

Subjects 924

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July 19, 2002

**TO: Standards Technical Panel (STP) for Emergency Lighting and Power Equipment,  
STP 924  
Subscribers to UL's Standards Service for  
Emergency Lighting and Power Equipment  
Other Interested Parties**

**SUBJECT: Report of the Meeting of the Standards Technical Panel for UL 924, Emergency  
Lighting and Power Equipment**

*The following topics were discussed at the meeting:*

- 1. STP Overview**
- 2. ANSI Status of UL 924, Eighth Edition**
- 3. Structure of UL 924, Ninth Edition**
- 4. Exit Signs**
- 5. Emergency Luminaire Listing per UL 1598**
- 6. Spacings**
- 7. Test Switches**
- 8. Short Circuit Protection**
- 9. Rated Ambient Temperature**
- 10. Markings**
- 11. Working Group for Draft Development of UL 924, Ninth Edition**
- 12. Additional Agenda Items**

A meeting of the UL 924 STP was held on June 6 and 7, 2002 at the Sheraton Hotel Fisherman's Wharf in San Francisco. The purpose of the meeting was to discuss the topics referenced above.

Comments should be made in writing and may be sent by fax, mail, or e-mail to the attention of Paul Lloret at UL's Santa Clara office. Please reference all correspondence to Subject 924. Note all comments received are public and may be circulated to others. If you respond by fax or E-mail, please include your full name and company name and address to ensure a reply.

**COMMENTS DUE: OCTOBER 11, 2002**

Attached as Appendix A is a list of the working groups that were formed at the STP meeting. Appendix B is a list of those who attended the meeting. Questions regarding interpretation of requirements should be directed to the responsible UL staff. Please see Appendix C of this bulletin regarding designated responsibility for the subject product categories.

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The following report is not intended to be a verbatim transcript of the discussion at the meeting, but is intended to record the significant features of those discussions.

Unless specifically requested to do so, UL will not acknowledge comments indicating concurrence with these proposals.

## 1. STP Overview

UL presented a summary of the STP process to the meeting attendees. UL explained that the STP process has been derived from guidelines developed by the American National Standards Institute (ANSI), and that ANSI audits UL's STP process. The goal of the new process was to form a balanced panel consisting of members from groups of producers, users, and general interest areas where one group would not comprise more than 50 percent of the total. The main points of the process were emphasized:

- a) STP meetings are considered open to anyone materially affected by the topics;
- b) Panel member attendance at STP meetings is not mandatory;
- c) STP meetings are not required to have a quorum (and at this meeting it was noted that few of the STP members representing the user group were in attendance);
- d) Balloting on new and proposed requirements to a standard is not conducted at STP meetings. During a meeting, however, the STP chair may informally poll members on new and proposed requirements to get a general idea of support for a particular item being discussed.
- e) Consensus for a proposal is reached with the approval of 2/3 of the STP members who returned a ballot (excluding abstentions) and approval by at least 50 percent of the STP membership.
- f) UL only has one vote on the STP.
- g) Certification issues are not to be discussed during STP meetings unless they are deemed to have a direct impact on standards development issues;
- h) STP members should return ballots to UL in a timely manner regardless if they agree or disagree on a proposal.

UL also noted that all meeting attendees should normally receive an electronic copy of the STP meeting report in PDF format 30 days after the meeting. UL added, however, that this date could be extended should the report contain extensive proposals for balloting. UL also emphasized that the STP consensus process was a change from the former Industry Advisory Conference (IAC) concept. The STP process for reviewing new and proposed requirements for a UL standard can last for an extended period of time, since additional time may be needed to resolve objections to proposals and to circulate continuing objections.

A few members had questions about the distinction between certification and standards-related issues. UL admitted there are a few gray areas, but noted the intent is to keep these types of items separate. As an example, UL noted that certain follow-up issues (production line, quality control, etc.) could be considered certification-related and inappropriate for discussion at an STP meeting.

## **2. ANSI Status of UL 924, Eighth Edition**

UL briefly reviewed the scenario leading to the latest submittal of UL 924 for ANSI status. While a number of STP members had voted negatively in the last ANSI ballot due to various content issues, UL explained that it was important for the standard to obtain ANSI status. UL emphasized that since UL 924 is referenced in NFPA 101, the Life Safety Code, and the marketplace (manufacturers, trade organizations, and regulators) wants consistency, two of the criteria for ANSI status are fulfilled. Therefore, UL believes that UL 924 meets the basic criteria established by UL for maintaining ANSI status.

UL admitted that it would have rather submitted a restructured and clarified document (which is being planned – see item 11); however, UL noted that a new re-structured edition would take at least a year to formally propose. UL additionally explained that since there were so many interim proposals for the eighth edition over the last three years, it was not possible to submit an earlier version of the standard. Any revised requirements adopted for UL 924 after the ANSI canvass would essentially have rendered those new requirements (and ANSI approval) obsolete since, technically, the changes would not have been part of the ANSI standard. For these primary reasons, UL waited to incorporate the most recent requirements before submission.

The STP members generally concurred that the next version of UL 924 to be submitted to ANSI should be a consensus standard with no content conflicts. Significant questions concerning visibility and photoluminescence (P/L) have to be addressed. UL replied that while the main stumbling block appeared to be P/L signs, the requirements for Life Safety that are incorporated in UL 924 and NFPA 101 should be uniform – technology should not be an issue. UL cautioned that if the STP could not pass a ballot for ANSI approval of UL 924, then perhaps a separate standard would have to exist for P/L technology. In any event, UL explained that manufacturers belonging to this STP could have a less active role in the development of requirements should another standard be submitted and approved for ANSI status.

An STP member noted that ANSI approval would be beneficial should the STP consider an attempt to harmonize UL 924 with international requirements, in particular the IEC. Upon a "straw poll" of the meeting members, the general consensus was that a ninth edition of UL 924 should be developed to address the STP concerns and outstanding ballot comments. A unified consensus standard could then be submitted to ANSI.

## **3. Structure of UL 924, Ninth Edition**

UL briefly explained its plan to release a new, re-organized edition of UL 924 which would be more concise and easier to use and update. UL prefers the IEC-based format, which would consist of general requirements (covering all products) in part 1 and specific requirements (for specific classes of equipment) in part 2.

An STP member highly recommended the use of the IEC-format for the ninth edition of UL 924. He mentioned UL 1598, Luminaires, is almost a mirror of IEC 60598 and works well. A standardized format makes harmonization activities easier for national committees to review and compare documents when introducing new standards into the international community.

UL emphasized that it needed "buy-in" from the STP for this concept, since it did not want to spend resources and have the project end in "mid-stream." The STP supported the recommendation.

## 4. Exit Signs

### A) Definitions

UL 924 currently includes definitions for "Exit Fixture", "Exit Light", and "Self-Luminous Exit Sign". It also defines "Exit Sign" as a general term that can refer to any of the above or a photoluminescent exit sign. Since the term "fixture" is being phased out of lighting product standards in favor of "luminaire" and "exit light" is ambiguous as to whether it includes illumination sources beyond those used to illuminate the integral legend, UL presented the STP with an approach that uses "types." These type numbers would identify signs based on the type of electrical power source(s) that are provided.

The STP generally acknowledged the need for a new system to identify signs; however, there were varying opinions regarding the means that would be used to identify these products. Some members were concerned that a numbering system (Type 1, Type 2, etc.) could be confused with the same system used for NEMA enclosures (or other products). Others were concerned that a numbering system could be confused with a rating system.

A member asked if the NFPA 101 committee had been approached with this concept. Other members explained that NFPA 101 could use the "type" concept by designating specific exit sign types for specific uses, although the NFPA means of egress committee has not been formally approached with this concept. The group recognized that education and time would be required for users, authorities having jurisdiction (AHJs), and other officials to get accustomed to a type designation system.

One member asked if the current system is confusing to AHJs and installers. UL answered that AHJs are having a difficult time distinguishing between a fixture, a sign, and even a light, making it hard to enforce the installation requirements in the NEC and NFPA 101. UL reminded the group that electrical inspectors use the NEC to determine the proper wiring while another inspector (usually a fire marshal) will evaluate the exit sign to the Life Safety Code. UL noted that manufacturers' product catalogs typically specify exit signs as "signs" rather than fixtures or lights. This mismatch between UL 924 terminology and common trade jargon can lead to misinstallation and miswiring since a user may not identify the proper product type for the application. A numbering or lettering system would provide for greater clarity and could be easily specified in the published UL product directories.

Some members supported the type number concept since it matches the system currently used in CSA C860-01, Performance of Internally Lighted Exit Signs. Overall, the STP favored the concept, but alternative type designations should be considered. UL concluded that within the context of a standard, it makes sense to have a system that correlates the requirements with the specific product types.

### B) Viewing distance marking

UL asked the STP to consider whether all exit signs should have a viewing distance marking. UL explained that while the historic and current default viewing distance of an exit sign is 100 feet, UL 924 permits signs that are visible at only 50 or 75 feet (although they are required to be marked for the maximum viewing distance). Prior to their inclusion into UL 924, some self-luminous signs were evaluated and found to be visible at more than 100 feet (typically 125 feet) and were marked accordingly.

UL explained that the marked viewing distance program would have been more logically structured with 50 feet as the default (unmarked) viewing distance with an allowance to mark higher distances for those that qualify. UL noted the use of ambient temperatures in a number of tests (in particular the temperature test) as an example. Most tests are run at 25°C; however, higher ambients can be used if a manufacturer specifies one for a stricter application that requires a higher rating. The higher rating is typically marked on the product, since the default (25°C) is not.

An STP member supported the use of higher markings, and even the idea of temporary markings that could be pulled off after installation. He, however, did not want UL to propose any new marking requirements since the lack of free space on products is of great concern. One member suggested a code (similar to a date code) to help alleviate the space problem, (for example "Type 3 – 50"). UL noted it could work on the space issue and find some means to find relief for manufacturers.

UL said it would solicit opinions from the STP members who did not attend to determine what action should be considered. UL will then notify the STP of its findings.

### **C) Observation Visibility Test**

During the development of requirements for photoluminescent exit signs, and more recently during the ANSI canvass process, the appropriateness of this test program was scrutinized. The observation visibility test allows exit signs to be evaluated under and comply with UL 924 at lower luminance levels than would be required by the analytical luminance measurement test. The reason is because a 5 ft-c externally illuminated sign is considerably brighter than the minimum necessary for legible viewing at 100 feet. UL noted that in 1981 NFPA 101 adopted an exception to the 5 ft-c equivalency. When UL 924 adopted a parallel exception, it created two distinctly different minimum criteria for exit signs – one based directly on minimum visibility and another based on equivalency to a 5 ft-c externally illuminated sign. Having two different minimum performance levels for what is commonly perceived as a single type of product creates a problem for the user community, which expects certification to reflect a uniform performance level.

UL introduced three alternatives for the discussion. The first was to eliminate the test altogether. The second was to quantify the minimum analytical level necessary for 100-foot visibility and set this as the minimum criteria. The third was to create distinct identities for signs based on equivalence to an externally illuminated sign versus observed visibility at the marked viewing distance.

Concerning the elimination of the test, some STP members stated a preference for a test that is analytical and repeatable. UL noted that the elimination of the observation test would eliminate the use of low luminance signs that are preferred in certain applications (like movie theaters). Some thought a study would probably be needed to determine minimum visibility requirements. Additionally, the question of uniformity arose. Many signs are bright, but the letters "EXIT" may not be as discernible as a lower luminance sign which is less bright but has evenly illuminated letters.

A few members of the STP were concerned with the legitimacy of the 5-minute eye adaptation period, since in an emergency, no person would have an "adaptation" period. UL replied that the adaptation period is part of the test protocol; it is not meant to simulate an actual emergency. UL explained that the simulation of an actual emergency is not practical since there are too many variables to consider when developing a repeatable test program. UL added that the 5-minute time frame allowed the initial rapid eye adaptation to occur and then flatten out somewhat. UL cited a total lack of evidence that low luminance signs certified by UL have been found deficient in use.

Since most of the available research is dated, and no focused studies using current technologies have been presented, the STP concurred that there was a need for fresh data. One member suggested that NIST be selected to research visibility since it has considerable background in the field and would not be subjected to pressure from manufacturers. A member also suggested that other countries' standards should be researched to determine how they have handled minimum luminance requirements.

The STP debated how a highly illuminated sign attracts an individual to an exit during an emergency. The STP acknowledged that this quality had its advantages. Many members were hesitant to lower the minimum luminance requirements, although UL reminded the STP that its purpose is to determine the

proper minimum requirements for safety. UL noted that if it could determine the minimum luminance of a uniform sign that was visible at a given marked distance, it could then use the analytical test to verify compliance.

The STP discussed the third option, which was to continue using the current requirements but distinctly identify each product type for testing and evaluation. UL noted that education would be needed for installers and AHJs so that they would be specifically aware of the product types, uses, and proper installations.

UL explained that it did not have a particular "code" in mind for the distinction. UL noted that all signs have particular benefits; if properly installed and maintained they can be effective. Future technologies will evolve, potentially outperform current signs, and be even better suited for a particular purpose.

Some members of the STP were still concerned about having two levels of illumination for exit signs. UL clarified that there is one minimum safety level (that you can read a sign at 100 feet) as required by NFPA 101. UL added that the STP has to decide how to address the brightness-for-attraction v. uniformity-for-visibility issue before changes can be made to the standard.

The STP needs to clarify the fundamental intent of an exit sign – to immediately attract attention or to distinctly identify a means of egress. Once answered, UL can devise a test to determine the pass/fail criteria. The group noted that NFPA should be consulted to determine if UL 924 should recognize levels of performance based on occupancies or just allow one level of performance for all products. UL advised the STP that should another ANSI ballot fail based on this issue, UL will consider establishing a separate standard for tritium, P/L, and electroluminescent signs.

#### **D) Visibility through smoke**

The STP discussed the possible inclusion of a standardized smoke test program in UL 924. Some jurisdictions have inquired about exit signs being visible through smoke. While studies suggest the use of low level signs, path finding, audible signaling and combination systems, one member explained that smoke test requirements should be introduced into the code first. Once the basics are incorporated into the code, the framework can be developed for UL 924 requirements.

UL mentioned that a computer modeling program was prepared by Rensselaer Polytechnic Institute (RPI) based on smoke visibility studies done by NIST in the 1980s. Belinda Collins of NIST offered to obtain a copy of the study.

The STP acknowledged that smoke tests present many variables, such as smoke type, thickness, and color, and that the test procedures are very difficult to control. Also, there are questions regarding how representative "artificial" smoke is in a test scenario versus the "real" smoke of an actual fire. The STP asked if it is intended for an exit sign above a door to be visible during smoke conditions related to a fire. If so, what type of light would be best suited and what amount of luminance would be required? A bright light could act like a car headlight in fog and simply disperse the light on the smoke. A diffused light may or may not be more useful as an aid to egress. Some members noted that exit signs serve all reasons for egress and are not solely intended to facilitate escape during fire. Some members suggested that it may not be reasonable to expect an exit sign to function through smoke, citing other needs such as energy efficiency.

UL suggested that a working group be formed to study the relationship of exit signs to fire and smoke incidents. UL recommended that the group review forensic studies from as many resources as possible. Should the group find sufficient cause to warrant more detailed consideration, the STP can then

develop technical rationale and bring the information to the NFPA 101 technical committee. The response of that committee will determine whether it is beneficial for the STP to develop requirements in UL 924. See Appendix A for additional details concerning the working group.

### **E) Lumen degradation**

UL asked the STP to consider whether LED lumen degradation is an issue that should be addressed by the standard. UL also asked the STP if there would be any effective means to regulate the issue from the component (LED) side, or whether it would be more effective to address the need from the end product (exit sign luminance) side. There is no reliable data to determine the life span for LEDs, nor is the LED design, production, and distribution system amenable to a typical third party certification program.

STP members discussed methods to monitor the LED status. Sensors and monitoring/diagnostic circuits involve added costs, and their reliability could introduce other issues. Replacement date data is considered unreliable due to the number of manufacturers who produce LEDs and the variables involved. While a fixed replacement date could be specified, some members thought that it was inappropriate to force the replacement of a sign that could still be functional (even after the specified date). The STP realized that there was no simple solution for this issue.

A few STP members suggested that the standard could require LEDs to be used within their drive current ratings, since most failures occur when an LED is overdriven. The STP concurred that this would be a good starting point. UL will develop a model test to include in the standard.

Meanwhile, the STP concurred that direct-view signs need an analytical test method that could be used as an alternative to the observation visibility test. UL enlisted the help of Rick Bakas from Exitronix and Tom Burnet from Gilbert Industries to develop a proposal, since both companies manufacture direct-view LED exit signs.

### **F) Diffuser audit/quality control**

The STP discussed the benefits of indirect audit controls (Recognized Component Plastics program) for ensuring the continuity of a diffuser's optical performance. Also discussed were options regarding direct optical measurements (e.g., color and transmittance characteristics) and periodic retesting of overall exit sign luminance. UL asked the STP if there was a need to control the diffuser material, especially since it is normally not a part of the fire enclosure. Members of the STP replied that it does not want the standard to include new requirements that are impractical to enforce. A member cited the differing thicknesses (and at times color) of the same sheet material that can be delivered from a supplier. Most manufacturers do their own quality control inspections (with light meters, visual, etc.) to review the diffuser material and determine the light transmittance. It was acknowledged that quality control programs differ between manufacturers.

The STP noted that ultraviolet light (UV) is a major cause of diffuser deterioration. Manufacturers noted that fluorescent lamps can emit sufficient UV to affect the plastics, even if the sign and diffuser are away from daylight. There are concerns that some diffuser plastics are not UV stabilized. To enhance UV stabilization, doping could in turn effect the flammability of the plastic being used. UL acknowledged that the diffuser requirements are not specific. A working group was formed to address diffuser degradation and UV exposure. See Appendix A.

### **G) Pictograms and non-English legends**

UL asked the STP if UL 924 should include specific analytical measurement points for additional text letters and possibly add specific pictograms (such as those shown in NFPA 170, Standard for Fire Safety Symbols). As an alternative, UL mentioned it could also develop an analytical measurement point selection method that could be applied to any letter or symbol. UL added that if the goal is to position UL 924 as an internationally accepted standard, the STP should consider more than alpha-numeric signs.

UL noted that a proposal has already been cleared by the NFPA 101 means of egress technical committee to add a new clause (7.10.3.2) that specifically allows the use of pictograms, as shown in NFPA 170, where approved by the AHJ. UL noted that the standard will have to determine the minimum level of contrast, in addition to luminance, for pictograms. Since the analytical test today is designed around the word "exit", it should be easy to devise a test methodology that would allow the analyzing of foreign terms and letters (e.g., "salida" in Spanish, etc.). Pictograms, however, would have differing contrast points. An STP member advised that the IEC and other European standards be reviewed to obtain test information, methodology, etc. concerning contrast points, since this information may be readily available.

The STP expressed an interest in keeping pictograms uniform with the IEC color requirements. Most European signs with pictograms are green and white; however, NFPA 170 color requirements were unknown at the time of the meeting. (Subsequently, a review of NFPA 170 shows similar green and white requirements.) The STP noted there are jurisdictions that require red and white signs. These types of conflicts will need to be addressed.

A working group was formed to develop pictogram specifications. See Appendix A for information.

### **H) Illumination uniformity (UL and CSA requirements)**

UL asked the STP if it should consider increasing the UL 924 uniformity requirements to parallel those of CSA C860. Currently, C860 requires a minimum 13 cd/m<sup>2</sup> mean luminance across the sign, with signs of lower mean luminance required to have higher levels of uniformity. Those that are brighter are permitted greater variation.

Most members did not see a problem with the current UL requirements. A few members explained that they already manufacture products for Canada and do not have trouble with the way both standards handle the uniformity requirements. A member noted that incandescent and fluorescent signs are the ones most affected and that both product types will soon be obsolete.

UL noted that the CSA uniformity requirements had a solid technical basis and that the standard should embrace that whenever possible. Another STP member mentioned the federal Energy Star program closely resembles the ratios of C860 and noted that the Environmental Protection Agency (EPA) will most likely tighten requirements in the future. There was, however, very limited interest in pursuing more restrictive uniformity requirements at this time. UL mentioned that it would take the STP's comments under advisement.

### **I) Edge-lit background contrast**

The STP discussed the difference between the UL 924 analytical luminance measurement test for edge-lit signs with that of CSA C860. CSA C860 requires the contrast of edge-lit signs to be evaluated both in normal room lighting (50 lux) with a reflective white background and again in darkness (0 lux) with a nonreflective black background. UL asked if the additional level of evaluation provided in C860 should be added to UL 924, which currently requires only the zero lux test.

Some members of the STP questioned why UL wanted to make the analytical measurement test more stringent. Some members also questioned the need for additional testing, since NFPA 101 does not specifically address the background of edge-lit signs.

NFPA 101 (7.10.1.7) requires that an exit sign be located so that it stands out from its immediate environment. Most members were comfortable with the current requirements, and UL noted that it would take the STP's recommendation under advisement.

#### **J) Non-energized visibility**

UL asked the STP to consider whether it is relevant that an unenergized sign be readable from 6 feet with 50 ft-c illumination on its face, and whether it is important that the requirements verify such readability. UL suggested that current clause 39.17 be rewritten since it is rather vague and really addresses an abnormal condition rather than an intended performance requirement.

The STP acknowledged the need for some level of luminance or contrast on a sign face at all times. The question posed was what the appropriate level of illumination should be. UL noted that it will examine this issue further and develop language to address the visibility of unenergized exit signs.

#### **5. Emergency Luminaire Listing per UL 1598**

The UL 1598 (Luminaires) STP entertained a proposal to expand the scope of UL 1598 by allowing the inclusion of an emergency inverter/charger (I/C) pack within a surface or recess-mounted fluorescent luminaire. UL staff who work with the emergency lighting equipment categories do not support this proposal, primarily because the Listing mark (indicating "luminaire") would not change (and therefore not indicate the equipment was Listed for that specific purpose per the definition of "Listed" in Article 100 of the NEC). The 1598 proposal included a supplemental marking to indicate that the luminaire has provision for emergency operation, although the product would still be classified as a luminaire rather than an emergency lighting product. UL noted that the stated motivation for the 1598 proposal was to avoid maintaining a separate Listing file.

UL explained that a Listed 1598 luminaire with a field-installed inverter pack could be considered emergency lighting equipment when the combination is evaluated by the AHJ. UL noted when the product leaves the factory, the Listing mark should reflect the intended use. Also, the pending ANSI status of UL 1598 could force all emergency luminaires into the scope of that standard if it is determined that UL 1598 is a suitable standard to encompass such products. UL advised the 924 STP not to pursue this avenue, since it did not want emergency lighting products straying into the scopes of other standards. The STP concurred, and UL staff will relay the message to the UL 1598 STP.

#### **6. Spacings**

UL suggested that UL 840, Standard for Insulation Coordination be used as an alternative to the current spacing requirements in UL 924. Many UL standards, especially those with integral electronic circuits, permit spacings in accordance with UL 840. UL noted that these spacings are based on studies that evaluated the relationship between insulation breakdown and available voltage, voltage surges, pollutants, and material characteristics.

The STP was concerned that the spacing requirements in UL 840 do not sufficiently address the life safety concerns of UL 924 products. A few members of the STP noted that the current conformal coating requirements for integrated circuits were practical and reasonable. Another member added that the addition of smaller self diagnostic circuits to products has made compliance to UL 924 spacing requirements more difficult. It was suggested that narrower spacings be permitted for self-diagnostic circuits, but not life safety performance circuits.

UL will examine the use of UL 840 spacings to determine the proper usage in the context of UL 924.

## **7. Test Switches**

The STP discussed the appropriate level of performance for test switches and whether switches in low voltage, limited energy circuits should be exempt from specific performance requirements beyond their design function. UL noted that the likelihood of failure is remote for those switches that are designed to interrupt a few milliamperes of low voltage current over the lifetime of the product. UL suggested that the requirements mandating the use of a switch complying with UL 1054, Special Use Switches, was excessive, since the failure of the switch would not result in a failure of the product. UL advised that a simple functional test (for example, 50 cycles) was reasonable for switches in limited energy circuits. The STP acknowledged UL's intent to devise a simple functionality test that would be incorporated into the new edition.

## **8. Short Circuit Protection**

UL explained that the current short circuit requirements, added to UL 924 in 1991, are lengthy and outdated. UL recommended that the current text be replaced with a reference to the short circuit test program of other UL standards (e.g., UL 508, Industrial Control Equipment) that have current wording to reflect present practices.

Since branch circuit protection is normally supplied by the installation, the STP concurred that it would be beneficial to edit the UL 924 requirements and reference the applicable standards. Equipment that is integral to the life safety circuit should be specifically marked for short circuit protection and subjected to any applicable tests in the newly referenced standard(s).

UL will revise this section accordingly when incorporating it into the new edition.

## **9. Rated Ambient Temperature**

UL explained that there is no reason to tie dry/damp/wet location use suitability and the evaluation of equipment for ambient temperatures outside the 20 – 30°C range. As part of the ninth edition, UL intends to separate the requirements associated with these use conditions. UL asked the STP for comments regarding this topic.

The STP concurred with UL's reasoning.

## **10. Markings**

UL admitted that the current markings in UL 924, in both content and organization, are confusing and at times obscure. UL intends to reformat the markings section of the standard so that it resembles that of UL 1598, which is clear and concise. UL asked for volunteers to serve in a working group that is shown in Appendix A.

## **11. Working Group for Draft Development of UL 924, Ninth Edition**

UL explained that work on the next edition of UL 924 will be very detailed, will involve major restructuring, and will necessitate a thorough review of the requirements to ensure clarity and consistency. UL asked for volunteers from the STP to serve on a working group, which will essentially function as a reviewing and advising body. See Appendix A for the objective and group members.

## 12. Additional Agenda Items

A member asked if the surge test in UL 924 could be revised or even deleted since the energy involved is too low and the test is essentially meaningless. UL will look at other related standards that may have alternative surge tests.

Another member asked if UL would be able to post working group reports and perhaps other documents or internet links on the UL 924 STP site. UL explained that it is exploring these avenues.

Finally, UL explained that a future STP 924 meeting was not officially scheduled, although it was anticipated that one will most likely be held to discuss the ninth edition of UL 924 when the draft is available.

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APPENDIX A**STP WORKING GROUPS**

\* Denotes Chair

**1. Visibility through Smoke Working Group**

**Objective:** To review forensic studies (NFPA, university research, media literature, etc.) and to determine the relationship of egress effectiveness and the readability of exit signs under smoke conditions. The group is to examine any studies that detail the performance of exit signs and determine how closely the obscuration, by smoke, of the sign and egress were related. The group will then report to the STP to determine if recommendations should be made to the NFPA 101 Life Safety Means of Egress technical committee and/or if specific requirements should be proposed for UL 924.

\*Belinda Collins

Ron Cote

Billy Helton

Ron Minter

Dave Mills

Manny Muniz

Ken Ungard

**2. Diffuser Working Group**

**Objective:** To evaluate diffusers in relation to UV exposure and degradation and determine if specific requirements (for example, direct optical measurements or periodic retesting of overall sign luminance) are needed for UL 924. The group will also determine if requirements that specify a type of quality control/audit system would be effective to ensure continued diffuser performance.

\*Mike Shulman

Billy Helton

John Leonard

Ron Minter

**3. Pictograms Working Group**

**Objective:** To develop specifications for the inclusion of pictograms into UL 924. The group would review current European and NFPA requirements and test procedures and recommend if specific proposals should be introduced into NFPA 101 and/or UL 924.

\*Mike Shulman

Rick Bakas

Al Carlson

Belinda Collins

Joe Guarino

Bob Katz

Dave Mills

Bill Lynch

Bill Rowan

Ken Ungard

#### 4. Markings Working Group

**Objective:** To revise and clarify the markings in UL 924 by incorporating them into a table. The effort is not intended to alter the technical meaning or change the current requirements, although interaction with the ninth edition working group may lead to proposed changes.

\*Shawn Fought

Bill Buckson

Alex Ertz

Joe Guarino

Manny Muniz

Jim Pierce

#### 5. UL 924 Ninth Edition Working Group

**Objective:** To review the rewritten requirements on request from UL, and advise of any unintended inaccuracies or re-interpretations.

\*Mike Shulman

Rick Bakas

Bill Buckson

Al Carlson

Bill Lynch

Ron Minter

Jim Pierce

Tom Stoll

Ken Ungard

APPENDIX B**ATTENDANCE AT THE JUNE 6 AND 7, 2002 MEETING OF THE STP FOR EMERGENCY LIGHTING AND POWER EQUIPMENT**

| <b>STP Representatives</b>      | <b>Company</b>                             | <b>E-mail</b>                    |
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Table Continued on Next Page

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APPENDIX C**DESIGNATED RESPONSIBILITY FOR UL PRODUCT CATEGORIES**

FTBR, EMERGENCY LIGHTING AND POWER EQUIPMENT  
 FTBR2, COMPONENT – EMERGENCY LIGHTING AND POWER EQUIPMENT  
 FVZQ, SELF-LUMINOUS EXIT SIGNS AND MARKERS  
 FWBO, EXIT FIXTURES  
 FWBX, EXIT SIGNS, SELF-LUMINOUS AND PHOTOLUMINESCENT  
 FWCF, EXIT SIGN CONVERSION KITS  
 FWCN, EXIT FIXTURE TO EXIT LIGHT CONVERSIONS, RETROFIT  
 GGET, EXIT SIGN RETROFIT KITS

The individuals shown in the following tables are involved with the investigation of products covered under the subject categories. The Primary Designated Engineer (**shown in UPPERCASE letters**) coordinates the establishment and uniform interpretation of UL requirements applicable to the product categories. The Designated Engineers (**shown in lowercase letters**) work with the Primary Designated Engineer to interpret requirements and maintain standards.

Should you have questions regarding the interpretation of the requirements proposed in this bulletin or any adopted requirements that affect your product, you are encouraged to contact the individual at the office to which you normally submit your products.

The Responsible Department Manager for the subject categories is Wayne Menuz at UL's Santa Clara office. The Responsible Department Manager oversees the significant interpretations made by the Primary Designated Engineer and arbitrates any differences regarding interpretation of UL requirements.

| CCN               | Office/Affiliate | Responsible Engineer | Extension |
|-------------------|------------------|----------------------|-----------|
| FTBR, FTBR2, FVZQ | Camas            | David Flinchbaugh    | 55570     |
|                   | Melville         | Juan Caamano Jr.     | 22752     |
|                   | Northbrook       | Fred Retter          | 43667     |
|                   | RTP              | Mark Yalch           | 11873     |
|                   | Santa Clara      | MIKE SHULMAN         | 32770     |
|                   | Canada           | Tom Mah              | 61510     |

| CCN  | Office/Affiliate | Responsible Engineer | Extension |
|------|------------------|----------------------|-----------|
| FWBX | Camas            | Randy Mayorga        | 55603     |
|      | Melville         | Juan Caamano Jr.     | 22752     |
|      | Northbrook       | Fred Retter          | 43667     |
|      | RTP              | Mark Yalch           | 11873     |
|      | Santa Clara      | MIKE SHULMAN         | 32770     |
|      | Canada           | Tom Mah              | 61510     |

| CCN              | Office/Affiliate | Responsible Engineer | Extension |
|------------------|------------------|----------------------|-----------|
| FWBO, FWCF, FWCN | Camas            | David Flinchbaugh    | 55570     |
|                  | Melville         | Juan Caamano Jr.     | 22752     |
|                  | Northbrook       | Fred Retter          | 43667     |
|                  | RTP              | Mark Yalch           | 11873     |
|                  | Santa Clara      | MIKE SHULMAN         | 32770     |

| CCN  | Office/Affiliate | Responsible Engineer | Extension |
|------|------------------|----------------------|-----------|
| GGET | Camas            | David Flinchbaugh    | 55570     |
|      | Melville         | Juan Caamano Jr.     | 22752     |
|      | Northbrook       | Fred Retter          | 43667     |
|      | RTP              | Mark Yalch           | 11873     |
|      | Santa Clara      | MIKE SHULMAN         | 32770     |
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