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Collaboration meeting on DS 11T Dipole grounds

Date: 21 to 23 September 2015

Venue: Fermilab – Chicago

Participants:

CERN: Auchmann B., Bajko M., Ballarino A., Bordini B., Bottura L., de Rijk G., Fiscarelli L., Izquierdo Bermudez S., Karppinen M., Lackner F., Löffler C., Perez J.C., Prin H., Rossi L., Savary F., Smekens D., Willering G.

Fermilab: Andreev N., Apollinari G., Barzi E., Chlachidze G., DiMarco J., Feher S., Nobrega A., Novitski I., Zlobin A., Stoynev S., Turrioni D., Velev G.

Distribution: Participants, Jimenez J.M., Harding D., Siemko A., TE-MSC Group Leader Office, TE-MSC Section Leaders

Note: Participation will be through Vidyo for some of the CERN participants

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1. Indico

The event is in Indico at http://indico.cern.ch/event/434223/.

2. Goal of the collaboration meeting

The Review Panel of the 2nd International Review of the HL-LHC 11 T Dipole for DS Collimation held at CERN from 8 to 10 December 2014 (https://indico.cern.ch/event/354499/) recommended to **organize an internal review in the collaboration, to better integrate the best features of the previous FNAL and CERN developments to the further 11 T dipole development**.

The main goal of this collaboration meeting is to address this recommendation. On this occasion, it is proposed to review the original functional requirements of the project and to recall the grounds of the conceptual design.

The meeting is structured in 4 parts as follows: [1] original plan and design aspects, [2] conductor, technology development and fabrication, [3] tests, and [4] conclusions.

3. Agenda

Monday 21 September

Part I – Original plan and design aspects

[8:30 – 8:45]	Welcome address and original plan at Fermilab	[A. Zlobin]
[8:45 – 9:45]	From functional requirements to conceptual design	[M. Karppinen, B. Auchmann]
[9:45 – 10:00]	Mechanical structure and analysis Fermilab	[I. Novitski]
[10:00 – 10:15]	**Coffee break**	

Part II – Conductor, technology development and fabrication

[10:15 – 10:35]	FNAL conductor and cable development	[E. Barzi]
[10:35 – 10:55]	CERN conductor and cable development	[B. Bordini]
[10:55 – 11:35]	FNAL technological choices, cable insulation and coils	[A. Nobrega]
[11:35 – 12:15]	FNAL model assembly and parameters	[I. Novitski]
[12:15 – 13:45]	**Lunch**	
[13:45 – 14:30]	Visit of the magnet and cable fabrication facility in IB3	[All]
[14:30 – 15:10]	CERN technological choices, cable insulation and coils	[D. Smekens]
[15:10 – 15:40]	CERN Model assembly and sensitivity to shimming	[C. Löffler]
[15:40 – 16:00]	**Coffee break**	
[16:00 – 17:30]	Design and technology discussion	[All]
[17:30 – 18:00]	Time reserved to draft conclusions	

Tuesday 22 September

Part III – Tests

[9:00 – 9:30]	Baseline tests plan	[G. Chlachidze]
[9:30 – 10:00]	Field quality – CERN	[L. Fiscarelli, S. Izquierdo Bermudez]
[10:00 – 10:30]	Field quality – FNAL	[J. DiMarco]

[10:30 – 11:00]	**Coffee break**	
[11:00 – 11:45]	Quench performance – FNAL Experience	[S. Stoynev]
[11:45 – 12:30]	Quench performance – CERN Experience	[G. Willering]
[12:30 – 13:30]	**Lunch**	
[13:30 – 14:15]	Protection – FNAL	[G. Chlachidze]
[14:15 – 15:00]	Protection – CERN	[S. Izquierdo Bermudez]
[15:00 – 15:30]	**Coffee break**	
[15:30 – 16:30]	Visit of the magnet test facility in IB1	[All]
[16:30 – 18:00]	Discussion	[All]

Wednesday 23 September

Part IV – Conclusions

[9:00 – 9:30]	Current baseline design, project status and plan	[F. Savary]
[9:30 – 10:30]	Meeting summary*	[All]
[10:30 – 11:00]	**Coffee break**	
[11:00 – 12:30]	Meeting summary*, cont'd	[All]

* Conclusions to be drafted as regards relevance of the final choices made for the current baseline design. The conclusions may be summarized in the form of a matrix as shown in Section 4 of this document

4. Summary matrix

Item #	Item Description	FNAL	CERN	Conclusion	
1.1	Magnetic design				40’
1.2	Conductor				
1.3	Cable				
2.1	Mechanical design				40’
2.2	Tooling and technology				
3.1	Quench performance				
3.2	Quench protection				40’
3.3	Field and field quality				
4	Magnet test procedure				

The summary matrix is meant to draw out conclusions on how the best features of the previous FNAL and CERN developments have been integrated to the further 11 T dipole development.

We shall also emphasize items which may still be in a grey zone, i.e. not well defined yet/not covered, if any.