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Federal Communications Commission
Washington, DC

Re: ET Docket No. 02-135

January 24, 2003

Dear Commissioners,

Please accept this addendum to my comments of Jan. 3, relating to the Spectrum Policy Task Force Report, and the supporting report by the Task Force's Unlicensed Devices and Experimental Licenses Working Group.

I wish to underscore my previous arguments as to why end-users of Part 15 wireless LAN equipment (WiFi) should be able to use antennas other than those supplied and certified by their manufacturers.

The first point I wish to make is that the stock "Rubber Duck" dipoles used by almost all consumer WiFi gear are inappropriate and counterproductive for many applications.

Such antennas are the correct choice when the WiFi transceiver is near the center of the coverage area. But in real-world installations, when the transceiver is closer to the perimeter of the premises, the dipoles direct half their rf energy to the outside environment. Not only does this render the network less effective, *it actually increases the general noise level outside*, which is certainly not the commission's intent. Yet current regulations outlaw the obvious solution – a more directional antenna aimed inward.

In fact, in almost half the existing WLAN installations in small-office and home sites, the transceivers (in wireless access points or routers) are located closest to the outside of the perimeter. This was determined by an objective survey of WLAN users Jan. 7-24, 2003 in this online study:

<http://www.dslreports.com/forum/remark,5575056~root=wlan~mode=flat>

The survey results, computing both the number of wireless units, and users of those units, with a 95 percent confidence level, show:

- 43.8 percent of the units, plus/minus 6.2 percent, are located closer to the perimeter of the premises.
- 47 percent of the users, plus/minus 6.4 percent, have at least one unit near the perimeter of their premises.

The raw results are reported in Figure 1. Details of the computations are in Figure 2.

Figure 1

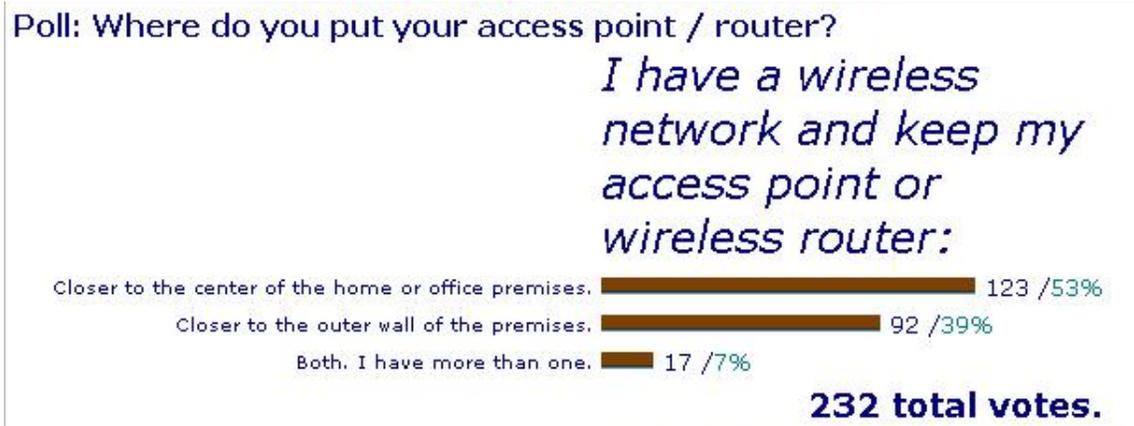


Figure 2

Users						
Inside	Outside	Both	Total	Has Outside Unit	No Outside Unit	
123	92	17	232	109	123	
				Mean	95% Confidence Interval	
				47.0%	Low	High
					6.4%	40.6% 53.4%
Units						
Inside	Outside	Both	Total	Outside	Inside	
123	92	17	249	109	140	
				Mean	95% Confidence Interval	
				43.8%	Low	High
					6.2%	37.6% 49.9%

My second point is that, because WiFi manufacturers have voluntarily limited their products to an output far below the FCC-mandated ceilings, it is virtually impossible for end-users to exceed those ceilings by attaching third-party antennas.

The de facto limit means that the output of WiFi equipment sold to end-users is never more than 100 mW (20 dBm). This equipment, together with antennas, could be legally certified to an EIRP of 36 dBm for point-to-multipoint use, and 44 dBm for point-to-point use.

A survey of third-party antennas marketed for wireless networking turned up no units suitable for point-to-multipoint with an advertised gain above 16 dBi, and no point-to-point antennas with an advertised gain above 24 dBi. Thus, even the most inept or ill-intentioned consumer/user could not exceed the FCC limits.

Thank you for your consideration.