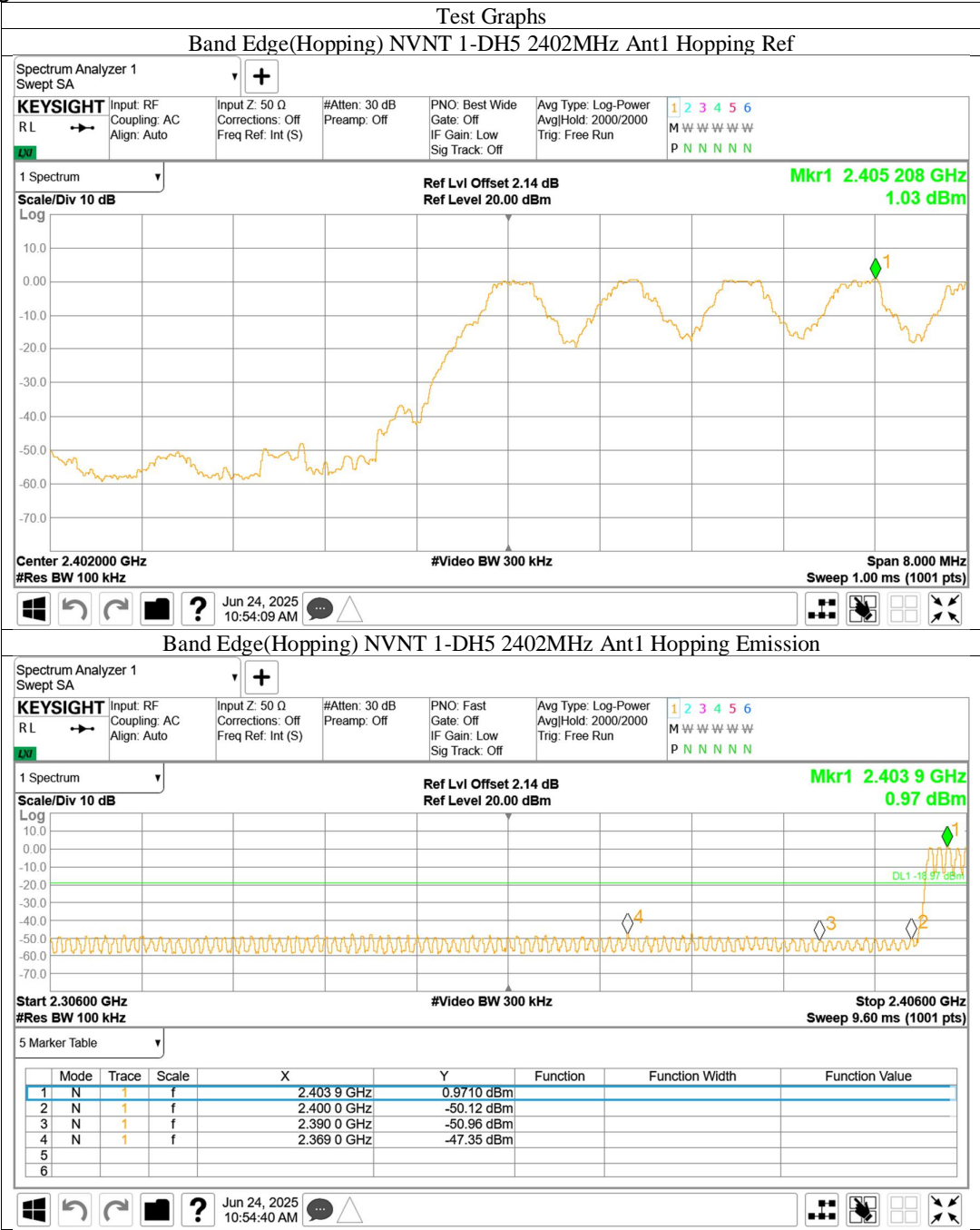
Limit:

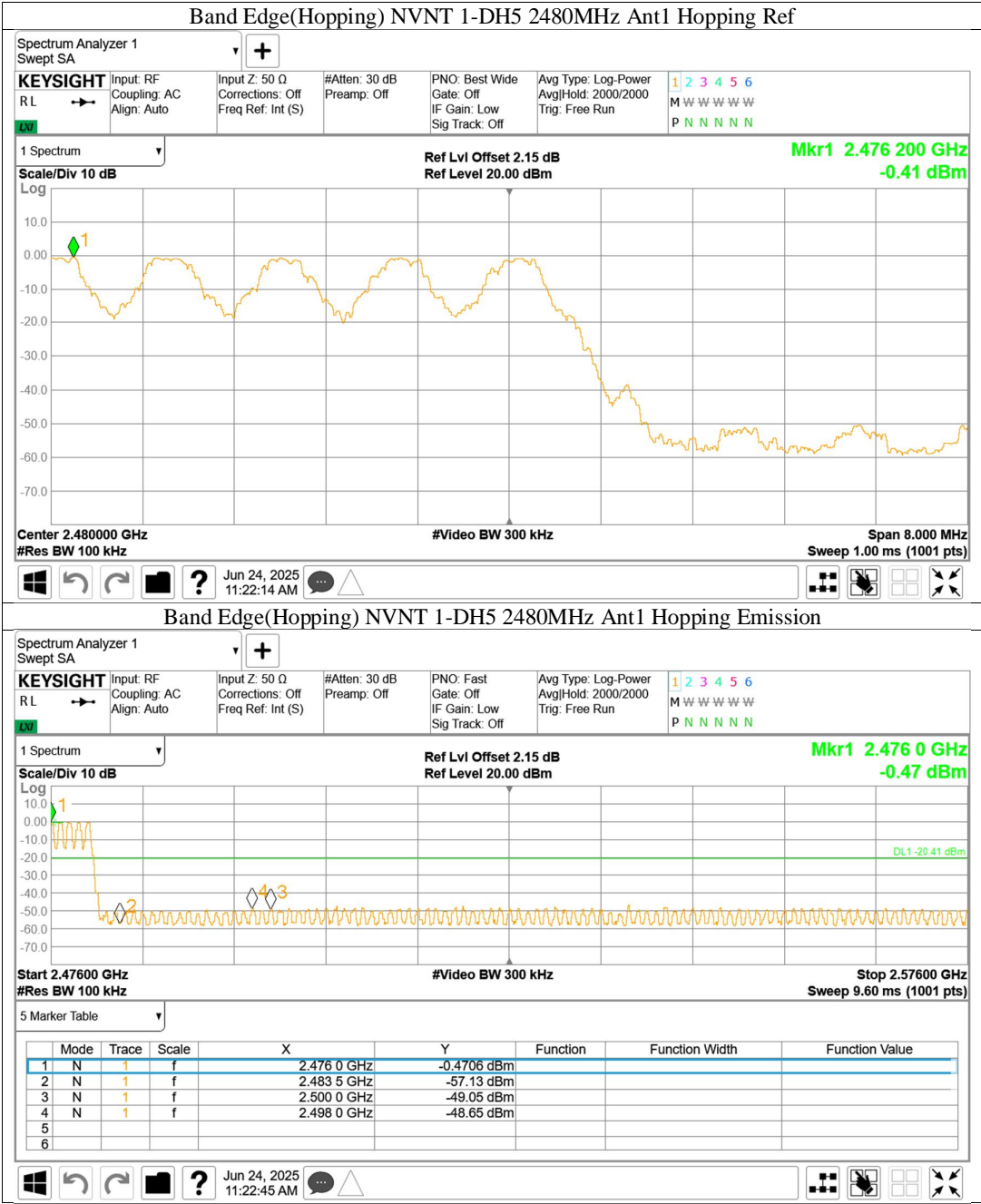
In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.



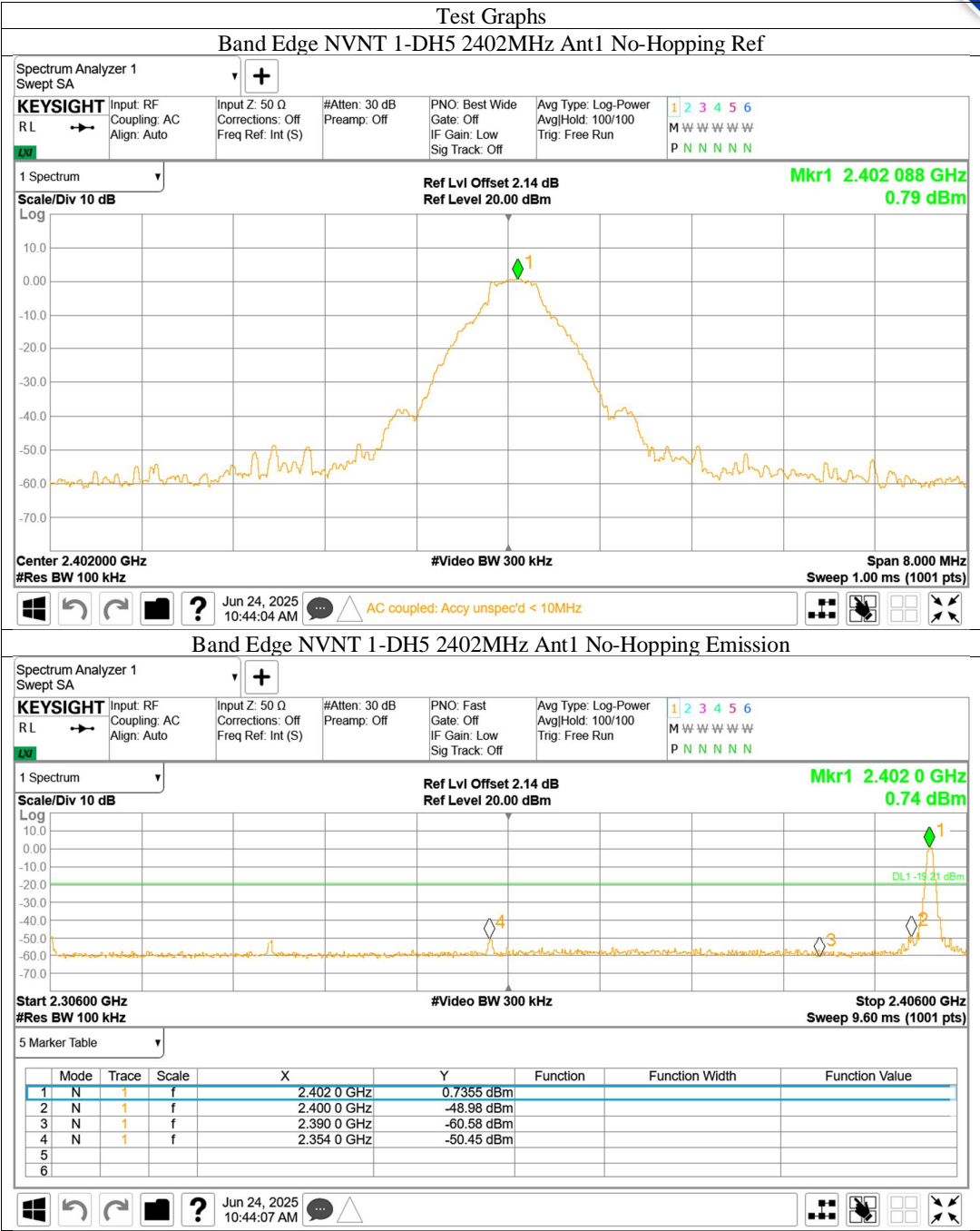
Band edge testing

GFSK Modulation Test Result:
Hopping on mode:





Hopping off mode:



Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Ref

