# TEST REPORT

| | |
|---|---|
| **Application No.:** | HKEM2101000062AT |
| **Applicant:** | VTECH TELECOMMUNICATIONS LTD |
| **Address of Applicant:** | 23/F.,BLOCK 1, TAI PING INDUSTRIAL CENTRE,NO. 57 TING KOK ROAD,TAI PO,N.T.,Hong Kong |
| **Equipment Under Test (EUT):** | |
| **EUT Name:** | Pan and Tilt Monitor |
| **Model No.:** | RM5754 BU, RM5754HD BU, RM5754-2HD BU, RM5754-aHD BU, RM5854 BU, RM5854HD BU, RM5854-aHD BU, VM813HD BU, VM813-1bHD BU, VM813-abHD BU, RM7754 BU, RM7754HD BU, RM7754-2HD BU, RM7754-aHD BU, RM7854 BU, RM7854HD BU, RM7854-2HD BU, RM7854-aHD BU, VM816HD BU, VM816-1bHD BU, VM816-abHD BU |
| **Additional Model:** | Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical. |
| **FCC ID:** | EW780-1927-00 |
| **IC:** | 1135B-80192700 |
| **HVIN:** | 35-400351BU |
| **Standard(s) :** | 47 CFR Part 1.1307; 47 CFR Part 2.1093<br>KDB447498D01 General RF Exposure Guidance v06<br>RSS102 Issue 5 March 2015 |
| **Date of Receipt:** | 2021-01-19 |
| **Date of Test:** | 2021-01-19 to 2021-01-25 |
| **Date of Issue:** | 2021-01-26 |
| **Test Result:** | **Pass*** |

* In the configuration tested, the EUT complied with the standards specified above.

**Law Man Kit**
EMC Manager

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

| Revision Record | | | | |
|---|---|---|---|---|
| **Version** | **Chapter** | **Date** | **Modifier** | **Remark** |
| *01* | | *2021-01-26* | | *Original* |
| | | | | |
| | | | | |

| | | | | |
|---|---|---|---|---|
| **Authorized for issue by:** | | | | |
| | | | | |
| | | **Leo Xu /Project Engineer** | | Date: 2021-01-26 |
| | | | | |
| | | **Law Man Kit /Reviewer** | | Date: 2021-01-26 |

# 2 Test Summary

| Radio Spectrum Technical Requirement | | | | |
|---|---|---|---|---|
| **Item** | **Standard** | **Method** | **Requirement** | **Result** |
| RF Exposure | 47 CFR Part 1.1307, 47 CFR Part 2.1093, KDB 447498 D01 | KDB447498D01 | KDB447498D01 | PASS |
| RF Exposure | RSS102 Issue 5 | RSS-102 Section 2.5.1 | RSS102 Issue 5 | PASS |

**Declaration of EUT Family Grouping:**

Item no:

RM5754 BU, RM5754HD BU, RM5754-2HD BU, RM5754-aHD BU, RM5854 BU, RM5854HD BU, RM5854-aHD BU, VM813HD BU, VM813-1bHD BU, VM813-abHD BU, RM7754 BU, RM7754HD BU, RM7754-2HD BU, RM7754-aHD BU, RM7854 BU, RM7854HD BU, RM7854-2HD BU,

RM7854-aHD BU, VM816HD BU, VM816-1bHD BU, VM816-abHD BU

a=any alphanumeric character or blank is presenting number of baby unit.

b= any alphanumeric character or blank is presenting color option

According to the confirmation from the applicant, the above models are identical in all electrical aspects in relating to the circuit design, PCB layout, electrical components used, internal wiring and functions. The differences are only the model/item No, color and decorations.

Therefore, only the model RM5754 BU was tested in this report.

Abbreviation:

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

CH: In this whole report CH means channel.

Volt: In this whole report Volt means Voltage.

Temp: In this whole report Temp means Temperature.

Humid: In this whole report Humid means humidity.

Press: In this whole report Press means Pressure.

N/A: In this whole report not application.

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# 4 General Information

## 4.1 Details of E.U.T.

| | |
|---|---|
| Power supply: | Adaptor Model : VT05EUS05100<br>Input: AC 100 V - 240 V, 50/60, 0.15 A<br>Output: DC 5.0 V, 1 A |
| Test voltage: | AC 120 V |
| Cable: | 272.5 cm unshielded 2-wire DC cable |
| Antenna Gain: | 2 dBi |
| Antenna Type: | Integral Antenna |
| Channel Spacing: | 5MHz |
| Modulation Type: | 802.11b: DSSS (CCK, DQPSK, DBPSK)<br>802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK) |
| Data rate: | 802.11b: 1Mbps, 2Mbps, 5.5Mbps, 11 Mbps<br>802.11g: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54<br>802.11n: 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps |
| Number of Channels: | 802.11b/g/n(HT20):11 |
| Operation Frequency: | 802.11b/g/n(HT20): 2412MHz to 2462MHz |
| Tested Channels: | 2412MHz, 2442MHz, 2462MHz |
| Version code: | T31N |
| Series number: | A1 |
| Hardware Version: | V002 |
| Software Version: | V0.2.0.1 |
| | Remark: Power level setting was not adjustable and fixed default through SW Version. |

Frequency List

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---|---|---|---|---|---|
| **1** | **2412** | 5 | 2432 | 9 | 2452 |
| 2 | 2417 | 6 | 2437 | 10 | 2457 |
| 3 | 2422 | **7** | **2442** | **11** | **2462** |
| 4 | 2427 | 8 | 2447 | | |

Remark: 1. Testing Channels are highlighted in **bold**.

## 4.2 Description of Support Units

The EUT has been tested with corresponding accessories as below:

Supplied by client

| Description | Manufacturer | Model No. | SN/Certificate NO |
|---|---|---|---|
| UART Test board | N/A | MX3232 | N/A |
| Test Software | MicroRidge System | Version 3.0.0.108 | N/A |

Supplied by SGS:

| Description | Manufacturer | Model No. | SN/Certificate NO |
|---|---|---|---|
| NoteBook (EMC4) | Dell | P75F | N/A |

## 4.3 Test Location

All tests were performed at:

SGS Hong Kong Limited

Unit 2 and 3, G/F, Block A, Po Lung Centre,

11 Wang Chiu Road, Kowloon Bay, Kowloon, Hong Kong

Tel: +852 2305 2570 Fax: +852 2756 4480

No tests were sub-contracted.

## 4.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **HOKLAS (Lab Code: 009)**

SGS Hong Kong Limited has been accepted by HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a HOKLAS Accredited Laboratory, this laboratory meets the requirements of ISO/IEC 17025:2017 an it has been accredited for performing specific test as listed in the scope of accreditation within the test category of Electrical and Electronic Products.

- **IAS Accreditation (Lab Code: TL-187)**

SGS Hong Kong Limited has met the requirements of AC89, IAS Accreditation Criteria for Testing Laboratories, and has demonstrated compliance with ISO/IEC Standard 17025:2017, General requirements for the competence of testing and calibration laboratories. This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website (www.iasonline.org).

The report must not be used by the client to claim product certification, approval, or endorsement by IAS, NIST, or any agency of the Federal Government.

- **FCC Recognized Accredited Test Firm(CAB Registration No.: 514599)**

SGS Hong Kong Limited has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: HK0015, Test Firm Registration Number: 514599.

- **Industry Canada (Site Registration No.: 26103; CAB Identifier No.: HK0015)**

SGS Hong Kong Limited has been recognized by Department of Innovation, Science and Economic Development (ISED) Canada as a wireless testing laboratory. The acceptance letter from the ISED is maintained in our files. CAB Identifier No: HK0015, Site Registration Number: 26103.

## 4.5 Deviation from Standards

None

## 4.6 Abnormalities from Standard Conditions

None

# 5 Radio Spectrum Technical Requirement

## 5.1 RF Exposure

### 5.1.1 Test Requirement:

CFR 47 Part 1.1310

Limit:

According to FCC Part1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in Part1.1307(b)

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density ($mW/cm^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| **(A) Limits for Occupational/Controlled Exposure** | | | | |
| 0.3-3.0 | 614 | 1.63 | *100 | 6 |
| 3.0-30 | 1842/f | 4.89/f | $*900/f^2$ | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1,500 | | | f/300 | 6 |
| 1,500-100,000 | | | 5 | 6 |
| **(B) Limits for General Population/Uncontrolled Exposure** | | | | |
| 0.3-1.34 | 614 | 1.63 | *100 | 30 |
| 1.34-30 | 824/f | 2.19/f | $*180/f^2$ | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1,500 | | | f/1500 | 30 |
| 1,500-100,000 | | | 1.0 | 30 |

f = frequency in MHz

* = Plane-wave equivalent power density

According to IEEE C95.3:2002 section 5.5.1.1, The power density S at a point on the axis at a distance d from a transmitting antenna is given by the Friis free-space transmission formula

$$S = \frac{PG}{4\pi d^2}$$

*S = power density ($mW/cm^2$)*
*P = the net power delivered to the antenna (mW)*
*G = gain of the antenna in linear scale*
*d = distance between observation point and center of the radiator (cm)*

### 5.1.1 IC Radiofrequncy radiation

According to RSS-102 Issue 5, section 2.5.2 Exemption.

RF exposure evaluation is required if the separation distance between the user and the device's radiating element is greater than 20 cm, except when the device operates as follows:

below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 22.48/$f$0.5W (adjusted for tune-up tolerance), where $f$ is in MHz;

at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);

at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1.31 x 10-2 $f$0.6834 W (adjusted for tune-up tolerance), where $f$ is in MHz;

at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

### 5.1.2 EUT RF Exposure Evaluation

Antenna Gain:

The maximum Gain measured in fully anechoic chamber is 1.585 () in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

For FCC;

WiFi:

| Operation mode | Channel | Frequency (MHz) | Conduct power (including Tune-up tolerance) (dBm) | Conduct powe (mW) | Power Density at R = 20 cm (mW/cm2) | Limit | MPE Ratios | Result |
|---|---|---|---|---|---|---|---|---|
| 802.11b | Low | 2412 | 16.7 | 46.774 | 0.01475 | 1 | 0.01475 | PASS |
| 802.11b | Middle | 2442 | 15.6 | 36.308 | 0.01145 | 1 | 0.01145 | PASS |
| 802.11b | High | 2462 | 16.1 | 40.738 | 0.01284 | 1 | 0.01284 | PASS |
| 802.11g | Low | 2412 | 11.4 | 13.804 | 0.00435 | 1 | 0.00435 | PASS |
| 802.11g | Middle | 2442 | 11.3 | 13.490 | 0.00425 | 1 | 0.00425 | PASS |
| 802.11g | High | 2462 | 11.9 | 15.488 | 0.00488 | 1 | 0.00488 | PASS |
| 802.11n20 | Low | 2412 | 10.9 | 12.303 | 0.00388 | 1 | 0.00388 | PASS |
| 802.11n20 | Middle | 2442 | 11.7 | 14.791 | 0.00466 | 1 | 0.00466 | PASS |
| 802.11n20 | High | 2462 | 11.9 | 15.488 | 0.00488 | 1 | 0.00488 | PASS |

For IC:

WiFi:

| Operation mode | Channel | Frequency (MHz) | Conduct power (including Tune-up tolerance) (dBm) | E.I.R.P (dBm) | E.I.R.P (W) | Limit (W) | Result |
|---|---|---|---|---|---|---|---|
| 802.11b | Low | 2412 | 16.7 | 18.7 | 0.074131 | 2.7 | PASS |
| 802.11b | Middle | 2442 | 15.6 | 17.6 | 0.057544 | 2.7 | PASS |
| 802.11b | High | 2462 | 16.1 | 18.1 | 0.064565 | 2.7 | PASS |
| 802.11g | Low | 2412 | 11.4 | 13.4 | 0.021878 | 2.7 | PASS |
| 802.11g | Middle | 2442 | 11.3 | 13.3 | 0.02138 | 2.7 | PASS |
| 802.11g | High | 2462 | 11.9 | 13.9 | 0.024547 | 2.7 | PASS |
| 802.11n20 | Low | 2412 | 10.9 | 12.9 | 0.019498 | 2.7 | PASS |
| 802.11n20 | Middle | 2442 | 11.7 | 13.7 | 0.023442 | 2.7 | PASS |
| 802.11n20 | High | 2462 | 11.9 | 13.9 | 0.024547 | 2.7 | PASS |

Note: 1. Refer to report No. HKEM210100006202 for EUT test conducted power value. requirement.

# 6 Photographs

Remark: Photos refer to Appendix of HKEM2101000062AT.

- End of the Report -