HARM INTRODUCTION

The High Speed Anti-Radiation Missile (HARM) Mission Planning Module (MPM) is used to plan a mission which may include a variety of HARM shots and modified ELINT data for handoff to the missile.

The HARM MPM is composed of nine unique options:

- **HARM Shots**
- **MME Data** (Manually Modified ELINT)
- **MNT Data** (Manual New Threat)
- **UTC Mission** (User-defined TOO Class)
- **Import / Export HARM Data**
- **HARM ELINT Browser**
- **Build HARM MU File**
- **HARM Kneeboard Cards**
- **HARM Reports**

These options are used to perform HARM shot planning, manage manual threat ELINT data, and produce hardcopy and digital output (aircraft MU load) for briefing and cockpit use.

HARM MPM FUNCTIONALITY

The *mission name* is the identifier for the active mission, selected from the existing entries in the HARM Missions database. The *mission name* should be unique for the current planner logged in to the TAMPS workstation. The mission is the basic planning unit in the HARM MPM.

IMPORT / EXPORT HARM DATA

Import / Export HARM Data provides for backup of planner selected HARM Mission data, UTC mission data, MME data and MNT data. This provides for protection against destruction from machine failure or inadvertent modification. This is also a way to move previously planned mission files from one TAMPS machine to another. The cascading menus gives the planner a choice between **Export HARM Data** or **Import HARM Data**.

HARM SHOT PLANNING

The HARM MPM allows for planning and evaluating the five shot modes of HARM employed via the F/A-18 Command Launch Computer (CLC). These modes are Pre-briefed (PB), Pre-briefed Equations of Motion (PB EOM), Target of Opportunity (TOO), TOO EOM, and Self Protect (SP).

HARM SHOTS WINDOW

The **HARM Shots** option for the HARM MPM is used to plan a new HARM shot (launch) or to manage an existing HARM shot for the currently active mission. Each mission can contain multiple shots against different targets. A directory of the existing shots in the currently active mission is displayed on the HARM Shots window.

Common Launch Record Fields

Fields on the Launch Record window available for editing include:

Target Information — data pertaining to the target for the HARM shot.

- **Name** — name of the target.
- **Select** — used to select the HARM Target.
- **Ref No** — reference number pertains to the threat reference number which is obtained from a HARM ELINT theater. The HARM ELINT theater was identified for use when the HARM Mission was created.
  - **Select** — Selects the appropriate Reference Number to associate with the shot.
- **Latitude / Longitude** — latitude / longitude coordinates of the target.
- **Elevation** — elevation of the target. This is automatically read from DTED (Digital Terrain Elevation Data), but may be changed by the planner.
- **Aimpoint Latitude/Longitude** — latitude / longitude coordinates of the aimpoint. The HARM MPM calculates and displays shot results based on the aimpoint location (rather than target location). The aimpoint values default to the same as the target location values. It is possible to change the aimpoint for tactical planning.
- **Aimpoint Elevation** — elevation of the aimpoint. This is automatically read from DTED (Digital Terrain Elevation Data), but may be changed by the planner.
- **Required HARM TOT** — the planner entered HARM Time On Target. Providing a TOT allows HARM MPM to calculate a required launch time.

Aircraft Information — data pertaining to the aircraft at launch.

Latitude / Longitude	latitude / longitude coordinates of the mission aircraft when launching the missile.
Altitude	altitude of the mission aircraft at launch.
Mach	speed of the mission aircraft at launch.
TAS	derived from entered Altitude and Mach.

HARM Shots Calculated Results

Data provided to the planner after all of the required information has been entered includes:

Aimpoint Range	distance from the launch point to the aimpoint.
Aimpoint Bearing	bearing from the launch point to the aimpoint, either True or Mag depending upon Planner set preference.
Time of Flight	total time of flight of the missile from launch to aimpoint.
Seeker Turn On	time interval between missile launch and when the missile seeker becomes active (turns on).
Seeker Range to Target	distance from the seeker turn on point to the aimpoint.
Required Launch Time	calculated launch time is provided if a Required HARM TOT is entered.
A/C Pull-up Req	aircraft pull-up required (in degrees) at launch time.
A/C Radar Horizon	radar horizon from the aircraft, based on aircraft altitude.
Missile Max. Range	maximum 90% POH missile range based upon the mission aircraft parameters provided.
Missile Min. Range	minimum 90% POH missile range based upon the mission aircraft parameters provided.
Aircraft Heading	heading of the aircraft when the aircraft is pointed at the target at time of launch. Either True or Mag depending upon Planner set preferences.

MME/MNT/UTC

The HARM MPM provides the means for creating various ELINT related files that can be downloaded to the F/A-18 Memory Unit (MU). After one or more of these files is created, they can be assembled into a single file for MU download. The actual download of the HARM MU file to the MU is accomplished via the F/A-18 MPM.

The HARM MPM has the following options available based on the OFP selected when the currently opened mission file was created:

- MME Data.
- MNT Data.
- UTC Missions.

The **MME/MNT Data** option provides the capability to create new MME/MNTs and modify existing MME/MNTs. The currently active HARM mission will determine the current HARM ELINT theater in use. Only those MME/MNTs built for the current theater will be available, since MME/MNTs are ELINT dependent. Some of the available MME/MNTs may have been built for use by another mission, but they will be displayed if the currently active mission has an OFP that is appropriate for MME/MNTs and has the same HARM ELINT theater specified.

MME/MNT Data Entry

The **MME/MNT Data Entry** provides the capability to manually modify the data associated with either a new or existing MME/MNT.

UTC Data Entry

UTC Missions provides the capability to create a UTC (User-defined TOO Class) for downloading to an F/A-18 Memory Unit (MU).

The HARM ELINT theater database resident in the F/A-18 cockpit HARM CLC contains threat data that is grouped into various pre-defined TOO classes. The planner is allowed to define one additional TOO class for use during flight. A User-defined TOO Class (UTC) for the HARM ELINT can contain up to 75 threat reference number entries. The entries are divided into 5 groups of 15 numbers each - UT1, UT2, UT3, UT4, and UT5. In addition to the number, the planner can specify a link number to group the threats together and a code number to modify the threat's UTC symbol value. The UTC Mission contains the necessary fields and buttons to create / modify the UTC entries.

The **UTC missions** option displays a list of pre-existing UTCs (User-Defined Threat Classes) and provides the capability to create new ones and modify existing UTCs. The currently active HARM mission will determine the current HARM ELINT theater in use. Only those UTCs built for the current theater will be displayed, since UTCs are ELINT dependent. Some of the displayed UTCs may have been built for use by another mission, but they will be displayed if the currently active

mission has an OFP that is appropriate for UTCs and has the same HARM ELINT theater specified.

The **UTC Mission** provides the capability to modify the data associated with either a new or existing UTC Mission. The Window is divided into two halves; the lower half contains the selected HARM ELINT theater threat information, the upper half contains the candidate threat reference numbers, MMEs and MNTs for inclusion into the UTC Mission.

HARM ELINT BROWSER

The **HARM ELINT Browser** option provides a means of viewing Reference Numbers and emitters of primary, secondary, and tertiary threat listings contained in the HARM ELINT theaters available for planning HARM mission.

HARM OUTPUT

The HARM MPM **Output** offers options used to build a data file for download to an F/A-18 Memory Unit (MU) and to create and print various kneeboard cards and reports related to shot planning, MME/MNT/UTC, and HARM ELINT. The F/A-18 MU is loaded from F/A-18 MPM, but the planner uses the HARM MPM to create the file that is passed to the F/A-18 MPM.

HARM MPM unique options for **Output** include:

Build HARM MU File used to add the following previously created data to the HARM MU weapons file:

- MME Data
- MNT Data
- UTC Missions

HARM Kneeboard Cards used to create and print the following kneeboard cards:

- Mission Launch Data (HARM Shots)
- MME Data
- MNT Data

HARM Reports used to view an electronic version of the HARM ELINT Fleet Reports that are contained in the hardcopy binders distributed to the fleet:

- Alphabetical
- Pre-Briefed
- TOO
- Self-Protect

- Target Parameters
- TOO Ambiguity