



# Broadband over Power Line (BPL) Update

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# BPL Rules

- R&O (FCC 04-245) - Part 15 Subpart G

[http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-04-245A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-245A1.pdf)

Measurement procedures in Appendix C

Erratum DOC-254180A1.doc

- **Currently, TCBs cannot authorize Access BPL devices**



# Memorandum of Opinion and Order

## ● MO&O (FCC 06-113)

[http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/FCC-06-113A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-06-113A1.pdf)

- No changes to Certification technical requirements
- Operational Changes
  - Exclusion zones added to protect radio astronomy
  - 20 dB notch will constitute adequate interference protection for mobile operations
- Transition from Carrier Current System (CCS) to BPL
  - BPL certification required as of July 7, 2006
  - Uncertified equipment already in inventory can be used for replacing defective units or to supplement equipment on existing systems for one year within areas already in operation



# Electric Utility Meters

- For BPL Certification the device must meet the definition of Access BPL
  - CCS installed and operated on an electric utility service
  - 1.705 MHz and 80 MHz over medium voltage lines or over low voltage lines
  - Located on the supply side of the utility service's points of interconnection with customer premises



# Issues

- Testing shall be performed using the maximum RF injection duty factor (burst rate). Test modes or test software may be used for uplink and downlink transmissions.
  - burst rate – bursts/sec
  - duty factor - % time the device is injecting RF
- Modulation
  - Systems often use multiple modulations for multiple modes (similar to 802.11)
  - This must be included in the Operational Description
  - No test procedure to differentiate modes



## Issues (Con't)

- Interference Mitigation
  - Device must have notch capability
  - Cases where multiple channels must be attenuated to achieve notch depth
- User's Manual must explain interference mitigation technique and how to set the parameters
- Power-up default conditions must be explained
  - Default power setting
  - Notches and/or band selections to meet interference mitigation requirements



## Issues (Con't)

- Bridges to transfer data from medium voltage lines to low voltage lines
  - Below 30 MHz – one limit so no problem
  - Above 30 MHz – Class A limits for medium voltage lines and Class B for low voltage line
    - For in band measurements, test modes and test software required to simulate data only on the low voltage line to test Class B limits
    - Spurious emissions – TBD, consult FCC
- Minimum separation distance between BPL devices for to be separate installations for purposes of testing in 3 installations
  - 200 meters or twice the typical communication distance along overhead lines (e.g., distance between repeaters), whichever is larger.



## Issues (Con't)

- Multiple couplers under one FCC ID
  - You are permitted to have multiple couplers under one application and FCC ID. Each coupler must be tested in full - 3 overhead and three underground installations for each coupler. You can also add additional couplers in the future through a Class II permissive change. Once again, any additional coupler will have to be tested in full.
- Measurement of out-of-band emissions for overhead lines can be measured either by using radials or wavelengths down the line





# Questions and Answers

**Thanks!**