

Choice of Leddicon® Camera Tubes for the Marconi Mk 8 and Mk 9 cameras

D. P. Mouser

For the Marconi Mk 8 and Mk 9 cameras, in order to reduce lag in the Blue and Red channels the optically projected picture and scan format are considerably reduced* compared with the Green channel. This minification effectively increases the illumination per unit area of the target, hence a corresponding increase in charge per unit area is obtained giving an improved beam 'read out' characteristic.

Using this reduced target area of the camera tubes with scanning beam set to a similar format produces rectilinear geometry. The Green picture format and standard scan size exploits most of the available tube target area and geometric errors are thus more easily introduced.

In order to achieve good registration of the three signals the alternatives are:

- a) adjustment of the geometry correctors which are available in these cameras but restricted to the Blue and Red channels, which would mean a departure from the rectilinear geometry; or
- b) achieve improved geometry in the Green channel.

The latter is obviously most desirable and Green Leddicons can be supplied whose geometry will closely match that produced by the Red and Blue tubes. This is achieved by selecting Green tubes whose target to mesh spacing will produce optimum geometry. Another operational problem that may be experienced in these cameras is the presence of a moire pattern (usually emanating from the top left corner of the encoded colour picture). The cause of the moire pattern may be seen by examining the picture from the Green channel. A fine mesh pattern, again in the top left corner, will be present and, due to it beating with the sub-carrier frequency, produces the objectionable pattern in the resulting colour picture. This high frequency mesh pattern when visible in the Green picture can sometimes be removed by small angular rotation of the tube in the yoke or slight changes in beam alignment - the latter departing from its optimum setting for other parameters.

It has been established that the most effective cure is to increase the target to mesh spacing in the camera tube. Leddicons for the Marconi Mk 8 and Mk 9 cameras with optimized mesh to target dimension will give good geometry in the Green channel and hence improved registration, consistent with colour pictures free from spurious signals in the form of beat patterns.

These tubes are available now from EEV in the P8400/P8401 (integral bias), P8131/P8133 (external variable bias) and P8135/P8137 (HOP) series.

* approximately half the area of the Green.