

TEST REPORT**No. STR-16042****IARPB CONNECTOR**

5P 基本性能評価・限界試験結果報告
5P Result of basic performance evaluation and limit test



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|-----------------|--------|-----|-------------|------|-----------------------|--------------------------|----------------------------|
| 4 | RS0499 | Y.T | Jun.14,2018 | E.K | Approved by | Checked by | Prepared by |
| 3 | RS0476 | Y.T | Mar.28,2018 | E.K | T.Endo Nov.23,2016 | M.Horiike Nov.22,2016 | M.Yoshimura Nov.22,2016 |
| 2 | RS0458 | S.O | Jun.23,2018 | T.E | | | |
| REV. | ECN | BY | DATE | APP. | | | |
| REVISION RECORD | | | | | | | |

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| DOCUMENT CLASSIFICATION Test Report | TITLE IARPB CONNECTOR 5P 基本性能評価・限界試験結果報告 | No. STR-16042 |
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1.目的

IARPB CONNECTOR 5P において、製品規格(PSS-0015)に基づき性能確認評価を実施する。

2.結論

全ての評価において規格を満足した。

また、端子圧着強度・電圧降下・低電圧電流抵抗については、STR-16043 IARPB CONNECTOR 3P 総合評価結果報告にて実施しているため、本報告書では割愛する。

3.試料

表 1.試料詳細一覧

| 品名 | 部材名 | PARTS NO. | 備考 |
|-------------------------------------|------------|-----------------|---------------------------------------|
| IARPB CONNECTOR 5P | ハウジング 5P | V0039-91005-2Z1 | - |
| | ターミナル | V0039-71001-011 | 使用電線:古河電気工業株式会社 ビーメックス SS-ER500 0.3sq |
| IARPB CONNECTOR 3P・5P TEST BOARD | 評価基板 3P・5P | JK-TB91-001 | 板厚:1.6±0.15mm 材料:FR-4 |

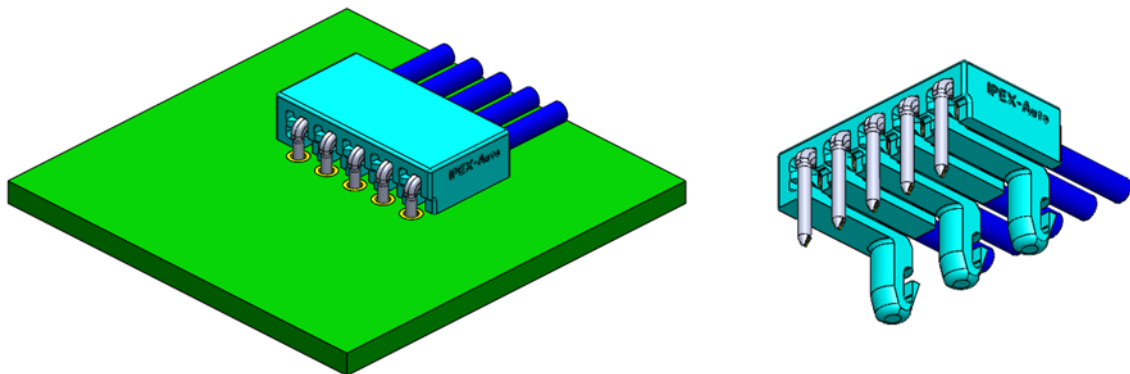


図 1. IARPB CONNECTOR 5P 外観

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4.試験結果

表 2.基本性能評価結果

| No. | 試験項目 | 試験条件 | 規格 | 数量 | Pos. | データ | | | | | 判定 |
|-----|--------------|--|------------------|----|------|-----------------------------|-------|-------|----------|---------------|----|
| | | | | | | AVE. | MAX. | MIN. | σ | $\pm 3\sigma$ | |
| 1 | 外観検査 | 目視及び外観写真撮影 | 有害な変形、傷、バリ等なきこと | - | - | 有害な変形、傷、バリ等無し | | | | | OK |
| 2 | 端子保持力 | クランプ位置:100mm 試験速度:100mm/min | 30N 以上 | 20 | 1 | 37.50 | 39.4 | 35.3 | 1.74 | 32.28 | OK |
| | | | | | 2 | 35.46 | 36.6 | 34.1 | 1.06 | 32.26 | OK |
| | | | | | 3 | 35.01 | 36.4 | 34.3 | 0.95 | 32.18 | OK |
| | | | | | 4 | 35.50 | 37.5 | 34.1 | 1.52 | 30.93 | OK |
| | | | | | 5 | 34.55 | 35.4 | 34.1 | 0.59 | 32.78 | OK |
| 3 | 絶縁抵抗 | DC500V | 100M Ω 以上 | 5 | - | 100,000M Ω 以上 | | | | | OK |
| 4 | 耐電圧 | 交流電圧 1000V \times 1min | 破壊がないこと | 5 | - | 絶縁破壊無し | | | | | OK |
| 5 | ハウジングへの端子挿入性 | 試験速度:25mm/min | 15N 以下 | 20 | 1 | 3.338 | 3.73 | 2.86 | 0.370 | 4.45 | OK |
| | | | | | 2 | 3.063 | 3.75 | 2.64 | 0.482 | 4.51 | OK |
| | | | | | 3 | 3.445 | 4.52 | 2.87 | 0.748 | 5.69 | OK |
| | | | | | 4 | 3.080 | 3.73 | 2.72 | 0.448 | 4.42 | OK |
| | | | | | 5 | 4.120 | 4.58 | 3.64 | 0.526 | 5.70 | OK |
| 6 | 端子逆挿入 | 端子を正規以外の方向で挿入する | 49N で逆挿入できないこと | 20 | - | 19.24 | 25.4 | 12.7 | 3.20 | 9.62 | - |
| 7 | 基板保持力 | クランプ位置:100mm 試験速度:100mm/min | 70N 以上 | 5 | - | 111.48 | 120.2 | 99.5 | 10.29 | 80.60 | OK |
| 8 | 基板挿入力 | 試験速度:100mm/min | 37.5N 以下 | 5 | - | 12.306 | 14.82 | 11.11 | 0.759 | 14.58 | OK |
| 9 | 端子下方向保持力 | 試験速度:100mm/min | 10N 以上 | 20 | 1 | 15.433 | 17.20 | 14.10 | 1.595 | 10.65 | OK |
| | | | | | 2 | 19.500 | 21.90 | 17.50 | 2.227 | 12.82 | OK |
| | | | | | 3 | 14.733 | 15.90 | 13.40 | 1.258 | 10.96 | OK |
| | | | | | 4 | 17.000 | 18.50 | 14.50 | 2.179 | 10.46 | OK |
| | | | | | 5 | 18.633 | 20.50 | 15.40 | 2.811 | 10.20 | OK |
| 10 | 限界試験 (振動) | 周波数:50~2000Hz 振動時間:20 時間(上下/左右/前後) 振動加速度:~20G~30G (最小単位:5G) | - | - | - | 30G でコネクタに異常なし 図 2.参照 | | | | | - |
| 11 | 限界試験 (衝撃) | カムによる落下(3.2mm)によって 750 回/1min の割合で衝撃を加える 1 時間ごとに確認を行う | - | - | - | 24h 経過後もコネクタに異常なし 図 3.参照 | | | | | - |

30G 振動後コネクタに異常なし

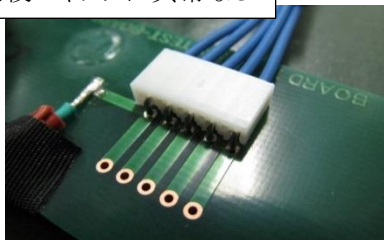


図 2.限界振動試験後サンプル

試験開始から 24 時間後も特に異常なし

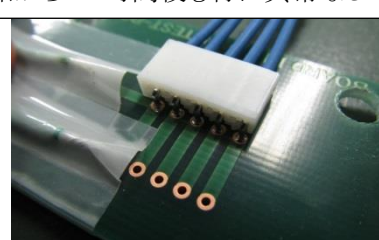


図 3.限界衝撃試験後サンプル

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1. Purpose

Evaluation test was conducted to verify performance of IARPB CONNECTOR 5P.
Test method : See PRODUCT SPECIFICATION(PSS-0015).

2. Observation

All test items satisfied the performance requirements.

For Terminal crimp strength, Voltage drop and Drycircuit resistance, refer to the STR-16043 IARPB CONNECTOR 3P Evaluation result.

3. Sample

Table1. Sample list

| Parts Name | Parts NO. | Remark |
|-------------------------------------|------------------|--|
| IARPB CONNECTOR 5P | HOUSING 5P | V0039-91005-2Z1 |
| | TERMINAL | V0039-71001-011 |
| IARPB CONNECTOR 3P・5P TEST BOARD | TEST BOARD 3P・5P | JK-TB91-001 |
| | | Cable : Furukawa Electric Co., Ltd. BEAMEX SS-ER500 0.3sq Thickness : 1.6±0.15mm Material : FR-4 |

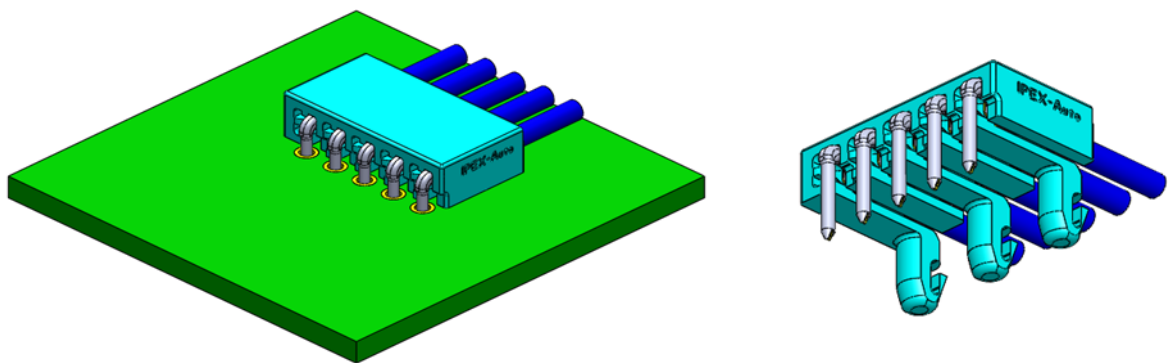


Fig1. IARPB CONNECTOR 5P

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4. Test Result

Table2. List of Results (Basic performance evaluation)

| No. | Test Item | Test method | Requirements | n | Pos. | Data | | | | | Judge |
|-----|--|---|---|----|------|---|-------|-------|----------|---------------|-------|
| | | | | | | AVE. | MAX. | MIN. | σ | $\pm 3\sigma$ | |
| 1 | Terminal and Housing appearance | Visual check /Appearance photography | No detrimental deformation, and scratches and burrs | - | - | No detrimental deformation, scratches and burrs | | | | | PASS |
| 2 | Terminal retention force | Clamp position: 100mm Test speed: 100mm/min | 30N Min. | 20 | 1 | 37.50 | 39.4 | 35.3 | 1.74 | 32.28 | PASS |
| | | | | | 2 | 35.46 | 36.6 | 34.1 | 1.06 | 32.26 | PASS |
| | | | | | 3 | 35.01 | 36.4 | 34.3 | 0.95 | 32.18 | PASS |
| | | | | | 4 | 35.50 | 37.5 | 34.1 | 1.52 | 30.93 | PASS |
| | | | | | 5 | 34.55 | 35.4 | 34.1 | 0.59 | 32.78 | PASS |
| 3 | Insulation resistance | DC500V | 100M Ω Min. | 5 | - | 100,000M Ω Min. | | | | | PASS |
| 4 | Dielectric withstanding voltage | AC1,000V \times 1min | No insulation breakdown | 5 | - | No insulation breakdown | | | | | PASS |
| 5 | Insertion force of terminal to the housing | Test speed: 25mm/min | 15N Max. | 20 | 1 | 3.338 | 3.73 | 2.86 | 0.370 | 4.45 | PASS |
| | | | | | 2 | 3.063 | 3.75 | 2.64 | 0.482 | 4.51 | PASS |
| | | | | | 3 | 3.445 | 4.52 | 2.87 | 0.748 | 5.69 | PASS |
| | | | | | 4 | 3.080 | 3.73 | 2.72 | 0.448 | 4.42 | PASS |
| | | | | | 5 | 4.120 | 4.58 | 3.64 | 0.526 | 5.70 | PASS |
| 6 | Terminal/ Cavity polarization | Insert terminal into housing in incorrect direction. | Unable to insert terminal incorrectly at 49N | 20 | - | 19.24 | 25.4 | 12.7 | 3.20 | 9.62 | - |
| 7 | PCB retention force | Clamp position: 100mm Test speed: 100mm/min | 70N Min. | 5 | - | 111.48 | 120.2 | 99.5 | 10.29 | 80.60 | PASS |
| 8 | PCB insertion force | Test speed: 100mm/min | 37.5N Max. | 5 | - | 12.306 | 14.82 | 11.11 | 0.759 | 14.58 | PASS |
| 9 | Terminal downward retention force | Test speed: 100mm/min | 10N Min. | 20 | 1 | 15.433 | 17.20 | 14.10 | 1.595 | 10.65 | PASS |
| | | | | | 2 | 19.500 | 21.90 | 17.50 | 2.227 | 12.82 | PASS |
| | | | | | 3 | 14.733 | 15.90 | 13.40 | 1.258 | 10.96 | PASS |
| | | | | | 4 | 17.000 | 18.50 | 14.50 | 2.179 | 10.46 | PASS |
| | | | | | 5 | 18.633 | 20.50 | 15.40 | 2.811 | 10.20 | PASS |
| 10 | Mechanical vibration limit test | Frequency: 50~2000Hz Duration: 20h (front-back, left-right, up-down) Acceleration: ~20G~30G (Min. unit: 5G) | - | - | - | No abnormalities in connector after vibration at 30G. See Fig 2. | | | | | - |
| 11 | Mechanical shock limit test | Subject to impact by dropping from 3.2mm using cam. No of shock: 750 for 1min. Check every 1 hour. | - | - | - | The connector did not break after 24 hours from the starting test. See Fig 3. | | | | | - |

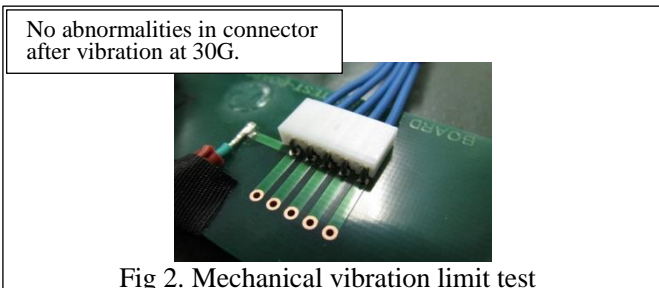


Fig 2. Mechanical vibration limit test

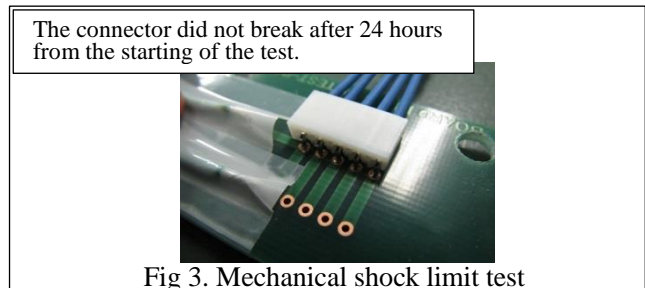


Fig 3. Mechanical shock limit test