

RF Weapons Pose Threat to Deployments

A.E. Pevler

Texas Engineering Solutions

4100 Spring Valley Rd
Suite 504
Dallas, TX 75244

unclassified

AGENDA

- ◆ Why Are We Here?
- ◆ Desert Storm -- Victory by Paradigm Shift
- ◆ CRAF review
- ◆ Airliner Vulnerability
- ◆ Chronological Integration of World Events
- ◆ Risk Management



Why Are We Here?

- ◆ AMC uses airliners
- ◆ CRAF essential to troop deployment
- ◆ RF weapons threaten airliners
- ◆ Threat is invisible
 - ➔ Mobilization capability compromised

Risk is manageable



Desert Storm -- Victory by Paradigm Shift

- ◆ Iraq heavily armed -- in OLD paradigm
- ◆ Technological paradigm shifts
 - Stealth
 - Smart weapons
- ◆ Saddam Hussein had a knife in a gunfight
- ◆ Iraq Is No Less Adversarial Today!



Relevant Paradigm Shifts

- ◆ CNN factor
- ◆ Low tolerance for collateral damage
- ◆ Each casualty analyzed
- ◆ Single massive catastrophe can kill public support



CRAF Review

- ◆ *“In the most demanding contingencies, as you correctly stated, over 90 percent of DOD passengers and over 40 percent of the DOD cargo long-range air transportation must be provided by our CRAF partners.”*

Major General Gary A. Voellger, Director of Operations, Air Mobility Command to Subcommittee on Aviation 5/1/97.

- ◆ Airliner vulnerability threatens American strategic mobility analysis.



Airliner RF Vulnerability

- ◆ Upset control electronics at low altitude
- ◆ Inexplicable loss of pilot control
- ◆ Unlikely cause will be found
- ◆ Paradigms: COS, PIT



Nonlethal Weapons The Learning Channel



RF Weapons in the Hands of Terrorists -- Threats & Countermeasures

Aircraft Survivability Newsletter
Tatum & Baker articles

Utilization of High Power Microwave Sources in Electronic Sabotage & Terrorism

Boeing Tests Support Theory

JEC Hearings "RF Weapon Proliferation"

3/3/91 - Iraq Surrenders

Sept 3 & 4 US missile strike on Iraq

90

91

92

93

94

95

96

97

98

Iraqi Crisis

3/3/91 - UAL 585 crash at COS

Trends of Microwave Weapon Development (CITWA-800 RF Ignition Theory published)

Lt. Gen. Sweitzer testifies COS had "earmarks of an RF attack"

Method & Apparatus to Detect Radio Frequency Weapon Use

Sept 8 USA 427 crash at PIT



Risk Management

- ◆ As with any risk, detection is imperative
Wind shear, GPWS, TCAS
- ◆ Short term - Lamentable Snake
- ◆ Long term - RFW detection on CRAF platforms



AIRCRAFT SURVIVABILITY

PUBLISHED BY THE JOINT TECHNICAL COORDINATING GROUP/AIRCRAFT SURVIVABILITY

Fall 1995 Issue Featured Directed Energy Weapons

- ◆ Air Force High-Power Microwave Technology Program
Dr. William L. Baker, Air Force Phillips Laboratory
- ◆ A New Threat to Aircraft Survivability: Radio Frequency Directed Energy Weapons (RF DEW)
John T. Tatum, U.S. Army Research Laboratory



Utilization of High Power Microwave Sources in Electronic Sabotage & Terrorism

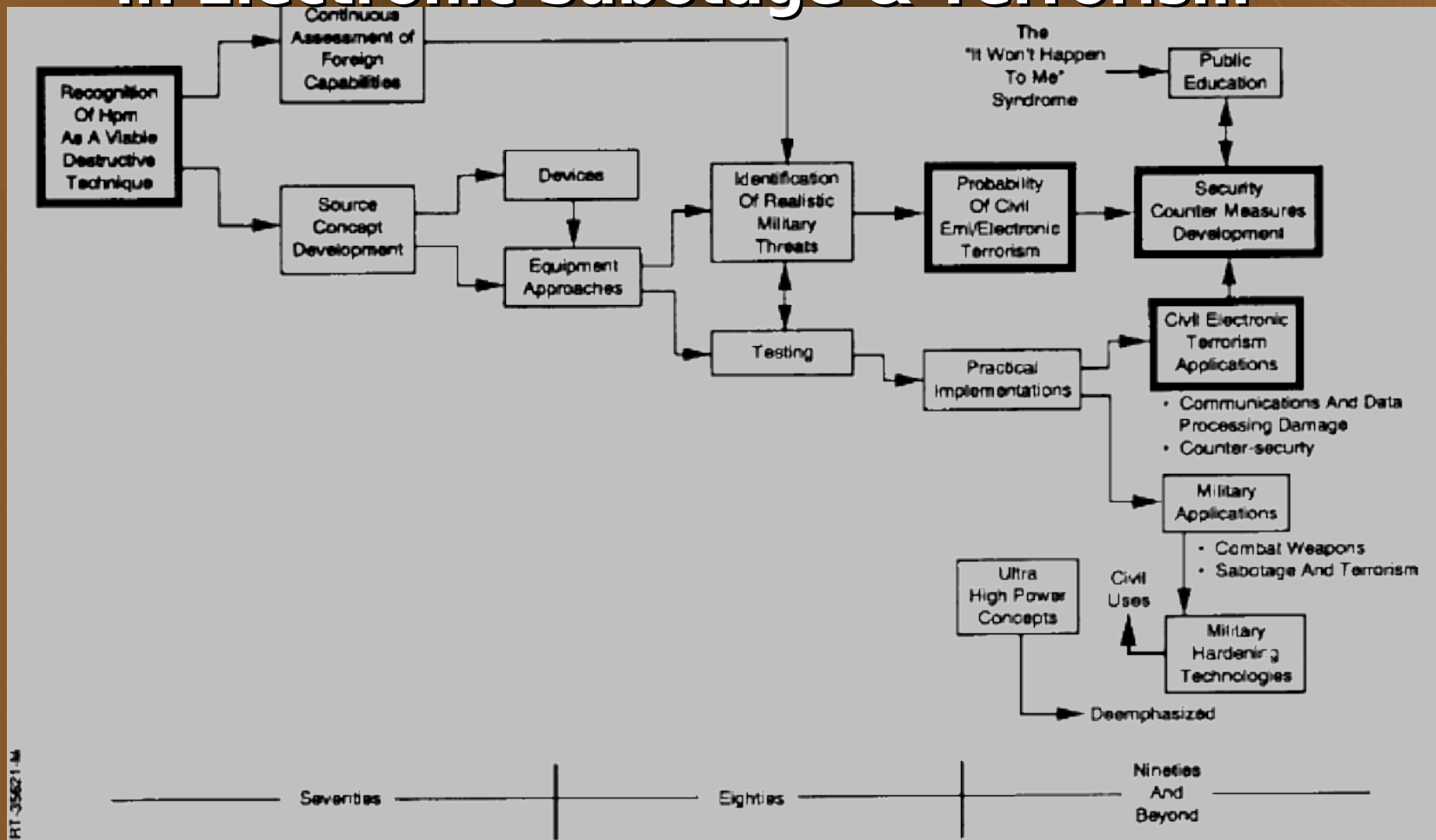


Figure 1. Evolution of HPM as an electronic terrorism tool



RT-35621-M

The
"It Won't Happen
To Me"
Syndrome

Public
Education

Probability
Of Civil
EMI/Electronic
Terrorism

Security
Counter Measures
Development

Practical
Implementations

Civil Electronic
Terrorism
Applications

- Communications And Data Processing Damage
- Counter-security

Military
Applications

- Combat Weapons
- Sabotage And Terrorism

Ultra
High Power
Concepts

Civil
Uses

Military
Hardening
Technologies

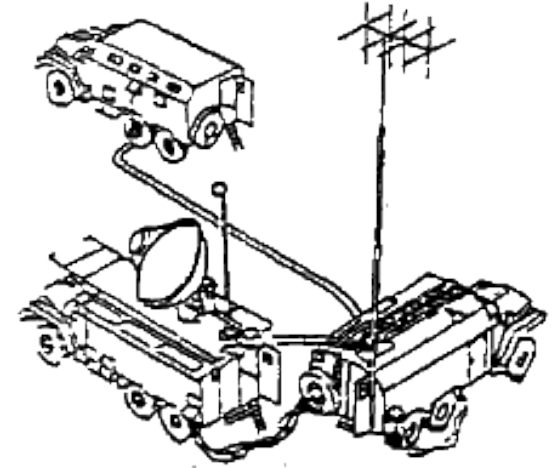
Deemphasized

Nineties
And
Beyond



NATIONAL AIR INTELLIGENCE CENTER

***“The day when
lelectromagnetic
weaponsl can give
play to their power
on the battlefield is
not far away”***



TRENDS OF MICROWAVE WEAPON DEVELOPMENT

by

Figure 2 Diagram of the Former Soviet Union's
Antiaircraft Microwave Weapon System

Zhu Zhihao



Lt. Gen. Schweitzer's Comments

- ◆ Joint Economic Committee testimony June, 1997
- ◆ USS Forrestal referenced - similar to '96 RF Ignition paper
- ◆ *“Any idiot can go and build one of these weapons”*
- ◆ Referenced COS as *“had the earmarks of an RF Weapon”*.

