FLETCHER, HEALD & HILDRETH

FCC DEVELOPMENTS

MAY 2006– APRIL 2007

CORF MEETING
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I. Unlicensed Operations on Channel 37 (ET Docket 04-186)

In a May 2004 NPRM, the FCC proposed to allow limited use of unlicensed devices where TV channels are not being "used".

- Device would test for use by GPS location or sensing signals.
- CORF filed comments supporting prohibition of unlicensed use of 608-614 MHz
- In October 2006, the FCC took first tentative steps, issuing Order and Further Notice of Proposed Rulemaking:

I. Unlicensed Operations on Channel 37 (ET Docket 04-186) (Cont'd)

***Order*:**

- generally permits *fixed, unlicensed* operations after 2/17/2009 on "vacant" TV channels

- prohibits unlicensed use on Channel 37 and on Channels 52-69-prohibits mobile devices on Channels 14-20 in all areas.

***Notice*:**

- sought comments on use of licensed devices on "unused" TV spectrum (apparently excluding Channel 37)

- sought comments on details of requirements for sensing use of spectrum, dynamic frequency selection, use of control signals, fixed operations on Channels 14-20, and OOBE (Part 15 standard or weaker?).

I. Unlicensed Operations on Channel 37 (ET Docket 04-186) (Cont'd)

- Due to huge opposition from broadcasters, FCC moving slowly, but anticipates new Order in Fall of 2007.

- Advocates of wireless (Intel and Microsoft) continue to try to force action though Congress.

- Pending before the Senate Commerce Committee are two *new* bills (S.337-Sununu and S.234-Kerry) which, if enacted, would require the FCC to permit the use of unlicensed wireless equipment on eligible frequencies: **54-698 MHz**.

- Parallel legislation has also been introduced in the House by Reps. Inslee (Wash.), Eshoo (Calif.) and Boucher (Va.) (H.R. 1597). *Previous version of legislation had excluded Channel 37,* but no longer.

I. Unlicensed Operations on Channel 37 (ET Docket 04-186) (Cont'd)

- If legislation is enacted without Ch. 37 prohibition, an argument could be made that the legislation actually would require the FCC to make Channel 37 available for unlicensed use, notwithstanding the prohibition on such use in Part 15 of the FCC's rules. Furthermore, an argument could be made that the legislation does not require the FCC to enact rules protecting Radio Astronomers experiencing interference on Channel 37, as they appears to require protection only for "incumbent licensees." While Channel 37 is allocated for use by Radio Astronomy, that allocation is not a "license."

- Small legislative effort by RAS could make a big difference. WMTS interests would be natural and potentially powerful allies.

II. Medical Device Radiocommunication Service (ET Docket 06-135)

In July of 2006, the FCC Issued a Notice of Proposed Rulemaking and Notice of Inquiry on modifications of its rules to accommodate the development and use of a variety of new wireless implanted and externally-worn medical transmitter devices.

The FCC proposes to allocate two additional megahertz of spectrum in the 401-402 MHz and 405-406 MHz bands that would be governed by rules generally similar in nature to those for the existing Medical Implant Communication Service (MICS) allocation in the 402-405 MHz band.

II. Medical Device Radiocommunication Service (ET Docket 06-135) (cont'd)

The entire 401-406 MHz band would now be called Medical Device Radiocommunication ("MedRadio") Service.

This is separate from the 14 megahertz of spectrum in the 608-614 MHz, 1395-1400 MHz, and 1429-1432 MHz bands for the wireless medical telemetry service (WMTS) under Part 95 of the FCC Rules, or unlicensed Part 15 medical devices.

MICS devices are limited to a maximum EIRP of 25 microwatts, and the allocation is secondary in order to protect incumbent Federal meteorological operations in the band.

II. Medical Device Radiocommunication Service (ET Docket 06-135) (cont'd)

Proposal:

- add "wing" allocations at 401-402 MHz and 405-406 MHz

- limit the maximum authorized channel bandwidth to 100 kHz in the new bands as contrasted with the 300 kHz channel bandwidth permitted for the MICS center band, and more stringent emission limits for the wing than the present MICS limits: emissions more than 50 kHz away from the fundamental emission would need to be attenuated by at least 20 dB; and emissions outside of the designated bands would

II. Medical Device Radiocommunication Service (ET Docket 06-135) (cont'd)

need to be attenuated by at least 20 dB; and emissions outside of the designated bands would need to be attenuated to 200 µV/m at 3 meters in the frequency ranges 216-400.9 MHz and 406-960 MHz.

Notice of Inquiry asks broad questions re future regulation of medical radio devices: frequencies, emission characteristics, etc.

No action in this proceeding as of this time.

III. Broadband Over Powerline Reconsideration Order

In October of 2006, an FCC Order addressed petitions for reconsideration of various Broadband-Over-Powerline ("BPL") technical rules. From the perspective of RAS, the following are highlights:

- Original rules prohibited BPL operation on *73.0-74.6 MHz* within *29 km* of the 10 VLBA sites. The FCC had confused the VLBA with the VLA, and per NTIA suggestion, modified the prohibition to apply only to the VLA: BPL operation is prohibited within 65 km of the VLA, on carrier frequencies of 73.0-74.6 MHz.

- FCC retained the requirement that BPL operators consult with RAS prior to operation within 4 km of the VLBA sites. The FCC expanded the frequencies that would trigger this consultation, from *1.7-38.25 MHz, to 1.7-80 MHz*.

III. Broadband Over Powerline Reconsideration Order (cont'd)

FCC's rules require BPL operators to enter information about specific operational sites in a publicly accessible database 30 days prior to operation. BPL operators expressed concern about competitive impact of this requirement, and about operational delay if frequencies are revised during the 30 day period in response to interference concerns. The FCC retained the 30 day advanced notice requirement, but clarified that:

III. Broadband Over Powerline Reconsideration Order (cont'd)

- database notice may state the contemplated frequency range and later be amended when actual operating channels are identified. BPL operator may change the reported frequencies in the database at any time during the 30-day advance notification period.

- 30-day notification requirement only applies to initial BPL deployments. Thereafter, a BPL operator only needs to keep the information in the database current with respect to each of its deployment areas.

IV. 1670-1675 MHz Waiver Order

Under Part 27 of the FCC's rules, the 1670-1675 MHz band is allocated to a Terrestrial wireless service. That band is licensed on a nation-wide basis to OP Corporation, a subsidiary of a big tower company – Crown Castle ("CC").

In a February 2007 Order, the FCC addresses a waiver Request by CC, which states that CC intends to use the 1670-1675 MHz band to provide a one-way (base-to-mobile) nationwide service, called Modeo, with at least 10 video channels and 24 audio channels.

IV. 1670-1675 MHz Waiver Order (Cont'd)

CC states that its network will use a 5 MHz Carrier band width at each base station, and requests that rather than complying with the current 2 kW EIRP limit for fixed and base station operations in the band on a "per carrier" basis, it be permitted to operate on a "power spectral density" (PSD) basis of 4kW/MHz in non-rural areas, and 8 kW/MHz for rural areas (defined as counties with a population density of 100 persons or less per square mile).

This approach allows CC to operate its 5 MHz bandwidth technology at up to 20 kW and 40 kW peak EIRP in non-rural and rural areas, respectively, and it seeks authority to operate in this manner in 30 markets.

IV. 1670-1675 MHz Waiver Order (Cont'd)

FCC granted the waiver request, but in a manner particularly protective of nearby passive service users (earth stations for NOAA's Geostationary Operational Satellite System – "GOES"; National Weather Service's radiosonde balloons at 1675-1683, and RAS facilities observing at 1665-1667 MHz). The waiver is granted subject to the following conditions:

1) CC must fully protect the GOES earth stations located at Wallops Island, Virginia and Fairbanks, Alaska at all times, and the GOES earth station located at Greenbelt, Maryland, when it is active.

IV. 1670-1675 MHz Waiver Order (Cont'd)

2) CC must coordinate with NOAA, the proposed operation or modification of any facility within the expanded Greenbelt, Maryland GOES coordination zone (radius increased from 65 to 100 kilometers), and any facility within the expanded Fairbanks, Alaska GOES coordination zone (radius increased from 100 to 180 kilometers).

3) CC must coordinate with, and obtain the consent of, the National Weather Service for the proposed operation or modification of any high-power (*i.e.*, above 2 kW EIRP) base station within 1.3 kilometers of certain specified Upper Air Site locations.

IV. 1670-1675 MHz Waiver Order (Cont'd)

4) CC must comply with the out-of-band emission limits specified in Section 27.53(j): attenuation of OOBE below transmitter power (P) by at least 43 + log 10 (P) dB.

5) CC must consult with the NSF re RAS facilities listed in Section 2.106, footnote US311, at least 30 days prior to operating or modifying any high-power (*i.e.*, above 2 kW EIRP) base station within a 185 kilometer radius of any such facility.

IV. 1670-1675 MHz Waiver Order (Cont'd)

6) CC must comply with all other quiet zone and coordination requirements specified in Section 1.924 and Section 27.903.

In addition to protecting the major facilities listed in Footnote US311 (ATA, Goldstone, Arecibo, Socorro, Green Bank, VLBA and Owens Valley), the FCC also required CC to protect RAS facilities at Mt. Graham Observatory in Arizona. That's a first as far as I can tell. Is this due to Vatican operations there?? :)

V. Comments On WRC-07 Proposals to Protect EESS (IB Dkt 04-286)

CORF twice filed Comments in response to FCC notices regarding the proposals of the U.S. World Radiocommunication Conference Advisory Committee (WRC-07 Advisory Committee) on WRC-07 Agenda items which call for consideration of regulatory measures for the protection of EESS passive bands from unwanted emissions of active services in the following bands:

1350-1400 MHz,
1427-1452 MHz,
22.55-23.55 GHz,
30-31.3 GHz,
36.0-37.0 GHz,
47.2-50.2 GHz
50.4-52.6 GHz.

V. Comments On WRC-07 Proposals to Protect EESS (IB Dkt 04-286) (Cont'd)

These bands are allocated for use in various radio services including Part 25 (Satellite Communications), Part 27 (Miscellaneous Wireless Communications Services, Part 87 (Aviation) Part 90 (Private Land Mobile Radio Services), Part 95 (Personal Radio Services), and Part 101 (Fixed Microwave Services).

CORF supported the various out-of-band emission limits proposed by the U.S. Executive Agencies (e.g., NASA), which generally are more restrictive than those in the current FCC rules. In regards to the 36.0-37.0 GHz band, CORF supported mandatory -10 dBW transmitter power limits on terrestrial fixed and mobile service operations in the band.

VI. NPRM on Airborne Use of Cell Phones (WT Docket 04-435)

In a 2004 NPRM, the FCC proposed to replace or relax its ban on airborne usage of 800 MHz cellular handsets.

- FCC rules currently prohibit the airborne use of 800 MHz cellular telephones.

- There is a similar, though less restrictive rule in Part 90 which places some limitations on airborne use of Nextel phones.

VI. NPRM on Airborne Use of Cell Phones (WT Docket 04-435) (Cont'd)

- While 1.8 GHz PCS handsets are not subject to FCC airborne use prohibition, FAA regulations prohibit the use of all types of mobile telephones on aircraft.

- Airborne use also subject to the separate rules and policies of the FAA and aircraft operators. A government/industry committee is currently studying the impact of phones on aircraft navigation and safety, and will submit a report to the FAA.

VI. NPRM on Airborne Use of Cell Phones (WT Docket 04-435) (Cont'd)

In May of 2005, CORF filed comments in this proceeding:

CORF argued that if such use is to be authorized, it should be only if the handsets are controlled by an airborne pico cell. This could minimize the likelihood and severity of events of interference to RAS facilities, by limiting the handset transmissions to communications within the aircraft, rather than to transmissions to the ground, and would accordingly limit the power of cellular handset transmissions within the aircraft.

VI. NPRM on Airborne Use of Cell Phones (WT Docket 04-435) (Cont'd)

CORF also supported the proposal to adjust the out-of-band and spurious transmission limits to account for airborne transmissions.

There was strong opposition to the FCC proposals from consumers, airlines and some terrestrial cellular operators.

- In April of 2007, the FCC issued an Order terminating the proceeding without further action. FCC stated that record lacked information sufficient to determine whether terrestrial networks could be protected from interference from airborne use of cellular phones. FCC left the door open to reconsider the issue in the future.

VII. Interference Temperature

In 2003, FCC sought comments on the calculation and use of an "interference temperature" ("IT") metric to increase efficient use of spectrum and promote unlicensed usage, while protecting incumbent users from interference.

- *Concept*: allow unlicensed devices to operate at any location/frequency as long as noise floor and temperature of unlicensed operation do not exceed specific IT limits per frequency band.

VII. Interference Temperature (Cont'd)

- FCC saw this concept as a revolutionary change in spectrum management (compared with the traditional model of regulating interference by controlling the emissions and locations of transmitters). This was part of then-Chairman Powell's "Spectrum Task Force".

- CORF supported the general intent of quantifying and managing interference in a more precise fashion.

VII. Interference Temperature (Cont'd)

- But, due to low strength of RAS/EESS signals, and the long integration times, CORF argued that IT metric could not practically provide protection in passive service bands.

- Huge opposition from incumbent licensed users.

- In April of 2007, trade reports state that FCC Chairman Martin is going to terminate this proceeding, due to concerns about interference to incumbents.

Questions?

Thanks!

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