

Production Status

RIKEN/RBRC

Itaru Nakagawa

INTT Production Status

Today

* Beyond 112 are spares

2022	1	2	3	4	5	6	7	8	Qty*	Status	
Silicon									135	Done	
HDI									176	Done	
Stave									204	Done	
Bus Extender	Batch-1(20)		Batch-2(40)			Batch-3(70)			130	Production	
Conversion Cable	Prototype-1	Contract		Prototype-2			Production (130)			130	Prototype
Beam Clock Board	Design		Public bid	Preproduction(2)			Production(18)			20	Prototype

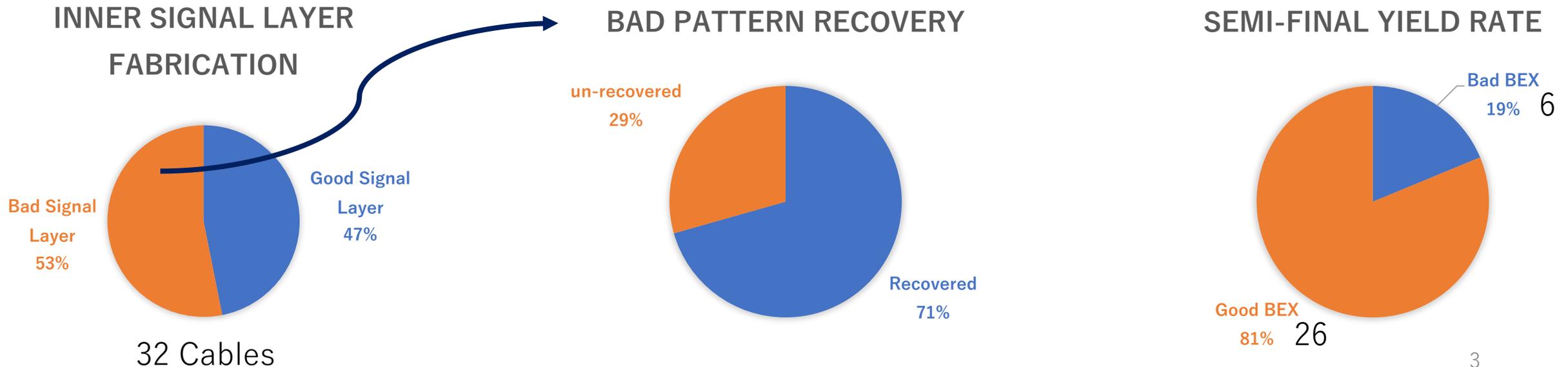
- The public bid for BCLK Board was closed. The successful bidder was Arus co. who took care of the design modification. Parts procurement has started already. Projected schedule is to be updated soon.
- Batch-2(40) Bus Extender Production is on schedule. Expected delivery is mid. April. All cables are to be shipped to BNL right away.
- The contract for the 2nd prototype of μ -coax conversion cable employing IPEX UX-II is underway. The board modification has been already in progress.

Bus Extender Production

- 19 Good left over BEX from batch-1
- 26 Good BEX fabricated from batch-2
 - 21 good BEX is under connector implementation
 - Expected delivery by middle of April
 - 40 good BEX will be shipped to BNL by the end of April

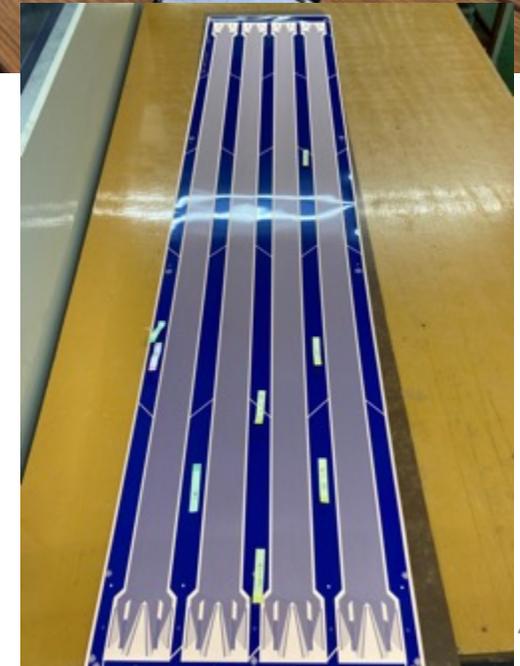


Somewhat degraded yield rate performance of batch-2 compared to batch-1

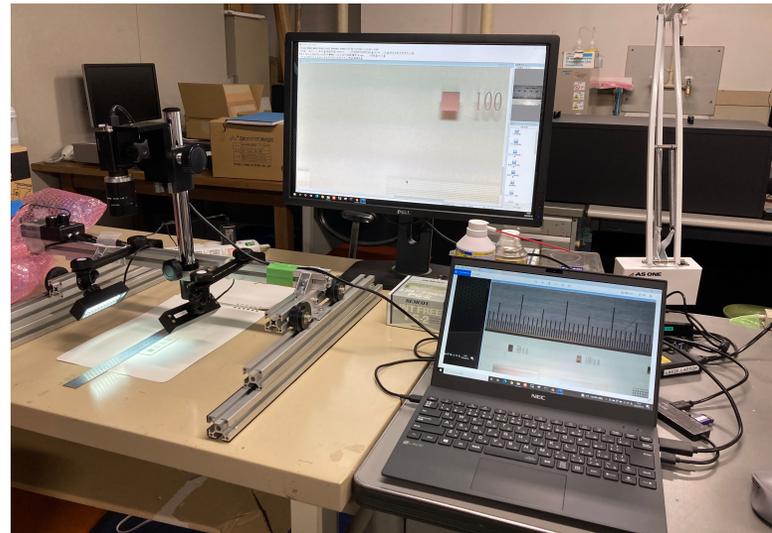


Bus Extender Production

- Batch-3 started
- Inner signal layer pattern inspection with upgraded software.
- The first impression is improved fabrication after 7 sheets inspection (out of 11 sheets to be processed.)

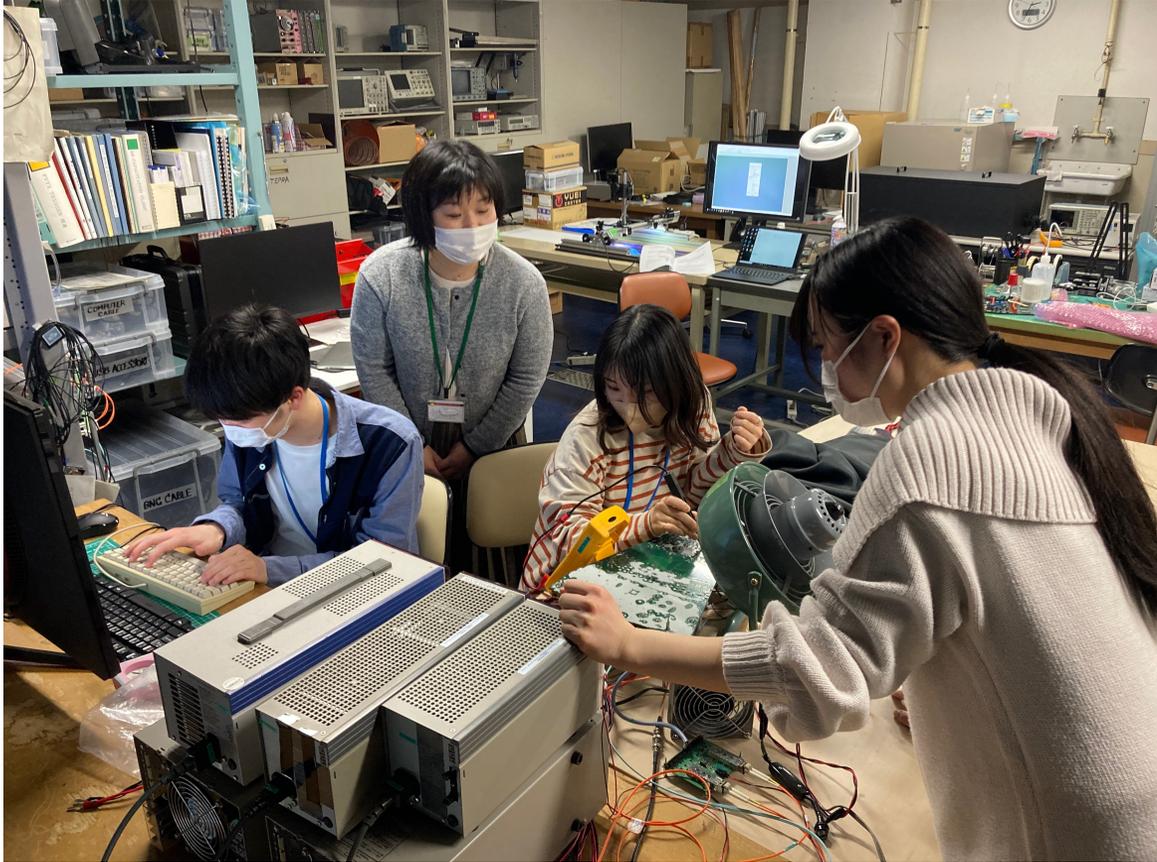


Upgraded software for the inspection system



ROC Test @ RIKEN

ROC Test @ RIKEN



- Completed regulator upgrades for 18 ROCs by now.
- Thanks to Hikaru, Luna, Yumika for testing 1008 ROCs.
- Good ROCs (~8 or so) are planning to be shipped to BNL in April.
- Continue testing for the remaining ROCs in RIKEN.

Heat Sinks for ROC Regulators

2021/10/29 INTT Meeting Minutes

- o Cooling Plates for ROC <Rachid>

- **Itaru** should mount heat sinkers to ROC regulators on topsides as a part of ROC test in RIKEN. The glue appears to be very strong after the heat cycle of the regulator operation.

IPEX μ -Coax

CABLINE[®]-UX II

The simulation for transmission performance

Part No. Plug: 20531-0**T-02, Receptacle: 20533-0**E

Technical Report

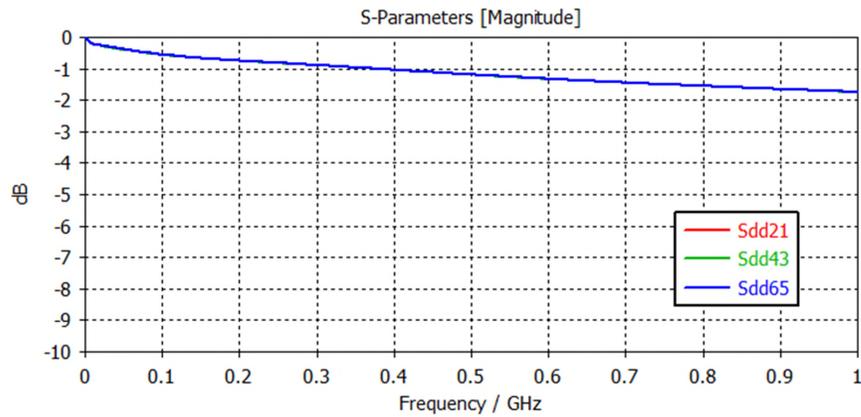
0	R22096	2022/03/17	A.Koyanagi	T.Tanigawa	H.Ikari
Rev.	ECN	Date	Prepared by	Checked by	Approved by

CABLINEX-UX II The simulation for transmission performance

Document No.
IER-001-10621-00EN

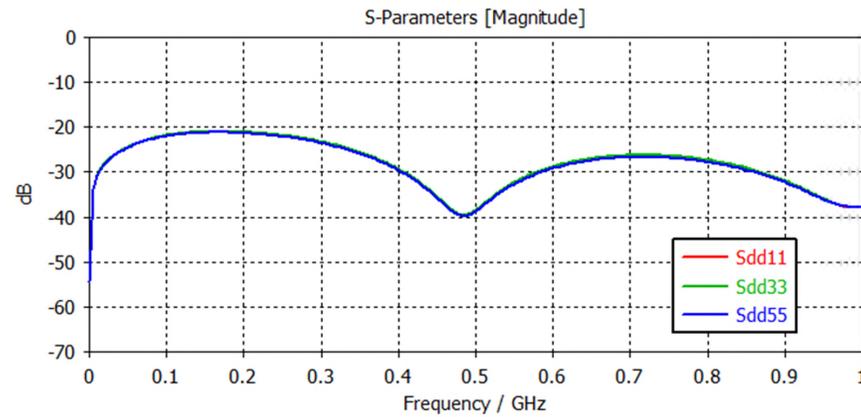
2. Simulation result (Insertion loss, Return loss)
S-parameter (Differential) : MCX cable **AWG#44, 45ohm, L=200mm**

Insertion loss



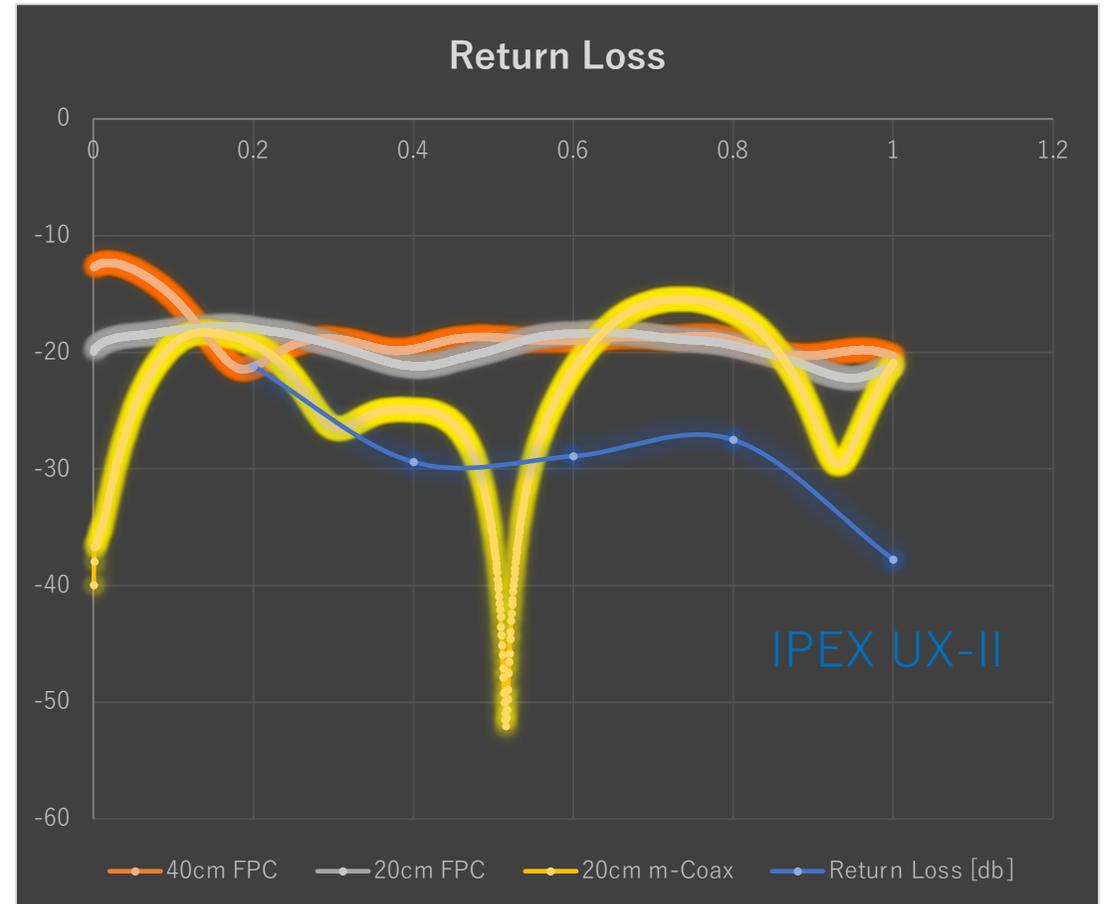
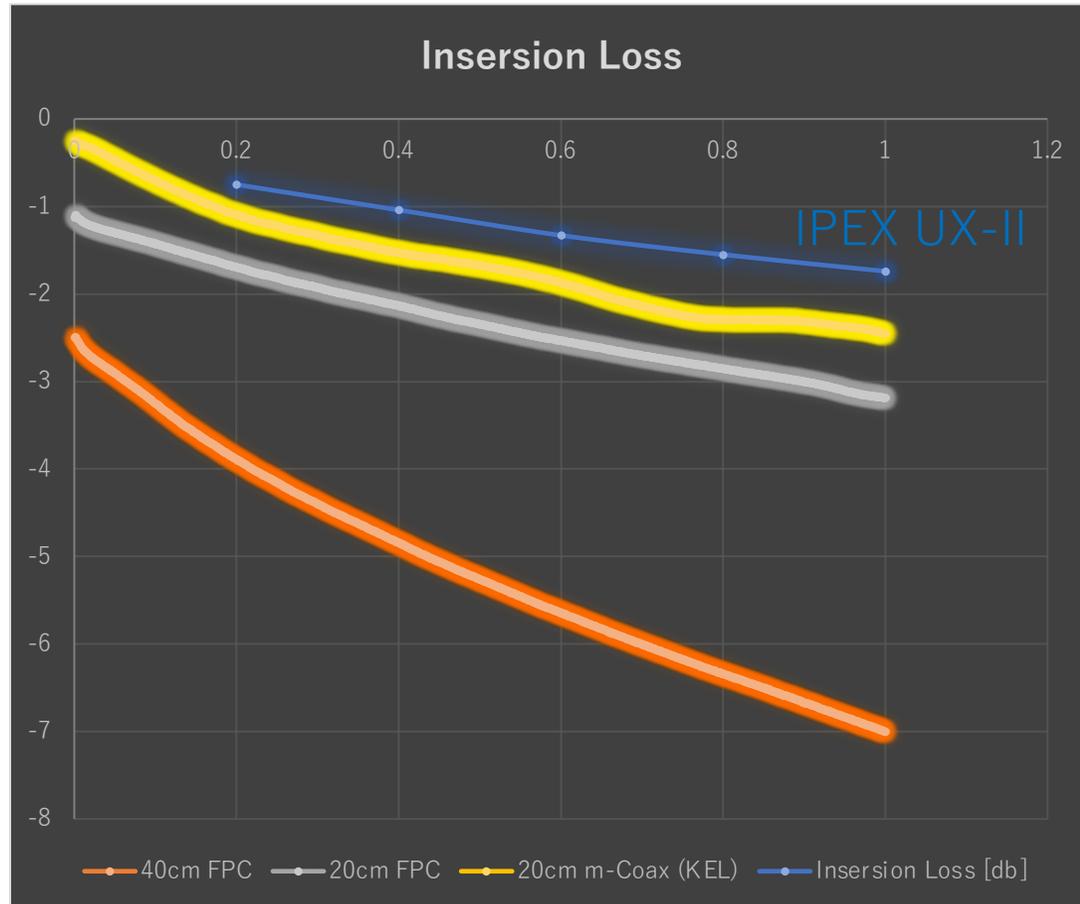
(dB)	0.2GHz	0.4GHz	0.6GHz	0.8GHz	1.0GHz
Sdd21	-0.75	-1.04	-1.33	-1.55	-1.74
Sdd43	-0.75	-1.04	-1.33	-1.55	-1.75
Sdd65	-0.75	-1.04	-1.33	-1.55	-1.74

Return loss



(dB)	0.2GHz	0.4GHz	0.6GHz	0.8GHz	1.0GHz
Sdd11	-21.16	-29.40	-28.90	-27.50	-37.76
Sdd33	-21.07	-29.25	-28.75	-27.30	-37.59
Sdd55	-21.31	-29.58	-29.14	-27.74	-37.66

sParameter Comparison



Specification Comparison (Executive Summary)

High Frequency Signal Transmission Performance @400MHz

	FPC		KEL XSL				IPEX UX-II
Length [cm]	20	40	10	10	20	30	50
AWG	N/A	N/A	46	44			44
Impedance [Ω]	50	50	50	45 \pm 3			50
Diff Impedance [Ω]	110	110	93	83			
Insertion Loss [%]	80	56	84	90	84	80	88
Return Loss [%]	10	20	25	18			3
Cross Talk [%]	<12*		1				
Eye Diagram	similar		similar				

*20cm conversion cable with bus extender

Conclusion

There is no data available for the exactly same condition between FPC and μ Coax cables. Presumably 20cm FPC can be compared to XSL-AWG46-10cm and XSL-AWG44-20cm. Resulting performances look similar within 20cm. To be executed actual measurement once prototype is made. Hard to extrapolate the performance to 1.41m, need to wait for the actual measurement.