

# Northwest Instrument Inc.

## SAR COMPLIANCE REPORT

**Report Type:**  
FCC SAR assessment report

**Model:**  
NLD900-G, NLD900-R

**REPORT NUMBER:**  
210100018SHA-002

**ISSUE DATE:**  
January 06, 2021

**DOCUMENT CONTROL NUMBER:**  
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## TEST REPORT

**Applicant:** Northwest Instrument Inc.  
69 King Street, Dover, NJ 07801, USA

**Manufacturer:** Northwest Instrument (Shanghai) Co., Ltd.  
B2-B No.303, Xinke Road, Qingpu Industrial Zone, 201707  
Shanghai, P.R. China

**FCC ID:** 2ADA6NLD900

## SUMMARY:

The equipment complies with the requirements according to the following standard(s) or Specification:

KDB447498 D01 General RF Exposure Guidance v06  
FCC Part2.1091, FCC Part2.1093 FCC Part1.1307(b)

## PREPARED BY:



Project Engineer  
Erick Liu

## REVIEWED BY:



Reviewer  
Daniel Zhao

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## Revision History

| Report No.       | Version | Description             | Issued Date      |
|------------------|---------|-------------------------|------------------|
| 210100018SHA-002 | Rev. 01 | Initial issue of report | January 06, 2021 |
|                  |         |                         |                  |
|                  |         |                         |                  |

## 1 GENERAL INFORMATION

### 1.1 Description of Equipment Under Test (EUT)

|                       |  |
|-----------------------|--|
| Product name:         | Detector   |
| Type/Model:           | NLD900-G, NLD900-R   |
| Description of EUT:   | The equipment under test (EUTs) are detector which has BLE function, the two models are same for Bluetooth and Antenna, they are different for optical filter and Mylar. After evaluation, we choose NLD900-G for all tests. |
| Rating:               | DC 5.0V 0.5A   |
| Category of EUT:      | Class B  |
| EUT type:             | <input checked="" type="checkbox"/> Table top <input type="checkbox"/> Floor standing  |
| Software Version:     | /  |
| Hardware Version:     | /  |
| Sample received date: | November 16, 2020  |
| Date of test:         | November 17, 2020 – January 06, 2021   |

### 1.2 Technical Specification

|                      |                   |
|----------------------|-------------------|
| Frequency Range:     | 2402-2480MHz      |
| Support Standards:   | IEEE 802.15.1     |
| Type of Modulation:  | GFSK              |
| Channel Number:      | 40                |
| Channel Separation:  | 2MHz              |
| Antenna Information: | PCB antenna, OdBi |

### 1.3 Description of Test Facility

|            |  |
|------------|--|
| Name:      | Intertek Testing Services Shanghai                                     |
| Address:   | Building 86, No. 1198 Qinzhou Road(North), Shanghai 200233, P.R. China |
| Telephone: | 86 21 61278200   |
| Telefax:   | 86 21 54262353   |

|   |   |
|---|---|
| The test facility is recognized, certified, or accredited by these organizations: | CNAS Accreditation Lab<br>Registration No. CNAS L0139                         |
|   | FCC Accredited Lab<br>Designation Number: CN1175                              |
|   | IC Registration Lab<br>CAB identifier.: CN0051                                |
|   | VCCI Registration Lab<br>Registration No.: R-14243, G-10845, C-14723, T-12252 |
|   | A2LA Accreditation Lab<br>Certificate Number: 3309.02                         |

## 2 SAR Assessment

Test result: Pass

### 2.1 SAR Test Exclusion Limit

100 MHz – 6 GHz and  $\leq 50$  mm

| MHz  | 5   | 10  | 15  | 20  | 25  | mm                                      |
|------|-----|-----|-----|-----|-----|---|
| 150  | 39  | 77  | 116 | 155 | 194 | SAR Test<br>Exclusion<br>Threshold (mW) |
| 300  | 27  | 55  | 82  | 110 | 137 |   |
| 450  | 22  | 45  | 67  | 89  | 112 |   |
| 835  | 16  | 33  | 49  | 66  | 82  |   |
| 900  | 16  | 32  | 47  | 63  | 79  |   |
| 1500 | 12  | 24  | 37  | 49  | 61  |   |
| 1900 | 11  | 22  | 33  | 44  | 54  |   |
| 2450 | 10  | 19  | 29  | 38  | 48  |   |
| 3600 | 8   | 16  | 24  | 32  | 40  |   |
| 5200 | 7   | 13  | 20  | 26  | 33  |   |
| 5400 | 6   | 13  | 19  | 26  | 32  |   |
| 5800 | 6   | 12  | 19  | 25  | 31  |   |
|      |     |     |     |     |     |   |
| MHz  | 30  | 35  | 40  | 45  | 50  | mm                                      |
| 150  | 232 | 271 | 310 | 349 | 387 | SAR Test<br>Exclusion<br>Threshold (mW) |
| 300  | 164 | 192 | 219 | 246 | 274 |   |
| 450  | 134 | 157 | 179 | 201 | 224 |   |
| 835  | 98  | 115 | 131 | 148 | 164 |   |
| 900  | 95  | 111 | 126 | 142 | 158 |   |
| 1500 | 73  | 86  | 98  | 110 | 122 |   |
| 1900 | 65  | 76  | 87  | 98  | 109 |   |
| 2450 | 57  | 67  | 77  | 86  | 96  |   |
| 3600 | 47  | 55  | 63  | 71  | 79  |   |
| 5200 | 39  | 46  | 53  | 59  | 66  |   |
| 5400 | 39  | 45  | 52  | 58  | 65  |   |
| 5800 | 37  | 44  | 50  | 56  | 62  |   |

# TEST REPORT

100 MHz – 6 GHz and > 50 mm

| MHz  | 50  | 60  | 70  | 80  | 90  | 100 | 110 | 120 | 130 | 140  | 150  | 160  | 170  | 180  | 190  | mm |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|----|
| 100  | 474 | 481 | 487 | 494 | 501 | 507 | 514 | 521 | 527 | 534  | 541  | 547  | 554  | 561  | 567  | mW |
| 150  | 387 | 397 | 407 | 417 | 427 | 437 | 447 | 457 | 467 | 477  | 487  | 497  | 507  | 517  | 527  |    |
| 300  | 274 | 294 | 314 | 334 | 354 | 374 | 394 | 414 | 434 | 454  | 474  | 494  | 514  | 534  | 554  |    |
| 450  | 224 | 254 | 284 | 314 | 344 | 374 | 404 | 434 | 464 | 494  | 524  | 554  | 584  | 614  | 644  |    |
| 835  | 164 | 220 | 275 | 331 | 387 | 442 | 498 | 554 | 609 | 665  | 721  | 776  | 832  | 888  | 943  |    |
| 900  | 158 | 218 | 278 | 338 | 398 | 458 | 518 | 578 | 638 | 698  | 758  | 818  | 878  | 938  | 998  |    |
| 1500 | 122 | 222 | 322 | 422 | 522 | 622 | 722 | 822 | 922 | 1022 | 1122 | 1222 | 1322 | 1422 | 1522 |    |
| 1900 | 109 | 209 | 309 | 409 | 509 | 609 | 709 | 809 | 909 | 1009 | 1109 | 1209 | 1309 | 1409 | 1509 |    |
| 2450 | 96  | 196 | 296 | 396 | 496 | 596 | 696 | 796 | 896 | 996  | 1096 | 1196 | 1296 | 1396 | 1496 |    |
| 3600 | 79  | 179 | 279 | 379 | 479 | 579 | 679 | 779 | 879 | 979  | 1079 | 1179 | 1279 | 1379 | 1479 |    |
| 5200 | 66  | 166 | 266 | 366 | 466 | 566 | 666 | 766 | 866 | 966  | 1066 | 1166 | 1266 | 1366 | 1466 |    |
| 5400 | 65  | 165 | 265 | 365 | 465 | 565 | 665 | 765 | 865 | 965  | 1065 | 1165 | 1265 | 1365 | 1465 |    |
| 5800 | 62  | 162 | 262 | 362 | 462 | 562 | 662 | 762 | 862 | 962  | 1062 | 1162 | 1262 | 1362 | 1462 |    |

< 100 MHz and < 200 mm

| MHz  | < 50 | 50   | 60   | 70   | 80   | 90   | 100  | 110  | 120  | 130  | 140  | 150  | 160  | 170  | 180  | 190  | mm |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|----|
| 100  | 237  | 474  | 481  | 487  | 494  | 501  | 507  | 514  | 521  | 527  | 534  | 541  | 547  | 554  | 561  | 567  | mW |
| 50   | 308  | 617  | 625  | 634  | 643  | 651  | 660  | 669  | 677  | 686  | 695  | 703  | 712  | 721  | 729  | 738  |    |
| 10   | 474  | 948  | 961  | 975  | 988  | 1001 | 1015 | 1028 | 1041 | 1055 | 1068 | 1081 | 1095 | 1108 | 1121 | 1135 |    |
| 1    | 711  | 1422 | 1442 | 1462 | 1482 | 1502 | 1522 | 1542 | 1562 | 1582 | 1602 | 1622 | 1642 | 1662 | 1682 | 1702 |    |
| 0.1  | 948  | 1896 | 1923 | 1949 | 1976 | 2003 | 2029 | 2056 | 2083 | 2109 | 2136 | 2163 | 2189 | 2216 | 2243 | 2269 |    |
| 0.05 | 1019 | 2039 | 2067 | 2096 | 2125 | 2153 | 2182 | 2211 | 2239 | 2268 | 2297 | 2325 | 2354 | 2383 | 2411 | 2440 |    |
| 0.01 | 1185 | 2370 | 2403 | 2437 | 2470 | 2503 | 2537 | 2570 | 2603 | 2637 | 2670 | 2703 | 2737 | 2770 | 2803 | 2837 |    |

## 2.2 Assessment Results

The highest EIRP adjusted with tune-up tolerance is  $-1.11\text{dBm} = 0.7745\text{mW} < \underline{10\text{mW}}$  (Test Exclusion Thresholds of 2450MHz at 5mm). Therefore, the SAR requirement is deemed to be satisfied without test.

\*\*\*\*\* END \*\*\*\*\*