ETMG

Document 250-91

FREQUENCY STANDARDS FOR RADAR TRANSPONDERS

RCC

ELECTRONIC TRAJECTORY MEASUREMENTS GROUP

RANGE COMMANDERS COUNCIL

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This document defines the selection and use of the frequencies available for instrumentation radar transponders. The information regarding frequency assignments was extracted from the National Telecommunications and Information Administration's Manual of Regulations and Procedures for Federal Frequency Management, Chapter 4, May 1989 edition.

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FREQUENCY STANDARDS FOR RADAR TRANSPONDERS

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Electronic Trajectory Measurements Group
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INTRODUCTION

This document defines the selection and use of the frequencies available for instrumentation radar transponders. The information regarding frequency assignments was extracted from the National Telecommunications and Information Administration's Manual of Regulations and Procedures for Federal Frequency Management, Chapter 4, May 1989 Edition, as revised January 1990.

This document complements the following publications: IRIG Standard 254-80, Noncoherent C-Band Transponder Standards, and IRIG Standard 257-86, Coherent C-Band Transponder Standards. Document 250-65 is superseded by 250-91. Revised in December 1991 by the Electronic Trajectory Measurement Group, this document will continue to be updated as necessary. Comments should be referred to the Range Commanders Council Secretariat.

TRANSPONDER FREQUENCIES

Primary frequencies will be chosen when possible. International Telecommunications Union (ITU) Radio Regulation (RR) number 138 states, "Primary and permitted services have equal rights, except that, in the preparation of frequency plans, the primary service, as compared with permitted service, shall have prior choice of frequencies." This standard will refer to the permitted services as secondary frequencies.

Secondary frequencies are subject to interference from a primary service. International Telecommunications Union RR numbers 138 and 139 define their use, limitations, and interference protection rights. The following excerpts from ITU RR number 139 state that "stations of a secondary service

a. shall not cause harmful interference to stations of primary or permitted services to which frequencies are already assigned or to which frequencies may be assigned at a later date,

b. cannot claim protection from harmful interference from stations of a primary or permitted service to which frequencies are already assigned or may be assigned at a later date, and

c. can claim protection, however, from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date."

Radar transponders are considered to be radio-location equipment and may be authorized to operate in the following frequency bands, which have been extracted from the U.S. Government Table of Frequency Allocations:

a. 1215 to 1400 MHz (L-Band)

Primary

1215 to 1300 MHz and 1350 to 1400 MHz

Secondary

1300 to 1350 MHz, on a non-interference basis to aeronautical radionavigation services

b. 2300 to 3700 MHz (S-Band)

Primary

2300 to 2450 MHz and 3100 to 3700 MHz

Secondary

2450 to 2500 MHz, a permitted service on the condition that harmful interference is not caused to non-government services 2900 to 3100 MHz, on a non-interference basis to maritime radionavigation services

c. 5250 to 5925 MHz (C-Band)

Primary

5250 to 5460 MHz and 5650 to 5925 MHz

Secondary

5460 to 5470 MHz, on a non-interference basis to radionavigation services
5470 to 5600 MHz, on a non-interference basis to maritime radionavigation services
5600 to 5650 MHz, on a non-interference basis to maritime radionavigation and meteorological aids services

d. 8500 to 10000 MHz (I-Band)

Primary

8500 to 9000 MHz, 9200 to 9300 MHz, and 9500 to 10 000 MHz

Secondary

9000 to 9200 MHz, on a non-interference basis to aeronautical radionavigation services
9300 to 9500 MHz, on a non-interference basis to radionavigation services

Note that prior to any radar transponder operations in the above frequency bands, a formal frequency assignment must be obtained through applicable frequency management channels. Questions concerning frequency assignments should be referred to the applicable range frequency manager.