



# TEST REPORT

<b>Eurofins KCTL Co.,Ltd.</b> 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 <a href="http://www.kctl.co.kr">www.kctl.co.kr</a>	Report No.: <b>KR23-SRF0202</b> Page (1) of (13)	
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**1. Client**

- Name : Effinet Systems, Inc.
- Address : (Gasan-dong, 5th Byucksan Digital Valley) 705, 244 Beotkkot-ro,  
Geumcheon-gu, Seoul 153-788, Republic of Korea
- Date of Receipt : 2023-06-21

**2. Use of Report** : Certification

**3. Name of Product / Model** : LCD Monitor / EFL-1903B

**4. Manufacturer / Country of Origin** : Effinet Systems, Inc. / Korea

**5. FCC ID** : 2BB7O-EFL1903B

**6. Date of Test** : 2023-07-21 to 2023-08-10

**7. Location of Test** : ☒ Permanent Testing Lab ☐ On Site Testing  
 (Address: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea)

**8. Test method used** : 47 CRF Part 1.1310


**9. Test Result** : Refer to the test result in the test report

Affirmation	Tested by  Name : Jungwon Seo  (Signature)	Technical Manager  Name : Heesu Ahn  (Signature)
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2023-08-25

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As a test result of the sample which was submitted from the client, this report does not guarantee the whole product quality. This test report should not be used and copied without a written agreement by Eurofins KCTL Co.,Ltd.

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## REPORT REVISION HISTORY

Date	Revision	Page No
2023-08-25	Originally issued	-

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## General remarks for test reports

### Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:


#### Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ Statement not required by the standard or client used for type testing

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## 1. General information

Client : Effinet Systems, Inc.  
 Address : (Gasam-dong, 5th Byucksan Digital Valley) 705, 244 Beotkkot-ro,  
 Geumcheon-gu, Seoul 153-788, Republic of Korea  
 Manufacturer : Effinet Systems, Inc.  
 Address : 1730 Byeokbong-ro, Nongso-myeon, Gimcheon-si, Gyeongsangbuk-do,  
 740-881, Republic of Korea  
 Laboratory : Eurofins KCTL Co.,Ltd.  
 Address : 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea  
 Accreditations : FCC Site Designation No: KR0040, FCC Site Registration No: 687132  
 VCCI Registration No. : R-20080, G-20078, C-20059, T-20056  
 CAB Identifier: KR0040  
 ISED Number: 8035A  
 KOLAS No.: KT231

## 2. Device information

Equipment under test : LCD Monitor  
 Model : EFL-1903B  
 Modulation technique : ASK  
 Frequency range : 110~148 kHz (WPT)  
 Power source : DC 12 V  
 Antenna specification : Coil Loop Antenna  
 Software version : 1922G\_F1\_230428  
 Hardware version : Rev. 00  
 Test device serial No. : TN6R0242001  
 Operation temperature : 0 °C ~ 40 °C

## 2.1. Companion device information

Equipment	Manufacturer	Model	Serial No.
Smart Phone	SAMSUNG ELECTRONICS	SM-G975N	N/A

## 2.2. Frequency/channel operations

This device contains the following capabilities:  
WPT

Frequency (kHz)
127

Table 2.2.1. WPT System

## 2.3. Worst-Case configuration and mode

Test Case	Description
1	<b>Charging from EUT to Phone (&lt;10% Power Charging, Fast charging mode)</b>
2	Charging from EUT to Phone (50~55% Power Charging, Fast charging mode)
3	Charging from EUT to Phone (90~95% Power Charging, Fast charging mode)

According to current client device's battery level, test results are different. Because the test result were worst when the battery level was below 10%, tests were performed when the battery level was below 10%. (Client device)

Test results of case 1 is worst, so this test report described test case 1.

## 2.4. Normal and extreme test conditions

- Ambient Conditions

Item	Temperature [°C]	Relative humidity [%]
Requirement for tests	15 to 35	20 to 75
Ambient Conditions	21	51

- Test Conditions

Test condition	Temperature [°C]	Voltage [V]
NTNV	21	DC 12

Note 1 : N:Normal T:Temperature V:Voltage

## 2.5. Test mode

Test mode	Power [W]
TM1	5W
TM2	7.5W
TM3	10W
TM4	15W

### 3. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of  $k=2$  to indicated a 95 % level of confidence. The measurement data shown herein meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded uncertainty ( $\pm$ )	
Conducted RF power	0.9 dB	
E-Field	3 kHz ~ 10 MHz	1.0 %
H-Field	3 kHz ~ 10 MHz	1.3 %



## 4. RF Exposure

### 4.1. FCC Regulation

This document is prepared to show compliance with the RF Exposure requirements as required in §1.1310 of the FCC rules and Regulations.  
The limit for Maximum Permissible Exposure (MPE), specified in FCC §1.1310, is listed in Table 1-1.  
According to FCC §1.1310: the criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(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 <sup>2</sup> ]	Averaging Time [minute]
(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 <sup>2</sup>	6
30 ~ 300	61.4	0.163	1.0	6
300 ~ 1 500	/	/	f/300	6
1 500 ~ 15 000	/	/	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 <sup>2</sup>	30
30 ~ 300	27.5	0.073	0.2	30
300 ~ 1 500	/	/	f/1 500	30
1 500 ~ 15 000	/	/	1.0	30

*f*=frequency in MHz, \* = plane-wave equivalent power density

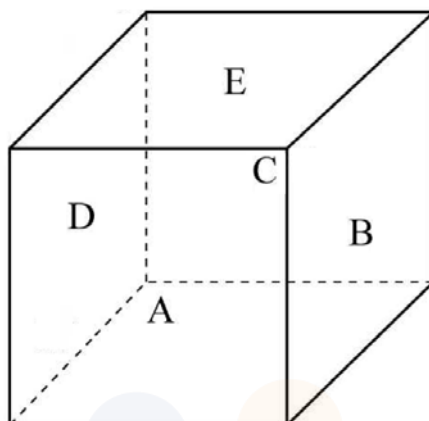
Per the guidance of KDB 680106, the E-field and H-field limits shown in the table above are extended down to 100 kHz



## 4.2. Test Set-up

### 4.2.1. Isotropic Probe test setup

The measurement probe (EHP-200A) is a regular hexahedron and supports 3-axis (X, Y and Z) isotropic probe.



A: Front of measurement probe

B: Right of measurement probe

C: Rear of measurement probe

D: Left of measurement probe

E: Top of measurement probe

\*Bottom of measurement probe is not used to measure RF exposure condition owing to connection with a stick.

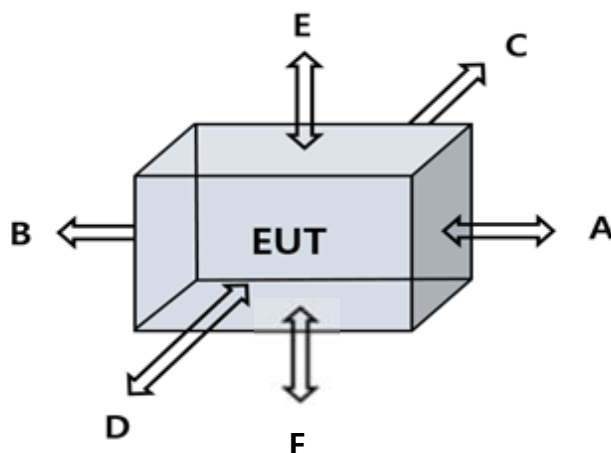
At 0 cm distance, measurement isotropic probe was investigated by rotating the probe through various angles for one of the EUT's sides as below.

Measurement Point	A	B	C	D	E
Direction	Front	Right	Rear	Left	Top
Measurement Point	A to B	B to C	C to D	D to A	N/A
Direction	Front to Right	Right to Rear	Rear to Left	Left to Front	-
Measurement Point	A to E	B to E	C to E	D to E	N/A
Direction	Front to Top	Right to Top	Rear to Top	Left to Top	-

When the worst angle among all angles was found, RF exposure measurement should be adjusted from worst angle.



#### 4.2.2. EUT test setup



- 1) Testing was performed with a calibrated field probe.
- 2) Measurement was performed on each side of the EUT as described per below table.

A	B	C	D	E	F
Front	Rear	Right	Left	Top	-

\* F is not the product surface.

<b>Measurement Probe</b>	EHP-200A (Manufacturer: Narda)
<b>Measurement Method</b>	Direct measurement
<b>Measurement Distance</b>	Surface of the EUT to the center of the probe.

### **Equipment Approval Considerations item 5.b) of KDB 680106 D01 v03**

- a) Power transfer frequency is less than 1 MHz.
- ▶ This device is operates at a frequency of 111 kHz ~ 205 kHz
- b) Output power from each primary coil is less than or equal to 15 watts.
- ▶ DC 12.0 V condition / Output power from each primary coil : 15 watts.
- c) The transfer system includes only single primary and secondary coils. This includes charging systems that may have multiple primary coils and clients that are able to detect and allow coupling only between individual pairs of coils.
- ▶ The transfer system includes only single primary coils.
- d) Client device is placed directly in contact with the transmitter.
- ▶ The client device is placed directly in contact with the transmitter.
- e) Mobile exposure conditions only (portable exposure conditions are not covered by this exclusion)
- ▶ This device is mobile exposure condition.
- f) The aggregate H-field strengths at 15cm surrounding the device and 20cm above the top surface from all simultaneous transmitting coils are demonstrated to be less than 50% of the MPE limit.
- ▶ The EUT field strength levels < 50 % of the MPE limit 1.63 A/m  
 0.076 A/m (Max) < 0.815 A/m

### **4.3. Test configuration (Description of test mode)**

Test case configuration is reported as below.

Test Case	Description
1	<b>Charging from EUT to Phone (&lt;10% Power Charging, Fast charging mode)</b>
2	Charging from EUT to Phone (50~55% Power Charging, Fast charging mode)
3	Charging from EUT to Phone (90~95% Power Charging, Fast charging mode)

Test results of case 1 is worst, so this test report described test case 1.

## 4.4. Test result

### 4.4.1. Test mode: test result of rotating the probe through various angles

Distance : 15<sub>cm</sub> surrounding the device and 20<sub>cm</sub> above the top surface.

- E-field measurement results (Sides of probe)

E-field Measurement Results (Side of probe)						
Frequency [kHz]	E-field Measurement [V/m]					Limits [V/m]
	Probe rotation					
	A	B	C	D	E	
129.5	0.339 5	0.342 0	0.367 2	0.314 4	<b>0.380 1</b>	614.00

- H-field measurement results (Sides of probe)

H-field measurement results (Sides of probe)						
Frequency [kHz]	H-field Measurement [A/m]					Limits [A/m]
	Probe rotation					
	A	B	C	D	E	
129.5	0.083 5	0.039 9	0.047 0	0.066 0	0.075 2	1.63

- E-field measurement results (Rotation of probe)

Frequency [kHz]	E-field Measurement [V/m]								Limits [V/m]
	Probe rotation								
	A to E	B to E	C to E	D to E	A to B	B to C	C to D	D to A	
129.5	0.286 5	0.292 6	0.270 5	0.270 9	0.320 0	0.298 2	0.310 0	0.301 6	614.00

- H-field measurement results (Rotation of probe)

H-field Measurement Results (Rotation of probe)									
Frequency [kHz]	H-field Measurement [A/m]								Limits [A/m]
	Probe rotation								
	A to E	B to E	C to E	D to E	A to B	B to C	C to D	D to A	
129.5	0.052 2	0.052 2	0.057 3	0.051 4	0.059 8	0.040 2	0.049 6	0.048 8	1.63

### Note:

- Worst position of isotropic probe: E-field = E-side, H-field = A-side.

#### 4.4.2. Test mode: Test result of EUT's sides about the distance

Distance : 15<sub>cm</sub> surrounding the device and 20<sub>cm</sub> above the top surface.

##### - E-field measurement results


Test Mode	Distance [cm]	Frequency [MHz]	E-field Measurement [V/m]					Limits [V/m]
			EUT sides					
			A	B	C	D	E	
TM1	15(~10%)	129.5	0.415 0	0.218 3	0.541 1	0.218 9		614
	20(~10%)	129.5					1.455 9	
TM2	15(~10%)	129.5	0.411 2	0.219 1	0.554 2	0.220 4		
	20(~10%)	129.5					1.456 3	
TM3	15(~10%)	129.5	0.407 1	0.218 5	0.537 6	0.219 5		
	20(~10%)	129.5					1.443 8	
TM4	15(~10%)	129.5	0.418 4	0.216 0	0.548 5	0.220 4		
	20(~10%)	129.5					1.458 6	

##### - H-field measurement results

Test Mode	Distance [cm]	Frequency [MHz]	E-field Measurement [A/m]					Limits [A/m]
			EUT sides					
			A	B	C	D	E	
TM1	15(~10%)	129.5	0.074 6	0.036 5	0.059 2	0.035 6		1.63
	20(~10%)	129.5					0.063 9	
TM2	15(~10%)	129.5	0.080 1	0.035 9	0.057 8	0.036 2		
	20(~10%)	129.5					0.064 0	
TM3	15(~10%)	129.5	0.079 5	0.035 3	0.059 7	0.036 5		
	20(~10%)	129.5					0.066 2	
TM4	15(~10%)	129.5	0.080 4	0.034 6	0.059 3	0.036 1		
	20(~10%)	129.5					0.071 4	

#### **Note:**

- Above RF exposure measurement was performed considering worst position (E-field : B-side, H-field : A-side) of isotropic probe.

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## 5. Measurement Equipment

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
E&H Field Probe	narda	EHP-200A	170WX81015	24.02.02

**End of test report**

