

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Skype Communications S.A.R.L.)	RM-11361
)	
Petition to Confirm a Consumer's Right to Use)	
Internet Communications Software and Attach)	
Devices to Wireless Networks)	

COMMENTS OF MOTOROLA, INC.

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I. INTRODUCTION AND SUMMARY.

Motorola, Inc. (“Motorola”) respectfully submits these comments in response to the petition by Skype Communications S.A.R.L. (“Skype”) seeking to extend the principle established by the Commission in its 1968 *Carterfone* decision to wireless networks and services.¹ Unlike the wireline monopoly that existed at the time of *Carterfone*, however, the wireless market is vibrantly competitive. Such competition makes the imposition of a *Carterfone*-like regulatory regime on the wireless industry unnecessary.

Furthermore, significant technical differences exist between the wireless industry and the wireline world, which make it impractical to superimpose *Carterfone* on wireless networks without taking into account the complex realities of wireless handsets and the wireless networks. Unlike the traditional wireline service utilizing a dedicated copper line to the customer’s

¹ Petition to Confirm a Consumer’s Right to Use Internet Communications Software and Attach Devices to Wireless Networks, Skype Communications S.A.R.L., RM-11361 (filed Feb. 20, 2007) (“Skype Petition”); see *Use of the Carterphone Device in Message Toll Telephone Service v. American Telephone and Telegraph Co.*, Docket Nos. 16942, 17073, Decision, 13 FCC 2d 420 (1968), recon. denied, 14 FCC 2d 571 (1968) (“*Carterfone*”).

premises, wireless services are radio spectrum based, which pose unique challenges, including: (1) the existence of different wireless technologies that are in various stages of deployment and evolution; (2) spectrum sharing among multiple subscribers; (3) interference and other performance problems that wireless users can suffer as a result of poorly designed handsets; and (4) traffic congestion and other consumer harms that can result from certain applications. These challenges mean that an attempt to impose the *Carterfone* decision on wireless networks is very different than when it was applied in the wireline market and could in fact cause harm to the wireless network.

II. UNLIKE THE WIRELINE MONOPOLY THAT EXISTED WHEN THE COMMISSION'S *CARTERFONE* DECISION WAS RENDERED, TODAY'S WIRELESS MARKET IS VIBRANTLY COMPETITIVE.

The competitiveness of today's wireless market bears no resemblance to the monopoly wireline world that existed in 1968 at the time the Commission rendered its *Carterfone* decision. According to the FCC's most current data, 280 million people (98 percent of the U.S. population) have three or more different wireless operators offering mobile telephone service in the counties in which they live. Approximately, 268 million people, or 94 percent of the U.S. population, live in counties with four or more mobile telephone operators competing to offer service. In addition, according to the Commission, approximately 145 million people, or 51 percent of the U.S. population, live in counties with five or more mobile telephone operators competing to offer service, while 50 million people, or 18 percent of the population, live in counties with six or more mobile telephone operators competing to offer service.²

² *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services*, Eleventh Report, WT Docket No. 06-17, 21 FCC Rcd 10947, ¶ 41 (2006) ("*Eleventh Report*").

The competitiveness of the wireless market is underscored by the continued rollout of differentiated wireless pricing plans. As the Commission has observed, wireless carriers continue to experiment “with varying pricing levels and structures, for varying service packages, with various handsets and policies on handset pricing,” including: (1) national rate pricing plans by which customers can purchase a bucket of minutes to use on a nationwide or nearly nationwide network without incurring roaming or long-distance charges; (2) “family plan” packages that permit subscribers to sign up for two lines and then have the option of adding additional lines at reduced prices, with all lines sharing the available minutes on the plan jointly; and (3) “mobile to anyone” calling options that allow subscribers unlimited free calling to and from designated numbers in the United States, regardless of wireline or wireless carrier.³

Competition in the wireless market extends beyond traditional voice service. As noted by the Commission, wireless carriers and other mobile data providers are increasingly introducing a wide variety of mobile data services and applications, including: (1) handset-based applications marketed to consumers primarily as an add-on to mobile voice service (*e.g.*, text messaging (“SMS”), multimedia messaging services (“MMS”) such as photo messaging, entertainment applications such as ringtones and games, and other content; and (2) monthly mobile Internet access packages for customers seeking primarily or exclusively wireless data access using laptops or Personal Digital Assistants (“PDAs”).

Through its EV-DO network, Verizon Wireless offers a wireless Internet access service for use on laptops with a special modem card and its wireless multimedia service called V CAST that is available on advanced handsets. Sprint Nextel also makes available competing EV-DO wireless data and multimedia offerings. AT&T utilizes Wideband Code Division Multiple

³ *Id.* at ¶¶ 91-92.

Access/High Speed Downlink Packet Access (“WCDMA/HSDPA”) technology to offer high-speed wireless data services for use on laptops with a modem card and streaming video services that enable customers to watch video clips of television shows, sports, news, weather, and other content on advanced handsets.⁴ Other providers make available competing broadband-speed mobile data offerings targeted to specific demographic groups. For example, Helio, a joint venture of the Internet company EarthLINK and Korean cellphone carrier SK Telecom, launched a service in May 2006 that features South Korean phones previously unavailable in the United States targeted to young, affluent customers with games, video clips, and other forms of entertainment.⁵

Providers are also offering consumers a wide variety of devices from a large number of manufacturers. New and better devices are being developed and deployed everyday. As a result, wireless providers compete not only on price and quality of service but also on the devices available from that provider.

According to the Commission, “competitive pressure continues to drive carriers to introduce innovative pricing plans and service offerings, and to match the pricing and service innovations introduced by rival carriers.”⁶ This vibrant competition has led to continued growth in the number of wireless subscribers as well as increased usage of mobile services. The Commission’s most current data reflect a nationwide wireless penetration rate of 71 percent, with 213.0 million mobile telephone subscribers in December 2005, as compared to 184.7 million at

⁴ *Id.* at ¶¶ 136-138.

⁵ *Id.* at ¶ 140.

⁶ *Id.* at ¶¶ 2-3.

the end of 2004.⁷ Likewise, “the average amount of time U.S. mobile subscribers spend talking on their mobile phones rose to 740 minutes per month in the second half of 2005, an increase of more than two hours from a year earlier and more than quadruple the average usage of mobile subscribers in Western Europe and Japan.”⁸ With respect to mobile data, usage reached approximately 50 percent of U.S. mobile subscribers in the fourth quarter of 2005, as compared to approximately 25 percent of U.S. mobile subscribers as of early 2004.⁹

Given these competitive trends, it is little wonder that the Commission has found that “effective competition” exists in the wireless marketplace and has described wireless competition as “robust.”¹⁰ However, the same could not be said about the wireline market in 1968 when the Commission adopted its *Carterfone* decision.

In 1968 the Bell system possessed “overwhelming monopoly power in all telephone markets nationwide,”¹¹ providing most local and long distance phone service throughout the country for most of the twentieth century.¹² Through vertical integration with Western Electric, the Bell system’s reach extended from ownership of loops, transport trunks, and switches to the manufacture and marketing of the customer premises equipment used by subscribers and in the telecommunications network.¹³

⁷ *Id.* at ¶ 158-160.

⁸ *Id.* at ¶ 215.

⁹ *Id.* at ¶¶ 162-165.

¹⁰ *Id.* at ¶¶ 213-216.

¹¹ *Verizon Communications Inc., v. FCC*, 535 U.S. 467 (2002).

¹² *AT&T Corp. v. FCC*, 220 F.3d 607, 610 (2000).

¹³ *See AT&T Corp. v. Iowa Util. Bd.*, 525 U.S. 366 (1999); *see also AT&T Corp.*, 220 F.3d at 610 (2000); *2000 Biennial Regulatory Review of Part 68 of the Commission’s Rules and*

Thus, at the time of *Carterfone*, the Commission was confronted with a wireline market in which no serious competition existed and in which a single, vertically integrated service provider had market power in the manufacturing sector. The policy implemented by *Carterfone* sought to introduce customer choice and innovation in the consumer premises equipment (“CPE”) market, which previously had been lacking.¹⁴ For wireline customers, the *Carterfone* decision proved critical to creating a competitive CPE market.

In the wireless market, by contrast, regulatory fiat is not required in order to create competition or ensure customer choice or innovation. Today’s market for wireless services, devices and applications is thriving and no need exists for the Commission to intervene by imposing *Carterfone*-like requirements on the wireless industry.

III. THE TECHNICAL COMPLEXITIES OF TODAY’S WIRELESS NETWORKS WOULD COMPLICATE THE IMPOSITION OF CARTERFONE-TYPE REGULATION ON WIRELESS CARRIERS.

Carterfone-type regulation of the wireless industry would not be appropriate given the complex realities of wireless handsets and the wireless network – realities that are generally overlooked in Skype’s Petition. Unlike traditional wireline service, wireless networks do not utilize a dedicated copper line to the customer’s premises. Rather, wireless services are radio spectrum based, posing unique technical challenges that require the careful management of both network components and handset devices being used on wireless networks in order to provide reliable, high quality service to consumers.

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Regulations, Notice of Proposed Rulemaking, 15 FCC Rcd 10525, ¶ 6 (2000).

¹⁴ See *Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry)*, Final Decision, 77 FCC 2d 384, ¶ 141 (1980).

First, wireless services utilize different technologies and operate in multiple frequency bands. The three main digital technologies used in the United States are: Code Division Multiple Access (“CDMA”), Global System for Mobile Communications (“GSM”), and integrated Digital Enhanced Network (“iDEN”). Beyond these Second Generation, or “2G,” technologies, wireless carriers have been deploying next-generation network technologies. For GSM carriers, these next generation technologies include: General Packet Radio Service (“GPRS” or “GSM/GPRS”), Enhanced Data Rates for GSM Evolution (“EDGE”) technology, and WCDMA (also known as Universal Mobile Telecommunications System, or “UMTS”), and WCDMA with HSDPA. CDMA carriers have upgraded their networks to EV-DO technology. Fourth Generation technologies based on OFDM such as Wi-MAX will see US deployments this year and other technologies such as those in the Long Term Evolution (“LTE”) project of the 3rd Generation Partnership Project (3GPP) will be deployed later this decade. These technologies are in various stages of deployment and are continuing to evolve as newer more advanced versions become available.

Because of these differing and evolving wireless technologies operating across multiple frequency bands, handsets must be compatible with the wireless carrier’s network. This compatibility requirement distinguishes the wireless industry from the single wireline network world and complicates the *Carterfone* principle, as articulated by Skype, that consumers should “have the right to attach any non-harmful device of their choosing to the network.”¹⁵ There is no single wireless network to which customers can “attach” handsets, and certain handsets simply will not function on certain wireless networks as a technical matter.

¹⁵ Skype Petition at 7.

Second, when utilizing a spectrum-based technology, a wireless carrier's subscribers are essentially utilizing the same line by accessing that carrier's network via shared spectrum. Thus, if one subscriber decides to utilize the network at a given location, such use may inhibit another subscriber's ability to access the network at the same time and location because there is only a limited amount of spectrum available.

Consistent with the Commission's reasoning in Part 68 of its rules, the spectrum sharing that underlies wireless service renders the *Carterfone* principle inapplicable as a practical matter. When adopting Part 68 governing connection of CPE to the wireline network, the Commission specifically declined to establish standards for attaching devices to "party lines."¹⁶ Party lines, like wireless spectrum, are shared among multiple subscribers.¹⁷ Because there were many different technical means for providing party line service, the Commission concluded that it would be virtually impossible to promulgate a unified set of technical and legal rules that would adequately protect all subscribers' use.¹⁸ This same reasoning applies here, as it would be virtually impossible to adopt unified rules that would adequately protect all subscribers sharing spectrum when utilizing their wireless services. This is particularly true given the different technologies and frequency bands that providers use and the importance of these providers being able to properly manage their networks.

¹⁶ See 47 C.F.R. § 68.2(a) (Part 68 rules "apply to direct connection of all terminal equipment to the public switched telephone network, for use in conjunction with all services other than party line services.").

¹⁷ See *National Association of Regulatory Utility Commissioners v. FCC*, 737 F.2d 1095 (1984) ("party lines permit several subscribers to share a single loop").

¹⁸ *Petitions Seeking Amendment of Part 68 of the Commission's Rules Concerning Connection of Telephone Equipment, Systems and Protective Apparatus to the Telephone Network*, Second Notice of Proposed Rulemaking and Order, 92 FCC 2d 1, 36-39 (1982).

Third, giving customers an unfettered right to use any wireless device of their choosing ignores the interference and other performance problems poorly designed handsets can cause. For example, a device with high levels of out-of-band emissions (“OOBE”) will cause interference to adjacent users, while malfunctioning or poorly functioning equipment can adversely affect other users by disabling or impeding a cell site or other wireless systems. Although some industry equipment standards are in place, these standards do not fully specify the hardware or software design requirements for wireless devices and networks.¹⁹ As a result, device manufacturers and radio access network manufacturers have significant flexibility in designing end user devices, some of which could significantly and negatively impact the experience of wireless customers. These types of interference and other performance problems reflect poorly on the underlying carrier, not on the device manufacturer, since most consumers that experience such problems are not aware of the cause but instead simply blame their wireless service provider. As a result, wireless carriers carefully choose their preferred vendors through experience with their products and extensive field-testing before supporting any wireless device on their network – an approach that would be unworkable if not unlawful in the event *Carterfone* were applied to the wireless industry.²⁰

¹⁹ In addition, these industry standards are significantly stricter than the FCC’s OOBE regulations. As such, without control over which devices may access their network, wireless providers’ networks could become subject to higher levels of interference due to the large number of devices that merely meet the FCC’s OOBE requirements rather than the provider’s OOBE requirements.

²⁰ To be sure, *Carterfone* holds that a “customer desiring to use an interconnecting device to improve the utility to him of both the telephone system and a private radio system should be able to do so, so long as the interconnection does not adversely affect the telephone company’s operations or the telephone system’s utility for others.” *Carterfone* at 423 (emphasis added). However, the exception for “adverse affects” on the network or other customers would be of little comfort to wireless carriers, since it is often difficult for carriers to identify the source of interference problems – a difficulty that would only be exacerbated if customers had the ability to attach devices as they see fit, with little or no oversight by the serving carrier. Furthermore,

Furthermore, under the current regulatory regime, wireless carriers, not end users, are obligated to ensure compliance with the Commission's interference regulations.²¹ To satisfy this obligation and to maximize capacity and quality of service for all subscribers, wireless carriers and manufacturers have implemented various measures, including utilizing: (1) stricter power management and data control algorithms not required by industry standards or FCC rules to ensure that minimal interference is generated; (2) handoff algorithms, which ensure that the best possible RF links are used in the wireless network, while minimizing the number of links and fewest handoffs in completing a wireless call; and (3) call processing functionality, which ensures that a handheld device requires the shortest possible call setup time and highest call setup success rates, avoids conditions that can lead to a number of subscriber-impacting issues such as call blocking and dropping, makes efficient use of the limited call processing network resources, and properly terminates the call.

Currently, every new phone is subjected to a rigorous 3 to 4 month testing regime to ensure that it interacts with the network as intended, including testing with equipment from each infrastructure manufacturer and each applicable carrier network. This testing helps ensure that the phone or device does not adversely harm the network and that features, including FCC mandated features, such as 911, operate as intended. These measures would be rendered superfluous, and a wireless carrier would be unable to satisfy its obligation to ensure compliance

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interference problems can impact users on adjacent bands that may be served by other carriers, which is an issue the Commission did not confront in *Carterfone*.

²¹ See e.g., 47 C.F.R. § 22.917 (establishing limits on out of band emissions for cellular equipment); *Id.* § 24.238 (establishing limits on out of band emissions for Broadband PCS). In addition to requiring wireless carriers to ensure compliance with applicable interference standards, the Commission's rules impose other regulatory compliance obligations on carriers, including E911, 47 C.F.R. § 20.18, disability access, 47 C.F.R. § 20.19, and CALEA.

with Commission interference rules, without the ability to manage the type and capabilities of the handset that its customers seek to utilize.

Expanding *Carterfone* beyond the use of non-harmful devices to include subscribers' "rights to run Internet applications of their choosing," as Skype's Petition seeks,²² overlooks the traffic congestion and other consumer harms that can result from certain applications. Wireless carriers must be able to manage their networks, including the types of applications their networks will support, and wireless carriers are uniquely qualified to understand the impact that particular applications have on their networks. Indeed, because of limited spectrum and limited backhaul and call processing resources, wireless providers must carefully manage how and when data can be transferred. If carriers were unable to do so, their networks and other end users' service could be significantly harmed by a single end user's use of a particular application.

For example, if any application could be utilized on a wireless carrier's network, consumers could utilize applications that have been inadvertently designed in such a way to do harm to the network, such as an application that would cause all similarly situated subscriber devices to invoke the service synchronously by design or somehow became synchronous. Under these circumstances, utilization of the application would effectively cause an unintentional denial of service attack on the wireless network, the access and control channel to be blocked, and overload the call processing resources in the network. The end result would be network outages that would adversely impact other customers.

Likewise, opening the application space in a device could lead to significant complications. The operator-approved mobile device platforms, while consistent from an overall interface perspective, are not standardized computing devices, as applications are customized for

²² Skype Petition at 7.

the approved devices supported by the particular wireless carrier and adapted to fit the limited resources available to a wireless device. In addition, network firewall protections employed by wireless carriers do not currently protect individual handheld devices. Consequently, mandating that users have the right “to run Internet applications of their choosing” without regard to such customization, resource limitations, and security constraints would inevitably lead to traffic congestion and other adverse customer-impacting effects.

If any device or application were permitted on wireless networks, network outages, reduced system performance, and reduced system capacity would result. Performance issues are a major challenge for wireless carriers today, even with direct coordination and management of the devices and applications they will support; this challenge would become a nearly impossible task if such coordination and management were rendered meaningless under the *Carterfone* regime Skype seeks to impose on the wireless industry. A wireless carrier must have the ability to manage the handsets and applications operating on its network in order to ensure the best quality service for its customers.

IV. CONCLUSION

Given the robust competition in the wireless market and the technical differences between the wireless and wireline networks, the Commission should refrain from imposing *Carterfone*-like regulation on the wireless market. Such regulation would only serve to distort the marketplace, impede technological innovation, and adversely affect customers.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I, Jason E. Friedrich, do hereby certify that on this 30th day of April 2007, I caused copies of the foregoing “Comments of Motorola, Inc.” to be delivered to the following via First Class U.S. mail:

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