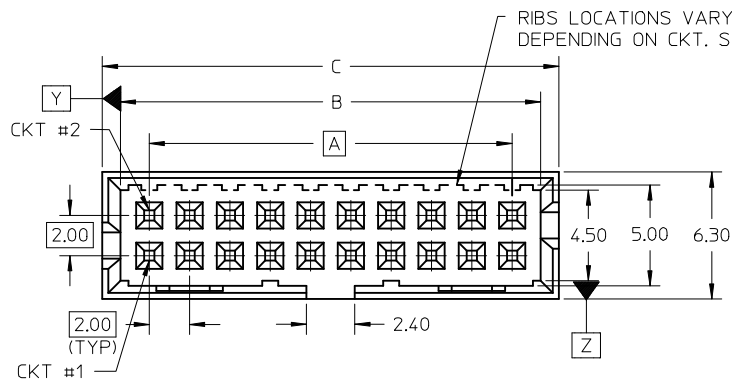
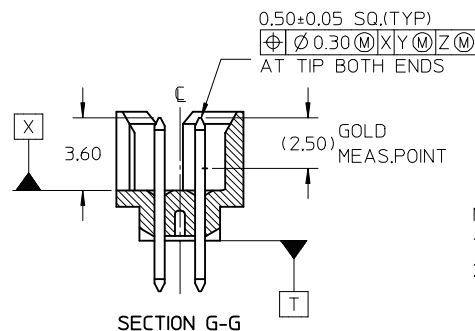
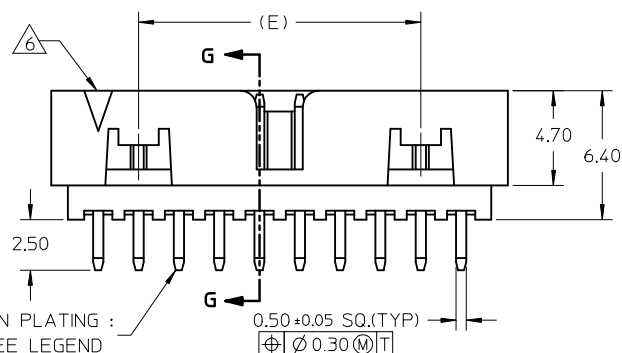
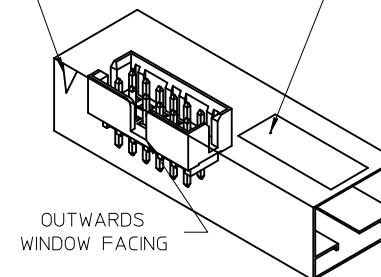




RED ARROW INDICATION

MOLEX LOGO & TUBE PART NO. 89990-0007. (ON THE LEFT HAND SIDE OF TUBE).



#### PART NUMBER LEGEND :

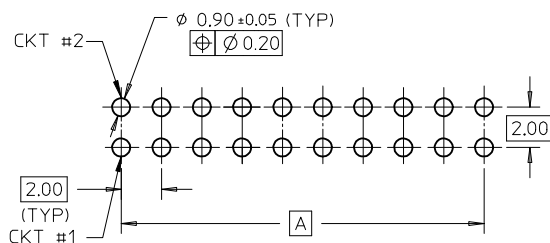
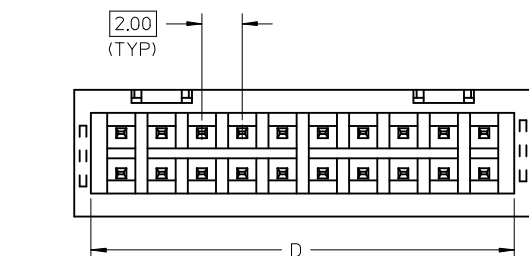
87831 - \* \* \* \*

#### PLATING OPTION

- 19 - 0.05-0.13um/2-5uin GOLD IN CONTACT AREA AND 1.88um/75uin MIN. TIN IN SOLDER TAIL AREA OVER 1.27um/50uin MIN. NICKEL OVERALL.
- 20 - 0.38um/15uin GOLD IN CONTACT AREA AND 1.88um/75uin MIN. TIN IN SOLDER TAIL AREA OVER 1.27um/50uin MIN. NICKEL OVERALL.
- 21 - 0.76um/30uin GOLD IN CONTACT AREA AND 1.88um/75uin MIN. TIN IN SOLDER TAIL AREA OVER 1.27um/50uin MIN. NICKEL OVERALL.

#### NOTES:

1. FOR ILLUSTRATION PURPOSES, 20 CIRCUIT SIZE WAFER IS SHOWN.
2. MATERIAL :  
HOUSING : 30% G.F., NYLON 46, UL94V-0, COLOR BLACK.  
PIN : 0.50MM SQ.PHOSPHOR BRONZE.
3. PRODUCT SPECIFICATION PS-87831-027 APPLIES.
4. NO CENTRE POLARIZATION SLOT FOR CKT SIZE 4 & 6 (EXCEPT FOR 87831-5119 & 87831-6120).
5. NO SIDE LOCKING SLOT FROM 4 TO 12 CKT SIZE.
6. CKT 4 AND 6 HAS NO IDENTIFICATION TAG.
7. REFER TO PART 87831-\*\*4\* FOR CENTRE LOCKING SLOT OPTION FOR 4 TO 12 CKT.
8. THIS HEADER MATES WITH MOLEX :  
a) CRIMP RECEPTACLE HOUSING, 51110 SERIES WITH CRIMP TERMINAL, 50394 SERIES.  
b) 2MM MILLIGRID DUAL ROW IDT, 87568 SERIES.
9. PARTS TO BE PACKED IN TUBE WITH MOISTURE BARRIER BAG.



RECOMMENDED PCB PATTERN

|                                                                                                                              |  |  |                           |                 |                                                            |                      |                            |                                                                                        |                                                                                                                                  |                        |                           |           |
|------------------------------------------------------------------------------------------------------------------------------|--|--|---------------------------|-----------------|------------------------------------------------------------|----------------------|----------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------|-----------|
| ADD P/N: 87831-6120<br>EC NO: S2011-1048<br>DRWN:SKANG<br>CHKD:ATSEE<br>APPR:MLONG<br>2011/06/14<br>2011/09/01<br>2011/09/01 |  |  | DESCRIPTION<br>▽=0<br>◻=0 | QUALITY SYMBOLS | GENERAL TOLERANCES (UNLESS SPECIFIED)                      |                      | DIMENSION STYLE<br>MM ONLY |                                                                                        | SCALE<br>NTS                                                                                                                     | DESIGN UNITS<br>METRIC | THIRD ANGLE<br>PROJECTION |           |
|                                                                                                                              |  |  |                           | mm              | INCH                                                       | DRAWN BY<br>ATSEE    | DATE<br>2003/10/03         | TITLE<br>MGRID, SHROUDED HEADER<br>VERTICAL<br>W/SLOT & STANDOFF<br>MOLEX INCORPORATED |                                                                                                                                  |                        |                           |           |
|                                                                                                                              |  |  |                           |                 |                                                            | CHECKED BY<br>KCLING | DATE<br>2003/11/07         |                                                                                        |                                                                                                                                  |                        |                           |           |
|                                                                                                                              |  |  |                           |                 |                                                            | APPROVED BY<br>SKTOH | DATE<br>2003/11/07         |                                                                                        |                                                                                                                                  |                        |                           |           |
|                                                                                                                              |  |  |                           |                 | ANGULAR ± 3 °                                              |                      | MATERIAL NO.               |                                                                                        | DOCUMENT NO.                                                                                                                     |                        |                           | SHEET NO. |
|                                                                                                                              |  |  |                           |                 | DRAFT WHERE APPLICABLE<br>MUST REMAIN<br>WITHIN DIMENSIONS |                      | SEE TABLE                  |                                                                                        | SD-87831-011                                                                                                                     |                        |                           | 1 OF 2    |
|                                                                                                                              |  |  |                           |                 |                                                            |                      | SIZE<br>A3                 |                                                                                        | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX<br>INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION |                        |                           |           |

| 10 |             |          | 9             | 8         |       | 7     | 6     | 5     | 4                               | 3 | 2 | 1 |  |   |
|----|-------------|----------|---------------|-----------|-------|-------|-------|-------|---------------------------------|---|---|---|--|---|
| F  | P/N IN TUBE | CKT SIZE | VOID POSITION | DIMENSION |       |       |       |       | } NO CENTRE POLARIZATION SLOT   |   |   |   |  | F |
|    | A           | B        | C             | D         | E     |       |       |       |                                 |   |   |   |  |   |
| E  | 87831-04**  | 4        | -----         | 2.00      | 4.85  | 6.65  | 5.00  | ----- | } WITH CENTRE POLARIZATION SLOT | E |   |   |  |   |
|    | 87831-06**  | 6        | -----         | 4.00      | 6.85  | 8.65  | 7.00  | ----- |                                 |   |   |   |  |   |
|    | 87831-08**  | 8        | -----         | 6.00      | 8.85  | 10.65 | 9.00  | ----- |                                 |   |   |   |  |   |
|    | 87831-10**  | 10       | -----         | 8.00      | 10.85 | 12.65 | 11.00 | ----- |                                 |   |   |   |  |   |
|    | 87831-12**  | 12       | -----         | 10.00     | 12.85 | 14.65 | 13.00 | ----- |                                 |   |   |   |  |   |
|    | 87831-14**  | 14       | -----         | 12.00     | 14.85 | 16.65 | 15.00 | 8.00  |                                 |   |   |   |  |   |
|    | 87831-16**  | 16       | -----         | 14.00     | 16.85 | 18.65 | 17.00 | 10.00 |                                 |   |   |   |  |   |
|    | 87831-18**  | 18       | -----         | 16.00     | 18.85 | 20.65 | 19.00 | 12.00 |                                 |   |   |   |  |   |
|    | 87831-20**  | 20       | -----         | 18.00     | 20.85 | 22.65 | 21.00 | 14.00 |                                 |   |   |   |  |   |
|    | 87831-22**  | 22       | -----         | 20.00     | 22.85 | 24.65 | 23.00 | 16.00 |                                 |   |   |   |  |   |
| D  | 87831-24**  | 24       | -----         | 22.00     | 24.85 | 26.65 | 25.00 | 18.00 | } WITH CENTRE POLARIZATION SLOT | D |   |   |  |   |
|    | 87831-26**  | 26       | -----         | 24.00     | 26.85 | 28.65 | 27.00 | 20.00 |                                 |   |   |   |  |   |
|    | 87831-28**  | 28       | -----         | 26.00     | 28.85 | 30.65 | 29.00 | 22.00 |                                 |   |   |   |  |   |
|    | 87831-30**  | 30       | -----         | 28.00     | 30.85 | 32.65 | 31.00 | 24.00 |                                 |   |   |   |  |   |
|    | 87831-32**  | 32       | -----         | 30.00     | 32.85 | 34.65 | 33.00 | 26.00 |                                 |   |   |   |  |   |
|    | 87831-34**  | 34       | -----         | 32.00     | 34.85 | 36.65 | 35.00 | 28.00 |                                 |   |   |   |  |   |
|    | 87831-36**  | 36       | -----         | 34.00     | 36.85 | 38.65 | 37.00 | 30.00 |                                 |   |   |   |  |   |
|    | 87831-38**  | 38       | -----         | 36.00     | 38.85 | 40.65 | 39.00 | 32.00 |                                 |   |   |   |  |   |
|    | 87831-40**  | 40       | -----         | 38.00     | 40.85 | 42.65 | 41.00 | 34.00 |                                 |   |   |   |  |   |
|    | 87831-42**  | 42       | -----         | 40.00     | 42.85 | 44.65 | 43.00 | 36.00 |                                 |   |   |   |  |   |
| C  | 87831-44**  | 44       | -----         | 42.00     | 44.85 | 46.65 | 45.00 | 38.00 | } WITH CENTRE POLARIZATION SLOT | C |   |   |  |   |
|    | 87831-46**  | 46       | -----         | 44.00     | 46.85 | 48.65 | 47.00 | 40.00 |                                 |   |   |   |  |   |
|    | 87831-48**  | 48       | -----         | 46.00     | 48.85 | 50.65 | 49.00 | 42.00 |                                 |   |   |   |  |   |
|    | 87831-50**  | 50       | -----         | 48.00     | 50.85 | 52.65 | 51.00 | 44.00 |                                 |   |   |   |  |   |
|    | 87831-5120  | 12       | 1             | 10.00     | 12.85 | 14.65 | 13.00 | ----- |                                 |   |   |   |  |   |
|    | 87831-5220  | 44       | 20            | 42.00     | 44.85 | 46.65 | 45.00 | 38.00 |                                 |   |   |   |  |   |
|    | 87831-5320  | 24       | 13            | 22.00     | 24.85 | 26.65 | 25.00 | 18.00 |                                 |   |   |   |  |   |
|    | 87831-5420  | 34       | 3             | 32.00     | 34.85 | 36.65 | 35.00 | 28.00 |                                 |   |   |   |  |   |
|    | 87831-5520  | 20       | 20            | 18.00     | 20.85 | 22.65 | 21.00 | 14.00 |                                 |   |   |   |  |   |
|    | 87831-5620  | 28       | 13            | 26.00     | 28.85 | 30.65 | 29.00 | 22.00 |                                 |   |   |   |  |   |
| B  | 87831-5720  | 34       | 15            | 32.00     | 34.85 | 36.65 | 35.00 | 28.00 | } WITH CENTRE POLARIZATION SLOT | B |   |   |  |   |
|    | 87831-5820  | 40       | 25            | 38.00     | 40.85 | 42.65 | 41.00 | 34.00 |                                 |   |   |   |  |   |
|    | 87831-5920  | 20       | 13            | 18.00     | 20.85 | 22.65 | 21.00 | 14.00 |                                 |   |   |   |  |   |
|    | 87831-6020  | 24       | 20            | 22.00     | 24.85 | 26.65 | 25.00 | 18.00 |                                 |   |   |   |  |   |
|    | 87831-5119  | 6        | -----         | 4.00      | 6.85  | 8.65  | 7.00  | ----- |                                 |   |   |   |  |   |
|    | 87831-6120  | 6        | 1             | 4.00      | 6.85  | 8.65  | 7.00  | ----- |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |
|    |             |          |               |           |       |       |       |       |                                 |   |   |   |  |   |