

# Status of Stave Type 2: Quality Assurance



- Each stave go through: torque test of the cooling tube, pressure test, flow test, and flatness measurements prior ladder assembly

| Barrel 2          |                 | Barrel 2      |              | Class 1 | Excellent | Class 1  | X < 0.15                | good                  | Barrel 2  |           | X < 0.09 psi Good                 | Range Good                        |        |        |
|-------------------|-----------------|---------------|--------------|---------|-----------|----------|-------------------------|-----------------------|-----------|-----------|-----------------------------------|-----------------------------------|--------|--------|
| Lot # -01 Layer 1 |                 |               |              | Class 3 | Fair      | Class 3  | 0.151 < X < 0.250       | OK                    |           |           |                                   | 0.75 < X < 1.25                   |        |        |
| Lot # -02 Layer 2 |                 |               |              | Class 5 | Poor      | Class 5  | X > 0.251               | Poor                  | No Vacuum |           |                                   | >0.10 Poor                        |        |        |
| Count             | Lot Number      | Serial Number | Stave        | Stave   | Flatness  |          | Flatness with Vacuum mm | Flatness no Vacuum mm | Vendor    |           | 10 min leak in PSI<br>start 20psi | Delta P of stave at 200 ccm (psi) | Vendor |        |
|                   |                 |               | Type         | Class   | Operator  | Date     |                         |                       | Flatness  | Operat or |                                   |                                   | Date   | Flow # |
|                   |                 |               |              |         | Name      |          |                         |                       | Name      |           |                                   |                                   | PSI    |        |
| 34                | 205-310-0100-02 | 54            | Prod. Batch2 | 2       | RN        | 06/07/21 | 0.0843                  | 0.1676                | RB        | 06/08/21  | 0.06                              | 1.1                               |        |        |
| 35                | 205-310-0100-02 | 55            | Prod. Batch2 | 1       | RN        | 06/09/21 | 0.0819                  | 0.0833                | RB        | 06/08/21  | 0.034                             | 0.77                              |        |        |
| 36                | 205-310-0100-02 | 57            | Prod. Batch2 | 1       | RN        | 06/09/21 | 0.0743                  | 0.0626                | RB        | 06/08/21  | 0.048                             | 0.87                              |        |        |
| 37                | 205-310-0100-02 | 58            | Prod. Batch2 | 1       | RN        | 06/09/21 | 0.1332                  | 0.0941                | RB        | 06/08/21  | 0.036                             | 0.75                              |        |        |
| 38                | 205-310-0100-02 | 60            | Prod. Batch2 | 3       | RN        | 06/07/21 | 0.0870                  | 0.2100                | SA        | 06/07/21  | 0.047                             | 1.13                              |        |        |
| 39                | 205-310-0100-02 | 61            | Prod. Batch2 | 1       | RN        | 06/07/21 | 0.0666                  | 0.1195                | SA        | 06/07/21  | 0.01                              | 0.89                              |        |        |
| 40                | 205-310-0100-02 | 63            | Prod. Batch2 | 1       | RN        | 06/07/21 | 0.1104                  | 0.1046                | SA        | 06/07/21  | 0.022                             | 0.97                              |        |        |
| 41                | 205-310-0100-02 | 64            | Prod. Batch2 | 1       | RN        | 06/07/21 | 0.0909                  | 0.0771                | SA        | 06/07/21  | 0.006                             | 1.05                              |        |        |
| 42                | 205-310-0100-02 | 66            | Prod. Batch2 | 1       | RN        | 06/07/21 | 0.1156                  | 0.1015                | SA        | 06/07/21  | 0.005                             | 1.1                               |        |        |
| 43                | 205-310-0100-02 | 67            | Prod. Batch2 | 1       | RN        | 06/07/21 | 0.0805                  | 0.0980                | RN/SA     | 06/07/21  | 0.038                             | 0.83                              |        |        |
| 44                | 205-310-0100-02 | 69            | Prod. Batch2 | 1       | RN        | 06/09/21 | 0.0663                  | 0.0762                | RN/RP     | 06/08/21  | 0.038                             | 0.84                              |        |        |
| 45                | 205-310-0100-02 | 70            | Prod. Batch2 | 1       | RN        | 06/07/21 | 0.074                   | 0.0949                | RN/SA     | 06/07/21  | 0.015                             | 0.89                              |        |        |
| 46                | 205-310-0100-02 | 72            | Prod. Batch2 | 2       | RN        | 06/08/21 | 0.1163                  | 0.1843                | RN/SA     | 06/07/21  | 0.025                             | 0.86                              |        |        |
| 47                | 205-310-0100-02 | 73            | Prod. Batch2 | 1       | RN        | 06/08/21 | 0.0752                  | 0.1156                | RN/SA     | 06/07/21  | 0.018                             | 0.77                              |        |        |
| 48                | 205-310-0100-02 | 75            | Prod. Batch2 | 1       | RN        | 06/08/21 | 0.0955                  | 0.1268                | RN/SA     | 06/07/21  | 0.06                              | 0.76                              |        |        |
| 49                | 205-310-0100-02 | 76            | Prod. Batch2 | 1       | RN        | 06/08/21 | 0.0678                  | 0.1201                | RN/SA     | 06/07/21  | 0.056                             | 0.76                              |        |        |
| 50                | 205-310-0100-02 | 78            | Prod. Batch2 | 1       | RN        | 06/08/21 | 0.1014                  | 0.1105                | RN/SA     | 06/07/21  | 0.011                             | 0.79                              |        |        |
| 51                | 205-310-0100-02 | 79            | Prod. Batch2 | 1       | RN        | 06/08/21 | 0.0919                  | 0.0908                | RN/SA     | 06/07/21  | 0.04                              | 0.8                               |        |        |
| 52                | 205-310-0100-02 | 81            | Prod. Batch2 | 1       | RN        | 06/08/21 | 0.1469                  | 0.149                 | RN/SA     | 06/07/21  | 0.016                             | 0.78                              |        |        |
| 53                | 205-310-0100-02 | 82            | Prod. Batch2 | 1       | RN        | 06/08/21 | 0.0631                  | 0.0957                | RN/RP     | 06/08/21  | 0.007                             | 0.75                              |        |        |
| 54                | 205-310-0100-02 | 84            | Prod. Batch2 | 1       | RN        | 06/08/21 | 0.0613                  | 0.1085                | RN/RP     | 06/08/21  | 0.009                             | 0.77                              |        |        |
| 55                | 205-310-0100-02 | 85            | Prod. Batch2 | 1       | RN        | 06/09/21 | 0.1102                  | 0.1447                | RN/RP     | 06/08/21  | 0.008                             | 0.95                              |        |        |
| 56                | 205-310-0100-02 | 87            | Prod. Batch2 | 1       | RN        | 06/10/21 | 0.1129                  | 0.1399                | RN/RP     | 06/08/21  | 0.042                             | 0.83                              |        |        |
| 57                | 205-310-0100-02 | 88            | Prod. Batch2 | 3       | RN        | 06/10/21 | 0.0681                  | 0.1575                | RN/RP     | 06/08/21  | 0.075                             | 0.8                               |        |        |
| 58                | 205-310-0100-02 | 90            | Prod. Batch2 | 3       | RN        | 06/10/21 | 0.2022                  | 0.2123                | RN/RP     | 06/08/21  | 0.023                             | 0.83                              |        |        |
| 59                | 205-310-0100-02 | 91            | Prod. Batch2 | 1       | RN        | 06/10/21 | 0.089                   | 0.1516                | RN/RP     | 06/08/21  | 0.012                             | 0.79                              |        |        |
| 60                | 205-310-0100-02 | 93            | Prod. Batch2 | 1       | RN        | 06/10/21 | 0.1068                  | 0.1518                | RN/RP     | 06/08/21  | 0.011                             | 0.81                              |        |        |
| 61                | 205-310-0100-02 | 94            | Prod. Batch2 | 1       | RN        | 06/10/21 | 0.0715                  | 0.1346                | RN/RP     | 06/08/21  | 0.035                             | 0.8                               |        |        |
| 62                | 205-310-0100-02 | 96            | Prod. Batch2 | 5       | RN        | 06/08/21 | --                      | --                    | RN/RP     | 06/08/21  | 2.5                               | --                                |        |        |





➤ We have a new person Mr. Sioan Zohar from Instr. BNL just started (June 7<sup>th</sup>) to work on INTT Felix Readout electronic



**Migration to FELIX underway...**

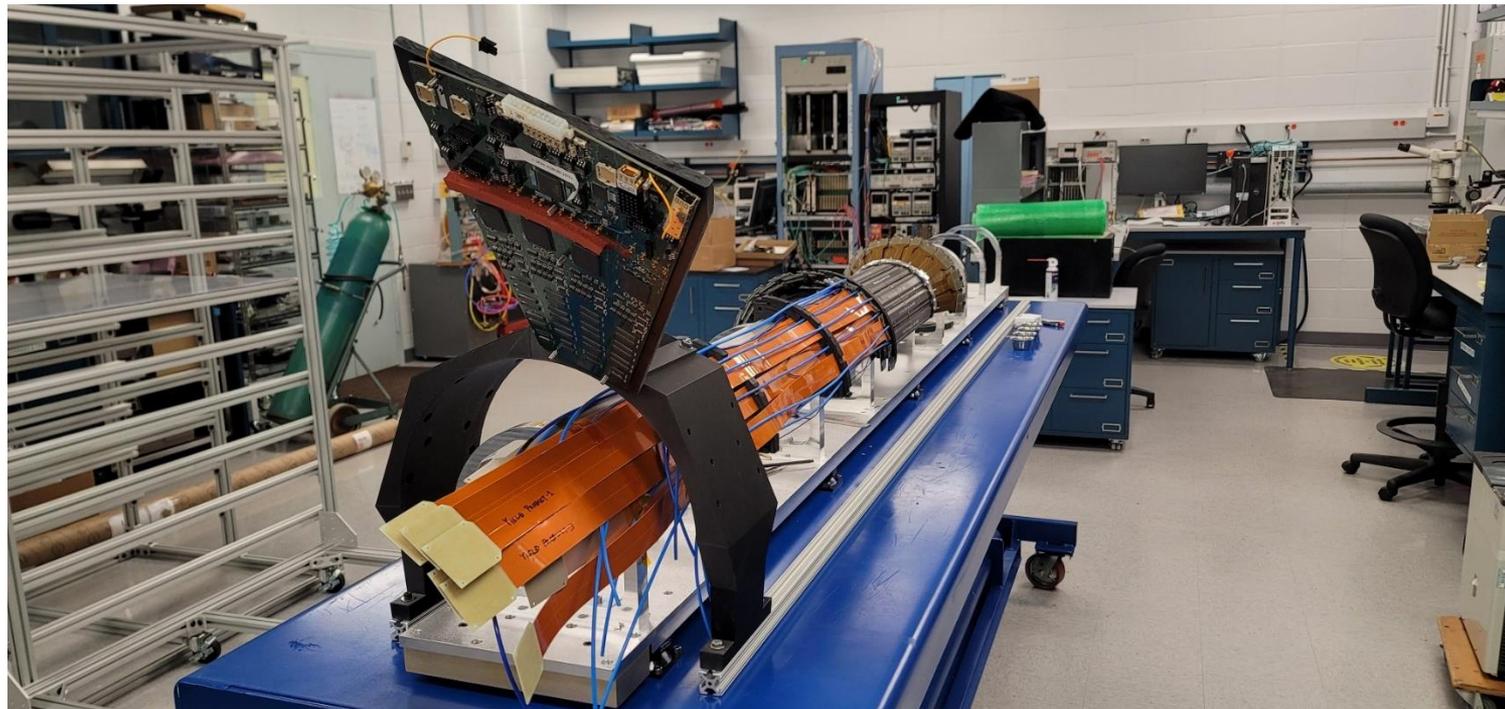
- Using Xilinx KCU105 evaluation board 
- Migration of simulation from ISE 7.1 to Vivado...
- Simulating sub event building and send packet block.
- Currently, no PCIe block yet...
- **Packet Structure Definition**
- **FEM ID followed by:**
  - **A[2:0] → ADC Data, C[5:0] → Chip ID, R[6:0] → Row**

| Event | Time Stamp | Sign. ID | Mod. Addr. | BOG | FEM ID | DATA_0 | DATA_1 | DATA_2 | DATA_3 | DATA_4 | DATA_5 | DATA_6 | DATA_7 | DATA_8 | DATA_9 | DATA_10 | DATA_11 | DATA_12 | DATA_13 | DATA_14 | DATA_15 | DATA_16 | DATA_17 | DATA_18 | DATA_19 | DATA_20 | DATA_21 | DATA_22 | DATA_23 | DATA_24 | DATA_25 | DATA_26 | DATA_27 | DATA_28 | DATA_29 | DATA_30 | DATA_31 | DATA_32 | DATA_33 | DATA_34 | DATA_35 | DATA_36 | DATA_37 | DATA_38 | DATA_39 | DATA_40 | DATA_41 | DATA_42 | DATA_43 | DATA_44 | DATA_45 | DATA_46 | DATA_47 | DATA_48 | DATA_49 | DATA_50 | DATA_51 | DATA_52 | DATA_53 | DATA_54 | DATA_55 | DATA_56 | DATA_57 | DATA_58 | DATA_59 | DATA_60 | DATA_61 | DATA_62 | DATA_63 | DATA_64 | DATA_65 | DATA_66 | DATA_67 | DATA_68 | DATA_69 | DATA_70 | DATA_71 | DATA_72 | DATA_73 | DATA_74 | DATA_75 | DATA_76 | DATA_77 | DATA_78 | DATA_79 | DATA_80 | DATA_81 | DATA_82 | DATA_83 | DATA_84 | DATA_85 | DATA_86 | DATA_87 | DATA_88 | DATA_89 | DATA_90 | DATA_91 | DATA_92 | DATA_93 | DATA_94 | DATA_95 | DATA_96 | DATA_97 | DATA_98 | DATA_99 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    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| E     | D          | X        | W          | Y   |        | AA     | BB     | CC     | DD     | EE     | FF     | GG     | HH     | II     | JJ     | KK      | LL      | MM      | NN      | OO      | PP      | QQ      | RR      | SS      | TT      | UU      | VV      | WW      | XX      | YY      | ZZ      | AA      | BB      | CC      | DD      | EE      | FF      | GG      | HH      | II      | JJ      | KK      | LL      | MM      | NN      | OO      | PP      | QQ      | RR      | SS      | TT      | UU      | VV      | WW      | XX      | YY      | ZZ      | AA      | BB      | CC      | DD      | EE      | FF      | GG      | HH      | II      | JJ      | KK      | LL      | MM      | NN      | OO      | PP      | QQ      | RR      | SS      | TT      | UU      | VV      | WW      | XX      | YY      | ZZ      | AA      | BB      | CC      | DD      | EE      | FF      | GG      | HH      | II      | JJ      | KK      | LL      | MM      | NN      | OO      | PP      | QQ      | RR      | SS      | TT      | UU      | VV      | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW | XX | YY | ZZ | AA | BB | CC | DD | EE | FF | GG | HH | II | JJ | KK | LL | MM | NN | OO | PP | QQ | RR | SS | TT | UU | VV | WW |

# Final Design Review of the INTT Barrels Assembly

📅 Tuesday May 25, 2021, 9:00 AM → 6:00 PM US/Eastern

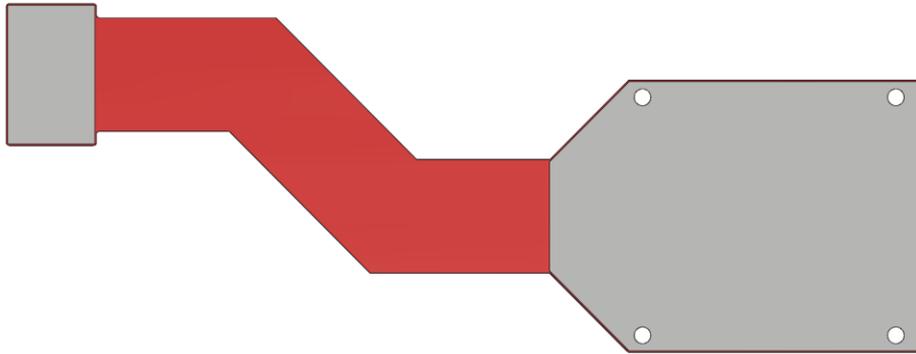
May 25<sup>th</sup>, 2021:  
Barrels Assembly  
Review:  
Very Successful  
Review



# Conversion Cable Options

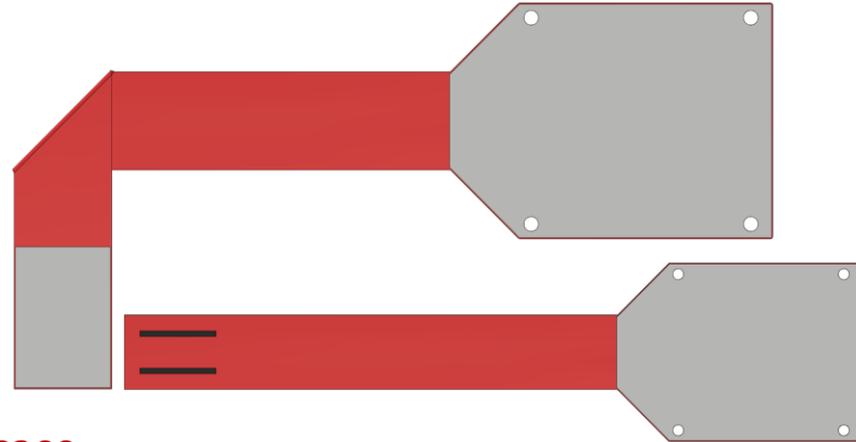
## Premanufactured Kink

- Need at least 7 types, maybe more
- Additional types and large spare qty needed if shifted to a different port on the ROC



## Bend as needed

- Only a few types needed (2-4?)
- Bend may damage traces.



From Dan Cacace