

Annex IV

June Working Group meeting and teleconference resolution of issues

Introduction

Peter Ragsdale worked on the standard to make the corrections and updates based on the teleconferences and a late submittal from Mitretek. The following notes list the changes and modifications to the ATC standard.

The ground rules were to deal with only the following 2 aspects of the standard:

- Those issues that were introduced to resolve the NEMA “No” vote
- Any obvious errors that would prevent interoperability”

ATC v 5.2 Notes

1. I have changed SP8 back to support both Async and Sync (e.g. SDLC) communications. I had to do this to support the ITS Cabinet and also to be consistent with the existing and approved/recommended ITS Cabinet Standard. This affected various locations as follows:
 - a. Added sp8s to Table in 2.2.5
 - b. Reinstated SP8_TXC_INT & SP8_RXC_EXT on Engine Board pinout
 - c. Added Synchronous pins, baud rates, and modes for SP8 in 5.4.3
 - d. Updated Guidance in section 8.3 to indicate optional SP8 use as ITS Cabinet SB #1
2. Item #7e of Bob’s 10/24/2005 teleconference notes has two items open:
 - a. I have added ESD protection to connectors that will be used in the field temporarily by the User. This includes C50 (SP4), C60 (SP6), USB, and Laptop Ethernet (Hub x, Port y only). This protection is to IEC 61000-4-2 (ESD) +/- 15kV (air), +/- 8kV (contact)
 - b. “It was noted that there needs to be resolution of cabinet cabling wiring – where are we handling the chassis ground”. I have enhanced the equipment ground section.
3. I relabeled Hub 2, Port 6 as “Controller Expansion” in Figure 8-3 to be consistent with the above it.
4. Check what the sector size is of a 2Mb Datakey is (section 7.4.1.6).
5. I am assuming that Annex B **does** cover the situation of the driver creating the equivalent of a signal on an AC Fail event (i.e. use PP_ENABLE_EVENT on the POWERDOWN pin). I do not understand why some people keep saying we do not cover this.
6. I included the startup sequence from Jim Rose as a new section 5.3.5.1 (note that I could not find any comments in the discussion thread on his proposal which appears to meet the needs of Herasmo comment #b).
7. Assumption is that new Annex B from Dave Miller resolves Herasmo’s comment #g (Facilitate Software Application Portability).

8. Assumption is that resolution of Herasmo's comment #h ("Annex B is incomplete and very confusing") has been assigned to Dave Miller in his generation of Annex B. From my review of latest submission by Dave this is still outstanding (headings need to be numbered, etc).
9. Assumption is that new Annex B from Dave Miller resolves Herasmo's comment #i (Standard Linux Drivers) with the exception of Herasmo's 3rd point (which I handled since it was in the main body).
10. Assumption is that Section 3 Concept of Operation needs to remain in this version of the standard (and not be removed until the new document is created) ... resolution to Herasmo's comment #Summary.
11. I implemented most of the changes to section 4.1.3 as proposed by Sean C.
12. Regarding Sean's comment #13 about signal names: In general, the signal names were correct since SP1_TXD is physically a different signal from SP1TXD+ (TTL vs. 485), but I did enhance the "note" in section 6.2.2 to ensure clarity.
13. To facilitate Sean's comment #20, I have chosen to restrict the maximum number of communications slots to 2 (same as 2070 ... the other slots are for I/O modules which will not use "communications interface slots" and hence could have a different labeling scheme).
14. In 7.3.1.4, I moved the Datakey from "front panel" to "front or rear" list to help satisfy Sean's comment #29.
15. Changed 7.3.1.2 so that composition term was not used. I also added a new weight limit requirement for the modem modules (1.5 pounds each).
16. Changed resolution of Sean's comment #23 to "REJECTED". Upon detailed review, the "necessary functions" being referred to are the need for a "User Interface to the Application" and a need for a "User Interface to the O/S". The "keyboard and display" are only given as examples of a possible "User Interface to the Application" and they are not required as "minimal".
17. I have left Isolation requirements in section 8.4 as I feel that they should be kept together, especially now that I have included ESD protection requirements.
18. I have defined testing for clock drift to address Sean's comment #39.
19. I have not done anything with Jim Rose's comment regarding section 11.1 since the committee took no action on it.
20. A new section 4.2.1 was created to address Mitretek #23. This also required an introductory paragraph to be created under 4.2.
21. I had to create a whole section 4.3.4 Facilitate Diagnostic Capabilities to address Mitretek #25. I only put in non-contentious points.
22. I added "Heater Power" to Figure 2-1. Also, fixed SP8 as it does not go to the Communication Interface Slot(s).
23. The tolerances previously discussed for POWERUP and POWERDOWN cause a violation of the Short Power Test of 9.10.1. As such I changed the starting point of the timer for the POWERUP signal going low to be from the time of loss of AC Service Power.
24. Previously, we had allowed the power supply only 0.5 seconds to be functional with POWERUP and POWERDOWN both at the HIGH level. Recently there was a movement to increase this time frame to 1.0 seconds. At 0.5 seconds there

were no internal conflicts within the standard, the 1.0 second value causes a problem with 210 CMUs in a retrofit application (User Need). Problem is that the FCU will be held in reset until at least the POWERUP and POWERDOWN signals are both High thereby inhibiting the operation of Muzzle Jumper circuitry. (Variations of the 210 CMU require that the watchdog must begin strobing within 1.0 seconds and they have an independent supply so we cannot exceed the 1.0 seconds from actual application of AC service power being available to the CMU). As such I have implemented a compromise ... the power supply must have the output voltages in tolerance within 0.5 seconds, and then the POWERUP time period begins which adds another 225 ms +/- 25ms (max = 250 ms). This then gives any reset circuitry on both the Engine Board and FCU up to 250 ms to release AND if the Engine Board implementation toggles CPU_RESET this must also be completed within this same 250 ms. Best I can do for now ...

25. There have been requests for POWERDOWN to raise HIGH within 50 ms of AC Power being restored. During a "long" power failure this is not possible since the +5VDC will take approximately 500 ms to reach +4.875VDC (lower threshold).
26. There are no longer "events" needed for the POWERDOWN signal ... the driver supports a blocking read (waiting for a change) that can be used to receive the event and act accordingly. An example is included in Annex B
27. Annex B now tells the reader that the Asynchronous Ports use the standard Linux drivers, including the standard method of supporting flow control; therefore, no details are provided in this standard.
28. I have chosen 125 ms (nominal) for the CPU_RESET pulse. This exceeds the 100 ms requirement of the CMU even when tolerances are considered.
29. The SRAM drivers now refer to +5VDC Standby Power-backed SRAM instead of battery-backed SRAM (since no batteries exist).
30. Read Annex B carefully ... there are lots of changes.
31. In section 7.2.5.1, I have defined the terms "Loss of AC Service Power" and "Restoration of AC Service Power" and used these consistently throughout the section.
32. I have adjusted the tolerances of the power timing conditions so that race conditions can be avoided; however, there are gray conditions that do exist and the manufacturer has leeway on how the actual device performs. Based on these values, the Figures 7-1 (Power Restore), 7-2 (Power Loss) and 7-3 (Short Loss) has been created. Note that separate drawings have been created for each situation for clarity purposes.

Responses to selected Mitretek comments:

Note: The issues addressed in the Mitretek Memorandum (enclosed) were addressed below.

#5. This statement is required since the ATC standard has been developed prior to the API standard and its sets the groundwork that the API, once developed, cannot require capabilities or performance that the ATC does not provide.

#8. Annex B is not required to define the Asynchronous drivers since Linux already provides a standard definition.

#12. The incorrect wording of the second sentence altered the meaning intended. Wording has been corrected to avoid the confusion created between “User Requirements” and “User Needs”.

#15. The document was correct ... the first section quoted identifies the three mechanisms that an operator interfaces to an ATC, whereas the figure is unrelated and illustrates a typical physical architecture (figure is in agreement with its preceding paragraph which introduces the figure).

#42. Frame Type 59 and Response 187 are documented in the Guidance so that the ATC Engine Board can understand the response it may receive if installed in a pre-1999 2070 controller.

Mitretek Notes

The following are the comments received from Mitretek.

Purpose:

The purpose of this assessment is to evaluate the usability and logic of the Ballot Copy (version 5.1d) of the ATC Controller standard. The intent is to provide usable feedback on the completeness and correctness of the standard to the United States Department of Transportation and the ATC Controller Project Team.

Summary of Assessment:

An earlier thread assessment, “Draft ATC Controller version 4 Selected Thread Assessment” dated 1 September 2003, was made on version 4. However, no observable changes were made in version 5.1d that were suggested from the previous assessment. Since issues still remain with the previous comments, no additional threads were assessed at this time.

As seen from version 4, the document provided sections for user needs, requirements, and design details. This is a move in the right direction to develop a complete and correct standard. However, (1) it was difficult to trace needs to design, (2) requirements were not well developed, and (3) design concepts were mixed with needs and requirements. This made the document difficult to use, hard to prove the design is complete with regard to user needs, and challenging to determine if there are holes in the design.

Although this assessment was not exhaustive, over 100 items were identified, which represents an average of 1.5 errors every other page. These errors were spread among 5 categories; Ambiguity, Document Formatting, Editorial, Logical Inconsistencies and Spelling Errors.

1. Ambiguous Content represents 12% of the total items identified. These items are described in detail in the Specific Comments section below.
2. Document Formatting Errors represent 21% of the total items identified. These items included inconsistent front size in text content, inconsistent bullet style, hyperlinks not defined, inconsistent bold formatting for Guidance sections, graphic used in figure runs

off the page, red text color used when it should be black and misaligned text. These errors were combined where practical into single Specific Comment items.

3. Editorial Errors represent 35% of the total items identified. These items included typographical and grammatical errors, missing words (a, and, the, etc...), missing period at end of a sentence, double periods to end a sentence, double commas, inconsistent capitalization and missing spaces between characters. These errors were combined where practical into single Specific Comment items.
4. Logical Inconsistencies represent 29% of the total items identified. These items are described in detail in the Specific Comments section below.
5. Spelling Errors represent 3% of the total items identified.

The number of editorial errors encountered during this assessment brings to light a serious issue with the usability of this standard. These types of errors compromise the integrity of the standard and introduce doubt in the completeness and correctness of its content. It is recommended that this standard have a complete and detailed review by an appropriate technical writing team in order to improve the quality of the document being generated.

If you have any questions on the comments, please contact Steven Alonge at 202-863-3651.

Reference

To the left of the equal sign is the acronym used, in this review, in place of the document's full name, which is to the right of the equal sign:

ATC Standard = Advanced Transportation Controller (ATC) Standard
 Version 5.1d October 5, 2005
 A Recommended Standard of the Joint Committee on the ATC
 Ballot Copy for the Joint Adoption by AASHTO, ITE and NEMA

Bold underlined text is used to highlight recommended changes to textual content.

Specific Comments

Item No.	1.
Document:	ATC Standard
Page:	<ul style="list-style-type: none"> • 2-5, line 3 • 2-6, line 1 • 2-6, line 7 • 2-6, line 14
Paragraph or Item:	<ul style="list-style-type: none"> • http://www.busybox.net/ • http://www.uclibc.org/downloads • http://www.ite.org/standards/atc/ITS_Cabinet.pdf • http://www.nema.org/stds/ts2.cfm
Comment:	Internet references should be formatted as hyperlinks.
Item No.	2.

Document:	ATC Standard
Page:	<ul style="list-style-type: none"> • 2-3, line 22 • 3-1, line 25 • 5-2, line 41 • 5-2, line 42 • 5-15, line 31 • 7-3, line 21 • 9-3, line 22
Paragraph or Item:	<ul style="list-style-type: none"> • mounted.. • maintained.. • dimensions,, • thickness., • BSP.. • arrangement is not specified here • noted..
Comment:	Editorial errors. Double period at the end of the sentence, double comma, no period at end of sentence, etc...
Item No.	3.
Document:	ATC Standard
Page:	Front Cover
Paragraph or Item:	National Electrical Manufacturers Association (NEMA) 1300 N. 17 th St., Suite 1847 Rosslyn, VA <u>22209</u> -3801
Comment:	The zip code is not correct. It should be 22209.
Item No.	4.
Document:	ATC Standard
Page:	List of Tables and Figures, page ix, line 24
Paragraph or Item:	Figure 6-3: <u>Master Mode 1 and Remote Mode 1</u>
Comment:	This figure does not exist in the document.
Item No.	5.
Document:	ATC Standard
Page:	2-1, lines 29-30
Paragraph or Item:	Guidance: The NEMA/AASHTO/ITE API shall run on controllers designed to this ATC standard. (Authorized Engineering Information).
Comment:	Why is this statement here?
Item No.	6.
Document:	ATC Standard
Page:	2-2, Line 3
Paragraph	Figure 2-1: Component Parts of the ATC Controller and their Connections.

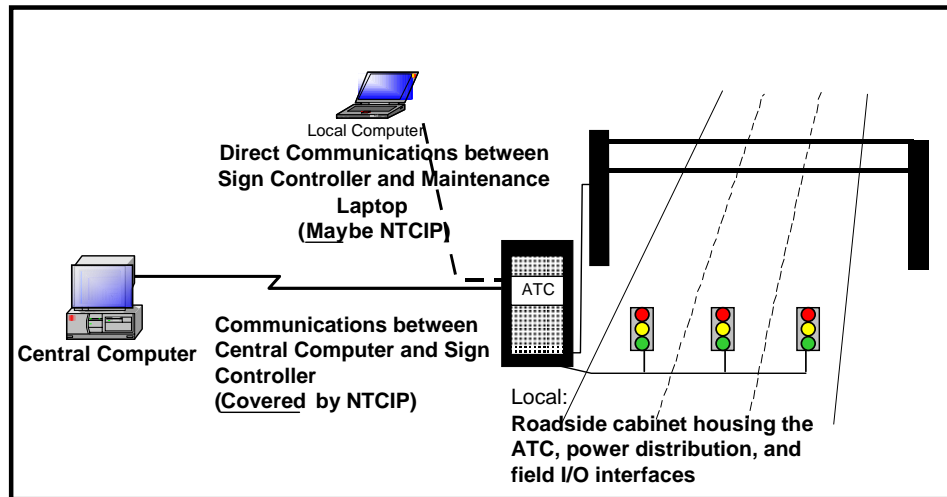
or Item:								
Comment:	This Figure is not in the List of Tables and Figures. The figure is not defined as a “Figure Style” (i.e., from the MS Word menu, Insert -> Reference -> Index and Tables...). This will not show in the List of Tables and Figures when the list is regenerated.							
Item No.	7.							
Document:	ATC Standard							
Page:	2-4, line 9-10 7-1, line 33							
Paragraph or Item:	“In this standard, alternative user interfaces may be included, provided that the minimal or an optional interface is provided, also.”							
Comment:	This is ambiguous as written, “minimal or an optional”. Is the minimal user interface required? The text implies that an optional interface could be provided instead of the minimal interface. Is this the intent? This is inconsistent with section 7.1.2. Section 7.1.2 Optional User Interfaces states, “In addition to the minimum User Interface, the ATC may include one or more optional User Interfaces.”. “In addition to...”, implies that the minimal user interface is mandatory.							
Item No.	8.							
Document:	ATC Standard							
Page:	2-5, line 1							
Paragraph or Item:	<table border="1"> <tr><td>/dev/sp1 Asynchronous Port</td></tr> <tr><td>/dev/sp2 Asynchronous Port</td></tr> <tr><td>/dev/sp3 Asynchronous Port</td></tr> <tr><td>/dev/sp4 Asynchronous Port (Note 1)</td></tr> <tr><td>/dev/sp5 Asynchronous Port</td></tr> <tr><td>/dev/sp6 Asynchronous Port</td></tr> <tr><td>/dev/sp8 Asynchronous Port</td></tr> </table>	/dev/sp1 Asynchronous Port	/dev/sp2 Asynchronous Port	/dev/sp3 Asynchronous Port	/dev/sp4 Asynchronous Port (Note 1)	/dev/sp5 Asynchronous Port	/dev/sp6 Asynchronous Port	/dev/sp8 Asynchronous Port
/dev/sp1 Asynchronous Port								
/dev/sp2 Asynchronous Port								
/dev/sp3 Asynchronous Port								
/dev/sp4 Asynchronous Port (Note 1)								
/dev/sp5 Asynchronous Port								
/dev/sp6 Asynchronous Port								
/dev/sp8 Asynchronous Port								
Comment:	Annex B defines “Synchronous SDLC Serial Ports” in the Standard Linux Drivers section. I could not find a reference to the Asynchronous drivers in Annex B.							
Item No.	9.							
Document:	ATC Standard							
Page:	2-5, lines 10-13							
Paragraph or Item:	2. “Misc” in the Character column indicates that although the synchronous serial port is character based, the port only supports the SDLC protocol. The driver transmits complete frames passed from the application program, and returns complete received frames back to the application program for processing.							
Comment:	There are not any “Misc” entries in the table. Should this note be removed?							
Item No.	10.							

Document:	ATC Standard
Page:	2-7, line 10
Paragraph or Item:	http://www.usb.org/developers/devclass_docs/usbmassover_11.pdf
Comment:	This link is not available. Please correct.
Item No.	11.
Document:	ATC Standard
Page:	2-7, line 18
Paragraph or Item:	http://www.usb.org/developers/devclass_docs/usbmass-cbi10.pdf
Comment:	This link is not available. Please correct.
Item No.	12.
Document:	ATC Standard
Page:	3-1, lines 5-7
Paragraph or Item:	“This section identifies the presently known user requirements for an ATC and begins to identify the associated functions. Because these users needs ...”
Comment:	This is ambiguous as written. The first sentence refers to “user requirements” and the second sentence uses “user needs”. Are “user requirements” high level “user needs” in this context? Please revise to use consistent terminology.
Item No.	13.
Document:	ATC Standard
Page:	3-3, lines 18-19
Paragraph or Item:	“This effort generated the most recent "TS-2" standard in 1992 later updated in 1998 and scheduled to be updated in 2004.”
Comment:	The last published version of the TS-2 standard was in 2003. Is this the version being referenced?
Item No.	14.
Document:	ATC Standard
Page:	3-4, line 37
Paragraph or Item:	“As a result, longevity concerns are surfacing for the ATC 2070 related to the its particular O/S and CPU selections.”
Comment:	Editorial Error. The use of one of these two words would be grammatically correct, but not both.
Item No.	15.
Document:	ATC Standard
Page:	3-6, line 24
Paragraph or Item:	Remote computer – this type of operation configures and manages ITS applications from a computer located at a traffic management location, such as a

Transportation Management Center (TMC) or from a field located computer such as a traffic signal field master controller.

Local computer – this type of operation performs the same functions as a central computer does, but uses a portable interface device (e.g., laptop, PDA, etc.) connected directly to a port of the ATC.

Locally – this type of operation uses the front panel or portable interface devices (e.g., keyboard, displays, switches) at the ATC to perform the functions of configuring and managing the ITS applications.



Comment: The descriptive names in the text do not match the figure and are ambiguous.

- The text defines a “Remote Computer”, which is not called out for in the figure. Is this the Central Computer?
- The text says “Locally”, but the figure says “Local”

Item No. 16.

Document: ATC Standard

Page: 4-1, lines 24-37

Paragraph or Item:

- Front panel **connected dedicated Serial** port for interfacing with laptop computer, PDA or similar locally connected device with software for performing this function
- Front panel **connected dedicated** Ethernet port for interfacing with laptop computer, PDA or similar locally connected device with software for performing this function
- Front panel portable memory device interface and a minimal front panel user interface for initiating bulk data transfers to and from a portable memory device – satisfied by following requirements:
 - ◆ USB port with support for portable memory device and BSP-described

	<p>drivers for portable memory device file access</p> <ul style="list-style-type: none"> ◆ Front panel display and keyboard or a serial interface for connection to <u>connected Laptop</u> computer or PDA device to serve as an operator interface for initiating file transfers to and from a portable memory device when such a device is connected to USB port per above requirement
Comment:	<p>Please revise this section.</p> <ul style="list-style-type: none"> • Front panel <u>serial</u> port for interfacing with laptop computer, PDA or similar locally connected device with software for performing this function • Front panel Ethernet port for interfacing with laptop computer, PDA or similar locally connected device with software for performing this function • Front panel portable memory device interface and a minimal front panel user interface for initiating bulk data transfers to and from a portable memory device – satisfied by following <u>the</u> requirements: <ul style="list-style-type: none"> ◆ USB port with support for portable memory device and BSP-described drivers for portable memory device file access <p>Front panel display and keyboard or a serial interface for connection to <u>a laptop</u> computer or PDA device to serve as an operator interface for initiating file transfers to and from a portable memory device when such a device is connected to USB port per above requirement</p> <p>There is an inconsistency in the bullet style for indented bullets.</p>
Item No.	17.
Document:	ATC Standard
Page:	4-2, lines 18-37
Paragraph or Item:	<ul style="list-style-type: none"> • This Controller shall include resident clock/calendar device to support <u>to</u> the maintenance and backup of current time and date by the controller unit in the absence of service power. <ul style="list-style-type: none"> ◆ Clock/calendar device shall maintain time/date for a minimum of 30 days without AC power applied to the controller. ◆ Clock/calendar device drift shall be less than ± 1 minute per 30 days at 25°C. • Applications software executing in the controller shall be able to set time and date on the resident clock/calendar device to the nearest 1/10 sec via the BSP. • When service power is present, current time/date information should be maintained by the O/S and easily accessed by the application software utilizing the BSP. • Power transients and short term power outages shall not introduce clock drift. • The Engine Board/BSP shall utilize the system’s LINESYNC signal and the Engine Board Real Time Clock (RTC) to maintain an accurate Operating

	<p>System Time (OST) by following these rules:</p> <ul style="list-style-type: none"> ○ Under normal AC power conditions or during power failure conditions of less than 500 ms, OST timing shall be derived from the 8.33 ms LINESYNC signal. ○ Once each hour, the BSP RTC driver shall automatically copy the current OST time to the RTC with an accuracy of 1/10th of a second.
Comment:	<ul style="list-style-type: none"> • This Controller shall include <u>a</u> resident clock/calendar device to support the maintenance and backup of current time and date by the controller unit in the absence of service power. <ul style="list-style-type: none"> ◆ Clock/calendar device shall maintain time/date for a minimum of 30 days without AC power applied to the controller. ◆ Clock/calendar device drift shall be less than ± 1 minute per 30 days at 25°C. • Applications software executing in the controller shall be able to set time and date on the resident clock/calendar device to the nearest 1/10 sec via the BSP. • When service power is present, current time/date information should be maintained by the O/S and easily accessed by the application software utilizing the BSP. • Power transients and short term power outages shall not introduce clock drift. • The Engine Board/BSP shall utilize the system’s LINESYNC signal and the Engine Board Real Time Clock (RTC) to maintain an accurate Operating System Time (OST) by following these rules: <ul style="list-style-type: none"> ○ Under normal AC power conditions or during power failure conditions of less than 500 ms, OST timing shall be derived from the 8.33 ms LINESYNC signal. ○ Once each hour, the BSP RTC driver shall automatically copy the current OST time to the RTC with an accuracy of 1/10th of a second. <p>There is an inconsistency in the bullet style for indented bullets.</p>
Item No.	18.
Document:	ATC Standard
Page:	4-2, line 25
Paragraph or Item:	“...date on the resident clock/calendar device to the nearest 1/10 <u>sec</u> via the BSP.”
Comment:	The term sec is not defined in the Glossary. The Glossary defines “s” to be interpreted as seconds. Please change to “second” or “s”.

Item No.	19.
Document:	ATC Standard
Page:	4-2, line 26
Paragraph or Item:	“When service power is present, current time/date information should be...”
Comment:	Please replace the word “should” with “shall” since this is a requirement.
Item No.	20.
Document:	ATC Standard
Page:	4-2, lines 6-10
Paragraph or Item:	Guidance: The accuracy requirements allow for 0.1 second accuracy in the ability to set the RTC, 0.01 second accuracy to synchronize the OST to a transition edge of the RTC when re-establishing the OST, and an additional 17 ms (1/60 th second) due to the asynchronous nature of the LINESYNC signal. Thus, the net error is 0.127 seconds plus the accuracy of the RTC. (<i>Authorized Engineering Information</i>)
Comment:	This instance of a Guidance note is not shown in bold, italic text and is inconsistent with the formatting of other Guidance notes. Guidance: <i>The accuracy requirements allow for 0.1 second accuracy in the ability to set the RTC, 0.01 second accuracy to synchronize the OST to a transition edge of the RTC when re-establishing the OST, and an additional 17 ms (1/60th second) due to the asynchronous nature of the LINESYNC signal. Thus, the net error is 0.127 seconds plus the accuracy of the RTC. (Authorized Engineering Information)</i>
Item No.	21.
Document:	ATC Standard
Page:	4-3, lines 38-39 4-4, lines 15-16
Paragraph or Item:	<ul style="list-style-type: none"> • the Communication port for interface to locally connected laptop, • PDA or similar device with necessary software to support operator
Comment:	This is the same sentence and should not be represented by two bullets. <ul style="list-style-type: none"> • the Communication port for interface to locally connected laptop, PDA or similar device with necessary software to support operator
Item No.	22.
Document:	ATC Standard
Page:	4-4, lines 32-38
Paragraph or Item:	Communication ports for interface to locally connected laptop, PDA or similar device with necessary software to support operator to control application control (start/stop/run time/etc.)

	BSP description of controller resident operator interface software to control other applications tasks (start/stop/run time/etc.) .
Comment:	Please change this section to read: <ul style="list-style-type: none"> • Communication ports for interface to locally connected laptop, PDA or similar device with necessary software to support operator to control application control (start/stop/run time/etc.) • BSP description of controller resident operator interface software to control other applications tasks (start/stop/run time/etc.).
Item No.	23.
Document:	ATC Standard
Page:	4-5, line 10
Paragraph or Item:	Section 4.2 Manage External Devices
Comment:	There does not appear to be a requirement to satisfy the need defined in section 3.5.2.1 Manage/Control a Variety of External Field Devices.
Item No.	24.
Document:	ATC Standard
Page:	4-5, lines 23-24
Paragraph or Item:	<ul style="list-style-type: none"> • Each port shall support a range of baud rates • Ports shall be configurable to various electrical interface standards
Comment:	This is ambiguous as written. Please revise to read: <ul style="list-style-type: none"> • Each port shall support a range of baud rates defined in 5.3.3 Serial Interface Ports of this standard. • Ports shall be configurable to the various electrical interface standards defined in 5.3.3 Serial Interface Ports of this standard
Item No.	25.
Document:	ATC Standard
Page:	4-6
Paragraph or Item:	Section 4.3 Facilitate Ease of Maintenance & Future Hardware or Software Updates
Comment:	There does not appear to be a requirement to satisfy the need defined in section 3.5.3.3 Support Diagnostics.
Item No.	26.
Document:	ATC Standard
Page:	4-7, lines 22-23
Paragraph or Item:	The ATC standard includes <u>an</u> optional plug-in internal Communication Interface “ <u>module(s)</u> ...”
Comment:	This is ambiguous as written: “an optional” implies one, but module(s) implies

	potentially more than one. Please clarify.
Item No.	27.
Document:	ATC Standard
Page:	4-7, line 27
Paragraph or Item:	4.3.3 Facilitate Software Application Portability
Comment:	This section is not in the Table of Contents.
Item No.	28.
Document:	ATC Standard
Page:	5-4
Paragraph or Item:	Figure 5-2: Engine Board / Host Module Stackup (not to scale)
Comment:	The graphic for this figure extends off the page. This graphic should be resized so that the entire figure is visible.
Item No.	29.
Document:	ATC Standard
Page:	5-11, line 15
Paragraph or Item:	“A HIGH-to-LOW transition while the POWERDOWN signal is in the HIGH state should be ignored.”
Comment:	Please replace the word “should” with “shall” since this is a requirement.
Item No.	30.
Document:	ATC Standard
Page:	5-12, line 8
Paragraph or Item:	“All Ethenet Ports: At 10% loading, with 3% average hits to processor per minute”
Comment:	Spelling Error. “All Ethernet Ports: At 10% loading, with 3% average hits to processor per minute”
Item No.	31.
Document:	ATC Standard
Page:	6-3, line 6
Paragraph or Item:	6.1.3 Serial Port Identification
Comment:	This section is not in the Table of Contents.
Item No.	32.
Document:	ATC Standard
Page:	6-12, line 40
Paragraph or Item:	Indicators:

Comment:	This heading is not shown in bold and is inconsistent with other similar headings.										
Item No.	33.										
Document:	ATC Standard										
Page:	6-15, lines 22-25 and 47 6-16, lines 1-3 and 26-29										
Paragraph or Item:	<p>RTS to CTS Delay: 11 ms ± 3 ms Carrier Detect: 8 ms ± 2 ms MARK frequency Receiver Squelch: 6.5 ms ± 1 ms, 0 ms (OUT) Soft Carrier OFF: 10 ms ± 2 ms</p> <p>RTS to CTS Delay: 11 ms ± 3 ms Carrier Detect: 8 ms ± 2 ms MARK frequency Receiver Squelch: 6.5 ms ± 1 ms, 0 ms (OUT) Soft Carrier OFF: 10 ms ± 2 ms</p> <p>RTS to CTS Delay: 11 ms ± 3 ms Carrier Detect: 8 ms ± 2 ms MARK frequency Receiver Squelch: 6.5 ms ± 1 ms, 0 ms (OUT) Soft Carrier OFF: 5 or 10 ms, ± 2 ms (switch selectable)</p>										
Comment:	The specification definition context is shown in red text, this should be black.										
Item No.	34.										
Document:	ATC Standard										
Page:	6-20, line 2										
Paragraph or Item:	“...remove the ATC from the cabinet to utilize the infrared feature.)”										
Comment:	Spelling Error. “...remove the ATC from the cabinet to utilize the infrared feature.)”										
Item No.	35.										
Document:	ATC Standard										
Page:	6-21, lines 14-29										
Paragraph or Item:	<p><i>Guidance:</i> <i>The following is a list of the existing Communications Interface Versions:</i></p> <table border="1"> <thead> <tr> <th><i>Part Number</i></th> <th><i>Description</i></th> </tr> </thead> <tbody> <tr> <td>2070-6A</td> <td>Dual 300 to 1200 bps Modem</td> </tr> <tr> <td>2070-6B</td> <td>Dual 0 to 9600 bps Modem</td> </tr> <tr> <td>2070-7A</td> <td>Dual EIA-574 Serial Interface</td> </tr> <tr> <td>2070-7B</td> <td>Dual EIA-485 Serial Interface</td> </tr> </tbody> </table> <p><i>As new versions are defined, this list will expand.</i></p> <p><i>Each version may be implemented using any of the following three design</i></p>	<i>Part Number</i>	<i>Description</i>	2070-6A	Dual 300 to 1200 bps Modem	2070-6B	Dual 0 to 9600 bps Modem	2070-7A	Dual EIA-574 Serial Interface	2070-7B	Dual EIA-485 Serial Interface
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2070-6B	Dual 0 to 9600 bps Modem										
2070-7A	Dual EIA-574 Serial Interface										
2070-7B	Dual EIA-485 Serial Interface										

	<p><i>methods:</i></p> <p><i>Dedicated circuit design, each version ordered as separate vendor part numbers</i> <i>Common base board, with selectable modulation via plug-in circuit assemblies</i> <i>Common board, with selectable modulation via digital signal processor (DSP) software</i></p>										
Comment:	<p>This instance of a Guidance note is not shown in bold text and is inconsistent with the formatting of other Guidance notes.</p> <p>Guidance: <i>The following is a list of the existing Communications Interface Versions:</i></p> <table border="1"> <thead> <tr> <th>Part</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>2070-6A</i></td> <td><i>Dual 300 to 1200 bps Modem</i></td> </tr> <tr> <td><i>2070-6B</i></td> <td><i>Dual 0 to 9600 bps Modem</i></td> </tr> <tr> <td><i>2070-7A</i></td> <td><i>Dual EIA-574 Serial Interface</i></td> </tr> <tr> <td><i>2070-7B</i></td> <td><i>Dual EIA-485 Serial Interface</i></td> </tr> </tbody> </table> <p><i>As new versions are defined, this list will expand.</i></p> <p><i>Each version may be implemented using any of the following three design methods:</i></p> <ul style="list-style-type: none"> <i>• Dedicated circuit design, each version ordered as separate vendor part numbers</i> <i>• Common base board, with selectable modulation via plug-in circuit assemblies</i> <i>• Common board, with selectable modulation via digital signal processor (DSP) software</i> 	Part	Description	<i>2070-6A</i>	<i>Dual 300 to 1200 bps Modem</i>	<i>2070-6B</i>	<i>Dual 0 to 9600 bps Modem</i>	<i>2070-7A</i>	<i>Dual EIA-574 Serial Interface</i>	<i>2070-7B</i>	<i>Dual EIA-485 Serial Interface</i>
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<i>2070-7B</i>	<i>Dual EIA-485 Serial Interface</i>										
Item No.	36.										
Document:	ATC Standard										
Page:	7-2, line 25										
Paragraph or Item:	Option 1: Infrared Port for PDA or Laptop (<i>Guidance: PDA IRDA COM2</i>)										
Comment:	<p>This instance of a Guidance note is not shown in bold text and is inconsistent with the formatting of other Guidance notes.</p> <p>Option 1: Infrared Port for PDA or Laptop (<i>Guidance: PDA IRDA COM2</i>)</p>										
Item No.	37.										
Document:	ATC Standard										
Page:	7-3, lines 40-41										
Paragraph	“The Display shall have a minimum of 8 lines with 40 characters each with										

or Item:	minimum dimensions of 0.10” wide by 0.17” high.”
Comment:	This is ambiguous as written, “each with minimum dimensions of 0.10” wide by 0.17” high”. What is being measured? the display? each character? each line?
Item No.	38.
Document:	ATC Standard
Page:	7-6, lines 19-23
Paragraph or Item:	“The Display back light shall illuminate when any key is pressed and shall illuminate or extinguish by command. The backlight shall extinguish when no key is pressed for a specified time. This time shall be program selected by command, by a number in the range 0 to 63 corresponding to that number of 10-second intervals. A value of 1 shall correspond to a timeout interval of 10.”
Comment:	There are inconsistencies in this paragraph, “back light” and “backlight”. Please add the word seconds (or the defined abbreviation ‘s’) to the sentence to remove ambiguity, “A value of 1 shall correspond to a timeout interval of 10 seconds .”
Item No.	39.
Document:	ATC Standard
Page:	7-6, lines 19-23
Paragraph or Item:	Configuration command codes table – Function column. “Clear tab stop Pn = 0,1,2 at cursor = 3 all ta stops”
Comment:	Spelling Error. “Clear tab stop Pn = 0,1,2 at cursor = 3 all tab stops”
Item No.	40.
Document:	ATC Standard
Page:	7-11, lines 20-46 7-12, lines 1-8
Paragraph or Item:	<ul style="list-style-type: none"> • Underlay and Overlay layers <ul style="list-style-type: none"> ▪ Master OR/AND/XOR layers ▪ Enable/Disable each layer ▪ Each layer has independent “pixel” sizes • Write Image (X₁, Y₁) (X₂, Y₂) <ul style="list-style-type: none"> ▪ Set ▪ OR ▪ Clear ▪ AND ▪ XOR • Clear Image (X₁, Y₁) (X₂, Y₂) <p>Functionality</p> <ul style="list-style-type: none"> ○ Enable / Disable overlay graphics <ul style="list-style-type: none"> ▪ 1x1 pixels

	<ul style="list-style-type: none"> ▪ 2x2 pixels ▪ OR ▪ AND ▪ XOR ○ Enable / Disable underlay (User) graphics <ul style="list-style-type: none"> ▪ Master “OR” - on /off ▪ 1x1 pixels ▪ 2x2 pixels ▪ AND ▪ XOR ○ Update Overlay ○ Update Underlay ○ Cursor <ul style="list-style-type: none"> ▪ Always flashing opposite text flash ▪ 1x1 pixels ▪ 2x2 pixels ▪ on / off ▪ position <ul style="list-style-type: none"> • absolute • relative ○ Separate control of 1x1 and 2x2 on underlay/user and overlay graphics
Comment:	There is an inconsistency in the bullet style for indented bullets.
Item No.	41.
Document:	ATC Standard
Page:	8-11, lines 3-4
Paragraph or Item:	<p>Poll Input Filtered Data</p> <p>The Poll Filtered Input Data</p>
Comment:	Naming inconsistency between the title and the descriptive name used in the text content.
Item No.	42.
Document:	ATC Standard
Page:	8-18, lines 7-20
Paragraph or Item:	<p>8.2.1.12 Controller Identification</p> <p>Frame Type 59 is reserved. Type 59 and Response 187 are not supported.</p> <p><i>Guidance:</i></p> <p><i>This is a legacy 2070 ATC message command / response for Field I/O modules with Datakey resident. Upon command, a response frame containing the 128</i></p>

bytes of the Datakey. On NRESET transition to High or immediately prior to any interrogation of the Datakey, the PI/O shall test the presence of the Key. If absent, the PI/O Status Bit “K” shall be set and no interrogation shall take place. If a error occurs during the interrogation, Bit “K” shall be set. If “K” bit set, only the first two bytes shall be returned. The Command Response frames are as follows:

Controller Identification Command

Description	msb								lsb	Byte Number
(Type Number = 59)	0	0	1	1	1	0	1	1	1	

Controller Identification Response

Description	msb								lsb	Byte Number
(Type Number = 187)	1	0	1	1	1	0	1	1	1	
Status	0	0	0	0	0	0	0	K	2	
Datakey Data	x	x	x	x	x	x	x	x	3 to 130	

Comment: If message Type 59 and Response 187 are not supported why are they presented in the Guidance note?

Item No. 43.

Document: ATC Standard

Page: 8-18, line23

Paragraph or Item: "...value Response of "1" for the Model 332 PI/O, "2" for the NEMA TS-2 Type 2 PI/O, 3 for the NEMA TS-2 Type 1 PI/O."

Comment: Logical inconsistency in the representation of the response code. The value Response for "1" and "2" are enclosed in quotes, but 3 is not.

"...value Response of "1" for the Model 332 PI/O, "2" for the NEMA TS-2 Type 2 PI/O, **3** for the NEMA TS-2 Type 1 PI/O."

Item No. 44.

Document: ATC Standard

Page: 8-22, line 29
8-22, line 41

Paragraph or Item: "An FCU output shall drive a open collector transistor whose output shall be routed to..."

SP3: ITS Cabinet SB2,1, or external communication (NEMA Port 1)

Comment: "An FCU output shall drive an open collector transistor whose output shall be routed to..."

The definition of SP3 is contains “, ”. Is this an editorial error or is there missing content?

Item No.	45.	
Document:	ATC Standard	
Page:	9-1, lines 3-6	
Paragraph or Item:	“NOTICE: This Electrical, Environmental, and Testing Requirements section was developed using information excerpted from NEMA TS2-2003 Traffic Controller Assemblies with NTCIP Requirements. Permissions and approvals for the reuse of the excerpted material are pending approval by NEMA.”	
Comment:	Is this still true? Can this be published based on the FHWA agreement with AASHTO?	
Item No.	46.	
Document:	ATC Standard	
Page:	9-1, lines 27-32 9-2, lines 2-22	
Paragraph or Item:	<ol style="list-style-type: none"> 1. 2. 3. <p style="padding-left: 40px;">Test</p> <ol style="list-style-type: none"> 4. 5. 6. <ul style="list-style-type: none"> • Time of Day Functions <ol style="list-style-type: none"> 1. 2. 3. 4. 5. 6. <p style="padding-left: 40px;">tests</p> • Ethernet Functions <ol style="list-style-type: none"> 1. 2. 3. 4. 5. 	<p>DRAM Test</p> <p>SRAM Test</p> <p>FLASH Read/Write</p> <p>Datakey Tests</p> <p>USB Tests.</p> <p>Ethernet Tests.</p> <p>Display Time of</p> <p>Set Time of Day</p> <p>Enable Daylight</p> <p>Disable Daylight</p> <p>Line frequency tests</p> <p>Clock accuracy</p> <p>Get Current IP</p> <p>Set Current IP</p> <p>Load IP Address</p> <p>Save IP Address</p> <p>Start Ethernet</p>

Comment:	<p>This section needs to be reformatted to align the text to the left.</p> <ol style="list-style-type: none"> 1. DRAM Test 2. SRAM Test 3. FLASH Read/Write Test 4. Datakey Tests 5. USB Tests. 6. Ethernet Tests. <ul style="list-style-type: none"> • Time of Day Functions <ol style="list-style-type: none"> 1. Display Time of Day (TOD) Clock 2. Set Time of Day (TOD) Clock 3. Enable Daylight Savings Time 4. Disable Daylight Savings Time 5. Line frequency tests 6. Clock accuracy tests • Ethernet Functions <ol style="list-style-type: none"> 1. Get Current IP Address 2. Set Current IP Address 3. Load IP Address from Datakey 4. Save IP Address from Datakey 5. Start Ethernet
Item No.	47.
Document:	ATC Standard
Page:	9-2, lines 38-39
Paragraph or Item:	“Individual agencies may wish to extend the testing profile or introduce additional tests to verify compliance. (Authorized Engineering Information).”
Comment:	<p>This instance of a Guidance note is not shown in bold, italic text and is inconsistent with the formatting of other Guidance notes.</p> <p><i>“Guidance: Individual agencies may wish to extend the testing profile or introduce additional tests to verify compliance. (Authorized Engineering Information).”</i></p>
Item No.	48.
Document:	ATC Standard
Page:	9-3, lines 2-3
Paragraph or Item:	“Complete quality control / final test report shall be supplied with each item (see Section 10.1.3).”
Comment:	The section reference is inconsistent with the context of the section. Section 10.1.3 is PERFORMANCE AND MATERIAL REQUIREMENTS – Hardware. Should this reference section 11.1.3 Manufacturers’ Quality Control Testing Certification?

Item No.	49.
Document:	ATC Standard
Page:	9-5, lines 20-21
Paragraph or Item:	Table 9-1: Ambient Temperature Versus Relative Humidity At Barometric Pressures (29.92 In. Hg.) (Non-Condensing)
Comment:	This table is not in the List of Tables and Figures. The table is not defined as a "Table1 Style" like the other tables (i.e., from the MS Word menu, Insert -> Reference -> Index and Tables...). This will not show in the List of Tables and Figures when the list is regenerated.
Item No.	50.
Document:	ATC Standard
Page:	9-7, lines 25-27
Paragraph or Item:	6. Apply the transient generator (output in accordance with item 5) between logic ground and the connecting cable termination of selected Field I/O input/output terminals of the test unit.
Comment:	The size of the font for this step, 12 point, is inconsistent with the rest of the standard which uses 11 point text.
Item No.	51.
Document:	ATC Standard
Page:	9-9, line 6
Paragraph or Item:	2. Humidity controls shall be set in conformance with the humidities given in Exhibit 3-1 during the temperature change between Test D and Test E.
Comment:	This standard does not contain any exhibits, it contains only table and figures. Should this be Table 9-1?
Item No.	52.
Document:	ATC Standard
Page:	9-11, line 9
Paragraph or Item:	"...wet bulb which results in the relative humidities shown in Table 2-1. "
Comment:	There is not a Table 2-1 in the standard. Should this be Table 9-1?
Item No.	53.
Document:	ATC Standard
Page:	9-13, lines 2-5
Paragraph or Item:	"Units such as the ATC 2070 and certain Controller Assemblies that are controlled by specific mechanical design specifications are not subject to the tests in Sections, 9.8 through 9.9.4 (Authorized Engineering Information). Shock and vibration tests shall be performed prior to environmental tests."
Comment:	This instance of a Guidance note is not shown in bold, italic text and is inconsistent with the formatting of other Guidance notes. " <i>Guidance: Units such as the ATC 2070 and certain Controller Assemblies that</i>

	<i>are controlled by specific mechanical design specifications are not subject to the tests in Sections, 9.8 through 9.9.4 (Authorized Engineering Information).</i>
	Shock and vibration tests shall be performed prior to environmental tests.”
Item No.	54.
Document:	ATC Standard
Page:	9-14, lines 13-15
Paragraph or Item:	1. When more than one resonant frequency has been recorded in accordance with Section 9.8.4 , item number 4, the test period of 1 hour shall be divided equally between the resonant frequencies.
Comment:	This content is presented in Section 9.8.4 (Which only has 3 steps). Is this supposed to be Section 9.8.3 Resonance [Mechanical Resonant Frequency] Search (DAT)?
Item No.	55.
Document:	ATC Standard
Page:	9-15, line 6-7
Paragraph or Item:	1. Shock (impact) test fixture equivalent to that suggested by the simplified sketch shown in Exhibit 3-3 .
Comment:	This standard does not contain any exhibits, it contains only table and figures. Should this be Figure 9-2?
Item No.	56.
Document:	ATC Standard
Page:	10-1, line 31
Paragraph or Item:	“All components shall be second sourced...”
Comment:	Is this requirement achievable?
Item No.	57.
Document:	ATC Standard
Page:	B-2, line 1
Paragraph or Item:	open()
Comment:	This text has the “Header 1” style and will appear incorrectly in the Table of Contents (TOC) when the TOC is automatically regenerated. It is recommended that the style for this text be changed to a header style greater than 3, so it will not appear in the TOC.
Item No.	58.
Document:	ATC Standard
Page:	B-3, lines 23-24
Paragraph or Item:	poll() The poll() method shall be used to determine if a read or write to a device will block.

	<p>Prototype</p> <p>unsigned int (*poll) (struct file *filp, poll_table *wait);</p> <table border="1"> <thead> <tr> <th>Argument</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Return Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> </tbody> </table>	Argument	Description			Return Value	Description				
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Comment:	The “Argument/Description” and “Return Value/Description” tables are empty. Since the function accepts arguments, and returns a value, should these tables be populated?										
Item No.	59.										
Document:	ATC Standard										
Page:	B-4, line 7										
Paragraph or Item:	“The operation performed by the ioctl() function depends the command argument.”										
Comment:	“The operation performed by the ioctl() function depends <u>on</u> the command argument.”										
Item No.	60.										
Document:	ATC Standard										
Page:	B-5, line 1										
Paragraph or Item:	PP IOCTL Commands										
Comment:	This text has the “Header 2” style and will appear incorrectly in the Table of Contents (TOC) if the TOC is automatically regenerated. It is recommended that the style for this text be changed to a header style greater than 3, so it will not appear in the TOC.										
Item No.	61.										
Document:	ATC Standard										
Page:	B-5, line 8										
Paragraph or Item:	PP_ENABLE_EVENT										
Comment:	This text has the “Header 3” style and will appear incorrectly in the Table of Contents (TOC) if the TOC is automatically regenerated. It is recommended that the style for this text be changed to a header style greater than 3, so it will not appear in the TOC.										
Item No.	62.										
Document:	ATC Standard										
Page:	B-5, line 24										

Paragraph or Item:	PP_DISABLE_EVENT																		
Comment:	This text has the “Header 3” style and will appear incorrectly in the Table of Contents (TOC) if the TOC is automatically regenerated. It is recommended that the style for this text be changed to a header style greater than 3, so it will not appear in the TOC.																		
Item No.	63.																		
Document:	ATC Standard																		
Page:	B-9, line 20																		
Paragraph or Item:	read()																		
Comment:	This text has the “Header 3” style and will appear incorrectly in the Table of Contents (TOC) if the TOC is automatically regenerated. It is recommended that the style for this text be changed to a header style greater than 3, so it will not appear in the TOC.																		
Item No.	64.																		
Document:	ATC Standard																		
Page:	B-12, lines 10-13																		
Paragraph or Item:	<p>poll()</p> <p>The poll() method shall be used to determine if a read or write to a device will block.</p> <p>Prototype</p> <p>unsigned int (*poll) (struct file *filp, poll_table *wait);</p> <table border="1"> <thead> <tr> <th>Argument</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Return Value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Errors</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> </tr> </tbody> </table>	Argument	Description			Return Value	Description					Errors	Description						
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Comment:	The “Argument/Description”, “Return Value/Description” and “Errors/Description” tables are empty. Since the function accepts arguments, and returns a value, should these tables be populated?																		
Item No.	65.																		

Document:	ATC Standard					
Page:	B-12, lines 10-13					
Paragraph or Item:	<p>Linux drivers required to implement the synchronous SDLC serial ports shall be provided. {need to define the specific driver implementation as this is just a placeholder}</p> <p>For Consideration</p> <table border="1"> <tr> <td> <p>Linux 2.6 implements a pseudo filesystem called “sysfs” which provides a registry of all devices and the system resources they require. No support for this system service is specified.</p> </td> <td> <p>Add a section that states that all “platform” devices, and their associated resources, should be registered with “sysfs”.</p> <p>The device names registered and their associated device drivers should follow the driver model guidelines.</p> <p>This pseudo file-system should be mounted as part of the system startup procedure.</p> </td> </tr> <tr> <td> <p>“Procfs” provides a realtime interface to device drivers via user space. Support for this interface to the ATC device drivers is not specified.</p> </td> <td> <p>A common procfs subdirectory should be specified to collect the ATC device interfaces. Suggested subdirectory named “/proc/atc”</p> <p>Standard proc files should be provided to support ATC applications and system tuning. Suggestions: Timestamp – ASCII timestamp Draft – last time adjustment made to synchronize with linesync input</p> <p>Add a column to the table indicating which devices should provide a procfs interface. The details to be provided in Appendix B.</p> </td> </tr> </table>		<p>Linux 2.6 implements a pseudo filesystem called “sysfs” which provides a registry of all devices and the system resources they require. No support for this system service is specified.</p>	<p>Add a section that states that all “platform” devices, and their associated resources, should be registered with “sysfs”.</p> <p>The device names registered and their associated device drivers should follow the driver model guidelines.</p> <p>This pseudo file-system should be mounted as part of the system startup procedure.</p>	<p>“Procfs” provides a realtime interface to device drivers via user space. Support for this interface to the ATC device drivers is not specified.</p>	<p>A common procfs subdirectory should be specified to collect the ATC device interfaces. Suggested subdirectory named “/proc/atc”</p> <p>Standard proc files should be provided to support ATC applications and system tuning. Suggestions: Timestamp – ASCII timestamp Draft – last time adjustment made to synchronize with linesync input</p> <p>Add a column to the table indicating which devices should provide a procfs interface. The details to be provided in Appendix B.</p>
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Comment:	This editorial content should be removed as it does not belong in a Ballot version of a standard.					