

Production Status

RIKEN/RBRC

Itaru Nakagawa

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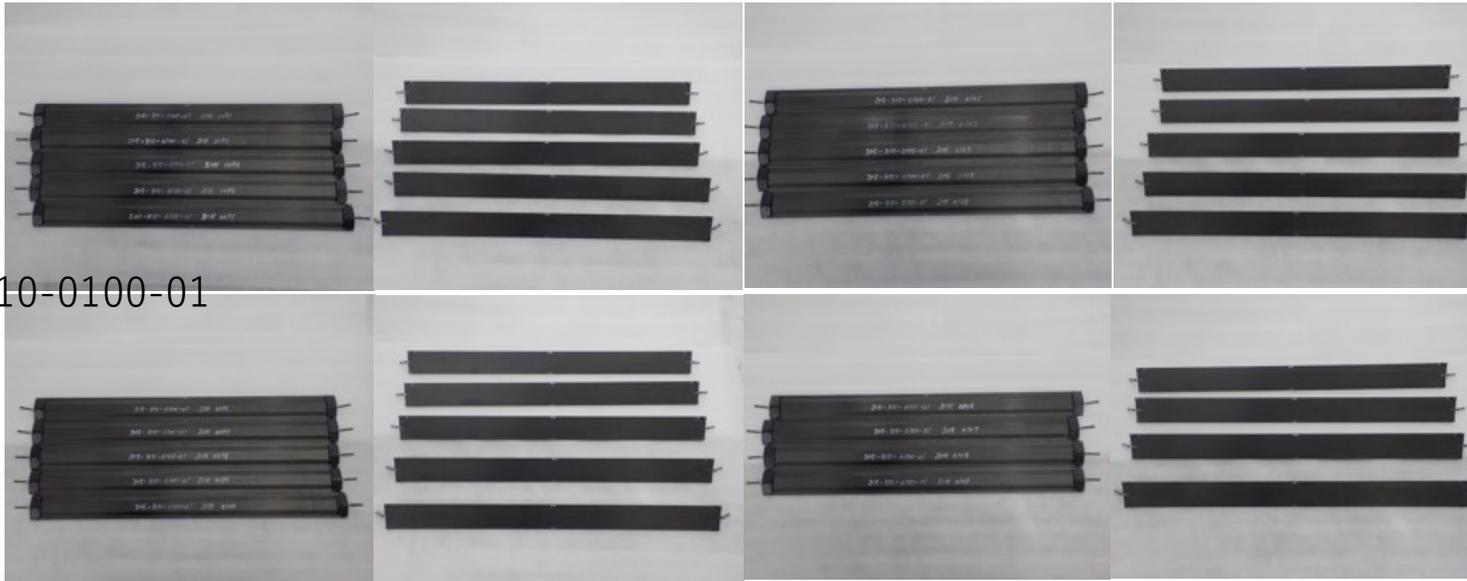
- Batch-4 Stave Production
- Beam Clock Distribution Board
- Conversion Cable
- Post Beam Test 2021 Plan

4th Production Stave

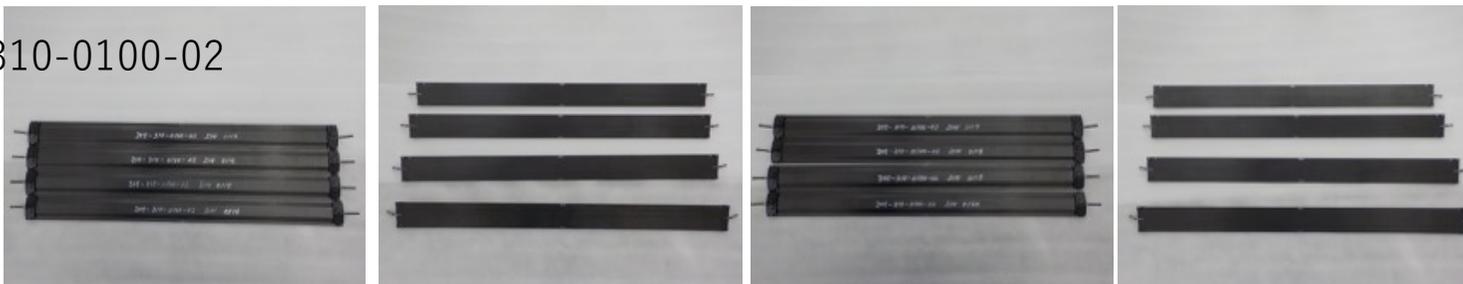
4th Stave Production

- Completed by the end of November at Asuka co.

205-310-0100-01



205-310-0100-02



4th Stave Production



- Delivered to RIKEN in beginning of December.
- Exporting paper work is in progress.
- To be picked up on Dec. 22nd for Taiwan.

QA Datasheet

StaveProduction_QA4回目量産20211206-2

ホーム 挿入 編集 ページレイアウト 数式 データ 校閲 表示 操作アシスト

消ゴシック Regular (本文) 12

条件付き書式 テーブル上セルのスタイル 挿入 削除 書式 条件付き書式

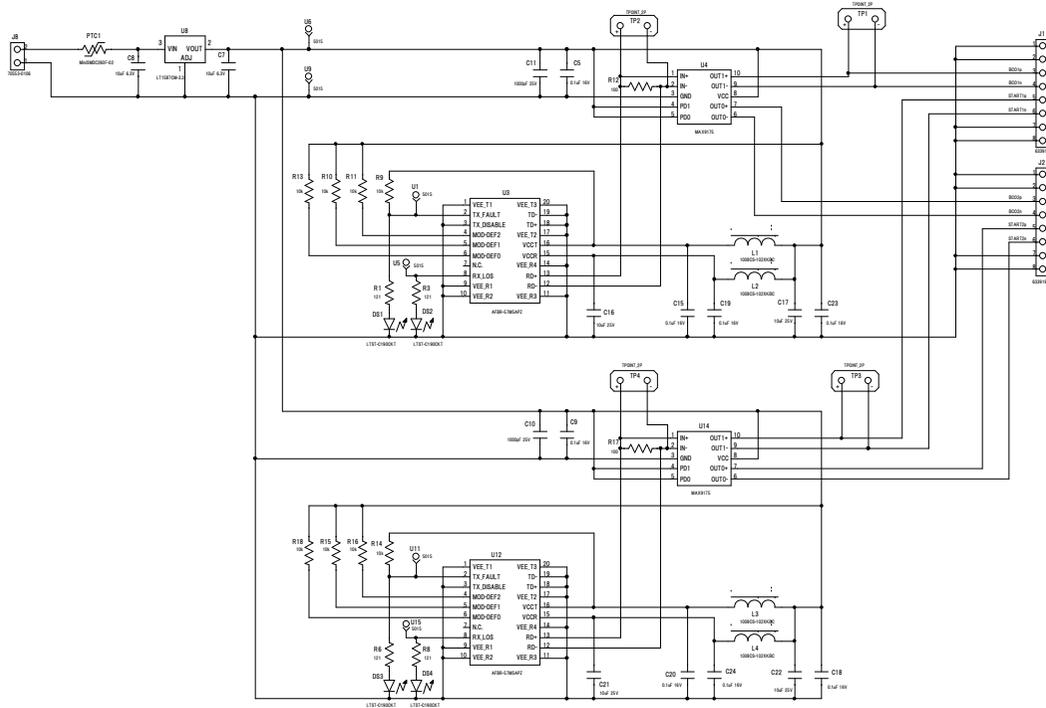
Flow Test										Leak Test										ASSY Leak Test									
Tube #	Flow [Scm/min]	P1 [kPa]	P2 [kPa]	AP [kPa]	AP [Pa]	Unit Test	Station #	Start	Stop	P1 [kPa]	P2 [kPa]	At [mm]	Serial [N]	AP [kPa]	AP [Pa]	Fold [kPa]	Station #	Start	Stop	P1 [kPa]	P2 [kPa]	At [mm]	Serial [N]	AP [kPa]	AP [Pa]				
1	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
2	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
3	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
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6	200	13.0	6.0	6.0	40.0	OK	3	2021/6/15 19:00	-10.41	2021/6/18 6:00	-7.13	11.00	13.00	-3.00	-0.30	-1.04													
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8	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
9	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
10	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
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12	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
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14	200	13.0	6.0	6.0	40.0	OK	1	2021/6/17 19:28	-10.08	2021/6/18 6:00	-5.87	11.00	13.00	-4.00	-0.30	-1.08													
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18	200	13.0	6.0	6.0	40.0	OK	2	2021/6/15 19:00	-10.88	2021/6/18 6:00	-4.48	11.00	13.00	-4.00	-0.42	-1.25													
19	200	13.0	6.0	6.0	40.0	OK	1	2021/6/17 19:28	-10.08	2021/6/18 6:00	-5.87	11.00	13.00	-4.00	-0.30	-1.08													
20	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
21	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
22	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
23	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
24	200	13.0	6.0	6.0	40.0	OK	1	2021/6/15 19:00	-8.26	2021/6/18 6:00	-4.71	11.00	13.00	-4.00	-0.42	-1.08													
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34	200	13.0	6.0	6.0	40.0	OK	5	2021/6/17 19:10	-11.60	2021/6/18 6:00	-6.10	11.00	13.00	-2.87	-0.20	-1.14													
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37	200	13.0	6.0	6.0	40.0	OK	5	2021/6/17 19:10	-11.60	2021/6/18 6:00	-6.10	11.00	13.00	-2.87	-0.20	-1.14													
38	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
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41	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
42	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
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44	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
45	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
46	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
47	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
48	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
49	200	13.0	6.0	6.0	40.0	OK	4	2021/6/17 19:10	-11.51	2021/6/18 6:00	-6.18	11.00	13.00	-4.33	-0.30	-1.12													
50	200	13.0	6.0	6.0	40.0	OK	4	2021																					

Beam Clock Distribution Board

Final Design Approval

Final Confirmation of the Circuit Drawing

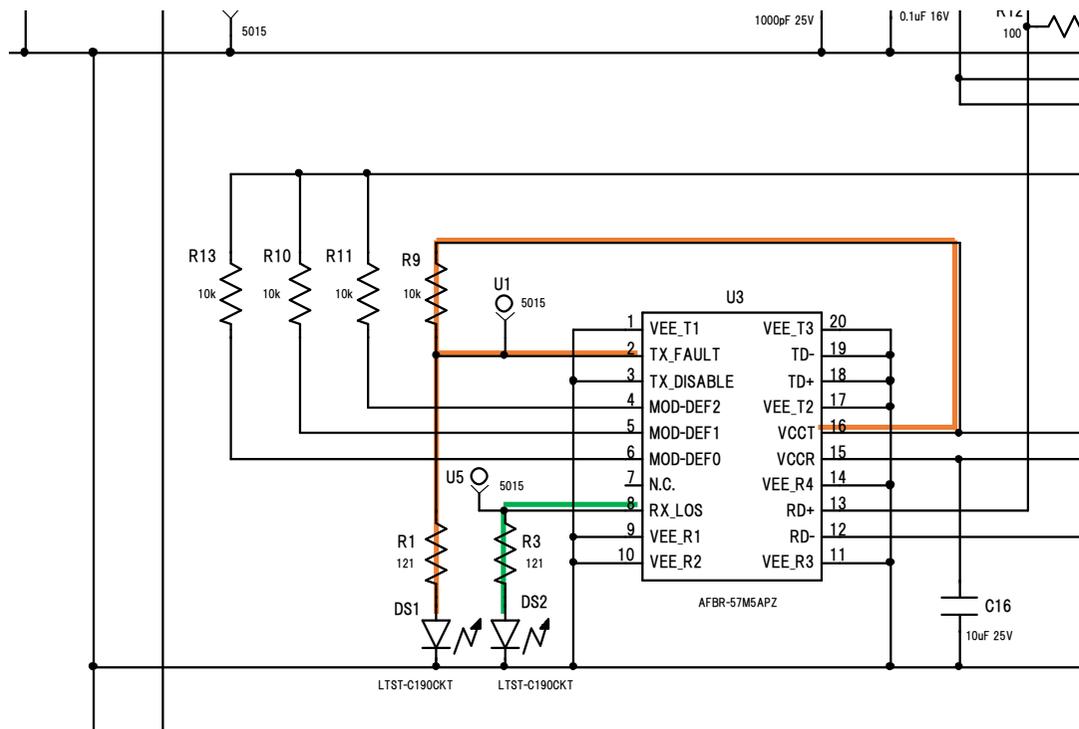
Inquiry from ARS co.



Latest Desgin

- Is the schematic correct?
- For J1/J2, can I use TE Connectivity (AMP) 6339191-5?
 - Is it OK to leave the LED section unconnected?
- Is the pin assignment correct for the attached schematic?
- In this quotation, TP1-4 (TPOINT_2P) was deleted, but is this unnecessary?

Optical Driver



As an enhancement to the conventional SFP interface defined in SFF-8074i, the AFBR-57M5APZ is compliant to SFF-8472 (digital diagnostic interface for optical transceivers). Using the 2-wire serial interface defined in the SFF-8472 MSA, the AFBR-57M5APZ provides real time temperature, supply voltage, laser bias current, laser average output power and received input power. This information is in addition to conventional SFP base data. The digital diagnostic interface also adds the ability to disable the transmitter (TX_DISABLE), monitor for Transmitter Faults (TX_FAULT), and monitor for Receiver Loss of Signal (RX_LOS).

This model is fading out from the market. Rob found 50 refurbished (used) units in stock (\$35/piece). The minimum number we need is 16×2 arms = 32. The decision is made to employ refurbished ones.

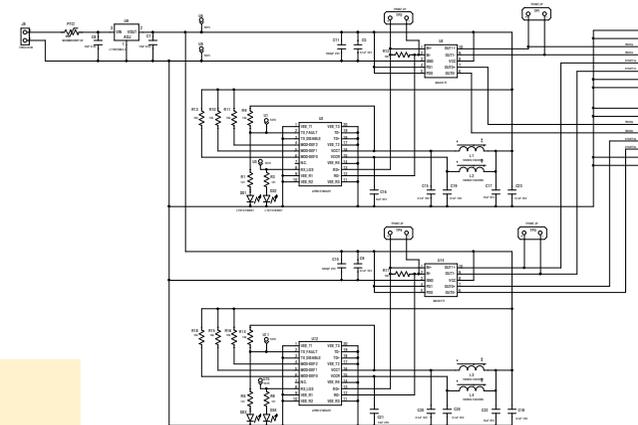
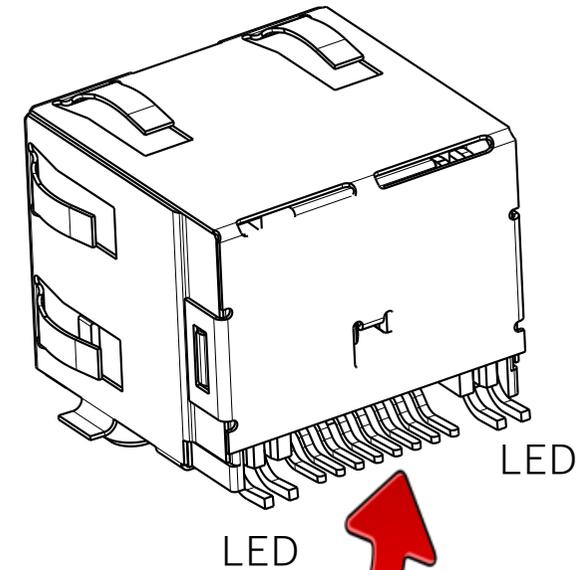
Ethernet Connector Model Choice

- TE Connectivity : Model 6339191-5
- Metal Shield
- Non-flammable (UL94V-0 rated)
- Seems to be OK

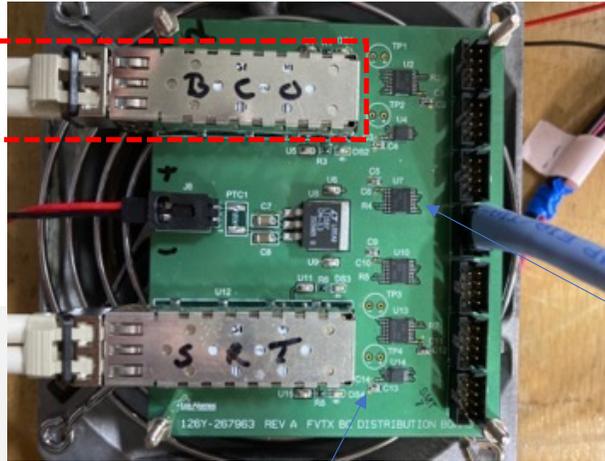
I. MATERIAL:

HOUSING - HIGH TEMP THERMOPLASTIC - LCP, BLACK, UL94V-0
TERMINALS - 0.30 THICK PHOS BRONZE PLATED WITH
3.81 μ m MINIMUM THICK MATTE TIN IN SOLDER
AREA. 1.27 μ m MINIMUM GOLD IN LOCALIZED PLATE AREA.
ENTIRE TERMINAL PLATED WITH 1.27 μ m MINIMUM THICK
NICKEL.
SHIELD - 0.196 THICK COPPER ZINC ALLOY PREPLATED
WITH 2.03 μ m-3.81 μ m THICK MATTE TIN OVER 1.27 μ m
THICK NICKEL
LIGHT EMITTING DIODE (LED) -- DIFFUSED EPOXY
LENS, 0.51 X 0.51 [.020 X .020] CARBON STEEL
WIREFRAME LEADS PREPLATED WITH 8.89 μ m [.000080]
THICK Ag OVER 1.02 μ m [.000040] THICK Cu OVER
3.56 μ m [.000140] THICK Ni OVER 1.02 μ m [.000040]
Cu UNDERPLATE.

The plan is not to use LEDs to avoid additional design work.



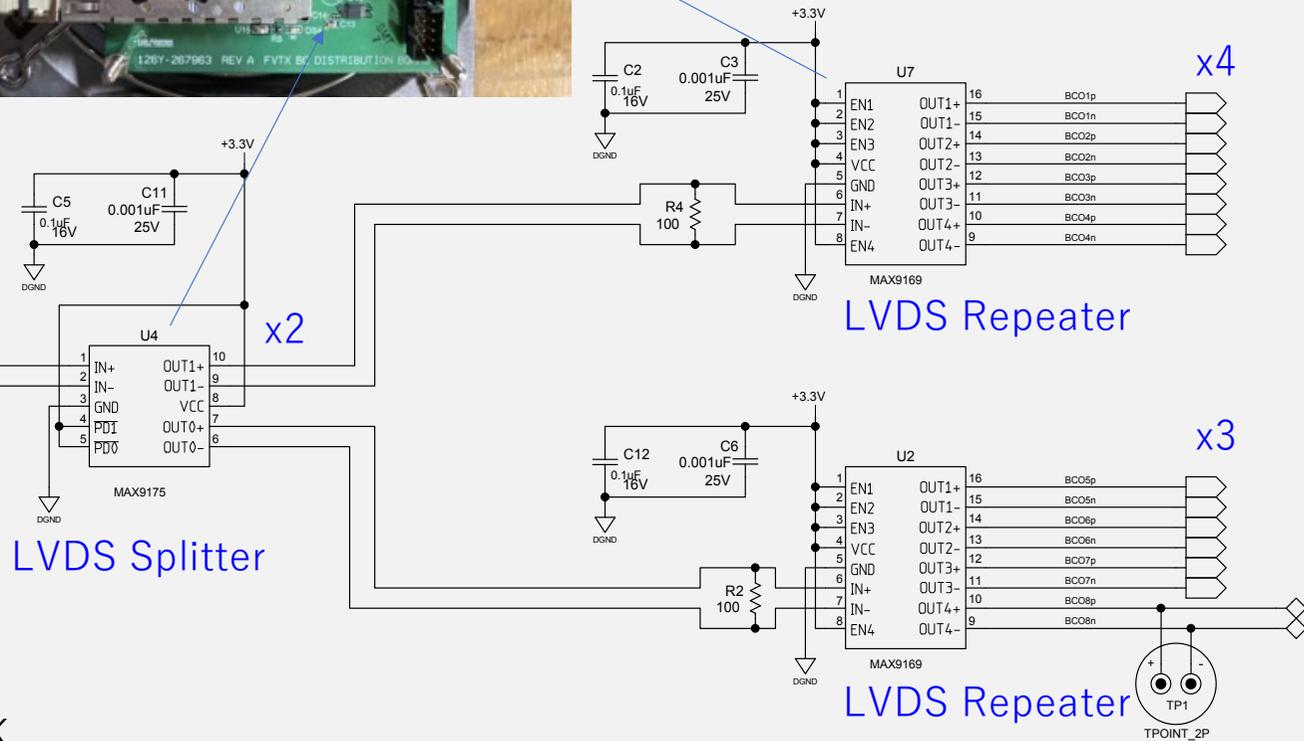
BCLB Original Schematics



BCO CLCK

Optical driver output

Test points before the LVDS splitter

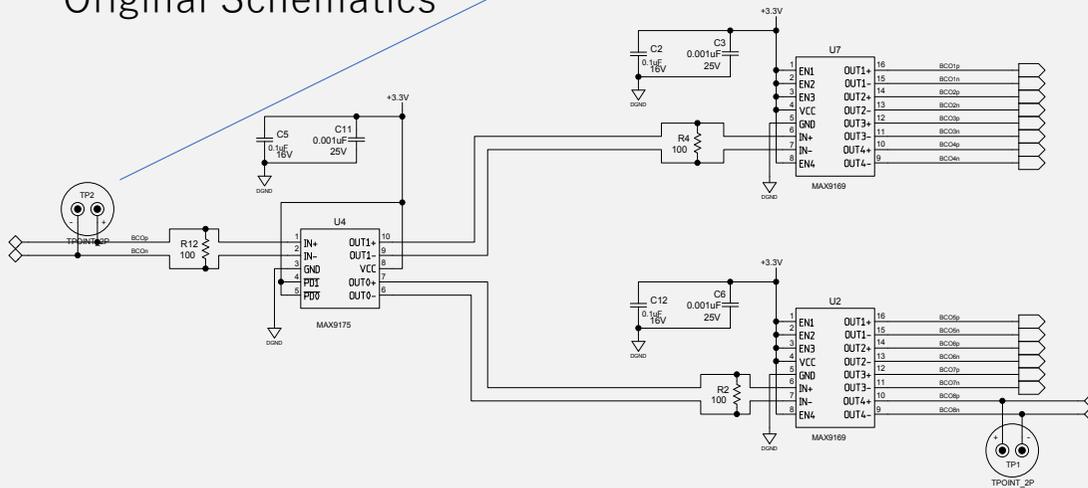


* Similar for START CLOCK

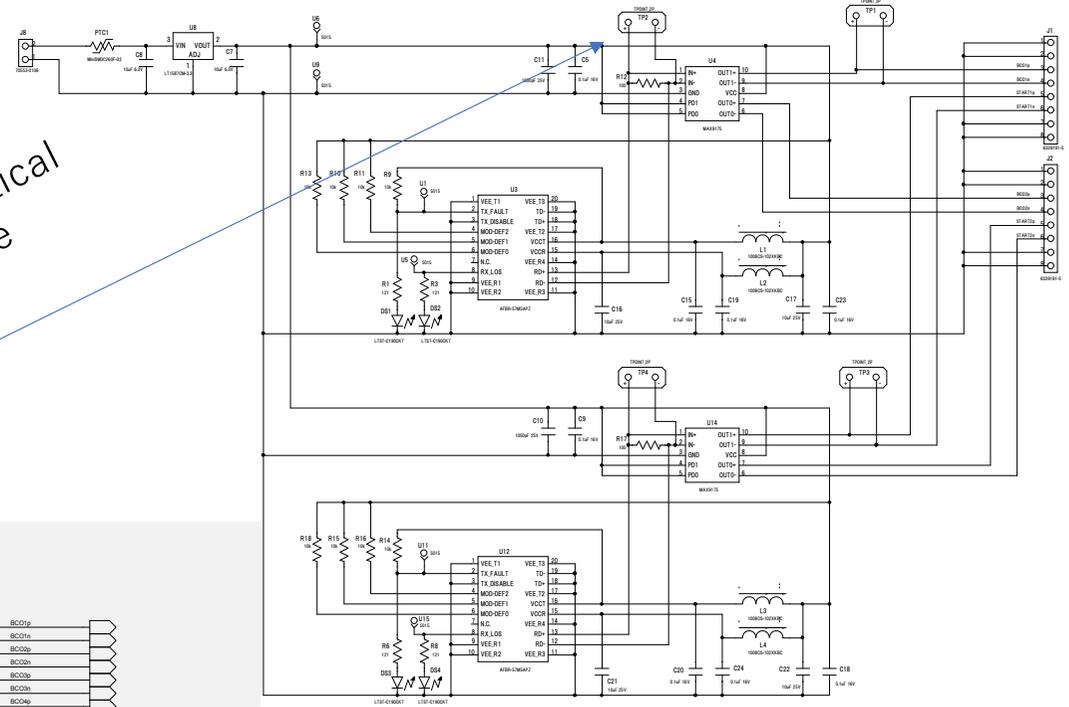
Test Points

Testing point for the optical driver output before the splitter input

Original Schematics



* Similar for START CLOCK



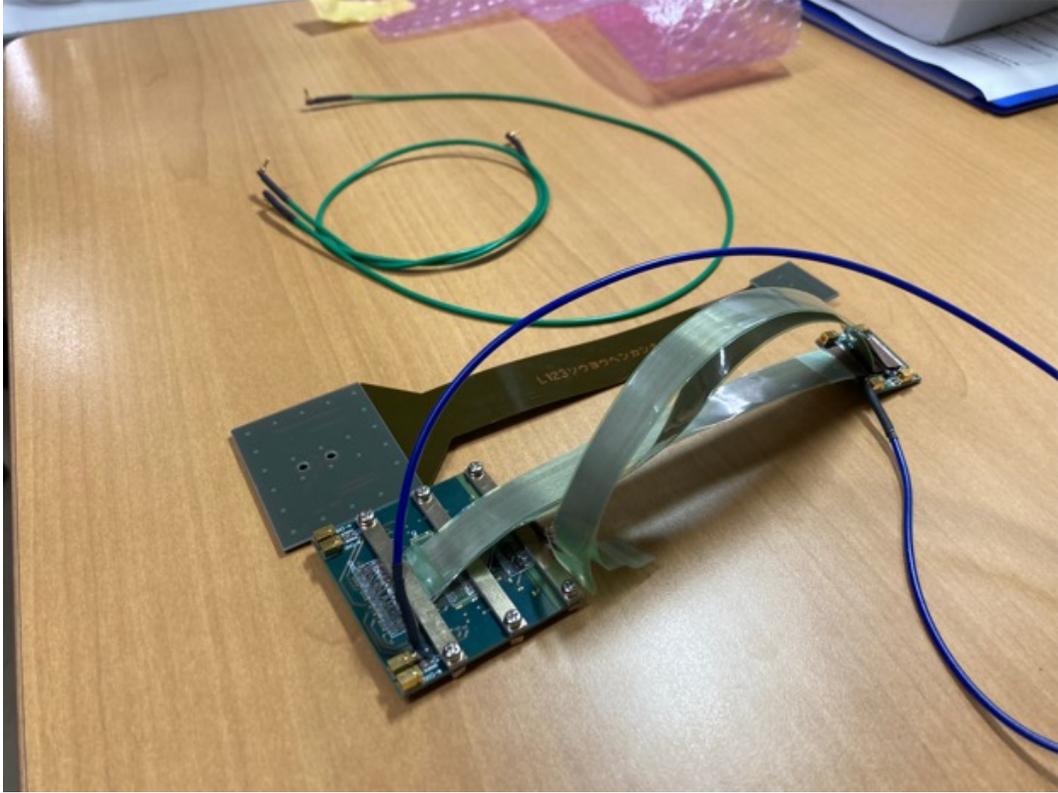
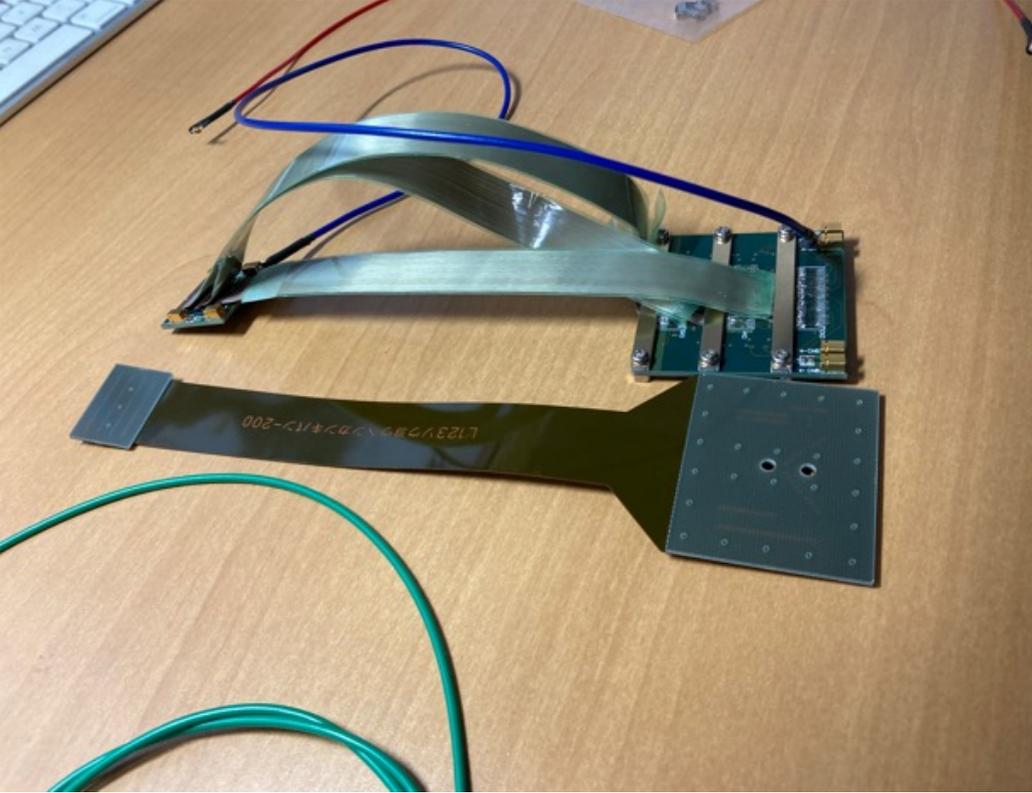
We have corresponding testing point in the latest design. So this is OK.

Plan

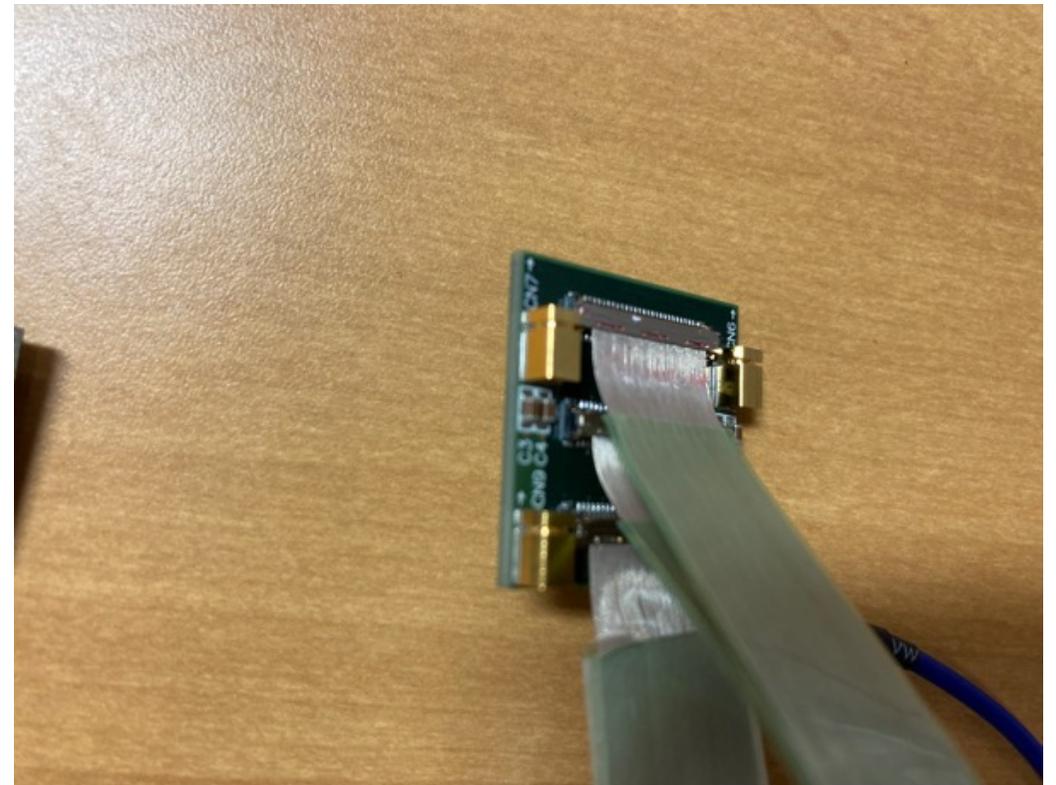
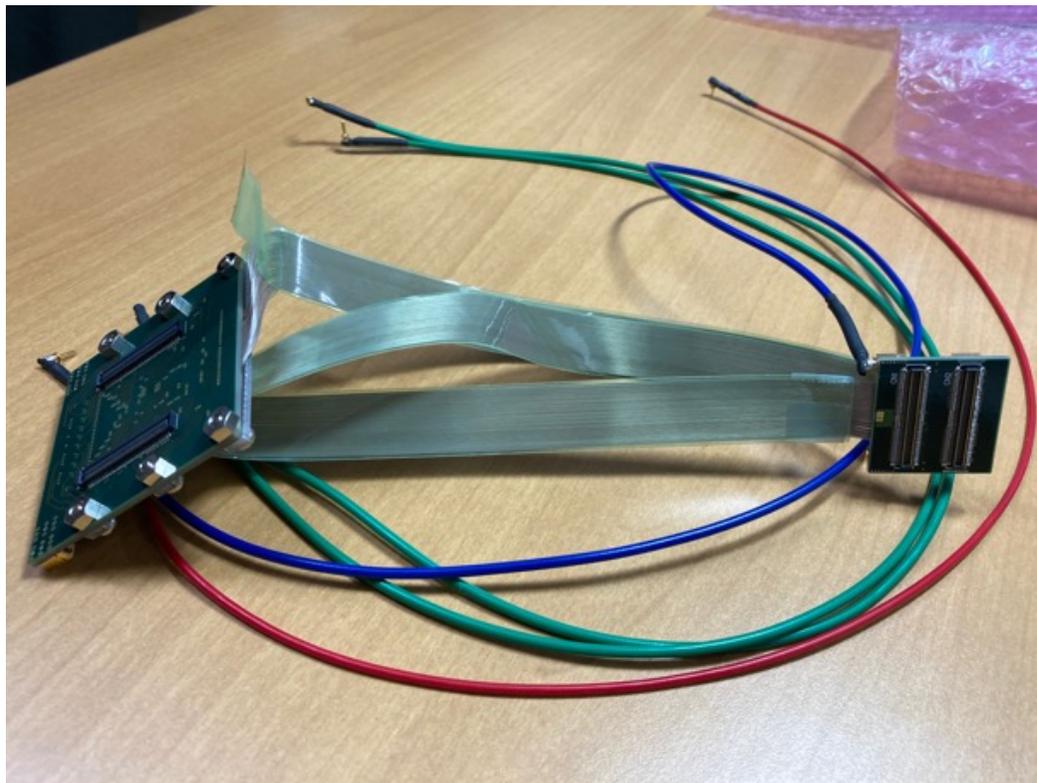
- Final design approval
- 2 Pre-production (2months)
- 18 productions (1 month)

Conversion Cable

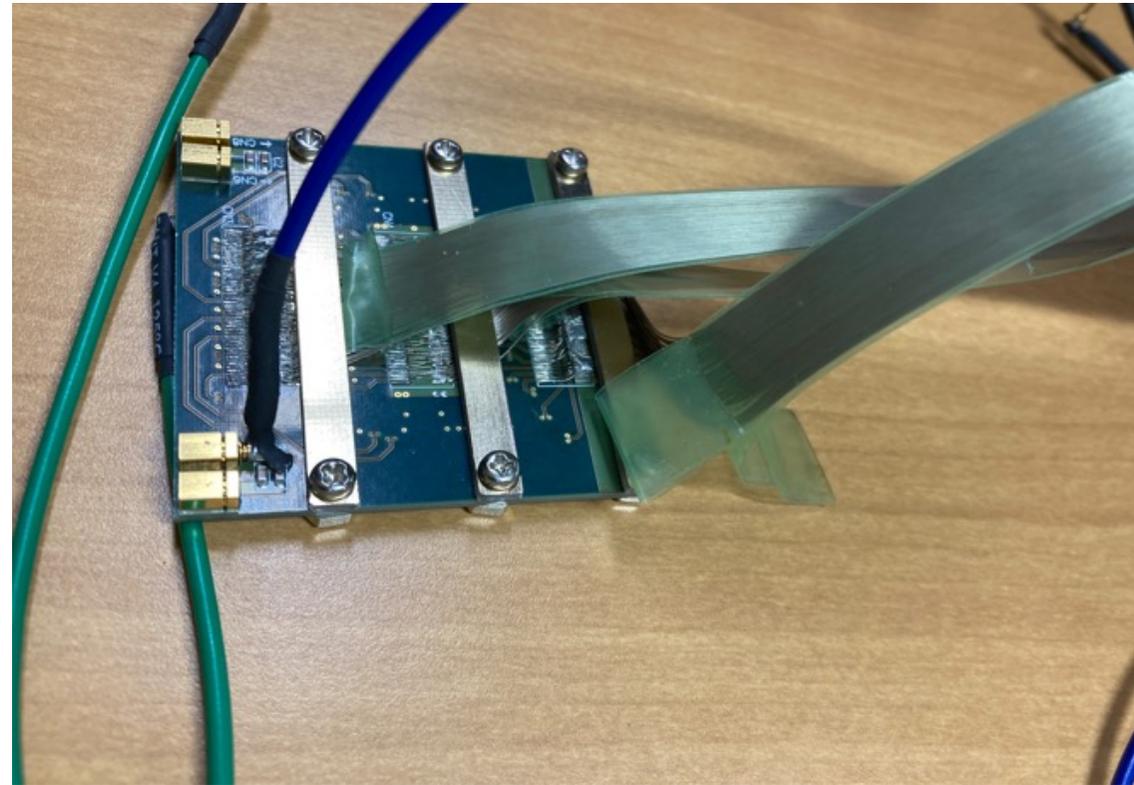
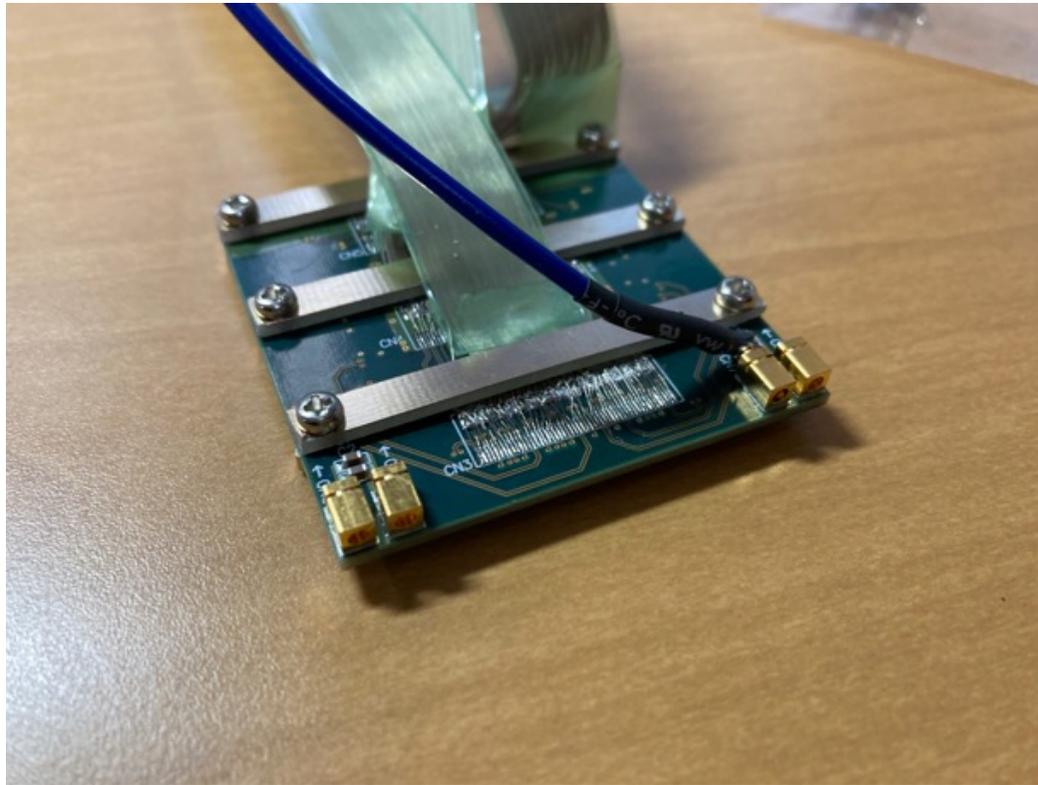
Micro-Coax Prototype-I



Micro-Coax Prototype-I

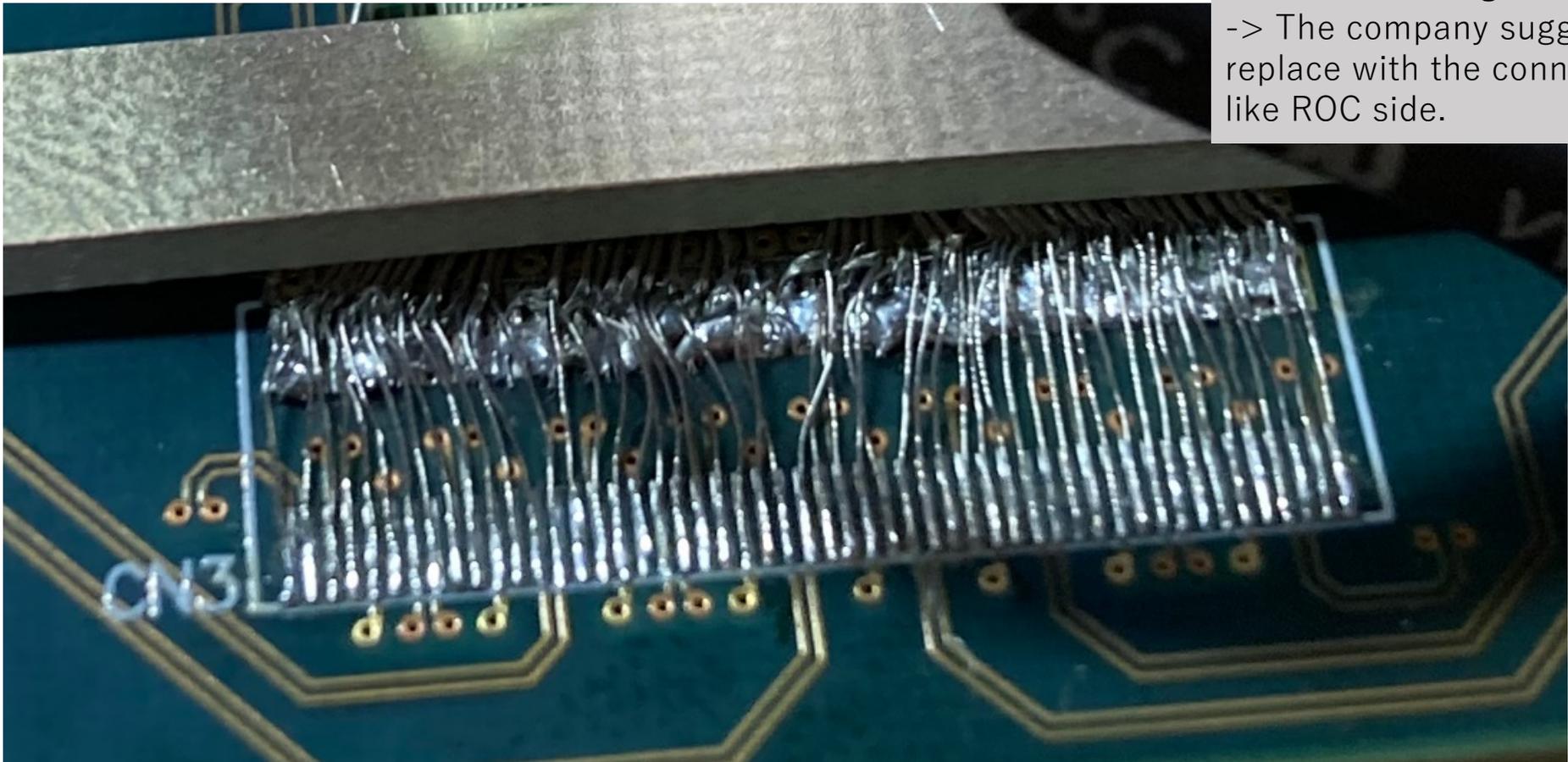


Bus Extender Side Connector



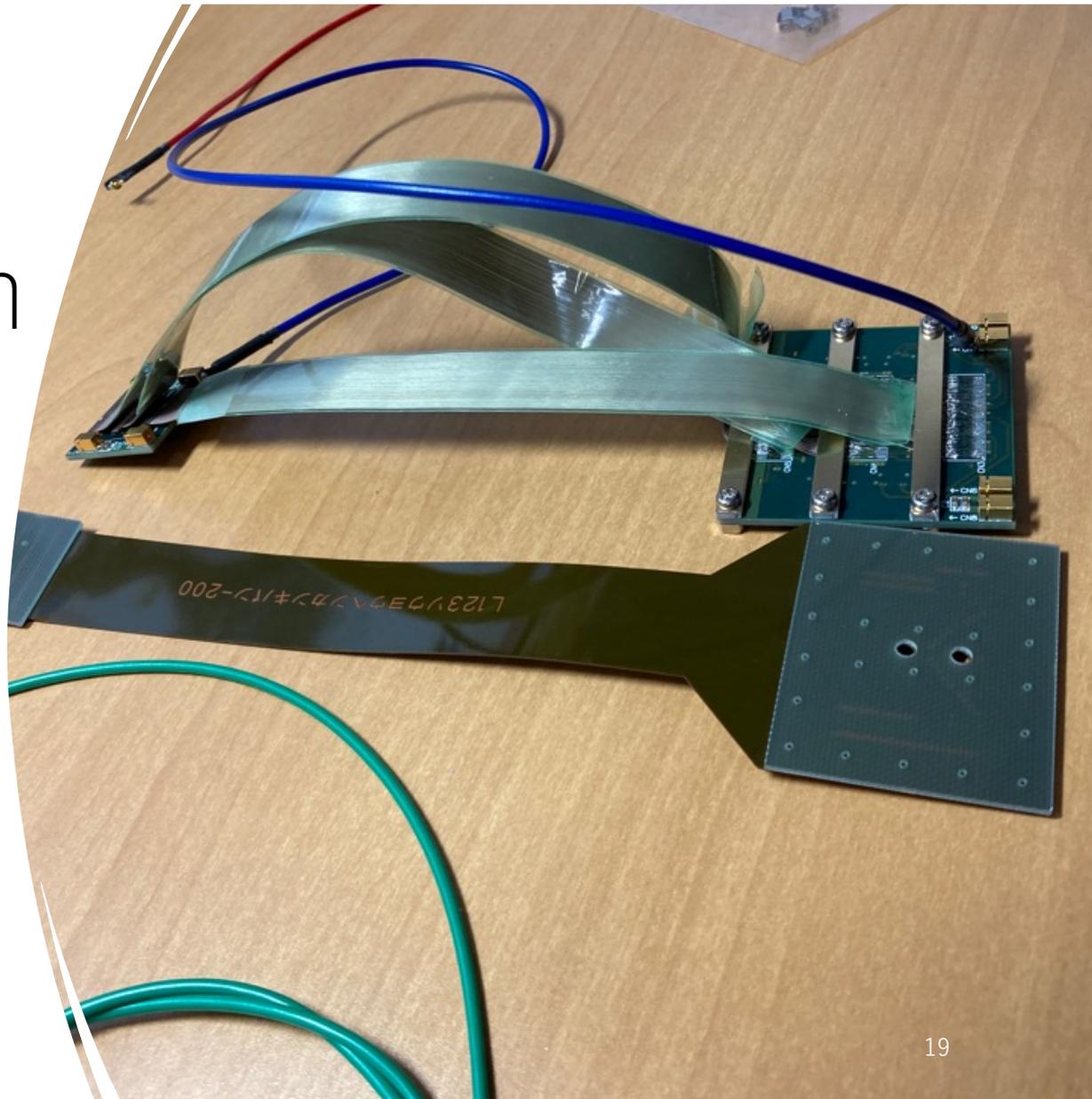
Manual Soldering Work Quality

Known short:
ch11,20,21 & shield line of
CN5.
-> Unpractical difficulty of
manual soldering
-> The company suggested to
replace with the connector
like ROC side.



First Impression

- Too difficult to handle as a single cable
 - Too long and stiff power and GND cables
 - Complicated cable stuck between 3 μ -Coax cables
 - Lamination loses flexibility in transverse direction.
 - None-trivial assembly of each component
 - Does this fit spacial constraints?
-
- And more to come ...



Plan

- To be tested in RIKEN test bench in December by running a calibration.
- Request performance measurements of high frequency signal transmission to Tokyo Metropolitan Industrial Research Institute in Dec ~ Jan.
 - S-Parameters
 - Impedance (TDR)
 - DC Resistance
- Re consider the bus extender side connector design.

Post 2021 Beam Test Short Term Plan (1)

- NWU Test Bench
 - Measuring the detection efficiency of the Taiwan ladder using cosmic rays
 - Since the angle of incidence is not as uniform as the beam, it would be better to place the Taiwanese ladder between the BNL ladder.
 - Performance comparison between BNL ladder and Taiwan ladder as much as possible
 - Noise level(done), dead(hot)-channel(done), efficiency, dark current, etc.?
- Riken Test Bench
 - Calibration using micro-coaxial conversion cable
 - Test of 1.1m bus extender (end of January?) –
 - Test of 1008ROCs
 - Need some help from NWU crews

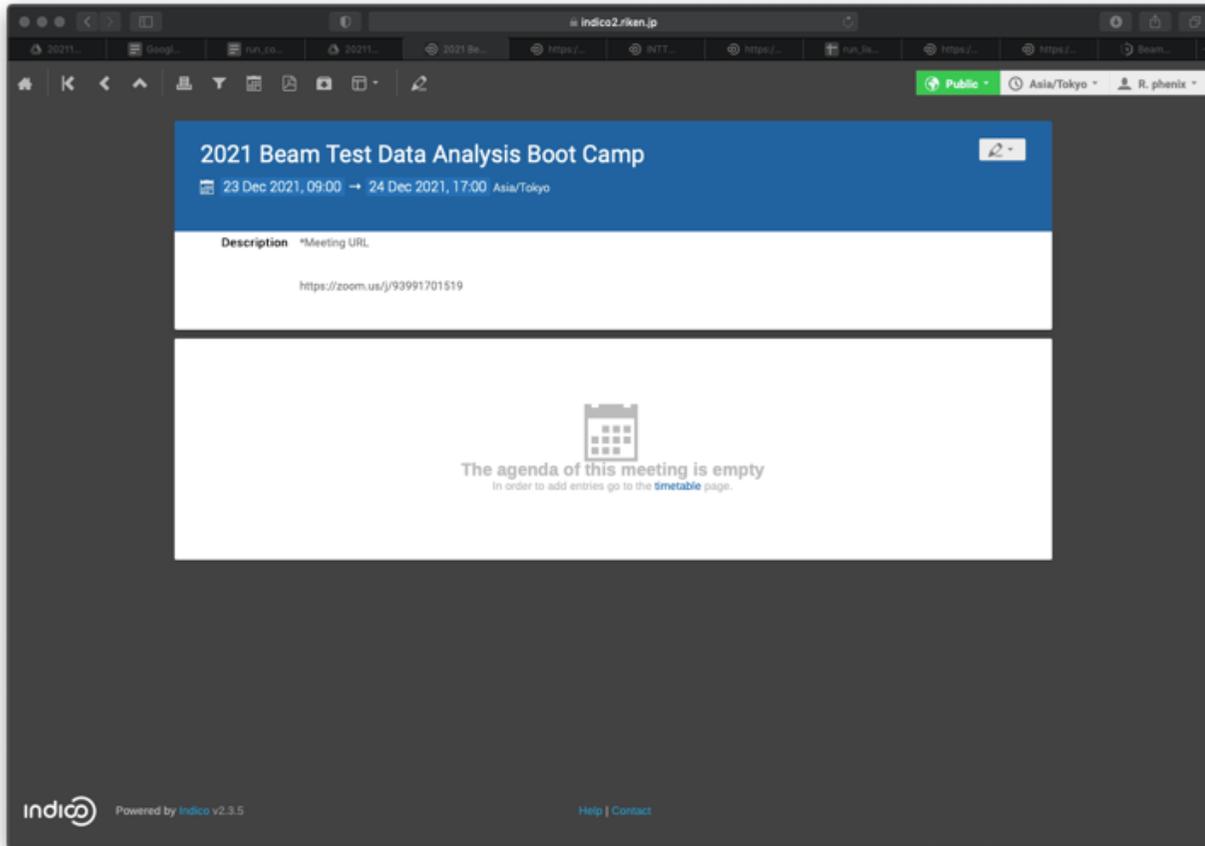
Post 2021 Beam Test Short Term Plan (2)

- Beam Test Analysis Boot Camp in NWU
 - An environment where you can concentrate on analysis by securing time and space
 - Quickly ask each other questions about detector response in beam tests, analysis techniques (programming, etc.), and other details.
 - Discuss plots as soon as they are completed to speed up feedback on analysis
 - Support staff can monitor student progress in real time.

Photo from 2019 Fermi Beam Test Boot Camp @ NWU

Beam Test Analysis Boot Camp in NWU

December 23 – 24th



The screenshot shows a web browser window displaying an Indico meeting page. The page title is "2021 Beam Test Data Analysis Boot Camp" and the dates are "23 Dec 2021, 09:00 → 24 Dec 2021, 17:00 Asia/Tokyo". The description field contains the text "*Meeting URL" and the URL "https://zoom.us/j/93991701519". Below the description, there is a message: "The agenda of this meeting is empty. In order to add entries go to the [s timetable](#) page." The Indico logo and version information "Powered by Indico v2.3.5" are visible at the bottom left, and "Help | Contact" is at the bottom right.

- Everyone who may interested in the data analysis are welcome to join.
- <https://indico.bnl.gov/event/14006/>
- <https://zoom.us/j/92149923535>