

Project No.: TM-2212000124P
Report No.: TMWK2212005126KR

FCC ID: 2AQ8A-EKSD7X1S

Page: 1 / 92
Rev.: 00

RADIO TEST REPORT

FCC 47 CFR PART 15 SUBPART C

| | |
|--------------------------|---|
| Test Standard | FCC Part 15.247 |
| Product name | Enkore Smart Semi-Auto Electronic Deadbolt |
| Brand Name | Pamex |
| Model No. | EKS-D7P1S, EKS-D791S |
| Test Result | Pass |
| Statements of Conformity | Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty. |

The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc. (Wugu Laboratory)

Approved by:



Shawn Wu
Supervisor

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

除非另有說明，此報告結果僅對測試之樣品負責，同時此樣品僅保留90天。本報告未經本公司書面許可，不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com.tw/Terms-and-Conditions> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com.tw/Terms-and-Conditions>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of client's instruction, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced, except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.



Report No.: TMWK2212005126KR

Page: 2 / 92

Rev.: 00

Revision History

| Rev. | Issue Date | Revisions | Effect Page | Revised By |
|------|------------------|---------------|-------------|------------|
| 00 | January 19, 2023 | Initial Issue | ALL | Doris Chu |

Table of contents

| | | |
|------------|--|------------|
| 1. | GENERAL INFORMATION..... | 4 |
| 1.1 | EUT INFORMATION..... | 4 |
| 1.2 | EUT CHANNEL INFORMATION..... | 5 |
| 1.3 | ANTENNA INFORMATION..... | 5 |
| 1.4 | MEASUREMENT UNCERTAINTY | 6 |
| 1.5 | FACILITIES AND TEST LOCATION..... | 7 |
| 1.6 | INSTRUMENT CALIBRATION | 8 |
| 1.7 | SUPPORT AND EUT ACCESSORIES EQUIPMENT | 9 |
| 1.8 | TEST METHODOLOGY AND APPLIED STANDARDS..... | 9 |
| 2. | TEST SUMMARY..... | 10 |
| 3. | DESCRIPTION OF TEST MODES..... | 11 |
| 3.1 | THE WORST MODE OF OPERATING CONDITION | 11 |
| 3.2 | THE WORST MODE OF MEASUREMENT..... | 12 |
| 3.3 | EUT DUTY CYCLE | 13 |
| 4. | TEST RESULT..... | 14 |
| 4.1 | AC POWER LINE CONDUCTED EMISSION..... | 14 |
| 4.2 | 6DB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)..... | 15 |
| 4.3 | OUTPUT POWER MEASUREMENT | 25 |
| 4.4 | POWER SPECTRAL DENSITY | 28 |
| 4.5 | CONDUCTED BANDEDGE AND SPURIOUS EMISSION..... | 34 |
| 4.6 | RADIATION BANDEDGE AND SPURIOUS EMISSION..... | 47 |
| | APPENDIX 1 - PHOTOGRAPHS OF EUT | A-1 |



Report No.: TMWK2212005126KR

1. GENERAL INFORMATION

1.1 EUT INFORMATION

| | |
|--------------------------|--|
| Applicant | Pamex Inc. 4680 Vinita Court, Chino, CA, 91710, United States |
| Manufacturer | ALZK Co., Ltd. 9F., No. 36, Sec. 3, Bade Rd., Songshan Dist., Taipei City, Taiwan |
| Equipment | Enkore Smart Semi-Auto Electronic Deadbolt |
| Model Name | EKS-D7P1S, EKS-D791S |
| Model Discrepancy | EKS-D7P1S: Nickel Plating EKS-D791S: Black Plating |
| Brand Name | Pamex |
| Received Date | December 9, 2022 |
| Date of Test | January 3 ~ 5, 2023 |
| Power Supply | Power from Battery. (DC 6V) |
| HW Version | V0.0.6 |
| SW Version | 000007 |

Remark:

1. For more details, please refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. Disclaimer The variant model numbers / trademarks are assessed as identical in hardware and software to each other, hence all variants are fully covered by the test results in this test report without further verification test.

1.2 EUT CHANNEL INFORMATION

| | |
|--------------------|--|
| Frequency Range | 802.11b/g/n HT20: 2412MHz ~ 2462MHz 802.11n HT40: 2422MHz ~ 2452MHz |
| Modulation Type | 1. IEEE 802.11b mode: CCK 2. IEEE 802.11g mode: OFDM 3. IEEE 802.11n HT 20 mode: OFDM 4. IEEE 802.11n HT 40 MHz mode: OFDM |
| Number of channels | 1. IEEE 802.11b mode: 11 Channels 2. IEEE 802.11g mode: 11 Channels 3. IEEE 802.11n HT 20 Mode : 11 Channels 4. IEEE 802.11n HT 40 MHz mode: 7 Channels |

Remark:

Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 and RSS-GEN Table 1 for test channels

| Number of frequencies to be tested | | |
|--|-----------------------|--|
| Frequency range in which device operates | Number of frequencies | Location in frequency range of operation |
| <input type="checkbox"/> 1 MHz or less | 1 | Middle |
| <input type="checkbox"/> 1 MHz to 10 MHz | 2 | 1 near top and 1 near bottom |
| <input checked="" type="checkbox"/> More than 10 MHz | 3 | 1 near top, 1 near middle, and 1 near bottom |

1.3 ANTENNA INFORMATION

| | |
|-----------------------|---|
| Antenna Specification | <input type="checkbox"/> PIFA <input checked="" type="checkbox"/> Chip <input type="checkbox"/> Dipole <input type="checkbox"/> Coils |
| Antenna Gain | Gain: 2.17 dBi |
| Antenna connector | N/A |

Notes:

1. The antenna(s) of the EUT are permanently attached and there are no provisions for connection to an external antenna. So the EUT complies with the requirements of §15.203.



Report No.: TMWK2212005126KR

Page: 6 / 92

Rev.: 00

1.4 MEASUREMENT UNCERTAINTY

| PARAMETER | UNCERTAINTY |
|--|--------------|
| AC Powerline Conducted Emission | ± 2.1183 |
| Channel Bandwidth | ± 2.1863 |
| RF output power (Power Meter + Power sensor) | ± 1.2688 |
| Power Spectral density | ± 2.1855 |
| Conducted Bandedge | ± 2.1866 |
| Conducted Spurious Emission | ± 2.1859 |
| Radiated Emission_9kHz-30MHz | ± 3.814 |
| Radiated Emission_30MHz-200MHz | ± 4.272 |
| Radiated Emission_200MHz-1GHz | ± 4.619 |
| Radiated Emission_1GHz-6GHz | ± 5.522 |
| Radiated Emission_6GHz-18GHz | ± 5.228 |
| Radiated Emission_18GHz-26GHz | ± 4.089 |
| Radiated Emission_26GHz-40GHz | ± 4.019 |

Remark:

- 1.This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$
2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.



Report No.: TMWK2212005126KR

1.5 FACILITIES AND TEST LOCATION

All measurement facilities used to collect the measurement data are located at

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City, Taiwan.

☐ No. 12, Ln. 116, Wugong 3rd Rd., Wugu Dist., New Taipei City, Taiwan 24803

CAB identifier: TW1309

| Test site | Test Engineer | Remark |
|--------------------|--------------------|---|
| AC Conduction Room | - | Not applicable, because EUT not connect to AC Main Source direct. |
| Radiation | Ray Li, Czerny Lin | - |
| RF Conducted | David Li | - |

Remark: The lab has been recognized as the FCC accredited lab. under the KDB 974614 D01 and is listed in the FCC public Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309.



Report No.: TMWK2212005126KR

Page: 8 / 92

Rev.: 00

1.6 INSTRUMENT CALIBRATION

| RF Conducted Test Site | | | | | |
|------------------------|-----------------------------|---------|---------------|------------------|-----------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Date | Calibration Due |
| Power Meter | Anritsu | ML2496A | 2136002 | 2022-11-24 | 2023-11-23 |
| EXA Signal Analyzer | Keysight | N9010B | MY60242460 | 2022-01-30 | 2023-01-29 |
| Power Sensor | Anritsu | MA2411B | 1911386 | 2022-08-08 | 2023-08-07 |
| Power Sensor | Anritsu | MA2411B | 1911387 | 2022-08-08 | 2023-08-07 |
| Software | Radio Test Software Ver. 21 | | | | |

| 3M 966 Chamber Test Site | | | | | |
|--------------------------|-----------------------|-----------------------|----------------------|------------------|-----------------|
| Name of Equipment | Manufacturer | Model | Serial Number | Calibration Date | Calibration Due |
| High Pass Filters | Titan Microwave | T04H30001800070S01 | 22011402-4 | 2022-06-29 | 2023-06-28 |
| PXA Signal Analyzer | Keysight Technologies | N9030B | MY62291089 | 2022-10-14 | 2023-10-13 |
| Preamplifier | EMEC | EM330 | 060609 | 2022-02-23 | 2023-02-22 |
| Thermo-Hygro Meter | WISEWIND | 1206 | D07 | 2022-12-19 | 2023-12-18 |
| Preamplifier | HP | 8449B | 3008A00965 | 2022-12-23 | 2023-12-22 |
| Bi-Log Antenna | Sunol Sciences | JB3 | A030105 | 2022-08-03 | 2023-08-02 |
| Cable | Huber+Suhner | 104PEA | 20995+11112+182330 | 2022-02-23 | 2023-02-22 |
| Coaxial Cable | EMCI | EMC105 | 190914+33953 | 2022-06-15 | 2023-06-14 |
| Horn Antenna | ETC | MCTD 1209 | DRH13M02003 | 2022-01-25 | 2023-01-24 |
| Horn Antenna | ETS LINDGREN | 3117 | 55165 | 2022-07-24 | 2023-07-25 |
| Horn Antenna | ETS LINDGREN | 3116 | 00026370 | 2022-11-24 | 2023-11-23 |
| Pre-Amplifier | MITEQ | AMF-6F-18004000-37-8P | 985646 | 2022-09-07 | 2023-09-06 |
| Cable | EMCI | EMC101G | 211010+211011+211012 | 2022-12-12 | 2023-12-11 |
| Turn Table | CCS | CC-T-1F | N/A | N.C.R | N.C.R |
| Controller | CCS | CC-C-1F | N/A | N.C.R | N.C.R |
| Antenna Tower | CCS | CC-A-1F | N/A | N.C.R | N.C.R |
| Software | e3 6.11-20180419c | | | | |

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.



Report No.: TMWK2212005126KR

| AC Conducted Emissions Test Site | | | | | |
|----------------------------------|--------------|-------|-----|----------|---------|
| Equipment | Manufacturer | Model | S/N | Cal Date | Cal Due |
| N/A | | | | | |

Remark:

1. Each piece of equipment is scheduled for calibration once a year.
2. N.C.R. = No Calibration Required.

1.7 SUPPORT AND EUT ACCESSORIES EQUIPMENT

| EUT Accessories Equipment | | | | | | |
|---------------------------|-----------|-------|-------|------------|--------|----|
| No. | Equipment | Brand | Model | Series No. | FCC ID | IC |
| | N/A | | | | | |
| | | | | | | |

| Support Equipment | | | | | | |
|-------------------|-----------|--------|----------|------------|--------|-----|
| No. | Equipment | Brand | Model | Series No. | FCC ID | IC |
| 1 | NB(E) | Lenovo | IBM 7663 | N/A | N/A | N/A |

1.8 TEST METHODOLOGY AND APPLIED STANDARDS

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247, KDB 662911.



Report No.: TMWK2212005126KR

Page: 10 / 92

Rev.: 00

2. TEST SUMMARY

| FCC Standard Section | Report Section | Test Item | Result |
|----------------------|----------------|-----------------------------|--------|
| 15.203 | 1.3 | Antenna Requirement | Pass |
| 15.207(a) | 4.1 | AC Conducted Emission | N/A |
| 15.247(a)(2) | 4.2 | 6 dB Bandwidth | Pass |
| - | 4.2 | Occupied Bandwidth (99%) | Pass |
| 15.247(b) | 4.3 | Output Power Measurement | Pass |
| 15.247(e) | 4.4 | Power Spectral Density | Pass |
| 15.247(d) | 4.5 | Conducted Band Edge | Pass |
| 15.247(d) | 4.5 | Conducted Spurious Emission | Pass |
| 15.247(d) | 4.6 | Radiation Band Edge | Pass |
| 15.247(d) | 4.6 | Radiation Spurious Emission | Pass |



3. DESCRIPTION OF TEST MODES

3.1 THE WORST MODE OF OPERATING CONDITION

| | |
|--------------------------|--|
| Operation mode | IEEE 802.11b mode :1Mbps IEEE 802.11g mode :6Mbps IEEE 802.11n HT20 mode: MCS0 IEEE 802.11n HT40 mode: MCS0 |
| Operation Transmitter | IEEE 802.11b mode: 1T1R IEEE 802.11g mode: 1T1R IEEE 802.11n HT20 mode: 1T1R IEEE 802.11n HT40 mode: 1T1R |
| Test Channel Frequencies | IEEE 802.11b mode: 1. Lowest Channel: 2412MHz 2. Middle Channel: 2437MHz 3. Highest Channel: 2462MHz IEEE 802.11g mode: 1. Lowest Channel: 2412MHz 2. Middle Channel: 2437MHz 3. Highest Channel: 2462MHz IEEE 802.11n HT20 mode: 1. Lowest Channel: 2412MHz 2. Middle Channel: 2437MHz 3. Highest Channel: 2462MHz IEEE 802.11n HT40 mode: 1. Lowest Channel: 2422MHz 2. Middle Channel: 2437MHz 3. Highest Channel: 2452MHz |

Remark:

1. EUT pre-scanned data rate of output power for each mode, the worst data rate were recorded in this report.

3.2 THE WORST MODE OF MEASUREMENT

| Radiated Emission Measurement Above 1G | |
|--|---|
| Test Condition | Radiated Emission Above 1G |
| Power supply Mode | Mode 1: EUT power by Battery(EKS-D7P1S) Mode 2: EUT power by Battery(EKS-D791S) |
| Worst Mode | <input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 |
| Worst Position | <input type="checkbox"/> Placed in fixed position. <input type="checkbox"/> Placed in fixed position at X-Plane (E2-Plane) <input type="checkbox"/> Placed in fixed position at Y-Plane (E1-Plane) <input checked="" type="checkbox"/> Placed in fixed position at Z-Plane (H-Plane) |

| Radiated Emission Measurement Below 1G | |
|--|--|
| Test Condition | Radiated Emission Below 1G |
| Power supply Mode | Mode 1: EUT power by Battery |
| Worst Mode | <input checked="" type="checkbox"/> Mode 1 <input type="checkbox"/> Mode 2 <input type="checkbox"/> Mode 3 <input type="checkbox"/> Mode 4 |

Remark:

1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(Z-Plane) were recorded in this report

Report No.: TMWK2212005126KR

3.3 EUT DUTY CYCLE

Temperature: 20.5°C

Test date: January 5, 2023

Humidity: 62% RH

Tested by: David Li

| Duty Cycle | | | | |
|---------------|----------------|--|-----------|-------------------|
| Configuration | Duty Cycle (%) | Duty Factor (dB) =10*log (1/Duty Cycle) | 1/T (kHz) | VBW setting (kHz) |
| 802.11b | 99.95 | 0.00 | 0.03 | 0.01 |
| 802.11g | 99.53 | 0.02 | 0.18 | 0.01 |
| 802.11n HT20 | 99.53 | 0.02 | 0.20 | 0.01 |
| 802.11n HT40 | 98.96 | 0.05 | 0.41 | 0.01 |



Report No.: TMWK2212005126KR

4. TEST RESULT

4.1 AC POWER LINE CONDUCTED EMISSION

4.1.1 Test Limit

According to §15.207(a)(2)

| Frequency Range (MHz) | Limits(dBμV) | |
|--------------------------|--------------|-----------|
| | Quasi-peak | Average |
| 0.15 to 0.50 | 66 to 56* | 56 to 46* |
| 0.50 to 5 | 56 | 46 |
| 5 to 30 | 60 | 50 |

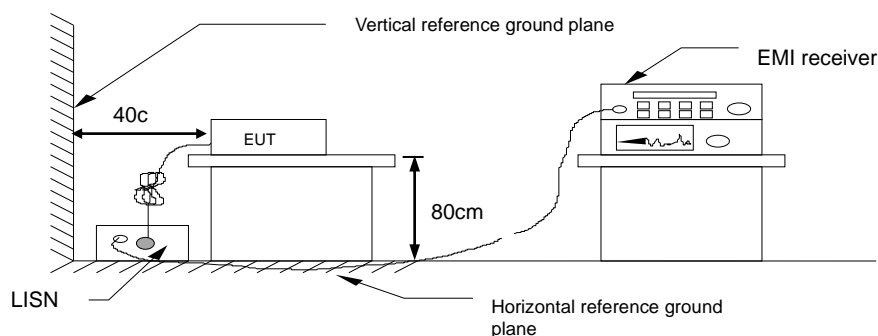
* Decreases with the logarithm of the frequency.

4.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
2. EUT connected to the line impedance stabilization network (LISN)
3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. Recorded Line for Neutral and Line.

4.1.3 Test Setup



4.1.4 Test Result

Not applicable, because EUT not connect to AC Main Source direct.

Report No.: TMWK2212005126KR

4.2 6dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

4.2.1 Test Limit

According to §15.247(a)(2)

6 dB Bandwidth :

| | |
|-------|--------------------------|
| Limit | Shall be at least 500kHz |
|-------|--------------------------|

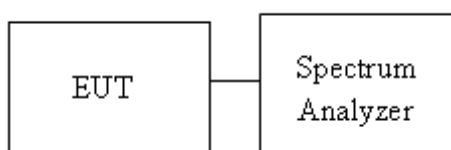
Occupied Bandwidth(99%) : For reporting purposes only.

4.2.2 Test Procedure

Test method Refer as ANSI C63.10: 2013,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth.
4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

4.2.3 Test Setup





Report No.: TMWK2212005126KR

4.2.4 Test Result

Temperature: 20.5°C

Test date: January 5, 2023

Humidity: 62% RH

Tested by: David Li

| Test mode: IEEE 802.11b mode / 2412-2462 MHz | | | | |
|--|-----------------|----------------|-----------------|-----------------|
| Channel | Frequency (MHz) | OBW(99%) (MHz) | 6dB BW (kHz) | 6dB limit (kHz) |
| Low | 2412 | 13.033 | 10060.00 | ≥500 |
| Mid | 2437 | 13.026 | 8604.00 | |
| High | 2462 | 13.035 | 9525.00 | |

| Test mode: IEEE 802.11g mode / 2412-2462 MHz | | | | |
|--|-----------------|----------------|-----------------|-----------------|
| Channel | Frequency (MHz) | OBW(99%) (MHz) | 6dB BW (kHz) | 6dB limit (kHz) |
| Low | 2412 | 17.283 | 16420.00 | ≥500 |
| Mid | 2437 | 17.309 | 16370.00 | |
| High | 2462 | 17.220 | 16370.00 | |

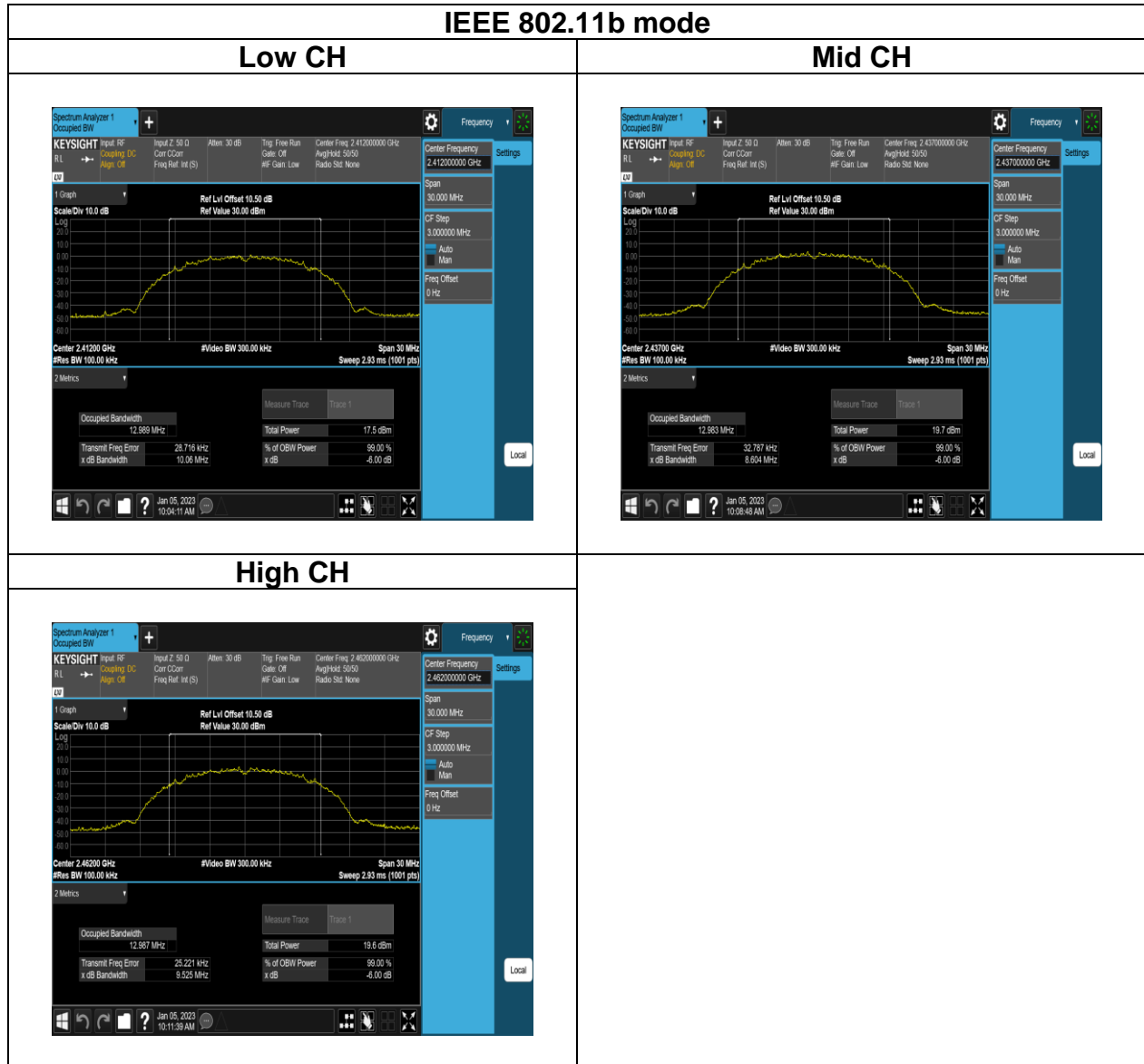
| Test mode: IEEE 802.11n HT 20 mode / 2412-2462 MHz | | | | |
|--|-----------------|----------------|-----------------|-----------------|
| Channel | Frequency (MHz) | OBW(99%) (MHz) | 6dB BW (kHz) | 6dB limit (kHz) |
| Low | 2412 | 18.223 | 17620.00 | ≥500 |
| Mid | 2437 | 18.233 | 17650.00 | |
| High | 2462 | 18.225 | 17610.00 | |

| Test mode: IEEE 802.11n HT 40 mode / 2422-2452 MHz | | | | |
|--|-----------------|----------------|-----------------|-----------------|
| Channel | Frequency (MHz) | OBW(99%) (MHz) | 6dB BW (kHz) | 6dB limit (kHz) |
| Low | 2412 | 34.834 | 32720.00 | ≥500 |
| Mid | 2437 | 34.820 | 32720.00 | |
| High | 2462 | 34.807 | 32950.00 | |

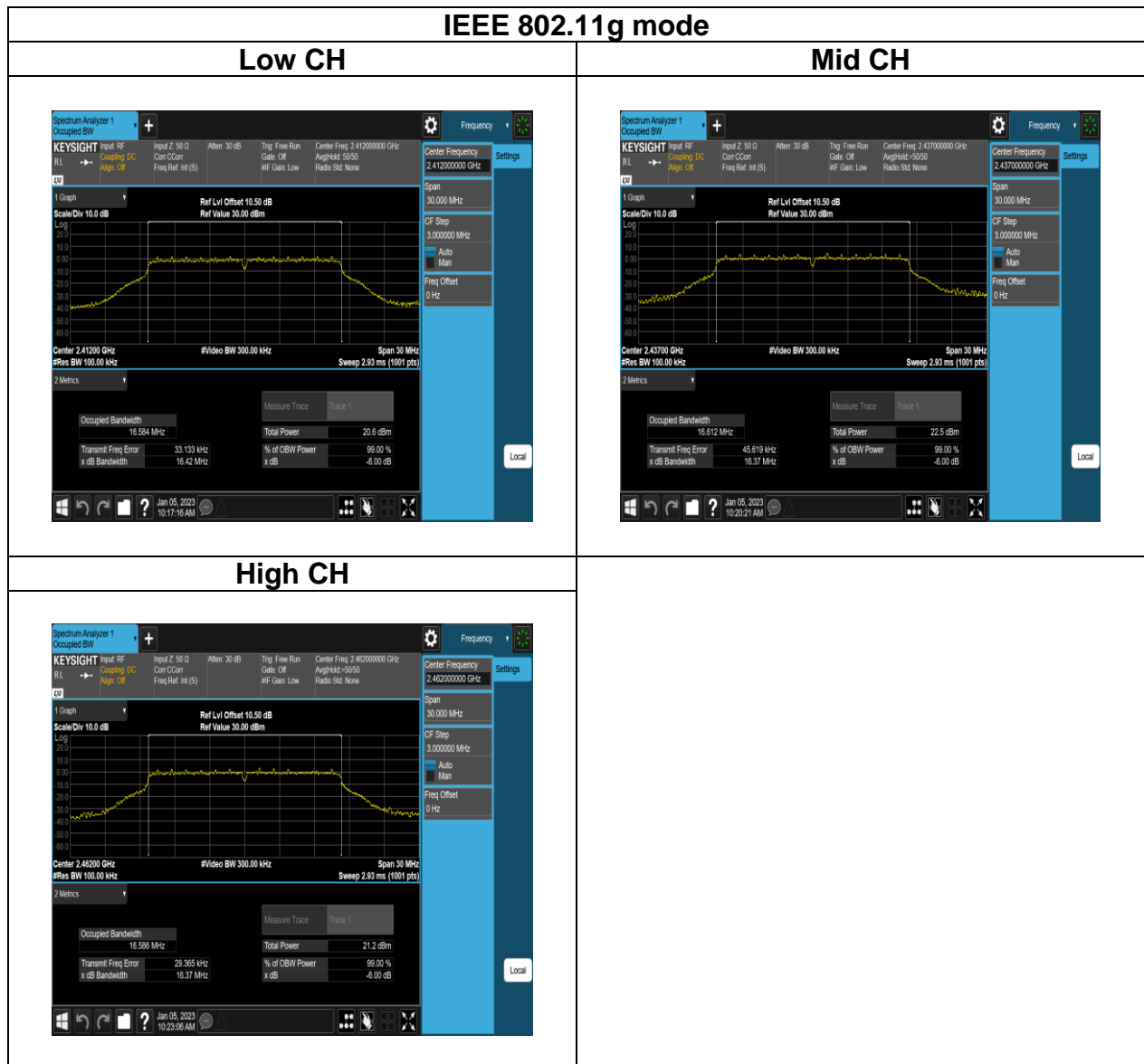
Report No.: TMWK2212005126KR

Test Data

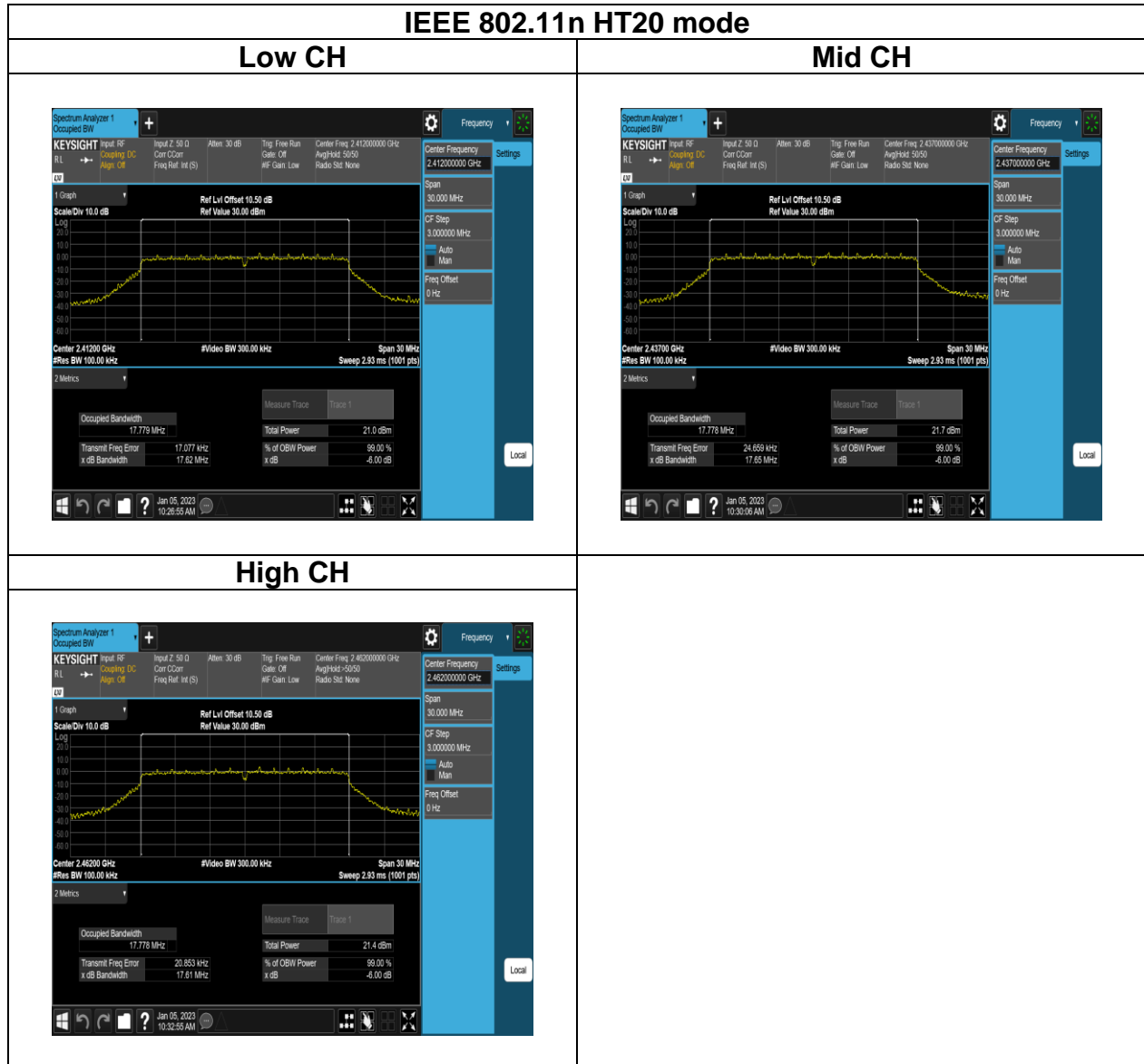
6dB BANDWIDTH



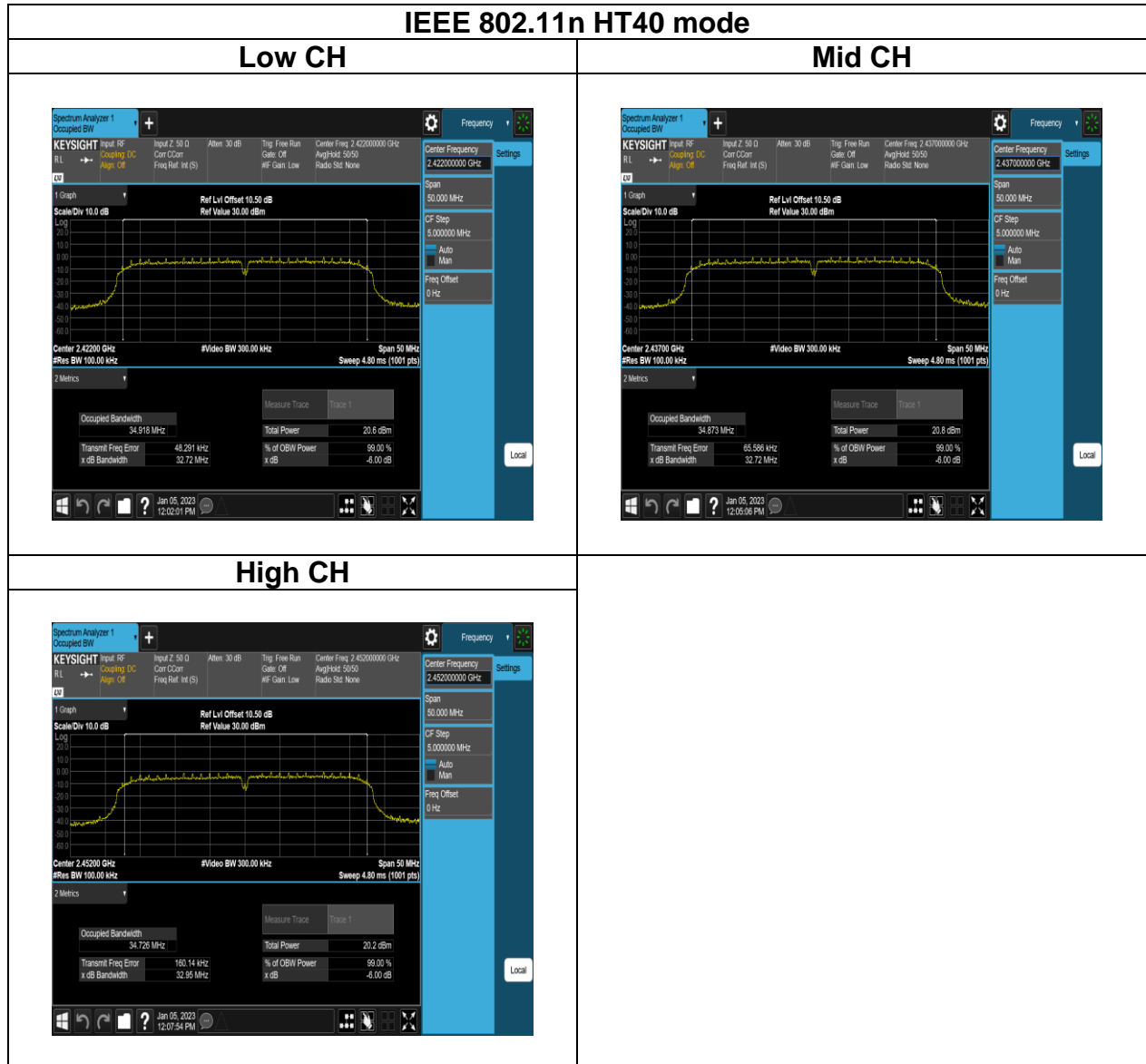
Report No.: TMWK2212005126KR



Report No.: TMWK2212005126KR



Report No.: TMWK2212005126KR

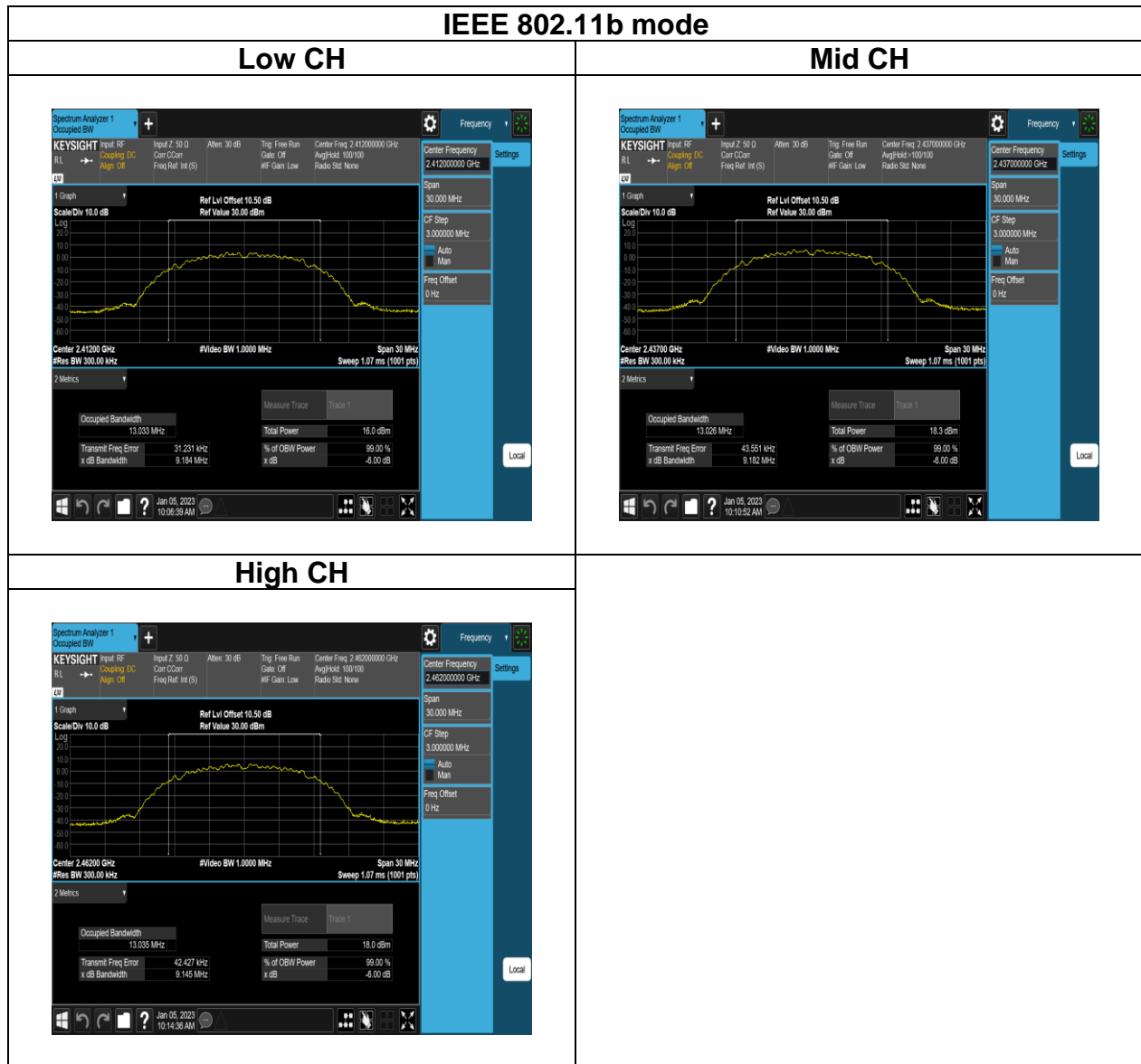




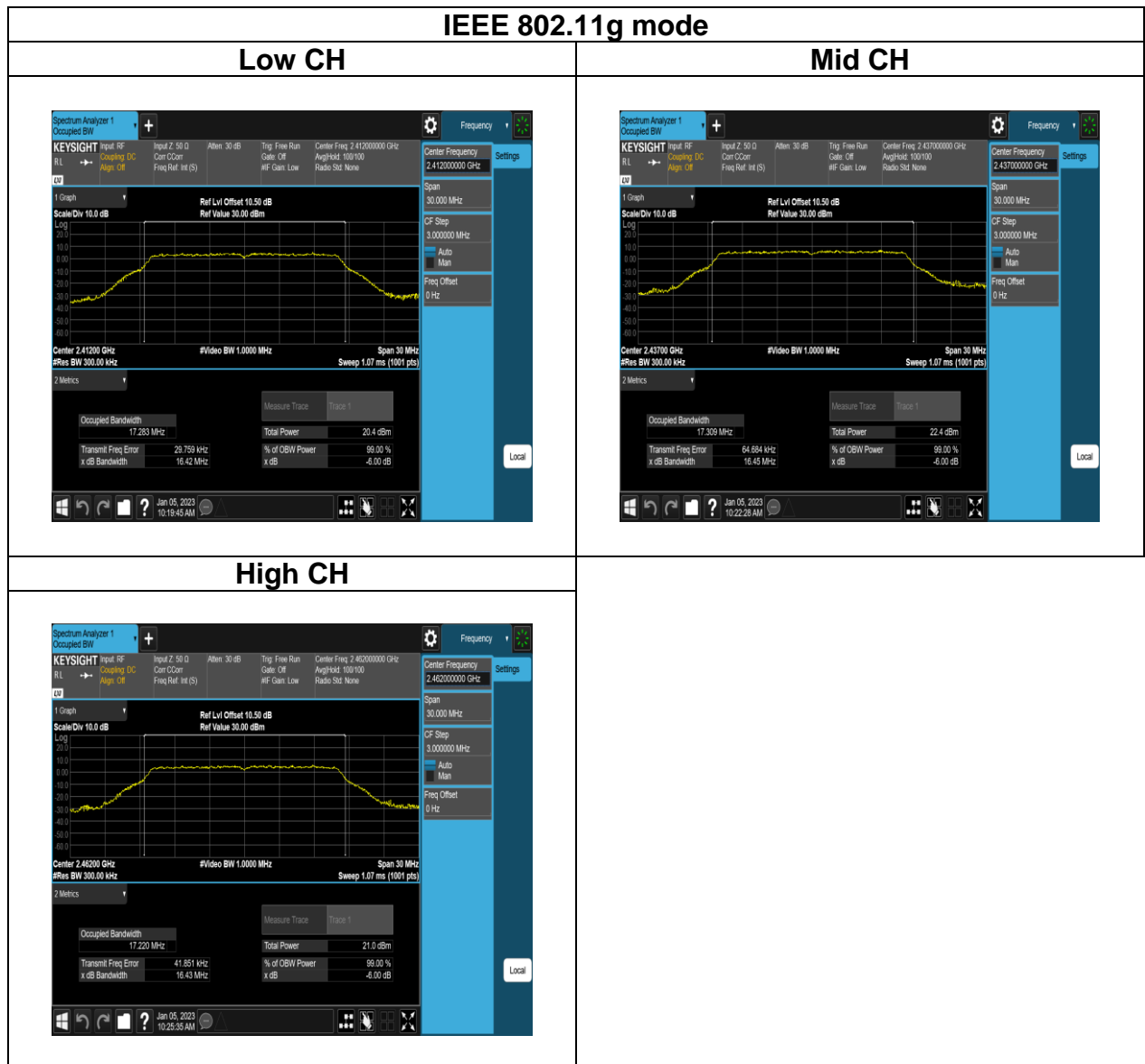
Report No.: TMWK2212005126KR

Test Data

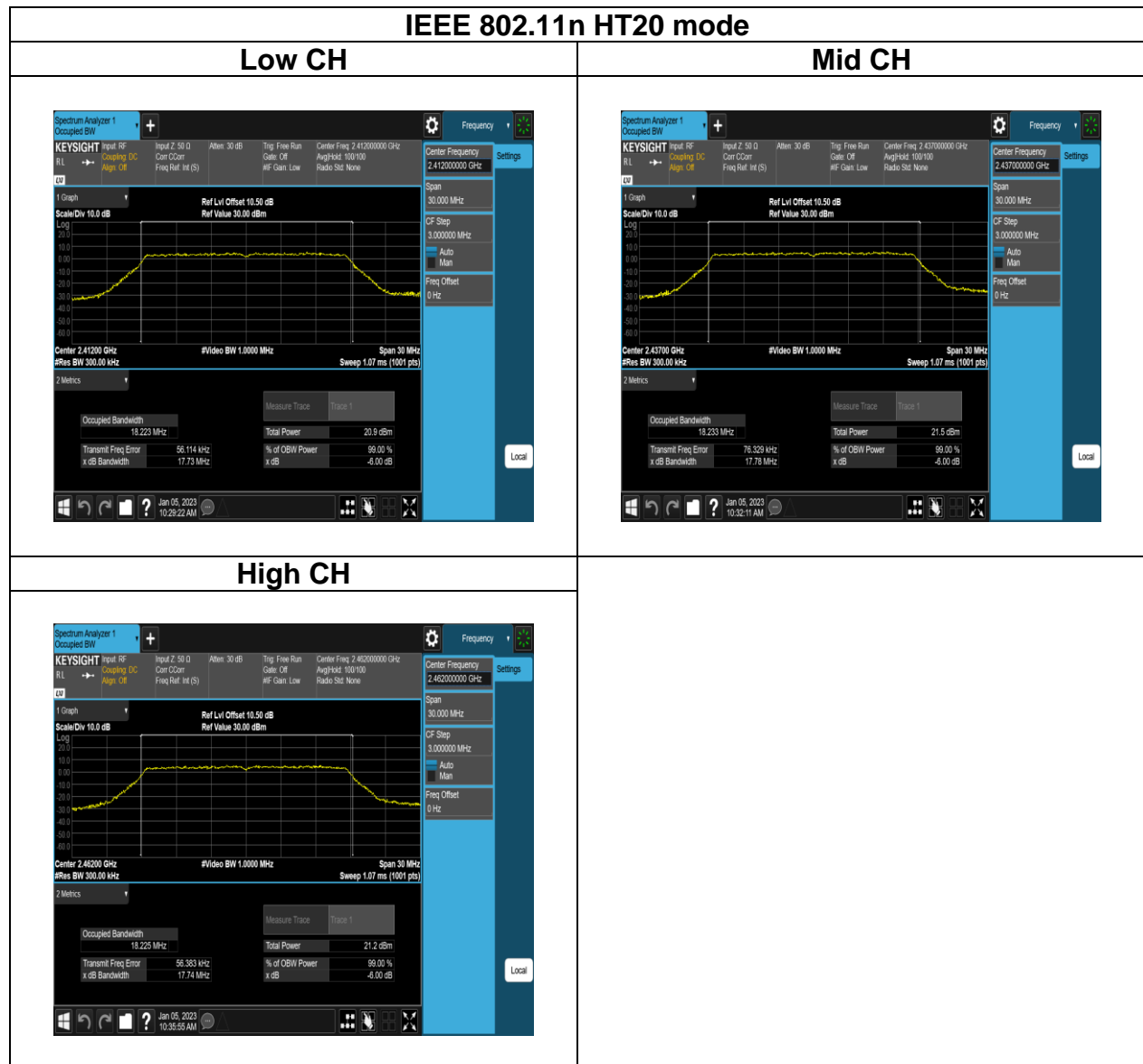
BANDWIDTH 99%



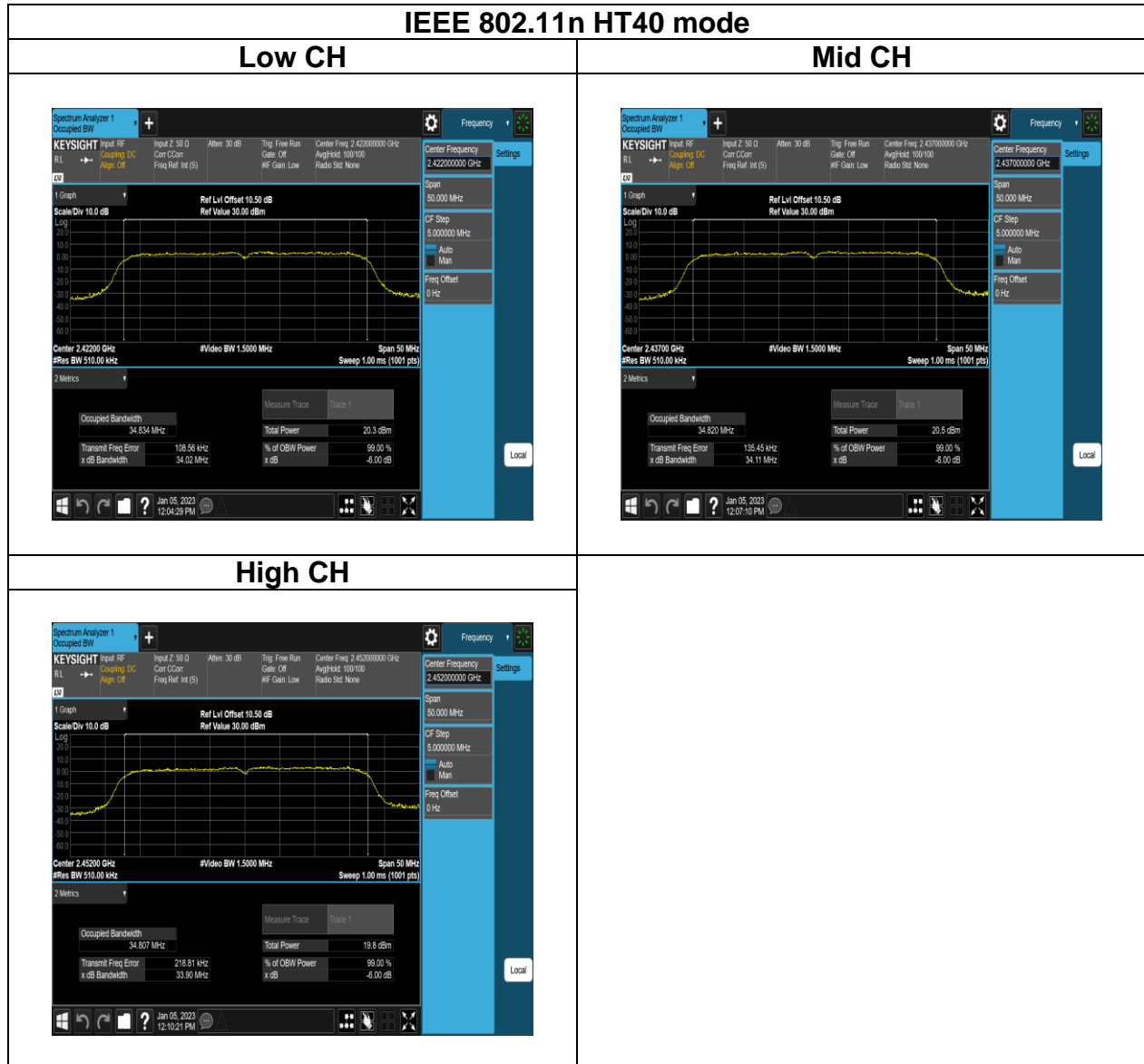
Report No.: TMWK2212005126KR



Report No.: TMWK2212005126KR



Report No.: TMWK2212005126KR



4.3 OUTPUT POWER MEASUREMENT

4.3.1 Test Limit

According to §15.247(b)

Peak output power :

For systems using digital modulation in the 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt(30 dBm) and the e.i.r.p. shall not exceed 4Watt(36 dBm), base on the use of antennas with directional gain not exceed 6 dBi If transmitting antennas of directional gain greater than 6dBi are used the peak output power the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

| | |
|-------|---|
| Limit | <input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 30dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 30 – (DG – 6)] <input type="checkbox"/> Point-to-point operation : |
|-------|---|

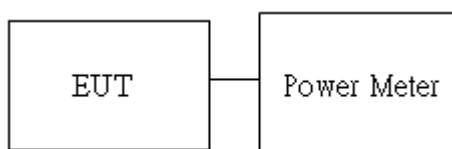
Average output power : For reporting purposes only.

4.3.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

1. The EUT RF output connected to the power meter by RF cable.
2. Setting maximum power transmit of EUT.
3. The path loss was compensated to the results for each measurement.
4. Measure and record the result of Peak output power and Average output power. in the test report.

4.3.3 Test Setup





Report No.: TMWK2212005126KR

Page: 26 / 92

Rev.: 00

4.3.4 Test Result

Temperature: 20.5°C

Test date: January 5, 2023

Humidity: 62% RH

Tested by: David Li

Peak output power :

| 802.11b Ch0 | | | | | | |
|-------------|-------------|-----------|-----------|-------------------------|-------------|--------|
| CH | Freq. (MHz) | Data Rate | Power set | Peak Output Power (dBm) | Limit (dBm) | RESULT |
| 1 | 2412 | 1 | 30 | 11.59 | 30.00 | PASS |
| 6 | 2437 | 1 | 22 | 13.38 | 30.00 | PASS |
| 11 | 2462 | 1 | 24 | 13.13 | 30.00 | PASS |

| 802.11g Ch0 | | | | | | |
|-------------|-------------|-----------|-----------|-------------------------|-------------|--------|
| CH | Freq. (MHz) | Data Rate | Power set | Peak Output Power (dBm) | Limit (dBm) | RESULT |
| 1 | 2412 | 6 | 7 | 22.42 | 30.00 | PASS |
| 6 | 2437 | 6 | 1 | 23.41 | 30.00 | PASS |
| 11 | 2462 | 6 | 8 | 22.63 | 30.00 | PASS |

| 802.11n_HT_20M Ch0 | | | | | | |
|--------------------|-------------|-----------|-----------|-------------------------|-------------|--------|
| CH | Freq. (MHz) | Data Rate | Power set | Peak Output Power (dBm) | Limit (dBm) | RESULT |
| 1 | 2412 | MCS0 | 2 | 22.68 | 30.00 | PASS |
| 6 | 2437 | MCS0 | 0 | 23.29 | 30.00 | PASS |
| 11 | 2462 | MCS0 | 3 | 22.93 | 30.00 | PASS |

| 802.11n_HT_40M Ch0 | | | | | | |
|--------------------|-------------|-----------|-----------|-------------------------|-------------|--------|
| CH | Freq. (MHz) | Data Rate | Power set | Peak Output Power (dBm) | Limit (dBm) | RESULT |
| 3 | 2422 | MCS0 | 0 | 23.80 | 30.00 | PASS |
| 6 | 2437 | MCS0 | 0 | 23.50 | 30.00 | PASS |
| 9 | 2452 | MCS0 | 3 | 22.70 | 30.00 | PASS |



Report No.: TMWK2212005126KR

Page: 27 / 92

Rev.: 00

Average output power :

| 802.11b Ch0 | | | | | | |
|-------------|-------------|-----------|-----------|-------------------------|-------------|--------|
| CH | Freq. (MHz) | Data Rate | Power set | Avg. Output Power (dBm) | Limit (dBm) | RESULT |
| 1 | 2412 | 1 | 30 | 8.95 | 30.00 | PASS |
| 6 | 2437 | 1 | 22 | 10.93 | 30.00 | PASS |
| 11 | 2462 | 1 | 24 | 10.44 | 30.00 | PASS |

| 802.11g Ch0 | | | | | | |
|-------------|-------------|-----------|-----------|-------------------------|-------------|--------|
| CH | Freq. (MHz) | Data Rate | Power set | Avg. Output Power (dBm) | Limit (dBm) | RESULT |
| 1 | 2412 | 6 | 7 | 13.80 | 30.00 | PASS |
| 6 | 2437 | 6 | 1 | 15.57 | 30.00 | PASS |
| 11 | 2462 | 6 | 8 | 13.88 | 30.00 | PASS |

| 802.11n_HT_20M Ch0 | | | | | | |
|--------------------|-------------|-----------|-----------|-------------------------|-------------|--------|
| CH | Freq. (MHz) | Data Rate | Power set | Avg. Output Power (dBm) | Limit (dBm) | RESULT |
| 1 | 2412 | MCS0 | 2 | 14.12 | 30.00 | PASS |
| 6 | 2437 | MCS0 | 0 | 14.82 | 30.00 | PASS |
| 11 | 2462 | MCS0 | 3 | 14.22 | 30.00 | PASS |

| 802.11n_HT_40M Ch0 | | | | | | |
|--------------------|-------------|-----------|-----------|-------------------------|-------------|--------|
| CH | Freq. (MHz) | Data Rate | Power set | Avg. Output Power (dBm) | Limit (dBm) | RESULT |
| 3 | 2422 | MCS0 | 0 | 16.83 | 30.00 | PASS |
| 6 | 2437 | MCS0 | 0 | 16.05 | 30.00 | PASS |
| 9 | 2452 | MCS0 | 3 | 13.12 | 30.00 | PASS |

4.4 POWER SPECTRAL DENSITY

4.4.1 Test Limit

According to §15.247(e)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

| | |
|-------|---|
| Limit | <input checked="" type="checkbox"/> Antenna not exceed 6 dBi : 8dBm <input type="checkbox"/> Antenna with DG greater than 6 dBi : [Limit = 8 – (DG – 6)] <input type="checkbox"/> Point-to-point operation : |
|-------|---|

4.4.2 Test Procedure

Test method Refer as ANSI C63.10:2013,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. SA set RBW = 3kHz, VBW = 10kHz, Span = 1.5 times DTS Bandwidth (6 dB BW), Detector = Peak, Sweep Time = Auto and Trace = Max hold.
4. The path loss and Duty Factor were compensated to the results for each measurement by SA.
5. Mark the maximum level.
6. Measure and record the result of power spectral density. in the test report.

4.4.3 Test Setup





Report No.: TMWK2212005126KR

4.4.4 Test Result

Temperature: 20.5°C

Test date: January 5, 2023

Humidity: 62% RH

Tested by: David Li

| POWER DENSITY 802.11b | | | | |
|-----------------------|------------|-------------------|---------------------|--------|
| Freq. (MHz) | Ch0 PSD | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Result |
| 2412 | -14.21 | -14.21 | 8.00 | PASS |
| 2437 | -11.77 | -11.77 | 8.00 | PASS |
| 2462 | -10.40 | -10.40 | 8.00 | PASS |

| POWER DENSITY 802.11g | | | | |
|-----------------------|------------|-------------------|---------------------|--------|
| Freq. (MHz) | Ch0 PSD | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Result |
| 2412 | -11.45 | -11.45 | 8.00 | PASS |
| 2437 | -10.57 | -10.57 | 8.00 | PASS |
| 2462 | -10.81 | -10.81 | 8.00 | PASS |

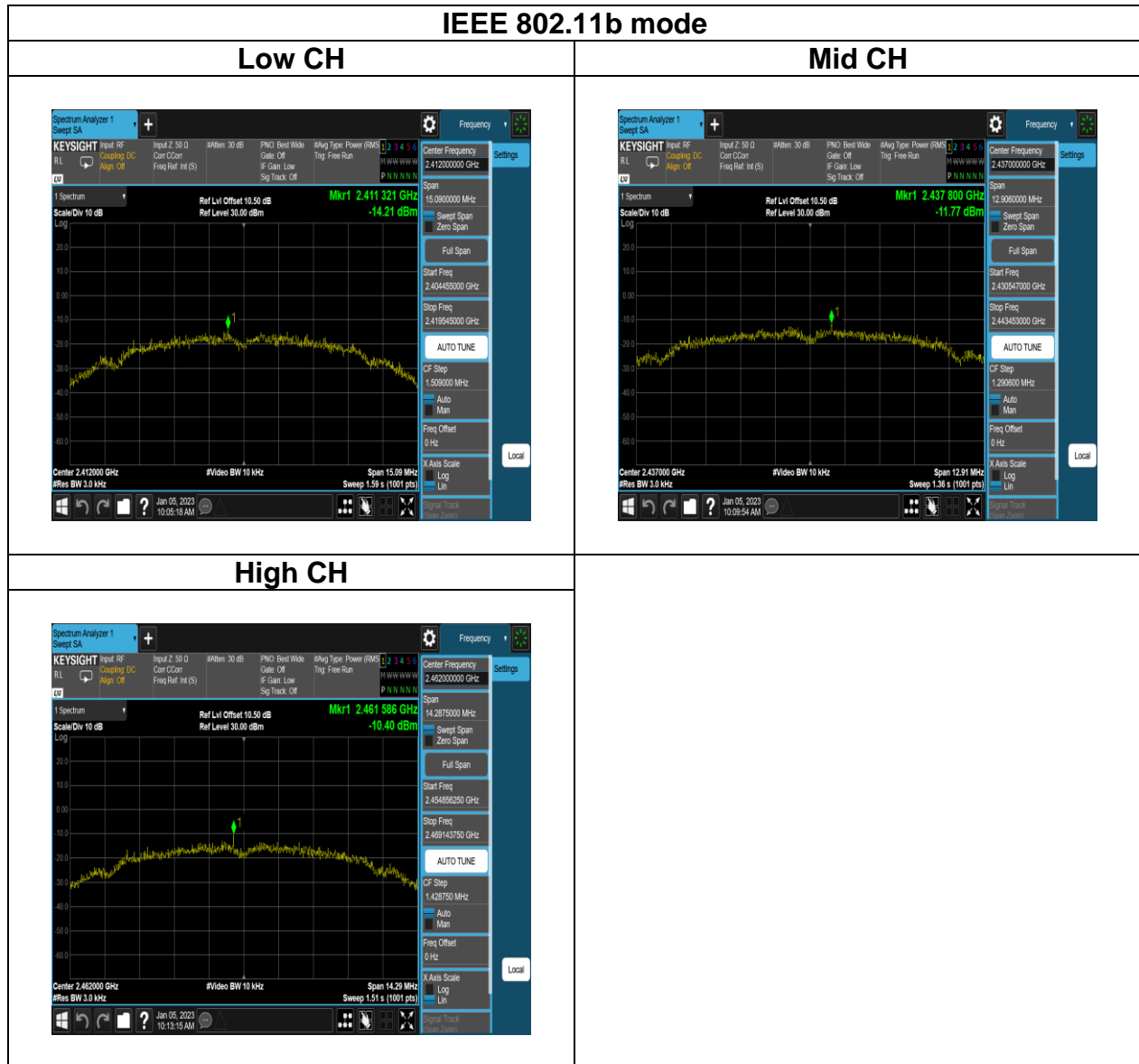
| POWER DENSITY 802.11n HT20 | | | | |
|----------------------------|------------|-------------------|---------------------|--------|
| Freq. (MHz) | Ch0 PSD | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Result |
| 2412 | -11.17 | -11.17 | 8.00 | PASS |
| 2437 | -10.81 | -10.81 | 8.00 | PASS |
| 2462 | -10.25 | -10.25 | 8.00 | PASS |

| POWER DENSITY 802.11n HT40 | | | | |
|----------------------------|------------|-------------------|---------------------|--------|
| Freq. (MHz) | Ch0 PSD | PSD (dBm/3kHz) | Limit (dBm/3kHz) | Result |
| 2422 | -14.32 | -14.32 | 8.00 | PASS |
| 2437 | -13.75 | -13.75 | 8.00 | PASS |
| 2452 | -14.10 | -14.10 | 8.00 | PASS |

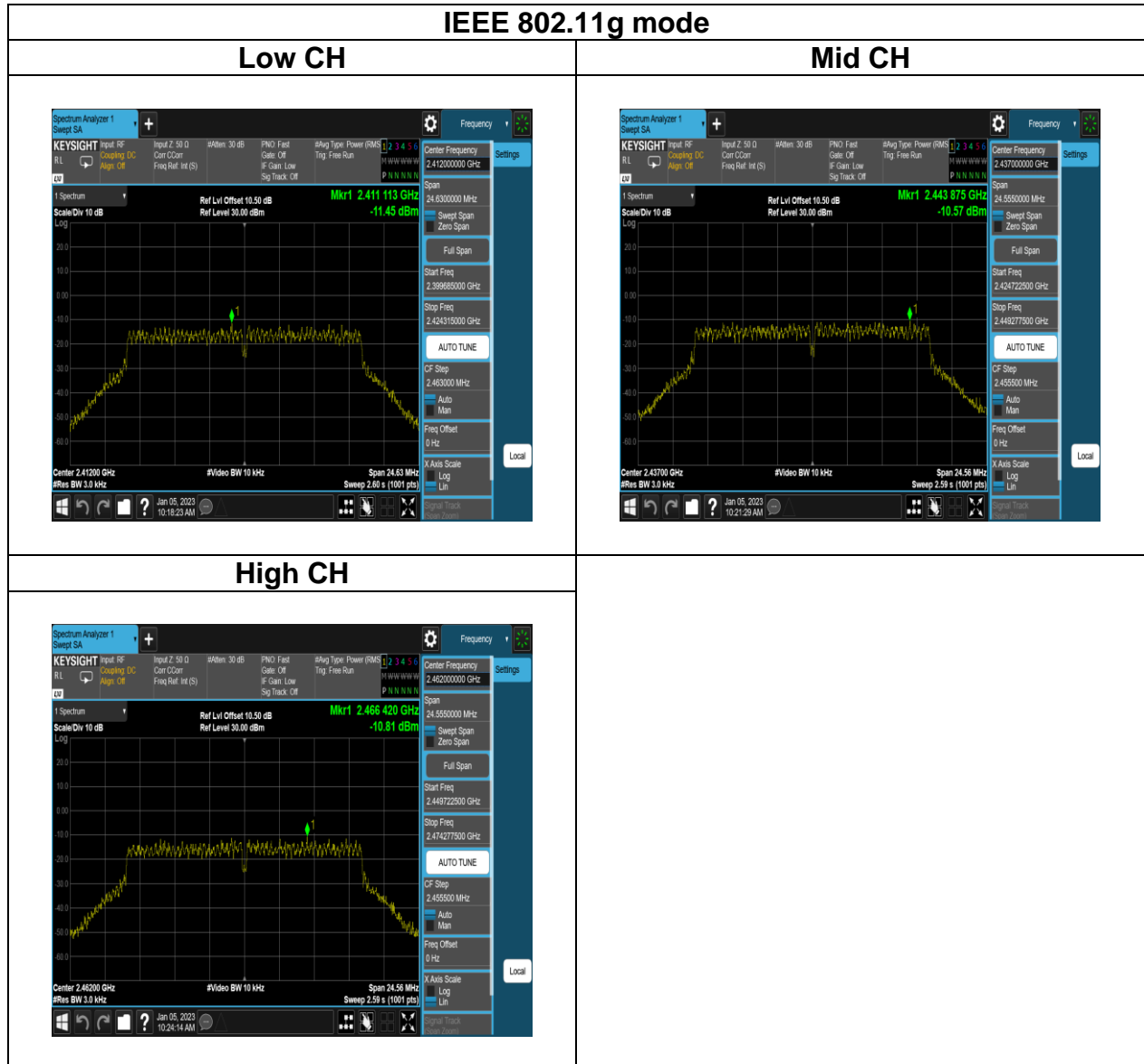


Report No.: TMWK2212005126KR

Test Data

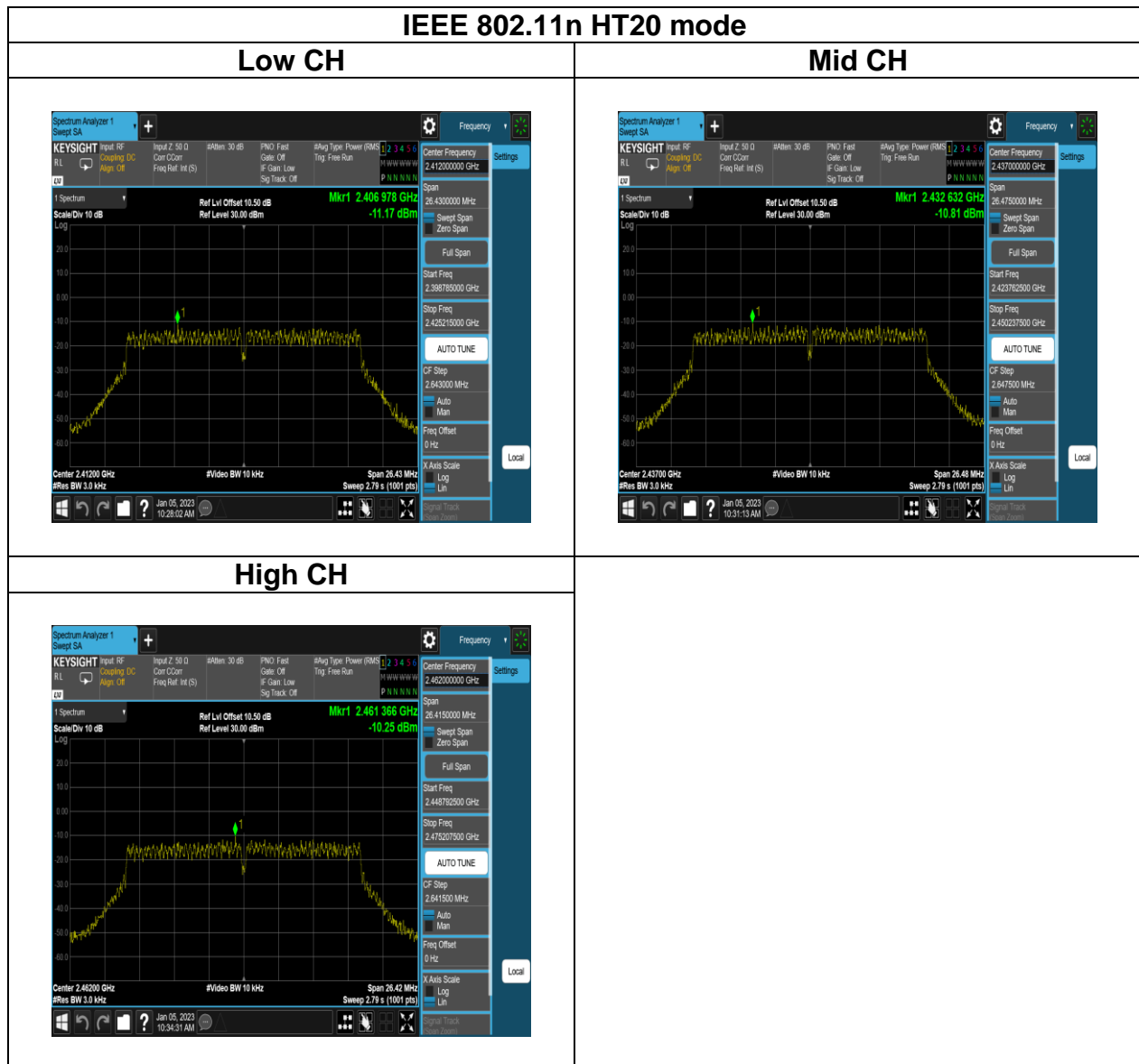


Report No.: TMWK2212005126KR

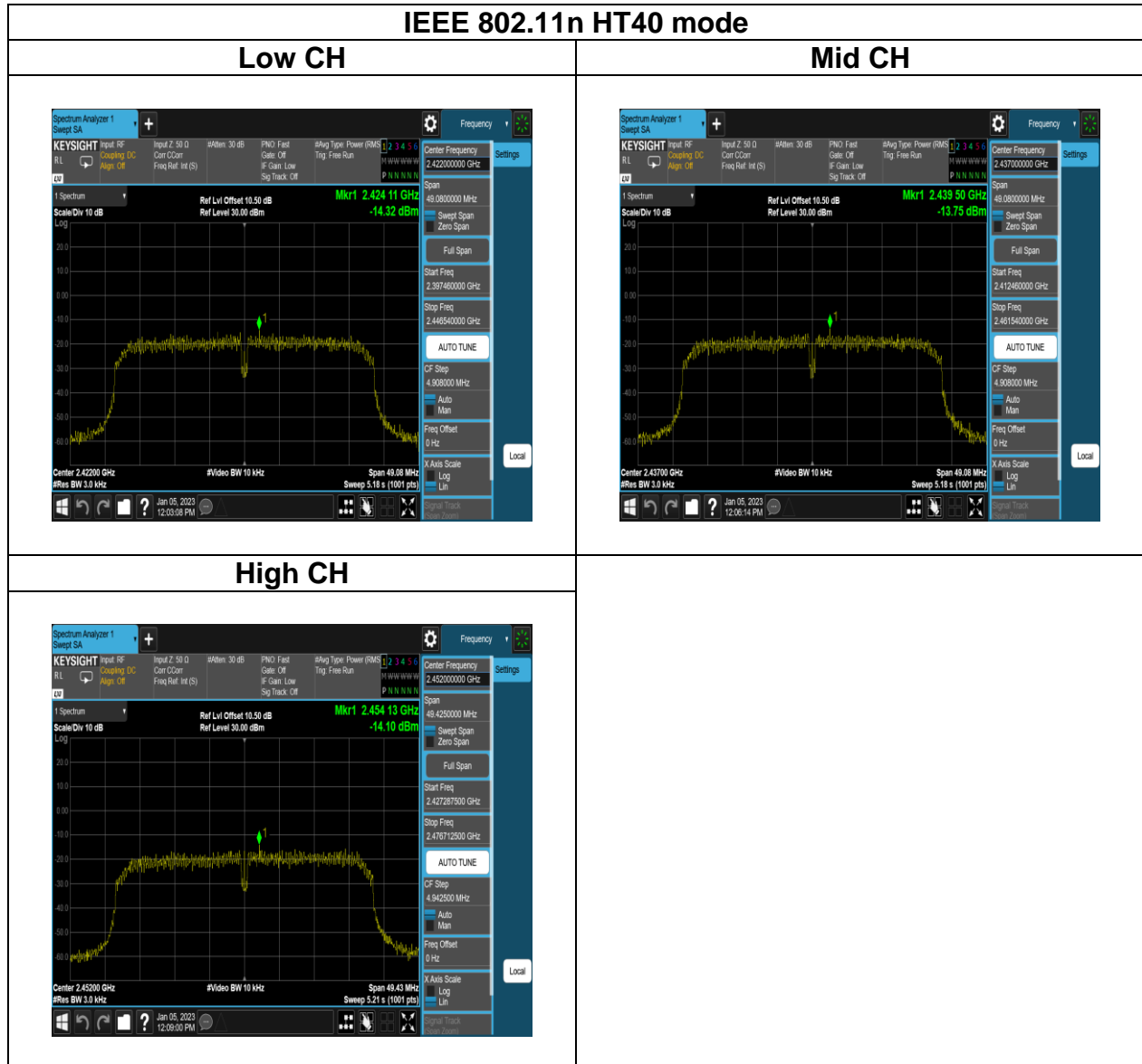




Report No.: TMWK2212005126KR



Report No.: TMWK2212005126KR



4.5 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

4.5.1 Test Limit

According to §15.247(d), RSS-247 section 5.5,

In any 100 kHz bandwidth outside the authorized frequency band,

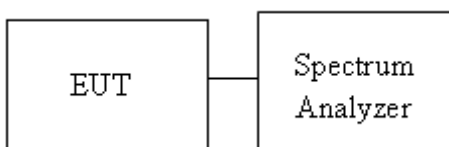
Non-restricted bands shall be attenuated at least 20 dB/30 dB relative to the maximum PSD level in 100 kHz by RF conducted or a radiated measurement which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

4.5.2 Test Procedure

Test method Refer as ANSI C63.10:2013.

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.
2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.
3. In any 100 kHz bandwidth outside the authorized frequency band, shall be attenuated at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when conducted power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

4.5.3 Test Setup





Report No.: TMWK2212005126KR

4.5.4 Test Result

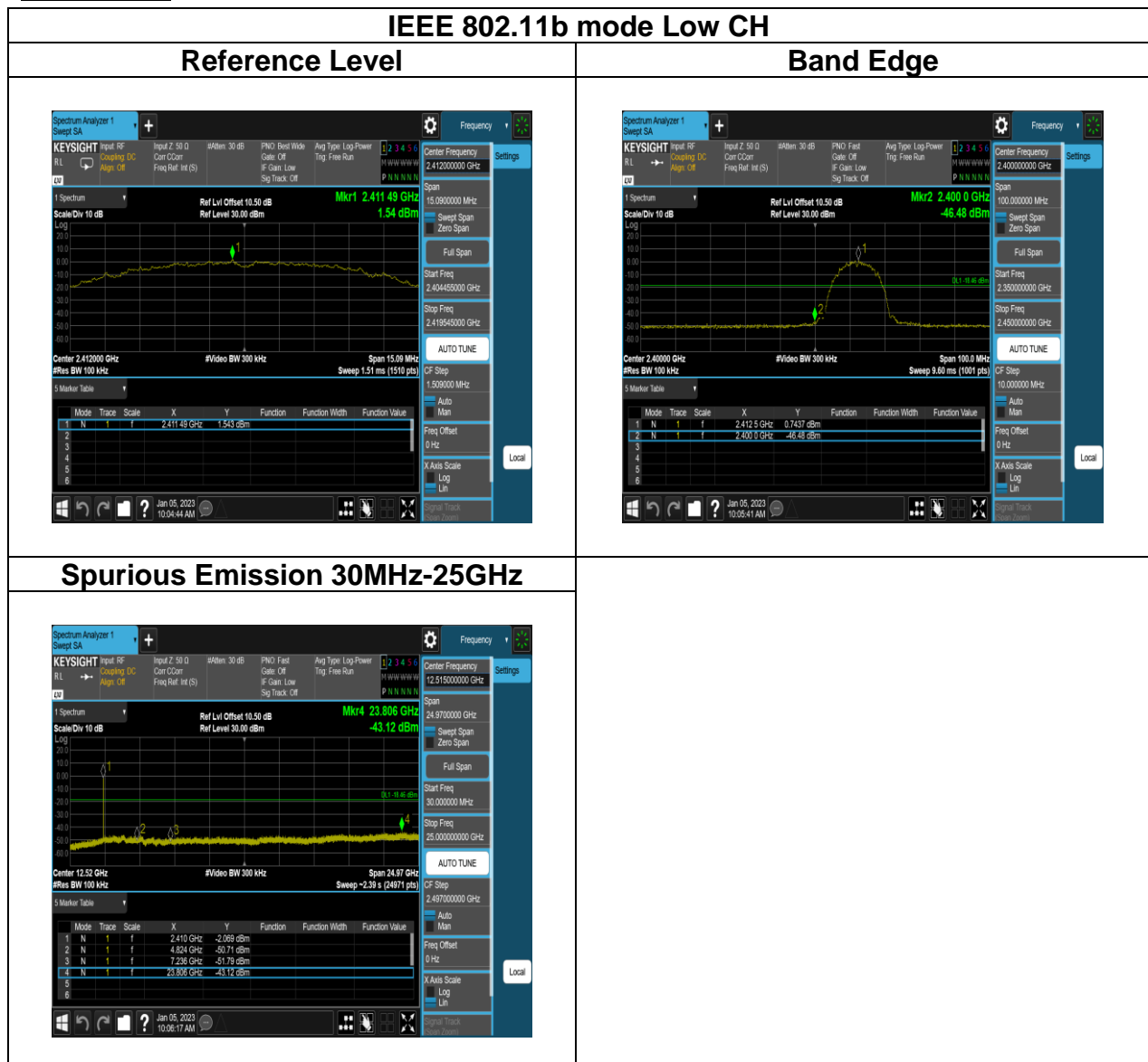
Temperature: 20.5°C

Test date: January 5, 2023

Humidity: 62% RH

Tested by: David Li

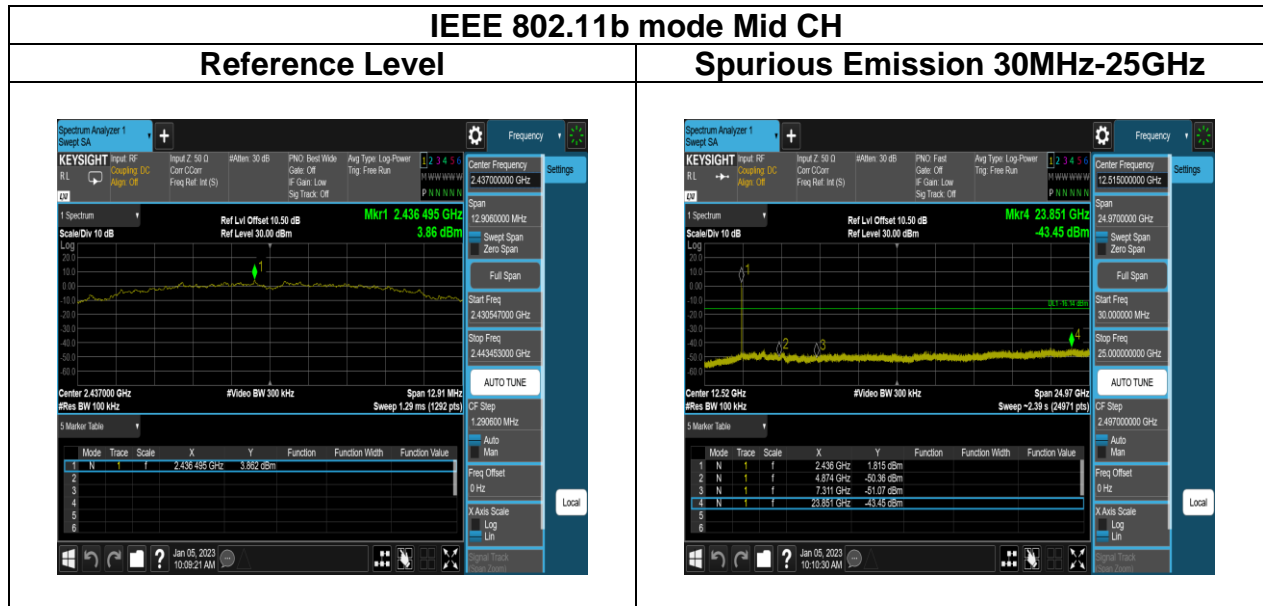
Test Data



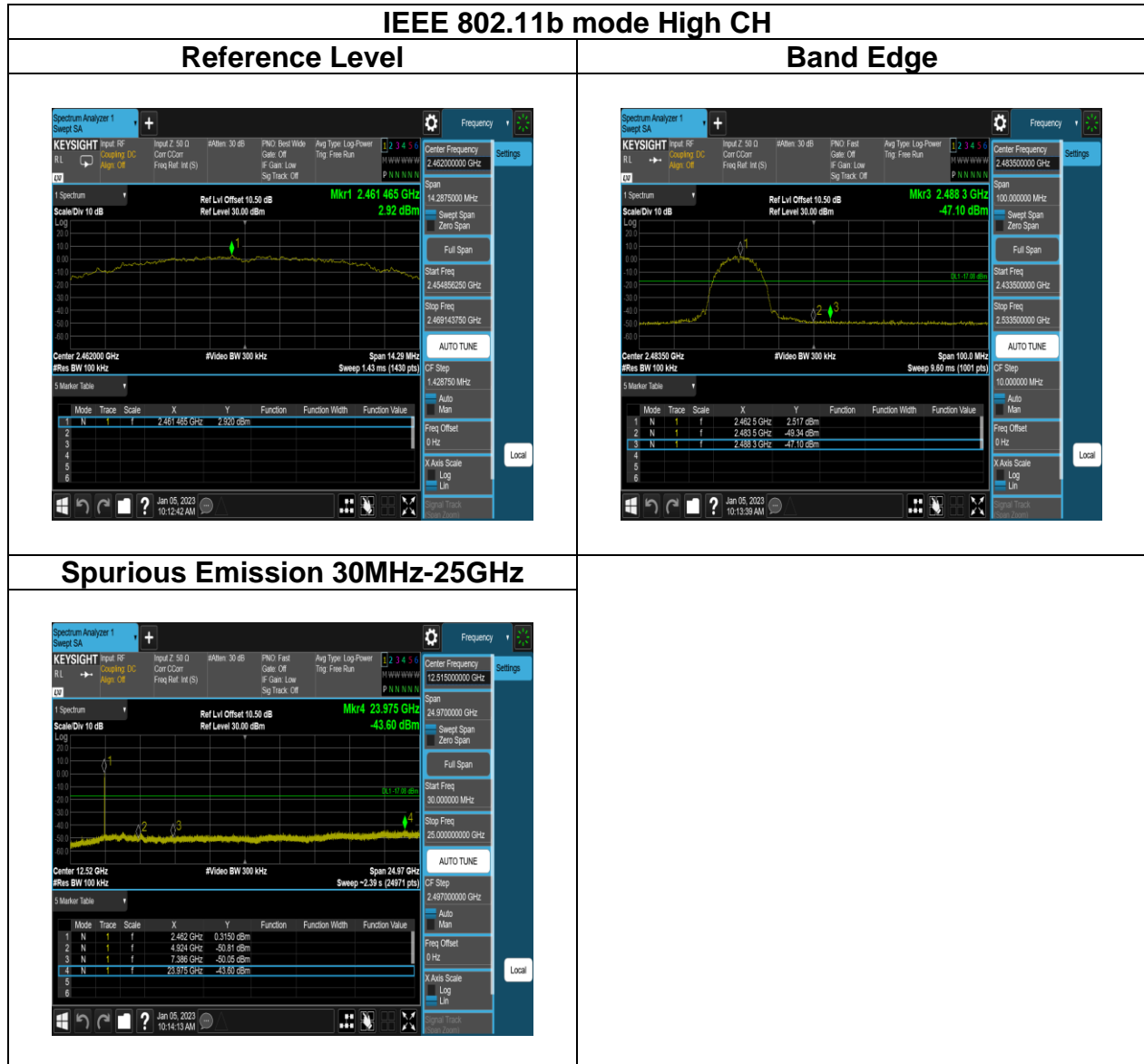


Report No.: TMWK2212005126KR

Page: 36 / 92
Rev.: 00



Report No.: TMWK2212005126KR



Report No.: TMWK2212005126KR

IEEE 802.11g mode Low CH

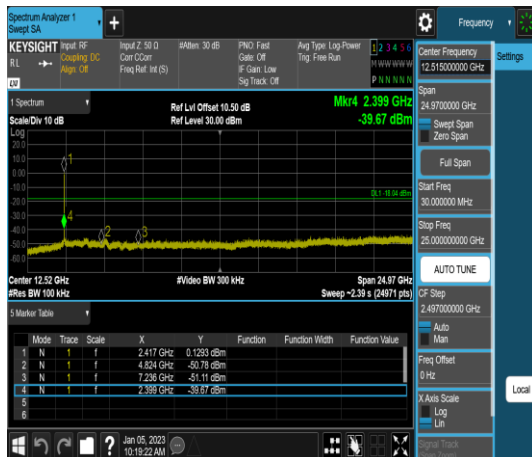
Reference Level



Band Edge



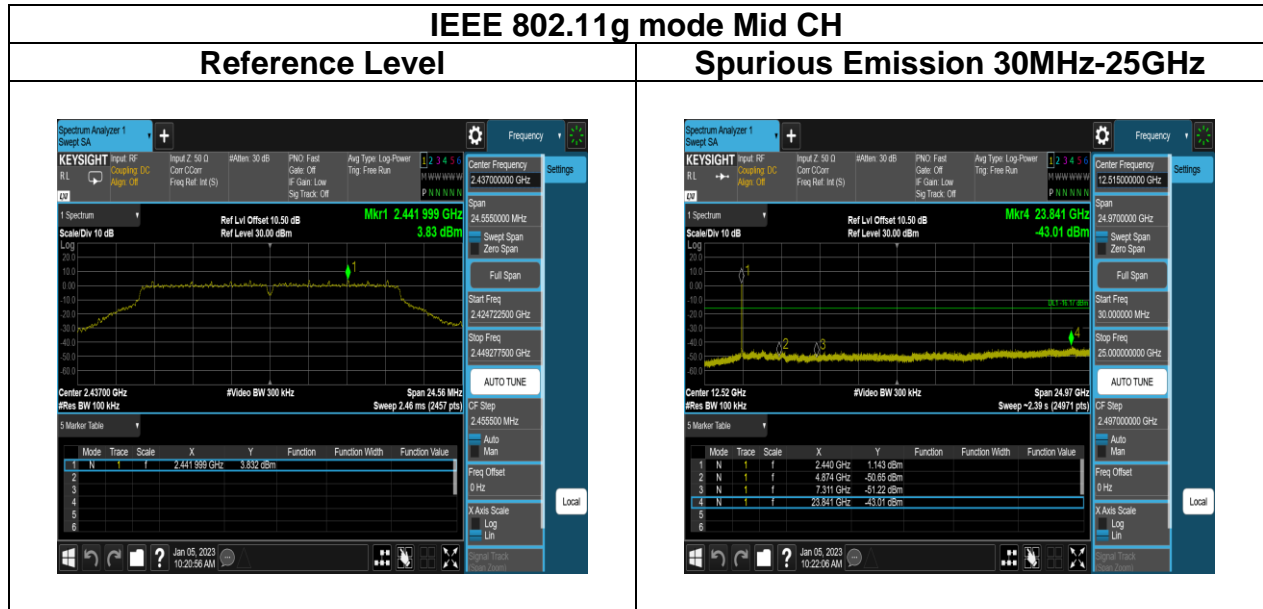
Spurious Emission 30MHz-25GHz



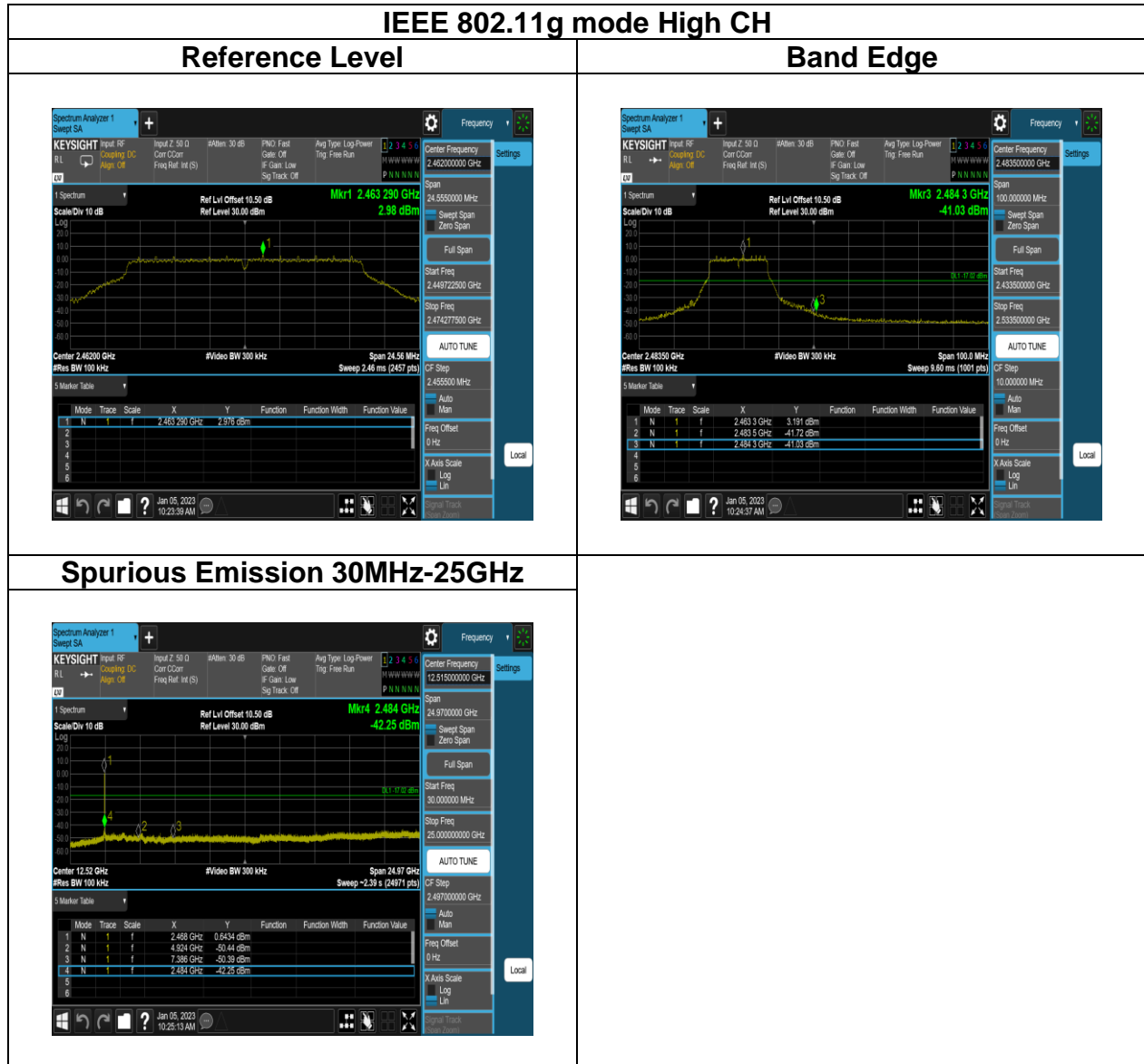


Report No.: TMWK2212005126KR

Page: 39 / 92
Rev.: 00



Report No.: TMWK2212005126KR



Report No.: TMWK2212005126KR

IEEE 802.11n HT20 mode Low CH

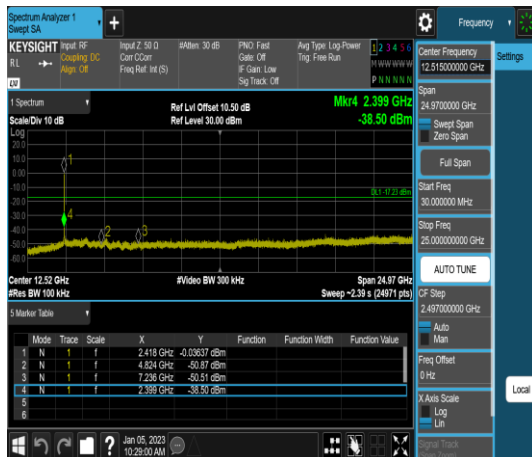
Reference Level



Band Edge



Spurious Emission 30MHz-25GHz



Report No.: TMWK2212005126KR

