TDR2 Chap3, 4, 5

20120820

N.Toge

General Status of TDR2, Chapt. 3 ~ 5.

- Status as of yesterday 2012/8/19:

Ch 3: http://ilc.kek.jp/~toge/Tdr2Chap3/
http://ilc.kek.jp/~toge/Tdr2Chap3/mltech20120819.pdf <-- PDF
http://ilc.kek.jp/~toge/Tdr2Chap3NKT20120819.tar.gz <-- tar.gz

Ch 4: http://ilc.kek.jp/~toge/Tdr2Chap4/
http://ilc.kek.jp/~toge/Tdr2Chap4/mlflat20120818.pdf <-- PDF
http://ilc.kek.jp/~toge/Tdr2Chap4NKT20120819.tar.gz <-- tar.gz

Ch 5: http://ilc.kek.jp/~toge/Tdr2Chap5/
http://ilc.kek.jp/~toge/Tdr2Chap5/mlmtn20120818.pdf <-- PDF
http://ilc.kek.jp/~toge/Tdr2Chap5NKT20120819.tar.gz <-- tar.gz

Work done so far by NKT

- A short list of what I have done follows -

- 3.1 parameters ... CA's 8/17
  - update has been converted into latex. Some NKT comments left in (8/19 – NEW)
- 3.2 cavity performance
  - ... light editorial + comments (8/13)
- 3.3 cavity integration .
  - .. heavy editorial + comments (8/14)
- 3.4 cryomodule
  - ... light editorial + comments (8/19 - NEW)
- 3.5 RF .
  - .. heavy editorial + comments (8/17)
- 3.6 LLRF
  - ... only short comments in the beginning (8/17)
- 3.7 Cav + CM testing
  - ... some editorial + comments (8/17)
- Bibliography .
  - .. update to include hyper links (8/17)

- 4.1 flat intro ... CA's 8/17 update now in latex (8/18 - NEW)
- 4.2 flat layout ... no work
- 4.3 flat KCS ... no work
- 4.4 flat LLRF ... no work

- 5.1 flat intro ... CA's 8/17 update now in latex (8/18 - NEW)
- 5.2 flat layout ... no work
- 5.3 flat DKS ... no work
- 5.4 flat LLRF ... no work

- I believe this basically completes my homework. Who have to do what from here on should be mostly obvious, but perhaps the work should be confirmed by and coordinated under the leadership of John C and Akira Y.

- I trust that it will happen Monday and later.

- Best regards,
- - Nobu

3.1 Main linac top-level parameters and general layout

- Emittance containment,
  - Need importance of orbit control *and* LLRF needs highlighting.
- Contents
  - Watch out for duplication
- Missing
  - Need intro to the “test” section.
- Refs, Numbers
  - Some Ref#s are hard-coded.
  - Some #s are missing.
- Flat and Mtn site possibilities;
  - Need to explain what their main differences are, what their implications are
  - If 3.1 does not do that someone else has to

3.3 Cavity performance and production specifications

- Statements
  - in many cases the statements are a bit generic and qualitative.
  - Heko to be a bit more quantitative and prescriptive,
  - Add explanations of “reasons”.
- Watch out for
  - Some overlaps with downstream sections.
- Cavity design drawings
  - too small to read the details.
  - Not much specific pointers as to where the HOM, fundamental-mode couplers are, etc.
- EP and VT
  - tend to lack specifics that allows real readers for real understanding of the matter.
- HOM
  - accidentally (?) omitted.

3.3 Cavity integration

- TESLA ancestry
  - Should explain a bit more the similarities and differences wrt TESLA cavities and their reasons.
- Cavity design drawings
  - too small to read the details. Not much specific pointers as to where the HOM, fundamental-mode couplers are, etc.
- EP and VT
  - tend to lacks specifics that allows readers for real understanding of the matter.
- Need pointers
  - to various components on the illustration of a cavity package.
- HOM
  - accidentally (?) omtted.

3.4 Cryomodules design including quadrupole and cryogenic systems

- Additional spec tables and statistics tables
  - would be helpful.
- Additional illustrations
  - would be useful.
  - Y-Z cross-section of a CM.
  - Cryogenic organizational diagrams, etc.
- HOM absorbers
  - More description will help.
  - No one else seems taking time explaining it.
- Q/BPM package.
  - Drawings / illustrations / spec tables needed

3.5 RF power source

- Need to show what the specifications are, and whey they came from:
  - clean discussion + table on 1-cavity RF requirement.
  - clean discussion + table on 1-RF unit requirement.
- Someone (perhaps this one)
  - needs to talk about the RF power budget.
- Marx:
  - Need more on the working principle and key features, reliability record etc (if already have some)
  - rather than R&D history.
- MBK:
  - Summary of operational record?
- LPD:
  - Rework on Fig 3.15 helps; Vacuum system organization?
- HOMs:
  - Who is dealing with HOMs?

3.6 LLRF

- Bit more needed for
  - discussion on rationale of the present LLRF specs,
  - i.e. in conjunction with cavity performance variations and with the need for emittance containment.

3.7 Cavity and cryomodule testing

- Cavity:
  - HPWR is missing in flow.
  - EP: during intial processing and after-packaging are not the same … need to explain.
  - VT: specifics missing for VTs of packaged cavities
- Input couplers:
  - After installed on CM, only a fraction of them would be tested? Text somewhat confusing.
- Cryomodules:
  - Transportation model – discussion needs a bit more cleaning up.