

CABLINE®-CAF

Part No. Plug: 3437-0**1 (SHELL Only), 20858-0**T-01 (SHELL ASS'Y)

Receptacle: 20525-※**E-※※※

Test Report

Product Specification no. PRS-2465

| | | | | | |
|------|--------|------------------|-------------|------------|-------------|
| 3 | T21180 | December 6, 2021 | M.Muro | - | H.Ikari |
| 2 | T21068 | August 27, 2021 | R.Fukuda | M.Muro | H.Ikari |
| 1 | T19035 | March 5, 2019 | Y.Sasa | T.Masunaga | Y.Shimada |
| 0 | T18030 | March 16, 2018 | Y.Sasa | T.Masunaga | Y.Shimada |
| Rev. | ECN | Date | Prepared by | Checked by | Approved by |

1. Purpose

To evaluate the performance of CABLINE-CAF connector in accordance with PRS-2465.

2. Specimen

- (1) CABLINE-CAF SHELL ASS'Y (Part No. 20858-0**T-01)
CABLINE-CAF SHELL ONLY (Part No. 3437-0**1)
- (2) CABLINE-CA RECE. ASS'Y (Part No. 20525-※**E-※※※※)

3. Test Sequence

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

4. Result

Results are indicated in Tables 2-1 to 2-3 and Graphs 1 to 18. For the details of the testing conditions and requirements, refer to product specification no. PRS-2465.

The "n" in the tables show the number of measurement point.

5. Conclusion

All the specimens met the requirements of PRS-2465.

Table.1 Test Sequence and Sample Quantity

| Test Item | Group | | | | | | | | |
|-------------------------|-------|-----|-------|-----|-----|-----|-----|-----|-----|
| | A | B | C | D | E | F | G | H | J |
| Contact Resistance | | 2,6 | 1,3,5 | 1,3 | 1,3 | 1,5 | 1,5 | 1,3 | 1,3 |
| Insulation Resistance | | | | | | 2,6 | 2,6 | | |
| D. W. Voltage | | | | | | 3,7 | 3,7 | | |
| Temp. Rise | 1 | | | | | | | | |
| Mating Force | | 1,5 | | | | | | | |
| Un-mating Force | | 3,7 | | | | | | | |
| Durability | | 4 | | | | | | | |
| Vibration | | | 2 | | | | | | |
| Shock | | | 4 | | | | | | |
| Thermal Shock | | | | 2 | | | | | |
| High Temperature Life | | | | | 2 | | | | |
| Humidity (Steady State) | | | | | | 4 | | | |
| Humidity (Cycling) | | | | | | | 4 | | |
| Salt Water Spray | | | | | | | | 2 | |
| H ₂ S Gas | | | | | | | | | 2 |
| Sample QTY. | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |

The number of group is test sequence.

Table.2-1 Test result

| Test Item | Contents of Measurement | | Specifications | Set | n | Data | | | | | Judge | |
|------------------------------------|---------------------------------|------------------|---|-------------|-----|--------------------------------------|-------|-------|-------|--------|--------|----|
| | | | | | | AVE. | MAX. | MIN. | s | X±3s | | |
| A Group Temperature Rising | 0.3A/Contact 18.0A/Connector | | $\Delta T=30^{\circ}\text{C MAX.}$ | 5 | 5 | $\Delta T=24.3^{\circ}\text{C MAX.}$ | | | | | OK | |
| B Group Durability | Contact Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 300 | 18.187 | 23.22 | 12.97 | 2.023 | 24.256 | OK | |
| | | After Testing | $\Delta R=40\text{m}\Omega$ MAX. | | | 0.659 | 4.67 | -3.67 | 1.493 | 5.138 | OK | |
| | GND Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 5 | 5.861 | 6.73 | 4.59 | 0.704 | 7.973 | OK | |
| | | After Testing | $\Delta R=40\text{m}\Omega$ MAX. | | | -0.715 | 0.21 | -1.83 | 0.766 | 1.583 | OK | |
| | Mating Force (N) | 40P | Initial | 11.07N MAX. | 5 | 5 | 8.128 | 8.80 | 7.10 | 0.710 | 10.258 | OK |
| | | | After Testing | 11.07N MAX. | | | 6.440 | 6.92 | 5.42 | 0.591 | 8.213 | OK |
| | | 60P | Initial | 16.61N MAX. | 5 | 5 | 9.673 | 10.16 | 8.99 | 0.439 | 10.990 | OK |
| | | | After Testing | 16.61N MAX. | | | 8.723 | 9.03 | 8.02 | 0.420 | 9.983 | OK |
| | Un-mating Force (N) | 40P | Initial | 1.44N MIN. | 5 | 5 | 4.674 | 5.11 | 4.37 | 0.279 | 3.837 | OK |
| | | | After Testing | 1.44N MIN. | | | 4.278 | 4.82 | 3.80 | 0.380 | 3.138 | OK |
| | | 60P | Initial | 2.16N MIN. | 5 | 5 | 6.282 | 6.58 | 5.86 | 0.263 | 5.493 | OK |
| | | | After Testing | 2.16N MIN. | | | 5.977 | 6.37 | 5.49 | 0.322 | 5.011 | OK |
| C Group Vibration ↓ Shock | Contact Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 300 | 17.046 | 21.75 | 12.51 | 1.834 | 22.548 | OK | |
| | | After Vibration | $\Delta R=40\text{m}\Omega$ MAX. | | | 1.312 | 5.03 | -2.18 | 1.262 | 5.098 | OK | |
| | | After Shock | $\Delta R=40\text{m}\Omega$ MAX. | | | 3.179 | 7.51 | -0.96 | 1.473 | 7.598 | OK | |
| | GND Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 5 | 5.066 | 6.61 | 4.06 | 0.816 | 7.514 | OK | |
| | | After Vibration | $\Delta R=40\text{m}\Omega$ MAX. | | | -0.071 | 1.86 | -1.75 | 1.042 | 3.055 | OK | |
| | | After Shock | $\Delta R=40\text{m}\Omega$ MAX. | | | 0.249 | 2.05 | -1.78 | 1.216 | 3.897 | OK | |
| | Electrical discontinuity | During Vibration | 1μsec. MAX. | 5 | 5 | No Electrical discontinuity | | | | | OK | |
| | | During Shock | | | | No Electrical discontinuity | | | | | OK | |
| | Appearance | After Vibration | No abnormality adversely affecting the performance shall occur. | 5 | 5 | No Abnormality | | | | | OK | |
| | | After Shock | | | | No Abnormality | | | | | OK | |

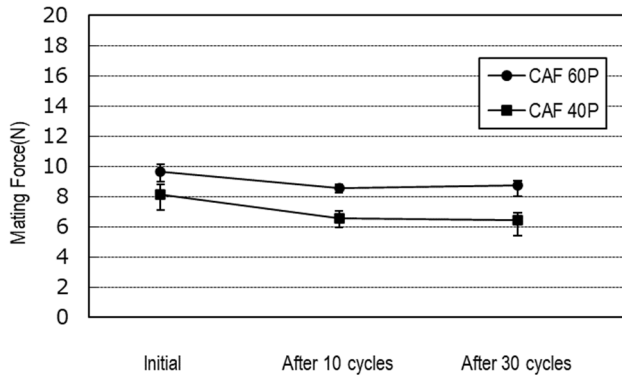
*The Temperature Rising Test is a result when applied ratings current (0.3A/contact) between the neighboring contacts for 60pos. (With the whole connector 18.0A.)

Table.2-2 Test result

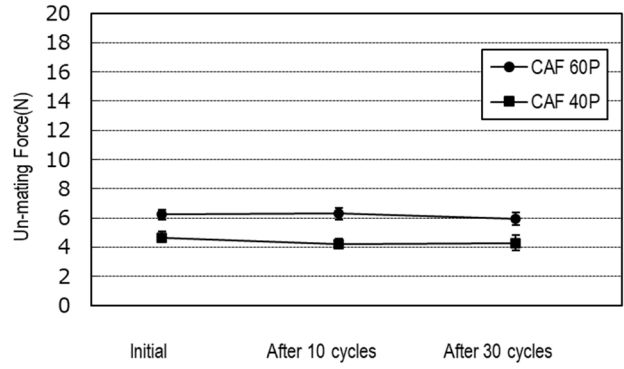
| Test Item | Contents of Measurement | | Specifications | Set | N | Data | | | | | Judge |
|--|----------------------------------|---------------|--|-----|-----|----------------------------|-------|-------|-------|--------|-------|
| | | | | | | AVE. | MAX. | MIN. | s | X±3s | |
| D Group Thermal Shock | Contact Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 300 | 17.544 | 22.28 | 12.77 | 1.850 | 23.094 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | -2.603 | 2.85 | -8.50 | 1.997 | 3.388 | OK |
| | GND Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 5 | 5.351 | 6.50 | 4.23 | 0.900 | 8.051 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | 0.200 | 1.55 | -1.00 | 0.857 | 2.771 | OK |
| E Group High Temperature Life | Contact Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 300 | 17.478 | 20.77 | 14.82 | 1.144 | 20.910 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | 4.663 | 8.47 | 1.54 | 1.334 | 8.665 | OK |
| | GND Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 5 | 5.621 | 6.30 | 3.95 | 0.726 | 7.799 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | -0.865 | 1.15 | -1.99 | 1.046 | 2.273 | OK |
| F Group Humidity (Steady State) | Contact Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 300 | 17.544 | 22.07 | 12.71 | 1.848 | 23.088 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | 1.553 | 6.10 | -1.91 | 1.588 | 6.317 | OK |
| | GND Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 5 | 5.077 | 6.54 | 4.11 | 0.956 | 7.945 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | 0.155 | 2.43 | -2.62 | 1.654 | 5.117 | OK |
| | Insulation Resistance (MΩ) | Initial | 1000MΩMIN. | 5 | 150 | 8.5×10 ⁴ MΩMIN. | | | | | OK |
| | | After Testing | 500MΩMIN. | | | 2.8×10 ³ MΩMIN. | | | | | OK |
| | D. W. Voltage | Initial | No abnormalities such as creeping discharge, flashover, insulator breakdown occur. | 5 | 150 | No Abnormality | | | | | OK |
| | | After Testing | | | | No Abnormality | | | | | OK |

Table.2-3 Test result

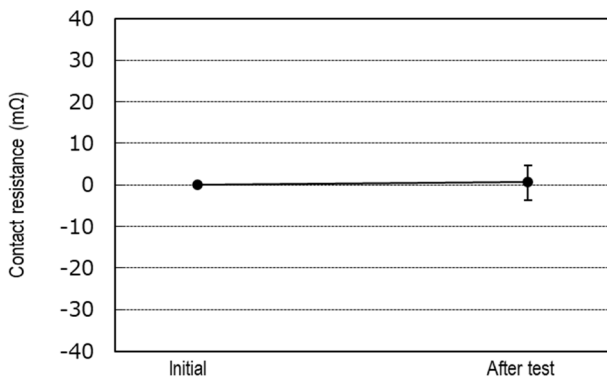
| Test Item | Contents of Measurement | Specifications | | Set | N | Data | | | | | Judge |
|----------------------------------|----------------------------------|-------------------------|--|----------|-----|----------------------------|--------|-------|-------|--------|--------|
| | | | | | | AVE. | MAX. | MIN. | s | X±3s | |
| G Group Humidity (Cycling) | Contact Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 300 | 17.518 | 22.48 | 12.57 | 1.848 | 23.062 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | 4.840 | 9.86 | -0.27 | 1.974 | 10.762 | OK |
| | GND Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 5 | 5.927 | 6.88 | 4.33 | 0.872 | 8.543 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | -0.418 | 1.32 | -2.70 | 1.272 | 3.398 | OK |
| | Insulation Resistance (MΩ) | Initial | 1000MΩMIN. | 5 | 150 | 7.9×10 ⁴ MΩMIN. | | | | | OK |
| | | After Testing | 500MΩMIN. | | | 8.8×10 ³ MΩMIN. | | | | | OK |
| | D. W. Voltage | Initial | No abnormalities such as creeping discharge, flashover, insulator breakdown occur. | 5 | 150 | No Abnormality | | | | | OK |
| | | After Testing | | | | No Abnormality | | | | | OK |
| H Group Salt Water Spray | Contact Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 300 | 16.578 | 22.32 | 12.05 | 2.053 | 22.737 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | 3.723 | 9.96 | -2.75 | 2.374 | 10.845 | OK |
| | GND Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 5 | 4.851 | 6.34 | 3.96 | 0.772 | 7.167 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | 0.725 | 2.61 | -0.75 | 1.400 | 4.925 | OK |
| | Appearance | After Testing | No abnormality adversely affecting the performance shall occur. | 5 | 5 | No Abnormality | | | | | OK |
| | J Group Gas(H ₂ S) | Contact Resistance (mΩ) | Initial | 60mΩMAX. | 5 | 300 | 17.437 | 20.61 | 14.88 | 1.137 | 20.848 |
| After testing | | | ΔR=40mΩ MAX. | 2.355 | | | 7.95 | -2.86 | 1.967 | 8.256 | OK |
| GND Resistance (mΩ) | | Initial | 60mΩMAX. | 5 | 5 | 5.069 | 6.33 | 4.08 | 0.632 | 6.965 | OK |
| | | After Testing | ΔR=40mΩ MAX. | | | 0.129 | 1.09 | -1.03 | 0.793 | 2.508 | OK |
| Appearance | | After Testing | No abnormality adversely affecting the performance shall occur. | 5 | 5 | No Abnormality | | | | | OK |



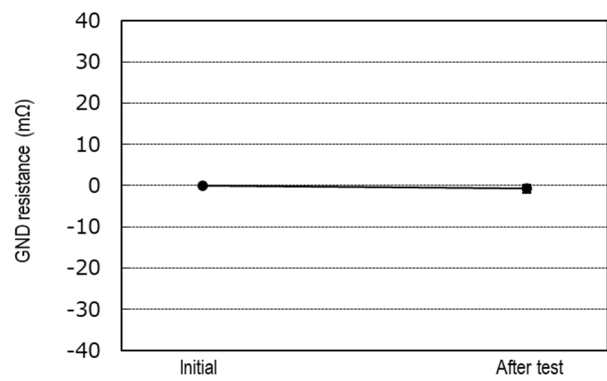
Graph1. A change of mating force (B Group:Durability)



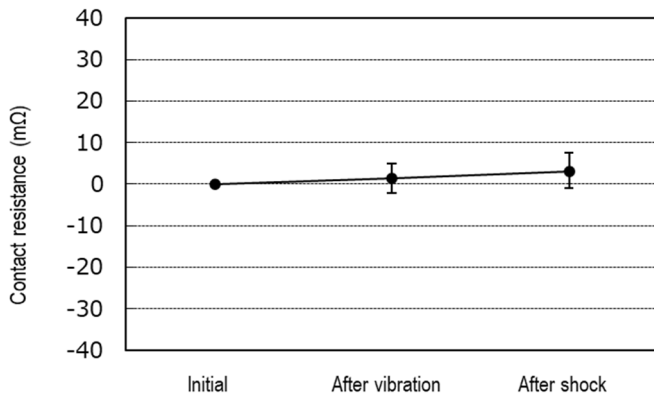
Graph2. A change of un-mating force (B Group:Durability)



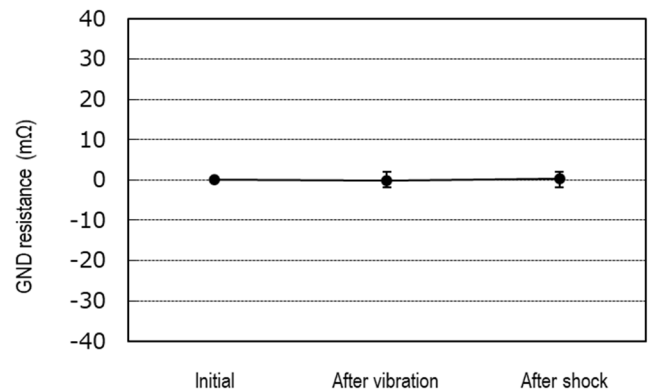
Graph3. A change of contact resistance (B Group:Durability)



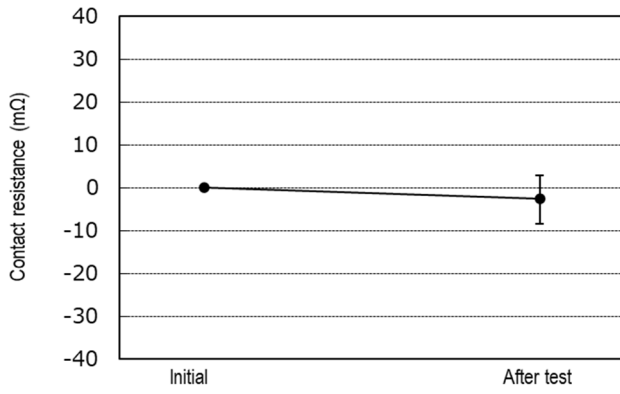
Graph4. A change of GND resistance (B Group:Durability)



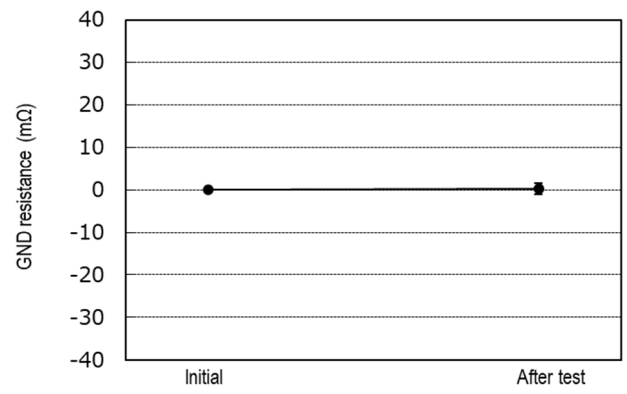
Graph5. A change of contact resistance (C Group:Vibration/Shock)



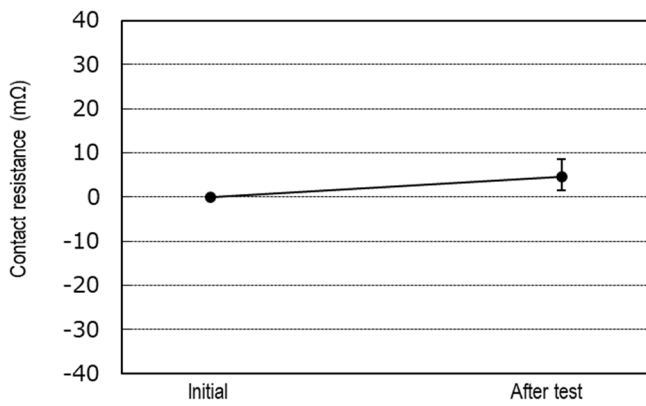
Graph6. A change of GND resistance (C Group:Vibration/Shock)



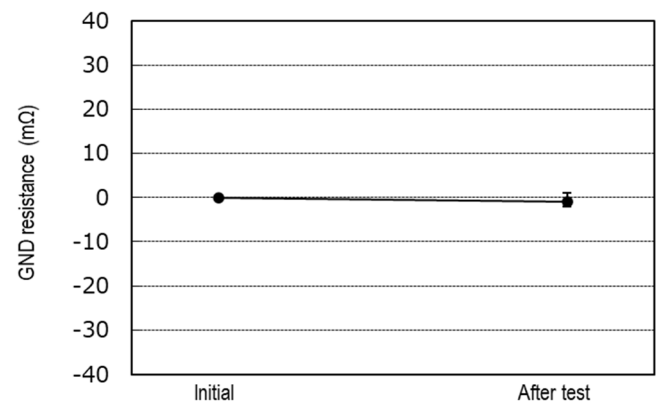
Graph7. A change of contact resistance (D Group:Thermal shock)



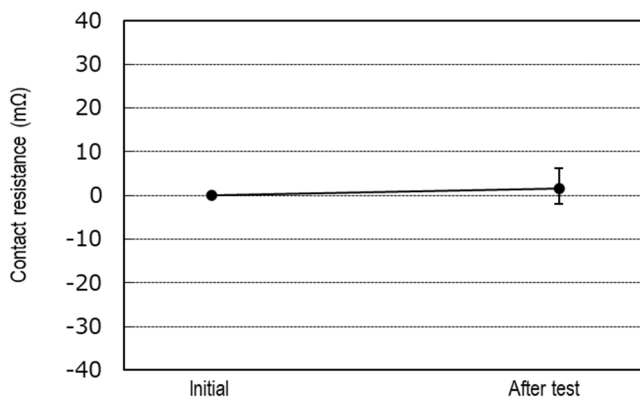
Graph8. A change of GND resistance (D Group:Thermal shock)



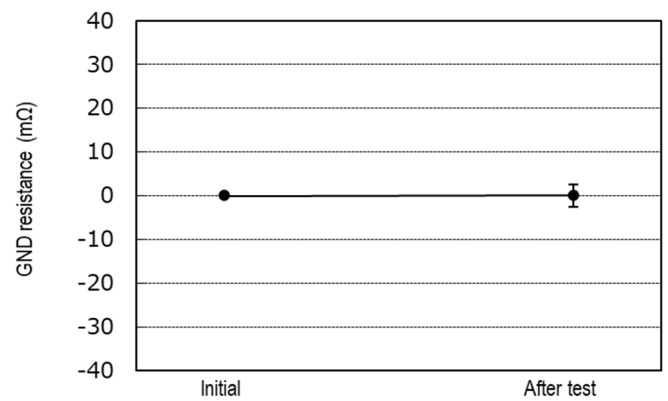
Graph9. A change of contact resistance (E Group:High temp.life)



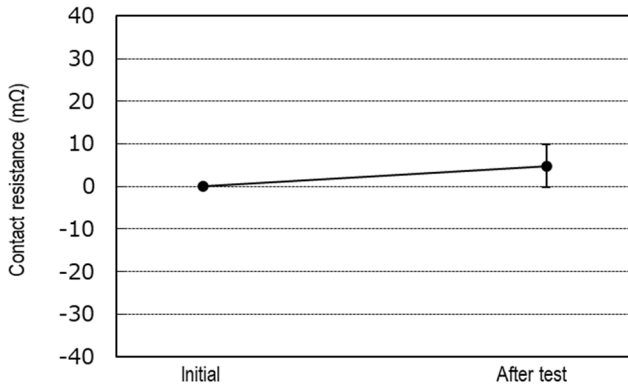
Graph10. A change of GND resistance (E Group:High temp.life)



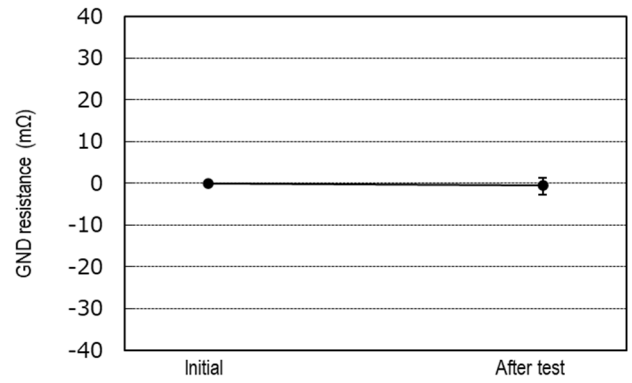
Graph11. A change of contact resistance (F Group: Humidity(Steady state))



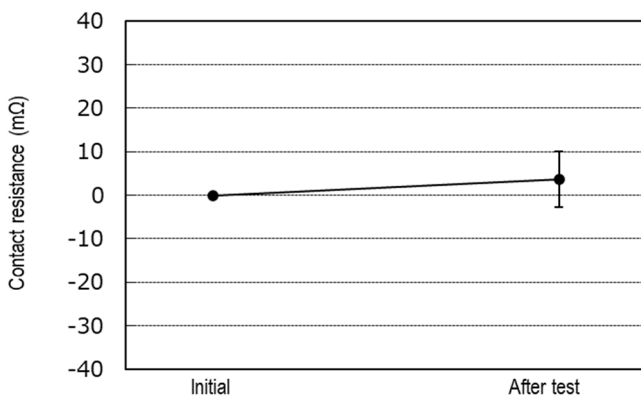
Graph12. A change of GND resistance (F Group: Humidity(Steady state))



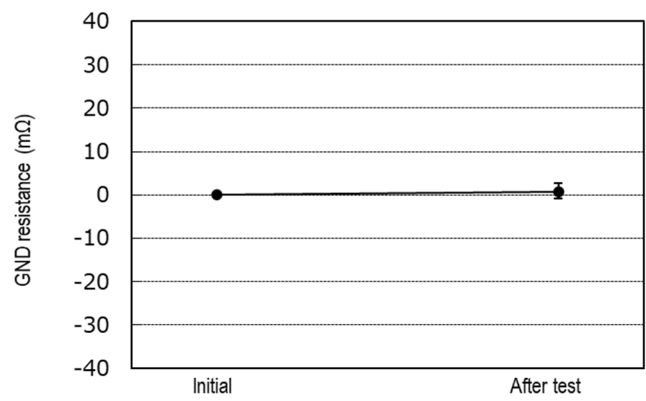
Graph13. A change of contact resistance (G Group:Humidity(Cycling))



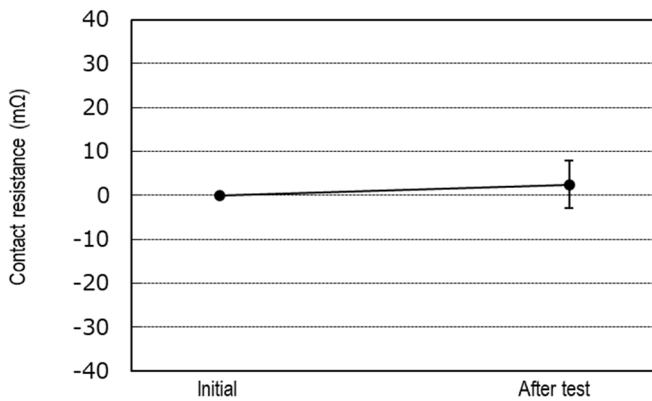
Graph14. A change of GND resistance (G Group:Humidity(Cycling))



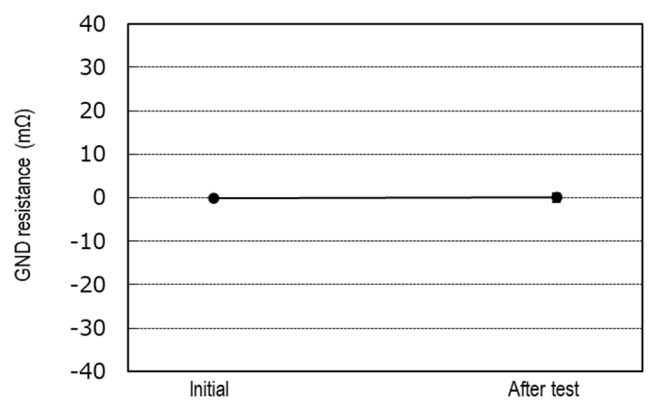
Graph15. A change of contact resistance (H Group:Salt spray)



Graph16. A change of GND resistance (H Group:Salt spray)



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



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