

# Office Memorandum • UNITED STATES GOVERNMENT

SPM 7-696

TO : Chief, Engineering Division, OC

DATE: 10 December 1957

FROM : Chief, Supplemental Programs Division, OC

SUBJECT:  Antenna Requirements

25X1

1. Our requirements for  antennas has never been fully satisfied. For increased efficiency, reliability, and security of operation, a serious shortage of adequate antenna/filter/crystal systems exists. We, therefore, request your earliest possible assistance in obtaining samples for evaluation to determine useable items for production. This work will be chargeable to funds under allotment number 8-7912-50-600.

25X1

2. Present methods of operating ELINT receiving/recording equipment establishes particular design factors which are outlined below. In general terms, the following conditions are established:

A. Coverage from 50 mcs to 40 Kmc is required. ✓

B. Construction should be flat, two dimensional, with height and width dimensions limited to the values as specified in the following paragraph.

C. Crystal holders are required in reliable assemblies to be attached to the antennas used with a specific holder and crystal. ✓

D. Filters, where required, should be part of the antenna unless the physical size is prohibitive. Under these conditions the filter may be part of the crystal assembly.

E. The gain and beam patterns should not be less than a dipole. In cases where beam width and gain cannot be maintained above this standard, points of optimizing these factors will be provided.

F. Cable connectors for attaching the antenna to the receiver should be the MB type with molded fittings for maximum reliability under field operating conditions.

3. The following table establishes frequency, filter, and size factors.

Continued

DOC	01	REV DATE	28 APR 1957	BY	018373
ORIG COMP	33	BPI	56	TYPE	02
ORIG CLASS	S	PAGES	4	REV CLASS	C
JUST	22	NEXT REV	2000	AUTH:	HR 10-2

CONFIDENTIAL

~~SECRET~~

SPM 696 ~~CONFIDENTIAL~~  
Page 2

	<u>FREQUENCY</u>	<u>FILTER</u>	<u>ANT. MAX. SIZE</u>
A.	50-150 mcs	45-165 mcs	24" x 36"
B.	50-500 mcs	45-550 mcs	"
C.	50-1000 mcs	None	"
D.	150-500 mcs	135-550 mcs	"
E.	500-1000 mcs	450-1100 mcs	11" x 14"
F.	500-2500 mcs	450-2750 mcs	"
G.	1-2 Kmcs	900-2.2 Kmcs	4" x 6 1/2"
H.	1-5 Kmcs	900-5.5 Kmcs	"
I.	1-10 Kmcs	None	"
J.	1-20 Kmcs	None	"
K.	2-4 Kmcs	1.8-4.4 Kmcs	"
L.	4-8 Kmcs	3.6-8.8 Kmcs	"
M.	5-25 Kmcs	None	"
N.	8-16 Kmcs	7.2-17.2 Kmcs	"
O.	10-40 Kmcs	None	"
P.	16-32 Kmcs	None	"
Q.	For use with Antenna "A" above	55-75 mcs	

4. We prefer to have all antennas and filters [redacted] 25X1  
 fabricated either by etched or printed circuit design. The required crystal holders must be mounted on appropriate brackets for attachment to the antenna and receiving equipment. (See attachment).

5. All antennas from [redacted] should be either metallic cloth 25X1  
 [redacted] 25X1  
 [redacted] The exact dimensions may be altered depending upon the antenna type planned. 25X1

6. Our request for antennas and filters of the printed type is patterned after the AN/PRR-8 system which was assembled by Stromberg-Carlson. The series of flexible antennas from [redacted] may be expedited by information gained from the CS-8 antenna recently requested. (SPM 7-678). 25X1

7. The requirement for this set of antennas is becoming more critical each day. A flexible item with the maximum reliability is our only hope to solve the [redacted] 25X1  
 [redacted] 25X1

Attachment:  
 As above

Distribution:  
 Orig & 1 w/att - Addressee

~~SECRET~~

~~CONFIDENTIAL~~

Does the attachment imply that the antenna patterns and gain shall be those obtained with equipment occupying the space indicated by the dashed line?

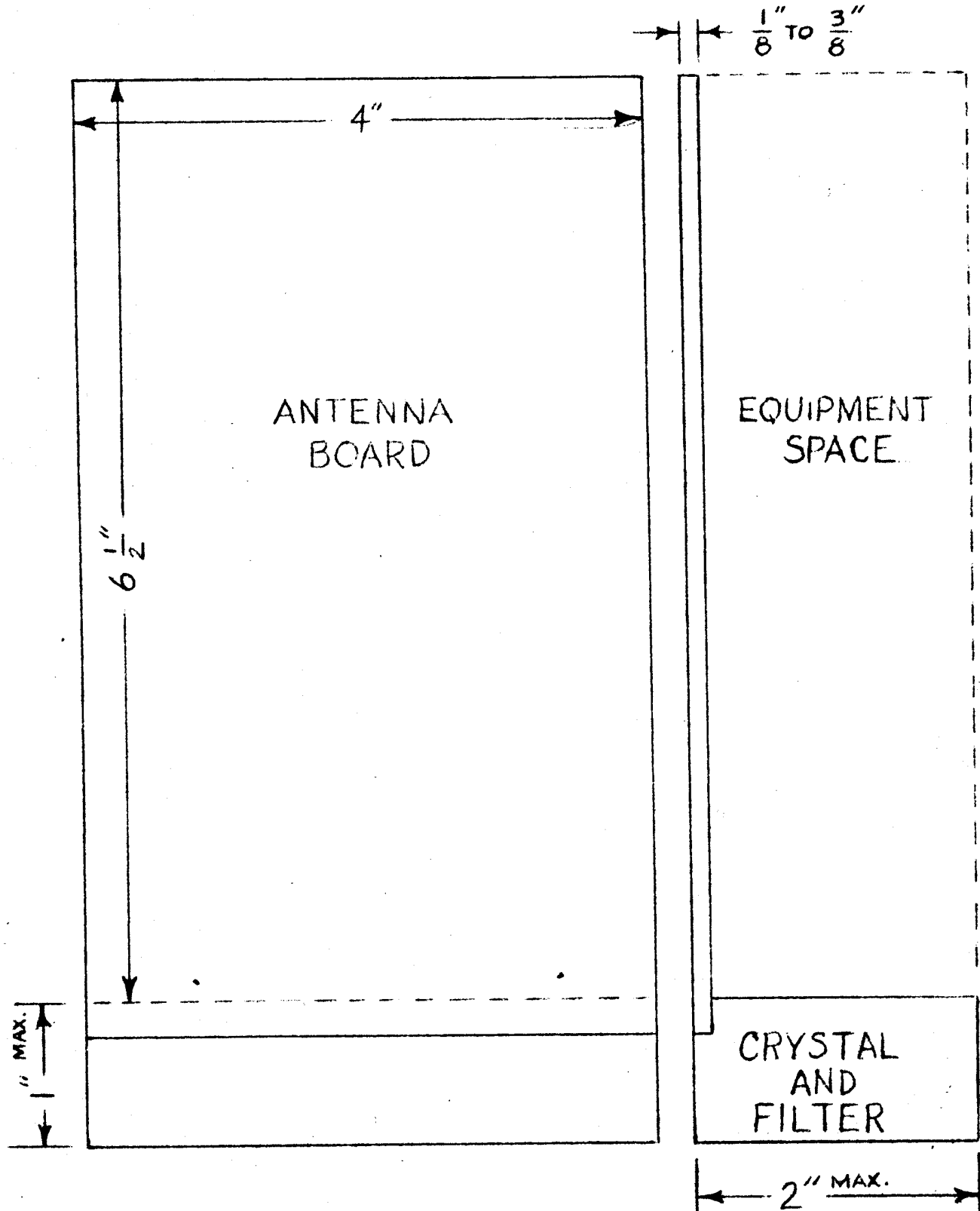
If not, does this mean that antennas can be several "6 1/2 in. x 4 in. boards" which may be hooked together to give appropriate antenna patterns.



~~CONFIDENTIAL~~

~~SECRET~~

Attachment to SPM 7-696



~~SECRET~~

~~CONFIDENTIAL~~