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March 16, 2009

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

Re: ET Docket No. 08-59
Ex Parte Statement

Dear Ms. Dortch:

This is to advise that on March 16 the undersigned, together with Giselle Creeser, Lockheed Martin Corporation; Marc Ehudin, Textron Corporation (Cessna); Bruce Olcott, Squire, Sanders & Dempsey for The Boeing Company; Frank Weaver, The Boeing Company; Chip Yorkgitis, Kelley Drye & Warren LLP for Raytheon Company; and Daniel G. Jablonski, Ph.D., Johns Hopkins University Applied Physics Laboratory ("APL"), met with Angela Giancarlo, Legal Advisor to Commissioner McDowell regarding the position of Aerospace and Flight Test Radio Coordinating Council ("AFTRCC") and its Member Companies in the above-referenced proceeding.

The points covered are set forth in AFTRCC's prior filings and in the attached slides.

A copy of this letter is submitted for inclusion in the Docket in accordance with Commission Rules.

Respectfully submitted,

William K. Keane

William K. Keane
Counsel for Aerospace and Flight Test Radio Coordinating Council

Attachment

cc: The Honorable Robert M. McDowell
Angela Giancarlo

Aerospace and Flight Test Radio Coordinating Council Members

Bell Helicopter A Textron Company

Boeing

Bombardier

Cessna A Textron Company

Honeywell

Gilfillan ITT Industries

L3 communications Integrated Systems

Lockheed Martin

Lockheed Martin Excellence Enterprise Information Systems

Northrop Grumman

ISA Integrated Systems and Aerostructures Sector

Raytheon

Electronic Sensors & Systems Sector

Rockwell Collins

Sikorsky A United Technologies Company

Agilent Technologies

Bechtel Nevada

Herley Lancaster

L3 communication Telemetry-West

L3 Telemetry East

L3 communications Communication Telemetry - East

Spectrum Certification Solutions Inc

Aerospace and Flight Test Radio Coordinating Council Presentation

Key Open Issues in ET Docket No. 08-59

March 13, 2009

Executive Summary

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AEROSPACE & FLIGHT TEST RADIO COORDINATING COUNCIL

The issues are not sufficiently narrow to issue an NPRM.

- Johns Hopkins tests show:
  - BSNs will corrupt flight test telemetry -- just as Learjet tests predicted.
  - There is no increase in the AMT noise floor from out-of-band devices.
  - Co-channel BSNs will emit 10,000 times more energy per device than permitted under FCC Rules for WCS or ISM (30 + 10 log(P)dB vs. 70 + 10 log(P)dB).
- Exclusion zones are unenforceable and impractical.

Executive Summary (cont.)

AFTRCC
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- GEH has not justified the amount of spectrum it requires given modest data throughput. GE must provide additional details.
- Spectrum in other bands is currently available that can prevent mixing two safety-related applications while quickly accommodating BSN (and broadcast auxiliary) operations. Medical telemetry's spectrum would increase by over 50 percent.
- DOD's Joint Spectrum Center will independently evaluate GEH's claims. NPRM should wait until analysis is complete.

These controversial issues militate against issuance of an NPRM at this time.

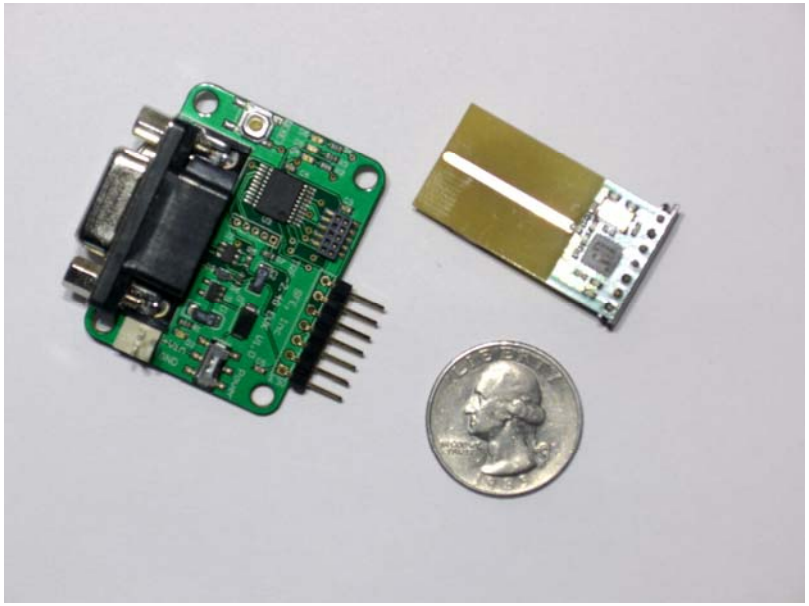
* * *

Johns Hopkins Test Results

- Background
  - AFTRCC member, Learjet, conducted field tests using a signal generator to mimic a BSN device.
  - Tests demonstrated that a 1 mW signal can harmfully interfere with AMT receiver.
  - GEH challenged those tests as having "misrepresented" the interference threat to AMT on the grounds, in particular, that Learjet used a continuous wave vs. intermittent signals.
  - So, AFTRCC commissioned the Johns Hopkins University Applied Physics Lab to validate Learjet interference conclusions.

APL Test Set-Up

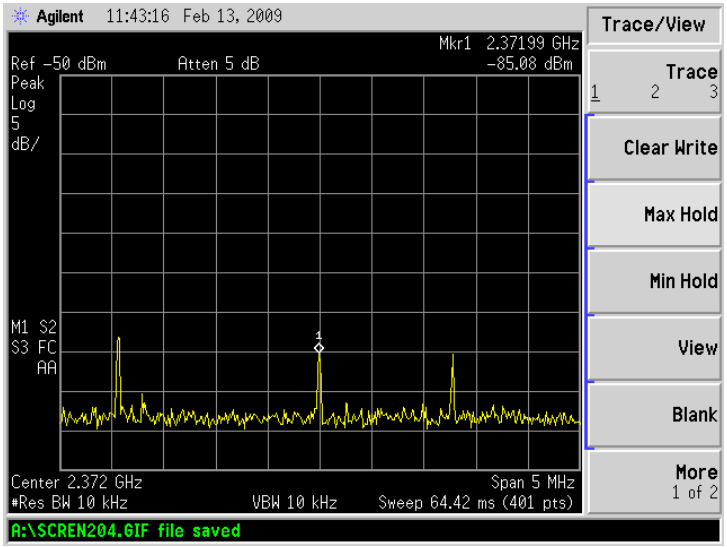
- In order to address GEH complaints, a team of APL engineers undertook a laborious analysis:
  - Procured specialized devices that use the Nordic semiconductor chips.
  - Physically modified these devices to operate in the 2300 – 2400 MHz band.
  - Wrote, compiled, and downloaded test-specific software to the Nordic chips.
  - Conducted bench testing to validate their performance.
  - Conducted range testing on a spectrum and facilities-available basis .



Prototype BSN device used in APL testing, including timing crystal, antenna, transceiver, microprocessor, and Interface connectors

APL Test Results

- The tests confirmed prior AFTRCC filings and Learjet tests:
  - Signals from BSNs are >8 dB above the AMT ground station receiver noise floor 12 statute miles from receiver.
  - Conclusion: BSNs in radio line of site of AMT receivers will corrupt flight test telemetry data and render the test useless.



Signals from three 1 mW BSNs
as detected by an AMT ground station at a distance of 12 miles.

APL Test Results (cont.)

- The tests confirmed . . .(cont.)
  - The specific signal characteristics of BSN devices are unimportant to predicting and computing interference effects.
  - There is no increase in the noise floor due to spillover from ISM devices into the AMT band.
  - BSNs would emit 10,000 times more energy per co-channel device than permitted under current Commission Rules for either ISM or WCS devices in adjacent bands (30 + 10 log(P) vs. 70 + 10 log(P)).

GEH's Spectrum Requirements

- No studies have been submitted supporting a need for 40 MHz of safety service spectrum shared with the US Government.
- At baseline data rates, per BSN, of ~30 kbps, just 3 MHz could handle the throughput requirement for groups of as many as 50 BSNs within a facility.
- 40 MHz request could be reduced to 10 MHz with no hardware or architecture changes and still achieve a very respectable 250 kbps data rate.

Compatibility Between Two Safety Applications.

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- GEH incorrectly claims AMT antennas require only 10 km separation from BSN devices.
- APL tests demonstrate that any proposed exclusion zone must be beyond the radio line-of-sight around an antenna -- effectively eliminating major metropolitan areas like Los Angeles, Dallas-Fort Worth, Seattle, St. Louis and Wichita, to name a few.
- But exclusion zones do not work for civil and DOD mobile telemetry facilities, the locations of which are significantly variable. Mobile telemetry facilities are critical for long-range testing.

Spectrum Enforcement

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- GEH's proposal neither protects safety of pilots and persons on the ground nor high value aerospace assets. Nor does the proposal protect patient safety and well-being.
- GEH admits "health care facilities generally do not [understand the difference between primary and secondary use]" and has sought to distance itself from responsibility for compliance (Reply Comments filed 9/11/07 in WT Docket No. 07-100 at 2, 4).
- GE itself has opposed secondary allocations for safety-of-life medical telemetry -- at least in the case of WMTS (id. at Section III). Exclusion zones and licensing-by-rule do not co-exist effectively for safety applications.
- GEH ignores the potential liability issues encompassed by its proposal.

Broadcast Sports Petition

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- Petition should be placed on public notice for comment.
- Long-standing use of S-band frequencies on short-term (e.g. 2-4 day) basis for individual sporting events.
- Broadcasters coordinate with the aerospace industry/ DOD to share spectrum.
- Petition should be factored into the Commission's overall analysis, particularly given GEH claims to the entire band.

Spectrum Counter-Options

- BSN devices can be effectively deployed using only 10 MHz.
- 10 MHz would increase by over 50 percent the current wireless medical telemetry allocation.
- BSNs could be accommodated in other nearby spectrum such as 2300-2305 MHz and 2395-2400 MHz.
- Adjacent 2400 MHz available if additional spectrum required.
- GEH itself has referenced additional bands.

Conclusion

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- The Johns Hopkins tests prove BSNs harmfully interfere with flight test operations.
- GEH's proposal is extremely troubling to the aerospace industry and could have an adverse impact on aircraft certification and deliveries to customers -- potentially impacting jobs and aerospace contributions to economic recovery.
- DOD has instructed Joint Spectrum Center to study the matter and evaluate GEH's claims including, in particular, the spectrum requirement and spectrum compatibility. Issuance of an NPRM at this point would prejudge the outcome of that study and waste Commission resources in an untenable focus on AMT spectrum as the home for BSN services.