



**WBU-ISOG FORUM**  
**Geneva, Switzerland**

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# Synopsis

- **Occurrences**
  - Increasing
  - Collateral Damage
- **Coping strategies**
  - Saturation
  - Uplink footprint
  - Co-Location with perpetrators
  - Avoiding other targeted broadcasts
- **Geo-Located and Identified**
  - Now what?
- **Consequences**
  - Cost
  - Audience loss
  - Restriction of Commerce (Intellectual Property)
  - Iron curtain against free information

# Increasing Frequency

- 2003 – Telstar 12 for 1 month
- Intermittently since June, 2009
  - HB, ArabSat, NileSat and others
  - Targeting mostly Persian programming
  - Some Arabic content
  - Some Ethiopian content
  - Other targets – Often difficult to identify
    - Collateral damage
  - Relatively quiet January-October, 2012
  - Bazaar video related jamming in Oct.
  - Removal of content from Eutelsat spacecrafts
  - Veritable explosion of incidents
- Al-Hurra Iraq (2 hours) NileSat this weekend

# Extensive Collateral Damage

• [VoA DVB 16300-3/4 1-101](#)

[VoA TV Europe](#) 1 4260 4220 E

[Alhurra Europe](#) 190 4560 4520 A

[VOA Persian](#) 295 4760 4720 Fa

[VoA TV](#) 340 5060 5020 E

[Voice of America](#) (HB 3) 101 4222

[RFE/Radio Liberty](#) (HB 4) 101 4222 R

[Voice of America](#) (HB 5) 102 4230 Uk

[RFE/Radio Liberty](#) (HB 6) 102 4230 Ar

[Voice of America](#) (HB 7) 103 4232 Ge

[RFE/Radio Liberty](#) (HB 8) 103 4232 Bel

[VoA Music Mix](#) (HB 9) 104 4320 E

[Voice of America](#) (HB 11) 105 4322 Ro/Es

[RFE/Radio Liberty](#) (HB 11) 105 4322 Ro/Es

[Voice of America](#) (HB 12) 105 4322 Bu

[RFE/Radio Liberty](#) (HB 12) 105 4322 Bu

[Voice of America](#) (HB 13) 106 4330

[Voice of America](#) (HB 14) 106 4330

[RFE/Radio Liberty](#) (HB 14) 106 4330

[VoA News Now](#) (HB 15) 107 4332 E

[IBB Pristina](#) (HB 16)

[Radio Farda](#) (HB 17) 108 4420 Fa

[Voice of America](#) (HB 18) 108 4420

[Voice of America](#) (HB 19) 109 4422 Al

[RFE/Radio Liberty](#) (HB 20) 109 4422 Tur/Li

[Voice of America](#) (HB 21) 110 4430 Uz/Tat

[RFE/Radio Liberty](#) (HB 21) 110 4430 Uz/Tat

[Voice of America](#) (HB 22) 110 4430 Kir

[RFE/Radio Liberty](#) (HB 22) 110 4430 Kir

[VoA Eastern Europe](#) (HB 23) 111 4432 Cz/SI

[RFE/Radio Liberty](#) (HB 23) 111 4432 Cz/SI

[VoA Eastern Europe](#) (HB 24) 111 4432 Kz/Az

[RFE/Radio Liberty](#) (HB 24) 111 4432 Kz/Az

[RFE/Radio Liberty](#) (HB 25) 113 4522

[RFE/Radio Liberty](#) (HB 26) 113 4522

[Radio Sawa Levant](#) (HB 29) 114 4530 A

[Radio Sawa Iraq](#) (HB 31) 115 4532 A

[Radio Sawa Egypt](#) (HB 33) 116 4620 A

[Radio Sawa The Gulf](#) (HB 35) 117 4622 A

[Radio Sawa Morocco](#) (HB 37) 118 4630 A

[Radio Farda](#) 119 4.32 Fa

[Voice of America](#) 121 4722 A

[Radio Sawa Sudan](#) 122 4.30 A

[Radio Sawa Lebanon](#) 123 4732 A

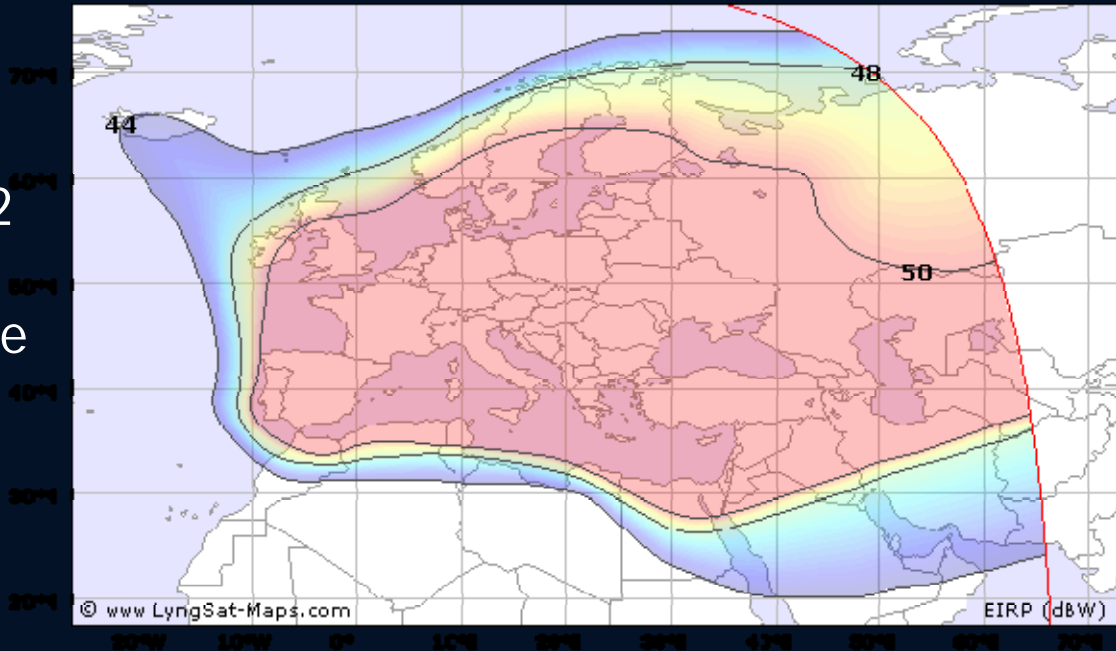
[Voice of America](#) 310 5032 Ur

# Coping Strategies - 1

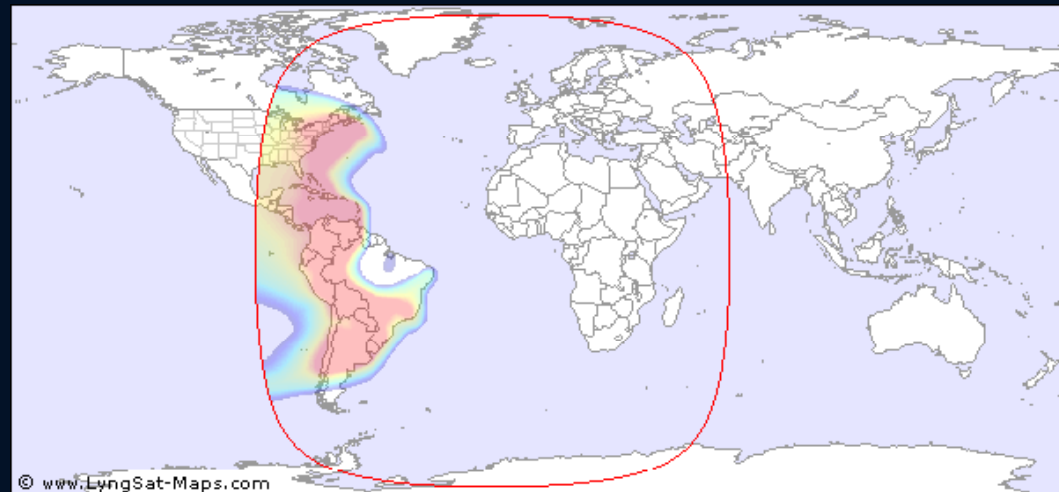
- Frequency Saturation
- VOA Persian News Network (PNN)
  - Eutelsat Hotbird 13B
  - Telstar 12
  - AsiaSat 3
  - Eutelsat 7A
  - Eutelsat 25A
- RFE/RL Radio Farda
  - Eutelsat Hotbird 13A
  - Telstar 12
  - AsiaSat 3
  - Eutelsat 7A
  - NileSat
  - ArabSat
  - NSS 12

# Uplink Footprint (T-12 & W3A)

Telstar 12  
Downlink  
or Receive  
Footprint



Telstar 12  
Transmit  
or Uplink  
Footprint



# Collocation with Perpetrators

- VOA PNN on ArabSat in 2009
- SCPC on same transponder as IRIB
- Unforeseen retaliation!
- 7-10 frequencies intermittently jammed 1 month until PNN was removed
- Logical but not necessarily useful
- Acculturation hubris?

## Avoiding other targeted broadcasts

- **Avoid proximity to:**
  - BBC Persian (Government)
  - Deutsche Welle Persian (Government)
  - New Channel TV (Private)
  - Channel One (Private)
  - PARS TV (Private)
  - AFN Farsi Net (Private)
  - National Iranian Television - NITV (Private)
  - Simaye Azadi Iran (Private)
  - Radio Sedaye (Private – Radio Only)
- **Avoid multiple scores with one jammer**



# Geo Location

satID - 172.16.61.10 - Remote Desktop

Map - Microsoft MapPoint Europe

File Edit View Data Route Tools Help

Type place or address Find Road Map

Legend and Overview

- Pushpins
  - My Pushpins
- Populated Places
- Boundaries
- Transportation
- Miscellaneous

World Asia Countries-

0 km 500 1000 1500

start satID Clean Shutdown... satID Location V2.5.3... 20091229\_HB8-76\_1... Map - Microsoft MapP... 18:08

# Jamming Station Locations



# Jamming Station – 12/27-30/09



Imagery Date: Apr 25, 2009

35°40'26.42" N 51°37'05.52" E elev 5770 ft

©2009 Google

Eye alt 7027 ft

# Jamming Station – January 2010



# Downlink Jamming Transmitters?



# Consequences

- **Cost**
  - Much like with SW, MW and Internet
  - BBG spending millions in counter-measures
  - Proactively and reactively
- **Audience loss**
  - Hotbird far and away the #1 platform
- **Restriction of Commerce (IP)**
  - How is this different from a Suez blockade?
  - Where does it end?
- **Electronic curtain against free information**
  - Shortwave, Medium Wave, Satellite, Internet



**AMENDES@BBG.GOV**

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