

**CompactLight**  
**Ka-Band Linearizer and Beam Dynamics**

<b>Date and Time</b>	Wednesday 4 July 2019 at 16:15
<b>Venue</b>	Hotel Rantapuisto, Helsinki, Finland
<b>Participants</b>	Giuseppe Dattoli, Hector Mauricio Castaneda Cortez, Alejandro Castilla, Louise Cowie, Adrian Cross, Simone Di Mitri, Benito Gimeno, Daniel Gonzales Iglesias, Andrea Latina, Xingguang Liu, Thomas Lucas, Jordi Marcos, Francis Perez, Bruno Spataro, Xiaowei Wu,...
<b>Apologies</b>	Avni Aksoy, Graeme Burt, Massimo Ferrario, Walter Wuensch.

## Preamble

During this meeting, a series of considerations and *actions-to-take* with respect to the **Ka-Band Linearizer**, were presented and discussed. The following are some “quick notes” of the meeting.

## 1

### Introduction

- An analysis on [projected] emittance growth and “position errors” was presented, this included:
  - Transverse wakefields.
  - Beam jitter.
  - Vibration of the ground/structures.
- Other points that were not discussed in detail include, but are not limited to:
  - Particle’s angle errors.
  - Slice emittance.

### 1.1 Comments

- We need to establish tolerance budgets on bunch parameters in order to ensure good FEL performance in the undulators, to each section of the lattice.
- Numerous 1D studies have been already carried out, it may result helpful to get 3D fields and wakefields of the structures to do a full 6D analysis.
- It was proposed to add the University of Valencia to the Ka-band linearizer study group.
- It was proposed that there should be two groups, each exploring one option for the Ka band linearizer, with close collaboration between the groups, making sure that the work done in parallel is complementary and not purely redundant.
- It was proposed that CERN and ULANC, provide support with licensed software when possible and required by the other partners in the study group.

## Action List

The following are the general comments and remarks presented by the participants, previous to the closing of the session:

<b>Num.</b>	<b>Action</b>	<b>Responsible</b>
<b>1</b>	Define figures of merit at the end of the LINAC to ensure FEL performance in the undulators (WP5+WP6).	Avni, Simone, Hector, Andrea
<b>2</b>	Estimate, from the view point of the FELs, the maximum (+/-) deviations, i.e. emittance, position, and angle budgets, to be considered in further refinements of the lattice and its elements.	Avni, Simone, Hector
<b>3</b>	Once actions 1 & 2 had been executed, a systematic study will be performed and the error allocation will be given to each component of the lattice.	Andrea, Xingguang
<b>4</b>	Once the allocations have been given, the properties of the designs will be frozen for the Ka-band linearizer, as well as any other element that is affected by this allocation.	Alejandro, Xiaowei
<b>5</b>	The small aperture and high gradient option for the Ka-band linearizer will be led by INFN-LFN, Yale, and Valencia.	Bruno, Benito
<b>6</b>	The relaxed aperture and mid-gradient option for the Ka-band linearizer will be led by ULANC and CERN.	Alejandro, Xiaowei
<b>7</b>	Task force meetings should be held regularly to follow up the above described actions.	Andrea, Bruno, Graeme, Simone
<b>8</b>	What are the maximum repetition rate limitations for each component and the reason why	Adrian

**Next Meeting: Tuesday 30 July 2019 from 10:00 to 11:00 at XLS General Vidyo Room.**