

Remote EEG Discussion

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“Thought reading or ‘synthetic telepathy’” communications technology procurement is considered in a 1993 Jane’s^a Special Operations Forces (SOF) article: “One day, SOF commandos may be capable of communicating through thought processes.” Descriptive terms are “‘mental weaponry’ and psychic warfare”¹ Although contemplated in future context, unlikely is development from scratch solely for Special Forces, and availability of a technology not fully adapted to troop level Special Forces requirements is implied.

In 1976 the Malech Patent # 3951134 “Apparatus and method for remotely monitoring and altering brain waves” was granted.² Given operation example is 100 and 210 MHz; frequencies penetrating obstruction. Remote delineations are: “The individual components of the system for monitoring and controlling brain wave activity may be of conventional type commonly employed in radar”; and “The system permits medical diagnosis of patients, inaccessible to physicians, from remote stations.” License is to Dorne & Margolin Inc., but now protection is expired with public domain.

The capability of remote EEG is predicted by electromagnetic scattering theory using ultrashort pulses.³ The Malech patent utilizes interference of 210 and 100 MHz frequencies resulting in a 110 MHz return signal, which is demodulated to give EEG waveform. Reference to ultrashort pulses without mention of another interfering frequency indicates that these remote EEG references represent different mechanisms, and therefore methods. Ultrashort pulses currently have definition in the range of 10^{-15} second. Considering that EEG word elicited potentials are comparatively long (100s of milliseconds), has relevance to remote radar EEG capture adequate to word recognition, with ultrashort pulses allowing greater than 10^9 radar reflections in a millisecond (10^{-3} sec.)

The possibility of impressing an ‘experience set’ on an individual is also contemplated.³ The above patent also can alter brain waves. Microwave non-lethal weapon brain wave disruption⁴ and behavioral change including unconsciousness⁵ are known.⁶

The Malech EEG telemetry patent and ultrashort pulses represent active radar probe. Yet a passive field extends as far as 12 feet from the human as detected by a cryogenic antenna.⁷ A publication maintains this device as entirely adaptable to clandestine applications and pointedly comments on the disappearance of physiological remote sensing literature since the 1970’s for animals and humans, while all other categories of remote sensing research greatly expanded.⁸

^a Jane’s is the most respected and authoritative of defense reporting services.

- ¹ Lopez R. "Special operations survives Pentagon budget constraints" *Jane's International Defense Review* 26(3): 247-51, 1993.
- ² Malech RG. Patent #3951134 "Apparatus and method for remotely monitoring and altering brain waves" USPTO granted 4/20/76.
- ³ Department of the Army, USAF Scientific Advisory Board. "New World Vistas: air and space for the 21st century" 14 vol. (Ancillary Volume) p 89-90, 1996. Also at <http://www.pjproject.org/usaf.html>
- ⁴ Morehouse DA. Nonlethal Weapons: War without Death Praeger, p. 20, 1996.
- ⁵ Dando M. A New Form of Warfare: The Rise of Non-Lethal Weapons Brassey's, London, Washington p. 22, 1996.
- ⁶ Becker RO. Cross Currents Jeremy P. Tarcher, Inc., Los Angeles, p. 303-4, 1990.
- ⁷ Taff BE and Stoller KP. Patent #49400558 "Cryogenic remote sensing physiograph" USPTO granted 7/10/90.
- ⁸ Stoller KP and Taff BE. "Remote Physiological Sensing: Historical Perspective, Theories and Preliminary Developments" *Med Instrum* 20(5): 260-5, 1986.