Ex Parte Comments on AMSAT Reply Comments in ET Docket No. 02-98

IEEE 802.18 RR-TAG

October 9, 2002

IEEE 802 Charter

- Develop standards for computer networks
  - Wired
  - Wireless
- One requirement for developing a new standard is regulatory compliance
  - Work with regulatory agencies worldwide
  - Work with industry developers
  - RLAN standards comply with regulations

IEEE 802.18 Clarifications

- There are apparent misconceptions in AMSAT's reply comments that we feel compelled to address
  - Usage of RLANs
  - Compliance to regulations
  - Engineering assessments

Current RLAN Deployment

- RLAN's focus on local connectivity
  - Enterprise Office -- ~95%
  - Home -- ~4%
  - Public (Hot Spots) -- ~1%
  - Point to Point Link -- <1%
- Fully compliant with Part 15

Enterprise, Home, Public

- Deployment ~99% of RLAN market
- Transmit Power -- 7 - 20dBm (5-100mW)
- Antenna Gain -- 0 - 2 dBi

Point to Point

- Deployment <1% of RLAN market
  - Extension of local Intranet connectivity (building to building bridges)
  - Transmit Power -- 15 - 30 dBm (30mW - 1W)
    - Typical installations use power well below 1W
  - Antenna Gain -- 6 - 33 dBi
    - Typical 14 - 24 dBi
    - See Annex A for power backoff and EIRP table

Engineering Assessment

- **IEEE 802.18's intent in suggesting downlink only for satellites was to minimize interference potential**
  - AMSAT uplink receiver would see aggregate RF of all users in a extremely large coverage area
  - Earth station receivers see only nearby Part 15 devices
  - Directional antennas use at earth stations will mitigate interference
- **The IEEE 802 WLAN/WPAN community has no plans or intent to request power limit changes**
  - As noted above most RLAN installations operate well below current Part 15 power limits

Sharing Studies

- Industry has proposed cooperative sharing study with ARRL
  - Deployment Scenario (Amateur and RLAN)
  - Signal characteristics analysis
  - Radiation pattern analysis
  - Harmful Interference criteria development
  - Simulate realistic probability of Interference

AMSAT's & ARRL's Comments are Inaccurate and Unrealistic

- **Collectively, they assert that the Commission "… *cannot make allocation decisions involving incumbent services based on concerns about unlicensed services without allocation status*."**
  - IEEE 802.18 disagrees
  - In the instant NPRM, the Commission recognizes the importance of Part 15 devices and the infeasibility of removing them from the subject band.
- **AMSAT and ARRL also collectively assert that to address the practical realities and societal value of Part 15 devices would constitute "*unsound spectrum management*."**
  - Again, IEEE 802.18 disagrees
  - The Commission *must* recognize the societal value of Part 15, relative to the Amateur Radio Service, in the subject band and strike a balance that is in the public interest.

Thank You

- Thank you for the opportunity to correct these misconceptions
- Questions?

Annex A, Table 1

TX Power (W)	Antenna Gain (dBi)	backoff in dB per 15.247	resulting allowable power (W)	resulting EIRP (W)
0.05	6	0.00	0.05	0.20
	7	0.33	0.05	0.21
	8	0.67	0.04	0.23
	9	1.00	0.04	0.25
	10	1.33	0.04	0.27
	11	1.67	0.03	0.29
	12	2.00	0.03	0.32
	13	2.33	0.03	0.34
	14	2.67	0.03	0.37
	15	3.00	0.03	0.40
	16	3.33	0.02	0.43
	17	3.67	0.02	0.46
	18	4.00	0.02	0.50
	19	4.33	0.02	0.54
	20	4.67	0.02	0.58
	21	5.00	0.02	0.63
	22	5.33	0.01	0.68
	23	5.67	0.01	0.73
	24	6.00	0.01	0.79
	25	6.33	0.01	0.86
	26	6.67	0.01	0.92
	27	7.00	0.01	1.00
	28	7.33	0.01	1.08
	29	7.67	0.01	1.16
	30	8.00	0.01	1.26
	31	8.33	0.01	1.36
	32	8.67	0.01	1.46
	33	9.00	0.01	1.58

Annex A, Table 2

TX Power (W)	Antenna Gain (dBi)	backoff in dB per 15.247	resulting allowable power (W)	resulting EIRP (W)
0.1	6	0.00	0.10	0.40
	7	0.33	0.09	0.43
	8	0.67	0.09	0.46
	9	1.00	0.08	0.50
	10	1.33	0.07	0.54
	11	1.67	0.07	0.58
	12	2.00	0.06	0.63
	13	2.33	0.06	0.68
	14	2.67	0.05	0.74
	15	3.00	0.05	0.79
	16	3.33	0.05	0.86
	17	3.67	0.04	0.93
	18	4.00	0.04	1.00
	19	4.33	0.04	1.08
	20	4.67	0.03	1.17
	21	5.00	0.03	1.26
	22	5.33	0.03	1.36
	23	5.67	0.03	1.47
	24	6.00	0.03	1.58
	25	6.33	0.02	1.71
	26	6.67	0.02	1.85
	27	7.00	0.02	2.00
	28	7.33	0.02	2.15
	29	7.67	0.02	2.33
	30	8.00	0.02	2.51
	31	8.33	0.01	2.71
	32	8.67	0.01	2.93
	33	9.00	0.01	3.16

Annex A, Table 3

TX Power (W)	Antenna Gain (dBi)	backoff in dB per 15.247	resulting allowable power (W)	resulting EIRP (W)
1	6	0.00	1.00	3.98
	7	0.33	0.93	4.30
	8	0.67	0.86	4.64
	9	1.00	0.79	5.01
	10	1.33	0.74	5.41
	11	1.67	0.68	5.84
	12	2.00	0.63	6.31
	13	2.33	0.58	6.81
	14	2.67	0.54	7.36
	15	3.00	0.50	7.94
	16	3.33	0.46	8.58
	17	3.67	0.43	9.26
	18	4.00	0.40	10.00
	19	4.33	0.37	10.80
	20	4.67	0.34	11.66
	21	5.00	0.32	12.59
	22	5.33	0.29	13.59
	23	5.67	0.27	14.68
	24	6.00	0.25	15.85
	25	6.33	0.23	17.11
	26	6.67	0.22	18.48
	27	7.00	0.20	19.95
	28	7.33	0.18	21.54
	29	7.67	0.17	23.26
	30	8.00	0.16	25.12
	31	8.33	0.15	27.12
	32	8.67	0.14	29.29
	33	9.00	0.13	31.62