

**A GUIDE TO THE EMC SCREENING OF KM6-II AND KM25 SUBRACKS**

Please note that any reference in this section to attenuation figures is theoretical and examples have been obtained under laboratory conditions only.

By its nature, an empty enclosure does not meet any EMC performance regulation, since all the existing standards are applicable solely to electrical/electronic equipment; any modification to either the enclosure or its contents will have an effect upon its EMC performance.

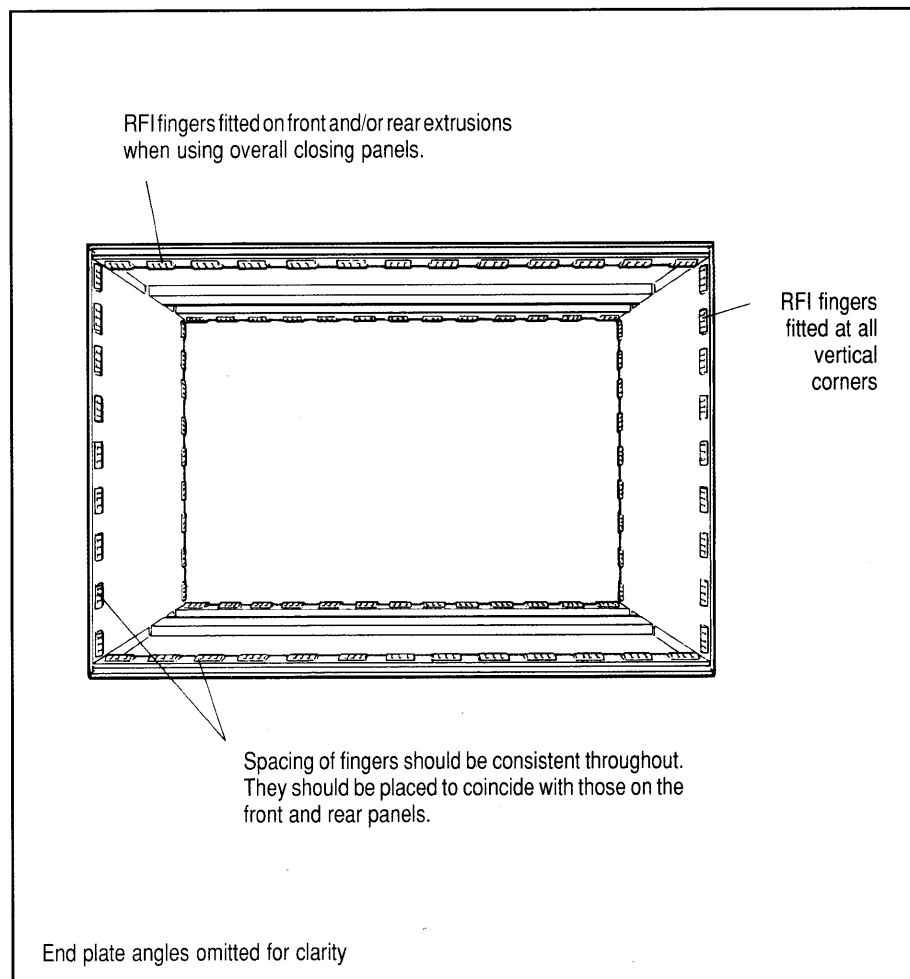
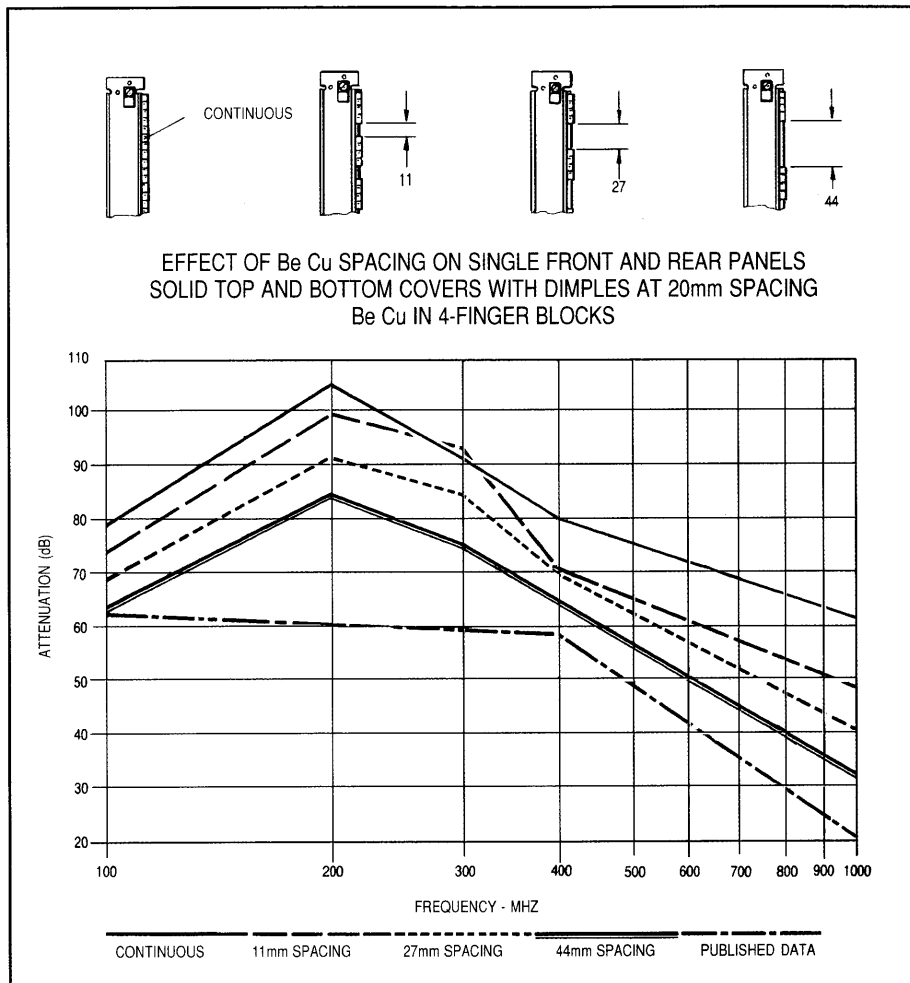
Some sizes of KM6-II and KM25 can be retrospectively screened by the addition of covers, front panels and associated components. These can be found by reference to the various details in this catalogue.

The key to good screening performance in the E (electrical) field is to keep down the size of holes and the land between them, and to reduce the length of slots, on the basis that the shorter the slot, the better the performance at higher frequencies. The H (magnetic) field performance is more a function of material and thickness - hence a steel cover would offer some improvement in this area.

The cover kits are available in ventilated and unventilated form and their typical performance can be fairly accurately forecast, assuming that they are fitted in the recommended way. The obvious difference is that the unventilated version offers a higher level of attenuation. Despite the fact that aluminium has good thermal properties, however, it must be accepted that you may have heat dissipation problems. The choice of ventilation holes is necessarily a compromise between EMC, thermal and manufacturing considerations. We have chosen with these in mind. Apart from this, the only means that can easily be used to further enhance the standard screening performance in this area is to apply some sort of additional seal around all edges, thus reducing slots to the minimum; under laboratory conditions we achieved an improvement of approximately 15dB using seals in this manner. For this sort of application there are self-adhesive aluminium or copper strips available from EMC seal suppliers.

The area which is most open to variables is in front and rear panels. Here, adjusting the spacing of the RFI fingers can produce significantly different performances and we hope this guide will assist you in this area. Hence, all other factors being equal, maximum performance can be achieved by using full width front panels, thus reducing the number of potential leakage points.

Shown here is a set of typical curves obtained under test conditions using various finger configurations, from small groups at varying intervals up to a full strip of fingers. The subrack was fitted with unventilated top and bottom covers throughout the test. The 11mm curve is anomalous at 300MHz which may be a function of the geometry of the particular enclosure under test. Figures are averaged from front and rear. Ventilated covers reduce the attenuation by an average of 15% under test conditions. The downward slope at the lower frequency end is largely a function of antenna size and type. The effect of slot length is clearly shown at increasing frequencies. EMC fingers can add significant cost to the screening of a system and for this reason, we do not include fingers as part of any cover or front panel kit; instead, you should select the configuration most suitable for your particular application, after consideration of the variables detailed in this section. The EMC finger strips can be easily cut to length with a pair of sharp scissors, taking care to avoid crushing the raised fingers.



Subracks 4

# KM6-II EMC CONVERSION

## EMC CONVERSION KITS OVERALL

This kit contains all the parts required to convert an 84HP subrack for EMC, excluding any front or rear panels.

### CONTENTS OF KIT

- 2 plain tie bars
- 2 tapped strips
- 2 rear closing angles
- Top and bottom covers (either ventilated or unventilated)

EMC CONVERSION KITS (for 160 pcbs in 240mm end plates)

### Ordering information

Height	Description	Order code
3U	Unventilated	950-240574K
3U	Ventilated	950-240575H
6U	Unventilated	950-240576F
6U	Ventilated	950-240577D
9U	Unventilated	950-240578B
9U	Ventilated	950-240579L

This performance graph shows the results from randomly selected KM6-II subracks, 6Ux84HPx360 with ventilated and unventilated EMC covers. Both were fitted with overall closing panels and a maximum quantity of BeCu fingers.

Measurements were taken at all six faces and the results shown in the graph are calculated as follows:

- H field - minimum figures
- E field - minimum figures up to 30MHz  
above 30MHz the figures for all faces are plotted on a rolling seven point average.

A detailed discussion of our EMC test facility and procedures is shown in our separate leaflet 'The Science of Compliance'. If you require a copy, please contact your local sales office.

EMC CONVERSION KITS (for 160 or 220 pcbs in 300mm end plates)

### Ordering information

Height	Description	Order code
3U	Unventilated	950-240580D
3U	Ventilated	950-240581B
6U	Unventilated	950-240582L
6U	Ventilated	950-240583J

EMC CONVERSION KITS (for 160 or 220 pcbs in 360mm end plates)

### Ordering information

Height	Description	Order code
3U	Unventilated	950-240584G
3U	Ventilated	950-240585E
6U	Unventilated	950-240587A
6U	Ventilated	950-240588K
9U	Unventilated	950-240589H
9U	Ventilated	950-240590A

EMC CONVERSION KITS (for 280 or 340 pcbs in 420mm end plates)

### Ordering information

Height	Description	Order code
6U	Unventilated	950-240562F
6U	Ventilated	950-240563D
9U	Unventilated	950-240564B
9U	Ventilated	950-240565L

## RFI FINGER STRIP

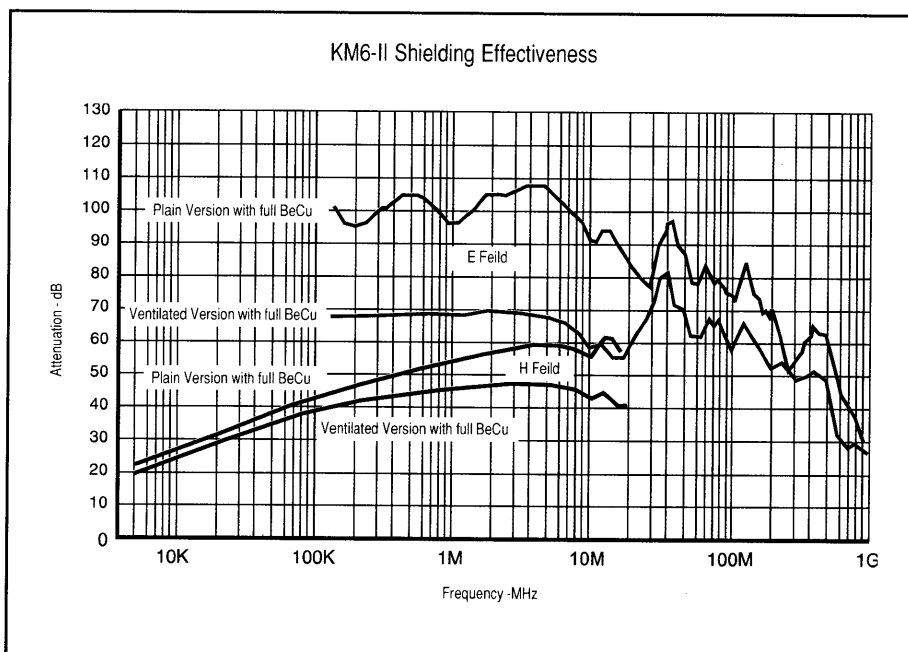
KM6-EC COMPATIBLE

Supplied in lengths of 381mm consisting of 60 fingers. The fingers are self adhesive for easy application and replacement in the field. The quantity of fingers fitted at any panel/subrack interface is selected according to the performance required from the overall screen. Please see page 4.02 for details. They can be cut using a sharp pair of scissors, taking care to avoid crushing during cutting.

RFI finger strip material: Beryllium copper

### Ordering information

RFI Finger strip	930-238243F
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## NEW BOARD AREA ONLY EMC COVER KITS

KM6-EC COMPATIBLE

New board area only EMC cover kits (Fig.4) For use in situations where the backplane forms the rear EMC screen, these ventilated covers fit between the front, and backplane, extrusion only.

Select by board depth and subrack width (84HP only); end plate depth is not a consideration. Supplied in a kit of two with fixings.

### Ordering information

Description	Order code
84HPx160 Ventilated EMC cover	950-259371F
84HPx220 Ventilated EMC cover	950-259372D

