SPP30. PIN ENTRY PRIVACY GUIDE.

METHOD 1: PRIVACY SHIELD ON KEYPAD AREA

The SPp30 may have a privacy shield fitted to the keypad area. This will have been specified by your acquirer and pre-fitted at the point of manufacture.

If supplied without a privacy shield you should follow advice described in methods 2 and 3. Figure 1, Figure 2 and Figure 3 show the SPc50 with and without the privacy shield fitted.

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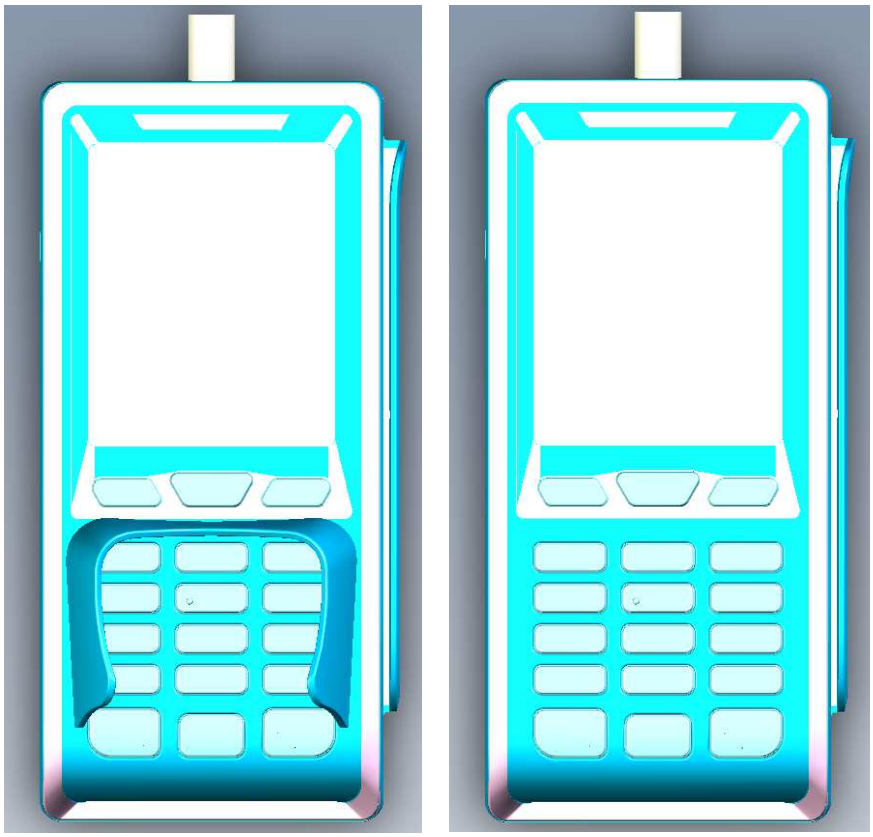

Figure 1. SPp30 with and without the Privacy Shield. (top view).

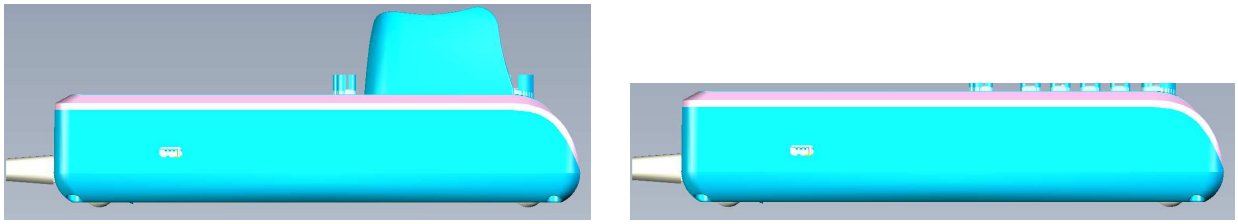

Figure 2. SPp30 with and without the Privacy Shield (right view).

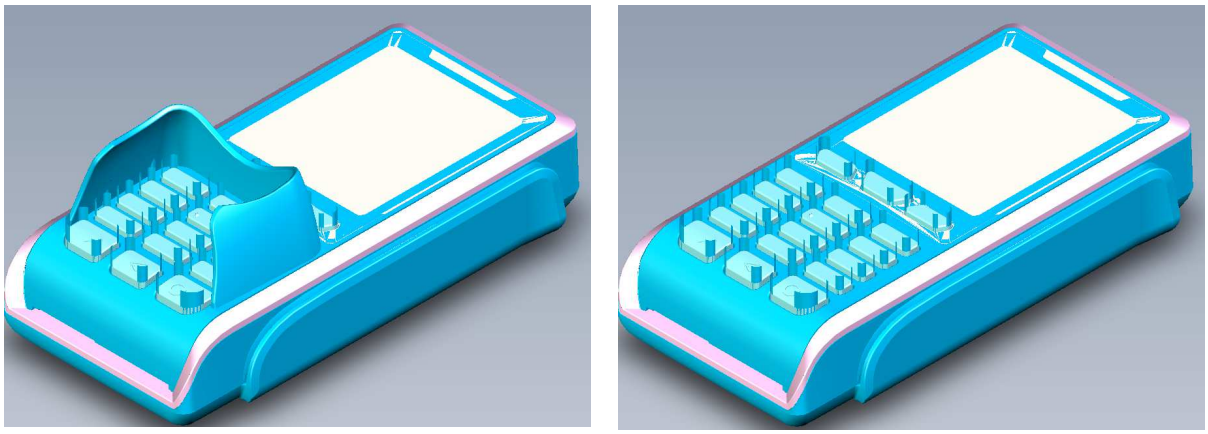

Figure 3. SPp30 with and without the Privacy Shield (perspective).

METHOD 2: PRIVACY STAND

This method is based on merchants providing privacy shielding to customers by using a shield integrated within the merchant's checkout. When installed properly, this stand provides adequate protection against unwanted visual observation during PIN entry. For guidelines on the angles where visual protection should be implemented, acquirers and merchants are advised to refer to the "Criteria for the Privacy Stand Design" in section 0. An example of this method can be seen in Figure 4.

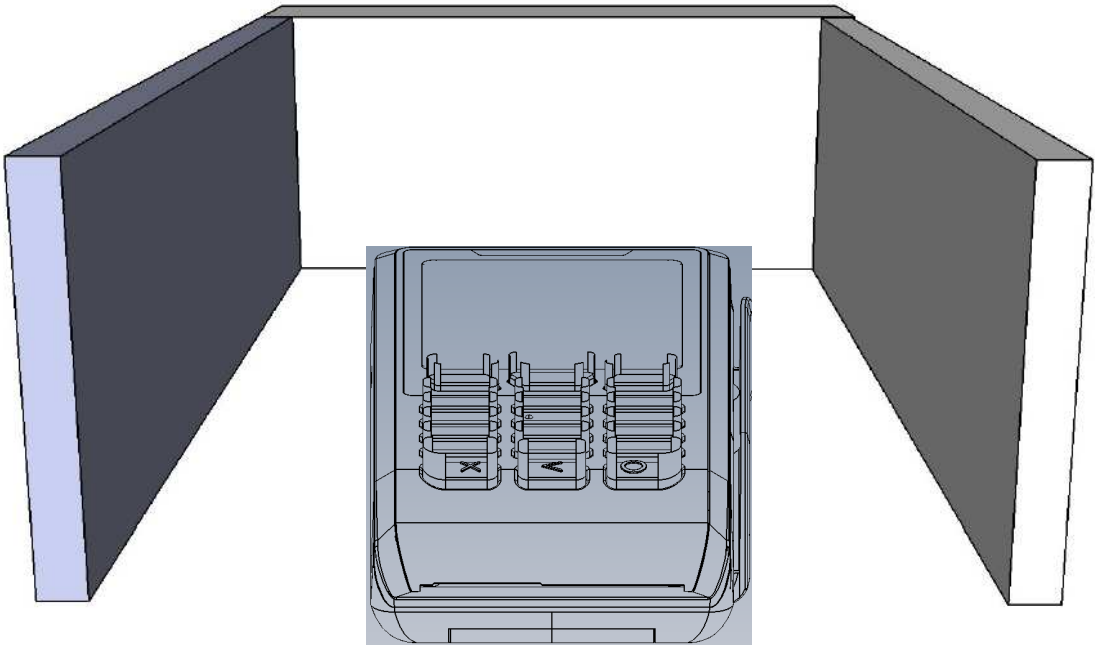

Figure 4. SPp30 Installed in a Merchant-Provided Privacy Stand.

Other examples of merchant-provided privacy stand are:

- Positioning the device at an angle where visual observation from a third party becomes difficult.
- Installing the device on a swivelling stand which adapts to the ergonomy requirements of each cardholder, while making observation by others more difficult.
- Ensuring that security cameras in the premises do not have a direct view of the POS keypad.

METHOD 3: CARDHOLDER GUIDANCE AND INFORMATION

An additional method to prevent visual observation of the PIN entry process is to provide the cardholder with adequate guidance and information before and during the process. Such information may be delivered in the following formats:

- Messages and graphics displayed by the payment application in conjunction or prior to the PIN entry prompt. Such messages and graphics could convey easy-to-understand information on how to protect the PIN from sight (e.g. by using the cardholder's own body or their free hand to block the view of the keypad). Figure 5 shows an example of a safe PIN entry logo.
- Educational signage on the device and in plain sight of the cardholder, so that their attention is drawn on the importance of concealing their PIN number (e.g. a simple logo instructing the cardholder to be aware of potential "shoulder-surfing").
- A logo for safe PIN-entry process in the form of a label to be adhered to the top casing of the device. Figure 5 shows an example of such logo.

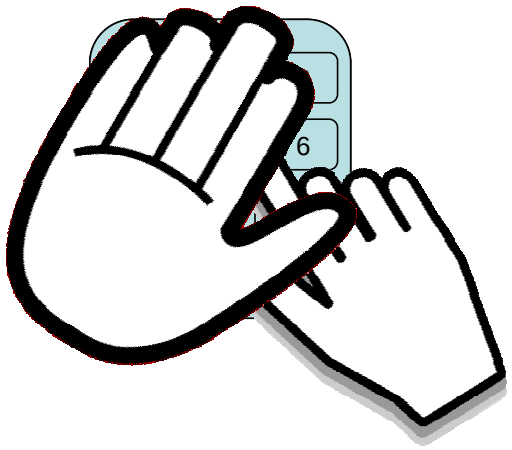

Figure 5. Safe PIN Entry Logo Example.

APPLICABILITY GUIDANCE

This section contains a simple guide for acquirers and merchants to understand the effectiveness of each of the described method in the most common installation circumstances. Acquirers and merchants are encouraged to include a combination of as many protection methods as possible, within their operational constraints.

Table 1 summarises the effectiveness of each method by itself in the most common installation environments, categorised by the existence and relative position and type of potential third-party observers. The following coding is used in the table:

- Low: Least effective.
- Medium: Effective in most circumstances.
- High: Highly effective in all circumstances.

Note that Cardholder Guidance is less repeatable and should therefore be used in conjunction with other protection methods.

Protection Method	**Observation Corridors in the Installation Environment**				
	Cashier	**Customers in Queue**	**Customers Elsewhere**	**On-Site Cameras**	**Remote Cameras**
Method 1. Privacy Shield on Keypad Area	High	High	High	Low	Medium
Method 2. Privacy Stand	High	High	High	Low	Low
Method 3. Cardholder Guidance	High	High	High	High	High

Table 1. Method Effectiveness on Observation Corridors.

ANNEX A1. CRITERIA FOR PRIVACY STAND DESIGN.

In order to ensure that the adequate level of privacy is achieved when using Method 2 as defined in this document, current security standards offer guidance on the requirements that a privacy shield or stand should comply with **Error! Reference source not found.**. These requirements focus on the minimum angles from which the numeric key area is visible for an observer located at any given angle around the key pad.

To this end, the following angles are defined (as illustrated in Figure 6 and Figure 7):

- **Observer's Position (β):** Horizontal position of an observer relative to the PIN entry device user's (cardholder) position, taking key number '5' as the centre of reference.
- **Protection Angle (α):** Angle between the horizontal plane passing through the '5' key and a virtual line which connects the '5' key and an observer's eye.
- **Keypad Plane Tilt (δ):** Angle between the keypad plane and the horizontal plane.

To guarantee the adequate level of privacy, the following guidelines for the values of the above angles, as a function of the observer's position, are defined:

1. The device is intended for countertop usage, and therefore $0^o <= \delta <= 45^o$. If the device is installed with values of $\delta > 45^o$ (e.g. vertically), then the protection angles α described in this section shall be measured against the vertical plan passing through key '5' of the device.
2. The minimum angles from which an observer would have visibility of key '5' (i.e. the minimum values of α) are defined for each observer's position (i.e. for each value of β) as follows:

Observer's Position (β)	**Protection Angle (α)**	**Remarks**
$315^o <= \beta <= 45^o$	N/A	Area is protected by cardholder's body
$45^o < \beta < 90^o$ $270^o < \beta < 315^o$	>=35º	Area partially protected by cardholder's body. Note that depending on the tilt of the device, the front end of the device will require higher protections to comply with the required angle.
$90^o <= \beta <= 270^o$	>=40º	Area not protected by cardholder's body. Note that depending on the tilt of the device, the back-end/display-end of the device may allow for lower protections to comply with the required angle.

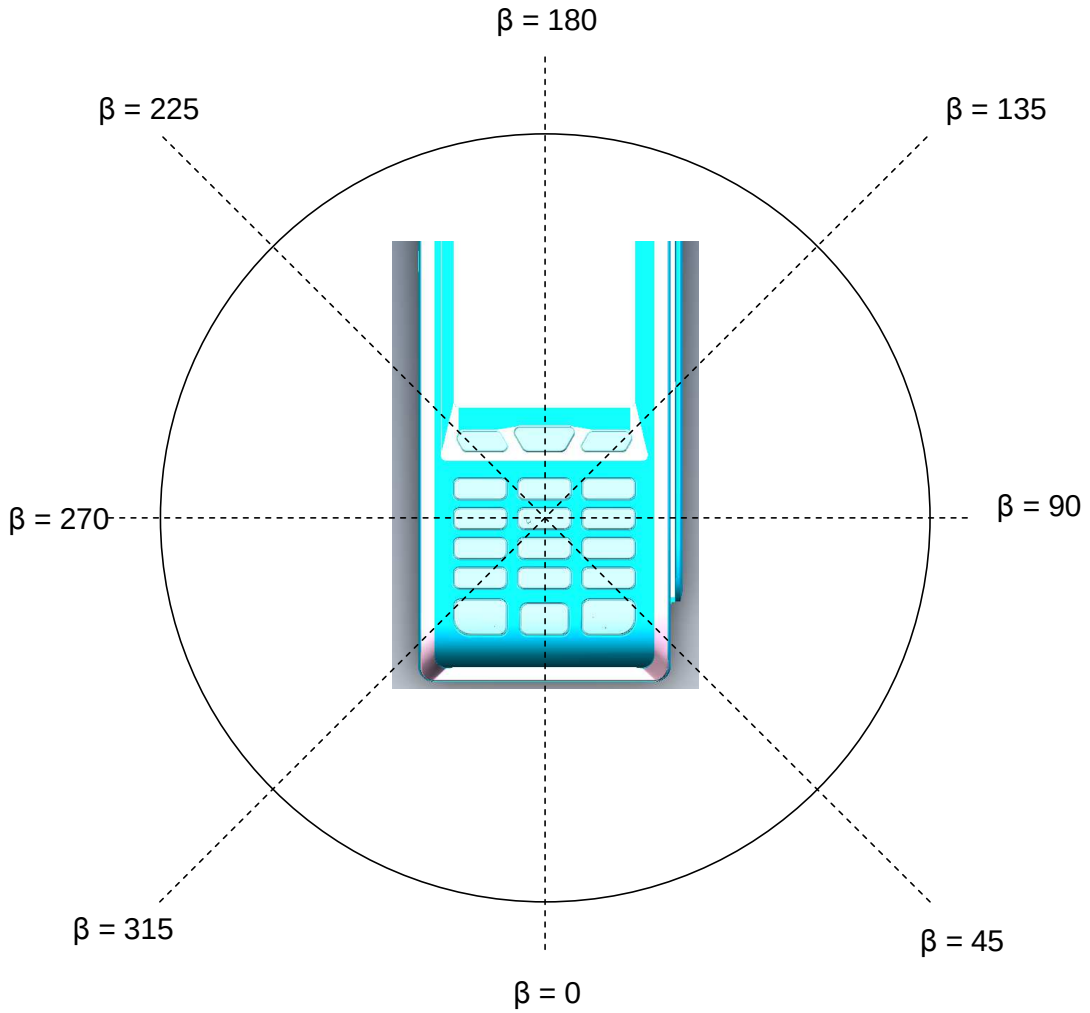

Figure 6. Angle Definition for Privacy Stand Design (I).

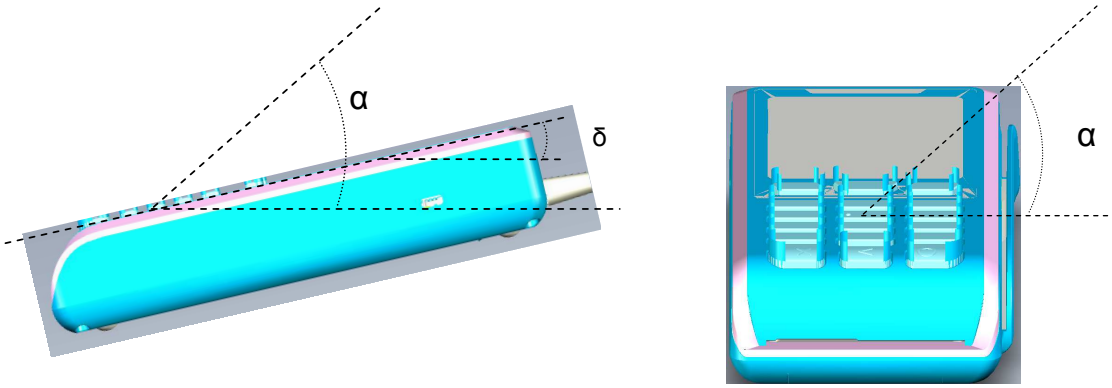

Figure 7. Angle Definition for Privacy Stand Design (II).