New RX PIN Opto-pack Production
&
New RX Plugin Wirebonding

*The Ohio State University*
Overview

OSU’s Role with the new RX production

• Produce 280 tested-good PIN opto-packs
• Mount these opto-packs on the new RX plug-ins
• Wirebond the opto-packs to the new RX plugins
• TBD - mount and wirebond the RX ASIC to the RX plugins
PIN Opto-pack

• Identical to nSQP / IBL
  – Use ULM Photonics ULMPIN-04-TN-U0112U
  – Mounted to alumina ceramic with Epotek H20E
  – 25 µm Au wedge wirebonds from PIN to opto-pack

• No optical epoxy covering the PIN array
  – Sealed from dust after fiber inserted
PIN Opto-pack Mounting on New RX

• “Tack” down opto-pack using 5 minute epoxy
  – Align opto-pack to board edge by eye (is this good enough?)
• Glue opto-pack and brace using Hysol EA9396
  – Same procedure used for nSQP / IBL – no detachments observed
PIN Opto-pack Bonding on New RX

• PIN opto-pack bond pads on the new RX PCB made very similar to nSQP / IBL opto-boards
  – Bonding on 6 prototype new RX boards worked great
• Plan at least 4 destructive pull tests per new RX
• Will perform a quick go / no go test after bonding
  – Test system to be delivered by Bern
• Encapsulate using Dymax 9001 V.3.1
Schedule

• All materials needed for PIN opto-pack construction in house, production underway
• Aim to produce 20 PIN opto-packs per week
  – With some contingency should complete 280 by middle June
• Mounting / Bonding new RX with no ASIC
  – 25 boards per week – 3 months
• Mounting / Bonding new RX with ASIC
  – 20 boards per week – 4 months
Summary

• OSU produced ~1300 PIN and VCSEL opto-packs for nSQP and IBL opto-boards
  – Same procedures will be used to produce the 280 PIN arrays for the new RX plugins
• Assembly and wirebonding procedure of the new RX is straightforward
  – Process vetted on 6 prototypes constructed in Dec.
• Expect to deliver all new RX boards by Oct. 1