

MAY 2 1960

File: MC-1264, 3-2
T-22388
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Completed: 4-11-60

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RBC
10/06/98
W. Layne
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Re: Vibration Test of Two Development MC-1264 Thermal Batteries,
Manufactured by Eagle Picher

Summary

Two MC-1264 thermal batteries were subjected to vibration from 10 to 2000 sps along each of three mutually perpendicular axes. Vibration along each axis consisted of a resonance search, one hour of vibration at resonance, and one hour of cycling (less the time required to perform the resonance search). During this vibration test, the two MC-1264's were mounted in the actual weapon support assembly defined in Print SA9-1217-16836.

The two MC-1264's incurred no external physical damage due to vibration. One of the hold-down straps on the support assembly broke just below the weld during vibration at resonance along the last axis of vibration (Y axis).

The MC-1264's were returned to the consultant for activation tests.

Object of Test

This test was performed as part of a development evaluation on the MC-1264 thermal battery. The effects of vibration were to be studied.

Concurrently, the effects of vibration on the actual weapon support assembly were to be determined.

Authorization for Test

This test was authorized in a Work Order Authorization from Division 1311, dated February 5, 1960. Mr. B. G. Neeld was the consultant.

Functional Measurements and Methods

All non-destructive tests before and after vibration were performed by the consultant. All activation tests were also performed by the consultant.

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Procedure and Results

To simulate the normal mechanical mounting of the MC-1264's to the next assembly, the units were mounted in the actual weapon support assembly, which is defined in Print SK9-1217-16836. The design configuration of the support assembly has been changed somewhat from the support used in this test; however, none of the supports having the new configuration were available at the time of this test. The assembly mounting, accelerometer locations, and axes designations used during this test are shown in Figure 1.

Two MC-1264 thermal batteries, Serial Nos. A-42 and A-43, were vibrated along the axes designated in Figure 1 to determine resonance. The frequency range was 10 to 2000 cps and input acceleration or amplitude was 0.036-inch double amplitude from 10 to 73.7 cps and 10.0 g from 73.7 to 2000 cps. The results of the resonance search are plotted in Figures 3, 4, and 5. Only response ratios greater than 2.0 have been plotted.

Each unit was then vibrated at resonance for one hour along each of the three axes. During the vibration at resonance along the last axis, which was the Y axis as designated in Figure 1, one of the hold-down straps on the support assembly broke below the weld. A photograph of the broken strap is shown in Figure 2.

No vibration cycling was performed on these units since a total of 76 minutes was required to complete the resonance search.

Following the vibration test, the units were returned to the consultant for non-destructive and activation tests.

R. B. Frantz
R. B. FRANTZ - 1611-3

R. W. Kelley
R. W. KELLEY - 1611-3
WB

RBF:1611-3:al

Enc: Figures 1 thru 5

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R. D. Wehrle, 1311, Attn: B. G. Noeld
W. A. Gardner, 1610
E. I. Bruce, 1217, Attn: P. L. Brown
J. M. Wiessn, 1442
D. Williams, 1613, Attn: B. Johnson
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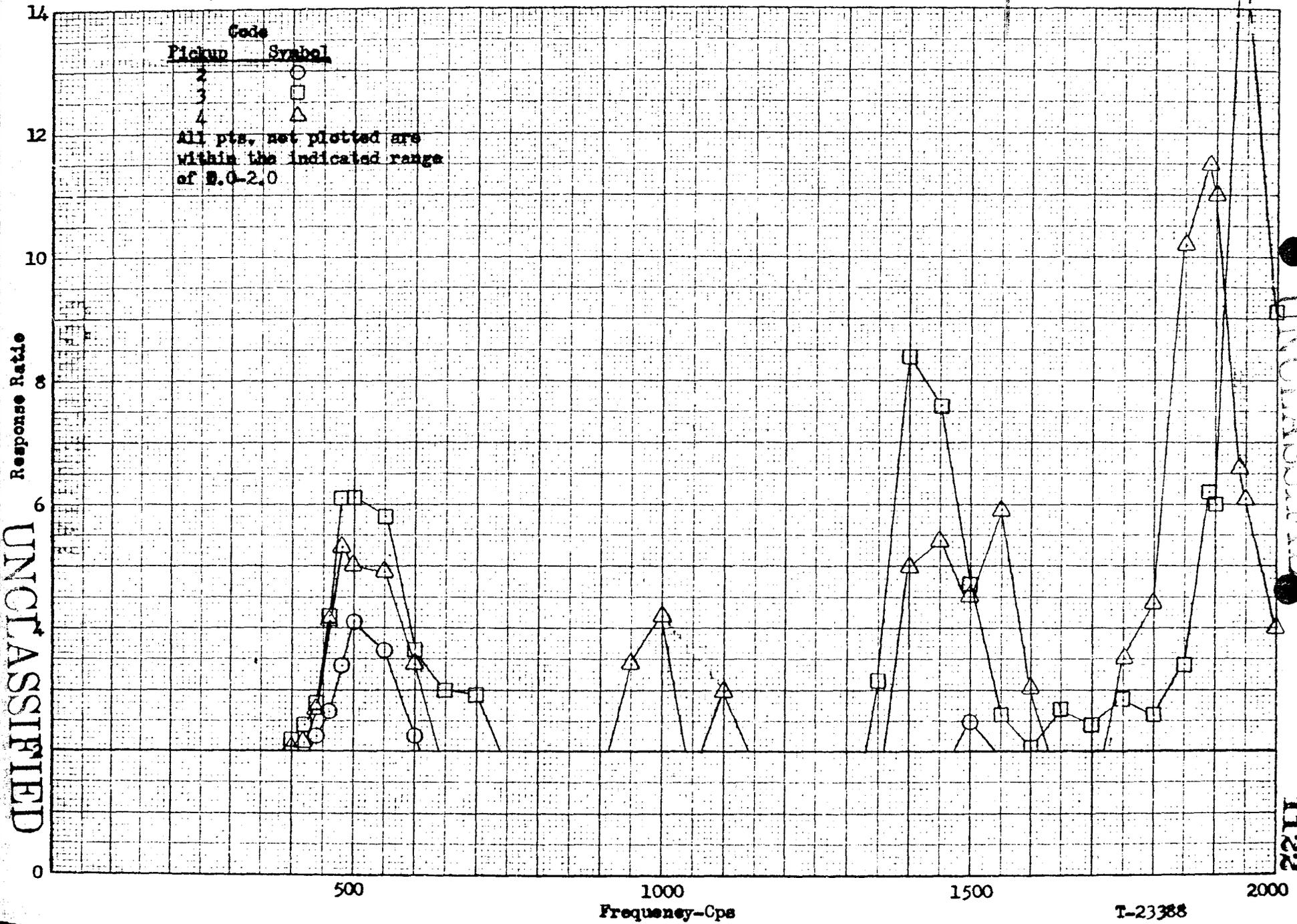
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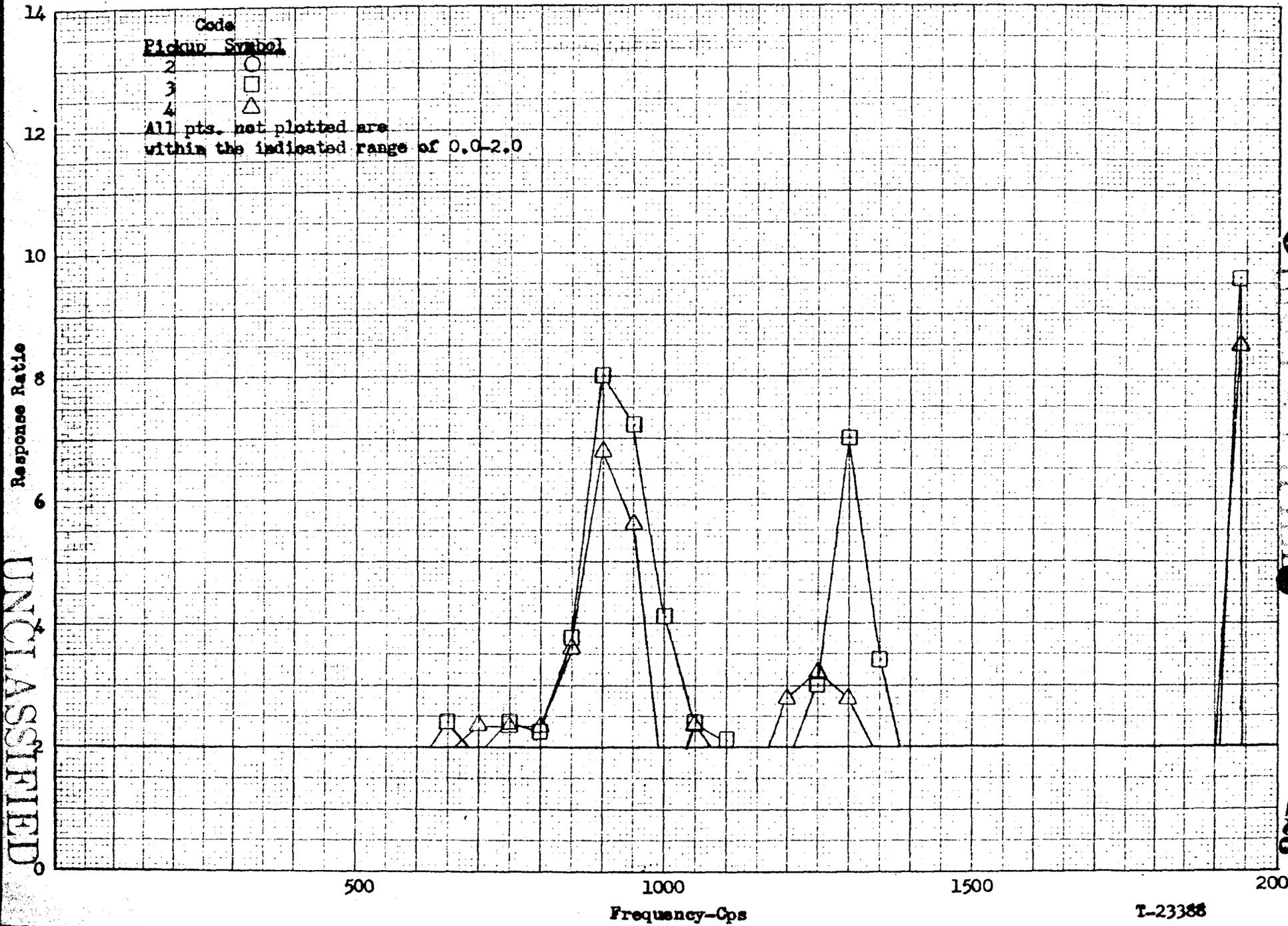
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MC-1264 Resonant Survey
Units 42,43 X Axis Figure 3



MC-126, Resonant Survey
Units 4,43 Y Axis

Figure 4

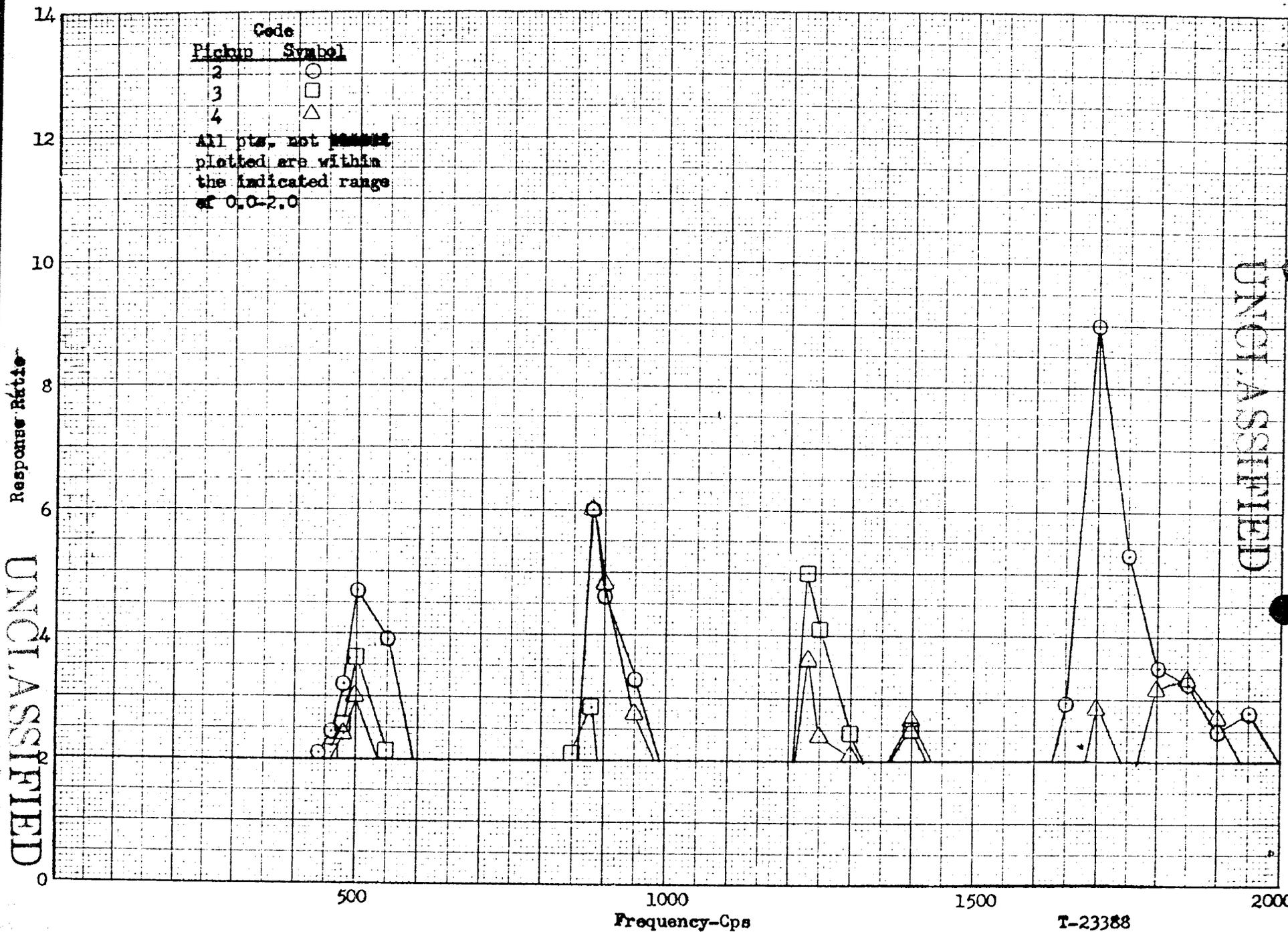


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MC-1264 Resonant Survey
 Units 42,43 Z Axis Figure 5



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