

Sprint Nextel Corporation

3G Network

Challenger: *Verizon Wireless, Inc.*

Basis of Inquiry: Advertising claims made by Sprint Nextel Corporation (“Sprint” or “the advertiser”) for its 3G telecommunications network were challenged by Cellco Partnership d/b/a Verizon Wireless (“Verizon” or “the challenger”). The claim at issue is that Sprint operates “America’s most dependable 3G network.”

Challenger’s Position:

By way of background, the advertiser explained that a 3G network typically refers to a carrier’s data transmission capabilities over a cellular network. “Data” includes email messages, uploading photographs, sharing music files, posting content on the Internet, etc. The challenger noted that until recently, Sprint based its “most dependable” claim on Nielsen Mobile drive test data that measured two factors: (i) success in connecting to the network (“connection success”); and (ii) success in downloading/uploading small and large files (“session reliability.”)

The challenger argued that according to the 2008 Nielsen Mobile data relied upon by Sprint, Sprint loses to Verizon Wireless on both of these measures of dependability. The challenger argued that due to Sprint’s inferiority on these measures, Sprint has chosen an additional—and irrelevant—measure of dependability: signal strength. The advertiser now argues that dependability stems from these three factors, rather than the two previously relied upon. The challenger contended that signal strength has no bearing on dependability.

The challenger also contended that the advertiser further adjusted its claim support by, for the first time, relying on the two most recent Nielsen drive tests rather than the one most recent. The challenger contended that the advertiser changed the time frame of its data because the most recent Nielsen drive test data shows that Verizon Wireless outperforms Sprint on both session reliability and connection success. The challenger emphasized that Verizon Wireless, Sprint, and AT&T all spend billions of dollars each year to improve their respective networks and increase performance. Verizon Wireless has spent more than \$50 billion since 2000. Consequently, each carrier’s network is constantly evolving and a carrier’s performance is only accurately reflected by the most current data available. Thus, it argued, Sprint’s reliance on outdated drive test data is misplaced. The challenger added that the most recent drive test data was collected nationwide, and sampled over 150 million people over an extended time period. As a result, any anomalies in a particular market would not skew the results. Nielsen’s Guidelines also make clear that a carrier should rely only upon “the most recent drive data available.” The challenger contended that NAD precedent also calls for reliance on only the most recent data. The challenger also argued that even if the advertiser’s methodology of averaging the two most recent Nielsen drive tests were appropriate, the challenger would still prevail. It noted that the most current time period—May 2009—and the previous one averaged together show a win for the challenger.

First, the Nielsen Data shows that Verizon Wireless had a lower connection (or session) failure rate than did Sprint (.98% compared to Sprint’s failure rate of 1.57%) by a statistically significant margin at a 95% confidence interval.¹ Second, the Nielsen Data reflects that Verizon

¹ The challenger explained that the Nielsen Data was collected from the 50 most populous markets driven by Nielsen Mobile and collected from June to November 2008. The Nielsen Data was collected by individuals driving

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Wireless had a lower task failure rate than did Sprint. Verizon Wireless had the lowest “small put” failure rate (1.43% compared to Sprint’s 1.81%) and the lowest “small get” failure rate (.80% compared to Sprint’s 1.28%) by a statistically significant margin, also at a 95% confidence interval. Verizon Wireless also had the lowest large get failure rate (3.96% compared to Sprint’s 4.11%), although this margin was not statistically significant at a 95% confidence interval. Accordingly, the challenger argued, the Nielsen Data demonstrates that Verizon Wireless users have greater “task success” than do Sprint customers.

The challenger added that not only did Verizon Wireless perform better than Sprint on each of the four tasks individually, but it also performed better when these four tasks were averaged together. Thus, Verizon Wireless asserted, it was found to have the lowest overall task failure rate of 1.61% compared to Sprint’s overall task failure rate of 2.02%. These statistics are statistically significant at a 95% confidence interval. Consequently, the challenger contended, any way that one could measure “session reliability,” Verizon Wireless has the greatest reliability or task success.

Finally, when connection failure and task failure were averaged together, Verizon Wireless’ performance was also superior to Sprint’s. Specifically, Verizon Wireless had the lowest connection (or session) failure and task failure rate of 1.48% compared to Sprint’s connection and task failure rate of 1.93% by a statistically significant margin at a 95% confidence level.

In addition, the challenger argued, the most recent Nielsen Mobile drive test data further confirms Verizon’s superiority. Nielsen Mobile data from June 2008 to February 2009—which collected new data from 10 markets previously tested during the June to November 2008 time period—confirms Verizon Wireless’ superiority over Sprint with respect to connection success and task success.

The challenger disputed the advertiser’s recent additional reliance on signal strength as a measure of dependability. Verizon contended that although a minimum level of signal strength is necessary in order for a consumer’s device to connect with a network and upload and download files, signal strength above that threshold does not correlate to greater connection success or session reliability. The challenger argued that a carrier’s signal strength is either sufficient to support a consumer’s device to connect to a network and perform certain tasks—or it is not. The challenger noted that the truth of this proposition is demonstrated by the fact that Verizon Wireless has greater connection success and session reliability than does Sprint.

Verizon further argued that Nielsen Data itself defines reliability as being comprised of “accessibility” and “retainability,” which correspond to connection success and session reliability. The challenger reiterated that there is no reason to consider a possible indicator of

through various markets in the United States while attempting to: connect to each of the wireless carrier’s data networks (“connection success”) and (ii) perform four tasks (uploading and downloading of both large and small files.) The Nielsen data was based on more than 90,000 session attempts and 330,000 task attempts per carrier. The results of the Nielsen Data on connection success and task success unequivocally prove that Verizon Wireless, not Sprint, has the most dependable 3G network.

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network presence (signal strength) in measuring dependability, when dependability has already been established by connection success and session reliability.

Verizon added that signal strength is just one of a number of factors that contributes to the overall operation and performance of a network. Other factors include, but are not limited to, the number of cell towers in a network, the location of those cell towers, the number of customers using a network, reverse link signal strength, and the amount of spectrum and specific frequencies allocated to each carrier.

The challenger also explained the issue of “operational path loss.” It noted that the signal strength measured by Nielsen Mobile and relied upon by Sprint is referred to as the “forward link” because it measures the signal from a carrier’s cellular base station (or cell tower) to a consumer’s mobile device. But for a mobile device to send and receive files, the mobile device must “talk back to” or communicate with the base station. Thus, it argued, equally important to the operation of a data network is the signal from the mobile device back to the base station. This is referred to as the “reverse link.” If the communication on the reverse link is inadequate, a consumer will be unable to connect to the network and upload or download files. The challenger noted that Nielsen Mobile did not measure the signal strength on the reverse link. While Sprint may argue that a stronger forward link suggests a more reliable reverse link, there is no evidence to support this conclusion. To the contrary, the challenger argued, the evidence establishes that Verizon Wireless achieved greater connection success and session reliability than did Sprint.

Further, the challenger contended that Sprint has ignored the factors of network loading and optimization. It noted that the network is a shared resource available to all users within a particular service area. Network engineers are required to manage the ratio of idle and active users to network resources to sustain network demand. This is achieved in part by carefully balancing mobile radio conditions and the interference generated by adjacent cell sites and adjacent users to sustain user demand and achieve optimal capacity performance levels.

Additionally, it argued that network engineers must ensure that there is the least amount of radio interference between the base stations and all of the active mobile devices in a particular cell area. If the signal from the base station to the mobile device is too strong, the “noise” level will be excessive, which may cause consumers to lose a connection to a network and/or disrupt the upload or download of files. Thus, too strong a signal can negatively impact on network performance and customer experience.

The challenger also contended that Received Signal Strength Indication (“RSSI”) is irrelevant to predicting network dependability. The challenger argued that what is relevant is the “signal to noise” (“SNR”) ratio. The advertiser explained the difference between desired signal (the transmission from a cell tower to a particular mobile device), interfering signals (other signals received by the mobile device), and RSSI (the strength of all signals and noise received by a mobile device, including the desired signal and interference.) The advertiser argued that none of these signals alone is a predictor of dependability. What is relevant is the ratio of the power of

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the desired signal to the combined power of noise and interference. This is the signal-to-noise ratio (“SNR”).²

The challenger argued that it is possible to have a high RSSI and a low SNR (dependability.) It rejected the advertiser’s position that a high RSSI is relevant to predicting dependability. In any case, even if RSSI were relevant to dependability, the challenger argued that the RSSI of one carrier is not comparable to the RSSI of another carrier. It maintained that a network that manages interference and noise better could function just as well with weaker desired signals. Moreover, the challenger rejected the repeated arguments made by the advertiser’s expert in which he contends that “all other things being equal,” an increase in signal strength will result in a higher SNR. The challenger contended that “all other things” are not in fact equal. It argued that increasing signal strength to one mobile device may make the communication quality to that one device more dependable, but it causes interference for all the other mobile devices in the network. A dependable network must work for all of its customers. Increasing the desired signal to one mobile device will not automatically improve the dependability of communication for the entire network.

Additionally, the challenger argued that the most recent Nielsen drive test (showing that Verizon Wireless performed better than Sprint on connection success and task success) demonstrates that a higher RSSI will not always improve dependability. The challenger noted that Sprint has a higher percentage of RSSI measurements outdoors at or above -75 dBm. It contended that this fact shows the falsity of the advertiser’s position that a higher RSSI improves dependability.

The challenger also pointed to performance standards created by The Third Generation Partnership Project 2 (“3GPP2”)—an independent telecommunications organization tasked with developing global specifications for 3G networks. The challenger contended that the 3GPP2 standards make no mention of RSSI, and imply that RSSI is not an indicator of dependability. Rather, these standards refer to Received Signal Quality Indicator (“RSQI”), and note that “signal quality is defined as the signal to noise ratio.”

In any case, even if RSSI were an indicator of dependability, the challenger disputed the minimum RSSI thresholds relied upon by Sprint. The challenger contended that -75 dBm is not, in fact, the minimum outdoor RSSI necessary for a mobile device to recognize and connect to a network indoors. The challenger argued that this figure is hundreds of times greater than that which is necessary to get a signal indoors. The challenger argued that this assumption stems from extremely outdated figures from the late 1980s and early 1990s. The challenger also disputed the advertiser’s argument that, “typically less than 1% of signal power penetrates into buildings (i.e. at least 20 dB loss).” The challenger argued that this is a wholly atypical finding based on one study of seven buildings in the Netherlands.

Advertiser’s

Position:

² The advertiser illustrated these distinctions by using an analogy of people speaking to one another at a restaurant. It distinguished between the conversation (the desired signal), noise from environmental sources (background noise), other conversations in the restaurant (interference), and the sum total of all these noises in the restaurant (RSSI.)

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The advertiser argued that its claim “America’s most dependable 3G network” is substantiated by independent, third-party expert tests on Sprint 3G network and its competitors’ comparable data networks. It explained that these tests measure: (1) connection success; (2) session reliability; and (3) signal strength. It argued that these tests demonstrate that Sprint scores higher than Verizon Wireless on session reliability and signal strength, and thus indicate that Sprint offers significantly better 3G data connectivity in buildings than do any of its competitors. Therefore, the advertiser contended, Sprint’s 3G network is more dependable where it matters to consumers most.³

The advertiser argued that the combined scores of Nielsen’s two most recent tests, from January 2008 to February 2009, demonstrate that Sprint achieved a signal strength of -75 dBm or greater 81.21% of the time, while Verizon Wireless only achieved a signal strength of -75 dBm or greater 73.41% of the time. Thus, it noted, Sprint performed better than Verizon Wireless on this metric by 7.81%. It added that these results are statistically significant at a 95% confidence level. The advertiser reasoned that Sprint’s significant advantage in this respect will render Sprint subscribers much more likely to establish and maintain a data connection in buildings where Verizon subscribers may not be able to get a signal.

In addition to a 7.81% lead in signal strength, the advertiser argued, the Nielsen tests show that Sprint outperformed Verizon Wireless on session reliability by 0.10%. Although Verizon Wireless scored 0.46% higher than Sprint on connection success, this small advantage on just one measure of dependability is not enough to overcome Sprint’s 7.81% lead in signal strength and its 0.10% lead in session reliability.

Even if only the most recent Nielsen drive test (June 2008 to February 2009) was considered, the advertiser argued, Sprint could still support its “most dependable” claim. Looking only at this data, the advertiser noted that Sprint achieved a signal strength of -75 dBm or greater 80.16% of the time, while Verizon Wireless only achieved a signal strength of -75 dBm or greater 73.95% of the time. Thus, Sprint leads in signal strength by 6.21%. Although Verizon Wireless scored 0.91% higher than Sprint on connection success and 0.41% higher than Sprint on session reliability, the advertiser argued, these small advantages are not enough to overcome Sprint’s significant 6.21% lead in signal strength.

The advertiser contended that each of the challenged advertisements features a clear and conspicuous disclosure explaining that the claim is “based on independent, third party drive tests for 3G data connection success, session reliability and signal strength for the top 50 most populous markets” between two specified dates. These dates are regularly updated to reflect the most recent Nielsen Mobile data. As of the date of the advertiser’s first response, the advertiser noted that its most recent advertisements were based on data collected between January 2008 and February 2009.

³ The advertiser argued that the challenger mischaracterized the evolution of its advertising claims, and its motivation for changing its disclaimers.

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The advertiser contended that signal strength is an essential measure of network dependability. It contended that various studies show that the overwhelming majority of 3G data activities are performed inside buildings. The advertiser cited studies suggesting that this majority is in the range of 60-80%. Given this fact, the advertiser argued, the results of tests that estimate in-building coverage are relevant.

By way of background, the advertiser explained that Nielsen testing is conducted using a fleet of vans with equipment that can, among other tasks, (1) connect to various carriers' data networks to measure connection success; (2) upload and download files to measure session reliability; and (3) measure signal strength to assess in-building coverage. The devices used in these tests are connected to antennae that are mounted on the roofs of the vans.

The advertiser argued that in contrast to roof-mounted antennae, buildings present unfriendly conditions for signal reception. Moreover, Nielsen's fleet of moving vehicles can encounter wide and rapid variations in signal properties. For example, the advertiser noted the possibilities of a Doppler shift, multipath waveform distortion, and other issues that cause the signal to vacillate. The advertiser argued that these variations are not typical of what consumers would experience indoors. Because of the significant difference between Nielsen's testing environment and indoor usage conditions, it argued, it would be incorrect to assume that scores that are achieved outdoors can also be achieved indoors. The advertiser maintained that additional 3G signal strength makes a significant difference indoors, where the environment is hostile to wireless signals.

The advertiser also pointed to training materials for companies that purchase Nielsen reports. These materials (provided to Sprint in February 2007) state that "signal strength distributions are reported in three buckets to provide an estimation of coverage performance in three areas" and that the measure of -75 dBm signal strength provides an "estimate of in-Building coverage."

The advertiser added that other experts agree with Nielsen that signal strength is a good indicator of in-building coverage. It noted, for example, a recent *PC World* report that assessed dependability by measuring "the percentage of tests for a given city in which we could detect a signal, connect at a reasonable speed (faster than dial-up), and sustain an uninterrupted connection for the duration of a 1-minute streaming test." The advertiser added that *PC World* concluded that Sprint's 3G network is more reliable than either Verizon Wireless's or AT&T's. The advertiser also cited declarations from Dr. Ray Nettleton (who opined that signal strength test results augment the confidence level of predictions of dependability) and Chetan Sharma (who explained that in order to replicate consumer experience, a test must consider how the mobile data network performs inside buildings.)

Typically, the advertiser argued, less than 1% of signal power penetrates into buildings, resulting in at least a 20dB loss in signal strength from outdoors to indoors. Because it is not practical to provide ongoing, automated, systemic, and comprehensive measurements of indoor network performance, Nielsen measures signal strength at 10 times the power needed for outdoor calls as a surrogate to predict network performance in typical data sessions inside buildings. The advertiser contended that experts agree that indoor signal strength increases in proportion to

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outdoor signal strength. Accordingly, it stated, a stronger outdoor signal indicates a greater likelihood that the signal will be able to penetrate a building. Therefore, it argued, combining the results of signal strength tests with the results of connection success and session reliability tests increases the confidence level of any prediction of how dependable a network will be indoors.

The advertiser argued that Sprint scored higher than Verizon Wireless on signal strength and session reliability. The advertiser argued that whereas the challenger only presented NAD with one set of drive tests, Sprint provided multiple tests (the most recent two from each market.) The advertiser contended that Nielsen itself has advised Sprint to combine test results from multiple recent drive tests. It maintained that weather issues, cell tower failures and other anomalies could skew the results of any one test. In response to the challenger's citation of certain draft guidelines that were inconsistent with Nielsen's current policy, the advertiser reiterated that these guidelines were merely a draft that was not adopted. With respect to the challenger's objection to the time frame of the data on which Sprint relies (January 2008 to February 2009), the advertiser answered that consumers want to know how the service performs over time. The advertiser further noted that when companies are retained to evaluate the dependability of various products (e.g. JD Power and Associates) they always examine how the product (e.g. a car) performs over a long (e.g. three-year) period. The advertiser added that Consumers Union, as well as NAD itself, generally assesses dependability and reliability by looking to longer-term performance.

When weighted according to population, the Nielsen tests from January 2008 to February 2009 show that Sprint achieved a signal strength of -75 dBm or greater 81.21% of the time while Verizon Wireless only achieved a signal strength of -75 dBm or greater 73.41% of the time. Thus, it argued, Sprint performed better than Verizon Wireless on this metric by a wide margin of 7.81%. The advertiser argued that Sprint's advantage on this metric indicates that its subscribers will be significantly more likely to establish and maintain a data connection in buildings where Verizon subscribers may not be able to get any signal whatsoever.

The advertiser argued that signal strength is the foundation for the wireless services sold by both parties. Without a signal, consumers could not send or receive email messages, send files, etc. The value of a signal is reflected in that every carrier provides a signal strength indicator on every phone they sell.

The advertiser further argued that the January 2008 to February 2009 Nielsen tests show that Sprint performed better than Verizon Wireless on session reliability by 0.10%. Although Verizon Wireless scored 0.46% higher than Sprint on connection success, this small advantage on only one measure of dependability is not enough to overcome Sprint's significant 7.81% lead in signal strength combined with Sprint's 0.10% lead in session reliability.

Finally, the advertiser contended that the challenger has not shown any flaws in its substantiation. The advertiser defended its consideration of signal strength, arguing that the dramatic differences in the Nielsen testing environment and the actual consumer usage of 3G devices suggests a need for approximating in-building coverage. The advertiser argued that Nielsen's measures of connection success and session reliability are indicators of indoor usage—but that signal strength test results make these measures more accurate.

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The advertiser also disputed the challenger's argument that Sprint ignores the "reverse link." The advertiser explained that during every data session there is a great deal of hidden "talk back" as well as "talk forward" going on between the base stations and mobile devices. If either link is broken, the system fails and no message is sent in either direction. Thus, the advertiser argued, a successful session on the forward link is direct proof that the reverse link is operating correctly.

The advertiser also took issue with the challenger's argument that "too strong a signal may actually interfere with network functioning." It noted that all radio links in the system use the same frequency band at the same time, and as a result, it is imperative to use dynamic power control to ensure that all mobile transmissions arrive at the base station with exactly the correct strength. The dynamic feedback power control mechanism maintains this condition to within one percent for each reverse link. Messages from the base station at a mobile terminal tell the mobile terminal to increase or decrease its transmitter power as often as 35 times per second. All other things being equal, a stronger signal will always improve dependability, but any properly functioning network is incapable of creating signals that are "too strong."

The advertiser further argued with Verizon Wireless' claim that "greater signal strength above [a minimum threshold] does not correlate to greater connection success or session reliability." The advertiser contended that 3G systems use adaptive modulation and coding technologies, which monitor signal strength, traffic levels, and other performance factors. They use this information to adjust to the fastest and most reliable data rate that can be sustained by the link from moment to moment. Specifically, all things being equal, greater signal strength would automatically be factored into a decision to increase data rate. In turn, higher data rates will transmit files in a shorter time and improve performance.

Additionally, the advertiser contended that RSSI is indeed relevant to measuring network dependability in buildings. The advertiser agrees with the challenger that the Signal-to-Noise ratio ("SNR") and not RSSI alone, determines system performance. Although Nielsen reports a parameter called "RSSI," the advertiser noted, Nielsen discloses that the data it records is extracted from "data cards" rather than mobile phones. Data cards are actual 1xEV-DO data transceivers for use with laptop computers. The advertiser argued that these data cards are capable of extracting interference and noise when measuring a signal. The advertiser therefore contended that the "signal strength" reported by these cards—and, thus, the RSSI reported by Nielsen—is primarily an indication of the "desired signal," after most of the interference and some of the noise has been extracted. Even if the Nielsen tests did not extract interference and noise, the advertiser maintained, the signal is over 2,000 times stronger than the noise. As a result, it argued, the difference between desired signal and the signal-plus-noise would be negligibly small—ranging from just 0.1% to no more than 10%.

Additionally, the advertiser argued that the carrier-to-interference ("C/I") ratio, which is provided by Nielsen, serves as a good estimate of SNR.⁴ The advertiser added that both parties

⁴ The advertiser explained that SNR is a ratio of (i) the signal; to (ii) the sum of the interference and noise, whereas C/I is the ratio of (i) the signal; to (ii) the interference alone. It added that noise is not a significant factor here, which is why Nielsen measures C/I rather than SNR.

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deem SNR relevant to dependability. It contended that this C/I data confirms that Sprint's 3G network is more dependable than Verizon Wireless's 3G network. Specifically, it contended that SNR averages are higher for Sprint in significantly more (83%) of the markets.⁵

The advertiser took issue with the challenger's restaurant analogy, in which it compared a conversation with "desired signal." Although the restaurant analogy has been used by experts to explain how a second-generation ("2G") CDMA system works, it does not relate to a 3G device. Running at about a maximum of 20,000 bits per second, 2G CDMA systems could only transmit voice and low-speed data. 2G CDMA extracted a "desired" signal out of noise-plus-interference that was more powerful than the signal; hence the restaurant analogy. However, the advertiser argued, the desired signal in a 3G 1xEV-DO system running at high speed is actually hundreds or thousands of times more powerful than interference-plus-noise. The advertiser argued that the restaurant analogy, with respect to a 3G 1xEV-DO system, would only be appropriate if the table were in a sound-proof booth, and the other patrons might even be having their conversations in a different building.

The advertiser added that consumers legitimately care about signal strength, as indicated by the bars pictured on every cell phone. It maintained that consumers understand that the more bars that appear, the more likely it is that they will be able to establish and maintain a dependable signal.

Furthermore, the advertiser took issue with the challenger's characterization of the performance standards created by The Third Generation Partnership Project 2 ("3GPP2"). By way of explanation, the advertiser noted that Nielsen measures the "forward signal" from a carrier's base station to a particular mobile device—not the "reverse signal." However, the challenger cited to a 3GPP2 document that deals exclusively with the reverse link. The advertiser argued that the challenger's analysis of the 3GPP2 standards is based entirely on the wrong link, the wrong document, the wrong data rate, the wrong signal strength, and the wrong cell size.⁶ When looking to the correct document and data, the advertiser concluded, the 3GPP2 standards do not, in fact, confirm that RSSI is not a measure of network dependability.

Decision:

At issue in this proceeding is Sprint's claim to be "America's most dependable 3G network." NAD analyzed the evidence in the record with appreciation of the rapidly evolving and highly competitive marketplace in which 3G network providers compete.

Both parties agree that a 3G network's dependability should be measured using some form of

⁵ The advertiser argued there is a positive correlation between signal strength (RSSI), C/I, and thus, SNR. Therefore, it argued, signal strength is a reasonable indicator of indoor coverage.

⁶ Specifically, the advertiser argued that the challenger should have consulted the C.S0033-B (rather than the C.S0032-B), should have looked to the data rate of 300,000 bits per second (rather than 9,600 bits per second), should have considered the relevant signal strength which is between 81 dBm and -70 dBm (rather than the extremely low data rate of 9.6 kbps), and should have relied upon the correct power level for the size of cells used in urban and suburban environments (-117 dBm rather than -122 dBm.)

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data that is collected by Nielsen Mobile in its drive tests. NAD first considered the question of whether Sprint must support its “most dependable” claim using the one most recent Nielsen drive test (as argued by the challenger), or the two most recent drive tests (as argued by the advertiser.) NAD appreciated the advertiser’s position that when evaluating certain consumer products, the attributes of “reliability” and “dependability” are assessed over a long period of time. The advertiser noted, for example, that JD Power and Associates assesses the reliability of cars by looking at the vehicles’ performance over a three-year period. NAD noted, however, that 3G networks are constantly evolving, far more quickly than conventional consumer products such as cars, and therefore must be assessed using particularly current data. With providers investing significant money and effort to continuously improve their 3G networks, various providers can outperform one another in terms of dependability on a year-to-year or month-to-month basis. NAD thus determined that the best evidence to support a “most dependable” is the most recent Nielsen drive test data.

NAD was not persuaded by the advertiser’s argument that multiple Nielsen drive tests must be considered in order to rule out the effects of any weather-related issues, cell tower failures, and other one-time events. Each Nielsen drive test samples over 150 million people over the course of many days. The Nielsen data in this record was based upon more than 90,000 session attempts and 330,000 task attempts per carrier. Given such vast, nationwide sampling, NAD determined that any anomalies in a particular market would not skew the results.⁷

NAD thus considered the results of the June 2008 to February 2009 Nielsen drive tests. NAD first looked to the two measures of dependability that are *not* in dispute: connection success and session reliability. As noted by the challenger, Verizon Wireless had a lower connection (or session) failure rate than did Sprint (.98% compared to Sprint’s failure rate of 1.57%) by a statistically significant margin at a 95% confidence interval. Verizon Wireless also had a lower task failure rate than did Sprint. Verizon Wireless had the lowest “small put” failure rate (1.43% compared to Sprint’s 1.81%) and the lowest “small get” failure rate (.80% compared to Sprint’s 1.28%) by a statistically significant margin, also at a 95% confidence interval. Verizon Wireless also had the lowest large get failure rate (3.96% compared to Sprint’s 4.11%), although this margin was not statistically significant at a 95% confidence interval.

Verizon Wireless also performed better than Sprint when these four tasks are averaged together. Verizon Wireless was found to have the lowest overall task failure rate of 1.61% compared to Sprint’s overall task failure rate of 2.02%. These results are statistically significant at a 95% confidence interval. Finally, when connection failure and task failure were averaged together, Verizon Wireless’ performance was also superior to Sprint’s. Specifically, Verizon Wireless had the lowest connection (or session) failure and task failure rate of 1.48% compared to Sprint’s connection and task failure rate of 1.93% by a statistically significant margin at a 95% confidence level. In sum, Verizon Wireless scored 0.91% higher than Sprint on connection success and 0.41% higher than Sprint on session reliability, which amounts to a combined lead of 1.32%. With Verizon faring better on both connection success and session reliability, NAD

⁷ With respect to the parties’ disagreement regarding Nielsen’s position on the pooling of multiple drive tests, NAD determined that Nielsen’s position on this issue is not dispositive.

determined that these figures alone cannot support a claim that Sprint is the “most dependable” 3G network.

The remaining question is whether signal strength—as measured by Nielsen’s RSSI (or C/I) data—should be considered in assessing Sprint’s “most dependable” claim. NAD noted the advertiser’s rationale for considering this data, which is that the majority of 3G network usage occurs inside buildings, and that outdoor signal strength data indicates indoor dependability.⁸ Indeed, NAD appreciated that by the advertiser’s own estimation, roughly 60-80% of 3G mobile device usage takes place indoors.

Preliminarily, NAD noted that for the 20-40% of usage that, according to the advertiser’s accounting, takes place outdoors, the Nielsen data on connection success and session reliability are incontrovertibly sufficient measures of dependability. As noted above, NAD determined that Verizon’s superiority on these measures according to the most recent Nielsen drive tests undermines Sprint’s “most dependable” claim as to outdoor usage. At issue in this proceeding is the advertiser’s claim support for its “most dependable” claim as it relates to the remaining 60-80% of usage that occurs indoors.

Historically, both Verizon and Sprint have relied on (i) connection success and (ii) session reliability data to support claims of dependability and reliability.⁹ However, NAD appreciated that Nielsen Mobile collects data from outdoor testing utilizing roof-mounted antennae on vans, and that these testing conditions bear certain obvious differences from how the devices are used indoors. NAD further recognized the possibility that signal strength can sometimes weaken as a signal penetrates a building, although the level of degradation surely varies depending on the building among many other factors. NAD also recognized and that a severely degraded signal could result in a failure to connect or complete a task. Thus, although Nielsen’s connection success and session reliability results have until recently been used on their own to support dependability claims, NAD noted that the consumer relevance of these results could only be augmented by evidence that specifically measures dependability inside buildings.¹⁰

The question here, however, is whether the RSSI (and C/I) data provided by the advertiser actually does measure dependability indoors. At issue is not whether signals can sometimes degrade as they penetrate buildings (NAD assumes that this is true to some extent, although far less so than historically, despite wide variability among buildings and other structures), nor is whether extreme signal degradation could result in a failure to connect to a network or to complete a task on a 3G device. Rather, the question before NAD is whether the particular data

⁸ NAD did not question this general proposition. Indeed, NAD noted studies, referenced in the record by the advertiser, indicating that 60-70% of mobile device usage takes place inside buildings, subways, or other structures. The advertiser also estimated that between 70 to 80% of all data traffic originates from inside buildings.

⁹ Although the challenger and advertiser debated the advertiser’s motivation for changing its claim support to include signal strength data, NAD evaluated the claim support without regard to the advertiser’s supposed motivations for considering signal strength.

¹⁰ Ideal substantiation for a “most dependable” claim, however, would include data on both indoor *and* outdoor dependability. Even according to the advertiser’s own accounting, 20-40% of mobile device usage takes place outside. NAD noted that these percentages are far from negligible.

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relied on by Sprint serves as an appropriate proxy of indoor dependability, such that the challenger's uncontroverted outdoor superiority would be reversed indoors.

NAD had several concerns with the advertiser's signal strength evidence. First, NAD was not persuaded by the advertiser's assertion that an outdoor RSSI of -75dBm is the minimum RSSI necessary in order for a mobile device to function indoors. The Nielsen Mobile training materials that reference this -75dBm cut-off were distributed to the advertiser in February of 2007, which suggests that the data underlying this -75 dBm likely came from a source preceding this already early date. As discussed above, wireless providers are constantly updating and improving their services, and years-old data on building penetration may be no longer applicable.

NAD further noted that this -75 dBm benchmark was likely derived from the dated notion that -95dBm is the signal strength that is necessary to receive service indoors. Also extremely dated is the advertiser's estimation that "typically less than 1% of signal power penetrates into buildings (i.e. at least 20 dB loss)." NAD noted that this 1% figure is based on one study of seven buildings in the Netherlands, which was conducted on a technology different from the one used by either party. NAD therefore determined that this study was of extremely limited probative value. Indeed, NAD noted that the study itself noted that its findings showed a much greater level of signal strength loss than other studies. For these reasons, NAD questioned the relevance of data regarding the percentage of times that the respective networks achieved a signal strength of -75 dBm or greater.

More fundamentally, regardless of the appropriate signal threshold for indoor connectivity, NAD questioned the advertiser's reliance on Nielsen's Received Signal Strength Indication ("RSSI") measurements. RSSI is a measure of not only the "desired signal" (the wanted signal, which is transmitted to a particular mobile device from a cell tower), but also of interference as well as noise. Indeed, both parties agreed that Signal to Noise Ratio ("SNR") would be more relevant to dependability, as the SNR is the ratio of the *desired* signal, i.e. the signal transmitted to a particular mobile device from a cell tower, to the sum of interference and noise.

NAD was not persuaded by the advertiser's argument that Nielsen's reported "RSSI" data is actually a measure of the desired signal minus most of the interference and some of the noise. The advertiser contended that the data cards utilized by Nielsen in its testing (1xEV-DO data transceivers for use with laptop computers) extract interference and noise. NAD noted that this assertion was contested, and was not sufficiently supported by the evidence in the record. NAD thus accepted Nielsen's characterization of its own data as RSSI, which refers to the desired signal combined with the interference and noise. As such, NAD found that RSSI data could not support a dependability claim.

NAD considered the challenger's restaurant analogy. The challenger compared the desired signal to a conversation between two people. Other people talking in the restaurant could be considered "interference," and ambient noises could be thought of as "noise." This analogy illustrates the problem with relying on the sum total of desired signal plus interference plus noise, which is what is captured by the RSSI data. For example, as discussed by the challenger, a high level of noise and interference and a low desired signal could yield a high RSSI measurement. Clearly

this situation would not reflect ideal performance. NAD considered the advertiser's response to this argument, which is that although the analogy might have applied in the context of 2G devices, it does not fit a 3G world because the "wanted" signal in 3G networks is hundreds or thousands of times greater than the sum of interference and noise. While NAD appreciated the advertiser's expert declaration to this effect, NAD noted an absence of evidence in the record supporting this contention. Even assuming that the ratio of desired signal to interference plus noise is far better in 3G systems as compared to 2G networks, the evidence in the record could not justify an assumption that noise and interference are negligible in the 3G context.

NAD was also not persuaded by the advertiser's argument that RSSI is a good measure of "desired signal" because it is based on high data speeds where the desired signal level is 90% or more of the total RSSI. NAD noted that 10% of the RSSI being attributable to non-desired signal is hardly negligible.

Nor was NAD persuaded by the advertiser's argument that Nielsen's reported carrier-to-interference ("C/I") ratio is a good estimate of SNR.¹¹ NAD found that the record lacked sufficient evidence to justify dismissing noise (not accounted for by C/I) as a negligible factor. The advertiser argued at length that there is a correlation between RSSI, C/I, and SNR. However, NAD found that even if there were some correlation, a mere correlation remains a loose indicator.

More generally, NAD determined that greater signal strength above that which is necessary to connect and complete a task does not yield greater reliability. NAD noted that if the advertiser wishes to buttress the usual measures of dependability with signal strength data, the burden is on the advertiser to provide timely and reliable evidence showing the extent to which signals degrade as they penetrate buildings, and the signal strength that is necessary for connecting and completing a task in a typical building. As noted above, NAD determined that the advertiser's insistence on the 99% building degradation rate and its reliance on the dated 75dBm cut-off did not satisfy this burden. To the extent that the challenger argued that "all things being equal," greater signal strength would automatically result in an increased data rate and in turn, transmission of files in a shorter time period, NAD questioned the assumption that speed is a determinant of dependability.

In any case, NAD appreciated the possibility that too strong a signal may actually interfere with network functioning. Although NAD withheld judgment as to the likelihood of such a scenario, NAD's determination remained that beyond a certain threshold, increased signal strength does not necessarily improve dependability.¹² Finally, NAD considered the debate between the parties

¹¹ The advertiser explained that SNR is a ratio of (i) the signal; to (ii) the sum of the interference and noise, whereas C/I is the ratio of (i) the signal; to (ii) the interference alone. It added that noise is not a significant factor here, which is why Nielsen measures C/I rather than SNR.

¹² Furthermore, NAD noted that the signal strength measured by Nielsen Mobile includes only data on the "forward link"—not the "reverse link." As noted by the challenger, if the communication on the reverse link is inadequate, a consumer will be unable to connect to the network and upload or download files. However, NAD did appreciate the advertiser's argument that a stronger forward link suggests a more reliable reverse link. NAD's decision did not hinge on this issue.

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regarding the standards set by the Third Generation Partnership Project 2 (“3GPP2.”) NAD appreciated the advertiser’s concerns with the challenger’s characterization of these standards. NAD found that the standards had no firm position on the issue of RSSI as a measure of dependability.

For the reasons discussed above, NAD determined that the advertiser lacked sufficient support for its claim to be “America’s most dependable 3G network.” NAD found that the unsupported claim could not be cured by a disclosure stating that dependability was measured according to signal strength among other factors. NAD therefore recommended that the advertiser discontinue the claim.

Conclusion:

NAD determined that the advertiser lacked sufficient support for its claim to be “America’s most dependable 3G network,” and therefore recommended that the claim be discontinued.

Advertiser’s Statement:

Sprint Nextel (“Sprint”) respectfully disagrees that a dependability claim for wireless 3G data service can only be substantiated with third party drive tests that measure connection success and session reliability. Moreover, Sprint disagrees that signal strength is irrelevant when evaluating dependability and that a dependability claim can only be substantiated by the most recent tests, as opposed to multiple tests conducted over a longer period of time. Sprint maintains that its dependability claim is fully substantiated based on the results of the connection success and session reliability tests, together with results of the signal strength tests. Because the NAD’s decision is contrary to the record and applicable law (requiring that an advertiser have a reasonable basis for its claim), Sprint will appeal the entire decision to the National Advertising Review Board pursuant to Section 3.1 of the NAD/NARB Procedures. (**#5106 JF, closed 11/16/2009**)