

EYE-02 GSM SECURITY CAMERA APPLICATION NOTE

EYE-02 ANTENNA REPLACEMENT

EYE-02 camera comes from production equipped with a small testing antenna, which is well suitable for many indoor applications and desktop testing.

However, for improved camera function, users are recommended to replace the basic antenna with another external GSM antenna.

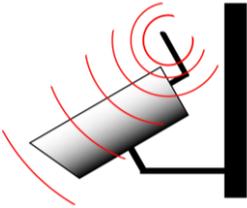
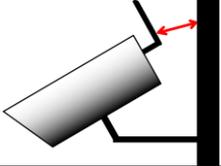
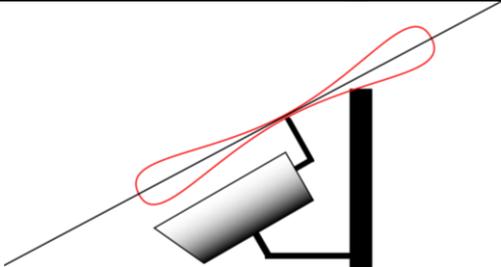
The recommended level of GSM signal indicator for proper camera function is above 70%. If the signal indicator shows the level between 40-70% of signal indicator the user is highly recommended to replace the basic antenna with a higher gain external GSM antenna and so data transfer rates might be significantly improved. For even lower signal level (<40%) the camera function would be affected seriously (SMS only, pictures and remote access would be not available or very limited) and could not be used without a high gain external antenna.

Signal level by EYE-02 ¹	Recommended action
less than 25%	It is mandatory to use another antenna with higher gain or place current antenna to position with better reception.
25% .. 40%	The SMS messaging would work, but data transfers (MMS, e-mail) will be unreliable. It is highly recommended to use another type of antenna with higher gain or move current antenna to position with better coverage
40% .. 70%	All reporting channels (SMS,MMS, e-mail, calls) will work reliably. The usage of better antenna can increase speed delivering reports.
70% or better	The signal level is good. There is no need to do anything.

How the external antenna helps:

- External antenna with a gain of +3dBi and higher improves the function of the device at places with a lower GSM signal and thus the user gets much faster data downloaded from the camera. It can significantly speed up the responses during remote access.
- Large distance between camera sensitive detectors (as PIR detector or noise detector) allows to use higher sensor sensitivity without the unwanted false detector alarms (picture 1).
- Vertical antenna orientation dramatically improves the directorial characteristic of the antenna (picture 3) and longer distance from wall material decreases unwanted GSM signal absorption in wall material (picture 2). This helps the proper function at rural places with lower signal coverage, decreases the long-term power consumption and increases the backup battery lifetime.

¹ The signal level indicator is possible to read in JabloTool software on the device's overview page.

	<p>Picture 1. – Short distance between GSM antenna and sensors can possibly cause false alarms if sensors use higher sensitivity settings.</p>
	<p>Picture 2. - Proximity of radio wave absorption material like walls can negatively influence of GSM signal level in camera.</p>
	<p>Picture 3. – In common 40-50 degrees mounting position of EYE-02 the directional characteristic of antenna do not match optimal directions.</p>

There are many types of suitable GSM antennas available in specialized shops that sell mobile phones and the user may choose the best suitable type of its installation.

Recommended technical parameters of external GSM antenna:

- Quad band GSM (850/900/1800/1900 MHz)
- SMA connector
- Maximal cable length 5 meters
- Antenna gain > 3dBi
- Recommended antenna length > 120 mm