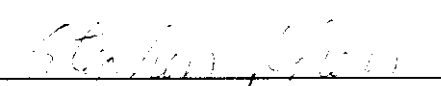
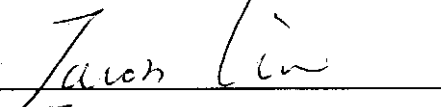
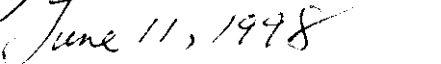


# ***EXHIBIT B***

## ***Test Report***

|                      |                                                                                                                           |
|----------------------|---------------------------------------------------------------------------------------------------------------------------|
| Report No.           | S0715597                                                                                                                  |
| Specifications       | FCC Part 15 - Notification                                                                                                |
| Test Method          | ANSI C63.4 1992                                                                                                           |
| Applicant address    | 23, Lane 2, Jing Wu Road,<br>Taichung, R.O.C.                                                                             |
| Applicant            | Sekaku Electron Industry Co., Ltd.                                                                                        |
| Items tested         | WIRELESS MICROPHONE RECEIVER                                                                                              |
| Model No.            | WR-221DR                                                                                                                  |
| Results              | As detailed within this report                                                                                            |
| Sample received date | 05 / 18 /1998 (month / day / year )                                                                                       |
| Prepared by          |  project engineer                     |
| Authorized by        |  Vice General Manager<br>(Jacob Lin ) |
| Issue date           |  (month / day / year )                |
| <b>Modifications</b> | <b>None</b>                                                                                                               |
| Tested by            | Training Research Co., Ltd.                                                                                               |
| Office at            | 2F, No. 571, Chung Hsiao E. Road, Sec.7, Taipei, Taiwan                                                                   |
| Open site at         | No. 5-3, Lane 21, Yen Chiu Yuan Rd., Sec.4, Taipei Taiwan                                                                 |

**Conditions of issue:**

- (1). This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.
- (2). This report must not be used by the client to claim product endorsement by NVLAP or nay agency of U.S. Government.

**★ FCC ID : H38WR-221DR**

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## ***Chapter 1 Introduction***

### ***Description of EUT :***

These products are professionally designed wireless microphone and receiver system made-up of diverse circuit. It can receive frequency range from 174 MHz to 216 MHz. This microphone is a one channel and worn by a performer and other participants in a program, filming , reporting .....etc.

### ***Connection of EUT :***

- (1)Connect the EUT's audio output to guitar amplifier by an audio cable .
- (2)Plug the adapter into the EUT.
- (3)Pull out the antenna vertically .

### ***Test method :***

There are three EUTs tested which are operated at 174.1, 194.6 and 214.82 MHz separately. Turn on the receiver and the speaker . There is a signal generator connected with a field probe , which can transmit the receiving frequency , put near the EUT . The test data also showed three EUT's emission .

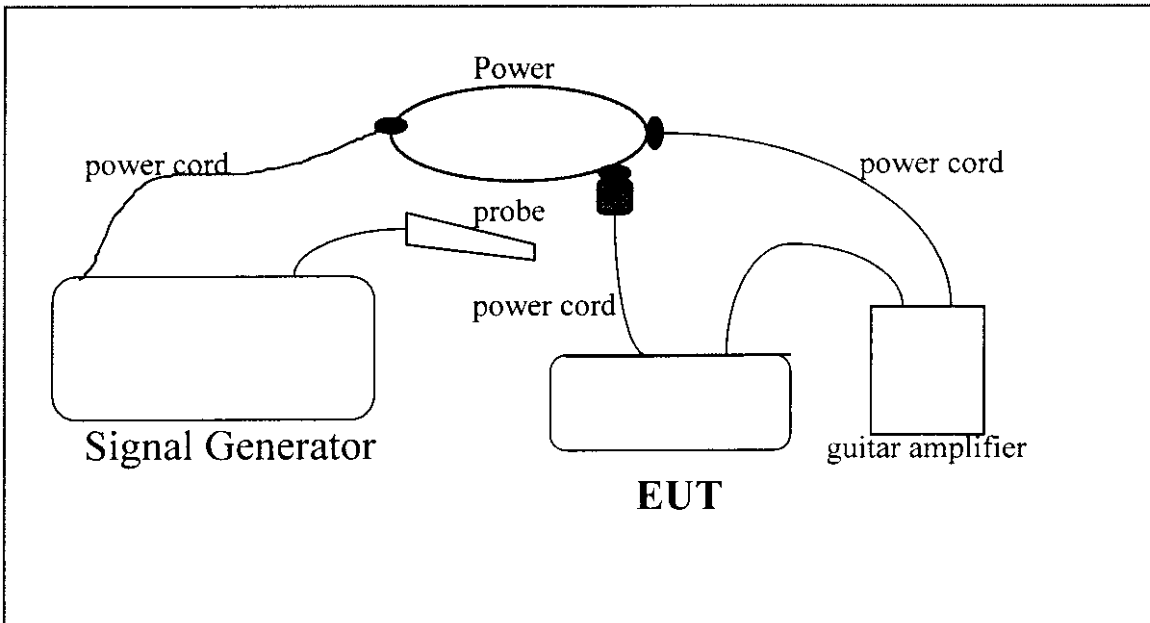
(If the emission is close to the ambience, the resolution BW and view resolution will be reduced and the data will be recorded by detection of maximum hold peak mode.)

### ***Statement of transition provision for compliance with the rules***

The EUT receives the signal which only send from the wireless microphone. The EUT won't be influenced by the transition provision , it will be continue to comply with the regulations of the FCC Part 15 . ( The relative wireless microphone FCC ID :H38VXM-198TS).

***The testing configuration of test setup is showing in the next page.***

**Configuration of test setup**



**Connections :**

- \* The Adapter 120Vac/15Vdc,400 mA, 190 cm long, non-shielded.
- \* The Audio cable dual head 6.3Ø, 126 cm, non-shielded.

***List of support equipment***

**Conducted (Radiated) test :**

**Guitar Amplifier : Dragon (KIKUTANI MUSIC COL,LTD. )**

Model No. : GA-10 ( RMS-100 )

Power type : 110vac 60Hz

Power code : Non-shield , 1.2m long

**Field Probe : HP Field Probe 30MHz~1GHz**

Model No. : HP11940A

Serial No. : 2650A03038

**Signal Generator : HP 9KHz~4000MHz**

Model No. : 8648D

Serial No. : 3613A00117

Power type : 110vac 60Hz

Power cord : Non - Shielded

## Chapter 2 Conducted emission test

### Test condition and set up :

All the equipment is placed and setup according to the ANSI C63.4 - 1992 .  
The EUT is assembled on a wooden table which is 80 cm high , is placed 40 cm from the back-wall which is a vertical conducting plane . One LISN is for EUT ,the other LISN is for support equipment. They are all placed on the conductive ground .The EUT's LISN is connected to a line switch box for selecting L1 or L2 ,then connect to a preamplifier and spectrum.

The spectrum scans from 450KHz to 30MHz . Conducted emission levels are detected at max. peak mode . But if the max. peak mode failed ,it will be measured by CISPR's quasi-peak detection mode .

While testing, there is a worst-emission plot printed at peak detection mode ,and there are more than 6 highest emissions relative to limit recorded. The plot is kept as the original data, not included in test report .

### List of test Instrument :

| Instrument Name   | Model No. | Brand | Serial No. | <u>Calibration Date</u> |           |
|-------------------|-----------|-------|------------|-------------------------|-----------|
|                   |           |       |            | Last time               | Next time |
| Spectrum analyzer | 8591EM    | H P   | 3619A00821 | 08/29/97                | 08/29/98  |
| LISN (EUT)        | 3825/2    | EMCO  | 9411-2284  | 05/15/98                | 05/15/99  |
| LISN (Support E.) | 3825/2    | EMCO  | 9210-2007  | 05/15/98                | 05/15/99  |
| Preamplifier      | 8447F     | H P   | 2944A03706 | 05/13/98                | 05/15/99  |
| Line switch box   | AC1-003   | TRC   | -----      | 05/15/98                | 05/15/99  |
| Line selector     | AC1-002   | TRC   | -----      | 05/15/98                | 05/15/99  |

The level of confidence of 95% ,the uncertainty of measurement of conducted emission is  $\pm 2.4$  dB .

Test Result : Pass (Appendix A)

### Chapter 3 Radiated emission test

#### Test condition and set up :

**Pretest :** Prior to the final test (OATS test), the EUT is placed in a shielded enclosure, GTEM, and scan from 30MHz to 1GHz. This is done to ensure the radiation exactly emits from the EUT.

**Final test :** Final radiation measurements is made on a **3 - meter**, open-field test site. The EUT is placed on a nonconductive table which is 0.8 m height, the top surface is 1.0 x 1.5 meter. All the placement is according to ANSI C63.4 - 1992.

The spectrum is examined from 30 MHz to 1000 MHz measured by HP spectrum.

The EMCO whole range Antenna is used to measure frequency from 30 MHz to 1GHz. The final test is used the spectrum HP 8594EM.

Measure more than six top marked frequencies generated from pretest by computer step by step at each frequency. The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meter to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading. The spectrum analyzer's 6dB bandwidth is set to 120 K Hz, and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambience, the data will be rechecked by the tester and the corrected data will be written in the test data sheet. If the emission is just within the ambience, the data from GTEM will be taken as the final data.

#### List of test Instrument :

| Instrument name                                               | Model No. | Brand | Serial No. | Calibration Date |          |
|---------------------------------------------------------------|-----------|-------|------------|------------------|----------|
|                                                               |           |       |            | Last             | Next     |
| Spectrum analyzer                                             | 8568B     | H P   | 3004A18617 | 05/15/98         | 05/15/99 |
| Quasi-peak Adapter                                            | 85650A    | H P   | 2521A00984 | 05/15/98         | 05/15/99 |
| RF Pre-selector                                               | 85685A    | H P   | 2947A01011 | 05/15/98         | 05/15/99 |
| Spectrum analyzer                                             | 8594EM    | H P   | 3619A00198 | 08/07/97         | 08/07/98 |
| Antenna(30M-2G Hz)                                            | 3142      | EMCO  | 9610-1094  | 10/30/97         | 10/30/98 |
| Open test side (Antenna ,Amplify, cable calibrated together ) |           |       |            | 05/15/98         | 05/15/99 |

The level of confidence of 95% ,the uncertainty of measurement of radiated emission is  $\pm 4.96$  dB .

#### Test Result : Pass (Appendix B)

( Frequency 194.6 MHz )

**Line 1**

| <i>Frequency<br/>(MHz)</i> | <i>Amplitude<br/>(dBuV)</i> | <i>Limit<br/>(dBuV/m)</i> | <i>Margin<br/>(dB)</i> |
|----------------------------|-----------------------------|---------------------------|------------------------|
| 0.450                      | 40.42                       | 48                        | -7.58                  |
| 1.189                      | 19.12                       | 48                        | -28.88                 |
| 22.988                     | 18.60                       | 48                        | -29.40                 |
| 24.009                     | 20.53                       | 48                        | -27.47                 |
| ***                        |                             |                           |                        |
|                            |                             |                           |                        |
|                            |                             |                           |                        |
|                            |                             |                           |                        |
|                            |                             |                           |                        |
|                            |                             |                           |                        |

**Line 2**

| <i>Frequency<br/>(MHz)</i> | <i>Amplitude<br/>(dBuV)</i> | <i>Limit<br/>(dBuV)</i> | <i>Margin<br/>(dB)</i> |
|----------------------------|-----------------------------|-------------------------|------------------------|
| 0.450                      | 41.30                       | 48                      | -6.70                  |
| 1.189                      | 15.57                       | 48                      | -32.43                 |
| 4.877                      | 15.18                       | 48                      | -32.82                 |
| 13.772                     | 17.51                       | 48                      | -30.49                 |
| 17.581                     | 16.65                       | 48                      | -31.35                 |
| 20.871                     | 16.90                       | 48                      | -31.10                 |
| 22.696                     | 17.53                       | 48                      | -30.47                 |
| 24.009                     | 20.75                       | 48                      | -27.25                 |
| 27.651                     | 17.87                       | 48                      | -30.13                 |
| ***                        |                             |                         |                        |

## Appendix A

### Conducted Emission Test Result ( Frequency 174.1 MHz )

Testing room : Temperature : 28 ° C Humidity : 72 % RH

#### Line 1

| <i>Frequency<br/>(MHz)</i> | <i>Amplitude<br/>(dBuV)</i> | <i>Limit<br/>(dBuV/m)</i> | <i>Margin<br/>(dB)</i> |
|----------------------------|-----------------------------|---------------------------|------------------------|
| 0.450                      | 40.53                       | 48                        | -7.47                  |
| 1.189                      | 31.90                       | 48                        | -16.10                 |
| 1.927                      | 21.67                       | 48                        | -26.33                 |
| 3.255                      | 15.79                       | 48                        | -32.21                 |
| 5.319                      | 15.72                       | 48                        | -32.28                 |
| 6.866                      | 15.34                       | 48                        | -32.66                 |
| 27.433                     | 19.24                       | 48                        | -28.76                 |
| 28.597                     | 18.54                       | 48                        | -29.46                 |
| 29.324                     | 18.56                       | 48                        | -29.44                 |
| 29.760                     | 18.62                       | 48                        | -29.38                 |

#### Line 2

| <i>Frequency<br/>(MHz)</i> | <i>Amplitude<br/>(dBuV)</i> | <i>Limit<br/>(dBuV)</i> | <i>Margin<br/>(dB)</i> |
|----------------------------|-----------------------------|-------------------------|------------------------|
| 0.598                      | 42.49                       | 48                      | -5.51                  |
| 1.484                      | 28.95                       | 48                      | -19.05                 |
| 1.927                      | 21.79                       | 48                      | -26.21                 |
| 3.329                      | 17.28                       | 48                      | -30.72                 |
| 4.214                      | 16.25                       | 48                      | -31.75                 |
| 27.506                     | 19.51                       | 48                      | -28.49                 |
| 28.888                     | 22.24                       | 48                      | -25.76                 |
| 29.179                     | 18.45                       | 48                      | -29.55                 |
| ***                        |                             |                         |                        |
|                            |                             |                         |                        |

( Frequency 214.82 MHz )

**Line 1**

| <i>Frequency<br/>(MHz)</i> | <i>Amplitude<br/>(dBuV)</i> | <i>Limit<br/>(dBuV/m)</i> | <i>Margin<br/>(dB)</i> |
|----------------------------|-----------------------------|---------------------------|------------------------|
| 0.450                      | 41.42                       | 48                        | -6.58                  |
| 1.189                      | 31.31                       | 48                        | -16.69                 |
| 2.001                      | 24.16                       | 48                        | -23.84                 |
| 3.550                      | 15.44                       | 48                        | -32.56                 |
| 18.825                     | 16.43                       | 48                        | -31.57                 |
| 21.821                     | 16.58                       | 48                        | -31.42                 |
| 27.433                     | 18.57                       | 48                        | -29.43                 |
| 28.815                     | 19.15                       | 48                        | -28.85                 |
| ***                        |                             |                           |                        |
|                            |                             |                           |                        |

**Line 2**

| <i>Frequency<br/>(MHz)</i> | <i>Amplitude<br/>(dBuV)</i> | <i>Limit<br/>(dBuV)</i> | <i>Margin<br/>(dB)</i> |
|----------------------------|-----------------------------|-------------------------|------------------------|
| 0.524                      | 46.48                       | 48                      | -1.52                  |
| 1.632                      | 30.59                       | 48                      | -17.41                 |
| 2.075                      | 24.44                       | 48                      | -23.56                 |
| 3.181                      | 19.43                       | 48                      | -28.57                 |
| 3.919                      | 18.62                       | 48                      | -29.38                 |
| 10.175                     | 17.47                       | 48                      | -30.53                 |
| 26.778                     | 18.13                       | 48                      | -29.87                 |
| 26.996                     | 19.36                       | 48                      | -28.64                 |
| 27.578                     | 19.01                       | 48                      | -28.99                 |
| 28.306                     | 18.28                       | 48                      | -29.72                 |

## **Appendix B**

### ***Radiated Emission Test Result : ( Frequency 174.1 MH Horizontal)***

Test Conditions:

Testing room : Temperature : 28° C      Humidity : 56% RH

Testing site : Temperature : 32 ° C      Humidity : 66 % RH

| Frequency | Reading   | Ant.   | Table  | Correction | Corrected | Class B | Margin |
|-----------|-----------|--------|--------|------------|-----------|---------|--------|
|           | Amplitude | Height |        | Factors    | Amplitude | limit   |        |
| MHz       | DBuV      | m      | degree | dB/m       | dBuV/m    | dBuV/m  | dB     |
| 136.870   | 34.99     | 1      | 222    | -14.08     | 20.91     | 43.50   | -22.59 |
| 163.400   | 45.50     | 1      | 192    | -23.02     | 22.48     | 43.50   | -21.02 |
| 205.300   | 47.39     | 1      | 265    | -20.44     | 26.95     | 43.50   | -16.55 |
| 381.260   | 39.73     | 1      | 110    | -13.50     | 26.23     | 46      | -19.77 |
| 479.030   | 35.21     | 1      | 212    | -10.65     | 24.56     | 46      | -21.44 |
| 547.460   | 34.88     | 1      | 109    | -10.81     | 24.07     | 46      | -21.93 |
| 653.600   | 45.29     | 1      | 29     | -13.11     | 32.18     | 46      | -13.82 |
| 708.060   | 45.75     | 1      | 285    | -13.12     | 32.63     | 46      | -13.37 |

Note:

1. Margin = Amplitude - limit, *if margin is minus means under limit.*

2. Corrected Amplitude = Reading Amplitude - Correction Factors

3. Correction factor = Antenna factor + ( Cable Loss - Amplitude gain)

(For example : 30MHz correction factor = 15.5 + (-15.26) = 0.24 dB/m)

**Radiated Emission Test Result :(Vertical)**

| Frequency | Reading<br>Amplitude | Ant.<br>Height | Table  | Correction<br>Factors | Corrected<br>Amplitude | Class B<br>limit | Margin |
|-----------|----------------------|----------------|--------|-----------------------|------------------------|------------------|--------|
| MHz       | dBuV                 | m              | degree | dB/m                  | dBuV/m                 | dBuV/m           | dB     |
| 136.866   | 35.01                | 1              | 3      | -14.08                | 20.93                  | 43.50            | -22.57 |
| 163.399   | 47.64                | 1              | 28     | -23.02                | 24.62                  | 43.50            | -18.88 |
| 205.299   | 39.58                | 1              | 152    | -20.44                | 19.14                  | 43.50            | -24.36 |
| 381.264   | 37.53                | 1              | 17     | -13.50                | 24.03                  | 46               | -21.97 |
| 410.597   | 39.32                | 1              | 256    | -10.65                | 25.98                  | 46               | -20.02 |
| 547.462   | 35.58                | 1              | 114    | -10.81                | 24.77                  | 46               | -21.23 |
| 653.600   | 49.50                | 1              | 36     | -13.11                | 36.39                  | 46               | -9.61  |
| 708.060   | 45.53                | 1              | 279    | -13.12                | 32.41                  | 46               | -13.59 |

***Radiated Emission Test Result :( Frequency 194.6 MH Horizontal)***

| <b>Frequency</b> | <b>Reading</b>   | <b>Ant.</b>   | <b>Table</b> | <b>Correction</b> | <b>Corrected</b> | <b>Class B</b> | <b>Margin</b> |
|------------------|------------------|---------------|--------------|-------------------|------------------|----------------|---------------|
|                  | <b>Amplitude</b> | <b>Height</b> |              | <b>Factors</b>    | <b>Amplitude</b> | <b>limit</b>   |               |
| MHz              | dBuV             | m             | degree       | dB/m              | dBuV/m           | dBuV/m         | dB            |
| 75.174           | 41.71            | 2.98          | 133          | -24.58            | 17.13            | 40             | -22.87        |
| 150.349          | 38.50            | 2.99          | 136          | -23.78            | 14.27            | 43.50          | -29.23        |
| 225.520          | 37.77            | 1             | 233          | -19.93            | 17.84            | 46             | -28.16        |
| 451.040          | 33.16            | 1             | 82           | -10.17            | 22.99            | 46             | -23.01        |
| 526.212          | 34.82            | 1             | 35           | -10.86            | 23.96            | 46             | -22.04        |
| 601.385          | 37.02            | 1             | 108          | -12.99            | 24.03            | 46             | -21.97        |
| 676.558          | 37.83            | 1             | 22           | -12.44            | 25.39            | 46             | -20.61        |
| 751.732          | 41.94            | 1             | 59           | -13.29            | 28.65            | 46             | -17.35        |

**Radiated Emission Test Result :( Vertical)**

| Frequency | Reading<br>Amplitude | Ant.<br>Height | Table  | Correction<br>Factors | Corrected<br>Amplitude | Class B<br>limit | Margin |
|-----------|----------------------|----------------|--------|-----------------------|------------------------|------------------|--------|
| MHz       | dBuV                 | m              | degree | dB/m                  | dBuV/m                 | dBuV/m           | dB     |

|         |       |   |     |        |       |       |        |
|---------|-------|---|-----|--------|-------|-------|--------|
| 75.170  | 46.16 | 1 | 48  | -24.58 | 21.58 | 40    | -18.42 |
| 150.350 | 36.18 | 1 | 110 | -23.78 | 12.40 | 43.50 | -31.10 |
| 225.520 | 33.99 | 1 | 124 | -19.93 | 14.06 | 46    | -31.94 |
| 451.040 | 33.20 | 1 | 19  | -10.17 | 23.03 | 46    | -22.97 |
| 526.210 | 35.06 | 1 | 20  | -10.86 | 24.20 | 46    | -21.80 |
| 601.380 | 38.01 | 1 | 206 | -12.99 | 25.02 | 46    | -20.98 |
| 676.560 | 41.83 | 1 | 273 | -12.44 | 29.39 | 46    | -16.61 |
| 751.730 | 40.88 | 1 | 7   | -13.29 | 27.59 | 46    | -18.41 |

***Radiated Emission Test Result :( Frequency 214.82 MH Horizontal)***

| Frequency | Reading   | Ant.   | Table  | Correction | Corrected | Class B | Margin |
|-----------|-----------|--------|--------|------------|-----------|---------|--------|
|           | Amplitude | Height |        | Factors    | Amplitude | limit   |        |
| MHz       | dBuV      | m      | degree | dB/m       | dBuV/m    | dBuV/m  | dB     |
| 136.866   | 43.41     | 3.99   | 264    | -14.08     | 29.33     | 43.50   | -14.17 |
| 205.299   | 39.49     | 1      | 83     | -20.44     | 19.05     | 43.50   | -24.45 |
| 342.164   | 39.28     | 1      | 188    | -14.72     | 24.56     | 46      | -21.44 |
| 410.597   | 40.15     | 1      | 104    | -13.34     | 26.81     | 46      | -19.19 |
| 479.030   | 37.43     | 1      | 67     | -10.65     | 26.78     | 46      | -19.22 |
| 547.462   | 35.14     | 1      | 115    | -10.81     | 24.33     | 46      | -21.67 |
| 615.895   | 42.26     | 1      | 267    | -13.45     | 28.81     | 46      | -17.19 |
| 684.327   | 44.11     | 1      | 1      | -12.41     | 31.70     | 46      | -14.30 |

***Radiated Emission Test Result :( Vertical)***

| <b>Frequency</b> | <b>Reading</b>   | <b>Ant.</b>   | <b>Table</b> | <b>Correction</b> | <b>Corrected</b> | <b>Class B</b> | <b>Margin</b> |
|------------------|------------------|---------------|--------------|-------------------|------------------|----------------|---------------|
|                  | <b>Amplitude</b> | <b>Height</b> |              | <b>Factors</b>    | <b>Amplitude</b> | <b>limit</b>   |               |
| MHz              | dBuV             | m             | degree       | dB/m              | dBuV/m           | dBuV/m         | dB            |
| 136.866          | 35.13            | 3.99          | 277          | -14.08            | 21.05            | 43.50          | -22.45        |
| 205.299          | 42.26            | 1             | 231          | -20.44            | 21.82            | 43.50          | -21.68        |
| 342.163          | 36.70            | 1             | 244          | -14.72            | 21.98            | 46             | -24.02        |
| 410.597          | 39.85            | 1             | 30           | -13.34            | 26.51            | 46             | -19.49        |
| 479.030          | 39.27            | 1             | 12           | -10.65            | 28.62            | 46             | -17.38        |
| 547.462          | 36.65            | 1             | 226          | -10.81            | 25.84            | 46             | -20.16        |
| 615.895          | 46.58            | 1             | 228          | -13.45            | 33.13            | 46             | -12.87        |
| 684.327          | 47.68            | 1             | 278          | -12.41            | 35.27            | 46             | -10.73        |

***Final statement :***

***This test report, measurements made by TRC are traceable to the NIST.***