

Fletcher, Heald & Hildreth, P.L.C.
1300 North 17th Street 11th floor
Arlington VA 22209
703-812-0400 (voice)
703-812-0486 (fax)

MITCHELL LAZARUS
703-812-0440
LAZARUS@FHHLAW.COM

February 27, 2009

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street SW
Washington DC 20554

**Re: WP Docket No. 09-2, L-3 CyTerra Request for Waiver of Part 90 of the
Commission's Rules
*Ex Parte Communication***

Dear Ms. Dortch:

On behalf of L-3 CyTerra, a division of L-3 Communications Corporation, and pursuant to Section 1.1206(b)(2) of the Commission's Rules, I am electronically filing this letter to report an oral *ex parte* communication in the above-referenced docket.

Yesterday Donald Wright and Jeffrey May of L-3 CyTerra and I met with Brian Butler, David Hu, Ira Keltz, Tim Maguire, Geraldine Matise, Zenji Nakazawa, Mark Settle, and Scot Stone of the Commission staff.

We reviewed the elements of L-3 CyTerra's above-captioned Request for Waiver and asked the Commission to consider treating the request as one for rule interpretation.

A copy of our presentation is attached.

Please do not hesitate to call with any questions.

Respectfully submitted

Mitchell Lazarus
Counsel for L-3 CyTerra, a division of
L-3 Communications Corporation

cc: Meeting participants

**L-3 CyTerra, a Division of
L-3 Communications Corporation**

Request for Waiver

WP Docket No. 09-2

Federal Communications Commission

February 26, 2009

Mitchell Lazarus | 703-812-0440 | lazarus@fhhlaw.com



About L-3 CyTerra – Corporate

- **Part of L-3 Communications Homeland Security Group**
 - also includes L-3 divisions Security and Detection Systems, and SafeView.*
 - develops solutions in support of airport, cargo, and facility security; deepwater and port security; U.S. Customs and Border Protection; law enforcement and first responders; crisis management planning and exercises; protection of U.S. airspace
 - major products: explosives detection systems, maritime radars and monitoring systems, cargo screeners, mine detectors, video surveillance systems, thermal imaging cameras, weapon sights for law enforcement, infrared defense systems.

* This request is unrelated to the waiver granted to SafeView in DA 06-1589 (Aug. 4, 2006).

About L-3 CyTerra – Products

- **Specializes in threat detection for military, commercial, homeland security applications**
- **Pioneered trace explosive detection technologies, land mine detectors, counter-terrorism products**
- **Experts in ground-penetrating radar, signal processing, systems engineering**
- **Clients include United States Army, United States Marine Corps, Defense Advanced Research Projects Agency, Dept. of Homeland Security.**

About the EMMDAR II Device

- **EMMDAR II (ElectroMagnetic Motion Detection And Ranging):**
 - compact , light-weight handheld sensing device
 - able to “see through walls” into structures
 - can detect fast movement, such as a person walking, and very small movement, such as an unconscious victim’s breathing
- **Operator places device against wall, depresses scan buttons**
 - within 1-3 seconds, graphic display shows ranges and directions of multiple targets.



Potential Applications

- **Police / S.W.A.T. / Homeland Security**
 - locate hostile persons, hostages prior to forced entry
 - observe suspects' movements to gain entry at safest time
 - identify hostages – “breathers” vs. “movers”
 - foil prison escapes – scan hidden passages, outbound vehicles
- **Fire / Search & Rescue**
 - locate incapacitated victims at fire or accident
 - detect surviving victims under 12 inches of concrete
- **Increase survival probabilities for hostages, victims, rescuers.**

Technical Details

- **Uses frequency-stepped signals**
 - successive brief pulses on 200 frequencies
 - equally spaced 2 MHz apart from 3101 to 3499 MHz
 - dwell time 75 μ s; “off time” between steps of 17.5 μ s
 - cycle repeats every 18.5 ms
 - duty cycle on any frequency of 1 / 247 (0.41%)
- **Low power**
 - average power -8.9 dBm
 - peak instantaneous power $+15$ dBm.

Spectrum Usage

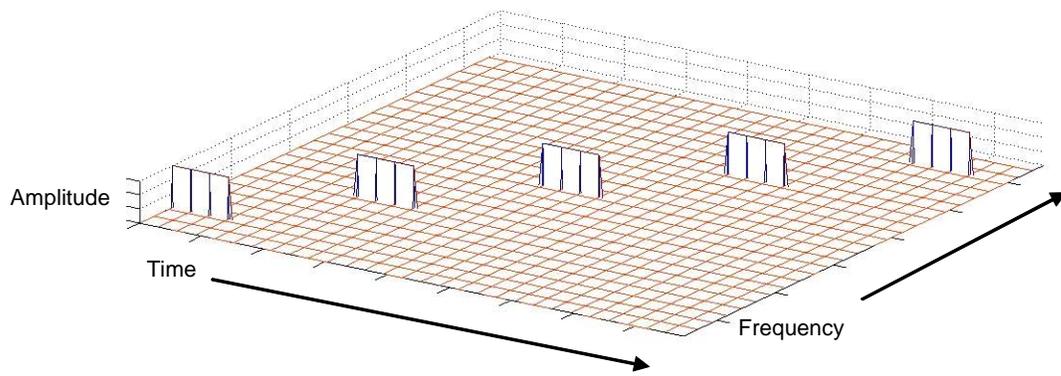


Figure 1: EMMDAR II Sparse Spectrum Usage

Need for Stepped Frequencies

- **Device must radiate signal into structures with multiple rooms**
 - combined multipath (reflection) effects are extremely complex
 - multiple stepped frequencies cancel so target data stands out
 - more frequencies & wider spacing improve reliability and precision
- **Stepped frequencies needed to provide resolution and sensitivity for detection of very small movements**
 - essential for locating injured or unconscious individuals
 - allows rapid calculation of velocity, direction, and range
 - identifies and locate both injured victims and hostile persons.

No Suitable Alternative Bands

- **Wide bandwidth needed**
 - 200 frequencies at 2 MHz steps is the practical minimum
 - compromise among range, precision, battery life, spectrum use
- **Unlicensed bands are too narrow**
 - Part 15 band at 2.4 GHz has 83.5 MHz bandwidth
 - limits resolution to 6 feet
 - too coarse for locating a target in a particular room
 - 902-928 MHz band is worse
 - 5.8 GHz band has inadequate propagation and building penetration.

Other Users of 3100-3500 MHz Band

- **Federal radiolocation (primary)**
- **Private radiolocation (secondary)**
- **Federal and private earth-exploration satellite, space research (secondary) (3100-3300 MHz)**
 - 3260-3267, 3332-3339, 3345.8-3352.2 MHz are identified for radio astronomy but used at very few facilities
- **Amateur radio (secondary) (3300-3500 MHz)**
 - 3400-3410 MHz is used for amateur satellite
 - *amateur community did not oppose this waiver request.*

Not Susceptible to Incoming Interference

- **Receiver steps in synchrony with transmitter**
- **Sees only one narrow frequency band at a time**
 - receiver bandwidth (after processing) is 54 Hz
 - immune to interference from most of the spectrum
 - ***does not receive at all in 99.997% of the band!***
 - receives on remaining 0.003% on 0.41% duty cycle
- **Even if a few frequencies are disabled by interference, device still works almost normally**
 - device detects interference and warns operator if operation is degraded.

Proposed Waiver Conditions (If Needed)

- **Marketing limited to state and local governmental law enforcement and firefighting authorities**
 - resale prohibited except within same categories
- **Use limited to genuine safety-of-life emergencies and training**
- **Operates only while activation button is depressed**
 - unit cannot be locked on, automatically disables after one minute
- **May not be used outdoors above ground level**
- **Maximum of 5,000 units during the first 12 months, 10,000 units during second 12 months.**

Opposition to Waiver

- (none)



Request

- **FCC should rule the EMMDAR II substantially complies, qualifies for certification and licensing**
- **In the alternative, the FCC should:**
 1. **expeditiously grant the waiver**
 2. **advance the public interest by temporarily permitting the marketing of limited numbers of units while the waiver is pending.**

Thank you!

Mitchell Lazarus | 703-812-0440 | lazarus@fhhlaw.com