

RF Strip-Line Wire-To-Wire Connector

RF HYB 3P CAP & Plug ASSY

Part Number	Description
X-2219343-X	RF HYB 3P CAP ASSY
2310556-X	RF HYB 3P CAP ASSY
2219346-X	RF HYB 3P Plug ASSY
2296598-X	RF HYB 3P Plug ASSY

1. SCOPE

This standard specifies for automotive antenna cables and assembly products.

If it is necessary to indicate otherwise, specify it in the drawing.

The instructions in the drawing shall be prioritized over this standard.

2. Quality

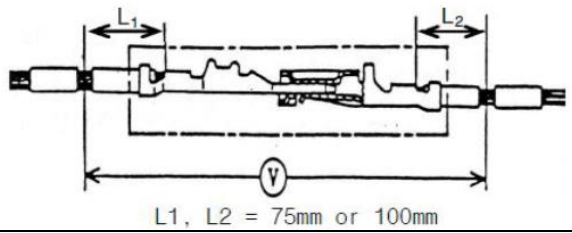
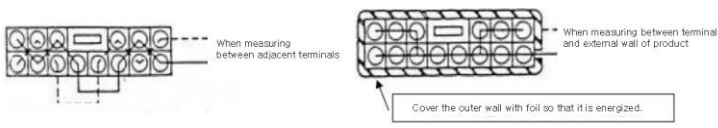
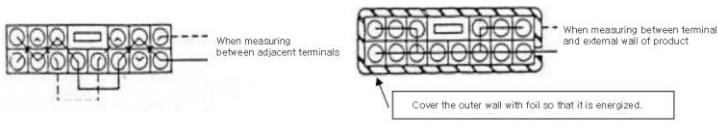
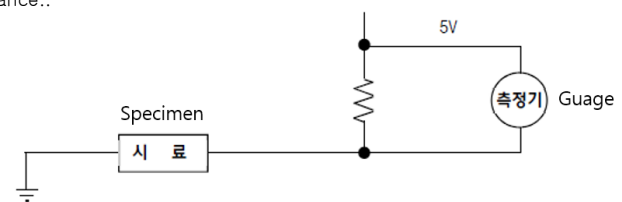
Quality of connector shall satisfy the characteristics of each item described in clause 3 after performing the test.

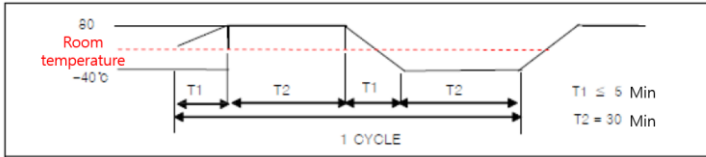
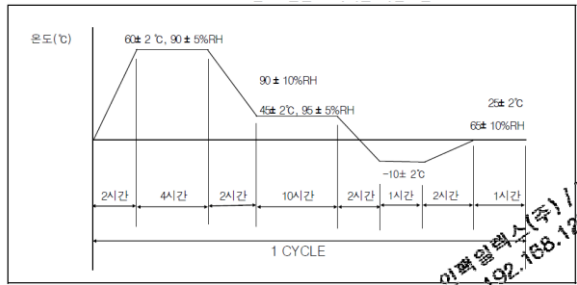
3. Reference documents :

- 1) ES96200-03 : HMC Connector General Spec (Regulations for requirements and testing methods for securing quality of automotive antenna cables and assembly products)

4. Requirements

Para.	Test items	Requirements	Procedures
4.1	Appearance	There should not be no problems affecting the performance of the parts such as Product deformation, Coming off plating, corrosion, mixed foreign substance 1.Common item: There should not be coming off plating, Product deformation, corrosion, mixed foreign substance 2.MALE PIN locking area : No deformation cracks and smooth machined surfaces (Maintain operability and mechanical wear.) 3. Center PIN and Contact: No foreign substances and discoloration 4.Crimped area :There should not be gab, deformation, protrusion of wire	Conduct a visual inspection of the antenna cable components and assembly products.
4.2	Conn Engage force	3P conn : 7.0 kgf or less	Measure the force until locking when the RF connector or SMB jack arm or number terminal is inserted into 50mm/min using a tensile tester. Measure the maximum peak value.
4.3	Conn disengage force	3P conn : 7.0 kgf or less	The RF connector or SMB jack arm or number terminal is deviated to 100mm/min using a tensile tester. Measure the force at a moment the female terminal is dislodged (disconnected). Measure the maximum peak value. However, remove the housing hook and measure the connector.

4.4	Tensile strength	10 kgf or more	When the terminal compression and assembly are separated by 100mm/min using a tensile tester. Measure the force at a moment the assembly is dismantled. Measure the maximum peak value.
4.5	Locking strength	10 kgf or more	Forced disconnection of connectors and antenna jack locking parts using a tensile tester to 100mm/min Measure the force at a moment when the locking part is released. Measure the maximum peak value.
4.6	Contact resistance	20 mΩ or more	Connect a connector and antenna arm number to measure contact resistance using a multimeter. The measured values are obtained as follows. Contact resistance = $V - (L_1 + L_2)$ L_1, L_2 = WIRE resistance  $L_1, L_2 = 75\text{mm or } 100\text{mm}$
4.7	High voltage test	There shall be no insulation break.	Connect the connector and the antenna jack to connect the voltage tester as shown in Figure 1 below between adjacent terminals and the contact area. Apply AC1000V for one minute. 
4.8	Insulation resistance	100 MΩ or more	Connect the connector and the antenna jack to connect the voltage tester as shown in Figure 1 below between adjacent terminals and the contact area. Apply AC500V for one minute. 
4.9	Instant short circuit	There should not be the instant short circuit.	Run an open voltage of 5V, 1 mA on the arm, male connector, or communications jack. The instant short circuit is defined when the voltage of the measuring instrument decreases to less than 3.5V during the combined environment test and 10 μ s continuous. Set the 1 mA accreditation to the tester using variable resistance.. 
4.10	Characteristic impedance	$50\Omega \rightarrow 50 \pm 5 \Omega$ $75\Omega \rightarrow 75 \pm 5 \Omega$	Connect the connector or the antenna jack. Measure each impedance using a network analyzer
4.11	Standing wave ratio	$1.25 + 0.4f$ or less	Connect the connector or the antenna jack. Measure the standing wave ratio using the network analyzer
4.12	Insertion loss	0~-0.3dB	Connect the connector or the antenna jack. Measure the insertion loss using the network analyzer

4.13	Endurance test – CONN engage/Disengage endurance test	<table><tr><th>Items</th><th>Requirements</th></tr><tr><td>Appearance</td><td>There should not be no problems affecting the performance of the parts such as Product deformation, Coming off plating, corrosion, mixed foreign substance</td></tr><tr><td>Locking strength</td><td>10 kgf or more</td></tr><tr><td>Contact resistance</td><td>40 mΩ or less 1.5DS-QEHB – RG316 (P1) 1.5DS-QEHB – RG316 (P2) 1.5C-2V ~ 1.5CS-QEHV (P3)</td></tr><tr><td>Characteristic impedance</td><td>50Ω ± 5Ω 75Ω ± 5Ω</td></tr><tr><td>Standing wave ratio</td><td>1.25±0.4t or less</td></tr><tr><td>Insertion loss</td><td>0~-0.3dB</td></tr></table>	Items	Requirements	Appearance	There should not be no problems affecting the performance of the parts such as Product deformation, Coming off plating, corrosion, mixed foreign substance	Locking strength	10 kgf or more	Contact resistance	40 mΩ or less 1.5DS-QEHB – RG316 (P1) 1.5DS-QEHB – RG316 (P2) 1.5C-2V ~ 1.5CS-QEHV (P3)	Characteristic impedance	50Ω ± 5Ω 75Ω ± 5Ω	Standing wave ratio	1.25±0.4t or less	Insertion loss	0~-0.3dB	Set the male-female connector and the jack parts on the engine-disengage test machine. Insert and exit 50 consecutive times at the speed of 100 mm/min.																
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5. REVISION HISTORY

Current Revision	New Revision	Changes	Reason for Change	EC No.(DATE)
-	A	-	RELEASE	2017. 4. 20

6. SPECIFICATION APPROVAL

Prepared by,

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Product Engineer

Approved by,

G.C. Kwon

Product Engineering Manager

Checked By,

G.C. Kwon

Senior Product Engineer