



(U) Al-Zawahiri: At It Again!

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(S) What does an analysis of the most recent video from Usama bin Laden's deputy tell us?

(U) In a transmission released by the Arab Al-Jazeera broadcaster on Sunday, 5 March 2006, Al-Qa'ida number two Ayman Al-Zawhiri offered yet another diatribe against the US and its allies. This production was decidedly civilian; the terrorist is shown in a home setting without his usual Kalashnikov rifle (see image below); the significance of the black turban - as opposed to a white one worn in some previous tapings - is unclear.



(S//SI) Unwittingly, the long 7.5 minute message offered ample opportunity to check mathematically for a voice match with previous transmissions, which proved mostly perfect. The five dates compared since the summer of 2005 -- 6/17/05, 9/1/05, 1/6/06, 1/30/06, and 3/5/06 -- yielded high-confidence (99%) pairing estimates, except (surprisingly) between the September/March transmissions.

(S//SI) However, a new capability recently delivered to NSA by MIT's Lincoln Laboratory allows optimal combination of vocal-tract models from contentious intercepts. The combined September/March vocal model matched perfectly the other dates; thus, **careful modeling for mathematical comparison is a critical step in voice matching**, to ensure fewer false alarms and increase the probability of detection. This will become critically important when **large-scale voice processing capabilities are deployed in-theater**, attempting to identify persons bent on terrorist activities against US forces or the local populace.

(S//SI) Now, these technologies, together with miniaturization in computing power, could be integrated into a **hand-held device for field application in hostile environments**. Such a device is pictured below, which would store in its memory voice models of Persons-Of-Interest (POI's), then compare an acoustical sample from a suspect with the POI's, producing match estimates from MIT's mathematical engine. Detention centers and guard posts in conflict regions needing authentication or cross-check capabilities would obviously benefit from this advanced component in security operations; fabrication options are being explored.



(S) Returning to the latest Zawahiri taping, it bore all the imprints of a home video; digital comparison with the previous transmission of 1/30/06 shows the difference (see below). Image sections of 100 x 100 pixels covering an area around the speaker's left shoulder clearly display (in gray scale) the jagged edge nature of the 5 March video, suggesting increased compression rates for possible web relay.



(S) Finally, additional video analysis was performed on the controversial 1/30/06 transmission (see [related article](#)) - with help from our colleagues at the US Secret Service (analyst [REDACTED]) - to determine if any unusual patterns or structures were present in the black background. An example of video frame integration is shown below:



(S) **No concealed details of any sort were obvious**, either in this image or any of the

several other operations performed on the color video. However, the background - most likely a black curtain - does show some unexplained shadows, perhaps due to lighting or persons walking behind the curtain during taping.

(U//FOUO) On a personal note, US Secret Service management and the half-dozen image analysts gathered around, intrigued by this problem, found the sense of collaboration with NSA a privilege.

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