

TEST REPORT

Application No.: HKEM2205000450AT
Applicant: Binatone Electronics International Ltd.
Address of Applicant: 25/F, Guangdong Investment Tower, 148 Connaught Road Central, Sheung Wan, Hong Kong

Equipment Under Test (EUT):
EUT Name: Video Baby Monitor
Model No.: Nursery Pal Essential (BU), Nursery Pal Shimmer (BU)
Additional Model: Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.

Trademark: Hubble
FCC ID: VLJ-NP552BU
IC: 4522A-NP552BU
HVIN: NP552BU
Standard(s) : 47 CFR Part 1.1307; 47 CFR Part 2.1091
KDB447498D01 General RF Exposure Guidance v06
RSS102 Issue 5 March 2015

Date of Receipt: 2022-05-31
Date of Test: 2022-06-01 to 2022-07-13
Date of Issue: 2022-07-20

Test Result:	The submitted sample was found to comply with the test requirement
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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		2022-07-20		Original

Authorized for issue by:			
			
		Panny Leung /Project Engineer	Date: 2022-07-20
			
		Law Man Kit /Reviewer	Date: 2022-07-20

2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
RF Exposure	47 CFR Part 1.1307, 47 CFR Part 2.1091, 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:

Nursery Pal Essential (BU), Nursery Pal Shimmer (BU)

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 Nursery Pal Shimmer (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:	Model: YWK-AD050100-U Input: AC 100-240V, 50/60Hz, 0.3A Output: DC 5V, 1.0A, 5.0W
Test voltage:	AC 120V
Cable:	Power Cable: 185cm unshielded 2 wires DC cable
Antenna Gain:	FHSS: 0dBi Wi-Fi: 0 dBi
Antenna Type:	Integral antenna
Modulation Type:	FHSS: GFSK Wifi: 802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	FHSS: 22 802.11b/g/n(HT20):11 802.11n(HT40):9
Operation Frequency:	FHSS: 2402MHz to 2477MHz 802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz
Series number:	A1
Hardware Version:	V1.0
Software Version:	RC01
	Remark: Power level setting was not adjustable and fixed default through SW Version.

Frequency List

Channel Number	TX Freq (MHz)	Channel Number	TX Freq (MHz)
1	2402	12	2445
2	2404	13	2450
3	2406	14	2455
4	2408	15	2460
5	2410	16	2465
6	2415	17	2467
7	2420	18	2469
8	2425	19	2471
9	2430	20	2473
10	2435	21	2475
11	2440	22	2477

- Remark: 1. Operation channel is total 22.
2. Testing Channels are highlighted in **bold**.

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		

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/cm²)
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 Radiofrequency 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 $22.48/f^{0.5}$ W (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 $1.31 \times 10^{-2} f^{0.6834}$ 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:0dBi

The maximum Gain measured in fully anechoic chamber is 1 in linear scale.

Output Power Into Antenna & RF Exposure Evaluation Distance:

For FCC;

FHSS:

Channel	Frequency (MHz)	Conduct power (including Tune-up tolerance) (dBm)	Conduct power (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit	MPE Ratios	Result
Low	2405	13.2	20.893	0.00416	1	0.00416	PASS
Middle	2439	13.0	19.953	0.00397	1	0.00397	PASS
High	2475	12.4	17.378	0.00346	1	0.00346	PASS

WiFi:

Operation mode	Channel	Frequency (MHz)	Conduct power (including Tune-up tolerance) (dBm)	Conduct power (mW)	Power Density at R = 20 cm (mW/cm ²)	Limit	MPE Ratios	Result
802.11b	Low	2412	15.1	32.359	0.00644	1	0.00644	PASS
802.11b	Middle	2437	14.5	28.184	0.00561	1	0.00561	PASS
802.11b	High	2462	13.7	23.442	0.00466	1	0.00466	PASS
802.11g	Low	2412	13.4	21.878	0.00435	1	0.00435	PASS
802.11g	Middle	2437	12.8	19.055	0.00379	1	0.00379	PASS
802.11g	High	2462	12.1	16.218	0.00323	1	0.00323	PASS
802.11n20	Low	2412	12.6	18.197	0.00362	1	0.00362	PASS
802.11n20	Middle	2437	11.9	15.488	0.00308	1	0.00308	PASS
802.11n20	High	2462	11.0	12.589	0.00250	1	0.00250	PASS
802.11n40	Low	2422	11.6	14.454	0.00000	1	0.00000	PASS
802.11n40	Middle	2437	10.6	11.482	0.00228	1	0.00228	PASS
802.11n40	High	2452	10.1	10.233	0.00204	1	0.00204	PASS

For IC:

FHSS:

Channel	Frequency (MHz)	Conduct power (including Tune-up tolerance) (dBm)	E.I.R.P (dBm)	E.I.R.P (W)	Limit (W)	Result
Low	2405	13.2	13.2	0.02089	2.68	PASS
Middle	2439	13.0	13.0	0.01995	2.70	PASS
High	2475	12.4	12.4	0.01738	2.73	PASS

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	15.1	15.1	0.03236	2.7	PASS
802.11b	Middle	2437	14.5	14.5	0.02818	2.7	PASS
802.11b	High	2462	13.7	13.7	0.02344	2.7	PASS
802.11g	Low	2412	13.4	13.4	0.02188	2.7	PASS
802.11g	Middle	2437	12.8	12.8	0.01905	2.7	PASS
802.11g	High	2462	12.1	12.1	0.01622	2.7	PASS
802.11n20	Low	2412	12.6	12.6	0.01820	2.7	PASS
802.11n20	Middle	2437	11.9	11.9	0.01549	2.7	PASS
802.11n20	High	2462	11.0	11.0	0.01259	2.7	PASS
802.11n40	Low	2422	11.6	11.6	0.01445	2.7	PASS
802.11n40	Middle	2437	10.6	10.6	0.01148	2.7	PASS
802.11n40	High	2452	10.1	10.1	0.01023	2.7	PASS

Note:

1. The 2.4GHz FHSS and 2.4 GHz Wi-Fi couldn't transmit simultaneously.
2. Refer to report No. HKEM220500045002 and HKEM220500045003 for EUT test conducted power value.



6 Photographs

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

- End of the Report -
