

CABLINE®-UX II Connector

Part No. Plug: 20531 Receptacle: 20533

Test Report

Product Specification no. PRS-1555

| | | | | | |
|------|--------|--------------------|-------------|------------|-------------|
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| 8 | T19043 | March 22, 2019 | A.Koyanagi | T.Masunaga | Y.Shimada |
| 7 | T17161 | October 2, 2017 | S.Kawamura | - | M.Takemoto |
| 6 | T15120 | September 23, 2015 | R.N | - | T.Takano |
| Rev. | ECN | Date | Prepared by | Checked by | Approved by |

1. Purpose

To evaluate the performance of CABLINE-UX II Connector in accordance with PRS-1555.

2. Specimen

- (1) CABLINE-UX II PLUG CABLE ASS'Y (Part No. 20531-0**T-*2)
 - CABLINE-UX II PLUG HOUSING ASS'Y (Part No. 20532-0**T-*2)
 - CABLINE-UX II PLUG METAL COVER (Part No. 2799-0**1)
- (2) CABLINE-UX II RECEPTACLE ASS'Y (Part No. 20533-0**E-**)

3. Test Sequence

All the evaluations were performed in accordance with Table 1. Test Sequence.

4. Result

See Table 2-1 to 2-4, Graph 1 to 18. For the details of the testing conditions and requirements, see PRS-1555.
The "n" in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-1555.

Table 1 Test Sequence and Sample Quantity

| Test Item | Group | | | | | | | | | | | |
|---------------------------------|--------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|--------|
| | A | B | C | D | E | F | G | H | J | K | L | M |
| Contact resistance | 2,6 | | 1,3,5 | 1,5 | 1,3 | 1,5 | 1,5,7 | 1,3 | 1,3 | | | |
| Insulation resistance | | | | 2,6 | | 2,6 | 2,8 | | | | | |
| Dielectric withstanding voltage | | | | 3,7 | | 3,7 | 3,9 | | | | | |
| Temperature rising | | | | | | | | | | | | 1 |
| Mating force | 1,5 | | | | | | | | | | | |
| Unmating force | 3,7 | | | | | | | | | | | |
| Durability | 4 | | | | | | 4 | | | | | |
| Contact retention force | | 1 | | | | | | | | | | |
| Cable retention force | 8 | | | | | | | | | | | |
| Vibration | | | 2 | | | | | | | | | |
| Shock | | | 4 | | | | | | | | | |
| Thermal shock | | | | 4 | | | | | | | | |
| High temperature life | | | | | 2 | | | | | | | |
| Humidity (Steady State) | | | | | | 4 | | | | | | |
| Humidity (Cycling) | | | | | | | 6 | | | | | |
| Saltwater spray | | | | | | | | 2 | | | | |
| H ₂ S gas | | | | | | | | | 2 | | | |
| Solder ability | | | | | | | | | | 1 | | |
| Soldering heat resistance | | | | | | | | | | | 1 | |
| Specimen quantity. | 5 pcs. | 20 pos. | 5 pcs. | 5 pcs. | 5 pcs. | 5 pcs. | 5 pcs. | 5 pcs. | 5 pcs. | 10 pcs. | 10 pcs. | 5 pcs. |

※Numbers indicate test sequences

Table 2-1. Test result

| Test Item | Contents of Measurement | | Specifications | Set | n | Data | | | | | Judgment | |
|--|-------------------------|---------------------|-----------------------|------------|--------|----------|--------|---------|--------|---------|----------|------|
| | | | | | | AVE. | MAX. | MIN. | s | X±3s | | |
| A Group Durability ↓ Cable Retention Force | Contact Resistance (mΩ) | Initial | AWG#44 1080mΩMAX. | 5 | 250 | 833.776 | 877.63 | 802.46 | 16.973 | 884.695 | Pass | |
| | | After 20Cycles | AWG#44 ΔR=40mΩMAX. | | | -0.985 | 9.14 | -8.33 | 5.381 | 15.158 | Pass | |
| | | Initial | AWG#46 1880mΩMAX. | 5 | 250 | 1662.657 | 1690.7 | 1633.27 | 10.584 | 1694.41 | Pass | |
| | | After 20Cycles | AWG#46 ΔR=40mΩMAX. | | | 1.933 | 8.95 | -8.58 | 4.638 | 15.847 | Pass | |
| | Ground Resistance(mΩ) | Initial | 100mΩMAX. | 5 | - | 35.581 | 39.66 | 32.19 | - | - | Pass | |
| | | After 20Cycles | ΔR=40mΩMAX. | | | -2.768 | 3.55 | -8.5 | - | - | Pass | |
| | 30P | Mating Force (N) | Initial | 26.4N MAX. | 5 | - | 10.786 | 11.65 | 9.75 | - | - | Pass |
| | | | After 20Cycles | 26.4N MAX. | | | 6.446 | 6.68 | 6.23 | - | - | Pass |
| | | Un-mating Force (N) | Initial | 1.50N MIN. | 5 | - | 6.229 | 6.55 | 5.72 | - | - | Pass |
| | | | After 20Cycles | 1.50N MIN. | | | 5.708 | 6.03 | 5.43 | - | - | Pass |
| | Cable Retention Force | | 15.0N MIN. | 5 | - | 30.336 | 36.06 | 25.13 | - | - | Pass | |
| | 34P | Mating Force (N) | Initial | 27.6N MAX. | 5 | - | 12.307 | 12.70 | 12.07 | - | - | Pass |
| | | | After 20Cycles | 27.6N MAX. | | | 5.840 | 6.35 | 5.14 | - | - | Pass |
| | | Un-mating Force (N) | Initial | 1.90N MIN. | 5 | - | 9.167 | 9.73 | 8.85 | - | - | Pass |
| | | | After 20Cycles | 1.90N MIN. | | | 6.103 | 6.34 | 5.78 | - | - | Pass |
| | Cable Retention Force | | 17.0N MIN. | 5 | - | 53.000 | 55.00 | 51.00 | - | - | Pass | |
| | 40P | Mating Force (N) | Initial | 29.4N MAX. | 5 | - | 16.606 | 16.91 | 16.19 | - | - | Pass |
| | | | After 20Cycles | 29.4N MAX. | | | 7.41 | 7.86 | 7.16 | - | - | Pass |
| | | Un-mating Force (N) | Initial | 2.50N MIN. | 5 | - | 9.137 | 9.8 | 8.32 | - | - | Pass |
| | | | After 20Cycles | 2.50N MIN. | | | 6.697 | 7.72 | 5.79 | - | - | Pass |
| Cable Retention Force | | 20.0N MIN. | 5 | - | 62.908 | 64.17 | 60.53 | - | - | Pass | | |
| 50P | Mating Force (N) | Initial | 32.4N MAX. | 5 | - | 25.167 | 28.13 | 23.12 | - | - | Pass | |
| | | After 20Cycles | 32.4N MAX. | | | 10.54 | 10.73 | 10.21 | - | - | Pass | |
| | Un-mating Force (N) | Initial | 3.50N MIN. | 5 | - | 12.487 | 13.39 | 11.96 | - | - | Pass | |
| | | After 20Cycles | 3.50N MIN. | | | 7.49 | 7.78 | 7.31 | - | - | Pass | |
| Cable Retention Force | | 25.0N MIN. | 5 | - | 72.977 | 77.21 | 68.51 | - | - | Pass | | |

Table 2-2. Test result

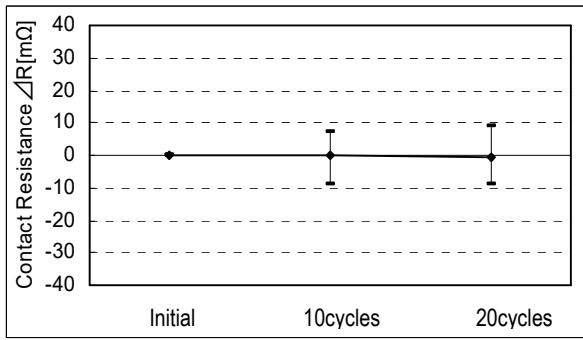
| Test Item | Contents of Measurement | | Specifications | Set | n | Data | | | | | Judgment |
|--|---------------------------------|---------------------------|--|-----|-----|--|--------|--------|-------|---------|----------|
| | | | | | | AVE. | MAX. | MIN. | s | X±3s | |
| B Group Contact Retention Force | Plug Contact Retention Force(N) | | 0.5N MIN | — | 25 | It does not pull out,even if it applies the power of 2.0N to a terminal. | | | | | Pass |
| | Rece.Contact Retention Force(N) | | 0.2N MIN | — | 25 | 0.389 | 0.52 | 0.32 | — | — | Pass |
| C Group Vibration ↓ Shock | Contact Resistance (mΩ) | Initial | AWG#44 1080mΩMAX. | 5 | 250 | 817.925 | 835.85 | 800.08 | 7.879 | 841.563 | Pass |
| | | After Vibration | AWG#44 ΔR=40mΩMAX. | | | -1.548 | 5.87 | -6.66 | 3.6 | 9.254 | Pass |
| | | After Shock | AWG#44 ΔR=40mΩMAX. | | | -0.434 | 5.97 | -7.592 | 3.461 | 9.95 | Pass |
| | Ground Resistance (mΩ) | Initial | 100mΩMAX. | 5 | — | 29.935 | 36.32 | 25.5 | — | — | Pass |
| | | After Vibration | ΔR=40mΩMAX. | | | 0.661 | 3.33 | -4.06 | — | — | Pass |
| | | After Shock | ΔR=40mΩMAX. | | | 1.72 | 5.34 | -1.25 | — | — | Pass |
| | Electrical Discontinuity | During Vibration/Shock | 1μsec. MAX. | 5 | — | No abnormality | | | | | Pass |
| | Appearance | After test | No abnormality adversely affecting the performance shall occur. | 5 | — | No abnormality | | | | | Pass |
| D Group Thermal Shock | Contact Resistance (mΩ) | Initial | AWG#44 1080mΩMAX. | 5 | 250 | 819.594 | 835.26 | 801.67 | 7.302 | 841.502 | Pass |
| | | After test | AWG#44 ΔR=40mΩMAX. | | | -1.817 | 8.97 | -8.97 | 5.182 | 13.73 | Pass |
| | Ground Resistance (mΩ) | Initial | 100mΩMAX. | 5 | — | 27.141 | 29.05 | 25.69 | — | — | Pass |
| | | After test | ΔR=40mΩMAX. | | | 4.459 | 7.5 | 0.6 | — | — | Pass |
| | Insulation Resistance | Initial | 100MΩMIN. | 5 | — | 5.14×10 ⁵ MΩ MIN. | | | | | Pass |
| | | After test | 100MΩMIN. | | | 7.10×10 ⁵ MΩ MIN. | | | | | Pass |
| | D.W.Voltage | | No abnormalities such as creeping discharge, flashover, insulator breakdown occur. | 5 | — | No abnormality | | | | | Pass |
| | Appearance | After test | No abnormality adversely affecting the performance shall occur. | 5 | — | No abnormality | | | | | Pass |
| E Group High Temperature Life | Contact Resistance (mΩ) | Initial | AWG#44 1080mΩMAX. | 5 | 250 | 817.564 | 835.67 | 799.52 | 8.472 | 842.978 | Pass |
| | | After test | AWG#44 ΔR=40mΩMAX. | | | -3.802 | 7.66 | -8.89 | 4.338 | 9.212 | Pass |
| | Ground Resistance (mΩ) | Initial | 100mΩMAX. | 5 | — | 26.785 | 28.91 | 24.61 | — | — | Pass |
| | | After test | ΔR=40mΩMAX. | | | -3.591 | 0.56 | -6.03 | — | — | Pass |
| | Appearance | After test | No abnormality adversely affecting the performance shall occur. | 5 | — | No abnormality | | | | | Pass |

Table 2-3. Test result

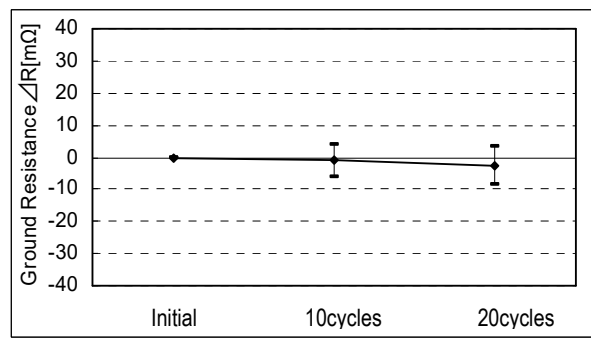
| Test Item | Contents of Measurement | | Specifications | Set | n | Data | | | | | Judgment |
|---------------------------------|-------------------------|--|---|-----|----------------|------------------------------|--------|--------|-------|---------|----------|
| | | | | | | AVE. | MAX. | MIN. | s | X±3s | |
| F Group Humidity (Steady State) | Contact Resistance (mΩ) | Initial | AWG#44 1080mΩMAX. | 5 | 250 | 817.849 | 834.95 | 800.21 | 8.281 | 842.693 | Pass |
| | | After test | AWG#44 ΔR=40mΩMAX. | | | -3.552 | 8.71 | -9.54 | 5.009 | 11.475 | Pass |
| | Ground Resistance (mΩ) | Initial | 100mΩMAX. | 5 | - | 27.26 | 29.21 | 25.37 | - | - | Pass |
| | | After test | ΔR=40mΩMAX. | | | 5.874 | 8.4 | 2.45 | - | - | Pass |
| | Insulation Resistance | Initial | 100MΩMIN. | 5 | - | 1.06×10 ⁵ MΩ MIN. | | | | | Pass |
| | | After test | 100MΩMIN. | | | 4.51×10 ⁵ MΩ MIN. | | | | | Pass |
| D.W.Voltage | | No abnormalities such as creeping discharge, flashover, insulator breakdown occur. | 5 | - | No abnormality | | | | | Pass | |
| Appearance | After test | No abnormality adversely affecting the performance shall occur. | 5 | - | No abnormality | | | | | Pass | |
| G Group Humidity (Cycling) | Contact Resistance (mΩ) | Initial | AWG#44 1080mΩMAX. | 5 | 250 | 818.279 | 834.48 | 800.24 | 8.631 | 844.172 | Pass |
| | | After test | AWG#44 ΔR=40mΩMAX. | | | -0.906 | 9.06 | -8.97 | 5.563 | 15.781 | Pass |
| | Ground Resistance (mΩ) | Initial | 100mΩMAX. | 5 | - | 26.897 | 28.96 | 25.14 | - | - | Pass |
| | | After test | ΔR=40mΩMAX. | | | 2.967 | 8.14 | -6.09 | - | - | Pass |
| | Insulation Resistance | Initial | 100MΩMIN. | 5 | - | 1.71×10 ⁵ MΩ MIN. | | | | | Pass |
| | | After test | 100MΩMIN. | | | 3.49×10 ⁵ MΩ MIN. | | | | | Pass |
| Appearance | After test | No abnormality adversely affecting the performance shall occur. | 5 | - | No abnormality | | | | | Pass | |
| H Group Salt Water Spray | Contact Resistance (mΩ) | Initial | AWG#44 1080mΩMAX. | 5 | 250 | 816.678 | 835.78 | 800.3 | 8.597 | 842.469 | Pass |
| | | After test | AWG#44 ΔR=40mΩMAX. | | | 0.186 | 8.95 | -8.81 | 4.748 | 14.431 | Pass |
| | Ground Resistance (mΩ) | Initial | 100mΩMAX. | 5 | - | 27.776 | 29.09 | 25.82 | - | - | Pass |
| | | After test | ΔR=40mΩMAX. | | | -2.846 | 2.52 | -8.72 | - | - | Pass |
| | Appearance | After test | No abnormality adversely affecting the performance shall occur. | 5 | - | No abnormality | | | | | Pass |
| J Group H2S Gas | Contact Resistance (mΩ) | Initial | AWG#44 1080mΩMAX. | 5 | 250 | 811.577 | 834.48 | 788.05 | 10.11 | 841.907 | Pass |
| | | After test | AWG#44 ΔR=40mΩMAX. | | | -1.547 | 8.33 | -9.04 | 4.893 | 13.132 | Pass |
| | Ground Resistance (mΩ) | Initial | 100mΩMAX. | 5 | - | 26.797 | 27.9 | 26.35 | - | - | Pass |
| | | After test | ΔR=40mΩMAX. | | | -3.243 | 1.89 | -9.22 | - | - | Pass |
| | Appearance | After test | No abnormality adversely affecting the performance shall occur. | 5 | - | No abnormality | | | | | Pass |

Table 2-4. Test result

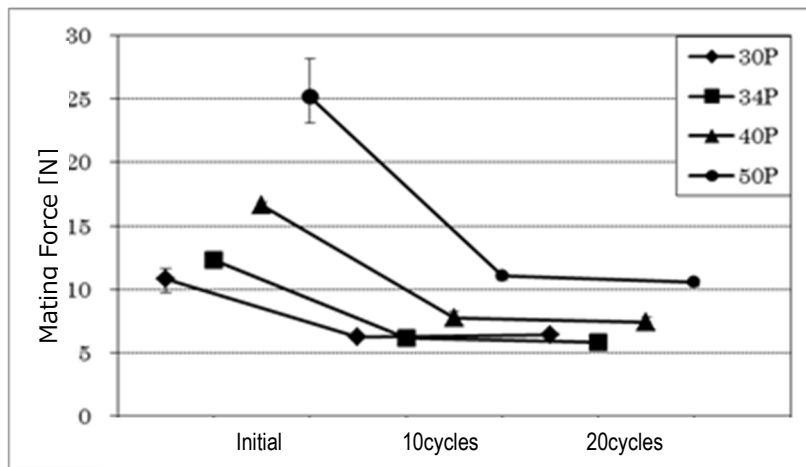
| Test Item | Contents of Measurement | Specifications | Set | n | Data | | | | | Judgment |
|--|---|--|-----|---|---|------|------|---|------|----------|
| | | | | | AVE. | MAX. | MIN. | s | X±3s | |
| K Group Solder ability | Appearance | More than 95% wet | 10 | — | Wet 95% MIN. | | | | | Pass |
| L Group Soldering Heat Resistance | Appearance | No deformation nor defect adversely affecting the performance occur. | 10 | — | No abnormality | | | | | Pass |
| M Group Temperature rising | AWG#44 Phosphor Bronze :0.15A Corson Alloy :0.19A | ΔT=30°C MAX. | 5 | — | Phosphor Bronze : ΔT= 28.4°C MAX. (50P) Corson Alloy : ΔT= 24.2°C MAX. (50P) | | | | | Pass |
| | AWG#46 Phosphor Bronze : 0.10A Corson Alloy : 0.14A | ΔT=30°C MAX. | 5 | — | Phosphor Bronze : ΔT= 24.7°C MAX. (50P) Corson Alloy : ΔT= 24.0°C MAX. (50P) | | | | | Pass |



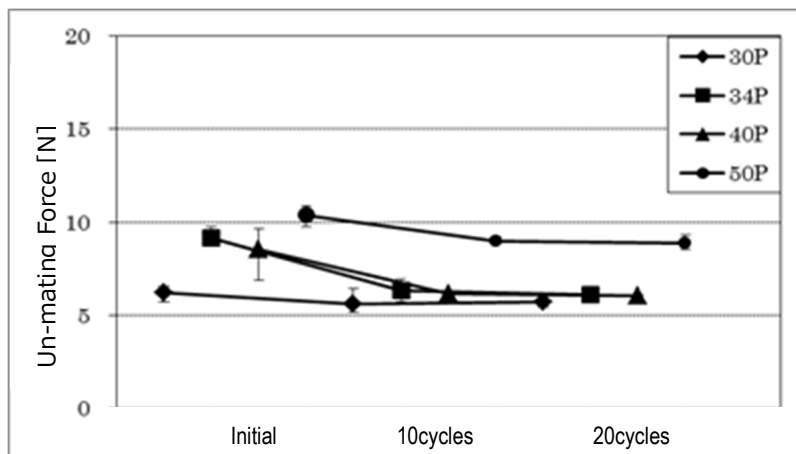
Graph1. A change of contact resistance (A Group : Durability)



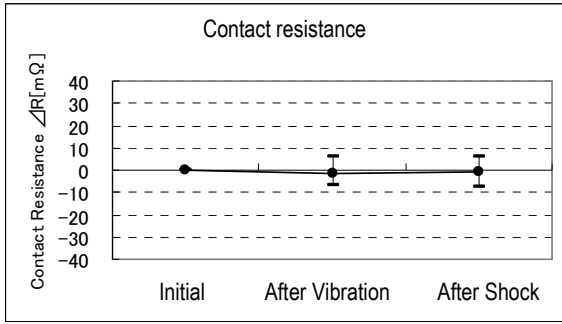
Graph2. A change of Ground resistance (A Group : Durability)



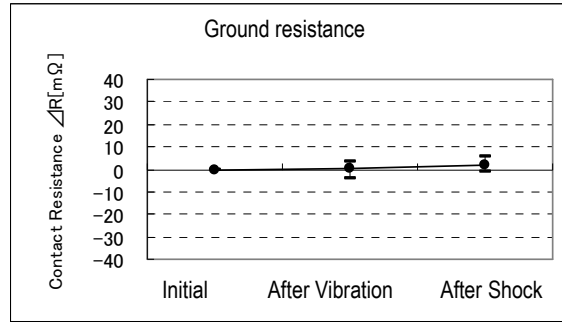
Graph3. A change of mating force (A Group : Durability)



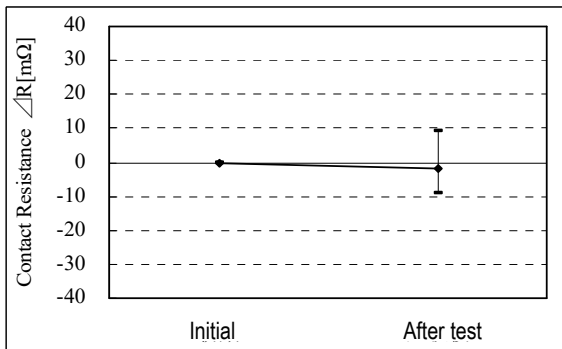
Graph 4. A change of un-mating force (A Group : Durability)



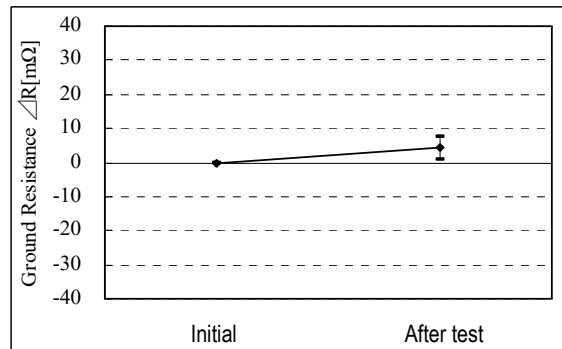
Graph5. A change of contact resistance (C Group : Vibration • shock)



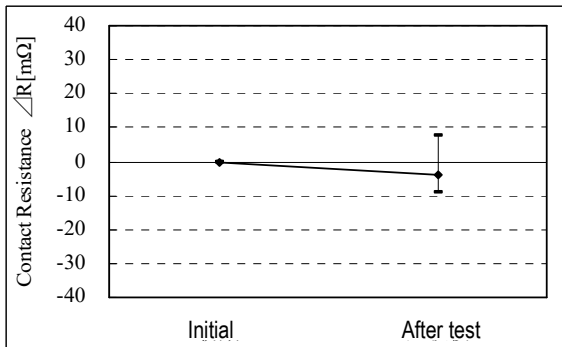
Graph6. A change of ground resistance (C Group : Vibration • shock)



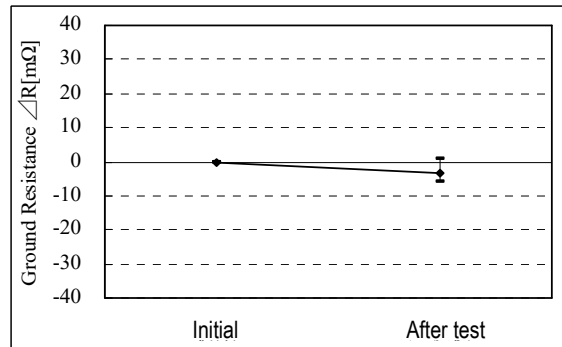
Graph7. A change of contact resistance (D Group : Thermal shock)



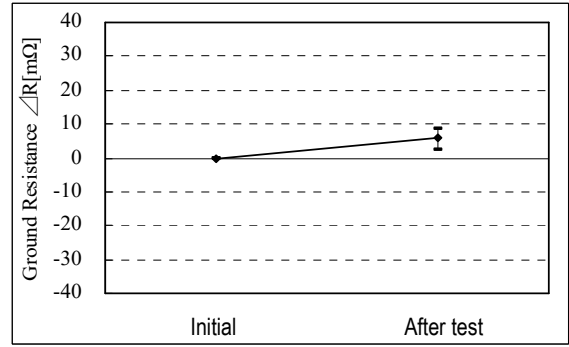
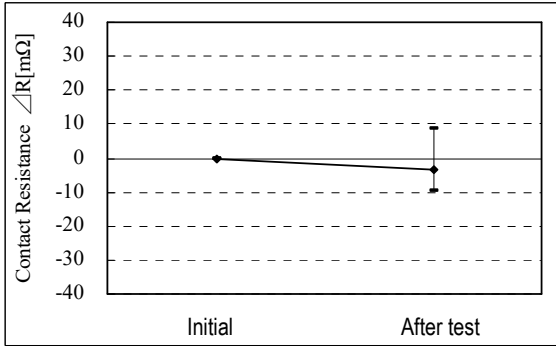
Graph8. A change of Ground resistance (D Group : Thermal shock)



Graph9. A change of contact resistance
(E Group : High Temperature Life)

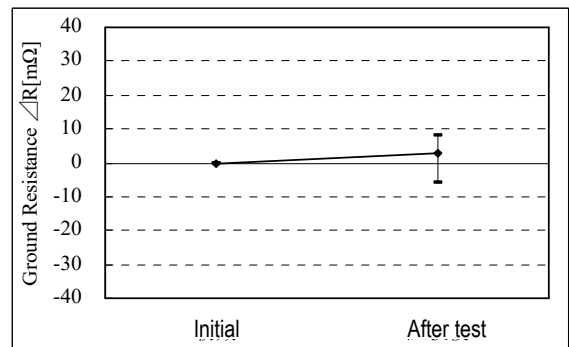
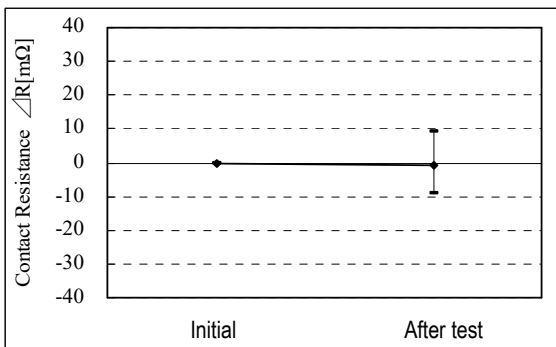


Graph10. A change of Ground resistance
(E Group : High Temperature Life)



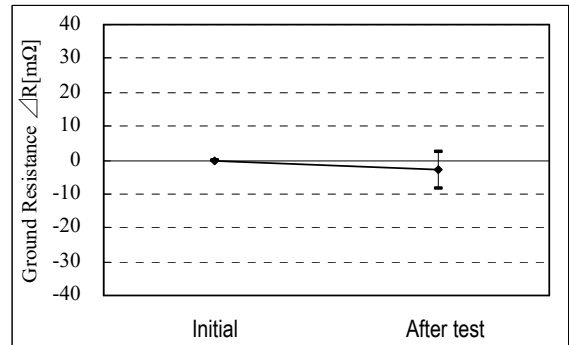
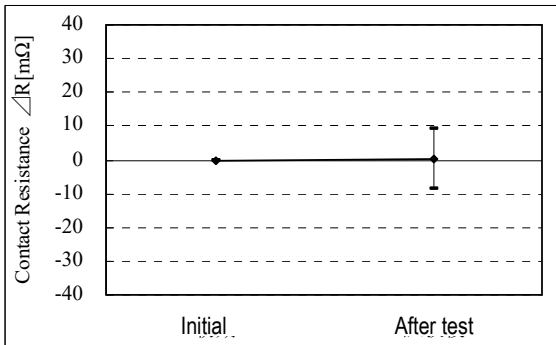
Graph11. A change of contact resistance (F Group : Humidity(Steady state))

Graph12. A change of Ground resistance (F Group : Humidity(Steady state))



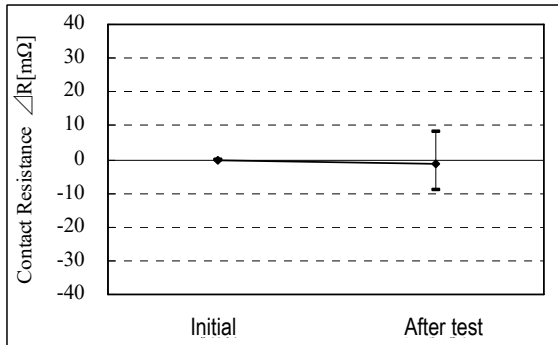
Graph 13. A change of contact resistance (G Group : Humidity(Cycling))

Graph14. A change of Ground resistance (G Group : Humidity(Cycling))

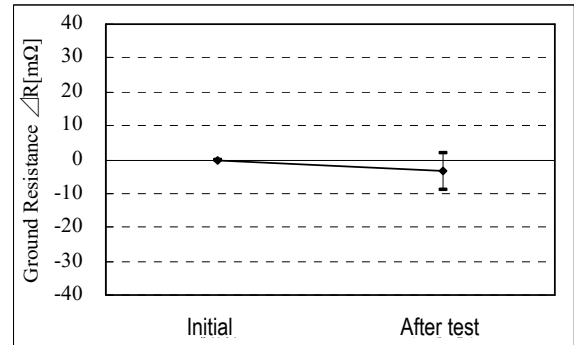


Graph15. A change of contact resistance (H Group : Salt Water Spray)

Graph16. A change of Ground resistance (H Group : Salt Water Spray)



Graph17. A change of contact resistance (J Group : Gas(H₂S))



Graph18. A change of Ground resistance (J Group : Gas(H₂S))