

圧着部寸法

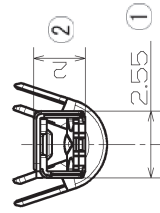
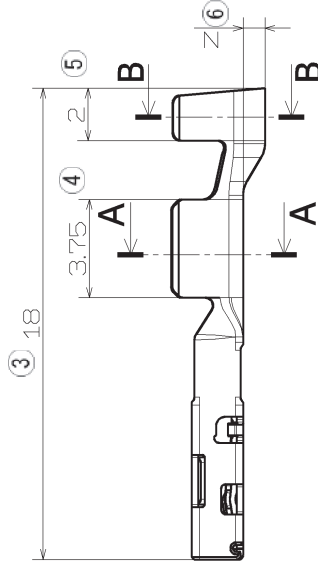
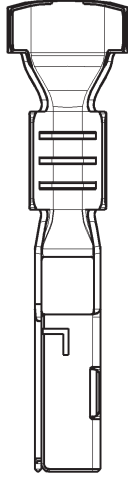
DIMENTION OF CRIMPING WING

| 符号<br>I S S . SIZE | サイズ<br>H1 | H2    | W1    | W2  | N    |      |
|--------------------|-----------|-------|-------|-----|------|------|
| ①                  | S         | (2.2) | (3.4) | 2.6 | 4.3  | 0.75 |
| ②                  | M         | (2.8) | (4.0) | 3.0 | 4.95 | 0.85 |
| ③                  | S2        | (2.2) | (3.8) | 2.6 | 4.7  | 0.85 |

適用電線表

APPLICABLE WIRE SIZE

| 符号<br>I S S . SIZE | サイズ<br>WIRE TYPE | 電線種<br>WIRE TYPE                                  | 電線サイズ<br>WIRE SIZE                                      |
|--------------------|------------------|---------------------------------------------------|---------------------------------------------------------|
| ①                  | S                | TXL<br>(AWG)<br>CHFUS<br>(ISO)                    | 22~20<br>0.35~0.5mm <sup>2</sup>                        |
| ②                  | M                | TXL<br>(AWG)<br>CHFUS<br>(ISO)<br>AESSX<br>(JASO) | 18~16<br>0.75~1.0mm <sup>2</sup><br>1.25mm <sup>2</sup> |
| ③                  | S2               | TXL<br>(AWG)<br>CHFUS<br>(ISO)                    | 22~20<br>0.35~0.5mm <sup>2</sup>                        |



SECTION A-A

SECTION B-B

|   |                                                    |           |                |             |                  |                   |
|---|----------------------------------------------------|-----------|----------------|-------------|------------------|-------------------|
| ③ | 1.2 SEALED 2PIECES<br>FEMALE TERMINAL S2 SIZE (Sn) | 数量<br>QTY | 材質<br>MATERIAL | 色相<br>COLOR | 部品番号<br>PART NO. | 登録名称<br>PART NAME |
| ② | 1.2 SEALED 2PIECES<br>FEMALE TERMINAL M SIZE (Sn)  |           |                |             | 8240-0510        | TER-WUS120FMSN    |
| ① | 1.2 SEALED 2PIECES<br>FEMALE TERMINAL S SIZE (Sn)  |           |                |             | 8240-0509        | TER-WUS120FSSN    |

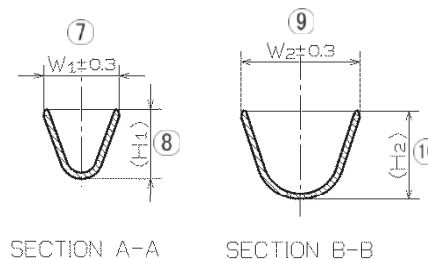
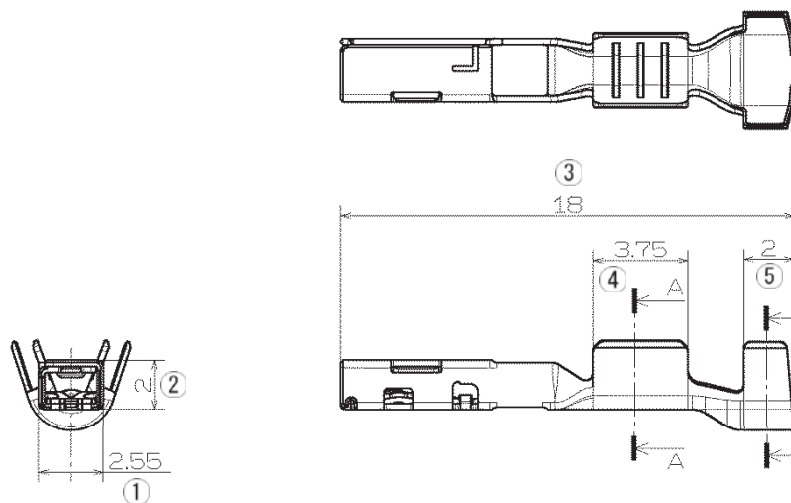
|                                                        |                                                |                                        |                                        |
|--------------------------------------------------------|------------------------------------------------|----------------------------------------|----------------------------------------|
| 材質<br>MATERIAL<br>BODY : C2600R-H<br>SPRING : C7035-EH | 板厚<br>THICKNESS<br>BODY : 0.25<br>SPRING : 0.2 | 登録名称<br>PART NAME                      | 登録名称<br>PART NAME                      |
| 仕上<br>FINISH                                           | Sn PLATING                                     | 尺 度<br>SCALE                           | 尺 度<br>SCALE                           |
|                                                        |                                                | 5 : 1                                  | 5 : 1                                  |
| 色 相<br>COLOR                                           | 質量<br>MASS                                     | 管 理 番 号<br>REFERENCE NO.               | 管 理 番 号<br>REFERENCE NO.               |
|                                                        |                                                | SEE ABOVE TABLE                        | SEE ABOVE TABLE                        |
| 承認<br>APPROVED                                         | 検 査<br>CHECKED                                 | 部 品 番 号<br>PART NO.                    | 部 品 番 号<br>PART NO.                    |
| 20.02.04<br>K.Yamashita                                | 20.02.04<br>SKide                              | 1.2mm防水メス端子(Sn)                        | 1.2mm防水メス端子(Sn)                        |
| 角度<br>ANGLE                                            | THIRD ANGLE PROJECTION                         | 1.2 SEALED 2PIECES FEMALE TERMINAL(Sn) | 1.2 SEALED 2PIECES FEMALE TERMINAL(Sn) |

圧着部寸法  
DIMENTION OF CRIMPING WING

| 符号<br>ISS. | サイズ<br>SIZE | H1    | H2    | W1  | W2   | N    |
|------------|-------------|-------|-------|-----|------|------|
| ①          | S           | (2.2) | (3.4) | 2.6 | 4.3  | 0.75 |
| ②          | M           | (2.8) | (4.0) | 3.0 | 4.95 | 0.85 |

適用電線表  
APPLICABLE WIRE SIZE

| 符号<br>ISS. | サイズ<br>SIZE | 電線種<br>WIRE TYPE | 電線サイズ<br>WIRE SIZE      |
|------------|-------------|------------------|-------------------------|
| ①          | S           | TXL<br>(AWG)     | 22~20                   |
|            |             | CHFUS<br>(ISO)   | 0.35~0.5mm <sup>2</sup> |
| ②          | M           | TXL<br>(AWG)     | 18~16                   |
|            |             | CHFUS<br>(ISO)   | 0.75~1.0mm <sup>2</sup> |
|            |             | AESSX<br>(JASO)  | 1.25mm <sup>2</sup>     |



| ②          | 12 SEALED 2PIECES<br>FEMALE TERMINAL M SIZE (Sn) |           |                 |              | 8240-0510           | TER-WUS120FMSN       |
|------------|--------------------------------------------------|-----------|-----------------|--------------|---------------------|----------------------|
| ①          | 12 SEALED 2PIECES<br>FEMALE TERMINAL S SIZE (Sn) |           |                 |              | 8240-0509           | TER-WUS120FSSN       |
| 符号<br>ISS. | 名 称<br>DESCRIPTION                               | 数量<br>QTY | 材 質<br>MATERIAL | 色 相<br>COLOR | 部 品 番 号<br>PART NO. | 登 録 名 称<br>PART NAME |

|                                                      |  |                                              |  |                                        |  |
|------------------------------------------------------|--|----------------------------------------------|--|----------------------------------------|--|
| 材 質 MATERIAL<br>BODY : C2600R-H<br>SPRING : C7035-EH |  | 板 厚 THICKNESS<br>BODY : 0.25<br>SPRING : 0.2 |  | 登 録 名 称<br>PART NAME                   |  |
| 仕 上 FINISH<br>Sn PLATING                             |  | 尺 度 SCALE<br>5:1                             |  | 上 記 参 照<br>SEE ABOVE TABLE             |  |
| 色 相 COLOR                                            |  | 質 量 MASS                                     |  | 管 理 番 号<br>REFERENCE NO.               |  |
| 承 認 APPROVED                                         |  | 検 図 CHECKED                                  |  | 部 品 番 号<br>PART NO.                    |  |
| 16.01.09<br>K.Yamashita                              |  | 16.01.09<br>K.Uezono                         |  | SEE ABOVE TABLE                        |  |
|                                                      |  | 設 計 DESIGNED                                 |  | 名 称<br>DESCRIPTION                     |  |
|                                                      |  | 2016/01/08<br>Y.KITAGAWA                     |  | 1.2mm防水メス端子(Sn)                        |  |
|                                                      |  | 2016/01/08<br>H.KANGYU                       |  | 1.2 SEALED 2PIECES FEMALE TERMINAL(Sn) |  |
| 角 度 ANGLE                                            |  | 三 角 法<br>THIRD ANGLE PROJECTION              |  | Sumitomo Wiring Systems, Ltd.          |  |

| 一 般 公 差 表<br>GENERAL TOLERANCES |                  |      |
|---------------------------------|------------------|------|
| 以 上<br>OR OVER                  | 未 満<br>LESS THAN |      |
| 10                              | 10               | ±0.2 |
|                                 | 50               | ±0.3 |
|                                 |                  |      |
|                                 |                  |      |
|                                 |                  |      |
|                                 |                  |      |
|                                 |                  |      |



*Tomonori Okazaki*

**Gage Repeatability and Reproducibility Data Sheet (Calipers)**

| Appraiser / Trial # |                                                  | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | AVERAGE  |         |
|---------------------|--------------------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----------|---------|
| 1 A                 | 1                                                | 11.89  | 12.21  | 12.01  | 12.15  | 11.95  | 12.02  | 12.24  | 12.11  | 11.98  | 12.07  | 12.0630  |         |
| 2                   | 2                                                | 11.88  | 12.21  | 12.01  | 12.16  | 11.96  | 12.02  | 12.23  | 12.10  | 11.98  | 12.07  | 12.0620  |         |
| 3                   | 3                                                | 11.88  | 12.21  | 12.01  | 12.16  | 11.96  | 12.02  | 12.23  | 12.10  | 11.98  | 12.07  | 12.0620  |         |
| 4                   | Avarage                                          | 11.883 | 12.210 | 12.010 | 12.157 | 11.957 | 12.020 | 12.233 | 12.103 | 11.980 | 12.070 | Xbar A   | 12.0623 |
| 5                   | Range                                            | 0.010  | 0.000  | 0.000  | 0.010  | 0.010  | 0.000  | 0.010  | 0.010  | 0.000  | 0.000  | Rbar A   | 0.0050  |
| 6 B                 | 1                                                | 11.88  | 12.22  | 12.01  | 12.15  | 11.97  | 12.01  | 12.24  | 12.10  | 12.00  | 12.07  | 12.0650  |         |
| 7                   | 2                                                | 11.88  | 12.22  | 12.01  | 12.15  | 11.96  | 12.02  | 12.24  | 12.10  | 11.99  | 12.07  | 12.0640  |         |
| 8                   | 3                                                | 11.88  | 12.22  | 12.01  | 12.15  | 11.96  | 12.02  | 12.24  | 12.10  | 11.99  | 12.07  | 12.0640  |         |
| 9                   | Avarage                                          | 11.880 | 12.220 | 12.010 | 12.150 | 11.963 | 12.017 | 12.240 | 12.100 | 11.993 | 12.070 | Xbar B   | 12.0643 |
| 10                  | Range                                            | 0.000  | 0.000  | 0.000  | 0.000  | 0.010  | 0.010  | 0.000  | 0.000  | 0.010  | 0.000  | Rbar B   | 0.0030  |
| 11 C                | 1                                                | 11.88  | 12.23  | 11.99  | 12.15  | 11.96  | 12.01  | 12.24  | 12.11  | 11.99  | 12.07  | 12.0630  |         |
| 12                  | 2                                                | 11.88  | 12.22  | 12.00  | 12.15  | 11.97  | 12.02  | 12.24  | 12.10  | 11.99  | 12.06  | 12.0630  |         |
| 13                  | 3                                                | 11.88  | 12.22  | 12.00  | 12.15  | 11.97  | 12.02  | 12.24  | 12.10  | 11.99  | 12.06  | 12.0630  |         |
| 14                  | Avarage                                          | 11.880 | 12.223 | 11.997 | 12.150 | 11.967 | 12.017 | 12.240 | 12.103 | 11.990 | 12.063 | Xbar C   | 12.0630 |
| 15                  | Range                                            | 0.000  | 0.010  | 0.010  | 0.000  | 0.010  | 0.010  | 0.000  | 0.010  | 0.000  | 0.010  | Rbar C   | 0.0060  |
| 16 Part             |                                                  |        |        |        |        |        |        |        |        |        |        | Xbar-bar | 12.0632 |
| Avarage (X p)       |                                                  | 11.881 | 12.218 | 12.006 | 12.152 | 11.962 | 12.018 | 12.238 | 12.102 | 11.988 | 12.068 | R p      | 0.3567  |
| 17                  | (Rbar A + Rbar B + Rbar C)/(# of Appraisers = 3) |        |        |        |        |        |        |        |        |        |        | Rbar-bar | 0.0047  |
| 18                  | (Max Xbar)-(Min Xbar) = Xbar DIFF                |        |        |        |        |        |        |        |        |        |        |          | 0.0020  |
| 19                  | (R bar-bar)*(D4=2.58)=UCL R                      |        |        |        |        |        |        |        |        |        |        |          | 0.01    |
| 20                  | (R bar-bar)*(D3=0.00)=LCL R                      |        |        |        |        |        |        |        |        |        |        |          | 0.00    |

| Gage Repeatability and Reproducibility Report                                                                |                                        |          |            |                                        |                                                      |              | Date 01.Apr.'21 |                                                                 |        |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------|----------|------------|----------------------------------------|------------------------------------------------------|--------------|-----------------|-----------------------------------------------------------------|--------|
| Part No, and Name                                                                                            | Measurement sample<br>for Gage R&R use |          | Gage Name  | Calipers                               |                                                      | Performed by |                 |                                                                 |        |
| Characteristics                                                                                              | Dimension                              |          | Gage No,   | YA1C0817, YA1C0896, YA1C0897, YA1C1004 |                                                      | Taniguchi    |                 |                                                                 |        |
| Tolerance                                                                                                    | 0.3                                    | Units mm | Gage Type  | Calipers                               |                                                      | Kato         |                 |                                                                 |        |
| Tolerance (T)                                                                                                | T=                                     | 0.6      |            |                                        |                                                      | Abe          |                 |                                                                 |        |
| From data sheet                                                                                              | Rbar-bar=                              | 0.00467  | Xbar DIFF= | 0.00200                                | R p=                                                 | 0.3567       |                 |                                                                 |        |
| Measurement Unit Analysis                                                                                    |                                        |          |            |                                        | Based on the TOLERANCE Method                        |              |                 |                                                                 |        |
| <b>Repeatability - Equipment Variation (EV)</b><br>EV = Rbar-bar * K1<br>= 0.0028                            |                                        |          |            |                                        | % EV= (EV*6/T) * 100<br>= 2.76 %                     |              |                 |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        |                                                      |              | Trials          |                                                                 | K1     |
|                                                                                                              |                                        |          |            |                                        |                                                      |              | 2               |                                                                 | 0.8862 |
|                                                                                                              |                                        |          |            |                                        |                                                      |              | 3               |                                                                 | 0.5908 |
| <b>Reproducibility - Appraiser Variation (AV)</b><br>AV= SQRT((Xbar DIFF * K2)^2 - ( EV^2/nr))<br>= 0.000917 |                                        |          |            |                                        | % AV= (AV*6/T) * 100<br>= 0.92 %                     |              |                 |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        | n = number of parts<br>r = number of trials          |              |                 |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        |                                                      |              | Appraisers      |                                                                 | 2      |
|                                                                                                              |                                        |          |            |                                        | K2                                                   |              | 0.7071          | 0.5231                                                          |        |
| <b>Repeatability &amp; Reproducibility (R&amp;R)</b><br>R&R= SQRT(EV^2 + AV^2)<br>= 0.00291                  |                                        |          |            |                                        | % R&R= (R&R*6/T) * 100<br>= 2.91 %<br>Gage system OK |              |                 |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        |                                                      |              | Parts           |                                                                 | K3     |
| <b>Part Variation (PV)</b><br>PV= R p * K3<br>= 0.1122                                                       |                                        |          |            |                                        | 2                                                    |              | 0.7071          | % PV= (PV*6/T) * 100<br>= 112.21 %                              |        |
|                                                                                                              |                                        |          |            |                                        | 3                                                    |              | 0.5231          |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        | 4                                                    |              | 0.4467          |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        | 5                                                    |              | 0.4030          |                                                                 |        |
| <b>Total Variation (TV)</b><br>TV= SQRT(R&R^2 + PV^2)<br>= 0.1122                                            |                                        |          |            |                                        | 6                                                    |              | 0.3742          | ndc= 1.41(PV/GRR)<br>= 54<br><br>Gage discrimination acceptable |        |
|                                                                                                              |                                        |          |            |                                        | 7                                                    |              | 0.3534          |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        | 8                                                    |              | 0.3375          |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        | 9                                                    |              | 0.3249          |                                                                 |        |
|                                                                                                              |                                        |          |            |                                        | 10                                                   |              | 0.3146          |                                                                 |        |

*Tomonori Okazaki*

**Gage Repeatability and Reproducibility Data Sheet (Projector)**

| Appraiser / Trial #                                 | 1 | 2      | 3      | 4      | 5      | 6      | 7      | 8      | 9      | 10     | AVERAGE |                     |
|-----------------------------------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------------------|
| 1 A                                                 | 1 | 15.89  | 16.11  | 16.09  | 15.95  | 16.19  | 16.07  | 15.83  | 16.19  | 16.15  | 15.91   | 16.0380             |
| 2                                                   | 2 | 15.90  | 16.11  | 16.09  | 15.94  | 16.19  | 16.06  | 15.82  | 16.19  | 16.14  | 15.91   | 16.0350             |
| 3                                                   | 3 | 15.90  | 16.11  | 16.09  | 15.94  | 16.19  | 16.06  | 15.82  | 16.19  | 16.14  | 15.91   | 16.0350             |
| 4 Avarage                                           |   | 15.897 | 16.110 | 16.090 | 15.943 | 16.190 | 16.063 | 15.823 | 16.190 | 16.143 | 15.910  | Xbar A 16.0360      |
| 5 Range                                             |   | 0.010  | 0.000  | 0.000  | 0.010  | 0.000  | 0.010  | 0.010  | 0.000  | 0.010  | 0.000   | Rbar A 0.0050       |
| 6 B                                                 | 1 | 15.89  | 16.10  | 16.10  | 15.94  | 16.19  | 16.06  | 15.82  | 16.18  | 16.14  | 15.91   | 16.0330             |
| 7                                                   | 2 | 15.90  | 16.11  | 16.08  | 15.94  | 16.19  | 16.06  | 15.82  | 16.18  | 16.15  | 15.90   | 16.0330             |
| 8                                                   | 3 | 15.90  | 16.11  | 16.08  | 15.94  | 16.19  | 16.06  | 15.82  | 16.18  | 16.15  | 15.90   | 16.0330             |
| 9 Avarage                                           |   | 15.897 | 16.107 | 16.087 | 15.940 | 16.190 | 16.060 | 15.820 | 16.180 | 16.147 | 15.903  | Xbar B 16.0330      |
| 10 Range                                            |   | 0.010  | 0.010  | 0.020  | 0.000  | 0.000  | 0.000  | 0.000  | 0.000  | 0.010  | 0.010   | Rbar B 0.0060       |
| 11 C                                                | 1 | 15.90  | 16.10  | 16.10  | 15.94  | 16.20  | 16.06  | 15.83  | 16.17  | 16.14  | 15.92   | 16.0360             |
| 12                                                  | 2 | 15.90  | 16.11  | 16.10  | 15.95  | 16.19  | 16.07  | 15.83  | 16.18  | 16.15  | 15.92   | 16.0400             |
| 13                                                  | 3 | 15.90  | 16.11  | 16.10  | 15.95  | 16.19  | 16.07  | 15.83  | 16.18  | 16.15  | 15.92   | 16.0400             |
| 14 Avarage                                          |   | 15.900 | 16.107 | 16.100 | 15.947 | 16.193 | 16.067 | 15.830 | 16.177 | 16.147 | 15.920  | Xbar C 16.0387      |
| 15 Range                                            |   | 0.000  | 0.010  | 0.000  | 0.010  | 0.010  | 0.010  | 0.000  | 0.010  | 0.010  | 0.000   | Rbar C 0.0060       |
| 16 Part Avarage (X p)                               |   | 15.898 | 16.108 | 16.092 | 15.943 | 16.191 | 16.063 | 15.824 | 16.182 | 16.146 | 15.911  | Xbar-bar R p 0.3667 |
| 17 (Rbar A + Rbar B + Rbar C)/(# of Appraisers = 3) |   |        |        |        |        |        |        |        |        |        |         | Rbar-bar 0.0057     |
| 18 (Max Xbar)-(Min Xbar) = Xbar DIFF                |   |        |        |        |        |        |        |        |        |        |         | 0.0057              |
| 19 (R bar-bar)*(D4=2.58)=UCL R                      |   |        |        |        |        |        |        |        |        |        |         | 0.01                |
| 20 (R bar-bar)*(D3=0.00)=LCL R                      |   |        |        |        |        |        |        |        |        |        |         | 0.00                |

| Gage Repeatability and Reproducibility Report           |                                        |         |  |            |           |        | Date 01.Apr.'21                                                                     |        |
|---------------------------------------------------------|----------------------------------------|---------|--|------------|-----------|--------|-------------------------------------------------------------------------------------|--------|
| Part No, and Name                                       | Measurement sample<br>for Gage R&R use |         |  | Gage Name  | Projector |        | Performed by<br>Taniguchi<br>Katou<br>Abe                                           |        |
| Characteristics                                         | Dimension                              |         |  | Gage No,   | YA1H0028  |        |                                                                                     |        |
| Tolerance                                               | 0.6 Units mm                           |         |  | Gage Type  | Projector |        |                                                                                     |        |
| Tolerance (T)                                           | T= 0.6                                 |         |  |            |           |        |                                                                                     |        |
| From data sheet                                         | Rbar-bar=                              | 0.00567 |  | Xbar DIFF= | 0.00567   | R p=   | 0.3667                                                                              |        |
| Measurement Unit Analysis                               |                                        |         |  |            |           |        | Based on the TOLERANCE                                                              |        |
| <b>Repeatability - Equipment Variation (EV)</b>         |                                        |         |  |            |           |        | % EV= (EV*6/T) * 100<br>= 3.35 %                                                    |        |
| EV = Rbar-bar * K1<br>= 0.00335                         |                                        |         |  | Trials     |           | K1     |                                                                                     |        |
|                                                         |                                        |         |  | 2          |           | 0.8862 |                                                                                     |        |
|                                                         |                                        |         |  | 3          |           | 0.5908 |                                                                                     |        |
| <b>Reproducibility - Appraiser Variation (AV)</b>       |                                        |         |  |            |           |        | % AV= (AV*6/T) * 100<br>= 2.90 %<br><br>n = number of parts<br>r = number of trials |        |
| AV= SQRT((Xbar DIFF * K2)^2 - ( EV^2/nr))<br>= 0.002901 |                                        |         |  |            |           |        |                                                                                     |        |
|                                                         |                                        |         |  | Appraisers |           | 2      |                                                                                     | 3      |
|                                                         |                                        |         |  | K2         |           | 0.7071 |                                                                                     | 0.5231 |
| <b>Repeatability &amp; Reproducibility (R&amp;R)</b>    |                                        |         |  |            |           |        | % R&R= (R&R*6/T) * 100<br>= 4.43 %<br>Gage system OK                                |        |
| R&R= SQRT(EV^2 + AV^2)<br>= 0.00443                     |                                        |         |  | Parts      |           | K3     |                                                                                     |        |
|                                                         |                                        |         |  | 2          |           | 0.7071 |                                                                                     |        |
|                                                         |                                        |         |  | 3          |           | 0.5231 |                                                                                     |        |
| <b>Part Variation (PV)</b>                              |                                        |         |  |            |           |        | % PV= (PV*6/T) * 100<br>= 115.35 %                                                  |        |
| PV= R p * K3<br>= 0.11535                               |                                        |         |  | 4          |           | 0.4467 |                                                                                     |        |
|                                                         |                                        |         |  | 5          |           | 0.4030 |                                                                                     |        |
|                                                         |                                        |         |  | 6          |           | 0.3742 |                                                                                     |        |
| <b>Total Variation (TV)</b>                             |                                        |         |  |            |           |        | ndc= 1.41(PV/GRR)<br>= 36<br><br>Gage discrimination acceptable                     |        |
| TV= SQRT(R&R^2 + PV^2)<br>= 0.11544                     |                                        |         |  | 7          |           | 0.3534 |                                                                                     |        |
|                                                         |                                        |         |  | 8          |           | 0.3375 |                                                                                     |        |
|                                                         |                                        |         |  | 9          |           | 0.3249 |                                                                                     |        |
|                                                         |                                        |         |  | 10         |           | 0.3146 |                                                                                     |        |

## PART INSPECTION REPORT

Supplier

1 of 1

SUMITOMO WIRING SYSTEMS

Part Certification

Mold:L7141

Part Number

8240-0509

ECL

7

Part Name

TER-WUS120FSSN

| Dim<br>No | Figure<br>Code | Drawing<br>Dimension | Acceptance |       | PARTS/TOOL CAVITIES CHECKED |       |   |   |   |   |   |   | OK | NOT<br>OK |  |
|-----------|----------------|----------------------|------------|-------|-----------------------------|-------|---|---|---|---|---|---|----|-----------|--|
|           |                |                      | Lower      | Upper | 1                           | 2     | 3 | 4 | 5 | 6 | 7 | 8 |    |           |  |
| 1         |                | 2.55                 | 2.35       | 2.75  | 2.53                        | 2.50  |   |   |   |   |   |   | O  |           |  |
| 2         |                | 2                    | 1.8        | 2.2   | 2.00                        | 2.00  |   |   |   |   |   |   | O  |           |  |
| 3         |                | 18                   | 17.7       | 18.3  | 18.10                       | 18.09 |   |   |   |   |   |   | O  |           |  |
| 4         |                | 3.75                 | 3.55       | 3.95  | 3.73                        | 3.76  |   |   |   |   |   |   | O  |           |  |
| 5         |                | 2                    | 1.8        | 2.2   | 1.93                        | 1.93  |   |   |   |   |   |   | O  |           |  |
| 6         |                | 0.75                 | 0.55       | 0.95  | 0.69                        | 0.74  |   |   |   |   |   |   | O  |           |  |
| 7         |                | 2.6                  | 2.3        | 2.9   | 2.68                        | 2.65  |   |   |   |   |   |   | O  |           |  |
| 8         |                | (2.2)                | Ref        |       | 2.16                        | 2.18  |   |   |   |   |   |   | -  |           |  |
| 9         |                | 4.3                  | 4.0        | 4.6   | 4.22                        | 4.21  |   |   |   |   |   |   | O  |           |  |
| 10        |                | (3.4)                | Ref        |       | 3.34                        | 3.33  |   |   |   |   |   |   | -  |           |  |
| 11        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 12        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 13        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 14        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 15        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 16        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 17        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 18        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 19        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 20        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 21        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 22        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 23        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 24        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 25        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 26        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 27        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 28        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 29        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 30        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 31        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 32        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 33        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 34        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 35        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 36        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 37        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 38        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 39        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 40        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 41        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 42        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 43        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 44        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 45        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |

Inspection Source Company Name

Inspected by

Y.Hattori

Title

QA STAFF

Inspection Report Date

22.Mar.'22

Inspector Supervisor

Title

Date

Approved by

T. Okazaki

Title

Components Gr. QA Dep. Manager

Date

22.Mar.'22

## PART INSPECTION REPORT

Supplier

1 of 1

SUMITOMO WIRING SYSTEMS

Part Certification

Mold:L7155

Part Number

8240-0509

ECL

7

Part Name

TER-WUS120FSSN

| Dim<br>No | Figure<br>Code | Drawing<br>Dimension | Acceptance |       | PARTS/TOOL CAVITIES CHECKED |       |   |   |   |   |   |   | OK | NOT<br>OK |  |
|-----------|----------------|----------------------|------------|-------|-----------------------------|-------|---|---|---|---|---|---|----|-----------|--|
|           |                |                      | Lower      | Upper | 1                           | 2     | 3 | 4 | 5 | 6 | 7 | 8 |    |           |  |
| 1         |                | 2.55                 | 2.35       | 2.75  | 2.53                        | 2.54  |   |   |   |   |   |   | O  |           |  |
| 2         |                | 2                    | 1.8        | 2.2   | 1.99                        | 1.98  |   |   |   |   |   |   | O  |           |  |
| 3         |                | 18                   | 17.7       | 18.3  | 18.12                       | 18.11 |   |   |   |   |   |   | O  |           |  |
| 4         |                | 3.75                 | 3.55       | 3.95  | 3.75                        | 3.76  |   |   |   |   |   |   | O  |           |  |
| 5         |                | 2                    | 1.8        | 2.2   | 1.97                        | 1.97  |   |   |   |   |   |   | O  |           |  |
| 6         |                | 0.75                 | 0.55       | 0.95  | 0.72                        | 0.73  |   |   |   |   |   |   | O  |           |  |
| 7         |                | 2.6                  | 2.3        | 2.9   | 2.58                        | 2.59  |   |   |   |   |   |   | O  |           |  |
| 8         |                | (2.2)                | Ref        |       | 2.20                        | 2.20  |   |   |   |   |   |   | -  |           |  |
| 9         |                | 4.3                  | 4.0        | 4.6   | 4.21                        | 4.22  |   |   |   |   |   |   | O  |           |  |
| 10        |                | (3.4)                | Ref        |       | 3.33                        | 3.32  |   |   |   |   |   |   | -  |           |  |
| 11        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 12        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 13        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 14        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 15        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 16        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 17        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 18        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 19        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 20        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 21        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 22        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 23        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 24        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 25        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 26        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 27        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 28        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 29        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 30        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 31        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 32        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 33        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 34        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 35        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 36        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 37        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 38        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 39        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 40        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 41        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 42        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 43        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 44        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |
| 45        |                |                      |            |       |                             |       |   |   |   |   |   |   |    |           |  |

Inspection Source Company Name

Inspected by

Y.Hattori

Title

QA STAFF

Inspection Report Date

22.Mar.'22

Inspector Supervisor

Title

Date

Approved by

T. Okazaki

Title

Components Gr. QA Dep. Manager

Date

22.Mar.'22

## MATERIAL TEST RESULTS

## Supplier Part Certification

SUMITOMO WIRING SYSTEMS Ltd.

Mold:L7141

Page 1 of 1

|                              |                |
|------------------------------|----------------|
| Supplier                     | Part Number    |
| SUMITOMO WIRING SYSTEMS Ltd. | 8240-0509      |
| Name of Laboratory           | Part Name      |
| SUMITOMO WIRING SYSTEMS Ltd. | TER-WUS120FSSN |

[illegible]

Signature

## 7. Okazaki

Title

Components Gr. QA Dep. Manager

Date \_\_\_\_\_

22.Mar.'22



## MATERIAL TEST RESULTS

## Supplier Part Certification

SUMITOMO WIRING SYSTEMS Ltd.

Mold:L7155

Page 1 of 1

|                              |                |
|------------------------------|----------------|
| Supplier                     | Part Number    |
| SUMITOMO WIRING SYSTEMS Ltd. | 8240-0509      |
| Name of Laboratory           | Part Name      |
| SUMITOMO WIRING SYSTEMS Ltd. | TER-WUS120FSSN |

[illegible]

Signature

## 7. Okazaki

Title

Components Gr. QA Dep. Manager

Date \_\_\_\_\_

22.Mar.'22



## PERFORMANCE TEST

SUMITOMO WIRING SYSTEMS Ltd.

Page 1 of 1

|                             |                |
|-----------------------------|----------------|
| Supplier                    | Part Number    |
| SUMITOMO WIRING SYSTEMS Ltd | 8240-0509      |
| Name of Laboratory          | Part Name      |
| SUMITOMO WIRING SYSTEMS Ltd | TER-WUS120FSSN |

[illegible]

|           |                   |       |                                |      |            |
|-----------|-------------------|-------|--------------------------------|------|------------|
| Signature | <i>7. Okazaki</i> | Title | Components Gr. QA Dep. Manager | Date | 22.Mar.'22 |
|-----------|-------------------|-------|--------------------------------|------|------------|

## Process Capavility Data

Part Name: TER-WUS120FSSN

Part No: 8240-0509

Mold:L7141

| Measurement Place | 1      |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------|--------|-------|-------|-------|--|--|--|--|--|--|--|--|--|--|--|--|
| Standard          | 2.55   |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| Standard(Max)     | 2.75   |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| Standard(Min)     | 2.35   |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| n 1               | 2.530  | 2.540 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 2               | 2.530  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 3               | 2.530  | 2.530 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 4               | 2.540  | 2.540 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 5               | 2.540  | 2.530 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 6               | 2.530  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 7               | 2.530  | 2.530 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 8               | 2.530  | 2.540 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 9               | 2.530  | 2.540 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 10              | 2.530  | 2.540 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 11              | 2.540  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 12              | 2.540  | 2.540 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 13              | 2.530  | 2.530 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 14              | 2.540  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 15              | 2.530  | 2.530 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 16              | 2.530  | 2.540 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 17              | 2.530  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 18              | 2.540  | 2.540 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 19              | 2.540  | 2.540 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 20              | 2.530  | 2.530 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 21              | 2.540  | 2.540 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 22              | 2.540  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 23              | 2.530  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 24              | 2.530  | 2.530 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 25(=100)        | 2.530  | 2.530 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| x                 | 2.530  |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| MAX               | 2.540  |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| MIN               | 2.530  |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| δ                 | 0.005  |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| CP                | 13.430 |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| CPK               | 12.383 |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |

Measurement Place

Please refer to an attached sheet drawing

# Process Capavility Data

Part Name: TER-WUS120FSSN

Part No: 8240-0509

Mold:L7155

| Measureme<br>nt Place | 1      |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------|--------|-------|-------|-------|--|--|--|--|--|--|--|--|--|--|--|--|
| Standard              | 2.55   |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| Standard(Max)         | 2.75   |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| Standard(Min)         | 2.35   |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| n 1                   | 2.540  | 2.540 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 2                   | 2.540  | 2.530 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 3                   | 2.540  | 2.530 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 4                   | 2.530  | 2.540 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 5                   | 2.530  | 2.530 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 6                   | 2.540  | 2.540 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 7                   | 2.530  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 8                   | 2.540  | 2.530 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 9                   | 2.540  | 2.540 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 10                  | 2.530  | 2.530 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 11                  | 2.530  | 2.530 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 12                  | 2.530  | 2.540 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 13                  | 2.530  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 14                  | 2.540  | 2.540 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 15                  | 2.530  | 2.530 | 2.530 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 16                  | 2.530  | 2.540 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 17                  | 2.540  | 2.540 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 18                  | 2.530  | 2.540 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 19                  | 2.540  | 2.530 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 20                  | 2.530  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 21                  | 2.540  | 2.530 | 2.530 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 22                  | 2.540  | 2.530 | 2.540 | 2.540 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 23                  | 2.540  | 2.530 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 24                  | 2.540  | 2.540 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| n 25(=100)            | 2.530  | 2.540 | 2.540 | 2.530 |  |  |  |  |  |  |  |  |  |  |  |  |
| x                     | 2.540  |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| MAX                   | 2.540  |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| MIN                   | 2.530  |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| δ                     | 0.005  |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| CP                    | 13.333 |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |
| CPK                   | 12.333 |       |       |       |  |  |  |  |  |  |  |  |  |  |  |  |

Measurement Place

Please refer to an attached sheet drawing

# WORK INSTRUCTION

|                                          |                                |
|------------------------------------------|--------------------------------|
| AREA:                                    | QUALITY ASSURANCE LAB (ver'21) |
| TITLE                                    |                                |
| LABORATORY SCOPE–Sumitomo Wiring Systems |                                |

|                                                                                                                                                                |                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>PURPOSE :</b><br>To summarize the testing capabilities at the Plant of Sumitomo Wiring Systems Ltd, and to make clear the test items, equipment, standards. | <b>APPLICATION :</b><br>Sumitomo Wiring Systems Ltd.<br>(Yokkaichi Laboratory) |
|                                                                                                                                                                | <b>RULE ENFORCER :</b><br>QA Cordinator / Above                                |

## Tests Performed in Sumitomo Wiring Systems

| TESTS ITEM                          | EQUIPMENT                          | TEST METHODS / STANDARD | QUANTITIES | CAPABILITY OF MEASURING                                                                                                                                                                        |
|-------------------------------------|------------------------------------|-------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dimentional Measurement             | Caliper                            | SCD-H01-002-3925        | 4          | Measuring Range : 0 – 150 mm<br>Measurement error : $\pm 0.02$ mm<br>Minimum Indication : 0.01 mm                                                                                              |
| Dimentional Measurement             | Projector (1)                      | SCD-H01-018-3925        | 2          | Measuring Range(X) : 225 mm<br>Measuring Range(Y) : 100 mm<br>Minimum Indication : 0.001 mm<br>Minimum Indication of Angle : $0^{\circ} 01'$<br>Lens Magnification : x 10, x 20<br>x 50, x 100 |
| Dimentional Measurement             | Projector (2)                      | SCD-H01-020-3925        | 1          | Measuring Range(X) : 150 mm<br>Measuring Range(Y) : 50 mm<br>Minimum Indication : 0.001 mm<br>Minimum Indication of Angle : $0^{\circ} 01'$<br>Lens Magnification : x 5, x 10<br>x 20          |
| Insertation / Retention Test        | Push-Pull Gage (500N)              | SCD-H01-006-3925        | 1          | Maximum Load : 500 N<br>Minimum resolution : 0.1 N                                                                                                                                             |
| Insertation / Retention Test        | Push-Pull Gage (1000N)             | SCD-H01-006-3925        | 2          | Maximum Load : 1000 N<br>Minimum resolution : 0.1 N                                                                                                                                            |
| Insertation / Retention Test        | Push-Pull Gage (1000N)             | SCD-H01-008-3925        | 1          | Maximum Load : 1000 N<br>Minimum Resolution : 1 N                                                                                                                                              |
| WaterProof Test                     | Waterproof tester                  | SCD-H01-016-3925        | 1          | Measuring Range : 10 – 500 kPa<br>Resolution : 10 kPa                                                                                                                                          |
| Torque Test                         | Torque Gage                        | SCD-H01-010-3925        | 1          | Measuring Range : 20 – 100 N·m<br>Minimum Resolving Power : 0.1N·m<br>Precision : $\pm 1\%$                                                                                                    |
| Rubber Hardness Measurement         | Rubber Hardness Measurement Gage   | SCD-H01-044-3925        | 2          | Measuring Range : 100 mN<br>Minimum Resolving Power : 1N·m                                                                                                                                     |
| Rubber Specific Gravity Measurement | Specific Gravity Measurement Gage  | SCD-H01-048-3925        | 1          | Maximum Weight : 220 g<br>Minumum Indication : 0.01 g                                                                                                                                          |
| Rubber tensileTest                  | Tensile Test Gage (Auto Graph)     | SCD-H01-050-3925        | 1          | Speed : 0.0005–1000 mm/min<br>Allowable Load : 10000 N<br>Precision : $\pm 1\%$<br>Minimum Resolving Power : 0.01mm                                                                            |
| Heat-resistant Test                 | Aging Layer(2)                     | SCD-H01-054-3925        | 1          | (No.2 Layer)<br>Layer Temperture : 0–300 °C<br>Minimum Scale : 1°C<br>Precision : $\pm 1^{\circ}\text{C}$                                                                                      |
| Heat-resistant Test                 | Aging Layer(1)                     | SCD-H01-052-3925        | 1          | (No.1 Layer)<br>Layer Temperture : 0–300 °C<br>Minimum Scale : 0.1°C<br>Precision : $\pm 1^{\circ}\text{C}$                                                                                    |
| SoC Analysis                        | Fluorescent X-ray Analysis Teaster | SCD-H01-046-3925        | 1          | Resolution : 190ev<br>Precision : (in Polyethylene)<br>Cd, Pb, Cr : into 15%<br>(in Brass) Cd, Pb, Cr : into 15%<br>(in Polyethylene including Be 4%)<br>Cl : into 15%                         |
| Weight measurement                  | Electronic scale                   | SCD-H01-048-3925        | 1          | Maximum Measuring Range : 220 g<br>Minimum Indication : 0.01 g                                                                                                                                 |

# MATERIAL SAFETY DATA SHEET

Revision date: June 4, 2012  
Revision No.: 2

## 1. Product and Company Information

| Classification | Material name                 | Correspondence JIS number |
|----------------|-------------------------------|---------------------------|
| Copper         | Oxygen-free copper            | C1020                     |
|                | Tough-pitch copper            | C1100                     |
|                | Phosphorous-deoxidized copper | C1220                     |
| Copper Alloy   | Brass                         | C2600,C2680,C2801         |

Supplier Company Name : DOWA METALTECH CO.,LTD  
2630 Shingai, Iwata-shi, Shizuoka-ken, 438-0025 JAPAN  
Tel: +81-538-37-5111, Fax: +81-538-37-0147

Manufacturer Company Name : DOWA METAL CO.,LTD  
& Information Quality Control Dept.  
767 Matsunokijima, Iwata-shi, Shizuoka-ken, 438-0125 JAPAN  
Tel: +81-539-62-3131, Fax: +81-539-62-3996  
E-mail:DML\_MSDS@dowa.co.jp

## 2. Hazards Identification

### 2-1 Copper

#### GHS Classification

##### Physical Hazards

|                                                                              |                               |
|------------------------------------------------------------------------------|-------------------------------|
| Explosives                                                                   | : Not applicable              |
| Flammable gases                                                              | : Not applicable              |
| Flammable aerosols                                                           | : Not applicable              |
| Oxidizing gases                                                              | : Not applicable              |
| Gases under pressure                                                         | : Not applicable              |
| Flammable liquids                                                            | : Not applicable              |
| Flammable solids                                                             | : Classification not possible |
| Self-reactive substances and mixtures                                        | : Not applicable              |
| Pyrophoric liquids                                                           | : Not applicable              |
| Pyrophoric solids                                                            | : Classification not possible |
| Self-heating substances and mixtures                                         | : Classification not possible |
| Substances and mixture which, in contact<br>with water, emit flammable gases | : Classification not possible |
| Oxidizing liquids                                                            | : Not applicable              |
| Oxidizing solids                                                             | : Not applicable              |
| Organic peroxides                                                            | : Not applicable              |
| Corrosive to metals                                                          | : Classification not possible |

##### Health Hazards

|                                         |                               |
|-----------------------------------------|-------------------------------|
| Acute toxicity (oral)                   | : Classification not possible |
| Acute toxicity (skin)                   | : Classification not possible |
| Acute toxicity (inhalation: gas)        | : Not applicable              |
| Acute toxicity (inhalation: vapor)      | : Not applicable              |
| Acute toxicity (inhalation: dust, mist) | : Classification not possible |
| Skin corrosion / irritation             | : Classification not possible |
| Serious eye damage / eye irritation     | : Classification not possible |
| Respiratory sensitization               | : Classification not possible |
| Skin sensitization                      | : Classification not possible |
| Germ cell mutagenicity                  | : Classification not possible |
| Carcinogenicity                         | : Not classified              |

|                                                      |                                            |
|------------------------------------------------------|--------------------------------------------|
| Reproductive toxicity                                | : Classification not possible              |
| Specific target organ toxicity:<br>single exposure   | : Category3 (Respiratory tract irritation) |
| Specific target organ toxicity:<br>repeated exposure | : Category1 (Liver)                        |
| Aspiration hazard                                    | : Classification not possible              |
| Environmental Hazards                                |                                            |
| Aquatic toxicity (acute)                             | : Classification not possible              |
| Aquatic toxicity (chronic)                           | : Category4                                |
| Pictogram                                            |                                            |



### 3. Specification of substance

Chemical name : Cu,Cu-Zn alloy

| Element                                                           | Cu                   | Pb        | Fe        | Zn        | P         |
|-------------------------------------------------------------------|----------------------|-----------|-----------|-----------|-----------|
| CAS No.                                                           | 7440-50-8            | 7439-92-1 | 7439-89-6 | 7440-66-6 | 7723-14-0 |
| Identification No.<br>by PRTR Law                                 | -                    | -         | -         | -         | -         |
| Enforcement Serial No.<br>by Industrial Safety<br>and Health Laws | Appendix<br>No.9-379 | -         | -         | -         | -         |

#### Chemical Composition (wt%)

| Element | Cu        | Pb※   | Fe※   | Zn   | P           |
|---------|-----------|-------|-------|------|-------------|
| C1020   | ≤99.96    | -     | -     | -    | -           |
| C1100   | ≤99.90    | -     | -     | -    | -           |
| C1220   | ≤99.90    | -     | -     | -    | 0.015-0.040 |
| C2600   | 68.5-71.5 | ≤0.05 | ≤0.05 | Bal. | -           |
| C2680   | 64.0-68.0 | ≤0.05 | ≤0.05 | Bal. | -           |
| C2801   | 59.0-62.0 | ≤0.1  | ≤0.07 | Bal. | -           |

※No intentional addition.

### 4. First aid

#### 4-1 Caught in the eyes:

Immediately flush out dust with sufficient clean water and seek physician's treatment for pain or uncomfortable feeling.

#### 4-2 Struck to the skin: wash the affected area with soap.

#### 4-3 Inhaled: If a large quantity of vapors and particles are inhaled, move the patient to a place of clean air immediately. Give the patient oxygen inhalation and have him/her seek immediate physician's treatments in case it seems to be necessary.

#### 4-4 Swallowed: If large quantities of vapors and particles are swallowed, make him/her vomit and then have him/her seek physician's treatments immediately.

### 5. Action for fire

Extinguishing: -- (Incombustibles)

### 6. Action for leakage

No requirement for solid metal product.



**7. Notes for handling and storage**

Handling: To prevent the inhalation of vapors or particles, wear personal protection such as a mask during welding or grinding processes.

The cut ends or edges of the strip are sharp enough to slice, so take sufficient care when handling.

Storage: Do not store together with acids.

**8. Avoidance of exposure**

Acceptable concentration :

Japan Society for Occupational Health: No Requirement

ACGIH TWA \* Cu 1mg/m<sup>3</sup> (dust)

Cu 0.2mg/m<sup>3</sup> (fume or vapor)

Protective outfit

For mouth: Dustproof mask

For eyes: Dustproof glasses

For hands: Rubber or plastic gloves

For body: --

\* ACGIH TWA: American Conference of Governmental Industrial Hygienists

Time Weighted Average

**9. Physical / chemical properties**

|                                      | C1020               | C1100     | C1220 | C2600 | C2680 | C2801 |
|--------------------------------------|---------------------|-----------|-------|-------|-------|-------|
| Appearance                           | Metallic brightness |           |       |       |       |       |
| Melting point(degree C)              | 1083                | 1083      | 1083  | 955   | 930   | 905   |
| Specific gravity(g/cm <sup>3</sup> ) | 8.94                | 8.89-8.94 | 8.94  | 8.53  | 8.47  | 8.39  |

**10. Hazardous information**

Stability / reactivity: Stable under normal handling conditions.

**11. Toxicological information**

(No information about the alloy, but information on each element is shown below.)

Acute toxicity:

Orally administered · mouse LD<sub>50</sub> >4000mg/kg (Copper dusts)

Carcinogenicity:

Japan Society for Occupational Health: No Classification

**12. Ecological Information**

(No information about the alloy, but information on each element is shown below.)

Water Pollution Control Law:

Life environment clause (for Copper)

**13. Note for scrapping**

Should be collected and recycled as a metal.

Contact scrapping agent.

**14. Note for transportation**

Handle with care when transporting as follows:

Take care not to allow the air to cause corrosion. Do not drop or damage packaging.

**15. Applicable legislation**

(No information about the alloy, but information on each element is shown below.)

Water Pollution Control Law:

Life environment clause (for Copper)

NB-series does not correspond to Poisons, Deleterious Substances, Specific Deleterious Substances, in Poisonous and Deleterious Substances Control Law.

**16. Other Information**

We have tried to make it as accurate and useful as possible, but can take no responsibility for its use, misuse or accuracy. We have not verified this information, and can not guarantee that it is up-to-date.