

Maintenance Task Group Meetings

July 10, 2012

And

July 17, 2012

Glenn Parsons

July 10 Agenda

- Patents
- Status Update
- New Maintenance items
- Existing Maintenance items

Instructions for the WG Chair

The IEEE-SA strongly recommends that at each WG meeting the chair or a designee:

- Show slides #1 through #4 of this presentation
- Advise the WG attendees that:
 - The IEEE's patent policy is consistent with the ANSI patent policy and is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
 - Early identification of patent claims which may be essential for the use of standards under development is strongly encouraged;
 - There may be Essential Patent Claims of which the IEEE is not aware. Additionally, neither the IEEE, the WG, nor the WG chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- Instruct the WG Secretary to record in the minutes of the relevant WG meeting:
 - That the foregoing information was provided and that slides 1 through 4 (and this slide 0, if applicable) were shown;
 - That the chair or designee provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that may be essential for the use of that standard
 - Any responses that were given, specifically the patent claim(s)/patent application claim(s) and/or the holder of the patent claim(s)/patent application claim(s) that were identified (if any) and by whom.
- The WG Chair shall ensure that a request is made to any identified holders of potential essential patent claim(s) to complete and submit a Letter of Assurance.
- It is recommended that the WG chair review the guidance in *IEEE-SA Standards Board Operations Manual* 6.3.5 and in FAQs 12 and 12a on inclusion of potential Essential Patent Claims by incorporation or by reference.

Note: WG includes Working Groups, Task Groups, and other standards-developing committees with a PAR approved by the IEEE-SA Standards Board.



Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy. Participants:

- “Shall inform the IEEE (or cause the IEEE to be informed)” of the identity of each “holder of any potential Essential Patent Claims of which they are personally aware” if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
 - “Personal awareness” means that the participant “is personally aware that the holder may have a potential Essential Patent Claim,” even if the participant is not personally aware of the specific patents or patent claims
- “Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of such potential Essential Patent Claims” (that is, third parties that are not affiliated with the participant, with the participant’s employer, or with anyone else that the participant is from or otherwise represents)
- The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group

Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2

- Early identification of holders of potential Essential Patent Claims is strongly encouraged
- No duty to perform a patent search

Patent Related Links

All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development.

Patent Policy is stated in these sources:

IEEE-SA Standards Boards Bylaws

<http://standards.ieee.org/guides/bylaws/sect6-7.html#6>

IEEE-SA Standards Board Operations Manual

<http://standards.ieee.org/guides/opman/sect6.html#6.3>

Material about the patent policy is available at

<http://standards.ieee.org/board/pat/pat-material.html>

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at patcom@ieee.org or visit <http://standards.ieee.org/board/pat/index.html>

This slide set is available at <http://standards.ieee.org/board/pat/pat-slideset.ppt>

Call for Potentially Essential Patents

- If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:
 - Either speak up now or
 - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible or
 - Cause an LOA to be submitted

Other Guidelines for IEEE WG Meetings

- **All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.**
 - **Don't discuss the interpretation, validity, or essentiality of patents/patent claims.**
 - **Don't discuss specific license rates, terms, or conditions.**
 - Relative costs, including licensing costs of essential patent claims, of different technical approaches may be discussed in standards development meetings.
 - Technical considerations remain primary focus
 - **Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.**
 - **Don't discuss the status or substance of ongoing or threatened litigation.**
 - **Don't be silent if inappropriate topics are discussed ... do formally object.**

See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and "Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy" for more details.

Status Update

- Mailing list / web site update
- 6 new maintenance items received since March
 - 3 received in last week (not included in totals below)
- Qbg is approved
- Q-Cor-2 Sponsor Ballot complete?

<u>Detailed Totals</u>	<u>Summary Totals</u>
A = 0	Ready for ballot = 8
B = 8	Balloting = 13
CB = 0	Approved = 0
CE = 0	Awaiting clarification = 0
E = 0	Errata = 0
F = 0	To be categorised = 7
I = 0	Review by Technical experts = 0
J = 1	Withdrawn = 0
P = 0	Rejected = 1
R = 7	Published = 0
S = 0	
T = 0	Total = 29
V = 13	
W = 0	
Errors = 0	
Total = 29	Open = 28

NEW MAINTENANCE ITEMS

Maintenance Item – 0032

System Capabilities TLV

- Submission: Eric Multanen– March 2012
- Issues:
 - In figure 8-10, the TLV information string length field indicates that it should contain the value '4', but the actual length of the TLV information string, as shown in the figure, is '5'.
- Proposed Resolution:
 - The length should be 4. Revise figure 8-10 by removing the chassis ID subtype field.
 - 802.1AB ???

Maintenance Item – 0034

System Capabilities TLV (same as 0032)

- Submission: U Arunkumar– June 2012
- Issues:
 - In Figure 8-10, the TLV Information String length is shown as 4 but the TLV Information String shows 3 fields and a total of 5 octets.
 - the chassis ID subtype field has crept into this diagram during the revision - this field does not appear in the 2005
- Proposed Resolution:
 - The length should be 4. Revise figure 8-10 by removing the chassis ID subtype field.
 - 802.1AB ???

Maintenance Item – 0033

Inconsistency of text for updtDigest()

- Submission: Mick Seaman – April 2012
- Issues:
 - In .1aq 13.29.32 updtDigest() the agreeND variable is stated to be the value of the Discarded Agreement Number (DAN), *transmitted *in SPT BPDU and SPB Hello PDUs. Elsewhere in .1aq agreeND is a *received* DAN value.
 - Additionally in 13.29.32 updtDigest(), the agreedND variable is used as the *received* DAN, but is stated to be the *transmitted* DAN value in 13.27.12 and in 13.29.28 txRstp()
- Proposed Resolution:
 - In clause 13.29.32 updtDigest():
 - replace "Updates agreeDigest, agreeN, and agreedND" with "Updates agreeDigest and agreeN".
 - Replace all five occurrences of "agreeND" with "agreedND",
 - Replace all four occurrences of "agreedND" with "agreeND"
 - 802.1aq ???

Maintenance Item – 0036

MEPactive

- Submission: Weiying Cheng – June 2012
- Issues:
 - Clause 20.9.1 (MEPactive): "Administrative state of the MEP A Boolean indicating the administrative state of the MEP. True indicates that the MEP is to function normally, and false that it is to cease functioning"
 - Administrative or operational state
- Proposed Resolution:
 - Rework to make administrative clear
 - 802.1Q ???

Maintenance Item – 0037

MEP operational state

- Submission: Weiyang Cheng – June 2012
- Issues:
 - There is administrative state defined for MEP (MEPActive), but there is no operational state for MEP in 802.1Q-2011
- Proposed Resolution:
 - Clause 20.9:
 - Add x) MEPOperationalState (20.9.xx)
 - Clause 17
 - Add corresponding MIB objects
 - 802.1Q ???

Maintenance Item – 0038

user priority

- Submission: Ben Mack-Crane – July 2012
- Issues:
 - In reviewing 802.1AC some editorial issues were noted in text that is also included in 802.1Q-2011. The same editorial corrections should be made in 802.1Q unless the affected text is removed in favor of maintaining a single copy in 802.1AC.
- Proposed Resolution:
 - 6.1.2 Replace ", but include all of" with "(but include all of)".
 - 6.7.1 Replace "Default User Priority" with "Default Priority".
 - 6.7.2 Replace "user_priority" with "priority" (two occurrences).
 - 6.7.2 Replace "Default_User_Priority" with "Default Priority".
 - 6.7.4.1.1 Replace "user_priority" with "priority".
 - 6.7.4.2.1 Replace "user_priority" with "priority".
 - There are additional instances of “user priority” that could be replaced with “priority” in clauses 12.13.3.3.3 b), 12.13.3.4.2 d), and C.3.3.1 and Figure G-1.
 - 802.1Q ???

EXISTING MAINTENANCE ITEMS

Maintenance Item – 0003

Inconsistent VID for LBR Frames

- Submission: Steve Haddock – March 2011
- Issues:
 - Multiple choices for selecting vlan_identifier
 - Non-normative language used to describe VID selection
 - Normative text for 20.28.2 is for PBB-TE only
 - Priority and drop eligibility determination also not specified.
 - No managed objects to set Primary VID for MIP
- Latest Status: Balloting
 - Steve Haddock to introduce a ballot comment at San Francisco meeting for 802.1aq
 - Document is still in sponsor ballot?
- Discussion
 - 802.1aq has completed Sponsor Ballot. Expected to approve sending to RevCom in March

Maintenance Item – 0005

Missing enable for Link Aggregation TLV

- Submission: Pat Thaler – June 2011
- Issues:
 - When LinkAgg TLV was moved into 802.1 MIB, the enable was not included
 - Error in table D-5 for IldpV2Xdot1ConfigPortVlanTable. Reference and MIB text don't agree
 - Missing security considerations in D.4.4 for Congestion Notification
- Latest Status: Ready for Ballot
 - Waiting for a revision of 802.1AX to fix. PAR agreed to be modified
 - New maintenance item 0009 submitted to address sending LLDP on physical links
- Discussion
 - AX-Rev is in task group ballot. A comment to resolve this has been submitted by Pat Thaler. Subsequent resolution will be handled in the task group.

Maintenance Item – 0006

Corrigendum items for .1AS

- Submission: Geoff Garner – June 2011
- Issues:
 - Various
 - Actively being worked at a TG item
- Latest Status: Ready for Ballot
 - Waiting for AB Corrigendum ballot
- Discussion
 - Initial official draft of AS-Cor-1 has been produced but no ballot run yet. AVB TG is keeping track of the bugs that need fixing in AS-Cor-1. If they come across an issue that they would like to save for later, they will need to file a maintenance item to track it.

Maintenance Item – 0007

incorrect operPointToPointMAC references

- Submission: Craig Gunther – August 2011
- Issues:
 - When 802.1ak was rolled into 802.1Q it contained incorrect references to clause 6.4.3 for operPointToPointMAC. They should be 6.6.3.
- Latest Status: Balloting
 - Included in Qbg Sponsor Ballot
- Discussion:
 - No comments against this in Qbg in recirc. Expected to close

Maintenance Item – 0008

MVRP cut-and-paste errors

- Submission: Craig Gunther – August 2011
- Issues:
 - MVPR1 and MVPR2 PICs items were pasted from MMRP items and remain incorrect
- Latest Status: Balloting
 - Included in Qbg Sponsor Ballot
- Discussion
 - No comments against this in Qbg in recirc.
Expected to close

Maintenance Item – 0009

Disambiguating LLDP over Link Aggregations

- Submission: Jeffrey Lynch – September 2011
- Issues:
 - It is unclear how LLDP should operate over an aggregation
 - It is currently not possible to determine at the receiver if the LLDP frames were sent from a peer at the physical link or at the aggregate
- Latest Status: Received
 - Discussed at Nanjing Interim and at Atlanta Plenary - <http://www.ieee802.org/1/files/public/docs2011/maint-lynch-LLDP-over-LAG-0920-v1.pdf>
 - We desire to have the ability to send/receive at the physical layer – can be done in AXbq.
 - Agreed to workout the technical details in AXbq – prefer a TPMR type Y to send/receive
 - Preferred to define new TLVs or new bits, thus modifying existing TLVs – prefer to wait for AX revision to fix MIBs and TLVs
 - Waiting for AX-Rev to address. Status of AX-Rev?
- Discussion
 - To be discussed as part of AX-Rev. Pat Thaler has incorporate a comment against the current task group ballot, so subsequent resolution will be handled there.

Maintenance Item – 0010

Incorrect Annex reference

- Submission: Christian Boiger– September 2011
- Issues:
 - A reference to Annex G in 6.11.4 should really be a reference to Annex I
- Latest Status: Balloting
 - Included in Qbg Sponsor Ballot
- Discussion
 - No comments, and Qbg will be going to RevCom soon

Maintenance Item – 0011

No recommended priority to traffic class mappings for credit-based shaper in table 8-4

- Submission: Christian Boiger– September 2011
- Issues:
 - Text recommends classes 5 and 6 for SR classes A & B, but should be 3 and 2.
 - Table references are wrong
- Proposed Resolution:
 - Balloted in Q-Cor-2
- Discussion
 - Updated in Q-Cor-2-d0-1 to match previous meeting consensus

Maintenance Item – 0012

Missing MEP/MHF icons in fig 26-2

- Submission: Steve Haddock – September 2011
- Issues:
 - Visio source used for figures has a problem including MEP/MHF icons.
- Proposed Resolution:
 - Balloted in Q-Cor-2
- Discussion
 - No comments were submitted against this fix in Q-cor-2.

Maintenance Item – 0013

MRP address for MSRP does not exist

- Submission: Christian Boiger– October 2011
- Issues:
 - MSRP uses Nearest Bridge address, but text indicates there is a specific MRP application in Table 10-1 for this – there is not.
- Proposed Resolution:
 - Balloted in Q-Cor-2
- Discussion
 - Updated in Q-Cor-2-d0-1 to match previous meeting consensus

Maintenance Item – 0014

LLDP TLV error processing

- Submission: Paul Congdon, Pat Thaler – Nov 2011
- Issues:
 - 802.1AB text is not clear whether you discard entire LLDPDUs if an optional TLV is in error or simply discard the TLV.
- Proposed Resolution:
 - Make it clear that you only discard the TLV if the error is in an optional TLV, but the PDU if the error is in the mandatory TLVs
- Discussion
 - No status change. Previously agreed to wait for AB document amendment or revision to address.
 - New maintenance item 0027 includes this fix and additional clarification.

Maintenance Item – 0015

Clause number issue impacts PICS

- Submission: Craig Gunther – Nov 2011
- Issues:
 - A new clause 35.2.5 was inserted pushing other clauses up in numbering, but several old references in PICS were not adjusted.
- Proposed Resolution:
 - Balloted in Q-Cor-2
- Discussion
 - No comments submitted against this during Q-Cor-2 ballot.

Maintenance Item – 0017

Typos in PICS

- Submission: Craig Gunther – Nov 2011
- Issues:
 - SRP is sometimes transposed to SPR in PICS
- Proposed Resolution:
 - Balloted in Q-Cor-2
- Discussion
 - No comments submitted against this during Q-Cor-2 ballot.

Maintenance Item – 0018

Incorrect figure reference

- Submission: Steve Haddock– Nov 2011
- Issues:
 - Figure reference incorrect
- Proposed Resolution:
 - Change Figure 6-4 to Figure 26-2
- Discussion
 - Incorporated into Q-Cor-2-d0-1

Maintenance Item – 0019

Incorrect Link Aggregation figure for bridges

- Submission: Steve Haddock– Nov 2011
- Issues:
 - Link aggregation diagram is show as a shim between MSAPs, but this doesn't work for bridge architecture
 - Similar issue was addressed in 802.1AC ballot comment.
- Proposed Resolution:
 - Change Figure 6-3 usage of MSAP to SAP.
 - Delete MAC service line
 - Change 802.3 MAC to MAC
- Discussion
 - Incorporated into Q-Cor-2-d0-1

Maintenance Item – 0020

Inconsistent text when NumberOfValues is zero

- Submission: Rich Newpol – Dec 2011
- Issues:
 - In Q-2011, if NumberOfValues is zero then the ThreePackedEvents vector is not included, but BNF appears to imply NumberOfValues must not be zero and vector always included.
- Proposed Resolution:
 - Fix BNF to indicate ThreePackedEvents vector is optional
 - Clearly state what happens when NumberOfValues is zero. In 10.8.2.8
- Discussion
 - Incorporated into Q-Cor-2-d0-1 to match consensus from last meeting

Maintenance Item – 0021

TC must be configured for ETS to specify bandwidth

- Submission: Anoop Ghanwani – Jan 2012
- Issues:
 - Qaz does not make it clear that you can only configure bandwidth when the TC is configured for ETS.
 - Invalid TLVs should be discarded and stated in D2.9
- Proposed Resolution:
 - Indicated that the TC table must have values of 0 if the TC is not configured for ETS.
- Discussion
 - Since the Q-Cor-2 is by necessity having to address items that are amendments to Q-Rev, it is conceivable that we can incorporate a small change to address this item. Anoop has proposed the following text to the end of Clause D.2.9.7

NOTE--While it is intended that only TCs configured for ETS will have a bandwidth value associated with them, it is possible, during configuration changes, to have situations where a TC is not configured for ETS but has a non-zero TCBandwidth percentage. In this case, the sum of all the TCBandwidth percentages must still be 100, but the TC bandwidth percentages of the non-ETS TCs would effectively be unused bandwidth and reallocated to the ETS TCs.

Maintenance Item – 0022

MSTP MIB issues

- Submission: Ben Mack-Crane – Jan 2012
- Issues:
 - MSTP MIB is out of sync with revision of clause 13 of 802.1Q-2011
 - enableBPDUTx default is not consistent with ieee8021MstpCistPortEnableBPDURx in 23.5.10 and 23.5.11
- Proposed Resolution:
 - Change DEFVAL to true for the objects. See attached MIB.
- Discussion
 - Incorporated into Q-Cor-2-d0-1 to match consensus from last meeting

Maintenance Item – 0023

Priority and Drop_eligible parameters from BSI MEP/MIP

- Submission: Maarten Vissers – Jan 2012
- Issues:
 - The priority and drop_eligible parameters for CBP's ISS are supposed to be from the BSI, not the BVLAN values when CBP contains clause 6.18 BSI MEP/MIP functions.
- Proposed Resolution:
 - Modify 6.11.2 to get I-PCP and I-DEI parameters
 - State how parameters are obtained instead of indicating they are the same as the EISS
- Discussion
 - The general belief is that the scope of changes required to address this item are beyond the current scope vehicles that are open. Any changes here would be effectively undoing previous agreements and thus this item will be left in the 'received' state for consideration in a future revision. This item is related to 0026 as well with similar resolution.
 - Subclause 6.11 specifically states that it replaces subclause 6.9 in a CBP. This means that the setting of the priority and drop_eligible parameters in 6.11.2 occurs in request primitives after the queues, and therefore has no effect on the queueing. The proposed resolutions do not change this. Any change that would result in using the PCP from the I-tag to determine the priority for queueing in the B-component would require significant restructuring of the document and significant technical changes to the standard. All B-components in the backbone network forward the frames based on the PCP from the B-tag, and it is not obvious that the final B-component the frame traverses should behave any differently.

Maintenance Item – 0024

Typos in 6.1.4 and 6.1.6

- Submission: John Messenger – Jan 2012
- Issues:
 - Space inserted in OperPointToPointMAC in 6.1.4
 - Identification miss spelled in 6.1.6
- Proposed Resolution:
 - Fix
- Discussion
 - Propose for next pass of Q-Cor-2

Maintenance Item – 0025

Table for learned B-MAC addresses in PIP

- Submission: Maarten Vissers – Feb 2012
- Issues:
 - Use of the enableConnetionIdentifier parameter implies that the PIP must hold a table of addresses referenced by the connection_identifier, but no such table is described anywhere in the text.
- Proposed Resolution:
 - Specify in 6.10 that the PIP contains a table and provide specifics detailed in maintenance request
 - Specify in 6.10.1 that a learning process stores the values
 - Specify in 6.10.2 that the table is used to find the B-DA value
- Discussion
 - How the connection_identifier value is used to obtain the B-MAC address is really implementation specific. There was a specific comment during the development of this to make sure the connection_identifier was an indirect reference to the actual MAC address and not explicit. This also allows the connection_identifier to contain other values for other port types (e.g. Port Extension). There was and is a strong desire to NOT have a learning/ageing function for this capability, so no additional table is required. Given this, we really don't have a problem here, but a clarification could be helpful and two proposals are on the table; Make the connection_identifier explicitly a MAC address for CBPs or insert a note that indicates this is implementation specific and in the case of a 1:1 mapping does not require any learning/ageing and can be stored in the existing FDB. Steve Haddock will propose text for either option and this will be discussed at the plenary.
 - The note option seems safest. Consider the following for Q-Cor-2
 - Option2: insert a note to the effect that, “the connection_identifier is a 1:1 mapping to the DA MAC and does not require learning or ageing”

Maintenance Item – 0026

Flow Classification and Queuing for CBP

- Submission: Maarten Vissers – Feb 2012
- Issues:
 - There is no specification of where 8.6.5 and 8.6.6 functions are located in a CBP.
- Proposed Resolution:
 - Add this specification. Assume 8.6.6 function is outside the BVLAN area. Assume 8.6.5 function is between BSI down MIP and BSI up MIP.
- Discussion
 - The general belief is that the scope of changes required to address this item are beyond the current scope vehicles that are open. Any changes here would be effectively undoing previous agreements and thus this item will be left in the ‘received’ state for consideration in a future revision. This item is related to 0023 as well with similar resolution.
 - The location of the queuing functions (8.6.6) are documented and are above the 6.11 functions. The location of flow classification (8.6.5) is more tricky. It was specifically taken out of figure 22-2 in the 2011 revision because it is not possible to place it in the figure unambiguously. The flow meters operate on all frames received at a port that have at least one eligible egress port after being processed by the active topology enforcement, ingress filtering, frame filtering, and egress filtering functions. There is no place in Figure 22-2 that that corresponds to this. Other alternatives would be to remove Figure 22-2 entirely, or to restructure it so that all the filtering functions, including frame filtering and egress filtering, are shown on the ingress path and the results of this filtering carried explicitly to the relay. Either of these would have substantial ripple effects in the text surrounding the Figure and in the rest of the document.

Maintenance Item – 0027

End of LLDPDU TLV error handling

- Submission: Paul Congdon – Feb 2012
- Issues:
 - Text is unclear how to handle error cases around the End of LLDPDU TLV. It is a mandatory TLV, but we appear to accept the PDU if it isn't present.
- Proposed Resolution:
 - Two choices: always discard the PDU if the TLV is not present, or update all the places (6.6.1, 9.2.7.7.2) where we describe criteria for discarding the frame.
 - Proposed resolution in maintenance request assumes we try to salvage the PDU whenever possible.
- Discussion
 - Group discussed choices to resolve this. One easy way is to make the TLV optional instead of mandatory. It already is effectively optional since it isn't validated on receipt, though we stress it must be present on transmit. The other option is to clearly document the current situation which is the intent of the proposed resolution in the maintenance item. To be discussed with a broader audience at the plenary. Use the existing approach

Maintenance Item – 0029

Missing T-Component creation text and enumeration

- Submission: Ben Mack-Crane – Feb 2012
- Issues:
 - T-Component creation and its enumeration in the MIB were never added.
- Proposed Resolution:
 - Add clause 17.5.2.x to describe T-Component creation
 - Add enumeration in MIB.
- Discussion
 - Propose inclusion to next draft of Q-Cor-2. There is, however, a ripple effect as there is no text on how to create a T-Component port as well. Ben will propose some text for Tony to review at the plenary and to incorporate into the next draft.
 - The T-Component create is actually more complex and needs more study. We could create the MIB enumeration which is most important. Leave the part in 17.5.2.x about port creation undone, but add the simple sub-clause that mentions component creation and there is nothing specific needed (e.g. use B-component as an example).

Maintenance Item – 0031

Typo on MA_UNITDATA.x in 6.1.1

- Submission: Panagiotis Saltsidis – March 2012
- Issues:
 - M_UNITDATA.x should be MA_UNITDATA.x in 6.1.1. Two occurrences of this in the diagram.
- Proposed Resolution:
 - Fix it
- Discussion
 - Propose inclusion to next draft of Q-Cor-2