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| ENGINEERING | PRODUCT SPECIFICATION<br>For CRA2 RF II Plug connectors | SPEC.NO.: SPCR0271 |
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1. SCOPE:

This specification covers the requirement for product performance and test methods of RF III connector.

2. APPLICABLE STANDARDS:

Follow **EIA-364** specification.

3. APPLICABLE PART NO: CRA2 Plug Connectors

4. SHAPE, CONSTRUCTION AND DIMENSIONS

See attached drawings

5. MATERIALS

See attached drawings

6. ACCOMMODATED P.C.BOARD

P.C. Board Layout: See attached drawings



REVIEWED: David APPROVED: Esley VERIFIED: Tracy

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#### 7. ELECTRICAL PERFORMANCE:

|     | ITEM                             | TEST CONDITION   | REQUIREMENT   |
|-----|----------------------------------|--|---|
| 7.1 | Rated voltage and current        |  | 60V AC 1A Max.  |
| 7.2 | Nominal characteristic impedance |  | 50 ohm.   |
| 7.3 | Applicable Frequency             |  | 100MHz~6GHz   |
| 7.4 | Contact resistance               | Dry circuit of DC 20mV max. , 10mA max.<br>Refer to Fig 1  | Inner:<br>Initial: 20 mΩ Max.<br>Final: $\Delta$ 20 mΩ Max.<br>Ground:<br>Initial: 10 mΩ Max.<br>Final: $\Delta$ 20 mΩ Max. |
| 7.5 | Dielectric strength              | When applied AC 200 V 1 minute between adjacent terminal   | No change<br>Current leakage: 0.5mA Max.  |
| 7.6 | Insulation resistance            | When applied DC 100 V between adjacent terminal or ground  | 500 MΩ Min.( Initial)<br>100 MΩ Min.( Final)  |
| 7.7 | Insertion Loss                   | Mate the connector and SMA connector together, then measure the insertion loss by the network analyzer       | Ø 0.81 mm :<br>100MHz to 6GHz :<br>-10dB Min.<br>Ø 1.13 /1.32/1.37mm :<br>100MHz to 6GHz :<br>-6dB Min.                     |
| 7.8 | VSWR                             | Mate the connector and SMA connector together, then measure the VSWR by the network analyzer. Refer to Fig 2 | 0.1~3GHz: 1.3Max.<br>3G~6GHz: 1.5Max.   |

#### 8. MECHANICAL PERFORMANCE:

|     | ITEM                    | TEST CONDITION   | REQUIREMENT   |
|-----|-------------------------|--|---|
| 8.1 | Connector Unmting Force | Operation Speed : 25±3mm/min.<br>Measure the force required to unmate connector. | Initial :<br>0.51Kgf (5N) Min.<br>After 30 times :<br>0.31Kgf (3N) Min. |



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| 8.2 | Crimp strength        | Operation Speed : 25±3mm/min.<br>Measure the pull out force of cable.<br>Refer to Fig 3                                     | Ø0.81 mm :<br>0.71Kgf (7N) Min.<br>Ø1.13 mm :<br>1.53Kgf (15N) Min.<br>Ø1.32 & 1.37mm :<br>2.04Kgf (20N) Min. |
| 8.3 | Durability            | Operation Speed : 2~3cycle/min.<br>Durability Cycles : 30 Cycles.   | No damage and meet 7.4,<br>8.1  |
| 8.4 | Cable retention force | Subject mated connectors,<br>run 100mA and apply three direction force to<br>check electrical discontinuity. Refer to Fig 4 | No damage.<br>No electrical discontinuity<br>greater than 1µs shall<br>occur and meet 7.4                     |

#### 9. ENVIRONMENTAL PERFORMANCE:

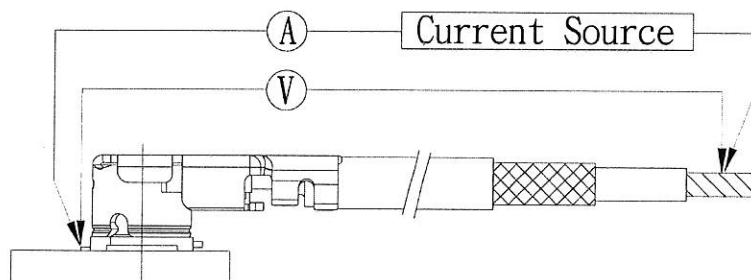
|     | ITEM               | TEST CONDITION  | REQUIREMENT   |
|-----|--------------------|---|---|
| 9.1 | Vibration          | Mated the connector, then Impressed the<br>100mA DC.<br>Frequency : 10Hz→100Hz→10Hz /<br>approx 20 minutes.<br>Half amplitude, peak value of<br>acceleration : 1.5mm or 59m/s <sup>2</sup> (6G).<br>Direction : 3 mutually perpendicular<br>directions.<br>Cycle : 5 cycles for each direction. | No electrical discontinuity<br>greater than 1µs shall<br>occur and meet 7.4 |
| 9.2 | Shock              | Peak value of acceleration : 735m/s <sup>2</sup> (75G)<br>Duration: 11 msec.<br>Wave Form: half sinusoidal<br>No. of Drops : 3 drops each to normal and<br>reversed directions of X, Y and Z axes,<br>totally 18 drops, passing DC 1mA current<br>during the test.                              | No electrical discontinuity<br>greater than 1µs shall<br>occur and meet 7.4 |
| 9.3 | Heat aging         | 85°C , 96 hours   | No damage and meet 7.4  |
| 9.4 | Resistance to Cold | -40 ± 2°C , 96 hours  | No damage and meet 7.4  |

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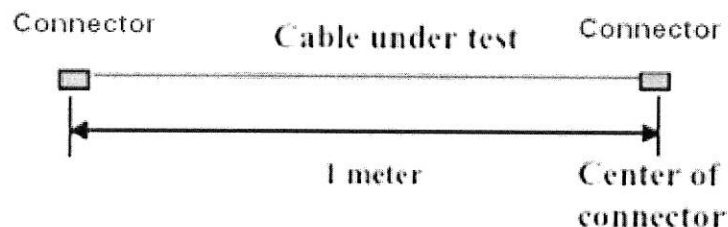
|     |                     |  |                                     |
|-----|---------------------|--|-------------------------------------|
| 9.5 | Humidity            | 40 ± 2°C , 90-95% RH , 96 hours<br>measurement must be taken within 30<br>min. after tested  | No damage and meet 7.4,<br>7.5, 7.6 |
| 9.6 | Temperature cycling | One cycle consists of :<br>(1)-40 <sup>+0</sup> <sub>-3</sub> °C, 30 min.<br>(2)Room temp. 5 min.<br>(3) 85 <sup>+3</sup> <sub>-0</sub> °C, 30 min.<br>(4)Room temp. 5 min.<br>Total cycles : 5 cycles | No damage and meet 7.4,<br>7.5, 7.6 |
| 9.7 | Salt spray          | Temperature: 35 ± 2°C<br>Solution: 5 ± 1%<br>Spray time: 24 hours<br>Measurement must be taken after water<br>rinse and recondition the temperature for 1<br>hour.                                     | No damage and meet 7.4,             |

10. AMBIENT TEMPERATURE RANGE: -40 to + 85°C

11.



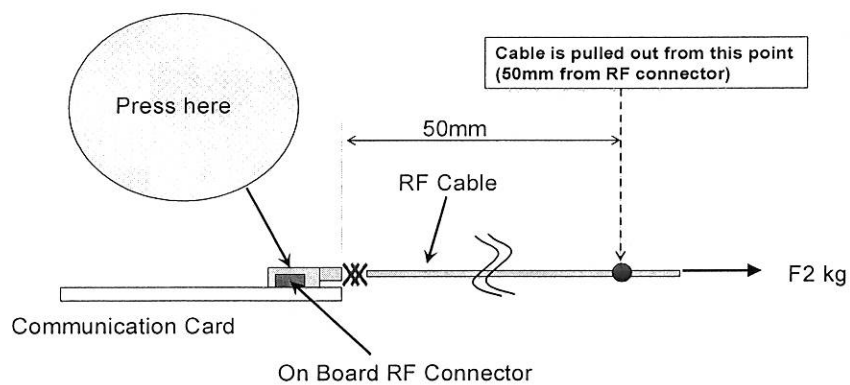
**Fig.1 Contact Resistance**



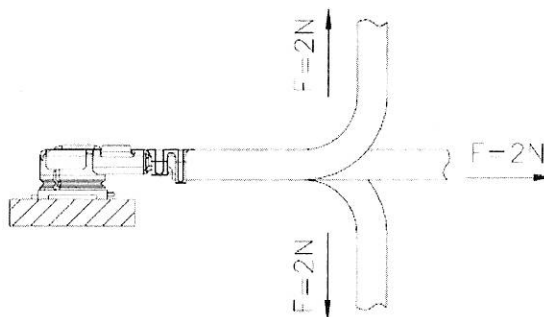
**Fig.2 VSWR**



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**Fig.3 Crimp strength**



**Fig.4 Cable retention force**