RF Exposure Evaluation Report

Application No.:	HKEM1906000563AT
Applicant:	VTech Telecommunications Ltd
Address of Applicant:	23/F Block 1, Tai Ping Inductrial Centre, 57 Ting Kok Road, Tai Po, New Territories, Hong Kong
Manufacturer:	VTech Telecommunications Ltd
Address of Manufacturer:	23/F, Tai Ping Inductrial Centre, Block 1, 57 Ting Kok Road, Tai Po, Hong Kong
Factory:	VTech (Dongguan) Telecommunications Limited.
Address of Factory:	VTech Science Park, Xia Ling Bei Management Zone, Liaobu, Dongguan, Guangdong, China
Equipment Under Test (EUT):	
Product Name:	Full Color Video Monitor
Model No.:	VM5251 BU, VM5251-2 BU, VM5X51-ab BU ♣
♣	Please refer to section 4.1 of this report which indicates which model was actually tested and which were electrically identical.
HVIN:	35-201248BU
FCC ID:	EW780-1331-00
Standards:	47 CFR Part 1.1307 (2016) 47 CFR Part 1.1310 (2016)
Date of Receipt:	2019-09-04
Date of Test:	2019-09-05 to 2019-09-08
Date of Issue:	2019-09-11
Test Result :	**PASS***

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

Keny Xu
EMC Laboratory Manager

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2 Version

Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2019-09-11		Original

Authorized for issue by:				
		Vincent Chen		
		Vincent Chen /Project Engineer		
		Eric Fu		
		Eric Fu /Reviewer		

3 Contents

4 General Information

4.1 General Description of EUT

Power Supply:	Adapter model: S003GU0500060 Input: AC 100-240V, 50/60Hz, 150mA Output: DC 5V, 600mA
Operation Frequency:	2405-2475MHz
Modulation Type:	GFSK
Number of Channels:	32
Channel Spacing:	2MHz
Antenna Type:	Dipole Antenna
Antenna Gain:	0dBi

Remark:

Model No.: VM5251 BU, VM5251-2 BU, VM5X51-ab BU

Only the model VM5251 BU was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only difference on color and model No. other different as below show:

x=any alphanumeric character is presenting different packaging

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

b = any alphanumeric character or blank is presenting color of enclosure

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4.2 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China 518057

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594

No tests were sub-contracted.

4.3 Test Facility

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

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.4 Deviation from Standards

None.

4.5 Abnormalities from Standard Conditions

None.

4.6 Other Information Requested by the Customer

None.

5 RF Exposure Evaluation

5.1 RF Exposure Compliance Requirement

5.1.1 Limits

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 Exposures				
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
300–1500			f/300	6
1500–100,000			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
300–1500			f/1500	30
1500–100,000			1.0	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: Pd = (Pout*G)/(4* Pi * R 2)

Where

Pd = power density in mW/cm2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm2 . If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

5.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

5.1.3 EUT RF Exposure Evaluation

Antenna Gain: 0dBi
Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.00 in linear scale.
Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)	Limit	Result
Lowest	2405	16.44	3.511	0.0014	1.0	PASS

Note: Refer to report No. HKEM190600056301 for EUT test Max Conducted Peak Output Power value. The distance r (4th column) calculated from the Fries transmission formula is far greater than 20 cm separation requirement.

- End of the Report -

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