Doc Type:	Liaison Contribution
Title:	Comments on and proposed response to SC2 N4710, *LS on Unicode symbol numbers representing disasters*
Status:	Circulated for information
Source:	Unicode Consortium
Source reference:	L2/20-136
Action:	For consideration by JTC1/SC2
Date:	Apri 29, 2020

In N4710, 3GPP/CT1 requests action from JTC1/SC2 to respond to the following questions:

- Question 1. 3GPP CT WG1 would like to ask ISO/IEC JTC1/SC2 to provide what Unicode symbols defined in ISO/IEC 10646 are possible to be recommended as language-independent contents such as pictograms mapping to disasters (earthquake, tsunami, fire, flood, typhoon, hurricane, cyclone, tornado, volcanic eruption, epidemic and chemical hazard) that can be compatible with Unicode-based texts and can be included in public warning message.
- Question 2. If there are no proper Unicode symbols recommendable for the ePWS purpose to address the language issue existed in text-based warning messages in ISO/IEC 10646, 3GPP CT WG1 would like to request ISO/IEC JTC1/SC2 the standardization of Unicode-based language-independent contents representing earthquake, tsunami, fire, flood, typhoon, hurricane, cyclone, tornado, volcanic eruption, epidemic and chemical hazard.

In short, this is a request for SC2 to devise a system of pictographic symbols for a particular application, and to include characters for these pictographs in the UCS (ISO/IEC 10646).

The background given for this request is that 3GPP/CT1 is working on improvement to a text-based public warning service used in 5G communications (PWS) and would like to provide language-neutral symbols for public communication in disaster scenarios.

Symbols used in text messaging over public protocols and requiring public interchange are appropriate candidates. Given some repertoire of symbols used in this way, it is within the scope and mission of JTC1/SC2 to provide encoded representation of these symbols in the UCS.

This request, however, goes outside the scope and mission of JTC1/SC2 and of the Unicode Consortium. The purpose of these bodies is not to devise orthographies or pictograph systems for use in particular application contexts, nor do these bodies provide appropriate expertise to do that.

It should also be noted that it is not entirely clear whether 3GPP/CT1's intent is to have pictographs that appear directly in text messages, or to have pictographic images that can be delivered alongside text in messaging applications. (For example, messaging applications on mobile phones typically support

multimedia content using MMS or similar protocols that send image content alongside text content.) If the intent is the latter, then that would also put the request outside the scope of JTC1/SC2, which is to provide an encoded representation of characters and symbols *used in public interchange of text content*, not specifying collections of pictographic images used outside of text.

If 3GPP/CT1 had a repertoire of symbols they planned to use *as text elements* within a public warning system, JTC1/SC2 or Unicode could assist in determining which can be represented by already-encoded UCS/Unicode characters and which would require a proposal for addition of new characters. The Unicode Consortium could also provide expert input *on technical matters regarding use of encoded UCS/Unicode characters in some application context*. For example, if 3GPP\CT1 had technical questions about presentation of characters as full-color pictographs (emoji) versus monochromatic symbols in common text messaging applications, Unicode could assist with such a request.

However, to determine what symbols or images should be used for language-neutral communication in a public warning system requires many non-technical considerations that neither JTC1/SC2 nor Unicode are in a position to provide.

It is recommended, therefore, that SC2 should respond to 3GPP/CT1 declining to answer the questions stated in N4710, and advising them to find more appropriate resources for devising a pictographic system for their application scenario. Then, when 3GPP/CT1 has a stable repertoire of symbols that are recommended for use in PWS, if those are to be used in text content, they should re-engage with Unicode or with JTC1/SC2 for assistance in determining the most appropriate encoded text representation of those symbols and in preparing a proposal for any that do not yet have an appropriate encoded representation.

3GPP/CT1 may want to refer to online code charts for symbols encoded in Unicode / ISO/IEC 10646 in considering symbols that might be used for their application:

- http://www.unicode.org/charts/#symbols

A particular consideration that may be important for their application is whether the communication objective in PWS would be best served by characters that are typically presented in messaging services as full-color emoji, or by characters that are most likely to be presented as monochromatic symbols. Resources that may be useful in this consideration are:

- Unicode emoji charts: http://unicode.org/emoji/charts/full-emoji-list.html
- The Unicode emoji property data file, which gives a recommended default presentation for symbol characters—as emoji or as text: https://www.unicode.org/Public/UCD/latest/ucd/emoji/emoji-data.txt
- *Unicode Technical Standard #51: Unicode Emoji*, which provides additional information on implementation and use of emoji, as well as details on using the emoji-data.txt data file: https://www.unicode.org/reports/tr51/

If 3GPP/CT1 do identify symbols to be used in text communications that they believe cannot already be represented in ISO/IEC 10646 and Unicode, they may wish to prepare a proposal for encoding of additional symbol characters. The following resources provide information on preparing proposals for encoding of new characters for consideration by JTC1/SC2 and the Unicode Consortium:

- Submitting Character Proposals: https://www.unicode.org/pending/proposals.html
- FAQ: Submitting Successful Character and Script Proposals: https://www.unicode.org/faq/char_proposal.html

Finally, it is also noted that, while N4710 is titled as a "liaison statement", it does not appear that 3GPP/CT1 has a liaison relationship with JTC1/SC2, with JTC1/SC2/WG2, or with the Unicode Consortium. If 3GPP/CT1 does pursue work in this area, they may want to request a formal liaison relationship with one of these bodies.