

## FCC / IC – Test report

Report Number : **60/790.14.026.01** Date of Issue: November 27, 2014

Model : TRANSMITR

Product Type : Remote

Applicant : DAYTON INDUSTRIAL CO.,LTD

Address : 2-12 Kwai Fat Road, 11-AKwai Chung, New Territories, Hong Kong

Production Facility : KENDY ELECTRONICE(DONGGUAN)CO,LTD

Address : XIN SI HUANG TANG VILLAGE, HENG LI TOWN , DONGGUAN  
CITY, GUANGDONG, CHINA

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

Total pages including Appendices : 13

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## 2. Details about the Test Laboratory

### Details about the Test Laboratory

#### Test site 1

Company name: TÜV SÜD HONG KONG LTD.  
3/F, West Wing, Lakeside 2,  
10 Science Park West Avenue,  
Science Park, Shatin  
HK.

Telephone: 852 2776 1323

Fax: 852 2776 1372

#### Test site 2

Company name: Shenzhen Academy of Metrology and Quality Inspection  
No.4 TongFa Road, Xili TownNanshan District, Shenzhen, China  
Test Firm FCC Registration number:994606

National Digital Electronic Product Test  
No.4 TongFa Road, Xili TownNanshan District, Shenzhen, China  
IC Assigned Code: 11177A

### 3. Description of the Equipment Under Test

#### Description of the Equipment Under Test

|                            |                                          |
|----------------------------|------------------------------------------|
| Product:                   | Remote                                   |
| Model no.:                 | TRANSMITR                                |
| Serial number:             | NIL                                      |
| Options and accessories:   | NIL                                      |
| FCC ID:                    | O4GTKRMTE                                |
| IC:                        | 7666A- REMOTE                            |
| Rated Voltage:             | 3VDC                                     |
| Rated Current:             | NIL                                      |
| Rated Power:               | NIL                                      |
| Frequency:                 | 2457MHz                                  |
| RF Transmission Frequency: | 2457MHz                                  |
| Antenna gain:              | 0 dBi                                    |
| No. of Operated Channel:   | 1                                        |
| Modulation:                | GFSK                                     |
| Description of the EUT:    | Battery operated –1x 3.0V CR2032 battery |

#### 4. Summary of Test Standards

| Test Standards                                                |                                                                                         |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| FCC Part 15 Subpart C, Intentional Radiators, 10-1-12 Edition | PART 15 – RADIO FREQUENCY DEVICES<br>Subpart C – Intentional Radiators                  |
| RSS-Gen Issue 4<br>November 2014                              | General Requirements and Information for the<br>Certification of Radio Apparatus        |
| RSS-210 Issue 8<br>December 2010                              | RSS-210 — Licence-exempt Radio Apparatus (All<br>Frequency Bands): Category I Equipment |

## 5. Summary of Test Standards and Results

| Emission Tests                                                           |       |           |                                     |                          |                                       |
|--------------------------------------------------------------------------|-------|-----------|-------------------------------------|--------------------------|---------------------------------------|
| Test Condition                                                           | Pages | Test site | Test Result                         |                          |                                       |
|                                                                          |       |           | Pass                                | Fail                     | N/A                                   |
| Conducted Emission<br>(47 CFR 15.207, 15.209&RSS-GEN 8.8)                | NIL   | /         | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> * |
| Radiated Emission<br>(47 CFR 15.249, 15.209 & RSS-210 A2.9, RSS-GEN 8.9) | 8     | Site 2    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>              |
| 20dB Bandwidth (47 CFR 15.215)                                           | 11    | Site 2    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>              |
| 99% occupied bandwidth (RSS-GEN 6.6)                                     | 11    | Site 2    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>              |

Remark: 1.NA: Battery operated only.

2.ForSpurious Radiated Emissions test, three set-up directions(X,Y,Z) were pretested, but only direction X test data was recorded in this report for it is the worst case.

## 6. General Remarks

### Remarks

This submittal(s) (test report) is intended for FCC ID: O4GTKRMTEcomplies with the FCC Part 15, Subpart C Rules.

This submittal(s) (test report) is intended for IC:7666A- REMOTE,complies with the IC RSS 210 and RSS-GEN Rules.

All the configurations of the product were tested and only the worst test results are listed in the report.

### SUMMARY:

All tests according to the regulations cited on page 6 were

- - Performed
- - **Not** Performed

The Equipment Under Test

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

Sample Received Date: November 15, 2014

Testing Start Date: November 18, 2014

Testing End Date: November 22, 2014

- TÜV SÜD HONG KONG LTD. -

Reviewed by:

  
Edmond FUNG



Prepared by:

  
CHAN Kwong Ngai

Report Number: **60/790.14.026.01**

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## 7. Emission Test Results

### 7.1 Radiated Emission Test

Date of test : November 18, 2014

Test requirement : FCC Part 15

Test method : ANSI C63.4-2014

Operating mode : Transmit mode

Frequency channel : 2457MHz

Remarks : Fundamental

Test Result

☒ Passed

☐ Not Passed

| Frequency (MHz) | Polarity (H/V) | Factor (dB) | Result (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) | Detector |
|-----------------|----------------|-------------|-----------------------|----------------------|-------------|----------|
| 2457.000        | H              | 31.8        | 82.11                 | 114                  | -31.89      | Peak     |
| 2457.000        | V              | 31.8        | 84.35                 | 114                  | -29.56      | Peak     |
| 2457.000        | H              | 31.8        | 77.16                 | 94                   | -16.84      | Average  |
| 2457.000        | V              | 31.8        | 79.92                 | 94                   | -14.08      | Average  |

Remark: 1.The EUT was placed on the top of the turntable in test site area.  
The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.  
For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable. The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.  
Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.  
Adjust the emission and slightly height of the antenna to locate the position with maximum reading.

Date of test : November 18, 2014

Test requirement : FCC Part 15

Test method : ANSI C63.4-2014

Operating mode : Transmit mode

Frequency channel : 2457MHz

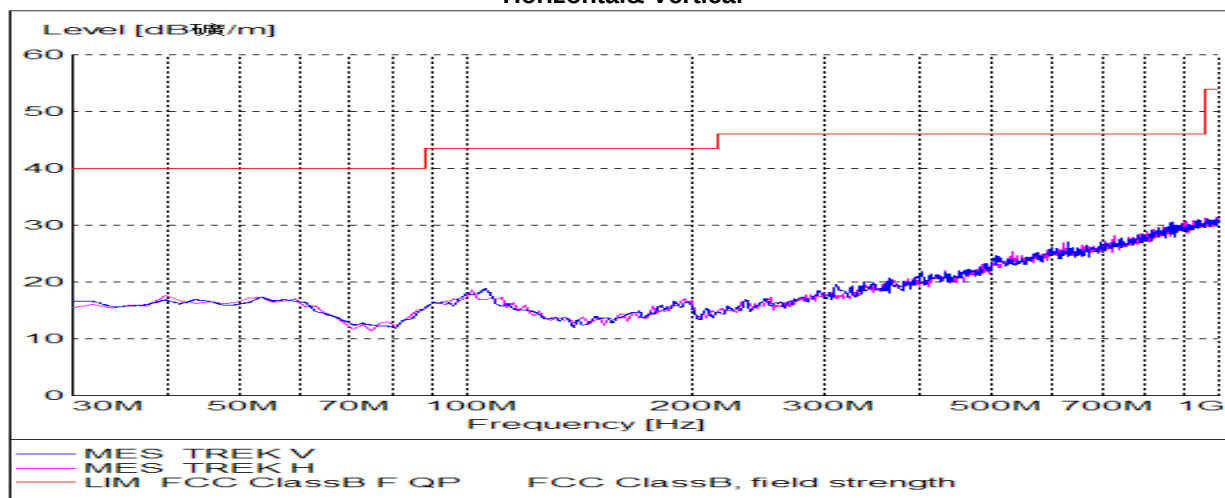
Remarks : 9kHz-1GHz(Spurious)

Test Result

☒ Passed

☐ Not Passed

Horizontal &amp; Vertical



| Frequency<br>(MHz) | Correct Factor<br>(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark | Ant. Polar.<br>H / V |
|--------------------|--------------------------|--------------------|-------------------|----------------|--------|----------------------|
| 35.6               | -36.5                    | 12.1               | 40                | -27.9          | QP     | H                    |
| 57.7               | -34.6                    | 13.5               | 40                | -26.5          | QP     | H                    |
| 106.1              | -34.1                    | 11.9               | 43.5              | -31.6          | QP     | H                    |
| 315.5              | -32.6                    | 10.8               | 46                | -35.2          | QP     | H                    |
| 610.1              | -27.2                    | 20.6               | 46                | -25.4          | QP     | H                    |
| 677.8              | -27.2                    | 21.1               | 46                | -24.9          | QP     | H                    |
| 35.6               | -36.5                    | 11.8               | 40                | -28.2          | QP     | V                    |
| 57.7               | -34.6                    | 13.5               | 40                | -26.5          | QP     | V                    |
| 106.1              | -34.1                    | 12.4               | 43.5              | -31.1          | QP     | V                    |
| 315.5              | -32.6                    | 13.3               | 46                | -32.7          | QP     | V                    |
| 610.1              | -27.2                    | 22.2               | 46                | -23.8          | QP     | V                    |
| 677.8              | -27.2                    | 23.7               | 46                | -22.3          | QP     | V                    |

Date of test : November 18, 2014

Test requirement : FCC Part 15

Test method : CISPR 16-1-4:2010

Operating mode : Transmit mode

Frequency channel : 2457MHz

Remarks : 1GHz-25GHz(Harmonics and spurious)

|                                     |            |
|-------------------------------------|------------|
| Test Result                         |            |
| <input checked="" type="checkbox"/> | Passed     |
| <input type="checkbox"/>            | Not Passed |

| Frequency (MHz) | Polarity (H/V) | Factor (dB) | Result (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Detector |
|-----------------|----------------|-------------|-----------------|----------------|-------------|----------|
| 4914.000        | H              | 5.4         | 55.8            | 74.00          | 18.2        | Peak     |
| 4914.000        | H              | 5.4         | 48.1            | 54.00          | 5.9         | Average  |
| 7371.000        | H              | 2.2         | 53.6            | 74.00          | 20.4        | Peak     |
| 7371.000        | H              | 2.2         | 47.2            | 54.00          | 6.8         | Average  |
| 4914.000        | V              | 5.4         | 54.9            | 74.00          | 19.1        | Peak     |
| 4914.000        | V              | 5.4         | 49.6            | 54.00          | 4.4         | Average  |
| 7371.000        | V              | 2.2         | 50.5            | 74.00          | 23.5        | Peak     |
| 7371.000        | V              | 2.2         | 44.8            | 54.00          | 9.2         | Average  |

Remark: 1.The EUT was placed on the top of the turntable in test site area.  
The test shall be made in the operation mode. The turntable was rotated by 360 degrees to determine the position of the highest radiation.  
For emissions measurement, the receiving antenna was placed 3 meters far away from the turntable.  
The antenna was fixed on the same height with the EUT to find each suspected emissions of both horizontal and vertical polarization.  
Adjust the emission and slightly rotate the turntable to locate the position with maximum reading.  
Adjust the emission and slightly height of the antenna to locate the position with maximum reading.  
2.Average value=Peak value + duty cycle factor= Peak value-26.2

## 7.2 20dB& 99% bandwidth measurement

Date of test : November 22, 2014

Test requirement : FCC Part 15

Operating mode : Transmit mode

Frequency channel : 2457MHz

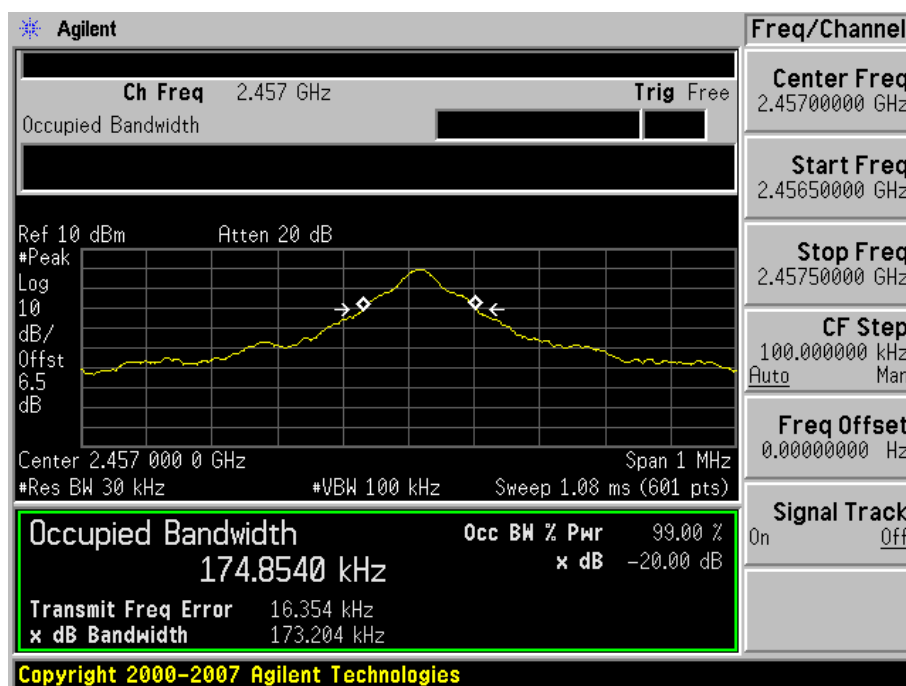
Remarks : NIL

Test Result

☒ Passed

☐ Not Passed

| 20 dB<br>Bandwidth | 99%<br>OBW | Result |
|--------------------|------------|--------|
| kHz                | kHz        |        |
| 173.204            | 174.8540   | Pass   |



## 8. Test Equipment List

| DESCRIPTION              | Type No.    | Serial No.      | Calibrated date | Calibrated until |
|--------------------------|-------------|-----------------|-----------------|------------------|
| EMI Test Receiver        | ESU40       | SB8501/09       | 2014.05.16      | 2015.05.15       |
| Bilog Antenna            | Schwarzbeck | SB8501/04       | 2014.01.20      | 2015.01.19       |
| Horn Antenna             | HF906       | SB3435          | 2014.01.20      | 2015.01.19       |
| Amplifier(1-18GHz)       | --          | SB3435/01       | 2014.01.20      | 2015.01.19       |
| Amplifier(18-40GHz)      | --          | SB3435/02       | 2014.01.20      | 2015.01.19       |
| Horn Antenna             | AT4560      | SB5392/02       | 2014.05.16      | 2015.05.15       |
| 3m Semi-anechoic chamber | 9X6X6       | SB3450/01       | 2014.10.12      | 2015.10.11       |
| Loop Antenna             | 6512        | 29604           | 2014.09.25      | 2015.09.24       |
| RF cable(0.4m)           | /           | S02-1404-09-065 | 2014.05.11      | 2015.05.10       |
| RF cable(3.5m)           | /           | S02-1404-09-047 | 2014.05.11      | 2015.05.10       |
| RF cable(1.2m)           | /           | S02-1404-09-052 | 2014.05.11      | 2015.05.10       |
| Spectrum Analyzer        | E4445A      | MY46181814      | 2013.12.11      | 2014.12.10       |
| Amplifier                | 150A250     | 326446          | 2014.03.19      | 2015.03.17       |
| Temp. & Humid. Chamber   | FACT5-2.0   | 4166            | 2014.11.22      | 2015.11.21       |

N.C.R: No calibration request

## 9. System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty

| Items |                                  | Extended Uncertainty                                                                            |
|-------|----------------------------------|-------------------------------------------------------------------------------------------------|
| RE    | Field strength (dB $\mu$ V/m)    | U=3.59dB(9kHz-30MHz)<br>U=5.08dB(30MHz-1GHz)<br>U=4.56dB (1GHz-18GHz)<br>U=4.42dB (18GHz-25GHz) |
| CE    | Disturbance Voltage (dB $\mu$ V) | U=2.7dB                                                                                         |