



Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-1

Witness: Ben Johnson

REQUEST:

TDS-BAILEY 2-1. Please provide a CV of Mr. Johnson's training and experience in the design of cellular telephone networks, particularly as they apply to the propagation characteristics of wireless signals in regions with topography similar to that found in the Kearsarge and Merrimack calling areas.

REPLY:

2-1. A copy of Dr. Johnson's resume is attached. Dr. Johnson does not claim to have had experience designing cellular telephone networks.

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-2

Witness: Ben Johnson

REQUEST:

TDS-BAILEY 2-2. On page 9 of his testimony, Mr. Johnson stated that "the existence of strong signals along most of the route from someone's home to their place of employment doesn't necessarily indicate that they will receive a strong signal when they first turn out of their driveway to begin their commute."

Please describe the studies that Mr. Johnson conducted or relied upon to support this statement. Please provide copies of the final report(s) of these studies, along with a summary of the data, a description of the study sample, and a sample of the questionnaire or other data collection forms or devices from which the analyzed data was derived. If Mr. Johnson relied upon studies conducted by third parties, please identify those third parties and provide copies of the reports of those studies.

REPLY:

2-2. This statement was based upon Dr. Johnson's general knowledge and information, gained during more than 25 years in the telecommunications field. The statement was not based upon any specific studies or other source documents, other than documents in this proceeding. There could be dense foliage or elevation variations, or other location-specific factors which result in a poor signal along a customer's driveway, but not along most of the route along which the customer commutes. Such environmental and geographic features can be readily observed when driving through residential areas.

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-3

Witness: Ben Johnson

REQUEST:

TDS-BAILEY 2-3. On page 10 of his testimony, Mr. Johnson states that "[a]ll other things being equal, one would expect the signal strength to be greater along roads than at the end of driveways, or inside buildings, away from the roads. Even if the distance from the cell tower to the buildings were the same as it is to the roads, there are several factors which suggest that the signal strength within the customer's home is likely to be weaker than outside, while driving along a road [I]f C-squared had instead measured signal strength within customer locations, their results might have been quite different than those being reported to the Commission."

Please describe the studies that Mr. Johnson conducted or relied upon to support this statement. Please provide copies of the final report(s) of these studies, along with a summary of the data, a description of the study sample, and a sample of the questionnaire or other data collection forms or devices from which the analyzed data was derived. If Mr. Johnson relied upon studies conducted by third parties, please identify those third parties and provide copies of the reports of those studies.

REPLY:

2-3. This statement was based upon Dr. Johnson's general knowledge and information, gained during more than 25 years in the telecommunications field. The statement was not based upon any specific studies or other source documents, other than documents in this proceeding. A variety of factors can affect the relative signal strength received within a customer location compared to the signal strength received while traveling in an automobile. Dr. Johnson was providing some examples of environmental and geographic features that can cause signal strength within a customer location to be weaker than along a nearby road. These features can be readily observed and don't require reliance on studies to confirm their existence.

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-4

Witness: Ben Johnson

REQUEST:

TDS-BAILEY 2-4. On page 10 of his testimony, Mr. Johnson states that "the elevation of the user relative to the cell tower may also have an impact. If someone is located in a one story building, and there is undulating terrain between them and the nearest cell tower, the signal strength inside that building may be negligible, compared to the average strength measured along the major roads in that vicinity."

Please describe the studies that Mr. Johnson conducted or relied upon to support this statement. Please provide copies of the final report(s) of these studies, along with a summary of the data, a description of the study sample, and a sample of the questionnaire or other data collection forms or devices from which the analyzed data was derived. If Mr. Johnson relied upon studies conducted by third parties, please identify those third parties and provide copies of the reports of those studies.

REPLY:

2-4. This statement was based upon Dr. Johnson's general knowledge and information, gained during more than 25 years in the telecommunications field. The statement was not based upon any specific studies or other source documents, other than documents in this proceeding. A variety of factors can effect the relative signal strength received within a customer location compared to the signal strength received while traveling in an automobile. Dr. Johnson was simply emphasizing the point that signal strength within a customer location may be weaker than along a nearby road, or along other roads. Dr. Johnson has personally observed this phenomena, which can be readily observed and does not require reliance on studies to confirm its existence.

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-5

Witness: Ben Johnson

REQUEST:

TDS-BAILEY 2-5. On pages 11-12 of his testimony, Mr. Johnson states that "it would have been feasible to use a propagation model to evaluate likely differences between signal strength along prime commuter routes and major roads in comparison with smaller roads that are not the focus of the wireless network design, as well as differences in signal strength along these major roads and inside customer homes."

Please state if Mr. Johnson has conducted such propagation modeling in the past, or has reviewed the results of such modeling.

Please also explain briefly how such a model could have been used to measure signal strength in the Kearsarge and Merrimack calling areas. In particular, please explain how TDS would have obtained data on tower placement, effective radiated power, directivity, and signal tuning characteristics of all of the wireless antennas in the Kearsarge and Merrimack calling areas.

REPLY:

2-5. Dr. Johnson has not conducted any propagation modeling, or reviewed the results of any such modeling. This statement was based upon Dr. Johnson's general knowledge and information, gained during more than 25 years in the telecommunications field, the Harvard article cited in his testimony, and discovery responses on this topic provided by C Squared. In particular, C Squared, in response to OCA data request 2.5, stated: [T]here are fairly accurate propagation models that take into account topography, clutter and the factors noted above..." C Squared further explained that standard industry practice is to use both measured drive data and propagation models, and that drive data is typically used to validate the results of the models. Dr. Johnson has no reason to doubt the validity of C Squared's statement, and thus concluded that such a study would have been feasible, and might have been useful in resolving the disputed factual issues in this case.

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-6

Witness: Ben Johnson

REQUEST:

TDS-BAILEY 2-6. On page 14 of his testimony, Mr. Johnson states that "wireless and wireline services have been, and continue to be, primarily complementary services, rather than close competitive alternatives. Some consumers may stop purchasing TDS' service when they obtain a mobile phone, but even these consumers don't necessarily consider these services to be 'close substitutes' nor do they necessarily think they are functionally equivalent."

Please describe the studies that Mr. Johnson conducted or relied upon to support this statement. Please provide copies of the final report(s) of these studies, along with a summary of the data, a description of the study sample, and a sample of the questionnaire or other data collection forms or devices from which the analyzed data was derived. If Mr. Johnson relied upon studies conducted by third parties, please identify those third parties and provide copies of the reports of those studies.

Please also reconcile this statement with the following findings issued by the Federal Communications Commission:

"End-user customers obtained *local telephone service* by utilizing approximately 124.6 million incumbent LEC switched access lines, 30.0 million CLEC switched access lines, and 255.3 *million mobile telephony service subscriptions* at the end of June 2008."

"[W]ireless substitution has grown significantly in recent years. Between the end of 2001 and 2006, total RBOC access lines dropped 23 percent, from 161 million to 124 million lines. In 2006 alone, the RBOCs lost almost 7 percent of their wireline access lines, *with wireless substitution being a significant reason*="

"14.5 percent of adults, or one out of every 7, lived in households with only wireless phones in the second half of 2007, up from 11.8 percent in

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-6 **Continued**

2006, 7.8 percent in the second half of 2005, and more than quadruple the percentage (3.5 percent) in the second half of 2003.

"[A]s of year end 2006, there were 108.8 million households in the U.S. with telephone service, and of those households, 19.3 million were 'wireless only;' thus, *approximately 18% of households are 'wireless only.'* "

"[A]ccording to an analyst at Morgan Stanley, by 2012 *almost one third of households will be wireless only.*"

REPLY:

2-6. This statement was based upon Dr. Johnson's general knowledge and information, gained during more than 25 years in the telecommunications field. The statement was not based upon any specific studies conducted by him or third parties. The FCC findings cited by TDS support the conclusion that customers are increasingly relying on mobile communications. Dr. Johnson does not dispute such a conclusion, and concedes that if this trend continues, demand for traditional wireline service may continue to weaken, particularly with certain demographic groups (e.g. college students). However, most customers continue to subscribe to, and use wireline service, and relatively few customers switch back and forth between wireless and wireline service. Even if a customer decides to save money by dropping their wireline service, that doesn't necessarily indicate that customer views the two services as close substitutes or directly competitive services. Consider someone who decides they can get by without a phone, by relying on a combination email and occasional use of a pay phone. That person wouldn't necessarily consider email or pay phones to be a close substitute for, or competitive alternative to, wireline phone service.

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-7

Witness: Ben Johnson

REQUEST:

TDS-BAILEY 2-7. On page 15 of his testimony, Mr. Johnson states that college students "make a decision to live without the functional advantages of a wireline telephone, because they consider it more important to have the mobility benefits of a wireless phone, and they don't see a need for two different phones. Because of functional differences, wireline and wireless services are often used for different purposes, and viewed as falling into distinctly different categories, rather than being viewed as direct competitive alternatives."

Please describe the studies that Mr. Johnson conducted or relied upon to support this statement. Please provide copies of the final report(s) of these studies, along with a summary of the data, a description of the study sample, and a sample of the questionnaire or other data collection forms or devices from which the analyzed data was derived. If Mr. Johnson relied upon studies conducted by third parties, please identify those third parties and provide copies of the reports of those studies.

Please also reconcile this statement with the FCC findings listed in Request TDSBAILEY 2-6, preceding.

REPLY:

2-7. This statement was based upon Dr. Johnson's general knowledge and information, gained during more than 25 years in the telecommunications field. The statement was not based upon any specific studies conducted by him or third parties. Dr. Johnson does not see any inconsistencies between his statement and the FCC findings which require reconciliation. Consider, for example, the estimate that "*approximately 18% of households are 'wireless only.'*" While this study confirms a continuing trend toward increased popularity of wireless service, it does not purport to be a study of the cross-price elasticity of demand for wireless and wireline services, or other evidence to support a claim that these services are viewed as close substitutes or competitive alternatives by most consumers.

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09
Date of Response: 8/14/09

Request No. TDS-Bailey 2-8

Witness: Ben Johnson

REQUEST:

TDS-BAILEY 2-8. On page 15 of his testimony, Mr. Johnson states that "most consumers have historically chosen to add wireless service to their monthly basket of goods and services, rather than dropping their wireline service, or switching back and forth between these two different technologies, depending on price swings, promotional offerings, or the like."

Please describe the studies that Mr. Johnson conducted or relied upon to support this statement. Please provide copies of the final report(s) of these studies, along with a summary of the data, a description of the study sample, and a sample of the questionnaire or other data collection forms or devices from which the analyzed data was derived. If Mr. Johnson relied upon studies conducted by third parties, please identify those third parties and provide copies of the reports of those studies.

Furthermore, since this statement relates to "historical" data, please provide any studies that indicate trends in wireless uptake as opposed to wireline. In particular, please state whether historical trend lines are steady, increasing, or decreasing. In addition to reconciling this statement with the FCC findings listed in Request TDSBAILEY 2-6, preceding, please also reconcile this statement with the following FCC finding:

"It appears that customers are switching to wireless from wireline because of wireless's *relatively low cost and widespread availability?*"

REPLY:

2-8. This statement was based in part upon Dr. Johnson's general knowledge and information, gained during more than 25 years in the telecommunications field, as well as various documents he has reviewed in the course of his work, like the FCC's report *Local Telephone Competition: Status as of June 30, 2008*, which can be obtained here: http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-292193A1.pdf This report indicates that end user switched access lines declined from 163.4 million in

Kearsarge Telephone Company
Merrimack County Telephone Company

Docket No. DT 07-027

Kearsarge Telephone Company
Wilton Telephone Company, Inc.,
Hollis Telephone Company, Inc., and
Merrimack County Telephone Company's
Set 2 Data Requests to Daniel Bailey

Request Received: 7/31/09

Date of Response: 8/14/09

Request No. TDS-Bailey 2-8 **Continued**

June, 2007 to 154.7 million in June, 2008. This same document indicates that mobile wireless telephone subscribers increased from 238.3 million to 255.3 million over the same period. While this data confirm that switched access lines have declined and wireless subscribers have increased, it also confirms that most consumers continue to use both technologies. The FCC finding quoted by TDS indicates that some customers are dropping land lines while continuing to use wireless service. A similar statement could be made with respect to newspaper subscriptions: some customers are dropping their subscription to the local newspaper, and continuing to subscribe to wireless service. While trends in usage rates for different products and services are interesting, and they are suggestive of changes in the typical consumer's preferred basket of goods and services, this sort of data is not sufficient to indicate that declines in usage of one service is caused by an increase in usage of another service, nor is it sufficient to demonstrate that one service is competitive with another.