

TangiTek CleanSignal™ Technology for DELL STREAK 7 – Wi-Fi Antenna

Objectives

1. To quantify the gain in Wi-Fi signal (SNR) when the **CleanSignal™** antenna enhancement is applied to the DELL STREAK 7 Wi-Fi antenna in an uncontrolled “real world” noisy urban environment. We have observed a 1 to 9 dB gain in RSSI in Wi-Fi applications. In general a 3 dB gain signifies a 2x improvement in antenna performance.



Testing and Conclusions

1. A DELL STREAK 7 (16 GB Wi-Fi) tablet was opened and its Wi-Fi antenna was enhanced using the TangiTek **CleanSignal™** technology.
2. A freely available Android app, “Wifi Analyzer” was downloaded and installed on the DELL tablet so that the Wi-Fi signal strength of nearby wireless routers could be analyzed.
3. The position of the routers relative to the DELL STREAK 7 was maintained constant during the entire testing period.
4. Several tests were conducted to determine the Wi-Fi signal performance associated with nearby wireless routers with and without the **CleanSignal™** enhancement applied to the tablet.
5. Testing indicates that stronger signals from closer wireless routers tend to be boosted, while low level background signals (noise) and interference from routers that are physically farther away tend to get diminished while at the same time picking up signals from additional weak sources.

6. Overall the **CleanSignal™** enhancement improves the Wi-Fi signal strength (dBm) reported by the “Wifi Analyzer” app by 4 to 5 dBm for the routers closer to the tablet.
7. Additionally the **CleanSignal™** enhancement picked up the Wi-Fi signal from an additional router while at the same time reducing interference from routers that were farther away.
8. Sample screen shots of the “Wifi Analyzer” app running on the DELL STREAK 7 tablet with and without the **CleanSignal™** enhancement are provided below.

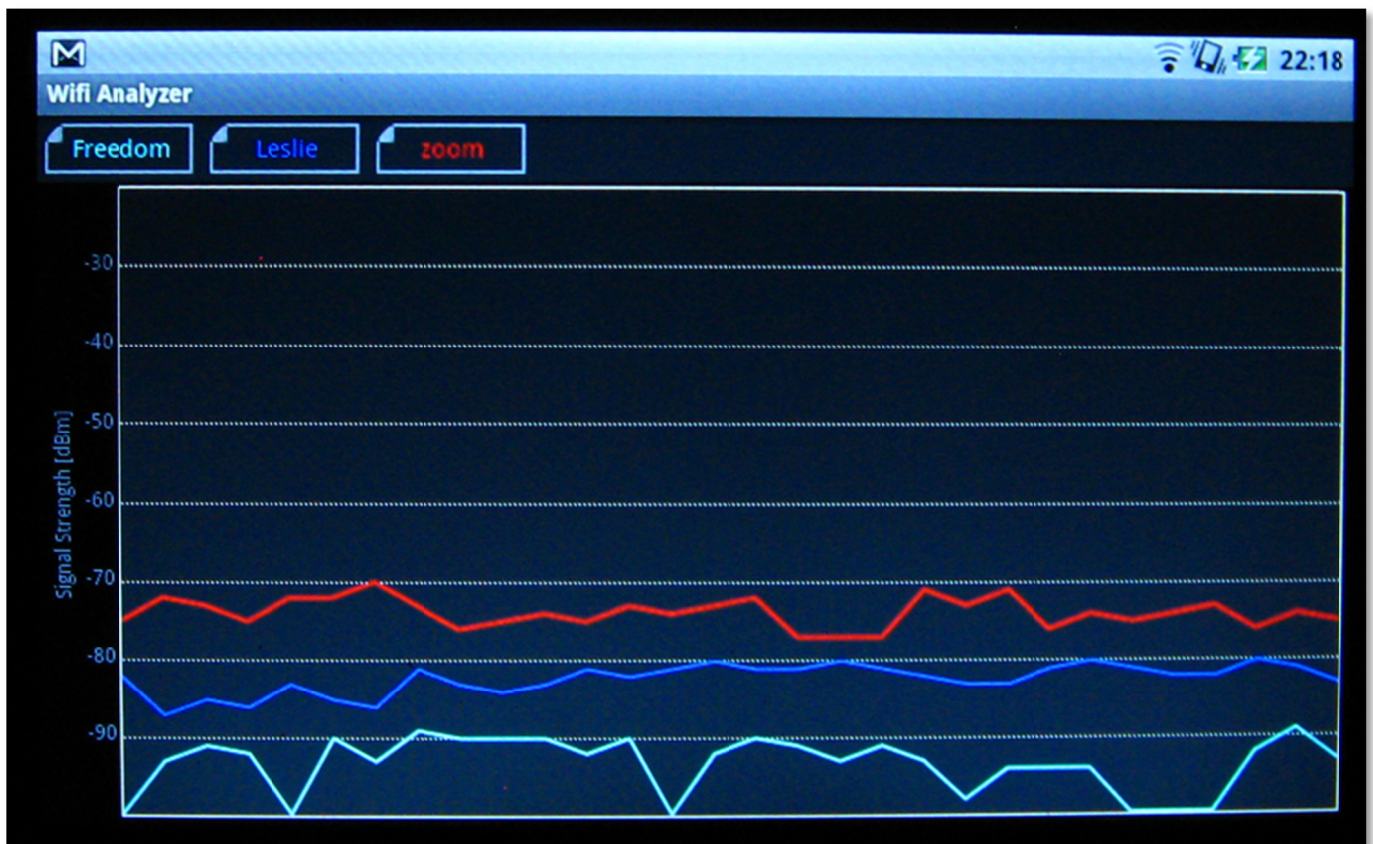


Figure 1 Screenshot of the “Wifi Analyzer” running on the DELL STREAK 7 without CleanSignal™ enhancement

Figure 1 shows a screen shot of the “Wifi Analyzer” running on the DELL STREAK 7 without the **CleanSignal™** antenna enhancement. The graph shows the Wi-Fi signal strength as picked up the onboard Wi-Fi antenna on the DELL STREAK 7 over time. Three signals are picked up from nearby Wi-Fi routers called “Freedom”, “Leslie” and “zoom”.

On average, the signal strength reported for the three routers are as follows:

- “zoom” is about -75 dBm and is physically closest to the DELL STREAK 7.
- “Leslie” is about -83 to -85 dBm

- “Freedom” is about -90 to – 98 dBm and is physically farthest from the DELL STREAK 7.

Once this data was collected, the DELL STREAK 7 tablet was opened and its Wi-Fi antenna was enhanced using the **CleanSignal™** technology.

The results of the Wi-Fi signal analysis similar to the one performed above are presented in Figure 2 below.



Figure 2 Screenshot of the “Wifi Analyzer” running on the DELL STREAK 7 with CleanSignal™ enhancement

Figure 2 shows a screen shot of the “Wifi Analyzer” running on the DELL STREAK 7 with the **CleanSignal™** antenna enhancement. The graph shows the Wi-Fi signal strength as picked up the onboard Wi-Fi antenna on the DELL STREAK 7 over time. Four signals are picked up from nearby Wi-Fi routers called “Freedom”, “Leslie”, “zoom” and “sugarbush”.

On average, the signal strength reported for the three routers is as follows:

- “zoom” is about -70 dBm – an improvement of 5dBm

- “Leslie” is about -86 dBm – more or less the same
- “Freedom” is more than -100 dBm and drops in and out.
- “sugarbush” is more than -100 dBm and drops in and out – but is an additional signal picked up by the enhancement.

The above results are tabulated in Table1.

Wireless Router SSID	Tests With CleanSignal™ Enhancement (RSSI)	Test Without CleanSignal™ Enhancement (RSSI)	Average Improvement with CleanSignal™ Enhancement (RSSI)
	Average dBm	Average dBm	dBm
zoom	-75.00	-70.00	5.00
Leslie	-83.00	-86.00	3.00

Table 1 Summary Wi-Fi signal strength test results of DELL STREAK 7 tablet with and without CleanSignal™ enhancement

The application of the **CleanSignal™** enhancement on the DELL STREAK 7 is shown as a sequence of images below.



Figure 3 Stock DELL STREAK 7 Tablet



Figure 4 DELL STREAK 7 Tablet opened to locate the Wi-Fi antenna



Figure 5 DELL STREAK 7 with Wi-Fi CleanSignal™ enhancement

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