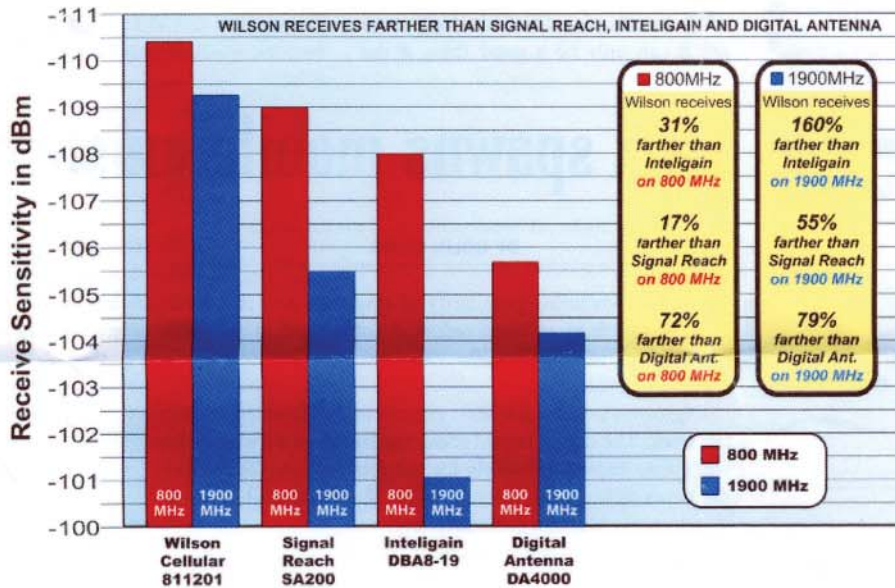


# Tests Show **Wilson Cellular**® Amplifiers Outperform **Inteligain**®, **Digital Antenna**® and **Signal Reach**®

## Tests by WTS Laboratories' Show the Wilson® Dual Band Direct Connection Amplifier has More Receiver Sensitivity than others Tested



Tests by WTS laboratories show that Wilson Cellular Amplifiers have more sensitive receivers than Inteligain, Digital Antenna and Signal Reach. The Wilson Amplifier can receive signals up to **31%** farther in the 800 MHz Band and **160%** farther in the 1900 MHz Band than Inteligain's Dual Band model DBA8-19.<sup>3</sup>

WTS also performed the significant CDMA IS-98 transmit tests and found that both the Wilson Single Band Direct Connection 800 MHz and the Wilson Dual Band Direct Connection 800/1900 MHz amplifiers passed. Wilson has also received carrier approval for use on CDMA systems.

### “If you can’t receive signal, you can’t communicate”

The Wilson Cellular Amplifier has a better receiver than your cellphone. Its advanced electronics are very sensitive and able to receive weak signals which would go undetected by most cellphones. It also has a better transmitter (up to 3 Watts) which is much more powerful than the transmitter in your cellphone. This allows your cellphone to communicate with distant cell sites, increasing coverage up to 50 miles or more.

### What is Receiver Sensitivity?

Receiver Sensitivity measures the lowest amount of receive signal that allows communication based on a frame error rate that does not exceed IS-98 standards.<sup>2</sup> A more sensitive amplifier receiver can detect a weaker signal which allows the cell site to communicate with the cellphone at a greater distance.

For example, the Wilson Cellular amplifier has a receive sensitivity of -109.3 dBm in the 1900 MHz band and the Digital Antenna amplifier has a sensitivity of only -104.2 dBm. The Wilson amplifier can receive a signal that is 5.1 dBm weaker than the Digital Antenna amplifier. This means with a Wilson amplifier you can receive a signal from the cell site up to 79% farther than with Digital Antenna's amplifier.<sup>3</sup>

<sup>1</sup>WTS Laboratories performs cellphone certification tests for Telus Mobility, Nokia, Motorola, Samsung, and others.  
<sup>2</sup>TIA/EIA-98-E Test 3.5.1, Receiver Sensitivity and Dynamic Range measures the RF sensitivity of a cellphone with each amplifier by determining the minimum received power necessary to assure that the frame error rate (FER) does not exceed a specified value. From any given manufacturer, 4 amplifiers were tested. On each frequency tested, 3 tests were made using different test parameters (e.g. data rates). The sensitivity for each manufacturer's amplifier is calculated separately for each frequency band and is the average of all the measurements made on all of the amplifiers in that band.  
<sup>3</sup>A free space model, line of site, was used for the distance calculations.

To: Wilson Electronics Engineering Department  
 From: Dr. Dwight Heim, PhD, Electrical Engineer  
 Subject: Summation of Cellular Amplifier Receiver Sensitivity Test Conducted at WTS Laboratories  
 Date: August 20<sup>th</sup>, 2004

Receive Sensitivity Tests were performed by WTS Laboratories on various Dual Band Cellphone Amplifiers.

The Tests were conducted in the 800 MHz Band (824 – 894 MHz) and the 1900 MHz Band (1850 – 1990 MHz). The average sensitivity was calculated in each band.

WTS tested 4 each of the Amplifiers listed below:

- Wilson Cellular Dual Band Cellular Amplifier Part # 811201 (revision 3.3)
- Signal Reach Dual Band Cellular Amplifier Part # SA200 (2 ea. rev. 2.30 & 1.21)
- Digital Antenna Dual Band Cellular Amplifier Part # DA4000 (revision not indicated)
- Inteligain Dual Band Cellular Amplifier Part # DBA8-19 (2 rev. 00 & 2 rev. not indicated)

**Test Results:** 800 MHz Average Sensitivity in dBm

Wilson Cellular	Part # 811201	-110.4
Signal Reach	Part # SA200	-109.0
Inteligain	Part # DBA8-19	-108.0
Digital Antenna	Part # DA4000	-105.7

1900 MHz Average Sensitivity in dBm

Wilson Cellular	Part # 811201	-109.3
Signal Reach	Part # SA200	-105.5
Digital Antenna	Part # DA4000	-104.2
Inteligain	Part # DBA8-19	-101.1

*Dwight S. Heim*  
 Dwight S. Heim, PhD, Electrical Engineer  
 Professor Emeritus, The University of Michigan

## “Hear What Our Dealers Have to Say About Our Dual Band Amplifiers”

**A WESOME AMPLIFIERS!** We have tried several different cellular amplifiers on the market and have not been pleased with the results. One manufacturer would give us good signal gain, but increased noise. Others would offer less noise but also less gain. After trying the new dual-band 3 Watt amplifier, I have to say that I am excited. Our business offers four different cellular companies (AT&T, Cingular, Verizon, and Sprint) and this amplifier increased the signal significantly on all of them. Most of all, the noise level was also significantly lower than others we have tried. Our particular area is plagued with dead spots with all of the major cellular providers. I truly believe that this will be the answer that our customers are looking for.

**“I truly believe that this will be the answer that our customers are looking for.”**

Thanks!

**Jimmy Smith / Store Manager  
Fron-Tronics, Inc.  
Joplin, MO**

I've driven our market area many times over the years with my PCS handset and I am, therefore, attuned to the locations where service is marginal or non-existent. I have recently driven much of our service area with the Wilson cellular/PCS amplifier and was impressed with the ability to acquire service and engage in telephone conversation that previously was not possible. We were very impressed with this new amplifier, and we feel that it will be of great benefit to many of our rural customers.

Thanks,

**Jeff Bushnell / Operations Manager  
South Central Communications  
St. George, Utah**

### Direct Connection Cellular Amplifiers

Part#	Description
811101	Single Band 3 Watt Amplifier 824-894 MHz with 1900 MHz Antenna Bypass
811201	Dual Band 3 Watt Cellular Amplifier 824-894 MHz 1850-1990 MHz
814001	IDEN frequencies 3 Watt Amplifier 806-866 MHz

PART NUMBER	NOMINAL GAIN dB	FREQUENCY COVERAGE			APPLICATIONS	
		Cellular 824-894 MHz	PCS 1850-1990 MHz	IDEN 806-866 MHz	In-Building	In-Vehicle
811101	Cell Site Controlled	✓			✓	✓
811201	Cell Site Controlled	✓	✓		✓	✓
814001	10			✓	✓	✓



After installation of the Wilson Cellular Dual Band Connection Amplifier into my company vehicle I began testing to investigate the performance. I have several areas within our PCS network that provide some terrain challenges where calls are dropped and connections cannot be made. I proceeded to these specific areas to test the performance of the Wilson Dual Band Amp. The performance proved to be better than my highest expectations. I was able to hold calls and make calls from areas that were normally dead spots. It was as though the hills blocking my reception didn't exist at all. I have tried other manufacturers "so called" dual band amplifiers that didn't meet my requirements, but this new Wilson Cellular Dual Band Connection Amp kicks butt on anything I have personally tested. For my test I used 100% Wilson products. I have also found that the antennas produced by Wilson Cellular are superior in grade and quality. I am anxious to get another unit with a yagi antenna for some customers of ours... They really hit a home run with this Dual Band Amp.

**Jerry Piper / PCS Manager  
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Cambridge, Idaho**

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