RF Exposure Report

FCC ID:	ARS-10BDL5051T
Applicant:	Top Victory Electronics (Taiwan) Co Ltd
Address:	10F., No.230, Liancheng Rd., Zhonghe Dist., New Taipei City, 23553 Taiwan
Manufacturer:	MMD(Shanghai)Electronics Technology Co Ltd
Address:	Room 5060A No 2 Building 555 Dong Chan Road, Min Hang District, SHANGHAI 200241, CHINA
Product:	Colour Monitor
Brand(s):	Philips
Test Model(s):	10BDL5051T
Series Model(s):	See section 2.1
Test Date:	Mar. 16, 2024 ~ Apr. 02, 2024
Issued Date:	Apr. 12, 2024
Issued By:	Hwa-Hsing (Dongguan) Testing Co., Ltd.
Address:	No.101, Building N1, Yuyuan 2 Road, Yuyuan Industrial Park, HuangJiang Town, Dongguan City, People's Republic of China
Test Firm Registration No.:	915896
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 General RF Exposure Guidance v06 IEEE C95.1

The above equipment has been tested by **Hwa-Hsing (Dongguan) Testing Co., Ltd.**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : Nature Lee — *Nature Lee*

Reviewed by : Dragon Long — *Dragon Long*

Approved by : Scott He — *Scott He*

HWA-HSING (DONGGUAN) TESTING CO., LTD. LYNS-TCi

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Release control record

Issue No.	Reason for change	Date issued
23122202-01-SE-US-01	Original Release	Apr. 12, 2024

1 General Information

1.1 General Description of EUT

Product(s)	Colour Monitor
Test Model(s)	10BDL5051T
Sample No.	HS2403020001; HS2403020004
Series Model(s)	10BDL********** The "*" could be any alphanumeric character including blank for marketing differentiation.
Status of EUT	Engineering Prototype
Power Supply Rating	DC 12V from Adapter or DC 48V from POE
Modulation Type	WiFi: CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM Bluetooth: GFSK, π/4 DQPSK
Modulation Technology	WiFi 2.4GHz: DSSS; OFDM WiFi 5GHz: OFDM Bluetooth: FHSS,DTS NFC: ASK
Transfer Rate	Wi-Fi 2.4GHz: 802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to MCS7 Wi-Fi 5GHz: 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to MCS7 802.11ac: up to MCS9 Bluetooth: 1Mbps/2 Mbps/3 Mbps
Operating Frequency	Wi-Fi 5GHz: 5180MHz ~ 5240MHz; 5745MHz ~ 5825MHz Bluetooth: 2402MHz ~ 2480 MHz WIFI2.4G: 2412MHz ~ 2462 MHz NFC:13.56MHz
Output Power(AVG)	Wi-Fi 5GHz: 11.17dBm for 5180 ~ 5240MHz 11.27dBm for 5745 ~ 5825MHz Wi-Fi 2.4GHz: 14.47dBm Bluetooth: 4.53dBm
Antenna Type	BT/WIFI: PIFA Antenna NFC: Loop Antenna
Antenna Gain	Wi-Fi 2.4GHz: 2.2dBi; Bluetooth: 2.2dBi Wi-Fi 5G: 2.69dBi for 5150 ~ 5250MHz 2.91dBi for 5725 ~ 5850MHz
Antenna Connector	I-PEX
Accessory Device	N/A
Cable Supplied	Adapter Cable: Unshielded, 180cm

Note:

1. Please refer to the EUT photo document (Reference No.: 23122202-01-01&-02) for detailed product photo.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.
3. For the test results, the EUT had been tested with all power supply type, and only the worst case was shown in the test report.
4. Model difference: These models are only different from model name for trade purpose.

2 RF exposure limit

Limits for maximum permissible exposure (MPE)

Limits for general population / uncontrolled exposure				
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Average time (minutes)
1.34-30	824/F	2.19/F	*($180/F^2$)	30
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30
Note: F = Frequency in MHz ; *=Plane-wave equivalent power density				

Plane-wave equivalent power density:

$$S_E = \frac{|E|^2}{\eta_0} \text{ W/m}^2 \text{ or } S_H = \eta_0 |H|^2 \text{ W/m}^2$$

2.1 MPE calculation formula

$Pd = (Pout*G) / (4*pi*r^2)$

Where:

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

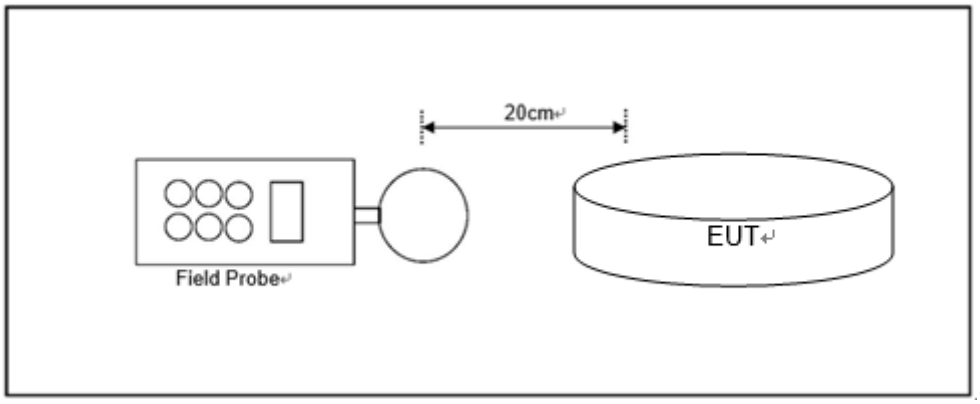
Pi = 3.1416

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

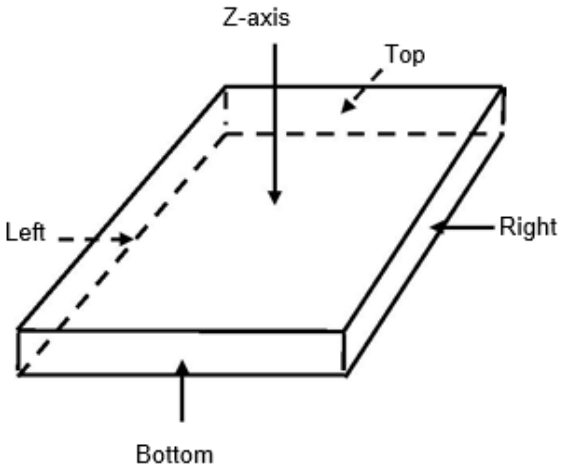
Classification:

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user.

2.2 Test setup for NFC



2.3 Test point description for NFC



2.4 Equipments used during test for NFC

item	Test Equipment	Manufacturer	Model No.	S/N	Date of Calibration
1	3m Semi-Anechoic Chamber	Maorui	9m*6m*6m	NSEMC003	2025-01-15
2	E-Field probe	Narda	NBM-520	2403/01B	2025-01-15
3	Exposure lever tester	Narda	ELT-400	O-0167	2025-01-15

Note:
1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

2.5 Test results for NFC

E-Field Measurement						
EUT Side	Front	Back	Left	Right	Top	Bottom
Max E-field (V/m)	0.725	0.687	0.701	0.674	0.654	0.599
Limit(V/m)	60.77	60.77	60.77	60.77	60.77	60.77
Pass/Fail	Pass	Pass	Pass	Pass	Pass	Pass

Note:

1. Measurements was made from all sides and the top of the primary/client pair, with the 20 cm measured from the center of the probe(s) to the edge of the device. The highest emission level was recorded.

3 Calculation result of maximum conducted power

The antennas provided to the EUT, please refer to the following table:

Function	Frequency Band	Antenna Gain (dBi)	Antenna Type	Transmit and Receive Chain	Maximum AVG Power(dBm)
Bluetooth	2400~2483.5MHz	2.2	PIFA	1TX,1RX	4.53
WiFi 2.4GHz	2400~2483.5MHz	2.2	PIFA	1TX,1RX	14.47
WiFi 5.1GHz	5150 ~ 5250MHz	2.69	PIFA	1TX,1RX	11.17
WiFi 5.8GHz	5725 ~ 5850MHz	2.91	PIFA	1TX,1RX	11.27

Function	Max power (mW)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm^2)	Limit (mW/cm^2)
Bluetooth	2.8379	2.2	20	0.000937	1.0
WiFi 2.4GHz	27.9898	2.2	20	0.009241	1.0
WiFi 5.1GHz	13.0918	2.69	20	0.004839	1.0
WiFi 5.8GHz	13.3968	2.91	20	0.005209	1.0

Function	Frequency Band	Maximum electirc (V/m)	Power density (mW/cm^2)	Limit (mW/cm^2)
NFC	13.56	0.725	0.0001394	0.979

Plane-wave equivalent power density: $S_e=0.725^2/377= 0.001394 W/m^2=0.0001394$ mW/cm^2

CALCULATION FOR SIMULTANEOUS TRANSMISSION

NFC and WIFI and BT can transmit simultaneously, the formula of calculated the worst exposure is:
(CPD1/LPD1)+(CPD1/LPD1)+…etc.<1
CEF=Calculation Power Density
LEF=Limit of Power Density
Worst situation is (0.000937/1)+(0.009241/1)+(0.0001394/0.979)= 0.01032039<1, which is less than the “1” limit.

Appendix – Information on the Testing Laboratories

We, Hwa-Hsing (Dongguan) Testing Co., Ltd., A global provider of TESTING and CERTIFICATION services for consumer products, electronic products and wireless information technology products. Adhering to the core values “HONEST and TRUSTWORTHY, OBJECTIVE and IMPARTIALITY, RIGOROUS and AFFICIENT”, commitment to provide professional, perfect and efficient comprehensive ONE-STOP solution of TESTING and CERTIFICATION services for Manufacturers, Buyers, Traders, Brands, Retailers. Assist client to better manage risk, protect their brands, reduce costs and cut time to over 150 markets in global. Our laboratories are FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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