Appendix VI — Sleep Symbols, the Crescent Moon, and Islam[1]

A key element of the interface standard is to use the metaphor of devices being *asleep* when in low-power modes. Terminology related to sleep needs to be translated into the language(s) used for each product market. The standard further specifies that the graphic symbol for sleep should be a crescent moon (e.g. on a sleep button or software control panel). One reason to choose the moon is that it is already the most common symbol used for sleep on office equipment, but there are other advantages as well. This discussion reviews some of the reasons for choosing the crescent moon, the relationship of the crescent moon to Islam, and implementation details for the moon symbol, including a proposed standard design. This document is intended primarily for members of standards committees and product designers.

1.0   The Moon as a Sleep Symbol

Common graphic associations[2] with the idea of "sleep" in the U.S. include a bed, multiple letter "Z"s, and the moon (for its more prominent appearance at night). The bed has the disadvantage of being associated with a person going to sleep, which seems inappropriate for use on electronics. "Zzzz" incorporates the roman alphabet, and letters and numbers are to be avoided in graphic symbols — though it is used most commonly on some PCs made for sale in Japan and on a few models sold in the U.S. Of these three symbols, the moon is the most abstract, simplest to draw, and something that any sighted person can experience. All of these reasons and others presumably led so many product designers to "reach for the moon" when choosing a sleep icon. That sleep is such a good metaphor and has such a solid graphic representation is one of the reasons to choose it to represent low-power modes.

Once the moon is chosen, the question becomes "which moon?". Usage on existing office equipment is most commonly the crescent moon as it is the most obviously "moonlike"[3]. Another consideration is whether a proposed moon symbol closely resembles an existing graphical symbol. There are two international standards which specify graphic symbols to be used on office equipment — (IEC, 1998) and (ISO, 1989). A *full moon* looks like any circle (and much like the IEC "Off" symbol — ○). The *new moon* is blank. A *quarter moon* is already used in international standard symbols: ◖ is "light", ◗ is "dark" and ◑ is "contrast" (Symbol numbers ISO 7000-2165, ISO 7000-2166 and IEC 60417-5057 respectively). There is a potential similarity of the crescent moon to the telephone symbol — ✆ (IEC 60417-5090) if the moon is tilted 45 degrees (though as fewer phone handsets are the

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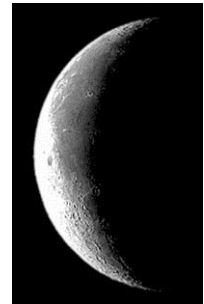
[1] This appendix provides detailed background information about the development of the Power Control User Interface Standard. For the full report and more about the Standard, see http://eetd.LBL.gov/Controls

[2] See the user testing done for this project (Appendix VII), specifically, the first UCB study for an assessment of associations with "sleep".

[3] The moon has other minor associations, many of them culturally dependent. For example, in the U.S. at least there is the idea of the "Man in the moon", and a crescent moon was used on many outhouse doors. Also, the moon has an association with mental illness ("lunatic") and for years some people proclaimed that the old Proctor and Gamble "moon" corporate symbol had associations with the devil.

traditional shape, perhaps that symbol will ultimately be changed). For precisely drawing international graphic symbols, IEC 80416 (Part 1) specifies details such as a how to construct symbol originals precisely. Designs are to be "simple", "readily distinguishable", "easily associated with its intended meaning", and easily adapted to "usual manufacturing and reproduction methods".

There are a variety of graphic options in depicting a crescent moon.

- **Fill**: Few if any moon symbols on equipment depict craters on the moon — most use an outline or solid fill. In any case, good symbol design avoids detailed articulation as craters would require. IEC 80416 specifies that differences in meaning depending on fill status are to be avoided when possible, and due to the way symbols are printed or embossed on devices, this is a wise criterion. Both filled and unfilled moons should be seen as equally correct.

- **Points**: The angular distance between the points of the crescent, going around the moon, is in principle, always 180 degrees for the real moon. Some graphic representations use somewhat less, and some (particularly in Islam; see Figure 1) use much more, as much as a full 360 degrees.

- **Direction**: Facing the equator in the northern hemisphere, the crescent moon opens to the left as it waxes, and to the right as it wanes. In the southern hemisphere, the directions are reversed. Astronomical symbology uses the left-facing moon — ◗. Most Islamic flags use the right-facing version (more on this below).

- **Tilt**: Some crescent moon symbols have the points in a vertical line; others are at an angle, usually with the crescent opening slightly up. A slight tilt seems pleasing to the eye, and helps to differentiate it from the ◖ symbol (but not tilted so much as to confuse it with ✆).

- **Exposure**: A quarter moon shows half of the moon surface exposed. A crescent moon is defined as anything greater than a new moon and less than a quarter moon. An obvious extension of the quarter moon showing one half the surface is to have the crescent moon show one fourth of the surface.

- **Stars**: Depictions of the moon can have one or more stars adjacent to it, either all around or at one side. Islamic flags often depict a star in front of the moon.

In evaluating the suitability of a symbol, ISO 9186 specifies ways to test graphic symbols for "comprehensibility and comprehension". In testing comprehensibility, subjects are provided with the symbol and its intended meaning and asked what portion of the population they think will correctly understand it. For comprehension, people are presented with the symbol and asked what they think it means. The standard also defines the "referent" as the "idea or object" to be represented. Testing is to be done in two or three countries.

2.0   The Crescent Moon — the "Hilāl"[4]

One question which arises in considering a moon as the symbol for sleep is whether it has any associations which would call its suitability into question. The principal one we have considered is the association with Islam — whether people of Islamic faith would be offended. In the United States generally (and presumably the rest of the industrialized west), the association does not cause any significant concern, which is demonstrated by the use of the moon on many computer products, in hardware and software. The primary question then is how it is seen from countries where Islam is dominant.

The "hilāl" is the "crescent moon" or new moon symbol, often shown with one or more stars. It is important as many events in the Islamic calendar are determined by the first sighting of the crescent moon as it waxes (begins to increase in size). When a hilāl is shown with a single star, that "star" is the planet Venus, the "morning star". The hilāl's association with Islam is not original, but has grown over the last few centuries.

The "Encyclopædia of Islam" (Lewis et al., 1971) reviews historical use of the hilāl in art/décor, flags, and buildings, all in considerable detail. The first reported use of the crescent moon is on coins in the year 695 A.D. (year 75 in the Islamic calendar), in combination with a star. From the beginning, it was often quite stylized with the two points of the moon nearly or actually touching each other. In addition to coins and artwork, the hilāl has been sometimes used on top of mosques, in the way that a Christian cross is used on churches. However, the use of hilāl on mosques is not as universal as the cross's use on churches and cathedrals, and the hilāl has also been put atop non-religious buildings as well.

The hilāl is reported to be used on military flags beginning in the 15th century. Modern nations began using it on national flags beginning in the early 1800s with the Ottoman Empire / Turkey, Tunisia, and Egypt. In the 1900s, other countries adopted it as part of their flags, such as Pakistan in 1947.

2.1   Modern Flags Incorporating The Hilāl

Quite a few countries use a crescent moon on their national flag, as shown in Figure 1. Most Islamic flags use the right-facing crescent, even though it is to symbolize the first sighting of the waxing crescent, which would be left-facing as facing the equator in the northern hemisphere. One possibility for this seeming anomaly is that the goal of having the moon face away from the flag hoist (flag depictions by convention have the hoist on the left) was a higher priority than astronomical correctness and northern hemisphere bias.

Most of the flags in Figure 1 have some moving of the points past 180 degrees, with Turkey's (the oldest) the most stylized. All but one have one or more stars, and all but two have five-pointed stars (this last point is significant in Islam). Most have the points aligned vertically, and only two resemble the crescent moon for power controls — Pakistan's, though it has a prominent star on top of the moon, and Maldives, which has the points in a vertical line.

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[4] The word "hilal" is supposed to have a long bar "-" on top of the "a", not the tilde as shown here.

Figure 1. Crescent moons on National Flags as of 2002

Algeria	Azerbaijan	Comoros	Mauritania	Maldives	Malaysia

Pakistan	Tunisia	Turkey	Turkmenistan	Uzbekistan

Source: The CIA "World Factbook 2001" http://www.cia.gov/cia/publications/factbook/ Accessed April 2002
Note: For those with monochrome copies of this discussion, green is the most common color of the flag fields, with red the second. Most of the moons are white with two yellow and two red.

2.2   The Red Crescent

The "Red Crescent" is used in place of the Red Cross as the basic medical relief symbol in dominantly Islamic countries. It has its origin in the Ottoman Empire, shortly after the Red Cross began to be used by European wartime medical relief services. While many in the Red Cross movement insist that the Red Cross is not a Christian cross, the perception that it is remains strong despite many attempts to unify the movement around the Red Cross (or some other symbol). Thus, the dual emblems remain[5], and are shown in Figure 2.

While the documentation of the origins of the Red Cross symbol is scant, it is not intended to be a religious symbol, and officially the Red Crescent is neither, though clearly many people perceive otherwise. Regardless, the Red Crescent does not seem to pose a problem for our moon.

Figure 2. The Red Cross and Red Crescent

Source: The International Committee of the Red Cross, http://www.icrc.org, April, 2002.

2.3   Some Expert Opinion

It is always helpful to consult those who are experts in a field, so we contacted one — Dr. Alan Godlas, Associate Professor (Islamic Studies and Arabic), Department of Religion, University of Georgia, USA. We put the questions of using the moon as a sleep symbol on electronic devices to him and he kindly queried colleagues and students on the matter. He responded via email:

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[5] Israel uses a red Star of David, though this is not recognized as an official international symbol by the movement. Iran used a Red Lion and Sun until 1980.

"As far as I can see, it would NOT be offensive. Nevertheless, I am in the process of polling both a number of colleagues who are professors of Islamic Studies as well as local Muslims from a variety of countries. Thus far all agree with me." *(November 6, 2001)*

"Nine professors of Islamic Studies from all over the US, most of whom are also Muslims, responded to my query. Eight of them said it would NOT be offensive, one said it might be. Also, nine members of the local Muslim student association responded (and they are all from various Muslim countries and ethnic origins) and they unanimously said it would NOT be offensive." *(November 10, 2001)*

3.0   Recommendations

The crescent moon used on some existing PCs and proposed for use as a standard symbol lacks the specific stylization of Islamic use, particularly the points moved much closer to each other and the presence of one or more stars. For this and other reasons, the use of the moon as a symbol for sleep does not seem problematic culturally.

For the graphic options in depicting a crescent moon, we recommend:

- **Fill**: Use just a solid fill, or a blank outline (no craters). After all, we are referring to the moon's *associations* (with sleep in this case), not the moon itself. Do not use a red crescent, to avoid causing confusion with the International Committee of the Red Cross logo.

- **Points**: The angular distance between the points of the crescent, going around the moon, should be about 180 degrees. Anything more will be unnecessarily imitative of the hilāl.

- **Direction**: As astronomical symbology uses the left-facing moon, using the right-facing one for sleep provides a modicum of differentiation.

- **Tilt**: We propose to "tilt" the moon by the earth's angle of inclination (23.45 degrees). There is no rational basis for this specific choice — just some subtle fun. However, this also works well with the tilts that we want to avoid — zero (which could look like a left parenthesis) and 45 degrees (which could look like the phone symbol).

- **Exposure**: The crescent moon should show one half of what the quarter moon shows — as a quarter moon exposes half of the moon surface, the crescent should show one fourth.

- **Stars**: It is best to avoid stars entirely. If stars are used, place them scattered all around the moon, never on it, or concentrated near its open end, so as to not imitate the hilāl.

IEC 80416 specifies how to construct symbol originals precisely. Office equipment and consumer electronics often stylize existing standard symbols, and we expect the moon to be treated the same. These specifics are for the standard version, and should be reviewed by those who stylize the symbols as background. A precise drawing of the proposed new symbol is shown in Figure 3. An explanatory graphic is presented in Figure 5.

Figure 3. A precise drawing of the proposed new moon symbol.
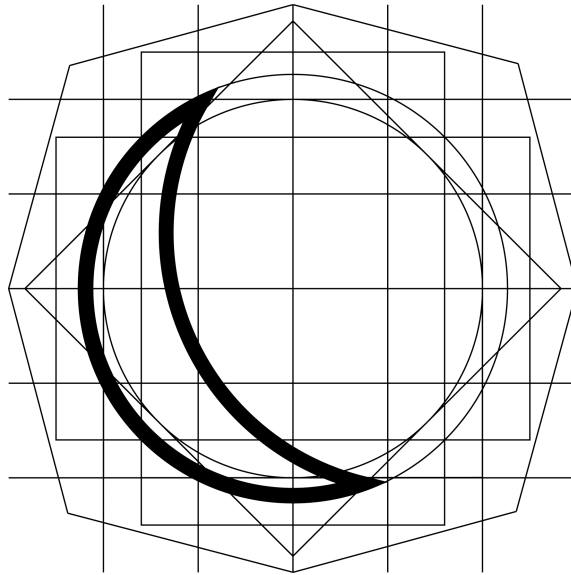
Note: The background grid is that specified by IEC 80416; the line width is 2 mm.

4.0   Some Current Moons

Figure 4 shows selected moons found on contemporary office equipment. Note that many of the variants discussed here occur, but our recommendations are in each case consistent with the most common usage. The variants cover articulation, direction, fill, exposure, and stars.

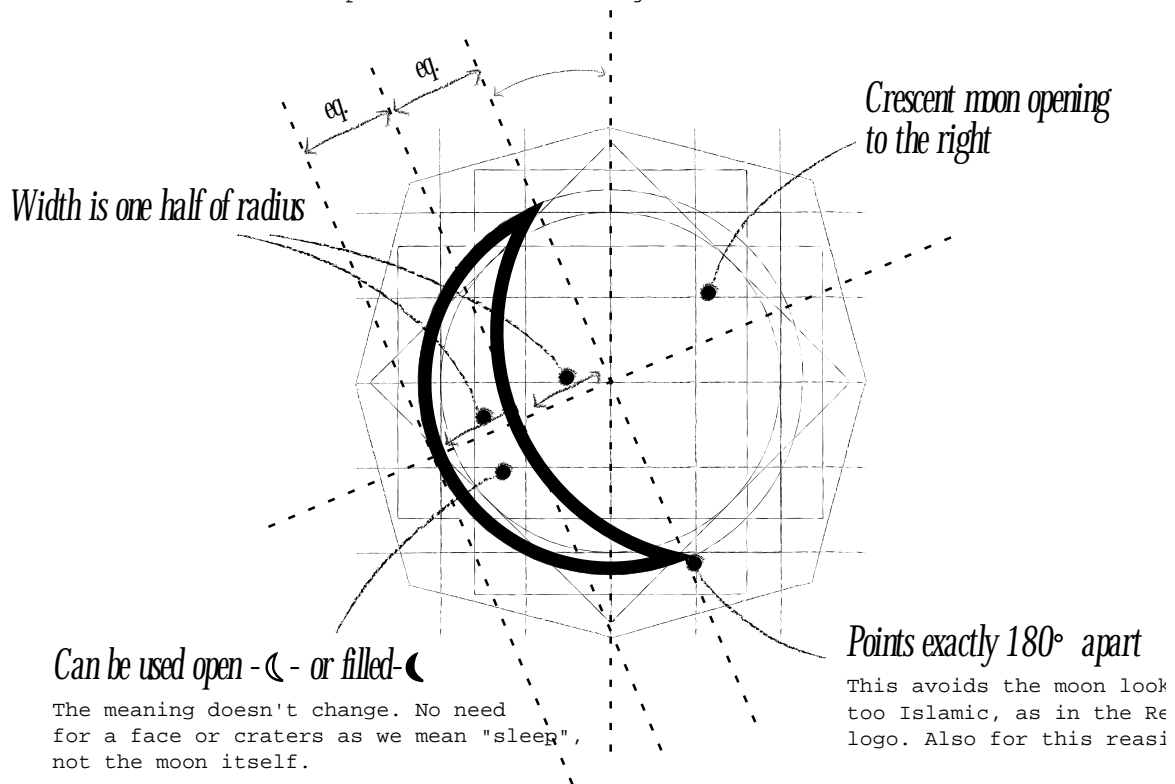**Figure 4. Moons found on recent office equipment**

Figure 5. "Designing the new Moon Symbol" explanatory graphic

Designing the new Moon Symbol

The figure below shows our recommended design for a new internati
to mean "Sleep" for the use on office equipment and consumer elec
background part is part of the system for designing new symbols (
The most common current use of the moon is on sleep buttons on PC
future it may be most common on software control panels. This des
that used on some current PC keyboards.

23° - the tilt of the earth on its axis

A tilt is graphically pleasing and helps
to differentiate it from the symbol; the
specific tilt value is just for fun.

*Crescent moon opening
to the right*

Width is one half of radius

Can be used open - ☾ - or filled - ☽

The meaning doesn't change. No need
for a face or craters as we mean "sleep",
not the moon itself.

Points exactly 180° apart

This avoids the moon look
too Islamic, as in the Re
logo. Also for this reasi

Any use of stars should not concentrate them near the points
(doing so makes it more Islamic).

Astronomical symbology uses the left-facing moon; using the
right-facing one for sleep provides some differentation.

This is somewhat similar to the telephone symbol -   (IEC 6
but we hope that will not be problem.

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5.0   References

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