TEST REPORT

Application No.:	HKEM2209000916AT
Applicant:	VTech Telecommunications Ltd.
Address of Applicant:	23/F., Tai Ping Industrial Centre, Block 1, 57 Ting Kok Road, Tai Po, Hong Kong
Equipment Under Test (EUT):	
EUT Name:	Pan & Tilt Video Monitor
Model No.:	VM901 BU, VM901-2 BU, VM901-ab BU, VM901HD BU, VM901-2HD BU, VM901-0HD 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:	EW780-1957-00C
IC:	1135B-80195700D
HVIN:	35-400344BUC
Standard(s) :	CFR 47 FCC Part 15, Subpart C RSS-247 Issue 2 RSS-Gen Issue 5
Date of Receipt:	2022-09-26
Date of Test:	2022-09-26 to 2022-10-14
Date of Issue:	2022-10-18
Test Result:	The submitted sample was found to comply with the test requirement

Law Man Kit
EMC Manager

Revision Record			
Revision No.	**Date**	**Report superseded**	**Remark**

Authorized for issue by:				
				
		Panny Leung **/Project Engineer**		Date: 2022-10-17
				
		Law Man Kit **/Reviewer**		Date: 2022-10-18

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:

VM901 BU, VM901-2 BU, VM901-ab BU, VM901HD BU, VM901-2HD BU, VM901-0HD BU

These models are identical in electronics/electrical designs, including software & firmware, construction design/Physical design/enclosure and PCB layout. The only difference between these models is the model numbers for marketing purpose. Thus, only the model VM901 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.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	Adaptor Model: VT05EUS05100 Input: AC 100 V - 240 V, 50/60 Hz, 0.15 A Output: DC 5.0 V, 1.0 A
Test voltage:	AC 120 V
Cable:	Power Cable: 140 cm unshielded 2-wire DC cable
Antenna Gain:	2 dBi
Antenna Type:	Dipole
Channel Spacing:	5MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Data rate:	802.11b: 1Mbps, 2Mbps, 5.5Mbps, 11 Mbps 802.11g: 6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps 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, 2437MHz, 2462MHz
Version code:	T31N
Series number:	A1
Hardware Version:	35-400344BUC
Software Version:	V4.0.4.0
	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	N/A	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:

- **IAS Accreditation (Lab Code: TL-817)**

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/f0.5W (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 f0.6834 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;

Wi-Fi:

Operation mode	Channel	Frequency (MHz)	Conduct power (including Tune-up tolerance) (dBm)	Conduct power (mW)	Power Density at R = 20 cm (mW/cm2)	Limit	MPE Ratios	Result
802.11b	Low	2412	14.7	29.512	0.009	1	0.009	PASS
802.11b	Middle	2437	13.8	23.988	0.008	1	0.008	PASS
802.11b	High	2462	14.5	28.184	0.009	1	0.009	PASS
802.11g	Low	2412	11.9	15.488	0.005	1	0.005	PASS
802.11g	Middle	2437	10.7	11.749	0.004	1	0.004	PASS
802.11g	High	2462	12.0	15.849	0.005	1	0.005	PASS
802.11n20	Low	2412	11.8	15.136	0.005	1	0.005	PASS
802.11n20	Middle	2437	10.5	11.220	0.004	1	0.004	PASS
802.11n20	High	2462	11.9	15.488	0.005	1	0.005	PASS

For IC:

Wi-Fi:

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	14.7	14.7	0.05	2.68	PASS
802.11b	Middle	2437	13.8	13.8	0.04	2.70	PASS
802.11b	High	2462	14.5	14.5	0.04	2.72	PASS
802.11g	Low	2412	11.9	11.9	0.02	2.68	PASS
802.11g	Middle	2437	10.7	10.7	0.02	2.70	PASS
802.11g	High	2462	12.0	12.0	0.03	2.72	PASS
802.11n20	Low	2412	11.8	11.8	0.02	2.68	PASS
802.11n20	Middle	2437	10.5	10.5	0.02	2.70	PASS
802.11n20	High	2462	11.9	11.9	0.02	2.72	PASS

Note: 1. Refer to report No. HKEM220900091602 for EUT test conducted power value. requirement.

6 Photographs

Remark: Photos refer to Appendix: External Photo, Internal Phot, and Setup Photo

- End of the Report -