



1 Batterymarch Park, Quincy, MA 02169-7471 USA
Phone: +1 (617) 770-3000 Fax: +1 (617) 770-0700 www.nfpa.org

MEMORANDUM

To: NFPA Technical Committee on Electronic Safety Equipment
From: Stacey Van Zandt
Date: January 7, 2011
Subject: NFPA 1801 Proposed Tentative Interim Amendment (TIA) No.1018

The attached proposed Tentative Interim Amendment (TIA) is being submitted to you for letter ballot. This proposed TIA was submitted by Robert Athanas and Francine Amon.

This proposed TIA will be published for public comment in the January 7, 2011 issue of *NFPA News* with a Public Comment Closing Date of February 11, 2011. Any public comments received will be circulated to the committee. The Standards Council will consider the issuance of this TIA at their February 28-March 1, 2011 meeting.

In addition to being balloted on the technical merits of the proposed TIA, the Committee is also being balloted on whether or not this matter is of an emergency nature. Please see Section 5 (copy enclosed) regarding the processing of TIAs from the *NFPA Regulations Governing Committee Projects*.

Please complete and return your ballot as soon as possible but no later than **Thursday, January 20, 2011**. As noted on the ballot form, please return the ballot to Stacey Van Zandt either via e-mail to svanzandt@nfpa.org or via fax to 617-984-7056. You may also mail your ballot to the attention of Stacey Van Zandt at NFPA, 1 Batterymarch Park, Quincy, MA 02169.

Note: Please remember that the return of ballots and attendance at committee meetings are required in accordance with the NFPA Regulations Governing Committee Projects.

Attachments

NFPA 1801-2010

Standard on Thermal Imagers for the Fire Service

TIA Log No.: 1018

Reference: Various

Comment Closing Date: February 11, 2011

Submitter: Robert J. Athanas, FDNY/SAFE-IR, Inc. and Francine K. Amon, National Institute of Standards & Technology

1. Insert a new 6.6.4.4.3 to read as follows:

6.6.4.4.3 The internal electronics overheat indicator shall be a flashing indicator consisting of a solid red thermometer-shaped image within a transparent equilateral triangle having a red border as shown in Figure 6.6.4.

2. Revise 6.6.4.7.2 to read as follows:

6.6.4.7.2 ~~The temperature measurement zone~~ The TI BASIC PLUS operational format indicator shall be an indicator consisting of an solid green “plus sign” (+) enclosed in a transparent square box with a green border as shown in Figure 6.6.4. ~~box or box corners and shall be displayed in the viewing screen. The temperature measurement zone box or box corners shall be the color green.~~

3. Revise 7.1.4 to read as follows:

7.1.4 Thermal imagers shall be tested for effective temperature range as specified in Section 8.10, Image Color and Effective Temperature Range Test, and shall have all P_{IQ} values be greater than or equal to 0.80. ~~mean pixel intensity of the hot region of interest at 550°C (1022°F), μ_{550} , shall be greater than the sum of the mean pixel intensity of the hot region of interest at 500°C (932°F), μ_{500} , and the standard deviation of the pixel intensities of the hot region of interest at 500°C (932°F), σ_{500} .~~

4. Delete 8.1.4.2.1 and 8.1.4.2.2 in their entirety and renumber remaining paragraphs.

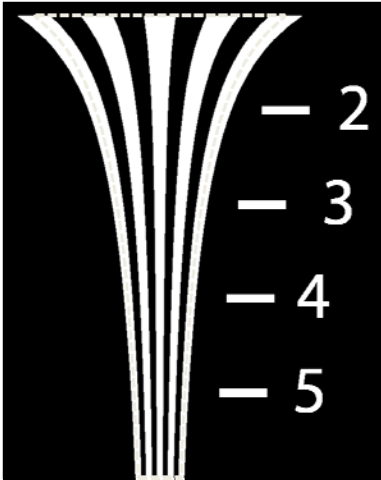
5. Revise 8.1.6.7 to read as follows:

8.1.6.7 A minimum of 10 uncompressed color images at a minimum bit depth of 16 bits shall be captured from the visible spectrum camera at a rate of one image every 3 seconds, ± 0.1 second, ~~at each nominal measurement temperature. The image having the lowest contrast shall be excluded.~~

6. Revise 8.1.6.11.1 to read as follows:

8.1.6.11.1 The pixels selected to calculate C_i , CTF_i , and μ_i shall be located along a baseline that is perpendicular to the centerline of the converging lines of the stencil pattern, as shown in Figure 8.1.6.11.1(a) and (b). Along these lines, all pixels between the maxima of the leftmost and rightmost lines of the stencil pattern shall be used.

Insert new Figure 8.1.6.11.1 (a), and renumber existing Figure 8.1.6.11.1 as Figure 8.1.6.11.1(b).



7. Revise 8.1.6.12 to read as follows:

8.1.6.12 CTF_i shall be calculated at least at each indexed baseline as specified in Equation 8.1.6.12, where I_{max} and I_{min} are the averaged maximum and minimum pixel intensity values, respectively, for each of the hot and cold regions along the baseline. CTF_1 shall be defined as the maximum CTF value calculated between indices 1 and 2, inclusive.

8. Revise text in 8.1.6.19 to read as follows, equation remains unchanged:

8.1.6.19 The image quality probability (P_{IQ}) shall be calculated for the spatial resolution procedure as specified in Equation 8.1.6.19, where C is the ~~CTF1 value~~ average of the CTF_i 's from both sets of lines calculated ~~at index 1~~ in 8.1.6.13, B is the average brightness calculated in 8.1.6.14, SR is the spatial resolution calculated in 8.1.6.18, and NU is the $NU(30)$ value calculated in 8.1.5.16.

9. Revise 8.10.4.3.1 to read as follows:

8.10.4.3.1 The surface labeled T_{hot} shall range in temperature from ambient to 550°C (1022°F) and shall fill at least 50 percent of the FOV. The radiation source producing the T_{hot} surface shall be a blackbody and shall have an emissivity of 0.95, ± 0.03 . The ~~source-target~~ blackbody shall be calibrated at least every 6 months. ~~The nonuniformity of the blackbody shall not exceed 0.02.~~ The blackbody temperature accuracy shall be $\pm 0.05^\circ\text{C}$ ($\pm 1^\circ\text{F}$). The stability of the emitting surface ~~blackbody~~ temperatures shall ~~be not exceed~~ not exceed 0.15°C. The nonuniformity of the ~~emitting surface~~ blackbody shall not exceed 0.02 using the method in 8.1.5.13~~4~~ as ~~su~~applied to temperature measurements of the emitting surface of the blackbody.

10. Revise 8.10.5.8 to read as follows:

8.10.5.8 The image capturing software and hardware shall permit 16-bit uncompressed color images to be downloaded from the visible spectrum camera to a computer or memory at a rate of one image every ~~3 seconds, ± 0.1 second,~~ $2^\circ\text{C} \pm 0.1^\circ\text{C}$ ($3.6^\circ\text{F} \pm 0.2^\circ\text{F}$) as T_{hot} increases from ambient to 550 °C (1022 °F) at a rate of ~~not greater than~~ not greater than 15 °C (27 °F) per minute.

11. Revise 8.10.6.7 to read as follows:

8.10.6.7 The color yellow shall be defined as having a hue between 45 and 69 degrees, a luminosity between 0.5 and ~~0.7~~ 0.9, and a color saturation greater than 0.2.

12. Revise 8.10.6.8 to read as follows:

8.10.6.8 The color orange shall be defined as having a hue between 24 and 32 degrees, a luminosity between 0.5 and ~~0.7~~ 0.9, and a color saturation greater than 0.1.

13. Revise 8.10.6.9 to read as follows:

8.10.6.9 The color red shall be defined as having a hue between 344 and 15 degrees, a luminosity between 0.5 and ~~0.7~~ 0.9, and a color saturation ~~between 0.1 and 0.4~~ greater than 0.4.

14. Revise 8.10.6.10 to read as follows:

8.10.6.10 The color dark red shall be defined as having a hue between 344 and 15 degrees, a luminosity between 0.5 and 0.7, and a color saturation ~~greater than 0.4~~ between 0.1 and 0.4.

15. Delete 8.10.7.7 in its entirety

16. Revise 8.10.8 to read as follows:

8.10.8 Report. T_Y , T_O , T_R , and P_{IQ} shall be reported and recorded.

17. Revise 8.12.4.6 to read as follows (this information is found in 8.12.4.7):

8.12.4.6 The emitting surface of the source targets shall be equal in size, ± 10 percent, as viewed on the thermal imager's display. ~~The combined area of the emitting surfaces of the source targets shall fill at least 40 percent of the thermal imager's FOV.~~

Submitter's Substantiation: 6.6.4.4.3 refers to the internal electronics heat indicator. There is no description of the indicator in the current document however it exists in the current document in Figure 6.6.4. It was proposed to be deleted as per ROP-54 submitted by Kovac whose recommendation was to delete the entire symbol. The committee action on ROP-54 was accepted in principal as it included many items in one submission. As a result the internal electronics overheat indicator remains in the current edition of NFPA 1801-2010, but is not described.

6.6.4.7.2 There is no written description of the TI BASIC PLUS operational format indicator in the standard as it is currently written. This change is requested to remain consistent with the written descriptions of all other icons and indicators that exist in the standard as pictured in Figures 6.6.3 and 6.6.4. Also, 6.6.4.7.1 indicates that the TI BASIC PLUS operational format indicator is a requirement, 6.6.4.7.4 indicates when the TI BASIC PLUS operational format indicator shall be displayed, and TI BASIC PLUS operational format indicator is pictured in figures 6.6.3 and 6.6.4

7.1.4 The parts of the Effective Temperature Range Test that involve testing for pixel saturation should be removed because they result in erroneous information.

8.1.6.7 This test is only done at one temperature so the text is not relevant.

8.1.6.10.1 More exact definition of the pixels to be used to calculate the parameters C_i , CTF_i , and μ . Necessary to give reproducible results. Figure 8.1.6.10.1(a) was added to give a visual representation of the description in 8.1.6.10.1

8.1.6.12 The meaning of CTF_1 should be included in this paragraph to provide additional relevant information.

8.1.6.19 The meaning of the C value should be included in this paragraph to provide additional relevant information.

8.10.4.3.1 The apparatus for the effective temperature range test requires that the stability of the blackbody temperatures shall not exceed the specified temperature.

8.10.5.8 The procedure for testing image capturing software and hardware requires a download rate as specified.

8.10.6.7, 8.10.6.8, 8.10.6.9, 8.10.6.10 In the image color procedure this color is defined as having a luminosity as specified.

8.10.7.7 and 8.10.8 The parts of the Effective Temperature Range Test that involve testing for pixel saturation should be removed because they result in erroneous information.

8.12.4.6 The reference to the combined area of the emitting surface is incorrect, and should be deleted.

Emergency Nature: Lack of consistency in terminology is resulting in misinterpretation, confusion, and no standardization which is affecting the design requirements of the product.



National Fire Protection Association

1 Batterymarch Park, Quincy, MA 02169-7471
Phone: 617-770-3000 • Fax: 617-770-0700 • www.nfpa.org

December 21, 2010

EMAIL: boba@safe-ir.com
Francine.amon@nist.gov

Mr. Robert Athanas
FDNY/SAFE-IR, Inc.
110 Jefferson Rd.
Montgomery, NY 12549

Francine Amon
National Institute of Standards & Technology
100 Bureau Dr.
Gaithersburg, MD 20899-8661

Dear Mr. Athanas and Ms Amon:

This is to inform you that your proposed Tentative Interim Amendment to NFPA 1801, *Standard on Thermal Imagers for the Fire Service*, 2010 edition has been accepted for processing in accordance with Section 5 of the Regulations Governing Committee Projects (enclosed).

The proposed Tentative Interim Amendment will be published in the January 7, 2011 issue of *NFPA News* with a comment closing date of **February 11, 2011**. The Standards Council will then consider the issuance of the TIA at its February 28 – March 1, 2011 meeting.

In accordance with 1.6.2(c) of the Regulations Governing Committee Projects (enclosed), all TIA's are automatically docketed as an appeal on the agenda of the Standards Council.

If you have any questions, please let me know.

Very truly yours,

A handwritten signature in black ink that reads "Linda Fuller".

Linda Fuller
Manager, Codes and Standards Administration

LF/nmw

c: Dave Trebisacci, Staff Liaison
File

Section 5 Tentative Interim Amendments.

5.1 Content of a Proposed Tentative Interim Amendment. Each Tentative Interim Amendment (TIA) shall be submitted to the Council Secretary and shall include the following:

- (a) Identification of the submitter and his or her affiliation (i.e., TC, organization, company), where appropriate
- (b) Identification of the Document, edition of the Document, and paragraph of the Document to which the TIA is directed
- (c) Proposed text of the TIA, including the wording to be added, revised (and how revised), or deleted
- (d) Statement of the problem and substantiation for TIA
- (e) The signature of the submitter or other means of authentication approved by the Council Secretary
- (f) Statement of basis of conclusion that the TIA is of an emergency nature requiring prompt action
- (g) Signature or other evidence of endorsement of the processing of the TIA of at least two members of the involved TC or TCC.

5.2 Preliminary Screening of Proposed Tentative Interim Amendment. The Council Secretary shall review all Proposed TIAs and may return to the submitter, without processing, any submission that does not conform to section 5.1. In addition, the Council Secretary may reject for processing any proposed TIA that manifestly does not appear to be of an emergency nature requiring prompt action. In exercising his or her discretion to reject a proposed TIA for processing, the Council Secretary may consult with the responsible TC/TCC chairs, and may consider, without limitation, whether the TIA submittal, on its face, does not state any adequate basis on which to conclude that it is of an emergency, whether it is unduly repetitive of issues already considered and rejected by the TC/TCC, or whether it is plainly frivolous. Where, however, there exists any reasonable question about the emergency nature of the proposed TIA or where the Council Secretary determines that it is otherwise advisable for the TIA to be processed, the Council Secretary shall submit the TIA for processing, and the question of emergency nature shall be considered anew and determined by the responsible TC and TCC. The text of a proposed TIA may be processed as submitted or may be changed, but only with the approval of the submitter.

5.3 Evaluation of Emergency Nature. Determination of an emergency nature shall include but not be limited to one or more of the following factors:

- (a) The document contains an error or an omission that was overlooked during a regular revision process.
- (b) The document contains a conflict within the document or with another NFPA document.
- (c) The proposed TIA intends to correct a previously unknown existing hazard.
- (d) The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation.
- (e) The proposed TIA intends to accomplish a recognition of an advance in the art of safeguarding property or life where an alternative method is not in current use or is unavailable to the public.
- (f) The proposed TIA intends to correct a circumstance in which the revised document has resulted in an adverse impact on a product or method that was inadvertently overlooked in the total revision process, or was without adequate technical (safety) justification for the action.

5.4 Publication of Proposed Tentative Interim Amendment. A proposed Tentative Interim Amendment that meets the provisions of 5.1 shall be published by the Association in appropriate media with a notice that the proposed Tentative Interim Amendment has been forwarded to the responsible TC and TCC for processing and that anyone interested may comment on the proposed Tentative Interim Amendment within the time period established and published.

5.5 Technical Committee and Technical Correlating Committee Action.

(a) The proposed Tentative Interim Amendment shall be submitted for ballot and comment of the TC in accordance with 3.3.4. The TC shall be separately balloted on both the technical merits of the amendment and whether the amendment involves an issue of an emergency nature. Such balloting shall be completed concurrently with the public review period. Any public comments inconsistent with the vote of any TC Member shall be circulated to the TC to allow votes to be changed. A recommendation for approval shall be established if three-fourths of the voting Members

calculated in accordance with 3.3.4.5 have voted in favor of the Tentative Interim Amendment.

(b) The proposed Tentative Interim Amendment shall be submitted for ballot and comment of the TCC, if any, which shall make a recommendation to the Council with respect to the disposition of the Tentative Interim Amendment. The TCC shall be separately balloted on both the merits of the amendment (as it relates to the TCC authority and responsibilities in accordance with 3.4.2 and 3.4.3) and whether the amendment involves an issue of an emergency nature. Any public comments inconsistent with the vote of any TC or TCC Member shall be circulated to the TCC to allow votes to be changed. A recommendation for approval shall be established if three-fourths of the voting Members calculated in accordance with 3.3.4.5 have voted in favor of the Tentative Interim Amendment.

(c) All public comments, ballots, and comments on ballot on the proposed Tentative Interim Amendment shall be summarized in a staff report and forwarded to the Council for action in accordance with 5.6.

5.6 Action of the Council. The Council shall review the material submitted in accordance with 5.5(c), together with the record on any Appeals (see 1.6, 1.6.1), and shall take one of the following actions:

- (a) Issue the proposed Tentative Interim Amendment
- (b) Issue the proposed Tentative Interim Amendment as amended by the Council
- (c) Where acted on concurrently with the issuance of a new edition of the Document to which it relates, issue the Tentative Interim Amendment as part of the new edition;
- (d) Reject the proposed Tentative Interim Amendment
- (e) Return the proposed Tentative Interim Amendment to the TC with appropriate instruction
- (f) Direct a different action

5.7 Effective Date of Amendment. Tentative Interim Amendments shall become effective 20 days after Council issuance unless the President determines, within his or her discretion, that the effective date shall be delayed pending the consideration of a Petition to the Board of Directors (see 1.7). The President may also, within his or her discretion, refer the matter of a delay in the effective date of the TIA to the Executive Committee of the Board of Directors or to the Board of Directors.

5.8 Publication of Amendment. The Association shall publish in one of its publications sent or accessible to all Members notice of the issuance of each Tentative Interim Amendment and may, as appropriate, issue a news release to applicable and interested technical journals. The notice and any news release shall indicate the tentative character of the Tentative Interim Amendment. In any subsequent distribution of the Document to which the Tentative Interim Amendment applies, the text of the Tentative Interim Amendment shall be included in a manner judged most feasible to accomplish the desired objectives.

5.9 Applicability. Tentative Interim Amendments shall apply to the document existing at the time of issuance. Tentative Interim Amendments issued after the proposal closing date shall also apply, where the text of the existing document remains unchanged, to the next edition of the Document. Tentative Interim Amendments issued concurrently with the issuance of a new edition shall apply to both the existing and new edition.

5.10 Subsequent Processing. TC responsible for the Document or part of the Document affected shall process the subject matter of any Tentative Interim Amendment as a proposal for the next edition of the Document (see 3.3).

5.11 Exception. When the Council authorizes other procedures for the processing and/or issuance of Tentative Interim Amendments, the provisions of this Section shall not apply.

1.6 Appeals to the Council.

1.6.1 General. Anyone can appeal to the Council concerning procedural or substantive matters related to the development, content, or issuance of any Document of the Association or on matters within the purview of the authority of the Council, as established by the Bylaws and as determined by the Board of Directors. Such appeals shall be in written form and filed with the Secretary of the Standards Council.

1.6.2 Time for Filing an Appeal.

(a) **Issuance of Documents.** An appeal related to the issuance of a document includes any appeal which could result in the issuance or return of a Document or which could affect the text of a Document. Except as provided in (b) and (c), below, an appeal related to the issuance of a Document shall be filed no later than 20 days after the Association Technical Meeting at which Association action on the issuance of the Document was recommended. Where a document goes directly to the Standards Council for issuance pursuant to 4.5.6, an appeal related to the issuance of the Document shall be filed within 15 days of the publication of the applicable motions Committee report. Unless clear and substantial reasons exist to consider such an appeal, the Standards Council may summarily dismiss the appeal on account of the procedural failure to notice and make an appropriate motion at the Association Technical Meeting.

(b) **Association Technical Meeting Failed Amendments.** If an amendment recommended at an Association Technical Meeting fails to receive the approval of the TC or TCC pursuant to 4.6.1, it will be automatically docketed as an appeal on the agenda of the Standards Council, and any party may advocate their position either in writing or in person before the Council. Parties wishing to appear in person before the Council shall notify the Council Secretary no later than 48 hours prior to the Council meeting. Although not required, parties wishing to advocate a position are encouraged, to the extent practicable, to file written submissions in general conformance with 1.6.3 and 1.6.4 in advance of the meeting at which action will be considered. When an automatically docketed appeal has not been pursued by any party, the Council need not consider the matter as an appeal.

(c) **Tentative Interim Amendments.** A proposed Tentative Interim Amendment, which has been submitted for processing pursuant to 5.1, will be automatically docketed as an appeal on the agenda of the Standards Council, and any party may advocate their position either in writing or in person before the Council. Parties wishing to appear in person before the Council shall notify the Council Secretary no later than 48 hours prior to the Council meeting. Although not required, parties wishing to advocate a position are encouraged, to the extent practicable, to file written submissions in general conformance with 1.6.3 and 1.6.4 in advance of the meeting at which action will be considered. When an automatically docketed appeal has not been pursued by any party, the Council need not consider the matter as an appeal.

(d) **Other Appeals.** As to other actions not addressed in 1.6.2(a) – (c), an Appeal shall be filed within a reasonable time of the challenged action.

1.6.3 Filing and Contents of an Appeal.

(a) To the extent practicable, the appeal should contain, in separately denominated sections, the following:

- (1) Name, affiliation, and address of the appellant
- (2) Statement identifying the particular action to which the appeal relates
- (3) Argument setting forth the grounds for the appeal
- (4) Statement of the precise relief requested

(b) Any part of the record related to the codes and standards development process that is referenced or discussed in the appeal should be clearly cited in the appeal using available markings such as the title, author, date, and page of the record. To avoid unnecessary duplication, parties are encouraged not to reproduce portions of the current Technical Committee Reports or Association Technical Meeting transcripts as attachments to their appeals.

(c) The Council Secretary may refuse to accept for filing any appeal that does not substantially conform to the requirements of this section. Within his or her discretion, however, the Secretary may accept a nonconforming appeal for filing, and in addition, may require a substituted or supplemental filing.

1.6.4 Other Submissions Relating to an Appeal. Any interested party may submit responses or other written submissions relating to any appeal filed with the Council. To the extent practicable, responses should contain, in separately denominated sections, the following:

- (a) Name, affiliation, and address of the submitter
- (b) Statement identifying the appeal to which the submission relates and stating whether the submitter supports or opposes the appeal
- (c) Argument setting forth the grounds for opposing or supporting the appeal
- (d) Statement of recommended Council action

Parties are encouraged, to the extent practicable, to file written submissions in advance of the meeting at which action will be considered.

1.6.5 Appeals and Hearings. The Standards Council shall consider Appeals based upon written submissions and shall also afford the opportunity for a hearing on any appeal, unless the Chair, after consultation with the Council Secretary, has determined that a hearing is either impractical or unnecessary. A decision by the Chair not to hold a hearing may be overruled by a majority vote of the Council.

1.6.6 Appeals Subcommittees. The Standards Council may, in its discretion, refer Appeals to subcommittees of the Standards Council for investigation and may seek the advice of one or more persons prior to resolution of the Appeal by the entire Standards Council.

**TECHNICAL COMMITTEE LETTER BALLOT
PROPOSED TENTATIVE INTERIM AMENDMENT LOG NO. 1018**

To Revise text on the 2010 Edition of NFPA 1801
Standard on Thermal Imagers for the Fire Service

Question 1: I agree with the **TECHNICAL MERITS** of the Proposed TIA to revise text on the 2010 Edition of NFPA 1801

_____ **AGREE** _____ **DISAGREE*** _____ **ABSTAIN***

EXPLANATION OF VOTE - Please type or print your comments:

*An explanation must accompany a disagreement or abstaining position.

Question 2: I agree that the subject is of an **EMERGENCY NATURE**.

_____ **AGREE** _____ **DISAGREE*** _____ **ABSTAIN***

EXPLANATION OF VOTE - Please type or print your comments:

*An explanation must accompany a disagreement or abstaining position.

Signature

Name (Please Print)

Date

Please return the ballot on or before **Thursday, January 20, 2011 (Revised date)**

PLEASE RETURN TO:

Stacey Van Zandt, Project Administrative Supervisor
NFPA

1 Batterymarch Park
Quincy, MA 02169

FAX: (617) 984-7056

E-mail: svanzandt@nfpa.org