Another Emitter Radiation Pattern Mask

Tom Baumgartner
Spectrix Corp.
906 University Place
Evanston, IL 60201
(708) 491-4534

This paper has been prepared at the invitation of the IR PHY Ad hoc group.

The present emitter radiation pattern mask is appropriate for use in an access point where size and power are not as important as in portable, battery-powered, handheld devices. The proposed new emitter mask may be more useful for such portable devices.

Following is the proposed text change for section 12.3.3.1 to add the new mask.

12.3.3.1 Transmitted Peak Optical Power

The peak optical power of an emitted pulse shall be as per Table 12-3. [EDITOR NOTE: Change present Table 12-3 to Table 12-4 and change references as required.]

Emitter Radiation Pattern Mask	Peak Optical Power (averaged over the pulse width)
Mask 1	2 W ± 20%
Mask 2	0.25 W ± 20%

Table 12-3: Peak Optical Power as a Function of Emitter Radiation Pattern Mask

Following is the proposed text change for section 12.3.3.3 to add the new mask.

12.3.3.3 Emitter Radiation Pattern Masks

Currently the standard contains two emitter radiation pattern masks. Mask 1 is defined in Table 12-4 [EDITOR NOTE: this is changed from present text] and illustrated in Figure 12-4. Mask 2 is defined in Table 12-5.

Following is a description of how to interpret the Mask 1 table and figure. Position the conformant Mask 1 device in its recommended attitude. Define the conformant Mask 1 device axis as passing through the emitter center and having the direction of the vertical from the floor. The mask represents the irradiance normalized to the peak emitted power, as a function of the angle between the conformant Mask 1 device axis and the axis from the emitter center to the test receiver center (declination angle). The distance between emitter and test receiver is 1 meter. The test receiver normal is always aimed at the emitter center. The azimuth angle is a rotation angle on the conformant device axis.

[Insert Table 12-4 here [EDITOR NOTE this is current Table 12-3]

Table 12-4: Definition of Emitter Radiation Pattern Mask 1

A device is conformant if for any azimuth angle its radiation pattern as a function of declination angle falls within the pattern mask.

[Insert Figure 12-4 here]

Figure 12-4: Emitter Radiation Pattern Mask 1

Following is a description of how to interpret the Mask 2 table. Position the conformant Mask 2 device in its recommended attitude. Define the conformant Mask 2 device axis as passing through the emitter center and having the direction relative to the device as defined by the manufacturer. The declination angle plane is as defined by the manufacturer. The mask represents the irradiance normalized to the peak emitted power on the conformant Mask 2 device axis, as a function of the angle between the conformant device axis and the axis from the emitter center to the test receiver center (declination angle) in the declination plane. The distance between emitter and test receiver is 1 meter. The test receiver normal is always aimed at the emitter center. The pitch angle is an angle relative to the conformant device axis which is perpendicular to the declination plane.

Declination Angle	Normalized Irradiance
$\phi \leq 60$	$1 \pm 25\%$
$\phi \geq 80$	≤ 0.1

[EDITOR NOTE don't have alpha or degree symbols on keyboard; please substitute]

Table 12-5: Definition of Emitter Radiation Pattern Mask 2

The device is conformant if for any pitch angle from 0 to 20 degrees its radiation pattern as a function of declination angle falls within the pattern mask.

Other radiation patterns may be added at a later time.