FC-BB-5 Revision 1.03 Letter Ballot Comment Database (08-654v2)							
Company number	Tech/Edit	Page	Sec/table/fig locator	Comment	Proposed Solution	Resolution	Status
Broadcom-001	T	5	Fig 4	Why is FCIP in the drawing? It shouldn't be part of the FC-BB-E model	Remove FCIP		
Cisco-008	T	5	Figure 4	Figure 4 is wrong	Make it right		
EMC-019	T	5	Figure 4	Figure 4 is a copy of the FCIP Figure	Redraw as FCoE figure		
EMC-020	T	8	2.5	Need IETF references for pseudo-wire.	Add IETF references when available.		
Broadcom-003	T	8	2.6	The bridge (switch) standard should also be referenced.	Add reference for IEEE 802.1Q-2005		
EMC-080	T	9	3.1	Definition for FC-BB_E is missing.	Suggest: 3.1.10 FC-BB_E: The protocol mapping defined by FC-BB_E is referred to as Fibre Channel over Ethernet (FCoE) and requires the underlying Ethernet layer to be full duplex and lossless (i.e., to be composed only of full duplex links and to provide a lossless behavior when carrying Fibre Channel frames). (see Figure 25)		
EMC-083	T	13	3.3	Definition for Media Access Control (MAC) address is missing.	Media Access Control (MAC) address: an IEEE 802 MAC address.		

Emulex-002	T	13	3.5	Several new terms are widely used but not defined.	Add definitions to the glossary section for Enode: a Fiber Channel Platform that containe one or more lossless Etherenet MACs enabled to support FC-BB_E. Enode MAC: A lossless Ethernet MAC that is enabled to support FC-BB_E in an Enode. FCF-MAC: A lossless Ethernet MAC that is enabled to support FC-BB_E in an FCF. FC-MAP: In a Fabric Provided MAC Address, the required value for the upper 24 bits of every MAC address assigned to a VN_Port. Platform: A container for one or more Fibre Channel nodes and one or more LCFs. Frames received at a Platform are not forwarded to another Platform.		
Emulex-003	T	13	3.5	The terms of the form "Vx_Port/FCoE_LEP pair" have been found to be ambiguous (e.g.., in the first unordered list of 7.3, the term VN_Port/FCoE_LEP pair could be construed as the pairing of a local VN_Port/FCoE_LEP and a remote VN_Port/FCoE_LEP, or as the pairing of one VN_Port and one FCoE_LEP at the local end).	Add definitions to the glossary section for VE_Port/FCoE_LEP pair: a VE_Port and its associated FCoE_LEP. VF_Port/FCoE_LEP pair: a VF_Port and one of its associated FCoE_LEPs. VF_Port/FCoE_LEP pair: a VN_Port and its associated FCoE_LEP.		

Emulex-004	T	13	3.5.1	The definition of Enode MAC address is worded so as to imply all FCoE MACs use the same MAC address for FIP	Change the definition of Enode MAC address from The MAC address used by the ENode during the FCoE Initialization Protocol (FIP). To The MAC address used by one FCoE Controller for the FCoE Initialization Protocol (FIP) on one lossless Ethernet MAC.		
QLogic-000	T	14	3.5.11	The definition of "Lossles Ethernet" is too vague.	Add a definiton that mentions the IEEE 802.1 DCB standards (8021.Qau, 802.1Qaz, 802.1Qbb, and the IETF standard TRILL).		
IBM-071	T	14	3.5.12	SPMA definition indicates that the MAC addresses are world-wide unique. There is no requirement for this to be the case. The addresses could be locally administered.	Delete "and is world-wide unique" from the definition.		
Emulex-005	T	14	3.5.17	In 3.5.17, a pair of MAC addresses are claimed to be sufficient to identify a Virtual Link. This may not be true for SPMA.	???		
EMC-021	T	14	3.5.17	Virtual Link is not identified solely by MACs - the FCID of the VN_Port is part of a VN-VF Virtual Link in order to avoid crosstalk. SPMA also needs this to uniquely identify the virtual link.	Expand definition so that FCID of VN_Port is part of VN-VF virtual link. See slides 18 and 19 of 08-556v1		
EMC-086	T	14	3.5.6	Definition of FCF	The acronym FCF needs to stand for Fibre Channel Forwarder in order to remain consistent throughout the rest of the standard. Otherwise, you should change FCoE Link End-Point to (FC_LEP) and this cannot be done as it will be confused with Fibre Channel instead of FCoE. Whatever the change, apply it globally.		

BLADE-02	T	15	3.5.18	The statement "The term virtual indicates the use of a non Fibre Channel link connecting a VN_Port to a VF_Port." assumes a VN_Port to a VF_Port virtual link. There could be a VN_Port to VN_Port virtual link.	Detailed in a proposal to be presented later.		
Emulex-006	T	19	4.1	The first paragraph of of 4.1 is ambiguous about whether FC-BB_E defines equipment capable of extending FC over WAN media.	Change the two sentences of 4.1 from FC-BB-5 models (i.e., FC-BB_IP, FC-BB_GFPT, and FC-BB_PW), specified in this standard, define equipment capable of extending Fibre Channel switched networks and/or links over Wide Area Network infrastructures and over distance. One important distinction among the models discussed in this standard is the emphasis placed on the WAN type. to This standard specifies several WAN models (i.e., FC-BB_IP, FC-BB_GFPT, and FC-BB_PW) capable of extending Fibre Channel switched networks and/or links over Wide Area Network infrastructures and over distance. One important distinction among the WAN models discussed in this standard is the emphasis placed on the WAN type.		

Emulex-007	T	19	4.1	4.1 does not reference FC-BB_E	At the end of 4.1 add this new paragraph: This standard also specifies the FC-BB-E model, capable of extending Fibre Channel switched networks and/or links over IEEE 802.3 (i.e., Ethernet) infrastructures that may be concurrently used for other applications (e.g., Internet traffic). The FC-BB_E model presumes use of IEEE 802.3 variants that provide lossless behavior. When used concurrently with other applications, it may benefit from 802.3 variants that also provide catagories of quality of service based on traffic classification.		
NetApp-2R	T	19	4.1	The first sentence - "…define …extending FC over WAN… and over distance." This section talks about FC mapping for WAN protocols.	The section must be updated to also accommodate inclusion of FC_BB_E.		

Emulex-008	T	19	4.2	4.2 does not introduce FC-BB_E	Change the first paragraph of 4.2 from FC-BB-5 defines reference models corresponding to the FC-BB_IP, FC-BB_GFPT, and FC-BB_PWmodels. These reference models are shown in figure 5, figure 6, and figure 7 respectively. To FC-BB-5 defines reference models corresponding to the FC-BB_IP, FC-BB_GFPT, FC-BB_PW, and FC-BB_E models. These reference models are shown in figure 5, figure 6, figure 7, and figure 8 respectively.		
NetApp-4R	T	19	4.2	First paragraph does not mention FC-BB-E	Add FC_BB_E.		
IBM-003	T	22	4.2	FC_BB_E reference model needs to be added, per editor's note.			
Emulex-009	T	22	4.2	There is no figure 8 at figure 8.	Replace the Editor's Note at the end of 4.2 with a reference diargram for FC-BB-E.		
EMC-092	T	22	4.2	FC-BB_E reference model is missing.	Insert FC-BB_E reference model and remove editors note.		
Broadcom-004	T	22	Fig 8	The figure is missing.	Add figure for FC-BB-E reference model		
EMC-022	T	22	Figure 8	Figure 8 is missing	Draw and add it.		
IBM-004	T	24	4.3.4	FC_BB_E "model" needs to be added.			
Emulex-010	T	24	4.3.4	A TBD lurks there	Replace the TBD in 4.3.4 with an overview of the FC-BB_E model. The first two paragraphs of 4.3.3, with a few tweaks, might suffice.		
Broadcom-005	T	24	4.3.4	The clause says: The FC-BB-E model…TBD. Also FC-BB-E content for 4.4.2.3, 4.4.3, 4.4.4, 4.4.5, 4.4.6	Add the necessary content.		
EMC-023	T	24	4.3.4	Section missing	Write and add text		

EMC-093	T	24	4.3.4	FC-BB_E reference model text is missing.	Insert FC-BB_E reference model text and remove editors note.		
NetApp-6F	T	24	4.3.4	FC-BB_E model is missing	Add FC-BB_E model.		
EMC-094	T	24	4.4.1	Requiring class F support	Change from: Class F shall be supported to: Class F may be suppported... For FC-BB_E devices that provide an FCF function but do so by passing the FLOGI request to the Fabric (think NPIV gateway), this shall is too restrictive.		
IBM-021	T	24	4.4.1 Fibre Channel Class support	The draft does not state how an FCF will represent support for class 2 service by the fabric when responding to an FLOGI. Since an FCoE fabric can have Ethernet bridges, class 2 support cannot be guaranteed. However, since class 2 support is required by FC-SB-3 and other existing protocols, a statement needs to be made regarding this support.	Add a statement in 4.4.1 (or in 7.2 or both) that states "Indication for support for class 2 service by setting the class validity bit (word 0, bit 31) in the class 2 service parameters in the LS_ACC response to a FLOGI request is a representation of support by the FC aware components of the fabric (e.g.,fibre channel switches and FCFs). Class 2 service cannot be provided by Ethernet bridgess in the fabric and configurations should be managed accordingly."		
IBM-005	T	25	4.4.2.3	FC_BB_E text for "payload transparency" needs to be added, per editor's note.			
Emulex-011	T	25	4.4.2.3	An Editor's Note remains where a descriptive paragraph is needed	???		
EMC-024	T	25	4.4.2.3	Section missing	Write and add text		
EMC-095	T	25	4.4.2.3	FC-BB_E text is missing	Insert FC-BB_E text and remove editors note.		
NetApp-7F	T	25	4.4.2.3	FC_BB-E text is missing	Add FC-BB_E text		
IBM-006	T	25	4.4.3	FC_BB_E text for "latency delay and timeout value" needs to be added, per editor's note.			
Emulex-012	T	25	4.4.3	An Editor's Note remains where a descriptive paragraph is needed	???		

EMC-025	T	25	4.4.3	FC_BB_E placeholder	Add FC_BB_E timeout text.		
EMC-096	T	25	4.4.3	FC-BB_E text is missing	Insert FC-BB_E text and remove editors note.		
NetApp-8F	T	25	4.4.3	FC-BB_E text is missing	Add FC-BB_E text		
IBM-007	T	25	4.4.4	FC_BB_E text for "QoS and bandwidth" needs to be added, per editor's note.			
Emulex-013	T	25	4.4.4	An Editor's Note remains where a descriptive paragraph is needed	???		
EMC-026	T	25	4.4.4	FC_BB_E placeholder	Add FC_BB_E QoS and bandwidth text.		
EMC-097	T	25	4.4.4	FC-BB_E text is missing	Insert FC-BB_E text and remove editors note.		
NetApp-9F	T	25	4.4.4	FC-BB_E text is missing	Add FC-BB_E text - Ethernet PFC/ETS		
IBM-008	T	26	4.4.5	FC_BB_E text for "in-order delivery" needs to be added, per editor's note.	New text should include that in-order delivery is required for BB_E and that support is indicated at fabric login by the sequential delivery bit in the service parameters.		
Emulex-014	T	26	4.4.5	An Editor's Note remains where a descriptive paragraph is needed	???		
EMC-027	T	26	4.4.5	FC_BB_E placeholder	Add FC_BB_E In-order delivery text.		
EMC-098	T	26	4.4.5	FC-BB_E text is missing	Insert FC-BB_E text and remove editors note.		
NetApp-10F	T	26	4.4.5	FC-BB_E text is missing	Add FC-BB_E text.		
IBM-009	T	26	4.4.6	FC_BB_E text for "flow control" needs to be added, per editor's note.			
Emulex-015	T	26	4.4.6	An Editor's Note remains where a descriptive paragraph is needed	???		
EMC-028	T	26	4.4.6	FC_BB_E placeholder	Add FC_BB_E flow control text.		
EMC-099	T	26	4.4.6	FC-BB_E text is missing	Insert FC-BB_E text and remove editors note.		
NetApp-11F	T	26	4.4.6	FC-BB_E text is missing	Add FC-BB_E text. Requires PAUSE or PFC, recommends PFC; plus other CEE features?		

Solution Technology-017	T	28	3.5.10	The definition of Lossless Ethernet MAC makes jumbo frame support a requirement (this defintion if further referenced elsewhere). There is no functional reason that jumbo frames should be required and the reference to jumbo frames should be deleted. We can limit the size of the encapsulated FC frame using existing FC mechanisms (i.e., Receive Data Field Size in FLOGI, PLOGI and ELP.	Remove the requirement for jumbo frames.		
QLogic-003	T	81	7	The term "Lossless Ethernet" is used many times in this Clause, but is not sufficiently defined (the definition in 3.5.11 is too vague).	Add a definiton that mentions the IEEE 802.1 DCB standards (8021.Qau, 802.1Qaz, 802.1Qbb, and the IETF standard TRILL).		
BLADE-07	T	81	7.2	In the paragraph below figure 25, include some text about the importance of supporting PFC.	Standard PAUSE mechanism is a MUST implement for FCoE networks. However, the FCoE standard should have some text explaining the importance of PFC for fabric convergence and make a recommendation about implementations supporting PFC. PFC should not be mandated though.		
EMC-001	T	81	7.2	The phrase "and requires the underlying Ethernet layer to be" misuses the term "require". A lossless Ethernet will outperform a lossy one, but there's no requirement and no way to enforce such a requirement.	Replace the phrase with "and performs optimally when the underlying Ethernet layer is".		

EMC-101	T	81	7.2	Replace the word similar with equivalent.	Change from: allows a full duplex Ethernet link to provide a lossless behavior similar to the one provided by the buffer to buffer credit mechanism in native Fibre Channel. To: allows a full duplex Ethernet link to provide a lossless behavior equivalent to the one provided by the buffer to buffer credit mechanism in native Fibre Channel.		
QLogic-001	T	81	7.2, 1st paragraph	Mentions Flow Control, this is not an aspect of FCoE, but is handled at a lower level (i.e., in IEEE).	Remove "Flow Control".		
QLogic-002	T	81	7.2, 3rd para, 2nd sentence	Says "requires the underlying". Requires sounds like a requirement.	Remove the word "requirement" and replace with something that sounds less like a keyword .		
IBM-012	T	82	7.2	The draft does not state how an FCF will represent support for fabric binding and insistent domain ID fabric wide security policies when responding to an QSA ELS (See FC-SP). Since an FCoE fabric can have Ethernet bridges, this support cannot be guaranteed (There is no way to detect a new switch joining the fabric when it plugs into a bridge). However, this support is required by FC-SB-3, a statement needs to be made regarding this support.	Add a statement in 7.2 that states "Indication for support for fabric wide security policies in the LS_ACC response to a QSA ELS Request (See FC-SP) is a representation of support by the FC aware components of the fabric (e.g.,fibre channel switches and FCFs). Fabric wide security policies may not be enforceable when Ethernet bridges are present in the fabric and configurations should be managed accordingly."		
Emulex-016	T	82	7.2	At the top of page 82, a pair of MAC addresses are claimed to be sufficient to identify a Virtual Link. This may not be true for SPMA.	???		

Emulex-017	T	82	7.2	The specification of FC-BB-E leads to several important functional variations from the functions of native Fibre Channel, but these variations are nowhere summarized.	After the first paragraph fragment at the top of page 82, add the new paragraph Although the FC-BB-E model replicates most of the functionality of FC-FS-3 and FC-SW-5, it does not support Connection-based classes of service (i.e., Class 1 service and Class 6 service). The FC-BB_E model also enables some additional features: a) An Enode may concurrently login using different N_Port_Names with multiple FCFs on the same Fabric through a single lossless Ethernet MAC; b) An FCF may accept logins from multiple Enodes through a single lossless Ethernet MAC without use of the Arbitrated Loop protocols; and c) An FCF may establish Inter-Switch Links with multiple other FCFs through a single lossless Ethernet MAC.		
EMC-029	T	82	7.2	"An FCoE Virtual Link is identified by the pair of MAC addresses of the two link end-points." No it's not - need FCID of VN_Port, see comment 3 above	Add FCID of VN_Port.		
EMC-002	T	82	Figure 26	It's not clear that how VN_Ports are associated with H1 and H2.	Put one box around H1 and its two VN_Ports and one box around H2 and its VN_Ports.		
EMC-003	T	82	Figure 26	Each FCF shows only one network connection, but multiple fabric connections. According to Note 16 on page 104, an FCF may have multiple network connections.	Add a second network port to FCF A and to FCF B.		

Emulex-018	T	83	7.3	The second sentence of the first paragraph of 7.3 can easily be understood to mean only one of the lossless Ethernet MACs is "the Enode's MAC, and that all the lossless Ethernet MACs are operated by a single FCoE Controller.	Change the second sentence of the first paragraph of 7.3 from An ENode is functionally composed of at least one Lossless Ethernet MAC (i.e., the ENode's MAC), coupled with an FCoE Controller function. To An ENode is functionally composed of at least one Lossless Ethernet MAC with FC-BB_E enabled (i.e., an Enode MAC), and one FCoE Controller for each Enode MAC.		
IBM-028	T	84	7.3	Indicate that c) is optional (NPIV) is not mandatory)			
Emulex-019	T	84	7.3	The first unordered list in 7.3 did not mention that ENode FCoE controller initiates FIP LOGO Exchanges.	In the first unordered list in 7.3, add a new line after current line c: d) initiates FIP LOGO Exchanges when explicit Fabric logout is needed;		
Emulex-020	T	84	7.3	Item g of the first unordered list in 7.3 strains grammar to identify the VF_Ports that are monitored.	In item g of the first unordered list in 7.3, change monitors the status of VF_Ports the instantiated VN_Ports are logged in with to monitors the status of VF_Ports to which it has instantiated Virtual Links		

Emulex-021	T	84	7.3	The first unordered list in 7.3 did not mention that ENode FCoE controller monitors FIP Clear Virtual Link request from FCF.	In the first unordered list in 7.3, add a new line after current line g: h) de-instantiates the indicated VN_Port/FCoE_LEP pairs on receiving FIP Clear Virtual Link requests.		
Emulex-022	T	84	7.3	The first paragraph after the first unordered list in 7.3 is ambiguous if the FCoE Controller for an ENode MAC logs into multiple VF_Ports.	Change the first paragraph after the first unordered list in 7.3 from VN_Ports instantiated by an ENode MAC on successful completion of FIP NPIV FDISC Exchanges are all associated to the same VF_Port, instantiated by the VF_Port capable FCF-MAC on successful completion of a FIP FLOGI Exchange to The FCoE Controller for an ENode MAC may perform Fabric Login with more than one VF_Port concurrently. After an FCoE Controller for an ENode MAC has completed Fabric Login with a VF_Port, the FCoE Controller may instantiate additional VN_Ports associated with the same VF_Port by successful completion of FIP NPIV FDISC Exchanges with the that VF_Port.		

EMC-005	T	84	7.3	To make an FCoE network correctly emulate an FC fabric, it is required that an ENode's FCoE controller only log into one VF_Port at a time. Otherwise, an SPMA-only ENode would present the same MAC address to two different FCF_MACs, which would make routing very interesting.	After the "VN_Ports instantiated by" paragraph, add a sentence prohibiting an the FCoE controller from sending a FIP FLOGI while it already has a VN_Port open. This language should prohibit sending a second FLOGI to the same FCF_MAC, as well as to a different one.		
EMC-030	T	84	7.3	"An FCoE_LEP operates according to the two parameters defining the Virtual Link, the MAC address of the local link end-point, and the MAC address of the remote link end-point." No, it doesn't - FCID of the VN_Port is needed, see slides 18 and 19 of 08-556v1.	Add FCID of VN_Port. It's needed for a security check that includes the MAC addresses, and hence has to be made in the LEP.		
NetApp-16R	T	84	7.3	Sentence 1 says "An Enode MAC shall support instantiation of VM_Ports." but sentence 2 says "The FCoE Controller…instantiates VN_Ports…"	The roles of the Enode MAC vs the FCoE Controller are not clear; add more clarity - does the MAC or the FCoE Controller do the instantiation?		
NetApp-17R	T	84	7.3	In the functional model proposed, which component demultiplexes incoming frames into various VN_Port/FCoE_LEP pair, when if there is 1:n association of MAC address with VN_Port/FCoE_LEP pairs? It seems obvious, but worth mentioning.	The Lossless Ethernet MAC is the functional entity that performs de-multiplexing of incoming frames into various FCoE_LEP/VN_Port pairs.		
Broadcom-007	T	84	Figure 28	Why are there two stacks per Ethernet MAC - we don't have two port types like the FCF so there should be just one stack.	Delete one FC-4, FC-3, VN_port and FCoE LEP stack per MAC.		

NetApp-15R	T	84	Figure 28	Enode is a Fibre Channel Node. Since the VN_Port_Name is being shown, it makes sense to also indicate Node Name being associated with Enode in Fig. 28.	Indicate where the Node Name is associated with Enode in figure 28. Is it the 3 green entities that share the same FC3/4s? or the 6 green things that share the Lossless Ethernet MAC? or is it all 6+[6]+[...] green things that are the ENODE in total? Where is the WWNN boundary for FCoE? Is there a boundary defined at all?		
Emulex-024	T	85	7.3	The last paragraph in 7.3, including its unordered list, attempts to restate a lot that is specified in FC-FS-3 and FC-LS-2. This is not necessary. It is also somewhat incorrect (e.g., VN_Ports don't emulate N_Ports, they are N_Ports, VN_Ports never have anything to do with BB_Credit.).	Change the last paragraph in 7.3, including its unordered list to An FCoE VN_Port is a VN_Port for which the PN_Port is an FCoE_LEP. FCoE VN_Ports have all the characteristics and behavior of Fibre Channel VN_Ports (see FC-FS-3 and FC-LS-2), except that: a) they are instantiated and removed by ELSs using a different framing protocol (i.e., FIP) than their native protocol (i.e., FCoE); and b) they do not support Connection-oriented classes of service.		
EMC-031	T	85	7.3	FCoE_LEP Decapsulation checks are insufficient. Sentence starts at bottom of p.84	Change "should verify that the source address" to "shall verify that the source address".		
EMC-032	T	85	7.3	Missing FCoE_LEP FCF decapsulation check	Add a requirement to check the S_ID. It's not enough to check the two MACs, the VN_Port's S_ID has to be checked by the VF_Port, and the check must be of the triple, as checking the MACs, stripping the Ethernet header and then checking the S_ID can open a security hole. See p.18 of 08-556v1.		

EMC-033	T	85	7.3	Missing FCoE_LEP ENode decapsulation check	Add a requirement to check the D_ID. Checking the MACs is not enough if more than one VN_Port MAC is in use at the ENode. The requirement has to be to check the triple, as checking the MACs, stripping the Ethernet header and then checking the D_ID can open a security hole. See p.19 of 08-556v1.		
EMC-110	T	85	7.4	Missing requirement	Add a requirement that FCFs need to validate the S_ID for received FC Frames. The S_ID must equal the S_ID assigned to the VN_Port.		
QLogic-004	T	85	7.3, last paragraph	The phrase "A VN_Port is the data forwarding component of an FC Entity that emulates an N_Port" is inaccurate. A VN_Port does not emulate a N_Port, it IS an N_Port on a different transport.	Change to "provides the functionality of an N_Port as spedified in FC-FS-3".		
Emulex-025	T	86	7.4	The first ordered list in 7.4 looks like it should be an unordered list.	make it so.		
Broadcom-006	T	86	7.4	"allowed, but not recommended" I'm not sure what the syntax here means. Does it mean that it is recommended that you don't use the same port for both or is it simply making a neutral statement that there isn't a recommendation to use the same port for both. Why isn't it recommended?	Please clarify.		
EMC-035	T	86	7.4	Use of same MAC for two different types of FC ports is a bad idea and a security risk.	Change "Support for both VE_Ports and VF_Ports on the same FCF-MAC is allowed, but not recommended." to "... on the same FCF-MAC is prohibited."		
EMC-111	T	86	7.4	Text "but not recommended"	Suggest deleting this as the reasoning for this is not clear. Else, explain why.		

NetApp-18F	T	86	7.4	Same as NetApp-16R - FCF-MAC Instantiates the Vx_Ports vs. the FCoE Controller instantiates the Vx_Ports?	Clarify		
QLogic-006	T	86	7.4, first paragaph on page	The stamement "Support for both VE_Ports and VF_Ports on the same FCF-MAC is allowed, but not recommended." adds nothing useful to the discussion.	Remove it.		
Brocade-024	T	86	Editor's note	The bridging element should not be part, but if we are showing it, then we should also show the model where a single bridge spans all the lossless MACs.			
QLogic-005	T	86	Editor's Note.	The editor's note needs to be resolved/removed before publication.	I agree wit h the sentiment in the editors note. Lossless ethernet is at a different level than FCoE. It's OK to mention in in an FCoE discussion, but it should not be part of this model.		
EMC-034	T	86	Figure 29	Editor's Note about removing Ethernet bridging element makes figure inconsistent.	Either leave figure as is, or remove FC Fabric Interface, FC Switching Element and Lossless Ethernet Bridging Elements. Leaving figure as-is is the preferred resolution.		
NetApp-19F	T	86	Figure 29	The Yellow MAC Address FCF-MAC[1] block indicates that each Ethernet_Port has only 1 MAC address, and that each MAC address (exhibited by MAC Address FCF-MAC[n]) has it's own Ethernet_Port	Clarify the MAC address to Ethernet_Port relationship.		
NetApp-20F	T	86	Figure 29	MAC Address FCF-MAC[1] points to the Ethernet_Port; but MAC Address FCF-MAC[n] points to the Lossless Ethernet MAC (not the Ethernet_Port). Which is it?	Clarify		
IBM-018	T	87	7.4	For item (7), suggest that the value of 90 seconds be a variable or a multiple of FKA_ADV_PERIOD.	Fix here and all other occurances of "90 Seconds" to use a timer variable or a multiple of FKA_ADV_PERIOD		

IBM-032	T	87	7.4	When stating that the MAC address of the remote LEP is the MAC address associated with the logged in VN_Port, a statement should be added to say that the MAC address may be the same for each additional FCoE_LEP instantiated using FIP NPIV FDISC when using SPMA (so that it is understood that 2 virtual links could be defined by the same 2 MAC addresses). (This brings up questions, later, about the need for FKA on each virtual link, when the addresses are the same)			
Emulex-026	T	87	7.4	The first ordered list in 7.4 does not mention that for a VE_Port capable FCF_MAC, FCoE Controller is responsible for "transmitting periodic FIP Disc_Adv every FKA_ADV_PERIOD to ALL_FCF_MACs" and "initiating FIP Clear_Virtual_Link to tear down the VE_Port - VE_Port bindings."	Add two items to the first ordered list in 7.4: - advertising its status to remote VE_Ports by transmitting periodic FIP Discovery Advertisements to the ALL_FCF_MACS address every FKA_ADV_PERIOD; - initiating FIP Clear_Virtual_Link as necessary to terminate Virtual Links to other VE_Ports;		
Emulex-027	T	87	7.4	The second ordered list in 7.4 does not mention that for a VF_Port capable FCF_MAC, FCoE Controller is responsible for "transmitting periodic FIP Disc_Adv every FKA_ADV_PERIOD to ALL_ENODE_MACs" and "initiating FIP Clear_Virtual_Link to tear down the VF_Port - VN_Port bindings."	Add two items to the second ordered list in 7.4: - advertising its status to remote VN_Ports by transmitting periodic FIP Discovery Advertisements to the ALL_ENODE_MACS address every FKA_ADV_PERIOD; - initiating FIP Clear_Virtual_Link as necessary to terminate Virtual Links to VN_Ports;		

Emulex-029	T	87	7.4	The second ordered list in 7.4 looks like it should be an unordered list.	make it so.		
Emulex-031	T	87	7.4	The first paragraph after the second ordered list in 7.4 duplicates the first paragraph after the first unordered list in 7.3.	Delete the first paragraph after the second ordered list in 7.4		
Emulex-032	T	87	7.4	The second and third paragraphs from the end of 7.4, together with their unordered lists, attempt to restate a lot that is specified in FC-SW-5 and FC-LS-2. This is not necessary. It is also somewhat incorrect (e.g., VF_Ports don't emulate F_Ports, and VF_Ports never have anything to do with BB_Credit).	Replace the second and third paragraphs from the end of 7.4, together with their unordered lists with An FCoE VE_Port is a VE_Port for which the PE_Port is an FCoE_LEP. FCoE VE_Ports have all the characteristics and behavior of Fibre Channel VE_Ports (see FC-SW-5), except that: a) they are instantiated and removed by ELPs using a different framing protocol (i.e., FIP) than their native protocol (i.e., FCoE); and b) they do not support Connection-oriented classes of service. An FCoE VF_Port is a VF_Port for which the PF_Port is an FCoE_LEP. FCoE VF_Ports have all the characteristics and behavior of Fibre Channel VF_Ports (see FC-SW-5 and FC-LS-2), except that: a) they are instantiated and removed by ELSs using a different framing protocol (i.e.,		
EMC-036	T	87	7.4	"An FCoE_LEP operates according to the two parameters defining the Virtual Link, the MAC address of the local link end-point, and the MAC address of the remote link end-point." No, it doesn't - FCID of the VN_Port is needed, see slides 18 and 19 of 08-556v1.	Add FCID of VN_Port.		

EMC-112	T	87	7.4 (item 3)	"when appropriate"	When appropriate needs to be defined.		
QLogic-007	T	87	7.4, third paragraph on page.	Paragraph beginning "The FCoE_LEP is the functional entity performing the encapsulation of FC frames into FCoE frames in transmission and the decapsulation of FCoE frames into FC frames in reception." seems to be repeating what is defined earlier in clause 7.3.	Remove repeated text.		
Brocade-025	T	87	line 3	Bullet 3. Elaborate on what the "appropriate" scenarios are for this.			
Brocade-026	T	87	p2	a) What does the 3rd bullet involve for SPMA? b) Need to mention somewhere that FKA_ADV_PERIOD can be configured to be 0 in which case no KA's are sent in either bullet 6 or 7.			
EMC-037	T	88	7.5	VN-VF virtual link discussion is incomplete.	Add statement that FCID is assigned to the VN_Port as part of instantiating a virtual link. Add text about VN_Port MAC address for both FPMA and SPMA cases.		
NetApp-28R	T	88	7.5	It would be nice to specify assignment of MAC addresses for FCoE. - One MAC addresse per VN_Port/FCoE_LEP or one MAC address shared between more than one VN_Port/FCoE_LEP - One MAC addresses per VF_Port/FCoE_LEP or one MAC address shared between more than one VF_Port/FCoE_LEP	Clarify		
Brocade-027	T	88	last paragraph	Same LEP issue for SPMA.			
NetApp-29F	T	89	7.5	Figure 31 shows the Virtual Links end points, that are the MAC addresses of the two involved VE_Port capable FCF-MACs (i.e., FCF-MAC(1) and FCF-MAC(2)). Are Virtual Link end-points equivilent to MAC addresses? This makes it sound like they are.	Figure 31 shows the Virtual Links end-points, that are represented by the MAC addresses of the two involved VE_Port capable FCF-MACs (i.e., FCF-MAC(1) and FCF-MAC(2)).		

Emulex-033	T	89	7.6	The first paragraph of 7.6 says that additional IEEE 802.1 tags may be present in an FCoE frame. Then table 21 describes an FCoE frame to begin with the EtherType field. This is misleading, since the optional tags can not appear within that range, only before it. A restatement similar to that used to describe FIP frames (page 94) might capture this better.	Change the first paragraph of 7.6 from The format of an FCoE frame is specified in table 21. The use of an 802.1Q tag header is optional and additional IEEE 802.1 defined tags may be present in an FCoE frame. To All Ethernet frames that encapsulate FCoE frames shall be formatted in accordance with 802.3-2005 and the MAC Client Data field within the 802.3 frame shall contain the encapsulated FCoE frame. The use of an 802.1Q tag header is optional and additional IEEE 802.1 defined tags may be present in the Ethernet frame prior to the FCoE frame. The format of an encapsulated FCoE frame is specified in table 21.		
NetApp-31R	T	89	Table 21	FCoE frame format can be shown in the context of Ethernet frame format. There is mention of 802.1Q but Table 21 does not show it.	Add reference to Appendix B.2 that does contain this infomration.		
EMC-038	T	90	7.7	Much of Section 7 on FIP written descriptively, making FIP functionality appear to be optional. Normative keywords appear to be used sporadically.	Add normative keywords, e.g., "shall" to entire section, including subsections to make FIP and its functionality normative.		
Cisco-016	T	90	7.6.	What does it mean "the SOF field shall be compliant with FC-FS-3"?	remove the sentence (twice)		
Cisco-017	T	90	7.7.	Add VLAN discovery, as per 08-564v0			
Cisco-018	T	90	7.7.	Add FIP Errors handling, as per 08-578v1			

Cisco-019	T	90	7.7.1	"frame format" should be "ethertype"	replace twice		
IBM-034	T	91	7.7.2.1	3rd to last paragraph.. When discussing the "A" bit, we need to state what the affect of the A bit being set to 0 has on existing logins. The answer, I assume, is nothing, but this needs to be stated.	Add a statement indicating that the A bit setting does not have any affect on existing logins.		
Cisco-021	T	91	7.7.2.1	Specify that existing Logins are not affected by the A bit			
Cisco-022	T	91	7.7.2.1	What does it mean "shall remain valid" in the last sentence?			
EMC-040	T	91	7.7.2.1	It is not clear how "b) Available for Login" is set.	Explain how to set the value of this flag.		
EMC-118	T	91	7.7.2.1	"Each"	The text: "Each FCF-MAC in the FCF Login Set shall be verified for Max FCoE Size support before performing the FIP FLOGI by transmitting a unicast Discovery Solicitation to an FCF-MAC and receiving a unicast Discovery Advertisement in response." could be interpreted to mean that all FCFs in the FCF set need to be responsive in order for discovery to proceed. suggest replacing with: An FCF-MAC in the FCF Login Set shall be verified for Max FCoE Size support before performing the FIP FLOGI by transmitting a unicast Discovery Solicitation to an FCF-MAC and receiving a unicast Discovery Advertisement in response.		

NetApp-35F	T	91	7.7.2.1	b)Available for Login - set to one when the FCF is able to accept additional FIP FLOGI/FDISC requests, set to zero otherwise.	b)Available for Login - set to one when the FCF is may be able to accept additional FIP FLOGI/FDISC requests, set to zero otherwise if the FCF may not be able to accept additional FIP FLOGI/FDISC requests. This bit is advisory at best. The condition it represents may change the instant the message is sent (or even queued to be sent).		
NetApp-36F	T	91	7.7.2.1	The periodic reception of multicast Discovery Advertisements allow ENode FCoE Controllers to continuously verify FCF-MAC connectivity. The Available for Login (A) bit in received Discovery Advertisements provides the information that the transmitting FCF-MAC is available for FIP FLOGI/FDISC, and this information is updated in the FCF list and FCF Login Set on reception of Discovery Advertisements.	The periodic reception of multicast Discovery Advertisements allow ENode FCoE Controllers to continuously verify FCF-MAC connectivity. The Available for Login (A) bit in received Discovery Advertisements provides the information that the transmitting FCF-MAC is may be available for FIP FLOGI/FDISC, and this information is updated in the FCF list and FCF Login Set on reception of Discovery Advertisements.		
NetApp-37F	T	91	7.7.2.1	The last sentence of this clause mentions the MAC address with no reference to SPMA or FPMA. Is the statement about "all FIP operations" true, or is it all FIP operations used during the FIP Discovery Protocol?			

NetApp-40F	T	91	7.7.2.1	The FCoE Controller for a VF_Port capable FCF-MAC shall periodically transmit multicast Advertisements to the All-ENode-MACS group address every FKA_ADV_PERIOD.	The FCoE Controller for a VF_Port capable FCF-MAC shall periodically transmit multicast Discovery Advertisements to the All-ENode-MACS group address every FKA_ADV_PERIOD. Everyother reference is to "multicase Discovery Advertisements".		
Cisco-023	T	92	7.7.2.2	Specify that existing ELPs are not affected by the A bit			
EMC-043	T	92	7.7.2.2	It is not clear how "b) Available for ELP" is set.	Explain how to set the value of this flag.		
EMC-119	T	92	7.7.2.2	"Each"	The text: "Each FCF-MAC in the FCF list shall be verified for Max FCoE Size support before performing a FIP ELP with that FCF-MAC by transmitting a unicast Discovery Solicitation to that FCF-MAC and receiving a unicast Discovery Advertisement in response." could be interpreted to mean that all FCFs in the FCF set need to be responsive in order for discovery to proceed. Suggest replacing with: "An FCF-MAC in the FCF list shall be verified for Max FCoE Size support before performing a FIP ELP with that FCF-MAC by transmitting a unicast Discovery Solicitation to that FCF-MAC and receiving a unicast Discovery Advertisement in response."		

NetApp-38F	T	92	7.7.2.2	b)Available for ELP - set to one when the FCF is able to accept additional FIP ELP requests, set to zero otherwise.	b)Available for ELP - set to one when the FCF is may be able to accept additional FIP ELP requests, set to zero otherwise if the FCF may not be able to accept additional FIP FLOGI/FDISC requests.		
NetApp-39F	T	92	7.7.2.2	The Available for Login (A) bit in received Discovery Advertisements provides the information that the transmitting FCF-MAC is available for FIP ELP, and this information is updated in the FCF list on reception of Advertisements.	The Available for Login (A) bit in received Discovery Advertisements provides the information that the transmitting FCF-MAC is may be available for FIP ELP, and this information is updated in the FCF list on reception of Advertisements.		

Emulex-034	T	92	7.7.3.1	7.7.3.1 discusses Virtual Link instantiation, also introduces FIP LOGO, which de-instantiates a Virtual Link. It does not mention FIP Clear Virtual Links. On the other hand, 7.7.4.1 discusses both, lacking only a few details about FIP LOGO. It seems that the subclause on instantiation is not the best place to partially describe LOGO (de-instantiation), anyway.	Remove the last two paragraphs from 7.7.3.1. After the second to last paragraph of 7.7.4.1 add a paragraph: A FIP Fabric Logout (i.e., LOGO) shall be performed by an ENode using the FIP frame format (see table 24) and the associated FIP descriptor type (see table 29). Fabric logout shall not be performed using the FCoE frame format. Acceptance of FIP Fabric Logout from a VN_Port by an FCF shall cause the FCF to log out that VN_Port from the Fabric, de-instantiate its Virtual Link , and release its MAC address if assigned using FPMA. Change the first sentence of the last paragraph of 7.7.4.1 from A FIP Clear Virtual Links message transmitted to an ENode MAC provides the list of VN_Ports to be removed.		
Emulex-035	T	93	7.7.3.2	The last paragraph of 7.7.3.2 says FIP ELP can assign a MAC address to a VE_Port. The description of the FIP ELP request/response instead specifies the MAC address shall be the FCF-MAC address.	Delete the last paragraph of 7.7.3.2.		

IBM-039	T	93	7.7.4.1	When virtual links are de-instantiated due to missing advertisements or missing FKA, we need to state that the appropriate Fibre Channel recovery is performed at the VN_Port or the VF_Port and need to state what that recovery is in terms of Fibre Channel protocol such as Link Failure, Implicit logout, etc. Do we send an explicit LOGO?			
IBM-040	T	93	7.7.4.1	Paragraph 5 states that there is a difference between FKA from the Enode and its VN_Ports and that difference is determined by the source MAC address. For SPMA, they are all the same.	Remove (i.e., those having the VN_Port MAC address as the source address) and add a statement that says a FKA from the Enode's N_Ports contains a Vx_Port Identification descriptor.		
IBM-042	T	93	7.7.4.1	"Three" missing FKAs is too much. It should be model dependant and more than one (stated in terms of comment IBM-074)			
IBM-043	T	93	7.7.4.1	The 2nd to last paragraph defines explicit virtual link de-instantiation. Need to state "when" explicit virtual Link de-enstantiation is required to be performed			
IBM-075	T	93	7.7.4.1	Text reads "After three missing VN_Port FIP Keep Alive messages…", how does an entity know how many it has missed? Should be specified in terms of elapsed time instead of number of misses	Change "After three missing VN_Port FIP Keep Alive messages" to "If no VN_Port FIP Keep Alive messages are received within at least 2xFKA_ADV_PERIOD"		
IBM-076	T	93	7.7.4.1	Text reads "After three missing ENode FIP Keep Alive messages…", how does an entity know how many it has missed? Should be specified in terms of elapsed time instead of number of misses	Change "After three missing ENode FIP Keep Alive messages" to "If no ENode FIP Keep Alive messages are received within at least 2xFKA_ADV_PERIOD"		
IBM-079	T	93	7.7.4.1	Text says "...all associated VN_Port to VF_Port Virtual Links shall be de-instantiated". Should it require explicit de-instantiation?	State explicit recovery actions to be performed including LOGO, Clear Virual Links, RSCNs, Nameserver updates, etc.		

IBM-080	T	93	7.7.4.1	Action taken in response to FIP Clear Virtual Link? Should the links be de-instantiated? Explicitly?			
Cisco-024	T	93	7.7.4.1	Specify "unicast" FIP Keep Alive (twice)			
Cisco-025	T	93	7.7.4.1	third paragraph, there is no definitive way to know exactly three FIP keepalives were missed.	Change to "The Enode MAC FCoE Controller monitors the status of a VF_Port that is has VN_Ports logged in by verifying receipt of FIP Discover Advertisements. If no FIP discovery advertisements are received from the VF_Port during a period of 3 x FKA_ADV_PERIOD, all of the VN_Port to VF_Port Virtual Links ..."		
Cisco-026	T	93	7.7.4.1	Sixth paragraph, no definitive method to know three keep alives were missed.	Reword to indicate no keep alives received within 270 second		
Emulex-038	T	93	7.7.4.1	The first sentence of the last paragraph of 7.7.4.1 provides a nice discussion that is never reflected normatively.	Change the first sentence of the last paragraph of 7.7.4.1 from A FIP Clear Virtual Links message transmitted to an ENode MAC provides the list of VN_Ports to be removed. To A FIP Clear Virtual Links message transmitted to an ENode MAC provides the list of VN_Ports to be logged out from the Fabric. For each VN_Port correctly identified in the list, the ENode MAC FCoE Controller shall implicitly log out that VN_Port from the Fabric, de-instantiate its Virtual Link , and release its MAC address if assigned using FPMA.		

EMC-010	T	93	7.7.4.1	The next-to-last paragraph says de-instantiating a link requires two messages, one from the Enode and one from the FCF.	Replace "and by transmitting a FIP Clear Virtual Links" with "or by transmitting a FIP Clear Virtual Links.		
EMC-044	T	93	7.7.4.1	2nd paragraph: FKA_ADV_PERIOD is symbolic for the ENode MAC, but 90 seconds is explicit for the VN_Port MAC. Should both be symbolic? What if the VN_Port MAC is the same as the ENode MAC?	Use symbols for both time periods. Clarify what happens when same MAC used for both purposes; based on Note 13, it looks like both types of keep alives have to be sent.		
EMC-045	T	93	7.7.4.1	3rd paragraph: The VN_Port has to verify that advertisements are received within every period, but only the consequence of missing three is stated. What's the consequence of missing one?	This should just be a rephrase to say that the period between successive advertisements is monitored. The advertisements should show up once every period - if four times that period elapses, then take action.		
EMC-046	T	93	7.7.4.1	3rd paragraph: ENode has to listen to All-ENode-MACs group address.	Add this requirement and state that this is where the advertisements will be received (i.e., not on the ENode's individual MAC).		
EMC-047	T	93	7.7.4.1	6th paragraph: Requirement expressed in terms of missing messages.	State requirement in terms of time elapsed between messages - at 4 times the expected inter-message time, take action.		
EMC-048	T	93	7.7.4.1	Size limit on link clear message is weak ("should"). In addition to switches, ENodes may rely on this.	Strengthen to "shall not exceed 1500 bytes".		
NetApp-44F	T	93	7.7.4.1	Note 13 and the paragraphs around it: There is no indication of a relationship between Virtual Link de-instantation and RSCN.	Is there a connection somewhere else, or should there be some indication of a relationship between de-instantation of Virtual Links to RSCNs?		
IBM-044	T	94	7.7.4.1	Virtual link maintenance should include de-instantiation when detectable ethernet physical link failures occur (however they may be defined), thus providing a faster detection mechanism for link failures than missing LKAs for simple configurations.	The rules for this should be stated.		

Cisco-027	T	94	7.7.4.2	2nd paragraph, no definitive method to know three keep alives were missed.	Reword to indicate no keep alives received within 3xFKA_ADV_PERIOD		
EMC-049	T	94	7.7.4.2	2nd paragraph: The VE_Port has to verify that advertisements are received within every period, but only the consequence of missing three is stated. What's the consequence of missing one?	This should just be a rephrase to say that the period between successive advertisements is monitored. The advertisements should show up once every period - if four times that period elapses, then take action.		
NetApp-45F	T	94	7.7.4.2	A FIP Clear Virtual Links message transmitted to a VE_Port capable FCF-MAC provides the destination FCF-MAC address. I'm not sure what this means? All message provide a destination MAC address. What is special about this one? If the destination address is special enough to mention specifically, what about the source MAC address? Why isn't that mentioned?	I'm not sure? Delete the sentence? Add a Source Address sentence; clearify something that I'm missing in what's there?		

Emulex-039	T	94	7.7.5.1	The first paragraph of 7.7.5.1 says that additional IEEE 802.1 tags may be present in a FIP frame. Then table 24 describes a FIP frame to begin with the EtherType field. This is misleading, since the optional tags can not appear within that range, only before it.	Change the first paragraph of 7.7.5.1 from All FIP frames shall be formatted in accordance with 802.3-2005 and the MAC Client Data field within the 802.3 frame shall contain the encapsulated FIP operation. The use of an 802.1Q tag header is optional and additional IEEE 802.1 defined tags may be present in an FIP frame. To All Ethernet frames that encapsulate FIP frames shall be formatted in accordance with 802.3-2005 and the MAC Client Data field within the 802.3 frame shall contain the encapsulated FIP frame. The use of an 802.1Q tag header is optional and additional IEEE 802.1 defined tags may be present in the Ethernet frame prior to the encapsulated FIP frame.		
IBM-047	T	94	7.7.5.2	Table 25 last row "n+m+2" should be just "n+2"			

Emulex-040	T	94	7.7.5.2	It is unfortunate that the information needed to maintain ACLs is buried in a field in a Descriptor in the Encapsulated FIP operation in the Ethernet frame.	In table 25, add flags word 1 bit 13: CL word 1 bit 12: DL After table 27 add the paragraphs The CL bit shall be set to one if the encapsulated FIP operation causes one or more Virtual Links to be created. The CL bit shall be set to zero if the encapsulated FIP operation does not cause one or more Virtual Links to be created. The DL bit shall be set to one if the encapsulated FIP operation causes one or more Virtual Links to be deleted. The DL bit shall be set to zero if the encapsulated FIP operation does not cause one or more Virtual Links to be deleted.		
NetApp-46R	T	94	Table 25	FCoE frame format can be shown in the context of Ethernet frame format. There is mention of 802.1Q but Table 25 does not show it.	Add reference to Appendix B.2 that does contain this information.		
Solution Technology-034	T	95	7.2, 3rd Paragraph	This paragraph does not mention a requirement for jumbo frames as was required earlier in the definition of a lossless ethernet network			
Brocade-029	T	95	last paragraph	Not sure what we get by using the solicited bit. All the unsolicited messages go to multicast addresses while the solicited ones go to a unicast address (i.e., unsolicited advertisements are sent to the ALL-ENODE-MACS multicast address, if the MAC DA is unicast, then it is known to be a solicited advertisement).			
Cisco-029	T	95	Table 27	Set to 0 if SPMA is granted	Replace with "Set to zero if FPMA is not granted" Same with SPMA later		

Emulex-041	T	95	table 27	In table 27, the settings for the the FP bit in an FLOGI Request and an FDISC_NPIV Request say that the bit is set to 1 of FPMA is requested, but do not say that it is not set to 1 if FPMA is not requested (this may sound obvious, but the standards have a scattering of bits for which one setting tells something, and the other does not). The settings for the SP bit have the same problem.	In table 27 in the row for FP FLOGI Request/FDISC_NPIV Request, after the first line of the settings cell, add "Set to 0 if FPMA is not requested". In table 27 in the row for SP FLOGI Request/FDISC_NPIV Request, after the first line of the settings cell, add "Set to 0 if SPMA is not requested".		
EMC-051	T	95	Table 27	No SP or FP requirements on Discovery	Apply table footnote "a" to Discovery Solicitation and Discovery Advertisement.		
Solution Technology-036	T	96	7.2, Last Sentence on page	The N_Port to F_Port Fibre Channel protocols do not operate unchanged. The Primitive Sequence protocols and Buffer-to-buffer credit protocol do not apply to FC-BB_E.			
IBM-081	T	96	7.7.5.2	Text indicates that LOGO is a Link Instantiation request. Text also indicates that Available bit indicates an FCFs availability to process link instantiation requests. So, can a LOGO be sent to an FCF with Available bit of 0? Have to be able to LOGO always.	Clarify the definition and use of the A bit to be specific to new FLOGI request (actually containing an FLOGI) and FDISC requests.		
EMC-011	T	96	7.7.5.2	Need to specify the use of FIP_Pad by frames other than solicited Discovery Advertisements.	Add a sentence requiring the FIP_Pad field to be of zero length in all other FIP frames (or at least in multicast advertisement and all solicitations).		

NetApp-47F	T	96	7.7.5.2	The Available for Login (A) bit shall be set to 1 in a Discovery Advertisement if the originating FCF is available to process Virtual Link instantiation requests. The A bit shall be set to 0 in a Discovery Advertisement if the originating FCF is not available to process Virtual Link instantiation requests. The A bit is reserved for all other FIP operations. This bit is advisory at best, it can not be guaranteed to be synchronized with the other end.	The Available for Login (A) bit shall be set to 1 in a Discovery Advertisement if the originating FCF ~~is~~ may be available to process Virtual Link instantiation requests. The A bit shall be set to 0 in a Discovery Advertisement if the originating FCF ~~is~~ may not available to process Virtual Link instantiation requests. The A bit is reserved for all other FIP operations.		
NetApp-48F	T	96	7.7.5.2	The FIP_Pad field is used in solicited Discovery Advertisements to extend the frame length to indicate the maximum frame length supported by the originator (see 7.7.6.3). This field does not "indicate the maximum frame length supported by the originator".	The FIP_Pad field is used in solicited Discovery Advertisements to extend the frame length with the intention to indicate the maximum frame length supported by the originator (see 7.7.6.3). or The FIP_Pad field is used ~~in~~ when transmitting a solicited Discovery Advertisements to extend the frame length to indicate the maximum frame length supported by the originator (see 7.7.6.3).		
IBM-049	T	96	7.7.5.3.1	The notion of critical vs. non-critical descriptors is not clear to me. How would you ever add a critical descriptor to expand the use of a FIP operation? The FIP message would get discarded by older implementations. What happens when there is a "missing" critical descriptor vs. an unknown critical descriptor.			

EMC-053	T	96	Table 28	Use of ranges for critical vs. non-critical allows two opcodes to differ only in what appears to be the critical bit.	Reformat so the MSB is the critical/non-critical bit and the remaining 7 bits are the opcode, with vendor-specific opcodes required to be non-critical. This cuts the opcode space in half, hence needs careful thought.		
Emulex-043	T	97	7.7.5.3	Every descriptor defined in 7.7.5.3 includes a list of the messages in which it is used. So does table 44. This leaves an opportunity for the two to differ. Guess what? Compare 7.7.5.3.5 with the row of table 44 for FIP Clear Virtual Links.	At the end of 7.7.5.3.1, add a paragraph The usage of descriptors in FIP messages is specified in table 44. Change the first sentence of the first paragraph of 7.7.5.3.2 from The FIP Priority descriptor is used in Discovery Advertisements originated by an FCF to indicate a priority to an ENode when multiple Discovery Advertisements are received. to The FIP Priority descriptor is used to indicate a priority to an ENode when multiple Discovery Advertisements are received. Delete the first paragraph of each subclause from 7.7.5.3.3 through 7.7.5.3.14		

NetApp-50F	T	97	7.7.5.3.2	The FIP Priority descriptor is used in Discovery Advertisements originated by an FCF to indicate a priority to an ENode when multiple Discovery Advertisements are received. The priority descriptor is sent in the discovery advertisement, and used by an ENode when it receives multiple discovery advertisements.	The FIP Priority descriptor is ~~used~~ [transmitted | contained | sent] in Discovery Advertisements originated by an FCF to indicate a priority to an ENode. The FIP priority descriptor is used by the ENode when multiple Discovery Advertisements are received.		
NetApp-52F	T	97	7.7.5.3.4	The FC-MAP concept hasn't been described anywhere yet; not even the definitions.	Add a cross reference to where it is discussed (There is a section where it is discussed - one of those earlier still TBD sections I assume? - If so, this comment can then be ignored).		
NetApp-53F	T	97	7.7.5.3.5	The FIP Name_Identifier concept hasn't been described anywhere yet.	See comment 52		
EMC-120	T	97	Table 29	Add additional columns	Additional columns should be added to specify if the descriptor is supported by FCF, enode or both.		
QLogic-010	T	97	Table 30	Need a description of the individual fields in this table (Type, Length, Priority).	Add descriptions.		
Solution Technology-042	T	98	7.3, List item a)	The FCoE Controller 'may' initiate the FIP discovery protocol. It may also simply wait to receive an Advertisement from an FCF.			
EMC-054	T	98	7.7.5.3.3	What MAC address does the MAC desciptor contain?	Use a different descriptor with a different Type value for each type of MAC address that can be passed in FIP. It looks like there are ENode, FCF, VN and VE port MAC addresses used in various FIP messages. This reduces opportunities to use a MAC address for the wrong purpose.		
QLogic-012	T	98	Table 31	Need a description of the individual fields in this table (Type, Length, MAC address).	Add descriptions.		

QLogic-013	T	98	Table 32	Need a description of the individual fields in this table (Type, Length, FC-MAP).	Add descriptions.		
QLogic-014	T	98	Table 33	Need a description of the individual fields in this table (Type, Length, Name_Identifier).	Add descriptions.		
Cisco-030	T	98	various tables	What [0], [1], etc mean in the MAC address, FC-MAP, etc fields?			
Solution Technology-045	T	99	7.3, Item a in the list just before 7.4	In FC-FS, the PN_Port has a number of functions (e.g., buffer-to-buffer flow control, link-level protocols (e.g., LR) that are not performed by a VN_Port). Can VN_Port as used here be brought into alignment with VN_Port as used in FC-FS-3? If so, BB flow control is not a function of the VN_Port. If not, then there are other functions that a VN_Port does not do.			
Solution Technology-044	T	99	7.3, List just before 7.4	There is a behavior in FC-FS-2 (9.5.1) for N_Ports prior to acquiring an N_Port ID. This behavior does not exist for FCoE VN_Ports. This same behavior in FC-FS-3 (9.5.1)for PN_Ports prior to acquiring an N_Port ID.			
NetApp-69F	T	99	7.7.5.3.6	Table 34	Is VF_ID a well known thing? There is no definition, no reference, no text describing what it is. Add something to explain what this is.		
Cisco-031	T	99	7.7.5.3.7	Specify that Max_FCoE_Size is expressed in bytes			
Emulex-046	T	99	7.7.5.3.7	Max_FCoE_Size??? Size of what? In what units?	In 7.7.5.3.7, after table 35 add The Max_FCoE_Size field shall be set to the length in bytes of the largest Ethernet frame that the sender of the descriptor is able to receive.		

Emulex-047	T	99	7.7.5.3.8	I can not find a description of how ELSs/ELPs are represented in a FIP descriptor. I had to count words, do arithmentic, and guess.	After the last paragraphs of the specifications of the FIP FLOGI descriptor (7.7.5.3.8), FIP FDISC_NPIV descriptor (7.7.5.3.9), FIP LOGO descriptor (7.7.5.3.10), and FIP ELP descriptor (7.7.5.3.11), add unambiguous descriptions of the content, e.g., An FLOGI Request, FLOGI LS_ACC, or FLOGI LS_RJT shall be a complete Fibre Channel frame with a Fibre Channel Frame_Header and an ELS payload but without a CRC field. In an FLOGI Request or FLOGI LS_ACC, the Payload bit shall be set to zero.		
Emulex-048	T	99	7.7.5.3.8	Although use of Virtual Fabrics within a single VLAN is discouraged for security considerations, it is not prohibited. However, the fixed lengths specified for each of the ELS-bearing descriptors prevents inclusion of a VF_Header. How is VF accomplished?	Remove the fixed lengths specified for the FIP FLOGI descriptor (7.7.5.3.8), FIP FDISC_NPIV descriptor (7.7.5.3.9), FIP LOGO descriptor (7.7.5.3.10), and FIP ELP descriptor (7.7.5.3.11). Replace them with unambiguous descriptions of the content, e.g., An FLOGI Request, FLOGI LS_ACC, or FLOGI LS_RJT shall be a complete Fibre Channel frame optionally including a VF_Header, including a Fibre Channel Frame_Header and an ELS payload, but without a CRC field. In an FLOGI Request or FLOGI LS_ACC, the Payload bit shall be set to zero.		

EMC-012	T	99	7.7.5.3.8	"FIP Fabric login requests and replies" aren't defined anywhere.	Clarify that the phrase refers to some line or lines in Table 44, which is four pages ahead. Fix the first sentences of 7.7.5.3.9 thru 7.7.5.3.11, too.		
EMC-013	T	99	7.7.5.3.8	Why is the Length set to 36 for an FLOGI Request? Table 149 in FC-LS-2 shows FLOGI can be either 29 or 64 words long.	Explain.		
EMC-055	T	99	7.7.5.3.8	Use separate descriptors for FLOGI and response	Define a separate descriptor for the FLOGI LS_* response		
QLogic-015	T	99	Table 34	Need a description of the individual fields in this table (Type, Length, FC-MAP, Fabric_Name).	Add descriptions.		
QLogic-016	T	99	Table 35	Need a description of the individual fields in this table (Type, Length, Max_FCoE_Size).	Add descriptions.		
QLogic-017	T	99	Table 36	Need a description of the individual fields in this table (Type, Length, FLOGI Requiest...).	Add descriptions.		
Emulex-049	T	100	7.7.5.3.10	In the last paragraph of 7.7.5.3.10, the length of a FIP LOGO descriptor carrying a LOGO LS_ACC is specified as 10; however, a LOGO LS_ACC is one word, and together with a six-word Frame_Header and a one-word descriptor header, adds up to only 8 words.	In the last paragraph of 7.7.5.3.10, change 10 to 8		
EMC-057	T	100	7.7.5.3.10	Use separate descriptors for LOGO and response	Define a separate descriptor for the LOGO LS_* response		
EMC-058	T	100	7.7.5.3.11	Use separate descriptors for ELP and response	Define a separate descriptor for the ELP SW_* response		
EMC-056	T	100	7.7.5.3.9	Use separate descriptors for FDISC and response	Define a separate descriptor for the FDISC LS_* response		
QLogic-018	T	100	Table 37	Need a description of the individual fields in this table (Type, Length, NPIV FDISC...).	Add descriptions.		
QLogic-019	T	100	Table 38	Need a description of the individual fields in this table (Type, Length, LOGO...).	Add descriptions.		
QLogic-022	T	100	Table 38	issue in the descriptor length for a LOGO LS_ACC. Length should be 8, but spec lists it as 10.			

QLogic-020	T	100	Table 39	Need a description of the individual fields in this table (Type, Length, ELP...).	Add descriptions.		
Emulex-050	T	101	7.7.5.3.12	In table 40, the word numbering is wrong.	In table 40, change word numbering from 1, 2, 2, 3 to 1, 2, 3, 4.		
Cisco-032	T	101	7.7.5.3.13	Specify that FKA_ADV_PERIOD is expressed in milliseconds			
QLogic-026	T	101	FKA_ADV_PERIOD	Using a 4 byte field for this value appears to be excessive for any practical application.	Suggest this field be 16 bits resulting in a maximum value of 65535 (65.535 seconds!).		
QLogic-023	T	101	Table 40	Need a description of the individual fields in this table (Type, Length, ...).	Add descriptions.		
QLogic-024	T	101	Table 41	Need a description of the individual fields in this table (Type, Length, FKA_ADV_PERIOD).	Add descriptions.		
QLogic-025	T	101	Table 42	Need a description of the individual fields in this table (Type, Length, Vendor_ID).	Add descriptions.		
Solution Technology-052	T	102	7.4, Last paragraph on page	The sentence ending 'and the FCoE Controller of a VF_Port capable FCF-MAC instantiates an additional FCoE_LEP to the instantiated VF_Port.' is only true if a unique MAC address is used for the VN_Port. If using SPMA and a single MAC address is used for all VN_Ports, this statement is not true.			
EMC-059	T	102	7.7.3.5.15	Last sentence is too weak	Say that a device "shall not be required to provide or understand" a vendor specific descriptor for normal operation. Might want to say "operation in accordance with this standard" instead of "normal operation".		

Emulex-051	T	102	7.7.5.3.15	I do not believe the last paragraph of 7.7.5.3.15 is stated completely, and it should be normative.	Change the last paragraph of 7.7.5.3.15 from An FC-BB_E device is not required to provide a FIP Vendor Specific descriptor for normal operation. To An FC-BB_E device shall not require use of a FIP Vendor Specific descriptor in order to operate in compliance with this standard.		
EMC-060	T	102	7.7.6	FIP Operations specification does not include message format checks	Add recipient instructions on acceptable payload combinations wrt discovery/instantiation state with a clear "shall" requirement on rejecting badly formed FIP messages without processing any of their payloads.		
EMC-061	T	102	7.7.6	FIP Operations specification does not include errors	Add specification of FIP errors, including error codes, what causes them, how they're reported and to what entities they are reported. Use clear "shall" requirements for error reporting.		
Cisco-034	T	102	7.7.6.1	Somewhere (this seems like a good place) we need to specify what to do if a FIP operation is missing required TLVs (discard the operation) and if it has unexpected additional required TLVs (again, discard the operation).	Add these "shalls' where needed		

Emulex-053	T	102	7.7.6.1	In the first paragraph of 7.7.6.1 appears the text "...the order in that they should be encapsulated…". I prefer the flexibility that this offers (apart from the FIP Virtual Link Instantiation reqeusts)), but I thought we had agreed to a "shall", and the first sentence includes ordering under a "shall".	I'd be happier if you changed the first sentence to make descriptor ordering a "should". 8-)		
Broadcom-010	T	102	7.7.6.1	Conflicting information. First sentence says "shall contain…with…order as specified in table 44." Next sentence says "order that they should be encapsulated" and note a on Table 44 indicates that strict ordering is required for some but not all FIP operations.	Clearly state that strict ordering is required for all payloads. Remove note a.		
Cisco-035	T	102	note 14	add "in any order" after "FIP descriptors"			
QLogic-029	T	102	Section 7.7.6.1	"specifies the FIP descriptors required in each FIP operation and the order in that they should be encapsulated by a transmitting FCoE Controller." and "Unless otherwise specified (e.g., for a FIP FLOGI Request), a receiving FCoE Controller shall be able to process the FIP descriptors in any order." Order should be fixed and received in transmitted order.	Replace "should" with "shall" in sentence "…they should be encapsulated" and add a sentence "FIP descriptors shall be received in the order transmitted".		
QLogic-027	T	102	Table 43	Need a description of the individual fields in this table (Type, Length, Vendor_ID, Vendor Specific Information).	Add descriptions.		
Cisco-036	T	102	Table 44	Clarify the note by adding "in transmission. A receiving FCoE controller is not required to be able to process these FIP operations in any order other than that specified here."			
QLogic-028	T	102	Table 44	Payload names should have a more detailed description.	Add a more detailed descritoin, or a reference to where the detailed description can be found for each entry in the payload field.		

Solution Technology-054	T	103	7.6	the structure shown in Table 21 is not a frame. It is a portion of an Ethernet frame. Furthermore, within the items shown, it is not possible to have additional 802.1 tags because they would precede this structure.			
Solution Technology-053	T	103	7.4, First paragraph on page	The sentence ending 'and the FCoE Controller of a VF_Port capable FCF-MAC instantiates an additional FCoE_LEP to the instantiated VF_Port.' is only true if a unique MAC address is used for the VN_Port. If using SPMA and a single MAC address is used for all VN_Ports, this statement is not true.			
IBM-053	T	103	7.7.6.1	Table 44 - add a footnote for Vx_Port Identification on the FIP Keep Alive to indicate that it is only provided when FKA is sent for a VN_Port.			
Emulex-054	T	103	7.7.6.1	In table 44, the row for FIP Keepalive unconditionally requires a Vx_Port Identification descriptor. While this descriptor is present in a VN_Port FIP Keepalive, it is not present in a MAC Address FIP Keepalive. See 7.7.6.5.	In table 44, add a new footnote "Shall not be present for a FIP Keepalive message using the Enode MAC Address as source address". In the cell for FIP Keepalive payload, after the Vx_Port Identification descriptor, add a reference to the footnote.		
Emulex-055	T	103	7.7.6.1	In the last paragraph of 7.7.6.1, it claims that Enode devices are addressable. First, "Enode device" is not defined. Second, Enodes themselves are not addressable.	In the last paragraph of 7.7.6.1, change "Enode devices" to "Enode MACs".		
NetApp-64F	T	103	7.7.6.1	The last paragraph (after table 44) doesn't seem to fit here. It references table 45 talking about Two group addresses, but table 45 is really about timers and constants.	Fix the placement of this paragraph and the reference. It almost looks like it belongs in an overview section under 7.7.6.2 (also see comment on table 45 about the reference).		
Cisco-037	T	103	Table 44	Fabric LOGO should be restricted to ENodes, FCFs use FIP Clear Virtual Links	Update the table		

IBM-054	T	104	7.7.6.2.1	Note 15, Virtual Enodes are required to have their own unique Node Name	Remove note 15.		
IBM-055	T	104	7.7.6.2.1	Max FCoE Size caclulation refers to an "FCS" in table 21 which does not exist. What is FCS? Appears twice on this page.			
Cisco-038	T	104	7.7.6.2.1	Is the last sentence needed?			
IBM-056	T	104	7.7.6.2.2	"For FCF Macs that only support SPMA, the FC-MAP field in the FC_MAP descriptor is reserved." Add a statement that the FC_MAP descriptor still shall be provided. (I believe that is a requirement)			
IBM-057	T	104	7.7.6.2.2	item b) If FP=1, then the FC_MAP shall match the recipient FCF. If FP=0, then it should not be checked.			
Cisco-040	T	104	7.7.6.2.2	In the sentence "After receiving a valid…" replace twice "FCF" with "FCF-MAC"			
EMC-135	T	104	7.7.6.2.2	The particular MACs of VE_Port capable FCF-MACs may be unknown.	Change from: VE_Port capable FCF-MACs may transmit Discovery Solicitations to VE_Port capable FCF-MACs to… to: VE_Port capable FCF-MACs may transmit Discovery Solicitations to ALL-FCF-MACs to…		

EMC-136	T	104	7.7.6.2.2	FCF-MACs should be VE_Port capable FCF-MACs.	Change from: VE_Port capable FCF-MACs may transmit Discovery Solicitations to VE_Port capable FCF-MACs to request the FCF-MACs to reply with a solicited Discovery Advertisement. To: VE_Port capable FCF-MACs may transmit Discovery Solicitations to VE_Port capable FCF-MACs to request the VE_Port capable FCF-MACs to reply with a solicited Discovery Advertisement.		
EMC-138	T	104	7.7.6.2.2	item b and reserved fields.	Should we be specifying reserved fields shall be zero or are they undefined and should not be checked?		
NetApp-67F	T	104	7.7.6.3	Discovery Advertisements shall only provide a single Fabric descriptor.	Add reference to 7.7.5.3.6 (Fabric Descriptor)		
EMC-062	T	104	Note 15	This looks dangerous. Could get two links with same MACs.	Where's the check for two links to the same Vx_Port? This is part of why the VN_Port FCID has to be part of the Virtual Link definition.		
NetApp-65F	T	104	Note 15	Is this Name_Identifier - the "Node_Name" what is commonly known at the WWNN (World Wide Node Name)?			
NetApp-66F	T	104	Note 16	NOTE 16 – It is possible for an FCF to receive a Discovery Solicitation that it originated because Discovery Solicitations sent to the All-FCF-MACS group address may be forwarded to other ports on the same FCF by intermediate ethernet bridges. Is it obvious that such a discovery solicitation should be discarded?	Add a sentence that says "Such Discovery Solicitations should be detected and discarded."		

Solution Technology-066	T	105	7.7.2.1, 1st paragraph after the list	Regarding the sentence: 'Each FCF-MAC in the FCF Login Set shall be verified for Max FCoE Size support before performing the FIP FLOGI by transmitting a unicast Discovery Solicitation to an FCF-MAC and receiving a unicast Discovery Advertisement in response.' The only requirement is to verify that the path can support a frame large enough to encapsulate a full-sized Fibre Channel frame, not the jumbo frame size of the ENode. If an ENode advertises 12k Jumbo frame support, will it only attempt FLOGI with an FCF that supports 12k? This doesn't make sense.		W	C
Solution Technology-068	T	105	7.7.2.1, Next to last paragraph before 7.7.2.2	Change 'In response to a Discovery Solicitation from an ENode, an FCF transmits a solicited unicast' to 'In response to a Discovery Solicitation from an ENode, an FCF may transmit a solicited unicast'. If the addressing mode is incompatible, it doesn't make sense to send a Discovery Advertisement.			
IBM-060	T	105	7.7.6.3	This section should discuss the setting of the FP and SP bits in Discovery advertisements and possibly their relationship to the validity of the FC_MAP.			
Cisco-041	T	105	7.7.6.3	In the second paragraph, replace "D_A_TOV" with its value, and remove the timer from table 45			
Cisco-044	T	105	7.7.6.3	In the sentence "The Priority field" replace "FCF with "FCF-MAC"			
Cisco-045	T	105	7.7.6.3	Add that responses to ENode Solicitations should happen when Fabric configuration is completed			

Emulex-057	T	105	7.7.6.3	The fourth paragraph of 7.7.6.3 advises that an Enode MAC FCoE Controller may detect that it has received multiple Discovery Advertisements from the same FCF. It does not advise what to do about it.	After the fourth paragraph of 7.7.6.3, add a new paragraph: An Enode MAC FCoE Controller that receives multiple Discovery Advertisements from different FCFs in the same Fabric or from the same FCF: a) should select FCFs for login based on the values of the Priority descriptors in the Discovery Advertisements; and b) may login using different N_Port_Names with multiple FCFs concurrently.		
NetApp-68F	T	105	7.7.6.3	last paragraph: The FIP_Pad field values shall be set to reserved. What is "reserved" and how do I set it?	Does this mean set to zero on transmit, and ignored when received? Does it mean whatever you want on transmit and ignored when received?		

Emulex-058	T	105	7.7.6.4.1	The unordered list in 7.7.6.4.1 is inaacurate, as is conflates the FIP payload with the content of the first descriptor.	Change all of 7.7.6.4.1 to FIP Virtual Link Instantiation Requests and Replies shall be transmitted using the FIP frame format (see 7.7.5.1). The first descriptor in the FIP frame shall be one of: a) FIP FLOGI; b) FIP FDISC_NPIV; or c) FIP LOGO. The first descriptor shall contain a single frame ELS Sequence (see FC-LS-2) of the required ELS type, comprising: 1) optionally, a VF_Header; 2) a Frame_Header; 3) optionally, an ESP_Header; 4) an ELS Payload; and 5) optionally, an ESP_Trailer. A Fibre Channel frame CRC shall not be included. If the first descriptor contains an FLOGI, FLOGI LS_ACC, FDISC, or FDISC LS_ACC, the Payload bit in the Common Service Parameters shall be set to zero.		
IBM-062	T	106	7.7.6.4.2	Discussion on chosing the MAC address needs to be cleared up.. The dependency on the setting of the FP and SP bits in the reply are not stated. The bottom line should be that the Enode uses the MAC in the FLOGI accept, regardless of what was proposed. What is supposed to happen if the Enode detects a MAC address that is not properly formed?			

Emulex-059	T	106	7.7.6.4.2	The first paragraph of 7.7.6.4.2 would probably be interpreted to forbid advertising different addressing modes on different Enode MACs.	Change the first paragraph of 7.7.6.4.2 from When an ENode transmits a FIP FLOGI Request or NPIV FDISC Request it shall indicate the addressing mode it supports (i.e., FPMA, SPMA, or both). To When an ENode MAC FCoE Controller transmits a FIP FLOGI Request or NPIV FDISC Request it shall indicate the addressing mode it supports (i.e., FPMA, SPMA, or both).		
Emulex-060	T	106	7.7.6.4.2	The fifth paragraph of 7.7.6.4.2 does not sufficiently restrict the value of the proposed MAC address.	Change the fifth paragraph of 7.7.6.4.2 from If an ENode only supports FPMA, the MAC address field in the MAC address descriptor shall be set to the proposed MAC address to use for subsequent FCoE frames, or to all zeroes to indicate no MAC address is proposed. To If an ENode MAC FCoE Controller only supports FPMA, the MAC address field in the MAC address descriptor shall be set to a properly formed FPMA MAC address proposed to be used for subsequent FCoE frames, or to all zeroes to indicate no MAC address is proposed.		

Emulex-061	T	106	7.7.6.4.2	The sixth paragraph of 7.7.6.4.2 incompletely covers both FIP FLOGI and FIP FDISC_NPIV	Change the sixth paragraph of 7.7.6.4.2 from If the ENode only supports SPMA, the MAC address specified in the FIP FLOGI Request or NPIV FDISC Request shall be returned in the FIP FLOGI Reply and shall be used as the VN_Port MAC address for all subsequent FCoE frames. to If the ENode only supports SPMA, the MAC address specified in the FIP Virtual Link Instantiation Request shall be returned in the FIP Virtual Link Instantiation Reply and shall be used as the VN_Port MAC address for all subsequent FCoE frames.		

Emulex-062	T	106	7.7.6.4.2	The seventh paragraph of 7.7.6.4.2 incompletely covers both FIP FLOGI and FIP FDISC_NPIV	Change the seventh paragraph of 7.7.6.4.2 from If the ENode only supports FPMA, the MAC address specified in the FIP FLOGI Reply frame shall be used as the VN_Port MAC address for all subsequent FCoE frames. The assigned MAC address shall be a properly formed FPMA MAC address. In this case, the assigned MAC address should be the MAC address proposed in the FIP FLOGI Request or NPIV FDISC Request, if the proposed MAC address is a properly formed FPMA MAC address. to If the ENode only supports FPMA, the MAC address specified in the FIP Virtual Link Instantiation Reply frame shall be used as the VN_Port MAC address for all subsequent FCoE frames. The assigned MAC address shall be a properly formed		

Emulex-063	T	106	7.7.6.4.2	The eighth paragraph of 7.7.6.4.2 incompletely covers both FIP FLOGI and FIP FDISC_NPIV	Change the eighth paragraph of 7.7.6.4.2 from If the ENode supports both FPMA and SPMA, the assigned MAC address shall be either the MAC address specified in the FIP FLOGI Request or NPIV FDISC Request, or a properly formed FPMA MAC address assigned by the FCF. to If the ENode supports both FPMA and SPMA, the assigned MAC address shall be either the MAC address specified in the FIP Virtual Link Instantiation Request, or a properly formed FPMA MAC address assigned by the FCF.		

Emulex-064	T	106	7.7.6.4.2	The first sentence of the last paragraph of 7.7.6.4.2 is useless, since all FIP requests use the ENode MAC Address of the ENode MAC as SA.	Change the last paragraph of 7.7.6.4.2 from The 802.3 frame source address in a FIP NPIV_FDISC Request shall be the same as the 802.3 frame source address of the prior FIP FLOGI Request associated with the FIP NPIV FDISC. A successful FIP FLOGI operation creates a VF_Port. Subsequent FIP NPIV FDISCs with the same 802.3 frame source address as the FIP FLOGI associate additional VN_Ports to the single VF_Port. to A successful FIP FLOGI operation creates a VF_Port. Subsequent FIP NPIV FDISCs from the same ENode MAC Address as the FIP FLOGI associate additional VN_Ports to the same VF_Port that was created by the FIP FLOGI.		
EMC-015	T	106	7.7.6.4.2	This section should explicitly state that the Enode must use the MAC address assigned to it by the FCF. The sixth and seventh paragraphs are explicit, but the others, especially the eighth paragraph, imply that the ENode can choose not to use the proposed address.	State explicitly that the Enode must use the provided MAC address.		
EMC-016	T	106	7.7.6.4.2	The fifth paragraph says the FCF may send an address of all zeroes. In that case, what happens next? Is the login rejected?	Say whether login succeeded and explain what the ENode should do next.		

EMC-064	T	106	7.7.6.4.2	The interaction of payload type with subcode is bad - the same subcode is used for both FLOGI and FDISC purposes	See previous comments requesting additional payloads - it may be better to sort out the request and responses with different payload types. If this is not done, use subcodes 3 and 4 for FDISC instead of 1 and 2.		
EMC-065	T	106	7.7.6.4.2	5th paragraph: How can an ENode that doesn't know its VN_Port FCID propose an FPMA MAC address??	Specify that the proposed MAC address has to be set to zero if only FPMA is supported.		
EMC-067	T	106	7.7.6.4.2	7th -9th paragraphs: "The assigned MAC address ..." That's not a valid requirement on the ENode because the FCF assigns the address.	Rewrite to impose assignment requirements on FCFs.		
EMC-068	T	106	7.7.6.4.2	Next to last paragraph: That covers the FC-MAP for this fabric. What about other FC-MAPs?	Do something - There may be a security issue if an FPMA MAC address from fabric A can successfully be used as an SPMA MAC address in fabric B. May need to require all the FCFs to know all the FC-MAPs.		
EMC-139	T	106	7.7.6.4.2	properly formed FPMA MAC address	Where is this defined?		
NetApp-71F	T	106	7.7.6.4.2	7th + 8th + 9th paragraphs: a properly formed FPMA MAC address.	This needs to be explained somewhere. What makes it properly formed? How do I know if it's properly formed? OR add a reference to where this is defined. OOPS - finally found it - in the 9th paragraph. This should be more prominent (in the overview of the section maybe).		
IBM-064	T	107	7.7.6.5	The FKA_ADV_PERIOD timer is obtained from the Discovery Advertisements - what do we do if we get different values from different FCFs? We need a statement to cover this. (like use the one from the FCF to which we log in, use the shortest value?)			

Emulex-065	T	107	7.7.6.5	The first sentence of the first paragraph of 7.7.6.5 inaccurately uses the architectural terms introduced in the model.	Change the first sentence of the first paragraph of 7.7.6.5 from The FCoE Controller for ENode MACs that are logged in with one or more VF_Port capable FCF-MACs shall generate a FIP Keep Alive message every FKA_ADV_PERIOD to An ENode MAC FCoE Controller shall generate a FIP Keep Alive message every FKA_ADV_PERIOD from its ENode MAC Address to each VF_Port to which it has established Virtual Links.		
EMC-017	T	107	7.7.6.5	Is the FKA_ADV_PERIOD timer for a given link fixed at the time of login, or can a subsequent Discovery Advertisement from the same FCF change it?	Explain.		
QLogic-030	T	107	7.7.6.5 FIP Keep Alive	"shall also generate a FIP Keep Alive message on behalf of each logged in VN_Port every 90 seconds." Should be a define value rather than a "hard" 90 second value.	Add a new definition, for example, FKA_VN_PORT_PERIOD, or state as a multiple of FKA_ADV_PERIOD, for example 10 * FKA_ADV_PERIOD. The latter may be preferred.		

Emulex-067	T	107	7.7.6.6.1	The wording of 7.7.6.6.1 is a bit unconventional	In 7.7.6.6.1, change "may turn down one or more VN_Port to VF_Port Virtual Links" to "may terminate the Virtual Links to one or more VN_Ports". change "one for each VN_Port the Virtual Link with it is requested to be turned down" to "one for the VN_Port associated with each Virtual Link to be terminated"		
Emulex-068	T	107	7.7.6.6.1	The last sentence of 7.7.6.6.1 begs the question "what shall be done if an Enode MAC FCoE Controller finds that the three parameters in any Vx_Port Identification descriptor do not all match one of its VN_Ports?"	Ignore that descriptor???		
EMC-018	T	107	7.7.6.6.1	What does the phrase "turn down" mean?	Explain.		
NetApp-78F	T	107	7.7.6.6.1	Not sure what this means: ….one for each VN_Port the Virtual Link with it is requested to be turned down. What does "with it" mean?	reword There is also a typo in this sentence - "turned down" should be "torn down"		
Emulex-069	T	107	7.7.6.6.2	The wording of the first sentence of 7.7.6.6.2 is a bit unconventional	In 7.7.6.6.2, change "may turn down a VE_Port to VE_Port Virtual Link" to "mayterminate a VE_Port to VE_Port Virtual Link".		
EMC-071	T	108	7.7.6	No mention of FIP Policy	Add discussion of FCF being allowed to decide whether to form a Virtual Link or not by consulting policy info.		
EMC-072	T	108	7.7.6	No mention of multiple FC fabrics on same LAN or VLAN	Need to prohibit these unless more work is done. See slides 15 and 16 in 08-556v1.		

EMC-073	T	108	7.7.6	No mention of duplicate MAC checks	Add language recommending/requiring some reasonable checks. See slide 20 in 08-556v1.		
EMC-074	T	108	7.7.6	Possible VE-VE Link duplication. Need to prohibit use of same MAC pair for two different VE-VE port links.	This may be difficult - if virtual fabrics are in use, may have to adapt an FLOGI/FDISC structure to the multiple ELPs - first fabric does FIP ELP to set up virtual link and turns on VFT header usage, all subsequent fabrics do a native FC ELP in an FCoE frame under the respective VFT header.		
EMC-075	T	108	7.7.6	Missing "should" for SPMA MAC address assignment	Say that SPMA MAC addresses should be globally assigned, not locally generated. See slide 23 in 08-556v1.		
Emulex-070	T	108	7.7.6.6.2	7.7.6.6.2 is ambiguous about the content of the MAC address descriptor and the Name_Identifier descriptor.	In 7.7.6.6.2, change The MAC address field in the MAC address descriptor shall be set to the FCF-MAC address. The Name_Identifier field in the Name_Identifier descriptor shall be set to the Switch_Name of the FCF to The MAC address field in the MAC address descriptor shall be set to the FCF-MAC address of the local FCF-MAC. The Name_Identifier field in the Name_Identifier descriptor shall be set to the Switch_Name of the local FCF		

NetApp-80F	T	108	7.7.6.7	followed by a list of additional descriptors.	I think it is actually followed by the actual additional descriptors, not just a list: …followed by one or more additional vendor specific descriptors.		
NetApp-81F	T	108	Table 45	Timers and Constants seems like too broad a grouping for this information.	Create more tables out of this information: Pull our the multi-cast MAC addresses, or maybe all the IEEE layer constants (MAC+FIP/FCoE TYPE), to add some more differentiation between this table of "random other stuff".		
QLogic-031	T	108	Table 45	Some references are missing.	Add missing references.		
Brocade-031	T	108		Can an ENode send a clear virtual links on behalf of a dead VN_Port?			
IBM-065	T	109	Table 45	D_A_TOV - I do not understand the description. Explain better what this is for. What I read is that an FCF can ony send one discovery advertisment every 4 seconds. Does this only apply to solicited advertisements? This cannot be admin configured because the devices need to know what it is so they know how long to wait.			
Cisco-048	T	109	Table 45	Remove D_A_TOV. See Cisco-041			
QLogic-034	T	109	Table 45	D_A_TOV- there is no means for a CNA to determine the value being used by the FCF.	Add a D_A_TOV descriptor to FCF Advertisements with the time in milliseconds.		
QLogic-033	T	109	Table 45 and 7.7.6.3	D_A_TOV the default value of 4 seconds is an excessive time for a CNA to wait for response to a Discovery solicitation (as described in 7.7.6.3) especially when added to some transport dependent delay. The CNA may need to wait for all solicited discovery advertisements prior to selecting the highest priority FCF. This will impose an unacceptable delay on fast boot.	The units should be milliseconds and the default should be of the order of 100ms.		
Cisco-049	T	111	Annex B	Should we put an example of a FIP frame as well?			

Emulex-074	T	112	C.1	The fourth paragraph of C.1 contains a TBD.	Resolve it.		
Solution Technology-087	T	114	7.7.5.3.10, 1st paragraph after Table 38	The Length of the FIP LOGO LS_ACC should be 8, not 10			
Broadcom-016	T	115	C.3.5	What about duplicate addresses when there are virtual fabrics? They can have FC_IDs. Do virtual fabrics on the same FC Fabric get different FC MAPs.	Deal with duplicate FPMA MAC addresses due to FC virtual fabrics. One approach would be FC-MAP per virutal fabric.		
Broadcom-015	T	116	C.3.5	Should note that this entry needs to be after the entries from C.3.4			
Emulex-075	T	117	C.4.1	The potential impacts of spanning tree recalculation on the proposed ACLs for bridge-to-bridge links should be clearly stated.	After the list in C.4.1, add the paragraph Changes in routing (e.g., automatic spanning tree recalculation) may cause the assumptions on which the recommended ACLs are based to become invalid. This may have the result of weaker protection or Virtual Link timeouts requiring relogins.		
Cisco-052	T	118	Annex C	In note 22, replace "If this cannot be trusted, this ACE should be" with "If this cannot be trusted, this ACE should not be"			

Emulex-076	T	118	C.4.3	The last sentence note 22 contradicts its first sentence. The last sentence appears to be the incorrect one.	Change note 22 from This ACE should only be included if it is administratively known and trusted that only FCFs will/can inject frames onto the Fabric destined to ALL_ENODE_MACS. Including this ACE enables automatic population of the {FCFs} set. If this cannot be trusted, this ACE should be included which has the side affect of disabling automatic population of the {FCFs} set, thus requiring that the set be populated administratively to This ACE should only be included if it is administratively known and trusted that only FCFs will/can inject frames onto the Fabric destined to ALL_ENODE_MACS. Including this ACE enables automatic population of the {FCFs} set. If this cannot be trusted, this ACE should not		

Emulex-077	T	118	C.4.4	The ACLs for a bridge-to-bridge link receiving both FCF and ENode frames do not allow for automatic population of the FCFs list. It isn't obvious to me that the risk is different from the risk in the case for traffic known to be only FCF-to-Enode…The condition for its security (in note 22) seems to be met by confidence in establishment of perimeter ACLs as in C.3.	In the ACL list in C.4.4, anywhere before the entry "Type=FIP_TYPE, deny;" add DA=ALL_ENODE_MACS, Type=FIP_TYPE, permit -- see note xx; Add a new note xx like the corrected note 22, or, if your editorial scuples allow, just reference note 22. This ACE should only be included if it is administratively known and trusted that only FCFs will/can inject frames onto the Fabric destined to ALL_ENODE_MACS. Including this ACE enables automatic population of the {FCFs} set. If this cannot be trusted, this ACE should not be included which has the side affect of disabling automatic population of the {FCFs} set, thus requiring that the set be populated administratively		
Broadcom-017	T	119	C.5	We need to prevent FCoE links from being established on links that are not lossless. FIP and FCoE should be denied if the link isn't enabled for either PAUSE or on the priority for FIP and FCoE for PFC.	Add recommendation to deny on links that lack Pause or PFC.		
EMC-151	T	119	C.6	missing ACE?	There was discussion about including text that said since FCFs are trusted entities, that an ACE would be included by default to prevent this attack. Why wasn't this included.		

EMC-152	T	119	C.6	Removing old ACEs	Clear Virtual Link message will not work if a port is moved from one bridge to another. A recommendation should be made to remove the FCoE ACLs in the case of a loss of signal, etc (if possible)		
Solution Technology-097	T	120	7.7.6.4.2, Next to last paragraph on page	The paragraph beginning with 'FCFs shall reject FIP FLOGI Requests and NPIV FDISC Requests from ENodes that support only SPMA and propose a MAC address that is not a unicast address.' This paragraph requires LS_RJTs but fails to specify the Reason Code and Reason Code Explanation to be used. The reason for these rejects has no equivalent in native Fibre Channel.			

Emulex-079	T	123	D.4	The second regular paragraph of begins by discussing bridge ports connected to Enodes and then gives an e.g. that seems to call them VE_Ports.	In D.4 change the second regular paragraph from To ensure security characteristics comparable to native Fibre Channel, this recommendation should be applied to all bridge ports directly connected to ENodes. If this is not possible (e.g., the bridges connected to the VE_Ports do not provide this filtering capability), enhanced security may still be obtained by applying this filtering to upstream bridge ports, but the security characteristics in this case are significantly weaker. to To ensure security characteristics comparable to native Fibre Channel, this recommendation should be applied to all bridge ports directly connected to ENodes. If this is not possible (e.g., the bridges connected to the VN_Ports do not provide this filtering capability), enhanced security may still be obtained		
EMC-077	T	124	D.5	Editor's Note applies to entire Annex D	Make sure that all the relevant security requirements in Annex D are expressed in normative text in the body of the standard.		
Solution Technology-101	T	125	B.1, Table B.1	This table implies that the IEEE 802.1Q Tab must always be present. I don't believe this is intended to be the case.			

Emulex-080	T	125	D.5	In D.5, list item 2 subitem I, the condition does not detect crossovers of MAC addresses among VN_Ports. Item 3 subitem III exemplifies that tests involving FC address identifiers are in scope of this subclause.	In D.5, change list item 2 subitem I from contain a destination MAC address that was not assigned by an FCF to one of the VN_Ports on the ENode; or to contain a destination MAC address/destination N_Port_ID pair that was not assigned by an FCF to one of the VN_Ports on the ENode; or		
Cisco-053	T	127		The text in red is technically incorrect, (it is incorrect in the proposal from which it was derived also).	Change to: "…should implement ingress filtering that discards all frames containing a source MAC address in which the 24 most significant bits match the FCoE fabric's FC-MAP and in which the source MAC address does not match a valid VN_Port MAC addresss assigned by an FCF to a device connected to that port. This requirement applies regardless of Ethertype."		
Cisco-012	T	19..27	Clause 4	Clause 4 needs significant rewrite for FCoE			
IBM-010	T	81, third paragraph from bottom	7.2	Add that the Ethernet layer provides sequential delivery of FCoE frames.			
Cisco-013	T	81..89	7.1 to 7.5	Should be updated per the new FC-FS-3 and FC-SW-5 models			

IBM-013	T	82, last sentence	7.2	The last sentence on the page says Fibre Channel Protocols are able to operate "unchanged". Some FC protocols are not supported on virtual links, such as BB_credit, etc.	Remove the word "unchanged" Should specify a complete list of FC protocols not supported on virtual links; including class 2 limitations (see IBM-xxx), BB Credit, RSCNs in some cases, fabric wide security policies (QSA) (see IBM-012), LESB, Link Incident Definitions, Link failure detection, Primitive sequences, etc.		
QLogic-036	T	84, 87, 91, 93, 94, 104, 105, 107	FKA_ADV_PERIOD references.	"FIP Discovery Advertisements are received within every FKA_ADV_PERIOD." "shall periodically transmit multicast Advertisements to the All-ENode-MACS group address every FKA_ADV_PERIOD" "ENode MAC address as the source address) are expected to be received within every FKA_ADV_PERIOD." "The period shall be FKA_ADV_PERIOD and randomized with a random delay uniformly distributed between 0 and 100 ms to avoid". How can the frame be received within FKA_ADV_PERIOD if it is transmitted every FKA_ADV_PERIOD? 0 time on the wire?	Specify the transimission as FKA_ADV_PERIOD, however then define the expected receipt time using FKA_ADV_PERIOD + R_A_TOV (or some ethernet equivalent) as there may be one or more intermediate ethernet switches between the ENode and the FCF?		
IBM-017	T	86,87	7.4	The lists on these pages should include that FIP Discovery Advertisments are periodically transmitted.			
Cisco-010	T	9..15	Definitions	Definitions need to be updated			
IBM-077	T	91, 92	7.7.2.1, 7.7.2.2	Are FCFs to be removed from the FCF list if no Advertisement is seen from them for some period of time?	State recovery conditions that cause the FCF to be removed from the table of available FCFs.		
IBM-078	T	91, 92	7.7.2.1, 7.7.2.2	How is the Max FCoE Size verified flag ever cleared? Changes in the ethernet network could invalidate the setting of the flag.	State recovery conditions that cause the Size Verified Flag to be cleared.		

IBM-035	T	91,92	7.7.2.1, 7.7.2.2	2nd to last paragraph needs a statement that in this case of an Enode discovering FCFs using multicast, a unicast discovery solicitation to the FCF is not required to verify the Max FCoE Size before login as stated 2 paragraphs above.	Add a statement describing that unicast discovery solicitation is not required in this case. Add the same statement in section 7.7.2.2		
IBM-074	T	93, 94	7.7.4.1, 7.7.4.2	Text reads "After three missing Discovery Advertisements…", how does an entity know how many it has missed? Should be specified in terms of elapsed time instead of number of misses	Change "After three missing Discovery Advertisements" to "If no Discovery Advertisements are received within at least 2xFKA_ADV_PERIOD"		
NetApp-54F	T	97 + 98	7.7.5.3.6	FIP Fabric descriptor not previously discussed	See comment 52		
BLADE-08	T	General	General	Standard should include direct attach configurations - CNA-Native FCoE Target and CNA-CEE capable Ethernet Switch-Native FCoE Target. It essentially would require definition of VN_Port to VN_Port virtual links.	Detailed in a proposal to be presented later.		
Emulex-084	T	global	global	The current definition of a Virtual Link identifies it by the MAC addresses of its end points, but the architecture also indicates that there are only two Vx_Ports on a Virtual Link. This is inconsistent with the possibility raised by SPMA that multiple VN_Ports may share the same MAC address.	???		
Emulex-085	T	global	global	In many places, actions are attributed to Enodes or to Enode MACs. Neither of these entities take an active part in FIP or FCoE. Usually, the intended actor is the FCoE Controller for the Enode MAC. In many other places, the proper distinction is made, but several terminologies are used (e.g., "ENode FCoE Controller", "ENode MAC FCoE Controller", "the FCoE Controller for the ENode MAC")	In the glossary, add the term Enode MAC FCoE Controller: The FCoE controller associated with a specific Enode MAC. Globally, review usage of Enode and Enode MAC as actors and use Enode MAC FCoE Controller when it is correct.		
QLogic-037	T	Many	Many	FC-SW-4 is mentionted.	Change to FC-SW-5.		
QLogic-038	T	Many	Many	FC-FS-2 is mentioned.	Change to FC-FS-3.		
QLogic-039	T	Many	Many	FC-LS is mentioned.	Change to FC-LS-2.		

Emulex-001	T	viii	Intro	Paragraph one of the introduction does not account for FCoE	Change paragraph one of the Introduction from FC-BB-5 specifies mechanisms that allow extension of Fibre Channel links and/or switched networks across Wide Area Networks. FC-BB-5 defines three distinct Fibre Channel backbone mappings: FC over TCP/IP, FC over GFPT, and FC over MPLS. to FC-BB-5 specifies mechanisms that allow extension of Fibre Channel links and/or switched networks across Wide Area Networks. FC-BB-5 defines four distinct Fibre Channel backbone mappings: FC over TCP/IP, FC over GFPT, FC over MPLS, and FC over Ethernet .		
Brocade-022	T		7.2	There is no mention of VLANs. We need to say something about VLANs. All validations are performed only using MAC address. So I believe the assumption is that all of this is happening within the context of a VLAN. This should be mentioned explicitly in the introduction.			

Intel-016	T		7.3	items e and f for FCoE controller, these separate items would lead one to think a periodic FIP keep alive is required for the controller itself and every instantiated VN_PORT. Later sections detailing FIP support this. Is it possible to reduce this? In cases of extreme virtualization this constant overhead would add up when having to provide such messages for every active VN_PORT.	**Proposal:** Such a keep alive only required for every VN_PORT created via FLOGI, not those created via FDISC. This provides a keep alive for each instantiated VF_PORT at the FCF for the VN_PORT set at the ENODE that share common service parameters. On not receiving keep alive from this main VN_PORT within 3 timeout periods, then VF_PORT can be terminated at the FCF for all VN_PORTS.		
Brocade-037	T		7.7.2.1 ENode/FCF discovery	The Priority descriptor and Login Availability do not appear to be of much value in Unsolicited Advertisements. The Priority and Login Availability an FCF wants to convey may vary from Enode to Enode. The priority an FCF wants to indicate to an Enode may vary based on a number of metrics (switch locality, hop count, primary versus hot standby, etc.) Require that an Enode initially shall transmit a Discovery Solicitation to All_FCF_MACS, and use the resulting advertisements to build and prioritize the FCF list. The FCFs would then respond with unicast advertisements with priority information specific to that Enode. The Enode would then only have FCFs in the list that would allow that Enode to login and need not perform unicast solicitions. Unsolicited Advertisements should only be used to as notification of a new FCF becoming available and for the Virtual Link maintenance.			

Intel-010	T		7.7.3.1	Talks about during FIP LOGO as a means to de-assign MAC address. What impact occurs in cases of Enode reset where such LOGO does not occur? Can we assume standard policy such that if FLOGI is received at FCF from ENode believed to be still active that it accepts the FLOGI but potentially invalidates any instantiated FCF FCoE_LEPs that may have been created as result of previous FDISC operations? There is no requirement that explicit logout is sent before any subsequent FLOGI.			
Brocade-028	T		7.7.4.1	a) Regarding timeouts. It's mentioned as 3 missing messages. Normally, for OSPF and others, its mentioned as lack of messages for 3.5 or 4 intervals. I think this should also be reworded. b) What happens if a clear virtual links message is lost? Since they are not sent periodically, it's not clear what the impact is of losing one. I assume the state just stays around, but will it ever time out?			
Intel-011	T		7.7.4.1	related to above, can we assume standard FC explicit state invalidation occurs on FCF receiving an FLOGI for Enode that was thought to already be active (Same VN_PORT MAC address)? FC_LS section 6.4.5 'The Effects of FLOGI, FDISC and LOGO.			
Intel-013	T		7.7.5.2	Indicates at end of this section that the FIP_Pad is only used in discovery advertisements. So this implies that it is not used by Enode in unicast discovery solicitation to verify maximum frame length supported as indicated in FIP descriptor to FCF? Enodes to indicate maximum frame length via FIP descriptor only?			
Intel-001	T		7.7.5.3	VLAN descriptor is not listed in spec y	Descriptor 14 for VLAN		

Intel-012	T		7.7.5.3.15	FIP operation code values for vendor specific descriptors. Is this range too limited? Only allows for 7 different vendor specific FIP message class categories. Increase range to something wider but not exceeding F000-FFFE? (Table 26 lists Vendor specific opcodes as only from FFF8-FFFE.)			
Intel-004	T		7.7.5.3.6	Can reader assume VF_ID in this descriptor is a numeric value for the overall fabric and is not a means to identify an individual VSAN within a fabric? If so, this provides means for the Enode to identify opportunities to maintain concurrent FLOGI sessions with multiple distinct fabrics.			
Brocade-030	T		7.7.6.3	The randomization should be "should" rather than a "shall" as it appears to be now.			
Brocade-023	T		Figure 28	Not clear what distinguishes one VN_Port from another in the case of SPMA. All of the FCoE_LEP parameters are going to be the same for all VN_Ports instantiated by FLOGI & subsequent FDISC. This should be pointed out. The picture becomes inaccurate for SPMA, not sure how to fix it.			
Brocade-010	T		Figure 29	Is the and/or in the VE_Port/VF_Port functional model correct given the FCoE security discussion?			
Intel-002	T		General	Can VLAN discovery via FIP be disab	Allow manual configuration		
Intel-003	T		General	Does FIP need to be defaulted to VLAN0? Need spec clarification.			

Intel-005	T		General	Specification indicates that use of VLAN tag is optional. But is there not a requirement that if during FIP discovery an ENode indicates association of FCoE on a specific VLAN via inclusion of this tag that the FCF will honor that VLAN on subsequent traffic to that resulting VN_PORT by including the VLAN tag? This is not asking for anything like VLAN/VSAN convergence, but purely honoring Ethernet VLAN traffic isolation. (This is from AR 080604-8 from August meeting)			
Intel-006	T		General	General comment: Is there a mechanism that causes the FIP discovery phase to be retriggered from the FCF? There are new DCBX messages being defined for logical link status that would trigger re-discovery after link reestablishment. Does it make sense to have a similar message within FIP maintenance to indicate logical link status? The spec should be more clear on how FIP mechanism handles Fibre Channel link status and does FIP Keep Alive indicate not only healthy logical link status within Ethernet subnet, but also physical ink status within FCF?			
Intel-007	T		General	Where does FC-SP and FC-AP fit within FIP discovery? Does it occur after FIP but before FLOGI? Or should it occur after FLOGI? Please clarify.			
Intel-018	T		General	Is there anything needed in the specification to discuss Ethernet bridge aspects of LAN teaming support that would impact FCoE? The aspects LBFO at the switch, and learning, concurrently with FCoE virtual link use?			

IBM-083	T		General FIP	There are no statements that indicate that the entire FC Frame is contained in the FIP descriptors that cary ELSs or that these FIP operations follow the fibre channel rules for for sending ELSs and receiving responses. (exchanges used to correlate responses with requests, timeouts values, etc.)	Add statements that reflect the fact that FIP operatoins that cary ELS commands and responses follow the FC-LS protocol for their coresponsing ELSs. Also state what the recovery is for a timeout (there is no FIP ABTS)		
EMC-078	T		Placeholder	IETF is in the process of splitting the IETF portion of the FC pseudowire specification into two separate documents. This is a placeholder comment to cover any FC-BB-5 changes needed as a result.	Align FC-BB-5 FC pseudowire text (and probably references) with IETF outcome.		
EMC-079	T		Placeholder	EMC profoundly objects to use of LLDP for VLAN discovery.	Don't add material on use of LLDP for VLAN discovery. If FIP is viewed as inadequate for all situations, consider DHCP.		
Brocade-043	T		table 44	Use the Fabric descriptor to replace the FC-MAP descriptor in a Discovery Solicitation from an FCF.			
Brocade-041	T			The 'A' bit and priority descriptor is not applicable in an unsolicited Discovery Advertisement.			

Brocade-040	T			The viability of the 'A' bit is questionable. The 'A' bit is only valid in a unicast advertisement. There is no value in an FCF sending advertisements to the ALL_ENodes_MAC group address if it does not intend to all any Enodes to login. It should just remain silent. A value in the priority descriptor in the unicast advertisement can be used to indicate if login is not permitted (0 or 0xFF, whichever is lowest priority). The advertisement's "login available" indication should only indicate "not available" if the Enode is not permitted login due to administrative policy. If login is not allowed because of FCF resource exhaustion, but policy otherwise allows the Enode to login, FC already has reject reason codes to handle this at login time. Resource exhaustion state could change between discovery and login, so the Enode must handle this condition at login time anyway. IOW, the discovery advertisement login available indication should say to the Enode –			
Brocade-039	T			Add a FIP error message descriptor, see T11/08-xxxv0.			
Brocade-021	T			Clarify that a FIP LOGO may be transmitted by a VF_Port (or not).			
Brocade-020	T			Specify FIP_FKA_PERIOD may be set to zero indicating no ENode or VN_Port Keep Alives are to be sent (also see Brocade-026).			
Brocade-019	T			Non-FIP discovery should be included and specified as the default discovery mechanism.			
Brocade-018	T			The ACL annex must be updated for SPMA usage.			
Brocade-017	T			Specify/clarify that a single VN_Port may be specified in a Clear Virtual Links message.			

Brocade-016	T			Should FCoE and FIP be transmitted using different VLANs?			
Brocade-015	T			Should FCoE and FIP be transmitted using different priority levels?			
Brocade-014	T			Specify that mini-jumbo, PFC, ETS, and DCBX support is required.			
Brocade-013	T			Specify the behavior if other FIP descriptors are included in a message.			
Brocade-012	T			Review Class 2 support requirements.			
Brocade-011	T			Review FIP protocol error behavior and processing.			
Brocade-009	T			Specify FIP is not used for N_Port Login (PLOGI).			
Brocade-006	T			Specify the address mode should be the same for FLOGI and subsequent FDISCs.			
Brocade-005	T			Specify for SPMA the IP (i.e., the MAC for non-FCoE traffic) and FCoE MAC addresses should be different.			
Brocade-004	T			Should the FIP Keep Alive period be dynamically configurable? If so, how is the Keep Alive period changed? Is a Clear Virtual Links transmitted first?			
Brocade-003	T			Specify the behavior when duplicate TLV(s) are received.			
Brocade-002	T			Specify a Fabric Configuration should be completed before processing Discovery Solicitations.			
Brocade-001	T			Specify the response to a FIP message shall use the same VLAN on which the message was received.			

IBM-022	T			The draft does not define the content of the Link Error Status Block (LESB - see FC-FS-2 20.8) based on the physical layer of an Ethernet Port and, therefore, does not provide support for the RLS Extended Link Service which is used by FC-SB-3 and for link fault detection and isolation functions such as Bit error Rate Thresholding and link incident reporting (see FC-FS-2 20.3.4)	Provide a mapping of ethernet link statistics to and guidance for management of the following existing counters in the LESB. (see FC-FS-2 Annex E) LESB -- Link Failure Count -- Loss-of-Synchronization Count -- Loss-of-Signal Count -- Primitive Sequence Protocol Error -- Invalid Transmission Word -- Invalid CRC Count (IBM has an action item to provide this mapping - We need some help from an ethernet expert.)		
IBM-023	T			The draft does not provide definitions for ethernet based link incident codes to replace those currently available based on the Fibre Channel physical layer. These are necessary to support the Link Incident Reporting proceedure using the RLIR ELS (see FC-LS 4.3.32)	Provide a definition of the Link Failures (NOS, Loss of light/sync) for the Ethernet physical layer and possibly new ones for FCoE (e.g., LKA failure, missing advertisements) and a mapping into the currently used incident codes. Indicate which incident codes are not applicable for FCoE.		
IBM-024	T			The draft does not provide a link initialization protocol for a Direct Point to Point physical connection between two E_Nodes with no switches in-between (VN_Port to VN_Port virtual links).	Include the proposed protocol in the draft (TBD).		
Cisco-055	T			Add the FCoE MIB, as per 08-427v1, as Annex E			
NetApp-21F	E`	87	7.4	VN_Ports instantiated by an ENode MAC on successful completion of FIP NPIV FDISC Exchanges are all associated to the same VF_Port, instantiated by the VF_Port capable FCF-MAC on successful completion of a FIP FLOGI Exchange.	VN_Ports instantiated by an ENode MAC on successful completion of FIP NPIV FDISC Exchanges are all associated to the same VF_Port that was instantiated by the VF_Port capable FCF-MAC on successful completion of a FIP FLOGI Exchange.		

NetApp-23F	E/T	84 + 87	7.3 + 7.4	These lists (7.3 for the Enode FCoE controller, and 7.4 for E/F port FCoE controllers) are numbered differently. The 7.3 list is an a/b/c list (no order for VN_Ports), but the 7.4 lists are 1/2/3 lists (ordered) for the VE/F_Ports.	It seems they would be the same - either unordered (a/b/c) or ordered (1/2/3). Make them the same (which appears to be unordered).		
Cisco-006	E	1	Scope	The scope needs to be updated to include FCoE			
Cisco-007	E	1	Table 1	Remove Annex A from FC-BB_IP, add Annex D to FC-BB_E			
BLADE-01	E	5	Figure 4	FC-BB_E model diagram is the same as Figure 1 (FC-BB_IP) model.	Include the right diagram for FC-BB_E model.		
Broadcom-002	E	8	2.6	Current revision is IEEE 802.3-2008	update		
IBM-001	E	10	3.3.5	"encapsulated" should be "Encapsulated"			
EMC-081	E	13	3.3	Definition for SW_ACC is incorrect.	Suggest changing the definition to "Switch Fabric Link Service Accept" to be consistent with FC-SW-5.		
EMC-082	E	13	3.3	Definition for SW_RJT is incorrect	Suggest changing the definition to "Switch Fabric Link Service Reject" to be consistent with FC-SW-5.		
IBM-002	E	13	3.5.1	Add a definition of for "Enode" to 3.5.1	Copy or replace definition of FCoE Node		
EMC-084	E	13	3.5.1	First use of MAC before it's defined	Suggest changing definition of 3.5.1 from: Enode MAC address: The MAC address used by the Enode during the FCoE Initialization Protocol (FIP) to: Enode MAC address: The Media Access Control (MAC) address used by the Enode during the FCoE Initialization Protocol (FIP)		
BLADE-06	E	14	3.5.10	In the parenthesis, include PFC 802.1Qbb.			
EMC-090	E	14	3.5.17	The words "link end-point" are used.	Global replace with either FCoE Link End-Point or FCoE_LEP.		

EMC-085	E	14	3.5.2	First use of FCF before it's defined	Suggest changing definition of 3.5.2 from: Fabric Provided MAC Address (FPMA): A MAC address that is assigned by an FCF and is fabric-wide unique. To: Fabric Provided MAC Address (FPMA): A MAC address that is assigned by a Fibre Channel Forwarder (FCF) and is fabric-wide unique.		
EMC-087	E	14	3.5.6	Definition of FCF	Include a reference to figure 29.		
EMC-088	E	14	3.5.6	Definition of FCF should include FCoE_LEP	The definition for FCF provides a list of the components contained within an FCF and one missing was at least one FCoE_LEP.		
EMC-089	E	14	3.5.8	The words "Fibre Channel Node" are used with a reference to FC-FS-3.	There is no such definition in FC-FS-3. I would suggest defining it in FC-BB-5.		
Solution Technology-001	E	15	Clause 1	Editor's Note referencing non-existing figure for FC-BB_E	Remove the Editor's Note		
Cisco-011	E	17	FC-BB_E	AFL is not used	remove		
BLADE-03	E	19	4.1	"FC-BB-5 models (i.e., FC-BB_IP, FC-BB_GFPT, and FC-BB_PW)" statement does not have FC-BB_E.	Include FC-BB_E.		
BLADE-04	E	19	4.1	FC-BB_E introduction is missing.	Add FC-BB_E introduction just like other FC-BB-5 models.		
EMC-091	E	19	4.1	There is no mention of FC-BB_E in this backbone mappings section.	A section describing FC-BB_E at this high level will be needed.		
NetApp-1F	E	19	4.1	FC_BB_E is missing from the ie list.	Add FC_BB_E to the ie list		
NetApp-3F	E	19	4.1	The list in the first sentence does not include FC_BB_E, or a reference to figure 8.	Add FC_BB_E to the list, and the reference to figure 8 in the second sentence.		
BLADE-05	E	19	4.2	The first and second paragraphs don't not talk about FC-BB_E.	Include FC-BB_E in the first two paragraphs.		

Solution Technology-002	E	21	2.3	Missing reference to FC-FS-3	add reference		
Solution Technology-003	E	21	2.3	The paragraph 'For electronic copies of references under development by the Internet Engineering Task Force (IETF), see www.ietf.org.' should be outdented to the same level and the one regarding T11.			
Solution Technology-004	E	22	2.6	This document references the Ethernet frame format described in 802.3-2005, Part 1	Add reference to IEEE 802.3-2005, Part 1 that contains the Frame format.		
NetApp-5F	E	23	4.3.2	Last Sentence of 2nd paragraph says "...strictly separated and distinct…"	Should it say "...strictly separate and distinct…"?		
Solution Technology-005	E	26	3.2.24	Virtual E_Port is defined in both FC-BB_IP and FC-BB_E with similar, but somewhat different definitions	combine the two definitions and move them to the common definitions section (3.1)		
Solution Technology-006	E	26	3.2.25	VE_Port_Name is used by both FC-BB_IP and FC-BB_E but only defined in the FC-BB_IP section of the definitions	move the definition to the common section (3.1)		
Solution Technology-010	E	26	3.3.12	ISL is used by both FC-BB_IP and FC-BB_E, but only defined in the FC-BB_IP section.	move the definition to the common section (3.1)		
Solution Technology-011	E	26	3.3.14	LS_ACC is used by both FC-BB_IP and FC-BB_E, but only defined in the FC-BB_IP section.	move the definition to the common section (3.1) and delete the word frame from the definition.		
Solution Technology-007	E	26	3.3.3	ELP is used by both FC-BB_IP and FC-BB_E, but only defined in the FC-BB_IP section.	move the definition to the common section (3.1)		
Solution Technology-008	E	26	3.3.4	FLOGI is used by both FC-BB_IP and FC-BB_E, but only defined in the FC-BB_IP section.	move the definition to the common section (3.1)		
Solution Technology-009	E	26	3.3.5	F_BSY is used by both FC-BB_IP and FC-BB_E, but only defined in the FC-BB_IP section.	move the definition to the common section (3.1)		
Solution Technology-012	E	27	3.3.15	LS_RJT is used by both FC-BB_IP and FC-BB_E, but only defined in the FC-BB_IP section.	move the definition to the common section (3.1) and remove the word frame from the definition.		
Solution Technology-013	E	27	3.3.19	PLOGI is a common FC term, but defined in the FC-BB_IP section.	move the definition to the common section (3.1)		
Solution Technology-014	E	27	3.3.20	P_BSY is a common FC term, but defined in the FC-BB_IP section.	move the definition to the common section (3.1)		

Solution Technology-015	E	27	3.3.22	SW_ACC is used by both FC-BB_IP and FC-BB_E, but only defined in the FC-BB_IP section.	move the definition to the common section (3.1) and remove the word frame from the definition.		
Solution Technology-016	E	27	3.3.23	SW_RJT is used by both FC-BB_IP and FC-BB_E, but only defined in the FC-BB_IP section.	move the definition to the common section (3.1) and remove the word frame from the definition.		
EMC-100	E	27	Table 4	Reference to FC-LS	Replace with FC-LS-2		
Solution Technology-018	E	28	3.5.13	Move VE_Port_Name to the common definitions section (3.1)			
Solution Technology-019	E	28	3.5.14	Move VF_Port_Name to the common definitions section (3.1)			
Solution Technology-020	E	29	3.5.19	Move VN_Port_Name to the common definitions section (3.1)			
Solution Technology-021	E	31	3.7.5	No entry for PHY add entry for PHY to either 3.7.1 or 3.7.5			
Solution Technology-022	E	31	3.7.5	No entry for LAN add entry for LAN to either 3.7.1 or 3.7.5			
Solution Technology-023	E	34	4.2, Table 2	Under FC-BB_E, the ports are highlighted in color. Remove the color			
Solution Technology-024	E	36	4.2	The paragraph preceding the Editor's Note is in blue.	remove the color highlighting.		
Solution Technology-025	E	36	4.2	Editor's note	add reference model and/or delete Editor's Note		
Solution Technology-026	E	38	4.3.4	This section is missing			
Solution Technology-027	E	39	4.4.3	Editor's Note indicates missing text for this sub-clause			
Solution Technology-028	E	39	4.4.4	Editor's Note indicates missing text for this sub-clause			
Solution Technology-029	E	40	4.4.5	Editor's Note indicates missing text regarding in-order delivery for FCoE	add text specifying that FC-BB_E requires in-order frame delivery.		
Solution Technology-030	E	40	4.4.6	Editor's Note indicates missing text regarding flow control.	add text regarding FC-BB_E utilizing Ethernet flow control (e.g., Pause).		
IBM-026	E	81	7.2	Should figure 25 be somehow indicate that the left side represents an FCF and the right side represents an Enode Port?			
EMC-102	E	81	7.2	Reference to FC-SW-4	Replace with FC-SW-5		
NetApp-12R	E	81	7.2	Opening paragraph "This clause discusses further .." can drop "further" i.e there is no previous overview to continue from.			

NetApp-13R	E	81	Text immediately after Figure 26	Each of the two ENodes H1 and H2 depicted in figure 26 has a single physical Ethernet connection to the Lossless Ethernet network, as well as each of the two FCFs, FCF A and B.	The first part of the sentence is correct (just needs 2 added commas around ,H! and H2,) Each ENODE has a single physical connection to the lossless ethernet network. The second part of the sentence is wrong. Each ENODE does not "as well" have a single physical ethernet to each of the 2 FCFs. Break into 2 sentences: Each of the two ENodes, H1 and H2, depicted in figure 26 has a single physical Ethernet connection to the Lossless Ethernet network. In addition, each of the two FCFs, FCF A and FCF B has a single physical Ethernet connection to the Lossless Ethernet network.		
EMC-104	E	82	7.2	Text needs to be cleaned up	Replace: Each of the two ENodes H1 and H2 depicted in figure 26 has a single physical Ethernet connection to the Lossless Ethernet network, as well as each of the two FCFs, FCF A and B. with: Each of the two ENodes (i.e., H1 and H2) as well as each of the two FCFs (i.e., FCF A and B) depicted in figure 26 have a single physical Ethernet connection to the Lossless Ethernet network.		
EMC-103	E	82	Figure 26	Diagram is very hard to read.	Suggest increasing font size for text and eliminating the use of color.		

EMC-106	E	83	7.3	FC_BB_E is incorrect	Replace with FC-BB_E		
EMC-107	E	83	7.3	FC-BB_E text is missing FCoE_LEP	What about the FCoE_LEP, etc.. I realize they do not exist until instantiated, but they must be able to be instantiated and should be included.		
NetApp-14F	E	83	7.2 under figure 27	"...multi-access Lossless Ethernet network..." - Lossless is defined just above, but is a multi-access ethernet network a well understood concept? Is it somehow different than a regular ethernet network - like lossless is different than regular ethernet network?			
EMC-105	E	83	Figure 27	Diagram is very hard to read.	Suggest increasing font size for text and eliminating the use of color.		
IBM-027	E	84	7.3	Be consistent with the use of FIP NPIV FDISC (see item c where it just says FIP FDISC)	Use FIP NPIV FDISC or FIP FDISC_NPIV consistetly throughout the doc.		
IBM-029	E	84	7.3	Item d) should state specifically that the VN_Port is logged out "from the fabric, or with the VF_Port"			
EMC-004	E	84	7.3	In the last paragraph, 2nd sentence, fix the punctuation to make it clear what the two parameters are.	Change punctuation to "…two parameters defining the Virtual Link: the MAC address of the local link end-point and the MAC address of the remote link end-point."		
EMC-007	E	84	7.3	In the second sentence of the paragraph that begins "The FCoE_LEP is", fix the punctuation to make it clear what the two parameters are.	Change punctuation to "…two parameters defining the Virtual Link: the MAC address of the local link end-point and the MAC address of the remote link end-point."		
NetApp-22F	E	84	7.3	VN_Ports instantiated by an ENode MAC on successful completion of FIP NPIV FDISC Exchanges are all associated to the same VF_Port, instantiated by the VF_Port capable FCF-MAC on successful completion of a FIP FLOGI Exchange.	VN_Ports instantiated by an ENode MAC on successful completion of FIP NPIV FDISC Exchanges are all associated to the same VF_Port that was instantiated by the VF_Port capable FCF-MAC on successful completion of a FIP FLOGI Exchange.		

NetApp-25F	E	84	7.3	When encapsulating FC frames into FCoE frames, the MAC address of the local link end-point shall be used as source address and the MAC address of the remote link end-point shall be used as destination address of the generated FCoE frame	When encapsulating FC frames into FCoE frames, the MAC address of the local link end-point shall be used as the source address and the MAC address of the remote link end-point shall be used as the destination address of the generated FCoE frame		
Emulex-023	E	85	7.3	In the next to last regular paragraph in 7.3, the word "associtated" appears.	change associtated to associated		
EMC-108	E	85	7.4	FC_BB_E is incorrect in section title is incorrect.	Replace with FC-BB_E		
EMC-109	E	85	7.4	Add (FCF) to section title	Suggest replacing: FC_BB_E VE_Port/VF_Port functional model with: FC-BB_E VE_Port/VF_Port (FCF) functional model		
NetApp-27F	E	85	7.3 (next to last paragraph)	A VN_Port is uniquely identified by a VN_Port_Name Name_Identifier and is addressed by the address identifier the Fabric assigned to it.	A VN_Port is uniquely identified by a VN_Port_Name Name_Identifier and is addressed by the <FCID> address identifier the Fabric assigned to it. Put in the name of the address identifier		
Emulex-028	E	86	7.4	In item 1 of the first ordered list in 7.4, "discovers other VE_Port capable FCF-MACs...", VE_Port should be plural	make it so.		

NetApp-26F	E	86	Editors Note for Figure 29	Optional components should not be part of PORT functional model (neither the FC Fabric Interface nor the Lossless Ethernet Bridging Element).	Create 2 pictures - 1 for just the E/F port functional model, and a second picture showing the E/F_Port WITH optional components (maybe create this second one as an example). It may be possible to remove the lossless ethernet briding element completely, just like in Figure 28 - where it could be optional as well, but is not shown at all.		
Cisco-014	E	86		Remove the editor note and keep the model as is			
IBM-031	E	87	7.4	first item 3) de-instantiates a VE_Port/FCoE_LEP pair when appropriate; When appropriate is vague.	Be specific on when is "appropriate" by stating it here or refering to applicable text.		
Emulex-030	E	87	7.4	In item 7 of the second ordered list in 7.4, it is inconsistent practice to use an in-line value ("90 seconds") rather than a named constant evaluated in subclause 7.8.	In item 7 of the second ordered list in 7.4, replace "90 seconds" by "FKA_VNKA_PERIOD". In table 45, add a row after FKA_ADV_PERIOD: FKA_VNKA_PERIOD / 90 / The interval in seconds between FIP Keep Alive messages sent by an FCoE Controller in behalf of each of the VN_Ports it has instantiated. / 7.7.6.5		
EMC-006	E	87	7.4	In the second bullet labeled "4)", the first referent of the word "and" is ambiguous. Does it mean "that VN_Port and the corresponding VF_Port" or "the FCoE_LEP . . . and the corresponding VF_Port" ?	Replace the phrase "and the corresponding VF_Port" with "and de-instantiates the corresponding VF_Port".		

NetApp-24F	E	87	7.4	When encapsulating FC frames into FCoE frames, the MAC address of the local link end-point shall be used as source address and the MAC address of the remote link end-point shall be used as destination address of the generated FCoE frame.	When encapsulating FC frames into FCoE frames, the MAC address of the local link end-point shall be used as the source address and the MAC address of the remote link end-point shall be used as the destination address of the generated FCoE frame.		
Cisco-015	E	87		In the second paragraph under the list, "An FCoE_LEP operates according to two parameters…" It uses these parameters but does not operate in accordance with them	Change to "An FCoE_LEP uses two parameters defining…"		
EMC-113	E	88	Figure 30	Diagram is very hard to read.	Suggest increasing font size for text and eliminating the use of color.		
Broadcom-008	E	89	7.5	"Figure 31 shows how the model…model VE_port to VE_port Virutal Links"	subject verb agreement - the second "model" should be "models"		
EMC-115	E	89	7.6	Add reference	Add a reference to Annex B.		
NetApp-30F	E	89	7.6	The use of an 802.1Q tag header	Add reference to IEEE doc that contains this.		
EMC-114	E	89	Figure 31	Diagram is very hard to read.	Suggest increasing font size for text and eliminating the use of color.		
Cisco-015	E	89	Table 21	"4" should be "4 .. n-3"	Update		
NetApp-32F	E	90	7.6	The SOF field specifies the SOF Ordered Set that is associated with encapsulated frame	The SOF field specifies the SOF Ordered Set that is associated with the encapsulated frame		
NetApp-33F	E	90	7.6	The EOF field specifies the EOF Ordered Set that is associated with encapsulated frame.	The EOF field specifies the EOF Ordered Set that is associated with the encapsulated frame.		
IBM-033	E	90	7.7.1	"….to enable the detection of discovery…… from normal FCoE traffic"	change "discovery" to "distinction".		
EMC-008	E	90	7.7.1	In the first sentence, replace "function" with "functions".			

NetApp-34F	E	90	7.7.1	The FIP frame format (see 7.7.5.1) is different than the FCoE frame format (see 7.6) to enable the detection of discovery, initialization, and maintenance traffic from normal FCoE traffic.	The FIP frame format (see 7.7.5.1) is different than the FCoE frame format (see 7.6) to enable the detection differentiation of discovery, initialization, and maintenance traffic from normal FCoE traffic.		
EMC-009	E	90	7.7.2	The second paragraph incorrectly implies that FIP traffic is part of normal FCoE traffic.	Replace "enable the detection of" with "enable the isolation of".		
EMC-116	E	90	Table 22	List is out of order.	put into ascending order.		
Broadcom-009	E	91	7.7.2.1	subject verb agreement	"periodic reception…allow" should be "allows"		
EMC-039	E	91	7.7.2.1	"Each entry in the FCF list has the following flags:" is ambiguous	What FCF list? Try "list of FCF-MACs maintained by the ENode".		
EMC-041	E	91	7.7.2.1	"ENode FCoE Controllers select a subset of the Available FCF-MACs" - What are the "Available FCF MACs"? Also "subset" may be confusing as it implies a single login that spans FCFs.	Define "Available FCF MACs" earlier in this subsection. Change "a subset of the" to "an".		
EMC-117	E	91	7.7.2.1	Add "Discovery"	Suggest replacing: The FCoE Controller for a VF_Port capable FCF-MAC shall periodically transmit multicast Advertisements to the All-ENode-MACS group address every FKA_ADV_PERIOD. With: The FCoE Controller for a VF_Port capable FCF-MAC shall periodically transmit multicast Discovery Advertisements to the All-ENode-MACS group address every FKA_ADV_PERIOD.		
EMC-042	E	91	7.7.2.2	"Each entry in the FCF list has the following flags:" is ambiguous	What FCF list? Try "list of FCF-MACs maintained by the ENode".		
IBM-036	E	92	7.7.2.2	item b) says "Available for ELP". It should say "Availablle for Login"			

IBM-037	E	92	7.7.2.2	3rd paragraph "verify the FCF MACs reachability" should be "verify the FCF MACs connectivity".	Change "reachability" to "connectivity"		
IBM-038	E	93	7.7.4.1	Be consistent with "The Enode MAC FCoE Controller" or "The FCoE Controller for an Enode MAC"	Use the latter.		
IBM-041	E	93	7.7.4.1	Note 13 - change "fast response time" to "faster response time"			
Emulex-036	E	93	7.7.4.1	In two places in 7.7.4.1, it is inconsistent practice to use an in-line value ("90 seconds") rather than a named constant evaluated in subclause 7.8.	At the end of the second paragraph in 7.7.4.1, replace "90 seconds" by "FKA_VNKA_PERIOD". In the middle of the sixth paragraph in 7.7.4.1, replace "90 seconds" by "FKA_VNKA_PERIOD". In table 45, add a row after FKA_ADV_PERIOD: FKA_VNKA_PERIOD - 90 - The interval in seconds between FIP Keep Alive messages sent by an FCoE Controller in behalf of each of the VN_Ports it has instantiated. - 7.7.6.5		

Emulex-037	E	93	7.7.4.1	In three places in 7.7.4.1, it is inconsistent practice to use an in-line value ("three") rather than a named constant evaluated in subclause 7.8.	In the middle of the third paragraph in 7.7.4.1, replace "three" by "FKA_RETRY_COUNT". In the sixth paragraph in 7.7.4.1, replace "three" by "FKA_RETRY_COUNT" in two places. In table 45, add a row after FKA_ADV_PERIOD: FKA_RETRY_COUNT / 3 / The number of successive periods during which periodic FIP Discovery Advertisements or FIP Keepalive messages are absent that cause an FCoE Controller to terminate the associated Virtual Link(s). / 7.7.4		
NetApp-41F	E	93	7.7.4.1	In addition, the ENode MAC FCoE Controller shall transmit, for each VN_Port, a FIP Keep Alive message with the VN_Port's MAC address as source MAC address to the VF_Port capable FCF-MAC that the VN_Port is logged in.	In addition, the ENode MAC FCoE Controller shall transmit, for each VN_Port, a FIP Keep Alive message with the VN_Port's MAC address as source MAC address to the VF_Port capable FCF-MAC that to which the VN_Port is logged in.		
NetApp-42F	E	93	7.7.4.1	third paragraph: The ENode MAC FCoE Controller shall monitor the status of a VF_Port that it has VN_Ports logged in with by verifying the FIP Discovery Advertisements….	The ENode MAC FCoE Controller shall monitor the status of a VF_Port that to which it has VN_Ports logged in with by verifying the FIP Discovery Advertisements		
NetApp-43F	E	93	7.7.4.1	first sentence, second paragraph: The ENode MAC FCoE Controller shall transmit a FIP Keep Alive message with the ENode MAC address as source MAC address to each VF_Port capable FCF-MAC that it has VN_Ports logged in with.	The ENode MAC FCoE Controller shall transmit a FIP Keep Alive message with the ENode MAC address as source MAC address to each VF_Port capable FCF-MAC that with which it has VN_Ports logged in with.		

QLogic-008	E	93	7.7.4.1	Red Text!	Remove the red text in this clause (red "within").		
Brocade-035	E	93		"should not exceed standard Ethernet size" -> "should not exceed standard Ethernet payload size"			
Emulex-039	E	94	7.7.4.2	In the fourth paragraph of 7.7.4.2, it is inconsistent practice to use an in-line value ("three") rather than a named constant evaluated in subclause 7.8.	In the fourth paragraph of 7.7.4.2, replace "three" by "FKA_RETRY_COUNT" in two places. In table 45, add a row after FKA_ADV_PERIOD: FKA_RETRY_COUNT / 3 / The number of successive periods during which periodic FIP Discovery Advertisements or FIP Keepalive messages are absent that cause an FCoE Controller to terminate the associated Virtual Link(s). / 7.7.4		
QLogic-009	E	94	7.7.4.2	Red Text!	Remove the red text in this clause (red "within").		
IBM-045	E	94	7.7.5.1	Does the statement at the beginning of this section about 802.3 frame format apply to section 7.6 (FCoE frames) too?	add the statement to 7.6 if it applies.		
IBM-046	E	94	7.7.5.1	"ether header" should be "ethernet header"			
Cisco-028	E	94	7.7.5.1	"an FIP"	Replace with "a FIP"		
EMC-050	E	94	Table 25	Meanings of bits is unclear.	Provide an expansion of the names of the 5 bits (FP, SP, A, S, F) immediately below the table.		
Solution Technology-033	E	95	7.2	This clause does not address functions of the 'logical PN_Port' equivalent (e.g., error counters).			
Solution Technology-031	E	95	Clause 7	Are there any SCSI impacts as a result of FCoE? e.g., protocol-specific mode pages, ??? How about interface-specific log pages?			
Solution Technology-032	E	95	Clause 7	What was the concern with Class-2?? Was it the discarding of undeliverable frames by an Ethernet switch or the lack of a timely F_RJT due to a failed link?			

Solution Technology-037	E	96	7.2	If the VN_Port and VF_Port terminology is aligned with FC-FS-3 and FC-SW-5, most of the references to the differences between N_Port behavior and VN_Port behavior and F_Port and VF_Port behavior go away (the differences are then essentially confined to the PN_Port and PF_Port).			
Solution Technology-035	E	96	7.2, Paragraph under Figure 26	Remove 'multi-access'			
Emulex-042	E	96	7.7.5.2	In the third paragraph before the end of 7.7.5.2, the A bit is described as relating to "Virtual Link instantiation requests". This is probably wrong, since Fabric LOGO is also a "Virtual Link instantiation request". In 7.7.2.1, it is related more specifically to "FIP FLOGI/FDISC requests". A FIP Discovery Advertisement with the A bit set may be received by an ENode MAC FCoE Controller that already has VN_Ports, and we would not want to discourage it from logging OUT 8-)	In the third paragraph before the end of 7.7.5.2, change "Virtual Link instantiation requests" to "FIP FLOGI/FDISC requests" in two places.		
EMC-052	E	96	7.7.5.2	The "A" bit description needs to cross reference use in FCF lists maintained for discovery	Add a cross reference to 7.7.2 .		
IBM-048	E	96	7.7.5.3.1	"TLV format" should be "TLV Type"			
NetApp-49F	E	96	7.7.5.3.1	FIP descriptors are specified using a TLV format (i.e., Type Length, Value). missing a "," between "type" and "length" in the i.e. list	FIP descriptors are specified using a TLV format (i.e., Type, Length, Value).		
Solution Technology-039	E	97	7.2, Last sentence of 1st par.	The E_Port to E_Port Fibre Channel protocols do not operate unchanged. If the FC-BB_E terminology is aligned with FC-SW-5 regarding VE_Port behavior, I think that most of the differences are confined to the PE_Port behavior.			

Solution Technology-038	E	97	7.2, Paragraph under Figure 27	Delete the words 'multi-access'			
Solution Technology-040	E	97	7.3, 2nd Paragraph	Delete 'The FC-BB_E VN_Port/ENode functional model is specified in figure 28.' This is already stated in the first paragraph of the subclause.			
NetApp-51F	E	97	7.7.5.3.*	Global in this section - The FIP … descriptor is used in …. this has nothing to do with usage, or how something is used. The word "used" should be changed.	The FIP …. descriptor is [contained | sent | received] in ….		
IBM-050	E	97	Table 29	Why is non-critical 255 Reserved?			
QLogic-011	E	97	Table 29	Type 5 descriptor is named "Fabric"	Should be "Fabric_Name"		
Solution Technology-041	E	98	7.3, Figure 28	In Figure 28, the offset green boxes appears that multiple FCoE and FC Entities may be present. I think what is intended is that multiple VN_Ports may be associated with the same FCoE_LEP, something that is not clear from the figure.			
Solution Technology-043	E	98	7.3, List	Another item should be added to the list to include 'de-instantiates a VN_Port/FCoE_Lep pair upon receipt of a FIP Clear Virtual Link message.'			
IBM-051	E	98	7.7.5.3	Do we really want to list the full set of FIP messages that use each descriptor? This is redundant to what is in table 44 and will be a maintenance nightmare as new FIP operations are added.			
Emulex-044	E	98	7.7.5.3.3	Table 31 leaves an opportunity for bit-order confusion in the expected mixed audience of Ethernet and FC backgrounds.	present the MAC address bytes as was done in FC-FS-20 Table 67 - NAA IEEE 48-bit Address Name_Identifier format (i.e., explicitly show the location of the U/L and I/G bits)		
Emulex-045	E	98	7.7.5.3.4	In the second paragraph of 7.7.5.3.4 is a reference to the wrong table.	In the second paragraph of 7.7.5.3.4 change "table 31" to "table 32" (by correcting the cross-reference link, of course)		

Broadcom-011	E	98	7.7.5.3.6	Name is not consistant- FIP Fabric descriptor in tiltle and some places. FIP Fabric_Name descriptor in table 34 title	Make consistant		
Solution Technology-046	E	99	7.4, 1st paragraph	Remove the following sentence: 'Each FCF-MAC may be coupled with a Lossless Ethernet bridging element.'			
NetApp-55F	E	99	7.7.5.3.7	FIP Max FCoE Size descriptor	Add a reference to 7.7.6.3 (FIP Discovery Advertisements) - The FIP Max FCoE Size descriptor is used in Discovery Solicitations (see 7.7.6.2 and 7.7.6.3) originated by an ENode or FCF.		
NetApp-56F	E	99	7.7.5.3.8	No reference to usage	Add reference to 7.7.6.4.2 The FIP FLOGI descriptor is used in FIP Fabric login (see 7.7.6.4.2) requests and replies.		
NetApp-57F	E	99	7.7.5.3.9	No reference to usage	Add reference to 7.7.6.4.2 The FIP FDISC_NPIV descriptor is used in FIP NPIV based Fabric login (see 7.7.6.4.2) requests and replies.		
Solution Technology-048	E	100	7.4, Editor's Note under Figure 29	Resolve this note. Either remove the lossless Ethernet Bridging element, or add it to the ENode model.	It is technically not part of the FCoE-defined behavior and should be removed.		
Solution Technology-047	E	100	7.4, Figure 29	In Figure 29, the offset green boxes appears that multiple FCoE and FC Entities may be present. I think what is intended is that multiple VF_Ports or VE_Ports may be associated with the same FCoE_LEP, something that is not clear from the figure.			
NetApp-58F	E	100	7.7.5.3.10	No reference to usage	Add reference to 7.7.6.4.3 The FIP LOGO descriptor is used for FIP Fabric logout (see 7.7.6.4.3) requests and replies.		

QLogic-021	E	100	7.7.5.3.10 FIP LOGO Descriptor	"10 for a LOGO LS_ACC" should be "8 for a LOGO LS_ACC"	Replace "10" with "8"		
NetApp-59F	E	100	7.7.5.3.11	No reference to usage	Add reference to 7.7.6.4.4 The FIP ELP descriptor is used in FIP Exchange Link Parameter (see 7.7.6.4.3) requests and replies.		
EMC-121	E	100	7.7.5.3.12	FIP Vx_Port Identification descriptor	This is called VN_Port Identification in table 29.		
NetApp-60F	E	100	7.7.5.3.12	No reference to usage	Add reference to 7.7.6.6 The FIP Vx_Port Identification descriptor is used in FIP Clear Virtual Links (see 7.7.6.6) messages.		
Solution Technology-050	E	101	7.4, List item a)	There are other things a VE_Port does not do, such as the Primitive Sequence Protocols (Link Initialization, Link Reset, etc..)			
Solution Technology-049	E	101	7.4, Paragraph following item 7 in the list	Enclose the phrase after the comma in parenthesis for clarity. As it is, the second instantiated is confusing in regard to what is instantiated.			
NetApp-61F	E	101	7.7.5.3.13	No reference to usage	The FIP FKA_ADV_Period descriptor is used in Discovery Advertisements (see 7.7.6.3).		
Solution Technology-051	E	102	7.4, List item a)	See earlier comments about other things that a VF_Port does not do.			
Cisco-033	E	102	7.7.5.3.15	last sentence, replace "a FIP", with "any FIP"			
IBM-052	E	102	7.7.6.1	Note 14 - The ability to process FIP descriptors "in any order" is to provide…..	Add "in any order"		
Emulex-052	E	102	7.7.6.1	In the first paragraph of 7.7.6.1 appears the text "...the order in that they should be encapsulated…". "in that"??? This must have been an innocent victim of a which-hunt.	In the first paragraph of 7.7.6.1 change "in that" to "in which".		

NetApp-63F	E	102	7.7.6.1	Each FIP operation shall contain one or more FIP descriptors with the payload and order as specified in table 44. Table 44 specifies the FIP descriptors required in each FIP operation and the order in that they should be encapsulated by a transmitting FCoE Controller.	Each FIP operation shall contain one or more FIP descriptors with the payload and order as specified in table 44. Table 44 specifies the FIP descriptors required in each FIP operation and the order in ~~that~~ which they should be encapsulated by a transmitting FCoE Controller.		
EMC-014	E	102	Table 44	The first column of Table 44 is confusing. For the first three rows and last three rows, in contains the name of a FIP operation in Table 26. For the other rows, I'm guessing it represents a Virtual Link Instantiation request or reply.	Make the "FIP Operation" column mean the same thing in Table 44 as it does in Table 26.		
EMC-122	E	102	Table 44	FIP FLOGI Request	Add to table 26 as FIP Operations.		
EMC-123	E	102	Table 44	FIP FLOGI LS_ACC	Add to table 26 as FIP Operations.		
EMC-124	E	102	Table 44	Footnote a	Is listed on both pages 102 and 103, is this necessary?		
Solution Technology-055	E	103	7.6	Consider using EtherType rather than Type. EtherType seems to be an acceptable alternative and removes confusion with the FC TYPE field.			
Solution Technology-056	E	103	7.6, Table 21, Word 4	In this table, change 'FC Frame' to 'FC Frame Content'. Per FC-FS-3, an FC Frame also consists of the SOF and EOF (the Frame Content is contained between the SOF and EOF).			
EMC-125	E	103	Table 44	FIP FLOGI LS_RJT	Add to table 26 as FIP Operations.		
EMC-126	E	103	Table 44	FIP NPIV FDISC Request	Add to table 26 as FIP Operations.		
EMC-127	E	103	Table 44	FIP NPIV FDISC LS_ACC	Add to table 26 as FIP Operations.		
EMC-128	E	103	Table 44	FIP NPIV FDISC LS_RJT	Add to table 26 as FIP Operations.		
EMC-129	E	103	Table 44	FIP Fabric LOGO	Add to table 26 as FIP Operations.		
EMC-130	E	103	Table 44	FIP Fabric LOGO LS_ACC	Add to table 26 as FIP Operations.		
EMC-131	E	103	Table 44	FIP Fabric LOGO LS_RJT	Add to table 26 as FIP Operations.		

EMC-132	E	103	Table 44	FIP ELP Request	Add to table 26 as FIP Operations.		
EMC-133	E	103	Table 44	FIP ELP SW_ACC	Add to table 26 as FIP Operations.		
EMC-134	E	103	Table 44	FIP ELP SW_RJT	Add to table 26 as FIP Operations.		
Solution Technology-057	E	104	7.6	The sentence beginning with 'The value of the SOF field shall be compliant with FC-FS-3' is confusing. The values in Table 22 are not compliant with the values for SOFs as shown in FC-FS-3. Can this be reworded to clarify?			
Solution Technology-059	E	104	7.6	The sentence beginning with 'The value of the EOF field shall be compliant with FC-FS-3' is confusing. The values in Table 23 are not compliant with the values for EOFs as shown in FC-FS-3. Can this be reworded to clarify?			
Solution Technology-058	E	104	7.6, 1st paragraph following Table 22	Change 'FC Frame field' to 'FC Frame Content field'			
Solution Technology-060	E	104	7.7.1	In the sentence beginning with 'The FCoE Initialization Protocol (FIP) is used to perform the function', change function to functions (plural)			
Cisco-039	E	104	7.7.6.2.1, 7.7.6.2.2	inclusive, exclusive	Replace with included, excluded?		
EMC-063	E	104	7.7.6.2.2	6th paragraph: STate minimum FCoE length	State the value required to accommodate an FC frame with a max 2112 byte payload. Say that the operational value used should (shall?) be at least this large.		
EMC-137	E	104	7.7.6.2.2	item b should be broken down into FPMA and SPMA sub-bullets	Break FPMA and SPMA into sub-bullets		
Solution Technology-064	E	105	7.7.2.1, 1st paragraph after the list	Change 'Available FCF-MACs for Login' to 'FCF-MACs Available for Login'. Also, it the capitalization intended to signify a FC-BB specific usage or is the intent normal English. If the former, then the term needs a formal definition.			

Solution Technology-065	E	105	7.7.2.1, 1st paragraph after the list	FCF Login Set is not a defined term. Is the intended term FCF List?			
Solution Technology-061	E	105	7.7.2.1, 2nd paragraph	This is actually a global comment regarding the use of the word 'on'. It seems that this should really be 'upon'.			
Solution Technology-069	E	105	7.7.2.1, Last paragraph before 7.7.2.2	What does 'shall remain valid' mean? Can the requirement be clarified?			
Solution Technology-062	E	105	7.7.2.1, List item a)	'Max FCoE Size verified' should be 'Max FCoE Size Verified' and formally defined as a flag. It should also be added to the definitions in 3.5			
Solution Technology-063	E	105	7.7.2.1, List item a)	Change 'unicast jumbo Discovery Advertisement ' to 'jumbo Discovery Advertisement ' (delete the word 'jumbo')			
Solution Technology-067	E	105	7.7.2.1, Next to last paragraph before 7.7.2.2	Change 'that is may perform FIP FLOGI with' to 'with which it may perform FIP FLOGI'			
IBM-058	E	105	7.7.6.3	Last paragraph says "the FIP_Pad field shall be set to the length required" It should read "shall contain enough bytes required… " or something like that. It is not "set to the length"			
IBM-059	E	105	7.7.6.3	"shall be set to reserved" should be "shall be set to zero" I don't know how to set something to "reserved"			
Cisco-042	E	105	7.7.6.3	Replace "seperate" with "separate"			
Cisco-043	E	105	7.7.6.3	Replace "Advertisements" with "Advertisement" in the last sentence			
Emulex-056	E	105	7.7.6.3	In the fourth paragraph of 7.7.6.3 appears the nonword "seperate"	In the fourth paragraph of 7.7.6.3 change "seperate" to "separate".		
IBM-061	E	105	7.7.6.4.1	Add a list item d) with FIP Operation Code set to '0002' since we specify the seting of the subcodes in subsequent text.			
Broadcom-012	E	105	7.7.6.4.1	"If applicable" doesn't make sense for something that is not being sent.The frame is always sent without Login Extension data whether applicable or not.	Delete "if applicable"		

Solution Technology-071	E	106	7.7.2.2, Last paragraph before 7.7.3	Change 'a VE_Port capable FCF-MAC transmits a solicited unicast Discovery Advertisement' to 'a VE_Port capable FCF-MAC may transmit a solicited unicast Discovery Advertisement.' What if the addressing modes are incompatible?			
Solution Technology-070	E	106	7.7.2.2, List item a)	Change 'when a unicast jumbo Discovery Advertisement is received' to 'when a unicast Discovery Advertisement is received'. (Remove 'jumbo'). Otherwise, define what a 'jumbo Discovery Advertisement' is.			
Solution Technology-072	E	106	7.7.3.1, Last paragraph before 7.7.3.2	is deassign a word?			
Solution Technology-073	E	106	7.7.3.2, 1st paragraph	should 'following' be 'upon'? if following, is there an time requirement?			
Cisco-046	E	106	7.7.6.4.2	Change "FLOGI Reply" to "FLOGI LS_ACC" in the seventh paragraph			
EMC-066	E	106	7.7.6.4.2	7th paragraph: This is confused - suddenly the text jumps to login reply processing without explaining what the FCF does	Restructure section to describe events in order.		
NetApp-70F	E	106	7.7.6.4.2	second and third paragraphs have a list: FIP subcode field set to 1 for… 2 for…. This should be a real list.	FIP subcode field shall be set to: a) 01h for FLOGI Request… b) 02h for an FLOGI LS_ACC… same for both paragraphs.		
NetApp-72F	E	106	7.7.6.4.2	Finally, if the FCF supports both FPMA and SPMA and the ENode supports only SPMA,…..	Remove the word "finally," ~~Finally,~~ if the FCF supports both FPMA and SPMA and the ENode supports only SPMA,…..		
NetApp-73F	E	106	7.7.6.4.2	last paragraph: A successful FIP FLOGI operation creates a VF_Port. I'm not sure this is strictly true.	A successful FLOGI creates a (relationship or connection, or nexus, or Virtual Link, or something) between a VN_Port and a VF_Port; but it doesn't create a VF_Port. Reword		

NetApp-74F	E	106	7.7.6.4.2	last sentence of page: Subsequent FIP NPIV FDISCs with the same 802.3 frame source address as the FIP FLOGI associate additional VN_Ports to the single VF_Port.	Subsequent FIP NPIV FDISCs with the same 802.3 frame source address as the FIP FLOGI associate additional VN_Ports ~~to the single~~ with the same VF_Port associated with the FIP FLOGI.		
Solution Technology-074	E	107	7.7.4.1, 2nd paragraph	The sentence 'The ENode MAC FCoE Controller shall transmit a FIP Keep Alive message with the ENode MAC address as source MAC address to each VF_Port capable FCF-MAC that it has VN_Ports logged in with.' is awkward.	Change to: 'The ENode's MAC FCoE Controller shall transmit a FIP Keep Alive message to each FCF-MAC with which it has logged-in VN_Ports. The ENode shall use its ENode MAC address as source MAC address.'		
Solution Technology-075	E	107	7.7.4.1, Last paragraph before 7.7.4.2	Regarding the sentence beginning 'A FIP Clear Virtual Links message...' What is the meaning of 'message'?	I think that a FIP message should be formally defined to include the FIP Header and associated FIP Descriptors.		
Solution Technology-076	E	107	7.7.4.1, Last paragraph before 7.7.4.2	Regarding the sentence 'The size of a FIP Clear Virtual Links message should not exceed the standard Ethernet size (i.e., 1500 bytes).' The size specified is not correct unless 'message' is defined to mean FIP header and associated descriptors.	formally define 'FIP Message' to mean the FIP Header and associated FIP Descriptors.		
Solution Technology-077	E	107	7.7.4.1, Last paragraph before 7.7.4.2	Change 'multiple frames' to 'multiple FIP Messages'			
NetApp-75F	E	107	7.7.6.4.3	a list is imbedded in a sentence, create a real list.	Fhe FIP subcode field shall be set to: a) 01h for a …. b) 02h for a Fabric ….		
NetApp-76F	E	107	7.7.6.4.4	imbedded list create a real list	See comment 75		
IBM-063	E	107	7.7.6.5	This section uses the term Enode's MAC Address. Since an Enode can have more than one MAC, this is not clear.			

Emulex-066	E	107	7.7.6.5	In the second paragraph of 7.7.6.5, it is inconsistent practice to use an in-line value ("90 seconds") rather than a named constant evaluated in subclause 7.8.	In the second paragraph of 7.7.6.5, replace "90 seconds" by "FKA_VNKA_PERIOD". In table 45, add a row after FKA_ADV_PERIOD: FKA_VNKA_PERIOD - 90 - The interval in seconds between FIP Keep Alive messages sent by an FCoE Controller in behalf of each of the VN_Ports it has instantiated. - 7.7.6.5		
EMC-069	E	107	7.7.6.6.1	I don't know how to "turn down" a link.	First line: "turn down" -> "tear down"		
EMC-140	E	107	7.7.6.6.1	wording "turn down"	replace with remove		
EMC-141	E	107	7.7.6.6.1	wording "turned down"	replace with removed		
NetApp-77F	E	107	7.7.6.6.1	first sentence: The FCoE Controller for a VF_Port capable FCF-MAC may turn down one or more VN_Port to…. Wrong word used	Typo: change "turn down" to "tear down"		
IBM-082	E	107	7.7.6.6.1, 7.7.6.6.2	What does "turn down" a virtual link mean?	change to de-instantiate		
EMC-070	E	107	7.7.6.6.2	I don't know how to "turn down" a link.	First line: "turn down" -> "tear down"		
EMC-142	E	107	7.7.6.6.2	wording "turn down"	replace with remove		
NetApp-79F	E	107	7.7.6.6.2	The FCoE Controller for a VE_Port capable FCF-MAC may turn down a VE_Port to VE_Port Virtual	TYPO: replace "turn down" with "tear down"		
Solution Technology-078	E	108	7.7.5.1, 1st paragraph (and more)	I don't think we have FIP frames. I think we have Ethernet frames carrying the FIP protocol.			
Solution Technology-080	E	108	7.7.5.1, Last paragraph before 7.7.5.2	Change the sentence to read 'If an Ethernet frame has the EtherType field set to FIP and does not contain a FIP operation, the frame shall be discarded.'			
Solution Technology-079	E	108	7.7.5.1, Table 24	This table does not define a FIP frame. It defines a portion of the Ethernet header and some FIP content.	Change the figure to show an Ethernet frame with FIP content. Combine Table 24 with Table 25 and change all references to FIP frames to FIP Messages.		
Cisco-047	E	108	7.7.6.7	Same as Cisco-033			

Emulex-071	E	108	table 45	Is there a reason that in its very first instantiation, FIP_FRAME_VER is 1 rather than 0?	In table 45, change the value of FIP_FRAME_VER from 0001b to 0000b		
Emulex-072	E	108	table 45	The constant value All-FCoE-MACS is not used. Is it here to protect it from other use in the event we find a need for it?			
Solution Technology-081	E	109	7.7.5.2, Table 26	This table does not include the 'FIP VLAN Request' or 'FIP VLAN Reply' messages. Were these approved to be included?			
QLogic-032	E	109	Table 45	D_A_TOV description appear to reflect the the advertisement period described by FKA_ADV_PERIOD	Replace with something like: "The default value that specifies the the maximum number of seconds for an FCF to transmit a solicited discovery advertisement."		
Solution Technology-082	E	110	7.7.5.2, Last paragraph before 7.7.5.3	Fix the wording on this to reflect the 'Max FCoE Size' parameter. Also change 'to indicate' to 'to equal'	The FIP_Pad field is used in solicited Discovery Advertisements to extend the frame size to equal the Max FCoE Size value contained in the Discovery Solicitation.'		
Solution Technology-083	E	111	7.7.5.3.1, Table 29	The VN_Port Identification descriptor should be called the Vx_Port Identification descriptor.			
NetApp-82F	E	111	B.2	Add an example format for FIP Ethernet frame			
Solution Technology-084	E	112	7.7.5.3.6	The FIP Fabric descriptor is called the 'FIP Fabric' descriptor in the title and text and 'FIP Fabric Name' descriptor in the Table 34 title.			
Emulex-073	E	112	C	Most of the lists in annex C are improperly formatted. There are errors in both enumeration and trailing punctuation.	As a probable overgeneralization, change all ACL lists to ISO ordered lists, and all the rest of the lists to ISO unordered lists.		
Broadcom-014	E	112	C	Annex C and Annex D have the same tiltle	Should Annex D be FC-BB_E Security Considerations or Threat Assessment?		
Broadcom-013	E	112	C.1	Annex TBD	This Annex or Annex D?		
EMC-143	E	112	C.1	TBD	replace with correct reference.		

Solution Technology-085	E	113	7.7.5.3.7	What happens if an administrator dynamically changes the jumbo frame size? There is no defined behavior or way to signal this. What should happen?			
Solution Technology-086	E	113	7.7.5.3.9	Change 'is used in FIP NPIV based Fabric login requests and replies.' to 'is used in FIP NPIV requests and replies.' NPIV FDISC is not a Fabric Login.			
Cisco-050	E	113	Annex C	Annex TBD should be Annex D.	Change it to Annex D		
EMC-144	E	114	C.3	item e)	becomes a)		
EMC-145	E	114	C.3	item f)	becomes b)		
EMC-146	E	114	C.3	item g)	becomes c)		
EMC-147	E	114	C.3	item h)	becomes d)		
EMC-148	E	114	C.3	item i)	becomes e)		
EMC-149	E	115	C.3	item j)	becomes f)		
EMC-150	E	115	C.3	item k)	becomes g)		
QLogic-035	E	115	j)	"assigned FCoE source address is only used for FCoE traffic". 90 second FIP FKA uses assigned source address!	Insert "(and FIP traffic)" at the end of sentence.		
Solution Technology-088	E	116	7.7.6.1, Note 14	The wording of this note is awkward. Can it be reworded to clean up the grammer?			
Solution Technology-089	E	116	7.7.6.1, Table 44	In Proposal T11 08-450v3.pdf, the Discovery Advertisement had a Fabric List. Table 44 shows just a single fabric descriptor. How is information about multiple virtual fabrics communicated to the ENode?			
Solution Technology-090	E	118	7.7.6.2.1, Last par before 7.7.6.2.2	Change 'then the Discovery Solicitation shall be discarded.' to 'the Discovery Solicitation shall be discarded.'(delete the word 'then')			
Solution Technology-092	E	119	7.7.6.3, Last para before 7.7.6.4	Kind of a minor nit, but Ethernet frames do not have a payload, they have a Data field. Change 'an 802.3 frame with a payload length...' to 'an 802.3 frame with an Ethernet Data field length ...'			

Solution Technology-091	E	119	7.7.6.3, Last paragraph before 7.7.6.4	The Discovery Advertisement should only be padded to verify support for encapsulated FC frames. If an ENode supports 12k and intervening Ethernet switches support 9k bytes, this will fail, even though it has no implications for proper FCoE operations.			
Solution Technology-093	E	120	7.7.6.4.2, 3rd paragraph (global?)	NPIV FDISC is not a Fabric login. While both result in the instantiation of VN_Ports, FLOGI and NPIV FDISC perform different functions.	Reword the Sub-clause title. Reword the 1st sentence to say 'For an NPIV FDISC,...'		
Solution Technology-094	E	120	7.7.6.4.2, 6th paragraph	Change 'FIP FLOGI Reply' to 'FIP FLOGI LS_ACC Reply'. This is not true in the event of an LS_RJT reply.			
Solution Technology-095	E	120	7.7.6.4.2, 7th paragraph	Change 'FIP FLOGI Reply' to 'FIP FLOGI LS_ACC Reply'. This is not true in the event of an LS_RJT reply.			
Solution Technology-096	E	120	7.7.6.4.2, 7th paragraph	An NPIV FDISC must have a source address of 00:00:00h. How can you propose a properly formed FPMA MAC address and be consistent with the FC addressing requirement? This whole paragraph seems a bit circular and confusing.			
Solution Technology-098	E	121	7.7.6.6.1, 1st para	In the first sentence, 'may turn down one or more VN_Port to VF_Port Virtual Links...' it is unclear what 'may turn down a Virtual Link' really means.	change wording in the first sentence to 'may force an implicit Fabric Logout of one or more VN_Ports by transmitting a FIP Clear Virtual Links...' Change the wording in the second sentence to 'one for each VN_Port being implicitly logged out.'		
Solution Technology-099	E	121	7.7.6.6.2, 1st para	In the first sentence, 'may turn down one or more VE_Port to VE_Port Virtual Links...' it is unclear what 'may turn down a Virtual Link' really means. You are really removing the VE_Port ELP session, but not necessarily affecting the state of the Virtual Link.			

Cisco-051	E	122	Annex D	Title of Annex D is incorrect.	Change to: "FCoE Security Recommendations (Informative)"		
EMC-076	E	122	Annex D	Annexes C and D have the same name	Rename Annex D - it's a broader section on recommendations for deployment.		
EMC-153	E	122	Annex D	Duplicate name used for Annex C and D	Rename Annex D		
Emulex-078	E	122	D	Annex D has the same title as annex C.	Annex D is not specified in terms of ACLs, so its title should change. Maybe "Traffic Control Rules to Increase FC-BB-E Robustness"?		
EMC-154	E	122	D.2	Wording	Replace: Finally, FCoE Fabrics may be subjected to various forms of catastrophic failure if duplication VN_Port with: Finally, FCoE Fabrics may be subjected to various forms of catastrophic failure if the duplication of VN_Port		
Solution Technology-100	E	123	7.8, Table 45	D_A_TOV. The description in Table 45 differs from that in 7.7.6.3 that states 'The solicited Discovery Advertisement shall be transmitted within D_A_TOV (see table 45) seconds upon reception of the Discovery Solicitation.' The description in Table 45 seems to imply a periodic transmission rate.			
Solution Technology-102	E	126	C.1	Annex C and D have exactly the same title. I believe that Annex C has the correct title.			
Solution Technology-103	E	126	C.1, 4th paragraph	Resolve the TBD - I think it should reference Annex D			
Solution Technology-104	E	126	C.1, next to last paragraph	Change 'via FIP snooping' to 'by examining FIP messages'			

Solution Technology-105	E	129	C.3.2, ■ 2nd sentence	Change 'This is necessary to pre¡vent various of address learning and ACL spoofing attacks.' to 'This is necessary to pre¡vent address learning and FCF impersonation attacks.' This cleans up the wording and removes the only use of the word 'spoofing'.			
Solution Technology-106	E	132	C.4.5	Change the title to just 'Additional FCF protection' (delete the word crosstalk as this is not used in the normal sense of the word and crosstalk is not used anywhere else in the document.			
Solution Technology-107	E	134	C.8, ■ 1st Para.	In the second sentence, change '...ACEs that are generated in response to snooping the FIP FLO¡GI/FDISC accepts.' to '...ACEs that are generated as a result of examining the FIP FLO¡GI/FDISC accepts.'			
Solution Technology-108	E	136	Annex D	I think this annex should be titled 'Deployment/Implementation considerations', not Access Control Lists.			
Solution Technology-109	E	136	D.2, 4th paragraph	grammer: change 'if duplication VN_Port MAC addresses occur' to 'if duplicate VN_Port MAC addresses occur'			
Solution Technology-110	E	138	D.2, List item 6	add 'except as required to meet R_A_TOV requirements.' Ethernet bridges, like Fibre Channel switches, must eventually discard frames to meet the R_A_TOV requirements.			
Solution Technology-111	E	138	D.5	Has it been verified that the recommendations cited by the Editor's note are in fact included in the main body of the draft?			

Brocade-038	E	141	D.6 item 1)	Clarify: Bridge ports, except those known to be connected to FCFs, to other bridge ports, or are to be explicitly prohibited from carrying FCoE/FIP traffic, should implement ingress filtering that discards all frames containing a Source MAC address in which the 24 most significant bits do not match the FCoE fabric's FC_MAP (regardless of Ethertype).			
Solution Technology-112	E	141	D.6, List item 1	Unless there is some reason for it to be red, change the text for list item 1 to black.			
Cisco-009	E	6..8	References	References need to be updated. FC-FS-3 and IEEE 802.1Q are missing. Is the sonet reference still needed?			
IBM-025	E	84, 87	7.3, 7.4	In item g), "within every FKA_ADV_PERIOD" is vague (too simple). Rather than specify details here, it is enough here to say that the messages are periodic and refer to the section 7.7.4 for details on how it is checked.	Remove "within every FKA_ADV_PERIOD" and add reference to 7.7.4 (Virtual link maintenance protocol) Also make the same changes to section 7.4 lists.		
IBM-030	E	85,86	7.4	Figure 29 is the "functional model of an FCF". The section title should be FC_BB_E FCF (VE_Port/VF_Port) functional model	Change section title and title of figure 29 to reflect that it is an FCF model.		
IBM-016	E	86,87	7.4	The lists on these pages should be unordered per the list on page 84.	change to unordered list		
NetApp-62F	E	97-101	7.7.5.3.*	Global in this section - Each section should have a reference to where the usage is described.	Several are listed above in comments 55-61; this is just a general comment to cover the ones I might have missed		

Dell-001	E	global	global	The scope of FC-BB-5 in the FC-BB-5 project proposal is limited to FC over Ethernet. However, this document covers FC over all non-FC physical networks (i.e. FC over TCP/IP, FC over GFPT, FC over MPLS in addition to FC over Ethernet)	If the scope needs to be limited only to FCoE, then update the document globally to remove details for FC over wide area networks (i.e. FC_BB_IP, FC_BB_GFPT, FC_BB_PW). Add details of FC_BB_E (FCoE) to the specific sections already tagged with Editor note (e.g. section 4.3.4, 4.4.2.3, 4.4.4, 4.4.5, ...)		
Cisco-001	E	i		Are fax numbers still used?	Delete it for cds		
Cisco-002	E	iii	Abstract	FCoE is not a WAN technology	Rephrase the abstract as "This standard defines the functions and mappings necessary to carry Fibre Channel over different technologies."		
Cisco-054	E	many	Annex C, Annex D	These annexes need quite a bit of editorial work…			
Cisco-020	E	many	many	correct spelling of constants and parameters as follows: - All-FCF-MACs - All-Enode-MACs - FC-MAP	global replace		
Cisco-003	E	v	Foreword	The first sentence is incorrect	Rephrase it as per Cisco-002		
Cisco-004	E	vii		The current T11.3 secretary is Landon	Update		
Cisco-005	E	viii	Introduction	The first paragraph is incorrect	Rephrase as: "This standard defines the functions and mappings necessary to carry Fibre Channel over different technologies. FC-BB-5 defines four distinct Fibre Channel mappings: FC over TCP/IP, FC over GFPT, FC over MPLS, and FC over Ethernet."		
Brocade-032	E		7.2	Pause -> PAUSE			
Brocade-045	E		5.5.1.2	Remove the period in the Connection Nonce sentence.			
Brocade-046	E		6.4.8.2.1, p2	Fix spelling of Orderd and remove red strikeout text.			

Brocade-033	E		7.2 last line	"supporting Lossless Ethernet MACs" -> "over a lossless Ethernet network."			
Intel-008	E		7.7.5.3.1	Table 29, FIP descriptor type 11 is listed as VN_Port, but everywhere else on the document is listed as Vx_Port. Should be changed to VN_Port.			
Intel-009	E		7.7.5.3.12	Current spec states FIP Vx_Port Identification descriptor is used in FIP Clear Virtual Links messages. Spec should add it is also used in FIP keep alive for Vx_Port.			
Intel-014	E		7.7.5.3.3	Assume the MAC address shall be included and transferred in Big-Endian or Network Byte Order? This is not clear given the subscripting for each byte in the descriptor. Example where this info is indicated, in table 33, showing MSB/LSB byte order indication.			
Brocade-008	E		7.7.6.6.1	Fix "turned down" text.			
Intel-019	E		Annex C & D	Annex C & D have the same title			
Brocade-044	E		Annex D	The title is not correct. Change to FCoE Security Recommendations.			
Brocade-034	E		figure 26	Put the ports inside the ENode as you do for the FCF.			
Intel-017	E		Figure 30	Figure 30 is not trying to indicate that each VN_PORT has a unique Mac address is it (ex. MAC VN_PORT(1), MAC VN_PORT(2), etc? It should have a unique address identifier as result of FLOGI/FDISC, but all VN_PORTs on the Enode would/could share the same MAC address as in the case of SPMA. Can a comment be added to say this is only true for FPMA?	Add comment that this is only for FPMA		
Intel-015	E		General	The early sections (before 7) that show FC-BB_E figures or details are incomplete.			
Brocade-036	E		global	Sometimes Ethernet is used, and sometimes 802.3. Replace 802.3 -> Ethernet.			
Brocade-047	E		Note 14	The sentence is incomplete.			
Brocade-042	E		table 34	Fabric_Name descriptor should be Fabric descriptor.			
Brocade-048	E		table 43	Change Type to Type (13)			

Brocade-007	E			Fix figure 4.			
Color Key:							
Red - editor to research or working needs to discuss							
Yellow - working group action item							
Pink - editor to incorporate							
Purple - complete							
					Keys:		
Summary			691	All	O	Open: An action has been identified and is not complete	
			0	All Open	A	Accepted: The issue has been resolved and the resolution indicates any necessary changes	
			0	All Accepted	R	Rejected: The issue has been rejected, and the resolution indicates the reason. The resolution may also indicate changes found useful to improve the readability of the standard	
			0	All Rejected	W	Withdrawn: The commenter has withdrawn the comment.	
			1	All Withdrawn		Not considered yet	
					AinP	Accepted in Principle: The comment issue has been accepted in principle and the resolution indicates any necessary changes	
			0	All Not Processed			
			383	All Technical			
			0	All Open Technical			
			0	All Accepted Technical			
			0	All Rejected Technical			
			0	All Withdrawn Technical			
			0	All Not Processed Technical			
			306	All Editorial			
			0	All Open Editorial			

			0	All Accepted Editorial			
			0	All Rejected Editorial			
			0	All Withdrawn Editorial			
			0	All Not Processed Editorial			