

系統名稱 SYSTEM : 產品規格書 PRODUCT SPECIFICATION	主題(SUBJECT) : HDMI RECEPTACLE CONNECTOR	文件編號 DOCUMENT NO : EB5-ASQJ-001	PAGE	1 OF 9	REV.	C
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	<b>APPROVED</b>	<b>CHECKED</b>	<b>PREPARED</b>	<b>ISSUED BY:</b>
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<b>DATE</b>	2014-8-19	2014-8-19	2014-8-19	

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\*\*\*\*\* 修訂履歷 \*\*\*\*\*

版次	ECN NO.	修訂頁次	備註
<b>A</b>	<b>BC05752732</b>	初次發行	----
<b>B</b>	<b>BC06743625</b>	修訂發行	----
<b>C</b>	<b>BC-14-0041718</b>	修訂發行	-----

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**1. Scope:**

**1.1 Content**

This product specification defines the product performance and the test methods to ascertain the performance of the 21 pins and 19 pins HDMI that is designed and manufactured by Foxconn Co., Ltd.

**1.2 Qualification**

Tests and inspection shall be performed in accordance with the requirements, tests and methods contained herein. All the inspections shall be conducted by using the product drawings and the inspection plan for these products. A re-qualification test shall be conducted immediately following all major process changes.

**2. Applicable Documents:**

In case of any contradiction between this document and referenced documents, this document will take precedence.

- EIA-364
- MIL-STD-202F
- MIL-STD-1344A
- MIL-P-81728A
- MIL-T-10727B
- JIS C 0051
- GB4857.5

**3. Requirements:**

**Design**

The product shall be as specified by Foxconn’s customer drawing.

**3.2 Material and Finish**

The product shall be as specified by Foxconn’s customer drawing.

**3.3 Electrical & Mechanical Requirements**

The product shall be as specified by Foxconn’s customer drawing.

**3.4 High Frequency Performance:**

3.4.1 Max. ground shell resistance when mated to compatible connector/peripheral (mΩ):

N/A

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3.4.2 Impedance: *(Applicable for high speed signals.)*

- A. Nominal impedance ( $\Omega$ ): 100
- B. Rise time for impedance measurement (pico second):  $\leq 200$  (10%-90%)
- C. Maximum impedance discontinuity ( $\Omega$ ): 115
- D. Minimum impedance discontinuity ( $\Omega$ ): 85

3.4.3 RF Performance:

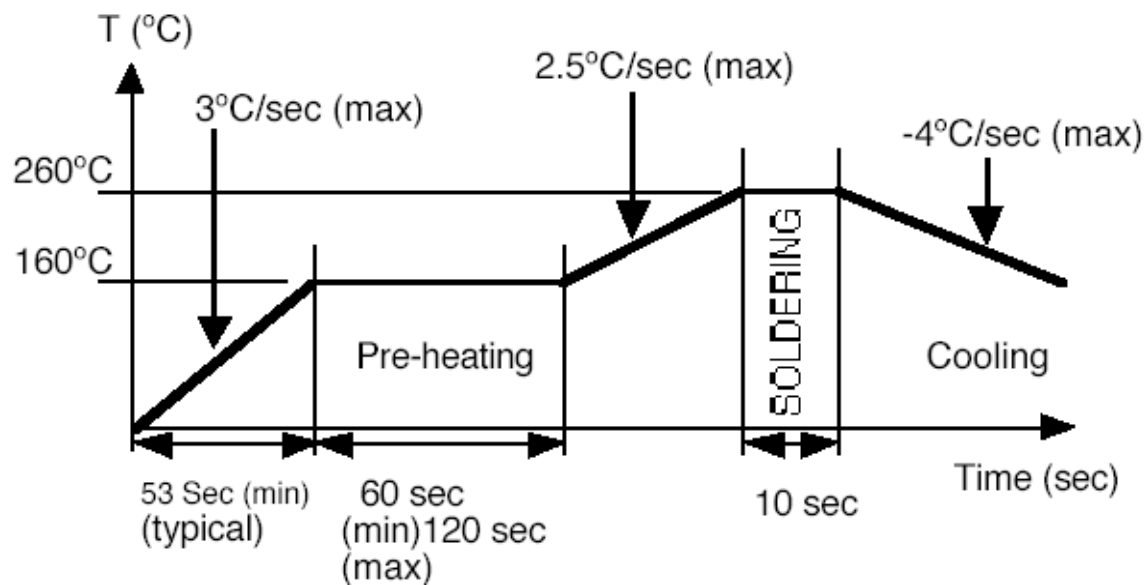
- A. VSWR at \_\_\_ MHz: N/A
- B. Insertion loss at \_\_\_ MHz (dB): N/A
- C. Shield terminates to ground (Y/N): Y

**3.5 Application Performance:**

3.5.1 Operating Environment: -45°C to +85°C, 85%RH maximum.

3.5.2 Storage Environment: -45°C to +85°C, 85%RH maximum.

3.5.3 This connector is designed for IR reflow processing and must meet the specified requirements accordingly if customer hasn't IR reflow temperature curve. Otherwise, This connector must meet customer's IR reflow temperature curve.



**Lead free IR reflow temperature curve**

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**3.6 Markings:**

The “Foxconn” logo shall be molded on the surface of product. The marking orientation and location shall be as specified by Foxconn’s customer drawing.

**3.7 Health, Safety and Environment**

Hazardous substances (Environment related to be controlled substances) contained in this product should comply with the regulations specified by Foxconn’s Doc No. EPI12.

**3.8 Packaging and Transportation**

3.8.1 Hazardous substances (Environment related to be controlled substances) contained in packaging materials should comply with the regulations specified by Foxconn’s Doc No.

EPI12.

3.8.2 Packaging carton with products should be subject to falling test, which should comply with the regulations specified by GB4857.5 .

Other requirements shall be as specified by Foxconn’s packaging specification.

**3.9 Test Description**

The product is designed to meet the requirements specified in section 3.10. Unless otherwise specified, all tests and measurements are to be performed at the following conditions:

Temperature: +15°C to +35°C

Relative Humidity: 20% to 80%

Atmospheric Pressure: 550 to 800 millimeters (21.7 to 31.5 inches) of Mercury.

IR reflow process: as specified by item 3.5.3, which has to be done prior to test for each test sample group.

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### 3.10 Test Requirements and Methods

**Table I: Performance Requirements**

Items	Test Methods	Requirements
<b>1. Appearance</b>	Visual inspection on eyes and by microscope.	No crack or damage, which may affect function.
<b>2. Withstand temperature for IR reflow</b>	IR reflow Process Peak Temperature & Time: (according to 3.5.3)	Meet specified performance
<b>3. Contact /Shell resistance</b>	ANSI/EIA-364-06B Mated connectors: Contact: measure by dry circuit, 20 mVolts maximum, 10mA. Shell: measured by open circuit, 5 Volts maximum, 100mA.	Initial contact resistance excluding conductor resistance: 10 milliohms maximum. (Target design value) Initial shell resistance excluding conductor resistance: 10 milliohms maximum. (Target design value)
<b>4. Insulation resistance</b>	ANSI/EIA-364-21C Unmated connectors: Apply 500V DC between adjacent terminal or ground. Mated connectors: Apply 150V DC between adjacent terminal or ground.	100 MΩ minimum.(unmated) 10 MΩ minimums. (mated)
<b>5. Dielectric strength</b>	ANSI/EIA-364-20C, Method A Unmated connectors: Apply 500VAC (RMS.) between adjacent terminal or ground Mated connectors: Apply 300VAC (RMS.) between adjacent terminal or ground	No breakdown
<b>6. Vibration</b>	ANSI/EIA-364-28 condition III Amplitude: 1.52mm P-P or 147m/s <sup>2</sup> { 15G } Sweep time: 50-2000-50Hz in 20 minutes. Duration: 12times in each (total of 36 Times) X, Y, Z axes. Electrical load: DC100mA current shall be Flowed during the test.	1) Contact resistance change from initial value: 30 mΩ maximum. 2) Shell resistance change from initial value: 50 mΩ maximum. 3) Discontinuity: 1μs maximum. 4) Appearance: No Damage
<b>7. Contact current rating</b>	ANSI/EIA-364-70A 55°C, maximum ambient 85°C, maximum temperature change	0.8A minimum.

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<b>8. Shock</b>	ANSI/EIA-364-27, condition A Pulse width: 11msec., Waveform: half sine, 490m/s <sup>2</sup> { 50G } , 3 strokes in each X.Y.Z axes	1) Contact resistance change from initial value: 30 mΩ maximum. 2) Shell resistance change from initial value: 50 mΩ maximum. 3) Discontinuity: 1μs maximum. 4) Appearance: no damage				
<b>9. Resistance to solder heat</b>	Dip terminal area in the solder both temperature: 260±5°C, time: 10s	Detrimental damage affecting to the performance shall not occur.				
<b>10. Insertion/Withdrawal force</b>	ANSI/EIA-364-13 Insertion and withdrawal speed: 25mm/minute.	Insertion force: 44.1 N maximum. Withdrawal force: 9.8~39.2 N				
<b>11. Durability</b>	Measure contact and shell resistance after following. Automatic cycling: 10000 cycles at 100±50 cycles per hour	Contact resistance change from initial value: 30 mΩ maximum. Shell resistance change from initial value: 50 mΩ maximum.				
<b>12. Contact retention</b>	Pull the contact until contact is slipped out	1 pin 2 N minimum.				
<b>13. Applied voltage rating</b>	40V AC (RMS.) continuous maximum, on any signal pin with respect to the shield.	No breakdown.				
<b>14. Electrostatic discharge</b>	Test unmated each connector from 1kv to 8kv in 1kv steps using 8mm ball probe. (IEC-801-2)	No evidence of discharge to contacts at 8kv				
<b>15. Thermal shock</b>	ANSI/EIA-364-32 C, Condition I 10 cycles of: a) -55 °C for 30 minutes b) +85 °C for 30 minutes	Contact resistance: Change from initial value: 30 mΩ maximum. Shell resistance: Change from initial value: 50 mΩ maximum. Appearance: no damage				
<b>16. Humidity</b>	ANSI/EIA-364-31B (1) Mate connectors together and perform the test as follows. (2) Unmated each connectors and perform the test as follows. Upon completion of the test, specimens shall be conditioned at ambient room condition for 24 hours, after which the specified measurements shall be performed. Temperature: +25°C~+85°C Relative Humidity: 80~95% Duration: 4 cycles (96 hours)	Mate Connectors: Contact Resistance: Change from initial value: 30 mΩ maximum. Shell Resistance: Change from initial value: 50 mΩ maximum. Appearance: no damage Unmated each connectors: Conform to item of dielectric strength and insulation resistance. Appearance: No Damage				

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17. Thermal aging	ANSI/EIA-364-17B, Condition 4, method A. Mate connectors and expose to 105±2°C for 250 hours. Upon completion of the exposure period, the test specimens shall be conditioned at ambient room conditions for 1 to 2 hours, after which the specified measurements shall be performed.	Contact Resistance: Change from initial value: 30 mΩ maximum. Shell Resistance: Change from initial value: 50 mΩ maximum. Appearance: No Damage.					
18. Solder ability	MIL-STD-202, Method 208 dip in applicable flux for 5~10s and in solder Sn-3Ag-0.5Cu at 245±5°C for 3±0.5s.	More than 95% dipped area is covered with solder.					
19. T.M.D.S Signals time domain impedance	ANSI/EIA-364-108 Rise time ≤ 200ps (10%-90%) Signal to Ground pin ratio per HDMI designation. Differential Measurement Specimen Environment impedance =100Ω differential. Source-side receptacle connector mounted on a controlled impedance PCB fixture	Connector Area: 100Ω ± 15% Transition Area: 100Ω ± 15% Cable Area: 100Ω ± 10%					
20. T.M.D.S Signals time domain cross talk FEXT	ANSI/EIA-364-90 Rise time ≤ 200ps (10%-90%) Signal to Ground pin ratio per HDMI designation. Differential Measurement Specimen Environment impedance =100Ω differential. Source-side receptacle connector mounted on a controlled impedance PCB fixture. Driven pair and victim pair	5% maximum.					

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	Test Measurement or Examination	A	B	C	D	E	F	G
		Sample size	Sample size	Sample size	Sample size	Sample size	Sample size	Sample size
		5pcs	5pcs	5pcs	5pcs	5pcs	5pcs	5pcs
1	Appearance	<b>1:3:6:9</b>	<b>1:3</b>	<b>1:3:8</b>	<b>1:3:8</b>	<b>1:3:8</b>	<b>1:3:9</b>	<b>1:3</b>
2	Withstand temperature for IR reflow	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>
3	Contact/Shell resistance	<b>4:7:10</b>	<b>4:7</b>	<b>4:9</b>	<b>4:9</b>	<b>4:9</b>		
4	Insulation resistance			<b>5:10</b>	<b>5:10</b>	<b>5:10</b>		
5	Dielectric strength			<b>6:11</b>	<b>6:11</b>	<b>6:11</b>		
6	Vibration	<b>5</b>						
7	Contact current rating						<b>4</b>	
8	Shock	<b>8</b>						
9	Resistance to solder heat						<b>8</b>	
10	Insertion /Withdrawal force		<b>5</b>					
11	Durability		<b>6</b>					
12	Contact retention	<b>11</b>						
13	Applied voltage rating						<b>5</b>	
14	Electrostatic discharge						<b>6</b>	
15	Thermal shock			<b>7</b>				
16	Humidity				<b>7</b>			
17	Thermal aging					<b>7</b>		
18	Solder ability						<b>7</b>	
19	T.M.D.S Signals time domain impedance							<b>4</b>
20	T.M.D.S Signals time domain cross talk FEXT							<b>5</b>