

# ATLAS ENDCAP PIXEL MODULE LOADING

## Points of discussion

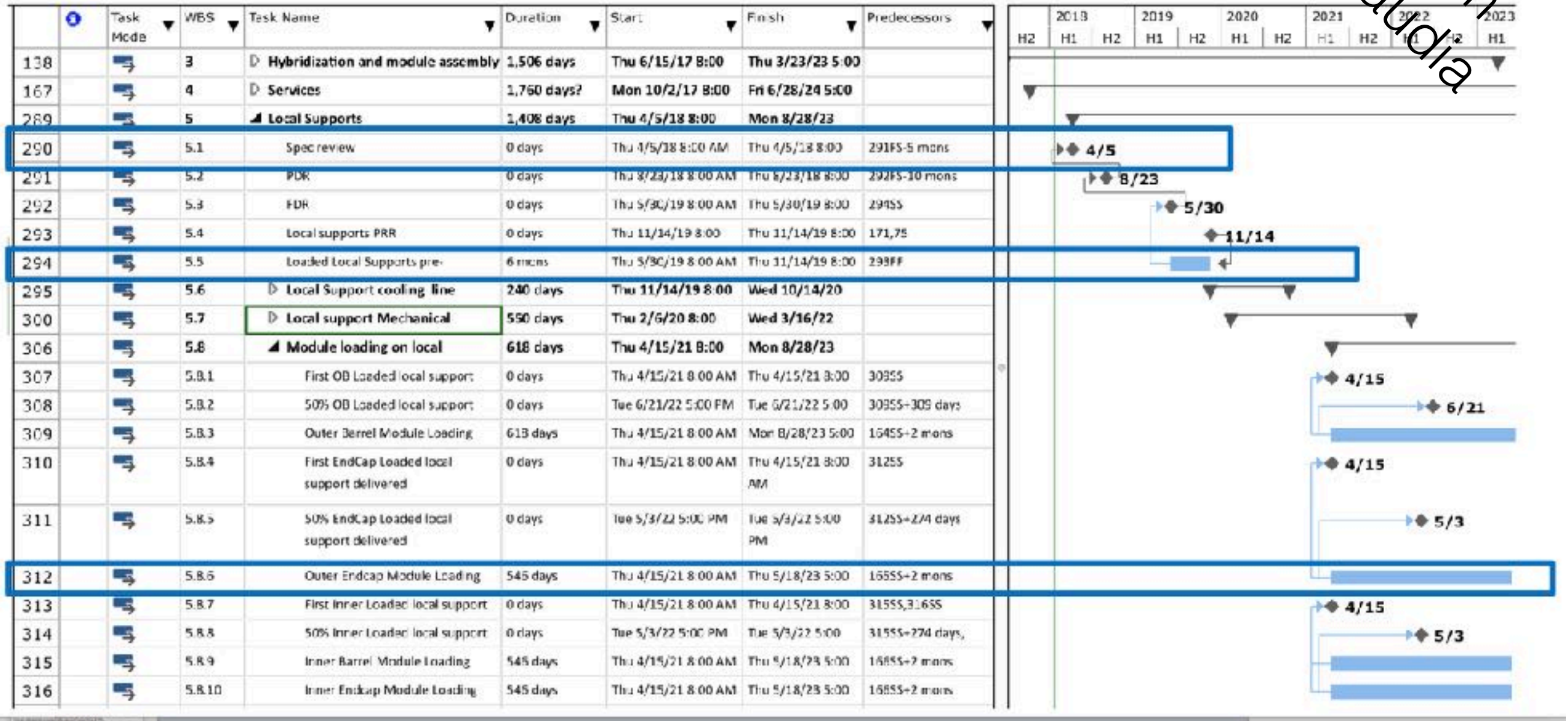
G. Chiodini - INFN Lecce

GE/LE/RAL meeting

2-Jan-2018

# Schedule

From  
Claudia



- Requirements: Before June 2018
- Ready for module loading pre-production: June 2019
- Module loading preproduction: 2020
- Module loading production: 2021/22/23

Implication for Italian module loading sites:

- Purchase gantry in 2018
- Begin module loading preparation soon, without wait gantry

# Tasks (No QA)

## **Gantry (Genova)**

- requirements
- layout
- purchase

## **Software**

- OS and frameworks
- xyztheta movements+drivers
- T, RH, Strain gauges
- Glue deposition
- Optics
- Control
- Database
- Pattern recognition
- Survey

## **Module loading services**

- Vacuum
- Electric service
- Gases

## **Optics**

## **Glue(s) (Genova)**

- preparation
- deposition
- curing

## **Loading accuracy**

- XY
- Z

## **Survey accuracy**

- XY
- Z

## **Boxes and Frames (Lecce)**

- Transport boxes
- Handling frames
- Test frames

## **Alignment tools:**

-tooling plate, vacuum jigs, bridge, tools

## **Pick-and-Place**

- tools
- strain gauges

## **Reworking**

## **Piping**

## **Interconnection module-bus tape**

## **Interconnection module-data link**

## **Module pull tests**

*Indicated some assigned task  
between Italian sites*

## ... other common items

Buy material together: for example glue(s)

Software share

Document share

Others: EoS card, ...

# Outstanding issues

Module loading requirements for the end-cap

Flex-bus tape interconnection technology

- impact on module loading site
- impact on mechanical tolerance
- impact on envelope (needed strain reliefs?)

Reworking

# Manpower 2018-2019

## LECCE

### Physicists:

- G. Chiodini 50%
- S. Spagnolo 50%

### Mechanical technicians (CAD design):

- A. Miccoli 40%
- G. Fiore 40%

### Electronic technicians:

- R. Assiro 20%
- C. Pinto 20%

### Electronic researcher:

- P. Creti 20%

Loading

Most QA

## GENOVA

### Physicists:

- C. Gemme
- S. Passaggio
- AIDA post-doc

### ATLAS technician:

- G. Gariano

### ATLAS Mechanical engineer:

- Cecilia Rossi
- Post-doc

# Lecce plans

- Bought RAL optics
- Waiting for RAL bridge 3D printed
- Glue dispensers in Lecce



1200 euro



5500 euro

- Glue available (epoxy) but not good for modules
- Exercise gluing and optics inspection on dummy



# Italian first discussions on strategy

- Catch up as soon as possible with RAL module loading strategy
- Gantry with theta rotation for upgrading to pick-and-place if possible
- Studying glue curing (Genova)



# Points of discussion

- 1) Step to do to converge or make other to converge on the requirement for end-cap module loading
- 2) Repository common document and/or software
- 3) A possible schedule for module loading at RAL where Italian technicians could be involved.
- 4) Effort duplication and overlap
- 5) Common points and difference (if any) between the RAL approach and possible future IT approach
- 6) End-cap module loading vs Barrel module loading