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# Versatile Transceiver and Transmitter Production for Phase I Upgrades of LHC Experiments

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Production of the Versatile transceiver and twin transmitter modules for use in the readout and control systems of upgrading LHC detector systems is starting. We review the VTRx and VTTx flavours and their customer base as well as commercial actions being taken to procure parts and assemblies. The detailed production plan for delivering known good parts along with the full quality assurance plan will be shown.

## Summary

The Versatile Link project aims to provide a multi-gigabit per second optical physical data transmission layer for the readout and control of High Luminosity LHC (HL-LHC) experiments. A point-to-point bidirectional system architecture is proposed. The front-end component that will enable the configuration of any of the Versatile Link's supported architectures is either a bi-directional module composed of both optical transmitter and receiver –the Versatile Transceiver (VTRx); or a twin transmitter for uni-directional applications (VTTx). Both SingleMode (SM) and MultiMode (MM) flavours of the VTRx and a MM VTTx have been developed to support the various types of installed fibre-plant in the LHC experiments.
The components of the VTRx & VTTx modules must also be procured and qualified in order to guarantee delivery of fully qualified assemblies. A breakdown of the modules into their components will be shown, together with the parts flow from different manufacturers. We will also detail the procedures that have been developed during prototyping to assess both module- and component performance. These same processes will be applied in the QA of the full production. Finally, the procurement process for each component as well as the complete assemblies will be outlined. These details, along with the overall number of parts to be produced, all contribute to defining the overall schedule of deliveries to the various users.

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