IHE-RO Technical Committee
Draft Meeting Minutes
June 8-11, 2010
8:30am – 6:00pm CEST

Technical Committee Chairs:
Bruce Curran, MS, ME
Stuart Swerdloff, PhD

IHERO Task Force Co-Chairs
Jatinder Palta, Ph.D.
Prabhakar Tripuraneni, M.D., F.A.C.R., F.A.S.T.R.O.

Mission Statement: *The American Society for Radiology Oncology (ASTRO) has formed a multi-society Task Force to undertake an initiative to promote the Integration of the Healthcare Enterprise (IHE) – Radiation Oncology (RO), fostering seamless connectivity and integration of radiotherapy equipment and the patient health information systems. The Task Force will include members from ASTRO, RSNA, American Association of Physicists in Medicine (AAPM), the American College of Radiology (ACR) and the Medical Imaging and Technology Alliance (MITA). In addition, members of the International community have also been invited to participate in IHE-RO. The IHE-RO Task Force, in close collaboration with radiotherapy product manufacturers, will develop appropriate integration profiles for radiation therapy and setup a demonstration of seamless communication among the full array of radiotherapy products.*

In Attendance

Name	Affiliation	Email	Tu	We	Th	Fr
Bruce Curran	Rhode Island Hosp.	Bcurran1@lifespan.org	x	x	x	x
Sanjay Bari	Elekta	Sanjay.bari@elekta.com	x	x	x	x
Paul Snyder	Tomotherapy	PSnyder@TomoTherapy.com	x	x	x	
Chris Pauer	Tomotherapy	CPauer@TomoTherapy.com	x	x	x	
Annie Ju	Accuray	aju@accuray.com	x	x	x	x
Ulrich Busch	Varian	Ulrich.busch@varian.com	x	x	x	x
Ashutosh Shirsat	Siemens	Ashutosh.shirsat@siemens.com	x	x	x	x
Norman Trapp	Siemens	Norman.trapp@siemens.com	x	x	x	x
Mark Pepelea	Philips	Mark.pepelea@philips.com	x		x	x
Koua Yang	Philips	Koua.yang@philips.com	x	x		x
Harold Beunk	Nucletron	Harold.beunk@nl.nucletron.com	x	x	x	x
Julio Almansa	SEFM	Jalmansa.lopez@gmail.com	x	x	x	x
Stuart Swerdloff	Elekta	Stuart.swerdloff@elekta.com	x	x	x	x
Rishabh Kapoor	U. Florida	rkapoor@ufl.edu	x	x	x	x
Walter Bosch	Wash. Univ./ATC	bosch@wustl.edu	x	x	x	x

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Meeting Schedule

	6/8/2010	6/9/2010	6/10/2010	6/11/2010
Call to Order	9:45	9:15	9:10	
Adjourn	18:00	18:10	18:15	

Meeting Notes

I. Call to Order – 8 June 2010 @ 9:45

a. Approval of Agenda [6/8/2010 @ 10:10]
- Tue: Domain pre-testing, ART, TDW profiles, 2007 profile issues
- Wed: IPDW, DPDW, Future meetings
- Thu: 2010-11 Profile Development, New business
- Fri: ESI

b. Approval of previous minutes – T-con April 29, 2010 minutes approved

II. Old Business

a. Domain Pre-Testing Report

i. Profile / Testing Issues [6/8/2010]
1. TDW review
   a. Pre-testing was generally productive; identified gaps some fixes applied
   b. Test data for HUMIQ to be derived from network data captured during pre-testing; CTs and RT Structure Sets needed for treated plans
2. ART review
   a. Testing was useful for several TPS vendors
   b. Test data for contouring (2007 profile) would be helpful; need to test contouring features, e.g., bifurcated structures, "keyholing", multiple segments, was expressed.

ii. Delivery Machine Specifications (Advanced RT Objects) [6/11/2010 @ 9:10]
1. XML machine specifications from Uli
2. Tabular format of machine specs developed by group (see below)
3. ➔ Rishabh to fix source-block-tray distance in test data – should be 65.4cm
4. ➔ Ashutosh to confirm Siemens **Block Mounting Position,** Wedge ID, Source-to-Tray distance,
5. ➔ Sanjay to confirm Elekta **Compensator Mounting Position,** , Source-to-Tray distance,
6. ➔ Harold to check implications of Block, Compensator Mounting position for Consumer/Producer Actors
7. Note: Consumer Actors adhering to the ARTI profile need not demonstrate support beam techniques for particular delivery systems whose behavior does not conform to the contents of the RT Plan. Testing of Consumer

Actors will be constrained for particular beam techniques to those delivery systems whose behavior *does* conform.

8. ➔ Add disclaimer to profile:
   The ARTI profile is valid when both Producer and Consumer Actors have functionality that supports the specific treatment delivery device, configuration, and beam techniques expressed in the plan content. Interoperability will be limited for cases in which Producer and Consumer Actors do not both support the same configurations of a treatment delivery device.

ARTI Machine Specifications

	Varian V80	**Varian V120**	**Siemens S160**	**Elekta EBM**
Coordinate Display	IEC 1217	IEC 1217	IEC 1217	IEC 1217
Energies	6X, 9E	6X, 9E	6X	6X
MLC	V80 Millenium	V120 Millenium	160-leaf (MLCX)	80-leaf
Wedge IDs	W45L20U EDW45IN	W45L20U EDW45IN	4HW45S ??	MW
Applicator	“A15” (E-15x15)	“A15” (E-15x15)	n/a	n/a
Block Mount	SOURCE_SIDE	SOURCE_SIDE	PATIENT_SIDE ???	SOURCE_SIDE
Source-Block Tray Distance	65.4 cm	65.4 cm	56.0 cm ???	???
Block Material ID	Block_IHE	Block_IHE	Block_IHE	Block_IHE
Compensator Mount	PATIENT_SIDE	PATIENT_SIDE	PATIENT_SIDE	PATIENT_SIDE ??
Compensator Material ID	Comp_IHE	Comp_IHE	Comp_IHE	Comp_IHE
Source-Comp Tray Distance	69.8 cm	69.8 cm	56.0 cm ???	???
Beam Types	Basic Static Hard Wedge Dynamic Wedge …	IMAT/VMAT	Virtual Wedge Step & Shoot	Motorized Wedge

Notes:

- Correct in Test Data
- Manufacturer to check specs
- Interoperability issue for TPS?

iii. Appropriate Response to Error Conditions (Treatment Delivery Workflow) [6/8/2010 @ 10:15]

1. The group discussed error conditions (patient safety issue for TDD with local plan storage) involving inconsistencies between (a) TDD local plan and (b) retrieved RT Plan, RT Beams Delivery Instruction, and UPS. Proposed conditions for consistency were developed (see 2-11 below).

2. **In the UPS contained in the C-Find response** it is expected that there will be consistency between TMS response and TDD local data in the following elements, but *no safety check is required at this point*, since no commitment to treat exists:
    a. Patient Name
    b. Patient ID
    c. Patient DOB
    d. Patient Sex
    e. SOP Instance UID of RT Plan
3. **In the RT Plan instance retrieved from the TMS** it is expected that there will be consistency with TDD local data in the following elements:
    a. Patient Name
    b. Patient ID
    c. Patient DOB
    d. Patient Sex
    e. SOP Instance UID of RT Plan
    f. Number of Beams
    g. Beam Number for each beam to be treated
    h. Beam Meterset for each beam in the Referenced Beam Sequence of the Fraction Group Sequence
    i. Referenced Beam Number in the Referenced Beam Sequence of the Fraction Group Sequence
4. **In the RT Beams Delivery Instruction instance retrieved from the TMS** it is expected that there will be consistency with TDD local data in the following elements:
    a. Patient Name
    b. Patient ID
    c. Patient DOB
    d. Patient Sex
    e. SOP Instance UID of RT Plan
    f. Referenced Beam Number in the Beam Task Sequence
    g. Continuation Start Meterset (if present) for each beam
    h. Continuation End Meterset (if present) for each beam
5. All **comparisons of Meterset values** in RT Plan and RT Beams Delivery Instruction instances retrieved from the TMS must agree with corresponding TDD local data within clinically meaningful precision (as defined by the TDD).
6. **Meterset values** in RT Plan and RT Beams Delivery Instruction instances retrieved from the TMS must satisfy

    a. Continuation Start Meterset >= 0
    b. Continuation Start Meterset <= Beam Meterset
    c. Continuation End Meterset <= Beam Meterset
    d. Continuation End Meterset >= Continuation Start Meterset
7. **Patient Name components** in RT Plan and RT Beams Delivery Instruction instances and the UPS response retrieved from the TMS *must agree with local data in First Name and Last Name only* (in default character set). Comparison may be case-insensitive.
8. **Fraction Number** was discussed. Inconsistency in Fraction Number is handled at the discretion of the TDD.
9. **In case of inconsistency** between RT Plan and RT Beams Delivery Instruction instances retrieved from the TMS and local data, the TDD must either (1) refuse treatment or (2) require user to override in a recorded and auditable manner.
    a. **Override of Meterset** *may* be recorded in RT Beam Treatment Record, but it is not mandated.
    b. **Reason for cancellation** *may* be reported in N-Set in UPS Discontinuation Reason Code Sequence.
10. **The TDD will ensure that the RT Beams Treatment Record instance returned to the TMS** *is consistent with the RT Plan instance retrieved from the TMS*:
    a. Patient Name
    b. Patient ID
    c. Patient DOB
    d. Patient Sex
    e. SOP Instance UID of RT Plan in Referenced RT Plan Sequence
    f. Referenced Beam Number
11. **In case of inconsistency** in the elements listed below between the RT Plan instance retrieved from the TMS and the RT Beams Treatment Record instance returned by the TDD, the TMS will require audited review of the mis-identified record(s):
    a. Patient Name
    b. Patient ID
    c. Patient DOB
    d. Patient Sex
    e. SOP Instance UID of RT Plan in Referenced RT Plan Sequence
    f. Referenced Beam Number

12. Discussion of Proposal
    a. TDW Profile to remain unchanged. Safety concerns to be addressed by manufacturers' quality systems.
    b. Expanded specification of safety-related behavior to be included in future profiles.

13. Review of IHE-RO TC minutes from Munich 2008 meeting regarding the IPDW profile [6/9/2010 @ 13:00]
    a. From IPDW Profile, version 2.1: "TDD is not obliged to accept inputs that it considers unsafe or incomplete."

b. From TDW Profile Supplement V1.1-TRev4, Section Y.1.4.1.2.1, Table 1-1

Note 8: Input Information Sequence shall contain all the input objects that will ultimately be needed to perform the specified procedure step, and no others. This allows the Performing Device to determine whether or not the instances are available prior to starting the procedure, and avoids the need for an additional N-GET on the UPS. If the Performing Device considers that the Input Information Sequence contains inadequate or inconsistent information, then it shall address any such inconsistencies in a safe manner before performing the Requested Procedure.

14. Test plan for TDW Profile
    a. **To test TDD Actor response to exceptions, the judges request a statement of what the TDD considers to be safe (from vendor's Quality System).** A response to Bruce Curran is requested from vendors no later than 6/18/2010, with statement to be submitted no later than 8/1/2010.
    b. The statements from the TDD vendors (in (a) above) will be reviewed by TMS venders and IHE-RO Technical Committee These statements will be kept confidential by the judges, TMS vendors, and technical committee.

iv. Treatment "in-progress" start message (Treatment Delivery Workflow)
    1. No explicit specification in TDW profile
    2. To be clarified in IPDW

b. Treatment Profile Discussions

i. Basic RT Objects Interoperability
    1. Attribute Display
    2. CT-series question (Elekta, 4/21/2010)

ii. Multimodality Registration for RT
    1. Ready for Final Text?

iii. Advanced RT Objects Interoperability [6/10/2010 @9:30]
    Note: See Varian comments in attached file "*Varian Comment on ARTI Discussion 100610.docx*"
    1. Cleanup of Supplement
        a. Concern was expressed that the compressed timeframe for Profile development and Test Tool RFPs has resulted in inadequate review of documents prior to Connectathons, necessitating changes *after* products have been tested and Integration Statements written.
            i. ART Profile to be re-written as a Supplement
            ii. Any fixes to be included in a Change Proposal (since profile is in Trial Implementation)

iii. Previously passed Actors to be re-tested without additional cost

b. Review of IHE-RO_ARTI-TFVol2_1.2.7-TI document

i. For ALL Beam Storage Tranactions

1. Review Scope
2. Use Case Roles diagram missing?
3. Update Standard to 2009
4. Missing Interaction Diagram?
5. Is trigger event (dose calculation) correct? → YES
6. "O+*" means "If present, may not be ignored" → Add explanation everywhere.
7. Delete Compensator Sequence (300A,00E3) in each Beam Type and add "See section RO-ARTI-27" to Number of Compensators
8. Delete Block Sequence (300A,00E3) in each Beam Type and add "See section RO-ARTI-25" to Number of Blocks
9. Move Note 1 regarding Block Tray ID to RO-ARTI-25 Block Beam Modifier Storage Transaction
10. Final Cumulative Meterset Weight (300A,010E) is required → change to R+*
11. Is Referenced Dose Reference Sequence (300C,0050) needed? Yes → Change to R+* with Specific Rules: "Shall have at least one item for target dose accumulation"; Add Cumulative Dose Reference Coefficient (300A,010C), R+*, "Shall be present"
12. Do we need to support PATIENT_SIDE blocks? No → in RO-ARTI-25, Block Mounting Position (300A,00FB) "Shall be SOURCE_SIDE"
13. High Dose Technique (300A,00C7) add note "If present, may not be ignored"
14. Add section with table to indicate default values for optional attributes (R+*, "Value must be NONE" or "Value must be constant"). Add reference to table in each Transaction:
    a. Beam Limiting Device Angle
    b. Patient Support Rotation Direction
    c. Table Top Eccentric Rotation Direction
    d. Table Top Pitch Rotation Direction
    e. Table Top Roll Rotation Direction
    f. Table Top Vertical Position
    g. Table Top Longitudinal Position
    h. Table Top Lateral Position
    i. (any others?)

15. For any optional transactions, if a Consumer does not support the option, it must handle the data in a safe manner.
16. **Beam Modifiers Options are currently described as Transactions**, However, these are not Transactions, but express additional constraints on the content of Transactions.
    a. ➔Factor out attribute constraints for Beam Modifier options (Bolus, Compensator, Block, etc.) from each of the Storage Transactions.
    b. ➔Create new Appendix with RT Profile Options for the Beam Modifier options and Control Point Fixed Attribute List
    c. ➔Top-level attribute for Beam Modifier options will remain in Beam Type Transaction with references to Beam Modifier optional attributes listed in Appendix.

ii. RO-ARTI-01 Basic Static Beam Storage Transaction
    1. Review of RO-ARTI-01 data element requirements
        a. This Actor supports only non-MLC jaws ➔ in RT Beam Limiting Device Type (300A,00B8) change Specific Rules to read "Must be 2 jaw, MLC must not be present"
        b. Leaf Position Boundaries are not required , but not prohibited (per DICOM) ➔ in Leaf Position Boundaries (300A,00BE) change Presence to blank and Specific Rules to "Per standard (entry for table consistency)".
        c. Beam Limiting Device Position Sequence (300A,011A): "Shall be consistent with Beam Limiting Device Sequence (300A,00B6)"

iii. RO-ARTI-03 Motorized Wedge Beam Retrieval Transaction
    1. High Dose Technique (300A,00C7) add note "If present, may not be ignored"
    2. RT Beam Limiting Device Type (300A,00B8) change note to "Shall have at least 2 jaws, or 1 jaw and 1 MLC

iv. RO-ARTI-05 Motorized Wedge Beam Storage Transaction
    1. Wedge Position (300A,0118) R+* "Shall be IN"

v. RO-ARTI-07 Virtual Wedge Beam Storage Transaction

vi. RO-ARTI-09 Arc Beam Storage Transaction
    1. Change ➔ Allow Blocks as an option

vii. RO-ARTI-11 Conformal Arc Beam Storage Transaction
    1. Allow Blocks as an option (no change)

viii. RO-ARTI-13 Step & Shoot Beam Storage Transaction
    1. Change Number of Wedges (300A,00D0) from "TBD" to "(See RO-ARTI-29)"
    2. Blocks remain optional
    3. Wedge Position Sequence (300A,0116) is O+*; add "See RO-ARTI-29. If present, may not be ignored."

ix. RO-ARTI-15 Sliding Window Beam Storage Transaction

x. RO-ARTI-17 Static Electron Beam Storage Transaction

xi. RO-ARTI-19 Stereotactic Beam Storage Transaction

xii. RO-ARTI-21 IMAT/VMAT Beam Storage Transaction

xiii. RO-ARTI-31 Stereotactic Arc Beam Storage Transaction

xiv. RO-ARTI-33 Basic Static MLC Beam Storage Transaction

xv. RO-ARTI-35 MLC Arc Beam Storage Transaction

c. O vs R … specifics for beam types
    i. Need to clarify semantics of "R" for conditional (e.g., 2C) elements (see, e.g., Section 3.1.4.1.2.1 Storage of RT Plan containing …)
    ii. "O+*" means "If present, may not be ignored" ➔ Add explanation everywhere.

2. Table Positions (Siemens, see BBS) [6/8/2010]
    a. See BBS message (Ashutosh Shirsat, 2009-08-18)
    b. Proposal to add requirement that plan consumers support Table Top Vertical/Longitudinal/Lateral Setup Displacement (Type 3) attributes, if present. Attributes remain optional for producers.

iv. Integrated Positioning and Delivery [6/9/2010 @ 9:30]
1. IPDW Profile to be reformatted as a supplement
2. Changes reviewed by Uli Busch:
    a. Exception handling for unsupported UPS defined
    b. Provision that a treatment device shall specify the procedure it supports and any additional conditions
    c. Made classification of well-known procedure code against expected input/output sequence more visible
    d. Moved Sections 3.53 and 3.5.4 of Volume 1 down into the IPDW Profile section

e. Made a proposal for the intended section 6.2.3 on specificy device capabilitites and their relation to this specification
f. Incorporated text from TDW regarding cancellation of UPS without any treatment
g. General text enhancements

3. New items
   a. Include safety configuration
   b. Develop a template to specify the UPS requirements (codes, input/output, etc.) which a device expects and supports.
   c. UPS shall be set IN PROGRESS before dose is delivered for USP which deliver *any* dose.
   d. **Set IN PROGRESS (N-ACTION) is used to LOCK all UPS to be performed by devices within the treatment session**. ➔ Set IN PROGRESS shall be done for ALL UPS at the beginning of the session.
   e. **Set UPS PROGRESS INDICATOR (N-SET) is used to indicate the actual start of the execution of the UPS** ➔ Modify Progress indicator from <NULL> value to value=0 to indicates start of procedure.
   f. Clarify/correct wording of requirements for Code Value in Scheduled Workitem Code Sequence (0040,4018).
   g. **For UPS that must be discontinued** (e.g., for unsupported PS, reported with Discontinuation Reason Code "Incorrect Procedure Ordered") the TMS shall not cancel any related procedure steps. The TDD is responsible for managing related UPS, including completion or cancellation of any steps in progress.
   h. UPS that are discontinued due to equipment failure are to be cancelled with Discontinuation Reason Code "Equipment Failure"
   i. Change "Permitted" to "Required" SOP Class support for Performing Device (storage of RT Beams Treatment Record).
   j. If the progress indicator for an acquisition UPS involving dose delivery is >0, then dose reporting object(s) required to satisfy regulatory concerns must be generated and returned to the TMS.
4. Uli to continue edit profile with the goal of having a draft for review at the 2010 Connectathon in Sept. Discussion to move IPDW to Public Comment is expected at the IHE-RO TC meeting at ASTRO 2010 meeting.

v. Discrete Positioning and Delivery [6/9/2010 @ 16:20]
1. DPDW draft document was reviewed by Uli Busch. Changes to to be made in the document are noted below:
2. Discrete Positioning Workflow Integration Profile
   a. TC should evaluate Discrete Positioning Workflow support for positioning-only scenarios in which initial patient setup is performed in a separate room from treatment. In such cases, there may be a separate session manager, and may require transfer of information to a second session manager for treatment.
   b. "Notify Device to Start UPS" (RO-DPD-20) transaction is used in various places to prompt device actors to begin process.

c. Consider including “TDD/Primary PPD” combination Actor
d. Correction: The RO-DPD-02 Transaction should go from PPVS to PPD (*in addition to* from PPVS to TDD) in Discrete Positioning Workflow Integration Profile 1 diagram.

3. Discrete Delivery Workflow Integration Profile
   a. In figure 5.2-1, add transaction RO-DPD-02 from TSM to TDD to prompt TDD to start treating.
   b. Correction: UPS Final Update [RO-21] and UPS Completed/Cancelled [RO-25] transactions should occur *after* all beams are treated.
   c. Correction: RO-DPD-07 should only indicate N-EVENT Report (Beam-on/Beam-off)
   d. Note: UPS in Progress is missing
   e. Note: UPS Progress Update should be synchronized with TDW and IPDW profiles
4. Discrete Delivery and Monitoring Workflow
   a. Note: Subscription for monitoring treat and other UPSs needs to be clarified in detail with respect to the mechanisms used.
   b. In Fig 6.2-2 Profile 2 diagram, the first RO-DPD-07 should be replaces with the a Set UPS IN PROGRESS transaction (like Discrete Delivery Workflow Profile),
   c. In Section. 6.2-2 “Interruption Handling by a Re-Acquisition of Positioning Data,” add treatment record storage.
   d. At the end of the re-positioning the TSM must issue a continuation UPS and Beam Delivery Instruction for the TDD to continue the treatment.
   e. In section 6.2.5, for dynamic, adaptive therapy, one needs to create a new plan and store a treatment record (alternately report *actuals* in treatment record)

5. Continued discussion of development of DPDW Profile [6/10/2010 @ 9:10]
   a. Action: Bruce to draft letter to PPD, PPVS, ... vendor CEOs to encourage involvement in review of the profile
   b. Action: Uli to solicit participation in a sub-group to continue DPDW development.

vi. Treatment Delivery Workflow
   1. New Draft for Discussion to be circulated

~~vii. Enterprise Schedule Integration~~ (withdrawn)
   ~~1. Move to TI and Connectathon~~

viii. Dose Compositing – tabled

c. 2010 Test Tools
   i. Projects Funded Timetable
   ii. Generation / Delivery of Test Data
d. 2010-11 Profile Development

i. Dose
ii. Structure Set Templates
iii. Single Sign-on

III. New Business

a. Cost Model for non-commercial systems
b. European Connectathon
c. DVTK Error
d. Required Character Sets Profile [6/11/2010 @ 11:40]
    i. Is this addressed in another IHE Domain?
e. Use of Content Modules (see QRPH "Cancer Registry" Supplement
f. Integration Statements – approximately 5 Integration Statements from 2009 Connectathon have been submitted: must be received prior to the next Connectathon
    i. New ASTRO Web Pages
    ii. Gazelle Registration
    iii. Revocation of IHE "Gold Stars" –
        1. ASTRO to send email to advise TC members of deadline for submission of Integration Statements
        2. Notice to company
        3. Make public
    iv. IHE-RO CEO Letters
g. Discussion of interoperability issues connected with safety mandates; interoperability of data safety measures; digital signatures; approval constraints

IV. Future Meetings

a. Face-to-face Meetings:
    i. 2010 Connectathon – Sept 20-26, 2010
    Mon 9/20 judge, setup day
    Sat 9/25 TC meeting (all day)
    Sun 9/26 (9am–12pm) TC meeting at Residence Inn
    (Profiles to be tested depend on results of Domain Pre-Testing)
    ii. ASTRO 2010 Oct 31 – Nov 4, 2010 in San Diego, CA
    Thurs 11/4 – Sat 11/6 (noon) at or near ASTRO meeting
    Hotel arrangements? Scripps?
    iii. Late January 2011 (tentatively, Jan 24-28; finish on Fri at noon), northern California (Mtn. View, Sunnyvale, etc.)
    iv. Domain Pre-testing (first 2 weeks of May 2011: May 2-11?) – possible venues:
        1. Varian (Zurich/PSI)
        2. Nucletron (Uppsala)
        3. Elekta (Stockholm)
    v. Connectathon 2011 – ASTRO HQ, Fairfax, VA, tentatively (9/7/11 – 9/16/11)
    vi. ASTRO 2011 - Tentatively Thurs 10/6/11 – Noon Sat 10/8/10
b. IHE-RO Future Teleconferences:
    Thursday, July 29, 12:00 – 2:00pm ET (delay by 1 week to avoid conflict with WG-7?)
    Thursday, August 26, 12:00 – 2:00pm ET
    Thursday, October 21, 12:00 – 2:00pm ET
    Thursday, December 16, 12:00 – 2:00pm ET
c. Related meetings

i. ESTRO Sept 12-15, 2010, Barcelona, SP
    1. Sept 23-27, 2011, Stockholm, SW
ii. AAPM Annual Meeting
    - July 18-22, 2010 Philadelphia, PA
    - July 31-Aug 4, 2011, Vancouver, BC
iii. ASTRO Annual Meeting
    - Oct 31 – Nov 4, 2010 in San Diego, CA
    - Oct 2-6, 2011, Miami, FL
iv. PTCOG, May 8-15, 2011 in Philadelphia
v. WG-7
Tentative scheduling for 22-24 July, Philadelphia PA (after AAPM, finish noon on 24th, Positioning group to meet on 7/26-27).
Dec 7-10, 2010 (Location TBD)
Mar-Apr 2011 (NEMA) ??

V. **Adjourn** [6/11/2010 @ 12:02]

[Highlighted items to be added to next Tcon agenda]