BY ORDER OF THE SECRETARY OF THE AIR FORCE

AIR FORCE POLICY DIRECTIVE 62-2

12 APRIL 1993

Developmental Engineering

SYSTEM SURVIVABILITY

OPR: SAF/AQQS
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1. If the United States is to meet its national security objectives, the Air Force must be able to carry out its missions in manmade hostile environments. Systems that can survive and operate in such environments help deter and fight wars. Therefore, this directive establishes policies to ensure the Air Force makes survivability an essential consideration for all its systems.

2. The Air Force will establish survivability requirements and performance parameters for a system's entire life cycle, based initially on projected threats and how they constrain the system's operation. If survivability is necessary, it will be a critical system characteristic. The Air Force will not postpone system survivability during acquisition or design, nor defer it as a pre-planned product improvement.

3. If a system uses hardening to survive, the Air Force will have programs for hardness assurance, maintenance, and surveillance (HAMS).

4. Program management directives will specify actions to build in and maintain survivability throughout the life of a system. Although the Air Force may trade hardness for other system characteristics to improve a system's operation, changes will not degrade the system's overall survivability, unless requirements for survivability have already been lowered.

5. The Air Force will periodically assess system survivability through test and analysis to make sure the system can complete its specified mission.

6. The following responsibilities and authorities are established:

6.1. The Office of the Assistant Secretary of the Air Force for Acquisition (SAF/AQ) oversees survivability for the Air Force, establishes policy, and directs the research, development, and acquisition of survivable systems.

6.2. HQ USAF/XO handles operational issues concerning survivability and makes sure the Air Force identifies and meets survivability requirements.

6.3. HQ USAF/LG oversees HAMS programs, and establishes policy, procedures, and programs to maintain the survivability of Air Force systems, except for facilities and communications.

6.4. HQ USAF/SC oversees survivability programs for telecommunications, computer resources, data automation, communications-electronics, and command and control systems.

6.5. HQ USAF/CE establishes policy, procedures, and programs to acquire and maintain survivable facilities.

6.6. HQ USAF/TE ensures all survivability requirements are testable and oversees the testing and evaluation of system survivability.

6.7. Commanders at all levels develop and carry out programs for system survivability within their organizations. Operating commands coordinate on survivability management status reports (SMSR) for systems they use. The Air Force Materiel Command (AFMC) identifies organizations that develop survivability thresholds and objectives for the using commands and system program directors (SPD).

6.8. SPDs develop and carry out survivability programs for their systems. They prepare SMSRs, with support from their Product and Materiel Group Managers, and submit them to SAF/AQ annually.

7. Terms Explained:

7.1. **Critical System Characteristic**. A design feature that determines how well the proposed concept or system will work in its intended operational environment.

7.2. **Hardening**. Using special designs or parts to prevent damage to a system from a threat environment.

7.3. **Hardness Assurance**. Actions taken while producing a system to confirm that it will meet design specifications for hardness.

7.4. **Hardness Maintenance**. Actions taken to ensure that a system retains its required hardness over its life cycle.

7.5. **Hardness Surveillance**. Actions taken to monitor the hardness of a fielded system. Includes identifying and locating degradations.

7.6. **System Survivability.** A system's ability to avoid or withstand manmade hostile environments without losing its ability to perform its designated mission. Actual survivability requirements depend on how critical the mission is. A system's survivability also applies to its supporting infrastructure (facilities, basing, subsystems, etc.) and may depend on the survivability of interfacing systems.

8. This directive implements DoD Directive 3150.3, *Survivability and Security (S^2) of Nonstrategic Nuclear Forces (NSNF),* January 23, 1991; DoD Directive 3222.3, *Department of Defense Electromagnetic Compatibility Program (EMCP),* August 20, 1990; DoD Directive 5000.1, *Defense Acquisition*, February 23, 1991; DoD Instruction 5000.2, *Defense Acquisition Management Policies and Procedures*, February 23, 1991; and DoD 5000.2-M, *Defense Acquisition Management Documentation and Reports*, February 1991.

9. Directly related instructions are in AFI 62-201, *Systems Survivability* (formerly AFR 80-38). Other related policies and instructions are in AFPD 10-6, *Mission Needs and Operational Requirements*, and

AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures* (formerly AFR 57-1); AFPD 63-1, *Acquisition System* and AFI 63-101, *Acquisition System Procedures* (formerly AFR 800-1); and AFPD 99-1, *Test and Evaluation* (formerly AFR 80-14).

10. See **Attachment 1** for measures of compliance with this policy.

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for Acquisition

Attachment 1

MEASURING COMPLIANCE WITH POLICY

A1.1. SAF/AQ will measure compliance with survivability policy by evaluating information in four areas:

A1.1.1. Percentage of individual operational systems having survivability requirements that have known hardness degradations.

A1.1.2. Overall percentage of systems (by type) meeting survivability requirements.

A1.1.3. Overall percentage of systems (by type) which have active HAMS programs.

A1.1.4. Time elapsed since the last assessment of a system's survivability.

NOTE:

Collect this information based on the survivability categories in DoD Instruction 5000.2.

A1.2. RCS: SAF-AQQ(A) 7102, *Survivability Management Status Reports*, allow us to collect needed information. They are required throughout the life cycle of each survivable system, including subsystems and components, that has passed acquisition Milestone I--or the equivalent for nonmajor systems. If a system has survivability requirements for more than one threat category, the SPD will submit a separate report for each category. Annual reports covering the preceding fiscal year are due to SAF/AQ by the end of the calendar year. AFI 62-201 contains the format and requirements for submitting SMSRs.

A1.2.1. SAF/AQ will distribute SMSRs to the staff offices responsible for each of the threat categories. These offices will use SMSRs to identify systemic problems and ensure program continuity. They will consolidate data from SMSRs and will display compliance as shown in figures A1.1 through A.1.4.

A1.3. Percentage of operational systems having survivability requirements with known hardness degradations **Figure A1.1.** Measures compliance with policy by identifying hardness degradation of individual systems. For example, of all widgets tested, x out of y have known degradations to their nuclear hardness. The displayed percentage is calculated as the sum of the x's (all degraded systems) divided by the sum of the y's (all individual systems). Data appears by year and by major command. Each survivability category appears separately.

A1.4. Overall percentage of systems (by type) meeting survivability requirements **Figure A1.2.** Measures compliance with survivability policy based on the SPDs' estimates of the survivability status of the system, treated as a class (for example, all B-52s are a single data point). Data appears by year, and each survivability category appears separately.

A1.5. Percentage of systems (by type) which have active HAMS programs **Figure A1.3.** Measures compliance with the policy to maintain survivability throughout the life cycle of systems. Data appears by year, and each survivability category appears separately.

A1.6. Time elapsed since last survivability assessment **Figure A1.4.** Measures compliance with the policy of periodically assessing system survivability. The chart shows the percentage of systems (by type) versus the time elapsed since their last survivability assessment. Data appears for the preceding 3 years. The desired trend is an increased frequency of assessment--an increasing percentage of systems assessed within 1 to 2 years versus longer time spans. Each survivability category appears separately.

Figure A1.1. Sample Metric of Survivability Degradations.

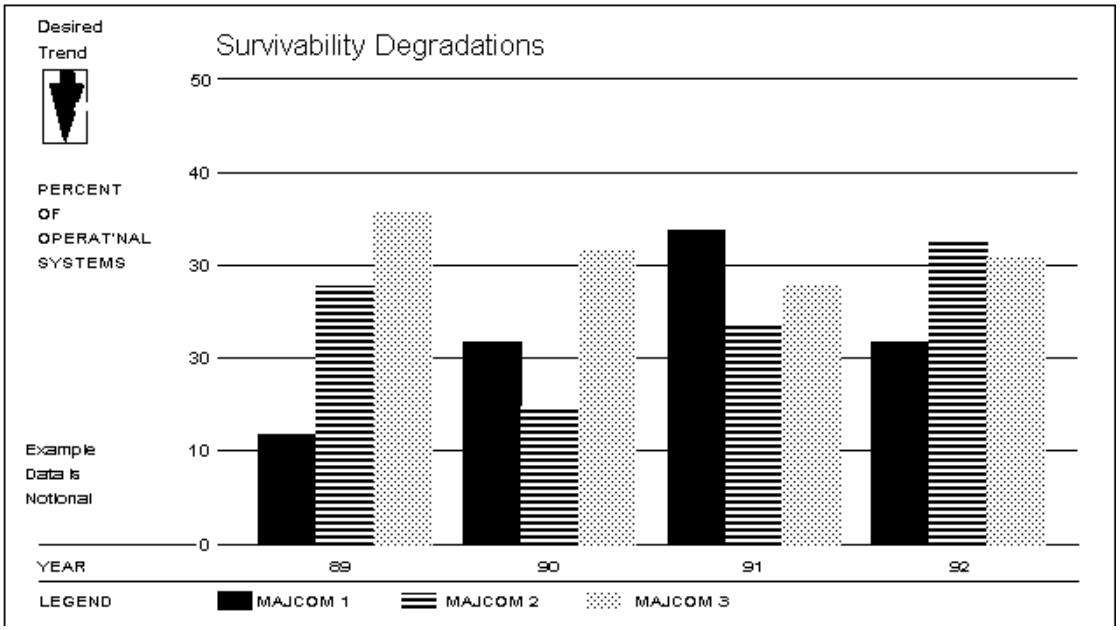

Figure A1.2. Sample Metric of Systems Meeting Survivability Requirements.

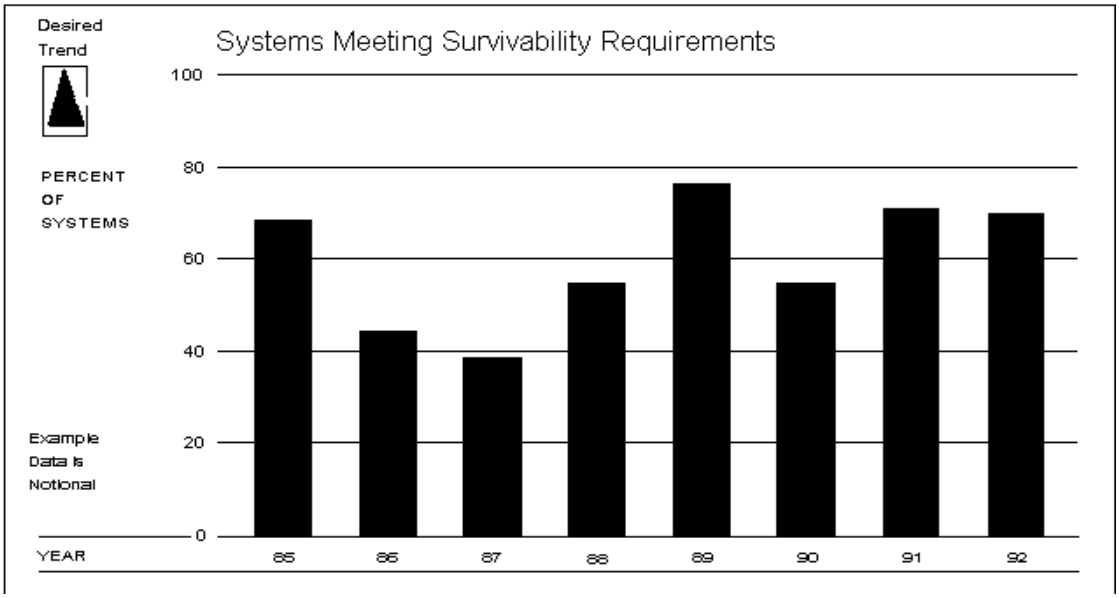

Figure A1.3. Sample Metric of Systems With Active HAMS.

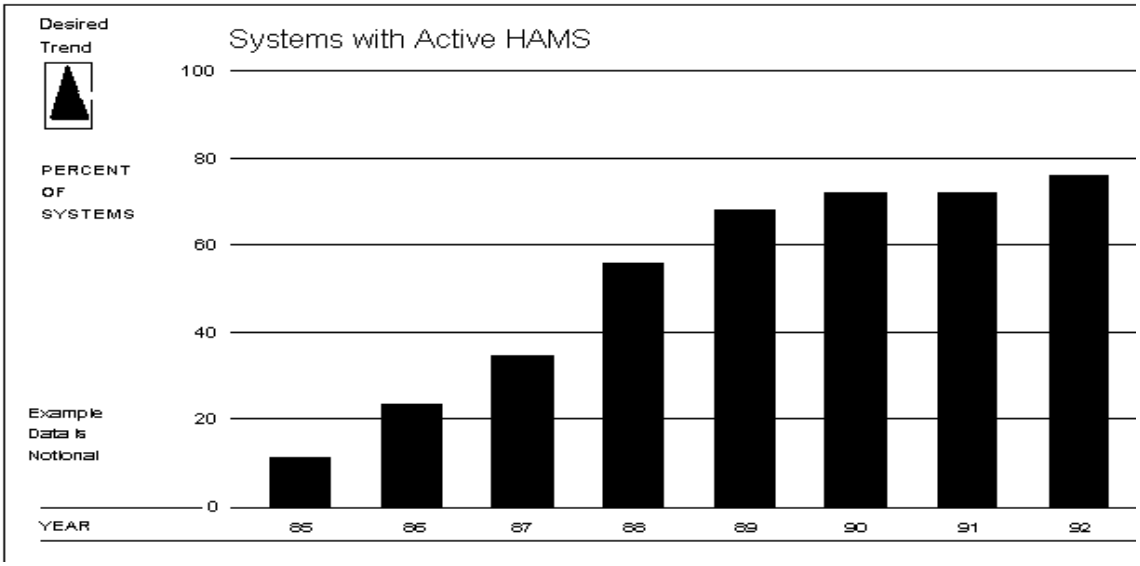

Figure A1.4. Sample Metric of Frequency of Survivability Assessment.